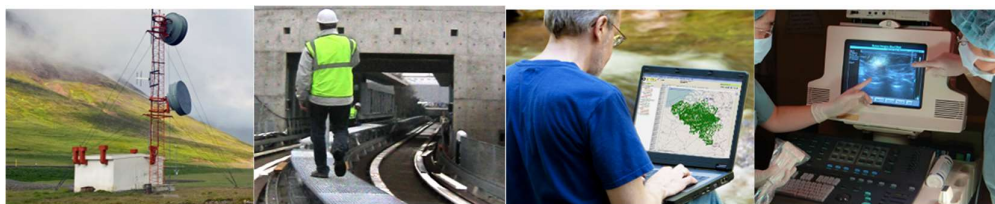


COMPAS

USER'S GUIDE - EDITION 22



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1 ABOUT THIS GUIDE

The information and pictures within this guide is believed to be true at the time of publication, however, Alpha Innovations S.A. accepts no responsibility to consequences from printing errors or inaccuracies. The information, pictures, drawings and specifications contained herein are subject to change without notice.

Guide History:

Date	Edition	Notes
13 November 2019	22	Update for Release 2.51.0.4 Extra Equipment Tables Improvement documentation for COMPAS USB connection Many other minor changes
09 October 2018	20	Update to Alpha Innovations Adding more information about Compas Startup sequence in Appendix Update for release 2.44.0.3
20 May 2016	19	Revision of battery test according to the new Compas Release Updating the chapter about CompasLua Udaptng and improving documentation following the update of Compas
1 June 2015	18	Full revision of manual with more information, tutorials and examples
30 March 2015	17	Updated for release 2.18.0.3
30 January 2015	16	Updated for release 2.17.0.3 • SNTP protocol documentation • Troubleshooting for T2S Hotplug inverters • PLC hysteresis example
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Date	Edition	Notes
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09 July 2008	03	Added chapter "Connecting multiple shelves together".
26 June 2008	02	Typo corrections, added Modbus chapter and information about PLC functions
15 May 2008	01	First Edition

Information box

An information box contains useful information.

Tip box

In a tip box, you will get some useful tip that will help you to improve knowledge of our products.

Note box

Note boxes are used to give you some important information.

Warning box

Warning boxes contain really important information, please read it carefully and understand it .

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2 OVERVIEW

Overview Objectives	
✓	General presentation and architecture of Compas Controller
✓	Overview of Alpha Innovations possibilities
✓	Field application examples

2.1 Architecture and Communications

COMPAS, the Alpha Innovations controller, can extend the range of applications of traditional energy or monitoring system. It is a powerful site monitoring with advanced technologies, allowing the supervision and the control of:

- Environmental issues: temperature, humidity, water detection, etc.
- Access control issues: RFID badge reader, door lock, open door detection, etc.
- Integrity issues: vandalism and traffic accident detection
- Third party devices : Energy meter, SNMP devices, etc.
- Custom needs : Ask us to know what we can do for you
- ...

Our solution targets large network infrastructure, also with heterogeneous architecture. It is the ideal solution for access networks cabinet monitoring and control. This platform allows customization to satisfy your needs.

COMPAS can be easily integrated in your management system. It supports a broad range of standard communication protocols and does not request any proprietary application.

This site monitoring is a powerful tool for OPEX (**O**Perating **E**Xpenditures) reduction. It lowers energy costs, reduce field interventions and provide data logging and statistics facilities.

COMPAS has a very flexible hardware and software architecture, as shown on the in following figure. Thanks to this architecture, our platform is open, scalable and evolvable. All our devices (rectifiers and extensions) are connected to a reliable digital bus (CAN Bus). This allows the main monitoring unit to retrieve information, configure and command the devices.

This main monitoring unit is running the site management application. This site management application provides multiple communication interfaces: Web server, XML services, SNMP and HTTP. These interfaces are available over Ethernet and also over USB for local connection (REM: SNMP not available over USB). All the interfaces allowing access to the monitoring are secured. One administrator and up to five users can have different access and privileges.

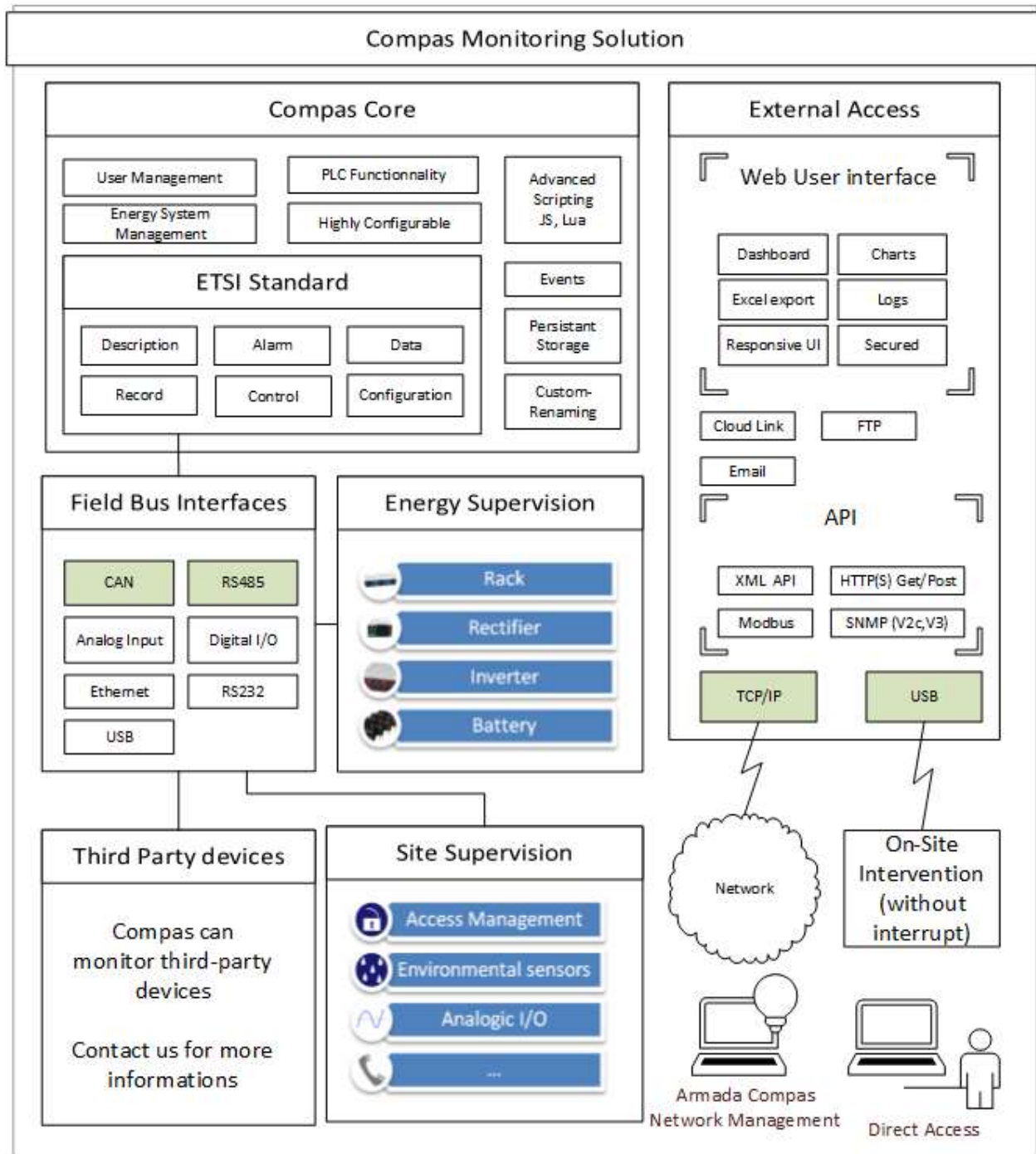


Figure 1 Compas architecture

General Features	
✓	User Interfaces accessible with Ethernet & USB
✓	Several communications protocols • Web Interface(HTTP, HTTPS) • SNMP V1, V2c, V3 • XML API - ETSI compliant • Modbus • FTP
✓	Visual Dashboard
✓	Field Bus Interfaces : CAN, RS485, USB, RS232
✓	User Management
✓	Time Management (NTP)
✓	Change Traceability
✓	Translation
✓	Data Recording (Second, Minute, Hours, Days, Delta)
✓	Events log
✓	PLC (Custom Alarms and Data)
✓	Customizable - Renaming
✓	Compatible with ARMADA, or any other ETSI compatible NMS.
✓	Remote COMPAS Upgrade
✓	Backward compatible with Upgrade
✓	Factory Configuration
✓	License Model (You pay what you need)
✓	Ready for customization on specific projects

2.2 Energy Systems

Energy systems are the core business of Alpha Innovations. COMPAS is our best controller that can monitor and manage multiple equipment included in one or more energy systems:

- DC System
- Inverter systems
- DC System Converters
- Remote power feeding solution.
- etc.

Our solution is highly customizable to fit the need of our customers.

2.2.1 DC System

DC system converts AC power to DC power. Using batteries, you can protect your load from a power outage.

It is composed of:

- AC Input
- Rectifiers
- a DC Bus
- a DC Distribution
- Battery(ies), avoiding application interruption.

The following diagram is a classical representation of a DC system. As you can see, everything can be redundant in order to have very high power reliability.

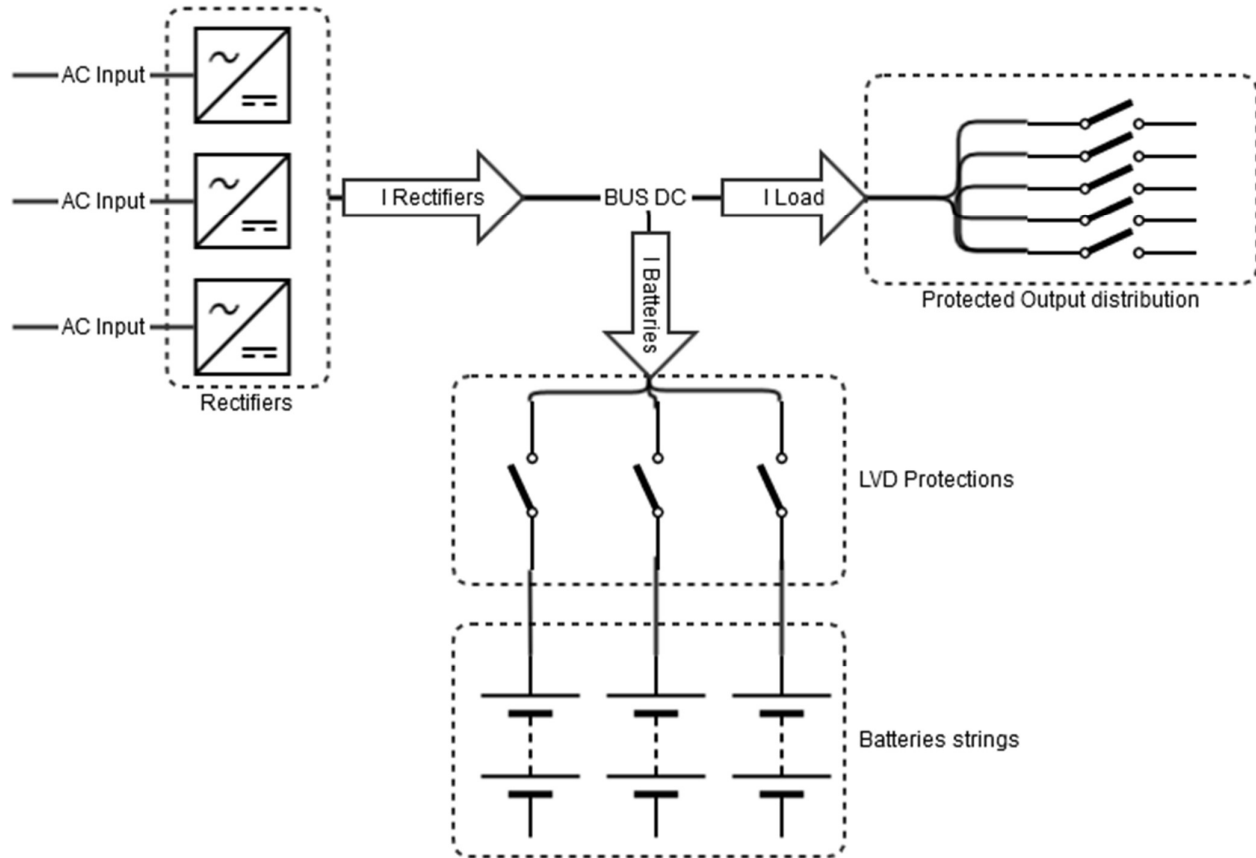


Figure 2 DC System Principles

The bus voltage is controlled following the current operation mode of the system. Our controller helps you to improve your system efficiency and battery life by using temperature compensation and charge control. We also protect your battery from extra-low voltage by using a Low Voltage Disconnect (LVD) relay. It prevents the destruction of the batteries at the first long-term power outage.

A lot of Alarms are available in order to help you to operate your system. We can detect bad rectifier or bad batteries. It helps you to *predict issues* and act before a failure. Compas is an up-time improver.

2.2.2 Alpha UPS and Inverters

An Alpha UPS system protects your AC equipment from power outages. Using advanced technologies, Alpha UPS is capable of using direct AC to power the load when there is no power outage; it leads to the best efficiency of your system.

This technology improves the reliability of standard ups and give you the best efficiency for your power system.

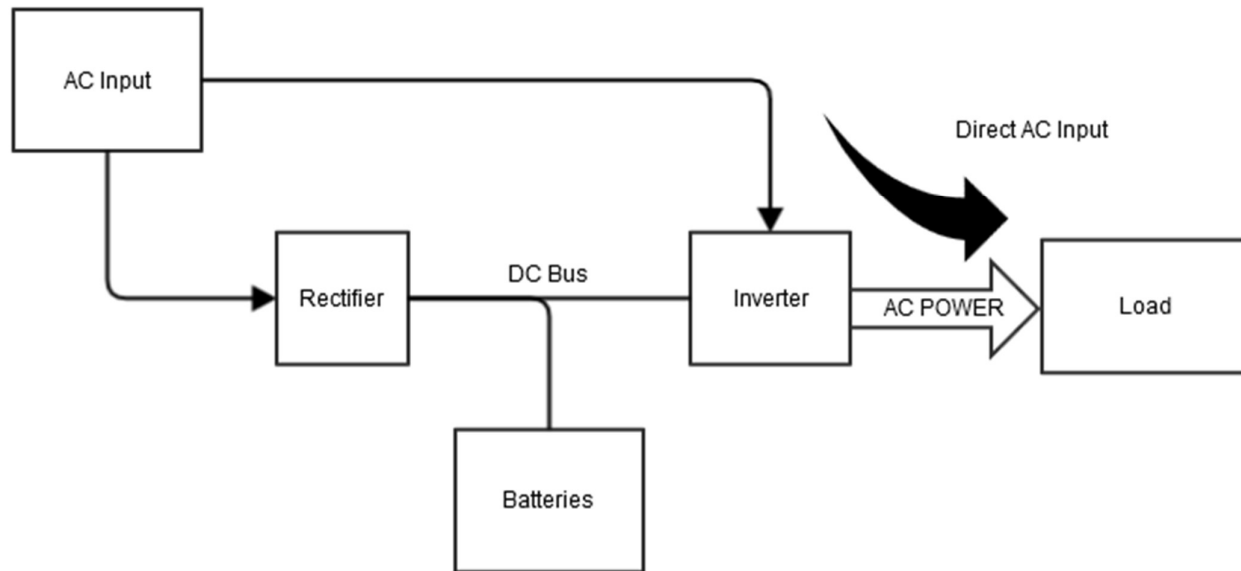


Figure 3 UPS System Principles

2.2.3 Remote Power Feeding

Remote feeding is a technology which enables operators to *power several remote sites* from a central location by delivering that power via *twisted pair* cables.

The solution operates within the limits of both the EN60950-1 for TNV networks and the EN/IEC 60950-21 RFT-C standards. The technology can be installed by telecom technicians *over existing copper* networks.

With its original design, the Alpha Innovations' remote feeding systems offer a highly compact solution to powering equipment in street cabinets. When compared to any traditional system (incorporating input protection & distribution, DC distribution and in many cases batteries) the cabinet space requirement is greatly reduced without compromising reliability of service.

One of the original reasons to design a remote feeding solution was the ability to offer telecoms standards of service quality without having batteries installed in street sites. No maintenance costs, no risk of theft, no safety or environmental issues, just highly available service.

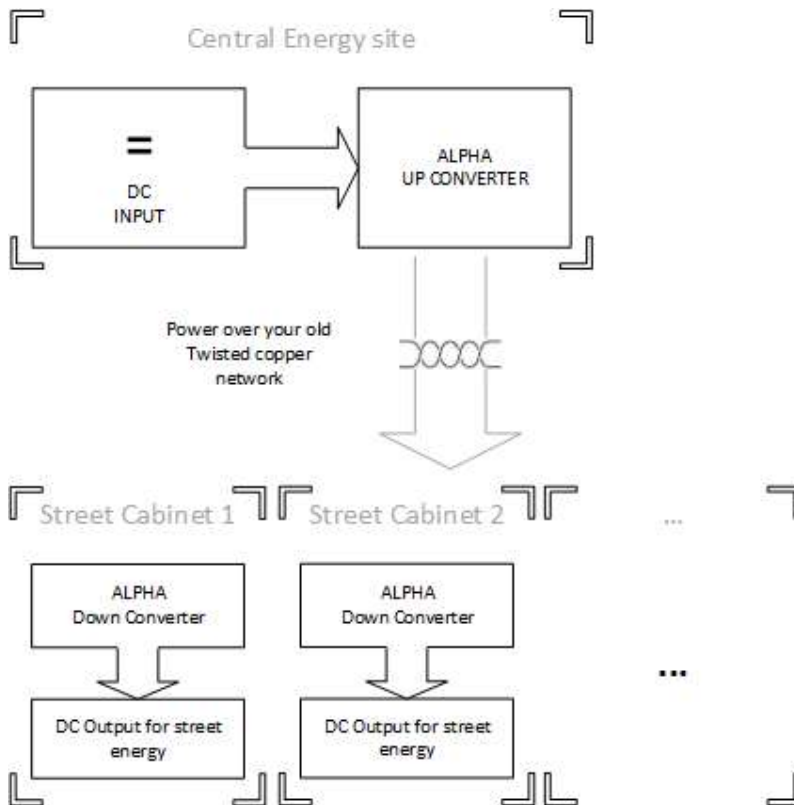


Figure 4 Remote Power Feeding principles

You can also use Alpha DC System to give the DC power to the up converter. You will get the better of the two worlds.

2.3 Site Management

When you have an Energy system, you usually need a device for site management. This duplicates the costs and complexity by using two different systems.

Alpha Innovations resolves this problem with Compas. Our controller can control and monitor your energy system and your site.

We can use your I/O and our communication bus to: • use a Badge Reader • control Door lock • control the light • Detect water • Detect Vandalism issues • Read Energy Meters • ...	

Our Universal Compas Controller (UCC) has a lot of extensions available.



Figure 5 Universal Compas Controller

On the telecoms market, with our power-embedded solution, we have pushed the limit a little farther: In only one sub-shelf of 2U height, and 19" wide, we have the place to have the power solution (rectifier, breakers, connectors, ...) and sensors and actuators card. With this system you have everything you need to control a street cabinet and to give you the power to your equipment.

The following figure schematizes a sub-shelf which integrates 4 rectifiers, a controller unit, an extension card to interface multiple sensors/actuators and the distribution, including the breakers. The typical size of such a sub-shelf is 2U height, and 19" wide:



Figure 6 MCU with site management

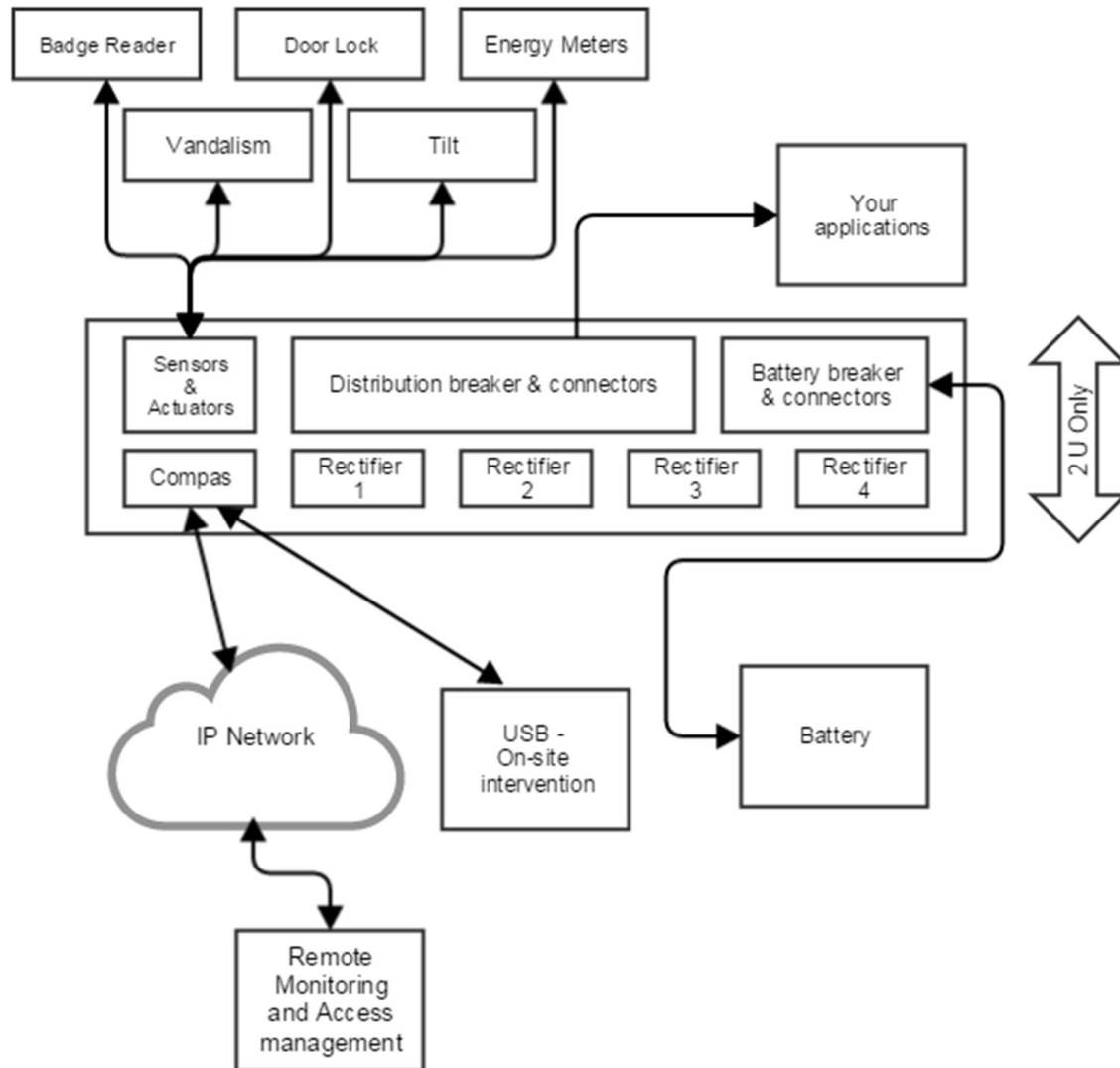


Figure 7 Rack embedding energy and site management

2.4 Network management solution: ARMADA

When you have a network of COMPAS, Alpha Innovations has developed the upper layer of control: **ARMADA**

With our solution you will have the possibility to monitor and manage your COMPAS network from a central server. Our **excellent scalability** allows you to support from 1 to more than 50 000 Remote Site.

The main advantage of our solution is that we are based on the standard ES 202-336. This means that the information of any equipment compliant with the standard will come automatically at the right place and can

be used and consolidated without any expensive programming. You just have to give the IP address of your system and Armada will discover the system by itself.

A particular benefit of the application is the extreme flexibility and ease to create different clusters of views in the same environment. For example, one can create clusters of sites by geographical areas, type of equipment, operator, alarm severity...

ARMADA can be interfaced with high-level management software with customized engineering work.

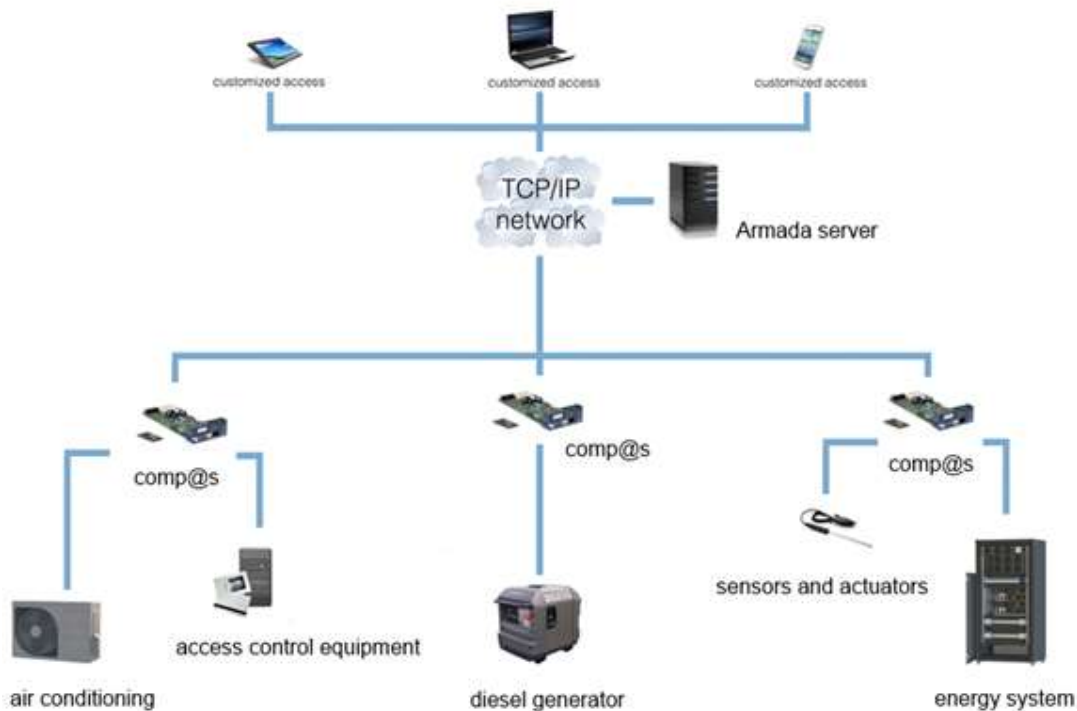


Figure 8 Armada principles

2.4.1 Application main functions

Armada functionalities	
✓	Centralized and sophisticated alarms management: Alarms and events are sent instantly by sites (COMPAS) to ARMADA that centralizes and stores them in its database. Alarm processing can then be extremely sophisticated: from the simple generation of summary reports to clever alarm forwarding. The alarms can be forwarded to a NOC (e.g., IBM Tivoli), by email or SMS. - Alarm forwarding can be easily customizable : - send sms for some type of alarms - send emails to a specific technicians team only if alarm occurs during a certain time slot (evenings or weekends) and region ...

Armada functionalities	
✓	Cutting edge data reporting:
	Armada saves historical data from multiple devices, sensors... over a long period. The frequency and sampling precision are configurable by the user. The user can then use its data from predefined reports or create itself its own reports by integrating graphics (wizard)... All saved data can also be exported in Excel.
✓	Network Manager:
	<i>Massive change:</i> Armada allows to easily updating remotely a part or the whole network of Compas (software/ firmware update, configuration change). <i>Chirurgical change:</i> Arm@da allows you to connect remotely to the Compas interfaces, address potential problems on a specific Compas or specific equipment.
✓	Armada allows backup and restoring remotely the configuration of each Compas.
✓	Document management. Armada allows to upload various kinds of documents (Word, Pdf ...) and to associate them with a site or a cluster.
✓	Fine User Management:
	Ability to define roles per user • admin • account manager • region manager • operator • ...
✓	Customizable script:
	To meet specific demands, we offer Arm@da customers the ability to create and run custom scripts. These custom scripts are a series of commands written in a programming language (PowerShell) that allow interaction with the Arm@da database (detection of new events ...) and perform custom actions (send emails, sms, tweets ...).
✓	Ability to support other controllers that do not comply with ETSI XML.
	It is managed in Armada using new Armada API that convert protocols: • API based on open source technology. • Fully integrated and customizable in armada. • API based on a scriptable language (Python). • No need to compile

2.5 Future Ready

2.5.1 Upgrades & Compatibility

Alpha Innovations has a long-term support politic. Since 2006, we are able to keep the compatibility with older COMPAS system. This support is one the main advantage of our solution.

With our COMPAS Ultimate License you also get the Free Upgrade for lifetime. This will help you to manage your network and keep your systems running up to date.

2.5.2 Third Party Device

Alpha Innovations works with other companies in order to support third party devices. This will give you the possibility to support your old system or to buy the sensors that you want.

Here are some examples of supported devices. If you need more information, just [contact us](#) to see what we can do for you.

2.5.2.1 Energy meters

Compas can monitor your system consumption or even help you to invoice your customer consumption.



Figure 9 PM9C (Schneider Electric)



Figure 10 IEM3150 (Schneider Electric)



Figure 11 B21 (ABB)

2.5.2.2 Interfaces



Figure 12 1-Wire Interface (LinkUSB)

2.5.2.3 Sensors



Figure 13 MS-TH



Figure 14 T-Sense

2.5.3 Compas API

Our API is highly open. You can easily interface your current monitoring system with COMPAS.

2.6 Some COMPAS Compatible Equipment

Here are some examples of our working system:

2.6.1 Site Controller

UCC : Universal Compas Controller

This 1U shelf is specialized into site Management. This shelf has many interfaces and can be extended with ADIO that will add analogical read and digital I/O.

✓ Ethernet

✓ RS485

✓ RS232

✓ USB Host

✓ USB Client



Figure 15 UCC

2.6.2 Energy Systems

2.6.2.1 DC Systems

Fully Integrated Shelves

In fully integrated shelves, Compas monitor Energy and your site/Cabinet. This solution is cost effective and reduces your on-field maintenance.

Captin300: Smallest 1U energy system with site management board embedded. This rack can provide up to 3x300w. It is the perfect solution for small street cabinets.

Fully Integrated Shelves

✓	High efficiency small load solution	 Figure 16 Captin 300
✓	300W rectifier based series	
✓	Rack mounting 1U high	
✓	Full front access	
✓	Very easy and fast connections	
✓	Integrated distribution	
✓	Battery connection and management	
✓	Multiple monitoring options	

Captin 850FA: High power density rack and energy feeding.

✓	Integrated site management and energy feeding	 Figure 17 Captin 850FA
✓	4000W maximum output power (3000W N+1 redundant)	
✓	6 protected DC outputs	
✓	Single protected battery bank connection	
✓	Full front access	
✓	266 mm deep, 19"/ETSI wide, 2U High	
✓	Optional LCD and user interface	

Standard Shelves (Advanced power monitoring)

ACE102 : 1U 2000W system

✓	1U high, -48V DC system	 Figure 18 ACE102
✓	2000W maximum output power (1000W N+1 redundant)	
✓	Compatible with 850W and 1000W rectifiers	
✓	Single DC Power output	

Standard Shelves (Advanced power monitoring)

✓	One battery bank connection	
✓	Integrated LVD & Distribution	

ACE186 : 3U 10800W system

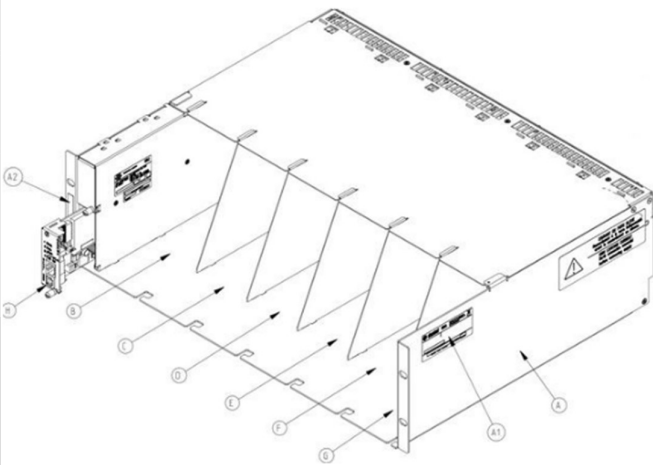
✓	3U high, -48V DC system	
✓	10 800W maximum output power (9000W N+1 redundant)	
✓	Can be mounted in parallel to support higher power requirements	
✓	Single DC Power output	
✓	LVD control functionality	

Figure 19 ACE186

2.6.2.2 Inverter systems

Inverter systems

Bravo : 2500 VA.

✓	Wide AC input 150VAC-265VAC, 2500 VA	
✓	No need of external static Switch	
✓	96% efficiency in EPC mode (AC to AC double conversion)	
✓	No transfer time from AC to DC sources	
✓	Unity power factor on AC input	

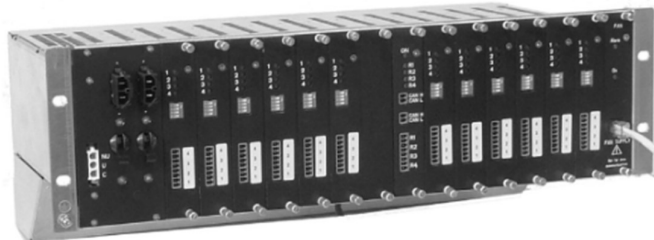
Figure 20 BRAVO : 2500 VA Modular Inverter

Nova : 750VA

✓	Wide AC input voltage range : 150VAC – 265VAC, 750VA	
✓	No need of external static Switch (all STS functions included in each module)	

Inverter systems		
✓	High power density 93% efficiency in EPC mode (AC to AC double conversion)	 Figure 21 Nova : 750VA Modular Inverter
✓	No transfer time between AC and DC sources	
✓	Unity Power Factor on AC input	

2.6.3 Remote Power Feeding Systems

Up Converters		
CES48 (with CEM03)		
✓	Single or dual redundant 48V input	 Figure 22 CES48 (with CEM03)
✓	Operates with any combination of remote down converter solutions	
✓	Up to 14 slots and 52 lines	
✓	Interchangeable power and monitoring card	

DOWN Converter		
✓	Complete system shelf with converters, input card and monitoring	
✓	Operates in ambient temperatures up to 70°C (fan cooled)	
✓	All modules are hot swappable	
✓	Reduced number of feeding pairs required	

DOWN Converter

✓

Two protected 48V DC outputs



Figure 23 RES24 (3x 120w)



Figure 24 REC006 (60 W)



Figure 25 RES96 (3* 600w)

3 QUICK START GUIDE

Before diving into a more technical document, it is important to learn the bases in order to understand the next chapters easily. This chapter is about **practical** exercise specially designed to discover **Compas system** fundamentals.

At the end of this chapter you will be able to :	
✓	Know the basics of ETSI standard
✓	Understanding Compas Structure
✓	Connect to the Compas web-application using USB or ethernet
✓	Navigate into the web interface
✓	Monitor alarms
✓	Changing fields into the site
✓	Changing descriptions
✓	Setting manually the time of the controller
✓	Adding a License to your system
✓	Changing the network configuration
✓	Use the on-board help

3.1 Connecting to COMPAS

COMPAS Controller has two main physical interface allowing connection to the user interface:

- **USB**
- **Ethernet**

3.1.1 Connecting using USB

3.1.1.1 Requirement

The USB Type-B socket provides a standard USB client connection, allowing having a local connection with any computer. Here follows the procedure.

Required material:

- A personal computer with USB capabilities;
- A standard Type-B plug to Type-A USB plug.
- **Do Not Connect USB Cable yet**



Required software:

- A *Windows XP, Vista, 7, 8 or 10* operating system.
- A web browser: it is recommended using *Firefox >= 22.x* or *Internet Explorer >= 10.x*.
- The Microsoft *Windows Mobile Device Centre* (also called *Active Sync*) application. To install it:
 - On Windows XP, see <http://www.microsoft.com/en-us/download/details.aspx?id=15>
 - On Windows Vista, 7, 8 or 10 an active internet connection is enough, the drivers will be installed automatically. If not or if you don't have any internet connection, you can download the off-line setup there:
 - For 32 bits computers: <http://www.microsoft.com/download/en/details.aspx?id=14>
 - For 64 bits computers: <http://www.microsoft.com/download/en/details.aspx?id=3182>

You will also need an administrator account to perform the one-time setup.

3.1.1.2 Setup

Without and internet connection:

1. **Do not connect the USB cable yet.**
2. Install the *Windows Mobile Device Centre* application from the installer.
3. Restart your computer at the end of the installation.
4. Proceed with step 4 below (activating port forwarding).

With an internet connection:

1. Connect the USB cable. The setup for *Windows Mobile Device Centre* should start automatically after a few seconds.

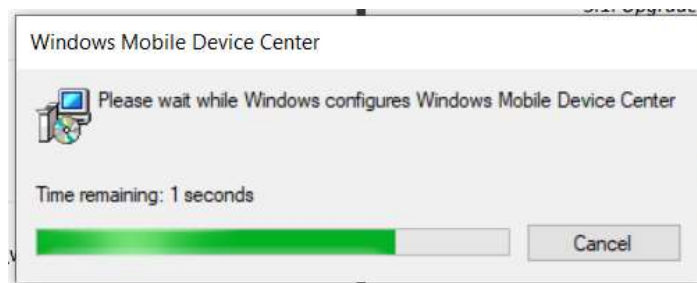


Figure 26 Automatic install

2. If the setup does not launch automatically after 2 minutes, check that the monitoring status LED is green and not flashing. Retry step 1 once, then:
 - a. Open the device manager.

- b. Click on view > Devices by container.
- c. Locate the Compas device, right click and choose "Update driver".
- d. If it still does not work, revert to the "Without internet connection" procedure.

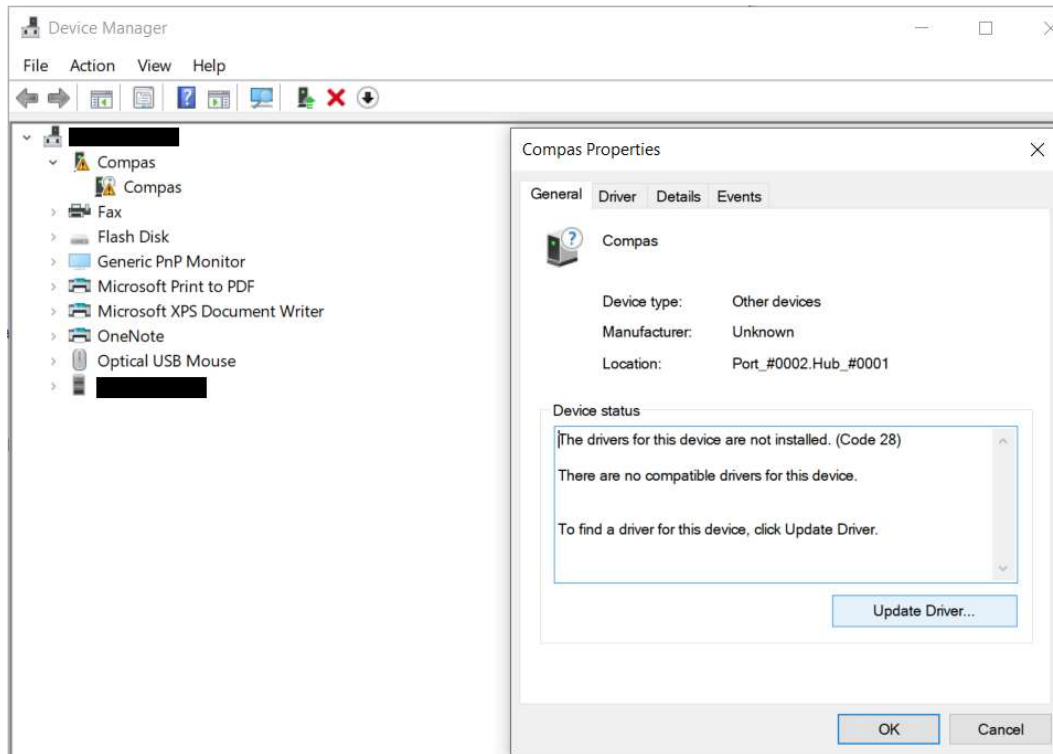


Figure 27 Update driver from device manager

3. Once the setup is complete, it is advised to unplug the USB and restart the computer.
4. You will now activate the port forwarding over USB and configure *Windows Mobile Device Centre*.
 - a. Create a new empty text file and copy/paste the lines below.

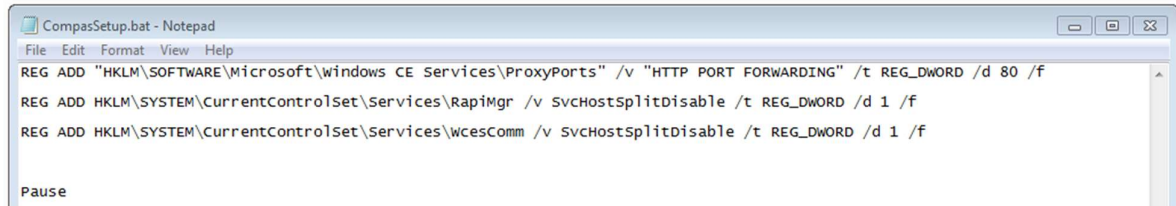
File content for Windows XP, Vista, 7 or 8 users

```
REG ADD "HKLM\SOFTWARE\Microsoft\Windows CE Services\ProxyPorts" /v "HTTP  
PORT FORWARDING" /t REG_DWORD /d 80 /f  
Pause
```

File content for Windows 10 users

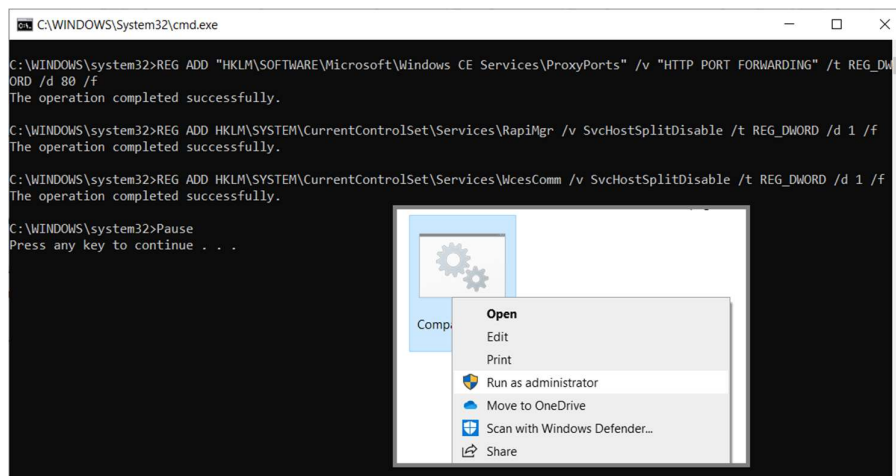
```
REG ADD "HKLM\SOFTWARE\Microsoft\Windows CE Services\ProxyPorts" /v "HTTP  
PORT FORWARDING" /t REG_DWORD /d 80 /f  
REG ADD HKLM\SYSTEM\CurrentControlSet\Services\RapiMgr /v SvcHostSplitDisable  
/t REG_DWORD /d 1 /f
```

```
REG ADD HKLM\SYSTEM\CurrentControlSet\Services\WcesComm /v  
SvcHostSplitDisable /t REG_DWORD /d 1 /f  
  
Pause
```



```
CompasSetup.bat - Notepad  
File Edit Format View Help  
REG ADD "HKLM\\SOFTWARE\\Microsoft\\Windows CE Services\\ProxyPorts" /v "HTTP PORT FORWARDING" /t REG_DWORD /d 80 /f  
REG ADD HKLM\\SYSTEM\\CurrentControlSet\\Services\\RapiMgr /v SvcHostSplitDisable /t REG_DWORD /d 1 /f  
REG ADD HKLM\\SYSTEM\\CurrentControlSet\\Services\\WcesComm /v SvcHostSplitDisable /t REG_DWORD /d 1 /f  
  
Pause
```

- b. Save the file as "CompasSetup.bat". Make sure to replace the file extension to avoid resulting in a ".bat.txt" file.
- c. Right click on the file and choose "Run as administrator".
- d. A terminal will open, check that the execution of each line is successful.



```
C:\WINDOWS\system32\cmd.exe  
C:\WINDOWS\system32>REG ADD "HKLM\\SOFTWARE\\Microsoft\\Windows CE Services\\ProxyPorts" /v "HTTP PORT FORWARDING" /t REG_DWORD /d 80 /f  
The operation completed successfully.  
C:\WINDOWS\system32>REG ADD HKLM\\SYSTEM\\CurrentControlSet\\Services\\RapiMgr /v SvcHostSplitDisable /t REG_DWORD /d 1 /f  
The operation completed successfully.  
C:\WINDOWS\system32>REG ADD HKLM\\SYSTEM\\CurrentControlSet\\Services\\WcesComm /v SvcHostSplitDisable /t REG_DWORD /d 1 /f  
The operation completed successfully.  
C:\WINDOWS\system32>Pause  
Press any key to continue . . .
```

If you can't execute the .bat file or prefer to do it manually (see also visual help below):

- a. Open the registry editor:
 - i. Press Windows+R.
 - ii. Enter "regedit" and press enter.
- b. Navigate to *HKEY_LOCAL_MACHINE\SOFTWARE\Microsoft\Windows CE Services\ProxyPorts*.
Add a *DWORD* key called "HTTP PORT FORWARDING", with data 50 (hexadecimal).
- c. If you are using Windows 10, Navigate to *HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\RapiMgr*.
Add a *DWORD* key called "SvcHostSplitDisable" with data 1.
- d. If you are using Windows 10, Navigate to *HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\WcesComm*.
Add a *DWORD* key called "SvcHostSplitDisable" with data 1.

5. Restart the computer. This is mandatory to take changes into account.

6. Reconnect the USB cable between the computer and the COMPAS monitoring unit.
7. The *Windows Mobile Device Centre* application should detect the connection and open after a few seconds.
8. If asked to accept the license terms, click "Accept".
9. If asked to "Set Up a Partner Ship". Just click on "No" and afterwards on "Next".
10. You are now connected to COMPAS through USB.

3.1.1.3 Regular Connection

Once the setup above is complete, you will only need to connect the USB cable to get access to COMPAS through USB it is possible to browse the COMPAS Flash disk content through the *Windows explorer*. To do so:

- On Windows XP, use Desktop > My Computer > Mobile Device.
- On other Windows versions, use Start menu > Computer > Compas.

To view the COMPAS web interface:

1. Start your Web Browser and enter the URL address <http://127.0.0.1> or <http://localhost>.
2. The COMPAS web server will ask for a login and a password which are shown just below.
3. Congratulation, you are now connected on the web interface as administrator of the system. Let's explore [The Web Interface](#).

Default admin password

Login/User Name: **admin**

Password: **compas**

(Please note that login and password are case sensitive)

3.1.1.4 Visual help - Creating registry keys

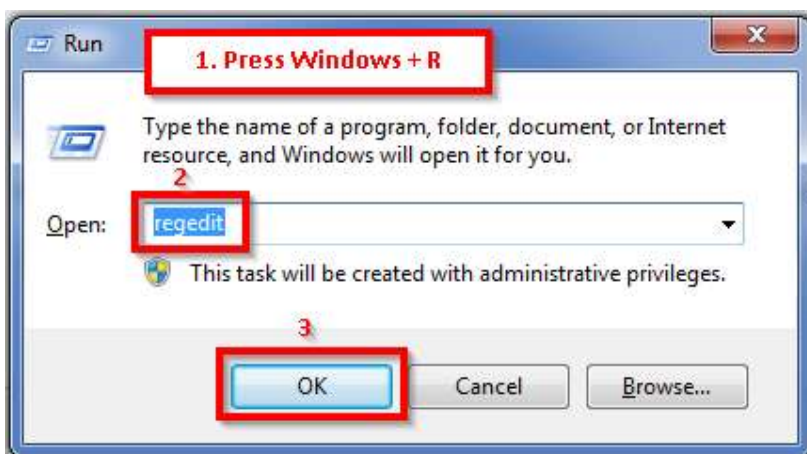


Figure 28 Open Regedit

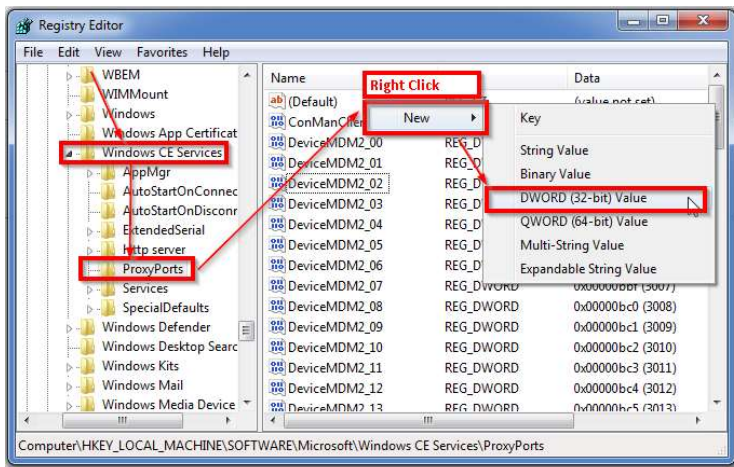


Figure 29 Navigate and create the DWORD key

3.1.1.5 Troubleshooting

Windows Mobile Device Centre (Active Sync)

Upon connecting the USB cable, active sync should start automatically and open the *Windows Mobile Device Centre* window. It will then setup the connection and display "Connected" in the bottom left corner after a few seconds. If *Windows Mobile Device Centre* does not open when plugging in the USB connector or if it does not connect, check that the correct version is installed as described above.



Figure 30 Active Sync not connected

Port forwarding

Compas also uses local port 80 to connect through USB. If another application on the computer already uses this port, you may not be able to connect to the web interface. Following windows applications and services are known to use port 80 and could cause connection issues:

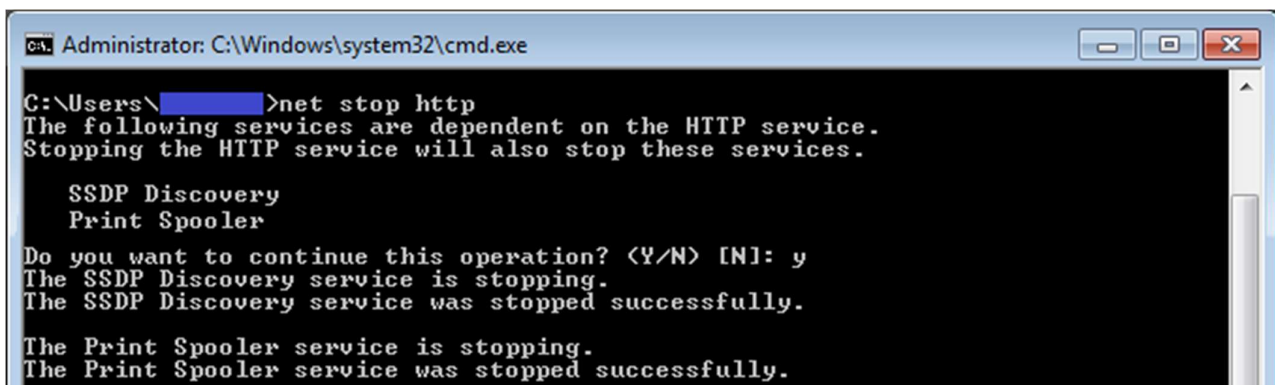
- Skype
- IIS, Microsoft web server
- Microsoft-HTTPAPI/2.0
- Web Deployment Agent Service (MsDepSvc)

- SQL Server Reporting Services (MSSQLSERVER)

To connect to COMPAS, please turn off these applications and services before plugging the USB cable. If you cannot identify which program or service uses port 80, open a terminal and execute **"net stop http"**:

1. From the windows menu, search for "CMD"
2. Right-click on the result "CMD.exe" and choose "Run as administrator ..."
3. Type **"net stop http"** and hit enter.
4. Type **"y"** and hit enter.
5. Wait for completion.
6. Disconnect / reconnect the USB cable and retry connection to <http://127.0.0.1> or <http://localhost>.
7. Restart windows to restore the services turned off.

You can also use **"netstat -b"** or **"netstat -aon"** to display all active connections and then identify which process uses port 80.



```
Administrator: C:\Windows\system32\cmd.exe

C:\Users\>net stop http
The following services are dependent on the HTTP service.
Stopping the HTTP service will also stop these services.

    SSDP Discovery
    Print Spooler

Do you want to continue this operation? (Y/N) [N]: y
The SSDP Discovery service is stopping.
The SSDP Discovery service was stopped successfully.

The Print Spooler service is stopping.
The Print Spooler service was stopped successfully.
```

Figure 31 Run cmd line "net stop http"

3.1.2 Connecting using Ethernet

The COMPAS monitoring RJ45 female port provides a standard 10/100 Mbits Ethernet connection.

Default Ethernet Configuration

IP address: **192.168.45.2**
Sub Mask: **255.255.255.0**

3.1.2.1 Requirement

Required material:

- A personal computer with Ethernet capabilities;
- Ethernet cable (Any recent PC has an automatic polarity detection)

Required software:

- Any operating system with an up-to-date web browser. It is recommended using firefox >= 22.x or Internet Explorer >=10.x.

3.1.2.2 Connecting procedure

To connect to the system, the personal computer has to be configured with a static IP address. You can use the IP 192.168.45.3 for example, with 255.255.255.0 as sub mask.

1. Access t
2. Access Network Connections control panel
 - a. **Windows XP** : Start -> Control Panel -> Network Connections
 - b. **Windows 7** : Start -> Control Panel -> Network and Sharing center -> Change adapter settings
3. Select the used connection, generally "*Local Area Connection*". Right-click on that connection's icon and click Properties.
4. Under "this connection uses the following items" scroll down to "Internet Protocol (TCP/IP)" and double-click on that. The "Internet Protocol (TCP/IP) Properties" window will appear.
5. Right now, "Obtain an IP address automatically" is probably selected. Instead, select "Use the following IP address" In the "IP address" field, enter the address you chose (for example, 192.168.45.3). The subnet mask will automatically become 255.255.255.0, which is correct. Then, click the "OK" button.
6. Start your Web Browser and enter the URL address <http://192.168.45.2>
7. The COMPAS web server will ask for a login and a password which are shown just below
8. Congratulations, you are now connected on the web interface as the administrator of the system. Let's explore [The Web Interface](#).

Default admin password

Login/User Name: **admin**

Password: **compas**

(Please note that login and password are case sensitive)

3.1.2.3 Visual Help

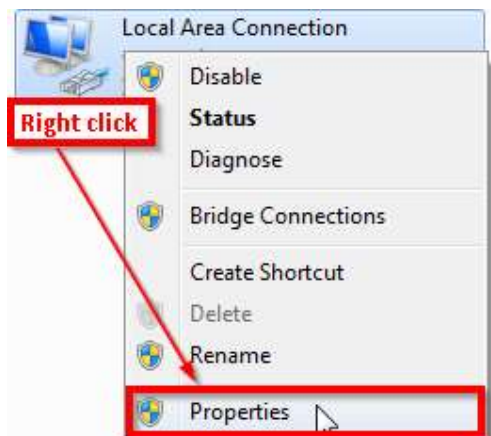


Figure 32 Open network interface properties

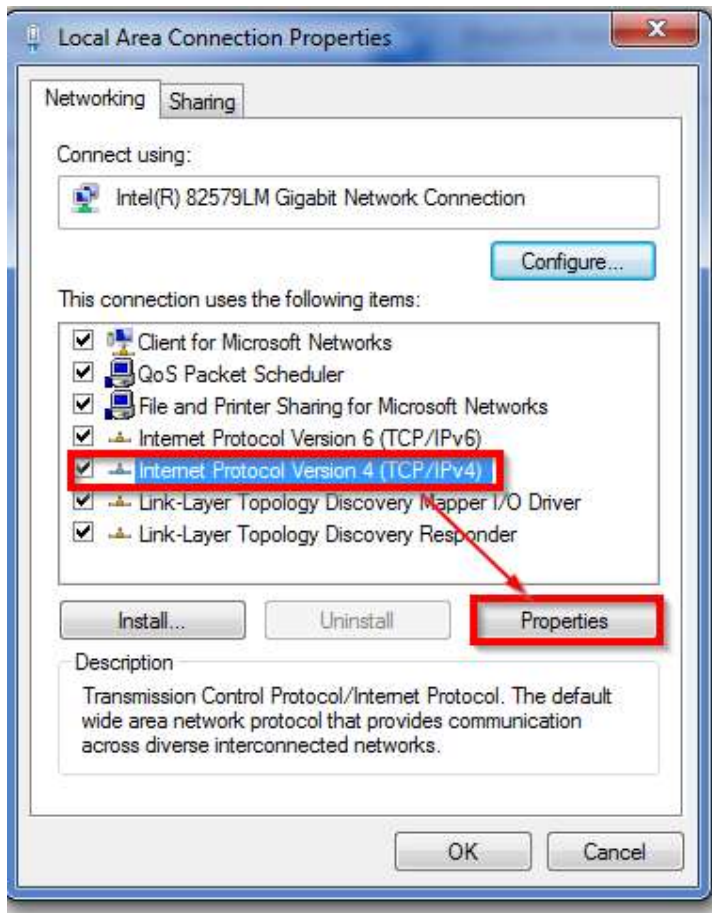


Figure 33 Edit Properties of IPV4

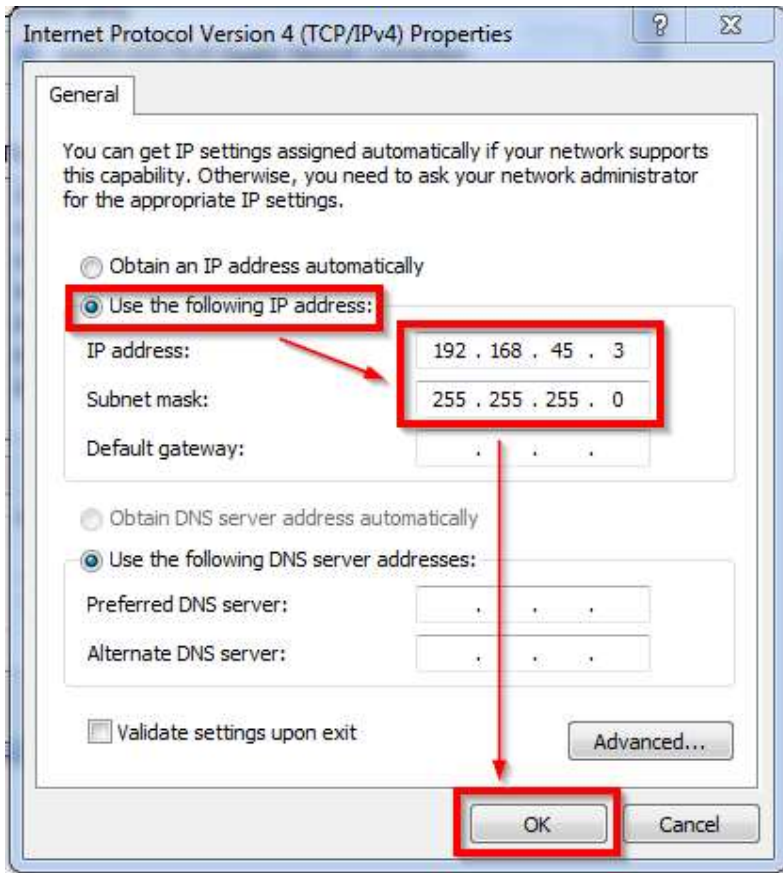


Figure 34 Change IP Settings

3.2 The Web Interface

3.2.1 Layout

The following figure shows the default initial web page displayed after login (Site):

- The top menu gives access to other pages
- The left part shows the hierarchy of the component of the system (Site, DC System, Rectifier, etc.).
- The main content concerns the description of a site, comprising address, GPS position, etc. One can see the presence of different tabs (Description, Alarms, Events, Data, Records, Configuration), allowing to see corresponding values related to the selected tree node.
- The bottom part displays the date and the time, software information, login information, and language selection

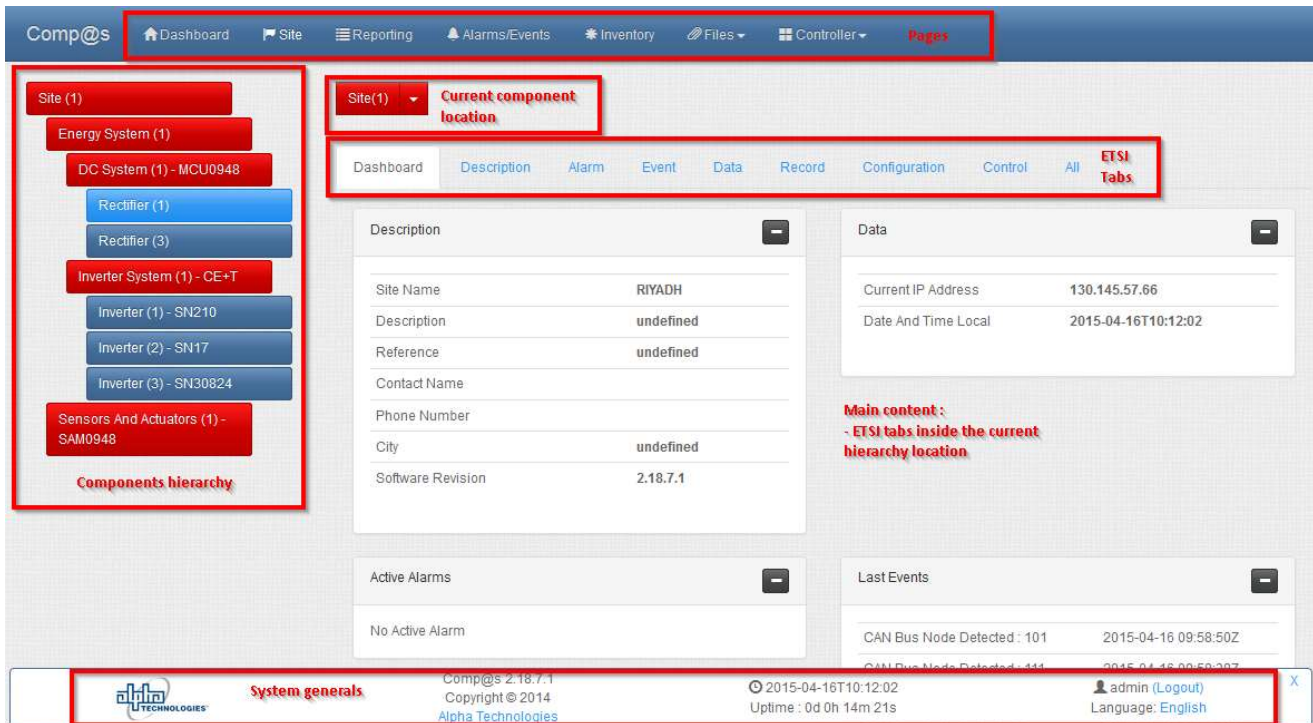


Figure 35 Page layout

3.2.2 Map

The website is structured as shown in the following diagram:

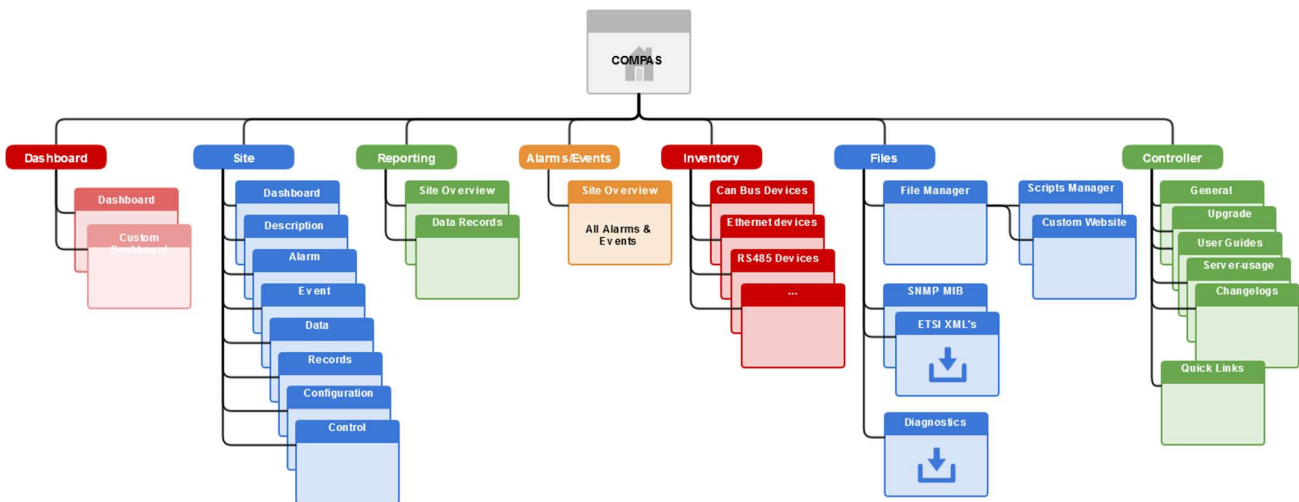


Figure 36 Site-map

The site page gives you access to all your component data and actions. It is well organized into ETSI tabs.

Don't forget to select the right device before accessing into the ETSI tabs.

3.2.3 Navigation example

3.2.3.1 Access the rectifier 1's description

Your rectifier is in the DC System 1 of the Energy system of the site.

You can access directly to it by clicking on the hierarchy. The current location will change and you will be able to click on the Description Item.

Another way to access to the rectifier is to use the location drop-down. It is the standard way to access when you are using a smartphone.

Pay attention to be on the right location, if you are on another rectifier, the page look is the same.

Id	Name	
DE1	Product Name	CAR1048TN
DE2	Hardware Reference	9411 011 05001
DE3	Hardware Revision	51
DE4	Software Reference	SOFT 000067 01
DE6	Serial Number	0611-716
DE8	Manufacturing Date	Y11W42

Figure 37 Using hierarchy from standard web-browser



Figure 38 Smartphone lay-out and drop-down button

3.2.4 Some Useful information

3.2.4.1 Filter Concept

Sometimes, it takes time when you switch from different ETSI categories. (I.e. Change battery and launch a test) Compas has the solution: Using groups and subgroups will help you to show only the information on a certain topic. In the following visual example, we will access to all the "time" related elements from the same page thanks to the filter button.

1. On site level, click on the tab "All".
2. Select the time group in the filter drop-down
3. Now you have a view of all time-related elements. As you can see, you have Data information mixed with controls and configuration. That give you all the information that you need on the same page.

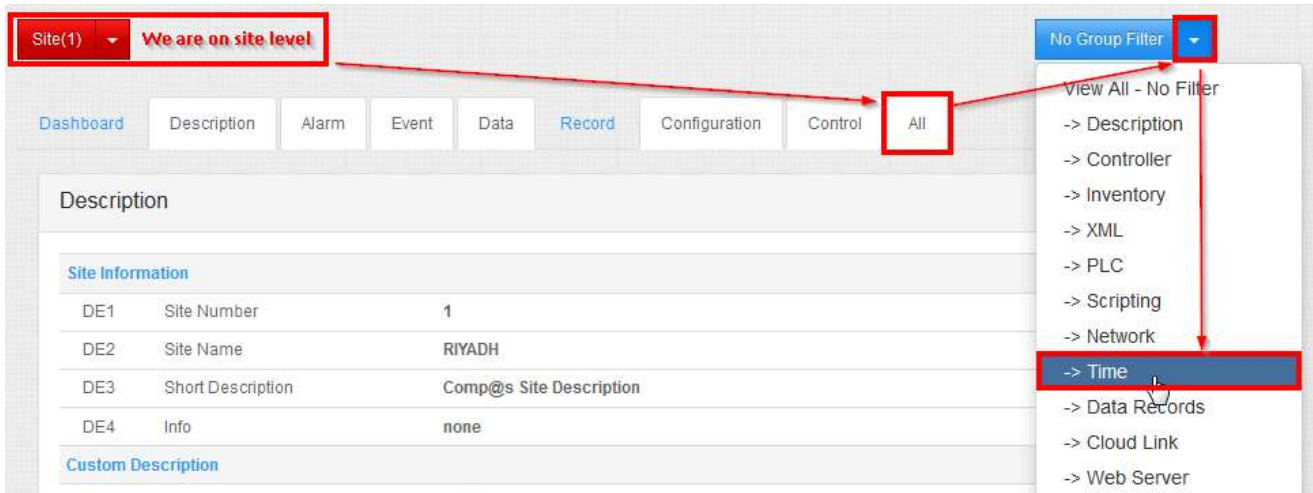


Figure 39 Filter concept - showing all

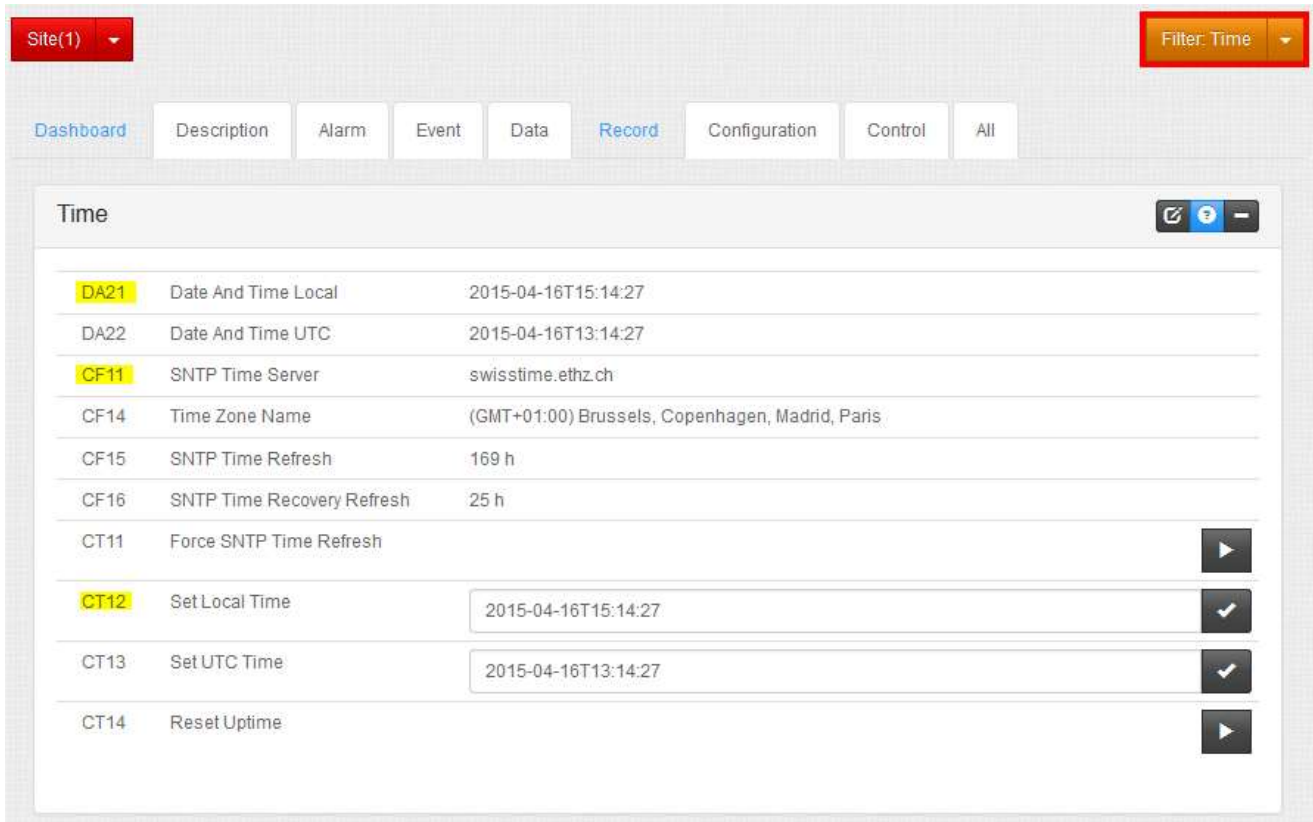


Figure 40 Filter concept - showing time information

3.2.4.2 Dashboard

It gives you important information about your device. On some systems, we even added a dynamic and visual dashboard to help you to understand directly what's happening.

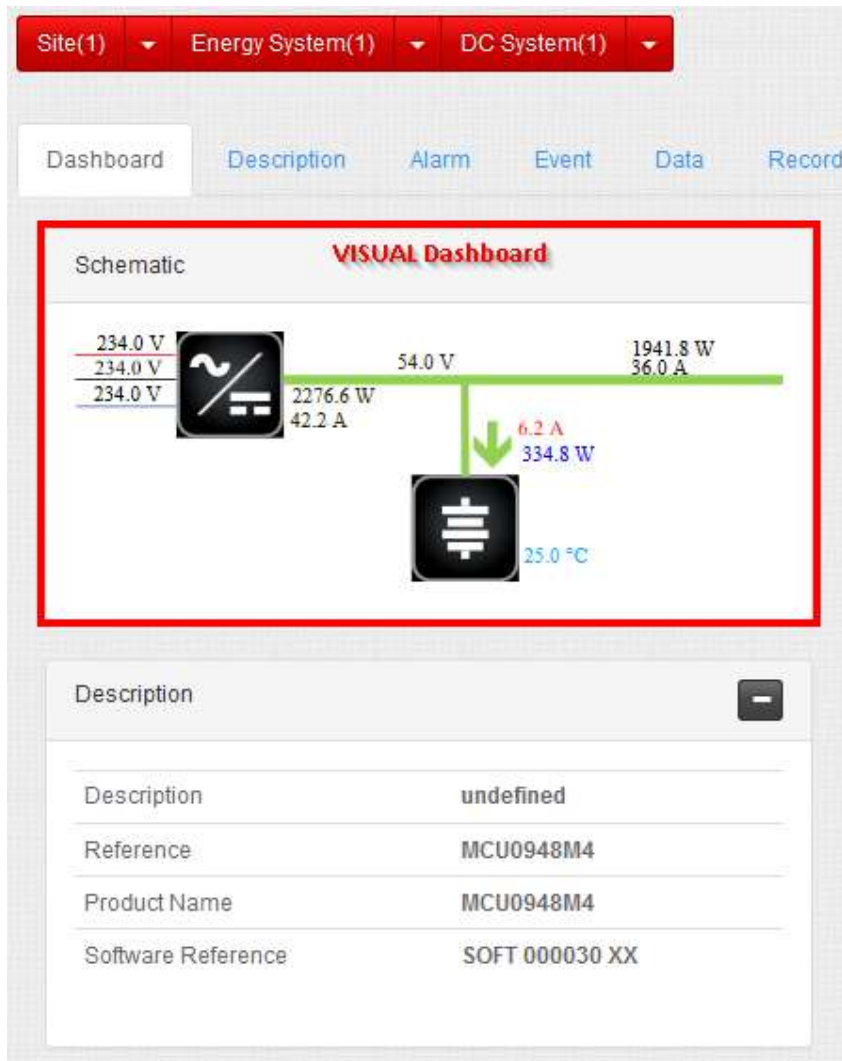


Figure 41 Dashboard

3.2.4.3 Alarms

With alarm panel, we have the information directly about the possible equipment issues. For example, in the following pictures, we can see directly that we have a problem with the battery:

- Battery breaker is open
- Battery LVD is open

This appends if the breaker is not ON.

LVD							
AL17	Battery LVD Relay Open	major (6)	3	↑ 2015-04-16 13:56:03Z	↓ -		

Digital Inputs							
AL25	Distribution Breaker Open	major (6)	1	↑ -	↓ -	✓	
AL26	Battery Breaker Open	minor (4)	2	↑ 2015-04-16 13:56:03Z	↓ -		
AL27	Digital Input 3	none (0)	0	↑ -	↓ -	✓	
AL28	Digital Input 4	none (0)	0	↑ 2015-04-16 09:59:02Z	↓ -		

Figure 42 Visual Alarm system

Now that you know the basics of the web interface, let's practice by [setting description information of a system](#)

3.3 ETSI & COMPAS principles

3.3.1 Introduction

The COMPAS user interface is a web-application. This has many advantages:

- OS independent
- Easy Remote Access
- Smartphone access with a responsive design
- Works on all standards and actual browser

We are going to discover the basics of ETSI Standard. If you wanted to go further, please explore the appendix pages explaining [ETSI Protocol](#).

3.3.2 Devices Hierarchy

Each system or device is well organized inside a hierarchical tree. Systems are nested together using a logical and standard way (ETSI).

In this example, a site contains two main systems:

- Energy System
- Sensors And Actuators

The energy system is composed of :

- DC System containing multiple rectifiers
- Inverter System containing multiple inverters

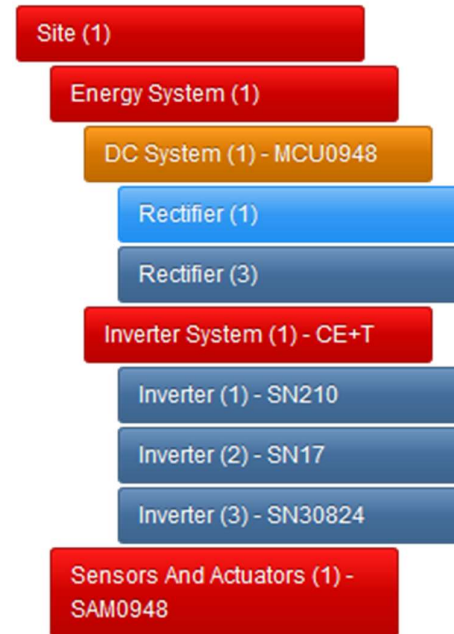


Figure 43 View of an Alpha system Tree

3.3.3 Equipment's elements

Each system, device or site has his own collection of description, alarm, events... Each category contains different elements that have a unique numeric ID.

	Example
Description	Contains descriptive elements of the current device. i.e. : • DE11: Product Name • DE16: Serial Number • DE18: Manufacturing Date, ...
Alarm	Contains alarms of the device (active & inactive) i.e. : • AL1 : DC Bus Extra Low • AL6 : Mains Failure • AL25 : Distribution Breaker Open
Events	Contains the events log of the system i.e. : • EV35 : Alarm set : Mains Failure

	Example
	• EV36 : Alarm set : Battery On discharge • EV37 : Alarm Clear : Mains Failure • EV38 : Control Executed : [id=1],[name=Back To Float],[value=1],[result=COMMAND_EXECUTED],...
Data	All the device data are listed in it i.e. : • DA10 : I1 • DA11 : I2 • DA21 : Total active power
Record	It is possible to make charts over data that are currently logged
Configuration	Configuration parameters allows you to set some set point or any other parameter (ip...) i.e. : • CF2 : IP address • CF3 : Subnet mask
Control	When you need to make an action and take control. i.e. : • CT2: Start Battery Test • CT41: Reset Last Battery Test State

3.3.4 COMPAS Color code

In Compas, colors represent the severity of an alarm:

- **Red**: Major alarm
- **Orange** : Minor alarm
- **Light Blue** : Warning
- **Blue** : No Alarm

The equipment has always on the color of the most severe active alarm.

3.4 Initial Configuration

At the end of this practical tutorial, you will be able to	
✓	Set the description
✓	Set the time
✓	Adding a license key
✓	Change the IP address
✓	Be ready to discover the rest of compas

3.4.1 Changing the description of the site

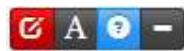
Describing your site as much as possible is important, it gives essential information for technicians and field people like cabinet localization, responsible phone number,... It helps for efficient intervention team and a smaller intervention time.

3.4.1.1 Interface modes

The first thing to know is that Compas has different modes of view.



Normal mode



Edition mode



Rename mode



Help mode

Table 1 Compas Interface Modes

You can change and visualize the current mode by clicking on the appropriate mode icon. Help mode can be combined with other modes; it gives you more information to help you in your choices.

3.4.1.2 Procedure to change the description of the site

Let's change some description elements

1. Navigate to *site-> description*
2. Switch to the *edition* mode
Most of the fields become editable
3. Change the parameters to fit your information.
When you change multiple parameters, a color code will help you to be sure that your parameter is validated :
 - blank : no change
 - orange : unsaved change
 - green : change is saved
 - red : an error occurred and your parameter is not saved

4. Don't forget the GPS Position! It could be really useful for a technician looking for a street cabinet. (And a link to google map will be added into the controller menu)
5. If you exit the edition mode, you will see that the change is effective on the running system.
6. **If you want to make persistent your changes, you need to save the configuration**
To do that, click on the controller then "*save configuration*". You will get the message "COMMAND_EXECUTED" confirming your action
7. **Well Done**, you just changed the description of your system and make the change persistent ! Now let's configure [the time of the controller](#) !

3.4.1.3 Visual Help



Figure 44 Navigate to description tab and switch into edit mode

Description

Id	Name	Value
Site Information		
DE1	Site Number	1
DE2	Site Name	Alpha DC+Inverter for server
DE3	Short Description	This system give power to alpha-technologies servers
DE4	Info	
Custom Description		
DE5	Description	server
DE6	Reference	5477-66687-114
Contact		
DE7	Contact Name	Pierre Paques
DE8	Phone Number	+3210438384

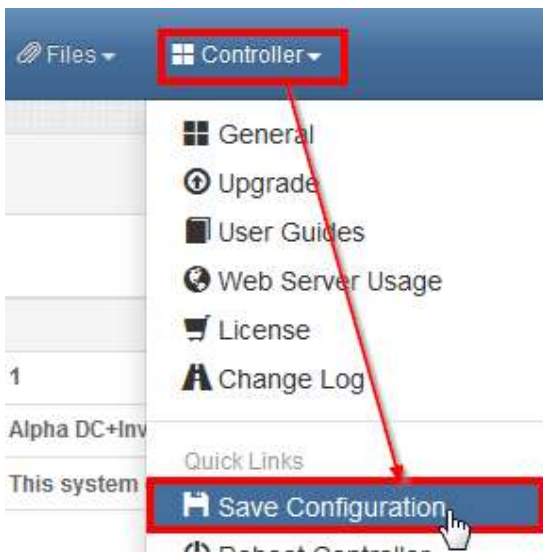
Figure 45 Change the parameters

GPS Position		
DE31	Latitude	4.637279 ✓
DE32	Longitude	50.6628792 ✓
DE33	Altitude	18 ✓

Figure 46 Set the GPS coordinates

Description		
Site Information		
Id	Name	Value
DE1	Site Number	1
DE2	Site Name	Alpha DC+Inverter for server
DE3	Short Description	This system give power to alpha-technologies servers

Figure 47 Switch into the normal mode



COMMAND_EXECUTED



Figure 48 Save configuration

3.4.2 Setting the time of the controller

When you are using a system, it is really important to know when an event happened. The date & time is essential for a good usage of your device. Compas use an RTC (Real Time clock) in order to keep the time between power outage or moving the system but it has to be right configured for the first usage.

3.4.2.1 What time is it now?

You have multiple ways to find the system time. The first and easiest is to look at the bottom of the interface. The second is to look into site -> data -> DA21 & DA22. These two parameters will give you the local and UTC time.

Site(1) Filter: Time

Dashboard Description Alarm Event **Data** Record Configuration Control All

Time

Id	Name	Value
DA21	Date And Time Local	2015-04-16T17:34:36
DA22	Date And Time UTC	2015-04-16T15:34:37

Visible on all pages
2015-04-16T17:34:36
Uptime : 0d 7h 36m 54s
admin (Logout)
Language: English

Figure 49 Reading the time of a system

3.4.2.2 Changing the time

For changing the time, we need a control because we are going to make an action on the system. Logically this control is located at the site level. Using the time modification control (CT12) is necessary to set the right time. Just navigate to controls inside the site, write the right date and time then validates.

Site(1) Filter: Time

Dashboard Description Alarm Event Data Record Configuration **Control** All

Time

Id	Name	Execute
CT11	Force SNTP Time Refresh	
CT12	Set Local Time	2015-04-16T17:43:24

Figure 50 Setting local time

3.4.2.3 Other time Functions

Compas can also use a SNTP server in order to keep all your compas time synchronized with a server. It also supports the time-zone and parameters to set the SNTP refresh time. I invite you to see the [Time](#)

section if you want to know more about these functions. But, if you go to the parameters, you will certainly understand how it works.

3.4.2.4 Conclusions

Congratulations, your second change in compas is now effective. But let's see if you can [add a license](#) to your system.

3.4.3 Adding a License

When you receive your system, you usually have the professional license (or basic on older system). We changed recently the [Licenses](#) options to give you more and a best user experience.

Each system has his own unique license that is linked to the hardware of your device. Licenses are not "time-based", it is functionality based. If you need to upgrade your license, just send us the site.xml file (available in Files -> Site.xml) and ask us the new license that you want. You will receive a file that you have to put on the Compas. To do that you have two ways:

- Via the web interface (in this tutorial)
- Via USB
- Via [FTP](#)

3.4.3.1 What are my licenses options

In Compas, almost everything is available using ETSI Structure, you can easily use the site -> data -> DA11 (Licensed Options). But well it is a little more complicated so we have made a dedicated page accessible in Controller-> License. On this page, you have the details of your licenses.

As you can see in the picture below, we have the professional License (including older licenses basic, standard, battery and asset) and our License key is valid. This page gives you also the possibility to add a better license.

Well, that seems easy let's practice a little.

The screenshot shows the Compas web interface. The top navigation bar includes 'Dashboard', 'Site', 'Reporting', 'Alarms/Events', 'Inventory', 'Files', and 'Controller'. The 'Controller' menu is open, showing options like 'General', 'Upgrade', 'User Guides', 'Web Server Usage', 'License' (highlighted), and 'Change Log'. The 'License' page displays a table of license options:

Option	Info
basic	Basic License
professional	Professional License
standard	Standard License
battery	Battery Support License
asset	Asset License

Below the table, it shows 'License Files on Flash - Actual MAC is 00-14-2D-22-5A-59'. At the bottom, there is a table of license details:

License File	Options	MAC Address	Key Valid
FlashDiskUserLicenseKey_00-14-2D-22-5A-59.xml	professional	00-14-2D-22-5A-59	True

Figure 51 Read my current license

3.4.3.2 Getting the new License

If you already have a license file, you can skip this step.

Let's get your site.xml license and ask to Alpha Innovations a new license. To do that, just download the file site.xml site -> site.xml and send it as an attachment to support.Compas@alphatechnologies.be, don't forget to give us your billing information and the license that you want or evaluate. You will rapidly get your new license. In this example, we will get the Ultimate COMPAS License.

3.4.3.3 Adding the License

On the License page (Controller -> License) , there is a small form where you can update a file. Just put your new license file into the file dialog and click on Upload License File. You will get the response "FILE_UPLOADED". After that, you will have to restart your device in order to activate the new elements of your license. You should use "*Controller -> Save configuration & Reboot Controller*". After a few seconds, the system will reboot and your license key will give you access to additional features.

Upload new License

The file will be uploaded to the user folder.
Select the file to upload (*licenseKey*.xml)

Please select the License file

Parcourir... licenseKey_00-14-2D-22-5A-59.xml Upload License File

FILE_UPLOADED

OK

3.4.3.4 Congratulations

Congratulations, you made it. Just take a coffee (or Tea) to get ready before the next step: [Changing the Network Configuration](#)

3.4.4 Changing the Network Configuration

By default our system is configured with a static ip (192.168.45.2), you will certainly not use this address on your production site.

As we don't want to lose the communication with the system during the configuration, an IP modification is a little trickier than modifying another parameter. In order to change the parameters, you have two possibilities:

- save configuration and reboot (the new IP will be set at the boot time)
- apply network configuration (don't forget to save your change to make it persistent.)

Do not insert space or other data than a valid ip address in the configuration box.

3.4.4.1 Let's work!

1. Browse to Site --> All, and filter on Network
The configuration parameters are available in Site -> Configuration. But let's use the tips seen before (filter by groups). Use the "all" tab filtered with group '**Network**' to see live related data and control at the same time.
2. Switch to edit mode and configure your new IP. (your changes are not effective immediately)
3. Apply the change
 - a. Method 1: reboot
Use the function "Controller -> Save and reboot".
 - b. Method 2: Apply the change intermediately
To apply the changes, use the control CT6 : 'Apply Network Configuration'.
4. Check the parameter
 - a. If you are connected using USB, the data DA1 'Current IP Address' will change and show you the new address.
 - b. If you are connected using Ethernet, you have to change your computer's IP address to match with the new Compas IP. Then you will be able to reconnect verify the configuration.
 - c. If site -> DA1 (Current IP Address) is empty or 0.0.0.0, it means that there is no network available.
 - d. Everything looks right? Let's make our change persistent
5. If you used the method 2, you need to save the configuration to make your changes permanent. Otherwise, it will be lost after a reboot. (Top Menu: Controller --> Save Configuration).

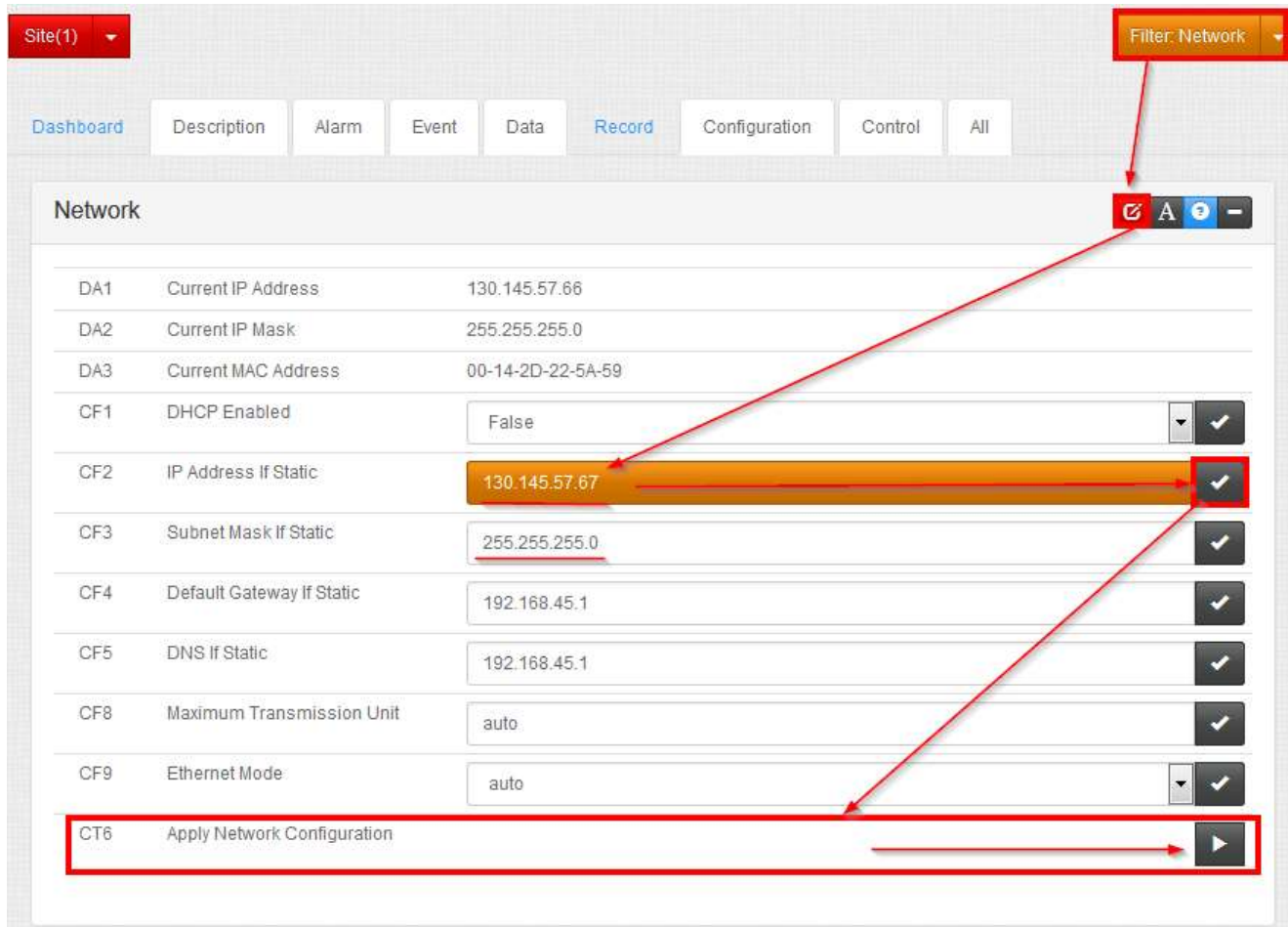


Figure 52 Changing system IP and validate it

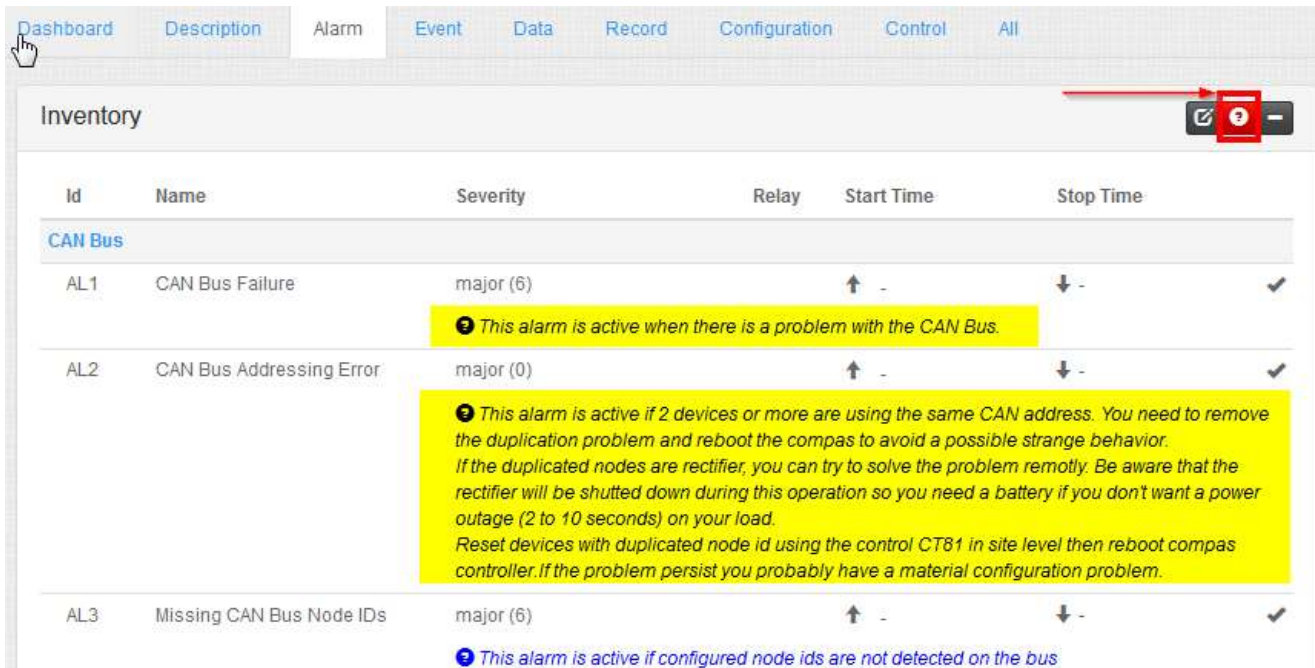
3.4.5 Congratulations

You just finished the quick start guide practical exercises. Now you know the Compas fundamentals. Compas can do a lot more, just use the user guide to discover other functionalities.

3.5 Support and Help

3.5.1 On-board help

At any-time, when you are on a field system without the manual, you could use the embedded help. It will give you some extra information to help you to understand what append, what is the meaning of a parameter... It is really useful and can help you in most cases.



Id	Name	Severity	Relay	Start Time	Stop Time
CAN Bus					
AL1	CAN Bus Failure	major (6)	↑ -	↓ -	✓
ⓘ This alarm is active when there is a problem with the CAN Bus.					
AL2	CAN Bus Addressing Error	major (0)	↑ -	↓ -	✓
ⓘ This alarm is active if 2 devices or more are using the same CAN address. You need to remove the duplication problem and reboot the compas to avoid a possible strange behavior. If the duplicated nodes are rectifier, you can try to solve the problem remotely. Be aware that the rectifier will be shutted down during this operation so you need a battery if you don't want a power outage (2 to 10 seconds) on your load. Reset devices with duplicated node id using the control CT81 in site level then reboot compas controller. If the problem persist you probably have a material configuration problem.					
AL3	Missing CAN Bus Node IDs	major (6)	↑ -	↓ -	✓
ⓘ This alarm is active if configured node ids are not detected on the bus					

Figure 53 On-board help

3.5.2 Going Further

If you want to know more, you should read and experience some functionalities. Don't hesitate to read the advanced battery management or the booting system. Our well-documented API will also help you to go further.

The functionalities like cloud link could also help you to save a lot of money.

Last but not least, the advanced scripting capabilities and PLC is a must read in order to profit from the Compas flexibility.

3.5.3 Alpha Innovations direct support

Our technician team is ready to answer any question. Just email us (support.compas@alphatechnologies.be) and we'll answer you as soon as possible.

3.5.4 Suggestion?

You have some suggestions, comments about compas? Just email us (support.compas@alphatechnologies.be). We are open to customers' suggestion and we can implement a missing functionality (if we think it is needed).

4 LICENSES

Licenses are used to give you options that you need. It is a small, hardware dependent, file that unlocks the power of your Compas monitoring system.

You don't need to change the hardware system; the license can be upgraded remotely.

Alpha Innovations has three default [package](#) giving you the opportunities to pay only what you need while it is still possible to [upgrade](#) later if your needs have changed.

4.1 COMPAS License Packages

The new COMPAS License package is a simplified system giving you the possibility to buy only the package that you need. We have three main license package:

- Professional edition
- Premium Edition
- Ultimate Edition

The following diagram gives an overview of the license scheme. As you can see, the Professional has already a lot of functionalities and will work in all normal situations.

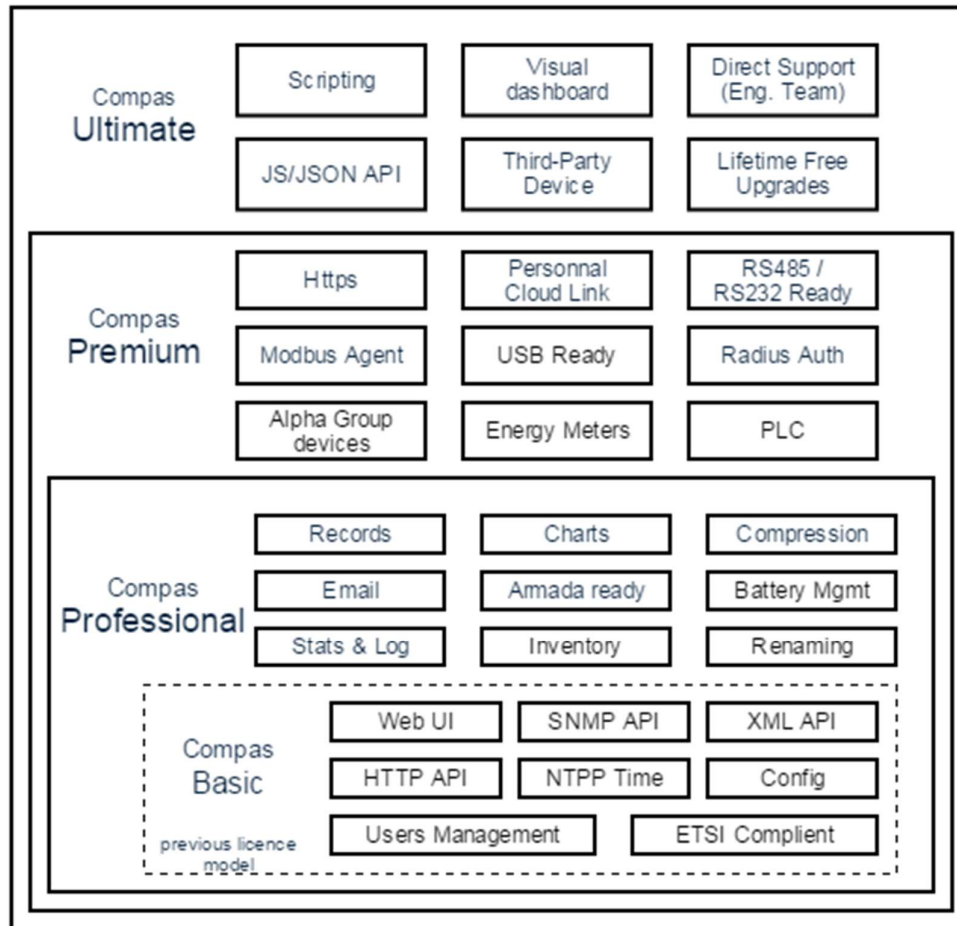


Figure 54 Licenses Model

4.1.1 Professional License

With the professional license you will be able to get all functionalities of an advanced monitoring system. It already gives you the opportunity to:

- Retrieve available information about components of a system, like *serial numbers, batch ids, production dates, software information*,...
- Retrieve any available data record, with a configurable resolution of second, minute, hour, day or special delta record system.
- Show your data using Charts and monitoring tools
- Retrieve detailed information about smart rectifiers
- Manage a battery
- Manage your users
- Rename everything, this helps your team works faster with the right name. It is now finished with alarm like "Input 27 alarm", just rename it : "Fire Detector at level 2 Alarm"

Naturally the Professional license give you access to our well-documented SNMP, XML and HTTP API. This will permit easy integration with every network management solution.

As a part of Professional license, Armada Ready function will give you the opportunity to use the Alpha Network management solution. With our fully integrated solution, you will be able to monitor a lot of Compas monitoring system.

Our *Basic* License has been upgraded in order to have more standard features.

4.1.2 Premium License

Premium License gives you great new functionalities, in addition to the professional.

- One of the greatest is the possibility to make some **PLC equation**. This allows you to :
 - Create custom data, like in a Programmable Logic Controller: a PLC Data is defined by any mathematical operation over any data
 - Create custom alarms, like in a Programmable Logic Controller: a PLC Alarm is defined by any combination of any data and any alarm.
- You will be able to use **HTTPS** in order to encrypt your monitoring traffic.
- With the RS485 port activated, you will be able to use **Modbus RTU** to get the data from devices like energy meters or others.
- If you want to read values from Compas using TCP Modbus, it is enabled. Contact us for more information about Modbus slave API.
- Last but not least, the **Cloud Link** will give you the opportunity to ease access to private/Nat networks; This is our monitoring system that will initiate an encrypted tunnel to a server. This will help you to lower your monitoring fees by lowering the needs of static IP and complex routing rules.

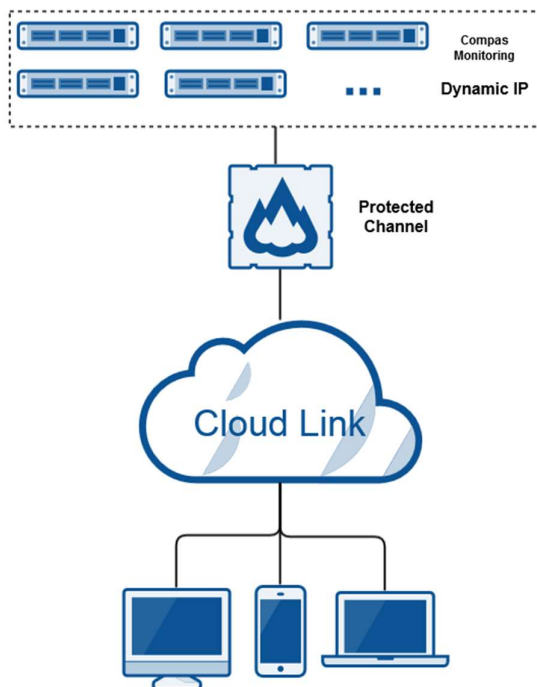


Figure 55 Compas Cloud principles

4.1.3 Ultimate Edition

With ultimate edition, you will get the new On-Board programming interface with advanced functionalities. This will allow you to do almost everything that you want using the scripting language Lua. We have added

some useful functions in order to be interfaced with Compas monitoring system. We support already SNMP Request. So you will be able to write your own SNMP device definition (or ask us to do it) to monitor all available SNMP devices. We have already planned to deploy the Modbus implementation (RS232 & 485 & Ethernet). Ask us if you need our roadmaps.

Manage Scripting

Running

Stop Scripting System

Execute! ?

#	Status	Last Run	Run Time	Errors	Actions
example	10 s	6 s	0 ms	0	Disable - Download - Delete
tutorial	10 s	2 s	0 ms	0	Disable - Download - Delete

```

1 -----
2 -- Welcome to CompasLua Tutorial -
3 -----
4 -- The purpose of this tutorial is to have an overview of CompasLua. More information can be
5 --
6 --
7 -- CompasLua scripting are composed in three parts :
8 --   - Initialization part :
9 --       At the start of the file, you can write any instruction that have to be done only
10 --      If you need to store data between execution, you can declare it in this part, they
11 --   - Loop part :
12 --       Function that will be called approximately every 10 seconds (you can change this).
13 --       depends of time used by others scripts and cpu usage at the moment of execution.
14 --       Script are executed in a queue, so if a script takes more than 10 seconds, other
15 --   - Control part
16 --       This part is used as a generic callback from Compas. When there is something that
17 --       triggered by compas, it is executed right after the execution of the script.
18
19
20 -- With the print function , you can print text to the console.
21 -- It is really useful to debug your program or to show information
22 print("Hello from CompasLua Tutorial \r\n")      -- You can put text
23 print("Compas v".. compas.version().." \r\n")    -- With ".." you can do the concatenatio
24 print("CompasLua v".. compas.version().." \r\n") -- You can also combine with built-in

```

Figure 56 Advanced Scripting Management

With our JS-API and onboard Website programmer, you were able to make custom and animated dashboard. This lead to faster and easier intervention, your uptime will be highly increased. In this example, we show you a shelter dashboard example:

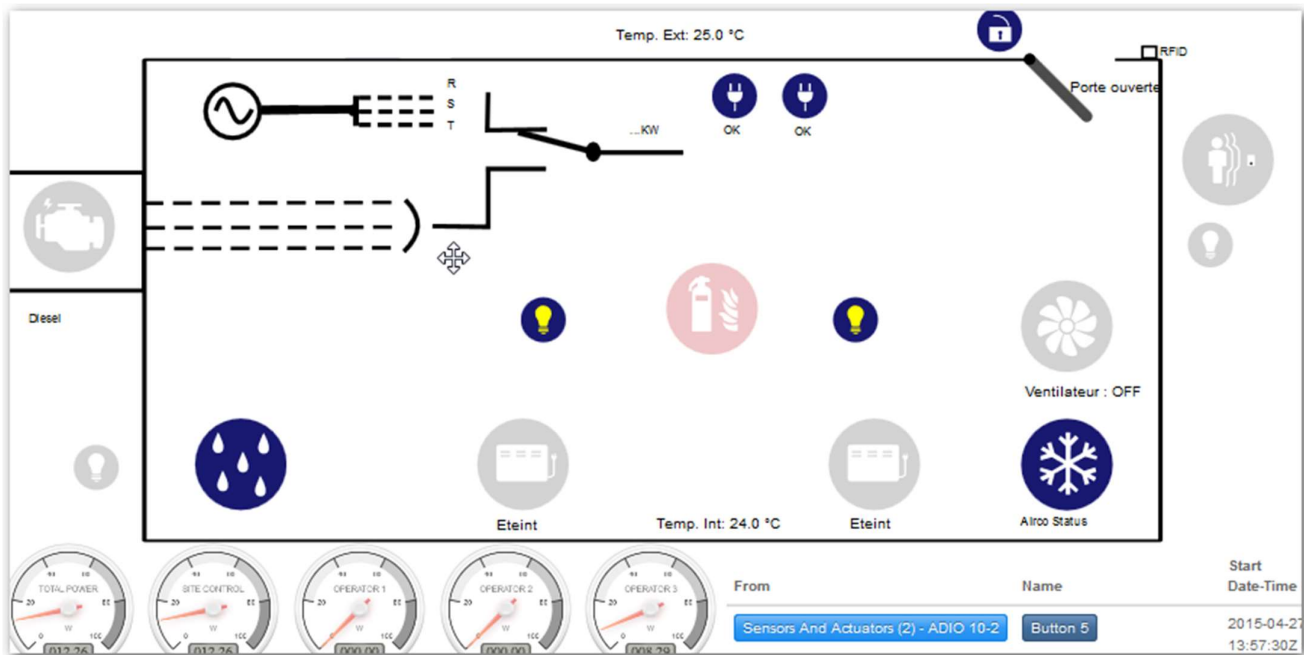


Figure 57 Visual Dashboard example

Last but not least, the ultimate edition gives you advanced support access to our specific engineer team. We guarantee that we do our best to solve all your issues, as soon as possible, and you will be on the top of the engineer priorities list.

4.2 How can I upgrade my license?

With Alpha system, your controller can be easily upgraded in the field. Field intervention is not needed. If you want to improve your monitoring functionalities, you just have to follow these smalls' steps.

- Contact your vendor or Alpha Team directly
- Give your site->site.xml and ask your desired license.
- You will get a new License file
- Copy it to \\FlashDisk\\User or use the web interface to upload it directly
- Reboot your system

An illustrated tutorial is available in the [Quick Start Guide > Adding a license](#).

4.3 How is the license stored?

The COMPAS license is a file named "licenseKey_XX-XX-XX-XX-XX-XX.xml", where XX-XX...-XX is the registered MAC address, in hexadecimal. (Example: licenseKey_00-14-2D-20-0B-20.xml)

The file can be located in "\\FlashDisk\\Factory" if this license is set by Alpha, user upgrade license are located in "\\flashdisk\\user".

The content of this XML file looks like:

```
<licenseKey version="1.0">  
  <product version="0.1.X.X">Alpha Technologies Comp@s</product>  
  <macAddress>00-14-2D-AA-BB-CC</macAddress>  
  <options>Ultimate</options>  
  
  <key>vddR+a7oQcx4Qrmt24padm3hSd1DJtbC3LEsKtZxdSJ5mCloN9uZMg=NnvemA13CWE5pOZxZ  
  BJY/uTsuCPHEwAQ==</key>  
</licenseKey>
```

The interesting part is "<options>Ultimate</options>" which corresponds to the licensed option you bought. Some other data can also be added in order to keep the backward compatibility for example:

```
<options>Basic,Asset,Battery,Ultimate</options>
```

Info

Note that this license is unique to each monitoring. If you copy a license file from one monitoring to another, it will not work!

5 FUNCTIONALITIES

We have regrouped all functionalities by topic in order to help you finding rapidly the documentation that you need. If you find that a chapter must be completed or you need more specific information, just [contact us](#).

5.1 Remote connections

At the end of this chapter, you will be able to :

✓	Know all available connection to compas
✓	Configure and understand the web-server
✓	Use the FTP Connection
✓	Configure the HTTPS server
✓	Configure Armada Link
✓	Use the Cloud link

Compas supports several remote ways to connect: standard IP, Https, cloud link, Armada link, API. Here we will discuss all way to get a remote access to the Compas web interface.

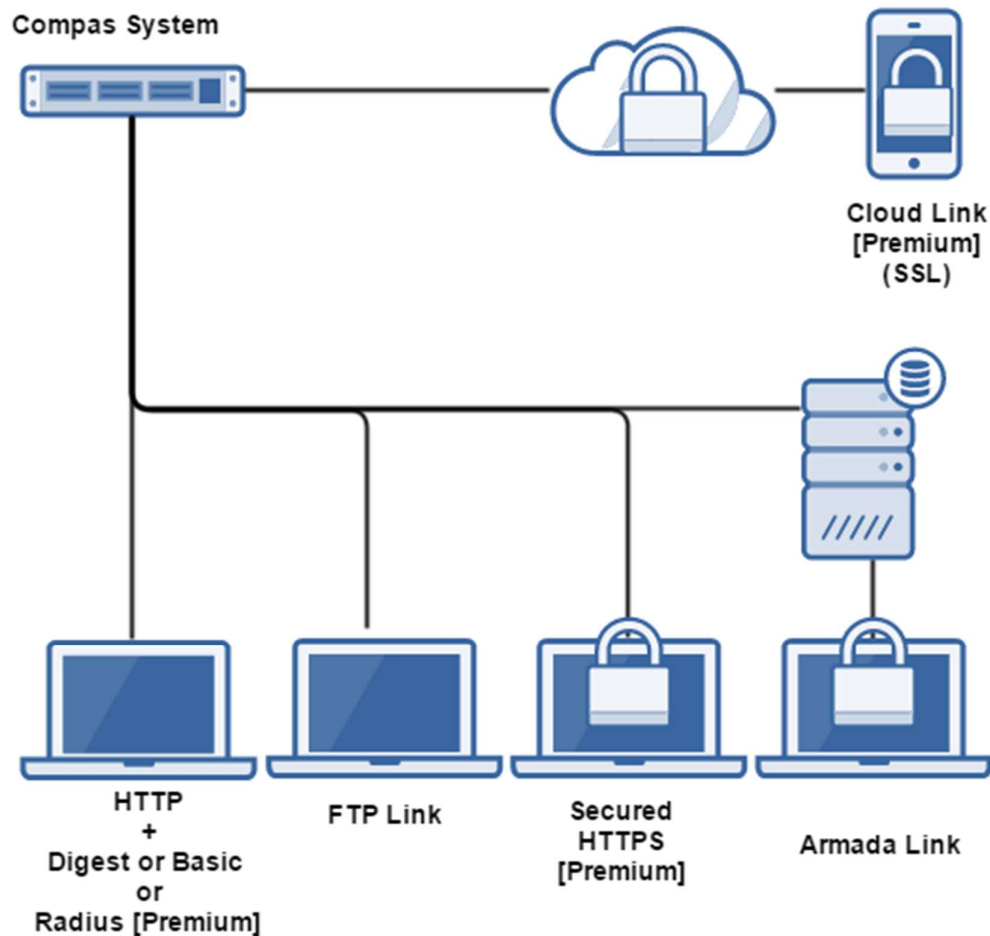


Figure 58 Available Remote Connections

There are also several API like SNMP, Modbus, XML,... If you want more information, see the [Software Interfaces & API](#) chapter.

5.1.1 IP Network Configuration

Compas monitoring RJ45 female port provides a standard 10/100 Mbits Ethernet connection. First you have to connect to your system, after that, you will be able to change the IP parameters.

Default Ethernet Configuration

IP address: **192.168.45.2**
Sub Mask: **255.255.255.0**

5.1.1.1 First connection

Please, see how to [connect using Ethernet](#) inside the [Quick Start Guide](#).

5.1.1.2 Parameters

By default our system takes a static IP (192.168.45.2), you will certainly not use this address on your operational site. So you will have to change that in the site configuration. Our compas system support:

- Static IP address
- DHCP
- Changing Maximum Transmission unit (advanced users only)
- Changing Ethernet Mode (Advanced users only)

As we don't want to lose the communication with the system during the configuration, an IP modification is a little trickier than modifying another parameter. You will have to change parameters then you have two possibilities:

- save configuration and reboot (the new IP will be set at the boot time)
- apply network configurations (don't forget to save your change to make it persistent.)

If you enable the DHCP protocol, Compas will ignore all other parameters and will try to get his IP address automatically.

Changing the parameters

Please, see how [Change the Network Configuration](#) inside the [Quick Start Guide](#).

5.1.2 Web Access & Mobile compliant

The Compas user interface is a web-application. The interface has been designed to support a standard computer and *mobile devices like smartphones and tablets*. It is really useful to access to your controller from everywhere.

The website and windows are *responsive*, the web-application adapt his page to the size of your screen in order to be readable and usable from a smartphone.

- Tested on Android, Iphone, Ipad and Windows Phone.
- The content is automatically resized, and the left menu of the site disappears.
- A dynamic menu replaces the top menu bar.



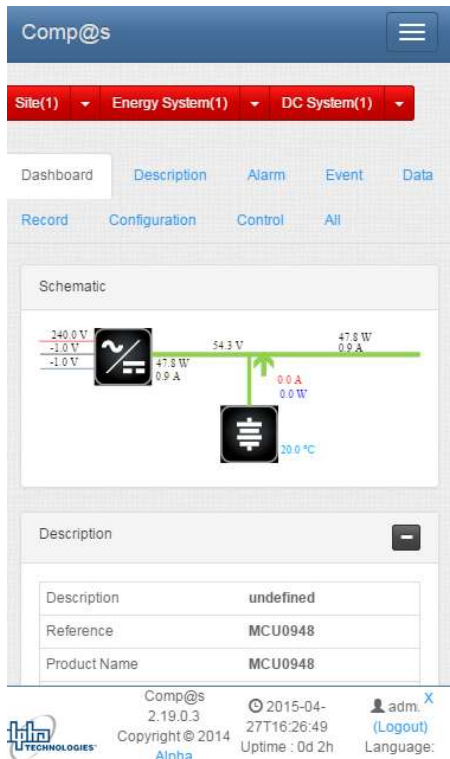


Figure 59 Energy system dashboard on a smartphone

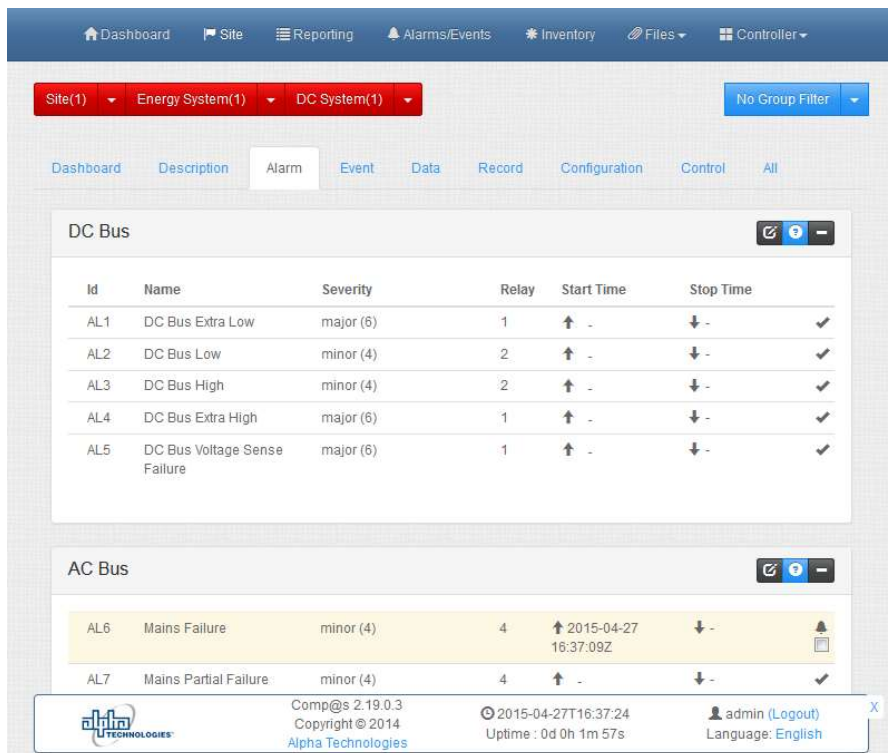


Figure 60 Full page with alarms

5.1.3 Web server standard

Compas provides an embedded web server configured by default on the port 80. This allows you to navigate to the monitoring interface by giving the IP address of the system. Our web server can take up to 20 requests that are queued for acceptance.

With the professional license we already provide a web authentication method:

- Basic Authentication
- Digest Authentication

All these parameters are configurable directly from the site configuration. With the diagram below, you will understand how the web server is working and which parameters are acting on the system.

Don't forget to configure the [User Access](#) before activate security. (With Premium version, you can use Radius)

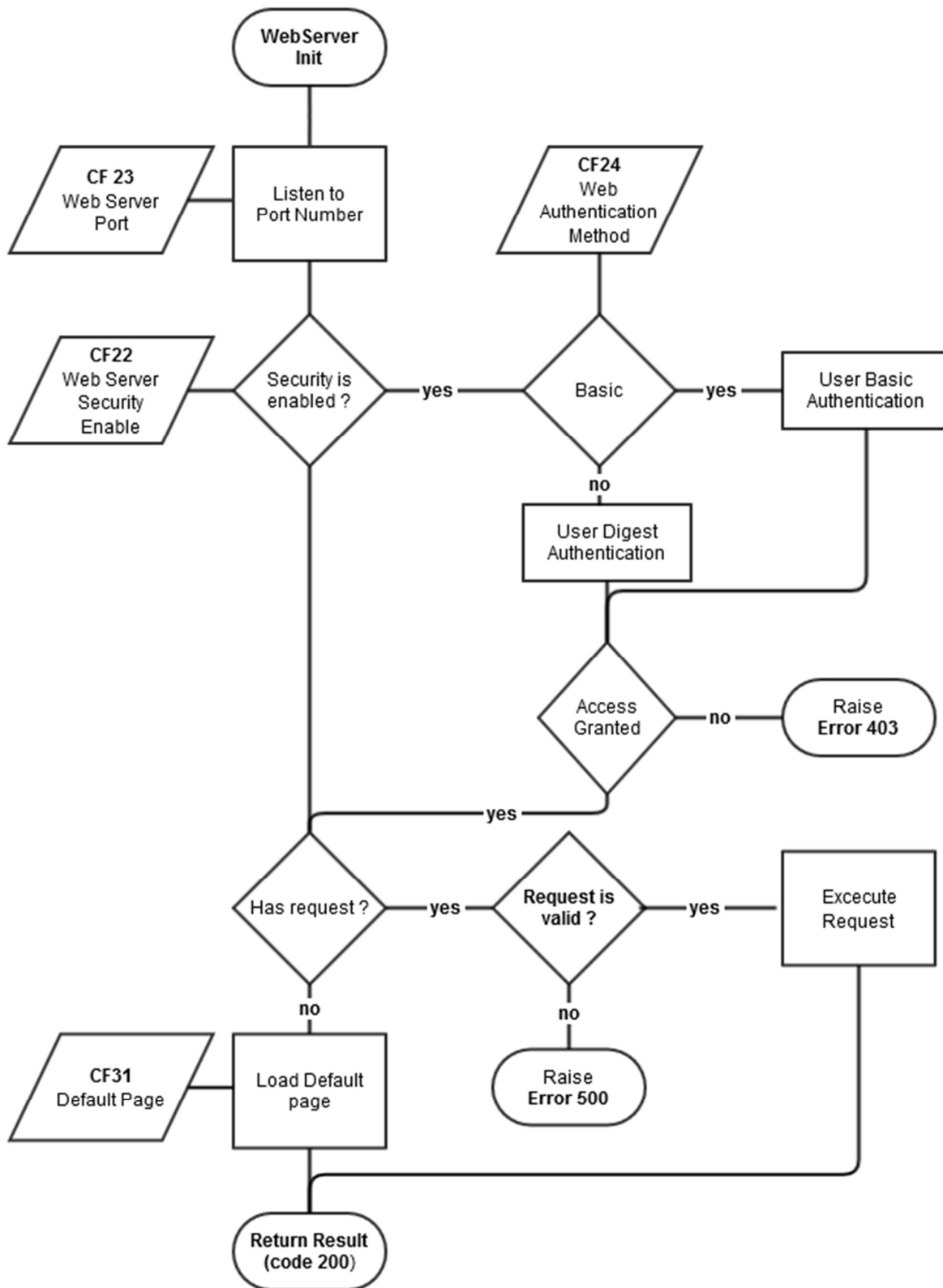


Figure 61 Web server Workflow

5.1.4 Secured Web Server : HTTPS tunneling [Premium feature]

With the rise of system attacks, some critical applications need to have all the traffic encrypted. It is why we implemented the https encrypted function. It consists of an encryption of the transmission to be sure that no-one can read your monitoring information by intercepting the communication.

HTTPS ("HTTP over TLS", "HTTP over SSL" or "HTTP Secure") is a communications protocol for secure communication over a computer network, with especially wide deployment on the Internet. Technically, it is not a protocol as itself; rather, it is the result of simply layering the Hypertext Transfer Protocol (HTTP) on top of the SSL or TLS protocol, thus adding the security capabilities of SSL/TLS to standard HTTP communications. The main motivation for HTTPS is to provide authentication of the visited website and prevent wiretapping and man-in-the-middle attacks. (source: Wikipedia).

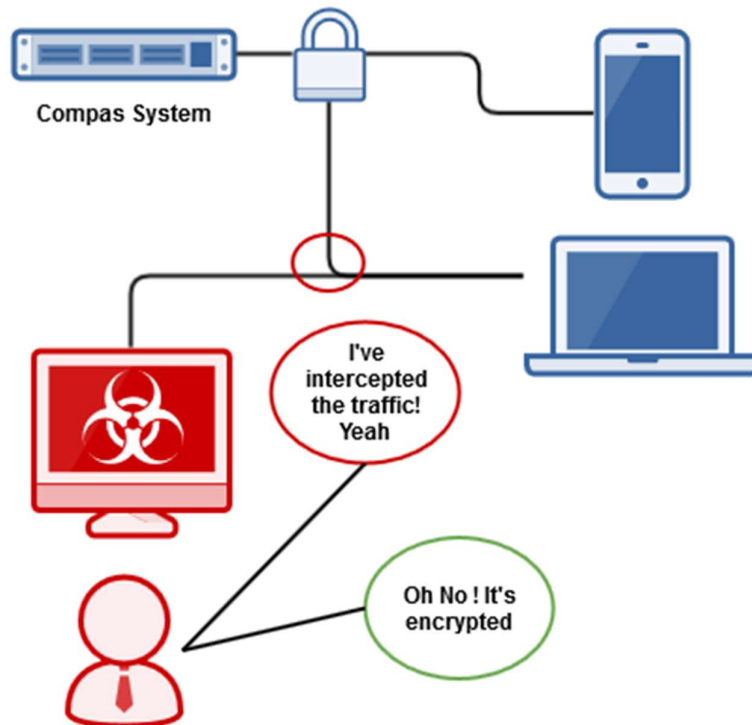


Figure 62 HTTPS Principles

5.1.4.1 Activation

Since version 2.18.0.3, the Compas HTTPS Web Server can be enabled. By default, the configuration element CF26 'HTTPS Web Server Port' is set to 0. By changing it to 443 (default https port), or another port, the secured web server will be started.

CF22	Web Server Security Enabled	True	✓
CF23	Web Server Port	80	✓
CF24	Web Authentication Method	Basic access	✓
CF26	Https Web Server Port	443	✓
CF31	Default Page	index.html?page=site	✓

Figure 63 HTTPS Activation

Compas is now accessible at https://the_ip or https://the_ip:xxx where xxx is the defined port if the standard 443 is not used.

Certificate

A default SSL certificate will be used. But this is not recommended. You can change the certificate by copying a certificate in the folder "Flashdisk/user/certificate". The extension of the file must be ".pem" and have to combine both the private key and the certificate. Here is what it looks like:

```
-----BEGIN PRIVATE KEY-----
MIIBVAlBADANBgkqhkiG9w0BAQEFAASCAT4wggE6AgEAAkEAYkVtNckbHThk4LaH
SAKtboZRjIaztVx7+CVeDri8S/lxIVrFy4FU/akuVnEZ4CsiHBfdVXJJOHawJozD
idOyVQIDAQABAAkA1OKdgfPq6ayvY/tgJI/3RR9LGJws1C9u6Py2wlpwXMGGC9XE3
k6w20t2uDp/+1bKZ2wggfF+CfGx9dsk,6wvAP8zwRRAiEA//wd1U1CSXltjzPMO
ikGPxGRtUGqUFa2aCqcCIQDKSH7FAnUs//JUwROoRmMmK/e2tRthv6xQ8txlimkG
owlgSmCUwn86PWDhfy8CnHGGaEXTjeeSvjgfXt4j58H++x/D40CIGRtU4rJ6pTZy
sq6zq1vzLjumdJ62A3345QaauQPTAiEA/mriEC77k6YbHbAvwwn4jgOLIGjnn/Hf
csUXgs8B3ns=
-----END PRIVATE KEY-----
-----BEGIN CERTIFICATE-----
MIICtZCCAFmgAwIBAgIJAPAUzkPv/ZFqMA0GCSqGSIb3DQEBCwUAMIGCMQswCQYD
VQQGEwJCRTExMBUGA1UECAwOQnJhYmFudCBXWxs24xGTAXBgNVBAcMEExvdXZh
aW4tTGEtTmV1dmUxHjAcBgNVBAoMFUFfGhGhIFRIY2hub2xvZ2llcyBTQTEQMA4G
A1UECwwHQmVsZ2I1bTENMA5GA1UEAwwEQVRTQTAEFw0xNTAyMjQxNTQ2MjFjFaFw0x
NjAyMjQxNTQ2MjFjFAMIGCMQswCQYDVQREwJCRTExMBUGA1UECAwOQnJhYmFudCBX
YWxs24xGTAXBgNVBAcMEExvdXZhW4tTGEtTmV1dmUxHjAcBgNVBAoMFUFfGhGh
IFRIY2hub2xvZ2llcyBTQTEQMA4GA1UECwwHQmVsZ2I1bTENMA5GA1UEAwwEQVRT
QTBCMA0GCSqGSIb3DQEBAQUAA0sAMEsCQQDKRW01yRsdOGTgtodIAq1uhlGMhrO1
XHv4JV4OuLxL8jGVWsXLgVT9qS5WcRngKylcF91Vckk4dpYmjMOJ07JVAgMBAAGj
UDBgsB0GA1UdDgQWBbTKskRfDNpXotNO5h2DIsnGsy36nDAfBgNVHSMEGDAWgBTK
qsgkRfpXotNO5h2DIsnGsy36nDAMBgNVHRMEBTADAQH/MA0GCSqGSIb3DQEBCwUA
A0EAGOPQZFo8Fir5OuMmlcM1XK6sMgB4wZi4uoX7CWAK9BAumqA+KRvmp1/tSqi
1agXoQasZkaOC0yKwaXm5uzZCA==
-----END CERTIFICATE-----
```

The recommended tool to generate keys is OpenSSL (<http://openssl.net/>), generally preinstalled on any Linux distribution. It can also be installed on windows systems.

To generate a certificate valid for 3650 days (10 years) of 512 bits, the command line is:

```
openssl req -x509 -days 3650 -nodes -newkey rsa:512 -keyout key.pem -out cert.pem
```

You will have to answer some questions to customize your certificate:

```
user1@support:~$ openssl req -x509 -days 3650 -nodes -newkey rsa:512 -keyout key.pem -out
cert.pem
Generating a 512 bit RSA private key
....+++++++
.....+++++++
unable to write 'random state'
writing new private key to 'key.pem'
-----
You are about to be asked to enter information that will be incorporated
into your certificate request.
What you are about to enter is what is called a Distinguished Name or a DN.
There are quite a few fields but you can leave some blank
For some fields there will be a default value,
If you enter '.', the field will be left blank.
-----
Country Name (2 letter code) [AU]:BE
State or Province Name (full name) [Some-State]:BRABANT WALLON
Locality Name (eg, city) []:LOUVAIN-LA-NEUVE
Organization Name (eg, company) [Internet Widgits Pty Ltd]:Alpha Technologies SA
Organizational Unit Name (eg, section) []:ICT
Common Name (e.g. server FQDN or YOUR name) []:compas
Email Address []:somemail@internet.com
```

Two files have been created: cert.pem and key.pem

```
user1@support:~/certjp$
ls -la
total 16
drwxrwxr-x 2 user1 user1 4096 Mar  9 11:59 .
drwxr-xr-x 13 user1 user1 4096 Mar  9 11:59 ..
-rw-rw-r-- 1 user1 user1 960 Mar  9 11:56 cert.pem
-rw-rw-r-- 1 user1 user1 522 Mar  9 11:56 key.pem
```

These files can easily be combined into one with the following command:

```
user1@support:~/certjp$ cat key.pem cert.pem > compas.pem
```

You can now copy that certificate file 'compas.pem' to your COMPAS in the *"/Flashdisk/user/certificate"* folder. (using FTP or USB cable)

The certificate that has been created will be recognized as unsecured by most of the browser as the authority is not known. You will have to use an authority recognized in you company to avoid the security warnings.



Figure 64 Certificate Example

A lot of additional information can be found on the internet. (For example : http://how2ssl.com/articles/openssl_commands_and_tips/)

5.1.5 IoT MQTT Link

5.1.5.1 Purposes and generalities

When you manage a network of remote site, the standard way is to use static IP for all your devices. These addresses give you access to all monitoring. You always need to know all IP and... Even worse: *you have to buy a static IP for each device*. This could cost a lot and we have developed a method giving you the opportunity to **save the recurrent price of a fixed IP**.

There are also many disadvantages with classic port forwarding:

- Fixed Public IP
- Expensive connection
- Difficult with Mobile (Behind a Nat)
- Difficult Inside a Company Lan (firewall)
- Accessible by others (DDOS attack or others)

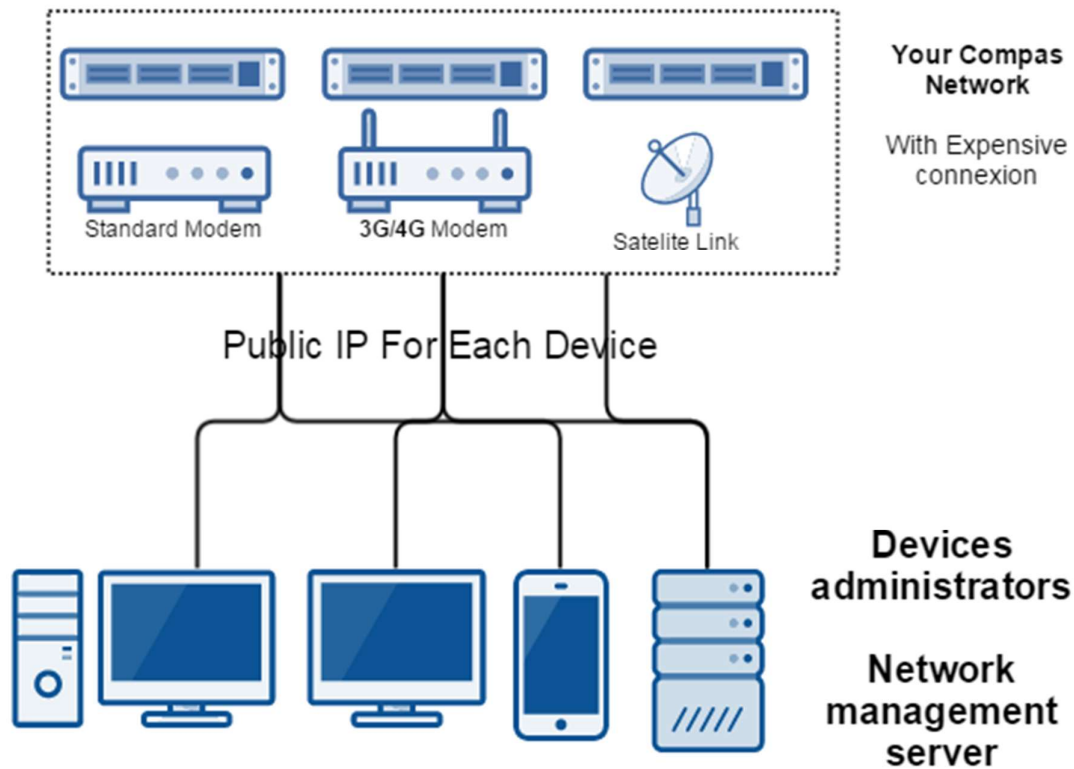


Figure 65 Classic Network Architecture

5.1.5.2 COMPAS Cloud Architecture

Our Architecture is based on MQTT over TLS, this allows you to have a highly encrypted connection. The COMPAS Card initiates the communication and creates an encrypted TCP connection between your equipment and the cloud server.

Cloud system advantages	
✓	Your system can have <i>dynamic ip</i>
✓	The cheapest connection is enough to monitor all your devices.
✓	The connection is fully encrypted
✓	COMPAS Card not accessible from the public network (no need to open port on the router)
✓	Almost no configuration

You can ask to use the Alpha Innovations server with the professional License. If you want to have your own personal cloud server, it is possible but you will need the Premium License.

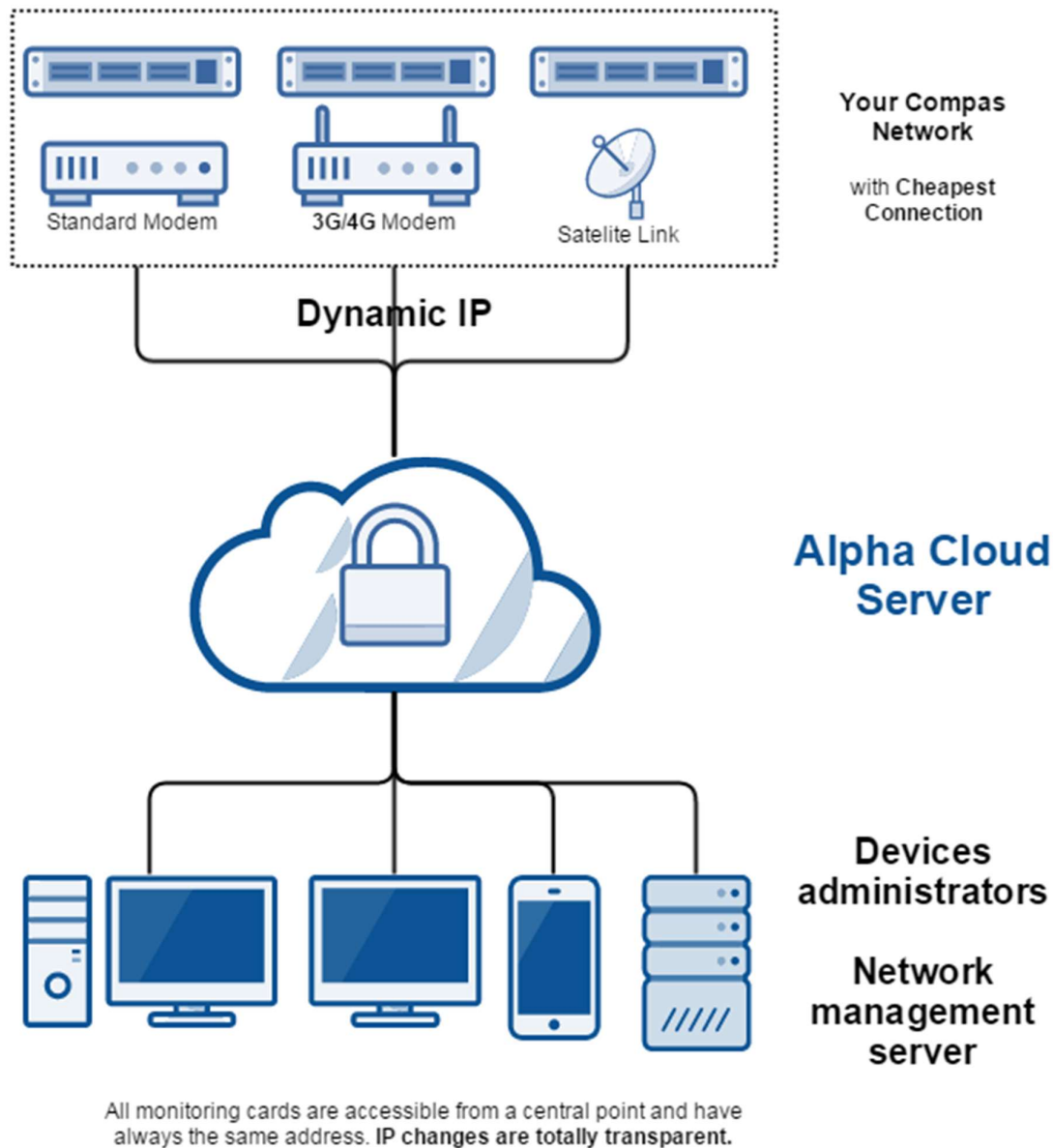


Figure 66 Cloud link Architecture

5.1.5.3 IOT MQTT Link Configuration

You have to enable the Alpha cloud in site -> CF171 (Cloud enabled). New configuration options are going to appear.

You need to configure your cloud server in CF172 and port in CF173. You also have to give your server credentials and the server cluster in which you want to be. After, if you want to access to your COMPAS, just go to your Armada server and the site will be automatically added.

You have to be sure that the system can access the internet before leaving it. Be also sure that you have configured the DNS server if you access to a system that is not an IP address.

5.1.6 ARMADA Link

The Armada Link will help you to manage your complete network of COMPAS cards. It will get all the available data and show them with a consolidated structure.

ARMADA has an integrated proxy allowing you to navigate directly to the web page of the needed COMPAS. Please refer to Armada Manual in order to use the Armada Proxy.

In order to have this secured link improved, it is highly recommended configuring the [XML post event](#) help armada to have up-to-date information.

The link can also be managed with the IOT MQTT feature.

5.1.7 FTP Server

Compas has an embedded FTP server. It is totally independent of the main Compas System. It can be used even if Compas is not running. In order to use the FTP functionalities of COMPAS, you need a FTP client installed. We recommend the use of [Filezilla](#), a free FTP solution.

Default connection parameter

IP address / Host	The IP of your system
Port	21
Default login	admin
Default password	compas

If you use a command-line tool to upload a file, don't forget to use the **Binary mode**.

New features since V2.26.0.3

Alpha-Technologies releases a new **Release** of the **FTP Server**. Mains benefits :

- User management improved
- Implementation of RNTD command
- Implementation of MDTM command following RFC 3659
- Implementation of SIZE command following RFC 3659
- Automatic disconnection after approximatively 5 minutes to free memory
- Size reduction
- CPU usage reduction
- Memory Leak correction

5.1.7.1 Login and password change

The passwords are **independent** from the main Compas application. They are managed in an independent XML file named "Compas_FTPServer.xml" located in the "user" folder. If this file does not exist, the default login and password are used.

If you want to change the default password and login:

1. Create a "Compas_FTPServer.xml" file with this content.
2. Modify the login and password and save the file.
3. Copy that file in the "\\FlashDisk\\user" ("\\Nor Flash\\user" on previous release).
4. Now, you have to use the new login and password at the next FTP connection.

```
<ftpserver>
  <ftpusers>
    <user login="admin" password="compas"/>
  </ftpusers>
</ftpserver>
```

You can create multiple ftp users by adding more than one <user/> node under the <ftpusers/> node.

New access control since FTP 2.26.0.3

By setting an accessDir="\\FlashDisk" inside the user line, the user will only have access to the content of the FlashDisk and will not be able to explore path bellows. You can also set a homeDir which is the default path where the user will be logged.

In the below example, you have two users specified with the following parameters :

- Login = admin
 - password: compas (encrypted version which allows to hide plain password)
- Login= user
 - password: aUserPassword
 - access directory: \\FlashDisk\\user and sub-folder
 - home directory: \\FlashDisk\\user\\upload

```
<ftpserver>
  <ftpusers>
    <user login="admin" passwordHash="1F41C076E8B0C2B69FD36514C54BD86F"/>
    <user login="user" password="aUserPassword" accessDir="\\FlashDisk\\user"
homeDir="\\FlashDisk\\user\\upload"/>
  </ftpusers>
</ftpserver>
```

5.1.7.2 Password encryption

If you want to keep your password a little more secret, it is possible to provide a hashed version of the password with the following syntax.

The passwordHash can be generated using this function
BytesToHex(md5.ComputeHash(encoding.GetBytes(password))).

```
<ftpserver>
  <ftpusers>
```



```
<user login="admin" passwordHash="1F41C076E8B0C2B69FD36514C54BD86F"/>
</ftpusers>
</ftpserver>
```

5.1.7.3 User specific right

By default each user has access to all the files and folders.

In some case it could be useful to limit access to a specified folder. The Compas Ftp server allows that. The user will have access to a specified folder and their sub-folder. The user will not see any files under this path.

In order to specify specific right, you have added the parameter `accessDir` inside the user definition.

Compas allows you also to specify the `homeDir` of a user, it is the folder in which the user will be logged.

```
<ftpserver>
  <ftpusers>
    <user login="admin" passwordHash="1F41C076E8B0C2B69FD36514C54BD86F"/>
    <user login="user" password="aUserPassword" accessDir="\FlashDisk\user"
homeDir="\FlashDisk\user\upload"/>
  </ftpusers>
</ftpserver>
```

In the upper example, you have a user specified with the following parameters :

- login: user
- password: aUserPassword
- access rights: \FlashDisk\user and sub-folder
- home folder: \FlashDisk\user\upload

If you let access to the file "Compas_FTPServer.xml", a use can rewrite it to change passwords and user access.

5.1.7.4 How to update your FTP server

Before using the new FTP Server, you have to install the latest Starter which supports the load of the FTP server from user folder. Otherwise you will have to change the server inside the factory folder and that is not a good idea (no fallback in case of copy corruption).

You can update your system remotely or locally using the FTP or the USB connection to access to the file system.

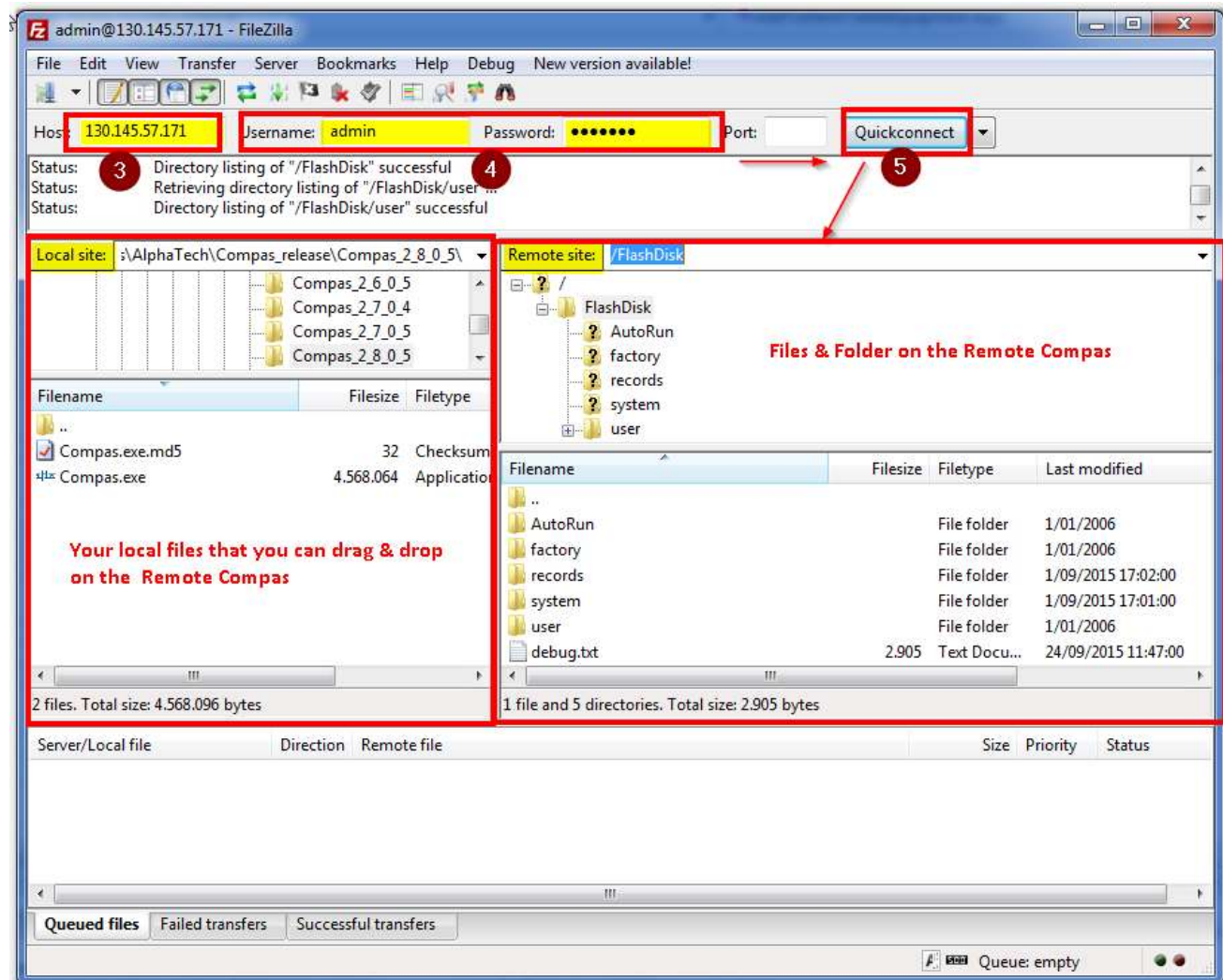
1. Connect on your card via FTP (or USB)
2. Upgrade the file *Compas_FtpServer.exe* in the folder **\\FlashDisk\\user**(or **\\NOR Flash\\user** for even older systems)
3. Be sure that this file is well updated
4. Restart the system

5.1.7.5 How to use the FTP Server

Default Login: **admin**
Default Password: **compas**

Here, I'm going to explain you how to connect to a remote Compas using the FTP Server

1. Download [FileZilla Client](#) software inside your computer.
2. Start FileZilla
3. Enter the IP address of a Compas Card
4. Enter your credential inside the fast connection line
5. Click on QuickConnect
6. Now, remote files and folder are available and can be downloaded/uploaded.



If you use a command line tool to upload a file, don't forget to use the **Binary mode**.

5.2 Alarm & Event System

At the end of this chapter you will be able to	
✓	Read controller alarms
✓	Set a delay on an alarm
✓	Use the acknowledgement system of alarms
✓	Configure email notification
✓	Configure the SNMP trap notification
✓	Use the acknowledgement system of alarms

5.2.1 Overview

Compas supports an advanced Alarms system. Here are our main alarm functionalities:

- set & clear delay : help you to have less false positive.
- Alarm Acknowledgement : [Mute] function for alarm under investigation
- Email Notification
- SNMP Trap notification

Here are the basic workflow that our alarming system is using.

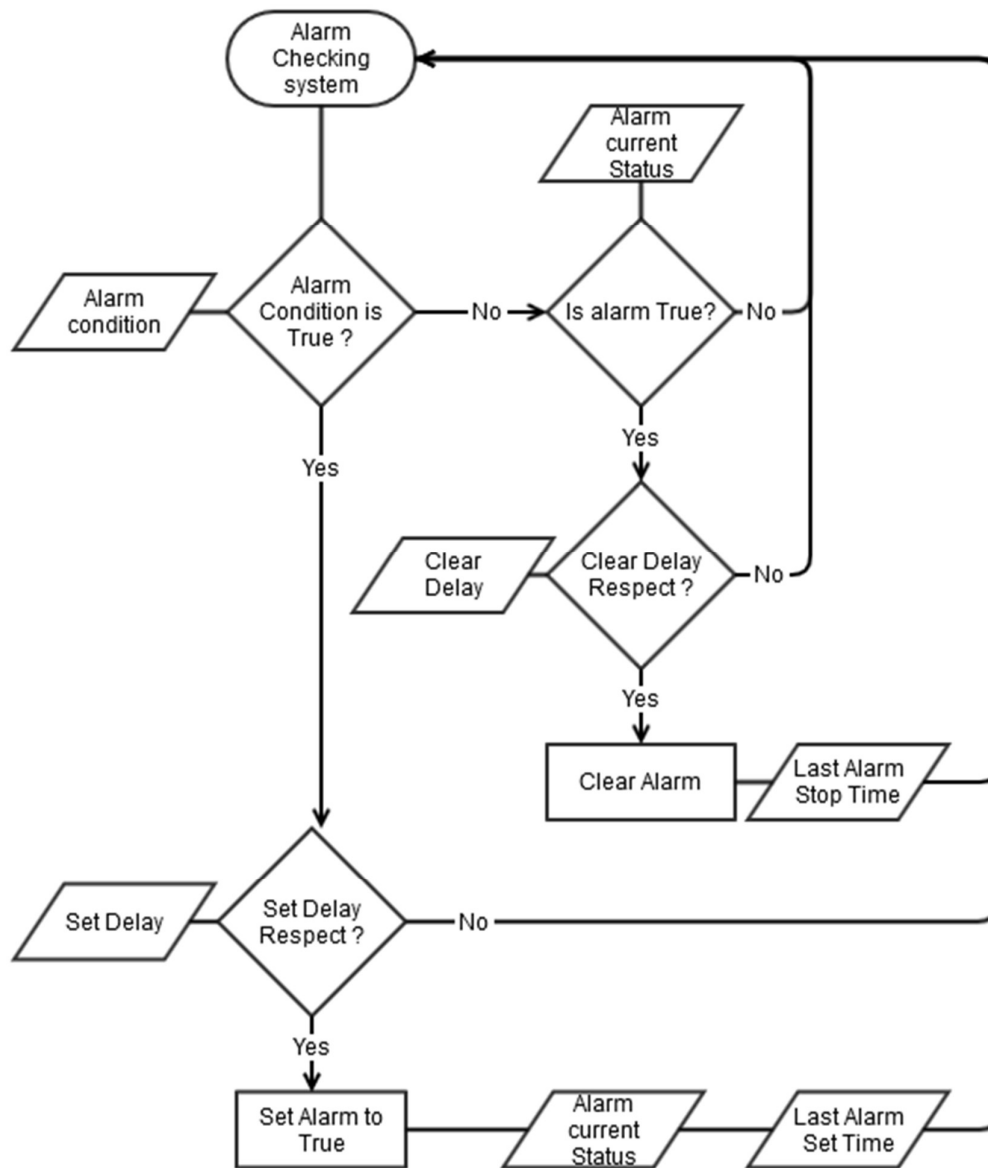


Figure 67 Alarm Checking diagram (with set and reset delays)

5.2.2 Reading system alarms

The web application compas gives you two ways of visualizing all the alarms available:

- By equipment (using Site Tab)
- Full listing (Using Alarms/Events Tab)

These two views give the possibility to have an overview of all alarms or to investigate only on a single device. Here, we are going to explain how to see the Alarms but, for the events, it works using the same system.

5.2.2.1 List All Active Alarms

As you can see below, with the Alarms/Events tabs, you have the list of all equipment with alarms and all corresponding alarms. On the screenshot below, you can see that we have several alarms:

- major alarm on the DC System : Battery LVD Relay Open
- minor alarm on the DC System : Battery Temperature Sensor Fail
- alarm (with none severity) on the DC system : Digital Input 1 (using I/O)
- warning alarm on the rectifier 1 : Remote Off.

The screenshot displays the 'Alarms/Events' tab in the Alpha Technologies software. The interface includes a navigation bar at the top with options: Dashboard, Site, Reporting, Alarms/Events (highlighted), Inventory, Files, and Controller. Below the navigation bar, there are two expandable sections: 'Equipments With Active Alarms' and 'Active Alarms'. The 'Active Alarms' section is currently expanded, showing a table of active alarms.

From	Name	Start Date-Time	Acknowledge
DC System (1) - MCU0348M4	Battery LVD Relay Open	2000-01-01 00:01:11Z	☒ 2000-01-01 00:05:04Z
DC System (1) - MCU0348M4	Battery Temperature Sensor Fail	2000-01-01 00:01:11Z	☐
DC System (1) - MCU0348M4	Digital Input 1	2000-01-01 00:01:11Z	☒ 2000-01-01 00:04:55Z
DC System (1) - MCU0348M4	Digital Input 2	2000-01-01 00:01:11Z	☒ 2000-01-01 00:04:53Z
DC System (1) - MCU0348M4	Digital Input 3	2000-01-01 00:01:11Z	☐
DC System (1) - MCU0348M4	Digital Input 4	2000-01-01 00:01:11Z	☐
Rectifier (1)	Remote Off	2000-01-01 00:02:28Z	☐

At the bottom of the interface, there is a footer section containing the Alpha Technologies logo, version information (Comp@s 2.19.0.3, Copyright © 2014), uptime (2000-01-01T00:05:18, Uptime: 0d 0h 4m 51s), and user information (admin (Logout), Language: English).

Figure 68 Full alarm listing

5.2.2.2 View active alarms by equipment

If you want to see the alarms by equipment's, you just have to navigate to the device (using site Tab). Then, click on Alarm. This will list you all the alarms and showing you other alarms using the compas standard colors.

In the following screenshot, you see that the rectifier 1 has the AL4 active. This is the remote off alarm (a warning alarm with severity level of 0) and it is active since the date 2015/05/05.

Id	Name	Severity	Relay	Start Time	Stop Time	
AL1	AC Failure	major (0)		↑ -	↓ -	✓
AL2	DC Failure	major (0)		↑ -	↓ -	✓
AL3	Over Temperature	major (0)		↑ -	↓ -	✓
AL4	Remote Off	warning (0)		↑ 2015-05-05 13:46:42Z	↓ -	🔔
AL7	Communication Error	warning (0)		↑ -	↓ -	✓
AL11	Short Error	major (0)		↑ -	↓ -	✓

Figure 69 Alarm on equipment

5.2.3 Notifications

A system without real time notification is not really efficient. Compas provides easy way to have notifications:

- [Email notification](#)
- [SNMP Trap](#)
- [XML event posting](#)

Naturally, you can use Armada that will monitor your entire network and send you a consolidated report.

5.2.3.1 Email

Generalities

COMPAS can be configured to send email to one or multiple addresses. You can naturally select the minimal severity that will trigger an email. On the screenshot below, you have an example of a Summary email triggered by alarms on a system. This email gives you a screenshot of what is happening and it is

very convenient when you don't have access to your COMPAS (i.e. connecting to your VPN before COMPAS).

In this email, you have:

- Site informations
- Equipment with alarms
- Active Alarms
- Last Events

Comp@s - Summary

 @alphatechnologies.be

If there are problems with how this message is displayed, click here to view it in a web browser.

ent: mar. 5/05/2015 14:34
o:  @alphatechnologies.be

Site Information

Site Name	Comp@s Site
Description	undefined
Reference	undefined
Contact Name	
Phone Number	
City	undefined
Software Revision	2.19.0.3
Current IP Address	130.145.57.171
Date And Time Local	2015-05-05T14:33:32

Equipments In Alarm

Site (1)	major
DC System (1) - MCU0348M4	major
Rectifier (2)	warning
Rectifier (3)	major

Active Alarms

From	Name	Start Date-Time	Ack	Severity	Group	Subgro
Site (1)	Last Configuration Changes Unsaved	2015-05-05 14:11:42Z	No Ack	warning	Controller	Save
DC System (1) - MCU0348M4	Battery LVD Relay Open	2015-05-05 13:46:13Z	No Ack	major	LVD	
DC System (1) - MCU0348M4	Battery Temperature Sensor Fail	2015-05-05 13:46:13Z	No Ack	minor	Battery	Tempera
DC System (1) - MCU0348M4	Digital Input 1	2015-05-05 13:46:13Z	No Ack	none	Digital Inputs	
DC System (1) - MCU0348M4	Digital Input 2	2015-05-05 13:46:13Z	No Ack	none	Digital Inputs	
DC System (1) - MCU0348M4	Digital Input 3	2015-05-05 13:46:13Z	No Ack	none	Digital Inputs	
DC System (1) - MCU0348M4	Digital Input 4	2015-05-05 13:46:13Z	No Ack	none	Digital Inputs	
Rectifier (2)	Remote Off	2015-05-05 14:33:11Z	No Ack	warning		
Rectifier (2)	Short Error	2015-05-05 14:33:30Z	No Ack	major		

Figure 70 Email example

Configurations

In order to send emails, you need a valid SMTP server.

#	Name	Type	Signification
CF120	Enable Email Feature	True/False	Enable/Disable the email feature
CF121	SMTP Server	URL	SmtP Server url.
CF122	SmtP Domain	String	by default : "local". On some SMTP server, the domain is needed in order to initiate the SMTP protocol
CF123	SMTP User:Login	Password	SmtP Login and Password. The password is encrypted. To enter a new login and password, enter login:password and validate, the password will be encrypted.
CF130	Mail Sender	String	The 'From' of the emails you will receive.
CF131	Mail Recipients	String	Mail Recipients, separated with semicolon ';'
CF135	Minimal Severity Type To Send Mail	List<AlarmSeverity>	Minimal severity for triggering a Summary Mail

If you are using a domain name, make sure you configured the *network DNS parameter*

ID	Configuration Item	Value	Status
CF120	Enable Email Feature	True	✓
CF121	Smtip Server	130.1.1.1	✓
CF122	Smtip Domain	local	✓
CF123	Smtip User Login:Password	[redacted]kGCZ8fAeICfQ/GorPXi7OGW+qU	Wizard ✓
CF130	Mail Sender	[redacted]@alphatechnologies.be	✓
CF131	Mail Recipients	[redacted]@alphatechnologies.be	✓
CF135	Minimal Severity Type To Send Mail	major	✓
CT120	Send Summary Email		▶

Figure 71 Email configuration example

5.2.3.2 SNMP Traps

Compas can be used with SNMP in order to send traps. The traps are send on the port 162 of a targeted IP. Please see [Using and Configuring SNMP traps](#) chapter.

5.2.3.3 XML posting event

Compas Support the XML Event Posting. See [XML files](#) for more information.

5.2.4 Alarm Configuration

You can easily configure all your system alarm. Just enter into the configuration mode and navigate to the device alarm that you want to edit.

You will have the possibility to edit:

- Severity Type
- Severity Level
- Relay mapping
- Set & Reset delay

Dashboard	Description	Alarm	Event	Data	Record	Configuration	Control	All
DC Bus								
Id	Name	Severity Type	Severity Level	Relay	Set Delay	Clear Delay		
AL1	DC Bus Extra Low	major	6	1	5	2		
AL2	DC Bus Low	minor	4	2	5	2		
AL3	DC Bus High	minor	4	2	5	2		

Figure 72 Alarms edition

5.2.4.1 Severity

You can set the alarm severity using a severity level (a number from 0 to 9) .

The severity type match ETSI standard and are used to set compas alarm color.

- None
- Warning
- Minor
- Major
- Critical
- Disabled

By setting the alarm to disabled, the system will not evaluate the condition. You will not be alerted in case of problem.

5.2.4.2 Relay

On Dc system system that have embedded relays, you can map directly the alarm to the dedicated relay. It is really useful for a fast configuration.

When you use ADIO system, you can configure directly a boolean expression (see [PLC Functionalities](#)) into the relay output configuration.

5.2.4.3 Set and reset delay

Adding a set or reset delay is really easy with compas: just enter the value that you wanted in second in the alarm configuration.

5.2.4.4 Custom Alarms

Compas Supports custom alarms made using equations. Take a look to [PLC Functionalities](#) in order to discover how to do that.

5.2.5 Alarm Acknowledgement

When an alarm is set, it is possible to acknowledge it. The alarm will stay active, but with an acknowledged status. When the alarm is clear, the status state disappears.

It can be used with Arm@da to differentiate the new alarms and the alarms under investigation by a technician. When someone acknowledges, an event is generated, with the information about the user and the IP address from which it was done.

The screenshot shows the 'Alarms/Events' section of a web interface. The top navigation bar includes 'Dashboard', 'Site', 'Reporting', 'Alarms/Events' (highlighted with a red box), 'Inventory', 'Files', and 'Controller'. Below the navigation bar, there's a section titled 'Active Alarms' with a minus icon on the right. The main content area displays a table of active alarms:

From	Name	Start Date-Time	Acknowledge
DC System (1) - MCU0348M4	Battery LVD Relay Open	2015-05-05 14:58:24Z	 
DC System (1) - MCU0348M4	Battery Temperature Sensor Fail	2015-05-05 14:58:24Z	 
DC System (1) - MCU0348M4	Digital Input 1	2015-05-05 14:58:24Z	 
DC System (1) - MCU0348M4	Digital Input 2	2015-05-05 14:58:24Z	 
DC System (1) - MCU0348M4	Digital Input 3	2015-05-05 14:58:24Z	 
DC System (1) - MCU0348M4	Digital Input 4	2015-05-05 14:58:24Z	 
Rectifier (2)	Remote Off	2015-05-05 14:58:52Z	 

Below the table, there's a detailed view of the 'Battery LVD Relay Open' alarm. It shows the same information as the table row, but with a red box around the 'Acknowledge' column. The 'Acknowledge' column contains a bell icon, a checked checkbox, and a timestamp '2015-05-05 16:47:59Z'.

Figure 73 Alarm acknowledgement

5.2.6 Event Saving system

All events are saved automatically; they are added to the "events_flat.xml" file located at "http://Your_IP/files/user/events_flat.xml".

This file is a non-standard ETSI and a modified XML file. You can easily read it and understand it but, in order to improve the flash disk life, we open this file in "append mode".

```
<event path="/site/1" id="296" datetime="2015-05-11T09:06:39"
severity_type="major" severity_level="6" type="cold start"
group="Controller">Comp@s Monitoring Started</event>
<event path="/site/1" id="297" datetime="2015-05-11T09:06:42"
severity_type="none" severity_level="0" type="information"
group="Inventory" subgroup="CAN Bus">CAN Bus Node Detected : 2</event>
<event path="/site/1" id="298" datetime="2015-05-11T09:06:42"
severity_type="none" severity_level="0" type="information"
```

```
group="Inventory" subgroup="CAN Bus">CAN Bus Node Detected : 3</event>
<event path="/site/1" id="299" datetime="2015-05-11T09:06:42"
severity_type="none" severity_level="0" type="information"
group="Inventory" subgroup="CAN Bus">CAN Bus Node Detected : 121</event>
<event path="/site/1" id="300" datetime="2015-05-11T09:06:44"
severity_type="none" severity_level="0" type="information"
group="Inventory" subgroup="CAN Bus">CAN Bus Node Detected : 101</event>
<event path="/site/1/energy_system/1/dc_system/1" id="203"
datetime="2015-05-11T09:06:50" severity_type="major" severity_level="6"
type="cold start" group="Controller">DC System Started</event>
<event path="/site/1/energy_system/1/dc_system/1" id="211"
datetime="2015-05-11T12:48:37" severity_type="none" severity_level="0"
type="information" group="Controller" subgroup="Control
Execution">Control Executed : [id=3],[name=Force Battery
Test],[value=1],[result=COMMAND_EXECUTED],[user=alice],[ip=130.*.*]</ev
ent>
<event path="/site/1/energy_system/1/dc_system/1" id="214"
datetime="2015-05-11T12:49:24" severity_type="none" severity_level="0"
type="information" group="Battery Test">Battery Test Result : On Going
[DA73=0.00],[DA74=0.00],[DA75=51.0]</event>
```

Table 2 eventflat.xml example

5.3 Date and Time Management

Having the right time is important for the managing of the event, periodic actions, etc... In most cases, Compas systems have a Real Time clock. That IC has an independent battery used to keep time between power outage. It can keep your system time even if there is a power outage for several weeks.

Compas support also configurable time synchronization with [\(S\)NTP Protocol](#). For Daylight saving support, you will need to [configure the right Time Zone](#) for your device.

Time		
DA21	Date And Time Local	2015-06-29T10:15:45
DA22	Date And Time UTC	2015-06-29T08:15:45
CF11	SNTP Time Server	130.145.57.41 ✓
CF14	Time Zone Name	(GMT+01:00) Brussels, Copenhagen, Madrid, Paris ✓
CF15	SNTP Time Refresh (hour)	168 ✓
CF16	SNTP Time Recovery Refresh (hour)	24 ✓
CT11	Force SNTP Time Refresh	▶
CT12	Set Local Time	2015-06-29T10:15:46 Sync With Computer ✓
CT13	Set UTC Time	2015-06-29T08:15:46 Sync With Computer ✓
CT14	Reset Uptime	▶

Figure 74 Time options

5.3.1 Set time Manually

If you want to change the time on your compas system, you just need to use the **site -> CT12** to set the Local Time or the **site -> CT13** to set the UTC time.

5.3.2 Time zone & daylight saving time

The time zone is important if you want to use correctly the daylight saving time. In compas, it is available at the site level and it can be easily changed.

You can configure the time zone in **Site -> CF14** (Time Zone Name). In edit mode, you will see all the available time zone in the drop down list.

Time		
Id	Name	Value
CF11	SNTP Time Server	172.16.3.2 ✓
CF14	Time Zone Name	(GMT+01:00) Brussels, Copenhagen, Madrid, Paris ✓
CF15	SNTP Time Refresh (hour)	(GMT-03:00) Cayenne ✓
CF16	SNTP Time Recovery Refresh (hour)	(GMT+04:00) Moscow, St. Petersburg, Volgograd ✓
		(GMT+01:00) Brussels, Copenhagen, Madrid, Paris ✓
		(GMT-04:00) Asuncion ✓
		(GMT+05:00) Islamabad, Karachi ✓
		(GMT-08:00) Tijuana, Baja California ✓

Figure 75 Changing time zone

When a change in time zone has been done, it is necessary to reboot the monitoring to have the changes applied.

List of Available time zone (API helper)

All the available time zone can also be retrieved on this file: http://A_ip_of_Compas/timezones.txt .

5.3.3 Time synchronization: (S)NTP Time protocol

The time can be automatically synchronized with an UTC time server, implementing the Network Time Protocol (NTP) (or SNTP). This allows having all the monitoring time synchronized with one reference time server.

Before using SNTP, you need to be sure that the right [time zone is configured](#).

The configuration parameters are available at Site -> Configuration. You can configure the desired server, the refresh time and the "recovery refresh time", the time if last refresh has failed.

#	Name	Description	Default
CF11	SNTP Time Server	IP address or domain that will provide SNTP	swisstime.ethz.ch
CF15	SNTP Refresh	Time between normal SNTP refresh in hour	168h : Each week
CF16	SNTP Recovery Refresh	Time before retry if a normal SNTP has failed	24h : Each Day

You can try your setting by forcing a SNTP refresh using **site -> CT11**. (If you want to be sure, just set a wrong time with the "set local time" control.

5.4 User Access Management

Compas use user credentials. We currently support :

- [Local user management](#)
- [Radius Authentication \[Premium Feature\]](#)

5.4.1 Web server usage

In compas, we have a login history. It is accessible in Controller -> Web Server usage.

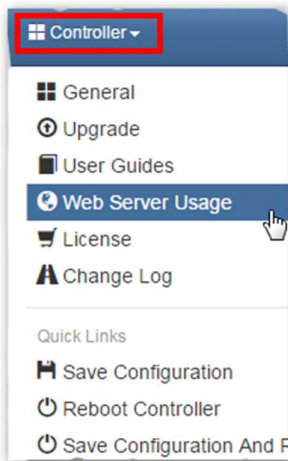


Figure 76 Web server usage link

Session Summary				
IP Address	Login	Count	Last Request	Is Browsing
130 [redacted]	admin	34	5/6/2015 5:23:16 PM	True
130 [redacted]	alice	72	5/6/2015 4:59:25 PM	False

Figure 77 Web server usage

5.4.2 Local user management

5.4.2.1 Introduction

The web server and the SNMP agent are protected by an authentication mechanism based on login/password. There are by default six users defined: one administrator and 5 users.

The administrator is allowed to use all the functionalities of the monitoring and to change any configuration parameter.

The 5 users can only access the functionalities they are authorized to. It is possible to define, for each equipment, user read/write/none access.

The following figure shows the “Read Access User Numbers” and the “Write Access User Numbers” configuration entries. The value is a list of coma separated values corresponding to the user number allowed to read or write at the Site level. These 2 parameters are also available in each “DC system” and in each “Sensors and Actuators”. All these default login/password can be changed by the help of any interface. The passwords are encrypted in the configuration file; the key also relies on the user name. These parameters are located in Site -> Configuration, as shown on the following figure.

Users which have write access at the Site level are able to change the login and the password of all the other users, including the administrator.

Default users and passwords

<u>Login</u>	<u>Password</u>
admin	compas
user1	compas
user2	compas
user3	compas
user4	compas
user5	compas

Users			
Id	Name	Value	
CF101	Administrator Login:Password	admin:iUlrqzLaY2IWH7tZyjFVzsfLvj1Pv2uUh6YSrsk5g=	Wizard ✓
CF102	User 1 Login:Password	user1:XwhM5CCz+GT9SMS+Lzbebb2SO1vfwrp/lyTG3W3Wcubg=	Wizard ✓
CF103	User 2 Login:Password	user2:mWOpPJkFvS6xDoGU/QbCz1aJtFqOm0RQqMfyixGhzA=	Wizard ✓
CF104	User 3 Login:Password	user3:Z7+ekqLzcpnmFr4tBA0Bo+xSyCKFKBGdby55kchGAnM=	Wizard ✓
CF105	User 4 Login:Password	user4:viQkEzvhBGAqOyXpUo/BkiqMaxZVRXTfnijvtgQWpU=	Wizard ✓
CF106	User 5 Login:Password	user5:zqlmAxvb3DRWu3Rn4eI0ks43Rw7u3C74MEh9QVOT75l=	Wizard ✓

Figure 78 User configuration

5.4.2.2 Manage a username and password

1. Browse to Site ->Configuration
2. Click on "Edit Mode"
3. Click on the wizard button of the desired user
4. Use the wizard to set the username and password
5. Do not forget to save your configuration to make your changes persistent

Direct Control usage

If you want act directly on the control and bypassing the wizard, you can use the syntax: "LOGIN:PASSWORD" (i.e. mike:SuperSecretPassword). This is useful for API usage.

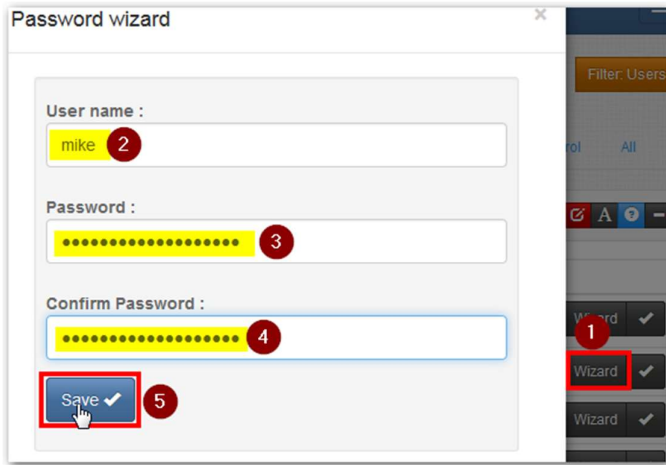


Figure 79 Password wizard

5.4.2.3 Customize access by user

Administrator has always a full access. If you use Radius authentication, the user have the full access to the system. More access management could be implemented on demand.

In compas you can configure the access of each user by device.

- Read access (or not)
- Write access

Customized user access management can be configured in each device into the generic group -> allowed users.

Example: In the site configuration showed below, users will have theses access :

User	Read	Write
Admin	✓	✓
User 1	✗	✗
User 2	✓	✗
User 3	✓	✓
User 4	✗	✗
User 5	✗	✗

DashboardDescriptionAlarmEventDataRecordConfigurationControlAll

Generic

Id	Name	Value
Allowed Users		
CF521	Read Access User Numbers	2,3
CF522	Write Access User Numbers	3

Figure 80 Example of configured access

5.4.3 Radius Authentication [Premium Feature]

5.4.3.1 Generalities

Remote Authentication Dial In User Service (RADIUS) is a networking protocol that provides a centralized authorization and accounting management. It is widely used to control users credentials, access and use of a network service. Actually, we support PAP Authentication only.

Radius is only available with Premium license. If you want to try it, it is possible to get an evaluation license.

Radius authentication is currently in beta version, if you have problems using it, you could find some debug information in the file http://your_compas_ip/debug_auth.txt. Do not hesitate to send us feedback at support.compas@alphatechnologies.be.

For now, all user connected using radius are logged as administrators.

Don't forget to deactivate users that you didn't want to connect.

5.4.3.2 Configuring your server

Configuring your radius server is really easy. First, enter your server, port and pass phrase. After that, enable the radius authentication on the web server.

1. Set your **Radius server URL** in Site -> Configuration -> CF111
2. Set your **Radius Server Port** in Site -> Configuration -> CF112
3. Set your **Radius secret** in Site -> Configuration -> CF113. The password will be encrypted in order to be unreadable in the configuration.xml file.

Id	Name	Value	Status
CF111	Radius Server	130.145...	✓
CF112	Radius Port	1812	✓
CF113	Radius Secret	5f6qJdJlmaIn1KVA=	✓

Figure 81 Radius authentication configuration

5.4.3.3 Enable the radius authentication

Now that your server is configured, you have to enable this authentication method for web access to Compas.

- Activate the **"Radius + Basic"** in *site -> CF24 (Web authentication method)*

Id	Name	Value	Status
CF22	Web Server Security Enabled	True	✓
CF23	Web Server Port	80	✓
CF24	Web Authentication Method	Radius + Basic	✓
CF26	Https Web Server Port	0	✓
CF31	Default Page	index.html?page=site	✓

Don't forget to save your configuration (controller -> save configuration) to make your changes persistent

5.4.3.4 Try your configuration

Try to reconnect to Compas using a credential coming from your radius server.

1. Click on log-out
2. Then click on "Back to the main page."
3. Login with your Radius Credential
4. If you have been successfully connected, then you have well configured your Radius Authentication server.

On some navigators, the logout is not well recognized. If you want to force a new connection, you can try the private browsing mode of your navigator.

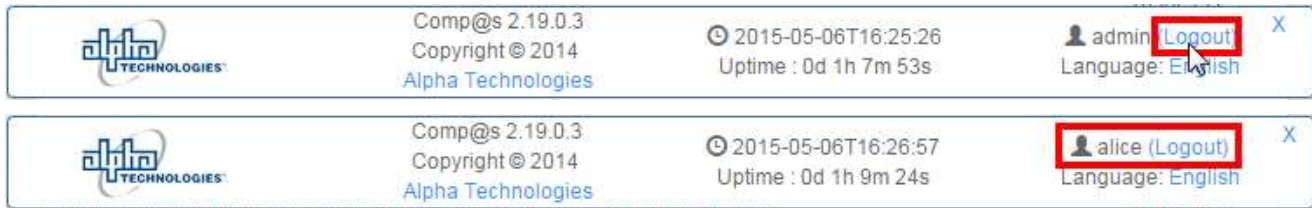


Figure 82 Logout and login

5.4.3.5 Authentication log

People logged onto the system with radius are also listed on the web server usage.

Session Summary				
IP Address	Login	Count	Last Request	Is Browsing
130.145.55.55	admin	34	5/6/2015 5:23:16 PM	True
130.145.55.55	alice	72	5/6/2015 4:59:25 PM	False

Figure 83 Radius authentication log

5.4.3.6 Setting a backup server

You can configure a secondary server that will be used by Compas as a backup of the primary. If there is a failure during communication with primary server, the secondary server will be used as a fallback.

- Edit the Radius server field (CF111)
 - Add the backup server after the primary server using a coma as a separator.
- Do the same for Radius Port (CF112)
- Do the same for Radius Secret (CF113)

In the end, your configuration looks like the picture below.

Radius Authentication		
CF111	Radius Server	130.145.55.55, 82.15.22.33
CF112	Radius Port	1812, 1822
CF113	Radius Secret	MSEepDIjsJGThI6+9vzKj1fMpKMP2EcbXf7ohQcRqR4+, MSEepDIjsJGThI6+9vzKjzbFBz8UYdSKwiS9/lpspJNTFV/k0Q0Mmv02fZCsJZLuY

Figure 84 Radius Configuration with Backup server

5.5 Remote Upgrade Management

5.5.1 Generalities and architecture

COMPAS is designed to be entirely and remotely (with an IP connection) upgradable. This gives you the opportunity to fit your need without changing the controller.

COMPAS has multiple layer of software, each layer is updatable. Most of the functionalities are located into the COMPAS layer. It contains the "brain" of our device. Sometimes, you may want to restore your controller to the factory default, it is possible since COMPAS store theses information.

- **OS Layer:** nearly never uploaded, it contains the operating system
- **Compas layer :** Monitoring application, load all data of your devices, core of the system
- **Devices Layer :** Most of the Alpha Innovations devices have a firmware. From a rectifier to I/O. In some rare case it could be necessary to upgrade it.

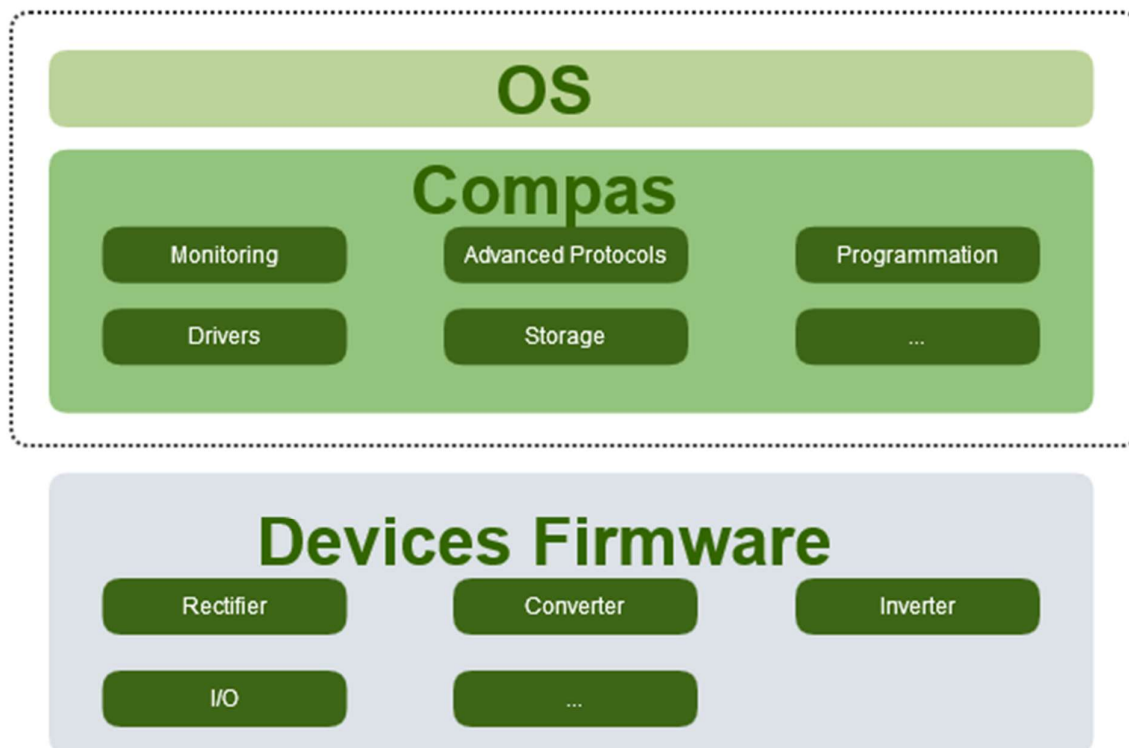


Figure 85 Compas Software Architecture

5.5.2 Upgrading the COMPAS Software Layer

Compas has several ways to be upgraded:

- Remotely via an IP connection:
 - Via the web interface
 - Via the FTP connexion
- Locally via USB

Before uploading new COMPAS software, please check that there is enough available memory (10 Mo minimum, 25 Mo recommended). You can check that into site -> DA33 (Free flash Memory Space)

5.5.2.1 Which version are you working with?

You can check the running COMPAS software version in Site -> Description -> Software Revision. It is also displayed at the bottom of all the web pages.

The screenshot shows the COMPAS web interface. At the top, there are tabs for 'Site(1)', 'Filter: Controller', and 'No SubGroup Filter'. Below these are navigation tabs: 'Dashboard', 'Description', 'Alarm', 'Event', 'Data', 'Record', 'Configuration', 'Control', and 'All'. The 'Description' tab is selected. Under the 'Controller' heading, there is a table with the following data:

Id	Name	Value
Product Info		
DE91	Software Revision	2.19.0.3
Operating System Info		
DE92	Operating System Revision	4.2
Hardware Info		
DE93	CPU	PXA300

At the bottom of the page, the footer displays the Alpha Technologies logo, 'Compas 2.19.0.3' (highlighted with a red box), 'Copyright © 2014 Alpha Technologies', the date and time '2015-05-08T15:47:40', 'Uptime : 0d 0h 3m 38s', and the user 'admin (Logout)' with the language set to 'English'.

Figure 86 Checking compas version

5.5.2.2 Upgrading with Web Interface

Since newer versions, the update procedure has been simplified. It is as simple as a file upload.

The automated process will:

- If zip: Extract the file (and validate the compas.exe.md5 checksum if available in the zip file)
- move the Compas.exe to the user folder.
- Save the configuration
- Reboot the Controller

After less than 2 minutes, the controller is fully operational.

In some rare case, the manual way can be useful: if your network connection cannot send the file or if there are restriction on the file upload size. The manual way is still supported.

Automatic firmware upgrade

1. Click on Controller --> Upgrade
2. Select the new 'compas.exe' or compas*.zip file on your computer
3. Click the Button 'Upload, Save Actual Configuration and Reboot'.

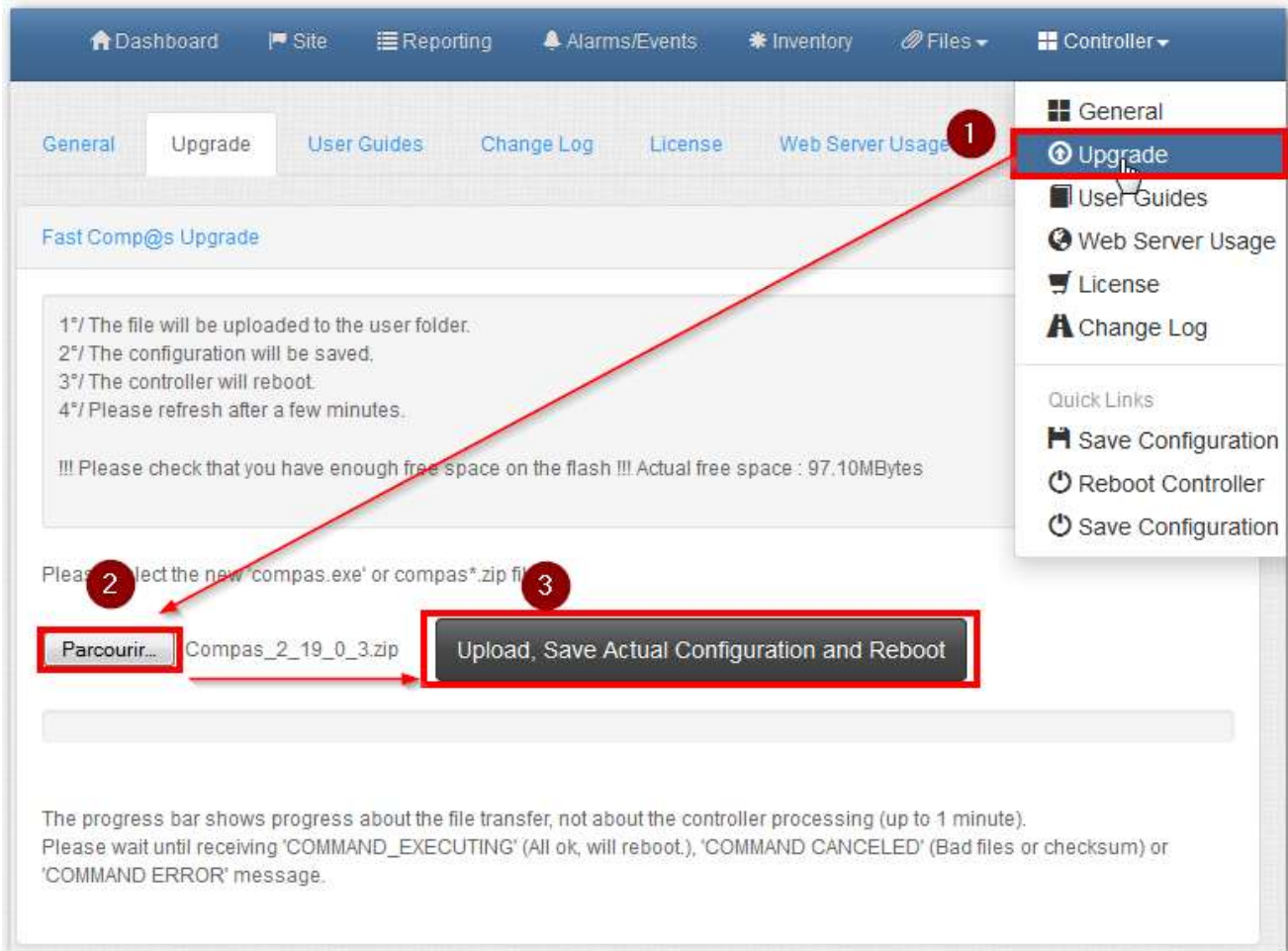


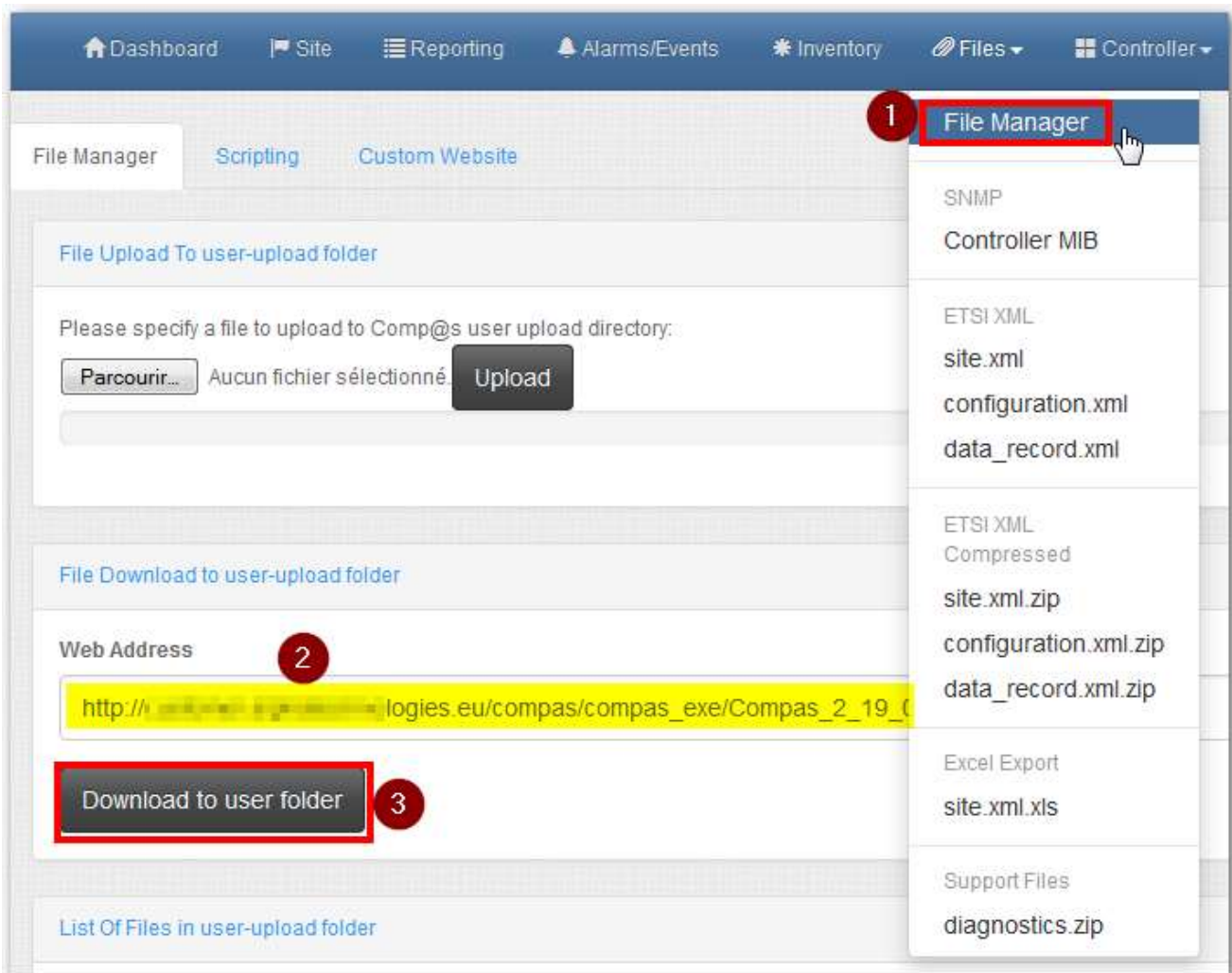
Figure 87 Upgrade using automatic update system

Manual Upgrade procedure

Manual update is needed with older compas version or when there is no possibility to upload the firmware with your connection.

1. Navigate to the File Manager : "Files" > "File Manager"
2. Update your Compas Executable (2 possibilities)
 - a. *possibility 1*: Use the standard upload form
 - b. *possibility 2*: Use the Compas Downloader
 - i. specify the url and click on download to user folder
 - ii. Click on "download to user folder"
You can follow the download in the event of the site.
 - iii. Wait for the event "Download Success"

- iv. If there is a fail, check your network configuration, maybe the gateway or DNS are misconfigured
3. Now your file is listed in the "List Of Files in user-upload folder". If you have sent the zip, you will need to extract the zip by clicking on "Extract File"
4. If you get the response "COMMAND_ERROR", please check that there is no file with the name Compas.exe or Compas.exe.md5 in user-upload folder
5. After that you will need to check that it is the right version of compas that is showed in "Other info".
6. Then, Click on "Replace/Move Compas.exe to user folder"
You will receive the "COMMAND_EXECUTED" response.
7. Finally You can now save your configuration and reboot your controller
The controller will take up to two minutes to restart



List Of Files in user-upload folder

File	Write Time	File Size	Other Info	Std Command	Detected Specific Command
Compas_2_19_0_3.zip	5/8/2015 4:34:52 PM	2312044	Compas.exe,Compas.exe.md5	Delete	Extract File 1
PAR_001_000053_ed02_configuration.xml	12/31/1999 11:41:12 PM	1128		Delete	
Compas.exe	4/23/2015 5:32:04 PM	4488704	2.19.0.3 2	Delete	Replace/Move Compas.exe to user folder 3
Compas.exe.md5	4/23/2015 5:45:22 PM	32		Delete	

Figure 88 Manual upgrade procedure using File downloader

5.5.2.3 Upgrading with FTP

The upgrade can be done through a FTP connection:

1. Connect the system with your FTP client (See [FTP](#)).
2. Browse to the “\user” folder, in the “\\FlashDisk” folder (“\\NOR Flash” on old devices (before 2008))
3. Copy the new “Compas.exe” release in that folder.
4. Reboot the monitoring with the Web Interface (Site -> Control) or with SNMP.
5. You can check that the running software revision has changed.

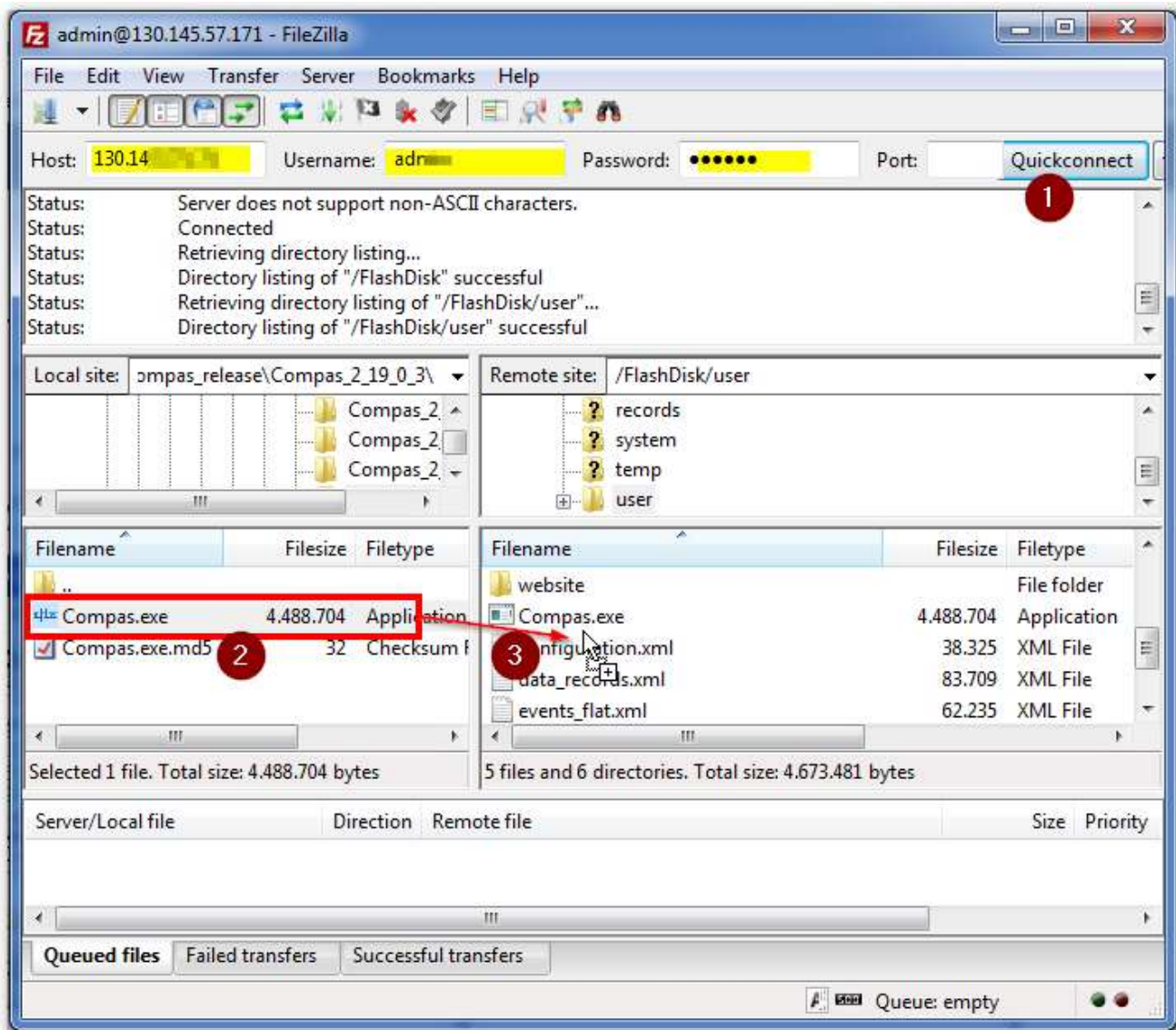


Figure 89 Upgrading via FTP

5.5.2.4 Upgrading Locally with USB

The upgrade is done through the USB Active Sync connection.

1. Be sure you have ActiveSync correctly installed as described in (see – [Connecting with USB](#)).
2. Connect the USB cable between the COMPAS system and your personal computer.
3. Open the windows explorer and click on “Mobile Device”, under “My Computer”. You should have access to the memory of the COMPAS Monitoring.
4. Browse to “\FlashDisk\User” (“\NOR Flash\User” on some previous release)
5. Copy the new “Compas.exe” release in that folder.
6. Reboot the monitoring with the Web Interface.
7. You can check that the running software revision has changed.

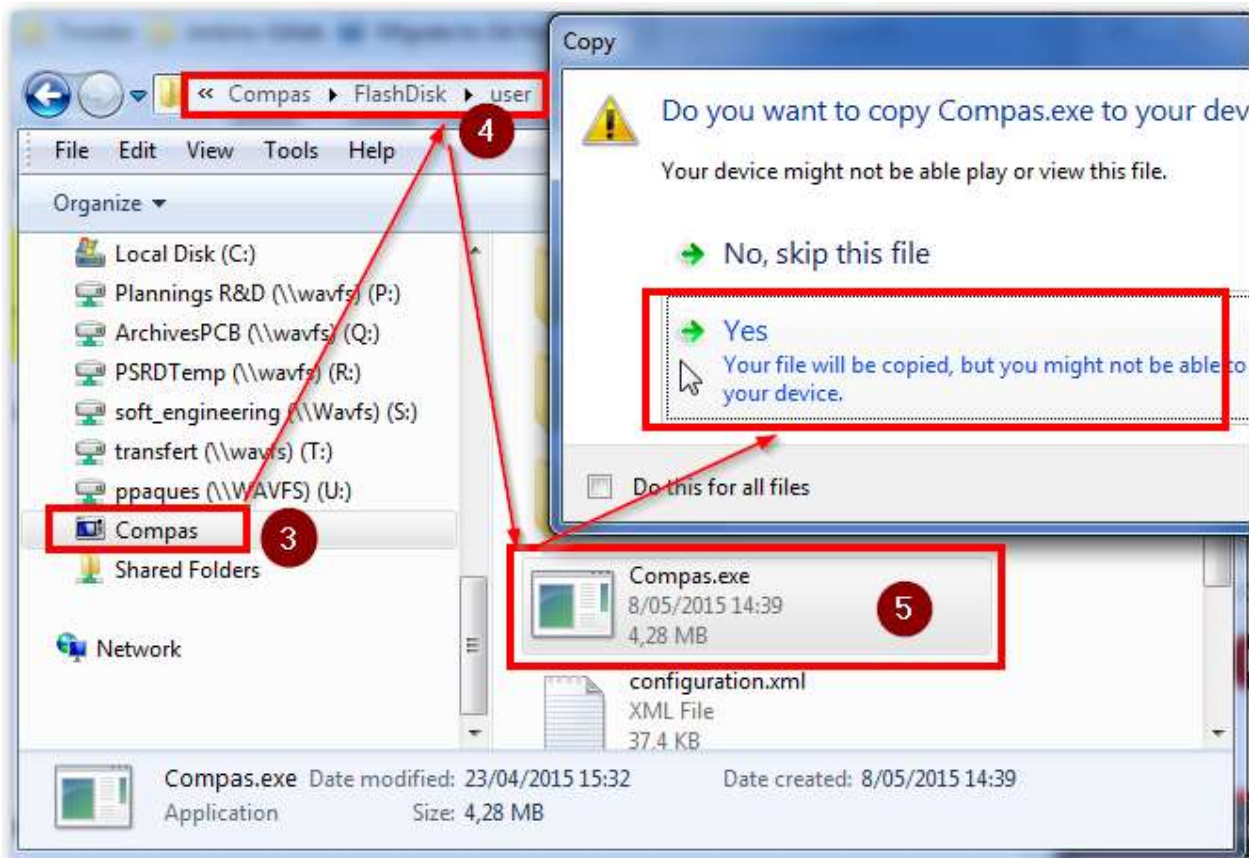


Figure 90 Upgrade using usb

5.5.2.5 Upgrading from an old system

Compas is still compatible with old system. From 2006, all Compas version have a backward compatibility. With older hardware revision, you have to pay attention that it may have not enough space on the system.

The following procedure will change the CompasStarter File. This file is the launcher of the card, it stars the FTP Server and Compas. If it gets corrupted, your card is not going to restart without an on-site intervention and an usb recovery.

To do this procedure, you need to get the CompasStarter version that support zip extraction.
[Contact us](#) in order to get all the necessary files.

You can update your system remotely or locally using the FTP or the USB connection to access to the file system.

In order to upgrade your old system (before 2012), you have to respect this procedure:

1. Connect on your card via FTP (or USB)
2. Upgrade the file *Compas_Starter.exe* in the folder *\\FlashDisk\\AutoRun* (or *\\NOR Flash\\AutoRun* for even older systems)
3. Be sure that this file is well updated

4. Delete the file ***user\Compas.exe***
5. Download the zip version of Compas that you want to install and rename it to ***Compas.zip***. (i.e: Download Compas_2_20_0_3.zip on customer page and rename it to Compas.zip)
6. Copy the zip into the User Folder : ***user\Compas.zip***
7. Restart Compas

Old card may not support the update via the web interface. Please upgrade via FTP and be sure that there is enough space on the card.

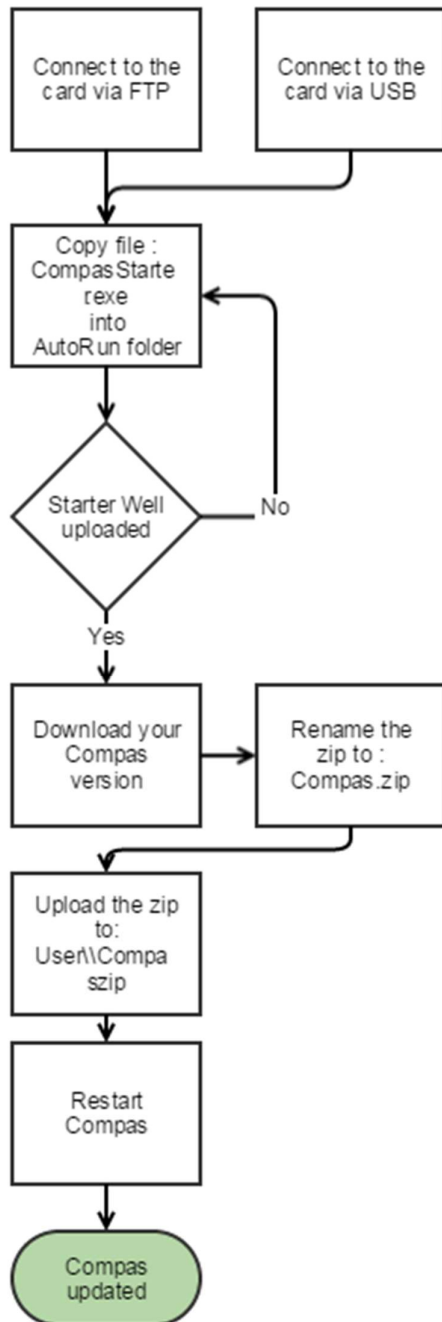


Figure 91 Old Compas Update Procedure

5.5.3 Upgrading a CAN Device Firmware with COMPAS

Any software/firmware of any Alpha Innovations equipment connected to the CAN bus can be upgraded remotely thanks to COMPAS.

If you are updating a rectifier, you have should have at least another rectifier or a battery connected

DO NOT POWER OFF THE EQUIPMENT DURING THE PROCEDURE.

5.5.3.1 Procedure

1. **Preparation:** Verify that you have at least one other rectifier (or battery) connected to the system if you are upgrading a rectifier. (The rectifier will be down during the upgrade)
2. **Preparation:** In inventory tabs, use the frame "Upload Bootloader File" in order to send the firmware to COMPAS. A firmware file has usually a name that looks like "SOFT_XXXXX_XX.txt" or "*.acan"

The firmware will be showed in the "Available Upgrades" frame. You can also make this step by uploading the file to the correct path "\\FlashDisk\User\Firmware" using FTP or a usb connection.
3. **Action:** Click on "Start Upgrade" in order to start the firmware upgrade. You will receive a "COMMAND_EXECUTING" response.
You can also start this step using the control CT91 in site. You have to specify the id number of the CAN Node, followed by a coma, followed by the file name. *Example : '101,SOFT_0000030_01.txt'.*
4. **Action:** Once you received the message "COMMAND_EXECUTING", click 'OK'. After, you can see the progress in 'Can Bus Information'. The COMPAS card is sending the firmware to the device over the CAN Bus (about 2-3 minutes). Your equipment will disappear from the CANopen Nodes list during the upgrade.
5. **Confirmation:** When the progression is finished, the equipment reboot and is detected again by COMPAS. The new firmware is installed. You can see the firmware revisions in the "CANOpen Nodes".

If you are updating a MCU, you may want to save your system parameter inside the MCU by using the control : *DC System -> CT51 (Save configuration in MCU).*

5.5.3.2 Visual help

Upload Bootloader File

The file will be uploaded to the user/firmware folder.
Select the file to upload (SOFT_XXXXXX_YY.bt - *.acan)

Please select the firmware file

1

2

Parcourir...

SOFT_000092_02_TO_SOFT_000084_03.bt

Upload Firmware File

Figure 92 Uploading a firmware

Available Upgrades

Physical Channel: CAN0

Node ID	Actual SW Info	Available Upgrade File	Command
2	SOFT 000092 01	SOFT_000092_02_TO_SOFT_000084_03.bt	Start Upgrade

Physical Channel: CAN0

Available Update File

SOFT_000092_02_TO_SOFT_000084_03.bt

Upgrade All Compatible

Downgrade All Compatible

Figure 93 Starting and upgrade

CAN Bus Information	
Bootloader	True
Actif	
Node	2
Line Sent /Total Line	310/3488
File Name	SOFT_000092_02_TO_SOFT_000084_03..txt
State	5
Bootload task queue	1/1

Figure 94 Monitor the firmware upgrade procedure

CANOpen Nodes				
Node ID	Node Available	HW Info	SW Info	Product Name
2	true - Heartbeat(1011 ms) Last Comm : 283ms ago	9411 010 95001	SOFT 000084 03	CAR0948TN

Figure 95 Check result of firmware upgrade

5.5.3.3 Device recovery

If an equipment is powered off or if another equipment is powered on during the upgrade process, the software of these devices may be corrupted. In this case it will be stuck in "bootloader" mode and will no more appear in the CANopen Nodes list or in the inventory. If this happens, you will have to force the upgrade procedure. This operation can be performed remotely if a single equipment is affected.

This operation can only be performed if **a single device** is stuck in such state. If multiple devices are affected, you will need to power them off and force the upgrade one by one.

Recovery Procedure

- Preparation:** Power on the system using another rectifier (or battery) connected to the system.
- Preparation:** In inventory tabs, use the frame "Upload Bootloader File" in order to send the firmware to COMPAS. A firmware file has usually a name that looks like "SOFT_XXXXX_XX.txt" or "*.acan". You can also make this step by uploading the file to the correct path "\\FlashDisk\User\Firmware" using FTP or direct usb connection.
- Action:** In the "control" tab of the site, go to control field CT91. Instead of the id number of the CAN Node you must use the letter "F", followed by a coma, followed by the file name. *Example :* 'F,SOFT_0000030_01.txt'.

4. **Action:** Once you received the message "COMMAND_EXECUTING", click 'OK'. The COMPAS card is sending the firmware to the device over the CAN Bus (about 2-3 minutes).
5. **Confirmation:** When the progression is finished, the equipment reboot and is detected again by COMPAS. The firmware has been repaired. You can see the firmware revisions in the "CANOpen Nodes".

5.5.4 Upgrading The Operating System

The operating system on which COMPAS is running can be updated. The operating system is not evolving quickly. Last version is 4.2. Version 3.9 are the most common, if you have it, you don't have to upgrade. You can check your version in Site/Description : "Operating System Revision". This procedure is for **Advanced users only**. If the update that you have done is not required, your warranty will be voided. The only way to keep your warranty is to do the update under the Alpha Innovations supervision Team. If you think you need to do this update, read carefully the procedure and then do it. Be aware that you can broke your system.

DO NOT POWER OFF THE EQUIPMENT DURING THE PROCEDURE.

An OS Update is not a small update, usually it is not necessary. This procedure is for advanced users only.

5.5.4.1 Procedure

1. **Preparation:** You must first upload the files "COMPAS_EBOOT_xxx.bin" and "COMPAS_OS_xxx.bin" to the the comp@s card. The correct folder is "\\FlashDisk\User\Firmware". This can be done through FTP or USB. The following screenshot shows the folder in Filezilla, with both files uploaded.
2. **Action:** Go to site/control (CT103), and type the file name to flash.
3. **Action:** You should start to update with EBOOT file (the bootloader), and then the OS (wait the competition of the EBOOT File). You can follow the progress with the events.
4. **Confirmation:** Reboot the controller, In site -> description, the operating revision have changed.

Always upgrade EBOOT before OS.

5.5.4.2 Visual help

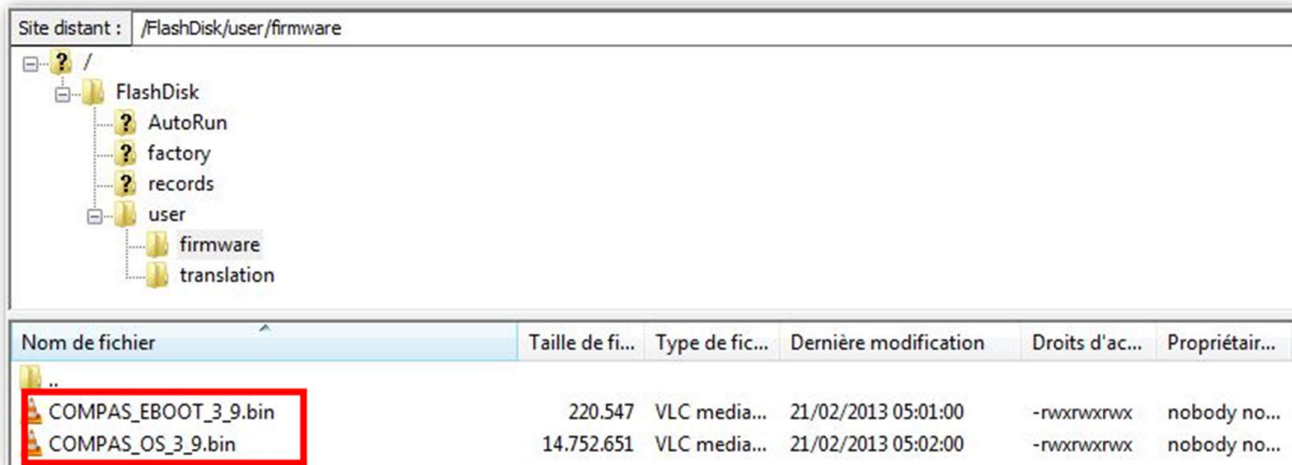


Figure 96 Upload EBOOT and OS

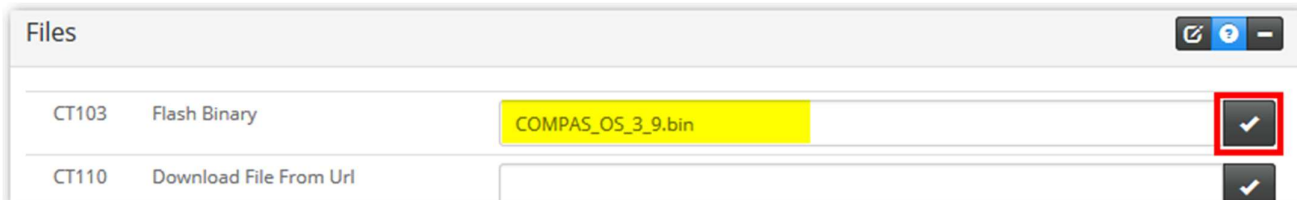


Figure 97 Start an OS upgrade

Id	Name
Last 10 Minutes	
EV195	Binary File Deleted : COMPAS_OS_3_9.bin
EV194	Binary Flash Success : COMPAS_OS_3_9.bin
EV193	Binary Flash Started : COMPAS_OS_3_9.bin
EV192	Control Executed : [id=103], [name=Flash Binary], [value=COMPAS_OS_3_9.bin], [result=OK],[user=admin], [ip=130.145.57.186]
EV191	Alarm Set : Controller Reboot Required
EV190	Binary File Deleted : COMPAS_EBOOT_3_9.bin
EV189	Binary Flash Success : COMPAS_EBOOT_3_9.bin
EV188	Binary Flash Started : COMPAS_EBOOT_3_9.bin
EV187	Control Executed : [id=103], [name=Flash Binary], [value=COMPAS_EBOOT_3_9.bin], [result=OK],[user=admin], [ip=130.145.57.186]

Figure 98 Check update process in events

5.5.5 Restoring the factory system

In Compas, you can keep the factory parameters and the factory software separately. If you want to restore both, just do the two procedures then restart Compas.

5.5.5.1 Restoring only the factory parameters

If you want to restore the factory settings, you just have to delete the file "*configuration.xml*" located into the user folder. After that, restart the system.

You have multiples way to do that:

- Using the ftp server
- Using the usb connection
- Using the file manager of the web-interface

Default IP will be restored

Don't forget that you will also restore the factory IP settings. If you work remotely, you may want to put a customized configuration.xml containing only your IP configuration.

```
<?xml version="1.0" encoding="utf-8" standalone="yes"?>
<site id="1">
  <config_table>
    <config id="1" name="DHCP Enabled" group="Network">False</config>
    <config id="2" name="IP Address If Static"
group="Network">IP_ADDRESS</config>
    <config id="3" name="Subnet Mask If Static"
group="Network">SUBNET_MASK</config>
    <config id="4" name="Default Gateway If Static"
group="Network">IP_GATEWAY</config>
    <config id="5" name="DNS If Static"
group="Network">IP_DNS_SERVER</config>
  </config_table>
</site>
```

Table 3 Customized configuration.xml with only ip configuration

5.5.5.2 Restoring the factory software version

If you want to restore the Factory version of compas, you have to delete the file "*compas.exe*" located into the user folder. After that, restart the system.

You have multiples way to do that:

- Using the ftp server
- Using the usb connection
- Using the file manager of the web-interface

Note

Some functionalities may not exist in the factory version, as it is older.

5.6 Data Records, Charts & Reporting

With Compas, record functionality is a standard option. You can easily configure what you want to keep and which precision you need. After a few time, you will be able to make charts and reports on all the data collected by the compas Software.

The on-board recording functionality is essential to understand what happened when there is a problem to investigate.

5.6.1 Data Records

5.6.1.1 Overview

For each data on each device, you can select a customized record option. This will allow you to select the right precision for the right data. We have two main type of record used in compas: **Standard records** and **Delta records**.

Standard records are based on a time trigger (i.e.: Each second). Delta records are based on a value change trigger (i.e. : each change superior of 1 volt of the bus voltage.)

So, for each data, we can configure;

- Time Based Recording
 - Seconds Records
 - Minutes Records
 - Hour Records
 - Day Records
- Change Based Recording
 - Delta records

Like always, with Alpha Innovations, our data storage files are open, you will always be able to read your data from the records. This is a big advantage over our competitors.

5.6.1.2 Standard Recording system

The standard recording works as described below. As you can see, each period can have his own precision. If you want, you can save the data each second during the last 10 minutes or on the last 60 seconds.

Each minute, we take the min, max and average value. It is also done by hour and day. This will help you to detect improper value. Each data that we save is linked with a time stamp.

Data's are saved each day at midnight or just before the end of life of the system (i.e. a Low Voltage Disconnect opening for battery protection.).

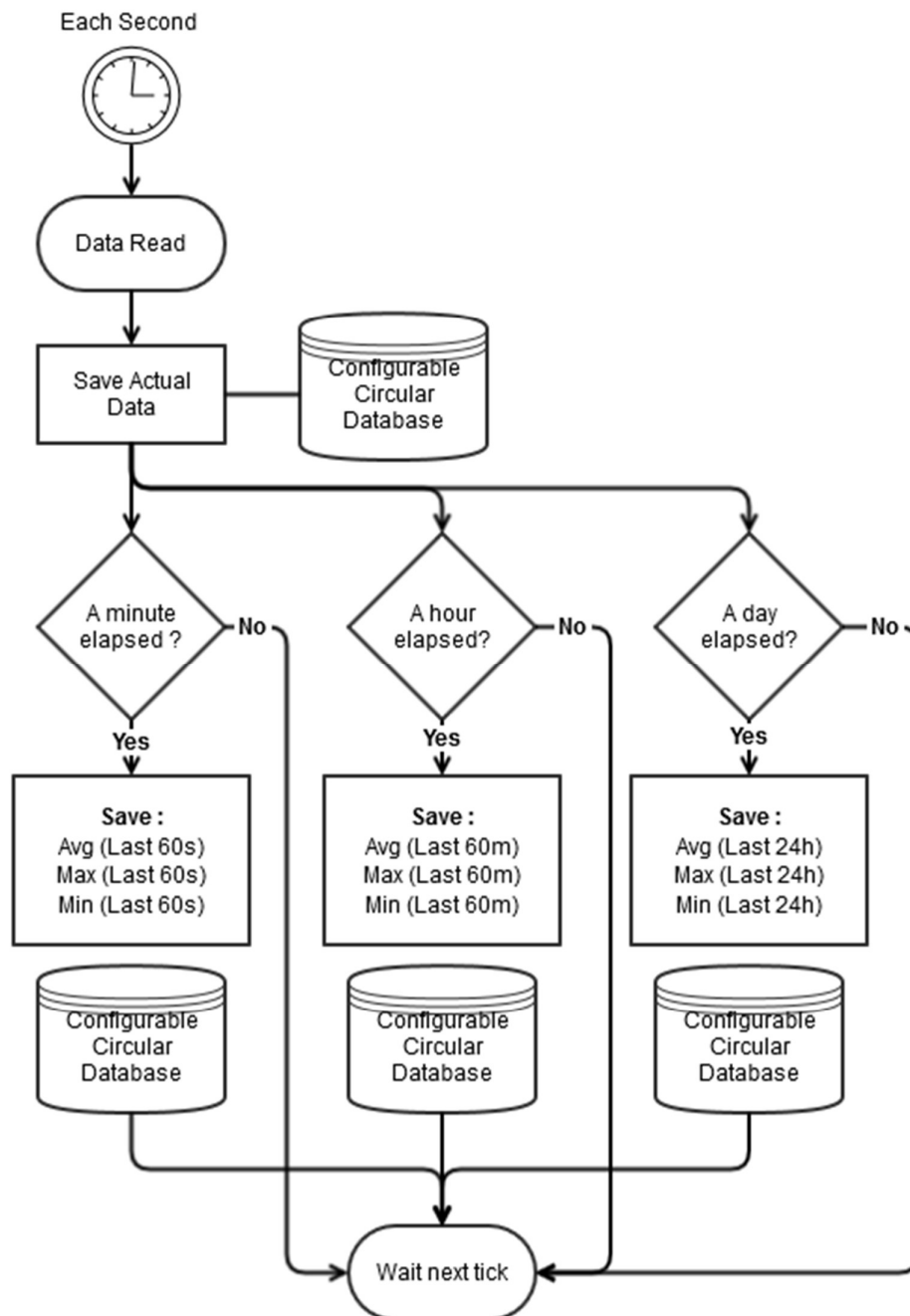


Figure 99 Standard recording system

5.6.1.3 Delta recording system

Delta records saving are triggered with a value change. You can parameter a delta value which is the minimal change before triggering a save into a circular database.

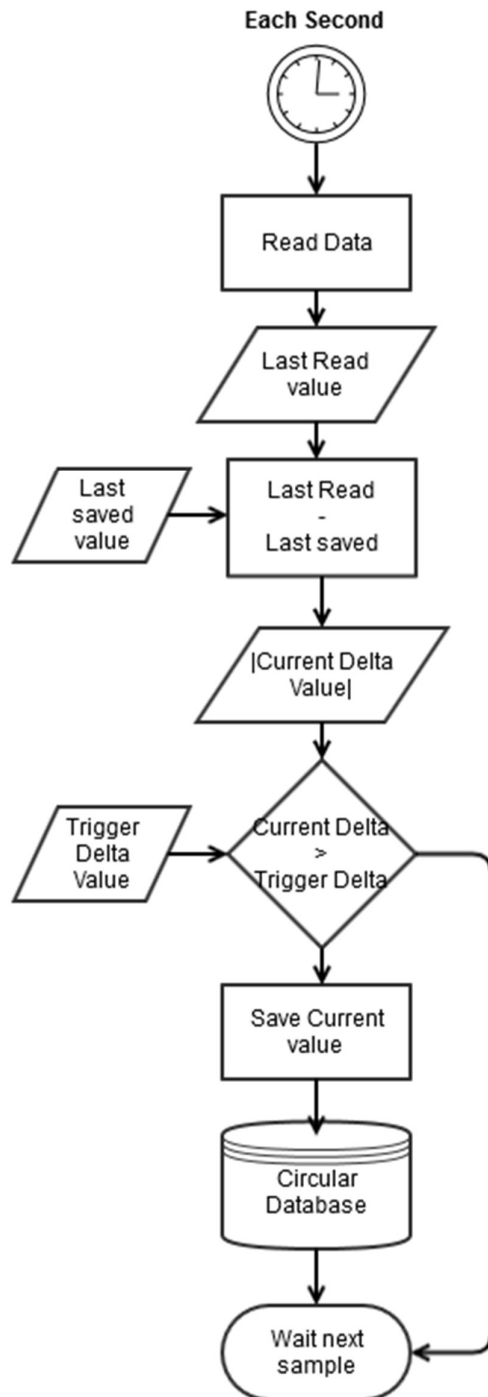


Figure 100 Delta Record saving system

5.6.1.4 Configuring records

Wizard configuration

In each device, you have to go to the Record tabs and switch to edit mode. After that, it is highly advised to use the wizard to configure the record like you want. We will teach you using a user case:

If you want to save your bus voltage, with the following requirements:

- save each second during 10 minutes
- save each minute during 25 hours
- save each hour during last two weeks
- save each day during last year
- save the last 500 values changes of the system with a delta value of 0.5 volts

Procedure

Let's do it:

1. Go to your site -> energy system -> DC system
2. Go to the tab Record
3. Switch to edit mode
4. Click on Wizard into the bus voltage parameter, a pop-up will appears with configuration options.
5. Configure the record like you want.
As you can see, the wizard is giving you a lot of approximation in order to help you to configure the line.
6. Validate your changes by clicking on the validate icon (✓)

Raw configuration

Raw configuration is still available, you can configure directly the record without using the wizard:

i.e. : s604,m1500,h334,d366,dp507,dy0.5

Each type is followed directly by the size or the value; there is no space in the line.

- s : seconds
- m : minutes
- h : hours
- d: days
- dp : size of delta record data
- dy: delta value for saving the date

Visual help

Site(1) Energy System(1) DC System(1) No Group Filter

Dashboard Description Alarm Event Data Record Configuration Control All

List Of The Available Recorded Data

ID	Group	Data Name	Record Parameters	
1	System	DC Mode		Wizard ✓
2	System	Previous DC Mode		Wizard ✓
11	DC Bus	Bus Voltage	s120,m960,h48,d366	Wizard ✓

Figure 101 Edition of recording delays

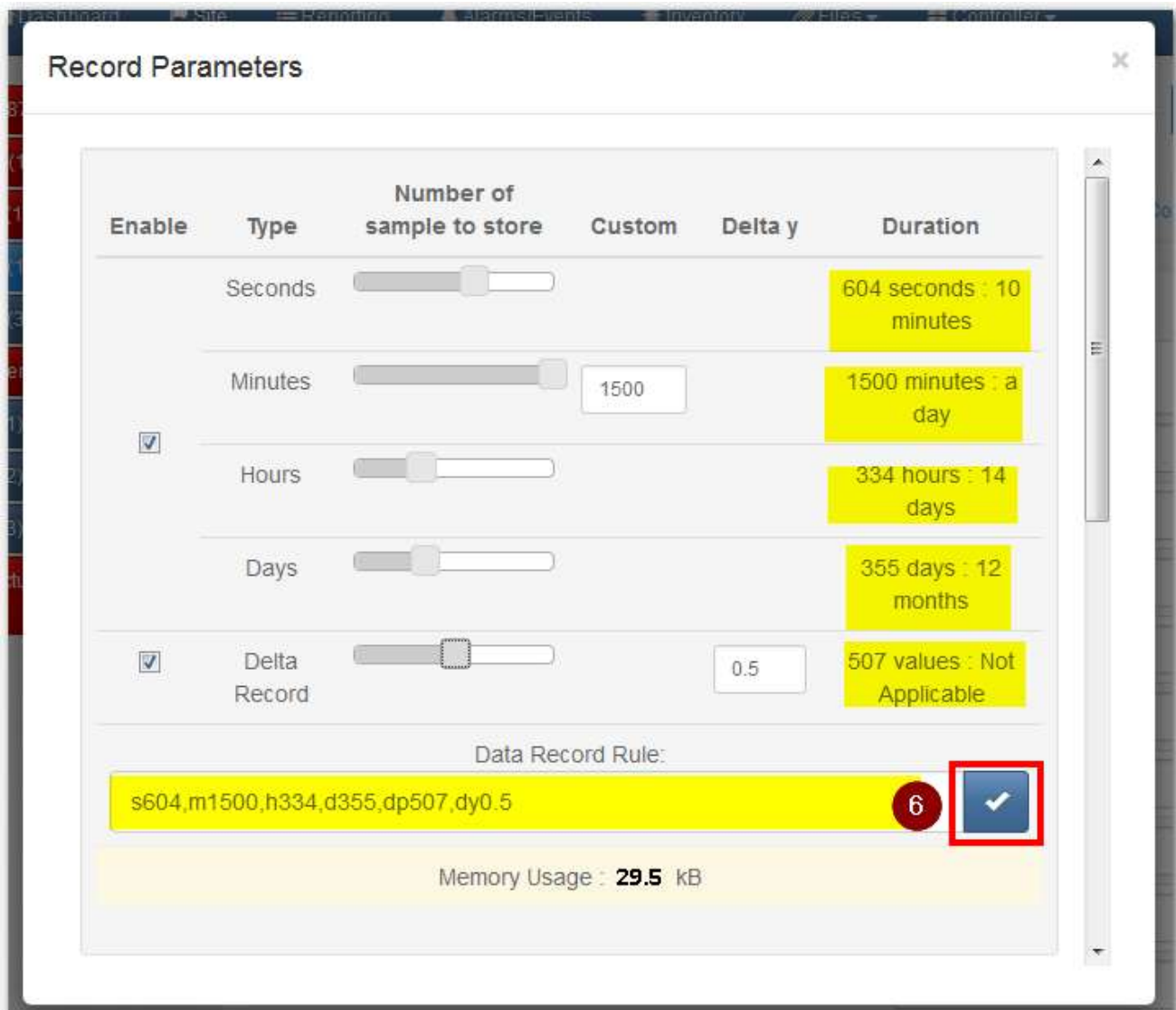


Figure 102 Wizard configuration

5.6.1.5 Forcing a save

The data records are saved once a day or just before a predicted power cut (LVD). But, if you want, you can force the saving:

- Use the control CT33 to save the data record in xml format (in *user\data_records.xml*)

You can also :

- Use the control CT35 to archive all Data Records (create a new file with time stamp in user folder (xml format))
- Use the control CT34 to export all data records in csv format (in *records*.csv*)

5.6.2 Charts

After configuring the record, if your system has run enough time, you may want to see the chart and do reporting.

In the example below, you will see a chart on an ups system. As you can see, there is a power cut at +/- 13:03 during 7 minutes. Theses information can be really interesting if you have a power contract with indemnities in case of power cut.



Figure 103 Chart example

5.6.2.1 On-Line Charts

You can display live charts, you can go into each device then in the record tabs (normal mode), and select the data that you want to see.

If you select only a one data, the minimal & maximal values are also shown.

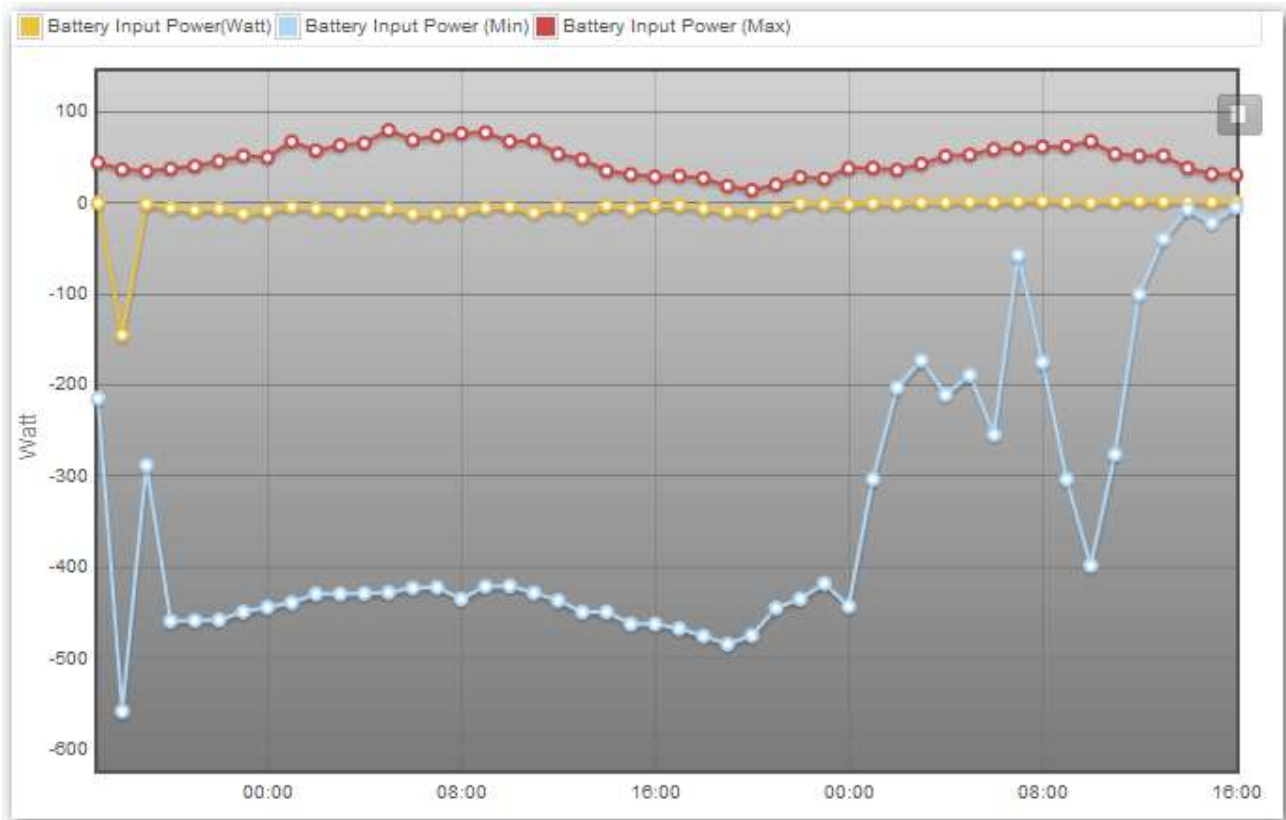


Figure 104 Chart example (with min & max)

Naturally, you can mix different devices using the reporting tabs -> data records.

Then select the data that you want to show. In this example, three data are coming from different devices monitored by compas.



Figure 105 Reporting data record

5.6.3 Reporting

5.6.3.1 Time based records

When you want to do reporting, you usually want to download data stored into compas. Time based records are available in XML format and CSV format.

The data are available directly into the XML ETSI standard file -> "*data_record.xml*". You can see an example of the file content below.

```
<?xml version="1.0" encoding="utf-8" standalone="yes"?>
<site id="1" status="alarms" severity_type="major" severity_level="6"
datetime="2015-05-11T17:31:54">
  <data_record_table>
    <data_record id="31" name="Monitoring Memory Used" group="Controller"
subgroup="Operating System Info" unit="Kb" datetime="2015-05-
11T17:31:54">
      <last_hours_datetime>2015-03-29T17:00;2015-03-
29T18:00</last_hours_datetime>
      <last_hours>6040.47;7664.25</last_hours>
      <last_hours_min>4832.38;6131.470</last_hours_min>
      <last_hours_max>7248.57;9197.10</last_hours_max>
      <last_days_datetime>2014-03-29;2014-03-3</last_days_datetime>
      <last_days>5348.34;5715.10;6078.84</last_days>
      <last_days_min>4278.68;4572.08</last_days_min>
      <last_days_max>6418.01;6858.11</last_days_max>
    </data_record>
  </data_record_table>
</site>
```

```
</data_record_table>
<energy_system id="1" status="alarms" severity_type="major"
severity_level="6">
[....]
</xml>
```

By default, the file does not contain the seconds & minutes records. This is done in order to prevent big file download. You can add the "*minute=true*" and "*second=true*" to parameter URL in order to have it. Or eventually you can ask the two. Example: "*data_record.xml?minute=true&second=true*". You can also ask to not have hour for example by using :"*data_record.xml?hour=false*".

Here are possible options:

- second
- minute
- hour
- day

You can also download the data record in cvs format. Navigate to your device, and then in the record tabs you have a section named "*Download All Data Record in CSV Format*".

Download All Data Records In CSV Format	
	Record Period
Records Of Average	second- minute- hour- day
Records Of Minimum	minute- hour- day
Records Of Maximum	minute- hour- day

Figure 106 Data record download

5.6.3.2 Delta records

It is possible to download data records in CSV format (Comma-Separated values). This allows using these records in Microsoft Excel for statistical and advanced charting purpose.

Delta records are also available. Navigate to your device then in the record tabs, you will be able to download the file into "*Download Delta Record in CSV Format*" section. Naturally, all these data are available into the **record folder**. You can browse it using the embedded file manage, the ftp or even the usb connection. The period of time can be a second, a minute, an hour or a day:

Download Delta Records In CSV Format				
Id	Group	Name	Record Count	Download Link
11		Wind Turbine Output Power	545	CSV - Zip
91	Voltage Sensor	Wind Turbine Output Voltage	619	CSV - Zip
301		Wind Turbine MPPT GlobalSet Point	530	CSV - Zip

Figure 107 Delta record download

5.7 Third-Party Equipment

With COMPAS, Alpha Innovations has a highly open politic. We accept to monitor other component or even to monitor some of our competitors. With this politic, you are able to monitor and control all your devices in a site directly through Compas.

From a single phase energy meter to full inverter rack, we are able to adapt to other devices. If you have a device that is not supported in standard, you can just ask us and we will see what we can do for you.

Depending of your system, we can use these communications:

- CAN with CanOpen protocol
- RS232
- RS485 with Modbus RTU protocol (or another one if you doesn't need the modbus RTU)
- 1-wire using usb converter
- Ethernet -> Modbus over ethernet, SNMP, XML, http,...

5.7.1 Energy Meters

Energy Meters are important if you want to know exactly your power consumption or if you want to sell energy.

5.7.1.1 Supported devices

Compas currently support several Energy Meters:

- PM9C from Schneider-Electrics (220 VAC): Three-phase measurement with current transformers
- IEM3150 from Schneider-Electrics (220 VAC) : Direct Three-phase measurement or three direct mono phase measurement
- B21 from ABB (220 VAC) : Direct mono phase measurement
- (...)
- If you want to use another modbus energy meter, it is possible. Just contact us.

5.7.1.2 Requirements

Hardware

- RS485 Compatible COMPAS product
 - **UCC Core** Module
 - **Sensors and actuators** (SAM0348 or SAM0948) with a COMPAS module
 - For other hardware, check your manual to be sure that your device is compatible.

Software requirement

- minimum COMPAS version : **2.16.0.3**
- minimum SAM0348 firmware : **SOFT 000136 05** (Only needed if you use the the RS485 over SAM0348)

- minimum SAM0948 firmware : **SOFT 000003 05** (Only needed if you use the the RS485 over SAM0948)

5.7.1.3 Installation

Energy Meter configuration

In order to use COMPAS Communication, you need to configure the meter communication according to theses parameters:

Baud rate	9600
Data bits	8
Parity	None
Protocol	Modbus

(please, refer to the manufacturer manual)

Connecting the energy meter to Compas

According to your device's user manual, connect your energy meter to the COMPAS RS485 bus line. For example, here are the pin layout of the SAM0948 and SAM0348. On these devices, you can connect both a badge reader and an energy meter.

Reader connector (SAM0948&SAM0348)	Pin Number	Signification
	1	+12 V
	2	GND_POWER
	3	A
	4	B
	5	GND_SIG
	6	N/A or shield

Configuring COMPAS

1. Add the "premium" or "metering" license.
2. Change the RS485 configuration field according to your configuration:
 - a. with **UCC Core Module** (or another COMPAS control device with *embedded direct RS485 bus*)
 - Site
 - Configuration tab -> Inventory -> RS485 Bus
 - Parameter CF210
 - b. with **Sensors and actuators** module (SAM0348 or SAM0948) and COMPAS
 - Site > Sensors and Actuators

- Configuration -> RS485 BUS
 - Parameter CF150
3. Specify the device name that you want to use with the address in brackets and save the configuration (l.e. : *B21(1)* for energy meter B21 on modbus address 1). You can specify multiples devices using semicolons (example below).
 4. Your device will be created and you will be able to browse it
 5. Don't forget to save your configuration in order to make the change persistent

RS485 Extensions configuration example

PM9C(1);IEM3150(2)

In this example, you have specified two different energy meter :

- PM9C with modbus address 1
- IEM3150 with modbus address 2

Discover your new device

Once your device is added in configuration, new equipment "*Energy Meter*" is created into the site structure:



Figure 108 Device tree with energy meter

On description tabs, you will find the identification data provided by the meter. If your meter has a readable serial number, it will be in this tabs:

Product Info			
Id	Name	Value	
DE1	Product Name	iEM3150	
DE4	Software Version	1.0.300	
DE9	Manufacturer	Schneider Electric	

Figure 109 Energy meter description

In data tabs, you will find all the data fetched on the device.

Instantaneous values		
Id	Name	Value
DA10	I1	0.17 A
DA17	V1N	217.14 V
DA20	Frequency	49.97 Hz
DA24	Power Factor	0.30
DA31	Instantaneous effective power Total	11.15 W

Figure 110 Energy meter instantaneous values.

You will find all control to reset the partial energy counter or configuration of the refresh time of the device in all others tabs. These tabs are more device specific.

5.7.1.4 Case studies: adding an overload current alarm via PLC system

If you have the premium license, you are able to create a PLC alarm. In this example we are going to create an overload alarm on the energy meter.

1. Change the parameter CF902 (Number Of PLC Alarm) of the energy meter to 1. You will see two new parameters (CF1001, CF1002)
2. Configure the alarm name and triggering condition
 - a. CF1001 : Alarm Name
 - i. Change the name (e.g. "Overload current on line 1 (current > 1A)")
 - b. CF1002 : Alarm 1 Boolean Expression
 - i. change the expression to : "@(data10) >= 1"
 1. **@(data10)** represent the data with id 10 of this device (here, i1)
 2. **>=** is the operator
 3. **1** is the value to compare the data
 - c. we can read these parameters as :
 - i. The alarm with name "Overload current on line 1 (current > 1A)" is triggered when the data parameter with ID=10 (DA10) is superior or equal to one.
3. Change the severity of the added alarm in the alarm tab. Here we are going to set the severity to "critical" with a level of 7.

Now you have a device specific alarm that will be fired when you have an overload current on line 1 of your energy meter.

For more advanced usage of PLC alarm, check the chapter about [PLC alarms](#) to know all possibilities, operators and syntax.

5.7.2 Inverter TSI with T2S (CE+T Group)

5.7.2.1 Overview

Since years, Alpha Innovations work in collaboration with CE+T. These inverters are directly supported by compas.

In order to monitor the TSI inverter, you need to :

- Have a T2S controller in CANOpen mode ([See Appendix - Convert TSI to CANOpen](#) to make the conversion)
- Change a parameter of configuration
- Connect the inverter to the Compas CANOpen
- Save & Reboot Compas

5.7.2.2 Connection procedure

1. In **Site > Configuration > Inventory**
2. If you already have a DC-system connected, with CAR rectifier using node id from 1 to x : change the **CF92** parameter to **50-100** not to use the address of your rectifier. The TSI will be addressed in the 50-100 node id range
3. Connect the TSI CanOpen to the Compas CANOpen connector (see below some connector details)
4. Save your configuration and reboot your controller (Controller -> *save configuration and reboot*)
 - a. After a few seconds, Compas reboot, the inverter node is detected and you can configure the monitoring directly on the device.

Please refer to your device manual, the examples below are only available for our best-seller system. The examples below may not be actual. Please, pay attention to your system.

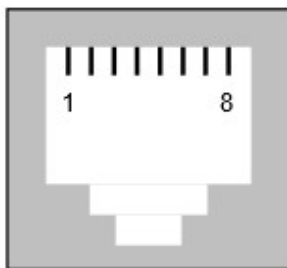


Table 4 Rack UCC can

Pin #	Name	Description
1	CAN_H	CAN bus High
2	CAN_L	CAN bus Low
3	CAN_GND	CAN bus Ground
4-8	NOT_CONNECT	Do not connect to theses port



Table 5 Rack SP35 Can connector

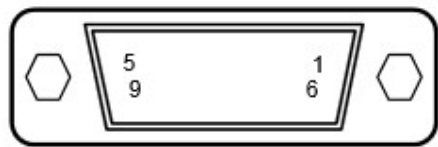


Table 6 Captin 850 CAN connector

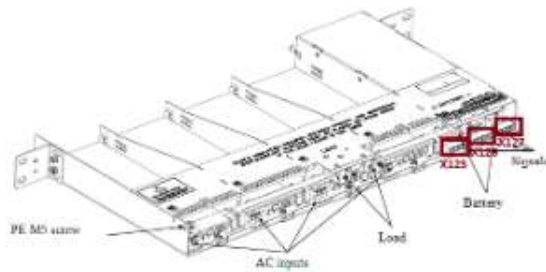


Table 7 ACE094 can connector

5.7.2.3 Alarms and specific alarms

The inverter alarm table will be automatically created.

For inverter specific alarm, there is an alarm named "specific alarm". When this alarm is active, you need to go into the data page and you will have the details of the specific alarm into specific alarm names.

5.7.2.4 Inverter Operation

Inverter Module Indicator

Pin #	Name	Description
X9-6	CAN_H	CAN bus High
X9-9	CAN_L	CAN bus Low
X9-10	CAN_GND	CAN bus Ground

Pin #	Name	Description
1,8,9	NC	No usage
2	CAN_L	CAN bus Low
3	CAN_GND	CAN bus Ground
4	-48V	-48V power
5	0V	0V power
6	CAN_GND	CAN bus Ground
7	CAN_H	CAN bus High

Pin #	Name	Description
X125.1	-48V sense	No usage
X125.3	CAN_GND	CAN bus Ground
X125.7	CAN_H	CAN bus High
X125.8	CAN_L	CAN bus Low

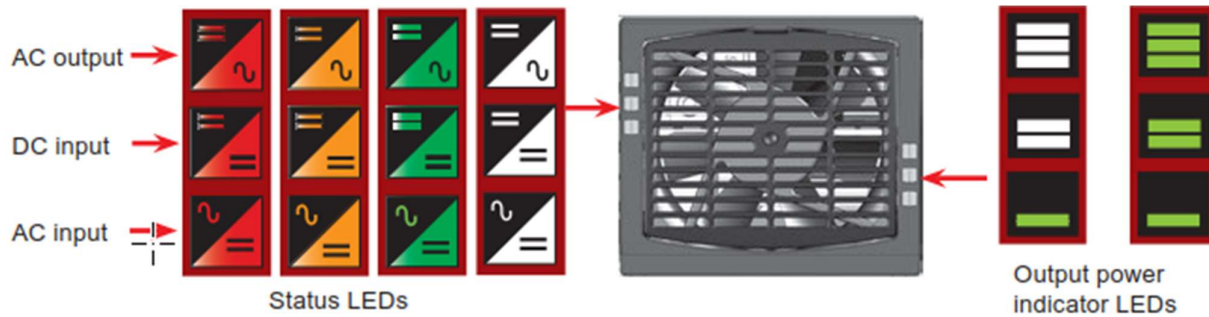


Figure 111 Output power indicator LEDs

Status Leds

Inverter Status LED	Description	Corrective Action
OFF	No input power or forced stop	Check AC input
Permanent green	AC input OK, normal operation	None required
Flashing green	Inverter OK but conditions are not within normal parameters	Check upstream and surrounding equipment
Flashing green/orange alternating	Recovery mode after boost (10 In short circuit condition)	Wait for a while
Permanent orange	Starting-up mode	Wait
Flashing orange	Modules cannot start	Connect Compas and check Alarms
Flashing red	Recoverable fault	Wait or attempt to clear fault condition by removing and reinserting the module. If the error is persistent, download the diagnostics.zip and ask for support.
Permanent red	Non recoverable fault	- Attempt to clear fault condition by removing and reinserting the module. - Download Compas Disagnostics.zip and ask for support.

Output Power (Redundancy not counted)

The output power LEDs (located on the right side of the module's front panel) indicate the amount of power (percentage of rated power) provided by the module. The number of bars that are illuminated combined with whether or not they are on steady or flashing indicate the output power level or overload condition as shown in the figure below.

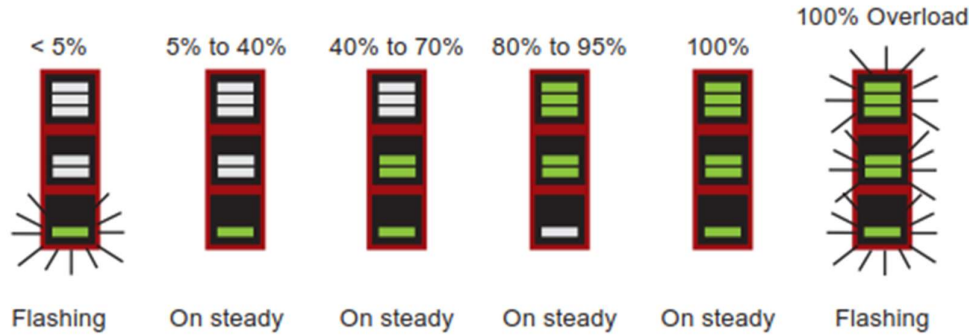


Figure 112 Output power indicator LEDs

5.7.3 Outback power system

COMPAS support AXS port form Outback Power. You just have to enter the required configuration and your device will be monitored. In CF220 at the site level, you have the parameter Ethernet Extensions Configuration. Just change the configuration to :

`AXS(IP.OF.YOUR.AXS)`

This support is still a beta, when there is a power cut, the AXS port is not giving anymore information.

5.8 Programming capabilities

In compas, we have two main ways to program the card in order to do what you need.

PLC (Programmable Logic Controller.) gives you the opportunity to add customized alarms & datas. This system can do most of the work if you just want to operate on data that the system has already. You will be able to use relays and configure custom behaviors by working with the alarms set and reset delays.

CompasLua is a complete programming interface available directly in Compas. You will be able to create devices, theirs data, alarms, descriptions... Callbacks are possible for the configuration and control usage. By giving you well-documented functions, you will be able to use the controller communications. You have virtually no limit in what you want to monitor. You can also implement your algorithms and devices without modifying Compas. [CompasLua](#) has his own chapter; please refer to [it](#) for more information.

5.8.1 PLC Functionalities [Premium Edition]

5.8.1.1 Overview

PLC stands for Programmable Logic Controller. It allows adding custom features by using some logical expression. It is very cost effective for regulation where the main loop is not faster than 1 sec.

Some configuration elements can be filled with a Boolean expression or a mathematical expression. Here follow information about the syntax and some examples of valid expressions:

5.8.1.2 Our PLC Syntax

Using data and alarm entries from a monitored device

Syntax	Signification
@(dataXXX) @(daXXX)	The data with id XXX of the relative equipment
@(dcY_dataXXX)	The data with id XXX relative to the dc system with id Y. Example: @(dc1_data11) is the bus voltage of the DC System 1.
@(saY_dataXXX)	The data with id XXX relative to the Sensors And Actuators with id Y.
@(dcX_reZ_dataYYYY)	The data with id YYYY located inside the dc system X and rectifier Z.
@(alarmXXX) @(alXXX)	The alarm with id XXX of the relative equipment
@(dcY_alarmXXX)	The data with id XXX relative to the dc system with id Y. Example: @(dc1_data11) is the bus voltage of the DC System 1.
@(saY_alarmXXX)	The data with id XXX relative to the Sensors And Actuators with id Y.
@(severity_level)	The severity level of the relative equipment (0->9). This can be useful to activate a relay based on the severity level.
@(severity_type)	The severity type of the relative equipment (none - warning - minor - major - critical). This can be useful to activate a relay based on the severity level.
@(dcY_severity_level)	The severity level relative to the dc system with id Y.
@(saY_severity_level)	The severity level relative to the Sensors And Actuators with id Y.

Operators & functions

Syntax	Signification
(...)	Parentheses
&&	Logical AND
	Logical OR

Syntax	Signification
==	Equal
!=	Not Equal
+	Addition
-	Subtraction
*	Multiplication
/	Division
%	Modulo
>	Superior
>=	Superior or Equal
<	Inferior
<=	Inferior or equal
\$second()	Second part of the actual time
\$minute()	Minute part of the actual time
\$hour()	Hour part of the actual time
\$day()	Integer indicating the day of the month.
\$dayofweek()	Integer indicating the day of the week. This integer ranges from zero, indicating Sunday, to six, indicating Saturday
\$dayofyear()	Integer indicating the day of the year.
\$month()	Integer indicating the month of the year.
\$year()	Integer indicating the year.
\$time()	The time of the day
@ts(XXXXX)	Create a time span variable from XXXX string. Example: @ts(11:32) corresponds to 11h32.
\$abs(XXX)	The absolute value of XXX
\$canid(XXX)	Can Id XXX is present
\$case(condition, val, condition2, val2, ...)	Equivalent to "switch"
\$ceil(XXX)	The ceil value of XXX

Syntax	Signification
\$floor(XXX)	The floor value of XXX
\$iif(condition, val if true, val if false)	Equivalent to "If then else"
\$max(X1, X2, X3, ...)	The maximum value between X1,X2,X3, etc.
\$min(X1, X2, X3, ...)	The minimum value between X1,X2,X3, etc.
\$sqrt(XXX)	The square root value of XXX

5.8.1.3 Examples

Basics expressions

Condition or data	Configuration Element Value
The bus voltage is under 47V. (PLC Alarm is inside a DC System.)	@(data11)<47
The rectifier output power is over 2500W. (PLC Alarm is inside a DC System)	@(data21)>2500
The time of the day is comprised between 10:23 and 11:34	(\$time())>@ts(10:23))&&(\$time())<@ts(11:34))
The day of the week is Sunday	\$dayofweek()==0
The alarm with id 17 is active	@(alarm17) ==True
The alarm with id 17 and 18 are active	@(alarm17) ==True && @(alarm18) ==True
true 5 seconds over 10	\$second()%10<5
Voltage on bloc 2 of the battery (data) (if in DC System)	@(data161)-@(data162)

Switch case example

We are going to use the temperature sensors of an ADIO10 in order to give some textual advice for choosing clothes.

Here is the requirement :

- IF T<0
 - *It's cold, take mittens, T<0*
- IF 0<T<15
 - *It's cold, take your sweatshort. 0<T<15*
- IF 15<T<25
 - Normal temperature 15<T<25
- IF T>25

- Don't forget to drink $T > 25$

Solution :

```
$case( @(data1) < 0, "It's cold, Take mittens:  $T < 0$ ", @(data1) > 0 && @(data1) < 15, "It's cold. Take your sweatshort.  $0 < T < 15$ ", @(data1) > 25, "Don't forget to drink.  $25 < T$ ", True, "Normal Temperature:  $15 < T < 25$ ")
```

Condition 1: $T < 0$

Value 1 for the data: "It's cold, take mittens, $T < 0$ "

Condition 2: $T > 0$ && $T < 15$

Value 2 for the data: "It's cold, take your sweatshort. $0 < T < 15$ "

You can put a default value by adding at the end of the switch case :

```
$case(cond1, "val1", [...], True, "Default Value")
```

5.8.1.4 Case Study 1: Hysteresis on a temperature alarm

Context

You have an ADIO10 and you want to add a temperature high alarm. But you also want an hysteresis of 2°C . This alarm has to be called *Indoor Temperature High* and has a major severity. It is triggered when temperature is higher than 50°C and unset when temperature fall under 48°C .

Procedure

1. Create a new PLC alarm in ADIO10
 - a. set ADIO10 -> Configuration -> CF902 to 1
2. Change the name of the created Alarm
 - a. set ADIO10 -> Configuration -> CF1001 to *Indoor Temperature High*
3. Proceed step by step in order to make your equation
 - a. Activate the alarm if temperature is over 50° :
set ADIO10 -> configuration -> PLC Alarm1 Boolean Expression (CF1002) to $\text{@(data1)} > 50$
 @(data1) will take the data 1 of this device, the data 1 is the first temperature measure of the ADIO10
 - b. Add a 2°C hysteresis
set ADIO10 -> configuration -> PLC Alarm1 Boolean Expression (CF1002) to $(\text{@(data1)} > 50) \parallel (\text{@(alarm101)} == \text{True} \ \&\& \ \text{@(data1)} > 48)$
 - Alarm will be triggered if @(data1) is over 50 OR if @(alarm101) is true and @(data1) is still over 48°
 - Alarm 101 is the alarm created by the PLC configuration
4. You can now configure your alarm severity, security level and set & clear delay
 - a. Change Severity of PLC alarm in ADIO10 > Alarm > *Indoor Temperature High* (AL101)
5. You can rename the Group of the alarm

6. Don't forget to save your configuration in order to have your alarm saved when you reboot your device

Visual procedure :

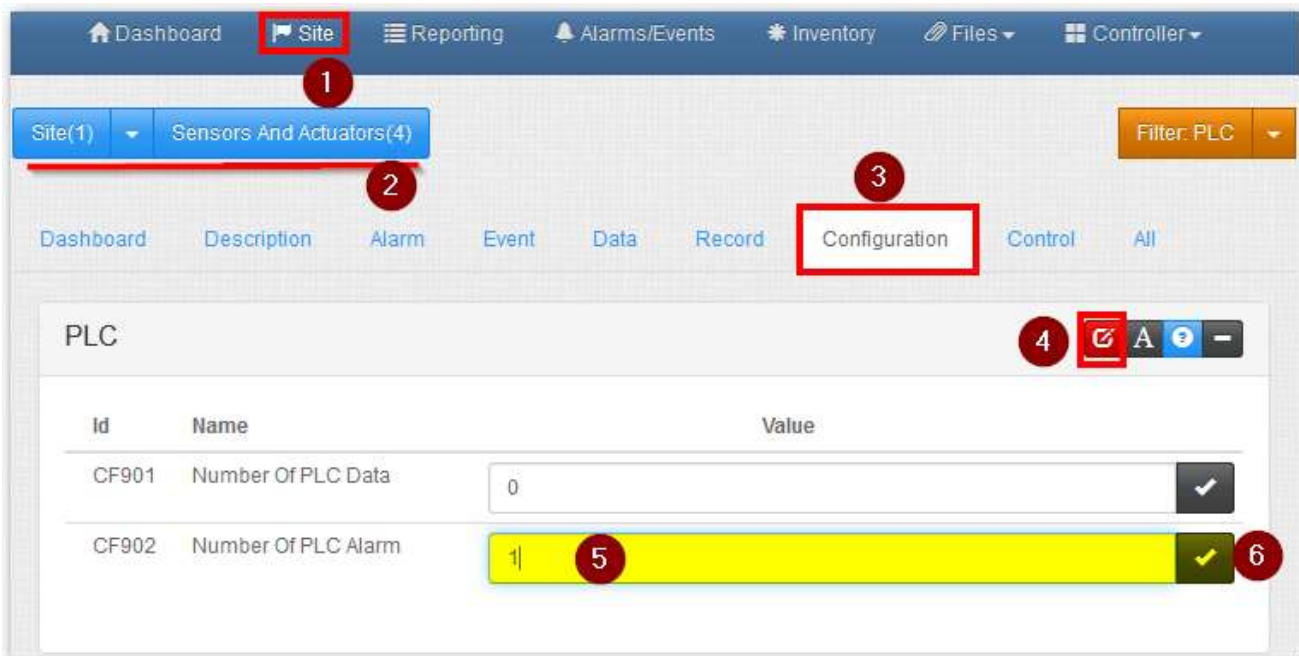


Figure 113 PLC tutorial (1): Creating a new plc alarm



Figure 114 PLC Tutorial (2): Alarm name and trigger only when temp >50°c

Site(1) Sensors And Actuators(4) Filter PLC

Dashboard Description Alarm Event Data Record Configuration Control All

PLC

AL101	Indoor Temperature High	major	5	2
CF901	Number Of PLC Data	0		
CF902	Number Of PLC Alarm	1		
CF1001	PLC Alarm 1 Name	Indoor Temperature High		
CF1002	PLC Alarm 1 Boolean Expression	@(data1)>50		

Figure 115 PLC Tutorial (3): change alarm severity

PLC

Id	Name	Value
CF901	Number Of PLC Data	0
CF902	Number Of PLC Alarm	1
CF1001	PLC Alarm 1 Name	Indoor Temperature High
CF1002	PLC Alarm 1 Boolean Expression	(@(data1)>50) ((@(alarm101) == True && @(data1) > 48))

Figure 116 PLC tutorial (4): improve equation

PLC

Id	Name Default	Name	Group Default	Group	Subgroup Default	Subgroup
AL101	PLC Alarm 1	Indoor Temper	PLC	Server Room		
CF901	Number Of PLC Data	Number Of PLC	PLC	PLC		

Figure 117 PLC Tutorial (5): Change the group of the alarm

Case Study 2: Add an overload alarm on a energy meter

See [Energy Meters](#).

5.9 Renaming and Web-interface translations

5.9.1 Renaming system

Having understandable names for field technicians is really important for true on-field debugging and resolves errors rapidly. Compas allows you to rename every alarm, description, configuration,... We use UTF8 to store the names so you can even rename it using Chinese or Russian language if you want. Group and sub-groups are also available.

When you are on the rename mode, you can see the default name to see if you want to change it.

5.9.1.1 Procedure

To do that, you just have to use the edit name mode. Here are the procedure to access to it:

1. Navigate to the ETSI data that you want to rename
2. Go through edit mode
3. Click on the "A" icon
4. Now you can edit all the names visible on the page. The default name is also showed so you can easily identify the default name.
5. Exit the rename and edit mode by clicking on the A icon then on the edit mode icon.
6. If you want to make changes persistent, save the configuration using Controller-> Save configuration

5.9.1.2 Visual help

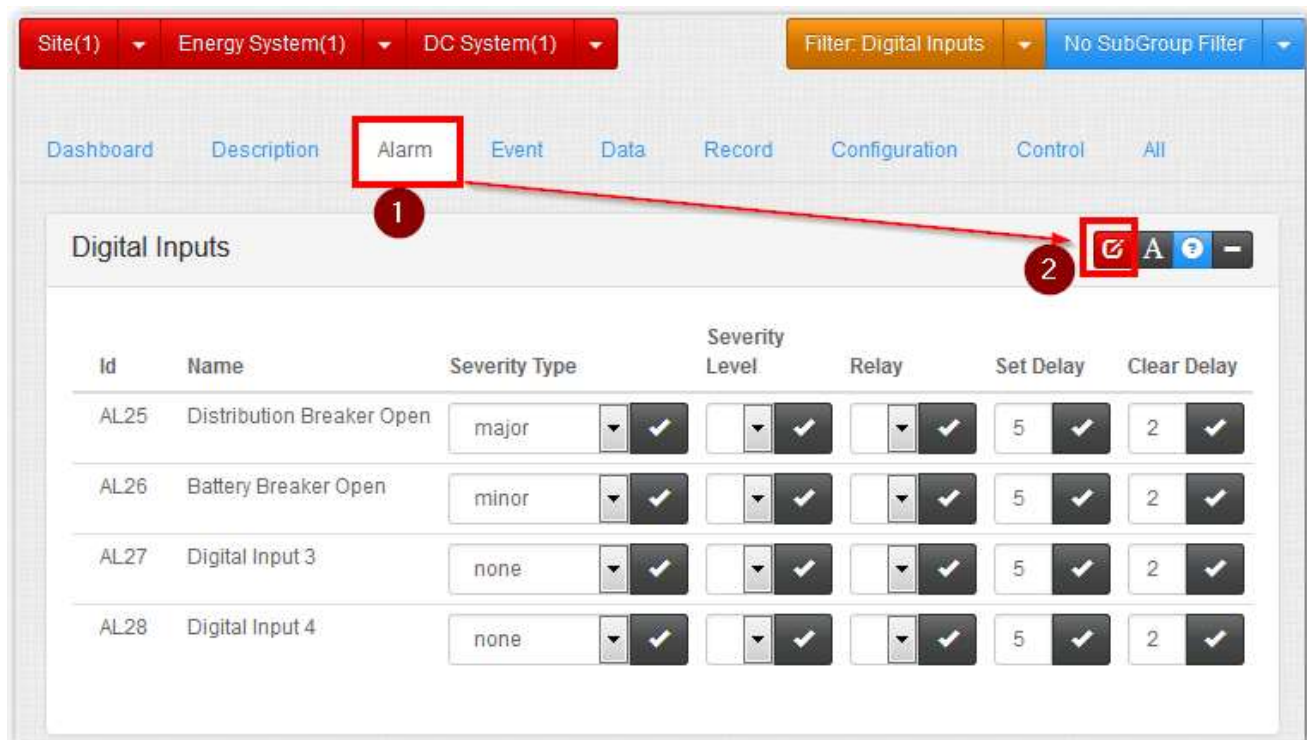


Figure 118 Renaming tutorial: Edition mode

Id	Name Default	Name	Group Default	Group	Subgroup Default	Subgroup
AL25	Distribution Breaker Open	Distribution	☒	Digital Inputs	Digital Input	☒
AL26	Battery Breaker Open	Battery Bre:	☒	Digital Inputs	Digital Input	☒
AL27	Digital Input 3	Digital Input	☒	Digital Inputs	Digital Input	☒
AL28	Digital Input 4	Digital Input	☒	Digital Inputs	Digital Input	☒

DEFAULT **Current name**

Figure 119 Renaming tutorial: Go to renaming mode

AL27	Digital Input 3	Door Oper	Digital Inputs	Digital Input	Custom I/O
AL28	Digital Input 4	tem Alarm	Digital Inputs	Digital Input	Custom I/O

Figure 120 Renaming tutorial: Renaming the name

Id	Name	Severity	Relay	Start Time	Stop Time
AL25	Distribution Breaker Open	major (6)	1	↑ -	↓ -
AL26	Battery Breaker Open	minor (4)	2	↑ 2015-05-20 09:02:29Z	↓ -
Custom I/O					
AL27	Door Open	none (0)	0	↑ -	↓ -
AL28	System Alarm	none (0)	0	↑ 2015-05-20 09:02:29Z	↓ - / Ack: 2015-05-20 10:13:28Z

Figure 121 Renaming tutorial: Result

5.9.1.3 Resetting to the default name

It is possible to reset default name for a device or for a group of devices. On Each device, you have two controls that will help you to reset the default name & group of the device.

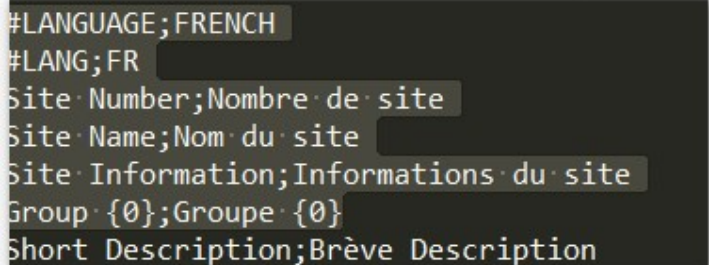
- **CT521 "Reset Default Names And Groups"** -> Reset default names & groups of current device
- **CT521 "Reset Default Names And Groups Recursive"** -> Reset the default names & groups of current device and child device (ex: If done on the dc system, you will also reset the name of the rectifiers)

5.9.2 Translating all the Web-Interface

5.9.2.1 Making translation

While the default Compas Language is English, you may want to have the interface completely translated in another language. To do that, you have to modify the translations into a small csv file.

1. Download a CSV file with the list of the words and sentences used in the COMPAS interface is available at URL: http://the_compas_ip/translation.csv,
2. This file is encoded in UTF8, open it with an UTF8-capable text editor like SciTE, Notepad2, Notepad++ or even SublimeText2. (Libre office calc can also open these file)
3. The first two lines are the file language definition. It will be used to determine which language is in the file. Replace "MYLANGUAGE" by the full name of your language like "French" or "Dutch" and "MYLANG" by the short language abbreviation like "FR" or "NL". Your two first lines must looks like :
#LANGUAGE;French
#LANG;FR
4. Now you can translate the interface by adding the translation just after the ";". Your translation file must now looks like
#LANGUAGE;FRENCH
#LANG;FR
Site Number;Numéro de site
Site Name;Nom du site
Site Information;Information du site
Group {0};Groupe {0}
5. Then, save the file (in UTF8!) You can choose the name you want, but the extension must be "csv".
6. Copy it to the monitoring with an FTP client to the folder:
"/FlashDisk/user/translation/"
7. Now you have to reload the translations using the **CT41** available at the site level.
8. You will see available language in the status bar at the bottom of the site. You can now change language easily



```
#LANGUAGE;FRENCH
#LANG;FR
Site Number;Nombre de site
Site Name;Nom du site
Site Information;Informations du site
Group {0};Groupe {0}
Short Description;Brève Description
```

Figure 122 Translating web-interface

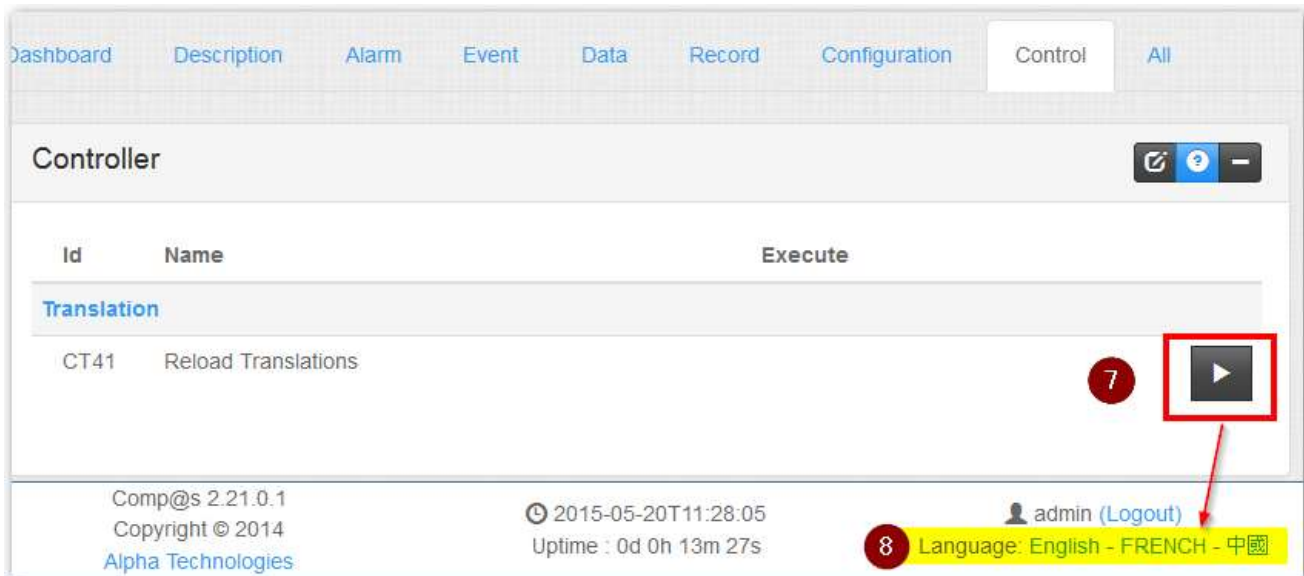


Figure 123 Reloading translations



Figure 124 Translating module : Chinese compas

The Chinese translation in the upper example has been made with an automatic system. Some of the names can be incorrect.

5.9.2.2 Set default start-up language

In order to set the default start-up language, you just have to modify the default page of the web interface. It is the **configuration CF31** at the site level. Change it to add the parameter "*lang*".

Example:

`index.html?page=site&lang=FR`

or

`index.html?page=site&lang=NL`

5.10 Configuration management

The Configuration in compas is stored as a single file. It is a standard XML, readable and understandable. It is a high advantage over our competitors that use binary files with proprietary syntax. Our system keeps also the factory configuration in order to restore the factory data.

This format is compliant with ETSI ES 202-336 standard.

5.10.1 Configuration file

The configuration file is a simple xml file. It is open readable and easily understandable. It has to be in the user folder and his name must be *configuration.xml*. The file looks like :

```
<site id="1" datetime="2015-05-21T12:50:11">
  <description_table>
    <description id="1" name="Site Number" group="Description" subgroup="Site
Information">1</description>
    <description id="2" name="Site Name" group="Description" subgroup="Site Information">Comp@s
Site</description>
    <description id="3" name="Short Description" group="Description" subgroup="Site
Information">Comp@s Site Description</description>
    <description id="4" name="Info" group="Description" subgroup="Site
Information">none</description>
  [..]
</description_table>
[...]
```

Here is the process that compas use to choose the configuration file :

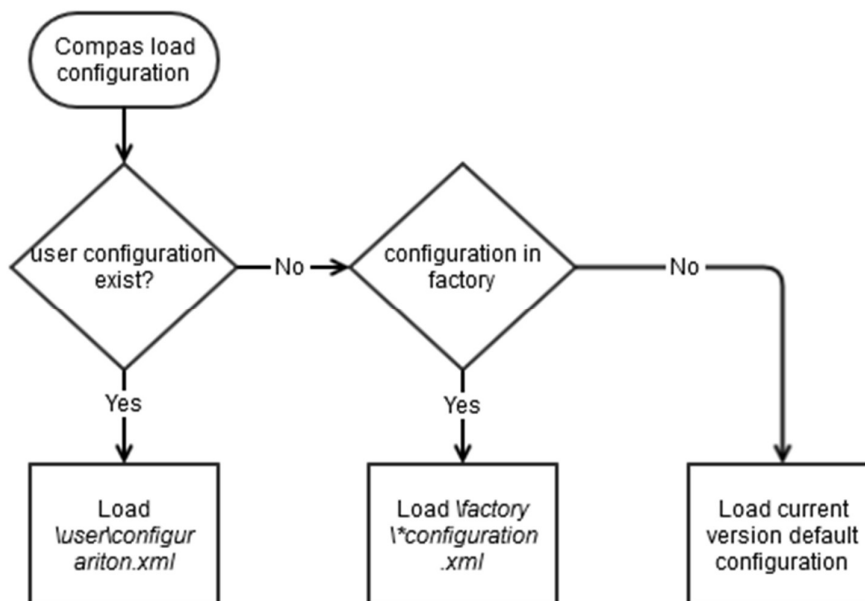


Figure 125 Configuration loader choice

5.10.2 Restoring the factory configuration

Just delete the configuration.xml located in user folder. Don't forget that you will restore the factory IP address. The factory configuration always finish with "*_configuration.xml*". If there is no factory parameters, the IP address will be set to 192.168.45.2.

5.10.3 Copying configuration from a system to another

1. Retrieve the configuration of one system. On the web interface, click on "configuration.xml" and save the file as "configuration.xml".
2. Copy this file (configuration.xml) on the other system, in the "user" folder, with FTP over Ethernet, or locally with ActiveSync over USB.
3. Reboot this other system, the same configuration is applied.

You copy also the network configuration, including the IP address. Keep in mind that if two systems with the same IP address are present on same network, it will not work! A solution to this is to edit the XML file before copying it and to change the IP address. Or use the DHCP protocol for automatic IP addressing.

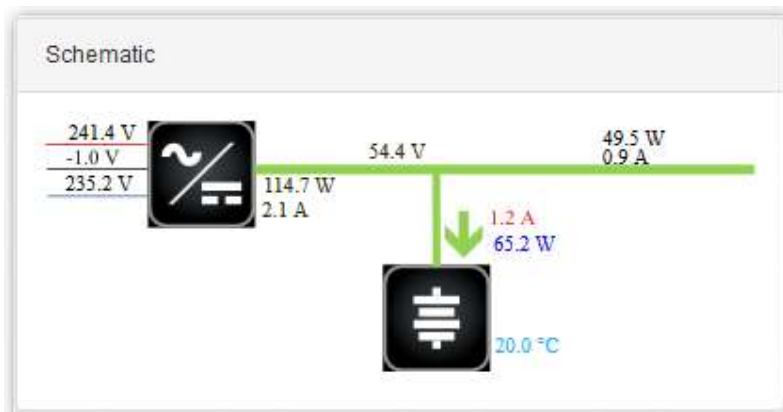
The Configuration file MUST be save in UTF-8 format !

5.11 Visual Dashboard

5.11.1 Standard dashboard

Compas support visual dashboard. For standard equipment like dc system there is sometime some visual dashboard.

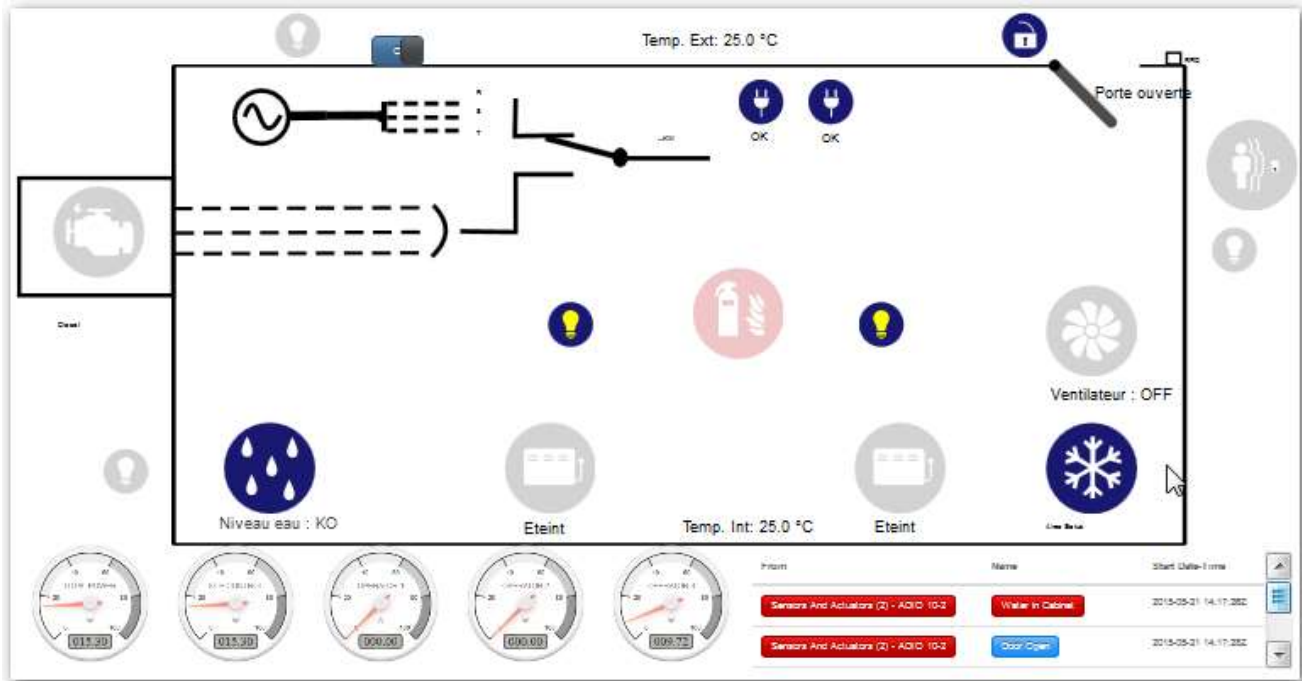
For example, in a DC system:



5.11.2 Custom dashboard [Ultimate edition]

With compas, we have created a totally new method for monitoring. Now, you are able to create your custom dashboard with a library created by alpha. We designed a well-documented API that you can use to generate the page that you want. It is mainly composed of web language so, it is really easy to implement what you want.

The custom dashboard is currently in alpha version and validation is in progress. Here is an example of what you can do with our framework:



If you want to know more, please contact us.

6 SCRIPTING : COMPASLUA

6.1 Overview

The Lua scripting system gives you a new efficient way to meet all your need. It can be used to:

- Create a new equipment with custom descriptions, alarms, data, records, parameters or controls.
- Adding events
- Setting all Compas data or setting function
- sending emails
- monitor other devices
- (...) Other protocols (Modbus, one-wire...) and interfaces will follow with further version. Please, let us if you need something else in order to prioritize the development.

You have the possibility to execute different scripts in order to keep your system clean and functionality independent.

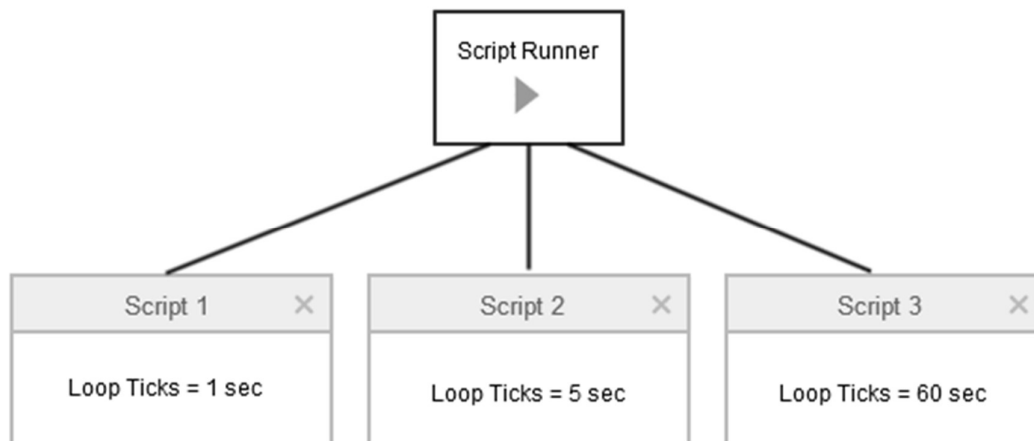


Figure 126 Script Runner Overview

CompasLua scripting system is only available with ultimate license

On Board Help

There is an "On board" help that is accessible by creating the file "*tutorial.Lua*".

6.2 Script Runner

As you have multiple scripts on your system and that you didn't want to overload your controller, the execution is controlled by the Compas system. It controls the execution of all scripts and their respective callback.

Each script can have a different loop time and time-out. The schema below explains you how the script runner works. The script runner is managed by command given to a standard control.

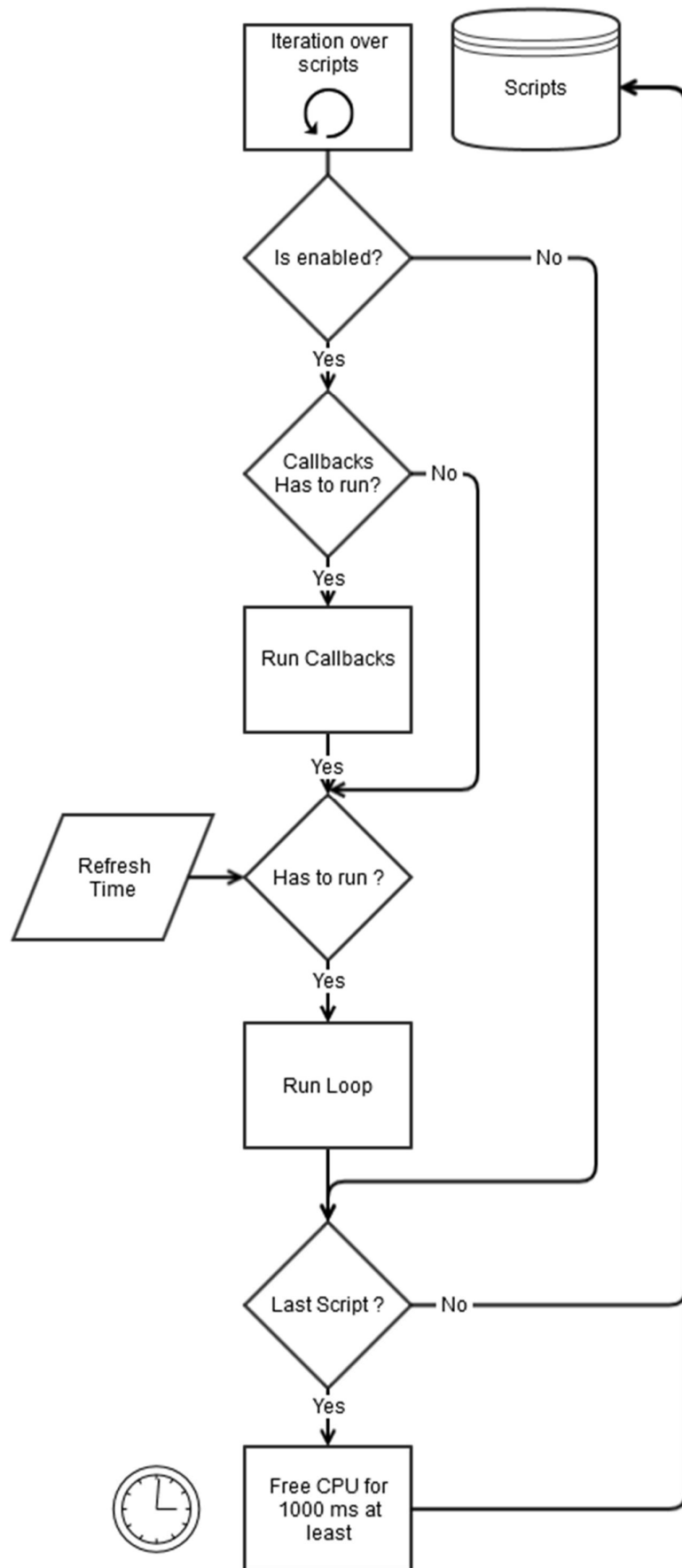


Figure 127 Script runner details

6.2.1 Script Monitoring

It could happen that a buggy script takes all the CPU, so we have added a watchdog. If a script execution takes more than 15 seconds, it is killed and the runner is restarted preventing too long time execution.

6.3 Script structure

Your CompasLua Script has to be composed of three sections:

- Initialization
- Loop function
- Callback block

The *initialization* part is the part of the script that will be read and executed at the start-up. It contains all the script global variables and system initialization system. In this part, you will be able to add functions that will be callable everywhere inside the script.

The *Loop function* is the function called every time it is asked by the script. This function has to be interpreted as a "while-true" temporized. This is done to prevent a high CPU usage and to maintain the system operating.

The *Callback block* is the input point of Compas Callback. It is used when Compas want to inform the script that an event has happened: For example when a control is pressed.

6.4 Your first script

6.4.1 Objectives

With your first script, you are going to create a script and change it in order to monitor another device using the SNMP protocol. This is only an introduction to some function of Lua, it can do a lot more. See documentation of Lua language and our documentation of CompasLua API. This "*tutorial*" will help you to understand the basics of Compas Lua.

At the end of the exercise, you will be able to:	
✓	Create a script
✓	Create a device inside Compas
✓	Use a small SNMP device and make some get
✓	save your configuration

6.4.2 Discover the interface

Let's start to use your scripting system directly. It is accessible inside the files -> scripting path. We are going to create your first script: enter the command "*new my_first_script*" and press the Execute button. A

new script will be created. With the screenshot below, you will see the main parts of Compas Scripting system.

- A script manager
 - Scripts status and Command
 - Command window
 - A Script Manager: one line by script
- A Script editor (press on the name of the script that you want to edit)
- A Log that will log all errors or message printed by the system

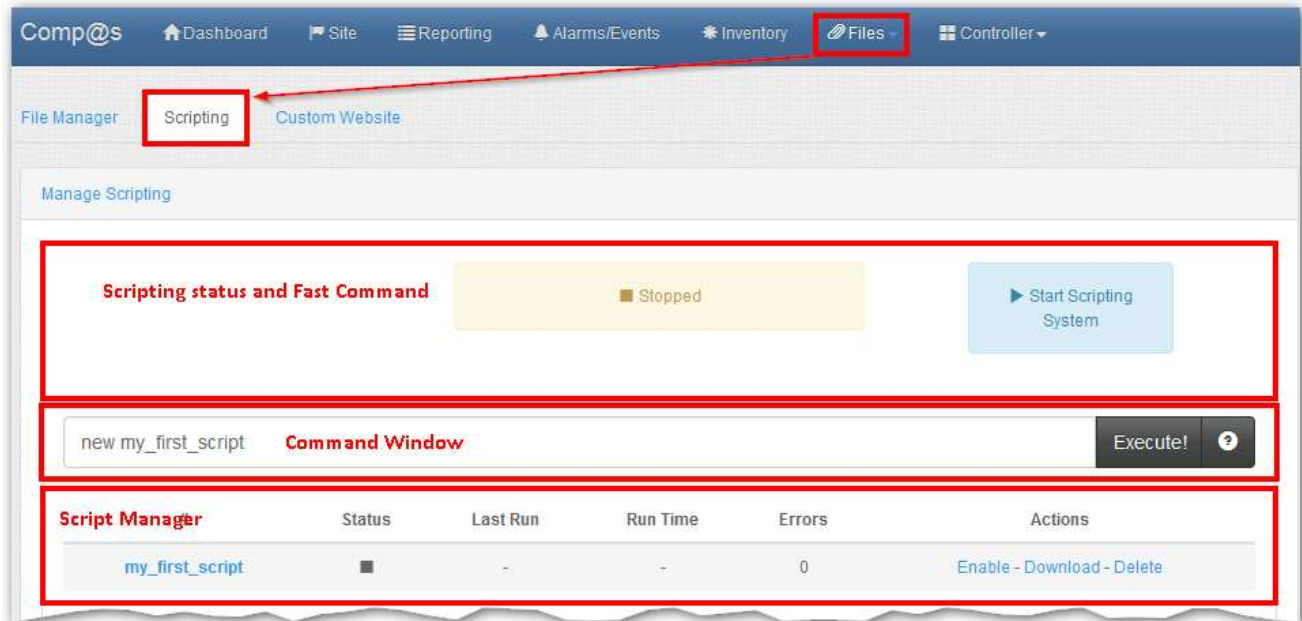


Figure 128 Compas Lua Interface

Take a look to the script inside the script editor. Some comment explains you parts of the script. Let's decompose this script and understand what it does.

6.4.3 The Script

In the Lua language, comments are with two hyphens. Most of Lua embedded functions are available. If you need more specific information about Lua functions, just take a look to the [Lua language](#).

6.4.3.1 The Initialization Part

```
17 --- Initialization ---  
18 print("Hello from CompasLua ".. compas.version_api().."\\r\\n")  
19
```

As you can see, we will just print a text in the initialization. This is to show when the script is started. You can also see how functions are called in Lua and how you can concatenate strings and functions. Here we call the function `print` which will print text in the console box, the string is concatenated with the function `compas.version_api()`. This function is specific to `compasLua`, it will just return a string that contains the version number of the Lua API. (Functions added by Alpha to Lua Language)

6.4.3.2 The Loop Part

```
21 --- Loop part ---
22 -- The loop can't take longer than 10 seconds to let time to other scripts
23 -- If the loop takes too much time, the script will be disabled by the system to spare time to other files
24 function loop()
25     -- function to be processed every X seconds
26     print("CompasLua loop is running.\r\n")
27     print("Add the file tutorial to have the list of available functions and their descriptions. \r\n")
28
29     -- Loop function has to finish with the return of the string OK.
30     return "OK"
31 end
32
```

The loop part contains the function that will be called approximately every 10 seconds (configurable), in this case the initial content is just some basic text that will be shown inside the console. The loop function has to return the string "OK", so the system will assume that everything is OK. If there is a problem, you can return another string like "KO" that will record a problem inside the error system and alarms related to scripting system.

6.4.3.3 The Callbacks Part

```
302 function callbacks(Path, Value)
303     print("[callbacks]\t\t" .. Path .. "\t\t" .. Value .. "\r\n") -- debug
304
305     if(Path == solar_conf_address_path) then
306         monitoring_http_address = Value
307         return true
308     elseif (Path == "/site/1/your/path/2") then
309         print("Your second action.\r\n")
310         return true
311     else
312         print("Non implemented path : " .. Path)
313         return false
314     end
315 end
```

The callback block is located at the end of the file. It contains the functions that have to be executed in case of a callback. A Callback is always composed of:

- **Path:** The callback trace
- **Value:** The data to be processed

It has to return a boolean. If the boolean is false, an error will be added on scripting error counter.

6.4.3.4 Starting a script

Now that you have a script, let's start the scripting system:

1. push on the "Start Scripting System" button
2. the status will pass to "Initializing..."
3. Reload the page (or click on the scripting tab), you will see that the status is now "running".

Sine the script runner can work with multiple scripts, you have to enable it:

1. Click on the enable link on the script line inside the script manager

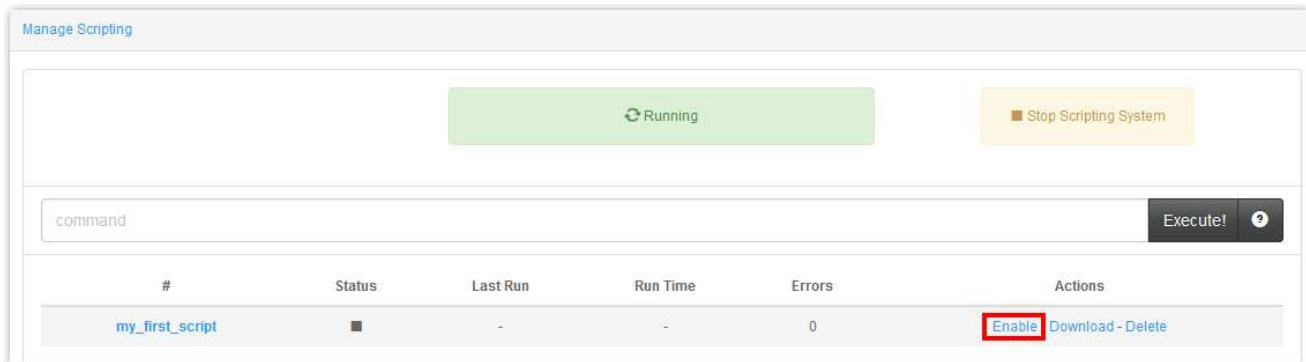


Figure 129 CompasLua: Enable a script

Now the script has started, you can see a little more information about it : It is running every 10 seconds, the last time it has run it is 8 second ago and the script duration is 11 ms. (On the screenshot below)

#	Status	Last Run	Run Time	Errors	Actions
my_first_script	🔄 10 s	8 s	11 ms	0	Disable - Download - Delete

Figure 130 Script running

You can also see the console output that will show the text that you have entered in the script. As you can see, the initialization part has run only at the start of the script. After that, it is the loop that has been called by the Script runner.

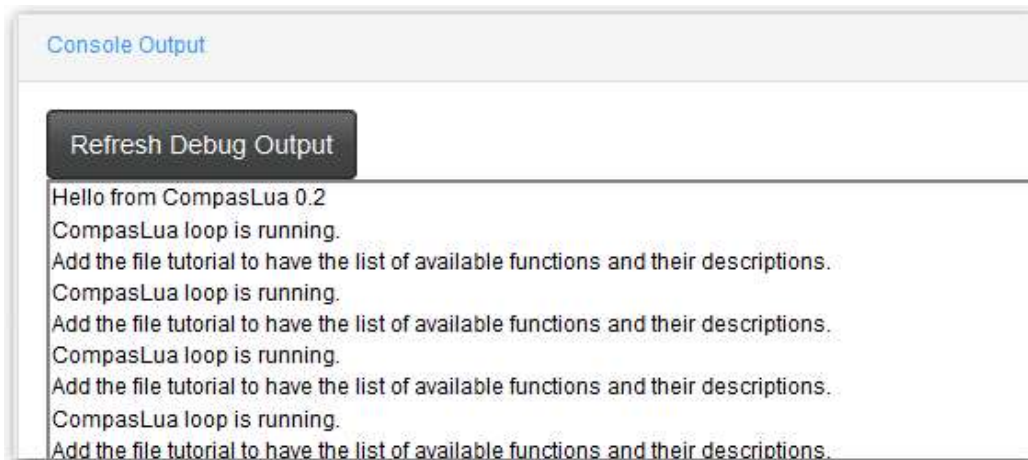


Figure 131 CompasLua: debug output console

In order to have the script starting at the start-up, you have to enable CompasLua system (having the green flag indicating "running" on scripting page is a good indicator), enable the scripts that you want to start automatically and save your configuration. If there is an error on a script, the corresponding line will also be in red.

6.4.3.5 Modifying Your Script In Order To Monitor a SNMP Device

Currently, Compas is supporting SNMP get command. We will just try to monitor another device using the SNMP communications. We are going to monitor a Micro-secure UPS, controller coming directly from the alpha group.

What are we going to do into this small script?

1. Create an ac_ups_system

2. with one description manually defined
3. with one description read from SNMP
4. with several alarms coming from SNMP
5. and with several data coming from the ups

This exercise has a progressive difficulty.

Creating the device in Compas

Let's create the ups device in Compas. So we need to create an `ac_ups` system in the first energy system. To do that just add these lines into the initialization part which is located on the top of the file. Then save the file. A new device `ac_ups_system` now appears on the site tab.

```
print("Initialization of ac_ups_system\r\n")
--
-- initialization of equipment
--
-- energy system path
path_es1 = "/site/1/energy_system/1";
-- creation of equipment - path_es1 - name - l'd
ac_ups_system = compas.equ_init{parent = path_es1, type="ac_ups_system", id=1}
```

We have used the function `compas.equ_init(table{ })`. For the parent path we set the first energy system, we decided to make an ac ups system (to make other, just read the documentation below, these are ETSI standard) with the `id=1`. The variable `ac_ups_system` now contains the path to the new ups.

Creating a device description

We are going to use the function `compas.equ_description_init(ParentPath, id, name, group)` in order to add a description.

Let's add the following line below the code added in the phase 1:

```
-- creating a manual description
ac_ups_system_desc_manual = compas.equ_description_init{parent = ac_ups_system, id = 1, name =
"Product Name", group = "Product Info", value = "This is your first CompasLua Monitored device" }
```

Easy! But the next phase will be a little harder

Creating a device description read in SNMP.

We are also going to read create the description of the function `compas.equ_description_init` but we will also use the SNMP agent. Add the line below to your script initialization part.

```
-- connection to micro-secure
ac_ups_system_desc_hard = compas.equ_description_init{ parent = ac_ups_system, id = 2, name =
"Hardware Reference", group = "Product Info"}
-- get the connection
snmp_microsecure = compas.snmp_get_device{ server = "130.145.57.77", port = 161,
read_community = "public"}
-- read the data through snmp
description_for_ups_system = compas.snmp_get{ device = snmp_microsecure, oids =
{"1.3.6.1.4.1.7309.6.1.1.3.0"} }
-- set the data inside compas
compas.set{ path = ac_ups_system_desc_hard, value = description_for_ups_system[0]}
```

SNMP agent has to be initialized with the function `snmp_get_device(server, port, password)`. After that you will read corresponding oids (see SNMP protocol) using the function `compas.snmp_get(connector, oids)`

that will return you the value that you just have to set to the corresponding description. You can put a table into the oids in order to read more than one Oid in one request.

Reading Several Alarms on the Device

Now, we are going to monitor the device. To do that, we need to create some alarm and read it periodically to see if they are active. We are going to create alarms in the initialization part and read it in the loop. Let's add the alarms by adding the following code in the initialization part.

```
-- adding alarms using a "for" loop. Alarms will start at AL10.
ac_ups_system_alarm = {
    "Overload",
    "Fan Alarm",
    "Battery Test",
    "Battery Temp High",
    "Battery Temp low",
    "Battery Low Warning",
    "Temp probe unplug",
    "In freq out of range",
    "User input Alarm",
    "Battery breaker open",
    "Weak battery",
    "Invalid software",
    "AC Breaker open",
    "keep alive"}
-- be careful; the for begin to count at 1
-- creating alarms and store paths inside the previous list
for i=1,14 do
    ac_ups_system_alarm[i] = compas.equ_alarm_init{parent = ac_ups_system, id= 9+i, name =
ac_ups_system_alarm[i], group= "Alarms", severity_type = "major"}
end
```

The part is listing all the alarm names into a table. You can see that table is easily created using {}. After that we use the "for" keywords to iterate over all the alarm name and creating it. Here we directly write the path of equipment's inside the previous table. Be careful, the table begin with id = 1. Here we create alarm id beginning with 10 (9+1 in the first loop). For this example we created only major alarm in the group Alarms. If you want, you can be more precise for each alarm.

Now that we have some alarms, let's read it from the device in the loop part. Replace the loop by the code below and, let's examine it:

```
function loop()
-- read alarms
alarms_for_ups_system = compas.snmp_get{device = snmp_microsecure, oids =
{
    ".1.3.6.1.4.1.7309.6.1.5.2.1.3.1",
    ".1.3.6.1.4.1.7309.6.1.5.2.1.3.2",
    ".1.3.6.1.4.1.7309.6.1.5.2.1.3.3",
    ".1.3.6.1.4.1.7309.6.1.5.2.1.3.4",
    ".1.3.6.1.4.1.7309.6.1.5.2.1.3.5",
    ".1.3.6.1.4.1.7309.6.1.5.2.1.3.6",
    ".1.3.6.1.4.1.7309.6.1.5.2.1.3.7",
    ".1.3.6.1.4.1.7309.6.1.5.2.1.3.8",
    ".1.3.6.1.4.1.7309.6.1.5.2.1.3.9",
    ".1.3.6.1.4.1.7309.6.1.5.2.1.3.10",
    ".1.3.6.1.4.1.7309.6.1.5.2.1.3.11",
    ".1.3.6.1.4.1.7309.6.1.5.2.1.3.12",

```

```
        ".1.3.6.1.4.1.7309.6.1.5.2.1.3.13",  
        ".1.3.6.1.4.1.7309.6.1.5.2.1.3.14",  
    }}  
    for i=1, 14 do  
        -- Give the data address and the new data  
        compas.set{path = ac_ups_system_alarm[i], value = alarms_for_ups_system[i-1]}  
    end  
  
    -- Loop function has to finish with the return of the string OK.  
    return "OK"  
end
```

So, with the list of corresponding oid, we just use the function "compas.snmp_get", then we use a for loop to assign all the alarms. It is fast, easy and powerful. Alarms are read every 10 seconds, if you want this refresh time a little higher, it is possible by using "compas.set_script_config". The alarms are set using the function "compas.set" which set some numeric value to data.

Reading data

Reading data is a little trickier because there is some conversion to do in order to set it correctly. First, let's add these lines in the initialization part:

```
-- adding some data coming from the microsecure  
-- Creating data; need the equipment device, the id of the data, the name of the data, the data group  
ac_ups_system_data = {"", "", "", "", "", "", "", "", "", "", ""} -- storing in a table  
-- input  
ac_ups_system_data[0] = compas.equ_data_init{ parent = ac_ups_system, id = 10, name = "Input AC  
Voltage", group = "Input", type = "number" }  
ac_ups_system_data[1] = compas.equ_data_init{ parent = ac_ups_system, id = 11, name = "Input  
Frequency", group = "Input", type = "number" }  
-- output data  
ac_ups_system_data[2] = compas.equ_data_init{ parent = ac_ups_system, id = 30, name = "Output  
Line Voltage", group = "Output", type = "number" }  
ac_ups_system_data[3] = compas.equ_data_init{ parent = ac_ups_system, id = 31, name = "Output  
Frequency", group = "Output", type = "number" }  
ac_ups_system_data[4] = compas.equ_data_init{ parent = ac_ups_system, id = 32, name = "Output AC  
Current", group = "Output", type = "number" }  
ac_ups_system_data[5] = compas.equ_data_init{ parent = ac_ups_system, id = 33, name = "Output  
total Power", group = "Output", type = "number" }  
ac_ups_system_data[6] = compas.equ_data_init{ parent = ac_ups_system, id = 34, name = "Output  
Power factor", group = "Output", type = "number" }  
-- battery data  
ac_ups_system_data[7] = compas.equ_data_init{ parent = ac_ups_system, id = 40, name = "Battery  
Voltage", group = "Battery", type = "number" }  
ac_ups_system_data[8] = compas.equ_data_init{ parent = ac_ups_system, id = 41, name = "Battery  
Temperature", group = "Battery", type = "number" }  
ac_ups_system_data[9] = compas.equ_data_init{ parent = ac_ups_system, id = 42, name = "Battery  
Status", group = "Battery", type = "number" }  
ac_ups_system_data[10] = compas.equ_data_init{ parent = ac_ups_system, id = 42, name = "Battery  
Capacity", group = "Battery", type = "number" }
```

Here you see that we add the data in the right group with different ids for each. We also have a table to store the different paths. Well, this isn't so interesting because you already know how to use these kinds of functions.

Let's see how we read the data by adding these lines inside the loop part, between the code that reads alarms and the return of the loop function.

```
data_for_ups_system = compas.snmp_get{device = nmp_microsecure, oids =
{
    ".1.3.6.1.4.1.7309.6.1.3.2.1.3.1", -- AC input voltage
    ".1.3.6.1.4.1.7309.6.1.3.2.1.2.1", -- Input Frequency
    ".1.3.6.1.4.1.7309.6.1.4.4.1.2.1", -- Output Line Voltage
    ".1.3.6.1.4.1.7309.6.1.4.2", -- Output Frequency
    ".1.3.6.1.4.1.7309.6.1.4.4.1.3.1", -- Output AC Current
    ".1.3.6.1.4.1.7309.6.1.4.4.1.5.1", -- Output total Power
    ".1.3.6.1.4.1.7309.6.1.4.4.1.6.1", -- Output Power factor
    ".1.3.6.1.4.1.7309.6.1.2.3.0", -- Battery Voltage
    ".1.3.6.1.4.1.7309.6.1.2.6.0", -- Battery Temperature
    ".1.3.6.1.4.1.7309.6.1.2.1.0", -- Battery Status
    ".1.3.6.1.4.1.7309.6.1.2.5.0", -- Battery Capacity
}}
-- Saving data
compas.set{path = ac_ups_system_data[0], value = data_for_ups_system[0]/10}
compas.set{path = ac_ups_system_data[1], value = data_for_ups_system[1]}
compas.set{path = ac_ups_system_data[2], value = data_for_ups_system[2]/10}
compas.set{path = ac_ups_system_data[3], value = data_for_ups_system[3]/10}
compas.set{path = ac_ups_system_data[4], value = data_for_ups_system[4]/10}
compas.set{path = ac_ups_system_data[5], value = data_for_ups_system[5]/10}
compas.set{path = ac_ups_system_data[6], value = data_for_ups_system[6]}
compas.set{path = ac_ups_system_data[7], value = data_for_ups_system[7]/10}
compas.set{path = ac_ups_system_data[8], value = data_for_ups_system[8]}
compas.set{path = ac_ups_system_data[9], value = data_for_ups_system[9]}
compas.set{path = ac_ups_system_data[10], value = data_for_ups_system[10]}
```

As you can see, it isn't so difficult to add the conversion factor; we just have to put it where it is necessary.

Congratulations, now, you know the basics to monitor a SNMP device!

Final Code for a micro-secure SNMP monitoring

```
print("Initialization of ac_ups_system\r\n")
--
-- initialization of equipment
--
-- energy system path
path_es1 = "/site/1/energy_system/1";
-- creation of equipment - path_es1 - name - I'd
ac_ups_system = compas.equ_init{parent = path_es1, type="ac_ups_system",
id=1}

-- creating a manual description
ac_ups_system_desc_manual = compas.equ_description_init{parent =
ac_ups_system, id = 1, name = "Product Name", group = "Product Info",
value = "This is your first CompasLua Monitored device" }

-- connection to micro-secure
ac_ups_system_desc_hard = compas.equ_description_init{ parent =
ac_ups_system, id = 2, name = "Hardware Reference", group = "Product
Info"}
-- get the connection
snmp_microsecure = compas.snmp_get_device{ server = "130.145.57.77", port
= 161, read_community = "public"}
```

```
-- read the data through snmp
description_for_ups_system = compas.snmp_get{ device = snmp_microsecure,
oids = {"1.3.6.1.4.1.7309.6.1.1.3.0"} }
-- set the data inside compas
compas.set{ path = ac_ups_system_desc_hard, value =
description_for_ups_system[0]}

-- adding the alarms using a for loop. Alarms will start at AL10.
ac_ups_system_alarm = {
  "Overload",
  "Fan Alarm",
  "Battery Test",
  "Battery Temp High",
  "Battery Temp low",
  "Battery Low Warning",
  "Temp probe unplug",
  "In freq out of range",
  "User input Alarm",
  "Battery breaker open",
  "Weak battery",
  "Invalid software",
  "AC Breaker open",
  "keep alive"}
-- be careful; the for begin to count at 1
-- creating alarms and store paths inside the previous list
for i=1,14 do
  ac_ups_system_alarm[i] = compas.equ_alarm_init{parent = ac_ups_system,
id= 9+i, name = ac_ups_system_alarm[i], group= "Alarms", severity_type =
"major"}
end

-- adding some data coming from the microsecure
-- Creating data; need the equipment device, the id of the data, the
name of the data, the data group
ac_ups_system_data = {"", "", "", "", "", "", "", "", "", "", "", ""} --
storing in a table
-- input
ac_ups_system_data[0] = compas.equ_data_init{ parent = ac_ups_system, id
= 10, name = "Input AC Voltage", group = "Input", type = "number" }
ac_ups_system_data[1] = compas.equ_data_init{ parent = ac_ups_system, id
= 11, name = "Input Frequency", group = "Input", type = "number" }
-- output data
ac_ups_system_data[2] = compas.equ_data_init{ parent = ac_ups_system, id
= 30, name = "Output Line Voltage", group = "Output", type = "number" }
ac_ups_system_data[3] = compas.equ_data_init{ parent = ac_ups_system, id
= 31, name = "Output Frequency", group = "Output", type = "number" }
ac_ups_system_data[4] = compas.equ_data_init{ parent = ac_ups_system, id
= 32, name = "Output AC Current", group = "Output", type = "number" }
ac_ups_system_data[5] = compas.equ_data_init{ parent = ac_ups_system, id
= 33, name = "Output total Power", group = "Output", type = "number" }
ac_ups_system_data[6] = compas.equ_data_init{ parent = ac_ups_system, id
= 34, name = "Output Power factor", group = "Output", type = "number" }
-- battery data
ac_ups_system_data[7] = compas.equ_data_init{ parent = ac_ups_system, id
```

```
= 40, name = "Battery Voltage", group = "Battery", type = "number" }
ac_ups_system_data[8] = compas.equ_data_init{ parent = ac_ups_system, id
= 41, name = "Battery Temperature", group = "Battery", type = "number" }
ac_ups_system_data[9] = compas.equ_data_init{ parent = ac_ups_system, id
= 42, name = "Battery Status", group = "Battery", type = "number" }
ac_ups_system_data[10] = compas.equ_data_init{ parent = ac_ups_system, id
= 42, name = "Battery Capacity", group = "Battery", type = "number" }

function loop()
    -- read alarms
    alarms_for_ups_system = compas.snmp_get{device = snmp_microsecure,
oids =
    {
        ".1.3.6.1.4.1.7309.6.1.5.2.1.3.1",
        ".1.3.6.1.4.1.7309.6.1.5.2.1.3.2",
        ".1.3.6.1.4.1.7309.6.1.5.2.1.3.3",
        ".1.3.6.1.4.1.7309.6.1.5.2.1.3.4",
        ".1.3.6.1.4.1.7309.6.1.5.2.1.3.5",
        ".1.3.6.1.4.1.7309.6.1.5.2.1.3.6",
        ".1.3.6.1.4.1.7309.6.1.5.2.1.3.7",
        ".1.3.6.1.4.1.7309.6.1.5.2.1.3.8",
        ".1.3.6.1.4.1.7309.6.1.5.2.1.3.9",
        ".1.3.6.1.4.1.7309.6.1.5.2.1.3.10",
        ".1.3.6.1.4.1.7309.6.1.5.2.1.3.11",
        ".1.3.6.1.4.1.7309.6.1.5.2.1.3.12",
        ".1.3.6.1.4.1.7309.6.1.5.2.1.3.13",
        ".1.3.6.1.4.1.7309.6.1.5.2.1.3.14",
    }}
    for i=1, 14 do
        -- Give the data address and the new data
        compas.set{path = ac_ups_system_alarm[i], value =
alarms_for_ups_system[i-1]}
    end

    data_for_ups_system = compas.snmp_get{device = nmp_microsecure, oids
=
    {
        ".1.3.6.1.4.1.7309.6.1.3.2.1.3.1", -- AC input voltage
        ".1.3.6.1.4.1.7309.6.1.3.2.1.2.1", -- Input Frequency
        ".1.3.6.1.4.1.7309.6.1.4.4.1.2.1", -- Output Line Voltage
        ".1.3.6.1.4.1.7309.6.1.4.2", -- Output Frequency
        ".1.3.6.1.4.1.7309.6.1.4.4.1.3.1", -- Output AC Current
        ".1.3.6.1.4.1.7309.6.1.4.4.1.5.1", -- Output total Power
        ".1.3.6.1.4.1.7309.6.1.4.4.1.6.1", -- Output Power factor
        ".1.3.6.1.4.1.7309.6.1.2.3.0", -- Battery Voltage
        ".1.3.6.1.4.1.7309.6.1.2.6.0", -- Battery Temperature
        ".1.3.6.1.4.1.7309.6.1.2.1.0", -- Battery Status
        ".1.3.6.1.4.1.7309.6.1.2.5.0", -- Battery Capacity
    }}
    -- Saving data
    compas.set{path = ac_ups_system_data[0], value =
data_for_ups_system[0]/10}
    compas.set{path = ac_ups_system_data[1], value =
```



```
data_for_ups_system[1]}
    compas.set{path = ac_ups_system_data[2], value =
data_for_ups_system[2]/10}
    compas.set{path = ac_ups_system_data[3], value =
data_for_ups_system[3]/10}
    compas.set{path = ac_ups_system_data[4], value =
data_for_ups_system[4]/10}
    compas.set{path = ac_ups_system_data[5], value =
data_for_ups_system[5]/10}
    compas.set{path = ac_ups_system_data[6], value =
data_for_ups_system[6]}
    compas.set{path = ac_ups_system_data[7], value =
data_for_ups_system[7]/10}
    compas.set{path = ac_ups_system_data[8], value =
data_for_ups_system[8]}
    compas.set{path = ac_ups_system_data[9], value =
data_for_ups_system[9]}
    compas.set{path = ac_ups_system_data[10], value =
data_for_ups_system[10]}

    -- Loop function has to finish with the return of the string OK.
    return "OK"
end

function callbacks(Path, Value)
    if(Path == "/site/1/your/path") then
        print("Your Action\r\n")
        return true
    elseif (Path == "/site/1/your/path/2") then
        print("Your second action.\r\n")
        return false
    else
        print("Non implemented path : " .. Path)
        return false
    end
end
```

6.5 Working with files directly

Compas Lua is working with files in order to save scripts. This allows you to manage running scripts directly from the file system if you want.

All the script files are stored into the "*FlashDisk\user\scripts*" folder. Active script is ended by *_active* while disabled script has no underscore at the end of the name.

If you want to activate all the script system at a start-up, you just have to activate script then save the configuration. It is the parameter CF250 located at the site level.

6.6 Command Line Interface With the Script Runner

Script runner is controlled using a command system. It is the **CT250** which is located at the site level. All available commands are explained here but the onboard help can help you on site. It is located on the control help or directly inside the scripting page on the help button of the control executor.

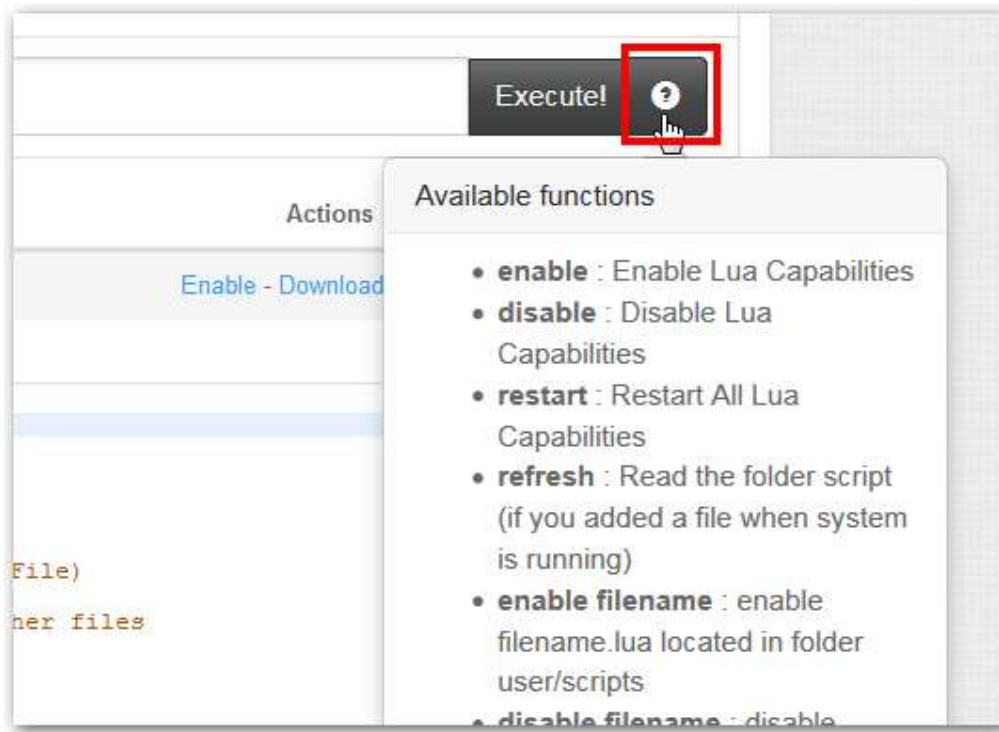


Figure 132 CompasLua Command interface and help

6.6.1 Available command

- **enable** : Enable Lua Capabilities (set CF250 to True)
- **disable** : Disable Lua Capabilities (set CF250 to False)
- **restart** : Restart All Lua Capabilities (Set CF250 to False, discard all script then restart all the systems)
- **refresh** : Read the folder script (if you added a file when system is running)
- **enable filename** : enable the script filename.Lua located in a folder user/scripts
- **disable filename** : disable the script filename.Lua located in a folder user/scripts
- **restart filename** : Restart the script filename.Lua located in a folder user/scripts. The script must be enabled
- **new filename** : create script filename
- **delete filename** : delete script filename
- **new tutorial** : create the tutorial containing all the basic functions, this is an on-board helper

- **reseterrors** : Reset all errors counters
- **reseterrors filename** : Reset errors counter for filename

6.7 Restrictions

There is some restriction on our system:

- Inside a Callback, you can't execute a control which refers to the same callback, it could result in an infinite callback queue and freeze the system
- Avoid making recursively functions, it can eat a lot of memory and CPU. We limited recursivity to 250 iterations.
- Scripts work each after each, there is no concurrent run and no parallel processing.
- Minimal execution time between script is one second
- Scripts names must be only ASCII character
- Some functions of Lua are not available: See Lua Known Limitation

CompasLua is still in beta, we may have forgotten some restrictions.
The restrictions list can be updated at any moment.

With CompasLua, you have a direct access to the CPU and Memory. We added some systems to abort a script taking too long to execute but this is maybe not enough. You have the full responsibility on your scripts.

6.8 Lua Known Limitation

1. Package OS
 - a. OS.date
 - i. %z and %Z not available (TimeZone)

6.9 Functions

6.9.1 Equipment management

6.9.1.1 Device Creation and Removal

Device Creation

Create a new ETSI equipment inside the device tree.

```
function compas.equ_init(  
    {  
        parent = "/path/to/parent",  
        type   = "device_type",  
        id     = 1  
    }  
)
```

Available parameters:

- * parent [Mandatory]
type: string
Description: parent equipment location, for example '/site/1/dc_system/1'
- * type [Mandatory]
type: string
Description: ETSI name of the equipment. This name has to be inside the following

list :

- site
- energy_system
- dc_system
- dc_system_conv
- sensors_actuators
- remote_site
- battery
- emulator
- converter
- inverter
- rectifier
- inverter_system
- remote_power_feeding_system
- energy_meter
- up_converter_system
- air_conditioning_system
- wind_power_system
- solar_power_system
- fuel_cell_system
- ac_ups_system
- diesel_backup_generator_system
- ac_distribution_power_system

- * id [Mandatory]
type: integer
range: 1-1000

Description: The id of the future system. For compatibility reason it is still possible to set id to 0, the next id will be taken. This is not advised to use because it can generate course condition at startup.

return:

string: The path to the device.
nil: in case of error

```
ac_ups = compas.equ_init({  
    parent="/site/1/energy_system/1",  
    type="ac_ups_system",  
    id=1  
})
```

Device Removal

Delete a device inside the device tree. There is no check before the deletion, you need to take care of what you are removing.

```
function compas.equ_remove(  
    {  
        path= "/path/to/equipment/to/remove"  
    }  
)
```

Available parameters:

```
* path [Mandatory]  
    type: string  
    Description: parent equipment location, for example '/site/1/dc_system/1'  
return:  
    boolean : Success of the operation or not  
compas.equ_remove({  
    path="/site/1/energy_system/1/ac_ups_system/1"  
})
```

6.9.1.2 ETSI Description

The description of your device contains informations to identify your device:

Id of device, software version, name of device, ... within Alpha Innovations, we are trying to respect these ids :

- 1 Product Name (typically a readable name)
- 2 Hardware Reference
- 3 Hardware Revision
- 4 Software Reference
- 6 Serial Number
- 8 Manufacturing Date

```
function compas.equ_description_init(  
    {  
        parent = "/path/to/parent",  
        id = 1,  
        name = "Name Of My Description",  
        value = "Optional initial value",  
  
        group = "My Group",  
        subgroup= "My Subgroup",  
        help = "My On-Board Help Line"  
    }  
)
```

Available parameters :

```
* parent [Mandatory]
  type: string
  Description: parent equipment location, for example '/site/1/dc_system/1'
* id [Mandatory]
  type: integer
  range: 1-1000
  Description: The id of the future element.
* name [Mandatory]
  type: string
  Description: Name of the description system that you want to create. for example:
"Serial Number"
* value [Optional]
  type: string
  default: "Lua empty Description"
  Description: the value of the description
* group [Optional]
  type: string
  default: "Compas Lua"
  Description: group where the description item will be stocked
* subgroup [Optional]
  type: string
  default: ""
  Description: subgroup where the description item will be stocked
* help [Optional]
  type: string
  default: ""
  Description: A help that explain the working of this component. This string will be
available inside Compas by clicking on the help button
return:
  string: The path to the description.
  nil + error message: in case of errors
ac_ups_description_1 = compas.equ_description_init({
  parent=ac_ups,
  id=1,
  name="Product Name",
  value="Dummy AC ups (CompasLua)",
  group="Description"
})
```

6.9.1.3 ETSI Alarm

Systems need to inform you when there is a problem. You can create an alarm using `equ_alarm_init` function.

```
function compas.equ_alarm_init(
{
  parent  = "/path/to/parent",
  id      = 1,
  name    = "My Name",
  value   = false,

  set_delay    = 5,
  clear_delay  = 10,
  severity_level = 5,
  severity_type = "major"
  relay_number = 4,
```

```
    group    = "My Group",  
    subgroup= "My Subgroup",  
    help     = "My On-Board Help Line"  
  }  
)
```

Available parameters :

- * parent [Mandatory]
 - type: string
 - Description: parent equipment location, For example '/site/1/dc_system/1'
- * id [Mandatory]
 - type: integer
 - range: 1-5000
 - Description: The id of the future element.
- * name [Mandatory]
 - type: string
 - Description: Name of the alarm that you want to create. For example: "DC voltage too low"
- * value [Optional]
 - type: bool
 - default: false
 - Description: the initial value
- * severity_type [Optional]
 - type: string
 - range: "disabled, none, warning, minor, major, critical"
 - default: "none"
 - Description: the severity type of the alarm
- * severity_level [Optional]
 - type: number
 - range: "0-9"
 - default: "0"
 - Description: the severity level of the alarm
- * group [Optional]
 - type: string
 - default: "Compas Lua"
 - Description: group where the element will be stocked
- * subgroup [Optional]
 - type: string
 - default: ""
 - Description: subgroup where the element will be stocked
- * set_delay [Optional]
 - type: number
 - default: 5
 - Description: set the delay before activation
- * clear_delay [Optional]
 - type: number
 - default: 5
 - Description: set the delay after which time the alarm must be activated activation
- * relay_number [Optional]
 - type: number
 - default: 0
 - Description: The current equipment relay number to activate. This works only if the alarm is created on some specific devices.
- * help [Optional]
 - type: string
 - default: ""

Description: A help that explain the working of this component. This string will be available inside Compas by clicking on the help button
return:

```
string: The path to the element.  
nil: in case of errors  
ac_ups_alarm_1 = compas.equ_alarm_init(  
    {  
        parent = ac_ups,  
        id     = 10,  
        name   = "AC Fail",  
        value  = false,  
        severity_type = "major",  
        group  = "AC Input"  
    }  
)
```

It's easy to set the alarm:

```
compas.set({path=ac_ups_alarm_1, value=true})
```

6.9.1.4 ETSI data

Adding data is very similar than adding a description or alarms.

```
function compas.equ_data_init(  
    {  
        parent = "/path/to/parent",  
        id     = 1,  
        name   = "My Name",  
        type   = "number",  
        unit   = "V",  
        value  = 5,  
  
        record = true,  
        record_rule = "s120,m120,h48,d10",  
  
        group   = "My Group",  
        subgroup= "My Subgroup",  
        help    = "My On-Board Help Line"  
    }  
)
```

Available parameters :

- * parent [Mandatory]
 - type: string
 - Description: parent equipment location, For example '/site/1/dc_system/1'
- * id [Mandatory]
 - type: integer
 - range: 1-5000
 - Description: The id of the future element.
- * name [Mandatory]
 - type: string
 - Description: Name of the data system that you want to create. For example: "DC voltage of string 1"
- * type [optional]
 - type: string
 - Description: Name of the alarm that you want to create. For example: "DC voltage too low"

```

    range: "text"; "number"; "bool"
    default: text
    Description: type of the data
* unit [optional]
    type: string
    default: none
    Description: The unit of the element. This string must be inside the following
list:
    - none
    - degree,degreeCelcius,degreeKelvin
    - V,mV,VA,VAR
    - A,mA
    - W
    - Hz,RPM
    - percent
    - d,h,m,s,ms
    - Ah,As
    -
Kj,ko,mVbyDegC,Wh,kWh,kW,kVA,kVAh,kVAR,kVARh,MB,meter,meterpersecond
* value [Optional]
    type: string
    default: ""
    Description: the initial value
* group [Optional]
    type: string
    default: "Compas Lua"
    Description: group where the data item will be stocked
* subgroup [Optional]
    type: string
    default: ""
    Description: subgroup where the data item will be stocked
* record [Optional]
    type: boolean
    default: false
    Description: enable the record of this field. This works only on number field
* record_rule [Optional]
    type: string
    default: "s120,m120,h48,d10"
    Description: change the default record rule in order to satisfy the deasired
precision. For example with delta record activated: s120,m120,h48,d10,dp200,dy1
* help [Optional]
    type: string
    default: ""
    Description: A help that explain the working of this component. This string will be
available inside Compas by clicking on the help button
return:
    string: The path to the data.
    nil: in case of errors
-- preparing a table where to save the data.
-- Be careful, the table in lua begin with id = 1
ac_ups_datas = {}

-- now make a loop from 1 to 3 in order to add 3 datas (i=1, i=2, i=3)
for i=1,3 do
    ac_ups_datas[i] = compas.equ_data_init ({ parent = ac_ups, id = 10+i, name = "v"..i, group = "Input
Voltage", type = "number", value = math.random(210,235)})

```


end

```
-- try with a text data
ac_ups_datas[4] = compas.equ_data_init({parent = ac_ups, id = 14, name = "My super text", group =
"Misc Data", type = "text"})
```

6.9.1.5 ETSI Configuration

Configuration is essential when you want to use some parameters inside the Lua system. When configuration is changed, the function callbacks is called with path and value of the element.

```
function compas.equ_config_init(
{
    parent  = "/path/to/parent",
    id      = 1,
    name    = "My Name",
    type    = "number",
    unit    = "V",
    value    = "true",
    default_value = "true;false;off",
    unit     = "none",

    group   = "My Group",
    subgroup= "My Subgroup",
    help    = "My On-Board Help Line"
})
```

Available parameters :

- * parent [Mandatory]
 - type: string
 - Description: parent equipment location, For example '/site/1/dc_system/1'
 - * id [Mandatory]
 - type: integer
 - range: 1-5000
 - Description: The id of the future element.
 - * name [Mandatory]
 - type: string
 - Description: Name of the config that you want to create. For example: "Open LVD"
 - * value [Optional]
 - type: string
 - default: false
 - Description: the initial value of the element.
 - * default_value [Optional]
 - type: string
 - default: false
 - Description: If values are in a list, put it here using semicolon (;) to separate it. Example: "Start;Stop;Disable"
 - * unit [optional]
 - type: string
 - default: none
 - Description: The unit of the element. This string must be inside the following list:
- none
 - degree,degreeCelcius,degreeKelvin
 - V,mV,VA,VAR

```

        - A, mA
        - W
        - Hz, RPM
        - percent
        - d, h, m, s, ms
        - Ah, As
        -
Kj, ko, mVbyDegC, Wh, kWh, kW, kVA, kVAh, kVAR, kVARh, MB, meter, meterpersecond
* group [Optional]
    type: string
    default: "Compas Lua"
    Description: group where the element will be stocked
* subgroup [Optional]
    type: string
    default: ""
    Description: subgroup where the element will be stocked
* help [Optional]
    type: string
    default: ""
    Description: A help that explain the working of this component. This string will be
available inside Compas by clicking on the help button
return:
    string: The path to the element.
    nil: in case of errors
ac_ups_configuration_1 = compas.equ_config_init({
    parent=ac_ups,
    id=1,
    name="UPS Enable",
    group="Test",
    default_value = "true;false;off",
    value = "true"
})

```

6.9.1.6 ETSI Control

Add a control to your device. When this control is called, compas will call the function callbacks. You will receive a path from the control and a data (or True if no value is needed). You will be able to check something and do the appropriate action in a shorter time than the loop call.

```

function compas.equ_control_init(
{
    parent  = "/path/to/parent",
    id      = 1,
    name    = "My Name",

    need_value = true,
    default_value = "42",

    group    = "My Group",
    subgroup = "My Subgroup",
    help     = "My On-Board Help Line"
}
)

```

Available parameters :

```

* parent [Mandatory]
    type: string

```

```

    Description: parent equipment location, For example '/site/1/dc_system/1'
* id [Mandatory]
  type: integer
  range: 1-5000
  Description: The id of the future element.
* name [Mandatory]
  type: string
  Description: Name of the control that you want to create. For example: "Open LVD"
* need_value [Optional]
  type: bool
  default: false
  Description: The control have a field in order to specify some value
* default_value [Optional]
  type: string
  default: false
  Description: the default value, if it is separated by semicolon (;), this will
generate a choice list. Example: "Start;Stop;Disable"
* group [Optional]
  type: string
  default: "Compas Lua"
  Description: group where the element will be stocked
* subgroup [Optional]
  type: string
  default: ""
  Description: subgroup where the element will be stocked
* help [Optional]
  type: string
  default: ""
  Description: A help that explain the working of this component. This string will be
available inside Compas by clicking on the help button
return:
  string: The path to the element.
  nil: in case of errors
ac_ups_control_1 = compas.equ_control_init({parent = ac_ups, id = 1, name = "Test Battery", group =
"Battery", need_value = false})
ac_ups_control_2 = compas.equ_control_init({parent = ac_ups, id = 2, name = "Run on Battery for X
seconds", group = "Battery", need_value = true})

```

6.9.1.7 ETSI Event

Add an event on a de device present inside the device tree.

```

function compas.equ_new_event(
{
  parent  = "/path/to/parent",
  name    = "My Name",

  severity_type = "major",
  severity_lvl  = 5,

  group    = "My Group",
  subgroup = "My Subgroup"
}
)

```

Available parameters :

```
* parent [Mandatory]
```

```

    type: string
    Description: parent equipment location, For example '/site/1/dc_system/1'
* name [Mandatory]
    type: string
    Description: Name of the event that you want to create. For example: "the lvd has
been opened by lua"
* severity_type [Optional]
    type: string
    range: "disabled, none, warning, minor, major, critical"
    default: "none"
    Description: the severity type of the event
* severity_level [Optional]
    type: number
    range: "0-9"
    default: "0"
    Description: the severity level of the event
* group [Optional]
    type: string
    default: "Compas Lua"
    Description: group where the data item will be stocked
* subgroup [Optional]
    type: string
    default: ""
    Description: subgroup where the data item will be stocked
return:
    boolean that indicates if everything goes well
compas.equ_new_event({ parent=ac_ups, name="Main Power Lost", group="Input Power",
severity_type="major"})

```

6.9.2 Generic getter and setter for ETSI data

6.9.2.1 Getter

You can get value of others elements of the system by using getter. You need an ETSI path and to give the data type that you wanted in return..

```

function compas.get(
{
    path = "/path/to/the/element",
    type = "text"
}
)

```

Available parameters :

```

* path [Mandatory]
    type: string
    Description: parent equipment location, For example '/site/1/dc_system/1'
* type [Optional]
    type: text
    range: "bool", "number", "text"
    default: "text"
    Description: The type of the data that you want back.
return:
    ask_type: The data to the element.
    nil + error comment: in case of errors

```

```
print( "get : " .. compas.get({ path = ac_ups_datas[4]}) .. "\r\n")  
print( "get : " .. compas.get({ path = ac_ups_datas[2], type = "number"}) .. "\r\n")
```

6.9.2.2 Setter

Set function allows you to communicate with all the API. You are able to set/configure something using the ETSI Path.

Available parameters :

- * path [Mandatory]
type: string
Description: the ETSI path of what you want to take

- * value [Mandatory]
type: string, number
Description: the value that you want to set. You can set only alarms and data with a number type.

return:

the standard response from the API: see standard code

```
print( "set : " .. compas.set({ path = ac_ups_datas[4], value = "SuperTest"}) .. "\r\n")  
print( "set : " .. compas.set({ path = ac_ups_datas[2], value = 222.3547}) .. "\r\n")
```

6.9.3 The callback system

When a control or a config element created by Lua is used, a callback is generated. All callbacks are send to the function `"callbacks(Path, Value)"` of your script. This is the entry point for data. Callbacks are executed before the execution of the scripts and as soon as possible. The system is not waiting that the loop has to run.

Input :

Path = Path from where the function is called

Value = Value of the control to press (1 if control has no string value)

Output :

boolean:

- * true: callback has been proceeded normally

- * false: an error occurred during processing, please add an error inside the error

counter

```
function callbacks(Path, Value)  
  if(Path == ac_ups_control_1) then  
    print("Control 1 pressed: Test battery...\r\n")  
    return true  
  elseif (Path == ac_ups_control_2) then  
    print("Control 2 pressed: Running on battery for ".. Value .." seconds.\r\n")  
    return true  
  else  
    print("Non implemented path : " .. Path)  
    return false  
  end  
end
```

6.9.4 Time functions

Compas has also some time functions. You can access on time function with two different way :

- using Lua function `os.time` (see lua documentation)
- using CompasLua time function

- time_second
- time_minute
- time_hour
- time_day
- time_month
- time_year

```
print("We are in ".. compas.time_year() .. " and it is ".. compas.time_hour().. ":" ..  
compas.time_minute() )
```

6.9.5 Mail functions

Allow you to send an email to someone. Don't forget to configure the smtp server and mail receiver.

```
function compas.mail(  
{  
    subject = "the mail subject",  
    message = "the mail content"  
}  
)
```

Available parameters :

- * subject [Mandatory]
type: string
Description: the subject of the mail
- * message [Mandatory]
type: string
Description: the message of the mail

return:

```
boolean of the result of the send  
subject="Compas Lua has started"  
message= [[Hello CompasLua user,  
    Compas Lua has started.]]  
message = message .. "Compas version = ".. compas.version()  
message = message .. "CompasLua version = ".. compas.version_api()  
compas.mail({subject = subject, message = message})
```

6.9.6 SNMP functions

CompasLua allows making SNMP request. This could be really useful in order to monitor non-alpha device.

The first step is to get the connection string then you will be able to make some snmp call.

6.9.6.1 Step 1: Getting the connection

Get the connection string with compas.get_device_snmp

```
function compas.get_device_snmp(  
{  
    ip = "10.100.151.42",  
    port= 161,  
    id = 0,  
  
    read_community = "public",  
    write_community = "public"
```

```
}  
)
```

Available parameters :

- * ip [Mandatory]
type: string
Description: the ip of the device.
- * port [Optional]
type: number
default: 161
Description: the port on wich the snmp is available.
- * id [Optional]
type: number
default: 0
Description: The internal number of a snmp connection. internal connection are the same for all scripts lua, pay attention to not modify it. If you specify 0, it will give you a random and free number of connection. You have maximum 999 snmp definition inside Compas.

- * read_community [Optional]
type: string
default: "public"
Description: password for reading device
- * write_community [Optional]
type: string
default: "public"
Description: password for writing to device

return:

- a string with the connection string
- nil in case of errors + error message

```
snmp_connector = compas.get_device_snmp{server = "10.0.0.201", port = 161, read_community =  
"public"}
```

6.9.6.2 Step 2: Read data with get function

Get values from a snmp device. You have to specify the device string id that you get from snmp_get_device.

```
function compas.snmp_get(  
{  
device = snmp_microsecure,  
oids = { ".1.3.6.1.4.1.7309.6.1.3.2.1.3.1", ".1.3.6.1.4.1.7309.6.1.3.2.1.2.1"},  
timeout = 30  
}  
)
```

Available parameters :

- * device [Mandatory]
type: string
Description: the connection string of the device, if it is invalid or not existing
this function will return nil.
- * oids [Mandatory]
type: table of string { "", "", ""}
Description: the list of oid to get the value
- * timeout [Optionnal]
type: number
default: 2
range: 1-60

Description: timeout of the request

Usage example :

```
snmp_get{device= the_device_string, oid = {"1.585.441", "5.555.1"}}
```

return:

a keyed table with id and response like {"1.2.3.4.5.3": "DC", "55.1.6.647.21": 55}
nil in case of errors (connection not exist.)

```
data_for_ups_system = compas.snmp_get{  
  device = snmp_microsecure,  
  oids =  
    {  
      "1.3.6.1.4.1.7309.6.1.3.2.1.3.1",-- AC input voltage  
      "1.3.6.1.4.1.7309.6.1.3.2.1.2.1",-- Input Frequency  
      "1.3.6.1.4.1.7309.6.1.4.4.1.2.1",-- Output Line Voltage  
      "1.3.6.1.4.1.7309.6.1.4.2",    -- Output Frequency  
      "1.3.6.1.4.1.7309.6.1.4.4.1.3.1",-- Output AC Current  
      "1.3.6.1.4.1.7309.6.1.4.4.1.5.1",-- Output total Power  
      "1.3.6.1.4.1.7309.6.1.4.4.1.6.1",-- Output Power factor  
      "1.3.6.1.4.1.7309.6.1.2.3.0",  -- Battery Voltage  
      "1.3.6.1.4.1.7309.6.1.2.6.0",  -- Battery Temperature  
      "1.3.6.1.4.1.7309.6.1.2.1.0",  -- Battery Status  
      "1.3.6.1.4.1.7309.6.1.2.5.0",  -- Battery Capacity  
    }  
}
```

6.9.6.3 Step 3: Saving data with appropriate data conversion

Now you can set the data to an element using the set function. At this time, you can add some conversion factor.

```
compas.set{ path = ac_ups_system_data[0], value = data_for_ups_system[0]/10}  
compas.set{ path = ac_ups_system_data[1], value = data_for_ups_system[1]}  
compas.set{ path = ac_ups_system_data[2], value = data_for_ups_system[2]/10}
```

6.9.6.4 Step4: Set a value using SNMP set

Set a value for a snmp device. You have to specify the device string id that you get from snmp_get_device.

```
function compas.snmp_set({  
  device = snmp_microsecure,  
  oids = ".1.3.6.1.4.1.7309.6.1.3.2.1.3.1",  
  value = "test",  
  type = "string",  
  timeout = 2  
})
```

Available parameters :

- * device [Mandatory]

- type: string

- Description: the connection string of the device, if it is invalid or not existing

this function will return nil.

- * oid [Mandatory]

- type: string

- Description: oid to set the value

- * value [Mandatory]

- type: string

- Description: oid to set the value

- * type [Optionnal]


```
type: string
default: string
range: "string, integer"
Description: the encoding type to be sent by snmp
* timeout [Optionnal]
type: number
default: 2
range: 1-60
Description: timeout of the request
Usage example :
snmp_set{device= the_device_string, oid = "1.585.441", value = "44"}
return:
boolean or error
| snmp_set{device= the_device_string, oid = "1.585.441", value = "44"}
```

6.9.7 Miscellaneous functions

6.9.7.1 Version functions checks

- Compas version
 - `compas.version()`
 - Return a string with the current compas version
- CompasLua API version
 - `compas.version_api()`
 - return a string with the current version of CompasLua API

6.9.7.2 Standard return code

Standard return code are in this list, their explanation speak by their name :

Errors codes:

- "ACCESS_DENIED" => `compas.access_denied()`
- "BAD_ARGUMENT" => `compas.bad_argument()`
- "COMMAND_ERROR" => `compas.command_error()`
- "COMMAND_CANCELED" => `compas.command_canceled()`
- "INVALID DATA" => `compas.invalid_data()`
- "NOT_FOUND" => `compas.not_found()`
- "NEED_LICENSE" => No license
- "READ_ONLY_VARIABLE" => Read only variable

Normal codes:

- "COMMAND_EXECUTED" => `compas.command_executed()`
- "COMMAND_EXECUTING" => `compas.command_executing()`
- "OK" => `compas.command_ok()`

6.9.7.3 Configuration of the script

Compas monitor the execution of your Lua Scripts. By default, your script has a maximum runtime of 5 seconds and is executed every 10 seconds.

We give you the full control of the refresh speed and the max runtime of your script, pay attention to not overload your controller CPU.

Get script configuration

You can use the function `get_script_config()` in order to get a table with all the available configuration. Currently you can get the following variables:

- `refresh_speed_s`
- `max_runtime_s`

Set script configuration

With `compas.set_script_config(table{})` you are able to set configuration of the script. This allows you to change the refresh speed and the max runtime.

```
compas.set_script_config({ param="refresh_speed_s", value=6 })  
compas.set_script_config({ param="max_runtime_s", value=35 })
```

6.9.7.4 Callbacks queue

The callback queue contains all callbacks that notify the system that a change has been made. It can be executed manually inside a of running script:

- `compas.execute_callback()`

This can be helpful when you need to wait inside a script and that you want that the system execute something.

7 DC SYSTEMS MANAGEMENT

7.1 Introduction

The bus voltage is controlled following the current operation mode of the system. Your battery life is important so compas helps you to improve it using his advanced Temperature Compensation and Charge Control. We also protect your battery from extra-low voltage that could damage your battery in only one power outage using a Low Voltage Disconnect (LVD).

A lot of Alarms are available in order to help you to operate your system. We can detect bad rectifiers or bad batteries. With Compas system, you can predict issues and act before a major failure. Compas improves your uptime.

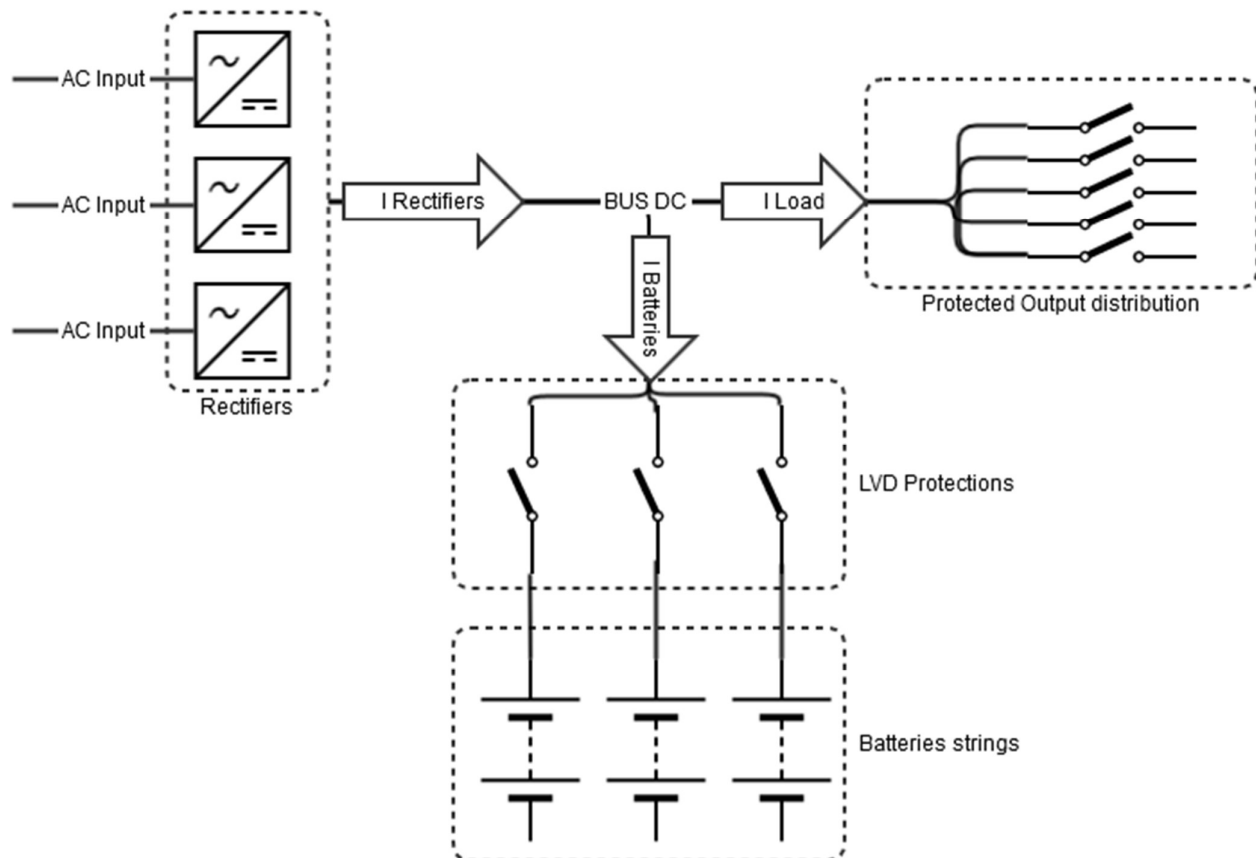


Figure 133 DC System

7.2 Controllers

Compas can be run on two different controllers and using different types of rectifier. Each system has his own specifications. Here is the list of differences/Compatibility :

	MCU	UCC
System Modes	✓	✓
Batteries support	✓	✓
Battery Current Read	Inside MCU (Integrated shunt)	External Shunt Linked on an ADIO10
Battery Current Limit support	✓	✓
Battery Current Regulation	Voltage Regulation (see particularities)	Power Regulation (see particularities)
Battery LVD	✓	✗ (coming...)
Rectifiers Belgium	✓	✓ (No battery test)
Rectifiers Canada	✓ (No battery test)	✓
Rectifier Output Read	From Back panel.	Sum(Rectifiers current)
Rectifiers Status	Numeric, Fallback with Analogical values	Numeric
Stat-up Time		
Start-up regulation time	<5 sec	< 2 minutes
Compas Start-up	< 2 minutes	< 2 minutes

7.2.1 MCU

Your dc system is usually controlled by a Monitoring Control Unit (MCU). It is a micro controller-based monitoring system intended for use to monitor DC Systems, including rectifiers, batteries, and other modules. It usually contains the compas card which gives you the opportunity to enhance your system monitoring. On most of the systems, the controller is a hot-pluggable, hot-swappable unit that fits into the rectifier rack.

There are often theses LED on the front plate:

- Status Led (Green) :
 - Steady : Monitoring is OK
 - Quick Blinking (200ms): COMPAS is not present (or starting), the MCU is working in standalone (With the configuration saved inside the MCU - This can be copied from COMPAS with "Save In MCU" function)
 - Slow Blinking (1Hz): Battery test is running

- 800 ms On, 200 ms Off : System is in boost mode
- LVD OK (Green) : steady when the LVD is closed
- 4 LED for Alarms (Red): The LEDs are linked to the dry alarm relays. Each alarm can be mapped to any relay number (1-4). By convention, we use by default the 1 for major alarms, the 2 for minor alarms, the 3 for battery specific alarms, and the 4 when the system is in AC Failure.

There is often one push-button:

- Pressed for 5-10 sec : Start Battery Test
- Pressed for > 10 sec: Force Battery Test
- Pressed during battery test cancel the test.

7.2.2 UCC

An UCC with an ADIO10 can also be used to monitor a DC System. You have to change the configuration parameter *site->CF93* (System Nodes Definition) in order to create the DC System :

- *es1_dc1(1-100,111,112)*

The configuration parameter create a DC System 1 inside the energy system 1 using devices :

- rectifiers with node ids from 1 to 100.
- ADIO10 with node ids 111 and 112 (used to monitor the battery current, manage LVD,...)

Battery strings need to have a shunt that is connected to the current measurement of the ADIO10. You can monitor more than one battery string by connecting the next shunt

7.3 Operational modes

In order to test the battery, improve his life expectancy, have a rapid recovery when there is a power outage, our DC bus has several mode to control his voltage.

Mode	Voltage control	Current limit	Temp. comp.	Example
Float	Setting defined	✓	✓	54V
Boost	Setting defined and a little more than float	✓	✓	56V
Battery Test	Voltage drop until wanted current for discharge test	✓	✓	
AC Failure	Rectifier OFF	✗	✗	LVD open at 42V
Safe	Safe voltage when communication problem	✗	✗	52V

7.3.1 Float Mode

Float Mode is the standby mode, the output voltage is set to the float voltage setting. It can be automatically adjusted by the temperature compensation or the current limitation. This is usually the recommended voltage in the specifications of the battery.

7.3.2 Boost Mode

The DC bus voltage is increased in order to charge the battery faster. When the system arrives at the bus voltage, the system will set the batteries to a higher voltage in order to force the battery charge current according to your parameters. The boost maximum voltage can be configured in the DC system. This mode can be automatically started after an AC Failure, after a battery test, or remotely.

This mode will respect the battery current charge but the voltage will be set to a higher condition than the float voltage.

This is not recommended with all kinds of batteries, please inform yourself to your battery seller.

7.3.3 Battery Test

The battery is being tested. The voltage is going down until we reach the desired battery current for the test. Alarm like "*Bus Voltage Low*" and "*battery on discharge*" can be generated.

7.3.4 AC Failure

There is no more rectifiers to give power, the battery is discharging and the bus voltage is dropping.

7.3.5 Safe Mode

The system can go to safe when there is a communication problem or when the voltage/current/temperature sense is not connected correctly.

7.4 Battery current Regulation principles

The current charge regulation can be controlled using two different methods. It is really important to understand well how it is working otherwise you can have some non-predicted effect.

With voltage regulation, the controller use the bus voltage to control the current flowing inside the batteries. Rectifiers are not power limited, they can give a full power nearly instantaneously.

With power regulation, the controller use the power limitation to control the current flowing inside the batteries. Rectifiers are power limited, they cannot give a load step-up instantaneously. The batteries will give the power during the transitory. If you activated battery current control without batteries, your system will not be able to take a fast load step-up. The system will be on power limitations and the bus voltage will drop.

	Voltage Regulation	Power regulation
Load Step up	Rectifiers will give the step	Battery will take the step until the system stabilization
Load Step Down	Batteries take the current spike	No battery spike inside the load

7.5 Alarms

Here is a non-exhaustive alarm list. Don't forget that you can also make a custom alarm by using our [Programming capabilities](#).

- **AC Input alarms**
 - Mains Failure
 - Mains Partial Failure
 - Mains Low (on some systems)
 - Mains High (on some systems).
- **DC Output bus voltage** (only related to the Bus voltage measurement. There are different hysteresis to avoid changing alarm state around border values.)
 - *DC Bus Extra Low* : with parameters "DC Bus Voltage Extra Low" and "DC Bus Voltage Extra Low Hysteresis"
 - *DC Bus Low* : with parameters "DC Bus Voltage Low" and "DC Bus Voltage Low Hysteresis"
 - *DC Bus High* : with parameters "DC Bus Voltage High" and "DC Bus Voltage High Hysteresis"
 - *DC Bus Extra High* : with parameters "DC Bus Voltage Extra High" and "DC Bus Voltage Extra High Hysteresis"
 - *DC Bus Voltage Sense Failure*.
- **Battery alarm**
 - Battery Last Test Failed
 - Battery on Discharge
 - Battery LVD Relay Open
 - Battery Temperature Too High : with parameters "Battery Temperature High" and "Battery Temperature Hysteresis"
 - Battery Temperature Too Low : with parameters "Battery Temperature Low" and "Battery Temperature Hysteresis"
 - Battery Temperature Sensor Fail.
- **Rectifier alarms**
 - One Rectifier Failure
 - More Than One Rectifier Failure
 - Missing Rectifiers : with parameter "Minimal Number of Present Rectifiers".
- **User Input related alarm**

- Digital Input X
- Battery Breaker Open
- Distribution Breaker Open
- Ambient Temperature Too High
- Ambient Temperature Too Low
- Ambient Temperature Sensor Fail.

7.6 Events

Here is a non-exhaustive list of DC System's possible events. For each listed event, a possible fix or user action is suggested:

Event Name	Description	Fix
DC System Started	DC System shelf has been detected by COMPAS and is now monitored	Nothing to do
DC System Dying.	This event only happens when DC system is using battery. Alarm "DC Bus Extra Low" will be generated just before this event happens (see: Battery Low Voltage Disconnect Operation (LVD)).	Charge battery, or recover AC input voltage
DC Mode Changed : <new_mode>	Mode of operations has been changed (see: Operation mode). If critical, an alarm will be generated.	Check alarm
Alarm Set: <alarm_name>	The corresponding alarm has been set.	Check alarm
Alarm Clear: <alarm_name>	The corresponding alarm has been cleared.	Nothing to do

7.7 DC System Functionalities

7.7.1 Low Voltage Disconnect operation

The purpose of the Low Battery Disconnect mechanism is to prevent permanent damage to the lead acid battery due to excessive deep discharge.

When the LVD is opened, and that the system has no AC input power, the application will not be powered anymore. It is possible to configure a delay before the opening. It allows to absorb peaks of consumptions without opening the LVD and/or to shut down properly the application thanks to the alarm "DC Bus Voltage Extra Low" for instance.

Before opening the LVD, a DC System event is generated: "System Dying".

Here is a non-exhaustive list of the related configuration parameters (see equipment tables for detailed information):

- LVD Disconnect Voltage
- LVD Disconnect Delay
- DC Bus Voltage Extra Low.

7.7.2 Battery Charge Current Control [MCU]

The Battery Monitor feature enhances the controller's capability to provide information about the battery to the User. Charge Current Control will help to improve battery longevity by keeping the battery current within specified limits. Charge current flowing to the battery during recharge will be limited to a value as programmed by the Supervisor. This value will be derived from the battery manufacturer's specification sheet and entered by the Supervisor.

On system with **MCU**, The controller performs this limitation by lowering the rectifiers programming voltage when needed, through a control loop in the controller program. This limitation is also active in boost mode.

Related configuration parameter

- **DC System**
 - **CF31** : Battery Charge Current Limit (Ampere)
 - **CF32** : Shunt Rating At 60mV

7.7.3 Battery Charge Current Control [UCC]

On **UCC DC System**, we use a power limitation, this is the standard regulation of Cordex system. It Works by limiting the power of the module. When there is a spike on the load, The batteries gives the necessary power. The rectifiers power limitation will be set rapidly to a higher level. You can't activate the Battery Charge Current Control Without batteries. Your system will not be able to sustain a fast load step-up.

7.7.4 Battery Temperature Compensation

Battery life expectancy and performance is directly related to battery ambient temperature. The optimum temperature for battery operation is 25°C (77°F). Without compensation, battery life is seriously compromised at temperatures above 25°C, while battery performance is reduced below it.

Adjusting the battery's float voltage to correspond with temperature fluctuations will ensure maximum battery performance and life expectancy. With the MCU, this may be accomplished by using the software's built-in automatic temperature compensation function.

This function works by adjusting the system voltage, by step of 0.1V, as the temperature changes, according to the defined parameters.

Temperature compensation occurs at standard rates commonly referred to as slope-compensation settings. For maximum performance, it's important to match the battery slope compensation with the setting recommended by the battery manufacturer. This is not to be confused with slope regulation; which refers to the process of regulating current among a group of parallel-operating rectifiers.

Temperature compensation feature has programmable breakpoints. These are the points at which Temp Comp will cease. Further temperature decreases or increases will NOT increase or decrease the output voltage. This protects the connected load from excessive voltage conditions. As Temp Comp is active in either *float*, *equalize* or *boost mode*, breakpoints should be set with this in mind.

Temperature compensation feature also incorporates fail-safe circuitry to prevent it from driving the rectifier system to a voltage higher than it is suitable for the load or battery.

The controller includes a control loop that compares the bus voltage with a reference value, and pilots on the rectifiers programming voltage accordingly. It also measures the battery temperature through an external temperature probe (NTC 10K). This measurement, together with the "DC Bus Float Voltage at 25°C" and "Battery Temperature Compensation" configuration, determines the reference voltage.

The Battery Temperature Compensation is regulated by the MCU. The configuration is stored in the MCU, and can be updated by COMPAS if present. On UCC, Compas Manage the Battery Temperature Compensation itself.

Related configuration parameter

- **DC System**
 - **CF21** : Temperature Compensation Slope (mV/degree)
 - **CF22** : Maximum Positive Temperature Compensation (Volt)
 - **CF23** : Maximum Negative Temperature Compensation (Volt)

7.7.5 Smart Energy

The smart energy function has been developed in order to improve the global efficiency of the system. It is very useful in systems that have a very high level of redundancy. The purpose of this system is to use rectifiers at the best efficiency. With all Alpha Innovations rectifier, we know the efficiency curve and the system adapts itself to the load. Unused rectifier supporting the remote off will be un-powered in order to save energy.

The smart energy is available at the DC system level, it is the parameter **CF83** and it supports Boolean condition (see [PLC Functionalities](#)).

7.8 Battery Test [MCU]

Battery test is a tool that helps you to detect bad batteries and makes prevention in order to change the batteries before a major power failure. With our controller, you will be able to ensure that supported equipment is adequately backed-up and prevent unexpected failure. This is really important for critical electrical equipment that must remain on.

Compas is able to do two types of battery test :

- Discharge to a certain capacity of the battery and check final voltage of the battery: **Standard test**
- Discharge during a defined time and check if this match the battery life expectation using **Peukert's Law**

At the end of this chapter you will be able to :

✓	Understand principles behind a battery test
✓	Configure a battery test following your application
✓	Start manually a battery test
✓	Schedule automatically a battery test
✓	Interpret a battery test and decide if you have to change your batteries
✓	Maintain your power solution reliable in time

7.8.1 Battery test principles

As we know that your application (load) is really important, we have designed a non-intrusive battery test: unlike a lot of our competitors, our rectifiers power is still available during the battery test. This prevents a power outage on your equipment if the batteries are really bad.

The battery test consists of programing the bus voltage down progressively to a lower level. This has the effect of discharging the battery into the load because the battery voltage will be higher than rectifier output voltage.

With our system you can make a battery test with a lower discharge rate than your full load. This has an important impact over the battery life expectancy by reducing the memory effect. If the output current is greater than the discharge current limit, the rectifiers will supply the difference of current.

Our system support two types of test:

- Standard test
 - Discharge the battery of a certain percentage.
 - Check the end voltage of the test to see if batteries are in good condition.
- Time based
 - Discharge the battery during a certain time
 - Use Peukert's law to check if batteries are in good condition.

Here is a small comparative that will help you to choose between the two methods:

Condition	Standard test	Peukert's test
System safety	+	+
Test reliability	+	+
Size of the discharge for battery evaluation	-	+
Fixed test time	-	+

Condition	Standard test	Peukert's test
Support variable load	+	- ⁽¹⁾
Need manufacturer advanced specifications	+	- ⁽²⁾

(1): Peukert test can be used with variable load only if :

- The load variation is slow
- The load is always over the value specified by the test discharge voltage (seed battery test configuration)

(2): You will need the Peukert Number of the batteries, Manufacturer will not always give it to you. It can be found by making two battery test but this procedure could take some time.

7.8.2 Battery test configuration

7.8.2.1 General parameters

Navigate to the dc system then in the configuration tabs. Switch to edit mode in order to be able to modify the parameters.

Needed values

In order to configure the battery test, you will need your batteries' specifications:

- Capacity
- Recommended Battery charge Current limit
- Maximum Depth of discharge before a battery damage (will be used to estimate your battery autonomy)

If you want to use the Peukert's Law to test and estimate your batteries, you will need your batteries' discharge curves or the Peukert's exponent.

If it is not available, we will explain you how to determine it using

As you don't want to damage or use the batteries during a test, first fields to configure are the battery Charge parameters:

- CF31: Battery Charge Current Limit (Ampere)
 - The battery will be charged using this set point
- CF32: Battery String Capacity
 - We need this value to estimate the state of charge/discharge of the battery
- CF30: Max floating Battery current

- This value is used by the system to determine if the battery is fully charged or not. Be careful to take in account that you may have some measurement error. We recommend putting at least 0.5A.

Now, we have to configure the battery test itself. These fields are common to the two testing methods:

- CF69: Battery Test Type
 - Select the type of battery test that you want. It can be :
 - Capacity Based
 - Time Based
- CF70: Battery test end voltage
 - Voltage that will stop the battery test. This prevents the battery to be too much discharged and prevent a power outage if you have really bad batteries. Note that it is important to set it to a higher value than the lvd disconnect voltage (CF10). Usually we set it to 46 V if you have a 48 V Lead-acid gel battery string.
- CF73: Battery Test Discharge Current
 - Current that the battery will provide during the test. This allows you to set a lower value than the total load of your system in order to have a smaller impact on the battery life.
- CF74: Battery test Minimal Discharge current.
 - The minimal current needed inside the batteries during the battery test. It is important to have a minimum current in order to reduce the impact of the measurement precision at lower current value. It has to be higher than 2 amperes.
- CF76: Battery Test Requested Minutes Without Mains Failure
 - Number of minutes required before launching a battery test. This is the time required to fully charge the battery. It is used by the system to prevent an automatic battery test to be launched while a main failure has occurred several minutes before.

Battery test after a changing the battery string

When you change the battery string, you have to wait that the batteries are fully charged before doing a battery test. The system doesn't know the state of batteries at the first charge: Compas will determine that the batteries are fully charged if it detects that the float current is below a user defined value (CF30: Max floating Battery Current) during more than one hour.

7.8.2.2 Standard battery test

The batteries are discharged of a desired percentage. During the discharge, the batteries voltage must remain higher than the battery test voltage.

- CF71: Battery Test Discharge Ratio
 - Ratio of the battery capacity to discharge. We can configure the level of discharge desired for the battery test. By default it is set to at 30 percent.
- CF75: Battery Test Duration

- Time in minutes that the battery test has to respect. If it takes more time than expected, the battery test is ended and an alarm is triggered.

7.8.2.3 Peukert battery test

First you have to set the Peukert's number in order to change the test mode. If your manufacturer did not give you the discharging curve or the Peukert's exponent, you can check the following chapter that will explain you how to find it and calculate it using Compas wizard.

- CF38: Peukert Number
 - Set your Peukert number (number between 1 and 1.9 depending on your batteries.). It is usually between 1.1 and 1.3 for lead acid gel batteries. You can also use the integrated wizard to calculate it (see below)
- CF75: Battery Test Duration (Minute)
 - Time on which the battery test will be proceeded. This has to be enough to test the batteries.

7.8.3 Peukert's exponent

7.8.3.1 What is Peukert's Exponent?

When your batteries are being discharged, capacity depends on the load. The higher the load, the lower the battery capacity will be (and autonomy will be reduced). Peukert's exponent models this physical phenomenon. Peukert's exponent is necessary to estimate the real autonomy of your system which will depend on the load and your battery efficiency.

7.8.3.2 How to find the Peukert's exponent

Usually Peukert's exponent is given by your batteries' manufacturer. If not, you can determine it based on your battery discharge curve (from data sheets or using experiment).

Using discharge curves from data sheets.

With the manufacturer data, you can find the Peukert's Exponent. You only need two discharge curves at different constant load. With theses data, you can connect directly inside Compas and in the DC System configuration, you can click on the wizard button of the Peukert Number (CF38). Then enter the capacity and time for the tests 1 and 2, click on Calculate and you will have directly Peukert's exponent that you will have to confirm.

In order to make the things clearly, here is a real example coming from a lead-acid battery datasheet:

- Specifications given by manufacturers
 - Discharge Rates in Amperes to 1.75Vpc at 25°C
 - 30 minutes
 - 84.4 Amps
 - 8 hours
 - 7.74 Amps

You need to convert theses data in Ampere hour and time:

- Test 1 Ah = $84.4 / 2 = 42.2$ Ah
- Test 1 Time = 30 minutes
- Test 2 Ahs = $7.74 * 8 = 61.92$ Ah

- Test 2 Time = $60 \times 8 = 480$ minutes

Then use the wizard to find this battery Peukert's exponent. Check that the result is between 1 and 1.9. and confirm it. (Otherwise the system will show you a warning because the value seems to be wrong.)

Figure 134 Calculate Peukert's Exponent with Embedded Wizard

Using Two Battery Tests

You can use Compas to perform two battery test at different loads. This will give you the needed data in battery test results data. (DC system -> DA 74: Last battery test Discharged Capacity and DA 76: Last battery test duration). We recommend you to make a difference between load the higher as it is possible (like 7A and 50A discharge if your batteries are rated).

After the two tests, you will have the results that will allow you to calculate Peukert's exponent using the embedded wizard.

7.8.4 Launching a battery test

A battery test can be started periodically, remotely, or when the front plate switch of the MCU is pressed for more than 5 seconds. Before launching a battery test, several test are done in order to be sure that batteries are fully loaded before the launch of the test:

- Checking the status of the application
- Checking that there is enough minutes since the last AC Fail. (Configurable with **DC System -> CF76** (*Battery Test Requested Minutes Without Mains Failure.*))

In order to launch a battery test manually, you can use the control **DC System -> CT2** (*Start Battery Test*). This control will start the battery test after verification's listed before.

You can force a battery test with **DC System -> CT3** (*Force Battery Test*), the battery test will be launched without any check. When using this control, you have to be careful and to be sure that the battery has enough power to sustain the load.

Before launching a battery test, please check that the **DC System -> CF70 "Battery Test End Voltage"** is higher than **DC System -> CF10 "LVD Disconnect voltage"**. This prevents an unwanted battery disconnection during a test.

Here is the workflow to understand how the system decides if it can start a Battery Test:

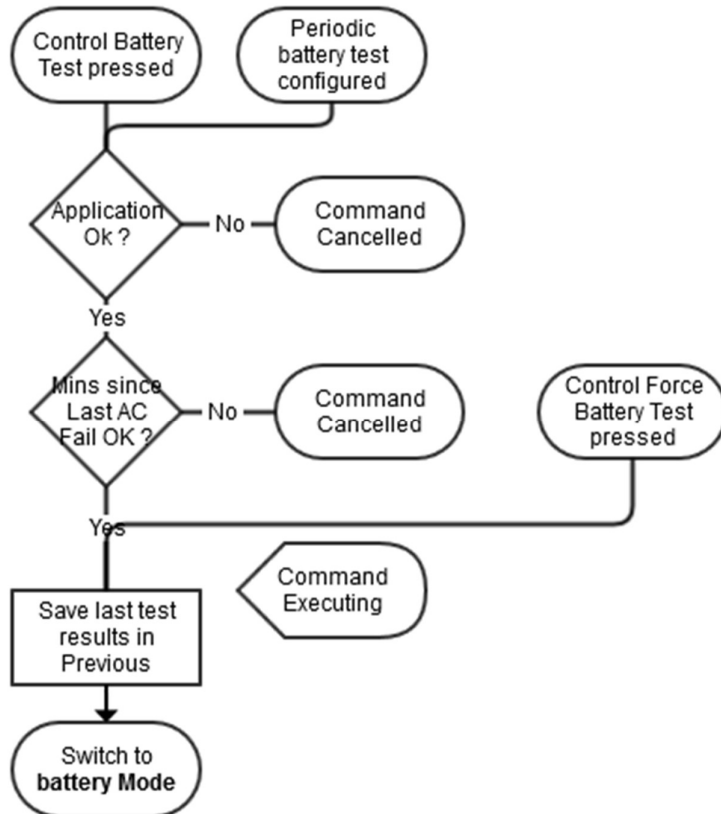


Figure 135 Battery test condition checker

7.8.5 The battery test itself

Our Battery test will regulate the voltage of the bus DC in order to have the desired load on the battery. This prevents a power failure if the batteries are completely dead and prevent too high discharge rate on the batteries. (The battery test has the smallest impact possible on the battery's life expectancy. During the battery test, the current inside the batteries is integrated in order to see how many Ampere hours are given by the batteries.

Here is an example of a battery test on a system:

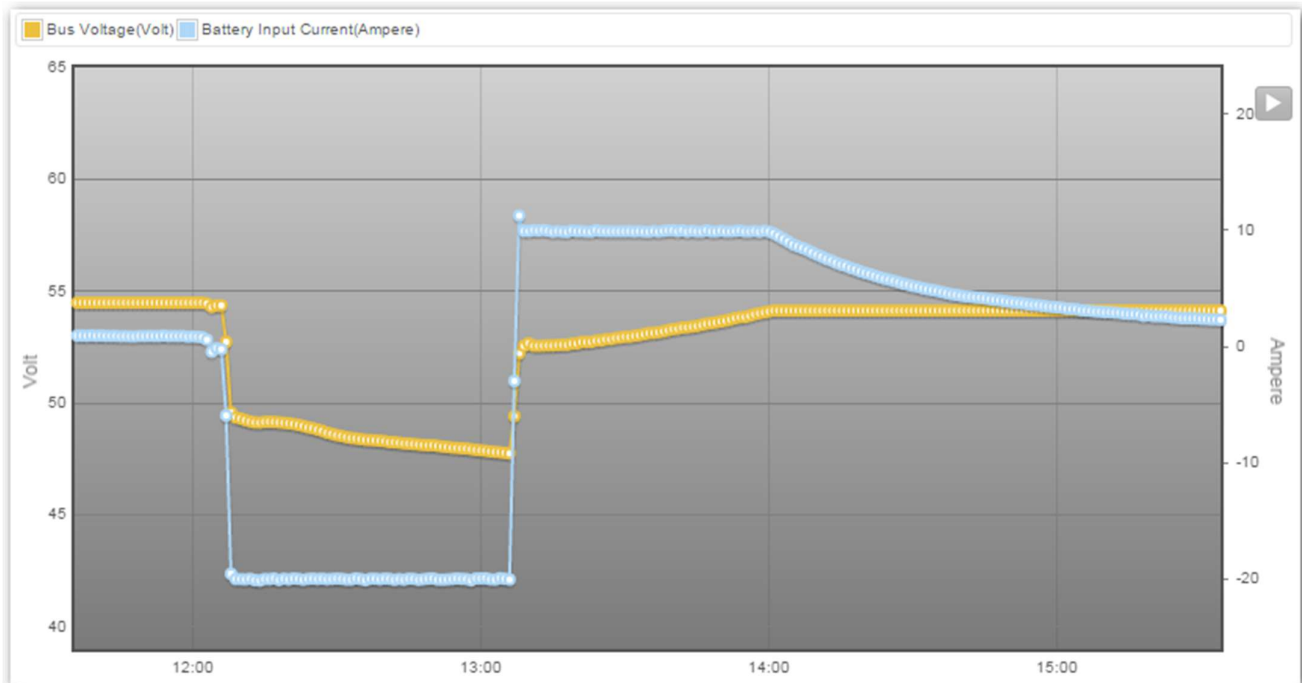


Figure 136 Example of a battery test

As you can see, at the beginning the float voltage (yellow line) was at 54V. The battery test was launched approximately at t 12h05.

As rectifier power is going progressively down, the bus voltage is going down and the batteries began to give power. The set point was 20A and was reached during the test.

During the following 60 minutes, the test will be performed and the bus voltage will decrease progressively with the batteries voltage in order to keep the 20 amperes inside the batteries.

At the end of the test, the bus voltage is restored progressively in order to regulate the battery input power at 10A and make a soft charge. After several hours, the input current is smaller and smaller. The DC Bus is restored at 54V.

Faster recharge

You can configure the boost mode to automatic in order to charge faster of the batteries by forcing a higher current. This operation will put the bus voltage at a higher value.

During the battery test, you can monitor the bus voltage, battery input current, discharged capacity directly inside the data.

A Battery test can be canceled, stopped or failed for several reasons :

- A main failure occurs
- Someone press the front panel switch
- Someone uses the control **DC System** -> **CT1 "Back To Float."**

- Someone uses the control **DC System** -> **CT4** "*Back To Boost.*"
- The bus voltage reaches the **DC System** -> **CF70** "*Battery Test End Voltage.*"
- The battery discharge ratio is reached **DC System** -> **CF71** "*Battery Test Discharge Ratio.*"
- The battery load is too low, according to **DC System** -> **CF74** "*Battery Test Minimal Discharge Current.*"
- The test duration is too long according to **DC System** -> **CF75** "*Battery Test duration (minutes)*"

Here is the workflow followed during the battery test:

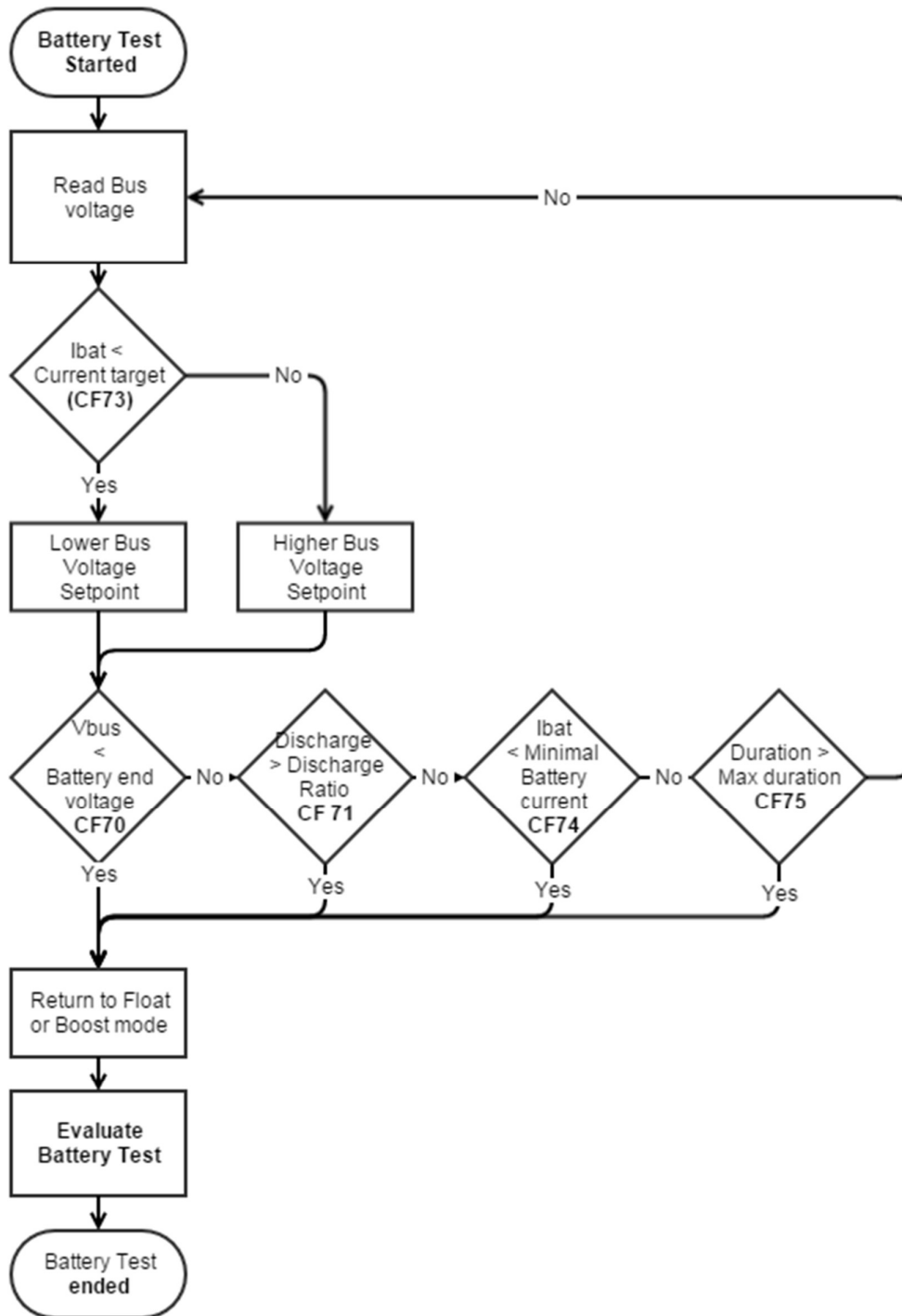


Figure 137 Battery test workflow

7.8.6 Test evaluation

7.8.6.1 Standard test

The battery test is considered as success if :

- Ampere hour value is reached while the bus voltage is still above the “Battery Test End Voltage”

Battery Test is considered as fail if :

- If the bus voltage reaches the “Battery Test End Voltage” prior to reaching the Ampere hour value
- The load is too low to perform the test
- There is an AC Failure during the test
- The lvd has been opened during the test
- There is a time-out during the battery test

A battery considered as fail trigger the dc system alarm AL13 : Battery Last Test Failed.

This test needs you to know your batteries and to perform several tests in order to determine the Battery test End Voltage accurately to your load.

7.8.6.2 Peukert's Test

The battery test is considered as success if :

- Ampere hour value is reached while the bus voltage is still above the “Battery Test End Voltage”
- Checked using Peukert's Law

Battery Test is considered as fail if :

- If the bus voltage reaches the “Battery Test End Voltage” prior to reaching the Ampere hour value
- The load is too low to perform the test
- There is an AC Failure during the test
- The lvd has been opened during the test

A battery considered as fail trigger the dc system alarm AL13 : Battery Last Test Failed.

7.8.7 Estimated autonomy

The estimated autonomy is based on Peukert's law for discharging a lead-acid battery, which predicts battery capacity for a given discharge current and discharge time. Battery String Capacity is the capacity in Ampere-hours given by constructors for a rated discharge time (generally: 10 hours). Peukert Number is a constant comprised between 1.1 and 1.6, according to lead-acid used technology and batteries ageing.

According to this model, effective current (battery capacity divided by actual time to discharge it) is calculated by: $\text{actual current} * (\text{actual current} * \text{rated discharge time} / \text{battery capacity})^{(Peukert - 1)}$.

If effective current is < 0 , battery is discharging.

If effective current is > 0 , battery is charging.

Battery remaining capacity equals (in %) to: $100 * (\text{battery capacity} + \text{sum}(\text{effective current}(\text{minute})) / 60) / \text{battery capacity}$.

7.9 MCU in standalone mode

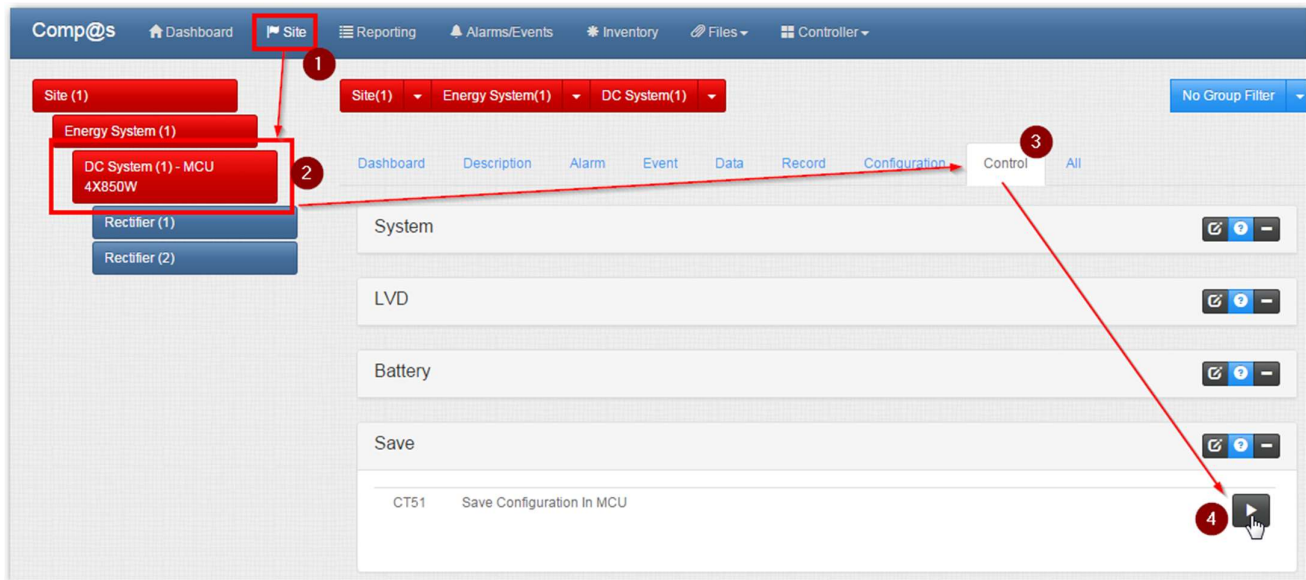
The MCU can work in a standalone mode. In this mode, the DC System voltage will be fully managed by the MCU. You will loose a lot of functionalities like records, advanced monitoring, PLC,...

7.9.1 Required materials

- A MCU
- Compas Card (to set configuration)

7.9.2 Procedure

1. Connect your Compas Card to the system
2. Set your parameters inside the Compas Card
 - a. Site -> Energy System -> DC system -> parameters
3. Execute the control CT51 "Save in MCU" inside the DC System.



8 INVERTER SYSTEMS MANAGEMENT

Compas energy system with inverter are really powerful, it can mix both a DC System and an inverter system. Our system support direct current flow in order to power directly from the ac input when there is no power outage.

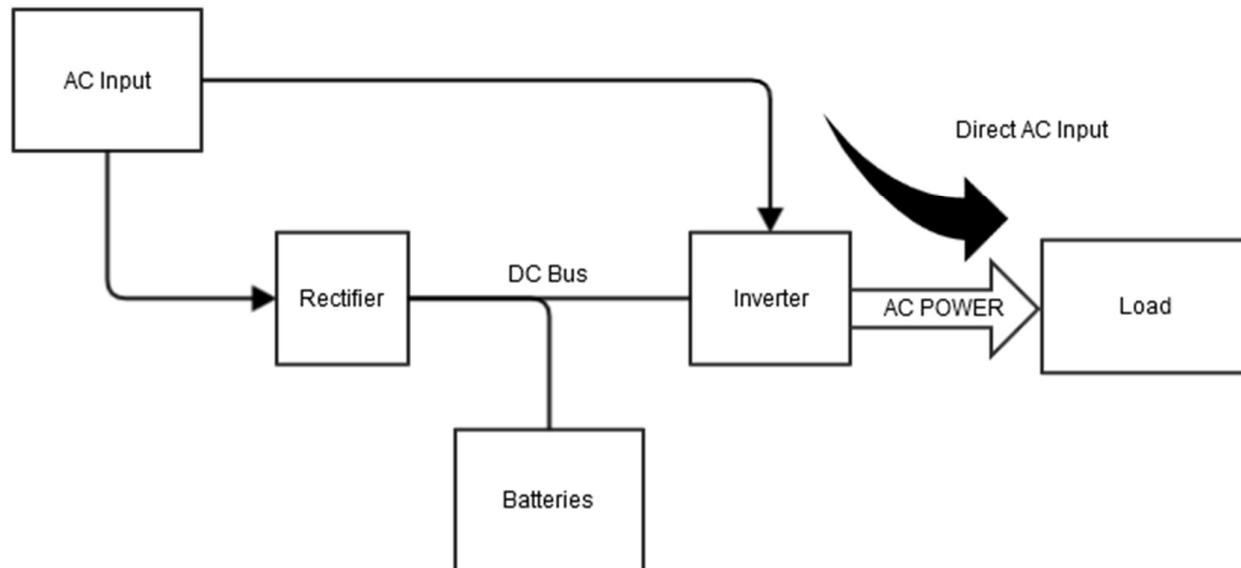


Figure 138 System with inverter

This kind of system are seen by compas as two different energy system :

- DC system
 - Here with two rectifiers
- Inverter System
 - Here with three inverters

On DC System, you can connect a DC load and you connect the Inverter system. The inverter system contains the three inverters that power our load.

As you can see, every equipment are monitored and redundant, this gives you a very high reliability.

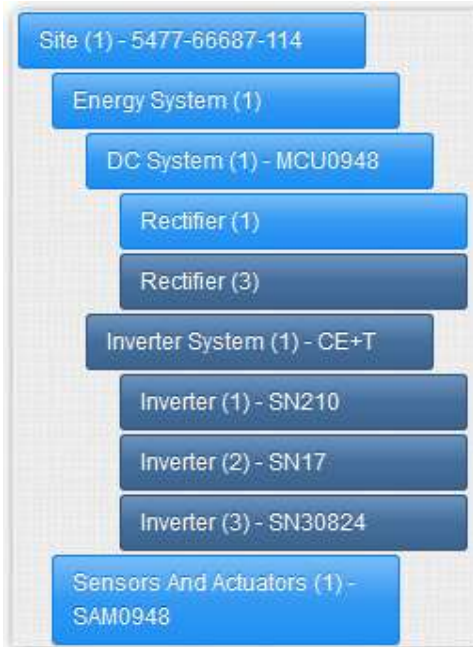


Figure 139 System with inverter hierarchy

9 REMOTE POWER FEEDING SYSTEM

9.1 Overview

Remote powering feeding system can save you a lot of money by using your copper network to power your end-point device. This allows you to have your power distribution centralized in only one cabinet and to have less maintenance fee. (See our white papers)

Usually, remote power systems are hard to monitor: you can have many remote sites and it isn't easy to know which site is working well or have an alarm problems. With compas, remote site can be easily monitored and you can put some information like address, GPS coordinates. This allows you a fast intervention and less down time. Your technicians have directly addresses and coordinates of the remote site.

Depending of your remote sites, you can have communication or dry contacts. With compas, it is possible to maps the relays to a remote site by using an ADIO system. If you have multiple dry contacts by remote site and that you want to save copper lines, it is also possible to use only one twisted pair and use analogic measurement in order to have multiples sates.

In the example on the right, you see a remote powering system that has one up system and several remote sites.

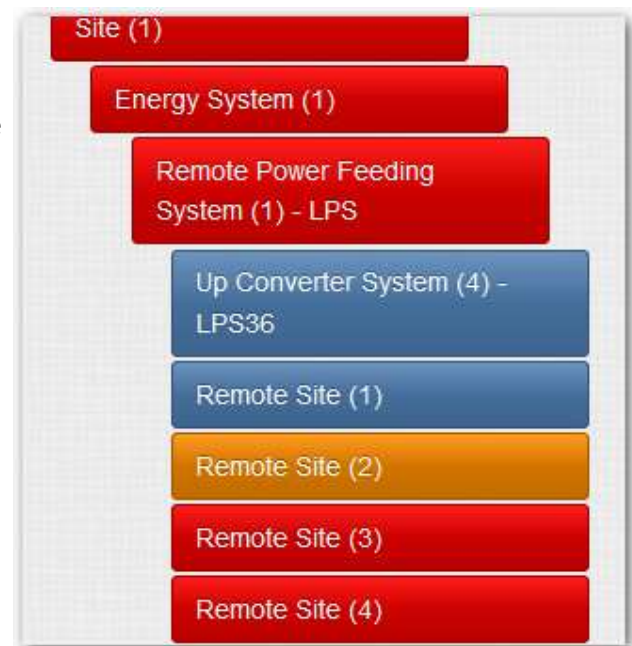


Figure 140 Remote site Compas Hierarchy

Site(1) ▾ Energy System(1) ▾ Remote Power Feeding System(1) ▾ Remote Site(1)

No Group Filter ▾

Dashboard

Description

Alarm

Event

Data

Record

Configuration

Control

All

Site

Id	Name	Value
DE2	Site Name	Street B2
DE3	Short Description	right corner
DE4	Info	box counter

Address

DE11	Street	2 Alpha street
DE12	City	Louvain La neuve
DE13	Province	Brabant
DE14	Postal Code	1348

Figure 141 Description details in remote site

In order to have a better understanding of the system and his terminology, here is a hierarchical view of a remote powering system. As you can see, the way that compas shows information are in a logical structure and correspond to the reality of the field.

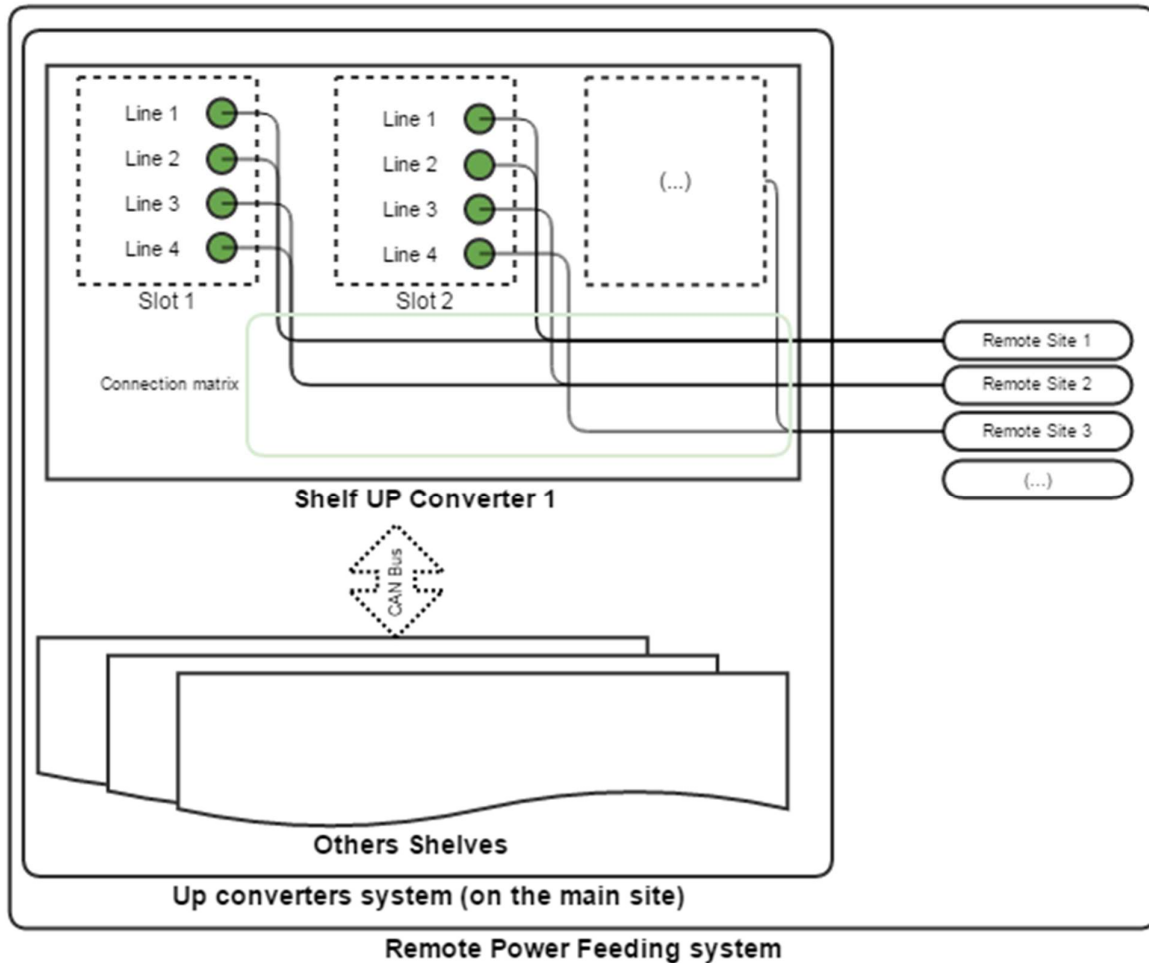


Figure 142 Remote power feeding Connections

9.2 Matrix configuration

In the up converter system configuration you will find the configuration matrix. you have to go inside the up-converter system then in the tab configuration. Here you will have all the available slot and lines. Just enter for each line the corresponding remote site separated by a coma. You can mix sites on a same slot.

Example for the schematics show in the overview:

Slot 1 : 1,1,2,2
Slot 2 : 1,1,2,3
Slot X : 3,3,3,3

Other example: In this case, the slot one and two have all their lines linked to the remote site 1. The slot 3 has all his lines connected to the remote site 2.

Slots		
Id Name Value		
Slot 1		
CF100	Slot 1	1,1,1,1 ✓
Slot 2		
CF200	Slot 2	1,1,1,1 ✓
Slot 3		
CF300	Slot 3	2,2,2,2 ✓

Figure 143 Connection matrix example

9.3 CES Particularities

The controller card can be inserted in the same slot that the up converter, in this slot you just have to enter "COMPAS".

Don't forget to connect the CAN bus between devices.

If you want to have a return from your down converter, just connect the monitoring lines and you will get some reporting information.

9.4 LPS Particularities

You can connect up to 9 shelves giving power to your modules.

Compas can monitor the remote site using a UCC and an ADIO7. You will be able to use the digital inputs to get dry contact information about remote sites alarm. We are also developing another way to do that using only one twisted pair for several states of the down converter. For doing that we just need to put some resistors between dry contact on the remote site and compas will be able to know which dry contact is closed/open.

It is also possible to estimate the power consumed by your remote system. This allows you to monitor your sites.

LPS system is under hard development. Please be aware that information bellow may be outdated.

10 SOFTWARE INTERFACES & API

Compas has been developed to ease interfacing. We support many API and communication protocol. That permits you to work and monitor our units without changing your protocols.

Currently, we support:

- HTTP
 - [XML files](#)
 - [Get and Post HTTP request](#)
 - [JSON](#)
- [SNMP Agent](#)
- [FTP](#)
- [Modbus Slave \[Premium\]](#)

10.1 HTTP

10.1.1 XML files

10.1.1.1 Get any data/value

Each Compas monitoring can act as a server, holding one or more XML documents. Each existing document is within the HTTP standard referred to as a resource. Each resource is identified by a unique resource identifier known as a URI (Uniform Resource Identifier). An example of URI is "[http://the_ip/site.xml](#)". The first part of the URI is always the IP address of the site. If hostname are defined, the IP address can be replaced.

A request to such an URI will result in a response message from the server with information about the status of the request and, in applicable cases, the XML document requested.

Parameters can be passed with the URI to retrieve specific parts of the XML file. The following table describes these parameters:

Parameter name	Value	Description
description (or description_table)	true/false	Define if the description table must be included in the generated xml document (at each level of hierarchy)
alarm (or alarm_table)	true/false	Define if the alarm be included in the generated xml document (at each level of hierarchy)
event (or event_table)	true/false	Define if the event must be included in the generated xml document (at each level of hierarchy)
data (or data_table)	true/false	Define if the data must be included in the generated xml document (at each level of hierarchy)

Parameter name	Value	Description
data_record (or data_record_table)	true/false	Define if the data record must be included in the generated xml document (at each level of hierarchy)
configuration (or config_table)	true/false	Define if the configuration table must be included in the generated xml document (at each level of hierarchy)
control (or control_table)	true/false	Define if the control table must be included in the generated xml document (at each level of hierarchy)
level	0, 1, 2, etc	Define the maximum level of hierarchy. 0 will retrieve only the site level, 1 will retrieve site and energy system level, etc. If this parameter is not specified, you will receive all the level of hierarchy.
newEvents	0, 1, 2	This option can be used to know which events were not posted yet to a Management Server. If you set this parameter to 1, you will get all the events not posted to the Primary Post Server. If you set this parameter to 2, you will get all the events not posted to the Secondary Post Server. If you set this parameter to 0, you will get all the events.
notable	true/false	This is an option to receive no table at all but you can still add some table you want with the corresponding parameters set to true.

These parameters are passed in the URI. The order of the parameters is free, and none is mandatory.

For example, if we want to retrieve the data table and the alarm table up to the third level of hierarchy, the URI is:

`http://the_site_ip/site.xml?description=false&alarm=true&event=false&data=true&data_record=false&config=false&level=3`

If no option is set, the whole file is sent, except data record table and control table.

Some other files can also be retrieved, with the same available options:

<u>File Name</u>	<u>Description</u>
energy_system.xml	You get only the energy system XML part
dc_system.xml or dc_system1.xml	You get only the first dc system XML part
dc_system2.xml	You get only the second dc system XML part
configuration.xml	You get the actual user configuration file of the system

These XML files are compliant with the ETSI ES 202 336 standard, a summary of the relevant parts is available in [ETSI Protocol](#) .

10.1.1.2 Set Data/value/parameter

This function can be used to configure multiple parameters in one command. It is possible to send a full XML structure (like the configuration.xml) in the post data. All the valid elements will be updated with the new value.

In order to use the set function using xml, just post it to the address

http://<The Ip Address>/ProcessXML.cgi

Type : POST

body: ETSI XML configuration

10.1.1.3 Event notification (XML Auto-Post)

The controller can send XML events, in compliance with ETSI standard ES-202-336, part 1. The standard is available free of charge on www.etsi.org. (<http://pda.etsi.org/pda/queryform.asp> allows to search for ES 202 336).

At the site level, in configuration, it is possible to configure what table must be sent in case of event (description, alarm, config, etc.) The following screenshot show some of the configuration elements. Up to 2 servers can be configured to allow redundancy.

Usually in monitoring, software just does pooling. In order to get information faster, Armada and Compas support post and heartbeat using XML. This is configurable directly in the site.

Parameter	Name	Usages	Signification
site -> CF41	XML Event Posting Activated	True/False	Set this parameter to activate the XML Event posting
site -> CF42	XML Event Posting Refresh Time (second)	unsigned Number	The minimal time in second between the calculation to send or not the post
site -> CF43	XML Event Posting Timeout (millisecond)	unsigned Number	The timeout in millisecond when trying to post XML data to a Web Server.
site -> CF45	XML Event Posting To Secondary Only If Primary Failure	True/False	True: The events will be sent to secondary server only if primary server is not available. False: All the events will be sent to primary and secondary server
site -> CF46	XML Tables To Post On XML Event	name of ETSI data	The list of the tables to send when an event is generated. (description,alarm,data,config,control). This allows to have armada database updated on event.
site -> CF651	XML Events Primary Post URL	String (url)	Primary server used for the post. A XML ETSI standard is used in the posted data content.
site -> CF652	XML Events Primary Post Login	string	The login of the primary server (optional)

Parameter	Name	Usages	Signification
site -> CF653	XML Events Primary Post Password	string	The password of the primary server (optional)
site -> CF661	XML Events Secondary Post URL	string (url)	This is the second URL at which the events related to this equipment must be posted. The XML ETSI standard is used in the posted data content. This allows having redundancy with the management server.
site -> CF662	XML Events Secondary Post Login	string	The login of the secondary server (optional)
site -> CF663	XML Events Secondary Post Password	string	The password of the secondary server (optional)

In order to know the state of the system we provide also a xml heartbeat configurable using theses parameters:

Parameter	Name	Usages	Signification
site -> CF51	XML Heartbeat Time (minute)	unsigned number	This is the time between 2 XML Post of heartbeat. If set to 0, there is no heartbeat.

Codes Example

The following c# code is an example to create an http listener that can receive events.

```
using System;
using System.Collections.Generic;
using System.IO; using System.Linq;
using System.Threading;
using System.Net;
using System.Xml;
namespace HelpDebugPostXml
{
    public class XmlPostListener {

        private Thread _threadServer;
        private Thread _threadDecodeXml;
        private Form1 form1;

        public XmlPostListener(Form1 form1)
        {
            this.form1 = form1;
        }
    }
}
```

```
public void StartListening()
{
    _threadServer = new Thread(ThreadServer);
    _threadServer.Start();
}
public void StopListning()
{
    if (_httpListener != null && _httpListener.IsListening)
        _httpListener.Stop();
}
public void Stop()
{
    StopListning();
}

private System.Threading.AutoResetEvent listenForNextRequest = new
System.Threading.AutoResetEvent(false);
private HttpListener _httpListener;

private void ThreadServer()
{
    try
    {
        _httpListener = new HttpListener();
        _httpListener.Prefixes.Clear();

        _httpListener.Prefixes.Add(form1.textBoxPostUrl.Text);
        _httpListener.Start();
        System.Threading.ThreadPool.QueueUserWorkItem(Listen);
    }
    catch (Exception ex)
    {
        System.Windows.Forms.MessageBox.Show("Error : " +
ex.Message);
    }
}

// Loop here to begin processing of new requests.
private void Listen(object state)
{
    while (_httpListener.IsListening)
    {
        _httpListener.BeginGetContext(new
AsyncCallback(ListenerCallback), _httpListener);
        listenForNextRequest.WaitOne();
    }
}

private void ListenerCallback(IAsyncResult result)
{

```



```
        HttpListener listener = result.AsyncState as HttpListener;
        HttpListenerContext context = null;

        if (listener == null)
            return;

        try
        {
            context = listener.EndGetContext(result);
        }
        catch (Exception ex)
        {
            System.Windows.Forms.MessageBox.Show("Error : " +
ex.Message);
            return;
        }
        finally
        {
            listenForNextRequest.Set();
        }

        if (context == null)
            return;

        ProcessRequest(context);
    }

    private void ProcessRequest(HttpListenerContext context)
    {
        string s = "";
        HttpListenerRequest request = null;
        HttpListenerResponse response = null;

        try
        {
            request = context.Request;
            response = context.Response;
            response.KeepAlive = false;
            response.SendChunked = false;
            Stream body = request.InputStream;
            var encoding = request.ContentEncoding;
            var reader = new StreamReader(body, encoding);

            s = reader.ReadToEnd();
            body.Close();
            reader.Close();

            if (request.RemoteEndPoint == null)
            {
                response.Abort();
                return;
            }
        }
    }
}
```

```
        catch (Exception ex)
        {
            System.Windows.Forms.MessageBox.Show("Error : " +
ex.Message);
            response.Abort();
            return;
        }

        System.Windows.Forms.MethodInvoker m = delegate
        {
            form1.richTextBox1.Text += '\n' + s;
        };
        form1.richTextBox1.BeginInvoke(m);

        //We send to the compas that we have received the message
        response.StatusCode = (int) HttpStatusCode.OK;
        const string responseString = "OK";
        byte[] buffer =
System.Text.Encoding.UTF8.GetBytes(responseString);
        // Get a response stream and write the response to it.
        response.ContentLength64 = buffer.Length;

        Stream output = response.OutputStream;
        output.Write(buffer, 0, buffer.Length);
        // You must close the output stream.
        output.Close();
        response.Close();
    }
}
```

Arm@da, our server application, is managing all these events, by filling in a mysql database. Please contact your reseller for more information.

10.1.2 Get and Post HTTP request

10.1.2.1 Retrieve a value (GET)

It is possible to retrieve easily element values through a simple HTTP get request. This can be considered as an equivalent of an SNMP get, but over HTTP.

Syntax

Call the *get.txt* file on your system using an http get command. Just enter the path of the data that you want to retrieve in the parameter. Don't forget to add your username and password inside the request (with basic or digest authentication).

```
http://<The Ip Address>/get.txt?path=<Path to the ETSI element>
```

Examples

Get local time:

```
http://<the ip address>/get.txt?path=/site/data_table/21
```

Get DC system 1 bus voltage:

```
http://<the ip address>/get.txt?path=/site/energy_system/dc_system/data_table/11
```

Get severity type of the alarm 1 of the dc system:

```
http://<the ip address>/get.txt?path=/site/energy_system/dc_system/alarm_table/1/severity_type
```

10.1.2.2 Post a unique value (SetValue.cgi)

Syntax

The arguments to pass in the HTTP POST body are:

- path : this is the path to the parameter to change
- value : this is the new value

Other argument to pass following the basic or digest protocol :

- username & password

Examples

Here follows the source code of a simple c# implementation of the post. You can easily use it with test the code with the free environment [Microsoft C# Express](#).

The function takes as parameter:

- the URL of the post
- the data string to send in the body of the post
- the login of an user allowed to change values for this equipment
- the password of this user.

Here is an example of code to manually set the local time by using functions bellows:

```
string path = "/site/1/control_table/control/12";  
string value = System.DateTime.Now.ToString("s");  
string postdata = "path=" + path + "&value=" + value;  
PostMsg("http://<The Ip address>/SetValue.cgi", postdata, "admin", "compas");
```

```
public string PostMsg(string url, string postdata, string login, string  
password)  
{  
    WebRequest webRequest = WebRequest.Create(url);  
    webRequest.ContentType = "application/x-www-form-urlencoded";  
    Encoding asciiEncoding = Encoding.ASCII;  
    byte[] byteArray = new byte[asciiEncoding.GetByteCount("xxx:xxx")];  
    byteArray = asciiEncoding.GetBytes(login+": "+password);  
    webRequest.Headers.Add(HttpRequestHeader.Authorization, "Basic " +  
Convert.ToBase64String(byteArray));  
    webRequest.Method = "POST";
```

```
byte[] bytes = Encoding.ASCII.GetBytes(postdata);
Stream os = null;
try
{ // send the Post
    webRequest.ContentLength = bytes.Length;    //Count bytes to send
    os = webRequest.GetRequestStream();
    os.Write(bytes, 0, bytes.Length);           //Send it
}
catch (WebException ex)
{
    return "error";
}
finally
{
    if (os != null)
    {
        os.Close();
    }
}
try
{ // get the response
    WebResponse webResponse = webRequest.GetResponse();
    if (webResponse != null)
    {
        StreamReader sr = new
StreamReader(webResponse.GetResponseStream());
        return sr.ReadToEnd().Trim();
    }
}
catch { return "error"; }
return "error";
}
```

Table 8 C# code

10.1.3 JSON

This section will come as soon as possible.

10.2 SNMP Agent

10.2.1 SNMP Interface introduction

The SNMP server is only active on the Ethernet port.

The Simple Network Management Protocol (SNMP) exposes management data in the form of variables on the managed systems, which describe the system configuration. These variables can then be queried and sometimes set by managing applications.

The COMPAS monitoring provides a SNMP v1, v2c and V3 interface.

Have you already the MIB?

If you don't have Alpha mib (Management Information Base), you will need to download it from compas web-server. So you may follow the connecting tutorial to connect to compas. The mib is downloadable at the address "[http:// **the_ip_address** /Compas.mib](http://**the_ip_address**/Compas.mib)" or from the user interface (Files -> Controller MIB -> Right click & save target as)



This MIB is generated dynamically according to the number and the type of the sub-equipment's present at the time of the generation:

- dc systems
- extension module
- etc.

The default port running the SNMP agent is 161. This can be configured if requested.

When an event happens, a SNMP trap can be sent. Multiple target IP can be configured. These multiple IP must be configured for each sub-equipment to increase the flexibility of the system.

If you want free software to test SNMP, you can download iReasoning MIB Browser from URL: <http://www.ireasoning.com/mibbrowser.shtml>.

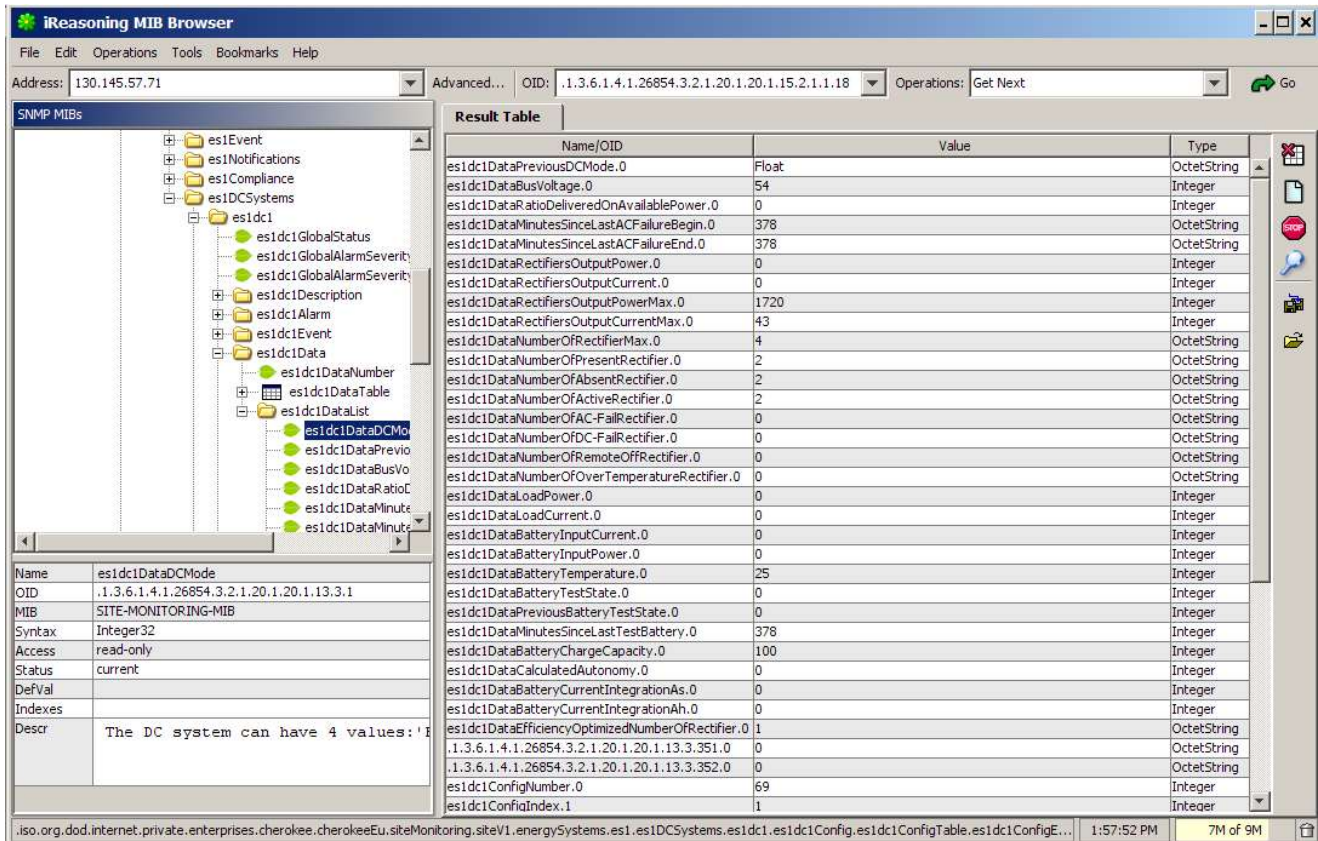


Figure 144 Ireasoning MIB Browser

The SNMP agent supports the SNMP v1, v2c and V3 command:

- GET, GETNEXT, GETBULK
- SET
- WALK

The SNMP configuration is available at the site -> configuration level, as shown on the following screenshot:

The screenshot displays the 'SNMP Configuration Level' interface. At the top, there is a 'Site(1)' dropdown and a 'Filter: SNMP' button. Below these are tabs for 'Dashboard', 'Description', 'Alarm', 'Event', 'Data', 'Record', 'Configuration', 'Control', and 'All'. The 'Configuration' tab is selected, showing a list of SNMP configuration items. Each item consists of a code (e.g., CF61), a description (e.g., 'SNMP Activated'), a value (e.g., 'True'), a dropdown menu, and a checkmark icon.

Code	Description	Value	Dropdown	Checkmark
CF61	SNMP Activated	True	▼	✓
CF63	SNMP Trap Version	V2c	▼	✓
CF64	SNMP GET Minimum Security Level	V1 Community	▼	✓
CF65	SNMP SET Minimum Security Level	V1 Community	▼	✓
CF66	SNMP V3 Auth Algorithm	MD5	▼	✓
CF67	SNMP V3 Privacy Algorithm	DES	▼	✓
CF68	SNMP V3 Privacy Password			✓
CF69	SNMP V3 Engine ID	compas		✓
CF72	SNMP V3 Trap Auth Algorithm	MD5	▼	✓
CF73	SNMP V3 Trap Privacy Algorithm	DES	▼	✓
CF74	SNMP V3 Trap Username	compas		✓
CF75	SNMP V3 Trap Auth Password			✓
CF76	SNMP V3 Trap Privacy Password			✓
CF77	Site Description Ids Included In Traps			✓
CF611	SNMP Trap Targets IP			✓
CF612	Minimal Event Severity For Traps	none	▼	✓

Figure 145 SNMP Configuration Level

SNMP v2c uses the mechanism of the SNMP communities (Read and Write). An SNMP community is the group that devices and management stations running SNMP belong to. It helps define where information is sent. The community name is used to identify the group. It will not respond to requests from management stations that do not belong to one of its communities. The login and password are the same as for the web server interface. BUT, as the community is only a string, the syntax is:

Default password :
LOGIN:PASSWORD

SNMP V3 uses login and passwords. The same accounts are used as in the web interface.

You can define a minimum security level (an SNMP version) for SET and GET operations:

- No Authentication
- V1 Community
- V2c Community
- V3

If you are using SNMP V3, you can set an Auth Algorithm:

- MD5 : Message Digest Algorithm 5 – HMAC-MD5-96

- SHA : Secure Hash Algorithm – HMAC-SHA-96
- Any: Both MD5 and SHA will be tried.

You can also use privacy password with a privacy Algorithm:

- DES: Data Encryption Standard
- AES: Advanced Encryption Standard with key length of 128
- 3DES: Triple Data Encryption Standard.

10.2.2 Using and Configuring SNMP traps

10.2.2.1 Configuration

1. Connect the Comp@s web server
2. Browse to Site -> Configuration
3. Check that SNMP Activated is "True".
4. Configure the "SNMP" targets IP", further in the page. This parameter can be filled with multiple IP address separated by coma. Example: "130.145.23.1, 130.23.12.45".
5. Check that "Minimal Event Severity For Traps" is set to "none". This is the minimal severity of the event to send a SNMP trap. You can set this parameter to "warning", "minor", "major" or "critical".

Your system is now configured; each event will be sent by trap.

10.2.2.2 Testing your configuration

Set-up the receiver

In order to receive traps, you need SNMP software able to receive traps. For testing purposes, you can download the free Ireasoning MIB Browser which can do the job. The install file is available at:
<http://www.ireasoning.com/mibbrowser.shtml>.

Once you have installed the MIB browser and loaded the MIB. You can use the "*Trap Receiver*".

Verify that the trap receiver is listening on the port 162

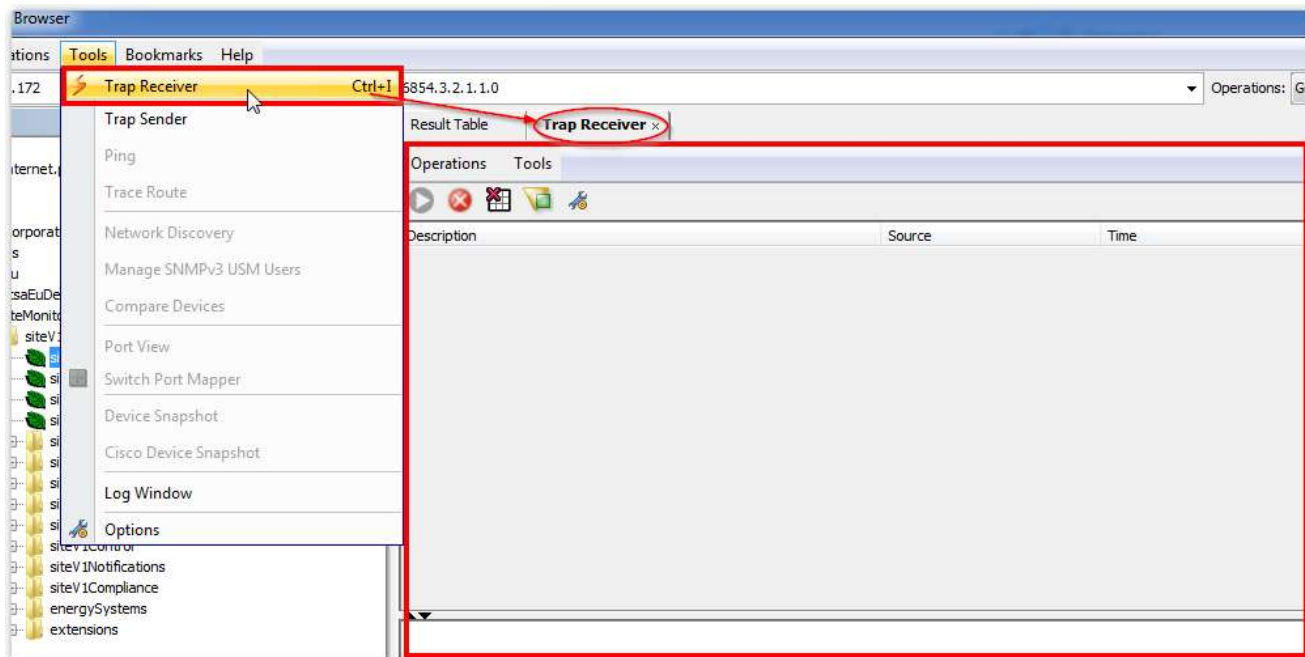


Figure 146 Trap Receiver set-up

Generate an event

1. Connect the Comp@s web server
2. Browse to Site -> Control or to DC System -> Control
3. At the bottom of the page, you can enter a text in the field called "Add Event".
4. Click on the corresponding "Execute" button.
5. An event has been added and was sent through traps.

Check result in the receiver

The event can now be read inside the trap receiver:

Result Table		
Trap Receiver x		
Operations Tools		
Description	Source	Time
trapOID: .iso.org.dod.internet.private.enterprises.atsa.atsaEu....	172	2015-05-26 14:03:18
trapOID: .iso.org.dod.internet.private.enterprises.atsa.atsaEu....	172	2015-05-26 14:02:10
Source: 172 Timestamp: 4 hours 48 minutes 31 seconds Trap OID: .iso.org.dod.internet.private.enterprises.atsa.atsaEu.siteMonitoring.siteV1.siteV1Notifications.siteV1Notifications Variable Bindings:		
Name: 1.3.6.1.2.1.1.3.0 Value: [TimeTicks] 4 hours 48 minutes 31 seconds (1731100)		
Name: snmpTrapOID Value: [OID] siteV1NotificationOfEvent		
Name: .iso.org.dod.internet.private.enterprises.atsa.atsaEu.siteMonitoring.siteV1.siteV1Event.siteV1Event Value: [OctetString] 354		
Name: .iso.org.dod.internet.private.enterprises.atsa.atsaEu.siteMonitoring.siteV1.siteV1Event.siteV1Event Value: [OctetString] Test Major Event		
Name: .iso.org.dod.internet.private.enterprises.atsa.atsaEu.siteMonitoring.siteV1.siteV1Event.siteV1Event Value: [OctetString] 2015-05-26T13:26:39		
Name: .iso.org.dod.internet.private.enterprises.atsa.atsaEu.siteMonitoring.siteV1.siteV1Event.siteV1Event Value: [OctetString] 2015-05-26T13:26:39		

Figure 147 Trap received

10.3 Modbus Slave [Premium]

With the Premium license (or modbus on 2.X systems), most of the systems can monitored with the Modbus over TCP/IP protocol. Please not that this protocol do not allow to access all the COMPAS feature because of the limitation of the protocol itself.

Please note that by default, Modbus is Disabled when license Premium is activated, to avoid security issues. It can be enabled with CF155 at site level.

Site(1)

Filter: Modbus

[Dashboard](#)
[Description](#)
[Alarm](#)
[Event](#)
[Data](#)
[Record](#)

Configuration

[Control](#)
[All](#)

Modbus

✕

A

?

-

Id	Name	Value
CF155	Modbus Interface Enabled	True v ✓

The following device/equipment mapping has been defined :

1	DC System 1
2	DC System 2
3	DC System 3
4	DC System 4
11	Inverter System 1
12	Inverter System 2
13	Inverter System 3
14	Inverter System 4
21	DC System Converter 1
22	DC System Converter 2
23	DC System Converter 3
24	DC System Converter 4
91	Energy System 1
100	Site
101	Sensors And Actuators 1
102	Sensors And Actuators 2
103	Sensors And Actuators 3
104	Sensors And Actuators 4
105	Sensors And Actuators 5
106	Sensors And Actuators 6

107	Sensors And Actuators 7
108	Sensors And Actuators 8
109	Sensors And Actuators 9
110	Sensors And Actuators 10

When an equipment do not exists, it will respond with function code 4.

- Each **discrete input** is associated with the **alarm** of the equipment, with the same id. Reading 1 means that the alarm is active.
- Each **input registers** corresponds to the **data** of the equipment. All these values are coded as signed 16 bit. A correction factor is often applied. All the values are not available (like strings. Some status are coded as uint)
- Each **discrete coil** corresponds to the entries for **controlling** the equipment. It support only simple control, without any parameters.
- Each **holding registers** corresponds to the **configuration** of the equipment. It only supports entries that can be read, and of numeric type. (New since COMPAS 2.51.0.3)

Here follows the exchange table of a DC SYSTEM between the supervisor and the COMPAS monitoring. The Modbus transport layer is Ethernet over TCP/IP. The default used port is 502:

- [Discrete Inputs, alarm reading \(Read Only\)](#), using modbus command 02
- [Input Registers, data reading \(Read Only\)](#), using modbus command 04
- [Discrete Coils Table \(Command\)](#)., using modbus command 05
- Holding registers, using modbus command 03 for multiple read, and 06 for single write

If you want to use Modbus to monitor other type of system, please contact us, we will study the business case and make a proposal.

10.3.1 Discrete Inputs, alarm reading (Read Only)

Each discrete input is associated with an alarm related to the DC System level. This table corresponds to the alarm table in [DC System Tables](#).

Use the command 02 of modbus in order to read the alarms.

Index	Name	Help
1	DC Bus Extra Low	The bus voltage is extra low
2	DC Bus Low	The bus voltage is low
3	DC Bus High	The bus voltage is high
4	DC Bus Extra High	The bus voltage is extra high
5	DC Bus Voltage Sense Failure	The DC bus voltage sense is defect or unconnected

Index	Name	Help
6	Mains Failure	All the phases are down
7	Mains Partial Failure	Some rectifiers are in AC Failure
8	Mains Low	The main voltage is low on one or more phases
9	Mains High	The main voltage is high on one or more phases
10	One Rectifier Failure	One rectifier must be replaced
11	More Than One Rectifier Failure	More than one rectifier must be replaced
12	Missing Rectifiers	There is not enough rectifier according to the minimal number of rectifier configuration element
13	Battery Last Test Failed	The last battery test did not succeed. Maybe the battery should be replaced.
14	Battery On Discharge	The battery is discharging. This means that the load is too high for the installed rectifiers. This alarm is inactive when the system in AC Failure.
17	Battery LVD Relay Open	The battery Low Voltage Disconnect is open.
18	Battery Temperature Too High	The temperature of the battery is too high.
19	Battery Temperature Too Low	The temperature of the battery is too low.
20	Battery Temperature Sensor Fail	The battery temperature sense (NTC) is not connected or is defect.
21	Ambient Temperature Too High	The ambient temperature is too high.
22	Ambient Temperature Too Low	The ambient temperature is too low.
23	Ambient Temperature Sensor Fail	The ambient temperature sense (NTC) is not connected or is defect
25	Digital Input 1	This alarm is related to digital input 1
26	Digital Input 2	This alarm is related to digital input 2
27	Digital Input 3	This alarm is related to digital input 3
28	Digital Input 4	This alarm is related to digital input 4
29	Digital Input 5	This alarm is related to digital input 5
30	Digital Input 6	This alarm is related to digital input 6
31	Digital Input 7	This alarm is related to digital input 7

Index	Name	Help
32	Digital Input 8	This alarm is related to digital input 8

If custom alarms are defined with the PLC, they are available starting from index 101.

10.3.2 Input Registers, data reading (Read Only)

These input registers correspond to the main data related to the DC System level. All these values are coded as signed 16 bits.

Use the command 04 of modbus protocol in order to read the data.

Index	Name:	Group	Unit	Help
1	DC Mode	General		The DC system can be in 6 possible states: • Float : 0 • Equalize : 1 • Battery Test : 2 • AC Failure : 3 • (Slave : 4) • Safe : 5
2	Previous DC Mode	General		The DC system was previously in one of the 6 possible states: • Float : 0 • Equalize : 1 • Battery Test : 2 • AC Failure : 3 • (Slave : 4) • Safe : 5
5	Day	OS		Can be used to read the date
6	Month	OS		Can be used to read the date
7	Year	OS		Can be used to read the date
8	Hour	OS		Can be used to read the time.
9	Minute	OS		Can be used to read the time.

Index	Name:	Group	Unit	Help
10	Second	OS		Can be used to read the time.
11	Bus Voltage	General	0.1 Volt	The DC bus voltage in volt.
12	Ratio Delivered On Available Power	General	0.01 %	This is the ratio of the delivered power divided by the installed power, in %.
13	Hours Since Last AC Failure Begin	General	hour	The number of hours since the last AC Failure begin
14	Hours Since Last AC Failure End	General	hour	The number of hours since the last AC Failure end
21	Rectifiers Output Power	Rectifiers	100 Watt	The sum of the delivered rectifier power
22	Rectifiers Output Current	Rectifiers	0.1 Ampere	The sum of the delivered rectifier current
23	Rectifiers Output Power Max	Rectifiers	100 Watt	The sum of the deliverable rectifier power
24	Rectifiers Output Current Max	Rectifiers	0.1 Ampere	The sum of the deliverable rectifier current
26	DC Rectifiers Output Power	Rectifiers	100 Watt	The sum of the delivered dc-powered rectifier power
27	DC Rectifiers Output Current	Rectifiers	0.1 Ampere	The sum of the delivered dc-powered rectifier current
28	DC Rectifiers Output Power Max	Rectifiers	100 Watt	The sum of the deliverable dc-powered rectifier power
29	DC Rectifiers Output Current Max	Rectifiers	0.1 Ampere	The sum of the deliverable dc-powered rectifier current
31	Number Of Rectifier Max	Rectifiers		The maximum possible number of rectifier in this dc system
32	Number Of Present Rectifier	Rectifiers		The actual number of present rectifier in this dc system
33	Number Of Absent Rectifier	Rectifiers		The actual number of absent rectifier in this dc system
34	Number Of Active Rectifier	Rectifiers		The actual number of active rectifier in this dc system. An active rectifier is a rectifier which is present, DC OK, AC OK and not in remote off.
35	Number Of AC-Fail Rectifier	Rectifiers		The actual number or rectifier in AC Failure.

Index	Name:	Group	Unit	Help
36	Number Of DC-Fail Rectifier	Rectifiers		The actual number or rectifier with DC Failure.
37	Number Of Remote Off Rectifier	Rectifiers		The actual number or rectifier in remote off.
38	Number Of Over Temperature Rectifier	Rectifiers		The actual number or rectifier in Over Temperature.
41	AC Phase 1 Voltage	AC	0.1 Volt	The voltage on AC phase 1
42	AC Phase 2 Voltage	AC	0.1 Volt	The voltage on AC phase 2
43	AC Phase 3 Voltage	AC	0.1 Volt	The voltage on AC phase 3
51	Load Power	Load	100 Watt	Estimation of the load power consumption
52	Load Current	Load	0.1 Ampere	Estimation of the load current consumption
61	Battery Input Current	Battery	0.1 Ampere	Measurement of the battery input current. A negative value means that the battery is discharging
62	Battery Input Power	Battery	100 Watt	Measurement of the battery input power. A negative value means that the battery is discharging
71	Battery Temperature	Battery	0.1 °C	The battery temperature
72	Battery Test State	Battery		This is about the result of the last battery test. 9 values are possible : • Never Tested : 0 • Success : 1 • On Going : 2 • Failed : Timeout : 3 • Failed : Vbus Too Low : 4 • Failed : Load Too Low : 5 • Failed : Ac Failure : 6 • Failed: Canceled : 7 • Failed : Lvd Opened : 8 • Failed: No Battery : 9

Index	Name:	Group	Unit	Help
73	Battery Test Discharged Capacity	Battery	0.01%	This is the battery capacity, in percent, discharged during the last battery test. This value is updated at the end of the battery test.
74	Battery Test Discharged Capacity Ah	Battery	Ah	This is the battery capacity, in ampere hour, discharged during the last battery test. This value is updated at the end of the battery test.
75	Battery Test Final Voltage	Battery	0.1 Volt	This is the bus voltage at the end of the last battery test. This value is updated at the end of the battery test.
81	Previous Battery Test State			This is about the previous result of the last battery test. 9 values are possible : • Never Tested : 0 • Success : 1 • On Going : 2 • Failed : Timeout : 3 • Failed : Vbus Too Low : 4 • Failed : Load Too Low : 5 • Failed : Ac Failure : 6 • Failed: Canceled : 7 • Failed : Lvd Opened : 8 • Failed : No Battery : 9

10.3.3 Discrete Coils Table (Command)

These outputs Boolean register correspond to the entries for controlling the DC System. All these commands are also executable with the CDM (COMPAS Display Module).

In order to start the command, a “1” must be written to this entry. The value is directly reset to 0 on the command start.

Use the command 05 of modbus protocol in order to write the coil.

ID	Name	Group	Help
1	Back To Float	DC Mode	The dc system must go back in floating mode.
2	Start Battery Test	DC Mode	The dc system must start a battery test.
3	Force Battery Test	DC Mode	The dc system must force a battery test.

ID	Name	Group	Help
4	Start Boost Mode	DC Mode	The dc system must go in boost mode.
11	Open The LVD	LVD	The LVD must be opened
12	Close The LVD	LVD	The LVD must be closed
31	Reset Battery Current Integration	Battery	Reset the integration of the battery current.
41	Reset Last Battery Test State	Battery	Reset the state of the last battery test. If an alarm 'Battery Last Test Failed' is set, the alarm will be cleared.

10.3.4 Holding Registers (Read/Write)

The holding registers are used for changing configuration elements of the related device.

You can read the table to see the format of each data.

10.4 FTP

See [FTP Server](#) in [Functionalities](#) -> [Remote connections](#).

11 EMULATION CAPABILITIES

11.1 What is the COMPAS emulator?

This is a PC software which allows the simulation of the COMPAS monitoring, with some DC Systems and extension cards.

By default, the emulator simulates the presence of 1 Captin FA with 4x850W rectifiers. Also an AC failure alarm that appears and disappears, generating events and modifications of element status. An extension card with some sensors and access control is also simulated (SAM0948).

With the emulator, you can develop and test the integration of our monitoring platform inside your network management application.

11.2 Requirements

- Any personal computer running Windows XP, Windows 7 or later.
- You need the Microsoft .NET Framework 2.0 installed on your computer. This is freely available through Microsoft website or Windows Update.

11.3 How to use the emulator

The emulator comes on an executable form. we provide you the "*CompasEmulatorPC.exe*", it is possible that the windows firewall ask to open port 80 and/or 161. This is necessary in order to run the web server and the SNMP agent. You can stop at each time the emulator by exiting the window that has been created.

- Start the application by clicking on the executable (*CompasEmulatorPC.exe*)
- Select the system that correspond to the system that you want to emulate
- Testing the Web Server :
 - a. Start you favourite web browser (Firefox > 30, Internet Explorer > 8, chrome)
 - b. Browse to <http://127.0.0.1:8080/> or <http://localhost:8080/>
 - c. You are asked for a login/password which is admin/compas by default
 - d. Please refer to this user-guide to use the Web Interface ([Quick Start Guide](#))
- Testing SNMP :
 - a. You need a SNMP MIB browser (see [SNMP Interface introduction](#))
 - b. The MIB can be downloaded through the web interface
 - c. You can test the SNMP agent at the ip 127.0.0.1 (port 162)
 - d. Read Community is admin:compas by default
 - e. Write Community is admin:compas by default
 - f. Please refer to [SNMP Agent](#) for more information.

- Now you can try a little more with Compas Emulator

Note : Some functionalities are not available in emulator mode.

11.4 Multiple COMPAS emulation

You can select the port on which the emulator has to work, just add it as a parameter to the executable. This functionality is really useful when you want to simulate multiple sites or a network of compas card.

Command explanation :

CompasEmulator.exe WebPort SNMPPort SystemID

- *WebPort*: Port for the web interface (8080 by default)
- *SNMPPort*: Port that run SNMP (161 by default)
- *SystemID*: Emulation system number (1 by default)

11.5 Where to get it?

Please contact your vendor or reseller.

11.6 Remarks

- This emulator is just an introduction to the different interfaces, it has not been mode to replace a real system but just to give you an introduction over all functionalities.
- This emulator is not deeply tested as the real embedded monitoring, bugs may be present, please tell us.
- By default, the emulator opens the port 8080 for the web server. If you are already running a web server on your computer, you will need to start the emulator on another port.
- The FTP Server is not present in the emulated system.
- Files will be generated into the folder "*c:/COMPAS_FLASH*"
- Application needs Admin Rights (on required port and files)

12 SUPPORT

At Alpha Innovations, we really want to give the best user experience to our client. Our support team is ready to help you.

In most cases (75%), answers are directly inside our application or user-guides. Please respect this procedure:

- Check inside the application for the [Support and Help](#)
- Check users-guides & [Frequently Asked Questions](#)
- Email-us : "support.compas@alphatechnologies.be"

Do not hesitate to send us any **feedback or suggestions**.

12.1 Frequently Asked Questions

12.1.1 Connection Troubles

12.1.1.1 Usb Connection

Q : I can browse COMPAS flash disk but I cannot open the COMPAS webpage in my web browser.

This kind of troubles usually occurs when software on your computer is listening on port 80. To solve, check if your port 80 is listening and then shutdown the application listening on it or kill it. This trouble appears with IIS, Skype, ...

To do that:

1. Open cmd prompt and type the following command
2. Focus on line: TCP 0.0.0.0:80 0.0.0.0 LISTENING 4. You see on the first line something is listening on port 80 and it's the pid number 4 which is listening.
3. Open task manager and check if you can locate pid number. If you cannot see pid column, click "View -> Select columns" and check checkbox "PID Process identifier". Select the pid process and click on "End Process" button:
4. If you cannot find your pid, open cmd prompt and type "c:\windows\system32\telnet 127.0.0.1 80". Telnet connect to the port. A black screen occurs and type "Echo". If the telnet command is not recognized, type "pkgmgr /iu:TelnetClient", and retry.
5. In my example case, I type echo in the black screen and I have the following message. I see it's Microsoft HTTP Server, so I shutdown IIS
6. And finally, I retype "netstat -ano | findstr 0.0:80" and I see nothing is listening on port 80. So I can now connect to Comp@s WebPage.

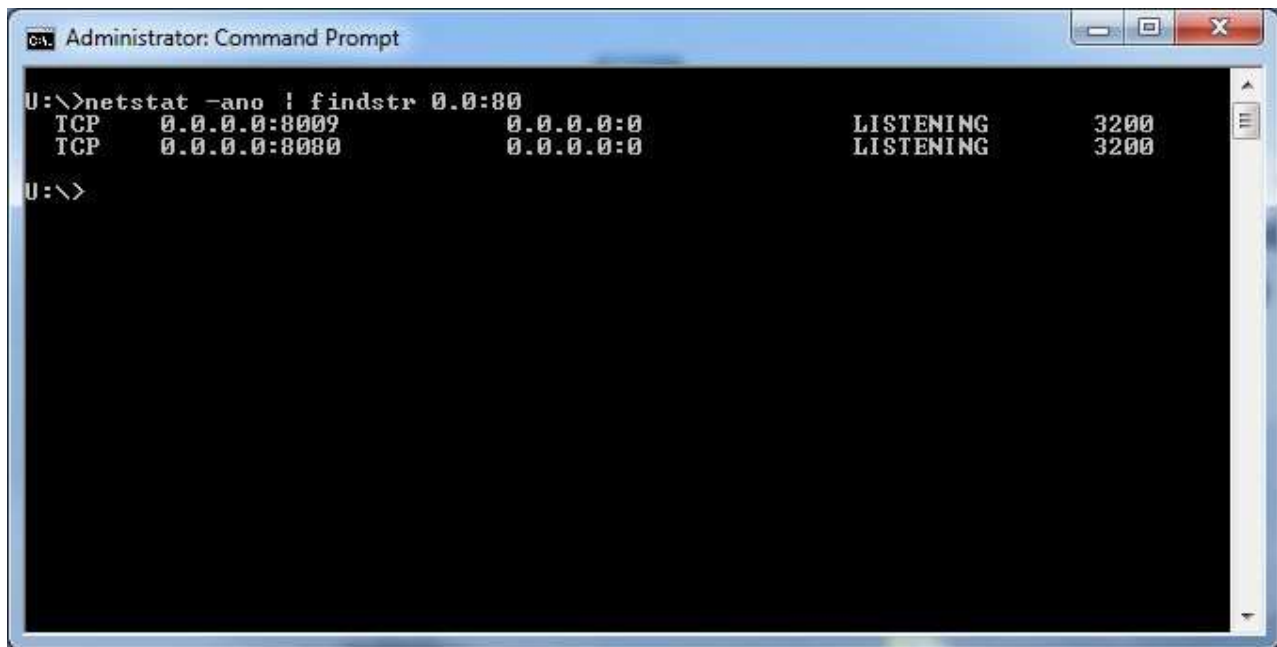


Figure 148 Administrator command prompt

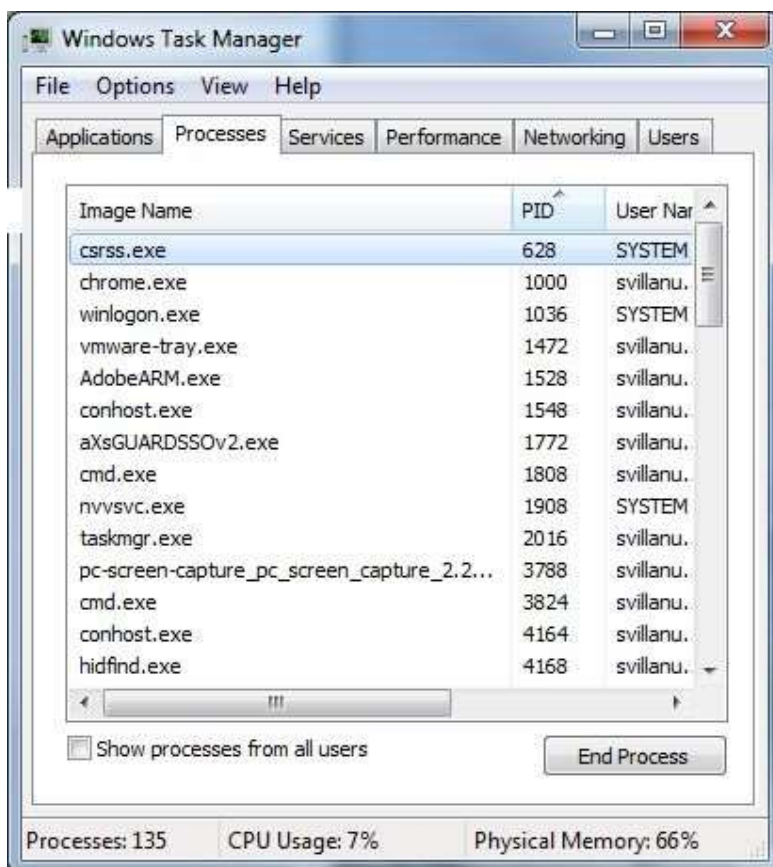
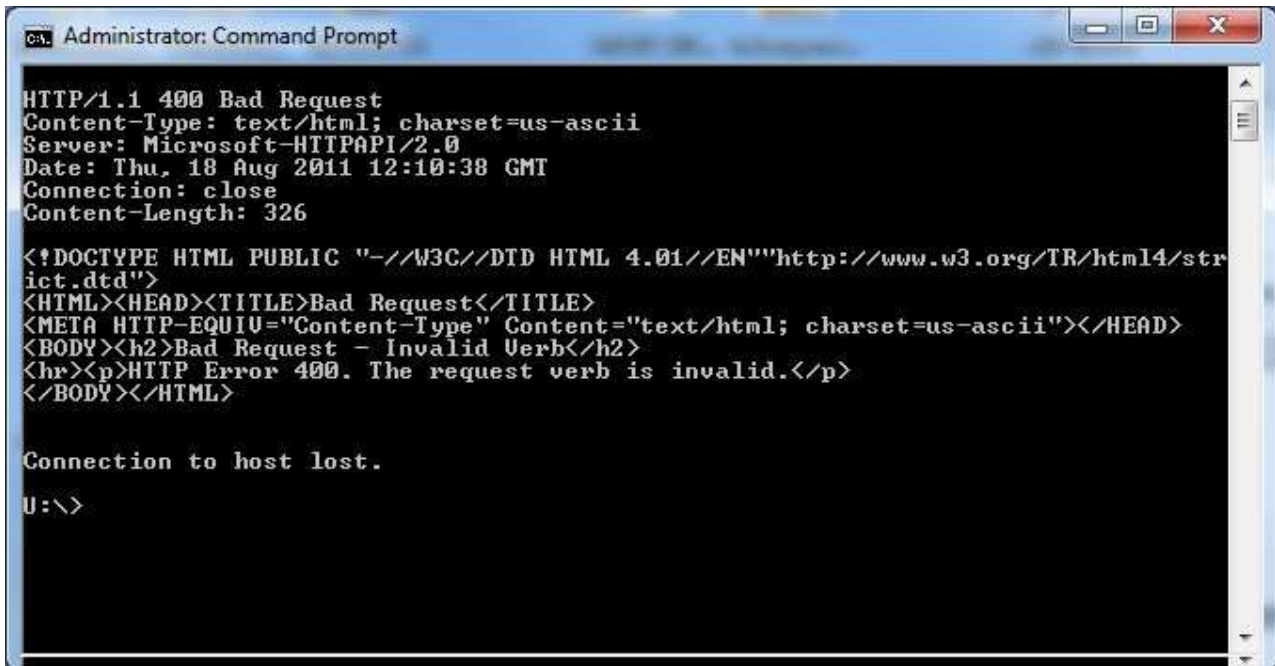


Figure 149 Windows Task Manager



```
Administrator: Command Prompt

HTTP/1.1 400 Bad Request
Content-Type: text/html; charset=us-ascii
Server: Microsoft-HTTPAPI/2.0
Date: Thu, 18 Aug 2011 12:10:38 GMT
Connection: close
Content-Length: 326

<!DOCTYPE HTML PUBLIC "-//W3C//DTD HTML 4.01//EN""http://www.w3.org/TR/html4/strict.dtd">
<HTML><HEAD><TITLE>Bad Request</TITLE>
<META HTTP-EQUIV="Content-Type" Content="text/html; charset=us-ascii"></HEAD>
<BODY><h2>Bad Request - Invalid Verb</h2>
<hr><p>HTTP Error 400. The request verb is invalid.</p>
</BODY></HTML>

Connection to host lost.
U:\>
```

Figure 150 ISS Shutdown

Q : After plug in, the usb cable in my computer, I see the device is not recognized and the driver could not successfully installed.

Check your cable connection by disconnecting it the reconnect it. You have also to take care of using multiple mobile devices at the same time. For example, it's not possible to connect to compas if you have connected your mobile phone to the computer using bluetooth and so on.

Q: On my web browser, I see access denied to 127.0.0.1 .

If you are connected to LAN, and the network uses proxy or firewall, it is possible the connection to 127.0.0.1 is blocked.

Try to unplug your Ethernet cable or switch off your wifi connection, and try again. It's possible to add a special rule in browser connection settings to bypass proxy/firewall when connection to 127.0.0.1 occurs.

For this example, if you use IE, go to options -> Connections -> Lan Settings and check "Bypass proxy server for local address":

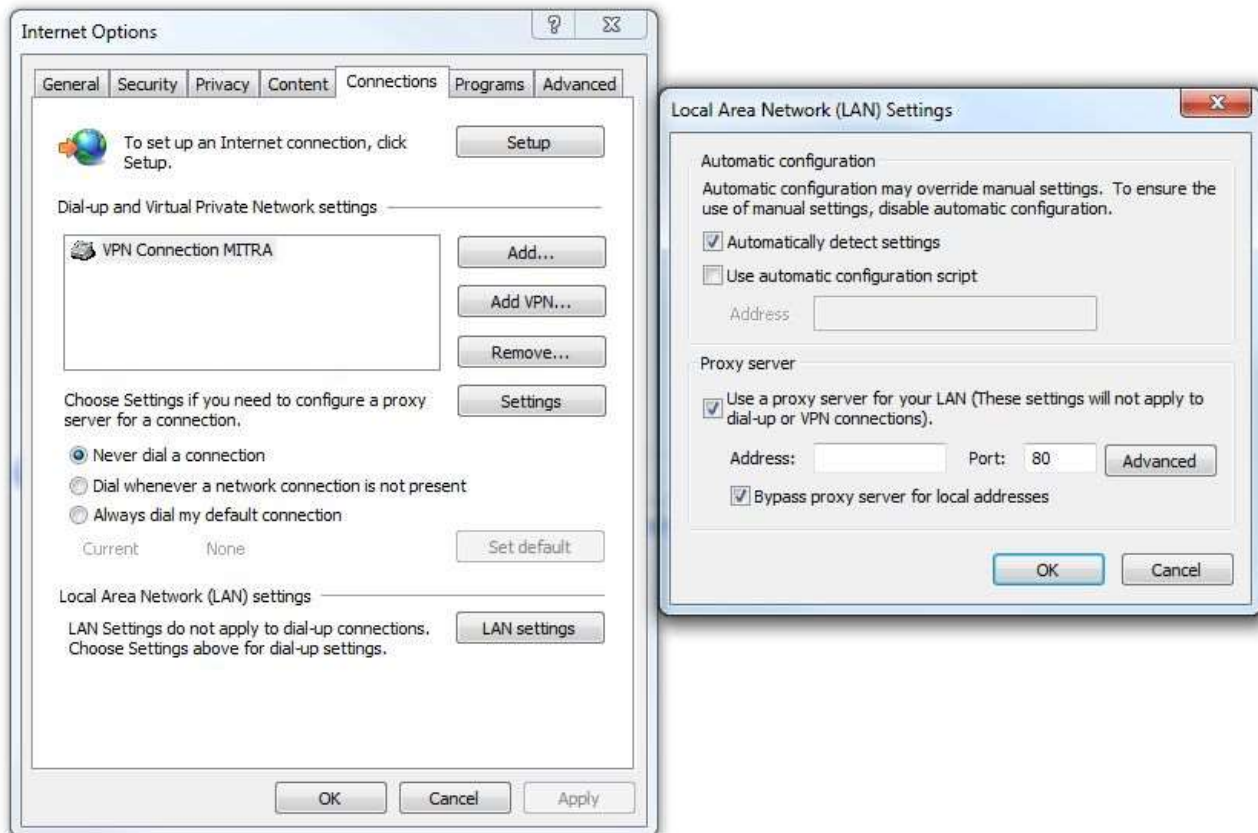


Figure 151 Bypass Proxy Server for Local Address

12.1.1.2 Ethernet connection

Q: After a COMPAS update & reboot, COMPAS does not start anymore but I still use the FTP server

It is probably an upload error. If you have updated using FTP, please check that you have sent the file using the **binary** mode.

1. Check if you can connect to the FTP server
2. Try to delete the Compas.exe in user folder
3. After maximum 10 minutes, compas must have restarted using the factory version.

Q: COMPAS does not want to take a ip address

Symptoms

- Current Ip address (da1) is 0.0.0.0
- Current Mac Address is 00-00-00-00-00

Resolution

- Connect with the usb cable
- Change ip addresses configuration in order to be sure that there is no space before and after the ip. Manually type it.

- On site control use an hidden function
 - CT103 (Flash binary in /site/1)
 - Put "CLEAR REGISTRY" without quote
 - execute the command
- Reboot the system

12.1.2 Devices troubles

12.1.2.1 Q:My rectifiers are not well recognized (blinking or no smart energy or no description)

Symptoms

- Smart Energy not working
- DC system -> Data 124 (Rectifier Model Used For Calculation)
 - Disabled
- Rectifier not recognized
- site -> CF92 use rectifier id
- Rectifier blinking

Resolution

- Site -> Configuration -> edit parameter **CF92**
 - Change it to 50-80
- Controller -> Save configuration and restart

12.1.2.2 Q: The remaining time on battery is not showed on my system

Please, upgrade your device, this bug is corrected since v2.16.0.3 of compas.

13 APPENDIX

13.1 Software Changelog

- [.NET Executable Versioning](#)
- [COMPAS Changelog](#).

13.1.1 .NET Executable Versioning

The software versioning is the process of assigning unique version numbers to unique states of computer software. Each assembly has a version number as part of its identity.

Since March 2012, the standardized format used is:

<major version>.<minor version>.<build number>.<revision>

All the fields are integers.

- The major version changes when a release is made that breaks backwards compatibility.
- The minor version will be used in other cases when we release versions.
- The build number increments as we do code reviews and check in working code to the repository . (this number is not displayed to the customer to avoid confusion - it is showned as 0.
- The revision is used for internal build, it designate alpha or beta status for releases that are not stable enough for general or practical deployment and are intended for testing/internal use only:
 - <revision> - 0 : for alpha (non-stable)
 - <revision> - 1: for beta (internal)
 - <revision> - 2 : for release candidate (QA-passed, final tests)
 - <revision> - 3 : for public (release)
 - <revision> - 4 and following : for releasing specific modifications on a released version (for specific customers - should be avoided as much as possible)

Before that version, the used format was:

0.Y.0.X where:

- X is the minor revision number and is:
 - odd for beta version
 - even for stable version
- Y is the major revision number.

13.1.2 COMPAS Changelog

Note: Only revisions with a code SOFT were released in production. The other versions were distributed to customers for upgrade when necessary.

Legend:

- + Added feature

- * Improved/changed feature
- - Bug fixed
- ! Known issue / missing feature

Revision 2.51.0.4 (13/11/2019) - SOFT_000031_88,SOFT_000146_29

- SAM0x48 - Energy Meter B21 : Fixed random corrupted read values
- + Initial support for CE+T Inview Gateway (Sierra, Iris)
- + Dc Systems with UCC-ADIO10: support of Standard and Latched LVD
- IOT Mqtt: fixed exceptions issue when login/password is invalid
- IOT Mqtt: fixed cpu usage issue when Ethernet is not connected on startup
- + Display of Digital Input Counters inADIO10 linked to DC System
- + Site: Support of secondary IP address on the same Ethernet
- + Modbus: Support of configuration element write with holding registers
- + Modbus: Support of new device id for Dc Converter System (21-24) and Energy System (91)
- + DC System: added DA3 : Minutes Since Last Mode Change
- + DC System: added CF78 : Battery Test Disable Low Voltage Alarms
- * Internal class re-organization to support Linux Platform
- * Inventory Management
- * Electronic Node LVD: Description of the device is reloaded after bootloader upgrade
- * Rewrite of the web server in full asynchronous mode
- * Support of very slow connections for file upload (better socket timeout management)
- * Internal string Management cleanup for translation

Revision 2.50.0.3 (1/08/2019) - SOFT_000031_87,SOFT_000146_28

- + Dc System with Nimh Batteries: support of new EndOfCharge Mode
- Remote Off was not working correctly with CAR30110
- + DC System - Support of conditional forced remote off with PLC condition
- + Initial Support for FID module
- + IOT - Support of post live event sync (similar to XML Posting)

Revision 2.50.0.3 (1/08/2019) - SOFT_000031_87,SOFT_000146_28

- * IOT - Upgrade to latest encryption libs
- * IOT - Improvement of connection management + new Alarm with id 25
- Website - Missing blank in header Cache-Control could be an issue for old browser
- + File Manager - Allow deletion of records and other files
- File Manager - Move of file was broken since version 2.48.3

Revision 2.48.0.3 (21/05/2019) - SOFT_000031_86,SOFT_000146_27

- * Modbus was enabled by default with Premium license - New configuration element added to disable it unless configured, ok contains modbus specific license
- + Support of 32V rectifiers with MCU1x6 - Need manual configuration of the dc system parameters
- * Improvement of the thread priority of the web server to allow reliable Modbus communication during diagnostics.zip download
- * Adding root debug.txt in diagnostics.zip generation
- + Initial support of 3kW DC/DC MPPT for solar applications
- Modbus - registry containing the day information was not updated successfully because of breaking change related to NiMH
- * Improved debug logs for better CAN Bus diagnostic
- * Fixed rare exception related to dual access to a CAN Bus queue, by adding an object lock
- * When using RS485 energy meters with SAM extension, reboot is not required anymore after upgrade
- * Updated logo of Alpha Innovations SA
- * Upgrade of JQuery Javascript library
- * Adding debug information for MCU 300V

Revision 2.47.0.3 (9/01/2019) - SOFT_000031_85,SOFT_000146_26

- + Support Of ECOR3048TN with UCC and ADIO10 with CF93 = es1_dc1(0-0,111)
- + Specific: Support of consumption planing for IOT control
- + Support of extended CAN message
- + Initial Support of Outback MPPT charger

Revision 2.46.0.3 (8/01/2019) - SOFT_000031_84,SOFT_000146_25

Revision 2.45.0.3 (16/10/2018) - SOFT_000031_83,SOFT_000146_24

- + Support Of ADIO DIN 17 - Designed for NiMH battery monitoring
- + Support of NiMh battery for solution based on 1000W rectifier
- + Updated Alpha Innovations Logo

Revision 2.44.0.3 (3/07/2018) - SOFT_000031_82,SOFT_000146_23

- + Compas IOT MQTT - New control CT171 to Apply Configuration Change
- + Compas IOT MQTT - Support of specific XML posting
- * Custom: Production planing older than 48h will be cleared when new command received
- Saved LSS configuration was not always reloaded correctly after reboot
- * Support of higher LVD Disconnection voltage configuration for customer specific need

Revision 2.43.0.3 (19/04/2018) - SOFT_000031_81,SOFT_000146_22

- + Compas IOT MQTT Link with premium License
- + Sensors and Actuators: New features (AL61->AL67, CF46/56) for Access Control with SAM0X48
- + Sensors and Actuators: AL61->AL67 are disabled by default
- + Custom: Support of production planing for Co-generator.
- * MCU300 - Improvement of the alarm sequence at the end of the battery test with 2 batteries

Revision 2.42.0.3 (24/01/2018) - SOFT_000031_80,SOFT_000146_21

- Reload of data saved value like the battery information (Dc System) was broken
- * ARTS NiMh - Default value for some MCU parameters
- + Modbus - Support of PLC Data in Input Registers - Cast as short when possible

Revision 2.41.0.3 (6/11/2017) - SOFT_000031_79,SOFT_000146_20

+ Initial support of NiMh batteries from ARTS with modified MCU0348

Revision 2.40.0.3 (12/09/2017) - SOFT_000031_78,SOFT_000146_19

- Remote: alarm OVT available for remote type 14-15 - bug fixed

Revision 2.39.0.3 (6/09/2017) - SOFT_000031_77,SOFT_000146_18

* Support up to 30 PLC Alarms and Data by Equipment (20 previously)

* Remote: alarm OVT available for remote type 14-15

- Fixed \$canid(node_id) plc function that was broken

* PLC: \$canid(node_id1,node_id2,node_idX,...) function supports now multiple arguments. The function return the number of node that are really available

Revision 2.38.0.3 (1/08/2017) - SOFT_000031_76,SOFT_000146_17

* Inverter System (T2S) - New control element to reset the Fan Life Elapsed alarm

+ Initial support of MCU0348NG

+ For a specific customer, 2 new description element (SP151)

- Fixed Signed temperature bug on SP172

Revision 2.37.0.3 (26/06/2017) - SOFT_000031_75,SOFT_000146_16

* Improved dashboard of ADIO10- Adding data for temperatures, shunts, voltages

* Clear All Data Records is now deleting also the \User\data_records.xml file, not only RAM records

+ Initial support of remote down converter type SP172 (remote type 14-15)

Revision 2.36.0.3 (16/05/2017) - SOFT_000031_74,SOFT_000146_15

- Inverter System - Alarm Id List: Filter now false specific alarm (244) - avoid false alarm

- 300W Solution - Fixed bug introduced in 2.35.0.3 - Impossible to change the battery current limitation (set to 0.7A) and battery capacity (set to 7Ah)

* Re-branding to Alpha Innovations

Revision 2.36.0.3 (16/05/2017) - SOFT_000031_74,SOFT_000146_15

- * Improvement of the CAN Bus Missing Nodes Alarm (missing LSS nodes, like T2S, can now generate the alarm)
- + Support of Remote Sub-rack SP173 with LPS Remote
- * Fixed some warnings for MIB validation

Revision 2.35.0.3 (17/03/2017) - SOFT_000031_73,SOFT_000146_14

- After upgrade to 2.34.0.3, Ethernet driver was switching in half-duplex mode, an additional reboot will be required if the issue is detected. (If the switch/router did not support half-duplex, the ethernet connection did fail)
- Fixed some SNMP entries related to Up Converter systems returning 0
- * Added description information about Electronic LVD Module at the DC system model (if present)
- * Added dashboard description/data for inverter system level

Revision 2.34.0.3 (1/12/2016) - SOFT_000031_72,SOFT_000146_13

- * Default rack for remote power feeding system is defined as CES48. This configuration element has to be configured for the CP053
- * Improvement of memory usage for cloud connection over ssh
- * Remote power feeding - Improvement of LPS36 Support
- Under heavy can bus condition (T2s on the bus for instance), MCU could lose some messages. Control command could be lost, like the scheduled battery test.
- * Scheduled Battery Test - Event is generated when the scheduled battery test is canceled (due to recent power failure for instance)

Revision 2.33.0.5 (25/10/2016) - SOFT_000031_71,SOFT_000146_12

- + Initial support of Cordex CXC HP 6I ADIO. This ADIO has supports up to 6 shunts measurements. Fields are subject to changes.
- + Initial support of Cordex CXC HP L-ADIO. This ADIO has supports up to 12 outputs relays, 8 digital inputs, 4 temperatures, 4 voltages (+/- 60V), and 4 shunts measurements. Fields are subject to changes.
- + Initial support of Cordex CXC HP HV-ADIO. This ADIO has supports up to 6 high voltage output relays, 4 digital inputs, 2 temperatures, 2 voltages (+/- 300V DC), 1 shunt measurement, 1 ground default. Fields are subject to changes.
- + Adding Site-> CF150: Automatic restart of the controller using a Cron rule and a wizard.
- + Automatic reboot if memory is saturated.

Revision 2.33.0.5 (25/10/2016) - SOFT_000031_71,SOFT_000146_12

- * Inverter System: communication reliability has been improved for version < 3.91 .
- * LSS: Better re-detection when a node was lost then recovered.
- * LSS: Faster discovery of systems.
- * For Specific Customer: New control to configure alarm set/clear delays by Track Circuit.
- * FileManager shows more folders : root and AutoRun.
- * FileManager shows only non-empty folder.
- * Update of third-party drivers and modules is now automatic at start-up. You may be asked to restart Compas after an update in order to finalize the update.
- * It is now possible to update the FTP Server directly from Compas with File Manager.
- * It is now possible to update the Starter directly from Compas with File Manager.
- * Starter Embedded Version is now 2.26.0.3
- * FTP Embedded Version is now 2.33.0.3
- * Add custom function allowing to launch manually a new process on the Compas.
- * Hide site -> CF9 with VF50, it is not implemented. - Obsolete feature.
- * Improve support of OS 1.3 of our next-gen processor. The OS 1.3 is now installed by default.
- * Improve the check of the OS before the update.
- * Adding events when launching a battery test.
- * Visual Dashboard: Minor corrections inside DC systems and Inverter Systems.
- When uploading a new FtpServer or starter to user-uploaded files, they were detected as a Compas release.
- When a name is empty or not specified inside an XML post, it is not updated anymore to empty.
- When deleting user folder on live system, it was not re-created which leads to a lot of problems.
- Correct an issue when uploading very small files.
- Log-out button has been corrected for IE and chrome. For Firefox, you still need to close the browser.
- Deactivate LSS if LSS range ID is 0-0.

Revision 2.32.0.3 (16/09/2016) - SOFT_000031_70,SOFT_000146_11

- + WEB-UI: New popup button feature to view the dashboard schematic.

Revision 2.32.0.3 (16/09/2016) - SOFT_000031_70,SOFT_000146_11

- * Upgrade of the visual Libraries. Improvements are mainly made on the CP053 and remote site view.
- * ADIO SP0151 - Integration time max value is now 60s instead of 20s.
- Improvement of modbus slave protocol for writing coil. Now, a command is done directly even if there is no reading.
- For Specific Customer: Flag internal OK was updated for the new symmetry value reading.

Revision 2.31.0.5 (26/08/2016) - SOFT_000031_69,SOFT_000146_10

- No changes. This release is used as production release for 2.31.0.3.

Revision 2.31.0.3 (24/08/2016) - SOFT_000031_68,SOFT_000146_09

- * Update of the DC system visual dashboard. This new dashboard must reduce wrong interpretations of the data.
- + New Visual Dashboard for inverter systems.
- + New Visual Dashboard for solar systems.
- + Adding tools in order to act manually on the CanBus remotely.
- + Cordex DC system using UCC can support more than 2 ADIO10 for current measurement.
- + For Specific Customer: reading computation of the equation needed for alarm "Discharge resistor Failure". Configuration needs to be upgraded to take in account this PLC.
- * Add support of the drop-zone (Scripting, Custom website) for Internet Explorer.
- * Add a delete link inside custom Website.
- * Update of the graphical libraries for custom Website.
- * Improve bandwidth usage when browsing through the web interface.
- * Lua: better management of the Garbage Collector.
- * Lua: download link is corrected.
- * SNMP: Updating the MIB with the new Alpha-Technologies address.
- * Add support for OS 1.3 of our next-gen processor. This OS corrects minor bug with RS485 and improve the overall speed of the device.
- * By default, the Pulse Counter 4 (MCU DC system -> DA204) is not recorded anymore. Since the default configuration of version 2.0.0.3 to 2.8.0.3 was to store hour data for one year, we added an automatic configuration update that will reduce the number of hours records to two days. Day records are untouched.

Revision 2.31.0.3 (24/08/2016) - SOFT_000031_68,SOFT_000146_09

- * ADIO SP0151 - Support of alternative methods to detect Free/Busy state
- Do not trim extension in custom website when using the drop-zone.
- Correct a race condition inside smart energy on Cordex UCC systems.
- Prevent Cordex UCC system to regulate the current if there is no declared battery.
- Lua: When global scripting status was disabled on live systems, active scripts were not showed anymore.

Revision 2.30.0.5 (23/05/2016) - SOFT_000031_67,SOFT_000146_08

- + Add initial support for CXRF48-350 rectifier.

Revision 2.30.0.3 (17/05/2016) - SOFT_000031_66,SOFT_000146_07

- + ADIO8 - New Alpha product supporting Impulse relays, Digital input, Voltage input, 4-20mA measurement, Relay, Temperature.
- + Lua: Automatic upload of a script, with a drag and drop of the file directly on the scripting zone.
- + Lua: SNMP Set is now available.
- + Lua: compas.http_request is now available and can be used inside lua script to make an http request.
- + Lua: New function allowing the deletion of an equipment.
- + Custom Website: It is now possible to add/update a file using drag and drop.
- * Lua: Display script list inside the file manager.
- * Lua: Edit of script is done in another window. This allows easier development with multiple scripts.
- * Lua: The function running callbacks inside the script returns now the number of executed callbacks.
- * Lua: New debug file for Lua scripts (included in diagnostics.zip).
- * Lua: Timeout support for snmp request (GET/SET).
- * Custom Website: Edition is now done in another window.
- * For a specific customer, renaming some fields.
- * ECOR1048TN: SmartEnergy supports a new mode allowing remote off the rectifiers without cutting down the power. This allows the use of SmartEnergy without batteries.
- * ECOR1048TN: Efficiency curves have been updated in order to have a good calculation of SmartEnergy.
- * License: On SAM extension, a meter can be added directly after a license update/reload (without reboot).

Revision 2.30.0.3 (17/05/2016) - SOFT_000031_66,SOFT_000146_07

- * ADIO10: Refresh speed of digital inputs has been increased.
- * PLC equation now supports the usage of short data and alarm designators. Theses two syntax are now supported : @(data1) @(da1).
- HTTPS (beta): Correcting a regression preventing https to start if it has never been started before. The bug was introduced on version 2.26.0.3.

Revision 2.29.0.3 (14/04/2016) - SOFT_000031_65,SOFT_000146_06

- * In some rare circumstance, a request could use ipv6 and not ipv4 as expected.
- * Upgrading VisualDashboard library (an animated arrow is now available).
- * Automatic recovery in case of some sub-process errors. This corrects an error with the event poster.
- * XML Posting: The system now consider a successful post as a successful heartbeat.
- * A minimum of 10Mb is now required before starting a web remote upgrade.
- * Email Link for support requests.
- * Diagnostics.zip contains more information.
- + Beta release of Lua Scripting API V1.0
- Remote Alarm Possible power feed reduced is corrected.
- Correcting a small issue with encoding inside the emulator.

Revision 2.28.0.3 (8/03/2016) - SOFT_000031_64,SOFT_000146_05

- * Refresh speed of ADIO7 digital inputs has been improved.
- * Reset the up-time if the value is negative. (could happen with SNTP time refresh)
- * DC system: It is now possible to set battery string capacity with one decimal.
- * CompasLua: Showing more of the stack inside the debug output.
- + Adding the possibility to use a GemproxP5 Badge reader on the RS485 BUS (UCC only)
- + CompasLua: Automatic restart of a Lua script if it takes too much processing time.
- For a specific customer, it was impossible to set the severity type on ADIO7 using configuration file
- * For a specific customer, define alarm set and clear delay to 0 by default
- * For a specific customer, display additional information in charts (subgroup)

Revision 2.28.0.3 (8/03/2016) - SOFT_000031_64,SOFT_000146_05

- * For a specific customer, removal of some charts when related data is not enabled
- * For a specific customer, replace 65535 value by -1 for nicer charts

Revision 2.27.0.5 (1/02/2016) - SOFT_000031_63,SOFT_000146_04

- Lua Correction of time function and edition of data
- Specific customer license detection added

Revision 2.27.0.3 (28/01/2016) - SOFT_000031_62,SOFT_000146_03

- * Adding a cancel bootloading link on inventory page (visible only if the bootloader is active).
- * Unlock CompasLua API with ultimate License.
- * Speed control of messages on the can CAN have been improved.
- * Add a better check on the SNTP refresh time parameters.
- * Refuse to set radius server if license is not premium. (command_cancel message is given)
- * Configuration exchange processes have been reviewed and is now much more efficient.
- Specific customer flag "Internal OK" is set only if all the system was tested
- In some circumstances, upgrade all firmware button were only upgrading the first device.

Revision 2.26.0.3 (6/01/2016) - SOFT_000031_61,SOFT_000146_02

- + Support a new bootloader for our next generation of high performance rectifier.
- * Many improvements in the WebServer.
- * Use 2048 bits by default for HTTPS system.
- * Automatic correction and update for some parameters. When a correction is done, an event is added inside the related equipment and AL15 is triggered at site level.
- * API - ProcessXml.cgi : record_conf is now available inside the API
- * Many UI improvements.
- * Adding a wizard in order to calculate the Peukert Number.
- * Adding the duration of the battery test inside data (DC System -> DA76).

Revision 2.26.0.3 (6/01/2016) - SOFT_000031_61,SOFT_000146_02

- * Prevent a bad DC system configuration: It is now impossible to configure the battery test end voltage below the low voltage disconnect (LVD).
- * More information are available about software system (Site-> Description).
- * Add help text inside the renaming page.
- * Adding a page allowing easy configuration of FTP server V2.
- * Diagnostic file contains more information's.
- * Adding automatic reset of communication when another equipment than Compas send NMT Request
- * Details of previous battery test is now available (DC System -> Data).
- Correcting a view compatibility with Armada.
- Correcting DC System -> DA82: Minutes since last battery test: showing correctly the total number of minutes (before, it worked only the first hour).
- Correcting DC System -> DA73: Battery test discharged capacity ratio was always 0.
- In some circumstances, DC System -> AL13: Battery Last Test Failed was triggered when the test was success.
- When Peukert is not set (equals to 1), we have to consider the time-out as a battery test fail.
- In some circumstances, a firmware file could not be uploaded through the web interface
- In some circumstances, a license file could not be uploaded through the web interface
- Minor corrections for for compatibility with the new generation of processor
- Correction of a small memory leak inside visual dashboard.
- API - ProcessXml.cgi : Data elements were not correctly saved.
- Specific customer flag "Internal OK" has been corrected
- DC system and Inverter system will no longer include severity of child.

Revision 2.25.0.3 (3/09/2015) - SOFT_000031_60,SOFT_000146_01

- Fix a rare bug that can generate bad messages on the can bus with SAM.
- On rare condition event log where not well reduced.
- * Better validation of armada Post url.
- + SNTP server is now supporting several server using a coma.

Revision 2.25.0.3 (3/09/2015) - SOFT_000031_60,SOFT_000146_01

+ Initial support of our new generation of processor.

Revision 2.23.0.3 (18/08/2015) - SOFT_000031_58,SOFT_000VYB_01

- * Renaming page : List of all renamed elements.
- * Support fallback server in radius authentication
- Custom Json Get/post fixed
- Remote site addresses bug is now corrected
- Sync with my computer was not working as expected in some rare cases
- Add "disabled" in mib alarm severity
- Wizards are not always working as expected when site id was not 1
- * Implement alarm severity type and level change via SNMP

Revision 2.22.0.3 (23/06/2015) - SOFT 000031 57

- * Improvement of the SVG API
- Fix javascript bug introduced in version 2.21.0.4
- * Improvement of emulation capabilities
- * Wizard Sync With My Computer
- * Responsive design improvement
- * Better firmware files check before a firmware update
- * Better language multi-language support

Revision 2.21.0.4 (5/06/2015) - SOFT 000031 56

- Battery test : Alarm is no more active during the test (with more than one battery string)

Revision 2.21.0.3 (2/06/2015) - SOFT 000031 55

- * Identity of user is now registered when there is an alarm acknowledgement
- * Add a link to the default page on logout

Revision 2.21.0.3 (2/06/2015) - SOFT 000031 55

- * Memory size estimation improved into the record configuration wizard
- * Defining a start-up language is now possible by changing the default page
- + Beta support of remote system with LPS36
- + Beta support of linking ADIO7 in Remote Power Feeding System
- * Improvement of the SVG and JSON API - to be documented soon
- Fixed voltage alarms on specific systems with CAR rectifier and no MCU

Revision 2.20.0.3 (29/04/2015)

- + Support of Https XML Posting

Revision 2.19.0.3 (23/04/2015) - SOFT 000031 54

- * Memory Usage Optimization
- * Track names improved
- * New production Release using BSP 4.2

Revision 2.18.0.3 (1/04/2015) - SOFT 000031 53

- * Memory Usage Optimization
- * Default value of CF92 LSS id : 50-80
- * Visual validation of changes : Orange if modified, green if saved, red if not saved.
- * Site -> AL2 (CAN Bus Addressing Error) now trigger the alarm AL11 (Controller Reboot Required)
- * DC System -> AL20 (Battery Temperature Sensor Fail) now also triggered if the battery probe is shorted
- + Possibilities to change the green/red led behavior on UCC
- + Support of ECOR1048TN
- + Support of new rectifier using SOFT 000133 XX
- IE11: Upgrade of compas is fixed
- IE11: Alarm ack spinner blocked if double click is fixed.
- IE11: Inventory update is fixed

Revision 2.18.0.3 (1/04/2015) - SOFT 000031 53

- IE11: file upload box now with right size
- XML post event enable parameter (site-> CF41) is now working as expected
- In some case, a rectifier in remote off can trigger AL10 (One Rectifier Failure)
- * Update OS now visible in file system
- * Download a file to user-upload folder directly in file manager
- * States (of data) can be saved automatically to be kept after reboot (used for Battery test end voltage and Discharged Ratios)
- * DC System -> DA82 (Minutes since last test battery) is reset when a battery test is ended
- * Checking and creating user folders at startup
- + Beta Radius Authentication Support (with new Premium License)
- + Beta release of HTTPS (SSL) (with new Premium License)

Revision 2.17.0.5 (17/03/2015) - SOFT 000031 52

- Battery - Last test failed alarm now working when used with Peukert test.

Revision 2.17.0.3 (30/01/2015) - SOFT 000031 51

- Excel - site.xml.xls (excel conversion of site.xml) had some compatibility issues with Excel. Fixed.
- Excel - site.xml.xls quick link it top bar was returning site.xml.zip
- + Excel - site.xml.xls - XSLT conversion supports now inverter systems, remote power feeding systems and energy meter
- + Diagnostics.xml - site.xml - only site level was saved - now all levels
- Records - Recording was disabled when the can node was removed for some time (rare condition).
- + Records - Records wizard added to help you to understand and configure the record system.
- + Added wizards for admin and user configuration (login/password) - was not very user friendly
- + SNTP - Time Server - New configuration element to change the refresh time and refresh time recovery (CF15-16)
- * Energy Meters - Summary is now available in dashboard
- * Improved string validation of some configuration elements
- Fix Chrome display error (control button)

Revision 2.16.0.3 (3/11/2014) - SOFT 000031 50

- + Changes for Operanet Project
- Dc System - Bug introduced in 2.14.3 canceled all control executions
- Fixed small memory leak in rare circumstance (when adding and removing a device 100 times a day)
- * Improvement of 300V DC system features with 2 strings and 2 LVDs
- * Minor improvements of the Modbus Interface
- + Modbus Interface - Support for Inverter System, Site, Sensors and Actuators (Only Dc Systems previously)
- Web Interface - Equipment in 'critical' alarm were not in red in the site tree, warning, minor, major were correctly managed.
- Fixed possible deadlock when manually clearing the events.
- + New Metering License - Support Different Energy Meters over RS485, with UCC or SAM0X48 boards - See User Guide
- + Web Interface - New tab - Controller -> Licenses gives information about your licensing options
- + License - Multiple licenses can be installed. This allows to buy upgrade more easily

Revision 2.15.0.3 (2/10/2014) - SOFT 000031 49

- * Remote Power Feeding - Changes to display Power instead of Current with new Remote All In One
- + Documentation - documentation.xml.xls allow to get the documentation of a live system in Excel.

Revision 2.14.0.3 (25/09/2014)

- + Support of CAR30300TP
- + Support of Controller 300Vdc
- + Support of PMM0824FP02
- Remote Power Feeding - Remote Site - Number of Configured Power Lines was always 0
- * Remote Power Feeding - Remote Site - Record of current enabled by default
- + DC-System : Better Algorithm for Battery Autonomy Calculation - New configuration parameters: CF30,38,39
- + Dc-System: Battery Test - When Peukert number is configured, the battery test is done by defining a time instead of a ratio of the capacity

Revision 2.14.0.3 (25/09/2014)

+ Support of Remote All In One - 250W

Revision 2.13.0.3 (2/09/2014)

+ Initial Support of CAR30300TP

+ Initial Support of Controller 300Vdc

+ Initial Support of PMM0824FP02

+ Support Of Remote All In one - Rev1

Revision 2.12.0.3 (20/08/2014) - SOFT 000031 48

+ Initial Support of SAM0348

Revision 2.11.0.4 (24/07/2014) - SOFT 000031 47

- Event name was not correct for alarm related events. 'Alarm Clear/Set/Ack :' was missing - Bug introduced in 2.9.0.3.

- The fix introduced in 2.9.0.3 about event memory leak had broken the correct behavior of the event_flat.xml log cleaner.

* Boot-loader - Improved 'Upgrade All' Bootloading reliability. (The sequence could get stuck with a race condition on the node reset)

* Bootloader - Improved Can Bootloading reliability on old hardware without interrupt line for the can driver

* Bootloader - No need to reboot after Cordex Rectifier Upgrade

+ New alarm 'Running CAN Firmware Upgrade' (AL5) at site level during any CAN Bootloading

+ New events are generated with information about the bootloading start and stop.

+ New description 'CPU Info' (DE93) at site level to help support in case of investigation

Revision 2.10.0.3 (16/07/2014) - SOFT 000031 46

* Removed unused alarms for 300W rectifier

* Edit mode is not anymore accessible for rectifier and inverter equipment (Because change is not saved)

Revision 2.9.0.3 (11/07/2014) - SOFT 000031 45

- Memory - Fixed small memory leak critical for systems generating many events (>5000/day)
- * Emulator - Each emulator option store now 'flash files' in a subfolder corresponding to emulation id
- * Emulator - Possibility to define the FlashPath for integration and unit testing

Revision 2.8.0.5 (26/06/2014) - SOFT 000031 44

- * Data records - Memory Usage optimization, some records vector could be duplicated
- * Data records - Support for disabling data record enabled by default, and check for some critical records
- Web Interface - Elements Entries under development, with license 'underdev' where shown in the interface since version 2.X (but not usable)
- XML Event Posting - Fixed memory leak if XML POST is configured to inexistant server for a long period of time, with a small timeout
- Data Records - Sometimes, the tooltip displaying the value on mouse over did not disappeared when mouse was removed.
- + Data Records - Support of Zoom in/out and span in charts.
- + Data Records - Start/Stop Auto Refresh of the charts.(to allow zooming)
- Site Alarm 'XML Heartbeat Post Failure' was not working as expected.
- Email Support - Automated mail was sending too many emails
- + Web Interface - Waiting popup is now shown for long operations (Save Configuration, Upload file, Send mail, etc). It avoids clicking somewhere else when request is not complete.
- * Bootloader - Support of 'Upgrade All Compatible' with file format with comments like 'SOFT_0000YY_XX_some_comments.txt'
- + Support - New zip file 'diagnostics.zip' can be generated on the fly for investigation by Alpha Innovations SA in case of issue. (Available in Files menu)
- Web Server - 'ContentEncoding: gzip' was sent in header when downloading .xml.zip files. This was an error. (Fix issue with IE, it was ok with firefox and Chrome)
- * File Manager - Displaying now 'Write Time' instead of 'Creation Time'.
- * Debug - Internal generic object counters allows detecting possible memory leaks at runtime.
- Memory - Fixed memory leak when equipment's are powered and un-powered many times a day, like with alternative energy sources. (Could slow down or event reboot the Compas after a few weeks)

Revision 2.7.0.5 (13/06/2014) - SOFT 000031 43

- CAN Bus - New Alarm 'CAN Bus Addressing Error' was too sensitive (race condition).

* Dashboard - Data records shown for Cordex 4kW and 2.4kW Systems

Revision 2.7.0.4 (11/06/2014) - SOFT 000031 42

+ Email Support - On event with a configured minimal severity, summary mail can be sent to multiple recipients. (need 'asset' License)

+ CAN Bus - New alarm 'CAN Bus Addressing Error'. This helps detecting configuration problems. The alarm will disappear only if you remove all the node that are related to the duplication. (See inventory to know which one is duplicated)

+ Controller Upgrade - Support of zip file upgrade, with possible MD5 Checksum validation (if file compas.exe.md5 available in zip.)

+ Debug - All the debug files can be retrieved in one text file (for issue investigation)

- Webpage - DC System - Dashboard diagram box was too big with Chrome Browser

Revision 2.6.0.5 (17/04/2014) - SOFT 000031 41

+ Alarms - Acknowledgement feature. Each alarm can be acknowledged. This will allow smart filtering in Arm@da between new alarms and managed alarms.

+ Alarms - Acknowledgement feature - Generation of events on ack/un-ack of an alarm (type= alarm ack / alarm un-ack).

* Web UI : Alarms/Events - Long event names are now split in multiple lines

- Delta Data Record : solved bug in XML generation (Wrong write format used for RAM records)

- PLC equation with @(alarmXX) on relay boolean condition was broken on ADIO10

* Web UI: Solved top menu Drop Down issue with Internet Explorer 9

- Web UI: Alarms/Events - Event name button link was always referring to site level instead of the right equipment

* API - ProcessXml.cgi : if clear/set delay, relay, severity_level/type is not defined, the default value is not reset anymore. Only the sent attributes are updated.

Revision 2.5.0.3 (9/04/2014) - SOFT 000031 40

- Web UI - CSS: with some webpage width smaller than 980px but larger than mobile version, some menu was hidden.

- Web UI - javascript: Solved possible race condition on initial load

Revision 2.5.0.3 (9/04/2014) - SOFT 000031 40

- Web Server Socket - Under some very rare race conditions, socket could reply twice with the same response to different requests

Revision 2.4.0.3 (4/04/2014) - SOFT 000031 39

- 1-Wire humidity sensor: under some rare circumstance, corrupted value could be read - timing issue solved.

* Data Record - Delta record is now immediately available after configuration change. Previously, a least one append to file was required

+ PLC - support of equations with strings. Example to link dc system relays with inverter system 1, to define in the alternate condition: @ (es1_invs1_severity_type)="major" || @ (es1_invs1_severity_type)="critical"

- CanOpen - Inventory - LSS CAN id range configuration was broken, required to mix T2S with CAR systems (Mixing static and dynamic CanOpen addressing)

* Inverter System: Improvement of the group and subgroup strings to have a more user friendly user interface. It is needed to reset default Name/Groups/Subgroups if there is already a saved configuration.

Revision 2.3.0.3 (31/03/2014) - SOFT 000031 38

* Improved Speed of Can Node type detection

+ SNMP - Possibility to modify the trap content, by sending additional site description.

+ SNMP - Developers have the possibility to link data to alarms, to send them with the trap.

+ SNMP - Some data MIB entries described as Integer32 were transmitted as OctetString

+ TCP/Ip - New configuration element allows to define the Maximum Transmission Unit (MTU)

Revision 2.2.0.3 (12/03/2014) - SOFT 000031 37

- Web server redirection could loop if the default web page was forced to blank.

- Logout page link was pointing to old version of webpage

+ Support of Data Record on PLC Data

+ Support of \$iif(condition, val if true, val if false) and \$case(condition, val, condition2, val2, ...) functions in PLC equations

+ Dashboard support multiple dc systems

* Summary renamed to Reports

Revision 2.2.0.3 (12/03/2014) - SOFT 000031 37

- * Site --> in tab view, 'All' selection will also select the Description, Data, Alarm, Config and Control to understand the concept easily
- Renaming tool in the web interface was buggy because the page was self-refreshing while editing
- * Schneider PM9C and IEM3150 RS485-devices are now seen as Energy Meter in the ETSI structure
- * SNMP - Get of site data date and time was returning empty value. (Datetime format was not correctly supported)
- XML Post - Seconds between two XML Post was not correctly handled)
- * Better Factory Testing support for UCC (RS485 and RS232 are now automatically tested)
- * When saving configuration, old element ids of live equipment are removed, this allows to clean if another type of ADIO has been installed, with different features
- * New Control element 'Clean and Save XML User Configuration' allows to remove from configuration information about devices that are not present anymore.

Revision 2.1.0.3 (25/02/2014)

- * Improved can drivers
- * Minor changes
- * Refactoring code for future improvements

Revision 2.0.0.3 (19/02/2014)

- * FIRST RELEASE OF COMPAS '2.0.' - SUBJECT TO MINOR CHANGES
- * New web interface - for old, go to index_old.html
- * Major CPU and Memory Usage Optimization
- * Group and Subgroup allows filtering
- * Support of SP0155/01 and SP0155/02
- * Many other new features

Revision 0.126.0.4 (3/09/2013)

- * Emulation - added configuration 54, UCC + 15 x Adio7

Revision 0.126.0.3 (23/08/2013) - SOFT 000031 36

- * Sensors and Actuators - SAM0948 - Added hysteresis parameter on some alarms related to temperature, humidity and tilt
- CAN Driver is now compatible (was broken for 1 year) with first generation of compas board (blue card)
- + DC System - Support of scheduled battery test (based on CRON rules)
- + Support of wizards (first used to help defining the cron rule)
- * Site: Drop-box for the configuration of the Time Zone
- * XML Posting - Possibility to select which table must be sent on event. (description, alarm, data, configuration, control)
- * ADIO - Support up to 16 ADIO board as sensors and actuators by default

Revision 0.125.0.3 (5/08/2013) - SOFT 000031 35

- + Remote Power Feeding: Support of new Module 60W/190V
- Set/Clear delays of alarms were divided by factor 2 because the alarm calculation was called twice.

Revision 0.124.0.3 (28/06/2013)

- + Allow to set MCU specific configuration id. (Done in production, but allow to change in case of misconfigured MCU)

Revision 0.123.0.4 (13/06/2013) - SOFT 000031 34

- * Table documentation generator for T2s (Inverter), Cordex Rectifiers and Cordex Dc System

Revision 0.123.0.3 (30/05/2013)

- + Remote Power Feeding : Support of new Module REC009
- * XML Events and Armada: Alarm table was not sent completely. Real time for alarm clear events is now ok.
- * XML Events and Armada: Alarms are now correctly cleared for CAR rectifier, and sent also in realtime
- * XML Events and Armada: After equipment creation, data sync is done for descriptions, alarms, data, events and configs
- Rack ACE102FALP - Module position issue with 2-slot distribution.

Revision 0.122.0.3 (9/04/2013) - SOFT 000031 33

- SNMP - Walk was not going anymore inside the dc system. Broken in 0.113.0.3
- * SNMP - GlobalAlarmSeverityLevel of each equipment is now sent as an Integer (OctetString previously)
- * SNMP - renamed Mitra to Atsa in Mib due to company name change.
- * SNMP - Get next will now work from base oid iso.org.dod.internet
- * SNMP - New oid entry 'xxxGlobalAlarmSeverityTypeInt' for each equipment level. It is the same as the 'xxxGlobalAlarmSeverityType' but as an integer (critical=4, major=3, minor=2, warning=1, none=0)

Revision 0.121.0.3 (21/03/2013) - SOFT 000031 32

- + Remote Power Feeding: Support of new 120W remote module.
- Cordex DC System: Solved transient dc mode changed to safe mode (bug introduced in 0.120.0.3)

Revision 0.120.0.3 (8/03/2013) - SOFT 000031 31

- * Cordex DC-System: Check that the voltage measurement has been refreshed recently, before regulating bus voltage.
- * Cordex DC-System: Improved bus voltage regulation - reduce possible 100mV oscillation with ADIO10
- * Inverter System - Optimization of the bandwidth usage to allow more inverter systems (up to 20 T2S - More should be possible after validation)
- * Inverter System - The system id is now saved with the CAN LSS information - allows to keep the same system order after a reboot
- * Inverter System - Added a 1 minute delay before creating the inverters to avoid id transient.

Revision 0.119.0.3 (19/02/2013) - SOFT 000031 30

- Fix bug: element change event where not added to the correct equipment.
- * Optimized version of the XML posting to Armada. Description, Data, Alarm, Config of the equipment are also sent.
- * Remote Site - New control to copy address from the top site level (not the street).
- * Remote Site - Address is copied from Top Site on first creation
- * Up Converter System: Set/Clear Delay of the slot alarm increased to 15
- * Default Post XML timeout changed to 100 seconds (was 2 seconds)

Revision 0.118.0.3 (23/01/2013) - SOFT 000031 29

- Fix bug introduced in 0.113.0.3 - If the site id is changed to anything starting with 1 like 11, 1021, etc. A stack overflow can happen at next reboot.

* Inverter system - Support of ETSI XML posting for real time events in Armada.

Revision 0.117.0.3 (21/01/2013) - SOFT 000031 28

- Fix bug introduced in 0.116.0.3 about the data record xml generation)

* Remote Site: Alarms list is updated depending on remote system (no fan alarm with 60W module for example)

* Remote Power System: Alarms are now grouped

+ Web Server: Display the Site Name as title of the web page

+ Display the Serial Number of Cordex Rectifier and Inverters in the left menu and on top of the element tables, display the reference for systems

Revision 0.116.0.3 (16/01/2013) - SOFT 000031 27

- Fix for relay control problem on ADIO10 (introduced in 0.115.0.3 changes)

* New control elements to calibrate voltage and currents on ADIO10

+ When the Site Name is configured, it is now the title of the web page. This needs a complete refresh of the web page (Ctrl-F5)

- Inverter system with T2S - Save to T2s is now more reliable

+ Inverter system with T2S - New control element to Turn On/Off all modules

* New parameters for site.xml, allowing to downloading only some resolutions of the records (day, hour, minute, second). By default, it retrieves only daily and hourly data records

* Finalization of the equalize feature for Cordex dc systems

+ Implementation of the periodic automatic battery test

Revision 0.115.0.3 (20/12/2012) - SOFT 000031 26

- Reworked relay boolean condition on ADIOs. Possibility to configure normal condition as 'Energized' or 'De-Energized'.

- Some Alarm Set delay were not reloaded correctly after reboot, like the bus voltage sense failure

* Better support of T2S alarms

Revision 0.115.0.3 (20/12/2012) - SOFT 000031 26

- * Support of the T2S with Media Inverters
- * Relay of Alarm 'Missing Rectifiers' can now be saved in MCU

Revision 0.114.0.7 (17/12/2012) - SOFT 000031 25

- Randomly, system could reboot at midnight during data records saving
- If events.xml was corrupted, the system could never start without deleting the file
- * Better implementation of the data_record management. Thread safe and faster.
- * Improvement of the DC bus voltage sense failure detection on Cordex
- Digital Input alarm logic was inverted on ADIO 7-8-9-10. If you are using it, care required when upgrading.
- * More robust and faster startup
- * Reboot improved to reply to request, delayed by 10 seconds to allow events to be sent to Arm@da
- After a 'Clear All Events' or 'Clear Events', the events were not rewritten to flash, and were present again at reboot. (broken in 0.113.0.3)
- * Optimization of the Web Server - Faster and uses less memory when files are posted
- * Better support of zip files generation (site.xml.zip). The files are now fully compliant (before, it was a compressed stream)
- PLC functions without arguments like \$second() where broken unless used as \$second(0)

Revision 0.113.0.3 (15/11/2012) - SOFT 000031 24

- SNMP walk was not working from top snmp node
- + Introduced group possibilities for the alarm table
- + Events are now automatically saved in a flat file : events_flat.xml. events.xml is converted on first boot.
- + Group is now loaded from configuration.xml for any element, allowing total customization of name/group of elements
- + Possibility to rename Name and Group of any element from the web interface
- + Initial limited support of Cordex Converters
- + Support of energy meter IEM3150 on RS485 bus
- * Improved RS485 modbus driver allowing different types of device on the same bus

Revision 0.113.0.3 (15/11/2012) - SOFT 000031 24

- * CEM03 - Remote Site can now have an id > 100 (up to 1000)
- * Better implementation of the battery test for Cordex DC Systems
- * SNMP - Improved MIB compliance - Some oid related name were too long
- SNMP - Traps content oids where shifted of 1
- + Cordex - Initial support of firmware upgrade

Revision 0.111.0.5 (12/10/2012)

- Corrected bugs in Cordex regulation, load sharing was wrong if Can Id did not match rectifier id

Revision 0.111.0.3 (31/07/2012) - SOFT 000031 23

- + Support of multiple Inverter System (T2S)
- * Allow to limit the request of one CAN message at the time (for T2S)
- + Initial support of Alpha CXC over SNMP

Revision 0.110.0.3 (11/07/2012) - SOFT 000031 22

- + SNMP - Initial Support of monitoring of SNMP device like the Cordex CXC
- + Added possibilities to store a fix information about alarms
- + Support of 850W/1000W systems with embedded distribution.
- + Auto detection of the rectifier model for smart energy
- + Introduction of 'Absent' status for Cordex Rectifiers
- + New site control to remove absent equipment's
- + New alarm at the site level to notify that the last configuration changes are not saved
- * Remote Power Feeding - Added customer description element at the Remote Power Feeding System level
- * Remote Power Feeding - Possibility to define the number of CEM03 by rack, in master/slave configuration --> up to 64 racks
- * Better support of T2S inverter monitoring
- * Better conversion from XML to XLS. (site.xml.xls) Can be used to generate a system user guide with the request : site.xml.xls?help=true&control=true

Revision 0.110.0.3 (11/07/2012) - SOFT 000031 22

- CAN Driver - Randomly, a can message was corrupted because of an OS interrupt during SPI communication
- CAN Driver - The can driver was crashing when there was only one node on the bus and it was removed
- It was no possible to reset to empty the list of required node on the can bus (config Required CAN Bus Node IDs)
- Changed unit of Rectifier Cordex 'Service Time'(s->m) and 'Converted Energy'(KJ->kwh)

Revision 0.106.0.3 (22/03/2012) - SOFT 000031 21

- * Changed the versioning method to allow modifications of release - 0.106.0.3 is the version after 0.1.0.104

Revision 0.1.0.104 (15/03/2012)

- CET Inverter were not detected anymore correctly -broken with 1.0.96
- Remote Powering System was not detected anymore correctly - broken with 1.0.96
- * Remote Power Feeding system - New alarm is generated 'Configuration problem' when the slot is empty but there is a configuration

Revision 0.1.0.102 (23/02/2012)

- * Modbus Slave – Do not reply anymore until modbus variable are updated on dc system creation. This avoids to send transient 'fake' data

Revision 0.1.0.100 (15/02/2012)

- Modbus Slave – Socket was closed if the device id did not exist. Compas will now send a Modbus exception according to the standard.
- In remote Site in relation of a remote power feeding system, the latitude position parameter was not set correctly. (And changed the longitude).

Revision 0.1.0.98 (30/11/2011)

- In configurations with multiple independent racks, Modbus data were not correctly updated when multiple request on different racks were processed during one second.

Revision 0.1.0.96 (21/11/2011)

- + First official release supporting cordex 4kw rectifier, with new UCC

Revision 0.1.0.96 (21/11/2011)

- + CanOpen Node definition is now managed to avoid any interference between new development and old qualified developments. (Thanks to better use of the polymorphism)
- + Complete support of LSS devices (Dynamic CanOpen node addressing for Cordex rectifiers)
- + Optimization of the CAN and CANOpen layer to reduce cpu usage. Great result achieved, CPU usage reduced by more than 20%. This allows better reactivity through the communications interfaces.
- + Web interface allows minimizing parts of the tables, by group.

Revision 0.1.0.88 (11/09/2011) - SOFT 000031 20

- * Added debug features to analyze Modbus problems (connection timeout, new sockets, etc.)
- * Support of rack 300W, with specific battery configuration possibilities with the help of the front button (electronic LVD)

Revision 0.1.0.86 (12/07/2011) - SOFT 000031 19

- * The auto-save of records happening at midnight is now running in a separated thread to avoid any loss of communication and any problem in the main loop.

Revision 0.1.0.84 (21/06/2011)

- * Support of up to 4 master racks on the modbus interface. (Previously 4). Modbus id 1-->4 are reserved for the 4 first DC Systems. If a request is sent to another id, the dc system 1 will reply.

Revision 0.1.0.82 (16/06/2011) - SOFT 000031 18

- Problem with reload of current limitation regulation parameter (because development test on going with hard coded values)

Revision 0.1.0.80 (16/06/2011)

- + Initial support for Alpha Cordex Rectifiers regulation of the dc system
- + Support of rack CAPTIN 300W
- Modbus Slave communication could fail when there are socket problems. (Cable disconnection, timeout, etc.) - This problems appeared with the new Ethernet drivers of BSP 3.9.

Revision 0.1.0.78 (30/05/2011) - SOFT 00031 17

+ Added support of PLC functions for es1 device.

Revision 0.1.0.76 (27/05/2011) - SOFT 00031 17

* RS485 communications was corrupted when interrupted by another task with higher priority.

Revision 0.1.0.74 (24/05/2011)

* New CAN driver – reduced CPU usage by up to 30%.

* New operating system – BSP 3.9

* New production tool – display instructions also in English

- BSP 3.9 new Ethernet driver is now synchronous to solve problems when communication is very high – Microsoft bug (Modbus fast request in loop for instance)

Revision 0.1.0.72 (20/05/2011)

+ Added hidden function to clear registry (may be required after OS update)

Revision 0.1.0.70 (10/05/2011)

+ Possibilities to auto save records in xml, download files from web interface, and delete files.

+ Possibilities to rename descriptions, alarms, data, configuration and control elements with the configuration.xml file

+ Initial support of independent LVD

+ Initial support of predefined configurations

Revision 0.1.0.68 (20/04/2011)

- Hardware watchdog – forgot to uncomment after test.

Revision 0.1.0.66 (20/04/2011)

+ Added zip extraction functions : Extract Zip File in user-upload

- Records of the energy system pulse counter were loaded twice with a PM9C device

Revision 0.1.0.64 (16/04/2011)

- + Support of remote upgrade of the operating system and boot loader. (very advanced, necessary only for specific new functionalities)
- + Added data at site level: 'CPU Percentage Usage' and 'Free Flash Memory Space', with associated records.
- + Added description at site level : Operating System Revision
- + Support for the http post of files
- + New web page accessible from "Advanced" : manage_files.html
- + The exe file are analyzed to retrieve the software revision
- + The zip files are analyzed to discover the compressed file. (Only one file by zip is allowed to avoid unmanageable folder structure)
- + Added advanced functions in site/control: (used by the manage files web-page) (Flash Binary, Download File From Url, Delete User Uploaded File, Move User Uploaded File)

Revision 0.1.0.62 (10/04/2011)

- * Support of snmp get bulk
- * Added possibilities to rename all the variable names. Change the name in the xml configuration file and the related id will be updated on start. (for description, data, alarm, config and control)
- Snmp walk was buggy with some PLC data configurations

Revision 0.1.0.60 (6/04/2011)

- + Added configuration parameters to force the Ethernet mode (10-100Mb – Half-full duplex. (Require OS 3.5 at least)
- + Initial support of snmp get bulk
- + Improved support of default snmp oid (1.3.6.1.2.1.1.4,5,6,9.1.3)

Revision 0.1.0.58 (5/04/2011)

- Rewrite of the Modbus RTU Master driver to solve random crash after a few days (windows serial driver bug)

Revision 0.1.0.56 (9/03/2011)

- + Support of additional extensions for Opera Net Project (sensors and actuators)

Revision 0.1.0.56 (9/03/2011)

+ Support of PM9C energy counter over RS485

Revision 0.1.0.54 (21/02/2011)

+ Initial support of Alpha rectifiers

+ CANOpen LSS master implementation

* Added PLC functions to get site level info

Revision 0.1.0.52 (6/01/2011)

+ Initial support of RS485 Modbus Master

* Added entry 151 in Modbus

Revision 0.1.0.50 (29/10/2010) - SOFT 000031 16

* Improved support of 300W rack family

Revision 0.1.0.48 (18/10/2010)

+ Initial support of 300W rack family

Revision 0.1.0.46 (29/06/2010)

* Support of 3 dc-system over Modbus interface

Revision 0.1.0.44 (3/06/2010)

* Added concept of dc system and rectifier models (for smart functions)

Revision 0.1.0.42 (20/04/2010)

* Improved support of CET inverters

- Bug correction of removed rectifiers if not declared in large systems

Revision 0.1.0.40 (21/01/2010) - SOFT 000031 14

+ Minor support of CET inverters

* Change of OS, minor security updates (BSP 0.5)

- Correction of Ethernet bug with HUB (drivers was switching of the Ethernet devices if disconnected from hub)

Revision 0.1.0.38 (19/01/2010)

* Review of the logic for ac fail conditions

Revision 0.1.0.34 (24/11/2009)

* Increased reliability of the CAN boot-loader reset algorithm

Revision 0.1.0.32 (19/11/2009)

+ Support of large system with CAN regulation (up to 90x2600W rectifiers)

Revision 0.1.0.30 (19/10/2009)

+ Support of MCU0548

* Changed remote system type name (3x120w, etc)

Revision 0.1.0.28 (19/10/2009) - SOFT 000031 13

* Data records are now stored in XML, and are auto-saved

* Data records are reloaded on startup

* Optimization of the XML file generation

* Support of compressed XML file in ZIP (xml.zip)

* Full support of SNMP V3 traps

* Added support of energy consumption measurement at the energy system level (pulse counter)

* Added cold start type event (to be able to rediscover the site in XML after power outage – according to ES 202 336 standard change request)

- Modification of one registry parameter, to disable the “auto sense mode” of Ethernet, which was disabling the Ethernet when connected to a hub.

Revision 0.1.0.26 (16/06/2009)

- * Added support for SNMP V3, with updated libraries
- * Added support of remote power feeding systems
- * Compilation in VS2008
- * Web page layout changed from Cherokee to Mitra E&I
- * Updated version of operation system, with latest windows update and latest drivers. (in production with SOFT 000031 12)
- Bug in the data record queue for last days and last hours records.

Revision 0.1.0.24 (27/03/2009)

- * Added support of MCU3048M6
- * Optimization of the CAN driver

Revision 0.1.0.22 (1/10/2008) - SOFT 000031 12

- * (Updated OS drivers on 25 March 2009, because of new boot-loader on Compas card.)
- DC System Refresh Task buggy if only one rectifier in current limitation --> nothing was refreshed

Revision 0.1.0.20 (1/09/2008) - SOFT 000031 11

- * With the Modbus interface, the currents are now given in 0.1A as unit.
- * Support of XXXXconfigurationYYYY.xml files in Factory folder. This allows naming easily the configuration files.
- With a very low probability, the application could crash during startup. (It restarted correctly after 5 minutes thanks to the watchdog).

Revision 0.1.0.18 (1/08/2008)

- * New configuration parameter: XML Event Posting To Secondary Only If Primary Failure (Set to True by default). This allows sending XML events to the redundant server only if the first fails.
- * New configuration parameter: XML Heartbeat Time (minute): Define the time in minutes between two heartbeats. It is now possible to request the monitoring to send heartbeat in order to check the communication availability. This XML heartbeat looks like: <site id="1" status="alarms" severity_type="major" severity_level="6" /> Note that the same behavior with primary/secondary server is used.

Revision 0.1.0.18 (1/08/2008)

- * Modbus compatibility improvements
- * No current limitation by default (1000A by default, must be set correctly).
- * Functional battery test is configured (1000A as discharge current, 0% of discharge capacity, duration of 10 minutes). --> Must be correctly configured with the battery parameters for reliable battery test.
- * PLC license is now included in the Asset license.

Revision 0.1.0.16 (1/07/2008)

- * New Modbus license option
- * MCU30110 support
- * Compas Display Module Support (CDM)
- * CSV Log file of battery tests can be downloaded from web interface
- Firmware boot loading may fail under some circumstances
- The web server function 'ProcessXML.cgi' processed only site level configuration
- On system reboot, for alarm related events, the datetime is not parsed correctly
- On system reboot, the set delay of the alarms was replaced by the clear delay.

Revision 0.1.0.14 (28/05/2008) - SOFT 000031 10

- * Web interface compatible with older browser (Internet Explorer 6)
- * Web page generation 4x faster
- + Time Zone support
- + Daylight Saving Time
- The system time could be badly loaded during booting
- XML event posting locked when server answers badly
- Possible web server crash if socket not correctly closed

Revision 0.1.0.12 (14/02/2008) - SOFT 000031 09

- + Support of multi-language web interface

Revision 0.1.0.12 (14/02/2008) - SOFT 000031 09

- + Support of 2x6x1800W DC systems (with 2 MCU1848)
- + PLC module added (customization of data and alarm)
- The severity_type attribute in the XML syntax was not correctly encoded

Revision 0.1.0.8 (6/01/2008) - SOFT 000031 06

- * The default value of the minimal number of rectifier is 0, to avoid alarm by default.
- + Support of 3U rack with up to 8 CAR0948TN.
- * Improvement of the logic of the site access control with SAM0948. Any digital input can be associated with a door.
- DC system alarm relay configuration was not saved if configured on '0'.
- Problem with reload of customized alarm related to the digital inputs of the dc system.

Revision 0.1.0.2 (1/11/2007)

- + Support of MCU1848
- * Added alarm "Missing Rectifiers" at DC system level
- * Added configuration parameter "Minimal number of rectifier" at DC system level
- Configuration of the SAM0948 was not kept after system reboot

Revision 0.1.0.1 (1/06/2007) - SOFT 000031 01

- + First official version
- + Support of MCU0948
- + Support of CAR0948TN
- + Support of SAM0948

13.2 CAN Bus related information

- [CAN Bus - The internal field bus](#)
- [Connecting multiple rectifier shelves together.](#)

13.2.1 CAN Bus - The internal field bus

Comp@s systems use the CAN bus to communicate with the equipment. The CAN bus Controller Area Network (CAN) is an ISO approved standard for a low cost real time communication protocol. It is a fault tolerant and robust system. It is commonly used in automobiles, automated robots, airplanes, etc. In our application if using dedicated 120 ohms cables, the maximal bus length is 500m. The monitoring application is able to detect BUS problems like a short between the lines of the bus or devices which are unreachable.

Each node connected on the CAN Bus has an id. These ids are defined as shown in the following table:

Equipment Type	Range	Comments
Node Rectifier	[1,100]	Each rectifier with CAN capabilities has an address comprised between 1 and 100.
Node MCU Remote Central	[100,1]	
Node MCU	[101,110]	Up to 10 shelves monitoring (MCU)
Node Extension	[111,126]	Up to 10 extension card.
Node_CDM	[126]	Comp@s display module
Node Comp@s	[127]	The Comp@s node id. (used by CDM)

To see the list of the nodes connected on a Comp@s System, browse to Site -> Data. There, you can view the "CAN Bus Node IDs" list.

13.2.2 Connecting multiple rectifier shelves together

It is possible to interconnect multiple shelves to increase the system power. If the DC outputs are interconnected, the shelves are working in parallel. If the DC outputs of the shelves are independent, the shelves are independent.

In both situations, the CAN bus has to be connected between the shelves. Each MCU must have a unique CAN Id.

On MCU1848, the DIP Switch use is described in the following table:

Switches	Parameter	Description
1-3	CAN Id	Unique identifier of the MCU on the CAN bus. MCU CAN Id range begins at 101 and switch [1-3] represents a LSB encoded binary value that defines 8 successive Id's from 101 to 109.
4-6	-	Reserved for future use
7	Master/Slave	OFF: this MCU behaves as the master of the system ON: this MCU behaves as a slave of master MCU
8	Termination	OFF: external CAN bus termination must be used ON: CAN bus is internally terminated by a 147Ω resistor

- Multiple Shelves working in parallel

- [Multiple Shelves Independent.](#)

13.2.2.1 Multiple Shelves working in parallel

The CAN bus, VPROG and Sharing signals must be interconnected between the shelves. The whole system is seen as only one DC system by Comp@s. Here follows two typical configurations:

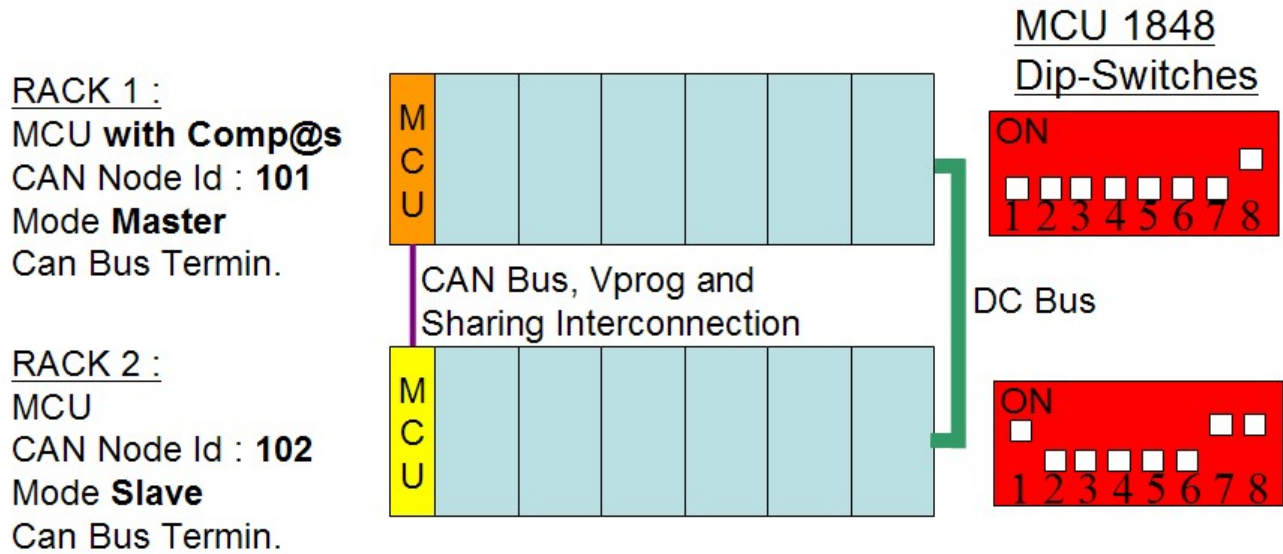


Figure 152 Example with a system with 2 shelves of 6x1800W rectifiers

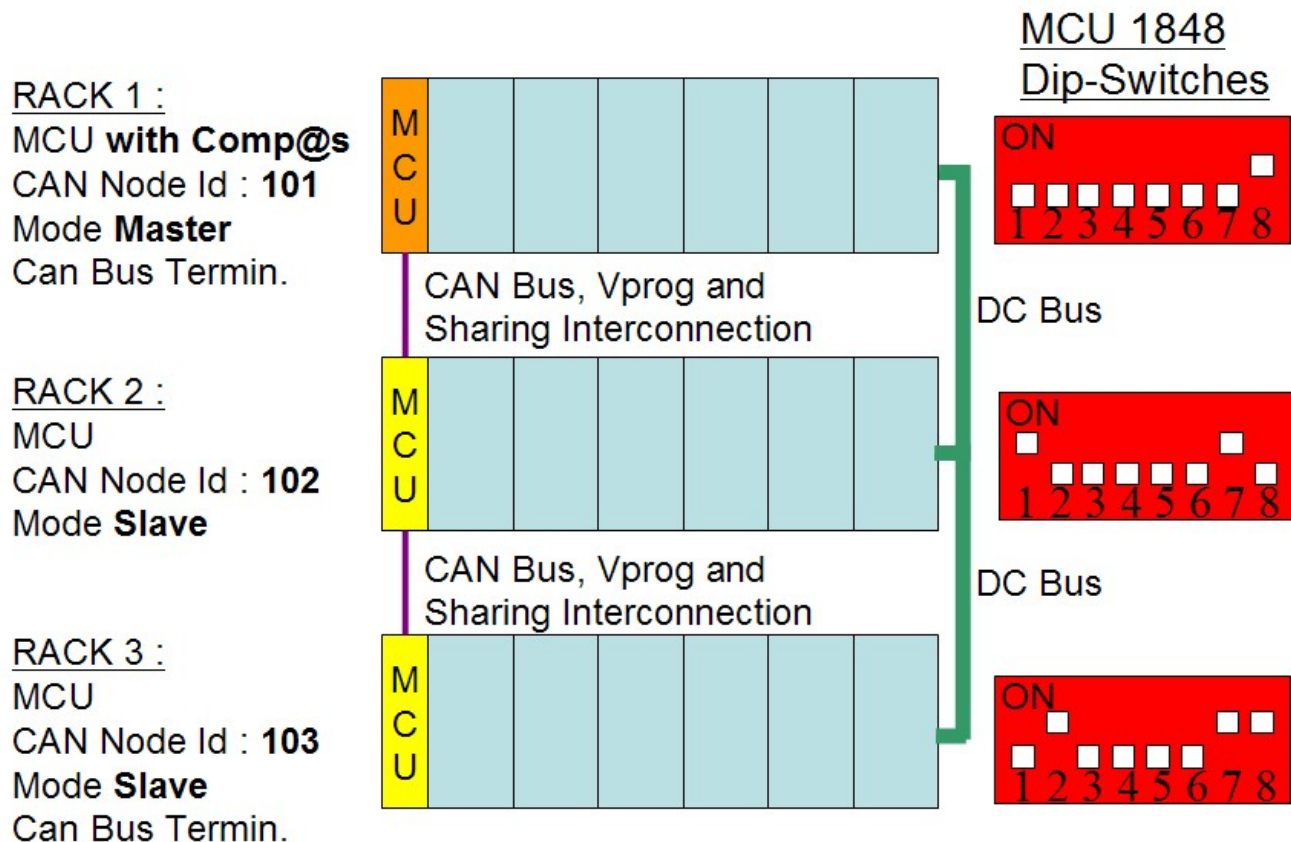


Figure 153 Example with a system of 3 shelves of 6x1800W rectifiers

13.2.2.2 Multiple Shelves Independent

An independent shelf will manage the bus voltage, the alarms, the LVD, etc. Multiple DC systems are seen by Comp@s:

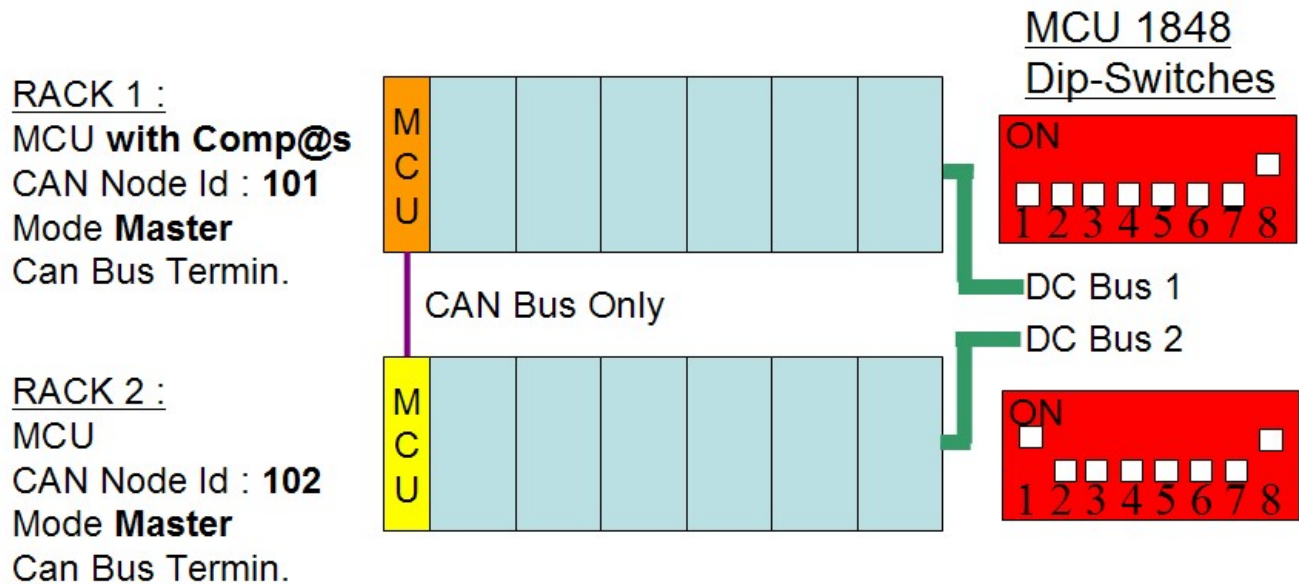


Figure 154 Example with a system with 2 shelves of 6x1800W rectifiers

13.3 ETSI Protocol

13.3.1 Overview

The XML files described in [XML files](#) are compliant with ETSI standard ES 202 336: “Environmental Engineering (EE); Monitoring and Control Interface for Infrastructure Equipment (Power, Cooling and Building Environment Systems used in Telecommunication Networks)”.

This chapter provides a summary about the structure of this file.

13.3.2 The Hierarchy of the devices/equipments

Equipment's and devices connected to the monitoring are structured in a hierarchic way. The root level is the site, it corresponds to a cabinet, a building, or any place where is located a system. Each site must have a different id to distinguish the sites from the management office center.

A site can have multiple energy systems. Cabinets usually have only one energy system, but this structure allows flexibility for other complex sites. Sensors and actuators related to the whole site, like access control, will be also reported under the site level.

An energy system comprises one or more dc system. A DC System comprises one or more rectifier.

All these equipment are described with a common XML structure. This common structure allows retrieving information and configuring all the system/equipment in a same way.

13.3.3 Common structure of any system/equipment

Any equipment XML node can have the following attributes:

Attribute	Description	Datatype	Optional/Mandatory
id	The id of the equipment, system or subsystem.	xs:integer	M
status	"normal" or "alarms" or "unknown".	xs:string	M
severity_type	If status is "alarms", this attribute gives the more severe "severity type" of the table of alarm. This attribute shall be present only when the attribute status is "alarms".	xs:string	M
severity_level	If status is "alarms", this attribute gives the more severe "severity level" of the table of alarm. This attribute shall be present only when the attribute status is "alarms".	xs:integer	M
datetime	The datetime attribute can be used to know the date and the time at which the element was refreshed. It is possible to have different datetime in different elements because all the equipment/systems cannot provide the data at the same time.	xs:datetime	O

For each equipment, system or subsystem, child elements that can be used are described in the following table:

Child Element	Description	Datatype	O/M
<description_table>	A table with description elements of the equipment/system.	xs:complexType	O
<alarm_table>	The table of alarms related to the equipment/system	xs:complexType	O
<event_table>	A log of events related to the equipment/system	xs:complexType	O
<data_table>	The table of the data (measurements, states and calculated values) related to the equipment/system	xs:complexType	O
<data_record_table>	Records of the historic of some data present in the data table	xs:complexType	O
<config_table>	The table of configuration of the equipment	xs:complexType	O
<control_table>	The table of control of the equipment	xs:complexType	O

13.3.3.1 The <description_table> element

This element contains multiple <description> elements. It corresponds to the the description elements of the system/equipment.

The inner text of the <description> element is the data of the description.

The allowed attributes of the <description> element are:

Attribute	Description	Datatype
id	The id of the description, it shall be different for all the description, it correspond at the key of the table.	xs:integer
name	The name in English of the description element	xs:string
group	This attribute provide a way to group descriptions of a same category when they are displayed. By example, description related to the manufacturer of equipment could be grouped with the attribute value "Manufacturer".	xs:string
subgroup	This attribute allows to group data under the parent group	xs:string
unit	When a physical data must be represented, it is useful to know the unit of the data. By example, to describe the maximum output power of a dc system, the value of the attribute unit can be "watt". The units allowed by the present document are the same as the one of the International System Units.	xs:string
info	Short additional information on the parameter	xs:string

13.3.3.2 The <alarm_table> element

This element contains multiple <alarm> elements. It corresponds to the table of all the possible alarms, with the associated severity type and severity level.

The information about the alarm is included in the attributes of the <alarm> element:

Attribute	Description	Datatype	O/M
id	The identification number of the alarm	xs:integer	M
active	This value is "true" if the alarm is active or "false" if the alarm is not active.	xs:boolean	M
name	The name of the alarm	xs:string	M
severity_type	Can be: critical, major, minor, warning or information	xs:string	M
severity_level	Value from 0 to 9	xs:integer	M
start_time	The date and time at which the alarm has started	xs:datetime	O
stop_time	The date and time at which the last active alarm has stopped. (When an alarm is active, this attribute cannot be present as it is nonsense).	xs:datetime	O

13.3.3.3 The <event_table> element

The <event_table> element is the parent of <event> elements, described as follows: an <event> element can only exist as a child of an <event_table>.

The inner text of the <event> element is a string (xs:string) describing the event.

The event element has the followings attributes:

Attribute	Description	Datatype	O/M
id	The id of the event	xs:integer	M
type	The type of event, can be: alarm set, alarm clear or information	xs:string	M
datetime	The date and time at which the event has happened	xs:datetime	M
severity_type	This attribute exist if the event concern an alarm. Than, the severity type value is the one of the corresponding alarm.	xs:string	O/M
severity_level	This attribute exist if the event concern an alarm. Than, the severity level value is the one of the corresponding alarm.	xs:integer	O/M
alarm_id	This attribute exist if the event concern an alarm. Than, the alarm_id value is id of the alarm in the alarm table of the equipment.	xs:integer	O/M
info	Any additional information	xs:string	O

13.3.3.4 The <data_table> element

This child contains multiple <data> elements. Each of these elements is identified by a unique id. The table is specific for each equipment, and describes by itself the all the available data related to this equipment.

The inner text of the <data> element is the value (xs:string) corresponding to the data.

The <data> element has the followings attributes:

Attribute	Description	Datatype	O/M
name	The English name of the data	xs:string	M
group	This attribute provide a way to group data of a same category when they are displayed. By example, data related to the output of equipment could be grouped with the attribute value "output". All the temperature measurements could be grouped under "temperature".	xs:string	O
subgroup	This attribute allows to group data under the parent group	xs:string	O
type	The type of data, this can be "measurement" or "calculated_value"	xs:string	O
unit	When a physical data must be represented, it is useful to know the unit of the data. The units allowed by the present document are the same as the one of the International System Units.	xs:string	O
info	Short additional information on the parameter	xs:string	O
name_XX	Where XX is correspond to the abbreviation of a language. By example, name_FR represents the translation in French of the name attribute.	xs:string	O

13.3.3.5 The <config_table> element

This child contains multiple <config> elements. Each of these elements is identified by a unique id. The table is specific for each equipment, and describes by itself the entire available configurable element related to this equipment.

The inner text of a <config> element is the value (xs:string) corresponding to the config parameter.

The <config> element has the followings attributes:

Attribute	Description	Datatype	O/M
id	The unique id of the config element, it corresponds at the key of the table.	xs:integer	M
name	The English name of the configuration parameter	xs:string	M
group	This attribute provide a way to group config element, like for the <data> elements	xs:string	O
subgroup	This attribute allows to group data under the parent group	xs:string	O
unit	The unit of the config parameter	xs:string	O
info	Short additional information on the config parameter	xs:string	O

13.3.3.6 The <control_table> element

This child contains multiple <control> elements. Each of these elements is identified by a unique id. The table is specific for each equipment/system, and describes by itself the entire available control element related to this equipment.

Writing to a control element is similar to start a function of the equipment. For example it can be used to start a battery test, to reboot an equipment, etc. The target of the write is the inner text of the <config> element.

The inner text of a <control> is always empty in the read xml document, but is used to pass arguments to the control function.

The <config> element has the followings attributes:

Attribute	Description	Datatype	O/M
id	The unique id of the config element, it corresponds at the key of the table.	xs:integer	M
name	The English name of control function	xs:string	M
group	This attribute provide a way to group function element, like for the <data> elements	xs:string	O
subgroup	This attribute allows to group data under the parent group	xs:string	O
info	Short information on the control function	xs:string	O

13.4 Third Party

13.4.1 Convert a T2S Usb to CANOpen

In this guide you will upgrade the T2S firmware in order to use CANOpen communication.

Communication information

You must know that the USB communication will not work anymore with the CANOpen Firmware.

If this is the first time that you do update a CE+T inverter, you have to install the driver (see below) otherwise you can directly go to the update procedure

1. Download and uncompress the necessary files available here :
http://customer.alphatechnologies.eu/compas/third_party/CET/T2S_Canopen_Conversion.zip
2. **Installation of drivers**
 - In the folder "DriversT2S", Follow the instructions given by the file in the folder for your version of windows.
 - For Windows 7
 - Install HyperTerminal (*htpe63.exe*)
 - Install VCP_Application (*VCP_V1.3.1_Setup_x64.exe*)
 - Connect the CE+T on your computer via the usb cable
 - Configure the driver in the device manager (Right click on computer -> "Manage" -> "Device Manager" -> "Other Device" -> "T2SVirtualPortCom")
 - Select "Update driver" -> "Browse my computer for driver software" -> **"Let me pick from a list"**
 - "Ports (COM and LPT)"
 - Select the **"ST Microelectronics > STMicroelectronics Virtual COM Port"** driver
 - Dismiss the warnings by accepting the driver
3. **Update of CE+T Inverter to CANOpen Mode**
 - Go to the *FirmwareUpdater* folder
 - Unplug the CE+T controller from the rack
 - Plug the USB cable between your computer and the CE+T controller
 - Plug the rack with at least one inverter
 - Now, this is the tricky part :
 - You have to plug-in the controller **and** launch immediately the file *dwnld_T2S.bat*. (Within 10 seconds after connecting the controller)

- You have to retry until it works (don't forget to unplug and replug the CE+T controller inside the rack : the firmware is writeable only during the 10 firsts seconds.)
- The program need to show "**Download was successful**"
- Unplug the usb cable from the controller
- Unplug and Replug the CE+T controller

We even made [a video](#) in order to help you to reprogram the device.

13.4.2 Handling sys saturated alarm on Inverter System

Cause

System saturated or Module non configured

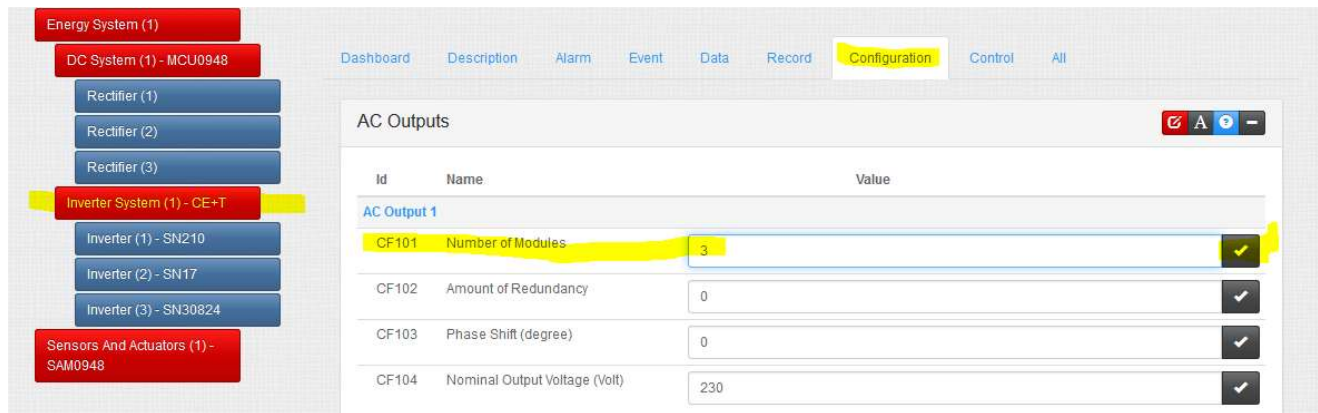
symptoms

- Sys saturated alarm
- *Number Of Module Configured (DA10) < Number Of Module seen by T2S(DA19)*

Fix

1. Change Number Of Module (CF101) to the number of module seen by T2S (DA10)
2. Save configuration into the T2S (CT2)
3. After a few seconds, reload configuration (CT1)
4. Check in Data if Number of Configured modules is equal to Number of Modules seen by T2S
5. Sys Saturated alarm should be gone

Visual help



The screenshot displays the 'Configuration' tab of a system management interface. On the left, a hierarchical tree shows the system components: Energy System (1), DC System (1) - MCU0948, Rectifier (1), Rectifier (2), Rectifier (3), Inverter System (1) - CE+T, Inverter (1) - SN210, Inverter (2) - SN17, Inverter (3) - SN30824, and Sensors And Actuators (1) - SAM0948. The 'Inverter System (1) - CE+T' is highlighted. The main panel shows the 'AC Outputs' configuration table. The table has columns for Id, Name, and Value. The row for CF101, 'Number of Modules', is highlighted in yellow and shows a value of 3. Other rows include CF102 (Amount of Redundancy, 0), CF103 (Phase Shift (degree), 0), and CF104 (Nominal Output Voltage (Volt), 230). Each row has a checkmark icon in the rightmost column.

Id	Name	Value
CF101	Number of Modules	3
CF102	Amount of Redundancy	0
CF103	Phase Shift (degree)	0
CF104	Nominal Output Voltage (Volt)	230

Figure 155 Change the number of modules

The screenshot shows the 'Inverter System' control interface. On the left, a tree view displays the system hierarchy: DC System (1) - MCU0948, Rectifier (1), Rectifier (2), Rectifier (3), Inverter System (1) - CE+T, Inverter (1) - SN210, Inverter (2) - SN17, Inverter (3) - SN30824, and Sensors And Actuators (1) - SAM0948. The 'Inverter System (1) - CE+T' is highlighted. The main panel shows the 'Inverter System' control page with a table of commands. The 'CT2 Save Configuration To T2S' command is highlighted in yellow, and its 'Execute' button is also highlighted.

Id	Name	Execute
CT1	Load Actual Configuration Running on T2S	[Execute]
CT2	Save Configuration To T2S	[Execute]
CT11	Turn All Modules Off	[Execute]
CT12	Turn All Modules On	[Execute]

Figure 156 Save configuration into T2S

The screenshot shows the 'Inverter System' control interface. On the left, the system hierarchy is the same as in Figure 156. The 'Inverter System (1) - CE+T' is highlighted. The main panel shows the 'Inverter System' control page. The 'CT1 Load Actual Configuration Running on T2S' command is highlighted in yellow, and its 'Execute' button is also highlighted.

Id	Name	Execute
CT1	Load Actual Configuration Running on T2S	[Execute]
CT2	Save Configuration To T2S	[Execute]
CT11	Turn All Modules Off	[Execute]
CT12	Turn All Modules On	[Execute]

Figure 157 T2S : Reload configuration

The screenshot shows the 'AC Outputs' data interface. On the left, the system hierarchy is the same as in Figure 156. The 'Inverter System (1) - CE+T' is highlighted. The main panel shows the 'AC Outputs' data page with a table of output values. The 'DA10 Number Of Modules Configured' and 'DA19 Number Of Module seen by T2S' rows are highlighted in yellow.

Id	Name	Value
DA4	Output Apparent Power	981 VA
DA5	Output Frequency	50.0 Hz
DA6	Loading Ratio	61 %
DA7	Loading Ratio - Available Power in VA	43 %
DA8	Loading Ratio - Installed Power in W	61 %
DA9	Loading Ratio - Installed Power in VA	43 %
DA10	Number Of Modules Configured	3
DA11	Amount of redundancy configured	0
DA12	DC Input Power	1111 W
DA13	AC Input Power in W	0 W
DA14	AC Input Power in VA	3 VA
DA15	Installed Power in W	1575 W
DA16	Installed Power in VA	2250 VA
DA17	Available Power in W	1575 W
DA18	Available Power in VA	2250 VA
DA19	Number Of Module seen by T2S	3
DA20	Number Of Modules delivering output	3
DA21	Number Of Modules manually off	0
DA22	Number Of Module In Failure	0

Figure 158 T2S check number of modules

13.5 COMPAS Start-up Sequence

Review Key-Points

Alpha Innovations introduces a new Starter with new functionalities :

- **Support Zipped Compas** File or FTP Server file
- Compas **Auto-Check** : Be sure that the application is running
- **Fall-Back** on Factory version in case of error

Starter always try to load a user version and if it fails, it will take the one inside the factory folder.

13.5.1 What is the Starter?

The starter is a small piece of software which is launched at the startup of the card. This software is going to **choose which Compas** and which FTP server **to launch**.

13.5.2 Why a new revision?

Since 2006 Alpha Innovations is selling COMPAS systems. From 2006 until now, there were various improvements of the hardware and software. First versions have less embedded memory while the new revision of COMPAS embed much more functionality and so takes more space. If we wanted to keep support for theses older revisions, Alpha Innovations has to do something. **The new starter allows us to reduce the software size for more than 50%**. This gained space is enough to support theses hardware revisions.

Alpha Innovations always wants to improve the system, we decided to add a check inside the Starter. If the load of a COMPAS version has failed, it will use the factory version as a **back-up version**. This will improve the reliability of our equipment by always launching at least COMPAS and giving you feedback by USB.

In order to understand the start of COMPAS application, here is the workflow used to start a COMPAS system. Since Starter V2.22+, we have added support for zip files.

You can check your starter version directly inside site-> description -> DE100: Starter version

13.5.3 How to install this new Starter

To do this procedure, you need to get the CompasStarter software. [Contact us](#) in order to get all the necessary files.

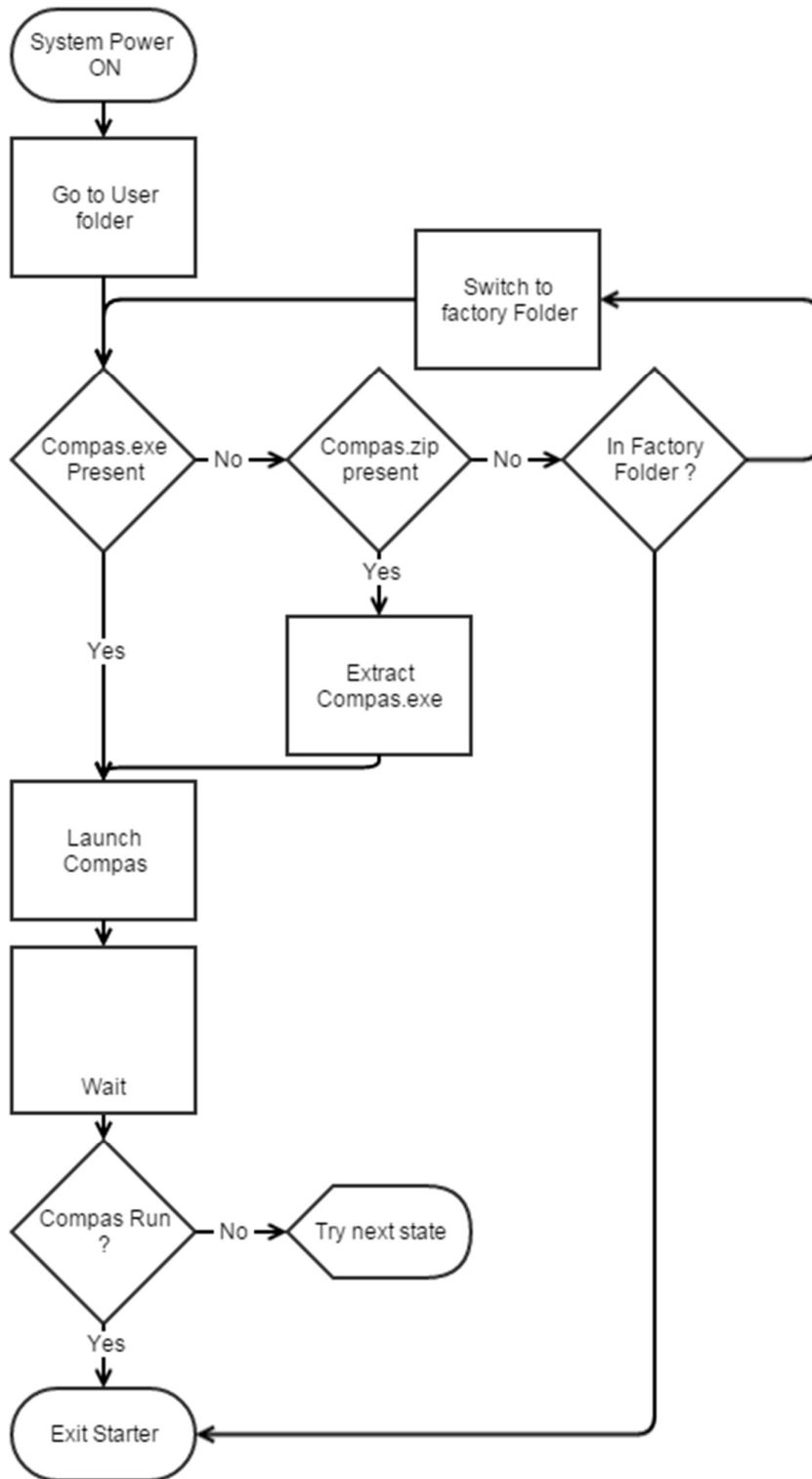
You can update your system remotely or locally using the FTP or the USB connection to access to the file system.

1. Connect on your card via FTP (or USB)
2. Upgrade the file *Compas_Starter.exe* in the folder **\\FlashDisk\\AutoRun** (or **\\NOR Flash\\AutoRun** for even older systems)

3. Be sure that this file is well updated
4. Restart Compas

13.5.4 Workflow of the new Starter

This is the workflow of the new starter.



13.5.5 Conclusions

With this new starter, we prove once again that Alpha Innovations cares about his customer and does his best to improve the customer experience. Since more than 10 years of working, Alpha Innovations is still supporting older revision and supporting all customers.

If you have any remarks, questions or suggestions, do not hesitate to email us to support@alphatechnologies.be.

14 ACKNOWLEDGEMENTS

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<http://www.lua.org>

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15 EQUIPMENT TABLES

The following chapters list the description, data, alarm, configuration and control tables that will be available in Comp@s for most of the supported devices. (Rectifier, MCU, Extension board, etc.)

15.1 Site Tables

15.1.1 COMPAS

Device Information	
Name	COMPAS
Short Description	Compas Platform Card
Long Description	
Hardware Reference	4004 110 96531
Software Reference	SOFT 000031 XX
Equipment Type	General for all Compas
ETSI Level	/site/

Description Table				
<i>Id</i>	<i>Name</i>	<i>Group</i>	<i>SubGroup</i>	<i>License</i>
DE1	Site Number	Description	Site Information	basic
	The identification number of the site			
DE2	Site Name	Description	Site Information	basic
	The name of the site			
DE3	Short Description	Description	Site Information	basic
	A short description of the site			
DE4	Info	Description	Site Information	basic
	Some more information about the site			
DE5	Description	Description	Custom Description	basic
	A free text zone to write a system description			
DE6	Reference	Description	Custom Description	basic
	A free text zone to write the customer reference of the system			
DE7	Contact Name	Description	Contact	basic
	Contact Name			
DE8	Phone Number	Description	Contact	basic
	Phone Number			
DE11	Street	Description	Address	basic
	Street part of the site address			
DE12	City	Description	Address	basic
	City part of the site address			
DE13	Province	Description	Address	basic
	Province part of the site address			
DE14	Postal Code	Description	Address	basic

	Postal Code part of the site address			
DE15	Region	Description	Address	basic
	Region part of the site address			
DE16	Country	Description	Address	basic
	Country part of the site address			
DE21	Group 1	Description	Clustering	basic
	Group Level 1 (For Armada Clustering)			
DE22	Group 2	Description	Clustering	basic
	Group Level 2 (For Armada Clustering)			
DE23	Group 3	Description	Clustering	basic
	Group Level 3 (For Armada Clustering)			
DE24	Group 4	Description	Clustering	basic
	Group Level 4 (For Armada Clustering)			
DE25	Group 5	Description	Clustering	basic
	Group Level 5 (For Armada Clustering)			
DE31	Latitude	Description	GPS Position	asset
	The latitude of the site			
DE32	Longitude	Description	GPS Position	asset
	The longitude of the site			
DE33	Altitude	Description	GPS Position	asset
	The altitude of the site			
DE91	Software Revision	Controller	Product Info	basic
	The software revision of Compas (read only)			
DE92	Operating System Revision	Controller	Operating System Info	basic
	The operating system of Compas (read only)			
DE93	CPU	Controller	Hardware Info	basic
	Information about the CPU			
DE94	Card	Controller	Hardware Info	underdev
	Information about the hardware system containing Compas			
DE100	Starter Version	Controller	Operating System Info	basic
	Information about the starter component of Compas			
DE105	Factory Compas Version	Controller	Operating System Info	basic
	Information about the revision of Compas in Factory folder			
DE106	User Compas Version	Controller	Operating System Info	basic
	Information about the revision of Compas in user folder			
DE110	Factory FTPServer Version	Controller	Operating System Info	basic
	Information about the revision of Ftp Server in Factory folder			
DE111	User FTPServer Version	Controller	Operating System Info	basic
	Information about the revision of Ftp Server in User folder			

Alarm Table					
<i>Id</i>	<i>Name</i>	<i>Group</i>	<i>SubGroup</i>	<i>Severity Type (Level)</i>	<i>Set/Clear Delay</i>
AL1	CAN Bus Failure	Inventory	CAN Bus	major (0)	5 / 2
	This alarm is active when there is a problem with the CAN Bus.				
AL2	CAN Bus Addressing Error	Inventory	CAN Bus	major (0)	5 / 2

	This alarm is active if 2 devices or more are using the same CAN address. You need to remove the duplication problem and reboot the compas to avoid a possible strange behavior. If the duplicated nodes are rectifier, you can try to solve the problem remotly. Be aware that the rectifier will be shutted down during this operation so you need a battery if you don't want a power outage (2 to 10 seconds) on your load. Reset devices with duplicated node id using the control CT81 in site level then reboot compas controller.If the problem persist you probably have a material configuration problem.				
AL3	Missing CAN Bus Node IDs	Inventory	CAN Bus	major (6)	10 / 2
	This alarm is active if configured node ids are not detected on the bus				
AL4	Running CAN LSS Device Detection	Inventory	CAN Bus	warning (0)	5 / 2
	This alarm is active when new devices are beeing detected.				
AL5	Running CAN Firmware Upgrade	Inventory	CAN Bus	warning (0)	5 / 2
	This alarm is active when the bootloader is upgrading a can device, or when the queue of upgrade is not empty				
AL11	Controller Reboot Required	Controller	Reboot	major (0)	5 / 2
	This alarm is active if the system should be rebooted for one of these reason • Timezone changed • Duplicate node ID • Duplicate node ID • Specific id of MCU changed • OS update • CAN related change • ...				
AL15	Last Configuration Changes Unsaved	Controller	Save	warning (2)	1 / 2
	This alarm is active if the configuration has been modified but not yet saved.				
AL21	XML Heartbeat Post Failure	XML	XML Event Posting	major (0)	5 / 2
	This alarm is active when the heartbeat is not accepted by the primary or the secondary post server. Please note that this alarm is inactive if the heartbeat mechanism is inactive.				

Data Table					
<i>Id</i>	<i>Name</i>	<i>Group</i>	<i>SubGroup</i>	<i>Unit</i>	<i>License</i>
DA1	Current IP Address	Network			basic
	This is the actual IP address of the Compas platform. If the Ethernet cable is not correctly connected, the address will be 0.0.0.0.				
DA2	Current IP Mask	Network			basic
	This is the actual Network Mask of the Compas platform.				
DA3	Current MAC Address	Network			basic
	This is the MAC address of IP interface.				
DA11	Licensed Options	Controller	License		basic
	This is the options of the actual license.				
DA21	Date And Time Local	Time			basic
	This is the local time of the monitoring.				
DA22	Date And Time UTC	Time			basic
	This is the UTC time of the monitoring.				
DA31	Monitoring Memory Used	Controller	Operating System Info	Kb	basic
	This is actual amount of RAM memory used by the application.				

DA32	CPU Percentage Usage	Controller	Operating System Info	%	basic
	This is actual percentage of CPU used				
DA33	Free Flash Memory Space	Controller	Operating System Info	MBytes	basic
	This is free flash memory available on the Compas card, in Megabytes				
DA35	FTP Server Status	Controller	Others		basic
	Status of the FTP Server. Compatible only with version >= 2.26.X.X. The configuration is available at controller -> FTP Server page.				
DA41	Total Fifo Size Of Second Records	Data Records			basic
DA42	Total Fifo Size Of Minute Records	Data Records			basic
DA43	Total Fifo Size Of Hour Records	Data Records			basic
DA44	Total Fifo Size Of Day Records	Data Records			basic
DA51	CAN Bus Node IDs	Inventory	CAN Bus		basic
	The coma separated list of the node ids present on the CAN bus.				
DA171	IOT MQTT Link State	IOT MQTT Link			basic
	Cloud Link State				
DA215	Current Secondary IP Address	Network			basic
	This is the actual secondary IP address of the Compas platform. If the Ethernet cable is not correctly connected, the address will be 0.0.0.0.				
DA216	Current Secondary IP Mask	Network			basic
	This is the actual secondary network Mask.				

Config Table						
Id	Name	Group	SubGroup	Unit	Range: Min/Max (default)	License
CF1	DHCP Enabled	Network			True/False (False)	basic
	The monitoring will try to get an IP with the DHCP protocol if this parameter is set to True. By default, this parameter is set to False.					
CF2	IP Address If Static	Network			192.168.45.2	basic
	The static IP address of the monitoring. This configuration parameter is not used if the DHCP is enabled. The default IP is 192.168.45.2.					
CF3	Subnet Mask If Static	Network			255.255.255.0	basic
	The static Subnet Mask of the monitoring. This configuration parameter is not used if the DHCP is enabled. The default mask is 255.255.255.0.					
CF4	Default Gateway If Static	Network			192.168.45.1	basic
	The static Default Gateway of the monitoring. This configuration parameter is not used if DHCP is enabled. This is only useful if the monitoring have to use a gateway, this is generally not necessary. The default gateway is 192.168.45.1.					
CF5	DNS If Static	Network			192.168.45.1	basic
	The static DNS of the monitoring. This configuration parameter is used to resolve URI and server name. This is not necessary if you are only IP address as target server. The default DNS server is 192.168.45.1.					
CF8	Maximum Transmission Unit	Network				basic
	Specifies the TCP/IP MTU for the network interface					
CF9	Ethernet Mode	Network				basic

	You can choose the ethernet network mode if needed. By default this option is set to automatic.					
CF11	SNTP Time Server	Time			192.168.45.1	basic
	The address or hostname of the server acting as SNTP timer server. If this server is invalid, the time of the monitoring cannot be updated automatically. You can enter several comma-separated time servers (e.g. 'time.google.com,0.pool.ntp.org').					
CF14	Time Zone Name	Time			((GMT+01:00) Brussels, Copenhagen, Madrid, Paris)	basic
	The Time Zone of the site					
CF15	SNTP Time Refresh	Time		hour	178	basic
	Set the time between synchronisation with the SNTP server (max 1000 hours, by default 178)					
CF16	SNTP Time Recovery Refresh	Time		hour	24	basic
	Set the time to wait before retry if a synchronization fail (max 1000 hours, by default 24)					
CF22	Web Server Security Enabled	Web Server			True/False (True)	basic
	This is a True/False parameter used to activate or deactivate the access control to the web server.					
CF23	Web Server Port	Web Server			0/65535 (80)	basic
	This is an unsigned integer parameter used to configure the port at which the web server is accessible. By default, the port is 80. If you change this port, you must be sure that the traffic is allowed by your switches and routers on this port.					
CF24	Web Authentication Method	Web Server				basic
	The web access security can be managed with 3 authentication methods: Basic Access, Digest Access or Basic with Radius.					
CF26	Https Web Server Port	Web Server				premium
	This is a port number to activate or deactivate the https web server - 0 or 443 by default					
CF31	Default Page	Web Server				basic
	The default page displayed on logon (dashboard, site, summary, alarm_event, ...)					
CF41	XML Event Posting Activated	XML	XML Event Posting		True/False (True)	basic
	This is a True/False parameter used to activate or deactivate the XML event posting.					
CF42	XML Event Posting Refresh Time	XML	XML Event Posting	second	1/3600 (2)	basic
	The minimal time in second between to calculation of the XML events to send. By default, this is done every two seconds.					
CF43	XML Event Posting Timeout	XML	XML Event Posting	millisecond	500/600000 (100000)	basic
	The timeout in millisecond when trying to post XML data to a Web Server.					
CF45	XML Event Posting To Secondary Only If Primary Failure	XML	XML Event Posting		True/False (True)	basic
	If this parameter is set to true, the events will be sent to secondary only if primary server is not available. If this parameter is set to false, all the events will be sent to primary and secondary server					
CF46	XML Tables To Post On XML Event	XML	XML Event Posting		description, alarm, data, config, control	basic
	The list of the tables to send when an event is generated. (description,alarm,data,config,control). This allows to have armada database updated on event.					
CF51	XML Heartbeat Time	XML	Heartbeat	minute	0-2880	basic
	This is the time between 2 XML Post of heartbeat. If set to 0, no heartbeat.					
CF61	SNMP Activated	SNMP			True/False (True)	basic
	This is a True/False parameter used to activate or deactivate the SNMP agent.					

CF63	SNMP Trap Version	SNMP				basic
	Traps/Notification can be sent with SNMP V1, V2c or V3 format.					
CF64	SNMP GET Minimum Security Level	SNMP				basic
	4 choices are available: No Authentication, V1 Community, V2c Community or V3.					
CF65	SNMP SET Minimum Security Level	SNMP				basic
	4 choices are available: No Authentication, V1 Community, V2c Community or V3.					
CF66	SNMP V3 Auth Algorithm	SNMP				basic
	3 choices are available: MD5, SHA, Any					
CF67	SNMP V3 Privacy Algorithm	SNMP				basic
	3 choices are available: DES, AES, 3DES					
CF68	SNMP V3 Privacy Password	SNMP				basic
	The global SNMP V3 Encryption Password. This one is common for all the users to avoid complexity					
CF69	SNMP V3 Engine ID	SNMP				basic
	The SNMP V3 Local Engine ID string					
CF72	SNMP V3 Trap Auth Algorithm	SNMP				basic
	2 choices are available: MD5, SHA					
CF73	SNMP V3 Trap Privacy Algorithm	SNMP				basic
	3 choices are available: DES, AES, 3DES					
CF74	SNMP V3 Trap Username	SNMP				basic
	The SNMP V3 Trap UserName used for all the SNMP V3 traps					
CF75	SNMP V3 Trap Auth Password	SNMP				basic
	The SNMP V3 Trap Authentication Password					
CF76	SNMP V3 Trap Privacy Password	SNMP				basic
	The SNMP V3 Trap Privacy Password					
CF77	Site Description Ids Included In Traps	SNMP				basic
	List of site Description Elements to send on traps. (to have the site reference and the city in each trap for example). The list is separated with ','					
CF81	Generate Event On Configuration Changes	Generic	Events		True/False (True)	basic
	This is a True/False parameter used to activate or deactivate the tracking of configuration changes					
CF82	Auto Archive Period Data Record	Data Records		hour		basic
	Period in hour to auto save records (when detailed and long duration records are needed). 0 means disabled.					
CF83	Generate Event On Control Execution	Generic	Events		True/False (True)	basic
	This is a True/False parameter used to activate or deactivate the tracking of control execution					
CF84	Generate Event On Alarm Acknowledge	Generic	Events		True/False (True)	basic
	This is a True/False parameter used to activate or deactivate the tracking of alarm acknowledgment					

CF91	Required CAN Bus Node IDs	Inventory	CAN Bus			basic
	This is a coma separated list with the required CAN bus node ids					
CF92	LSS CAN id range	Inventory	CAN Bus			basic
	By default 50-80, means up to 50 Can Nodes like rectifiers with CAN Id 50 to 80. To support up to 100 rectifiers, change it to 1-100.					
CF93	System Nodes Definition	Inventory	CAN Bus			basic
	Used to define new systems with or without ADIO. Exemple: dc3(30-100) or es1_dc1(es1_inv1,111) to bind an sierra system with ADIO10. A reboot is required after change of value.					
CF95	LSS CANOpen Saved Configuration	Inventory	CAN Bus			basic
CF101	Administrator Login:Password	Users			(admin:compas)	basic
	This is the login and the password of the administrator. It is saved with a special syntax. First the login in clear, followed of 2 points, followed of the MD5 hashed password. If you change the login:password by entering a non hashed password, this last is automatically hashed.					
CF102	User 1 Login:Password	Users			(user1:compas)	basic
	This is the login and the password of the user number 1.					
CF103	User 2 Login:Password	Users			(user2:compas)	basic
	This is the login and the password of the user number 2.					
CF104	User 3 Login:Password	Users			(user3:compas)	basic
	This is the login and the password of the user number 3.					
CF105	User 4 Login:Password	Users			(user4:compas)	basic
	This is the login and the password of the user number 4.					
CF106	User 5 Login:Password	Users			(user5:compas)	basic
	This is the login and the password of the user number 5.					
CF111	Radius Server	Radius Authentication				premium
	Radius Server address. If you have a secondary server, you could use a coma to separate it.					
CF112	Radius Port	Radius Authentication				premium
	Radius Port. If you have a secondary server, you could use a coma to separate it.					
CF113	Radius Secret	Radius Authentication				premium
	Radius PassPhrase					
CF120	Enable Email Feature	Email			True/False (False)	asset
	Enable/Disable the email feature					
CF121	Smtp Server	Email				basic
	Smtp Server. If you are using a domain name, make sure you configured the network Dns (CF5)					
CF122	Smtp Domain	Email				basic
	Smtp Domain. (Required by some servers.)					
CF123	Smtp User Login:Password	Email				basic
	Smtp Login and Password. The password is encrypted. To enter a new login and password, enter login:password and validate, the password will be encrypted.					
CF130	Mail Sender	Email				basic
	Mail Sender (The 'From' of the emails you will receive)					
CF131	Mail Recipients	Email				basic
	Mail Recipients, separated with semicolon ':'					

CF135	Minimal Severity Type To Send Mail	Email			(minor)	basic
	This is the minimal severity of the event to send a Summary Mail					
CF150	Automatic Reboot	Controller	Reboot			basic
	Cron rules used in order to restart automatically the controller. Before rebooting configuration, events and data records are saved.					
CF155	Modbus Interface Enabled	Modbus			True/False (False)	modbus
	This is a True/False parameter used to activate or deactivate the modbus interface.					
CF171	IOT MQTT Enabled	IOT MQTT Link			True/False (False)	premium
	Enable Cloud Connection					
CF172	IOT MQTT Server	IOT MQTT Link				premium
	Cloud Server					
CF173	IOT MQTT Port	IOT MQTT Link				premium
	Cloud Port					
CF174	IOT MQTT Encryption Enabled	IOT MQTT Link			True/False (True)	premium
	Encryption					
CF175	IOT MQTT Credential	IOT MQTT Link				basic
	Enter Credential of your AlphaCloud account in order to connect. You have to enter username:password in order to save your credential.					
CF176	IOT MQTT Cluster	IOT MQTT Link				premium
	Cloud Cluster					
CF177	IOT MQTT Live Sync Enabled	IOT MQTT Link			True/False (False)	premium
	Enable Live Post of all events					
CF210	RS485 Extensions Configuration	Inventory	RS485 Bus		PM9C(1)	metering
	The configuration string for RS485 Extensions					
CF215	Secondary IP Address Enabled	Network			True/False (False)	basic
	The monitoring will try to get an IP with the DHCP protocol if this parameter is set to True. By default, this parameter is set to False.					
CF216	Secondary IP Address	Network			10.200.200.100	basic
	The second static IP address of the monitoring. This configuration parameter is not used if the DHCP is enabled. The default IP is 10.200.200.100					
CF217	Secondary Subnet Mask	Network			255.255.255.0	basic
	The static Subnet Mask of the monitoring. This configuration parameter is not used if the DHCP is enabled. The default mask is 255.255.255.0.					
CF220	Ethernet Extensions Configuration	Inventory	Ethernet		INVIEW_GW(10.200.200.1);INVIEW_GW(10.200.200.2);AXS(192.168.45.3)	premium
	The configuration string for Ethernet Extensions like the Inview Gateway, a list can be defined with semicolon separator					
CF250	Enabled scripts	Scripting				ultimate
	This parameter enable all CompasLua Scripting capabilities. You can control scripts in Files -> Files manager > scripting tab.					
CF251	Number of Errors before triggering alarm	Scripting			0-2147483647	ultimate
	Number of errors before triggering the scripting error alarm. When number of error is higher than this parameter, the alarm is triggered. If 0 is set, the alarm is deactivated					

CF521	Read Access User Numbers	Generic	Allowed Users		(1,2,3,4,5)	basic
	The list of the user numbers which have read access to this equipment. The user numbers are coma separated. The accepted user id are 1,2,3,4 and 5. Ex: 1,3,4					
CF522	Write Access User Numbers	Generic	Allowed Users		()	basic
	The list of the user numbers which have write access to this equipment. This means that these users can modify the configuration element, the alarm settings and use the control elements. The user numbers are coma separated. The accepted user ids are 1,2,3,4 and 5. Ex: 1,3,4					
CF601	Event Table Length	Generic	Events		10/4000 (100)	basic
	The maximum length of the table. The value must be comprised between 10 and 4000					
CF611	SNMP Trap Targets IP	SNMP			192.168.45.1	basic
	One or multiple target IP to send traps, coma separated. Ex: 130.145.23.1, 130.23.12.45					
CF612	Minimal Event Severity For Traps	SNMP			(none)	basic
	This is the minimal severity of the event to send a SNMP trap					
CF651	XML Events Primary Post URL	XML	XML Event Posting			basic
	This is the first URL at which the events related to this equipment must be posted. The XML ETSI standard is used in the posted data content.					
CF652	XML Events Primary Post Login	XML	XML Event Posting			basic
	The login which must be used when posting events to the primary server					
CF653	XML Events Primary Post Password	XML	XML Event Posting			basic
	The password which must be used when posting events to the primary server					
CF661	XML Events Secondary Post URL	XML	XML Event Posting			basic
	This is the second URL at which the events related to this equipment must be posted. The XML ETSI standard is used in the posted data content. This allows having redundancy with the management server.					
CF662	XML Events Secondary Post Login	XML	XML Event Posting			basic
	The login which must be used when posting events to the secondary server					
CF663	XML Events Secondary Post Password	XML	XML Event Posting			basic
	The password which must be used when posting events to the secondary server					
CF901	Number Of PLC Data	PLC			(0)	plc
	The number of PLC data. Every equipment can manage up to 30 user programmable data. Data elements are automatically added in the data table. Configuration parameters are added to set the PLC Data Name and the PLC Data Mathematical calculation. In order to use these functionalities, you need a license with the 'PLC' module					
CF902	Number Of PLC Alarm	PLC			(0)	plc
	The number of PLC alarm. Every equipment can manage up to 30 user programmable alarms. Alarm elements are automatically added in the alarm table. The alarm parameters are added to set the PLC Alarm Name and the PLC Alarm Boolean condition. In order to use these functionalities, you need a licence with the 'PLC' module					

Control Table				
<i>Id</i>	<i>Name</i>	<i>Group</i>	<i>SubGroup</i>	<i>License</i>
CT1	Reboot Controller	Controller	Reboot	basic
Writing a '1' to this control element will reboot the monitoring. Events and Records will be saved.				

CT2	Save Configuration And Reboot Controller	Controller	Reboot	basic
	Writing a '1' to this control element will first save the actual configuration and will reboot the monitoring after.			
CT3	Reboot Controller Without Saving Records	Controller	Reboot	basic
	Writing a '1' to this control element will reboot the monitoring without saving records			
CT6	Apply Network Configuration	Network		basic
	Writing a '1' to this control element will reconfigure the ethernet according to the Network Configuration. If you change the IP address in the config table without using this command after, the configuration is not applied.			
CT11	Force SNTP Time Refresh	Time		basic
	Writing a '1' to this control element will force the monitoring to try to refresh his time with the configured SNTP Time Server.			
CT12	Set Local Time	Time		basic
	Writing a date and time to this control element allows to manually change the local time of the monitoring. The syntax of the date and the time is: 2007-11-19T13:02:34			
CT13	Set UTC Time	Time		basic
	Writing a date and time to this control element allows to manually change the UTC time of the monitoring. The syntax of the date and the time is: 2007-11-19T13:02:34			
CT14	Reset Uptime	Time		basic
	Writing a '1' to this control element will reset the uptime of the monitoring.			
CT20	Clean and Save XML User Configuration	Controller	Save	basic
	Writing a '1' to this control element will remove the configuration sections related to missing equipments, than save all the configuration of all the connected equipment in a XML format. This file is read when the monitoring is starting in order to configure the monitoring. This file is also accessible trough the FTP server or can be downloaded trough the web interface.			
CT21	Save XML User Configuration	Controller	Save	basic
	Writing a '1' to this control element will save all the configuration of all the connected (or previously connected) equipment in a XML format. This file is read when the monitoring is starting in order to configure the monitoring. This file is also accessible trough the FTP server or can be downloaded trough the web interface.			
CT22	Save Inventory	Controller	Save	underdev
	Writing a '1' to this control element will save save the inventory in a XML format. This file is read when the monitoring is starting in order to configure the monitoring. This file is also accessible trough the FTP server or can be downloaded trough the web interface.			
CT33	Save Data Records	Data Records		basic
	Writing a '1' to this control element will force the monitoring to save all the data records. This is useful if you want to unpower the Compas monitoring. This function is called automatically everyday.			
CT34	Export Data Records in CSV	Data Records		basic
	Writing a '1' to this control element will force the monitoring to save all the CVS records files. The CSV files are stored in the records folder.			
CT35	Archive Data Records	Data Records		basic
	Writing a '1' to this control element will force the monitoring to save all the data records. This is useful if you want to unpower the Compas monitoring. This function is called automatically everyday.			
CT36	Delete All Data Records	Data Records		basic
	Writing a '1' to this control element will force the monitoring to save all the data records. This is useful if you want to unpower the Compas monitoring. This function is called automatically everyday.			
CT40	Emulate Records	Controller	Emulation	underdev
	NA			
CT41	Reload Translations	Controller	Translation	basic
	Writing a '1' to this control element will reload all the csv translation files			
CT51	Reload License	Controller	License	basic

	Writing a '1' to this control element will reload the license file			
CT55	Manage FTP Server	Controller	Others	basic
	This Control is used to manage the FTP Server			
CT61	Remove Absent Equipments	Inventory		basic
CT81	Reset CAN Bus Node	Inventory	CAN Bus	basic
	Writing a valid CAN bus node id to this control element will reset the correspondent device.			
CT82	Save CANOpen LSS Configuration	Inventory	CAN Bus	basic
CT83	Start New Inventory	Inventory	CAN Bus	basic
CT91	Upgrade Node Firmware	Inventory	CAN Bus	basic
	This control element is used to start the firmware upgrade of a CAN bus Node. You need to upload first the firmware trough ftp in the /user/firmware path. Then you need to write the id number of the CAN Node, followed by a coma, followed by the file name. Example : '101,SOFT_0000030_01.txt'.			
CT92	Cancel Firmware Upgrade	Inventory	CAN Bus	basic
	This control element is used to cancel the running firmware upgrade of a CAN bus Node.			
CT103	Flash Binary	Files		basic
	This control element is used to start a binary flash update. You need to upload first the firmware trough ftp in the /user/firmware path.			
CT110	Download File From Url	Files		basic
	This control element is used to download a file wiht HTTP get, the argument is an url. The file is saved in the upload folder			
CT111	Delete User Uploaded File	Files		basic
	This control element is used to delete a file in the user-upload folder. This is riskless as these files are not used, they are temporary files.			
CT112	Move User Uploaded File	Files		basic
	This control element is used to copy a file from the user-upload folder to another one. Be aware of what your are doing !			
CT113	Extract Zip File in user-upload	Files		basic
	This control element is used to delete a file in the user-upload folder. This is risk-less as these files are not used, they are temporary files.			
CT120	Send Summary Email	Email		asset
	This control element is used to force the sending of a summary to the configured mail address			
CT171	Apply Mqtt Configuration Changes	IOT MQTT Link		basic
	Writing a '1' to this control element will reconfigure the Cloud Mqtt Connection according to the Network Configuration.			
CT250	Control Lua Script	Scripting		ultimate
	This control element is used to control the lua scripting system. Available command are: enable[Enable Lua Capabilities], disable[Disable Lua Capabilities], restart[Restart All Lua Capabilities], refresh[Read the folder script (if you added a file when system is running)], enable filename[enable filename.lua located in folder user/scripts], disable filename[disable filename.lua located in folder user/scripts], restart filename : Restart fileName[file must be enabled], reseterrors[Reset all errors counters], reseterrors filename[Reset errors from filename			
CT300	Generic Command Execution	Controller Advanced Function		basic
	This control is used to perform advanced operation.			
CT501	Clear My Events	Generic	Events	basic
	By writing '1' to this control element, all the events of this equipment will be cleared.			
CT502	Clear All Events	Generic	Events	basic

	By writing '1' to this control element, all the events of this equipment and all the events of all the sub-equipments will be cleared.			
CT511	Add Event	Generic	Events	basic
	This control element adds an event of severity none. The event name is the text written to this control element			
CT512	Add Major Event	Generic	Events	basic
	This control element adds an event of severity major. The event name is the text written to this control element			
CT521	Reset Default Names And Groups	Generic	Renaming	basic
	This control element resets all the element Names, Groups and Subgroups to default values for this equipment			
CT522	Reset Default Names And Groups Recursive	Generic	Renaming	basic
	This control element resets all the element Names, Groups and Subgroups to default values for this equipment and all sub equipments			

15.2 DC System Tables

15.2.1 ADIO 12 AS MCU

Device Information	
Name	ADIO 12 AS MCU
Short Description	ADIO Module used as MCU for hybrid systems
Long Description	
Hardware Reference	9413 060 05121
Software Reference	SOFT 000121 XX
Equipment Type	Monitoring Control Unit
ETSI Level	/site/energy_system/dc_system

Description Table				
<i>Id</i>	<i>Name</i>	<i>Group</i>	<i>SubGroup</i>	<i>License</i>
DE1	Description	Description	Custom Description	basic
	A free text zone to write a system description			
DE2	Reference	Description	Custom Description	basic
	A free text zone to write the customer reference of the system			
DE11	Product Name	Description	Product Info	basic
	The product name of the DC system monitoring			
DE12	Hardware Reference	Description	Product Info	basic
	The hardware reference of the DC system monitoring			
DE14	Software Reference	Description	Product Info	asset
	The software reference of the DC system monitoring			
DE16	Serial Number	Description	Product Info	asset
	The serial number of the DC system monitoring			
DE18	Manufacturing Date	Description	Product Info	asset
	The production date of the DC system monitoring			

Alarm Table					
<i>Id</i>	<i>Name</i>	<i>Group</i>	<i>SubGroup</i>	<i>Severity Type (Level)</i>	<i>Set/Clear Delay</i>
AL1	DC Bus Extra Low	DC Bus		major (6)	5 / 2
	The bus voltage is extra low. The alarm is set when the bus voltage is lower than the configuration parameter 'DC Bus Voltage Extra Low'. There is an hysteresis on the alarm : 'DC Bus Voltage Extra Low Hysteresis'. The alarm is not activated when DC mode is 'Battery Test'				
AL2	DC Bus Low	DC Bus		minor (4)	5 / 2
	The bus voltage is low. The alarm is set when the bus voltage is lower than the configuration parameter 'DC Bus Voltage Low'. There is an hysteresis on the alarm : 'DC Bus Voltage Low Hysteresis'				
AL3	DC Bus High	DC Bus		minor (4)	5 / 2
	The bus voltage is high. The alarm is set when the bus voltage is higher than the configuration parameter 'DC Bus Voltage High'. There is an hysteresis on the alarm : 'DC Bus Voltage High Hysteresis'				
AL4	DC Bus Extra High	DC Bus		major (6)	5 / 2
	The bus voltage is extra high. The alarm is set when the bus voltage is higher than the configuration parameter 'DC Bus Voltage Extra High'. There is an hysteresis on the alarm : 'DC Bus Voltage Extra High Hysteresis'				
AL5	DC Bus Voltage Sense Failure	DC Bus		major (6)	5 / 2
	The DC bus voltage sense is defective. The DC bus voltage is unconnected or misconfigured.				
AL6	Mains Failure	AC Bus		minor (4)	5 / 2
	The number of active rectifiers is equal to 0 - All the phases are down				
AL7	Mains Partial Failure	AC Bus		minor (4)	10 / 2
	The number of active rectifiers is greater than 0 and the number of rectifiers in AC failure is greater than 0. Some rectifiers are in AC Failure. It may be caused by an open breaker, a real phase failure, or by a rectifier failure.				
AL8	Mains Low	AC Bus		warning (2)	10 / 2
	The main voltage is low on one or more phases. No rectifier is in AC failure. If MCU master type is 30110, 3096 or 3048M6, an hysteresis _phase123Hysteresis is added to the voltage lower limit				
AL10	One Rectifier Failure	Rectifiers		minor (4)	5 / 2
	One rectifier must be replaced or is not powered correctly. The DC fail alarm of the rectifier is set. The number of rectifier with DC Failure is higher than 0, there is no mains failure, and the 'More Than One Rectifier Failure alarm is not set.'				
AL11	More Than One Rectifier Failure	Rectifiers		major (6)	10 / 2
	There is no mains failure and number of rectifier failures is greater than 1.				
AL12	Missing Rectifiers	Rectifiers		major (6)	5 / 2
	There is not enough rectifier according to the configuration parameter : 'Minimal Number Of Rectifier'				
AL13	Battery Last Test Failed	Battery	Battery Test	minor (3)	5 / 2
	The last battery test did not succeed and was not cancelled. Maybe the battery should be replaced. Check inside the dc system data for more information about the last test.				
AL14	Battery On Discharge	Battery		minor (4)	10 / 2
	The battery is discharging. This means that the load is too high for the installed rectifiers. This alarm is inactive when the system in AC Failure or during a battery test. There is an hysteresis corresponding to battery parameter 'Is discharging current hysteresis'.				
AL17	Battery LVD Relay Open	LVD		major (6)	5 / 2
	The battery Low Voltage Disconnect is open. On Systems without LVD_Status signal, like MCU 1848 or MCU 1x6, the alarm is present only if the signal LVD_COM asks to open the LVD				
AL18	Battery Temperature Too High	Battery	Temperature	minor (3)	5 / 2
	The temperature of the battery is too high and is greater than -600 units. There is an hysteresis corresponding to battery parameter 'Temperature hysteresis'.				
AL19	Battery Temperature Too Low	Battery	Temperature	minor (3)	5 / 2

	The temperature of the battery is too low and is greater than -600 units. There is an hysteresis corresponding to battery parameter 'Temperature hysteresis'.				
AL20	Battery Temperature Sensor Fail	Battery	Temperature	minor (3)	5 / 2
	The battery temperature sensor (NTC) value is inferior to -500 units or superior to 300 units meaning that it is not connected or defective.				

Data Table					
<i>Id</i>	<i>Name</i>	<i>Group</i>	<i>SubGroup</i>	<i>Unit</i>	<i>License</i>
DA1	DC Mode	System			basic
	The DC system can have 5 values: 'Float'(0), 'Equalize'(1), 'Battery Test'(2), 'Ac Failure'(3) or 'Safe'(5)				
DA2	Previous DC Mode	System			basic
	The previous value of the DC Mode : 'Float'(0), 'Equalize'(1), 'Battery Test'(2), 'Ac Failure'(3) or 'Safe'(5)				
DA3	Minutes Since Last Mode Change	System		minute	basic
	The number of minute between the last DC Mode Change and now				
DA4	NiMH Charge Mode	System			basic
DA11	Bus Voltage	DC Bus		Volt	basic
	The DC bus voltage in volt.				
DA12	Ratio Delivered On Available Power	System		%	basic
	This is the ratio of the delivered power divided by the installed power, in %.				
DA13	Minutes Since Last AC Failure Begin	AC Bus		minute	basic
	The number of minute since the last AC Failure begin				
DA14	Minutes Since Last AC Failure End	AC Bus		minute	basic
	The number of minute since the last AC Failure end				
DA21	Rectifiers Output Power	Rectifiers		Watt	basic
	The sum of the delivered rectifier power				
DA22	Rectifiers Output Current	Rectifiers		Ampere	basic
	The sum of the delivered rectifier current				
DA23	Rectifiers Output Power Max	Rectifiers		Watt	basic
	The sum of the deliverable rectifier power				
DA24	Rectifiers Output Current Max	Rectifiers		Ampere	basic
	The sum of the deliverable rectifier current				
DA31	Number Of Rectifier Max	Rectifiers	Numbers		basic
	The maximum possible number of rectifier in this dc system				
DA32	Number Of Present Rectifier	Rectifiers	Numbers		basic
	The actual number of present rectifier in this dc system				
DA33	Number Of Absent Rectifier	Rectifiers	Numbers		basic
	The actual number of absent rectifier in this dc system				
DA34	Number Of Active Rectifier	Rectifiers	Numbers		basic
	The actual number of active rectifier in this dc system. An active rectifier is a rectifier which is present, DC OK, AC OK and not in remote off.				
DA35	Number Of AC-Fail Rectifier	Rectifiers	Numbers		basic
	The actual number or rectifier in AC Failure.				
DA36	Number Of DC-Fail Rectifier	Rectifiers	Numbers		basic
	The actual number or rectifier with DC Failure.				
DA37	Number Of Remote Off Rectifier	Rectifiers	Numbers		basic
	The actual number or rectifier in remote off.				

DA38	Number Of Over Temperature Rectifier	Rectifiers	Numbers		basic
	The actual number or rectifier in Over Temperature.				
DA51	Load Power	Load		Watt	basic
	Estimation of the load power consumption				
DA52	Load Current	Load		Ampere	basic
	Estimation of the load current consumption				
DA61	Battery Input Current	Battery		Ampere	basic
	Measurement of the battery input current. A negative value means that the battery is discharging				
DA62	Battery Input Power	Battery		Watt	basic
	Measurement of the battery input power. A negative value means that the battery is discharging				
DA71	Battery Temperature	Battery	Temperature	degree C	basic
	The battery temperature				
DA72	Battery Test State	Battery	Battery Test		basic
	This is about the result of the last battery test. 10 values are possible : 'Never Tested'(0), 'Success'(1), 'On Going'(2), 'Failed: Timeout'(3), 'Failed: Vbus Too Low'(4), 'Failed: Load Too Low'(5), 'Failed: Ac Failure'(6), 'Failed: Canceled' (7), 'Failed: Lvd Opened'(8), 'Failed: No Battery'(9)				
DA73	Last Battery Test Discharged Capacity Ratio	Battery	Battery Test	%	basic
	This is the battery capacity, in percent, discharged during the last battery test. This value is updated at the end of the battery test.				
DA74	Last Battery Test Discharged Capacity	Battery	Battery Test	Ah	basic
	This is the battery capacity, in ampere hour, discharged during the last battery test. This value is updated at the end of the battery test.				
DA75	Last Battery Test Final Voltage	Battery	Battery Test	Volt	basic
	This is the bus voltage at the end of the last battery test. This value is updated at the end of the battery test.				
DA76	Battery Test Duration	Battery	Battery Test	minute	basic
	The duration of the last battery test. This value is updated at the end of the battery test. This value can't be higher than 1440 minutes (24 hours).				
DA77	Previous Battery Test Discharged Capacity Ratio	Battery	Battery Test	%	basic
	This is the battery capacity, in percent, discharged during the previous battery test. This value is shifted at the end of the battery test.				
DA78	Previous Battery Test Discharged Capacity	Battery	Battery Test	Ah	basic
	This is the battery capacity, in ampere hour, discharged during the previous battery test. This value is shifted at the end of the battery test.				
DA79	Previous Battery Test Final Voltage	Battery	Battery Test	Volt	basic
	This is the bus voltage at the end of the previous battery test. This value is shifted at the end of the battery test.				
DA80	Previous Battery Test Duration	Battery	Battery Test	minute	basic
	The duration of the previous battery test. This value is shifted at the end of the battery test. This value can't be higher than 1440 minutes (24 hours).				
DA81	Previous Battery Test State	Battery	Battery Test		basic
	The result of the previous battery test - 10 values are possible: 'Never Tested'(0), 'Success'(1), 'On Going'(2), 'Failed: Timeout'(3), 'Failed: Vbus Too Low'(4), 'Failed: Load Too Low'(5), 'Failed: Ac Failure'(6), 'Failed: Canceled', 'Failed: Lvd Opened'(8), 'Failed: No Battery'(9)				
DA82	Minutes Since Last Test Battery	Battery	Battery Test	minute	basic
	The number of minute since the end of last battery test				
DA84	Next Scheduled Battery Test	Battery	Battery Test		basic
	The date and time of the next time the scheduled battery test will run				

DA91	Battery Charge Capacity	Battery	Autonomy	%	basic
	The battery charge capacity, calculated by integration of the current.				
DA92	Calculated Autonomy	Battery	Autonomy	minute	basic
	Calculation of the remaining autonomy. This value can change following the load of your system and the maximal depth of discharge configuration (CF39).				
DA94	Battery Current Integration	Battery	Autonomy	Ah	basic
	Actual value of the integration of the current, in Ampere * hour				
DA101	LVD State	LVD			basic
	Actual state of the LVD				
DA111	Relay 1 State	Relays	Relay 1		basic
	Actual state of the Relay 1				
DA112	Relay 2 State	Relays	Relay 2		basic
	Actual state of the Relay 2				
DA113	Relay 3 State	Relays	Relay 3		basic
	Actual state of the Relay 3				
DA114	Relay 4 State	Relays	Relay 4		basic
	Actual state of the Relay 3				
DA121	Efficiency Optimized Number Of Rectifier	Smart Energy			asset
	The optimal number of ON rectifier for Efficiency Optimization				
DA122	System Loss Without Optimization	Smart Energy		Watt	underdev
	Estimation of the losses without optimisation				
DA123	System Loss With Optimization	Smart Energy		Watt	underdev
	Estimation of the losses with optimisation				
DA124	Rectifier Model Used For Calculation	Smart Energy			asset
	The rectifier model used				
DA125	Smart Energy Savings	Smart Energy		Watt	asset
	Estimation of the losses with optimisation				
DA161	Voltage 1	Sensors	Voltage 1	Volt	basic
	The voltage measured by the sense 1. Can be used for battery symmetry measurement. Calculation can be done with the PLC				
DA162	Voltage 2	Sensors	Voltage 2	Volt	basic
	The voltage measured by the sense 2. Can be used for battery symmetry measurement. Calculation can be done with the PLC				
DA163	Voltage 3	Sensors	Voltage 3	Volt	basic
	The voltage measured by the sense 3. Can be used for battery symmetry measurement. Calculation can be done with the PLC				
DA211	Battery 1 LVD State	Battery	Battery 1		basic
DA212	Battery 2 LVD State	Battery	Battery 2		basic
DA213	Battery 3 LVD State	Battery	Battery 3		basic
DA214	Battery 4 LVD State	Battery	Battery 4		basic
DA221	Battery 1 Current	Battery	Battery 1	Ampere	basic
DA222	Battery 2 Current	Battery	Battery 2	Ampere	basic

DA223	Battery 3 Current	Battery	Battery 3	Ampere	basic
DA224	Battery 4 Current	Battery	Battery 4	Ampere	basic
DA231	Battery 1 Capacity	Battery	Battery 1	Ah	basic
DA232	Battery 2 Capacity	Battery	Battery 2	Ah	basic
DA233	Battery 3 Capacity	Battery	Battery 3	Ah	basic
DA234	Battery 4 Capacity	Battery	Battery 4	Ah	basic

Config Table						
Id	Name	Group	SubGroup	Unit	Range: Min/Max (default)	License
CF1	DC Bus Float Voltage at 25 degC	DC Bus		Volt	40/60 (54)	basic
	The floating dc bus voltage of the system at 25 Celsius degree					
CF2	DC Bus Voltage Extra Low	DC Bus	Alarm Parameters	Volt	40/60 (45)	basic
	The bus voltage under which the alarm 'DC Bus Voltage Extra Low' is set.					
CF3	DC Bus Voltage Extra Low Hysteresis	DC Bus	Alarm Parameters	Volt	0/5 (1)	basic
	The voltage hysteresis on the alarm 'DC Bus Voltage Extra Low'.					
CF4	DC Bus Voltage Low	DC Bus	Alarm Parameters	Volt	40/60 (48)	basic
	The bus voltage under which the alarm 'DC Bus Voltage Low' is set.					
CF5	DC Bus Voltage Low Hysteresis	DC Bus	Alarm Parameters	Volt	0/5 (0.5)	basic
	The voltage hysteresis on the alarm 'DC Bus Voltage Low					
CF6	DC Bus Voltage High	DC Bus	Alarm Parameters	Volt	40/60 (56.5)	basic
	The bus voltage over which the alarm 'DC Bus Voltage High' is set.					
CF7	DC Bus Voltage High Hysteresis	DC Bus	Alarm Parameters	Volt	0/5 (0.5)	basic
	The voltage hysteresis on the alarm 'DC Bus Voltage High					
CF8	DC Bus Voltage Extra High	DC Bus	Alarm Parameters	Volt	40/60 (58)	basic
	The bus voltage over which the alarm 'DC Bus Voltage Extra High' is set.					
CF9	DC Bus Voltage Extra High Hysteresis	DC Bus	Alarm Parameters	Volt	0/5 (0.5)	basic
	The voltage hysteresis on the alarm 'DC Bus Voltage Extra High					
CF10	LVD Disconnect Voltage	LVD		Volt	0/50 (43.2)	basic
	The dc bus voltage under which the battery must be disconnected of the bus. This allows preserving the battery life. The load will be unpowered. This value has to be lower than the Battery test end voltage (CF70)					
CF11	LVD Disconnect Delay	LVD		second	1/2000 (1)	basic
	The delay in second before disconnecting the battery if the dc bus voltage is under the configured disconnected voltage. This avoids disconnection during a low bus transient.					
CF21	Temperature Compensation Slope	Battery	Temperature Compensation	mV/degree	-1000/0 (-72)	basic

	The slope of the battery temperature compensation in mv/degree. For a 48V system, -72mV/degree is often used.					
CF22	Maximum Positive Temperature Compensation	Battery	Temperature Compensation	Volt	0/10 (3)	basic
	The maximal allowed positive compensation.					
CF23	Maximum Negative Temperature Compensation	Battery	Temperature Compensation	Volt	-10/0 (-3)	basic
	The maximal allowed negative compensation.					
CF25	Minimal Number Of Present Rectifiers	Rectifiers	Alarm Parameters		0/100 (0)	basic
	The minimal number of rectifier which must be present. If there is less present rectifiers, the alarm 'Missing Rectifiers' is set.					
CF26	Rectifier Model	Rectifiers				basic
	The rectifier model					
CF27	Forced Remote Off Rectifiers	Rectifiers	Remote Off			basic
	A list of rectifier which are forced in remote off. The id of the rectifier must be coma separated. Ex: 1,3 will maintain rectifier 1 and 3 off.					
CF28	Rectifier CAN Node IDs Range	Rectifiers				basic
CF29	Rectifier Ids Declared	Rectifiers				basic
CF31	Battery Charge Current Limit	Battery	Battery Charge Parameters	Ampere	0.5/1000 (1000)	basic
	The maximal battery current when the battery is charging. The monitoring regulates the bus voltage in order to satisfy this condition. This parameter is often equal to the nominal battery capacity divided by 10.					
CF32	Battery String Capacity	Battery		Ah	3/1000 (100)	basic
	The battery capacity in Ah.					
CF33	Battery Temperature Low	Battery	Alarm Parameters	degree C	-100/20 (0)	basic
	The temperature under which the alarm 'Battery Temperature Too Low' must be set.					
CF34	Battery Temperature High	Battery	Alarm Parameters	degree C	5/100 (40)	basic
	The temperature over which the alarm 'Battery Temperature Too High' must be set.					
CF35	Battery Temperature Hysteresis	Battery	Alarm Parameters	degree C	0/10 (2)	basic
	The hysteresis on the 'Battery Temperature Too High' and 'Battery Temperature Too Low' alarms.					
CF36	Minimal Current For Discharging Alarm	Battery	Alarm Parameters	Ampere	0/1000 (2)	basic
	The minimal discharging current to set the 'Battery On Discharge' alarm.					
CF37	Current Hysteresis For Discharging Alarm	Battery	Alarm Parameters	Ampere	0/50 (0.5)	basic
	The hysteresis on the 'Battery On Discharge' alarm.					
CF38	Peukert Number	Battery	Autonomy		1/2 (1)	basic
	The Peukert number relates to the internal resistance of a battery and provides an indication of the expected capacity. The ideal number is 1. This value can be calculated with the formula: $(\ln(t_2) - \ln(t_1)) / (\ln(i_1) - \ln(i_2))$ where t_x is the autonomy in hours at a constant discharge current of i_x Amps. Often, we use $t_1 = 1h$ and $t_2 = 10h$					

CF39	Max Depth Of Discharge for Autonomy Estimation	Battery	Autonomy		10/100 (100)	basic
	It is generally recommended to discharge maximum 60% of the battery capacity to enhance battery lifetime. By default, 100% is used for autonomy calculation. This parameter can also be used to take into account the age of the battery					
CF40	Number of Battery String	Battery			1-3 or 0-2	basic
	The Number of Battery String in the system					
CF51	Boost Automatic	Battery	Boost		False/False (False)	battery
	The boost mode must be automatically after the fact that during a mains failure, the bus voltage went under the configured 'Boost Activation Low Voltage'. This allows charging the battery faster.					
CF52	Boost Activation Low Voltage	Battery	Boost	Volt	43/50 (46)	battery
	The voltage under which the boost mode can be activated.					
CF53	Boost Termination Voltage	Battery	Boost	Volt	50/58 (56.4)	battery
	The voltage over which the system must go back to floating mode.					
CF54	Boost Termination Current	Battery	Boost	Ampere	0/100 (2)	battery
	The battery charging current under which the system must go back to floating mode.					
CF55	Boost Termination Time	Battery	Boost	minute	10/240 (120)	battery
	The time in minute after which the system must go back in floating mode.					
CF69	Battery Test Type	Battery	Battery Test			battery
	Type of the battery test: Capacity based: The battery must give the requested capacity before falling lower than a value Time Based: The battery must sustain a defined load during a defined time.					
CF70	Battery Test End Voltage	Battery	Battery Test	Volt	30/60 (46)	battery
	The voltage at which any battery test must be stopped. This value has to be higher than the LVD Disconnect voltage (CF10)					
CF71	Battery Test Discharge Ratio	Battery	Battery Test	%	0/100 (0)	battery
	The ratio of the battery capacity to discharge. If 30 is set, 30% of the battery will be discharged during the test					
CF72	Battery Test Interval	Battery	Battery Test	day	0/3000 (0)	battery
	The number of days between two automatically started battery test. If this parameter is set to 0, the battery test is not started automatically. The user can remotely or locally start or force this test.					
CF73	Battery Test Discharge Current	Battery	Battery Test	Ampere	3/100 (1000)	battery
	The current at which the battery must be discharged during a battery test. The monitoring regulates the bus voltage in order to satisfy this condition. The load current must be of course higher than this parameter.					
CF74	Battery Test Minimal Discharge Current	Battery	Battery Test	Ampere	2/90 (2)	battery
	The battery current under which the battery test must be stopped because the load is too low.					
CF75	Battery Test Duration	Battery	Battery Test	minute	1/5000 (10)	battery
	The timeout in minute after which the battery test must be stopped.					
CF76	Battery Test Requested Minutes Without Mains Failure	Battery	Battery Test	minute	0/5000 (1440)	battery
	The minimal time in minute without mains failure in order to allow a battery start. This parameter is not taken into account when the battery test is forced.					
CF77	Battery Test Scheduler Cron Rule	Battery	Battery Test			basic

CF78	Battery Test Disable Low Voltage Alarms	Battery	Battery Test	minute	0/1000 (0)	basic
	Allow to disable the alarms AL1 and AL2 during a battery test if value >0. Settings 15 means disabling for 15 minutes after the battery test end, to avoid alarms during recharge also					
CF83	Smart Energy Boolean Condition	Smart Energy				asset
	This is the boolean condition which allows or not to automatically optimize the number of rectifier in remote off.					
CF86	Battery LVD Node Id	LVD			True/False (False)	basic
	This is a list of the node id of the Smart Electronic LVDs, coma separated					
CF111	Dry Alarm 1 Alternative Boolean Condition	Relays	Relay 1			plc
	Another Boolean condition to activate the dry alarm relay 1. The way to define boolean condition is detailed in the PLC chapter.					
CF112	Dry Alarm 2 Alternative Boolean Condition	Relays	Relay 2			plc
	Another Boolean condition to activate the dry alarm relay 2. The way to define boolean condition is detailed in the PLC chapter.					
CF113	Dry Alarm 3 Alternative Boolean Condition	Relays	Relay 3			plc
	Another Boolean condition to activate the dry alarm relay 3. The way to define boolean condition is detailed in the PLC chapter.					
CF114	Dry Alarm 4 Alternative Boolean Condition	Relays	Relay 4			plc
	Another Boolean condition to activate the dry alarm relay 4. The way to define boolean condition is detailed in the PLC chapter.					
CF161	Forced Remote Off Rectifiers Boolean Condition	Rectifiers	Remote Off			basic
	The boolean PLC conditon to enable the forced remote off					
CF521	Read Access User Numbers	Generic	Allowed Users		(1,2,3,4,5)	basic
	The list of the user numbers which have read access to this equipment. The user numbers are coma separated. The accepted user id are 1,2,3,4 and 5. Ex: 1,3,4					
CF522	Write Access User Numbers	Generic	Allowed Users		()	basic
	The list of the user numbers which have write access to this equipment. This means that these users can modify the configuration element, the alarm settings and use the control elements. The user numbers are coma separated. The accepted user ids are 1,2,3,4 and 5. Ex: 1,3,4					
CF601	Event Table Length	Generic	Events		10/4000 (100)	basic
	The maximum length of the table. The value must be comprised between 10 and 4000					
CF602	Event Table Length By Rectifier	Generic	Events		10/4000 (100)	basic
	The maximum length of the table. The value must be comprised between 10 and 4000					
CF901	Number Of PLC Data	PLC			(0)	plc
	The number of PLC data. Every equipment can manage up to 30 user programmable data. Data elements are automatically added in the data table. Configuration parameters are added to set the PLC Data Name and the PLC Data Mathematical calculation. In order to use these functionalities, you need a license with the 'PLC' module					
CF902	Number Of PLC Alarm	PLC			(0)	plc
	The number of PLC alarm. Every equipment can manage up to 30 user programmable alarms. Alarm elements are automatically added in the alarm table. The alarm parameters are added to set the PLC Alarm					

	Name and the PLC Alarm Boolean condition. In order to use these functionalities, you need a licence with the 'PLC' module

Control Table				
<i>Id</i>	<i>Name</i>	<i>Group</i>	<i>SubGroup</i>	<i>License</i>
CT1	Back To Float	System		basic
	The dc system must go back in floating mode.			
CT2	Start Battery Test	System		battery
	The dc system must start a battery test.			
CT3	Force Battery Test	System		battery
	The dc system must force a battery test.			
CT4	Start Boost Mode	System		battery
	The dc system must go in boost mode.			
CT11	Open The LVD	LVD		basic
	Try to open the LVD. It could not work if the LVD is electronic, and the request will be canceled after 15 sec.			
CT12	Close The LVD	LVD		basic
	The LVD must be closed			
CT21	Correct Battery Current Offset	Battery		basic
CT31	Reset Battery Current Integration	Battery		basic
	Reset the integration of the battery current.			
CT41	Reset Last Battery Test State	Battery		battery
	Reset the state of the last battery test. If an alarm 'Battery Last Test Failed' is set, the alarm will be cleared.			
CT51	Save Configuration In MCU	Save		basic
	Save configuration parameters in the MCU micro-controller. If Compas is not present, the system will be correctly managed.			
CT55	Set MCU Specific Configuration Id	Advanced	Factory	basic
	This control allows to reconfigure the MCU to support specific hardware configuration, with embedded distribution for example			
CT111	Invert Relay 1 State For X Seconds	Relays	Relay 1	basic
	Generate Pulse on relay 1			
CT112	Invert Relay 2 State For X Seconds	Relays	Relay 2	basic
	Generate Pulse on relay 2			
CT113	Invert Relay 3 State For X Seconds	Relays	Relay 3	basic
	Generate Pulse on relay 3			
CT114	Invert Relay 4 State For X Seconds	Relays	Relay 4	basic
	Generate Pulse on relay 4			
CT200	Enable Multi String Management	Battery		battery
	This control allows to reconfigure the MCU to support specific hardware configuration, with embedded distribution for example			
CT501	Clear My Events	Generic	Events	basic
	By writing '1' to this control element, all the events of this equipment will be cleared.			
CT502	Clear All Events	Generic	Events	basic
	By writing '1' to this control element, all the events of this equipment and all the events of all the sub-equipments will be cleared.			
CT511	Add Event	Generic	Events	basic
	This control element adds an event of severity none. The event name is the text written to this control element			
CT512	Add Major Event	Generic	Events	basic

	This control element adds an event of severity major. The event name is the text written to this control element			
CT521	Reset Default Names And Groups	Generic	Renaming	basic
	This control element resets all the element Names, Groups and Subgroups to default values for this equipment			
CT522	Reset Default Names And Groups Recursive	Generic	Renaming	basic
	This control element resets all the element Names, Groups and Subgroups to default values for this equipment and all sub equipments			

15.2.2 MCU1X6

Device Information	
Name	MCU1X6
Short Description	Controller without LCD display
Long Description	Monitoring and control unit with USB and Ethernet port - ACE186 and ACE106 (+24V) lines
Hardware Reference	9413 060 10121
Software Reference	SOFT 000069 XX
Equipment Type	Monitoring Control Unit
ETSI Level	/site/energy_system/dc_system

Description Table				
<i>Id</i>	<i>Name</i>	<i>Group</i>	<i>SubGroup</i>	<i>License</i>
DE1	Description	Description	Custom Description	basic
	A free text zone to write a system description			
DE2	Reference	Description	Custom Description	basic
	A free text zone to write the customer reference of the system			
DE11	Product Name	Description	Product Info	basic
	The product name of the DC system monitoring			
DE12	Hardware Reference	Description	Product Info	basic
	The hardware reference of the DC system monitoring			
DE14	Software Reference	Description	Product Info	asset
	The software reference of the DC system monitoring			
DE16	Serial Number	Description	Product Info	asset
	The serial number of the DC system monitoring			
DE18	Manufacturing Date	Description	Product Info	asset
	The production date of the DC system monitoring			

Alarm Table					
<i>Id</i>	<i>Name</i>	<i>Group</i>	<i>SubGroup</i>	<i>Severity Type (Level)</i>	<i>Set/Clear Delay</i>
AL1	DC Bus Extra Low	DC Bus		major (6)	5 / 2
	The bus voltage is extra low. The alarm is set when the bus voltage is lower than the configuration parameter 'DC Bus Voltage Extra Low'. There is an hysteresis on the alarm : 'DC Bus Voltage Extra Low Hysteresis'. The alarm is not activated when DC mode is 'Battery Test'				
AL2	DC Bus Low	DC Bus		minor (4)	5 / 2

	The bus voltage is low. The alarm is set when the bus voltage is lower than the configuration parameter 'DC Bus Voltage Low'. There is an hysteresis on the alarm : 'DC Bus Voltage Low Hysteresis'				
AL3	DC Bus High	DC Bus		minor (4)	5 / 2
	The bus voltage is high. The alarm is set when the bus voltage is higher than the configuration parameter 'DC Bus Voltage High'. There is an hysteresis on the alarm : 'DC Bus Voltage High Hysteresis'				
AL4	DC Bus Extra High	DC Bus		major (6)	5 / 2
	The bus voltage is extra high. The alarm is set when the bus voltage is higher than the configuration parameter 'DC Bus Voltage Extra High'. There is an hysteresis on the alarm : 'DC Bus Voltage Extra High Hysteresis'				
AL5	DC Bus Voltage Sense Failure	DC Bus		major (6)	5 / 2
	The DC bus voltage sense is defective. The DC bus voltage is unconnected or misconfigured.				
AL6	Mains Failure	AC Bus		minor (4)	5 / 2
	The number of active rectifiers is equal to 0 - All the phases are down				
AL7	Mains Partial Failure	AC Bus		minor (4)	10 / 2
	The number of active rectifiers is greater than 0 and the number of rectifiers in AC failure is greater than 0. Some rectifiers are in AC Failure. It may be caused by an open breaker, a real phase failure, or by a rectifier failure.				
AL8	Mains Low	AC Bus		warning (2)	10 / 2
	The main voltage is low on one or more phases. No rectifier is in AC failure. If MCU master type is 30110, 3096 or 3048M6, an hysteresis _phase123Hysteresis is added to the voltage lower limit				
AL10	One Rectifier Failure	Rectifiers		minor (4)	5 / 2
	One rectifier must be replaced or is not powered correctly. The DC fail alarm of the rectifier is set. The number of rectifier with DC Failure is higher than 0, there is no mains failure, and the 'More Than One Rectifier Failure alarm is not set.'				
AL11	More Than One Rectifier Failure	Rectifiers		major (6)	10 / 2
	There is no mains failure and number of rectifier failures is greater than 1.				
AL12	Missing Rectifiers	Rectifiers		major (6)	5 / 2
	There is not enough rectifier according to the configuration parameter : 'Minimal Number Of Rectifier'				
AL13	Battery Last Test Failed	Battery	Battery Test	minor (3)	5 / 2
	The last battery test did not succeed and was not cancelled. Maybe the battery should be replaced. Check inside the dc system data for more information about the last test.				
AL14	Battery On Discharge	Battery		minor (4)	10 / 2
	The battery is discharging. This means that the load is too high for the installed rectifiers. This alarm is inactive when the system in AC Failure or during a battery test. There is an hysteresis corresponding to battery parameter 'Is discharging current hysteresis'.				
AL17	Battery LVD Relay Open	LVD		major (6)	5 / 2
	The battery Low Voltage Disconnect is open. On Systems without LVD_Status signal, like MCU 1848 or MCU 1x6, the alarm is present only if the signal LVD_COM asks to open the LVD				
AL18	Battery Temperature Too High	Battery	Temperature	minor (3)	5 / 2
	The temperature of the battery is too high and is greater than -600 units. There is an hysteresis corresponding to battery parameter 'Temperature hysteresis'.				
AL19	Battery Temperature Too Low	Battery	Temperature	minor (3)	5 / 2
	The temperature of the battery is too low and is greater than -600 units. There is an hysteresis corresponding to battery parameter 'Temperature hysteresis'.				
AL20	Battery Temperature Sensor Fail	Battery	Temperature	minor (3)	5 / 2
	The battery temperature sensor (NTC) value is inferior to -500 units or superior to 300 units meaning that it is not connected or defective.				
AL21	Ambient Temperature Too High	Sensors	Temperature	minor (0)	5 / 2
	The ambient temperature is too high and is greater than -600 units. There is an hysteresis corresponding to parameter 'Ambient temperature hysteresis'. This alarm is only activated on MCU master types 30110, 3096, 30125, 0024, 0948, 0548, 0348, 0948 and 3048M6.				

AL22	Ambient Temperature Too Low	Sensors	Temperature	minor (0)	5 / 2
	The ambient temperature is too low and is greater than -600 units. There is an hysteresis corresponding to parameter 'Ambient temperature hysteresis'. This alarm is only activated on MCU master types 30110, 3096, 30125, 0024, 0948, 0548, 0348, 0948 and 3048M6.				
AL23	Ambient Temperature Sensor Fail	Sensors	Temperature	minor (0)	5 / 2
	The ambient temperature sensor (NTC) value is inferior to -500 units meaning that it is not connected or defective.				
AL25	Distribution Breaker Open	Digital Inputs		major (6)	5 / 2
	This alarm is related to digital input 1. This alarm is activated if digital input value is different to configuration parameter 'Digital Input Alarm Value'				
AL26	Battery Breaker Open	Digital Inputs		minor (4)	5 / 2
	This alarm is related to digital input 2. This alarm is activated if digital input value is different to configuration parameter 'Digital Input Alarm Value'				
AL27	Digital Input 3	Digital Inputs		none (0)	5 / 2
	This alarm is related to digital input 3. This alarm is activated if digital input value is different to configuration parameter 'Digital Input Alarm Value'				
AL28	Digital Input 4	Digital Inputs		none (0)	5 / 2
	This alarm is related to digital input 4. This alarm is activated if digital input value is different to configuration parameter 'Digital Input Alarm Value'				
AL29	Digital Input 5	Digital Inputs		disabled (0)	5 / 2
	This alarm is related to digital input 5. This alarm is activated if digital input value is different to configuration parameter 'Digital Input Alarm Value'				
AL30	Digital Input 6	Digital Inputs		disabled (0)	5 / 2
	This alarm is related to digital input 6. This alarm is activated if digital input value is different to configuration parameter 'Digital Input Alarm Value'				
AL31	Digital Input 7	Digital Inputs		disabled (0)	5 / 2
	This alarm is related to digital input 7. This alarm is activated if digital input value is different to configuration parameter 'Digital Input Alarm Value'				
AL32	Digital Input 8	Digital Inputs		disabled (0)	5 / 2
	This alarm is related to digital input 8. This alarm is activated if digital input value is different to configuration parameter 'Digital Input Alarm Value'				

Data Table					
<i>Id</i>	<i>Name</i>	<i>Group</i>	<i>SubGroup</i>	<i>Unit</i>	<i>License</i>
DA1	DC Mode	System			basic
	The DC system can have 5 values: 'Float'(0), 'Equalize'(1), 'Battery Test'(2), 'Ac Failure'(3) or 'Safe'(5)				
DA2	Previous DC Mode	System			basic
	The previous value of the DC Mode : 'Float'(0), 'Equalize'(1), 'Battery Test'(2), 'Ac Failure'(3) or 'Safe'(5)				
DA3	Minutes Since Last Mode Change	System		minute	basic
	The number of minute between the last DC Mode Change and now				
DA4	NiMH Charge Mode	System			basic
DA11	Bus Voltage	DC Bus		Volt	basic
	The DC bus voltage in volt.				
DA12	Ratio Delivered On Available Power	System		%	basic
	This is the ratio of the delivered power divided by the installed power, in %.				

DA13	Minutes Since Last AC Failure Begin	AC Bus		minute	basic
	The number of minute since the last AC Failure begin				
DA14	Minutes Since Last AC Failure End	AC Bus		minute	basic
	The number of minute since the last AC Failure end				
DA21	Rectifiers Output Power	Rectifiers		Watt	basic
	The sum of the delivered rectifier power				
DA22	Rectifiers Output Current	Rectifiers		Ampere	basic
	The sum of the delivered rectifier current				
DA23	Rectifiers Output Power Max	Rectifiers		Watt	basic
	The sum of the deliverable rectifier power				
DA24	Rectifiers Output Current Max	Rectifiers		Ampere	basic
	The sum of the deliverable rectifier current				
DA31	Number Of Rectifier Max	Rectifiers	Numbers		basic
	The maximum possible number of rectifier in this dc system				
DA32	Number Of Present Rectifier	Rectifiers	Numbers		basic
	The actual number of present rectifier in this dc system				
DA33	Number Of Absent Rectifier	Rectifiers	Numbers		basic
	The actual number of absent rectifier in this dc system				
DA34	Number Of Active Rectifier	Rectifiers	Numbers		basic
	The actual number of active rectifier in this dc system. An active rectifier is a rectifier which is present, DC OK, AC OK and not in remote off.				
DA35	Number Of AC-Fail Rectifier	Rectifiers	Numbers		basic
	The actual number or rectifier in AC Failure.				
DA36	Number Of DC-Fail Rectifier	Rectifiers	Numbers		basic
	The actual number or rectifier with DC Failure.				
DA37	Number Of Remote Off Rectifier	Rectifiers	Numbers		basic
	The actual number or rectifier in remote off.				
DA38	Number Of Over Temperature Rectifier	Rectifiers	Numbers		basic
	The actual number or rectifier in Over Temperature.				
DA51	Load Power	Load		Watt	basic
	Estimation of the load power consumption				
DA52	Load Current	Load		Ampere	basic
	Estimation of the load current consumption				
DA61	Battery Input Current	Battery		Ampere	basic
	Measurement of the battery input current. A negative value means that the battery is discharging				
DA62	Battery Input Power	Battery		Watt	basic
	Measurement of the battery input power. A negative value means that the battery is discharging				
DA71	Battery Temperature	Battery	Temperature	degree C	basic
	The battery temperature				
DA72	Battery Test State	Battery	Battery Test		basic
	This is about the result of the last battery test. 10 values are possible : 'Never Tested'(0), 'Success'(1), 'On Going'(2), 'Failed: Timeout'(3), 'Failed: Vbus Too Low'(4), 'Failed: Load Too Low'(5), 'Failed: Ac Failure'(6), 'Failed: Canceled' (7), 'Failed: Lvd Opened'(8), 'Failed: No Battery'(9)				
DA73	Last Battery Test Discharged Capacity Ratio	Battery	Battery Test	%	basic
	This is the battery capacity, in percent, discharged during the last battery test. This value is updated at the end of the battery test.				

DA74	Last Battery Test Discharged Capacity	Battery	Battery Test	Ah	basic
	This is the battery capacity, in ampere hour, discharged during the last battery test. This value is updated at the end of the battery test.				
DA75	Last Battery Test Final Voltage	Battery	Battery Test	Volt	basic
	This is the bus voltage at the end of the last battery test. This value is updated at the end of the battery test.				
DA76	Battery Test Duration	Battery	Battery Test	minute	basic
	The duration of the last battery test. This value is updated at the end of the battery test. This value can't be higher than 1440 minutes (24 hours).				
DA77	Previous Battery Test Discharged Capacity Ratio	Battery	Battery Test	%	basic
	This is the battery capacity, in percent, discharged during the previous battery test. This value is shifted at the end of the battery test.				
DA78	Previous Battery Test Discharged Capacity	Battery	Battery Test	Ah	basic
	This is the battery capacity, in ampere hour, discharged during the previous battery test. This value is shifted at the end of the battery test.				
DA79	Previous Battery Test Final Voltage	Battery	Battery Test	Volt	basic
	This is the bus voltage at the end of the previous battery test. This value is shifted at the end of the battery test.				
DA80	Previous Battery Test Duration	Battery	Battery Test	minute	basic
	The duration of the previous battery test. This value is shifted at the end of the battery test. This value can't be higher than 1440 minutes (24 hours).				
DA81	Previous Battery Test State	Battery	Battery Test		basic
	The result of the previous battery test - 10 values are possible: 'Never Tested'(0), 'Success'(1), 'On Going'(2), 'Failed: Timeout'(3), 'Failed: Vbus Too Low'(4), 'Failed: Load Too Low'(5), 'Failed: Ac Failure'(6), 'Failed: Canceled', 'Failed: Lvd Opened'(8), 'Failed: No Battery'(9)				
DA82	Minutes Since Last Test Battery	Battery	Battery Test	minute	basic
	The number of minute since the end of last battery test				
DA84	Next Scheduled Battery Test	Battery	Battery Test		basic
	The date and time of the next time the scheduled battery test will run				
DA91	Battery Charge Capacity	Battery	Autonomy	%	basic
	The battery charge capacity, calculated by integration of the current.				
DA92	Calculated Autonomy	Battery	Autonomy	minute	basic
	Calculation of the remaining autonomy. This value can change following the load of your system and the maximal depth of discharge configuration (CF39).				
DA94	Battery Current Integration	Battery	Autonomy	Ah	basic
	Actual value of the integration of the current, in Ampere * hour				
DA101	LVD State	LVD			basic
	Actual state of the LVD				
DA111	Relay 1 State	Relays	Relay 1		basic
	Actual state of the Relay 1				
DA112	Relay 2 State	Relays	Relay 2		basic
	Actual state of the Relay 2				
DA113	Relay 3 State	Relays	Relay 3		basic
	Actual state of the Relay 3				
DA114	Relay 4 State	Relays	Relay 4		basic
	Actual state of the Relay 3				
DA121	Efficiency Optimized Number Of Rectifier	Smart Energy			asset
	The optimal number of ON rectifier for Efficiency Optimization				

DA122	System Loss Without Optimization	Smart Energy		Watt	underdev
	Estimation of the losses without optimisation				
DA123	System Loss With Optimization	Smart Energy		Watt	underdev
	Estimation of the losses with optimisation				
DA124	Rectifier Model Used For Calculation	Smart Energy			asset
	The rectifier model used				
DA125	Smart Energy Savings	Smart Energy		Watt	asset
	Estimation of the losses with optimisation				
DA151	Ambient Temperature	Sensors	Temperature	degree C	basic
	The ambient temperature (second temperature sense)				
DA161	Voltage 1	Sensors	Voltage 1	Volt	basic
	The voltage measured by the sense 1. Can be used for battery symmetry measurement. Calculation can be done with the PLC				
DA162	Voltage 2	Sensors	Voltage 2	Volt	basic
	The voltage measured by the sense 2. Can be used for battery symmetry measurement. Calculation can be done with the PLC				
DA163	Voltage 3	Sensors	Voltage 3	Volt	basic
	The voltage measured by the sense 3. Can be used for battery symmetry measurement. Calculation can be done with the PLC				
DA204	Pulse Counter 4	Sensors	Pulse Counter 4		basic
	The counter value of the digital input 4.				

Config Table						
<i>Id</i>	<i>Name</i>	<i>Group</i>	<i>SubGroup</i>	<i>Unit</i>	<i>Range: Min/Max (default)</i>	<i>License</i>
CF1	DC Bus Float Voltage at 25 degC	DC Bus		Volt	40/60 (54)	basic
	The floating dc bus voltage of the system at 25 Celsius degree					
CF2	DC Bus Voltage Extra Low	DC Bus	Alarm Parameters	Volt	40/60 (45)	basic
	The bus voltage under which the alarm 'DC Bus Voltage Extra Low' is set.					
CF3	DC Bus Voltage Extra Low Hysteresis	DC Bus	Alarm Parameters	Volt	0/5 (1)	basic
	The voltage hysteresis on the alarm 'DC Bus Voltage Extra Low'.					
CF4	DC Bus Voltage Low	DC Bus	Alarm Parameters	Volt	40/60 (48)	basic
	The bus voltage under which the alarm 'DC Bus Voltage Low' is set.					
CF5	DC Bus Voltage Low Hysteresis	DC Bus	Alarm Parameters	Volt	0/5 (0.5)	basic
	The voltage hysteresis on the alarm 'DC Bus Voltage Low					
CF6	DC Bus Voltage High	DC Bus	Alarm Parameters	Volt	40/60 (56.5)	basic
	The bus voltage over which the alarm 'DC Bus Voltage High' is set.					
CF7	DC Bus Voltage High Hysteresis	DC Bus	Alarm Parameters	Volt	0/5 (0.5)	basic
	The voltage hysteresis on the alarm 'DC Bus Voltage High					
CF8	DC Bus Voltage Extra High	DC Bus	Alarm Parameters	Volt	40/60 (58)	basic
	The bus voltage over which the alarm 'DC Bus Voltage Extra High' is set.					

CF9	DC Bus Voltage Extra High Hysteresis	DC Bus	Alarm Parameters	Volt	0/5 (0.5)	basic
	The voltage hysteresis on the alarm 'DC Bus Voltage Extra High'					
CF10	LVD Disconnect Voltage	LVD		Volt	0/50 (43.2)	basic
	The dc bus voltage under which the battery must be disconnected of the bus. This allows preserving the battery life. The load will be unpowered. This value has to be lower than the Battery test end voltage (CF70)					
CF11	LVD Disconnect Delay	LVD		second	1/2000 (1)	basic
	The delay in second before disconnecting the battery if the dc bus voltage is under the configured disconnected voltage. This avoids disconnection during a low bus transient.					
CF21	Temperature Compensation Slope	Battery	Temperature Compensation	mV/degree	-1000/0 (-72)	basic
	The slope of the battery temperature compensation in mv/degree. For a 48V system, -72mV/degree is often used.					
CF22	Maximum Positive Temperature Compensation	Battery	Temperature Compensation	Volt	0/10 (3)	basic
	The maximal allowed positive compensation.					
CF23	Maximum Negative Temperature Compensation	Battery	Temperature Compensation	Volt	-10/0 (-3)	basic
	The maximal allowed negative compensation.					
CF25	Minimal Number Of Present Rectifiers	Rectifiers	Alarm Parameters		0/100 (0)	basic
	The minimal number of rectifier which must be present. If there is less present rectifiers, the alarm 'Missing Rectifiers' is set.					
CF26	Rectifier Model	Rectifiers				basic
	The rectifier model					
CF27	Forced Remote Off Rectifiers	Rectifiers	Remote Off			basic
	A list of rectifier which are forced in remote off. The id of the rectifier must be coma separated. Ex: 1,3 will maintain rectifier 1 and 3 off.					
CF31	Battery Charge Current Limit	Battery	Battery Charge Parameters	Ampere	0.5/1000 (1000)	basic
	The maximal battery current when the battery is charging. The monitoring regulates the bus voltage in order to satisfy this condition. This parameter is often equal to the nominal battery capacity divided by 10.					
CF32	Battery String Capacity	Battery		Ah	3/1000 (100)	basic
	The battery capacity in Ah.					
CF33	Battery Temperature Low	Battery	Alarm Parameters	degree C	-100/20 (0)	basic
	The temperature under which the alarm 'Battery Temperature Too Low' must be set.					
CF34	Battery Temperature High	Battery	Alarm Parameters	degree C	5/100 (40)	basic
	The temperature over which the alarm 'Battery Temperature Too High' must be set.					
CF35	Battery Temperature Hysteresis	Battery	Alarm Parameters	degree C	0/10 (2)	basic
	The hysteresis on the 'Battery Temperature Too High' and 'Battery Temperature Too Low' alarms.					
CF36	Minimal Current For Discharging Alarm	Battery	Alarm Parameters	Ampere	0/1000 (3)	basic
	The minimal discharging current to set the 'Battery On Discharge' alarm.					
CF37	Current Hysteresis For Discharging Alarm	Battery	Alarm Parameters	Ampere	0/50 (1)	basic
	The hysteresis on the 'Battery On Discharge' alarm.					
CF38	Peukert Number	Battery	Autonomy		1/2 (1)	basic

	The Peukert number relates to the internal resistance of a battery and provides an indication of the expected capacity. The ideal number is 1. This value can be calculated with the formula: $(\ln(t_2) - \ln(t_1)) / (\ln(i_1) - \ln(i_2))$ where tx is the autonomy in hours at a constant discharge current of ix Amps. Often, we use t1 = 1h and t2 = 10h					
CF39	Max Depth Of Discharge for Autonomy Estimation	Battery	Autonomy		10/100 (100)	basic
	It is generally recommended to discharge maximum 60% of the battery capacity to enhance battery lifetime. By default, 100% is used for autonomy calculation. This parameter can also be used to take into account the age of the battery					
CF41	Shunt Rating At 60mV	Current Sensors	Shunt 1	Ampere	25/5000 (250)	basic
	The rating of the battery shunt at 60mV.					
CF51	Boost Automatic	Battery	Boost		False/False (False)	battery
	The boost mode must be automatically after the fact that during a mains failure, the bus voltage went under the configured 'Boost Activation Low Voltage'. This allows charging the battery faster.					
CF52	Boost Activation Low Voltage	Battery	Boost	Volt	43/50 (46)	battery
	The voltage under which the boost mode can be activated.					
CF53	Boost Termination Voltage	Battery	Boost	Volt	50/58 (56.4)	battery
	The voltage over which the system must go back to floating mode.					
CF54	Boost Termination Current	Battery	Boost	Ampere	0/100 (4)	battery
	The battery charging current under which the system must go back to floating mode.					
CF55	Boost Termination Time	Battery	Boost	minute	10/240 (120)	battery
	The time in minute after which the system must go back in floating mode.					
CF69	Battery Test Type	Battery	Battery Test			battery
	Type of the battery test: Capacity based: The battery must give the requested capacity before falling lower than a value Time Based: The battery must sustain a defined load during a defined time.					
CF70	Battery Test End Voltage	Battery	Battery Test	Volt	30/60 (46)	battery
	The voltage at which any battery test must be stopped. This value has to be higher than the LVD Disconnect voltage (CF10)					
CF71	Battery Test Discharge Ratio	Battery	Battery Test	%	0/100 (0)	battery
	The ratio of the battery capacity to discharge. If 30 is set, 30% of the battery will be discharged during the test					
CF72	Battery Test Interval	Battery	Battery Test	day	0/3000 (0)	battery
	The number of days between two automatically started battery test. If this parameter is set to 0, the battery test is not started automatically. The user can remotely or locally start or force this test.					
CF73	Battery Test Discharge Current	Battery	Battery Test	Ampere	3/100 (1000)	battery
	The current at which the battery must be discharged during a battery test. The monitoring regulates the bus voltage in order to satisfy this condition. The load current must be of course higher than this parameter.					
CF74	Battery Test Minimal Discharge Current	Battery	Battery Test	Ampere	2/90 (2)	battery
	The battery current under which the battery test must be stopped because the load is too low.					
CF75	Battery Test Duration	Battery	Battery Test	minute	1/5000 (10)	battery
	The timeout in minute after which the battery test must be stopped.					
CF76	Battery Test Requested Minutes Without Mains Failure	Battery	Battery Test	minute	0/5000 (1440)	battery

	The minimal time in minute without mains failure in order to allow a battery start. This parameter is not taken into account when the battery test is forced.					
CF77	Battery Test Scheduler Cron Rule	Battery	Battery Test			basic
CF78	Battery Test Disable Low Voltage Alarms	Battery	Battery Test	minute	0/1000 (0)	basic
	Allow to disable the alarms AL1 and AL2 during a battery test if value >0. Settings 15 means disabling for 15 minutes after the battery test end, to avoid alarms during recharge also					
CF83	Smart Energy Boolean Condition	Smart Energy				asset
	This is the boolean condition which allows or not to automatically optimize the number of rectifier in remote off.					
CF86	Battery LVD Node Id	LVD			True/False (False)	basic
	This is a list of the node id of the Smart Electronic LVDs, coma separated					
CF91	Digital Input 1 Name	Digital Inputs	Digital Input 1		Distribution Breaker Open	basic
	The name of the digital input 1					
CF92	Digital Input 1 Normally Closed	Digital Inputs	Digital Input 1		True/False (True)	basic
	True/False value defining if the digital input 1 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF93	Digital Input 2 Name	Digital Inputs	Digital Input 2		Battery Breaker Open	basic
	The name of the digital input 2					
CF94	Digital Input 2 Normally Closed	Digital Inputs	Digital Input 2		True/False (True)	basic
	True/False value defining if the digital input 2 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF95	Digital Input 3 Name	Digital Inputs	Digital Input 3		Digital Input 3	basic
	The name of the digital input 3					
CF96	Digital Input 3 Normally Closed	Digital Inputs	Digital Input 3		True/False (True)	basic
	True/False value defining if the digital input 3 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF97	Digital Input 4 Name	Digital Inputs	Digital Input 4		Digital Input 4	basic
	The name of the digital input 4					
CF98	Digital Input 4 Normally Closed	Digital Inputs	Digital Input 4		True/False (True)	basic
	True/False value defining if the digital input 4 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF99	Digital Input 5 Name	Digital Inputs	Digital Input 5		Digital Input 5	basic
	The name of the digital input 5					
CF100	Digital Input 5 Normally Closed	Digital Inputs	Digital Input 5		True/False (True)	basic
	True/False value defining if the digital input 5 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF101	Digital Input 6 Name	Digital Inputs	Digital Input 6		Digital Input 6	basic
	The name of the digital input 6					
CF102	Digital Input 6 Normally Closed	Digital Inputs	Digital Input 6		True/False (True)	basic
	True/False value defining if the digital input 6 is normally closed. If this digital input is not in this default state, the related alarm is set.					

CF103	Digital Input 7 Name	Digital Inputs	Digital Input 7		Digital Input 7	basic
	The name of the digital input 7					
CF104	Digital Input 7 Normally Closed	Digital Inputs	Digital Input 7		True/False (True)	basic
	True/False value defining if the digital input 7 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF105	Digital Input 8 Name	Digital Inputs	Digital Input 8		Digital Input 8	basic
	The name of the digital input 8					
CF106	Digital Input 8 Normally Closed	Digital Inputs	Digital Input 8		True/False (True)	basic
	True/False value defining if the digital input 8 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF111	Dry Alarm 1 Alternative Boolean Condition	Relays	Relay 1			plc
	Another Boolean condition to activate the dry alarm relay 1. The way to define boolean condition is detailed in the PLC chapter.					
CF112	Dry Alarm 2 Alternative Boolean Condition	Relays	Relay 2			plc
	Another Boolean condition to activate the dry alarm relay 2. The way to define boolean condition is detailed in the PLC chapter.					
CF113	Dry Alarm 3 Alternative Boolean Condition	Relays	Relay 3			plc
	Another Boolean condition to activate the dry alarm relay 3. The way to define boolean condition is detailed in the PLC chapter.					
CF114	Dry Alarm 4 Alternative Boolean Condition	Relays	Relay 4			plc
	Another Boolean condition to activate the dry alarm relay 4. The way to define boolean condition is detailed in the PLC chapter.					
CF131	Ambient Temperature Low	Sensors	Temperature	degree C		basic
	The temperature under which the alarm 'Ambient Temperature Too Low' must be set.					
CF132	Ambient Temperature High	Sensors	Temperature	degree C		basic
	The temperature under which the alarm 'Ambient Temperature Too Low' must be set.					
CF133	Ambient Temperature Hysteresis	Sensors	Temperature	degree C		basic
	The hysteresis on the 'Battery Temperature Too High' and 'Battery Temperature Too Low' alarms.					
CF161	Forced Remote Off Rectifiers Boolean Condition	Rectifiers	Remote Off			basic
	The boolean PLC condition to enable the forced remote off					
CF521	Read Access User Numbers	Generic	Allowed Users		(1,2,3,4,5)	basic
	The list of the user numbers which have read access to this equipment. The user numbers are coma separated. The accepted user id are 1,2,3,4 and 5. Ex: 1,3,4					
CF522	Write Access User Numbers	Generic	Allowed Users		()	basic
	The list of the user numbers which have write access to this equipment. This means that these users can modify the configuration element, the alarm settings and use the control elements. The user numbers are coma separated. The accepted user ids are 1,2,3,4 and 5. Ex: 1,3,4					
CF601	Event Table Length	Generic	Events		10/4000 (100)	basic
	The maximum length of the table. The value must be comprised between 10 and 4000					

CF602	Event Table Length By Rectifier	Generic	Events		10/4000 (100)	basic
	The maximum length of the table. The value must be comprised between 10 and 4000					
CF901	Number Of PLC Data	PLC			(0)	plc
	The number of PLC data. Every equipment can manage up to 30 user programmable data. Data elements are automatically added in the data table. Configuration parameters are added to set the PLC Data Name and the PLC Data Mathematical calculation. In order to use these functionalities, you need a license with the 'PLC' module					
CF902	Number Of PLC Alarm	PLC			(0)	plc
	The number of PLC alarm. Every equipment can manage up to 30 user programmable alarms. Alarm elements are automatically added in the alarm table. The alarm parameters are added to set the PLC Alarm Name and the PLC Alarm Boolean condition. In order to use these functionalities, you need a licence with the 'PLC' module					

Control Table				
<i>Id</i>	<i>Name</i>	<i>Group</i>	<i>SubGroup</i>	<i>License</i>
CT1	Back To Float	System		basic
	The dc system must go back in floating mode.			
CT2	Start Battery Test	System		battery
	The dc system must start a battery test.			
CT3	Force Battery Test	System		battery
	The dc system must force a battery test.			
CT4	Start Boost Mode	System		battery
	The dc system must go in boost mode.			
CT11	Open The LVD	LVD		basic
	Try to open the LVD. It could not work if the LVD is electronic, and the request will be canceled after 15 sec.			
CT12	Close The LVD	LVD		basic
	The LVD must be closed			
CT21	Correct Battery Current Offset	Battery		basic
CT41	Reset Last Battery Test State	Battery		battery
	Reset the state of the last battery test. If an alarm 'Battery Last Test Failed' is set, the alarm will be cleared.			
CT51	Save Configuration In MCU	Save		basic
	Save configuration parameters in the MCU micro-controller. If Compas is not present, the system will be correctly managed.			
CT55	Set MCU Specific Configuration Id	Advanced	Factory	basic
	This control allows to reconfigure the MCU to support specific hardware configuration, with embedded distribution for example			
CT61	Set Digital Input 4 Counter Value	Digital Inputs	Digital Input 4	basic
	Set Counter Value			
CT111	Invert Relay 1 State For X Seconds	Relays	Relay 1	basic
	Generate Pulse on relay 1			
CT112	Invert Relay 2 State For X Seconds	Relays	Relay 2	basic
	Generate Pulse on relay 2			
CT113	Invert Relay 3 State For X Seconds	Relays	Relay 3	basic
	Generate Pulse on relay 3			
CT114	Invert Relay 4 State For X Seconds	Relays	Relay 4	basic
	Generate Pulse on relay 4			
CT501	Clear My Events	Generic	Events	basic
	By writing '1' to this control element, all the events of this equipment will be cleared.			

CT502	Clear All Events	Generic	Events	basic
	By writing '1' to this control element, all the events of this equipment and all the events of all the sub-equipments will be cleared.			
CT511	Add Event	Generic	Events	basic
	This control element adds an event of severity none. The event name is the text written to this control element			
CT512	Add Major Event	Generic	Events	basic
	This control element adds an event of severity major. The event name is the text written to this control element			
CT521	Reset Default Names And Groups	Generic	Renaming	basic
	This control element resets all the element Names, Groups and Subgroups to default values for this equipment			
CT522	Reset Default Names And Groups Recursive	Generic	Renaming	basic
	This control element resets all the element Names, Groups and Subgroups to default values for this equipment and all sub equipments			

15.2.3 MCU1X6M3

Device Information	
Name	MCU1X6M3
Short Description	MCU for rack 3x1800W
Long Description	
Hardware Reference	9413 061 85051
Software Reference	SOFT 000082 XX
Equipment Type	Monitoring Control Unit
ETSI Level	/site/energy_system/dc_system

Description Table				
<i>Id</i>	<i>Name</i>	<i>Group</i>	<i>SubGroup</i>	<i>License</i>
DE1	Description	Description	Custom Description	basic
	A free text zone to write a system description			
DE2	Reference	Description	Custom Description	basic
	A free text zone to write the customer reference of the system			
DE11	Product Name	Description	Product Info	basic
	The product name of the DC system monitoring			
DE12	Hardware Reference	Description	Product Info	basic
	The hardware reference of the DC system monitoring			
DE14	Software Reference	Description	Product Info	asset
	The software reference of the DC system monitoring			
DE16	Serial Number	Description	Product Info	asset
	The serial number of the DC system monitoring			
DE18	Manufacturing Date	Description	Product Info	asset
	The production date of the DC system monitoring			

Alarm Table

<i>Id</i>	<i>Name</i>	<i>Group</i>	<i>SubGroup</i>	<i>Severity Type (Level)</i>	<i>Set/Clear Delay</i>
AL1	DC Bus Extra Low	DC Bus		major (6)	5 / 2
	The bus voltage is extra low. The alarm is set when the bus voltage is lower than the configuration parameter 'DC Bus Voltage Extra Low'. There is an hysteresis on the alarm : 'DC Bus Voltage Extra Low Hysteresis'. The alarm is not activated when DC mode is 'Battery Test'				
AL2	DC Bus Low	DC Bus		minor (4)	5 / 2
	The bus voltage is low. The alarm is set when the bus voltage is lower than the configuration parameter 'DC Bus Voltage Low'. There is an hysteresis on the alarm : 'DC Bus Voltage Low Hysteresis'				
AL3	DC Bus High	DC Bus		minor (4)	5 / 2
	The bus voltage is high. The alarm is set when the bus voltage is higher than the configuration parameter 'DC Bus Voltage High'. There is an hysteresis on the alarm : 'DC Bus Voltage High Hysteresis'				
AL4	DC Bus Extra High	DC Bus		major (6)	5 / 2
	The bus voltage is extra high. The alarm is set when the bus voltage is higher than the configuration parameter 'DC Bus Voltage Extra High'. There is an hysteresis on the alarm : 'DC Bus Voltage Extra High Hysteresis'				
AL5	DC Bus Voltage Sense Failure	DC Bus		major (6)	5 / 2
	The DC bus voltage sense is defective. The DC bus voltage is unconnected or misconfigured.				
AL6	Mains Failure	AC Bus		minor (4)	5 / 2
	The number of active rectifiers is equal to 0 - All the phases are down				
AL7	Mains Partial Failure	AC Bus		minor (4)	10 / 2
	The number of active rectifiers is greater than 0 and the number of rectifiers in AC failure is greater than 0. Some rectifiers are in AC Failure. It may be caused by an open breaker, a real phase failure, or by a rectifier failure.				
AL8	Mains Low	AC Bus		warning (2)	10 / 2
	The main voltage is low on one or more phases. No rectifier is in AC failure. If MCU master type is 30110, 3096 or 3048M6, an hysteresis _phase123Hysteresis is added to the voltage lower limit				
AL10	One Rectifier Failure	Rectifiers		minor (4)	5 / 2
	One rectifier must be replaced or is not powered correctly. The DC fail alarm of the rectifier is set. The number of rectifier with DC Failure is higher than 0, there is no mains failure, and the 'More Than One Rectifier Failure alarm is not set.'				
AL11	More Than One Rectifier Failure	Rectifiers		major (6)	10 / 2
	There is no mains failure and number of rectifier failures is greater than 1.				
AL12	Missing Rectifiers	Rectifiers		major (6)	5 / 2
	There is not enough rectifier according to the configuration parameter : 'Minimal Number Of Rectifier'				
AL13	Battery Last Test Failed	Battery	Battery Test	minor (3)	5 / 2
	The last battery test did not succeed and was not cancelled. Maybe the battery should be replaced. Check inside the dc system data for more information about the last test.				
AL14	Battery On Discharge	Battery		minor (4)	10 / 2
	The battery is discharging. This means that the load is too high for the installed rectifiers. This alarm is inactive when the system in AC Failure or during a battery test. There is an hysteresis corresponding to battery parameter 'Is discharging current hysteresis'.				
AL17	Battery LVD Relay Open	LVD		major (6)	5 / 2
	The battery Low Voltage Disconnect is open. On Systems without LVD_Status signal, like MCU 1848 or MCU 1x6, the alarm is present only if the signal LVD_COM asks to open the LVD				
AL18	Battery Temperature Too High	Battery	Temperature	minor (3)	5 / 2
	The temperature of the battery is too high and is greater than -600 units. There is an hysteresis corresponding to battery parameter 'Temperature hysteresis'.				
AL19	Battery Temperature Too Low	Battery	Temperature	minor (3)	5 / 2
	The temperature of the battery is too low and is greater than -600 units. There is an hysteresis corresponding to battery parameter 'Temperature hysteresis'.				

AL20	Battery Temperature Sensor Fail	Battery	Temperature	minor (3)	5 / 2
	The battery temperature sensor (NTC) value is inferior to -500 units or superior to 300 units meaning that it is not connected or defective.				
AL25	Distribution Breaker Open	Digital Inputs		major (6)	5 / 2
	This alarm is related to digital input 1. This alarm is activated if digital input value is different to configuration parameter 'Digital Input Alarm Value'				
AL26	Battery Breaker Open	Digital Inputs		minor (4)	5 / 2
	This alarm is related to digital input 2. This alarm is activated if digital input value is different to configuration parameter 'Digital Input Alarm Value'				
AL27	Digital Input 3	Digital Inputs		none (0)	5 / 2
	This alarm is related to digital input 3. This alarm is activated if digital input value is different to configuration parameter 'Digital Input Alarm Value'				
AL28	Digital Input 4	Digital Inputs		none (0)	5 / 2
	This alarm is related to digital input 4. This alarm is activated if digital input value is different to configuration parameter 'Digital Input Alarm Value'				

Data Table					
<i>Id</i>	<i>Name</i>	<i>Group</i>	<i>SubGroup</i>	<i>Unit</i>	<i>License</i>
DA1	DC Mode	System			basic
	The DC system can have 5 values: 'Float'(0), 'Equalize'(1), 'Battery Test'(2), 'Ac Failure'(3) or 'Safe'(5)				
DA2	Previous DC Mode	System			basic
	The previous value of the DC Mode : 'Float'(0), 'Equalize'(1), 'Battery Test'(2), 'Ac Failure'(3) or 'Safe'(5)				
DA3	Minutes Since Last Mode Change	System		minute	basic
	The number of minute between the last DC Mode Change and now				
DA4	NiMH Charge Mode	System			basic
DA11	Bus Voltage	DC Bus		Volt	basic
	The DC bus voltage in volt.				
DA12	Ratio Delivered On Available Power	System		%	basic
	This is the ratio of the delivered power divided by the installed power, in %.				
DA13	Minutes Since Last AC Failure Begin	AC Bus		minute	basic
	The number of minute since the last AC Failure begin				
DA14	Minutes Since Last AC Failure End	AC Bus		minute	basic
	The number of minute since the last AC Failure end				
DA21	Rectifiers Output Power	Rectifiers		Watt	basic
	The sum of the delivered rectifier power				
DA22	Rectifiers Output Current	Rectifiers		Ampere	basic
	The sum of the delivered rectifier current				
DA23	Rectifiers Output Power Max	Rectifiers		Watt	basic
	The sum of the deliverable rectifier power				
DA24	Rectifiers Output Current Max	Rectifiers		Ampere	basic
	The sum of the deliverable rectifier current				
DA31	Number Of Rectifier Max	Rectifiers	Numbers		basic
	The maximum possible number of rectifier in this dc system				
DA32	Number Of Present Rectifier	Rectifiers	Numbers		basic
	The actual number of present rectifier in this dc system				
DA33	Number Of Absent Rectifier	Rectifiers	Numbers		basic
	The actual number of absent rectifier in this dc system				

DA34	Number Of Active Rectifier	Rectifiers	Numbers		basic
	The actual number of active rectifier in this dc system. An active rectifier is a rectifier which is present, DC OK, AC OK and not in remote off.				
DA35	Number Of AC-Fail Rectifier	Rectifiers	Numbers		basic
	The actual number or rectifier in AC Failure.				
DA36	Number Of DC-Fail Rectifier	Rectifiers	Numbers		basic
	The actual number or rectifier with DC Failure.				
DA37	Number Of Remote Off Rectifier	Rectifiers	Numbers		basic
	The actual number or rectifier in remote off.				
DA38	Number Of Over Temperature Rectifier	Rectifiers	Numbers		basic
	The actual number or rectifier in Over Temperature.				
DA51	Load Power	Load		Watt	basic
	Estimation of the load power consumption				
DA52	Load Current	Load		Ampere	basic
	Estimation of the load current consumption				
DA61	Battery Input Current	Battery		Ampere	basic
	Measurement of the battery input current. A negative value means that the battery is discharging				
DA62	Battery Input Power	Battery		Watt	basic
	Measurement of the battery input power. A negative value means that the battery is discharging				
DA71	Battery Temperature	Battery	Temperature	degree C	basic
	The battery temperature				
DA72	Battery Test State	Battery	Battery Test		basic
	This is about the result of the last battery test. 10 values are possible : 'Never Tested'(0), 'Success'(1), 'On Going'(2), 'Failed: Timeout'(3), 'Failed: Vbus Too Low'(4), 'Failed: Load Too Low'(5), 'Failed: Ac Failure'(6), 'Failed: Canceled' (7), 'Failed: Lvd Opened'(8), 'Failed: No Battery'(9)				
DA73	Last Battery Test Discharged Capacity Ratio	Battery	Battery Test	%	basic
	This is the battery capacity, in percent, discharged during the last battery test. This value is updated at the end of the battery test.				
DA74	Last Battery Test Discharged Capacity	Battery	Battery Test	Ah	basic
	This is the battery capacity, in ampere hour, discharged during the last battery test. This value is updated at the end of the battery test.				
DA75	Last Battery Test Final Voltage	Battery	Battery Test	Volt	basic
	This is the bus voltage at the end of the last battery test. This value is updated at the end of the battery test.				
DA76	Battery Test Duration	Battery	Battery Test	minute	basic
	The duration of the last battery test. This value is updated at the end of the battery test. This value can't be higher than 1440 minutes (24 hours).				
DA77	Previous Battery Test Discharged Capacity Ratio	Battery	Battery Test	%	basic
	This is the battery capacity, in percent, discharged during the previous battery test. This value is shifted at the end of the battery test.				
DA78	Previous Battery Test Discharged Capacity	Battery	Battery Test	Ah	basic
	This is the battery capacity, in ampere hour, discharged during the previous battery test. This value is shifted at the end of the battery test.				
DA79	Previous Battery Test Final Voltage	Battery	Battery Test	Volt	basic
	This is the bus voltage at the end of the previous battery test. This value is shifted at the end of the battery test.				
DA80	Previous Battery Test Duration	Battery	Battery Test	minute	basic

	The duration of the previous battery test. This value is shifted at the end of the battery test. This value can't be higher than 1440 minutes (24 hours).				
DA81	Previous Battery Test State	Battery	Battery Test		basic
	The result of the previous battery test - 10 values are possible: 'Never Tested'(0), 'Success'(1), 'On Going'(2), 'Failed: Timeout'(3), 'Failed: Vbus Too Low'(4), 'Failed: Load Too Low'(5), 'Failed: Ac Failure'(6), 'Failed: Canceled', 'Failed: Lvd Opened'(8), 'Failed: No Battery'(9)				
DA82	Minutes Since Last Test Battery	Battery	Battery Test	minute	basic
	The number of minute since the end of last battery test				
DA84	Next Scheduled Battery Test	Battery	Battery Test		basic
	The date and time of the next time the scheduled battery test will run				
DA91	Battery Charge Capacity	Battery	Autonomy	%	basic
	The battery charge capacity, calculated by integration of the current.				
DA92	Calculated Autonomy	Battery	Autonomy	minute	basic
	Calculation of the remaining autonomy. This value can change following the load of your system and the maximal depth of discharge configuration (CF39).				
DA94	Battery Current Integration	Battery	Autonomy	Ah	basic
	Actual value of the integration of the current, in Ampere * hour				
DA101	LVD State	LVD			basic
	Actual state of the LVD				
DA111	Relay 1 State	Relays	Relay 1		basic
	Actual state of the Relay 1				
DA112	Relay 2 State	Relays	Relay 2		basic
	Actual state of the Relay 2				
DA113	Relay 3 State	Relays	Relay 3		basic
	Actual state of the Relay 3				
DA114	Relay 4 State	Relays	Relay 4		basic
	Actual state of the Relay 3				
DA121	Efficiency Optimized Number Of Rectifier	Smart Energy			asset
	The optimal number of ON rectifier for Efficiency Optimization				
DA122	System Loss Without Optimization	Smart Energy		Watt	underdev
	Estimation of the losses without optimisation				
DA123	System Loss With Optimization	Smart Energy		Watt	underdev
	Estimation of the losses with optimisation				
DA124	Rectifier Model Used For Calculation	Smart Energy			asset
	The rectifier model used				
DA125	Smart Energy Savings	Smart Energy		Watt	asset
	Estimation of the losses with optimisation				

Config Table						
<i>Id</i>	<i>Name</i>	<i>Group</i>	<i>SubGroup</i>	<i>Unit</i>	<i>Range: Min/Max (default)</i>	<i>License</i>
CF1	DC Bus Float Voltage at 25 degC	DC Bus		Volt	40/60 (54)	basic
	The floating dc bus voltage of the system at 25 Celsius degree					
CF2	DC Bus Voltage Extra Low	DC Bus	Alarm Parameters	Volt	40/60 (45)	basic
	The bus voltage under which the alarm 'DC Bus Voltage Extra Low' is set.					

CF3	DC Bus Voltage Extra Low Hysteresis	DC Bus	Alarm Parameters	Volt	0/5 (1)	basic
	The voltage hysteresis on the alarm 'DC Bus Voltage Extra Low'.					
CF4	DC Bus Voltage Low	DC Bus	Alarm Parameters	Volt	40/60 (48)	basic
	The bus voltage under which the alarm 'DC Bus Voltage Low' is set.					
CF5	DC Bus Voltage Low Hysteresis	DC Bus	Alarm Parameters	Volt	0/5 (0.5)	basic
	The voltage hysteresis on the alarm 'DC Bus Voltage Low					
CF6	DC Bus Voltage High	DC Bus	Alarm Parameters	Volt	40/60 (56.5)	basic
	The bus voltage over which the alarm 'DC Bus Voltage High' is set.					
CF7	DC Bus Voltage High Hysteresis	DC Bus	Alarm Parameters	Volt	0/5 (0.5)	basic
	The voltage hysteresis on the alarm 'DC Bus Voltage High					
CF8	DC Bus Voltage Extra High	DC Bus	Alarm Parameters	Volt	40/60 (58)	basic
	The bus voltage over which the alarm 'DC Bus Voltage Extra High' is set.					
CF9	DC Bus Voltage Extra High Hysteresis	DC Bus	Alarm Parameters	Volt	0/5 (0.5)	basic
	The voltage hysteresis on the alarm 'DC Bus Voltage Extra High					
CF10	LVD Disconnect Voltage	LVD		Volt	0/50 (43.2)	basic
	The dc bus voltage under which the battery must be disconnected of the bus. This allows preserving the battery life. The load will be unpowered. This value has to be lower than the Battery test end voltage (CF70)					
CF11	LVD Disconnect Delay	LVD		second	1/2000 (1)	basic
	The delay in second before disconnecting the battery if the dc bus voltage is under the configured disconnected voltage. This avoids disconnection during a low bus transient.					
CF21	Temperature Compensation Slope	Battery	Temperature Compensation	mV/degree	-1000/0 (-72)	basic
	The slope of the battery temperature compensation in mv/degree. For a 48V system, -72mV/degree is often used.					
CF22	Maximum Positive Temperature Compensation	Battery	Temperature Compensation	Volt	0/10 (3)	basic
	The maximal allowed positive compensation.					
CF23	Maximum Negative Temperature Compensation	Battery	Temperature Compensation	Volt	-10/0 (-3)	basic
	The maximal allowed negative compensation.					
CF25	Minimal Number Of Present Rectifiers	Rectifiers	Alarm Parameters		0/100 (0)	basic
	The minimal number of rectifier which must be present. If there is less present rectifiers, the alarm 'Missing Rectifiers' is set.					
CF26	Rectifier Model	Rectifiers				basic
	The rectifier model					
CF27	Forced Remote Off Rectifiers	Rectifiers	Remote Off			basic
	A list of rectifier which are forced in remote off. The id of the rectifier must be coma separated. Ex: 1,3 will maintain rectifier 1 and 3 off.					
CF31	Battery Charge Current Limit	Battery	Battery Charge Parameters	Ampere	0.5/1000 (1000)	basic
	The maximal battery current when the battery is charging. The monitoring regulates the bus voltage in order to satisfy this condition. This parameter is often equal to the nominal battery capacity divided by 10.					

CF32	Battery String Capacity	Battery		Ah	3/1000 (100)	basic
	The battery capacity in Ah.					
CF33	Battery Temperature Low	Battery	Alarm Parameters	degree C	-100/20 (0)	basic
	The temperature under which the alarm 'Battery Temperature Too Low' must be set.					
CF34	Battery Temperature High	Battery	Alarm Parameters	degree C	5/100 (40)	basic
	The temperature over which the alarm 'Battery Temperature Too High' must be set.					
CF35	Battery Temperature Hysteresis	Battery	Alarm Parameters	degree C	0/10 (2)	basic
	The hysteresis on the 'Battery Temperature Too High' and 'Battery Temperature Too Low' alarms.					
CF36	Minimal Current For Discharging Alarm	Battery	Alarm Parameters	Ampere	0/1000 (3)	basic
	The minimal discharging current to set the 'Battery On Discharge' alarm.					
CF37	Current Hysteresis For Discharging Alarm	Battery	Alarm Parameters	Ampere	0/50 (1)	basic
	The hysteresis on the 'Battery On Discharge' alarm.					
CF38	Peukert Number	Battery	Autonomy		1/2 (1)	basic
	The Peukert number relates to the internal resistance of a battery and provides an indication of the expected capacity. The ideal number is 1. This value can be calculated with the formula: $(\ln(t_2) - \ln(t_1)) / (\ln(i_1) - \ln(i_2))$ where t_x is the autonomy in hours at a constant discharge current of i_x Amps. Often, we use $t_1 = 1h$ and $t_2 = 10h$					
CF39	Max Depth Of Discharge for Autonomy Estimation	Battery	Autonomy		10/100 (100)	basic
	It is generally recommended to discharge maximum 60% of the battery capacity to enhance battery lifetime. By default, 100% is used for autonomy calculation. This parameter can also be used to take into account the age of the battery					
CF51	Boost Automatic	Battery	Boost		False/False (False)	battery
	The boost mode must be automatically after the fact that during a mains failure, the bus voltage went under the configured 'Boost Activation Low Voltage'. This allows charging the battery faster.					
CF52	Boost Activation Low Voltage	Battery	Boost	Volt	43/50 (46)	battery
	The voltage under which the boost mode can be activated.					
CF53	Boost Termination Voltage	Battery	Boost	Volt	50/58 (56.4)	battery
	The voltage over which the system must go back to floating mode.					
CF54	Boost Termination Current	Battery	Boost	Ampere	0/100 (4)	battery
	The battery charging current under which the system must go back to floating mode.					
CF55	Boost Termination Time	Battery	Boost	minute	10/240 (120)	battery
	The time in minute after which the system must go back in floating mode.					
CF69	Battery Test Type	Battery	Battery Test			battery
	Type of the battery test: Capacity based: The battery must give the requested capacity before falling lower than a value Time Based: The battery must sustain a defined load during a defined time.					
CF70	Battery Test End Voltage	Battery	Battery Test	Volt	30/60 (46)	battery
	The voltage at which any battery test must be stopped. This value has to be higher than the LVD Disconnect voltage (CF10)					
CF71	Battery Test Discharge Ratio	Battery	Battery Test	%	0/100 (0)	battery
	The ratio of the battery capacity to discharge. If 30 is set, 30% of the battery will be discharged during the test					

CF72	Battery Test Interval	Battery	Battery Test	day	0/3000 (0)	battery
	The number of days between two automatically started battery test. If this parameter is set to 0, the battery test is not started automatically. The user can remotely or locally start or force this test.					
CF73	Battery Test Discharge Current	Battery	Battery Test	Ampere	3/100 (1000)	battery
	The current at which the battery must be discharged during a battery test. The monitoring regulates the bus voltage in order to satisfy this condition. The load current must be of course higher than this parameter.					
CF74	Battery Test Minimal Discharge Current	Battery	Battery Test	Ampere	2/90 (2)	battery
	The battery current under which the battery test must be stopped because the load is too low.					
CF75	Battery Test Duration	Battery	Battery Test	minute	1/5000 (10)	battery
	The timeout in minute after which the battery test must be stopped.					
CF76	Battery Test Requested Minutes Without Mains Failure	Battery	Battery Test	minute	0/5000 (1440)	battery
	The minimal time in minute without mains failure in order to allow a battery start. This parameter is not taken into account when the battery test is forced.					
CF77	Battery Test Scheduler Cron Rule	Battery	Battery Test			basic
CF78	Battery Test Disable Low Voltage Alarms	Battery	Battery Test	minute	0/1000 (0)	basic
	Allow to disable the alarms AL1 and AL2 during a battery test if value >0. Settings 15 means disabling for 15 minutes after the battery test end, to avoid alarms during recharge also					
CF83	Smart Energy Boolean Condition	Smart Energy				asset
	This is the boolean condition which allows or not to automatically optimize the number of rectifier in remote off.					
CF86	Battery LVD Node Id	LVD			True/False (False)	basic
	This is a list of the node id of the Smart Electronic LVDs, coma separated					
CF91	Digital Input 1 Name	Digital Inputs	Digital Input 1		Distribution Breaker Open	basic
	The name of the digital input 1					
CF92	Digital Input 1 Normally Closed	Digital Inputs	Digital Input 1		True/False (True)	basic
	True/False value defining if the digital input 1 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF93	Digital Input 2 Name	Digital Inputs	Digital Input 2		Battery Breaker Open	basic
	The name of the digital input 2					
CF94	Digital Input 2 Normally Closed	Digital Inputs	Digital Input 2		True/False (True)	basic
	True/False value defining if the digital input 2 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF95	Digital Input 3 Name	Digital Inputs	Digital Input 3		Digital Input 3	basic
	The name of the digital input 3					
CF96	Digital Input 3 Normally Closed	Digital Inputs	Digital Input 3		True/False (True)	basic
	True/False value defining if the digital input 3 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF97	Digital Input 4 Name	Digital Inputs	Digital Input 4		Digital Input 4	basic
	The name of the digital input 4					
CF98	Digital Input 4 Normally Closed	Digital Inputs	Digital Input 4		True/False (True)	basic

	True/False value defining if the digital input 4 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF111	Dry Alarm 1 Alternative Boolean Condition	Relays	Relay 1			plc
	Another Boolean condition to activate the dry alarm relay 1. The way to define boolean condition is detailed in the PLC chapter.					
CF112	Dry Alarm 2 Alternative Boolean Condition	Relays	Relay 2			plc
	Another Boolean condition to activate the dry alarm relay 2. The way to define boolean condition is detailed in the PLC chapter.					
CF113	Dry Alarm 3 Alternative Boolean Condition	Relays	Relay 3			plc
	Another Boolean condition to activate the dry alarm relay 3. The way to define boolean condition is detailed in the PLC chapter.					
CF114	Dry Alarm 4 Alternative Boolean Condition	Relays	Relay 4			plc
	Another Boolean condition to activate the dry alarm relay 4. The way to define boolean condition is detailed in the PLC chapter.					
CF161	Forced Remote Off Rectifiers Boolean Condition	Rectifiers	Remote Off			basic
	The boolean PLC condition to enable the forced remote off					
CF521	Read Access User Numbers	Generic	Allowed Users		(1,2,3,4,5)	basic
	The list of the user numbers which have read access to this equipment. The user numbers are coma separated. The accepted user id are 1,2,3,4 and 5. Ex: 1,3,4					
CF522	Write Access User Numbers	Generic	Allowed Users		()	basic
	The list of the user numbers which have write access to this equipment. This means that these users can modify the configuration element, the alarm settings and use the control elements. The user numbers are coma separated. The accepted user ids are 1,2,3,4 and 5. Ex: 1,3,4					
CF601	Event Table Length	Generic	Events		10/4000 (100)	basic
	The maximum length of the table. The value must be comprised between 10 and 4000					
CF602	Event Table Length By Rectifier	Generic	Events		10/4000 (100)	basic
	The maximum length of the table. The value must be comprised between 10 and 4000					
CF901	Number Of PLC Data	PLC			(0)	plc
	The number of PLC data. Every equipment can manage up to 30 user programmable data. Data elements are automatically added in the data table. Configuration parameters are added to set the PLC Data Name and the PLC Data Mathematical calculation. In order to use these functionalities, you need a license with the 'PLC' module					
CF902	Number Of PLC Alarm	PLC			(0)	plc
	The number of PLC alarm. Every equipment can manage up to 30 user programmable alarms. Alarm elements are automatically added in the alarm table. The alarm parameters are added to set the PLC Alarm Name and the PLC Alarm Boolean condition. In order to use these functionalities, you need a licence with the 'PLC' module					

Control Table				
<i>Id</i>	<i>Name</i>	<i>Group</i>	<i>SubGroup</i>	<i>License</i>
CT1	Back To Float	System		basic
	The dc system must go back in floating mode.			
CT2	Start Battery Test	System		battery
	The dc system must start a battery test.			

CT3	Force Battery Test	System		battery
	The dc system must force a battery test.			
CT4	Start Boost Mode	System		battery
	The dc system must go in boost mode.			
CT11	Open The LVD	LVD		basic
	Try to open the LVD. It could not work if the LVD is electronic, and the request will be canceled after 15 sec.			
CT12	Close The LVD	LVD		basic
	The LVD must be closed			
CT21	Correct Battery Current Offset	Battery		basic
CT41	Reset Last Battery Test State	Battery		battery
	Reset the state of the last battery test. If an alarm 'Battery Last Test Failed' is set, the alarm will be cleared.			
CT51	Save Configuration In MCU	Save		basic
	Save configuration parameters in the MCU micro-controller. If Compas is not present, the system will be correctly managed.			
CT55	Set MCU Specific Configuration Id	Advanced	Factory	basic
	This control allows to reconfigure the MCU to support specific hardware configuration, with embedded distribution for example			
CT111	Invert Relay 1 State For X Seconds	Relays	Relay 1	basic
	Generate Pulse on relay 1			
CT112	Invert Relay 2 State For X Seconds	Relays	Relay 2	basic
	Generate Pulse on relay 2			
CT113	Invert Relay 3 State For X Seconds	Relays	Relay 3	basic
	Generate Pulse on relay 3			
CT114	Invert Relay 4 State For X Seconds	Relays	Relay 4	basic
	Generate Pulse on relay 4			
CT501	Clear My Events	Generic	Events	basic
	By writing '1' to this control element, all the events of this equipment will be cleared.			
CT502	Clear All Events	Generic	Events	basic
	By writing '1' to this control element, all the events of this equipment and all the events of all the sub-equipments will be cleared.			
CT511	Add Event	Generic	Events	basic
	This control element adds an event of severity none. The event name is the text written to this control element			
CT512	Add Major Event	Generic	Events	basic
	This control element adds an event of severity major. The event name is the text written to this control element			
CT521	Reset Default Names And Groups	Generic	Renaming	basic
	This control element resets all the element Names, Groups and Subgroups to default values for this equipment			
CT522	Reset Default Names And Groups Recursive	Generic	Renaming	basic
	This control element resets all the element Names, Groups and Subgroups to default values for this equipment and all sub equipments			

15.2.4 MCU0024

Device Information	
Name	MCU0024

Short Description	MCU for rack 6x1500W +24V
Long Description	
Hardware Reference	9413 000 XXXX
Software Reference	SOFT 000042 XX
Equipment Type	Monitoring Control Unit
ETSI Level	/site/energy_system/dc_system

Description Table				
<i>Id</i>	<i>Name</i>	<i>Group</i>	<i>SubGroup</i>	<i>License</i>
DE1	Description	Description	Custom Description	basic
	A free text zone to write a system description			
DE2	Reference	Description	Custom Description	basic
	A free text zone to write the customer reference of the system			
DE11	Product Name	Description	Product Info	basic
	The product name of the DC system monitoring			
DE12	Hardware Reference	Description	Product Info	basic
	The hardware reference of the DC system monitoring			
DE14	Software Reference	Description	Product Info	asset
	The software reference of the DC system monitoring			
DE16	Serial Number	Description	Product Info	asset
	The serial number of the DC system monitoring			
DE18	Manufacturing Date	Description	Product Info	asset
	The production date of the DC system monitoring			

Alarm Table					
<i>Id</i>	<i>Name</i>	<i>Group</i>	<i>SubGroup</i>	<i>Severity Type (Level)</i>	<i>Set/Clear Delay</i>
AL1	DC Bus Extra Low	DC Bus		major (6)	5 / 2
	The bus voltage is extra low. The alarm is set when the bus voltage is lower than the configuration parameter 'DC Bus Voltage Extra Low'. There is an hysteresis on the alarm : 'DC Bus Voltage Extra Low Hysteresis'. The alarm is not activated when DC mode is 'Battery Test'				
AL2	DC Bus Low	DC Bus		minor (4)	5 / 2
	The bus voltage is low. The alarm is set when the bus voltage is lower than the configuration parameter 'DC Bus Voltage Low'. There is an hysteresis on the alarm : 'DC Bus Voltage Low Hysteresis'				
AL3	DC Bus High	DC Bus		minor (4)	5 / 2
	The bus voltage is high. The alarm is set when the bus voltage is higher than the configuration parameter 'DC Bus Voltage High'. There is an hysteresis on the alarm : 'DC Bus Voltage High Hysteresis'				
AL4	DC Bus Extra High	DC Bus		major (6)	5 / 2
	The bus voltage is extra high. The alarm is set when the bus voltage is higher than the configuration parameter 'DC Bus Voltage Extra High'. There is an hysteresis on the alarm : 'DC Bus Voltage Extra High Hysteresis'				
AL5	DC Bus Voltage Sense Failure	DC Bus		major (6)	5 / 2
	The DC bus voltage sense is defective. The DC bus voltage is unconnected or misconfigured.				
AL6	Mains Failure	AC Bus		minor (4)	5 / 2
	The number of active rectifiers is equal to 0 - All the phases are down				
AL7	Mains Partial Failure	AC Bus		minor (4)	10 / 2

	The number of active rectifiers is greater than 0 and the number of rectifiers in AC failure is greater than 0. Some rectifiers are in AC Failure. It may be caused by an open breaker, a real phase failure, or by a rectifier failure.				
AL8	Mains Low	AC Bus		warning (2)	10 / 2
	The main voltage is low on one or more phases. No rectifier is in AC failure. If MCU master type is 30110, 3096 or 3048M6, an hysteresis _phase123Hysteresis is added to the voltage lower limit				
AL10	One Rectifier Failure	Rectifiers		minor (4)	5 / 2
	One rectifier must be replaced or is not powered correctly. The DC fail alarm of the rectifier is set. The number of rectifier with DC Failure is higher than 0, there is no mains failure, and the 'More Than One Rectifier Failure alarm is not set.'				
AL11	More Than One Rectifier Failure	Rectifiers		major (6)	10 / 2
	There is no mains failure and number of rectifier failures is greater than 1.				
AL12	Missing Rectifiers	Rectifiers		major (6)	5 / 2
	There is not enough rectifier according to the configuration parameter : 'Minimal Number Of Rectifier'				
AL13	Battery Last Test Failed	Battery	Battery Test	minor (3)	5 / 2
	The last battery test did not succeed and was not cancelled. Maybe the battery should be replaced. Check inside the dc system data for more information about the last test.				
AL14	Battery On Discharge	Battery		minor (4)	10 / 2
	The battery is discharging. This means that the load is too high for the installed rectifiers. This alarm is inactive when the system in AC Failure or during a battery test. There is an hysteresis corresponding to battery parameter 'Is discharging current hysteresis'.				
AL17	Battery LVD Relay Open	LVD		major (6)	5 / 2
	The battery Low Voltage Disconnect is open. On Systems without LVD_Status signal, like MCU 1848 or MCU 1x6, the alarm is present only if the signal LVD_COM asks to open the LVD				
AL18	Battery Temperature Too High	Battery	Temperature	minor (3)	5 / 2
	The temperature of the battery is too high and is greater than -600 units. There is an hysteresis corresponding to battery parameter 'Temperature hysteresis'.				
AL19	Battery Temperature Too Low	Battery	Temperature	minor (3)	5 / 2
	The temperature of the battery is too low and is greater than -600 units. There is an hysteresis corresponding to battery parameter 'Temperature hysteresis'.				
AL20	Battery Temperature Sensor Fail	Battery	Temperature	minor (3)	5 / 2
	The battery temperature sensor (NTC) value is inferior to -500 units or superior to 300 units meaning that it is not connected or defective.				
AL21	Ambient Temperature Too High	Sensors	Temperature	minor (0)	5 / 2
	The ambient temperature is too high and is greater than -600 units. There is an hysteresis corresponding to parameter 'Ambient temperature hysteresis'. This alarm is only activated on MCU master types 30110, 3096, 30125, 0024, 0948, 0548, 0348, 0948 and 3048M6.				
AL22	Ambient Temperature Too Low	Sensors	Temperature	minor (0)	5 / 2
	The ambient temperature is too low and is greater than -600 units. There is an hysteresis corresponding to parameter 'Ambient temperature hysteresis'. This alarm is only activated on MCU master types 30110, 3096, 30125, 0024, 0948, 0548, 0348, 0948 and 3048M6.				
AL23	Ambient Temperature Sensor Fail	Sensors	Temperature	minor (0)	5 / 2
	The ambient temperature sensor (NTC) value is inferior to -500 units meaning that it is not connected or defective.				
AL25	Distribution Breaker Open	Digital Inputs		major (6)	5 / 2
	This alarm is related to digital input 1. This alarm is activated if digital input value is different to configuration parameter 'Digital Input Alarm Value'				
AL26	Battery Breaker Open	Digital Inputs		minor (4)	5 / 2
	This alarm is related to digital input 2. This alarm is activated if digital input value is different to configuration parameter 'Digital Input Alarm Value'				
AL27	Digital Input 3	Digital Inputs		none (0)	5 / 2

	This alarm is related to digital input 3. This alarm is activated if digital input value is different to configuration parameter 'Digital Input Alarm Value'				
AL28	Digital Input 4	Digital Inputs		none (0)	5 / 2
	This alarm is related to digital input 4. This alarm is activated if digital input value is different to configuration parameter 'Digital Input Alarm Value'				
AL29	Digital Input 5	Digital Inputs		none (0)	5 / 2
	This alarm is related to digital input 5. This alarm is activated if digital input value is different to configuration parameter 'Digital Input Alarm Value'				
AL30	Digital Input 6	Digital Inputs		none (0)	5 / 2
	This alarm is related to digital input 6. This alarm is activated if digital input value is different to configuration parameter 'Digital Input Alarm Value'				
AL31	Digital Input 7	Digital Inputs		none (0)	5 / 2
	This alarm is related to digital input 7. This alarm is activated if digital input value is different to configuration parameter 'Digital Input Alarm Value'				
AL32	Digital Input 8	Digital Inputs		none (0)	5 / 2
	This alarm is related to digital input 8. This alarm is activated if digital input value is different to configuration parameter 'Digital Input Alarm Value'				

Data Table					
<i>Id</i>	<i>Name</i>	<i>Group</i>	<i>SubGroup</i>	<i>Unit</i>	<i>License</i>
DA1	DC Mode	System			basic
	The DC system can have 5 values: 'Float'(0), 'Equalize'(1), 'Battery Test'(2), 'Ac Failure'(3) or 'Safe'(5)				
DA2	Previous DC Mode	System			basic
	The previous value of the DC Mode : 'Float'(0), 'Equalize'(1), 'Battery Test'(2), 'Ac Failure'(3) or 'Safe'(5)				
DA3	Minutes Since Last Mode Change	System		minute	basic
	The number of minute between the last DC Mode Change and now				
DA4	NiMH Charge Mode	System			basic
DA11	Bus Voltage	DC Bus		Volt	basic
	The DC bus voltage in volt.				
DA12	Ratio Delivered On Available Power	System		%	basic
	This is the ratio of the delivered power divided by the installed power, in %.				
DA13	Minutes Since Last AC Failure Begin	AC Bus		minute	basic
	The number of minute since the last AC Failure begin				
DA14	Minutes Since Last AC Failure End	AC Bus		minute	basic
	The number of minute since the last AC Failure end				
DA21	Rectifiers Output Power	Rectifiers		Watt	basic
	The sum of the delivered rectifier power				
DA22	Rectifiers Output Current	Rectifiers		Ampere	basic
	The sum of the delivered rectifier current				
DA23	Rectifiers Output Power Max	Rectifiers		Watt	basic
	The sum of the deliverable rectifier power				
DA24	Rectifiers Output Current Max	Rectifiers		Ampere	basic
	The sum of the deliverable rectifier current				
DA31	Number Of Rectifier Max	Rectifiers	Numbers		basic
	The maximum possible number of rectifier in this dc system				
DA32	Number Of Present Rectifier	Rectifiers	Numbers		basic
	The actual number of present rectifier in this dc system				

DA33	Number Of Absent Rectifier	Rectifiers	Numbers		basic
	The actual number of absent rectifier in this dc system				
DA34	Number Of Active Rectifier	Rectifiers	Numbers		basic
	The actual number of active rectifier in this dc system. An active rectifier is a rectifier which is present, DC OK, AC OK and not in remote off.				
DA35	Number Of AC-Fail Rectifier	Rectifiers	Numbers		basic
	The actual number or rectifier in AC Failure.				
DA36	Number Of DC-Fail Rectifier	Rectifiers	Numbers		basic
	The actual number or rectifier with DC Failure.				
DA37	Number Of Remote Off Rectifier	Rectifiers	Numbers		basic
	The actual number or rectifier in remote off.				
DA38	Number Of Over Temperature Rectifier	Rectifiers	Numbers		basic
	The actual number or rectifier in Over Temperature.				
DA41	Mains Phase 1 Voltage	AC Bus		Volt	basic
	The voltage on AC phase 1				
DA42	Mains Phase 2 Voltage	AC Bus		Volt	basic
	The voltage on AC phase 2				
DA43	Mains Phase 3 Voltage	AC Bus		Volt	basic
	The voltage on AC phase 3				
DA51	Load Power	Load		Watt	basic
	Estimation of the load power consumption				
DA52	Load Current	Load		Ampere	basic
	Estimation of the load current consumption				
DA61	Battery Input Current	Battery		Ampere	basic
	Measurement of the battery input current. A negative value means that the battery is discharging				
DA62	Battery Input Power	Battery		Watt	basic
	Measurement of the battery input power. A negative value means that the battery is discharging				
DA71	Battery Temperature	Battery	Temperature	degree C	basic
	The battery temperature				
DA72	Battery Test State	Battery	Battery Test		basic
	This is about the result of the last battery test. 10 values are possible : 'Never Tested'(0), 'Success'(1), 'On Going'(2), 'Failed: Timeout'(3), 'Failed: Vbus Too Low'(4), 'Failed: Load Too Low'(5), 'Failed: Ac Failure'(6), 'Failed: Canceled' (7), 'Failed: Lvd Opened'(8), 'Failed: No Battery'(9)				
DA73	Last Battery Test Discharged Capacity Ratio	Battery	Battery Test	%	basic
	This is the battery capacity, in percent, discharged during the last battery test. This value is updated at the end of the battery test.				
DA74	Last Battery Test Discharged Capacity	Battery	Battery Test	Ah	basic
	This is the battery capacity, in ampere hour, discharged during the last battery test. This value is updated at the end of the battery test.				
DA75	Last Battery Test Final Voltage	Battery	Battery Test	Volt	basic
	This is the bus voltage at the end of the last battery test. This value is updated at the end of the battery test.				
DA76	Battery Test Duration	Battery	Battery Test	minute	basic
	The duration of the last battery test. This value is updated at the end of the battery test. This value can't be higher than 1440 minutes (24 hours).				
DA77	Previous Battery Test Discharged Capacity Ratio	Battery	Battery Test	%	basic
	This is the battery capacity, in percent, discharged during the previous battery test. This value is shifted at the end of the battery test.				

DA78	Previous Battery Test Discharged Capacity	Battery	Battery Test	Ah	basic
	This is the battery capacity, in ampere hour, discharged during the previous battery test. This value is shifted at the end of the battery test.				
DA79	Previous Battery Test Final Voltage	Battery	Battery Test	Volt	basic
	This is the bus voltage at the end of the previous battery test. This value is shifted at the end of the battery test.				
DA80	Previous Battery Test Duration	Battery	Battery Test	minute	basic
	The duration of the previous battery test. This value is shifted at the end of the battery test. This value can't be higher than 1440 minutes (24 hours).				
DA81	Previous Battery Test State	Battery	Battery Test		basic
	The result of the previous battery test - 10 values are possible: 'Never Tested'(0), 'Success'(1), 'On Going'(2), 'Failed: Timeout'(3), 'Failed: Vbus Too Low'(4), 'Failed: Load Too Low'(5), 'Failed: Ac Failure'(6), 'Failed: Canceled', 'Failed: Lvd Opened'(8), 'Failed: No Battery'(9)				
DA82	Minutes Since Last Test Battery	Battery	Battery Test	minute	basic
	The number of minute since the end of last battery test				
DA84	Next Scheduled Battery Test	Battery	Battery Test		basic
	The date and time of the next time the scheduled battery test will run				
DA91	Battery Charge Capacity	Battery	Autonomy	%	basic
	The battery charge capacity, calculated by integration of the current.				
DA92	Calculated Autonomy	Battery	Autonomy	minute	basic
	Calculation of the remaining autonomy. This value can change following the load of your system and the maximal depth of discharge configuration (CF39).				
DA94	Battery Current Integration	Battery	Autonomy	Ah	basic
	Actual value of the integration of the current, in Ampere * hour				
DA101	LVD State	LVD			basic
	Actual state of the LVD				
DA111	Relay 1 State	Relays	Relay 1		basic
	Actual state of the Relay 1				
DA112	Relay 2 State	Relays	Relay 2		basic
	Actual state of the Relay 2				
DA113	Relay 3 State	Relays	Relay 3		basic
	Actual state of the Relay 3				
DA114	Relay 4 State	Relays	Relay 4		basic
	Actual state of the Relay 3				
DA121	Efficiency Optimized Number Of Rectifier	Smart Energy			asset
	The optimal number of ON rectifier for Efficiency Optimization				
DA122	System Loss Without Optimization	Smart Energy		Watt	underdev
	Estimation of the losses without optimisation				
DA123	System Loss With Optimization	Smart Energy		Watt	underdev
	Estimation of the losses with optimisation				
DA124	Rectifier Model Used For Calculation	Smart Energy			asset
	The rectifier model used				
DA125	Smart Energy Savings	Smart Energy		Watt	asset
	Estimation of the losses with optimisation				
DA151	Ambient Temperature	Sensors	Temperature	degree C	basic
	The ambient temperature (second temperature sense)				
DA161	Voltage 1	Sensors	Voltage 1	Volt	basic

	The voltage measured by the sense 1. Can be used for battery symmetry measurement. Calculation can be done with the PLC				
DA162	Voltage 2	Sensors	Voltage 2	Volt	basic
	The voltage measured by the sense 2. Can be used for battery symmetry measurement. Calculation can be done with the PLC				
DA163	Voltage 3	Sensors	Voltage 3	Volt	basic
	The voltage measured by the sense 3. Can be used for battery symmetry measurement. Calculation can be done with the PLC				
DA204	Pulse Counter 4	Sensors	Pulse Counter 4		basic
	The counter value of the digital input 4.				

Config Table						
<i>Id</i>	<i>Name</i>	<i>Group</i>	<i>SubGroup</i>	<i>Unit</i>	<i>Range: Min/Max (default)</i>	<i>License</i>
CF1	DC Bus Float Voltage at 25 degC	DC Bus		Volt	20/40 (27)	basic
	The floating dc bus voltage of the system at 25 Celsius degree					
CF2	DC Bus Voltage Extra Low	DC Bus	Alarm Parameters	Volt	20/40 (22.5)	basic
	The bus voltage under which the alarm 'DC Bus Voltage Extra Low' is set.					
CF3	DC Bus Voltage Extra Low Hysteresis	DC Bus	Alarm Parameters	Volt	0/2.5 (0.5)	basic
	The voltage hysteresis on the alarm 'DC Bus Voltage Extra Low'.					
CF4	DC Bus Voltage Low	DC Bus	Alarm Parameters	Volt	20/40 (24)	basic
	The bus voltage under which the alarm 'DC Bus Voltage Low' is set.					
CF5	DC Bus Voltage Low Hysteresis	DC Bus	Alarm Parameters	Volt	0/2.5 (0.25)	basic
	The voltage hysteresis on the alarm 'DC Bus Voltage Low					
CF6	DC Bus Voltage High	DC Bus	Alarm Parameters	Volt	20/40 (28.25)	basic
	The bus voltage over which the alarm 'DC Bus Voltage High' is set.					
CF7	DC Bus Voltage High Hysteresis	DC Bus	Alarm Parameters	Volt	0/2.5 (0.25)	basic
	The voltage hysteresis on the alarm 'DC Bus Voltage High					
CF8	DC Bus Voltage Extra High	DC Bus	Alarm Parameters	Volt	20/40 (29)	basic
	The bus voltage over which the alarm 'DC Bus Voltage Extra High' is set.					
CF9	DC Bus Voltage Extra High Hysteresis	DC Bus	Alarm Parameters	Volt	0/2.5 (0.25)	basic
	The voltage hysteresis on the alarm 'DC Bus Voltage Extra High					
CF10	LVD Disconnect Voltage	LVD		Volt	0/40 (21.6)	basic
	The dc bus voltage under which the battery must be disconnected of the bus. This allows preserving the battery life. The load will be unpowered. This value has to be lower than the Battery test end voltage (CF70)					
CF11	LVD Disconnect Delay	LVD		second	1/1000 (1)	basic
	The delay in second before disconnecting the battery if the dc bus voltage is under the configured disconnected voltage. This avoids disconnection during a low bus transient.					
CF21	Temperature Compensation Slope	Battery	Temperature Compensation	mV/degree	-500/0 (-36)	basic
	The slope of the battery temperature compensation in mv/degree. For a 48V system, -72mV/degree is often used.					

CF22	Maximum Positive Temperature Compensation	Battery	Temperature Compensation	Volt	0/5 (1.5)	basic
	The maximal allowed positive compensation.					
CF23	Maximum Negative Temperature Compensation	Battery	Temperature Compensation	Volt	-5/0 (-1.5)	basic
	The maximal allowed negative compensation.					
CF25	Minimal Number Of Present Rectifiers	Rectifiers	Alarm Parameters		0/100 (0)	basic
	The minimal number of rectifier which must be present. If there is less present rectifiers, the alarm 'Missing Rectifiers' is set.					
CF26	Rectifier Model	Rectifiers				basic
	The rectifier model					
CF27	Forced Remote Off Rectifiers	Rectifiers	Remote Off			basic
	A list of rectifier which are forced in remote off. The id of the rectifier must be coma separated. Ex: 1,3 will maintain rectifier 1 and 3 off.					
CF31	Battery Charge Current Limit	Battery	Battery Charge Parameters	Ampere	0.5/1000 (1000)	basic
	The maximal battery current when the battery is charging. The monitoring regulates the bus voltage in order to satisfy this condition. This parameter is often equal to the nominal battery capacity divided by 10.					
CF32	Battery String Capacity	Battery		Ah	3/1000 (100)	basic
	The battery capacity in Ah.					
CF33	Battery Temperature Low	Battery	Alarm Parameters	degree C	-100/20 (0)	basic
	The temperature under which the alarm 'Battery Temperature Too Low' must be set.					
CF34	Battery Temperature High	Battery	Alarm Parameters	degree C	5/100 (40)	basic
	The temperature over which the alarm 'Battery Temperature Too High' must be set.					
CF35	Battery Temperature Hysteresis	Battery	Alarm Parameters	degree C	0/10 (2)	basic
	The hysteresis on the 'Battery Temperature Too High' and 'Battery Temperature Too Low' alarms.					
CF36	Minimal Current For Discharging Alarm	Battery	Alarm Parameters	Ampere	0/1000 (3)	basic
	The minimal discharging current to set the 'Battery On Discharge' alarm.					
CF37	Current Hysteresis For Discharging Alarm	Battery	Alarm Parameters	Ampere	0/50 (1)	basic
	The hysteresis on the 'Battery On Discharge' alarm.					
CF38	Peukert Number	Battery	Autonomy		1/2 (1)	basic
	The Peukert number relates to the internal resistance of a battery and provides an indication of the expected capacity. The ideal number is 1. This value can be calculated with the formula: $(\ln(t_2) - \ln(t_1)) / (\ln(i_1) - \ln(i_2))$ where t_x is the autonomy in hours at a constant discharge current of i_x Amps. Often, we use $t_1 = 1h$ and $t_2 = 10h$					
CF39	Max Depth Of Discharge for Autonomy Estimation	Battery	Autonomy		10/100 (100)	basic
	It is generally recommended to discharge maximum 60% of the battery capacity to enhance battery lifetime. By default, 100% is used for autonomy calculation. This parameter can also be used to take into account the age of the battery					
CF41	Shunt Rating At 60mV	Current Sensors	Shunt 1	Ampere	25/5000 (250)	basic
	The rating of the battery shunt at 60mV.					
CF51	Boost Automatic	Battery	Boost		False/False (False)	battery

	The boost mode must be automatically after the fact that during a mains failure, the bus voltage went under the configured 'Boost Activation Low Voltage'. This allows charging the battery faster.					
CF52	Boost Activation Low Voltage	Battery	Boost	Volt	21.5/40 (23)	battery
	The voltage under which the boost mode can be activated.					
CF53	Boost Termination Voltage	Battery	Boost	Volt	25/40 (28.2)	battery
	The voltage over which the system must go back to floating mode.					
CF54	Boost Termination Current	Battery	Boost	Ampere	0/100 (4)	battery
	The battery charging current under which the system must go back to floating mode.					
CF55	Boost Termination Time	Battery	Boost	minute	10/240 (120)	battery
	The time in minute after which the system must go back in floating mode.					
CF69	Battery Test Type	Battery	Battery Test			battery
	Type of the battery test: Capacity based: The battery must give the requested capacity before falling lower than a value Time Based: The battery must sustain a defined load during a defined time.					
CF70	Battery Test End Voltage	Battery	Battery Test	Volt	15/40 (23)	battery
	The voltage at which any battery test must be stopped. This value has to be higher than the LVD Disconnect voltage (CF10)					
CF71	Battery Test Discharge Ratio	Battery	Battery Test	%	0/100 (0)	battery
	The ratio of the battery capacity to discharge. If 30 is set, 30% of the battery will be discharged during the test					
CF72	Battery Test Interval	Battery	Battery Test	day	0/3000 (0)	battery
	The number of days between two automatically started battery test. If this parameter is set to 0, the battery test is not started automatically. The user can remotely or locally start or force this test.					
CF73	Battery Test Discharge Current	Battery	Battery Test	Ampere	3/100 (1000)	battery
	The current at which the battery must be discharged during a battery test. The monitoring regulates the bus voltage in order to satisfy this condition. The load current must be of course higher than this parameter.					
CF74	Battery Test Minimal Discharge Current	Battery	Battery Test	Ampere	2/90 (2)	battery
	The battery current under which the battery test must be stopped because the load is too low.					
CF75	Battery Test Duration	Battery	Battery Test	minute	1/5000 (10)	battery
	The timeout in minute after which the battery test must be stopped.					
CF76	Battery Test Requested Minutes Without Mains Failure	Battery	Battery Test	minute	0/5000 (1440)	battery
	The minimal time in minute without mains failure in order to allow a battery start. This parameter is not taken into account when the battery test is forced.					
CF77	Battery Test Scheduler Cron Rule	Battery	Battery Test			basic
CF78	Battery Test Disable Low Voltage Alarms	Battery	Battery Test	minute	0/1000 (0)	basic
	Allow to disable the alarms AL1 and AL2 during a battery test if value >0. Settings 15 means disabling for 15 minutes after the battery test end, to avoid alarms during recharge also					
CF83	Smart Energy Boolean Condition	Smart Energy				asset
	This is the boolean condition which allows or not to automatically optimize the number of rectifier in remote off.					
CF86	Battery LVD Node Id	LVD			True/False (False)	basic

	This is a list of the node id of the Smart Electronic LVDs, coma separated					
CF91	Digital Input 1 Name	Digital Inputs	Digital Input 1		Distribution Breaker Open	basic
	The name of the digital input 1					
CF92	Digital Input 1 Normally Closed	Digital Inputs	Digital Input 1		True/False (True)	basic
	True/False value defining if the digital input 1 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF93	Digital Input 2 Name	Digital Inputs	Digital Input 2		Battery Breaker Open	basic
	The name of the digital input 2					
CF94	Digital Input 2 Normally Closed	Digital Inputs	Digital Input 2		True/False (True)	basic
	True/False value defining if the digital input 2 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF95	Digital Input 3 Name	Digital Inputs	Digital Input 3		Digital Input 3	basic
	The name of the digital input 3					
CF96	Digital Input 3 Normally Closed	Digital Inputs	Digital Input 3		True/False (True)	basic
	True/False value defining if the digital input 3 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF97	Digital Input 4 Name	Digital Inputs	Digital Input 4		Digital Input 4	basic
	The name of the digital input 4					
CF98	Digital Input 4 Normally Closed	Digital Inputs	Digital Input 4		True/False (True)	basic
	True/False value defining if the digital input 4 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF99	Digital Input 5 Name	Digital Inputs	Digital Input 5		Digital Input 5	basic
	The name of the digital input 5					
CF100	Digital Input 5 Normally Closed	Digital Inputs	Digital Input 5		True/False (True)	basic
	True/False value defining if the digital input 5 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF101	Digital Input 6 Name	Digital Inputs	Digital Input 6		Digital Input 6	basic
	The name of the digital input 6					
CF102	Digital Input 6 Normally Closed	Digital Inputs	Digital Input 6		True/False (True)	basic
	True/False value defining if the digital input 6 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF103	Digital Input 7 Name	Digital Inputs	Digital Input 7		Digital Input 7	basic
	The name of the digital input 7					
CF104	Digital Input 7 Normally Closed	Digital Inputs	Digital Input 7		True/False (True)	basic
	True/False value defining if the digital input 7 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF105	Digital Input 8 Name	Digital Inputs	Digital Input 8		Digital Input 8	basic
	The name of the digital input 8					
CF106	Digital Input 8 Normally Closed	Digital Inputs	Digital Input 8		True/False (True)	basic
	True/False value defining if the digital input 8 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF111	Dry Alarm 1 Alternative Boolean Condition	Relays	Relay 1			plc

	Another Boolean condition to activate the dry alarm relay 1. The way to define boolean condition is detailed in the PLC chapter.					
CF112	Dry Alarm 2 Alternative Boolean Condition	Relays	Relay 2			plc
	Another Boolean condition to activate the dry alarm relay 2. The way to define boolean condition is detailed in the PLC chapter.					
CF113	Dry Alarm 3 Alternative Boolean Condition	Relays	Relay 3			plc
	Another Boolean condition to activate the dry alarm relay 3. The way to define boolean condition is detailed in the PLC chapter.					
CF114	Dry Alarm 4 Alternative Boolean Condition	Relays	Relay 4			plc
	Another Boolean condition to activate the dry alarm relay 4. The way to define boolean condition is detailed in the PLC chapter.					
CF131	Ambient Temperature Low	Sensors	Temperature	degree C		basic
	The temperature under which the alarm 'Ambient Temperature Too Low' must be set.					
CF132	Ambient Temperature High	Sensors	Temperature	degree C		basic
	The temperature under which the alarm 'Ambient Temperature Too Low' must be set.					
CF133	Ambient Temperature Hysteresis	Sensors	Temperature	degree C		basic
	The hysteresis on the 'Battery Temperature Too High' and 'Battery Temperature Too Low' alarms.					
CF161	Forced Remote Off Rectifiers Boolean Condition	Rectifiers	Remote Off			basic
	The boolean PLC condition to enable the forced remote off					
CF521	Read Access User Numbers	Generic	Allowed Users		(1,2,3,4,5)	basic
	The list of the user numbers which have read access to this equipment. The user numbers are coma separated. The accepted user id are 1,2,3,4 and 5. Ex: 1,3,4					
CF522	Write Access User Numbers	Generic	Allowed Users		()	basic
	The list of the user numbers which have write access to this equipment. This means that these users can modify the configuration element, the alarm settings and use the control elements. The user numbers are coma separated. The accepted user ids are 1,2,3,4 and 5. Ex: 1,3,4					
CF601	Event Table Length	Generic	Events		10/4000 (100)	basic
	The maximum length of the table. The value must be comprised between 10 and 4000					
CF602	Event Table Length By Rectifier	Generic	Events		10/4000 (100)	basic
	The maximum length of the table. The value must be comprised between 10 and 4000					
CF901	Number Of PLC Data	PLC			(0)	plc
	The number of PLC data. Every equipment can manage up to 30 user programmable data. Data elements are automatically added in the data table. Configuration parameters are added to set the PLC Data Name and the PLC Data Mathematical calculation. In order to use these functionalities, you need a license with the 'PLC' module					
CF902	Number Of PLC Alarm	PLC			(0)	plc
	The number of PLC alarm. Every equipment can manage up to 30 user programmable alarms. Alarm elements are automatically added in the alarm table. The alarm parameters are added to set the PLC Alarm Name and the PLC Alarm Boolean condition. In order to use these functionalities, you need a licence with the 'PLC' module					

<i>Id</i>	<i>Name</i>	<i>Group</i>	<i>SubGroup</i>	<i>License</i>
CT1	Back To Float	System		basic
	The dc system must go back in floating mode.			
CT2	Start Battery Test	System		battery
	The dc system must start a battery test.			
CT3	Force Battery Test	System		battery
	The dc system must force a battery test.			
CT4	Start Boost Mode	System		battery
	The dc system must go in boost mode.			
CT11	Open The LVD	LVD		basic
	Try to open the LVD. It could not work if the LVD is electronic, and the request will be canceled after 15 sec.			
CT12	Close The LVD	LVD		basic
	The LVD must be closed			
CT21	Correct Battery Current Offset	Battery		basic
CT41	Reset Last Battery Test State	Battery		battery
	Reset the state of the last battery test. If an alarm 'Battery Last Test Failed' is set, the alarm will be cleared.			
CT51	Save Configuration In MCU	Save		basic
	Save configuration parameters in the MCU micro-controller. If Compas is not present, the system will be correctly managed.			
CT55	Set MCU Specific Configuration Id	Advanced	Factory	basic
	This control allows to reconfigure the MCU to support specific hardware configuration, with embedded distribution for example			
CT61	Set Digital Input 4 Counter Value	Digital Inputs	Digital Input 4	basic
	Set Counter Value			
CT111	Invert Relay 1 State For X Seconds	Relays	Relay 1	basic
	Generate Pulse on relay 1			
CT112	Invert Relay 2 State For X Seconds	Relays	Relay 2	basic
	Generate Pulse on relay 2			
CT113	Invert Relay 3 State For X Seconds	Relays	Relay 3	basic
	Generate Pulse on relay 3			
CT114	Invert Relay 4 State For X Seconds	Relays	Relay 4	basic
	Generate Pulse on relay 4			
CT501	Clear My Events	Generic	Events	basic
	By writing '1' to this control element, all the events of this equipment will be cleared.			
CT502	Clear All Events	Generic	Events	basic
	By writing '1' to this control element, all the events of this equipment and all the events of all the sub-equipments will be cleared.			
CT511	Add Event	Generic	Events	basic
	This control element adds an event of severity none. The event name is the text written to this control element			
CT512	Add Major Event	Generic	Events	basic
	This control element adds an event of severity major. The event name is the text written to this control element			
CT521	Reset Default Names And Groups	Generic	Renaming	basic
	This control element resets all the element Names, Groups and Subgroups to default values for this equipment			
CT522	Reset Default Names And Groups Recursive	Generic	Renaming	basic

	This control element resets all the element Names, Groups and Subgroups to default values for this equipment and all sub equipments

15.2.5 MCU0348M4 / MCU0348LP

Device Information	
Name	MCU0348M4 / MCU0348LP
Short Description	1U high controller with LCD display / Low profile controller (1/2U high)
Long Description	Monitoring and control unit, 1U high with LCD display, USB and Ethernet port - Captin300 line / Low profile monitoring and control unit for CAPTIN300 line
Hardware Reference	9413 060 10131 / 9413 060 10141
Software Reference	SOFT 000081 XX
Equipment Type	Monitoring Control Unit
ETSI Level	/site/energy_system/dc_system

Description Table				
<i>Id</i>	<i>Name</i>	<i>Group</i>	<i>SubGroup</i>	<i>License</i>
DE1	Description	Description	Custom Description	basic
	A free text zone to write a system description			
DE2	Reference	Description	Custom Description	basic
	A free text zone to write the customer reference of the system			
DE11	Product Name	Description	Product Info	basic
	The product name of the DC system monitoring			
DE12	Hardware Reference	Description	Product Info	basic
	The hardware reference of the DC system monitoring			
DE14	Software Reference	Description	Product Info	asset
	The software reference of the DC system monitoring			
DE16	Serial Number	Description	Product Info	asset
	The serial number of the DC system monitoring			
DE18	Manufacturing Date	Description	Product Info	asset
	The production date of the DC system monitoring			

Alarm Table					
<i>Id</i>	<i>Name</i>	<i>Group</i>	<i>SubGroup</i>	<i>Severity Type (Level)</i>	<i>Set/Clear Delay</i>
AL1	DC Bus Extra Low	DC Bus		major (6)	5 / 2
	The bus voltage is extra low. The alarm is set when the bus voltage is lower than the configuration parameter 'DC Bus Voltage Extra Low'. There is an hysteresis on the alarm : 'DC Bus Voltage Extra Low Hysteresis'. The alarm is not activated when DC mode is 'Battery Test'				
AL2	DC Bus Low	DC Bus		minor (4)	5 / 2
	The bus voltage is low. The alarm is set when the bus voltage is lower than the configuration parameter 'DC Bus Voltage Low'. There is an hysteresis on the alarm : 'DC Bus Voltage Low Hysteresis'				
AL3	DC Bus High	DC Bus		minor (4)	5 / 2
	The bus voltage is high. The alarm is set when the bus voltage is higher than the configuration parameter 'DC Bus Voltage High'. There is an hysteresis on the alarm : 'DC Bus Voltage High Hysteresis'				
AL4	DC Bus Extra High	DC Bus		major (6)	5 / 2

	The bus voltage is extra high. The alarm is set when the bus voltage is higher than the configuration parameter 'DC Bus Voltage Extra High'. There is an hysteresis on the alarm : 'DC Bus Voltage Extra High Hysteresis'				
AL5	DC Bus Voltage Sense Failure	DC Bus		major (6)	5 / 2
	The DC bus voltage sense is defective. The DC bus voltage is unconnected or misconfigured.				
AL6	Mains Failure	AC Bus		minor (4)	5 / 2
	The number of active rectifiers is equal to 0 - All the phases are down				
AL7	Mains Partial Failure	AC Bus		minor (4)	10 / 2
	The number of active rectifiers is greater than 0 and the number of rectifiers in AC failure is greater than 0. Some rectifiers are in AC Failure. It may be caused by an open breaker, a real phase failure, or by a rectifier failure.				
AL8	Mains Low	AC Bus		warning (2)	10 / 2
	The main voltage is low on one or more phases. No rectifier is in AC failure. If MCU master type is 30110, 3096 or 3048M6, an hysteresis _phase123Hysteresis is added to the voltage lower limit				
AL10	One Rectifier Failure	Rectifiers		minor (4)	5 / 2
	One rectifier must be replaced or is not powered correctly. The DC fail alarm of the rectifier is set. The number of rectifier with DC Failure is higher than 0, there is no mains failure, and the 'More Than One Rectifier Failure alarm is not set.'				
AL11	More Than One Rectifier Failure	Rectifiers		major (6)	10 / 2
	There is no mains failure and number of rectifier failures is greater than 1.				
AL12	Missing Rectifiers	Rectifiers		major (6)	5 / 2
	There is not enough rectifier according to the configuration parameter : 'Minimal Number Of Rectifier'				
AL13	Battery Last Test Failed	Battery	Battery Test	minor (3)	5 / 2
	The last battery test did not succeed and was not cancelled. Maybe the battery should be replaced. Check inside the dc system data for more information about the last test.				
AL14	Battery On Discharge	Battery		minor (4)	10 / 2
	The battery is discharging. This means that the load is too high for the installed rectifiers. This alarm is inactive when the system in AC Failure or during a battery test. There is an hysteresis corresponding to battery parameter 'Is discharging current hysteresis'.				
AL17	Battery LVD Relay Open	LVD		major (6)	5 / 2
	The battery Low Voltage Disconnect is open. On Systems without LVD_Status signal, like MCU 1848 or MCU 1x6, the alarm is present only if the signal LVD_COM asks to open the LVD				
AL18	Battery Temperature Too High	Battery	Temperature	minor (3)	5 / 2
	The temperature of the battery is too high and is greater than -600 units. There is an hysteresis corresponding to battery parameter 'Temperature hysteresis'.				
AL19	Battery Temperature Too Low	Battery	Temperature	minor (3)	5 / 2
	The temperature of the battery is too low and is greater than -600 units. There is an hysteresis corresponding to battery parameter 'Temperature hysteresis'.				
AL20	Battery Temperature Sensor Fail	Battery	Temperature	minor (3)	5 / 2
	The battery temperature sensor (NTC) value is inferior to -500 units or superior to 300 units meaning that it is not connected or defective.				
AL21	Ambient Temperature Too High	Sensors	Temperature	minor (0)	5 / 2
	The ambient temperature is too high and is greater than -600 units. There is an hysteresis corresponding to parameter 'Ambient temperature hysteresis'. This alarm is only activated on MCU master types 30110, 3096, 30125, 0024, 0948, 0548, 0348, 0948 and 3048M6.				
AL22	Ambient Temperature Too Low	Sensors	Temperature	minor (0)	5 / 2
	The ambient temperature is too low and is greater than -600 units. There is an hysteresis corresponding to parameter 'Ambient temperature hysteresis'. This alarm is only activated on MCU master types 30110, 3096, 30125, 0024, 0948, 0548, 0348, 0948 and 3048M6.				
AL23	Ambient Temperature Sensor Fail	Sensors	Temperature	minor (0)	5 / 2
	The ambient temperature sensor (NTC) value is inferior to -500 units meaning that it is not connected or defective.				

AL25	Distribution Breaker Open	Digital Inputs		major (6)	5 / 2
	This alarm is related to digital input 1. This alarm is activated if digital input value is different to configuration parameter 'Digital Input Alarm Value'				
AL26	Battery Breaker Open	Digital Inputs		minor (4)	5 / 2
	This alarm is related to digital input 2. This alarm is activated if digital input value is different to configuration parameter 'Digital Input Alarm Value'				
AL27	Digital Input 3	Digital Inputs		none (0)	5 / 2
	This alarm is related to digital input 3. This alarm is activated if digital input value is different to configuration parameter 'Digital Input Alarm Value'				
AL28	Digital Input 4	Digital Inputs		none (0)	5 / 2
	This alarm is related to digital input 4. This alarm is activated if digital input value is different to configuration parameter 'Digital Input Alarm Value'				
AL29	Digital Input 5	Digital Inputs		none (0)	5 / 2
	This alarm is related to digital input 5. This alarm is activated if digital input value is different to configuration parameter 'Digital Input Alarm Value'				
AL30	Digital Input 6	Digital Inputs		none (0)	5 / 2
	This alarm is related to digital input 6. This alarm is activated if digital input value is different to configuration parameter 'Digital Input Alarm Value'				

Data Table					
<i>Id</i>	<i>Name</i>	<i>Group</i>	<i>SubGroup</i>	<i>Unit</i>	<i>License</i>
DA1	DC Mode	System			basic
	The DC system can have 5 values: 'Float'(0), 'Equalize'(1), 'Battery Test'(2), 'Ac Failure'(3) or 'Safe'(5)				
DA2	Previous DC Mode	System			basic
	The previous value of the DC Mode : 'Float'(0), 'Equalize'(1), 'Battery Test'(2), 'Ac Failure'(3) or 'Safe'(5)				
DA3	Minutes Since Last Mode Change	System		minute	basic
	The number of minute between the last DC Mode Change and now				
DA4	NiMH Charge Mode	System			basic
DA11	Bus Voltage	DC Bus		Volt	basic
	The DC bus voltage in volt.				
DA12	Ratio Delivered On Available Power	System		%	basic
	This is the ratio of the delivered power divided by the installed power, in %.				
DA13	Minutes Since Last AC Failure Begin	AC Bus		minute	basic
	The number of minute since the last AC Failure begin				
DA14	Minutes Since Last AC Failure End	AC Bus		minute	basic
	The number of minute since the last AC Failure end				
DA21	Rectifiers Output Power	Rectifiers		Watt	basic
	The sum of the delivered rectifier power				
DA22	Rectifiers Output Current	Rectifiers		Ampere	basic
	The sum of the delivered rectifier current				
DA23	Rectifiers Output Power Max	Rectifiers		Watt	basic
	The sum of the deliverable rectifier power				
DA24	Rectifiers Output Current Max	Rectifiers		Ampere	basic
	The sum of the deliverable rectifier current				
DA31	Number Of Rectifier Max	Rectifiers	Numbers		basic
	The maximum possible number of rectifier in this dc system				
DA32	Number Of Present Rectifier	Rectifiers	Numbers		basic

	The actual number of present rectifier in this dc system				
DA33	Number Of Absent Rectifier	Rectifiers	Numbers		basic
	The actual number of absent rectifier in this dc system				
DA34	Number Of Active Rectifier	Rectifiers	Numbers		basic
	The actual number of active rectifier in this dc system. An active rectifier is a rectifier which is present, DC OK, AC OK and not in remote off.				
DA35	Number Of AC-Fail Rectifier	Rectifiers	Numbers		basic
	The actual number or rectifier in AC Failure.				
DA36	Number Of DC-Fail Rectifier	Rectifiers	Numbers		basic
	The actual number or rectifier with DC Failure.				
DA37	Number Of Remote Off Rectifier	Rectifiers	Numbers		basic
	The actual number or rectifier in remote off.				
DA38	Number Of Over Temperature Rectifier	Rectifiers	Numbers		basic
	The actual number or rectifier in Over Temperature.				
DA51	Load Power	Load		Watt	basic
	Estimation of the load power consumption				
DA52	Load Current	Load		Ampere	basic
	Estimation of the load current consumption				
DA61	Battery Input Current	Battery		Ampere	basic
	Measurement of the battery input current. A negative value means that the battery is discharging				
DA62	Battery Input Power	Battery		Watt	basic
	Measurement of the battery input power. A negative value means that the battery is discharging				
DA71	Battery Temperature	Battery	Temperature	degree C	basic
	The battery temperature				
DA72	Battery Test State	Battery	Battery Test		basic
	This is about the result of the last battery test. 10 values are possible : 'Never Tested'(0), 'Success'(1), 'On Going'(2), 'Failed: Timeout'(3), 'Failed: Vbus Too Low'(4), 'Failed: Load Too Low'(5), 'Failed: Ac Failure'(6), 'Failed: Canceled' (7), 'Failed: Lvd Opened'(8), 'Failed: No Battery'(9)				
DA73	Last Battery Test Discharged Capacity Ratio	Battery	Battery Test	%	basic
	This is the battery capacity, in percent, discharged during the last battery test. This value is updated at the end of the battery test.				
DA74	Last Battery Test Discharged Capacity	Battery	Battery Test	Ah	basic
	This is the battery capacity, in ampere hour, discharged during the last battery test. This value is updated at the end of the battery test.				
DA75	Last Battery Test Final Voltage	Battery	Battery Test	Volt	basic
	This is the bus voltage at the end of the last battery test. This value is updated at the end of the battery test.				
DA76	Battery Test Duration	Battery	Battery Test	minute	basic
	The duration of the last battery test. This value is updated at the end of the battery test. This value can't be higher than 1440 minutes (24 hours).				
DA77	Previous Battery Test Discharged Capacity Ratio	Battery	Battery Test	%	basic
	This is the battery capacity, in percent, discharged during the previous battery test. This value is shifted at the end of the battery test.				
DA78	Previous Battery Test Discharged Capacity	Battery	Battery Test	Ah	basic
	This is the battery capacity, in ampere hour, discharged during the previous battery test. This value is shifted at the end of the battery test.				
DA79	Previous Battery Test Final Voltage	Battery	Battery Test	Volt	basic

	This is the bus voltage at the end of the previous battery test. This value is shifted at the end of the battery test.				
DA80	Previous Battery Test Duration	Battery	Battery Test	minute	basic
	The duration of the previous battery test. This value is shifted at the end of the battery test. This value can't be higher than 1440 minutes (24 hours).				
DA81	Previous Battery Test State	Battery	Battery Test		basic
	The result of the previous battery test - 10 values are possible: 'Never Tested'(0), 'Success'(1), 'On Going'(2), 'Failed: Timeout'(3), 'Failed: Vbus Too Low'(4), 'Failed: Load Too Low'(5), 'Failed: Ac Failure'(6), 'Failed: Canceled', 'Failed: Lvd Opened'(8), 'Failed: No Battery'(9)				
DA82	Minutes Since Last Test Battery	Battery	Battery Test	minute	basic
	The number of minute since the end of last battery test				
DA84	Next Scheduled Battery Test	Battery	Battery Test		basic
	The date and time of the next time the scheduled battery test will run				
DA91	Battery Charge Capacity	Battery	Autonomy	%	basic
	The battery charge capacity, calculated by integration of the current.				
DA92	Calculated Autonomy	Battery	Autonomy	minute	basic
	Calculation of the remaining autonomy. This value can change following the load of your system and the maximal depth of discharge configuration (CF39).				
DA94	Battery Current Integration	Battery	Autonomy	Ah	basic
	Actual value of the integration of the current, in Ampere * hour				
DA101	LVD State	LVD			basic
	Actual state of the LVD				
DA111	Relay 1 State	Relays	Relay 1		basic
	Actual state of the Relay 1				
DA112	Relay 2 State	Relays	Relay 2		basic
	Actual state of the Relay 2				
DA113	Relay 3 State	Relays	Relay 3		basic
	Actual state of the Relay 3				
DA114	Relay 4 State	Relays	Relay 4		basic
	Actual state of the Relay 3				
DA121	Efficiency Optimized Number Of Rectifier	Smart Energy			asset
	The optimal number of ON rectifier for Efficiency Optimization				
DA122	System Loss Without Optimization	Smart Energy		Watt	underdev
	Estimation of the losses without optimisation				
DA123	System Loss With Optimization	Smart Energy		Watt	underdev
	Estimation of the losses with optimisation				
DA124	Rectifier Model Used For Calculation	Smart Energy			asset
	The rectifier model used				
DA125	Smart Energy Savings	Smart Energy		Watt	asset
	Estimation of the losses with optimisation				
DA151	Ambient Temperature	Sensors	Temperature	degree C	basic
	The ambient temperature (second temperature sense)				
DA204	Pulse Counter 4	Sensors	Pulse Counter 4		basic
	The counter value of the digital input 4.				

Config Table						
<i>Id</i>	<i>Name</i>	<i>Group</i>	<i>SubGroup</i>	<i>Unit</i>	<i>Range: Min/Max (default)</i>	<i>License</i>

CF1	DC Bus Float Voltage at 25 degC	DC Bus		Volt	40/60 (54)	basic
	The floating dc bus voltage of the system at 25 Celsius degree					
CF2	DC Bus Voltage Extra Low	DC Bus	Alarm Parameters	Volt	40/60 (45)	basic
	The bus voltage under which the alarm 'DC Bus Voltage Extra Low' is set.					
CF3	DC Bus Voltage Extra Low Hysteresis	DC Bus	Alarm Parameters	Volt	0/5 (1)	basic
	The voltage hysteresis on the alarm 'DC Bus Voltage Extra Low'.					
CF4	DC Bus Voltage Low	DC Bus	Alarm Parameters	Volt	40/60 (48)	basic
	The bus voltage under which the alarm 'DC Bus Voltage Low' is set.					
CF5	DC Bus Voltage Low Hysteresis	DC Bus	Alarm Parameters	Volt	0/5 (0.5)	basic
	The voltage hysteresis on the alarm 'DC Bus Voltage Low					
CF6	DC Bus Voltage High	DC Bus	Alarm Parameters	Volt	40/60 (56.5)	basic
	The bus voltage over which the alarm 'DC Bus Voltage High' is set.					
CF7	DC Bus Voltage High Hysteresis	DC Bus	Alarm Parameters	Volt	0/5 (0.5)	basic
	The voltage hysteresis on the alarm 'DC Bus Voltage High					
CF8	DC Bus Voltage Extra High	DC Bus	Alarm Parameters	Volt	40/60 (58)	basic
	The bus voltage over which the alarm 'DC Bus Voltage Extra High' is set.					
CF9	DC Bus Voltage Extra High Hysteresis	DC Bus	Alarm Parameters	Volt	0/5 (0.5)	basic
	The voltage hysteresis on the alarm 'DC Bus Voltage Extra High					
CF10	LVD Disconnect Voltage	LVD		Volt	0/50 (43.2)	basic
	The dc bus voltage under which the battery must be disconnected of the bus. This allows preserving the battery life. The load will be unpowered. This value has to be lower than the Battery test end voltage (CF70)					
CF11	LVD Disconnect Delay	LVD		second	1/2000 (1)	basic
	The delay in second before disconnecting the battery if the dc bus voltage is under the configured disconnected voltage. This avoids disconnection during a low bus transient.					
CF21	Temperature Compensation Slope	Battery	Temperature Compensation	mV/degree	-1000/0 (-72)	basic
	The slope of the battery temperature compensation in mv/degree. For a 48V system, -72mV/degree is often used.					
CF22	Maximum Positive Temperature Compensation	Battery	Temperature Compensation	Volt	0/10 (3)	basic
	The maximal allowed positive compensation.					
CF23	Maximum Negative Temperature Compensation	Battery	Temperature Compensation	Volt	-10/0 (-3)	basic
	The maximal allowed negative compensation.					
CF25	Minimal Number Of Present Rectifiers	Rectifiers	Alarm Parameters		0/100 (0)	basic
	The minimal number of rectifier which must be present. If there is less present rectifiers, the alarm 'Missing Rectifiers' is set.					
CF26	Rectifier Model	Rectifiers				basic
	The rectifier model					
CF27	Forced Remote Off Rectifiers	Rectifiers	Remote Off			basic

	A list of rectifier which are forced in remote off. The id of the rectifier must be coma separated. Ex: 1,3 will maintain rectifier 1 and 3 off.					
CF31	Battery Charge Current Limit	Battery	Battery Charge Parameters	Ampere	0.5/1000 (1000)	basic
	The maximal battery current when the battery is charging. The monitoring regulates the bus voltage in order to satisfy this condition. This parameter is often equal to the nominal battery capacity divided by 10.					
CF32	Battery String Capacity	Battery		Ah	3/1000 (100)	basic
	The battery capacity in Ah.					
CF33	Battery Temperature Low	Battery	Alarm Parameters	degree C	-100/20 (0)	basic
	The temperature under which the alarm 'Battery Temperature Too Low' must be set.					
CF34	Battery Temperature High	Battery	Alarm Parameters	degree C	5/100 (40)	basic
	The temperature over which the alarm 'Battery Temperature Too High' must be set.					
CF35	Battery Temperature Hysteresis	Battery	Alarm Parameters	degree C	0/10 (2)	basic
	The hysteresis on the 'Battery Temperature Too High' and 'Battery Temperature Too Low' alarms.					
CF36	Minimal Current For Discharging Alarm	Battery	Alarm Parameters	Ampere	0/1000 (0.5)	basic
	The minimal discharging current to set the 'Battery On Discharge' alarm.					
CF37	Current Hysteresis For Discharging Alarm	Battery	Alarm Parameters	Ampere	0/50 (0.2)	basic
	The hysteresis on the 'Battery On Discharge' alarm.					
CF38	Peukert Number	Battery	Autonomy		1/2 (1)	basic
	The Peukert number relates to the internal resistance of a battery and provides an indication of the expected capacity. The ideal number is 1. This value can be calculated with the formula: $(\ln(t_2) - \ln(t_1)) / (\ln(i_1) - \ln(i_2))$ where t_x is the autonomy in hours at a constant discharge current of i_x Amps. Often, we use $t_1 = 1h$ and $t_2 = 10h$					
CF39	Max Depth Of Discharge for Autonomy Estimation	Battery	Autonomy		10/100 (100)	basic
	It is generally recommended to discharge maximum 60% of the battery capacity to enhance battery lifetime. By default, 100% is used for autonomy calculation. This parameter can also be used to take into account the age of the battery					
CF51	Boost Automatic	Battery	Boost		False/False (False)	battery
	The boost mode must be automatically after the fact that during a mains failure, the bus voltage went under the configured 'Boost Activation Low Voltage'. This allows charging the battery faster.					
CF52	Boost Activation Low Voltage	Battery	Boost	Volt	43/50 (46)	battery
	The voltage under which the boost mode can be activated.					
CF53	Boost Termination Voltage	Battery	Boost	Volt	50/58 (56.4)	battery
	The voltage over which the system must go back to floating mode.					
CF54	Boost Termination Current	Battery	Boost	Ampere	0/100 (2)	battery
	The battery charging current under which the system must go back to floating mode.					
CF55	Boost Termination Time	Battery	Boost	minute	10/240 (120)	battery
	The time in minute after which the system must go back in floating mode.					
CF69	Battery Test Type	Battery	Battery Test			battery
	Type of the battery test: Capacity based: The battery must give the requested capacity before falling lower than a value Time Based: The battery must sustain a defined load during a defined time.					
CF70	Battery Test End Voltage	Battery	Battery Test	Volt	30/60 (46)	battery

	The voltage at which any battery test must be stopped. This value has to be higher than the LVD Disconnect voltage (CF10)					
CF71	Battery Test Discharge Ratio	Battery	Battery Test	%	0/100 (0)	battery
	The ratio of the battery capacity to discharge. If 30 is set, 30% of the battery will be discharged during the test					
CF72	Battery Test Interval	Battery	Battery Test	day	0/3000 (0)	battery
	The number of days between two automatically started battery test. If this parameter is set to 0, the battery test is not started automatically. The user can remotely or locally start or force this test.					
CF73	Battery Test Discharge Current	Battery	Battery Test	Ampere	0.5/100 (1000)	battery
	The current at which the battery must be discharged during a battery test. The monitoring regulates the bus voltage in order to satisfy this condition. The load current must be of course higher than this parameter.					
CF74	Battery Test Minimal Discharge Current	Battery	Battery Test	Ampere	0.2/90 (2)	battery
	The battery current under which the battery test must be stopped because the load is too low.					
CF75	Battery Test Duration	Battery	Battery Test	minute	1/5000 (10)	battery
	The timeout in minute after which the battery test must be stopped.					
CF76	Battery Test Requested Minutes Without Mains Failure	Battery	Battery Test	minute	0/5000 (1440)	battery
	The minimal time in minute without mains failure in order to allow a battery start. This parameter is not taken into account when the battery test is forced.					
CF77	Battery Test Scheduler Cron Rule	Battery	Battery Test			basic
CF78	Battery Test Disable Low Voltage Alarms	Battery	Battery Test	minute	0/1000 (0)	basic
	Allow to disable the alarms AL1 and AL2 during a battery test if value >0. Settings 15 means disabling for 15 minutes after the battery test end, to avoid alarms during recharge also					
CF83	Smart Energy Boolean Condition	Smart Energy				asset
	This is the boolean condition which allows or not to automatically optimize the number of rectifier in remote off.					
CF86	Battery LVD Node Id	LVD			True/False (False)	basic
	This is a list of the node id of the Smart Electronic LVDs, coma separated					
CF91	Digital Input 1 Name	Digital Inputs	Digital Input 1		Distribution Breaker Open	basic
	The name of the digital input 1					
CF92	Digital Input 1 Normally Closed	Digital Inputs	Digital Input 1		True/False (True)	basic
	True/False value defining if the digital input 1 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF93	Digital Input 2 Name	Digital Inputs	Digital Input 2		Battery Breaker Open	basic
	The name of the digital input 2					
CF94	Digital Input 2 Normally Closed	Digital Inputs	Digital Input 2		True/False (True)	basic
	True/False value defining if the digital input 2 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF95	Digital Input 3 Name	Digital Inputs	Digital Input 3		Digital Input 3	basic
	The name of the digital input 3					
CF96	Digital Input 3 Normally Closed	Digital Inputs	Digital Input 3		True/False (True)	basic

	True/False value defining if the digital input 3 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF97	Digital Input 4 Name	Digital Inputs	Digital Input 4		Digital Input 4	basic
	The name of the digital input 4					
CF98	Digital Input 4 Normally Closed	Digital Inputs	Digital Input 4		True/False (True)	basic
	True/False value defining if the digital input 4 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF99	Digital Input 5 Name	Digital Inputs	Digital Input 5		Digital Input 5	basic
	The name of the digital input 5					
CF100	Digital Input 5 Normally Closed	Digital Inputs	Digital Input 5		True/False (True)	basic
	True/False value defining if the digital input 5 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF101	Digital Input 6 Name	Digital Inputs	Digital Input 6		Digital Input 6	basic
	The name of the digital input 6					
CF102	Digital Input 6 Normally Closed	Digital Inputs	Digital Input 6		True/False (True)	basic
	True/False value defining if the digital input 6 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF111	Dry Alarm 1 Alternative Boolean Condition	Relays	Relay 1			plc
	Another Boolean condition to activate the dry alarm relay 1. The way to define boolean condition is detailed in the PLC chapter.					
CF112	Dry Alarm 2 Alternative Boolean Condition	Relays	Relay 2			plc
	Another Boolean condition to activate the dry alarm relay 2. The way to define boolean condition is detailed in the PLC chapter.					
CF113	Dry Alarm 3 Alternative Boolean Condition	Relays	Relay 3			plc
	Another Boolean condition to activate the dry alarm relay 3. The way to define boolean condition is detailed in the PLC chapter.					
CF114	Dry Alarm 4 Alternative Boolean Condition	Relays	Relay 4			plc
	Another Boolean condition to activate the dry alarm relay 4. The way to define boolean condition is detailed in the PLC chapter.					
CF131	Ambient Temperature Low	Sensors	Temperature	degree C		basic
	The temperature under which the alarm 'Ambient Temperature Too Low' must be set.					
CF132	Ambient Temperature High	Sensors	Temperature	degree C		basic
	The temperature under which the alarm 'Ambient Temperature Too Low' must be set.					
CF133	Ambient Temperature Hysteresis	Sensors	Temperature	degree C		basic
	The hysteresis on the 'Battery Temperature Too High' and 'Battery Temperature Too Low' alarms.					
CF161	Forced Remote Off Rectifiers Boolean Condition	Rectifiers	Remote Off			basic
	The boolean PLC condition to enable the forced remote off					
CF521	Read Access User Numbers	Generic	Allowed Users		(1,2,3,4,5)	basic
	The list of the user numbers which have read access to this equipment. The user numbers are coma separated. The accepted user id are 1,2,3,4 and 5. Ex: 1,3,4					

CF522	Write Access User Numbers	Generic	Allowed Users		()	basic
	The list of the user numbers which have write access to this equipment. This means that these users can modify the configuration element, the alarm settings and use the control elements. The user numbers are coma separated. The accepted user ids are 1,2,3,4 and 5. Ex: 1,3,4					
CF601	Event Table Length	Generic	Events		10/4000 (100)	basic
	The maximum length of the table. The value must be comprised between 10 and 4000					
CF602	Event Table Length By Rectifier	Generic	Events		10/4000 (100)	basic
	The maximum length of the table. The value must be comprised between 10 and 4000					
CF901	Number Of PLC Data	PLC			(0)	plc
	The number of PLC data. Every equipment can manage up to 30 user programmable data. Data elements are automatically added in the data table. Configuration parameters are added to set the PLC Data Name and the PLC Data Mathematical calculation. In order to use these functionalities, you need a license with the 'PLC' module					
CF902	Number Of PLC Alarm	PLC			(0)	plc
	The number of PLC alarm. Every equipment can manage up to 30 user programmable alarms. Alarm elements are automatically added in the alarm table. The alarm parameters are added to set the PLC Alarm Name and the PLC Alarm Boolean condition. In order to use these functionalities, you need a licence with the 'PLC' module					

Control Table				
<i>Id</i>	<i>Name</i>	<i>Group</i>	<i>SubGroup</i>	<i>License</i>
CT1	Back To Float	System		basic
	The dc system must go back in floating mode.			
CT2	Start Battery Test	System		battery
	The dc system must start a battery test.			
CT3	Force Battery Test	System		battery
	The dc system must force a battery test.			
CT4	Start Boost Mode	System		battery
	The dc system must go in boost mode.			
CT11	Open The LVD	LVD		basic
	Try to open the LVD. It could not work if the LVD is electronic, and the request will be canceled after 15 sec.			
CT12	Close The LVD	LVD		basic
	The LVD must be closed			
CT21	Correct Battery Current Offset	Battery		basic
CT41	Reset Last Battery Test State	Battery		battery
	Reset the state of the last battery test. If an alarm 'Battery Last Test Failed' is set, the alarm will be cleared.			
CT51	Save Configuration In MCU	Save		basic
	Save configuration parameters in the MCU micro-controller. If Compas is not present, the system will be correctly managed.			
CT55	Set MCU Specific Configuration Id	Advanced	Factory	basic
	This control allows to reconfigure the MCU to support specific hardware configuration, with embedded distribution for example			
CT61	Set Digital Input 4 Counter Value	Digital Inputs	Digital Input 4	basic
	Set Counter Value			
CT111	Invert Relay 1 State For X Seconds	Relays	Relay 1	basic
	Generate Pulse on relay 1			
CT112	Invert Relay 2 State For X Seconds	Relays	Relay 2	basic

	Generate Pulse on relay 2			
CT113	Invert Relay 3 State For X Seconds	Relays	Relay 3	basic
	Generate Pulse on relay 3			
CT114	Invert Relay 4 State For X Seconds	Relays	Relay 4	basic
	Generate Pulse on relay 4			
CT501	Clear My Events	Generic	Events	basic
	By writing '1' to this control element, all the events of this equipment will be cleared.			
CT502	Clear All Events	Generic	Events	basic
	By writing '1' to this control element, all the events of this equipment and all the events of all the sub-equipments will be cleared.			
CT511	Add Event	Generic	Events	basic
	This control element adds an event of severity none. The event name is the text written to this control element			
CT512	Add Major Event	Generic	Events	basic
	This control element adds an event of severity major. The event name is the text written to this control element			
CT521	Reset Default Names And Groups	Generic	Renaming	basic
	This control element resets all the element Names, Groups and Subgroups to default values for this equipment			
CT522	Reset Default Names And Groups Recursive	Generic	Renaming	basic
	This control element resets all the element Names, Groups and Subgroups to default values for this equipment and all sub equipments			

15.2.6 MCU0348M4NG / MCU0348LP

Device Information	
Name	MCU0348M4NG / MCU0348LP
Short Description	1U high controller with LCD display / Low profile controller (1/2U high)
Long Description	Monitoring and control unit, 1U high with LCD display, USB and Ethernet port - Captin300 line / Low profile monitoring and control unit for CAPTIN300 line
Hardware Reference	9413 060 10132 / 9413 060 10142
Software Reference	SOFT 000152 XX
Equipment Type	Monitoring Control Unit
ETSI Level	/site/energy_system/dc_system

Description Table				
<i>Id</i>	<i>Name</i>	<i>Group</i>	<i>SubGroup</i>	<i>License</i>
DE1	Description	Description	Custom Description	basic
	A free text zone to write a system description			
DE2	Reference	Description	Custom Description	basic
	A free text zone to write the customer reference of the system			
DE11	Product Name	Description	Product Info	basic
	The product name of the DC system monitoring			
DE12	Hardware Reference	Description	Product Info	basic
	The hardware reference of the DC system monitoring			
DE14	Software Reference	Description	Product Info	asset
	The software reference of the DC system monitoring			

DE16	Serial Number	Description	Product Info	asset
	The serial number of the DC system monitoring			
DE18	Manufacturing Date	Description	Product Info	asset
	The production date of the DC system monitoring			

Alarm Table					
<i>Id</i>	<i>Name</i>	<i>Group</i>	<i>SubGroup</i>	<i>Severity Type (Level)</i>	<i>Set/Clear Delay</i>
AL1	DC Bus Extra Low	DC Bus		major (6)	5 / 2
	The bus voltage is extra low. The alarm is set when the bus voltage is lower than the configuration parameter 'DC Bus Voltage Extra Low'. There is an hysteresis on the alarm : 'DC Bus Voltage Extra Low Hysteresis'. The alarm is not activated when DC mode is 'Battery Test'				
AL2	DC Bus Low	DC Bus		minor (4)	5 / 2
	The bus voltage is low. The alarm is set when the bus voltage is lower than the configuration parameter 'DC Bus Voltage Low'. There is an hysteresis on the alarm : 'DC Bus Voltage Low Hysteresis'				
AL3	DC Bus High	DC Bus		minor (4)	5 / 2
	The bus voltage is high. The alarm is set when the bus voltage is higher than the configuration parameter 'DC Bus Voltage High'. There is an hysteresis on the alarm : 'DC Bus Voltage High Hysteresis'				
AL4	DC Bus Extra High	DC Bus		major (6)	5 / 2
	The bus voltage is extra high. The alarm is set when the bus voltage is higher than the configuration parameter 'DC Bus Voltage Extra High'. There is an hysteresis on the alarm : 'DC Bus Voltage Extra High Hysteresis'				
AL5	DC Bus Voltage Sense Failure	DC Bus		major (6)	5 / 2
	The DC bus voltage sense is defective. The DC bus voltage is unconnected or misconfigured.				
AL6	Mains Failure	AC Bus		minor (4)	5 / 2
	The number of active rectifiers is equal to 0 - All the phases are down				
AL7	Mains Partial Failure	AC Bus		minor (4)	10 / 2
	The number of active rectifiers is greater than 0 and the number of rectifiers in AC failure is greater than 0. Some rectifiers are in AC Failure. It may be caused by an open breaker, a real phase failure, or by a rectifier failure.				
AL8	Mains Low	AC Bus		warning (2)	10 / 2
	The main voltage is low on one or more phases. No rectifier is in AC failure. If MCU master type is 30110, 3096 or 3048M6, an hysteresis _phase123Hysteresis is added to the voltage lower limit				
AL10	One Rectifier Failure	Rectifiers		minor (4)	5 / 2
	One rectifier must be replaced or is not powered correctly. The DC fail alarm of the rectifier is set. The number of rectifier with DC Failure is higher than 0, there is no mains failure, and the 'More Than One Rectifier Failure alarm is not set.'				
AL11	More Than One Rectifier Failure	Rectifiers		major (6)	10 / 2
	There is no mains failure and number of rectifier failures is greater than 1.				
AL12	Missing Rectifiers	Rectifiers		major (6)	5 / 2
	There is not enough rectifier according to the configuration parameter : 'Minimal Number Of Rectifier'				
AL13	Battery Last Test Failed	Battery	Battery Test	minor (3)	5 / 2
	The last battery test did not succeed and was not cancelled. Maybe the battery should be replaced. Check inside the dc system data for more information about the last test.				
AL14	Battery On Discharge	Battery		minor (4)	10 / 2
	The battery is discharging. This means that the load is too high for the installed rectifiers. This alarm is inactive when the system in AC Failure or during a battery test. There is an hysteresis corresponding to battery parameter 'Is discharging current hysteresis'.				
AL17	Battery LVD Relay Open	LVD		major (6)	5 / 2

	The battery Low Voltage Disconnect is open. On Systems without LVD_Status signal, like MCU 1848 or MCU 1x6, the alarm is present only if the signal LVD_COM asks to open the LVD				
AL18	Battery Temperature Too High	Battery	Temperature	minor (3)	5 / 2
	The temperature of the battery is too high and is greater than -600 units. There is an hysteresis corresponding to battery parameter 'Temperature hysteresis'.				
AL19	Battery Temperature Too Low	Battery	Temperature	minor (3)	5 / 2
	The temperature of the battery is too low and is greater than -600 units. There is an hysteresis corresponding to battery parameter 'Temperature hysteresis'.				
AL20	Battery Temperature Sensor Fail	Battery	Temperature	minor (3)	5 / 2
	The battery temperature sensor (NTC) value is inferior to -500 units or superior to 300 units meaning that it is not connected or defective.				
AL21	Ambient Temperature Too High	Sensors	Temperature	minor (0)	5 / 2
	The ambient temperature is too high and is greater than -600 units. There is an hysteresis corresponding to parameter 'Ambient temperature hysteresis'. This alarm is only activated on MCU master types 30110, 3096, 30125, 0024, 0948, 0548, 0348, 0948 and 3048M6.				
AL22	Ambient Temperature Too Low	Sensors	Temperature	minor (0)	5 / 2
	The ambient temperature is too low and is greater than -600 units. There is an hysteresis corresponding to parameter 'Ambient temperature hysteresis'. This alarm is only activated on MCU master types 30110, 3096, 30125, 0024, 0948, 0548, 0348, 0948 and 3048M6.				
AL23	Ambient Temperature Sensor Fail	Sensors	Temperature	minor (0)	5 / 2
	The ambient temperature sensor (NTC) value is inferior to -500 units meaning that it is not connected or defective.				
AL25	Distribution Breaker Open	Digital Inputs		major (6)	5 / 2
	This alarm is related to digital input 1. This alarm is activated if digital input value is different to configuration parameter 'Digital Input Alarm Value'				
AL26	Battery Breaker Open	Digital Inputs		minor (4)	5 / 2
	This alarm is related to digital input 2. This alarm is activated if digital input value is different to configuration parameter 'Digital Input Alarm Value'				
AL27	Digital Input 3	Digital Inputs		none (0)	5 / 2
	This alarm is related to digital input 3. This alarm is activated if digital input value is different to configuration parameter 'Digital Input Alarm Value'				
AL28	Digital Input 4	Digital Inputs		none (0)	5 / 2
	This alarm is related to digital input 4. This alarm is activated if digital input value is different to configuration parameter 'Digital Input Alarm Value'				
AL29	Digital Input 5	Digital Inputs		none (0)	5 / 2
	This alarm is related to digital input 5. This alarm is activated if digital input value is different to configuration parameter 'Digital Input Alarm Value'				
AL30	Digital Input 6	Digital Inputs		none (0)	5 / 2
	This alarm is related to digital input 6. This alarm is activated if digital input value is different to configuration parameter 'Digital Input Alarm Value'				

Data Table					
<i>Id</i>	<i>Name</i>	<i>Group</i>	<i>SubGroup</i>	<i>Unit</i>	<i>License</i>
DA1	DC Mode	System			basic
	The DC system can have 5 values: 'Float'(0), 'Equalize'(1), 'Battery Test'(2), 'Ac Failure'(3) or 'Safe'(5)				
DA2	Previous DC Mode	System			basic
	The previous value of the DC Mode : 'Float'(0), 'Equalize'(1), 'Battery Test'(2), 'Ac Failure'(3) or 'Safe'(5)				
DA3	Minutes Since Last Mode Change	System		minute	basic
	The number of minute between the last DC Mode Change and now				
DA4	NiMH Charge Mode	System			basic

DA11	Bus Voltage	DC Bus		Volt	basic
	The DC bus voltage in volt.				
DA12	Ratio Delivered On Available Power	System		%	basic
	This is the ratio of the delivered power divided by the installed power, in %.				
DA13	Minutes Since Last AC Failure Begin	AC Bus		minute	basic
	The number of minute since the last AC Failure begin				
DA14	Minutes Since Last AC Failure End	AC Bus		minute	basic
	The number of minute since the last AC Failure end				
DA21	Rectifiers Output Power	Rectifiers		Watt	basic
	The sum of the delivered rectifier power				
DA22	Rectifiers Output Current	Rectifiers		Ampere	basic
	The sum of the delivered rectifier current				
DA23	Rectifiers Output Power Max	Rectifiers		Watt	basic
	The sum of the deliverable rectifier power				
DA24	Rectifiers Output Current Max	Rectifiers		Ampere	basic
	The sum of the deliverable rectifier current				
DA31	Number Of Rectifier Max	Rectifiers	Numbers		basic
	The maximum possible number of rectifier in this dc system				
DA32	Number Of Present Rectifier	Rectifiers	Numbers		basic
	The actual number of present rectifier in this dc system				
DA33	Number Of Absent Rectifier	Rectifiers	Numbers		basic
	The actual number of absent rectifier in this dc system				
DA34	Number Of Active Rectifier	Rectifiers	Numbers		basic
	The actual number of active rectifier in this dc system. An active rectifier is a rectifier which is present, DC OK, AC OK and not in remote off.				
DA35	Number Of AC-Fail Rectifier	Rectifiers	Numbers		basic
	The actual number or rectifier in AC Failure.				
DA36	Number Of DC-Fail Rectifier	Rectifiers	Numbers		basic
	The actual number or rectifier with DC Failure.				
DA37	Number Of Remote Off Rectifier	Rectifiers	Numbers		basic
	The actual number or rectifier in remote off.				
DA38	Number Of Over Temperature Rectifier	Rectifiers	Numbers		basic
	The actual number or rectifier in Over Temperature.				
DA51	Load Power	Load		Watt	basic
	Estimation of the load power consumption				
DA52	Load Current	Load		Ampere	basic
	Estimation of the load current consumption				
DA61	Battery Input Current	Battery		Ampere	basic
	Measurement of the battery input current. A negative value means that the battery is discharging				
DA62	Battery Input Power	Battery		Watt	basic
	Measurement of the battery input power. A negative value means that the battery is discharging				
DA71	Battery Temperature	Battery	Temperature	degree C	basic
	The battery temperature				
DA72	Battery Test State	Battery	Battery Test		basic
	This is about the result of the last battery test. 10 values are possible : 'Never Tested'(0), 'Success'(1), 'On Going'(2), 'Failed: Timeout'(3), 'Failed: Vbus Too Low'(4), 'Failed: Load Too Low'(5), 'Failed: Ac Failure'(6), 'Failed: Canceled' (7), 'Failed: Lvd Opened'(8), 'Failed: No Battery'(9)				

DA73	Last Battery Test Discharged Capacity Ratio	Battery	Battery Test	%	basic
	This is the battery capacity, in percent, discharged during the last battery test. This value is updated at the end of the battery test.				
DA74	Last Battery Test Discharged Capacity	Battery	Battery Test	Ah	basic
	This is the battery capacity, in ampere hour, discharged during the last battery test. This value is updated at the end of the battery test.				
DA75	Last Battery Test Final Voltage	Battery	Battery Test	Volt	basic
	This is the bus voltage at the end of the last battery test. This value is updated at the end of the battery test.				
DA76	Battery Test Duration	Battery	Battery Test	minute	basic
	The duration of the last battery test. This value is updated at the end of the battery test. This value can't be higher than 1440 minutes (24 hours).				
DA77	Previous Battery Test Discharged Capacity Ratio	Battery	Battery Test	%	basic
	This is the battery capacity, in percent, discharged during the previous battery test. This value is shifted at the end of the battery test.				
DA78	Previous Battery Test Discharged Capacity	Battery	Battery Test	Ah	basic
	This is the battery capacity, in ampere hour, discharged during the previous battery test. This value is shifted at the end of the battery test.				
DA79	Previous Battery Test Final Voltage	Battery	Battery Test	Volt	basic
	This is the bus voltage at the end of the previous battery test. This value is shifted at the end of the battery test.				
DA80	Previous Battery Test Duration	Battery	Battery Test	minute	basic
	The duration of the previous battery test. This value is shifted at the end of the battery test. This value can't be higher than 1440 minutes (24 hours).				
DA81	Previous Battery Test State	Battery	Battery Test		basic
	The result of the previous battery test - 10 values are possible: 'Never Tested'(0), 'Success'(1), 'On Going'(2), 'Failed: Timeout'(3), 'Failed: Vbus Too Low'(4), 'Failed: Load Too Low'(5), 'Failed: Ac Failure'(6), 'Failed: Canceled', 'Failed: Lvd Opened'(8), 'Failed: No Battery'(9)				
DA82	Minutes Since Last Test Battery	Battery	Battery Test	minute	basic
	The number of minute since the end of last battery test				
DA84	Next Scheduled Battery Test	Battery	Battery Test		basic
	The date and time of the next time the scheduled battery test will run				
DA91	Battery Charge Capacity	Battery	Autonomy	%	basic
	The battery charge capacity, calculated by integration of the current.				
DA92	Calculated Autonomy	Battery	Autonomy	minute	basic
	Calculation of the remaining autonomy. This value can change following the load of your system and the maximal depth of discharge configuration (CF39).				
DA94	Battery Current Integration	Battery	Autonomy	Ah	basic
	Actual value of the integration of the current, in Ampere * hour				
DA101	LVD State	LVD			basic
	Actual state of the LVD				
DA111	Relay 1 State	Relays	Relay 1		basic
	Actual state of the Relay 1				
DA112	Relay 2 State	Relays	Relay 2		basic
	Actual state of the Relay 2				
DA113	Relay 3 State	Relays	Relay 3		basic
	Actual state of the Relay 3				
DA114	Relay 4 State	Relays	Relay 4		basic

	Actual state of the Relay 3				
DA121	Efficiency Optimized Number Of Rectifier	Smart Energy			asset
	The optimal number of ON rectifier for Efficiency Optimization				
DA122	System Loss Without Optimization	Smart Energy		Watt	underdev
	Estimation of the losses without optimisation				
DA123	System Loss With Optimization	Smart Energy		Watt	underdev
	Estimation of the losses with optimisation				
DA124	Rectifier Model Used For Calculation	Smart Energy			asset
	The rectifier model used				
DA125	Smart Energy Savings	Smart Energy		Watt	asset
	Estimation of the losses with optimisation				
DA151	Ambient Temperature	Sensors	Temperature	degree C	basic
	The ambient temperature (second temperature sense)				
DA204	Pulse Counter 4	Sensors	Pulse Counter 4		basic
	The counter value of the digital input 4.				

Config Table						
<i>Id</i>	<i>Name</i>	<i>Group</i>	<i>SubGroup</i>	<i>Unit</i>	<i>Range: Min/Max (default)</i>	<i>License</i>
CF1	DC Bus Float Voltage at 25 degC	DC Bus		Volt	40/60 (54)	basic
	The floating dc bus voltage of the system at 25 Celsius degree					
CF2	DC Bus Voltage Extra Low	DC Bus	Alarm Parameters	Volt	40/60 (45)	basic
	The bus voltage under which the alarm 'DC Bus Voltage Extra Low' is set.					
CF3	DC Bus Voltage Extra Low Hysteresis	DC Bus	Alarm Parameters	Volt	0/5 (1)	basic
	The voltage hysteresis on the alarm 'DC Bus Voltage Extra Low'.					
CF4	DC Bus Voltage Low	DC Bus	Alarm Parameters	Volt	40/60 (48)	basic
	The bus voltage under which the alarm 'DC Bus Voltage Low' is set.					
CF5	DC Bus Voltage Low Hysteresis	DC Bus	Alarm Parameters	Volt	0/5 (0.5)	basic
	The voltage hysteresis on the alarm 'DC Bus Voltage Low					
CF6	DC Bus Voltage High	DC Bus	Alarm Parameters	Volt	40/60 (56.5)	basic
	The bus voltage over which the alarm 'DC Bus Voltage High' is set.					
CF7	DC Bus Voltage High Hysteresis	DC Bus	Alarm Parameters	Volt	0/5 (0.5)	basic
	The voltage hysteresis on the alarm 'DC Bus Voltage High					
CF8	DC Bus Voltage Extra High	DC Bus	Alarm Parameters	Volt	40/60 (58)	basic
	The bus voltage over which the alarm 'DC Bus Voltage Extra High' is set.					
CF9	DC Bus Voltage Extra High Hysteresis	DC Bus	Alarm Parameters	Volt	0/5 (0.5)	basic
	The voltage hysteresis on the alarm 'DC Bus Voltage Extra High					
CF10	LVD Disconnect Voltage	LVD		Volt	0/50 (43.2)	basic
	The dc bus voltage under which the battery must be disconnected of the bus. This allows preserving the battery life. The load will be unpowered. This value has to be lower than the Battery test end voltage (CF70)					

CF11	LVD Disconnect Delay	LVD		second	1/2000 (1)	basic
	The delay in second before disconnecting the battery if the dc bus voltage is under the configured disconnected voltage. This avoids disconnection during a low bus transient.					
CF15	Battery Type	Battery				battery
	Type of the battery					
CF21	Temperature Compensation Slope	Battery	Temperature Compensation	mV/degree	-1000/0 (-72)	basic
	The slope of the battery temperature compensation in mv/degree. For a 48V system, -72mV/degree is often used.					
CF22	Maximum Positive Temperature Compensation	Battery	Temperature Compensation	Volt	0/10 (3)	basic
	The maximal allowed positive compensation.					
CF23	Maximum Negative Temperature Compensation	Battery	Temperature Compensation	Volt	-10/0 (-3)	basic
	The maximal allowed negative compensation.					
CF25	Minimal Number Of Present Rectifiers	Rectifiers	Alarm Parameters		0/100 (0)	basic
	The minimal number of rectifier which must be present. If there is less present rectifiers, the alarm 'Missing Rectifiers' is set.					
CF26	Rectifier Model	Rectifiers				basic
	The rectifier model					
CF27	Forced Remote Off Rectifiers	Rectifiers	Remote Off			basic
	A list of rectifier which are forced in remote off. The id of the rectifier must be coma separated. Ex: 1,3 will maintain rectifier 1 and 3 off.					
CF31	Battery Charge Current Limit	Battery	Battery Charge Parameters	Ampere	0.5/1000 (1000)	basic
	The maximal battery current when the battery is charging. The monitoring regulates the bus voltage in order to satisfy this condition. This parameter is often equal to the nominal battery capacity divided by 10.					
CF32	Battery String Capacity	Battery		Ah	3/1000 (100)	basic
	The battery capacity in Ah.					
CF33	Battery Temperature Low	Battery	Alarm Parameters	degree C	-100/20 (0)	basic
	The temperature under which the alarm 'Battery Temperature Too Low' must be set.					
CF34	Battery Temperature High	Battery	Alarm Parameters	degree C	5/100 (40)	basic
	The temperature over which the alarm 'Battery Temperature Too High' must be set.					
CF35	Battery Temperature Hysteresis	Battery	Alarm Parameters	degree C	0/10 (2)	basic
	The hysteresis on the 'Battery Temperature Too High' and 'Battery Temperature Too Low' alarms.					
CF36	Minimal Current For Discharging Alarm	Battery	Alarm Parameters	Ampere	0/1000 (0.5)	basic
	The minimal discharging current to set the 'Battery On Discharge' alarm.					
CF37	Current Hysteresis For Discharging Alarm	Battery	Alarm Parameters	Ampere	0/50 (0.2)	basic
	The hysteresis on the 'Battery On Discharge' alarm.					
CF38	Peukert Number	Battery	Autonomy		1/2 (1)	basic
	The Peukert number relates to the internal resistance of a battery and provides an indication of the expected capacity. The ideal number is 1. This value can be calculated with the formula: $(\ln(t2) - \ln(t1)) / (\ln(i1) - \ln(i2))$ where tx is the autonomy in hours at a constant discharge current of ix Amps. Often, we use t1 = 1h and t2 = 10h					

CF39	Max Depth Of Discharge for Autonomy Estimation	Battery	Autonomy		10/100 (100)	basic
	It is generally recommended to discharge maximum 60% of the battery capacity to enhance battery lifetime. By default, 100% is used for autonomy calculation. This parameter can also be used to take into account the age of the battery					
CF51	Boost Automatic	Battery	Boost		False/False (False)	battery
	The boost mode must be automatically after the fact that during a mains failure, the bus voltage went under the configured 'Boost Activation Low Voltage'. This allows charging the battery faster.					
CF52	Boost Activation Low Voltage	Battery	Boost	Volt	43/50 (46)	battery
	The voltage under which the boost mode can be activated.					
CF53	Boost Termination Voltage	Battery	Boost	Volt	50/58 (56.4)	battery
	The voltage over which the system must go back to floating mode.					
CF54	Boost Termination Current	Battery	Boost	Ampere	0/100 (2)	battery
	The battery charging current under which the system must go back to floating mode.					
CF55	Boost Termination Time	Battery	Boost	minute	10/240 (120)	battery
	The time in minute after which the system must go back in floating mode.					
CF69	Battery Test Type	Battery	Battery Test			battery
	Type of the battery test: Capacity based: The battery must give the requested capacity before falling lower than a value Time Based: The battery must sustain a defined load during a defined time.					
CF70	Battery Test End Voltage	Battery	Battery Test	Volt	30/60 (46)	battery
	The voltage at which any battery test must be stopped. This value has to be higher than the LVD Disconnect voltage (CF10)					
CF71	Battery Test Discharge Ratio	Battery	Battery Test	%	0/100 (0)	battery
	The ratio of the battery capacity to discharge. If 30 is set, 30% of the battery will be discharged during the test					
CF72	Battery Test Interval	Battery	Battery Test	day	0/3000 (0)	battery
	The number of days between two automatically started battery test. If this parameter is set to 0, the battery test is not started automatically. The user can remotely or locally start or force this test.					
CF73	Battery Test Discharge Current	Battery	Battery Test	Ampere	0.5/100 (1000)	battery
	The current at which the battery must be discharged during a battery test. The monitoring regulates the bus voltage in order to satisfy this condition. The load current must be of course higher than this parameter.					
CF74	Battery Test Minimal Discharge Current	Battery	Battery Test	Ampere	0.2/90 (2)	battery
	The battery current under which the battery test must be stopped because the load is too low.					
CF75	Battery Test Duration	Battery	Battery Test	minute	1/5000 (10)	battery
	The timeout in minute after which the battery test must be stopped.					
CF76	Battery Test Requested Minutes Without Mains Failure	Battery	Battery Test	minute	0/5000 (1440)	battery
	The minimal time in minute without mains failure in order to allow a battery start. This parameter is not taken into account when the battery test is forced.					
CF77	Battery Test Scheduler Cron Rule	Battery	Battery Test			basic
CF78	Battery Test Disable Low Voltage Alarms	Battery	Battery Test	minute	0/1000 (0)	basic

	Allow to disable the alarms AL1 and AL2 during a battery test if value >0. Settings 15 means disabling for 15 minutes after the battery test end, to avoid alarms during recharge also					
CF83	Smart Energy Boolean Condition	Smart Energy				asset
	This is the boolean condition which allows or not to automatically optimize the number of rectifier in remote off.					
CF86	Battery LVD Node Id	LVD			True/False (False)	basic
	This is a list of the node id of the Smart Electronic LVDs, coma separated					
CF91	Digital Input 1 Name	Digital Inputs	Digital Input 1		Distribution Breaker Open	basic
	The name of the digital input 1					
CF92	Digital Input 1 Normally Closed	Digital Inputs	Digital Input 1		True/False (True)	basic
	True/False value defining if the digital input 1 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF93	Digital Input 2 Name	Digital Inputs	Digital Input 2		Battery Breaker Open	basic
	The name of the digital input 2					
CF94	Digital Input 2 Normally Closed	Digital Inputs	Digital Input 2		True/False (True)	basic
	True/False value defining if the digital input 2 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF95	Digital Input 3 Name	Digital Inputs	Digital Input 3		Digital Input 3	basic
	The name of the digital input 3					
CF96	Digital Input 3 Normally Closed	Digital Inputs	Digital Input 3		True/False (True)	basic
	True/False value defining if the digital input 3 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF97	Digital Input 4 Name	Digital Inputs	Digital Input 4		Digital Input 4	basic
	The name of the digital input 4					
CF98	Digital Input 4 Normally Closed	Digital Inputs	Digital Input 4		True/False (True)	basic
	True/False value defining if the digital input 4 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF99	Digital Input 5 Name	Digital Inputs	Digital Input 5		Digital Input 5	basic
	The name of the digital input 5					
CF100	Digital Input 5 Normally Closed	Digital Inputs	Digital Input 5		True/False (True)	basic
	True/False value defining if the digital input 5 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF101	Digital Input 6 Name	Digital Inputs	Digital Input 6		Digital Input 6	basic
	The name of the digital input 6					
CF102	Digital Input 6 Normally Closed	Digital Inputs	Digital Input 6		True/False (True)	basic
	True/False value defining if the digital input 6 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF111	Dry Alarm 1 Alternative Boolean Condition	Relays	Relay 1			plc
	Another Boolean condition to activate the dry alarm relay 1. The way to define boolean condition is detailed in the PLC chapter.					
CF112	Dry Alarm 2 Alternative Boolean Condition	Relays	Relay 2			plc
	Another Boolean condition to activate the dry alarm relay 2. The way to define boolean condition is detailed in the PLC chapter.					

CF113	Dry Alarm 3 Alternative Boolean Condition	Relays	Relay 3			plc
	Another Boolean condition to activate the dry alarm relay 3. The way to define boolean condition is detailed in the PLC chapter.					
CF114	Dry Alarm 4 Alternative Boolean Condition	Relays	Relay 4			plc
	Another Boolean condition to activate the dry alarm relay 4. The way to define boolean condition is detailed in the PLC chapter.					
CF131	Ambient Temperature Low	Sensors	Temperature	degree C		basic
	The temperature under which the alarm 'Ambient Temperature Too Low' must be set.					
CF132	Ambient Temperature High	Sensors	Temperature	degree C		basic
	The temperature under which the alarm 'Ambient Temperature Too Low' must be set.					
CF133	Ambient Temperature Hysteresis	Sensors	Temperature	degree C		basic
	The hysteresis on the 'Battery Temperature Too High' and 'Battery Temperature Too Low' alarms.					
CF161	Forced Remote Off Rectifiers Boolean Condition	Rectifiers	Remote Off			basic
	The boolean PLC condition to enable the forced remote off					
CF521	Read Access User Numbers	Generic	Allowed Users		(1,2,3,4,5)	basic
	The list of the user numbers which have read access to this equipment. The user numbers are coma separated. The accepted user id are 1,2,3,4 and 5. Ex: 1,3,4					
CF522	Write Access User Numbers	Generic	Allowed Users		()	basic
	The list of the user numbers which have write access to this equipment. This means that these users can modify the configuration element, the alarm settings and use the control elements. The user numbers are coma separated. The accepted user ids are 1,2,3,4 and 5. Ex: 1,3,4					
CF601	Event Table Length	Generic	Events		10/4000 (100)	basic
	The maximum length of the table. The value must be comprised between 10 and 4000					
CF602	Event Table Length By Rectifier	Generic	Events		10/4000 (100)	basic
	The maximum length of the table. The value must be comprised between 10 and 4000					
CF901	Number Of PLC Data	PLC			(0)	plc
	The number of PLC data. Every equipment can manage up to 30 user programmable data. Data elements are automatically added in the data table. Configuration parameters are added to set the PLC Data Name and the PLC Data Mathematical calculation. In order to use these functionalities, you need a license with the 'PLC' module					
CF902	Number Of PLC Alarm	PLC			(0)	plc
	The number of PLC alarm. Every equipment can manage up to 30 user programmable alarms. Alarm elements are automatically added in the alarm table. The alarm parameters are added to set the PLC Alarm Name and the PLC Alarm Boolean condition. In order to use these functionalities, you need a licence with the 'PLC' module					

Control Table				
<i>Id</i>	<i>Name</i>	<i>Group</i>	<i>SubGroup</i>	<i>License</i>
CT1	Back To Float	System		basic
	The dc system must go back in floating mode.			
CT2	Start Battery Test	System		battery
	The dc system must start a battery test.			

CT3	Force Battery Test	System		battery
	The dc system must force a battery test.			
CT4	Start Boost Mode	System		battery
	The dc system must go in boost mode.			
CT11	Open The LVD	LVD		basic
	Try to open the LVD. It could not work if the LVD is electronic, and the request will be canceled after 15 sec.			
CT12	Close The LVD	LVD		basic
	The LVD must be closed			
CT21	Correct Battery Current Offset	Battery		basic
CT41	Reset Last Battery Test State	Battery		battery
	Reset the state of the last battery test. If an alarm 'Battery Last Test Failed' is set, the alarm will be cleared.			
CT51	Save Configuration In MCU	Save		basic
	Save configuration parameters in the MCU micro-controller. If Compas is not present, the system will be correctly managed.			
CT55	Set MCU Specific Configuration Id	Advanced	Factory	basic
	This control allows to reconfigure the MCU to support specific hardware configuration, with embedded distribution for example			
CT61	Set Digital Input 4 Counter Value	Digital Inputs	Digital Input 4	basic
	Set Counter Value			
CT111	Invert Relay 1 State For X Seconds	Relays	Relay 1	basic
	Generate Pulse on relay 1			
CT112	Invert Relay 2 State For X Seconds	Relays	Relay 2	basic
	Generate Pulse on relay 2			
CT113	Invert Relay 3 State For X Seconds	Relays	Relay 3	basic
	Generate Pulse on relay 3			
CT114	Invert Relay 4 State For X Seconds	Relays	Relay 4	basic
	Generate Pulse on relay 4			
CT501	Clear My Events	Generic	Events	basic
	By writing '1' to this control element, all the events of this equipment will be cleared.			
CT502	Clear All Events	Generic	Events	basic
	By writing '1' to this control element, all the events of this equipment and all the events of all the sub-equipments will be cleared.			
CT511	Add Event	Generic	Events	basic
	This control element adds an event of severity none. The event name is the text written to this control element			
CT512	Add Major Event	Generic	Events	basic
	This control element adds an event of severity major. The event name is the text written to this control element			
CT521	Reset Default Names And Groups	Generic	Renaming	basic
	This control element resets all the element Names, Groups and Subgroups to default values for this equipment			
CT522	Reset Default Names And Groups Recursive	Generic	Renaming	basic
	This control element resets all the element Names, Groups and Subgroups to default values for this equipment and all sub equipments			

15.2.7 MCU0548M4

Device Information	
Name	MCU0548M4
Short Description	Controller with basic site monitoring functions (4x500W)
Long Description	Monitoring and control unit with front connector for site monitoring - ACE054 line
Hardware Reference	9413 060 55101
Software Reference	SOFT 000080 XX
Equipment Type	Monitoring Control Unit
ETSI Level	/site/energy_system/dc_system

Description Table				
<i>Id</i>	<i>Name</i>	<i>Group</i>	<i>SubGroup</i>	<i>License</i>
DE1	Description	Description	Custom Description	basic
	A free text zone to write a system description			
DE2	Reference	Description	Custom Description	basic
	A free text zone to write the customer reference of the system			
DE11	Product Name	Description	Product Info	basic
	The product name of the DC system monitoring			
DE12	Hardware Reference	Description	Product Info	basic
	The hardware reference of the DC system monitoring			
DE14	Software Reference	Description	Product Info	asset
	The software reference of the DC system monitoring			
DE16	Serial Number	Description	Product Info	asset
	The serial number of the DC system monitoring			
DE18	Manufacturing Date	Description	Product Info	asset
	The production date of the DC system monitoring			

Alarm Table					
<i>Id</i>	<i>Name</i>	<i>Group</i>	<i>SubGroup</i>	<i>Severity Type (Level)</i>	<i>Set/Clear Delay</i>
AL1	DC Bus Extra Low	DC Bus		major (6)	5 / 2
	The bus voltage is extra low. The alarm is set when the bus voltage is lower than the configuration parameter 'DC Bus Voltage Extra Low'. There is an hysteresis on the alarm : 'DC Bus Voltage Extra Low Hysteresis'. The alarm is not activated when DC mode is 'Battery Test'				
AL2	DC Bus Low	DC Bus		minor (4)	5 / 2
	The bus voltage is low. The alarm is set when the bus voltage is lower than the configuration parameter 'DC Bus Voltage Low'. There is an hysteresis on the alarm : 'DC Bus Voltage Low Hysteresis'				
AL3	DC Bus High	DC Bus		minor (4)	5 / 2
	The bus voltage is high. The alarm is set when the bus voltage is higher than the configuration parameter 'DC Bus Voltage High'. There is an hysteresis on the alarm : 'DC Bus Voltage High Hysteresis'				
AL4	DC Bus Extra High	DC Bus		major (6)	5 / 2
	The bus voltage is extra high. The alarm is set when the bus voltage is higher than the configuration parameter 'DC Bus Voltage Extra High'. There is an hysteresis on the alarm : 'DC Bus Voltage Extra High Hysteresis'				
AL5	DC Bus Voltage Sense Failure	DC Bus		major (6)	5 / 2
	The DC bus voltage sense is defective. The DC bus voltage is unconnected or misconfigured.				

AL6	Mains Failure	AC Bus		minor (4)	5 / 2
	The number of active rectifiers is equal to 0 - All the phases are down				
AL7	Mains Partial Failure	AC Bus		minor (4)	10 / 2
	The number of active rectifiers is greater than 0 and the number of rectifiers in AC failure is greater than 0. Some rectifiers are in AC Failure. It may be caused by an open breaker, a real phase failure, or by a rectifier failure.				
AL8	Mains Low	AC Bus		warning (2)	10 / 2
	The main voltage is low on one or more phases. No rectifier is in AC failure. If MCU master type is 30110, 3096 or 3048M6, an hysteresis _phase123Hysteresis is added to the voltage lower limit				
AL10	One Rectifier Failure	Rectifiers		minor (4)	5 / 2
	One rectifier must be replaced or is not powered correctly. The DC fail alarm of the rectifier is set. The number of rectifier with DC Failure is higher than 0, there is no mains failure, and the 'More Than One Rectifier Failure alarm is not set.'				
AL11	More Than One Rectifier Failure	Rectifiers		major (6)	10 / 2
	There is no mains failure and number of rectifier failures is greater than 1.				
AL12	Missing Rectifiers	Rectifiers		major (6)	5 / 2
	There is not enough rectifier according to the configuration parameter : 'Minimal Number Of Rectifier'				
AL13	Battery Last Test Failed	Battery	Battery Test	minor (3)	5 / 2
	The last battery test did not succeed and was not cancelled. Maybe the battery should be replaced. Check inside the dc system data for more information about the last test.				
AL14	Battery On Discharge	Battery		minor (4)	10 / 2
	The battery is discharging. This means that the load is too high for the installed rectifiers. This alarm is inactive when the system in AC Failure or during a battery test. There is an hysteresis corresponding to battery parameter 'Is discharging current hysteresis'.				
AL17	Battery LVD Relay Open	LVD		major (6)	5 / 2
	The battery Low Voltage Disconnect is open. On Systems without LVD_Status signal, like MCU 1848 or MCU 1x6, the alarm is present only if the signal LVD_COM asks to open the LVD				
AL18	Battery Temperature Too High	Battery	Temperature	minor (3)	5 / 2
	The temperature of the battery is too high and is greater than -600 units. There is an hysteresis corresponding to battery parameter 'Temperature hysteresis'.				
AL19	Battery Temperature Too Low	Battery	Temperature	minor (3)	5 / 2
	The temperature of the battery is too low and is greater than -600 units. There is an hysteresis corresponding to battery parameter 'Temperature hysteresis'.				
AL20	Battery Temperature Sensor Fail	Battery	Temperature	minor (3)	5 / 2
	The battery temperature sensor (NTC) value is inferior to -500 units or superior to 300 units meaning that it is not connected or defective.				
AL21	Ambient Temperature Too High	Sensors	Temperature	minor (0)	5 / 2
	The ambient temperature is too high and is greater than -600 units. There is an hysteresis corresponding to parameter 'Ambient temperature hysteresis'. This alarm is only activated on MCU master types 30110, 3096, 30125, 0024, 0948, 0548, 0348, 0948 and 3048M6.				
AL22	Ambient Temperature Too Low	Sensors	Temperature	minor (0)	5 / 2
	The ambient temperature is too low and is greater than -600 units. There is an hysteresis corresponding to parameter 'Ambient temperature hysteresis'. This alarm is only activated on MCU master types 30110, 3096, 30125, 0024, 0948, 0548, 0348, 0948 and 3048M6.				
AL23	Ambient Temperature Sensor Fail	Sensors	Temperature	minor (0)	5 / 2
	The ambient temperature sensor (NTC) value is inferior to -500 units meaning that it is not connected or defective.				
AL24	Humidity Out Of Range	Sensors	Humidity	major (0)	5 / 2
	The humidity is not comprised between a lower limit, corresponding to configuration parameter 'Humidity Low', and a upper limit, corresponding to configuration parameter 'Humidity High'. There is an hysteresis corresponding to configuration parameter 'Humidity Hysteresis'. This alarm is only active in MCU master types 0548.				

AL25	Distribution Breaker Open	Digital Inputs		major (6)	5 / 2
	This alarm is related to digital input 1. This alarm is activated if digital input value is different to configuration parameter 'Digital Input Alarm Value'				
AL26	Battery Breaker Open	Digital Inputs		minor (4)	5 / 2
	This alarm is related to digital input 2. This alarm is activated if digital input value is different to configuration parameter 'Digital Input Alarm Value'				
AL27	Digital Input 3	Digital Inputs		none (0)	5 / 2
	This alarm is related to digital input 3. This alarm is activated if digital input value is different to configuration parameter 'Digital Input Alarm Value'				
AL28	Digital Input 4	Digital Inputs		none (0)	5 / 2
	This alarm is related to digital input 4. This alarm is activated if digital input value is different to configuration parameter 'Digital Input Alarm Value'				
AL29	Digital Input 5	Digital Inputs		none (0)	5 / 2
	This alarm is related to digital input 5. This alarm is activated if digital input value is different to configuration parameter 'Digital Input Alarm Value'				
AL30	Digital Input 6	Digital Inputs		none (0)	5 / 2
	This alarm is related to digital input 6. This alarm is activated if digital input value is different to configuration parameter 'Digital Input Alarm Value'				

Data Table					
<i>Id</i>	<i>Name</i>	<i>Group</i>	<i>SubGroup</i>	<i>Unit</i>	<i>License</i>
DA1	DC Mode	System			basic
	The DC system can have 5 values: 'Float'(0), 'Equalize'(1), 'Battery Test'(2), 'Ac Failure'(3) or 'Safe'(5)				
DA2	Previous DC Mode	System			basic
	The previous value of the DC Mode : 'Float'(0), 'Equalize'(1), 'Battery Test'(2), 'Ac Failure'(3) or 'Safe'(5)				
DA3	Minutes Since Last Mode Change	System		minute	basic
	The number of minute between the last DC Mode Change and now				
DA4	NiMH Charge Mode	System			basic
DA11	Bus Voltage	DC Bus		Volt	basic
	The DC bus voltage in volt.				
DA12	Ratio Delivered On Available Power	System		%	basic
	This is the ratio of the delivered power divided by the installed power, in %.				
DA13	Minutes Since Last AC Failure Begin	AC Bus		minute	basic
	The number of minute since the last AC Failure begin				
DA14	Minutes Since Last AC Failure End	AC Bus		minute	basic
	The number of minute since the last AC Failure end				
DA21	Rectifiers Output Power	Rectifiers		Watt	basic
	The sum of the delivered rectifier power				
DA22	Rectifiers Output Current	Rectifiers		Ampere	basic
	The sum of the delivered rectifier current				
DA23	Rectifiers Output Power Max	Rectifiers		Watt	basic
	The sum of the deliverable rectifier power				
DA24	Rectifiers Output Current Max	Rectifiers		Ampere	basic
	The sum of the deliverable rectifier current				
DA31	Number Of Rectifier Max	Rectifiers	Numbers		basic
	The maximum possible number of rectifier in this dc system				
DA32	Number Of Present Rectifier	Rectifiers	Numbers		basic

	The actual number of present rectifier in this dc system				
DA33	Number Of Absent Rectifier	Rectifiers	Numbers		basic
	The actual number of absent rectifier in this dc system				
DA34	Number Of Active Rectifier	Rectifiers	Numbers		basic
	The actual number of active rectifier in this dc system. An active rectifier is a rectifier which is present, DC OK, AC OK and not in remote off.				
DA35	Number Of AC-Fail Rectifier	Rectifiers	Numbers		basic
	The actual number or rectifier in AC Failure.				
DA36	Number Of DC-Fail Rectifier	Rectifiers	Numbers		basic
	The actual number or rectifier with DC Failure.				
DA37	Number Of Remote Off Rectifier	Rectifiers	Numbers		basic
	The actual number or rectifier in remote off.				
DA38	Number Of Over Temperature Rectifier	Rectifiers	Numbers		basic
	The actual number or rectifier in Over Temperature.				
DA51	Load Power	Load		Watt	basic
	Estimation of the load power consumption				
DA52	Load Current	Load		Ampere	basic
	Estimation of the load current consumption				
DA61	Battery Input Current	Battery		Ampere	basic
	Measurement of the battery input current. A negative value means that the battery is discharging				
DA62	Battery Input Power	Battery		Watt	basic
	Measurement of the battery input power. A negative value means that the battery is discharging				
DA71	Battery Temperature	Battery	Temperature	degree C	basic
	The battery temperature				
DA72	Battery Test State	Battery	Battery Test		basic
	This is about the result of the last battery test. 10 values are possible : 'Never Tested'(0), 'Success'(1), 'On Going'(2), 'Failed: Timeout'(3), 'Failed: Vbus Too Low'(4), 'Failed: Load Too Low'(5), 'Failed: Ac Failure'(6), 'Failed: Canceled' (7), 'Failed: Lvd Opened'(8), 'Failed: No Battery'(9)				
DA73	Last Battery Test Discharged Capacity Ratio	Battery	Battery Test	%	basic
	This is the battery capacity, in percent, discharged during the last battery test. This value is updated at the end of the battery test.				
DA74	Last Battery Test Discharged Capacity	Battery	Battery Test	Ah	basic
	This is the battery capacity, in ampere hour, discharged during the last battery test. This value is updated at the end of the battery test.				
DA75	Last Battery Test Final Voltage	Battery	Battery Test	Volt	basic
	This is the bus voltage at the end of the last battery test. This value is updated at the end of the battery test.				
DA76	Battery Test Duration	Battery	Battery Test	minute	basic
	The duration of the last battery test. This value is updated at the end of the battery test. This value can't be higher than 1440 minutes (24 hours).				
DA77	Previous Battery Test Discharged Capacity Ratio	Battery	Battery Test	%	basic
	This is the battery capacity, in percent, discharged during the previous battery test. This value is shifted at the end of the battery test.				
DA78	Previous Battery Test Discharged Capacity	Battery	Battery Test	Ah	basic
	This is the battery capacity, in ampere hour, discharged during the previous battery test. This value is shifted at the end of the battery test.				
DA79	Previous Battery Test Final Voltage	Battery	Battery Test	Volt	basic

	This is the bus voltage at the end of the previous battery test. This value is shifted at the end of the battery test.				
DA80	Previous Battery Test Duration	Battery	Battery Test	minute	basic
	The duration of the previous battery test. This value is shifted at the end of the battery test. This value can't be higher than 1440 minutes (24 hours).				
DA81	Previous Battery Test State	Battery	Battery Test		basic
	The result of the previous battery test - 10 values are possible: 'Never Tested'(0), 'Success'(1), 'On Going'(2), 'Failed: Timeout'(3), 'Failed: Vbus Too Low'(4), 'Failed: Load Too Low'(5), 'Failed: Ac Failure'(6), 'Failed: Canceled', 'Failed: Lvd Opened'(8), 'Failed: No Battery'(9)				
DA82	Minutes Since Last Test Battery	Battery	Battery Test	minute	basic
	The number of minute since the end of last battery test				
DA84	Next Scheduled Battery Test	Battery	Battery Test		basic
	The date and time of the next time the scheduled battery test will run				
DA91	Battery Charge Capacity	Battery	Autonomy	%	basic
	The battery charge capacity, calculated by integration of the current.				
DA92	Calculated Autonomy	Battery	Autonomy	minute	basic
	Calculation of the remaining autonomy. This value can change following the load of your system and the maximal depth of discharge configuration (CF39).				
DA94	Battery Current Integration	Battery	Autonomy	Ah	basic
	Actual value of the integration of the current, in Ampere * hour				
DA101	LVD State	LVD			basic
	Actual state of the LVD				
DA111	Relay 1 State	Relays	Relay 1		basic
	Actual state of the Relay 1				
DA112	Relay 2 State	Relays	Relay 2		basic
	Actual state of the Relay 2				
DA113	Relay 3 State	Relays	Relay 3		basic
	Actual state of the Relay 3				
DA114	Relay 4 State	Relays	Relay 4		basic
	Actual state of the Relay 3				
DA121	Efficiency Optimized Number Of Rectifier	Smart Energy			asset
	The optimal number of ON rectifier for Efficiency Optimization				
DA122	System Loss Without Optimization	Smart Energy		Watt	underdev
	Estimation of the losses without optimisation				
DA123	System Loss With Optimization	Smart Energy		Watt	underdev
	Estimation of the losses with optimisation				
DA124	Rectifier Model Used For Calculation	Smart Energy			asset
	The rectifier model used				
DA125	Smart Energy Savings	Smart Energy		Watt	asset
	Estimation of the losses with optimisation				
DA151	Ambient Temperature	Sensors	Temperature	degree C	basic
	The ambient temperature (second temperature sense)				
DA152	Relative Humidity	Sensors	Humidity Sensor	%	basic
	The relative humidity in the cabinet				
DA204	Pulse Counter 4	Sensors	Pulse Counter 4		basic
	The counter value of the digital input 4.				

Config Table						
<i>Id</i>	<i>Name</i>	<i>Group</i>	<i>SubGroup</i>	<i>Unit</i>	<i>Range: Min/Max (default)</i>	<i>License</i>
CF1	DC Bus Float Voltage at 25 degC	DC Bus		Volt	40/60 (54)	basic
	The floating dc bus voltage of the system at 25 Celsius degree					
CF2	DC Bus Voltage Extra Low	DC Bus	Alarm Parameters	Volt	40/60 (45)	basic
	The bus voltage under which the alarm 'DC Bus Voltage Extra Low' is set.					
CF3	DC Bus Voltage Extra Low Hysteresis	DC Bus	Alarm Parameters	Volt	0/5 (1)	basic
	The voltage hysteresis on the alarm 'DC Bus Voltage Extra Low'.					
CF4	DC Bus Voltage Low	DC Bus	Alarm Parameters	Volt	40/60 (48)	basic
	The bus voltage under which the alarm 'DC Bus Voltage Low' is set.					
CF5	DC Bus Voltage Low Hysteresis	DC Bus	Alarm Parameters	Volt	0/5 (0.5)	basic
	The voltage hysteresis on the alarm 'DC Bus Voltage Low					
CF6	DC Bus Voltage High	DC Bus	Alarm Parameters	Volt	40/60 (56.5)	basic
	The bus voltage over which the alarm 'DC Bus Voltage High' is set.					
CF7	DC Bus Voltage High Hysteresis	DC Bus	Alarm Parameters	Volt	0/5 (0.5)	basic
	The voltage hysteresis on the alarm 'DC Bus Voltage High					
CF8	DC Bus Voltage Extra High	DC Bus	Alarm Parameters	Volt	40/60 (58)	basic
	The bus voltage over which the alarm 'DC Bus Voltage Extra High' is set.					
CF9	DC Bus Voltage Extra High Hysteresis	DC Bus	Alarm Parameters	Volt	0/5 (0.5)	basic
	The voltage hysteresis on the alarm 'DC Bus Voltage Extra High					
CF10	LVD Disconnect Voltage	LVD		Volt	0/50 (43.2)	basic
	The dc bus voltage under which the battery must be disconnected of the bus. This allows preserving the battery life. The load will be unpowered. This value has to be lower than the Battery test end voltage (CF70)					
CF11	LVD Disconnect Delay	LVD		second	1/2000 (1)	basic
	The delay in second before disconnecting the battery if the dc bus voltage is under the configured disconnected voltage. This avoids disconnection during a low bus transient.					
CF21	Temperature Compensation Slope	Battery	Temperature Compensation	mV/degree	-1000/0 (-72)	basic
	The slope of the battery temperature compensation in mv/degree. For a 48V system, -72mV/degree is often used.					
CF22	Maximum Positive Temperature Compensation	Battery	Temperature Compensation	Volt	0/10 (3)	basic
	The maximal allowed positive compensation.					
CF23	Maximum Negative Temperature Compensation	Battery	Temperature Compensation	Volt	-10/0 (-3)	basic
	The maximal allowed negative compensation.					
CF25	Minimal Number Of Present Rectifiers	Rectifiers	Alarm Parameters		0/100 (0)	basic
	The minimal number of rectifier which must be present. If there is less present rectifiers, the alarm 'Missing Rectifiers' is set.					
CF26	Rectifier Model	Rectifiers				basic

	The rectifier model					
CF27	Forced Remote Off Rectifiers	Rectifiers	Remote Off			basic
	A list of rectifier which are forced in remote off. The id of the rectifier must be coma separated. Ex: 1,3 will maintain rectifier 1 and 3 off.					
CF31	Battery Charge Current Limit	Battery	Battery Charge Parameters	Ampere	0.5/1000 (1000)	basic
	The maximal battery current when the battery is charging. The monitoring regulates the bus voltage in order to satisfy this condition. This parameter is often equal to the nominal battery capacity divided by 10.					
CF32	Battery String Capacity	Battery		Ah	3/1000 (100)	basic
	The battery capacity in Ah.					
CF33	Battery Temperature Low	Battery	Alarm Parameters	degree C	-100/20 (0)	basic
	The temperature under which the alarm 'Battery Temperature Too Low' must be set.					
CF34	Battery Temperature High	Battery	Alarm Parameters	degree C	5/100 (40)	basic
	The temperature over which the alarm 'Battery Temperature Too High' must be set.					
CF35	Battery Temperature Hysteresis	Battery	Alarm Parameters	degree C	0/10 (2)	basic
	The hysteresis on the 'Battery Temperature Too High' and 'Battery Temperature Too Low' alarms.					
CF36	Minimal Current For Discharging Alarm	Battery	Alarm Parameters	Ampere	0/1000 (2)	basic
	The minimal discharging current to set the 'Battery On Discharge' alarm.					
CF37	Current Hysteresis For Discharging Alarm	Battery	Alarm Parameters	Ampere	0/50 (0.5)	basic
	The hysteresis on the 'Battery On Discharge' alarm.					
CF38	Peukert Number	Battery	Autonomy		1/2 (1)	basic
	The Peukert number relates to the internal resistance of a battery and provides an indication of the expected capacity. The ideal number is 1. This value can be calculated with the formula: $(\ln(t_2) - \ln(t_1)) / (\ln(i_1) - \ln(i_2))$ where tx is the autonomy in hours at a constant discharge current of ix Amps. Often, we use t1 = 1h and t2 = 10h					
CF39	Max Depth Of Discharge for Autonomy Estimation	Battery	Autonomy		10/100 (100)	basic
	It is generally recommended to discharge maximum 60% of the battery capacity to enhance battery lifetime. By default, 100% is used for autonomy calculation. This parameter can also be used to take into account the age of the battery					
CF51	Boost Automatic	Battery	Boost		False/False (False)	battery
	The boost mode must be automatically after the fact that during a mains failure, the bus voltage went under the configured 'Boost Activation Low Voltage'. This allows charging the battery faster.					
CF52	Boost Activation Low Voltage	Battery	Boost	Volt	43/50 (46)	battery
	The voltage under which the boost mode can be activated.					
CF53	Boost Termination Voltage	Battery	Boost	Volt	50/58 (56.4)	battery
	The voltage over which the system must go back to floating mode.					
CF54	Boost Termination Current	Battery	Boost	Ampere	0/100 (2)	battery
	The battery charging current under which the system must go back to floating mode.					
CF55	Boost Termination Time	Battery	Boost	minute	10/240 (120)	battery
	The time in minute after which the system must go back in floating mode.					
CF69	Battery Test Type	Battery	Battery Test			battery

	Type of the battery test: Capacity based: The battery must give the requested capacity before falling lower than a value Time Based: The battery must sustain a defined load during a defined time.					
CF70	Battery Test End Voltage	Battery	Battery Test	Volt	30/60 (46)	battery
	The voltage at which any battery test must be stopped. This value has to be higher than the LVD Disconnect voltage (CF10)					
CF71	Battery Test Discharge Ratio	Battery	Battery Test	%	0/100 (0)	battery
	The ratio of the battery capacity to discharge. If 30 is set, 30% of the battery will be discharged during the test					
CF72	Battery Test Interval	Battery	Battery Test	day	0/3000 (0)	battery
	The number of days between two automatically started battery test. If this parameter is set to 0, the battery test is not started automatically. The user can remotely or locally start or force this test.					
CF73	Battery Test Discharge Current	Battery	Battery Test	Ampere	3/100 (1000)	battery
	The current at which the battery must be discharged during a battery test. The monitoring regulates the bus voltage in order to satisfy this condition. The load current must be of course higher than this parameter.					
CF74	Battery Test Minimal Discharge Current	Battery	Battery Test	Ampere	2/90 (2)	battery
	The battery current under which the battery test must be stopped because the load is too low.					
CF75	Battery Test Duration	Battery	Battery Test	minute	1/5000 (10)	battery
	The timeout in minute after which the battery test must be stopped.					
CF76	Battery Test Requested Minutes Without Mains Failure	Battery	Battery Test	minute	0/5000 (1440)	battery
	The minimal time in minute without mains failure in order to allow a battery start. This parameter is not taken into account when the battery test is forced.					
CF77	Battery Test Scheduler Cron Rule	Battery	Battery Test			basic
CF78	Battery Test Disable Low Voltage Alarms	Battery	Battery Test	minute	0/1000 (0)	basic
	Allow to disable the alarms AL1 and AL2 during a battery test if value >0. Settings 15 means disabling for 15 minutes after the battery test end, to avoid alarms during recharge also					
CF83	Smart Energy Boolean Condition	Smart Energy				asset
	This is the boolean condition which allows or not to automatically optimize the number of rectifier in remote off.					
CF86	Battery LVD Node Id	LVD			True/False (False)	basic
	This is a list of the node id of the Smart Electronic LVDs, coma separated					
CF91	Digital Input 1 Name	Digital Inputs	Digital Input 1		Distribution Breaker Open	basic
	The name of the digital input 1					
CF92	Digital Input 1 Normally Closed	Digital Inputs	Digital Input 1		True/False (True)	basic
	True/False value defining if the digital input 1 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF93	Digital Input 2 Name	Digital Inputs	Digital Input 2		Battery Breaker Open	basic
	The name of the digital input 2					
CF94	Digital Input 2 Normally Closed	Digital Inputs	Digital Input 2		True/False (True)	basic
	True/False value defining if the digital input 2 is normally closed. If this digital input is not in this default state, the related alarm is set.					

CF95	Digital Input 3 Name	Digital Inputs	Digital Input 3		Digital Input 3	basic
	The name of the digital input 3					
CF96	Digital Input 3 Normally Closed	Digital Inputs	Digital Input 3		True/False (True)	basic
	True/False value defining if the digital input 3 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF97	Digital Input 4 Name	Digital Inputs	Digital Input 4		Digital Input 4	basic
	The name of the digital input 4					
CF98	Digital Input 4 Normally Closed	Digital Inputs	Digital Input 4		True/False (True)	basic
	True/False value defining if the digital input 4 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF99	Digital Input 5 Name	Digital Inputs	Digital Input 5		Digital Input 5	basic
	The name of the digital input 5					
CF100	Digital Input 5 Normally Closed	Digital Inputs	Digital Input 5		True/False (True)	basic
	True/False value defining if the digital input 5 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF101	Digital Input 6 Name	Digital Inputs	Digital Input 6		Digital Input 6	basic
	The name of the digital input 6					
CF102	Digital Input 6 Normally Closed	Digital Inputs	Digital Input 6		True/False (True)	basic
	True/False value defining if the digital input 6 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF111	Dry Alarm 1 Alternative Boolean Condition	Relays	Relay 1			plc
	Another Boolean condition to activate the dry alarm relay 1. The way to define boolean condition is detailed in the PLC chapter.					
CF112	Dry Alarm 2 Alternative Boolean Condition	Relays	Relay 2			plc
	Another Boolean condition to activate the dry alarm relay 2. The way to define boolean condition is detailed in the PLC chapter.					
CF113	Dry Alarm 3 Alternative Boolean Condition	Relays	Relay 3			plc
	Another Boolean condition to activate the dry alarm relay 3. The way to define boolean condition is detailed in the PLC chapter.					
CF114	Dry Alarm 4 Alternative Boolean Condition	Relays	Relay 4			plc
	Another Boolean condition to activate the dry alarm relay 4. The way to define boolean condition is detailed in the PLC chapter.					
CF131	Ambient Temperature Low	Sensors	Temperature	degree C		basic
	The temperature under which the alarm 'Ambient Temperature Too Low' must be set.					
CF132	Ambient Temperature High	Sensors	Temperature	degree C		basic
	The temperature under which the alarm 'Ambient Temperature Too Low' must be set.					
CF133	Ambient Temperature Hysteresis	Sensors	Temperature	degree C		basic
	The hysteresis on the 'Battery Temperature Too High' and 'Battery Temperature Too Low' alarms.					
CF135	Cabinet Humidity High	Sensors	Humidity Sensor	%	0/100 (80)	basic
	The relative humidity over which the cabinet humidity is too high					

CF136	Cabinet Humidity Low	Sensors	Humidity Sensor	%	0/100 (0)	basic
	The relative humidity over which the cabinet humidity is too low					
CF161	Forced Remote Off Rectifiers Boolean Condition	Rectifiers	Remote Off			basic
	The boolean PLC condition to enable the forced remote off					
CF521	Read Access User Numbers	Generic	Allowed Users		(1,2,3,4,5)	basic
	The list of the user numbers which have read access to this equipment. The user numbers are coma separated. The accepted user id are 1,2,3,4 and 5. Ex: 1,3,4					
CF522	Write Access User Numbers	Generic	Allowed Users		()	basic
	The list of the user numbers which have write access to this equipment. This means that these users can modify the configuration element, the alarm settings and use the control elements. The user numbers are coma separated. The accepted user ids are 1,2,3,4 and 5. Ex: 1,3,4					
CF601	Event Table Length	Generic	Events		10/4000 (100)	basic
	The maximum length of the table. The value must be comprised between 10 and 4000					
CF602	Event Table Length By Rectifier	Generic	Events		10/4000 (100)	basic
	The maximum length of the table. The value must be comprised between 10 and 4000					
CF901	Number Of PLC Data	PLC			(0)	plc
	The number of PLC data. Every equipment can manage up to 30 user programmable data. Data elements are automatically added in the data table. Configuration parameters are added to set the PLC Data Name and the PLC Data Mathematical calculation. In order to use these functionalities, you need a license with the 'PLC' module					
CF902	Number Of PLC Alarm	PLC			(0)	plc
	The number of PLC alarm. Every equipment can manage up to 30 user programmable alarms. Alarm elements are automatically added in the alarm table. The alarm parameters are added to set the PLC Alarm Name and the PLC Alarm Boolean condition. In order to use these functionalities, you need a licence with the 'PLC' module					

Control Table				
<i>Id</i>	<i>Name</i>	<i>Group</i>	<i>SubGroup</i>	<i>License</i>
CT1	Back To Float	System		basic
	The dc system must go back in floating mode.			
CT2	Start Battery Test	System		battery
	The dc system must start a battery test.			
CT3	Force Battery Test	System		battery
	The dc system must force a battery test.			
CT4	Start Boost Mode	System		battery
	The dc system must go in boost mode.			
CT11	Open The LVD	LVD		basic
	Try to open the LVD. It could not work if the LVD is electronic, and the request will be canceled after 15 sec.			
CT12	Close The LVD	LVD		basic
	The LVD must be closed			
CT21	Correct Battery Current Offset	Battery		basic
CT41	Reset Last Battery Test State	Battery		battery
	Reset the state of the last battery test. If an alarm 'Battery Last Test Failed' is set, the alarm will be cleared.			
CT51	Save Configuration In MCU	Save		basic

	Save configuration parameters in the MCU micro-controller. If Compas is not present, the system will be correctly managed.			
CT55	Set MCU Specific Configuration Id	Advanced	Factory	basic
	This control allows to reconfigure the MCU to support specific hardware configuration, with embedded distribution for example			
CT61	Set Digital Input 4 Counter Value	Digital Inputs	Digital Input 4	basic
	Set Counter Value			
CT111	Invert Relay 1 State For X Seconds	Relays	Relay 1	basic
	Generate Pulse on relay 1			
CT112	Invert Relay 2 State For X Seconds	Relays	Relay 2	basic
	Generate Pulse on relay 2			
CT113	Invert Relay 3 State For X Seconds	Relays	Relay 3	basic
	Generate Pulse on relay 3			
CT114	Invert Relay 4 State For X Seconds	Relays	Relay 4	basic
	Generate Pulse on relay 4			
CT501	Clear My Events	Generic	Events	basic
	By writing '1' to this control element, all the events of this equipment will be cleared.			
CT502	Clear All Events	Generic	Events	basic
	By writing '1' to this control element, all the events of this equipment and all the events of all the sub-equipments will be cleared.			
CT511	Add Event	Generic	Events	basic
	This control element adds an event of severity none. The event name is the text written to this control element			
CT512	Add Major Event	Generic	Events	basic
	This control element adds an event of severity major. The event name is the text written to this control element			
CT521	Reset Default Names And Groups	Generic	Renaming	basic
	This control element resets all the element Names, Groups and Subgroups to default values for this equipment			
CT522	Reset Default Names And Groups Recursive	Generic	Renaming	basic
	This control element resets all the element Names, Groups and Subgroups to default values for this equipment and all sub equipments			

15.2.8 MCU0948DW

Device Information	
Name	MCU0948DW
Short Description	MCU for rack 2x850W -54V
Long Description	
Hardware Reference	9413 000 XXXXX
Software Reference	SOFT 000076 XX
Equipment Type	Monitoring Control Unit
ETSI Level	/site/energy_system/dc_system

Description Table				
<i>Id</i>	<i>Name</i>	<i>Group</i>	<i>SubGroup</i>	<i>License</i>
DE1	Description	Description	Custom Description	basic
	A free text zone to write a system description			

DE2	Reference	Description	Custom Description	basic
	A free text zone to write the customer reference of the system			
DE11	Product Name	Description	Product Info	basic
	The product name of the DC system monitoring			
DE12	Hardware Reference	Description	Product Info	basic
	The hardware reference of the DC system monitoring			
DE14	Software Reference	Description	Product Info	asset
	The software reference of the DC system monitoring			
DE16	Serial Number	Description	Product Info	asset
	The serial number of the DC system monitoring			
DE18	Manufacturing Date	Description	Product Info	asset
	The production date of the DC system monitoring			

Alarm Table					
<i>Id</i>	<i>Name</i>	<i>Group</i>	<i>SubGroup</i>	<i>Severity Type (Level)</i>	<i>Set/Clear Delay</i>
AL1	DC Bus Extra Low	DC Bus		major (6)	5 / 2
	The bus voltage is extra low. The alarm is set when the bus voltage is lower than the configuration parameter 'DC Bus Voltage Extra Low'. There is an hysteresis on the alarm : 'DC Bus Voltage Extra Low Hysteresis'. The alarm is not activated when DC mode is 'Battery Test'				
AL2	DC Bus Low	DC Bus		minor (4)	5 / 2
	The bus voltage is low. The alarm is set when the bus voltage is lower than the configuration parameter 'DC Bus Voltage Low'. There is an hysteresis on the alarm : 'DC Bus Voltage Low Hysteresis'				
AL3	DC Bus High	DC Bus		minor (4)	5 / 2
	The bus voltage is high. The alarm is set when the bus voltage is higher than the configuration parameter 'DC Bus Voltage High'. There is an hysteresis on the alarm : 'DC Bus Voltage High Hysteresis'				
AL4	DC Bus Extra High	DC Bus		major (6)	5 / 2
	The bus voltage is extra high. The alarm is set when the bus voltage is higher than the configuration parameter 'DC Bus Voltage Extra High'. There is an hysteresis on the alarm : 'DC Bus Voltage Extra High Hysteresis'				
AL5	DC Bus Voltage Sense Failure	DC Bus		major (6)	5 / 2
	The DC bus voltage sense is defective. The DC bus voltage is unconnected or misconfigured.				
AL6	Mains Failure	AC Bus		minor (4)	5 / 2
	The number of active rectifiers is equal to 0 - All the phases are down				
AL7	Mains Partial Failure	AC Bus		minor (4)	10 / 2
	The number of active rectifiers is greater than 0 and the number of rectifiers in AC failure is greater than 0. Some rectifiers are in AC Failure. It may be caused by an open breaker, a real phase failure, or by a rectifier failure.				
AL8	Mains Low	AC Bus		warning (2)	10 / 2
	The main voltage is low on one or more phases. No rectifier is in AC failure. If MCU master type is 30110, 3096 or 3048M6, an hysteresis _phase123Hysteresis is added to the voltage lower limit				
AL10	One Rectifier Failure	Rectifiers		minor (4)	5 / 2
	One rectifier must be replaced or is not powered correctly. The DC fail alarm of the rectifier is set. The number of rectifier with DC Failure is higher than 0, there is no mains failure, and the 'More Than One Rectifier Failure alarm is not set.'				
AL11	More Than One Rectifier Failure	Rectifiers		major (6)	10 / 2
	There is no mains failure and number of rectifier failures is greater than 1.				
AL12	Missing Rectifiers	Rectifiers		major (6)	5 / 2
	There is not enough rectifier according to the configuration parameter : 'Minimal Number Of Rectifier'				

AL13	Battery Last Test Failed	Battery	Battery Test	minor (3)	5 / 2
	The last battery test did not succeed and was not cancelled. Maybe the battery should be replaced. Check inside the dc system data for more information about the last test.				
AL14	Battery On Discharge	Battery		minor (4)	10 / 2
	The battery is discharging. This means that the load is too high for the installed rectifiers. This alarm is inactive when the system in AC Failure or during a battery test. There is an hysteresis corresponding to battery parameter 'Is discharging current hysteresis'.				
AL17	Battery LVD Relay Open	LVD		major (6)	5 / 2
	The battery Low Voltage Disconnect is open. On Systems without LVD_Status signal, like MCU 1848 or MCU 1x6, the alarm is present only if the signal LVD_COM asks to open the LVD				
AL18	Battery Temperature Too High	Battery	Temperature	minor (3)	5 / 2
	The temperature of the battery is too high and is greater than -600 units. There is an hysteresis corresponding to battery parameter 'Temperature hysteresis'.				
AL19	Battery Temperature Too Low	Battery	Temperature	minor (3)	5 / 2
	The temperature of the battery is too low and is greater than -600 units. There is an hysteresis corresponding to battery parameter 'Temperature hysteresis'.				
AL20	Battery Temperature Sensor Fail	Battery	Temperature	minor (3)	5 / 2
	The battery temperature sensor (NTC) value is inferior to -500 units or superior to 300 units meaning that it is not connected or defective.				
AL21	Ambient Temperature Too High	Sensors	Temperature	minor (0)	5 / 2
	The ambient temperature is too high and is greater than -600 units. There is an hysteresis corresponding to parameter 'Ambient temperature hysteresis'. This alarm is only activated on MCU master types 30110, 3096, 30125, 0024, 0948, 0548, 0348, 0948 and 3048M6.				
AL22	Ambient Temperature Too Low	Sensors	Temperature	minor (0)	5 / 2
	The ambient temperature is too low and is greater than -600 units. There is an hysteresis corresponding to parameter 'Ambient temperature hysteresis'. This alarm is only activated on MCU master types 30110, 3096, 30125, 0024, 0948, 0548, 0348, 0948 and 3048M6.				
AL23	Ambient Temperature Sensor Fail	Sensors	Temperature	minor (0)	5 / 2
	The ambient temperature sensor (NTC) value is inferior to -500 units meaning that it is not connected or defective.				
AL25	Distribution Breaker Open	Digital Inputs		major (6)	5 / 2
	This alarm is related to digital input 1. This alarm is activated if digital input value is different to configuration parameter 'Digital Input Alarm Value'				
AL26	Battery Breaker Open	Digital Inputs		minor (4)	5 / 2
	This alarm is related to digital input 2. This alarm is activated if digital input value is different to configuration parameter 'Digital Input Alarm Value'				
AL27	Digital Input 3	Digital Inputs		none (0)	5 / 2
	This alarm is related to digital input 3. This alarm is activated if digital input value is different to configuration parameter 'Digital Input Alarm Value'				
AL28	Digital Input 4	Digital Inputs		none (0)	5 / 2
	This alarm is related to digital input 4. This alarm is activated if digital input value is different to configuration parameter 'Digital Input Alarm Value'				
AL29	Digital Input 5	Digital Inputs		none (0)	5 / 2
	This alarm is related to digital input 5. This alarm is activated if digital input value is different to configuration parameter 'Digital Input Alarm Value'				
AL30	Digital Input 6	Digital Inputs		none (0)	5 / 2
	This alarm is related to digital input 6. This alarm is activated if digital input value is different to configuration parameter 'Digital Input Alarm Value'				
AL31	Digital Input 7	Digital Inputs		none (0)	5 / 2
	This alarm is related to digital input 7. This alarm is activated if digital input value is different to configuration parameter 'Digital Input Alarm Value'				
AL32	Digital Input 8	Digital Inputs		none (0)	5 / 2

	This alarm is related to digital input 8. This alarm is activated if digital input value is different to configuration parameter 'Digital Input Alarm Value'

Data Table					
<i>Id</i>	<i>Name</i>	<i>Group</i>	<i>SubGroup</i>	<i>Unit</i>	<i>License</i>
DA1	DC Mode	System			basic
	The DC system can have 5 values: 'Float'(0), 'Equalize'(1), 'Battery Test'(2), 'Ac Failure'(3) or 'Safe'(5)				
DA2	Previous DC Mode	System			basic
	The previous value of the DC Mode : 'Float'(0), 'Equalize'(1), 'Battery Test'(2), 'Ac Failure'(3) or 'Safe'(5)				
DA3	Minutes Since Last Mode Change	System		minute	basic
	The number of minute between the last DC Mode Change and now				
DA4	NiMH Charge Mode	System			basic
DA11	Bus Voltage	DC Bus		Volt	basic
	The DC bus voltage in volt.				
DA12	Ratio Delivered On Available Power	System		%	basic
	This is the ratio of the delivered power divided by the installed power, in %.				
DA13	Minutes Since Last AC Failure Begin	AC Bus		minute	basic
	The number of minute since the last AC Failure begin				
DA14	Minutes Since Last AC Failure End	AC Bus		minute	basic
	The number of minute since the last AC Failure end				
DA21	Rectifiers Output Power	Rectifiers		Watt	basic
	The sum of the delivered rectifier power				
DA22	Rectifiers Output Current	Rectifiers		Ampere	basic
	The sum of the delivered rectifier current				
DA23	Rectifiers Output Power Max	Rectifiers		Watt	basic
	The sum of the deliverable rectifier power				
DA24	Rectifiers Output Current Max	Rectifiers		Ampere	basic
	The sum of the deliverable rectifier current				
DA31	Number Of Rectifier Max	Rectifiers	Numbers		basic
	The maximum possible number of rectifier in this dc system				
DA32	Number Of Present Rectifier	Rectifiers	Numbers		basic
	The actual number of present rectifier in this dc system				
DA33	Number Of Absent Rectifier	Rectifiers	Numbers		basic
	The actual number of absent rectifier in this dc system				
DA34	Number Of Active Rectifier	Rectifiers	Numbers		basic
	The actual number of active rectifier in this dc system. An active rectifier is a rectifier which is present, DC OK, AC OK and not in remote off.				
DA35	Number Of AC-Fail Rectifier	Rectifiers	Numbers		basic
	The actual number or rectifier in AC Failure.				
DA36	Number Of DC-Fail Rectifier	Rectifiers	Numbers		basic
	The actual number or rectifier with DC Failure.				
DA37	Number Of Remote Off Rectifier	Rectifiers	Numbers		basic
	The actual number or rectifier in remote off.				
DA38	Number Of Over Temperature Rectifier	Rectifiers	Numbers		basic
	The actual number or rectifier in Over Temperature.				
DA41	Mains Phase 1 Voltage	AC Bus		Volt	basic

	The voltage on AC phase 1				
DA42	Mains Phase 2 Voltage	AC Bus		Volt	basic
	The voltage on AC phase 2				
DA43	Mains Phase 3 Voltage	AC Bus		Volt	basic
	The voltage on AC phase 3				
DA51	Load Power	Load		Watt	basic
	Estimation of the load power consumption				
DA52	Load Current	Load		Ampere	basic
	Estimation of the load current consumption				
DA61	Battery Input Current	Battery		Ampere	basic
	Measurement of the battery input current. A negative value means that the battery is discharging				
DA62	Battery Input Power	Battery		Watt	basic
	Measurement of the battery input power. A negative value means that the battery is discharging				
DA71	Battery Temperature	Battery	Temperature	degree C	basic
	The battery temperature				
DA72	Battery Test State	Battery	Battery Test		basic
	This is about the result of the last battery test. 10 values are possible : 'Never Tested'(0), 'Success'(1), 'On Going'(2), 'Failed: Timeout'(3), 'Failed: Vbus Too Low'(4), 'Failed: Load Too Low'(5), 'Failed: Ac Failure'(6), 'Failed: Canceled' (7), 'Failed: Lvd Opened'(8), 'Failed: No Battery'(9)				
DA73	Last Battery Test Discharged Capacity Ratio	Battery	Battery Test	%	basic
	This is the battery capacity, in percent, discharged during the last battery test. This value is updated at the end of the battery test.				
DA74	Last Battery Test Discharged Capacity	Battery	Battery Test	Ah	basic
	This is the battery capacity, in ampere hour, discharged during the last battery test. This value is updated at the end of the battery test.				
DA75	Last Battery Test Final Voltage	Battery	Battery Test	Volt	basic
	This is the bus voltage at the end of the last battery test. This value is updated at the end of the battery test.				
DA76	Battery Test Duration	Battery	Battery Test	minute	basic
	The duration of the last battery test. This value is updated at the end of the battery test. This value can't be higher than 1440 minutes (24 hours).				
DA77	Previous Battery Test Discharged Capacity Ratio	Battery	Battery Test	%	basic
	This is the battery capacity, in percent, discharged during the previous battery test. This value is shifted at the end of the battery test.				
DA78	Previous Battery Test Discharged Capacity	Battery	Battery Test	Ah	basic
	This is the battery capacity, in ampere hour, discharged during the previous battery test. This value is shifted at the end of the battery test.				
DA79	Previous Battery Test Final Voltage	Battery	Battery Test	Volt	basic
	This is the bus voltage at the end of the previous battery test. This value is shifted at the end of the battery test.				
DA80	Previous Battery Test Duration	Battery	Battery Test	minute	basic
	The duration of the previous battery test. This value is shifted at the end of the battery test. This value can't be higher than 1440 minutes (24 hours).				
DA81	Previous Battery Test State	Battery	Battery Test		basic
	The result of the previous battery test - 10 values are possible: 'Never Tested'(0), 'Success'(1), 'On Going'(2), 'Failed: Timeout'(3), 'Failed: Vbus Too Low'(4), 'Failed: Load Too Low'(5), 'Failed: Ac Failure'(6), 'Failed: Canceled', 'Failed: Lvd Opened'(8), 'Failed: No Battery'(9)				
DA82	Minutes Since Last Test Battery	Battery	Battery Test	minute	basic

	The number of minute since the end of last battery test				
DA84	Next Scheduled Battery Test	Battery	Battery Test		basic
	The date and time of the next time the scheduled battery test will run				
DA91	Battery Charge Capacity	Battery	Autonomy	%	basic
	The battery charge capacity, calculated by integration of the current.				
DA92	Calculated Autonomy	Battery	Autonomy	minute	basic
	Calculation of the remaining autonomy. This value can change following the load of your system and the maximal depth of discharge configuration (CF39).				
DA94	Battery Current Integration	Battery	Autonomy	Ah	basic
	Actual value of the integration of the current, in Ampere * hour				
DA101	LVD State	LVD			basic
	Actual state of the LVD				
DA111	Relay 1 State	Relays	Relay 1		basic
	Actual state of the Relay 1				
DA112	Relay 2 State	Relays	Relay 2		basic
	Actual state of the Relay 2				
DA113	Relay 3 State	Relays	Relay 3		basic
	Actual state of the Relay 3				
DA114	Relay 4 State	Relays	Relay 4		basic
	Actual state of the Relay 3				
DA121	Efficiency Optimized Number Of Rectifier	Smart Energy			asset
	The optimal number of ON rectifier for Efficiency Optimization				
DA122	System Loss Without Optimization	Smart Energy		Watt	underdev
	Estimation of the losses without optimisation				
DA123	System Loss With Optimization	Smart Energy		Watt	underdev
	Estimation of the losses with optimisation				
DA124	Rectifier Model Used For Calculation	Smart Energy			asset
	The rectifier model used				
DA125	Smart Energy Savings	Smart Energy		Watt	asset
	Estimation of the losses with optimisation				
DA151	Ambient Temperature	Sensors	Temperature	degree C	basic
	The ambient temperature (second temperature sense)				
DA161	Voltage 1	Sensors	Voltage 1	Volt	basic
	The voltage measured by the sense 1. Can be used for battery symmetry measurement. Calculation can be done with the PLC				
DA162	Voltage 2	Sensors	Voltage 2	Volt	basic
	The voltage measured by the sense 2. Can be used for battery symmetry measurement. Calculation can be done with the PLC				
DA163	Voltage 3	Sensors	Voltage 3	Volt	basic
	The voltage measured by the sense 3. Can be used for battery symmetry measurement. Calculation can be done with the PLC				
DA204	Pulse Counter 4	Sensors	Pulse Counter 4		basic
	The counter value of the digital input 4.				

Config Table						
<i>Id</i>	<i>Name</i>	<i>Group</i>	<i>SubGroup</i>	<i>Unit</i>	<i>Range: Min/Max (default)</i>	<i>License</i>

CF1	DC Bus Float Voltage at 25 degC	DC Bus		Volt	40/60 (54)	basic
	The floating dc bus voltage of the system at 25 Celsius degree					
CF2	DC Bus Voltage Extra Low	DC Bus	Alarm Parameters	Volt	40/60 (45)	basic
	The bus voltage under which the alarm 'DC Bus Voltage Extra Low' is set.					
CF3	DC Bus Voltage Extra Low Hysteresis	DC Bus	Alarm Parameters	Volt	0/5 (1)	basic
	The voltage hysteresis on the alarm 'DC Bus Voltage Extra Low'.					
CF4	DC Bus Voltage Low	DC Bus	Alarm Parameters	Volt	40/60 (48)	basic
	The bus voltage under which the alarm 'DC Bus Voltage Low' is set.					
CF5	DC Bus Voltage Low Hysteresis	DC Bus	Alarm Parameters	Volt	0/5 (0.5)	basic
	The voltage hysteresis on the alarm 'DC Bus Voltage Low					
CF6	DC Bus Voltage High	DC Bus	Alarm Parameters	Volt	40/60 (56.5)	basic
	The bus voltage over which the alarm 'DC Bus Voltage High' is set.					
CF7	DC Bus Voltage High Hysteresis	DC Bus	Alarm Parameters	Volt	0/5 (0.5)	basic
	The voltage hysteresis on the alarm 'DC Bus Voltage High					
CF8	DC Bus Voltage Extra High	DC Bus	Alarm Parameters	Volt	40/60 (58)	basic
	The bus voltage over which the alarm 'DC Bus Voltage Extra High' is set.					
CF9	DC Bus Voltage Extra High Hysteresis	DC Bus	Alarm Parameters	Volt	0/5 (0.5)	basic
	The voltage hysteresis on the alarm 'DC Bus Voltage Extra High					
CF10	LVD Disconnect Voltage	LVD		Volt	0/50 (43.2)	basic
	The dc bus voltage under which the battery must be disconnected of the bus. This allows preserving the battery life. The load will be unpowered. This value has to be lower than the Battery test end voltage (CF70)					
CF11	LVD Disconnect Delay	LVD		second	1/2000 (1)	basic
	The delay in second before disconnecting the battery if the dc bus voltage is under the configured disconnected voltage. This avoids disconnection during a low bus transient.					
CF21	Temperature Compensation Slope	Battery	Temperature Compensation	mV/degree	-1000/0 (-72)	basic
	The slope of the battery temperature compensation in mv/degree. For a 48V system, -72mV/degree is often used.					
CF22	Maximum Positive Temperature Compensation	Battery	Temperature Compensation	Volt	0/10 (3)	basic
	The maximal allowed positive compensation.					
CF23	Maximum Negative Temperature Compensation	Battery	Temperature Compensation	Volt	-10/0 (-3)	basic
	The maximal allowed negative compensation.					
CF25	Minimal Number Of Present Rectifiers	Rectifiers	Alarm Parameters		0/100 (0)	basic
	The minimal number of rectifier which must be present. If there is less present rectifiers, the alarm 'Missing Rectifiers' is set.					
CF26	Rectifier Model	Rectifiers				basic
	The rectifier model					
CF27	Forced Remote Off Rectifiers	Rectifiers	Remote Off			basic

	A list of rectifier which are forced in remote off. The id of the rectifier must be coma separated. Ex: 1,3 will maintain rectifier 1 and 3 off.					
CF31	Battery Charge Current Limit	Battery	Battery Charge Parameters	Ampere	0.5/1000 (1000)	basic
	The maximal battery current when the battery is charging. The monitoring regulates the bus voltage in order to satisfy this condition. This parameter is often equal to the nominal battery capacity divided by 10.					
CF32	Battery String Capacity	Battery		Ah	3/1000 (100)	basic
	The battery capacity in Ah.					
CF33	Battery Temperature Low	Battery	Alarm Parameters	degree C	-100/20 (0)	basic
	The temperature under which the alarm 'Battery Temperature Too Low' must be set.					
CF34	Battery Temperature High	Battery	Alarm Parameters	degree C	5/100 (40)	basic
	The temperature over which the alarm 'Battery Temperature Too High' must be set.					
CF35	Battery Temperature Hysteresis	Battery	Alarm Parameters	degree C	0/10 (2)	basic
	The hysteresis on the 'Battery Temperature Too High' and 'Battery Temperature Too Low' alarms.					
CF36	Minimal Current For Discharging Alarm	Battery	Alarm Parameters	Ampere	0/1000 (2)	basic
	The minimal discharging current to set the 'Battery On Discharge' alarm.					
CF37	Current Hysteresis For Discharging Alarm	Battery	Alarm Parameters	Ampere	0/50 (0.5)	basic
	The hysteresis on the 'Battery On Discharge' alarm.					
CF38	Peukert Number	Battery	Autonomy		1/2 (1)	basic
	The Peukert number relates to the internal resistance of a battery and provides an indication of the expected capacity. The ideal number is 1. This value can be calculated with the formula: $(\ln(t_2) - \ln(t_1)) / (\ln(i_1) - \ln(i_2))$ where t_x is the autonomy in hours at a constant discharge current of i_x Amps. Often, we use $t_1 = 1h$ and $t_2 = 10h$					
CF39	Max Depth Of Discharge for Autonomy Estimation	Battery	Autonomy		10/100 (100)	basic
	It is generally recommended to discharge maximum 60% of the battery capacity to enhance battery lifetime. By default, 100% is used for autonomy calculation. This parameter can also be used to take into account the age of the battery					
CF51	Boost Automatic	Battery	Boost		False/False (False)	battery
	The boost mode must be automatically after the fact that during a mains failure, the bus voltage went under the configured 'Boost Activation Low Voltage'. This allows charging the battery faster.					
CF52	Boost Activation Low Voltage	Battery	Boost	Volt	43/50 (46)	battery
	The voltage under which the boost mode can be activated.					
CF53	Boost Termination Voltage	Battery	Boost	Volt	50/58 (56.4)	battery
	The voltage over which the system must go back to floating mode.					
CF54	Boost Termination Current	Battery	Boost	Ampere	0/100 (2)	battery
	The battery charging current under which the system must go back to floating mode.					
CF55	Boost Termination Time	Battery	Boost	minute	10/240 (120)	battery
	The time in minute after which the system must go back in floating mode.					
CF69	Battery Test Type	Battery	Battery Test			battery
	Type of the battery test: Capacity based: The battery must give the requested capacity before falling lower than a value Time Based: The battery must sustain a defined load during a defined time.					
CF70	Battery Test End Voltage	Battery	Battery Test	Volt	30/60 (46)	battery

	The voltage at which any battery test must be stopped. This value has to be higher than the LVD Disconnect voltage (CF10)					
CF71	Battery Test Discharge Ratio	Battery	Battery Test	%	0/100 (0)	battery
	The ratio of the battery capacity to discharge. If 30 is set, 30% of the battery will be discharged during the test					
CF72	Battery Test Interval	Battery	Battery Test	day	0/3000 (0)	battery
	The number of days between two automatically started battery test. If this parameter is set to 0, the battery test is not started automatically. The user can remotely or locally start or force this test.					
CF73	Battery Test Discharge Current	Battery	Battery Test	Ampere	3/100 (1000)	battery
	The current at which the battery must be discharged during a battery test. The monitoring regulates the bus voltage in order to satisfy this condition. The load current must be of course higher than this parameter.					
CF74	Battery Test Minimal Discharge Current	Battery	Battery Test	Ampere	2/90 (2)	battery
	The battery current under which the battery test must be stopped because the load is too low.					
CF75	Battery Test Duration	Battery	Battery Test	minute	1/5000 (10)	battery
	The timeout in minute after which the battery test must be stopped.					
CF76	Battery Test Requested Minutes Without Mains Failure	Battery	Battery Test	minute	0/5000 (1440)	battery
	The minimal time in minute without mains failure in order to allow a battery start. This parameter is not taken into account when the battery test is forced.					
CF77	Battery Test Scheduler Cron Rule	Battery	Battery Test			basic
CF78	Battery Test Disable Low Voltage Alarms	Battery	Battery Test	minute	0/1000 (0)	basic
	Allow to disable the alarms AL1 and AL2 during a battery test if value >0. Settings 15 means disabling for 15 minutes after the battery test end, to avoid alarms during recharge also					
CF83	Smart Energy Boolean Condition	Smart Energy				asset
	This is the boolean condition which allows or not to automatically optimize the number of rectifier in remote off.					
CF86	Battery LVD Node Id	LVD			True/False (False)	basic
	This is a list of the node id of the Smart Electronic LVDs, coma separated					
CF91	Digital Input 1 Name	Digital Inputs	Digital Input 1		Distribution Breaker Open	basic
	The name of the digital input 1					
CF92	Digital Input 1 Normally Closed	Digital Inputs	Digital Input 1		True/False (True)	basic
	True/False value defining if the digital input 1 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF93	Digital Input 2 Name	Digital Inputs	Digital Input 2		Battery Breaker Open	basic
	The name of the digital input 2					
CF94	Digital Input 2 Normally Closed	Digital Inputs	Digital Input 2		True/False (True)	basic
	True/False value defining if the digital input 2 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF95	Digital Input 3 Name	Digital Inputs	Digital Input 3		Digital Input 3	basic
	The name of the digital input 3					
CF96	Digital Input 3 Normally Closed	Digital Inputs	Digital Input 3		True/False (True)	basic

	True/False value defining if the digital input 3 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF97	Digital Input 4 Name	Digital Inputs	Digital Input 4		Digital Input 4	basic
	The name of the digital input 4					
CF98	Digital Input 4 Normally Closed	Digital Inputs	Digital Input 4		True/False (True)	basic
	True/False value defining if the digital input 4 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF99	Digital Input 5 Name	Digital Inputs	Digital Input 5		Digital Input 5	basic
	The name of the digital input 5					
CF100	Digital Input 5 Normally Closed	Digital Inputs	Digital Input 5		True/False (True)	basic
	True/False value defining if the digital input 5 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF101	Digital Input 6 Name	Digital Inputs	Digital Input 6		Digital Input 6	basic
	The name of the digital input 6					
CF102	Digital Input 6 Normally Closed	Digital Inputs	Digital Input 6		True/False (True)	basic
	True/False value defining if the digital input 6 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF103	Digital Input 7 Name	Digital Inputs	Digital Input 7		Digital Input 7	basic
	The name of the digital input 7					
CF104	Digital Input 7 Normally Closed	Digital Inputs	Digital Input 7		True/False (True)	basic
	True/False value defining if the digital input 7 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF105	Digital Input 8 Name	Digital Inputs	Digital Input 8		Digital Input 8	basic
	The name of the digital input 8					
CF106	Digital Input 8 Normally Closed	Digital Inputs	Digital Input 8		True/False (True)	basic
	True/False value defining if the digital input 8 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF111	Dry Alarm 1 Alternative Boolean Condition	Relays	Relay 1			plc
	Another Boolean condition to activate the dry alarm relay 1. The way to define boolean condition is detailed in the PLC chapter.					
CF112	Dry Alarm 2 Alternative Boolean Condition	Relays	Relay 2			plc
	Another Boolean condition to activate the dry alarm relay 2. The way to define boolean condition is detailed in the PLC chapter.					
CF113	Dry Alarm 3 Alternative Boolean Condition	Relays	Relay 3			plc
	Another Boolean condition to activate the dry alarm relay 3. The way to define boolean condition is detailed in the PLC chapter.					
CF114	Dry Alarm 4 Alternative Boolean Condition	Relays	Relay 4			plc
	Another Boolean condition to activate the dry alarm relay 4. The way to define boolean condition is detailed in the PLC chapter.					
CF131	Ambient Temperature Low	Sensors	Temperature	degree C		basic
	The temperature under which the alarm 'Ambient Temperature Too Low' must be set.					
CF132	Ambient Temperature High	Sensors	Temperature	degree C		basic

	The temperature under which the alarm 'Ambient Temperature Too Low' must be set.					
CF133	Ambient Temperature Hysteresis	Sensors	Temperature	degree C		basic
	The hysteresis on the 'Battery Temperature Too High' and 'Battery Temperature Too Low' alarms.					
CF161	Forced Remote Off Rectifiers Boolean Condition	Rectifiers	Remote Off			basic
	The boolean PLC condition to enable the forced remote off					
CF521	Read Access User Numbers	Generic	Allowed Users		(1,2,3,4,5)	basic
	The list of the user numbers which have read access to this equipment. The user numbers are coma separated. The accepted user id are 1,2,3,4 and 5. Ex: 1,3,4					
CF522	Write Access User Numbers	Generic	Allowed Users		()	basic
	The list of the user numbers which have write access to this equipment. This means that these users can modify the configuration element, the alarm settings and use the control elements. The user numbers are coma separated. The accepted user ids are 1,2,3,4 and 5. Ex: 1,3,4					
CF601	Event Table Length	Generic	Events		10/4000 (100)	basic
	The maximum length of the table. The value must be comprised between 10 and 4000					
CF602	Event Table Length By Rectifier	Generic	Events		10/4000 (100)	basic
	The maximum length of the table. The value must be comprised between 10 and 4000					
CF901	Number Of PLC Data	PLC			(0)	plc
	The number of PLC data. Every equipment can manage up to 30 user programmable data. Data elements are automatically added in the data table. Configuration parameters are added to set the PLC Data Name and the PLC Data Mathematical calculation. In order to use these functionalities, you need a license with the 'PLC' module					
CF902	Number Of PLC Alarm	PLC			(0)	plc
	The number of PLC alarm. Every equipment can manage up to 30 user programmable alarms. Alarm elements are automatically added in the alarm table. The alarm parameters are added to set the PLC Alarm Name and the PLC Alarm Boolean condition. In order to use these functionalities, you need a licence with the 'PLC' module					

Control Table				
<i>Id</i>	<i>Name</i>	<i>Group</i>	<i>SubGroup</i>	<i>License</i>
CT1	Back To Float	System		basic
	The dc system must go back in floating mode.			
CT2	Start Battery Test	System		battery
	The dc system must start a battery test.			
CT3	Force Battery Test	System		battery
	The dc system must force a battery test.			
CT4	Start Boost Mode	System		battery
	The dc system must go in boost mode.			
CT11	Open The LVD	LVD		basic
	Try to open the LVD. It could not work if the LVD is electronic, and the request will be canceled after 15 sec.			
CT12	Close The LVD	LVD		basic
	The LVD must be closed			
CT21	Correct Battery Current Offset	Battery		basic
CT41	Reset Last Battery Test State	Battery		battery
	Reset the state of the last battery test. If an alarm 'Battery Last Test Failed' is set, the alarm will be cleared.			

CT51	Save Configuration In MCU	Save		basic
	Save configuration parameters in the MCU micro-controller. If Compas is not present, the system will be correctly managed.			
CT55	Set MCU Specific Configuration Id	Advanced	Factory	basic
	This control allows to reconfigure the MCU to support specific hardware configuration, with embedded distribution for example			
CT61	Set Digital Input 4 Counter Value	Digital Inputs	Digital Input 4	basic
	Set Counter Value			
CT111	Invert Relay 1 State For X Seconds	Relays	Relay 1	basic
	Generate Pulse on relay 1			
CT112	Invert Relay 2 State For X Seconds	Relays	Relay 2	basic
	Generate Pulse on relay 2			
CT113	Invert Relay 3 State For X Seconds	Relays	Relay 3	basic
	Generate Pulse on relay 3			
CT114	Invert Relay 4 State For X Seconds	Relays	Relay 4	basic
	Generate Pulse on relay 4			
CT501	Clear My Events	Generic	Events	basic
	By writing '1' to this control element, all the events of this equipment will be cleared.			
CT502	Clear All Events	Generic	Events	basic
	By writing '1' to this control element, all the events of this equipment and all the events of all the sub-equipments will be cleared.			
CT511	Add Event	Generic	Events	basic
	This control element adds an event of severity none. The event name is the text written to this control element			
CT512	Add Major Event	Generic	Events	basic
	This control element adds an event of severity major. The event name is the text written to this control element			
CT521	Reset Default Names And Groups	Generic	Renaming	basic
	This control element resets all the element Names, Groups and Subgroups to default values for this equipment			
CT522	Reset Default Names And Groups Recursive	Generic	Renaming	basic
	This control element resets all the element Names, Groups and Subgroups to default values for this equipment and all sub equipments			

15.2.9 MCU0948M4 / MCU0948M4LP

Device Information	
Name	MCU0948M4 / MCU0948M4LP
Short Description	1U high controller with LCD display / Low profile controller (1/2U high)
Long Description	Monitoring and control unit, 1U high with LCD display, USB and Ethernet port - Captin FA, Captin BW, ACE102FALP and ACE104 lines / Low profile monitoring and control unit, 0.5U high, USB and Ethernet port - CAPTIN FA, CAPTIN BW lines
Hardware Reference	9413 060 95051 / 9413 060 95081
Software Reference	SOFT 000030 XX
Equipment Type	Monitoring Control Unit
ETSI Level	/site/energy_system/dc_system

Description Table

<i>Id</i>	<i>Name</i>	<i>Group</i>	<i>SubGroup</i>	<i>License</i>
DE1	Description	Description	Custom Description	basic
	A free text zone to write a system description			
DE2	Reference	Description	Custom Description	basic
	A free text zone to write the customer reference of the system			
DE11	Product Name	Description	Product Info	basic
	The product name of the DC system monitoring			
DE12	Hardware Reference	Description	Product Info	basic
	The hardware reference of the DC system monitoring			
DE14	Software Reference	Description	Product Info	asset
	The software reference of the DC system monitoring			
DE16	Serial Number	Description	Product Info	asset
	The serial number of the DC system monitoring			
DE18	Manufacturing Date	Description	Product Info	asset
	The production date of the DC system monitoring			

Alarm Table					
<i>Id</i>	<i>Name</i>	<i>Group</i>	<i>SubGroup</i>	<i>Severity Type (Level)</i>	<i>Set/Clear Delay</i>
AL1	DC Bus Extra Low	DC Bus		major (6)	5 / 2
	The bus voltage is extra low. The alarm is set when the bus voltage is lower than the configuration parameter 'DC Bus Voltage Extra Low'. There is an hysteresis on the alarm : 'DC Bus Voltage Extra Low Hysteresis'. The alarm is not activated when DC mode is 'Battery Test'				
AL2	DC Bus Low	DC Bus		minor (4)	5 / 2
	The bus voltage is low. The alarm is set when the bus voltage is lower than the configuration parameter 'DC Bus Voltage Low'. There is an hysteresis on the alarm : 'DC Bus Voltage Low Hysteresis'				
AL3	DC Bus High	DC Bus		minor (4)	5 / 2
	The bus voltage is high. The alarm is set when the bus voltage is higher than the configuration parameter 'DC Bus Voltage High'. There is an hysteresis on the alarm : 'DC Bus Voltage High Hysteresis'				
AL4	DC Bus Extra High	DC Bus		major (6)	5 / 2
	The bus voltage is extra high. The alarm is set when the bus voltage is higher than the configuration parameter 'DC Bus Voltage Extra High'. There is an hysteresis on the alarm : 'DC Bus Voltage Extra High Hysteresis'				
AL5	DC Bus Voltage Sense Failure	DC Bus		major (6)	5 / 2
	The DC bus voltage sense is defective. The DC bus voltage is unconnected or misconfigured.				
AL6	Mains Failure	AC Bus		minor (4)	5 / 2
	The number of active rectifiers is equal to 0 - All the phases are down				
AL7	Mains Partial Failure	AC Bus		minor (4)	10 / 2
	The number of active rectifiers is greater than 0 and the number of rectifiers in AC failure is greater than 0. Some rectifiers are in AC Failure. It may be caused by an open breaker, a real phase failure, or by a rectifier failure.				
AL8	Mains Low	AC Bus		warning (2)	10 / 2
	The main voltage is low on one or more phases. No rectifier is in AC failure. If MCU master type is 30110, 3096 or 3048M6, an hysteresis _phase123Hysteresis is added to the voltage lower limit				
AL10	One Rectifier Failure	Rectifiers		minor (4)	5 / 2
	One rectifier must be replaced or is not powered correctly. The DC fail alarm of the rectifier is set. The number of rectifier with DC Failure is higher than 0, there is no mains failure, and the 'More Than One Rectifier Failure alarm is not set.'				
AL11	More Than One Rectifier Failure	Rectifiers		major (6)	10 / 2

	There is no mains failure and number of rectifier failures is greater than 1.				
AL12	Missing Rectifiers	Rectifiers		major (6)	5 / 2
	There is not enough rectifier according to the configuration parameter : 'Minimal Number Of Rectifier'				
AL13	Battery Last Test Failed	Battery	Battery Test	minor (3)	5 / 2
	The last battery test did not succeed and was not cancelled. Maybe the battery should be replaced. Check inside the dc system data for more information about the last test.				
AL14	Battery On Discharge	Battery		minor (4)	10 / 2
	The battery is discharging. This means that the load is too high for the installed rectifiers. This alarm is inactive when the system in AC Failure or during a battery test. There is an hysteresis corresponding to battery parameter 'Is discharging current hysteresis'.				
AL17	Battery LVD Relay Open	LVD		major (6)	5 / 2
	The battery Low Voltage Disconnect is open. On Systems without LVD_Status signal, like MCU 1848 or MCU 1x6, the alarm is present only if the signal LVD_COM asks to open the LVD				
AL18	Battery Temperature Too High	Battery	Temperature	minor (3)	5 / 2
	The temperature of the battery is too high and is greater than -600 units. There is an hysteresis corresponding to battery parameter 'Temperature hysteresis'.				
AL19	Battery Temperature Too Low	Battery	Temperature	minor (3)	5 / 2
	The temperature of the battery is too low and is greater than -600 units. There is an hysteresis corresponding to battery parameter 'Temperature hysteresis'.				
AL20	Battery Temperature Sensor Fail	Battery	Temperature	minor (3)	5 / 2
	The battery temperature sensor (NTC) value is inferior to -500 units or superior to 300 units meaning that it is not connected or defective.				
AL21	Ambient Temperature Too High	Sensors	Temperature	minor (0)	5 / 2
	The ambient temperature is too high and is greater than -600 units. There is an hysteresis corresponding to parameter 'Ambient temperature hysteresis'. This alarm is only activated on MCU master types 30110, 3096, 30125, 0024, 0948, 0548, 0348, 0948 and 3048M6.				
AL22	Ambient Temperature Too Low	Sensors	Temperature	minor (0)	5 / 2
	The ambient temperature is too low and is greater than -600 units. There is an hysteresis corresponding to parameter 'Ambient temperature hysteresis'. This alarm is only activated on MCU master types 30110, 3096, 30125, 0024, 0948, 0548, 0348, 0948 and 3048M6.				
AL23	Ambient Temperature Sensor Fail	Sensors	Temperature	minor (0)	5 / 2
	The ambient temperature sensor (NTC) value is inferior to -500 units meaning that it is not connected or defective.				
AL25	Distribution Breaker Open	Digital Inputs		major (6)	5 / 2
	This alarm is related to digital input 1. This alarm is activated if digital input value is different to configuration parameter 'Digital Input Alarm Value'				
AL26	Battery Breaker Open	Digital Inputs		minor (4)	5 / 2
	This alarm is related to digital input 2. This alarm is activated if digital input value is different to configuration parameter 'Digital Input Alarm Value'				
AL27	Digital Input 3	Digital Inputs		none (0)	5 / 2
	This alarm is related to digital input 3. This alarm is activated if digital input value is different to configuration parameter 'Digital Input Alarm Value'				
AL28	Digital Input 4	Digital Inputs		none (0)	5 / 2
	This alarm is related to digital input 4. This alarm is activated if digital input value is different to configuration parameter 'Digital Input Alarm Value'				

Data Table					
Id	Name	Group	SubGroup	Unit	License
DA1	DC Mode	System			basic
	The DC system can have 5 values: 'Float'(0), 'Equalize'(1), 'Battery Test'(2), 'Ac Failure'(3) or 'Safe'(5)				
DA2	Previous DC Mode	System			basic

	The previous value of the DC Mode : 'Float'(0), 'Equalize'(1), 'Battery Test'(2), 'Ac Failure'(3) or 'Safe'(5)				
DA3	Minutes Since Last Mode Change	System		minute	basic
	The number of minute between the last DC Mode Change and now				
DA4	NiMH Charge Mode	System			basic
DA11	Bus Voltage	DC Bus		Volt	basic
	The DC bus voltage in volt.				
DA12	Ratio Delivered On Available Power	System		%	basic
	This is the ratio of the delivered power divided by the installed power, in %.				
DA13	Minutes Since Last AC Failure Begin	AC Bus		minute	basic
	The number of minute since the last AC Failure begin				
DA14	Minutes Since Last AC Failure End	AC Bus		minute	basic
	The number of minute since the last AC Failure end				
DA21	Rectifiers Output Power	Rectifiers		Watt	basic
	The sum of the delivered rectifier power				
DA22	Rectifiers Output Current	Rectifiers		Ampere	basic
	The sum of the delivered rectifier current				
DA23	Rectifiers Output Power Max	Rectifiers		Watt	basic
	The sum of the deliverable rectifier power				
DA24	Rectifiers Output Current Max	Rectifiers		Ampere	basic
	The sum of the deliverable rectifier current				
DA31	Number Of Rectifier Max	Rectifiers	Numbers		basic
	The maximum possible number of rectifier in this dc system				
DA32	Number Of Present Rectifier	Rectifiers	Numbers		basic
	The actual number of present rectifier in this dc system				
DA33	Number Of Absent Rectifier	Rectifiers	Numbers		basic
	The actual number of absent rectifier in this dc system				
DA34	Number Of Active Rectifier	Rectifiers	Numbers		basic
	The actual number of active rectifier in this dc system. An active rectifier is a rectifier which is present, DC OK, AC OK and not in remote off.				
DA35	Number Of AC-Fail Rectifier	Rectifiers	Numbers		basic
	The actual number or rectifier in AC Failure.				
DA36	Number Of DC-Fail Rectifier	Rectifiers	Numbers		basic
	The actual number or rectifier with DC Failure.				
DA37	Number Of Remote Off Rectifier	Rectifiers	Numbers		basic
	The actual number or rectifier in remote off.				
DA38	Number Of Over Temperature Rectifier	Rectifiers	Numbers		basic
	The actual number or rectifier in Over Temperature.				
DA41	Mains Phase 1 Voltage	AC Bus		Volt	basic
	The voltage on AC phase 1				
DA42	Mains Phase 2 Voltage	AC Bus		Volt	basic
	The voltage on AC phase 2				
DA43	Mains Phase 3 Voltage	AC Bus		Volt	basic
	The voltage on AC phase 3				
DA51	Load Power	Load		Watt	basic
	Estimation of the load power consumption				
DA52	Load Current	Load		Ampere	basic

	Estimation of the load current consumption				
DA61	Battery Input Current	Battery		Ampere	basic
	Measurement of the battery input current. A negative value means that the battery is discharging				
DA62	Battery Input Power	Battery		Watt	basic
	Measurement of the battery input power. A negative value means that the battery is discharging				
DA71	Battery Temperature	Battery	Temperature	degree C	basic
	The battery temperature				
DA72	Battery Test State	Battery	Battery Test		basic
	This is about the result of the last battery test. 10 values are possible : 'Never Tested'(0), 'Success'(1), 'On Going'(2), 'Failed: Timeout'(3), 'Failed: Vbus Too Low'(4), 'Failed: Load Too Low'(5), 'Failed: Ac Failure'(6), 'Failed: Canceled' (7), 'Failed: Lvd Opened'(8), 'Failed: No Battery'(9)				
DA73	Last Battery Test Discharged Capacity Ratio	Battery	Battery Test	%	basic
	This is the battery capacity, in percent, discharged during the last battery test. This value is updated at the end of the battery test.				
DA74	Last Battery Test Discharged Capacity	Battery	Battery Test	Ah	basic
	This is the battery capacity, in ampere hour, discharged during the last battery test. This value is updated at the end of the battery test.				
DA75	Last Battery Test Final Voltage	Battery	Battery Test	Volt	basic
	This is the bus voltage at the end of the last battery test. This value is updated at the end of the battery test.				
DA76	Battery Test Duration	Battery	Battery Test	minute	basic
	The duration of the last battery test. This value is updated at the end of the battery test. This value can't be higher than 1440 minutes (24 hours).				
DA77	Previous Battery Test Discharged Capacity Ratio	Battery	Battery Test	%	basic
	This is the battery capacity, in percent, discharged during the previous battery test. This value is shifted at the end of the battery test.				
DA78	Previous Battery Test Discharged Capacity	Battery	Battery Test	Ah	basic
	This is the battery capacity, in ampere hour, discharged during the previous battery test. This value is shifted at the end of the battery test.				
DA79	Previous Battery Test Final Voltage	Battery	Battery Test	Volt	basic
	This is the bus voltage at the end of the previous battery test. This value is shifted at the end of the battery test.				
DA80	Previous Battery Test Duration	Battery	Battery Test	minute	basic
	The duration of the previous battery test. This value is shifted at the end of the battery test. This value can't be higher than 1440 minutes (24 hours).				
DA81	Previous Battery Test State	Battery	Battery Test		basic
	The result of the previous battery test - 10 values are possible: 'Never Tested'(0), 'Success'(1), 'On Going'(2), 'Failed: Timeout'(3), 'Failed: Vbus Too Low'(4), 'Failed: Load Too Low'(5), 'Failed: Ac Failure'(6), 'Failed: Canceled', 'Failed: Lvd Opened'(8), 'Failed: No Battery'(9)				
DA82	Minutes Since Last Test Battery	Battery	Battery Test	minute	basic
	The number of minute since the end of last battery test				
DA84	Next Scheduled Battery Test	Battery	Battery Test		basic
	The date and time of the next time the scheduled battery test will run				
DA91	Battery Charge Capacity	Battery	Autonomy	%	basic
	The battery charge capacity, calculated by integration of the current.				
DA92	Calculated Autonomy	Battery	Autonomy	minute	basic
	Calculation of the remaining autonomy. This value can change following the load of your system and the maximal depth of discharge configuration (CF39).				
DA94	Battery Current Integration	Battery	Autonomy	Ah	basic

	Actual value of the integration of the current, in Ampere * hour				
DA101	LVD State	LVD			basic
	Actual state of the LVD				
DA111	Relay 1 State	Relays	Relay 1		basic
	Actual state of the Relay 1				
DA112	Relay 2 State	Relays	Relay 2		basic
	Actual state of the Relay 2				
DA113	Relay 3 State	Relays	Relay 3		basic
	Actual state of the Relay 3				
DA114	Relay 4 State	Relays	Relay 4		basic
	Actual state of the Relay 3				
DA121	Efficiency Optimized Number Of Rectifier	Smart Energy			asset
	The optimal number of ON rectifier for Efficiency Optimization				
DA122	System Loss Without Optimization	Smart Energy		Watt	underdev
	Estimation of the losses without optimisation				
DA123	System Loss With Optimization	Smart Energy		Watt	underdev
	Estimation of the losses with optimisation				
DA124	Rectifier Model Used For Calculation	Smart Energy			asset
	The rectifier model used				
DA125	Smart Energy Savings	Smart Energy		Watt	asset
	Estimation of the losses with optimisation				
DA151	Ambient Temperature	Sensors	Temperature	degree C	basic
	The ambient temperature (second temperature sense)				
DA161	Voltage 1	Sensors	Voltage 1	Volt	basic
	The voltage measured by the sense 1. Can be used for battery symmetry measurement. Calculation can be done with the PLC				
DA162	Voltage 2	Sensors	Voltage 2	Volt	basic
	The voltage measured by the sense 2. Can be used for battery symmetry measurement. Calculation can be done with the PLC				
DA163	Voltage 3	Sensors	Voltage 3	Volt	basic
	The voltage measured by the sense 3. Can be used for battery symmetry measurement. Calculation can be done with the PLC				
DA204	Pulse Counter 4	Sensors	Pulse Counter 4		basic
	The counter value of the digital input 4.				

Config Table						
<i>Id</i>	<i>Name</i>	<i>Group</i>	<i>SubGroup</i>	<i>Unit</i>	<i>Range: Min/Max (default)</i>	<i>License</i>
CF1	DC Bus Float Voltage at 25 degC	DC Bus		Volt	40/60 (54)	basic
	The floating dc bus voltage of the system at 25 Celsius degree					
CF2	DC Bus Voltage Extra Low	DC Bus	Alarm Parameters	Volt	40/60 (45)	basic
	The bus voltage under which the alarm 'DC Bus Voltage Extra Low' is set.					
CF3	DC Bus Voltage Extra Low Hysteresis	DC Bus	Alarm Parameters	Volt	0/5 (1)	basic
	The voltage hysteresis on the alarm 'DC Bus Voltage Extra Low'.					

CF4	DC Bus Voltage Low	DC Bus	Alarm Parameters	Volt	40/60 (48)	basic
	The bus voltage under which the alarm 'DC Bus Voltage Low' is set.					
CF5	DC Bus Voltage Low Hysteresis	DC Bus	Alarm Parameters	Volt	0/5 (0.5)	basic
	The voltage hysteresis on the alarm 'DC Bus Voltage Low'					
CF6	DC Bus Voltage High	DC Bus	Alarm Parameters	Volt	40/60 (56.5)	basic
	The bus voltage over which the alarm 'DC Bus Voltage High' is set.					
CF7	DC Bus Voltage High Hysteresis	DC Bus	Alarm Parameters	Volt	0/5 (0.5)	basic
	The voltage hysteresis on the alarm 'DC Bus Voltage High'					
CF8	DC Bus Voltage Extra High	DC Bus	Alarm Parameters	Volt	40/60 (58)	basic
	The bus voltage over which the alarm 'DC Bus Voltage Extra High' is set.					
CF9	DC Bus Voltage Extra High Hysteresis	DC Bus	Alarm Parameters	Volt	0/5 (0.5)	basic
	The voltage hysteresis on the alarm 'DC Bus Voltage Extra High'					
CF10	LVD Disconnect Voltage	LVD		Volt	0/50 (43.2)	basic
	The dc bus voltage under which the battery must be disconnected of the bus. This allows preserving the battery life. The load will be unpowered. This value has to be lower than the Battery test end voltage (CF70)					
CF11	LVD Disconnect Delay	LVD		second	1/2000 (1)	basic
	The delay in second before disconnecting the battery if the dc bus voltage is under the configured disconnected voltage. This avoids disconnection during a low bus transient.					
CF21	Temperature Compensation Slope	Battery	Temperature Compensation	mV/degree	-1000/0 (-72)	basic
	The slope of the battery temperature compensation in mv/degree. For a 48V system, -72mV/degree is often used.					
CF22	Maximum Positive Temperature Compensation	Battery	Temperature Compensation	Volt	0/10 (3)	basic
	The maximal allowed positive compensation.					
CF23	Maximum Negative Temperature Compensation	Battery	Temperature Compensation	Volt	-10/0 (-3)	basic
	The maximal allowed negative compensation.					
CF25	Minimal Number Of Present Rectifiers	Rectifiers	Alarm Parameters		0/100 (0)	basic
	The minimal number of rectifier which must be present. If there is less present rectifiers, the alarm 'Missing Rectifiers' is set.					
CF26	Rectifier Model	Rectifiers				basic
	The rectifier model					
CF27	Forced Remote Off Rectifiers	Rectifiers	Remote Off			basic
	A list of rectifier which are forced in remote off. The id of the rectifier must be coma separated. Ex: 1,3 will maintain rectifier 1 and 3 off.					
CF31	Battery Charge Current Limit	Battery	Battery Charge Parameters	Ampere	0.5/1000 (1000)	basic
	The maximal battery current when the battery is charging. The monitoring regulates the bus voltage in order to satisfy this condition. This parameter is often equal to the nominal battery capacity divided by 10.					
CF32	Battery String Capacity	Battery		Ah	3/1000 (100)	basic
	The battery capacity in Ah.					

CF33	Battery Temperature Low	Battery	Alarm Parameters	degree C	-100/20 (0)	basic
	The temperature under which the alarm 'Battery Temperature Too Low' must be set.					
CF34	Battery Temperature High	Battery	Alarm Parameters	degree C	5/100 (40)	basic
	The temperature over which the alarm 'Battery Temperature Too High' must be set.					
CF35	Battery Temperature Hysteresis	Battery	Alarm Parameters	degree C	0/10 (2)	basic
	The hysteresis on the 'Battery Temperature Too High' and 'Battery Temperature Too Low' alarms.					
CF36	Minimal Current For Discharging Alarm	Battery	Alarm Parameters	Ampere	0/1000 (2)	basic
	The minimal discharging current to set the 'Battery On Discharge' alarm.					
CF37	Current Hysteresis For Discharging Alarm	Battery	Alarm Parameters	Ampere	0/50 (0.5)	basic
	The hysteresis on the 'Battery On Discharge' alarm.					
CF38	Peukert Number	Battery	Autonomy		1/2 (1)	basic
	The Peukert number relates to the internal resistance of a battery and provides an indication of the expected capacity. The ideal number is 1. This value can be calculated with the formula: $(\ln(t_2) - \ln(t_1)) / (\ln(i_1) - \ln(i_2))$ where t_x is the autonomy in hours at a constant discharge current of i_x Amps. Often, we use $t_1 = 1h$ and $t_2 = 10h$					
CF39	Max Depth Of Discharge for Autonomy Estimation	Battery	Autonomy		10/100 (100)	basic
	It is generally recommended to discharge maximum 60% of the battery capacity to enhance battery lifetime. By default, 100% is used for autonomy calculation. This parameter can also be used to take into account the age of the battery					
CF51	Boost Automatic	Battery	Boost		False/False (False)	battery
	The boost mode must be automatically after the fact that during a mains failure, the bus voltage went under the configured 'Boost Activation Low Voltage'. This allows charging the battery faster.					
CF52	Boost Activation Low Voltage	Battery	Boost	Volt	43/50 (46)	battery
	The voltage under which the boost mode can be activated.					
CF53	Boost Termination Voltage	Battery	Boost	Volt	50/58 (56.4)	battery
	The voltage over which the system must go back to floating mode.					
CF54	Boost Termination Current	Battery	Boost	Ampere	0/100 (2)	battery
	The battery charging current under which the system must go back to floating mode.					
CF55	Boost Termination Time	Battery	Boost	minute	10/240 (120)	battery
	The time in minute after which the system must go back in floating mode.					
CF69	Battery Test Type	Battery	Battery Test			battery
	Type of the battery test: Capacity based: The battery must give the requested capacity before falling lower than a value Time Based: The battery must sustain a defined load during a defined time.					
CF70	Battery Test End Voltage	Battery	Battery Test	Volt	30/60 (46)	battery
	The voltage at which any battery test must be stopped. This value has to be higher than the LVD Disconnect voltage (CF10)					
CF71	Battery Test Discharge Ratio	Battery	Battery Test	%	0/100 (0)	battery
	The ratio of the battery capacity to discharge. If 30 is set, 30% of the battery will be discharged during the test					
CF72	Battery Test Interval	Battery	Battery Test	day	0/3000 (0)	battery

	The number of days between two automatically started battery test. If this parameter is set to 0, the battery test is not started automatically. The user can remotely or locally start or force this test.					
CF73	Battery Test Discharge Current	Battery	Battery Test	Ampere	3/100 (1000)	battery
	The current at which the battery must be discharged during a battery test. The monitoring regulates the bus voltage in order to satisfy this condition. The load current must be of course higher than this parameter.					
CF74	Battery Test Minimal Discharge Current	Battery	Battery Test	Ampere	2/90 (2)	battery
	The battery current under which the battery test must be stopped because the load is too low.					
CF75	Battery Test Duration	Battery	Battery Test	minute	1/5000 (10)	battery
	The timeout in minute after which the battery test must be stopped.					
CF76	Battery Test Requested Minutes Without Mains Failure	Battery	Battery Test	minute	0/5000 (1440)	battery
	The minimal time in minute without mains failure in order to allow a battery start. This parameter is not taken into account when the battery test is forced.					
CF77	Battery Test Scheduler Cron Rule	Battery	Battery Test			basic
CF78	Battery Test Disable Low Voltage Alarms	Battery	Battery Test	minute	0/1000 (0)	basic
	Allow to disable the alarms AL1 and AL2 during a battery test if value >0. Settings 15 means disabling for 15 minutes after the battery test end, to avoid alarms during recharge also					
CF83	Smart Energy Boolean Condition	Smart Energy				asset
	This is the boolean condition which allows or not to automatically optimize the number of rectifier in remote off.					
CF86	Battery LVD Node Id	LVD			True/False (False)	basic
	This is a list of the node id of the Smart Electronic LVDs, coma separated					
CF91	Digital Input 1 Name	Digital Inputs	Digital Input 1		Distribution Breaker Open	basic
	The name of the digital input 1					
CF92	Digital Input 1 Normally Closed	Digital Inputs	Digital Input 1		True/False (True)	basic
	True/False value defining if the digital input 1 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF93	Digital Input 2 Name	Digital Inputs	Digital Input 2		Battery Breaker Open	basic
	The name of the digital input 2					
CF94	Digital Input 2 Normally Closed	Digital Inputs	Digital Input 2		True/False (True)	basic
	True/False value defining if the digital input 2 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF95	Digital Input 3 Name	Digital Inputs	Digital Input 3		Digital Input 3	basic
	The name of the digital input 3					
CF96	Digital Input 3 Normally Closed	Digital Inputs	Digital Input 3		True/False (True)	basic
	True/False value defining if the digital input 3 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF97	Digital Input 4 Name	Digital Inputs	Digital Input 4		Digital Input 4	basic
	The name of the digital input 4					
CF98	Digital Input 4 Normally Closed	Digital Inputs	Digital Input 4		True/False (True)	basic

	True/False value defining if the digital input 4 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF111	Dry Alarm 1 Alternative Boolean Condition	Relays	Relay 1			plc
	Another Boolean condition to activate the dry alarm relay 1. The way to define boolean condition is detailed in the PLC chapter.					
CF112	Dry Alarm 2 Alternative Boolean Condition	Relays	Relay 2			plc
	Another Boolean condition to activate the dry alarm relay 2. The way to define boolean condition is detailed in the PLC chapter.					
CF113	Dry Alarm 3 Alternative Boolean Condition	Relays	Relay 3			plc
	Another Boolean condition to activate the dry alarm relay 3. The way to define boolean condition is detailed in the PLC chapter.					
CF114	Dry Alarm 4 Alternative Boolean Condition	Relays	Relay 4			plc
	Another Boolean condition to activate the dry alarm relay 4. The way to define boolean condition is detailed in the PLC chapter.					
CF131	Ambient Temperature Low	Sensors	Temperature	degree C		basic
	The temperature under which the alarm 'Ambient Temperature Too Low' must be set.					
CF132	Ambient Temperature High	Sensors	Temperature	degree C		basic
	The temperature under which the alarm 'Ambient Temperature Too Low' must be set.					
CF133	Ambient Temperature Hysteresis	Sensors	Temperature	degree C		basic
	The hysteresis on the 'Battery Temperature Too High' and 'Battery Temperature Too Low' alarms.					
CF161	Forced Remote Off Rectifiers Boolean Condition	Rectifiers	Remote Off			basic
	The boolean PLC conditon to enable the forced remote off					
CF521	Read Access User Numbers	Generic	Allowed Users		(1,2,3,4,5)	basic
	The list of the user numbers which have read access to this equipment. The user numbers are coma separated. The accepted user id are 1,2,3,4 and 5. Ex: 1,3,4					
CF522	Write Access User Numbers	Generic	Allowed Users		()	basic
	The list of the user numbers which have write access to this equipment. This means that these users can modify the configuration element, the alarm settings and use the control elements. The user numbers are coma separated. The accepted user ids are 1,2,3,4 and 5. Ex: 1,3,4					
CF601	Event Table Length	Generic	Events		10/4000 (100)	basic
	The maximum length of the table. The value must be comprised between 10 and 4000					
CF602	Event Table Length By Rectifier	Generic	Events		10/4000 (100)	basic
	The maximum length of the table. The value must be comprised between 10 and 4000					
CF901	Number Of PLC Data	PLC			(0)	plc
	The number of PLC data. Every equipment can manage up to 30 user programmable data. Data elements are automatically added in the data table. Configuration parameters are added to set the PLC Data Name and the PLC Data Mathematical calculation. In order to use these functionalities, you need a license with the 'PLC' module					
CF902	Number Of PLC Alarm	PLC			(0)	plc
	The number of PLC alarm. Every equipment can manage up to 30 user programmable alarms. Alarm elements are automatically added in the alarm table. The alarm parameters are added to set the PLC Alarm					

	Name and the PLC Alarm Boolean condition. In order to use these functionalities, you need a licence with the 'PLC' module

Control Table				
<i>Id</i>	<i>Name</i>	<i>Group</i>	<i>SubGroup</i>	<i>License</i>
CT1	Back To Float	System		basic
	The dc system must go back in floating mode.			
CT2	Start Battery Test	System		battery
	The dc system must start a battery test.			
CT3	Force Battery Test	System		battery
	The dc system must force a battery test.			
CT4	Start Boost Mode	System		battery
	The dc system must go in boost mode.			
CT11	Open The LVD	LVD		basic
	Try to open the LVD. It could not work if the LVD is electronic, and the request will be canceled after 15 sec.			
CT12	Close The LVD	LVD		basic
	The LVD must be closed			
CT21	Correct Battery Current Offset	Battery		basic
CT41	Reset Last Battery Test State	Battery		battery
	Reset the state of the last battery test. If an alarm 'Battery Last Test Failed' is set, the alarm will be cleared.			
CT51	Save Configuration In MCU	Save		basic
	Save configuration parameters in the MCU micro-controller. If Compas is not present, the system will be correctly managed.			
CT55	Set MCU Specific Configuration Id	Advanced	Factory	basic
	This control allows to reconfigure the MCU to support specific hardware configuration, with embedded distribution for example			
CT61	Set Digital Input 4 Counter Value	Digital Inputs	Digital Input 4	basic
	Set Counter Value			
CT111	Invert Relay 1 State For X Seconds	Relays	Relay 1	basic
	Generate Pulse on relay 1			
CT112	Invert Relay 2 State For X Seconds	Relays	Relay 2	basic
	Generate Pulse on relay 2			
CT113	Invert Relay 3 State For X Seconds	Relays	Relay 3	basic
	Generate Pulse on relay 3			
CT114	Invert Relay 4 State For X Seconds	Relays	Relay 4	basic
	Generate Pulse on relay 4			
CT501	Clear My Events	Generic	Events	basic
	By writing '1' to this control element, all the events of this equipment will be cleared.			
CT502	Clear All Events	Generic	Events	basic
	By writing '1' to this control element, all the events of this equipment and all the events of all the sub-equipments will be cleared.			
CT511	Add Event	Generic	Events	basic
	This control element adds an event of severity none. The event name is the text written to this control element			
CT512	Add Major Event	Generic	Events	basic
	This control element adds an event of severity major. The event name is the text written to this control element			
CT521	Reset Default Names And Groups	Generic	Renaming	basic

	This control element resets all the element Names, Groups and Subgroups to default values for this equipment			
CT522	Reset Default Names And Groups Recursive	Generic	Renaming	basic
	This control element resets all the element Names, Groups and Subgroups to default values for this equipment and all sub equipments			

15.2.10 MCU0948M4NG / MCU0948M4LP

Device Information	
Name	MCU0948M4NG / MCU0948M4LP
Short Description	1U high controller with LCD display / Low profile controller (1/2U high)
Long Description	Monitoring and control unit, 1U high with LCD display, USB and Ethernet port - Captin FA, Captin BW, ACE102FALP and ACE104 lines / Low profile monitoring and control unit, 0.5U high, USB and Ethernet port - CAPTIN FA, CAPTIN BW lines
Hardware Reference	9413 060 95052 / 9413 060 95082
Software Reference	SOFT 000154 XX
Equipment Type	Monitoring Control Unit
ETSI Level	/site/energy_system/dc_system

Description Table				
<i>Id</i>	<i>Name</i>	<i>Group</i>	<i>SubGroup</i>	<i>License</i>
DE1	Description	Description	Custom Description	basic
	A free text zone to write a system description			
DE2	Reference	Description	Custom Description	basic
	A free text zone to write the customer reference of the system			
DE11	Product Name	Description	Product Info	basic
	The product name of the DC system monitoring			
DE12	Hardware Reference	Description	Product Info	basic
	The hardware reference of the DC system monitoring			
DE14	Software Reference	Description	Product Info	asset
	The software reference of the DC system monitoring			
DE16	Serial Number	Description	Product Info	asset
	The serial number of the DC system monitoring			
DE18	Manufacturing Date	Description	Product Info	asset
	The production date of the DC system monitoring			

Alarm Table					
<i>Id</i>	<i>Name</i>	<i>Group</i>	<i>SubGroup</i>	<i>Severity Type (Level)</i>	<i>Set/Clear Delay</i>
AL1	DC Bus Extra Low	DC Bus		major (6)	5 / 2
	The bus voltage is extra low. The alarm is set when the bus voltage is lower than the configuration parameter 'DC Bus Voltage Extra Low'. There is an hysteresis on the alarm : 'DC Bus Voltage Extra Low Hysteresis'. The alarm is not activated when DC mode is 'Battery Test'				
AL2	DC Bus Low	DC Bus		minor (4)	5 / 2
	The bus voltage is low. The alarm is set when the bus voltage is lower than the configuration parameter 'DC Bus Voltage Low'. There is an hysteresis on the alarm : 'DC Bus Voltage Low Hysteresis'				

AL3	DC Bus High	DC Bus		minor (4)	5 / 2
	The bus voltage is high. The alarm is set when the bus voltage is higher than the configuration parameter 'DC Bus Voltage High'. There is an hysteresis on the alarm : 'DC Bus Voltage High Hysteresis'				
AL4	DC Bus Extra High	DC Bus		major (6)	5 / 2
	The bus voltage is extra high. The alarm is set when the bus voltage is higher than the configuration parameter 'DC Bus Voltage Extra High'. There is an hysteresis on the alarm : 'DC Bus Voltage Extra High Hysteresis'				
AL5	DC Bus Voltage Sense Failure	DC Bus		major (6)	5 / 2
	The DC bus voltage sense is defective. The DC bus voltage is unconnected or misconfigured.				
AL6	Mains Failure	AC Bus		minor (4)	5 / 2
	The number of active rectifiers is equal to 0 - All the phases are down				
AL7	Mains Partial Failure	AC Bus		minor (4)	10 / 2
	The number of active rectifiers is greater than 0 and the number of rectifiers in AC failure is greater than 0. Some rectifiers are in AC Failure. It may be caused by an open breaker, a real phase failure, or by a rectifier failure.				
AL8	Mains Low	AC Bus		warning (2)	10 / 2
	The main voltage is low on one or more phases. No rectifier is in AC failure. If MCU master type is 30110, 3096 or 3048M6, an hysteresis _phase123Hysteresis is added to the voltage lower limit				
AL10	One Rectifier Failure	Rectifiers		minor (4)	5 / 2
	One rectifier must be replaced or is not powered correctly. The DC fail alarm of the rectifier is set. The number of rectifier with DC Failure is higher than 0, there is no mains failure, and the 'More Than One Rectifier Failure alarm is not set.'				
AL11	More Than One Rectifier Failure	Rectifiers		major (6)	10 / 2
	There is no mains failure and number of rectifier failures is greater than 1.				
AL12	Missing Rectifiers	Rectifiers		major (6)	5 / 2
	There is not enough rectifier according to the configuration parameter : 'Minimal Number Of Rectifier'				
AL13	Battery Last Test Failed	Battery	Battery Test	minor (3)	5 / 2
	The last battery test did not succeed and was not cancelled. Maybe the battery should be replaced. Check inside the dc system data for more information about the last test.				
AL14	Battery On Discharge	Battery		minor (4)	10 / 2
	The battery is discharging. This means that the load is too high for the installed rectifiers. This alarm is inactive when the system in AC Failure or during a battery test. There is an hysteresis corresponding to battery parameter 'Is discharging current hysteresis'.				
AL17	Battery LVD Relay Open	LVD		major (6)	5 / 2
	The battery Low Voltage Disconnect is open. On Systems without LVD_Status signal, like MCU 1848 or MCU 1x6, the alarm is present only if the signal LVD_COM asks to open the LVD				
AL18	Battery Temperature Too High	Battery	Temperature	minor (3)	5 / 2
	The temperature of the battery is too high and is greater than -600 units. There is an hysteresis corresponding to battery parameter 'Temperature hysteresis'.				
AL19	Battery Temperature Too Low	Battery	Temperature	minor (3)	5 / 2
	The temperature of the battery is too low and is greater than -600 units. There is an hysteresis corresponding to battery parameter 'Temperature hysteresis'.				
AL20	Battery Temperature Sensor Fail	Battery	Temperature	minor (3)	5 / 2
	The battery temperature sensor (NTC) value is inferior to -500 units or superior to 300 units meaning that it is not connected or defective.				
AL21	Ambient Temperature Too High	Sensors	Temperature	minor (0)	5 / 2
	The ambient temperature is too high and is greater than -600 units. There is an hysteresis corresponding to parameter 'Ambient temperature hysteresis'. This alarm is only activated on MCU master types 30110, 3096, 30125, 0024, 0948, 0548, 0348, 0948 and 3048M6.				
AL22	Ambient Temperature Too Low	Sensors	Temperature	minor (0)	5 / 2

	The ambient temperature is too low and is greater than -600 units. There is an hysteresis corresponding to parameter 'Ambient temperature hysteresis'. This alarm is only activated on MCU master types 30110, 3096, 30125, 0024, 0948, 0548, 0348, 0948 and 3048M6.				
AL23	Ambient Temperature Sensor Fail	Sensors	Temperature	minor (0)	5 / 2
	The ambient temperature sensor (NTC) value is inferior to -500 units meaning that it is not connected or defective.				
AL25	Distribution Breaker Open	Digital Inputs		major (6)	5 / 2
	This alarm is related to digital input 1. This alarm is activated if digital input value is different to configuration parameter 'Digital Input Alarm Value'				
AL26	Battery Breaker Open	Digital Inputs		minor (4)	5 / 2
	This alarm is related to digital input 2. This alarm is activated if digital input value is different to configuration parameter 'Digital Input Alarm Value'				
AL27	Digital Input 3	Digital Inputs		none (0)	5 / 2
	This alarm is related to digital input 3. This alarm is activated if digital input value is different to configuration parameter 'Digital Input Alarm Value'				
AL28	Digital Input 4	Digital Inputs		none (0)	5 / 2
	This alarm is related to digital input 4. This alarm is activated if digital input value is different to configuration parameter 'Digital Input Alarm Value'				

Data Table					
<i>Id</i>	<i>Name</i>	<i>Group</i>	<i>SubGroup</i>	<i>Unit</i>	<i>License</i>
DA1	DC Mode	System			basic
	The DC system can have 5 values: 'Float'(0), 'Equalize'(1), 'Battery Test'(2), 'Ac Failure'(3) or 'Safe'(5)				
DA2	Previous DC Mode	System			basic
	The previous value of the DC Mode : 'Float'(0), 'Equalize'(1), 'Battery Test'(2), 'Ac Failure'(3) or 'Safe'(5)				
DA3	Minutes Since Last Mode Change	System		minute	basic
	The number of minute between the last DC Mode Change and now				
DA4	NiMH Charge Mode	System			basic
DA11	Bus Voltage	DC Bus		Volt	basic
	The DC bus voltage in volt.				
DA12	Ratio Delivered On Available Power	System		%	basic
	This is the ratio of the delivered power divided by the installed power, in %.				
DA13	Minutes Since Last AC Failure Begin	AC Bus		minute	basic
	The number of minute since the last AC Failure begin				
DA14	Minutes Since Last AC Failure End	AC Bus		minute	basic
	The number of minute since the last AC Failure end				
DA21	Rectifiers Output Power	Rectifiers		Watt	basic
	The sum of the delivered rectifier power				
DA22	Rectifiers Output Current	Rectifiers		Ampere	basic
	The sum of the delivered rectifier current				
DA23	Rectifiers Output Power Max	Rectifiers		Watt	basic
	The sum of the deliverable rectifier power				
DA24	Rectifiers Output Current Max	Rectifiers		Ampere	basic
	The sum of the deliverable rectifier current				
DA31	Number Of Rectifier Max	Rectifiers	Numbers		basic
	The maximum possible number of rectifier in this dc system				
DA32	Number Of Present Rectifier	Rectifiers	Numbers		basic
	The actual number of present rectifier in this dc system				

DA33	Number Of Absent Rectifier	Rectifiers	Numbers		basic
	The actual number of absent rectifier in this dc system				
DA34	Number Of Active Rectifier	Rectifiers	Numbers		basic
	The actual number of active rectifier in this dc system. An active rectifier is a rectifier which is present, DC OK, AC OK and not in remote off.				
DA35	Number Of AC-Fail Rectifier	Rectifiers	Numbers		basic
	The actual number or rectifier in AC Failure.				
DA36	Number Of DC-Fail Rectifier	Rectifiers	Numbers		basic
	The actual number or rectifier with DC Failure.				
DA37	Number Of Remote Off Rectifier	Rectifiers	Numbers		basic
	The actual number or rectifier in remote off.				
DA38	Number Of Over Temperature Rectifier	Rectifiers	Numbers		basic
	The actual number or rectifier in Over Temperature.				
DA41	Mains Phase 1 Voltage	AC Bus		Volt	basic
	The voltage on AC phase 1				
DA42	Mains Phase 2 Voltage	AC Bus		Volt	basic
	The voltage on AC phase 2				
DA43	Mains Phase 3 Voltage	AC Bus		Volt	basic
	The voltage on AC phase 3				
DA51	Load Power	Load		Watt	basic
	Estimation of the load power consumption				
DA52	Load Current	Load		Ampere	basic
	Estimation of the load current consumption				
DA61	Battery Input Current	Battery		Ampere	basic
	Measurement of the battery input current. A negative value means that the battery is discharging				
DA62	Battery Input Power	Battery		Watt	basic
	Measurement of the battery input power. A negative value means that the battery is discharging				
DA71	Battery Temperature	Battery	Temperature	degree C	basic
	The battery temperature				
DA72	Battery Test State	Battery	Battery Test		basic
	This is about the result of the last battery test. 10 values are possible : 'Never Tested'(0), 'Success'(1), 'On Going'(2), 'Failed: Timeout'(3), 'Failed: Vbus Too Low'(4), 'Failed: Load Too Low'(5), 'Failed: Ac Failure'(6), 'Failed: Canceled' (7), 'Failed: Lvd Opened'(8), 'Failed: No Battery'(9)				
DA73	Last Battery Test Discharged Capacity Ratio	Battery	Battery Test	%	basic
	This is the battery capacity, in percent, discharged during the last battery test. This value is updated at the end of the battery test.				
DA74	Last Battery Test Discharged Capacity	Battery	Battery Test	Ah	basic
	This is the battery capacity, in ampere hour, discharged during the last battery test. This value is updated at the end of the battery test.				
DA75	Last Battery Test Final Voltage	Battery	Battery Test	Volt	basic
	This is the bus voltage at the end of the last battery test. This value is updated at the end of the battery test.				
DA76	Battery Test Duration	Battery	Battery Test	minute	basic
	The duration of the last battery test. This value is updated at the end of the battery test. This value can't be higher than 1440 minutes (24 hours).				
DA77	Previous Battery Test Discharged Capacity Ratio	Battery	Battery Test	%	basic
	This is the battery capacity, in percent, discharged during the previous battery test. This value is shifted at the end of the battery test.				

DA78	Previous Battery Test Discharged Capacity	Battery	Battery Test	Ah	basic
	This is the battery capacity, in ampere hour, discharged during the previous battery test. This value is shifted at the end of the battery test.				
DA79	Previous Battery Test Final Voltage	Battery	Battery Test	Volt	basic
	This is the bus voltage at the end of the previous battery test. This value is shifted at the end of the battery test.				
DA80	Previous Battery Test Duration	Battery	Battery Test	minute	basic
	The duration of the previous battery test. This value is shifted at the end of the battery test. This value can't be higher than 1440 minutes (24 hours).				
DA81	Previous Battery Test State	Battery	Battery Test		basic
	The result of the previous battery test - 10 values are possible: 'Never Tested'(0), 'Success'(1), 'On Going'(2), 'Failed: Timeout'(3), 'Failed: Vbus Too Low'(4), 'Failed: Load Too Low'(5), 'Failed: Ac Failure'(6), 'Failed: Canceled', 'Failed: Lvd Opened'(8), 'Failed: No Battery'(9)				
DA82	Minutes Since Last Test Battery	Battery	Battery Test	minute	basic
	The number of minute since the end of last battery test				
DA84	Next Scheduled Battery Test	Battery	Battery Test		basic
	The date and time of the next time the scheduled battery test will run				
DA91	Battery Charge Capacity	Battery	Autonomy	%	basic
	The battery charge capacity, calculated by integration of the current.				
DA92	Calculated Autonomy	Battery	Autonomy	minute	basic
	Calculation of the remaining autonomy. This value can change following the load of your system and the maximal depth of discharge configuration (CF39).				
DA94	Battery Current Integration	Battery	Autonomy	Ah	basic
	Actual value of the integration of the current, in Ampere * hour				
DA101	LVD State	LVD			basic
	Actual state of the LVD				
DA111	Relay 1 State	Relays	Relay 1		basic
	Actual state of the Relay 1				
DA112	Relay 2 State	Relays	Relay 2		basic
	Actual state of the Relay 2				
DA113	Relay 3 State	Relays	Relay 3		basic
	Actual state of the Relay 3				
DA114	Relay 4 State	Relays	Relay 4		basic
	Actual state of the Relay 3				
DA121	Efficiency Optimized Number Of Rectifier	Smart Energy			asset
	The optimal number of ON rectifier for Efficiency Optimization				
DA122	System Loss Without Optimization	Smart Energy		Watt	underdev
	Estimation of the losses without optimisation				
DA123	System Loss With Optimization	Smart Energy		Watt	underdev
	Estimation of the losses with optimisation				
DA124	Rectifier Model Used For Calculation	Smart Energy			asset
	The rectifier model used				
DA125	Smart Energy Savings	Smart Energy		Watt	asset
	Estimation of the losses with optimisation				
DA151	Ambient Temperature	Sensors	Temperature	degree C	basic
	The ambient temperature (second temperature sense)				
DA161	Voltage 1	Sensors	Voltage 1	Volt	basic

	The voltage measured by the sense 1. Can be used for battery symmetry measurement. Calculation can be done with the PLC				
DA162	Voltage 2	Sensors	Voltage 2	Volt	basic
	The voltage measured by the sense 2. Can be used for battery symmetry measurement. Calculation can be done with the PLC				
DA163	Voltage 3	Sensors	Voltage 3	Volt	basic
	The voltage measured by the sense 3. Can be used for battery symmetry measurement. Calculation can be done with the PLC				
DA204	Pulse Counter 4	Sensors	Pulse Counter 4		basic
	The counter value of the digital input 4.				

Config Table						
<i>Id</i>	<i>Name</i>	<i>Group</i>	<i>SubGroup</i>	<i>Unit</i>	<i>Range: Min/Max (default)</i>	<i>License</i>
CF1	DC Bus Float Voltage at 25 degC	DC Bus		Volt	40/60 (54)	basic
	The floating dc bus voltage of the system at 25 Celsius degree					
CF2	DC Bus Voltage Extra Low	DC Bus	Alarm Parameters	Volt	40/60 (45)	basic
	The bus voltage under which the alarm 'DC Bus Voltage Extra Low' is set.					
CF3	DC Bus Voltage Extra Low Hysteresis	DC Bus	Alarm Parameters	Volt	0/5 (1)	basic
	The voltage hysteresis on the alarm 'DC Bus Voltage Extra Low'.					
CF4	DC Bus Voltage Low	DC Bus	Alarm Parameters	Volt	40/60 (48)	basic
	The bus voltage under which the alarm 'DC Bus Voltage Low' is set.					
CF5	DC Bus Voltage Low Hysteresis	DC Bus	Alarm Parameters	Volt	0/5 (0.5)	basic
	The voltage hysteresis on the alarm 'DC Bus Voltage Low					
CF6	DC Bus Voltage High	DC Bus	Alarm Parameters	Volt	40/60 (56.5)	basic
	The bus voltage over which the alarm 'DC Bus Voltage High' is set.					
CF7	DC Bus Voltage High Hysteresis	DC Bus	Alarm Parameters	Volt	0/5 (0.5)	basic
	The voltage hysteresis on the alarm 'DC Bus Voltage High					
CF8	DC Bus Voltage Extra High	DC Bus	Alarm Parameters	Volt	40/60 (58)	basic
	The bus voltage over which the alarm 'DC Bus Voltage Extra High' is set.					
CF9	DC Bus Voltage Extra High Hysteresis	DC Bus	Alarm Parameters	Volt	0/5 (0.5)	basic
	The voltage hysteresis on the alarm 'DC Bus Voltage Extra High					
CF10	LVD Disconnect Voltage	LVD		Volt	0/50 (43.2)	basic
	The dc bus voltage under which the battery must be disconnected of the bus. This allows preserving the battery life. The load will be unpowered. This value has to be lower than the Battery test end voltage (CF70)					
CF11	LVD Disconnect Delay	LVD		second	1/2000 (1)	basic
	The delay in second before disconnecting the battery if the dc bus voltage is under the configured disconnected voltage. This avoids disconnection during a low bus transient.					
CF15	Battery Type	Battery				battery
	Type of the battery					
CF21	Temperature Compensation Slope	Battery	Temperature Compensation	mV/degree	-1000/0 (-72)	basic

	The slope of the battery temperature compensation in mv/degree. For a 48V system, -72mV/degree is often used.					
CF22	Maximum Positive Temperature Compensation	Battery	Temperature Compensation	Volt	0/10 (3)	basic
	The maximal allowed positive compensation.					
CF23	Maximum Negative Temperature Compensation	Battery	Temperature Compensation	Volt	-10/0 (-3)	basic
	The maximal allowed negative compensation.					
CF25	Minimal Number Of Present Rectifiers	Rectifiers	Alarm Parameters		0/100 (0)	basic
	The minimal number of rectifier which must be present. If there is less present rectifiers, the alarm 'Missing Rectifiers' is set.					
CF26	Rectifier Model	Rectifiers				basic
	The rectifier model					
CF27	Forced Remote Off Rectifiers	Rectifiers	Remote Off			basic
	A list of rectifier which are forced in remote off. The id of the rectifier must be coma separated. Ex: 1,3 will maintain rectifier 1 and 3 off.					
CF31	Battery Charge Current Limit	Battery	Battery Charge Parameters	Ampere	0.5/1000 (1000)	basic
	The maximal battery current when the battery is charging. The monitoring regulates the bus voltage in order to satisfy this condition. This parameter is often equal to the nominal battery capacity divided by 10.					
CF32	Battery String Capacity	Battery		Ah	3/1000 (100)	basic
	The battery capacity in Ah.					
CF33	Battery Temperature Low	Battery	Alarm Parameters	degree C	-100/20 (0)	basic
	The temperature under which the alarm 'Battery Temperature Too Low' must be set.					
CF34	Battery Temperature High	Battery	Alarm Parameters	degree C	5/100 (40)	basic
	The temperature over which the alarm 'Battery Temperature Too High' must be set.					
CF35	Battery Temperature Hysteresis	Battery	Alarm Parameters	degree C	0/10 (2)	basic
	The hysteresis on the 'Battery Temperature Too High' and 'Battery Temperature Too Low' alarms.					
CF36	Minimal Current For Discharging Alarm	Battery	Alarm Parameters	Ampere	0/1000 (2)	basic
	The minimal discharging current to set the 'Battery On Discharge' alarm.					
CF37	Current Hysteresis For Discharging Alarm	Battery	Alarm Parameters	Ampere	0/50 (0.5)	basic
	The hysteresis on the 'Battery On Discharge' alarm.					
CF38	Peukert Number	Battery	Autonomy		1/2 (1)	basic
	The Peukert number relates to the internal resistance of a battery and provides an indication of the expected capacity. The ideal number is 1. This value can be calculated with the formula: $(\ln(t2) - \ln(t1)) / (\ln(i1) - \ln(i2))$ where tx is the autonomy in hours at a constant discharge current of ix Amps. Often, we use t1 = 1h and t2 = 10h					
CF39	Max Depth Of Discharge for Autonomy Estimation	Battery	Autonomy		10/100 (100)	basic
	It is generally recommended to discharge maximum 60% of the battery capacity to enhance battery lifetime. By default, 100% is used for autonomy calculation. This parameter can also be used to take into account the age of the battery					
CF51	Boost Automatic	Battery	Boost		False/False (False)	battery

	The boost mode must be automatically after the fact that during a mains failure, the bus voltage went under the configured 'Boost Activation Low Voltage'. This allows charging the battery faster.					
CF52	Boost Activation Low Voltage	Battery	Boost	Volt	43/50 (46)	battery
	The voltage under which the boost mode can be activated.					
CF53	Boost Termination Voltage	Battery	Boost	Volt	50/58 (56.4)	battery
	The voltage over which the system must go back to floating mode.					
CF54	Boost Termination Current	Battery	Boost	Ampere	0/100 (2)	battery
	The battery charging current under which the system must go back to floating mode.					
CF55	Boost Termination Time	Battery	Boost	minute	10/240 (120)	battery
	The time in minute after which the system must go back in floating mode.					
CF69	Battery Test Type	Battery	Battery Test			battery
	Type of the battery test: Capacity based: The battery must give the requested capacity before falling lower than a value Time Based: The battery must sustain a defined load during a defined time.					
CF70	Battery Test End Voltage	Battery	Battery Test	Volt	30/60 (46)	battery
	The voltage at which any battery test must be stopped. This value has to be higher than the LVD Disconnect voltage (CF10)					
CF71	Battery Test Discharge Ratio	Battery	Battery Test	%	0/100 (0)	battery
	The ratio of the battery capacity to discharge. If 30 is set, 30% of the battery will be discharged during the test					
CF72	Battery Test Interval	Battery	Battery Test	day	0/3000 (0)	battery
	The number of days between two automatically started battery test. If this parameter is set to 0, the battery test is not started automatically. The user can remotely or locally start or force this test.					
CF73	Battery Test Discharge Current	Battery	Battery Test	Ampere	3/100 (1000)	battery
	The current at which the battery must be discharged during a battery test. The monitoring regulates the bus voltage in order to satisfy this condition. The load current must be of course higher than this parameter.					
CF74	Battery Test Minimal Discharge Current	Battery	Battery Test	Ampere	2/90 (2)	battery
	The battery current under which the battery test must be stopped because the load is too low.					
CF75	Battery Test Duration	Battery	Battery Test	minute	1/5000 (10)	battery
	The timeout in minute after which the battery test must be stopped.					
CF76	Battery Test Requested Minutes Without Mains Failure	Battery	Battery Test	minute	0/5000 (1440)	battery
	The minimal time in minute without mains failure in order to allow a battery start. This parameter is not taken into account when the battery test is forced.					
CF77	Battery Test Scheduler Cron Rule	Battery	Battery Test			basic
CF78	Battery Test Disable Low Voltage Alarms	Battery	Battery Test	minute	0/1000 (0)	basic
	Allow to disable the alarms AL1 and AL2 during a battery test if value >0. Settings 15 means disabling for 15 minutes after the battery test end, to avoid alarms during recharge also					
CF83	Smart Energy Boolean Condition	Smart Energy				asset
	This is the boolean condition which allows or not to automatically optimize the number of rectifier in remote off.					
CF86	Battery LVD Node Id	LVD			True/False (False)	basic

	This is a list of the node id of the Smart Electronic LVDs, coma separated					
CF91	Digital Input 1 Name	Digital Inputs	Digital Input 1		Distribution Breaker Open	basic
	The name of the digital input 1					
CF92	Digital Input 1 Normally Closed	Digital Inputs	Digital Input 1		True/False (True)	basic
	True/False value defining if the digital input 1 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF93	Digital Input 2 Name	Digital Inputs	Digital Input 2		Battery Breaker Open	basic
	The name of the digital input 2					
CF94	Digital Input 2 Normally Closed	Digital Inputs	Digital Input 2		True/False (True)	basic
	True/False value defining if the digital input 2 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF95	Digital Input 3 Name	Digital Inputs	Digital Input 3		Digital Input 3	basic
	The name of the digital input 3					
CF96	Digital Input 3 Normally Closed	Digital Inputs	Digital Input 3		True/False (True)	basic
	True/False value defining if the digital input 3 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF97	Digital Input 4 Name	Digital Inputs	Digital Input 4		Digital Input 4	basic
	The name of the digital input 4					
CF98	Digital Input 4 Normally Closed	Digital Inputs	Digital Input 4		True/False (True)	basic
	True/False value defining if the digital input 4 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF111	Dry Alarm 1 Alternative Boolean Condition	Relays	Relay 1			plc
	Another Boolean condition to activate the dry alarm relay 1. The way to define boolean condition is detailed in the PLC chapter.					
CF112	Dry Alarm 2 Alternative Boolean Condition	Relays	Relay 2			plc
	Another Boolean condition to activate the dry alarm relay 2. The way to define boolean condition is detailed in the PLC chapter.					
CF113	Dry Alarm 3 Alternative Boolean Condition	Relays	Relay 3			plc
	Another Boolean condition to activate the dry alarm relay 3. The way to define boolean condition is detailed in the PLC chapter.					
CF114	Dry Alarm 4 Alternative Boolean Condition	Relays	Relay 4			plc
	Another Boolean condition to activate the dry alarm relay 4. The way to define boolean condition is detailed in the PLC chapter.					
CF131	Ambient Temperature Low	Sensors	Temperature	degree C		basic
	The temperature under which the alarm 'Ambient Temperature Too Low' must be set.					
CF132	Ambient Temperature High	Sensors	Temperature	degree C		basic
	The temperature under which the alarm 'Ambient Temperature Too Low' must be set.					
CF133	Ambient Temperature Hysteresis	Sensors	Temperature	degree C		basic
	The hysteresis on the 'Battery Temperature Too High' and 'Battery Temperature Too Low' alarms.					

CF161	Forced Remote Off Rectifiers Boolean Condition	Rectifiers	Remote Off			basic
	The boolean PLC condition to enable the forced remote off					
CF521	Read Access User Numbers	Generic	Allowed Users		(1,2,3,4,5)	basic
	The list of the user numbers which have read access to this equipment. The user numbers are coma separated. The accepted user id are 1,2,3,4 and 5. Ex: 1,3,4					
CF522	Write Access User Numbers	Generic	Allowed Users		()	basic
	The list of the user numbers which have write access to this equipment. This means that these users can modify the configuration element, the alarm settings and use the control elements. The user numbers are coma separated. The accepted user ids are 1,2,3,4 and 5. Ex: 1,3,4					
CF601	Event Table Length	Generic	Events		10/4000 (100)	basic
	The maximum length of the table. The value must be comprised between 10 and 4000					
CF602	Event Table Length By Rectifier	Generic	Events		10/4000 (100)	basic
	The maximum length of the table. The value must be comprised between 10 and 4000					
CF901	Number Of PLC Data	PLC			(0)	plc
	The number of PLC data. Every equipment can manage up to 30 user programmable data. Data elements are automatically added in the data table. Configuration parameters are added to set the PLC Data Name and the PLC Data Mathematical calculation. In order to use these functionalities, you need a license with the 'PLC' module					
CF902	Number Of PLC Alarm	PLC			(0)	plc
	The number of PLC alarm. Every equipment can manage up to 30 user programmable alarms. Alarm elements are automatically added in the alarm table. The alarm parameters are added to set the PLC Alarm Name and the PLC Alarm Boolean condition. In order to use these functionalities, you need a licence with the 'PLC' module					

Control Table				
<i>Id</i>	<i>Name</i>	<i>Group</i>	<i>SubGroup</i>	<i>License</i>
CT1	Back To Float	System		basic
	The dc system must go back in floating mode.			
CT2	Start Battery Test	System		battery
	The dc system must start a battery test.			
CT3	Force Battery Test	System		battery
	The dc system must force a battery test.			
CT4	Start Boost Mode	System		battery
	The dc system must go in boost mode.			
CT11	Open The LVD	LVD		basic
	Try to open the LVD. It could not work if the LVD is electronic, and the request will be canceled after 15 sec.			
CT12	Close The LVD	LVD		basic
	The LVD must be closed			
CT21	Correct Battery Current Offset	Battery		basic
CT41	Reset Last Battery Test State	Battery		battery
	Reset the state of the last battery test. If an alarm 'Battery Last Test Failed' is set, the alarm will be cleared.			
CT51	Save Configuration In MCU	Save		basic
	Save configuration parameters in the MCU micro-controller. If Compas is not present, the system will be correctly managed.			
CT55	Set MCU Specific Configuration Id	Advanced	Factory	basic

	This control allows to reconfigure the MCU to support specific hardware configuration, with embedded distribution for example			
CT61	Set Digital Input 4 Counter Value	Digital Inputs	Digital Input 4	basic
	Set Counter Value			
CT111	Invert Relay 1 State For X Seconds	Relays	Relay 1	basic
	Generate Pulse on relay 1			
CT112	Invert Relay 2 State For X Seconds	Relays	Relay 2	basic
	Generate Pulse on relay 2			
CT113	Invert Relay 3 State For X Seconds	Relays	Relay 3	basic
	Generate Pulse on relay 3			
CT114	Invert Relay 4 State For X Seconds	Relays	Relay 4	basic
	Generate Pulse on relay 4			
CT501	Clear My Events	Generic	Events	basic
	By writing '1' to this control element, all the events of this equipment will be cleared.			
CT502	Clear All Events	Generic	Events	basic
	By writing '1' to this control element, all the events of this equipment and all the events of all the sub-equipments will be cleared.			
CT511	Add Event	Generic	Events	basic
	This control element adds an event of severity none. The event name is the text written to this control element			
CT512	Add Major Event	Generic	Events	basic
	This control element adds an event of severity major. The event name is the text written to this control element			
CT521	Reset Default Names And Groups	Generic	Renaming	basic
	This control element resets all the element Names, Groups and Subgroups to default values for this equipment			
CT522	Reset Default Names And Groups Recursive	Generic	Renaming	basic
	This control element resets all the element Names, Groups and Subgroups to default values for this equipment and all sub equipments			

15.2.11 MCU1848M3 / MCU1848M3D

Device Information	
Name	MCU1848M3 / MCU1848M3D
Short Description	Controller without LCD display / Controller with LCD display
Long Description	Monitoring and control unit with USB and Ethernet port, no LCD display - ACE153 and ACE156 lines / Monitoring and control unit with LCD display, USB and Ethernet port - ACE153 and ACE156 line
Hardware Reference	9413 061 85041 / 9413 061 85051
Software Reference	SOFT 000066 XX
Equipment Type	Monitoring Control Unit
ETSI Level	/site/energy_system/dc_system

Description Table				
<i>Id</i>	<i>Name</i>	<i>Group</i>	<i>SubGroup</i>	<i>License</i>
DE1	Description	Description	Custom Description	basic
	A free text zone to write a system description			
DE2	Reference	Description	Custom Description	basic

	A free text zone to write the customer reference of the system			
DE11	Product Name	Description	Product Info	basic
	The product name of the DC system monitoring			
DE12	Hardware Reference	Description	Product Info	basic
	The hardware reference of the DC system monitoring			
DE14	Software Reference	Description	Product Info	asset
	The software reference of the DC system monitoring			
DE16	Serial Number	Description	Product Info	asset
	The serial number of the DC system monitoring			
DE18	Manufacturing Date	Description	Product Info	asset
	The production date of the DC system monitoring			

Alarm Table					
<i>Id</i>	<i>Name</i>	<i>Group</i>	<i>SubGroup</i>	<i>Severity Type (Level)</i>	<i>Set/Clear Delay</i>
AL1	DC Bus Extra Low	DC Bus		major (6)	5 / 2
	The bus voltage is extra low. The alarm is set when the bus voltage is lower than the configuration parameter 'DC Bus Voltage Extra Low'. There is an hysteresis on the alarm : 'DC Bus Voltage Extra Low Hysteresis'. The alarm is not activated when DC mode is 'Battery Test'				
AL2	DC Bus Low	DC Bus		minor (4)	5 / 2
	The bus voltage is low. The alarm is set when the bus voltage is lower than the configuration parameter 'DC Bus Voltage Low'. There is an hysteresis on the alarm : 'DC Bus Voltage Low Hysteresis'				
AL3	DC Bus High	DC Bus		minor (4)	5 / 2
	The bus voltage is high. The alarm is set when the bus voltage is higher than the configuration parameter 'DC Bus Voltage High'. There is an hysteresis on the alarm : 'DC Bus Voltage High Hysteresis'				
AL4	DC Bus Extra High	DC Bus		major (6)	5 / 2
	The bus voltage is extra high. The alarm is set when the bus voltage is higher than the configuration parameter 'DC Bus Voltage Extra High'. There is an hysteresis on the alarm : 'DC Bus Voltage Extra High Hysteresis'				
AL5	DC Bus Voltage Sense Failure	DC Bus		major (6)	5 / 2
	The DC bus voltage sense is defective. The DC bus voltage is unconnected or misconfigured.				
AL6	Mains Failure	AC Bus		minor (4)	5 / 2
	The number of active rectifiers is equal to 0 - All the phases are down				
AL7	Mains Partial Failure	AC Bus		minor (4)	10 / 2
	The number of active rectifiers is greater than 0 and the number of rectifiers in AC failure is greater than 0. Some rectifiers are in AC Failure. It may be caused by an open breaker, a real phase failure, or by a rectifier failure.				
AL8	Mains Low	AC Bus		warning (2)	10 / 2
	The main voltage is low on one or more phases. No rectifier is in AC failure. If MCU master type is 30110, 3096 or 3048M6, an hysteresis _phase123Hysteresis is added to the voltage lower limit				
AL10	One Rectifier Failure	Rectifiers		minor (4)	5 / 2
	One rectifier must be replaced or is not powered correctly. The DC fail alarm of the rectifier is set. The number of rectifier with DC Failure is higher than 0, there is no mains failure, and the 'More Than One Rectifier Failure alarm is not set.'				
AL11	More Than One Rectifier Failure	Rectifiers		major (6)	10 / 2
	There is no mains failure and number of rectifier failures is greater than 1.				
AL12	Missing Rectifiers	Rectifiers		major (6)	5 / 2
	There is not enough rectifier according to the configuration parameter : 'Minimal Number Of Rectifier'				
AL13	Battery Last Test Failed	Battery	Battery Test	minor (3)	5 / 2

	The last battery test did not succeed and was not cancelled. Maybe the battery should be replaced. Check inside the dc system data for more information about the last test.				
AL14	Battery On Discharge	Battery		minor (4)	10 / 2
	The battery is discharging. This means that the load is too high for the installed rectifiers. This alarm is inactive when the system in AC Failure or during a battery test. There is an hysteresis corresponding to battery parameter 'Is discharging current hysteresis'.				
AL17	Battery LVD Relay Open	LVD		major (6)	5 / 2
	The battery Low Voltage Disconnect is open. On Systems without LVD_Status signal, like MCU 1848 or MCU 1x6, the alarm is present only if the signal LVD_COM asks to open the LVD				
AL18	Battery Temperature Too High	Battery	Temperature	minor (3)	5 / 2
	The temperature of the battery is too high and is greater than -600 units. There is an hysteresis corresponding to battery parameter 'Temperature hysteresis'.				
AL19	Battery Temperature Too Low	Battery	Temperature	minor (3)	5 / 2
	The temperature of the battery is too low and is greater than -600 units. There is an hysteresis corresponding to battery parameter 'Temperature hysteresis'.				
AL20	Battery Temperature Sensor Fail	Battery	Temperature	minor (3)	5 / 2
	The battery temperature sensor (NTC) value is inferior to -500 units or superior to 300 units meaning that it is not connected or defective.				
AL25	Distribution Breaker Open	Digital Inputs		major (6)	5 / 2
	This alarm is related to digital input 1. This alarm is activated if digital input value is different to configuration parameter 'Digital Input Alarm Value'				
AL26	Battery Breaker Open	Digital Inputs		minor (4)	5 / 2
	This alarm is related to digital input 2. This alarm is activated if digital input value is different to configuration parameter 'Digital Input Alarm Value'				
AL27	Digital Input 3	Digital Inputs		none (0)	5 / 2
	This alarm is related to digital input 3. This alarm is activated if digital input value is different to configuration parameter 'Digital Input Alarm Value'				
AL28	Digital Input 4	Digital Inputs		none (0)	5 / 2
	This alarm is related to digital input 4. This alarm is activated if digital input value is different to configuration parameter 'Digital Input Alarm Value'				

Data Table					
<i>Id</i>	<i>Name</i>	<i>Group</i>	<i>SubGroup</i>	<i>Unit</i>	<i>License</i>
DA1	DC Mode	System			basic
	The DC system can have 5 values: 'Float'(0), 'Equalize'(1), 'Battery Test'(2), 'Ac Failure'(3) or 'Safe'(5)				
DA2	Previous DC Mode	System			basic
	The previous value of the DC Mode : 'Float'(0), 'Equalize'(1), 'Battery Test'(2), 'Ac Failure'(3) or 'Safe'(5)				
DA3	Minutes Since Last Mode Change	System		minute	basic
	The number of minute between the last DC Mode Change and now				
DA4	NiMH Charge Mode	System			basic
DA11	Bus Voltage	DC Bus		Volt	basic
	The DC bus voltage in volt.				
DA12	Ratio Delivered On Available Power	System		%	basic
	This is the ratio of the delivered power divided by the installed power, in %.				
DA13	Minutes Since Last AC Failure Begin	AC Bus		minute	basic
	The number of minute since the last AC Failure begin				
DA14	Minutes Since Last AC Failure End	AC Bus		minute	basic
	The number of minute since the last AC Failure end				

DA21	Rectifiers Output Power	Rectifiers		Watt	basic
	The sum of the delivered rectifier power				
DA22	Rectifiers Output Current	Rectifiers		Ampere	basic
	The sum of the delivered rectifier current				
DA23	Rectifiers Output Power Max	Rectifiers		Watt	basic
	The sum of the deliverable rectifier power				
DA24	Rectifiers Output Current Max	Rectifiers		Ampere	basic
	The sum of the deliverable rectifier current				
DA31	Number Of Rectifier Max	Rectifiers	Numbers		basic
	The maximum possible number of rectifier in this dc system				
DA32	Number Of Present Rectifier	Rectifiers	Numbers		basic
	The actual number of present rectifier in this dc system				
DA33	Number Of Absent Rectifier	Rectifiers	Numbers		basic
	The actual number of absent rectifier in this dc system				
DA34	Number Of Active Rectifier	Rectifiers	Numbers		basic
	The actual number of active rectifier in this dc system. An active rectifier is a rectifier which is present, DC OK, AC OK and not in remote off.				
DA35	Number Of AC-Fail Rectifier	Rectifiers	Numbers		basic
	The actual number or rectifier in AC Failure.				
DA36	Number Of DC-Fail Rectifier	Rectifiers	Numbers		basic
	The actual number or rectifier with DC Failure.				
DA37	Number Of Remote Off Rectifier	Rectifiers	Numbers		basic
	The actual number or rectifier in remote off.				
DA38	Number Of Over Temperature Rectifier	Rectifiers	Numbers		basic
	The actual number or rectifier in Over Temperature.				
DA51	Load Power	Load		Watt	basic
	Estimation of the load power consumption				
DA52	Load Current	Load		Ampere	basic
	Estimation of the load current consumption				
DA61	Battery Input Current	Battery		Ampere	basic
	Measurement of the battery input current. A negative value means that the battery is discharging				
DA62	Battery Input Power	Battery		Watt	basic
	Measurement of the battery input power. A negative value means that the battery is discharging				
DA71	Battery Temperature	Battery	Temperature	degree C	basic
	The battery temperature				
DA72	Battery Test State	Battery	Battery Test		basic
	This is about the result of the last battery test. 10 values are possible : 'Never Tested'(0), 'Success'(1), 'On Going'(2), 'Failed: Timeout'(3), 'Failed: Vbus Too Low'(4), 'Failed: Load Too Low'(5), 'Failed: Ac Failure'(6), 'Failed: Canceled' (7), 'Failed: Lvd Opened'(8), 'Failed: No Battery'(9)				
DA73	Last Battery Test Discharged Capacity Ratio	Battery	Battery Test	%	basic
	This is the battery capacity, in percent, discharged during the last battery test. This value is updated at the end of the battery test.				
DA74	Last Battery Test Discharged Capacity	Battery	Battery Test	Ah	basic
	This is the battery capacity, in ampere hour, discharged during the last battery test. This value is updated at the end of the battery test.				
DA75	Last Battery Test Final Voltage	Battery	Battery Test	Volt	basic
	This is the bus voltage at the end of the last battery test. This value is updated at the end of the battery test.				

DA76	Battery Test Duration	Battery	Battery Test	minute	basic
	The duration of the last battery test. This value is updated at the end of the battery test. This value can't be higher than 1440 minutes (24 hours).				
DA77	Previous Battery Test Discharged Capacity Ratio	Battery	Battery Test	%	basic
	This is the battery capacity, in percent, discharged during the previous battery test. This value is shifted at the end of the battery test.				
DA78	Previous Battery Test Discharged Capacity	Battery	Battery Test	Ah	basic
	This is the battery capacity, in ampere hour, discharged during the previous battery test. This value is shifted at the end of the battery test.				
DA79	Previous Battery Test Final Voltage	Battery	Battery Test	Volt	basic
	This is the bus voltage at the end of the previous battery test. This value is shifted at the end of the battery test.				
DA80	Previous Battery Test Duration	Battery	Battery Test	minute	basic
	The duration of the previous battery test. This value is shifted at the end of the battery test. This value can't be higher than 1440 minutes (24 hours).				
DA81	Previous Battery Test State	Battery	Battery Test		basic
	The result of the previous battery test - 10 values are possible: 'Never Tested'(0), 'Success'(1), 'On Going'(2), 'Failed: Timeout'(3), 'Failed: Vbus Too Low'(4), 'Failed: Load Too Low'(5), 'Failed: Ac Failure'(6), 'Failed: Canceled', 'Failed: Lvd Opened'(8), 'Failed: No Battery'(9)				
DA82	Minutes Since Last Test Battery	Battery	Battery Test	minute	basic
	The number of minute since the end of last battery test				
DA84	Next Scheduled Battery Test	Battery	Battery Test		basic
	The date and time of the next time the scheduled battery test will run				
DA91	Battery Charge Capacity	Battery	Autonomy	%	basic
	The battery charge capacity, calculated by integration of the current.				
DA92	Calculated Autonomy	Battery	Autonomy	minute	basic
	Calculation of the remaining autonomy. This value can change following the load of your system and the maximal depth of discharge configuration (CF39).				
DA94	Battery Current Integration	Battery	Autonomy	Ah	basic
	Actual value of the integration of the current, in Ampere * hour				
DA101	LVD State	LVD			basic
	Actual state of the LVD				
DA111	Relay 1 State	Relays	Relay 1		basic
	Actual state of the Relay 1				
DA112	Relay 2 State	Relays	Relay 2		basic
	Actual state of the Relay 2				
DA113	Relay 3 State	Relays	Relay 3		basic
	Actual state of the Relay 3				
DA114	Relay 4 State	Relays	Relay 4		basic
	Actual state of the Relay 3				
DA121	Efficiency Optimized Number Of Rectifier	Smart Energy			asset
	The optimal number of ON rectifier for Efficiency Optimization				
DA122	System Loss Without Optimization	Smart Energy		Watt	underdev
	Estimation of the losses without optimisation				
DA123	System Loss With Optimization	Smart Energy		Watt	underdev
	Estimation of the losses with optimisation				
DA124	Rectifier Model Used For Calculation	Smart Energy			asset

	The rectifier model used				
DA125	Smart Energy Savings	Smart Energy		Watt	asset
	Estimation of the losses with optimisation				

Config Table						
<i>Id</i>	<i>Name</i>	<i>Group</i>	<i>SubGroup</i>	<i>Unit</i>	<i>Range: Min/Max (default)</i>	<i>License</i>
CF1	DC Bus Float Voltage at 25 degC	DC Bus		Volt	40/60 (54)	basic
	The floating dc bus voltage of the system at 25 Celsius degree					
CF2	DC Bus Voltage Extra Low	DC Bus	Alarm Parameters	Volt	40/60 (45)	basic
	The bus voltage under which the alarm 'DC Bus Voltage Extra Low' is set.					
CF3	DC Bus Voltage Extra Low Hysteresis	DC Bus	Alarm Parameters	Volt	0/5 (1)	basic
	The voltage hysteresis on the alarm 'DC Bus Voltage Extra Low'.					
CF4	DC Bus Voltage Low	DC Bus	Alarm Parameters	Volt	40/60 (48)	basic
	The bus voltage under which the alarm 'DC Bus Voltage Low' is set.					
CF5	DC Bus Voltage Low Hysteresis	DC Bus	Alarm Parameters	Volt	0/5 (0.5)	basic
	The voltage hysteresis on the alarm 'DC Bus Voltage Low					
CF6	DC Bus Voltage High	DC Bus	Alarm Parameters	Volt	40/60 (56.5)	basic
	The bus voltage over which the alarm 'DC Bus Voltage High' is set.					
CF7	DC Bus Voltage High Hysteresis	DC Bus	Alarm Parameters	Volt	0/5 (0.5)	basic
	The voltage hysteresis on the alarm 'DC Bus Voltage High					
CF8	DC Bus Voltage Extra High	DC Bus	Alarm Parameters	Volt	40/60 (58)	basic
	The bus voltage over which the alarm 'DC Bus Voltage Extra High' is set.					
CF9	DC Bus Voltage Extra High Hysteresis	DC Bus	Alarm Parameters	Volt	0/5 (0.5)	basic
	The voltage hysteresis on the alarm 'DC Bus Voltage Extra High					
CF10	LVD Disconnect Voltage	LVD		Volt	0/50 (43.2)	basic
	The dc bus voltage under which the battery must be disconnected of the bus. This allows preserving the battery life. The load will be unpowered. This value has to be lower than the Battery test end voltage (CF70)					
CF11	LVD Disconnect Delay	LVD		second	1/2000 (1)	basic
	The delay in second before disconnecting the battery if the dc bus voltage is under the configured disconnected voltage. This avoids disconnection during a low bus transient.					
CF21	Temperature Compensation Slope	Battery	Temperature Compensation	mV/degree	-1000/0 (-72)	basic
	The slope of the battery temperature compensation in mv/degree. For a 48V system, -72mV/degree is often used.					
CF22	Maximum Positive Temperature Compensation	Battery	Temperature Compensation	Volt	0/10 (3)	basic
	The maximal allowed positive compensation.					
CF23	Maximum Negative Temperature Compensation	Battery	Temperature Compensation	Volt	-10/0 (-3)	basic
	The maximal allowed negative compensation.					

CF25	Minimal Number Of Present Rectifiers	Rectifiers	Alarm Parameters		0/100 (0)	basic
	The minimal number of rectifier which must be present. If there is less present rectifiers, the alarm 'Missing Rectifiers' is set.					
CF26	Rectifier Model	Rectifiers				basic
	The rectifier model					
CF27	Forced Remote Off Rectifiers	Rectifiers	Remote Off			basic
	A list of rectifier which are forced in remote off. The id of the rectifier must be coma separated. Ex: 1,3 will maintain rectifier 1 and 3 off.					
CF31	Battery Charge Current Limit	Battery	Battery Charge Parameters	Ampere	0.5/1000 (1000)	basic
	The maximal battery current when the battery is charging. The monitoring regulates the bus voltage in order to satisfy this condition. This parameter is often equal to the nominal battery capacity divided by 10.					
CF32	Battery String Capacity	Battery		Ah	3/1000 (100)	basic
	The battery capacity in Ah.					
CF33	Battery Temperature Low	Battery	Alarm Parameters	degree C	-100/20 (0)	basic
	The temperature under which the alarm 'Battery Temperature Too Low' must be set.					
CF34	Battery Temperature High	Battery	Alarm Parameters	degree C	5/100 (40)	basic
	The temperature over which the alarm 'Battery Temperature Too High' must be set.					
CF35	Battery Temperature Hysteresis	Battery	Alarm Parameters	degree C	0/10 (2)	basic
	The hysteresis on the 'Battery Temperature Too High' and 'Battery Temperature Too Low' alarms.					
CF36	Minimal Current For Discharging Alarm	Battery	Alarm Parameters	Ampere	0/1000 (3)	basic
	The minimal discharging current to set the 'Battery On Discharge' alarm.					
CF37	Current Hysteresis For Discharging Alarm	Battery	Alarm Parameters	Ampere	0/50 (1)	basic
	The hysteresis on the 'Battery On Discharge' alarm.					
CF38	Peukert Number	Battery	Autonomy		1/2 (1)	basic
	The Peukert number relates to the internal resistance of a battery and provides an indication of the expected capacity. The ideal number is 1. This value can be calculated with the formula: $(\ln(t_2) - \ln(t_1)) / (\ln(i_1) - \ln(i_2))$ where t_x is the autonomy in hours at a constant discharge current of i_x Amps. Often, we use $t_1 = 1h$ and $t_2 = 10h$					
CF39	Max Depth Of Discharge for Autonomy Estimation	Battery	Autonomy		10/100 (100)	basic
	It is generally recommended to discharge maximum 60% of the battery capacity to enhance battery lifetime. By default, 100% is used for autonomy calculation. This parameter can also be used to take into account the age of the battery					
CF51	Boost Automatic	Battery	Boost		False/False (False)	battery
	The boost mode must be automatically after the fact that during a mains failure, the bus voltage went under the configured 'Boost Activation Low Voltage'. This allows charging the battery faster.					
CF52	Boost Activation Low Voltage	Battery	Boost	Volt	43/50 (46)	battery
	The voltage under which the boost mode can be activated.					
CF53	Boost Termination Voltage	Battery	Boost	Volt	50/58 (56.4)	battery
	The voltage over which the system must go back to floating mode.					
CF54	Boost Termination Current	Battery	Boost	Ampere	0/100 (4)	battery

	The battery charging current under which the system must go back to floating mode.					
CF55	Boost Termination Time	Battery	Boost	minute	10/240 (120)	battery
	The time in minute after which the system must go back in floating mode.					
CF69	Battery Test Type	Battery	Battery Test			battery
	Type of the battery test: Capacity based: The battery must give the requested capacity before falling lower than a value Time Based: The battery must sustain a defined load during a defined time.					
CF70	Battery Test End Voltage	Battery	Battery Test	Volt	30/60 (46)	battery
	The voltage at which any battery test must be stopped. This value has to be higher than the LVD Disconnect voltage (CF10)					
CF71	Battery Test Discharge Ratio	Battery	Battery Test	%	0/100 (0)	battery
	The ratio of the battery capacity to discharge. If 30 is set, 30% of the battery will be discharged during the test					
CF72	Battery Test Interval	Battery	Battery Test	day	0/3000 (0)	battery
	The number of days between two automatically started battery test. If this parameter is set to 0, the battery test is not started automatically. The user can remotely or locally start or force this test.					
CF73	Battery Test Discharge Current	Battery	Battery Test	Ampere	3/100 (1000)	battery
	The current at which the battery must be discharged during a battery test. The monitoring regulates the bus voltage in order to satisfy this condition. The load current must be of course higher than this parameter.					
CF74	Battery Test Minimal Discharge Current	Battery	Battery Test	Ampere	2/90 (2)	battery
	The battery current under which the battery test must be stopped because the load is too low.					
CF75	Battery Test Duration	Battery	Battery Test	minute	1/5000 (10)	battery
	The timeout in minute after which the battery test must be stopped.					
CF76	Battery Test Requested Minutes Without Mains Failure	Battery	Battery Test	minute	0/5000 (1440)	battery
	The minimal time in minute without mains failure in order to allow a battery start. This parameter is not taken into account when the battery test is forced.					
CF77	Battery Test Scheduler Cron Rule	Battery	Battery Test			basic
CF78	Battery Test Disable Low Voltage Alarms	Battery	Battery Test	minute	0/1000 (0)	basic
	Allow to disable the alarms AL1 and AL2 during a battery test if value >0. Settings 15 means disabling for 15 minutes after the battery test end, to avoid alarms during recharge also					
CF83	Smart Energy Boolean Condition	Smart Energy				asset
	This is the boolean condition which allows or not to automatically optimize the number of rectifier in remote off.					
CF86	Battery LVD Node Id	LVD			True/False (False)	basic
	This is a list of the node id of the Smart Electronic LVDs, coma separated					
CF91	Digital Input 1 Name	Digital Inputs	Digital Input 1		Distribution Breaker Open	basic
	The name of the digital input 1					
CF92	Digital Input 1 Normally Closed	Digital Inputs	Digital Input 1		True/False (True)	basic
	True/False value defining if the digital input 1 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF93	Digital Input 2 Name	Digital Inputs	Digital Input 2		Battery Breaker Open	basic
	The name of the digital input 2					

CF94	Digital Input 2 Normally Closed	Digital Inputs	Digital Input 2		True/False (True)	basic
	True/False value defining if the digital input 2 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF95	Digital Input 3 Name	Digital Inputs	Digital Input 3		Digital Input 3	basic
	The name of the digital input 3					
CF96	Digital Input 3 Normally Closed	Digital Inputs	Digital Input 3		True/False (True)	basic
	True/False value defining if the digital input 3 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF97	Digital Input 4 Name	Digital Inputs	Digital Input 4		Digital Input 4	basic
	The name of the digital input 4					
CF98	Digital Input 4 Normally Closed	Digital Inputs	Digital Input 4		True/False (True)	basic
	True/False value defining if the digital input 4 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF111	Dry Alarm 1 Alternative Boolean Condition	Relays	Relay 1			plc
	Another Boolean condition to activate the dry alarm relay 1. The way to define boolean condition is detailed in the PLC chapter.					
CF112	Dry Alarm 2 Alternative Boolean Condition	Relays	Relay 2			plc
	Another Boolean condition to activate the dry alarm relay 2. The way to define boolean condition is detailed in the PLC chapter.					
CF113	Dry Alarm 3 Alternative Boolean Condition	Relays	Relay 3			plc
	Another Boolean condition to activate the dry alarm relay 3. The way to define boolean condition is detailed in the PLC chapter.					
CF114	Dry Alarm 4 Alternative Boolean Condition	Relays	Relay 4			plc
	Another Boolean condition to activate the dry alarm relay 4. The way to define boolean condition is detailed in the PLC chapter.					
CF161	Forced Remote Off Rectifiers Boolean Condition	Rectifiers	Remote Off			basic
	The boolean PLC condition to enable the forced remote off					
CF521	Read Access User Numbers	Generic	Allowed Users		(1,2,3,4,5)	basic
	The list of the user numbers which have read access to this equipment. The user numbers are coma separated. The accepted user id are 1,2,3,4 and 5. Ex: 1,3,4					
CF522	Write Access User Numbers	Generic	Allowed Users		()	basic
	The list of the user numbers which have write access to this equipment. This means that these users can modify the configuration element, the alarm settings and use the control elements. The user numbers are coma separated. The accepted user ids are 1,2,3,4 and 5. Ex: 1,3,4					
CF601	Event Table Length	Generic	Events		10/4000 (100)	basic
	The maximum length of the table. The value must be comprised between 10 and 4000					
CF602	Event Table Length By Rectifier	Generic	Events		10/4000 (100)	basic
	The maximum length of the table. The value must be comprised between 10 and 4000					
CF901	Number Of PLC Data	PLC			(0)	plc
	The number of PLC data. Every equipment can manage up to 30 user programmable data. Data elements are automatically added in the data table. Configuration parameters are added to set the PLC Data Name					

	and the PLC Data Mathematical calculation. In order to use these functionalities, you need a license with the 'PLC' module				
CF902	Number Of PLC Alarm	PLC		(0)	plc
	The number of PLC alarm. Every equipment can manage up to 30 user programmable alarms. Alarm elements are automatically added in the alarm table. The alarm parameters are added to set the PLC Alarm Name and the PLC Alarm Boolean condition. In order to use these functionalities, you need a licence with the 'PLC' module				

Control Table				
<i>Id</i>	<i>Name</i>	<i>Group</i>	<i>SubGroup</i>	<i>License</i>
CT1	Back To Float	System		basic
	The dc system must go back in floating mode.			
CT2	Start Battery Test	System		battery
	The dc system must start a battery test.			
CT3	Force Battery Test	System		battery
	The dc system must force a battery test.			
CT4	Start Boost Mode	System		battery
	The dc system must go in boost mode.			
CT11	Open The LVD	LVD		basic
	Try to open the LVD. It could not work if the LVD is electronic, and the request will be canceled after 15 sec.			
CT12	Close The LVD	LVD		basic
	The LVD must be closed			
CT21	Correct Battery Current Offset	Battery		basic
CT41	Reset Last Battery Test State	Battery		battery
	Reset the state of the last battery test. If an alarm 'Battery Last Test Failed' is set, the alarm will be cleared.			
CT51	Save Configuration In MCU	Save		basic
	Save configuration parameters in the MCU micro-controller. If Compas is not present, the system will be correctly managed.			
CT55	Set MCU Specific Configuration Id	Advanced	Factory	basic
	This control allows to reconfigure the MCU to support specific hardware configuration, with embedded distribution for example			
CT111	Invert Relay 1 State For X Seconds	Relays	Relay 1	basic
	Generate Pulse on relay 1			
CT112	Invert Relay 2 State For X Seconds	Relays	Relay 2	basic
	Generate Pulse on relay 2			
CT113	Invert Relay 3 State For X Seconds	Relays	Relay 3	basic
	Generate Pulse on relay 3			
CT114	Invert Relay 4 State For X Seconds	Relays	Relay 4	basic
	Generate Pulse on relay 4			
CT501	Clear My Events	Generic	Events	basic
	By writing '1' to this control element, all the events of this equipment will be cleared.			
CT502	Clear All Events	Generic	Events	basic
	By writing '1' to this control element, all the events of this equipment and all the events of all the sub-equipments will be cleared.			
CT511	Add Event	Generic	Events	basic
	This control element adds an event of severity none. The event name is the text written to this control element			
CT512	Add Major Event	Generic	Events	basic

	This control element adds an event of severity major. The event name is the text written to this control element			
CT521	Reset Default Names And Groups	Generic	Renaming	basic
	This control element resets all the element Names, Groups and Subgroups to default values for this equipment			
CT522	Reset Default Names And Groups Recursive	Generic	Renaming	basic
	This control element resets all the element Names, Groups and Subgroups to default values for this equipment and all sub equipments			

15.2.12 MCU1848M6

Device Information	
Name	MCU1848M6
Short Description	Controller without LCD display
Long Description	Monitoring and control unit with USB and Ethernet port - ACE186 line
Hardware Reference	9413 061 85001
Software Reference	SOFT 000033 XX
Equipment Type	Monitoring Control Unit
ETSI Level	/site/energy_system/dc_system

Description Table				
<i>Id</i>	<i>Name</i>	<i>Group</i>	<i>SubGroup</i>	<i>License</i>
DE1	Description	Description	Custom Description	basic
	A free text zone to write a system description			
DE2	Reference	Description	Custom Description	basic
	A free text zone to write the customer reference of the system			
DE11	Product Name	Description	Product Info	basic
	The product name of the DC system monitoring			
DE12	Hardware Reference	Description	Product Info	basic
	The hardware reference of the DC system monitoring			
DE14	Software Reference	Description	Product Info	asset
	The software reference of the DC system monitoring			
DE16	Serial Number	Description	Product Info	asset
	The serial number of the DC system monitoring			
DE18	Manufacturing Date	Description	Product Info	asset
	The production date of the DC system monitoring			

Alarm Table					
<i>Id</i>	<i>Name</i>	<i>Group</i>	<i>SubGroup</i>	<i>Severity Type (Level)</i>	<i>Set/Clear Delay</i>
AL1	DC Bus Extra Low	DC Bus		major (6)	5 / 2
	The bus voltage is extra low. The alarm is set when the bus voltage is lower than the configuration parameter 'DC Bus Voltage Extra Low'. There is an hysteresis on the alarm : 'DC Bus Voltage Extra Low Hysteresis'. The alarm is not activated when DC mode is 'Battery Test'				
AL2	DC Bus Low	DC Bus		minor (4)	5 / 2
	The bus voltage is low. The alarm is set when the bus voltage is lower than the configuration parameter 'DC Bus Voltage Low'. There is an hysteresis on the alarm : 'DC Bus Voltage Low Hysteresis'				

AL3	DC Bus High	DC Bus		minor (4)	5 / 2
	The bus voltage is high. The alarm is set when the bus voltage is higher than the configuration parameter 'DC Bus Voltage High'. There is an hysteresis on the alarm : 'DC Bus Voltage High Hysteresis'				
AL4	DC Bus Extra High	DC Bus		major (6)	5 / 2
	The bus voltage is extra high. The alarm is set when the bus voltage is higher than the configuration parameter 'DC Bus Voltage Extra High'. There is an hysteresis on the alarm : 'DC Bus Voltage Extra High Hysteresis'				
AL5	DC Bus Voltage Sense Failure	DC Bus		major (6)	5 / 2
	The DC bus voltage sense is defective. The DC bus voltage is unconnected or misconfigured.				
AL6	Mains Failure	AC Bus		minor (4)	5 / 2
	The number of active rectifiers is equal to 0 - All the phases are down				
AL7	Mains Partial Failure	AC Bus		minor (4)	10 / 2
	The number of active rectifiers is greater than 0 and the number of rectifiers in AC failure is greater than 0. Some rectifiers are in AC Failure. It may be caused by an open breaker, a real phase failure, or by a rectifier failure.				
AL8	Mains Low	AC Bus		warning (2)	10 / 2
	The main voltage is low on one or more phases. No rectifier is in AC failure. If MCU master type is 30110, 3096 or 3048M6, an hysteresis _phase123Hysteresis is added to the voltage lower limit				
AL10	One Rectifier Failure	Rectifiers		minor (4)	5 / 2
	One rectifier must be replaced or is not powered correctly. The DC fail alarm of the rectifier is set. The number of rectifier with DC Failure is higher than 0, there is no mains failure, and the 'More Than One Rectifier Failure alarm is not set.'				
AL11	More Than One Rectifier Failure	Rectifiers		major (6)	10 / 2
	There is no mains failure and number of rectifier failures is greater than 1.				
AL12	Missing Rectifiers	Rectifiers		major (6)	5 / 2
	There is not enough rectifier according to the configuration parameter : 'Minimal Number Of Rectifier'				
AL13	Battery Last Test Failed	Battery	Battery Test	minor (3)	5 / 2
	The last battery test did not succeed and was not cancelled. Maybe the battery should be replaced. Check inside the dc system data for more information about the last test.				
AL14	Battery On Discharge	Battery		minor (4)	10 / 2
	The battery is discharging. This means that the load is too high for the installed rectifiers. This alarm is inactive when the system in AC Failure or during a battery test. There is an hysteresis corresponding to battery parameter 'Is discharging current hysteresis'.				
AL17	Battery LVD Relay Open	LVD		major (6)	5 / 2
	The battery Low Voltage Disconnect is open. On Systems without LVD_Status signal, like MCU 1848 or MCU 1x6, the alarm is present only if the signal LVD_COM asks to open the LVD				
AL18	Battery Temperature Too High	Battery	Temperature	minor (3)	5 / 2
	The temperature of the battery is too high and is greater than -600 units. There is an hysteresis corresponding to battery parameter 'Temperature hysteresis'.				
AL19	Battery Temperature Too Low	Battery	Temperature	minor (3)	5 / 2
	The temperature of the battery is too low and is greater than -600 units. There is an hysteresis corresponding to battery parameter 'Temperature hysteresis'.				
AL20	Battery Temperature Sensor Fail	Battery	Temperature	minor (3)	5 / 2
	The battery temperature sensor (NTC) value is inferior to -500 units or superior to 300 units meaning that it is not connected or defective.				
AL21	Ambient Temperature Too High	Sensors	Temperature	minor (0)	5 / 2
	The ambient temperature is too high and is greater than -600 units. There is an hysteresis corresponding to parameter 'Ambient temperature hysteresis'. This alarm is only activated on MCU master types 30110, 3096, 30125, 0024, 0948, 0548, 0348, 0948 and 3048M6.				
AL22	Ambient Temperature Too Low	Sensors	Temperature	minor (0)	5 / 2

	The ambient temperature is too low and is greater than -600 units. There is an hysteresis corresponding to parameter 'Ambient temperature hysteresis'. This alarm is only activated on MCU master types 30110, 3096, 30125, 0024, 0948, 0548, 0348, 0948 and 3048M6.				
AL23	Ambient Temperature Sensor Fail	Sensors	Temperature	minor (0)	5 / 2
	The ambient temperature sensor (NTC) value is inferior to -500 units meaning that it is not connected or defective.				
AL25	Distribution Breaker Open	Digital Inputs		major (6)	5 / 2
	This alarm is related to digital input 1. This alarm is activated if digital input value is different to configuration parameter 'Digital Input Alarm Value'				
AL26	Battery Breaker Open	Digital Inputs		minor (4)	5 / 2
	This alarm is related to digital input 2. This alarm is activated if digital input value is different to configuration parameter 'Digital Input Alarm Value'				
AL27	Digital Input 3	Digital Inputs		none (0)	5 / 2
	This alarm is related to digital input 3. This alarm is activated if digital input value is different to configuration parameter 'Digital Input Alarm Value'				
AL28	Digital Input 4	Digital Inputs		none (0)	5 / 2
	This alarm is related to digital input 4. This alarm is activated if digital input value is different to configuration parameter 'Digital Input Alarm Value'				

Data Table					
<i>Id</i>	<i>Name</i>	<i>Group</i>	<i>SubGroup</i>	<i>Unit</i>	<i>License</i>
DA1	DC Mode	System			basic
	The DC system can have 5 values: 'Float'(0), 'Equalize'(1), 'Battery Test'(2), 'Ac Failure'(3) or 'Safe'(5)				
DA2	Previous DC Mode	System			basic
	The previous value of the DC Mode : 'Float'(0), 'Equalize'(1), 'Battery Test'(2), 'Ac Failure'(3) or 'Safe'(5)				
DA3	Minutes Since Last Mode Change	System		minute	basic
	The number of minute between the last DC Mode Change and now				
DA4	NiMH Charge Mode	System			basic
DA11	Bus Voltage	DC Bus		Volt	basic
	The DC bus voltage in volt.				
DA12	Ratio Delivered On Available Power	System		%	basic
	This is the ratio of the delivered power divided by the installed power, in %.				
DA13	Minutes Since Last AC Failure Begin	AC Bus		minute	basic
	The number of minute since the last AC Failure begin				
DA14	Minutes Since Last AC Failure End	AC Bus		minute	basic
	The number of minute since the last AC Failure end				
DA21	Rectifiers Output Power	Rectifiers		Watt	basic
	The sum of the delivered rectifier power				
DA22	Rectifiers Output Current	Rectifiers		Ampere	basic
	The sum of the delivered rectifier current				
DA23	Rectifiers Output Power Max	Rectifiers		Watt	basic
	The sum of the deliverable rectifier power				
DA24	Rectifiers Output Current Max	Rectifiers		Ampere	basic
	The sum of the deliverable rectifier current				
DA31	Number Of Rectifier Max	Rectifiers	Numbers		basic
	The maximum possible number of rectifier in this dc system				
DA32	Number Of Present Rectifier	Rectifiers	Numbers		basic
	The actual number of present rectifier in this dc system				

DA33	Number Of Absent Rectifier	Rectifiers	Numbers		basic
	The actual number of absent rectifier in this dc system				
DA34	Number Of Active Rectifier	Rectifiers	Numbers		basic
	The actual number of active rectifier in this dc system. An active rectifier is a rectifier which is present, DC OK, AC OK and not in remote off.				
DA35	Number Of AC-Fail Rectifier	Rectifiers	Numbers		basic
	The actual number or rectifier in AC Failure.				
DA36	Number Of DC-Fail Rectifier	Rectifiers	Numbers		basic
	The actual number or rectifier with DC Failure.				
DA37	Number Of Remote Off Rectifier	Rectifiers	Numbers		basic
	The actual number or rectifier in remote off.				
DA38	Number Of Over Temperature Rectifier	Rectifiers	Numbers		basic
	The actual number or rectifier in Over Temperature.				
DA51	Load Power	Load		Watt	basic
	Estimation of the load power consumption				
DA52	Load Current	Load		Ampere	basic
	Estimation of the load current consumption				
DA61	Battery Input Current	Battery		Ampere	basic
	Measurement of the battery input current. A negative value means that the battery is discharging				
DA62	Battery Input Power	Battery		Watt	basic
	Measurement of the battery input power. A negative value means that the battery is discharging				
DA71	Battery Temperature	Battery	Temperature	degree C	basic
	The battery temperature				
DA72	Battery Test State	Battery	Battery Test		basic
	This is about the result of the last battery test. 10 values are possible : 'Never Tested'(0), 'Success'(1), 'On Going'(2), 'Failed: Timeout'(3), 'Failed: Vbus Too Low'(4), 'Failed: Load Too Low'(5), 'Failed: Ac Failure'(6), 'Failed: Canceled' (7), 'Failed: Lvd Opened'(8), 'Failed: No Battery'(9)				
DA73	Last Battery Test Discharged Capacity Ratio	Battery	Battery Test	%	basic
	This is the battery capacity, in percent, discharged during the last battery test. This value is updated at the end of the battery test.				
DA74	Last Battery Test Discharged Capacity	Battery	Battery Test	Ah	basic
	This is the battery capacity, in ampere hour, discharged during the last battery test. This value is updated at the end of the battery test.				
DA75	Last Battery Test Final Voltage	Battery	Battery Test	Volt	basic
	This is the bus voltage at the end of the last battery test. This value is updated at the end of the battery test.				
DA76	Battery Test Duration	Battery	Battery Test	minute	basic
	The duration of the last battery test. This value is updated at the end of the battery test. This value can't be higher than 1440 minutes (24 hours).				
DA77	Previous Battery Test Discharged Capacity Ratio	Battery	Battery Test	%	basic
	This is the battery capacity, in percent, discharged during the previous battery test. This value is shifted at the end of the battery test.				
DA78	Previous Battery Test Discharged Capacity	Battery	Battery Test	Ah	basic
	This is the battery capacity, in ampere hour, discharged during the previous battery test. This value is shifted at the end of the battery test.				
DA79	Previous Battery Test Final Voltage	Battery	Battery Test	Volt	basic

	This is the bus voltage at the end of the previous battery test. This value is shifted at the end of the battery test.				
DA80	Previous Battery Test Duration	Battery	Battery Test	minute	basic
	The duration of the previous battery test. This value is shifted at the end of the battery test. This value can't be higher than 1440 minutes (24 hours).				
DA81	Previous Battery Test State	Battery	Battery Test		basic
	The result of the previous battery test - 10 values are possible: 'Never Tested'(0), 'Success'(1), 'On Going'(2), 'Failed: Timeout'(3), 'Failed: Vbus Too Low'(4), 'Failed: Load Too Low'(5), 'Failed: Ac Failure'(6), 'Failed: Canceled', 'Failed: Lvd Opened'(8), 'Failed: No Battery'(9)				
DA82	Minutes Since Last Test Battery	Battery	Battery Test	minute	basic
	The number of minute since the end of last battery test				
DA84	Next Scheduled Battery Test	Battery	Battery Test		basic
	The date and time of the next time the scheduled battery test will run				
DA91	Battery Charge Capacity	Battery	Autonomy	%	basic
	The battery charge capacity, calculated by integration of the current.				
DA92	Calculated Autonomy	Battery	Autonomy	minute	basic
	Calculation of the remaining autonomy. This value can change following the load of your system and the maximal depth of discharge configuration (CF39).				
DA94	Battery Current Integration	Battery	Autonomy	Ah	basic
	Actual value of the integration of the current, in Ampere * hour				
DA101	LVD State	LVD			basic
	Actual state of the LVD				
DA111	Relay 1 State	Relays	Relay 1		basic
	Actual state of the Relay 1				
DA112	Relay 2 State	Relays	Relay 2		basic
	Actual state of the Relay 2				
DA113	Relay 3 State	Relays	Relay 3		basic
	Actual state of the Relay 3				
DA114	Relay 4 State	Relays	Relay 4		basic
	Actual state of the Relay 3				
DA121	Efficiency Optimized Number Of Rectifier	Smart Energy			asset
	The optimal number of ON rectifier for Efficiency Optimization				
DA122	System Loss Without Optimization	Smart Energy		Watt	underdev
	Estimation of the losses without optimisation				
DA123	System Loss With Optimization	Smart Energy		Watt	underdev
	Estimation of the losses with optimisation				
DA124	Rectifier Model Used For Calculation	Smart Energy			asset
	The rectifier model used				
DA125	Smart Energy Savings	Smart Energy		Watt	asset
	Estimation of the losses with optimisation				
DA151	Ambient Temperature	Sensors	Temperature	degree C	basic
	The ambient temperature (second temperature sense)				
DA161	Voltage 1	Sensors	Voltage 1	Volt	basic
	The voltage measured by the sense 1. Can be used for battery symmetry measurement. Calculation can be done with the PLC				
DA162	Voltage 2	Sensors	Voltage 2	Volt	basic
	The voltage measured by the sense 2. Can be used for battery symmetry measurement. Calculation can be done with the PLC				

DA163	Voltage 3	Sensors	Voltage 3	Volt	basic
	The voltage measured by the sense 3. Can be used for battery symmetry measurement. Calculation can be done with the PLC				
DA204	Pulse Counter 4	Sensors	Pulse Counter 4		basic
	The counter value of the digital input 4.				

Config Table						
<i>Id</i>	<i>Name</i>	<i>Group</i>	<i>SubGroup</i>	<i>Unit</i>	<i>Range: Min/Max (default)</i>	<i>License</i>
CF1	DC Bus Float Voltage at 25 degC	DC Bus		Volt	40/60 (54)	basic
	The floating dc bus voltage of the system at 25 Celsius degree					
CF2	DC Bus Voltage Extra Low	DC Bus	Alarm Parameters	Volt	40/60 (45)	basic
	The bus voltage under which the alarm 'DC Bus Voltage Extra Low' is set.					
CF3	DC Bus Voltage Extra Low Hysteresis	DC Bus	Alarm Parameters	Volt	0/5 (1)	basic
	The voltage hysteresis on the alarm 'DC Bus Voltage Extra Low'.					
CF4	DC Bus Voltage Low	DC Bus	Alarm Parameters	Volt	40/60 (48)	basic
	The bus voltage under which the alarm 'DC Bus Voltage Low' is set.					
CF5	DC Bus Voltage Low Hysteresis	DC Bus	Alarm Parameters	Volt	0/5 (0.5)	basic
	The voltage hysteresis on the alarm 'DC Bus Voltage Low					
CF6	DC Bus Voltage High	DC Bus	Alarm Parameters	Volt	40/60 (56.5)	basic
	The bus voltage over which the alarm 'DC Bus Voltage High' is set.					
CF7	DC Bus Voltage High Hysteresis	DC Bus	Alarm Parameters	Volt	0/5 (0.5)	basic
	The voltage hysteresis on the alarm 'DC Bus Voltage High					
CF8	DC Bus Voltage Extra High	DC Bus	Alarm Parameters	Volt	40/60 (58)	basic
	The bus voltage over which the alarm 'DC Bus Voltage Extra High' is set.					
CF9	DC Bus Voltage Extra High Hysteresis	DC Bus	Alarm Parameters	Volt	0/5 (0.5)	basic
	The voltage hysteresis on the alarm 'DC Bus Voltage Extra High					
CF10	LVD Disconnect Voltage	LVD		Volt	0/50 (43.2)	basic
	The dc bus voltage under which the battery must be disconnected of the bus. This allows preserving the battery life. The load will be unpowered. This value has to be lower than the Battery test end voltage (CF70)					
CF11	LVD Disconnect Delay	LVD		second	1/2000 (1)	basic
	The delay in second before disconnecting the battery if the dc bus voltage is under the configured disconnected voltage. This avoids disconnection during a low bus transient.					
CF21	Temperature Compensation Slope	Battery	Temperature Compensation	mV/degree	-1000/0 (-72)	basic
	The slope of the battery temperature compensation in mv/degree. For a 48V system, -72mV/degree is often used.					
CF22	Maximum Positive Temperature Compensation	Battery	Temperature Compensation	Volt	0/10 (3)	basic
	The maximal allowed positive compensation.					

CF23	Maximum Negative Temperature Compensation	Battery	Temperature Compensation	Volt	-10/0 (-3)	basic
	The maximal allowed negative compensation.					
CF25	Minimal Number Of Present Rectifiers	Rectifiers	Alarm Parameters		0/100 (0)	basic
	The minimal number of rectifier which must be present. If there is less present rectifiers, the alarm 'Missing Rectifiers' is set.					
CF26	Rectifier Model	Rectifiers				basic
	The rectifier model					
CF27	Forced Remote Off Rectifiers	Rectifiers	Remote Off			basic
	A list of rectifier which are forced in remote off. The id of the rectifier must be coma separated. Ex: 1,3 will maintain rectifier 1 and 3 off.					
CF31	Battery Charge Current Limit	Battery	Battery Charge Parameters	Ampere	0.5/1000 (1000)	basic
	The maximal battery current when the battery is charging. The monitoring regulates the bus voltage in order to satisfy this condition. This parameter is often equal to the nominal battery capacity divided by 10.					
CF32	Battery String Capacity	Battery		Ah	3/1000 (100)	basic
	The battery capacity in Ah.					
CF33	Battery Temperature Low	Battery	Alarm Parameters	degree C	-100/20 (0)	basic
	The temperature under which the alarm 'Battery Temperature Too Low' must be set.					
CF34	Battery Temperature High	Battery	Alarm Parameters	degree C	5/100 (40)	basic
	The temperature over which the alarm 'Battery Temperature Too High' must be set.					
CF35	Battery Temperature Hysteresis	Battery	Alarm Parameters	degree C	0/10 (2)	basic
	The hysteresis on the 'Battery Temperature Too High' and 'Battery Temperature Too Low' alarms.					
CF36	Minimal Current For Discharging Alarm	Battery	Alarm Parameters	Ampere	0/1000 (3)	basic
	The minimal discharging current to set the 'Battery On Discharge' alarm.					
CF37	Current Hysteresis For Discharging Alarm	Battery	Alarm Parameters	Ampere	0/50 (1)	basic
	The hysteresis on the 'Battery On Discharge' alarm.					
CF38	Peukert Number	Battery	Autonomy		1/2 (1)	basic
	The Peukert number relates to the internal resistance of a battery and provides an indication of the expected capacity. The ideal number is 1. This value can be calculated with the formula: $(\ln(t_2) - \ln(t_1)) / (\ln(i_1) - \ln(i_2))$ where t_x is the autonomy in hours at a constant discharge current of i_x Amps. Often, we use $t_1 = 1h$ and $t_2 = 10h$					
CF39	Max Depth Of Discharge for Autonomy Estimation	Battery	Autonomy		10/100 (100)	basic
	It is generally recommended to discharge maximum 60% of the battery capacity to enhance battery lifetime. By default, 100% is used for autonomy calculation. This parameter can also be used to take into account the age of the battery					
CF41	Shunt Rating At 60mV	Current Sensors	Shunt 1	Ampere	25/5000 (250)	basic
	The rating of the battery shunt at 60mV.					
CF51	Boost Automatic	Battery	Boost		False/False (False)	battery
	The boost mode must be automatically after the fact that during a mains failure, the bus voltage went under the configured 'Boost Activation Low Voltage'. This allows charging the battery faster.					
CF52	Boost Activation Low Voltage	Battery	Boost	Volt	43/50 (46)	battery

	The voltage under which the boost mode can be activated.					
CF53	Boost Termination Voltage	Battery	Boost	Volt	50/58 (56.4)	battery
	The voltage over which the system must go back to floating mode.					
CF54	Boost Termination Current	Battery	Boost	Ampere	0/100 (4)	battery
	The battery charging current under which the system must go back to floating mode.					
CF55	Boost Termination Time	Battery	Boost	minute	10/240 (120)	battery
	The time in minute after which the system must go back in floating mode.					
CF69	Battery Test Type	Battery	Battery Test			battery
	Type of the battery test: Capacity based: The battery must give the requested capacity before falling lower than a value Time Based: The battery must sustain a defined load during a defined time.					
CF70	Battery Test End Voltage	Battery	Battery Test	Volt	30/60 (46)	battery
	The voltage at which any battery test must be stopped. This value has to be higher than the LVD Disconnect voltage (CF10)					
CF71	Battery Test Discharge Ratio	Battery	Battery Test	%	0/100 (0)	battery
	The ratio of the battery capacity to discharge. If 30 is set, 30% of the battery will be discharged during the test					
CF72	Battery Test Interval	Battery	Battery Test	day	0/3000 (0)	battery
	The number of days between two automatically started battery test. If this parameter is set to 0, the battery test is not started automatically. The user can remotely or locally start or force this test.					
CF73	Battery Test Discharge Current	Battery	Battery Test	Ampere	3/100 (1000)	battery
	The current at which the battery must be discharged during a battery test. The monitoring regulates the bus voltage in order to satisfy this condition. The load current must be of course higher than this parameter.					
CF74	Battery Test Minimal Discharge Current	Battery	Battery Test	Ampere	2/90 (2)	battery
	The battery current under which the battery test must be stopped because the load is too low.					
CF75	Battery Test Duration	Battery	Battery Test	minute	1/5000 (10)	battery
	The timeout in minute after which the battery test must be stopped.					
CF76	Battery Test Requested Minutes Without Mains Failure	Battery	Battery Test	minute	0/5000 (1440)	battery
	The minimal time in minute without mains failure in order to allow a battery start. This parameter is not taken into account when the battery test is forced.					
CF77	Battery Test Scheduler Cron Rule	Battery	Battery Test			basic
CF78	Battery Test Disable Low Voltage Alarms	Battery	Battery Test	minute	0/1000 (0)	basic
	Allow to disable the alarms AL1 and AL2 during a battery test if value >0. Settings 15 means disabling for 15 minutes after the battery test end, to avoid alarms during recharge also					
CF83	Smart Energy Boolean Condition	Smart Energy				asset
	This is the boolean condition which allows or not to automatically optimize the number of rectifier in remote off.					
CF86	Battery LVD Node Id	LVD			True/False (False)	basic
	This is a list of the node id of the Smart Electronic LVDs, coma separated					
CF91	Digital Input 1 Name	Digital Inputs	Digital Input 1		Distribution Breaker Open	basic
	The name of the digital input 1					

CF92	Digital Input 1 Normally Closed	Digital Inputs	Digital Input 1		True/False (True)	basic
	True/False value defining if the digital input 1 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF93	Digital Input 2 Name	Digital Inputs	Digital Input 2		Battery Breaker Open	basic
	The name of the digital input 2					
CF94	Digital Input 2 Normally Closed	Digital Inputs	Digital Input 2		True/False (True)	basic
	True/False value defining if the digital input 2 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF95	Digital Input 3 Name	Digital Inputs	Digital Input 3		Digital Input 3	basic
	The name of the digital input 3					
CF96	Digital Input 3 Normally Closed	Digital Inputs	Digital Input 3		True/False (True)	basic
	True/False value defining if the digital input 3 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF97	Digital Input 4 Name	Digital Inputs	Digital Input 4		Digital Input 4	basic
	The name of the digital input 4					
CF98	Digital Input 4 Normally Closed	Digital Inputs	Digital Input 4		True/False (True)	basic
	True/False value defining if the digital input 4 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF111	Dry Alarm 1 Alternative Boolean Condition	Relays	Relay 1			plc
	Another Boolean condition to activate the dry alarm relay 1. The way to define boolean condition is detailed in the PLC chapter.					
CF112	Dry Alarm 2 Alternative Boolean Condition	Relays	Relay 2			plc
	Another Boolean condition to activate the dry alarm relay 2. The way to define boolean condition is detailed in the PLC chapter.					
CF113	Dry Alarm 3 Alternative Boolean Condition	Relays	Relay 3			plc
	Another Boolean condition to activate the dry alarm relay 3. The way to define boolean condition is detailed in the PLC chapter.					
CF114	Dry Alarm 4 Alternative Boolean Condition	Relays	Relay 4			plc
	Another Boolean condition to activate the dry alarm relay 4. The way to define boolean condition is detailed in the PLC chapter.					
CF131	Ambient Temperature Low	Sensors	Temperature	degree C		basic
	The temperature under which the alarm 'Ambient Temperature Too Low' must be set.					
CF132	Ambient Temperature High	Sensors	Temperature	degree C		basic
	The temperature under which the alarm 'Ambient Temperature Too Low' must be set.					
CF133	Ambient Temperature Hysteresis	Sensors	Temperature	degree C		basic
	The hysteresis on the 'Battery Temperature Too High' and 'Battery Temperature Too Low' alarms.					
CF161	Forced Remote Off Rectifiers Boolean Condition	Rectifiers	Remote Off			basic
	The boolean PLC conditon to enable the forced remote off					
CF521	Read Access User Numbers	Generic	Allowed Users		(1,2,3,4,5)	basic

	The list of the user numbers which have read access to this equipment. The user numbers are coma separated. The accepted user id are 1,2,3,4 and 5. Ex: 1,3,4					
CF522	Write Access User Numbers	Generic	Allowed Users		()	basic
	The list of the user numbers which have write access to this equipment. This means that these users can modify the configuration element, the alarm settings and use the control elements. The user numbers are coma separated. The accepted user ids are 1,2,3,4 and 5. Ex: 1,3,4					
CF601	Event Table Length	Generic	Events		10/4000 (100)	basic
	The maximum length of the table. The value must be comprised between 10 and 4000					
CF602	Event Table Length By Rectifier	Generic	Events		10/4000 (100)	basic
	The maximum length of the table. The value must be comprised between 10 and 4000					
CF901	Number Of PLC Data	PLC			(0)	plc
	The number of PLC data. Every equipment can manage up to 30 user programmable data. Data elements are automatically added in the data table. Configuration parameters are added to set the PLC Data Name and the PLC Data Mathematical calculation. In order to use these functionalities, you need a license with the 'PLC' module					
CF902	Number Of PLC Alarm	PLC			(0)	plc
	The number of PLC alarm. Every equipment can manage up to 30 user programmable alarms. Alarm elements are automatically added in the alarm table. The alarm parameters are added to set the PLC Alarm Name and the PLC Alarm Boolean condition. In order to use these functionalities, you need a licence with the 'PLC' module					

Control Table				
<i>Id</i>	<i>Name</i>	<i>Group</i>	<i>SubGroup</i>	<i>License</i>
CT1	Back To Float	System		basic
	The dc system must go back in floating mode.			
CT2	Start Battery Test	System		battery
	The dc system must start a battery test.			
CT3	Force Battery Test	System		battery
	The dc system must force a battery test.			
CT4	Start Boost Mode	System		battery
	The dc system must go in boost mode.			
CT11	Open The LVD	LVD		basic
	Try to open the LVD. It could not work if the LVD is electronic, and the request will be canceled after 15 sec.			
CT12	Close The LVD	LVD		basic
	The LVD must be closed			
CT21	Correct Battery Current Offset	Battery		basic
CT41	Reset Last Battery Test State	Battery		battery
	Reset the state of the last battery test. If an alarm 'Battery Last Test Failed' is set, the alarm will be cleared.			
CT51	Save Configuration In MCU	Save		basic
	Save configuration parameters in the MCU micro-controller. If Compas is not present, the system will be correctly managed.			
CT55	Set MCU Specific Configuration Id	Advanced	Factory	basic
	This control allows to reconfigure the MCU to support specific hardware configuration, with embedded distribution for example			
CT61	Set Digital Input 4 Counter Value	Digital Inputs	Digital Input 4	basic
	Set Counter Value			
CT111	Invert Relay 1 State For X Seconds	Relays	Relay 1	basic
	Generate Pulse on relay 1			

CT112	Invert Relay 2 State For X Seconds	Relays	Relay 2	basic
	Generate Pulse on relay 2			
CT113	Invert Relay 3 State For X Seconds	Relays	Relay 3	basic
	Generate Pulse on relay 3			
CT114	Invert Relay 4 State For X Seconds	Relays	Relay 4	basic
	Generate Pulse on relay 4			
CT501	Clear My Events	Generic	Events	basic
	By writing '1' to this control element, all the events of this equipment will be cleared.			
CT502	Clear All Events	Generic	Events	basic
	By writing '1' to this control element, all the events of this equipment and all the events of all the sub-equipments will be cleared.			
CT511	Add Event	Generic	Events	basic
	This control element adds an event of severity none. The event name is the text written to this control element			
CT512	Add Major Event	Generic	Events	basic
	This control element adds an event of severity major. The event name is the text written to this control element			
CT521	Reset Default Names And Groups	Generic	Renaming	basic
	This control element resets all the element Names, Groups and Subgroups to default values for this equipment			
CT522	Reset Default Names And Groups Recursive	Generic	Renaming	basic
	This control element resets all the element Names, Groups and Subgroups to default values for this equipment and all sub equipments			

15.2.13 MCU3048M6

Device Information	
Name	MCU3048M6
Short Description	MCU3048M6
Long Description	
Hardware Reference	9413 063 05001
Software Reference	SOFT 000070 XX
Equipment Type	Monitoring Control Unit
ETSI Level	/site/energy_system/dc_system

Description Table				
<i>Id</i>	<i>Name</i>	<i>Group</i>	<i>SubGroup</i>	<i>License</i>
DE1	Description	Description	Custom Description	basic
	A free text zone to write a system description			
DE2	Reference	Description	Custom Description	basic
	A free text zone to write the customer reference of the system			
DE11	Product Name	Description	Product Info	basic
	The product name of the DC system monitoring			
DE12	Hardware Reference	Description	Product Info	basic
	The hardware reference of the DC system monitoring			
DE14	Software Reference	Description	Product Info	asset
	The software reference of the DC system monitoring			

DE16	Serial Number	Description	Product Info	asset
	The serial number of the DC system monitoring			
DE18	Manufacturing Date	Description	Product Info	asset
	The production date of the DC system monitoring			

Alarm Table					
Id	Name	Group	SubGroup	Severity Type (Level)	Set/Clear Delay
AL1	DC Bus Extra Low	DC Bus		major (6)	5 / 2
	The bus voltage is extra low. The alarm is set when the bus voltage is lower than the configuration parameter 'DC Bus Voltage Extra Low'. There is an hysteresis on the alarm : 'DC Bus Voltage Extra Low Hysteresis'. The alarm is not activated when DC mode is 'Battery Test'				
AL2	DC Bus Low	DC Bus		minor (4)	5 / 2
	The bus voltage is low. The alarm is set when the bus voltage is lower than the configuration parameter 'DC Bus Voltage Low'. There is an hysteresis on the alarm : 'DC Bus Voltage Low Hysteresis'				
AL3	DC Bus High	DC Bus		minor (4)	5 / 2
	The bus voltage is high. The alarm is set when the bus voltage is higher than the configuration parameter 'DC Bus Voltage High'. There is an hysteresis on the alarm : 'DC Bus Voltage High Hysteresis'				
AL4	DC Bus Extra High	DC Bus		major (6)	5 / 2
	The bus voltage is extra high. The alarm is set when the bus voltage is higher than the configuration parameter 'DC Bus Voltage Extra High'. There is an hysteresis on the alarm : 'DC Bus Voltage Extra High Hysteresis'				
AL5	DC Bus Voltage Sense Failure	DC Bus		major (6)	5 / 2
	The DC bus voltage sense is defective. The DC bus voltage is unconnected or misconfigured.				
AL6	Mains Failure	AC Bus		minor (4)	5 / 2
	The number of active rectifiers is equal to 0 - All the phases are down				
AL7	Mains Partial Failure	AC Bus		minor (4)	10 / 2
	The number of active rectifiers is greater than 0 and the number of rectifiers in AC failure is greater than 0. Some rectifiers are in AC Failure. It may be caused by an open breaker, a real phase failure, or by a rectifier failure.				
AL8	Mains Low	AC Bus		warning (2)	10 / 2
	The main voltage is low on one or more phases. No rectifier is in AC failure. If MCU master type is 30110, 3096 or 3048M6, an hysteresis _phase123Hysteresis is added to the voltage lower limit				
AL9	Mains High	AC Bus		warning (2)	10 / 2
	The main voltage is low on one or more phases. No rectifier is in AC failure. The alarm is only active if MCU master type is 30110, 3096 or 3048M6. Therefore, an hysteresis _phase123Hysteresis is subtracted to the voltage lower limit.				
AL10	One Rectifier Failure	Rectifiers		minor (4)	5 / 2
	One rectifier must be replaced or is not powered correctly. The DC fail alarm of the rectifier is set. The number of rectifier with DC Failure is higher than 0, there is no mains failure, and the 'More Than One Rectifier Failure alarm is not set.'				
AL11	More Than One Rectifier Failure	Rectifiers		major (6)	10 / 2
	There is no mains failure and number of rectifier failures is greater than 1.				
AL12	Missing Rectifiers	Rectifiers		major (6)	5 / 2
	There is not enough rectifier according to the configuration parameter : 'Minimal Number Of Rectifier'				
AL13	Battery Last Test Failed	Battery	Battery Test	minor (3)	5 / 2
	The last battery test did not succeed and was not cancelled. Maybe the battery should be replaced. Check inside the dc system data for more information about the last test.				
AL14	Battery On Discharge	Battery		minor (4)	10 / 2

	The battery is discharging. This means that the load is too high for the installed rectifiers. This alarm is inactive when the system in AC Failure or during a battery test. There is an hysteresis corresponding to battery parameter 'Is discharging current hysteresis'.				
AL17	Battery LVD Relay Open	LVD		major (6)	5 / 2
	The battery Low Voltage Disconnect is open. On Systems without LVD_Status signal, like MCU 1848 or MCU 1x6, the alarm is present only if the signal LVD_COM asks to open the LVD				
AL18	Battery Temperature Too High	Battery	Temperature	minor (3)	5 / 2
	The temperature of the battery is too high and is greater than -600 units. There is an hysteresis corresponding to battery parameter 'Temperature hysteresis'.				
AL19	Battery Temperature Too Low	Battery	Temperature	minor (3)	5 / 2
	The temperature of the battery is too low and is greater than -600 units. There is an hysteresis corresponding to battery parameter 'Temperature hysteresis'.				
AL20	Battery Temperature Sensor Fail	Battery	Temperature	minor (3)	5 / 2
	The battery temperature sensor (NTC) value is inferior to -500 units or superior to 300 units meaning that it is not connected or defective.				
AL21	Ambient Temperature Too High	Sensors	Temperature	minor (0)	5 / 2
	The ambient temperature is too high and is greater than -600 units. There is an hysteresis corresponding to parameter 'Ambient temperature hysteresis'. This alarm is only activated on MCU master types 30110, 3096, 30125, 0024, 0948, 0548, 0348, 0948 and 3048M6.				
AL22	Ambient Temperature Too Low	Sensors	Temperature	minor (0)	5 / 2
	The ambient temperature is too low and is greater than -600 units. There is an hysteresis corresponding to parameter 'Ambient temperature hysteresis'. This alarm is only activated on MCU master types 30110, 3096, 30125, 0024, 0948, 0548, 0348, 0948 and 3048M6.				
AL23	Ambient Temperature Sensor Fail	Sensors	Temperature	minor (0)	5 / 2
	The ambient temperature sensor (NTC) value is inferior to -500 units meaning that it is not connected or defective.				
AL25	Distribution Breaker Open	Digital Inputs		major (6)	5 / 2
	This alarm is related to digital input 1. This alarm is activated if digital input value is different to configuration parameter 'Digital Input Alarm Value'				
AL26	Battery Breaker Open	Digital Inputs		minor (4)	5 / 2
	This alarm is related to digital input 2. This alarm is activated if digital input value is different to configuration parameter 'Digital Input Alarm Value'				
AL27	Digital Input 3	Digital Inputs		none (0)	5 / 2
	This alarm is related to digital input 3. This alarm is activated if digital input value is different to configuration parameter 'Digital Input Alarm Value'				
AL28	Digital Input 4	Digital Inputs		none (0)	5 / 2
	This alarm is related to digital input 4. This alarm is activated if digital input value is different to configuration parameter 'Digital Input Alarm Value'				
AL29	Digital Input 5	Digital Inputs		none (0)	5 / 2
	This alarm is related to digital input 5. This alarm is activated if digital input value is different to configuration parameter 'Digital Input Alarm Value'				
AL30	Digital Input 6	Digital Inputs		none (0)	5 / 2
	This alarm is related to digital input 6. This alarm is activated if digital input value is different to configuration parameter 'Digital Input Alarm Value'				
AL31	Digital Input 7	Digital Inputs		none (0)	5 / 2
	This alarm is related to digital input 7. This alarm is activated if digital input value is different to configuration parameter 'Digital Input Alarm Value'				
AL32	Digital Input 8	Digital Inputs		none (0)	5 / 2
	This alarm is related to digital input 8. This alarm is activated if digital input value is different to configuration parameter 'Digital Input Alarm Value'				

<i>Id</i>	<i>Name</i>	<i>Group</i>	<i>SubGroup</i>	<i>Unit</i>	<i>License</i>
DA1	DC Mode	System			basic
	The DC system can have 5 values: 'Float'(0), 'Equalize'(1), 'Battery Test'(2), 'Ac Failure'(3) or 'Safe'(5)				
DA2	Previous DC Mode	System			basic
	The previous value of the DC Mode : 'Float'(0), 'Equalize'(1), 'Battery Test'(2), 'Ac Failure'(3) or 'Safe'(5)				
DA3	Minutes Since Last Mode Change	System		minute	basic
	The number of minute between the last DC Mode Change and now				
DA4	NiMH Charge Mode	System			basic
DA11	Bus Voltage	DC Bus		Volt	basic
	The DC bus voltage in volt.				
DA12	Ratio Delivered On Available Power	System		%	basic
	This is the ratio of the delivered power divided by the installed power, in %.				
DA13	Minutes Since Last AC Failure Begin	AC Bus		minute	basic
	The number of minute since the last AC Failure begin				
DA14	Minutes Since Last AC Failure End	AC Bus		minute	basic
	The number of minute since the last AC Failure end				
DA21	Rectifiers Output Power	Rectifiers		Watt	basic
	The sum of the delivered rectifier power				
DA22	Rectifiers Output Current	Rectifiers		Ampere	basic
	The sum of the delivered rectifier current				
DA23	Rectifiers Output Power Max	Rectifiers		Watt	basic
	The sum of the deliverable rectifier power				
DA24	Rectifiers Output Current Max	Rectifiers		Ampere	basic
	The sum of the deliverable rectifier current				
DA31	Number Of Rectifier Max	Rectifiers	Numbers		basic
	The maximum possible number of rectifier in this dc system				
DA32	Number Of Present Rectifier	Rectifiers	Numbers		basic
	The actual number of present rectifier in this dc system				
DA33	Number Of Absent Rectifier	Rectifiers	Numbers		basic
	The actual number of absent rectifier in this dc system				
DA34	Number Of Active Rectifier	Rectifiers	Numbers		basic
	The actual number of active rectifier in this dc system. An active rectifier is a rectifier which is present, DC OK, AC OK and not in remote off.				
DA35	Number Of AC-Fail Rectifier	Rectifiers	Numbers		basic
	The actual number or rectifier in AC Failure.				
DA36	Number Of DC-Fail Rectifier	Rectifiers	Numbers		basic
	The actual number or rectifier with DC Failure.				
DA37	Number Of Remote Off Rectifier	Rectifiers	Numbers		basic
	The actual number or rectifier in remote off.				
DA38	Number Of Over Temperature Rectifier	Rectifiers	Numbers		basic
	The actual number or rectifier in Over Temperature.				
DA41	Mains Phase 1 Voltage	AC Bus		Volt	basic
	The voltage on AC phase 1				
DA42	Mains Phase 2 Voltage	AC Bus		Volt	basic
	The voltage on AC phase 2				
DA43	Mains Phase 3 Voltage	AC Bus		Volt	basic

	The voltage on AC phase 3				
DA51	Load Power	Load		Watt	basic
	Estimation of the load power consumption				
DA52	Load Current	Load		Ampere	basic
	Estimation of the load current consumption				
DA61	Battery Input Current	Battery		Ampere	basic
	Measurement of the battery input current. A negative value means that the battery is discharging				
DA62	Battery Input Power	Battery		Watt	basic
	Measurement of the battery input power. A negative value means that the battery is discharging				
DA63	Battery String 1 Input Current	Battery		Ampere	basic
	Measurement of the battery 1 input current. A negative value means that the battery is discharging				
DA64	Battery String 2 Input Current	Battery		Ampere	basic
	Measurement of the battery 2 input current. A negative value means that the battery is discharging				
DA65	Battery String 3 Input Current	Battery		Ampere	basic
	Measurement of the battery 3 input current. A negative value means that the battery is discharging				
DA67	Voltage Offset For Shunt regulation	Battery		Volt	basic
DA71	Battery Temperature	Battery	Temperature	degree C	basic
	The battery temperature				
DA72	Battery Test State	Battery	Battery Test		basic
	This is about the result of the last battery test. 10 values are possible : 'Never Tested'(0), 'Success'(1), 'On Going'(2), 'Failed: Timeout'(3), 'Failed: Vbus Too Low'(4), 'Failed: Load Too Low'(5), 'Failed: Ac Failure'(6), 'Failed: Canceled' (7), 'Failed: Lvd Opened'(8), 'Failed: No Battery'(9)				
DA73	Last Battery Test Discharged Capacity Ratio	Battery	Battery Test	%	basic
	This is the battery capacity, in percent, discharged during the last battery test. This value is updated at the end of the battery test.				
DA74	Last Battery Test Discharged Capacity	Battery	Battery Test	Ah	basic
	This is the battery capacity, in ampere hour, discharged during the last battery test. This value is updated at the end of the battery test.				
DA75	Last Battery Test Final Voltage	Battery	Battery Test	Volt	basic
	This is the bus voltage at the end of the last battery test. This value is updated at the end of the battery test.				
DA76	Battery Test Duration	Battery	Battery Test	minute	basic
	The duration of the last battery test. This value is updated at the end of the battery test. This value can't be higher than 1440 minutes (24 hours).				
DA77	Previous Battery Test Discharged Capacity Ratio	Battery	Battery Test	%	basic
	This is the battery capacity, in percent, discharged during the previous battery test. This value is shifted at the end of the battery test.				
DA78	Previous Battery Test Discharged Capacity	Battery	Battery Test	Ah	basic
	This is the battery capacity, in ampere hour, discharged during the previous battery test. This value is shifted at the end of the battery test.				
DA79	Previous Battery Test Final Voltage	Battery	Battery Test	Volt	basic
	This is the bus voltage at the end of the previous battery test. This value is shifted at the end of the battery test.				
DA80	Previous Battery Test Duration	Battery	Battery Test	minute	basic
	The duration of the previous battery test. This value is shifted at the end of the battery test. This value can't be higher than 1440 minutes (24 hours).				
DA81	Previous Battery Test State	Battery	Battery Test		basic

	The result of the previous battery test - 10 values are possible: 'Never Tested'(0), 'Success'(1), 'On Going'(2), 'Failed: Timeout'(3), 'Failed: Vbus Too Low'(4), 'Failed: Load Too Low'(5), 'Failed: Ac Failure'(6), 'Failed: Canceled', 'Failed: Lvd Opened'(8), 'Failed: No Battery'(9)				
DA82	Minutes Since Last Test Battery	Battery	Battery Test	minute	basic
	The number of minute since the end of last battery test				
DA84	Next Scheduled Battery Test	Battery	Battery Test		basic
	The date and time of the next time the scheduled battery test will run				
DA91	Battery Charge Capacity	Battery	Autonomy	%	basic
	The battery charge capacity, calculated by integration of the current.				
DA92	Calculated Autonomy	Battery	Autonomy	minute	basic
	Calculation of the remaining autonomy. This value can change following the load of your system and the maximal depth of discharge configuration (CF39).				
DA94	Battery Current Integration	Battery	Autonomy	Ah	basic
	Actual value of the integration of the current, in Ampere * hour				
DA101	LVD State	LVD			basic
	Actual state of the LVD				
DA111	Relay 1 State	Relays	Relay 1		basic
	Actual state of the Relay 1				
DA112	Relay 2 State	Relays	Relay 2		basic
	Actual state of the Relay 2				
DA113	Relay 3 State	Relays	Relay 3		basic
	Actual state of the Relay 3				
DA114	Relay 4 State	Relays	Relay 4		basic
	Actual state of the Relay 3				
DA121	Efficiency Optimized Number Of Rectifier	Smart Energy			asset
	The optimal number of ON rectifier for Efficiency Optimization				
DA122	System Loss Without Optimization	Smart Energy		Watt	underdev
	Estimation of the losses without optimisation				
DA123	System Loss With Optimization	Smart Energy		Watt	underdev
	Estimation of the losses with optimisation				
DA124	Rectifier Model Used For Calculation	Smart Energy			asset
	The rectifier model used				
DA125	Smart Energy Savings	Smart Energy		Watt	asset
	Estimation of the losses with optimisation				
DA151	Ambient Temperature	Sensors	Temperature	degree C	basic
	The ambient temperature (second temperature sense)				
DA161	Voltage 1	Sensors	Voltage 1	Volt	basic
	The voltage measured by the sense 1. Can be used for battery symmetry measurement. Calculation can be done with the PLC				
DA162	Voltage 2	Sensors	Voltage 2	Volt	basic
	The voltage measured by the sense 2. Can be used for battery symmetry measurement. Calculation can be done with the PLC				
DA163	Voltage 3	Sensors	Voltage 3	Volt	basic
	The voltage measured by the sense 3. Can be used for battery symmetry measurement. Calculation can be done with the PLC				
DA204	Pulse Counter 4	Sensors	Pulse Counter 4		basic
	The counter value of the digital input 4.				

Config Table						
<i>Id</i>	<i>Name</i>	<i>Group</i>	<i>SubGroup</i>	<i>Unit</i>	<i>Range: Min/Max (default)</i>	<i>License</i>
CF1	DC Bus Float Voltage at 25 degC	DC Bus		Volt	40/60 (54)	basic
	The floating dc bus voltage of the system at 25 Celsius degree					
CF2	DC Bus Voltage Extra Low	DC Bus	Alarm Parameters	Volt	40/60 (45)	basic
	The bus voltage under which the alarm 'DC Bus Voltage Extra Low' is set.					
CF3	DC Bus Voltage Extra Low Hysteresis	DC Bus	Alarm Parameters	Volt	0/5 (1)	basic
	The voltage hysteresis on the alarm 'DC Bus Voltage Extra Low'.					
CF4	DC Bus Voltage Low	DC Bus	Alarm Parameters	Volt	40/60 (48)	basic
	The bus voltage under which the alarm 'DC Bus Voltage Low' is set.					
CF5	DC Bus Voltage Low Hysteresis	DC Bus	Alarm Parameters	Volt	0/5 (0.5)	basic
	The voltage hysteresis on the alarm 'DC Bus Voltage Low					
CF6	DC Bus Voltage High	DC Bus	Alarm Parameters	Volt	40/60 (56.5)	basic
	The bus voltage over which the alarm 'DC Bus Voltage High' is set.					
CF7	DC Bus Voltage High Hysteresis	DC Bus	Alarm Parameters	Volt	0/5 (0.5)	basic
	The voltage hysteresis on the alarm 'DC Bus Voltage High					
CF8	DC Bus Voltage Extra High	DC Bus	Alarm Parameters	Volt	40/60 (58)	basic
	The bus voltage over which the alarm 'DC Bus Voltage Extra High' is set.					
CF9	DC Bus Voltage Extra High Hysteresis	DC Bus	Alarm Parameters	Volt	0/5 (0.5)	basic
	The voltage hysteresis on the alarm 'DC Bus Voltage Extra High					
CF10	LVD Disconnect Voltage	LVD		Volt	0/50 (43.2)	basic
	The dc bus voltage under which the battery must be disconnected of the bus. This allows preserving the battery life. The load will be unpowered. This value has to be lower than the Battery test end voltage (CF70)					
CF11	LVD Disconnect Delay	LVD		second	1/2000 (1)	basic
	The delay in second before disconnecting the battery if the dc bus voltage is under the configured disconnected voltage. This avoids disconnection during a low bus transient.					
CF21	Temperature Compensation Slope	Battery	Temperature Compensation	mV/degree	-1000/0 (-72)	basic
	The slope of the battery temperature compensation in mv/degree. For a 48V system, -72mV/degree is often used.					
CF22	Maximum Positive Temperature Compensation	Battery	Temperature Compensation	Volt	0/10 (3)	basic
	The maximal allowed positive compensation.					
CF23	Maximum Negative Temperature Compensation	Battery	Temperature Compensation	Volt	-10/0 (-3)	basic
	The maximal allowed negative compensation.					
CF25	Minimal Number Of Present Rectifiers	Rectifiers	Alarm Parameters		0/100 (0)	basic
	The minimal number of rectifier which must be present. If there is less present rectifiers, the alarm 'Missing Rectifiers' is set.					
CF26	Rectifier Model	Rectifiers				basic

	The rectifier model					
CF27	Forced Remote Off Rectifiers	Rectifiers	Remote Off			basic
	A list of rectifier which are forced in remote off. The id of the rectifier must be coma separated. Ex: 1,3 will maintain rectifier 1 and 3 off.					
CF28	Rectifier CAN Node IDs Range	Rectifiers				basic
CF29	Rectifier Ids Declared	Rectifiers				basic
CF31	Battery Charge Current Limit	Battery	Battery Charge Parameters	Ampere	0.5/3250 (1000)	basic
	The maximal battery current when the battery is charging. The monitoring regulates the bus voltage in order to satisfy this condition. This parameter is often equal to the nominal battery capacity divided by 10.					
CF32	Battery String Capacity	Battery		Ah	3/6500 (100)	basic
	The battery capacity in Ah.					
CF33	Battery Temperature Low	Battery	Alarm Parameters	degree C	-100/20 (0)	basic
	The temperature under which the alarm 'Battery Temperature Too Low' must be set.					
CF34	Battery Temperature High	Battery	Alarm Parameters	degree C	5/100 (40)	basic
	The temperature over which the alarm 'Battery Temperature Too High' must be set.					
CF35	Battery Temperature Hysteresis	Battery	Alarm Parameters	degree C	0/10 (2)	basic
	The hysteresis on the 'Battery Temperature Too High' and 'Battery Temperature Too Low' alarms.					
CF36	Minimal Current For Discharging Alarm	Battery	Alarm Parameters	Ampere	0/5000 (3)	basic
	The minimal discharging current to set the 'Battery On Discharge' alarm.					
CF37	Current Hysteresis For Discharging Alarm	Battery	Alarm Parameters	Ampere	0/500 (1)	basic
	The hysteresis on the 'Battery On Discharge' alarm.					
CF38	Peukert Number	Battery	Autonomy		1/2 (1)	basic
	The Peukert number relates to the internal resistance of a battery and provides an indication of the expected capacity. The ideal number is 1. This value can be calculated with the formula: $\frac{\ln(t_2) - \ln(t_1)}{\ln(i_1) - \ln(i_2)}$ where t_x is the autonomy in hours at a constant discharge current of i_x Amps. Often, we use $t_1 = 1h$ and $t_2 = 10h$					
CF39	Max Depth Of Discharge for Autonomy Estimation	Battery	Autonomy		10/100 (100)	basic
	It is generally recommended to discharge maximum 60% of the battery capacity to enhance battery lifetime. By default, 100% is used for autonomy calculation. This parameter can also be used to take into account the age of the battery					
CF40	Number of Battery String	Battery			1-3 or 0-2	basic
	The Number of Battery String in the system					
CF41	Shunt Rating At 60mV	Current Sensors	Shunt 1	Ampere	25/5000 (250)	basic
	The rating of the battery shunt at 60mV.					
CF42	Battery 2 Charge Current Limit	Battery		Ampere	0.5/3250 (1000)	basic
	The maximal battery current when the battery is charging. The monitoring regulates the bus voltage in order to satisfy this condition. This parameter is often equal to the nominal battery capacity divided by 10.					
CF43	Battery 2 String Capacity	Battery		Ah	3/6500 (100)	basic

	The battery capacity in Ah.					
CF44	Shunt Rating At 60mV	Battery		Ampere	25/5000 (250)	basic
	The rating of the battery shunt at 60mV.					
CF45	Battery 3 Charge Current Limit	Battery		Ampere	0.5/3250 (1000)	basic
	The maximal battery current when the battery is charging. The monitoring regulates the bus voltage in order to satisfy this condition. This parameter is often equal to the nominal battery capacity divided by 10.					
CF46	Battery 3 String Capacity	Battery		Ah	3/6500 (100)	basic
	The battery capacity in Ah.					
CF47	Shunt Rating At 60mV	Battery		Ampere	25/5000 (250)	basic
	The rating of the battery shunt at 60mV.					
CF51	Boost Automatic	Battery	Boost		False/False (False)	battery
	The boost mode must be automatically after the fact that during a mains failure, the bus voltage went under the configured 'Boost Activation Low Voltage'. This allows charging the battery faster.					
CF52	Boost Activation Low Voltage	Battery	Boost	Volt	43/50 (46)	battery
	The voltage under which the boost mode can be activated.					
CF53	Boost Termination Voltage	Battery	Boost	Volt	50/58 (56.4)	battery
	The voltage over which the system must go back to floating mode.					
CF54	Boost Termination Current	Battery	Boost	Ampere	0/100 (4)	battery
	The battery charging current under which the system must go back to floating mode.					
CF55	Boost Termination Time	Battery	Boost	minute	10/240 (120)	battery
	The time in minute after which the system must go back in floating mode.					
CF69	Battery Test Type	Battery	Battery Test			battery
	Type of the battery test: Capacity based: The battery must give the requested capacity before falling lower than a value Time Based: The battery must sustain a defined load during a defined time.					
CF70	Battery Test End Voltage	Battery	Battery Test	Volt	30/60 (46)	battery
	The voltage at which any battery test must be stopped. This value has to be higher than the LVD Disconnect voltage (CF10)					
CF71	Battery Test Discharge Ratio	Battery	Battery Test	%	0/100 (0)	battery
	The ratio of the battery capacity to discharge. If 30 is set, 30% of the battery will be discharged during the test					
CF72	Battery Test Interval	Battery	Battery Test	day	0/3000 (0)	battery
	The number of days between two automatically started battery test. If this parameter is set to 0, the battery test is not started automatically. The user can remotely or locally start or force this test.					
CF73	Battery Test Discharge Current	Battery	Battery Test	Ampere	3/5000 (1000)	battery
	The current at which the battery must be discharged during a battery test. The monitoring regulates the bus voltage in order to satisfy this condition. The load current must be of course higher than this parameter.					
CF74	Battery Test Minimal Discharge Current	Battery	Battery Test	Ampere	2/90 (2)	battery
	The battery current under which the battery test must be stopped because the load is too low.					
CF75	Battery Test Duration	Battery	Battery Test	minute	1/5000 (10)	battery
	The timeout in minute after which the battery test must be stopped.					
CF76	Battery Test Requested Minutes Without Mains Failure	Battery	Battery Test	minute	0/5000 (1440)	battery

	The minimal time in minute without mains failure in order to allow a battery start. This parameter is not taken into account when the battery test is forced.					
CF77	Battery Test Scheduler Cron Rule	Battery	Battery Test			basic
CF78	Battery Test Disable Low Voltage Alarms	Battery	Battery Test	minute	0/1000 (0)	basic
	Allow to disable the alarms AL1 and AL2 during a battery test if value >0. Settings 15 means disabling for 15 minutes after the battery test end, to avoid alarms during recharge also					
CF83	Smart Energy Boolean Condition	Smart Energy				asset
	This is the boolean condition which allows or not to automatically optimize the number of rectifier in remote off.					
CF86	Battery LVD Node Id	LVD			True/False (False)	basic
	This is a list of the node id of the Smart Electronic LVDs, coma separated					
CF91	Digital Input 1 Name	Digital Inputs	Digital Input 1		Distribution Breaker Open	basic
	The name of the digital input 1					
CF92	Digital Input 1 Normally Closed	Digital Inputs	Digital Input 1		True/False (True)	basic
	True/False value defining if the digital input 1 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF93	Digital Input 2 Name	Digital Inputs	Digital Input 2		Battery Breaker Open	basic
	The name of the digital input 2					
CF94	Digital Input 2 Normally Closed	Digital Inputs	Digital Input 2		True/False (True)	basic
	True/False value defining if the digital input 2 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF95	Digital Input 3 Name	Digital Inputs	Digital Input 3		Digital Input 3	basic
	The name of the digital input 3					
CF96	Digital Input 3 Normally Closed	Digital Inputs	Digital Input 3		True/False (True)	basic
	True/False value defining if the digital input 3 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF97	Digital Input 4 Name	Digital Inputs	Digital Input 4		Digital Input 4	basic
	The name of the digital input 4					
CF98	Digital Input 4 Normally Closed	Digital Inputs	Digital Input 4		True/False (True)	basic
	True/False value defining if the digital input 4 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF99	Digital Input 5 Name	Digital Inputs	Digital Input 5		Digital Input 5	basic
	The name of the digital input 5					
CF100	Digital Input 5 Normally Closed	Digital Inputs	Digital Input 5		True/False (True)	basic
	True/False value defining if the digital input 5 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF101	Digital Input 6 Name	Digital Inputs	Digital Input 6		Digital Input 6	basic
	The name of the digital input 6					
CF102	Digital Input 6 Normally Closed	Digital Inputs	Digital Input 6		True/False (True)	basic
	True/False value defining if the digital input 6 is normally closed. If this digital input is not in this default state, the related alarm is set.					

CF103	Digital Input 7 Name	Digital Inputs	Digital Input 7		Digital Input 7	basic
	The name of the digital input 7					
CF104	Digital Input 7 Normally Closed	Digital Inputs	Digital Input 7		True/False (True)	basic
	True/False value defining if the digital input 7 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF105	Digital Input 8 Name	Digital Inputs	Digital Input 8		Digital Input 8	basic
	The name of the digital input 8					
CF106	Digital Input 8 Normally Closed	Digital Inputs	Digital Input 8		True/False (True)	basic
	True/False value defining if the digital input 8 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF111	Dry Alarm 1 Alternative Boolean Condition	Relays	Relay 1			plc
	Another Boolean condition to activate the dry alarm relay 1. The way to define boolean condition is detailed in the PLC chapter.					
CF112	Dry Alarm 2 Alternative Boolean Condition	Relays	Relay 2			plc
	Another Boolean condition to activate the dry alarm relay 2. The way to define boolean condition is detailed in the PLC chapter.					
CF113	Dry Alarm 3 Alternative Boolean Condition	Relays	Relay 3			plc
	Another Boolean condition to activate the dry alarm relay 3. The way to define boolean condition is detailed in the PLC chapter.					
CF114	Dry Alarm 4 Alternative Boolean Condition	Relays	Relay 4			plc
	Another Boolean condition to activate the dry alarm relay 4. The way to define boolean condition is detailed in the PLC chapter.					
CF131	Ambient Temperature Low	Sensors	Temperature	degree C		basic
	The temperature under which the alarm 'Ambient Temperature Too Low' must be set.					
CF132	Ambient Temperature High	Sensors	Temperature	degree C		basic
	The temperature under which the alarm 'Ambient Temperature Too Low' must be set.					
CF133	Ambient Temperature Hysteresis	Sensors	Temperature	degree C		basic
	The hysteresis on the 'Battery Temperature Too High' and 'Battery Temperature Too Low' alarms.					
CF141	AC Voltage Low	Mains		Volt	0/240 (180)	basic
	The AC voltage under which the alarm AC Low is set.					
CF142	AC Voltage High	Mains		Volt	80/600 (250)	basic
	The AC voltage over which the alarm AC High is set.					
CF143	AC Voltage Hysteresis	Mains		Volt	0/40 (5)	basic
	The AC voltage hysteresis on alarms AC High and AC Low.					
CF144	AC Phase 1 PLC	AC Bus				basic
	This is the mathematical expression of the calculation of AC phase 1. If empty, the rectifiers are used. The syntax for writing mathematical expression is described in the PLC chapter. The PLC data element is the result of the calculation.					
CF145	AC Phase 2 PLC	AC Bus				basic
	This is the mathematical expression of the calculation of AC phase 2. If empty, the rectifiers are used. The syntax for writing mathematical expression is described in the PLC chapter. The PLC data element is the result of the calculation.					
CF146	AC Phase 3 PLC	AC Bus				basic

	This is the mathematical expression of the calculation of AC phase 3. If empty, the rectifiers are used. The syntax for writing mathematical expression is described in the PLC chapter. The PLC data element is the result of the calculation.					
CF151	PLD Condition	PLD				basic
	The PLC condition to enable the PLD command					
CF161	Forced Remote Off Rectifiers Boolean Condition	Rectifiers	Remote Off			basic
	The boolean PLC condition to enable the forced remote off					
CF521	Read Access User Numbers	Generic	Allowed Users		(1,2,3,4,5)	basic
	The list of the user numbers which have read access to this equipment. The user numbers are coma separated. The accepted user id are 1,2,3,4 and 5. Ex: 1,3,4					
CF522	Write Access User Numbers	Generic	Allowed Users		()	basic
	The list of the user numbers which have write access to this equipment. This means that these users can modify the configuration element, the alarm settings and use the control elements. The user numbers are coma separated. The accepted user ids are 1,2,3,4 and 5. Ex: 1,3,4					
CF601	Event Table Length	Generic	Events		10/4000 (100)	basic
	The maximum length of the table. The value must be comprised between 10 and 4000					
CF602	Event Table Length By Rectifier	Generic	Events		10/4000 (100)	basic
	The maximum length of the table. The value must be comprised between 10 and 4000					
CF901	Number Of PLC Data	PLC			(0)	plc
	The number of PLC data. Every equipment can manage up to 30 user programmable data. Data elements are automatically added in the data table. Configuration parameters are added to set the PLC Data Name and the PLC Data Mathematical calculation. In order to use these functionalities, you need a license with the 'PLC' module					
CF902	Number Of PLC Alarm	PLC			(0)	plc
	The number of PLC alarm. Every equipment can manage up to 30 user programmable alarms. Alarm elements are automatically added in the alarm table. The alarm parameters are added to set the PLC Alarm Name and the PLC Alarm Boolean condition. In order to use these functionalities, you need a licence with the 'PLC' module					

Control Table				
<i>Id</i>	<i>Name</i>	<i>Group</i>	<i>SubGroup</i>	<i>License</i>
CT1	Back To Float	System		basic
	The dc system must go back in floating mode.			
CT2	Start Battery Test	System		battery
	The dc system must start a battery test.			
CT3	Force Battery Test	System		battery
	The dc system must force a battery test.			
CT4	Start Boost Mode	System		battery
	The dc system must go in boost mode.			
CT11	Open The LVD	LVD		basic
	Try to open the LVD. It could not work if the LVD is electronic, and the request will be canceled after 15 sec.			
CT12	Close The LVD	LVD		basic
	The LVD must be closed			
CT21	Correct Battery Current Offset	Battery		basic
CT41	Reset Last Battery Test State	Battery		battery

	Reset the state of the last battery test. If an alarm 'Battery Last Test Failed' is set, the alarm will be cleared.			
CT51	Save Configuration In MCU	Save		basic
	Save configuration parameters in the MCU micro-controller. If Compas is not present, the system will be correctly managed.			
CT55	Set MCU Specific Configuration Id	Advanced	Factory	basic
	This control allows to reconfigure the MCU to support specific hardware configuration, with embedded distribution for example			
CT61	Set Digital Input 4 Counter Value	Digital Inputs	Digital Input 4	basic
	Set Counter Value			
CT111	Invert Relay 1 State For X Seconds	Relays	Relay 1	basic
	Generate Pulse on relay 1			
CT112	Invert Relay 2 State For X Seconds	Relays	Relay 2	basic
	Generate Pulse on relay 2			
CT113	Invert Relay 3 State For X Seconds	Relays	Relay 3	basic
	Generate Pulse on relay 3			
CT114	Invert Relay 4 State For X Seconds	Relays	Relay 4	basic
	Generate Pulse on relay 4			
CT501	Clear My Events	Generic	Events	basic
	By writing '1' to this control element, all the events of this equipment will be cleared.			
CT502	Clear All Events	Generic	Events	basic
	By writing '1' to this control element, all the events of this equipment and all the events of all the sub-equipments will be cleared.			
CT511	Add Event	Generic	Events	basic
	This control element adds an event of severity none. The event name is the text written to this control element			
CT512	Add Major Event	Generic	Events	basic
	This control element adds an event of severity major. The event name is the text written to this control element			
CT521	Reset Default Names And Groups	Generic	Renaming	basic
	This control element resets all the element Names, Groups and Subgroups to default values for this equipment			
CT522	Reset Default Names And Groups Recursive	Generic	Renaming	basic
	This control element resets all the element Names, Groups and Subgroups to default values for this equipment and all sub equipments			

15.2.14 MCU3096M6

Device Information	
Name	MCU3096M6
Short Description	MCU for rack 6x3000W +96V
Long Description	
Hardware Reference	9413 063 07041
Software Reference	SOFT 000091 XX
Equipment Type	Monitoring Control Unit
ETSI Level	/site/energy_system/dc_system

Description Table				
<i>Id</i>	<i>Name</i>	<i>Group</i>	<i>SubGroup</i>	<i>License</i>

DE1	Description	Description	Custom Description	basic
	A free text zone to write a system description			
DE2	Reference	Description	Custom Description	basic
	A free text zone to write the customer reference of the system			
DE11	Product Name	Description	Product Info	basic
	The product name of the DC system monitoring			
DE12	Hardware Reference	Description	Product Info	basic
	The hardware reference of the DC system monitoring			
DE14	Software Reference	Description	Product Info	asset
	The software reference of the DC system monitoring			
DE16	Serial Number	Description	Product Info	asset
	The serial number of the DC system monitoring			
DE18	Manufacturing Date	Description	Product Info	asset
	The production date of the DC system monitoring			

Alarm Table					
<i>Id</i>	<i>Name</i>	<i>Group</i>	<i>SubGroup</i>	<i>Severity Type (Level)</i>	<i>Set/Clear Delay</i>
AL1	DC Bus Extra Low	DC Bus		major (6)	5 / 2
	The bus voltage is extra low. The alarm is set when the bus voltage is lower than the configuration parameter 'DC Bus Voltage Extra Low'. There is an hysteresis on the alarm : 'DC Bus Voltage Extra Low Hysteresis'. The alarm is not activated when DC mode is 'Battery Test'				
AL2	DC Bus Low	DC Bus		minor (4)	5 / 2
	The bus voltage is low. The alarm is set when the bus voltage is lower than the configuration parameter 'DC Bus Voltage Low'. There is an hysteresis on the alarm : 'DC Bus Voltage Low Hysteresis'				
AL3	DC Bus High	DC Bus		minor (4)	5 / 2
	The bus voltage is high. The alarm is set when the bus voltage is higher than the configuration parameter 'DC Bus Voltage High'. There is an hysteresis on the alarm : 'DC Bus Voltage High Hysteresis'				
AL4	DC Bus Extra High	DC Bus		major (6)	5 / 2
	The bus voltage is extra high. The alarm is set when the bus voltage is higher than the configuration parameter 'DC Bus Voltage Extra High'. There is an hysteresis on the alarm : 'DC Bus Voltage Extra High Hysteresis'				
AL5	DC Bus Voltage Sense Failure	DC Bus		major (6)	5 / 2
	The DC bus voltage sense is defective. The DC bus voltage is unconnected or misconfigured.				
AL6	Mains Failure	AC Bus		minor (4)	5 / 2
	The number of active rectifiers is equal to 0 - All the phases are down				
AL7	Mains Partial Failure	AC Bus		minor (4)	10 / 2
	The number of active rectifiers is greater than 0 and the number of rectifiers in AC failure is greater than 0. Some rectifiers are in AC Failure. It may be caused by an open breaker, a real phase failure, or by a rectifier failure.				
AL8	Mains Low	AC Bus		warning (2)	10 / 2
	The main voltage is low on one or more phases. No rectifier is in AC failure. If MCU master type is 30110, 3096 or 3048M6, an hysteresis _phase123Hysteresis is added to the voltage lower limit				
AL9	Mains High	AC Bus		warning (2)	10 / 2
	The main voltage is low on one or more phases. No rectifier is in AC failure. The alarm is only active if MCU master type is 30110, 3096 or 3048M6. Therefore, an hysteresis _phase123Hysteresis is subtracted to the voltage lower limit.				
AL10	One Rectifier Failure	Rectifiers		minor (4)	5 / 2

	One rectifier must be replaced or is not powered correctly. The DC fail alarm of the rectifier is set. The number of rectifier with DC Failure is higher than 0, there is no mains failure, and the 'More Than One Rectifier Failure alarm is not set.'				
AL11	More Than One Rectifier Failure	Rectifiers		major (6)	10 / 2
	There is no mains failure and number of rectifier failures is greater than 1.				
AL12	Missing Rectifiers	Rectifiers		major (6)	5 / 2
	There is not enough rectifier according to the configuration parameter : 'Minimal Number Of Rectifier'				
AL13	Battery Last Test Failed	Battery	Battery Test	minor (3)	5 / 2
	The last battery test did not succeed and was not cancelled. Maybe the battery should be replaced. Check inside the dc system data for more information about the last test.				
AL14	Battery On Discharge	Battery		minor (4)	10 / 2
	The battery is discharging. This means that the load is too high for the installed rectifiers. This alarm is inactive when the system in AC Failure or during a battery test. There is an hysteresis corresponding to battery parameter 'Is discharging current hysteresis'.				
AL17	Battery LVD Relay Open	LVD		major (6)	5 / 2
	The battery Low Voltage Disconnect is open. On Systems without LVD_Status signal, like MCU 1848 or MCU 1x6, the alarm is present only if the signal LVD_COM asks to open the LVD				
AL18	Battery Temperature Too High	Battery	Temperature	minor (3)	5 / 2
	The temperature of the battery is too high and is greater than -600 units. There is an hysteresis corresponding to battery parameter 'Temperature hysteresis'.				
AL19	Battery Temperature Too Low	Battery	Temperature	minor (3)	5 / 2
	The temperature of the battery is too low and is greater than -600 units. There is an hysteresis corresponding to battery parameter 'Temperature hysteresis'.				
AL20	Battery Temperature Sensor Fail	Battery	Temperature	minor (3)	5 / 2
	The battery temperature sensor (NTC) value is inferior to -500 units or superior to 300 units meaning that it is not connected or defective.				
AL21	Ambient Temperature Too High	Sensors	Temperature	minor (0)	5 / 2
	The ambient temperature is too high and is greater than -600 units. There is an hysteresis corresponding to parameter 'Ambient temperature hysteresis'. This alarm is only activated on MCU master types 30110, 3096, 30125, 0024, 0948, 0548, 0348, 0948 and 3048M6.				
AL22	Ambient Temperature Too Low	Sensors	Temperature	minor (0)	5 / 2
	The ambient temperature is too low and is greater than -600 units. There is an hysteresis corresponding to parameter 'Ambient temperature hysteresis'. This alarm is only activated on MCU master types 30110, 3096, 30125, 0024, 0948, 0548, 0348, 0948 and 3048M6.				
AL23	Ambient Temperature Sensor Fail	Sensors	Temperature	minor (0)	5 / 2
	The ambient temperature sensor (NTC) value is inferior to -500 units meaning that it is not connected or defective.				
AL25	Distribution Breaker Open	Digital Inputs		major (6)	5 / 2
	This alarm is related to digital input 1. This alarm is activated if digital input value is different to configuration parameter 'Digital Input Alarm Value'				
AL26	Battery Breaker Open	Digital Inputs		minor (4)	5 / 2
	This alarm is related to digital input 2. This alarm is activated if digital input value is different to configuration parameter 'Digital Input Alarm Value'				
AL27	Digital Input 3	Digital Inputs		none (0)	5 / 2
	This alarm is related to digital input 3. This alarm is activated if digital input value is different to configuration parameter 'Digital Input Alarm Value'				
AL28	Digital Input 4	Digital Inputs		none (0)	5 / 2
	This alarm is related to digital input 4. This alarm is activated if digital input value is different to configuration parameter 'Digital Input Alarm Value'				
AL29	Digital Input 5	Digital Inputs		none (0)	5 / 2
	This alarm is related to digital input 5. This alarm is activated if digital input value is different to configuration parameter 'Digital Input Alarm Value'				

AL30	Digital Input 6	Digital Inputs		none (0)	5 / 2
	This alarm is related to digital input 6. This alarm is activated if digital input value is different to configuration parameter 'Digital Input Alarm Value'				
AL31	Digital Input 7	Digital Inputs		none (0)	5 / 2
	This alarm is related to digital input 7. This alarm is activated if digital input value is different to configuration parameter 'Digital Input Alarm Value'				
AL32	Digital Input 8	Digital Inputs		none (0)	5 / 2
	This alarm is related to digital input 8. This alarm is activated if digital input value is different to configuration parameter 'Digital Input Alarm Value'				

Data Table					
<i>Id</i>	<i>Name</i>	<i>Group</i>	<i>SubGroup</i>	<i>Unit</i>	<i>License</i>
DA1	DC Mode	System			basic
	The DC system can have 5 values: 'Float'(0), 'Equalize'(1), 'Battery Test'(2), 'Ac Failure'(3) or 'Safe'(5)				
DA2	Previous DC Mode	System			basic
	The previous value of the DC Mode : 'Float'(0), 'Equalize'(1), 'Battery Test'(2), 'Ac Failure'(3) or 'Safe'(5)				
DA3	Minutes Since Last Mode Change	System		minute	basic
	The number of minute between the last DC Mode Change and now				
DA4	NiMH Charge Mode	System			basic
DA11	Bus Voltage	DC Bus		Volt	basic
	The DC bus voltage in volt.				
DA12	Ratio Delivered On Available Power	System		%	basic
	This is the ratio of the delivered power divided by the installed power, in %.				
DA13	Minutes Since Last AC Failure Begin	AC Bus		minute	basic
	The number of minute since the last AC Failure begin				
DA14	Minutes Since Last AC Failure End	AC Bus		minute	basic
	The number of minute since the last AC Failure end				
DA21	Rectifiers Output Power	Rectifiers		Watt	basic
	The sum of the delivered rectifier power				
DA22	Rectifiers Output Current	Rectifiers		Ampere	basic
	The sum of the delivered rectifier current				
DA23	Rectifiers Output Power Max	Rectifiers		Watt	basic
	The sum of the deliverable rectifier power				
DA24	Rectifiers Output Current Max	Rectifiers		Ampere	basic
	The sum of the deliverable rectifier current				
DA31	Number Of Rectifier Max	Rectifiers	Numbers		basic
	The maximum possible number of rectifier in this dc system				
DA32	Number Of Present Rectifier	Rectifiers	Numbers		basic
	The actual number of present rectifier in this dc system				
DA33	Number Of Absent Rectifier	Rectifiers	Numbers		basic
	The actual number of absent rectifier in this dc system				
DA34	Number Of Active Rectifier	Rectifiers	Numbers		basic
	The actual number of active rectifier in this dc system. An active rectifier is a rectifier which is present, DC OK, AC OK and not in remote off.				
DA35	Number Of AC-Fail Rectifier	Rectifiers	Numbers		basic
	The actual number or rectifier in AC Failure.				
DA36	Number Of DC-Fail Rectifier	Rectifiers	Numbers		basic

	The actual number or rectifier with DC Failure.				
DA37	Number Of Remote Off Rectifier	Rectifiers	Numbers		basic
	The actual number or rectifier in remote off.				
DA38	Number Of Over Temperature Rectifier	Rectifiers	Numbers		basic
	The actual number or rectifier in Over Temperature.				
DA41	Mains Phase 1 Voltage	AC Bus		Volt	basic
	The voltage on AC phase 1				
DA42	Mains Phase 2 Voltage	AC Bus		Volt	basic
	The voltage on AC phase 2				
DA43	Mains Phase 3 Voltage	AC Bus		Volt	basic
	The voltage on AC phase 3				
DA51	Load Power	Load		Watt	basic
	Estimation of the load power consumption				
DA52	Load Current	Load		Ampere	basic
	Estimation of the load current consumption				
DA61	Battery Input Current	Battery		Ampere	basic
	Measurement of the battery input current. A negative value means that the battery is discharging				
DA62	Battery Input Power	Battery		Watt	basic
	Measurement of the battery input power. A negative value means that the battery is discharging				
DA71	Battery Temperature	Battery	Temperature	degree C	basic
	The battery temperature				
DA72	Battery Test State	Battery	Battery Test		basic
	This is about the result of the last battery test. 10 values are possible : 'Never Tested'(0), 'Success'(1), 'On Going'(2), 'Failed: Timeout'(3), 'Failed: Vbus Too Low'(4), 'Failed: Load Too Low'(5), 'Failed: Ac Failure'(6), 'Failed: Canceled' (7), 'Failed: Lvd Opened'(8), 'Failed: No Battery'(9)				
DA73	Last Battery Test Discharged Capacity Ratio	Battery	Battery Test	%	basic
	This is the battery capacity, in percent, discharged during the last battery test. This value is updated at the end of the battery test.				
DA74	Last Battery Test Discharged Capacity	Battery	Battery Test	Ah	basic
	This is the battery capacity, in ampere hour, discharged during the last battery test. This value is updated at the end of the battery test.				
DA75	Last Battery Test Final Voltage	Battery	Battery Test	Volt	basic
	This is the bus voltage at the end of the last battery test. This value is updated at the end of the battery test.				
DA76	Battery Test Duration	Battery	Battery Test	minute	basic
	The duration of the last battery test. This value is updated at the end of the battery test. This value can't be higher than 1440 minutes (24 hours).				
DA77	Previous Battery Test Discharged Capacity Ratio	Battery	Battery Test	%	basic
	This is the battery capacity, in percent, discharged during the previous battery test. This value is shifted at the end of the battery test.				
DA78	Previous Battery Test Discharged Capacity	Battery	Battery Test	Ah	basic
	This is the battery capacity, in ampere hour, discharged during the previous battery test. This value is shifted at the end of the battery test.				
DA79	Previous Battery Test Final Voltage	Battery	Battery Test	Volt	basic
	This is the bus voltage at the end of the previous battery test. This value is shifted at the end of the battery test.				
DA80	Previous Battery Test Duration	Battery	Battery Test	minute	basic

	The duration of the previous battery test. This value is shifted at the end of the battery test. This value can't be higher than 1440 minutes (24 hours).				
DA81	Previous Battery Test State	Battery	Battery Test		basic
	The result of the previous battery test - 10 values are possible: 'Never Tested'(0), 'Success'(1), 'On Going'(2), 'Failed: Timeout'(3), 'Failed: Vbus Too Low'(4), 'Failed: Load Too Low'(5), 'Failed: Ac Failure'(6), 'Failed: Canceled', 'Failed: Lvd Opened'(8), 'Failed: No Battery'(9)				
DA82	Minutes Since Last Test Battery	Battery	Battery Test	minute	basic
	The number of minute since the end of last battery test				
DA84	Next Scheduled Battery Test	Battery	Battery Test		basic
	The date and time of the next time the scheduled battery test will run				
DA91	Battery Charge Capacity	Battery	Autonomy	%	basic
	The battery charge capacity, calculated by integration of the current.				
DA92	Calculated Autonomy	Battery	Autonomy	minute	basic
	Calculation of the remaining autonomy. This value can change following the load of your system and the maximal depth of discharge configuration (CF39).				
DA94	Battery Current Integration	Battery	Autonomy	Ah	basic
	Actual value of the integration of the current, in Ampere * hour				
DA101	LVD State	LVD			basic
	Actual state of the LVD				
DA111	Relay 1 State	Relays	Relay 1		basic
	Actual state of the Relay 1				
DA112	Relay 2 State	Relays	Relay 2		basic
	Actual state of the Relay 2				
DA113	Relay 3 State	Relays	Relay 3		basic
	Actual state of the Relay 3				
DA114	Relay 4 State	Relays	Relay 4		basic
	Actual state of the Relay 3				
DA121	Efficiency Optimized Number Of Rectifier	Smart Energy			asset
	The optimal number of ON rectifier for Efficiency Optimization				
DA122	System Loss Without Optimization	Smart Energy		Watt	underdev
	Estimation of the losses without optimisation				
DA123	System Loss With Optimization	Smart Energy		Watt	underdev
	Estimation of the losses with optimisation				
DA124	Rectifier Model Used For Calculation	Smart Energy			asset
	The rectifier model used				
DA125	Smart Energy Savings	Smart Energy		Watt	asset
	Estimation of the losses with optimisation				
DA151	Ambient Temperature	Sensors	Temperature	degree C	basic
	The ambient temperature (second temperature sense)				
DA161	Voltage 1	Sensors	Voltage 1	Volt	basic
	The voltage measured by the sense 1. Can be used for battery symmetry measurement. Calculation can be done with the PLC				
DA162	Voltage 2	Sensors	Voltage 2	Volt	basic
	The voltage measured by the sense 2. Can be used for battery symmetry measurement. Calculation can be done with the PLC				
DA163	Voltage 3	Sensors	Voltage 3	Volt	basic
	The voltage measured by the sense 3. Can be used for battery symmetry measurement. Calculation can be done with the PLC				

DA204	Pulse Counter 4	Sensors	Pulse Counter 4		basic
	The counter value of the digital input 4.				

Config Table						
<i>Id</i>	<i>Name</i>	<i>Group</i>	<i>SubGroup</i>	<i>Unit</i>	<i>Range: Min/Max (default)</i>	<i>License</i>
CF1	DC Bus Float Voltage at 25 degC	DC Bus		Volt	65/105 (94.5)	basic
	The floating dc bus voltage of the system at 25 Celsius degree					
CF2	DC Bus Voltage Extra Low	DC Bus	Alarm Parameters	Volt	65/105 (78.75)	basic
	The bus voltage under which the alarm 'DC Bus Voltage Extra Low' is set.					
CF3	DC Bus Voltage Extra Low Hysteresis	DC Bus	Alarm Parameters	Volt	0.5/10 (2)	basic
	The voltage hysteresis on the alarm 'DC Bus Voltage Extra Low'.					
CF4	DC Bus Voltage Low	DC Bus	Alarm Parameters	Volt	65/105 (84)	basic
	The bus voltage under which the alarm 'DC Bus Voltage Low' is set.					
CF5	DC Bus Voltage Low Hysteresis	DC Bus	Alarm Parameters	Volt	0.5/10 (1)	basic
	The voltage hysteresis on the alarm 'DC Bus Voltage Low					
CF6	DC Bus Voltage High	DC Bus	Alarm Parameters	Volt	70/105 (98.875)	basic
	The bus voltage over which the alarm 'DC Bus Voltage High' is set.					
CF7	DC Bus Voltage High Hysteresis	DC Bus	Alarm Parameters	Volt	0.5/10 (1)	basic
	The voltage hysteresis on the alarm 'DC Bus Voltage High					
CF8	DC Bus Voltage Extra High	DC Bus	Alarm Parameters	Volt	70/105 (101.5)	basic
	The bus voltage over which the alarm 'DC Bus Voltage Extra High' is set.					
CF9	DC Bus Voltage Extra High Hysteresis	DC Bus	Alarm Parameters	Volt	0.5/10 (1)	basic
	The voltage hysteresis on the alarm 'DC Bus Voltage Extra High					
CF10	LVD Disconnect Voltage	LVD		Volt	65/87.5 (75.6)	basic
	The dc bus voltage under which the battery must be disconnected of the bus. This allows preserving the battery life. The load will be unpowered. This value has to be lower than the Battery test end voltage (CF70)					
CF11	LVD Disconnect Delay	LVD		second	1/4000 (1)	basic
	The delay in second before disconnecting the battery if the dc bus voltage is under the configured disconnected voltage. This avoids disconnection during a low bus transient.					
CF21	Temperature Compensation Slope	Battery	Temperature Compensation	mV/degree	-2000/0 (-126)	basic
	The slope of the battery temperature compensation in mv/degree. For a 48V system, -72mV/degree is often used.					
CF22	Maximum Positive Temperature Compensation	Battery	Temperature Compensation	Volt	0/20 (6)	basic
	The maximal allowed positive compensation.					
CF23	Maximum Negative Temperature Compensation	Battery	Temperature Compensation	Volt	-20/0 (-6)	basic
	The maximal allowed negative compensation.					

CF25	Minimal Number Of Present Rectifiers	Rectifiers	Alarm Parameters		0/100 (0)	basic
	The minimal number of rectifier which must be present. If there is less present rectifiers, the alarm 'Missing Rectifiers' is set.					
CF26	Rectifier Model	Rectifiers				basic
	The rectifier model					
CF27	Forced Remote Off Rectifiers	Rectifiers	Remote Off			basic
	A list of rectifier which are forced in remote off. The id of the rectifier must be coma separated. Ex: 1,3 will maintain rectifier 1 and 3 off.					
CF31	Battery Charge Current Limit	Battery	Battery Charge Parameters	Ampere	0.5/1000 (1000)	basic
	The maximal battery current when the battery is charging. The monitoring regulates the bus voltage in order to satisfy this condition. This parameter is often equal to the nominal battery capacity divided by 10.					
CF32	Battery String Capacity	Battery		Ah	3/1000 (100)	basic
	The battery capacity in Ah.					
CF33	Battery Temperature Low	Battery	Alarm Parameters	degree C	-100/20 (0)	basic
	The temperature under which the alarm 'Battery Temperature Too Low' must be set.					
CF34	Battery Temperature High	Battery	Alarm Parameters	degree C	5/100 (40)	basic
	The temperature over which the alarm 'Battery Temperature Too High' must be set.					
CF35	Battery Temperature Hysteresis	Battery	Alarm Parameters	degree C	0/10 (2)	basic
	The hysteresis on the 'Battery Temperature Too High' and 'Battery Temperature Too Low' alarms.					
CF36	Minimal Current For Discharging Alarm	Battery	Alarm Parameters	Ampere	0/1000 (3)	basic
	The minimal discharging current to set the 'Battery On Discharge' alarm.					
CF37	Current Hysteresis For Discharging Alarm	Battery	Alarm Parameters	Ampere	0/50 (1)	basic
	The hysteresis on the 'Battery On Discharge' alarm.					
CF38	Peukert Number	Battery	Autonomy		1/2 (1)	basic
	The Peukert number relates to the internal resistance of a battery and provides an indication of the expected capacity. The ideal number is 1. This value can be calculated with the formula: $(\ln(t_2) - \ln(t_1)) / (\ln(i_1) - \ln(i_2))$ where t_x is the autonomy in hours at a constant discharge current of i_x Amps. Often, we use $t_1 = 1h$ and $t_2 = 10h$					
CF39	Max Depth Of Discharge for Autonomy Estimation	Battery	Autonomy		10/100 (100)	basic
	It is generally recommended to discharge maximum 60% of the battery capacity to enhance battery lifetime. By default, 100% is used for autonomy calculation. This parameter can also be used to take into account the age of the battery					
CF41	Shunt Rating At 60mV	Current Sensors	Shunt 1	Ampere	25/5000 (250)	basic
	The rating of the battery shunt at 60mV.					
CF51	Boost Automatic	Battery	Boost		False/False (False)	battery
	The boost mode must be automatically after the fact that during a mains failure, the bus voltage went under the configured 'Boost Activation Low Voltage'. This allows charging the battery faster.					
CF52	Boost Activation Low Voltage	Battery	Boost	Volt	75.25/87.5 (80.5)	battery
	The voltage under which the boost mode can be activated.					
CF53	Boost Termination Voltage	Battery	Boost	Volt	87.5/101.5 (98.7)	battery
	The voltage over which the system must go back to floating mode.					

CF54	Boost Termination Current	Battery	Boost	Ampere	0/100 (4)	battery
	The battery charging current under which the system must go back to floating mode.					
CF55	Boost Termination Time	Battery	Boost	minute	10/240 (120)	battery
	The time in minute after which the system must go back in floating mode.					
CF69	Battery Test Type	Battery	Battery Test			battery
	Type of the battery test: Capacity based: The battery must give the requested capacity before falling lower than a value Time Based: The battery must sustain a defined load during a defined time.					
CF70	Battery Test End Voltage	Battery	Battery Test	Volt	52.5/105 (80.5)	battery
	The voltage at which any battery test must be stopped. This value has to be higher than the LVD Disconnect voltage (CF10)					
CF71	Battery Test Discharge Ratio	Battery	Battery Test	%	0/100 (0)	battery
	The ratio of the battery capacity to discharge. If 30 is set, 30% of the battery will be discharged during the test					
CF72	Battery Test Interval	Battery	Battery Test	day	0/3000 (0)	battery
	The number of days between two automatically started battery test. If this parameter is set to 0, the battery test is not started automatically. The user can remotely or locally start or force this test.					
CF73	Battery Test Discharge Current	Battery	Battery Test	Ampere	10/5000 (2000)	battery
	The current at which the battery must be discharged during a battery test. The monitoring regulates the bus voltage in order to satisfy this condition. The load current must be of course higher than this parameter.					
CF74	Battery Test Minimal Discharge Current	Battery	Battery Test	Ampere	2/90 (2)	battery
	The battery current under which the battery test must be stopped because the load is too low.					
CF75	Battery Test Duration	Battery	Battery Test	minute	1/5000 (10)	battery
	The timeout in minute after which the battery test must be stopped.					
CF76	Battery Test Requested Minutes Without Mains Failure	Battery	Battery Test	minute	0/5000 (1440)	battery
	The minimal time in minute without mains failure in order to allow a battery start. This parameter is not taken into account when the battery test is forced.					
CF77	Battery Test Scheduler Cron Rule	Battery	Battery Test			basic
CF78	Battery Test Disable Low Voltage Alarms	Battery	Battery Test	minute	0/1000 (0)	basic
	Allow to disable the alarms AL1 and AL2 during a battery test if value >0. Settings 15 means disabling for 15 minutes after the battery test end, to avoid alarms during recharge also					
CF83	Smart Energy Boolean Condition	Smart Energy				asset
	This is the boolean condition which allows or not to automatically optimize the number of rectifier in remote off.					
CF86	Battery LVD Node Id	LVD			True/False (False)	basic
	This is a list of the node id of the Smart Electronic LVDs, coma separated					
CF91	Digital Input 1 Name	Digital Inputs	Digital Input 1		Distribution Breaker Open	basic
	The name of the digital input 1					
CF92	Digital Input 1 Normally Closed	Digital Inputs	Digital Input 1		True/False (True)	basic
	True/False value defining if the digital input 1 is normally closed. If this digital input is not in this default state, the related alarm is set.					

CF93	Digital Input 2 Name	Digital Inputs	Digital Input 2		Battery Breaker Open	basic
	The name of the digital input 2					
CF94	Digital Input 2 Normally Closed	Digital Inputs	Digital Input 2		True/False (True)	basic
	True/False value defining if the digital input 2 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF95	Digital Input 3 Name	Digital Inputs	Digital Input 3		Digital Input 3	basic
	The name of the digital input 3					
CF96	Digital Input 3 Normally Closed	Digital Inputs	Digital Input 3		True/False (True)	basic
	True/False value defining if the digital input 3 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF97	Digital Input 4 Name	Digital Inputs	Digital Input 4		Digital Input 4	basic
	The name of the digital input 4					
CF98	Digital Input 4 Normally Closed	Digital Inputs	Digital Input 4		True/False (True)	basic
	True/False value defining if the digital input 4 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF99	Digital Input 5 Name	Digital Inputs	Digital Input 5		Digital Input 5	basic
	The name of the digital input 5					
CF100	Digital Input 5 Normally Closed	Digital Inputs	Digital Input 5		True/False (True)	basic
	True/False value defining if the digital input 5 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF101	Digital Input 6 Name	Digital Inputs	Digital Input 6		Digital Input 6	basic
	The name of the digital input 6					
CF102	Digital Input 6 Normally Closed	Digital Inputs	Digital Input 6		True/False (True)	basic
	True/False value defining if the digital input 6 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF103	Digital Input 7 Name	Digital Inputs	Digital Input 7		Digital Input 7	basic
	The name of the digital input 7					
CF104	Digital Input 7 Normally Closed	Digital Inputs	Digital Input 7		True/False (True)	basic
	True/False value defining if the digital input 7 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF105	Digital Input 8 Name	Digital Inputs	Digital Input 8		Digital Input 8	basic
	The name of the digital input 8					
CF106	Digital Input 8 Normally Closed	Digital Inputs	Digital Input 8		True/False (True)	basic
	True/False value defining if the digital input 8 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF111	Dry Alarm 1 Alternative Boolean Condition	Relays	Relay 1			plc
	Another Boolean condition to activate the dry alarm relay 1. The way to define boolean condition is detailed in the PLC chapter.					
CF112	Dry Alarm 2 Alternative Boolean Condition	Relays	Relay 2			plc
	Another Boolean condition to activate the dry alarm relay 2. The way to define boolean condition is detailed in the PLC chapter.					
CF113	Dry Alarm 3 Alternative Boolean Condition	Relays	Relay 3			plc

	Another Boolean condition to activate the dry alarm relay 3. The way to define boolean condition is detailed in the PLC chapter.					
CF114	Dry Alarm 4 Alternative Boolean Condition	Relays	Relay 4			plc
	Another Boolean condition to activate the dry alarm relay 4. The way to define boolean condition is detailed in the PLC chapter.					
CF131	Ambient Temperature Low	Sensors	Temperature	degree C		basic
	The temperature under which the alarm 'Ambient Temperature Too Low' must be set.					
CF132	Ambient Temperature High	Sensors	Temperature	degree C		basic
	The temperature under which the alarm 'Ambient Temperature Too Low' must be set.					
CF133	Ambient Temperature Hysteresis	Sensors	Temperature	degree C		basic
	The hysteresis on the 'Battery Temperature Too High' and 'Battery Temperature Too Low' alarms.					
CF141	AC Voltage Low	Mains		Volt	0/240 (180)	basic
	The AC voltage under which the alarm AC Low is set.					
CF142	AC Voltage High	Mains		Volt	80/600 (250)	basic
	The AC voltage over which the alarm AC High is set.					
CF143	AC Voltage Hysteresis	Mains		Volt	0/40 (5)	basic
	The AC voltage hysteresis on alarms AC High and AC Low.					
CF144	AC Phase 1 PLC	AC Bus				basic
	This is the mathematical expression of the calculation of AC phase 1. If empty, the rectifiers are used. The syntax for writing mathematical expression is described in the PLC chapter. The PLC data element is the result of the calculation.					
CF145	AC Phase 2 PLC	AC Bus				basic
	This is the mathematical expression of the calculation of AC phase 2. If empty, the rectifiers are used. The syntax for writing mathematical expression is described in the PLC chapter. The PLC data element is the result of the calculation.					
CF146	AC Phase 3 PLC	AC Bus				basic
	This is the mathematical expression of the calculation of AC phase 3. If empty, the rectifiers are used. The syntax for writing mathematical expression is described in the PLC chapter. The PLC data element is the result of the calculation.					
CF161	Forced Remote Off Rectifiers Boolean Condition	Rectifiers	Remote Off			basic
	The boolean PLC condition to enable the forced remote off					
CF521	Read Access User Numbers	Generic	Allowed Users		(1,2,3,4,5)	basic
	The list of the user numbers which have read access to this equipment. The user numbers are coma separated. The accepted user id are 1,2,3,4 and 5. Ex: 1,3,4					
CF522	Write Access User Numbers	Generic	Allowed Users		()	basic
	The list of the user numbers which have write access to this equipment. This means that these users can modify the configuration element, the alarm settings and use the control elements. The user numbers are coma separated. The accepted user ids are 1,2,3,4 and 5. Ex: 1,3,4					
CF601	Event Table Length	Generic	Events		10/4000 (100)	basic
	The maximum length of the table. The value must be comprised between 10 and 4000					
CF602	Event Table Length By Rectifier	Generic	Events		10/4000 (100)	basic
	The maximum length of the table. The value must be comprised between 10 and 4000					
CF901	Number Of PLC Data	PLC			(0)	plc

	The number of PLC data. Every equipment can manage up to 30 user programmable data. Data elements are automatically added in the data table. Configuration parameters are added to set the PLC Data Name and the PLC Data Mathematical calculation. In order to use these functionalities, you need a license with the 'PLC' module				
CF902	Number Of PLC Alarm	PLC		(0)	plc
	The number of PLC alarm. Every equipment can manage up to 30 user programmable alarms. Alarm elements are automatically added in the alarm table. The alarm parameters are added to set the PLC Alarm Name and the PLC Alarm Boolean condition. In order to use these functionalities, you need a licence with the 'PLC' module				

Control Table				
<i>Id</i>	<i>Name</i>	<i>Group</i>	<i>SubGroup</i>	<i>License</i>
CT1	Back To Float	System		basic
	The dc system must go back in floating mode.			
CT2	Start Battery Test	System		battery
	The dc system must start a battery test.			
CT3	Force Battery Test	System		battery
	The dc system must force a battery test.			
CT4	Start Boost Mode	System		battery
	The dc system must go in boost mode.			
CT11	Open The LVD	LVD		basic
	Try to open the LVD. It could not work if the LVD is electronic, and the request will be canceled after 15 sec.			
CT12	Close The LVD	LVD		basic
	The LVD must be closed			
CT21	Correct Battery Current Offset	Battery		basic
CT41	Reset Last Battery Test State	Battery		battery
	Reset the state of the last battery test. If an alarm 'Battery Last Test Failed' is set, the alarm will be cleared.			
CT51	Save Configuration In MCU	Save		basic
	Save configuration parameters in the MCU micro-controller. If Compas is not present, the system will be correctly managed.			
CT55	Set MCU Specific Configuration Id	Advanced	Factory	basic
	This control allows to reconfigure the MCU to support specific hardware configuration, with embedded distribution for example			
CT61	Set Digital Input 4 Counter Value	Digital Inputs	Digital Input 4	basic
	Set Counter Value			
CT111	Invert Relay 1 State For X Seconds	Relays	Relay 1	basic
	Generate Pulse on relay 1			
CT112	Invert Relay 2 State For X Seconds	Relays	Relay 2	basic
	Generate Pulse on relay 2			
CT113	Invert Relay 3 State For X Seconds	Relays	Relay 3	basic
	Generate Pulse on relay 3			
CT114	Invert Relay 4 State For X Seconds	Relays	Relay 4	basic
	Generate Pulse on relay 4			
CT501	Clear My Events	Generic	Events	basic
	By writing '1' to this control element, all the events of this equipment will be cleared.			
CT502	Clear All Events	Generic	Events	basic
	By writing '1' to this control element, all the events of this equipment and all the events of all the sub-equipments will be cleared.			
CT511	Add Event	Generic	Events	basic

	This control element adds an event of severity none. The event name is the text written to this control element			
CT512	Add Major Event	Generic	Events	basic
	This control element adds an event of severity major. The event name is the text written to this control element			
CT521	Reset Default Names And Groups	Generic	Renaming	basic
	This control element resets all the element Names, Groups and Subgroups to default values for this equipment			
CT522	Reset Default Names And Groups Recursive	Generic	Renaming	basic
	This control element resets all the element Names, Groups and Subgroups to default values for this equipment and all sub equipments			

15.2.15 MCU30110M6

Device Information	
Name	MCU30110M6
Short Description	Controller without LCD display (6x3kW - 110V)
Long Description	Monitoring and control unit with USB and Ethernet port - ACE306 (+110V & +125V) line
Hardware Reference	9413 063 07051
Software Reference	SOFT 000040 XX
Equipment Type	Monitoring Control Unit
ETSI Level	/site/energy_system/dc_system

Description Table				
<i>Id</i>	<i>Name</i>	<i>Group</i>	<i>SubGroup</i>	<i>License</i>
DE1	Description	Description	Custom Description	basic
	A free text zone to write a system description			
DE2	Reference	Description	Custom Description	basic
	A free text zone to write the customer reference of the system			
DE11	Product Name	Description	Product Info	basic
	The product name of the DC system monitoring			
DE12	Hardware Reference	Description	Product Info	basic
	The hardware reference of the DC system monitoring			
DE14	Software Reference	Description	Product Info	asset
	The software reference of the DC system monitoring			
DE16	Serial Number	Description	Product Info	asset
	The serial number of the DC system monitoring			
DE18	Manufacturing Date	Description	Product Info	asset
	The production date of the DC system monitoring			

Alarm Table					
<i>Id</i>	<i>Name</i>	<i>Group</i>	<i>SubGroup</i>	<i>Severity Type (Level)</i>	<i>Set/Clear Delay</i>
AL1	DC Bus Extra Low	DC Bus		major (6)	5 / 2

	The bus voltage is extra low. The alarm is set when the bus voltage is lower than the configuration parameter 'DC Bus Voltage Extra Low'. There is an hysteresis on the alarm : 'DC Bus Voltage Extra Low Hysteresis'. The alarm is not activated when DC mode is 'Battery Test'				
AL2	DC Bus Low	DC Bus		minor (4)	5 / 2
	The bus voltage is low. The alarm is set when the bus voltage is lower than the configuration parameter 'DC Bus Voltage Low'. There is an hysteresis on the alarm : 'DC Bus Voltage Low Hysteresis'				
AL3	DC Bus High	DC Bus		minor (4)	5 / 2
	The bus voltage is high. The alarm is set when the bus voltage is higher than the configuration parameter 'DC Bus Voltage High'. There is an hysteresis on the alarm : 'DC Bus Voltage High Hysteresis'				
AL4	DC Bus Extra High	DC Bus		major (6)	5 / 2
	The bus voltage is extra high. The alarm is set when the bus voltage is higher than the configuration parameter 'DC Bus Voltage Extra High'. There is an hysteresis on the alarm : 'DC Bus Voltage Extra High Hysteresis'				
AL5	DC Bus Voltage Sense Failure	DC Bus		major (6)	5 / 2
	The DC bus voltage sense is defective. The DC bus voltage is unconnected or misconfigured.				
AL6	Mains Failure	AC Bus		minor (4)	5 / 2
	The number of active rectifiers is equal to 0 - All the phases are down				
AL7	Mains Partial Failure	AC Bus		minor (4)	10 / 2
	The number of active rectifiers is greater than 0 and the number of rectifiers in AC failure is greater than 0. Some rectifiers are in AC Failure. It may be caused by an open breaker, a real phase failure, or by a rectifier failure.				
AL8	Mains Low	AC Bus		warning (2)	10 / 2
	The main voltage is low on one or more phases. No rectifier is in AC failure. If MCU master type is 30110, 3096 or 3048M6, an hysteresis _phase123Hysteresis is added to the voltage lower limit				
AL9	Mains High	AC Bus		warning (2)	10 / 2
	The main voltage is low on one or more phases. No rectifier is in AC failure. The alarm is only active if MCU master type is 30110, 3096 or 3048M6. Therefore, an hysteresis _phase123Hysteresis is subtracted to the voltage lower limit.				
AL10	One Rectifier Failure	Rectifiers		minor (4)	5 / 2
	One rectifier must be replaced or is not powered correctly. The DC fail alarm of the rectifier is set. The number of rectifier with DC Failure is higher than 0, there is no mains failure, and the 'More Than One Rectifier Failure alarm is not set.'				
AL11	More Than One Rectifier Failure	Rectifiers		major (6)	10 / 2
	There is no mains failure and number of rectifier failures is greater than 1.				
AL12	Missing Rectifiers	Rectifiers		major (6)	5 / 2
	There is not enough rectifier according to the configuration parameter : 'Minimal Number Of Rectifier'				
AL13	Battery Last Test Failed	Battery	Battery Test	minor (3)	5 / 2
	The last battery test did not succeed and was not cancelled. Maybe the battery should be replaced. Check inside the dc system data for more information about the last test.				
AL14	Battery On Discharge	Battery		minor (4)	10 / 2
	The battery is discharging. This means that the load is too high for the installed rectifiers. This alarm is inactive when the system in AC Failure or during a battery test. There is an hysteresis corresponding to battery parameter 'Is discharging current hysteresis'.				
AL17	Battery LVD Relay Open	LVD		major (6)	5 / 2
	The battery Low Voltage Disconnect is open. On Systems without LVD_Status signal, like MCU 1848 or MCU 1x6, the alarm is present only if the signal LVD_COM asks to open the LVD				
AL18	Battery Temperature Too High	Battery	Temperature	minor (3)	5 / 2
	The temperature of the battery is too high and is greater than -600 units. There is an hysteresis corresponding to battery parameter 'Temperature hysteresis'.				
AL19	Battery Temperature Too Low	Battery	Temperature	minor (3)	5 / 2

	The temperature of the battery is too low and is greater than -600 units. There is an hysteresis corresponding to battery parameter 'Temperature hysteresis'.				
AL20	Battery Temperature Sensor Fail	Battery	Temperature	minor (3)	5 / 2
	The battery temperature sensor (NTC) value is inferior to -500 units or superior to 300 units meaning that it is not connected or defective.				
AL21	Ambient Temperature Too High	Sensors	Temperature	minor (0)	5 / 2
	The ambient temperature is too high and is greater than -600 units. There is an hysteresis corresponding to parameter 'Ambient temperature hysteresis'. This alarm is only activated on MCU master types 30110, 3096, 30125, 0024, 0948, 0548, 0348, 0948 and 3048M6.				
AL22	Ambient Temperature Too Low	Sensors	Temperature	minor (0)	5 / 2
	The ambient temperature is too low and is greater than -600 units. There is an hysteresis corresponding to parameter 'Ambient temperature hysteresis'. This alarm is only activated on MCU master types 30110, 3096, 30125, 0024, 0948, 0548, 0348, 0948 and 3048M6.				
AL23	Ambient Temperature Sensor Fail	Sensors	Temperature	minor (0)	5 / 2
	The ambient temperature sensor (NTC) value is inferior to -500 units meaning that it is not connected or defective.				
AL25	Distribution Breaker Open	Digital Inputs		major (6)	5 / 2
	This alarm is related to digital input 1. This alarm is activated if digital input value is different to configuration parameter 'Digital Input Alarm Value'				
AL26	Battery Breaker Open	Digital Inputs		minor (4)	5 / 2
	This alarm is related to digital input 2. This alarm is activated if digital input value is different to configuration parameter 'Digital Input Alarm Value'				
AL27	Digital Input 3	Digital Inputs		none (0)	5 / 2
	This alarm is related to digital input 3. This alarm is activated if digital input value is different to configuration parameter 'Digital Input Alarm Value'				
AL28	Digital Input 4	Digital Inputs		none (0)	5 / 2
	This alarm is related to digital input 4. This alarm is activated if digital input value is different to configuration parameter 'Digital Input Alarm Value'				
AL29	Digital Input 5	Digital Inputs		none (0)	5 / 2
	This alarm is related to digital input 5. This alarm is activated if digital input value is different to configuration parameter 'Digital Input Alarm Value'				
AL30	Digital Input 6	Digital Inputs		none (0)	5 / 2
	This alarm is related to digital input 6. This alarm is activated if digital input value is different to configuration parameter 'Digital Input Alarm Value'				
AL31	Digital Input 7	Digital Inputs		none (0)	5 / 2
	This alarm is related to digital input 7. This alarm is activated if digital input value is different to configuration parameter 'Digital Input Alarm Value'				
AL32	Digital Input 8	Digital Inputs		none (0)	5 / 2
	This alarm is related to digital input 8. This alarm is activated if digital input value is different to configuration parameter 'Digital Input Alarm Value'				

Data Table					
<i>Id</i>	<i>Name</i>	<i>Group</i>	<i>SubGroup</i>	<i>Unit</i>	<i>License</i>
DA1	DC Mode	System			basic
	The DC system can have 5 values: 'Float'(0), 'Equalize'(1), 'Battery Test'(2), 'Ac Failure'(3) or 'Safe'(5)				
DA2	Previous DC Mode	System			basic
	The previous value of the DC Mode : 'Float'(0), 'Equalize'(1), 'Battery Test'(2), 'Ac Failure'(3) or 'Safe'(5)				
DA3	Minutes Since Last Mode Change	System		minute	basic
	The number of minute between the last DC Mode Change and now				
DA4	NiMH Charge Mode	System			basic

DA11	Bus Voltage	DC Bus		Volt	basic
	The DC bus voltage in volt.				
DA12	Ratio Delivered On Available Power	System		%	basic
	This is the ratio of the delivered power divided by the installed power, in %.				
DA13	Minutes Since Last AC Failure Begin	AC Bus		minute	basic
	The number of minute since the last AC Failure begin				
DA14	Minutes Since Last AC Failure End	AC Bus		minute	basic
	The number of minute since the last AC Failure end				
DA21	Rectifiers Output Power	Rectifiers		Watt	basic
	The sum of the delivered rectifier power				
DA22	Rectifiers Output Current	Rectifiers		Ampere	basic
	The sum of the delivered rectifier current				
DA23	Rectifiers Output Power Max	Rectifiers		Watt	basic
	The sum of the deliverable rectifier power				
DA24	Rectifiers Output Current Max	Rectifiers		Ampere	basic
	The sum of the deliverable rectifier current				
DA31	Number Of Rectifier Max	Rectifiers	Numbers		basic
	The maximum possible number of rectifier in this dc system				
DA32	Number Of Present Rectifier	Rectifiers	Numbers		basic
	The actual number of present rectifier in this dc system				
DA33	Number Of Absent Rectifier	Rectifiers	Numbers		basic
	The actual number of absent rectifier in this dc system				
DA34	Number Of Active Rectifier	Rectifiers	Numbers		basic
	The actual number of active rectifier in this dc system. An active rectifier is a rectifier which is present, DC OK, AC OK and not in remote off.				
DA35	Number Of AC-Fail Rectifier	Rectifiers	Numbers		basic
	The actual number or rectifier in AC Failure.				
DA36	Number Of DC-Fail Rectifier	Rectifiers	Numbers		basic
	The actual number or rectifier with DC Failure.				
DA37	Number Of Remote Off Rectifier	Rectifiers	Numbers		basic
	The actual number or rectifier in remote off.				
DA38	Number Of Over Temperature Rectifier	Rectifiers	Numbers		basic
	The actual number or rectifier in Over Temperature.				
DA41	Mains Phase 1 Voltage	AC Bus		Volt	basic
	The voltage on AC phase 1				
DA42	Mains Phase 2 Voltage	AC Bus		Volt	basic
	The voltage on AC phase 2				
DA43	Mains Phase 3 Voltage	AC Bus		Volt	basic
	The voltage on AC phase 3				
DA51	Load Power	Load		Watt	basic
	Estimation of the load power consumption				
DA52	Load Current	Load		Ampere	basic
	Estimation of the load current consumption				
DA61	Battery Input Current	Battery		Ampere	basic
	Measurement of the battery input current. A negative value means that the battery is discharging				
DA62	Battery Input Power	Battery		Watt	basic
	Measurement of the battery input power. A negative value means that the battery is discharging				

DA71	Battery Temperature	Battery	Temperature	degree C	basic
	The battery temperature				
DA72	Battery Test State	Battery	Battery Test		basic
	This is about the result of the last battery test. 10 values are possible : 'Never Tested'(0), 'Success'(1), 'On Going'(2), 'Failed: Timeout'(3), 'Failed: Vbus Too Low'(4), 'Failed: Load Too Low'(5), 'Failed: Ac Failure'(6), 'Failed: Canceled' (7), 'Failed: Lvd Opened'(8), 'Failed: No Battery'(9)				
DA73	Last Battery Test Discharged Capacity Ratio	Battery	Battery Test	%	basic
	This is the battery capacity, in percent, discharged during the last battery test. This value is updated at the end of the battery test.				
DA74	Last Battery Test Discharged Capacity	Battery	Battery Test	Ah	basic
	This is the battery capacity, in ampere hour, discharged during the last battery test. This value is updated at the end of the battery test.				
DA75	Last Battery Test Final Voltage	Battery	Battery Test	Volt	basic
	This is the bus voltage at the end of the last battery test. This value is updated at the end of the battery test.				
DA76	Battery Test Duration	Battery	Battery Test	minute	basic
	The duration of the last battery test. This value is updated at the end of the battery test. This value can't be higher than 1440 minutes (24 hours).				
DA77	Previous Battery Test Discharged Capacity Ratio	Battery	Battery Test	%	basic
	This is the battery capacity, in percent, discharged during the previous battery test. This value is shifted at the end of the battery test.				
DA78	Previous Battery Test Discharged Capacity	Battery	Battery Test	Ah	basic
	This is the battery capacity, in ampere hour, discharged during the previous battery test. This value is shifted at the end of the battery test.				
DA79	Previous Battery Test Final Voltage	Battery	Battery Test	Volt	basic
	This is the bus voltage at the end of the previous battery test. This value is shifted at the end of the battery test.				
DA80	Previous Battery Test Duration	Battery	Battery Test	minute	basic
	The duration of the previous battery test. This value is shifted at the end of the battery test. This value can't be higher than 1440 minutes (24 hours).				
DA81	Previous Battery Test State	Battery	Battery Test		basic
	The result of the previous battery test - 10 values are possible: 'Never Tested'(0), 'Success'(1), 'On Going'(2), 'Failed: Timeout'(3), 'Failed: Vbus Too Low'(4), 'Failed: Load Too Low'(5), 'Failed: Ac Failure'(6), 'Failed: Canceled', 'Failed: Lvd Opened'(8), 'Failed: No Battery'(9)				
DA82	Minutes Since Last Test Battery	Battery	Battery Test	minute	basic
	The number of minute since the end of last battery test				
DA84	Next Scheduled Battery Test	Battery	Battery Test		basic
	The date and time of the next time the scheduled battery test will run				
DA91	Battery Charge Capacity	Battery	Autonomy	%	basic
	The battery charge capacity, calculated by integration of the current.				
DA92	Calculated Autonomy	Battery	Autonomy	minute	basic
	Calculation of the remaining autonomy. This value can change following the load of your system and the maximal depth of discharge configuration (CF39).				
DA94	Battery Current Integration	Battery	Autonomy	Ah	basic
	Actual value of the integration of the current, in Ampere * hour				
DA101	LVD State	LVD			basic
	Actual state of the LVD				
DA111	Relay 1 State	Relays	Relay 1		basic
	Actual state of the Relay 1				

DA112	Relay 2 State	Relays	Relay 2		basic
	Actual state of the Relay 2				
DA113	Relay 3 State	Relays	Relay 3		basic
	Actual state of the Relay 3				
DA114	Relay 4 State	Relays	Relay 4		basic
	Actual state of the Relay 3				
DA121	Efficiency Optimized Number Of Rectifier	Smart Energy			asset
	The optimal number of ON rectifier for Efficiency Optimization				
DA122	System Loss Without Optimization	Smart Energy		Watt	underdev
	Estimation of the losses without optimisation				
DA123	System Loss With Optimization	Smart Energy		Watt	underdev
	Estimation of the losses with optimisation				
DA124	Rectifier Model Used For Calculation	Smart Energy			asset
	The rectifier model used				
DA125	Smart Energy Savings	Smart Energy		Watt	asset
	Estimation of the losses with optimisation				
DA151	Ambient Temperature	Sensors	Temperature	degree C	basic
	The ambient temperature (second temperature sense)				
DA161	Voltage 1	Sensors	Voltage 1	Volt	basic
	The voltage measured by the sense 1. Can be used for battery symmetry measurement. Calculation can be done with the PLC				
DA162	Voltage 2	Sensors	Voltage 2	Volt	basic
	The voltage measured by the sense 2. Can be used for battery symmetry measurement. Calculation can be done with the PLC				
DA163	Voltage 3	Sensors	Voltage 3	Volt	basic
	The voltage measured by the sense 3. Can be used for battery symmetry measurement. Calculation can be done with the PLC				
DA204	Pulse Counter 4	Sensors	Pulse Counter 4		basic
	The counter value of the digital input 4.				

Config Table						
<i>Id</i>	<i>Name</i>	<i>Group</i>	<i>SubGroup</i>	<i>Unit</i>	<i>Range: Min/Max (default)</i>	<i>License</i>
CF1	DC Bus Float Voltage at 25 degC	DC Bus		Volt	60/120 (108)	basic
	The floating dc bus voltage of the system at 25 Celsius degree					
CF2	DC Bus Voltage Extra Low	DC Bus	Alarm Parameters	Volt	60/120 (90)	basic
	The bus voltage under which the alarm 'DC Bus Voltage Extra Low' is set.					
CF3	DC Bus Voltage Extra Low Hysteresis	DC Bus	Alarm Parameters	Volt	0/10 (2)	basic
	The voltage hysteresis on the alarm 'DC Bus Voltage Extra Low'.					
CF4	DC Bus Voltage Low	DC Bus	Alarm Parameters	Volt	60/120 (96)	basic
	The bus voltage under which the alarm 'DC Bus Voltage Low' is set.					
CF5	DC Bus Voltage Low Hysteresis	DC Bus	Alarm Parameters	Volt	0/10 (1)	basic
	The voltage hysteresis on the alarm 'DC Bus Voltage Low					

CF6	DC Bus Voltage High	DC Bus	Alarm Parameters	Volt	60/120 (113)	basic
	The bus voltage over which the alarm 'DC Bus Voltage High' is set.					
CF7	DC Bus Voltage High Hysteresis	DC Bus	Alarm Parameters	Volt	0/10 (1)	basic
	The voltage hysteresis on the alarm 'DC Bus Voltage High'					
CF8	DC Bus Voltage Extra High	DC Bus	Alarm Parameters	Volt	60/120 (116)	basic
	The bus voltage over which the alarm 'DC Bus Voltage Extra High' is set.					
CF9	DC Bus Voltage Extra High Hysteresis	DC Bus	Alarm Parameters	Volt	0/10 (1)	basic
	The voltage hysteresis on the alarm 'DC Bus Voltage Extra High'					
CF10	LVD Disconnect Voltage	LVD		Volt	0/120 (86.4)	basic
	The dc bus voltage under which the battery must be disconnected of the bus. This allows preserving the battery life. The load will be unpowered. This value has to be lower than the Battery test end voltage (CF70)					
CF11	LVD Disconnect Delay	LVD		second	1/4000 (1)	basic
	The delay in second before disconnecting the battery if the dc bus voltage is under the configured disconnected voltage. This avoids disconnection during a low bus transient.					
CF21	Temperature Compensation Slope	Battery	Temperature Compensation	mV/degree	-2000/0 (-144)	basic
	The slope of the battery temperature compensation in mv/degree. For a 48V system, -72mV/degree is often used.					
CF22	Maximum Positive Temperature Compensation	Battery	Temperature Compensation	Volt	0/20 (6)	basic
	The maximal allowed positive compensation.					
CF23	Maximum Negative Temperature Compensation	Battery	Temperature Compensation	Volt	-20/0 (-6)	basic
	The maximal allowed negative compensation.					
CF25	Minimal Number Of Present Rectifiers	Rectifiers	Alarm Parameters		0/100 (0)	basic
	The minimal number of rectifier which must be present. If there is less present rectifiers, the alarm 'Missing Rectifiers' is set.					
CF26	Rectifier Model	Rectifiers				basic
	The rectifier model					
CF27	Forced Remote Off Rectifiers	Rectifiers	Remote Off			basic
	A list of rectifier which are forced in remote off. The id of the rectifier must be coma separated. Ex: 1,3 will maintain rectifier 1 and 3 off.					
CF31	Battery Charge Current Limit	Battery	Battery Charge Parameters	Ampere	0.5/1000 (1000)	basic
	The maximal battery current when the battery is charging. The monitoring regulates the bus voltage in order to satisfy this condition. This parameter is often equal to the nominal battery capacity divided by 10.					
CF32	Battery String Capacity	Battery		Ah	3/1000 (100)	basic
	The battery capacity in Ah.					
CF33	Battery Temperature Low	Battery	Alarm Parameters	degree C	-100/20 (0)	basic
	The temperature under which the alarm 'Battery Temperature Too Low' must be set.					
CF34	Battery Temperature High	Battery	Alarm Parameters	degree C	5/100 (40)	basic
	The temperature over which the alarm 'Battery Temperature Too High' must be set.					

CF35	Battery Temperature Hysteresis	Battery	Alarm Parameters	degree C	0/10 (2)	basic
	The hysteresis on the 'Battery Temperature Too High' and 'Battery Temperature Too Low' alarms.					
CF36	Minimal Current For Discharging Alarm	Battery	Alarm Parameters	Ampere	0/1000 (3)	basic
	The minimal discharging current to set the 'Battery On Discharge' alarm.					
CF37	Current Hysteresis For Discharging Alarm	Battery	Alarm Parameters	Ampere	0/50 (1)	basic
	The hysteresis on the 'Battery On Discharge' alarm.					
CF38	Peukert Number	Battery	Autonomy		1/2 (1)	basic
	The Peukert number relates to the internal resistance of a battery and provides an indication of the expected capacity. The ideal number is 1. This value can be calculated with the formula: $(\ln(t_2) - \ln(t_1)) / (\ln(i_1) - \ln(i_2))$ where tx is the autonomy in hours at a constant discharge current of ix Amps. Often, we use t1 = 1h and t2 = 10h					
CF39	Max Depth Of Discharge for Autonomy Estimation	Battery	Autonomy		10/100 (100)	basic
	It is generally recommended to discharge maximum 60% of the battery capacity to enhance battery lifetime. By default, 100% is used for autonomy calculation. This parameter can also be used to take into account the age of the battery					
CF41	Shunt Rating At 60mV	Current Sensors	Shunt 1	Ampere	25/5000 (250)	basic
	The rating of the battery shunt at 60mV.					
CF51	Boost Automatic	Battery	Boost		False/False (False)	battery
	The boost mode must be automatically after the fact that during a mains failure, the bus voltage went under the configured 'Boost Activation Low Voltage'. This allows charging the battery faster.					
CF52	Boost Activation Low Voltage	Battery	Boost	Volt	86/100 (92)	battery
	The voltage under which the boost mode can be activated.					
CF53	Boost Termination Voltage	Battery	Boost	Volt	100/116 (112.8)	battery
	The voltage over which the system must go back to floating mode.					
CF54	Boost Termination Current	Battery	Boost	Ampere	0/100 (4)	battery
	The battery charging current under which the system must go back to floating mode.					
CF55	Boost Termination Time	Battery	Boost	minute	10/240 (120)	battery
	The time in minute after which the system must go back in floating mode.					
CF69	Battery Test Type	Battery	Battery Test			battery
	Type of the battery test: Capacity based: The battery must give the requested capacity before falling lower than a value Time Based: The battery must sustain a defined load during a defined time.					
CF70	Battery Test End Voltage	Battery	Battery Test	Volt	60/120 (92)	battery
	The voltage at which any battery test must be stopped. This value has to be higher than the LVD Disconnect voltage (CF10)					
CF71	Battery Test Discharge Ratio	Battery	Battery Test	%	0/100 (0)	battery
	The ratio of the battery capacity to discharge. If 30 is set, 30% of the battery will be discharged during the test					
CF72	Battery Test Interval	Battery	Battery Test	day	0/3000 (0)	battery
	The number of days between two automatically started battery test. If this parameter is set to 0, the battery test is not started automatically. The user can remotely or locally start or force this test.					
CF73	Battery Test Discharge Current	Battery	Battery Test	Ampere	10/5000 (2000)	battery

	The current at which the battery must be discharged during a battery test. The monitoring regulates the bus voltage in order to satisfy this condition. The load current must be of course higher than this parameter.					
CF74	Battery Test Minimal Discharge Current	Battery	Battery Test	Ampere	2/90 (2)	battery
	The battery current under which the battery test must be stopped because the load is too low.					
CF75	Battery Test Duration	Battery	Battery Test	minute	1/5000 (10)	battery
	The timeout in minute after which the battery test must be stopped.					
CF76	Battery Test Requested Minutes Without Mains Failure	Battery	Battery Test	minute	0/5000 (1440)	battery
	The minimal time in minute without mains failure in order to allow a battery start. This parameter is not taken into account when the battery test is forced.					
CF77	Battery Test Scheduler Cron Rule	Battery	Battery Test			basic
CF78	Battery Test Disable Low Voltage Alarms	Battery	Battery Test	minute	0/1000 (0)	basic
	Allow to disable the alarms AL1 and AL2 during a battery test if value >0. Settings 15 means disabling for 15 minutes after the battery test end, to avoid alarms during recharge also					
CF83	Smart Energy Boolean Condition	Smart Energy				asset
	This is the boolean condition which allows or not to automatically optimize the number of rectifier in remote off.					
CF86	Battery LVD Node Id	LVD			True/False (False)	basic
	This is a list of the node id of the Smart Electronic LVDs, coma separated					
CF91	Digital Input 1 Name	Digital Inputs	Digital Input 1		Distribution Breaker Open	basic
	The name of the digital input 1					
CF92	Digital Input 1 Normally Closed	Digital Inputs	Digital Input 1		True/False (True)	basic
	True/False value defining if the digital input 1 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF93	Digital Input 2 Name	Digital Inputs	Digital Input 2		Battery Breaker Open	basic
	The name of the digital input 2					
CF94	Digital Input 2 Normally Closed	Digital Inputs	Digital Input 2		True/False (True)	basic
	True/False value defining if the digital input 2 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF95	Digital Input 3 Name	Digital Inputs	Digital Input 3		Digital Input 3	basic
	The name of the digital input 3					
CF96	Digital Input 3 Normally Closed	Digital Inputs	Digital Input 3		True/False (True)	basic
	True/False value defining if the digital input 3 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF97	Digital Input 4 Name	Digital Inputs	Digital Input 4		Digital Input 4	basic
	The name of the digital input 4					
CF98	Digital Input 4 Normally Closed	Digital Inputs	Digital Input 4		True/False (True)	basic
	True/False value defining if the digital input 4 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF99	Digital Input 5 Name	Digital Inputs	Digital Input 5		Digital Input 5	basic
	The name of the digital input 5					

CF100	Digital Input 5 Normally Closed	Digital Inputs	Digital Input 5		True/False (True)	basic
	True/False value defining if the digital input 5 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF101	Digital Input 6 Name	Digital Inputs	Digital Input 6		Digital Input 6	basic
	The name of the digital input 6					
CF102	Digital Input 6 Normally Closed	Digital Inputs	Digital Input 6		True/False (True)	basic
	True/False value defining if the digital input 6 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF103	Digital Input 7 Name	Digital Inputs	Digital Input 7		Digital Input 7	basic
	The name of the digital input 7					
CF104	Digital Input 7 Normally Closed	Digital Inputs	Digital Input 7		True/False (True)	basic
	True/False value defining if the digital input 7 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF105	Digital Input 8 Name	Digital Inputs	Digital Input 8		Digital Input 8	basic
	The name of the digital input 8					
CF106	Digital Input 8 Normally Closed	Digital Inputs	Digital Input 8		True/False (True)	basic
	True/False value defining if the digital input 8 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF111	Dry Alarm 1 Alternative Boolean Condition	Relays	Relay 1			plc
	Another Boolean condition to activate the dry alarm relay 1. The way to define boolean condition is detailed in the PLC chapter.					
CF112	Dry Alarm 2 Alternative Boolean Condition	Relays	Relay 2			plc
	Another Boolean condition to activate the dry alarm relay 2. The way to define boolean condition is detailed in the PLC chapter.					
CF113	Dry Alarm 3 Alternative Boolean Condition	Relays	Relay 3			plc
	Another Boolean condition to activate the dry alarm relay 3. The way to define boolean condition is detailed in the PLC chapter.					
CF114	Dry Alarm 4 Alternative Boolean Condition	Relays	Relay 4			plc
	Another Boolean condition to activate the dry alarm relay 4. The way to define boolean condition is detailed in the PLC chapter.					
CF131	Ambient Temperature Low	Sensors	Temperature	degree C		basic
	The temperature under which the alarm 'Ambient Temperature Too Low' must be set.					
CF132	Ambient Temperature High	Sensors	Temperature	degree C		basic
	The temperature under which the alarm 'Ambient Temperature Too Low' must be set.					
CF133	Ambient Temperature Hysteresis	Sensors	Temperature	degree C		basic
	The hysteresis on the 'Battery Temperature Too High' and 'Battery Temperature Too Low' alarms.					
CF141	AC Voltage Low	Mains		Volt	0/240 (180)	basic
	The AC voltage under which the alarm AC Low is set.					
CF142	AC Voltage High	Mains		Volt	80/600 (250)	basic
	The AC voltage over which the alarm AC High is set.					
CF143	AC Voltage Hysteresis	Mains		Volt	0/40 (5)	basic

	The AC voltage hysteresis on alarms AC High and AC Low.					
CF144	AC Phase 1 PLC	AC Bus				basic
	This is the mathematical expression of the calculation of AC phase 1. If empty, the rectifiers are used. The syntax for writing mathematical expression is described in the PLC chapter. The PLC data element is the result of the calculation.					
CF145	AC Phase 2 PLC	AC Bus				basic
	This is the mathematical expression of the calculation of AC phase 2. If empty, the rectifiers are used. The syntax for writing mathematical expression is described in the PLC chapter. The PLC data element is the result of the calculation.					
CF146	AC Phase 3 PLC	AC Bus				basic
	This is the mathematical expression of the calculation of AC phase 3. If empty, the rectifiers are used. The syntax for writing mathematical expression is described in the PLC chapter. The PLC data element is the result of the calculation.					
CF161	Forced Remote Off Rectifiers Boolean Condition	Rectifiers	Remote Off			basic
	The boolean PLC condition to enable the forced remote off					
CF521	Read Access User Numbers	Generic	Allowed Users		(1,2,3,4,5)	basic
	The list of the user numbers which have read access to this equipment. The user numbers are coma separated. The accepted user id are 1,2,3,4 and 5. Ex: 1,3,4					
CF522	Write Access User Numbers	Generic	Allowed Users		()	basic
	The list of the user numbers which have write access to this equipment. This means that these users can modify the configuration element, the alarm settings and use the control elements. The user numbers are coma separated. The accepted user ids are 1,2,3,4 and 5. Ex: 1,3,4					
CF601	Event Table Length	Generic	Events		10/4000 (100)	basic
	The maximum length of the table. The value must be comprised between 10 and 4000					
CF602	Event Table Length By Rectifier	Generic	Events		10/4000 (100)	basic
	The maximum length of the table. The value must be comprised between 10 and 4000					
CF901	Number Of PLC Data	PLC			(0)	plc
	The number of PLC data. Every equipment can manage up to 30 user programmable data. Data elements are automatically added in the data table. Configuration parameters are added to set the PLC Data Name and the PLC Data Mathematical calculation. In order to use these functionalities, you need a license with the 'PLC' module					
CF902	Number Of PLC Alarm	PLC			(0)	plc
	The number of PLC alarm. Every equipment can manage up to 30 user programmable alarms. Alarm elements are automatically added in the alarm table. The alarm parameters are added to set the PLC Alarm Name and the PLC Alarm Boolean condition. In order to use these functionalities, you need a licence with the 'PLC' module					

Control Table				
<i>Id</i>	<i>Name</i>	<i>Group</i>	<i>SubGroup</i>	<i>License</i>
CT1	Back To Float	System		basic
	The dc system must go back in floating mode.			
CT2	Start Battery Test	System		battery
	The dc system must start a battery test.			
CT3	Force Battery Test	System		battery
	The dc system must force a battery test.			
CT4	Start Boost Mode	System		battery
	The dc system must go in boost mode.			

CT11	Open The LVD	LVD		basic
	Try to open the LVD. It could not work if the LVD is electronic, and the request will be canceled after 15 sec.			
CT12	Close The LVD	LVD		basic
	The LVD must be closed			
CT21	Correct Battery Current Offset	Battery		basic
CT41	Reset Last Battery Test State	Battery		battery
	Reset the state of the last battery test. If an alarm 'Battery Last Test Failed' is set, the alarm will be cleared.			
CT51	Save Configuration In MCU	Save		basic
	Save configuration parameters in the MCU micro-controller. If Compas is not present, the system will be correctly managed.			
CT55	Set MCU Specific Configuration Id	Advanced	Factory	basic
	This control allows to reconfigure the MCU to support specific hardware configuration, with embedded distribution for example			
CT61	Set Digital Input 4 Counter Value	Digital Inputs	Digital Input 4	basic
	Set Counter Value			
CT111	Invert Relay 1 State For X Seconds	Relays	Relay 1	basic
	Generate Pulse on relay 1			
CT112	Invert Relay 2 State For X Seconds	Relays	Relay 2	basic
	Generate Pulse on relay 2			
CT113	Invert Relay 3 State For X Seconds	Relays	Relay 3	basic
	Generate Pulse on relay 3			
CT114	Invert Relay 4 State For X Seconds	Relays	Relay 4	basic
	Generate Pulse on relay 4			
CT501	Clear My Events	Generic	Events	basic
	By writing '1' to this control element, all the events of this equipment will be cleared.			
CT502	Clear All Events	Generic	Events	basic
	By writing '1' to this control element, all the events of this equipment and all the events of all the sub-equipments will be cleared.			
CT511	Add Event	Generic	Events	basic
	This control element adds an event of severity none. The event name is the text written to this control element			
CT512	Add Major Event	Generic	Events	basic
	This control element adds an event of severity major. The event name is the text written to this control element			
CT521	Reset Default Names And Groups	Generic	Renaming	basic
	This control element resets all the element Names, Groups and Subgroups to default values for this equipment			
CT522	Reset Default Names And Groups Recursive	Generic	Renaming	basic
	This control element resets all the element Names, Groups and Subgroups to default values for this equipment and all sub equipments			

15.2.16 MCU30125M6

Device Information	
Name	MCU30125M6
Short Description	MCU for rack 6x3000W +125V
Long Description	

Hardware Reference	9413 000 XXXX
Software Reference	SOFT 000057 XX
Equipment Type	Monitoring Control Unit
ETSI Level	/site/energy_system/dc_system

Description Table				
<i>Id</i>	<i>Name</i>	<i>Group</i>	<i>SubGroup</i>	<i>License</i>
DE1	Description	Description	Custom Description	basic
	A free text zone to write a system description			
DE2	Reference	Description	Custom Description	basic
	A free text zone to write the customer reference of the system			
DE11	Product Name	Description	Product Info	basic
	The product name of the DC system monitoring			
DE12	Hardware Reference	Description	Product Info	basic
	The hardware reference of the DC system monitoring			
DE14	Software Reference	Description	Product Info	asset
	The software reference of the DC system monitoring			
DE16	Serial Number	Description	Product Info	asset
	The serial number of the DC system monitoring			
DE18	Manufacturing Date	Description	Product Info	asset
	The production date of the DC system monitoring			

Alarm Table					
<i>Id</i>	<i>Name</i>	<i>Group</i>	<i>SubGroup</i>	<i>Severity Type (Level)</i>	<i>Set/Clear Delay</i>
AL1	DC Bus Extra Low	DC Bus		major (6)	5 / 2
	The bus voltage is extra low. The alarm is set when the bus voltage is lower than the configuration parameter 'DC Bus Voltage Extra Low'. There is an hysteresis on the alarm : 'DC Bus Voltage Extra Low Hysteresis'. The alarm is not activated when DC mode is 'Battery Test'				
AL2	DC Bus Low	DC Bus		minor (4)	5 / 2
	The bus voltage is low. The alarm is set when the bus voltage is lower than the configuration parameter 'DC Bus Voltage Low'. There is an hysteresis on the alarm : 'DC Bus Voltage Low Hysteresis'				
AL3	DC Bus High	DC Bus		minor (4)	5 / 2
	The bus voltage is high. The alarm is set when the bus voltage is higher than the configuration parameter 'DC Bus Voltage High'. There is an hysteresis on the alarm : 'DC Bus Voltage High Hysteresis'				
AL4	DC Bus Extra High	DC Bus		major (6)	5 / 2
	The bus voltage is extra high. The alarm is set when the bus voltage is higher than the configuration parameter 'DC Bus Voltage Extra High'. There is an hysteresis on the alarm : 'DC Bus Voltage Extra High Hysteresis'				
AL5	DC Bus Voltage Sense Failure	DC Bus		major (6)	5 / 2
	The DC bus voltage sense is defective. The DC bus voltage is unconnected or misconfigured.				
AL6	Mains Failure	AC Bus		minor (4)	5 / 2
	The number of active rectifiers is equal to 0 - All the phases are down				
AL7	Mains Partial Failure	AC Bus		minor (4)	10 / 2
	The number of active rectifiers is greater than 0 and the number of rectifiers in AC failure is greater than 0. Some rectifiers are in AC Failure. It may be caused by an open breaker, a real phase failure, or by a rectifier failure.				
AL8	Mains Low	AC Bus		warning (2)	10 / 2

	The main voltage is low on one or more phases. No rectifier is in AC failure. If MCU master type is 30110, 3096 or 3048M6, an hysteresis _phase123Hysteresis is added to the voltage lower limit				
AL10	One Rectifier Failure	Rectifiers		minor (4)	5 / 2
	One rectifier must be replaced or is not powered correctly. The DC fail alarm of the rectifier is set. The number of rectifier with DC Failure is higher than 0, there is no mains failure, and the 'More Than One Rectifier Failure alarm is not set.'				
AL11	More Than One Rectifier Failure	Rectifiers		major (6)	10 / 2
	There is no mains failure and number of rectifier failures is greater than 1.				
AL12	Missing Rectifiers	Rectifiers		major (6)	5 / 2
	There is not enough rectifier according to the configuration parameter : 'Minimal Number Of Rectifier'				
AL13	Battery Last Test Failed	Battery	Battery Test	minor (3)	5 / 2
	The last battery test did not succeed and was not cancelled. Maybe the battery should be replaced. Check inside the dc system data for more information about the last test.				
AL14	Battery On Discharge	Battery		minor (4)	10 / 2
	The battery is discharging. This means that the load is too high for the installed rectifiers. This alarm is inactive when the system in AC Failure or during a battery test. There is an hysteresis corresponding to battery parameter 'Is discharging current hysteresis'.				
AL17	Battery LVD Relay Open	LVD		major (6)	5 / 2
	The battery Low Voltage Disconnect is open. On Systems without LVD_Status signal, like MCU 1848 or MCU 1x6, the alarm is present only if the signal LVD_COM asks to open the LVD				
AL18	Battery Temperature Too High	Battery	Temperature	minor (3)	5 / 2
	The temperature of the battery is too high and is greater than -600 units. There is an hysteresis corresponding to battery parameter 'Temperature hysteresis'.				
AL19	Battery Temperature Too Low	Battery	Temperature	minor (3)	5 / 2
	The temperature of the battery is too low and is greater than -600 units. There is an hysteresis corresponding to battery parameter 'Temperature hysteresis'.				
AL20	Battery Temperature Sensor Fail	Battery	Temperature	minor (3)	5 / 2
	The battery temperature sensor (NTC) value is inferior to -500 units or superior to 300 units meaning that it is not connected or defective.				
AL21	Ambient Temperature Too High	Sensors	Temperature	minor (0)	5 / 2
	The ambient temperature is too high and is greater than -600 units. There is an hysteresis corresponding to parameter 'Ambient temperature hysteresis'. This alarm is only activated on MCU master types 30110, 3096, 30125, 0024, 0948, 0548, 0348, 0948 and 3048M6.				
AL22	Ambient Temperature Too Low	Sensors	Temperature	minor (0)	5 / 2
	The ambient temperature is too low and is greater than -600 units. There is an hysteresis corresponding to parameter 'Ambient temperature hysteresis'. This alarm is only activated on MCU master types 30110, 3096, 30125, 0024, 0948, 0548, 0348, 0948 and 3048M6.				
AL23	Ambient Temperature Sensor Fail	Sensors	Temperature	minor (0)	5 / 2
	The ambient temperature sensor (NTC) value is inferior to -500 units meaning that it is not connected or defective.				
AL25	Distribution Breaker Open	Digital Inputs		major (6)	5 / 2
	This alarm is related to digital input 1. This alarm is activated if digital input value is different to configuration parameter 'Digital Input Alarm Value'				
AL26	Battery Breaker Open	Digital Inputs		minor (4)	5 / 2
	This alarm is related to digital input 2. This alarm is activated if digital input value is different to configuration parameter 'Digital Input Alarm Value'				
AL27	Digital Input 3	Digital Inputs		none (0)	5 / 2
	This alarm is related to digital input 3. This alarm is activated if digital input value is different to configuration parameter 'Digital Input Alarm Value'				
AL28	Digital Input 4	Digital Inputs		none (0)	5 / 2
	This alarm is related to digital input 4. This alarm is activated if digital input value is different to configuration parameter 'Digital Input Alarm Value'				

AL29	Digital Input 5	Digital Inputs		none (0)	5 / 2
	This alarm is related to digital input 5. This alarm is activated if digital input value is different to configuration parameter 'Digital Input Alarm Value'				
AL30	Digital Input 6	Digital Inputs		none (0)	5 / 2
	This alarm is related to digital input 6. This alarm is activated if digital input value is different to configuration parameter 'Digital Input Alarm Value'				
AL31	Digital Input 7	Digital Inputs		none (0)	5 / 2
	This alarm is related to digital input 7. This alarm is activated if digital input value is different to configuration parameter 'Digital Input Alarm Value'				
AL32	Digital Input 8	Digital Inputs		none (0)	5 / 2
	This alarm is related to digital input 8. This alarm is activated if digital input value is different to configuration parameter 'Digital Input Alarm Value'				

Data Table					
<i>Id</i>	<i>Name</i>	<i>Group</i>	<i>SubGroup</i>	<i>Unit</i>	<i>License</i>
DA1	DC Mode	System			basic
	The DC system can have 5 values: 'Float'(0), 'Equalize'(1), 'Battery Test'(2), 'Ac Failure'(3) or 'Safe'(5)				
DA2	Previous DC Mode	System			basic
	The previous value of the DC Mode : 'Float'(0), 'Equalize'(1), 'Battery Test'(2), 'Ac Failure'(3) or 'Safe'(5)				
DA3	Minutes Since Last Mode Change	System		minute	basic
	The number of minute between the last DC Mode Change and now				
DA4	NiMH Charge Mode	System			basic
DA11	Bus Voltage	DC Bus		Volt	basic
	The DC bus voltage in volt.				
DA12	Ratio Delivered On Available Power	System		%	basic
	This is the ratio of the delivered power divided by the installed power, in %.				
DA13	Minutes Since Last AC Failure Begin	AC Bus		minute	basic
	The number of minute since the last AC Failure begin				
DA14	Minutes Since Last AC Failure End	AC Bus		minute	basic
	The number of minute since the last AC Failure end				
DA21	Rectifiers Output Power	Rectifiers		Watt	basic
	The sum of the delivered rectifier power				
DA22	Rectifiers Output Current	Rectifiers		Ampere	basic
	The sum of the delivered rectifier current				
DA23	Rectifiers Output Power Max	Rectifiers		Watt	basic
	The sum of the deliverable rectifier power				
DA24	Rectifiers Output Current Max	Rectifiers		Ampere	basic
	The sum of the deliverable rectifier current				
DA31	Number Of Rectifier Max	Rectifiers	Numbers		basic
	The maximum possible number of rectifier in this dc system				
DA32	Number Of Present Rectifier	Rectifiers	Numbers		basic
	The actual number of present rectifier in this dc system				
DA33	Number Of Absent Rectifier	Rectifiers	Numbers		basic
	The actual number of absent rectifier in this dc system				
DA34	Number Of Active Rectifier	Rectifiers	Numbers		basic
	The actual number of active rectifier in this dc system. An active rectifier is a rectifier which is present, DC OK, AC OK and not in remote off.				

DA35	Number Of AC-Fail Rectifier	Rectifiers	Numbers		basic
	The actual number or rectifier in AC Failure.				
DA36	Number Of DC-Fail Rectifier	Rectifiers	Numbers		basic
	The actual number or rectifier with DC Failure.				
DA37	Number Of Remote Off Rectifier	Rectifiers	Numbers		basic
	The actual number or rectifier in remote off.				
DA38	Number Of Over Temperature Rectifier	Rectifiers	Numbers		basic
	The actual number or rectifier in Over Temperature.				
DA41	Mains Phase 1 Voltage	AC Bus		Volt	basic
	The voltage on AC phase 1				
DA42	Mains Phase 2 Voltage	AC Bus		Volt	basic
	The voltage on AC phase 2				
DA43	Mains Phase 3 Voltage	AC Bus		Volt	basic
	The voltage on AC phase 3				
DA51	Load Power	Load		Watt	basic
	Estimation of the load power consumption				
DA52	Load Current	Load		Ampere	basic
	Estimation of the load current consumption				
DA61	Battery Input Current	Battery		Ampere	basic
	Measurement of the battery input current. A negative value means that the battery is discharging				
DA62	Battery Input Power	Battery		Watt	basic
	Measurement of the battery input power. A negative value means that the battery is discharging				
DA71	Battery Temperature	Battery	Temperature	degree C	basic
	The battery temperature				
DA72	Battery Test State	Battery	Battery Test		basic
	This is about the result of the last battery test. 10 values are possible : 'Never Tested'(0), 'Success'(1), 'On Going'(2), 'Failed: Timeout'(3), 'Failed: Vbus Too Low'(4), 'Failed: Load Too Low'(5), 'Failed: Ac Failure'(6), 'Failed: Canceled' (7), 'Failed: Lvd Opened'(8), 'Failed: No Battery'(9)				
DA73	Last Battery Test Discharged Capacity Ratio	Battery	Battery Test	%	basic
	This is the battery capacity, in percent, discharged during the last battery test. This value is updated at the end of the battery test.				
DA74	Last Battery Test Discharged Capacity	Battery	Battery Test	Ah	basic
	This is the battery capacity, in ampere hour, discharged during the last battery test. This value is updated at the end of the battery test.				
DA75	Last Battery Test Final Voltage	Battery	Battery Test	Volt	basic
	This is the bus voltage at the end of the last battery test. This value is updated at the end of the battery test.				
DA76	Battery Test Duration	Battery	Battery Test	minute	basic
	The duration of the last battery test. This value is updated at the end of the battery test. This value can't be higher than 1440 minutes (24 hours).				
DA77	Previous Battery Test Discharged Capacity Ratio	Battery	Battery Test	%	basic
	This is the battery capacity, in percent, discharged during the previous battery test. This value is shifted at the end of the battery test.				
DA78	Previous Battery Test Discharged Capacity	Battery	Battery Test	Ah	basic
	This is the battery capacity, in ampere hour, discharged during the previous battery test. This value is shifted at the end of the battery test.				
DA79	Previous Battery Test Final Voltage	Battery	Battery Test	Volt	basic

	This is the bus voltage at the end of the previous battery test. This value is shifted at the end of the battery test.				
DA80	Previous Battery Test Duration	Battery	Battery Test	minute	basic
	The duration of the previous battery test. This value is shifted at the end of the battery test. This value can't be higher than 1440 minutes (24 hours).				
DA81	Previous Battery Test State	Battery	Battery Test		basic
	The result of the previous battery test - 10 values are possible: 'Never Tested'(0), 'Success'(1), 'On Going'(2), 'Failed: Timeout'(3), 'Failed: Vbus Too Low'(4), 'Failed: Load Too Low'(5), 'Failed: Ac Failure'(6), 'Failed: Canceled', 'Failed: Lvd Opened'(8), 'Failed: No Battery'(9)				
DA82	Minutes Since Last Test Battery	Battery	Battery Test	minute	basic
	The number of minute since the end of last battery test				
DA84	Next Scheduled Battery Test	Battery	Battery Test		basic
	The date and time of the next time the scheduled battery test will run				
DA91	Battery Charge Capacity	Battery	Autonomy	%	basic
	The battery charge capacity, calculated by integration of the current.				
DA92	Calculated Autonomy	Battery	Autonomy	minute	basic
	Calculation of the remaining autonomy. This value can change following the load of your system and the maximal depth of discharge configuration (CF39).				
DA94	Battery Current Integration	Battery	Autonomy	Ah	basic
	Actual value of the integration of the current, in Ampere * hour				
DA101	LVD State	LVD			basic
	Actual state of the LVD				
DA111	Relay 1 State	Relays	Relay 1		basic
	Actual state of the Relay 1				
DA112	Relay 2 State	Relays	Relay 2		basic
	Actual state of the Relay 2				
DA113	Relay 3 State	Relays	Relay 3		basic
	Actual state of the Relay 3				
DA114	Relay 4 State	Relays	Relay 4		basic
	Actual state of the Relay 3				
DA121	Efficiency Optimized Number Of Rectifier	Smart Energy			asset
	The optimal number of ON rectifier for Efficiency Optimization				
DA122	System Loss Without Optimization	Smart Energy		Watt	underdev
	Estimation of the losses without optimisation				
DA123	System Loss With Optimization	Smart Energy		Watt	underdev
	Estimation of the losses with optimisation				
DA124	Rectifier Model Used For Calculation	Smart Energy			asset
	The rectifier model used				
DA125	Smart Energy Savings	Smart Energy		Watt	asset
	Estimation of the losses with optimisation				
DA151	Ambient Temperature	Sensors	Temperature	degree C	basic
	The ambient temperature (second temperature sense)				
DA161	Voltage 1	Sensors	Voltage 1	Volt	basic
	The voltage measured by the sense 1. Can be used for battery symmetry measurement. Calculation can be done with the PLC				
DA162	Voltage 2	Sensors	Voltage 2	Volt	basic
	The voltage measured by the sense 2. Can be used for battery symmetry measurement. Calculation can be done with the PLC				

DA163	Voltage 3	Sensors	Voltage 3	Volt	basic
	The voltage measured by the sense 3. Can be used for battery symmetry measurement. Calculation can be done with the PLC				
DA204	Pulse Counter 4	Sensors	Pulse Counter 4		basic
	The counter value of the digital input 4.				

Config Table						
<i>Id</i>	<i>Name</i>	<i>Group</i>	<i>SubGroup</i>	<i>Unit</i>	<i>Range: Min/Max (default)</i>	<i>License</i>
CF1	DC Bus Float Voltage at 25 degC	DC Bus		Volt	92/138 (125)	basic
	The floating dc bus voltage of the system at 25 Celsius degree					
CF2	DC Bus Voltage Extra Low	DC Bus	Alarm Parameters	Volt	92/138 (103.5)	basic
	The bus voltage under which the alarm 'DC Bus Voltage Extra Low' is set.					
CF3	DC Bus Voltage Extra Low Hysteresis	DC Bus	Alarm Parameters	Volt	0/10 (2)	basic
	The voltage hysteresis on the alarm 'DC Bus Voltage Extra Low'.					
CF4	DC Bus Voltage Low	DC Bus	Alarm Parameters	Volt	92/138 (110.4)	basic
	The bus voltage under which the alarm 'DC Bus Voltage Low' is set.					
CF5	DC Bus Voltage Low Hysteresis	DC Bus	Alarm Parameters	Volt	0/10 (1)	basic
	The voltage hysteresis on the alarm 'DC Bus Voltage Low					
CF6	DC Bus Voltage High	DC Bus	Alarm Parameters	Volt	92/138 (129.95)	basic
	The bus voltage over which the alarm 'DC Bus Voltage High' is set.					
CF7	DC Bus Voltage High Hysteresis	DC Bus	Alarm Parameters	Volt	0/10 (1)	basic
	The voltage hysteresis on the alarm 'DC Bus Voltage High					
CF8	DC Bus Voltage Extra High	DC Bus	Alarm Parameters	Volt	92/138 (133.4)	basic
	The bus voltage over which the alarm 'DC Bus Voltage Extra High' is set.					
CF9	DC Bus Voltage Extra High Hysteresis	DC Bus	Alarm Parameters	Volt	0/10 (1)	basic
	The voltage hysteresis on the alarm 'DC Bus Voltage Extra High					
CF10	LVD Disconnect Voltage	LVD		Volt	0/115 (99.36)	basic
	The dc bus voltage under which the battery must be disconnected of the bus. This allows preserving the battery life. The load will be unpowered. This value has to be lower than the Battery test end voltage (CF70)					
CF11	LVD Disconnect Delay	LVD		second	1/4000 (1)	basic
	The delay in second before disconnecting the battery if the dc bus voltage is under the configured disconnected voltage. This avoids disconnection during a low bus transient.					
CF21	Temperature Compensation Slope	Battery	Temperature Compensation	mV/degree	-2000/0 (-165)	basic
	The slope of the battery temperature compensation in mv/degree. For a 48V system, -72mV/degree is often used.					
CF22	Maximum Positive Temperature Compensation	Battery	Temperature Compensation	Volt	0/20 (6)	basic
	The maximal allowed positive compensation.					

CF23	Maximum Negative Temperature Compensation	Battery	Temperature Compensation	Volt	-20/0 (-6)	basic
	The maximal allowed negative compensation.					
CF25	Minimal Number Of Present Rectifiers	Rectifiers	Alarm Parameters		0/100 (0)	basic
	The minimal number of rectifier which must be present. If there is less present rectifiers, the alarm 'Missing Rectifiers' is set.					
CF26	Rectifier Model	Rectifiers				basic
	The rectifier model					
CF27	Forced Remote Off Rectifiers	Rectifiers	Remote Off			basic
	A list of rectifier which are forced in remote off. The id of the rectifier must be coma separated. Ex: 1,3 will maintain rectifier 1 and 3 off.					
CF31	Battery Charge Current Limit	Battery	Battery Charge Parameters	Ampere	0.5/1000 (1000)	basic
	The maximal battery current when the battery is charging. The monitoring regulates the bus voltage in order to satisfy this condition. This parameter is often equal to the nominal battery capacity divided by 10.					
CF32	Battery String Capacity	Battery		Ah	3/1000 (100)	basic
	The battery capacity in Ah.					
CF33	Battery Temperature Low	Battery	Alarm Parameters	degree C	-100/20 (0)	basic
	The temperature under which the alarm 'Battery Temperature Too Low' must be set.					
CF34	Battery Temperature High	Battery	Alarm Parameters	degree C	5/100 (40)	basic
	The temperature over which the alarm 'Battery Temperature Too High' must be set.					
CF35	Battery Temperature Hysteresis	Battery	Alarm Parameters	degree C	0/10 (2)	basic
	The hysteresis on the 'Battery Temperature Too High' and 'Battery Temperature Too Low' alarms.					
CF36	Minimal Current For Discharging Alarm	Battery	Alarm Parameters	Ampere	0/1000 (3)	basic
	The minimal discharging current to set the 'Battery On Discharge' alarm.					
CF37	Current Hysteresis For Discharging Alarm	Battery	Alarm Parameters	Ampere	0/50 (1)	basic
	The hysteresis on the 'Battery On Discharge' alarm.					
CF38	Peukert Number	Battery	Autonomy		1/2 (1)	basic
	The Peukert number relates to the internal resistance of a battery and provides an indication of the expected capacity. The ideal number is 1. This value can be calculated with the formula: $(\ln(t_2) - \ln(t_1)) / (\ln(i_1) - \ln(i_2))$ where t_x is the autonomy in hours at a constant discharge current of i_x Amps. Often, we use $t_1 = 1h$ and $t_2 = 10h$					
CF39	Max Depth Of Discharge for Autonomy Estimation	Battery	Autonomy		10/100 (100)	basic
	It is generally recommended to discharge maximum 60% of the battery capacity to enhance battery lifetime. By default, 100% is used for autonomy calculation. This parameter can also be used to take into account the age of the battery					
CF41	Shunt Rating At 60mV	Current Sensors	Shunt 1	Ampere	25/5000 (250)	basic
	The rating of the battery shunt at 60mV.					
CF51	Boost Automatic	Battery	Boost		False/False (False)	battery
	The boost mode must be automatically after the fact that during a mains failure, the bus voltage went under the configured 'Boost Activation Low Voltage'. This allows charging the battery faster.					
CF52	Boost Activation Low Voltage	Battery	Boost	Volt	86/100 (92)	battery

	The voltage under which the boost mode can be activated.					
CF53	Boost Termination Voltage	Battery	Boost	Volt	115/133.4 (129.72)	battery
	The voltage over which the system must go back to floating mode.					
CF54	Boost Termination Current	Battery	Boost	Ampere	0/100 (4)	battery
	The battery charging current under which the system must go back to floating mode.					
CF55	Boost Termination Time	Battery	Boost	minute	10/240 (120)	battery
	The time in minute after which the system must go back in floating mode.					
CF69	Battery Test Type	Battery	Battery Test			battery
	Type of the battery test: Capacity based: The battery must give the requested capacity before falling lower than a value Time Based: The battery must sustain a defined load during a defined time.					
CF70	Battery Test End Voltage	Battery	Battery Test	Volt	69/138 (105.8)	battery
	The voltage at which any battery test must be stopped. This value has to be higher than the LVD Disconnect voltage (CF10)					
CF71	Battery Test Discharge Ratio	Battery	Battery Test	%	0/100 (0)	battery
	The ratio of the battery capacity to discharge. If 30 is set, 30% of the battery will be discharged during the test					
CF72	Battery Test Interval	Battery	Battery Test	day	0/3000 (0)	battery
	The number of days between two automatically started battery test. If this parameter is set to 0, the battery test is not started automatically. The user can remotely or locally start or force this test.					
CF73	Battery Test Discharge Current	Battery	Battery Test	Ampere	3/100 (1000)	battery
	The current at which the battery must be discharged during a battery test. The monitoring regulates the bus voltage in order to satisfy this condition. The load current must be of course higher than this parameter.					
CF74	Battery Test Minimal Discharge Current	Battery	Battery Test	Ampere	2/90 (2)	battery
	The battery current under which the battery test must be stopped because the load is too low.					
CF75	Battery Test Duration	Battery	Battery Test	minute	1/5000 (10)	battery
	The timeout in minute after which the battery test must be stopped.					
CF76	Battery Test Requested Minutes Without Mains Failure	Battery	Battery Test	minute	0/5000 (1440)	battery
	The minimal time in minute without mains failure in order to allow a battery start. This parameter is not taken into account when the battery test is forced.					
CF77	Battery Test Scheduler Cron Rule	Battery	Battery Test			basic
CF78	Battery Test Disable Low Voltage Alarms	Battery	Battery Test	minute	0/1000 (0)	basic
	Allow to disable the alarms AL1 and AL2 during a battery test if value >0. Settings 15 means disabling for 15 minutes after the battery test end, to avoid alarms during recharge also					
CF83	Smart Energy Boolean Condition	Smart Energy				asset
	This is the boolean condition which allows or not to automatically optimize the number of rectifier in remote off.					
CF86	Battery LVD Node Id	LVD			True/False (False)	basic
	This is a list of the node id of the Smart Electronic LVDs, coma separated					
CF91	Digital Input 1 Name	Digital Inputs	Digital Input 1		Distribution Breaker Open	basic
	The name of the digital input 1					

CF92	Digital Input 1 Normally Closed	Digital Inputs	Digital Input 1		True/False (True)	basic
	True/False value defining if the digital input 1 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF93	Digital Input 2 Name	Digital Inputs	Digital Input 2		Battery Breaker Open	basic
	The name of the digital input 2					
CF94	Digital Input 2 Normally Closed	Digital Inputs	Digital Input 2		True/False (True)	basic
	True/False value defining if the digital input 2 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF95	Digital Input 3 Name	Digital Inputs	Digital Input 3		Digital Input 3	basic
	The name of the digital input 3					
CF96	Digital Input 3 Normally Closed	Digital Inputs	Digital Input 3		True/False (True)	basic
	True/False value defining if the digital input 3 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF97	Digital Input 4 Name	Digital Inputs	Digital Input 4		Digital Input 4	basic
	The name of the digital input 4					
CF98	Digital Input 4 Normally Closed	Digital Inputs	Digital Input 4		True/False (True)	basic
	True/False value defining if the digital input 4 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF99	Digital Input 5 Name	Digital Inputs	Digital Input 5		Digital Input 5	basic
	The name of the digital input 5					
CF100	Digital Input 5 Normally Closed	Digital Inputs	Digital Input 5		True/False (True)	basic
	True/False value defining if the digital input 5 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF101	Digital Input 6 Name	Digital Inputs	Digital Input 6		Digital Input 6	basic
	The name of the digital input 6					
CF102	Digital Input 6 Normally Closed	Digital Inputs	Digital Input 6		True/False (True)	basic
	True/False value defining if the digital input 6 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF103	Digital Input 7 Name	Digital Inputs	Digital Input 7		Digital Input 7	basic
	The name of the digital input 7					
CF104	Digital Input 7 Normally Closed	Digital Inputs	Digital Input 7		True/False (True)	basic
	True/False value defining if the digital input 7 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF105	Digital Input 8 Name	Digital Inputs	Digital Input 8		Digital Input 8	basic
	The name of the digital input 8					
CF106	Digital Input 8 Normally Closed	Digital Inputs	Digital Input 8		True/False (True)	basic
	True/False value defining if the digital input 8 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF111	Dry Alarm 1 Alternative Boolean Condition	Relays	Relay 1			plc
	Another Boolean condition to activate the dry alarm relay 1. The way to define boolean condition is detailed in the PLC chapter.					
CF112	Dry Alarm 2 Alternative Boolean Condition	Relays	Relay 2			plc

	Another Boolean condition to activate the dry alarm relay 2. The way to define boolean condition is detailed in the PLC chapter.					
CF113	Dry Alarm 3 Alternative Boolean Condition	Relays	Relay 3			plc
	Another Boolean condition to activate the dry alarm relay 3. The way to define boolean condition is detailed in the PLC chapter.					
CF114	Dry Alarm 4 Alternative Boolean Condition	Relays	Relay 4			plc
	Another Boolean condition to activate the dry alarm relay 4. The way to define boolean condition is detailed in the PLC chapter.					
CF131	Ambient Temperature Low	Sensors	Temperature	degree C		basic
	The temperature under which the alarm 'Ambient Temperature Too Low' must be set.					
CF132	Ambient Temperature High	Sensors	Temperature	degree C		basic
	The temperature under which the alarm 'Ambient Temperature Too Low' must be set.					
CF133	Ambient Temperature Hysteresis	Sensors	Temperature	degree C		basic
	The hysteresis on the 'Battery Temperature Too High' and 'Battery Temperature Too Low' alarms.					
CF161	Forced Remote Off Rectifiers Boolean Condition	Rectifiers	Remote Off			basic
	The boolean PLC conditon to enable the forced remote off					
CF521	Read Access User Numbers	Generic	Allowed Users		(1,2,3,4,5)	basic
	The list of the user numbers which have read access to this equipment. The user numbers are coma separated. The accepted user id are 1,2,3,4 and 5. Ex: 1,3,4					
CF522	Write Access User Numbers	Generic	Allowed Users		()	basic
	The list of the user numbers which have write access to this equipment. This means that these users can modify the configuration element, the alarm settings and use the control elements. The user numbers are coma separated. The accepted user ids are 1,2,3,4 and 5. Ex: 1,3,4					
CF601	Event Table Length	Generic	Events		10/4000 (100)	basic
	The maximum length of the table. The value must be comprised between 10 and 4000					
CF602	Event Table Length By Rectifier	Generic	Events		10/4000 (100)	basic
	The maximum length of the table. The value must be comprised between 10 and 4000					
CF901	Number Of PLC Data	PLC			(0)	plc
	The number of PLC data. Every equipment can manage up to 30 user programmable data. Data elements are automatically added in the data table. Configuration parameters are added to set the PLC Data Name and the PLC Data Mathematical calculation. In order to use these functionalities, you need a license with the 'PLC' module					
CF902	Number Of PLC Alarm	PLC			(0)	plc
	The number of PLC alarm. Every equipment can manage up to 30 user programmable alarms. Alarm elements are automatically added in the alarm table. The alarm parameters are added to set the PLC Alarm Name and the PLC Alarm Boolean condition. In order to use these functionalities, you need a licence with the 'PLC' module					

Control Table				
Id	Name	Group	SubGroup	License
CT1	Back To Float	System		basic
	The dc system must go back in floating mode.			

CT2	Start Battery Test	System		battery
	The dc system must start a battery test.			
CT3	Force Battery Test	System		battery
	The dc system must force a battery test.			
CT4	Start Boost Mode	System		battery
	The dc system must go in boost mode.			
CT11	Open The LVD	LVD		basic
	Try to open the LVD. It could not work if the LVD is electronic, and the request will be canceled after 15 sec.			
CT12	Close The LVD	LVD		basic
	The LVD must be closed			
CT21	Correct Battery Current Offset	Battery		basic
CT41	Reset Last Battery Test State	Battery		battery
	Reset the state of the last battery test. If an alarm 'Battery Last Test Failed' is set, the alarm will be cleared.			
CT51	Save Configuration In MCU	Save		basic
	Save configuration parameters in the MCU micro-controller. If Compas is not present, the system will be correctly managed.			
CT55	Set MCU Specific Configuration Id	Advanced	Factory	basic
	This control allows to reconfigure the MCU to support specific hardware configuration, with embedded distribution for example			
CT61	Set Digital Input 4 Counter Value	Digital Inputs	Digital Input 4	basic
	Set Counter Value			
CT111	Invert Relay 1 State For X Seconds	Relays	Relay 1	basic
	Generate Pulse on relay 1			
CT112	Invert Relay 2 State For X Seconds	Relays	Relay 2	basic
	Generate Pulse on relay 2			
CT113	Invert Relay 3 State For X Seconds	Relays	Relay 3	basic
	Generate Pulse on relay 3			
CT114	Invert Relay 4 State For X Seconds	Relays	Relay 4	basic
	Generate Pulse on relay 4			
CT501	Clear My Events	Generic	Events	basic
	By writing '1' to this control element, all the events of this equipment will be cleared.			
CT502	Clear All Events	Generic	Events	basic
	By writing '1' to this control element, all the events of this equipment and all the events of all the sub-equipments will be cleared.			
CT511	Add Event	Generic	Events	basic
	This control element adds an event of severity none. The event name is the text written to this control element			
CT512	Add Major Event	Generic	Events	basic
	This control element adds an event of severity major. The event name is the text written to this control element			
CT521	Reset Default Names And Groups	Generic	Renaming	basic
	This control element resets all the element Names, Groups and Subgroups to default values for this equipment			
CT522	Reset Default Names And Groups Recursive	Generic	Renaming	basic
	This control element resets all the element Names, Groups and Subgroups to default values for this equipment and all sub equipments			

15.2.17 MCU 300V DC

Device Information	
Name	MCU 300V DC
Short Description	MCU for rack 3x 300V DC
Long Description	MCU for rack 3x 300V DC
Hardware Reference	9413 001 59601
Software Reference	SOFT 000135 XX
Equipment Type	Monitoring Control Unit
ETSI Level	/site/energy_system/dc_system

Description Table				
<i>Id</i>	<i>Name</i>	<i>Group</i>	<i>SubGroup</i>	<i>License</i>
DE1	Description	Description	Custom Description	basic
	A free text zone to write a system description			
DE2	Reference	Description	Custom Description	basic
	A free text zone to write the customer reference of the system			
DE11	Product Name	Description	Product Info	basic
	The product name of the DC system monitoring			
DE12	Hardware Reference	Description	Product Info	basic
	The hardware reference of the DC system monitoring			
DE14	Software Reference	Description	Product Info	asset
	The software reference of the DC system monitoring			
DE16	Serial Number	Description	Product Info	asset
	The serial number of the DC system monitoring			
DE18	Manufacturing Date	Description	Product Info	asset
	The production date of the DC system monitoring			

Alarm Table					
<i>Id</i>	<i>Name</i>	<i>Group</i>	<i>SubGroup</i>	<i>Severity Type (Level)</i>	<i>Set/Clear Delay</i>
AL1	DC Bus Extra Low	DC Bus		major (6)	5 / 2
	The bus voltage is extra low. The alarm is set when the bus voltage is lower than the configuration parameter 'DC Bus Voltage Extra Low'. There is an hysteresis on the alarm : 'DC Bus Voltage Extra Low Hysteresis'. The alarm is not activated when DC mode is 'Battery Test'				
AL2	DC Bus Low	DC Bus		minor (4)	5 / 2
	The bus voltage is low. The alarm is set when the bus voltage is lower than the configuration parameter 'DC Bus Voltage Low'. There is an hysteresis on the alarm : 'DC Bus Voltage Low Hysteresis'				
AL3	DC Bus High	DC Bus		minor (4)	5 / 2
	The bus voltage is high. The alarm is set when the bus voltage is higher than the configuration parameter 'DC Bus Voltage High'. There is an hysteresis on the alarm : 'DC Bus Voltage High Hysteresis'				
AL4	DC Bus Extra High	DC Bus		major (6)	5 / 2
	The bus voltage is extra high. The alarm is set when the bus voltage is higher than the configuration parameter 'DC Bus Voltage Extra High'. There is an hysteresis on the alarm : 'DC Bus Voltage Extra High Hysteresis'				
AL5	DC Bus Voltage Sense Failure	DC Bus		major (6)	5 / 2
	The DC bus voltage sense is defective. The DC bus voltage is unconnected or misconfigured.				
AL6	Mains Failure	AC Bus		minor (4)	5 / 2

	The number of active rectifiers is equal to 0 - All the phases are down				
AL7	Mains Partial Failure	AC Bus		minor (4)	10 / 2
	The number of active rectifiers is greater than 0 and the number of rectifiers in AC failure is greater than 0. Some rectifiers are in AC Failure. It may be caused by an open breaker, a real phase failure, or by a rectifier failure.				
AL8	Mains Low	AC Bus		warning (2)	10 / 2
	The main voltage is low on one or more phases. No rectifier is in AC failure. If MCU master type is 30110, 3096 or 3048M6, an hysteresis _phase123Hysteresis is added to the voltage lower limit				
AL10	One Rectifier Failure	Rectifiers		minor (4)	5 / 2
	One rectifier must be replaced or is not powered correctly. The DC fail alarm of the rectifier is set. The number of rectifier with DC Failure is higher than 0, there is no mains failure, and the 'More Than One Rectifier Failure alarm is not set.'				
AL11	More Than One Rectifier Failure	Rectifiers		major (6)	10 / 2
	There is no mains failure and number of rectifier failures is greater than 1.				
AL12	Missing Rectifiers	Rectifiers		major (6)	5 / 2
	There is not enough rectifier according to the configuration parameter : 'Minimal Number Of Rectifier'				
AL13	Battery Last Test Failed	Battery	Battery Test	minor (3)	5 / 2
	The last battery test did not succeed and was not cancelled. Maybe the battery should be replaced. Check inside the dc system data for more information about the last test.				
AL14	Battery On Discharge	Battery		minor (4)	10 / 2
	The battery is discharging. This means that the load is too high for the installed rectifiers. This alarm is inactive when the system in AC Failure or during a battery test. There is an hysteresis corresponding to battery parameter 'Is discharging current hysteresis'.				
AL17	Battery LVD Relay Open	LVD		major (6)	5 / 2
	The battery Low Voltage Disconnect is open. On Systems without LVD_Status signal, like MCU 1848 or MCU 1x6, the alarm is present only if the signal LVD_COM asks to open the LVD				
AL18	Battery Temperature Too High	Battery	Temperature	minor (3)	5 / 2
	The temperature of the battery is too high and is greater than -600 units. There is an hysteresis corresponding to battery parameter 'Temperature hysteresis'.				
AL19	Battery Temperature Too Low	Battery	Temperature	minor (3)	5 / 2
	The temperature of the battery is too low and is greater than -600 units. There is an hysteresis corresponding to battery parameter 'Temperature hysteresis'.				
AL20	Battery Temperature Sensor Fail	Battery	Temperature	minor (3)	5 / 2
	The battery temperature sensor (NTC) value is inferior to -500 units or superior to 300 units meaning that it is not connected or defective.				
AL21	Ambient Temperature Too High	Sensors	Temperature	minor (0)	5 / 2
	The ambient temperature is too high and is greater than -600 units. There is an hysteresis corresponding to parameter 'Ambient temperature hysteresis'. This alarm is only activated on MCU master types 30110, 3096, 30125, 0024, 0948, 0548, 0348, 0948 and 3048M6.				
AL22	Ambient Temperature Too Low	Sensors	Temperature	minor (0)	5 / 2
	The ambient temperature is too low and is greater than -600 units. There is an hysteresis corresponding to parameter 'Ambient temperature hysteresis'. This alarm is only activated on MCU master types 30110, 3096, 30125, 0024, 0948, 0548, 0348, 0948 and 3048M6.				
AL23	Ambient Temperature Sensor Fail	Sensors	Temperature	minor (0)	5 / 2
	The ambient temperature sensor (NTC) value is inferior to -500 units meaning that it is not connected or defective.				
AL25	LVD 1 Open	Digital Inputs		major (6)	5 / 2
	This alarm is related to digital input 1. This alarm is activated if digital input value is different to configuration parameter 'Digital Input Alarm Value'				
AL26	LVD 2 Open	Digital Inputs		minor (4)	5 / 2
	This alarm is related to digital input 2. This alarm is activated if digital input value is different to configuration parameter 'Digital Input Alarm Value'				

AL27	Digital Input 3	Digital Inputs		none (0)	5 / 2
	This alarm is related to digital input 3. This alarm is activated if digital input value is different to configuration parameter 'Digital Input Alarm Value'				
AL28	Digital Input 4	Digital Inputs		none (0)	5 / 2
	This alarm is related to digital input 4. This alarm is activated if digital input value is different to configuration parameter 'Digital Input Alarm Value'				
AL29	Digital Input 5	Digital Inputs		none (0)	5 / 2
	This alarm is related to digital input 5. This alarm is activated if digital input value is different to configuration parameter 'Digital Input Alarm Value'				
AL30	Digital Input 6	Digital Inputs		none (0)	5 / 2
	This alarm is related to digital input 6. This alarm is activated if digital input value is different to configuration parameter 'Digital Input Alarm Value'				
AL31	Digital Input 7	Digital Inputs		none (0)	5 / 2
	This alarm is related to digital input 7. This alarm is activated if digital input value is different to configuration parameter 'Digital Input Alarm Value'				
AL32	Digital Input 8	Digital Inputs		none (0)	5 / 2
	This alarm is related to digital input 8. This alarm is activated if digital input value is different to configuration parameter 'Digital Input Alarm Value'				
AL41	Battery 1 Disconnected	Battery		none (0)	5 / 2
AL42	Battery 2 Disconnected	Battery		none (0)	5 / 2
AL55	Rescue Branch Failure	Rescue Branch Rectifiers		minor (4)	5 / 2
	The number of active rectifiers is equal to 0 and the number of rectifiers in AC failure is greater than 0.				
AL56	Rescue Branch Partial Failure	Rescue Branch Rectifiers		minor (4)	10 / 2
	The number of active rectifiers is greater than 0 and the number of rectifiers in AC failure is greater than 0. Some rectifiers are in AC Failure. It may be caused by an open breaker, a real phase failure, or by a rectifier failure.				
AL60	One Rescue Branch Rectifier Failure	Rescue Branch Rectifiers		minor (4)	5 / 2
	One dc-powered rectifier must be replaced or is not powered correctly. The DC fail alarm of the rectifier is set. The number of rectifier with DC Failure is higher than 0, there is no input failure, and the 'More Than One Rectifier Failure alarm is not set.'				
AL61	More Than One Rescue Branch Rectifier Failure	Rescue Branch Rectifiers		major (6)	10 / 2
	There is no input failure and number of rescue branch rectifier failures is greater than 1.				
AL201	Application Not OK	Specific	Application State	major (6)	0 / 0
	Application is not ok - no Heartbeat				
AL202	Rescue Branch Disconnection Allowed	Specific	Rescue Branch Disconnection	major (6)	0 / 0
	Rescue Branch Disconnection Allowed				
AL203	Internal Not OK	Specific	Internal	major (6)	0 / 0
	Internal Not Ok				
AL204	Battery String 1 Test Failed	Battery	Battery Test	minor (3)	5 / 2
	The last battery string 1 test did not succeed and was not cancelled. Maybe the battery should be replaced.				
AL205	Battery String 2 Test Failed	Battery	Battery Test	minor (3)	5 / 2
	The last battery string 2 test did not succeed and was not cancelled. Maybe the battery should be replaced.				

<i>Id</i>	<i>Name</i>	<i>Group</i>	<i>SubGroup</i>	<i>Unit</i>	<i>License</i>
DA1	DC Mode	System			basic
	The DC system can have 5 values: 'Float'(0), 'Equalize'(1), 'Battery Test'(2), 'Ac Failure'(3) or 'Safe'(5)				
DA2	Previous DC Mode	System			basic
	The previous value of the DC Mode : 'Float'(0), 'Equalize'(1), 'Battery Test'(2), 'Ac Failure'(3) or 'Safe'(5)				
DA3	Minutes Since Last Mode Change	System		minute	basic
	The number of minute between the last DC Mode Change and now				
DA4	NiMH Charge Mode	System			basic
DA11	Bus Voltage	DC Bus		Volt	basic
	The DC bus voltage in volt.				
DA12	Ratio Delivered On Available Power	System		%	basic
	This is the ratio of the delivered power divided by the installed power, in %.				
DA13	Minutes Since Last AC Failure Begin	AC Bus		minute	basic
	The number of minute since the last AC Failure begin				
DA14	Minutes Since Last AC Failure End	AC Bus		minute	basic
	The number of minute since the last AC Failure end				
DA21	Rectifiers Output Power	Rectifiers		Watt	basic
	The sum of the delivered rectifier power				
DA22	Rectifiers Output Current	Rectifiers		Ampere	basic
	The sum of the delivered rectifier current				
DA23	Rectifiers Output Power Max	Rectifiers		Watt	basic
	The sum of the deliverable rectifier power				
DA24	Rectifiers Output Current Max	Rectifiers		Ampere	basic
	The sum of the deliverable rectifier current				
DA26	Rescue Branch Rectifiers Output Power	Rescue Branch Rectifiers		Watt	basic
	The sum of the delivered rectifier power				
DA27	Rescue Branch Rectifiers Output Current	Rescue Branch Rectifiers		Ampere	basic
	The sum of the delivered rectifier current				
DA28	Rescue Branch Rectifiers Output Power Max	Rescue Branch Rectifiers		Watt	basic
	The sum of the deliverable rectifier power				
DA29	Rescue Branch Rectifiers Output Current Max	Rescue Branch Rectifiers		Ampere	basic
	The sum of the deliverable rectifier current				
DA32	Number Of Present Rectifier	Rectifiers	Numbers		basic
	The actual number of present rectifier in this dc system				
DA34	Number Of Active Rectifier	Rectifiers	Numbers		basic
	The actual number of active rectifier in this dc system. An active rectifier is a rectifier which is present, DC OK, AC OK and not in remote off.				
DA35	Number Of AC-Fail Rectifier	Rectifiers	Numbers		basic
	The actual number or rectifier in AC Failure.				
DA36	Number Of DC-Fail Rectifier	Rectifiers	Numbers		basic
	The actual number or rectifier with DC Failure.				
DA37	Number Of Remote Off Rectifier	Rectifiers	Numbers		basic
	The actual number or rectifier in remote off.				

DA38	Number Of Over Temperature Rectifier	Rectifiers	Numbers		basic
	The actual number or rectifier in Over Temperature.				
DA51	Load Power	Load		Watt	basic
	Estimation of the load power consumption				
DA52	Load Current	Load		Ampere	basic
	Estimation of the load current consumption				
DA61	Battery Input Current	Battery		Ampere	basic
	Measurement of the battery input current. A negative value means that the battery is discharging				
DA62	Battery Input Power	Battery		Watt	basic
	Measurement of the battery input power. A negative value means that the battery is discharging				
DA71	Battery Temperature	Battery	Temperature	degree C	basic
	The battery temperature				
DA72	Battery String 1 Test State	Battery	Battery Test		basic
	This is about the result of the last battery test. 10 values are possible : 'Never Tested'(0), 'Success'(1), 'On Going'(2), 'Failed: Timeout'(3), 'Failed: Vbus Too Low'(4), 'Failed: Load Too Low'(5), 'Failed: Ac Failure'(6), 'Failed: Canceled' (7), 'Failed: Lvd Opened'(8), 'Failed: No Battery'(9)				
DA73	Last Battery Test Discharged Capacity Ratio	Battery	Battery Test	%	basic
	This is the battery capacity, in percent, discharged during the last battery test. This value is updated at the end of the battery test.				
DA74	Last Battery Test Discharged Capacity	Battery	Battery Test	Ah	basic
	This is the battery capacity, in ampere hour, discharged during the last battery test. This value is updated at the end of the battery test.				
DA75	Last Battery Test Final Voltage	Battery	Battery Test	Volt	basic
	This is the bus voltage at the end of the last battery test. This value is updated at the end of the battery test.				
DA76	Battery Test Duration	Battery	Battery Test	minute	basic
	The duration of the last battery test. This value is updated at the end of the battery test. This value can't be higher than 1440 minutes (24 hours).				
DA77	Previous Battery Test Discharged Capacity Ratio	Battery	Battery Test	%	basic
	This is the battery capacity, in percent, discharged during the previous battery test. This value is shifted at the end of the battery test.				
DA78	Previous Battery Test Discharged Capacity	Battery	Battery Test	Ah	basic
	This is the battery capacity, in ampere hour, discharged during the previous battery test. This value is shifted at the end of the battery test.				
DA79	Previous Battery Test Final Voltage	Battery	Battery Test	Volt	basic
	This is the bus voltage at the end of the previous battery test. This value is shifted at the end of the battery test.				
DA80	Previous Battery Test Duration	Battery	Battery Test	minute	basic
	The duration of the previous battery test. This value is shifted at the end of the battery test. This value can't be higher than 1440 minutes (24 hours).				
DA81	Previous Battery String 1 Test State	Battery	Battery Test		basic
	The result of the previous battery test - 10 values are possible: 'Never Tested'(0), 'Success'(1), 'On Going'(2), 'Failed: Timeout'(3), 'Failed: Vbus Too Low'(4), 'Failed: Load Too Low'(5), 'Failed: Ac Failure'(6), 'Failed: Canceled', 'Failed: Lvd Opened'(8), 'Failed: No Battery'(9)				
DA82	Minutes Since Last Test Battery	Battery	Battery Test	minute	basic
	The number of minute since the end of last battery test				
DA84	Next Scheduled Battery Test	Battery	Battery Test		basic
	The date and time of the next time the scheduled battery test will run				

DA86	Battery String 2 Test State	Battery	Battery Test		basic
	The result of the previous battery test - 10 values are possible: 'Never Tested'(0), 'Success'(1), 'On Going'(2), 'Failed: Timeout'(3), 'Failed: Vbus Too Low'(4), 'Failed: Load Too Low'(5), 'Failed: Ac Failure'(6), 'Failed: Canceled', 'Failed: Lvd Opened'(8), 'Failed: No Battery'(9)				
DA87	Previous Battery String 2 Test State	Battery	Battery Test		basic
	The result of the previous battery test				
DA91	Battery Charge Capacity	Battery	Autonomy	%	basic
	The battery charge capacity, calculated by integration of the current.				
DA92	Calculated Autonomy	Battery	Autonomy	minute	basic
	Calculation of the remaining autonomy. This value can change following the load of your system and the maximal depth of discharge configuration (CF39).				
DA94	Battery Current Integration	Battery	Autonomy	Ah	basic
	Actual value of the integration of the current, in Ampere * hour				
DA101	LVD State	LVD			basic
	Actual state of the LVD				
DA111	Relay 1 State	Relays	Relay 1		basic
	Actual state of the Relay 1				
DA112	Relay 2 State	Relays	Relay 2		basic
	Actual state of the Relay 2				
DA113	Relay 3 State	Relays	Relay 3		basic
	Actual state of the Relay 3				
DA114	Relay 4 State	Relays	Relay 4		basic
	Actual state of the Relay 3				
DA142	Nbr Of Present Rescue Branch Rectifier	Rescue Branch Rectifiers	Numbers		basic
	The actual number of present DC-POWERED rectifier in this dc system				
DA144	Nbr Of Active Rescue Branch Rectifier	Rescue Branch Rectifiers	Numbers		basic
	The actual number of active DC-POWERED rectifier in this dc system. An active rectifier is a rectifier which is present, DC OK, AC OK and not in remote off.				
DA145	Nbr Of Input-Fail Rescue Branch Rectifier	Rescue Branch Rectifiers	Numbers		basic
	The actual number or DC-POWERED rectifier in AC Failure.				
DA146	Nbr Of DC-Fail Rescue Branch Rectifier	Rescue Branch Rectifiers	Numbers		basic
	The actual number or DC-POWERED rectifier with DC Failure.				
DA147	Nbr Of Remote Off Rescue Branch Rectifier	Rescue Branch Rectifiers	Numbers		basic
	The actual number or DC-POWERED rectifier in remote off.				
DA148	Number Of Over Temperature Rescue Branch Rectifier	Rescue Branch Rectifiers	Numbers		basic
	The actual number or DC-POWERED rectifier in Over Temperature.				
DA151	Ambient Temperature	Sensors	Temperature	degree C	basic
	The ambient temperature (second temperature sense)				
DA161	Battery String 1 Voltage	Sensors	Voltage 1	Volt	basic
	The voltage measured at battery string 1				
DA162	Battery String 2 Voltage	Sensors	Voltage 2	Volt	basic
	The voltage measured at battery string 2				
DA163	Voltage 3	Sensors	Voltage 3	Volt	basic
	The voltage measured by the sense 3. Can be used freely				

Config Table						
<i>Id</i>	<i>Name</i>	<i>Group</i>	<i>SubGroup</i>	<i>Unit</i>	<i>Range: Min/Max (default)</i>	<i>License</i>
CF1	DC Bus Float Voltage at 25 degC	DC Bus		Volt	220/330 (300)	basic
	The floating dc bus voltage of the system at 25 Celsius degree					
CF2	DC Bus Voltage Extra Low	DC Bus	Alarm Parameters	Volt	220/330 (247.5)	basic
	The bus voltage under which the alarm 'DC Bus Voltage Extra Low' is set.					
CF3	DC Bus Voltage Extra Low Hysteresis	DC Bus	Alarm Parameters	Volt	0/10 (2)	basic
	The voltage hysteresis on the alarm 'DC Bus Voltage Extra Low'.					
CF4	DC Bus Voltage Low	DC Bus	Alarm Parameters	Volt	220/330 (264)	basic
	The bus voltage under which the alarm 'DC Bus Voltage Low' is set.					
CF5	DC Bus Voltage Low Hysteresis	DC Bus	Alarm Parameters	Volt	0/10 (1)	basic
	The voltage hysteresis on the alarm 'DC Bus Voltage Low					
CF6	DC Bus Voltage High	DC Bus	Alarm Parameters	Volt	220/330 (310.75)	basic
	The bus voltage over which the alarm 'DC Bus Voltage High' is set.					
CF7	DC Bus Voltage High Hysteresis	DC Bus	Alarm Parameters	Volt	0/10 (1)	basic
	The voltage hysteresis on the alarm 'DC Bus Voltage High					
CF8	DC Bus Voltage Extra High	DC Bus	Alarm Parameters	Volt	220/330 (319)	basic
	The bus voltage over which the alarm 'DC Bus Voltage Extra High' is set.					
CF9	DC Bus Voltage Extra High Hysteresis	DC Bus	Alarm Parameters	Volt	0/10 (1)	basic
	The voltage hysteresis on the alarm 'DC Bus Voltage Extra High					
CF10	LVD Disconnect Voltage	LVD		Volt	0/275 (237.6)	basic
	The dc bus voltage under which the battery must be disconnected of the bus. This allows preserving the battery life. The load will be unpowered. This value has to be lower than the Battery test end voltage (CF70)					
CF11	LVD Disconnect Delay	LVD		second	1/4000 (1)	basic
	The delay in second before disconnecting the battery if the dc bus voltage is under the configured disconnected voltage. This avoids disconnection during a low bus transient.					
CF21	Temperature Compensation Slope	Battery	Temperature Compensation	mV/degree	-2000/0 (-396)	basic
	The slope of the battery temperature compensation in mv/degree. For a 48V system, -72mV/degree is often used.					
CF22	Maximum Positive Temperature Compensation	Battery	Temperature Compensation	Volt	0/20 (6)	basic
	The maximal allowed positive compensation.					
CF23	Maximum Negative Temperature Compensation	Battery	Temperature Compensation	Volt	-20/0 (-6)	basic
	The maximal allowed negative compensation.					
CF25	Minimal Number Of Present Rectifiers	Rectifiers	Alarm Parameters		0/100 (0)	basic

	The minimal number of rectifier which must be present. If there is less present rectifiers, the alarm 'Missing Rectifiers' is set.					
CF26	Rectifier Model	Rectifiers				basic
	The rectifier model					
CF27	Forced Remote Off Rectifiers	Rectifiers	Remote Off			basic
	A list of rectifier which are forced in remote off. The id of the rectifier must be coma separated. Ex: 1,3 will maintain rectifier 1 and 3 off.					
CF28	Rectifier CAN Node IDs Range	Rectifiers				basic
CF29	Rectifier Ids Declared	Rectifiers				basic
CF31	Battery Charge Current Limit	Battery	Battery Charge Parameters	Ampere	0.5/1000 (1000)	basic
	The maximal battery current when the battery is charging. The monitoring regulates the bus voltage in order to satisfy this condition. This parameter is often equal to the nominal battery capacity divided by 10.					
CF32	Battery String Capacity	Battery		Ah	3/1000 (100)	basic
	The battery capacity in Ah.					
CF33	Battery Temperature Low	Battery	Alarm Parameters	degree C	-100/20 (0)	basic
	The temperature under which the alarm 'Battery Temperature Too Low' must be set.					
CF34	Battery Temperature High	Battery	Alarm Parameters	degree C	5/100 (40)	basic
	The temperature over which the alarm 'Battery Temperature Too High' must be set.					
CF35	Battery Temperature Hysteresis	Battery	Alarm Parameters	degree C	0/10 (2)	basic
	The hysteresis on the 'Battery Temperature Too High' and 'Battery Temperature Too Low' alarms.					
CF36	Minimal Current For Discharging Alarm	Battery	Alarm Parameters	Ampere	0/1000 (3)	basic
	The minimal discharging current to set the 'Battery On Discharge' alarm.					
CF37	Current Hysteresis For Discharging Alarm	Battery	Alarm Parameters	Ampere	0/50 (1)	basic
	The hysteresis on the 'Battery On Discharge' alarm.					
CF38	Peukert Number	Battery	Autonomy		1/2 (1)	basic
	The Peukert number relates to the internal resistance of a battery and provides an indication of the expected capacity. The ideal number is 1. This value can be calculated with the formula: $(\ln(t_2) - \ln(t_1)) / (\ln(i_1) - \ln(i_2))$ where t_x is the autonomy in hours at a constant discharge current of i_x Amps. Often, we use $t_1 = 1h$ and $t_2 = 10h$					
CF39	Max Depth Of Discharge for Autonomy Estimation	Battery	Autonomy		10/100 (100)	basic
	It is generally recommended to discharge maximum 60% of the battery capacity to enhance battery lifetime. By default, 100% is used for autonomy calculation. This parameter can also be used to take into account the age of the battery					
CF40	Number of Battery String	Battery			1-3 or 0-2	basic
	The Number of Battery String in the system					
CF41	Shunt Rating At 60mV	Current Sensors	Shunt 1	Ampere	25/5000 (250)	basic
	The rating of the battery shunt at 60mV.					
CF61	Rescue Branch Rectifier Ids Declared	Rescue Branch Rectifiers				basic

CF69	Battery Test Type	Battery	Battery Test			battery
	Type of the battery test: Capacity based: The battery must give the requested capacity before falling lower than a value Time Based: The battery must sustain a defined load during a defined time.					
CF70	Battery Test End Voltage	Battery	Battery Test	Volt	165/330 (253)	battery
	The voltage at which any battery test must be stopped. This value has to be higher than the LVD Disconnect voltage (CF10)					
CF71	Battery Test Discharge Ratio	Battery	Battery Test	%	0/100 (0)	battery
	The ratio of the battery capacity to discharge. If 30 is set, 30% of the battery will be discharged during the test					
CF72	Battery Test Interval	Battery	Battery Test	day	0/3000 (0)	battery
	The number of days between two automatically started battery test. If this parameter is set to 0, the battery test is not started automatically. The user can remotely or locally start or force this test.					
CF73	Battery Test Discharge Current	Battery	Battery Test	Ampere	0.5/100 (1000)	battery
	The current at which the battery must be discharged during a battery test. The monitoring regulates the bus voltage in order to satisfy this condition. The load current must be of course higher than this parameter.					
CF74	Battery Test Minimal Discharge Current	Battery	Battery Test	Ampere	0.5/90 (2)	battery
	The battery current under which the battery test must be stopped because the load is too low.					
CF75	Battery Test Duration	Battery	Battery Test	minute	1/5000 (10)	battery
	The timeout in minute after which the battery test must be stopped.					
CF76	Battery Test Requested Minutes Without Mains Failure	Battery	Battery Test	minute	0/5000 (1440)	battery
	The minimal time in minute without mains failure in order to allow a battery start. This parameter is not taken into account when the battery test is forced.					
CF77	Battery Test Scheduler Cron Rule	Battery	Battery Test			basic
CF78	Battery Test Disable Low Voltage Alarms	Battery	Battery Test	minute	0/1000 (0)	basic
	Allow to disable the alarms AL1 and AL2 during a battery test if value >0. Settings 15 means disabling for 15 minutes after the battery test end, to avoid alarms during recharge also					
CF91	Digital Input 1 Name	Digital Inputs	Digital Input 1		LVD 1 Open	basic
	The name of the digital input 1					
CF92	Digital Input 1 Normally Closed	Digital Inputs	Digital Input 1		True/False (True)	basic
	True/False value defining if the digital input 1 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF93	Digital Input 2 Name	Digital Inputs	Digital Input 2		LVD 2 Open	basic
	The name of the digital input 2					
CF94	Digital Input 2 Normally Closed	Digital Inputs	Digital Input 2		True/False (True)	basic
	True/False value defining if the digital input 2 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF95	Digital Input 3 Name	Digital Inputs	Digital Input 3		Digital Input 3	basic
	The name of the digital input 3					
CF96	Digital Input 3 Normally Closed	Digital Inputs	Digital Input 3		True/False (True)	basic
	True/False value defining if the digital input 3 is normally closed. If this digital input is not in this default state, the related alarm is set.					

CF97	Digital Input 4 Name	Digital Inputs	Digital Input 4		Digital Input 4	basic
	The name of the digital input 4					
CF98	Digital Input 4 Normally Closed	Digital Inputs	Digital Input 4		True/False (True)	basic
	True/False value defining if the digital input 4 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF99	Digital Input 5 Name	Digital Inputs	Digital Input 5		Digital Input 5	basic
	The name of the digital input 5					
CF100	Digital Input 5 Normally Closed	Digital Inputs	Digital Input 5		True/False (True)	basic
	True/False value defining if the digital input 5 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF101	Digital Input 6 Name	Digital Inputs	Digital Input 6		Digital Input 6	basic
	The name of the digital input 6					
CF102	Digital Input 6 Normally Closed	Digital Inputs	Digital Input 6		True/False (True)	basic
	True/False value defining if the digital input 6 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF103	Digital Input 7 Name	Digital Inputs	Digital Input 7		Digital Input 7	basic
	The name of the digital input 7					
CF104	Digital Input 7 Normally Closed	Digital Inputs	Digital Input 7		True/False (True)	basic
	True/False value defining if the digital input 7 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF105	Digital Input 8 Name	Digital Inputs	Digital Input 8		Digital Input 8	basic
	The name of the digital input 8					
CF106	Digital Input 8 Normally Closed	Digital Inputs	Digital Input 8		True/False (True)	basic
	True/False value defining if the digital input 8 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF111	Dry Alarm 1 Alternative Boolean Condition	Relays	Relay 1			plc
	Another Boolean condition to activate the dry alarm relay 1. The way to define boolean condition is detailed in the PLC chapter.					
CF112	Dry Alarm 2 Alternative Boolean Condition	Relays	Relay 2			plc
	Another Boolean condition to activate the dry alarm relay 2. The way to define boolean condition is detailed in the PLC chapter.					
CF113	Dry Alarm 3 Alternative Boolean Condition	Relays	Relay 3			plc
	Another Boolean condition to activate the dry alarm relay 3. The way to define boolean condition is detailed in the PLC chapter.					
CF114	Dry Alarm 4 Alternative Boolean Condition	Relays	Relay 4			plc
	Another Boolean condition to activate the dry alarm relay 4. The way to define boolean condition is detailed in the PLC chapter.					
CF131	Ambient Temperature Low	Sensors	Temperature	degree C		basic
	The temperature under which the alarm 'Ambient Temperature Too Low' must be set.					
CF132	Ambient Temperature High	Sensors	Temperature	degree C		basic
	The temperature under which the alarm 'Ambient Temperature Too Low' must be set.					

CF133	Ambient Temperature Hysteresis	Sensors	Temperature	degree C		basic
	The hysteresis on the 'Battery Temperature Too High' and 'Battery Temperature Too Low' alarms.					
CF141	AC Voltage Low	Mains		Volt	0/240 (180)	basic
	The AC voltage under which the alarm AC Low is set.					
CF142	AC Voltage High	Mains		Volt	80/600 (250)	basic
	The AC voltage over which the alarm AC High is set.					
CF143	AC Voltage Hysteresis	Mains		Volt	0/40 (5)	basic
	The AC voltage hysteresis on alarms AC High and AC Low.					
CF144	AC Phase 1 PLC	AC Bus				basic
	This is the mathematical expression of the calculation of AC phase 1. If empty, the rectifiers are used. The syntax for writing mathematical expression is described in the PLC chapter. The PLC data element is the result of the calculation.					
CF145	AC Phase 2 PLC	AC Bus				basic
	This is the mathematical expression of the calculation of AC phase 2. If empty, the rectifiers are used. The syntax for writing mathematical expression is described in the PLC chapter. The PLC data element is the result of the calculation.					
CF146	AC Phase 3 PLC	AC Bus				basic
	This is the mathematical expression of the calculation of AC phase 3. If empty, the rectifiers are used. The syntax for writing mathematical expression is described in the PLC chapter. The PLC data element is the result of the calculation.					
CF161	Forced Remote Off Rectifiers Boolean Condition	Rectifiers	Remote Off			basic
	The boolean PLC condition to enable the forced remote off					
CF201	Application Timeout	Specific	Application State	second		basic
	If Set to 0, disabled the application timeout, otherwise, after x second, it is not allowed to use control elements					
CF521	Read Access User Numbers	Generic	Allowed Users		(1,2,3,4,5)	basic
	The list of the user numbers which have read access to this equipment. The user numbers are coma separated. The accepted user id are 1,2,3,4 and 5. Ex: 1,3,4					
CF522	Write Access User Numbers	Generic	Allowed Users		()	basic
	The list of the user numbers which have write access to this equipment. This means that these users can modify the configuration element, the alarm settings and use the control elements. The user numbers are coma separated. The accepted user ids are 1,2,3,4 and 5. Ex: 1,3,4					
CF601	Event Table Length	Generic	Events		10/4000 (100)	basic
	The maximum length of the table. The value must be comprised between 10 and 4000					
CF602	Event Table Length By Rectifier	Generic	Events		10/4000 (100)	basic
	The maximum length of the table. The value must be comprised between 10 and 4000					
CF901	Number Of PLC Data	PLC			(0)	plc
	The number of PLC data. Every equipment can manage up to 30 user programmable data. Data elements are automatically added in the data table. Configuration parameters are added to set the PLC Data Name and the PLC Data Mathematical calculation. In order to use these functionalities, you need a license with the 'PLC' module					
CF902	Number Of PLC Alarm	PLC			(0)	plc
	The number of PLC alarm. Every equipment can manage up to 30 user programmable alarms. Alarm elements are automatically added in the alarm table. The alarm parameters are added to set the PLC Alarm Name and the PLC Alarm Boolean condition. In order to use these functionalities, you need a licence with the 'PLC' module					

Control Table				
<i>Id</i>	<i>Name</i>	<i>Group</i>	<i>SubGroup</i>	<i>License</i>
CT1	Back To Float	System		basic
	The dc system must go back in floating mode.			
CT2	Start Battery Test	System		battery
	The dc system must start a battery test.			
CT3	Force Battery Test	System		battery
	The dc system must force a battery test.			
CT11	Open The LVD	LVD		basic
	Try to open the LVD. It could not work if the LVD is electronic, and the request will be canceled after 15 sec.			
CT12	Close The LVD	LVD		basic
	The LVD must be closed			
CT21	Correct Battery Current Offset	Battery		basic
CT41	Reset Last Battery Test State	Battery		battery
	Reset the state of the last battery test. If an alarm 'Battery Last Test Failed' is set, the alarm will be cleared.			
CT47	Start Battery String 1 Test	Battery		battery
	The dc system must start a battery test.			
CT48	Start Battery String 2 Test	Battery		battery
	The dc system must start a battery test.			
CT49	Force Battery String 1 Test	Battery		battery
	The dc system must start a battery test.			
CT50	Force Battery String 2 Test	Battery		battery
	The dc system must start a battery test.			
CT51	Save Configuration In MCU	Save		basic
	Save configuration parameters in the MCU micro-controller. If Compas is not present, the system will be correctly managed.			
CT55	Set MCU Specific Configuration Id	Advanced	Factory	basic
	This control allows to reconfigure the MCU to support specific hardware configuration, with embedded distribution for example			
CT111	Invert Relay 1 State For X Seconds	Relays	Relay 1	basic
	Generate Pulse on relay 1			
CT112	Invert Relay 2 State For X Seconds	Relays	Relay 2	basic
	Generate Pulse on relay 2			
CT113	Invert Relay 3 State For X Seconds	Relays	Relay 3	basic
	Generate Pulse on relay 3			
CT114	Invert Relay 4 State For X Seconds	Relays	Relay 4	basic
	Generate Pulse on relay 4			
CT201	Application OK	Specific	Application State	basic
	Used by the application as heartbeat			
CT202	Application Not OK	Specific	Application State	basic
	Used by the application to disable any control command on the dc system			
CT203	Rescue Branch Disconnection Allowed	Specific	Rescue Branch Disconnection	basic
	Used to allow Rescue Branch Disconnection			
CT204	Rescue Branch Disconnection Not Allowed	Specific	Rescue Branch Disconnection	basic
	Used to allow Rescue Branch Disconnection			

CT501	Clear My Events	Generic	Events	basic
	By writing '1' to this control element, all the events of this equipment will be cleared.			
CT502	Clear All Events	Generic	Events	basic
	By writing '1' to this control element, all the events of this equipment and all the events of all the sub-equipments will be cleared.			
CT511	Add Event	Generic	Events	basic
	This control element adds an event of severity none. The event name is the text written to this control element			
CT512	Add Major Event	Generic	Events	basic
	This control element adds an event of severity major. The event name is the text written to this control element			
CT521	Reset Default Names And Groups	Generic	Renaming	basic
	This control element resets all the element Names, Groups and Subgroups to default values for this equipment			
CT522	Reset Default Names And Groups Recursive	Generic	Renaming	basic
	This control element resets all the element Names, Groups and Subgroups to default values for this equipment and all sub equipments			

15.2.18 UCC for Dc System Alpha Cordex

Device Information	
Name	UCC for Dc System Alpha Cordex
Short Description	With ADIO 10 - Standard I/O module DC systems used as dc system
Long Description	I/O module with 2 inputs for temperature measurement, 4 voltage measurements, 2 current measurements, 8 digital inputs and 8 relays
Hardware Reference	
Software Reference	
Equipment Type	ADIO used as controller for DC System (UCC)
ETSI Level	/site/energy_system/dc_system

Description Table				
<i>Id</i>	<i>Name</i>	<i>Group</i>	<i>SubGroup</i>	<i>License</i>
DE1	Description	Description	Custom Description	basic
	A free text zone to write a system description			
DE2	Reference	Description	Custom Description	basic
	A free text zone to write the customer reference of the system			

Alarm Table					
<i>Id</i>	<i>Name</i>	<i>Group</i>	<i>SubGroup</i>	<i>Severity Type (Level)</i>	<i>Set/Clear Delay</i>
AL1	DC Bus Extra Low	DC Bus		major (6)	5 / 2
	The bus voltage is extra low. The alarm is set when the bus voltage is lower than the configuration parameter 'DC Bus Voltage Extra Low'. There is an hysteresis on the alarm : 'DC Bus Voltage Extra Low Hysteresis'. The alarm is not activated when DC mode is 'Battery Test'				
AL2	DC Bus Low	DC Bus		minor (4)	5 / 2
	The bus voltage is low. The alarm is set when the bus voltage is lower than the configuration parameter 'DC Bus Voltage Low'. There is an hysteresis on the alarm : 'DC Bus Voltage Low Hysteresis'				

AL3	DC Bus High	DC Bus		minor (4)	5 / 2
	The bus voltage is high. The alarm is set when the bus voltage is higher than the configuration parameter 'DC Bus Voltage High'. There is an hysteresis on the alarm : 'DC Bus Voltage High Hysteresis'				
AL4	DC Bus Extra High	DC Bus		major (6)	5 / 2
	The bus voltage is extra high. The alarm is set when the bus voltage is higher than the configuration parameter 'DC Bus Voltage Extra High'. There is an hysteresis on the alarm : 'DC Bus Voltage Extra High Hysteresis'				
AL5	DC Bus Voltage Sense Failure	DC Bus		major (6)	5 / 2
	The DC bus voltage sense is defective. The DC bus voltage is unconnected or misconfigured.				
AL6	Mains Failure	AC Bus		minor (4)	5 / 2
	The number of active rectifiers is equal to 0 - All the phases are down				
AL7	Mains Partial Failure	AC Bus		minor (4)	10 / 2
	The number of active rectifiers is greater than 0 and the number of rectifiers in AC failure is greater than 0. Some rectifiers are in AC Failure. It may be caused by an open breaker, a real phase failure, or by a rectifier failure.				
AL8	Mains Low	AC Bus		warning (2)	10 / 2
	The main voltage is low on one or more phases. No rectifier is in AC failure. If MCU master type is 30110, 3096 or 3048M6, an hysteresis _phase123Hysteresis is added to the voltage lower limit				
AL9	Mains High	AC Bus		warning (2)	10 / 2
	The main voltage is low on one or more phases. No rectifier is in AC failure. The alarm is only active if MCU master type is 30110, 3096 or 3048M6. Therefore, an hysteresis _phase123Hysteresis is subtracted to the voltage lower limit.				
AL10	One Rectifier Failure	Rectifiers		minor (4)	5 / 2
	One rectifier must be replaced or is not powered correctly. The DC fail alarm of the rectifier is set. The number of rectifier with DC Failure is higher than 0, there is no mains failure, and the 'More Than One Rectifier Failure alarm is not set.'				
AL11	More Than One Rectifier Failure	Rectifiers		major (6)	10 / 2
	There is no mains failure and number of rectifier failures is greater than 1.				
AL12	Missing Rectifiers - Comm Lost	Rectifiers		major (6)	5 / 2
	There is not enough rectifier according to the minimal number of rectifier configuration element. It can also a problem of communication with some rectifiers				
AL13	Battery Last Test Failed	Battery		minor (4)	5 / 2
	The last battery test did not succeed. Maybe the battery should be replaced.				
AL14	Battery On Discharge	Battery		minor (4)	5 / 2
	The battery is discharging. This means that the load is too high for the installed rectifiers. This alarm is inactive when the system in AC Failure or during a battery test.				
AL18	Battery Temperature Too High	Battery		minor (4)	5 / 2
	The temperature of the battery is too high. There is an hysteresis corresponding to battery parameter 'Temperature hysteresis'.				
AL19	Battery Temperature Too Low	Battery		minor (4)	5 / 2
	The temperature of the battery is too low. There is an hysteresis corresponding to battery parameter 'Temperature hysteresis'.				
AL20	Battery Temperature Sensor Fail	Battery		minor (4)	5 / 2
	The battery temperature sensor (NTC) is not working properly.				
AL40	Digital Input 1	Adio 2	Digital Input 1	warning (0)	5 / 2
	The name of the digital input 1 alarm.				
AL41	Digital Input 2	Adio 2	Digital Input 2	warning (0)	5 / 2
	The name of the digital input 2 alarm.				

AL42	Digital Input 3	Adio 2	Digital Input 3	warning (0)	5 / 2
	The name of the digital input 3 alarm.				
AL43	Digital Input 4	Adio 2	Digital Input 4	warning (0)	5 / 2
	The name of the digital input 4 alarm.				
AL44	Digital Input 5	Adio 2	Digital Input 5	warning (0)	5 / 2
	The name of the digital input 5 alarm.				
AL45	Digital Input 6	Adio 2	Digital Input 6	warning (0)	5 / 2
	The name of the digital input 6 alarm.				
AL46	Digital Input 7	Adio 2	Digital Input 7	warning (0)	5 / 2
	The name of the digital input 7 alarm.				
AL47	Digital Input 8	Adio 2	Digital Input 8	warning (0)	5 / 2
	The name of the digital input 8 alarm.				

Data Table					
<i>Id</i>	<i>Name</i>	<i>Group</i>	<i>SubGroup</i>	<i>Unit</i>	<i>License</i>
DA1	DC Mode	System			basic
	The DC system can have 5 values: 'Float'(0), 'Equalize'(1), 'Battery Test'(2), 'Ac Failure'(3) or 'Safe'(5)				
DA2	Previous DC Mode	System			basic
	The previous value of the DC Mode : 'Float'(0), 'Equalize'(1), 'Battery Test'(2), 'Ac Failure'(3) or 'Safe'(5)				
DA3	Minutes Since Last Mode Change	System		minute	basic
	The number of minute between the last DC Mode Change and now				
DA11	Bus Voltage	DC Bus		Volt	basic
	The DC bus voltage in volt.				
DA12	Ratio Delivered On Available Power	System		%	basic
	This is the ratio of the delivered power divided by the installed power, in %.				
DA13	Minutes Since Last AC Failure Begin	AC Bus		minute	basic
	The number of minute since the last AC Failure begin				
DA14	Minutes Since Last AC Failure End	AC Bus		minute	basic
	The number of minute since the last AC Failure end				
DA21	Rectifiers Output Power	Rectifiers		Watt	basic
	The sum of the delivered rectifier power				
DA22	Rectifiers Output Current	Rectifiers		Ampere	basic
	The sum of the delivered rectifier current				
DA23	Rectifiers Output Power Max Nominal	Rectifiers		Watt	basic
	The sum of the deliverable rectifier nominal power.				
DA24	Rectifiers Output Current Max Nominal	Rectifiers		Ampere	basic
	The sum of the deliverable nominal rectifier current.				
DA25	Rectifiers Output Power Max Live	Rectifiers		Watt	basic
	The sum of the deliverable rectifier power, taking into account any rectifier power limitation due to temperature, manual defined limitation, etc.				
DA26	Rectifiers Output Current Max Live	Rectifiers		Ampere	basic

	The sum of the deliverable rectifier current. If the system is in battery test, in battery current limitation or in temperature derating, that value will be lower than the nominal.				
DA27	Average Output Voltage	Rectifier Output		Volt	basic
	The average output voltage of all communicating and non-failed rectifiers.				
DA32	Number Of Present Rectifier	Rectifiers	Numbers		basic
	The actual number of present rectifier in this dc system				
DA34	Number Of Active Rectifier	Rectifiers	Numbers		basic
	The actual number of active rectifier in this dc system. An active rectifier is a rectifier which is present, DC OK, AC OK and not in remote off.				
DA35	Number Of AC-Fail Rectifier	Rectifiers	Numbers		basic
	The actual number of rectifier in AC Failure.				
DA36	Number Of DC-Fail Rectifier	Rectifiers	Numbers		basic
	The actual number of rectifier with DC Failure.				
DA37	Number Of Remote Off Rectifier	Rectifiers	Numbers		basic
	The actual number of rectifier in remote off.				
DA38	Number Of Over Temperature Rectifier	Rectifiers	Numbers		basic
	The actual number of rectifier in Over Temperature.				
DA39	Number Of Comm Fail Rectifier	Rectifiers			basic
	The actual number of rectifier with communication failure.				
DA41	Mains Phase 1 Voltage	AC Bus		Volt	basic
	The voltage on AC phase 1				
DA42	Mains Phase 2 Voltage	AC Bus		Volt	basic
	The voltage on AC phase 2				
DA43	Mains Phase 3 Voltage	AC Bus		Volt	basic
	The voltage on AC phase 3				
DA44	Average AC Mains Input Voltage	Mains		Volt	basic
	The average AC mains input voltage of all communicating and non-failed rectifiers.				
DA51	Load Power	Load		Watt	basic
	Estimation of the load power consumption				
DA52	Load Current	Load		Ampere	basic
	Estimation of the load current consumption				
DA61	Battery Input Current	Battery		Ampere	basic
	Measurement of the battery input current. A negative value means that the battery is discharging				
DA62	Battery Input Power	Battery		Watt	basic
	Measurement of the battery input power. A negative value means that the battery is discharging				
DA71	Battery Temperature	Battery	Temperature	degree C	basic
	The battery temperature				
DA72	Battery Test State	Battery	Battery Test		basic
	This is about the result of the last battery test. 9 values are possible : NEVER_TESTED, SUCCESS, ON_GOING, FAILED_TIMEOUT, FAILED_VBUS_TOO_LOW, FAILED_LOAD_TOO_LOW, FAILED_AC_FAILURE, FAILED_CANCELED, FAILED_LVD_OPENED				
DA73	Last Battery Test Discharged Capacity Ratio	Battery	Battery Test	%	basic
	This is the battery capacity, in percent, discharged during the last battery test. This value is updated at the end of the battery test.				
DA74	Last Battery Test Discharged Capacity	Battery	Battery Test	Ah	basic
	This is the battery capacity, in ampere hour, discharged during the last battery test. This value is updated at the end of the battery test.				

DA75	Last Battery Test Final Voltage	Battery	Battery Test	Volt	basic
	This is the bus voltage at the end of the last battery test. This value is updated at the end of the battery test.				
DA81	Previous Battery Test State	Battery			basic
	The result of the previous battery test				
DA82	Days Since Last Test Battery	Battery		day	basic
	The number of hour since the last battery test ended. 0 means never or running.				
DA84	Next Scheduled Battery Test	Battery			basic
	The date and time of the next time the scheduled battery test will run				
DA91	Battery Charge Capacity	Battery	Autonomy	%	basic
	The battery charge capacity, calculated by integration of the current.				
DA92	Calculated Autonomy	Battery	Autonomy	minute	basic
	Calculation of the remaining autonomy. This value can change following the load of your system and the maximal depth of discharge configuration (CF39).				
DA94	Battery Current Integration	Battery	Autonomy	Ah	basic
	Actual value of the integration of the current, in Ampere * hour				
DA101	Equalize Live Status	Battery			basic
	General status of the Equalize Feature				
DA102	Equalize Remaining Time	Battery		minute	basic
	Remaining time in equalize mode				
DA121	Efficiency Optimized Number Of Rectifier	Asset Data			asset
	The optimal number of ON rectifier for Efficiency Optimization				
DA251	Voltage 1	Adio 2	Voltage 1	Volt	basic
	Module 2 Voltage Measurement 1				
DA252	Voltage 2	Adio 2	Voltage 2	Volt	basic
	Module 2 Voltage Measurement 2				
DA253	Voltage 3	Adio 2	Voltage 3	Volt	basic
	Module 2 Voltage Measurement 3				
DA254	Voltage 4	Adio 2	Voltage 4	Volt	basic
	Module 2 Voltage Measurement 4				
DA255	Shunt 1	Adio 2	Shunt 1	Ampere	basic
	Module 2 Shunt Measurement 1				
DA256	Shunt 2	Adio 2	Shunt 2	Ampere	basic
	Module 2 Shunt Measurement 2				
DA257	Temperature 1	Adio 2	Temperature 1	degree C	basic
	Module 2 Temperature Measurement 1				
DA258	Temperature 2	Adio 2	Temperature 2	degree C	basic
	Module 2 Temperature Measurement 2				
DA269	Relay 1 State	Adio 2	Relay 1		basic
	Actual state of the Relay				
DA271	Relay 2 State	Adio 2	Relay 2		basic
	Actual state of the Relay				
DA273	Relay 3 State	Adio 2	Relay 3		basic
	Actual state of the Relay				
DA275	Relay 4 State	Adio 2	Relay 4		basic
	Actual state of the Relay				
DA277	Relay 5 State	Adio 2	Relay 5		basic
	Actual state of the Relay				
DA279	Relay 6 State	Adio 2	Relay 6		basic

	Actual state of the Relay				
DA281	Relay 7 State	Adio 2	Relay 7		basic
	Actual state of the Relay				
DA283	Relay 8 State	Adio 2	Relay 8		basic
	Actual state of the Relay				
DA291	Pulse Counter 1	Adio 2	Digital Input 1		basic
	Pulse Counter 1				
DA292	Pulse Counter 2	Adio 2	Digital Input 2		basic
	Pulse Counter 2				
DA293	Pulse Counter 3	Adio 2	Digital Input 3		basic
	Pulse Counter 3				
DA294	Pulse Counter 4	Adio 2	Digital Input 4		basic
	Pulse Counter 4				
DA295	Pulse Counter 5	Adio 2	Digital Input 5		basic
	Pulse Counter 5				
DA296	Pulse Counter 6	Adio 2	Digital Input 6		basic
	Pulse Counter 6				
DA297	Pulse Counter 7	Adio 2	Digital Input 7		basic
	Pulse Counter 7				
DA298	Pulse Counter 8	Adio 2	Digital Input 8		basic
	Pulse Counter 8				

Config Table						
<i>Id</i>	<i>Name</i>	<i>Group</i>	<i>SubGroup</i>	<i>Unit</i>	<i>Range: Min/Max (default)</i>	<i>License</i>
CF1	DC Bus Float Voltage at 25 degC	DC Bus		Volt	47.5/58.2 (54)	basic
	The floating dc bus voltage of the system at 25 Celsius degree					
CF2	DC Bus Voltage Extra Low	DC Bus	Alarm Parameters	Volt	40/60 (45)	basic
	The bus voltage under which the alarm 'DC Bus Voltage Extra Low' is set.					
CF3	DC Bus Voltage Extra Low Hysteresis	DC Bus	Alarm Parameters	Volt	0/5 (1)	basic
	The voltage hysteresis on the alarm 'DC Bus Voltage Extra Low'.					
CF4	DC Bus Voltage Low	DC Bus	Alarm Parameters	Volt	40/60 (48)	basic
	The bus voltage under which the alarm 'DC Bus Voltage Low' is set.					
CF5	DC Bus Voltage Low Hysteresis	DC Bus	Alarm Parameters	Volt	0/5 (0.5)	basic
	The voltage hysteresis on the alarm 'DC Bus Voltage Low					
CF6	DC Bus Voltage High	DC Bus	Alarm Parameters	Volt	40/60 (56.5)	basic
	The bus voltage over which the alarm 'DC Bus Voltage High' is set.					
CF7	DC Bus Voltage High Hysteresis	DC Bus	Alarm Parameters	Volt	0/5 (0.5)	basic
	The voltage hysteresis on the alarm 'DC Bus Voltage High					
CF8	DC Bus Voltage Extra High	DC Bus	Alarm Parameters	Volt	40/60 (58)	basic
	The bus voltage over which the alarm 'DC Bus Voltage Extra High' is set.					

CF9	DC Bus Voltage Extra High Hysteresis	DC Bus	Alarm Parameters	Volt	0/5 (0.5)	basic
	The voltage hysteresis on the alarm 'DC Bus Voltage Extra High'					
CF21	Temperature Compensation Slope	Battery	Temperature Compensation	mV/degree	-1000/0 (-72)	basic
	The slope of the battery temperature compensation in mv/degree. For a 48V system, -72mV/degree is often used.					
CF22	Maximum Positive Temperature Compensation	Battery	Temperature Compensation	Volt	0/10 (3)	basic
	The maximal allowed positive compensation.					
CF23	Maximum Negative Temperature Compensation	Battery	Temperature Compensation	Volt	-10/0 (-3)	basic
	The maximal allowed negative compensation.					
CF24	Enable Temperature Compensation In Float Mode	Temperature Compensation			True/False (True)	battery
CF25	Enable Temperature Compensation In Equalize Mode	Temperature Compensation			True/False (False)	battery
CF30	Number of Battery String	Battery			0/4 (1)	basic
	This is the number of battery string you want to monitor. If you have a battery, it must be set to at least 1. If not, the battery features like the battery temperature compensation won't be enabled. You are able to specify current limitation globally at the dc system level, and string by string at the battery level.					
CF31	Battery Charge Current Limit	Battery		Ampere	0.5/5000 (1000)	basic
	The maximal battery current when the battery is charging. The monitoring regulates the bus voltage in order to satisfy this condition. This parameter is often equal to the nominal battery capacity divided by 10. This limitation applies to the sum of the battery current strings. It is also possible to specify a limitation by string in the Battery Equipment					
CF32	Battery String Capacity	Battery		Ah	3/10000 (100)	basic
	The battery capacity in Ah.					
CF33	Battery Temperature Low	Battery		degree C	-100/20 (0)	basic
	The temperature under which the alarm 'Battery Temperature Too Low' must be set.					
CF34	Battery Temperature High	Battery		degree C	5/100 (40)	basic
	The temperature over which the alarm 'Battery Temperature Too High' must be set.					
CF35	Battery Temperature Hysteresis	Battery		degree C	0/10 (2)	basic
	The hysteresis on the 'Battery Temperature Too High' and 'Battery Temperature Too Low' alarms.					
CF36	Minimal Current For Discharging Alarm	Battery		Ampere	0/5000 (3)	basic
	The minimal discharging current to set the 'Battery On Discharge' alarm.					
CF37	Current Hysteresis For Discharging Alarm	Battery		Ampere	0/500 (1)	basic
	The hysteresis on the 'Battery On Discharge' alarm.					
CF38	Peukert Number	Battery			1/2 (1)	basic

	The Peukert number relates to the internal resistance of a battery and provides an indication of the expected capacity. The ideal number is 1. This value can be calculated with the formula: $(\log(t_2) - \log(t_1)) / (\log(i_1) - \log(i_2))$ where tx is the autonomy in hours at a constant discharge current of ix Amps. Often, we use t1 = 1h and t2 = 10h					
CF51	Equalize Voltage	Equalize		Volt	49.8/60.2 (56.4)	battery
	The Equalize voltage					
CF52	Equalize Duration	Equalize		minute	10/240 (120)	battery
	The timeout in minute after which a system in equalize mode must go back in floating mode.					
CF55	Enable Periodic Equalize	Equalize			False/True (False)	underdev
	The equalize mode must be started periodically					
CF56	Periodic Equalize Interval	Equalize		day	1/1000 (30)	underdev
	The number of days between two periodic started equalize mode.					
CF59	Enable Auto Equalize	Equalize			False/False (False)	battery
	The equalize mode must be automatically after the fact that during a mains failure, the bus voltage went under the configured 'Arming Low Voltage'. This allows charging the battery faster.					
CF60	Equalize Arming Voltage Threshold	Equalize		Volt	43/50 (46)	battery
	The voltage under which the equalize mode must be armed.					
CF61	Equalize Activation Voltage Threshold	Equalize		Volt	42/60.2 (53)	battery
	The voltage at which the equalize mode must be started (when armed)					
CF64	Enable Equalize Battery Current Terminated	Equalize			False/True (False)	battery
	The equalize mode must be stopped based on battery current conditions					
CF65	Equalize Battery Current Terminated Threshold	Equalize		Ampere	0/100 (4)	battery
	The battery charging current under which the system must go back to floating mode when in equalize. (after some duration)					
CF66	Equalize Battery Current Terminated Duration	Equalize		minute	5/1000 (20)	battery
	The timeout in minute after which a system in equalize mode must go back in floating mode after the Battery Current Terminated is achieved					
CF70	Battery Test End Voltage	Battery	Battery Test	Volt	44/54 (46)	battery
	The voltage at which any battery test must be stopped. This value has to be higher than the LVD Disconnect voltage (CF10)					
CF71	Battery Test Discharge Ratio	Battery	Battery Test	%	0/100 (0)	battery
	The ratio of the battery capacity to discharge. If 30 is set, 30% of the battery will be discharged during the test					
CF72	Battery Test Interval	Battery	Battery Test	day	0/3000 (0)	battery
	The number of days between two automatically started battery test. If this parameter is set to 0, the battery test is not started automatically. The user can remotely or locally start or force this test.					
CF73	Battery Test Discharge Current	Battery	Battery Test	Ampere	0/6000 (0)	battery
	The current at which the battery must be discharged during a battery test. The monitoring regulates the bus voltage in order to satisfy this condition. The load current must be of course higher than this parameter.					
CF74	Battery Test Minimal Discharge Current	Battery	Battery Test	Ampere	2/200 (2)	battery

	The battery current under which the battery test must be stopped because the load is too low.					
CF75	Battery Test Duration	Battery	Battery Test	minute	1/5000 (10)	battery
	The timeout in minute after which the battery test must be stopped.					
CF76	Battery Test Requested Minutes Without Mains Failure	Battery	Battery Test	minute	0/5000 (1440)	battery
	The minimal time in minute without mains failure in order to allow a battery start. This parameter is not taken into account when the battery test is forced.					
CF77	Battery Test Scheduler Cron Rule	Battery	Battery Test			basic
CF83	Smart Energy Boolean Condition	Rectifiers	Power Save			asset
	This is the boolean condition which allows or not to automatically enable the Power Save feature					
CF84	Number Of Redundant Rectifiers	Rectifiers	Power Save		0-100	asset
	Specify the number of extra rectifiers to turn on when power save is enabled					
CF85	Maximum Power Usage	Rectifiers	Power Save		30-100	asset
	Specify the percentage (of maximum power usage) per rectifier module used in the computation of the Power Save feature.					
CF91	Minimal Number Of Present Rectifiers	Rectifiers	Alarm Parameters		0/100 (0)	basic
	The minimal number of rectifier which must be present. If there is less present rectifiers, the alarm 'Missing Rectifiers' is set.					
CF92	Forced Remote Off Rectifiers	Rectifiers				basic
	A list of rectifier which are forced in remote off. The id of the rectifiers must be coma separated. Ex: 1,3 will maintain rectifier 1 and 3 off.					
CF101	System Start Delay	Rectifiers		second	0/300 (1)	basic
CF102	Module Start Delay	Rectifiers		second	0/300 (1)	basic
CF103	Safe Voltage	Rectifiers		Volt	46/56 (51.4)	basic
CF141	AC Voltage Low	Mains		Volt	0/240 (180)	basic
	The AC voltage under which the alarm AC Low is set.					
CF142	AC Voltage High	Mains		Volt	80/600 (250)	basic
	The AC voltage over which the alarm AC High is set.					
CF143	AC Voltage Hysteresis	Mains		Volt	0/40 (5)	basic
	The AC voltage hysteresis on alarms AC High and AC Low.					
CF151	Bus Voltage Variable Pointer	Alternate Regulation Pointer Settings				basic
	PLC Pointer to variable related to Bus Voltage					
CF152	Battery Temperature Variable Pointer	Alternate Regulation Pointer Settings				basic
	PLC Pointer to variable related to Battery Temperature					
CF251	Shunt 1 Rating At 60mV	Adio 2	Shunt 1	Ampere		basic
	The rating of the shunt 1 at 60mV.					
CF252	Shunt 2 Rating At 60mV	Adio 2	Shunt 2	Ampere		basic

	The rating of the shunt 2 at 60mV.					
CF253	Digital Input 1 Name	Adio 2	Digital Input 1		Adio 2	basic
	The name of the digital input 1.					
CF254	Digital Input 1 Normally Closed	Adio 2	Digital Input 1		True/False (True)	basic
	True/False value defining if the digital input 1 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF255	Digital Input 2 Name	Adio 2	Digital Input 2		Adio 2	basic
	The name of the digital input 2.					
CF256	Digital Input 2 Normally Closed	Adio 2	Digital Input 2		True/False (True)	basic
	True/False value defining if the digital input 2 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF257	Digital Input 3 Name	Adio 2	Digital Input 3		Adio 2	basic
	The name of the digital input 3.					
CF258	Digital Input 3 Normally Closed	Adio 2	Digital Input 3		True/False (True)	basic
	True/False value defining if the digital input 3 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF259	Digital Input 4 Name	Adio 2	Digital Input 4		Adio 2	basic
	The name of the digital input 4.					
CF260	Digital Input 4 Normally Closed	Adio 2	Digital Input 4		True/False (True)	basic
	True/False value defining if the digital input 4 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF261	Digital Input 5 Name	Adio 2	Digital Input 5		Adio 2	basic
	The name of the digital input 5.					
CF262	Digital Input 5 Normally Closed	Adio 2	Digital Input 5		True/False (True)	basic
	True/False value defining if the digital input 5 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF263	Digital Input 6 Name	Adio 2	Digital Input 6		Adio 2	basic
	The name of the digital input 6.					
CF264	Digital Input 6 Normally Closed	Adio 2	Digital Input 6		True/False (True)	basic
	True/False value defining if the digital input 6 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF265	Digital Input 7 Name	Adio 2	Digital Input 7		Adio 2	basic
	The name of the digital input 7.					
CF266	Digital Input 7 Normally Closed	Adio 2	Digital Input 7		True/False (True)	basic
	True/False value defining if the digital input 7 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF267	Digital Input 8 Name	Adio 2	Digital Input 8		Adio 2	basic
	The name of the digital input 8.					
CF268	Digital Input 8 Normally Closed	Adio 2	Digital Input 8		True/False (True)	basic
	True/False value defining if the digital input 8 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF269	Relay 1 Change State Boolean Condition	Adio 2	Relay 1		(False)	basic
	Relay 1 Boolean Condition					

CF270	Relay 1 Normal State	Adio 2	Relay 1		(Energized / De-energized)	basic
	Relay 1 Normal State					
CF271	Relay 2 Change State Boolean Condition	Adio 2	Relay 2		(False)	basic
	Relay 2 Boolean Condition					
CF272	Relay 2 Normal State	Adio 2	Relay 2		(Energized / De-energized)	basic
	Relay 2 Normal State					
CF273	Relay 3 Change State Boolean Condition	Adio 2	Relay 3		(False)	basic
	Relay 3 Boolean Condition					
CF274	Relay 3 Normal State	Adio 2	Relay 3		(Energized / De-energized)	basic
	Relay 3 Normal State					
CF275	Relay 4 Change State Boolean Condition	Adio 2	Relay 4		(False)	basic
	Relay 4 Boolean Condition					
CF276	Relay 4 Normal State	Adio 2	Relay 4		(Energized / De-energized)	basic
	Relay 4 Normal State					
CF277	Relay 5 Change State Boolean Condition	Adio 2	Relay 5		(False)	basic
	Relay 5 Boolean Condition					
CF278	Relay 5 Normal State	Adio 2	Relay 5		(Energized / De-energized)	basic
	Relay 5 Normal State					
CF279	Relay 6 Change State Boolean Condition	Adio 2	Relay 6		(False)	basic
	Relay 6 Boolean Condition					
CF280	Relay 6 Normal State	Adio 2	Relay 6		(Energized / De-energized)	basic
	Relay 6 Normal State					
CF281	Relay 7 Change State Boolean Condition	Adio 2	Relay 7		(False)	basic
	Relay 7 Boolean Condition					
CF282	Relay 7 Normal State	Adio 2	Relay 7		(Energized / De-energized)	basic
	Relay 7 Normal State					
CF283	Relay 8 Change State Boolean Condition	Adio 2	Relay 8		(False)	basic
	Relay 8 Boolean Condition					
CF284	Relay 8 Normal State	Adio 2	Relay 8		(Energized / De-energized)	basic
	Relay 8 Normal State					
CF285	Default Output Relay Binary Vector	Adio 2			(0b11111111)	basic
	This configuration is stored inside the module in case of communication failure					
CF521	Read Access User Numbers	Generic	Allowed Users		(1,2,3,4,5)	basic
	The list of the user numbers which have read access to this equipment. The user numbers are coma separated. The accepted user id are 1,2,3,4 and 5. Ex: 1,3,4					

CF522	Write Access User Numbers	Generic	Allowed Users		()	basic
	The list of the user numbers which have write access to this equipment. This means that these users can modify the configuration element, the alarm settings and use the control elements. The user numbers are coma separated. The accepted user ids are 1,2,3,4 and 5. Ex: 1,3,4					
CF601	Event Table Length	Generic	Events		10/4000 (100)	basic
	The maximum length of the table. The value must be comprised between 10 and 4000					
CF602	Event Table Length By Rectifier	Generic	Events		10/4000 (100)	basic
	The maximum length of the table. The value must be comprised between 10 and 4000					
CF901	Number Of PLC Data	PLC			(0)	plc
	The number of PLC data. Every equipment can manage up to 30 user programmable data. Data elements are automatically added in the data table. Configuration parameters are added to set the PLC Data Name and the PLC Data Mathematical calculation. In order to use these functionalities, you need a license with the 'PLC' module					
CF902	Number Of PLC Alarm	PLC			(0)	plc
	The number of PLC alarm. Every equipment can manage up to 30 user programmable alarms. Alarm elements are automatically added in the alarm table. The alarm parameters are added to set the PLC Alarm Name and the PLC Alarm Boolean condition. In order to use these functionalities, you need a licence with the 'PLC' module					

Control Table				
<i>Id</i>	<i>Name</i>	<i>Group</i>	<i>SubGroup</i>	<i>License</i>
CT1	Back To Float	DC Mode		basic
	The dc system must go back in floating mode.			
CT2	Start Battery Test	DC Mode		battery
	The dc system must start a battery test. It will be canceled if the system is not in float mode or if the number of minutes Since Last Ac Fail End is less than the configured minimum time without mains failure			
CT3	Force Battery Test	DC Mode		battery
	The dc system must force a battery test.			
CT4	Start Equalize Mode	DC Mode		battery
	The dc system must go in equalize mode.			
CT21	Locate Rectifier Clear	Locate		basic
CT22	Locate Rectifier On Phase	Locate		basic
CT41	Reset Last Battery Test State	Battery		battery
	Reset the state of the last battery test. If an alarm 'Battery Last Test Failed' is set, the alarm will be cleared.			
CT251	Calibrate V1	Adio 2		basic
CT252	Calibrate V2	Adio 2		basic
CT253	Calibrate V3	Adio 2		basic
CT254	Calibrate V4	Adio 2		basic
CT269	Invert Relay 1 State For X Seconds	Adio 2	Relay 1	basic
	Generate Pulse on relay			
CT271	Invert Relay 2 State For X Seconds	Adio 2	Relay 2	basic
	Generate Pulse on relay			

CT273	Invert Relay 3 State For X Seconds	Adio 2	Relay 3	basic
	Generate Pulse on relay			
CT275	Invert Relay 4 State For X Seconds	Adio 2	Relay 4	basic
	Generate Pulse on relay			
CT277	Invert Relay 5 State For X Seconds	Adio 2	Relay 5	basic
	Generate Pulse on relay			
CT279	Invert Relay 6 State For X Seconds	Adio 2	Relay 6	basic
	Generate Pulse on relay			
CT281	Invert Relay 7 State For X Seconds	Adio 2	Relay 7	basic
	Generate Pulse on relay			
CT283	Invert Relay 8 State For X Seconds	Adio 2	Relay 8	basic
	Generate Pulse on relay			
CT501	Clear My Events	Generic	Events	basic
	By writing '1' to this control element, all the events of this equipment will be cleared.			
CT502	Clear All Events	Generic	Events	basic
	By writing '1' to this control element, all the events of this equipment and all the events of all the sub-equipments will be cleared.			
CT511	Add Event	Generic	Events	basic
	This control element adds an event of severity none. The event name is the text written to this control element			
CT512	Add Major Event	Generic	Events	basic
	This control element adds an event of severity major. The event name is the text written to this control element			
CT521	Reset Default Names And Groups	Generic	Renaming	basic
	This control element resets all the element Names, Groups and Subgroups to default values for this equipment			
CT522	Reset Default Names And Groups Recursive	Generic	Renaming	basic
	This control element resets all the element Names, Groups and Subgroups to default values for this equipment and all sub equipments			

15.2.19 UCC for DC System Sierra (CET Gateway)

Device Information	
Name	UCC for DC System Sierra (CET Gateway)
Short Description	UCC with ADIO 10 for DC System Sierra (CET Gateway)
Long Description	I/O module with 2 inputs for temperature measurement, 4 voltage measurements, 2 current measurements, 8 digital inputs and 8 relays
Hardware Reference	
Software Reference	
Equipment Type	ADIO used as controller for DC System (UCC)
ETSI Level	/site/energy_system/dc_system

Description Table				
<i>Id</i>	<i>Name</i>	<i>Group</i>	<i>SubGroup</i>	<i>License</i>
DE1	Description	Description	Custom Description	basic
	A free text zone to write a system description			
DE2	Reference	Description	Custom Description	basic
	A free text zone to write the customer reference of the system			

Alarm Table					
<i>Id</i>	<i>Name</i>	<i>Group</i>	<i>SubGroup</i>	<i>Severity Type (Level)</i>	<i>Set/Clear Delay</i>
AL1	DC Bus Extra Low	DC Bus		major (6)	5 / 2
	The bus voltage is extra low. The alarm is set when the bus voltage is lower than the configuration parameter 'DC Bus Voltage Extra Low'. There is an hysteresis on the alarm : 'DC Bus Voltage Extra Low Hysteresis'. The alarm is not activated when DC mode is 'Battery Test'				
AL2	DC Bus Low	DC Bus		minor (4)	5 / 2
	The bus voltage is low. The alarm is set when the bus voltage is lower than the configuration parameter 'DC Bus Voltage Low'. There is an hysteresis on the alarm : 'DC Bus Voltage Low Hysteresis'				
AL3	DC Bus High	DC Bus		minor (4)	5 / 2
	The bus voltage is high. The alarm is set when the bus voltage is higher than the configuration parameter 'DC Bus Voltage High'. There is an hysteresis on the alarm : 'DC Bus Voltage High Hysteresis'				
AL4	DC Bus Extra High	DC Bus		major (6)	5 / 2
	The bus voltage is extra high. The alarm is set when the bus voltage is higher than the configuration parameter 'DC Bus Voltage Extra High'. There is an hysteresis on the alarm : 'DC Bus Voltage Extra High Hysteresis'				
AL5	DC Bus Voltage Sense Failure	DC Bus		major (6)	5 / 2
	The DC bus voltage sense is defective. The DC bus voltage is unconnected or misconfigured.				
AL6	Mains Failure	AC Bus		minor (4)	5 / 2
	The number of active rectifiers is equal to 0 - All the phases are down				
AL10	One Rectifier Failure	Rectifiers		minor (4)	5 / 2
	One rectifier must be replaced or is not powered correctly. The DC fail alarm of the rectifier is set. The number of rectifier with DC Failure is higher than 0, there is no mains failure, and the 'More Than One Rectifier Failure alarm is not set.'				
AL11	More Than One Rectifier Failure	Rectifiers		major (6)	10 / 2
	There is no mains failure and number of rectifier failures is greater than 1.				
AL12	Missing Rectifiers - Comm Lost	Rectifiers		major (6)	5 / 2
	There is not enough rectifier according to the minimal number of rectifier configuration element. It can also a problem of communication with some rectifiers				
AL13	Battery Last Test Failed	Battery	Battery Test	minor (3)	5 / 2
	The last battery test did not succeed. Maybe the battery should be replaced.				
AL14	Battery On Discharge	Battery		minor (4)	5 / 2
	The battery is discharging. This means that the load is too high for the installed rectifiers. This alarm is inactive when the system in AC Failure or during a battery test.				
AL18	Battery Temperature Too High	Battery		minor (4)	5 / 2
	The temperature of the battery is too high. There is an hysteresis corresponding to battery parameter 'Temperature hysteresis'.				
AL19	Battery Temperature Too Low	Battery		minor (4)	5 / 2
	The temperature of the battery is too low. There is an hysteresis corresponding to battery parameter 'Temperature hysteresis'.				
AL20	Battery Temperature Sensor Fail	Battery		minor (4)	5 / 2
	The battery temperature sensor (NTC) is not working properly.				
AL40	Digital Input 1	Adio 2	Digital Input 1	warning (0)	5 / 2
	The name of the digital input 1 alarm.				
AL41	Digital Input 2	Adio 2	Digital Input 2	warning (0)	5 / 2
	The name of the digital input 2 alarm.				

AL42	Digital Input 3	Adio 2	Digital Input 3	warning (0)	5 / 2
	The name of the digital input 3 alarm.				
AL43	Digital Input 4	Adio 2	Digital Input 4	warning (0)	5 / 2
	The name of the digital input 4 alarm.				
AL44	Digital Input 5	Adio 2	Digital Input 5	warning (0)	5 / 2
	The name of the digital input 5 alarm.				
AL45	Digital Input 6	Adio 2	Digital Input 6	warning (0)	5 / 2
	The name of the digital input 6 alarm.				
AL46	Digital Input 7	Adio 2	Digital Input 7	warning (0)	5 / 2
	The name of the digital input 7 alarm.				
AL47	Digital Input 8	Adio 2	Digital Input 8	warning (0)	5 / 2
	The name of the digital input 8 alarm.				

Data Table					
Id	Name	Group	SubGroup	Unit	License
DA1	DC Mode	System			basic
	The DC system can have 5 values: 'Float'(0), 'Equalize'(1), 'Battery Test'(2), 'Ac Failure'(3) or 'Safe'(5)				
DA2	Previous DC Mode	System			basic
	The previous value of the DC Mode : 'Float'(0), 'Equalize'(1), 'Battery Test'(2), 'Ac Failure'(3) or 'Safe'(5)				
DA3	Minutes Since Last Mode Change	System		minute	basic
	The number of minute between the last DC Mode Change and now				
DA11	Bus Voltage	DC Bus		Volt	basic
	The DC bus voltage in volt.				
DA12	Ratio Delivered On Available Power	System		%	basic
	This is the ratio of the delivered power divided by the installed power, in %.				
DA13	Minutes Since Last AC Failure Begin	AC Bus		minute	basic
	The number of minute since the last AC Failure begin				
DA14	Minutes Since Last AC Failure End	AC Bus		minute	basic
	The number of minute since the last AC Failure end				
DA21	Rectifiers Output Power	Rectifiers		Watt	basic
	The sum of the delivered rectifier power				
DA22	Rectifiers Output Current	Rectifiers		Ampere	basic
	The sum of the delivered rectifier current				
DA23	Rectifiers Output Power Max Nominal	Rectifiers		Watt	basic
	The sum of the deliverable rectifier nominal power.				
DA24	Rectifiers Output Current Max Nominal	Rectifiers		Ampere	basic
	The sum of the deliverable nominal rectifier current.				
DA32	Number Of Present Rectifier	Rectifiers	Numbers		basic
	The actual number of present rectifier in this dc system				
DA34	Number Of Active Rectifier	Rectifiers	Numbers		basic

	The actual number of active rectifier in this dc system. An active rectifier is a rectifier which is present, DC OK, AC OK and not in remote off.				
DA35	Number Of AC-Fail Rectifier	Rectifiers	Numbers		basic
	The actual number or rectifier in AC Failure.				
DA36	Number Of DC-Fail Rectifier	Rectifiers	Numbers		basic
	The actual number or rectifier with DC Failure.				
DA37	Number Of Remote Off Rectifier	Rectifiers	Numbers		basic
	The actual number or rectifier in remote off.				
DA38	Number Of Over Temperature Rectifier	Rectifiers	Numbers		basic
	The actual number or rectifier in Over Temperature.				
DA39	Number Of Comm Fail Rectifier	Rectifiers			basic
	The actual number of rectifier with communication failure.				
DA44	Average AC Mains Input Voltage	Mains		Volt	basic
	The average AC mains input voltage of all communicating and non-failed rectifiers.				
DA51	Load Power	Load		Watt	basic
	Estimation of the load power consumption				
DA52	Load Current	Load		Ampere	basic
	Estimation of the load current consumption				
DA61	Battery Input Current	Battery		Ampere	basic
	Measurement of the battery input current. A negative value means that the battery is discharging				
DA62	Battery Input Power	Battery		Watt	basic
	Measurement of the battery input power. A negative value means that the battery is discharging				
DA71	Battery Temperature	Battery	Temperature	degree C	basic
	The battery temperature				
DA72	Battery Test State	Battery	Battery Test		basic
	This is about the result of the last battery test. 9 values are possible : NEVER_TESTED, SUCCESS, ON_GOING, FAILED_TIMEOUT, FAILED_VBUS_TOO_LOW, FAILED_LOAD_TOO_LOW, FAILED_AC_FAILURE, FAILED_CANCELED, FAILED_LVD_OPENED				
DA73	Last Battery Test Discharged Capacity Ratio	Battery	Battery Test	%	basic
	This is the battery capacity, in percent, discharged during the last battery test. This value is updated at the end of the battery test.				
DA74	Last Battery Test Discharged Capacity	Battery	Battery Test	Ah	basic
	This is the battery capacity, in ampere hour, discharged during the last battery test. This value is updated at the end of the battery test.				
DA75	Last Battery Test Final Voltage	Battery	Battery Test	Volt	basic
	This is the bus voltage at the end of the last battery test. This value is updated at the end of the battery test.				
DA76	Battery Test Duration	Battery	Battery Test	minute	basic
	The duration of the last battery test. This value is updated at the end of the battery test. This value can't be higher than 1440 minutes (24 hours).				
DA77	Previous Battery Test Discharged Capacity Ratio	Battery	Battery Test	%	basic
	This is the battery capacity, in percent, discharged during the previous battery test. This value is shifted at the end of the battery test.				
DA78	Previous Battery Test Discharged Capacity	Battery	Battery Test	Ah	basic
	This is the battery capacity, in ampere hour, discharged during the previous battery test. This value is shifted at the end of the battery test.				
DA79	Previous Battery Test Final Voltage	Battery	Battery Test	Volt	basic

	This is the bus voltage at the end of the previous battery test. This value is shifted at the end of the battery test.				
DA80	Previous Battery Test Duration	Battery	Battery Test	minute	basic
	The duration of the previous battery test. This value is shifted at the end of the battery test. This value can't be higher than 1440 minutes (24 hours).				
DA81	Previous Battery Test State	Battery	Battery Test		basic
	The result of the previous battery test				
DA82	Days Since Last Test Battery	Battery	Battery Test	day	basic
	The number of hour since the last battery test ended. 0 means never or running.				
DA84	Next Scheduled Battery Test	Battery	Battery Test		basic
	The date and time of the next time the scheduled battery test will run				
DA91	Battery Charge Capacity	Battery	Autonomy	%	basic
	The battery charge capacity, calculated by integration of the current.				
DA92	Calculated Autonomy	Battery	Autonomy	minute	basic
	Calculation of the remaining autonomy. This value can change following the load of your system and the maximal depth of discharge configuration (CF39).				
DA94	Battery Current Integration	Battery	Autonomy	Ah	basic
	Actual value of the integration of the current, in Ampere * hour				
DA251	Voltage 1	Adio 2	Voltage 1	Volt	basic
	Module 2 Voltage Measurement 1				
DA252	Voltage 2	Adio 2	Voltage 2	Volt	basic
	Module 2 Voltage Measurement 2				
DA253	Voltage 3	Adio 2	Voltage 3	Volt	basic
	Module 2 Voltage Measurement 3				
DA254	Voltage 4	Adio 2	Voltage 4	Volt	basic
	Module 2 Voltage Measurement 4				
DA255	Shunt 1	Adio 2	Shunt 1	Ampere	basic
	Module 2 Shunt Measurement 1				
DA256	Shunt 2	Adio 2	Shunt 2	Ampere	basic
	Module 2 Shunt Measurement 2				
DA257	Temperature 1	Adio 2	Temperature 1	degree C	basic
	Module 2 Temperature Measurement 1				
DA258	Temperature 2	Adio 2	Temperature 2	degree C	basic
	Module 2 Temperature Measurement 2				
DA269	Relay 1 State	Adio 2	Relay 1		basic
	Actual state of the Relay				
DA271	Relay 2 State	Adio 2	Relay 2		basic
	Actual state of the Relay				
DA273	Relay 3 State	Adio 2	Relay 3		basic
	Actual state of the Relay				
DA275	Relay 4 State	Adio 2	Relay 4		basic
	Actual state of the Relay				
DA277	Relay 5 State	Adio 2	Relay 5		basic
	Actual state of the Relay				
DA279	Relay 6 State	Adio 2	Relay 6		basic
	Actual state of the Relay				
DA281	Relay 7 State	Adio 2	Relay 7		basic
	Actual state of the Relay				
DA283	Relay 8 State	Adio 2	Relay 8		basic

	Actual state of the Relay				
DA291	Pulse Counter 1	Adio 2	Digital Input 1		basic
	Pulse Counter 1				
DA292	Pulse Counter 2	Adio 2	Digital Input 2		basic
	Pulse Counter 2				
DA293	Pulse Counter 3	Adio 2	Digital Input 3		basic
	Pulse Counter 3				
DA294	Pulse Counter 4	Adio 2	Digital Input 4		basic
	Pulse Counter 4				
DA295	Pulse Counter 5	Adio 2	Digital Input 5		basic
	Pulse Counter 5				
DA296	Pulse Counter 6	Adio 2	Digital Input 6		basic
	Pulse Counter 6				
DA297	Pulse Counter 7	Adio 2	Digital Input 7		basic
	Pulse Counter 7				
DA298	Pulse Counter 8	Adio 2	Digital Input 8		basic
	Pulse Counter 8				

Config Table						
<i>Id</i>	<i>Name</i>	<i>Group</i>	<i>SubGroup</i>	<i>Unit</i>	<i>Range: Min/Max (default)</i>	<i>License</i>
CF1	DC Bus Float Voltage at 25 degC	DC Bus		Volt	40/60 (54)	basic
	The floating dc bus voltage of the system at 25 Celsius degree					
CF2	DC Bus Voltage Extra Low	DC Bus	Alarm Parameters	Volt	40/60 (45)	basic
	The bus voltage under which the alarm 'DC Bus Voltage Extra Low' is set.					
CF3	DC Bus Voltage Extra Low Hysteresis	DC Bus	Alarm Parameters	Volt	0/5 (1)	basic
	The voltage hysteresis on the alarm 'DC Bus Voltage Extra Low'.					
CF4	DC Bus Voltage Low	DC Bus	Alarm Parameters	Volt	40/60 (48)	basic
	The bus voltage under which the alarm 'DC Bus Voltage Low' is set.					
CF5	DC Bus Voltage Low Hysteresis	DC Bus	Alarm Parameters	Volt	0/5 (0.5)	basic
	The voltage hysteresis on the alarm 'DC Bus Voltage Low					
CF6	DC Bus Voltage High	DC Bus	Alarm Parameters	Volt	40/60 (56.5)	basic
	The bus voltage over which the alarm 'DC Bus Voltage High' is set.					
CF7	DC Bus Voltage High Hysteresis	DC Bus	Alarm Parameters	Volt	0/5 (0.5)	basic
	The voltage hysteresis on the alarm 'DC Bus Voltage High					
CF8	DC Bus Voltage Extra High	DC Bus	Alarm Parameters	Volt	40/60 (58)	basic
	The bus voltage over which the alarm 'DC Bus Voltage Extra High' is set.					
CF9	DC Bus Voltage Extra High Hysteresis	DC Bus	Alarm Parameters	Volt	0/5 (0.5)	basic
	The voltage hysteresis on the alarm 'DC Bus Voltage Extra High					
CF21	Temperature Compensation Slope	Battery	Temperature Compensation	mV/degree	-1000/0 (-72)	basic

	The slope of the battery temperature compensation in mv/degree. For a 48V system, -72mV/degree is often used.					
CF22	Maximum Positive Temperature Compensation	Battery	Temperature Compensation	Volt	0/10 (3)	basic
	The maximal allowed positive compensation.					
CF23	Maximum Negative Temperature Compensation	Battery	Temperature Compensation	Volt	-10/0 (-3)	basic
	The maximal allowed negative compensation.					
CF24	Enable Temperature Compensation In Float Mode	Battery	Temperature Compensation		True/False (True)	battery
CF25	Enable Temperature Compensation In Equalize Mode	Battery	Temperature Compensation		True/False (False)	battery
CF30	Number of Battery String	Battery			0/4 (1)	basic
	This is the number of battery string you want to monitor. If you have a battery, it must be set to at least 1. If not, the battery features like the battery temperature compensation won't be enabled. You are able to specify current limitation globally at the dc system level, and string by string at the battery level.					
CF31	Battery Charge Current Limit	Battery		Ampere	0.5/3250 (1000)	basic
	The maximal battery current when the battery is charging. The monitoring regulates the bus voltage in order to satisfy this condition. This parameter is often equal to the nominal battery capacity divided by 10. This limitation applies to the sum of the battery current strings. It is also possible to specify a limitation by string in the Battery Equipment					
CF32	Battery String Capacity	Battery		Ah	3/6500 (100)	basic
	The battery capacity in Ah.					
CF33	Battery Temperature Low	Battery	Alarm Parameters	degree C	-100/20 (0)	basic
	The temperature under which the alarm 'Battery Temperature Too Low' must be set.					
CF34	Battery Temperature High	Battery	Alarm Parameters	degree C	5/100 (40)	basic
	The temperature over which the alarm 'Battery Temperature Too High' must be set.					
CF35	Battery Temperature Hysteresis	Battery	Alarm Parameters	degree C	0/10 (2)	basic
	The hysteresis on the 'Battery Temperature Too High' and 'Battery Temperature Too Low' alarms.					
CF36	Minimal Current For Discharging Alarm	Battery	Alarm Parameters	Ampere	0/5000 (3)	basic
	The minimal discharging current to set the 'Battery On Discharge' alarm.					
CF37	Current Hysteresis For Discharging Alarm	Battery	Alarm Parameters	Ampere	0/500 (1)	basic
	The hysteresis on the 'Battery On Discharge' alarm.					
CF38	Peukert Number	Battery	Autonomy		1/2 (1)	basic
	The Peukert number relates to the internal resistance of a battery and provides an indication of the expected capacity. The ideal number is 1. This value can be calculated with the formula: $(\ln(t2) - \ln(t1)) / (\ln(i1) - \ln(i2))$ where tx is the autonomy in hours at a constant discharge current of ix Amps. Often, we use t1 = 1h and t2 = 10h					
CF39	Max Depth Of Discharge for Autonomy Estimation	Battery	Autonomy		10/100 (100)	basic

	It is generally recommended to discharge maximum 60% of the battery capacity to enhance battery lifetime. By default, 100% is used for autonomy calculation. This parameter can also be used to take into account the age of the battery					
CF70	Battery Test End Voltage	Battery	Battery Test	Volt	30/60 (46)	battery
	The voltage at which any battery test must be stopped. This value has to be higher than the LVD Disconnect voltage (CF10)					
CF71	Battery Test Discharge Ratio	Battery	Battery Test	%	0/100 (0)	battery
	The ratio of the battery capacity to discharge. If 30 is set, 30% of the battery will be discharged during the test					
CF72	Battery Test Interval	Battery	Battery Test	day	0/3000 (0)	battery
	The number of days between two automatically started battery test. If this parameter is set to 0, the battery test is not started automatically. The user can remotely or locally start or force this test.					
CF73	Battery Test Discharge Current	Battery	Battery Test	Ampere	3/5000 (1000)	battery
	The current at which the battery must be discharged during a battery test. The monitoring regulates the bus voltage in order to satisfy this condition. The load current must be of course higher than this parameter.					
CF74	Battery Test Minimal Discharge Current	Battery	Battery Test	Ampere	2/90 (2)	battery
	The battery current under which the battery test must be stopped because the load is too low.					
CF75	Battery Test Duration	Battery	Battery Test	minute	1/5000 (10)	battery
	The timeout in minute after which the battery test must be stopped.					
CF76	Battery Test Requested Minutes Without Mains Failure	Battery	Battery Test	minute	0/5000 (1440)	battery
	The minimal time in minute without mains failure in order to allow a battery start. This parameter is not taken into account when the battery test is forced.					
CF77	Battery Test Scheduler Cron Rule	Battery	Battery Test			basic
CF91	Minimal Number Of Present Rectifiers	Rectifiers	Alarm Parameters		0/100 (0)	basic
	The minimal number of rectifier which must be present. If there is less present rectifiers, the alarm 'Missing Rectifiers' is set.					
CF141	AC Voltage Low	Mains		Volt	0/240 (180)	basic
	The AC voltage under which the alarm AC Low is set.					
CF142	AC Voltage High	Mains		Volt	80/600 (250)	basic
	The AC voltage over which the alarm AC High is set.					
CF143	AC Voltage Hysteresis	Mains		Volt	0/40 (5)	basic
	The AC voltage hysteresis on alarms AC High and AC Low.					
CF151	Bus Voltage Variable Pointer	Alternate Regulation Pointer Settings				basic
	PLC Pointer to variable related to Bus Voltage					
CF152	Battery Temperature Variable Pointer	Alternate Regulation Pointer Settings				basic
	PLC Pointer to variable related to Battery Temperature					
CF251	Shunt 1 Rating At 60mV	Adio 2	Shunt 1	Ampere		basic
	The rating of the shunt 1 at 60mV.					
CF252	Shunt 2 Rating At 60mV	Adio 2	Shunt 2	Ampere		basic
	The rating of the shunt 2 at 60mV.					

CF253	Digital Input 1 Name	Adio 2	Digital Input 1		Adio 2	basic
	The name of the digital input 1.					
CF254	Digital Input 1 Normally Closed	Adio 2	Digital Input 1		True/False (True)	basic
	True/False value defining if the digital input 1 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF255	Digital Input 2 Name	Adio 2	Digital Input 2		Adio 2	basic
	The name of the digital input 2.					
CF256	Digital Input 2 Normally Closed	Adio 2	Digital Input 2		True/False (True)	basic
	True/False value defining if the digital input 2 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF257	Digital Input 3 Name	Adio 2	Digital Input 3		Adio 2	basic
	The name of the digital input 3.					
CF258	Digital Input 3 Normally Closed	Adio 2	Digital Input 3		True/False (True)	basic
	True/False value defining if the digital input 3 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF259	Digital Input 4 Name	Adio 2	Digital Input 4		Adio 2	basic
	The name of the digital input 4.					
CF260	Digital Input 4 Normally Closed	Adio 2	Digital Input 4		True/False (True)	basic
	True/False value defining if the digital input 4 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF261	Digital Input 5 Name	Adio 2	Digital Input 5		Adio 2	basic
	The name of the digital input 5.					
CF262	Digital Input 5 Normally Closed	Adio 2	Digital Input 5		True/False (True)	basic
	True/False value defining if the digital input 5 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF263	Digital Input 6 Name	Adio 2	Digital Input 6		Adio 2	basic
	The name of the digital input 6.					
CF264	Digital Input 6 Normally Closed	Adio 2	Digital Input 6		True/False (True)	basic
	True/False value defining if the digital input 6 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF265	Digital Input 7 Name	Adio 2	Digital Input 7		Adio 2	basic
	The name of the digital input 7.					
CF266	Digital Input 7 Normally Closed	Adio 2	Digital Input 7		True/False (True)	basic
	True/False value defining if the digital input 7 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF267	Digital Input 8 Name	Adio 2	Digital Input 8		Adio 2	basic
	The name of the digital input 8.					
CF268	Digital Input 8 Normally Closed	Adio 2	Digital Input 8		True/False (True)	basic
	True/False value defining if the digital input 8 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF269	Relay 1 Change State Boolean Condition	Adio 2	Relay 1		(False)	basic
	Relay 1 Boolean Condition					

CF270	Relay 1 Normal State	Adio 2	Relay 1		(Energized / De-energized)	basic
	Relay 1 Normal State					
CF271	Relay 2 Change State Boolean Condition	Adio 2	Relay 2		(False)	basic
	Relay 2 Boolean Condition					
CF272	Relay 2 Normal State	Adio 2	Relay 2		(Energized / De-energized)	basic
	Relay 2 Normal State					
CF273	Relay 3 Change State Boolean Condition	Adio 2	Relay 3		(False)	basic
	Relay 3 Boolean Condition					
CF274	Relay 3 Normal State	Adio 2	Relay 3		(Energized / De-energized)	basic
	Relay 3 Normal State					
CF275	Relay 4 Change State Boolean Condition	Adio 2	Relay 4		(False)	basic
	Relay 4 Boolean Condition					
CF276	Relay 4 Normal State	Adio 2	Relay 4		(Energized / De-energized)	basic
	Relay 4 Normal State					
CF277	Relay 5 Change State Boolean Condition	Adio 2	Relay 5		(False)	basic
	Relay 5 Boolean Condition					
CF278	Relay 5 Normal State	Adio 2	Relay 5		(Energized / De-energized)	basic
	Relay 5 Normal State					
CF279	Relay 6 Change State Boolean Condition	Adio 2	Relay 6		(False)	basic
	Relay 6 Boolean Condition					
CF280	Relay 6 Normal State	Adio 2	Relay 6		(Energized / De-energized)	basic
	Relay 6 Normal State					
CF281	Relay 7 Change State Boolean Condition	Adio 2	Relay 7		(False)	basic
	Relay 7 Boolean Condition					
CF282	Relay 7 Normal State	Adio 2	Relay 7		(Energized / De-energized)	basic
	Relay 7 Normal State					
CF283	Relay 8 Change State Boolean Condition	Adio 2	Relay 8		(False)	basic
	Relay 8 Boolean Condition					
CF284	Relay 8 Normal State	Adio 2	Relay 8		(Energized / De-energized)	basic
	Relay 8 Normal State					
CF285	Default Output Relay Binary Vector	Adio 2			(0b11111111)	basic
	This configuration is stored inside the module in case of communication failure					
CF521	Read Access User Numbers	Generic	Allowed Users		(1,2,3,4,5)	basic
	The list of the user numbers which have read access to this equipment. The user numbers are coma separated. The accepted user id are 1,2,3,4 and 5. Ex: 1,3,4					

CF522	Write Access User Numbers	Generic	Allowed Users		()	basic
	The list of the user numbers which have write access to this equipment. This means that these users can modify the configuration element, the alarm settings and use the control elements. The user numbers are coma separated. The accepted user ids are 1,2,3,4 and 5. Ex: 1,3,4					
CF601	Event Table Length	Generic	Events		10/4000 (100)	basic
	The maximum length of the table. The value must be comprised between 10 and 4000					
CF901	Number Of PLC Data	PLC			(0)	plc
	The number of PLC data. Every equipment can manage up to 30 user programmable data. Data elements are automatically added in the data table. Configuration parameters are added to set the PLC Data Name and the PLC Data Mathematical calculation. In order to use these functionalities, you need a license with the 'PLC' module					
CF902	Number Of PLC Alarm	PLC			(0)	plc
	The number of PLC alarm. Every equipment can manage up to 30 user programmable alarms. Alarm elements are automatically added in the alarm table. The alarm parameters are added to set the PLC Alarm Name and the PLC Alarm Boolean condition. In order to use these functionalities, you need a licence with the 'PLC' module					

Control Table				
<i>Id</i>	<i>Name</i>	<i>Group</i>	<i>SubGroup</i>	<i>License</i>
CT1	Back To Float	DC Mode		basic
	The dc system must go back in floating mode.			
CT2	Start Battery Test	DC Mode		battery
	The dc system must start a battery test. It will be canceled if the system is not in float mode or if the number of minutes Since Last Ac Fail End is less than the configured minimum time without mains failure			
CT3	Force Battery Test	DC Mode		battery
	The dc system must force a battery test.			
CT4	Start Equalize Mode	DC Mode		battery
	The dc system must go in equalize mode.			
CT251	Calibrate V1	Adio 2		basic
CT252	Calibrate V2	Adio 2		basic
CT253	Calibrate V3	Adio 2		basic
CT254	Calibrate V4	Adio 2		basic
CT269	Invert Relay 1 State For X Seconds	Adio 2	Relay 1	basic
	Generate Pulse on relay			
CT271	Invert Relay 2 State For X Seconds	Adio 2	Relay 2	basic
	Generate Pulse on relay			
CT273	Invert Relay 3 State For X Seconds	Adio 2	Relay 3	basic
	Generate Pulse on relay			
CT275	Invert Relay 4 State For X Seconds	Adio 2	Relay 4	basic
	Generate Pulse on relay			
CT277	Invert Relay 5 State For X Seconds	Adio 2	Relay 5	basic
	Generate Pulse on relay			
CT279	Invert Relay 6 State For X Seconds	Adio 2	Relay 6	basic
	Generate Pulse on relay			
CT281	Invert Relay 7 State For X Seconds	Adio 2	Relay 7	basic

	Generate Pulse on relay			
CT283	Invert Relay 8 State For X Seconds	Adio 2	Relay 8	basic
	Generate Pulse on relay			
CT501	Clear My Events	Generic	Events	basic
	By writing '1' to this control element, all the events of this equipment will be cleared.			
CT502	Clear All Events	Generic	Events	basic
	By writing '1' to this control element, all the events of this equipment and all the events of all the sub-equipments will be cleared.			
CT511	Add Event	Generic	Events	basic
	This control element adds an event of severity none. The event name is the text written to this control element			
CT512	Add Major Event	Generic	Events	basic
	This control element adds an event of severity major. The event name is the text written to this control element			
CT521	Reset Default Names And Groups	Generic	Renaming	basic
	This control element resets all the element Names, Groups and Subgroups to default values for this equipment			
CT522	Reset Default Names And Groups Recursive	Generic	Renaming	basic
	This control element resets all the element Names, Groups and Subgroups to default values for this equipment and all sub equipments			

15.3 Rectifier Tables

15.3.1 CAR0548TN

Device Information	
Name	CAR0548TN
Short Description	500W switched mode rectifier
Long Description	500W switched mode rectifier, -48Vdc fixed output
Hardware Reference	9411 010 55001
Software Reference	NO SOFT
Equipment Type	Rectifier
ETSI Level	/site/energy_system/dc_system/rectifier

Alarm Table					
<i>Id</i>	<i>Name</i>	<i>Group</i>	<i>SubGroup</i>	<i>Severity Type (Level)</i>	<i>Set/Clear Delay</i>
AL1	AC Failure			major (0)	5 / 2
	The rectifier is in AC Failure.				
AL2	DC Failure			major (0)	5 / 2
	The rectifier must be replaced because of a DC Failure.				
AL3	Over Temperature			major (0)	5 / 2
	The rectifier is too warm.				
AL4	Remote Off			warning (0)	5 / 2

	The rectifier is in remote off.				
AL7	Communication Error			warning (0)	5 / 2
	The Communication With the rectifier has been lost.				

Data Table					
<i>Id</i>	<i>Name</i>	<i>Group</i>	<i>SubGroup</i>	<i>Unit</i>	<i>License</i>
DA1	Output Current	Output		Ampere	basic
	The current delivered by the rectifier				
DA2	Output Power	Output		Watt	basic
	The power delivered by the rectifier				
DA3	Output Voltage	Output		Volt	basic
	The output voltage of the rectifier				
DA4	Output Current Max	Output		Ampere	basic
	The maximal current deliverable by the rectifier. This takes into account the derating for CAN capable rectifiers.				
DA5	Output Power Max	Output		Watt	basic
	The maximal power deliverable by the rectifier. This takes into account the derating for CAN capable rectifiers.				

15.3.2 CAR0948TN-1A / CAR0948TN-2A

Device Information	
Name	CAR0948TN-1A / CAR0948TN-2A
Short Description	850W switched mode rectifier / 850W switched mode rectifier
Long Description	850W switched mode rectifier, -48Vdc fixed output / 850W switched mode rectifier, -48Vdc fixed output. - non standard front plate
Hardware Reference	9411 010 95001 / 9411 010 95011
Software Reference	SOFT 000092 XX
Equipment Type	Rectifier
ETSI Level	/site/energy_system/dc_system/rectifier

Description Table				
<i>Id</i>	<i>Name</i>	<i>Group</i>	<i>SubGroup</i>	<i>License</i>
DE1	Product Name	Product Info		asset
	The rectifier product name (With CAN capable rectifiers)			
DE2	Hardware Reference	Product Info		asset
	The rectifier hardware reference. This corresponds to the Alpha Innovations 12NC (With CAN capable rectifiers)			
DE3	Hardware Revision	Product Info		asset
	The rectifier hardware revision. (With CAN capable Rectifiers)			
DE4	Software Reference	Product Info		asset
	The rectifier software reference. This corresponds to the Alpha Innovations 12NC (With CAN capable rectifiers)			
DE6	Serial Number	Product Info		asset
	The rectifier serial number - Wb (With CAN capable rectifiers)			
DE8	Manufacturing Date	Product Info		asset
	The rectifier production date (With CAN capable rectifiers)			

DE21	CAN Node Id	CAN Bus		basic
	The CAN Bus Node ID			

Alarm Table					
<i>Id</i>	<i>Name</i>	<i>Group</i>	<i>SubGroup</i>	<i>Severity Type (Level)</i>	<i>Set/Clear Delay</i>
AL1	AC Failure			major (0)	5 / 2
	The rectifier is in AC Failure.				
AL2	DC Failure			major (0)	5 / 2
	The rectifier must be replaced because of a DC Failure.				
AL3	Over Temperature			major (0)	5 / 2
	The rectifier is too warm.				
AL4	Remote Off			warning (0)	5 / 2
	The rectifier is in remote off.				
AL7	Communication Error			warning (0)	5 / 2
	The Communication With the rectifier has been lost.				
AL10	AC High			minor (0)	5 / 2
	The AC input in too high				
AL11	Short Error			major (0)	5 / 2
	A short circuit is present on the bus				
AL12	Fan Error			major (0)	5 / 2
	The FAN is defect				
AL13	Derating Error			major (0)	5 / 2
	The rectifier is in derating				
AL14	AC Derating			major (0)	5 / 2
	The rectifier is in AC derating				
AL15	Thermal Derating			major (0)	5 / 2
	The rectifier is in thermal derating				

Data Table					
<i>Id</i>	<i>Name</i>	<i>Group</i>	<i>SubGroup</i>	<i>Unit</i>	<i>License</i>
DA1	Output Current	Output		Ampere	basic
	The current delivered by the rectifier				
DA2	Output Power	Output		Watt	basic
	The power delivered by the rectifier				
DA3	Output Voltage	Output		Volt	basic
	The output voltage of the rectifier				
DA4	Output Current Max	Output		Ampere	basic
	The maximal current deliverable by the rectifier. This takes into account the derating for CAN capable rectifiers.				
DA5	Output Power Max	Output		Watt	basic
	The maximal power deliverable by the rectifier. This takes into account the derating for CAN capable rectifiers.				
DA11	Input Voltage	Input		Volt	asset
	The rectifier AC Input voltage (For CAN capable rectifiers)				
DA12	Temperature	General		degree C	asset

	The rectifier temperature (For CAN capable rectifiers)				
DA13	Fan Speed	General		RPM	asset
	The rectifier FAN Speed in RPM. (For CAN capable rectifiers)				
DA14	Power Rating	General		%	asset
	The rectifier power rating (For CAN capable rectifiers)				
DA15	Service Time	General		second	asset
	The rectifier total service time, in second (For CAN capable rectifiers)				
DA16	Thermal Aging Time	General		second	asset
	The rectifier thermal aging time, in second (For CAN capable rectifiers)				
DA17	Converted Energy	General		kJ	asset
	The total energy converted by the rectifier since the production. (For CAN capable rectifiers)				

15.3.3 CAR0948TN-3A

Device Information	
Name	CAR0948TN-3A
Short Description	850W switched mode rectifier, AC & DC input
Long Description	850W switched mode rectifier, -48Vdc fixed output, AC and DC input
Hardware Reference	9411 010 95031
Software Reference	SOFT 000084 XX
Equipment Type	Rectifier
ETSI Level	/site/energy_system/dc_system/rectifier

Description Table				
<i>Id</i>	<i>Name</i>	<i>Group</i>	<i>SubGroup</i>	<i>License</i>
DE1	Product Name	Product Info		asset
	The rectifier product name (With CAN capable rectifiers)			
DE2	Hardware Reference	Product Info		asset
	The rectifier hardware reference. This corresponds to the Alpha Innovations 12NC (With CAN capable rectifiers)			
DE3	Hardware Revision	Product Info		asset
	The rectifier hardware revision. (With CAN capable Rectifiers)			
DE4	Software Reference	Product Info		asset
	The rectifier software reference. This corresponds to the Alpha Innovations 12NC (With CAN capable rectifiers)			
DE6	Serial Number	Product Info		asset
	The rectifier serial number - Wb (With CAN capable rectifiers)			
DE8	Manufacturing Date	Product Info		asset
	The rectifier production date (With CAN capable rectifiers)			
DE21	CAN Node Id	CAN Bus		basic
	The CAN Bus Node ID			

Alarm Table					
<i>Id</i>	<i>Name</i>	<i>Group</i>	<i>SubGroup</i>	<i>Severity Type (Level)</i>	<i>Set/Clear Delay</i>
AL1	AC Failure			major (0)	5 / 2
	The rectifier is in AC Failure.				

AL2	DC Failure			major (0)	5 / 2
	The rectifier must be replaced because of a DC Failure.				
AL3	Over Temperature			major (0)	5 / 2
	The rectifier is too warm.				
AL4	Remote Off			warning (0)	5 / 2
	The rectifier is in remote off.				
AL7	Communication Error			warning (0)	5 / 2
	The Communication With the rectifier has been lost.				
AL10	AC High			minor (0)	5 / 2
	The AC input in too high				
AL11	Short Error			major (0)	5 / 2
	A short circuit is present on the bus				
AL12	Fan Error			major (0)	5 / 2
	The FAN is defect				
AL13	Derating Error			major (0)	5 / 2
	The rectifier is in derating				
AL14	AC Derating			major (0)	5 / 2
	The rectifier is in AC derating				
AL15	Thermal Derating			major (0)	5 / 2
	The rectifier is in thermal derating				

Data Table					
<i>Id</i>	<i>Name</i>	<i>Group</i>	<i>SubGroup</i>	<i>Unit</i>	<i>License</i>
DA1	Output Current	Output		Ampere	basic
	The current delivered by the rectifier				
DA2	Output Power	Output		Watt	basic
	The power delivered by the rectifier				
DA3	Output Voltage	Output		Volt	basic
	The output voltage of the rectifier				
DA4	Output Current Max	Output		Ampere	basic
	The maximal current deliverable by the rectifier. This takes into account the derating for CAN capable rectifiers.				
DA5	Output Power Max	Output		Watt	basic
	The maximal power deliverable by the rectifier. This takes into account the derating for CAN capable rectifiers.				
DA11	Input Voltage	Input		Volt	asset
	The rectifier AC Input voltage (For CAN capable rectifiers)				
DA12	Temperature	General		degree C	asset
	The rectifier temperature (For CAN capable rectifiers)				
DA13	Fan Speed	General		RPM	asset
	The rectifier FAN Speed in RPM. (For CAN capable rectifiers)				
DA14	Power Rating	General		%	asset
	The rectifier power rating (For CAN capable rectifiers)				
DA15	Service Time	General		second	asset
	The rectifier total service time, in second (For CAN capable rectifiers)				
DA16	Thermal Aging Time	General		second	asset
	The rectifier thermal aging time, in second (For CAN capable rectifiers)				

DA17	Converted Energy	General		kJ	asset
	The total energy converted by the rectifier since the production. (For CAN capable rectifiers)				

15.3.4 CAR1024TP

Device Information	
Name	CAR1024TP
Short Description	1000W switched mode rectifier
Long Description	1000W switched mode rectifier, +24Vdc fixed output
Hardware Reference	9411 011 02001
Software Reference	NO SOFT
Equipment Type	Rectifier
ETSI Level	/site/energy_system/dc_system/rectifier

Alarm Table					
<i>Id</i>	<i>Name</i>	<i>Group</i>	<i>SubGroup</i>	<i>Severity Type (Level)</i>	<i>Set/Clear Delay</i>
AL1	AC Failure			major (0)	5 / 2
	The rectifier is in AC Failure.				
AL2	DC Failure			major (0)	5 / 2
	The rectifier must be replaced because of a DC Failure.				
AL3	Over Temperature			major (0)	5 / 2
	The rectifier is too warm.				
AL4	Remote Off			warning (0)	5 / 2
	The rectifier is in remote off.				
AL7	Communication Error			warning (0)	5 / 2
	The Communication With the rectifier has been lost.				

Data Table					
<i>Id</i>	<i>Name</i>	<i>Group</i>	<i>SubGroup</i>	<i>Unit</i>	<i>License</i>
DA1	Output Current	Output		Ampere	basic
	The current delivered by the rectifier				
DA2	Output Power	Output		Watt	basic
	The power delivered by the rectifier				
DA3	Output Voltage	Output		Volt	basic
	The output voltage of the rectifier				
DA4	Output Current Max	Output		Ampere	basic
	The maximal current deliverable by the rectifier. This takes into account the derating for CAN capable rectifiers.				
DA5	Output Power Max	Output		Watt	basic
	The maximal power deliverable by the rectifier. This takes into account the derating for CAN capable rectifiers.				

15.3.5 CAR1048TN-1A

Device Information	
Name	CAR1048TN-1A
Short Description	1000W switched mode rectifier
Long Description	1000W switched mode rectifier, -48Vdc fixed output
Hardware Reference	9411 011 05001
Software Reference	SOFT 000067 XX
Equipment Type	Rectifier
ETSI Level	/site/energy_system/dc_system/rectifier

Description Table				
<i>Id</i>	<i>Name</i>	<i>Group</i>	<i>SubGroup</i>	<i>License</i>
DE1	Product Name	Product Info		asset
	The rectifier product name (With CAN capable rectifiers)			
DE2	Hardware Reference	Product Info		asset
	The rectifier hardware reference. This corresponds to the Alpha Innovations 12NC (With CAN capable rectifiers)			
DE3	Hardware Revision	Product Info		asset
	The rectifier hardware revision. (With CAN capable Rectifiers)			
DE4	Software Reference	Product Info		asset
	The rectifier software reference. This corresponds to the Alpha Innovations 12NC (With CAN capable rectifiers)			
DE6	Serial Number	Product Info		asset
	The rectifier serial number - Wb (With CAN capable rectifiers)			
DE8	Manufacturing Date	Product Info		asset
	The rectifier production date (With CAN capable rectifiers)			
DE21	CAN Node Id	CAN Bus		basic
	The CAN Bus Node ID			

Alarm Table					
<i>Id</i>	<i>Name</i>	<i>Group</i>	<i>SubGroup</i>	<i>Severity Type (Level)</i>	<i>Set/Clear Delay</i>
AL1	AC Failure			major (0)	5 / 2
	The rectifier is in AC Failure.				
AL2	DC Failure			major (0)	5 / 2
	The rectifier must be replaced because of a DC Failure.				
AL3	Over Temperature			major (0)	5 / 2
	The rectifier is too warm.				
AL4	Remote Off			warning (0)	5 / 2
	The rectifier is in remote off.				
AL7	Communication Error			warning (0)	5 / 2
	The Communication With the rectifier has been lost.				
AL10	AC High			minor (0)	5 / 2
	The AC input in too high				
AL11	Short Error			major (0)	5 / 2

	A short circuit is present on the bus				
AL12	Fan Error			major (0)	5 / 2
	The FAN is defect				
AL13	Derating Error			major (0)	5 / 2
	The rectifier is in derating				
AL14	AC Derating			major (0)	5 / 2
	The rectifier is in AC derating				
AL15	Thermal Derating			major (0)	5 / 2
	The rectifier is in thermal derating				

Data Table					
<i>Id</i>	<i>Name</i>	<i>Group</i>	<i>SubGroup</i>	<i>Unit</i>	<i>License</i>
DA1	Output Current	Output		Ampere	basic
	The current delivered by the rectifier				
DA2	Output Power	Output		Watt	basic
	The power delivered by the rectifier				
DA3	Output Voltage	Output		Volt	basic
	The output voltage of the rectifier				
DA4	Output Current Max	Output		Ampere	basic
	The maximal current deliverable by the rectifier. This takes into account the derating for CAN capable rectifiers.				
DA5	Output Power Max	Output		Watt	basic
	The maximal power deliverable by the rectifier. This takes into account the derating for CAN capable rectifiers.				
DA11	Input Voltage	Input		Volt	asset
	The rectifier AC Input voltage (For CAN capable rectifiers)				
DA12	Temperature	General		degree C	asset
	The rectifier temperature (For CAN capable rectifiers)				
DA13	Fan Speed	General		RPM	asset
	The rectifier FAN Speed in RPM. (For CAN capable rectifiers)				
DA14	Power Rating	General		%	asset
	The rectifier power rating (For CAN capable rectifiers)				
DA15	Service Time	General		second	asset
	The rectifier total service time, in second (For CAN capable rectifiers)				
DA16	Thermal Aging Time	General		second	asset
	The rectifier thermal aging time, in second (For CAN capable rectifiers)				
DA17	Converted Energy	General		kJ	asset
	The total energy converted by the rectifier since the production. (For CAN capable rectifiers)				

15.3.6 CAR1048TN-2A

Device Information	
Name	CAR1048TN-2A
Short Description	1000W switched mode rectifier, AC & DC input
Long Description	1000W switched mode rectifier, -48Vdc fixed output, AC & DC input
Hardware Reference	9411 011 05021
Software Reference	SOFT 000083 XX
Equipment Type	Rectifier

ETSI Level	/site/energy_system/dc_system/rectifier

Description Table				
<i>Id</i>	<i>Name</i>	<i>Group</i>	<i>SubGroup</i>	<i>License</i>
DE1	Product Name	Product Info		asset
	The rectifier product name (With CAN capable rectifiers)			
DE2	Hardware Reference	Product Info		asset
	The rectifier hardware reference. This corresponds to the Alpha Innovations 12NC (With CAN capable rectifiers)			
DE3	Hardware Revision	Product Info		asset
	The rectifier hardware revision. (With CAN capable Rectifiers)			
DE4	Software Reference	Product Info		asset
	The rectifier software reference. This corresponds to the Alpha Innovations 12NC (With CAN capable rectifiers)			
DE6	Serial Number	Product Info		asset
	The rectifier serial number - Wb (With CAN capable rectifiers)			
DE8	Manufacturing Date	Product Info		asset
	The rectifier production date (With CAN capable rectifiers)			
DE21	CAN Node Id	CAN Bus		basic
	The CAN Bus Node ID			

Alarm Table					
<i>Id</i>	<i>Name</i>	<i>Group</i>	<i>SubGroup</i>	<i>Severity Type (Level)</i>	<i>Set/Clear Delay</i>
AL1	AC Failure			major (0)	5 / 2
	The rectifier is in AC Failure.				
AL2	DC Failure			major (0)	5 / 2
	The rectifier must be replaced because of a DC Failure.				
AL3	Over Temperature			major (0)	5 / 2
	The rectifier is too warm.				
AL4	Remote Off			warning (0)	5 / 2
	The rectifier is in remote off.				
AL7	Communication Error			warning (0)	5 / 2
	The Communication With the rectifier has been lost.				
AL10	AC High			minor (0)	5 / 2
	The AC input in too high				
AL11	Short Error			major (0)	5 / 2
	A short circuit is present on the bus				
AL12	Fan Error			major (0)	5 / 2
	The FAN is defect				
AL13	Derating Error			major (0)	5 / 2
	The rectifier is in derating				
AL14	AC Derating			major (0)	5 / 2
	The rectifier is in AC derating				
AL15	Thermal Derating			major (0)	5 / 2
	The rectifier is in thermal derating				

Data Table					
<i>Id</i>	<i>Name</i>	<i>Group</i>	<i>SubGroup</i>	<i>Unit</i>	<i>License</i>
DA1	Output Current	Output		Ampere	basic
	The current delivered by the rectifier				
DA2	Output Power	Output		Watt	basic
	The power delivered by the rectifier				
DA3	Output Voltage	Output		Volt	basic
	The output voltage of the rectifier				
DA4	Output Current Max	Output		Ampere	basic
	The maximal current deliverable by the rectifier. This takes into account the derating for CAN capable rectifiers.				
DA5	Output Power Max	Output		Watt	basic
	The maximal power deliverable by the rectifier. This takes into account the derating for CAN capable rectifiers.				
DA11	Input Voltage	Input		Volt	asset
	The rectifier AC Input voltage (For CAN capable rectifiers)				
DA12	Temperature	General		degree C	asset
	The rectifier temperature (For CAN capable rectifiers)				
DA13	Fan Speed	General		RPM	asset
	The rectifier FAN Speed in RPM. (For CAN capable rectifiers)				
DA14	Power Rating	General		%	asset
	The rectifier power rating (For CAN capable rectifiers)				
DA15	Service Time	General		second	asset
	The rectifier total service time, in second (For CAN capable rectifiers)				
DA16	Thermal Aging Time	General		second	asset
	The rectifier thermal aging time, in second (For CAN capable rectifiers)				
DA17	Converted Energy	General		kJ	asset
	The total energy converted by the rectifier since the production. (For CAN capable rectifiers)				

15.3.7 CAR1548TN

Device Information	
Name	CAR1548TN
Short Description	1500W switched mode rectifier
Long Description	1500W switched mode rectifier, -48Vdc fixed output
Hardware Reference	9411 011 55001
Software Reference	NO SOFT
Equipment Type	Rectifier
ETSI Level	/site/energy_system/dc_system/rectifier

Alarm Table					
<i>Id</i>	<i>Name</i>	<i>Group</i>	<i>SubGroup</i>	<i>Severity Type (Level)</i>	<i>Set/Clear Delay</i>
AL1	AC Failure			major (0)	5 / 2
	The rectifier is in AC Failure.				
AL2	DC Failure			major (0)	5 / 2

	The rectifier must be replaced because of a DC Failure.				
AL3	Over Temperature			major (0)	5 / 2
	The rectifier is too warm.				
AL4	Remote Off			warning (0)	5 / 2
	The rectifier is in remote off.				
AL7	Communication Error			warning (0)	5 / 2
	The Communication With the rectifier has been lost.				

Data Table					
<i>Id</i>	<i>Name</i>	<i>Group</i>	<i>SubGroup</i>	<i>Unit</i>	<i>License</i>
DA1	Output Current	Output		Ampere	basic
	The current delivered by the rectifier				
DA2	Output Power	Output		Watt	basic
	The power delivered by the rectifier				
DA3	Output Voltage	Output		Volt	basic
	The output voltage of the rectifier				
DA4	Output Current Max	Output		Ampere	basic
	The maximal current deliverable by the rectifier. This takes into account the derating for CAN capable rectifiers.				
DA5	Output Power Max	Output		Watt	basic
	The maximal power deliverable by the rectifier. This takes into account the derating for CAN capable rectifiers.				

15.3.8 CAR1848TN-1A

Device Information	
Name	CAR1848TN-1A
Short Description	1800W switched mode rectifier
Long Description	1800W switched mode rectifier, -48Vdc fixed output
Hardware Reference	9411 011 85001
Software Reference	NO SOFT
Equipment Type	Rectifier
ETSI Level	/site/energy_system/dc_system/rectifier

Alarm Table					
<i>Id</i>	<i>Name</i>	<i>Group</i>	<i>SubGroup</i>	<i>Severity Type (Level)</i>	<i>Set/Clear Delay</i>
AL1	AC Failure			major (0)	5 / 2
	The rectifier is in AC Failure.				
AL2	DC Failure			major (0)	5 / 2
	The rectifier must be replaced because of a DC Failure.				
AL3	Over Temperature			major (0)	5 / 2
	The rectifier is too warm.				
AL4	Remote Off			warning (0)	5 / 2

	The rectifier is in remote off.				
AL7	Communication Error			warning (0)	5 / 2
	The Communication With the rectifier has been lost.				

Data Table					
<i>Id</i>	<i>Name</i>	<i>Group</i>	<i>SubGroup</i>	<i>Unit</i>	<i>License</i>
DA1	Output Current	Output		Ampere	basic
	The current delivered by the rectifier				
DA2	Output Power	Output		Watt	basic
	The power delivered by the rectifier				
DA3	Output Voltage	Output		Volt	basic
	The output voltage of the rectifier				
DA4	Output Current Max	Output		Ampere	basic
	The maximal current deliverable by the rectifier. This takes into account the derating for CAN capable rectifiers.				
DA5	Output Power Max	Output		Watt	basic
	The maximal power deliverable by the rectifier. This takes into account the derating for CAN capable rectifiers.				

15.3.9 CAR1848TN-2A

Device Information	
Name	CAR1848TN-2A
Short Description	1800W switched mode rectifier extended input range
Long Description	1800W switched mode rectifier, -48Vdc fixed output, 150-280Vac input
Hardware Reference	9411 011 85011
Software Reference	NO SOFT
Equipment Type	Rectifier
ETSI Level	/site/energy_system/dc_system/rectifier

Alarm Table					
<i>Id</i>	<i>Name</i>	<i>Group</i>	<i>SubGroup</i>	<i>Severity Type (Level)</i>	<i>Set/Clear Delay</i>
AL1	AC Failure			major (0)	5 / 2
	The rectifier is in AC Failure.				
AL2	DC Failure			major (0)	5 / 2
	The rectifier must be replaced because of a DC Failure.				
AL3	Over Temperature			major (0)	5 / 2
	The rectifier is too warm.				
AL4	Remote Off			warning (0)	5 / 2
	The rectifier is in remote off.				
AL7	Communication Error			warning (0)	5 / 2
	The Communication With the rectifier has been lost.				

Data Table					
<i>Id</i>	<i>Name</i>	<i>Group</i>	<i>SubGroup</i>	<i>Unit</i>	<i>License</i>
DA1	Output Current	Output		Ampere	basic
	The current delivered by the rectifier				
DA2	Output Power	Output		Watt	basic
	The power delivered by the rectifier				
DA3	Output Voltage	Output		Volt	basic
	The output voltage of the rectifier				
DA4	Output Current Max	Output		Ampere	basic
	The maximal current deliverable by the rectifier. This takes into account the derating for CAN capable rectifiers.				
DA5	Output Power Max	Output		Watt	basic
	The maximal power deliverable by the rectifier. This takes into account the derating for CAN capable rectifiers.				

15.3.10 CAR2648TN

Device Information	
Name	CAR2648TN
Short Description	1800W switched mode rectifier extended input range
Long Description	1800W switched mode rectifier, -48Vdc fixed output, 150-280Vac input
Hardware Reference	9411 012 65001
Software Reference	SOFT 000075 XX
Equipment Type	Rectifier
ETSI Level	/site/energy_system/dc_system/rectifier

Alarm Table					
<i>Id</i>	<i>Name</i>	<i>Group</i>	<i>SubGroup</i>	<i>Severity Type (Level)</i>	<i>Set/Clear Delay</i>
AL1	AC Failure			major (0)	5 / 2
	The rectifier is in AC Failure.				
AL2	DC Failure			major (0)	5 / 2
	The rectifier must be replaced because of a DC Failure.				
AL3	Over Temperature			major (0)	5 / 2
	The rectifier is too warm.				
AL4	Remote Off			warning (0)	5 / 2
	The rectifier is in remote off.				
AL7	Communication Error			warning (0)	5 / 2
	The Communication With the rectifier has been lost.				

Data Table					
<i>Id</i>	<i>Name</i>	<i>Group</i>	<i>SubGroup</i>	<i>Unit</i>	<i>License</i>
DA1	Output Current	Output		Ampere	basic

	The current delivered by the rectifier				
DA2	Output Power	Output		Watt	basic
	The power delivered by the rectifier				
DA3	Output Voltage	Output		Volt	basic
	The output voltage of the rectifier				
DA4	Output Current Max	Output		Ampere	basic
	The maximal current deliverable by the rectifier. This takes into account the derating for CAN capable rectifiers.				
DA5	Output Power Max	Output		Watt	basic
	The maximal power deliverable by the rectifier. This takes into account the derating for CAN capable rectifiers.				

15.3.11 CAR30110TP

Device Information	
Name	CAR30110TP
Short Description	3000W +110V switched mode rectifier
Long Description	3000W switched mode rectifier, +110Vdc fixed output
Hardware Reference	9411 013 07001
Software Reference	SOFT 000065 XX
Equipment Type	Rectifier
ETSI Level	/site/energy_system/dc_system/rectifier

Description Table				
<i>Id</i>	<i>Name</i>	<i>Group</i>	<i>SubGroup</i>	<i>License</i>
DE1	Product Name	Product Info		asset
	The rectifier product name (With CAN capable rectifiers)			
DE2	Hardware Reference	Product Info		asset
	The rectifier hardware reference. This corresponds to the Alpha Innovations 12NC (With CAN capable rectifiers)			
DE3	Hardware Revision	Product Info		asset
	The rectifier hardware revision. (With CAN capable Rectifiers)			
DE4	Software Reference	Product Info		asset
	The rectifier software reference. This corresponds to the Alpha Innovations 12NC (With CAN capable rectifiers)			
DE6	Serial Number	Product Info		asset
	The rectifier serial number - Wb (With CAN capable rectifiers)			
DE8	Manufacturing Date	Product Info		asset
	The rectifier production date (With CAN capable rectifiers)			
DE21	CAN Node Id	CAN Bus		basic
	The CAN Bus Node ID			

Alarm Table					
<i>Id</i>	<i>Name</i>	<i>Group</i>	<i>SubGroup</i>	<i>Severity Type (Level)</i>	<i>Set/Clear Delay</i>
AL1	AC Failure			major (0)	5 / 2
	The rectifier is in AC Failure.				

AL2	DC Failure			major (0)	5 / 2
	The rectifier must be replaced because of a DC Failure.				
AL3	Over Temperature			major (0)	5 / 2
	The rectifier is too warm.				
AL4	Remote Off			warning (0)	5 / 2
	The rectifier is in remote off.				
AL7	Communication Error			warning (0)	5 / 2
	The Communication With the rectifier has been lost.				
AL10	AC High			minor (0)	5 / 2
	The AC input in too high				
AL11	Short Error			major (0)	5 / 2
	A short circuit is present on the bus				
AL12	Fan Error			major (0)	5 / 2
	The FAN is defect				
AL13	Derating Error			major (0)	5 / 2
	The rectifier is in derating				
AL14	AC Derating			major (0)	5 / 2
	The rectifier is in AC derating				
AL15	Thermal Derating			major (0)	5 / 2
	The rectifier is in thermal derating				

Data Table					
<i>Id</i>	<i>Name</i>	<i>Group</i>	<i>SubGroup</i>	<i>Unit</i>	<i>License</i>
DA1	Output Current	Output		Ampere	basic
	The current delivered by the rectifier				
DA2	Output Power	Output		Watt	basic
	The power delivered by the rectifier				
DA3	Output Voltage	Output		Volt	basic
	The output voltage of the rectifier				
DA4	Output Current Max	Output		Ampere	basic
	The maximal current deliverable by the rectifier. This takes into account the derating for CAN capable rectifiers.				
DA5	Output Power Max	Output		Watt	basic
	The maximal power deliverable by the rectifier. This takes into account the derating for CAN capable rectifiers.				
DA11	Input Voltage	Input		Volt	asset
	The rectifier AC Input voltage (For CAN capable rectifiers)				
DA12	Temperature	General		degree C	asset
	The rectifier temperature (For CAN capable rectifiers)				
DA13	Fan Speed	General		RPM	asset
	The rectifier FAN Speed in RPM. (For CAN capable rectifiers)				
DA14	Power Rating	General		%	asset
	The rectifier power rating (For CAN capable rectifiers)				
DA15	Service Time	General		second	asset
	The rectifier total service time, in second (For CAN capable rectifiers)				
DA16	Thermal Aging Time	General		second	asset
	The rectifier thermal aging time, in second (For CAN capable rectifiers)				

DA17	Converted Energy	General		kJ	asset
	The total energy converted by the rectifier since the production. (For CAN capable rectifiers)				

15.3.12 CAR30125TP

Device Information	
Name	CAR30125TP
Short Description	3000W +125V switched mode rectifier
Long Description	3000W switched mode rectifier, +125Vdc fixed output
Hardware Reference	9411 013 07011
Software Reference	SOFT 000068 XX
Equipment Type	Rectifier
ETSI Level	/site/energy_system/dc_system/rectifier

Description Table				
<i>Id</i>	<i>Name</i>	<i>Group</i>	<i>SubGroup</i>	<i>License</i>
DE1	Product Name	Product Info		asset
	The rectifier product name (With CAN capable rectifiers)			
DE2	Hardware Reference	Product Info		asset
	The rectifier hardware reference. This corresponds to the Alpha Innovations 12NC (With CAN capable rectifiers)			
DE3	Hardware Revision	Product Info		asset
	The rectifier hardware revision. (With CAN capable Rectifiers)			
DE4	Software Reference	Product Info		asset
	The rectifier software reference. This corresponds to the Alpha Innovations 12NC (With CAN capable rectifiers)			
DE6	Serial Number	Product Info		asset
	The rectifier serial number - Wb (With CAN capable rectifiers)			
DE8	Manufacturing Date	Product Info		asset
	The rectifier production date (With CAN capable rectifiers)			
DE21	CAN Node Id	CAN Bus		basic
	The CAN Bus Node ID			

Alarm Table					
<i>Id</i>	<i>Name</i>	<i>Group</i>	<i>SubGroup</i>	<i>Severity Type (Level)</i>	<i>Set/Clear Delay</i>
AL1	AC Failure			major (0)	5 / 2
	The rectifier is in AC Failure.				
AL2	DC Failure			major (0)	5 / 2
	The rectifier must be replaced because of a DC Failure.				
AL3	Over Temperature			major (0)	5 / 2
	The rectifier is too warm.				
AL4	Remote Off			warning (0)	5 / 2
	The rectifier is in remote off.				
AL7	Communication Error			warning (0)	5 / 2

	The Communication With the rectifier has been lost.				
AL10	AC High			minor (0)	5 / 2
	The AC input in too high				
AL11	Short Error			major (0)	5 / 2
	A short circuit is present on the bus				
AL12	Fan Error			major (0)	5 / 2
	The FAN is defect				
AL13	Derating Error			major (0)	5 / 2
	The rectifier is in derating				
AL14	AC Derating			major (0)	5 / 2
	The rectifier is in AC derating				
AL15	Thermal Derating			major (0)	5 / 2
	The rectifier is in thermal derating				

Data Table					
<i>Id</i>	<i>Name</i>	<i>Group</i>	<i>SubGroup</i>	<i>Unit</i>	<i>License</i>
DA1	Output Current	Output		Ampere	basic
	The current delivered by the rectifier				
DA2	Output Power	Output		Watt	basic
	The power delivered by the rectifier				
DA3	Output Voltage	Output		Volt	basic
	The output voltage of the rectifier				
DA4	Output Current Max	Output		Ampere	basic
	The maximal current deliverable by the rectifier. This takes into account the derating for CAN capable rectifiers.				
DA5	Output Power Max	Output		Watt	basic
	The maximal power deliverable by the rectifier. This takes into account the derating for CAN capable rectifiers.				
DA11	Input Voltage	Input		Volt	asset
	The rectifier AC Input voltage (For CAN capable rectifiers)				
DA12	Temperature	General		degree C	asset
	The rectifier temperature (For CAN capable rectifiers)				
DA13	Fan Speed	General		RPM	asset
	The rectifier FAN Speed in RPM. (For CAN capable rectifiers)				
DA14	Power Rating	General		%	asset
	The rectifier power rating (For CAN capable rectifiers)				
DA15	Service Time	General		second	asset
	The rectifier total service time, in second (For CAN capable rectifiers)				
DA16	Thermal Aging Time	General		second	asset
	The rectifier thermal aging time, in second (For CAN capable rectifiers)				
DA17	Converted Energy	General		kJ	asset
	The total energy converted by the rectifier since the production. (For CAN capable rectifiers)				

15.3.13 CAR30300TP

Device Information	
Name	CAR30300TP
Short Description	3000W +300V switched mode rectifier

Long Description	3000W switched mode rectifier, +300Vdc fixed output
Hardware Reference	9411 013 09001
Software Reference	SOFT 000133 XX
Equipment Type	Rectifier
ETSI Level	/site/energy_system/dc_system/rectifier

Description Table				
<i>Id</i>	<i>Name</i>	<i>Group</i>	<i>SubGroup</i>	<i>License</i>
DE1	Product Name	Product Info		asset
	The rectifier product name (With CAN capable rectifiers)			
DE2	Hardware Reference	Product Info		asset
	The rectifier hardware reference. This corresponds to the Alpha Innovations 12NC (With CAN capable rectifiers)			
DE3	Hardware Revision	Product Info		asset
	The rectifier hardware revision. (With CAN capable Rectifiers)			
DE4	Software Reference	Product Info		asset
	The rectifier software reference. This corresponds to the Alpha Innovations 12NC (With CAN capable rectifiers)			
DE6	Serial Number	Product Info		asset
	The rectifier serial number - Wb (With CAN capable rectifiers)			
DE8	Manufacturing Date	Product Info		asset
	The rectifier production date (With CAN capable rectifiers)			
DE21	CAN Node Id	CAN Bus		basic
	The CAN Bus Node ID			

Alarm Table					
<i>Id</i>	<i>Name</i>	<i>Group</i>	<i>SubGroup</i>	<i>Severity Type (Level)</i>	<i>Set/Clear Delay</i>
AL1	AC Failure			major (0)	5 / 2
	The rectifier is in AC Failure.				
AL2	DC Failure			major (0)	5 / 2
	The rectifier must be replaced because of a DC Failure.				
AL3	Over Temperature			major (0)	5 / 2
	The rectifier is too warm.				
AL4	Remote Off			warning (0)	5 / 2
	The rectifier is in remote off.				
AL7	Communication Error			warning (0)	5 / 2
	The Communication With the rectifier has been lost.				
AL10	AC High			minor (0)	5 / 2
	The AC input in too high				
AL11	Short Error			major (0)	5 / 2
	A short circuit is present on the bus				
AL12	Fan Error			major (0)	5 / 2
	The FAN is defect				
AL13	Derating Error			major (0)	5 / 2
	The rectifier is in derating				

AL14	AC Derating			major (0)	5 / 2
	The rectifier is in AC derating				
AL15	Thermal Derating			major (0)	5 / 2
	The rectifier is in thermal derating				

Data Table					
<i>Id</i>	<i>Name</i>	<i>Group</i>	<i>SubGroup</i>	<i>Unit</i>	<i>License</i>
DA1	Output Current	Output		Ampere	basic
	The current delivered by the rectifier				
DA2	Output Power	Output		Watt	basic
	The power delivered by the rectifier				
DA3	Output Voltage	Output		Volt	basic
	The output voltage of the rectifier				
DA4	Output Current Max	Output		Ampere	basic
	The maximal current deliverable by the rectifier. This takes into account the derating for CAN capable rectifiers.				
DA5	Output Power Max	Output		Watt	basic
	The maximal power deliverable by the rectifier. This takes into account the derating for CAN capable rectifiers.				
DA11	Input Voltage	Input		Volt	asset
	The rectifier AC Input voltage (For CAN capable rectifiers)				
DA12	Temperature	General		degree C	asset
	The rectifier temperature (For CAN capable rectifiers)				
DA13	Fan Speed	General		RPM	asset
	The rectifier FAN Speed in RPM. (For CAN capable rectifiers)				
DA14	Power Rating	General		%	asset
	The rectifier power rating (For CAN capable rectifiers)				
DA15	Service Time	General		second	asset
	The rectifier total service time, in second (For CAN capable rectifiers)				
DA16	Thermal Aging Time	General		second	asset
	The rectifier thermal aging time, in second (For CAN capable rectifiers)				
DA17	Converted Energy	General		kJ	asset
	The total energy converted by the rectifier since the production. (For CAN capable rectifiers)				

15.3.14 CDC1548TN

Device Information	
Name	CDC1548TN
Short Description	1500W DC/DC converter 110-220Vin/48Vout
Long Description	1500W DC/DC converter 110-220Vin/48Vout
Hardware Reference	9413 000 88001
Software Reference	NO SOFT
Equipment Type	Rectifier
ETSI Level	/site/energy_system/dc_system/rectifier

Alarm Table

<i>Id</i>	<i>Name</i>	<i>Group</i>	<i>SubGroup</i>	<i>Severity Type (Level)</i>	<i>Set/Clear Delay</i>
AL1	AC Failure			major (0)	5 / 2
	The rectifier is in AC Failure.				
AL2	DC Failure			major (0)	5 / 2
	The rectifier must be replaced because of a DC Failure.				
AL3	Over Temperature			major (0)	5 / 2
	The rectifier is too warm.				
AL4	Remote Off			warning (0)	5 / 2
	The rectifier is in remote off.				
AL7	Communication Error			warning (0)	5 / 2
	The Communication With the rectifier has been lost.				

Data Table					
<i>Id</i>	<i>Name</i>	<i>Group</i>	<i>SubGroup</i>	<i>Unit</i>	<i>License</i>
DA1	Output Current	Output		Ampere	basic
	The current delivered by the rectifier				
DA2	Output Power	Output		Watt	basic
	The power delivered by the rectifier				
DA3	Output Voltage	Output		Volt	basic
	The output voltage of the rectifier				
DA4	Output Current Max	Output		Ampere	basic
	The maximal current deliverable by the rectifier. This takes into account the derating for CAN capable rectifiers.				
DA5	Output Power Max	Output		Watt	basic
	The maximal power deliverable by the rectifier. This takes into account the derating for CAN capable rectifiers.				

15.3.15 Cordex 2.4KW

Device Information	
Name	Cordex 2.4KW
Short Description	
Long Description	Rectifier Cordex 48V 2.4kW
Hardware Reference	Cordex 2.4KW
Software Reference	
Equipment Type	Rectifier
ETSI Level	/site/energy_system/dc_system/rectifier

Description Table				
<i>Id</i>	<i>Name</i>	<i>Group</i>	<i>SubGroup</i>	<i>License</i>
DE1	Product Name	Product Info		asset
	The rectifier product name			
DE4	Software Reference	Product Info		asset
	The rectifier software reference			

DE5	Serial Number	Product Info		asset
	The rectifier serial number			
DE21	CAN Node Id	CAN Bus		basic
	The CAN Bus Node ID			

Alarm Table					
<i>Id</i>	<i>Name</i>	<i>Group</i>	<i>SubGroup</i>	<i>Severity Type (Level)</i>	<i>Set/Clear Delay</i>
AL1	Rectifier Fail			major (0)	10 / 2
	The rectifier has at least one fail alarm active and is unable to output any power. It may need to be replaced.				
AL2	Rectifier Minor			minor (0)	10 / 2
	The rectifier has at least one minor alarm active and may be unable to output full power.				
AL3	AC Failure			major (0)	5 / 2
	The rectifier is in AC Failure.				
AL4	Over Temperature			major (0)	5 / 2
	The rectifier is too warm.				
AL5	Remote Off			warning (0)	10 / 2
	The rectifier is in remote off.				
AL7	Communication Error			warning (0)	5 / 2
	The Communication With the rectifier has been lost.				
AL10	Fan Error			major (0)	5 / 2
	One or more fans has stopped working				
AL11	Current Limit			warning (0)	5 / 2
	The rectifier output current is at the maximum.				
AL12	Power Limit			warning (0)	5 / 2
	The rectifier output power is at the maximum.				

Data Table					
<i>Id</i>	<i>Name</i>	<i>Group</i>	<i>SubGroup</i>	<i>Unit</i>	<i>License</i>
DA1	Output Current	Output		Ampere	basic
	The current delivered by the rectifier				
DA3	Output Voltage	Output		Volt	basic
	The output voltage of the rectifier				
DA7	Power Ratio	Output		%	basic
	This is the ratio power/available power				
DA8	Rectifier Mode	Mode			basic
	The internal mode of the rectifier				
DA11	Input Voltage	Input		Volt	asset
	The rectifier AC Input voltage (For CAN capable rectifiers)				
DA12	Temperature	General		degree C	asset
	The rectifier temperature (For CAN capable rectifiers)				
DA13	Phase Number	General			basic
	The rectifier Phase - 0 means unconfigured				

DA14	Service Time	General		minute	asset
	The rectifier total service time, in second (For CAN capable rectifiers)				
DA15	Converted Energy	General		kWh	asset
	The total energy converted by the rectifier since the production. (For CAN capable rectifiers)				

Control Table				
<i>Id</i>	<i>Name</i>	<i>Group</i>	<i>SubGroup</i>	<i>License</i>
CT1	Locate Rectifier	Locate		basic
CT5	Change Phase Number	Phase		basic

15.3.16 Cordex 4KW

Device Information	
Name	Cordex 4KW
Short Description	
Long Description	Rectifier Cordex 48V 4kW
Hardware Reference	Cordex 4KW
Software Reference	
Equipment Type	Rectifier
ETSI Level	/site/energy_system/dc_system/rectifier

Description Table				
<i>Id</i>	<i>Name</i>	<i>Group</i>	<i>SubGroup</i>	<i>License</i>
DE1	Product Name	Product Info		asset
	The rectifier product name			
DE4	Software Reference	Product Info		asset
	The rectifier software reference			
DE5	Serial Number	Product Info		asset
	The rectifier serial number			
DE21	CAN Node Id	CAN Bus		basic
	The CAN Bus Node ID			

Alarm Table					
<i>Id</i>	<i>Name</i>	<i>Group</i>	<i>SubGroup</i>	<i>Severity Type (Level)</i>	<i>Set/Clear Delay</i>
AL1	Rectifier Fail			major (0)	10 / 2
	The rectifier has at least one fail alarm active and is unable to output any power. It may need to be replaced.				
AL2	Rectifier Minor			minor (0)	10 / 2
	The rectifier has at least one minor alarm active and may be unable to output full power.				
AL3	AC Failure			major (0)	5 / 2
	The rectifier is in AC Failure.				
AL4	Over Temperature			major (0)	5 / 2
	The rectifier is too warm.				

AL5	Remote Off			warning (0)	10 / 2
	The rectifier is in remote off.				
AL7	Communication Error			warning (0)	5 / 2
	The Communication With the rectifier has been lost.				
AL10	Fan Error			major (0)	5 / 2
	One or more fans has stopped working				
AL11	Current Limit			warning (0)	5 / 2
	The rectifier output current is at the maximum.				
AL12	Power Limit			warning (0)	5 / 2
	The rectifier output power is at the maximum.				

Data Table					
<i>Id</i>	<i>Name</i>	<i>Group</i>	<i>SubGroup</i>	<i>Unit</i>	<i>License</i>
DA1	Output Current	Output		Ampere	basic
	The current delivered by the rectifier				
DA3	Output Voltage	Output		Volt	basic
	The output voltage of the rectifier				
DA7	Power Ratio	Output		%	basic
	This is the ratio power/available power				
DA8	Rectifier Mode	Mode			basic
	The internal mode of the rectifier				
DA11	Input Voltage	Input		Volt	asset
	The rectifier AC Input voltage (For CAN capable rectifiers)				
DA12	Temperature	General		degree C	asset
	The rectifier temperature (For CAN capable rectifiers)				
DA13	Phase Number	General			basic
	The rectifier Phase - 0 means unconfigured				
DA14	Service Time	General		minute	asset
	The rectifier total service time, in second (For CAN capable rectifiers)				
DA15	Converted Energy	General		kWh	asset
	The total energy converted by the rectifier since the production. (For CAN capable rectifiers)				

Control Table				
<i>Id</i>	<i>Name</i>	<i>Group</i>	<i>SubGroup</i>	<i>License</i>
CT1	Locate Rectifier	Locate		basic
CT5	Change Phase Number	Phase		basic

15.3.17 CXRF 48-300W

Device Information	
Name	CXRF 48-300W
Short Description	300W high efficiency rectifier

Long Description	Cordex HP 300W, high efficiency switched mode rectifier, -48Vdc fixed output
Hardware Reference	9411 010 35011
Software Reference	SOFT 000101 XX
Equipment Type	Rectifier
ETSI Level	/site/energy_system/dc_system/rectifier

Description Table				
<i>Id</i>	<i>Name</i>	<i>Group</i>	<i>SubGroup</i>	<i>License</i>
DE1	Product Name	Product Info		asset
	The rectifier product name (With CAN capable rectifiers)			
DE2	Hardware Reference	Product Info		asset
	The rectifier hardware reference. This corresponds to the Alpha Innovations 12NC (With CAN capable rectifiers)			
DE3	Hardware Revision	Product Info		asset
	The rectifier hardware revision. (With CAN capable Rectifiers)			
DE4	Software Reference	Product Info		asset
	The rectifier software reference. This corresponds to the Alpha Innovations 12NC (With CAN capable rectifiers)			
DE6	Serial Number	Product Info		asset
	The rectifier serial number - Wb (With CAN capable rectifiers)			
DE8	Manufacturing Date	Product Info		asset
	The rectifier production date (With CAN capable rectifiers)			
DE21	CAN Node Id	CAN Bus		basic
	The CAN Bus Node ID			

Alarm Table					
<i>Id</i>	<i>Name</i>	<i>Group</i>	<i>SubGroup</i>	<i>Severity Type (Level)</i>	<i>Set/Clear Delay</i>
AL1	AC Failure			major (0)	5 / 2
	The rectifier is in AC Failure.				
AL2	DC Failure			major (0)	5 / 2
	The rectifier must be replaced because of a DC Failure.				
AL3	Over Temperature			major (0)	5 / 2
	The rectifier is too warm.				
AL4	Remote Off			warning (0)	5 / 2
	The rectifier is in remote off.				
AL7	Communication Error			warning (0)	5 / 2
	The Communication With the rectifier has been lost.				
AL10	AC High			minor (0)	5 / 2
	The AC input in too high				
AL11	Short Error			major (0)	5 / 2
	A short circuit is present on the bus				
AL12	Fan Error			major (0)	5 / 2
	The FAN is defect				
AL13	Derating Error			major (0)	5 / 2

	The rectifier is in derating				
AL14	AC Derating			major (0)	5 / 2
	The rectifier is in AC derating				
AL15	Thermal Derating			major (0)	5 / 2
	The rectifier is in thermal derating				

Data Table					
<i>Id</i>	<i>Name</i>	<i>Group</i>	<i>SubGroup</i>	<i>Unit</i>	<i>License</i>
DA1	Output Current	Output		Ampere	basic
	The current delivered by the rectifier				
DA2	Output Power	Output		Watt	basic
	The power delivered by the rectifier				
DA3	Output Voltage	Output		Volt	basic
	The output voltage of the rectifier				
DA4	Output Current Max	Output		Ampere	basic
	The maximal current deliverable by the rectifier. This takes into account the derating for CAN capable rectifiers.				
DA5	Output Power Max	Output		Watt	basic
	The maximal power deliverable by the rectifier. This takes into account the derating for CAN capable rectifiers.				
DA11	Input Voltage	Input		Volt	asset
	The rectifier AC Input voltage (For CAN capable rectifiers)				
DA12	Temperature	General		degree C	asset
	The rectifier temperature (For CAN capable rectifiers)				
DA13	Fan Speed	General		RPM	asset
	The rectifier FAN Speed in RPM. (For CAN capable rectifiers)				
DA14	Power Rating	General		%	asset
	The rectifier power rating (For CAN capable rectifiers)				
DA15	Service Time	General		second	asset
	The rectifier total service time, in second (For CAN capable rectifiers)				
DA16	Thermal Aging Time	General		second	asset
	The rectifier thermal aging time, in second (For CAN capable rectifiers)				
DA17	Converted Energy	General		kJ	asset
	The total energy converted by the rectifier since the production. (For CAN capable rectifiers)				

15.3.18 CXRF 48-350W

Device Information	
Name	CXRF 48-350W
Short Description	350W high efficiency rectifier
Long Description	Cordex HP 350W, high efficiency switched mode rectifier, -48Vdc fixed output
Hardware Reference	9411 010 35011
Software Reference	SOFT 000148 XX
Equipment Type	Rectifier
ETSI Level	/site/energy_system/dc_system/rectifier

Description Table				
<i>Id</i>	<i>Name</i>	<i>Group</i>	<i>SubGroup</i>	<i>License</i>
DE1	Product Name	Product Info		asset
	The rectifier product name (With CAN capable rectifiers)			
DE2	Hardware Reference	Product Info		asset
	The rectifier hardware reference. This corresponds to the Alpha Innovations 12NC (With CAN capable rectifiers)			
DE3	Hardware Revision	Product Info		asset
	The rectifier hardware revision. (With CAN capable Rectifiers)			
DE4	Software Reference	Product Info		asset
	The rectifier software reference. This corresponds to the Alpha Innovations 12NC (With CAN capable rectifiers)			
DE6	Serial Number	Product Info		asset
	The rectifier serial number - Wb (With CAN capable rectifiers)			
DE8	Manufacturing Date	Product Info		asset
	The rectifier production date (With CAN capable rectifiers)			
DE21	CAN Node Id	CAN Bus		basic
	The CAN Bus Node ID			

Alarm Table					
<i>Id</i>	<i>Name</i>	<i>Group</i>	<i>SubGroup</i>	<i>Severity Type (Level)</i>	<i>Set/Clear Delay</i>
AL1	AC Failure			major (0)	5 / 2
	The rectifier is in AC Failure.				
AL2	DC Failure			major (0)	5 / 2
	The rectifier must be replaced because of a DC Failure.				
AL3	Over Temperature			major (0)	5 / 2
	The rectifier is too warm.				
AL4	Remote Off			warning (0)	5 / 2
	The rectifier is in remote off.				
AL7	Communication Error			warning (0)	5 / 2
	The Communication With the rectifier has been lost.				
AL10	AC High			minor (0)	5 / 2
	The AC input in too high				
AL11	Short Error			major (0)	5 / 2
	A short circuit is present on the bus				
AL12	Fan Error			major (0)	5 / 2
	The FAN is defect				
AL13	Derating Error			major (0)	5 / 2
	The rectifier is in derating				
AL14	AC Derating			major (0)	5 / 2
	The rectifier is in AC derating				
AL15	Thermal Derating			major (0)	5 / 2
	The rectifier is in thermal derating				

Data Table

<i>Id</i>	<i>Name</i>	<i>Group</i>	<i>SubGroup</i>	<i>Unit</i>	<i>License</i>
DA1	Output Current	Output		Ampere	basic
	The current delivered by the rectifier				
DA2	Output Power	Output		Watt	basic
	The power delivered by the rectifier				
DA3	Output Voltage	Output		Volt	basic
	The output voltage of the rectifier				
DA4	Output Current Max	Output		Ampere	basic
	The maximal current deliverable by the rectifier. This takes into account the derating for CAN capable rectifiers.				
DA5	Output Power Max	Output		Watt	basic
	The maximal power deliverable by the rectifier. This takes into account the derating for CAN capable rectifiers.				
DA11	Input Voltage	Input		Volt	asset
	The rectifier AC Input voltage (For CAN capable rectifiers)				
DA12	Temperature	General		degree C	asset
	The rectifier temperature (For CAN capable rectifiers)				
DA13	Fan Speed	General		RPM	asset
	The rectifier FAN Speed in RPM. (For CAN capable rectifiers)				
DA14	Power Rating	General		%	asset
	The rectifier power rating (For CAN capable rectifiers)				
DA15	Service Time	General		second	asset
	The rectifier total service time, in second (For CAN capable rectifiers)				
DA16	Thermal Aging Time	General		second	asset
	The rectifier thermal aging time, in second (For CAN capable rectifiers)				
DA17	Converted Energy	General		kJ	asset
	The total energy converted by the rectifier since the production. (For CAN capable rectifiers)				

15.3.19 ECOR0348

Device Information	
Name	ECOR0348
Short Description	Rectifier 300W -54V
Long Description	Replaced by CXRF 48-300W
Hardware Reference	9411 010 35001
Software Reference	SOFT 000097 XX
Equipment Type	Rectifier
ETSI Level	/site/energy_system/dc_system/rectifier

Description Table				
<i>Id</i>	<i>Name</i>	<i>Group</i>	<i>SubGroup</i>	<i>License</i>
DE1	Product Name	Product Info		asset
	The rectifier product name (With CAN capable rectifiers)			
DE2	Hardware Reference	Product Info		asset
	The rectifier hardware reference. This corresponds to the Alpha Innovations 12NC (With CAN capable rectifiers)			
DE3	Hardware Revision	Product Info		asset
	The rectifier hardware revision. (With CAN capable Rectifiers)			

DE4	Software Reference	Product Info		asset
	The rectifier software reference. This corresponds to the Alpha Innovations 12NC (With CAN capable rectifiers)			
DE6	Serial Number	Product Info		asset
	The rectifier serial number - Wb (With CAN capable rectifiers)			
DE8	Manufacturing Date	Product Info		asset
	The rectifier production date (With CAN capable rectifiers)			
DE21	CAN Node Id	CAN Bus		basic
	The CAN Bus Node ID			

Alarm Table					
<i>Id</i>	<i>Name</i>	<i>Group</i>	<i>SubGroup</i>	<i>Severity Type (Level)</i>	<i>Set/Clear Delay</i>
AL1	AC Failure			major (0)	5 / 2
	The rectifier is in AC Failure.				
AL2	DC Failure			major (0)	5 / 2
	The rectifier must be replaced because of a DC Failure.				
AL3	Over Temperature			major (0)	5 / 2
	The rectifier is too warm.				
AL4	Remote Off			warning (0)	5 / 2
	The rectifier is in remote off.				
AL7	Communication Error			warning (0)	5 / 2
	The Communication With the rectifier has been lost.				
AL10	AC High			minor (0)	5 / 2
	The AC input in too high				
AL11	Short Error			major (0)	5 / 2
	A short circuit is present on the bus				
AL12	Fan Error			major (0)	5 / 2
	The FAN is defect				
AL13	Derating Error			major (0)	5 / 2
	The rectifier is in derating				
AL14	AC Derating			major (0)	5 / 2
	The rectifier is in AC derating				
AL15	Thermal Derating			major (0)	5 / 2
	The rectifier is in thermal derating				

Data Table					
<i>Id</i>	<i>Name</i>	<i>Group</i>	<i>SubGroup</i>	<i>Unit</i>	<i>License</i>
DA1	Output Current	Output		Ampere	basic
	The current delivered by the rectifier				
DA2	Output Power	Output		Watt	basic
	The power delivered by the rectifier				
DA3	Output Voltage	Output		Volt	basic
	The output voltage of the rectifier				
DA4	Output Current Max	Output		Ampere	basic

	The maximal current deliverable by the rectifier. This takes into account the derating for CAN capable rectifiers.				
DA5	Output Power Max	Output		Watt	basic
	The maximal power deliverable by the rectifier. This takes into account the derating for CAN capable rectifiers.				
DA11	Input Voltage	Input		Volt	asset
	The rectifier AC Input voltage (For CAN capable rectifiers)				
DA12	Temperature	General		degree C	asset
	The rectifier temperature (For CAN capable rectifiers)				
DA13	Fan Speed	General		RPM	asset
	The rectifier FAN Speed in RPM. (For CAN capable rectifiers)				
DA14	Power Rating	General		%	asset
	The rectifier power rating (For CAN capable rectifiers)				
DA15	Service Time	General		second	asset
	The rectifier total service time, in second (For CAN capable rectifiers)				
DA16	Thermal Aging Time	General		second	asset
	The rectifier thermal aging time, in second (For CAN capable rectifiers)				
DA17	Converted Energy	General		kJ	asset
	The total energy converted by the rectifier since the production. (For CAN capable rectifiers)				

15.3.20 ECOR1048TN

Device Information	
Name	ECOR1048TN
Short Description	1000W switched mode rectifier, AC & DC input
Long Description	1000W switched mode rectifier, -48Vdc fixed output, AC & DC input
Hardware Reference	9411 011 05101
Software Reference	SOFT 000141 XX
Equipment Type	Rectifier
ETSI Level	/site/energy_system/dc_system/rectifier

Description Table				
<i>Id</i>	<i>Name</i>	<i>Group</i>	<i>SubGroup</i>	<i>License</i>
DE1	Product Name	Product Info		asset
	The rectifier product name (With CAN capable rectifiers)			
DE2	Hardware Reference	Product Info		asset
	The rectifier hardware reference. This corresponds to the Alpha Innovations 12NC (With CAN capable rectifiers)			
DE3	Hardware Revision	Product Info		asset
	The rectifier hardware revision. (With CAN capable Rectifiers)			
DE4	Software Reference	Product Info		asset
	The rectifier software reference. This corresponds to the Alpha Innovations 12NC (With CAN capable rectifiers)			
DE6	Serial Number	Product Info		asset
	The rectifier serial number - Wb (With CAN capable rectifiers)			
DE8	Manufacturing Date	Product Info		asset
	The rectifier production date (With CAN capable rectifiers)			
DE21	CAN Node Id	CAN Bus		basic

	The CAN Bus Node ID

Alarm Table					
<i>Id</i>	<i>Name</i>	<i>Group</i>	<i>SubGroup</i>	<i>Severity Type (Level)</i>	<i>Set/Clear Delay</i>
AL1	AC Failure			major (0)	5 / 2
	The rectifier is in AC Failure.				
AL2	DC Failure			major (0)	5 / 2
	The rectifier must be replaced because of a DC Failure.				
AL3	Over Temperature			major (0)	5 / 2
	The rectifier is too warm.				
AL4	Remote Off			warning (0)	5 / 2
	The rectifier is in remote off.				
AL7	Communication Error			warning (0)	5 / 2
	The Communication With the rectifier has been lost.				
AL10	AC High			minor (0)	5 / 2
	The AC input in too high				
AL11	Short Error			major (0)	5 / 2
	A short circuit is present on the bus				
AL12	Fan Error			major (0)	5 / 2
	The FAN is defect				
AL13	Derating Error			major (0)	5 / 2
	The rectifier is in derating				
AL14	AC Derating			major (0)	5 / 2
	The rectifier is in AC derating				
AL15	Thermal Derating			major (0)	5 / 2
	The rectifier is in thermal derating				

Data Table					
<i>Id</i>	<i>Name</i>	<i>Group</i>	<i>SubGroup</i>	<i>Unit</i>	<i>License</i>
DA1	Output Current	Output		Ampere	basic
	The current delivered by the rectifier				
DA2	Output Power	Output		Watt	basic
	The power delivered by the rectifier				
DA3	Output Voltage	Output		Volt	basic
	The output voltage of the rectifier				
DA4	Output Current Max	Output		Ampere	basic
	The maximal current deliverable by the rectifier. This takes into account the derating for CAN capable rectifiers.				
DA5	Output Power Max	Output		Watt	basic
	The maximal power deliverable by the rectifier. This takes into account the derating for CAN capable rectifiers.				
DA11	Input Voltage	Input		Volt	asset
	The rectifier AC Input voltage (For CAN capable rectifiers)				
DA12	Temperature	General		degree C	asset
	The rectifier temperature (For CAN capable rectifiers)				

DA13	Fan Speed	General		RPM	asset
	The rectifier FAN Speed in RPM. (For CAN capable rectifiers)				
DA14	Power Rating	General		%	asset
	The rectifier power rating (For CAN capable rectifiers)				
DA15	Service Time	General		second	asset
	The rectifier total service time, in second (For CAN capable rectifiers)				
DA16	Thermal Aging Time	General		second	asset
	The rectifier thermal aging time, in second (For CAN capable rectifiers)				
DA17	Converted Energy	General		kJ	asset
	The total energy converted by the rectifier since the production. (For CAN capable rectifiers)				

15.3.21 PMM0854FP02

Device Information	
Name	PMM0854FP02
Short Description	850W +48V switched mode rectifier
Long Description	850W switched mode rectifier, +48Vdc fixed output
Hardware Reference	9411 060 82021
Software Reference	SOFT 000134 XX
Equipment Type	Rectifier
ETSI Level	/site/energy_system/dc_system/rectifier

Description Table				
<i>Id</i>	<i>Name</i>	<i>Group</i>	<i>SubGroup</i>	<i>License</i>
DE1	Product Name	Product Info		asset
	The rectifier product name (With CAN capable rectifiers)			
DE2	Hardware Reference	Product Info		asset
	The rectifier hardware reference. This corresponds to the Alpha Innovations 12NC (With CAN capable rectifiers)			
DE3	Hardware Revision	Product Info		asset
	The rectifier hardware revision. (With CAN capable Rectifiers)			
DE4	Software Reference	Product Info		asset
	The rectifier software reference. This corresponds to the Alpha Innovations 12NC (With CAN capable rectifiers)			
DE6	Serial Number	Product Info		asset
	The rectifier serial number - Wb (With CAN capable rectifiers)			
DE8	Manufacturing Date	Product Info		asset
	The rectifier production date (With CAN capable rectifiers)			
DE21	CAN Node Id	CAN Bus		basic
	The CAN Bus Node ID			

Alarm Table					
<i>Id</i>	<i>Name</i>	<i>Group</i>	<i>SubGroup</i>	<i>Severity Type (Level)</i>	<i>Set/Clear Delay</i>
AL1	AC Failure			major (0)	5 / 2
	The rectifier is in AC Failure.				
AL2	DC Failure			major (0)	5 / 2

	The rectifier must be replaced because of a DC Failure.				
AL3	Over Temperature			major (0)	5 / 2
	The rectifier is too warm.				
AL4	Remote Off			warning (0)	5 / 2
	The rectifier is in remote off.				
AL7	Communication Error			warning (0)	5 / 2
	The Communication With the rectifier has been lost.				
AL10	AC High			minor (0)	5 / 2
	The AC input in too high				
AL11	Short Error			major (0)	5 / 2
	A short circuit is present on the bus				
AL12	Fan Error			major (0)	5 / 2
	The FAN is defect				
AL13	Derating Error			major (0)	5 / 2
	The rectifier is in derating				
AL14	AC Derating			major (0)	5 / 2
	The rectifier is in AC derating				
AL15	Thermal Derating			major (0)	5 / 2
	The rectifier is in thermal derating				

Data Table					
<i>Id</i>	<i>Name</i>	<i>Group</i>	<i>SubGroup</i>	<i>Unit</i>	<i>License</i>
DA1	Output Current	Output		Ampere	basic
	The current delivered by the rectifier				
DA2	Output Power	Output		Watt	basic
	The power delivered by the rectifier				
DA3	Output Voltage	Output		Volt	basic
	The output voltage of the rectifier				
DA4	Output Current Max	Output		Ampere	basic
	The maximal current deliverable by the rectifier. This takes into account the derating for CAN capable rectifiers.				
DA5	Output Power Max	Output		Watt	basic
	The maximal power deliverable by the rectifier. This takes into account the derating for CAN capable rectifiers.				
DA11	Input Voltage	Input		Volt	asset
	The rectifier AC Input voltage (For CAN capable rectifiers)				
DA12	Temperature	General		degree C	asset
	The rectifier temperature (For CAN capable rectifiers)				
DA13	Fan Speed	General		RPM	asset
	The rectifier FAN Speed in RPM. (For CAN capable rectifiers)				
DA14	Power Rating	General		%	asset
	The rectifier power rating (For CAN capable rectifiers)				
DA15	Service Time	General		second	asset
	The rectifier total service time, in second (For CAN capable rectifiers)				
DA16	Thermal Aging Time	General		second	asset
	The rectifier thermal aging time, in second (For CAN capable rectifiers)				
DA17	Converted Energy	General		kJ	asset

	The total energy converted by the rectifier since the production. (For CAN capable rectifiers)

15.3.22 SP0164

Device Information	
Name	SP0164
Short Description	1500W Wide output rectifier 53V to 120V
Long Description	1500W Wide output rectifier 53V to 120V
Hardware Reference	9411 001 64001
Software Reference	SOFT 000145 XX
Equipment Type	Rectifier
ETSI Level	/site/energy_system/dc_system/rectifier

Description Table				
<i>Id</i>	<i>Name</i>	<i>Group</i>	<i>SubGroup</i>	<i>License</i>
DE1	Product Name	Product Info		asset
	The rectifier product name (With CAN capable rectifiers)			
DE2	Hardware Reference	Product Info		asset
	The rectifier hardware reference. This corresponds to the Alpha Innovations 12NC (With CAN capable rectifiers)			
DE3	Hardware Revision	Product Info		asset
	The rectifier hardware revision. (With CAN capable Rectifiers)			
DE4	Software Reference	Product Info		asset
	The rectifier software reference. This corresponds to the Alpha Innovations 12NC (With CAN capable rectifiers)			
DE6	Serial Number	Product Info		asset
	The rectifier serial number - Wb (With CAN capable rectifiers)			
DE8	Manufacturing Date	Product Info		asset
	The rectifier production date (With CAN capable rectifiers)			
DE21	CAN Node Id	CAN Bus		basic
	The CAN Bus Node ID			

Alarm Table					
<i>Id</i>	<i>Name</i>	<i>Group</i>	<i>SubGroup</i>	<i>Severity Type (Level)</i>	<i>Set/Clear Delay</i>
AL1	AC Failure			major (0)	5 / 2
	The rectifier is in AC Failure.				
AL2	DC Failure			major (0)	5 / 2
	The rectifier must be replaced because of a DC Failure.				
AL3	Over Temperature			major (0)	5 / 2
	The rectifier is too warm.				
AL4	Remote Off			warning (0)	5 / 2
	The rectifier is in remote off.				
AL7	Communication Error			warning (0)	5 / 2
	The Communication With the rectifier has been lost.				

AL10	AC High			minor (0)	5 / 2
	The AC input is too high				
AL11	Short Error			major (0)	5 / 2
	A short circuit is present on the bus				
AL12	Fan Error			major (0)	5 / 2
	The FAN is defect				
AL13	Derating Error			major (0)	5 / 2
	The rectifier is in derating				
AL14	AC Derating			major (0)	5 / 2
	The rectifier is in AC derating				
AL15	Thermal Derating			major (0)	5 / 2
	The rectifier is in thermal derating				

Data Table					
<i>Id</i>	<i>Name</i>	<i>Group</i>	<i>SubGroup</i>	<i>Unit</i>	<i>License</i>
DA1	Output Current	Output		Ampere	basic
	The current delivered by the rectifier				
DA2	Output Power	Output		Watt	basic
	The power delivered by the rectifier				
DA3	Output Voltage	Output		Volt	basic
	The output voltage of the rectifier				
DA4	Output Current Max	Output		Ampere	basic
	The maximal current deliverable by the rectifier. This takes into account the derating for CAN capable rectifiers.				
DA5	Output Power Max	Output		Watt	basic
	The maximal power deliverable by the rectifier. This takes into account the derating for CAN capable rectifiers.				
DA11	Input Voltage	Input		Volt	asset
	The rectifier AC Input voltage (For CAN capable rectifiers)				
DA12	Temperature	General		degree C	asset
	The rectifier temperature (For CAN capable rectifiers)				
DA13	Fan Speed	General		RPM	asset
	The rectifier FAN Speed in RPM. (For CAN capable rectifiers)				
DA14	Power Rating	General		%	asset
	The rectifier power rating (For CAN capable rectifiers)				
DA15	Service Time	General		second	asset
	The rectifier total service time, in second (For CAN capable rectifiers)				
DA16	Thermal Aging Time	General		second	asset
	The rectifier thermal aging time, in second (For CAN capable rectifiers)				
DA17	Converted Energy	General		kJ	asset
	The total energy converted by the rectifier since the production. (For CAN capable rectifiers)				

15.4 Sensors And Actuators Tables

15.4.1 ADIO 7

Device Information	
Name	ADIO 7
Short Description	Standard I/O module D24 T7
Long Description	I/O module with 24 digital inputs and 7 inputs for temperature measurement
Hardware Reference	9413 060 05071
Software Reference	SOFT 000095 XX
Equipment Type	System Extension
ETSI Level	/site/sensors_actuators

Description Table				
<i>Id</i>	<i>Name</i>	<i>Group</i>	<i>SubGroup</i>	<i>License</i>
DE1	Product Name	Description	Product Info	basic
	The commercial name of the extension card.			
DE2	Hardware Reference	Description	Product Info	basic
	The hardware refence			
DE3	Hardware Revision	Description	Product Info	basic
	The hardware revision			
DE4	Software Reference	Description	Product Info	basic
	The software reference			
DE6	Serial Number	Description	Product Info	basic
	The serial number.			
DE8	Manufacturing Date	Description	Product Info	basic
	The production date.			
DE11	Description	Description	Custom Description	basic
	A free text zone to write a system description			
DE12	Reference	Description	Custom Description	basic
	A free text zone to write the customer reference of the system			

Alarm Table					
<i>Id</i>	<i>Name</i>	<i>Group</i>	<i>SubGroup</i>	<i>Severity Type (Level)</i>	<i>Set/Clear Delay</i>
AL71	Digital Input 1	Digital Inputs	Digital Input 1	warning (0)	5 / 2
	The name of the digital input 1 alarm.				
AL72	Digital Input 2	Digital Inputs	Digital Input 2	warning (0)	5 / 2
	The name of the digital input 2 alarm.				
AL73	Digital Input 3	Digital Inputs	Digital Input 3	warning (0)	5 / 2
	The name of the digital input 3 alarm.				

AL74	Digital Input 4	Digital Inputs	Digital Input 4	warning (0)	5 / 2
	The name of the digital input 4 alarm.				
AL75	Digital Input 5	Digital Inputs	Digital Input 5	warning (0)	5 / 2
	The name of the digital input 5 alarm.				
AL76	Digital Input 6	Digital Inputs	Digital Input 6	warning (0)	5 / 2
	The name of the digital input 6 alarm.				
AL77	Digital Input 7	Digital Inputs	Digital Input 7	warning (0)	5 / 2
	The name of the digital input 7 alarm.				
AL78	Digital Input 8	Digital Inputs	Digital Input 8	warning (0)	5 / 2
	The name of the digital input 8 alarm.				
AL79	Digital Input 9	Digital Inputs	Digital Input 9	warning (0)	5 / 2
	The name of the digital input 9 alarm.				
AL80	Digital Input 10	Digital Inputs	Digital Input 10	warning (0)	5 / 2
	The name of the digital input 10 alarm.				
AL81	Digital Input 11	Digital Inputs	Digital Input 11	warning (0)	5 / 2
	The name of the digital input 11 alarm.				
AL82	Digital Input 12	Digital Inputs	Digital Input 12	warning (0)	5 / 2
	The name of the digital input 12 alarm.				
AL83	Digital Input 13	Digital Inputs	Digital Input 13	warning (0)	5 / 2
	The name of the digital input 13 alarm.				
AL84	Digital Input 14	Digital Inputs	Digital Input 14	warning (0)	5 / 2
	The name of the digital input 14 alarm.				
AL85	Digital Input 15	Digital Inputs	Digital Input 15	warning (0)	5 / 2
	The name of the digital input 15 alarm.				
AL86	Digital Input 16	Digital Inputs	Digital Input 16	warning (0)	5 / 2
	The name of the digital input 16 alarm.				
AL87	Digital Input 17	Digital Inputs	Digital Input 17	warning (0)	5 / 2
	The name of the digital input 17 alarm.				
AL88	Digital Input 18	Digital Inputs	Digital Input 18	warning (0)	5 / 2
	The name of the digital input 18 alarm.				
AL89	Digital Input 19	Digital Inputs	Digital Input 19	warning (0)	5 / 2
	The name of the digital input 19 alarm.				
AL90	Digital Input 20	Digital Inputs	Digital Input 20	warning (0)	5 / 2
	The name of the digital input 20 alarm.				

AL91	Digital Input 21	Digital Inputs	Digital Input 21	warning (0)	5 / 2
	The name of the digital input 21 alarm.				
AL92	Digital Input 22	Digital Inputs	Digital Input 22	warning (0)	5 / 2
	The name of the digital input 22 alarm.				
AL93	Digital Input 23	Digital Inputs	Digital Input 23	warning (0)	5 / 2
	The name of the digital input 23 alarm.				
AL94	Digital Input 24	Digital Inputs	Digital Input 24	warning (0)	5 / 2
	The name of the digital input 24 alarm.				

Data Table					
<i>Id</i>	<i>Name</i>	<i>Group</i>	<i>SubGroup</i>	<i>Unit</i>	<i>License</i>
DA1	Temperature 1	Temperature Sensors	Temperature 1	degree C	basic
	Temperature Measurement 1				
DA2	Temperature 2	Temperature Sensors	Temperature 2	degree C	basic
	Temperature Measurement 2				
DA3	Temperature 3	Temperature Sensors	Temperature 3	degree C	basic
	Temperature Measurement 3				
DA4	Temperature 4	Temperature Sensors	Temperature 4	degree C	basic
	Temperature Measurement 4				
DA5	Temperature 5	Temperature Sensors	Temperature 5	degree C	basic
	Temperature Measurement 5				
DA6	Temperature 6	Temperature Sensors	Temperature 6	degree C	basic
	Temperature Measurement 6				
DA7	Temperature 7	Temperature Sensors	Temperature 7	degree C	basic
	Temperature Measurement 7				
DA8	Temperature 8	Temperature Sensors	Temperature 8	degree C	basic
	Temperature Measurement 8				
DA71	Digital Input 1 State	Digital Inputs	Digital Input 1		basic
	The state of the digital input				
DA72	Digital Input 2 State	Digital Inputs	Digital Input 2		basic
	The state of the digital input				
DA73	Digital Input 3 State	Digital Inputs	Digital Input 3		basic
	The state of the digital input				
DA74	Digital Input 4 State	Digital Inputs	Digital Input 4		basic
	The state of the digital input				
DA75	Digital Input 5 State	Digital Inputs	Digital Input 5		basic
	The state of the digital input				
DA76	Digital Input 6 State	Digital Inputs	Digital Input 6		basic
	The state of the digital input				
DA77	Digital Input 7 State	Digital Inputs	Digital Input 7		basic
	The state of the digital input				
DA78	Digital Input 8 State	Digital Inputs	Digital Input 8		basic
	The state of the digital input				
DA79	Digital Input 9 State	Digital Inputs	Digital Input 9		basic
	The state of the digital input				

DA80	Digital Input 10 State	Digital Inputs	Digital Input 10		basic
	The state of the digital input				
DA81	Digital Input 11 State	Digital Inputs	Digital Input 11		basic
	The state of the digital input				
DA82	Digital Input 12 State	Digital Inputs	Digital Input 12		basic
	The state of the digital input				
DA83	Digital Input 13 State	Digital Inputs	Digital Input 13		basic
	The state of the digital input				
DA84	Digital Input 14 State	Digital Inputs	Digital Input 14		basic
	The state of the digital input				
DA85	Digital Input 15 State	Digital Inputs	Digital Input 15		basic
	The state of the digital input				
DA86	Digital Input 16 State	Digital Inputs	Digital Input 16		basic
	The state of the digital input				
DA87	Digital Input 17 State	Digital Inputs	Digital Input 17		basic
	The state of the digital input				
DA88	Digital Input 18 State	Digital Inputs	Digital Input 18		basic
	The state of the digital input				
DA89	Digital Input 19 State	Digital Inputs	Digital Input 19		basic
	The state of the digital input				
DA90	Digital Input 20 State	Digital Inputs	Digital Input 20		basic
	The state of the digital input				
DA91	Digital Input 21 State	Digital Inputs	Digital Input 21		basic
	The state of the digital input				
DA92	Digital Input 22 State	Digital Inputs	Digital Input 22		basic
	The state of the digital input				
DA93	Digital Input 23 State	Digital Inputs	Digital Input 23		basic
	The state of the digital input				
DA94	Digital Input 24 State	Digital Inputs	Digital Input 24		basic
	The state of the digital input				
DA131	Pulse Counter 1	Digital Inputs	Digital Input 19		basic
	Energy Consumption Counter 1				
DA132	Pulse Counter 2	Digital Inputs	Digital Input 20		basic
	Energy Consumption Counter 2				
DA133	Pulse Counter 3	Digital Inputs	Digital Input 21		basic
	Energy Consumption Counter 3				
DA134	Pulse Counter 4	Digital Inputs	Digital Input 22		basic
	Energy Consumption Counter 4				
DA135	Pulse Counter 5	Digital Inputs	Digital Input 23		basic
	Energy Consumption Counter 5				
DA136	Pulse Counter 6	Digital Inputs	Digital Input 24		basic
	Energy Consumption Counter 6				

Config Table						
<i>Id</i>	<i>Name</i>	<i>Group</i>	<i>SubGroup</i>	<i>Unit</i>	<i>Range: Min/Max (default)</i>	<i>License</i>
CF71	Digital Input 1 Name	Digital Inputs	Digital Input 1		Digital Inputs	basic
	The name of the digital input 1.					

CF72	Digital Input 1 Normally Closed	Digital Inputs	Digital Input 1		True/False (True)	basic
	True/False value defining if the digital input 1 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF73	Digital Input 2 Name	Digital Inputs	Digital Input 2		Digital Inputs	basic
	The name of the digital input 2.					
CF74	Digital Input 2 Normally Closed	Digital Inputs	Digital Input 2		True/False (True)	basic
	True/False value defining if the digital input 2 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF75	Digital Input 3 Name	Digital Inputs	Digital Input 3		Digital Inputs	basic
	The name of the digital input 3.					
CF76	Digital Input 3 Normally Closed	Digital Inputs	Digital Input 3		True/False (True)	basic
	True/False value defining if the digital input 3 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF77	Digital Input 4 Name	Digital Inputs	Digital Input 4		Digital Inputs	basic
	The name of the digital input 4.					
CF78	Digital Input 4 Normally Closed	Digital Inputs	Digital Input 4		True/False (True)	basic
	True/False value defining if the digital input 4 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF79	Digital Input 5 Name	Digital Inputs	Digital Input 5		Digital Inputs	basic
	The name of the digital input 5.					
CF80	Digital Input 5 Normally Closed	Digital Inputs	Digital Input 5		True/False (True)	basic
	True/False value defining if the digital input 5 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF81	Digital Input 6 Name	Digital Inputs	Digital Input 6		Digital Inputs	basic
	The name of the digital input 6.					
CF82	Digital Input 6 Normally Closed	Digital Inputs	Digital Input 6		True/False (True)	basic
	True/False value defining if the digital input 6 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF83	Digital Input 7 Name	Digital Inputs	Digital Input 7		Digital Inputs	basic
	The name of the digital input 7.					
CF84	Digital Input 7 Normally Closed	Digital Inputs	Digital Input 7		True/False (True)	basic
	True/False value defining if the digital input 7 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF85	Digital Input 8 Name	Digital Inputs	Digital Input 8		Digital Inputs	basic
	The name of the digital input 8.					
CF86	Digital Input 8 Normally Closed	Digital Inputs	Digital Input 8		True/False (True)	basic
	True/False value defining if the digital input 8 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF87	Digital Input 9 Name	Digital Inputs	Digital Input 9		Digital Inputs	basic
	The name of the digital input 9.					
CF88	Digital Input 9 Normally Closed	Digital Inputs	Digital Input 9		True/False (True)	basic
	True/False value defining if the digital input 9 is normally closed. If this digital input is not in this default state, the related alarm is set.					

CF89	Digital Input 10 Name	Digital Inputs	Digital Input 10		Digital Inputs	basic
	The name of the digital input 10.					
CF90	Digital Input 10 Normally Closed	Digital Inputs	Digital Input 10		True/False (True)	basic
	True/False value defining if the digital input 10 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF91	Digital Input 11 Name	Digital Inputs	Digital Input 11		Digital Inputs	basic
	The name of the digital input 11.					
CF92	Digital Input 11 Normally Closed	Digital Inputs	Digital Input 11		True/False (True)	basic
	True/False value defining if the digital input 11 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF93	Digital Input 12 Name	Digital Inputs	Digital Input 12		Digital Inputs	basic
	The name of the digital input 12.					
CF94	Digital Input 12 Normally Closed	Digital Inputs	Digital Input 12		True/False (True)	basic
	True/False value defining if the digital input 12 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF95	Digital Input 13 Name	Digital Inputs	Digital Input 13		Digital Inputs	basic
	The name of the digital input 13.					
CF96	Digital Input 13 Normally Closed	Digital Inputs	Digital Input 13		True/False (True)	basic
	True/False value defining if the digital input 13 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF97	Digital Input 14 Name	Digital Inputs	Digital Input 14		Digital Inputs	basic
	The name of the digital input 14.					
CF98	Digital Input 14 Normally Closed	Digital Inputs	Digital Input 14		True/False (True)	basic
	True/False value defining if the digital input 14 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF99	Digital Input 15 Name	Digital Inputs	Digital Input 15		Digital Inputs	basic
	The name of the digital input 15.					
CF100	Digital Input 15 Normally Closed	Digital Inputs	Digital Input 15		True/False (True)	basic
	True/False value defining if the digital input 15 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF101	Digital Input 16 Name	Digital Inputs	Digital Input 16		Digital Inputs	basic
	The name of the digital input 16.					
CF102	Digital Input 16 Normally Closed	Digital Inputs	Digital Input 16		True/False (True)	basic
	True/False value defining if the digital input 16 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF103	Digital Input 17 Name	Digital Inputs	Digital Input 17		Digital Inputs	basic
	The name of the digital input 17.					
CF104	Digital Input 17 Normally Closed	Digital Inputs	Digital Input 17		True/False (True)	basic
	True/False value defining if the digital input 17 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF105	Digital Input 18 Name	Digital Inputs	Digital Input 18		Digital Inputs	basic
	The name of the digital input 18.					
CF106	Digital Input 18 Normally Closed	Digital Inputs	Digital Input 18		True/False (True)	basic

	True/False value defining if the digital input 18 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF107	Digital Input 19 Name	Digital Inputs	Digital Input 19		Digital Inputs	basic
	The name of the digital input 19.					
CF108	Digital Input 19 Normally Closed	Digital Inputs	Digital Input 19		True/False (True)	basic
	True/False value defining if the digital input 19 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF109	Digital Input 20 Name	Digital Inputs	Digital Input 20		Digital Inputs	basic
	The name of the digital input 20.					
CF110	Digital Input 20 Normally Closed	Digital Inputs	Digital Input 20		True/False (True)	basic
	True/False value defining if the digital input 20 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF111	Digital Input 21 Name	Digital Inputs	Digital Input 21		Digital Inputs	basic
	The name of the digital input 21.					
CF112	Digital Input 21 Normally Closed	Digital Inputs	Digital Input 21		True/False (True)	basic
	True/False value defining if the digital input 21 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF113	Digital Input 22 Name	Digital Inputs	Digital Input 22		Digital Inputs	basic
	The name of the digital input 22.					
CF114	Digital Input 22 Normally Closed	Digital Inputs	Digital Input 22		True/False (True)	basic
	True/False value defining if the digital input 22 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF115	Digital Input 23 Name	Digital Inputs	Digital Input 23		Digital Inputs	basic
	The name of the digital input 23.					
CF116	Digital Input 23 Normally Closed	Digital Inputs	Digital Input 23		True/False (True)	basic
	True/False value defining if the digital input 23 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF117	Digital Input 24 Name	Digital Inputs	Digital Input 24		Digital Inputs	basic
	The name of the digital input 24.					
CF118	Digital Input 24 Normally Closed	Digital Inputs	Digital Input 24		True/False (True)	basic
	True/False value defining if the digital input 24 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF521	Read Access User Numbers	Generic	Allowed Users		(1,2,3,4,5)	basic
	The list of the user numbers which have read access to this equipment. The user numbers are coma separated. The accepted user id are 1,2,3,4 and 5. Ex: 1,3,4					
CF522	Write Access User Numbers	Generic	Allowed Users		()	basic
	The list of the user numbers which have write access to this equipment. This means that these users can modify the configuration element, the alarm settings and use the control elements. The user numbers are coma separated. The accepted user ids are 1,2,3,4 and 5. Ex: 1,3,4					
CF601	Event Table Length	Generic	Events		10/4000 (100)	basic
	The maximum length of the table. The value must be comprised between 10 and 4000					
CF901	Number Of PLC Data	PLC			(0)	plc
	The number of PLC data. Every equipment can manage up to 30 user programmable data. Data elements are automatically added in the data table. Configuration parameters are added to set the PLC Data Name					

	and the PLC Data Mathematical calculation. In order to use these functionalities, you need a license with the 'PLC' module				
CF902	Number Of PLC Alarm	PLC		(0)	plc
	The number of PLC alarm. Every equipment can manage up to 30 user programmable alarms. Alarm elements are automatically added in the alarm table. The alarm parameters are added to set the PLC Alarm Name and the PLC Alarm Boolean condition. In order to use these functionalities, you need a licence with the 'PLC' module				

Control Table				
<i>Id</i>	<i>Name</i>	<i>Group</i>	<i>SubGroup</i>	<i>License</i>
CT101	Set Pulse Counter 1	Pulse Counter		basic
	Set Counter 1 Value			
CT102	Set Pulse Counter 2	Pulse Counter		basic
	Set Counter 2 Value			
CT103	Set Pulse Counter 3	Pulse Counter		basic
	Set Counter 3 Value			
CT104	Set Pulse Counter 4	Pulse Counter		basic
	Set Counter 4 Value			
CT105	Set Pulse Counter 5	Pulse Counter		basic
	Set Counter 5 Value			
CT106	Set Pulse Counter 6	Pulse Counter		basic
	Set Counter 6 Value			
CT501	Clear My Events	Generic	Events	basic
	By writing '1' to this control element, all the events of this equipment will be cleared.			
CT502	Clear All Events	Generic	Events	basic
	By writing '1' to this control element, all the events of this equipment and all the events of all the sub-equipments will be cleared.			
CT511	Add Event	Generic	Events	basic
	This control element adds an event of severity none. The event name is the text written to this control element			
CT512	Add Major Event	Generic	Events	basic
	This control element adds an event of severity major. The event name is the text written to this control element			
CT521	Reset Default Names And Groups	Generic	Renaming	basic
	This control element resets all the element Names, Groups and Subgroups to default values for this equipment			
CT522	Reset Default Names And Groups Recursive	Generic	Renaming	basic
	This control element resets all the element Names, Groups and Subgroups to default values for this equipment and all sub equipments			

15.4.2 ADIO 8

Device Information	
Name	ADIO 8
Short Description	Standard I/O module 8AC Impulse Relays +2 Relays + 4Di + 1T +2 CM + 2V
Long Description	I/O module with 8 controls for pulse relays (partial Load disconnection, low voltage disconnection), 4 digital inputs, 2 relays, 1

	temperature measurements, 2 measurements of 4/20 mA, 2 voltage measurement (0-5V)
Hardware Reference	9413 060 05081
Software Reference	SOFT 000096 XX
Equipment Type	System Extension
ETSI Level	/site/sensors_actuators

Description Table				
<i>Id</i>	<i>Name</i>	<i>Group</i>	<i>SubGroup</i>	<i>License</i>
DE1	Product Name	Description	Product Info	basic
	The commercial name of the extension card.			
DE2	Hardware Reference	Description	Product Info	basic
	The hardware refence			
DE3	Hardware Revision	Description	Product Info	basic
	The hardware revision			
DE4	Software Reference	Description	Product Info	basic
	The software reference			
DE6	Serial Number	Description	Product Info	basic
	The serial number.			
DE8	Manufacturing Date	Description	Product Info	basic
	The production date.			
DE11	Description	Description	Custom Description	basic
	A free text zone to write a system description			
DE12	Reference	Description	Custom Description	basic
	A free text zone to write the customer reference of the system			

Alarm Table					
<i>Id</i>	<i>Name</i>	<i>Group</i>	<i>SubGroup</i>	<i>Severity Type (Level)</i>	<i>Set/Clear Delay</i>
AL71	Digital Input 1	Digital Inputs	Digital Input 1	warning (0)	5 / 2
	The name of the digital input 1 alarm.				
AL72	Digital Input 2	Digital Inputs	Digital Input 2	warning (0)	5 / 2
	The name of the digital input 2 alarm.				
AL73	Digital Input 3	Digital Inputs	Digital Input 3	warning (0)	5 / 2
	The name of the digital input 3 alarm.				
AL74	Digital Input 4	Digital Inputs	Digital Input 4	warning (0)	5 / 2
	The name of the digital input 4 alarm.				
AL150	Impulse Relay 1 Mismatch Desired State	Impulse Relays	Impulse Relay 1	warning (0)	5 / 2
	This alarm happens when there is a defect inside the impulse relay or when it is not well connected. The status is not corresponding to the desired status.				
AL155	Impulse Relay 2 Mismatch Desired State	Impulse Relays	Impulse Relay 2	warning (0)	5 / 2
	This alarm happens when there is a defect inside the impulse relay or when it is not well connected. The status is not corresponding to the desired status.				

AL160	Impulse Relay 3 Mismatch Desired State	Impulse Relays	Impulse Relay 3	warning (0)	5 / 2
	This alarm happens when there is a defect inside the impulse relay or when it is not well connected. The status is not corresponding to the desired status.				
AL165	Impulse Relay 4 Mismatch Desired State	Impulse Relays	Impulse Relay 4	warning (0)	5 / 2
	This alarm happens when there is a defect inside the impulse relay or when it is not well connected. The status is not corresponding to the desired status.				
AL170	Impulse Relay 5 Mismatch Desired State	Impulse Relays	Impulse Relay 5	warning (0)	5 / 2
	This alarm happens when there is a defect inside the impulse relay or when it is not well connected. The status is not corresponding to the desired status.				
AL175	Impulse Relay 6 Mismatch Desired State	Impulse Relays	Impulse Relay 6	warning (0)	5 / 2
	This alarm happens when there is a defect inside the impulse relay or when it is not well connected. The status is not corresponding to the desired status.				
AL180	Impulse Relay 7 Mismatch Desired State	Impulse Relays	Impulse Relay 7	warning (0)	5 / 2
	This alarm happens when there is a defect inside the impulse relay or when it is not well connected. The status is not corresponding to the desired status.				
AL185	Impulse Relay 8 Mismatch Desired State	Impulse Relays	Impulse Relay 8	warning (0)	5 / 2
	This alarm happens when there is a defect inside the impulse relay or when it is not well connected. The status is not corresponding to the desired status.				

Data Table					
<i>Id</i>	<i>Name</i>	<i>Group</i>	<i>SubGroup</i>	<i>Unit</i>	<i>License</i>
DA1	Temperature 1	Temperature Sensors	Temperature 1	degree C	basic
	Temperature Measurement 1				
DA71	Digital Input 1 State	Digital Inputs	Digital Input 1		basic
	The state of the digital input				
DA72	Digital Input 2 State	Digital Inputs	Digital Input 2		basic
	The state of the digital input				
DA73	Digital Input 3 State	Digital Inputs	Digital Input 3		basic
	The state of the digital input				
DA74	Digital Input 4 State	Digital Inputs	Digital Input 4		basic
	The state of the digital input				
DA101	Voltage 5V 1	Voltage Sensors	Voltage 5V 1	mVolt	basic
	Voltage Measurement 5V 1				
DA102	Voltage 5V 2	Voltage Sensors	Voltage 5V 2	mVolt	basic
	Voltage Measurement 5V 2				
DA111	Current 4-20mA 1	Current 4-20mA Sensor	Current 4-20mA 1	mAmpere	basic
	Current 4-20mA Sensor 1				
DA112	Current 4-20mA 2	Current 4-20mA Sensor	Current 4-20mA 2	mAmpere	basic
	Current 4-20mA Sensor 2				
DA150	Impulse Relay 1 State	Impulse Relays	Impulse Relay 1		basic
	Status of the impulse relay. Open or Closed.				
DA155	Impulse Relay 2 State	Impulse Relays	Impulse Relay 2		basic
	Status of the impulse relay. Open or Closed.				

DA160	Impulse Relay 3 State	Impulse Relays	Impulse Relay 3		basic
	Status of the impulse relay. Open or Closed.				
DA165	Impulse Relay 4 State	Impulse Relays	Impulse Relay 4		basic
	Status of the impulse relay. Open or Closed.				
DA170	Impulse Relay 5 State	Impulse Relays	Impulse Relay 5		basic
	Status of the impulse relay. Open or Closed.				
DA175	Impulse Relay 6 State	Impulse Relays	Impulse Relay 6		basic
	Status of the impulse relay. Open or Closed.				
DA180	Impulse Relay 7 State	Impulse Relays	Impulse Relay 7		basic
	Status of the impulse relay. Open or Closed.				
DA185	Impulse Relay 8 State	Impulse Relays	Impulse Relay 8		basic
	Status of the impulse relay. Open or Closed.				

Config Table						
<i>Id</i>	<i>Name</i>	<i>Group</i>	<i>SubGroup</i>	<i>Unit</i>	<i>Range: Min/Max (default)</i>	<i>License</i>
CF71	Digital Input 1 Name	Digital Inputs	Digital Input 1		Digital Inputs	basic
	The name of the digital input 1.					
CF72	Digital Input 1 Normally Closed	Digital Inputs	Digital Input 1		True/False (True)	basic
	True/False value defining if the digital input 1 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF73	Digital Input 2 Name	Digital Inputs	Digital Input 2		Digital Inputs	basic
	The name of the digital input 2.					
CF74	Digital Input 2 Normally Closed	Digital Inputs	Digital Input 2		True/False (True)	basic
	True/False value defining if the digital input 2 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF75	Digital Input 3 Name	Digital Inputs	Digital Input 3		Digital Inputs	basic
	The name of the digital input 3.					
CF76	Digital Input 3 Normally Closed	Digital Inputs	Digital Input 3		True/False (True)	basic
	True/False value defining if the digital input 3 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF77	Digital Input 4 Name	Digital Inputs	Digital Input 4		Digital Inputs	basic
	The name of the digital input 4.					
CF78	Digital Input 4 Normally Closed	Digital Inputs	Digital Input 4		True/False (True)	basic
	True/False value defining if the digital input 4 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF121	Relay 1 Change State Boolean Condition	Relays	Relay 1		(False)	basic
	Relay 1 Boolean Condition					
CF122	Relay 1 Normal State	Relays	Relay 1		(Energized / De-energized)	basic
	Relay 1 Normal State					
CF123	Relay 2 Change State Boolean Condition	Relays	Relay 2		(False)	basic
	Relay 2 Boolean Condition					
CF124	Relay 2 Normal State	Relays	Relay 2		(Energized / De-energized)	basic

	Relay 2 Normal State					
CF150	Impulse Relay 1 Enabled	Impulse Relays	Impulse Relay 1		True/False (False)	basic
	If the impulse relay is disable, the controller do not try to impose the state.					
CF151	Impulse Relay 1 Desired State	Impulse Relays	Impulse Relay 1		(False)	basic
	PCL equation for the impulse relay. See Manual to know the syntax to use in order to link the impulse relay with a data or alarms.					
CF152	Impulse Relay 1 Default Desired State	Impulse Relays	Impulse Relay 1		True/False (False)	basic
	The desired state of the impulse relay when communication is lost (10 min) between Compas and the ADIO.					
CF153	Impulse Relay 1 Aux Contact Type	Impulse Relays	Impulse Relay 1			basic
	On wich contact type is the digital input recorded: NO or NC					
CF155	Impulse Relay 2 Enabled	Impulse Relays	Impulse Relay 2		True/False (False)	basic
	If the impulse relay is disable, the controller do not try to impose the state.					
CF156	Impulse Relay 2 Desired State	Impulse Relays	Impulse Relay 2		(False)	basic
	PCL equation for the impulse relay. See Manual to know the syntax to use in order to link the impulse relay with a data or alarms.					
CF157	Impulse Relay 2 Default Desired State	Impulse Relays	Impulse Relay 2		True/False (False)	basic
	The desired state of the impulse relay when communication is lost (10 min) between Compas and the ADIO.					
CF158	Impulse Relay 2 Aux Contact Type	Impulse Relays	Impulse Relay 2			basic
	On wich contact type is the digital input recorded: NO or NC					
CF160	Impulse Relay 3 Enabled	Impulse Relays	Impulse Relay 3		True/False (False)	basic
	If the impulse relay is disable, the controller do not try to impose the state.					
CF161	Impulse Relay 3 Desired State	Impulse Relays	Impulse Relay 3		(False)	basic
	PCL equation for the impulse relay. See Manual to know the syntax to use in order to link the impulse relay with a data or alarms.					
CF162	Impulse Relay 3 Default Desired State	Impulse Relays	Impulse Relay 3		True/False (False)	basic
	The desired state of the impulse relay when communication is lost (10 min) between Compas and the ADIO.					
CF163	Impulse Relay 3 Aux Contact Type	Impulse Relays	Impulse Relay 3			basic
	On wich contact type is the digital input recorded: NO or NC					
CF165	Impulse Relay 4 Enabled	Impulse Relays	Impulse Relay 4		True/False (False)	basic
	If the impulse relay is disable, the controller do not try to impose the state.					
CF166	Impulse Relay 4 Desired State	Impulse Relays	Impulse Relay 4		(False)	basic
	PCL equation for the impulse relay. See Manual to know the syntax to use in order to link the impulse relay with a data or alarms.					
CF167	Impulse Relay 4 Default Desired State	Impulse Relays	Impulse Relay 4		True/False (False)	basic

	The desired state of the impulse relay when communication is lost (10 min) between Compas and the ADIO.					
CF168	Impulse Relay 4 Aux Contact Type	Impulse Relays	Impulse Relay 4			basic
	On wich contact type is the digital input recorded: NO or NC					
CF170	Impulse Relay 5 Enabled	Impulse Relays	Impulse Relay 5		True/False (False)	basic
	If the impulse relay is disable, the controller do not try to impose the state.					
CF171	Impulse Relay 5 Desired State	Impulse Relays	Impulse Relay 5		(False)	basic
	PCL equation for the impulse relay. See Manual to know the syntax to use in order to link the impulse relay with a data or alarms.					
CF172	Impulse Relay 5 Default Desired State	Impulse Relays	Impulse Relay 5		True/False (False)	basic
	The desired state of the impulse relay when communication is lost (10 min) between Compas and the ADIO.					
CF173	Impulse Relay 5 Aux Contact Type	Impulse Relays	Impulse Relay 5			basic
	On wich contact type is the digital input recorded: NO or NC					
CF175	Impulse Relay 6 Enabled	Impulse Relays	Impulse Relay 6		True/False (False)	basic
	If the impulse relay is disable, the controller do not try to impose the state.					
CF176	Impulse Relay 6 Desired State	Impulse Relays	Impulse Relay 6		(False)	basic
	PCL equation for the impulse relay. See Manual to know the syntax to use in order to link the impulse relay with a data or alarms.					
CF177	Impulse Relay 6 Default Desired State	Impulse Relays	Impulse Relay 6		True/False (False)	basic
	The desired state of the impulse relay when communication is lost (10 min) between Compas and the ADIO.					
CF178	Impulse Relay 6 Aux Contact Type	Impulse Relays	Impulse Relay 6			basic
	On wich contact type is the digital input recorded: NO or NC					
CF180	Impulse Relay 7 Enabled	Impulse Relays	Impulse Relay 7		True/False (False)	basic
	If the impulse relay is disable, the controller do not try to impose the state.					
CF181	Impulse Relay 7 Desired State	Impulse Relays	Impulse Relay 7		(False)	basic
	PCL equation for the impulse relay. See Manual to know the syntax to use in order to link the impulse relay with a data or alarms.					
CF182	Impulse Relay 7 Default Desired State	Impulse Relays	Impulse Relay 7		True/False (False)	basic
	The desired state of the impulse relay when communication is lost (10 min) between Compas and the ADIO.					
CF183	Impulse Relay 7 Aux Contact Type	Impulse Relays	Impulse Relay 7			basic
	On wich contact type is the digital input recorded: NO or NC					
CF185	Impulse Relay 8 Enabled	Impulse Relays	Impulse Relay 8		True/False (False)	basic
	If the impulse relay is disable, the controller do not try to impose the state.					
CF186	Impulse Relay 8 Desired State	Impulse Relays	Impulse Relay 8		(False)	basic

	PCL equation for the impulse relay. See Manual to know the syntax to use in order to link the impulse relay with a data or alarms.					
CF187	Impulse Relay 8 Default Desired State	Impulse Relays	Impulse Relay 8		True/False (False)	basic
	The desired state of the impulse relay when communication is lost (10 min) between Compas and the ADIO.					
CF188	Impulse Relay 8 Aux Contact Type	Impulse Relays	Impulse Relay 8			basic
	On wich contact type is the digital input recorded: NO or NC					
CF521	Read Access User Numbers	Generic	Allowed Users		(1,2,3,4,5)	basic
	The list of the user numbers which have read access to this equipment. The user numbers are coma separated. The accepted user id are 1,2,3,4 and 5. Ex: 1,3,4					
CF522	Write Access User Numbers	Generic	Allowed Users		()	basic
	The list of the user numbers which have write access to this equipment. This means that these users can modify the configuration element, the alarm settings and use the control elements. The user numbers are coma separated. The accepted user ids are 1,2,3,4 and 5. Ex: 1,3,4					
CF601	Event Table Length	Generic	Events		10/4000 (100)	basic
	The maximum length of the table. The value must be comprised between 10 and 4000					
CF901	Number Of PLC Data	PLC			(0)	plc
	The number of PLC data. Every equipment can manage up to 30 user programmable data. Data elements are automatically added in the data table. Configuration parameters are added to set the PLC Data Name and the PLC Data Mathematical calculation. In order to use these functionalities, you need a license with the 'PLC' module					
CF902	Number Of PLC Alarm	PLC			(0)	plc
	The number of PLC alarm. Every equipment can manage up to 30 user programmable alarms. Alarm elements are automatically added in the alarm table. The alarm parameters are added to set the PLC Alarm Name and the PLC Alarm Boolean condition. In order to use these functionalities, you need a licence with the 'PLC' module					

Control Table				
<i>Id</i>	<i>Name</i>	<i>Group</i>	<i>SubGroup</i>	<i>License</i>
CT121	Invert Relay 1 State For X Seconds	Relays	Relay 1	basic
	Generate Pulse on relay			
CT122	Invert Relay 2 State For X Seconds	Relays	Relay 2	basic
	Generate Pulse on relay			
CT150	Invert Impulse Relay 1 State For X Seconds	Impulse Relays	Impulse Relay 1	basic
	Invert the state of the impulse relay for X seconds			
CT155	Invert Impulse Relay 2 State For X Seconds	Impulse Relays	Impulse Relay 2	basic
	Invert the state of the impulse relay for X seconds			
CT160	Invert Impulse Relay 3 State For X Seconds	Impulse Relays	Impulse Relay 3	basic
	Invert the state of the impulse relay for X seconds			
CT165	Invert Impulse Relay 4 State For X Seconds	Impulse Relays	Impulse Relay 4	basic
	Invert the state of the impulse relay for X seconds			
CT170	Invert Impulse Relay 5 State For X Seconds	Impulse Relays	Impulse Relay 5	basic
	Invert the state of the impulse relay for X seconds			

CT175	Invert Impulse Relay 6 State For X Seconds	Impulse Relays	Impulse Relay 6	basic
	Invert the state of the impulse relay for X seconds			
CT180	Invert Impulse Relay 7 State For X Seconds	Impulse Relays	Impulse Relay 7	basic
	Invert the state of the impulse relay for X seconds			
CT185	Invert Impulse Relay 8 State For X Seconds	Impulse Relays	Impulse Relay 8	basic
	Invert the state of the impulse relay for X seconds			
CT501	Clear My Events	Generic	Events	basic
	By writing '1' to this control element, all the events of this equipment will be cleared.			
CT502	Clear All Events	Generic	Events	basic
	By writing '1' to this control element, all the events of this equipment and all the events of all the sub-equipments will be cleared.			
CT511	Add Event	Generic	Events	basic
	This control element adds an event of severity none. The event name is the text written to this control element			
CT512	Add Major Event	Generic	Events	basic
	This control element adds an event of severity major. The event name is the text written to this control element			
CT521	Reset Default Names And Groups	Generic	Renaming	basic
	This control element resets all the element Names, Groups and Subgroups to default values for this equipment			
CT522	Reset Default Names And Groups Recursive	Generic	Renaming	basic
	This control element resets all the element Names, Groups and Subgroups to default values for this equipment and all sub equipments			

15.4.3 ADIO 9

Device Information	
Name	ADIO 9
Short Description	Custom I/O module Operanet
Long Description	
Hardware Reference	9413 060 05091
Software Reference	SOFT 000094 XX
Equipment Type	System Extension
ETSI Level	/site/sensors_actuators

Description Table				
<i>Id</i>	<i>Name</i>	<i>Group</i>	<i>SubGroup</i>	<i>License</i>
DE1	Product Name	Description	Product Info	basic
	The commercial name of the extension card.			
DE2	Hardware Reference	Description	Product Info	basic
	The hardware refence			
DE3	Hardware Revision	Description	Product Info	basic
	The hardware revision			
DE4	Software Reference	Description	Product Info	basic
	The software reference			

DE6	Serial Number	Description	Product Info	basic
	The serial number.			
DE8	Manufacturing Date	Description	Product Info	basic
	The production date.			
DE11	Description	Description	Custom Description	basic
	A free text zone to write a system description			
DE12	Reference	Description	Custom Description	basic
	A free text zone to write the customer reference of the system			

Alarm Table					
<i>Id</i>	<i>Name</i>	<i>Group</i>	<i>SubGroup</i>	<i>Severity Type (Level)</i>	<i>Set/Clear Delay</i>
AL71	Digital Input 1	Digital Inputs	Digital Input 1	warning (0)	5 / 2
	The name of the digital input 1 alarm.				
AL72	Digital Input 2	Digital Inputs	Digital Input 2	warning (0)	5 / 2
	The name of the digital input 2 alarm.				
AL73	Digital Input 3	Digital Inputs	Digital Input 3	warning (0)	5 / 2
	The name of the digital input 3 alarm.				
AL74	Digital Input 4	Digital Inputs	Digital Input 4	warning (0)	5 / 2
	The name of the digital input 4 alarm.				
AL75	Digital Input 5	Digital Inputs	Digital Input 5	warning (0)	5 / 2
	The name of the digital input 5 alarm.				
AL76	Digital Input 6	Digital Inputs	Digital Input 6	warning (0)	5 / 2
	The name of the digital input 6 alarm.				
AL77	Digital Input 7	Digital Inputs	Digital Input 7	warning (0)	5 / 2
	The name of the digital input 7 alarm.				
AL78	Digital Input 8	Digital Inputs	Digital Input 8	warning (0)	5 / 2
	The name of the digital input 8 alarm.				

Data Table					
<i>Id</i>	<i>Name</i>	<i>Group</i>	<i>SubGroup</i>	<i>Unit</i>	<i>License</i>
DA1	Temperature 1	Temperature Sensors	Temperature 1	degree C	basic
	Temperature Measurement 01				
DA2	Temperature 2	Temperature Sensors	Temperature 2	degree C	basic
	Temperature Measurement 11				
DA3	Temperature 3	Temperature Sensors	Temperature 3	degree C	basic
	Temperature Measurement 21				
DA4	Temperature 4	Temperature Sensors	Temperature 4	degree C	basic
	Temperature Measurement 31				
DA41	Shunt 1	Current Sensors	Shunt 1	Ampere	basic

	Shunt Measurement 1				
DA42	Shunt 2	Current Sensors	Shunt 2	Ampere	basic
	Shunt Measurement 2				
DA43	Shunt 3	Current Sensors	Shunt 3	Ampere	basic
	Shunt Measurement 3				
DA44	Shunt 4	Current Sensors	Shunt 4	Ampere	basic
	Shunt Measurement 4				
DA45	Shunt 5	Current Sensors	Shunt 5	Ampere	basic
	Shunt Measurement 5				
DA46	Shunt 6	Current Sensors	Shunt 6	Ampere	basic
	Shunt Measurement 6				
DA47	Shunt 7	Current Sensors	Shunt 7	Ampere	basic
	Shunt Measurement 7				
DA48	Shunt 8	Current Sensors	Shunt 8	Ampere	basic
	Shunt Measurement 8				
DA71	Digital Input 1 State	Digital Inputs	Digital Input 1		basic
	The state of the digital input				
DA72	Digital Input 2 State	Digital Inputs	Digital Input 2		basic
	The state of the digital input				
DA73	Digital Input 3 State	Digital Inputs	Digital Input 3		basic
	The state of the digital input				
DA74	Digital Input 4 State	Digital Inputs	Digital Input 4		basic
	The state of the digital input				
DA75	Digital Input 5 State	Digital Inputs	Digital Input 5		basic
	The state of the digital input				
DA76	Digital Input 6 State	Digital Inputs	Digital Input 6		basic
	The state of the digital input				
DA77	Digital Input 7 State	Digital Inputs	Digital Input 7		basic
	The state of the digital input				
DA78	Digital Input 8 State	Digital Inputs	Digital Input 8		basic
	The state of the digital input				
DA91	Voltage 1	Voltage Sensors	Voltage 1	Volt	basic
	Voltage Measurement 1				
DA131	Pulse Counter 1	Digital Inputs	Digital Input 1		basic
	Energy Consumption Counter 1				
DA132	Pulse Counter 2	Digital Inputs	Digital Input 2		basic
	Energy Consumption Counter 2				
DA133	Pulse Counter 3	Digital Inputs	Digital Input 3		basic
	Energy Consumption Counter 3				
DA134	Pulse Counter 4	Digital Inputs	Digital Input 4		basic
	Energy Consumption Counter 4				

Config Table						
<i>Id</i>	<i>Name</i>	<i>Group</i>	<i>SubGroup</i>	<i>Unit</i>	<i>Range: Min/Max (default)</i>	<i>License</i>
CF71	Digital Input 1 Name	Digital Inputs	Digital Input 1		Digital Inputs	basic
	The name of the digital input 1.					

CF72	Digital Input 1 Normally Closed	Digital Inputs	Digital Input 1		True/False (True)	basic
	True/False value defining if the digital input 1 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF73	Digital Input 2 Name	Digital Inputs	Digital Input 2		Digital Inputs	basic
	The name of the digital input 2.					
CF74	Digital Input 2 Normally Closed	Digital Inputs	Digital Input 2		True/False (True)	basic
	True/False value defining if the digital input 2 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF75	Digital Input 3 Name	Digital Inputs	Digital Input 3		Digital Inputs	basic
	The name of the digital input 3.					
CF76	Digital Input 3 Normally Closed	Digital Inputs	Digital Input 3		True/False (True)	basic
	True/False value defining if the digital input 3 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF77	Digital Input 4 Name	Digital Inputs	Digital Input 4		Digital Inputs	basic
	The name of the digital input 4.					
CF78	Digital Input 4 Normally Closed	Digital Inputs	Digital Input 4		True/False (True)	basic
	True/False value defining if the digital input 4 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF79	Digital Input 5 Name	Digital Inputs	Digital Input 5		Digital Inputs	basic
	The name of the digital input 5.					
CF80	Digital Input 5 Normally Closed	Digital Inputs	Digital Input 5		True/False (True)	basic
	True/False value defining if the digital input 5 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF81	Digital Input 6 Name	Digital Inputs	Digital Input 6		Digital Inputs	basic
	The name of the digital input 6.					
CF82	Digital Input 6 Normally Closed	Digital Inputs	Digital Input 6		True/False (True)	basic
	True/False value defining if the digital input 6 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF83	Digital Input 7 Name	Digital Inputs	Digital Input 7		Digital Inputs	basic
	The name of the digital input 7.					
CF84	Digital Input 7 Normally Closed	Digital Inputs	Digital Input 7		True/False (True)	basic
	True/False value defining if the digital input 7 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF85	Digital Input 8 Name	Digital Inputs	Digital Input 8		Digital Inputs	basic
	The name of the digital input 8.					
CF86	Digital Input 8 Normally Closed	Digital Inputs	Digital Input 8		True/False (True)	basic
	True/False value defining if the digital input 8 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF521	Read Access User Numbers	Generic	Allowed Users		(1,2,3,4,5)	basic
	The list of the user numbers which have read access to this equipment. The user numbers are coma separated. The accepted user id are 1,2,3,4 and 5. Ex: 1,3,4					
CF522	Write Access User Numbers	Generic	Allowed Users		()	basic

	The list of the user numbers which have write access to this equipment. This means that these users can modify the configuration element, the alarm settings and use the control elements. The user numbers are coma separated. The accepted user ids are 1,2,3,4 and 5. Ex: 1,3,4					
CF601	Event Table Length	Generic	Events		10/4000 (100)	basic
	The maximum length of the table. The value must be comprised between 10 and 4000					
CF901	Number Of PLC Data	PLC			(0)	plc
	The number of PLC data. Every equipment can manage up to 30 user programmable data. Data elements are automatically added in the data table. Configuration parameters are added to set the PLC Data Name and the PLC Data Mathematical calculation. In order to use these functionalities, you need a license with the 'PLC' module					
CF902	Number Of PLC Alarm	PLC			(0)	plc
	The number of PLC alarm. Every equipment can manage up to 30 user programmable alarms. Alarm elements are automatically added in the alarm table. The alarm parameters are added to set the PLC Alarm Name and the PLC Alarm Boolean condition. In order to use these functionalities, you need a licence with the 'PLC' module					

Control Table				
<i>Id</i>	<i>Name</i>	<i>Group</i>	<i>SubGroup</i>	<i>License</i>
CT101	Set Pulse Counter 1	Pulse Counter	Pulse Counter 1	basic
	Set Counter 01 Value			
CT102	Set Pulse Counter 2	Pulse Counter	Pulse Counter 2	basic
	Set Counter 11 Value			
CT103	Set Pulse Counter 3	Pulse Counter	Pulse Counter 3	basic
	Set Counter 21 Value			
CT104	Set Pulse Counter 4	Pulse Counter	Pulse Counter 4	basic
	Set Counter 31 Value			
CT501	Clear My Events	Generic	Events	basic
	By writing '1' to this control element, all the events of this equipment will be cleared.			
CT502	Clear All Events	Generic	Events	basic
	By writing '1' to this control element, all the events of this equipment and all the events of all the sub-equipments will be cleared.			
CT511	Add Event	Generic	Events	basic
	This control element adds an event of severity none. The event name is the text written to this control element			
CT512	Add Major Event	Generic	Events	basic
	This control element adds an event of severity major. The event name is the text written to this control element			
CT521	Reset Default Names And Groups	Generic	Renaming	basic
	This control element resets all the element Names, Groups and Subgroups to default values for this equipment			
CT522	Reset Default Names And Groups Recursive	Generic	Renaming	basic
	This control element resets all the element Names, Groups and Subgroups to default values for this equipment and all sub equipments			

15.4.4 ADIO 10

Device Information	
Name	ADIO 10
Short Description	Standard I/O module DC systems used as standard IO module

Long Description	I/O module with 2 inputs for temperature measurement, 4 voltage measurements, 2 current measurements, 8 digital inputs and 8 relays
Hardware Reference	9413 060 05101
Software Reference	SOFT 000099 XX
Equipment Type	System Extension
ETSI Level	/site/sensors_actuators

Description Table				
<i>Id</i>	<i>Name</i>	<i>Group</i>	<i>SubGroup</i>	<i>License</i>
DE1	Product Name	Description	Product Info	basic
	The commercial name of the extension card.			
DE2	Hardware Reference	Description	Product Info	basic
	The hardware refence			
DE3	Hardware Revision	Description	Product Info	basic
	The hardware revision			
DE4	Software Reference	Description	Product Info	basic
	The software reference			
DE6	Serial Number	Description	Product Info	basic
	The serial number.			
DE8	Manufacturing Date	Description	Product Info	basic
	The production date.			
DE11	Description	Description	Custom Description	basic
	A free text zone to write a system description			
DE12	Reference	Description	Custom Description	basic
	A free text zone to write the customer reference of the system			

Alarm Table					
<i>Id</i>	<i>Name</i>	<i>Group</i>	<i>SubGroup</i>	<i>Severity Type (Level)</i>	<i>Set/Clear Delay</i>
AL71	Digital Input 1	Digital Inputs	Digital Input 1	warning (0)	5 / 2
	The name of the digital input 1 alarm.				
AL72	Digital Input 2	Digital Inputs	Digital Input 2	warning (0)	5 / 2
	The name of the digital input 2 alarm.				
AL73	Digital Input 3	Digital Inputs	Digital Input 3	warning (0)	5 / 2
	The name of the digital input 3 alarm.				
AL74	Digital Input 4	Digital Inputs	Digital Input 4	warning (0)	5 / 2
	The name of the digital input 4 alarm.				
AL75	Digital Input 5	Digital Inputs	Digital Input 5	warning (0)	5 / 2
	The name of the digital input 5 alarm.				
AL76	Digital Input 6	Digital Inputs	Digital Input 6	warning (0)	5 / 2
	The name of the digital input 6 alarm.				

AL77	Digital Input 7	Digital Inputs	Digital Input 7	warning (0)	5 / 2
	The name of the digital input 7 alarm.				
AL78	Digital Input 8	Digital Inputs	Digital Input 8	warning (0)	5 / 2
	The name of the digital input 8 alarm.				

Data Table					
<i>Id</i>	<i>Name</i>	<i>Group</i>	<i>SubGroup</i>	<i>Unit</i>	<i>License</i>
DA1	Temperature 1	Temperature Sensors	Temperature 1	degree C	basic
	Temperature Measurement 1				
DA2	Temperature 2	Temperature Sensors	Temperature 2	degree C	basic
	Temperature Measurement 2				
DA71	Shunt 1	Current Sensors	Shunt 1	Ampere	basic
	Shunt Measurement 1				
DA72	Shunt 2	Current Sensors	Shunt 2	Ampere	basic
	Shunt Measurement 2				
DA91	Voltage 1	Voltage Sensors	Voltage 1	Volt	basic
	Voltage Measurement 1				
DA92	Voltage 2	Voltage Sensors	Voltage 2	Volt	basic
	Voltage Measurement 2				
DA93	Voltage 3	Voltage Sensors	Voltage 3	Volt	basic
	Voltage Measurement 3				
DA94	Voltage 4	Voltage Sensors	Voltage 4	Volt	basic
	Voltage Measurement 4				
DA121	Relay 1 State	Relays	Relay 1		basic
	Actual state of the Relay				
DA123	Relay 2 State	Relays	Relay 2		basic
	Actual state of the Relay				
DA125	Relay 3 State	Relays	Relay 3		basic
	Actual state of the Relay				
DA127	Relay 4 State	Relays	Relay 4		basic
	Actual state of the Relay				
DA129	Relay 5 State	Relays	Relay 5		basic
	Actual state of the Relay				
DA131	Relay 6 State	Relays	Relay 6		basic
	Actual state of the Relay				
DA133	Relay 7 State	Relays	Relay 7		basic
	Actual state of the Relay				
DA135	Relay 8 State	Relays	Relay 8		basic
	Actual state of the Relay				

Config Table						
<i>Id</i>	<i>Name</i>	<i>Group</i>	<i>SubGroup</i>	<i>Unit</i>	<i>Range: Min/Max (default)</i>	<i>License</i>
CF41	Shunt 1 Rating At 60mV	Battery		Ampere		basic
	The rating of the shunt 1 at 60mV.					
CF42	Shunt 2 Rating At 60mV	Battery		Ampere		basic

	The rating of the shunt 2 at 60mV.					
CF71	Digital Input 1 Name	Digital Inputs	Digital Input 1		Digital Inputs	basic
	The name of the digital input 1.					
CF72	Digital Input 1 Normally Closed	Digital Inputs	Digital Input 1		True/False (True)	basic
	True/False value defining if the digital input 1 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF73	Digital Input 2 Name	Digital Inputs	Digital Input 2		Digital Inputs	basic
	The name of the digital input 2.					
CF74	Digital Input 2 Normally Closed	Digital Inputs	Digital Input 2		True/False (True)	basic
	True/False value defining if the digital input 2 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF75	Digital Input 3 Name	Digital Inputs	Digital Input 3		Digital Inputs	basic
	The name of the digital input 3.					
CF76	Digital Input 3 Normally Closed	Digital Inputs	Digital Input 3		True/False (True)	basic
	True/False value defining if the digital input 3 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF77	Digital Input 4 Name	Digital Inputs	Digital Input 4		Digital Inputs	basic
	The name of the digital input 4.					
CF78	Digital Input 4 Normally Closed	Digital Inputs	Digital Input 4		True/False (True)	basic
	True/False value defining if the digital input 4 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF79	Digital Input 5 Name	Digital Inputs	Digital Input 5		Digital Inputs	basic
	The name of the digital input 5.					
CF80	Digital Input 5 Normally Closed	Digital Inputs	Digital Input 5		True/False (True)	basic
	True/False value defining if the digital input 5 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF81	Digital Input 6 Name	Digital Inputs	Digital Input 6		Digital Inputs	basic
	The name of the digital input 6.					
CF82	Digital Input 6 Normally Closed	Digital Inputs	Digital Input 6		True/False (True)	basic
	True/False value defining if the digital input 6 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF83	Digital Input 7 Name	Digital Inputs	Digital Input 7		Digital Inputs	basic
	The name of the digital input 7.					
CF84	Digital Input 7 Normally Closed	Digital Inputs	Digital Input 7		True/False (True)	basic
	True/False value defining if the digital input 7 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF85	Digital Input 8 Name	Digital Inputs	Digital Input 8		Digital Inputs	basic
	The name of the digital input 8.					
CF86	Digital Input 8 Normally Closed	Digital Inputs	Digital Input 8		True/False (True)	basic
	True/False value defining if the digital input 8 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF121	Relay 1 Change State Boolean Condition	Relays	Relay 1		(False)	basic
	Relay 1 Boolean Condition					

CF122	Relay 1 Normal State	Relays	Relay 1		(Energized / De-energized)	basic
	Relay 1 Normal State					
CF123	Relay 2 Change State Boolean Condition	Relays	Relay 2		(False)	basic
	Relay 2 Boolean Condition					
CF124	Relay 2 Normal State	Relays	Relay 2		(Energized / De-energized)	basic
	Relay 2 Normal State					
CF125	Relay 3 Change State Boolean Condition	Relays	Relay 3		(False)	basic
	Relay 3 Boolean Condition					
CF126	Relay 3 Normal State	Relays	Relay 3		(Energized / De-energized)	basic
	Relay 3 Normal State					
CF127	Relay 4 Change State Boolean Condition	Relays	Relay 4		(False)	basic
	Relay 4 Boolean Condition					
CF128	Relay 4 Normal State	Relays	Relay 4		(Energized / De-energized)	basic
	Relay 4 Normal State					
CF129	Relay 5 Change State Boolean Condition	Relays	Relay 5		(False)	basic
	Relay 5 Boolean Condition					
CF130	Relay 5 Normal State	Relays	Relay 5		(Energized / De-energized)	basic
	Relay 5 Normal State					
CF131	Relay 6 Change State Boolean Condition	Relays	Relay 6		(False)	basic
	Relay 6 Boolean Condition					
CF132	Relay 6 Normal State	Relays	Relay 6		(Energized / De-energized)	basic
	Relay 6 Normal State					
CF133	Relay 7 Change State Boolean Condition	Relays	Relay 7		(False)	basic
	Relay 7 Boolean Condition					
CF134	Relay 7 Normal State	Relays	Relay 7		(Energized / De-energized)	basic
	Relay 7 Normal State					
CF135	Relay 8 Change State Boolean Condition	Relays	Relay 8		(False)	basic
	Relay 8 Boolean Condition					
CF136	Relay 8 Normal State	Relays	Relay 8		(Energized / De-energized)	basic
	Relay 8 Normal State					
CF137	Default Digital Output Binary Vector	Relays			(0b00000000)	basic
	This configuration is stored inside the module in case of configuration failure					
CF521	Read Access User Numbers	Generic	Allowed Users		(1,2,3,4,5)	basic
	The list of the user numbers which have read access to this equipment. The user numbers are coma separated. The accepted user id are 1,2,3,4 and 5. Ex: 1,3,4					

CF522	Write Access User Numbers	Generic	Allowed Users		()	basic
	The list of the user numbers which have write access to this equipment. This means that these users can modify the configuration element, the alarm settings and use the control elements. The user numbers are coma separated. The accepted user ids are 1,2,3,4 and 5. Ex: 1,3,4					
CF601	Event Table Length	Generic	Events		10/4000 (100)	basic
	The maximum length of the table. The value must be comprised between 10 and 4000					
CF901	Number Of PLC Data	PLC			(0)	plc
	The number of PLC data. Every equipment can manage up to 30 user programmable data. Data elements are automatically added in the data table. Configuration parameters are added to set the PLC Data Name and the PLC Data Mathematical calculation. In order to use these functionalities, you need a license with the 'PLC' module					
CF902	Number Of PLC Alarm	PLC			(0)	plc
	The number of PLC alarm. Every equipment can manage up to 30 user programmable alarms. Alarm elements are automatically added in the alarm table. The alarm parameters are added to set the PLC Alarm Name and the PLC Alarm Boolean condition. In order to use these functionalities, you need a licence with the 'PLC' module					

Control Table				
<i>Id</i>	<i>Name</i>	<i>Group</i>	<i>SubGroup</i>	<i>License</i>
CT11	Calibrate V1	Calibration		basic
CT12	Calibrate V2	Calibration		basic
CT13	Calibrate V3	Calibration		basic
CT14	Calibrate V4	Calibration		basic
CT121	Invert Relay 1 State For X Seconds	Relays	Relay 1	basic
	Generate Pulse on relay			
CT123	Invert Relay 2 State For X Seconds	Relays	Relay 2	basic
	Generate Pulse on relay			
CT125	Invert Relay 3 State For X Seconds	Relays	Relay 3	basic
	Generate Pulse on relay			
CT127	Invert Relay 4 State For X Seconds	Relays	Relay 4	basic
	Generate Pulse on relay			
CT129	Invert Relay 5 State For X Seconds	Relays	Relay 5	basic
	Generate Pulse on relay			
CT131	Invert Relay 6 State For X Seconds	Relays	Relay 6	basic
	Generate Pulse on relay			
CT133	Invert Relay 7 State For X Seconds	Relays	Relay 7	basic
	Generate Pulse on relay			
CT135	Invert Relay 8 State For X Seconds	Relays	Relay 8	basic
	Generate Pulse on relay			
CT501	Clear My Events	Generic	Events	basic
	By writing '1' to this control element, all the events of this equipment will be cleared.			
CT502	Clear All Events	Generic	Events	basic
	By writing '1' to this control element, all the events of this equipment and all the events of all the sub-equipments will be cleared.			
CT511	Add Event	Generic	Events	basic

	This control element adds an event of severity none. The event name is the text written to this control element			
CT512	Add Major Event	Generic	Events	basic
	This control element adds an event of severity major. The event name is the text written to this control element			
CT521	Reset Default Names And Groups	Generic	Renaming	basic
	This control element resets all the element Names, Groups and Subgroups to default values for this equipment			
CT522	Reset Default Names And Groups Recursive	Generic	Renaming	basic
	This control element resets all the element Names, Groups and Subgroups to default values for this equipment and all sub equipments			

15.4.5 ADIO 12

Device Information	
Name	ADIO 12
Short Description	ADIO Module
Long Description	
Hardware Reference	9413 060 05121
Software Reference	SOFT 000121 XX
Equipment Type	System Extension
ETSI Level	/site/sensors_actuators

Description Table				
<i>Id</i>	<i>Name</i>	<i>Group</i>	<i>SubGroup</i>	<i>License</i>
DE1	Product Name	Description	Product Info	basic
	The commercial name of the extension card.			
DE2	Hardware Reference	Description	Product Info	basic
	The hardware refence			
DE3	Hardware Revision	Description	Product Info	basic
	The hardware revision			
DE4	Software Reference	Description	Product Info	basic
	The software reference			
DE6	Serial Number	Description	Product Info	basic
	The serial number.			
DE8	Manufacturing Date	Description	Product Info	basic
	The production date.			
DE11	Description	Description	Custom Description	basic
	A free text zone to write a system description			
DE12	Reference	Description	Custom Description	basic
	A free text zone to write the customer reference of the system			

Data Table					
<i>Id</i>	<i>Name</i>	<i>Group</i>	<i>SubGroup</i>	<i>Unit</i>	<i>License</i>
DA1	Temperature 1	Temperature Sensors	Temperature 1	degree C	basic
	Temperature Measurement 01				
DA2	Temperature 2	Temperature Sensors	Temperature 2	degree C	basic

	Temperature Measurement 11				
DA71	Shunt 1	Current Sensors	Shunt 1	Ampere	basic
	Shunt Measurement 1				
DA72	Shunt 2	Current Sensors	Shunt 2	Ampere	basic
	Shunt Measurement 2				
DA73	Shunt 3	Current Sensors	Shunt 3	Ampere	basic
	Shunt Measurement 3				
DA74	Shunt 4	Current Sensors	Shunt 4	Ampere	basic
	Shunt Measurement 4				
DA75	Shunt 5	Current Sensors	Shunt 5	Ampere	basic
	Shunt Measurement 5				
DA76	Shunt 6	Current Sensors	Shunt 6	Ampere	basic
	Shunt Measurement 6				
DA77	Shunt 7	Current Sensors	Shunt 7	Ampere	basic
	Shunt Measurement 7				
DA78	Shunt 8	Current Sensors	Shunt 8	Ampere	basic
	Shunt Measurement 8				
DA91	Voltage 1	Voltage Sensors	Voltage 1	Volt	basic
	Voltage Measurement 01				
DA92	Voltage 2	Voltage Sensors	Voltage 2	Volt	basic
	Voltage Measurement 11				
DA93	Voltage 3	Voltage Sensors	Voltage 3	Volt	basic
	Voltage Measurement 21				
DA94	Voltage 4	Voltage Sensors	Voltage 4	Volt	basic
	Voltage Measurement 31				
DA121	Relay 1 State	Relays	Relay 1		basic
	Actual state of the Relay				
DA123	Relay 2 State	Relays	Relay 2		basic
	Actual state of the Relay				
DA125	Relay 3 State	Relays	Relay 3		basic
	Actual state of the Relay				
DA127	Relay 4 State	Relays	Relay 4		basic
	Actual state of the Relay				
DA129	Relay 5 State	Relays	Relay 5		basic
	Actual state of the Relay				
DA131	Relay 6 State	Relays	Relay 6		basic
	Actual state of the Relay				
DA133	Relay 7 State	Relays	Relay 7		basic
	Actual state of the Relay				
DA135	Relay 8 State	Relays	Relay 8		basic
	Actual state of the Relay				

Config Table						
<i>Id</i>	<i>Name</i>	<i>Group</i>	<i>SubGroup</i>	<i>Unit</i>	<i>Range: Min/Max (default)</i>	<i>License</i>
CF41	Shunt 1 Rating At 60mV	Current Sensors	Shunt 1	Ampere		basic
	The rating of the shunt 1 at 60mV.					
CF42	Shunt 2 Rating At 60mV	Current Sensors	Shunt 2	Ampere		basic

	The rating of the shunt 2 at 60mV.					
CF43	Shunt 3 Rating At 60mV	Current Sensors	Shunt 3	Ampere		basic
	The rating of the shunt 3 at 60mV.					
CF44	Shunt 4 Rating At 60mV	Current Sensors	Shunt 4	Ampere		basic
	The rating of the shunt 4 at 60mV.					
CF45	Shunt 5 Rating At 60mV	Current Sensors	Shunt 5	Ampere		basic
	The rating of the shunt 5 at 60mV.					
CF46	Shunt 6 Rating At 60mV	Current Sensors	Shunt 6	Ampere		basic
	The rating of the shunt 6 at 60mV.					
CF47	Shunt 7 Rating At 60mV	Current Sensors	Shunt 7	Ampere		basic
	The rating of the shunt 7 at 60mV.					
CF48	Shunt 8 Rating At 60mV	Current Sensors	Shunt 8	Ampere		basic
	The rating of the shunt 8 at 60mV.					
CF121	Relay 1 Change State Boolean Condition	Relays	Relay 1		(False)	basic
	Relay 1 Boolean Condition					
CF122	Relay 1 Normal State	Relays	Relay 1		(Energized / De-energized)	basic
	Relay 1 Normal State					
CF123	Relay 2 Change State Boolean Condition	Relays	Relay 2		(False)	basic
	Relay 2 Boolean Condition					
CF124	Relay 2 Normal State	Relays	Relay 2		(Energized / De-energized)	basic
	Relay 2 Normal State					
CF125	Relay 3 Change State Boolean Condition	Relays	Relay 3		(False)	basic
	Relay 3 Boolean Condition					
CF126	Relay 3 Normal State	Relays	Relay 3		(Energized / De-energized)	basic
	Relay 3 Normal State					
CF127	Relay 4 Change State Boolean Condition	Relays	Relay 4		(False)	basic
	Relay 4 Boolean Condition					
CF128	Relay 4 Normal State	Relays	Relay 4		(Energized / De-energized)	basic
	Relay 4 Normal State					
CF129	Relay 5 Change State Boolean Condition	Relays	Relay 5		(False)	basic
	Relay 5 Boolean Condition					
CF130	Relay 5 Normal State	Relays	Relay 5		(Energized / De-energized)	basic
	Relay 5 Normal State					
CF131	Relay 6 Change State Boolean Condition	Relays	Relay 6		(False)	basic
	Relay 6 Boolean Condition					
CF132	Relay 6 Normal State	Relays	Relay 6		(Energized / De-energized)	basic
	Relay 6 Normal State					
CF133	Relay 7 Change State Boolean Condition	Relays	Relay 7		(False)	basic

	Relay 7 Boolean Condition					
CF134	Relay 7 Normal State	Relays	Relay 7		(Energized / De-energized)	basic
	Relay 7 Normal State					
CF135	Relay 8 Change State Boolean Condition	Relays	Relay 8		(False)	basic
	Relay 8 Boolean Condition					
CF136	Relay 8 Normal State	Relays	Relay 8		(Energized / De-energized)	basic
	Relay 8 Normal State					
CF137	Default Digital Output Binary Vector	Relays	General		(0b00000000)	basic
	This configuration is stored inside the module in case of configuration failure					
CF521	Read Access User Numbers	Generic	Allowed Users		(1,2,3,4,5)	basic
	The list of the user numbers which have read access to this equipment. The user numbers are coma separated. The accepted user id are 1,2,3,4 and 5. Ex: 1,3,4					
CF522	Write Access User Numbers	Generic	Allowed Users		()	basic
	The list of the user numbers which have write access to this equipment. This means that these users can modify the configuration element, the alarm settings and use the control elements. The user numbers are coma separated. The accepted user ids are 1,2,3,4 and 5. Ex: 1,3,4					
CF601	Event Table Length	Generic	Events		10/4000 (100)	basic
	The maximum length of the table. The value must be comprised between 10 and 4000					
CF901	Number Of PLC Data	PLC			(0)	plc
	The number of PLC data. Every equipment can manage up to 30 user programmable data. Data elements are automatically added in the data table. Configuration parameters are added to set the PLC Data Name and the PLC Data Mathematical calculation. In order to use these functionalities, you need a license with the 'PLC' module					
CF902	Number Of PLC Alarm	PLC			(0)	plc
	The number of PLC alarm. Every equipment can manage up to 30 user programmable alarms. Alarm elements are automatically added in the alarm table. The alarm parameters are added to set the PLC Alarm Name and the PLC Alarm Boolean condition. In order to use these functionalities, you need a licence with the 'PLC' module					

Control Table				
<i>Id</i>	<i>Name</i>	<i>Group</i>	<i>SubGroup</i>	<i>License</i>
CT101	Set Pulse Counter 1	Pulse Counter		basic
	Set Counter 1 Value			
CT102	Set Pulse Counter 2	Pulse Counter		basic
	Set Counter 2 Value			
CT103	Set Pulse Counter 3	Pulse Counter		basic
	Set Counter 3 Value			
CT104	Set Pulse Counter 4	Pulse Counter		basic
	Set Counter 4 Value			
CT105	Set Pulse Counter 5	Pulse Counter		basic
	Set Counter 5 Value			
CT106	Set Pulse Counter 6	Pulse Counter		basic
	Set Counter 6 Value			
CT107	Set Pulse Counter 7	Pulse Counter		basic
	Set Counter 7 Value			

CT108	Set Pulse Counter 8	Pulse Counter		basic
	Set Counter 8 Value			
CT121	Invert Relay 1 State For X Seconds	Relays	Relay 1	basic
	Generate Pulse on relay			
CT123	Invert Relay 2 State For X Seconds	Relays	Relay 2	basic
	Generate Pulse on relay			
CT125	Invert Relay 3 State For X Seconds	Relays	Relay 3	basic
	Generate Pulse on relay			
CT127	Invert Relay 4 State For X Seconds	Relays	Relay 4	basic
	Generate Pulse on relay			
CT129	Invert Relay 5 State For X Seconds	Relays	Relay 5	basic
	Generate Pulse on relay			
CT131	Invert Relay 6 State For X Seconds	Relays	Relay 6	basic
	Generate Pulse on relay			
CT133	Invert Relay 7 State For X Seconds	Relays	Relay 7	basic
	Generate Pulse on relay			
CT135	Invert Relay 8 State For X Seconds	Relays	Relay 8	basic
	Generate Pulse on relay			
CT501	Clear My Events	Generic	Events	basic
	By writing '1' to this control element, all the events of this equipment will be cleared.			
CT502	Clear All Events	Generic	Events	basic
	By writing '1' to this control element, all the events of this equipment and all the events of all the sub-equipments will be cleared.			
CT511	Add Event	Generic	Events	basic
	This control element adds an event of severity none. The event name is the text written to this control element			
CT512	Add Major Event	Generic	Events	basic
	This control element adds an event of severity major. The event name is the text written to this control element			
CT521	Reset Default Names And Groups	Generic	Renaming	basic
	This control element resets all the element Names, Groups and Subgroups to default values for this equipment			
CT522	Reset Default Names And Groups Recursive	Generic	Renaming	basic
	This control element resets all the element Names, Groups and Subgroups to default values for this equipment and all sub equipments			

15.4.6 ADIO 13

Device Information	
Name	ADIO 13
Short Description	ADIO Module
Long Description	
Hardware Reference	9413 060 05131
Software Reference	SOFT 000122 XX
Equipment Type	System Extension
ETSI Level	/site/sensors_actuators

Description Table				
<i>Id</i>	<i>Name</i>	<i>Group</i>	<i>SubGroup</i>	<i>License</i>
DE1	Product Name	Description	Product Info	basic
	The commercial name of the extension card.			
DE2	Hardware Reference	Description	Product Info	basic
	The hardware refence			
DE3	Hardware Revision	Description	Product Info	basic
	The hardware revision			
DE4	Software Reference	Description	Product Info	basic
	The software reference			
DE6	Serial Number	Description	Product Info	basic
	The serial number.			
DE8	Manufacturing Date	Description	Product Info	basic
	The production date.			
DE11	Description	Description	Custom Description	basic
	A free text zone to write a system description			
DE12	Reference	Description	Custom Description	basic
	A free text zone to write the customer reference of the system			

Data Table					
<i>Id</i>	<i>Name</i>	<i>Group</i>	<i>SubGroup</i>	<i>Unit</i>	<i>License</i>
DA11	Hybrid Power	Hybrid		Watt	basic
	The Output Power				
DA71	Shunt 1	Current Sensors	Shunt 1	Ampere	basic
	Shunt Measurement 1				
DA72	Shunt 2	Current Sensors	Shunt 2	Ampere	basic
	Shunt Measurement 2				
DA91	Voltage 1	Voltage Sensors	Voltage 1	Volt	basic
	Voltage Measurement 1				
DA201	Wind Direction	Wind Sensor		degree	basic
	The wind direction				
DA202	Wind Speed	Wind Sensor			basic
	The wind speed				
DA203	Wind Sensor Status	Wind Sensor			basic
	The wind sensor status				
DA301	MPPT GlobalSet Point	Hybrid		Watt	basic
DA310	MPPT Value 1	Hybrid		Volt	basic
DA311	MPPT Value 2	Hybrid		Volt	basic
DA312	MPPT Value 3	Hybrid		Volt	basic
DA313	MPPT Value 4	Hybrid		Volt	basic
DA314	MPPT Value 5	Hybrid		Volt	basic
DA315	MPPT Value 6	Hybrid		Volt	basic

DA316	MPPT Value 7	Hybrid		Volt	basic
DA317	MPPT Value 8	Hybrid		Volt	basic
DA318	MPPT Value 9	Hybrid		Volt	basic
DA319	MPPT Value 10	Hybrid		Volt	basic
DA320	MPPT Value 11	Hybrid		Volt	basic
DA321	MPPT Value 12	Hybrid		Volt	basic
DA322	MPPT Value 13	Hybrid		Volt	basic
DA323	MPPT Value 14	Hybrid		Volt	basic
DA324	MPPT Value 15	Hybrid		Volt	basic
DA325	MPPT Value 16	Hybrid		Volt	basic
DA326	MPPT Value 17	Hybrid		Volt	basic
DA327	MPPT Value 18	Hybrid		Volt	basic
DA328	MPPT Value 19	Hybrid		Volt	basic
DA329	MPPT Value 20	Hybrid		Volt	basic

Config Table						
<i>Id</i>	<i>Name</i>	<i>Group</i>	<i>SubGroup</i>	<i>Unit</i>	<i>Range: Min/Max (default)</i>	<i>License</i>
CF41	Shunt 1 Rating At 60mV	Current Sensors		Ampere		basic
	The rating of the shunt 1 at 60mV.					
CF42	Shunt 2 Rating At 60mV	Current Sensors		Ampere		basic
	The rating of the shunt 2 at 60mV.					
CF521	Read Access User Numbers	Generic	Allowed Users		(1,2,3,4,5)	basic
	The list of the user numbers which have read access to this equipment. The user numbers are coma separated. The accepted user id are 1,2,3,4 and 5. Ex: 1,3,4					
CF522	Write Access User Numbers	Generic	Allowed Users		()	basic
	The list of the user numbers which have write access to this equipment. This means that these users can modify the configuration element, the alarm settings and use the control elements. The user numbers are coma separated. The accepted user ids are 1,2,3,4 and 5. Ex: 1,3,4					
CF601	Event Table Length	Generic	Events		10/4000 (100)	basic
	The maximum length of the table. The value must be comprised between 10 and 4000					
CF901	Number Of PLC Data	PLC			(0)	plc

	The number of PLC data. Every equipment can manage up to 30 user programmable data. Data elements are automatically added in the data table. Configuration parameters are added to set the PLC Data Name and the PLC Data Mathematical calculation. In order to use these functionalities, you need a license with the 'PLC' module					
CF902	Number Of PLC Alarm	PLC			(0)	plc
	The number of PLC alarm. Every equipment can manage up to 30 user programmable alarms. Alarm elements are automatically added in the alarm table. The alarm parameters are added to set the PLC Alarm Name and the PLC Alarm Boolean condition. In order to use these functionalities, you need a licence with the 'PLC' module					

Control Table				
<i>Id</i>	<i>Name</i>	<i>Group</i>	<i>SubGroup</i>	<i>License</i>
CT501	Clear My Events	Generic	Events	basic
	By writing '1' to this control element, all the events of this equipment will be cleared.			
CT502	Clear All Events	Generic	Events	basic
	By writing '1' to this control element, all the events of this equipment and all the events of all the sub-equipments will be cleared.			
CT511	Add Event	Generic	Events	basic
	This control element adds an event of severity none. The event name is the text written to this control element			
CT512	Add Major Event	Generic	Events	basic
	This control element adds an event of severity major. The event name is the text written to this control element			
CT521	Reset Default Names And Groups	Generic	Renaming	basic
	This control element resets all the element Names, Groups and Subgroups to default values for this equipment			
CT522	Reset Default Names And Groups Recursive	Generic	Renaming	basic
	This control element resets all the element Names, Groups and Subgroups to default values for this equipment and all sub equipments			

15.4.7 ADIO DIN 17

Device Information	
Name	ADIO DIN 17
Short Description	ADIO DIN 17
Long Description	I/O module with 10 inputs for temperature measurement
Hardware Reference	9413 060 05171
Software Reference	SOFT 000153 XX
Equipment Type	System Extension
ETSI Level	/site/sensors_actuators

Description Table				
<i>Id</i>	<i>Name</i>	<i>Group</i>	<i>SubGroup</i>	<i>License</i>
DE1	Product Name	Description	Product Info	basic
	The commercial name of the extension card.			
DE2	Hardware Reference	Description	Product Info	basic
	The hardware refence			
DE3	Hardware Revision	Description	Product Info	basic

	The hardware revision			
DE4	Software Reference	Description	Product Info	basic
	The software reference			
DE6	Serial Number	Description	Product Info	basic
	The serial number.			
DE8	Manufacturing Date	Description	Product Info	basic
	The production date.			
DE11	Description	Description	Custom Description	basic
	A free text zone to write a system description			
DE12	Reference	Description	Custom Description	basic
	A free text zone to write the customer reference of the system			

Data Table					
<i>Id</i>	<i>Name</i>	<i>Group</i>	<i>SubGroup</i>	<i>Unit</i>	<i>License</i>
DA1	Temperature 1	Temperature Sensors	Temperature 1	degree C	basic
	Temperature Measurement 1				
DA2	Temperature 2	Temperature Sensors	Temperature 2	degree C	basic
	Temperature Measurement 2				
DA3	Temperature 3	Temperature Sensors	Temperature 3	degree C	basic
	Temperature Measurement 3				
DA4	Temperature 4	Temperature Sensors	Temperature 4	degree C	basic
	Temperature Measurement 4				
DA5	Temperature 5	Temperature Sensors	Temperature 5	degree C	basic
	Temperature Measurement 5				
DA6	Temperature 6	Temperature Sensors	Temperature 6	degree C	basic
	Temperature Measurement 6				
DA7	Temperature 7	Temperature Sensors	Temperature 7	degree C	basic
	Temperature Measurement 7				
DA8	Temperature 8	Temperature Sensors	Temperature 8	degree C	basic
	Temperature Measurement 8				
DA9	Temperature 9	Temperature Sensors	Temperature 9	degree C	basic
	Temperature Measurement 9				
DA10	Temperature 10	Temperature Sensors	Temperature 10	degree C	basic
	Temperature Measurement 10				
DA51	Temperature 1 Gradient	Temperature Sensors	Temperature 1	deg/min	basic
	Temperature Gradient 1				
DA52	Temperature 2 Gradient	Temperature Sensors	Temperature 2	deg/min	basic
	Temperature Gradient 2				
DA53	Temperature 3 Gradient	Temperature Sensors	Temperature 3	deg/min	basic
	Temperature Gradient 3				
DA54	Temperature 4 Gradient	Temperature Sensors	Temperature 4	deg/min	basic
	Temperature Gradient 4				
DA55	Temperature 5 Gradient	Temperature Sensors	Temperature 5	deg/min	basic
	Temperature Gradient 5				
DA56	Temperature 6 Gradient	Temperature Sensors	Temperature 6	deg/min	basic
	Temperature Gradient 6				
DA57	Temperature 7 Gradient	Temperature Sensors	Temperature 7	deg/min	basic
	Temperature Gradient 7				

DA58	Temperature 8 Gradient	Temperature Sensors	Temperature 8	deg/min	basic
	Temperature Gradient 8				
DA59	Temperature 9 Gradient	Temperature Sensors	Temperature 9	deg/min	basic
	Temperature Gradient 9				
DA60	Temperature 10 Gradient	Temperature Sensors	Temperature 10	deg/min	basic
	Temperature Gradient 10				

Config Table						
<i>Id</i>	<i>Name</i>	<i>Group</i>	<i>SubGroup</i>	<i>Unit</i>	<i>Range: Min/Max (default)</i>	<i>License</i>
CF521	Read Access User Numbers	Generic	Allowed Users		(1,2,3,4,5)	basic
	The list of the user numbers which have read access to this equipment. The user numbers are coma separated. The accepted user id are 1,2,3,4 and 5. Ex: 1,3,4					
CF522	Write Access User Numbers	Generic	Allowed Users		()	basic
	The list of the user numbers which have write access to this equipment. This means that these users can modify the configuration element, the alarm settings and use the control elements. The user numbers are coma separated. The accepted user ids are 1,2,3,4 and 5. Ex: 1,3,4					
CF601	Event Table Length	Generic	Events		10/4000 (100)	basic
	The maximum length of the table. The value must be comprised between 10 and 4000					
CF901	Number Of PLC Data	PLC			(0)	plc
	The number of PLC data. Every equipment can manage up to 30 user programmable data. Data elements are automatically added in the data table. Configuration parameters are added to set the PLC Data Name and the PLC Data Mathematical calculation. In order to use these functionalities, you need a license with the 'PLC' module					
CF902	Number Of PLC Alarm	PLC			(0)	plc
	The number of PLC alarm. Every equipment can manage up to 30 user programmable alarms. Alarm elements are automatically added in the alarm table. The alarm parameters are added to set the PLC Alarm Name and the PLC Alarm Boolean condition. In order to use these functionalities, you need a licence with the 'PLC' module					

Control Table				
<i>Id</i>	<i>Name</i>	<i>Group</i>	<i>SubGroup</i>	<i>License</i>
CT501	Clear My Events	Generic	Events	basic
	By writing '1' to this control element, all the events of this equipment will be cleared.			
CT502	Clear All Events	Generic	Events	basic
	By writing '1' to this control element, all the events of this equipment and all the events of all the sub-equipments will be cleared.			
CT511	Add Event	Generic	Events	basic
	This control element adds an event of severity none. The event name is the text written to this control element			
CT512	Add Major Event	Generic	Events	basic
	This control element adds an event of severity major. The event name is the text written to this control element			
CT521	Reset Default Names And Groups	Generic	Renaming	basic
	This control element resets all the element Names, Groups and Subgroups to default values for this equipment			
CT522	Reset Default Names And Groups Recursive	Generic	Renaming	basic

	This control element resets all the element Names, Groups and Subgroups to default values for this equipment and all sub equipments

15.4.8 ADIO SP0151

Device Information	
Name	ADIO SP0151
Short Description	Standard I/O module : 6 digital inputs, 6 voltages
Long Description	I/O module with 6 digital inputs, 6 voltage measurements (0-3.6Vrms)
Hardware Reference	9413 001 51001
Software Reference	SOFT 000119 XX
Equipment Type	System Extension
ETSI Level	/site/sensors_actuators

Description Table				
<i>Id</i>	<i>Name</i>	<i>Group</i>	<i>SubGroup</i>	<i>License</i>
DE1	Product Name	Description	Product Info	basic
	The commercial name of the extension card.			
DE2	Hardware Reference	Description	Product Info	basic
	The hardware refence			
DE3	Hardware Revision	Description	Product Info	basic
	The hardware revision			
DE4	Software Reference	Description	Product Info	basic
	The software reference			
DE6	Serial Number	Description	Product Info	basic
	The serial number.			
DE8	Manufacturing Date	Description	Product Info	basic
	The production date.			
DE11	Description	Description	Custom Description	basic
	A free text zone to write a system description			
DE12	Reference	Description	Custom Description	basic
	A free text zone to write the customer reference of the system			
DE20	TC 1 Reference	Track Circuits	Track Circuit 1	basic
	The name of the track circuit (linked to the subgroup). TC x by default.			
DE21	TC 1 Frequency	Track Circuits	Track Circuit 1	basic
	The frequency of the track circuit.			
DE22	TC 1 Code	Track Circuits	Track Circuit 1	basic
	The coding of the track circuit (AB,CD or EF)			
DE23	TC1 Length	Track Circuits	Track Circuit 1	basic
	The length of the track circuit			
DE26	TC1 Technical Post	Track Circuits	Track Circuit 1	basic
	The Technical Post of the track circuit			
DE27	TC1 INES RIAM ID	Track Circuits	Track Circuit 1	basic
	The INES/RIAM ID of the track circuit			
DE40	TC 2 Reference	Track Circuits	Track Circuit 2	basic
	The name of the track circuit (linked to the subgroup). TC x by default.			
DE41	TC 2 Frequency	Track Circuits	Track Circuit 2	basic

	The frequency of the track circuit.			
DE42	TC 2 Code	Track Circuits	Track Circuit 2	basic
	The coding of the track circuit (AB,CD or EF)			
DE43	TC2 Length	Track Circuits	Track Circuit 2	basic
	The length of the track circuit			
DE46	TC2 Technical Post	Track Circuits	Track Circuit 2	basic
	The Technical Post of the track circuit			
DE47	TC2 INES RIAM ID	Track Circuits	Track Circuit 2	basic
	The INES/RIAM ID of the track circuit			
DE60	TC 3 Reference	Track Circuits	Track Circuit 3	basic
	The name of the track circuit (linked to the subgroup). TC x by default.			
DE61	TC 3 Frequency	Track Circuits	Track Circuit 3	basic
	The frequency of the track circuit.			
DE62	TC 3 Code	Track Circuits	Track Circuit 3	basic
	The coding of the track circuit (AB,CD or EF)			
DE63	TC3 Length	Track Circuits	Track Circuit 3	basic
	The length of the track circuit			
DE66	TC3 Technical Post	Track Circuits	Track Circuit 3	basic
	The Technical Post of the track circuit			
DE67	TC3 INES RIAM ID	Track Circuits	Track Circuit 3	basic
	The INES/RIAM ID of the track circuit			
DE80	TC 4 Reference	Track Circuits	Track Circuit 4	basic
	The name of the track circuit (linked to the subgroup). TC x by default.			
DE81	TC 4 Frequency	Track Circuits	Track Circuit 4	basic
	The frequency of the track circuit.			
DE82	TC 4 Code	Track Circuits	Track Circuit 4	basic
	The coding of the track circuit (AB,CD or EF)			
DE83	TC4 Length	Track Circuits	Track Circuit 4	basic
	The length of the track circuit			
DE86	TC4 Technical Post	Track Circuits	Track Circuit 4	basic
	The Technical Post of the track circuit			
DE87	TC4 INES RIAM ID	Track Circuits	Track Circuit 4	basic
	The INES/RIAM ID of the track circuit			
DE100	TC 5 Reference	Track Circuits	Track Circuit 5	basic
	The name of the track circuit (linked to the subgroup). TC x by default.			
DE101	TC 5 Frequency	Track Circuits	Track Circuit 5	basic
	The frequency of the track circuit.			
DE102	TC 5 Code	Track Circuits	Track Circuit 5	basic
	The coding of the track circuit (AB,CD or EF)			
DE103	TC5 Length	Track Circuits	Track Circuit 5	basic
	The length of the track circuit			
DE106	TC5 Technical Post	Track Circuits	Track Circuit 5	basic
	The Technical Post of the track circuit			
DE107	TC5 INES RIAM ID	Track Circuits	Track Circuit 5	basic
	The INES/RIAM ID of the track circuit			
DE120	TC 6 Reference	Track Circuits	Track Circuit 6	basic
	The name of the track circuit (linked to the subgroup). TC x by default.			
DE121	TC 6 Frequency	Track Circuits	Track Circuit 6	basic

	The frequency of the track circuit.			
DE122	TC 6 Code	Track Circuits	Track Circuit 6	basic
	The coding of the track circuit (AB,CD or EF)			
DE123	TC6 Length	Track Circuits	Track Circuit 6	basic
	The length of the track circuit			
DE126	TC6 Technical Post	Track Circuits	Track Circuit 6	basic
	The Technical Post of the track circuit			
DE127	TC6 INES RIAM ID	Track Circuits	Track Circuit 6	basic
	The INES/RIAM ID of the track circuit			

Alarm Table					
<i>Id</i>	<i>Name</i>	<i>Group</i>	<i>SubGroup</i>	<i>Severity Type (Level)</i>	<i>Set/Clear Delay</i>
AL20	TC 1 Tx Alarm	Track Circuits	Track Circuit 1	major (6)	0 / 0
	The Tx alarm				
AL21	TC 1 Rx Alarm A	Track Circuits	Track Circuit 1	major (6)	0 / 0
	Level A Rx Alarm				
AL22	TC 1 Rx Alarm B	Track Circuits	Track Circuit 1	minor (4)	0 / 0
	Level B Rx Alarm				
AL23	TC 1 Rx Alarm C	Track Circuits	Track Circuit 1	major (6)	0 / 0
	Level C Rx Alarm				
AL24	TC 1 Rx Alarm D	Track Circuits	Track Circuit 1	warning (2)	0 / 0
	Level D Rx Alarm				
AL40	TC 2 Tx Alarm	Track Circuits	Track Circuit 2	major (6)	0 / 0
	The Tx alarm				
AL41	TC 2 Rx Alarm A	Track Circuits	Track Circuit 2	major (6)	0 / 0
	Level A Rx Alarm				
AL42	TC 2 Rx Alarm B	Track Circuits	Track Circuit 2	minor (4)	0 / 0
	Level B Rx Alarm				
AL43	TC 2 Rx Alarm C	Track Circuits	Track Circuit 2	major (6)	0 / 0
	Level C Rx Alarm				
AL44	TC 2 Rx Alarm D	Track Circuits	Track Circuit 2	warning (2)	0 / 0
	Level D Rx Alarm				
AL60	TC 3 Tx Alarm	Track Circuits	Track Circuit 3	major (6)	0 / 0
	The Tx alarm				
AL61	TC 3 Rx Alarm A	Track Circuits	Track Circuit 3	major (6)	0 / 0
	Level A Rx Alarm				
AL62	TC 3 Rx Alarm B	Track Circuits	Track Circuit 3	minor (4)	0 / 0
	Level B Rx Alarm				
AL63	TC 3 Rx Alarm C	Track Circuits	Track Circuit 3	major (6)	0 / 0
	Level C Rx Alarm				
AL64	TC 3 Rx Alarm D	Track Circuits	Track Circuit 3	warning (2)	0 / 0
	Level D Rx Alarm				
AL80	TC 4 Tx Alarm	Track Circuits	Track Circuit 4	major (6)	0 / 0
	The Tx alarm				

AL81	TC 4 Rx Alarm A	Track Circuits	Track Circuit 4	major (6)	0 / 0
	Level A Rx Alarm				
AL82	TC 4 Rx Alarm B	Track Circuits	Track Circuit 4	minor (4)	0 / 0
	Level B Rx Alarm				
AL83	TC 4 Rx Alarm C	Track Circuits	Track Circuit 4	major (6)	0 / 0
	Level C Rx Alarm				
AL84	TC 4 Rx Alarm D	Track Circuits	Track Circuit 4	warning (2)	0 / 0
	Level D Rx Alarm				
AL100	TC 5 Tx Alarm	Track Circuits	Track Circuit 5	major (6)	0 / 0
	The Tx alarm				
AL101	TC 5 Rx Alarm A	Track Circuits	Track Circuit 5	major (6)	0 / 0
	Level A Rx Alarm				
AL102	TC 5 Rx Alarm B	Track Circuits	Track Circuit 5	minor (4)	0 / 0
	Level B Rx Alarm				
AL103	TC 5 Rx Alarm C	Track Circuits	Track Circuit 5	major (6)	0 / 0
	Level C Rx Alarm				
AL104	TC 5 Rx Alarm D	Track Circuits	Track Circuit 5	warning (2)	0 / 0
	Level D Rx Alarm				
AL120	TC 6 Tx Alarm	Track Circuits	Track Circuit 6	major (6)	0 / 0
	The Tx alarm				
AL121	TC 6 Rx Alarm A	Track Circuits	Track Circuit 6	major (6)	0 / 0
	Level A Rx Alarm				
AL122	TC 6 Rx Alarm B	Track Circuits	Track Circuit 6	minor (4)	0 / 0
	Level B Rx Alarm				
AL123	TC 6 Rx Alarm C	Track Circuits	Track Circuit 6	major (6)	0 / 0
	Level C Rx Alarm				
AL124	TC 6 Rx Alarm D	Track Circuits	Track Circuit 6	warning (2)	0 / 0
	Level D Rx Alarm				

Data Table					
<i>Id</i>	<i>Name</i>	<i>Group</i>	<i>SubGroup</i>	<i>Unit</i>	<i>License</i>
DA20	TC 1 Rx Voltage	Track Circuits	Track Circuit 1	mVolt	basic
	The actual measured voltage, on RX				
DA21	TC 1 Tx Level	Track Circuits	Track Circuit 1		basic
	The state of the TX, 1 or 0				
DA22	TC 1 Status	Track Circuits	Track Circuit 1		basic
	--, Free or Occupied				
DA25	TC 1 Ref Rx Voltage	Track Circuits	Track Circuit 1	mVolt	basic
	The reference measured voltage, at a certain date, by an operator				
DA26	TC 1 DateTime Ref Rx Voltage	Track Circuits	Track Circuit 1		basic
	The Date and Time of the reference measured voltage				
DA27	TC 1 Operator Ref Rx Voltage	Track Circuits	Track Circuit 1		basic
	The operator name who stored the reference measured voltage				
DA40	TC 2 Rx Voltage	Track Circuits	Track Circuit 2	mVolt	basic
	The actual measured voltage, on RX				

DA41	TC 2 Tx Level	Track Circuits	Track Circuit 2		basic
	The state of the TX, 1 or 0				
DA42	TC 2 Status	Track Circuits	Track Circuit 2		basic
	--, Free or Occupied				
DA45	TC 2 Ref Rx Voltage	Track Circuits	Track Circuit 2	mVolt	basic
	The reference measured voltage, at a certain date, by an operator				
DA46	TC 2 DateTime Ref Rx Voltage	Track Circuits	Track Circuit 2		basic
	The Date and Time of the reference measured voltage				
DA47	TC 2 Operator Ref Rx Voltage	Track Circuits	Track Circuit 2		basic
	The operator name who stored the reference measured voltage				
DA60	TC 3 Rx Voltage	Track Circuits	Track Circuit 3	mVolt	basic
	The actual measured voltage, on RX				
DA61	TC 3 Tx Level	Track Circuits	Track Circuit 3		basic
	The state of the TX, 1 or 0				
DA62	TC 3 Status	Track Circuits	Track Circuit 3		basic
	--, Free or Occupied				
DA65	TC 3 Ref Rx Voltage	Track Circuits	Track Circuit 3	mVolt	basic
	The reference measured voltage, at a certain date, by an operator				
DA66	TC 3 DateTime Ref Rx Voltage	Track Circuits	Track Circuit 3		basic
	The Date and Time of the reference measured voltage				
DA67	TC 3 Operator Ref Rx Voltage	Track Circuits	Track Circuit 3		basic
	The operator name who stored the reference measured voltage				
DA80	TC 4 Rx Voltage	Track Circuits	Track Circuit 4	mVolt	basic
	The actual measured voltage, on RX				
DA81	TC 4 Tx Level	Track Circuits	Track Circuit 4		basic
	The state of the TX, 1 or 0				
DA82	TC 4 Status	Track Circuits	Track Circuit 4		basic
	--, Free or Occupied				
DA85	TC 4 Ref Rx Voltage	Track Circuits	Track Circuit 4	mVolt	basic
	The reference measured voltage, at a certain date, by an operator				
DA86	TC 4 DateTime Ref Rx Voltage	Track Circuits	Track Circuit 4		basic
	The Date and Time of the reference measured voltage				
DA87	TC 4 Operator Ref Rx Voltage	Track Circuits	Track Circuit 4		basic
	The operator name who stored the reference measured voltage				
DA100	TC 5 Rx Voltage	Track Circuits	Track Circuit 5	mVolt	basic
	The actual measured voltage, on RX				
DA101	TC 5 Tx Level	Track Circuits	Track Circuit 5		basic
	The state of the TX, 1 or 0				
DA102	TC 5 Status	Track Circuits	Track Circuit 5		basic
	--, Free or Occupied				
DA105	TC 5 Ref Rx Voltage	Track Circuits	Track Circuit 5	mVolt	basic
	The reference measured voltage, at a certain date, by an operator				
DA106	TC 5 DateTime Ref Rx Voltage	Track Circuits	Track Circuit 5		basic
	The Date and Time of the reference measured voltage				
DA107	TC 5 Operator Ref Rx Voltage	Track Circuits	Track Circuit 5		basic
	The operator name who stored the reference measured voltage				
DA120	TC 6 Rx Voltage	Track Circuits	Track Circuit 6	mVolt	basic
	The actual measured voltage, on RX				

DA121	TC 6 Tx Level	Track Circuits	Track Circuit 6		basic
	The state of the TX, 1 or 0				
DA122	TC 6 Status	Track Circuits	Track Circuit 6		basic
	--, Free or Occupied				
DA125	TC 6 Ref Rx Voltage	Track Circuits	Track Circuit 6	mVolt	basic
	The reference measured voltage, at a certain date, by an operator				
DA126	TC 6 DateTime Ref Rx Voltage	Track Circuits	Track Circuit 6		basic
	The Date and Time of the reference measured voltage				
DA127	TC 6 Operator Ref Rx Voltage	Track Circuits	Track Circuit 6		basic
	The operator name who stored the reference measured voltage				

Config Table						
Id	Name	Group	SubGroup	Unit	Range: Min/Max (default)	License
CF1	Threshold Overvoltage (A)	Track Circuits	Advanced	mVolt		basic
CF2	Threshold Critical (C)	Track Circuits	Advanced	mVolt		basic
CF3	Threshold TC Busy	Track Circuits	Advanced	mVolt		basic
CF6	Free-Occupied Status Source	Track Circuits	Advanced			basic
	The data source of the occupied status: We use ADIO7 inputs or a voltage threshold or we disable the status.					
CF7	Threshold Free-Occupied Status	Track Circuits	Advanced	mVolt		basic
	Voltage threshold for free-Occupied status when the device is configured in Voltage Threshold Mode.					
CF20	Track Circuit Mode 1	Track Circuits	Track Circuit 1		Tx/Rx,Tx,Rx,Disabled	basic
	Allows to select what is cabled and should be monitored by the controller					
CF21	Track Circuit 1 Control Level Value	Track Circuits	Track Circuit 1	mVolt		basic
	Control Level Value					
CF23	Track Circuit 1 D Delay	Track Circuits	Track Circuit 1	minute		basic
	TC Delay Time for TC Occupied Alarm (D)					
CF24	Track Circuit 1 Link	Track Circuits	Track Circuit 1			basic
	Allows to define a link between two TC. The relation is bidirectionnal.					
CF28	Track Circuit 1 Status Enabled	Track Circuits	Track Circuit 1		True/False (True)	basic
	Allows to enable the monitoring of TC status with ADIO7					
CF40	Track Circuit Mode 2	Track Circuits	Track Circuit 2		Tx/Rx,Tx,Rx,Disabled	basic
	Allows to select what is cabled and should be monitored by the controller					
CF41	Track Circuit 2 Control Level Value	Track Circuits	Track Circuit 2	mVolt		basic
	Control Level Value					
CF43	Track Circuit 2 D Delay	Track Circuits	Track Circuit 2	minute		basic
	TC Delay Time for TC Occupied Alarm (D)					
CF44	Track Circuit 2 Link	Track Circuits	Track Circuit 2			basic
	Allows to define a link between two TC. The relation is bidirectionnal.					

CF48	Track Circuit 2 Status Enabled	Track Circuits	Track Circuit 2		True/False (True)	basic
	Allows to enable the monitoring of TC status with ADIO7					
CF60	Track Circuit Mode 3	Track Circuits	Track Circuit 3		Tx/Rx,Tx,Rx,Disabled	basic
	Allows to select what is cabled and should be monitored by the controller					
CF61	Track Circuit 3 Control Level Value	Track Circuits	Track Circuit 3	mVolt		basic
	Control Level Value					
CF63	Track Circuit 3 D Delay	Track Circuits	Track Circuit 3	minute		basic
	TC Delay Time for TC Occupied Alarm (D)					
CF64	Track Circuit 3 Link	Track Circuits	Track Circuit 3			basic
	Allows to define a link between two TC. The relation is bidirectionnal.					
CF68	Track Circuit 3 Status Enabled	Track Circuits	Track Circuit 3		True/False (True)	basic
	Allows to enable the monitoring of TC status with ADIO7					
CF80	Track Circuit Mode 4	Track Circuits	Track Circuit 4		Tx/Rx,Tx,Rx,Disabled	basic
	Allows to select what is cabled and should be monitored by the controller					
CF81	Track Circuit 4 Control Level Value	Track Circuits	Track Circuit 4	mVolt		basic
	Control Level Value					
CF83	Track Circuit 4 D Delay	Track Circuits	Track Circuit 4	minute		basic
	TC Delay Time for TC Occupied Alarm (D)					
CF84	Track Circuit 4 Link	Track Circuits	Track Circuit 4			basic
	Allows to define a link between two TC. The relation is bidirectionnal.					
CF88	Track Circuit 4 Status Enabled	Track Circuits	Track Circuit 4		True/False (True)	basic
	Allows to enable the monitoring of TC status with ADIO7					
CF100	Track Circuit Mode 5	Track Circuits	Track Circuit 5		Tx/Rx,Tx,Rx,Disabled	basic
	Allows to select what is cabled and should be monitored by the controller					
CF101	Track Circuit 5 Control Level Value	Track Circuits	Track Circuit 5	mVolt		basic
	Control Level Value					
CF103	Track Circuit 5 D Delay	Track Circuits	Track Circuit 5	minute		basic
	TC Delay Time for TC Occupied Alarm (D)					
CF104	Track Circuit 5 Link	Track Circuits	Track Circuit 5			basic
	Allows to define a link between two TC. The relation is bidirectionnal.					
CF108	Track Circuit 5 Status Enabled	Track Circuits	Track Circuit 5		True/False (True)	basic
	Allows to enable the monitoring of TC status with ADIO7					
CF120	Track Circuit Mode 6	Track Circuits	Track Circuit 6		Tx/Rx,Tx,Rx,Disabled	basic
	Allows to select what is cabled and should be monitored by the controller					
CF121	Track Circuit 6 Control Level Value	Track Circuits	Track Circuit 6	mVolt		basic
	Control Level Value					
CF123	Track Circuit 6 D Delay	Track Circuits	Track Circuit 6	minute		basic
	TC Delay Time for TC Occupied Alarm (D)					
CF124	Track Circuit 6 Link	Track Circuits	Track Circuit 6			basic
	Allows to define a link between two TC. The relation is bidirectionnal.					
CF128	Track Circuit 6 Status Enabled	Track Circuits	Track Circuit 6		True/False (True)	basic

	Allows to enable the monitoring of TC status with ADIO7					
CF521	Read Access User Numbers	Generic	Allowed Users		(1,2,3,4,5)	basic
	The list of the user numbers which have read access to this equipment. The user numbers are coma separated. The accepted user id are 1,2,3,4 and 5. Ex: 1,3,4					
CF522	Write Access User Numbers	Generic	Allowed Users		()	basic
	The list of the user numbers which have write access to this equipment. This means that these users can modify the configuration element, the alarm settings and use the control elements. The user numbers are coma separated. The accepted user ids are 1,2,3,4 and 5. Ex: 1,3,4					
CF601	Event Table Length	Generic	Events		10/4000 (100)	basic
	The maximum length of the table. The value must be comprised between 10 and 4000					
CF901	Number Of PLC Data	PLC			(0)	plc
	The number of PLC data. Every equipment can manage up to 30 user programmable data. Data elements are automatically added in the data table. Configuration parameters are added to set the PLC Data Name and the PLC Data Mathematical calculation. In order to use these functionalities, you need a license with the 'PLC' module					
CF902	Number Of PLC Alarm	PLC			(0)	plc
	The number of PLC alarm. Every equipment can manage up to 30 user programmable alarms. Alarm elements are automatically added in the alarm table. The alarm parameters are added to set the PLC Alarm Name and the PLC Alarm Boolean condition. In order to use these functionalities, you need a licence with the 'PLC' module					

Control Table				
<i>Id</i>	<i>Name</i>	<i>Group</i>	<i>SubGroup</i>	<i>License</i>
CT25	Track Circuit 1 Save Rx Voltage As Reference	Track Circuits	Track Circuit 1	basic
CT28	Set Track Circuit 1 Alarms Delays	Track Circuits	Track Circuit 1	basic
CT45	Track Circuit 2 Save Rx Voltage As Reference	Track Circuits	Track Circuit 2	basic
CT48	Set Track Circuit 2 Alarms Delays	Track Circuits	Track Circuit 2	basic
CT65	Track Circuit 3 Save Rx Voltage As Reference	Track Circuits	Track Circuit 3	basic
CT68	Set Track Circuit 3 Alarms Delays	Track Circuits	Track Circuit 3	basic
CT85	Track Circuit 4 Save Rx Voltage As Reference	Track Circuits	Track Circuit 4	basic
CT88	Set Track Circuit 4 Alarms Delays	Track Circuits	Track Circuit 4	basic
CT105	Track Circuit 5 Save Rx Voltage As Reference	Track Circuits	Track Circuit 5	basic
CT108	Set Track Circuit 5 Alarms Delays	Track Circuits	Track Circuit 5	basic

CT125	Track Circuit 6 Save Rx Voltage As Reference	Track Circuits	Track Circuit 6	basic
CT128	Set Track Circuit 6 Alarms Delays	Track Circuits	Track Circuit 6	basic
CT501	Clear My Events	Generic	Events	basic
	By writing '1' to this control element, all the events of this equipment will be cleared.			
CT502	Clear All Events	Generic	Events	basic
	By writing '1' to this control element, all the events of this equipment and all the events of all the sub-equipments will be cleared.			
CT511	Add Event	Generic	Events	basic
	This control element adds an event of severity none. The event name is the text written to this control element			
CT512	Add Major Event	Generic	Events	basic
	This control element adds an event of severity major. The event name is the text written to this control element			
CT521	Reset Default Names And Groups	Generic	Renaming	basic
	This control element resets all the element Names, Groups and Subgroups to default values for this equipment			
CT522	Reset Default Names And Groups Recursive	Generic	Renaming	basic
	This control element resets all the element Names, Groups and Subgroups to default values for this equipment and all sub equipments			
CT999	Test Emulate Changes	Test		basic
	Control used in development phase to test scenario			

15.4.9 ADIO SP0155/01

Device Information	
Name	ADIO SP0155/01
Short Description	I/O module : 32 Dig Inputs + 8 Relays
Long Description	I/O module with Standard I/O module : 32 Dig Inputs + 8 Relays
Hardware Reference	9413 001 55011
Software Reference	SOFT 000124 XX
Equipment Type	System Extension
ETSI Level	/site/sensors_actuators

Description Table				
<i>Id</i>	<i>Name</i>	<i>Group</i>	<i>SubGroup</i>	<i>License</i>
DE1	Product Name	Description	Product Info	basic
	The commercial name of the extension card.			
DE2	Hardware Reference	Description	Product Info	basic
	The hardware refence			
DE3	Hardware Revision	Description	Product Info	basic
	The hardware revision			
DE4	Software Reference	Description	Product Info	basic
	The software reference			
DE6	Serial Number	Description	Product Info	basic
	The serial number.			

DE8	Manufacturing Date	Description	Product Info	basic
	The production date.			
DE11	Description	Description	Custom Description	basic
	A free text zone to write a system description			
DE12	Reference	Description	Custom Description	basic
	A free text zone to write the customer reference of the system			

Alarm Table					
<i>Id</i>	<i>Name</i>	<i>Group</i>	<i>SubGroup</i>	<i>Severity Type (Level)</i>	<i>Set/Clear Delay</i>
AL101	Digital Input 1	Digital Inputs	Digital Input 1	warning (0)	5 / 2
	The name of the digital input 1 alarm.				
AL102	Digital Input 2	Digital Inputs	Digital Input 2	warning (0)	5 / 2
	The name of the digital input 2 alarm.				
AL103	Digital Input 3	Digital Inputs	Digital Input 3	warning (0)	5 / 2
	The name of the digital input 3 alarm.				
AL104	Digital Input 4	Digital Inputs	Digital Input 4	warning (0)	5 / 2
	The name of the digital input 4 alarm.				
AL105	Digital Input 5	Digital Inputs	Digital Input 5	warning (0)	5 / 2
	The name of the digital input 5 alarm.				
AL106	Digital Input 6	Digital Inputs	Digital Input 6	warning (0)	5 / 2
	The name of the digital input 6 alarm.				
AL107	Digital Input 7	Digital Inputs	Digital Input 7	warning (0)	5 / 2
	The name of the digital input 7 alarm.				
AL108	Digital Input 8	Digital Inputs	Digital Input 8	warning (0)	5 / 2
	The name of the digital input 8 alarm.				
AL109	Digital Input 9	Digital Inputs	Digital Input 9	warning (0)	5 / 2
	The name of the digital input 9 alarm.				
AL110	Digital Input 10	Digital Inputs	Digital Input 10	warning (0)	5 / 2
	The name of the digital input 10 alarm.				
AL111	Digital Input 11	Digital Inputs	Digital Input 11	warning (0)	5 / 2
	The name of the digital input 11 alarm.				
AL112	Digital Input 12	Digital Inputs	Digital Input 12	warning (0)	5 / 2
	The name of the digital input 12 alarm.				
AL113	Digital Input 13	Digital Inputs	Digital Input 13	warning (0)	5 / 2
	The name of the digital input 13 alarm.				

AL114	Digital Input 14	Digital Inputs	Digital Input 14	warning (0)	5 / 2
	The name of the digital input 14 alarm.				
AL115	Digital Input 15	Digital Inputs	Digital Input 15	warning (0)	5 / 2
	The name of the digital input 15 alarm.				
AL116	Digital Input 16	Digital Inputs	Digital Input 16	warning (0)	5 / 2
	The name of the digital input 16 alarm.				
AL117	Digital Input 17	Digital Inputs	Digital Input 17	warning (0)	5 / 2
	The name of the digital input 17 alarm.				
AL118	Digital Input 18	Digital Inputs	Digital Input 18	warning (0)	5 / 2
	The name of the digital input 18 alarm.				
AL119	Digital Input 19	Digital Inputs	Digital Input 19	warning (0)	5 / 2
	The name of the digital input 19 alarm.				
AL120	Digital Input 20	Digital Inputs	Digital Input 20	warning (0)	5 / 2
	The name of the digital input 20 alarm.				
AL121	Digital Input 21	Digital Inputs	Digital Input 21	warning (0)	5 / 2
	The name of the digital input 21 alarm.				
AL122	Digital Input 22	Digital Inputs	Digital Input 22	warning (0)	5 / 2
	The name of the digital input 22 alarm.				
AL123	Digital Input 23	Digital Inputs	Digital Input 23	warning (0)	5 / 2
	The name of the digital input 23 alarm.				
AL124	Digital Input 24	Digital Inputs	Digital Input 24	warning (0)	5 / 2
	The name of the digital input 24 alarm.				
AL125	Digital Input 25	Digital Inputs	Digital Input 25	warning (0)	5 / 2
	The name of the digital input 25 alarm.				
AL126	Digital Input 26	Digital Inputs	Digital Input 26	warning (0)	5 / 2
	The name of the digital input 26 alarm.				
AL127	Digital Input 27	Digital Inputs	Digital Input 27	warning (0)	5 / 2
	The name of the digital input 27 alarm.				
AL128	Digital Input 28	Digital Inputs	Digital Input 28	warning (0)	5 / 2
	The name of the digital input 28 alarm.				
AL129	Digital Input 29	Digital Inputs	Digital Input 29	warning (0)	5 / 2
	The name of the digital input 29 alarm.				
AL130	Digital Input 30	Digital Inputs	Digital Input 30	warning (0)	5 / 2
	The name of the digital input 30 alarm.				

AL131	Digital Input 31	Digital Inputs	Digital Input 31	warning (0)	5 / 2
	The name of the digital input 31 alarm.				
AL132	Digital Input 32	Digital Inputs	Digital Input 32	warning (0)	5 / 2
	The name of the digital input 32 alarm.				

Data Table					
<i>Id</i>	<i>Name</i>	<i>Group</i>	<i>SubGroup</i>	<i>Unit</i>	<i>License</i>
DA101	Digital Input 1 State	Digital Inputs	Digital Input 1		basic
	The state of the digital input				
DA102	Digital Input 2 State	Digital Inputs	Digital Input 2		basic
	The state of the digital input				
DA103	Digital Input 3 State	Digital Inputs	Digital Input 3		basic
	The state of the digital input				
DA104	Digital Input 4 State	Digital Inputs	Digital Input 4		basic
	The state of the digital input				
DA105	Digital Input 5 State	Digital Inputs	Digital Input 5		basic
	The state of the digital input				
DA106	Digital Input 6 State	Digital Inputs	Digital Input 6		basic
	The state of the digital input				
DA107	Digital Input 7 State	Digital Inputs	Digital Input 7		basic
	The state of the digital input				
DA108	Digital Input 8 State	Digital Inputs	Digital Input 8		basic
	The state of the digital input				
DA109	Digital Input 9 State	Digital Inputs	Digital Input 9		basic
	The state of the digital input				
DA110	Digital Input 10 State	Digital Inputs	Digital Input 10		basic
	The state of the digital input				
DA111	Digital Input 11 State	Digital Inputs	Digital Input 11		basic
	The state of the digital input				
DA112	Digital Input 12 State	Digital Inputs	Digital Input 12		basic
	The state of the digital input				
DA113	Digital Input 13 State	Digital Inputs	Digital Input 13		basic
	The state of the digital input				
DA114	Digital Input 14 State	Digital Inputs	Digital Input 14		basic
	The state of the digital input				
DA115	Digital Input 15 State	Digital Inputs	Digital Input 15		basic
	The state of the digital input				
DA116	Digital Input 16 State	Digital Inputs	Digital Input 16		basic
	The state of the digital input				
DA117	Digital Input 17 State	Digital Inputs	Digital Input 17		basic
	The state of the digital input				
DA118	Digital Input 18 State	Digital Inputs	Digital Input 18		basic
	The state of the digital input				
DA119	Digital Input 19 State	Digital Inputs	Digital Input 19		basic
	The state of the digital input				
DA120	Digital Input 20 State	Digital Inputs	Digital Input 20		basic

	The state of the digital input				
DA121	Digital Input 21 State	Digital Inputs	Digital Input 21		basic
	The state of the digital input				
DA122	Digital Input 22 State	Digital Inputs	Digital Input 22		basic
	The state of the digital input				
DA123	Digital Input 23 State	Digital Inputs	Digital Input 23		basic
	The state of the digital input				
DA124	Digital Input 24 State	Digital Inputs	Digital Input 24		basic
	The state of the digital input				
DA125	Digital Input 25 State	Digital Inputs	Digital Input 25		basic
	The state of the digital input				
DA126	Digital Input 26 State	Digital Inputs	Digital Input 26		basic
	The state of the digital input				
DA127	Digital Input 27 State	Digital Inputs	Digital Input 27		basic
	The state of the digital input				
DA128	Digital Input 28 State	Digital Inputs	Digital Input 28		basic
	The state of the digital input				
DA129	Digital Input 29 State	Digital Inputs	Digital Input 29		basic
	The state of the digital input				
DA130	Digital Input 30 State	Digital Inputs	Digital Input 30		basic
	The state of the digital input				
DA131	Digital Input 31 State	Digital Inputs	Digital Input 31		basic
	The state of the digital input				
DA132	Digital Input 32 State	Digital Inputs	Digital Input 32		basic
	The state of the digital input				
DA301	Relay 1 State	Relays	Relay 1		basic
	Actual state of the Relay				
DA303	Relay 2 State	Relays	Relay 2		basic
	Actual state of the Relay				
DA305	Relay 3 State	Relays	Relay 3		basic
	Actual state of the Relay				
DA307	Relay 4 State	Relays	Relay 4		basic
	Actual state of the Relay				
DA309	Relay 5 State	Relays	Relay 5		basic
	Actual state of the Relay				
DA311	Relay 6 State	Relays	Relay 6		basic
	Actual state of the Relay				
DA313	Relay 7 State	Relays	Relay 7		basic
	Actual state of the Relay				
DA315	Relay 8 State	Relays	Relay 8		basic
	Actual state of the Relay				

Config Table						
<i>Id</i>	<i>Name</i>	<i>Group</i>	<i>SubGroup</i>	<i>Unit</i>	<i>Range: Min/Max (default)</i>	<i>License</i>
CF101	Digital Input 1 Name	Digital Inputs	Digital Input 1		Digital Inputs	basic
	The name of the digital input 1.					

CF102	Digital Input 1 Normally Closed	Digital Inputs	Digital Input 1		True/False (True)	basic
	True/False value defining if the digital input 1 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF103	Digital Input 2 Name	Digital Inputs	Digital Input 2		Digital Inputs	basic
	The name of the digital input 2.					
CF104	Digital Input 2 Normally Closed	Digital Inputs	Digital Input 2		True/False (True)	basic
	True/False value defining if the digital input 2 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF105	Digital Input 3 Name	Digital Inputs	Digital Input 3		Digital Inputs	basic
	The name of the digital input 3.					
CF106	Digital Input 3 Normally Closed	Digital Inputs	Digital Input 3		True/False (True)	basic
	True/False value defining if the digital input 3 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF107	Digital Input 4 Name	Digital Inputs	Digital Input 4		Digital Inputs	basic
	The name of the digital input 4.					
CF108	Digital Input 4 Normally Closed	Digital Inputs	Digital Input 4		True/False (True)	basic
	True/False value defining if the digital input 4 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF109	Digital Input 5 Name	Digital Inputs	Digital Input 5		Digital Inputs	basic
	The name of the digital input 5.					
CF110	Digital Input 5 Normally Closed	Digital Inputs	Digital Input 5		True/False (True)	basic
	True/False value defining if the digital input 5 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF111	Digital Input 6 Name	Digital Inputs	Digital Input 6		Digital Inputs	basic
	The name of the digital input 6.					
CF112	Digital Input 6 Normally Closed	Digital Inputs	Digital Input 6		True/False (True)	basic
	True/False value defining if the digital input 6 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF113	Digital Input 7 Name	Digital Inputs	Digital Input 7		Digital Inputs	basic
	The name of the digital input 7.					
CF114	Digital Input 7 Normally Closed	Digital Inputs	Digital Input 7		True/False (True)	basic
	True/False value defining if the digital input 7 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF115	Digital Input 8 Name	Digital Inputs	Digital Input 8		Digital Inputs	basic
	The name of the digital input 8.					
CF116	Digital Input 8 Normally Closed	Digital Inputs	Digital Input 8		True/False (True)	basic
	True/False value defining if the digital input 8 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF117	Digital Input 9 Name	Digital Inputs	Digital Input 9		Digital Inputs	basic
	The name of the digital input 9.					
CF118	Digital Input 9 Normally Closed	Digital Inputs	Digital Input 9		True/False (True)	basic
	True/False value defining if the digital input 9 is normally closed. If this digital input is not in this default state, the related alarm is set.					

CF119	Digital Input 10 Name	Digital Inputs	Digital Input 10		Digital Inputs	basic
	The name of the digital input 10.					
CF120	Digital Input 10 Normally Closed	Digital Inputs	Digital Input 10		True/False (True)	basic
	True/False value defining if the digital input 10 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF121	Digital Input 11 Name	Digital Inputs	Digital Input 11		Digital Inputs	basic
	The name of the digital input 11.					
CF122	Digital Input 11 Normally Closed	Digital Inputs	Digital Input 11		True/False (True)	basic
	True/False value defining if the digital input 11 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF123	Digital Input 12 Name	Digital Inputs	Digital Input 12		Digital Inputs	basic
	The name of the digital input 12.					
CF124	Digital Input 12 Normally Closed	Digital Inputs	Digital Input 12		True/False (True)	basic
	True/False value defining if the digital input 12 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF125	Digital Input 13 Name	Digital Inputs	Digital Input 13		Digital Inputs	basic
	The name of the digital input 13.					
CF126	Digital Input 13 Normally Closed	Digital Inputs	Digital Input 13		True/False (True)	basic
	True/False value defining if the digital input 13 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF127	Digital Input 14 Name	Digital Inputs	Digital Input 14		Digital Inputs	basic
	The name of the digital input 14.					
CF128	Digital Input 14 Normally Closed	Digital Inputs	Digital Input 14		True/False (True)	basic
	True/False value defining if the digital input 14 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF129	Digital Input 15 Name	Digital Inputs	Digital Input 15		Digital Inputs	basic
	The name of the digital input 15.					
CF130	Digital Input 15 Normally Closed	Digital Inputs	Digital Input 15		True/False (True)	basic
	True/False value defining if the digital input 15 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF131	Digital Input 16 Name	Digital Inputs	Digital Input 16		Digital Inputs	basic
	The name of the digital input 16.					
CF132	Digital Input 16 Normally Closed	Digital Inputs	Digital Input 16		True/False (True)	basic
	True/False value defining if the digital input 16 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF133	Digital Input 17 Name	Digital Inputs	Digital Input 17		Digital Inputs	basic
	The name of the digital input 17.					
CF134	Digital Input 17 Normally Closed	Digital Inputs	Digital Input 17		True/False (True)	basic
	True/False value defining if the digital input 17 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF135	Digital Input 18 Name	Digital Inputs	Digital Input 18		Digital Inputs	basic
	The name of the digital input 18.					
CF136	Digital Input 18 Normally Closed	Digital Inputs	Digital Input 18		True/False (True)	basic

	True/False value defining if the digital input 18 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF137	Digital Input 19 Name	Digital Inputs	Digital Input 19		Digital Inputs	basic
	The name of the digital input 19.					
CF138	Digital Input 19 Normally Closed	Digital Inputs	Digital Input 19		True/False (True)	basic
	True/False value defining if the digital input 19 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF139	Digital Input 20 Name	Digital Inputs	Digital Input 20		Digital Inputs	basic
	The name of the digital input 20.					
CF140	Digital Input 20 Normally Closed	Digital Inputs	Digital Input 20		True/False (True)	basic
	True/False value defining if the digital input 20 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF141	Digital Input 21 Name	Digital Inputs	Digital Input 21		Digital Inputs	basic
	The name of the digital input 21.					
CF142	Digital Input 21 Normally Closed	Digital Inputs	Digital Input 21		True/False (True)	basic
	True/False value defining if the digital input 21 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF143	Digital Input 22 Name	Digital Inputs	Digital Input 22		Digital Inputs	basic
	The name of the digital input 22.					
CF144	Digital Input 22 Normally Closed	Digital Inputs	Digital Input 22		True/False (True)	basic
	True/False value defining if the digital input 22 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF145	Digital Input 23 Name	Digital Inputs	Digital Input 23		Digital Inputs	basic
	The name of the digital input 23.					
CF146	Digital Input 23 Normally Closed	Digital Inputs	Digital Input 23		True/False (True)	basic
	True/False value defining if the digital input 23 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF147	Digital Input 24 Name	Digital Inputs	Digital Input 24		Digital Inputs	basic
	The name of the digital input 24.					
CF148	Digital Input 24 Normally Closed	Digital Inputs	Digital Input 24		True/False (True)	basic
	True/False value defining if the digital input 24 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF149	Digital Input 25 Name	Digital Inputs	Digital Input 25		Digital Inputs	basic
	The name of the digital input 25.					
CF150	Digital Input 25 Normally Closed	Digital Inputs	Digital Input 25		True/False (True)	basic
	True/False value defining if the digital input 25 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF151	Digital Input 26 Name	Digital Inputs	Digital Input 26		Digital Inputs	basic
	The name of the digital input 26.					
CF152	Digital Input 26 Normally Closed	Digital Inputs	Digital Input 26		True/False (True)	basic
	True/False value defining if the digital input 26 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF153	Digital Input 27 Name	Digital Inputs	Digital Input 27		Digital Inputs	basic
	The name of the digital input 27.					

CF154	Digital Input 27 Normally Closed	Digital Inputs	Digital Input 27		True/False (True)	basic
	True/False value defining if the digital input 27 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF155	Digital Input 28 Name	Digital Inputs	Digital Input 28		Digital Inputs	basic
	The name of the digital input 28.					
CF156	Digital Input 28 Normally Closed	Digital Inputs	Digital Input 28		True/False (True)	basic
	True/False value defining if the digital input 28 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF157	Digital Input 29 Name	Digital Inputs	Digital Input 29		Digital Inputs	basic
	The name of the digital input 29.					
CF158	Digital Input 29 Normally Closed	Digital Inputs	Digital Input 29		True/False (True)	basic
	True/False value defining if the digital input 29 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF159	Digital Input 30 Name	Digital Inputs	Digital Input 30		Digital Inputs	basic
	The name of the digital input 30.					
CF160	Digital Input 30 Normally Closed	Digital Inputs	Digital Input 30		True/False (True)	basic
	True/False value defining if the digital input 30 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF161	Digital Input 31 Name	Digital Inputs	Digital Input 31		Digital Inputs	basic
	The name of the digital input 31.					
CF162	Digital Input 31 Normally Closed	Digital Inputs	Digital Input 31		True/False (True)	basic
	True/False value defining if the digital input 31 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF163	Digital Input 32 Name	Digital Inputs	Digital Input 32		Digital Inputs	basic
	The name of the digital input 32.					
CF164	Digital Input 32 Normally Closed	Digital Inputs	Digital Input 32		True/False (True)	basic
	True/False value defining if the digital input 32 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF200	Default Output Relay Binary Vector	Relays			(0b11111111)	basic
	This configuration is stored inside the module in case of communication failure					
CF301	Relay 1 Change State Boolean Condition	Relays	Relay 1		(False)	basic
	Relay 1 Boolean Condition					
CF302	Relay 1 Normal State	Relays	Relay 1		(Energized / De-energized)	basic
	Relay 1 Normal State					
CF303	Relay 2 Change State Boolean Condition	Relays	Relay 2		(False)	basic
	Relay 2 Boolean Condition					
CF304	Relay 2 Normal State	Relays	Relay 2		(Energized / De-energized)	basic
	Relay 2 Normal State					
CF305	Relay 3 Change State Boolean Condition	Relays	Relay 3		(False)	basic
	Relay 3 Boolean Condition					

CF306	Relay 3 Normal State	Relays	Relay 3		(Energized / De-energized)	basic
	Relay 3 Normal State					
CF307	Relay 4 Change State Boolean Condition	Relays	Relay 4		(False)	basic
	Relay 4 Boolean Condition					
CF308	Relay 4 Normal State	Relays	Relay 4		(Energized / De-energized)	basic
	Relay 4 Normal State					
CF309	Relay 5 Change State Boolean Condition	Relays	Relay 5		(False)	basic
	Relay 5 Boolean Condition					
CF310	Relay 5 Normal State	Relays	Relay 5		(Energized / De-energized)	basic
	Relay 5 Normal State					
CF311	Relay 6 Change State Boolean Condition	Relays	Relay 6		(False)	basic
	Relay 6 Boolean Condition					
CF312	Relay 6 Normal State	Relays	Relay 6		(Energized / De-energized)	basic
	Relay 6 Normal State					
CF313	Relay 7 Change State Boolean Condition	Relays	Relay 7		(False)	basic
	Relay 7 Boolean Condition					
CF314	Relay 7 Normal State	Relays	Relay 7		(Energized / De-energized)	basic
	Relay 7 Normal State					
CF315	Relay 8 Change State Boolean Condition	Relays	Relay 8		(False)	basic
	Relay 8 Boolean Condition					
CF316	Relay 8 Normal State	Relays	Relay 8		(Energized / De-energized)	basic
	Relay 8 Normal State					
CF521	Read Access User Numbers	Generic	Allowed Users		(1,2,3,4,5)	basic
	The list of the user numbers which have read access to this equipment. The user numbers are coma separated. The accepted user id are 1,2,3,4 and 5. Ex: 1,3,4					
CF522	Write Access User Numbers	Generic	Allowed Users		()	basic
	The list of the user numbers which have write access to this equipment. This means that these users can modify the configuration element, the alarm settings and use the control elements. The user numbers are coma separated. The accepted user ids are 1,2,3,4 and 5. Ex: 1,3,4					
CF601	Event Table Length	Generic	Events		10/4000 (100)	basic
	The maximum length of the table. The value must be comprised between 10 and 4000					
CF901	Number Of PLC Data	PLC			(0)	plc
	The number of PLC data. Every equipment can manage up to 30 user programmable data. Data elements are automatically added in the data table. Configuration parameters are added to set the PLC Data Name and the PLC Data Mathematical calculation. In order to use these functionalities, you need a license with the 'PLC' module					
CF902	Number Of PLC Alarm	PLC			(0)	plc
	The number of PLC alarm. Every equipment can manage up to 30 user programmable alarms. Alarm elements are automatically added in the alarm table. The alarm parameters are added to set the PLC Alarm					

	Name and the PLC Alarm Boolean condition. In order to use these functionalities, you need a licence with the 'PLC' module

Control Table				
<i>Id</i>	<i>Name</i>	<i>Group</i>	<i>SubGroup</i>	<i>License</i>
CT301	Invert Relay 1 State For X Seconds	Relays	Relay 1	basic
	Generate Pulse on relay			
CT303	Invert Relay 2 State For X Seconds	Relays	Relay 2	basic
	Generate Pulse on relay			
CT305	Invert Relay 3 State For X Seconds	Relays	Relay 3	basic
	Generate Pulse on relay			
CT307	Invert Relay 4 State For X Seconds	Relays	Relay 4	basic
	Generate Pulse on relay			
CT309	Invert Relay 5 State For X Seconds	Relays	Relay 5	basic
	Generate Pulse on relay			
CT311	Invert Relay 6 State For X Seconds	Relays	Relay 6	basic
	Generate Pulse on relay			
CT313	Invert Relay 7 State For X Seconds	Relays	Relay 7	basic
	Generate Pulse on relay			
CT315	Invert Relay 8 State For X Seconds	Relays	Relay 8	basic
	Generate Pulse on relay			
CT501	Clear My Events	Generic	Events	basic
	By writing '1' to this control element, all the events of this equipment will be cleared.			
CT502	Clear All Events	Generic	Events	basic
	By writing '1' to this control element, all the events of this equipment and all the events of all the sub-equipments will be cleared.			
CT511	Add Event	Generic	Events	basic
	This control element adds an event of severity none. The event name is the text written to this control element			
CT512	Add Major Event	Generic	Events	basic
	This control element adds an event of severity major. The event name is the text written to this control element			
CT521	Reset Default Names And Groups	Generic	Renaming	basic
	This control element resets all the element Names, Groups and Subgroups to default values for this equipment			
CT522	Reset Default Names And Groups Recursive	Generic	Renaming	basic
	This control element resets all the element Names, Groups and Subgroups to default values for this equipment and all sub equipments			

15.4.10 ADIO SP0155/02

Device Information	
Name	ADIO SP0155/02
Short Description	I/O module : 64 Dig Inputs
Long Description	I/O module with Standard I/O module : 64 Dig Inputs
Hardware Reference	9413 001 55021
Software Reference	SOFT 000125 XX
Equipment Type	System Extension

ETSI Level	/site/sensors_actuators

Description Table				
<i>Id</i>	<i>Name</i>	<i>Group</i>	<i>SubGroup</i>	<i>License</i>
DE1	Product Name	Description	Product Info	basic
	The commercial name of the extension card.			
DE2	Hardware Reference	Description	Product Info	basic
	The hardware refence			
DE3	Hardware Revision	Description	Product Info	basic
	The hardware revision			
DE4	Software Reference	Description	Product Info	basic
	The software reference			
DE6	Serial Number	Description	Product Info	basic
	The serial number.			
DE8	Manufacturing Date	Description	Product Info	basic
	The production date.			
DE11	Description	Description	Custom Description	basic
	A free text zone to write a system description			
DE12	Reference	Description	Custom Description	basic
	A free text zone to write the customer reference of the system			

Alarm Table					
<i>Id</i>	<i>Name</i>	<i>Group</i>	<i>SubGroup</i>	<i>Severity Type (Level)</i>	<i>Set/Clear Delay</i>
AL101	Digital Input 1	Digital Inputs	Digital Input 1	warning (0)	5 / 2
	The name of the digital input 1 alarm.				
AL102	Digital Input 2	Digital Inputs	Digital Input 2	warning (0)	5 / 2
	The name of the digital input 2 alarm.				
AL103	Digital Input 3	Digital Inputs	Digital Input 3	warning (0)	5 / 2
	The name of the digital input 3 alarm.				
AL104	Digital Input 4	Digital Inputs	Digital Input 4	warning (0)	5 / 2
	The name of the digital input 4 alarm.				
AL105	Digital Input 5	Digital Inputs	Digital Input 5	warning (0)	5 / 2
	The name of the digital input 5 alarm.				
AL106	Digital Input 6	Digital Inputs	Digital Input 6	warning (0)	5 / 2
	The name of the digital input 6 alarm.				
AL107	Digital Input 7	Digital Inputs	Digital Input 7	warning (0)	5 / 2
	The name of the digital input 7 alarm.				
AL108	Digital Input 8	Digital Inputs	Digital Input 8	warning (0)	5 / 2
	The name of the digital input 8 alarm.				

AL109	Digital Input 9	Digital Inputs	Digital Input 9	warning (0)	5 / 2
	The name of the digital input 9 alarm.				
AL110	Digital Input 10	Digital Inputs	Digital Input 10	warning (0)	5 / 2
	The name of the digital input 10 alarm.				
AL111	Digital Input 11	Digital Inputs	Digital Input 11	warning (0)	5 / 2
	The name of the digital input 11 alarm.				
AL112	Digital Input 12	Digital Inputs	Digital Input 12	warning (0)	5 / 2
	The name of the digital input 12 alarm.				
AL113	Digital Input 13	Digital Inputs	Digital Input 13	warning (0)	5 / 2
	The name of the digital input 13 alarm.				
AL114	Digital Input 14	Digital Inputs	Digital Input 14	warning (0)	5 / 2
	The name of the digital input 14 alarm.				
AL115	Digital Input 15	Digital Inputs	Digital Input 15	warning (0)	5 / 2
	The name of the digital input 15 alarm.				
AL116	Digital Input 16	Digital Inputs	Digital Input 16	warning (0)	5 / 2
	The name of the digital input 16 alarm.				
AL117	Digital Input 17	Digital Inputs	Digital Input 17	warning (0)	5 / 2
	The name of the digital input 17 alarm.				
AL118	Digital Input 18	Digital Inputs	Digital Input 18	warning (0)	5 / 2
	The name of the digital input 18 alarm.				
AL119	Digital Input 19	Digital Inputs	Digital Input 19	warning (0)	5 / 2
	The name of the digital input 19 alarm.				
AL120	Digital Input 20	Digital Inputs	Digital Input 20	warning (0)	5 / 2
	The name of the digital input 20 alarm.				
AL121	Digital Input 21	Digital Inputs	Digital Input 21	warning (0)	5 / 2
	The name of the digital input 21 alarm.				
AL122	Digital Input 22	Digital Inputs	Digital Input 22	warning (0)	5 / 2
	The name of the digital input 22 alarm.				
AL123	Digital Input 23	Digital Inputs	Digital Input 23	warning (0)	5 / 2
	The name of the digital input 23 alarm.				
AL124	Digital Input 24	Digital Inputs	Digital Input 24	warning (0)	5 / 2
	The name of the digital input 24 alarm.				
AL125	Digital Input 25	Digital Inputs	Digital Input 25	warning (0)	5 / 2
	The name of the digital input 25 alarm.				

AL126	Digital Input 26	Digital Inputs	Digital Input 26	warning (0)	5 / 2
	The name of the digital input 26 alarm.				
AL127	Digital Input 27	Digital Inputs	Digital Input 27	warning (0)	5 / 2
	The name of the digital input 27 alarm.				
AL128	Digital Input 28	Digital Inputs	Digital Input 28	warning (0)	5 / 2
	The name of the digital input 28 alarm.				
AL129	Digital Input 29	Digital Inputs	Digital Input 29	warning (0)	5 / 2
	The name of the digital input 29 alarm.				
AL130	Digital Input 30	Digital Inputs	Digital Input 30	warning (0)	5 / 2
	The name of the digital input 30 alarm.				
AL131	Digital Input 31	Digital Inputs	Digital Input 31	warning (0)	5 / 2
	The name of the digital input 31 alarm.				
AL132	Digital Input 32	Digital Inputs	Digital Input 32	warning (0)	5 / 2
	The name of the digital input 32 alarm.				
AL133	Digital Input 33	Digital Inputs	Digital Input 33	warning (0)	5 / 2
	The name of the digital input 33 alarm.				
AL134	Digital Input 34	Digital Inputs	Digital Input 34	warning (0)	5 / 2
	The name of the digital input 34 alarm.				
AL135	Digital Input 35	Digital Inputs	Digital Input 35	warning (0)	5 / 2
	The name of the digital input 35 alarm.				
AL136	Digital Input 36	Digital Inputs	Digital Input 36	warning (0)	5 / 2
	The name of the digital input 36 alarm.				
AL137	Digital Input 37	Digital Inputs	Digital Input 37	warning (0)	5 / 2
	The name of the digital input 37 alarm.				
AL138	Digital Input 38	Digital Inputs	Digital Input 38	warning (0)	5 / 2
	The name of the digital input 38 alarm.				
AL139	Digital Input 39	Digital Inputs	Digital Input 39	warning (0)	5 / 2
	The name of the digital input 39 alarm.				
AL140	Digital Input 40	Digital Inputs	Digital Input 40	warning (0)	5 / 2
	The name of the digital input 40 alarm.				
AL141	Digital Input 41	Digital Inputs	Digital Input 41	warning (0)	5 / 2
	The name of the digital input 41 alarm.				
AL142	Digital Input 42	Digital Inputs	Digital Input 42	warning (0)	5 / 2
	The name of the digital input 42 alarm.				

AL143	Digital Input 43	Digital Inputs	Digital Input 43	warning (0)	5 / 2
	The name of the digital input 43 alarm.				
AL144	Digital Input 44	Digital Inputs	Digital Input 44	warning (0)	5 / 2
	The name of the digital input 44 alarm.				
AL145	Digital Input 45	Digital Inputs	Digital Input 45	warning (0)	5 / 2
	The name of the digital input 45 alarm.				
AL146	Digital Input 46	Digital Inputs	Digital Input 46	warning (0)	5 / 2
	The name of the digital input 46 alarm.				
AL147	Digital Input 47	Digital Inputs	Digital Input 47	warning (0)	5 / 2
	The name of the digital input 47 alarm.				
AL148	Digital Input 48	Digital Inputs	Digital Input 48	warning (0)	5 / 2
	The name of the digital input 48 alarm.				
AL149	Digital Input 49	Digital Inputs	Digital Input 49	warning (0)	5 / 2
	The name of the digital input 49 alarm.				
AL150	Digital Input 50	Digital Inputs	Digital Input 50	warning (0)	5 / 2
	The name of the digital input 50 alarm.				
AL151	Digital Input 51	Digital Inputs	Digital Input 51	warning (0)	5 / 2
	The name of the digital input 51 alarm.				
AL152	Digital Input 52	Digital Inputs	Digital Input 52	warning (0)	5 / 2
	The name of the digital input 52 alarm.				
AL153	Digital Input 53	Digital Inputs	Digital Input 53	warning (0)	5 / 2
	The name of the digital input 53 alarm.				
AL154	Digital Input 54	Digital Inputs	Digital Input 54	warning (0)	5 / 2
	The name of the digital input 54 alarm.				
AL155	Digital Input 55	Digital Inputs	Digital Input 55	warning (0)	5 / 2
	The name of the digital input 55 alarm.				
AL156	Digital Input 56	Digital Inputs	Digital Input 56	warning (0)	5 / 2
	The name of the digital input 56 alarm.				
AL157	Digital Input 57	Digital Inputs	Digital Input 57	warning (0)	5 / 2
	The name of the digital input 57 alarm.				
AL158	Digital Input 58	Digital Inputs	Digital Input 58	warning (0)	5 / 2
	The name of the digital input 58 alarm.				
AL159	Digital Input 59	Digital Inputs	Digital Input 59	warning (0)	5 / 2
	The name of the digital input 59 alarm.				

AL160	Digital Input 60	Digital Inputs	Digital Input 60	warning (0)	5 / 2
	The name of the digital input 60 alarm.				
AL161	Digital Input 61	Digital Inputs	Digital Input 61	warning (0)	5 / 2
	The name of the digital input 61 alarm.				
AL162	Digital Input 62	Digital Inputs	Digital Input 62	warning (0)	5 / 2
	The name of the digital input 62 alarm.				
AL163	Digital Input 63	Digital Inputs	Digital Input 63	warning (0)	5 / 2
	The name of the digital input 63 alarm.				
AL164	Digital Input 64	Digital Inputs	Digital Input 64	warning (0)	5 / 2
	The name of the digital input 64 alarm.				

Data Table					
<i>Id</i>	<i>Name</i>	<i>Group</i>	<i>SubGroup</i>	<i>Unit</i>	<i>License</i>
DA101	Digital Input 1 State	Digital Inputs	Digital Input 1		basic
	The state of the digital input				
DA102	Digital Input 2 State	Digital Inputs	Digital Input 2		basic
	The state of the digital input				
DA103	Digital Input 3 State	Digital Inputs	Digital Input 3		basic
	The state of the digital input				
DA104	Digital Input 4 State	Digital Inputs	Digital Input 4		basic
	The state of the digital input				
DA105	Digital Input 5 State	Digital Inputs	Digital Input 5		basic
	The state of the digital input				
DA106	Digital Input 6 State	Digital Inputs	Digital Input 6		basic
	The state of the digital input				
DA107	Digital Input 7 State	Digital Inputs	Digital Input 7		basic
	The state of the digital input				
DA108	Digital Input 8 State	Digital Inputs	Digital Input 8		basic
	The state of the digital input				
DA109	Digital Input 9 State	Digital Inputs	Digital Input 9		basic
	The state of the digital input				
DA110	Digital Input 10 State	Digital Inputs	Digital Input 10		basic
	The state of the digital input				
DA111	Digital Input 11 State	Digital Inputs	Digital Input 11		basic
	The state of the digital input				
DA112	Digital Input 12 State	Digital Inputs	Digital Input 12		basic
	The state of the digital input				
DA113	Digital Input 13 State	Digital Inputs	Digital Input 13		basic
	The state of the digital input				
DA114	Digital Input 14 State	Digital Inputs	Digital Input 14		basic
	The state of the digital input				
DA115	Digital Input 15 State	Digital Inputs	Digital Input 15		basic
	The state of the digital input				
DA116	Digital Input 16 State	Digital Inputs	Digital Input 16		basic

	The state of the digital input				
DA117	Digital Input 17 State	Digital Inputs	Digital Input 17		basic
	The state of the digital input				
DA118	Digital Input 18 State	Digital Inputs	Digital Input 18		basic
	The state of the digital input				
DA119	Digital Input 19 State	Digital Inputs	Digital Input 19		basic
	The state of the digital input				
DA120	Digital Input 20 State	Digital Inputs	Digital Input 20		basic
	The state of the digital input				
DA121	Digital Input 21 State	Digital Inputs	Digital Input 21		basic
	The state of the digital input				
DA122	Digital Input 22 State	Digital Inputs	Digital Input 22		basic
	The state of the digital input				
DA123	Digital Input 23 State	Digital Inputs	Digital Input 23		basic
	The state of the digital input				
DA124	Digital Input 24 State	Digital Inputs	Digital Input 24		basic
	The state of the digital input				
DA125	Digital Input 25 State	Digital Inputs	Digital Input 25		basic
	The state of the digital input				
DA126	Digital Input 26 State	Digital Inputs	Digital Input 26		basic
	The state of the digital input				
DA127	Digital Input 27 State	Digital Inputs	Digital Input 27		basic
	The state of the digital input				
DA128	Digital Input 28 State	Digital Inputs	Digital Input 28		basic
	The state of the digital input				
DA129	Digital Input 29 State	Digital Inputs	Digital Input 29		basic
	The state of the digital input				
DA130	Digital Input 30 State	Digital Inputs	Digital Input 30		basic
	The state of the digital input				
DA131	Digital Input 31 State	Digital Inputs	Digital Input 31		basic
	The state of the digital input				
DA132	Digital Input 32 State	Digital Inputs	Digital Input 32		basic
	The state of the digital input				
DA133	Digital Input 33 State	Digital Inputs	Digital Input 33		basic
	The state of the digital input				
DA134	Digital Input 34 State	Digital Inputs	Digital Input 34		basic
	The state of the digital input				
DA135	Digital Input 35 State	Digital Inputs	Digital Input 35		basic
	The state of the digital input				
DA136	Digital Input 36 State	Digital Inputs	Digital Input 36		basic
	The state of the digital input				
DA137	Digital Input 37 State	Digital Inputs	Digital Input 37		basic
	The state of the digital input				
DA138	Digital Input 38 State	Digital Inputs	Digital Input 38		basic
	The state of the digital input				
DA139	Digital Input 39 State	Digital Inputs	Digital Input 39		basic
	The state of the digital input				
DA140	Digital Input 40 State	Digital Inputs	Digital Input 40		basic

	The state of the digital input				
DA141	Digital Input 41 State	Digital Inputs	Digital Input 41		basic
	The state of the digital input				
DA142	Digital Input 42 State	Digital Inputs	Digital Input 42		basic
	The state of the digital input				
DA143	Digital Input 43 State	Digital Inputs	Digital Input 43		basic
	The state of the digital input				
DA144	Digital Input 44 State	Digital Inputs	Digital Input 44		basic
	The state of the digital input				
DA145	Digital Input 45 State	Digital Inputs	Digital Input 45		basic
	The state of the digital input				
DA146	Digital Input 46 State	Digital Inputs	Digital Input 46		basic
	The state of the digital input				
DA147	Digital Input 47 State	Digital Inputs	Digital Input 47		basic
	The state of the digital input				
DA148	Digital Input 48 State	Digital Inputs	Digital Input 48		basic
	The state of the digital input				
DA149	Digital Input 49 State	Digital Inputs	Digital Input 49		basic
	The state of the digital input				
DA150	Digital Input 50 State	Digital Inputs	Digital Input 50		basic
	The state of the digital input				
DA151	Digital Input 51 State	Digital Inputs	Digital Input 51		basic
	The state of the digital input				
DA152	Digital Input 52 State	Digital Inputs	Digital Input 52		basic
	The state of the digital input				
DA153	Digital Input 53 State	Digital Inputs	Digital Input 53		basic
	The state of the digital input				
DA154	Digital Input 54 State	Digital Inputs	Digital Input 54		basic
	The state of the digital input				
DA155	Digital Input 55 State	Digital Inputs	Digital Input 55		basic
	The state of the digital input				
DA156	Digital Input 56 State	Digital Inputs	Digital Input 56		basic
	The state of the digital input				
DA157	Digital Input 57 State	Digital Inputs	Digital Input 57		basic
	The state of the digital input				
DA158	Digital Input 58 State	Digital Inputs	Digital Input 58		basic
	The state of the digital input				
DA159	Digital Input 59 State	Digital Inputs	Digital Input 59		basic
	The state of the digital input				
DA160	Digital Input 60 State	Digital Inputs	Digital Input 60		basic
	The state of the digital input				
DA161	Digital Input 61 State	Digital Inputs	Digital Input 61		basic
	The state of the digital input				
DA162	Digital Input 62 State	Digital Inputs	Digital Input 62		basic
	The state of the digital input				
DA163	Digital Input 63 State	Digital Inputs	Digital Input 63		basic
	The state of the digital input				
DA164	Digital Input 64 State	Digital Inputs	Digital Input 64		basic

	The state of the digital input

Config Table						
<i>Id</i>	<i>Name</i>	<i>Group</i>	<i>SubGroup</i>	<i>Unit</i>	<i>Range: Min/Max (default)</i>	<i>License</i>
CF102	Digital Input 1 Name	Digital Inputs	Digital Input 1		Digital Inputs	basic
	The name of the digital input 1.					
CF103	Digital Input 1 Normally Closed	Digital Inputs	Digital Input 1		True/False (True)	basic
	True/False value defining if the digital input 1 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF104	Digital Input 2 Name	Digital Inputs	Digital Input 2		Digital Inputs	basic
	The name of the digital input 2.					
CF105	Digital Input 2 Normally Closed	Digital Inputs	Digital Input 2		True/False (True)	basic
	True/False value defining if the digital input 2 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF106	Digital Input 3 Name	Digital Inputs	Digital Input 3		Digital Inputs	basic
	The name of the digital input 3.					
CF107	Digital Input 3 Normally Closed	Digital Inputs	Digital Input 3		True/False (True)	basic
	True/False value defining if the digital input 3 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF108	Digital Input 4 Name	Digital Inputs	Digital Input 4		Digital Inputs	basic
	The name of the digital input 4.					
CF109	Digital Input 4 Normally Closed	Digital Inputs	Digital Input 4		True/False (True)	basic
	True/False value defining if the digital input 4 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF110	Digital Input 5 Name	Digital Inputs	Digital Input 5		Digital Inputs	basic
	The name of the digital input 5.					
CF111	Digital Input 5 Normally Closed	Digital Inputs	Digital Input 5		True/False (True)	basic
	True/False value defining if the digital input 5 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF112	Digital Input 6 Name	Digital Inputs	Digital Input 6		Digital Inputs	basic
	The name of the digital input 6.					
CF113	Digital Input 6 Normally Closed	Digital Inputs	Digital Input 6		True/False (True)	basic
	True/False value defining if the digital input 6 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF114	Digital Input 7 Name	Digital Inputs	Digital Input 7		Digital Inputs	basic
	The name of the digital input 7.					
CF115	Digital Input 7 Normally Closed	Digital Inputs	Digital Input 7		True/False (True)	basic
	True/False value defining if the digital input 7 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF116	Digital Input 8 Name	Digital Inputs	Digital Input 8		Digital Inputs	basic
	The name of the digital input 8.					
CF117	Digital Input 8 Normally Closed	Digital Inputs	Digital Input 8		True/False (True)	basic

	True/False value defining if the digital input 8 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF118	Digital Input 9 Name	Digital Inputs	Digital Input 9		Digital Inputs	basic
	The name of the digital input 9.					
CF119	Digital Input 9 Normally Closed	Digital Inputs	Digital Input 9		True/False (True)	basic
	True/False value defining if the digital input 9 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF120	Digital Input 10 Name	Digital Inputs	Digital Input 10		Digital Inputs	basic
	The name of the digital input 10.					
CF121	Digital Input 10 Normally Closed	Digital Inputs	Digital Input 10		True/False (True)	basic
	True/False value defining if the digital input 10 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF122	Digital Input 11 Name	Digital Inputs	Digital Input 11		Digital Inputs	basic
	The name of the digital input 11.					
CF123	Digital Input 11 Normally Closed	Digital Inputs	Digital Input 11		True/False (True)	basic
	True/False value defining if the digital input 11 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF124	Digital Input 12 Name	Digital Inputs	Digital Input 12		Digital Inputs	basic
	The name of the digital input 12.					
CF125	Digital Input 12 Normally Closed	Digital Inputs	Digital Input 12		True/False (True)	basic
	True/False value defining if the digital input 12 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF126	Digital Input 13 Name	Digital Inputs	Digital Input 13		Digital Inputs	basic
	The name of the digital input 13.					
CF127	Digital Input 13 Normally Closed	Digital Inputs	Digital Input 13		True/False (True)	basic
	True/False value defining if the digital input 13 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF128	Digital Input 14 Name	Digital Inputs	Digital Input 14		Digital Inputs	basic
	The name of the digital input 14.					
CF129	Digital Input 14 Normally Closed	Digital Inputs	Digital Input 14		True/False (True)	basic
	True/False value defining if the digital input 14 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF130	Digital Input 15 Name	Digital Inputs	Digital Input 15		Digital Inputs	basic
	The name of the digital input 15.					
CF131	Digital Input 15 Normally Closed	Digital Inputs	Digital Input 15		True/False (True)	basic
	True/False value defining if the digital input 15 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF132	Digital Input 16 Name	Digital Inputs	Digital Input 16		Digital Inputs	basic
	The name of the digital input 16.					
CF133	Digital Input 16 Normally Closed	Digital Inputs	Digital Input 16		True/False (True)	basic
	True/False value defining if the digital input 16 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF134	Digital Input 17 Name	Digital Inputs	Digital Input 17		Digital Inputs	basic
	The name of the digital input 17.					

CF135	Digital Input 17 Normally Closed	Digital Inputs	Digital Input 17		True/False (True)	basic
	True/False value defining if the digital input 17 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF136	Digital Input 18 Name	Digital Inputs	Digital Input 18		Digital Inputs	basic
	The name of the digital input 18.					
CF137	Digital Input 18 Normally Closed	Digital Inputs	Digital Input 18		True/False (True)	basic
	True/False value defining if the digital input 18 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF138	Digital Input 19 Name	Digital Inputs	Digital Input 19		Digital Inputs	basic
	The name of the digital input 19.					
CF139	Digital Input 19 Normally Closed	Digital Inputs	Digital Input 19		True/False (True)	basic
	True/False value defining if the digital input 19 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF140	Digital Input 20 Name	Digital Inputs	Digital Input 20		Digital Inputs	basic
	The name of the digital input 20.					
CF141	Digital Input 20 Normally Closed	Digital Inputs	Digital Input 20		True/False (True)	basic
	True/False value defining if the digital input 20 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF142	Digital Input 21 Name	Digital Inputs	Digital Input 21		Digital Inputs	basic
	The name of the digital input 21.					
CF143	Digital Input 21 Normally Closed	Digital Inputs	Digital Input 21		True/False (True)	basic
	True/False value defining if the digital input 21 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF144	Digital Input 22 Name	Digital Inputs	Digital Input 22		Digital Inputs	basic
	The name of the digital input 22.					
CF145	Digital Input 22 Normally Closed	Digital Inputs	Digital Input 22		True/False (True)	basic
	True/False value defining if the digital input 22 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF146	Digital Input 23 Name	Digital Inputs	Digital Input 23		Digital Inputs	basic
	The name of the digital input 23.					
CF147	Digital Input 23 Normally Closed	Digital Inputs	Digital Input 23		True/False (True)	basic
	True/False value defining if the digital input 23 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF148	Digital Input 24 Name	Digital Inputs	Digital Input 24		Digital Inputs	basic
	The name of the digital input 24.					
CF149	Digital Input 24 Normally Closed	Digital Inputs	Digital Input 24		True/False (True)	basic
	True/False value defining if the digital input 24 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF150	Digital Input 25 Name	Digital Inputs	Digital Input 25		Digital Inputs	basic
	The name of the digital input 25.					
CF151	Digital Input 25 Normally Closed	Digital Inputs	Digital Input 25		True/False (True)	basic
	True/False value defining if the digital input 25 is normally closed. If this digital input is not in this default state, the related alarm is set.					

CF152	Digital Input 26 Name	Digital Inputs	Digital Input 26		Digital Inputs	basic
	The name of the digital input 26.					
CF153	Digital Input 26 Normally Closed	Digital Inputs	Digital Input 26		True/False (True)	basic
	True/False value defining if the digital input 26 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF154	Digital Input 27 Name	Digital Inputs	Digital Input 27		Digital Inputs	basic
	The name of the digital input 27.					
CF155	Digital Input 27 Normally Closed	Digital Inputs	Digital Input 27		True/False (True)	basic
	True/False value defining if the digital input 27 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF156	Digital Input 28 Name	Digital Inputs	Digital Input 28		Digital Inputs	basic
	The name of the digital input 28.					
CF157	Digital Input 28 Normally Closed	Digital Inputs	Digital Input 28		True/False (True)	basic
	True/False value defining if the digital input 28 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF158	Digital Input 29 Name	Digital Inputs	Digital Input 29		Digital Inputs	basic
	The name of the digital input 29.					
CF159	Digital Input 29 Normally Closed	Digital Inputs	Digital Input 29		True/False (True)	basic
	True/False value defining if the digital input 29 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF160	Digital Input 30 Name	Digital Inputs	Digital Input 30		Digital Inputs	basic
	The name of the digital input 30.					
CF161	Digital Input 30 Normally Closed	Digital Inputs	Digital Input 30		True/False (True)	basic
	True/False value defining if the digital input 30 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF162	Digital Input 31 Name	Digital Inputs	Digital Input 31		Digital Inputs	basic
	The name of the digital input 31.					
CF163	Digital Input 31 Normally Closed	Digital Inputs	Digital Input 31		True/False (True)	basic
	True/False value defining if the digital input 31 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF164	Digital Input 32 Name	Digital Inputs	Digital Input 32		Digital Inputs	basic
	The name of the digital input 32.					
CF165	Digital Input 32 Normally Closed	Digital Inputs	Digital Input 32		True/False (True)	basic
	True/False value defining if the digital input 32 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF166	Digital Input 33 Name	Digital Inputs	Digital Input 33		Digital Inputs	basic
	The name of the digital input 33.					
CF167	Digital Input 33 Normally Closed	Digital Inputs	Digital Input 33		True/False (True)	basic
	True/False value defining if the digital input 33 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF168	Digital Input 34 Name	Digital Inputs	Digital Input 34		Digital Inputs	basic
	The name of the digital input 34.					
CF169	Digital Input 34 Normally Closed	Digital Inputs	Digital Input 34		True/False (True)	basic

	True/False value defining if the digital input 34 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF170	Digital Input 35 Name	Digital Inputs	Digital Input 35		Digital Inputs	basic
	The name of the digital input 35.					
CF171	Digital Input 35 Normally Closed	Digital Inputs	Digital Input 35		True/False (True)	basic
	True/False value defining if the digital input 35 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF172	Digital Input 36 Name	Digital Inputs	Digital Input 36		Digital Inputs	basic
	The name of the digital input 36.					
CF173	Digital Input 36 Normally Closed	Digital Inputs	Digital Input 36		True/False (True)	basic
	True/False value defining if the digital input 36 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF174	Digital Input 37 Name	Digital Inputs	Digital Input 37		Digital Inputs	basic
	The name of the digital input 37.					
CF175	Digital Input 37 Normally Closed	Digital Inputs	Digital Input 37		True/False (True)	basic
	True/False value defining if the digital input 37 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF176	Digital Input 38 Name	Digital Inputs	Digital Input 38		Digital Inputs	basic
	The name of the digital input 38.					
CF177	Digital Input 38 Normally Closed	Digital Inputs	Digital Input 38		True/False (True)	basic
	True/False value defining if the digital input 38 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF178	Digital Input 39 Name	Digital Inputs	Digital Input 39		Digital Inputs	basic
	The name of the digital input 39.					
CF179	Digital Input 39 Normally Closed	Digital Inputs	Digital Input 39		True/False (True)	basic
	True/False value defining if the digital input 39 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF180	Digital Input 40 Name	Digital Inputs	Digital Input 40		Digital Inputs	basic
	The name of the digital input 40.					
CF181	Digital Input 40 Normally Closed	Digital Inputs	Digital Input 40		True/False (True)	basic
	True/False value defining if the digital input 40 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF182	Digital Input 41 Name	Digital Inputs	Digital Input 41		Digital Inputs	basic
	The name of the digital input 41.					
CF183	Digital Input 41 Normally Closed	Digital Inputs	Digital Input 41		True/False (True)	basic
	True/False value defining if the digital input 41 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF184	Digital Input 42 Name	Digital Inputs	Digital Input 42		Digital Inputs	basic
	The name of the digital input 42.					
CF185	Digital Input 42 Normally Closed	Digital Inputs	Digital Input 42		True/False (True)	basic
	True/False value defining if the digital input 42 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF186	Digital Input 43 Name	Digital Inputs	Digital Input 43		Digital Inputs	basic
	The name of the digital input 43.					

CF187	Digital Input 43 Normally Closed	Digital Inputs	Digital Input 43		True/False (True)	basic
	True/False value defining if the digital input 43 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF188	Digital Input 44 Name	Digital Inputs	Digital Input 44		Digital Inputs	basic
	The name of the digital input 44.					
CF189	Digital Input 44 Normally Closed	Digital Inputs	Digital Input 44		True/False (True)	basic
	True/False value defining if the digital input 44 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF190	Digital Input 45 Name	Digital Inputs	Digital Input 45		Digital Inputs	basic
	The name of the digital input 45.					
CF191	Digital Input 45 Normally Closed	Digital Inputs	Digital Input 45		True/False (True)	basic
	True/False value defining if the digital input 45 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF192	Digital Input 46 Name	Digital Inputs	Digital Input 46		Digital Inputs	basic
	The name of the digital input 46.					
CF193	Digital Input 46 Normally Closed	Digital Inputs	Digital Input 46		True/False (True)	basic
	True/False value defining if the digital input 46 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF194	Digital Input 47 Name	Digital Inputs	Digital Input 47		Digital Inputs	basic
	The name of the digital input 47.					
CF195	Digital Input 47 Normally Closed	Digital Inputs	Digital Input 47		True/False (True)	basic
	True/False value defining if the digital input 47 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF196	Digital Input 48 Name	Digital Inputs	Digital Input 48		Digital Inputs	basic
	The name of the digital input 48.					
CF197	Digital Input 48 Normally Closed	Digital Inputs	Digital Input 48		True/False (True)	basic
	True/False value defining if the digital input 48 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF198	Digital Input 49 Name	Digital Inputs	Digital Input 49		Digital Inputs	basic
	The name of the digital input 49.					
CF199	Digital Input 49 Normally Closed	Digital Inputs	Digital Input 49		True/False (True)	basic
	True/False value defining if the digital input 49 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF200	Digital Input 50 Name	Digital Inputs	Digital Input 50		Digital Inputs	basic
	The name of the digital input 50.					
CF201	Digital Input 50 Normally Closed	Digital Inputs	Digital Input 50		True/False (True)	basic
	True/False value defining if the digital input 50 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF202	Digital Input 51 Name	Digital Inputs	Digital Input 51		Digital Inputs	basic
	The name of the digital input 51.					
CF203	Digital Input 51 Normally Closed	Digital Inputs	Digital Input 51		True/False (True)	basic
	True/False value defining if the digital input 51 is normally closed. If this digital input is not in this default state, the related alarm is set.					

CF204	Digital Input 52 Name	Digital Inputs	Digital Input 52		Digital Inputs	basic
	The name of the digital input 52.					
CF205	Digital Input 52 Normally Closed	Digital Inputs	Digital Input 52		True/False (True)	basic
	True/False value defining if the digital input 52 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF206	Digital Input 53 Name	Digital Inputs	Digital Input 53		Digital Inputs	basic
	The name of the digital input 53.					
CF207	Digital Input 53 Normally Closed	Digital Inputs	Digital Input 53		True/False (True)	basic
	True/False value defining if the digital input 53 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF208	Digital Input 54 Name	Digital Inputs	Digital Input 54		Digital Inputs	basic
	The name of the digital input 54.					
CF209	Digital Input 54 Normally Closed	Digital Inputs	Digital Input 54		True/False (True)	basic
	True/False value defining if the digital input 54 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF210	Digital Input 55 Name	Digital Inputs	Digital Input 55		Digital Inputs	basic
	The name of the digital input 55.					
CF211	Digital Input 55 Normally Closed	Digital Inputs	Digital Input 55		True/False (True)	basic
	True/False value defining if the digital input 55 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF212	Digital Input 56 Name	Digital Inputs	Digital Input 56		Digital Inputs	basic
	The name of the digital input 56.					
CF213	Digital Input 56 Normally Closed	Digital Inputs	Digital Input 56		True/False (True)	basic
	True/False value defining if the digital input 56 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF214	Digital Input 57 Name	Digital Inputs	Digital Input 57		Digital Inputs	basic
	The name of the digital input 57.					
CF215	Digital Input 57 Normally Closed	Digital Inputs	Digital Input 57		True/False (True)	basic
	True/False value defining if the digital input 57 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF216	Digital Input 58 Name	Digital Inputs	Digital Input 58		Digital Inputs	basic
	The name of the digital input 58.					
CF217	Digital Input 58 Normally Closed	Digital Inputs	Digital Input 58		True/False (True)	basic
	True/False value defining if the digital input 58 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF218	Digital Input 59 Name	Digital Inputs	Digital Input 59		Digital Inputs	basic
	The name of the digital input 59.					
CF219	Digital Input 59 Normally Closed	Digital Inputs	Digital Input 59		True/False (True)	basic
	True/False value defining if the digital input 59 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF220	Digital Input 60 Name	Digital Inputs	Digital Input 60		Digital Inputs	basic
	The name of the digital input 60.					
CF221	Digital Input 60 Normally Closed	Digital Inputs	Digital Input 60		True/False (True)	basic

	True/False value defining if the digital input 60 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF222	Digital Input 61 Name	Digital Inputs	Digital Input 61		Digital Inputs	basic
	The name of the digital input 61.					
CF223	Digital Input 61 Normally Closed	Digital Inputs	Digital Input 61		True/False (True)	basic
	True/False value defining if the digital input 61 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF224	Digital Input 62 Name	Digital Inputs	Digital Input 62		Digital Inputs	basic
	The name of the digital input 62.					
CF225	Digital Input 62 Normally Closed	Digital Inputs	Digital Input 62		True/False (True)	basic
	True/False value defining if the digital input 62 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF226	Digital Input 63 Name	Digital Inputs	Digital Input 63		Digital Inputs	basic
	The name of the digital input 63.					
CF227	Digital Input 63 Normally Closed	Digital Inputs	Digital Input 63		True/False (True)	basic
	True/False value defining if the digital input 63 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF228	Digital Input 64 Name	Digital Inputs	Digital Input 64		Digital Inputs	basic
	The name of the digital input 64.					
CF229	Digital Input 64 Normally Closed	Digital Inputs	Digital Input 64		True/False (True)	basic
	True/False value defining if the digital input 64 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF521	Read Access User Numbers	Generic	Allowed Users		(1,2,3,4,5)	basic
	The list of the user numbers which have read access to this equipment. The user numbers are coma separated. The accepted user id are 1,2,3,4 and 5. Ex: 1,3,4					
CF522	Write Access User Numbers	Generic	Allowed Users		()	basic
	The list of the user numbers which have write access to this equipment. This means that these users can modify the configuration element, the alarm settings and use the control elements. The user numbers are coma separated. The accepted user ids are 1,2,3,4 and 5. Ex: 1,3,4					
CF601	Event Table Length	Generic	Events		10/4000 (100)	basic
	The maximum length of the table. The value must be comprised between 10 and 4000					
CF901	Number Of PLC Data	PLC			(0)	plc
	The number of PLC data. Every equipment can manage up to 30 user programmable data. Data elements are automatically added in the data table. Configuration parameters are added to set the PLC Data Name and the PLC Data Mathematical calculation. In order to use these functionalities, you need a license with the 'PLC' module					
CF902	Number Of PLC Alarm	PLC			(0)	plc
	The number of PLC alarm. Every equipment can manage up to 30 user programmable alarms. Alarm elements are automatically added in the alarm table. The alarm parameters are added to set the PLC Alarm Name and the PLC Alarm Boolean condition. In order to use these functionalities, you need a licence with the 'PLC' module					

Control Table				
<i>Id</i>	<i>Name</i>	<i>Group</i>	<i>SubGroup</i>	<i>License</i>
CT501	Clear My Events	Generic	Events	basic
	By writing '1' to this control element, all the events of this equipment will be cleared.			

CT502	Clear All Events	Generic	Events	basic
	By writing '1' to this control element, all the events of this equipment and all the events of all the sub-equipments will be cleared.			
CT511	Add Event	Generic	Events	basic
	This control element adds an event of severity none. The event name is the text written to this control element			
CT512	Add Major Event	Generic	Events	basic
	This control element adds an event of severity major. The event name is the text written to this control element			
CT521	Reset Default Names And Groups	Generic	Renaming	basic
	This control element resets all the element Names, Groups and Subgroups to default values for this equipment			
CT522	Reset Default Names And Groups Recursive	Generic	Renaming	basic
	This control element resets all the element Names, Groups and Subgroups to default values for this equipment and all sub equipments			

15.4.11 BIOM

Device Information	
Name	BIOM
Short Description	COMPAS BASIC I/O MODULE SYS BIOM
Long Description	12 Digital Inputs, 4 output relay, 2 temperature sensors
Hardware Reference	9413 060 05051
Software Reference	SOFT 000037 XX
Equipment Type	System Extension
ETSI Level	/site/sensors_actuators

Description Table				
<i>Id</i>	<i>Name</i>	<i>Group</i>	<i>SubGroup</i>	<i>License</i>
DE1	Product Name	Description	Product Info	basic
	The commercial name of the extension card.			
DE2	Hardware Reference	Description	Product Info	basic
	The hardware refence			
DE3	Hardware Revision	Description	Product Info	basic
	The hardware revision			
DE4	Software Reference	Description	Product Info	basic
	The software reference			
DE6	Serial Number	Description	Product Info	basic
	The serial number.			
DE8	Manufacturing Date	Description	Product Info	basic
	The production date.			
DE11	Description	Description	Custom Description	basic
	A free text zone to write a system description			
DE12	Reference	Description	Custom Description	basic
	A free text zone to write the customer reference of the system			

Alarm Table

<i>Id</i>	<i>Name</i>	<i>Group</i>	<i>SubGroup</i>	<i>Severity Type (Level)</i>	<i>Set/Clear Delay</i>
AL71	Digital Input 1	Digital Inputs	Digital Input 1	warning (0)	5 / 2
	The name of the digital input 1 alarm.				
AL72	Digital Input 2	Digital Inputs	Digital Input 2	warning (0)	5 / 2
	The name of the digital input 2 alarm.				
AL73	Digital Input 3	Digital Inputs	Digital Input 3	warning (0)	5 / 2
	The name of the digital input 3 alarm.				
AL74	Digital Input 4	Digital Inputs	Digital Input 4	warning (0)	5 / 2
	The name of the digital input 4 alarm.				
AL75	Digital Input 5	Digital Inputs	Digital Input 5	warning (0)	5 / 2
	The name of the digital input 5 alarm.				
AL76	Digital Input 6	Digital Inputs	Digital Input 6	warning (0)	5 / 2
	The name of the digital input 6 alarm.				
AL77	Digital Input 7	Digital Inputs	Digital Input 7	warning (0)	5 / 2
	The name of the digital input 7 alarm.				
AL78	Digital Input 8	Digital Inputs	Digital Input 8	warning (0)	5 / 2
	The name of the digital input 8 alarm.				
AL79	Digital Input 9	Digital Inputs	Digital Input 9	warning (0)	5 / 2
	The name of the digital input 9 alarm.				
AL80	Digital Input 10	Digital Inputs	Digital Input 10	warning (0)	5 / 2
	The name of the digital input 10 alarm.				
AL81	Digital Input 11	Digital Inputs	Digital Input 11	warning (0)	5 / 2
	The name of the digital input 11 alarm.				
AL82	Digital Input 12	Digital Inputs	Digital Input 12	warning (0)	5 / 2
	The name of the digital input 12 alarm.				

Data Table					
<i>Id</i>	<i>Name</i>	<i>Group</i>	<i>SubGroup</i>	<i>Unit</i>	<i>License</i>
DA1	Temperature 1	Temperature Sensors	Temperature 1	degree C	basic
	Temperature Measurement 1				
DA2	Temperature 2	Temperature Sensors	Temperature 2	degree C	basic
	Temperature Measurement 2				
DA71	Digital Input 1 State	Digital Inputs	Digital Input 1		basic
	The state of the digital input				
DA72	Digital Input 2 State	Digital Inputs	Digital Input 2		basic
	The state of the digital input				
DA73	Digital Input 3 State	Digital Inputs	Digital Input 3		basic

	The state of the digital input				
DA74	Digital Input 4 State	Digital Inputs	Digital Input 4		basic
	The state of the digital input				
DA75	Digital Input 5 State	Digital Inputs	Digital Input 5		basic
	The state of the digital input				
DA76	Digital Input 6 State	Digital Inputs	Digital Input 6		basic
	The state of the digital input				
DA77	Digital Input 7 State	Digital Inputs	Digital Input 7		basic
	The state of the digital input				
DA78	Digital Input 8 State	Digital Inputs	Digital Input 8		basic
	The state of the digital input				
DA79	Digital Input 9 State	Digital Inputs	Digital Input 9		basic
	The state of the digital input				
DA80	Digital Input 10 State	Digital Inputs	Digital Input 10		basic
	The state of the digital input				
DA81	Digital Input 11 State	Digital Inputs	Digital Input 11		basic
	The state of the digital input				
DA82	Digital Input 12 State	Digital Inputs	Digital Input 12		basic
	The state of the digital input				

Config Table						
<i>Id</i>	<i>Name</i>	<i>Group</i>	<i>SubGroup</i>	<i>Unit</i>	<i>Range: Min/Max (default)</i>	<i>License</i>
CF71	Digital Input 1 Name	Digital Inputs	Digital Input 1		Digital Inputs	basic
	The name of the digital input 1.					
CF72	Digital Input 1 Normally Closed	Digital Inputs	Digital Input 1		True/False (True)	basic
	True/False value defining if the digital input 1 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF73	Digital Input 2 Name	Digital Inputs	Digital Input 2		Digital Inputs	basic
	The name of the digital input 2.					
CF74	Digital Input 2 Normally Closed	Digital Inputs	Digital Input 2		True/False (True)	basic
	True/False value defining if the digital input 2 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF75	Digital Input 3 Name	Digital Inputs	Digital Input 3		Digital Inputs	basic
	The name of the digital input 3.					
CF76	Digital Input 3 Normally Closed	Digital Inputs	Digital Input 3		True/False (True)	basic
	True/False value defining if the digital input 3 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF77	Digital Input 4 Name	Digital Inputs	Digital Input 4		Digital Inputs	basic
	The name of the digital input 4.					
CF78	Digital Input 4 Normally Closed	Digital Inputs	Digital Input 4		True/False (True)	basic
	True/False value defining if the digital input 4 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF79	Digital Input 5 Name	Digital Inputs	Digital Input 5		Digital Inputs	basic
	The name of the digital input 5.					

CF80	Digital Input 5 Normally Closed	Digital Inputs	Digital Input 5		True/False (True)	basic
	True/False value defining if the digital input 5 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF81	Digital Input 6 Name	Digital Inputs	Digital Input 6		Digital Inputs	basic
	The name of the digital input 6.					
CF82	Digital Input 6 Normally Closed	Digital Inputs	Digital Input 6		True/False (True)	basic
	True/False value defining if the digital input 6 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF83	Digital Input 7 Name	Digital Inputs	Digital Input 7		Digital Inputs	basic
	The name of the digital input 7.					
CF84	Digital Input 7 Normally Closed	Digital Inputs	Digital Input 7		True/False (True)	basic
	True/False value defining if the digital input 7 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF85	Digital Input 8 Name	Digital Inputs	Digital Input 8		Digital Inputs	basic
	The name of the digital input 8.					
CF86	Digital Input 8 Normally Closed	Digital Inputs	Digital Input 8		True/False (True)	basic
	True/False value defining if the digital input 8 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF87	Digital Input 9 Name	Digital Inputs	Digital Input 9		Digital Inputs	basic
	The name of the digital input 9.					
CF88	Digital Input 9 Normally Closed	Digital Inputs	Digital Input 9		True/False (True)	basic
	True/False value defining if the digital input 9 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF89	Digital Input 10 Name	Digital Inputs	Digital Input 10		Digital Inputs	basic
	The name of the digital input 10.					
CF90	Digital Input 10 Normally Closed	Digital Inputs	Digital Input 10		True/False (True)	basic
	True/False value defining if the digital input 10 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF91	Digital Input 11 Name	Digital Inputs	Digital Input 11		Digital Inputs	basic
	The name of the digital input 11.					
CF92	Digital Input 11 Normally Closed	Digital Inputs	Digital Input 11		True/False (True)	basic
	True/False value defining if the digital input 11 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF93	Digital Input 12 Name	Digital Inputs	Digital Input 12		Digital Inputs	basic
	The name of the digital input 12.					
CF94	Digital Input 12 Normally Closed	Digital Inputs	Digital Input 12		True/False (True)	basic
	True/False value defining if the digital input 12 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF121	Relay 1 Change State Boolean Condition	Digital Outputs				basic
	PLC Boolean condition to energize the relay 01					
CF122	Relay 2 Change State Boolean Condition	Digital Outputs				basic
	PLC Boolean condition to energize the relay 11					

CF123	Relay 3 Change State Boolean Condition	Digital Outputs				basic
	PLC Boolean condition to energize the relay 21					
CF124	Relay 4 Change State Boolean Condition	Digital Outputs				basic
	PLC Boolean condition to energize the relay 31					
CF521	Read Access User Numbers	Generic	Allowed Users		(1,2,3,4,5)	basic
	The list of the user numbers which have read access to this equipment. The user numbers are coma separated. The accepted user id are 1,2,3,4 and 5. Ex: 1,3,4					
CF522	Write Access User Numbers	Generic	Allowed Users		()	basic
	The list of the user numbers which have write access to this equipment. This means that these users can modify the configuration element, the alarm settings and use the control elements. The user numbers are coma separated. The accepted user ids are 1,2,3,4 and 5. Ex: 1,3,4					
CF601	Event Table Length	Generic	Events		10/4000 (100)	basic
	The maximum length of the table. The value must be comprised between 10 and 4000					
CF901	Number Of PLC Data	PLC			(0)	plc
	The number of PLC data. Every equipment can manage up to 30 user programmable data. Data elements are automatically added in the data table. Configuration parameters are added to set the PLC Data Name and the PLC Data Mathematical calculation. In order to use these functionalities, you need a license with the 'PLC' module					
CF902	Number Of PLC Alarm	PLC			(0)	plc
	The number of PLC alarm. Every equipment can manage up to 30 user programmable alarms. Alarm elements are automatically added in the alarm table. The alarm parameters are added to set the PLC Alarm Name and the PLC Alarm Boolean condition. In order to use these functionalities, you need a licence with the 'PLC' module					

Control Table				
<i>Id</i>	<i>Name</i>	<i>Group</i>	<i>SubGroup</i>	<i>License</i>
CT501	Clear My Events	Generic	Events	basic
	By writing '1' to this control element, all the events of this equipment will be cleared.			
CT502	Clear All Events	Generic	Events	basic
	By writing '1' to this control element, all the events of this equipment and all the events of all the sub-equipments will be cleared.			
CT511	Add Event	Generic	Events	basic
	This control element adds an event of severity none. The event name is the text written to this control element			
CT512	Add Major Event	Generic	Events	basic
	This control element adds an event of severity major. The event name is the text written to this control element			
CT521	Reset Default Names And Groups	Generic	Renaming	basic
	This control element resets all the element Names, Groups and Subgroups to default values for this equipment			
CT522	Reset Default Names And Groups Recursive	Generic	Renaming	basic
	This control element resets all the element Names, Groups and Subgroups to default values for this equipment and all sub equipments			

15.4.12 CXC HP 6I

Device Information	
Name	CXC HP 6I
Short Description	Standard I/O module used to read shunts
Long Description	I/O module with 4 current measurements.
Hardware Reference	0180051-001
Software Reference	39
Equipment Type	System Extension
ETSI Level	/site/sensors_actuators

Description Table				
<i>Id</i>	<i>Name</i>	<i>Group</i>	<i>SubGroup</i>	<i>License</i>
DE1	Product Name	Product Info		asset
	The product name of the ADIO.			
DE4	Software Version	Product Info		asset
	The firmware version of the ADIO.			
DE5	Serial Number	Product Info		asset
	The Serial number version of the ADIO.			
DE11	Description	Description	Custom Description	basic
	A free text zone to write a system description			
DE12	Reference	Description	Custom Description	basic
	A free text zone to write the customer reference of the system			
DE21	CAN Node Id	CAN Bus		basic
	The identifier of the device on the CAN bus.			

Data Table					
<i>Id</i>	<i>Name</i>	<i>Group</i>	<i>SubGroup</i>	<i>Unit</i>	<i>License</i>
DA71	Shunt 1	Current Sensors	Shunt 1	Ampere	basic
	Shunt Measurement 1				
DA72	Shunt 2	Current Sensors	Shunt 2	Ampere	basic
	Shunt Measurement 2				
DA73	Shunt 3	Current Sensors	Shunt 3	Ampere	basic
	Shunt Measurement 3				
DA74	Shunt 4	Current Sensors	Shunt 4	Ampere	basic
	Shunt Measurement 4				
DA75	Shunt 5	Current Sensors	Shunt 5	Ampere	basic
	Shunt Measurement 5				
DA76	Shunt 6	Current Sensors	Shunt 6	Ampere	basic
	Shunt Measurement 6				

Config Table						
<i>Id</i>	<i>Name</i>	<i>Group</i>	<i>SubGroup</i>	<i>Unit</i>	<i>Range: Min/Max (default)</i>	<i>License</i>
CF41	Shunt 1 Rating At 60mV	Current Sensors	Shunt 1	Ampere		basic
	The rating of the shunt 1 at 60mV.					
CF42	Shunt 2 Rating At 60mV	Current Sensors	Shunt 2	Ampere		basic

	The rating of the shunt 2 at 60mV.					
CF43	Shunt 3 Rating At 60mV	Current Sensors	Shunt 3	Ampere		basic
	The rating of the shunt 3 at 60mV.					
CF44	Shunt 4 Rating At 60mV	Current Sensors	Shunt 4	Ampere		basic
	The rating of the shunt 4 at 60mV.					
CF45	Shunt 5 Rating At 60mV	Current Sensors	Shunt 5	Ampere		basic
	The rating of the shunt 5 at 60mV.					
CF46	Shunt 6 Rating At 60mV	Current Sensors	Shunt 6	Ampere		basic
	The rating of the shunt 6 at 60mV.					
CF521	Read Access User Numbers	Generic	Allowed Users		(1,2,3,4,5)	basic
	The list of the user numbers which have read access to this equipment. The user numbers are coma separated. The accepted user id are 1,2,3,4 and 5. Ex: 1,3,4					
CF522	Write Access User Numbers	Generic	Allowed Users		()	basic
	The list of the user numbers which have write access to this equipment. This means that these users can modify the configuration element, the alarm settings and use the control elements. The user numbers are coma separated. The accepted user ids are 1,2,3,4 and 5. Ex: 1,3,4					
CF601	Event Table Length	Generic	Events		10/4000 (100)	basic
	The maximum length of the table. The value must be comprised between 10 and 4000					
CF901	Number Of PLC Data	PLC			(0)	plc
	The number of PLC data. Every equipment can manage up to 30 user programmable data. Data elements are automatically added in the data table. Configuration parameters are added to set the PLC Data Name and the PLC Data Mathematical calculation. In order to use these functionalities, you need a license with the 'PLC' module					
CF902	Number Of PLC Alarm	PLC			(0)	plc
	The number of PLC alarm. Every equipment can manage up to 30 user programmable alarms. Alarm elements are automatically added in the alarm table. The alarm parameters are added to set the PLC Alarm Name and the PLC Alarm Boolean condition. In order to use these functionalities, you need a licence with the 'PLC' module					

Control Table				
<i>Id</i>	<i>Name</i>	<i>Group</i>	<i>SubGroup</i>	<i>License</i>
CT501	Clear My Events	Generic	Events	basic
	By writing '1' to this control element, all the events of this equipment will be cleared.			
CT502	Clear All Events	Generic	Events	basic
	By writing '1' to this control element, all the events of this equipment and all the events of all the sub-equipments will be cleared.			
CT511	Add Event	Generic	Events	basic
	This control element adds an event of severity none. The event name is the text written to this control element			
CT512	Add Major Event	Generic	Events	basic
	This control element adds an event of severity major. The event name is the text written to this control element			
CT521	Reset Default Names And Groups	Generic	Renaming	basic
	This control element resets all the element Names, Groups and Subgroups to default values for this equipment			
CT522	Reset Default Names And Groups Recursive	Generic	Renaming	basic
	This control element resets all the element Names, Groups and Subgroups to default values for this equipment and all sub equipments			

15.4.13 CXC HP HV-ADIO

Device Information	
Name	CXC HP HV-ADIO
Short Description	Standard I/O module: relays, current, voltage, digital inputs,...
Long Description	I/O module with 6 high voltage outputs relays, 4 Digital inputs, 2 temperatures, 2 voltage (+/- 300V DC), 1 shunt measurement, 2 hall effect probes, ground default.
Hardware Reference	0180057-001
Software Reference	41
Equipment Type	System Extension
ETSI Level	/site/sensors_actuators

Description Table				
<i>Id</i>	<i>Name</i>	<i>Group</i>	<i>SubGroup</i>	<i>License</i>
DE1	Product Name	Product Info		asset
	The product name of the ADIO.			
DE4	Software Version	Product Info		asset
	The firmware version of the ADIO.			
DE5	Serial Number	Product Info		asset
	The Serial number version of the ADIO.			
DE11	Description	Description	Custom Description	basic
	A free text zone to write a system description			
DE12	Reference	Description	Custom Description	basic
	A free text zone to write the customer reference of the system			
DE21	CAN Node Id	CAN Bus		basic
	The identifier of the device on the CAN bus.			

Alarm Table					
<i>Id</i>	<i>Name</i>	<i>Group</i>	<i>SubGroup</i>	<i>Severity Type (Level)</i>	<i>Set/Clear Delay</i>
AL1	Temperature Sensor 1 Fail	Temperature		minor (4)	5 / 2
	The temperature probe has a problem. Maybe it is not connected or shorted. Minimal accepted value: -40, Maximal accepted value: 110				
AL2	Temperature Sensor 2 Fail	Temperature		minor (4)	5 / 2
	The temperature probe has a problem. Maybe it is not connected or shorted. Minimal accepted value: -40, Maximal accepted value: 110				
AL71	Digital Input 1	Digital Inputs	Digital Input 1	warning (0)	5 / 2
	The name of the digital input 1 alarm.				
AL72	Digital Input 2	Digital Inputs	Digital Input 2	warning (0)	5 / 2
	The name of the digital input 2 alarm.				
AL73	Digital Input 3	Digital Inputs	Digital Input 3	warning (0)	5 / 2
	The name of the digital input 3 alarm.				
AL74	Digital Input 4	Digital Inputs	Digital Input 4	warning (0)	5 / 2

	The name of the digital input 4 alarm.				
AL160	Ground Fault Alarm	Ground Fault Detection		major (6)	60 / 20
	A ground fault has been detected. The insulation to the ground is not as good as expected by your configuration. This could be caused by a default of by another ground fault measurement device. Please check your wiring. Be careful, ground current can kill.				

Data Table					
<i>Id</i>	<i>Name</i>	<i>Group</i>	<i>SubGroup</i>	<i>Unit</i>	<i>License</i>
DA1	Temperature 1	Temperature		degree C	basic
	Temperature Measurement which is done directly on the ADIO. Slope: 100, Offset: 273				
DA2	Temperature 2	Temperature		degree C	basic
	Temperature Measurement which is done directly on the ADIO. Slope: 100, Offset: 273				
DA71	Shunt 1	Current Sensors	Shunt 1	Ampere	basic
	Shunt Measurement 1				
DA91	Voltage 1	Voltage Sensors		Volt	basic
	Voltage Measurement Calibrated and filtered from ADIO				
DA92	Voltage 2	Voltage Sensors		Volt	basic
	Voltage Measurement Calibrated and filtered from ADIO				
DA121	Relay 1 State	Relays	Relay 1		basic
	Actual state of the Relay				
DA123	Relay 2 State	Relays	Relay 2		basic
	Actual state of the Relay				
DA125	Relay 3 State	Relays	Relay 3		basic
	Actual state of the Relay				
DA127	Relay 4 State	Relays	Relay 4		basic
	Actual state of the Relay				
DA129	Relay 5 State	Relays	Relay 5		basic
	Actual state of the Relay				
DA131	Relay 6 State	Relays	Relay 6		basic
	Actual state of the Relay				
DA160	Resistance to Ground	Ground Fault Detection		kOhm	basic
	Measurement of the resistance between ground and power alimentation. If this value is too low, there is probably an insulation problem or measurement system conflict. Check your installation.				
DA161	Current to Ground	Ground Fault Detection		mAmpere	basic
	Measurement of the current between ground and power alimentation. If this value is too high, there is probably an insulation problem or measurement system conflict. Check your installation.				

Config Table						
<i>Id</i>	<i>Name</i>	<i>Group</i>	<i>SubGroup</i>	<i>Unit</i>	<i>Range: Min/Max (default)</i>	<i>License</i>
CF41	Shunt 1 Rating At 60mV	Current Sensors	Shunt 1	Ampere		basic
	The rating of the shunt 1 at 60mV.					
CF71	Digital Input 1 Name	Digital Inputs	Digital Input 1		Digital Inputs	basic
	The name of the digital input 1.					
CF72	Digital Input 1 Normally Closed	Digital Inputs	Digital Input 1		True/False (True)	basic

	True/False value defining if the digital input 1 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF73	Digital Input 2 Name	Digital Inputs	Digital Input 2		Digital Inputs	basic
	The name of the digital input 2.					
CF74	Digital Input 2 Normally Closed	Digital Inputs	Digital Input 2		True/False (True)	basic
	True/False value defining if the digital input 2 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF75	Digital Input 3 Name	Digital Inputs	Digital Input 3		Digital Inputs	basic
	The name of the digital input 3.					
CF76	Digital Input 3 Normally Closed	Digital Inputs	Digital Input 3		True/False (True)	basic
	True/False value defining if the digital input 3 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF77	Digital Input 4 Name	Digital Inputs	Digital Input 4		Digital Inputs	basic
	The name of the digital input 4.					
CF78	Digital Input 4 Normally Closed	Digital Inputs	Digital Input 4		True/False (True)	basic
	True/False value defining if the digital input 4 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF121	Relay 1 Change State Boolean Condition	Relays	Relay 1		(False)	basic
	Relay 1 Boolean Condition					
CF122	Relay 1 Normal State	Relays	Relay 1		(Energized / De-energized)	basic
	Relay 1 Normal State					
CF123	Relay 2 Change State Boolean Condition	Relays	Relay 2		(False)	basic
	Relay 2 Boolean Condition					
CF124	Relay 2 Normal State	Relays	Relay 2		(Energized / De-energized)	basic
	Relay 2 Normal State					
CF125	Relay 3 Change State Boolean Condition	Relays	Relay 3		(False)	basic
	Relay 3 Boolean Condition					
CF126	Relay 3 Normal State	Relays	Relay 3		(Energized / De-energized)	basic
	Relay 3 Normal State					
CF127	Relay 4 Change State Boolean Condition	Relays	Relay 4		(False)	basic
	Relay 4 Boolean Condition					
CF128	Relay 4 Normal State	Relays	Relay 4		(Energized / De-energized)	basic
	Relay 4 Normal State					
CF129	Relay 5 Change State Boolean Condition	Relays	Relay 5		(False)	basic
	Relay 5 Boolean Condition					
CF130	Relay 5 Normal State	Relays	Relay 5		(Energized / De-energized)	basic
	Relay 5 Normal State					
CF131	Relay 6 Change State Boolean Condition	Relays	Relay 6		(False)	basic

	Relay 6 Boolean Condition					
CF132	Relay 6 Normal State	Relays	Relay 6		(Energized / De-energized)	basic
	Relay 6 Normal State					
CF160	Ground Fault Detection Enabled	Ground Fault Detection			True/False (True)	basic
	Activate the ground fault detection system. Be carefull, ground current can kill.					
CF161	Minimal Ground Resistance Before Alarm	Ground Fault Detection		kOhm		basic
	Minimal resistance between ground and power lines before having an alarm. Usually this value is 20 kOhms. Be carefull, ground current can kill.					
CF162	Maximum Ground Current Before Alarm	Ground Fault Detection		mAmpere	1/100 (5)	basic
	Maximal ground current measured in mA before having an alarm. Usually this value is 5 mA. Be carefull, ground current can kill.					
CF521	Read Access User Numbers	Generic	Allowed Users		(1,2,3,4,5)	basic
	The list of the user numbers which have read access to this equipment. The user numbers are coma separated. The accepted user id are 1,2,3,4 and 5. Ex: 1,3,4					
CF522	Write Access User Numbers	Generic	Allowed Users		()	basic
	The list of the user numbers which have write access to this equipment. This means that these users can modify the configuration element, the alarm settings and use the control elements. The user numbers are coma separated. The accepted user ids are 1,2,3,4 and 5. Ex: 1,3,4					
CF601	Event Table Length	Generic	Events		10/4000 (100)	basic
	The maximum length of the table. The value must be comprised between 10 and 4000					
CF901	Number Of PLC Data	PLC			(0)	plc
	The number of PLC data. Every equipment can manage up to 30 user programmable data. Data elements are automatically added in the data table. Configuration parameters are added to set the PLC Data Name and the PLC Data Mathematical calculation. In order to use these functionalities, you need a license with the 'PLC' module					
CF902	Number Of PLC Alarm	PLC			(0)	plc
	The number of PLC alarm. Every equipment can manage up to 30 user programmable alarms. Alarm elements are automatically added in the alarm table. The alarm parameters are added to set the PLC Alarm Name and the PLC Alarm Boolean condition. In order to use these functionalities, you need a licence with the 'PLC' module					

Control Table				
<i>Id</i>	<i>Name</i>	<i>Group</i>	<i>SubGroup</i>	<i>License</i>
CT121	Invert Relay 1 State For X Seconds	Relays	Relay 1	basic
	Generate Pulse on relay			
CT123	Invert Relay 2 State For X Seconds	Relays	Relay 2	basic
	Generate Pulse on relay			
CT125	Invert Relay 3 State For X Seconds	Relays	Relay 3	basic
	Generate Pulse on relay			
CT127	Invert Relay 4 State For X Seconds	Relays	Relay 4	basic
	Generate Pulse on relay			
CT129	Invert Relay 5 State For X Seconds	Relays	Relay 5	basic
	Generate Pulse on relay			
CT131	Invert Relay 6 State For X Seconds	Relays	Relay 6	basic
	Generate Pulse on relay			

CT501	Clear My Events	Generic	Events	basic
	By writing '1' to this control element, all the events of this equipment will be cleared.			
CT502	Clear All Events	Generic	Events	basic
	By writing '1' to this control element, all the events of this equipment and all the events of all the sub-equipments will be cleared.			
CT511	Add Event	Generic	Events	basic
	This control element adds an event of severity none. The event name is the text written to this control element			
CT512	Add Major Event	Generic	Events	basic
	This control element adds an event of severity major. The event name is the text written to this control element			
CT521	Reset Default Names And Groups	Generic	Renaming	basic
	This control element resets all the element Names, Groups and Subgroups to default values for this equipment			
CT522	Reset Default Names And Groups Recursive	Generic	Renaming	basic
	This control element resets all the element Names, Groups and Subgroups to default values for this equipment and all sub equipments			

15.4.14 CXC HP L-ADIO

Device Information	
Name	CXC HP L-ADIO
Short Description	Standard I/O module: relays, current, voltage, digital inputs,...
Long Description	I/O module with 12 outputs relays, 8 Digital inputs, 4 temperatures, 4 voltage (+/- 60V) measurements, and 4 shunts measurements.
Hardware Reference	0180039-002
Software Reference	40
Equipment Type	System Extension
ETSI Level	/site/sensors_actuators

Description Table				
<i>Id</i>	<i>Name</i>	<i>Group</i>	<i>SubGroup</i>	<i>License</i>
DE1	Product Name	Product Info		asset
	The product name of the ADIO.			
DE4	Software Version	Product Info		asset
	The firmware version of the ADIO.			
DE5	Serial Number	Product Info		asset
	The Serial number version of the ADIO.			
DE11	Description	Description	Custom Description	basic
	A free text zone to write a system description			
DE12	Reference	Description	Custom Description	basic
	A free text zone to write the customer reference of the system			
DE21	CAN Node Id	CAN Bus		basic
	The identifier of the device on the CAN bus.			

Alarm Table

<i>Id</i>	<i>Name</i>	<i>Group</i>	<i>SubGroup</i>	<i>Severity Type (Level)</i>	<i>Set/Clear Delay</i>
AL1	Temperature Sensor 1 Fail	Temperature		minor (4)	5 / 2
	The temperature probe has a problem. Maybe it is not connected or shorted. Minimal accepted value: -40, Maximal accepted value: 110				
AL2	Temperature Sensor 2 Fail	Temperature		minor (4)	5 / 2
	The temperature probe has a problem. Maybe it is not connected or shorted. Minimal accepted value: -40, Maximal accepted value: 110				
AL3	Temperature Sensor 3 Fail	Temperature		minor (4)	5 / 2
	The temperature probe has a problem. Maybe it is not connected or shorted. Minimal accepted value: -40, Maximal accepted value: 110				
AL4	Temperature Sensor 4 Fail	Temperature		minor (4)	5 / 2
	The temperature probe has a problem. Maybe it is not connected or shorted. Minimal accepted value: -40, Maximal accepted value: 110				
AL71	Digital Input 1	Digital Inputs	Digital Input 1	warning (0)	5 / 2
	The name of the digital input 1 alarm.				
AL72	Digital Input 2	Digital Inputs	Digital Input 2	warning (0)	5 / 2
	The name of the digital input 2 alarm.				
AL73	Digital Input 3	Digital Inputs	Digital Input 3	warning (0)	5 / 2
	The name of the digital input 3 alarm.				
AL74	Digital Input 4	Digital Inputs	Digital Input 4	warning (0)	5 / 2
	The name of the digital input 4 alarm.				
AL75	Digital Input 5	Digital Inputs	Digital Input 5	warning (0)	5 / 2
	The name of the digital input 5 alarm.				
AL76	Digital Input 6	Digital Inputs	Digital Input 6	warning (0)	5 / 2
	The name of the digital input 6 alarm.				
AL77	Digital Input 7	Digital Inputs	Digital Input 7	warning (0)	5 / 2
	The name of the digital input 7 alarm.				
AL78	Digital Input 8	Digital Inputs	Digital Input 8	warning (0)	5 / 2
	The name of the digital input 8 alarm.				
AL180	LVD Override is active	Relays	Mapping	minor (4)	5 / 2
	Relay mapped as LVD are currently overridden by the push button on the ADIO. This means that the system cannot change the state of the relays which are mapped as LVD. Please configure your relays output then disable the override by pushing 3 seconds on the ADIO.				

Data Table					
<i>Id</i>	<i>Name</i>	<i>Group</i>	<i>SubGroup</i>	<i>Unit</i>	<i>License</i>
DA1	Temperature 1	Temperature		degree C	basic
	Temperature Measurement which is done directly on the ADIO. Slope: 100, Offset: 273				
DA2	Temperature 2	Temperature		degree C	basic
	Temperature Measurement which is done directly on the ADIO. Slope: 100, Offset: 273				
DA3	Temperature 3	Temperature		degree C	basic

	Temperature Measurement which is done directly on the ADIO. Slope: 100, Offset: 273				
DA4	Temperature 4	Temperature		degree C	basic
	Temperature Measurement which is done directly on the ADIO. Slope: 100, Offset: 273				
DA71	Shunt 1	Current Sensors	Shunt 1	Ampere	basic
	Shunt Measurement 1				
DA72	Shunt 2	Current Sensors	Shunt 2	Ampere	basic
	Shunt Measurement 2				
DA73	Shunt 3	Current Sensors	Shunt 3	Ampere	basic
	Shunt Measurement 3				
DA74	Shunt 4	Current Sensors	Shunt 4	Ampere	basic
	Shunt Measurement 4				
DA91	Voltage 1	Voltage Sensors		Volt	basic
	Voltage Measurement Calibrated and filtered from ADIO				
DA92	Voltage 2	Voltage Sensors		Volt	basic
	Voltage Measurement Calibrated and filtered from ADIO				
DA93	Voltage 3	Voltage Sensors		Volt	basic
	Voltage Measurement Calibrated and filtered from ADIO				
DA94	Voltage 4	Voltage Sensors		Volt	basic
	Voltage Measurement Calibrated and filtered from ADIO				
DA121	Relay 1 State	Relays	Relay 1		basic
	Actual state of the Relay				
DA123	Relay 2 State	Relays	Relay 2		basic
	Actual state of the Relay				
DA125	Relay 3 State	Relays	Relay 3		basic
	Actual state of the Relay				
DA127	Relay 4 State	Relays	Relay 4		basic
	Actual state of the Relay				
DA129	Relay 5 State	Relays	Relay 5		basic
	Actual state of the Relay				
DA131	Relay 6 State	Relays	Relay 6		basic
	Actual state of the Relay				
DA133	Relay 7 State	Relays	Relay 7		basic
	Actual state of the Relay				
DA135	Relay 8 State	Relays	Relay 8		basic
	Actual state of the Relay				
DA137	Relay 9 State	Relays	Relay 9		basic
	Actual state of the Relay				
DA139	Relay 10 State	Relays	Relay 10		basic
	Actual state of the Relay				
DA141	Relay 11 State	Relays	Relay 11		basic
	Actual state of the Relay				
DA143	Relay 12 State	Relays	Relay 12		basic
	Actual state of the Relay				

Config Table						
<i>Id</i>	<i>Name</i>	<i>Group</i>	<i>SubGroup</i>	<i>Unit</i>	<i>Range: Min/Max (default)</i>	<i>License</i>
CF41	Shunt 1 Rating At 60mV	Current Sensors	Shunt 1	Ampere		basic

	The rating of the shunt 1 at 60mV.					
CF42	Shunt 2 Rating At 60mV	Current Sensors	Shunt 2	Ampere		basic
	The rating of the shunt 2 at 60mV.					
CF43	Shunt 3 Rating At 60mV	Current Sensors	Shunt 3	Ampere		basic
	The rating of the shunt 3 at 60mV.					
CF44	Shunt 4 Rating At 60mV	Current Sensors	Shunt 4	Ampere		basic
	The rating of the shunt 4 at 60mV.					
CF71	Digital Input 1 Name	Digital Inputs	Digital Input 1		Digital Inputs	basic
	The name of the digital input 1.					
CF72	Digital Input 1 Normally Closed	Digital Inputs	Digital Input 1		True/False (True)	basic
	True/False value defining if the digital input 1 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF73	Digital Input 2 Name	Digital Inputs	Digital Input 2		Digital Inputs	basic
	The name of the digital input 2.					
CF74	Digital Input 2 Normally Closed	Digital Inputs	Digital Input 2		True/False (True)	basic
	True/False value defining if the digital input 2 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF75	Digital Input 3 Name	Digital Inputs	Digital Input 3		Digital Inputs	basic
	The name of the digital input 3.					
CF76	Digital Input 3 Normally Closed	Digital Inputs	Digital Input 3		True/False (True)	basic
	True/False value defining if the digital input 3 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF77	Digital Input 4 Name	Digital Inputs	Digital Input 4		Digital Inputs	basic
	The name of the digital input 4.					
CF78	Digital Input 4 Normally Closed	Digital Inputs	Digital Input 4		True/False (True)	basic
	True/False value defining if the digital input 4 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF79	Digital Input 5 Name	Digital Inputs	Digital Input 5		Digital Inputs	basic
	The name of the digital input 5.					
CF80	Digital Input 5 Normally Closed	Digital Inputs	Digital Input 5		True/False (True)	basic
	True/False value defining if the digital input 5 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF81	Digital Input 6 Name	Digital Inputs	Digital Input 6		Digital Inputs	basic
	The name of the digital input 6.					
CF82	Digital Input 6 Normally Closed	Digital Inputs	Digital Input 6		True/False (True)	basic
	True/False value defining if the digital input 6 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF83	Digital Input 7 Name	Digital Inputs	Digital Input 7		Digital Inputs	basic
	The name of the digital input 7.					
CF84	Digital Input 7 Normally Closed	Digital Inputs	Digital Input 7		True/False (True)	basic
	True/False value defining if the digital input 7 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF85	Digital Input 8 Name	Digital Inputs	Digital Input 8		Digital Inputs	basic
	The name of the digital input 8.					

CF86	Digital Input 8 Normally Closed	Digital Inputs	Digital Input 8		True/False (True)	basic
	True/False value defining if the digital input 8 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF121	Relay 1 Change State Boolean Condition	Relays	Relay 1		(False)	basic
	Relay 1 Boolean Condition					
CF122	Relay 1 Normal State	Relays	Relay 1		(Energized / De-energized)	basic
	Relay 1 Normal State					
CF123	Relay 2 Change State Boolean Condition	Relays	Relay 2		(False)	basic
	Relay 2 Boolean Condition					
CF124	Relay 2 Normal State	Relays	Relay 2		(Energized / De-energized)	basic
	Relay 2 Normal State					
CF125	Relay 3 Change State Boolean Condition	Relays	Relay 3		(False)	basic
	Relay 3 Boolean Condition					
CF126	Relay 3 Normal State	Relays	Relay 3		(Energized / De-energized)	basic
	Relay 3 Normal State					
CF127	Relay 4 Change State Boolean Condition	Relays	Relay 4		(False)	basic
	Relay 4 Boolean Condition					
CF128	Relay 4 Normal State	Relays	Relay 4		(Energized / De-energized)	basic
	Relay 4 Normal State					
CF129	Relay 5 Change State Boolean Condition	Relays	Relay 5		(False)	basic
	Relay 5 Boolean Condition					
CF130	Relay 5 Normal State	Relays	Relay 5		(Energized / De-energized)	basic
	Relay 5 Normal State					
CF131	Relay 6 Change State Boolean Condition	Relays	Relay 6		(False)	basic
	Relay 6 Boolean Condition					
CF132	Relay 6 Normal State	Relays	Relay 6		(Energized / De-energized)	basic
	Relay 6 Normal State					
CF133	Relay 7 Change State Boolean Condition	Relays	Relay 7		(False)	basic
	Relay 7 Boolean Condition					
CF134	Relay 7 Normal State	Relays	Relay 7		(Energized / De-energized)	basic
	Relay 7 Normal State					
CF135	Relay 8 Change State Boolean Condition	Relays	Relay 8		(False)	basic
	Relay 8 Boolean Condition					
CF136	Relay 8 Normal State	Relays	Relay 8		(Energized / De-energized)	basic
	Relay 8 Normal State					

CF137	Relay 9 Change State Boolean Condition	Relays	Relay 9		(False)	basic
	Relay 9 Boolean Condition					
CF138	Relay 9 Normal State	Relays	Relay 9		(Energized / De-energized)	basic
	Relay 9 Normal State					
CF139	Relay 10 Change State Boolean Condition	Relays	Relay 10		(False)	basic
	Relay 10 Boolean Condition					
CF140	Relay 10 Normal State	Relays	Relay 10		(Energized / De-energized)	basic
	Relay 10 Normal State					
CF141	Relay 11 Change State Boolean Condition	Relays	Relay 11		(False)	basic
	Relay 11 Boolean Condition					
CF142	Relay 11 Normal State	Relays	Relay 11		(Energized / De-energized)	basic
	Relay 11 Normal State					
CF143	Relay 12 Change State Boolean Condition	Relays	Relay 12		(False)	basic
	Relay 12 Boolean Condition					
CF144	Relay 12 Normal State	Relays	Relay 12		(Energized / De-energized)	basic
	Relay 12 Normal State					
CF180	Mapping for LVD Override	Relays	Mapping			basic
	When enabling the lvd mapping, you are able to use the override button allowing you to prevent a switch of the relay to an inappropriate state For example, when you have to change the controller and that the configuration of relays is not done. Enter the relay number separated by a coma. you can use an hyphen to validate date. For Example: 1-5,10					
CF521	Read Access User Numbers	Generic	Allowed Users		(1,2,3,4,5)	basic
	The list of the user numbers which have read access to this equipment. The user numbers are coma separated. The accepted user id are 1,2,3,4 and 5. Ex: 1,3,4					
CF522	Write Access User Numbers	Generic	Allowed Users		()	basic
	The list of the user numbers which have write access to this equipment. This means that these users can modify the configuration element, the alarm settings and use the control elements. The user numbers are coma separated. The accepted user ids are 1,2,3,4 and 5. Ex: 1,3,4					
CF601	Event Table Length	Generic	Events		10/4000 (100)	basic
	The maximum length of the table. The value must be comprised between 10 and 4000					
CF901	Number Of PLC Data	PLC			(0)	plc
	The number of PLC data. Every equipment can manage up to 30 user programmable data. Data elements are automatically added in the data table. Configuration parameters are added to set the PLC Data Name and the PLC Data Mathematical calculation. In order to use these functionalities, you need a license with the 'PLC' module					
CF902	Number Of PLC Alarm	PLC			(0)	plc
	The number of PLC alarm. Every equipment can manage up to 30 user programmable alarms. Alarm elements are automatically added in the alarm table. The alarm parameters are added to set the PLC Alarm Name and the PLC Alarm Boolean condition. In order to use these functionalities, you need a licence with the 'PLC' module					

<i>Id</i>	<i>Name</i>	<i>Group</i>	<i>SubGroup</i>	<i>License</i>
CT121	Invert Relay 1 State For X Seconds	Relays	Relay 1	basic
	Generate Pulse on relay			
CT123	Invert Relay 2 State For X Seconds	Relays	Relay 2	basic
	Generate Pulse on relay			
CT125	Invert Relay 3 State For X Seconds	Relays	Relay 3	basic
	Generate Pulse on relay			
CT127	Invert Relay 4 State For X Seconds	Relays	Relay 4	basic
	Generate Pulse on relay			
CT129	Invert Relay 5 State For X Seconds	Relays	Relay 5	basic
	Generate Pulse on relay			
CT131	Invert Relay 6 State For X Seconds	Relays	Relay 6	basic
	Generate Pulse on relay			
CT133	Invert Relay 7 State For X Seconds	Relays	Relay 7	basic
	Generate Pulse on relay			
CT135	Invert Relay 8 State For X Seconds	Relays	Relay 8	basic
	Generate Pulse on relay			
CT137	Invert Relay 9 State For X Seconds	Relays	Relay 9	basic
	Generate Pulse on relay			
CT139	Invert Relay 10 State For X Seconds	Relays	Relay 10	basic
	Generate Pulse on relay			
CT141	Invert Relay 11 State For X Seconds	Relays	Relay 11	basic
	Generate Pulse on relay			
CT143	Invert Relay 12 State For X Seconds	Relays	Relay 12	basic
	Generate Pulse on relay			
CT501	Clear My Events	Generic	Events	basic
	By writing '1' to this control element, all the events of this equipment will be cleared.			
CT502	Clear All Events	Generic	Events	basic
	By writing '1' to this control element, all the events of this equipment and all the events of all the sub-equipments will be cleared.			
CT511	Add Event	Generic	Events	basic
	This control element adds an event of severity none. The event name is the text written to this control element			
CT512	Add Major Event	Generic	Events	basic
	This control element adds an event of severity major. The event name is the text written to this control element			
CT521	Reset Default Names And Groups	Generic	Renaming	basic
	This control element resets all the element Names, Groups and Subgroups to default values for this equipment			
CT522	Reset Default Names And Groups Recursive	Generic	Renaming	basic
	This control element resets all the element Names, Groups and Subgroups to default values for this equipment and all sub equipments			

15.4.15 FID

Device Information	
Name	FID
Short Description	FID

Long Description	Fault Isolation Device - Under Development
Hardware Reference	9413 060 TBD
Software Reference	SOFT 000157 XX
Equipment Type	System Extension
ETSI Level	/site/sensors_actuators

Description Table				
<i>Id</i>	<i>Name</i>	<i>Group</i>	<i>SubGroup</i>	<i>License</i>
DE1	Product Name	Description	Product Info	basic
	The commercial name of the extension card.			
DE2	Hardware Reference	Description	Product Info	basic
	The hardware refence			
DE3	Hardware Revision	Description	Product Info	basic
	The hardware revision			
DE4	Software Reference	Description	Product Info	basic
	The software reference			
DE6	Serial Number	Description	Product Info	basic
	The serial number.			
DE8	Manufacturing Date	Description	Product Info	basic
	The production date.			
DE11	Description	Description	Custom Description	basic
	A free text zone to write a system description			
DE12	Reference	Description	Custom Description	basic
	A free text zone to write the customer reference of the system			

Alarm Table					
<i>Id</i>	<i>Name</i>	<i>Group</i>	<i>SubGroup</i>	<i>Severity Type (Level)</i>	<i>Set/Clear Delay</i>
AL101	FID 0 Local Power Differential Tripped	FID	FID 0	major (6)	5 / 2
	Local diff fuse has tripped				
AL102	FID 0 Trunk Power Differential Tripped	FID	FID 0	major (6)	5 / 2
	Trunk diff fuse has tripped				
AL103	FID 0 Local Power Fuse Tripped	FID	FID 0	major (6)	5 / 2
	Local fuse has tripped				
AL104	FID 0 Trunk Power Fuse Tripped	FID	FID 0	major (6)	5 / 2
	Trunk fuse has tripped				
AL121	FID 1 Local Power Differential Tripped	FID	FID 1	major (6)	5 / 2
	Local diff fuse has tripped				
AL122	FID 1 Trunk Power Differential Tripped	FID	FID 1	major (6)	5 / 2
	Trunk diff fuse has tripped				
AL123	FID 1 Local Power Fuse Tripped	FID	FID 1	major (6)	5 / 2
	Local fuse has tripped				
AL124	FID 1 Trunk Power Fuse Tripped	FID	FID 1	major (6)	5 / 2
	Trunk fuse has tripped				

AL141	FID 2 Local Power Differential Tripped	FID	FID 2	major (6)	5 / 2
	Local diff fuse has tripped				
AL142	FID 2 Trunk Power Differential Tripped	FID	FID 2	major (6)	5 / 2
	Trunk diff fuse has tripped				
AL143	FID 2 Local Power Fuse Tripped	FID	FID 2	major (6)	5 / 2
	Local fuse has tripped				
AL144	FID 2 Trunk Power Fuse Tripped	FID	FID 2	major (6)	5 / 2
	Trunk fuse has tripped				
AL161	FID 3 Local Power Differential Tripped	FID	FID 3	major (6)	5 / 2
	Local diff fuse has tripped				
AL162	FID 3 Trunk Power Differential Tripped	FID	FID 3	major (6)	5 / 2
	Trunk diff fuse has tripped				
AL163	FID 3 Local Power Fuse Tripped	FID	FID 3	major (6)	5 / 2
	Local fuse has tripped				
AL164	FID 3 Trunk Power Fuse Tripped	FID	FID 3	major (6)	5 / 2
	Trunk fuse has tripped				
AL181	FID 4 Local Power Differential Tripped	FID	FID 4	major (6)	5 / 2
	Local diff fuse has tripped				
AL182	FID 4 Trunk Power Differential Tripped	FID	FID 4	major (6)	5 / 2
	Trunk diff fuse has tripped				
AL183	FID 4 Local Power Fuse Tripped	FID	FID 4	major (6)	5 / 2
	Local fuse has tripped				
AL184	FID 4 Trunk Power Fuse Tripped	FID	FID 4	major (6)	5 / 2
	Trunk fuse has tripped				
AL201	FID 5 Local Power Differential Tripped	FID	FID 5	major (6)	5 / 2
	Local diff fuse has tripped				
AL202	FID 5 Trunk Power Differential Tripped	FID	FID 5	major (6)	5 / 2
	Trunk diff fuse has tripped				
AL203	FID 5 Local Power Fuse Tripped	FID	FID 5	major (6)	5 / 2
	Local fuse has tripped				
AL204	FID 5 Trunk Power Fuse Tripped	FID	FID 5	major (6)	5 / 2
	Trunk fuse has tripped				
AL221	FID 6 Local Power Differential Tripped	FID	FID 6	major (6)	5 / 2
	Local diff fuse has tripped				
AL222	FID 6 Trunk Power Differential Tripped	FID	FID 6	major (6)	5 / 2
	Trunk diff fuse has tripped				
AL223	FID 6 Local Power Fuse Tripped	FID	FID 6	major (6)	5 / 2
	Local fuse has tripped				
AL224	FID 6 Trunk Power Fuse Tripped	FID	FID 6	major (6)	5 / 2
	Trunk fuse has tripped				

AL241	FID 7 Local Power Differential Tripped	FID	FID 7	major (6)	5 / 2
	Local diff fuse has tripped				
AL242	FID 7 Trunk Power Differential Tripped	FID	FID 7	major (6)	5 / 2
	Trunk diff fuse has tripped				
AL243	FID 7 Local Power Fuse Tripped	FID	FID 7	major (6)	5 / 2
	Local fuse has tripped				
AL244	FID 7 Trunk Power Fuse Tripped	FID	FID 7	major (6)	5 / 2
	Trunk fuse has tripped				
AL261	FID 8 Local Power Differential Tripped	FID	FID 8	major (6)	5 / 2
	Local diff fuse has tripped				
AL262	FID 8 Trunk Power Differential Tripped	FID	FID 8	major (6)	5 / 2
	Trunk diff fuse has tripped				
AL263	FID 8 Local Power Fuse Tripped	FID	FID 8	major (6)	5 / 2
	Local fuse has tripped				
AL264	FID 8 Trunk Power Fuse Tripped	FID	FID 8	major (6)	5 / 2
	Trunk fuse has tripped				
AL281	FID 9 Local Power Differential Tripped	FID	FID 9	major (6)	5 / 2
	Local diff fuse has tripped				
AL282	FID 9 Trunk Power Differential Tripped	FID	FID 9	major (6)	5 / 2
	Trunk diff fuse has tripped				
AL283	FID 9 Local Power Fuse Tripped	FID	FID 9	major (6)	5 / 2
	Local fuse has tripped				
AL284	FID 9 Trunk Power Fuse Tripped	FID	FID 9	major (6)	5 / 2
	Trunk fuse has tripped				
AL301	FID 10 Local Power Differential Tripped	FID	FID 10	major (6)	5 / 2
	Local diff fuse has tripped				
AL302	FID 10 Trunk Power Differential Tripped	FID	FID 10	major (6)	5 / 2
	Trunk diff fuse has tripped				
AL303	FID 10 Local Power Fuse Tripped	FID	FID 10	major (6)	5 / 2
	Local fuse has tripped				
AL304	FID 10 Trunk Power Fuse Tripped	FID	FID 10	major (6)	5 / 2
	Trunk fuse has tripped				
AL321	FID 11 Local Power Differential Tripped	FID	FID 11	major (6)	5 / 2
	Local diff fuse has tripped				
AL322	FID 11 Trunk Power Differential Tripped	FID	FID 11	major (6)	5 / 2
	Trunk diff fuse has tripped				
AL323	FID 11 Local Power Fuse Tripped	FID	FID 11	major (6)	5 / 2
	Local fuse has tripped				
AL324	FID 11 Trunk Power Fuse Tripped	FID	FID 11	major (6)	5 / 2
	Trunk fuse has tripped				

AL341	FID 12 Local Power Differential Tripped	FID	FID 12	major (6)	5 / 2
	Local diff fuse has tripped				
AL342	FID 12 Trunk Power Differential Tripped	FID	FID 12	major (6)	5 / 2
	Trunk diff fuse has tripped				
AL343	FID 12 Local Power Fuse Tripped	FID	FID 12	major (6)	5 / 2
	Local fuse has tripped				
AL344	FID 12 Trunk Power Fuse Tripped	FID	FID 12	major (6)	5 / 2
	Trunk fuse has tripped				
AL361	FID 13 Local Power Differential Tripped	FID	FID 13	major (6)	5 / 2
	Local diff fuse has tripped				
AL362	FID 13 Trunk Power Differential Tripped	FID	FID 13	major (6)	5 / 2
	Trunk diff fuse has tripped				
AL363	FID 13 Local Power Fuse Tripped	FID	FID 13	major (6)	5 / 2
	Local fuse has tripped				
AL364	FID 13 Trunk Power Fuse Tripped	FID	FID 13	major (6)	5 / 2
	Trunk fuse has tripped				
AL381	FID 14 Local Power Differential Tripped	FID	FID 14	major (6)	5 / 2
	Local diff fuse has tripped				
AL382	FID 14 Trunk Power Differential Tripped	FID	FID 14	major (6)	5 / 2
	Trunk diff fuse has tripped				
AL383	FID 14 Local Power Fuse Tripped	FID	FID 14	major (6)	5 / 2
	Local fuse has tripped				
AL384	FID 14 Trunk Power Fuse Tripped	FID	FID 14	major (6)	5 / 2
	Trunk fuse has tripped				
AL401	FID 15 Local Power Differential Tripped	FID	FID 15	major (6)	5 / 2
	Local diff fuse has tripped				
AL402	FID 15 Trunk Power Differential Tripped	FID	FID 15	major (6)	5 / 2
	Trunk diff fuse has tripped				
AL403	FID 15 Local Power Fuse Tripped	FID	FID 15	major (6)	5 / 2
	Local fuse has tripped				
AL404	FID 15 Trunk Power Fuse Tripped	FID	FID 15	major (6)	5 / 2
	Trunk fuse has tripped				
AL571	Digital Input 1	Digital Inputs	Digital Input 1	none (0)	0 / 0
	The name of the digital input 1 alarm.				
AL572	Digital Input 2	Digital Inputs	Digital Input 2	none (0)	0 / 0
	The name of the digital input 2 alarm.				
AL573	Digital Input 3	Digital Inputs	Digital Input 3	none (0)	0 / 0
	The name of the digital input 3 alarm.				
AL574	Digital Input 4	Digital Inputs	Digital Input 4	none (0)	0 / 0
	The name of the digital input 4 alarm.				

<i>Id</i>	<i>Name</i>	<i>Group</i>	<i>SubGroup</i>	<i>Unit</i>	<i>License</i>
DA100	FID 0 Local Power Enabled	FID	FID 0		basic
DA101	FID 0 Trunk Power Enabled	FID	FID 0		basic
DA102	FID 0 Branch Communication Enabled	FID	FID 0		basic
DA103	FID 0 Local Power Differential Tripped	FID	FID 0		basic
DA104	FID 0 Trunk Power Differential Tripped	FID	FID 0		basic
DA105	FID 0 Local Power Fuse Tripped	FID	FID 0		basic
DA106	FID 0 Trunk Power Fuse Tripped	FID	FID 0		basic
DA107	FID 0 Digital Input 1	FID	FID 0		basic
	The state of the digital input 1				
DA108	FID 0 Digital Input 2	FID	FID 0		basic
	The state of the digital input 2				
DA109	FID 0 Digital Input 3	FID	FID 0		basic
	The state of the digital input 3				
DA110	FID 0 Digital Input 4	FID	FID 0		basic
	The state of the digital input 4				
DA111	FID 0 Status	FID	FID 0		basic
	The actual state				
DA112	FID 0 Tree Info	FID	FID 0		basic
	The actual tree info				
DA113	FID 0 Bus Voltage	FID	FID 0	Volt	basic
	The 380V DC bus voltage in volt.				
DA114	FID 0 Earth Voltage	FID	FID 0	Volt	basic
	The earth mid point				
DA115	FID 0 Local Current	FID	FID 0	Ampere	basic
	Current 1				
DA116	FID 0 Trunk Current	FID	FID 0	Ampere	basic
	Current 2				
DA117	FID 0 Local Differential Current	FID	FID 0	mAmpere	basic
	Differential Current 1				
DA118	FID 0 Trunk Differential Current	FID	FID 0	mAmpere	basic
	Differential Current 2				
DA120	FID 1 Local Power Enabled	FID	FID 1		basic
DA121	FID 1 Trunk Power Enabled	FID	FID 1		basic
DA122	FID 1 Branch Communication Enabled	FID	FID 1		basic

DA123	FID 1 Local Power Differential Tripped	FID	FID 1		basic
DA124	FID 1 Trunk Power Differential Tripped	FID	FID 1		basic
DA125	FID 1 Local Power Fuse Tripped	FID	FID 1		basic
DA126	FID 1 Trunk Power Fuse Tripped	FID	FID 1		basic
DA127	FID 1 Digital Input 1	FID	FID 1		basic
	The state of the digital input 1				
DA128	FID 1 Digital Input 2	FID	FID 1		basic
	The state of the digital input 2				
DA129	FID 1 Digital Input 3	FID	FID 1		basic
	The state of the digital input 3				
DA130	FID 1 Digital Input 4	FID	FID 1		basic
	The state of the digital input 4				
DA131	FID 1 Status	FID	FID 1		basic
	The actual state				
DA132	FID 1 Tree Info	FID	FID 1		basic
	The actual tree info				
DA133	FID 1 Bus Voltage	FID	FID 1	Volt	basic
	The 380V DC bus voltage in volt.				
DA134	FID 1 Earth Voltage	FID	FID 1	Volt	basic
	The earth mid point				
DA135	FID 1 Local Current	FID	FID 1	Ampere	basic
	Current 1				
DA136	FID 1 Trunk Current	FID	FID 1	Ampere	basic
	Current 2				
DA137	FID 1 Local Differential Current	FID	FID 1	mAmpere	basic
	Differential Current 1				
DA138	FID 1 Trunk Differential Current	FID	FID 1	mAmpere	basic
	Differential Current 2				
DA140	FID 2 Local Power Enabled	FID	FID 2		basic
DA141	FID 2 Trunk Power Enabled	FID	FID 2		basic
DA142	FID 2 Branch Communication Enabled	FID	FID 2		basic
DA143	FID 2 Local Power Differential Tripped	FID	FID 2		basic
DA144	FID 2 Trunk Power Differential Tripped	FID	FID 2		basic
DA145	FID 2 Local Power Fuse Tripped	FID	FID 2		basic

DA146	FID 2 Trunk Power Fuse Tripped	FID	FID 2		basic
DA147	FID 2 Digital Input 1	FID	FID 2		basic
	The state of the digital input 1				
DA148	FID 2 Digital Input 2	FID	FID 2		basic
	The state of the digital input 2				
DA149	FID 2 Digital Input 3	FID	FID 2		basic
	The state of the digital input 3				
DA150	FID 2 Digital Input 4	FID	FID 2		basic
	The state of the digital input 4				
DA151	FID 2 Status	FID	FID 2		basic
	The actual state				
DA152	FID 2 Tree Info	FID	FID 2		basic
	The actual tree info				
DA153	FID 2 Bus Voltage	FID	FID 2	Volt	basic
	The 380V DC bus voltage in volt.				
DA154	FID 2 Earth Voltage	FID	FID 2	Volt	basic
	The earth mid point				
DA155	FID 2 Local Current	FID	FID 2	Ampere	basic
	Current 1				
DA156	FID 2 Trunk Current	FID	FID 2	Ampere	basic
	Current 2				
DA157	FID 2 Local Differential Current	FID	FID 2	mAmpere	basic
	Differential Current 1				
DA158	FID 2 Trunk Differential Current	FID	FID 2	mAmpere	basic
	Differential Current 2				
DA160	FID 3 Local Power Enabled	FID	FID 3		basic
DA161	FID 3 Trunk Power Enabled	FID	FID 3		basic
DA162	FID 3 Branch Communication Enabled	FID	FID 3		basic
DA163	FID 3 Local Power Differential Tripped	FID	FID 3		basic
DA164	FID 3 Trunk Power Differential Tripped	FID	FID 3		basic
DA165	FID 3 Local Power Fuse Tripped	FID	FID 3		basic
DA166	FID 3 Trunk Power Fuse Tripped	FID	FID 3		basic
DA167	FID 3 Digital Input 1	FID	FID 3		basic
	The state of the digital input 1				
DA168	FID 3 Digital Input 2	FID	FID 3		basic
	The state of the digital input 2				
DA169	FID 3 Digital Input 3	FID	FID 3		basic
	The state of the digital input 3				

DA170	FID 3 Digital Input 4	FID	FID 3		basic
	The state of the digital input 4				
DA171	FID 3 Status	FID	FID 3		basic
	The actual state				
DA172	FID 3 Tree Info	FID	FID 3		basic
	The actual tree info				
DA173	FID 3 Bus Voltage	FID	FID 3	Volt	basic
	The 380V DC bus voltage in volt.				
DA174	FID 3 Earth Voltage	FID	FID 3	Volt	basic
	The earth mid point				
DA175	FID 3 Local Current	FID	FID 3	Ampere	basic
	Current 1				
DA176	FID 3 Trunk Current	FID	FID 3	Ampere	basic
	Current 2				
DA177	FID 3 Local Differential Current	FID	FID 3	mAmpere	basic
	Differential Current 1				
DA178	FID 3 Trunk Differential Current	FID	FID 3	mAmpere	basic
	Differential Current 2				
DA180	FID 4 Local Power Enabled	FID	FID 4		basic
DA181	FID 4 Trunk Power Enabled	FID	FID 4		basic
DA182	FID 4 Branch Communication Enabled	FID	FID 4		basic
DA183	FID 4 Local Power Differential Tripped	FID	FID 4		basic
DA184	FID 4 Trunk Power Differential Tripped	FID	FID 4		basic
DA185	FID 4 Local Power Fuse Tripped	FID	FID 4		basic
DA186	FID 4 Trunk Power Fuse Tripped	FID	FID 4		basic
DA187	FID 4 Digital Input 1	FID	FID 4		basic
	The state of the digital input 1				
DA188	FID 4 Digital Input 2	FID	FID 4		basic
	The state of the digital input 2				
DA189	FID 4 Digital Input 3	FID	FID 4		basic
	The state of the digital input 3				
DA190	FID 4 Digital Input 4	FID	FID 4		basic
	The state of the digital input 4				
DA191	FID 4 Status	FID	FID 4		basic
	The actual state				
DA192	FID 4 Tree Info	FID	FID 4		basic
	The actual tree info				
DA193	FID 4 Bus Voltage	FID	FID 4	Volt	basic
	The 380V DC bus voltage in volt.				

DA194	FID 4 Earth Voltage	FID	FID 4	Volt	basic
	The earth mid point				
DA195	FID 4 Local Current	FID	FID 4	Ampere	basic
	Current 1				
DA196	FID 4 Trunk Current	FID	FID 4	Ampere	basic
	Current 2				
DA197	FID 4 Local Differential Current	FID	FID 4	mAmpere	basic
	Differential Current 1				
DA198	FID 4 Trunk Differential Current	FID	FID 4	mAmpere	basic
	Differential Current 2				
DA200	FID 5 Local Power Enabled	FID	FID 5		basic
DA201	FID 5 Trunk Power Enabled	FID	FID 5		basic
DA202	FID 5 Branch Communication Enabled	FID	FID 5		basic
DA203	FID 5 Local Power Differential Tripped	FID	FID 5		basic
DA204	FID 5 Trunk Power Differential Tripped	FID	FID 5		basic
DA205	FID 5 Local Power Fuse Tripped	FID	FID 5		basic
DA206	FID 5 Trunk Power Fuse Tripped	FID	FID 5		basic
DA207	FID 5 Digital Input 1	FID	FID 5		basic
	The state of the digital input 1				
DA208	FID 5 Digital Input 2	FID	FID 5		basic
	The state of the digital input 2				
DA209	FID 5 Digital Input 3	FID	FID 5		basic
	The state of the digital input 3				
DA210	FID 5 Digital Input 4	FID	FID 5		basic
	The state of the digital input 4				
DA211	FID 5 Status	FID	FID 5		basic
	The actual state				
DA212	FID 5 Tree Info	FID	FID 5		basic
	The actual tree info				
DA213	FID 5 Bus Voltage	FID	FID 5	Volt	basic
	The 380V DC bus voltage in volt.				
DA214	FID 5 Earth Voltage	FID	FID 5	Volt	basic
	The earth mid point				
DA215	FID 5 Local Current	FID	FID 5	Ampere	basic
	Current 1				
DA216	FID 5 Trunk Current	FID	FID 5	Ampere	basic
	Current 2				
DA217	FID 5 Local Differential Current	FID	FID 5	mAmpere	basic
	Differential Current 1				

DA218	FID 5 Trunk Differential Current	FID	FID 5	mAmpere	basic
	Differential Current 2				
DA220	FID 6 Local Power Enabled	FID	FID 6		basic
DA221	FID 6 Trunk Power Enabled	FID	FID 6		basic
DA222	FID 6 Branch Communication Enabled	FID	FID 6		basic
DA223	FID 6 Local Power Differential Tripped	FID	FID 6		basic
DA224	FID 6 Trunk Power Differential Tripped	FID	FID 6		basic
DA225	FID 6 Local Power Fuse Tripped	FID	FID 6		basic
DA226	FID 6 Trunk Power Fuse Tripped	FID	FID 6		basic
DA227	FID 6 Digital Input 1	FID	FID 6		basic
	The state of the digital input 1				
DA228	FID 6 Digital Input 2	FID	FID 6		basic
	The state of the digital input 2				
DA229	FID 6 Digital Input 3	FID	FID 6		basic
	The state of the digital input 3				
DA230	FID 6 Digital Input 4	FID	FID 6		basic
	The state of the digital input 4				
DA231	FID 6 Status	FID	FID 6		basic
	The actual state				
DA232	FID 6 Tree Info	FID	FID 6		basic
	The actual tree info				
DA233	FID 6 Bus Voltage	FID	FID 6	Volt	basic
	The 380V DC bus voltage in volt.				
DA234	FID 6 Earth Voltage	FID	FID 6	Volt	basic
	The earth mid point				
DA235	FID 6 Local Current	FID	FID 6	Ampere	basic
	Current 1				
DA236	FID 6 Trunk Current	FID	FID 6	Ampere	basic
	Current 2				
DA237	FID 6 Local Differential Current	FID	FID 6	mAmpere	basic
	Differential Current 1				
DA238	FID 6 Trunk Differential Current	FID	FID 6	mAmpere	basic
	Differential Current 2				
DA240	FID 7 Local Power Enabled	FID	FID 7		basic
DA241	FID 7 Trunk Power Enabled	FID	FID 7		basic
DA242	FID 7 Branch Communication Enabled	FID	FID 7		basic

DA243	FID 7 Local Power Differential Tripped	FID	FID 7		basic
DA244	FID 7 Trunk Power Differential Tripped	FID	FID 7		basic
DA245	FID 7 Local Power Fuse Tripped	FID	FID 7		basic
DA246	FID 7 Trunk Power Fuse Tripped	FID	FID 7		basic
DA247	FID 7 Digital Input 1	FID	FID 7		basic
	The state of the digital input 1				
DA248	FID 7 Digital Input 2	FID	FID 7		basic
	The state of the digital input 2				
DA249	FID 7 Digital Input 3	FID	FID 7		basic
	The state of the digital input 3				
DA250	FID 7 Digital Input 4	FID	FID 7		basic
	The state of the digital input 4				
DA251	FID 7 Status	FID	FID 7		basic
	The actual state				
DA252	FID 7 Tree Info	FID	FID 7		basic
	The actual tree info				
DA253	FID 7 Bus Voltage	FID	FID 7	Volt	basic
	The 380V DC bus voltage in volt.				
DA254	FID 7 Earth Voltage	FID	FID 7	Volt	basic
	The earth mid point				
DA255	FID 7 Local Current	FID	FID 7	Ampere	basic
	Current 1				
DA256	FID 7 Trunk Current	FID	FID 7	Ampere	basic
	Current 2				
DA257	FID 7 Local Differential Current	FID	FID 7	mAmpere	basic
	Differential Current 1				
DA258	FID 7 Trunk Differential Current	FID	FID 7	mAmpere	basic
	Differential Current 2				
DA260	FID 8 Local Power Enabled	FID	FID 8		basic
DA261	FID 8 Trunk Power Enabled	FID	FID 8		basic
DA262	FID 8 Branch Communication Enabled	FID	FID 8		basic
DA263	FID 8 Local Power Differential Tripped	FID	FID 8		basic
DA264	FID 8 Trunk Power Differential Tripped	FID	FID 8		basic
DA265	FID 8 Local Power Fuse Tripped	FID	FID 8		basic

DA266	FID 8 Trunk Power Fuse Tripped	FID	FID 8		basic
DA267	FID 8 Digital Input 1	FID	FID 8		basic
	The state of the digital input 1				
DA268	FID 8 Digital Input 2	FID	FID 8		basic
	The state of the digital input 2				
DA269	FID 8 Digital Input 3	FID	FID 8		basic
	The state of the digital input 3				
DA270	FID 8 Digital Input 4	FID	FID 8		basic
	The state of the digital input 4				
DA271	FID 8 Status	FID	FID 8		basic
	The actual state				
DA272	FID 8 Tree Info	FID	FID 8		basic
	The actual tree info				
DA273	FID 8 Bus Voltage	FID	FID 8	Volt	basic
	The 380V DC bus voltage in volt.				
DA274	FID 8 Earth Voltage	FID	FID 8	Volt	basic
	The earth mid point				
DA275	FID 8 Local Current	FID	FID 8	Ampere	basic
	Current 1				
DA276	FID 8 Trunk Current	FID	FID 8	Ampere	basic
	Current 2				
DA277	FID 8 Local Differential Current	FID	FID 8	mAmpere	basic
	Differential Current 1				
DA278	FID 8 Trunk Differential Current	FID	FID 8	mAmpere	basic
	Differential Current 2				
DA280	FID 9 Local Power Enabled	FID	FID 9		basic
DA281	FID 9 Trunk Power Enabled	FID	FID 9		basic
DA282	FID 9 Branch Communication Enabled	FID	FID 9		basic
DA283	FID 9 Local Power Differential Tripped	FID	FID 9		basic
DA284	FID 9 Trunk Power Differential Tripped	FID	FID 9		basic
DA285	FID 9 Local Power Fuse Tripped	FID	FID 9		basic
DA286	FID 9 Trunk Power Fuse Tripped	FID	FID 9		basic
DA287	FID 9 Digital Input 1	FID	FID 9		basic
	The state of the digital input 1				
DA288	FID 9 Digital Input 2	FID	FID 9		basic
	The state of the digital input 2				
DA289	FID 9 Digital Input 3	FID	FID 9		basic

	The state of the digital input 3				
DA290	FID 9 Digital Input 4	FID	FID 9		basic
	The state of the digital input 4				
DA291	FID 9 Status	FID	FID 9		basic
	The actual state				
DA292	FID 9 Tree Info	FID	FID 9		basic
	The actual tree info				
DA293	FID 9 Bus Voltage	FID	FID 9	Volt	basic
	The 380V DC bus voltage in volt.				
DA294	FID 9 Earth Voltage	FID	FID 9	Volt	basic
	The earth mid point				
DA295	FID 9 Local Current	FID	FID 9	Ampere	basic
	Current 1				
DA296	FID 9 Trunk Current	FID	FID 9	Ampere	basic
	Current 2				
DA297	FID 9 Local Differential Current	FID	FID 9	mAmpere	basic
	Differential Current 1				
DA298	FID 9 Trunk Differential Current	FID	FID 9	mAmpere	basic
	Differential Current 2				
DA300	FID 10 Local Power Enabled	FID	FID 10		basic
DA301	FID 10 Trunk Power Enabled	FID	FID 10		basic
DA302	FID 10 Branch Communication Enabled	FID	FID 10		basic
DA303	FID 10 Local Power Differential Tripped	FID	FID 10		basic
DA304	FID 10 Trunk Power Differential Tripped	FID	FID 10		basic
DA305	FID 10 Local Power Fuse Tripped	FID	FID 10		basic
DA306	FID 10 Trunk Power Fuse Tripped	FID	FID 10		basic
DA307	FID 10 Digital Input 1	FID	FID 10		basic
	The state of the digital input 1				
DA308	FID 10 Digital Input 2	FID	FID 10		basic
	The state of the digital input 2				
DA309	FID 10 Digital Input 3	FID	FID 10		basic
	The state of the digital input 3				
DA310	FID 10 Digital Input 4	FID	FID 10		basic
	The state of the digital input 4				
DA311	FID 10 Status	FID	FID 10		basic
	The actual state				
DA312	FID 10 Tree Info	FID	FID 10		basic
	The actual tree info				
DA313	FID 10 Bus Voltage	FID	FID 10	Volt	basic

	The 380V DC bus voltage in volt.				
DA314	FID 10 Earth Voltage	FID	FID 10	Volt	basic
	The earth mid point				
DA315	FID 10 Local Current	FID	FID 10	Ampere	basic
	Current 1				
DA316	FID 10 Trunk Current	FID	FID 10	Ampere	basic
	Current 2				
DA317	FID 10 Local Differential Current	FID	FID 10	mAmpere	basic
	Differential Current 1				
DA318	FID 10 Trunk Differential Current	FID	FID 10	mAmpere	basic
	Differential Current 2				
DA320	FID 11 Local Power Enabled	FID	FID 11		basic
DA321	FID 11 Trunk Power Enabled	FID	FID 11		basic
DA322	FID 11 Branch Communication Enabled	FID	FID 11		basic
DA323	FID 11 Local Power Differential Tripped	FID	FID 11		basic
DA324	FID 11 Trunk Power Differential Tripped	FID	FID 11		basic
DA325	FID 11 Local Power Fuse Tripped	FID	FID 11		basic
DA326	FID 11 Trunk Power Fuse Tripped	FID	FID 11		basic
DA327	FID 11 Digital Input 1	FID	FID 11		basic
	The state of the digital input 1				
DA328	FID 11 Digital Input 2	FID	FID 11		basic
	The state of the digital input 2				
DA329	FID 11 Digital Input 3	FID	FID 11		basic
	The state of the digital input 3				
DA330	FID 11 Digital Input 4	FID	FID 11		basic
	The state of the digital input 4				
DA331	FID 11 Status	FID	FID 11		basic
	The actual state				
DA332	FID 11 Tree Info	FID	FID 11		basic
	The actual tree info				
DA333	FID 11 Bus Voltage	FID	FID 11	Volt	basic
	The 380V DC bus voltage in volt.				
DA334	FID 11 Earth Voltage	FID	FID 11	Volt	basic
	The earth mid point				
DA335	FID 11 Local Current	FID	FID 11	Ampere	basic
	Current 1				
DA336	FID 11 Trunk Current	FID	FID 11	Ampere	basic
	Current 2				
DA337	FID 11 Local Differential Current	FID	FID 11	mAmpere	basic

	Differential Current 1				
DA338	FID 11 Trunk Differential Current	FID	FID 11	mAmpere	basic
	Differential Current 2				
DA340	FID 12 Local Power Enabled	FID	FID 12		basic
DA341	FID 12 Trunk Power Enabled	FID	FID 12		basic
DA342	FID 12 Branch Communication Enabled	FID	FID 12		basic
DA343	FID 12 Local Power Differential Tripped	FID	FID 12		basic
DA344	FID 12 Trunk Power Differential Tripped	FID	FID 12		basic
DA345	FID 12 Local Power Fuse Tripped	FID	FID 12		basic
DA346	FID 12 Trunk Power Fuse Tripped	FID	FID 12		basic
DA347	FID 12 Digital Input 1	FID	FID 12		basic
	The state of the digital input 1				
DA348	FID 12 Digital Input 2	FID	FID 12		basic
	The state of the digital input 2				
DA349	FID 12 Digital Input 3	FID	FID 12		basic
	The state of the digital input 3				
DA350	FID 12 Digital Input 4	FID	FID 12		basic
	The state of the digital input 4				
DA351	FID 12 Status	FID	FID 12		basic
	The actual state				
DA352	FID 12 Tree Info	FID	FID 12		basic
	The actual tree info				
DA353	FID 12 Bus Voltage	FID	FID 12	Volt	basic
	The 380V DC bus voltage in volt.				
DA354	FID 12 Earth Voltage	FID	FID 12	Volt	basic
	The earth mid point				
DA355	FID 12 Local Current	FID	FID 12	Ampere	basic
	Current 1				
DA356	FID 12 Trunk Current	FID	FID 12	Ampere	basic
	Current 2				
DA357	FID 12 Local Differential Current	FID	FID 12	mAmpere	basic
	Differential Current 1				
DA358	FID 12 Trunk Differential Current	FID	FID 12	mAmpere	basic
	Differential Current 2				
DA360	FID 13 Local Power Enabled	FID	FID 13		basic
DA361	FID 13 Trunk Power Enabled	FID	FID 13		basic

DA362	FID 13 Branch Communication Enabled	FID	FID 13		basic
DA363	FID 13 Local Power Differential Tripped	FID	FID 13		basic
DA364	FID 13 Trunk Power Differential Tripped	FID	FID 13		basic
DA365	FID 13 Local Power Fuse Tripped	FID	FID 13		basic
DA366	FID 13 Trunk Power Fuse Tripped	FID	FID 13		basic
DA367	FID 13 Digital Input 1	FID	FID 13		basic
	The state of the digital input 1				
DA368	FID 13 Digital Input 2	FID	FID 13		basic
	The state of the digital input 2				
DA369	FID 13 Digital Input 3	FID	FID 13		basic
	The state of the digital input 3				
DA370	FID 13 Digital Input 4	FID	FID 13		basic
	The state of the digital input 4				
DA371	FID 13 Status	FID	FID 13		basic
	The actual state				
DA372	FID 13 Tree Info	FID	FID 13		basic
	The actual tree info				
DA373	FID 13 Bus Voltage	FID	FID 13	Volt	basic
	The 380V DC bus voltage in volt.				
DA374	FID 13 Earth Voltage	FID	FID 13	Volt	basic
	The earth mid point				
DA375	FID 13 Local Current	FID	FID 13	Ampere	basic
	Current 1				
DA376	FID 13 Trunk Current	FID	FID 13	Ampere	basic
	Current 2				
DA377	FID 13 Local Differential Current	FID	FID 13	mAmpere	basic
	Differential Current 1				
DA378	FID 13 Trunk Differential Current	FID	FID 13	mAmpere	basic
	Differential Current 2				
DA380	FID 14 Local Power Enabled	FID	FID 14		basic
DA381	FID 14 Trunk Power Enabled	FID	FID 14		basic
DA382	FID 14 Branch Communication Enabled	FID	FID 14		basic
DA383	FID 14 Local Power Differential Tripped	FID	FID 14		basic
DA384	FID 14 Trunk Power Differential Tripped	FID	FID 14		basic

DA385	FID 14 Local Power Fuse Tripped	FID	FID 14		basic
DA386	FID 14 Trunk Power Fuse Tripped	FID	FID 14		basic
DA387	FID 14 Digital Input 1	FID	FID 14		basic
	The state of the digital input 1				
DA388	FID 14 Digital Input 2	FID	FID 14		basic
	The state of the digital input 2				
DA389	FID 14 Digital Input 3	FID	FID 14		basic
	The state of the digital input 3				
DA390	FID 14 Digital Input 4	FID	FID 14		basic
	The state of the digital input 4				
DA391	FID 14 Status	FID	FID 14		basic
	The actual state				
DA392	FID 14 Tree Info	FID	FID 14		basic
	The actual tree info				
DA393	FID 14 Bus Voltage	FID	FID 14	Volt	basic
	The 380V DC bus voltage in volt.				
DA394	FID 14 Earth Voltage	FID	FID 14	Volt	basic
	The earth mid point				
DA395	FID 14 Local Current	FID	FID 14	Ampere	basic
	Current 1				
DA396	FID 14 Trunk Current	FID	FID 14	Ampere	basic
	Current 2				
DA397	FID 14 Local Differential Current	FID	FID 14	mAmpere	basic
	Differential Current 1				
DA398	FID 14 Trunk Differential Current	FID	FID 14	mAmpere	basic
	Differential Current 2				
DA400	FID 15 Local Power Enabled	FID	FID 15		basic
DA401	FID 15 Trunk Power Enabled	FID	FID 15		basic
DA402	FID 15 Branch Communication Enabled	FID	FID 15		basic
DA403	FID 15 Local Power Differential Tripped	FID	FID 15		basic
DA404	FID 15 Trunk Power Differential Tripped	FID	FID 15		basic
DA405	FID 15 Local Power Fuse Tripped	FID	FID 15		basic
DA406	FID 15 Trunk Power Fuse Tripped	FID	FID 15		basic
DA407	FID 15 Digital Input 1	FID	FID 15		basic
	The state of the digital input 1				
DA408	FID 15 Digital Input 2	FID	FID 15		basic
	The state of the digital input 2				

DA409	FID 15 Digital Input 3	FID	FID 15		basic
	The state of the digital input 3				
DA410	FID 15 Digital Input 4	FID	FID 15		basic
	The state of the digital input 4				
DA411	FID 15 Status	FID	FID 15		basic
	The actual state				
DA412	FID 15 Tree Info	FID	FID 15		basic
	The actual tree info				
DA413	FID 15 Bus Voltage	FID	FID 15	Volt	basic
	The 380V DC bus voltage in volt.				
DA414	FID 15 Earth Voltage	FID	FID 15	Volt	basic
	The earth mid point				
DA415	FID 15 Local Current	FID	FID 15	Ampere	basic
	Current 1				
DA416	FID 15 Trunk Current	FID	FID 15	Ampere	basic
	Current 2				
DA417	FID 15 Local Differential Current	FID	FID 15	mAmpere	basic
	Differential Current 1				
DA418	FID 15 Trunk Differential Current	FID	FID 15	mAmpere	basic
	Differential Current 2				
DA510	Bus Voltage	DC Bus	General	Volt	basic
	The 380V DC bus voltage in volt.				
DA511	Earth Mid Point Voltage	DC Bus		Volt	basic
	The earth mid point				
DA520	Output 1 Enabled	DC Bus	DC Output 1		basic
DA521	Differential Current Output 1	DC Bus	DC Output 1	mAmpere	basic
	Differential Current 1				
DA522	Output Current 1	DC Bus	DC Output 1	Ampere	basic
	Current 1				
DA530	Output 2 Enabled	DC Bus	DC Output 2		basic
DA531	Differential Current Output 2	DC Bus	DC Output 2	mAmpere	basic
	Differential Current 1				
DA532	Output Current 2	DC Bus	DC Output 2	Ampere	basic
	Current 2				
DA571	Digital Input 1 State	Digital Inputs	Digital Input 1		basic
	The state of the digital input				
DA572	Digital Input 2 State	Digital Inputs	Digital Input 2		basic
	The state of the digital input				
DA573	Digital Input 3 State	Digital Inputs	Digital Input 3		basic
	The state of the digital input				
DA574	Digital Input 4 State	Digital Inputs	Digital Input 4		basic
	The state of the digital input				

Config Table						
<i>Id</i>	<i>Name</i>	<i>Group</i>	<i>SubGroup</i>	<i>Unit</i>	<i>Range: Min/Max (default)</i>	<i>License</i>

CF521	Read Access User Numbers	Generic	Allowed Users		(1,2,3,4,5)	basic
	The list of the user numbers which have read access to this equipment. The user numbers are coma separated. The accepted user id are 1,2,3,4 and 5. Ex: 1,3,4					
CF522	Write Access User Numbers	Generic	Allowed Users		()	basic
	The list of the user numbers which have write access to this equipment. This means that these users can modify the configuration element, the alarm settings and use the control elements. The user numbers are coma separated. The accepted user ids are 1,2,3,4 and 5. Ex: 1,3,4					
CF571	Digital Input 1 Name	Digital Inputs	Digital Input 1		Digital Inputs	basic
	The name of the digital input 1.					
CF572	Digital Input 1 Normally Closed	Digital Inputs	Digital Input 1		True/False (True)	basic
	True/False value defining if the digital input 1 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF573	Digital Input 2 Name	Digital Inputs	Digital Input 2		Digital Inputs	basic
	The name of the digital input 2.					
CF574	Digital Input 2 Normally Closed	Digital Inputs	Digital Input 2		True/False (True)	basic
	True/False value defining if the digital input 2 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF575	Digital Input 3 Name	Digital Inputs	Digital Input 3		Digital Inputs	basic
	The name of the digital input 3.					
CF576	Digital Input 3 Normally Closed	Digital Inputs	Digital Input 3		True/False (True)	basic
	True/False value defining if the digital input 3 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF577	Digital Input 4 Name	Digital Inputs	Digital Input 4		Digital Inputs	basic
	The name of the digital input 4.					
CF578	Digital Input 4 Normally Closed	Digital Inputs	Digital Input 4		True/False (True)	basic
	True/False value defining if the digital input 4 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF601	Event Table Length	Generic	Events		10/4000 (100)	basic
	The maximum length of the table. The value must be comprised between 10 and 4000					
CF901	Number Of PLC Data	PLC			(0)	plc
	The number of PLC data. Every equipment can manage up to 30 user programmable data. Data elements are automatically added in the data table. Configuration parameters are added to set the PLC Data Name and the PLC Data Mathematical calculation. In order to use these functionalities, you need a license with the 'PLC' module					
CF902	Number Of PLC Alarm	PLC			(0)	plc
	The number of PLC alarm. Every equipment can manage up to 30 user programmable alarms. Alarm elements are automatically added in the alarm table. The alarm parameters are added to set the PLC Alarm Name and the PLC Alarm Boolean condition. In order to use these functionalities, you need a licence with the 'PLC' module					

Control Table				
<i>Id</i>	<i>Name</i>	<i>Group</i>	<i>SubGroup</i>	<i>License</i>
CT20	Reboot All Slave	FID	FID All	basic
CT21	Reboot All	FID	FID All	basic

CT100	FID 0 Enable Local Power	FID	FID 0	basic
CT101	FID 0 Disable Local Power	FID	FID 0	basic
CT102	FID 0 Enable Trunk Power	FID	FID 0	basic
CT103	FID 0 Disable Trunk Power	FID	FID 0	basic
CT104	FID 0 Enable Branch Communication	FID	FID 0	basic
CT105	FID 0 Disable Branch Communication	FID	FID 0	basic
CT106	FID 0 Reset	FID	FID 0	basic
CT120	FID 1 Enable Local Power	FID	FID 1	basic
CT121	FID 1 Disable Local Power	FID	FID 1	basic
CT122	FID 1 Enable Trunk Power	FID	FID 1	basic
CT123	FID 1 Disable Trunk Power	FID	FID 1	basic
CT124	FID 1 Enable Branch Communication	FID	FID 1	basic
CT125	FID 1 Disable Branch Communication	FID	FID 1	basic
CT126	FID 1 Reset	FID	FID 1	basic
CT140	FID 2 Enable Local Power	FID	FID 2	basic
CT141	FID 2 Disable Local Power	FID	FID 2	basic
CT142	FID 2 Enable Trunk Power	FID	FID 2	basic
CT143	FID 2 Disable Trunk Power	FID	FID 2	basic
CT144	FID 2 Enable Branch Communication	FID	FID 2	basic
CT145	FID 2 Disable Branch Communication	FID	FID 2	basic
CT146	FID 2 Reset	FID	FID 2	basic
CT160	FID 3 Enable Local Power	FID	FID 3	basic

CT161	FID 3 Disable Local Power	FID	FID 3	basic
CT162	FID 3 Enable Trunk Power	FID	FID 3	basic
CT163	FID 3 Disable Trunk Power	FID	FID 3	basic
CT164	FID 3 Enable Branch Communication	FID	FID 3	basic
CT165	FID 3 Disable Branch Communication	FID	FID 3	basic
CT166	FID 3 Reset	FID	FID 3	basic
CT180	FID 4 Enable Local Power	FID	FID 4	basic
CT181	FID 4 Disable Local Power	FID	FID 4	basic
CT182	FID 4 Enable Trunk Power	FID	FID 4	basic
CT183	FID 4 Disable Trunk Power	FID	FID 4	basic
CT184	FID 4 Enable Branch Communication	FID	FID 4	basic
CT185	FID 4 Disable Branch Communication	FID	FID 4	basic
CT186	FID 4 Reset	FID	FID 4	basic
CT200	FID 5 Enable Local Power	FID	FID 5	basic
CT201	FID 5 Disable Local Power	FID	FID 5	basic
CT202	FID 5 Enable Trunk Power	FID	FID 5	basic
CT203	FID 5 Disable Trunk Power	FID	FID 5	basic
CT204	FID 5 Enable Branch Communication	FID	FID 5	basic
CT205	FID 5 Disable Branch Communication	FID	FID 5	basic
CT206	FID 5 Reset	FID	FID 5	basic
CT220	FID 6 Enable Local Power	FID	FID 6	basic
CT221	FID 6 Disable Local Power	FID	FID 6	basic

CT222	FID 6 Enable Trunk Power	FID	FID 6	basic
CT223	FID 6 Disable Trunk Power	FID	FID 6	basic
CT224	FID 6 Enable Branch Communication	FID	FID 6	basic
CT225	FID 6 Disable Branch Communication	FID	FID 6	basic
CT226	FID 6 Reset	FID	FID 6	basic
CT240	FID 7 Enable Local Power	FID	FID 7	basic
CT241	FID 7 Disable Local Power	FID	FID 7	basic
CT242	FID 7 Enable Trunk Power	FID	FID 7	basic
CT243	FID 7 Disable Trunk Power	FID	FID 7	basic
CT244	FID 7 Enable Branch Communication	FID	FID 7	basic
CT245	FID 7 Disable Branch Communication	FID	FID 7	basic
CT246	FID 7 Reset	FID	FID 7	basic
CT260	FID 8 Enable Local Power	FID	FID 8	basic
CT261	FID 8 Disable Local Power	FID	FID 8	basic
CT262	FID 8 Enable Trunk Power	FID	FID 8	basic
CT263	FID 8 Disable Trunk Power	FID	FID 8	basic
CT264	FID 8 Enable Branch Communication	FID	FID 8	basic
CT265	FID 8 Disable Branch Communication	FID	FID 8	basic
CT266	FID 8 Reset	FID	FID 8	basic
CT280	FID 9 Enable Local Power	FID	FID 9	basic
CT281	FID 9 Disable Local Power	FID	FID 9	basic
CT282	FID 9 Enable Trunk Power	FID	FID 9	basic

CT283	FID 9 Disable Trunk Power	FID	FID 9	basic
CT284	FID 9 Enable Branch Communication	FID	FID 9	basic
CT285	FID 9 Disable Branch Communication	FID	FID 9	basic
CT286	FID 9 Reset	FID	FID 9	basic
CT300	FID 10 Enable Local Power	FID	FID 10	basic
CT301	FID 10 Disable Local Power	FID	FID 10	basic
CT302	FID 10 Enable Trunk Power	FID	FID 10	basic
CT303	FID 10 Disable Trunk Power	FID	FID 10	basic
CT304	FID 10 Enable Branch Communication	FID	FID 10	basic
CT305	FID 10 Disable Branch Communication	FID	FID 10	basic
CT306	FID 10 Reset	FID	FID 10	basic
CT320	FID 11 Enable Local Power	FID	FID 11	basic
CT321	FID 11 Disable Local Power	FID	FID 11	basic
CT322	FID 11 Enable Trunk Power	FID	FID 11	basic
CT323	FID 11 Disable Trunk Power	FID	FID 11	basic
CT324	FID 11 Enable Branch Communication	FID	FID 11	basic
CT325	FID 11 Disable Branch Communication	FID	FID 11	basic
CT326	FID 11 Reset	FID	FID 11	basic
CT340	FID 12 Enable Local Power	FID	FID 12	basic
CT341	FID 12 Disable Local Power	FID	FID 12	basic
CT342	FID 12 Enable Trunk Power	FID	FID 12	basic
CT343	FID 12 Disable Trunk Power	FID	FID 12	basic

CT344	FID 12 Enable Branch Communication	FID	FID 12	basic
CT345	FID 12 Disable Branch Communication	FID	FID 12	basic
CT346	FID 12 Reset	FID	FID 12	basic
CT360	FID 13 Enable Local Power	FID	FID 13	basic
CT361	FID 13 Disable Local Power	FID	FID 13	basic
CT362	FID 13 Enable Trunk Power	FID	FID 13	basic
CT363	FID 13 Disable Trunk Power	FID	FID 13	basic
CT364	FID 13 Enable Branch Communication	FID	FID 13	basic
CT365	FID 13 Disable Branch Communication	FID	FID 13	basic
CT366	FID 13 Reset	FID	FID 13	basic
CT380	FID 14 Enable Local Power	FID	FID 14	basic
CT381	FID 14 Disable Local Power	FID	FID 14	basic
CT382	FID 14 Enable Trunk Power	FID	FID 14	basic
CT383	FID 14 Disable Trunk Power	FID	FID 14	basic
CT384	FID 14 Enable Branch Communication	FID	FID 14	basic
CT385	FID 14 Disable Branch Communication	FID	FID 14	basic
CT386	FID 14 Reset	FID	FID 14	basic
CT400	FID 15 Enable Local Power	FID	FID 15	basic
CT401	FID 15 Disable Local Power	FID	FID 15	basic
CT402	FID 15 Enable Trunk Power	FID	FID 15	basic
CT403	FID 15 Disable Trunk Power	FID	FID 15	basic
CT404	FID 15 Enable Branch Communication	FID	FID 15	basic

CT405	FID 15 Disable Branch Communication	FID	FID 15	basic
CT406	FID 15 Reset	FID	FID 15	basic
CT501	Clear My Events	Generic	Events	basic
	By writing '1' to this control element, all the events of this equipment will be cleared.			
CT502	Clear All Events	Generic	Events	basic
	By writing '1' to this control element, all the events of this equipment and all the events of all the sub-equipments will be cleared.			
CT510	Enable All Output	DC Bus	DC Outputs	basic
CT511	Disable All Output	DC Bus	DC Outputs	basic
CT512	Enable Output 1	DC Bus	DC Output 1	basic
CT513	Disable Output 1	DC Bus	DC Output 1	basic
CT514	Enable Output 2	DC Bus	DC Output 2	basic
CT515	Disable Output 2	DC Bus	DC Output 2	basic
CT521	Reset Default Names And Groups	Generic	Renaming	basic
	This control element resets all the element Names, Groups and Subgroups to default values for this equipment			
CT522	Reset Default Names And Groups Recursive	Generic	Renaming	basic
	This control element resets all the element Names, Groups and Subgroups to default values for this equipment and all sub equipments			

15.4.16 SAM0348

Device Information	
Name	SAM0348
Short Description	Site management card
Long Description	Site and infrastructure management card, 2 connections (RJ25) for card reader and door lock and 1 I/O connector (Sub-D26) - 300W systems
Hardware Reference	9413 060 35001
Software Reference	SOFT 000136 XX
Equipment Type	System Extension
ETSI Level	/site/sensors_actuators

Description Table				
<i>Id</i>	<i>Name</i>	<i>Group</i>	<i>SubGroup</i>	<i>License</i>
DE1	Product Name	Description	Product Info	basic
	The commercial name of the extension card.			
DE2	Hardware Reference	Description	Product Info	basic

	The hardware refence			
DE3	Hardware Revision	Description	Product Info	basic
	The hardware revision			
DE4	Software Reference	Description	Product Info	basic
	The software reference			
DE6	Serial Number	Description	Product Info	basic
	The serial number.			
DE8	Manufacturing Date	Description	Product Info	basic
	The production date.			
DE11	Description	Description	Custom Description	basic
	A free text zone to write a system description			
DE12	Reference	Description	Custom Description	basic
	A free text zone to write the customer reference of the system			

Alarm Table					
<i>Id</i>	<i>Name</i>	<i>Group</i>	<i>SubGroup</i>	<i>Severity Type (Level)</i>	<i>Set/Clear Delay</i>
AL1	Cabinet Temperature High			major (6)	5 / 2
	The temperature of the cabinet is too high.				
AL2	Cabinet Temperature Low			major (6)	5 / 2
	The temperature of the cabinet is too low.				
AL3	Cabinet Temperature Sensor Fail			minor (4)	5 / 2
	The cabinet temperature sense is defect.				
AL11	Cabinet Humidity High			major (6)	5 / 2
	The cabinet humidity is too high				
AL12	Cabinet Humidity Low			major (6)	5 / 2
	The cabinet humidity is too low				
AL21	Water Detection Alarm			major (6)	5 / 2
	Water is detected by the water sensor.				
AL31	Tilt X Alarm			major (6)	5 / 2
	The X-tilt absolute value is too high				
AL32	Tilt Y Alarm			major (6)	5 / 2
	The Y-tilt absolute value is too high				
AL41	Vandalism Alarm			major (6)	5 / 2
	The vandalism score is too high				
AL51	Badge Reader Failure			major (6)	5 / 2
	The badge reader is defect or not connected				
AL61	Access Control 1 Disabled	Access Control 1		disabled (0)	5 / 2
	The acces Control 1 is disabled				
AL62	Lock 1 Opened	Access Control 1		disabled (0)	5 / 2
	The lock 1 is opened				
AL63	Lock 1 Disabled	Access Control 1		disabled (0)	5 / 2
	The lock 1 is disabled				
AL65	Access Control 2 Disabled	Access Control 2		disabled (0)	5 / 2

	The acces Control 2 is disabled				
AL66	Lock 2 Opened	Access Control 2		disabled (0)	5 / 2
	The lock 2 is opened				
AL67	Lock 2 Disabled	Access Control 2		disabled (0)	5 / 2
	The lock 2 is disabled				
AL71	Digital Input 1	Digital Inputs	Digital Input 1	warning (0)	5 / 2
	The name of the digital input 1 alarm.				
AL72	Digital Input 2	Digital Inputs	Digital Input 2	warning (0)	5 / 2
	The name of the digital input 2 alarm.				
AL73	Digital Input 3	Digital Inputs	Digital Input 3	warning (0)	5 / 2
	The name of the digital input 3 alarm.				
AL74	Digital Input 4	Digital Inputs	Digital Input 4	warning (0)	5 / 2
	The name of the digital input 4 alarm.				
AL75	Digital Input 5	Digital Inputs	Digital Input 5	warning (0)	5 / 2
	The name of the digital input 5 alarm.				
AL76	Digital Input 6	Digital Inputs	Digital Input 6	warning (0)	5 / 2
	The name of the digital input 6 alarm.				
AL77	Digital Input 7	Digital Inputs	Digital Input 7	warning (0)	5 / 2
	The name of the digital input 7 alarm.				
AL78	Digital Input 8	Digital Inputs	Digital Input 8	warning (0)	5 / 2
	The name of the digital input 8 alarm.				
AL79	Digital Input 9	Digital Inputs	Digital Input 9	warning (0)	5 / 2
	The name of the digital input 9 alarm.				
AL80	Digital Input 10	Digital Inputs	Digital Input 10	warning (0)	5 / 2
	The name of the digital input 10 alarm.				

Data Table					
<i>Id</i>	<i>Name</i>	<i>Group</i>	<i>SubGroup</i>	<i>Unit</i>	<i>License</i>
DA1	Cabinet Temperature	Sensors		degree C	basic
	The temperature in the cabinet				
DA11	Relative Humidity	Sensors		%	basic
	The relative humidity in the cabinet				
DA21	Tilt X	Sensors		degree	basic
	The tilt-X value				
DA22	Tilt Y	Sensors		degree	basic
	The tilt-Y value				
DA31	Vandalism Score	Sensors			basic
	The vandalism score. This depends of the cabinet acceleration over time.				

DA41	Last UID Badge Reader	Badge Reader			basic
	The last uid value read by the badge reader				
DA42	Last Time Badge Reader	Badge Reader			basic
	The date and time at which the badge reader has been used				
DA52	Lock 1 Open	Access Control 1			basic
	The lock 1 is mechanically closed				
DA53	Lock 1 Enabled	Access Control 1			basic
	The access control 1 is enabling the electronic lock 1				
DA62	Lock 2 Open	Access Control 2			basic
	The lock 2 is mechanically closed				
DA63	Lock 2 Enabled	Access Control 2			basic
	The access control 2 is enabling the electronic lock 2				
DA71	Digital Input 1 State	Digital Inputs	Digital Input 1		basic
	The state of the digital input				
DA72	Digital Input 2 State	Digital Inputs	Digital Input 2		basic
	The state of the digital input				
DA73	Digital Input 3 State	Digital Inputs	Digital Input 3		basic
	The state of the digital input				
DA74	Digital Input 4 State	Digital Inputs	Digital Input 4		basic
	The state of the digital input				
DA75	Digital Input 5 State	Digital Inputs	Digital Input 5		basic
	The state of the digital input				
DA76	Digital Input 6 State	Digital Inputs	Digital Input 6		basic
	The state of the digital input				
DA77	Digital Input 7 State	Digital Inputs	Digital Input 7		basic
	The state of the digital input				
DA78	Digital Input 8 State	Digital Inputs	Digital Input 8		basic
	The state of the digital input				
DA79	Digital Input 9 State	Digital Inputs	Digital Input 9		basic
	The state of the digital input				
DA80	Digital Input 10 State	Digital Inputs	Digital Input 10		basic
	The state of the digital input				

Config Table						
<i>Id</i>	<i>Name</i>	<i>Group</i>	<i>SubGroup</i>	<i>Unit</i>	<i>Range: Min/Max (default)</i>	<i>License</i>
CF1	Cabinet Temperature High	Alarm Parameters		degree C	-50/100 (50)	basic
	The temperature over which the cabinet temperature is too high					
CF2	Cabinet Temperature Low	Alarm Parameters		degree C	-50/100 (-5)	basic
	The temperature under which the cabinet temperature is too low					
CF3	Temperature Hysteresis	Alarm Parameters		degree C	0/20 (1)	basic
	The hysteresis on the temperature alarm					
CF11	Cabinet Humidity High	Alarm Parameters		%	0/100 (80)	basic
	The relative humidity over which the cabinet humidity is too high					

CF12	Cabinet Humidity Low	Alarm Parameters		%	0/100 (0)	basic
	The relative humidity over which the cabinet humidity is too low					
CF13	Humidity Alarm Hysteresis	Alarm Parameters		%	0/50 (2)	basic
	The hysteresis on the humidity alarms, in percent					
CF21	Tilt X High	Alarm Parameters		degree	0/90 (10)	basic
	The maximum absolute tilt-X value allowed for the cabinet					
CF22	Tilt Y High	Alarm Parameters		degree	0/90 (10)	basic
	The maximum absolute tilt-Y value allowed for the cabinet					
CF23	Tilt Alarm Hysteresis	Alarm Parameters		degree	0/45 (2)	basic
	The hysteresis on tilt X/Y alarms					
CF31	Vandalism Detection Threshold	Alarm Parameters				basic
	The maximum vandalism score allowed for the cabinet.					
CF41	Access Control 1 Enabled	Access Control 1			True/False (False)	basic
	The access control 1 is enabled. The electronic lock 1 must be managed.					
CF42	Access Control 1 Authorized UID	Access Control 1				basic
	Coma separated list of the UID allowed to disable the electronic lock 1					
CF43	Access Control 1 Auto Close Time	Access Control 1		second	0/7200 (30)	basic
	Time in second after which the electronic lock 1 must be automatically locked again					
CF44	Access Control 1 Disabled If Badge Reader Failure	Access Control 1			True/False (True)	basic
	The electronic lock 1 must be disabled if the 'Badge reader failure' alarm is set.					
CF45	Access Control 1 Doors Inputs	Access Control 1			(7,9,10)	basic
	This is the coma separated list of the digital inputs which are door contacts related to the access control 1					
CF46	Access Control 1 Disabled If XML Heartbeat Failure	Access Control 1			True/False (False)	basic
	The electronic lock 1 must be disabled if the XML HeartBeat Post Failure is set					
CF47	Access Control 1 Energized when Locked	Access Control 1			True/False (True)	basic
	True if Lock DRV have to be enabled when locked (Default Behavior)					
CF51	Access Control 2 Enabled	Access Control 2			True/False (False)	basic
	The access control 2 is enabled. The electronic lock 2 must be managed.					
CF52	Access Control 2 Authorized UID	Access Control 2				basic
	Coma separated list of the UID allowed to disable the electronic lock 2					
CF53	Access Control 2 Auto Close Time	Access Control 2		second	0/7200 (30)	basic
	Time in second after which the electronic lock 2 must be automatically locked again					
CF54	Access Control 2 Disabled If Badge Reader Failure	Access Control 2			True/False (True)	basic

	The electronic lock 1 must be disabled if the 'Badge reader failure' alarm is set.					
CF55	Access Control 2 Doors Inputs	Access Control 2			(8)	basic
	This is the coma separated list of the digital inputs which are door contacts related to the access control 2					
CF56	Access Control 2 Disabled If XML Heartbeat Failure	Access Control 2			True/False (False)	basic
	The electronic lock 2 must be disabled if the XML HeartBeat Post Failure is set					
CF57	Access Control 2 Energized when Locked	Access Control 2			True/False (True)	basic
	True if Lock DRV have to be enabled when locked (Default Behavior)					
CF71	Digital Input 1 Name	Digital Inputs	Digital Input 1		Digital Inputs	basic
	The name of the digital input 1.					
CF72	Digital Input 1 Normally Closed	Digital Inputs	Digital Input 1		True/False (True)	basic
	True/False value defining if the digital input 1 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF73	Digital Input 2 Name	Digital Inputs	Digital Input 2		Digital Inputs	basic
	The name of the digital input 2.					
CF74	Digital Input 2 Normally Closed	Digital Inputs	Digital Input 2		True/False (True)	basic
	True/False value defining if the digital input 2 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF75	Digital Input 3 Name	Digital Inputs	Digital Input 3		Digital Inputs	basic
	The name of the digital input 3.					
CF76	Digital Input 3 Normally Closed	Digital Inputs	Digital Input 3		True/False (True)	basic
	True/False value defining if the digital input 3 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF77	Digital Input 4 Name	Digital Inputs	Digital Input 4		Digital Inputs	basic
	The name of the digital input 4.					
CF78	Digital Input 4 Normally Closed	Digital Inputs	Digital Input 4		True/False (True)	basic
	True/False value defining if the digital input 4 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF79	Digital Input 5 Name	Digital Inputs	Digital Input 5		Digital Inputs	basic
	The name of the digital input 5.					
CF80	Digital Input 5 Normally Closed	Digital Inputs	Digital Input 5		True/False (True)	basic
	True/False value defining if the digital input 5 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF81	Digital Input 6 Name	Digital Inputs	Digital Input 6		Digital Inputs	basic
	The name of the digital input 6.					
CF82	Digital Input 6 Normally Closed	Digital Inputs	Digital Input 6		True/False (True)	basic
	True/False value defining if the digital input 6 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF83	Digital Input 7 Name	Digital Inputs	Digital Input 7		Digital Inputs	basic
	The name of the digital input 7.					
CF84	Digital Input 7 Normally Closed	Digital Inputs	Digital Input 7		True/False (True)	basic

	True/False value defining if the digital input 7 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF85	Digital Input 8 Name	Digital Inputs	Digital Input 8		Digital Inputs	basic
	The name of the digital input 8.					
CF86	Digital Input 8 Normally Closed	Digital Inputs	Digital Input 8		True/False (True)	basic
	True/False value defining if the digital input 8 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF87	Digital Input 9 Name	Digital Inputs	Digital Input 9		Digital Inputs	basic
	The name of the digital input 9.					
CF88	Digital Input 9 Normally Closed	Digital Inputs	Digital Input 9		True/False (True)	basic
	True/False value defining if the digital input 9 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF89	Digital Input 10 Name	Digital Inputs	Digital Input 10		Digital Inputs	basic
	The name of the digital input 10.					
CF90	Digital Input 10 Normally Closed	Digital Inputs	Digital Input 10		True/False (True)	basic
	True/False value defining if the digital input 10 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF121	Digital Output Relay 1 Energized Boolean Condition	Relays	Relay 1			basic
	PLC Boolean condition to energize the relay 1					
CF150	RS485 configuration	RS485 configuration	RS485 modbus device			metering
	The list of connected RS485 node. The device need to be supported.					
CF521	Read Access User Numbers	Generic	Allowed Users		(1,2,3,4,5)	basic
	The list of the user numbers which have read access to this equipment. The user numbers are coma separated. The accepted user id are 1,2,3,4 and 5. Ex: 1,3,4					
CF522	Write Access User Numbers	Generic	Allowed Users		()	basic
	The list of the user numbers which have write access to this equipment. This means that these users can modify the configuration element, the alarm settings and use the control elements. The user numbers are coma separated. The accepted user ids are 1,2,3,4 and 5. Ex: 1,3,4					
CF601	Event Table Length	Generic	Events		10/4000 (100)	basic
	The maximum length of the table. The value must be comprised between 10 and 4000					
CF901	Number Of PLC Data	PLC			(0)	plc
	The number of PLC data. Every equipment can manage up to 30 user programmable data. Data elements are automatically added in the data table. Configuration parameters are added to set the PLC Data Name and the PLC Data Mathematical calculation. In order to use these functionalities, you need a license with the 'PLC' module					
CF902	Number Of PLC Alarm	PLC			(0)	plc
	The number of PLC alarm. Every equipment can manage up to 30 user programmable alarms. Alarm elements are automatically added in the alarm table. The alarm parameters are added to set the PLC Alarm Name and the PLC Alarm Boolean condition. In order to use these functionalities, you need a licence with the 'PLC' module					

Control Table				
<i>Id</i>	<i>Name</i>	<i>Group</i>	<i>SubGroup</i>	<i>License</i>
CT1	Unlock Door 1	Access Control 1		basic

	Electronic lock 1 must be disabled			
CT2	Unlock Door 2	Access Control 1		basic
	Electronic lock 2 must be disabled			
CT11	Lock Door 1	Access Control 2		basic
	Electronic lock 1 must be enabled			
CT12	Lock Door 2	Access Control 2		basic
	Electronic lock 2 must be enabled			
CT31	Auto Calibrate Tilt Zero	Calibration		basic
	The tilt-X and tilt-Y must be calibrated to 0 with the actual tilt.			
CT501	Clear My Events	Generic	Events	basic
	By writing '1' to this control element, all the events of this equipment will be cleared.			
CT502	Clear All Events	Generic	Events	basic
	By writing '1' to this control element, all the events of this equipment and all the events of all the sub-equipments will be cleared.			
CT511	Add Event	Generic	Events	basic
	This control element adds an event of severity none. The event name is the text written to this control element			
CT512	Add Major Event	Generic	Events	basic
	This control element adds an event of severity major. The event name is the text written to this control element			
CT521	Reset Default Names And Groups	Generic	Renaming	basic
	This control element resets all the element Names, Groups and Subgroups to default values for this equipment			
CT522	Reset Default Names And Groups Recursive	Generic	Renaming	basic
	This control element resets all the element Names, Groups and Subgroups to default values for this equipment and all sub equipments			

15.4.17 SAM0948

Device Information	
Name	SAM0948
Short Description	Site management card
Long Description	Site and infrastructure management card, 2 connections (RJ25) for card reader and door lock and 1 I/O connector (Sub-D26) - Captin FA and Captin BW lines
Hardware Reference	9413 060 95131
Software Reference	SOFT 000003 XX
Equipment Type	System Extension
ETSI Level	/site/sensors_actuators

Description Table				
<i>Id</i>	<i>Name</i>	<i>Group</i>	<i>SubGroup</i>	<i>License</i>
DE1	Product Name	Description	Product Info	basic
	The commercial name of the extension card.			
DE2	Hardware Reference	Description	Product Info	basic
	The hardware refence			
DE3	Hardware Revision	Description	Product Info	basic
	The hardware revision			

DE4	Software Reference	Description	Product Info	basic
	The software reference			
DE6	Serial Number	Description	Product Info	basic
	The serial number.			
DE8	Manufacturing Date	Description	Product Info	basic
	The production date.			
DE11	Description	Description	Custom Description	basic
	A free text zone to write a system description			
DE12	Reference	Description	Custom Description	basic
	A free text zone to write the customer reference of the system			

Alarm Table					
<i>Id</i>	<i>Name</i>	<i>Group</i>	<i>SubGroup</i>	<i>Severity Type (Level)</i>	<i>Set/Clear Delay</i>
AL1	Cabinet Temperature High			major (6)	5 / 2
	The temperature of the cabinet is too high.				
AL2	Cabinet Temperature Low			major (6)	5 / 2
	The temperature of the cabinet is too low.				
AL3	Cabinet Temperature Sensor Fail			minor (4)	5 / 2
	The cabinet temperature sense is defect.				
AL11	Cabinet Humidity High			major (6)	5 / 2
	The cabinet humidity is too high				
AL12	Cabinet Humidity Low			major (6)	5 / 2
	The cabinet humidity is too low				
AL21	Water Detection Alarm			major (6)	5 / 2
	Water is detected by the water sensor.				
AL31	Tilt X Alarm			major (6)	5 / 2
	The X-tilt absolute value is too high				
AL32	Tilt Y Alarm			major (6)	5 / 2
	The Y-tilt absolute value is too high				
AL41	Vandalism Alarm			major (6)	5 / 2
	The vandalism score is too high				
AL51	Badge Reader Failure			major (6)	5 / 2
	The badge reader is defect or not connected				
AL61	Access Control 1 Disabled	Access Control 1		disabled (0)	5 / 2
	The acces Control 1 is disabled				
AL62	Lock 1 Opened	Access Control 1		disabled (0)	5 / 2
	The lock 1 is opened				
AL63	Lock 1 Disabled	Access Control 1		disabled (0)	5 / 2
	The lock 1 is disabled				
AL65	Access Control 2 Disabled	Access Control 2		disabled (0)	5 / 2
	The acces Control 2 is disabled				
AL66	Lock 2 Opened	Access Control 2		disabled (0)	5 / 2

	The lock 2 is opened				
AL67	Lock 2 Disabled	Access Control 2		disabled (0)	5 / 2
	The lock 2 is disabled				
AL71	Digital Input 1	Digital Inputs	Digital Input 1	warning (0)	5 / 2
	The name of the digital input 1 alarm.				
AL72	Digital Input 2	Digital Inputs	Digital Input 2	warning (0)	5 / 2
	The name of the digital input 2 alarm.				
AL73	Digital Input 3	Digital Inputs	Digital Input 3	warning (0)	5 / 2
	The name of the digital input 3 alarm.				
AL74	Digital Input 4	Digital Inputs	Digital Input 4	warning (0)	5 / 2
	The name of the digital input 4 alarm.				
AL75	Digital Input 5	Digital Inputs	Digital Input 5	warning (0)	5 / 2
	The name of the digital input 5 alarm.				
AL76	Digital Input 6	Digital Inputs	Digital Input 6	warning (0)	5 / 2
	The name of the digital input 6 alarm.				
AL77	Digital Input 7	Digital Inputs	Digital Input 7	warning (0)	5 / 2
	The name of the digital input 7 alarm.				
AL78	Digital Input 8	Digital Inputs	Digital Input 8	warning (0)	5 / 2
	The name of the digital input 8 alarm.				
AL79	Digital Input 9	Digital Inputs	Digital Input 9	warning (0)	5 / 2
	The name of the digital input 9 alarm.				
AL80	Digital Input 10	Digital Inputs	Digital Input 10	warning (0)	5 / 2
	The name of the digital input 10 alarm.				

Data Table					
<i>Id</i>	<i>Name</i>	<i>Group</i>	<i>SubGroup</i>	<i>Unit</i>	<i>License</i>
DA1	Cabinet Temperature	Sensors		degree C	basic
	The temperature in the cabinet				
DA11	Relative Humidity	Sensors		%	basic
	The relative humidity in the cabinet				
DA21	Tilt X	Sensors		degree	basic
	The tilt-X value				
DA22	Tilt Y	Sensors		degree	basic
	The tilt-Y value				
DA31	Vandalism Score	Sensors			basic
	The vandalism score. This depends of the cabinet acceleration over time.				
DA41	Last UID Badge Reader	Badge Reader			basic
	The last uid value read by the badge reader				
DA42	Last Time Badge Reader	Badge Reader			basic

	The date and time at which the badge reader has been used				
DA52	Lock 1 Open	Access Control 1			basic
	The lock 1 is mechanically closed				
DA53	Lock 1 Enabled	Access Control 1			basic
	The access control 1 is enabling the electronic lock 1				
DA62	Lock 2 Open	Access Control 2			basic
	The lock 2 is mechanically closed				
DA63	Lock 2 Enabled	Access Control 2			basic
	The access control 2 is enabling the electronic lock 2				
DA71	Digital Input 1 State	Digital Inputs	Digital Input 1		basic
	The state of the digital input				
DA72	Digital Input 2 State	Digital Inputs	Digital Input 2		basic
	The state of the digital input				
DA73	Digital Input 3 State	Digital Inputs	Digital Input 3		basic
	The state of the digital input				
DA74	Digital Input 4 State	Digital Inputs	Digital Input 4		basic
	The state of the digital input				
DA75	Digital Input 5 State	Digital Inputs	Digital Input 5		basic
	The state of the digital input				
DA76	Digital Input 6 State	Digital Inputs	Digital Input 6		basic
	The state of the digital input				
DA77	Digital Input 7 State	Digital Inputs	Digital Input 7		basic
	The state of the digital input				
DA78	Digital Input 8 State	Digital Inputs	Digital Input 8		basic
	The state of the digital input				
DA79	Digital Input 9 State	Digital Inputs	Digital Input 9		basic
	The state of the digital input				
DA80	Digital Input 10 State	Digital Inputs	Digital Input 10		basic
	The state of the digital input				

Config Table						
<i>Id</i>	<i>Name</i>	<i>Group</i>	<i>SubGroup</i>	<i>Unit</i>	<i>Range: Min/Max (default)</i>	<i>License</i>
CF1	Cabinet Temperature High	Alarm Parameters		degree C	-50/100 (50)	basic
	The temperature over which the cabinet temperature is too high					
CF2	Cabinet Temperature Low	Alarm Parameters		degree C	-50/100 (-5)	basic
	The temperature under which the cabinet temperature is too low					
CF3	Temperature Hysteresis	Alarm Parameters		degree C	0/20 (1)	basic
	The hysteresis on the temperature alarm					
CF11	Cabinet Humidity High	Alarm Parameters		%	0/100 (80)	basic
	The relative humidity over which the cabinet humidity is too high					
CF12	Cabinet Humidity Low	Alarm Parameters		%	0/100 (0)	basic
	The relative humidity over which the cabinet humidity is too low					

CF13	Humidity Alarm Hysteresis	Alarm Parameters		%	0/50 (2)	basic
	The hysteresis on the humidity alarms, in percent					
CF21	Tilt X High	Alarm Parameters		degree	0/90 (10)	basic
	The maximum absolute tilt-X value allowed for the cabinet					
CF22	Tilt Y High	Alarm Parameters		degree	0/90 (10)	basic
	The maximum absolute tilt-Y value allowed for the cabinet					
CF23	Tilt Alarm Hysteresis	Alarm Parameters		degree	0/45 (2)	basic
	The hysteresis on tilt X/Y alarms					
CF31	Vandalism Detection Threshold	Alarm Parameters				basic
	The maximum vandalism score allowed for the cabinet.					
CF41	Access Control 1 Enabled	Access Control 1			True/False (False)	basic
	The access control 1 is enabled. The electronic lock 1 must be managed.					
CF42	Access Control 1 Authorized UID	Access Control 1				basic
	Coma separated list of the UID allowed to disable the electronic lock 1					
CF43	Access Control 1 Auto Close Time	Access Control 1		second	0/7200 (30)	basic
	Time in second after which the electronic lock 1 must be automatically locked again					
CF44	Access Control 1 Disabled If Badge Reader Failure	Access Control 1			True/False (True)	basic
	The electronic lock 1 must be disabled if the 'Badge reader failure' alarm is set.					
CF45	Access Control 1 Doors Inputs	Access Control 1			(7,9,10)	basic
	This is the coma separated list of the digital inputs which are door contacts related to the access control 1					
CF46	Access Control 1 Disabled If XML Heartbeat Failure	Access Control 1			True/False (False)	basic
	The electronic lock 1 must be disabled if the XML HeartBeat Post Failure is set					
CF47	Access Control 1 Energized when Locked	Access Control 1			True/False (True)	basic
	True if Lock DRV have to be enabled when locked (Default Behavior)					
CF51	Access Control 2 Enabled	Access Control 2			True/False (False)	basic
	The access control 2 is enabled. The electronic lock 2 must be managed.					
CF52	Access Control 2 Authorized UID	Access Control 2				basic
	Coma separated list of the UID allowed to disable the electronic lock 2					
CF53	Access Control 2 Auto Close Time	Access Control 2		second	0/7200 (30)	basic
	Time in second after which the electronic lock 2 must be automatically locked again					
CF54	Access Control 2 Disabled If Badge Reader Failure	Access Control 2			True/False (True)	basic
	The electronic lock 1 must be disabled if the 'Badge reader failure' alarm is set.					
CF55	Access Control 2 Doors Inputs	Access Control 2			(8)	basic

	This is the coma separated list of the digital inputs which are door contacts related to the access control 2					
CF56	Access Control 2 Disabled If XML Heartbeat Failure	Access Control 2			True/False (False)	basic
	The electronic lock 2 must be disabled if the XML HeartBeat Post Failure is set					
CF57	Access Control 2 Energized when Locked	Access Control 2			True/False (True)	basic
	True if Lock DRV have to be enabled when locked (Default Behavior)					
CF71	Digital Input 1 Name	Digital Inputs	Digital Input 1		Digital Inputs	basic
	The name of the digital input 1.					
CF72	Digital Input 1 Normally Closed	Digital Inputs	Digital Input 1		True/False (True)	basic
	True/False value defining if the digital input 1 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF73	Digital Input 2 Name	Digital Inputs	Digital Input 2		Digital Inputs	basic
	The name of the digital input 2.					
CF74	Digital Input 2 Normally Closed	Digital Inputs	Digital Input 2		True/False (True)	basic
	True/False value defining if the digital input 2 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF75	Digital Input 3 Name	Digital Inputs	Digital Input 3		Digital Inputs	basic
	The name of the digital input 3.					
CF76	Digital Input 3 Normally Closed	Digital Inputs	Digital Input 3		True/False (True)	basic
	True/False value defining if the digital input 3 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF77	Digital Input 4 Name	Digital Inputs	Digital Input 4		Digital Inputs	basic
	The name of the digital input 4.					
CF78	Digital Input 4 Normally Closed	Digital Inputs	Digital Input 4		True/False (True)	basic
	True/False value defining if the digital input 4 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF79	Digital Input 5 Name	Digital Inputs	Digital Input 5		Digital Inputs	basic
	The name of the digital input 5.					
CF80	Digital Input 5 Normally Closed	Digital Inputs	Digital Input 5		True/False (True)	basic
	True/False value defining if the digital input 5 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF81	Digital Input 6 Name	Digital Inputs	Digital Input 6		Digital Inputs	basic
	The name of the digital input 6.					
CF82	Digital Input 6 Normally Closed	Digital Inputs	Digital Input 6		True/False (True)	basic
	True/False value defining if the digital input 6 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF83	Digital Input 7 Name	Digital Inputs	Digital Input 7		Digital Inputs	basic
	The name of the digital input 7.					
CF84	Digital Input 7 Normally Closed	Digital Inputs	Digital Input 7		True/False (True)	basic
	True/False value defining if the digital input 7 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF85	Digital Input 8 Name	Digital Inputs	Digital Input 8		Digital Inputs	basic
	The name of the digital input 8.					

CF86	Digital Input 8 Normally Closed	Digital Inputs	Digital Input 8		True/False (True)	basic
	True/False value defining if the digital input 8 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF87	Digital Input 9 Name	Digital Inputs	Digital Input 9		Digital Inputs	basic
	The name of the digital input 9.					
CF88	Digital Input 9 Normally Closed	Digital Inputs	Digital Input 9		True/False (True)	basic
	True/False value defining if the digital input 9 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF89	Digital Input 10 Name	Digital Inputs	Digital Input 10		Digital Inputs	basic
	The name of the digital input 10.					
CF90	Digital Input 10 Normally Closed	Digital Inputs	Digital Input 10		True/False (True)	basic
	True/False value defining if the digital input 10 is normally closed. If this digital input is not in this default state, the related alarm is set.					
CF121	Digital Output Relay 1 Energized Boolean Condition	Relays	Relay 1			basic
	PLC Boolean condition to energize the relay 1					
CF150	RS485 configuration	RS485 configuration	RS485 modbus device			metering
	The list of connected RS485 node. The device need to be supported.					
CF521	Read Access User Numbers	Generic	Allowed Users		(1,2,3,4,5)	basic
	The list of the user numbers which have read access to this equipment. The user numbers are coma separated. The accepted user id are 1,2,3,4 and 5. Ex: 1,3,4					
CF522	Write Access User Numbers	Generic	Allowed Users		()	basic
	The list of the user numbers which have write access to this equipment. This means that these users can modify the configuration element, the alarm settings and use the control elements. The user numbers are coma separated. The accepted user ids are 1,2,3,4 and 5. Ex: 1,3,4					
CF601	Event Table Length	Generic	Events		10/4000 (100)	basic
	The maximum length of the table. The value must be comprised between 10 and 4000					
CF901	Number Of PLC Data	PLC			(0)	plc
	The number of PLC data. Every equipment can manage up to 30 user programmable data. Data elements are automatically added in the data table. Configuration parameters are added to set the PLC Data Name and the PLC Data Mathematical calculation. In order to use these functionalities, you need a license with the 'PLC' module					
CF902	Number Of PLC Alarm	PLC			(0)	plc
	The number of PLC alarm. Every equipment can manage up to 30 user programmable alarms. Alarm elements are automatically added in the alarm table. The alarm parameters are added to set the PLC Alarm Name and the PLC Alarm Boolean condition. In order to use these functionalities, you need a licence with the 'PLC' module					

Control Table				
<i>Id</i>	<i>Name</i>	<i>Group</i>	<i>SubGroup</i>	<i>License</i>
CT1	Unlock Door 1	Access Control 1		basic
	Electronic lock 1 must be disabled			
CT2	Unlock Door 2	Access Control 1		basic
	Electronic lock 2 must be disabled			
CT11	Lock Door 1	Access Control 2		basic

	Electronic lock 1 must be enabled			
CT12	Lock Door 2	Access Control 2		basic
	Electronic lock 2 must be enabled			
CT31	Auto Calibrate Tilt Zero	Calibration		basic
	The tilt-X and tilt-Y must be calibrated to 0 with the actual tilt.			
CT501	Clear My Events	Generic	Events	basic
	By writing '1' to this control element, all the events of this equipment will be cleared.			
CT502	Clear All Events	Generic	Events	basic
	By writing '1' to this control element, all the events of this equipment and all the events of all the sub-equipments will be cleared.			
CT511	Add Event	Generic	Events	basic
	This control element adds an event of severity none. The event name is the text written to this control element			
CT512	Add Major Event	Generic	Events	basic
	This control element adds an event of severity major. The event name is the text written to this control element			
CT521	Reset Default Names And Groups	Generic	Renaming	basic
	This control element resets all the element Names, Groups and Subgroups to default values for this equipment			
CT522	Reset Default Names And Groups Recursive	Generic	Renaming	basic
	This control element resets all the element Names, Groups and Subgroups to default values for this equipment and all sub equipments			

15.5 Remote Power Feeding System Tables

15.5.1 CEM03 Remote Power Feeding_System

Device Information	
Name	CEM03 Remote Power Feeding_System
Short Description	Monitoring for Central Up Converter system
Long Description	Central monitoring card for 4 down converter cards with CAN IN/CAN OUT and 4 relays
Hardware Reference	9413 044 89421
Software Reference	SOFT 000022 XX
Equipment Type	Monitoring For Remote (About Remote Power Feeding System)
ETSI Level	/site/energy_system/remote_power_feeding_system

Description Table				
Id	Name	Group	SubGroup	License
DE1	Description	Description	Custom Description	basic
	A free text zone to write a system description			
DE2	Reference	Description	Custom Description	basic
	A free text zone to write the customer reference of the system			

Config Table

<i>Id</i>	<i>Name</i>	<i>Group</i>	<i>SubGroup</i>	<i>Unit</i>	<i>Range: Min/Max (default)</i>	<i>License</i>
CF1	Number of CEM03 By Shelf	Up Converters				basic
	Maximum number of CEM03 cards that are authorized by shelf. This parameter value must be comprised between 1 and 4.					
CF2	Type Of Shelf	Up Converters				basic
	CES48 (15 slots) or CP053 (9 slots)					

15.5.2 MCU SP0173

Device Information	
Name	MCU SP0173
Short Description	MCU for 3x remote LPS36
Long Description	MCU 3xLPS 36
Hardware Reference	9413 001 73101
Software Reference	SOFT 000150 XX
Equipment Type	Monitoring For Remote (About Remote Power Feeding System)
ETSI Level	/site/energy_system/remote_power_feeding_system

Description Table				
<i>Id</i>	<i>Name</i>	<i>Group</i>	<i>SubGroup</i>	<i>License</i>
DE1	Description	Description	Custom Description	basic
	A free text zone to write a system description			
DE2	Reference	Description	Custom Description	basic
	A free text zone to write the customer reference of the system			

Config Table						
<i>Id</i>	<i>Name</i>	<i>Group</i>	<i>SubGroup</i>	<i>Unit</i>	<i>Range: Min/Max (default)</i>	<i>License</i>
CF1	Number of CEM03 By Shelf	Up Converters				basic
	Maximum number of CEM03 cards that are authorized by shelf. This parameter value must be comprised between 1 and 4.					
CF2	Type Of Shelf	Up Converters				basic
	CES48 (15 slots) or CP053 (9 slots)					

15.6 Up Converter System Tables

15.6.1 CEM03 Up Converter_System

Device Information	
Name	CEM03 Up Converter_System
Short Description	Monitoring for Central Up Converter system
Long Description	Central monitoring card for 4 down converter cards with CAN IN/CAN OUT and 4 relays

Hardware Reference	9413 044 89421
Software Reference	SOFT 000022 XX
Equipment Type	Monitoring For Remote (About Up Converter System)
ETSI Level	/site/energy_system/remote_power_feeding_system/up_converter_system

Description Table				
<i>Id</i>	<i>Name</i>	<i>Group</i>	<i>SubGroup</i>	<i>License</i>
DE1	Description	Description	Custom Description	basic
	A free text zone to write a system description			
DE2	Reference	Description	Custom Description	basic
	A free text zone to write the customer reference of the system			
DE11	Product Name	Monitoring		basic
	The product name of the DC system monitoring			
DE12	Hardware Reference	Monitoring		basic
	The hardware reference of the DC system monitoring			
DE14	Software Reference	Monitoring		asset
	The serial number of the DC system monitoring			
DE16	Serial Number	Monitoring		asset
	The serial number of the DC system monitoring			
DE18	Manufacturing Date	Monitoring		asset
	The production date of the DC system monitoring			

Alarm Table					
<i>Id</i>	<i>Name</i>	<i>Group</i>	<i>SubGroup</i>	<i>Severity Type (Level)</i>	<i>Set/Clear Delay</i>
AL1	One Up Converter Failure	Up Converters		minor (4)	5 / 2
	One Up converter is defect or not connected to a down converter (and enabled)				
AL2	More Than One Up Converter Failure	Up Converters		major (6)	5 / 2
	More than one Up converter is defect or not connected to a down converter (and enabled)				
AL3	More Than One Up Converter Card Failure	Up Converters		major (6)	5 / 2
	More than one up converter card is defect or not connected to a down converter (and enabled)				
AL11	One Fan Failure	Up Converters		minor (4)	5 / 2
	One FAN has a problem				
AL12	More Than One Fan Failure	Up Converters		major (6)	5 / 2
	More Than One FAN has a problem				
AL14	Configuration Problem	Slots		minor (4)	5 / 2
	There is a configuration problem. A card is configured but not available				
AL20	Slot 0 Alarm	Slots	Slot 0	minor (4)	15 / 15
	Slot 0 is in alarm				
AL21	Slot 1 Alarm	Slots	Slot 1	minor (4)	15 / 15
	Slot 1 is in alarm				
AL22	Slot 2 Alarm	Slots	Slot 2	minor (4)	15 / 15
	Slot 2 is in alarm				
AL23	Slot 3 Alarm	Slots	Slot 3	minor (4)	15 / 15

	Slot 3 is in alarm				
AL24	Slot 4 Alarm	Slots	Slot 4	minor (4)	15 / 15
	Slot 4 is in alarm				
AL25	Slot 5 Alarm	Slots	Slot 5	minor (4)	15 / 15
	Slot 5 is in alarm				
AL26	Slot 6 Alarm	Slots	Slot 6	minor (4)	15 / 15
	Slot 6 is in alarm				
AL27	Slot 7 Alarm	Slots	Slot 7	minor (4)	15 / 15
	Slot 7 is in alarm				
AL28	Slot 8 Alarm	Slots	Slot 8	minor (4)	15 / 15
	Slot 8 is in alarm				
AL29	Slot 9 Alarm	Slots	Slot 9	minor (4)	15 / 15
	Slot 9 is in alarm				
AL30	Slot 10 Alarm	Slots	Slot 10	minor (4)	15 / 15
	Slot 10 is in alarm				
AL31	Slot 11 Alarm	Slots	Slot 11	minor (4)	15 / 15
	Slot 11 is in alarm				
AL32	Slot 12 Alarm	Slots	Slot 12	minor (4)	15 / 15
	Slot 12 is in alarm				
AL33	Slot 13 Alarm	Slots	Slot 13	minor (4)	15 / 15
	Slot 13 is in alarm				
AL34	Slot 14 Alarm	Slots	Slot 14	minor (4)	15 / 15
	Slot 14 is in alarm				
AL35	Slot 15 Alarm	Slots	Slot 15	minor (4)	15 / 15
	Slot 15 is in alarm				
AL36	Slot 16 Alarm	Slots	Slot 16	minor (4)	15 / 15
	Slot 16 is in alarm				

Data Table					
<i>Id</i>	<i>Name</i>	<i>Group</i>	<i>SubGroup</i>	<i>Unit</i>	<i>License</i>
DA1	Input Voltage	Rack		Volt	basic
DA2	Temperature	Rack		degree C	basic
DA12	Number Of Up Converter NOK	Up Converters			basic
DA13	Number Of Up Converter Card NOK	Up Converters			basic
DA20	Status Slot 0	Slots	Slot 0		basic
DA21	Status Slot 1	Slots	Slot 1		basic
DA22	Status Slot 2	Slots	Slot 2		basic
DA23	Status Slot 3	Slots	Slot 3		basic
DA24	Status Slot 4	Slots	Slot 4		basic

DA25	Status Slot 5	Slots	Slot 5		basic
DA26	Status Slot 6	Slots	Slot 6		basic
DA27	Status Slot 7	Slots	Slot 7		basic
DA28	Status Slot 8	Slots	Slot 8		basic
DA29	Status Slot 9	Slots	Slot 9		basic
DA30	Status Slot 10	Slots	Slot 10		basic
DA31	Status Slot 11	Slots	Slot 11		basic
DA32	Status Slot 12	Slots	Slot 12		basic
DA33	Status Slot 13	Slots	Slot 13		basic
DA34	Status Slot 14	Slots	Slot 14		basic
DA35	Status Slot 15	Slots	Slot 15		basic
DA36	Status Slot 16	Slots	Slot 16		basic
DA51	Powered Site Ids	Monitoring			basic
DA52	Monitored Site Ids	Monitoring			basic
DA53	Powered Site Ids with Possible Line Feed Problem	Monitoring			basic

Config Table						
Id	Name	Group	SubGroup	Unit	Range: Min/Max (default)	License
CF20	Slot 0	Slots	Slot 0			basic
CF21	Slot 1	Slots	Slot 1			basic
CF22	Slot 2	Slots	Slot 2			basic
CF23	Slot 3	Slots	Slot 3			basic
CF24	Slot 4	Slots	Slot 4			basic
CF25	Slot 5	Slots	Slot 5			basic
CF26	Slot 6	Slots	Slot 6			basic

CF27	Slot 7	Slots	Slot 7			basic
CF28	Slot 8	Slots	Slot 8			basic
CF29	Slot 9	Slots	Slot 9			basic
CF30	Slot 10	Slots	Slot 10			basic
CF31	Slot 11	Slots	Slot 11			basic
CF32	Slot 12	Slots	Slot 12			basic
CF33	Slot 13	Slots	Slot 13			basic
CF34	Slot 14	Slots	Slot 14			basic
CF35	Slot 15	Slots	Slot 15			basic
CF36	Slot 16	Slots	Slot 16			basic
CF51	Urgent Relay Energized Boolean Condition	Relays				basic
CF52	Non Urgent Relay Energized Boolean Condition	Relays				basic

Control Table				
<i>Id</i>	<i>Name</i>	<i>Group</i>	<i>SubGroup</i>	<i>License</i>
CT501	Clear My Events	Generic	Events	basic
	By writing '1' to this control element, all the events of this equipment will be cleared.			
CT502	Clear All Events	Generic	Events	basic
	By writing '1' to this control element, all the events of this equipment and all the events of all the sub-equipments will be cleared.			
CT511	Add Event	Generic	Events	basic
	This control element adds an event of severity none. The event name is the text written to this control element			
CT512	Add Major Event	Generic	Events	basic
	This control element adds an event of severity major. The event name is the text written to this control element			
CT521	Reset Default Names And Groups	Generic	Renaming	basic
	This control element resets all the element Names, Groups and Subgroups to default values for this equipment			
CT522	Reset Default Names And Groups Recursive	Generic	Renaming	basic
	This control element resets all the element Names, Groups and Subgroups to default values for this equipment and all sub equipments			

15.7 Remote Site Tables

15.7.1 CEM03 Remote Site

Device Information	
Name	CEM03 Remote Site
Short Description	Monitoring for Central Up Converter system
Long Description	Central monitoring card for 4 down converter cards with CAN IN/CAN OUT and 4 relays
Hardware Reference	9413 044 89421
Software Reference	SOFT 000022 XX
Equipment Type	Monitoring For Remote (About Remote Site)
ETSI Level	/site/energy_system/remote_power_feeding_system/remote_site

Description Table				
<i>Id</i>	<i>Name</i>	<i>Group</i>	<i>SubGroup</i>	<i>License</i>
DE2	Site Name	Site		basic
	The name of the site			
DE3	Short Description	Site		basic
	A short description of the site			
DE4	Info	Site		basic
	Some more information about the site			
DE11	Street	Address		basic
	Street part of the site address			
DE12	City	Address		basic
	City part of the site address			
DE13	Province	Address		basic
	Province part of the site address			
DE14	Postal Code	Address		basic
	Postal Code part of the site address			
DE15	Region	Address		basic
	Region part of the site address			
DE16	Country	Address		basic
	Country part of the site address			
DE31	Latitude	GPS Position		asset
	The latitude of the site			
DE32	Longitude	GPS Position		asset
	The longitude of the site			
DE33	Altitude	GPS Position		asset
	The altitude of the site			
DE50	Software Reference	Remote DC System		basic
DE51	Hardware Revision	Remote DC System		basic

Alarm Table

<i>Id</i>	<i>Name</i>	<i>Group</i>	<i>SubGroup</i>	<i>Severity Type (Level)</i>	<i>Set/Clear Delay</i>
AL1	One Down Converter Failure	Converters		minor (4)	10 / 2
AL2	More Than One Down Converter Failure	Converters		major (6)	10 / 2
AL3	One Fan Failure	Converters		minor (4)	30 / 2
AL4	More Than One Fan Failure	Converters		major (6)	30 / 2
AL5	Possible Power Feed Reduced	Converters		warning (2)	5 / 2
AL8	One Down Converter Over Temperature	Converters		minor (4)	10 / 2
AL9	Output 1 Off	Outputs		major (6)	5 / 2
AL10	Output 2 Off	Outputs		major (6)	5 / 2
AL15	Communication Failure	Communication		major (6)	5 / 2
AL21	Major Alarm	Converters		major (0)	5 / 2
	Major Alarm On Down Converter				
AL22	Minor Alarm	Converters		minor (0)	5 / 2
	Minor Alarm On Down Converter				
AL25	Digital Input 1	Digital Inputs	Digital Input 1	major (0)	5 / 2
	This alarm is related to digital input 1				
AL26	Digital Input 2	Digital Inputs	Digital Input 2	major (0)	5 / 2
	This alarm is related to digital input 2				
AL27	Digital Input 3	Digital Inputs	Digital Input 3	major (0)	5 / 2
	This alarm is related to digital input 3				
AL28	Digital Input 4	Digital Inputs	Digital Input 4	minor (0)	5 / 2
	This alarm is related to digital input 4				
AL29	Digital Input 5	Digital Inputs	Digital Input 5	minor (0)	5 / 2
	This alarm is related to digital input 5				
AL30	Digital Input 6	Digital Inputs	Digital Input 6	minor (0)	5 / 2
	This alarm is related to digital input 6				

Data Table					
<i>Id</i>	<i>Name</i>	<i>Group</i>	<i>SubGroup</i>	<i>Unit</i>	<i>License</i>
DA1	Number of Configured Power Lines	Lines			basic
DA2	Line Configured for Monitoring	Lines			basic
DA11	Remote Type	Remote DC System			basic

DA12	Input Voltage	Remote DC System		Volt	basic
DA13	Input Common Mode Voltage	Remote DC System		Volt	basic
	Input Common Mode Voltage with respect to ground				
DA14	Output Voltage	Remote DC System		Volt	basic
DA15	Temperature	Remote DC System		degree C	basic
DA16	Output Power	Remote DC System		Watt	basic
DA19	Hotspot Temperature	Remote DC System		degree C	basic
DA20	Input Current	Remote DC System		mAmpere	basic
DA21	Number Of Declared Down Converters	Remote DC System			basic

Config Table						
<i>Id</i>	<i>Name</i>	<i>Group</i>	<i>SubGroup</i>	<i>Unit</i>	<i>Range: Min/Max (default)</i>	<i>License</i>
CF91	Digital Input 1 Name	Digital Inputs	Digital Input 1		Digital Input 1	basic
	The name of the digital input 1					
CF93	Digital Input 2 Name	Digital Inputs	Digital Input 2		Digital Input 2	basic
	The name of the digital input 2					
CF95	Digital Input 3 Name	Digital Inputs	Digital Input 3		Digital Input 3	basic
	The name of the digital input 3					
CF97	Digital Input 4 Name	Digital Inputs	Digital Input 4		Digital Input 4	basic
	The name of the digital input 4					
CF99	Digital Input 5 Name	Digital Inputs	Digital Input 5		Digital Input 5	basic
	The name of the digital input 5					
CF101	Digital Input 6 Name	Digital Inputs	Digital Input 6		Digital Input 6	basic
	The name of the digital input 6					

Control Table				
<i>Id</i>	<i>Name</i>	<i>Group</i>	<i>SubGroup</i>	<i>License</i>
CT11	Copy Address From Top Site Level	Address		basic
	Writing a '1' to this control element will copy the Address from the Site level, except the Street Name			
CT501	Clear My Events	Generic	Events	basic
	By writing '1' to this control element, all the events of this equipment will be cleared.			
CT502	Clear All Events	Generic	Events	basic
	By writing '1' to this control element, all the events of this equipment and all the events of all the sub-equipments will be cleared.			
CT511	Add Event	Generic	Events	basic
	This control element adds an event of severity none. The event name is the text written to this control element			
CT512	Add Major Event	Generic	Events	basic

	This control element adds an event of severity major. The event name is the text written to this control element			
CT521	Reset Default Names And Groups	Generic	Renaming	basic
	This control element resets all the element Names, Groups and Subgroups to default values for this equipment			
CT522	Reset Default Names And Groups Recursive	Generic	Renaming	basic
	This control element resets all the element Names, Groups and Subgroups to default values for this equipment and all sub equipments			

15.8 Inverter Tables

15.8.1 Inverter Sierra (CET Gateway)

Device Information	
Name	Inverter Sierra (CET Gateway)
Short Description	Inverter Module Sierra from CE+T, managed by Inview GW - SUBJECT TO CHANGE
Long Description	
Hardware Reference	
Software Reference	
Equipment Type	Inverter
ETSI Level	/site/energy_system/inverter_system/inverter

Description Table				
<i>Id</i>	<i>Name</i>	<i>Group</i>	<i>SubGroup</i>	<i>License</i>
DE5	Serial Number	Product Info		basic
	Serial Number			
DE6	Version	Product Info		basic
	Software Revision			
DE12	Nominal AC Voltage	Product Info		basic
	Nominal AC Voltage			
DE13	Nominal DC Voltage	Product Info		basic
	Nominal DC Voltage			
DE14	Nominal Power In Watt	Product Info		basic
	Nominal Power in Watt			
DE15	Nominal Power In VA	Product Info		basic
	Nominal Power in VA			
DE21	AC Output Group	Live Configuration		basic
	Inverter module AC output group			
DE22	AC Input Group	Live Configuration		basic
	Inverter module AC input group			
DE23	DC Input Group	Live Configuration		basic
	Inverter module DC input group			

Data Table

<i>Id</i>	<i>Name</i>	<i>Group</i>	<i>SubGroup</i>	<i>Unit</i>	<i>License</i>
DA2	AC Output Status	Module Status			basic
	Module AC output status				
DA3	AC Input Status	Module Status			basic
	Module AC input status				
DA4	DC Input Status	Module Status			basic
	Module DC input status				
DA5	Temperature	Module Status		degree C	basic
	Temperature				
DA6	AC Output Group	Module Status			basic
	Module Phase				
DA11	Output Voltage	AC Output		Volt	basic
	Output voltage in volts				
DA12	Output Current	AC Output		Ampere	basic
	Output current in amperes				
DA13	Output Power	AC Output		Watt	basic
	Output power in watts				
DA21	Input Voltage	AC Input		Volt	basic
	AC input voltage				
DA22	Input Current	AC Input		Ampere	basic
	AC input current				
DA23	Input Power	AC Input		Watt	basic
	AC input power in watts				
DA25	Input Frequency	AC Input		Hz	basic
	AC Input Frequency				
DA31	Input Voltage	DC Input		Volt	basic
	DC input voltage				
DA32	Input Current	DC Input		Ampere	basic
	DC input current				
DA33	Input Power	DC Input		Watt	basic
	DC input power				

Control Table					
<i>Id</i>	<i>Name</i>	<i>Group</i>	<i>SubGroup</i>	<i>Unit</i>	<i>License</i>
CT1	Start Locate Inverter	Inverter Functions			basic
	Locate the inverter module.				
CT11	Turn On Module	Inverter Functions			basic
	Turn on the inverter module.				
CT12	Turn Off Module	Inverter Functions			basic
	Turn off the inverter module.				
CT15	Reset Fan Life Elapsed Alarm	Inverter Functions			basic
	Reset the Fan Life Elapsed alarm.				

15.8.2 Inverter TSI (CET T2S)

Device Information	
Name	Inverter TSI (CET T2S)

Short Description	Inverter TSI (Bravo, Media, Nova, etc.), managed by CET T2S
Long Description	
Hardware Reference	
Software Reference	
Equipment Type	Inverter
ETSI Level	/site/energy_system/inverter_system/inverter

Description Table				
<i>Id</i>	<i>Name</i>	<i>Group</i>	<i>SubGroup</i>	<i>License</i>
DE5	Serial Number	Product Info		basic
	Serial Number			
DE6	Version	Product Info		basic
	Software Revision			
DE11	Module Number	Live Configuration		basic
	Module Address			
DE21	AC Output Group	Live Configuration		basic
	Inverter module AC output group			
DE22	AC Input Group	Live Configuration		basic
	Inverter module AC input group			
DE23	DC Input Group	Live Configuration		basic
	Inverter module DC input group			

Alarm Table					
<i>Id</i>	<i>Name</i>	<i>Group</i>	<i>SubGroup</i>	<i>Severity Type (Level)</i>	<i>Set/Clear Delay</i>
AL34	Temp Too High	General		major (6)	5 / 2
	Temperature on heat sink to high				
AL83	Manually Off	General		minor (4)	5 / 2
	The inverter are seted in manually OFF.				
AL101	Fan Failure	General		major (6)	5 / 2
	Failed fan or speed inapropriate				
AL161	Vac In Too Low	AC IN		minor (4)	5 / 2
AL162	Vac In Too High	AC IN		minor (4)	5 / 2
AL194	Vdc In Too Low	DC IN		minor (4)	5 / 2
AL195	Vdc In Too High	DC IN		minor (4)	5 / 2
AL255	Specific Alarm			major (6)	5 / 2
	Specific manufacturer alarm. Please contact your reseller				

Data Table					
<i>Id</i>	<i>Name</i>	<i>Group</i>	<i>SubGroup</i>	<i>Unit</i>	<i>License</i>
DA1	Module Status	Inverter Status			basic
	Module Status				

DA2	AC Output Status	Inverter Status			basic
	Module AC output status				
DA3	AC Input Status	Inverter Status			basic
	Module AC input status				
DA4	DC Input Status	Inverter Status			basic
	Module DC input status				
DA5	Temperature	Inverter Status		degree C	basic
	Temperature				
DA11	Output Voltage	AC Output		Volt	basic
	Output voltage in volts				
DA12	Output Current	AC Output		Ampere	basic
	Output current in amperes				
DA13	Output Power	AC Output		Watt	basic
	Output power in watts				
DA14	Output Apparent Power	AC Output		VA	basic
	Output apparent power in VA				
DA16	Load Position regarding input power source	AC Output			basic
	Position of the load regarding input power sources				
DA17	Loading Ratio in W	AC Output		%	basic
	Loading ratio regarding power un watts				
DA18	Loading Ratio in VA	AC Output		%	basic
	Loading ratio regarding power un watts				
DA21	Input Voltage	AC Input		Volt	basic
	AC input voltage				
DA22	Input Current	AC Input		Ampere	basic
	AC input current				
DA23	Input Power	AC Input		Watt	basic
	AC input power in watts				
DA24	Input Apparent Power	AC Input		VA	basic
	AC apparent input power in VA				
DA25	Input Frequency	AC Input		Hz	basic
	AC Input Frequency				
DA31	Input Voltage	DC Input		Volt	basic
	DC input voltage				
DA32	Input Current	DC Input		Ampere	basic
	DC input current				
DA33	Input Power	DC Input		Watt	basic
	DC input power				
DA101	Specific Id Alarms	Error List			basic
	List of active manufacturer specific alarms				
DA102	Alarm Name List	Error List			basic
	List of active manufacturer specific alarms				

Control Table				
<i>Id</i>	<i>Name</i>	<i>Group</i>	<i>SubGroup</i>	<i>License</i>
CT1	Start Locate Inverter	Inverter Functions		basic
	Locate the inverter module.			

CT11	Turn On Module	Inverter Functions		basic
	Turn on the inverter module.			
CT12	Turn Off Module	Inverter Functions		basic
	Turn off the inverter module.			
CT15	Reset Fan Life Elapsed Alarm	Inverter Functions		basic
	Reset the Fan Life Elapsed alarm.			
CT21	Modify AC Input Group	Inverter Functions		basic
	Modify ...			
CT22	Modify DC Input Group	Inverter Functions		basic
	Modify ...			
CT23	Modify AC Output Group	Inverter Functions		basic
	Modify ...			
CT31	Modify Inverter Id	Inverter Functions		basic
	Modify ...			

15.9 Inverter System Tables

15.9.1 Inverter System Sierra (CET Gateway)

Device Information	
Name	Inverter System Sierra (CET Gateway)
Short Description	Inverter System with Sierra, managed by Inview GW - SUBJECT TO CHANGE
Long Description	
Hardware Reference	
Software Reference	
Equipment Type	Missing information
ETSI Level	/site/energy_system/inverter_system

Description Table				
<i>Id</i>	<i>Name</i>	<i>Group</i>	<i>SubGroup</i>	<i>License</i>
DE1000	Inview Gateway Serial Number	Inview Gateway		basic
	Inview Serial Number			
DE1001	Inview Gateway Software Version	Inview Gateway		basic
	Inview Software Version			
DE1002	Inview Gateway IP Address	Inview Gateway		basic
	Inview Ip Address			

Alarm Table					
<i>Id</i>	<i>Name</i>	<i>Group</i>	<i>SubGroup</i>	<i>Severity Type (Level)</i>	<i>Set/Clear Delay</i>
AL1000	Communication Failure With Gateway	Inview Gateway		major (0)	5 / 2
	Communication Failure with Gateway, please check ethernet cable				

Data Table					
<i>Id</i>	<i>Name</i>	<i>Group</i>	<i>SubGroup</i>	<i>Unit</i>	<i>License</i>
DA1	Output Voltage	AC Outputs	AC Output 1	Volt	basic
	Output Voltage in volts group 1				
DA2	Output Current	AC Outputs	AC Output 1	Ampere	basic
	Output Current in amperes group 1				
DA3	Output Power	AC Outputs	AC Output 1	Watt	basic
	Output power in watts group 1				
DA4	Output Apparent Power	AC Outputs	AC Output 1	VA	basic
	Output apparent power in VA group 1				
DA5	Output Frequency	AC Outputs	AC Output 1	Hz	basic
	Output Frequency in hertz group 1				
DA6	Loading Ratio - Available Power in W	AC Outputs	AC Output 1	%	basic
	Ratio between output load and available power expressed in watts group 1				
DA7	Loading Ratio - Available Power in VA	AC Outputs	AC Output 1	%	basic
	Ratio between output load and available power expressed in VA group 1				
DA8	Loading Ratio - Installed Power in W	AC Outputs	AC Output 1	%	basic
	Ratio between output load and installed power expressed in watts group 1				
DA9	Loading Ratio - Installed Power in VA	AC Outputs	AC Output 1	%	basic
	Ratio between output load and installed power expressed in VA group 1				
DA10	Number Of Modules Configured	AC Outputs	AC Output 1		basic
	Number of modules configured for the phase 1				
DA11	Amount of redundancy configured	AC Outputs	AC Output 1		basic
	Amount of redundancy configured in the phase 1				
DA12	DC Input Power	AC Outputs	AC Output 1	Watt	basic
	DC input power for group 1				
DA13	AC Input Power in W	AC Outputs	AC Output 1	Watt	basic
	AC input power (W) for group 1				
DA14	AC Input Power in VA	AC Outputs	AC Output 1	VA	basic
	AC input power (VA) for group 1				
DA15	Installed Power in W	AC Outputs	AC Output 1	Watt	basic
	Installed power value in watts for group 1				
DA16	Installed Power in VA	AC Outputs	AC Output 1	VA	basic
	Installed power value in VA for group 1				
DA17	Available Power in W	AC Outputs	AC Output 1	Watt	basic
	Available power value in watts for group 1				
DA18	Available Power in VA	AC Outputs	AC Output 1	VA	basic
	Available power value in VA for group 1				
DA19	Number Of Module Seen	AC Outputs	AC Output 1		basic
	Number of modules seen by T2S for group 1				
DA20	Number Of Modules delivering output	AC Outputs	AC Output 1		basic
	Number of modules delivering output for group 1				
DA21	Number Of Modules manually off	AC Outputs	AC Output 1		basic

	Number of modules manually off for group 1				
DA22	Number Of Module In Failure	AC Outputs	AC Output 1		basic
	Number of modules in failure for group 1				
DA401	Input Voltage	AC Inputs	AC Input 1	Volt	basic
	AC input voltage value (V) group 1				
DA402	Input Current	AC Inputs	AC Input 1	Ampere	basic
	AC input current value (A) group 1				
DA403	Input Power	AC Inputs	AC Input 1	Watt	basic
	AC input power value (W) group 1				
DA404	Input Apparent Power	AC Inputs	AC Input 1	VA	basic
	AC input apparent power value (VA) group 1				
DA405	Input Frequency	AC Inputs	AC Input 1	Hz	basic
	AC input frequency (Hz) group 1				
DA406	Number Of Modules delivering output	AC Inputs	AC Input 1		basic
	Number of modules that are delivering output in the group 1				
DA407	Number Of Modules manually off	AC Inputs	AC Input 1		basic
	Number of modules manually off in the group 1				
DA408	Number Of Modules in failure	AC Inputs	AC Input 1		basic
	Number of modules that are not delivering output due to a failure in the group 1				
DA409	Number Of Module Seen	AC Inputs	AC Input 1		basic
	Number of modules seen by T2S in the group 1				
DA410	Number Of Modules stating AC input OK	AC Inputs	AC Input 1		basic
	Number of modules stating AC input is OK group 1				
DA501	Input Current	DC Inputs	DC Input 1	Ampere	basic
	DC input current value in amperes group 1				
DA502	Input Power	DC Inputs	DC Input 1	Watt	basic
	DC input power value in watts group 1				
DA503	Input Voltage	DC Inputs	DC Input 1	Volt	basic
	DC input voltage value in volt group 1				
DA1000	Bus Status	Inview Gateway			basic
	The State of the bus				
DA1001	Configuration Status	Inview Gateway			basic
	The state of the configuration				
DA1005	Live Setpoint DC Bus 1 Voltage	Inview Gateway		Volt	basic
	The Live Setpoint of DC Bus Voltage				
DA1006	Live Setpoint DC Bus 1 Power	Inview Gateway		Watt	basic
	The Live Setpoint of DC Bus 1 Power				
DA1007	Live Setpoint Peak Shaving	Inview Gateway			basic
	The Live Setpoint of Peak Shaving				

Config Table						
<i>Id</i>	<i>Name</i>	<i>Group</i>	<i>SubGroup</i>	<i>Unit</i>	<i>Range: Min/Max (default)</i>	<i>License</i>
CF100	Vdc In Low Start	DC Inputs		Volt		basic
	The DC input low start in volts					
CF101	Vdc In Low Transfer	DC Inputs		Volt		basic

	The DC input low transfer in volts					
CF102	Vdc In Low Stop	DC Inputs		Volt		basic
	The DC input low stop in volts					
CF103	Vdc In High Start	DC Inputs		Volt		basic
	The DC input high start in volts					
CF104	Vdc In High Transfer	DC Inputs		Volt		basic
	The DC input high transfer in volts					
CF105	Vdc In High Stop	DC Inputs		Volt		basic
	The DC input high stop in volts					
CF106	Vac In Low Start	AC Inputs	AC Input Voltage	Volt		basic
	The AC input low start in volts					
CF107	Vac In Low Transfer	AC Inputs	AC Input Voltage	Volt		basic
	The AC input low transfer in volts					
CF108	Vac In Low Stop	AC Inputs	AC Input Voltage	Volt		basic
	The AC input low stop in volts					
CF109	Vac In High Start	AC Inputs	AC Input Voltage	Volt		basic
	The AC input high start in volts					
CF110	Vac In High Transfer	AC Inputs	AC Input Voltage	Volt		basic
	The AC input high transfer in volts					
CF111	Vac In High Stop	AC Inputs	AC Input Voltage	Volt		basic
	The AC input high stop in volts					
CF112	AC Input Frequency Low Start	AC Inputs	Input Frequency	Hz		basic
	The AC frequency low start in hertz					
CF113	AC Input Frequency Low Stop	AC Inputs	Input Frequency	Hz		basic
	The AC frequency low stop in hertz.					
CF114	AC Input Frequency High Start	AC Inputs	Input Frequency	Hz		basic
	The AC frequency high start in hertz					
CF115	AC Input Frequency High Stop	AC Inputs	Input Frequency	Hz		basic
	The AC frequency high stop in hertz.					
CF116	Free running frequency	AC Inputs	Input Frequency	Hz		basic
	The AC frequency high stop in hertz.					
CF117	Number of AC Output Groups To Configure	AC Outputs				basic
	Number of AC output groups.					
CF118	Phase Shift	AC Outputs	AC Output 1	degree		basic
	The phase shift in degrees in phase					
CF119	Phase Shift	AC Outputs	AC Output 2	degree		basic
	The phase shift in degrees in phase					
CF120	Phase Shift	AC Outputs	AC Output 3	degree		basic
	The phase shift in degrees in phase					

CF121	Phase Shift	AC Outputs	AC Output 4	degree		basic
	The phase shift in degrees in phase					
CF122	Phase Shift	AC Outputs	AC Output 5	degree		basic
	The phase shift in degrees in phase					
CF123	Phase Shift	AC Outputs	AC Output 6	degree		basic
	The phase shift in degrees in phase					
CF124	Phase Shift	AC Outputs	AC Output 7	degree		basic
	The phase shift in degrees in phase					
CF125	Phase Shift	AC Outputs	AC Output 8	degree		basic
	The phase shift in degrees in phase					
CF126	Nominal Output Voltage	AC Outputs	AC Output 1	Volt		basic
	The phase shift in degrees in phase					
CF127	Nominal Output Voltage	AC Outputs	AC Output 2	Volt		basic
	The phase shift in degrees in phase					
CF128	Nominal Output Voltage	AC Outputs	AC Output 3	Volt		basic
	The phase shift in degrees in phase					
CF129	Nominal Output Voltage	AC Outputs	AC Output 4	Volt		basic
	The phase shift in degrees in phase					
CF130	Nominal Output Voltage	AC Outputs	AC Output 5	Volt		basic
	The phase shift in degrees in phase					
CF131	Nominal Output Voltage	AC Outputs	AC Output 6	Volt		basic
	The phase shift in degrees in phase					
CF132	Nominal Output Voltage	AC Outputs	AC Output 7	Volt		basic
	The phase shift in degrees in phase					
CF133	Nominal Output Voltage	AC Outputs	AC Output 8	Volt		basic
	The phase shift in degrees in phase					
CF134	Short circuit threshold voltage	Advanced		Volt		basic
	Short circuit threshold voltage					
CF135	Short circuit hold time	Advanced		second		basic
	Short circuit hold time					
CF136	Input source in Percent	Advanced		%		basic
	Input source in Percent					
CF137	Synchronisation tracking speed	Advanced				basic
	Synchronisation tracking speed					
CF138	Max current Percent	Advanced		%		basic
	Max current Percent					
CF139	Max power Percent	Advanced		%		basic
	Max power Percent					
CF141	AC in mode	Advanced				basic
	AC in mode					
CF142	Booster 10x I in	Advanced				basic
	Booster 10x I in					
CF144	Reinjection allowed	Advanced				basic
	Reinjection allowed					
CF145	External clock	Advanced				basic
	External clock					
CF146	Walk in mode	Advanced				basic

	Walk in mode					
CF147	Triangle mode	Advanced				basic
	Triangle mode					
CF149	Start without supervision	Advanced				basic
	Start without supervision					
CF151	AC 1 stop power	Advanced				basic
	AC 1 stop power					
CF152	AC 2 stop power	Advanced				basic
	AC 2 stop power					
CF153	AC 3 stop power	Advanced				basic
	AC 3 stop power					
CF154	AC 4 stop power	Advanced				basic
	AC 4 stop power					
CF157	Tus	Advanced				basic
	Tus					
CF158	Tus modules number	Advanced				basic
	Tus modules number					
CF159	Tus sub sub system address	Advanced				basic
	Tus sub sub system address					
CF160	Tus sub sub system output phase	Advanced				basic
	Tus sub sub system output phase					
CF161	Tus sub system index	Advanced				basic
	Tus sub system index					
CF162	Number of tus sub sub system	Advanced				basic
	Number of tus sub sub system					
CF165	Tus sub sub system dc group	Advanced				basic
	Tus sub sub system dc group					
CF166	V DC charger safe mode	Advanced		Volt		basic
	V DC charger safe mode					
CF167	P DC charger safe mode	Advanced		Watt		basic
	P DC charger safe mode					
CF168	P AC peak shaving safe mode	Advanced				basic
	P AC peak shaving safe mode					
CF169	P AC max per phase safe mode	Advanced				basic
	P AC max per phase safe mode					
CF170	Phase compensation	Advanced				basic
	Phase compensation					
CF171	Sierra mode	Advanced				basic
	Sierra mode					
CF172	V DC low stop charger	Advanced		Volt		basic
	V DC low stop charger					
CF173	Lvd mode	Advanced				basic
	Lvd mode					

CF174	Max V DC increment safe mode	Advanced				basic
	Max V DC increment safe mode					

Control Table				
<i>Id</i>	<i>Name</i>	<i>Group</i>	<i>SubGroup</i>	<i>License</i>
CT51	Apply Configuration	Inverter System		basic
	Force send of parameters			
CT101	Set DC Voltage Point	Inverter System		basic
	Set DC regulation voltage			
CT102	Set DC Power Point	Inverter System		basic
	Set DC regulation power			
CT201	Modify Ip Address	Inverter System		basic
	Modify the ip address			
CT501	Clear My Events	Generic	Events	basic
	By writing '1' to this control element, all the events of this equipment will be cleared.			
CT502	Clear All Events	Generic	Events	basic
	By writing '1' to this control element, all the events of this equipment and all the events of all the sub-equipments will be cleared.			
CT511	Add Event	Generic	Events	basic
	This control element adds an event of severity none. The event name is the text written to this control element			
CT512	Add Major Event	Generic	Events	basic
	This control element adds an event of severity major. The event name is the text written to this control element			
CT521	Reset Default Names And Groups	Generic	Renaming	basic
	This control element resets all the element Names, Groups and Subgroups to default values for this equipment			
CT522	Reset Default Names And Groups Recursive	Generic	Renaming	basic
	This control element resets all the element Names, Groups and Subgroups to default values for this equipment and all sub equipments			

15.9.2 Inverter System TSI (CET T2S)

Device Information	
Name	Inverter System TSI (CET T2S)
Short Description	Inverter System (With Bravo, Media, Nova, etc.), managed by CET T2S
Long Description	
Hardware Reference	
Software Reference	
Equipment Type	Missing information
ETSI Level	/site/energy_system/inverter_system

Description Table				
<i>Id</i>	<i>Name</i>	<i>Group</i>	<i>SubGroup</i>	<i>License</i>
DE1	Description	Description	Custom Description	basic

	A free text zone to write a system description			
DE2	Reference	Description	Custom Description	basic
	A free text zone to write the customer reference of the system			
DE10	T2S Serial Number	Description	T2S	basic
	T2S Serial Number			
DE11	T2S Software Revision	Description	T2S	basic
	T2S Software Revision			

Alarm Table					
<i>Id</i>	<i>Name</i>	<i>Group</i>	<i>SubGroup</i>	<i>Severity Type (Level)</i>	<i>Set/Clear Delay</i>
AL1	One Inverter in Alarm	Inverter System		minor (4)	5 / 2
	One Inverter is in alarm. Check specific Inverter Alarm table.				
AL2	More Than One Inverter in Alarm	Inverter System		major (6)	10 / 2
	More than one Inverter are in alarm				
AL82	Remote Off	Inverter System		minor (4)	5 / 2
	Inverters are seted OFF remotely				
AL161	Vac In Too Low	AC Inputs		minor (4)	5 / 2
AL162	Vac In Too High	AC Inputs		minor (4)	5 / 2
AL194	Vdc In Too Low	DC Inputs		minor (4)	5 / 2
AL195	Vdc In Too High	DC Inputs		minor (4)	5 / 2
AL227	Digital Input 1 Failure	Digital Inputs		major (6)	5 / 2
	Give alarm with code 227 and appropriate texte when digital input 1 change is state				
AL228	Digital Input 2 Failure	Digital Inputs		major (6)	5 / 2
	Give alarm with code 228 and appropriate text when digital input 2 change is state				
AL229	Redundancy Lost	Inverter System		minor (4)	5 / 2
	Give alarm with code 229 and text 'Redudancy Lost' when the condition is true				
AL230	Redundancy Plus 1 Lost	Inverter System		major (6)	5 / 2
	Give alarm with code 230 and text 'Redudancy + 1 Lost' when the condition is true				
AL231	Sys Saturated	Inverter System		major (6)	5 / 2
	Give alarm with code 231 and text 'SYS SATURED' when the condition is true				
AL232	Main Source Lost	AC Inputs		major (6)	5 / 2
	Give alarm with code 232 and text 'Mains source lost' when the condition is true				
AL233	Secondary Source Lost	DC Inputs		minor (4)	5 / 2
	Give alarm with code 233 and 'Sec Source Lost' when the condition is true				
AL235	T2S Failure	Inverter System		major (6)	5 / 2
	Give alarm with code 235 and text 'T2S FAILURE' when the condition is true				
AL255	Specific Alarm			major (6)	5 / 2
	Specific manufacturer alarm. Please contact your reseller				

Data Table					
<i>Id</i>	<i>Name</i>	<i>Group</i>	<i>SubGroup</i>	<i>Unit</i>	<i>License</i>
DA1	Output Voltage	AC Outputs	AC Output 1	Volt	basic

	Output Voltage in volts group 1				
DA2	Output Current	AC Outputs	AC Output 1	Ampere	basic
	Output Current in amperes group 1				
DA3	Output Power	AC Outputs	AC Output 1	Watt	basic
	Output power in watts group 1				
DA4	Output Apparent Power	AC Outputs	AC Output 1	VA	basic
	Output apparent power in VA group 1				
DA5	Output Frequency	AC Outputs	AC Output 1	Hz	basic
	Output Frequency in hertz group 1				
DA6	Loading Ratio - Available Power in W	AC Outputs	AC Output 1	%	basic
	Ratio between output load and available power expressed in watts group 1				
DA7	Loading Ratio - Available Power in VA	AC Outputs	AC Output 1	%	basic
	Ratio between output load and available power expressed in VA group 1				
DA8	Loading Ratio - Installed Power in W	AC Outputs	AC Output 1	%	basic
	Ratio between output load and installed power expressed in watts group 1				
DA9	Loading Ratio - Installed Power in VA	AC Outputs	AC Output 1	%	basic
	Ratio between output load and installed power expressed in VA group 1				
DA10	Number Of Modules Configured	AC Outputs	AC Output 1		basic
	Number of modules configured for the phase 1				
DA11	Amount of redundancy configured	AC Outputs	AC Output 1		basic
	Amount of redundancy configured in the phase 1				
DA12	DC Input Power	AC Outputs	AC Output 1	Watt	basic
	DC input power for group 1				
DA13	AC Input Power in W	AC Outputs	AC Output 1	Watt	basic
	AC input power (W) for group 1				
DA14	AC Input Power in VA	AC Outputs	AC Output 1	VA	basic
	AC input power (VA) for group 1				
DA15	Installed Power in W	AC Outputs	AC Output 1	Watt	basic
	Installed power value in watts for group 1				
DA16	Installed Power in VA	AC Outputs	AC Output 1	VA	basic
	Installed power value in VA for group 1				
DA17	Available Power in W	AC Outputs	AC Output 1	Watt	basic
	Available power value in watts for group 1				
DA18	Available Power in VA	AC Outputs	AC Output 1	VA	basic
	Available power value in VA for group 1				
DA19	Number Of Module Seen	AC Outputs	AC Output 1		basic
	Number of modules seen by T2S for group 1				
DA20	Number Of Modules delivering output	AC Outputs	AC Output 1		basic
	Number of modules delivering output for group 1				
DA21	Number Of Modules manually off	AC Outputs	AC Output 1		basic
	Number of modules manually off for group 1				
DA22	Number Of Module In Failure	AC Outputs	AC Output 1		basic
	Number of modules in failure for group 1				
DA23	Number Of Module not seen by T2S	AC Outputs	AC Output 1		basic

	Number of modules not seen by T2S for group 1				
DA51	Output Voltage	AC Outputs	AC Output 2	Volt	basic
	Output Voltage in volts group 2				
DA52	Output Current	AC Outputs	AC Output 2	Ampere	basic
	Output Current in amperes group 2				
DA53	Output Power	AC Outputs	AC Output 2	Watt	basic
	Output power in watts group 2				
DA54	Output Apparent Power	AC Outputs	AC Output 2	VA	basic
	Output apparent power in VA group 2				
DA55	Output Frequency	AC Outputs	AC Output 2	Hz	basic
	Output Frequency in hertz group 2				
DA56	Loading Ratio - Available Power in W	AC Outputs	AC Output 2	%	basic
	Ratio between output load and available power expressed in watts group 2				
DA57	Loading Ratio - Available Power in VA	AC Outputs	AC Output 2	%	basic
	Ratio between output load and available power expressed in VA group 2				
DA58	Loading Ratio - Installed Power in W	AC Outputs	AC Output 2	%	basic
	Ratio between output load and installed power expressed in watts group 2				
DA59	Loading Ratio - Installed Power in VA	AC Outputs	AC Output 2	%	basic
	Ratio between output load and installed power expressed in VA group 2				
DA60	Number Of Modules Configured	AC Outputs	AC Output 2		basic
	Number of modules configured for the phase 2				
DA61	Amount of redundancy configured	AC Outputs	AC Output 2		basic
	Amount of redundancy configured in the phase 2				
DA62	DC Input Power	AC Outputs	AC Output 2	Watt	basic
	DC input power for group 2				
DA63	AC Input Power in W	AC Outputs	AC Output 2	Watt	basic
	AC input power (W) for group 2				
DA64	AC Input Power in VA	AC Outputs	AC Output 2	VA	basic
	AC input power (VA) for group 2				
DA65	Installed Power in W	AC Outputs	AC Output 2	Watt	basic
	Installed power value in watts for group 2				
DA66	Installed Power in VA	AC Outputs	AC Output 2	VA	basic
	Installed power value in VA for group 2				
DA67	Available Power in W	AC Outputs	AC Output 2	Watt	basic
	Available power value in watts for group 2				
DA68	Available Power in VA	AC Outputs	AC Output 2	VA	basic
	Available power value in VA for group 2				
DA69	Number Of Module Seen	AC Outputs	AC Output 2		basic
	Number of modules seen by T2S for group 2				
DA70	Number Of Modules delivering output	AC Outputs	AC Output 2		basic
	Number of modules delivering output for group 2				
DA71	Number Of Modules manually off	AC Outputs	AC Output 2		basic
	Number of modules manually off for group 2				
DA72	Number Of Module In Failure	AC Outputs	AC Output 2		basic

	Number of modules in failure for group 2				
DA73	Number Of Module not seen by T2S	AC Outputs	AC Output 2		basic
	Number of modules not seen by T2S for group 2				
DA101	Output Voltage	AC Outputs	AC Output 3	Volt	basic
	Output Voltage in volts group 3				
DA102	Output Current	AC Outputs	AC Output 3	Ampere	basic
	Output Current in amperes group 3				
DA103	Output Power	AC Outputs	AC Output 3	Watt	basic
	Output power in watts group 3				
DA104	Output Apparent Power	AC Outputs	AC Output 3	VA	basic
	Output apparent power in VA group 3				
DA105	Output Frequency	AC Outputs	AC Output 3	Hz	basic
	Output Frequency in hertz group 3				
DA106	Loading Ratio - Available Power in W	AC Outputs	AC Output 3	%	basic
	Ratio between output load and available power expressed in watts group 3				
DA107	Loading Ratio - Available Power in VA	AC Outputs	AC Output 3	%	basic
	Ratio between output load and available power expressed in VA group 3				
DA108	Loading Ratio - Installed Power in W	AC Outputs	AC Output 3	%	basic
	Ratio between output load and installed power expressed in watts group 3				
DA109	Loading Ratio - Installed Power in VA	AC Outputs	AC Output 3	%	basic
	Ratio between output load and installed power expressed in VA group 3				
DA110	Number Of Modules Configured	AC Outputs	AC Output 3		basic
	Number of modules configured for the phase 3				
DA111	Amount of redundancy configured	AC Outputs	AC Output 3		basic
	Amount of redundancy configured in the phase 3				
DA112	DC Input Power	AC Outputs	AC Output 3	Watt	basic
	DC input power for group 3				
DA113	AC Input Power in W	AC Outputs	AC Output 3	Watt	basic
	AC input power (W) for group 3				
DA114	AC Input Power in VA	AC Outputs	AC Output 3	VA	basic
	AC input power (VA) for group 3				
DA115	Installed Power in W	AC Outputs	AC Output 3	Watt	basic
	Installed power value in watts for group 3				
DA116	Installed Power in VA	AC Outputs	AC Output 3	VA	basic
	Installed power value in VA for group 3				
DA117	Available Power in W	AC Outputs	AC Output 3	Watt	basic
	Available power value in watts for group 3				
DA118	Available Power in VA	AC Outputs	AC Output 3	VA	basic
	Available power value in VA for group 3				
DA119	Number Of Module Seen	AC Outputs	AC Output 3		basic
	Number of modules seen by T2S for group 3				
DA120	Number Of Modules delivering output	AC Outputs	AC Output 3		basic
	Number of modules delivering output for group 3				
DA121	Number Of Modules manually off	AC Outputs	AC Output 3		basic

	Number of modules manually off for group 3				
DA122	Number Of Module In Failure	AC Outputs	AC Output 3		basic
	Number of modules in failure for group 3				
DA123	Number Of Module not seen by T2S	AC Outputs	AC Output 3		basic
	Number of modules not seen by T2S for group 3				
DA151	Output Voltage	AC Outputs	AC Output 4	Volt	basic
	Output Voltage in volts group 4				
DA152	Output Current	AC Outputs	AC Output 4	Ampere	basic
	Output Current in amperes group 4				
DA153	Output Power	AC Outputs	AC Output 4	Watt	basic
	Output power in watts group 4				
DA154	Output Apparent Power	AC Outputs	AC Output 4	VA	basic
	Output apparent power in VA group 4				
DA155	Output Frequency	AC Outputs	AC Output 4	Hz	basic
	Output Frequency in hertz group 4				
DA156	Loading Ratio - Available Power in W	AC Outputs	AC Output 4	%	basic
	Ratio between output load and available power expressed in watts group 4				
DA157	Loading Ratio - Available Power in VA	AC Outputs	AC Output 4	%	basic
	Ratio between output load and available power expressed in VA group 4				
DA158	Loading Ratio - Installed Power in W	AC Outputs	AC Output 4	%	basic
	Ratio between output load and installed power expressed in watts group 4				
DA159	Loading Ratio - Installed Power in VA	AC Outputs	AC Output 4	%	basic
	Ratio between output load and installed power expressed in VA group 4				
DA160	Number Of Modules Configured	AC Outputs	AC Output 4		basic
	Number of modules configured for the phase 4				
DA161	Amount of redundancy configured	AC Outputs	AC Output 4		basic
	Amount of redundancy configured in the phase 4				
DA162	DC Input Power	AC Outputs	AC Output 4	Watt	basic
	DC input power for group 4				
DA163	AC Input Power in W	AC Outputs	AC Output 4	Watt	basic
	AC input power (W) for group 4				
DA164	AC Input Power in VA	AC Outputs	AC Output 4	VA	basic
	AC input power (VA) for group 4				
DA165	Installed Power in W	AC Outputs	AC Output 4	Watt	basic
	Installed power value in watts for group 4				
DA166	Installed Power in VA	AC Outputs	AC Output 4	VA	basic
	Installed power value in VA for group 4				
DA167	Available Power in W	AC Outputs	AC Output 4	Watt	basic
	Available power value in watts for group 4				
DA168	Available Power in VA	AC Outputs	AC Output 4	VA	basic
	Available power value in VA for group 4				
DA169	Number Of Module Seen	AC Outputs	AC Output 4		basic
	Number of modules seen by T2S for group 4				
DA170	Number Of Modules delivering output	AC Outputs	AC Output 4		basic

	Number of modules delivering output for group 4				
DA171	Number Of Modules manually off	AC Outputs	AC Output 4		basic
	Number of modules manually off for group 4				
DA172	Number Of Module In Failure	AC Outputs	AC Output 4		basic
	Number of modules in failure for group 4				
DA173	Number Of Module not seen by T2S	AC Outputs	AC Output 4		basic
	Number of modules not seen by T2S for group 4				
DA201	Output Voltage	AC Outputs	AC Output 5	Volt	basic
	Output Voltage in volts group 5				
DA202	Output Current	AC Outputs	AC Output 5	Ampere	basic
	Output Current in amperes group 5				
DA203	Output Power	AC Outputs	AC Output 5	Watt	basic
	Output power in watts group 5				
DA204	Output Apparent Power	AC Outputs	AC Output 5	VA	basic
	Output apparent power in VA group 5				
DA205	Output Frequency	AC Outputs	AC Output 5	Hz	basic
	Output Frequency in hertz group 5				
DA206	Loading Ratio - Available Power in W	AC Outputs	AC Output 5	%	basic
	Ratio between output load and available power expressed in watts group 5				
DA207	Loading Ratio - Available Power in VA	AC Outputs	AC Output 5	%	basic
	Ratio between output load and available power expressed in VA group 5				
DA208	Loading Ratio - Installed Power in W	AC Outputs	AC Output 5	%	basic
	Ratio between output load and installed power expressed in watts group 5				
DA209	Loading Ratio - Installed Power in VA	AC Outputs	AC Output 5	%	basic
	Ratio between output load and installed power expressed in VA group 5				
DA210	Number Of Modules Configured	AC Outputs	AC Output 5		basic
	Number of modules configured for the phase 5				
DA211	Amount of redundancy configured	AC Outputs	AC Output 5		basic
	Amount of redundancy configured in the phase 5				
DA212	DC Input Power	AC Outputs	AC Output 5	Watt	basic
	DC input power for group 5				
DA213	AC Input Power in W	AC Outputs	AC Output 5	Watt	basic
	AC input power (W) for group 5				
DA214	AC Input Power in VA	AC Outputs	AC Output 5	VA	basic
	AC input power (VA) for group 5				
DA215	Installed Power in W	AC Outputs	AC Output 5	Watt	basic
	Installed power value in watts for group 5				
DA216	Installed Power in VA	AC Outputs	AC Output 5	VA	basic
	Installed power value in VA for group 5				
DA217	Available Power in W	AC Outputs	AC Output 5	Watt	basic
	Available power value in watts for group 5				
DA218	Available Power in VA	AC Outputs	AC Output 5	VA	basic
	Available power value in VA for group 5				
DA219	Number Of Module Seen	AC Outputs	AC Output 5		basic
	Number of modules seen by T2S for group 5				

DA220	Number Of Modules delivering output	AC Outputs	AC Output 5		basic
	Number of modules delivering output for group 5				
DA221	Number Of Modules manually off	AC Outputs	AC Output 5		basic
	Number of modules manually off for group 5				
DA222	Number Of Module In Failure	AC Outputs	AC Output 5		basic
	Number of modules in failure for group 5				
DA223	Number Of Module not seen by T2S	AC Outputs	AC Output 5		basic
	Number of modules not seen by T2S for group 5				
DA251	Output Voltage	AC Outputs	AC Output 6	Volt	basic
	Output Voltage in volts group 6				
DA252	Output Current	AC Outputs	AC Output 6	Ampere	basic
	Output Current in amperes group 6				
DA253	Output Power	AC Outputs	AC Output 6	Watt	basic
	Output power in watts group 6				
DA254	Output Apparent Power	AC Outputs	AC Output 6	VA	basic
	Output apparent power in VA group 6				
DA255	Output Frequency	AC Outputs	AC Output 6	Hz	basic
	Output Frequency in hertz group 6				
DA256	Loading Ratio - Available Power in W	AC Outputs	AC Output 6	%	basic
	Ratio between output load and available power expressed in watts group 6				
DA257	Loading Ratio - Available Power in VA	AC Outputs	AC Output 6	%	basic
	Ratio between output load and available power expressed in VA group 6				
DA258	Loading Ratio - Installed Power in W	AC Outputs	AC Output 6	%	basic
	Ratio between output load and installed power expressed in watts group 6				
DA259	Loading Ratio - Installed Power in VA	AC Outputs	AC Output 6	%	basic
	Ratio between output load and installed power expressed in VA group 6				
DA260	Number Of Modules Configured	AC Outputs	AC Output 6		basic
	Number of modules configured for the phase 6				
DA261	Amount of redundancy configured	AC Outputs	AC Output 6		basic
	Amount of redundancy configured in the phase 6				
DA262	DC Input Power	AC Outputs	AC Output 6	Watt	basic
	DC input power for group 6				
DA263	AC Input Power in W	AC Outputs	AC Output 6	Watt	basic
	AC input power (W) for group 6				
DA264	AC Input Power in VA	AC Outputs	AC Output 6	VA	basic
	AC input power (VA) for group 6				
DA265	Installed Power in W	AC Outputs	AC Output 6	Watt	basic
	Installed power value in watts for group 6				
DA266	Installed Power in VA	AC Outputs	AC Output 6	VA	basic
	Installed power value in VA for group 6				
DA267	Available Power in W	AC Outputs	AC Output 6	Watt	basic
	Available power value in watts for group 6				
DA268	Available Power in VA	AC Outputs	AC Output 6	VA	basic
	Available power value in VA for group 6				

DA269	Number Of Module Seen	AC Outputs	AC Output 6		basic
	Number of modules seen by T2S for group 6				
DA270	Number Of Modules delivering output	AC Outputs	AC Output 6		basic
	Number of modules delivering output for group 6				
DA271	Number Of Modules manually off	AC Outputs	AC Output 6		basic
	Number of modules manually off for group 6				
DA272	Number Of Module In Failure	AC Outputs	AC Output 6		basic
	Number of modules in failure for group 6				
DA273	Number Of Module not seen by T2S	AC Outputs	AC Output 6		basic
	Number of modules not seen by T2S for group 6				
DA301	Output Voltage	AC Outputs	AC Output 7	Volt	basic
	Output Voltage in volts group 7				
DA302	Output Current	AC Outputs	AC Output 7	Ampere	basic
	Output Current in amperes group 7				
DA303	Output Power	AC Outputs	AC Output 7	Watt	basic
	Output power in watts group 7				
DA304	Output Apparent Power	AC Outputs	AC Output 7	VA	basic
	Output apparent power in VA group 7				
DA305	Output Frequency	AC Outputs	AC Output 7	Hz	basic
	Output Frequency in hertz group 7				
DA306	Loading Ratio - Available Power in W	AC Outputs	AC Output 7	%	basic
	Ratio between output load and available power expressed in watts group 7				
DA307	Loading Ratio - Available Power in VA	AC Outputs	AC Output 7	%	basic
	Ratio between output load and available power expressed in VA group 7				
DA308	Loading Ratio - Installed Power in W	AC Outputs	AC Output 7	%	basic
	Ratio between output load and installed power expressed in watts group 7				
DA309	Loading Ratio - Installed Power in VA	AC Outputs	AC Output 7	%	basic
	Ratio between output load and installed power expressed in VA group 7				
DA310	Number Of Modules Configured	AC Outputs	AC Output 7		basic
	Number of modules configured for the phase 7				
DA311	Amount of redundancy configured	AC Outputs	AC Output 7		basic
	Amount of redundancy configured in the phase 7				
DA312	DC Input Power	AC Outputs	AC Output 7	Watt	basic
	DC input power for group 7				
DA313	AC Input Power in W	AC Outputs	AC Output 7	Watt	basic
	AC input power (W) for group 7				
DA314	AC Input Power in VA	AC Outputs	AC Output 7	VA	basic
	AC input power (VA) for group 7				
DA315	Installed Power in W	AC Outputs	AC Output 7	Watt	basic
	Installed power value in watts for group 7				
DA316	Installed Power in VA	AC Outputs	AC Output 7	VA	basic
	Installed power value in VA for group 7				
DA317	Available Power in W	AC Outputs	AC Output 7	Watt	basic
	Available power value in watts for group 7				

DA318	Available Power in VA	AC Outputs	AC Output 7	VA	basic
	Available power value in VA for group 7				
DA319	Number Of Module Seen	AC Outputs	AC Output 7		basic
	Number of modules seen by T2S for group 7				
DA320	Number Of Modules delivering output	AC Outputs	AC Output 7		basic
	Number of modules delivering output for group 7				
DA321	Number Of Modules manually off	AC Outputs	AC Output 7		basic
	Number of modules manually off for group 7				
DA322	Number Of Module In Failure	AC Outputs	AC Output 7		basic
	Number of modules in failure for group 7				
DA323	Number Of Module not seen by T2S	AC Outputs	AC Output 7		basic
	Number of modules not seen by T2S for group 7				
DA351	Output Voltage	AC Outputs	AC Output 8	Volt	basic
	Output Voltage in volts group 8				
DA352	Output Current	AC Outputs	AC Output 8	Ampere	basic
	Output Current in amperes group 8				
DA353	Output Power	AC Outputs	AC Output 8	Watt	basic
	Output power in watts group 8				
DA354	Output Apparent Power	AC Outputs	AC Output 8	VA	basic
	Output apparent power in VA group 8				
DA355	Output Frequency	AC Outputs	AC Output 8	Hz	basic
	Output Frequency in hertz group 8				
DA356	Loading Ratio - Available Power in W	AC Outputs	AC Output 8	%	basic
	Ratio between output load and available power expressed in watts group 8				
DA357	Loading Ratio - Available Power in VA	AC Outputs	AC Output 8	%	basic
	Ratio between output load and available power expressed in VA group 8				
DA358	Loading Ratio - Installed Power in W	AC Outputs	AC Output 8	%	basic
	Ratio between output load and installed power expressed in watts group 8				
DA359	Loading Ratio - Installed Power in VA	AC Outputs	AC Output 8	%	basic
	Ratio between output load and installed power expressed in VA group 8				
DA360	Number Of Modules Configured	AC Outputs	AC Output 8		basic
	Number of modules configured for the phase 8				
DA361	Amount of redundancy configured	AC Outputs	AC Output 8		basic
	Amount of redundancy configured in the phase 8				
DA362	DC Input Power	AC Outputs	AC Output 8	Watt	basic
	DC input power for group 8				
DA363	AC Input Power in W	AC Outputs	AC Output 8	Watt	basic
	AC input power (W) for group 8				
DA364	AC Input Power in VA	AC Outputs	AC Output 8	VA	basic
	AC input power (VA) for group 8				
DA365	Installed Power in W	AC Outputs	AC Output 8	Watt	basic
	Installed power value in watts for group 8				
DA366	Installed Power in VA	AC Outputs	AC Output 8	VA	basic
	Installed power value in VA for group 8				

DA367	Available Power in W	AC Outputs	AC Output 8	Watt	basic
	Available power value in watts for group 8				
DA368	Available Power in VA	AC Outputs	AC Output 8	VA	basic
	Available power value in VA for group 8				
DA369	Number Of Module Seen	AC Outputs	AC Output 8		basic
	Number of modules seen by T2S for group 8				
DA370	Number Of Modules delivering output	AC Outputs	AC Output 8		basic
	Number of modules delivering output for group 8				
DA371	Number Of Modules manually off	AC Outputs	AC Output 8		basic
	Number of modules manually off for group 8				
DA372	Number Of Module In Failure	AC Outputs	AC Output 8		basic
	Number of modules in failure for group 8				
DA373	Number Of Module not seen by T2S	AC Outputs	AC Output 8		basic
	Number of modules not seen by T2S for group 8				
DA401	Input Voltage	AC Inputs	AC Input 1	Volt	basic
	AC input voltage value (V) group 1				
DA402	Input Current	AC Inputs	AC Input 1	Ampere	basic
	AC input current value (A) group 1				
DA403	Input Power	AC Inputs	AC Input 1	Watt	basic
	AC input power value (W) group 1				
DA404	Input Apparent Power	AC Inputs	AC Input 1	VA	basic
	AC input apparent power value (VA) group 1				
DA405	Input Frequency	AC Inputs	AC Input 1	Hz	basic
	AC input frequency (Hz) group 1				
DA406	Number Of Modules delivering output	AC Inputs	AC Input 1		basic
	Number of modules that are delivering output in the group 1				
DA407	Number Of Modules manually off	AC Inputs	AC Input 1		basic
	Number of modules manually off in the group 1				
DA408	Number Of Modules in failure	AC Inputs	AC Input 1		basic
	Number of modules that are not delivering output due to a failure in the group 1				
DA409	Number Of Module Seen	AC Inputs	AC Input 1		basic
	Number of modules seen by T2S in the group 1				
DA410	Number Of Modules stating AC input OK	AC Inputs	AC Input 1		basic
	Number of modules stating AC input is OK group 1				
DA426	Input Voltage	AC Inputs	AC Input 2	Volt	basic
	AC input voltage value (V) group 2				
DA427	Input Current	AC Inputs	AC Input 2	Ampere	basic
	AC input current value (A) group 2				
DA428	Input Power	AC Inputs	AC Input 2	Watt	basic
	AC input power value (W) group 2				
DA429	Input Apparent Power	AC Inputs	AC Input 2	VA	basic
	AC input apparent power value (VA) group 2				
DA430	Input Frequency	AC Inputs	AC Input 2	Hz	basic
	AC input frequency (Hz) group 2				
DA431	Number Of Modules delivering output	AC Inputs	AC Input 2		basic

	Number of modules that are delivering output in the group 2				
DA432	Number Of Modules manually off	AC Inputs	AC Input 2		basic
	Number of modules manually off in the group 2				
DA433	Number Of Modules in failure	AC Inputs	AC Input 2		basic
	Number of modules that are not delivering output due to a failure in the group 2				
DA434	Number Of Module Seen	AC Inputs	AC Input 2		basic
	Number of modules seen by T2S in the group 2				
DA435	Number Of Modules stating AC input OK	AC Inputs	AC Input 2		basic
	Number of modules stating AC input is OK group 2				
DA451	Input Voltage	AC Inputs	AC Input 3	Volt	basic
	AC input voltage value (V) group 3				
DA452	Input Current	AC Inputs	AC Input 3	Ampere	basic
	AC input current value (A) group 3				
DA453	Input Power	AC Inputs	AC Input 3	Watt	basic
	AC input power value (W) group 3				
DA454	Input Apparent Power	AC Inputs	AC Input 3	VA	basic
	AC input apparent power value (VA) group 3				
DA455	Input Frequency	AC Inputs	AC Input 3	Hz	basic
	AC input frequency (Hz) group 3				
DA456	Number Of Modules delivering output	AC Inputs	AC Input 3		basic
	Number of modules that are delivering output in the group 3				
DA457	Number Of Modules manually off	AC Inputs	AC Input 3		basic
	Number of modules manually off in the group 3				
DA458	Number Of Modules in failure	AC Inputs	AC Input 3		basic
	Number of modules that are not delivering output due to a failure in the group 3				
DA459	Number Of Module Seen	AC Inputs	AC Input 3		basic
	Number of modules seen by T2S in the group 3				
DA460	Number Of Modules stating AC input OK	AC Inputs	AC Input 3		basic
	Number of modules stating AC input is OK group 3				
DA476	Input Voltage	AC Inputs	AC Input 4	Volt	basic
	AC input voltage value (V) group 4				
DA477	Input Current	AC Inputs	AC Input 4	Ampere	basic
	AC input current value (A) group 4				
DA478	Input Power	AC Inputs	AC Input 4	Watt	basic
	AC input power value (W) group 4				
DA479	Input Apparent Power	AC Inputs	AC Input 4	VA	basic
	AC input apparent power value (VA) group 4				
DA480	Input Frequency	AC Inputs	AC Input 4	Hz	basic
	AC input frequency (Hz) group 4				
DA481	Number Of Modules delivering output	AC Inputs	AC Input 4		basic
	Number of modules that are delivering output in the group 4				
DA482	Number Of Modules manually off	AC Inputs	AC Input 4		basic
	Number of modules manually off in the group 4				
DA483	Number Of Modules in failure	AC Inputs	AC Input 4		basic
	Number of modules that are not delivering output due to a failure in the group 4				

DA484	Number Of Module Seen	AC Inputs	AC Input 4		basic
	Number of modules seen by T2S in the group 4				
DA485	Number Of Modules stating AC input OK	AC Inputs	AC Input 4		basic
	Number of modules stating AC input is OK group 4				
DA501	Input Current	DC Inputs	DC Input 1	Ampere	basic
	DC input current value in amperes group 1				
DA502	Input Power	DC Inputs	DC Input 1	Watt	basic
	DC input power value in watts group 1				
DA503	Input Voltage	DC Inputs	DC Input 1	Volt	basic
	DC input voltage value in volt group 1				
DA526	Input Current	DC Inputs	DC Input 2	Ampere	basic
	DC input current value in amperes group 2				
DA527	Input Power	DC Inputs	DC Input 2	Watt	basic
	DC input power value in watts group 2				
DA528	Input Voltage	DC Inputs	DC Input 2	Volt	basic
	DC input voltage value in volt group 2				
DA551	Input Current	DC Inputs	DC Input 3	Ampere	basic
	DC input current value in amperes group 3				
DA552	Input Power	DC Inputs	DC Input 3	Watt	basic
	DC input power value in watts group 3				
DA553	Input Voltage	DC Inputs	DC Input 3	Volt	basic
	DC input voltage value in volt group 3				
DA576	Input Current	DC Inputs	DC Input 4	Ampere	basic
	DC input current value in amperes group 4				
DA577	Input Power	DC Inputs	DC Input 4	Watt	basic
	DC input power value in watts group 4				
DA578	Input Voltage	DC Inputs	DC Input 4	Volt	basic
	DC input voltage value in volt group 4				
DA601	Input Current	DC Inputs	DC Input 5	Ampere	basic
	DC input current value in amperes group 5				
DA602	Input Power	DC Inputs	DC Input 5	Watt	basic
	DC input power value in watts group 5				
DA603	Input Voltage	DC Inputs	DC Input 5	Volt	basic
	DC input voltage value in volt group 5				
DA626	Input Current	DC Inputs	DC Input 6	Ampere	basic
	DC input current value in amperes group 6				
DA627	Input Power	DC Inputs	DC Input 6	Watt	basic
	DC input power value in watts group 6				
DA628	Input Voltage	DC Inputs	DC Input 6	Volt	basic
	DC input voltage value in volt group 6				
DA651	Input Current	DC Inputs	DC Input 7	Ampere	basic
	DC input current value in amperes group 7				
DA652	Input Power	DC Inputs	DC Input 7	Watt	basic
	DC input power value in watts group 7				
DA653	Input Voltage	DC Inputs	DC Input 7	Volt	basic
	DC input voltage value in volt group 7				
DA676	Input Current	DC Inputs	DC Input 8	Ampere	basic
	DC input current value in amperes group 8				

DA677	Input Power	DC Inputs	DC Input 8	Watt	basic
	DC input power value in watts group 8				
DA678	Input Voltage	DC Inputs	DC Input 8	Volt	basic
	DC input voltage value in volt group 8				
DA701	Alarm Id List	Error List			basic
	List of active manufacturer specific alarms				
DA702	Alarm Name List	Error List			basic
	List of active manufacturer specific alarms				

Config Table						
<i>Id</i>	<i>Name</i>	<i>Group</i>	<i>SubGroup</i>	<i>Unit</i>	<i>Range: Min/Max (default)</i>	<i>License</i>
CF1	Number of AC Output Groups To Configure	Inverter System	Group Config			basic
	Number of AC output groups that must be displayed in configuration					
CF2	Number of AC Input Groups To Configure	Inverter System	Group Config			basic
	Number of AC input groups that must be displayed in configuration					
CF3	Number of DC Input Groups To Configure	Inverter System	Group Config			basic
	Number of DC input groups that must be displayed in configuration					
CF5	Input Ratio On DC	Inverter System				basic
	0-100 : 0 full AC, 100 full DC					
CF21	AC Input Frequency Low Start	AC Inputs	Input Frequency	Hz	0/1000 (0)	basic
	The AC frequency low start in hertz.					
CF22	AC Input Frequency Low Stop	AC Inputs	Input Frequency	Hz	0/1000 (0)	basic
	The AC frequency low stop in hertz.					
CF23	AC Input Frequency High Start	AC Inputs	Input Frequency	Hz	0/1000 (0)	basic
	The AC frequency high start in hertz.					
CF24	AC Input Frequency High Stop	AC Inputs	Input Frequency	Hz	0/1000 (0)	basic
	The AC frequency high stop in hertz.					
CF101	Number of Modules	AC Outputs	AC Output 1			basic
	The number of modules in phase 1					
CF102	Amount of Redundancy	AC Outputs	AC Output 1			basic
	The amount of redundancy in phase 1					
CF103	Phase Shift	AC Outputs	AC Output 1	degree		basic
	The phase shift in degrees in phase 1					
CF104	Nominal Output Voltage	AC Outputs	AC Output 1	Volt	0/250 (120)	basic
	The output voltage 1 in volts phase 1					
CF111	Number of Modules	AC Outputs	AC Output 2			basic
	The number of modules in phase 2					
CF112	Amount of Redundancy	AC Outputs	AC Output 2			basic
	The amount of redundancy in phase 2					
CF113	Phase Shift	AC Outputs	AC Output 2	degree		basic
	The phase shift in degrees in phase 2					
CF114	Nominal Output Voltage	AC Outputs	AC Output 2	Volt	0/250 (120)	basic

	The output voltage 1 in volts phase 2					
CF121	Number of Modules	AC Outputs	AC Output 3			basic
	The number of modules in phase 3					
CF122	Amount of Redundancy	AC Outputs	AC Output 3			basic
	The amount of redundancy in phase 3					
CF123	Phase Shift	AC Outputs	AC Output 3	degree		basic
	The phase shift in degrees in phase 3					
CF124	Nominal Output Voltage	AC Outputs	AC Output 3	Volt	0/250 (120)	basic
	The output voltage 1 in volts phase 3					
CF131	Number of Modules	AC Outputs	AC Output 4			basic
	The number of modules in phase 4					
CF132	Amount of Redundancy	AC Outputs	AC Output 4			basic
	The amount of redundancy in phase 4					
CF133	Phase Shift	AC Outputs	AC Output 4	degree		basic
	The phase shift in degrees in phase 4					
CF134	Nominal Output Voltage	AC Outputs	AC Output 4	Volt	0/250 (120)	basic
	The output voltage 1 in volts phase 4					
CF141	Number of Modules	AC Outputs	AC Output 5			basic
	The number of modules in phase 5					
CF142	Amount of Redundancy	AC Outputs	AC Output 5			basic
	The amount of redundancy in phase 5					
CF143	Phase Shift	AC Outputs	AC Output 5	degree		basic
	The phase shift in degrees in phase 5					
CF144	Nominal Output Voltage	AC Outputs	AC Output 5	Volt	0/250 (120)	basic
	The output voltage 1 in volts phase 5					
CF151	Number of Modules	AC Outputs	AC Output 6			basic
	The number of modules in phase 6					
CF152	Amount of Redundancy	AC Outputs	AC Output 6			basic
	The amount of redundancy in phase 6					
CF153	Phase Shift	AC Outputs	AC Output 6	degree		basic
	The phase shift in degrees in phase 6					
CF154	Nominal Output Voltage	AC Outputs	AC Output 6	Volt	0/250 (120)	basic
	The output voltage 1 in volts phase 6					
CF161	Number of Modules	AC Outputs	AC Output 7			basic
	The number of modules in phase 7					
CF162	Amount of Redundancy	AC Outputs	AC Output 7			basic
	The amount of redundancy in phase 7					
CF163	Phase Shift	AC Outputs	AC Output 7	degree		basic
	The phase shift in degrees in phase 7					
CF164	Nominal Output Voltage	AC Outputs	AC Output 7	Volt	0/250 (120)	basic
	The output voltage 1 in volts phase 7					
CF171	Number of Modules	AC Outputs	AC Output 8			basic
	The number of modules in phase 8					
CF172	Amount of Redundancy	AC Outputs	AC Output 8			basic
	The amount of redundancy in phase 8					
CF173	Phase Shift	AC Outputs	AC Output 8	degree		basic
	The phase shift in degrees in phase 8					
CF174	Nominal Output Voltage	AC Outputs	AC Output 8	Volt	0/250 (120)	basic

	The output voltage 1 in volts phase 8					
CF201	Vac In Low Start	AC Inputs	AC Input 1	Volt	0/300 (0)	basic
	The AC input low start in volts group 1					
CF202	Vac In Low Transfer	AC Inputs	AC Input 1	Volt	0/300 (0)	basic
	The AC input low transfer in volts group 1					
CF203	Vac In Low Stop	AC Inputs	AC Input 1	Volt	0/300 (0)	basic
	The AC input low stop in volts group 1					
CF204	Vac In High Start	AC Inputs	AC Input 1	Volt	0/300 (0)	basic
	The AC input high start in volts group 1					
CF205	Vac In High Transfer	AC Inputs	AC Input 1	Volt	0/300 (0)	basic
	The AC input high transfer in volts group 1					
CF206	Vac In High Stop	AC Inputs	AC Input 1	Volt	0/300 (0)	basic
	The AC input high stop in volts group 1					
CF211	Vac In Low Start	AC Inputs	AC Input 2	Volt	0/300 (0)	basic
	The AC input low start in volts group 2					
CF212	Vac In Low Transfer	AC Inputs	AC Input 2	Volt	0/300 (0)	basic
	The AC input low transfer in volts group 2					
CF213	Vac In Low Stop	AC Inputs	AC Input 2	Volt	0/300 (0)	basic
	The AC input low stop in volts group 2					
CF214	Vac In High Start	AC Inputs	AC Input 2	Volt	0/300 (0)	basic
	The AC input high start in volts group 2					
CF215	Vac In High Transfer	AC Inputs	AC Input 2	Volt	0/300 (0)	basic
	The AC input high transfer in volts group 2					
CF216	Vac In High Stop	AC Inputs	AC Input 2	Volt	0/300 (0)	basic
	The AC input high stop in volts group 2					
CF221	Vac In Low Start	AC Inputs	AC Input 3	Volt	0/300 (0)	basic
	The AC input low start in volts group 3					
CF222	Vac In Low Transfer	AC Inputs	AC Input 3	Volt	0/300 (0)	basic
	The AC input low transfer in volts group 3					
CF223	Vac In Low Stop	AC Inputs	AC Input 3	Volt	0/300 (0)	basic
	The AC input low stop in volts group 3					
CF224	Vac In High Start	AC Inputs	AC Input 3	Volt	0/300 (0)	basic
	The AC input high start in volts group 3					
CF225	Vac In High Transfer	AC Inputs	AC Input 3	Volt	0/300 (0)	basic
	The AC input high transfer in volts group 3					
CF226	Vac In High Stop	AC Inputs	AC Input 3	Volt	0/300 (0)	basic
	The AC input high stop in volts group 3					
CF231	Vac In Low Start	AC Inputs	AC Input 4	Volt	0/300 (0)	basic
	The AC input low start in volts group 4					
CF232	Vac In Low Transfer	AC Inputs	AC Input 4	Volt	0/300 (0)	basic
	The AC input low transfer in volts group 4					
CF233	Vac In Low Stop	AC Inputs	AC Input 4	Volt	0/300 (0)	basic
	The AC input low stop in volts group 4					
CF234	Vac In High Start	AC Inputs	AC Input 4	Volt	0/300 (0)	basic
	The AC input high start in volts group 4					
CF235	Vac In High Transfer	AC Inputs	AC Input 4	Volt	0/300 (0)	basic
	The AC input high transfer in volts group 4					
CF236	Vac In High Stop	AC Inputs	AC Input 4	Volt	0/300 (0)	basic

	The AC input high stop in volts group 4					
CF301	Vdc In Low Start	DC Inputs	DC Input 1	Volt	0/80 (0)	basic
	The DC input low start in volts group 1					
CF302	Vdc In Low Transfer	DC Inputs	DC Input 1	Volt	0/80 (0)	basic
	The DC input low transfer in volts group 1					
CF303	Vdc In Low Stop	DC Inputs	DC Input 1	Volt	0/80 (0)	basic
	The DC input low stop in volts group 1					
CF304	Vdc In High Start	DC Inputs	DC Input 1	Volt	0/80 (0)	basic
	The DC input high start in volts group 1					
CF305	Vdc In High Transfer	DC Inputs	DC Input 1	Volt	0/80 (0)	basic
	The DC input high transfer in volts group 1					
CF306	Vdc In High Stop	DC Inputs	DC Input 1	Volt	0/80 (0)	basic
	The DC input high stop in volts group 1					
CF311	Vdc In Low Start	DC Inputs	DC Input 2	Volt	0/80 (0)	basic
	The DC input low start in volts group 2					
CF312	Vdc In Low Transfer	DC Inputs	DC Input 2	Volt	0/80 (0)	basic
	The DC input low transfer in volts group 2					
CF313	Vdc In Low Stop	DC Inputs	DC Input 2	Volt	0/80 (0)	basic
	The DC input low stop in volts group 2					
CF314	Vdc In High Start	DC Inputs	DC Input 2	Volt	0/80 (0)	basic
	The DC input high start in volts group 2					
CF315	Vdc In High Transfer	DC Inputs	DC Input 2	Volt	0/80 (0)	basic
	The DC input high transfer in volts group 2					
CF316	Vdc In High Stop	DC Inputs	DC Input 2	Volt	0/80 (0)	basic
	The DC input high stop in volts group 2					
CF321	Vdc In Low Start	DC Inputs	DC Input 3	Volt	0/80 (0)	basic
	The DC input low start in volts group 3					
CF322	Vdc In Low Transfer	DC Inputs	DC Input 3	Volt	0/80 (0)	basic
	The DC input low transfer in volts group 3					
CF323	Vdc In Low Stop	DC Inputs	DC Input 3	Volt	0/80 (0)	basic
	The DC input low stop in volts group 3					
CF324	Vdc In High Start	DC Inputs	DC Input 3	Volt	0/80 (0)	basic
	The DC input high start in volts group 3					
CF325	Vdc In High Transfer	DC Inputs	DC Input 3	Volt	0/80 (0)	basic
	The DC input high transfer in volts group 3					
CF326	Vdc In High Stop	DC Inputs	DC Input 3	Volt	0/80 (0)	basic
	The DC input high stop in volts group 3					
CF331	Vdc In Low Start	DC Inputs	DC Input 4	Volt	0/80 (0)	basic
	The DC input low start in volts group 4					
CF332	Vdc In Low Transfer	DC Inputs	DC Input 4	Volt	0/80 (0)	basic
	The DC input low transfer in volts group 4					
CF333	Vdc In Low Stop	DC Inputs	DC Input 4	Volt	0/80 (0)	basic
	The DC input low stop in volts group 4					
CF334	Vdc In High Start	DC Inputs	DC Input 4	Volt	0/80 (0)	basic
	The DC input high start in volts group 4					
CF335	Vdc In High Transfer	DC Inputs	DC Input 4	Volt	0/80 (0)	basic
	The DC input high transfer in volts group 4					
CF336	Vdc In High Stop	DC Inputs	DC Input 4	Volt	0/80 (0)	basic

	The DC input high stop in volts group 4					
CF341	Vdc In Low Start	DC Inputs	DC Input 5	Volt	0/80 (0)	basic
	The DC input low start in volts group 5					
CF342	Vdc In Low Transfer	DC Inputs	DC Input 5	Volt	0/80 (0)	basic
	The DC input low transfer in volts group 5					
CF343	Vdc In Low Stop	DC Inputs	DC Input 5	Volt	0/80 (0)	basic
	The DC input low stop in volts group 5					
CF344	Vdc In High Start	DC Inputs	DC Input 5	Volt	0/80 (0)	basic
	The DC input high start in volts group 5					
CF345	Vdc In High Transfer	DC Inputs	DC Input 5	Volt	0/80 (0)	basic
	The DC input high transfer in volts group 5					
CF346	Vdc In High Stop	DC Inputs	DC Input 5	Volt	0/80 (0)	basic
	The DC input high stop in volts group 5					
CF351	Vdc In Low Start	DC Inputs	DC Input 6	Volt	0/80 (0)	basic
	The DC input low start in volts group 6					
CF352	Vdc In Low Transfer	DC Inputs	DC Input 6	Volt	0/80 (0)	basic
	The DC input low transfer in volts group 6					
CF353	Vdc In Low Stop	DC Inputs	DC Input 6	Volt	0/80 (0)	basic
	The DC input low stop in volts group 6					
CF354	Vdc In High Start	DC Inputs	DC Input 6	Volt	0/80 (0)	basic
	The DC input high start in volts group 6					
CF355	Vdc In High Transfer	DC Inputs	DC Input 6	Volt	0/80 (0)	basic
	The DC input high transfer in volts group 6					
CF356	Vdc In High Stop	DC Inputs	DC Input 6	Volt	0/80 (0)	basic
	The DC input high stop in volts group 6					
CF361	Vdc In Low Start	DC Inputs	DC Input 7	Volt	0/80 (0)	basic
	The DC input low start in volts group 7					
CF362	Vdc In Low Transfer	DC Inputs	DC Input 7	Volt	0/80 (0)	basic
	The DC input low transfer in volts group 7					
CF363	Vdc In Low Stop	DC Inputs	DC Input 7	Volt	0/80 (0)	basic
	The DC input low stop in volts group 7					
CF364	Vdc In High Start	DC Inputs	DC Input 7	Volt	0/80 (0)	basic
	The DC input high start in volts group 7					
CF365	Vdc In High Transfer	DC Inputs	DC Input 7	Volt	0/80 (0)	basic
	The DC input high transfer in volts group 7					
CF366	Vdc In High Stop	DC Inputs	DC Input 7	Volt	0/80 (0)	basic
	The DC input high stop in volts group 7					
CF371	Vdc In Low Start	DC Inputs	DC Input 8	Volt	0/80 (0)	basic
	The DC input low start in volts group 8					
CF372	Vdc In Low Transfer	DC Inputs	DC Input 8	Volt	0/80 (0)	basic
	The DC input low transfer in volts group 8					
CF373	Vdc In Low Stop	DC Inputs	DC Input 8	Volt	0/80 (0)	basic
	The DC input low stop in volts group 8					
CF374	Vdc In High Start	DC Inputs	DC Input 8	Volt	0/80 (0)	basic
	The DC input high start in volts group 8					
CF375	Vdc In High Transfer	DC Inputs	DC Input 8	Volt	0/80 (0)	basic
	The DC input high transfer in volts group 8					
CF376	Vdc In High Stop	DC Inputs	DC Input 8	Volt	0/80 (0)	basic

	The DC input high stop in volts group 8

Control Table				
<i>Id</i>	<i>Name</i>	<i>Group</i>	<i>SubGroup</i>	<i>License</i>
CT1	Load Actual Configuration Running on T2S	Inverter System		basic
	This control will reload the configuration of the T2S inside the Configuration Element of the Inverter System. It returns 'command canceled' if all the information is not yet read			
CT2	Save Configuration To T2S	Inverter System		basic
	Save Configuration To T2S			
CT11	Turn All Modules Off	Inverter System		basic
	Turn All Modules Off			
CT12	Turn All Modules On	Inverter System		basic
	Turn All Modules Off			
CT501	Clear My Events	Generic	Events	basic
	By writing '1' to this control element, all the events of this equipment will be cleared.			
CT502	Clear All Events	Generic	Events	basic
	By writing '1' to this control element, all the events of this equipment and all the events of all the sub-equipments will be cleared.			
CT511	Add Event	Generic	Events	basic
	This control element adds an event of severity none. The event name is the text written to this control element			
CT512	Add Major Event	Generic	Events	basic
	This control element adds an event of severity major. The event name is the text written to this control element			
CT521	Reset Default Names And Groups	Generic	Renaming	basic
	This control element resets all the element Names, Groups and Subgroups to default values for this equipment			
CT522	Reset Default Names And Groups Recursive	Generic	Renaming	basic
	This control element resets all the element Names, Groups and Subgroups to default values for this equipment and all sub equipments			

15.10 Converter Tables

15.10.1 Converter Iris (CET Gateway)

Device Information	
Name	Converter Iris (CET Gateway)
Short Description	Converter Module Iris from CE+T, managed by Inview GW - SUBJECT TO CHANGE
Long Description	
Hardware Reference	
Software Reference	
Equipment Type	Converter
ETSI Level	/site/energy_system/dc_system_converter/converter

Description Table				
<i>Id</i>	<i>Name</i>	<i>Group</i>	<i>SubGroup</i>	<i>License</i>
DE5	Serial Number	Product Info		basic
	Serial Number			
DE6	Version	Product Info		basic
	Software Revision			
DE13	Nominal DC Voltage	Product Info		basic
	Nominal DC Voltage			
DE14	Nominal Power In Watt	Product Info		basic
	Nominal Power in Watt			

Data Table					
<i>Id</i>	<i>Name</i>	<i>Group</i>	<i>SubGroup</i>	<i>Unit</i>	<i>License</i>
DA2	DC Output Status	Module Status			basic
	Module DC output status				
DA4	DC Input Status	Module Status			basic
	Module DC input status				
DA5	Temperature	Module Status		degree C	basic
	Temperature				
DA11	Output Voltage	DC Output		Volt	basic
	Output voltage in volts				
DA12	Output Current	DC Output		Ampere	basic
	Output current in amperes				
DA13	Output Power	DC Output		Watt	basic
	Output power in watts				
DA31	Input Voltage	DC Input		Volt	basic
	DC input voltage				
DA32	Input Current	DC Input		Ampere	basic
	DC input current				
DA33	Input Power	DC Input		Watt	basic
	DC input power				

Control Table				
<i>Id</i>	<i>Name</i>	<i>Group</i>	<i>SubGroup</i>	<i>License</i>
CT1	Start Locate Inverter	Inverter Functions		basic
	Locate the inverter module.			
CT11	Turn On Module	Inverter Functions		basic
	Turn on the inverter module.			
CT12	Turn Off Module	Inverter Functions		basic
	Turn off the inverter module.			
CT15	Reset Fan Life Elapsed Alarm	Inverter Functions		basic
	Reset the Fan Life Elapsed alarm.			

15.11 DC Converter System Tables

15.11.1 Dc System Converter Iris (CET Gateway)

Device Information	
Name	Dc System Converter Iris (CET Gateway)
Short Description	Dc/Dc Module Iris from CE+T, managed by Inview GW - SUBJECT TO CHANGE
Long Description	
Hardware Reference	
Software Reference	
Equipment Type	DC Converter System
ETSI Level	/site/energy_system/dc_system_converter

Description Table				
<i>Id</i>	<i>Name</i>	<i>Group</i>	<i>SubGroup</i>	<i>License</i>
DE1000	Inview Gateway Serial Number	Inview Gateway		basic
	Inview Serial Number			
DE1001	Inview Gateway Software Version	Inview Gateway		basic
	Inview Software Version			
DE1002	Inview Gateway IP Address	Inview Gateway		basic
	Inview Ip Address			

Alarm Table					
<i>Id</i>	<i>Name</i>	<i>Group</i>	<i>SubGroup</i>	<i>Severity Type (Level)</i>	<i>Set/Clear Delay</i>
AL1000	Communication Failure With Gateway	Inview Gateway		major (0)	5 / 2
	Communication Failure with Gateway, please check ethernet cable				

Data Table					
<i>Id</i>	<i>Name</i>	<i>Group</i>	<i>SubGroup</i>	<i>Unit</i>	<i>License</i>
DA1	Output Voltage	DC Outputs	DC Output 1	Volt	basic
	Output Voltage in volts group 1				
DA2	Output Current	DC Outputs	DC Output 1	Ampere	basic
	Output Current in amperes group 1				
DA3	Output Power	DC Outputs	DC Output 1	Watt	basic
	Output power in watts group 1				
DA6	Loading Ratio - Available Power in W	DC Outputs	DC Output 1	%	basic
	Ratio between output load and available power expressed in watts group 1				
DA8	Loading Ratio - Installed Power in W	DC Outputs	DC Output 1	%	basic
	Ratio between output load and installed power expressed in watts group 1				
DA10	Number Of Modules Configured	DC Outputs	DC Output 1		basic
	Number of modules configured for the phase 1				

DA11	Amount of redundancy configured	DC Outputs	DC Output 1		basic
	Amount of redundancy configured in the phase 1				
DA12	DC Input Power	DC Outputs	DC Output 1	Watt	basic
	DC input power for group 1				
DA15	Installed Power in W	DC Outputs	DC Output 1	Watt	basic
	Installed power value in watts for group 1				
DA17	Available Power in W	DC Outputs	DC Output 1	Watt	basic
	Available power value in watts for group 1				
DA19	Number Of Module Seen	DC Outputs	DC Output 1		basic
	Number of modules seen by T2S for group 1				
DA20	Number Of Modules delivering output	DC Outputs	DC Output 1		basic
	Number of modules delivering output for group 1				
DA21	Number Of Modules manually off	DC Outputs	DC Output 1		basic
	Number of modules manually off for group 1				
DA22	Number Of Module In Failure	DC Outputs	DC Output 1		basic
	Number of modules in failure for group 1				
DA501	Input Current	DC Inputs	DC Input 1	Ampere	basic
	DC input current value in amperes group 1				
DA502	Input Power	DC Inputs	DC Input 1	Watt	basic
	DC input power value in watts group 1				
DA503	Input Voltage	DC Inputs	DC Input 1	Volt	basic
	DC input voltage value in volt group 1				
DA1000	Bus Status	Inview Gateway			basic
	The State of the bus				
DA1001	Configuration Status	Inview Gateway			basic
	The state of the configuration				
DA1005	Live Setpoint DC Bus 1 Voltage	Inview Gateway		Volt	basic
	The Live Setpoint of DC Bus Voltage				

Config Table						
<i>Id</i>	<i>Name</i>	<i>Group</i>	<i>SubGroup</i>	<i>Unit</i>	<i>Range: Min/Max (default)</i>	<i>License</i>
CF100	Vdc In Low Start	DC Inputs		Volt		basic
	The DC input low start in volts					
CF101	Vdc In Low Transfer	DC Inputs		Volt		basic
	The DC input low transfer in volts					
CF102	Vdc In Low Stop	DC Inputs		Volt		basic
	The DC input low stop in volts					
CF103	Vdc In High Start	DC Inputs		Volt		basic
	The DC input high start in volts					
CF104	Vdc In High Transfer	DC Inputs		Volt		basic
	The DC input high transfer in volts					
CF105	Vdc In High Stop	DC Inputs		Volt		basic
	The DC input high stop in volts					
CF117	Number of AC Output Groups To Configure	AC Outputs				basic
	Number of AC output groups.					

CF126	Nominal Output Voltage	DC Outputs	DC Output 1	Volt		basic
	The phase shift in degrees in phase					
CF127	Nominal Output Voltage	DC Outputs	DC Output 2	Volt		basic
	The phase shift in degrees in phase					
CF128	Nominal Output Voltage	DC Outputs	DC Output 3	Volt		basic
	The phase shift in degrees in phase					
CF129	Nominal Output Voltage	DC Outputs	DC Output 4	Volt		basic
	The phase shift in degrees in phase					
CF130	Nominal Output Voltage	DC Outputs	DC Output 5	Volt		basic
	The phase shift in degrees in phase					
CF131	Nominal Output Voltage	DC Outputs	DC Output 6	Volt		basic
	The phase shift in degrees in phase					
CF132	Nominal Output Voltage	DC Outputs	DC Output 7	Volt		basic
	The phase shift in degrees in phase					
CF133	Nominal Output Voltage	DC Outputs	DC Output 8	Volt		basic
	The phase shift in degrees in phase					
CF134	Short circuit threshold voltage	Advanced		Volt		basic
	Short circuit threshold voltage					
CF135	Short circuit hold time	Advanced		second		basic
	Short circuit hold time					
CF136	Input source in Percent	Advanced		%		basic
	Input source in Percent					
CF137	Synchronisation tracking speed	Advanced				basic
	Synchronisation tracking speed					
CF138	Max current Percent	Advanced		%		basic
	Max current Percent					
CF139	Max power Percent	Advanced		%		basic
	Max power Percent					
CF141	AC in mode	Advanced				basic
	AC in mode					
CF142	Booster 10x I in	Advanced				basic
	Booster 10x I in					
CF144	Reinjection allowed	Advanced				basic
	Reinjection allowed					
CF145	External clock	Advanced				basic
	External clock					
CF146	Walk in mode	Advanced				basic
	Walk in mode					
CF147	Triangle mode	Advanced				basic
	Triangle mode					
CF149	Start without supervision	Advanced				basic
	Start without supervision					
CF151	AC 1 stop power	Advanced				basic
	AC 1 stop power					
CF152	AC 2 stop power	Advanced				basic
	AC 2 stop power					

CF153	AC 3 stop power	Advanced				basic
	AC 3 stop power					
CF154	AC 4 stop power	Advanced				basic
	AC 4 stop power					
CF157	Tus	Advanced				basic
	Tus					
CF158	Tus modules number	Advanced				basic
	Tus modules number					
CF159	Tus sub sub system address	Advanced				basic
	Tus sub sub system address					
CF160	Tus sub sub system output phase	Advanced				basic
	Tus sub sub system output phase					
CF161	Tus sub system index	Advanced				basic
	Tus sub system index					
CF162	Number of tus sub sub system	Advanced				basic
	Number of tus sub sub system					
CF165	Tus sub sub system dc group	Advanced				basic
	Tus sub sub system dc group					
CF166	V DC charger safe mode	Advanced		Volt		basic
	V DC charger safe mode					
CF167	P DC charger safe mode	Advanced		Watt		basic
	P DC charger safe mode					
CF168	P AC peak shaving safe mode	Advanced				basic
	P AC peak shaving safe mode					
CF169	P AC max per phase safe mode	Advanced				basic
	P AC max per phase safe mode					
CF170	Phase compensation	Advanced				basic
	Phase compensation					
CF171	Sierra mode	Advanced				basic
	Sierra mode					
CF172	V DC low stop charger	Advanced		Volt		basic
	V DC low stop charger					
CF173	Lvd mode	Advanced				basic
	Lvd mode					
CF174	Max V DC increment safe mode	Advanced				basic
	Max V DC increment safe mode					

Control Table				
<i>Id</i>	<i>Name</i>	<i>Group</i>	<i>SubGroup</i>	<i>License</i>
CT51	Apply Configuration	DC Converter System		basic
	Force send of parameters			
CT101	Set DC Voltage Point	Inverter System		basic

	Set DC regulation voltage			
CT501	Clear My Events	Generic	Events	basic
	By writing '1' to this control element, all the events of this equipment will be cleared.			
CT502	Clear All Events	Generic	Events	basic
	By writing '1' to this control element, all the events of this equipment and all the events of all the sub-equipments will be cleared.			
CT511	Add Event	Generic	Events	basic
	This control element adds an event of severity none. The event name is the text written to this control element			
CT512	Add Major Event	Generic	Events	basic
	This control element adds an event of severity major. The event name is the text written to this control element			
CT521	Reset Default Names And Groups	Generic	Renaming	basic
	This control element resets all the element Names, Groups and Subgroups to default values for this equipment			
CT522	Reset Default Names And Groups Recursive	Generic	Renaming	basic
	This control element resets all the element Names, Groups and Subgroups to default values for this equipment and all sub equipments			