



USER'S GUIDE











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Chapter 1 – About this guide

The information and pictures within this guide is believed to be true at the time of publication however Alpha Technologies 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
15 May 2008	01	First Edition
26 June 2008	02	Typo corrections, added Modbus chapter and information about PLC functions
09 July 2008	03	Added chapter "Connecting multiple shelves together".
15 July 2009	05	Added section 6.8 with firmware upgrades instructions. Added information about SNMP V3 in section 5.5. and updated tables at section 8.1.
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Chapter 2 – Overview

- Comp@s Overview
- Block Diagram of Energy Systems managed by Comp@s
- DC System Overview.

2.1 Comp@s Overview

Magell@n Comp@s is the product name of our new controller. It consists in a new platform extending the range of applications of a traditional dc-system shelf controller. Comp@s product is a "site" monitoring, 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
- Whatever you may need, just ask us.

This 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.

Comp@s can be easily integrated in your management system. It supports broad range of standard communication protocols and do not request any proprietary application.

This site monitoring is a powerful tool for OPEX (**OP**erating **EX**penditures) reduction. It lowers energy costs, reduce field interventions and provide data logging and statistics facilities.

Comp@s has a very flexible hardware and software architecture, as shown on the 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 and SNMP. 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:

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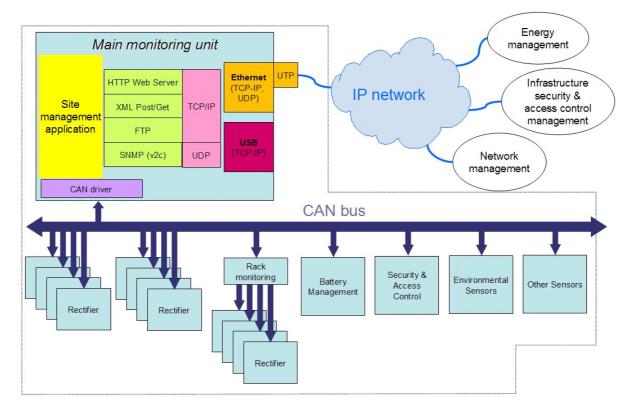


Figure 1 Comp@s Bloc Diagram

2.2 Block Diagram of Energy Systems managed by Comp@s

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:

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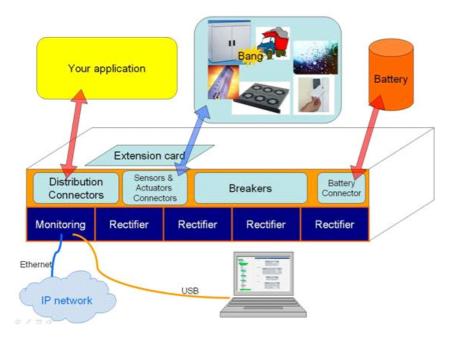


Figure 2 Schematic of the inside of a cabinet

2.3 DC System Overview

- DC Power System Principles
- General Information on MCU
- Mode Of Operation
- Battery Temperature Compensation
- Battery Charge Current Control
- Battery Low Voltage Disconnect Operation (LVD)
- DC System Alarms Overview
- Battery Test
- Boost Mode
- <u>List Of Possible Events</u>.

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2.3.1 DC Power System Principles

A DC system is a system converting AC power to DC power.

It is composed of:

- Rectifiers
- AC distribution
- DC distribution
- Battery(ies), avoiding application interruption.
- MCU (Monitoring Control Unit).

The following diagram is a classical representation of a DC system:

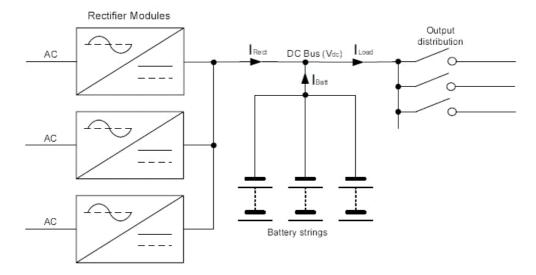


Figure 3 DC System

The following sub-chapters include a high level description of generic functionalities. More information should be available on the user manual of the specific system you are using.

2.3.2 General Information on MCU

A Monitoring Control Unit (MCU) is a micro controller-based monitoring system intended for use to monitor DC Systems, including rectifiers, batteries, and other modules.

The MCU has generally a Comp@s card on it, allowing the human and machine to machine interfaces (over Ethernet/USB). It also extends the functionalities.

If Comp@s is not available, the MCU will control the system with the configuration saved in the Flash.

On most of the systems, the controller is a hot-pluggable, hot-swappable unit that fits into the rectifier rack.

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There is often the followings Leds on the front plate:

- Status Led (Green):
 - Steady : Monitoring is OK
 - Quick Blinking (200ms): Comp@s is not present (or starting), the MCU is working in standalone (With the configuration saved inside the MCU - This can be copied from Comp@s with "Save In MCU" function)
 - Slow Blinking (1Hz): Battery test is running
 - o 800 ms On, 200 ms Off : System is in boost mode
- LVD OK (Green): Is steady on when the LVD is closed
- 4 Leds 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 1-5 sec : Save configuration
- Pressed for 5-10 sec : Start Battery Test
- Pressed for > 10 sec: Force Battery Test
- Pressed during battery test cancel the test.

2.3.3 Mode Of Operation

The DC system can be in one of the following mode:

- **Float**: the output voltage is set to the float voltage setting. It can be automatically adjusted by the temperature compensation or the current limitation.
- **Boost**: the output voltage is set to the boost voltage setting. It can be automatically adjusted by the temperature compensation or the current limitation.
- **Battery Test**: the battery is being tested. The voltage is going down. Alarm like "Bus Voltage Low" can be generated.
- Ac Failure: all the rectifiers are not powered. The battery is discharging.
- **Safe**: the system can go to safe when when there is communication problems or when the voltage/current/temperature sense are not connected correctly.

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2.3.4 Battery Temperature Compensation

- BTC: General Overview
- BTC: Configuration Parameters
- Theory Of Battery Temperature Compensation.

BTC: General Overview

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 maximum compensation can be configured.

The Battery Temperature Compensation is regulated by the MCU. The configuration is stored in the MCU, and is updated by Comp@s if present.

BTC: Configuration Parameters

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

- Temperature Compensation Slope
- Maximum Positive Temperature Compensation
- Maximum Negative Temperature Compensation.

Theory Of 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.

Temp Comp 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.

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The Temp Comp 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 or equalize mode, breakpoints should be set with this in mind.

The Temp Comp feature also incorporates fail-safe circuitry to prevent it from driving the rectifier system to a voltage higher than is suitable for the load or battery.

2.3.5 Battery Charge Current Control

- BCCC: General Overview
- BCCC: Configuration Parameters.

BCCC: General Overview

The Battery Monitor feature enhances the controller's capability to provide information about the battery to the User. Charge Current Control will help increase battery longevity by keeping the battery current to within specified limits. Charge current 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.

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.

BCCC: Configuration Parameters

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

- Battery Charge Current Limit
- Shunt Rating At 60mV.

2.3.6 Battery Low Voltage Disconnect Operation (LVD)

- LVD: General Overview
- LVD: Configuration Parameters.

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LVD: General Overview

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

In most of the systems, there is an hardware and a software LVD. The hardware should be lower than the software.

For 54V systems, the hardware is around 42V. The software will be configured around 46V.

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".

LVD: Configuration Parameters

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.

2.3.7 DC System Alarms Overview

- Alarms Related To DC Output Bus Voltage
- Alarms Related To Rectifiers
- Alarms Related To The Input AC Power Of The Rectifiers
- Alarms Related To Battery
- Alarms Related To General Input.

Alarms Related To DC Output Bus Voltage

Here are follows the most common alarms name related to DC output bus voltage. More information can be found in the detailed equipment table of this guide:

• DC Bus Extra Low: with parameters "DC Bus Voltage Extra Low" and "DC Bus Voltage Extra Low Hysteresis"

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- 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.

It is only related to the Bus voltage measurement. There are different hystereses to avoid changing alarm state around borders values.

Low and extra low alarms happens when the battery is getting discharged.

High and Extra High should never appear with correct configuration, as there is hardware OVP in the rectifiers.

Alarms Related To Rectifiers

The alarms are the following:

- One Rectifier Failure
- More Than One Rectifier Failure
- Missing Rectifiers : with parameter "Minimal Number Of Present Rectifiers".

Note that a rectifier can be considered as in failure when it is not powered, depending of the system configuration. When there is no communication with the rectifier, it is not possible to know if the AC has a problem, or if the rectifier is defect.

Alarms Related To The Input AC Power Of The Rectifiers

The alarms are the following:

- Mains Failure
- Mains Partial Failure
- Mains Low (on some systems)
- Mains High (on some systems).

Alarms Related To Battery

The alarms are the following:

- Battery Last Test Failed
- Battery On Discharge

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- 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.

Alarms Related To General Input

The alarms are the following:

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

These alarms have no consequence on the system regulation by default.

2.3.8 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.

- Principle
- Applied Equations

Principle

The test itself consists of programming the required bus voltage down to a low level, which has the effect of discharging the battery into the load. The battery discharge current is then integrated over time, and the integration result is compared to a given Ampere hour value.

During the battery test, the discharge current of the battery is regulated at the configured parameter "Battery Test Discharge Current". If the output current is greater than the discharge current limit, the rectifiers supply the difference of current. If the output current is

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too low, according to parameter "Battery Test Minimal Discharge Current", the test will be canceled.

If the Ampere hour value is reached while the bus voltage is still above the "Battery Test End Voltage", the battery is considered good and the "Battery Last Test Failed" alarm is not generated.

If the bus voltage reaches the "Battery Test End Voltage" prior to reaching the Ampere hour value, the battery test is considered as failed and the "Battery Last Test Failed" alarm is generated. This alarm remains active until the front panel switch is pressed or reset trough a communication interface.

If the front panel switch is pressed during a test, the test is immediately canceled.

After a battery test (succeeded, failed or canceled), the DC system returns in float or boost mode, according to configuration.

Applied Equations

Battery test is based on Peukert's law for discharging a lead-acid battery ([1]), that predicts battery capacity for a given discharge current and discharge time.

Battery String Capacity is the capacity in Ampere-hours given by constructor for a rated discharge time (generally: 10 hours). Peukert Number is a constant comprized between 1.1 and 1.3, according to lead-acid used technology and battery aging.

According to this model, effective current (battery capacity divided by actual time to discharge it) is calculated by: actual current * (actual current * rated discharge time / battery capacity) ^ (Peukert - 1).

- If effective current is < 0, battery is discharging.
- If effective currrent is > 0, battery is charging.

Battery remaining capacity equals (in %) to: 100 * (battery capacity + sum (effective current (minute)) / 60) / battery capacity.

[1] http://en.wikipedia.org/wiki/Peukert%27s law

2.3.9 Boost Mode

The DC bus voltage can be increased in order to charge the battery faster. This mode can be automatically started after an AC Failure, after a battery test, or remotely. (This mode is recommended only with some kind of battery).

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2.3.10 List Of Possible 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 Comp@s and is now monitored	
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)).	
DC Mode Changed : <new_mode></new_mode>	Mode of operation has been changed (see: Mode Of Operation). If critical, an alarm will be generated.	
Alarm Set: <alarm_name></alarm_name>	The corresponding alarm has been set.	Check alarm
Alarm Clear: <alarm_name></alarm_name>	The corresponding alarm has been cleared.	Nothing to do

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Chapter 3 – Getting Started

- Connecting the Comp@s Web Server over Ethernet
- Connecting the Comp@s Web Server over USB
- Using The Web Interface
- Using the Comp@s SNMP Agent

3.1 Connecting the Comp@s Web Server over Ethernet

The Comp@s monitoring RJ45 female port provides a standard 10/100 MBit Ethernet connection. The default network configuration is:

Default Ethernet Configuration

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

Required material:

- A personal computer with Ethernet capabilities;
- A crossed Ethernet cable if the PC is directly connected to the Comp@s monitoring (Some recent PC have an automatic polarity detection, in this case a straight cable can be used);
- A straight Ethernet cable if the Comp@s monitoring is connected to a switch.

Required software:

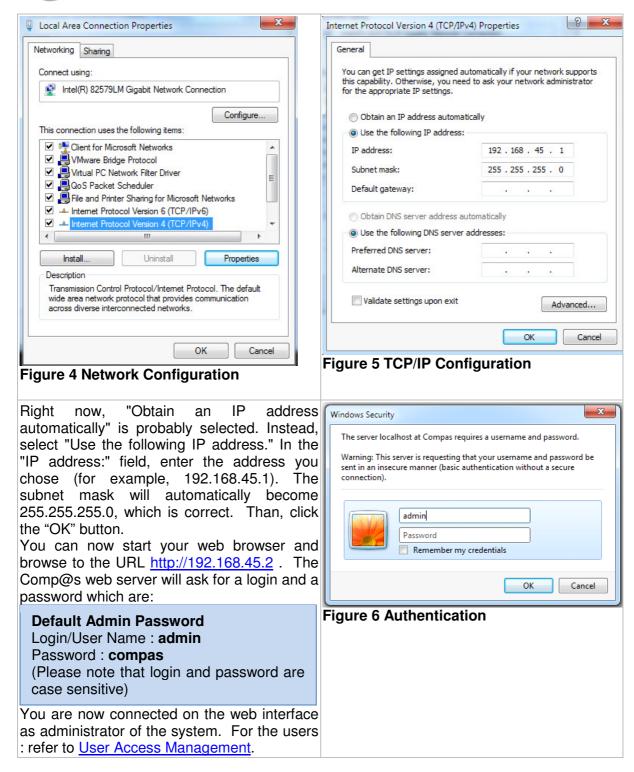
 Any operating system with an up to date web browser. It is recommended to use Firefox >= 2.x or Internet Explorer >=7.x.

To connect to the system, the personnel computer has to be configured with a static IP address. You can use the IP 192.168.45.1 for example, with 255.255.255.0 as sub mask.

To do this under Windows XP, Access the Network Connections control panel (**Start -> Control Panel -> Network Connections**). Pick the connection you're using, generally Local Area Connection. Right-click on that connection's icon and pick Properties. 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:

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3.2 Connecting the Comp@s Web Server over USB

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

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Required material:

- A personal computer with Ethernet capabilities;
- A standard Type-B plug to Type-A USB plug.



Required software:

- A Windows XP / Vista / Seven operating system.
- A web browser: it is recommended to use Firefox >= 2.x or Internet Explorer >=7.x.
- The free Microsoft Active Sync application. This application is available on the web: http://www.microsoft.com/en-us/download/details.aspx?id=15
- Please note that with Vista, you don't have to install Active Sync. The "Sync Center" is already installed and is enough. (In this case, you can skip step 2.) With Windows 7, you should download the free Microsoft Mobile Device Center application: http://www.microsoft.com/download/en/details.aspx?id=14 (32-bit), http://www.microsoft.com/download/en/details.aspx?id=3182 (64-bit).

STEP 1: Do not connect the USB cable yet

STEP 2: Install the Active Sync application. A computer reboot may be asked at the end of the installation.

STEP 3: Activate the port forwarding over USB. To do this, a small modification in the registry must be done. You can use the windows registry editor "Regedit", and add the following entry:

In HKEY_LOCAL_MACHINE\SOFTWARE\Microsoft\Windows CE Services\ProxyPorts, add the "HTTP PORT FORWARDING" DWORD value, with data: 00000050.

STEP 4 (facultative): If you need to redeploy on several client, open a new text file and write the followings 3 lines:

Windows Registry Editor Version 5.00

HKEY LOCAL MACHINE\SOFTWARE\Microsoft\Windows CE Services\ProxyPorts
"HTTP PORT FORWARDING"=dword:00000050

Then, save the file as "Compas.reg" and execute it (double-click).

STEP 5: Connect the USB cable between the personal computer and the Comp@s monitoring.

STEP 6: Active Sync application should detect the connection and ask to "Set Up a PartnerShip". Just click on "No" and afterwards on "Next".

STEP 7: It is now possible to browse the Comp@s Flash disk content by going to: Start menu > Computer > Compas, under Windows Vista or Windows 7 (or: Desktop > My Computer > Mobile Device, under Windows XP).

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STEP 8: Start your Web Browser and enter the URL address http://localhost .

STEP 9: The Comp@s web server will ask for a login and a password which are:

Default admin password Login/User Name: admin Password: compas

(Please note that login and password are case sensitive)

You are now connected on the web interface as administrator of the system.

3.3 Using The Web Interface

- Web Page Layout Overview
- Modifying Comp@s Settings
- Modifying Comp@s SettingsChanging the Network Configuration.

3.3.1 Web Page Layout Overview

The following figure shows the initial web page displayed after login. The left part displays the last refresh time of the web page and a hierarchy of the component of the system (Site, DC System, Rectifier, etc.). If all these tree nodes are in a grey color, no alarm is active. 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:

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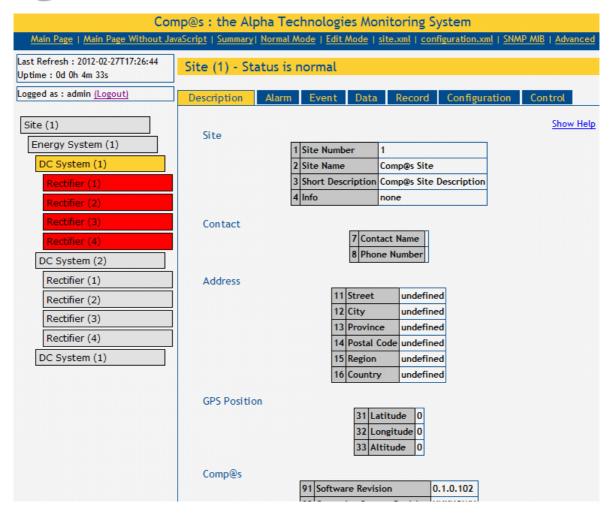


Figure 7 Initial page displayed

The following tabs are therefore available:

- Description Tabs
- Alarm Tabs
- Event Tabs
- Data Tabs
- Record Tabs
- Configuration Tabs
- Control Tabs.

Description Tabs

The following screenshot shows an automatic description of a specific rectifier. Some of our rectifiers embed their hardware/software reference and revision, their serial number,

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manufacturing id, manufacturing date, etc. This allows a powerful traceability of our products in a network of widely spread cabinet:

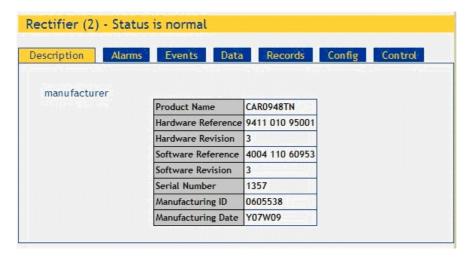
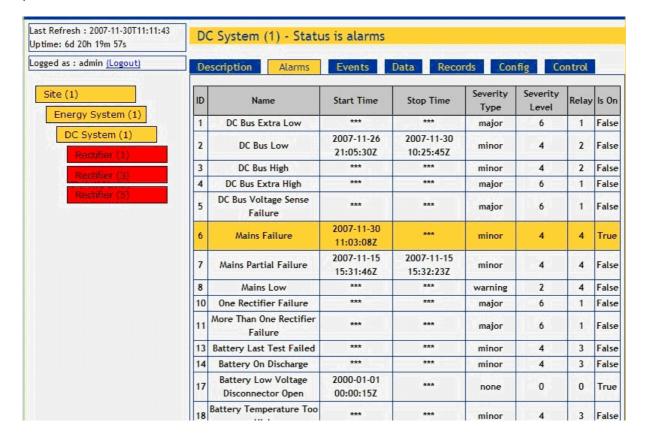


Figure 8 Rectifier Tab

Alarm Tabs

The following figure illustrates how the alarms are displayed. The active alarms are highlighted in a color corresponding to the severity type of the alarm (Red: major, Orange: minor, Yellow: warning). One can see the start time and the stop time of a specific alarm, the associated relay (if dry alarms exist), the severity type and the severity level. When equipment is in alarm, the left tree menu reflects the situation, allowing to quickly locating a problem:



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Figure 9 Alarms at the DC System level

The following figure illustrates how an alarm can be configured. It is possible to change the severity type, the severity level, the associated dry alarm relay, the set delay and the clear delay:

D	DC System (1) - Status is normal										
De	Description Alarm Event Data Record Configuration Control										
ID	Name	Severity Type	Severity Level	Relay	Set Delay	Clear Delay					
1	DC Bus Extra Low	Bus Extra Low		1 ▼ Modify	1 Modify	1 Modify					
2	DC Bus Low	minor 🔻	4 ▼ Modify	2 V Modify	1 Modify	1 Modify					
3	DC Bus High	minor 🔻	4 ▼ Modify	2 V	1 Modify	1 Modify					
4	DC Bus Extra High	major ▼ Modify	6 ▼ Modify	1 V	1 Modify	1 Modify					
5	DC Bus Voltage Sense Failure	major ▼ Modify	6 ▼ Modify	1 V	1 Modify	1 Modify					
6	Mains Failure	minor ▼ Modify	4 ▼ Modify	4 🕶 Modify	1 Modify	1 Modify					

Figure 10 Alarm configuration

The following figure shows alarms related to some sensors and actuators connected to an extension module: Vandalism alarm (shock detection), Water Detection, Cabinet Temperature Too High, Cabinet Humidity High, Badge Reader Failure, etc.:

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Sens	nsors And Actuators (1) - Status is alarms											
Descri	ption	Ala	arm	Event	D	ata	Record	Со	nfiguratio	n (Contr	ol
IC			Name	,			Start Time		Stop Time	Seve	rity	Is Se
1	Cab	inet T	Гетре	rature Hig	,h		***		***	majo	r (6)	False
2	Cab	oinet 1	Tempe	rature Lo	W	2008	-05-14 15:	57:18Z	***	majo	r (6)	Tru
3	Cabine	t Tem	peratu	ire Sensoi	Fail		***		***	mino	r (4)	Fals
1	1 C	abinet	t Humi	dity High			***		***	majo	r (6)	Fals
1	2 C	abinet	t Humi	dity Low			***		***	majo	r (6)	Fals
2	1 W	ater [Detecti	on Alarm			***		*** ma		r (6)	Fals
3	1	Ti	lt X Al	arm			***		***	majo	r (6)	Fals
3:	2	Ti	lt Y Al	arm			***		***	majo	r (6)	Fals
4	1	Vano	dalism	Alarm			***		***	majo	r (6)	Fals
5	51 Badge Reader Failure				2008	-05-14 15:	57:16Z	***	majo	r (6)	Tru	
7	1	Gen	eral In	put 1		***			***	warni	ng (2)	Fals
7:	2	Gen	eral In	put 2			***		***	warni	ng (2)	Fals
7:	3	Gen	eral In	put 3			***		***	warni	ng (2)	Fals
7.	4	Gen	eral In	put 4			***		***	warni	ng (2)	Fals
7	5	Gen	eral In	put 5			***		***	warni	ng (2)	Fals
7	5	Gen	eral In	put 6			***		***	warni	ng (2)	Fals
7	7	Do	or 1 0	pen		2008	-05-14 15:	57:15Z	***	warni	ng (2)	Tru
7	В	Do	or 2 0	pen		2008	-05-14 15:	57:15Z	***	warni	ng (2)	True
7	9	Do	or 3 0	pen		2008	-05-14 15:	57:15Z	***	warni	ng (2)	Tru
80	0	Do	or 4 0	pen		2008	-05-14 15:	57:15Z	***	warni	ng (2)	Tru

Figure 11 Sensors and Actuators alarms

Event Tabs

The following figures show a list of events related to a DC System. It is possible to configure the number of events to keep. These events can be sent to multiple servers with SNMP traps or by HTTP post of XML files to a primary and a secondary server:

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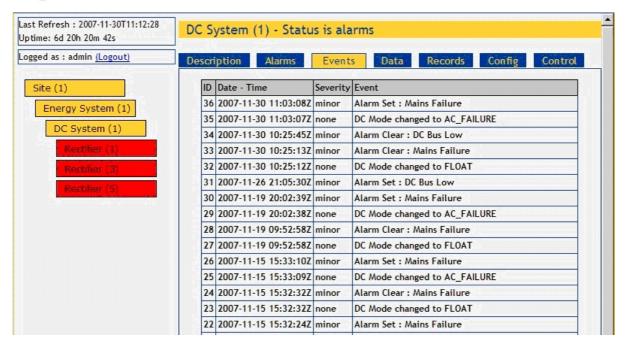


Figure 12 Events related to DC System

Data Tabs

The following figure shows some data related one DC system: bus voltage, number of present rectifier, load power, rectifier output power, etc.:

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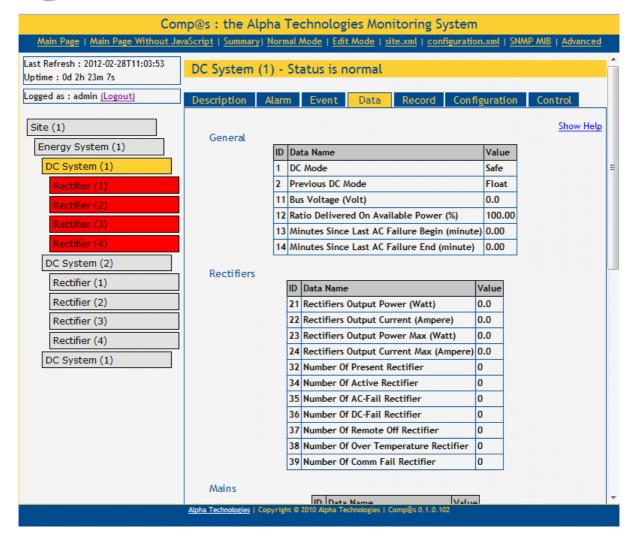


Figure 13 Data related to DC System

The following screenshot shows detailed data related to a specific rectifier. It is possible to retrieve for example: the power rating, the fan speed, the temperature, the total converted energy, the service time, the input AC voltage, etc. The screenshot is an example for the CAR0948TN rectifier:

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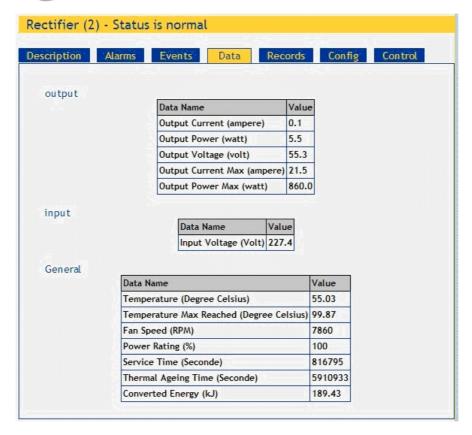


Figure 14 Rectifier Data

The following screenshot shows data related to some sensors and actuators connected to an extension card. One can see the cabinet temperature, the relative humidity, the tilt of a cabinet, heat exchanger status, RFID badge reader information, door lock state, etc.:

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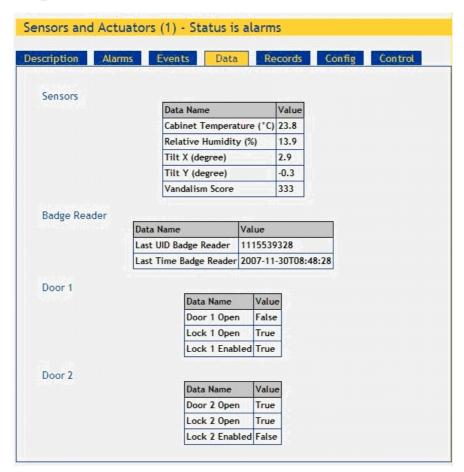


Figure 15 Sensors and Actuators data

Configuration Tabs

The following screenshot illustrates some configuration elements for a dc system. Battery test, boost, partial load disconnection, opening LVD, battery temperature compensation can be configured it these tabs:

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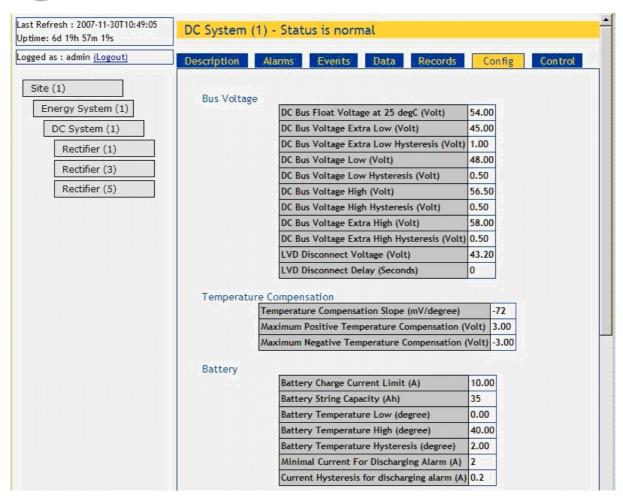


Figure 16 DC System Configuration Tab

The configuration of the site:

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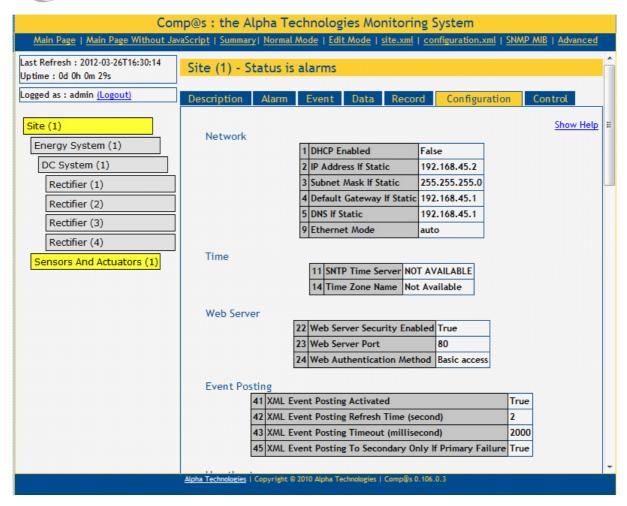


Figure 17 Site Configuration

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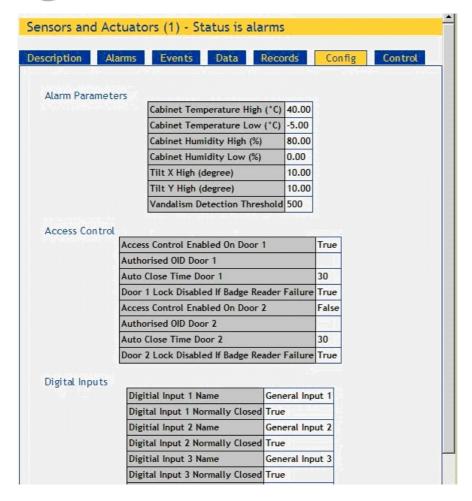


Figure 18 The configuration of an extension card

Record Tabs

The monitoring can keep data records. It can provide the record of the last seconds, last minutes, last hours, last days, and last months. This is a powerful tool to do statistics and optimize many parameters in your systems.

Note that these records are accessible only if the "asset" license package is present.

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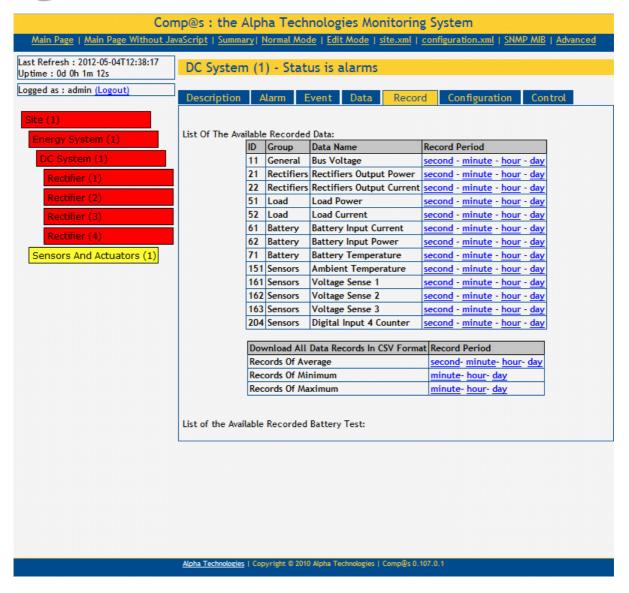


Figure 19 DC System Record Tab

The following screenshots show charts with the bus voltage for the last days and minutes and the battery temperature for the last days:

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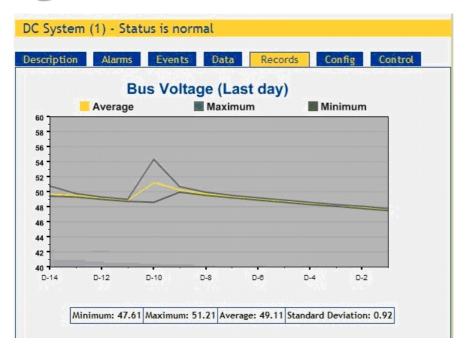


Figure 20 Bus Voltage record of the last days

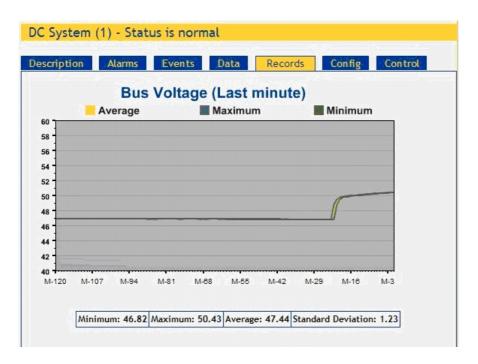


Figure 21 Bus Voltage record of the last minutes

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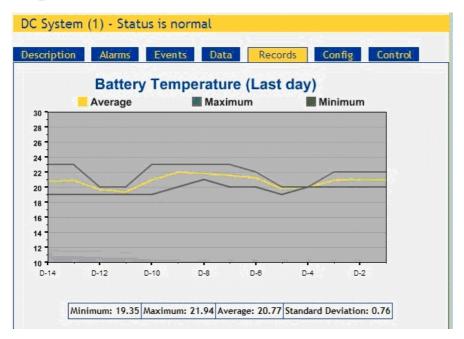


Figure 22 Battery Temperature record for the last days

Control Tabs

A control tab contains elements which can be executed, like starting a battery test, rebooting the monitoring, etc. The control command when the user clicks on the "Execute" button. On some entry, a parameter value is passed when executing the command:

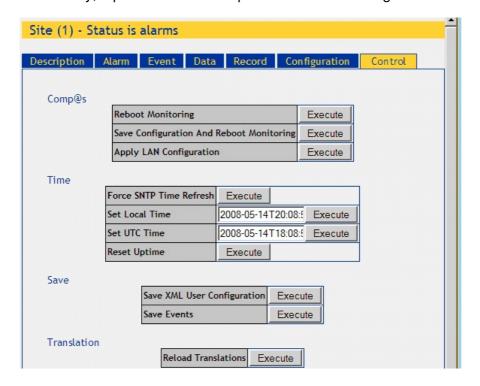


Figure 23 Control Tab at site level

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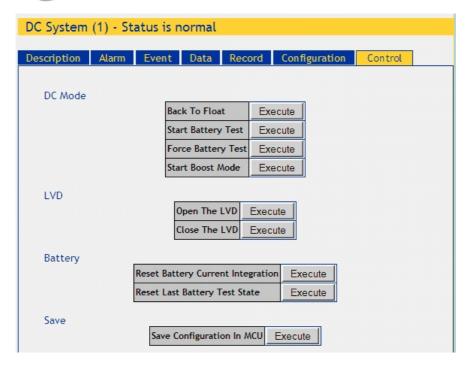


Figure 24 Control Tab at DC System level

3.3.2 Modifying Comp@s Settings

- Modifying values
- Saving The Changes.

Modifying values

The following figures illustrate how to change any configurable value. When you click on "Edit Mode" ("Config Mode" on previous release), all the configurable values become editable. You are now able to change the value:



Figure 25 Edit Mode

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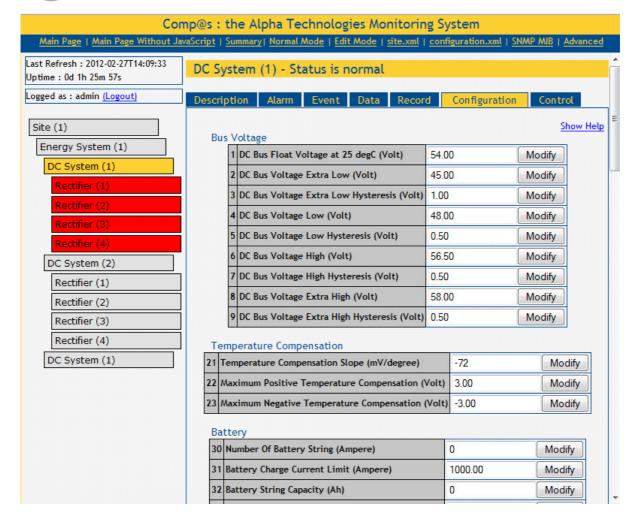


Figure 26 Modifying values

A click on the "Modify" button sends the change to the monitoring. This method is used to change any parameter of the system. If the parameter is wrong, a message is displayed or the previous parameter is reset.

Note that each modification of setting must be confirmed individually by a "click" on the "Modify" button of the concerned parameter or information.

If you reboot the system after parameters change, modification will be lost. You have to save the system configuration after changes, as explained in <u>Saving The Changes</u>.

Saving The Changes

Once settings have been modified, they must be saved in the persistent Comp@s memory. If not, these modifications will be lost on the next reboot.

STEP 1: Click on "Site"

STEP 2: Browse to "Control" (Most right tab)

STEP 3: Click on "Execute" at the entry "Save XML User Configuration"

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STEP 4: The settings are now stored in the Comp@s Persistent Memory:

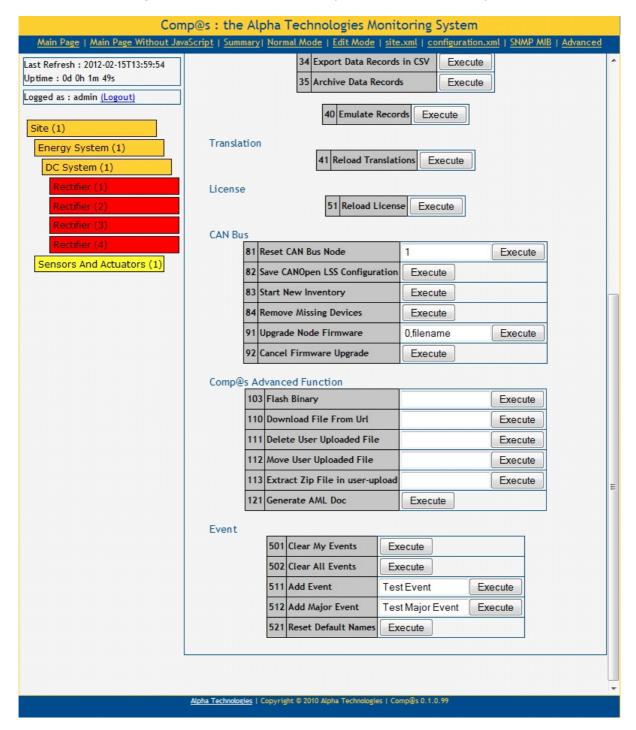


Figure 27 Saving of settings

For more details about configuration savings, refer to <u>Save / Load configuration</u>.

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3.3.3 Changing the Network Configuration

Network configuration steps

STEP 1: Configure the Network Configuration:

The configuration parameters are available in Site -> Configuration, as shown on Figure 28. Information about these parameters is available in the detailed table of chapter 8.1.:

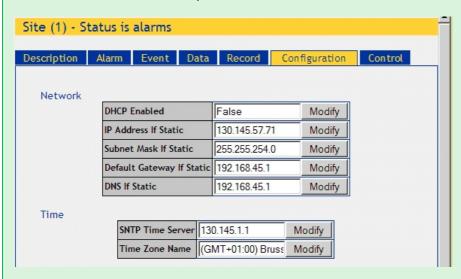


Figure 28 Network configuration

Note that the changes are not applied immediately! You have to apply the changes ...

STEP 2: To apply the changes, there are two possibilities:

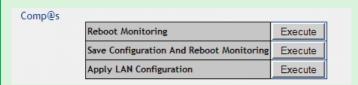


Figure 29 Apply changes

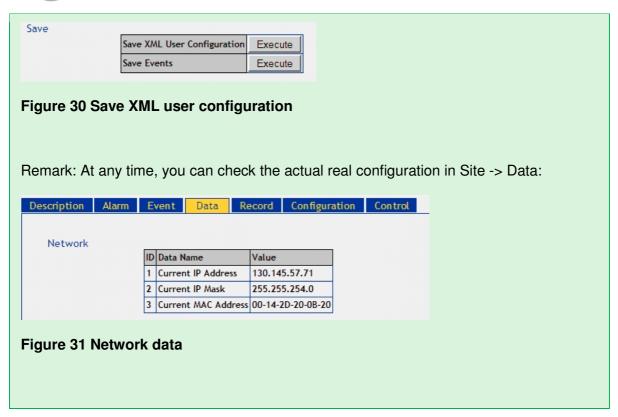
-> "Save Configuration And Reboot Monitoring"

Or

-> "Apply LAN Configuration": this control will apply the modification without saving them. This has the advantage to be able to test a configuration without rebooting. If the configuration is working, you can simply "Save XML User Configuration", without rebooting:

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3.4 Using the Comp@s SNMP Agent

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 Comp@s monitoring provides a SNMP v1, v2c and V3 interface. Please note that SNMP V3 is available only since Comp@s 0.1.0.26.

The Management Information Base (MIB) can be downloaded at the url:

"http://the_ip/Compas.mib"

A quick link is available on the top of the website to download this MIB:



Figure 32 Download of the SNMP MIB

This MIB is generated dynamically according to the number and the type of the subequipments present at the time of the generation:

dc systems

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- 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.

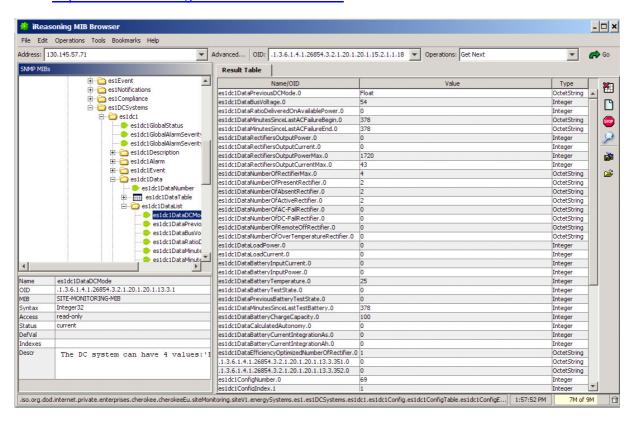


Figure 33 Ireasoning MIB Browser

The SNMP agent supports the SNMP v1, v2c and V3 command:

- GET
- SET
- WALK

The SNMP configuration is available at the site -> configuration level, as shown on the following screenshot:

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SNMP		
	SNMP Activated	True
	SNMP Trap Version	V2c
	SNMP GET Minimum Security Level	V1 Community
	SNMP SET Minimum Security Level	V1 Community
	SNMP V3 Auth Algorithm	MD5
	SNMP V3 Privacy Algorithm	DES
	SNMP V3 Privacy Password	

Figure 34 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:

SNMP authentication syntax

LOGIN:PASSWORD

Default login and password are

SNMP default login and password

Read Community -> <u>admin:compas</u>
Write Community -> <u>admin:compas</u>

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.

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Chapter 4 – Functionalities

- <u>User Access Management</u>
- Save / Load configuration
- Automatic events saving
- Date and Time Management
- Software Upgrade Management
- Reset Factory Settings
- Copying configuration from a system to another
- PLC Functionalities
- Translating The Web Interface
- Replacing a Rectifier in a DC System
- Measuring Power and Energy.

4.1 User Access Management

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:

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

All these default login/password can be changed by the help of any interface. The passwords are encrypted with cryptographic hash function (MD5, 128 bits). These parameters are located in Site -> Configuration, as shown on the following figure:

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Figure 35 Users login and password configuration

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 of the site hierarchy, which user has read access and which user has write 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".

Please remark that the 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.

The procedure to change the login and password of a user is:

STEP 1: Browse to Site -> Configuration

STEP 2: Click on "Edit Mode"

STEP 3: Enter the new login and password in clear for the desired user id. The syntax is:





Figure 36 User login and password change screen

STEP 4: Click on "Modify". The password is immediately hashed and the page is refreshed:



Figure 37 User new login and password change screen

STEP 5: Do not forget to save the configuration.

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4.2 Save / Load configuration

When a system is correctly configured, you can save the configuration to keep the same configuration in case of reboot of the system. This function is available in Site -> Configuration:

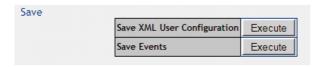


Figure 38 Save / Load configuration

Please refer to Copying configuration from a system to another to load a configuration on a system.

4.3 Automatic events saving

The system is configured to keep all the events in case of power failure of the monitoring. Just before dying (battery disconnection), all the events are saved on persistent storage. If you want to stop the system, by pressing 1 second on the front panel button (Bat Test/Save), events will be saved and you can shut down the system.

4.4 Date and Time Management

- Real Time Clock
- Time zone and Daylight Saving Time
- (S)NTP Time Protocol.

4.4.1 Real Time Clock

The monitoring embeds a real time clock in order to manage the event time, periodic actions, etc. This time is set at factory.

You can change the local or the UTC time in Site -> Control, as shown on the following figure:

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Figure 39 Setting the time

The time configuration at factory is the one from the "Brussels, Copenhagen, Madrid, Paris" time zone.

4.4.2 Time zone and Daylight Saving Time

You can configure the time zone in Site -> Configuration, as shown on the following figure:



Figure 40 Time Configuration Elements

All the available time zone can be retrieved at URL:

Available time zone http://the_ip/timezones.txt

Here follows a screenshot of a part of this list:

```
Available TimeZones:
(GMT) Casablanca, Monrovia
(GMT) Greenwich Mean Time : Dublin, Edinburgh, Lisbon, London
(GMT+01:00) Amsterdam, Berlin, Bern, Rome, Stockholm, Vienna
(GMT+01:00) Belgrade, Bratislava, Budapest, Ljubljana, Prague
(GMT+01:00) Brussels, Copenhagen, Madrid, Paris
(GMT+01:00) Sarajevo, Skopje, Warsaw, Zagreb
(GMT+01:00) West Central Africa
(GMT+02:00) Athens, Istanbul, Minsk
(GMT+02:00) Bucharest
(GMT+02:00) Cairo
(GMT+02:00) Harare, Pretoria
(GMT+02:00) Helsinki, Kyiv, Riga, Sofia, Tallinn, Vilnius
(GMT+02:00) Jerusalem
(GMT+03:00) Baghdad
(GMT+03:00) Kuwait, Riyadh
(GMT+03:00) Moscow, St. Petersburg, Volgograd
(GMT+03:00) Nairobi
(CMT±03.30) Tabra
```

Figure 41 Partial Time Zone List

You can copy/paste the correct one.

The daylight saving time is activated on the monitoring, the summer and winter time will be automatically adjusted according to the selected time zone.

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

4.4.3 (S)NTP Time Protocol

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

The configuration parameters are available at Site -> Configuration, as shown above (<u>Time</u> zone and Daylight Saving Time).

You can configure SNTP Time Server with an IP address or with a domain (if the DNS is set correctly - swisstime.ethz.ch, for example).

The time is retrieved automatically when the system boot and every week. If it fails, it will automatically retry the next day.

You can force an SNTP time refresh in Site -> Control, as shown above (Real Time Clock).

4.5 Software Upgrade Management

- Upgrading the Comp@s Software
- Upgrading a Firmware with Comp@s.

4.5.1 Upgrading the Comp@s Software

- Checking Comp@s revision
- Upgrading Locally with USB
- Upgrading Remotely with Ethernet

Checking Comp@s revision

You can check the running Comp@s software version in Site -> Data -> Software Revision:



Figure 42 Software Revision

It is also displayed at the bottom of all the web pages:

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Figure 43 Software Revision at bottom of web pages

To update the Comp@s software, two possibilities are available:

- Upgrading remotely with Ethernet
- Upgrading locally with USB.

Upgrading Locally with USB

The upgrade is done trough the USB Active Sync connection.

STEP 1: Be sure you have ActiveSync correctly installed as described in (Getting Started – Connecting with USB).

STEP 2: Connect the USB cable between the Comp@s system and your personal computer.

STEP 3: Open the windows explorer and click on "Mobile Device", under "My Computer". You should have access to the memory of the Comp@s Monitoring.

STEP 4: Browse to "\\FlashDisk\User" ("\\NOR Flash\\User" on some previous release):

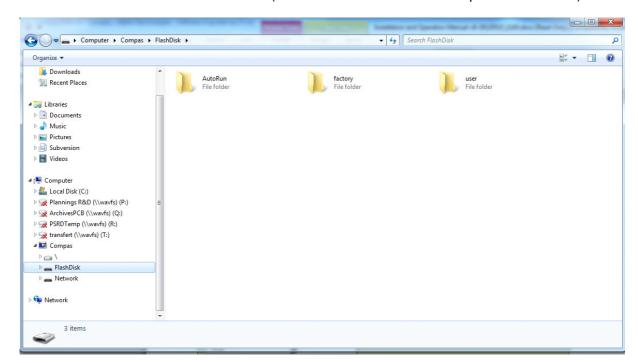


Figure 44 Browse to "\FlashDiskUser"

STEP 5: Copy the new "Compas.exe" release in that folder.

STEP 6: Reboot the monitoring with the Web Interface.

STEP 7: You can check that the running software revision has changed.

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Upgrading Remotely with Ethernet

- FTP
- HTTP POST

FTP

The upgrade is done trough FTP connection:

Upgrading Comp@s remotely with FTP

STEP 1: Connect the system with your FTP client (See "Connecting the Comp@s FTP Server").

STEP 2: Browse to the "\user" folder, in the "\\FlashDisk" folder ("\\NOR Flash" on previous software release):

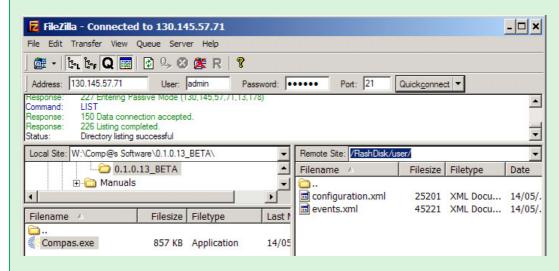


Figure 45 FTP Connection with Filezilla

STEP 3: Copy the new "Compas.exe" release in that folder.

STEP 4: Reboot the monitoring with the Web Interface (Site -> Control) or with SNMP.

STEP 5: You can check that the running software revision has changed.

HTTP POST

The upgrade is done by following the hyperlink: "Advanced" > "Advanced Functions Links: manage_files.html" or by going to the address: http://the_ip/manage_files.html.

Upgrading Comp@s remotely with HTTP POST

STEP 1: Go to "File Upload to user-upload Folder". Click "Browse" and select the file to upload to FlashDisk\\user\\upload folder. **If the file size is geater than 1.5 MB, a zip**

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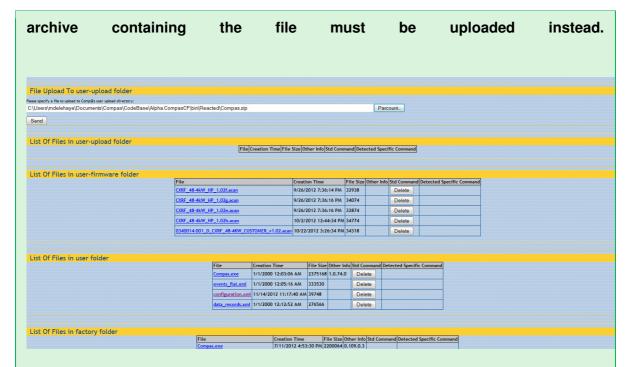


Figure 46 Comp@s Manage Files Page

STEP 2: Press "Send" to upload the file. A message "COMMAND_EXECUTED" (or "COMMAND ERROR") is displayed. Return to the address: http://the_ip/manage_files.html (or press Internet Explorer back, then refresh buttons) to continue.

STEP 3: The file appears in "List of Files in user-upload Folder". You can select "Extract File" to uncompress a zip archive, then press "Delete" to erase it from folder.

STEP 4: Press "Replace/Move Compas.exe to user Folder" to move the new compas.exe file to FlashDisk\\user folder.

STEP 5: Return to Compas index page. Reboot by following the link: "Site" > "Control" > "Reboot Monitoring".

4.5.2 Upgrading a Firmware with Comp@s

Any software/firmware of any Alpha Technologies equipment connected to the CAN bus can be upgraded remotely thanks to Comp@s.

WARNING: DO NOT POWER OFF THE EQUIPMENT DURING THE PROCEDURE.

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STEP 1: You must first upload the firmware 'SOFT_XXXXX_XX.txt' file on 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 with one file, in a Windows Vista environment:

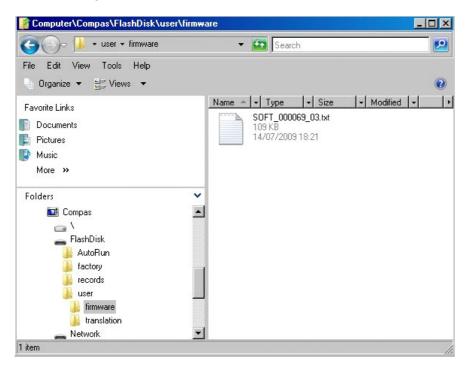


Figure 47 Firmware selection

STEP 2: Browse to the comp@s web page and click on the "Advanced" link, at the top right:

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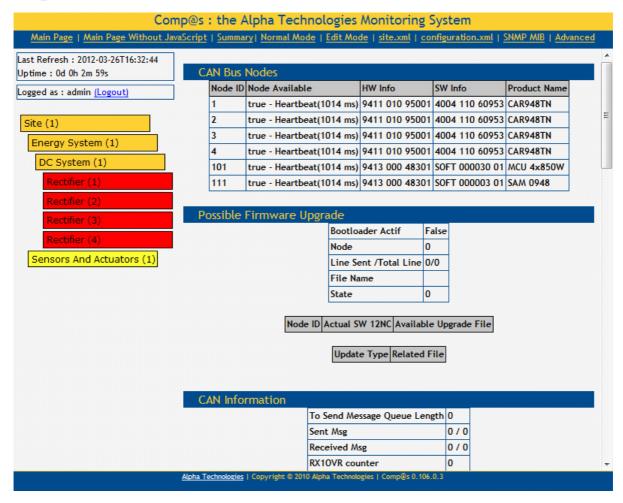


Figure 48 Comp@s web page Advanced link

STEP 3: In the "Possible Firmware Upgrade", you can see buttons "Execute" with the available upgrades. Click the button and wait a feedback from the browser. The Comp@s card is decoding the file during this time (about 10 seconds):

	Bootloader Actif	False	
	Node	0	
	Line Sent /Total Line	0/0	
	File Name		
	State	0	
page at http://127.0.	0.1 says:	×	
COMMAND EXECU	ITING	ide F	ile
COMMAND_EXEC	TING	03.tx	t Execute
	OK	4	
	0K	4	

Figure 49 File decoding

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STEP 4: Once you received the message "COMMAND_EXECUTING", click 'OK'. After, you can click again on the "Advanced" link to see the upgrade progress. The Comp@s card is sending the firmware to the device over the CAN Bus (about 2-3 minutes). Your equipment will disappear from the left tree during the upgrade:

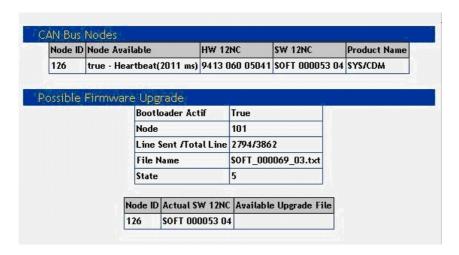


Figure 50 Equipment disappearing during upgrade

STEP 5: When the progression is finished, the equipment reboot and is detected again by Comp@s. The new firmware is installed. You can see the firmware revisions in the "Advanced" section (CAN Bus Nodes – SW 12NC).

4.6 Reset Factory Settings

It is possible to easily restore all the settings and software installed in our factory. To do this, delete all the files and folders present is the "\\FlashDisk\User" folder. At next reboot, your monitoring is like the first time you get it.

4.7 Copying configuration from a system to another

STEP 1: Retrieve the configuration of one system. On the web interface, click on "configuration.xml" and save the file as "configuration.xml".

STEP 2: Copy this file (configuration.xml) on the other system, in the "user" folder, with FTP over Ethernet, or locally with ActiveSync over USB.

STEP 3: Reboot this other system, the same configuration is applied.

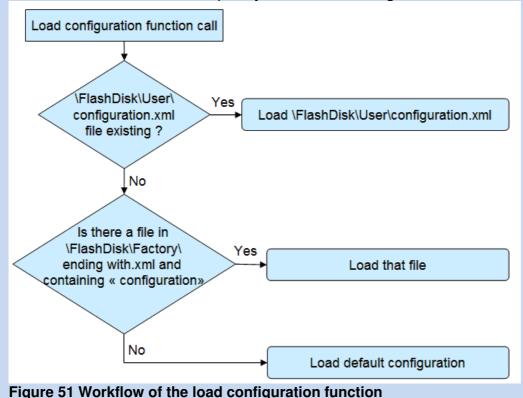
You copy also the network configuration, including the IP address. Keep in mind that if two systems with the same IP address are present on same network, it will not work! A solution to this is to edit the XML file before copying it and to change the IP address.

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Note

If you want to deploy a configuration as the default configuration for your network, you can put the file in the folder "factory". This file can be renamed like XXX_configuration.xml where XXX is free and of any length. This way you can indicate in the file the type of configuration. Make sure to delete the "configuration.xml" in the "user" folder as this last has the priority. Here follows a diagram for better understanding:



4.8 PLC Functionalities

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:

- Syntax
- Examples of Boolean Conditions
- Examples of Mathematical Expressions
- PLC License Package.

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4.8.1 **Syntax**

- Using Data Entries
- Using Alarm Entries
- Operators
- <u>Time Variables</u>
- Other Functions.

Using Data Entries

Syntax	Signification
@(dataXXX)	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.

Using Alarm Entries

Syntax	Signification
@(alarmXXX)	The data 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.
@(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

Syntax	Signification
()	Parentheses
&&	Logical AND

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	Logical OR
==	Equal
!=	Not Equal
+	Addition
-	Subtraction
*	Multiplication
/	Division
%	Modulo

Time Variables

Syntax	Signification
\$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.

Other Functions

Syntax	Signification
\$abs(XXX)	The absolute value of XXX
\$sqrt(XXX)	The square root value of XXX
\$ceil(XXX)	The ceil value of XXX
\$floor(XXX)	The floor value of XXX
\$max(X1, X2, X3,)	The maximum value between X1,X2,X3, etc.
\$min(X1, X2, X3,)	The minimum value between X1,X2,X3, etc.
\$canid(XXX)	Can Id XXX is present

4.8.2 Examples of Boolean Conditions

Tested Condition	Configuration Element Value
The bus voltage is under 47V	@(data11)<47
The rectifier output power is over 2500W	@(data21)>2500
The time of the day is comprised between 10:23 and 11:34	(\$time()>@ts(10:23))&&(\$time()<@ts(11:34))

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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

4.8.3 Examples of Mathematical Expressions

Wanted calculation	Configuration Element Value
Voltage on bloc 2 of the battery	@(data161)-@(data162)

4.8.4 PLC License Package

With the PLC License activated, you are able to add custom data and custom alarms. In Site, DC System and "Sensors and Actuators", in the configuration tab, the following parameters are available:



Figure 52 PLC Number

By default, "Number of PLC Data" and "Number of PLC Alarm" is set to 0. If you increase these numbers, you can access new configuration entries in the same tab:

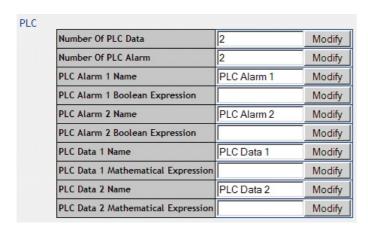


Figure 53 New configuration entries

You are now able to enter new Boolean expression for the alarms and new Mathematical expression for the data.

These changes are reflected in the data tab and in the alarm tab, as shown on the following figures:

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Figure 54 PLC Data

28	Digital Input 4	2008-05-15 08:39:50Z	***	none (0)	0	True
101	PLC Alarm 1	***	***	none (0)	0	False
102	PLC Alarm 2	***	***	none (0)	0	False

Figure 55 PLC Alarm

4.9 Translating The Web Interface

It is possible to translate the Comp@s Web Interface to satisfy your needs. Here follows the steps:

STEP 1: An empty CSV file with the list of the words and sentences used in the Comp@s interface is available at URL: http://the.compas.ip/translation.csv

STEP 2: This file is encoded in UTF8. After the coma of each line, you can put the wanted translation.

STEP 3: The first two lines are:

CSV file:

#LANGUAGE;MYLANGUAGE #LANG:MYLANG

STEP 4: Replace "MYLANGUAGE" by the equivalent of "ENGLISH".

STEP 5: Replace "MYLANG" by the equivalent of "EN".

STEP 6: Then, save the file (in UTF8!)? You can choose the name you want, but the extension must be "csv".

STEP 7: Copy it to the monitoring with an FTP client to the folder: "/FlashDisk/user/translation/"

Remark

Excel 2003 is not able to save in CSV UTF8. You can use the free "OpenOffice Calc" to do it. Alternatively, you can use any UTF8-capable text editor like SciTE, Notepad2 or Notepad++.

Remark

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The coma separator is ";" and there is no text delimiter

STEP 8: Browsing to Site -> Control.

STEP 9: Reload the Translations as shown on the following figure:



Figure 56 Reload Translations

4.10 Replacing a Rectifier in a DC System

When pulling out one of the rectifiers from a DC System shelf, it is **mandatory to wait a minimum time delay** in order that Comp@s detect the removal the CAN Open node. You can check that it was removed in the "Advanced" menu.

The delay is usually **around 15-20 seconds**.

After CAN Open node was removed from the "Advanced" menu, it is possible to insert another rectifier into the DC System shelf. This one will be automatically detected.

4.11 Measuring Power and Energy

By connecting devices like Schneider PM9C ([1]) or IEM3150 ([2]), it is possible to integrate power and energy metering functionalities into Comp@s.

By default, those devices connect to RS-485 Modbus port, that is present on some Alpha Technologies products.

To configure Comp@s, add for instance the following line to parameter 210 (RS485 Extensions configuration) in Site > Configuration (fields seperated by semicolons):

RS485 Extensions configuration PM9C(1);IEM3150(2)

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Con	np@s: the Alpha Techn	ologies Monitoring System	
Main Page Main Page Without Jav	/aScript Summary Normal Mode	Edit Mode site.xml configuration.xml SNMP MIB	Advanced
Last Refresh : 2012-11-19T15:42:20		/3 Trap Username compas	
Uptime : Od Oh Om 23s		/3 Trap Auth Password /3 Trap Privacy Password	
Logged as : admin (Logout)	70 SIMIE	73 Trap Privacy Password	
	General		
Site (1)	81 Gene	rate Event On Configuration Changes True	
Energy System (1)	82 Auto	Archive Period Data Record (hour) 0	
DC System (1)	System Configuration Co	ANOpen	
Rectifier (1)	91 R	equired CAN Bus Node IDs	
		SS CAN id range 1-100	
Rectifier (2)		ystem Nodes Definition	
Rectifier (3)	[95 L	SS CANOpen Saved Configuration	
Rectifier (4)	Users		
Rectifier (5)	101 Administrator Login:Password	admin:iUlvrgzLaY2IWH7tZyjFVzsfLvj1Prv2uUh6YSrsk5	g=
Rectifier (6)	102 User 1 Login:Password	user1:XwhM5CCz+GT9SMS+Lzbebb2SO1vfwrp/yTG3W3	3Wcubg=
Rectifier (7)	103 User 2 Login:Password	user2:mW0pPjKfVsW6xDoGU/QbCz1aJtFq0m0RQqMfy	
Rectifier (8)	104 User 3 Login:Password	user3:Z7+ekqLzcpnmFr4tBA0Bo+xSyCKFKBGdby55kch	
	105 User 4 Login:Password 106 User 5 Login:Password	user4:viQkEzvhBGaqOyXpUo/BkiqMaxZVRXTfniljvtgQW user5:zqlmAxvb3DRWu3Rn4el0ks43Rw7u3C74MEh9QV	
Rectifier (9)	100 OSEI 3 LOGIII.FASSWOID	user 3.2qiiilAXVD3DKWu3Kii4el0Ks43KW7u3C74MLii7QV	01731-
Rectifier (10) Sensors And Actuators (1)	Extensions 210 RS485	Extensions configuration PM9C(1);IEM3150(2)	
	Allowed Users		
		Read Access User Numbers 1,2,3,4,5	
		Write Access User Numbers	
	Event		
		ent Table Length 100	
		MP Trap Targets IP nimal Event Severity For Traps none	
		nimal Event Severity For Traps none AL Events Primary Post URL	
		AL Events Primary Post Login	1
		AL Events Primary Post Password	
	661 X/	AL Events Secondary Post URL	
	662 X/	AL Events Secondary Post Login	
	663 XI	AL Events Secondary Post Password	
	PLC		
	r LC	901 Number Of PLC Data 0	
		902 Number Of PLC Alarm 0	
	\		1
			,

Figure 57 Configure Power and Energy Meter

In example above, PM9C device with address 1 is added. Also is added IEM3150 with adress 2. Only addresses from 1 to 10 are currently authorized. The devices will be displayed in Comp@s in the same order as in configuration parameter (in example above: 1, 2).

The measurement devices must be configured with following serial communication parameters:

Baudrade: 9600

• Data bits: 8

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Parity: Odd

• Stop bits: 1.

Once added, following data are available in Energy System > Data:

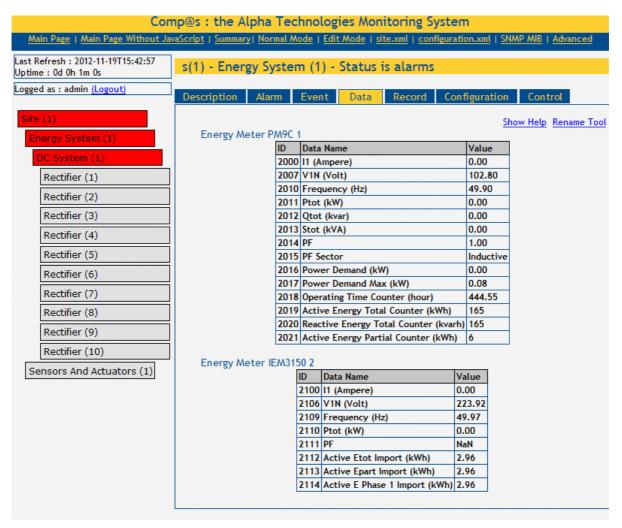


Figure 58 Power and Energy Meter Data

If 3-phase current is used instead of single-phase, supplementary data will be displayed. In case of IEM3150, device configuration (single-phase, 3-phase) is displayed in Energy System > Description. It is also possible to record data by navigating to Energy System > Records.

[1] <u>http://www.schneiderelectric.com/search/ww/en/relevance/10_1/Product%20Information;;68c72df3-e11c-4867-b873-</u>

73310c776a59/all?search text=pm9c&search type=new&filters=txt by category;;CAT PRD DATA

[2] http://www.downloads.schneider-electric.com/sites/oreo/ww/document-detail.page?p docld=18054169&p Conf=i#http://www.downloads.schneider-electric.com.

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Chapter 5 – Software Interfaces

- Web Server
- FTP Server
- Modbus Slave
- SNMP Agent.

5.1 Web Server

- ETSI Protocol
- Retrieving XML files
- Retrieving data records in CSV format
- HTTP GET of any description, data, configuration, etc.
- HTTP POST to configure and control.

5.1.1 ETSI Protocol

The XML files described in <u>Retrieving XML files</u> 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:

- The Hierarchy of the devices/equipments
- Common structure of any system/equipment
- The <description table> element
- The <alarm table> element
- The <event table> element
- The <data table> element
- The <config table> element
- The <control table> element.

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Common structure of any system/equipment

Any equipment XML node can have the following attributes:

Attribute	Description	Datatype	O/M
id	The id of the equipment, system or subsystem.	xs:integer	М
status	"normal" or "alarms" or "unknown".	xs:string	М
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".		М
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".		М
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.		Ο

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></description_table>	A table with description elements of the equipment/system.	xs:complexType	0
<alarm_table></alarm_table>	The table of alarms related to the equipment/system	xs:complexType	0
<event_table></event_table>	A log of events related to the equipment/system	xs:complexType	0
<data_table></data_table>	The table of the data (measurements, states and calculated values) related to the equipment/system	xs:complexType	0
<data_record_table></data_record_table>	Records of the historic of some data present in the data table	xs:complexType	Ο
<config_table></config_table>	The table of configuration of the equipment	xs:complexType	0
<control_table></control_table>	The table of control of the equipment	xs:complexType	0

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	М
active	This value is "true" if the alarm is active or "false" if the alarm is not active.	xs:boolean	М
name	The name of the alarm	xs:string	М
severity_type	Can be: critical, major, minor, warning or information	xs:string	М

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severity_level	Value from 0 to 9	xs:integer	М
start_time	The date and time at which the alarm has started	xs:datetime	0
	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).		Ο

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	М
name	The English name of the configuration parameter	xs:string	М
group	This attribute provide a way to group config element, like for the <data> elements</data>	xs:string	0
subgroup	This attribute allows to group data under the parent group	xs:string	0
unit	The unit of the config parameter	xs:string	0
info	Short additional information on the config parameter	xs:string	0

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	М
name	The English name of control function	xs:string	М
group	This attribute provide a way to group function element, like for the <data> elements</data>	xs:string	0
subgroup	This attribute allows to group data under the parent group	xs:string	0
info	Short information on the control function	xs:string	0

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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	М
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".		0
subgroup	This attribute allows to group data under the parent group	xs:string	0
type	The type of data, this can be "measurement" or "calculated_value"	xs:string	0
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.		0
info	Short additional information on the parameter	xs:string	0
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.		0

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".	
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.	

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info	Short additional information on the parameter	xs:string
------	---	-----------

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	М
type	The type of event, can be: alarm set, alarm clear or information	xs:string	М
datetime	The date and time at which the event has happened	xs:datetime	М
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.		O/M
info	Any additional information	xs:string	0

The Hierarchy of the devices/equipments

Equipments 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.

5.1.2 Retrieving XML files

Each Comp@s 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.

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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	<u>Value</u>	<u>Description</u>
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)
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:

URI example

 $\frac{http://the\ site\ ip/site.xml?description=false\&alarm=true\&event=false\&data=true\&event=false\&data=true\&event=false\&config=false\&level=3}$

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:

File Name	<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

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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.

5.1.3 Retrieving data records in CSV format

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.

These files can be downloaded through the web interface, in the "records" tab of any element. It is possible to download the records of average, minimum and maximum values of data element. The period of time can be a second, a minute, an hour or a day:

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 59 CSV data records

Please note that this function requires the "asset" license.

5.1.4 HTTP GET of any description, data, configuration, etc.

It is possible to retrieve easily element values trough a simple HTTP get request. This can be considered as an equivalent of an SNMP get, but over HTTP. The following examples illustrate some requests:

Get local time:

Get local time

http://the_ip/get.txt?path=/site/data_table/21

Get dc system 1 bus voltage:

Get dc system 1 bus voltage

http://130.145.57.71/get.txt?path=/site/energy_system/dc_system/data_table/11

Get severity type of the alarm 1 of the dc system:

Get severity type

http://130.145.57.71/get.txt?path=/site/energy_system/dc_system/alarm_table/1/severity_type

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5.1.5 HTTP POST to configure and control

- Introduction to HTTP POST and implementation
- SetValue.cgi
- ProcessXML.cgi.

Introduction to HTTP POST and implementation

The Comp@s web server supports some HTTP POST command.

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.

```
C#
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();
```

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```
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";
}
```

SetValue.cgi

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

Here is an example of code to manually set the local time:

```
C#

string path = "/site/1/control_table/control/12";

string value = System.DateTime.Now.ToString("s");

string postdata = "path=" + path + "&value=" + value;

PostMsg("http://192.168.45.2/SetValue.cgi", postdata, "admin", "compas");
```

ProcessXML.cgi

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.

This allows to remotely changing multiple config parameters by posting on each IP where a Comp@s monitoring is running.

5.2 FTP Server

- Connecting the Comp@s FTP Server
- Changing default login and password.

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5.2.1 Connecting the Comp@s FTP Server

In order to use the FTP functionalities of Comp@s, you need a FTP client installed. We recommend the use of "Filezilla", a free FTP solution available at http://filezilla-project.org/.

The connection parameters are:

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

5.2.2 Changing default login and password

The passwords are independent from the main Comp@s application. There are managed in an independent XML file named "Compas_FTPServer.xml" located in the "user" folder. If this file does no exist, the default login and password are used:

STEP 1: Start a text editor like Notepad

STEP 2: Copy –Paste the following content:

XML

<ftpserver>

<ftpusers>

<user login="admin" password="compas"/>

</ftpusers>

</ftpserver>

STEP 3: Modify the login and password

STEP 4: Save the file as "Compas FTPServer.xml"

STEP 5: Copy that file in the "\FlashDisk\\user" ("\Nor Flash\\user" on previous release).

STEP 6: You have to use the new login and password at the next FTP connection.

Remark 1

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

Remark 2

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

XML

<ftpserver>

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<ftpusers>

<user login="admin" passwordHash="1F41C076E8B0C2B69FD36514C54BD86F"/>

</ftpusers>

</ftpserver>

5.3 Modbus Slave

With the Modbus license, a DC system can be monitored with the Modbus over TCP/IP protocol. Here follows the exchange table between the supervisor and the Comp@s monitoring. The Modbus transport layer is Ethernet over TCP/IP. The default used port is 502:

- Discrete Inputs (Read Only)
- Input Registers (Read Only)
- <u>Discrete Coils Table (Command)</u>.

5.3.1 Discrete Inputs (Read Only)

Each discrete input is associated with an alarm related to the DC System level. This table corresponds to the alarm table in <u>Tables at the DC System level</u>.

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	
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 account to the minimal number of reconfiguration 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	

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	_	
		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 Disconnector 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
32	Digital Input 8	This alarm is related to digital input 8
	and a large and a large and a state that DLO the same	and an all all and a standing of forms in all and 404

If custom alarms are defined with the PLC, they are available starting from index 101.

5.3.2 Input Registers (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:

Index	Name:	Group	Unit	Help
1	DC Mode	General		The DC system can be in 4 possible states: FLOAT:0 BOOST:1 BATTERY_TEST:2 AC_FAILURE:3
2	Previous DC Mode	General		The DC system was previously in one of the 4 possible states: FLOAT: 0 BOOST: 1 BATTERY_TEST: 2 AC_FAILURE: 3
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

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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	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	Ampere	The sum of the deliverable 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.
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	Ampere	Estimation of the load current consumption
61	Battery Input Current	Battery	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 ℃	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

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					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
73	Battery Discharged Capacity	Test	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 Discharged Capacity Ah	Test	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 Voltage	Final	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.

5.3.3 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 (Comp@s 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.

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.	
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.	

5.4 SNMP Agent

• For SNMP Agent: see <u>Using the Comp@s SNMP Agent</u>

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Using and Configuring SNMP traps.

5.4.1 Using and Configuring SNMP traps

- SNMP Comp@s configuration
- Sending a testing trap
- Receiving traps.

SNMP Comp@s configuration

STEP 1: Connect the Comp@s web server

STEP 2: Browse to Site -> Configuration

STEP 3: Check that SNMP Activated is "True".

STEP 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".

STEP 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".

STEP 6: Repeat STEP 4 and STEP 5 at the DC System level and on the Sensors and Actuators if you have. This allows sending traps to different servers in function of the concerned equipment.

Your system is now configured; each event will be sent by trap.

Sending a testing trap

STEP 1: Connect the Comp@s web server

STEP 2: Browse to Site -> Control or to DC System -> Control

STEP 3: At the bottom of the page, you can enter a text in the field called "Add Event".

STEP 4: Click on the corresponding "Execute" button.

STEP 5: An event has been added and was sent trough traps.

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Receiving traps

In order to receive traps, you need SNMP software able to receive traps. 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" located in tools:

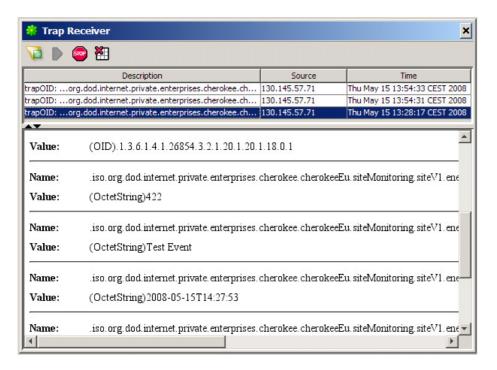


Figure 60 IReasoning trap receiver

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Chapter 6 – CAN information

Bus

related

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- CAN Bus The internal field bus
- Connecting multiple rectifier shelves together.

6.1 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, 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	[111,120]	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, as shown on the following figure:



Figure 61 CAN Bus Node IDs

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6.2 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.

6.2.1 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:

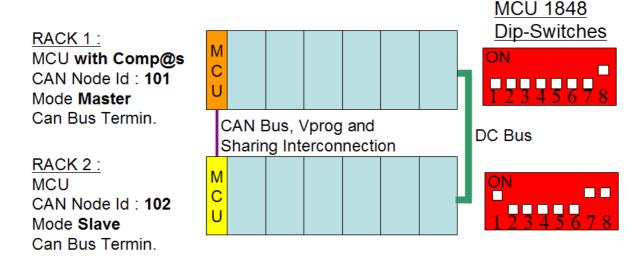


Figure 62 Example with a system with 2 shelves of 6x1800W rectifiers

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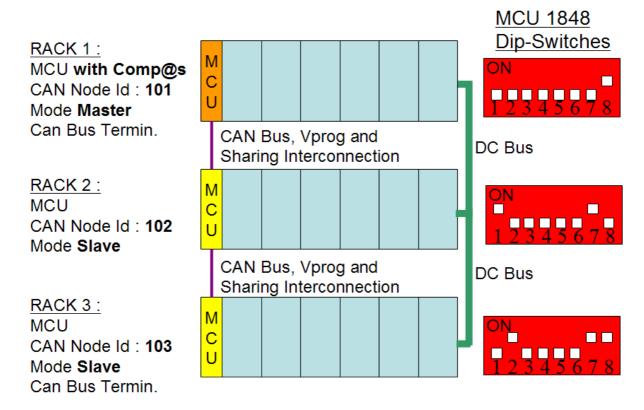


Figure 63 Example with a system of 3 shelves of 6x1800W rectifiers

6.2.2 Multiple Shelves Independent

An independent shelf will manage the bus voltage, the alarms, the LVD, etc. Multiple DC systems are seen by Comp@s:

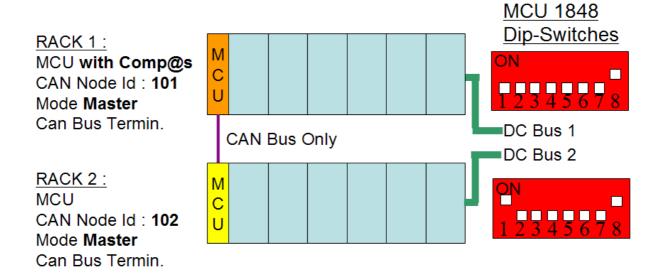


Figure 64 Example with a system with 2 shelves of 6x1800W rectifiers

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Chapter 7 – 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.)

7.1 Site Tables

7.1.1 COMPAS

Device Information				
Name	COMPAS			
Short Description	Comp@s Platform Card			
Long Description				
Hardware Reference	4004 110 96531			
Software Reference	SOFT 000031 XX			
Equipment Type	General for all Comp@s			
ETSI Level	/site/			

Des	Description Table						
<u>Id</u>	<u>Name</u>	Group	<u>License</u>				
1	Site Number	Description	basic				
	The identification number of the	e site					
2	Site Name	Description	basic				
	The name of the site						
3	Short Description	Description	basic				
	A short description of the site						
4	Info	Description	basic				
	Some more information about	the site					
5	Description	Description	basic				
	A free text zone to write a syste	em description					
6	Reference	Description	basic				
	A free text zone to write the cu	stomer reference of the system	em				
7	Contact Name	Contact	basic				
	Contact Name						
8	Phone Number	Contact	basic				
	Contact Name						
11	Street	Address	basic				
	Street part of the site address						
12	City	Address	basic				

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	City part of the site address					
13	Province	Address	basic			
	Province part of the site address	S				
14	Postal Code	Address	basic			
	Postal Code part of the site add	dress				
15	Region	Address	basic			
	Region part of the site address					
16	Country	Address	basic			
	Country part of the site address	3				
31	Latitude	GPS Position	asset			
	The latitude of the site					
32	Longitude	GPS Position	asset			
	The longitude of the site					
33	Altitude	GPS Position	asset			
	The altitude of the site					
91	Software Revision	Comp@s	basic			
	The software revision of Comp@s (read only)					
92	Operating System Revision	Comp@s	basic			
	The operating system of Comp	@s (read only)				

Alar	m Table		
<u>Id</u>	<u>Name</u>	Severity Type (Level)	Set/Clear Delay
1	CAN Bus Failure	major (6)	5 / 2
	This alarm is active when there is a problem	with the CAN Bus.	
3	Missing CAN Bus Node IDs	major (6)	10 / 2
	This alarm is active if configured node ids ar	e not detected on the bu	S
4	Running CAN LSS Device Detection	warning (2)	5 / 2
	This alarm is active when new devices are b	eeing detected.	
6	RS 485 Bus Failure	major (6)	5 / 2
	This alarm is active when there is a problem	with the RS 485 bus	
11	Monitoring Reboot Required	major (6)	5 / 2
	This alarm is active if the system should be	rebooted for some reaso	n
15	Last Configuration Changes Unsaved	warning (2)	1 / 2
	This alarm is active if the system should be	rebooted for some reaso	n
21	XML Hearbeat Post Failure	major (6)	5/2
	This alarm is active when the heartbeat secondary post server. Please note that mechanism is inactive.		

Data	Table			
<u>Id</u>	<u>Name</u>	Group	<u>Unit</u>	<u>Licens</u>
				<u>e</u>
1	Current IP Address	Network		basic
	This is the actual IP address of the Cocorrectly connected, the address will be		he Ethernet cable	e is not

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2	Current IP Mask	Network		basic			
	This is the actual IP address of the C correctly connected, the address will be		he Ethernet cable	e is not			
3	Current MAC Address	Network		basic			
	This is the MAC address of IP interface.						
11	Licensed Options	License		basic			
	This is the options of the actual license.						
21	Date And Time Local	Time		basic			
	This is the local time of the monitoring.						
22	Date And Time UTC	Time		basic			
	This is the UTC time of the monitoring.	This is the UTC time of the monitoring.					
31	Monitoring Memory Used	Operating System Info	Kb	basic			
	This is actual amount of RAM memory used by the application.						
32	CPU Percentage Usage	Operating System Info	%	basic			
	This is actual percentage of CPU used						
33	Free Flash Memory Space	Operating System Info	MBytes	basic			
	This is free flash memory available on the	ne Comp@s card, in I	Megabytes				
41	Total Fifo Size Of Second Records	Data Records Info		basic			
	No information						
42	Total Fifo Size Of Minute Records	Data Records Info		basic			
	No information						
43	Total Fifo Size Of Hour Records	Data Records Info		basic			
	No information						
44	Total Fifo Size Of Day Records	Data Records Info		basic			
	No information						
51	CAN Bus Node IDs	CAN Bus		basic			
	The coma separated list of the node ids	The coma separated list of the node ids present on the CAN bus.					

Conf	ig Table				
<u>ld</u>	<u>Name</u>	<u>Group</u>	<u>Unit</u>	Range: Min/Max (default)	<u>License</u>
1	DHCP Enabled	Network		True/False (False)	basic
	The monitoring will try to get ar True. By default, this parameter			col if this parameter	is set to
2	IP Address If Static	Network		192.168.45.1	basic
	The static IP address of the mod DHCP is enabled. The default IF			parameter is not u	sed if the
3	Subnet Mask If Static	Network		255.255.255.0	basic
	The static Subnet Mask of the the DHCP is enabled. The defau			tion parameter is no	ot used if
4	Default Gateway If Static	Network		192.168.45.1	basic
	The static Default Gateway of the if DHCP is enabled. This is only				

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	generally not necessary. The de	tault gateway is	s 192.168.4	5.1.	
5	DNS If Static	Network		192.168.45.1	basic
	The static DNS of the monitorin and server name. This is not no The default DNS server is 192.1	ecessary if you			
9	Ethernet Mode	Network		True/False (False)	basic
	The monitoring will try to get ar True. By default, this parameter		•	col if this paramete	r is set to
11	SNTP Time Server	Time		192.168.45.1	basic
	The address of the server actin monitoring cannot update auto 192.168.45.1.				
14	Time Zone Name	Time		((GMT+01:00) Brussels, Copenhagen, Madrid, Paris)	basic
	The Time Zone of the site	,		,	
22	Web Server Security Enabled	Web Server		True/False (True)	basic
	This is a True/False parameter web server.	used to activate	e or deactiv	ate the access con	trol to the
23	Web Server Port	Web Server		0/65535 (80)	basic
	This is an unsigned integer pa server is accessible. By default sure that the traffic is allowed by	t, the port is 80). If you ch	ange this port, you	
24		Web Server			basic
	The web access security can Access or Digest Access. It is security is an issue for you.				
41	XML Event Posting Activated	Event Posting		True/False (True)	basic
	This is a True/False parameter u	used to activate	or deactive	ate the XML event p	osting.
42	XML Event Posting Refresh Time	Event Posting	second	1/3600 (2)	basic
	The minimal time in second be default, this is done every two se		ulation of t	he XML events to	send. By
43	XML Event Posting Timeout	Event Posting	millisecon d	500/20000 (2000)	basic
	The timeout in millisecond when	trying to post >	KML data to	a Web Server.	
45	XML Event Posting To Secondary Only If Primary Failure	Event Posting		True/False (True)	basic
	If this parameter is set to true, server is not available. If this p primary and secondary server				
51	XML Heartbeat Time	Heartbeat	minute	0-2880	basic
	This is the time between 2 XML	Post of heartbe	eat. If set to	0, no hearbeat.	
61	SNMP Activated	SNMP		True/False (True)	basic
•	This is a True/False marrow star .	read to activate	or deactive	ate the SNIMP agen	+
	This is a True/False parameter u	iseu io aciivale	or deactive	ate the Sivivii agen	ι.
63	SNMP Trap Version	SNMP	or deactive	ate the Sivivir agen	basic

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64	SNMP GET Minimum Security Level	SNMP			basic
	4 choices are available: No Auth	entication, V1	Community	, V2c Community or	V3.
65	SNMP SET Minimum Security Level	SNMP			basic
	4 choices are available: No Auth	entication, V1	Community	, V2c Community or	· V3.
66	SNMP V3 Auth Algorithm	SNMP			basic
	3 choices are available: MD5, S	HA, Any			
67	SNMP V3 Privacy Algorithm	SNMP			basic
	3 choices are available: DES, Al	ES. 3DES			I
68		SNMP			basic
	The global SNMP V3 Encryptio avoid complexity		his one is	common for all the	
69	SNMP V3 Engine ID	SNMP			basic
	The SNMP V3 Local Engine ID	string			
72	ŭ	SNMP			basic
	2 choices are available: MD5, S	HA			
73	SNMP V3 Trap Privacy Algorithm	SNMP			basic
	3 choices are available: DES, Al	ES, 3DES			
74	SNMP V3 Trap Username	SNMP			basic
	The SNMP V3 Trap UserName	used for all the	SNMP V3 t	raps	
75	SNMP V3 Trap Auth Password	SNMP			basic
	The SNMP V3 Trap Authenticati	on Password			
76	SNMP V3 Trap Privacy Password	SNMP			basic
	The SNMP V3 Trap Privacy Pas				
81	Generate Event On Configuration Changes	General		True/False (True)	basic
	This is a True/False parame configuration changes	ter used to a	activate or	deactivate the tra	acking of
82	Auto Archive Period Data Record	General	hour		basic
	Period in hour to auto save reneeded). 0 means disabled.	cords (when c	letailled and	d long duration red	ords are
91	Required CAN Bus Node IDs	System Configuration CANOpen			basic
	This is a coma separated list wit	h the required (CAN bus no	ode ids	
92	LSS CAN id range	System Configuration CANOpen			basic
	By default 50-100, means up to support up to 100 rectifiers, char	50 Can Nodes	like rectifie	rs with CAN Id 50 to	100. To
93	System Nodes Definition	System Configuration CANOpen			basic
	1	1 - 1	1		i .

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95	dc3(30-100)				
93	LSS CANOpen Saved Configuration	System Configuration CANOpen			basic
	No information				
101	Administrator Login:Password	Users		(admin:compas)	basic
	This is the login and the pass syntax. First the login in clear password. If you change the log last is automatically hashed.	, followed of 2	2 points, fo	ollowed of the MD	5 hashed
102	User 1 Login:Password	Users		(user1:compas)	basic
	This is the login and the passwo	rd of the user n	number 1.		
103	User 2 Login:Password	Users		(user2:compas)	basic
	This is the login and the passwo	rd of the user n	number 2.		
104	User 3 Login:Password	Users		(user3:compas)	basic
	This is the login and the passwo	rd of the user n	umber 3.		
105	User 4 Login:Password	Users		(user4:compas)	basic
	This is the login and the passwo		umber 4.	,	
106	User 5 Login:Password	Users		(user5:compas)	basic
	This is the login and the passwo		umber 5.	T	1
210	RS485 Extensions	Extensions		PM9C(1)	asset
	configuration	05 5 4 !			
F01	The configuration string for RS4	1		(4.0.0.4.5)	la a a i a
521	Read Access User Numbers	Allowed Users		(1,2,3,4,5)	basic
	The list of the user numbers v numbers are coma separated. T	he accepted us			3,4
522	Write Access User Numbers	Allowed Users		()	basic
	The list of the user numbers whethat these users can modify the control elements. The user numbers with the control elements are numbers with the control elements.	configuration 6	element, the	e alarm settings an	d use the
	1,2,3,4 and 5. Ex: 1,3,4		. copa. a.co		er ids are
601	1,2,3,4 and 5. Ex: 1,3,4 Event Table Length	Event		10/4000 (100)	er ids are
601		Event	·	10/4000 (100)	basic
601 611	Event Table Length	Event	·	10/4000 (100)	basic
	Event Table Length The maximum length of the table	Event e. The value mi Event	ust be comp	10/4000 (100) prised between 10 a 192.168.45.1	basic and 4000 basic
	Event Table Length The maximum length of the table SNMP Trap Targets IP One or multiple target IP to	Event e. The value mu Event o send traps,	ust be comp	10/4000 (100) prised between 10 a 192.168.45.1	basic and 4000 basic
611	Event Table Length The maximum length of the table SNMP Trap Targets IP One or multiple target IP to 130.23.12.45 Minimal Event Severity For	Event e. The value mu Event o send traps, Event	ust be comp coma se	10/4000 (100) prised between 10 a 192.168.45.1 parated. Ex: 130 (none)	basic and 4000 basic 145.23.1,
611	Event Table Length The maximum length of the table SNMP Trap Targets IP One or multiple target IP to 130.23.12.45 Minimal Event Severity For Traps	Event Event send traps, Event e event to send	ust be comp coma se	10/4000 (100) prised between 10 a 192.168.45.1 parated. Ex: 130 (none)	basic and 4000 basic 145.23.1,
611	Event Table Length The maximum length of the table SNMP Trap Targets IP One or multiple target IP to 130.23.12.45 Minimal Event Severity For Traps This is the minimal severity of th XML Events Primary Post	Event Event send traps, Event e event to send Event e events related	coma se	10/4000 (100) prised between 10 a 192.168.45.1 parated. Ex: 130 (none)	basic basic 145.23.1, basic basic
611	Event Table Length The maximum length of the table SNMP Trap Targets IP One or multiple target IP to 130.23.12.45 Minimal Event Severity For Traps This is the minimal severity of th XML Events Primary Post URL This is the first URL at which the	Event e. The value mu Event o send traps, Event e event to send Event e events related the posted data	coma se	10/4000 (100) prised between 10 a 192.168.45.1 parated. Ex: 130 (none)	basic basic 145.23.1, basic basic

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653	XML Events Primary Post Password	Event			basic
	The password which must be us	ed when postin	ng events to	the primary server	
661	XML Events Secondary Post URL	Event			basic
	This is the second URL at which The XML ETSI standard is us redundancy with the manageme	sed in the pos			
662	XML Events Secondary Post Login	Event			basic
	The login which must be used w	hen posting ev	ents to the	secondary server	
663	XML Events Secondary Post Password	Event			basic
	The password which must be us	ed when postin	ng events to	the secondary serv	/er
901	Number Of PLC Data	PLC		(0)	plc
	The number of PLC data. Every data. Data elements are aut parameters are added to set the calculation. In order to use the module	omatically add ne PLC Data N	ded in the Name and	data table. Con the PLC Data Matl	figuration nematical
902	Number Of PLC Alarm	PLC		(0)	plc
	The number of PLC alarm. Ever alarms. Alarm elements are a parameters are added to set condition. In order to use the module	automatically a the PLC Alarn	ndded in tl n Name ar	ne alarm table. The the plant is a second the PLC Alarm	he alarm Boolean

Con	trol Table	1	
<u>Id</u>	<u>Name</u>	Group	<u>Licens</u>
			<u>e</u>
1	Reboot Monitoring	Comp@s	basic
	Writing a '1' to this control element will reboot the r be saved.	nonitoring. Events and Rec	ords will
2	Save Configuration And Reboot Monitoring	Comp@s	basic
	Writing a '1' to this control element will first save reboot the monitoring after.	e the actual configuration	and will
3	Reboot Monitoring Without Saving Records	Comp@s	basic
	Writing a '1' to this control element will reboot the m	onitoring without saving red	ords
6	Apply LAN Configuration	Comp@s	basic
	Writing a '1' to this control element will reconfig Network Configuration. If you change the IP addre this command after, the configuration is not applied.	ss in the config table without	
11	Force SNTP Time Refresh	Time	basic
	Writing a '1' to this control element will force the r with the configured SNTP Time Server.	monitoring to try to refresh	his time
12	Set Local Time	Time	basic
	Writing a date and time to this control element al time of the monitoring. The syntax of the date and the		
13	Set UTC Time	Time	basic

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	Writing a date and time to this control of time of the monitoring. The syntax of the			
14	Reset Uptime	Time	basic	
	Writing a '1' to this control element will res	set the uptime of the monitoring).	
21	Save XML User Configuration	Save	basic	
	Writing a '1' to this control element will sequipment in a XML format. This file is reconfigure the monitoring. This file is also downloaded trough the web interface.	ead when the monitoring is star accessible trough the FTP se	rting in order to erver or can be	
22	Save Inventory	Save	underd ev	
	Writing a '1' to this control element will s file is read when the monitoring is starting is also accessible trough the FTP ser interface.	g in order to configure the mon	itoring. This file	
33	Save Data Records	Save	basic	
	Writing a '1' to this control element wi records. This is useful if you want to unpo- called automatically everyday.			
34	Export Data Records in CSV	Save	basic	
	Writing a '1' to this control element will for files. The CSV files are stored in the reco		ne CVS records	
35	Archive Data Records	Save	basic	
	Writing a '1' to this control element will force the monitoring to save all the crecords. This is useful if you want to unpower the Comp@s monitoring. This functio called automatically everyday.			
40	Emulate Records	Emulation	underd ev	
	No information			
41	Reload Translations	Translation	basic	
	Writing a '1' to this control element will rel	load all the csv translation files		
51	Reload License	License	basic	
	Writing a '1' to this control element will rel	load the license file		
61	Remove Absent Equipments	Inventory	basic	
	No information			
81	Reset CAN Bus Node	CAN Bus	basic	
	Writing a valid CAN bus node id to this device.	control element will reset the	corresponden	
82	Save CANOpen LSS Configuration	CAN Bus	basic	
	No information			
83	Start New Inventory	CAN Bus	basic	
	No information	•		
91	Upgrade Node Firmware	CAN Bus	basic	
	This control element is used to start the need to upload first the firmware trough to write the id number of the CAN Node, Example: '101,SOFT_0000030_01.txt'.	ftp in the /user/firmware path.	Then you need	
	·	Jan		
92	Cancel Firmware Upgrade	CAN Bus	basic	

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	Node.			
103	Flash Binary	Comp@s Function	Advanced	basic
	This control element is used to start a binary flash user/firmware trough ftp in the /user/firmware path.	ıpdate. You need	to upload	first the
110	Download File From Url	Comp@s Function	Advanced	basic
	This control element is used to download a file wih The file is saved in the upload folder	t HTTP get, the a	argument i	s an url.
111	Delete User Uploaded File	Comp@s Function	Advanced	basic
	This control element is used to delete a file in the us these files are not used, they are temporary files.	ser-upload folder.	This is ris	kless as
112	Move User Uploaded File	Comp@s Function	Advanced	basic
	This control element is used to copy a file from the Be aware of what your are doing!	user-upload fold	er to anot	her one.
113	Extract Zip File in user-upload	Comp@s Function	Advanced	basic
	This control element is used to delete a file in the us these files are not used, they are temporary files.	ser-upload folder.	This is ris	kless as
501	Clear My Events	Event		basic
	By writing '1' to this control element, all the events of	f this equipment v	will be clea	ared.
502	Clear All Events	Event		basic
	By writing '1' to this control element, all the events of all the sub-equipments will be cleared.	of this equipment	and all the	e events
511	Add Event	Event		basic
	This control element adds an event of severity none to this control element	. The event name	e is the tex	t written
512	Add Major Event	Event		basic
	This control element adds an event of severity nuritten to this control element	najor. The event	name is	the text
521	Reset Default Names And Groups	Advanced		basic
	This control element resets all the element Names values for this equipment	, Groups and Sul	bgroups to	default
522	Reset Default Names And Groups Recursive	Advanced		basic
	This control element resets all the element Names values for this equipment and all sub equipments	, Groups and Sul	bgroups to	default

7.2 DC System Tables

7.2.1 MCU1X6

evice Information

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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

Desc	cription Table					
<u>ld</u>	<u>Name</u>	Group	<u>License</u>			
1	Description	Description	basic			
	A free text zone to write a syste	em description				
2	Reference	Description	basic			
	A free text zone to write the cus	stomer reference of the syste	em			
11	Product Name	Monitoring	basic			
	The product name of the DC system monitoring					
12	Hardware Reference	Monitoring	basic			
	The hardware reference of the	DC system monitoring				
14	Software Reference	Monitoring	asset			
	The serial number of the DC sy	stem monitoring				
16	Serial Number	Monitoring	asset			
	The serial number of the DC sy	stem monitoring				
18	Manufacturing Date	Monitoring	asset			
	The production date of the DC	system monitoring				

Alarr	n Table				
<u>Id</u>	<u>Name</u>	Severity Type (Level)	Set/Clear Delay		
1	DC Bus Extra Low	major (6)	5 / 2		
	The bus voltage is extra low. The alarm is a configuration parameter 'DC Bus Voltage Ealarm : 'DC Bus Voltage Extra Low Hystere mode is BATTERY TEST	Extra Low'. There is an	hysteresis on the		
2	DC Bus Low	minor (4)	5 / 2		
	The bus voltage is low. The alarm is set configuration parameter 'DC Bus Voltage L 'DC Bus Voltage Low Hysteresis'	•			
3	DC Bus High	minor (4)	5 / 2		
	The bus voltage is high. The alarm is set configuration paramenter 'DC Bus Voltage I'DC Bus Voltage High Hysteresis'		•		
4	DC Bus Extra High	major (6)	5 / 2		
	The bus voltage is extra high. The alarm is set when the bus voltage is higher than configuration parameter 'DC Bus Voltage Extra High'. There is an hysterisis on alarm: 'DC Bus Voltage Extra High Hysteresis'				

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5	DC Bus Voltage Sense Failure	major (6)	5 / 2
	The DC bus voltage sense is defective. unconfigured.	The DC bus voltage	is unconnected or
6	Mains Failure	minor (4)	5 / 2
	The number of active rectifiers is equal to 0 greater than 0.	and the number of rectif	iers in AC failure is
7	Mains Partial Failure	minor (4)	10 / 2
	The number of active rectifiers is greater to failure is greater than 0. Some rectifiers a open breaker, a real phase failure, or by a rectifier or by a rec	re in AC Failure. It may	
8	Mains Low	warning (2)	10 / 2
	The main voltage is low on one or more ph master type is 30110, 3096 or 3048M6, an to the voltage lower limit		
10	One Rectifier Failure	minor (4)	5 / 2
	One rectifier must be replaced or is not por rectifier is set. The number of rectifier with mains failure, and the 'More Than One Rect	n DC Failure is higher t ifier Failure alarm is not	han 0, there is no set.'
11	More Than One Rectifier Failure	major (6)	10 / 2
	There is no mains failure and number of rec	tifier failures is greater th	nan 1.
12	Missing Rectifiers	major (6)	5 / 2
	There is not enough rectifier according t Number Of Rectifier'	o the configuration par	rameter : 'Minimal
13	Battery Last Test Failed	minor (4)	5 / 2
	The last battery test did not succeed and was be replaced.	as not cancelled. Maybe	the battery should
14	Battery On Discharge	minor (4)	10 / 2
	The battery is discharging. This means the rectifiers. This alarm is inactive when the synthere is an hysteresis corresponding to hysteresis'.	stem in AC Failure or di	uring a battery test.
17	Battery LVD Relay Open	major (6)	5/2
	The battery Low Voltage Disconnector is signal, like MCU 1848 or MCU 1x6, the ala asks to open the LVD		
18	Battery Temperature Too High	minor (4)	5 / 2
	The temperature of the battery is too high a hysteresis corresponding to battery paramet		
19	Battery Temperature Too Low	minor (4)	5 / 2
	The temperature of the battery is too low a hysteresis corresponding to battery paramet	•	
20	Battery Temperature Sensor Fail	minor (4)	5 / 2
	The battery temperature sensor (NTC) value not connected or defective.	e is inferior to -500 units	s meaning that it is
21	Ambient Temperature Too High	minor (4)	5/2
	The ambient temperature is too high and hysteresis corresponding to parameter 'Amb only activated on MCU master types 3011 0948 and 3048M6.	piant temperature hyster	esis'. This alarm is

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22	Ambient Temperature Too Low	minor (4)	5 / 2
	The ambient temperature is too low and hysteresis corresponding to parameter 'Ambonly activated on MCU master types 3011 0948 and 3048M6.	piant temperature hyster	esis'. This alarm is
23	Ambient Temperature Sensor Fail	minor (4)	5 / 2
	The ambiant temperature sensor (NTC) value not connected or defective.	ue is inferior to -500 unit	s meaning that it is
25	Distribution Breaker Open	major (6)	5 / 2
	This alarm is related to digital input 1. This different to configuration parameter 'Digital In		gital input value is
26	Battery Breaker Open	minor (4)	5 / 2
	This alarm is related to digital input 2. This different to configuration parameter 'Digital II		gital input value is
27	Digital Input 3	none (0)	5 / 2
	This alarm is related to digital input 3. This different to configuration parameter 'Digital In		gital input value is
28	Digital Input 4	none (0)	5 / 2
	This alarm is related to digital input 4. This different to configuration parameter 'Digital II		gital input value is
29	Digital Input 5	disabled (0)	5 / 2
	This alarm is related to digital input 5. This different to configuration parameter 'Digital In		gital input value is
30	Digital Input 6	disabled (0)	5 / 2
	This alarm is related to digital input 6. This different to configuration parameter 'Digital In		gital input value is
31	Digital Input 7	disabled (0)	5 / 2
	This alarm is related to digital input 7. This different to configuration parameter 'Digital In		gital input value is
32	Digital Input 8	disabled (0)	5 / 2
	This alarm is related to digital input 8. This different to configuration parameter 'Digital In		gital input value is

Data	Table			
<u>Id</u>	<u>Name</u>	Group	<u>Unit</u>	<u>Licens</u>
				<u>e</u>
1	DC Mode	General		basic
	The DC system can have 4 value 'AC_FAILURE' or SAFE	es: 'FLOAT', 'BOO	ST', 'BATTERY_	_TEST',
2	Previous DC Mode	General		basic
	The previous value of the DC Mode			
11	Bus Voltage	General	Volt	basic
	The DC bus voltage in volt.			
12	Ratio Delivered On Available Power	General	%	basic
	This is the ratio of the delivered power di	vided by the installed	d power, in %.	
13	Minutes Since Last AC Failure Begin	General	minute	basic
	The number of minute since the last AC	Failure begin	<u>-</u>	

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14	Minutes Since Last AC Failure End	General	minute	basic
14	The number of minute since the last AC		Immute	Dasic
21	Rectifiers Output Power	Rectifiers	Watt	basic
4 I	The sum of the delivered rectifier power	i lectillers	vvali	Dasic
22	Rectifiers Output Current	Rectifiers	Ampere	basic
22	The sum of the delivered rectifier current		Ampere	Dasic
23		Rectifiers	Watt	basic
23	Rectifiers Output Power Max		vvali	Dasic
24	The sum of the deliverable rectifier power	Rectifiers	Amnoro	basis
24	Rectifiers Output Current Max		Ampere	basic
21	The sum of the deliverable rectifier curre		1	l!-
31	Number Of Rectifier Max	Rectifiers		basic
	The maximum possible number of rectific		-	i
32	Number Of Present Rectifier	Rectifiers		basic
	The actual number of present rectifier in	· · · · · · · · · · · · · · · · · · ·	1	I
33	Number Of Absent Rectifier	Rectifiers		basic
_	The actual number of absent rectifier in t		1	T
34	Number Of Active Rectifier	Rectifiers		basic
	The actual number of active rectifier in the which is present, DC OK, AC OK and no	•	ctive rectifier is a	rectifier
35	Number Of AC-Fail Rectifier	Rectifiers		basic
	The actual number or rectifier in AC Faile	ure.		
36	Number Of DC-Fail Rectifier	Rectifiers		basic
	The actual number or rectifier with DC F	ailure.		
37	Number Of Remote Off Rectifier	Rectifiers		basic
	The actual number or rectifier in remote	off.		
38	Number Of Over Temperature Rectifier	Rectifiers		basic
	The actual number or rectifier in OVer Te	emperature.		
51	Load Power	Load	Watt	basic
	Estimation of the load power consumption	on		
52	Load Current	Load	Ampere	basic
	Estimation of the load current consumpti	on		
61	Battery Input Current	Battery	Ampere	basic
	Measurement of the battery input currer discharging	nt. A negative value	means that the ba	attery is
62	Battery Input Power	Battery	Watt	basic
	Measurement of the battery input powe discharging	r. A negative value	means that the ba	attery is
71	Battery Temperature	Battery	degree C	basic
	The battery temperature			
72	Battery Test State	Battery		basic
	This is about the result of the land NEVER_TESTED, SUCCESS, FAILED_VBUS_TOO_LOW, FAILED_FAILED_CANCELED, FAILED_LVD_OF	ON_GOING, LOAD_TOO_LOW,	values are pos FAILED_TIM FAILED_AC_FA	1EOUT
73	Battery Test Discharged Capacity Ratio	Battery	%	basic
	1	i .		

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	This is the battery capacity, in percent,		the last battery to	st. This
	value is updated at the end of the batter		T	T
74	Battery Test Discharged Capacity	Battery	Ah	basic
	This is the battery capacity, in ampere This value is updated at the end of the b		-	ery test.
75	Battery Test Final Voltage	Battery	%	basic
	This is the bus voltage at the end of the end of the battery test.	last battery test. Th	is value is update	d at the
81	Previous Battery Test State	Battery		basic
	The result of the previous battery test			_
82	Minutes Since Last Test Battery	Battery		basic
	The number of minute without battery te		1	_
91	Battery Charge Capacity	Battery	%	basic
	The battery charge capacity, calculated	, 		
92	Calculated Autonomy	Battery	minute	basic
	Calculation of the remaining autonomy	1_	T-	T
93	Battery Current Integration	Battery	As	basic
	Actual value of the integration of the cur		1	T
94	Battery Current Integration	Battery	Ah	basic
	Actual value of the integration of the cur		ır T	T
101	LVD State	LVD		basic
	Actual state of the LVD	·lo . =	1	Τ .
121	Efficiency Optimized Number Of Rectifier	Smart Energy		asset
	The optimal number of ON rectifier for E	fficiency Optimization	1	_
122	System Loss Without Optimisation	Smart Energy	Watt	under dev
	Estimation of the losses without optimisa	ation	_	
123	System Loss With Optimisation	Smart Energy	Watt	under dev
	Estimation of the losses with optimisatio	n		
124	Rectifier Model Used For Calculation	Smart Energy		asset
	The rectifier model used		•	
125	Smart Energy Savings	Smart Energy	Watt	asset
	Estimation of the losses with optimisatio	n		
151	Ambient Temperature	Sensors	degree C	basic
	The ambiant temperature (second temperature)	erature sense)		
161	Voltage Sense 1	Sensors	Volt	basic
	The voltage measured by the sens measurement. Calculation can be done		d for battery sy	mmetry
162	Voltage Sense 2	Sensors	Volt	basic
	The voltage measured by the sens measurement. Calculation can be done		d for battery sy	mmetry
163	Voltage Sense 3	Sensors	Volt	basic
	The voltage measured by the sens measurement. Calculation can be done		d for battery sy	mmetry
204	Digital Input 4 Counter	Sensors		basic
	<u>'</u>	I.	1	

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The counter value of the digital input 4.

-	g Table				
	<u>Name</u>	<u>Group</u>	<u>Unit</u>	Range: Min/Max (default)	<u>License</u>
	DC Bus Float Voltage at 25 degC		Volt	40/60 (54)	basic
	The floating dc bus voltage of the		1	Ĭ	,
 		Bus Voltage	Volt	40/60 (45)	basic
-	The bus voltage under which the	ı	,	1	I
	DC Bus Voltage Extra Low Hysteresis	_	Volt	0/5 (1)	basic
	The voltage hysteresis on the al	ı	, <u> </u>	1	T
		Bus Voltage	Volt	40/60 (48)	basic
-	The bus voltage under which the	l	,		l
	Hysteresis	Bus Voltage	Volt	0/5 (0.5)	basic
	The voltage hysteresis on the al		,	T	T
 		Bus Voltage	Volt	40/60 (56.5)	basic
-	The bus voltage over which the		, , , , , , , , , , , , , , , , , , , 	1	ı
	DC Bus Voltage High Hysteresis	Bus Voltage	Volt	0/5 (0.5)	basic
	The voltage hysteresis on the al	arm 'DC Bus V	oltage High	T	
 		Bus Voltage	Volt	40/60 (58)	basic
	The bus voltage over which the		Voltage Ex	tra High' is set.	r
	DC Bus Voltage Extra High Hysteresis	Bus Voltage	Volt	0/5 (0.5)	basic
-	The voltage hysteresis on the ala	1		a High	
10	LVD Disconnect Voltage	Bus Voltage	Volt	0/50 (43.2)	basic
	The dc bus voltage under whic allows preserving the battery life	. The load will	be unpowei	red.	ous. This
11	LVD Disconnect Delay	Bus Voltage	second	1/2000 (1)	basic
	The delay in second before disc configured disconnected voltage				
	Temperature Compensation Slope	Temperature Compensatio n	mV/degre e	-1000/0 (-72)	basic
	The slope of the battery tempera 72mV/degree is often used.	ature compens	ation in mv	/degree. For a 48V	system, -
	Maximum Positive Temperature Compensation	Temperature Compensatio n	Volt	0/10 (3)	basic
	The maximal allowed positive co	mpensation.		T	
_	Maximum Negative Temperature Compensation	Temperature Compensatio	Volt	-10/0 (-3)	basic
		n			

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25	Minimal Number Of Present	Rectifiers		0/100 (0)	basic
	Rectifiers				
	The minimal number of rectification rectifiers, the alarm 'Missing Rec		t be prese	nt. If there is less	present
26	Rectifier Model	Rectifiers			basic
	The rectifier model	1			10000
27	Forced Remote Off Rectifers	Rectifiers			basic
	A list of rectifier which are force		ff. The id c	of the rectifier must	
	separated. Ex: 1,3 will maintain				
31	Battery Charge Current Limit	Battery	Ampere	0.5/1000 (1000)	basic
	The maximal battery current when the bus voltage in order to satisful nominal battery capacity divided	sfy this condition			
32	Battery String Capacity	Battery	Ah	3/1000 (100)	basic
	The battery capacity in Ah.				
33	Battery Temperature Low	Battery	degree C	-100/20 (0)	basic
	The temperature under which the	e alarm 'Batter	y Temperat	ure Too Low' must I	oe set.
34	Battery Temperature High	Battery	degree C	5/100 (40)	basic
	The temperature over which the	alarm 'Battery	Temperatu	re Too High' must b	e set.
35	Battery Temperature Hysteresis	Battery	degree C	0/10 (2)	basic
	The hysteresis on the 'Battery Low' alarms.	Temperature To	oo High' ar	nd 'Battery Tempera	ature Too
36	Minimal Current For Discharging Alarm	Battery	Ampere	0/1000 (3)	basic
	The minimal discharging current	to set the 'Batt	ery On Dis	charge' alarm.	
37	Current Hysteresis For Discharging Alarm	Battery	Ampere	0/50 (1)	basic
	The hysteresis on the 'Battery O	n Discharge' al	arm.		
41	Shunt Rating At 60mV	Battery	Ampere	25/5000 (250)	basic
	The rating of the battery shunt a	t 60mV.			
51	Boost Automatic	Boost		False/False (False)	battery
	The boost mode must be autor bus voltage went under the cocharging the battery faster.				
52	Boost Activation Low Voltage	Boost	Volt	43/50 (46)	battery
	The voltage under which the boo	ost mode can b	e activated		1
53	Boost Termination Voltage	Boost	Volt	50/58 (56.4)	battery
	The voltage over which the syste	em must go bad	ck to floatin	g mode.	
54	Boost Termination Current	Boost	Ampere	0/100 (4)	battery
	The battery charging current und	der which the sy	ystem must	go back to floating	mode.
55	Boost Termination Time	Boost	minute	10/240 (120)	battery
	The time in minute after which the	ne system must	go back in	floating mode.	
70	Battery Test End Voltage	Battery Test	Volt	30/60 (46)	battery
	The voltage at which any battery	test must be s	topped.		
71	Battery Test Discharge Ratio	Battery Test	%	0/100 (0)	battery

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72	The ratio of the battery capa discharged during the test	city to discharge	e. If 30 is s	set, 30% of the bat	tery will be
, <u>~</u>	Battery Test Interval	Battery Test	day	0/3000 (0)	battery
	The number of days between set to 0, the battery test is no start or force this test.				
73	Battery Test Dischar Current	Battery Test	Ampere	3/100 (1000)	battery
	The current at which the bus monitoring regulates the bus must be of course higher than	voltage in order			
74	Discharge Current	nal Battery Test	Ampere	2/90 (2)	battery
	The battery current under what too low.	nich the battery to	est must be	e stopped because	the load is
75	Battery Test Time Out	Battery Test	minute	1/5000 (10)	battery
	The timeout in minute after w	hich the battery t	est must be	e stopped.	
76	Battery Test Request Minutes Without Mai Failure	ed Battery Test	minute	0/5000 (1440)	battery
	The minimal time in minute very parameter is not taken into according to the minute of the minute of the minimal time.				start. This
83	Smart Energy Boole Condition	Smart Energy	′	121-125	asset
	This is the boolean condition of rectifier in remote off.		not to auto	· ·	
86	Battery LVD Node Id	LVD		True/False (False	e) basic
	This is a list of the condition of	the Smart Floatre	onic LVDs,	coma separated	
	This is a list of the node id of				
91	Digital Input 1 Name	Digital Inputs		Distribution Breaker Open	basic
	Digital Input 1 Name The name of the digital input	Digital Inputs		Breaker Open	
91 92	The name of the digital input Digital Input 1 Norma Closed	Digital Inputs 1 Illy Digital Inputs		Breaker Open True/False (True) basic
92	The name of the digital input Digital Input 1 Norma Closed True/False value defining if t not in this default state, the re-	Digital Inputs 1 Digital Inputs he digital input 1 elated alarm is se	is normall	Breaker Open True/False (True y closed. If this dig) basic
	Digital Input 1 Name The name of the digital input Digital Input 1 Normal Closed True/False value defining if the not in this default state, the result of the notation of	Digital Inputs Illy Digital Inputs he digital input 1 elated alarm is se Digital Inputs	is normall	Breaker Open True/False (True y closed. If this dig) basic
92 93	Digital Input 1 Name The name of the digital input Digital Input 1 Normal Closed True/False value defining if the notion this default state, the result of the normal control of the digital input 1 Name The name of the digital input 1 Name	Digital Inputs 1 Digital Inputs he digital input 1 Plated alarm is se Digital Inputs	is normall	Breaker Open True/False (True y closed. If this dig Battery Break Open	basic lital input is er basic
92	Digital Input 1 Name The name of the digital input Digital Input 1 Normal Closed True/False value defining if the not in this default state, the result of the name of the digital input Digital Input 2 Normal Closed	Digital Inputs Illy Digital Input 1 Plated alarm is se Digital Inputs Digital Inputs Digital Inputs	is normall t.	Breaker Open True/False (True y closed. If this dig Battery Break Open True/False (True	basic ital input is er basic basic
92 93	The name of the digital input Digital Input 1 Normal Closed True/False value defining if the notion this default state, the result of the name of the digital input Digital Input 2 Normal Closed True/False value defining if the notion this default state, the result of the notion this default state, the result of the notion this default state, the result of the name of the digital input Digital Input 2 Normal Closed	Digital Inputs I Digital Inputs The digital Input 1 Digital Input 1 Digital Inputs Digital Inputs Digital Inputs Digital Inputs Digital Inputs Digital Inputs Digital Input 2 Digital Input 3 Digital	is normall t.	Breaker Open True/False (True y closed. If this dig Battery Break Open True/False (True	basic ital input is er basic basic
92 93	Digital Input 1 Name The name of the digital input Digital Input 1 Normal Closed True/False value defining if the notion this default state, the result of the digital input Digital Input 2 Normal Closed True/False value defining if the notion this default state, the result of the digital input Digital Input 2 Normal Closed True/False value defining if the notion this default state, the result of the digital input Digital Input 3 Name	Digital Inputs Illy Digital Input 1 Plated alarm is se Digital Inputs	is normall t.	Breaker Open True/False (True y closed. If this dig Battery Break Open True/False (True	basic ital input is er basic basic
92 93 94	The name of the digital input Digital Input 1 Normal Closed True/False value defining if the notion this default state, the result of the name of the digital input Digital Input 2 Normal Closed True/False value defining if the notion this default state, the result of the notion this default state, the result of the notion this default state, the result of the name of the digital input Digital Input 2 Normal Closed	Digital Inputs Illy Digital Input 1 Plated alarm is se Digital Inputs	is normall t.	Breaker Open True/False (True y closed. If this dig Battery Break Open True/False (True y closed. If this dig	basic ital input is er basic basic basic ital input is
92 93 94	The name of the digital input Digital Input 1 Norma Closed True/False value defining if t not in this default state, the re Digital Input 2 Name The name of the digital input Digital Input 2 Norma Closed True/False value defining if t not in this default state, the re Digital Input 3 Name The name of the digital input	Digital Inputs Illy Digital Input 1 Plated alarm is se Digital Inputs	is normall t.	Breaker Open True/False (True y closed. If this dig Battery Break Open True/False (True y closed. If this dig	basic ital input is er basic basic ital input is basic
92 93 94	The name of the digital input Digital Input 1 Norma Closed True/False value defining if t not in this default state, the re Digital Input 2 Name The name of the digital input Digital Input 2 Norma Closed True/False value defining if t not in this default state, the re Digital Input 3 Name The name of the digital input Digital Input 3 Norma	Digital Inputs I Digital Inputs The digital Input 1 Digital Input 1 Digital Inputs dilly Digital Inputs	is normall t.	Breaker Open True/False (True y closed. If this dig Battery Break Open True/False (True y closed. If this dig Digital Input 3	basic basic basic basic basic basic basic

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	The nam	ne of the	digita	al input 4				
98	Digital	Input		•	Digital Inputs		True/False (True)	basic
	Closed						` '	
		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.						
99	Digital I	nput 5 N	lame		Digital Inputs		Digital Input 5	basic
	The nam	e of the	digita	al input 5	-			
100	Digital Closed	Input	5	Normally	Digital Inputs		True/False (True)	basic
					digital input 5 ed alarm is set		closed. If this digita	al input is
101	Digital I	nput 6 N	lame	!	Digital Inputs		Digital Input 6	basic
	The nam	ne of the	digita	al input 6				
102	Digital Closed	Input	6	Normally	Digital Inputs		True/False (True)	basic
							closed. If this digital	al input is
					ed alarm is set	• 1	I	
103	Digital I	•			Digital Inputs		Digital Input 7	basic
	The nam	e of the	digit	al input 7		1		
104	Digital Closed	Input	7	Normally	Digital Inputs		True/False (True)	basic
					digital input 7 ed alarm is set		closed. If this digita	al input is
105	Digital I	nput 8 N	lame	1	Digital Inputs		Digital Input 8	basic
	The nam	ne of the	digit	al input 8				
106	Digital Closed	Input	8	Normally	Digital Inputs		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.							
111	Dry A Boolean			Iternative	Dry Alarms		False	plc
				dition to ac the PLC o	•	larm relay	1. The way to define	e boolear
112	Dry A Boolean			Iternative	Dry Alarms		False	plc
	condition	ı is detai	led ir	the PLC	chapter.	larm relay 2	2. The way to define	e boolear
113	Boolean		ion		Dry Alarms		False	plc
	condition	ı is detai	led ir	the PLC	chapter.	larm relay (3. The way to define	
114	Dry A Boolean			Iternative	Dry Alarms		False	plc
				dition to ac the PLC o		larm relay 4	4. The way to define	e boolear
131	Ambien	t Tempe	ratu	re Low	Sensors	degree C		basic
	The tem	perature	unde	er which th	e alarm 'Ambia	nt Tempera	ture Too Low' must	be set.
132	Ambien	t Tempe	ratu	re High	Sensors	degree C		basic
	The tem	perature	unde	er which th	e alarm 'Ambia	nt Tempera	ture Too Low' must	be set.

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133	Ambient Temperature Hysteresis	Sensors	degree C		basic
	The hysteresis on the 'Battery 'Low' alarms.	Temperature T	oo High' ar	nd 'Battery Tempera	ature Too
521	Read Access User Numbers	Allowed Users		(1,2,3,4,5)	basic
	The list of the user numbers v numbers are coma separated. T				
522	Write Access User Numbers	Allowed Users		()	basic
	The list of the user numbers what these users can modify the control elements. The user num 1,2,3,4 and 5. Ex: 1,3,4	configuration e	element, the	e alarm settings and	d use the
601	Event Table Length	Event		10/4000 (100)	basic
	The maximum length of the table	e. The value mu	ust be comp	prised between 10 a	nd 4000
602	Event Table Length By Rectifier	Event		10/4000 (100)	basic
	The maximum length of the table	e. The value mu	ust be comp	prised between 10 a	nd 4000
901	Number Of PLC Data	PLC		(0)	plc
	The number of PLC data. Every data. Data elements are aut parameters are added to set the calculation. In order to use the module	omatically add ne PLC Data N	ded in the Name and	data table. Con the PLC Data Math	figuration nematical
902	Number Of PLC Alarm	PLC		(0)	plc
	The number of PLC alarm. Ever alarms. Alarm elements are a parameters are added to set condition. In order to use the module	automatically a the PLC Alarn	added in tl n Name ar	ne alarm table. The alarm table the PLC Alarm	ne alarm Boolean

Con	itrol Table					
<u>Id</u>	<u>Name</u>	Group	<u>Licens</u> <u>e</u>			
1	Back To Float	DC Mode	basic			
	The dc system must go back in floating i	mode.				
2	Start Battery Test	DC Mode	battery			
	The dc system must start a battery test.					
3	Force Battery Test	DC Mode	battery			
	The dc system must force a battery test.					
4	Start Boost Mode	DC Mode	battery			
	The dc system must go in boost mode.					
11	Open The LVD	LVD	basic			
	The LVD must be opened					
12	Close The LVD	LVD	basic			
	The LVD must be closed	•				
21	Correct Battery Current Offset	Battery	basic			

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	No information					
31	Reset Battery Current Integration	Battery	basic			
	Reset the integration of the battery current.					
41	Reset Last Battery Test State	Battery	battery			
	Reset the state of the last battery test. If an alarm 'Battery Last Test Failed' is set, alarm will be cleared.					
51	Save Configuration In MCU	Save	basic			
	Save configuration parameters in the MCU microcounthe system will be correctly managed.	ontroller. If comp@s is not	present,			
61	Set Digital Input 4 Counter Value	Counters	basic			
	Set Counter Value					
501	Clear My Events	Event	basic			
	By writing '1' to this control element, all the events of	f this equipment will be cle	ared.			
502	Clear All Events	Event	basic			
	By writing '1' to this control element, all the events of all the sub-equipments will be cleared.	of this equipment and all th	e events			
511	Add Event	Event	basic			
	This control element adds an event of severity none to this control element	e. The event name is the tex	kt written			
512	Add Major Event	Event	basic			
	This control element adds an event of severity major. The event name is the tex written to this control element					
521	Reset Default Names And Groups	Advanced	basic			
	This control element resets all the element Names values for this equipment	, Groups and Subgroups t	o default			
522	Reset Default Names And Groups Recursive	Advanced	basic			
	This control element resets all the element Names values for this equipment and all sub equipments	, Groups and Subgroups t	o default			

7.2.2 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			

Desc	Description Table					
<u>Id</u>	<u>Name</u>	Group	<u>License</u>			
1	Description	Description	basic			
	A free text zone to write a system description					

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2	Reference	Description	basic		
	A free text zone to write the cus	stomer reference of the syste	em		
11	Product Name	Monitoring	basic		
	The product name of the DC sy	stem monitoring			
12	Hardware Reference	Monitoring	basic		
	The hardware reference of the	DC system monitoring			
14	Software Reference	Monitoring	asset		
	The serial number of the DC sy	stem monitoring			
16	Serial Number	asset			
	The serial number of the DC system monitoring				
18	Manufacturing Date	Monitoring	asset		
	The production date of the DC system monitoring				

Alarr	n Table				
<u>Id</u>	<u>Name</u>	Severity Type (Level)	Set/Clear Delay		
1	DC Bus Extra Low	major (6)	5/2		
	The bus voltage is extra low. The alarm is a configuration parameter 'DC Bus Voltage I alarm : 'DC Bus Voltage Extra Low Hystere mode is BATTERY TEST	Extra Low'. There is an	hysteresis on the		
2	DC Bus Low	minor (4)	5 / 2		
	The bus voltage is low. The alarm is set configuration parameter 'DC Bus Voltage L 'DC Bus Voltage Low Hysteresis'				
3	DC Bus High	minor (4)	5/2		
	The bus voltage is high. The alarm is set configuration paramenter 'DC Bus Voltage I'DC Bus Voltage High Hysteresis'				
4	DC Bus Extra High	major (6)	5/2		
	The bus voltage is extra high. The alarm is set when the bus voltage is higher than the configuration paramenter 'DC Bus Voltage Extra High'. There is an hysterisis on the alarm: 'DC Bus Voltage Extra High Hysteresis'				
5	DC Bus Voltage Sense Failure	major (6)	5/2		
	The DC bus voltage sense is defective. unconfigured.	The DC bus voltage	is unconnected or		
6	Mains Failure	minor (4)	5/2		
	The number of active rectifiers is equal to 0 greater than 0.	and the number of rectif	iers in AC failure is		
7	Mains Partial Failure	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.				
8	Mains Low	warning (2)	10 / 2		
	The main voltage is low on one or more ph master type is 30110, 3096 or 3048M6, an to the voltage lower limit				
10	One Rectifier Failure	minor (4)	5/2		

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	T				
	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.'				
11	More Than One Rectifier Failure	major (6)	10 / 2		
''			l .		
10	There is no mains failure and number of re-				
12	Missing Rectifiers	major (6)	5 / 2		
	There is not enough rectifier according Number Of Rectifier'		_		
13	Battery Last Test Failed	minor (4)	5 / 2		
	The last battery test did not succeed and v be replaced.	vas not cancelled. Maybe	e the battery should		
14	Battery On Discharge	minor (4)	10 / 2		
	The battery is discharging. This means rectifiers. This alarm is inactive when the s There is an hysteresis corresponding to hysteresis'.	ystem in AC Failure or d	uring a battery test. discharging current		
17	Battery LVD Relay Open	major (6)	5 / 2		
	The battery Low Voltage Disconnector i signal, like MCU 1848 or MCU 1x6, the all asks to open the LVD				
18	Battery Temperature Too High	minor (4)	5 / 2		
	The temperature of the battery is too high hysteresis corresponding to battery parameters.				
19	Battery Temperature Too Low	minor (4)	5 / 2		
	The temperature of the battery is too low hysteresis corresponding to battery parameters.				
20	Battery Temperature Sensor Fail	minor (4)	5 / 2		
	The battery temperature sensor (NTC) valued not connected or defective.	ue is inferior to -500 unit	ts meaning that it is		
25	Distribution Breaker Open	major (6)	5 / 2		
	This alarm is related to digital input 1. The different to configuration parameter 'Digital'		digital input value is		
26	Battery Breaker Open	minor (4)	5 / 2		
	This alarm is related to digital input 2. The different to configuration parameter 'Digital'		digital input value is		
27	Digital Input 3	none (0)	5 / 2		
	This alarm is related to digital input 3. The different to configuration parameter 'Digital		digital input value is		
28	Digital Input 4	none (0)	5 / 2		
	This alarm is related to digital input 4. The different to configuration parameter 'Digital'		digital input value is		

Data	Table			
<u>ld</u>	<u>Name</u>	Group	<u>Unit</u>	<u>Licens</u>
				<u>e</u>
1	DC Mode	General		basic
	The DC system can have 4 value 'AC_FAILURE' or SAFE	es: 'FLOAT', 'BOO	ST', 'BATTERY_	_TEST',

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Previous DC Mode General The previous value of the DC Mode	basic basic basic basic
11 Bus Voltage The DC bus voltage in volt. 12 Ratio Delivered On Available Power General % This is the ratio of the delivered power divided by the installed power, in % 13 Minutes Since Last AC Failure Begin General minute The number of minute since the last AC Failure begin 14 Minutes Since Last AC Failure End General minute The number of minute since the last AC Failure end 21 Rectifiers Output Power Rectifiers Watt The sum of the delivered rectifier power	basic basic basic basic basic
The DC bus voltage in volt. Ratio Delivered On Available Power General % This is the ratio of the delivered power divided by the installed power, in % Minutes Since Last AC Failure Begin General minute The number of minute since the last AC Failure begin Minutes Since Last AC Failure End General minute The number of minute since the last AC Failure end Rectifiers Output Power Rectifiers Watt The sum of the delivered rectifier power	basic basic basic basic basic
12 Ratio Delivered On Available Power General % This is the ratio of the delivered power divided by the installed power, in % 13 Minutes Since Last AC Failure Begin General minute The number of minute since the last AC Failure begin 14 Minutes Since Last AC Failure End General minute The number of minute since the last AC Failure end 21 Rectifiers Output Power Rectifiers Watt The sum of the delivered rectifier power	basic basic basic basic basic
This is the ratio of the delivered power divided by the installed power, in % Minutes Since Last AC Failure Begin General minute The number of minute since the last AC Failure begin Minutes Since Last AC Failure End General minute The number of minute since the last AC Failure end Rectifiers Output Power Rectifiers Watt The sum of the delivered rectifier power	basic basic basic basic basic
13 Minutes Since Last AC Failure Begin General minute The number of minute since the last AC Failure begin 14 Minutes Since Last AC Failure End General minute The number of minute since the last AC Failure end 21 Rectifiers Output Power Rectifiers Watt The sum of the delivered rectifier power	basic basic basic
The number of minute since the last AC Failure begin 14 Minutes Since Last AC Failure End General minute The number of minute since the last AC Failure end 21 Rectifiers Output Power Rectifiers Watt The sum of the delivered rectifier power	basic basic basic
14 Minutes Since Last AC Failure End General minute The number of minute since the last AC Failure end 21 Rectifiers Output Power Rectifiers Watt The sum of the delivered rectifier power	basic
The number of minute since the last AC Failure end 21 Rectifiers Output Power The sum of the delivered rectifier power	basic
21 Rectifiers Output Power Rectifiers Watt The sum of the delivered rectifier power	basic
The sum of the delivered rectifier power	basic
22 Rectifiers Output Current Rectifiers Ampere	l I
	h : -
The sum of the delivered rectifier current	h!-
23 Rectifiers Output Power Max Rectifiers Watt	basic
The sum of the deliverable rectifier power	
24 Rectifiers Output Current Max Rectifiers Ampere	basic
The sum of the deliverable rectifier current	
31 Number Of Rectifier Max Rectifiers	basic
The maximum possible number of rectifier in this dc system	
32 Number Of Present Rectifier Rectifiers	basic
The actual number of present rectifier in this dc system	
33 Number Of Absent Rectifier Rectifiers	basic
The actual number of absent rectifier in this dc system	
34 Number Of Active Rectifier Rectifiers	basic
The actual number of active rectifier in this dc system. An active rectifier which is present, DC OK, AC OK and not in remote off.	is a rectifier
35 Number Of AC-Fail Rectifier Rectifiers	basic
The actual number or rectifier in AC Failure.	
36 Number Of DC-Fail Rectifier Rectifiers	basic
The actual number or rectifier with DC Failure.	
37 Number Of Remote Off Rectifier Rectifiers	basic
The actual number or rectifier in remote off.	<u> </u>
38 Number Of Over Temperature Rectifiers Rectifier	basic
The actual number or rectifier in OVer Temperature.	
51 Load Power Load Watt	basic
Estimation of the load power consumption	
52 Load Current Load Ampere	basic
Estimation of the load current consumption	
61 Battery Input Current Battery Ampere	basic
Measurement of the battery input current. A negative value means that the discharging	he battery is
62 Battery Input Power Battery Watt	basic
Measurement of the battery input power. A negative value means that the discharging	

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71	Battery Temperature	Battery	degree C	basic		
	The battery temperature	, ,	19	1 - 5.0.0		
72	Battery Test State	Battery		basic		
	This is about the result of the last NEVER_TESTED, SUCCESS, FAILED_VBUS_TOO_LOW, FAILED_FAILED_CANCELED, FAILED_LVD_OF	on_GOING, LOAD_TOO_LOW,	FAILED_TIM	sible : IEOUT,		
73	Battery Test Discharged Capacity Ratio	Battery	%	basic		
	This is the battery capacity, in percent, value is updated at the end of the battery		he last battery te	st. This		
74	Battery Test Discharged Capacity	Battery	Ah	basic		
	This is the battery capacity, in ampere This value is updated at the end of the battery		ring the last batte	ery test.		
75	Battery Test Final Voltage	Battery	%	basic		
	This is the bus voltage at the end of the end of the battery test.	last battery test. Thi	s value is update	d at the		
81	Previous Battery Test State	Battery		basic		
	The result of the previous battery test	,	,			
82	Minutes Since Last Test Battery	Battery		basic		
	The number of minute without battery tes	st				
91	Battery Charge Capacity	Battery	%	basic		
	The battery charge capacity, calculated by integration of the current.					
92	Calculated Autonomy	Battery	minute	basic		
	Calculation of the remaining autonomy	,	,			
93	Battery Current Integration	Battery	As	basic		
	Actual value of the integration of the curr		ond	_		
94	Battery Current Integration	Battery	Ah	basic		
	Actual value of the integration of the curr	·	ır			
101	LVD State	LVD		basic		
	Actual state of the LVD	,	,			
121	Rectifier	Smart Energy		asset		
	The optimal number of ON rectifier for El					
122	System Loss Without Optimisation	Smart Energy	Watt	under dev		
	Estimation of the losses without optimisa	I	T	T		
123	System Loss With Optimisation	Smart Energy	Watt	under dev		
	Estimation of the losses with optimisation	1	T	T		
124	Rectifier Model Used For Calculation	Smart Energy		asset		
	The rectifier model used	<u>-</u>		1		
125	Smart Energy Savings	Smart Energy	Watt	asset		
	Estimation of the losses with optimisation	n		_		

Config Table

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<u>Id</u>	<u>Name</u>	<u>Group</u>	<u>Unit</u>	Range: Min/Max (default)	<u>License</u>
1	DC Bus Float Voltage at 25 degC	Bus Voltage	Volt	40/60 (54)	basic
	The floating dc bus voltage of th	e system at 25	Celsius de	gree	
2	DC Bus Voltage Extra Low	Bus Voltage	Volt	40/60 (45)	basic
	The bus voltage under which the	alarm 'DC Bus	s Voltage E	xtra Low' is set.	
3	DC Bus Voltage Extra Low Hysteresis	Bus Voltage	Volt	0/5 (1)	basic
	The voltage hysteresis on the al	arm 'DC Bus Vo	oltage Extra	a Low'.	
4	DC Bus Voltage Low	Bus Voltage	Volt	40/60 (48)	basic
	The bus voltage under which the	e alarm 'DC Bus	s Voltage L	ow' is set.	
5	DC Bus Voltage Low Hysteresis	Bus Voltage	Volt	0/5 (0.5)	basic
	The voltage hysteresis on the al	arm 'DC Bus Vo	oltage Low		
6	DC Bus Voltage High	Bus Voltage	Volt	40/60 (56.5)	basic
	The bus voltage over which the	alarm 'DC Bus	Voltage Hig	gh' is set.	
7	DC Bus Voltage High Hysteresis	Bus Voltage	Volt	0/5 (0.5)	basic
	The voltage hysteresis on the al	arm 'DC Bus Vo	oltage High		
8	DC Bus Voltage Extra High	Bus Voltage	Volt	40/60 (58)	basic
	The bus voltage over which the	alarm 'DC Bus	Voltage Ex	tra High' is set.	
9	DC Bus Voltage Extra High Hysteresis	Bus Voltage	Volt	0/5 (0.5)	basic
	The voltage hysteresis on the al	arm 'DC Bus Vo	oltage Extra	a High	
10	LVD Disconnect Voltage	Bus Voltage	Volt	0/50 (43.2)	basic
	The dc bus voltage under which allows preserving the battery life				bus. This
11	LVD Disconnect Delay	Bus Voltage	second	1/2000 (1)	basic
	The delay in second before disconfigured disconnected voltage				
21	Temperature Compensation Slope	Temperature Compensatio n	mV/degre e	-1000/0 (-72)	basic
	The slope of the battery temper 72mV/degree is often used.	ature compens	ation in mv	degree. For a 48V	system, -
22	Maximum Positive Temperature Compensation	Temperature Compensatio n	Volt	0/10 (3)	basic
	The maximal allowed positive co	mpensation.			
23	Maximum Negative Temperature Compensation	Temperature Compensatio n	Volt	-10/0 (-3)	basic
	The maximal allowed negative of	ompensation.		•	
25	Minimal Number Of Present Rectifiers			0/100 (0)	basic
	The minimal number of rectifier which must be present. If there is less prectifiers, the alarm 'Missing Rectifiers' is set.				present

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26	Rectifier Model	Rectifiers	1		basic
20	The rectifier model	necliners			Dasic
27	Forced Remote Off Rectifers	Postifiers			basic
21	A list of rectifier which are force		l ff The ide	the rectifier must	
	separated. Ex: 1,3 will maintain	rectifier 1 and 3	3 off.		1
31	Battery Charge Current Limit		Ampere	0.5/1000 (1000)	basic
	The maximal battery current when the bus voltage in order to satisfaction to satisfaction or control of the control of the current when the current with the cu	sfy this condition			
32	Battery String Capacity	Battery	Ah	3/1000 (100)	basic
	The battery capacity in Ah.				
33	Battery Temperature Low	Battery	degree C	-100/20 (0)	basic
	The temperature under which th	e alarm 'Batter	y Temperat	ure Too Low' must l	be set.
34	Battery Temperature High	Battery	degree C	5/100 (40)	basic
	The temperature over which the	alarm 'Battery	Temperatu	re Too High' must b	e set.
35	Battery Temperature Hysteresis	Battery	degree C	0/10 (2)	basic
	The hysteresis on the 'Battery Low' alarms.	Temperature T	oo High' ar	nd 'Battery Tempera	ature Too
36	Minimal Current For Discharging Alarm	Battery	Ampere	0/1000 (3)	basic
	The minimal discharging current	to set the 'Bat	tery On Dis	charge' alarm.	_
37	Current Hysteresis For Discharging Alarm	Battery	Ampere	0/50 (1)	basic
	The hysteresis on the 'Battery O	n Discharge' a	larm.		_
51	Boost Automatic	Boost		False/False (False)	battery
	The boost mode must be autor bus voltage went under the cocharging the battery faster.				
52	Boost Activation Low Voltage	Boost	Volt	43/50 (46)	battery
	The voltage under which the boo	st mode can b	e activated		
53	Boost Termination Voltage	Boost	Volt	50/58 (56.4)	battery
	The voltage over which the systematical	em must go ba	ck to floatin	g mode.	
54	Boost Termination Current	Boost	Ampere	0/100 (4)	battery
	The battery charging current und	der which the s	ystem must	go back to floating	mode.
55	Boost Termination Time	Boost	minute	10/240 (120)	battery
	The time in minute after which the	ne system must	t go back in	floating mode.	
70	Battery Test End Voltage	Battery Test	Volt	30/60 (46)	battery
	The voltage at which any battery	test must be s	stopped.		
71	Battery Test Discharge Ratio	Battery Test	%	0/100 (0)	battery
	The ratio of the battery capacity discharged during the test	y to discharge.	If 30 is se	t, 30% of the batte	ry will be
72	Battery Test Interval	Battery Test	day	0/3000 (0)	battery
	The number of days between tweet to 0, the battery test is not start or force this test.	o automatically	started ba	ttery test. If this par	ameter is
73		Battery Test	Ampere	3/100 (1000)	battery
, 5	pattery rest bischarge	Dattery 163t	unhere	Jo, 100 (1000)	Dallery

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	Current							
	monitorir	ng regula	ates t	he bus vol			during a battery s condition. The loa	
74	Battery Dischar	Tes ge Curre		Minimal	Battery Test	Ampere	2/90 (2)	battery
	The battoo low.	ery curre	ent ui	nder which	the battery te	st must be	stopped because th	ne load is
75	Battery '	Test Tin	ne Oı	ut	Battery Test	minute	1/5000 (10)	battery
	The time	out in m	inute	after whic	h the battery te	st must be	stopped.	
76	Battery Minutes Failure				Battery Test	minute	0/5000 (1440)	battery
					out mains failu unt when the b		to allow a battery s s forced.	tart. This
83	Smart	Energ	у	Boolean	Smart Energy		121-125	asset
	Condition			100		<u> </u>		
	I his is the				nich allows or n	ot to autom	natically optimize the	e number
86	Battery				LVD		True/False (False)	hasic
00					l .	nic I VDs. c	oma separated	basic
91	Digital II				Digital Inputs		Distribution	basic
•					Digital Inpato		Breaker Open	Daoio
	The nam	e of the	digita	al input 1		•		
92	Digital Closed	Input	1	Normally	Digital Inputs		True/False (True)	basic
					digital input 1 ed alarm is set		closed. If this digita	al input is
93	Digital II	nput 2 N	lame		Digital Inputs		Battery Breaker Open	basic
	The nam	e of the	digita	al input 2				
94	Digital Closed	Input	2	Normally	Digital Inputs		True/False (True)	basic
					digital input 2 ed alarm is set		closed. If this digita	al input is
95	Digital II	•			Digital Inputs		Digital Input 3	basic
				al input 3		T	Γ	T
96	Digital Closed	Input			Digital Inputs		True/False (True)	basic
				•	digital input 3 ed alarm is set	•	closed. If this digita	al input is
97	Digital II	•			Digital Inputs		Digital Input 4	basic
				al input 4	-	T	I	I
98	Digital Closed	Input	4		Digital Inputs		True/False (True)	basic
					digital input 4 ed alarm is set		closed. If this digita	al input is
111	Dry Al Boolean	arm 1 Condit		Iternative	Dry Alarms		False	plc

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	Another Boolean condition to activate the dry alarm relay 1. The way to define boolean					
	condition is detailed in the PLC	chapter.		,		
112	Dry Alarm 2 Alternative Boolean Condition	Dry Alarms		False	plc	
	Another Boolean condition to accondition is detailed in the PLC of		larm relay 2	2. The way to define	e boolean	
113	Dry Alarm 3 Alternative Boolean Condition	Dry Alarms		False	plc	
	Another Boolean condition to accondition is detailed in the PLC of	•	larm relay (3. The way to define	boolean	
114	Dry Alarm 4 Alternative Boolean Condition	Dry Alarms		False	plc	
	Another Boolean condition to accondition is detailed in the PLC of	•	larm relay 4	4. The way to define	e boolean	
521	Read Access User Numbers	Allowed Users		(1,2,3,4,5)	basic	
	The list of the user numbers v numbers are coma separated. T					
522	Write Access User Numbers	Allowed Users		()	basic	
	The list of the user numbers what these users can modify the control elements. The user num 1,2,3,4 and 5. Ex: 1,3,4	configuration e	element, the	e alarm settings an	d use the	
601	Event Table Length	Event		10/4000 (100)	basic	
	The maximum length of the table	e. The value mu	ust be comp	,	nd 4000	
602	 	Event	•	10/4000 (100)	basic	
	The maximum length of the table	e. The value mu	ust be comp	orised between 10 a	nd 4000	
901	Number Of PLC Data	PLC		(0)	plc	
	The number of PLC data. Every data. Data elements are aut parameters are added to set the calculation. In order to use the module	omatically add ne PLC Data N	led in the Name and	data table. Con the PLC Data Mat	figuration nematical	
902	Number Of PLC Alarm	PLC		(0)	plc	
	The number of PLC alarm. Ever alarms. Alarm elements are a parameters are added to set condition. In order to use the module	automatically a the PLC Alarm	ıdded in tl n Name aı	he alarm table. T nd the PLC Alarm	he alarm Boolean	

Con	Control Table					
<u>Id</u>	<u>Name</u>	<u>Group</u>	<u>Licens</u>			
			<u>e</u>			
1	Back To Float	DC Mode	basic			
	The dc system must go back in floating mode.					
2	Start Battery Test	DC Mode	battery			
	The dc system must start a battery test.					

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3	Force Battery Test	DC Mode	battery
	The dc system must force a battery test.		[Section]
4	Start Boost Mode	DC Mode	battery
	The dc system must go in boost mode.		
11	Open The LVD	LVD	basic
	The LVD must be opened		
12	Close The LVD	LVD	basic
	The LVD must be closed	•	
21	Correct Battery Current Offset	Battery	basic
	No information	•	·
31	Reset Battery Current Integration	Battery	basic
	Reset the integration of the battery current.		
41	Reset Last Battery Test State	Battery	battery
	Reset the state of the last battery test. If an alarm alarm will be cleared.	n 'Battery Last Test Failed'	is set, the
51	Save Configuration In MCU	Save	basic
	Save configuration parameters in the MCU micro the system will be correctly managed.	controller. If comp@s is no	ot present,
61	Set Digital Input 4 Counter Value	Counters	basic
	Set Counter Value	•	·
501	Clear My Events	Event	basic
	By writing '1' to this control element, all the events	of this equipment will be cl	eared.
502	Clear All Events	Event	basic
	By writing '1' to this control element, all the events of all the sub-equipments will be cleared.	s of this equipment and all t	he events
511	Add Event	Event	basic
	This control element adds an event of severity nor to this control element	ne. The event name is the t	ext written
512	Add Major Event	Event	basic
	This control element adds an event of severity written to this control element	major. The event name i	s the text
521	Reset Default Names And Groups	Advanced	basic
	This control element resets all the element Name values for this equipment	es, Groups and Subgroups	to default
522	Reset Default Names And Groups Recursive	Advanced	basic
	This control element resets all the element Name values for this equipment and all sub equipments	es, Groups and Subgroups	to default

7.2.3 MCU0024

Device Information				
Name	MCU0024			
Short Description	MCU for rack 6x1500W +24V			
Long Description				
Hardware Reference	9413 000 XXXX			

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Software Reference	SOFT 000042 XX
Equipment Type	Monitoring Control Unit
ETSI Level	/site/energy_system/dc_system

Desc	Description Table						
<u>Id</u>	<u>Name</u>	Group	<u>License</u>				
1	Description	Description	basic				
	A free text zone to write a syste	em description					
2	Reference	Description	basic				
	A free text zone to write the cus	stomer reference of the syste	em				
11	Product Name	Monitoring	basic				
	The product name of the DC sy	stem monitoring					
12	Hardware Reference	Monitoring	basic				
	The hardware reference of the	DC system monitoring					
14	Software Reference	Monitoring	asset				
	The serial number of the DC sy	stem monitoring					
16	Serial Number	Monitoring	asset				
	The serial number of the DC system monitoring						
18	Manufacturing Date	Monitoring	asset				
	The production date of the DC	system monitoring					

Alarr	n Table						
<u>Id</u>	<u>Name</u>	Severity Type (Level)	Set/Clear Delay				
1	DC Bus Extra Low	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						
2	DC Bus Low	minor (4)	5 / 2				
	The bus voltage is low. The alarm is set configuration parameter 'DC Bus Voltage L 'DC Bus Voltage Low Hysteresis'						
3	DC Bus High	minor (4)	5 / 2				
	The bus voltage is high. The alarm is set configuration paramenter 'DC Bus Voltage I'DC Bus Voltage High Hysteresis'						
4	DC Bus Extra High	major (6)	5 / 2				
	The bus voltage is extra high. The alarm is configuration paramenter 'DC Bus Voltage alarm : 'DC Bus Voltage Extra High Hysteres	Extra High'. There is a					
5	DC Bus Voltage Sense Failure	major (6)	5 / 2				
	The DC bus voltage sense is defective. unconfigured.	The DC bus voltage	is unconnected or				
6	Mains Failure	minor (4)	5 / 2				
	The number of active rectifiers is equal to 0 greater than 0.	and the number of rectif	iers in AC failure is				

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7	Mains Partial Failure	minor (4)	10 / 2
	The number of active rectifiers is greated failure is greater than 0. Some rectifiers open breaker, a real phase failure, or by a	s are in AC Failure.	
8	Mains Low	warning (2)	10 / 2
	The main voltage is low on one or more master type is 30110, 3096 or 3048M6, to the voltage lower limit	phases. No rectifier	is in AC failure. If MCL e123Hysteresis is added
10	One Rectifier Failure	minor (4)	5 / 2
	One rectifier must be replaced or is not rectifier is set. The number of rectifier wains failure, and the 'More Than One Re	vith DC Failure is hi	gher than 0, there is no
11	More Than One Rectifier Failure	major (6)	10 / 2
	There is no mains failure and number of r	ectifier failures is gre	ater than 1.
12	Missing Rectifiers	major (6)	5 / 2
	There is not enough rectifier according Number Of Rectifier'	g to the configuration	·
13	Battery Last Test Failed	minor (4)	5 / 2
	The last battery test did not succeed and be replaced.	was not cancelled. I	Maybe the battery should
4.4	Battery On Discharge	minor (4)	10 / 2
14	The battery is discharging. This means	s that the load is to	
	The battery is discharging. This means rectifiers. This alarm is inactive when the There is an hysteresis corresponding thysteresis'.	s that the load is to system in AC Failure to battery paramete	e or during a battery test r 'Is discharging curren
17	The battery is discharging. This means rectifiers. This alarm is inactive when the There is an hysteresis corresponding thysteresis. Battery LVD Relay Open	s that the load is to system in AC Failure to battery parameter major (6)	e or during a battery test r 'Is discharging curren 5/2
	The battery is discharging. This means rectifiers. This alarm is inactive when the There is an hysteresis corresponding thysteresis'.	s that the load is to system in AC Failure to battery paramete major (6) is open. On Syste	e or during a battery test r 'Is discharging curren 5/2 ems without LVD_Status
	The battery is discharging. This means rectifiers. This alarm is inactive when the There is an hysteresis corresponding thysteresis'. Battery LVD Relay Open The battery Low Voltage Disconnector signal, like MCU 1848 or MCU 1x6, the	s that the load is to system in AC Failure to battery paramete major (6) is open. On Syste	e or during a battery test r 'Is discharging curren 5/2 ems without LVD_Status
17	The battery is discharging. This means rectifiers. This alarm is inactive when the There is an hysteresis corresponding thysteresis'. Battery LVD Relay Open The battery Low Voltage Disconnector signal, like MCU 1848 or MCU 1x6, the asks to open the LVD	major (6) is open. On Syste alarm is present only minor (4) h and is greater thar	e or during a battery test r 'Is discharging curren 5 / 2 ems without LVD_Status y if the signal LVD_COM 5 / 2 n -600 units. There is ar
17	The battery is discharging. This means rectifiers. This alarm is inactive when the There is an hysteresis corresponding thysteresis'. Battery LVD Relay Open The battery Low Voltage Disconnector signal, like MCU 1848 or MCU 1x6, the asks to open the LVD Battery Temperature Too High The temperature of the battery is too hig	major (6) is open. On Syste alarm is present only minor (4) h and is greater thar	e or during a battery test r 'Is discharging curren 5 / 2 ems without LVD_Status y if the signal LVD_COM 5 / 2 n -600 units. There is ar
17	The battery is discharging. This means rectifiers. This alarm is inactive when the There is an hysteresis corresponding thysteresis'. Battery LVD Relay Open The battery Low Voltage Disconnector signal, like MCU 1848 or MCU 1x6, the asks to open the LVD Battery Temperature Too High The temperature of the battery is too high hysteresis corresponding to battery parameters.	major (6) is open. On Syste alarm is present only minor (4) h and is greater thar meter 'Temperature h minor (4) v and is greater than	e or during a battery test r 'Is discharging curren 5 / 2 ems without LVD_Status y if the signal LVD_COM 5 / 2 n -600 units. There is an ysteresis'. 5 / 2 n -600 units. There is an
17	The battery is discharging. This means rectifiers. This alarm is inactive when the There is an hysteresis corresponding thysteresis'. Battery LVD Relay Open The battery Low Voltage Disconnector signal, like MCU 1848 or MCU 1x6, the asks to open the LVD Battery Temperature Too High The temperature of the battery is too high hysteresis corresponding to battery paramages. Battery Temperature Too Low The temperature of the battery is too low	major (6) is open. On Syste alarm is present only minor (4) h and is greater thar meter 'Temperature h minor (4) v and is greater than	e or during a battery test r 'Is discharging curren 5 / 2 ems without LVD_Status y if the signal LVD_COM 5 / 2 n -600 units. There is an ysteresis'. 5 / 2 n -600 units. There is an
17 18	The battery is discharging. This means rectifiers. This alarm is inactive when the There is an hysteresis corresponding thysteresis'. Battery LVD Relay Open The battery Low Voltage Disconnector signal, like MCU 1848 or MCU 1x6, the asks to open the LVD Battery Temperature Too High The temperature of the battery is too high hysteresis corresponding to battery parantal Battery Temperature Too Low The temperature of the battery is too low hysteresis corresponding to battery parantal strength of the battery parantal strength of the battery is too low hysteresis corresponding to battery parantal strength of the battery parantal strength of the battery is too low hysteresis corresponding to battery parantal strength of the battery parantal strength of t	major (6) is open. On Syste alarm is present only minor (4) h and is greater thar meter 'Temperature h minor (4) v and is greater than meter 'Temperature h minor (4) w and is greater than meter 'Temperature h minor (4) w and is greater than meter 'Temperature h minor (4)	e or during a battery test r 'Is discharging curren 5 / 2
17 18	The battery is discharging. This means rectifiers. This alarm is inactive when the There is an hysteresis corresponding thysteresis'. Battery LVD Relay Open The battery Low Voltage Disconnector signal, like MCU 1848 or MCU 1x6, the asks to open the LVD Battery Temperature Too High The temperature of the battery is too high hysteresis corresponding to battery parant Battery Temperature Too Low The temperature of the battery is too low hysteresis corresponding to battery parant Battery Temperature Sensor Fail The battery temperature sensor (NTC) values.	major (6) is open. On Syste alarm is present only minor (4) h and is greater thar meter 'Temperature h minor (4) v and is greater than meter 'Temperature h minor (4) w and is greater than meter 'Temperature h minor (4) w and is greater than meter 'Temperature h minor (4)	e or during a battery test r 'Is discharging curren 5 / 2
17 18 19	The battery is discharging. This means rectifiers. This alarm is inactive when the There is an hysteresis corresponding thysteresis'. Battery LVD Relay Open The battery Low Voltage Disconnector signal, like MCU 1848 or MCU 1x6, the asks to open the LVD Battery Temperature Too High The temperature of the battery is too high hysteresis corresponding to battery parant Battery Temperature Too Low The temperature of the battery is too low hysteresis corresponding to battery parant Battery Temperature Sensor Fail The battery temperature sensor (NTC) vanot connected or defective.	major (6) is open. On Syste alarm is present only minor (4) h and is greater than meter 'Temperature h minor (4) v and is greater than meter 'Temperature h minor (4) alue is inferior to -50 minor (4) nd is greater than minor (4) alue is inferior to -50	e or during a battery test r 'Is discharging curren 5 / 2
17 18 19	The battery is discharging. This means rectifiers. This alarm is inactive when the There is an hysteresis corresponding thysteresis'. Battery LVD Relay Open The battery Low Voltage Disconnector signal, like MCU 1848 or MCU 1x6, the asks to open the LVD Battery Temperature Too High The temperature of the battery is too high hysteresis corresponding to battery parameters corresponding to battery parameters corresponding to battery parameters. Battery Temperature Sensor Fail The battery temperature sensor (NTC) vanot connected or defective. Ambient Temperature Too High The ambient temperature is too high a hysteresis corresponding to parameter 'A only activated on MCU master types 30	major (6) is open. On Syste alarm is present only minor (4) h and is greater than meter 'Temperature h minor (4) v and is greater than meter 'Temperature h minor (4) alue is inferior to -50 minor (4) nd is greater than minor (4) alue is inferior to -50	e or during a battery test r 'Is discharging curren 5 / 2
17 18 19 20 21	The battery is discharging. This means rectifiers. This alarm is inactive when the There is an hysteresis corresponding thysteresis'. Battery LVD Relay Open The battery Low Voltage Disconnector signal, like MCU 1848 or MCU 1x6, the asks to open the LVD Battery Temperature Too High The temperature of the battery is too high hysteresis corresponding to battery parant Battery Temperature Too Low The temperature of the battery is too low hysteresis corresponding to battery parant Battery Temperature Sensor Fail The battery temperature sensor (NTC) vanot connected or defective. Ambient Temperature Too High The ambient temperature is too high a hysteresis corresponding to parameter 'A only activated on MCU master types 30 0948 and 3048M6.	major (6) is open. On System in AC Failure to battery parameter to battery parameter major (6) is open. On System is present only minor (4) h and is greater than meter 'Temperature how minor (4) v and is greater than meter 'Temperature hominor (4) alue is inferior to -50 minor (4) minor (4)	se or during a battery test rest rest rest rest rest rest rest

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	The ambiant temperature sensor (NTC) value not connected or defective.	ue is inferior to -500 unit	s meaning that it is
25	Distribution Breaker Open	major (6)	5 / 2
	This alarm is related to digital input 1. The different to configuration parameter 'Digital		igital input value is
26	Battery Breaker Open	minor (4)	5 / 2
	This alarm is related to digital input 2. The different to configuration parameter 'Digital'		igital input value is
27	Digital Input 3	none (0)	5 / 2
	This alarm is related to digital input 3. The different to configuration parameter 'Digital		igital input value is
28	Digital Input 4	none (0)	5 / 2
	This alarm is related to digital input 4. The different to configuration parameter 'Digital'		igital input value is
29	Digital Input 5	none (0)	5 / 2
	This alarm is related to digital input 5. The different to configuration parameter 'Digital'		igital input value is
30	Digital Input 6	none (0)	5 / 2
	This alarm is related to digital input 6. The different to configuration parameter 'Digital		igital input value is
31	Digital Input 7	none (0)	5 / 2
	This alarm is related to digital input 7. The different to configuration parameter 'Digital		igital input value is
32	Digital Input 8	none (0)	5 / 2
	This alarm is related to digital input 8. The different to configuration parameter 'Digital		igital input value is

Data	Table			
<u>Id</u>	<u>Name</u>	<u>Group</u>	<u>Unit</u>	<u>Licens</u> e
1	DC Mode	General		basic
	The DC system can have 4 value 'AC_FAILURE' or SAFE	es: 'FLOAT', 'BOO	ST', 'BATTERY_	TEST',
2	Previous DC Mode	General		basic
	The previous value of the DC Mode			
11	Bus Voltage	General	Volt	basic
	The DC bus voltage in volt.			
12	Ratio Delivered On Available Power	General	%	basic
	This is the ratio of the delivered power di	ivided by the installed	d power, in %.	
13	Minutes Since Last AC Failure Begin	General	minute	basic
	The number of minute since the last AC	Failure begin		
14	Minutes Since Last AC Failure End	General	minute	basic
	The number of minute since the last AC	Failure end		
21	Rectifiers Output Power	Rectifiers	Watt	basic
	The sum of the delivered rectifier power			
22	Rectifiers Output Current	Rectifiers	Ampere	basic
	The sum of the delivered rectifier current			

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23	Rectifiers Output Power Max	Rectifiers	Watt	basic
23	The sum of the deliverable rectifier power		vali	Dasic
24	Rectifiers Output Current Max	Rectifiers	Ampere	basic
	The sum of the deliverable rectifier curre		Ampere	Dasic
31	Number Of Rectifier Max	Rectifiers		basic
0.	The maximum possible number of rectific			Dasio
32	Number Of Present Rectifier	Rectifiers		basic
0_	The actual number of present rectifier in			baolo
33	Number Of Absent Rectifier	Rectifiers		basic
	The actual number of absent rectifier in t			000.0
34	Number Of Active Rectifier	Rectifiers		basic
	The actual number of active rectifier in the which is present, DC OK, AC OK and no	this dc system. An a	ctive rectifier is a	
35	Number Of AC-Fail Rectifier	Rectifiers		basic
	The actual number or rectifier in AC Failu		l	1.54010
36	Number Of DC-Fail Rectifier	Rectifiers		basic
	The actual number or rectifier with DC Fa			000.0
37	Number Of Remote Off Rectifier	Rectifiers		basic
	The actual number or rectifier in remote	l.	L	
38	Number Of Over Temperature Rectifier	Rectifiers		basic
	The actual number or rectifier in OVer Te	emperature.		
41	Mains Phase 1 Voltage	Mains	Volt	basic
	The voltage on AC phase 1	,		
42	Mains Phase 2 Voltage	Mains	Volt	basic
	The voltage on AC phase 2			1
43	Mains Phase 3 Voltage	Mains	Volt	basic
	The voltage on AC phase 3	1	1	ı
51	Load Power	Load	Watt	basic
	Estimation of the load power consumption		T	ı
52	Load Current	Load	Ampere	basic
	Estimation of the load current consumpti		1	1
61	Battery Input Current	Battery	Ampere	basic
	Measurement of the battery input currer discharging			attery is
62	Battery Input Power	Battery	Watt	basic
	Measurement of the battery input powe discharging	r. A negative value i	means that the ba	attery is
71	Battery Temperature	Battery	degree C	basic
	The battery temperature			
72	Battery Test State	Battery		basic
	This is about the result of the last NEVER_TESTED, SUCCESS, FAILED_VBUS_TOO_LOW, FAILED_FAILED_CANCELED, FAILED_LVD_OF	ON_GOING, LOAD_TOO_LOW,	values are pos FAILED_TIM FAILED_AC_FA	IEOUT,
73	Battery Test Discharged Capacity Ratio	Battery	%	basic

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	This is the battery capacity, in percent,		the last battery te	st. This
	value is updated at the end of the batter		T	T
74	Battery Test Discharged Capacity	Battery	Ah	basic
	This is the battery capacity, in ampere This value is updated at the end of the b		-	ery test.
75	Battery Test Final Voltage	Battery	%	basic
	This is the bus voltage at the end of the end of the battery test.	last battery test. Th	is value is update	d at the
81	Previous Battery Test State	Battery		basic
	The result of the previous battery test			_
82	Minutes Since Last Test Battery	Battery		basic
	The number of minute without battery te	1	1	_
91	Battery Charge Capacity	Battery	%	basic
	The battery charge capacity, calculated	, 		
92	Calculated Autonomy	Battery	minute	basic
	Calculation of the remaining autonomy	1_	T-	T
93	Battery Current Integration	Battery	As	basic
	Actual value of the integration of the cur		1	T
94	Battery Current Integration	Battery	Ah	basic
	Actual value of the integration of the cur		ır	T
101	LVD State	LVD		basic
	Actual state of the LVD	·lo . =	1	Τ .
121	Efficiency Optimized Number Of Rectifier	Smart Energy		asset
	The optimal number of ON rectifier for E	fficiency Optimization	1	_
122	System Loss Without Optimisation	Smart Energy	Watt	under dev
	Estimation of the losses without optimisa	ation	_	
123	System Loss With Optimisation	Smart Energy	Watt	under dev
	Estimation of the losses with optimisatio	n		
124	Rectifier Model Used For Calculation	Smart Energy		asset
	The rectifier model used		•	
125	Smart Energy Savings	Smart Energy	Watt	asset
	Estimation of the losses with optimisatio	n		
151	Ambient Temperature	Sensors	degree C	basic
	The ambiant temperature (second temperature)	erature sense)		
161	Voltage Sense 1	Sensors	Volt	basic
	The voltage measured by the sens measurement. Calculation can be done		d for battery sy	mmetry
162	Voltage Sense 2	Sensors	Volt	basic
	The voltage measured by the sens measurement. Calculation can be done		d for battery sy	mmetry
163	Voltage Sense 3	Sensors	Volt	basic
	The voltage measured by the sens measurement. Calculation can be done		d for battery sy	mmetry
204	Digital Input 4 Counter	Sensors		basic
	<u>'</u>	I.	1	

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The counter value of the digital input 4.

Conf	ig Table				
<u>Id</u>	<u>Name</u>	<u>Group</u>	<u>Unit</u>	Range: Min/Max (default)	<u>License</u>
1	DC Bus Float Voltage at 25 degC		Volt	20/30 (27)	basic
	The floating dc bus voltage of the		1	ĭ	1
2	-	Bus Voltage	Volt	20/30 (22)	basic
	The bus voltage under which the	ı		1	T
3	DC Bus Voltage Extra Low Hysteresis	_	Volt	0/2 (0)	basic
	The voltage hysteresis on the ala		oltage Extra		1
4		Bus Voltage	Volt	20/30 (24)	basic
	The bus voltage under which the	alarm 'DC Bu		ow' is set.	
5	DC Bus Voltage Low Hysteresis	Bus Voltage	Volt	0/2 (0.25)	basic
	The voltage hysteresis on the ala		oltage Low	T	
6	DC Bus Voltage High	Bus Voltage	Volt	20/30 (28.25)	basic
	The bus voltage over which the	alarm 'DC Bus	Voltage Hig	ph' is set.	
7	DC Bus Voltage High Hysteresis	Bus Voltage	Volt	0/2 (0.25)	basic
	The voltage hysteresis on the ala	arm 'DC Bus V	oltage High		
8	DC Bus Voltage Extra High	Bus Voltage	Volt	20/30 (29)	basic
	The bus voltage over which the	alarm 'DC Bus	Voltage Ex	tra High' is set.	_
9	DC Bus Voltage Extra High Hysteresis	Bus Voltage	Volt	0/2 (0.25)	basic
	The voltage hysteresis on the ala	arm 'DC Bus V	oltage Extra	a High	
10	LVD Disconnect Voltage	Bus Voltage	Volt	0/25 (21.6)	basic
	The dc bus voltage under which allows preserving the battery life	. The load will	be unpowei	red.	bus. This
11	LVD Disconnect Delay	Bus Voltage	second	1/1000 (1)	basic
	The delay in second before disc configured disconnected voltage				
21	Temperature Compensation Slope	Temperature Compensatio n	mV/degre e	-500/0 (-36)	basic
	The slope of the battery tempera 72mV/degree is often used.	ature compens	ation in mv	degree. For a 48V	system, -
22	Maximum Positive Temperature Compensation	Temperature Compensatio n	Volt	0/5 (1)	basic
	The maximal allowed positive co	mpensation.		,	
23	Maximum Negative Temperature Compensation	Temperature Compensatio n	Volt	-5/0 (-1)	basic
	The maximal allowed negative c	ompensation.			
					•

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25	Minimal Number Of Present Rectifiers	Rectifiers		0/100 (0)	basic
	The minimal number of rectifi		t be prese	nt. If there is less	present
	rectifiers, the alarm 'Missing Red	ctifiers' is set.	T		1
26	Rectifier Model	Rectifiers			basic
	The rectifier model			.	
27	Forced Remote Off Rectifers	Rectifiers			basic
	A list of rectifier which are force separated. Ex: 1,3 will maintain			f the rectifier must	be coma
31	Battery Charge Current Limit	Battery	Ampere	0.5/1000 (1000)	basic
	The maximal battery current where the bus voltage in order to satisfication to the common street and the common street with the common st	sfy this condition			
32	Battery String Capacity	Battery	Ah	3/1000 (100)	basic
	The battery capacity in Ah.				
33	Battery Temperature Low	Battery	degree C	-100/20 (0)	basic
	The temperature under which th	e alarm 'Battery	y Temperat	ure Too Low' must l	oe set.
34	Battery Temperature High	Battery	degree C	5/100 (40)	basic
	The temperature over which the	alarm 'Battery	Temperatu	re Too High' must b	e set.
35	Battery Temperature Hysteresis	Battery	degree C	0/10 (2)	basic
	The hysteresis on the 'Battery Low' alarms.	Temperature To	oo High' ar	nd 'Battery Tempera	ature Too
36	Minimal Current For Discharging Alarm	Battery	Ampere	0/1000 (3)	basic
	The minimal discharging current	to set the 'Batt	ery On Disc	charge' alarm.	
37	Current Hysteresis For Discharging Alarm	Battery	Ampere	0/50 (1)	basic
	The hysteresis on the 'Battery O	n Discharge' al	arm.		
41	Shunt Rating At 60mV	Battery	Ampere	25/5000 (250)	basic
	The rating of the battery shunt a	t 60mV.			
51	Boost Automatic	Boost		False/False (False)	battery
	The boost mode must be autor bus voltage went under the cocharging the battery faster.				
52	Boost Activation Low Voltage	Boost	Volt	21/25 (23)	battery
	The voltage under which the boo	ost mode can b	e activated	•	
53	Boost Termination Voltage	Boost	Volt	25/29 (28.2)	battery
	The voltage over which the system	em must go bad	ck to floating	g mode.	
54	Boost Termination Current	Boost	Ampere	0/100 (4)	battery
	The battery charging current und	der which the sy	ystem must	go back to floating	mode.
55	Boost Termination Time	Boost	minute	10/240 (120)	battery
	The time in minute after which the	ne system must	go back in	floating mode.	
70	Battery Test End Voltage	Battery Test	Volt	15/30 (23)	battery
	The voltage at which any battery			. ,	, ,
71	· · · · · · · · · · · · · · · · · · ·	Battery Test	%	0/100 (0)	battery
		1-2	. •	· · · · · (·)	-5 a.c.o. j

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	The ratio of the battery capacit	y to discharge.	If 30 is se	et, 30% of the batte	ery will be
	discharged during the test		1	1	1
72	Battery Test Interval	Battery Test	day	0/3000 (0)	battery
	The number of days between two set to 0, the battery test is not start or force this test.				
73	Current	Battery Test	Ampere	3/100 (1000)	battery
	The current at which the bat monitoring regulates the bus vomust be of course higher than the current at which the bat monitoring regulates the bat monitoring re	ltage in order t			
74	Battery Test Minima Discharge Current	Battery Test	Ampere	2/90 (2)	battery
	The battery current under which too low.	n the battery te	st must be	stopped because the	ne load is
75	Battery Test Time Out	Battery Test	minute	1/5000 (10)	battery
	The timeout in minute after which		st must be	stopped.	
76	Battery Test Requested Minutes Without Mains Failure		minute	0/5000 (1440)	battery
	The minimal time in minute with parameter is not taken into account			s forced.	start. This
83	Smart Energy Boolear Condition	Smart Energy		121-125	asset
	This is the boolean condition wo of rectifier in remote off.		ot to auton	natically optimize th	e number
86	Battery LVD Node Id	LVD		True/False (False)	basic
	This is a list of the node id of the	e Smart Electro	nic LVDs, c	oma separated	1
91	Digital Input 1 Name	Digital Inputs		Distribution Breaker Open	basic
	The name of the digital input 1			,	
92	Closed	Digital Inputs		True/False (True)	basic
	True/False value defining if the not in this default state, the rela	ted alarm is set			•
93	Digital Input 2 Name	Digital Inputs		Battery Breaker Open	basic
	The name of the digital input 2		T	1	Г
94	Digital Input 2 Normally Closed	Digital Inputs		True/False (True)	basic
	True/False value defining if the not in this default state, the rela			closed. If this digital	al input is
95	Digital Input 3 Name	Digital Inputs		Digital Input 3	basic
	The name of the digital input 3		1	1	
96	Digital Input 3 Normally Closed	Digital Inputs		True/False (True)	basic
	True/False value defining if the not in this default state, the rela	•	•	closed. If this digital	al input is
97	Digital Input 4 Name	Digital Inputs		Digital Input 4	basic

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Closed True/False value defining if the digital input 4 is normally closed. If this digital in not in this default state, the related alarm is set. 99 Digital Input 5 Name Digital Inputs Digital Input 5 Date									
Closed True/False value defining if the digital input 4 is normally closed. If this digital in not in this default state, the related alarm is set.		The nam	e of the	digita	al input 4				
not in this default state, the related alarm is set.	98	_	Input	4	Normally	Digital Inputs		True/False (True)	basic
The name of the digital input 5 Digital Input S Normally Digital Inputs True/False (True) bast Closed True/False value defining if the digital input 5 is normally closed. If this digital in not in this default state, the related alarm is set. 101 Digital Input 6 Normally Digital Inputs Digital Input 6 Dast True/False (True) Digital Input 6 Digital Input 7 Digital Input 8 Digital Digita					•	•	•	closed. If this digita	al input is
Digital Input 5 Normally Digital Inputs True/False (True) base True/False value defining if the digital input 5 is normally closed. If this digital input in this default state, the related alarm is set. 101 Digital Input 6 Name Digital Inputs Digital Input 6 base True/False (True) Digital Input 6 Digital Input 7 Normally Digital Input 8 Digital Input 9 Digital Input 8	99	Digital Ir	nput 5 N	ame		Digital Inputs		Digital Input 5	basic
True/False value defining if the digital input 5 is normally closed. If this digital in not in this default state, the related alarm is set. 101 Digital Input 6 Name Digital Inputs Digital Input 6 Dast The name of the digital input 6 Digital Input 7 Digital Input 8 Digital Input 9 Digital 9		The nam	e of the	digita	al input 5				
not in this default state, the related alarm is set.	100	_	Input	5	Normally	Digital Inputs		True/False (True)	basic
The name of the digital input 6 102 Digital Input 6 Normally Digital Inputs True/False value defining if the digital input 6 is normally closed. If this digital in not in this default state, the related alarm is set. 103 Digital Input 7 Name The name of the digital input 7 Digital Input 7 Normally Digital Input 7 Normally Closed True/False value defining if the digital input 7 is normally closed. If this digital in not in this default state, the related alarm is set. 105 Digital Input 8 Name Digital Input 8 Digital Inputs The name of the digital input 8 Digital Input 8 Normally The name of the digital input 8 Digital Input 8 Normally Digital Inputs True/False (True) Digital Input 8 Normally Digital Inputs True/False (True) Digital Input 8 Normally Closed True/False value defining if the digital inputs True/False value defining if the digital input 8 is normally closed. If this digital in not in this default state, the related alarm is set. 111 Dry Alarm 1 Alternative Boolean Condition Another Boolean condition to activate the dry alarm relay 1. The way to define be condition is detailed in the PLC chapter. 112 Dry Alarm 2 Alternative Boolean Condition Another Boolean condition to activate the dry alarm relay 2. The way to define be condition is detailed in the PLC chapter. 113 Dry Alarm 3 Alternative Boolean Condition Another Boolean condition to activate the dry alarm relay 3. The way to define be condition is detailed in the PLC chapter. 114 Dry Alarm 4 Alternative Boolean Condition Another Boolean condition to activate the dry alarm relay 3. The way to define be condition is detailed in the PLC chapter. 115 Dry Alarm 4 Alternative Boolean Condition Another Boolean condition to activate the dry alarm relay 4. The way to define be condition is detailed in the PLC chapter. 116 Dry Alarm 4 Alternative Boolean condition to activate the dry alarm relay 4. The way to define be condition is detailed in the PLC chapter. 117 Ambient Temperature Low Sensors degree C Date of True/False (True) Date								closed. If this digita	al input is
True/False (True) base True/False value defining if the digital input 6 is normally closed. If this digital input 7 into this default state, the related alarm is set. 103 Digital Input 7 Name Digital Inputs Digital Input 7 Digital Input 8 Digital Input 8	101	Digital Ir	nput 6 N	ame		Digital Inputs		Digital Input 6	basic
True/False value defining if the digital input 6 is normally closed. If this digital in not in this default state, the related alarm is set. 103 Digital Input 7 Name Digital Inputs Digital Input 7 Dass The name of the digital input 7 Digital Input 7 Digital Input 8 Digital Input 7 Digital Input 9 Digital Input 8 Dig		The nam	e of the	digita	al input 6				
not in this default state, the related alarm is set. 103 Digital Input 7 Name Digital Inputs Digital Input 7 Dass	102	_	Input	6	Normally	Digital Inputs		True/False (True)	basic
Digital Input 7 Name Digital Inputs Digital Input 7 Dass								closed. If this digita	al input is
The name of the digital input 7 104 Digital Input 7 Normally Digital Inputs Closed True/False value defining if the digital input 7 is normally closed. If this digital in not in this default state, the related alarm is set. 105 Digital Input 8 Name Digital Inputs Digital Input 8 Digital Input 8 Digital Input 8 Digital Input 8 Normally Digital Input 8 Digital Input 8 Normally Digital Input 8 True/False (True) Das Closed True/False value defining if the digital input 8 is normally closed. If this digital in not in this default state, the related alarm is set. 111 Dry Alarm 1 Alternative Dry Alarms False plc Boolean Condition Another Boolean condition to activate the dry alarm relay 1. The way to define be condition is detailed in the PLC chapter. 112 Dry Alarm 2 Alternative Dry Alarms False plc Boolean Condition Another Boolean condition to activate the dry alarm relay 2. The way to define be condition is detailed in the PLC chapter. 113 Dry Alarm 3 Alternative Dry Alarms False plc Boolean Condition Another Boolean condition to activate the dry alarm relay 3. The way to define be condition is detailed in the PLC chapter. 114 Dry Alarm 4 Alternative Dry Alarms False plc Boolean Condition Another Boolean condition to activate the dry alarm relay 3. The way to define be condition is detailed in the PLC chapter. 114 Dry Alarm 4 Alternative Dry Alarms False plc Boolean Condition Another Boolean condition to activate the dry alarm relay 4. The way to define be condition is detailed in the PLC chapter. 115 Ambient Temperature Low Sensors degree C bas The temperature under which the alarm 'Ambiant Temperature Too Low' must be appear to the digital input 8 in pugital Inpu					-	ed alarm is set		I	1
Digital Input 7 Normally Digital Inputs True/False (True) Diast	103		•			Digital Inputs		Digital Input 7	basic
True/False value defining if the digital input 7 is normally closed. If this digital in not in this default state, the related alarm is set. 105 Digital Input 8 Name Digital Inputs Digital Input 8 Digital Input 8					•	I	1	I	ı
not in this default state, the related alarm is set. 105 Digital Input 8 Name Digital Inputs Digital Input 8 Digital Input 8 106 Digital Input 8 Normally Digital Inputs True/False (True) Digital Input 8 106 Digital Input 8 Normally Digital Inputs True/False (True) Digital Input 8 Digital Input Pice 8 Digital Input 8 Digit	104	_	Input	7	Normally	Digital Inputs		True/False (True)	basic
The name of the digital input 8 106 Digital Input 8 Normally Digital Inputs Closed True/False value defining if the digital input 8 is normally closed. If this digital in not in this default state, the related alarm is set. 111 Dry Alarm 1 Alternative Boolean Condition Another Boolean condition to activate the dry alarm relay 1. The way to define bo condition is detailed in the PLC chapter. 112 Dry Alarm 2 Alternative Boolean Condition Another Boolean condition to activate the dry alarm relay 2. The way to define bo condition is detailed in the PLC chapter. 113 Dry Alarm 3 Alternative Boolean Condition Another Boolean condition Another Boolean condition to activate the dry alarm relay 2. The way to define bo condition is detailed in the PLC chapter. 114 Dry Alarm 3 Alternative Boolean Condition Another Boolean condition to activate the dry alarm relay 3. The way to define bo condition is detailed in the PLC chapter. 114 Dry Alarm 4 Alternative Dry Alarms False plc Boolean Condition Another Boolean condition to activate the dry alarm relay 4. The way to define bo condition is detailed in the PLC chapter. 114 Dry Alarm 4 Alternative Dry Alarms False plc Boolean Condition Another Boolean condition to activate the dry alarm relay 4. The way to define bo condition is detailed in the PLC chapter. 115 Ambient Temperature Low Sensors degree C bas The temperature under which the alarm 'Ambiant Temperature Too Low' must be 132 Ambient Temperature High Sensors degree C								closed. If this digita	al input is
True/False Value True/False Value	105	Digital Ir	nput 8 N	ame		Digital Inputs		Digital Input 8	basic
Closed True/False value defining if the digital input 8 is normally closed. If this digital in not in this default state, the related alarm is set. 111 Dry Alarm 1 Alternative Boolean Condition Another Boolean condition to activate the dry alarm relay 1. The way to define be condition is detailed in the PLC chapter. 112 Dry Alarm 2 Alternative Boolean Condition Another Boolean condition to activate the dry alarm relay 2. The way to define be condition is detailed in the PLC chapter. 113 Dry Alarm 3 Alternative Dry Alarms False plc Boolean Condition Another Boolean condition to activate the dry alarm relay 2. The way to define be condition is detailed in the PLC chapter. 114 Dry Alarm 3 Alternative Dry Alarms False plc Boolean Condition Another Boolean condition to activate the dry alarm relay 3. The way to define be condition is detailed in the PLC chapter. 114 Dry Alarm 4 Alternative Dry Alarms False plc Boolean Condition Another Boolean condition to activate the dry alarm relay 4. The way to define be condition is detailed in the PLC chapter. 114 Ambient Temperature Low Sensors degree C base The temperature under which the alarm 'Ambiant Temperature Too Low' must be Ambient Temperature High Sensors degree C base		The nam	e of the	digita	al input 8				
not in this default state, the related alarm is set. 111 Dry Alarm 1 Alternative Boolean Condition Another Boolean condition to activate the dry alarm relay 1. The way to define bo condition is detailed in the PLC chapter. 112 Dry Alarm 2 Alternative Boolean Condition Another Boolean condition to activate the dry alarm relay 2. The way to define bo condition is detailed in the PLC chapter. 113 Dry Alarm 3 Alternative Boolean Condition Another Boolean condition to activate the dry alarm relay 3. The way to define bo condition is detailed in the PLC chapter. 114 Dry Alarm 4 Alternative Boolean Condition Another Boolean condition to activate the dry alarm relay 3. The way to define bo condition is detailed in the PLC chapter. 114 Dry Alarm 4 Alternative Boolean Condition Another Boolean condition to activate the dry alarm relay 4. The way to define bo condition is detailed in the PLC chapter. 115 Ambient Temperature Low Sensors degree C base The temperature under which the alarm 'Ambiant Temperature Too Low' must be 132 Ambient Temperature High Sensors degree C base	106		Input	8	Normally	Digital Inputs		True/False (True)	basic
Roolean Condition								closed. If this digita	al input is
condition is detailed in the PLC chapter. 112 Dry Alarm 2 Alternative Boolean Condition Another Boolean condition to activate the dry alarm relay 2. The way to define be condition is detailed in the PLC chapter. 113 Dry Alarm 3 Alternative Dry Alarms False plc Boolean Condition Another Boolean condition to activate the dry alarm relay 3. The way to define be condition is detailed in the PLC chapter. 114 Dry Alarm 4 Alternative Dry Alarms False plc Boolean Condition Another Boolean condition to activate the dry alarm relay 3. The way to define be condition is detailed in the PLC chapter. 114 Dry Alarm 4 Alternative Boolean Condition Another Boolean condition to activate the dry alarm relay 4. The way to define be condition is detailed in the PLC chapter. 131 Ambient Temperature Low Sensors degree C bas The temperature under which the alarm 'Ambiant Temperature Too Low' must be 132 Ambient Temperature High Sensors degree C bas	111	_			lternative	Dry Alarms		False	plc
Boolean Condition Another Boolean condition to activate the dry alarm relay 2. The way to define be condition is detailed in the PLC chapter. 113 Dry Alarm 3 Alternative Dry Alarms False plc Boolean Condition Another Boolean condition to activate the dry alarm relay 3. The way to define be condition is detailed in the PLC chapter. 114 Dry Alarm 4 Alternative Dry Alarms False plc Boolean Condition Another Boolean condition to activate the dry alarm relay 4. The way to define be condition is detailed in the PLC chapter. 131 Ambient Temperature Low Sensors degree C bas The temperature under which the alarm 'Ambiant Temperature Too Low' must be 132 Ambient Temperature High Sensors degree C bas						•	ılarm relay	1. The way to define	e boolean
Condition is detailed in the PLC chapter. 113 Dry Alarm 3	112	,			lternative	Dry Alarms		False	plc
Boolean Condition						•	alarm relay 2	2. The way to define	e boolean
condition is detailed in the PLC chapter. 114 Dry Alarm 4 Alternative Boolean Condition Another Boolean condition to activate the dry alarm relay 4. The way to define bo condition is detailed in the PLC chapter. 131 Ambient Temperature Low Sensors degree C bas The temperature under which the alarm 'Ambiant Temperature Too Low' must be 132 Ambient Temperature High Sensors degree C bas	113	•			lternative	Dry Alarms		False	plc
Boolean Condition							alarm relay (3. The way to define	e boolean
condition is detailed in the PLC chapter. 131 Ambient Temperature Low Sensors degree C base The temperature under which the alarm 'Ambiant Temperature Too Low' must be 132 Ambient Temperature High Sensors degree C base	114	-			lternative	Dry Alarms		False	plc
The temperature under which the alarm 'Ambiant Temperature Too Low' must be 132 Ambient Temperature High Sensors degree C base							ılarm relay 4	4. The way to define	e boolean
132 Ambient Temperature High Sensors degree C bas	131	Ambient	Tempe	ratur	e Low	Sensors	degree C		basic
132 Ambient Temperature High Sensors degree C bas		The temp	perature	unde	er which th	e alarm 'Ambia	ınt Tempera	ture Too Low' must	be set.
	132	-				l			basic
The temperature under which the alarm 'Ambiant Temperature Too Low' must be			•					ture Too Low' must	be set.

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133	Ambient Temperature Hysteresis	Sensors	degree C		basic
	The hysteresis on the 'Battery 'Low' alarms.	Temperature T	oo High' ar	nd 'Battery Tempera	ature Too
521	Read Access User Numbers	Allowed Users		(1,2,3,4,5)	basic
	The list of the user numbers v numbers are coma separated. T				
522	Write Access User Numbers	Allowed Users		()	basic
	The list of the user numbers what these users can modify the control elements. The user num 1,2,3,4 and 5. Ex: 1,3,4	configuration e	element, the	e alarm settings and	d use the
601	Event Table Length	Event		10/4000 (100)	basic
	The maximum length of the table	e. The value mu	ust be comp	prised between 10 a	nd 4000
602	Event Table Length By Rectifier	Event		10/4000 (100)	basic
	The maximum length of the table	e. The value mu	ust be comp	prised between 10 a	nd 4000
901	Number Of PLC Data	PLC		(0)	plc
	The number of PLC data. Every data. Data elements are aut parameters are added to set the calculation. In order to use the module	omatically add ne PLC Data N	ded in the Name and	data table. Con the PLC Data Math	figuration nematical
902	Number Of PLC Alarm	PLC		(0)	plc
	The number of PLC alarm. Every equipment can manage up to 20 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				

Con	itrol Table				
<u>Id</u>	<u>Name</u>	Group	<u>Licens</u> <u>e</u>		
1	Back To Float	DC Mode	basic		
	The dc system must go back in floating i	mode.			
2	Start Battery Test	DC Mode	battery		
	The dc system must start a battery test.				
3	Force Battery Test	DC Mode	battery		
	The dc system must force a battery test.				
4	Start Boost Mode	DC Mode	battery		
	The dc system must go in boost mode.				
11	Open The LVD	LVD	basic		
	The LVD must be opened				
12	Close The LVD	LVD	basic		
	The LVD must be closed	·			
21	Correct Battery Current Offset	Battery	basic		

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	No information				
31	Reset Battery Current Integration	Battery	basic		
	Reset the integration of the battery current.				
41	Reset Last Battery Test State	Battery	battery		
	Reset the state of the last battery test. If an alarm 'alarm will be cleared.	'Battery Last Test Failed' is	s set, the		
51	Save Configuration In MCU	Save	basic		
	Save configuration parameters in the MCU microcounthe system will be correctly managed.	ontroller. If comp@s is not	present,		
61	Set Digital Input 4 Counter Value	Counters	basic		
	Set Counter Value				
501	Clear My Events	Event	basic		
	By writing '1' to this control element, all the events of	f this equipment will be cle	ared.		
502	Clear All Events	Event	basic		
	By writing '1' to this control element, all the events of all the sub-equipments will be cleared.	of this equipment and all th	e events		
511	Add Event	Event	basic		
	This control element adds an event of severity none to this control element	e. The event name is the te	xt written		
512	Add Major Event	Event	basic		
	This control element adds an event of severity nuritten to this control element	najor. The event name is	the text		
521	Reset Default Names And Groups	Advanced	basic		
	This control element resets all the element Names values for this equipment	, Groups and Subgroups t	o default		
522	Reset Default Names And Groups Recursive	Advanced	basic		
	This control element resets all the element Names values for this equipment and all sub equipments	, Groups and Subgroups t	o default		

7.2.4 MCU0348LP

Device Information		
Name	MCU0348LP	
Short Description Low profile controller (1/2U high)		
Long Description Low profile monitoring and contro CAPTIN300 line		
Hardware 12NC	9413 060 10141	
Equipment Type	Monitoring Control Unit	
ETSI Level	/site/energy_system/dc_system	

Description Table				
<u>Id</u>	<u>Name</u>	Group	<u>License</u>	
1	Description	Customer	basic	
	A free text zone to write a system description			
2	Reference	Customer	basic	

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	A free text zone to write the customer reference of the system				
11	Product Name	Monitoring	basic		
	The product name of the DC sy	stem monitoring			
12	Hardware Reference	Monitoring	basic		
	The hardware reference of the	DC system monitoring			
14	Software Reference	Monitoring	asset		
	The serial number of the DC sy	stem monitoring			
16	Serial Number	Monitoring	asset		
	The serial number of the DC sy	stem monitoring			
17	Manufacturing ID	Monitoring	asset		
	The batch id of the DC system monitoring				
18	Manufacturing Date	Monitoring	asset		
	The production date of the DC:	system monitoring			

Ala:	ma Tabla			
Alar Id	m Table Name	Severity Type (Level)		
<u>10</u>	DC Bus Extra Low	major (6)		
	The bus voltage is extra low. The alarm is set of configuration parameter 'DC Bus Voltage Extra alarm: 'DC Bus Voltage Extra Low Hysteresis's mode is BATTERY TEST	when the bus voltage is lower than the a Low'. There is an hysteresis on the		
2	DC Bus Low	minor (4)		
	The bus voltage is low. The alarm is set who configuration parameter 'DC Bus Voltage Low'. 'DC Bus Voltage Low Hysteresis'			
3	DC Bus High	minor (4)		
	The bus voltage is high. The alarm is set who configuration paramenter 'DC Bus Voltage High 'DC Bus Voltage High Hysteresis'			
4	DC Bus Extra High	major (6)		
	The bus voltage is extra high. The alarm is set vonfiguration paramenter 'DC Bus Voltage Extra larm: 'DC Bus Voltage Extra High Hysteresis'			
5	DC Bus Voltage Sense Failure	major (6)		
	The DC bus voltage sense is defective. The unconfigured.	e DC bus voltage is unconnected or		
6	Mains Failure	minor (4)		
	The number of active rectifiers is equal to 0 and greater than 0.	the number of rectifiers in AC failure is		
7	Mains Partial Failure	minor (4)		
	The number of active rectifiers is greater than 0 and the number of rectifiers in failure is greater than 0. Some rectifiers are in AC Failure. It may be caused by open breaker, a real phase failure, or by a rectifier failure.			
8	Mains Low	warning (2)		
	The main voltage is low on one or more phases master type is 30110, 3096 or 3048M6, an hys to the voltage lower limit			

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10	One Rectifier Failure	minor (4)		
	One rectifier must be replaced or is not power rectifier is set. The number of rectifier with DC mains failure, and the 'More Than One Rectifier'	Failure is higher than 0, there is no		
11	More Than One Rectifier Failure	major (6)		
	There is no mains failure and number of rectifier	failures is greater than 1.		
12	Missing Rectifiers	major (6)		
	There is not enough rectifier according to th Number Of Rectifier'	e configuration parameter : 'Minimal		
13	Battery Last Test Failed	minor (4)		
	The last battery test did not succeed and was not cancelled. Maybe the battery shou be replaced.			
14	Battery On Discharge	minor (4)		
	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 curred hysteresis'.			
17	Battery LVD Relay Open	major (6)		
	The battery Low Voltage Disconnector is open signal, like MCU 1848 or MCU 1x6, the alarm is asks to open the LVD			
18	Battery Temperature Too High	minor (4)		
	The temperature of the battery is too high and in hysteresis corresponding to battery parameter 'T			
19	Battery Temperature Too Low	minor (4)		
	The temperature of the battery is too low and is hysteresis corresponding to battery parameter 'T			
20	Battery Temperature Sensor Fail	minor (4)		
	The battery temperature sensor (NTC) value is not connected or defective.	inferior to -500 units meaning that it is		
21	Ambient Temperature Too High	minor (4)		
	The ambient temperature is too high and is ghysteresis corresponding to parameter 'Ambiant only activated on MCU master types 30110, 30948 and 3048M6.	temperature hysteresis'. This alarm is		
22	Ambient Temperature Too Low	minor (4)		
	The ambient temperature is too low and is ghysteresis corresponding to parameter 'Ambiant only activated on MCU master types 30110, 30948 and 3048M6.	temperature hysteresis'. This alarm is		
23	Ambient Temperature Sensor Fail	minor (4)		
	The ambiant temperature sensor (NTC) value is not connected or defective.	inferior to -500 units meaning that it is		
25	Distribution Breaker Open	major (6)		
	This alarm is related to digital input 1. This ala different to configuration parameter 'Digital Input			
26	Battery Breaker Open	minor (4)		
1	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'			

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27	Digital Input 3	none (0)		
	This alarm is related to digital input 3. This a different to configuration parameter 'Digital Input			
28	Digital Input 4	none (0)		
	This alarm is related to digital input 4. This a different to configuration parameter 'Digital Input	9 ,		
29	Digital Input 5	none (0)		
	This alarm is related to digital input 5. This a different to configuration parameter 'Digital Input			
30	Digital Input 6	none (0)		
	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	a Table					
<u>Id</u>	<u>Name</u>	<u>Group</u>	<u>Unit</u>	<u>Licens</u>		
1	DC Mode	Canaral		<u>e</u>		
•	DC Mode	General		basic		
	The DC system can have 4 value 'AC_FAILURE' or SAFE	ies: FLOAT, BOC	JSI, BAITERY	_1E51*,		
2	Previous DC Mode	General		basic		
	The previous value of the DC Mode					
11	Bus Voltage	General	Volt	basic		
	The DC bus voltage in volt.					
12	Ratio Delivered On Available Power	General	%	basic		
	This is the ratio of the delivered power of	livided by the installe	ed power, in %.			
13	Minutes Since Last AC Failure Begin	General	minute	basic		
	The number of minute since the last AC	Failure begin	•			
14	Minutes Since Last AC Failure End	General	minute	basic		
	The number of minute since the last AC Failure end					
21	Rectifiers Output Power	Rectifiers	Watt	basic		
	The sum of the delivered rectifier power					
22	Rectifiers Output Current	Rectifiers	Ampere	basic		
	The sum of the delivered rectifier current	it				
23	Rectifiers Output Power Max	Rectifiers	Watt	basic		
	The sum of the deliverable rectifier power					
24	Rectifiers Output Current Max	Rectifiers	Ampere	basic		
	The sum of the deliverable rectifier curre	ent	•			
31	Number Of Rectifier Max	Rectifiers		basic		
	The maximum possible number of rectifier in this dc system					
32	Number Of Present Rectifier	Rectifiers		basic		
	The actual number of present rectifier in	this dc system	•			
33	Number Of Absent Rectifier	Rectifiers		basic		
	The actual number of absent rectifier in	this dc system	•			
34	Number Of Active Rectifier	Rectifiers		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.					

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	Number Of AC-Fail Rectifier	Rectifiers		basic
35	The actual number or rectifier in AC Fa			basic
36	Number Of DC-Fail Rectifier	Rectifiers	T	basic
30	The actual number or rectifier with DC			basic
37		Rectifiers	<u> </u>	basis
31	Number Of Remote Off Rectifier			basic
38	The actual number or rectifier in remot Number Of Over Temperatu	T .		basis
30	Rectifier			basic
	The actual number or rectifier in OVer	_ ·	T	1
51	Load Power	Load	Watt	basic
	Estimation of the load power consump		T	1
52	Load Current	Load	Ampere	basic
	Estimation of the load current consump		T	1
61	Battery Input Current	Battery	Ampere	basic
	Measurement of the battery input curr discharging	ent. A negative value	means that the ba	attery is
62	Battery Input Power	Battery	Watt	basic
	Measurement of the battery input pow discharging	er. A negative value	means that the ba	attery is
71	Battery Temperature	Battery	degree C	basic
	The battery temperature	·		
72	Battery Test State	Battery		basic
	This is about the result of the NEVER_TESTED, SUCCESS, FAILED_VBUS_TOO_LOW, FAILED_FAILED_CANCELED, FAILED_LVD_C	ON_GOING, O_LOAD_TOO_LOW,	FAILED_TIN	ΛΕΟUT,
73	Battery Test Discharged Capacity	Battery	%	basic
73	This is the battery capacity, in percer value is updated at the end of the batter	t, discharged during		<u> </u>
73 74	This is the battery capacity, in percer	nt, discharged during ery test.		l
	This is the battery capacity, in percer value is updated at the end of the batter	nt, discharged during ery test. h Battery e hour, discharged du	the last battery te	st. This
	This is the battery capacity, in percer value is updated at the end of the batter Battery Test Discharged Capacity A This is the battery capacity, in amper	nt, discharged during ery test. h Battery e hour, discharged du	the last battery te	st. This
74	This is the battery capacity, in percervalue is updated at the end of the battermore Battery Test Discharged Capacity A This is the battery capacity, in amper This value is updated at the end of the	ht, discharged during ery test. h Battery e hour, discharged dubattery test. Battery	Ah uring the last batte	basic basic ery test.
74	This is the battery capacity, in percervalue is updated at the end of the batter Battery Test Discharged Capacity A This is the battery capacity, in amper This value is updated at the end of the Battery Test Final Voltage This is the bus voltage at the end of the	ht, discharged during ery test. h Battery e hour, discharged dubattery test. Battery	Ah uring the last batte	basic basic ery test.
74 75	This is the battery capacity, in percervalue is updated at the end of the batter Battery Test Discharged Capacity A This is the battery capacity, in amper This value is updated at the end of the Battery Test Final Voltage This is the bus voltage at the end of the end of the battery test. Previous Battery Test State	ht, discharged during ery test. h Battery e hour, discharged dubattery test. Battery ne last battery test. The	Ah uring the last batte	basic ery test. basic d at the
74 75	This is the battery capacity, in percer value is updated at the end of the batter Battery Test Discharged Capacity A This is the battery capacity, in amper This value is updated at the end of the Battery Test Final Voltage This is the bus voltage at the end of the end of the battery test.	ht, discharged during ery test. h Battery e hour, discharged dubattery test. Battery ne last battery test. The	Ah uring the last batte	basic ery test. basic d at the
74 75 81	This is the battery capacity, in percer value is updated at the end of the batter Battery Test Discharged Capacity A This is the battery capacity, in amper This value is updated at the end of the Battery Test Final Voltage This is the bus voltage at the end of the end of the battery test. Previous Battery Test State The result of the previous battery test	ht, discharged during ery test. h Battery e hour, discharged dubattery test. Battery ne last battery test. The Battery Battery	Ah uring the last batte	basic basic basic d at the basic
74 75 81 82	This is the battery capacity, in percervalue is updated at the end of the batter Battery Test Discharged Capacity A This is the battery capacity, in amper This value is updated at the end of the Battery Test Final Voltage This is the bus voltage at the end of the end of the battery test. Previous Battery Test State The result of the previous battery test Minutes Since Last Test Battery	ht, discharged during ery test. h Battery e hour, discharged dubattery test. Battery ne last battery test. The Battery Battery	Ah uring the last batte	basic basic basic d at the basic
74 75 81 82	This is the battery capacity, in percervalue is updated at the end of the batter Battery Test Discharged Capacity A This is the battery capacity, in amper This value is updated at the end of the Battery Test Final Voltage This is the bus voltage at the end of the end of the battery test. Previous Battery Test State The result of the previous battery test Minutes Since Last Test Battery The number of minute without battery	ht, discharged during ery test. h Battery e hour, discharged dubattery test. Battery ne last battery test. The Battery Battery Battery Battery Battery Battery	Ah uring the last batte % is value is update %	basic basic d at the basic basic
74 75 81 82 91	This is the battery capacity, in percervalue is updated at the end of the batter Battery Test Discharged Capacity A This is the battery capacity, in amper This value is updated at the end of the Battery Test Final Voltage This is the bus voltage at the end of the end of the battery test. Previous Battery Test State The result of the previous battery test Minutes Since Last Test Battery The number of minute without battery to Battery Charge Capacity	ht, discharged during ery test. h Battery e hour, discharged dubattery test. Battery ne last battery test. The Battery Battery Battery Battery Battery Battery	Ah uring the last batte % is value is update %	basic basic d at the basic basic
74 75 81	This is the battery capacity, in percervalue is updated at the end of the batter Battery Test Discharged Capacity A This is the battery capacity, in amper This value is updated at the end of the Battery Test Final Voltage This is the bus voltage at the end of the end of the battery test. Previous Battery Test State The result of the previous battery test Minutes Since Last Test Battery The number of minute without battery the Battery Charge Capacity The battery charge capacity, calculated	ht, discharged during ery test. h Battery e hour, discharged dubattery test. Battery ne last battery test. The Battery Battery Battery est Battery d by integration of the Battery	Ah uring the last batte % is value is update % current.	basic basic basic basic basic basic basic
74 75 81 82 91	This is the battery capacity, in percervalue is updated at the end of the batter Battery Test Discharged Capacity A This is the battery capacity, in amper This value is updated at the end of the Battery Test Final Voltage This is the bus voltage at the end of the end of the battery test. Previous Battery Test State The result of the previous battery test Minutes Since Last Test Battery The number of minute without battery the battery charge Capacity The battery charge capacity, calculated Calculated Autonomy	ht, discharged during ery test. h Battery e hour, discharged dubattery test. Battery ne last battery test. The Battery Battery Battery est Battery d by integration of the Battery	Ah uring the last batte % is value is update % current.	basic basic basic basic basic basic basic
74 75 81 82 91	This is the battery capacity, in percervalue is updated at the end of the batter Battery Test Discharged Capacity A This is the battery capacity, in amper This value is updated at the end of the Battery Test Final Voltage This is the bus voltage at the end of the end of the battery test. Previous Battery Test State The result of the previous battery test Minutes Since Last Test Battery The number of minute without battery the battery charge Capacity The battery charge capacity, calculated Calculated Autonomy Calculation of the remaining autonomy	h Battery	the last battery te Ah uring the last batte % is value is update % current. minute As	basic basic basic basic basic basic basic
74 75 81 82 91	This is the battery capacity, in percervalue is updated at the end of the batter Battery Test Discharged Capacity A This is the battery capacity, in amper This value is updated at the end of the Battery Test Final Voltage This is the bus voltage at the end of the end of the battery test. Previous Battery Test State The result of the previous battery test Minutes Since Last Test Battery The number of minute without battery the battery charge Capacity The battery charge capacity, calculated Calculated Autonomy Calculation of the remaining autonomy Battery Current Integration As	h Battery	the last battery te Ah uring the last batte % is value is update % current. minute As	basic basic basic basic basic basic basic

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101	LVD State	LVD		basic	
	Actual state of the LVD				
121	Efficiency Optimized Number Of Rectifier	Asset Data		asset	
	The optimal number of ON rectifier for Et	fficiency Optimization	1		
122	System Loss Without Optimisation	Asset Data	Watt	asset	
	The optimal number of ON rectifier for Et	fficiency Optimization	1		
123	System Loss With Optimisation	Asset Data	Watt	asset	
	The optimal number of ON rectifier for Et	ficiency Optimization	1		
151	Ambient Temperature	Sensors	degree C	basic	
	The ambiant temperature (second temperature sense)				
204	Digital Input 4 Counter	Sensors		basic	
	The counter value of the digital input 4.				

Con	fig Table				
<u>Id</u>	Name	<u>Group</u>	<u>Unit</u>		<u>License</u>
1	DC Bus Float Voltage at 25 degC	Bus Voltage	Volt	(default) 40/60 (54)	basic
	The floating dc bus voltage of th	e svstem at 25	Celsius de	aree	
2	DC Bus Voltage Extra Low	Bus Voltage	Volt	40/60 (45)	basic
	The bus voltage under which the	e alarm 'DC Bu	s Voltage E	xtra Low' is set.	•
3	DC Bus Voltage Extra Low Hysteresis	Bus Voltage	Volt	0/5 (1)	basic
	The voltage hysteresis on the al	arm 'DC Bus V	oltage Extra	a Low'.	
4	DC Bus Voltage Low	Bus Voltage	Volt	40/60 (48)	basic
	The bus voltage under which the		s Voltage L	ow' is set.	1
5	DC Bus Voltage Low Hysteresis	Bus Voltage	Volt	0/5 (0.5)	basic
	The voltage hysteresis on the al	arm 'DC Bus V	oltage Low		
6	DC Bus Voltage High	Bus Voltage	Volt	40/60 (56.5)	basic
	The bus voltage over which the	alarm 'DC Bus	Voltage Hig	gh' is set.	
7	DC Bus Voltage High Hysteresis	Bus Voltage	Volt	0/5 (0.5)	basic
	The voltage hysteresis on the al	arm 'DC Bus V	oltage High		
8	DC Bus Voltage Extra High	Bus Voltage	Volt	40/60 (58)	basic
	The bus voltage over which the	alarm 'DC Bus	Voltage Ex	tra High' is set.	
9	DC Bus Voltage Extra High Hysteresis	Bus Voltage	Volt	0/5 (0.5)	basic
	The voltage hysteresis on the al	arm 'DC Bus V	oltage Extra	a High	
10	LVD Disconnect Voltage	Bus Voltage	Volt	0/50 (43.2)	basic
	The dc bus voltage under which allows preserving the battery life				bus. This
11	LVD Disconnect Delay	Bus Voltage	second	1/2000 (1)	basic
	The delay in second before disc configured disconnected voltage	onnecting the left. This avoids d	cattery if the isconnection	e dc bus voltage is on during a low bus t	under the ransient.

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21	Temperature Compensation Slope	Temperature Compensatio n	mV/degre e	-1000/0 (-72)	basic
	The slope of the battery tempera	ature compens	ation in mv	degree. For a 48V	system, -
	72mV/degree is often used.	<u> </u>	1	T	ı
22	Maximum Positive Temperature Compensation	Temperature Compensatio n	Volt	0/10 (3)	basic
	The maximal allowed positive co	mpensation.			
23	Temperature Compensation	Temperature Compensatio n	Volt	-10/0 (-3)	basic
	The maximal allowed negative c		1		1
25	Minimal Number Of Present Rectifiers	Rectifiers		0/100 (0)	basic
	The minimal number of rectifications, the alarm 'Missing Rec		t be prese	nt. If there is less	present
26	Rectifier Model	Rectifiers			basic
	The rectifier model				
27	Forced Remote Off Rectifers	Rectifiers			basic
	A list of rectifier which are force separated. Ex: 1,3 will maintain			of the rectifier must	be coma
31	Battery Charge Current Limit		Ampere	0.5/1000 (1000)	basic
	The maximal battery current where the bus voltage in order to satisfication to satisfication of the satisfication	sfy this condition by 10.	on. This pa	rameter is often equ	ual to the
32		Battery	Ah	3/1000 (100)	basic
	The battery capacity in Ah.	I	1	T	1
33		Battery		-100/20 (0)	basic
	The temperature under which th				1
34	Battery Temperature High	Battery	degree C	5/100 (40)	basic
	The temperature over which the	alarm 'Battery	Temperatu	re Too High' must b	e set.
35	Battery Temperature Hysteresis	Battery	degree C	0/10 (2)	basic
	The hysteresis on the 'Battery Low' alarms.	Temperature T	oo High' ar	nd 'Battery Tempera	ature Too
36	Minimal Current For Discharging Alarm	Battery	Ampere	0/1000 (0.5)	basic
	The minimal discharging current	to set the 'Batt	tery On Dis	charge' alarm.	
37	Current Hysteresis For Discharging Alarm	Battery	Ampere	0/50 (0.2)	basic
	The hysteresis on the 'Battery O	n Discharge' a	larm.		
51	Boost Automatic	Boost		False/False (False)	battery
	The boost mode must be autor	natically after	the fact tha	t during a mains fa	ilure, the
	bus voltage went under the cocharging the battery faster.				
52	Boost Activation Low Voltage	Boost	Volt	43/50 (46)	battery
	The voltage under which the boo	et mode can b	e activated	•	

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53	Poset Termination Valtage	Poost	Volt	E0/E0 /EC 4)	hattarı	
53	Boost Termination Voltage	Boost		50/58 (56.4)	battery	
ΕΛ	The voltage over which the system Boost Termination Current	Boost	ı	ř	b attau	
54			Ampere	0/100 (2)	battery	
	The battery charging current und		,	, 		
55	Boost Termination Time	Boost	minute	10/240 (120)	battery	
	The time in minute after which the				l	
70	Battery Test End Voltage	Battery Test	Volt	30/60 (46)	battery	
	The voltage at which any battery			T	1	
71	Battery Test Discharge Ratio		%	0/100 (0)	battery	
	The ratio of the battery capacit discharged during the test	y to discharge.	If 30 is se	t, 30% of the batte	ry will be	
72	Battery Test Interval	Battery Test	day	0/3000 (0)	battery	
	The number of days between tw set to 0, the battery test is not start or force this test.					
73	Battery Test Discharge Current	Battery Test	Ampere	0.5/100 (1000)	battery	
	The current at which the batt monitoring regulates the bus vo must be of course higher than the	ltage in order t				
74	Battery Test Minimal Discharge Current	Battery Test	Ampere	0.2/90 (2)	battery	
	The battery current under which too low.	the battery te	st must be	stopped because th	ne load is	
75	Battery Test Time Out	Battery Test	minute	1/5000 (10)	battery	
	The timeout in minute after which			. ,	, ,	
76		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.					
83	Smart Energy Boolean Condition	Smart Energy		121-125	asset	
	This is the boolean condition who frectifier in remote off.	nich allows or n	ot to auton	natically optimize the	e number	
86	Battery LVD Node Id	LVD		True/False (False)	basic	
	This is a list of the node id of the	Smart Electro	nic I V/De o	oma separated		
91			ilic Evids, c	oma ooparatoa		
	Digital Input 1 Name	Digital Inputs	THE EVDS, C	Distribution Breaker Open	basic	
	Digital Input 1 Name The name of the digital input 1		THE EVES, C	Distribution	basic	
92	The name of the digital input 1		THE EVDS, O	Distribution	basic	
92	The name of the digital input 1 Digital Input 1 Normally	Digital Inputs Digital Inputs digital input 1	is normally	Distribution Breaker Open True/False (True)	basic	
92	The name of the digital input 1 Digital Input 1 Normally Closed True/False value defining if the	Digital Inputs Digital Inputs digital input 1	is normally	Distribution Breaker Open True/False (True)	basic al input is	
	The name of the digital input 1 Digital Input 1 Normally Closed True/False value defining if the not in this default state, the relat Digital Input 2 Name	Digital Inputs Digital Inputs digital input 1 ed alarm is set	is normally	Distribution Breaker Open True/False (True) closed. If this digital	basic al input is	
	The name of the digital input 1 Digital Input 1 Normally Closed True/False value defining if the not in this default state, the relat Digital Input 2 Name The name of the digital input 2	Digital Inputs Digital Inputs digital input 1 ed alarm is set	is normally	Distribution Breaker Open True/False (True) closed. If this digital	basic al input is	

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	1						
			tate, the relat	ed alarm is set		closed. If this digita	al input is
95	Digital Inpu	ut 3 Na	me	Digital Inputs		Digital Input 3	basic
	The name of	of the di	gital input 3				
96	Digital In Closed	put (3 Normally	Digital Inputs		True/False (True)	basic
				digital input 3 ed alarm is set		closed. If this digita	al input is
97	Digital Inpu	ut 4 Na	me	Digital Inputs		Digital Input 4	basic
	The name of	of the di	gital input 4				
98	Closed			Digital Inputs		True/False (True)	basic
	not in this d	efault s	tate, the relat	ed alarm is set.		closed. If this digita	al input is
99	Digital Inpu			Digital Inputs		Digital Input 5	basic
	The name of	of the di	gital input 5				
100	Digital In Closed	put !	5 Normally	Digital Inputs		True/False (True)	basic
				digital input 5 led alarm is set.		closed. If this digita	al input is
101	Digital Inpu	ut 6 Na	me	Digital Inputs		Digital Input 6	basic
	The name of	of the di	gital input 6				
102	Digital In Closed	put (6 Normally	Digital Inputs		True/False (True)	basic
				digital input 6 ed alarm is set.		closed. If this digita	al input is
111	Dry Aları Boolean Co		Alternative n	Dry Alarms		False	plc
			ondition to ac d in the PLC o		larm relay	1. The way to define	e boolean
112	Dry Aları Boolean Co		Alternative n	Dry Alarms		False	plc
			ondition to ac d in the PLC o		larm relay 2	2. The way to define	e boolean
113	Dry Aları Boolean Co		Alternative n	Dry Alarms		False	plc
			ondition to ac	•	larm relay (3. The way to define	e boolean
114	Dry Aları Boolean Co		Alternative n	Dry Alarms		False	plc
			ondition to ac		larm relay	4. The way to define	e boolean
131	Ambient Te	empera	ture Low	Sensors	degree C		basic
		•				ature Too Low' must	
132	Ambient Te			Sensors	degree C	3.0.	basic
		•				ature Too Low' must	
133	Ambient		Temperature		degree C		basic
	Hysteresis		· oporacaro				
	Hysteresis The hystere					l nd 'Battery Tempera	ature Too

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	L owl clormo				
FC1	Low' alarms.	Allan		(4.0.0.4.5)	l
521	Read Access User Numbers	Allowed Users		(1,2,3,4,5)	basic
	The list of the user numbers values are coma separated. T				
522	Write Access User Numbers	Allowed Users		()	basic
	The list of the user numbers when the list of the				
	that these users can modify the control elements. The user num				
	1,2,3,4 and 5. Ex: 1,3,4	T	· I		T
601	Event Table Length	Event		10/4000 (100)	basic
	The maximum length of the table		ust be comp	1	nd 4000
611	SNMP Trap Targets IP	Event		192.168.45.1	basic
	One or multiple target IP to 130.23.12.45	send traps,	coma se	parated. Ex: 130.	145.23.1,
612	Minimal Event Severity For Traps	Event		(none)	basic
	This is the minimal severity of the	e event to send	a SNMP t	rap	
651	XML Events Primary Post URL	Event			basic
	This is the first URL at which the XML ETSI standard is used in the			uipment must be po	sted. The
652	XML Events Primary Post Login	Event			basic
	The login which must be used w	hen posting eve	ents to the	primary server	
653	XML Events Primary Post Password	Event			basic
	The password which must be us	ed when postin	ng events to	the primary server	
661	XML Events Secondary Post URL	Event			basic
	This is the second URL at which				
	The XML ETSI standard is us	•	sted data	content. This allow	s having
cco	redundancy with the manageme		<u> </u>	T	basis
662	XML Events Secondary Post Login	Event			basic
	The login which must be used w	hen posting eve	ents to the	secondary server	
663	XML Events Secondary Post Password	Event			basic
	The password which must be us	ed when postin	ng events to	the secondary serv	/er
901	Number Of PLC Data	PLC		(0)	plc
	The number of PLC data. Every data. Data elements are aut parameters are added to set the calculation. In order to use the module	omatically add	ded in the Name and	data table. Con the PLC Data Mat	figuration nematical
902	Number Of PLC Alarm	PLC		(0)	plc
	The number of PLC alarm. Ever alarms. Alarm elements are a parameters are added to set	ry equipment ca automatically a	added in t	up to 20 user progr he alarm table. T	ammable he alarm

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condition. In order to use these functionalities, you need a licence with the 'PLC' module

Cont	rol Table						
<u>Id</u>	<u>Name</u>	Group	<u>Licens</u> <u>e</u>				
1	Back To Float	DC Mode	basic				
	The dc system must go back in floating mode.						
2	Start Battery Test	DC Mode	battery				
	The dc system must start a battery test.						
3	Force Battery Test	DC Mode	battery				
	The dc system must force a battery test.						
4	Start Boost Mode	DC Mode	battery				
	The dc system must go in boost mode.						
11	Open The LVD	LVD	basic				
	The LVD must be opened						
12	Close The LVD	LVD	basic				
	The LVD must be closed						
21	Correct Battery Current Offset	Battery	basic				
	No information						
31	Reset Battery Current Integration	Battery	basic				
	Reset the integration of the battery current.						
41	Reset Last Battery Test State	Battery	battery				
	Reset the state of the last battery test. If an alar alarm will be cleared.	rm 'Battery Last Test Failed	l' is set, the				
51	Save Configuration In MCU	Save	basic				
	Save configuration parameters in the MCU mice the system will be correctly managed.	rocontroller. If comp@s is r	not present,				
61	Set Digital Input 4 Counter Value	Counters	basic				
	Set Counter Value		•				
501	Clear My Events	Event	basic				
	By writing '1' to this control element, all the even	ts of this equipment will be	cleared.				
502	Clear All Events	Event	basic				
	By writing '1' to this control element, all the ever of all the sub-equipments will be cleared.						
511	Add Event	Event	basic				
	This control element adds an event of severity none. The event name is the text written to this control element						
512	Add Major Event	Event	basic				
	This control element adds an event of severit written to this control element	ty major. The event name	is the text				
521	Reset Default Names	Event	basic				
	This control element adds an event of severit written to this control element	ty major. The event name	is the text				

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7.2.5 MCU0348M4

Device Information	
Name	MCU0348M4
Short Description	1U high controller with LCD display
Long Description	Monitoring and control unit, 1U high with LCD display, USB and Ethernet port - Captin300 line
Hardware 12NC	9413 060 10131
Equipment Type	Monitoring Control Unit
ETSI Level	/site/energy_system/dc_system

Desc	ription Table					
<u>Id</u>	<u>Name</u>	<u>Group</u>	<u>License</u>			
1	Description	Customer	basic			
	A free text zone to write a syste	m description				
2	Reference	Customer	basic			
	A free text zone to write the cus	stomer reference of the syste	em			
11	Product Name	Monitoring	basic			
	The product name of the DC sy	stem monitoring				
12	Hardware Reference	Monitoring	basic			
	The hardware reference of the	DC system monitoring				
14	Software Reference	Monitoring	asset			
	The serial number of the DC sy	stem monitoring				
16	Serial Number	Monitoring	asset			
	The serial number of the DC system monitoring					
17	Manufacturing ID	Monitoring	asset			
	The batch id of the DC system monitoring					
18	Manufacturing Date	Monitoring	asset			
	The production date of the DC :	system monitoring				

Aları	n Table				
<u>Id</u>	<u>Name</u>	Severity Type (Level)			
1	DC Bus Extra Low	major (6)			
	The bus voltage is extra low. The alarm is set we configuration parameter 'DC Bus Voltage Extra alarm: 'DC Bus Voltage Extra Low Hysteresis'. mode is BATTERY TEST	Low'. There is an hysteresis on the			
2	DC Bus Low	minor (4)			
	The bus voltage is low. The alarm is set who configuration parameter 'DC Bus Voltage Low'. 'DC Bus Voltage Low Hysteresis'				
3	DC Bus High	minor (4)			
	The bus voltage is high. The alarm is set when the bus voltage is higher than the configuration paramenter 'DC Bus Voltage High'. There is an hysterisis on the alarm: 'DC Bus Voltage High Hysteresis'				

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configuration paralarm: 'DC Bus' alarm: 'DC Bus' The DC bus volunconfigured. 6 Mains Failure The number of a greater than 0. 7 Mains Partial F The number of failure is greater open breaker, a 8 Mains Low The main voltage master type is 3 to the voltage lo 10 One Rectifier F One rectifier marectifier is set, mains failure, ar 11 More Than One There is no main 12 Missing Rectifier The Imperior of Rectifiers. The last battery be replaced. 13 Battery Last Temperature of the battery Losignal, like MCL asks to open the Imperature of	ligh	major (6)
The DC bus vounconfigured. Mains Failure The number of a greater than 0. Mains Partial F The number of failure is greate open breaker, a Mains Low The main voltage master type is 3 to the voltage lo One Rectifier F One rectifier mains failure, ar More Than One There is no main Missing Rectifi There is not e Number Of Rectifiers is not e Number Of Rectifiers. The last battery be replaced. Mains Low The main voltage master type is 3 to the voltage lo More Than One There is no main Missing Rectifier is not e Number Of Rectifiers and the Number Of Rectifiers. The last battery be replaced. Mains Low The battery Lost Tellow The last battery Lost Tellow The temperature of the tellow Tellow Tellow Tellow The temperature of the tellow Tellow Tellow Tellow Tellow Tellow Tellow Tellow Tellow Tel		et when the bus voltage is higher than the Extra High'. There is an hysterisis on the is'
Mains Failure The number of a greater than 0. Mains Partial F The number of failure is greate open breaker, a Mains Low The main voltage master type is 3 to the voltage lo One Rectifier F One rectifier mare rectifier is set, mains failure, ar More Than One There is no main Missing Rectifier There is not e Number Of Rectifiers not e Number Of Rectifiers. The last battery be replaced. Mains Low The main voltage loo Missing Rectifier F One rectifier There is no main More Than One There is no main Missing Rectifier The last battery be replaced. Battery Last Term The last battery is rectifiers. This and There is an hyphysteresis'. Mains Low The last set is set. There is no main the set of	e Sense Failure	major (6)
The number of a greater than 0. Mains Partial F The number of failure is greate open breaker, a Mains Low The main voltage master type is 3 to the voltage lo One Rectifier F One rectifier marectifier is set, mains failure, ar More Than One There is no main Missing Rectifier The set is not end and the Number Of Rectifier is not end and the set is not end and th	oltage sense is defective.	The DC bus voltage is unconnected or
greater than 0. Mains Partial F The number of failure is greate open breaker, a Mains Low The main voltage master type is 3 to the voltage lo One Rectifier F One rectifier mains failure, ar In More Than One There is no main failure, ar Missing Rectifier There is not end and the Number Of Rectifiers and the Number Of Rectifiers. The last battery be replaced. Battery Last Tentre The battery is rectifiers. This and There is an hyphysteresis'. Battery LVD Retentre The battery Losignal, like MCL asks to open the Sattery Temper The temperature hysteresis correction. Battery Temper The temperature of the temperat		minor (4)
The number of failure is greate open breaker, a 8	ctive rectifiers is equal to 0 a	and the number of rectifiers in AC failure is
failure is greate open breaker, a Mains Low The main voltage master type is 3 to the voltage lo One Rectifier F One rectifier mains failure, and the rectifier is set. In mains failure, and the rectifier is no mains failure, and the rectifier is no mains failure, and the rectifier is no mains failure. More Than One There is no mains failure, and the rectifier is not end to make the failure is not end to th	ailure	minor (4)
The main voltage master type is 3 to the voltage lo 10 One Rectifier F One rectifier mains failure, ar arectifier is set. mains failure, arectifier is no main failure, are mains failu		han 0 and the number of rectifiers in AC re in AC Failure. It may be caused by an ctifier failure.
master type is 3 to the voltage lo 10 One Rectifier F One rectifier may rectifier is set, mains failure, ar 11 More Than One There is no main There is no main There is not e Number Of Rectifier The last battery be replaced. 13 Battery Last Temperature hysteresis corre 14 Battery Un Discentifiers. This are the battery is rectifiers. This are the properature of the temperature hysteresis corre 18 Battery Temperature The temperature of the temp		warning (2)
One rectifier murectifier is set. mains failure, ar 11 More Than One There is no main 12 Missing Rectifi There is not e Number Of Rect 13 Battery Last Te The last battery be replaced. 14 Battery On Disc The battery is rectifiers. This a There is an hy hysteresis'. 17 Battery LVD Re The battery Lo signal, like MCL asks to open the 18 Battery Temper The temperature hysteresis corre 19 Battery Temper The temperature	0110, 3096 or 3048M6, an	ases. No rectifier is in AC failure. If MCU hysteresis _phase123Hysteresis is added
rectifier is set. mains failure, ar 11 More Than One There is no main 12 Missing Rectifi There is not e Number Of Rect 13 Battery Last Te The last battery be replaced. 14 Battery On Dist The battery is rectifiers. This a There is an hy hysteresis'. 17 Battery LVD Re The battery Lo signal, like MCL asks to open the 18 Battery Temper The temperature hysteresis corre 19 Battery Temper The temperature	ailure	minor (4)
There is no main Missing Rectifi There is not e Number Of Rect Battery Last Te The last battery be replaced. Battery On Dis The battery is rectifiers. This a There is an hy hysteresis'. Battery LVD Re The battery Lo signal, like MCL asks to open the Battery Temper The temperature hysteresis corre Battery Temper The temperature		wered correctly. The DC fail alarm of the DC Failure is higher than 0, there is no fier Failure alarm is not set.'
12 Missing Rectifi There is not e Number Of Rect 13 Battery Last Te The last battery be replaced. 14 Battery On Dise The battery is rectifiers. This a There is an hy hysteresis'. 17 Battery LVD Re The battery Lo signal, like MCL asks to open the 18 Battery Temper The temperature hysteresis corre 19 Battery Temper The temperature	Rectifier Failure	major (6)
There is not end Number Of Rectifiers 13 Battery Last Tender The last battery be replaced. 14 Battery On Distriction The battery is rectifiers. This and There is an hyphysteresis'. 17 Battery LVD Resignal, like MCL asks to open the last to open the last temperature hysteresis correction. 18 Battery Temperature hysteresis correction.	ns failure and number of recti	ifier failures is greater than 1.
Number Of Rect Battery Last Te The last battery be replaced. Battery On Dise The battery is rectifiers. This a There is an hy hysteresis'. Battery LVD Re The battery Lo signal, like MCL asks to open the Battery Temper The temperature hysteresis corre Battery Temper The temperature	ers	major (6)
The last battery be replaced. 14 Battery On Discretifiers. This are the control of the control		the configuration parameter : 'Minimal
be replaced. 14 Battery On Distriction The battery is rectifiers. This a There is an hy hysteresis'. 17 Battery LVD Resignal, like MCL asks to open the Battery Temper The temperature hysteresis corresis corresis corresis to the temperature of the temperature	st Failed	minor (4)
The battery is rectifiers. This a There is an hy hysteresis'. 17 Battery LVD Retent The battery Losignal, like MCL asks to open the Battery Temper The temperature hysteresis corretella Battery Temper The temperature hystery Temper The temperature hystery Temper The temperature The Tem	test did not succeed and wa	s not cancelled. Maybe the battery should
rectifiers. This at There is an hy hysteresis'. 17 Battery LVD Restriction The battery Losignal, like MCL asks to open the The temperature hysteresis correstriction The temperature The The temperature The The The The The The The The The Th	charge	minor (4)
The battery Lo signal, like MCL asks to open the The temperature hysteresis correct The temperature The temperature hysteresis correct The temperature The temperature The temperature The temperature The temperature The temperature The signal and	larm is inactive when the sys	at the load is too high for the installed stem in AC Failure or during a battery test. Dattery parameter 'Is discharging current
signal, like MCL asks to open the Battery Temper The temperature hysteresis corre 19 Battery Temper The temperature	lay Open	major (6)
The temperature hysteresis corre Battery Temperature hysteresis corre The temperature The temperature	J 1848 or MCU 1x6, the alar	open. On Systems without LVD_Status m is present only if the signal LVD_COM
hysteresis corre 19 Battery Temper The temperature	ature Too High	minor (4)
The temperature	<u> </u>	nd is greater than -600 units. There is an
	ature Too Low	minor (4)
	e of the battery is too low ar sponding to battery paramete	nd is greater than -600 units. There is an er 'Temperature hysteresis'.
20 Battery Temper	ature Sensor Fail	minor (4)
	perature sensor (NTC) value	e is inferior to -500 units meaning that it is
	erature Too High	minor (4)

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	The ambient temperature is too high and is g hysteresis corresponding to parameter 'Ambiant only activated on MCU master types 30110, 300948 and 3048M6.	temperature hysteresis'. This alarm is
22	Ambient Temperature Too Low	minor (4)
	The ambient temperature is too low and is graysteresis corresponding to parameter 'Ambiant only activated on MCU master types 30110, 300948 and 3048M6.	temperature hysteresis'. This alarm is
23	Ambient Temperature Sensor Fail	minor (4)
	The ambiant temperature sensor (NTC) value is not connected or defective.	inferior to -500 units meaning that it is
25	Distribution Breaker Open	major (6)
	This alarm is related to digital input 1. This ala different to configuration parameter 'Digital Input	
26	Battery Breaker Open	minor (4)
	This alarm is related to digital input 2. This ala different to configuration parameter 'Digital Input	
27	Digital Input 3	none (0)
	This alarm is related to digital input 3. This ala different to configuration parameter 'Digital Input	· ' '
28	Digital Input 4	none (0)
	This alarm is related to digital input 4. This ala different to configuration parameter 'Digital Input	
29	Digital Input 5	none (0)
	This alarm is related to digital input 5. This ala different to configuration parameter 'Digital Input	
30	Digital Input 6	none (0)
	This alarm is related to digital input 6. This ala different to configuration parameter 'Digital Input	

Data	Table					
<u>ld</u>	<u>Name</u>	<u>Group</u>	<u>Unit</u>	<u>Licens</u> <u>e</u>		
1	DC Mode	General		basic		
	The DC system can have 4 value 'AC_FAILURE' or SAFE	es: 'FLOAT', 'BOC	ST', 'BATTERY_	TEST',		
2	Previous DC Mode	General		basic		
	The previous value of the DC Mode					
11	Bus Voltage	General	Volt	basic		
	The DC bus voltage in volt.					
12	Ratio Delivered On Available Power	General	%	basic		
	This is the ratio of the delivered power di	ivided by the installed	d power, in %.			
13	Minutes Since Last AC Failure Begin	General	minute	basic		
	The number of minute since the last AC Failure begin					
14	Minutes Since Last AC Failure End	General	minute	basic		
	The number of minute since the last AC	Failure end				

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	T			1
21	Rectifiers Output Power	Rectifiers	Watt	basic
	The sum of the delivered rectifier powe		1	
22	Rectifiers Output Current	Rectifiers	Ampere	basic
	The sum of the delivered rectifier curre		1	
23	Rectifiers Output Power Max	Rectifiers	Watt	basic
	The sum of the deliverable rectifier pow		1	
24	Rectifiers Output Current Max	Rectifiers	Ampere	basic
	The sum of the deliverable rectifier curr	rent		_
31	Number Of Rectifier Max	Rectifiers		basic
	The maximum possible number of recti	fier in this dc system		_
32	Number Of Present Rectifier	Rectifiers		basic
	The actual number of present rectifier i	n this dc system		
33	Number Of Absent Rectifier	Rectifiers		basic
	The actual number of absent rectifier in	this dc system		
34	Number Of Active Rectifier	Rectifiers		basic
	The actual number of active rectifier in		ctive rectifier is a	rectifier
	which is present, DC OK, AC OK and r		1	
35	Number Of AC-Fail Rectifier	Rectifiers		basic
	The actual number or rectifier in AC Fa		1	1
36	Number Of DC-Fail Rectifier	Rectifiers		basic
	The actual number or rectifier with DC	Failure.	_	.
37	Number Of Remote Off Rectifier	Rectifiers		basic
	The actual number or rectifier in remote	1	1	1
38	Number Of Over Temperatur Rectifier	e Rectifiers		basic
	The actual number or rectifier in OVer	Temperature.		
51	Load Power	Load	Watt	basic
	Estimation of the load power consumpt	ion		
52	Load Current	Load	Ampere	basic
	Estimation of the load current consump	tion		
61	Battery Input Current	Battery	Ampere	basic
	Measurement of the battery input curredischarging	ent. A negative value	means that the b	attery is
62	Battery Input Power	Battery	Watt	basic
	Measurement of the battery input pow discharging	er. A negative value	means that the ba	attery is
71	Battery Temperature	Battery	degree C	basic
	The battery temperature			•
72	Battery Test State	Battery		basic
	This is about the result of the I NEVER_TESTED, SUCCESS, FAILED_VBUS_TOO_LOW, FAILED_FAILED_CANCELED, FAILED_LVD_C	ast battery test. 9 ON_GOING, _LOAD_TOO_LOW,	FAILED_TIN	ΛΕΟUT,
73	Battery Test Discharged Capacity	Battery	%	basic
	This is the battery capacity, in percenvalue is updated at the end of the batte		the last battery te	st. This
74	Battery Test Discharged Capacity Al	Battery	Ah	basic

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	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	%	basic			
	This is the bus voltage at the end of the end of the battery test.	last battery test. Thi	is value is update	d at the			
81	Previous Battery Test State	Battery		basic			
	The result of the previous battery test	T					
82	Minutes Since Last Test Battery	Battery		basic			
	The number of minute without battery tes	st					
91	Battery Charge Capacity	Battery	%	basic			
	The battery charge capacity, calculated by	by integration of the	current.				
92	Calculated Autonomy	Battery	minute	basic			
	Calculation of the remaining autonomy						
93	Battery Current Integration As	Battery	As	basic			
	Actual value of the integration of the curr	ent, in Ampere * sec	ond				
94	Battery Current Integration Ah	Battery	Ah	basic			
	Actual value of the integration of the curr	ent, in Ampere * hou	ır				
101	LVD State	LVD		basic			
	Actual state of the LVD	T	1				
121	Efficiency Optimized Number Of Rectifier	Asset Data		asset			
	The optimal number of ON rectifier for Ef	ficiency Optimization	וַ				
122	System Loss Without Optimisation	Asset Data	Watt	asset			
	The optimal number of ON rectifier for Ef	ficiency Optimization	1				
123	System Loss With Optimisation	Asset Data	Watt	asset			
	The optimal number of ON rectifier for Ef	ficiency Optimization	1				
151	Ambient Temperature	Sensors	degree C	basic			
	The ambiant temperature (second temperature)	erature sense)					
204	Digital Input 4 Counter	Sensors		basic			
	The counter value of the digital input 4.						

Conf	ig Table					
<u>Id</u>	<u>Name</u>	<u>Group</u>	<u>Unit</u>	Range: Min/Max (default)	<u>License</u>	
	DC Bus Float Voltage at 25 degC	Bus Voltage	Volt	40/60 (54)	basic	
	The floating dc bus voltage of th	e system at 25	Celsius de	gree		
2	DC Bus Voltage Extra Low	Bus Voltage	Volt	40/60 (45)	basic	
	The bus voltage under which the	alarm 'DC Bus	s Voltage E	xtra Low' is set.		
3	DC Bus Voltage Extra Low Hysteresis	Bus Voltage	Volt	0/5 (1)	basic	
	The voltage hysteresis on the al	arm 'DC Bus Vo	oltage Extra	a Low'.		
4	DC Bus Voltage Low	Bus Voltage	Volt	40/60 (48)	basic	
	The bus voltage under which the alarm 'DC Bus Voltage Low' is set.					
-	DC Bus Voltage Low Hysteresis	Bus Voltage	Volt	0/5 (0.5)	basic	

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	T							
	The voltage hysteresis on the alarm 'DC Bus Voltage Low							
6	DC Bus Voltage High	Bus Voltage	Volt	40/60 (56.5)	basic			
	The bus voltage over which the	1		ph' is set.				
7	DC Bus Voltage High Hysteresis	Bus Voltage	Volt	0/5 (0.5)	basic			
	The voltage hysteresis on the al		oltage High	T	_			
8	DC Bus Voltage Extra High	Bus Voltage	Volt	40/60 (58)	basic			
	The bus voltage over which the	1		tra High' is set.	_			
9	DC Bus Voltage Extra High Hysteresis		Volt	0/5 (0.5)	basic			
	The voltage hysteresis on the al	arm 'DC Bus V		a High				
10	LVD Disconnect Voltage	Bus Voltage	Volt	0/50 (43.2)	basic			
	The dc bus voltage under which allows preserving the battery life				bus. This			
11	LVD Disconnect Delay	Bus Voltage	second	1/2000 (1)	basic			
	The delay in second before disc							
0.1	configured disconnected voltage			_				
21	Temperature Compensation Slope	Compensatio	mV/degre e	-1000/0 (-72)	basic			
	The slope of the battery temper 72mV/degree is often used.	ature compens	ation in mv	degree. For a 48V	system, -			
22	Maximum Positive Temperature Compensation	Temperature Compensatio n	Volt	0/10 (3)	basic			
	The maximal allowed positive co	mpensation.						
23	Maximum Negative Temperature Compensation	Temperature Compensatio n	Volt	-10/0 (-3)	basic			
	The maximal allowed negative of	ompensation.			1			
25	Minimal Number Of Present Rectifiers			0/100 (0)	basic			
	The minimal number of rectifi rectifiers, the alarm 'Missing Rec		t be prese	nt. If there is less	present			
26	Rectifier Model	Rectifiers			basic			
	The rectifier model							
27	Forced Remote Off Rectifers	Rectifiers			basic			
	A list of rectifier which are force separated. Ex: 1,3 will maintain			f the rectifier must	be coma			
31	Battery Charge Current Limit	Battery	Ampere	0.5/1000 (1000)	basic			
	The maximal battery current where the bus voltage in order to satisfication to satisfication of the maximal battery capacity divided	sfy this condition						
32	Battery String Capacity	Battery	Ah	3/1000 (100)	basic			
	The battery capacity in Ah.			·				
33	Battery Temperature Low	Battery	degree C	-100/20 (0)	basic			
	The temperature under which th	e alarm 'Batter	y Temperat	ure Too Low' must l	be set.			
34	Battery Temperature High	Battery	degree C	5/100 (40)	basic			

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	The temperature over w	hich the	alarm 'Batterv	Temperatu	re Too Hiah' must b	e set.
35	•		Battery	degree C	0/10 (2)	basic
	Hysteresis	orataro	Battery	degree e	0/10 (2)	basic
	The hysteresis on the 'l	Battery ⁻	Temperature T	oo High' ar	nd 'Battery Tempera	ature Too
36	Minimal Current Discharging Alarm	For	Battery	Ampere	0/1000 (0.5)	basic
	The minimal discharging	current	to set the 'Batt	ery On Dis	charge' alarm.	
37	Current Hysteresis Discharging Alarm	For	Battery	Ampere	0/50 (0.2)	basic
	The hysteresis on the 'B	attery O	n Discharge' al	arm.		
51	Boost Automatic		Boost		False/False (False)	battery
	The boost mode must I bus voltage went unde charging the battery fast	r the co	•		0	,
52	Boost Activation Low	Voltage	Boost	Volt	43/50 (46)	battery
	The voltage under which	the boo	ost mode can b	e activated	•	
53	Boost Termination Vol	tage	Boost	Volt	50/58 (56.4)	battery
	The voltage over which	the syste	em must go ba	ck to floatin	g mode.	
54	Boost Termination Cur	rrent	Boost	Ampere	0/100 (2)	battery
	The battery charging cu	rrent und	der which the s	ystem must	go back to floating	mode.
55	Boost Termination Tim	ne	Boost	minute	10/240 (120)	battery
	The time in minute after	which th	ne system must	go back in	floating mode.	
70	Battery Test End Volta	ge	Battery Test	Volt	30/60 (46)	battery
	The voltage at which an	y battery	test must be s	topped.		
71	Battery Test Discharge	Ratio	Battery Test	%	0/100 (0)	battery
	The ratio of the battery discharged during the te		y to discharge.	If 30 is se	et, 30% of the batte	ry will be
72	Battery Test Interval		Battery Test	day	0/3000 (0)	battery
	The number of days bet set to 0, the battery tes start or force this test.					
73	Battery Test Dis Current	scharge	Battery Test	Ampere	0.5/100 (1000)	battery
	The current at which monitoring regulates the must be of course higher	bus vo	ltage in order to			
74	Battery Test I Discharge Current	Minimal	Battery Test	Ampere	0.2/90 (2)	battery
	The battery current und too low.	er which	the battery te	st must be	stopped because th	ne load is
75	Battery Test Time Out		Battery Test	minute	1/5000 (10)	battery
	The timeout in minute at	ter whic	h the battery te	st must be	stopped.	-
76			Battery Test	minute	0/5000 (1440)	battery
	Minutes Without Failure	Mains	-			_
	The minimal time in mir parameter is not taken in				-	tart. This

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83	Smart Conditio	Energ n	ıy	Boolean	Smart Energy		121-125	asset
	This is the				nich allows or n	ot to autom	natically optimize the	e number
86	Battery L	.VD No	de Id		LVD		True/False (False)	basic
	This is a	list of the	e noc	de id of the	Smart Electro	nic LVDs, c	oma separated	
91	Digital In	put 1 N	ame		Digital Inputs		Distribution	basic
							Breaker Open	
	The name	e of the	digita	al input 1				
92	Digital Closed	Input	1	Normally	Digital Inputs		True/False (True)	basic
							closed. If this digital	al input is
	not in this	default	state	e, the relat	ed alarm is set	•		
93	Digital In	put 2 N	ame		Digital Inputs		Battery Breaker Open	basic
	The name	e of the	digita	al input 2				
94	Digital Closed	Input	2	Normally	Digital Inputs		True/False (True)	basic
							closed. If this digital	al input is
05					ed alarm is set	<u> </u>	District Innex t O	la a alia
95	Digital In	•			Digital Inputs		Digital Input 3	basic
	The name			•		1	-	I
96	Digital Closed				Digital Inputs		True/False (True)	basic
							closed. If this digital	al input is
97	Digital In				ed alarm is set Digital Inputs	•	Digital Input 4	basic
91		•			Digital Imputs		Digital Input 4	Dasic
00	The name			-	Digital Inguita	1	Two /Foloo /Two	basis
98	Digital Closed	Input	4	Normany	Digital Inputs		True/False (True)	basic
	True/Fals	e value	defii	ning if the	digital input 4	is normally	closed. If this digital	al input is
				•	ed alarm is set	,	3	•
99	Digital In	put 5 N	lame		Digital Inputs		Digital Input 5	basic
	The name	e of the	digita	al input 5				
100	Digital Closed	Input	5	Normally	Digital Inputs		True/False (True)	basic
					digital input 5 ed alarm is set		closed. If this digital	al input is
101	Digital In			-	Digital Inputs	•	Digital Input 6	basic
101	The name	•			Digital Imputs		Digital Input 0	Dasio
102	Digital	Input	6 6		Digital Inputs		True/False (True)	basic
102	Closed	iliput	0	Normany	Digital Inputs		True/Faise (True)	Dasic
					digital input 6 ed alarm is set		closed. If this digita	al input is
111	ł	arm 1	Α	-	Dry Alarms		False	plc
	Another E	Boolean	cond	dition to ac	•	larm relay	1. The way to define	e boolean
112	ł	arm 2			Dry Alarms		False	plc
	Lary Wie	ullil 2	. ~		ויטן אומוווס איז איז		1 2136	Pic

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	Boolean Condition				
	Another Boolean condition to accondition is detailed in the PLC of		larm relay 2	2. The way to define	boolean
113	Dry Alarm 3 Alternative Boolean Condition	Dry Alarms		False	plc
	Another Boolean condition to accondition is detailed in the PLC of		larm relay (3. The way to define	e boolean
114	Dry Alarm 4 Alternative Boolean Condition	Dry Alarms		False	plc
	Another Boolean condition to accondition is detailed in the PLC of		larm relay 4	4. The way to define	e boolean
131	Ambient Temperature Low	Sensors	degree C		basic
	The temperature under which th	e alarm 'Ambia	nt Tempera	ture Too Low' must	be set.
132	Ambient Temperature High	Sensors	degree C		basic
	The temperature under which th	e alarm 'Ambia	nt Tempera	ture Too Low' must	be set.
133	Ambient Temperature Hysteresis	Sensors	degree C		basic
	The hysteresis on the 'Battery Low' alarms.	Temperature To	oo High' ar	nd 'Battery Tempera	ature Too
521	Read Access User Numbers	Allowed Users		(1,2,3,4,5)	basic
	The list of the user numbers v numbers are coma separated. T				
522	Write Access User Numbers	Allowed Users		()	basic
	The list of the user numbers when that these users can modify the control elements. The user num 1,2,3,4 and 5. Ex: 1,3,4	configuration 6	element, the	e alarm settings and	d use the
601	Event Table Length	Event		10/4000 (100)	basic
	The maximum length of the table	e. The value mu	ust be comp	orised between 10 a	nd 4000
611	SNMP Trap Targets IP	Event		192.168.45.1	basic
	One or multiple target IP to 130.23.12.45		coma se		
612	Minimal Event Severity For Traps	Event		(none)	basic
	This is the minimal severity of th	e event to send	a SNMP ti	rap	
651	XML Events Primary Post URL	Event			basic
	This is the first URL at which the XML ETSI standard is used in the			uipment must be po	sted. The
652	XML Events Primary Post Login	Event			basic
	The login which must be used w	hen posting eve	ents to the	primary server	
653	XML Events Primary Post Password	`			basic
	The password which must be us	ed when postin	g events to	the primary server	ı
661	XML Events Secondary Post URL			, , ,	basic
	i			i	i

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	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.				
662	XML Events Secondary Post Login	Event			basic
	The login which must be used w	hen posting ev	ents to the	secondary server	
663	XML Events Secondary Post Password	Event			basic
	The password which must be used when posting events to the secondary server				/er
901	Number Of PLC Data	PLC		(0)	plc
	The number of PLC data. Every equipment can manage up to 20 user program data. Data elements are automatically added in the data table. Configurary 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 module				figuration nematical
902	Number Of PLC Alarm	PLC		(0)	plc
	The number of PLC alarm. Every equipment can manage up to 20 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				

Con	trol Table				
<u>Id</u>	<u>Name</u>	<u>Group</u>	<u>Licens</u> <u>e</u>		
1	Back To Float	DC Mode	basic		
	The dc system must go back in floating mode.				
2	Start Battery Test	DC Mode	battery		
	The dc system must start a battery test.				
3	Force Battery Test	DC Mode	battery		
	The dc system must force a battery test.				
4	Start Boost Mode	DC Mode	battery		
	The dc system must go in boost mode.				
11	Open The LVD	LVD	basic		
	The LVD must be opened				
12	Close The LVD	LVD	basic		
	The LVD must be closed				
21	Correct Battery Current Offset	Battery	basic		
	No information				
31	Reset Battery Current Integration	Battery	basic		
	Reset the integration of the battery current.				
41	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.				
51	Save Configuration In MCU	Save	basic		
	Save configuration parameters in the MCU micro the system will be correctly managed.	ocontroller. If comp@s is n	ot present,		

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61	Set Digital Input 4 Counter Value	Counters	basic	
	Set Counter Value			
501	Clear My Events	Event	basic	
	By writing '1' to this control element, all the events of	f this equipment will be clea	ared.	
502	Clear All Events	Event	basic	
By writing '1' to this control element, all the events of this equipment and all of all the sub-equipments will be cleared.			e events	
511	Add Event	Event	basic	
	This control element adds an event of severity none. The event name is the text written to this control element			
512	Add Major Event	Event	basic	
	This control element adds an event of severity major. The event name is the text written to this control element			
521	Reset Default Names	Event	basic	
	This control element adds an event of severity nuritten to this control element	najor. The event name is	the text	

7.2.6 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 display, USB and Ethernet port - Capt line / Low profile monitoring and control 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

Desc	Description Table				
<u>Id</u>	<u>Name</u>	Group	<u>License</u>		
1	Description	Description	basic		
	A free text zone to write a system description				
2	Reference	Description	basic		
	A free text zone to write the customer reference of the system				
11	Product Name	Monitoring	basic		
	The product name of the DC system monitoring				
12	Hardware Reference	Monitoring	basic		
	The hardware reference of the DC system monitoring				
14	Software Reference	Monitoring	asset		
	The serial number of the DC system monitoring				
16	Serial Number	Monitoring	asset		

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	The serial number of the DC system monitoring			
18	Manufacturing Date	Monitoring	asset	
	The production date of the DC system monitoring			

Alar	m Table							
<u>Id</u>	<u>Name</u>	Severity Type (Level)	Set/Clear Delay					
1	DC Bus Extra Low	major (6)	5 / 2					
	The bus voltage is extra low. The alarm is set when the bus voltage is lower than a configuration parameter 'DC Bus Voltage Extra Low'. There is an hysteresis on alarm: 'DC Bus Voltage Extra Low Hysteresis'. The alarm is not activated when I mode is BATTERY TEST							
2	DC Bus Low	minor (4)	5 / 2					
	The bus voltage is low. The alarm is se configuration parameter 'DC Bus Voltage 'DC Bus Voltage Low Hysteresis'							
3	DC Bus High	minor (4)	5 / 2					
	The bus voltage is high. The alarm is se configuration paramenter 'DC Bus Voltage 'DC Bus Voltage High Hysteresis'							
4	DC Bus Extra High	major (6)	5/2					
	The bus voltage is extra high. The alarm is configuration paramenter 'DC Bus Voltage alarm : 'DC Bus Voltage Extra High Hystere	e Extra High'. There is a						
5	DC Bus Voltage Sense Failure	major (6)	5/2					
	The DC bus voltage sense is defective. The DC bus voltage is unconnected or unconfigured.							
6	Mains Failure	minor (4)	5 / 2					
6	Mains Failure The number of active rectifiers is equal to 0 greater than 0.	· · · · · · · · · · · · · · · · · · ·	l .					
6 7	The number of active rectifiers is equal to (· · · · · · · · · · · · · · · · · · ·	l .					
	The number of active rectifiers is equal to 0 greater than 0.	minor (4) than 0 and the number are in AC Failure. It ma	fiers in AC failure is 10 / 2 r of rectifiers in AC					
	The number of active rectifiers is equal to 0 greater than 0. Mains Partial Failure The number of active rectifiers is greater failure is greater than 0. Some rectifiers	minor (4) than 0 and the number are in AC Failure. It ma	fiers in AC failure is 10 / 2 r of rectifiers in AC					
7	The number of active rectifiers is equal to 0 greater than 0. Mains Partial Failure The number of active rectifiers is greater failure is greater than 0. Some rectifiers open breaker, a real phase failure, or by a	minor (4) than 0 and the number are in AC Failure. It marectifier failure. warning (2) hases. No rectifier is in	fiers in AC failure is 10 / 2 r of rectifiers in AC by be caused by an 10 / 2 AC failure. If MCU					
7	The number of active rectifiers is equal to 0 greater than 0. Mains Partial Failure The number of active rectifiers is greater failure is greater than 0. Some rectifiers open breaker, a real phase failure, or by a Mains Low The main voltage is low on one or more p master type is 30110, 3096 or 3048M6, a	minor (4) than 0 and the number are in AC Failure. It marectifier failure. warning (2) hases. No rectifier is in	fiers in AC failure is 10 / 2 r of rectifiers in AC by be caused by an 10 / 2 AC failure. If MCU					
7	The number of active rectifiers is equal to 0 greater than 0. Mains Partial Failure The number of active rectifiers is greater failure is greater than 0. Some rectifiers open breaker, a real phase failure, or by a Mains Low The main voltage is low on one or more p master type is 30110, 3096 or 3048M6, a to the voltage lower limit	minor (4) than 0 and the number are in AC Failure. It marectifier failure. warning (2) hases. No rectifier is in hysteresis _phase123I minor (4) cowered correctly. The Eth DC Failure is higher	fiers in AC failure is 10 / 2 r of rectifiers in AC by be caused by an 10 / 2 AC failure. If MCU Hysteresis is added 5 / 2 CC fail alarm of the than 0, there is no					
7	The number of active rectifiers is equal to 0 greater than 0. Mains Partial Failure The number of active rectifiers is greater failure is greater than 0. Some rectifiers open breaker, a real phase failure, or by a Mains Low The main voltage is low on one or more p master type is 30110, 3096 or 3048M6, at to the voltage lower limit One Rectifier Failure One rectifier must be replaced or is not prectifier is set. The number of rectifier with	minor (4) than 0 and the number are in AC Failure. It marectifier failure. warning (2) hases. No rectifier is in hysteresis _phase123I minor (4) cowered correctly. The Eth DC Failure is higher	fiers in AC failure is 10 / 2 r of rectifiers in AC by be caused by an 10 / 2 AC failure. If MCU Hysteresis is added 5 / 2 CC fail alarm of the than 0, there is no					
7 8	The number of active rectifiers is equal to 0 greater than 0. Mains Partial Failure The number of active rectifiers is greater failure is greater than 0. Some rectifiers open breaker, a real phase failure, or by a Mains Low The main voltage is low on one or more p master type is 30110, 3096 or 3048M6, at to the voltage lower limit One Rectifier Failure One rectifier must be replaced or is not p rectifier is set. The number of rectifier with mains failure, and the 'More Than One Rectifier with the second set of the second se	minor (4) than 0 and the number are in AC Failure. It marectifier failure. warning (2) hases. No rectifier is in hysteresis _phase123I minor (4) cowered correctly. The Eath DC Failure is higher alarm is not major (6)	fiers in AC failure is 10 / 2 r of rectifiers in AC by be caused by an 10 / 2 AC failure. If MCU Hysteresis is added 5 / 2 C fail alarm of the than 0, there is no set.' 10 / 2					
7 8	The number of active rectifiers is equal to 0 greater than 0. Mains Partial Failure The number of active rectifiers is greater failure is greater than 0. Some rectifiers open breaker, a real phase failure, or by a Mains Low The main voltage is low on one or more p master type is 30110, 3096 or 3048M6, at to the voltage lower limit One Rectifier Failure One rectifier must be replaced or is not prectifier is set. The number of rectifier with mains failure, and the 'More Than One Rectifier Failure	minor (4) than 0 and the number are in AC Failure. It marectifier failure. warning (2) hases. No rectifier is in hysteresis _phase123I minor (4) cowered correctly. The Eath DC Failure is higher alarm is not major (6)	fiers in AC failure is 10 / 2 r of rectifiers in AC by be caused by an 10 / 2 AC failure. If MCU Hysteresis is added 5 / 2 C fail alarm of the than 0, there is no set.' 10 / 2					
7 8 10 11	The number of active rectifiers is equal to 0 greater than 0. Mains Partial Failure The number of active rectifiers is greater failure is greater than 0. Some rectifiers open breaker, a real phase failure, or by a Mains Low The main voltage is low on one or more p master type is 30110, 3096 or 3048M6, at to the voltage lower limit One Rectifier Failure One rectifier must be replaced or is not prectifier is set. The number of rectifier with mains failure, and the 'More Than One Rectifier Failure There is no mains failure and number of rectifier.	minor (4) than 0 and the number are in AC Failure. It marectifier failure. warning (2) hases. No rectifier is in hysteresis _phase123I minor (4) cowered correctly. The Extifier Failure alarm is not major (6) ctifier failures is greater to major (6)	fiers in AC failure is 10 / 2 r of rectifiers in AC y be caused by an 10 / 2 AC failure. If MCU Hysteresis is added 5 / 2 CC fail alarm of the than 0, there is no set.' 10 / 2 han 1. 5 / 2					
7 8 10 11	The number of active rectifiers is equal to 0 greater than 0. Mains Partial Failure The number of active rectifiers is greater failure is greater than 0. Some rectifiers open breaker, a real phase failure, or by a Mains Low The main voltage is low on one or more p master type is 30110, 3096 or 3048M6, at to the voltage lower limit One Rectifier Failure One rectifier must be replaced or is not prectifier is set. The number of rectifier with mains failure, and the 'More Than One Rectifier Failure There is no mains failure and number of rectifiers There is not enough rectifier according	minor (4) than 0 and the number are in AC Failure. It marectifier failure. warning (2) hases. No rectifier is in hysteresis _phase123I minor (4) cowered correctly. The Extifier Failure alarm is not major (6) ctifier failures is greater to major (6)	fiers in AC failure is 10 / 2 r of rectifiers in AC y be caused by an 10 / 2 AC failure. If MCU Hysteresis is added 5 / 2 CC fail alarm of the than 0, there is no set.' 10 / 2 han 1. 5 / 2					

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	be replaced.		
14	Battery On Discharge	minor (4)	10 / 2
	The battery is discharging. This mean rectifiers. This alarm is inactive when the There is an hysteresis corresponding hysteresis'.	e system in AC Failure o	or during a battery test
17	Battery LVD Relay Open	major (6)	5 / 2
	The battery Low Voltage Disconnecto signal, like MCU 1848 or MCU 1x6, the asks to open the LVD		
18	Battery Temperature Too High	minor (4)	5 / 2
	The temperature of the battery is too highlysteresis corresponding to battery para		
19	Battery Temperature Too Low	minor (4)	5 / 2
	The temperature of the battery is too lo hysteresis corresponding to battery para		
20	Battery Temperature Sensor Fail	minor (4)	5 / 2
	The battery temperature sensor (NTC) not connected or defective.	value is inferior to -500	units meaning that it is
21	Ambient Temperature Too High	minor (4)	5 / 2
	hysteresis corresponding to parameter 'nonly activated on MCU master types 3 0948 and 3048M6.	0110, 3096, 30125, 00	24, 0948, 0548, 0348
22	Ambient Temperature Too Low	minor (4)	5 / 2
	The ambient temperature is too low a hysteresis corresponding to parameter '/only activated on MCU master types 3 0948 and 3048M6.	Ambiant temperature hy	steresis'. This alarm is
23	Ambient Temperature Sensor Fail	minor (4)	5 / 2
	The ambiant temperature sensor (NTC) not connected or defective.	value is inferior to -500	units meaning that it is
24	Humidity Out Of Range	major (6)	5 / 2
	The humidity is not comprised betweer parameter 'Humidity Low', and a upper 'Humidity High'. There is an hysteres 'Humidity Hysteresis'. This alarm is only	limit, corresponding to cosis corresponding to co	configuration parameter onfiguration parameter
25	Distribution Breaker Open	major (6)	5 / 2
	This alarm is related to digital input 1. different to configuration parameter 'Digi		if digital input value is
26	Battery Breaker Open	minor (4)	5 / 2
	This alarm is related to digital input 2. different to configuration parameter 'Digi		if digital input value is
27	Digital Input 3	none (0)	5 / 2
	This alarm is related to digital input 3. different to configuration parameter 'Digi		if digital input value is
28	Digital Input 4	none (0)	5 / 2

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29	Digital Input 5	none (0)	5 / 2
	This alarm is related to digital input 5. different to configuration parameter 'Digital'		if digital input value is
30	Digital Input 6	none (0)	5 / 2
	This alarm is related to digital input 6. different to configuration parameter 'Digital'		if digital input value is
31	Digital Input 7	none (0)	5 / 2
	This alarm is related to digital input 7. different to configuration parameter 'Digital'		if digital input value is
32	Digital Input 8	none (0)	5 / 2

Data	Table						
<u>Id</u>	<u>Name</u>	Group	<u>Unit</u>	<u>Licens</u> <u>e</u>			
1	DC Mode	General		basic			
	The DC system can have 4 values: 'FLOAT', 'BOOST', 'BATTER'						
2	Previous DC Mode	General		basic			
	The previous value of the DC Mode	•					
11	Bus Voltage	General	Volt	basic			
	The DC bus voltage in volt.						
12	Ratio Delivered On Available Power	General	%	basic			
	This is the ratio of the delivered power d	livided by the installe	d power, in %.				
13	Minutes Since Last AC Failure Begin	General	minute	basic			
	The number of minute since the last AC	Failure begin					
14	Minutes Since Last AC Failure End	General	minute	basic			
	The number of minute since the last AC Failure end						
21	Rectifiers Output Power	Rectifiers	Watt	basic			
	The sum of the delivered rectifier power						
22	Rectifiers Output Current	Rectifiers	Ampere	basic			
	The sum of the delivered rectifier current						
23	Rectifiers Output Power Max	Rectifiers	Watt	basic			
	The sum of the deliverable rectifier power	er					
24	Rectifiers Output Current Max	Rectifiers	Ampere	basic			
	The sum of the deliverable rectifier current						
31	Number Of Rectifier Max	Rectifiers		basic			
	The maximum possible number of rectifier in this dc system						
32	Number Of Present Rectifier	Rectifiers		basic			
	The actual number of present rectifier in this dc system						
33	Number Of Absent Rectifier	Rectifiers		basic			
	The actual number of absent rectifier in	this dc system					
34	Number Of Active Rectifier	Rectifiers		basic			
	The actual number of active rectifier in which is present, DC OK, AC OK and no		ctive rectifier is a	rectifier			

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0.5	Number Of AO Feil Bestifier	Daatitiana		la a a la
35	Number Of AC-Fail Rectifier	Rectifiers		basic
00	The actual number or rectifier in AC Fai			la a a i a
36	Number Of DC-Fail Rectifier	Rectifiers		basic
07	The actual number or rectifier with DC F	T		la a a la
37	Number Of Remote Off Rectifier	Rectifiers		basic
20	The actual number or rectifier in remote			basis
38	Number Of Over Temperature Rectifier			basic
	The actual number or rectifier in OVer 1	<u> </u>	T-	1
51	Load Power	Load	Watt	basic
	Estimation of the load power consumpti			1
52	Load Current	Load	Ampere	basic
	Estimation of the load current consump	tion	T	1
61	Battery Input Current	Battery	Ampere	basic
	Measurement of the battery input curredischarging	nt. A negative value	means that the ba	attery is
62	Battery Input Power	Battery	Watt	basic
	Measurement of the battery input power discharging	er. A negative value	means that the ba	attery is
71	Battery Temperature	Battery	degree C	basic
	The battery temperature			
72	Battery Test State	Battery		basic
	This is about the result of the la			
	NEVER_TESTED, SUCCESS, FAILED_VBUS_TOO_LOW, FAILED_FAILED_CANCELED, FAILED_LVD_O			
73	FAILED_VBUS_TOO_LOW, FAILED	LOAD_TOO_LOW, PENED		
73	FAILED_VBUS_TOO_LOW, FAILED_FAILED_CANCELED, FAILED_LVD_O Battery Test Discharged Capacit	LOAD_TOO_LOW, PENED Battery , discharged during	FAILED_AC_FA	lLURE,
73 74	FAILED_VBUS_TOO_LOW, FAILED_FAILED_CANCELED, FAILED_LVD_O Battery Test Discharged Capacit Ratio This is the battery capacity, in percent	LOAD_TOO_LOW, PENED Battery , discharged during	FAILED_AC_FA	lLURE,
	FAILED_VBUS_TOO_LOW, FAILED_FAILED_CANCELED, FAILED_LVD_O Battery Test Discharged Capacity Ratio This is the battery capacity, in percent value is updated at the end of the battery Battery Test Discharged Capacity This is the battery capacity, in ampere	LOAD_TOO_LOW, PENED y Battery d, discharged during to test. Battery hour, discharged during to test.	FAILED_AC_FA % the last battery te	basic basic basic
	FAILED_VBUS_TOO_LOW, FAILED_FAILED_CANCELED, FAILED_LVD_O Battery Test Discharged Capacit Ratio This is the battery capacity, in percent value is updated at the end of the batter Battery Test Discharged Capacity	LOAD_TOO_LOW, PENED y Battery d, discharged during to test. Battery hour, discharged during to test.	FAILED_AC_FA % the last battery te	basic basic basic
74	FAILED_VBUS_TOO_LOW, FAILED_FAILED_CANCELED, FAILED_LVD_O Battery Test Discharged Capacity Ratio This is the battery capacity, in percent value is updated at the end of the batter Battery Test Discharged Capacity This is the battery capacity, in ampered This value is updated at the end of the Battery Test Final Voltage This is the bus voltage at the end of the least of the le	LOAD_TOO_LOW, PENED y Battery discharged during to test. Battery hour, discharged during to test. Battery Battery Battery Battery Battery Battery	FAILED_AC_FA % the last battery te Ah Iring the last batte	basic basic basic basic basic basic basic
74	FAILED_VBUS_TOO_LOW, FAILED_FAILED_CANCELED, FAILED_LVD_O Battery Test Discharged Capacity Ratio This is the battery capacity, in percent value is updated at the end of the battery Battery Test Discharged Capacity This is the battery capacity, in ampered This value is updated at the end of the lattery Test Final Voltage	LOAD_TOO_LOW, PENED y Battery discharged during to test. Battery hour, discharged during to test. Battery Battery Battery Battery Battery Battery	FAILED_AC_FA % the last battery te Ah Iring the last batte	basic basic basic basic basic basic basic
74 75	FAILED_VBUS_TOO_LOW, FAILED_FAILED_CANCELED, FAILED_LVD_O Battery Test Discharged Capacity Ratio This is the battery capacity, in percent value is updated at the end of the batter Battery Test Discharged Capacity This is the battery capacity, in ampere This value is updated at the end of the Battery Test Final Voltage This is the bus voltage at the end of the end of the battery test.	LOAD_TOO_LOW, PENED y Battery , discharged during to test. Battery hour, discharged during to test. Battery battery test. Battery e last battery test. The	FAILED_AC_FA % the last battery te Ah Iring the last batte	basic basic basic basic basic dat the
74 75	FAILED_VBUS_TOO_LOW, FAILED_FAILED_CANCELED, FAILED_LVD_O Battery Test Discharged Capacity Ratio This is the battery capacity, in percenty value is updated at the end of the battery Battery Test Discharged Capacity This is the battery capacity, in ampered This value is updated at the end of the Battery Test Final Voltage This is the bus voltage at the end of the end of the battery test. Previous Battery Test State	LOAD_TOO_LOW, PENED y Battery , discharged during to test. Battery hour, discharged during to test. Battery battery test. Battery e last battery test. The	FAILED_AC_FA % the last battery te Ah Iring the last batte	basic basic basic basic basic basic d at the
74 75 81	FAILED_VBUS_TOO_LOW, FAILED_FAILED_CANCELED, FAILED_LVD_O Battery Test Discharged Capacity Ratio This is the battery capacity, in percent value is updated at the end of the batter Battery Test Discharged Capacity This is the battery capacity, in ampere This value is updated at the end of the Battery Test Final Voltage This is the bus voltage at the end of the end of the battery test. Previous Battery Test State The result of the previous battery test	LOAD_TOO_LOW, PENED y Battery discharged during to test. Battery hour, discharged during to test. Battery e last battery test. The Battery Battery Battery Battery	FAILED_AC_FA % the last battery te Ah Iring the last batte	basic basic basic basic basic d at the basic
74 75 81	FAILED_VBUS_TOO_LOW, FAILED_FAILED_CANCELED, FAILED_LVD_O Battery Test Discharged Capacity Ratio This is the battery capacity, in percenty value is updated at the end of the battery Battery Test Discharged Capacity This is the battery capacity, in ampered This value is updated at the end of the Battery Test Final Voltage This is the bus voltage at the end of the end of the battery test. Previous Battery Test State The result of the previous battery test Minutes Since Last Test Battery	LOAD_TOO_LOW, PENED y Battery discharged during to test. Battery hour, discharged during to test. Battery e last battery test. The Battery Battery Battery Battery	FAILED_AC_FA % the last battery te Ah Iring the last batte	basic basic basic basic basic d at the basic
74 75 81 82	FAILED_VBUS_TOO_LOW, FAILED_FAILED_CANCELED, FAILED_LVD_O Battery Test Discharged Capacity Ratio This is the battery capacity, in percent value is updated at the end of the batter Battery Test Discharged Capacity This is the battery capacity, in ampered This value is updated at the end of the lattery Test Final Voltage This is the bus voltage at the end of the end of the battery test. Previous Battery Test State The result of the previous battery test Minutes Since Last Test Battery The number of minute without battery test	LOAD_TOO_LOW, PENED y Battery discharged during to test. Battery hour, discharged during to test. Battery e last battery test. The Battery Battery Battery Battery Battery Battery Battery	FAILED_AC_FA % the last battery te Ah uring the last batte % is value is update	basic basic basic basic d at the basic basic
74 75 81 82	FAILED_VBUS_TOO_LOW, FAILED_FAILED_CANCELED, FAILED_LVD_O Battery Test Discharged Capacity Ratio This is the battery capacity, in percenty value is updated at the end of the battery Battery Test Discharged Capacity This is the battery capacity, in ampered This value is updated at the end of the last tery Test Final Voltage This is the bus voltage at the end of the end of the battery test. Previous Battery Test State The result of the previous battery test Minutes Since Last Test Battery The number of minute without battery test Battery Charge Capacity	LOAD_TOO_LOW, PENED y Battery discharged during to test. Battery hour, discharged during to test. Battery e last battery test. The Battery Battery Battery Battery Battery Battery Battery	FAILED_AC_FA % the last battery te Ah uring the last batte % is value is update	basic basic basic basic d at the basic basic
74 75 81 82 91	FAILED_VBUS_TOO_LOW, FAILED_FAILED_CANCELED, FAILED_LVD_O Battery Test Discharged Capacity Ratio This is the battery capacity, in percent value is updated at the end of the batter Battery Test Discharged Capacity This is the battery capacity, in ampere This value is updated at the end of the lattery Test Final Voltage This is the bus voltage at the end of the end of the battery test. Previous Battery Test State The result of the previous battery test Minutes Since Last Test Battery The number of minute without battery test Battery Charge Capacity The battery charge capacity, calculated	LOAD_TOO_LOW, PENED y Battery discharged during to test. Battery hour, discharged during to test. Battery battery test. Battery e last battery test. The Battery Battery battery by integration of the	FAILED_AC_FA % the last battery te Ah ring the last batte % is value is update % current.	basic basic basic basic basic basic basic basic
74 75 81 82 91	FAILED_VBUS_TOO_LOW, FAILED_FAILED_CANCELED, FAILED_LVD_O Battery Test Discharged Capacity Ratio This is the battery capacity, in percent value is updated at the end of the batter Battery Test Discharged Capacity This is the battery capacity, in ampered This value is updated at the end of the last tery Test Final Voltage This is the bus voltage at the end of the end of the battery Test State The result of the previous battery test Minutes Since Last Test Battery The number of minute without battery test Battery Charge Capacity The battery charge capacity, calculated Calculated Autonomy	LOAD_TOO_LOW, PENED y Battery discharged during to test. Battery hour, discharged during to test. Battery battery test. Battery e last battery test. The Battery Battery battery by integration of the	FAILED_AC_FA % the last battery te Ah ring the last batte % is value is update % current.	basic basic basic basic basic basic basic basic
74 75 81 82 91	FAILED_VBUS_TOO_LOW, FAILED_FAILED_CANCELED, FAILED_LVD_O Battery Test Discharged Capacity Ratio This is the battery capacity, in percent value is updated at the end of the batter Battery Test Discharged Capacity This is the battery capacity, in ampered This value is updated at the end of the last value is updated at the end of the last value is updated at the end of the last last last last last last last last	LOAD_TOO_LOW, PENED y Battery discharged during to test. Battery hour, discharged during to test. Battery e last battery test. The Battery Battery	**TAILED_AC_FA **The last battery te Ah **Iring the last battery **The last battery *	basic basic basic basic basic basic basic basic

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	Actual value of the integration of the current, in Ampere * hour							
101	LVD State	LVD		basic				
	Actual state of the LVD							
121	Efficiency Optimized Number Of Rectifier	Smart Energy		asset				
	The optimal number of ON rectifier for E	fficiency Optimization	1					
122	System Loss Without Optimisation	Smart Energy	Watt	under dev				
	Estimation of the losses without optimisa	ation						
123	System Loss With Optimisation	Smart Energy	Watt	under dev				
	Estimation of the losses with optimisation	n						
124	Rectifier Model Used For Calculation	Smart Energy		asset				
	The rectifier model used							
125	Smart Energy Savings	Smart Energy	Watt	asset				
	Estimation of the losses with optimisation	n						
151	Ambient Temperature	Sensors	degree C	basic				
	The ambiant temperature (second temperature)	erature sense)						
152	Relative Humidity	Sensors	%	basic				
	The relative humidity in the cabinet							
204	Digital Input 4 Counter	Sensors		basic				
	The counter value of the digital input 4.							

Conf	ig Table							
<u>Id</u>	<u>Name</u>	<u>Group</u>	<u>Unit</u>	Range: Min/Max (default)	<u>License</u>			
1	DC Bus Float Voltage at 25 degC	Bus Voltage	Volt	40/60 (54)	basic			
	The floating dc bus voltage of th	e system at 25	Celsius de	gree				
2	DC Bus Voltage Extra Low	Bus Voltage	Volt	40/60 (45)	basic			
	The bus voltage under which the	alarm 'DC Bus	s Voltage E	xtra Low' is set.				
3	DC Bus Voltage Extra Low Hysteresis	Bus Voltage	Volt	0/5 (1)	basic			
	The voltage hysteresis on the al	arm 'DC Bus Vo	oltage Extra	a Low'.				
4	DC Bus Voltage Low	Bus Voltage	Volt	40/60 (48)	basic			
	The bus voltage under which the alarm 'DC Bus Voltage Low' is set.							
5	DC Bus Voltage Low Hysteresis	Bus Voltage	Volt	0/5 (0.5)	basic			
	The voltage hysteresis on the alarm 'DC Bus Voltage Low							
6	DC Bus Voltage High	Bus Voltage	Volt	40/60 (56.5)	basic			
	The bus voltage over which the	alarm 'DC Bus	Voltage Hig	ıh' is set.				
7	DC Bus Voltage High Hysteresis	Bus Voltage	Volt	0/5 (0.5)	basic			
	The voltage hysteresis on the al	arm 'DC Bus Vo	oltage High					
8	DC Bus Voltage Extra High	Bus Voltage	Volt	40/60 (58)	basic			
	The bus voltage over which the	alarm 'DC Bus	Voltage Ext	ra High' is set.				

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9	DC Bus Voltage Extra High Hysteresis		Volt	0/5 (0.5)	basic
	The voltage hysteresis on the al	arm 'DC Bus V	oltage Extra	a High	
10	LVD Disconnect Voltage	Bus Voltage	Volt	0/50 (43.2)	basic
	The dc bus voltage under which allows preserving the battery life	•			bus. This
11	LVD Disconnect Delay	Bus Voltage	second	1/2000 (1)	basic
	The delay in second before disconfigured disconnected voltage	e. This avoids d	•	•	
21	Temperature Compensation Slope	Temperature Compensatio n	mV/degre e	-1000/0 (-72)	basic
	The slope of the battery temper 72mV/degree is often used.	ature compens	ation in mv	degree. For a 48V	system, -
22	Maximum Positive Temperature Compensation	Temperature Compensatio n	Volt	0/10 (3)	basic
	The maximal allowed positive co	mpensation.			
23		Temperature Compensatio n	Volt	-10/0 (-3)	basic
	The maximal allowed negative of	ompensation.			
25	Minimal Number Of Present Rectifiers	Rectifiers		0/100 (0)	basic
	The minimal number of rectifi rectifiers, the alarm 'Missing Rec		t be prese	nt. If there is less	present
26	Rectifier Model	Rectifiers			basic
	The rectifier model				•
27	Forced Remote Off Rectifers	Rectifiers			basic
	A list of rectifier which are force separated. Ex: 1,3 will maintain			of the rectifier must	be coma
31	Battery Charge Current Limit	Battery	Ampere	0.5/1000 (1000)	basic
	The maximal battery current where the bus voltage in order to satisfaction to satisfaction or the bus voltage in order to satisfaction or the bus voltage in order to satisfaction or the bus voltage in order to satisfact the bus voltage in order to satisfaction or the bus voltage in order to satisfact the bus voltage in order to satisf	sfy this condition			
32	Battery String Capacity	Battery	Ah	3/1000 (100)	basic
	The battery capacity in Ah.				
33	Battery Temperature Low	Battery	degree C	-100/20 (0)	basic
	The temperature under which th	e alarm 'Batter	y Temperat	ure Too Low' must I	oe set.
34	Battery Temperature High	Battery	degree C	5/100 (40)	basic
	The temperature over which the	alarm 'Battery	Temperatu	re Too High' must b	e set.
35	Battery Temperature Hysteresis	Battery	degree C	0/10 (2)	basic
	The hysteresis on the 'Battery Low' alarms.		oo High' ar		ature Too
36	Discharging Alarm	Battery	Ampere	0/1000 (0.5)	basic
	The minimal discharging current	to set the 'Batt	ery On Disc	charge' alarm.	
37	Current Hysteresis For	Battery	Ampere	0/50 (0.2)	basic

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	Discharging Alexen				
	Discharging Alarm) Disabayyal al	 		
	The hysteresis on the 'Battery C		arm.	F -1/ F -1	l 44
51	Boost Automatic	Boost		False/False (False)	battery
	The boost mode must be autor bus voltage went under the contagging the battery faster.				
52	Boost Activation Low Voltage	Boost	Volt	43/50 (46)	battery
	The voltage under which the boo	ost mode can b	e activated	•	
53	Boost Termination Voltage	Boost	Volt	50/58 (56.4)	battery
	The voltage over which the syst	em must go ba	ck to floatin	g mode.	
54	Boost Termination Current	Boost	Ampere	0/100 (2)	battery
	The battery charging current un-	der which the s	ystem must	go back to floating	
55	Boost Termination Time	Boost	minute	10/240 (120)	battery
	The time in minute after which the	II.	t go back in	\ /	1 7
70	Battery Test End Voltage	Battery Test	Volt	30/60 (46)	battery
	The voltage at which any battery		l .	(10)	Janes, j
71	Battery Test Discharge Ratio		%	0/100 (0)	battery
	The ratio of the battery capacit discharged during the test			. ,	
72	Battery Test Interval	Battery Test	day	0/3000 (0)	battery
73	set to 0, the battery test is not start or force this test. Battery Test Discharge	started automa	tically. The Ampere	user can remotely 0.5/100 (1000)	or locally battery
	Current	_		, ,	_
	The current at which the bat monitoring regulates the bus vo must be of course higher than the	Itage in order to			
74	Battery Test Minimal Discharge Current	Battery Test	Ampere	0.2/90 (2)	battery
	The battery current under which too low.	the battery te	st must be	stopped because th	ne load is
75	Battery Test Time Out	Battery Test	minute	1/5000 (10)	battery
	The timeout in minute after which	h the battery te	st must be	stopped.	
76	Battery Test Requested Minutes Without Mains Failure	Battery Test	minute	0/5000 (1440)	battery
	The minimal time in minute with parameter is not taken into account			•	start. This
83	Smart Energy Boolean Condition	Smart Energy		121-125	asset
	This is the boolean condition who frectifier in remote off.	nich allows or n	ot to auton	natically optimize the	e number
86	Battery LVD Node Id	LVD		True/False (False)	basic
	This is a list of the node id of the	Smart Electro	nic LVDs, c	oma separated	
91	Digital Input 1 Name	Digital Inputs		Distribution Breaker Open	basic

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	The nam	e of the	diait	al input 1				
92	Digital	Input			Digital Inputs		True/False (True)	basic
-	Closed	mpat	•		Bigital impats		1146/14156 (1146)	basio
	True/Fals	se value	defi	ning if the	digital input 1	is normally	closed. If this digita	al input is
					ed alarm is set.		J	•
93	Digital In	nput 2 N	ame)	Digital Inputs		Battery Breaker	basic
							Open	
	The nam	e of the	digit	al input 2	<u> </u>	T		1
94	Digital Closed	Input	2	Normally	Digital Inputs		True/False (True)	basic
							closed. If this digita	al input is
					ed alarm is set			T
95	Digital In	•			Digital Inputs		Digital Input 3	basic
	The nam			al input 3		1		1
96	Digital Closed				Digital Inputs		True/False (True)	basic
					digital input 3 ed alarm is set		closed. If this digita	al input is
97	Digital In	nput 4 N	ame)	Digital Inputs		Digital Input 4	basic
	The nam	e of the	digit	al input 4				
98	Digital Closed	Input	4	Normally	Digital Inputs		True/False (True)	basic
					digital input 4 led alarm is set.		closed. If this digita	al input is
99	Digital In	nput 5 N	ame	;	Digital Inputs		Digital Input 5	basic
	The nam	e of the	digit	al input 5		•		•
100	Digital Closed	Input	5	Normally	Digital Inputs		True/False (True)	basic
				•	digital input 5 ed alarm is set	,	closed. If this digita	al input is
101	Digital In	nput 6 N	ame)	Digital Inputs		Digital Input 6	basic
	The nam	e of the	digit	al input 6				
102	Digital Closed	Input	6	Normally	Digital Inputs		True/False (True)	basic
					digital input 6 ed alarm is set		closed. If this digita	al input is
103	Digital In				Digital Inputs		Digital Input 7	basic
		•		al input 7	Digital Inputs		Digital inpat /	Daoio
104	Digital Closed	Input	7		Digital Inputs		True/False (True)	basic
	True/Fals				digital input 7 i ed alarm is set		closed. If this digita	al input is
105	Digital In				Digital Inputs		Digital Input 8	basic
		•		al input 8	- igital lilputs	l	- igital impat o	24510
106	Digital Closed	Input	8	<u> </u>	Digital Inputs		True/False (True)	basic
	True/Fals				digital input 8 i ed alarm is set		closed. If this digita	al input is

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111	Dry Alarm 1 Alternative Boolean Condition	Dry Alarms		False	plc
	Another Boolean condition to accondition is detailed in the PLC of		larm relay	1. The way to define	e boolean
112	Dry Alarm 2 Alternative Boolean Condition	Dry Alarms		False	plc
	Another Boolean condition to accondition is detailed in the PLC of		larm relay 2	2. The way to define	e boolean
113	Dry Alarm 3 Alternative Boolean Condition	Dry Alarms		False	plc
	Another Boolean condition to accondition is detailed in the PLC of		larm relay (3. The way to define	e boolean
114	Dry Alarm 4 Alternative Boolean Condition	Dry Alarms		False	plc
	Another Boolean condition to accondition is detailed in the PLC of		larm relay	4. The way to define	e boolean
131	Ambient Temperature Low	Sensors	degree C		basic
	The temperature under which th	e alarm 'Ambia	nt Tempera	ature Too Low' must	t be set.
132	Ambient Temperature High	Sensors	degree C		basic
	The temperature under which th	e alarm 'Ambia	nt Tempera	ature Too Low' must	t be set.
133	Ambient Temperature Hysteresis	Sensors	degree C		basic
	The hysteresis on the 'Battery Low' alarms.	Temperature T	oo High' ar	nd 'Battery Tempera	ature Too
135	Cabinet Humidity High	Alarm Parameters	%	0/100 (80)	basic
	The relative humidity over which	the cabinet hu	midity is to	o high	
136	Cabinet Humidity Low	Alarm Parameters	%	0/100 (0)	basic
	The relative humidity over which	the cabinet humidity is too low			
521	Read Access User Numbers	Allowed Users		(1,2,3,4,5)	basic
	The list of the user numbers v numbers are coma separated. T				
522	Write Access User Numbers	Allowed Users		0	basic
	The list of the user numbers whethat these users can modify the control elements. The user num 1,2,3,4 and 5. Ex: 1,3,4	configuration 6	element, the	e alarm settings an	d use the
601	Event Table Length	Event		10/4000 (100)	basic
	The maximum length of the table	e. The value mu	ust be comp	orised between 10 a	and 4000
602	Event Table Length By Rectifier	Event		10/4000 (100)	basic
	The maximum length of the table	e. The value mu	ust be comp	orised between 10 a	and 4000
901	Number Of PLC Data	PLC		(0)	plc
	The number of PLC data. Every data. Data elements are aut parameters are added to set the	omatically add	ded in the	up to 20 user progr e data table. Con	rammable ifiguration

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calculation. In order to use these functionalities, you need a license with the 'PLC' module

902 Number Of PLC Alarm PLC (0) plc

The number of PLC alarm. Every equipment can manage up to 20 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

Cont	rol Table						
<u>Id</u>	<u>Name</u>	Group	<u>Licens</u> <u>e</u>				
1	Back To Float	DC Mode	basic				
	The dc system must go back in floating mode.						
2	Start Battery Test	DC Mode	battery				
	The dc system must start a battery test.						
3	Force Battery Test	DC Mode	battery				
	The dc system must force a battery test.						
4	Start Boost Mode	DC Mode	battery				
	The dc system must go in boost mode.						
11	Open The LVD	LVD	basic				
	The LVD must be opened						
12	Close The LVD	LVD	basic				
	The LVD must be closed						
21	Correct Battery Current Offset	Battery	basic				
	No information						
31	Reset Battery Current Integration	Battery	basic				
	Reset the integration of the battery current.						
41	Reset Last Battery Test State	Battery	battery				
	Reset the state of the last battery test. If an alar alarm will be cleared.	rm 'Battery Last Test F	ailed' is set, the				
51	Save Configuration In MCU	Save	basic				
	Save configuration parameters in the MCU microthe system will be correctly managed.	rocontroller. If comp@s	is not present,				
61	Set Digital Input 4 Counter Value	Counters	basic				
	Set Counter Value						
501	Clear My Events	Event	basic				
	By writing '1' to this control element, all the even	ts of this equipment will	be cleared.				
502	Clear All Events	Event	basic				
	By writing '1' to this control element, all the even of all the sub-equipments will be cleared.	its of this equipment an	d all the events				
511	Add Event	Event	basic				
	This control element adds an event of severity no to this control element	one. The event name is	the text written				
512	Add Major Event	Event	basic				
	This control element adds an event of severit written to this control element	y major. The event na	ame is the text				

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521	Reset Default Names And Groups	Advanced	basic
	This control element resets all the element Names values for this equipment	, Groups and Subgroups to	default
522	Reset Default Names And Groups Recursive	Advanced	basic
	This control element resets all the element Names values for this equipment and all sub equipments	, Groups and Subgroups to	default

7.2.7 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 000081 XX
Equipment Type	Monitoring Control Unit
ETSI Level	/site/energy_system/dc_system

Desc	cription Table				
<u>Id</u>	<u>Name</u>	Group	<u>License</u>		
1	Description	Description	basic		
	A free text zone to write a syste	em description			
2	Reference	Description	basic		
	A free text zone to write the customer reference of the system				
11	Product Name	Monitoring	basic		
	The product name of the DC sy	stem monitoring			
12	Hardware Reference	Monitoring	basic		
	The hardware reference of the	DC system monitoring			
14	Software Reference	Monitoring	asset		
	The serial number of the DC sy	stem monitoring			
16	Serial Number	Monitoring	asset		
	The serial number of the DC sy	stem monitoring			
18	Manufacturing Date	Monitoring	asset		
	The production date of the DC	system monitoring			

Alar	Alarm Table				
<u>Id</u>	<u>Name</u>	Severity Type (Level)	Set/Clear Delay		
1	DC Bus Extra Low	major (6)	5/2		
	The bus voltage is extra low. The alarm is sconfiguration parameter 'DC Bus Voltage I alarm : 'DC Bus Voltage Extra Low Hystere mode is BATTERY TEST	Extra Low'. There is an	hysteresis on the		

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2	DC Bus Low	minor (4)	5 / 2		
_	The bus voltage is low. The alarm is set	. ,			
	configuration parameter 'DC Bus Voltage L 'DC Bus Voltage Low Hysteresis'				
3	DC Bus High	minor (4)	5 / 2		
	The bus voltage is high. The alarm is set configuration paramenter 'DC Bus Voltage 'DC Bus Voltage High Hysteresis'				
4	DC Bus Extra High	major (6)	5 / 2		
	The bus voltage is extra high. The alarm is configuration paramenter 'DC Bus Voltage alarm : 'DC Bus Voltage Extra High Hystere	Extra High'. There is a			
5	DC Bus Voltage Sense Failure	major (6)	5 / 2		
	The DC bus voltage sense is defective. unconfigured.	The DC bus voltage	is unconnected or		
3	Mains Failure	minor (4)	5 / 2		
	The number of active rectifiers is equal to 0 greater than 0.	and the number of rectif	fiers in AC failure is		
7	Mains Partial Failure	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.				
3	Mains Low	warning (2)	10 / 2		
	The main voltage is low on one or more ph master type is 30110, 3096 or 3048M6, an to the voltage lower limit				
10	One Rectifier Failure	minor (4)	5 / 2		
	One rectifier must be replaced or is not porectifier is set. The number of rectifier with mains failure, and the 'More Than One Rect	owered correctly. The D	than 0, there is no		
11	More Than One Rectifier Failure	major (6)	10 / 2		
	There is no mains failure and number of rec	tifier failures is greater th	nan 1.		
12	Missing Rectifiers	major (6)	5 / 2		
	There is not enough rectifier according to Number Of Rectifier'	to the configuration pa	rameter : 'Minimal		
13	Battery Last Test Failed	minor (4)	5 / 2		
	The last battery test did not succeed and w be replaced.	as not cancelled. Maybe	the battery should		
14	Battery On Discharge	minor (4)	10 / 2		
	The battery is discharging. This means t rectifiers. This alarm is inactive when the sy There is an hysteresis corresponding to hysteresis'.	stem in AC Failure or d	uring a battery test.		
17	Battery LVD Relay Open	major (6)	5 / 2		
	The battery Low Voltage Disconnector is signal, like MCU 1848 or MCU 1x6, the ala asks to open the LVD				
18	Battery Temperature Too High	minor (4)	5 / 2		
	The temperature of the battery is too high a	and is greater than -600	units There is an		

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	hysteresis corresponding to battery param	eter 'Temperature hysteresis'.			
19	Battery Temperature Too Low	minor (4) 5 / 2			
	The temperature of the battery is too low hysteresis corresponding to battery param	and is greater than -600 units. There is a leter 'Temperature hysteresis'.	an		
20	Battery Temperature Sensor Fail	minor (4) 5 / 2			
	The battery temperature sensor (NTC) vanot connected or defective.	llue is inferior to -500 units meaning that it	is		
21	Ambient Temperature Too High	minor (4) 5 / 2			
	hysteresis corresponding to parameter 'Aronly activated on MCU master types 30 0948 and 3048M6.	nd is greater than -600 units. There is a mbiant temperature hysteresis. This alarm 110, 3096, 30125, 0024, 0948, 0548, 034	is		
22	Ambient Temperature Too Low	minor (4) 5 / 2			
	hysteresis corresponding to parameter 'Aı	d is greater than -600 units. There is a mbiant temperature hysteresis. This alarm 110, 3096, 30125, 0024, 0948, 0548, 034	is		
23	Ambient Temperature Sensor Fail	minor (4) 5 / 2			
	The ambiant temperature sensor (NTC) value is inferior to -500 units meaning th not connected or defective.				
24	Humidity Out Of Range	major (6) 5 / 2			
	parameter 'Humidity Low', and a upper lir	a lower limit, corresponding to configurati- nit, corresponding to configuration paramet s corresponding to configuration paramet active in MCU master types 0548.	ter		
25	Distribution Breaker Open	major (6) 5 / 2			
	This alarm is related to digital input 1. T different to configuration parameter 'Digital'	his alarm is activated if digital input value I Input Alarm Value'	is		
26	Battery Breaker Open	minor (4) 5 / 2			
	This alarm is related to digital input 2. T different to configuration parameter 'Digital'	his alarm is activated if digital input value I Input Alarm Value'	is		
27	Digital Input 3	none (0) 5 / 2			
	This alarm is related to digital input 3. T different to configuration parameter 'Digital'	his alarm is activated if digital input value I Input Alarm Value'	is		
28	Digital Input 4	none (0) 5 / 2			
	different to configuration parameter 'Digita		is		
29	Digital Input 5	none (0) 5 / 2			
	This alarm is related to digital input 5. T different to configuration parameter 'Digital'	·	is		
30	Digital Input 6	none (0) 5 / 2			
	This alarm is related to digital input 6. T different to configuration parameter 'Digital'	his alarm is activated if digital input value I Input Alarm Value'	is		
31	Digital Input 7	none (0) 5 / 2			
	This alarm is related to digital input 7. T different to configuration parameter 'Digital'	his alarm is activated if digital input value I Input Alarm Value'	is		
32	Digital Input 8	none (0) 5 / 2			
	This alarm is related to digital input 8. T different to configuration parameter 'Digital'	his alarm is activated if digital input value I Input Alarm Value'	is		

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Data	Table			
<u>Id</u>	<u>Name</u>	Group	Unit	Licens
				<u>e</u>
1	DC Mode	General		basic
	The DC system can have 4 valu	ies: 'FLOAT', 'BOC	OST', 'BATTERY	_TEST',
2	Previous DC Mode	General		basic
	The previous value of the DC Mode			
11	Bus Voltage	General	Volt	basic
	The DC bus voltage in volt.			
12	Ratio Delivered On Available Power	General	%	basic
	This is the ratio of the delivered power of	livided by the installe	d power, in %.	
13	Minutes Since Last AC Failure Begin	General	minute	basic
	The number of minute since the last AC	Failure begin		
14	Minutes Since Last AC Failure End	General	minute	basic
	The number of minute since the last AC	Failure end		
21	Rectifiers Output Power	Rectifiers	Watt	basic
	The sum of the delivered rectifier power			
22	Rectifiers Output Current	Rectifiers	Ampere	basic
	The sum of the delivered rectifier curren	it		
23	Rectifiers Output Power Max	Rectifiers	Watt	basic
	The sum of the deliverable rectifier power	er		
24	Rectifiers Output Current Max	Rectifiers	Ampere	basic
	The sum of the deliverable rectifier curre	ent		
31	Number Of Rectifier Max	Rectifiers		basic
	The maximum possible number of rectif	ier in this dc system		
32	Number Of Present Rectifier	Rectifiers		basic
	The actual number of present rectifier in	this dc system		
33	Number Of Absent Rectifier	Rectifiers		basic
	The actual number of absent rectifier in	this dc system		
34	Number Of Active Rectifier	Rectifiers		basic
	The actual number of active rectifier in which is present, DC OK, AC OK and no		ctive rectifier is a	rectifier
35	Number Of AC-Fail Rectifier	Rectifiers		basic
	The actual number or rectifier in AC Fail	lure.		•
36	Number Of DC-Fail Rectifier	Rectifiers		basic
	The actual number or rectifier with DC F	ailure.		
37	Number Of Remote Off Rectifier	Rectifiers		basic
	The actual number or rectifier in remote	off.	•	•
38	Number Of Over Temperature Rectifier	Rectifiers		basic
	The actual number or rectifier in OVer T	emperature.	•	•
- 4	Load Power	Load	Watt	basic
51				

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52	Load Current	Load	Ampere	basic	
	Estimation of the load current consumpti		 	1.50.0	
61	Battery Input Current	Battery	Ampere	basic	
	Measurement of the battery input currer discharging		•	1	
62	Battery Input Power	Battery	Watt	basic	
	Measurement of the battery input power. A negative value means that the battery is discharging				
71	Battery Temperature	Battery	degree C	basic	
	The battery temperature				
72	Battery Test State	Battery		basic	
	This is about the result of the last NEVER_TESTED, SUCCESS, FAILED_VBUS_TOO_LOW, FAILED_FAILED_CANCELED, FAILED_LVD_OF	ON_GOING, LOAD_TOO_LOW,	FAILED_TIM	-	
73	Battery Test Discharged Capacity Ratio	Battery	%	basic	
	This is the battery capacity, in percent, value is updated at the end of the battery		he last battery te	st. This	
74	Battery Test Discharged Capacity	Battery	Ah	basic	
	This is the battery capacity, in ampere This value is updated at the end of the battery capacity.			ery test.	
75	Battery Test Final Voltage	Battery	%	basic	
	This is the bus voltage at the end of the end of the battery test.	last battery test. Thi	s value is updated	d at the	
81	Previous Battery Test State	Battery		basic	
	The result of the previous battery test	T			
82	Minutes Since Last Test Battery	Battery		basic	
	The number of minute without battery tes	1	T	ı	
91	Battery Charge Capacity	Battery	%	basic	
	The battery charge capacity, calculated by			I	
92	Calculated Autonomy	Battery	minute	basic	
	Calculation of the remaining autonomy	la	Τ.		
93	Battery Current Integration	Battery	As	basic	
0.5	Actual value of the integration of the curr				
94	Battery Current Integration	Battery	Ah	basic	
101	Actual value of the integration of the curr	•	ır T	la a - !	
101	LVD State	LVD		basic	
121	Actual state of the LVD Efficiency Optimized Number Of Rectifier	Smart Energy		asset	
İ	The optimal number of ON rectifier for Et	l fficiency Ontimization	<u> </u>	L	
122	System Loss Without Optimisation	Smart Energy	Watt	under	
122	Cystem Loss Without Optimisation	Oman Energy	v v all	dev	
	Estimation of the losses without optimisa	ıtion	ı		
123	System Loss With Optimisation	Smart Energy	Watt	under dev	

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	Estimation of the losses with optimisation	n		
124	Rectifier Model Used For Calculation	Smart Energy		asset
	The rectifier model used			
125	Smart Energy Savings	Smart Energy	Watt	asset
	Estimation of the losses with optimisation	n		
151	Ambient Temperature	Sensors	degree C	basic
	The ambiant temperature (second temperature)	erature sense)		
152	Relative Humidity	Sensors	%	basic
	The relative humidity in the cabinet			
204	Digital Input 4 Counter	Sensors		basic
	The counter value of the digital input 4.			

Con	fig Table					
<u>Id</u>	<u>Name</u>	<u>Group</u>	<u>Unit</u>	Range: Min/Max (default)	<u>License</u>	
1	DC Bus Float Voltage at 25 degC	Bus Voltage	Volt	40/60 (54)	basic	
	The floating dc bus voltage of th	e system at 25	Celsius de	gree		
2	DC Bus Voltage Extra Low	Bus Voltage	Volt	40/60 (45)	basic	
	The bus voltage under which the	e alarm 'DC Bu	s Voltage E	xtra Low' is set.		
3	DC Bus Voltage Extra Low Hysteresis	Bus Voltage	Volt	0/5 (1)	basic	
	The voltage hysteresis on the al	arm 'DC Bus V	oltage Extra	a Low'.		
4	DC Bus Voltage Low	Bus Voltage	Volt	40/60 (48)	basic	
	The bus voltage under which the	alarm 'DC Bu	s Voltage L	ow' is set.		
5	DC Bus Voltage Low Hysteresis	Bus Voltage	Volt	0/5 (0.5)	basic	
	The voltage hysteresis on the al-	arm 'DC Bus V	oltage Low			
6	DC Bus Voltage High	Bus Voltage	Volt	40/60 (56.5)	basic	
	The bus voltage over which the	The bus voltage over which the alarm 'DC Bus Voltage High' is set.				
7	DC Bus Voltage High Hysteresis	Bus Voltage	Volt	0/5 (0.5)	basic	
	The voltage hysteresis on the al-	arm 'DC Bus V	oltage High	ſ		
8	DC Bus Voltage Extra High	Bus Voltage	Volt	40/60 (58)	basic	
	The bus voltage over which the	alarm 'DC Bus	Voltage Ex	tra High' is set.		
9	DC Bus Voltage Extra High Hysteresis	Bus Voltage	Volt	0/5 (0.5)	basic	
	The voltage hysteresis on the al-	arm 'DC Bus V	oltage Extra	a High		
10	LVD Disconnect Voltage	Bus Voltage	Volt	0/50 (43.2)	basic	
	The dc bus voltage under which allows preserving the battery life				ous. This	
11	LVD Disconnect Delay	Bus Voltage	second	1/2000 (1)	basic	
	The delay in second before disconfigured disconnected voltage					
21	Temperature Compensation Slope	Temperature			basic	

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	1				
	The class of the best on town	<u> n</u>		/degree	
	The slope of the battery tempe 72mV/degree is often used.	rature compens	alion in mv	degree. For a 48v	system, -
22		e Temperature	Volt	0/10 (3)	basic
	Temperature Compensation	Compensatio			
	The maximal allowed positive of	n			
23	·	e Temperature	Volt	-10/0 (-3)	basic
20	Temperature Compensation	Compensatio	VOIL	10/0 (0)	Dasio
		n '			
	The maximal allowed negative		1	1	
25	Minimal Number Of Presen Rectifiers	t Rectifiers		0/100 (0)	basic
	The minimal number of rectirectifiers, the alarm 'Missing Re		t be prese	ent. If there is less	present
26	Rectifier Model	Rectifiers			basic
	The rectifier model				
27	Forced Remote Off Rectifers	Rectifiers			basic
	A list of rectifier which are fore separated. Ex: 1,3 will maintain			of the rectifier must	be coma
31	Battery Charge Current Limit	Battery	Ampere	0.5/1000 (1000)	basic
	The maximal battery current v the bus voltage in order to sat nominal battery capacity divide	isfy this condition			
32	Battery String Capacity	Battery	Ah	3/1000 (100)	basic
	The battery capacity in Ah.				
33	Battery Temperature Low	Battery	degree C	-100/20 (0)	basic
	The temperature under which t		· · ·	1	oe set.
34	Battery Temperature High	Battery		5/100 (40)	basic
	The temperature over which the	1	Temperatu	re Too High' must b	e set.
35	Battery Temperature Hysteresis	e Battery	degree C	0/10 (2)	basic
	The hysteresis on the 'Battery Low' alarms.	Temperature T	oo High' ar	nd 'Battery Tempera	ature Too
36	Minimal Current Fo Discharging Alarm	r Battery	Ampere	0/1000 (0.5)	basic
	The minimal discharging currer	nt to set the 'Bat	tery On Dis	charge' alarm.	
37	Current Hysteresis Fo	r Battery	Ampere	0/50 (0.2)	basic
	Discharging Alarm	,			Dasic
	•		arm.		Dasic
51	Discharging Álarm		arm.	False/False (False)	battery
	Discharging Alarm The hysteresis on the 'Battery (On Discharge' all Boost	the fact tha	(False) at during a mains fa	battery
	Discharging Alarm The hysteresis on the 'Battery O' Boost Automatic The boost mode must be autobus voltage went under the o'	On Discharge' all Boost omatically after sonfigured 'Boos	the fact tha	(False) at during a mains fa	battery
51	Discharging Alarm The hysteresis on the 'Battery O' Boost Automatic The boost mode must be autobus voltage went under the ocharging the battery faster.	Dn Discharge' all Boost smatically after to configured 'Boost Boost	the fact that the fact that the factivation	(False) at during a mains fa n Low Voltage'. Tr	battery allure, the is allows

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	The voltage over which the systematical	em must go ba	ck to floatin	a mode.	
54	Boost Termination Current	Boost	Ampere	0/100 (2)	battery
	The battery charging current und	L.	· ·	. ,	
55	Boost Termination Time	Boost	minute	10/240 (120)	battery
	The time in minute after which the	ne system must	t go back in	floating mode.	, ,
70	Battery Test End Voltage	Battery Test	Volt	30/60 (46)	battery
	The voltage at which any battery	test must be s	stopped.		
71	Battery Test Discharge Ratio	Battery Test	%	0/100 (0)	battery
	The ratio of the battery capacit discharged during the test	y to discharge.	If 30 is se	et, 30% of the batte	ry will be
72	Battery Test Interval	Battery Test	day	0/3000 (0)	battery
	The number of days between two set to 0, the battery test is not start or force this test.	started automa		user can remotely	
73	Battery Test Discharge Current	Battery Test	Ampere	0.5/100 (1000)	battery
	The current at which the batt monitoring regulates the bus vo must be of course higher than the	ltage in order t			
74	Battery Test Minimal Discharge Current	Battery Test	Ampere	0.2/90 (2)	battery
	The battery current under which too low.	the battery te	st must be	stopped because the	ne load is
75	Battery Test Time Out	Battery Test	minute	1/5000 (10)	battery
	The timeout in minute after whic	h the battery te	est must be	stopped.	
76	Battery Test Requested Minutes Without Mains Failure	Battery Test	minute	0/5000 (1440)	battery
	The minimal time in minute with parameter is not taken into acco				start. This
83	Smart Energy Boolean Condition	Smart Energy		121-125	asset
	This is the boolean condition who f rectifier in remote off.	nich allows or n	ot to auton	natically optimize th	e numbe
86	Battery LVD Node Id	LVD		True/False (False)	basic
	This is a list of the node id of the	Smart Electro	nic LVDs, c	oma separated	
91	Digital Input 1 Name	Digital Inputs		Distribution Breaker Open	basic
	The name of the digital input 1				
92	Digital Input 1 Normally Closed	Digital Inputs		True/False (True)	basic
	True/False value defining if the not in this default state, the relat	•	•	closed. If this digital	al input is
93	Digital Input 2 Name	Digital Inputs		Battery Breaker Open	basic
	The name of the digital input 2				
94	Digital Input 2 Normally Closed	Digital Inputs		True/False (True)	basic
	T (E) 1 (C) (C)	digital input 2	ia narmally	closed. If this digital	al input ic

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	not in this default state, the relat	ed alarm is set.		
95	Digital Input 3 Name	Digital Inputs	Digital Input 3	basic
	The name of the digital input 3			
96	Digital Input 3 Normally Closed	Digital Inputs	True/False (True)	basic
	True/False value defining if the not in this default state, the relat		y closed. If this digit	al input is
97	Digital Input 4 Name	Digital Inputs	Digital Input 4	basic
	The name of the digital input 4			
98	Closed	Digital Inputs	True/False (True)	basic
	True/False value defining if the		y closed. If this digit	al input is
	not in this default state, the relat		T=	1
99	Digital Input 5 Name	Digital Inputs	Digital Input 5	basic
	The name of the digital input 5	<u></u>	<u> </u>	1
100	Closed	Digital Inputs	True/False (True)	basic
	True/False value defining if the not in this default state, the relat		y closed. If this digit	al input is
101	Digital Input 6 Name	Digital Inputs	Digital Input 6	basic
	The name of the digital input 6			_
102	Digital Input 6 Normally Closed	Digital Inputs	True/False (True)	basic
	True/False value defining if the not in this default state, the relationship.		y closed. If this digit	al input is
103	Digital Input 7 Name	Digital Inputs	Digital Input 7	basic
	The name of the digital input 7		•	
104	Digital Input 7 Normally Closed	Digital Inputs	True/False (True)	basic
	True/False value defining if the not in this default state, the relat	defining if the digital input 7 is normally closed. If this digital input state, the related alarm is set.		
105	Digital Input 8 Name	Digital Inputs	Digital Input 8	basic
	The name of the digital input 8		, -	•
106	Digital Input 8 Normally Closed	Digital Inputs	True/False (True)	basic
	True/False value defining if the not in this default state, the relat	•	y closed. If this digit	al input is
111	Dry Alarm 1 Alternative Boolean Condition	Dry Alarms	False	plc
	Another Boolean condition to accondition is detailed in the PLC		1. The way to define	e boolean
112		Dry Alarms	False	plc
	Another Boolean condition to accondition is detailed in the PLC		2. The way to defin	e boolean
113		Dry Alarms	False	plc
	Another Boolean condition to accondition is detailed in the PLC		3. The way to defin	e boolean

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444	Des Alaura 4 Altaurativa	Dur. Alawasa	<u> </u>	T-l	n l n
114	Dry Alarm 4 Alternative Boolean Condition	Dry Alarms		False	plc
	Another Boolean condition to accondition is detailed in the PLC of		larm relay	4. The way to define	boolean
131	Ambient Temperature Low	Sensors	degree C		basic
	The temperature under which th	e alarm 'Ambia	nt Tempera	ature Too Low' must	be set.
132	Ambient Temperature High	Sensors	degree C		basic
	The temperature under which th	e alarm 'Ambia	nt Tempera	ature Too Low' must	be set.
133	Ambient Temperature Hysteresis	Sensors	degree C		basic
	The hysteresis on the 'Battery 'Low' alarms.	Temperature T	oo High' ar	nd 'Battery Tempera	ature Too
135	Cabinet Humidity High	Alarm Parameters	%	0/100 (80)	basic
	The relative humidity over which	the cabinet hu	midity is to	o high	
136	Cabinet Humidity Low	Alarm Parameters	%	0/100 (0)	basic
	The relative humidity over which	the cabinet hu	midity is to	o low	
521	Read Access User Numbers	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				
522	Write Access User Numbers	Allowed Users		()	basic
	The list of the user numbers what these users can modify the control elements. The user num 1,2,3,4 and 5. Ex: 1,3,4	configuration (element, the	e alarm settings and	d use the
601	Event Table Length	Event		10/4000 (100)	basic
	The maximum length of the table	e. The value mi	ust be comp	orised between 10 a	nd 4000
602	Event Table Length By Rectifier	Event		10/4000 (100)	basic
	The maximum length of the table	e. The value mi	ust be comp	orised between 10 a	nd 4000
901	Number Of PLC Data	PLC		(0)	plc
	The number of PLC data. Every data. Data elements are aut parameters are added to set the calculation. In order to use the module	omatically add ne PLC Data N	ded in the Name and	e data table. Con the PLC Data Matl	figuration nematical
902	Number Of PLC Alarm	PLC		(0)	plc
	The number of PLC alarm. Ever alarms. Alarm elements are a parameters are added to set condition. In order to use the module	automatically a the PLC Alarn	added in t n Name a	he alarm table. The high the PLC Alarm	ne alarm Boolean

Con	trol Table		
<u>Id</u>	<u>Name</u>	Group	<u>Licens</u>
			<u>e</u>

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1	Back To Float	DC Mode	basic		
	The dc system must go back in floating mode.				
2	Start Battery Test	DC Mode	battery		
	The dc system must start a battery test.		, ,		
3	Force Battery Test	DC Mode	battery		
	The dc system must force a battery test.				
4	Start Boost Mode	DC Mode	battery		
	The dc system must go in boost mode.				
11	Open The LVD	LVD	basic		
	The LVD must be opened		J		
12	Close The LVD	LVD	basic		
	The LVD must be closed				
21	Correct Battery Current Offset	Battery	basic		
	No information				
31	Reset Battery Current Integration	Battery	basic		
	Reset the integration of the battery current.				
41	Reset Last Battery Test State	Battery	battery		
	Reset the state of the last battery test. If an alarm alarm will be cleared.	'Battery Last Test Failed' i	s set, the		
51	Save Configuration In MCU	Save	basic		
	Save configuration parameters in the MCU micro the system will be correctly managed.	controller. If comp@s is no	t present,		
61	Set Digital Input 4 Counter Value	Counters	basic		
	Set Counter Value		•		
501	Clear My Events	Event	basic		
	By writing '1' to this control element, all the events	of this equipment will be cle	eared.		
502	Clear All Events	Event	basic		
	By writing '1' to this control element, all the events of all the sub-equipments will be cleared.	of this equipment and all the	ne events		
511	Add Event	Event	basic		
	This control element adds an event of severity non to this control element	ne. The event name is the te	ext written		
512	Add Major Event	Event	basic		
	This control element adds an event of severity written to this control element	major. The event name is	the text		
521	Reset Default Names And Groups	Advanced	basic		
	This control element resets all the element Name values for this equipment	es, Groups and Subgroups	to default		
522	Reset Default Names And Groups Recursive	Advanced	basic		
	This control element resets all the element Name values for this equipment and all sub equipments	es, Groups and Subgroups	to default		

7.2.8 MCU0948DW

Device Information

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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

Desc	cription Table		
<u>Id</u>	<u>Name</u>	<u>Group</u>	<u>License</u>
1	Description	Description	basic
	A free text zone to write a syste	m description	
2	Reference	Description	basic
	A free text zone to write the cus	stomer reference of the syste	em
11	Product Name	Monitoring	basic
	The product name of the DC sy	stem monitoring	
12	Hardware Reference	Monitoring	basic
	The hardware reference of the	DC system monitoring	
14	Software Reference	Monitoring	asset
	The serial number of the DC sy	stem monitoring	
16	Serial Number	Monitoring	asset
	The serial number of the DC sy	stem monitoring	
18	Manufacturing Date	Monitoring	asset
	The production date of the DC:	system monitoring	

Alarr	n Table				
<u>Id</u>	<u>Name</u>	Severity Type (Level)	Set/Clear Delay		
1	DC Bus Extra Low	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				
2	DC Bus Low	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'				
3	DC Bus High	minor (4)	5 / 2		
	The bus voltage is high. The alarm is set when the bus voltage is higher than the configuration paramenter 'DC Bus Voltage High'. There is an hysterisis on the alarm : 'DC Bus Voltage High Hysteresis'				
4	DC Bus Extra High	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 hysterisis on the alarm: 'DC Bus Voltage Extra High Hysteresis'				
5	DC Bus Voltage Sense Failure	major (6)	5 / 2		
	The DC bus voltage sense is defective.	The DC bus voltage i	is unconnected or		

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	unconfigured.				
6	Mains Failure	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.				
7	Mains Partial Failure	minor (4)	10 / 2		
	The number of active rectifiers is greater failure is greater than 0. Some rectifiers open breaker, a real phase failure, or by a rectifier open breaker.	are in AC Failure. It ma ectifier failure.	y be caused by an		
8	Mains Low	warning (2)	10 / 2		
	The main voltage is low on one or more pl master type is 30110, 3096 or 3048M6, ar to the voltage lower limit	hysteresis _phase123F	Hysteresis is added		
10	One Rectifier Failure	minor (4)	5 / 2		
4.4	One rectifier must be replaced or is not p rectifier is set. The number of rectifier wit mains failure, and the 'More Than One Rec	h DC Failure is higher tifier Failure alarm is not	than 0, there is no set.'		
11	More Than One Rectifier Failure	major (6)	10 / 2		
4.0	There is no mains failure and number of red	1			
12	Missing Rectifiers	major (6)	5 / 2		
	There is not enough rectifier according Number Of Rectifier'	to the configuration pa			
13	Battery Last Test Failed	minor (4)	5 / 2		
	The last battery test did not succeed and w be replaced.	as not cancelled. Maybe	the battery should		
14	Battery On Discharge	!	40 40		
		minor (4)	10 / 2		
	The battery is discharging. This means rectifiers. This alarm is inactive when the single the single to the single tree is an hysteresis corresponding to hysteresis.	that the load is too hig	h for the installed uring a battery test.		
17	The battery is discharging. This means rectifiers. This alarm is inactive when the state is an hysteresis corresponding to	that the load is too hig	h for the installed uring a battery test.		
	The battery is discharging. This means rectifiers. This alarm is inactive when the state is an hysteresis corresponding to hysteresis'.	that the load is too higgstem in AC Failure or do battery parameter 'Is of major (6)	th for the installed uring a battery test. discharging current 5 / 2 vithout LVD_Status		
	The battery is discharging. This means rectifiers. This alarm is inactive when the state of the	that the load is too higgstem in AC Failure or do battery parameter 'Is of major (6)	th for the installed uring a battery test. discharging current 5 / 2 vithout LVD_Status		
17	The battery is discharging. This means rectifiers. This alarm is inactive when the state is an hysteresis corresponding to hysteresis'. Battery LVD Relay Open The battery Low Voltage Disconnector is signal, like MCU 1848 or MCU 1x6, the alasks to open the LVD	that the load is too high ystem in AC Failure or do battery parameter 'Is of major (6) as open. On Systems warm is present only if the minor (4) and is greater than -600	th for the installed uring a battery test. discharging current 5 / 2 without LVD_Status e signal LVD_COM 5 / 2 units. There is an		
17	The battery is discharging. This means rectifiers. This alarm is inactive when the state is an hysteresis corresponding to hysteresis'. Battery LVD Relay Open The battery Low Voltage Disconnector is signal, like MCU 1848 or MCU 1x6, the alasks to open the LVD Battery Temperature Too High The temperature of the battery is too high	that the load is too high ystem in AC Failure or do battery parameter 'Is of major (6) as open. On Systems warm is present only if the minor (4) and is greater than -600	th for the installed uring a battery test. discharging current 5 / 2 vithout LVD_Status e signal LVD_COM 5 / 2 units. There is an		
17 18	The battery is discharging. This means rectifiers. This alarm is inactive when the state of the	that the load is too high ystem in AC Failure or do battery parameter 'Is of major (6) so open. On Systems warm is present only if the minor (4) and is greater than -600 ter 'Temperature hystere minor (4) and is greater than -600 and is greater than -600	th for the installed uring a battery test. discharging current 5 / 2 5 / 2 5 / 2 1 5 / 2 2 units. There is an esis'. 5 / 2 units. There is an entered in the sist.		
17 18	The battery is discharging. This means rectifiers. This alarm is inactive when the state is an hysteresis corresponding to hysteresis'. Battery LVD Relay Open The battery Low Voltage Disconnector is signal, like MCU 1848 or MCU 1x6, the alasks to open the LVD Battery Temperature Too High The temperature of the battery is too high hysteresis corresponding to battery parameters. Battery Temperature Too Low The temperature of the battery is too low as the state is too low as the state is the state in the state in the state is the state in the state is the state in the state in the state is the state in the state in the state in the state is the state in the state in the state in the state is the state in the st	that the load is too high ystem in AC Failure or do battery parameter 'Is of major (6) so open. On Systems warm is present only if the minor (4) and is greater than -600 ter 'Temperature hystere minor (4) and is greater than -600 and is greater than -600	th for the installed uring a battery test. discharging current 5 / 2 5 / 2 5 / 2 1 5 / 2 2 units. There is an esis'. 5 / 2 units. There is an entered in the sist.		
17 18	The battery is discharging. This means rectifiers. This alarm is inactive when the state is an hysteresis corresponding to hysteresis'. Battery LVD Relay Open The battery Low Voltage Disconnector is signal, like MCU 1848 or MCU 1x6, the alasks to open the LVD Battery Temperature Too High The temperature of the battery is too high hysteresis corresponding to battery parameters. Battery Temperature Too Low The temperature of the battery is too low a hysteresis corresponding to battery parameters.	that the load is too high ystem in AC Failure or do battery parameter 'Is of major (6) so open. On Systems warm is present only if the minor (4) and is greater than -600 ter 'Temperature hystere minor (4) and is greater than -600 ter 'Temperature hystere minor (4)	th for the installed uring a battery test. discharging current 5 / 2 without LVD_Status e signal LVD_COM 5 / 2 units. There is an esis'. 5 / 2 units. There is an esis'. 5 / 2		
17 18	The battery is discharging. This means rectifiers. This alarm is inactive when the state is an hysteresis corresponding to hysteresis. Battery LVD Relay Open The battery Low Voltage Disconnector is signal, like MCU 1848 or MCU 1x6, the alasks to open the LVD Battery Temperature Too High The temperature of the battery is too high hysteresis corresponding to battery parameters are corresponding to battery parameters corresponding to battery parameters corresponding to battery parameters corresponding to battery parameters. Battery Temperature Sensor Fail The battery temperature sensor (NTC) value	that the load is too high ystem in AC Failure or do battery parameter 'Is of major (6) so open. On Systems warm is present only if the minor (4) and is greater than -600 ter 'Temperature hystere minor (4) and is greater than -600 ter 'Temperature hystere minor (4)	th for the installed uring a battery test. discharging current 5 / 2 without LVD_Statuse signal LVD_COM 5 / 2 units. There is an esis'. 5 / 2 units. There is an esis'. 5 / 2		
17 18 19	The battery is discharging. This means rectifiers. This alarm is inactive when the state is an hysteresis corresponding to hysteresis'. Battery LVD Relay Open The battery Low Voltage Disconnector is signal, like MCU 1848 or MCU 1x6, the alasks to open the LVD Battery Temperature Too High The temperature of the battery is too high hysteresis corresponding to battery parameters are some corresponding to battery parameters corresponding to battery parameters corresponding to battery parameters. Battery Temperature Sensor Fail The battery temperature sensor (NTC) valuation of connected or defective.	that the load is too high ystem in AC Failure or do battery parameter 'Is of major (6) so open. On Systems warm is present only if the minor (4) and is greater than -600 ter 'Temperature hystere minor (4) and is greater than -600 ter 'Temperature hystere minor (4) are is inferior to -500 unit minor (4) biant temperature hystere biant temperature hystere	th for the installed uring a battery test. discharging current of the disch		
17 18 19	The battery is discharging. This means rectifiers. This alarm is inactive when the state is an hysteresis corresponding to hysteresis'. Battery LVD Relay Open The battery Low Voltage Disconnector is signal, like MCU 1848 or MCU 1x6, the alasks to open the LVD Battery Temperature Too High The temperature of the battery is too high hysteresis corresponding to battery parameters is corresponding to battery parameters corresponding to battery parameters corresponding to battery parameters corresponding to battery parameters connected or defective. Ambient Temperature Too High The ambient temperature is too high and hysteresis corresponding to parameter 'Amonly activated on MCU master types 301 0948 and 3048M6.	that the load is too high ystem in AC Failure or do battery parameter 'Is of major (6) sopen. On Systems warm is present only if the minor (4) and is greater than -600 ter 'Temperature hystere minor (4) and is greater than -600 ter 'Temperature hystere minor (4) are is inferior to -500 unit minor (4) biant temperature hyster 10, 3096, 30125, 0024,	th for the installed uring a battery test discharging current of the second current of t		
17 18 19 20	The battery is discharging. This means rectifiers. This alarm is inactive when the state is an hysteresis corresponding to hysteresis. Battery LVD Relay Open The battery Low Voltage Disconnector is signal, like MCU 1848 or MCU 1x6, the alasks to open the LVD Battery Temperature Too High The temperature of the battery is too high hysteresis corresponding to battery parameters corresponding to battery parameters corresponding to battery parameters corresponding to battery parameters. Battery Temperature Sensor Fail The battery temperature sensor (NTC) valuation to connected or defective. Ambient Temperature Too High The ambient temperature is too high and hysteresis corresponding to parameter 'Amonly activated on MCU master types 301.	that the load is too high ystem in AC Failure or do battery parameter 'Is of major (6) sopen. On Systems warm is present only if the minor (4) and is greater than -600 ter 'Temperature hystere minor (4) and is greater than -600 ter 'Temperature hystere minor (4) ue is inferior to -500 unit minor (4) lis greater than -600 to biant temperature hyster 10, 3096, 30125, 0024, minor (4)	th for the instal uring a battery to discharging curred by the discharging by the discharge by th		

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	hysteresis corresponding to parameter 'Ambonly activated on MCU master types 3011 0948 and 3048M6.		
23	Ambient Temperature Sensor Fail	minor (4)	5 / 2
	The ambiant temperature sensor (NTC) values of the connected or defective.	ue is inferior to -500 unit	s meaning that it is
25	Distribution Breaker Open	major (6)	5 / 2
	This alarm is related to digital input 1. Thi different to configuration parameter 'Digital I		igital input value is
26	Battery Breaker Open	minor (4)	5 / 2
	This alarm is related to digital input 2. Thi different to configuration parameter 'Digital I		gital input value is
27	Digital Input 3	none (0)	5 / 2
	This alarm is related to digital input 3. Thi different to configuration parameter 'Digital I		gital input value is
28	Digital Input 4	none (0)	5 / 2
	This alarm is related to digital input 4. Thi different to configuration parameter 'Digital I		gital input value is
29	Digital Input 5	none (0)	5 / 2
	This alarm is related to digital input 5. Thi different to configuration parameter 'Digital I		gital input value is
30	Digital Input 6	none (0)	5/2
	This alarm is related to digital input 6. Thi different to configuration parameter 'Digital I		gital input value is
31	Digital Input 7	none (0)	5 / 2
	This alarm is related to digital input 7. Thi different to configuration parameter 'Digital I		igital input value is
32	Digital Input 8	none (0)	5 / 2
	This alarm is related to digital input 8. Thi different to configuration parameter 'Digital I		gital input value is

Data	Table			
<u>Id</u>	<u>Name</u>	Group	<u>Unit</u>	<u>Licens</u>
				<u>e</u>
1	DC Mode	General		basic
	The DC system can have 4 value 'AC_FAILURE' or SAFE	es: 'FLOAT', 'BOO	ST', 'BATTERY_	_TEST',
2	Previous DC Mode	General		basic
	The previous value of the DC Mode			
11	Bus Voltage	General	Volt	basic
	The DC bus voltage in volt.			
12	Ratio Delivered On Available Power	General	%	basic
	This is the ratio of the delivered power di	ivided by the installed	d power, in %.	
13	Minutes Since Last AC Failure Begin	General	minute	basic
	The number of minute since the last AC	Failure begin		
14	Minutes Since Last AC Failure End	General	minute	basic
	The number of minute since the last AC	Failure end		

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		D		1
21 Rectifiers Out		Rectifiers	Watt	basic
	delivered rectifier	· · · · · · · · · · · · · · · · · · ·	Т.	- I
22 Rectifiers Out		Rectifiers	Ampere	basic
	delivered rectifier		T	- I
	put Power Max	Rectifiers	Watt	basic
	deliverable rectifie	•	Т.	I
	put Current Max	Rectifiers	Ampere	basic
	deliverable rectifie		T	I
31 Number Of Re		Rectifiers		basic
	•	f rectifier in this dc syste	em	<u> </u>
32 Number Of Pre		Rectifiers		basic
	•	ifier in this dc system		
33 Number Of Ab		Rectifiers		basic
		fier in this dc system		
34 Number Of Ac		Rectifiers		basic
		fier in this dc system. A and not in remote off.	An active rectifier i	s a rectifier
35 Number Of AC		Rectifiers		basic
	nber or rectifier in A		I	
36 Number Of DC		Rectifiers		basic
	nber or rectifier with		I	
	mote Off Rectifier			basic
	nber or rectifier in re			
38 Number Of Rectifier	Over Tempe	rature Rectifiers		basic
The actual num	nber or rectifier in C	Ver Temperature.	-	<u> </u>
41 Mains Phase 1	l Voltage	Mains	Volt	basic
The voltage on	AC phase 1	<u> </u>		
42 Mains Phase 2	2 Voltage	Mains	Volt	basic
The voltage on	AC phase 2	1	-	<u> </u>
43 Mains Phase 3	3 Voltage	Mains	Volt	basic
The voltage on	AC phase 3			'
51 Load Power		Load	Watt	basic
Estimation of th	ne load power cons	umption		'
52 Load Current		Load	Ampere	basic
Estimation of th				
	ne load current con		F P	
61 Battery Input (Ampere	basic
Measurement of	Current	sumption	Ampere	basic
Measurement of discharging	Current of the battery input	Battery current. A negative va	Ampere	basic
Measurement of discharging 62 Battery Input F Measurement of	Current of the battery input Power	sumption Battery	Ampere lue means that th	basic e battery is basic
Measurement of discharging 62 Battery Input F Measurement of discharging	Current of the battery input Power of the battery input	Battery current. A negative va Battery t power. A negative val	Ampere lue means that th Watt lue means that th	basic e battery is basic e battery is
Measurement of discharging 62 Battery Input F Measurement of discharging 71 Battery Tempe	Current of the battery input Power of the battery input erature	sumption Battery current. A negative va	Ampere lue means that th	basic e battery is basic
Measurement of discharging 62 Battery Input F Measurement of discharging	Current of the battery input Power of the battery input erature hperature	Battery current. A negative va Battery t power. A negative val	Ampere lue means that th Watt lue means that th	basic e battery is basic e battery is

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	1			
	NEVER_TESTED, SUCCESS,		FAILED_TIM	
	FAILED_VBUS_TOO_LOW, FAILED_		FAILED_AC_FA	ILURE,
70	FAILED_CANCELED, FAILED_LVD_OF		0/	1!-
73	Battery Test Discharged Capacity Ratio	Battery	%	basic
	This is the battery capacity, in percent,	discharged during t	ho last battory to	ct Thic
	value is updated at the end of the batter		ine iasi ballery le	St. IIIIS
74	Battery Test Discharged Capacity	Battery	Ah	basic
-	This is the battery capacity, in ampere	•	1	
	This value is updated at the end of the b		ing the last batte), 100ti
75	Battery Test Final Voltage	Battery	%	basic
	This is the bus voltage at the end of the	•	is value is update	d at the
	end of the battery test.	,	·	
81	Previous Battery Test State	Battery		basic
	The result of the previous battery test			
82	Minutes Since Last Test Battery	Battery		basic
	The number of minute without battery te	st		
91	Battery Charge Capacity	Battery	%	basic
	The battery charge capacity, calculated	by integration of the	current.	
92	Calculated Autonomy	Battery	minute	basic
	Calculation of the remaining autonomy			
93	Battery Current Integration	Battery	As	basic
	Actual value of the integration of the curr	rent, in Ampere * sec	ond	
94	Battery Current Integration	Battery	Ah	basic
	Actual value of the integration of the curr	rent, in Ampere * hou	ır	
101	LVD State	LVD		basic
	Actual state of the LVD	1	1	
121		Smart Energy		asset
	Rectifier	((; ;)) (;) (;)		
100	The optimal number of ON rectifier for E			
122	System Loss Without Optimisation	Smart Energy	Watt	under dev
	Estimation of the losses without optimisa	l etion		laev
123	System Loss With Optimisation	Smart Energy	Watt	under
1.20	Oystem 2003 With Optimisation	Oman Energy	VVall	dev
	Estimation of the losses with optimisation	n		
		Smart Energy		asset
124	incommen meder obed i or odiodiamori			
124	The rectifier model used		1	accor
124 125		Smart Energy	Watt	asset
	The rectifier model used	Smart Energy	Watt	
	The rectifier model used Smart Energy Savings	Smart Energy	Watt degree C	
125	The rectifier model used Smart Energy Savings Estimation of the losses with optimisation	Smart Energy n Sensors	1	asset
125	The rectifier model used Smart Energy Savings Estimation of the losses with optimisation Ambient Temperature	Smart Energy n Sensors	1	asset
125 151	The rectifier model used Smart Energy Savings Estimation of the losses with optimisation Ambient Temperature The ambiant temperature (second temperature)	Smart Energy n Sensors erature sense) Sensors	degree C	asset basic basic
125 151	The rectifier model used Smart Energy Savings Estimation of the losses with optimisation Ambient Temperature The ambiant temperature (second temperature) Voltage Sense 1 The voltage measured by the sense measurement. Calculation can be done	Smart Energy n Sensors erature sense) Sensors e 1. Can be used with the PLC	degree C Volt d for battery sy	asset basic basic mmetry
125 151	The rectifier model used Smart Energy Savings Estimation of the losses with optimisation Ambient Temperature The ambiant temperature (second temperature) Voltage Sense 1 The voltage measured by the sense	Smart Energy n Sensors erature sense) Sensors e 1. Can be used	degree C	asset basic basic

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	measurement. Calculation can be done with the PLC					
163	Voltage Sense 3 Sensors Volt bas					
	The voltage measured by the sense 3. Can be used for battery symmetry measurement. Calculation can be done with the PLC					
204	Digital Input 4 Counter	Sensors		basic		
	The counter value of the digital input 4.					

Con	fig Table				
<u>Id</u>	Name	<u>Group</u>	<u>Unit</u>	Range: Min/Max (default)	<u>License</u>
1	DC Bus Float Voltage at 25 degC	Bus Voltage	Volt	40/60 (54)	basic
	The floating dc bus voltage of th	e system at 25	Celsius de	gree	
2	DC Bus Voltage Extra Low	Bus Voltage	Volt	40/60 (45)	basic
	The bus voltage under which the	alarm 'DC Bu	s Voltage E	xtra Low' is set.	1
3	DC Bus Voltage Extra Low Hysteresis		Volt	0/5 (1)	basic
	The voltage hysteresis on the al	arm 'DC Bus V	oltage Extra	a Low'.	
4	DC Bus Voltage Low	Bus Voltage	Volt	40/60 (48)	basic
	The bus voltage under which the	e alarm 'DC Bu	s Voltage L	ow' is set.	
5	DC Bus Voltage Low Hysteresis	Bus Voltage	Volt	0/5 (0.5)	basic
	The voltage hysteresis on the al	arm 'DC Bus V	oltage Low	.	
6	DC Bus Voltage High	Bus Voltage	Volt	40/60 (56.5)	basic
	The bus voltage over which the	alarm 'DC Bus	Voltage Hig	ph' is set.	1
7	DC Bus Voltage High Hysteresis	Bus Voltage	Volt	0/5 (0.5)	basic
	The voltage hysteresis on the al	arm 'DC Bus V	oltage High	,	
8	DC Bus Voltage Extra High	Bus Voltage	Volt	40/60 (58)	basic
	The bus voltage over which the		Voltage Ex	tra High' is set.	
9	DC Bus Voltage Extra High Hysteresis	Bus Voltage	Volt	0/5 (0.5)	basic
	The voltage hysteresis on the al		oltage Extra	a High	
10	LVD Disconnect Voltage	Bus Voltage	Volt	0/50 (43.2)	basic
	The dc bus voltage under which allows preserving the battery life	. The load will	be unpowei	red.	
11	LVD Disconnect Delay	Bus Voltage	second	1/2000 (1)	basic
	The delay in second before disc configured disconnected voltage				
21	Temperature Compensation Slope	Compensatio n	е	-1000/0 (-72)	basic
	The slope of the battery temperature 72mV/degree is often used.	ature compens	ation in mv	/degree. For a 48V	system, -
22	Maximum Positive Temperature Compensation	Temperature Compensatio n	Volt	0/10 (3)	basic

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	The maximal allowed positive co	mpensation.			
23		Temperature Compensatio n	Volt	-10/0 (-3)	basic
	The maximal allowed negative of			1	
25	Minimal Number Of Present Rectifiers			0/100 (0)	basic
	The minimal number of rectifi rectifiers, the alarm 'Missing Rec	ctifiers' is set.	t be prese	ent. If there is less	presen
26	Rectifier Model	Rectifiers			basic
	The rectifier model	T	1	1	
27	Forced Remote Off Rectifers	Rectifiers			basic
	A list of rectifier which are force separated. Ex: 1,3 will maintain			of the rectifier must	be coma
31	Battery Charge Current Limit	Battery	Ampere	0.5/1000 (1000)	basic
	The maximal battery current with the bus voltage in order to satisfication to satisfication of the satisfication o	sfy this condition	on. This pa		
32	Battery String Capacity	Battery	Ah	3/1000 (100)	basic
	The battery capacity in Ah.				
33	Battery Temperature Low	Battery	degree C	-100/20 (0)	basic
	The temperature under which th	e alarm 'Batter	y Temperat	ure Too Low' must	be set.
34	Battery Temperature High	Battery	degree C	5/100 (40)	basic
	The temperature over which the	alarm 'Battery	Temperatu	re Too High' must b	e set.
35	Battery Temperature Hysteresis	Battery	degree C	0/10 (2)	basic
	The hysteresis on the 'Battery' Low' alarms.	·	oo High' aı	nd 'Battery Tempera	ature Too
36	Discharging Alarm	Battery	Ampere	0/1000 (2)	basic
	The minimal discharging current				
37	Discharging Álarm	Battery	Ampere	0/50 (0.5)	basic
	The hysteresis on the 'Battery C		larm.	T	
51	Boost Automatic	Boost		False/False (False)	battery
	The boost mode must be autor bus voltage went under the cocharging the battery faster.				
52	Boost Activation Low Voltage	Boost	Volt	43/50 (46)	battery
	The voltage under which the boo	ost mode can b	e activated		•
53	Boost Termination Voltage	Boost	Volt	50/58 (56.4)	battery
	The voltage over which the systematical	em must go ba	ck to floatin	g mode.	-
54	Boost Termination Current	Boost	Ampere	0/100 (2)	battery
	The battery charging current und	der which the s	ystem mus	t go back to floating	mode.
55	Boost Termination Time	Boost	minute	10/240 (120)	battery
	The time in minute after which the	ne system must	t go back in	floating mode.	
70	Battery Test End Voltage	Battery Test	Volt	30/60 (46)	battery

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	The voltage at which any battery	test must be s	topped.		
71	Battery Test Discharge Ratio	Battery Test	%	0/100 (0)	battery
	The ratio of the battery capacity discharged during the test	y to discharge.	If 30 is se	et, 30% of the batte	ry will be
72	Battery Test Interval	Battery Test	day	0/3000 (0)	battery
	The number of days between tw set to 0, the battery test is not start or force this test.	started automa		user can remotely	
73	Battery Test Discharge Current		Ampere	3/100 (1000)	battery
	The current at which the batt monitoring regulates the bus vo must be of course higher than the	ltage in order to			
74	Battery Test Minimal Discharge Current	Battery Test	Ampere	2/90 (2)	battery
	The battery current under which too low.	the battery te	st must be	stopped because th	ne load is
75	Battery Test Time Out	Battery Test	minute	1/5000 (10)	battery
	The timeout in minute after whic	h the battery te	st must be	stopped.	
76	Battery Test Requested Minutes Without Mains Failure	Battery Test	minute	0/5000 (1440)	battery
	The minimal time in minute with parameter is not taken into acco				start. This
83	Smart Energy Boolean Condition	Smart Energy		121-125	asset
	This is the boolean condition who f rectifier in remote off.		ot to autom	natically optimize the	e number
86	Battery LVD Node Id	LVD		True/False (False)	basic
	This is a list of the node id of the				T
91	Digital Input 1 Name	Digital Inputs		Distribution Breaker Open	basic
	The name of the digital input 1		1		
92	Digital Input 1 Normally Closed	Digital Inputs		True/False (True)	basic
	True/False value defining if the not in this default state, the relat			closed. If this digita	al input is
93	Digital Input 2 Name	Digital Inputs		Battery Breaker Open	basic
	The name of the digital input 2				
94	Digital Input 2 Normally Closed	Digital Inputs		True/False (True)	basic
	True/False value defining if the not in this default state, the relat			closed. If this digita	al input is
95	Digital Input 3 Name	Digital Inputs		Digital Input 3	basic
	The name of the digital input 3				
96	Digital Input 3 Normally Closed	Digital Inputs		True/False (True)	basic
	True/False value defining if the	digital input 3	is normally	closed. If this digita	al input is

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	not in this default state, the relat	ted alarm is set.			
97	Digital Input 4 Name	Digital Inputs		Digital Input 4	basic
	The name of the digital input 4			1	
98	•	Digital Inputs		True/False (True)	basic
	True/False value defining if the not in this default state, the relat	digital input 4 i ted alarm is set.	s normally	closed. If this digita	al input is
99	Digital Input 5 Name	Digital Inputs		Digital Input 5	basic
	The name of the digital input 5				
100	Digital Input 5 Normally Closed	Digital Inputs		True/False (True)	basic
	True/False value defining if the not in this default state, the relat			closed. If this digita	al input is
101	Digital Input 6 Name	Digital Inputs		Digital Input 6	basic
	The name of the digital input 6				
102	Closed	Digital Inputs		True/False (True)	basic
	True/False value defining if the not in this default state, the relat	ed alarm is set.		-	
103	Digital Input 7 Name	Digital Inputs		Digital Input 7	basic
	The name of the digital input 7	T			T
104	Closed	Digital Inputs		True/False (True)	basic
	True/False value defining if the not in this default state, the relat			closed. If this digita	al input is
105	Digital Input 8 Name	Digital Inputs		Digital Input 8	basic
	The name of the digital input 8	1			1
106	Digital Input 8 Normally Closed	Digital Inputs		True/False (True)	basic
	True/False value defining if the not in this default state, the relat		•	closed. If this digita	al input is
111	Dry Alarm 1 Alternative Boolean Condition	Dry Alarms		False	plc
	Another Boolean condition to accondition is detailed in the PLC		larm relay	1. The way to define	boolean
112	Dry Alarm 2 Alternative Boolean Condition	Dry Alarms		False	plc
	Another Boolean condition to accondition is detailed in the PLC		larm relay 2	2. The way to define	boolean
113	Dry Alarm 3 Alternative Boolean Condition	Dry Alarms		False	plc
	Another Boolean condition to accondition is detailed in the PLC	•	larm relay 3	3. The way to define	e boolean
114	Dry Alarm 4 Alternative Boolean Condition	Dry Alarms		False	plc
	Another Boolean condition to accondition is detailed in the PLC		larm relay 4	4. The way to define	boolean
131	Ambient Temperature Low	Sensors	degree C		basic
	The temperature under which th	e alarm 'Ambia	nt Tempera	ture Too Low' must	be set.

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132	Ambient Temperature High	Sensors	degree C		basic
	The temperature under which th	e alarm 'Ambia	nt Tempera	ture Too Low' must	be set.
133	Ambient Temperature Hysteresis	Sensors	degree C		basic
	The hysteresis on the 'Battery 'Low' alarms.	Temperature T	oo High' ar	nd 'Battery Tempera	ature Too
521	Read Access User Numbers	Allowed Users		(1,2,3,4,5)	basic
	The list of the user numbers v numbers are coma separated. T				
522	Write Access User Numbers	Allowed Users		()	basic
	The list of the user numbers what these users can modify the control elements. The user num 1,2,3,4 and 5. Ex: 1,3,4	configuration e	element, the	e alarm settings and	d use the
601	Event Table Length	Event		10/4000 (100)	basic
	The maximum length of the table	e. The value mi	ust be comp	orised between 10 a	nd 4000
602	Event Table Length By Rectifier	Event		10/4000 (100)	basic
	The maximum length of the table	e. The value mi	ust be comp	orised between 10 a	nd 4000
901	Number Of PLC Data	PLC		(0)	plc
	The number of PLC data. Every data. Data elements are aut parameters are added to set the calculation. In order to use the module	tomatically add he PLC Data N	ded in the Name and	data table. Con the PLC Data Math	figuration nematical
902	Number Of PLC Alarm	PLC		(0)	plc
	The number of PLC alarm. Ever alarms. Alarm elements are a parameters are added to set condition. In order to use the module	automatically a the PLC Alarn	added in tl n Name ar	he alarm table. The nd the PLC Alarm	ne alarm Boolean

Con	trol Table		
<u>Id</u>	<u>Name</u>	<u>Group</u>	<u>Licens</u>
1	Back To Float	DC Mode	<u>e</u> basic
	The dc system must go back in floating mode.		
2	Start Battery Test	DC Mode	battery
	The dc system must start a battery test.		
3	Force Battery Test	DC Mode	battery
	The dc system must force a battery test.		
4	Start Boost Mode	DC Mode	battery
	The dc system must go in boost mode.		·
11	Open The LVD	LVD	basic
	The LVD must be opened		·
12	Close The LVD	LVD	basic

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	The LVD must be closed					
21	Correct Battery Current Offset	Battery	basic			
	No information					
31	Reset Battery Current Integration	Battery	basic			
	Reset the integration of the battery current.					
41	Reset Last Battery Test State	Battery	battery			
	Reset the state of the last battery test. If an alarm alarm will be cleared.	'Battery Last Test Failed' is	s set, the			
51	Save Configuration In MCU	Save	basic			
	Save configuration parameters in the MCU microcithe system will be correctly managed.	ontroller. If comp@s is not	present,			
61	Set Digital Input 4 Counter Value	Counters	basic			
	Set Counter Value					
501	Clear My Events	Event	basic			
	By writing '1' to this control element, all the events of	<u> </u>	ared.			
502	Clear All Events	Event	basic			
	By writing '1' to this control element, all the events of all the sub-equipments will be cleared.	of this equipment and all th	e events			
511	Add Event	Event	basic			
	This control element adds an event of severity none to this control element	e. The event name is the te	xt written			
512	Add Major Event	Event	basic			
	This control element adds an event of severity major. The event name is the text written to this control element					
521	Reset Default Names And Groups	Advanced	basic			
	This control element resets all the element Names, Groups and Subgroups to default values for this equipment					
522	Reset Default Names And Groups Recursive	Advanced	basic			
	This control element resets all the element Names, Groups and Subgroups to defaul values for this equipment and all sub equipments					

7.2.9 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 ACE094 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

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Desc	Description Table					
<u>Id</u>	<u>Name</u>	Group	<u>License</u>			
1	Description	Description	basic			
	A free text zone to write a syste	m description				
2	Reference	Description	basic			
	A free text zone to write the cus	stomer reference of the syste	em			
11	Product Name	Monitoring	basic			
	The product name of the DC sy	stem monitoring				
12	Hardware Reference	Monitoring	basic			
	The hardware reference of the	DC system monitoring				
14	Software Reference	Monitoring	asset			
	The serial number of the DC sy	stem monitoring				
16	Serial Number	Monitoring	asset			
	The serial number of the DC system monitoring					
18	Manufacturing Date	Monitoring	asset			
	The production date of the DC	system monitoring				

Aları	Alarm Table			
<u>Id</u>	<u>Name</u>	Severity Type (Level)	Set/Clear Delay	
1	DC Bus Extra Low	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			
2	DC Bus Low	minor (4)	5 / 2	
	The bus voltage is low. The alarm is set when the bus voltage is lower than configuration parameter 'DC Bus Voltage Low'. There is an hysteresis on the alar 'DC Bus Voltage Low Hysteresis'			
3	DC Bus High	minor (4)	5/2	
	The bus voltage is high. The alarm is set when the bus voltage is higher than the configuration paramenter 'DC Bus Voltage High'. There is an hysterisis on the alarm: 'DC Bus Voltage High Hysteresis'			
4	DC Bus Extra High	major (6)	5 / 2	
	The bus voltage is extra high. The alarm is configuration paramenter 'DC Bus Voltage alarm : 'DC Bus Voltage Extra High Hysteres	Extra High'. There is a		
5	DC Bus Voltage Sense Failure	major (6)	5 / 2	
	The DC bus voltage sense is defective. The DC bus voltage is unconnected or unconfigured.			
6	Mains Failure	minor (4)	5/2	
	The number of active rectifiers is equal to 0 greater than 0.	and the number of rectif	iers in AC failure is	
7	Mains Partial Failure	minor (4)	10 / 2	
	The number of active rectifiers is greater than 0 and the number of rectifiers in AC			

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	failure is greater than 0. Some rectified open breaker, a real phase failure, or by		It may be caused by an	
8	Mains Low	warning (2)	10 / 2	
	The main voltage is low on one or more master type is 30110, 3096 or 3048M6 to the voltage lower limit			
10	One Rectifier Failure	minor (4)	5 / 2	
	One rectifier must be replaced or is no rectifier is set. The number of rectifier mains failure, and the 'More Than One F	with DC Failure is hig	gher than 0, there is no	
11	More Than One Rectifier Failure	major (6)	10 / 2	
	There is no mains failure and number of	f rectifier failures is grea		
12	Missing Rectifiers	major (6)	5 / 2	
	There is not enough rectifier according to the configuration parameter : 'Minimal Number Of Rectifier'			
13	Battery Last Test Failed	minor (4)	5 / 2	
	The last battery test did not succeed an be replaced.	nd was not cancelled. M	Maybe the battery should	
14	Battery On Discharge	minor (4)	10 / 2	
	rectifiers. This alarm is inactive when th There is an hysteresis corresponding hysteresis'.	to battery parameter	'Is discharging current	
17	Battery LVD Relay Open	major (6)	5 / 2	
	The battery Low Voltage Disconnector	or is open. On Syster	ns without LVD Status	
	signal, like MCU 1848 or MCU 1x6, the asks to open the LVD			
18				
18	asks to open the LVD	minor (4) igh and is greater than	if the signal LVD_COM 5 / 2 -600 units. There is an	
18 19	asks to open the LVD Battery Temperature Too High The temperature of the battery is too hi	minor (4) igh and is greater than ameter 'Temperature hy	5 / 2 -600 units. There is anysteresis'.	
	asks to open the LVD Battery Temperature Too High The temperature of the battery is too his hysteresis corresponding to battery para	minor (4) igh and is greater than ameter 'Temperature hy minor (4) ow and is greater than	5 / 2 -600 units. There is an object of the signal LVD_COM 5 / 2 -600 units. There is an object of the signal LVD_COM 5 / 2 -600 units. There is an object of the signal LVD_COM 5 / 2 -600 units.	
	Battery Temperature Too High The temperature of the battery is too his hysteresis corresponding to battery para Battery Temperature Too Low The temperature of the battery is too look hysteresis corresponding to battery para Battery Temperature Sensor Fail	minor (4) minor (4) igh and is greater than ameter 'Temperature hy minor (4) ow and is greater than ameter 'Temperature hy minor (4)	5 / 2 -600 units. There is an exteresis'. 5 / 2 -600 units. There is an exteresis'. 5 / 2 -600 units. There is an exteresis'. 5 / 2 -600 units. There is an exteresis'. 5 / 2 -600 units. 5 / 2 -600 units. -600 units	
19	Battery Temperature Too High The temperature of the battery is too his hysteresis corresponding to battery para Battery Temperature Too Low The temperature of the battery is too look hysteresis corresponding to battery para Battery Temperature Sensor Fail The battery temperature sensor (NTC) not connected or defective.	minor (4) minor (4) igh and is greater than ameter 'Temperature hy minor (4) ow and is greater than ameter 'Temperature hy minor (4)	5 / 2 -600 units. There is an exteresis'. 5 / 2 -600 units. There is an exteresis'. 5 / 2 5 / 2 0 units meaning that it is	
19	Battery Temperature Too High The temperature of the battery is too his hysteresis corresponding to battery para Battery Temperature Too Low The temperature of the battery is too look hysteresis corresponding to battery para Battery Temperature Sensor Fail The battery temperature sensor (NTC)	minor (4) minor (4) igh and is greater than ameter 'Temperature hy minor (4) ow and is greater than ameter 'Temperature hy minor (4)	5 / 2 -600 units. There is an exteresis'. 5 / 2 -600 units. There is an exteresis'. 5 / 2 -600 units. There is an exteresis'. 5 / 2 -600 units. There is an exteresis'. 5 / 2 -600 units. 5 / 2 -600 units. -600 units	
19 20 21	Battery Temperature Too High The temperature of the battery is too his hysteresis corresponding to battery para Battery Temperature Too Low The temperature of the battery is too look hysteresis corresponding to battery para Battery Temperature Sensor Fail The battery temperature sensor (NTC) not connected or defective.	minor (4) igh and is greater than ameter 'Temperature hy minor (4) ow and is greater than ameter 'Temperature hy minor (4) value is inferior to -500 minor (4) and is greater than -600 Ambiant temperature hy	5 / 2 -600 units. There is an exteresis'. 5 / 2 -600 units. There is an exteresis'. 5 / 2 -600 units meaning that it is 5 / 2 -600 units. There is an exteresis'. 5 / 2 -600 units meaning that it is 5 / 2 -600 units. There is an exteresis'. This alarm is 024, 0948, 0548, 034	
19	Battery Temperature Too High The temperature of the battery is too his hysteresis corresponding to battery para Battery Temperature Too Low The temperature of the battery is too look hysteresis corresponding to battery para Battery Temperature Sensor Fail The battery temperature sensor (NTC) not connected or defective. Ambient Temperature Too High The ambient temperature is too high hysteresis corresponding to parameter only activated on MCU master types 3	minor (4) igh and is greater than ameter 'Temperature hy minor (4) ow and is greater than ameter 'Temperature hy minor (4) value is inferior to -500 minor (4) and is greater than -600 Ambiant temperature hy	5 / 2 -600 units. There is an exteresis'. 5 / 2 -600 units. There is an exteresis'. 5 / 2 -600 units meaning that it is 5 / 2 -600 units. There is an exteresis'. 5 / 2 -600 units meaning that it is -600 units. There is an exteresis'. This alarm is	
19 20 21	Battery Temperature Too High The temperature of the battery is too his hysteresis corresponding to battery para Battery Temperature Too Low The temperature of the battery is too look hysteresis corresponding to battery para Battery Temperature Sensor Fail The battery temperature sensor (NTC) not connected or defective. Ambient Temperature Too High The ambient temperature is too high hysteresis corresponding to parameter only activated on MCU master types 30948 and 3048M6.	minor (4) igh and is greater than ameter 'Temperature hy minor (4) ow and is greater than ameter 'Temperature hy minor (4) value is inferior to -500 minor (4) and is greater than -6 Ambiant temperature hy minor (4) and is greater than -6 Ambiant temperature hy minor (4) and is greater than -6 Ambiant temperature hy minor (4)	5 / 2 -600 units. There is an exteresis'. 5 / 2 -600 units. There is an exteresis'. 5 / 2 -600 units meaning that it is 5 / 2 -600 units. There is an exteresis'. 5 / 2 -600 units. There is an exteresis'. This alarm is 024, 0948, 0548, 0348 5 / 2 -600 units. There is an exteresis'. This alarm is exteresis'. This alarm is exteresis'. This alarm is exteresis'. This alarm is 1000 units. There is an exteresis'.	
19 20 21	Battery Temperature Too High The temperature of the battery is too his hysteresis corresponding to battery para Battery Temperature Too Low The temperature of the battery is too look hysteresis corresponding to battery para Battery Temperature Sensor Fail The battery temperature sensor (NTC) not connected or defective. Ambient Temperature Too High The ambient temperature is too high hysteresis corresponding to parameter only activated on MCU master types 30,948 and 30,48M6. Ambient Temperature Too Low The ambient temperature is too low a hysteresis corresponding to parameter only activated on MCU master types 30,948 and 30,48M6.	minor (4) igh and is greater than ameter 'Temperature hy minor (4) ow and is greater than ameter 'Temperature hy minor (4) value is inferior to -500 minor (4) and is greater than -6 Ambiant temperature hy minor (4) and is greater than -6 Ambiant temperature hy minor (4) and is greater than -6 Ambiant temperature hy minor (4)	5 / 2 -600 units. There is an exteresis'. 5 / 2 -600 units. There is an exteresis'. 5 / 2 -600 units meaning that it is 5 / 2 -600 units. There is an exteresis'. 5 / 2 -600 units. There is an exteresis'. This alarm is 024, 0948, 0548, 0348, 5 / 2 -600 units. There is an exteresis'. This alarm is exteresis'. This alarm is exteresis'. This alarm is exteresis'. This alarm is	

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25	Distribution Breaker Open	major (6)	5/2	
	This alarm is related to digital input 1. This different to configuration parameter 'Digital In		gital input value is	
26	Battery Breaker Open	minor (4)	5 / 2	
	This alarm is related to digital input 2. This alarm is activated if digital input valudifferent to configuration parameter 'Digital Input Alarm Value'			
27	Digital Input 3	none (0)	5 / 2	
This alarm is related to digital input 3. This alarm is activated if digital input different to configuration parameter 'Digital Input Alarm Value'				
28	Digital Input 4	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			
<u>Id</u>	<u>Name</u>	Group	<u>Unit</u>	<u>Licens</u> <u>e</u>
1	DC Mode	General		basic
	The DC system can have 4 values: 'FLOAT', 'BOOST', 'BATTERY_TEST', 'AC FAILURE' or SAFE			
2	Previous DC Mode	General		basic
	The previous value of the DC Mode			
11	Bus Voltage	General	Volt	basic
	The DC bus voltage in volt.			
12	Ratio Delivered On Available Power	General	%	basic
	This is the ratio of the delivered power d	livided by the installe	d power, in %.	
13	Minutes Since Last AC Failure Begin	General	minute	basic
	The number of minute since the last AC	Failure begin		
14	Minutes Since Last AC Failure End	General	minute	basic
	The number of minute since the last AC	Failure end		
21	Rectifiers Output Power	Rectifiers	Watt	basic
	The sum of the delivered rectifier power			
22	Rectifiers Output Current	Rectifiers	Ampere	basic
	The sum of the delivered rectifier curren	t		
23	Rectifiers Output Power Max	Rectifiers	Watt	basic
	The sum of the deliverable rectifier power	er		
24	Rectifiers Output Current Max	Rectifiers	Ampere	basic
	The sum of the deliverable rectifier current			
31	Number Of Rectifier Max	Rectifiers		basic
	The maximum possible number of rectifier in this dc system			
32	Number Of Present Rectifier	Rectifiers		basic
	The actual number of present rectifier in this dc system			
33	Number Of Absent Rectifier	Rectifiers		basic
	The actual number of absent rectifier in	this dc system		
34	Number Of Active Rectifier	Rectifiers		basic
	The actual number of active rectifier in which is present, DC OK, AC OK and no		ctive rectifier is a	rectifier

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35	Number Of AC-Fail Rectifier	Rectifiers		basic
33	The actual number or rectifier in AC Faile			Dasic
36	Number Of DC-Fail Rectifier	Rectifiers		basic
00	The actual number or rectifier with DC F			basic
37	Number Of Remote Off Rectifier	Rectifiers		basic
0,	The actual number or rectifier in remote	l.		basic
38	Number Of Over Temperature			basic
J-0	Rectifier	riodimoro		Daoio
	The actual number or rectifier in OVer Te	emperature.	•	
41	Mains Phase 1 Voltage	Mains	Volt	basic
	The voltage on AC phase 1			
42	Mains Phase 2 Voltage	Mains	Volt	basic
	The voltage on AC phase 2			
43	Mains Phase 3 Voltage	Mains	Volt	basic
	The voltage on AC phase 3			
51	Load Power	Load	Watt	basic
	Estimation of the load power consumption	on		
52	Load Current	Load	Ampere	basic
	Estimation of the load current consumpti	on		_
61	Battery Input Current	Battery	Ampere	basic
	Measurement of the battery input currer discharging	nt. A negative value	means that the ba	attery is
62	Battery Input Power	Battery	Watt	basic
	Measurement of the battery input powe discharging	r. A negative value	means that the ba	attery is
71	Battery Temperature	Battery	degree C	basic
	The battery temperature			
72	Battery Test State	Battery		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			
73	Battery Test Discharged Capacity Ratio	Battery	%	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.			
74	Battery Test Discharged Capacity	Battery	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.			
75	Battery Test Final Voltage	Battery	%	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.			
81	Previous Battery Test State	Battery		basic
	The result of the previous battery test	•	•	•
82	Minutes Since Last Test Battery	Battery		basic
	The number of minute without battery tes	·	•	1
91	Battery Charge Capacity	Battery	%	basic

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	The battery charge capacity, calculated by	by integration of the	current.	
92	Calculated Autonomy	Battery	minute	basic
	Calculation of the remaining autonomy			
93	Battery Current Integration	Battery	As	basic
	Actual value of the integration of the curr	ent, in Ampere * sec	ond	
94	Battery Current Integration	Battery	Ah	basic
	Actual value of the integration of the curr	ent, in Ampere * hou	ır	
101	LVD State	LVD		basic
	Actual state of the LVD			
121	Efficiency Optimized Number Of Rectifier	Smart Energy		asset
	The optimal number of ON rectifier for Ef	ficiency Optimization	וַ	
122	System Loss Without Optimisation	Smart Energy	Watt	under dev
	Estimation of the losses without optimisa	tion		
123	System Loss With Optimisation	Smart Energy	Watt	under dev
	Estimation of the losses with optimisation	า		
124	Rectifier Model Used For Calculation	Smart Energy		asset
	The rectifier model used			
125	Smart Energy Savings	Smart Energy	Watt	asset
	Estimation of the losses with optimisation	<u>1</u>	,	
151	Ambient Temperature	Sensors	degree C	basic
	The ambiant temperature (second temperature)	erature sense)	,	
161	Voltage Sense 1	Sensors	Volt	basic
	The voltage measured by the sense measurement. Calculation can be done with the control of the c		d for battery s	ymmetry
162	Voltage Sense 2	Sensors	Volt	basic
	The voltage measured by the sense measurement. Calculation can be done with the control of the c		d for battery s	ymmetry
163	Voltage Sense 3	Sensors	Volt	basic
	The voltage measured by the sense measurement. Calculation can be done with the control of the c		d for battery s	ymmetry
204	Digital Input 4 Counter	Sensors		basic
	The counter value of the digital input 4.		•	·
_			-	

Con	fig Table						
<u>Id</u>	<u>Name</u>	<u>Group</u>	<u>Unit</u>	Range: Min/Max (default)	<u>License</u>		
1	DC Bus Float Voltage at 25 degC	Bus Voltage	Volt	40/60 (54)	basic		
	The floating dc bus voltage of th	The floating dc bus voltage of the system at 25 Celsius degree					
2	DC Bus Voltage Extra Low	Bus Voltage	Volt	40/60 (45)	basic		
	The bus voltage under which the	alarm 'DC Bus	s Voltage E	xtra Low' is set.			
3	DC Bus Voltage Extra Low Hysteresis	Bus Voltage	Volt	0/5 (1)	basic		

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	The voltage hysteresis on the a	larm 'DC Bus V	oltage Extra	a Low'.	
4	DC Bus Voltage Low	Bus Voltage	Volt	40/60 (48)	basic
	The bus voltage under which th	e alarm 'DC Bu	s Voltage L	ow' is set.	
5	DC Bus Voltage Low Hysteresis	Bus Voltage	Volt	0/5 (0.5)	basic
	The voltage hysteresis on the a	larm 'DC Bus V	oltage Low		
6	DC Bus Voltage High	Bus Voltage	Volt	40/60 (56.5)	basic
	The bus voltage over which the	alarm 'DC Bus	Voltage Hig	gh' is set.	
7	DC Bus Voltage High Hysteresis	Bus Voltage	Volt	0/5 (0.5)	basic
	The voltage hysteresis on the a	larm 'DC Bus V	oltage High	1	
8	DC Bus Voltage Extra High	Bus Voltage	Volt	40/60 (58)	basic
	The bus voltage over which the	1	Voltage Ex	tra High' is set.	
9	DC Bus Voltage Extra High Hysteresis	Bus Voltage	Volt	0/5 (0.5)	basic
	The voltage hysteresis on the a	larm 'DC Bus V	oltage Extra	a High	
10	LVD Disconnect Voltage	Bus Voltage	Volt	0/50 (43.2)	basic
	The dc bus voltage under which allows preserving the battery life				bus. This
11	LVD Disconnect Delay	Bus Voltage	second	1/2000 (1)	basic
	The delay in second before disconfigured disconnected voltage				
21	Temperature Compensation Slope	Temperature Compensatio n	mV/degre e	-1000/0 (-72)	basic
	The slope of the battery temper 72mV/degree is often used.	ature compens	ation in mv	/degree. For a 48V	system, -
22	Maximum Positive Temperature Compensation	Temperature Compensatio n	Volt	0/10 (3)	basic
	The maximal allowed positive co	ompensation.			
23	Maximum Negative Temperature Compensation	Temperature Compensatio n	Volt	-10/0 (-3)	basic
	The maximal allowed negative of	compensation.			
25	Minimal Number Of Present Rectifiers	Rectifiers		0/100 (0)	basic
	The minimal number of rectif rectifiers, the alarm 'Missing Re		t be prese	ent. If there is less	present
26	Rectifier Model	Rectifiers			basic
	The rectifier model				
27	Forced Remote Off Rectifers	Rectifiers			basic
	A list of rectifier which are force separated. Ex: 1,3 will maintain			of the rectifier must	be coma
31	Battery Charge Current Limit	Battery	Ampere	0.5/1000 (1000)	basic
	The maximal battery current w the bus voltage in order to sati nominal battery capacity divided	sfy this condition			

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32	Pottomy String Consoity	Dottor.	Ah	2/1000 /100)	booio
3 2	Battery String Capacity The bettery capacity in Ab	Battery	AH	3/1000 (100)	basic
00	The battery capacity in Ah.	Dattami	da O	100/00 (0)	l! -
33	Battery Temperature Low	Battery		-100/20 (0)	basic
0.4	The temperature under which the		•		
34	Battery Temperature High	Battery	· · · ·	5/100 (40)	basic
	The temperature over which the				
35	Battery Temperature Hysteresis			0/10 (2)	basic
	The hysteresis on the 'Battery Low' alarms.	Temperature T	oo High' ar	nd 'Battery Tempera	ature Too
36	Minimal Current For Discharging Alarm	r Battery	Ampere	0/1000 (2)	basic
	The minimal discharging curren	t to set the 'Bat	tery On Dis	charge' alarm.	1
37	Current Hysteresis Fo Discharging Alarm	r Battery	Ampere	0/50 (0.5)	basic
	The hysteresis on the 'Battery C	On Discharge' a	larm.		
51	Boost Automatic	Boost		False/False (False)	battery
	The boost mode must be auto bus voltage went under the charging the battery faster.				
52	Boost Activation Low Voltage	Boost	Volt	43/50 (46)	battery
	The voltage under which the bo	ost mode can b	e activated		
53	Boost Termination Voltage	Boost	Volt	50/58 (56.4)	battery
	The voltage over which the syst	tem must go ba	ck to floatin	g mode.	
54	Boost Termination Current	Boost	Ampere	0/100 (2)	battery
	The battery charging current un	der which the s	ystem mus	go back to floating	mode.
55	Boost Termination Time	Boost	minute	10/240 (120)	battery
	The time in minute after which t				
70		Dattam, Tast	X / 11	00/00 /40)	la sa
,	Battery Test End Voltage	Battery Test	Volt	30/60 (46)	battery
	Battery Test End Voltage The voltage at which any batter	•	1	30/60 (46)	pattery
71		y test must be s	1	0/100 (0)	battery
71	The voltage at which any batter	y test must be s Battery Test	stopped. %	0/100 (0)	battery
71 72	The voltage at which any batter Battery Test Discharge Ratio The ratio of the battery capaci	y test must be s Battery Test	stopped. %	0/100 (0)	battery
	The voltage at which any batter Battery Test Discharge Ratio The ratio of the battery capacidischarged during the test	Battery Test Battery Test Battery Test Battery Test wo automatically	stopped. % If 30 is sedicted day y started base	0/100 (0) et, 30% of the batte 0/3000 (0) ettery test. If this par	battery ery will be battery cameter is
	The voltage at which any batter Battery Test Discharge Ratio The ratio of the battery capacidischarged during the test Battery Test Interval The number of days between two set to 0, the battery test is not start or force this test.	Battery Test Battery Test Battery Test Battery Test wo automatically	stopped. % If 30 is sedicted day y started base	0/100 (0) et, 30% of the batte 0/3000 (0) ettery test. If this par	battery ery will be battery cameter is
72	The voltage at which any batter Battery Test Discharge Ratio The ratio of the battery capacidischarged during the test Battery Test Interval The number of days between two too, the battery test is not start or force this test. Battery Test Discharge	Battery Test wo automatically started automa Battery Test wo automatically started automa Battery Test tery must be obtage in order t	day y started batically. The	0/100 (0) et, 30% of the batte 0/3000 (0) ettery test. If this par user can remotely 3/100 (1000) during a battery	battery battery cameter is or locally battery test. The
72	The voltage at which any batter Battery Test Discharge Ratio The ratio of the battery capacidischarged during the test Battery Test Interval The number of days between two set to 0, the battery test is not start or force this test. Battery Test Discharge Current The current at which the batter monitoring regulates the bus volumest be of course higher than the set of	Battery Test wo automatically started automa Battery Test wo automatically started automa Battery Test tery must be obtage in order t	day y started batically. The	0/100 (0) et, 30% of the batte 0/3000 (0) ettery test. If this par user can remotely 3/100 (1000) during a battery	battery battery cameter is or locally battery test. The
72	The voltage at which any batter Battery Test Discharge Ratio The ratio of the battery capacidischarged during the test Battery Test Interval The number of days between the set to 0, the battery test is not start or force this test. Battery Test Discharge Current The current at which the batter monitoring regulates the bus worm ust be of course higher than the Battery Test Minima	Battery Test wo automatically started automa Battery Test wo automatically started automa Battery Test tery must be obtage in order this parameter. Battery Test	day y started battically. The Ampere discharged o satisfy thi	0/100 (0) et, 30% of the batte 0/3000 (0) ettery test. If this par user can remotely 3/100 (1000) during a battery s condition. The load	battery battery cameter is or locally battery test. The ad current battery

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	The timeout in minute after wh	ich the battery te	est must be	stopped.	
76	Battery Test Requeste Minutes Without Main Failure	Battery Test	minute	0/5000 (1440)	battery
	The minimal time in minute wi parameter is not taken into according				start. This
83	Smart Energy Boolea Condition	Smart Energy		121-125	asset
	This is the boolean condition of rectifier in remote off.		not to autor	natically optimize th	e number
86	Battery LVD Node Id	LVD		True/False (False)	basic
	This is a list of the node id of the		nic LVDs, o	· ·	
91	Digital Input 1 Name	Digital Inputs		Distribution Breaker Open	basic
	The name of the digital input 1			T	
92	Digital Input 1 Normal Closed			True/False (True)	basic
	True/False value defining if th not in this default state, the relative to the control of the co			closed. If this digital	al input is
93	Digital Input 2 Name	Digital Inputs		Battery Breaker Open	basic
	The name of the digital input 2				
94	Digital Input 2 Normal Closed	Digital Inputs		True/False (True)	basic
	True/False value defining if th not in this default state, the relationship			closed. If this digital	al input is
95	Digital Input 3 Name	Digital Inputs		Digital Input 3	basic
	The name of the digital input 3				
96	Digital Input 3 Normal Closed	Digital Inputs		True/False (True)	basic
	True/False value defining if the not in this default state, the relationship.			closed. If this digital	al input is
97	Digital Input 4 Name	Digital Inputs		Digital Input 4	basic
	The name of the digital input 4				
98	Digital Input 4 Normal Closed	Digital Inputs		True/False (True)	basic
	True/False value defining if th not in this default state, the relationship.			closed. If this digital	al input is
111	Dry Alarm 1 Alternativ Boolean Condition	Pe Dry Alarms		False	plc
	Another Boolean condition to a condition is detailed in the PLC		alarm relay	1. The way to define	e boolean
112	Dry Alarm 2 Alternativ Boolean Condition	Pe Dry Alarms		False	plc
	Another Boolean condition to a condition is detailed in the PLC	•	alarm relay	2. The way to define	e boolean
113	Dry Alarm 3 Alternativ	Pe Dry Alarms		False	plc
	Boolean Condition				

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	condition is detailed in the PLC	chapter.			
114	Dry Alarm 4 Alternative Boolean Condition			False	plc
	Another Boolean condition to accondition is detailed in the PLC of		larm relay 4	4. The way to define	e boolean
131	-	Sensors	degree C		basic
	The temperature under which th			ture Too Low' must	be set.
132	Ambient Temperature High	Sensors	degree C		basic
	The temperature under which th			ture Too Low' must	
133	Ambient Temperature Hysteresis		degree C		basic
	The hysteresis on the 'Battery 'Low' alarms.	Temperature T	oo High' ar	nd 'Battery Tempera	ature Too
521	Read Access User Numbers	Allowed Users		(1,2,3,4,5)	basic
	The list of the user numbers v numbers are coma separated. T				
522	Write Access User Numbers	Allowed Users		()	basic
	The list of the user numbers what these users can modify the control elements. The user num 1,2,3,4 and 5. Ex: 1,3,4	configuration (element, the	e alarm settings and	d use the
601	Event Table Length	Event		10/4000 (100)	basic
	The maximum length of the table	e. The value mi	ust be comp	orised between 10 a	nd 4000
602	Event Table Length By Rectifier	Event		10/4000 (100)	basic
	The maximum length of the table	e. The value mi	ust be comp	orised between 10 a	ınd 4000
901	Number Of PLC Data	PLC		(0)	plc
	The number of PLC data. Every data. Data elements are aut parameters are added to set the calculation. In order to use the module	omatically add ne PLC Data N	ded in the Name and	data table. Con the PLC Data Matl	figuration nematical
902	Number Of PLC Alarm	PLC		(0)	plc
	The number of PLC alarm. Ever alarms. Alarm elements are a parameters are added to set condition. In order to use the module	automatically a the PLC Alarn	added in th n Name ar	he alarm table. The the PLC Alarm	he alarm Boolean

Cor	itrol Table		
<u>Id</u>	<u>Name</u>	<u>Group</u>	<u>Licens</u> e
1	Back To Float	DC Mode	basic
	The dc system must go back in floating mode.		
2	Start Battery Test	DC Mode	battery
	The dc system must start a battery test.		

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3	Force Battery Test	DC Mode	battery
	The dc system must force a battery test.	<u> </u>	
4	Start Boost Mode	DC Mode	battery
	The dc system must go in boost mode.		
11	Open The LVD	LVD	basic
	The LVD must be opened		
12	Close The LVD	LVD	basic
	The LVD must be closed	•	
21	Correct Battery Current Offset	Battery	basic
	No information	•	
31	Reset Battery Current Integration	Battery	basic
	Reset the integration of the battery current.		
41	Reset Last Battery Test State	Battery	battery
	Reset the state of the last battery test. If an alarm alarm will be cleared.	n 'Battery Last Test Failed'	is set, the
51	Save Configuration In MCU	Save	basic
	Save configuration parameters in the MCU micro the system will be correctly managed.	controller. If comp@s is no	ot present,
61	Set Digital Input 4 Counter Value	Counters	basic
	Set Counter Value	•	
501	Clear My Events	Event	basic
	By writing '1' to this control element, all the events	of this equipment will be cl	eared.
502	Clear All Events	Event	basic
	By writing '1' to this control element, all the events of all the sub-equipments will be cleared.	s of this equipment and all t	the events
511	Add Event	Event	basic
	This control element adds an event of severity nor to this control element	ne. The event name is the t	ext written
512	Add Major Event	Event	basic
	This control element adds an event of severity written to this control element	major. The event name i	s the text
521	Reset Default Names And Groups	Advanced	basic
	This control element resets all the element Name values for this equipment	es, Groups and Subgroups	to default
522	Reset Default Names And Groups Recursive	Advanced	basic
	This control element resets all the element Name values for this equipment and all sub equipments	es, Groups and Subgroups	to default

7.2.10 MCU1848M3 / MCU1848M3D

Device Information			
ame MCU1848M3 / MCU1848M3D			
•	Controller without LCD display / Controller with LCD display		
Long Description	Monitoring and control unit with USB and		

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	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

Des	cription Table				
<u>Id</u>	<u>Name</u>	Group	<u>License</u>		
1	Description	Description	basic		
	A free text zone to write a syste	em description			
2	Reference	Description	basic		
	A free text zone to write the cus	stomer reference of the syste	em		
11	Product Name	Monitoring	basic		
	The product name of the DC system monitoring				
12	Hardware Reference	Monitoring	basic		
	The hardware reference of the DC system monitoring				
14	Software Reference	Monitoring	asset		
	The serial number of the DC sy	stem monitoring			
16	Serial Number	Monitoring	asset		
	The serial number of the DC sy	stem monitoring			
18	Manufacturing Date	Monitoring	asset		
	The production date of the DC system monitoring				

Alarr	n Table				
<u>Id</u>	<u>Name</u>	Severity Type (Level)	Set/Clear Delay		
1	DC Bus Extra Low	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				
2	DC Bus Low	minor (4)	5 / 2		
	The bus voltage is low. The alarm is set configuration parameter 'DC Bus Voltage L 'DC Bus Voltage Low Hysteresis'	•			
3	DC Bus High	minor (4)	5 / 2		
	The bus voltage is high. The alarm is set when the bus voltage is higher than the configuration paramenter 'DC Bus Voltage High'. There is an hysterisis on the alarm 'DC Bus Voltage High Hysteresis'				
4	DC Bus Extra High	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 hysterisis on the alarm: 'DC Bus Voltage Extra High Hysteresis'				
5	DC Bus Voltage Sense Failure	major (6)	5 / 2		

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	The DC bus voltage sense is defective. unconfigured.	The DC bus voltage	is unconnected or
6	Mains Failure	minor (4)	5 / 2
	The number of active rectifiers is equal to greater than 0.	0 and the number of rect	tifiers in AC failure is
7	Mains Partial Failure	minor (4)	10 / 2
	The number of active rectifiers is greater failure is greater than 0. Some rectifiers open breaker, a real phase failure, or by a	are in AC Failure. It ma	
8	Mains Low	warning (2)	10 / 2
	The main voltage is low on one or more p master type is 30110, 3096 or 3048M6, a to the voltage lower limit		
10	One Rectifier Failure	minor (4)	5 / 2
	One rectifier must be replaced or is not prectifier is set. The number of rectifier wi mains failure, and the 'More Than One Rec	th DC Failure is higher	than 0, there is no t set.'
11	More Than One Rectifier Failure	major (6)	10 / 2
	There is no mains failure and number of re	ctifier failures is greater	
12	Missing Rectifiers	major (6)	5 / 2
	There is not enough rectifier according Number Of Rectifier'		1
13	Battery Last Test Failed	minor (4)	5 / 2
	The last battery test did not succeed and was be replaced.	was not cancelled. Mayb	e the battery should
14	Battery On Discharge	minor (4)	10 / 2
	The battery is discharging. This means rectifiers. This alarm is inactive when the same there is an hysteresis corresponding to hysteresis'.	system in AC Failure or o	during a battery test.
17	Battery LVD Relay Open	major (6)	5 / 2
	The battery Low Voltage Disconnector signal, like MCU 1848 or MCU 1x6, the a asks to open the LVD	is open. On Systems	
18	Battery Temperature Too High	minor (4)	5 / 2
	The temperature of the battery is too high hysteresis corresponding to battery parameters	•	
19	Battery Temperature Too Low	minor (4)	5 / 2
	The temperature of the battery is too low hysteresis corresponding to battery parameters		
20	Battery Temperature Sensor Fail	minor (4)	5 / 2
	The battery temperature sensor (NTC) valued not connected or defective.	ue is inferior to -500 un	its meaning that it is
25	Distribution Breaker Open	major (6)	5 / 2
	This alarm is related to digital input 1. The different to configuration parameter 'Digital		digital input value is
26	Battery Breaker Open	minor (4)	5 / 2
	This alarm is related to digital input 2. The different to configuration parameter 'Digital'		digital input value is

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27	Digital Input 3	none (0)	5/2
	This alarm is related to digital input 3. The different to configuration parameter 'Digital'		igital input value is
28	Digital Input 4	none (0)	5 / 2
	This alarm is related to digital input 4. The different to configuration parameter 'Digital'		igital input value is

Data	Table					
<u>Id</u>	<u>Name</u>	Group	<u>Unit</u>	<u>Licens</u>		
				<u>e</u>		
1	DC Mode	General		basic		
	The DC system can have 4 valu 'AC_FAILURE' or SAFE	es: 'FLOAT', 'BOC	OST', 'BATTERY	_TEST',		
2	Previous DC Mode	General		basic		
	The previous value of the DC Mode			T		
11	Bus Voltage	General	Volt	basic		
	The DC bus voltage in volt.					
12	Ratio Delivered On Available Power	General	%	basic		
	This is the ratio of the delivered power d	ivided by the installe	d power, in %.			
13	Minutes Since Last AC Failure Begin	General	minute	basic		
	The number of minute since the last AC	Failure begin	,			
14	Minutes Since Last AC Failure End	General	minute	basic		
	The number of minute since the last AC	Failure end				
21	Rectifiers Output Power	Rectifiers	Watt	basic		
	The sum of the delivered rectifier power					
22	Rectifiers Output Current	Rectifiers	Ampere	basic		
	The sum of the delivered rectifier current					
23	Rectifiers Output Power Max	Rectifiers	Watt	basic		
	The sum of the deliverable rectifier power	er				
24	Rectifiers Output Current Max	Rectifiers	Ampere	basic		
	The sum of the deliverable rectifier curre	ent				
31	Number Of Rectifier Max	Rectifiers		basic		
	The maximum possible number of rectifi	er in this dc system				
32	Number Of Present Rectifier	Rectifiers		basic		
	The actual number of present rectifier in	this dc system		_		
33	Number Of Absent Rectifier	Rectifiers		basic		
	The actual number of absent rectifier in this dc system					
34	Number Of Active Rectifier	Rectifiers		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.					
35	Number Of AC-Fail Rectifier	Rectifiers		basic		
	The actual number or rectifier in AC Failure.					
36	Number Of DC-Fail Rectifier	Rectifiers		basic		
	The actual number or rectifier with DC F	ailure.	•	•		
37	Number Of Remote Off Rectifier	Rectifiers		basic		
	1	ı	I .			

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	The color of source of the sou	-tt		
	The actual number or rectifier in remote		1	l
38	Number Of Over Temperature Rectifier			basic
	The actual number or rectifier in OVer Te	emperature.	T	1
51	Load Power	Load	Watt	basic
	Estimation of the load power consumption	n		
52	Load Current	Load	Ampere	basic
	Estimation of the load current consumpti	on		
61	Battery Input Current	Battery	Ampere	basic
	Measurement of the battery input currer discharging	nt. A negative value	means that the ba	attery is
62	Battery Input Power	Battery	Watt	basic
	Measurement of the battery input power discharging	r. A negative value r	means that the ba	attery is
71	Battery Temperature	Battery	degree C	basic
	The battery temperature			
72	Battery Test State	Battery		basic
	This is about the result of the last NEVER_TESTED, SUCCESS, FAILED_VBUS_TOO_LOW, FAILED_FAILED_CANCELED, FAILED_LVD_OP	st battery test. 9 ON_GOING, LOAD_TOO_LOW,	FAILED_TIM	
73	Battery Test Discharged Capacity Ratio	Battery	%	basic
	This is the battery capacity, in percent, value is updated at the end of the battery	•	he last battery te	st. This
74	Battery Test Discharged Capacity	Battery	Ah	basic
	This is the battery capacity, in ampere This value is updated at the end of the battery		ring the last batte	ery test.
75	Battery Test Final Voltage	Battery	%	basic
	This is the bus voltage at the end of the end of the battery test.	last battery test. Thi	s value is updated	d at the
81	Previous Battery Test State	Battery		basic
	The result of the previous battery test			
82	Minutes Since Last Test Battery	Battery		basic
	The number of minute without battery tes	st		
91	Battery Charge Capacity	Battery	%	basic
	The battery charge capacity, calculated by	by integration of the	current.	I.
92	Calculated Autonomy	Battery	minute	basic
	Calculation of the remaining autonomy	,	l	I.
93	Battery Current Integration	Battery	As	basic
	Actual value of the integration of the curr		ond	ı
94	Battery Current Integration	Battery	Ah	basic
	Actual value of the integration of the curr	•		
101	LVD State	LVD		basic
	Actual state of the LVD	<u> </u>	<u> </u>	24010
121		Smart Energy		asset

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	The optimal number of ON rectifier for E	fficiency Optimization	on	
122	System Loss Without Optimisation	Smart Energy	Watt	under dev
	Estimation of the losses without optimisa	ation		
123	System Loss With Optimisation	Smart Energy	Watt	under dev
	Estimation of the losses with optimisatio	n		
124	Rectifier Model Used For Calculation	Smart Energy		asset
	The rectifier model used			
125	Smart Energy Savings	Smart Energy	Watt	asset
	Estimation of the losses with optimisatio	n		

Con	fig Table					
<u>Id</u>	Name	<u>Group</u>	<u>Unit</u>	Range: Min/Max (default)	<u>License</u>	
1	DC Bus Float Voltage at 25 degC	Bus Voltage	Volt	40/60 (54)	basic	
	The floating dc bus voltage of th	e system at 25	Celsius de	gree		
2	DC Bus Voltage Extra Low	Bus Voltage	Volt	40/60 (45)	basic	
	The bus voltage under which the	alarm 'DC Bu	s Voltage E	xtra Low' is set.		
3	DC Bus Voltage Extra Low Hysteresis	Bus Voltage	Volt	0/5 (1)	basic	
	The voltage hysteresis on the ala	arm 'DC Bus V	oltage Extra	a Low'.		
4	DC Bus Voltage Low	Bus Voltage	Volt	40/60 (48)	basic	
	The bus voltage under which the	alarm 'DC Bu	s Voltage L	ow' is set.		
5	DC Bus Voltage Low Hysteresis	Bus Voltage	Volt	0/5 (0.5)	basic	
	The voltage hysteresis on the ala	arm 'DC Bus V	oltage Low			
6	DC Bus Voltage High	Bus Voltage	Volt	40/60 (56.5)	basic	
	The bus voltage over which the alarm 'DC Bus Voltage High' is set.					
7	DC Bus Voltage High Hysteresis	Bus Voltage	Volt	0/5 (0.5)	basic	
	The voltage hysteresis on the al	arm 'DC Bus V	oltage High			
8	DC Bus Voltage Extra High	Bus Voltage	Volt	40/60 (58)	basic	
	The bus voltage over which the	alarm 'DC Bus	Voltage Ex	tra High' is set.		
9	DC Bus Voltage Extra High Hysteresis	Bus Voltage	Volt	0/5 (0.5)	basic	
	The voltage hysteresis on the ala	arm 'DC Bus V	oltage Extra	a High		
10	LVD Disconnect Voltage	Bus Voltage	Volt	0/50 (43.2)	basic	
	The dc bus voltage under which allows preserving the battery life				ous. This	
11	LVD Disconnect Delay				basic	
	The delay in second before disc configured disconnected voltage	onnecting the b	cattery if the	e dc bus voltage is		
21	Temperature Compensation Slope				basic	

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1	The slope of the battery temper	ature compens	ation in mv	/degree. For a 48V	system, -
22	72mV/degree is often used. Maximum Positive Temperature Compensation	Temperature Compensatio	Volt	0/10 (3)	basic
		n '			
	The maximal allowed positive co		T	1	T
23	Maximum Negative Temperature Compensation	Temperature Compensatio n	Volt	-10/0 (-3)	basic
	The maximal allowed negative of	ompensation.			
25	Minimal Number Of Present Rectifiers	Rectifiers		0/100 (0)	basic
	The minimal number of rectifi rectifiers, the alarm 'Missing Rec		t be prese	ent. If there is less	s present
26	Rectifier Model	Rectifiers			basic
	The rectifier model				
27	Forced Remote Off Rectifers	Rectifiers			basic
	A list of rectifier which are force separated. Ex: 1,3 will maintain			of the rectifier must	be coma
31	Battery Charge Current Limit	Battery	Ampere	0.5/1000 (1000)	basic
	The maximal battery current with the bus voltage in order to satisfaction nominal battery capacity divided	sfy this condition	on. This pa	rameter is often eq	ual to the
32	Battery String Capacity	Battery	Ah	3/1000 (100)	basic
	The battery capacity in Ah.	I _	Ι	1	I
33		Battery		-100/20 (0)	basic
	The temperature under which th		· · ·	1	
34	Battery Temperature High	Battery		5/100 (40)	basic
	The temperature over which the	· · · · · · · · · · · · · · · · · · ·	· ·	<u> </u>	
35	Battery Temperature Hysteresis	,	degree C		basic
	The hysteresis on the 'Battery 'Low' alarms.	Temperature T	oo High' aı	nd 'Battery Tempera	ature Too
		1	1		
36		Battery	Ampere	0/1000 (3)	basic
36	Minimal Current For			. ,	basic
36 37	Minimal Current For Discharging Alarm The minimal discharging current			. ,	basic
	Minimal Current For Discharging Alarm The minimal discharging current Current Hysteresis For	to set the 'Bati	tery On Dis	charge' alarm.	
	Minimal Current For Discharging Alarm The minimal discharging current Current Hysteresis For Discharging Alarm	to set the 'Bati	tery On Dis	charge' alarm.	
37	Minimal Current For Discharging Alarm The minimal discharging current Current Hysteresis For Discharging Alarm The hysteresis on the 'Battery O	Battery n Discharge' a Boost matically after	tery On Dis Ampere larm. the fact the	charge' alarm. 0/50 (1) False/False (False) at during a mains fa	basic battery ailure, the
37	Minimal Current For Discharging Alarm The minimal discharging current Current Hysteresis For Discharging Alarm The hysteresis on the 'Battery O' Boost Automatic The boost mode must be autor bus voltage went under the co	Battery n Discharge' a Boost matically after	tery On Dis Ampere larm. the fact the	charge' alarm. 0/50 (1) False/False (False) at during a mains fa	basic battery ailure, the
37 51	Minimal Current For Discharging Alarm The minimal discharging current Current Hysteresis For Discharging Alarm The hysteresis on the 'Battery O'Boost Automatic The boost mode must be autor bus voltage went under the cocharging the battery faster.	Battery n Discharge' a Boost matically after onfigured 'Boos	tery On Distery On Dis	charge' alarm. 0/50 (1) False/False (False) at during a mains fan Low Voltage'. The	basic battery allure, the
37 51	Minimal Current For Discharging Alarm The minimal discharging current Current Hysteresis For Discharging Alarm The hysteresis on the 'Battery O'Boost Automatic The boost mode must be autor bus voltage went under the cocharging the battery faster. Boost Activation Low Voltage	Battery n Discharge' a Boost matically after onfigured 'Boos	tery On Distery On Dis	charge' alarm. 0/50 (1) False/False (False) at during a mains fan Low Voltage'. The	basic battery allure, the

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				1.	Ta () a a () a	I
54	Boost Termination Cu		Boost	Ampere	0/100 (4)	battery
	The battery charging cu			1	, 	1
55	Boost Termination Ti		Boost	minute	10/240 (120)	battery
	The time in minute afte					1
70	Battery Test End Volt			Volt	30/60 (46)	battery
	The voltage at which ar	•	1		1	T
71	Battery Test Discharg			%	0/100 (0)	battery
	The ratio of the battery discharged during the t		y to discharge.	If 30 is se	et, 30% of the batte	ry will be
72	Battery Test Interval		Battery Test	day	0/3000 (0)	battery
	The number of days be set to 0, the battery testart or force this test.					
73	Battery Test Di Current	scharge	Battery Test	Ampere	3/100 (1000)	battery
	The current at which monitoring regulates the must be of course high	e bus vol	ltage in order to		9	
74	Battery Test Discharge Current	Minimal	Battery Test	Ampere	2/90 (2)	battery
	The battery current und too low.	der which	the battery te	st must be	stopped because th	ne load is
75	Battery Test Time Out		Battery Test	minute	1/5000 (10)	battery
	The timeout in minute a	fter whic	h the battery te	st must be	stopped.	
76	Battery Test Re Minutes Without Failure	quested Mains	Battery Test	minute	0/5000 (1440)	battery
	The minimal time in mi parameter is not taken					tart. This
83	Smart Energy Condition	Boolean	Smart Energy		121-125	asset
	This is the boolean cor of rectifier in remote off		nich allows or n	ot to autor	natically optimize the	e number
86						
	Battery LVD Node Id		LVD		True/False (False)	basic
	Battery LVD Node Id This is a list of the node	e id of the		nic LVDs, o	, ,	basic
91		e id of the		nic LVDs, d	, ,	basic
91	This is a list of the node		Smart Electro	nic LVDs, o	coma separated Distribution	1
91 92	This is a list of the node Digital Input 1 Name The name of the digital	input 1	Smart Electro	nic LVDs, o	coma separated Distribution	1
	This is a list of the node Digital Input 1 Name The name of the digital Digital Input 1 N	input 1 lormally ng if the	Digital Inputs Digital Inputs Digital Inputs digital input 1	is normally	Distribution Breaker Open True/False (True)	basic
92	This is a list of the node Digital Input 1 Name The name of the digital Digital Input 1 Name Closed True/False value defini	input 1 lormally ng if the	Digital Inputs Digital Inputs Digital Inputs digital input 1	is normally	Distribution Breaker Open True/False (True)	basic basic al input is
	This is a list of the node Digital Input 1 Name The name of the digital Digital Input 1 N Closed True/False value defining to in this default state,	input 1 lormally ng if the the relat	Digital Inputs Digital Inputs Digital Inputs digital input 1 ed alarm is set	is normally	Distribution Breaker Open True/False (True) closed. If this digital	basic basic al input is
92	This is a list of the node Digital Input 1 Name The name of the digital Digital Input 1 Name Closed True/False value defining not in this default state, Digital Input 2 Name The name of the digital	input 1 Normally Ing if the the relate the	Digital Inputs Digital Inputs Digital Inputs digital input 1 ed alarm is set	is normally	Distribution Breaker Open True/False (True) closed. If this digital	basic basic al input is

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	I	1	T		
95	Digital Input 3 Name	Digital Inputs		Digital Input 3	basic
	The name of the digital input 3	1	T	T	1
96	Digital Input 3 Normally Closed	Digital Inputs		True/False (True)	basic
	True/False value defining if the not in this default state, the relat			closed. If this digita	al input is
97	Digital Input 4 Name	Digital Inputs		Digital Input 4	basic
	The name of the digital input 4				
98	Digital Input 4 Normally Closed	Digital Inputs		True/False (True)	basic
	True/False value defining if the not in this default state, the relat	ed alarm is set.			al input is
111	Dry Alarm 1 Alternative Boolean Condition	Dry Alarms		False	plc
	Another Boolean condition to accondition is detailed in the PLC	•	larm relay	1. The way to define	e boolean
112	Dry Alarm 2 Alternative Boolean Condition	Dry Alarms		False	plc
	Another Boolean condition to accondition is detailed in the PLC	•	larm relay 2		e boolean
113	Dry Alarm 3 Alternative Boolean Condition	Dry Alarms		False	plc
	Another Boolean condition to accondition is detailed in the PLC		larm relay :	3. The way to define	e boolean
114	Dry Alarm 4 Alternative Boolean Condition	Dry Alarms		False	plc
	Another Boolean condition to accondition is detailed in the PLC		larm relay	4. The way to define	e boolean
521	Read Access User Numbers	Allowed Users		(1,2,3,4,5)	basic
	The list of the user numbers v numbers are coma separated. T				
522	Write Access User Numbers	Allowed Users		()	basic
	The list of the user numbers what these users can modify the control elements. The user num 1,2,3,4 and 5. Ex: 1,3,4	configuration e	element, the	e alarm settings and	d use the
601	Event Table Length	Event		10/4000 (100)	basic
	The maximum length of the table	e. The value mu	ust be comp	orised between 10 a	ınd 4000
602	Event Table Length By Rectifier	Event		10/4000 (100)	basic
	The maximum length of the table	e. The value mu	ust be comp	prised between 10 a	nd 4000
901	Number Of PLC Data	PLC		(0)	plc
	The number of PLC data. Every data. Data elements are aut parameters are added to set the calculation. In order to use the module	tomatically add he PLC Data N	ded in the Name and	e data table. Con the PLC Data Matl	figuration nematical
902	Number Of PLC Alarm	PLC		(0)	plc
	•	•			•

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The number of PLC alarm. Every equipment can manage up to 20 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

Cont	rol Table					
<u>ld</u>	<u>Name</u>	<u>Group</u>	<u>Licens</u> <u>e</u>			
1	Back To Float	DC Mode	basic			
	The dc system must go back in floating mode.					
2	Start Battery Test	DC Mode	battery			
	The dc system must start a battery test.					
3	Force Battery Test	DC Mode	battery			
	The dc system must force a battery test.					
4	Start Boost Mode	DC Mode	battery			
	The dc system must go in boost mode.					
11	Open The LVD	LVD	basic			
	The LVD must be opened					
12	Close The LVD	LVD	basic			
	The LVD must be closed					
21	Correct Battery Current Offset	Battery	basic			
	No information					
31	Reset Battery Current Integration	Battery	basic			
	Reset the integration of the battery current.					
41	Reset Last Battery Test State	Battery	battery			
	Reset the state of the last battery test. If an ala alarm will be cleared.	rm 'Battery Last Test F	ailed' is set, the			
51	Save Configuration In MCU	Save	basic			
	Save configuration parameters in the MCU mich the system will be correctly managed.	rocontroller. If comp@	s is not present,			
61	Set Digital Input 4 Counter Value	Counters	basic			
	Set Counter Value		·			
501	Clear My Events	Event	basic			
	By writing '1' to this control element, all the even	ts of this equipment wi	ll be cleared.			
502	Clear All Events	Event	basic			
	By writing '1' to this control element, all the ever of all the sub-equipments will be cleared.	nts of this equipment a	nd all the events			
511	Add Event	Event	basic			
	This control element adds an event of severity n to this control element	one. The event name i	s the text written			
512	Add Major Event	Event	basic			
	This control element adds an event of severit written to this control element	ty major. The event r	name is the text			
521	Reset Default Names And Groups	Advanced	basic			
	This control element resets all the element Nar values for this equipment	nes, Groups and Subo	groups to default			

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522	Reset Default Names And Groups Recursive	Advanced	basic
	This control element resets all the element Names, values for this equipment and all sub equipments	, Groups and Subgroups to	default

7.2.11 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	

Desc	Description Table					
<u>Id</u>	<u>Name</u>	Group	<u>License</u>			
1	Description	Description	basic			
	A free text zone to write a syste	m description				
2	Reference	Description	basic			
	A free text zone to write the customer reference of the system					
11	Product Name	Monitoring	basic			
	The product name of the DC system monitoring					
12	Hardware Reference	Monitoring	basic			
	The hardware reference of the	The hardware reference of the DC system monitoring				
14	Software Reference	Monitoring	asset			
	The serial number of the DC sy	stem monitoring				
16	Serial Number	Monitoring	asset			
	The serial number of the DC sy	stem monitoring				
18	Manufacturing Date	Monitoring	asset			
	The production date of the DC s	system monitoring				

Alarm Table							
<u>Id</u>	Name Severity Type (Level) Set/Clear D						
1	DC Bus Extra Low	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						
2	DC Bus Low	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'						

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3	DC Bus High	minor (4)	5/2			
	The bus voltage is high. The alarm is set configuration paramenter 'DC Bus Voltage 'DC Bus Voltage High Hysteresis'					
4	DC Bus Extra High	major (6)	5 / 2			
	The bus voltage is extra high. The alarm is set when the bus voltage is higher than the configuration paramenter 'DC Bus Voltage Extra High'. There is an hysterisis on the alarm: 'DC Bus Voltage Extra High Hysteresis'					
5	DC Bus Voltage Sense Failure	major (6)	5 / 2			
	The DC bus voltage sense is defective. unconfigured.		is unconnected or			
6	Mains Failure	minor (4)	5 / 2			
	The number of active rectifiers is equal to 0 greater than 0.	and the number of rectif	iers in AC failure is			
7	Mains Partial Failure	minor (4)	10 / 2			
	The number of active rectifiers is greater failure is greater than 0. Some rectifiers a open breaker, a real phase failure, or by a re-	re in AC Failure. It may				
8	Mains Low	warning (2)	10 / 2			
	The main voltage is low on one or more ph master type is 30110, 3096 or 3048M6, an to the voltage lower limit					
10	One Rectifier Failure	minor (4)	5/2			
	One rectifier must be replaced or is not por rectifier is set. The number of rectifier with mains failure, and the 'More Than One Rect	n DC Failure is higher t	han 0, there is no			
11	More Than One Rectifier Failure	major (6)	10 / 2			
	There is no mains failure and number of rec	tifier failures is greater th	nan 1.			
12	Missing Rectifiers	major (6)	5/2			
	There is not enough rectifier according t Number Of Rectifier'	o the configuration par	rameter : 'Minimal			
13	Battery Last Test Failed	minor (4)	5 / 2			
	The last battery test did not succeed and was be replaced.	as not cancelled. Maybe	the battery should			
14	Battery On Discharge	minor (4)	10 / 2			
	The battery is discharging. This means t rectifiers. This alarm is inactive when the sy There is an hysteresis corresponding to hysteresis'.	stem in AC Failure or du	uring a battery test.			
17	Battery LVD Relay Open	major (6)	5 / 2			
	The battery Low Voltage Disconnector is signal, like MCU 1848 or MCU 1x6, the ala asks to open the LVD					
18	Battery Temperature Too High	minor (4)	5 / 2			
	The temperature of the battery is too high a hysteresis corresponding to battery parameters					
19	Battery Temperature Too Low	minor (4)	5 / 2			
	The temperature of the battery is too low a hysteresis corresponding to battery parameters					

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20	Battery Temperature Sensor Fail	minor (4)	5/2
	The battery temperature sensor (NTC) value not connected or defective.	e is inferior to -500 units	s meaning that it is
21	Ambient Temperature Too High	minor (4)	5 / 2
	The ambient temperature is too high and hysteresis corresponding to parameter 'Ambonly activated on MCU master types 3011 0948 and 3048M6.	esis'. This alarm is	
22	Ambient Temperature Too Low	minor (4)	5 / 2
	The ambient temperature is too low and hysteresis corresponding to parameter 'Ambonly activated on MCU master types 3011 0948 and 3048M6.	iant temperature hyster	esis'. This alarm is
23	Ambient Temperature Sensor Fail	minor (4)	5/2
	The ambiant temperature sensor (NTC) value not connected or defective.	ue is inferior to -500 unit	s meaning that it is
25	Distribution Breaker Open	major (6)	5/2
	This alarm is related to digital input 1. This different to configuration parameter 'Digital II		igital input value is
26	Battery Breaker Open	minor (4)	5/2
	This alarm is related to digital input 2. This different to configuration parameter 'Digital In		igital input value is
27	Digital Input 3	none (0)	5 / 2
	This alarm is related to digital input 3. This different to configuration parameter 'Digital In		igital input value is
28	Digital Input 4	none (0)	5 / 2
	This alarm is related to digital input 4. This different to configuration parameter 'Digital In		igital input value is

Data	Table					
<u>Id</u>	<u>Name</u>	<u>Group</u>	<u>Unit</u>	<u>Licens</u> <u>e</u>		
1	DC Mode	General		basic		
	The DC system can have 4 values: 'FLOAT', 'BOOST', 'BATTERY_TEST', 'AC_FAILURE' or SAFE					
2	Previous DC Mode	General		basic		
	The previous value of the DC Mode					
11	Bus Voltage	General	Volt	basic		
	The DC bus voltage in volt.					
12	Ratio Delivered On Available Power	General	%	basic		
	This is the ratio of the delivered power d	vided by the installed	d power, in %.			
13	Minutes Since Last AC Failure Begin	General	minute	basic		
	The number of minute since the last AC	Failure begin				
14	Minutes Since Last AC Failure End	General	minute	basic		
The number of minute since the last AC Failure end						
21	Rectifiers Output Power	Rectifiers	Watt	basic		
	The sum of the delivered rectifier power					

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22	Postifiore Output Current	Postifiero	Amporo	basis
22	Rectifiers Output Current	Rectifiers	Ampere	basic
00	The sum of the delivered rectifier curren	<u>-</u>	14/-44	1:-
23	Rectifiers Output Power Max	Rectifiers	Watt	basic
	The sum of the deliverable rectifier pow		T.	I
24	Rectifiers Output Current Max	Rectifiers	Ampere	basic
	The sum of the deliverable rectifier curre	1	T	I
31	Number Of Rectifier Max	Rectifiers		basic
	The maximum possible number of rectif		T	T
32	Number Of Present Rectifier	Rectifiers		basic
	The actual number of present rectifier in			T
33	Number Of Absent Rectifier	Rectifiers		basic
	The actual number of absent rectifier in	<u> </u>		_
34	Number Of Active Rectifier	Rectifiers		basic
	The actual number of active rectifier in which is present, DC OK, AC OK and no		ctive rectifier is a	rectifier
35	Number Of AC-Fail Rectifier	Rectifiers		basic
	The actual number or rectifier in AC Fail	lure.		
36	Number Of DC-Fail Rectifier	Rectifiers		basic
	The actual number or rectifier with DC F	ailure.		
37	Number Of Remote Off Rectifier	Rectifiers		basic
	The actual number or rectifier in remote	off.		
38	Number Of Over Temperature Rectifier	Rectifiers		basic
	The actual number or rectifier in OVer T	emperature.		
51	Load Power	Load	Watt	basic
	Estimation of the load power consumption	on		
52	Load Current	Load	Ampere	basic
	Estimation of the load current consumpt	ion		
61	Battery Input Current	Battery	Ampere	basic
	Measurement of the battery input curre discharging	nt. A negative value	means that the ba	attery is
62	Battery Input Power	Battery	Watt	basic
	Measurement of the battery input power discharging	er. A negative value	means that the ba	attery is
71	Battery Temperature	Battery	degree C	basic
	The battery temperature			
72	Battery Test State	Battery		basic
	This is about the result of the land NEVER_TESTED, SUCCESS, FAILED_VBUS_TOO_LOW, FAILED_FAILED_CANCELED, FAILED_LVD_O	ON_GOING, _LOAD_TOO_LOW,	values are pos FAILED_TIN FAILED_AC_FA	MEOUT,
73	Battery Test Discharged Capacity Ratio	Battery	%	basic
	This is the battery capacity, in percent value is updated at the end of the batter		the last battery te	st. This
74	Battery Test Discharged Capacity	Battery	Ah	basic
<i>1</i> 4	<u> </u>			

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	This value is updated at the end of the b	attery test.				
75	Battery Test Final Voltage	Battery	%	basic		
	This is the bus voltage at the end of the end of the battery test.	last battery test. Th	is value is updat	ed at the		
81	Previous Battery Test State	Battery		basic		
	The result of the previous battery test					
82	Minutes Since Last Test Battery	Battery		basic		
	The number of minute without battery te	st				
91	Battery Charge Capacity	Battery	%	basic		
	The battery charge capacity, calculated by integration of the current.					
92	Calculated Autonomy	Battery	minute	basic		
	Calculation of the remaining autonomy					
93	Battery Current Integration	Battery	As	basic		
	Actual value of the integration of the cur	rent, in Ampere * sec	cond	•		
94	Battery Current Integration	Battery	Ah	basic		
	Actual value of the integration of the cur	rent, in Ampere * hou	ır			
101	LVD State	LVD		basic		
	Actual state of the LVD			•		
121	Efficiency Optimized Number Of Rectifier	Smart Energy		asset		
	The optimal number of ON rectifier for E	fficiency Optimization	<u> </u>			
122	System Loss Without Optimisation	Smart Energy	Watt	under dev		
	Estimation of the losses without optimisa	ation				
123	System Loss With Optimisation	Smart Energy	Watt	under dev		
	Estimation of the losses with optimisatio	n				
124	Rectifier Model Used For Calculation	Smart Energy		asset		
	The rectifier model used					
125	Smart Energy Savings	Smart Energy	Watt	asset		
	Estimation of the losses with optimisatio	n				
151	Ambient Temperature	Sensors	degree C	basic		
	The ambiant temperature (second temperature sense)					
161	Voltage Sense 1	Sensors	Volt	basic		
	The voltage measured by the sens measurement. Calculation can be done		d for battery s	ymmetry		
162	Voltage Sense 2	Sensors	Volt	basic		
	The voltage measured by the sens measurement. Calculation can be done		d for battery s	ymmetry		
163	Voltage Sense 3	Sensors	Volt	basic		
	The voltage measured by the sens measurement. Calculation can be done		d for battery s	ymmetry		
204	Digital Input 4 Counter	Sensors		basic		
	The counter value of the digital input 4.					

Config Table

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<u>Id</u>	<u>Name</u>	<u>Group</u>	<u>Unit</u>	Range: Min/Max (default)	<u>License</u>	
1	DC Bus Float Voltage at 25 degC	Bus Voltage	Volt	40/60 (54)	basic	
	The floating dc bus voltage of th	o evetom at 25	Coleius do	groo		
2	• •	Bus Voltage	Volt	40/60 (45)	basic	
_	The bus voltage under which the			. ,	Dasic	
3	DC Bus Voltage Extra Low		Volt	0/5 (1)	basic	
3	Hysteresis	bus voltage	VOIL	0/3 (1)	Dasic	
	The voltage hysteresis on the al	arm 'DC Bus V	oltage Extra	a Low'.		
4	DC Bus Voltage Low	Bus Voltage	Volt	40/60 (48)	basic	
	The bus voltage under which the	alarm 'DC Bu	s Voltage L	ow' is set.	•	
5	DC Bus Voltage Low Hysteresis	Bus Voltage	Volt	0/5 (0.5)	basic	
	The voltage hysteresis on the al	arm 'DC Bus V	oltage Low			
6	DC Bus Voltage High	Bus Voltage	Volt	40/60 (56.5)	basic	
	The bus voltage over which the	alarm 'DC Bus	Voltage Hig	gh' is set.		
7	DC Bus Voltage High Hysteresis	Bus Voltage	Volt	0/5 (0.5)	basic	
	The voltage hysteresis on the al	arm 'DC Bus V	oltage High			
8	DC Bus Voltage Extra High	Bus Voltage	Volt	40/60 (58)	basic	
	The bus voltage over which the	alarm 'DC Bus	Voltage Ex	tra High' is set.		
9	DC Bus Voltage Extra High Hysteresis	Bus Voltage	Volt	0/5 (0.5)	basic	
	The voltage hysteresis on the al	arm 'DC Bus V	oltage Extra	a High		
10	LVD Disconnect Voltage	Bus Voltage	Volt	0/50 (43.2)	basic	
	The dc bus voltage under which allows preserving the battery life				bus. This	
11	LVD Disconnect Delay	Bus Voltage	second	1/2000 (1)	basic	
	The delay in second before disconfigured disconnected voltage					
21	Temperature Compensation			-1000/0 (-72)	basic	
21	Slope	Compensatio n	e	-1000/0 (-72)	Dasic	
	The slope of the battery temper 72mV/degree is often used.	ature compens	ation in mv	degree. For a 48V	system, -	
22	Maximum Positive Temperature Compensation	Temperature Compensatio n	Volt	0/10 (3)	basic	
	The maximal allowed positive co	mpensation.	I	<u> </u>	1	
23	•	Temperature	Volt	-10/0 (-3)	basic	
	Temperature Compensation	Compensatio n		,		
	The maximal allowed negative of	ompensation.				
25	Minimal Number Of Present Rectifiers	Rectifiers		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.					

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26	Rectifier Model	Rectifiers			basic
	The rectifier model		<u>I</u>	l	l.
27	Forced Remote Off Rectifers	Rectifiers			basic
	A list of rectifier which are force separated. Ex: 1,3 will maintain			of the rectifier must	be coma
31	Battery Charge Current Limit	Battery	Ampere	0.5/1000 (1000)	basic
	The maximal battery current where the bus voltage in order to satisfaction to satisfaction or the satisfaction of the satisfac	sfy this condition			
32	Battery String Capacity	Battery	Ah	3/1000 (100)	basic
	The battery capacity in Ah.				
33	Battery Temperature Low	Battery	degree C	-100/20 (0)	basic
	The temperature under which th	e alarm 'Batter	y Temperat	ure Too Low' must I	oe set.
34	Battery Temperature High	Battery	degree C	5/100 (40)	basic
	The temperature over which the	alarm 'Battery	Temperatu	re Too High' must b	e set.
35	Battery Temperature Hysteresis	Battery	degree C	0/10 (2)	basic
	The hysteresis on the 'Battery Low' alarms.	Temperature T	oo High' ar	nd 'Battery Tempera	ature Too
36	Minimal Current For Discharging Alarm	Battery	Ampere	0/1000 (3)	basic
	The minimal discharging current	to set the 'Batt	ery On Disc	charge' alarm.	
37	Current Hysteresis For Discharging Alarm	Battery	Ampere	0/50 (1)	basic
	The hysteresis on the 'Battery O	n Discharge' al	arm.		
41	Shunt Rating At 60mV	Battery	Ampere	25/5000 (250)	basic
	The rating of the battery shunt a	t 60mV.			
51	Boost Automatic	Boost		False/False (False)	battery
	The boost mode must be autor bus voltage went under the cocharging the battery faster.	,			,
52	Boost Activation Low Voltage	Boost	Volt	43/50 (46)	battery
	The voltage under which the boo	ost mode can b	e activated		
53	Boost Termination Voltage	Boost	Volt	50/58 (56.4)	battery
	The voltage over which the system	em must go bad	ck to floatin	g mode.	
54	Boost Termination Current	Boost	Ampere	0/100 (4)	battery
	The battery charging current und	der which the s	ystem must	go back to floating	mode.
55	Boost Termination Time	Boost	minute	10/240 (120)	battery
	The time in minute after which the	ne system must	go back in	floating mode.	
70	Battery Test End Voltage	Battery Test	Volt	30/60 (46)	battery
	The voltage at which any battery	test must be s	topped.		
71	Battery Test Discharge Ratio	Battery Test	%	0/100 (0)	battery
	The ratio of the battery capacity	y to discharge.	If 30 is se	t, 30% of the batte	ry will be
	discharged during the test				
72	Battery Test Interval	Battery Test	day	0/3000 (0)	battery

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	set to 0, the			started automa	tically. The	user can remotely	or locally
73	Battery Current	Test		Battery Test	Ampere	3/100 (1000)	battery
	monitoring	regulate	s the bus vol			during a battery is condition. The loa	
74	Battery Discharge	Test Curren		Battery Test	Ampere	2/90 (2)	battery
	The batter too low.	y current	t under which	the battery te	st must be	stopped because the	ne load is
75	Battery Te	est Time	Out	Battery Test	minute	1/5000 (10)	battery
	The timeo	ut in minı	ute after whic	h the battery te	st must be	stopped.	
76	Battery Minutes Failure	Test Witho	•	Battery Test	minute	0/5000 (1440)	battery
				out mains failu unt when the b		to allow a battery s s forced.	start. This
83	Smart Condition	Energy	Boolean	Smart Energy		121-125	asset
	This is the of rectifier			nich allows or n	ot to auton	natically optimize th	e number
86	Battery L\	/D Node	ld	LVD		True/False (False)	basic
	This is a lis	st of the	node id of the	Smart Electro	nic LVDs, c	coma separated	
91	Digital Inp	out 1 Nar	ne	Digital Inputs		Distribution Breaker Open	basic
	The name	of the di	gital input 1	<u> </u>	T	1	
92	Closed	nput 1		Digital Inputs		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.					
93	Digital Inp	out 2 Nar	me	Digital Inputs		Battery Breaker Open	basic
	The name	of the di	gital input 2	-		1	
94	Digital I Closed	nput 2	2 Normally	Digital Inputs		True/False (True)	basic
				digital input 2 ed alarm is set		closed. If this digital	al input is
95	Digital Inp		ne gital input 3	Digital Inputs		Digital Input 3	basic
96		nput 3	•	Digital Inputs		True/False (True)	basic
	True/False			digital input 3 ed alarm is set		closed. If this digital	al input is
97	Digital Ing			Digital Inputs		Digital Input 4	basic
			gital input 4	1 9	I	1 9 ··· F ··· ·	_ · · -
98	+	nput 4	•	Digital Inputs		True/False (True)	basic

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	not in this default state, the relat	ed alarm is set.	i		
111	Dry Alarm 1 Alternative Boolean Condition	Dry Alarms		False	plc
	Another Boolean condition to accondition is detailed in the PLC of	•	larm relay	1. The way to define	e boolean
112	Dry Alarm 2 Alternative Boolean Condition	Dry Alarms		False	plc
	Another Boolean condition to accondition is detailed in the PLC of		larm relay 2	2. The way to define	e boolean
113	Dry Alarm 3 Alternative Boolean Condition	Dry Alarms		False	plc
	Another Boolean condition to accondition is detailed in the PLC of		larm relay (3. The way to define	e boolean
114	Dry Alarm 4 Alternative Boolean Condition	Dry Alarms		False	plc
	Another Boolean condition to accondition is detailed in the PLC of		larm relay 4	4. The way to define	boolean
131	Ambient Temperature Low	Sensors	degree C		basic
	The temperature under which th	e alarm 'Ambia	nt Tempera	ture Too Low' must	be set.
132		Sensors	degree C	T	basic
100	The temperature under which th			iture 100 Low must	
133	Ambient Temperature Hysteresis	Sensors	degree C		basic
	The hysteresis on the 'Battery Low' alarms.	Temperature T	oo High' ar	nd 'Battery Tempera	ature Too
521	Read Access User Numbers	Allowed Users		(1,2,3,4,5)	basic
	The list of the user numbers v numbers are coma separated. T				
522	Write Access User Numbers	Allowed Users		()	basic
	The list of the user numbers which have write access to this equipment. This means				
	that these users can modify the control elements. The user num				
601	1,2,3,4 and 5. Ex: 1,3,4 Event Table Length	Event		10/4000 (100)	basic
001	The maximum length of the table		ıst he comr	` '	
602		Event		10/4000 (100)	basic
	The maximum length of the table	e. The value mu	ust be comp	orised between 10 a	nd 4000
901	Number Of PLC Data	PLC	'	(0)	plc
	The number of PLC data. Every equipment can manage up to 20 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				
902	Number Of PLC Alarm	PLC		(0)	plc
	The number of PLC alarm. Ever alarms. Alarm elements are a parameters are added to set	automatically a	idded in tl	he alarm table. Ti	he alarm

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condition. In order to use these functionalities, you need a licence with the 'PLC' module

<u>Id</u>	rol Table						
<u></u>	<u>Name</u>	Group	Licens				
l	<u> </u>	<u> </u>	<u>e</u>				
1	Back To Float	DC Mode	basic				
	The dc system must go back in floating mode.						
2	Start Battery Test	DC Mode	battery				
	The dc system must start a battery test.						
3	Force Battery Test	DC Mode	battery				
	The dc system must force a battery test.						
4	Start Boost Mode	DC Mode	battery				
	The dc system must go in boost mode.						
11	Open The LVD	LVD	basic				
	The LVD must be opened						
12	Close The LVD	LVD	basic				
	The LVD must be closed						
21	Correct Battery Current Offset	Battery	basic				
	No information						
31	Reset Battery Current Integration	Battery	basic				
	Reset the integration of the battery current.						
41	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.						
51	Save Configuration In MCU	Save	basic				
	Save configuration parameters in the MCU microothe system will be correctly managed.	controller. If comp@s is no	t present,				
61	Set Digital Input 4 Counter Value	Counters	basic				
	Set Counter Value		•				
501	Clear My Events	Event	basic				
ļ	By writing '1' to this control element, all the events	of this equipment will be cle	eared.				
502	Clear All Events	Event	basic				
	By writing '1' to this control element, all the events of all the sub-equipments will be cleared.	of this equipment and all the	ne events				
511	Add Event	Event	basic				
	This control element adds an event of severity non to this control element	e. The event name is the te	ext written				
512	Add Major Event	Event	basic				
	This control element adds an event of severity written to this control element	major. The event name is	the text				
521	Reset Default Names And Groups	Advanced	basic				
	This control element resets all the element Name values for this equipment		<u> </u>				
522	Reset Default Names And Groups Recursive	Advanced	basic				
	This control element resets all the element Name		<u> </u>				

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values for this equipment and all sub equipments

7.2.12 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	

Desc	cription Table				
<u>Id</u>	<u>Name</u>	<u>Group</u>	<u>License</u>		
1	Description	Description	basic		
	A free text zone to write a syste	em description			
2	Reference	Description	basic		
	A free text zone to write the cus	stomer reference of the syste	em		
11	Product Name	Monitoring	basic		
	The product name of the DC system monitoring				
12	Hardware Reference	Monitoring	basic		
	The hardware reference of the	DC system monitoring			
14	Software Reference	Monitoring	asset		
	The serial number of the DC sy	stem monitoring			
16	Serial Number	Monitoring	asset		
	The serial number of the DC sy	stem monitoring			
18	Manufacturing Date	Monitoring	asset		
	The production date of the DC	system monitoring			

Alarr	n Table		
<u>Id</u>	<u>Name</u>	Severity Type (Level)	Set/Clear Delay
1	DC Bus Extra Low	major (6)	5 / 2
	The bus voltage is extra low. The alarm is sometimes configuration parameter 'DC Bus Voltage Early Low Hystere mode is BATTERY TEST	Extra Low'. There is an	hysteresis on the
2	DC Bus Low	minor (4)	5 / 2
	The bus voltage is low. The alarm is set configuration parameter 'DC Bus Voltage L 'DC Bus Voltage Low Hysteresis'		
3	DC Bus High	minor (4)	5 / 2
	The bus voltage is high. The alarm is set configuration paramenter 'DC Bus Voltage I		•

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	'DC Bus Voltage High Hysteresis'		
4	DC Bus Extra High	major (6)	5 / 2
	The bus voltage is extra high. The alarm configuration paramenter 'DC Bus Volalarm : 'DC Bus Voltage Extra High Hys	m is set when the bus vertage Extra High'. There	
5	DC Bus Voltage Sense Failure	major (6)	5 / 2
	The DC bus voltage sense is defect unconfigured.	ive. The DC bus vol	tage is unconnected of
6	Mains Failure	minor (4)	5 / 2
	The number of active rectifiers is equal greater than 0.	to 0 and the number of	f rectifiers in AC failure is
7	Mains Partial Failure	minor (4)	10 / 2
	The number of active rectifiers is greatfailure is greater than 0. Some rectifionen breaker, a real phase failure, or b	ers are in AC Failure.	
8	Mains Low	warning (2)	10 / 2
	The main voltage is low on one or more master type is 30110, 3096 or 3048M6 to the voltage lower limit		
9	Mains High	warning (2)	10 / 2
	The main voltage is low on one or malarm is only active if MCU master ty hysteresis _phase123Hysteresis is sub	pe is 30110, 3096 or	3048M6. Therefore, ar lower limit.
10	One Rectifier Failure	minor (4)	5 / 2
	One rectifier must be replaced or is n rectifier is set. The number of rectifier mains failure, and the 'More Than One	r with DC Failure is hi	gher than 0, there is no
11	More Than One Rectifier Failure	major (6)	10 / 2
	There is no mains failure and number of	, , ,	ater than 1.
12			
	Missing Rectifiers	imajor (6)	5 / 2
	There is not enough rectifier accord Number Of Rectifier'	major (6) ing to the configuration	
13	There is not enough rectifier accord		
	There is not enough rectifier accord Number Of Rectifier'	ing to the configuration minor (4)	on parameter : 'Minima
	There is not enough rectifier accord Number Of Rectifier' Battery Last Test Failed The last battery test did not succeed as	ing to the configuration minor (4)	on parameter : 'Minima
13	There is not enough rectifier accord Number Of Rectifier' Battery Last Test Failed The last battery test did not succeed as be replaced. Battery On Discharge The battery is discharging. This means	minor (4) minor (4) minor (4) minor (4) minor (4) minor that the load is to	5 / 2 Maybe the battery should 10 / 2 so high for the installed
13	There is not enough rectifier accord Number Of Rectifier' Battery Last Test Failed The last battery test did not succeed as be replaced. Battery On Discharge	minor (4) minor (4) minor (4) minor (4) minor (4) ms that the load is to be system in AC Failure	5 / 2 Maybe the battery should 10 / 2 to high for the installed or during a battery test
13	There is not enough rectifier accord Number Of Rectifier' Battery Last Test Failed The last battery test did not succeed as be replaced. Battery On Discharge The battery is discharging. This mean rectifiers. This alarm is inactive when the There is an hysteresis corresponding.	minor (4) minor (4) minor (4) minor (4) ms that the load is to be system in AC Failure to battery parameter	5 / 2 Maybe the battery should 10 / 2 to high for the installed or during a battery test
13 14	There is not enough rectifier accord Number Of Rectifier' Battery Last Test Failed The last battery test did not succeed at be replaced. Battery On Discharge The battery is discharging. This mean rectifiers. This alarm is inactive when the There is an hysteresis corresponding hysteresis'.	minor (4) minor (4) minor (4) minor (4) minor (4) ms that the load is to be system in AC Failure of to battery parameter major (6) or is open. On Syste	5 / 2 Maybe the battery should 10 / 2 to high for the installed or during a battery test rest list discharging current 5 / 2 ms without LVD_Status
13 14	There is not enough rectifier accord Number Of Rectifier' Battery Last Test Failed The last battery test did not succeed at be replaced. Battery On Discharge The battery is discharging. This mean rectifiers. This alarm is inactive when the There is an hysteresis corresponding hysteresis'. Battery LVD Relay Open The battery Low Voltage Disconnect signal, like MCU 1848 or MCU 1x6, the	minor (4) minor (4) minor (4) minor (4) minor (4) ms that the load is to be system in AC Failure of to battery parameter major (6) or is open. On Syste	5 / 2 Maybe the battery should 10 / 2 to high for the installed or during a battery test rest list discharging current 5 / 2 ms without LVD_Status
13 14	There is not enough rectifier accord Number Of Rectifier' Battery Last Test Failed The last battery test did not succeed as be replaced. Battery On Discharge The battery is discharging. This mean rectifiers. This alarm is inactive when the There is an hysteresis corresponding hysteresis'. Battery LVD Relay Open The battery Low Voltage Disconnect signal, like MCU 1848 or MCU 1x6, the asks to open the LVD	minor (4) minor (4) minor (4) minor (4) ms that the load is to be system in AC Failure of to battery parameter major (6) or is open. On System is present only minor (4) minor (4) migh and is greater than	5 / 2 Maybe the battery should 10 / 2 to high for the installed or during a battery test rest 'Is discharging current' 5 / 2 ms without LVD_Status rest if the signal LVD_COM 5 / 2 1 -600 units. There is an
13 14	There is not enough rectifier accord Number Of Rectifier' Battery Last Test Failed The last battery test did not succeed as be replaced. Battery On Discharge The battery is discharging. This mean rectifiers. This alarm is inactive when the There is an hysteresis corresponding hysteresis'. Battery LVD Relay Open The battery Low Voltage Disconnect signal, like MCU 1848 or MCU 1x6, the asks to open the LVD Battery Temperature Too High The temperature of the battery is too here.	minor (4) minor (4) minor (4) minor (4) ms that the load is to be system in AC Failure of to battery parameter major (6) or is open. On System is present only minor (4) minor (4) migh and is greater than	5 / 2 Maybe the battery should 10 / 2 to high for the installed or during a battery test rest 'Is discharging current 5 / 2 ms without LVD_Status rest if the signal LVD_COM 5 / 2 1 -600 units. There is an

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	hysteresis corresponding to battery parame	ter 'Temperature hystere	esis'.
20	Battery Temperature Sensor Fail	minor (4)	5 / 2
	The battery temperature sensor (NTC) value not connected or defective.	. ,	
21	Ambient Temperature Too High	minor (4)	5 / 2
	The ambient temperature is too high and hysteresis corresponding to parameter 'Am only activated on MCU master types 301 0948 and 3048M6.	biant temperature hyster	resis'. This alarm is
22	Ambient Temperature Too Low	minor (4)	5 / 2
	The ambient temperature is too low and hysteresis corresponding to parameter 'Am only activated on MCU master types 301 0948 and 3048M6.	biant temperature hyster	resis'. This alarm is
23	Ambient Temperature Sensor Fail	minor (4)	5 / 2
	The ambiant temperature sensor (NTC) value not connected or defective.	ue is inferior to -500 uni	ts meaning that it is
25	Distribution Breaker Open	major (6)	5 / 2
	This alarm is related to digital input 1. The different to configuration parameter 'Digital'		digital input value is
26	Battery Breaker Open	minor (4)	5 / 2
	This alarm is related to digital input 2. The different to configuration parameter 'Digital'		digital input value is
27	Digital Input 3	none (0)	5/2
	This alarm is related to digital input 3. The different to configuration parameter 'Digital'		digital input value is
28	Digital Input 4	none (0)	5/2
	This alarm is related to digital input 4. The different to configuration parameter 'Digital'		digital input value is
29	Digital Input 5	none (0)	5 / 2
	This alarm is related to digital input 5. The different to configuration parameter 'Digital'		digital input value is
30	Digital Input 6	none (0)	5 / 2
	This alarm is related to digital input 6. The different to configuration parameter 'Digital'		digital input value is
31	Digital Input 7	none (0)	5 / 2
	This alarm is related to digital input 7. The different to configuration parameter 'Digital'		digital input value is
32	Digital Input 8	none (0)	5 / 2
	This alarm is related to digital input 8. The different to configuration parameter 'Digital'		digital input value is

Data Table						
<u>ld</u>	<u>Name</u>	Group	<u>Unit</u>	<u>Licens</u>		
				<u>e</u>		
1	DC Mode	General		basic		
	The DC system can have 4 value 'AC_FAILURE' or SAFE	es: 'FLOAT', 'BOO	ST', 'BATTERY_	_TEST',		

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2	Previous DC Mode	Conorol		basis
2		General		basic
4.4	The previous value of the DC Mode	0	\/_H	1
11	Bus Voltage	General	Volt	basic
40	The DC bus voltage in volt.		la.	1
12	Ratio Delivered On Available Power	General	%	basic
	This is the ratio of the delivered power d		1.	T
13	Minutes Since Last AC Failure Begin		minute	basic
	The number of minute since the last AC			1
14	Minutes Since Last AC Failure End	General	minute	basic
	The number of minute since the last AC	1	L	T
21	Rectifiers Output Power	Rectifiers	Watt	basic
	The sum of the delivered rectifier power	_		T
22	Rectifiers Output Current	Rectifiers	Ampere	basic
	The sum of the delivered rectifier curren	T	T	
23	Rectifiers Output Power Max	Rectifiers	Watt	basic
	The sum of the deliverable rectifier power			_
24	Rectifiers Output Current Max	Rectifiers	Ampere	basic
	The sum of the deliverable rectifier curre	ent		
31	Number Of Rectifier Max	Rectifiers		basic
	The maximum possible number of rectifi	er in this dc system		
32	Number Of Present Rectifier	Rectifiers		basic
	The actual number of present rectifier in	this dc system		
33	Number Of Absent Rectifier	Rectifiers		basic
	The actual number of absent rectifier in	this dc system		
34	Number Of Active Rectifier	Rectifiers		basic
	The actual number of active rectifier in which is present, DC OK, AC OK and no		ctive rectifier is a	rectifier
35	Number Of AC-Fail Rectifier	Rectifiers		basic
	The actual number or rectifier in AC Fail	ure.	•	
36	Number Of DC-Fail Rectifier	Rectifiers		basic
	The actual number or rectifier with DC F	ailure.	•	•
37	Number Of Remote Off Rectifier	Rectifiers		basic
	The actual number or rectifier in remote	off.	•	-1
38	Number Of Over Temperature Rectifier	Rectifiers		basic
	The actual number or rectifier in OVer To	emperature.	•	1
41	Mains Phase 1 Voltage	Mains	Volt	basic
	The voltage on AC phase 1			
42	Mains Phase 2 Voltage	Mains	Volt	basic
	The voltage on AC phase 2			
43	Mains Phase 3 Voltage	Mains	Volt	basic
	The voltage on AC phase 3	1 17 7		1
51	Load Power	Load	Watt	basic
	Estimation of the load power consumption		1	1- 30.0
52	Load Current	Load	Ampere	basic
:1/		1 - 1 1 1 1 1		

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	Estimation of the load current consumpt	ion		
61	Battery Input Current	Battery	Ampere	basic
0 1	Measurement of the battery input current	•		
	discharging	ii. 71 nogativo valuo	mound that the be	attory to
62	Battery Input Power	Battery	Watt	basic
	Measurement of the battery input power	r. A negative value	means that the ba	attery is
	discharging	<u></u>		1
63	Battery String 1 Input Current	Battery	Ampere	basic
	Measurement of the battery 1 input cur is discharging	rent. A negative valu	e means that the	battery
64	Battery String 2 Input Current	Battery	Ampere	basic
	Measurement of the battery 2 input cur is discharging	rent. A negative valu	e means that the	battery
65	Battery String 3 Input Current	Battery	Ampere	basic
	Measurement of the battery 3 input cur	rent. A negative valu	e means that the	battery
67	is discharging	Dattami	\ / a b	la a -!
67	Voltage Offset For Shunt regulation No information	Battery	Volt	basic
71		Datton	dograe C	basis
71	Battery Temperature	Battery	degree C	basic
72	The battery temperature Battery Test State	Ratton/	T	basic
12	This is about the result of the la	Battery test 9	Values are not	
	NEVER_TESTED, SUCCESS,	ON GOING,	•	
	FAILED_VBUS_TOO_LOW, FAILED_	LOAD_TOO_LOW,		
	FAILED_CANCELED, FAILED_LVD_OF		т	T
73	Battery Test Discharged Capacity Ratio	,	%	basic
	This is the battery capacity, in percent, value is updated at the end of the batter		the last battery te	st. This
74	Battery Test Discharged Capacity	Battery	Ah	basic
	This is the battery capacity, in ampere This value is updated at the end of the b		ring the last batte	ery test.
75	Battery Test Final Voltage	Battery	%	basic
	This is the bus voltage at the end of the end of the battery test.	last battery test. Th	is value is update	d at the
81	Previous Battery Test State	Battery		basic
	The result of the previous battery test			
82	Minutes Since Last Test Battery	Battery		basic
	The number of minute without battery te	st		T
91	Battery Charge Capacity	Battery	%	basic
	The battery charge capacity, calculated			T
92	Calculated Autonomy	Battery	minute	basic
	Calculation of the remaining autonomy			ı
93	Battery Current Integration	Battery	As	basic
	Actual value of the integration of the cur	rent, in Ampere * sec	ond	
	Battery Current Integration	Battery	Ah	basic
94	Actual value of the integration of the cur	·	1	Daoio

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101	LVD State	LVD		basic
	Actual state of the LVD			
121	Efficiency Optimized Number Of Rectifier	Smart Energy		asset
	The optimal number of ON rectifier for Et	ficiency Optimization		•
122	System Loss Without Optimisation	Smart Energy	Watt	under dev
	Estimation of the losses without optimisa	tion		
123	System Loss With Optimisation	Smart Energy	Watt	under dev
	Estimation of the losses with optimisation	า		
124	Rectifier Model Used For Calculation	Smart Energy		asset
	The rectifier model used			
125	Smart Energy Savings	Smart Energy	Watt	asset
	Estimation of the losses with optimisation	า		•
151	Ambient Temperature	Sensors	degree C	basic
	The ambiant temperature (second temperature)	erature sense)		
161	Voltage Sense 1	Sensors	Volt	basic
	The voltage measured by the sense measurement. Calculation can be done		I for battery sy	mmetry
162	Voltage Sense 2	Sensors	Volt	basic
	The voltage measured by the sense measurement. Calculation can be done		I for battery sy	mmetry
163	Voltage Sense 3	Sensors	Volt	basic
	The voltage measured by the sense measurement. Calculation can be done		I for battery sy	mmetry
204	Digital Input 4 Counter	Sensors		basic
	The counter value of the digital input 4.	,		•

Conf	fig Table						
<u>Id</u>	<u>Name</u>	<u>Group</u>	<u>Unit</u>	Range: Min/Max (default)	<u>License</u>		
1	DC Bus Float Voltage at 25 degC	Bus Voltage	Volt	40/60 (54)	basic		
	The floating dc bus voltage of th	e system at 25	Celsius de	gree			
2	DC Bus Voltage Extra Low	Bus Voltage	Volt	40/60 (45)	basic		
	The bus voltage under which the	alarm 'DC Bus	S Voltage E	xtra Low' is set.			
3	DC Bus Voltage Extra Low Hysteresis	Bus Voltage	Volt	0/5 (1)	basic		
	The voltage hysteresis on the ala	The voltage hysteresis on the alarm 'DC Bus Voltage Extra Low'.					
4	DC Bus Voltage Low	Bus Voltage	Volt	40/60 (48)	basic		
	The bus voltage under which the	alarm 'DC Bus	S Voltage L	ow' is set.			
5	DC Bus Voltage Low Hysteresis	Bus Voltage	Volt	0/5 (0.5)	basic		
	The voltage hysteresis on the ala	arm 'DC Bus Vo	oltage Low				
6	DC Bus Voltage High	Bus Voltage	Volt	40/60 (56.5)	basic		

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	The bus voltage over which the	alarm 'DC Bus	Voltage Hig	gh' is set.	
7	DC Bus Voltage High Hysteresis	Bus Voltage	Volt	0/5 (0.5)	basic
	The voltage hysteresis on the al	arm 'DC Bus V	oltage High		
8	DC Bus Voltage Extra High	Bus Voltage	Volt	40/60 (58)	basic
	The bus voltage over which the	alarm 'DC Bus	Voltage Ex	tra High' is set.	
9	DC Bus Voltage Extra High Hysteresis	Bus Voltage	Volt	0/5 (0.5)	basic
	The voltage hysteresis on the al	arm 'DC Bus V	oltage Extra	a High	
10	LVD Disconnect Voltage	Bus Voltage	Volt	0/50 (43.2)	basic
	The dc bus voltage under which allows preserving the battery life				bus. This
11	LVD Disconnect Delay	Bus Voltage	second	1/2000 (1)	basic
	The delay in second before disc configured disconnected voltage				
21	Temperature Compensation Slope	Temperature Compensatio n	mV/degre e	-1000/0 (-72)	basic
	The slope of the battery temper 72mV/degree is often used.	ature compens	ation in mv	degree. For a 48V	system, -
22	Maximum Positive Temperature Compensation	Temperature Compensatio n	Volt	0/10 (3)	basic
	The maximal allowed positive co	mpensation.			
23	Maximum Negative	Temperature	Volt	-10/0 (-3)	basic
	Temperature Compensation	Compensatio n			
		n			
25	Temperature Compensation The maximal allowed negative of Minimal Number Of Present Rectifiers	n compensation.		0/100 (0)	basic
	The maximal allowed negative of Minimal Number Of Present	n compensation. Rectifiers er which mus	t be prese	,	
	The maximal allowed negative of Minimal Number Of Present Rectifiers The minimal number of rectifity	n compensation. Rectifiers er which mus	t be prese	,	
25	The maximal allowed negative of Minimal Number Of Present Rectifiers The minimal number of rectification rectifiers, the alarm 'Missing Rectifier Model The rectifier model	n compensation. Rectifiers er which mustifiers' is set.	t be prese	,	present
25	The maximal allowed negative of Minimal Number Of Present Rectifiers The minimal number of rectification rectifiers, the alarm 'Missing Rectifier Model The rectifier model	n compensation. Rectifiers er which mustifiers' is set.	t be prese	,	present
25 26	The maximal allowed negative of Minimal Number Of Present Rectifiers The minimal number of rectification rectifiers, the alarm 'Missing Rectifier Model The rectifier model	n compensation. Rectifiers er which mustifiers' is set. Rectifiers Rectifiers	ff. The id c	nt. If there is less	basic basic
25 26	The maximal allowed negative of Minimal Number Of Present Rectifiers The minimal number of rectification rectifiers, the alarm 'Missing Rectifier Model The rectifier model Forced Remote Off Rectifers A list of rectifier which are force separated. Ex: 1,3 will maintain Rectifier CAN Node IDs Range	n compensation. Rectifiers er which mustifiers' is set. Rectifiers Rectifiers	ff. The id c	nt. If there is less	basic basic
25 26 27 28	The maximal allowed negative of Minimal Number Of Present Rectifiers The minimal number of rectification rectifiers, the alarm 'Missing Rectifier Model The rectifier model Forced Remote Off Rectifers A list of rectifier which are force separated. Ex: 1,3 will maintain Rectifier CAN Node IDs Range No information	n compensation. Rectifiers er which mustifiers' is set. Rectifiers Rectifiers ed in remote of rectifier 1 and 3	ff. The id c	nt. If there is less	basic basic be coma basic
25 26 27	The maximal allowed negative of Minimal Number Of Present Rectifiers The minimal number of rectification rectifiers, the alarm 'Missing Rectifier Model The rectifier model Forced Remote Off Rectifers A list of rectifier which are force separated. Ex: 1,3 will maintain Rectifier CAN Node IDs Range No information Rectifier Ids Declared	n Rectifiers er which mustifiers' is set. Rectifiers Rectifiers ed in remote of rectifier 1 and 3	ff. The id c	nt. If there is less	basic basic basic be coma
25 26 27 28 29	The maximal allowed negative of Minimal Number Of Present Rectifiers The minimal number of rectification rectifiers, the alarm 'Missing Rectifier Model The rectifier model The rectifier model Forced Remote Off Rectifers A list of rectifier which are force separated. Ex: 1,3 will maintain Rectifier CAN Node IDS Range No information Rectifier Ids Declared No information	n compensation. Rectifiers er which mustifiers' is set. Rectifiers Rectifiers ed in remote of rectifier 1 and 3 Rectifiers Rectifiers	ff. The id o	nt. If there is less	basic basic basic basic basic basic
25 26 27 28	The maximal allowed negative of Minimal Number Of Present Rectifiers The minimal number of rectification rectifiers, the alarm 'Missing Rectifier Model The rectifier model Forced Remote Off Rectifers A list of rectifier which are force separated. Ex: 1,3 will maintain Rectifier CAN Node IDs Range No information Rectifier Ids Declared No information Battery Charge Current Limit	n compensation. Rectifiers er which mustifiers' is set. Rectifiers Rectifiers ed in remote of rectifier 1 and 3 Rectifiers Rectifiers	ff. The id of a soff.	nt. If there is less f the rectifier must 0.5/3250 (1000)	basic basic basic basic basic basic basic
25 26 27 28 29	The maximal allowed negative of Minimal Number Of Present Rectifiers The minimal number of rectification rectifiers, the alarm 'Missing Rectifier Model The rectifier model The rectifier model Forced Remote Off Rectifers A list of rectifier which are force separated. Ex: 1,3 will maintain Rectifier CAN Node IDS Range No information Rectifier Ids Declared No information	n compensation. Rectifiers er which mustifiers' is set. Rectifiers Rectifiers ed in remote of rectifier 1 and 3 Rectifiers Rectifiers Battery hen the battery sfy this condition	ff. The id of 3 off. Ampere	nt. If there is less f the rectifier must 0.5/3250 (1000) ng. The monitoring	basic basic basic basic basic basic capacitates
25 26 27 28 29	The maximal allowed negative of Minimal Number Of Present Rectifiers The minimal number of rectification rectifiers, the alarm 'Missing Rectifier Model The rectifier model Forced Remote Off Rectifers A list of rectifier which are force separated. Ex: 1,3 will maintain Rectifier CAN Node IDS Range No information Rectifier Ids Declared No information Battery Charge Current Limit The maximal battery current withe bus voltage in order to satisface.	n compensation. Rectifiers er which mustifiers' is set. Rectifiers Rectifiers ed in remote of rectifier 1 and 3 Rectifiers Rectifiers Battery hen the battery sfy this condition	ff. The id of 3 off. Ampere	nt. If there is less f the rectifier must 0.5/3250 (1000) ng. The monitoring	basic basic basic basic basic basic capacitation

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33	Battery Temperature Low	Battery	degree C	-100/20 (0)	basic
	The temperature under which th	e alarm 'Batter	y Temperat	ure Too Low' must	be set.
34	Battery Temperature High	Battery	degree C	5/100 (40)	basic
	The temperature over which the	alarm 'Battery	Temperatu	re Too High' must b	e set.
35	Battery Temperature Hysteresis	Battery	degree C	0/10 (2)	basic
	The hysteresis on the 'Battery 'Low' alarms.	Temperature T	oo High' ar	nd 'Battery Tempera	ature Too
36	Minimal Current For Discharging Alarm	Battery	Ampere	0/5000 (3)	basic
	The minimal discharging current	to set the 'Batt	tery On Dis	charge' alarm.	
37	Current Hysteresis For Discharging Alarm	Battery	Ampere	0/500 (1)	basic
	The hysteresis on the 'Battery O	n Discharge' a	arm.		•
40	Number of Battery String	Battery		1-3	basic
	The Number of Battery String in	the system	•		•
41	Shunt Rating At 60mV	Battery	Ampere	25/5000 (250)	basic
	The rating of the battery shunt a	t 60mV.			
42	Battery 2 Charge Current Limit	Battery 2	Ampere	0.5/3250 (1000)	basic
	The maximal battery current with the bus voltage in order to satisfication to satisfication of the satisfication o	sfy this condition			
43	Battery 2 String Capacity	Battery 2	Ah	3/6500 (100)	basic
	The battery capacity in Ah.				
44	Shunt Rating At 60mV	Battery 2	Ampere	25/5000 (250)	basic
	The rating of the battery shunt a		1	T	,
45	Battery 3 Charge Current Limit	•	Ampere	0.5/3250 (1000)	basic
	The maximal battery current with the bus voltage in order to satisfication to satisfication of the satisfication o	sfy this condition			
46	Battery 3 String Capacity	Battery 3	Ah	3/6500 (100)	basic
	The battery capacity in Ah.				_
47	Shunt Rating At 60mV	Battery 3	Ampere	25/5000 (250)	basic
	The rating of the battery shunt a	t 60mV.	1	T	<u>, </u>
51	Boost Automatic	Boost		False/False (False)	battery
	The boost mode must be autor bus voltage went under the cocharging the battery faster.				
52	Boost Activation Low Voltage	Boost	Volt	43/50 (46)	battery
	The voltage under which the boo	ost mode can b	e activated		
53	Boost Termination Voltage	Boost	Volt	50/58 (56.4)	battery
	The voltage over which the systematical	em must go ba	ck to floatin	g mode.	
54	Boost Termination Current	Boost	Ampere	0/100 (4)	battery
	The battery charging current und	der which the s	ystem must	go back to floating	mode.
55	Boost Termination Time	Boost	minute	10/240 (120)	battery

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				<u> </u>				
	The time in minute after which the	1	, ——		l			
70	Battery Test End Voltage	Battery Test	Volt	30/60 (46)	battery			
71	The voltage at which any battery	1	%	0/100 (0)	hotton.			
<i>/</i> I	Battery Test Discharge Ratio	,		` '	battery			
	The ratio of the battery capacity to discharge. If 30 is set, 30% of the battery will be discharged during the test							
72	Battery Test Interval	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.							
73	Battery Test Discharge Current	Battery Test	Ampere	3/5000 (1000)	battery			
	The current at which the battery must be discharged during a battery monitoring regulates the bus voltage in order to satisfy this condition. The lomust be of course higher than this parameter.							
74	•	Battery Test	Ampere	2/90 (2)	battery			
	Discharge Current		- 1 1	_4	- 1 1 !-			
	The battery current under which the battery test must be stopped because the load is too low.							
75		Battery Test	minute	1/5000 (10)	battery			
	The timeout in minute after whic	,		` ,	,			
76		Battery Test	minute	0/5000 (1440)	battery			
	The minimal time in minute with parameter is not taken into acco			-	tart. This			
83	Smart Energy Boolean Condition	Smart Energy		121-125	asset			
	This is the boolean condition who f rectifier in remote off.							
86	Battery LVD Node Id	LVD		True/False (False)	basic			
	This is a list of the node id of the		nic LVDs, c					
91	Digital Input 1 Name	Digital Inputs		Distribution Breaker Open	basic			
	The name of the digital input 1	T	T					
92	Digital Input 1 Normally Closed	Digital Inputs		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.							
93	Digital Input 2 Name	Digital Inputs		Battery Breaker Open	basic			
	The name of the digital input 2							
94	Digital Input 2 Normally Closed	Digital Inputs		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.							
95	Digital Input 3 Name	Digital Inputs		Digital Input 3	basic			
	The name of the digital input 3							
96	Digital Input 3 Normally	Digital Inputs		True/False (True)	basic			

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							T	T	_
	Closed								
				ning if the e, the relat				closed. If this digita	al input is
97	Digital Ir	nput 4 N	ame	!	Digital	Inputs		Digital Input 4	basic
	The nam	e of the	digita	al input 4					
98	Digital Closed	Input	4	Normally	Digital	Inputs		True/False (True)	basic
				ning if the e, the relat				closed. If this digita	al input is
99	Digital Ir	nput 5 N	ame	!	Digital	Inputs		Digital Input 5	basic
	The nam	e of the	digita	al input 5					
100	Digital Closed	Input	5	Normally	Digital	Inputs		True/False (True)	basic
				ning if the e, the relat				closed. If this digita	al input is
101	Digital Ir	nput 6 N	ame	1	Digital	Inputs		Digital Input 6	basic
	The nam	e of the	digita	al input 6				,	
102	Digital Closed	Input	6	Normally	Digital	Inputs		True/False (True)	basic
								closed. If this digital	al input is
100				e, the relat			T	la	T
103	Digital Ir	•			Digital	Inputs		Digital Input 7	basic
404				al input 7	D: :: 1		<u> </u>	-	I
104	Digital Closed			Normally	Ū	•		True/False (True)	basic
True/False value defining if the digital input 7 is normally closed. not in this default state, the related alarm is set.					closed. If this digital	al input is			
105	Digital Ir				Digital			Digital Input 8	basic
103		•		al input 8	Digital	πραιδ		Digital Input 6	Dasic
106	Digital			Normally	Digital	Innute		True/False (True)	basic
100	Closed				_	•		, ,	
	True/False value defining if the digital input 8 is normally closed. If this digital in not in this default state, the related alarm is set.							al input is	
111	Dry Al Boolean			lternative	Dry Ala	ırms		False	plc
	Another Boolean condition to activate the dry alarm relay 1. The way to define boolean condition is detailed in the PLC chapter.								
112	Dry Al Boolean			Iternative	Dry Ala	ırms		False	plc
	Another Boolean condition to activate the dry alarm relay 2. The way to define boolean condition is detailed in the PLC chapter.								
113	†	arm 3	A	lternative				False	plc
	Another I	Boolean	cond	dition to ac			larm relay 3	3. The way to define	boolean
114		arm 4	Α .	lternative				False	plc
	Another Boolean condition to activate the dry alarm relay 4. The way to define boolean condition is detailed in the PLC chapter.								

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131 132 133 141 142	AC Voltage Hysteresis	e alarm 'Ambia Sensors e alarm 'Ambia Sensors Temperature To Mains alarm AC Low Mains alarm AC High i	degree C nt Tempera degree C oo High' ar Volt is set. Volt	ture Too Low' must	basic be set. basic ature Too basic						
133	Ambient Temperature High The temperature under which the Ambient Temperature Hysteresis The hysteresis on the 'Battery Low' alarms. AC Voltage Low The AC voltage under which the AC Voltage High The AC voltage over which the aC AC Voltage Hysteresis	Sensors e alarm 'Ambia Sensors Temperature To Mains alarm AC Low Mains alarm AC High i	degree C nt Tempera degree C oo High' ar Volt is set. Volt	ture Too Low' must	basic be set. basic ature Too basic						
133	The temperature under which the Ambient Temperature Hysteresis The hysteresis on the 'Battery Low' alarms. AC Voltage Low The AC voltage under which the AC Voltage High The AC voltage over which the AC Voltage Hysteresis	e alarm 'Ambia Sensors Temperature To Mains alarm AC Low Mains alarm AC High i	nt Tempera degree C oo High' ar Volt is set. Volt		be set. basic ature Too basic						
141	Ambient Temperature Hysteresis The hysteresis on the 'Battery Low' alarms. AC Voltage Low The AC voltage under which the AC Voltage High The AC voltage over which the a AC Voltage Hysteresis	Sensors Temperature To Mains alarm AC Low Mains alarm AC High i	degree C oo High' ar Volt is set. Volt		basic ature Too basic						
141	Hysteresis The hysteresis on the 'Battery Low' alarms. AC Voltage Low The AC voltage under which the AC Voltage High The AC voltage over which the AC Voltage Hysteresis	Temperature To Mains alarm AC Low Mains alarm AC High i	volt is set.	nd 'Battery Tempera	iture Too						
	Low' alarms. AC Voltage Low The AC voltage under which the AC Voltage High The AC voltage over which the a AC Voltage Hysteresis	Mains alarm AC Low Mains alarm AC High i	Volt is set.	nd 'Battery Tempera	basic						
	The AC voltage under which the AC Voltage High The AC voltage over which the aC Voltage Hysteresis	alarm AC Low Mains alarm AC High i	is set. Volt								
142	AC Voltage High The AC voltage over which the a AC Voltage Hysteresis	Mains alarm AC High i	Volt								
142	The AC voltage over which the a	alarm AC High i									
	AC Voltage Hysteresis		is set.		basic						
		N A = : - =	•	The AC voltage over which the alarm AC High is set.							
143	The AC voltage hysteresis on al	Mains	Volt		basic						
	The Fie Tellage Hyelereele ell al	The AC voltage hysteresis on alarms AC High and AC Low.									
144	AC Phase 1 PLC	Mains			basic						
	This is the mathematical expression of the calculation of AC phase 1. If rectifiers are used. The syntax for writting mathematical expression is desc PLC chapter. The PLC data element is the result of the calculation.										
145	AC Phase 2 PLC	Mains			basic						
	This is the mathematical expre rectifiers are used. The syntax f PLC chapter. The PLC data eler	or writting math	nematical e	xpression is describ							
146	AC Phase 3 PLC	Mains			basic						
	This is the mathematical expression of the calculation of AC phase 3. If empty, the rectifiers are used. The syntax for writting mathematical expression is described in the PLC chapter. The PLC data element is the result of the calculation.										
151	PLD Conditition	PLD			basic						
	The PLC conditon to enable the	PLD command									
521	Read Access User Numbers	Allowed Users		(1,2,3,4,5)	basic						
	The list of the user numbers which have read access to this equipment numbers are coma separated. The accepted user id are 1,2,3,4 and 5. Ex: 1										
522	Write Access User Numbers	Allowed Users		()	basic						
	The list of the user numbers what these users can modify the control elements. The user num 1,2,3,4 and 5. Ex: 1,3,4	configuration 6	element, the	e alarm settings and	d use the						
601	Event Table Length	Event		10/4000 (100)	basic						
	The maximum length of the table	e. The value mu	ust be comp	orised between 10 a	nd 4000						
602	Event Table Length By Rectifier	Event		10/4000 (100)	basic						
	The maximum length of the table	e. The value mu	ust be comp	prised between 10 a	nd 4000						
901	Number Of PLC Data	PLC		(0)	plc						
	The number of PLC data. Every data. Data elements are aut parameters are added to set the calculation. In order to use the module	omatically add ne PLC Data N	ded in the Name and	data table. Con the PLC Data Math	figuration nematical						

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902	Number Of PLC Alarm	PLC		(0)	plc
	The number of PLC alarm. Ever				
	alarms. Alarm elements are a	•			
	parameters are added to set	the PLC Alarn	n Name ar	nd the PLC Alarm	Boolean
	condition. In order to use thes	se functionalitie	s, you nee	ed a licence with t	the 'PLC'
	module				

Cont	rol Table					
<u>Id</u>	<u>Name</u>	Group	<u>Licens</u>			
1	Back To Float	DC Mode	basic			
	The dc system must go back in floating mode.					
2	Start Battery Test	DC Mode	battery			
	The dc system must start a battery test.					
3	Force Battery Test	DC Mode	battery			
	The dc system must force a battery test.					
4	Start Boost Mode	DC Mode	battery			
	The dc system must go in boost mode.					
11	Open The LVD	LVD	basic			
	The LVD must be opened					
12	Close The LVD	LVD	basic			
	The LVD must be closed					
21	Correct Battery Current Offset	Battery	basic			
	No information					
31	Reset Battery Current Integration	Battery	basic			
	Reset the integration of the battery current.					
41	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.					
51	Save Configuration In MCU	Save	basic			
	Save configuration parameters in the MCU mid the system will be correctly managed.	crocontroller. If comp@	s is not present,			
61	Set Digital Input 4 Counter Value	Counters	basic			
	Set Counter Value		·			
501	Clear My Events	Event	basic			
	By writing '1' to this control element, all the ever	nts of this equipment w	ill be cleared.			
502	Clear All Events	Event	basic			
	By writing '1' to this control element, all the eve of all the sub-equipments will be cleared.	ents of this equipment a	and all the events			
511	Add Event	Event	basic			
	This control element adds an event of severity to this control element	none. The event name	is the text written			
512	Add Major Event	Event	basic			
	This control element adds an event of sever written to this control element	ity major. The event i	name is the text			
521	Reset Default Names And Groups	Advanced	basic			

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	This control element resets all the element Names, values for this equipment	, Groups and Subgroups to	default	
522	Reset Default Names And Groups Recursive Advanced basic			
	This control element resets all the element Names, values for this equipment and all sub equipments	, Groups and Subgroups to	default	

7.2.13 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			

Desc	Description Table					
<u>ld</u>	<u>Name</u>	Group	<u>License</u>			
1	Description	Description	basic			
	A free text zone to write a syste	em description				
2	Reference	Description	basic			
	A free text zone to write the cus	stomer reference of the syste	em			
11	Product Name	Monitoring	basic			
	The product name of the DC system monitoring					
12	Hardware Reference	Monitoring	basic			
	The hardware reference of the	DC system monitoring				
14	Software Reference	Monitoring	asset			
	The serial number of the DC sy	stem monitoring				
16	Serial Number	Monitoring	asset			
	The serial number of the DC system monitoring					
18	Manufacturing Date	Monitoring	asset			
	The production date of the DC	system monitoring				

Alarr	Alarm Table						
<u>Id</u>	<u>Name</u>	Severity Type (Level)	Set/Clear Delay				
1	DC Bus Extra Low	major (6)	5 / 2				
	The bus voltage is extra low. The alarm is a configuration parameter 'DC Bus Voltage I alarm : 'DC Bus Voltage Extra Low Hysters mode is BATTERY TEST	Extra Low'. There is an	hysteresis on the				
2	DC Bus Low	minor (4)	5/2				
	The bus voltage is low. The alarm is set configuration parameter 'DC Bus Voltage L	•					

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	'DC Bus Voltage Low Hysteresis'				
3	DC Bus High	minor (4)	5 / 2		
	The bus voltage is high. The alarm is se configuration paramenter 'DC Bus Voltage 'DC Bus Voltage High Hysteresis'				
4	DC Bus Extra High	major (6)	5/2		
	The bus voltage is extra high. The alarm is configuration paramenter 'DC Bus Voltage alarm : 'DC Bus Voltage Extra High Hystere	Extra High'. There is a			
5	DC Bus Voltage Sense Failure	major (6)	5/2		
	The DC bus voltage sense is defective. unconfigured.	The DC bus voltage	,		
6	Mains Failure	minor (4)	5 / 2		
	The number of active rectifiers is equal to 0 greater than 0.	and the number of rectif	iers in AC failure is		
7	Mains Partial Failure	minor (4)	10 / 2		
	The number of active rectifiers is greater failure is greater than 0. Some rectifiers open breaker, a real phase failure, or by a rectifier of the second se	are in AC Failure. It may			
8	Mains Low	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				
		, –			
9	to the voltage lower limit Mains High	warning (2)	10 / 2		
9	to the voltage lower limit Mains High The main voltage is low on one or more alarm is only active if MCU master type in the second se	warning (2) phases. No rectifier is is 30110, 3096 or 3048N	n AC failure. The M6. Therefore, an		
	to the voltage lower limit Mains High The main voltage is low on one or more alarm is only active if MCU master type in hysteresis _phase123Hysteresis is substrated.	warning (2) phases. No rectifier is i s 30110, 3096 or 3048N cted to the voltage lower	n AC failure. The M6. Therefore, an		
9	to the voltage lower limit Mains High The main voltage is low on one or more alarm is only active if MCU master type in the second se	warning (2) phases. No rectifier is i s 30110, 3096 or 3048Noted to the voltage lower minor (4) owered correctly. The Dh DC Failure is higher to	n AC failure. The M6. Therefore, an limit. 5 / 2 C fail alarm of the han 0, there is no		
	to the voltage lower limit Mains High The main voltage is low on one or more alarm is only active if MCU master type in hysteresis _phase123Hysteresis is substrated. One Rectifier Failure One rectifier must be replaced or is not perectifier is set. The number of rectifier with	warning (2) phases. No rectifier is i s 30110, 3096 or 3048Noted to the voltage lower minor (4) owered correctly. The Dh DC Failure is higher to	n AC failure. The M6. Therefore, an limit. 5 / 2 C fail alarm of the han 0, there is no		
10	to the voltage lower limit Mains High The main voltage is low on one or more alarm is only active if MCU master type in hysteresis _phase123Hysteresis is substration. One Rectifier Failure One rectifier must be replaced or is not perectifier is set. The number of rectifier with mains failure, and the 'More Than One Rectifier with the 'More Than One Rectifier with the 'More Than One Rectifier with	warning (2) phases. No rectifier is is 30110, 3096 or 3048Noted to the voltage lower minor (4) owered correctly. The Dh DC Failure is higher to tifier Failure alarm is not simple (6)	n AC failure. The M6. Therefore, an limit. 5 / 2 C fail alarm of the han 0, there is no set.'		
10	to the voltage lower limit Mains High The main voltage is low on one or more alarm is only active if MCU master type in hysteresis _phase123Hysteresis is substrated. One Rectifier Failure One rectifier must be replaced or is not perectifier is set. The number of rectifier with mains failure, and the 'More Than One Rectifier Failure	warning (2) phases. No rectifier is is 30110, 3096 or 3048Noted to the voltage lower minor (4) owered correctly. The Dh DC Failure is higher to tifier Failure alarm is not simple (6)	n AC failure. The M6. Therefore, an limit. 5 / 2 C fail alarm of the han 0, there is no set.'		
10	to the voltage lower limit Mains High The main voltage is low on one or more alarm is only active if MCU master type in hysteresis _phase123Hysteresis is substrated. One Rectifier Failure One rectifier must be replaced or is not perectifier is set. The number of rectifier with mains failure, and the 'More Than One Rectifier Failure There is no mains failure and number of rectifier.	warning (2) phases. No rectifier is is 30110, 3096 or 3048Noted to the voltage lower minor (4) owered correctly. The Dh DC Failure is higher to tifier Failure alarm is not some major (6) ctifier failures is greater the major (6)	n AC failure. The M6. Therefore, an limit. 5 / 2		
10	Mains High The main voltage is low on one or more alarm is only active if MCU master type in hysteresis _phase123Hysteresis is substrated. One Rectifier Failure One rectifier must be replaced or is not perectifier is set. The number of rectifier with mains failure, and the 'More Than One Rectifier Failure There is no mains failure and number of rectifiers. There is not enough rectifier according.	warning (2) phases. No rectifier is is 30110, 3096 or 3048Noted to the voltage lower minor (4) owered correctly. The Dh DC Failure is higher to tifier Failure alarm is not some major (6) ctifier failures is greater the major (6)	n AC failure. The M6. Therefore, an limit. 5 / 2		
10 11 12	Mains High The main voltage is low on one or more alarm is only active if MCU master type is hysteresis _phase123Hysteresis is substrated. One Rectifier Failure One rectifier must be replaced or is not prectifier is set. The number of rectifier wit mains failure, and the 'More Than One Rectifier Failure There is no mains failure and number of rectifiers There is not enough rectifier according Number Of Rectifier' Battery Last Test Failed The last battery test did not succeed and we be replaced.	warning (2) phases. No rectifier is is 30110, 3096 or 3048Noted to the voltage lower minor (4) owered correctly. The Dh DC Failure is higher to tifier Failure alarm is not major (6) ctifier failures is greater the major (6) to the configuration paid	n AC failure. The M6. Therefore, an limit. 5 / 2		
10 11 12	Mains High The main voltage is low on one or more alarm is only active if MCU master type in hysteresis _phase123Hysteresis is substration. One Rectifier Failure One rectifier must be replaced or is not prectifier is set. The number of rectifier with mains failure, and the 'More Than One Rectifier Failure There is no mains failure and number of rectifiers There is not enough rectifier according Number Of Rectifier' Battery Last Test Failed The last battery test did not succeed and we	warning (2) phases. No rectifier is is 30110, 3096 or 3048Noted to the voltage lower minor (4) owered correctly. The Dh DC Failure is higher to tifier Failure alarm is not major (6) ctifier failures is greater the major (6) to the configuration paid	n AC failure. The M6. Therefore, an limit. 5 / 2		
10 11 12	Mains High The main voltage is low on one or more alarm is only active if MCU master type is hysteresis _phase123Hysteresis is substrated. One Rectifier Failure One rectifier must be replaced or is not prectifier is set. The number of rectifier wit mains failure, and the 'More Than One Rectifier Failure There is no mains failure and number of rectifiers There is not enough rectifier according Number Of Rectifier' Battery Last Test Failed The last battery test did not succeed and we be replaced.	warning (2) phases. No rectifier is is 30110, 3096 or 3048Noted to the voltage lower minor (4) owered correctly. The Dh DC Failure is higher to tifier Failure alarm is not some major (6) otifier failures is greater the major (6) to the configuration paid minor (4) was not cancelled. Maybe minor (4) that the load is too higher that the load is the load	n AC failure. The M6. Therefore, an limit. 5 / 2 C fail alarm of the han 0, there is no set.' 10 / 2 nan 1. 5 / 2 rameter : 'Minimal 5 / 2 the battery should 10 / 2 h for the installed uring a battery test.		
10 11 12	Mains High The main voltage is low on one or more alarm is only active if MCU master type in hysteresis _phase123Hysteresis is substrated. One Rectifier Failure One rectifier must be replaced or is not perectifier is set. The number of rectifier with mains failure, and the 'More Than One Rectifier Failure There is no mains failure and number of rectifiers is not enough rectifier according Number Of Rectifier' Battery Last Test Failed The last battery test did not succeed and we be replaced. Battery On Discharge The battery is discharging. This means rectifiers. This alarm is inactive when the set There is an hysteresis corresponding to	warning (2) phases. No rectifier is is 30110, 3096 or 3048Noted to the voltage lower minor (4) owered correctly. The Dh DC Failure is higher to tifier Failure alarm is not some major (6) otifier failures is greater the major (6) to the configuration paid minor (4) was not cancelled. Maybe minor (4) that the load is too higher that the load is the load	n AC failure. The M6. Therefore, an limit. 5 / 2		
10 11 12 13	Mains High The main voltage is low on one or more alarm is only active if MCU master type in hysteresis _phase123Hysteresis is substrated. One Rectifier Failure One rectifier must be replaced or is not prectifier is set. The number of rectifier with mains failure, and the 'More Than One Rectifier Failure There is no mains failure and number of rectifiers is not enough rectifier according Number Of Rectifier' Battery Last Test Failed The last battery test did not succeed and we be replaced. Battery On Discharge The battery is discharging. This means rectifiers. This alarm is inactive when the set There is an hysteresis corresponding to hysteresis'.	warning (2) phases. No rectifier is is 30110, 3096 or 3048Noted to the voltage lower minor (4) owered correctly. The Dh DC Failure is higher to tifier Failure alarm is not simple major (6) ctifier failures is greater the major (6) to the configuration parameter (4) was not cancelled. Maybe minor (4) that the load is too high ystem in AC Failure or dubattery parameter 'Is of major (6) sopen. On Systems we	n AC failure. The M6. Therefore, an limit. 5 / 2		

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	The temperature of the battery is too high a hysteresis corresponding to battery parame	•	
19	Battery Temperature Too Low	minor (4)	5 / 2
	The temperature of the battery is too low a hysteresis corresponding to battery parame		
20	Battery Temperature Sensor Fail	minor (4)	5 / 2
	The battery temperature sensor (NTC) value not connected or defective.	ie is inferior to -500 uni	ts meaning that it is
21	Ambient Temperature Too High	minor (4)	5 / 2
	The ambient temperature is too high and hysteresis corresponding to parameter 'Ambient' activated on MCU master types 3011 0948 and 3048M6.	piant temperature hyster	resis'. This alarm is
22	Ambient Temperature Too Low	minor (4)	5 / 2
	The ambient temperature is too low and hysteresis corresponding to parameter 'Ambient' activated on MCU master types 3011 0948 and 3048M6.	piant temperature hyster	resis'. This alarm is
23	Ambient Temperature Sensor Fail	minor (4)	5 / 2
	The ambiant temperature sensor (NTC) value not connected or defective.	ue is inferior to -500 uni	ts meaning that it is
25	Distribution Breaker Open	major (6)	5 / 2
	This alarm is related to digital input 1. This different to configuration parameter 'Digital I		digital input value is
26	Battery Breaker Open	minor (4)	5 / 2
	This alarm is related to digital input 2. Thi different to configuration parameter 'Digital I		digital input value is
27	Digital Input 3	none (0)	5 / 2
	This alarm is related to digital input 3. This different to configuration parameter 'Digital I		digital input value is
28	Digital Input 4	none (0)	5 / 2
	This alarm is related to digital input 4. This different to configuration parameter 'Digital I		digital input value is
29	Digital Input 5	none (0)	5 / 2
	This alarm is related to digital input 5. Thi different to configuration parameter 'Digital I		digital input value is
30	Digital Input 6	none (0)	5 / 2
	This alarm is related to digital input 6. Thi different to configuration parameter 'Digital I		digital input value is
31	Digital Input 7	none (0)	5 / 2
	This alarm is related to digital input 7. This different to configuration parameter 'Digital I		digital input value is
32	Digital Input 8	none (0)	5 / 2
	This alarm is related to digital input 8. This different to configuration parameter 'Digital I		digital input value is

Data Table				
<u>Id</u>	<u>Name</u>	<u>Group</u>	<u>Unit</u>	<u>Licens</u>

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	1			
_				<u>e</u>
1	DC Mode	General	OTI IDATTEDI	basic
	The DC system can have 4 valu 'AC_FAILURE' or SAFE	es: 'FLOAT', 'BOC	OSI', 'BAITERY	_1ES1',
2	Previous DC Mode	General		basic
	The previous value of the DC Mode			
11	Bus Voltage	General	Volt	basic
	The DC bus voltage in volt.			
12	Ratio Delivered On Available Power	General	%	basic
	This is the ratio of the delivered power d	ivided by the installe	d power, in %.	
13	Minutes Since Last AC Failure Begin	General	minute	basic
	The number of minute since the last AC	Failure begin		
14	Minutes Since Last AC Failure End	General	minute	basic
	The number of minute since the last AC	Failure end		
21	Rectifiers Output Power	Rectifiers	Watt	basic
	The sum of the delivered rectifier power			
22	Rectifiers Output Current	Rectifiers	Ampere	basic
	The sum of the delivered rectifier curren	t		
23	Rectifiers Output Power Max	Rectifiers	Watt	basic
	The sum of the deliverable rectifier power	er		
24	Rectifiers Output Current Max	Rectifiers	Ampere	basic
	The sum of the deliverable rectifier curre	ent		
31	Number Of Rectifier Max	Rectifiers		basic
	The maximum possible number of rectifi	er in this dc system		
32	Number Of Present Rectifier	Rectifiers		basic
	The actual number of present rectifier in	this dc system		
33	Number Of Absent Rectifier	Rectifiers		basic
	The actual number of absent rectifier in	this dc system		
34	Number Of Active Rectifier	Rectifiers		basic
	The actual number of active rectifier in		ctive rectifier is a	rectifier
0.5	which is present, DC OK, AC OK and no			l : -
35	Number Of AC-Fail Rectifier	Rectifiers		basic
26	The actual number or rectifier in AC Fail	1		basis
36	Number Of DC-Fail Rectifier The actual number or rectifier with DC F	Rectifiers		basic
27		Rectifiers		basis
37	Number Of Remote Off Rectifier			basic
20	The actual number or rectifier in remote	1		basis
38	Number Of Over Temperature Rectifier			basic
	The actual number or rectifier in OVer T	emperature.	T	
41	Mains Phase 1 Voltage	Mains	Volt	basic
	The voltage on AC phase 1			
42	Mains Phase 2 Voltage	Mains	Volt	basic
	The voltage on AC phase 2			
43	Mains Phase 3 Voltage	Mains	Volt	basic
	The voltage on AC phase 3			

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51	Load Power	Load	Watt	basic
J 1	Estimation of the load power consumption		vvall	Dasic
52	Load Current	Load	Ampere	basic
JZ	Estimation of the load current consumption		VIIIhei e	Dasic
61	Battery Input Current	Battery	Ampere	basic
01	Measurement of the battery input currer	•		
	discharging		T	
62	Battery Input Power	Battery	Watt	basic
	Measurement of the battery input power discharging			· ·
71	Battery Temperature	Battery	degree C	basic
	The battery temperature		T	,
72	Battery Test State	Battery		basic
	This is about the result of the last NEVER_TESTED, SUCCESS, FAILED_VBUS_TOO_LOW, FAILED_LVD_OP	ON_GOING, LOAD_TOO_LOW,	FAILED_TIM	,
73	Battery Test Discharged Capacity Ratio	Battery	%	basic
	This is the battery capacity, in percent, value is updated at the end of the battery	•	he last battery te	st. This
74	Battery Test Discharged Capacity	Battery	Ah	basic
	This is the battery capacity, in ampere This value is updated at the end of the battery		ring the last batte	ery test.
75	Battery Test Final Voltage	Battery	%	basic
	This is the bus voltage at the end of the end of the battery test.	last battery test. Thi	s value is updated	d at the
81	Previous Battery Test State	Battery		basic
	The result of the previous battery test			
82	Minutes Since Last Test Battery	Battery		basic
	The number of minute without battery tes	st		
91	Battery Charge Capacity	Battery	%	basic
	The battery charge capacity, calculated by	by integration of the	current.	
92	Calculated Autonomy	Battery	minute	basic
	Calculation of the remaining autonomy			
93	Battery Current Integration	Battery	As	basic
	Actual value of the integration of the curr	ent, in Ampere * sec	ond	
		•		
94	Battery Current Integration	Battery	Ah	basic
94		•		basic
94	Battery Current Integration	•		basic basic
	Battery Current Integration Actual value of the integration of the curr	ent, in Ampere * hou		I
	Battery Current Integration Actual value of the integration of the curr LVD State Actual state of the LVD	ent, in Ampere * hou		I
101	Battery Current Integration Actual value of the integration of the curr LVD State Actual state of the LVD Efficiency Optimized Number Of	ent, in Ampere * hou LVD Smart Energy	ir	basic
101	Battery Current Integration Actual value of the integration of the curr LVD State Actual state of the LVD Efficiency Optimized Number Of Rectifier	ent, in Ampere * hou LVD Smart Energy	ir	basic

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123	System Loss With Optimisation	Smart Energy	Watt	under dev
	Estimation of the losses with optimisation	n		
124	Rectifier Model Used For Calculation	Smart Energy		asset
	The rectifier model used			
125	Smart Energy Savings	Smart Energy	Watt	asset
	Estimation of the losses with optimisation	n		
151	Ambient Temperature	Sensors	degree C	basic
	The ambiant temperature (second temperature)	erature sense)		
161	Voltage Sense 1	Sensors	Volt	basic
	The voltage measured by the sense measurement. Calculation can be done		d for battery sy	mmetry
162	Voltage Sense 2	Sensors	Volt	basic
	The voltage measured by the sense measurement. Calculation can be done		d for battery sy	mmetry
163	Voltage Sense 3	Sensors	Volt	basic
	The voltage measured by the sense measurement. Calculation can be done		d for battery sy	mmetry
204	Digital Input 4 Counter	Sensors		basic
	The counter value of the digital input 4.			

Conf	ig Table						
	1			D 14 "-			
<u>Id</u>	<u>Name</u>	<u>Group</u>	<u>Unit</u>	Range: Min/Max	<u>License</u>		
				(default)			
1	DC Bus Float Voltage at 25 degC	Bus Voltage	Volt	65/105 (94.5)	basic		
	The floating dc bus voltage of th	e system at 25	Celsius de	gree			
2	DC Bus Voltage Extra Low	Bus Voltage	Volt	65/105 (78.75)	basic		
	The bus voltage under which the	alarm 'DC Bus	s Voltage E	xtra Low' is set.			
3	DC Bus Voltage Extra Low Hysteresis	Bus Voltage	Volt	0.5/10 (2)	basic		
	The voltage hysteresis on the al	arm 'DC Bus V	oltage Extra	a Low'.			
4	DC Bus Voltage Low	Bus Voltage	Volt	65/105 (84)	basic		
	The bus voltage under which the alarm 'DC Bus Voltage Low' is set.						
5	DC Bus Voltage Low Hysteresis	Bus Voltage	Volt	0.5/10 (1)	basic		
	The voltage hysteresis on the al-	The voltage hysteresis on the alarm 'DC Bus Voltage Low					
6	DC Bus Voltage High	Bus Voltage	Volt	70/105 (98.875)	basic		
	The bus voltage over which the alarm 'DC Bus Voltage High' is set.						
7	DC Bus Voltage High Hysteresis	Bus Voltage	Volt	0.5/10 (1)	basic		
	The voltage hysteresis on the alarm 'DC Bus Voltage High						
8	DC Bus Voltage Extra High	Bus Voltage	Volt	70/105 (101.5)	basic		
	The bus voltage over which the alarm 'DC Bus Voltage Extra High' is set.						
9	DC Bus Voltage Extra High Hysteresis	Bus Voltage	Volt	0.5/10 (1)	basic		

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	The voltage hysteresis on the al	arm 'DC Rue V	oltage Extr	- High			
10	LVD Disconnect Voltage	Bus Voltage	Volt	65/87.5 (75.6)	basic		
10	The dc bus voltage under which		l .	, ,	1		
	allows preserving the battery life	•			bus. IIIIs		
11	LVD Disconnect Delay	Bus Voltage	second	1/4000 (1)	basic		
	The delay in second before disc	onnecting the l	cattery if the	e dc bus voltage is	under the		
	configured disconnected voltage	. This avoids d	isconnectio	n during a low bus	transient.		
21	Temperature Compensation	•		-2000/0 (-126)	basic		
	Slope	Compensatio n	е				
	The slope of the battery temperature		ation in my	l /degree For a 48V	svetem -		
	72mV/degree is often used.	atare compens	ation in miv	acgree. For a 40 v	System,		
22		Temperature	Volt	0/20 (6)	basic		
	Temperature Compensation	Compensatio					
		<u>n</u>					
00	The maximal allowed positive co		Valt	00/0 / 0)	basis		
23	•	Temperature Compensatio	Volt	-20/0 (-6)	basic		
		n					
	The maximal allowed negative c	ompensation.					
25	Minimal Number Of Present	Rectifiers		0/100 (0)	basic		
	Rectifiers						
	The minimal number of rectifi rectifiers, the alarm 'Missing Rec		t be prese	nt. If there is less	s present		
26	Rectifier Model	Rectifiers			basic		
20	The rectifier model	rectificis			Dasio		
27	Forced Remote Off Rectifers	Rectifiers			basic		
	A list of rectifier which are force		ff. The id c	of the rectifier must			
	separated. Ex: 1,3 will maintain						
31	Battery Charge Current Limit	Battery	Ampere	0.5/1000 (1000)	basic		
	The maximal battery current when the battery is charging. The monitoring regulates						
	the bus voltage in order to satis nominal battery capacity divided		on. This pa	rameter is often eq	ual to the		
32	Battery String Capacity	Battery	Ah	3/1000 (100)	basic		
32	The battery capacity in Ah.	Dattery	ДП	3/1000 (100)	Dasic		
33	Battery Temperature Low	Battery	degree C	-100/20 (0)	basic		
	The temperature under which th			. ,			
34	Battery Temperature High	Battery	•	5/100 (40)	basic		
	The temperature over which the			' '	e set.		
35	Battery Temperature	Battery	degree C	0/10 (2)	basic		
	Hysteresis						
	The hysteresis on the 'Battery	Temperature T	oo High' ar	nd 'Battery Tempera	ature Too		
26	Low' alarms. Minimal Current For	Datton	Amnara	0/1000 (2)	basis		
36	Minimal Current For Discharging Alarm	Battery	Ampere	0/1000 (3)	basic		
	The minimal discharging current	to set the 'Batt	tery On Disc	charge' alarm.	1		
37		Battery	Ampere	0/50 (1)	basic		
	Discharging Alarm						
	The hysteresis on the 'Battery On Discharge' alarm.						

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41	Shunt Rating At 60mV	Battery	Ampere	25/5000 (250)	basic
	The rating of the battery shunt a	· · · · · · · · · · · · · · · · · · ·		, ,	
51	Boost Automatic	Boost		False/False (False)	battery
	The boost mode must be auto bus voltage went under the charging the battery faster.				
52	Boost Activation Low Voltage	Boost	Volt	75.25/87.5 (80.5)	battery
	The voltage under which the bo		e activated		1
53	Boost Termination Voltage	Boost	Volt	87.5/101.5 (98.7)	battery
	The voltage over which the syst		ck to floatin	ř	T
54	Boost Termination Current	Boost	Ampere	0/100 (4)	battery
	The battery charging current un	der which the s	ystem must	go back to floating	mode.
55	Boost Termination Time	Boost	minute	10/240 (120)	battery
	The time in minute after which t	, · · · · · · · · · · · · · · · · · · ·	, -		1
70	Battery Test End Voltage	Battery Test	Volt	52.5/105 (80.5)	battery
	The voltage at which any batter	y test must be s	topped.		
71	Battery Test Discharge Ratio	Battery Test	%	0/100 (0)	battery
	The ratio of the battery capacit discharged during the test	ty to discharge.	If 30 is se	et, 30% of the batte	ry will be
72	Battery Test Interval	Battery Test	day	0/3000 (0)	battery
73	The number of days between two set to 0, the battery test is not start or force this test. Battery Test Discharge				
	Current	,			
	The current at which the bat monitoring regulates the bus vomust be of course higher than the	oltage in order t			
74	Battery Test Minima Discharge Current	Battery Test	Ampere	2/90 (2)	battery
	The battery current under which too low.	h the battery te	st must be	stopped because th	ne load is
75	Battery Test Time Out	Battery Test	minute	1/5000 (10)	battery
	The timeout in minute after which	ch the battery te	st must be	stopped.	
76	Battery Test Requested Minutes Without Mains Failure	Battery Test	minute	0/5000 (1440)	battery
	The minimal time in minute with parameter is not taken into account				tart. This
83	Smart Energy Boolear Condition	Smart Energy		121-125	asset
	This is the boolean condition w of rectifier in remote off.		ot to auton	natically optimize the	e number
86	Battery LVD Node Id	LVD		True/False (False)	basic
	This is a list of the node id of the	e Smart Electro	nic LVDs, c	oma separated	
91	Digital Input 1 Name	Digital Inputs		Distribution Breaker Open	basic
				Dicarci Open	

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	The nam	e of the	digit	al input 1				
92	Digital Closed	Input	1	Normally	Digital Inputs		True/False (True)	basic
					digital input 1 ed alarm is set		closed. If this digital	al input is
93	Digital Ir	nput 2 N	lame	•	Digital Inputs		Battery Breaker Open	basic
	The nam	e of the	digit	al input 2				
94	Digital Closed	Input	2	Normally	Digital Inputs		True/False (True)	basic
	not in this	s default	stat	e, the relat	ed alarm is set		closed. If this digital	al input is
95	Digital Ir	nput 3 N	ame)	Digital Inputs		Digital Input 3	basic
	The nam	e of the	digit	al input 3				
96	Digital Closed	Input			Digital Inputs		True/False (True)	basic
	not in this	s default	stat	e, the relat	ed alarm is set		closed. If this digita	
97	Digital Ir	•			Digital Inputs		Digital Input 4	basic
	1			al input 4		1	<u></u>	T
98	Digital Closed	•			Digital Inputs		True/False (True)	basic
	not in this	s default	stat	e, the relat	ed alarm is set		closed. If this digital	
99	Digital Ir	•			Digital Inputs		Digital Input 5	basic
				al input 5		1	T	
100	Digital Closed				Digital Inputs		,	basic
	not in this	s default	stat	e, the relat	ed alarm is set		closed. If this digita	
101	Digital Ir	•			Digital Inputs		Digital Input 6	basic
				al input 6		1	T	
102	Digital Closed	Input	6		Digital Inputs		True/False (True)	basic
	not in this	s default	stat	e, the relat	ed alarm is set		closed. If this digital	· .
103	Digital Ir	•			Digital Inputs		Digital Input 7	basic
				al input 7			<u> </u>	I
104	Digital Closed	Input	7		Digital Inputs		True/False (True)	basic
	not in this	s default	stat	e, the relat	ed alarm is set		closed. If this digita	
105	Digital Ir	•			Digital Inputs		Digital Input 8	basic
	1			al input 8		<u> </u>	T	I
106	Digital Closed	Input	8		Digital Inputs		True/False (True)	basic
				•	digital input 8 ed alarm is set	•	closed. If this digital	al input is

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111	Dry Alarm 1 Alternative Boolean Condition	Dry Alarms		False	plc
	Another Boolean condition to accondition is detailed in the PLC		larm relay	1. The way to define	e boolean
112	Dry Alarm 2 Alternative Boolean Condition	Dry Alarms		False	plc
	Another Boolean condition to accondition is detailed in the PLC		larm relay 2	2. The way to define	e boolean
113	Dry Alarm 3 Alternative Boolean Condition	Dry Alarms		False	plc
	Another Boolean condition to accondition is detailed in the PLC	chapter.	larm relay (3. The way to define	e boolean
114	Dry Alarm 4 Alternative Boolean Condition	_		False	plc
	Another Boolean condition to accondition is detailed in the PLC	chapter.	larm relay 4	4. The way to define	e boolean
131	Ambient Temperature Low	Sensors	degree C		basic
	The temperature under which th	e alarm 'Ambia	nt Tempera	ture Too Low' must	be set.
132	Ambient Temperature High	Sensors	degree C		basic
	The temperature under which th	e alarm 'Ambia	nt Tempera	ature Too Low' must	be set.
133	Ambient Temperature Hysteresis		degree C		basic
	The hysteresis on the 'Battery 'Low' alarms.	Temperature T	oo High' ar	nd 'Battery Tempera	ature Too
141	AC Voltage Low	Mains	Volt		basic
	The AC voltage under which the	alarm AC Low	is set.		
142	AC Voltage High	Mains	Volt		basic
	The AC voltage over which the a	alarm AC High i	is set.		
143	AC Voltage Hysteresis	Mains	Volt		basic
	The AC voltage hysteresis on al	arms AC High a	and AC Lov	V.	
144	AC Phase 1 PLC	Mains			basic
	This is the mathematical expre rectifiers are used. The syntax f PLC chapter. The PLC data eler	ssion of the ca	nematical e	xpression is describ	
145	AC Phase 2 PLC	Mains			basic
	This is the mathematical expre rectifiers are used. The syntax f PLC chapter. The PLC data eler	or writting math	nematical e	xpression is describ	
146	AC Phase 3 PLC	Mains			basic
	This is the mathematical expre rectifiers are used. The syntax f PLC chapter. The PLC data eler	ssion of the ca	nematical e	xpression is describ	
521	Read Access User Numbers	Allowed Users		(1,2,3,4,5)	basic
	The list of the user numbers v numbers are coma separated. T				
522	Write Access User Numbers	Allowed		()	basic
		Users			

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	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					
601	Event Table Length	Event	-	10/4000 (100)	basic	
	The maximum length of the table	e. The value mu	ıst be compi	rised between 10 a	nd 4000	
602	Event Table Length By Rectifier	Event	-	10/4000 (100)	basic	
	The maximum length of the table	e. The value mu	ıst be compi	rised between 10 a	nd 4000	
901	Number Of PLC Data	PLC	((0)	plc	
	The number of PLC data. Every equipment can manage up to 20 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					
902	Number Of PLC Alarm	PLC	((0)	plc	
	The number of PLC alarm. Every equipment can manage up to 20 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					

Con	trol Table					
<u>Id</u>	<u>Name</u>	<u>Group</u>	<u>Licens</u> <u>e</u>			
1	Back To Float	DC Mode	basic			
	The dc system must go back in floating mode.					
2	Start Battery Test	DC Mode	battery			
	The dc system must start a battery test.					
3	Force Battery Test	DC Mode	battery			
	The dc system must force a battery test.	The dc system must force a battery test.				
4	Start Boost Mode	DC Mode	battery			
	The dc system must go in boost mode.					
11	Open The LVD	LVD	basic			
	The LVD must be opened					
12	Close The LVD	LVD	basic			
	The LVD must be closed					
21	Correct Battery Current Offset	Battery	basic			
	No information	No information				
31	Reset Battery Current Integration	Battery	basic			
	Reset the integration of the battery current.					
41	Reset Last Battery Test State	Battery	battery			
	Reset the state of the last battery test. If an alarm will be cleared.	alarm 'Battery Last Test F	ailed' is set, the			
51	Save Configuration In MCU	Save	basic			
	Save configuration parameters in the MCU microcontroller. If comp@s is not present, the system will be correctly managed.					
61	Set Digital Input 4 Counter Value	Counters	basic			

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	0.10				
	Set Counter Value				
501	Clear My Events	Event	basic		
	By writing '1' to this control element, all the events of this equipment will be cleared.				
502	Clear All Events	Event	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.				
511	Add Event	Event	basic		
1	This control element adds an event of severity none. The event name is the text written to this control element				
512	Add Major Event	Event	basic		
	This control element adds an event of severity n written to this control element	najor. The event name is	the text		
521	Reset Default Names And Groups	Advanced	basic		
1	This control element resets all the element Names, Groups and Subgroups to default values for this equipment				
522	Reset Default Names And Groups Recursive	Advanced	basic		
	This control element resets all the element Names, Groups and Subgroups to default values for this equipment and all sub equipments				

7.2.14 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 07011			
Software Reference	SOFT 000040 XX			
Equipment Type	Monitoring Control Unit			
ETSI Level	/site/energy_system/dc_system			

Desc	Description Table					
<u>Id</u>	<u>Name</u>	Group	<u>License</u>			
1	Description	Description	basic			
	A free text zone to write a syste	em description				
2	Reference	Description	basic			
	A free text zone to write the cus	stomer reference of the syste	em			
11	Product Name	Monitoring	basic			
	The product name of the DC sy	stem monitoring				
12	Hardware Reference	Monitoring	basic			
	The hardware reference of the DC system monitoring					
14	Software Reference	Monitoring	asset			
	The serial number of the DC sy	stem monitoring				

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16	Serial Number	Monitoring	asset		
	The serial number of the DC system monitoring				
18	Manufacturing Date	Monitoring	asset		
	The production date of the DC system monitoring				

The bus voltage is extra low. The alarm is set when the bus voltage is lower than configuration parameter 'DC Bus Voltage Extra Low'. There is an hysteresis on alarm : 'DC Bus Voltage Extra Low Hysteresis'. The alarm is not activated when mode is BATTERY TEST DC Bus Low	Aları	m Table					
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unconfigured. Mains Failure minor (4) 5 / 2 The number of active rectifiers is equal to 0 and the number of rectifiers in AC failure greater than 0. Mains Partial Failure minor (4) 10 / 2 The number of active rectifiers is greater than 0 and the number of rectifiers in failure is greater than 0. Some rectifiers are in AC Failure. It may be caused by open breaker, a real phase failure, or by a rectifier failure. Mains Low warning (2) 10 / 2 The main voltage is low on one or more phases. No rectifier is in AC failure. If M master type is 30110, 3096 or 3048M6, an hysteresis _phase123Hysteresis is add to the voltage lower limit warning (2) 10 / 2 The main voltage is low on one or more phases. No rectifier is in AC failure. The main voltage is low on one or more phases. No rectifier is in AC failure. The main voltage is low on one or more phases. No rectifier is in AC failure. The main voltage is low on one or more phases. No rectifier is in AC failure. The main voltage is low on one or more phases. No rectifier is in AC failure. The main voltage is low on one or more phases. No rectifier is in AC failure. The main voltage is low on one or more phases. No rectifier is not powered correctifier is not powered to the voltage lower limit. One Rectifier Failure minor (4) 5 / 2 One rectifier must be replaced or is not powered correctly. The DC fail alarm of rectifier is set. The number of rectifier with DC Failure is higher than 0, there is mains failure, and the 'More Than One Rectifier Failure alarm is not set.'	5	DC Bus Voltage Sense Failure	major (6)	5 / 2			
The number of active rectifiers is equal to 0 and the number of rectifiers in AC failure greater than 0. 7 Mains Partial Failure minor (4) 10 / 2 The number of active rectifiers is greater than 0 and the number of rectifiers in failure is greater than 0. Some rectifiers are in AC Failure. It may be caused by open breaker, a real phase failure, or by a rectifier failure. 8 Mains Low warning (2) 10 / 2 The main voltage is low on one or more phases. No rectifier is in AC failure. If M master type is 30110, 3096 or 3048M6, an hysteresis _phase123Hysteresis is add to the voltage lower limit 9 Mains High warning (2) 10 / 2 The main voltage is low on one or more phases. No rectifier is in AC failure. The main voltage is low on one or more phases. No rectifier is in AC failure. The main voltage is low on one or more phases. No rectifier is in AC failure. The main voltage is low on one or more phases. No rectifier is in AC failure. The main voltage is low on one or more phases. No rectifier is in AC failure. The main voltage is low on one or more phases. No rectifier is in AC failure. The main voltage is low on one or more phases. No rectifier is in AC failure. The main voltage lower limit. 10 One Rectifier Failure minor (4) 5 / 2 One rectifier must be replaced or is not powered correctly. The DC fail alarm of rectifier is set. The number of rectifier with DC Failure is higher than 0, there is mains failure, and the 'More Than One Rectifier Failure alarm is not set.'			The DC bus voltage	is unconnected or			
greater than 0. Mains Partial Failure minor (4) 10 / 2 The number of active rectifiers is greater than 0 and the number of rectifiers in failure is greater than 0. Some rectifiers are in AC Failure. It may be caused by open breaker, a real phase failure, or by a rectifier failure. Mains Low warning (2) 10 / 2 The main voltage is low on one or more phases. No rectifier is in AC failure. If M master type is 30110, 3096 or 3048M6, an hysteresis _phase123Hysteresis is add to the voltage lower limit warning (2) 10 / 2 The main voltage is low on one or more phases. No rectifier is in AC failure. The main voltage is low on one or more phases. No rectifier is in AC failure. The main voltage is low on one or more phases. No rectifier is in AC failure. The main voltage is low on one or more phases and the voltage lower limit. Means High warning (2) 10 / 2 The main voltage is low on one or more phases. No rectifier is in AC failure. The main voltage is low on one or more phases and the voltage lower limit. More Rectifier Failure minor (4) 5 / 2 One rectifier must be replaced or is not powered correctly. The DC fail alarm of rectifier is set. The number of rectifier with DC Failure is higher than 0, there is mains failure, and the 'More Than One Rectifier Failure alarm is not set.'	6	Mains Failure	minor (4)	5 / 2			
The number of active rectifiers is greater than 0 and the number of rectifiers in failure is greater than 0. Some rectifiers are in AC Failure. It may be caused by open breaker, a real phase failure, or by a rectifier failure. 8 Mains Low warning (2) 10 / 2 The main voltage is low on one or more phases. No rectifier is in AC failure. If M master type is 30110, 3096 or 3048M6, an hysteresis _phase123Hysteresis is add to the voltage lower limit 9 Mains High warning (2) 10 / 2 The main voltage is low on one or more phases. No rectifier is in AC failure. In alarm is only active if MCU master type is 30110, 3096 or 3048M6. Therefore, hysteresis _phase123Hysteresis is substracted to the voltage lower limit. 10 One Rectifier Failure minor (4) 5 / 2 One rectifier must be replaced or is not powered correctly. The DC fail alarm of rectifier is set. The number of rectifier with DC Failure is higher than 0, there is mains failure, and the 'More Than One Rectifier Failure alarm is not set.'			and the number of rectif	fiers in AC failure is			
failure is greater than 0. Some rectifiers are in AC Failure. It may be caused by open breaker, a real phase failure, or by a rectifier failure. 8	7	Mains Partial Failure	minor (4)	10 / 2			
 Mains Low		failure is greater than 0. Some rectifiers a	are in AC Failure. It ma				
The main voltage is low on one or more phases. No rectifier is in AC failure. If M master type is 30110, 3096 or 3048M6, an hysteresis _phase123Hysteresis is add to the voltage lower limit Mains High warning (2) 10 / 2 The main voltage is low on one or more phases. No rectifier is in AC failure. It alarm is only active if MCU master type is 30110, 3096 or 3048M6. Therefore, hysteresis _phase123Hysteresis is substracted to the voltage lower limit. One Rectifier Failure minor (4) 5 / 2 One rectifier must be replaced or is not powered correctly. The DC fail alarm of rectifier is set. The number of rectifier with DC Failure is higher than 0, there is mains failure, and the 'More Than One Rectifier Failure alarm is not set.'	8			10 / 2			
The main voltage is low on one or more phases. No rectifier is in AC failure. alarm is only active if MCU master type is 30110, 3096 or 3048M6. Therefore, hysteresis _phase123Hysteresis is substracted to the voltage lower limit. 10 One Rectifier Failure minor (4) 5 / 2 One rectifier must be replaced or is not powered correctly. The DC fail alarm of rectifier is set. The number of rectifier with DC Failure is higher than 0, there is mains failure, and the 'More Than One Rectifier Failure alarm is not set.'		master type is 30110, 3096 or 3048M6, an					
alarm is only active if MCU master type is 30110, 3096 or 3048M6. Therefore, hysteresis _phase123Hysteresis is substracted to the voltage lower limit. 10 One Rectifier Failure minor (4) 5 / 2 One rectifier must be replaced or is not powered correctly. The DC fail alarm of rectifier is set. The number of rectifier with DC Failure is higher than 0, there is mains failure, and the 'More Than One Rectifier Failure alarm is not set.'	9	Mains High	warning (2)	10 / 2			
One rectifier must be replaced or is not powered correctly. The DC fail alarm of rectifier is set. The number of rectifier with DC Failure is higher than 0, there is mains failure, and the 'More Than One Rectifier Failure alarm is not set.'		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 substracted to the voltage lower limit.					
rectifier is set. The number of rectifier with DC Failure is higher than 0, there is mains failure, and the 'More Than One Rectifier Failure alarm is not set.'	10	One Rectifier Failure	minor (4)	5 / 2			
11 More Than One Rectifier Failure major (6) 10 / 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.'					
	11						
There is no mains failure and number of rectifier failures is greater than 1.		There is no mains failure and number of rec		nan 1.			

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12	Missing Rectifiers	major (6)	5 / 2
	There is not enough rectifier according Number Of Rectifier'		
13	Battery Last Test Failed	minor (4)	5 / 2
	The last battery test did not succeed and be replaced.	d was not cancelled. M	laybe the battery should
14	Battery On Discharge	minor (4)	10 / 2
	The battery is discharging. This mean rectifiers. This alarm is inactive when the There is an hysteresis corresponding hysteresis'.	e system in AC Failure	or during a battery test.
17	Battery LVD Relay Open	major (6)	5 / 2
	The battery Low Voltage Disconnecto signal, like MCU 1848 or MCU 1x6, the asks to open the LVD		
18	Battery Temperature Too High	minor (4)	5 / 2
	The temperature of the battery is too highlysteresis corresponding to battery para		
19	Battery Temperature Too Low	minor (4)	5 / 2
	The temperature of the battery is too lo hysteresis corresponding to battery para		
20	Battery Temperature Sensor Fail	minor (4)	5 / 2
	The battery temperature sensor (NTC) not connected or defective.	value is inferior to -500	units meaning that it is
21	Ambient Temperature Too High	minor (4)	5 / 2
	The ambient temperature is too high a hysteresis corresponding to parameter only activated on MCU master types 3 0948 and 3048M6.	Ambiant temperature hy	ysteresis'. This alarm is
22	Ambient Temperature Too Low	minor (4)	5 / 2
	The ambient temperature is too low a hysteresis corresponding to parameter 'a only activated on MCU master types 3 0948 and 3048M6.	Ambiant temperature hy	ysteresis'. This alarm is
23	Ambient Temperature Sensor Fail	minor (4)	5 / 2
	The ambiant temperature sensor (NTC) not connected or defective.	value is inferior to -500	units meaning that it is
25	Distribution Breaker Open	major (6)	5 / 2
	This alarm is related to digital input 1. different to configuration parameter 'Digi		d if digital input value is
26	Battery Breaker Open	minor (4)	5 / 2
	This alarm is related to digital input 2. different to configuration parameter 'Digi		d if digital input value is
27	Digital Input 3	none (0)	5 / 2
	This alarm is related to digital input 3. different to configuration parameter 'Digi		d if digital input value is
28	Digital Input 4	none (0)	5 / 2

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29	Digital Input 5	none (0)	5 / 2		
	This alarm is related to digital input 5. different to configuration parameter 'Digital'				
30	30 Digital Input 6 none (0) 5				
	This alarm is related to digital input 6. different to configuration parameter 'Digital'				
31	Digital Input 7	none (0)	5 / 2		
	This alarm is related to digital input 7.	This alarm is activate	ed if digital input value is		
	different to configuration parameter 'Digit	tal Input Alarm Value'	,		
32	different to configuration parameter 'Digital Input 8	none (0)	5 / 2		

Data	Table						
<u>ld</u>	<u>Name</u>	Group	<u>Unit</u>	<u>Licens</u>			
				<u>e</u>			
1	DC Mode	General		basic			
	The DC system can have 4 valu 'AC_FAILURE' or SAFE	es: 'FLOAT', 'BOC	OST', 'BATTERY __	_TEST',			
2	Previous DC Mode	General		basic			
	The previous value of the DC Mode						
11	Bus Voltage	General	Volt	basic			
	The DC bus voltage in volt.						
12	Ratio Delivered On Available Power	General	%	basic			
	This is the ratio of the delivered power d	ivided by the installe	d power, in %.				
13	Minutes Since Last AC Failure Begin	General	minute	basic			
	The number of minute since the last AC Failure begin						
14	Minutes Since Last AC Failure End	General	minute	basic			
	The number of minute since the last AC Failure end						
21	Rectifiers Output Power	Rectifiers	Watt	basic			
	The sum of the delivered rectifier power						
22	Rectifiers Output Current	Rectifiers	Ampere	basic			
	The sum of the delivered rectifier current						
23	Rectifiers Output Power Max	Rectifiers	Watt	basic			
	The sum of the deliverable rectifier power						
24	Rectifiers Output Current Max	Rectifiers	Ampere	basic			
	The sum of the deliverable rectifier current						
31	Number Of Rectifier Max	Rectifiers		basic			
	The maximum possible number of rectifier in this dc system						
32	Number Of Present Rectifier	Rectifiers		basic			
	The actual number of present rectifier in this dc system						
33	Number Of Absent Rectifier	Rectifiers		basic			
	The actual number of absent rectifier in this dc system						
34	Number Of Active Rectifier	Rectifiers		basic			
	The actual number of active rectifier in which is present, DC OK, AC OK and no	•	ctive rectifier is a	rectifier			

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35	Number Of AC-Fail Rectifier	Rectifiers		basic			
33	The actual number or rectifier in AC Failu			Dasic			
36	Number Of DC-Fail Rectifier	Rectifiers		basic			
30	The actual number or rectifier with DC Fa			Dasic			
37	Number Of Remote Off Rectifier	Rectifiers		basic			
31	The actual number or rectifier in remote			Dasic			
38	Number Of Over Temperature			basic			
30	Rectifier	Tiectiners		Dasic			
	The actual number or rectifier in OVer Te	emperature.					
41	Mains Phase 1 Voltage	Mains	Volt	basic			
	The voltage on AC phase 1	1	T	1			
42	Mains Phase 2 Voltage	Mains	Volt	basic			
	The voltage on AC phase 2	1	1	1			
43	Mains Phase 3 Voltage	Mains	Volt	basic			
	The voltage on AC phase 3	1	1	1			
51	Load Power	Load	Watt	basic			
	Estimation of the load power consumption	on					
52	Load Current	Load	Ampere	basic			
	Estimation of the load current consumpti	1	1	1			
61	Battery Input Current	Battery	Ampere	basic			
	Measurement of the battery input currer discharging	nt. A negative value	means that the ba	attery is			
62	Battery Input Power	Battery	Watt	basic			
	Measurement of the battery input powe discharging	r. A negative value	means that the ba	attery is			
71	Battery Temperature	Battery	degree C	basic			
	The battery temperature						
72	Battery Test State	Battery		basic			
	This is about the result of the last NEVER_TESTED, SUCCESS, FAILED_VBUS_TOO_LOW, FAILED_FAILED_CANCELED, FAILED_LVD_OF	ON_GOING, LOAD_TOO_LOW,	FAILED_TIN	ΛΕΟUT,			
73	Battery Test Discharged Capacity Ratio	Battery	%	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.						
74	Battery Test Discharged Capacity	Battery	Ah	basic			
	This is the battery capacity, in ampere This value is updated at the end of the b		ring the last batte	ery test.			
75	Battery Test Final Voltage	Battery	%	basic			
	This is the bus voltage at the end of the end of the battery test.	last battery test. Th	is value is update	d at the			
81	Previous Battery Test State	Battery		basic			
	The result of the previous battery test			1			
82	Minutes Since Last Test Battery	Battery		basic			
			I	1.0 0.0			
	The number of minute without hattery te	St					
91	The number of minute without battery tes Battery Charge Capacity	st Battery	%	basic			

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	The battery charge capacity, calculated by integration of the current.							
92	Calculated Autonomy	Battery	minute	basic				
	Calculation of the remaining autonomy							
93	Battery Current Integration	Battery	As	basic				
	Actual value of the integration of the curr	ent, in Ampere * sec	ond					
94	Battery Current Integration	Battery	Ah	basic				
	Actual value of the integration of the curr	ent, in Ampere * hou	ır					
101	LVD State	LVD		basic				
	Actual state of the LVD							
121	Efficiency Optimized Number Of Rectifier	Smart Energy		asset				
	The optimal number of ON rectifier for Ef	ficiency Optimization	וַ					
122	System Loss Without Optimisation	Smart Energy	Watt	under dev				
	Estimation of the losses without optimisa	tion						
123	System Loss With Optimisation	Smart Energy	Watt	under dev				
	Estimation of the losses with optimisation	า						
124	Rectifier Model Used For Calculation	Smart Energy		asset				
	The rectifier model used							
125	Smart Energy Savings	Smart Energy	Watt	asset				
	Estimation of the losses with optimisation	<u>1</u>	,					
151	Ambient Temperature	Sensors	degree C	basic				
	The ambiant temperature (second temperature)	erature sense)	,					
161	Voltage Sense 1	Sensors	Volt	basic				
	The voltage measured by the sense measurement. Calculation can be done with the control of the c		d for battery s	ymmetry				
162	Voltage Sense 2	Sensors	Volt	basic				
	The voltage measured by the sense measurement. Calculation can be done with the control of the c		d for battery s	ymmetry				
163	Voltage Sense 3	Sensors	Volt	basic				
	The voltage measured by the sense measurement. Calculation can be done with the control of the c		d for battery s	ymmetry				
204	Digital Input 4 Counter	Sensors		basic				
	The counter value of the digital input 4.		•	·				
_			-					

Con	Config Table							
<u>Id</u>	<u>Name</u>	<u>Group</u>	<u>Unit</u>	Range: Min/Max (default)	<u>License</u>			
1	DC Bus Float Voltage at 25 degC	Bus Voltage	Volt	60/120 (108)	basic			
	The floating dc bus voltage of th	e system at 25	Celsius de	gree				
2	DC Bus Voltage Extra Low	Bus Voltage	Volt	60/120 (90)	basic			
The bus voltage under which the alarm 'DC Bus Voltage Extra Low' is set.								
3	DC Bus Voltage Extra Low Hysteresis	Bus Voltage	Volt	0/10 (2)	basic			

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	The voltage hysteresis on the al	arm 'DC Bus V	oltage Extra	a Low'	
4	DC Bus Voltage Low	Bus Voltage	Volt	60/120 (96)	basic
4	The bus voltage under which the			` ,	Daoio
5	<u> </u>	Bus Voltage	Volt	0/10 (1)	basic
	The voltage hysteresis on the al	arm 'DC Bus V	oltage Low	,	
6	DC Bus Voltage High	Bus Voltage	Volt	60/120 (113)	basic
	The bus voltage over which the	1	Voltage Hig	ph' is set.	1
7	DC Bus Voltage High Hysteresis	Bus Voltage	Volt	0/10 (1)	basic
	The voltage hysteresis on the al				1
8	DC Bus Voltage Extra High	Bus Voltage	Volt	60/120 (116)	basic
	The bus voltage over which the	1	Voltage Ex	tra High' is set.	1
9	DC Bus Voltage Extra High Hysteresis		Volt	0/10 (1)	basic
	The voltage hysteresis on the al	1			1
10	LVD Disconnect Voltage	Bus Voltage	Volt	0/100 (86.4)	basic
	The dc bus voltage under which allows preserving the battery life	ch the battery e. The load will	must be di be unpowe	sconnected of the red.	bus. This
11	LVD Disconnect Delay	Bus Voltage	second	1/4000 (1)	basic
	The delay in second before disconfigured disconnected voltage				
21	Temperature Compensation Slope	Temperature Compensatio n	mV/degre e	-2000/0 (-144)	basic
	The slope of the battery temper 72mV/degree is often used.	ature compens	ation in mv	/degree. For a 48V	system, -
22	Maximum Positive Temperature Compensation	Temperature Compensatio n	Volt	0/20 (6)	basic
	The maximal allowed positive co	mpensation.			
23	Maximum Negative Temperature Compensation	Temperature Compensatio n	Volt	-20/0 (-6)	basic
	The maximal allowed negative of	compensation.			
25	Minimal Number Of Present Rectifiers	Rectifiers		0/100 (0)	basic
	The minimal number of rectifications, the alarm 'Missing Rec		t be prese	nt. If there is less	present
26	Rectifier Model	Rectifiers			basic
	The rectifier model				
27	Forced Remote Off Rectifers	Rectifiers			basic
	A list of rectifier which are forc separated. Ex: 1,3 will maintain			of the rectifier must	be coma
31	Battery Charge Current Limit	Battery	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.				

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32	Battery String Capacity	Battery	Ah	3/1000 (100)	basic
-	The battery capacity in Ah.	_autory	<u> - ** </u>	10, 1000 (100)	124010
33		Battery	dearee C	-100/20 (0)	basic
	The temperature under which th			. ,	<u> </u>
34	Battery Temperature High	Battery	<u> </u>	5/100 (40)	basic
77	The temperature over which the			, ,	
35	Battery Temperature		•	0/10 (2)	basic
,,	Hysteresis			. ,	
	The hysteresis on the 'Battery Low' alarms.	·		,	1
36	Minimal Current For Discharging Alarm	Battery	Ampere	0/1000 (3)	basic
	The minimal discharging current	to set the 'Batt	ery On Disc	charge' alarm.	
37	Current Hysteresis For Discharging Alarm	Battery	Ampere	0/50 (1)	basic
	The hysteresis on the 'Battery O	n Discharge' al	arm.		
41	Shunt Rating At 60mV	Battery	Ampere	25/5000 (250)	basic
	The rating of the battery shunt a	t 60mV.			
51	Boost Automatic	Boost		False/False (False)	battery
	The boost mode must be autor bus voltage went under the cocharging the battery faster.	onfigured 'Boos	st Activation		
52	Boost Activation Low Voltage	Boost	Volt	86/100 (92)	battery
	The voltage under which the boo	ost mode can b			_
53		Boost	Volt	100/116 (112.8)	battery
	The voltage over which the system			g mode.	_
54	Boost Termination Current	Boost	Ampere	0/100 (4)	battery
	The battery charging current und				
55	Boost Termination Time	Boost	minute	10/240 (120)	battery
	The time in minute after which the	ne system must	go back in	floating mode.	_
70	Battery Test End Voltage	Battery Test	Volt	60/120 (92)	battery
	The voltage at which any battery		topped.	T	
71	Battery Test Discharge Ratio	Battery Test	%	0/100 (0)	battery
	The ratio of the battery capacity discharged during the test	y to discharge.	If 30 is se	t, 30% of the batte	ry will be
72	Battery Test Interval	Battery Test	day	0/3000 (0)	battery
	The number of days between two set to 0, the battery test is not start or force this test.				
73	Battery Test Discharge Current	Battery Test	Ampere	10/5000 (2000)	battery
	The current at which the batt monitoring regulates the bus vo must be of course higher than the	ltage in order to			
74		Battery Test	Ampere	2/90 (2)	battery
	The battery current under which	the battery te	st must be	stopped because th	ne load is

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	too low.				
75	Battery Test Time Out	Battery Test	minute	1/5000 (10)	battery
	The timeout in minute after whic	h the battery te	st must be	stopped.	
76	Battery Test Requested Minutes Without Mains Failure	Battery Test	minute	0/5000 (1440)	battery
	The minimal time in minute with parameter is not taken into acco				start. This
83	Smart Energy Boolean Condition	Smart Energy		121-125	asset
	This is the boolean condition who f rectifier in remote off.	nich allows or r	ot to autom	natically optimize the	e number
86	Battery LVD Node Id	LVD		True/False (False)	basic
	This is a list of the node id of the	Smart Electro	nic LVDs, c	oma separated	
91	Digital Input 1 Name	Digital Inputs		Distribution Breaker Open	basic
	The name of the digital input 1				
92	Digital Input 1 Normally Closed	Digital Inputs		True/False (True)	basic
	True/False value defining if the not in this default state, the relat			closed. If this digita	al input is
93	Digital Input 2 Name	Digital Inputs		Battery Breaker Open	basic
	The name of the digital input 2				
94	Digital Input 2 Normally Closed	Digital Inputs		True/False (True)	basic
	True/False value defining if the not in this default state, the relat			closed. If this digita	al input is
95	Digital Input 3 Name	Digital Inputs		Digital Input 3	basic
	The name of the digital input 3				•
96	Digital Input 3 Normally Closed	Digital Inputs		True/False (True)	basic
	True/False value defining if the not in this default state, the relat	ed alarm is set		closed. If this digita	•
97	Digital Input 4 Name	Digital Inputs		Digital Input 4	basic
	The name of the digital input 4	T	1	T	1
98	Closed	Digital Inputs		True/False (True)	basic
	True/False value defining if the not in this default state, the relat			closed. If this digita	al input is
99	Digital Input 5 Name	Digital Inputs		Digital Input 5	basic
	The name of the digital input 5	T	1	<u></u>	1
100	Closed	Digital Inputs		True/False (True)	basic
	True/False value defining if the not in this default state, the relat	ed alarm is set		closed. If this digita	al input is
101	Digital Input 6 Name	Digital Inputs		Digital Input 6	basic
	The name of the digital input 6				

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102	Digital Closed	Input			Digital Inputs		,	basic
							closed. If this digital	al input is
	1			-	ed alarm is set	T	T	
103	Digital Ir	•			Digital Inputs		Digital Input 7	basic
	The nam			•		T	Γ	ı
104	Digital Closed	-			Digital Inputs		,	basic
				•	•	•	closed. If this digital	al input is
	1				ed alarm is set	T	T	I
105	Digital Ir	•			Digital Inputs		Digital Input 8	basic
	The nam					T	T	T
106	Digital Closed	Input			Digital Inputs		True/False (True)	basic
							closed. If this digital	al input is
				-	ed alarm is set		I _ .	
111	Dry Al Boolean			Iternative	Dry Alarms		False	plc
				dition to ac the PLC o		larm relay	1. The way to define	boolean
112					Dry Alarms		False	plc
112	Boolean			ileilialive	Dry Alainis		i aise	pic
				dition to ac	tivate the dry a	larm relav 2	2. The way to define	boolean
				the PLC		iaiiii iolay i	in the may to domin	, 20010411
113	Dry Al Boolean			lternative	Dry Alarms		False	plc
				dition to ac the PLC o		larm relay (3. The way to define	boolean
114	Dry Al Boolean			Iternative	Dry Alarms		False	plc
						larm relay 4	4. The way to define	boolean
	1			the PLC o	•	Ι	T	l
131	Ambient				Sensors	degree C		basic
	1						ture Too Low' must	
132	Ambient	•			Sensors	degree C		basic
							ture Too Low' must	1
133	Ambient Hysteres		Ter	nperature	Sensors	degree C		basic
			n the	e 'Battery ⁻	Temperature T	ı oo High' ar	ı nd 'Battery Tempera	ture Too
	Low' alar			<i>-</i>		• • • • • • • • • • • • • • • • • • •		
141	AC Volta	ge Low			Mains	Volt		basic
	The AC v	oltage u	nder	which the	alarm AC Low	is set.		L
142	AC Volta				Mains	Volt		basic
				which the a	ılarm AC High i		ı	1
143	AC Volta				Mains	Volt		basic
					arms AC High a		<u>'</u> V.	,
144	AC Phas				Mains			basic
	AV FIIGS							
						loulation a	l f AC phase 1. If ei	l .

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	rectifiers are used. The syntax to PLC chapter. The PLC data ele				oed in the
145	AC Phase 2 PLC	Mains			basic
	This is the mathematical expre rectifiers are used. The syntax in PLC chapter. The PLC data ele	for writting math	nematical e	xpression is describ	
146	AC Phase 3 PLC	Mains			basic
	This is the mathematical expre rectifiers are used. The syntax of PLC chapter. The PLC data ele	for writting math	nematical e	xpression is describ	
521	Read Access User Numbers	Allowed Users		(1,2,3,4,5)	basic
	The list of the user numbers numbers are coma separated.				
522	Write Access User Numbers	Allowed Users		()	basic
	The list of the user numbers we that these users can modify the control elements. The user numbers 1,2,3,4 and 5. Ex: 1,3,4	configuration e	element, th	e alarm settings an	d use the
601	Event Table Length	Event		10/4000 (100)	basic
	The maximum length of the tabl	e. The value mi	ust be comp	orised between 10 a	and 4000
602	Event Table Length By Rectifier	Event		10/4000 (100)	basic
	The maximum length of the tabl	e. The value mi	ust be comp	prised between 10 a	and 4000
901	Number Of PLC Data	PLC		(0)	plc
	The number of PLC data. Every data. Data elements are au parameters are added to set to calculation. In order to use the module	tomatically add he PLC Data N ese functionaliti	ded in the Name and	e data table. Cor the PLC Data Mat eed a license with	figuration hematical
902	Number Of PLC Alarm	PLC		(0)	plc
	The number of PLC alarm. Ever alarms. Alarm elements are parameters are added to set condition. In order to use the module	automatically a the PLC Alarn	added in t n Name a	he alarm table. T nd the PLC Alarm	he alarm Boolean

Cor	Control Table					
<u>Id</u>	<u>Name</u>	<u>Group</u>	<u>Licens</u>			
1	Back To Float	DC Mode	<u>e</u> basic			
	The dc system must go back in floating mo	de.				
2	Start Battery Test	DC Mode	battery			
	The dc system must start a battery test.					
3	Force Battery Test	DC Mode	battery			
	The dc system must force a battery test.	•				
4	Start Boost Mode	DC Mode	battery			
	The dc system must go in boost mode.					

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11	Open The LVD	LVD	basic			
	The LVD must be opened					
12	Close The LVD	LVD	basic			
	The LVD must be closed					
21	Correct Battery Current Offset	Battery	basic			
	No information					
31	Reset Battery Current Integration	Battery	basic			
	Reset the integration of the battery current.					
41	Reset Last Battery Test State	Battery	battery			
	Reset the state of the last battery test. If an alarm alarm will be cleared.	ı 'Battery Last Test Failed' i	s set, the			
51	Save Configuration In MCU	Save	basic			
	Save configuration parameters in the MCU microthe system will be correctly managed.	controller. If comp@s is no	t present,			
61	Set Digital Input 4 Counter Value	Counters	basic			
	Set Counter Value					
501	Clear My Events	Event	basic			
	By writing '1' to this control element, all the events	of this equipment will be cle	eared.			
502	Clear All Events	Event	basic			
	By writing '1' to this control element, all the events of all the sub-equipments will be cleared.	of this equipment and all the	ne events			
511	Add Event	Event	basic			
	This control element adds an event of severity nor to this control element	e. The event name is the te	ext written			
512	Add Major Event	Event	basic			
	This control element adds an event of severity major. The event name is the tex written to this control element					
521	Reset Default Names And Groups	Advanced	basic			
	This control element resets all the element Name values for this equipment	s, Groups and Subgroups	to default			
522	Reset Default Names And Groups Recursive	Advanced	basic			
	This control element resets all the element Name values for this equipment and all sub equipments	s, Groups and Subgroups	to default			

7.2.15 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			

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Desc	cription Table				
<u>Id</u>	<u>Name</u>	Group	<u>License</u>		
1	Description	Description	basic		
	A free text zone to write a syste	em description			
2	Reference	Description	basic		
	A free text zone to write the cu	stomer reference of the syste	em		
11	Product Name	Monitoring	basic		
	The product name of the DC sy	stem monitoring			
12	Hardware Reference	Monitoring	basic		
	The hardware reference of the	DC system monitoring			
14	Software Reference	Monitoring	asset		
	The serial number of the DC sy	stem monitoring			
16	Serial Number	Monitoring	asset		
	The serial number of the DC system monitoring				
18	Manufacturing Date	Monitoring	asset		
	The production date of the DC	system monitoring			

Alar	m Table					
<u>Id</u>	<u>Name</u>	Severity Type (Level)	Set/Clear Delay			
1	DC Bus Extra Low	major (6)	5 / 2			
	The bus voltage is extra low. The alarm is configuration parameter 'DC Bus Voltage alarm : 'DC Bus Voltage Extra Low Hystere mode is BATTERY TEST	Extra Low'. There is an	hysteresis on the			
2	DC Bus Low	minor (4)	5 / 2			
	The bus voltage is low. The alarm is set configuration parameter 'DC Bus Voltage L 'DC Bus Voltage Low Hysteresis'					
3	DC Bus High	minor (4)	5/2			
	The bus voltage is high. The alarm is set configuration paramenter 'DC Bus Voltage 'DC Bus Voltage High Hysteresis'					
4	DC Bus Extra High	major (6)	5 / 2			
	The bus voltage is extra high. The alarm is configuration paramenter 'DC Bus Voltage alarm : 'DC Bus Voltage Extra High Hystere:	Extra High'. There is a				
5	DC Bus Voltage Sense Failure	major (6)	5/2			
	The DC bus voltage sense is defective. unconfigured.	The DC bus voltage	is unconnected or			
6	Mains Failure	minor (4)	5/2			
	The number of active rectifiers is equal to 0 greater than 0.	and the number of rectif	iers in AC failure is			
7	Mains Partial Failure	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.					
8	Mains Low	warning (2)	10 / 2			

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	The main voltage is low on one or more p master type is 30110, 3096 or 3048M6, a to the voltage lower limit		
10	One Rectifier Failure	minor (4)	5 / 2
	One rectifier must be replaced or is not prectifier is set. The number of rectifier will mains failure, and the 'More Than One Rec	th DC Failure is higher	than 0, there is no
11	More Than One Rectifier Failure	major (6)	10 / 2
	There is no mains failure and number of re	ctifier failures is greater t	han 1.
12	Missing Rectifiers	major (6)	5 / 2
	There is not enough rectifier according Number Of Rectifier'	to the configuration pa	arameter : 'Minimal
13	Battery Last Test Failed	minor (4)	5 / 2
	The last battery test did not succeed and vibe replaced.	was not cancelled. Mayb	e the battery should
14	Battery On Discharge	minor (4)	10 / 2
	The battery is discharging. This means rectifiers. This alarm is inactive when the same there is an hysteresis corresponding to hysteresis'.	system in AC Failure or obattery parameter 'Is	Juring a battery test. discharging current
17	Battery LVD Relay Open	major (6)	5 / 2
	The battery Low Voltage Disconnector signal, like MCU 1848 or MCU 1x6, the a asks to open the LVD		
18	Battery Temperature Too High	minor (4)	5 / 2
	The temperature of the battery is too high hysteresis corresponding to battery parameters		
19	Battery Temperature Too Low	minor (4)	5/2
	The temperature of the battery is too low hysteresis corresponding to battery parameters.		
20	Battery Temperature Sensor Fail	minor (4)	5 / 2
	The battery temperature sensor (NTC) valuation not connected or defective.	lue is inferior to -500 uni	
21	Ambient Temperature Too High	minor (4)	5 / 2
	The ambient temperature is too high an hysteresis corresponding to parameter 'Amonly activated on MCU master types 301 0948 and 3048M6.	nbiant temperature hyste	resis'. This alarm is
22	Ambient Temperature Too Low	minor (4)	5 / 2
	The ambient temperature is too low and hysteresis corresponding to parameter 'Amonly activated on MCU master types 301 0948 and 3048M6.	nbiant temperature hyste	resis'. This alarm is
23	Ambient Temperature Sensor Fail	minor (4)	5 / 2
	The ambiant temperature sensor (NTC) vanot connected or defective.	alue is inferior to -500 un	its meaning that it is
25	Distribution Breaker Open	major (6)	5/2
	This alarm is related to digital input 1. The different to configuration parameter 'Digital'		digital input value is

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26	Battery Breaker Open	minor (4)	5 / 2
	This alarm is related to digital input 2. The different to configuration parameter 'Digital'		igital input value is
27	Digital Input 3	none (0)	5/2
	This alarm is related to digital input 3. The different to configuration parameter 'Digital'		igital input value is
28	Digital Input 4	none (0)	5/2
	This alarm is related to digital input 4. The different to configuration parameter 'Digital'		igital input value is
29	Digital Input 5	none (0)	5 / 2
	This alarm is related to digital input 5. The different to configuration parameter 'Digital'		igital input value is
30	Digital Input 6	none (0)	5 / 2
	This alarm is related to digital input 6. The different to configuration parameter 'Digital'		igital input value is
31	Digital Input 7	none (0)	5 / 2
	This alarm is related to digital input 7. The different to configuration parameter 'Digital'		igital input value is
32	Digital Input 8	none (0)	5/2
	This alarm is related to digital input 8. The different to configuration parameter 'Digital'		igital input value is

Data	Table						
<u>Id</u>	<u>Name</u>	<u>Group</u>	<u>Unit</u>	<u>Licens</u> <u>e</u>			
1	DC Mode	General		basic			
	The DC system can have 4 value 'AC_FAILURE' or SAFE	es: 'FLOAT', 'BOC	ST', 'BATTERY_	TEST',			
2	Previous DC Mode	General		basic			
	The previous value of the DC Mode						
11	Bus Voltage	General	Volt	basic			
	The DC bus voltage in volt.						
12	Ratio Delivered On Available Power	General	%	basic			
	This is the ratio of the delivered power divided by the installed power, in %.						
13	Minutes Since Last AC Failure Begin	General	minute	basic			
	The number of minute since the last AC	Failure begin					
14	Minutes Since Last AC Failure End	General	minute	basic			
	The number of minute since the last AC	Failure end					
21	Rectifiers Output Power	Rectifiers	Watt	basic			
	The sum of the delivered rectifier power						
22	Rectifiers Output Current	Rectifiers	Ampere	basic			
	The sum of the delivered rectifier current						
23	Rectifiers Output Power Max	Rectifiers	Watt	basic			
	The sum of the deliverable rectifier power	er					
24	Rectifiers Output Current Max	Rectifiers	Ampere	basic			
	The sum of the deliverable rectifier curre	ent					

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31	Number Of Rectifier Max	Rectifiers		basic
0.	The maximum possible number of rectific	L		Dasio
32	Number Of Present Rectifier	Rectifiers		basic
-	The actual number of present rectifier in			baolo
33	Number Of Absent Rectifier	Rectifiers		basic
00	The actual number of absent rectifier in t			Dasio
34	Number Of Active Rectifier	Rectifiers		basic
J	The actual number of active rectifier in t	1	tive rectifier is a	l
	which is present, DC OK, AC OK and no		ctive rectifier is a	Collifor
35	Number Of AC-Fail Rectifier	Rectifiers		basic
	The actual number or rectifier in AC Failu	ire.		
36	Number Of DC-Fail Rectifier	Rectifiers		basic
	The actual number or rectifier with DC Fa	ailure.		
37	Number Of Remote Off Rectifier	Rectifiers		basic
	The actual number or rectifier in remote	off.	1	l
38	Number Of Over Temperature Rectifier	Rectifiers		basic
	The actual number or rectifier in OVer Te	emperature.		
41	Mains Phase 1 Voltage	Mains	Volt	basic
	The voltage on AC phase 1			
42	Mains Phase 2 Voltage	Mains	Volt	basic
	The voltage on AC phase 2			
43	Mains Phase 3 Voltage	Mains	Volt	basic
	The voltage on AC phase 3			
51	Load Power	Load	Watt	basic
	Estimation of the load power consumption	on		
52	Load Current	Load	Ampere	basic
	Estimation of the load current consumption	on		
61	Battery Input Current	Battery	Ampere	basic
	Measurement of the battery input currer discharging	nt. A negative value	means that the ba	attery is
62	Battery Input Power	Battery	Watt	basic
	Measurement of the battery input power discharging	r. A negative value r	means that the ba	attery is
71	Battery Temperature	Battery	degree C	basic
	The battery temperature			
72	Battery Test State	Battery		basic
	This is about the result of the last NEVER_TESTED, SUCCESS, FAILED_VBUS_TOO_LOW, FAILED_FAILED_CANCELED, FAILED_LVD_OF	ON_GOING, LOAD_TOO_LOW,	values are pos FAILED_TIM FAILED_AC_FA	
73	Battery Test Discharged Capacity Ratio		%	basic
	This is the battery capacity, in percent, value is updated at the end of the battery	•	he last battery te	st. This
74	Battery Test Discharged Capacity	Battery	Ah	basic
	This is the battery capacity, in ampere	bour disaborased du		

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	This value is updated at the end of the b	attery test.					
75	Battery Test Final Voltage	Battery	%	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.						
81	Previous Battery Test State	Battery		basic			
	The result of the previous battery test						
82	Minutes Since Last Test Battery	Battery		basic			
	The number of minute without battery te	st					
91	Battery Charge Capacity Battery % b						
	The battery charge capacity, calculated by integration of the current.						
92	Calculated Autonomy	Battery	minute	basic			
	Calculation of the remaining autonomy						
93	, ,						
	Actual value of the integration of the curr	rent, in Ampere * sec	ond				
94 Battery Current Integration Battery Ah							
	Actual value of the integration of the curr	rent, in Ampere * hou	ır				
101	LVD State	LVD		basic			
	Actual state of the LVD						
121	Efficiency Optimized Number Of Rectifier	Smart Energy		asset			
	The optimal number of ON rectifier for E	fficiency Optimization	<u> </u>				
122	System Loss Without Optimisation	Smart Energy	Watt	under dev			
	Estimation of the losses without optimisa	ation					
123	System Loss With Optimisation	Smart Energy	Watt	under dev			
	Estimation of the losses with optimisation	n					
124	Rectifier Model Used For Calculation	Smart Energy		asset			
	The rectifier model used						
125	Smart Energy Savings	Smart Energy	Watt	asset			
	Estimation of the losses with optimisation	n					
151	Ambient Temperature	Sensors	degree C	basic			
	The ambiant temperature (second temperature)	erature sense)					
161	Voltage Sense 1	Sensors	Volt	basic			
	The voltage measured by the sens measurement. Calculation can be done		d for battery s	ymmetry			
162	Voltage Sense 2	Sensors	Volt	basic			
	The voltage measured by the sens measurement. Calculation can be done		d for battery s	ymmetry			
163	Voltage Sense 3	Sensors	Volt	basic			
	The voltage measured by the sens measurement. Calculation can be done	e 3. Can be used	d for battery s	ymmetry			
204	Digital Input 4 Counter	Sensors		basic			
		i .					

Config Table

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	T.,			5 44 44	Ι
<u>Id</u>	<u>Name</u>	<u>Group</u>	<u>Unit</u>	Range: Min/Max (default)	<u>License</u>
1	DC Bus Float Voltage at 25 degC	Bus Voltage	Volt	92/138 (125)	basic
	The floating dc bus voltage of th	e system at 25	Celsius de	gree	
2	DC Bus Voltage Extra Low	Bus Voltage	Volt	92/138 (103.5)	basic
	The bus voltage under which the	alarm 'DC Bus	s Voltage E	xtra Low' is set.	
3	DC Bus Voltage Extra Low Hysteresis	Bus Voltage	Volt	0/10 (2)	basic
	The voltage hysteresis on the al	arm 'DC Bus V	oltage Extra	a Low'.	
4	DC Bus Voltage Low	Bus Voltage	Volt	92/138 (110.4)	basic
	The bus voltage under which the	alarm 'DC Bu	s Voltage L	ow' is set.	
5	DC Bus Voltage Low Hysteresis	Bus Voltage	Volt	0/10 (1)	basic
	The voltage hysteresis on the al	arm 'DC Bus V	oltage Low		
6	DC Bus Voltage High	Bus Voltage	Volt	92/138 (129.95)	basic
	The bus voltage over which the	alarm 'DC Bus	Voltage Hig	h' is set.	
7	DC Bus Voltage High Hysteresis	Bus Voltage	Volt	0/10 (1)	basic
	The voltage hysteresis on the al	arm 'DC Bus V	oltage High		
8	DC Bus Voltage Extra High	Bus Voltage	Volt	92/138 (133.4)	basic
	The bus voltage over which the		Voltage Ex	tra High' is set.	I.
9	DC Bus Voltage Extra High		Volt	0/10 (1)	basic
	Hysteresis				
	The voltage hysteresis on the al	arm 'DC Bus V	oltage Extra	a High	
10	LVD Disconnect Voltage	Bus Voltage	Volt	0/115 (99.36)	basic
	The dc bus voltage under which allows preserving the battery life		must be di	sconnected of the	bus. This
11	LVD Disconnect Delay	Bus Voltage	second	1/4000 (1)	basic
	The delay in second before disconfigured disconnected voltage	onnecting the b	cattery if the	e dc bus voltage is	
21	Temperature Compensation Slope	Temperature Compensatio n	mV/degre e	-2000/0 (-165)	basic
	The slope of the battery temper 72mV/degree is often used.	ature compens	ation in mv	degree. For a 48V	system, -
22	Maximum Positive Temperature Compensation	Temperature Compensatio n	Volt	0/20 (6)	basic
	The maximal allowed positive co	mpensation.			
23	Maximum Negative Temperature Compensation	Temperature Compensatio n	Volt	-20/0 (-6)	basic
	The maximal allowed negative of	ompensation.			
25	Minimal Number Of Present Rectifiers			0/100 (0)	basic
	The minimal number of rectifi rectifiers, the alarm 'Missing Rec		t be prese	nt. If there is less	present

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	<u> </u>	.	<u> </u>	<u> </u>	1
26	Rectifier Model	Rectifiers			basic
	The rectifier model	T	Γ	T	1
27	Forced Remote Off Rectifers				basic
	A list of rectifier which are force separated. Ex: 1,3 will maintain			of the rectifier must	be coma
31	Battery Charge Current Limit	Battery	Ampere	0.5/1000 (1000)	basic
	The maximal battery current which the bus voltage in order to satisfication to satisficate the control of the control of the current with the	sfy this condition			
32	Battery String Capacity	Battery	Ah	3/1000 (100)	basic
	The battery capacity in Ah.				•
33	Battery Temperature Low	Battery	degree C	-100/20 (0)	basic
	The temperature under which th	e alarm 'Battery	y Temperat	ure Too Low' must I	oe set.
34	Battery Temperature High	Battery	degree C	5/100 (40)	basic
	The temperature over which the	alarm 'Battery	Temperatu	re Too High' must b	e set.
35	Battery Temperature Hysteresis	Battery	degree C	0/10 (2)	basic
	The hysteresis on the 'Battery Low' alarms.	Temperature T	oo High' ar	nd 'Battery Tempera	ature Too
36	Minimal Current For Discharging Alarm	Battery	Ampere	0/1000 (3)	basic
	The minimal discharging current	to set the 'Batt	ery On Disc	charge' alarm.	
37	Current Hysteresis For Discharging Alarm	Battery	Ampere	0/50 (1)	basic
	The hysteresis on the 'Battery O	n Discharge' al	arm.		
41	Shunt Rating At 60mV	Battery	Ampere	25/5000 (250)	basic
	The rating of the battery shunt a	t 60mV.			
51	Boost Automatic	Boost		False/False (False)	battery
	The boost mode must be autor bus voltage went under the cocharging the battery faster.				
52	Boost Activation Low Voltage	Boost	Volt	86/100 (92)	battery
	The voltage under which the boo	ost mode can b	e activated	•	
53	Boost Termination Voltage	Boost	Volt	115/133.4 (129.72)	battery
	The voltage over which the syste	em must go bad	ck to floatin	g mode.	
54	Boost Termination Current	Boost	Ampere	0/100 (4)	battery
	The battery charging current und	der which the sy	ystem must	go back to floating	mode.
55	Boost Termination Time	Boost	minute	10/240 (120)	battery
	The time in minute after which the	ne system must	go back in	floating mode.	
70	Battery Test End Voltage	Battery Test	Volt	69/138 (105.8)	battery
	The voltage at which any battery	test must be s	topped.		
71	Battery Test Discharge Ratio	Battery Test	%	0/100 (0)	battery
	The ratio of the battery capacity discharged during the test	y to discharge.	If 30 is se	t, 30% of the batte	ry will be
72	Battery Test Interval	Battery Test	day	0/3000 (0)	battery
	,	1	,	(-)	

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_								1
							attery test. If this par	
				not	started automa	tically. The	user can remotely	or locally
	start or fo					T.	[a//aa//aaa)	l
73	Battery Current	Test	Disch	narge	Battery Test	Ampere	3/100 (1000)	battery
	The curr	ent at v	which the	batt	ery must be	discharged	during a battery	test. The
							is condition. The loa	
	must be o	of course	e higher th	nan th	nis parameter.			
74	Battery Discharg	Tes e Curre		nimal	Battery Test	Ampere	2/90 (2)	battery
				which	the battery te	st must be	stopped because the	ne load is
	too low.	ory carre	THE GITGOT		. the battery to	or maor so	otoppou podudoo ti	10 1044 10
75	Battery 1	est Tim	e Out		Battery Test	minute	1/5000 (10)	battery
				whic	h the battery te	1	, ,	<u>, , , , , , , , , , , , , , , , , , , </u>
76	Battery	Test			Battery Test	minute	0/5000 (1440)	battery
	Minutes Failure			lains			0,0000 (1110)	ballory
	The mini	mal time	in minute	e with	out mains failu	re in order	to allow a battery	start. This
					unt when the b			
83	Smart	Energ			Smart Energy		121-125	asset
	Conditio	_	•					
	This is th	e boolea	an conditi	on wh	nich allows or r	ot to auton	natically optimize th	e number
	of rectifie						,	
86	Battery L	VD Noc	de Id		LVD		True/False (False)	basic
	This is a	list of the	e node id	of the	Smart Electro	nic LVDs, c	coma separated	
91	Digital In	put 1 N	ame		Digital Inputs		Distribution Breaker Open	basic
	The name	e of the	digital inp	ut 1	!		•	-II
92	Digital				Digital Inputs		True/False (True)	basic
	Closed	•			g		(**************************************	
	True/Fals	e value	defining i	if the	digital input 1	is normally	closed. If this digital	al input is
					ed alarm is set		3	'
93	Digital In	put 2 N	ame		Digital Inputs		Battery Breaker Open	basic
	The nem	o of the	diaital inn	+ 0			Ореп	
0.4	1		digital inp		District Issued	1	T (T)	1!-
94	Digital Closed	Input	2 Nori	maiiy	Digital Inputs		True/False (True)	basic
	True/False value defining if the digital input 2 is normally closed. If this digital input is							
	+			relat	ed alarm is set	•	T	T
95	Digital In	put 3 N	ame		Digital Inputs		Digital Input 3	basic
	The name	e of the	digital inp	ut 3				
96	Digital Closed	Input	3 Nori	mally	Digital Inputs		True/False (True)	basic
					digital input 3 ed alarm is set		closed. If this digital	al input is
07	1		-	reial			Digital Input 4	basis
97	Digital In	•			Digital Inputs	1	Digital Input 4	basic
-			digital inp		la	1		I
98	Digital Closed	Input	4 Nori	mally	Digital Inputs		True/False (True)	basic

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	True/False value not in this default	state, the relat	ed alarm is set		closed. If this digita	al input is
99	Digital Input 5 N	ame	Digital Inputs		Digital Input 5	basic
i	The name of the digital input 5					
100	Digital Input Closed	5 Normally	Digital Inputs		True/False (True)	basic
	True/False value not in this default				closed. If this digita	al input is
101	Digital Input 6 N	ame	Digital Inputs		Digital Input 6	basic
	The name of the	digital input 6				
102	Digital Input Closed				True/False (True)	basic
	not in this default	state, the relat	ed alarm is set.		closed. If this digita	al input is
103	Digital Input 7 N		Digital Inputs		Digital Input 7	basic
	The name of the	digital input 7				
104	Digital Input Closed	7 Normally	Digital Inputs		True/False (True)	basic
	True/False value not in this default				closed. If this digital	al input is
105	Digital Input 8 N		Digital Inputs		Digital Input 8	basic
	The name of the		Digital Inputs		Digital Inpat o	Daoio
106	Digital Input Closed		Digital Inputs		True/False (True)	basic
					closed. If this digita	al input is
111		Alternative			False	plc
	Another Boolean condition is detail			larm relay	1. The way to define	boolean
112						
Į.	Dry Alarm 2 Boolean Conditi	Alternative on	Dry Alarms		False	plc
	Boolean Conditi Another Boolean	on condition to ac	tivate the dry a	larm relay 2	False 2. The way to define	•
113	Boolean Conditi	on condition to ac ed in the PLC of	tivate the dry a	larm relay 2		•
113	Boolean Conditi Another Boolean condition is detail Dry Alarm 3 Boolean Conditi	on condition to ac ed in the PLC of Alternative on condition to ac	tivate the dry a chapter. Dry Alarms tivate the dry a	,	2. The way to define	e boolean
113	Another Boolean condition is detail Dry Alarm 3 Boolean Conditi Another Boolean	condition to ac ed in the PLC of Alternative on condition to ac ed in the PLC of Alternative	tivate the dry a chapter. Dry Alarms tivate the dry a chapter.	,	2. The way to define	e boolean
	Boolean Conditi Another Boolean condition is detail Dry Alarm 3 Boolean Conditi Another Boolean condition is detail Dry Alarm 4 Boolean Conditi	condition to ace d in the PLC of Alternative on condition to ace d in the PLC of Alternative on condition to accondition to ac	tivate the dry a chapter. Dry Alarms tivate the dry a chapter. Dry Alarms tivate the dry a	larm relay (False 3. The way to define	plc e boolean plc e boolean
	Boolean Conditi Another Boolean condition is detail Dry Alarm 3 Boolean Conditi Another Boolean condition is detail Dry Alarm 4 Boolean Conditi Another Boolean	condition to acced in the PLC of Alternative on Condition to acced in the PLC of Alternative on Condition to acced in the PLC of Condition to acced in the PLC of Condition to acced in the PLC of Condition to acceding the PLC of Con	tivate the dry a chapter. Dry Alarms tivate the dry a chapter. Dry Alarms tivate the dry a	larm relay (False Talse False False	plc e boolean plc e boolean
114	Boolean Conditi Another Boolean condition is detail Dry Alarm 3 Boolean Conditi Another Boolean condition is detail Dry Alarm 4 Boolean Conditi Another Boolean condition is detail Another Boolean condition is detail	condition to acced in the PLC of Alternative on condition to acced in the PLC of Alternative on condition to acced in the PLC of condition to accede	tivate the dry a chapter. Dry Alarms tivate the dry a chapter. Dry Alarms tivate the dry a chapter. Sensors	larm relay contact larm relay co	False False False False False False The way to define	plc plc plc boolean plc boolean basic
114	Boolean Conditi Another Boolean condition is detail Dry Alarm 3 Boolean Conditi Another Boolean condition is detail Dry Alarm 4 Boolean Conditi Another Boolean condition is detail Another Boolean condition is detail Ambient Temper The temperature	condition to acced in the PLC of Alternative on Condition to acced in the PLC of Alternative on Condition to acced in the PLC of Condition to accede	tivate the dry a chapter. Dry Alarms tivate the dry a chapter. Dry Alarms tivate the dry a chapter. Sensors e alarm 'Ambia	larm relay degree C	False Talse False False	plc boolean plc boolean plc boolean basic be set.
114	Boolean Conditi Another Boolean condition is detail Dry Alarm 3 Boolean Conditi Another Boolean condition is detail Dry Alarm 4 Boolean Conditi Another Boolean condition is detail Another Boolean condition is detail Ambient Temper The temperature Ambient Temper	condition to acced in the PLC of Alternative on condition to acced in the PLC of Alternative on condition to acced in the PLC of rature Low under which the rature High	tivate the dry a chapter. Dry Alarms tivate the dry a chapter. Dry Alarms tivate the dry a chapter. Sensors e alarm 'Ambia Sensors	larm relay degree Cont Tempera	False False The way to define The way to define False The way to define The way to define	plc boolean plc boolean basic basic basic
114	Boolean Conditi Another Boolean condition is detail Dry Alarm 3 Boolean Conditi Another Boolean condition is detail Dry Alarm 4 Boolean Conditi Another Boolean condition is detail Another Boolean condition is detail Ambient Temper The temperature Ambient Temper	condition to acced in the PLC of Alternative on condition to acced in the PLC of Alternative on condition to acced in the PLC of rature Low under which the rature High	tivate the dry a chapter. Dry Alarms tivate the dry a chapter. Dry Alarms tivate the dry a chapter. Sensors e alarm 'Ambia Sensors e alarm 'Ambia	larm relay degree Cont Tempera	False False False False False False The way to define	plc boolean plc boolean basic basic basic

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	Low' alarms.							
521	Read Access User Numbers	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							
522	Write Access User Numbers	Allowed Users		()	basic			
	The list of the user numbers which have write access to this equipment. This mean 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				d use the			
601	Event Table Length	Event		10/4000 (100)	basic			
	The maximum length of the table	e. The value mi	ust be comp	orised between 10 a	and 4000			
602	Event Table Length By Rectifier	Event		10/4000 (100)	basic			
The maximum length of the table. The value must be comprised between				orised between 10 a	and 4000			
901	Number Of PLC Data	PLC		(0)	plc			
	The number of PLC data. Every equipment can manage up to 20 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							
902	Number Of PLC Alarm	PLC		(0)	plc			
	The number of PLC alarm. Every equipment can manage up to 20 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							

Con	trol Table			
<u>Id</u>	<u>Name</u>	<u>Group</u>	<u>Licens</u>	
1	Back To Float	DC Mode	basic	
	The dc system must go back in floating mode.			
2	Start Battery Test	DC Mode	battery	
	The dc system must start a battery test.			
3	Force Battery Test	DC Mode	battery	
	The dc system must force a battery test.			
4	Start Boost Mode	DC Mode	battery	
	The dc system must go in boost mode.			
11	Open The LVD	LVD	basic	
	The LVD must be opened			
12	Close The LVD	LVD	basic	
	The LVD must be closed			
21	Correct Battery Current Offset	Battery	basic	
	No information			
31	Reset Battery Current Integration	Battery	basic	
	Reset the integration of the battery current.			

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41	Reset Last Battery Test State	Battery	battery
	Reset the state of the last battery test. If an alarm 'Battery Last Test Failed' is set alarm will be cleared.		
51	Save Configuration In MCU	Save	basic
Save configuration parameters in the MCU microcontroller. If comp@s the system will be correctly managed.			present,
61	Set Digital Input 4 Counter Value	Counters	basic
	Set Counter Value		
501	Clear My Events	Event	basic
	By writing '1' to this control element, all the events of	f this equipment will be clea	ared.
502	Clear All Events	Event	basic
By writing '1' to this control element, all the events of this equipment and all of all the sub-equipments will be cleared.			e events
511	Add Event	Event	basic
This control element adds an event of severity none. The event name is to this control element		e. The event name is the te	t written
512	Add Major Event	Event	basic
	This control element adds an event of severity major. The event name is the written to this control element		
521	Reset Default Names And Groups	Advanced	basic
	This control element resets all the element Names, Groups and Subgroups to defauvalues for this equipment		
522	Reset Default Names And Groups Recursive	Advanced	basic
This control element resets all the element Names, Groups and Subvalues for this equipment and all sub equipments		, Groups and Subgroups to	o default

7.3 Rectifier Tables

7.3.1 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

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<u>Id</u>	Name	Severity Type (Level)	Set/Clear Delay	
1	AC Failure	major (0)	5 / 2	
	The rectifier is in AC Failure.			
2	DC Failure	major (0)	5 / 2	
	The rectifier must be replaced because of a	DC Failure.		
3	Over Temperature	major (0)	5 / 2	
	The rectifier is too warm.			
4	Remote Off	warning (0)	5 / 2	
	The rectifier is in remote off.			
7	Communication Error	warning (0)	5 / 2	
	The Communication With the rectifier has been lost.			

Data	Table			
<u>Id</u>	<u>Name</u>	<u>Group</u>	<u>Unit</u>	<u>Licens</u>
				<u>e</u>
1	Output Current	Output	Ampere	basic
	The current delivered by the rectifier			
2	Output Power	Output	Watt	basic
	The power delivered by the rectifier			
3	Output Voltage	Output	Volt	basic
	The output voltage of the rectifier			
4	Output Current Max	Output	Ampere	basic
	The maximal current deliverable by the for CAN capable rectifiers.	rectifier. This takes	into account the c	derating
5	Output Power Max	Output	Watt	basic
	The maximal power deliverable by the for CAN capable rectifiers.	rectifier. This takes i	nto account the c	derating

7.3.2 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

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Desc	Description Table					
<u>Id</u>	<u>Name</u>	Group	<u>License</u>			
1	Product Name	Product Info	asset			
	The rectifier product name (Wit	h CAN capable rectifiers)				
2	Hardware Reference	Product Info	asset			
	The rectifier hardware reference capable rectifiers)	nce. This corresponds to the	he Mitra 12NC (With CAN			
3	Hardware Revision	Product Info	asset			
	The rectifier hardware revision.	(With CAN capable Rectifie	rs)			
4	Software Reference	Product Info	asset			
	The rectifier software reference. This corresponds to the Mitra 12NC (With CAl capable rectifiers)					
6	Serial Number	Product Info	asset			
	The rectifier serial number - Wb (With CAN capable rectifiers)					
8	Manufacturing Date	Product Info	asset			
	The rectifier production date (With CAN capable rectifiers)					
21	CAN Node Id	CAN Bus	basic			
	The CAN Bus Node ID					

Alar	Alarm Table			
<u>Id</u>	<u>Name</u>	Severity Type (Level)	Set/Clear Delay	
1	AC Failure	major (0)	5 / 2	
	The rectifier is in AC Failure.	<u>, , , , , , , , , , , , , , , , , , , </u>		
2	DC Failure	major (0)	5 / 2	
	The rectifier must be replaced because of a	DC Failure.		
3	Over Temperature	major (0)	5 / 2	
	The rectifier is too warm.			
4	Remote Off	warning (0)	5 / 2	
	The rectifier is in remote off.			
7	Communication Error	warning (0)	5 / 2	
	The Communication With the rectifier has b	een lost.		
10	AC High	minor (0)	5 / 2	
	The AC input in too high			
11	Short Error	major (0)	5 / 2	
	A short circuit is present on the bus			
12	Fan Error	major (0)	5 / 2	
	The FAN is defect			
13	Derating Error	major (0)	5 / 2	
	The rectifier is in derating			
14	AC Derating	major (0)	5 / 2	
	The rectifier is in AC derating			
15	Thermal Derating	major (0)	5 / 2	
	The rectifier is in thermal derating			

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Data	a Table			
<u>Id</u>	<u>Name</u>	<u>Group</u>	<u>Unit</u>	<u>Licens</u> <u>e</u>
1	Output Current	Output	Ampere	basic
	The current delivered by the rectifier			
2	Output Power	Output	Watt	basic
	The power delivered by the rectifier			
3	Output Voltage	Output	Volt	basic
	The output voltage of the rectifier			
4	Output Current Max	Output	Ampere	basic
	The maximal current deliverable by the for CAN capable rectifiers.	ne rectifier. This takes	s into account the	e derating
5	Output Power Max	Output	Watt	basic
	The maximal power deliverable by th for CAN capable rectifiers.	e rectifier. This takes	s into account the	ederating
11	Input Voltage	Input	Volt	asset
	The rectifier AC Input voltage (For CAI	N capable rectifiers)		
12	Temperature	General	degree C	asset
	The rectifier temperature (For CAN ca	pable rectifiers)		
13	Fan Speed	General	RPM	asset
	The rectifier FAN Speed in RPM. (For	CAN capable rectifie	rs)	
14	Power Rating	General	%	asset
	The rectifier power rating (For CAN ca	pable rectifiers)		
15	Service Time	General	second	asset
	The rectifier total service time, in seco	nd (For CAN capable	rectifiers)	
16	Thermal Aging Time	General	second	asset
	The rectifier thermal aging time, in sec	ond (For CAN capab	le rectifiers)	
17	Converted Energy	General	kJ	asset
	The total energy converted by the re rectifiers)	ctifier since the proc	duction. (For CAN	l capable

7.3.3 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

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Desc	Description Table				
<u>Id</u>	<u>Name</u>	Group	<u>License</u>		
1	Product Name	Product Info	asset		
	The rectifier product name (Wit	h CAN capable rectifiers)			
2	Hardware Reference	Product Info	asset		
	The rectifier hardware reference capable rectifiers)	ice. This corresponds to the	he Mitra 12NC (With CAN		
3	Hardware Revision	Product Info	asset		
	The rectifier hardware revision.	(With CAN capable Rectifie	rs)		
4	Software Reference	Product Info	asset		
	The rectifier software reference. This corresponds to the Mitra 12NC (With CAN capable rectifiers)				
6	Serial Number	Product Info	asset		
	The rectifier serial number - Wb (With CAN capable rectifiers)				
8	Manufacturing Date	Product Info	asset		
	The rectifier production date (With CAN capable rectifiers)				
21	CAN Node Id	CAN Bus	basic		
	The CAN Bus Node ID				

Alar	m Table		
<u>Id</u>	<u>Name</u>	Severity Type (Level)	Set/Clear Delay
1	AC Failure	major (0)	5 / 2
	The rectifier is in AC Failure.		
2	DC Failure	major (0)	5 / 2
	The rectifier must be replaced because of a	DC Failure.	
3	Over Temperature	major (0)	5 / 2
	The rectifier is too warm.		
4	Remote Off	warning (0)	5 / 2
	The rectifier is in remote off.		
7	Communication Error	warning (0)	5 / 2
	The Communication With the rectifier has be	een lost.	
10	AC High	minor (0)	5 / 2
	The AC input in too high		
11	Short Error	major (0)	5 / 2
	A short circuit is present on the bus		
12	Fan Error	major (0)	5 / 2
	The FAN is defect		
13	Derating Error	major (0)	5 / 2
	The rectifier is in derating		
14	AC Derating	major (0)	5 / 2
	The rectifier is in AC derating		
15	Thermal Derating	major (0)	5 / 2
	The rectifier is in thermal derating		

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Data	Table			
<u>Id</u>	<u>Name</u>	<u>Group</u>	<u>Unit</u>	<u>Licens</u> <u>e</u>
1	Output Current	Output	Ampere	basic
	The current delivered by the rectifier			
2	Output Power	Output	Watt	basic
	The power delivered by the rectifier		·	
3	Output Voltage	Output	Volt	basic
	The output voltage of the rectifier			
4	Output Current Max	Output	Ampere	basic
	The maximal current deliverable by the for CAN capable rectifiers.	rectifier. This takes	into account the	derating
5	Output Power Max	Output	Watt	basic
	The maximal power deliverable by the for CAN capable rectifiers.	rectifier. This takes	into account the	derating
11	Input Voltage	Input	Volt	asset
	The rectifier AC Input voltage (For CAN	capable rectifiers)	_	
12	Temperature	General	degree C	asset
	The rectifier temperature (For CAN capa	able rectifiers)		
13	Fan Speed	General	RPM	asset
	The rectifier FAN Speed in RPM. (For C	AN capable rectifiers	5)	
14	Power Rating	General	%	asset
	The rectifier power rating (For CAN capa	able rectifiers)		
15	Service Time	General	second	asset
	The rectifier total service time, in second	d (For CAN capable r	ectifiers)	
16	Thermal Aging Time	General	second	asset
	The rectifier thermal aging time, in secon	nd (For CAN capable	· · · · · · · · · · · · · · · · · · ·	
17	Converted Energy	General	kJ	asset
	The total energy converted by the rect rectifiers)	ifier since the produ	ction. (For CAN	capable

7.3.4 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

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Alarm Table			
<u>Id</u>	<u>Name</u>	Severity Type (Level)	Set/Clear Delay
1	AC Failure	major (0)	5/2
	The rectifier is in AC Failure.		
2	DC Failure	major (0)	5 / 2
	The rectifier must be replaced because o	f a DC Failure.	
3	Over Temperature	major (0)	5 / 2
	The rectifier is too warm.		
4	Remote Off	warning (0)	5 / 2
	The rectifier is in remote off.		
7	Communication Error	warning (0)	5/2
	The Communication With the rectifier has	s been lost.	_

Data	Table			
<u>Id</u>	<u>Name</u>	<u>Group</u>	<u>Unit</u>	<u>Licens</u> <u>e</u>
1	Output Current	Output	Ampere	basic
	The current delivered by the rectifier			
2	Output Power	Output	Watt	basic
	The power delivered by the rectifier			
3	Output Voltage	Output	Volt	basic
	The output voltage of the rectifier			
4	Output Current Max	Output	Ampere	basic
	The maximal current deliverable by the for CAN capable rectifiers.	rectifier. This takes	into account the c	derating
5	Output Power Max	Output	Watt	basic
	The maximal power deliverable by the for CAN capable rectifiers.	rectifier. This takes i	nto account the o	derating

7.3.5 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	

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Equipment Type	Rectifier
ETSI Level	/site/energy_system/dc_system/rectifier

Desc	Description Table					
<u>Id</u>	<u>Name</u>	Group	<u>License</u>			
1	Product Name	Product Info	asset			
	The rectifier product name (Wit	h CAN capable rectifiers)				
2	Hardware Reference	Product Info	asset			
	The rectifier hardware referer capable rectifiers)	nce. This corresponds to the	he Mitra 12NC (With CAN			
3	Hardware Revision	Product Info	asset			
	The rectifier hardware revision.	(With CAN capable Rectifie	rs)			
4	Software Reference	Product Info	asset			
	The rectifier software reference. This corresponds to the Mitra 12NC (With capable rectifiers)					
6	Serial Number	Product Info	asset			
	The rectifier serial number - Wb (With CAN capable rectifiers)					
8	Manufacturing Date	Product Info	asset			
	The rectifier production date (With CAN capable rectifiers)					
21	CAN Node Id	CAN Bus	basic			
The CAN Bus Node ID						

Aları	Alarm Table				
<u>Id</u> 1	<u>Name</u>	Severity Type (Level)	Set/Clear Delay		
1	AC Failure	major (0)	5 / 2		
	The rectifier is in AC Failure.				
2	DC Failure	major (0)	5/2		
	The rectifier must be replaced because of a	DC Failure.			
3	Over Temperature	major (0)	5/2		
	The rectifier is too warm.				
4	Remote Off	warning (0)	5/2		
	The rectifier is in remote off.				
7	Communication Error	warning (0)	5/2		
	The Communication With the rectifier has be	een lost.			
10	AC High	minor (0)	5 / 2		
	The AC input in too high				
11	Short Error	major (0)	5/2		
	A short circuit is present on the bus				
12	Fan Error	major (0)	5 / 2		
	The FAN is defect				
13	Derating Error	major (0)	5/2		
	The rectifier is in derating				
14	AC Derating	major (0)	5/2		
	The rectifier is in AC derating				

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15	Thermal Derating	major (0)	5 / 2
	The rectifier is in thermal derating		

Data	ı Table			
<u>Id</u>	<u>Name</u>	<u>Group</u>	<u>Unit</u>	<u>Licens</u> <u>e</u>
1	Output Current	Output	Ampere	basic
	The current delivered by the rectifier			
2	Output Power	Output	Watt	basic
	The power delivered by the rectifier			_
3	Output Voltage	Output	Volt	basic
	The output voltage of the rectifier			
4	Output Current Max	Output	Ampere	basic
	The maximal current deliverable by the for CAN capable rectifiers.	rectifier. This takes	into account the	derating
5	Output Power Max	Output	Watt	basic
	The maximal power deliverable by the for CAN capable rectifiers.	rectifier. This takes	into account the	derating
11	Input Voltage	Input	Volt	asset
	The rectifier AC Input voltage (For CAN	capable rectifiers)		
12	Temperature	General	degree C	asset
	The rectifier temperature (For CAN capa	able rectifiers)		
13	Fan Speed	General	RPM	asset
	The rectifier FAN Speed in RPM. (For C	AN capable rectifiers	5)	
14	Power Rating	General	%	asset
	The rectifier power rating (For CAN capa	able rectifiers)		1
15	Service Time	General	second	asset
	The rectifier total service time, in second	(For CAN capable r	ectifiers)	
16	Thermal Aging Time	General	second	asset
	The rectifier thermal aging time, in secon	nd (For CAN capable	rectifiers)	1
17	Converted Energy	General	kJ	asset
	The total energy converted by the rect rectifiers)	ifier since the produ	iction. (For CAN	capable

7.3.6 CAR1048TN-2A

Device Information		
ame CAR1048TN-2A		
Short Description	1000W switched mode rectifier, AC & DC input	
Long Description	1000W switched mode rectifier, -48Vdc fixed output, AC & DC input	

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Hardware Reference	9411 011 05021
Software Reference	SOFT 000083 XX
Equipment Type	Rectifier
ETSI Level	/site/energy_system/dc_system/rectifier

Desc	Description Table				
<u>Id</u>	<u>Name</u>	Group	<u>License</u>		
1	Product Name	Product Info	asset		
	The rectifier product name (Wit	h CAN capable rectifiers)			
2	Hardware Reference	Product Info	asset		
	The rectifier hardware reference capable rectifiers)	ice. This corresponds to the	ne Mitra 12NC (With CAN		
3	Hardware Revision	Product Info	asset		
	The rectifier hardware revision.	. (With CAN capable Rectifiers)			
4	Software Reference	Product Info	asset		
	The rectifier software reference. This corresponds to the Mitra 12NC (With capable rectifiers)				
6	Serial Number	Product Info	asset		
	The rectifier serial number - Wb (With CAN capable rectifiers)				
8	Manufacturing Date	Product Info	asset		
	The rectifier production date (With CAN capable rectifiers)				
21	CAN Node Id	CAN Bus	basic		
The CAN Bus Node ID					

Alar	m Table		
<u>Id</u>	<u>Name</u>	Severity Type (Level)	Set/Clear Delay
1	AC Failure	major (0)	5 / 2
	The rectifier is in AC Failure.		
2	DC Failure	major (0)	5 / 2
	The rectifier must be replaced because of a	DC Failure.	
3	Over Temperature	major (0)	5 / 2
	The rectifier is too warm.		
4	Remote Off	warning (0)	5 / 2
	The rectifier is in remote off.		
7	Communication Error	warning (0)	5 / 2
	The Communication With the rectifier has be	een lost.	
10	AC High	minor (0)	5 / 2
	The AC input in too high		
11	Short Error	major (0)	5 / 2
	A short circuit is present on the bus		
12	Fan Error	major (0)	5 / 2
	The FAN is defect		
13	Derating Error	major (0)	5 / 2
	The rectifier is in derating		

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14	AC Derating	major (0)	5 / 2
	The rectifier is in AC derating		
15	Thermal Derating	major (0)	5 / 2
	The rectifier is in thermal derating		

Data	Table			
<u>Id</u>	<u>Name</u>	Group	<u>Unit</u>	<u>Licens</u> <u>e</u>
1	Output Current	Output	Ampere	basic
	The current delivered by the rectifier			
2	Output Power	Output	Watt	basic
	The power delivered by the rectifier			
3	Output Voltage	Output	Volt	basic
	The output voltage of the rectifier			
4	Output Current Max	Output	Ampere	basic
	The maximal current deliverable by the for CAN capable rectifiers.	rectifier. This takes	into account the	derating
5	Output Power Max	Output	Watt	basic
	The maximal power deliverable by the for CAN capable rectifiers.	rectifier. This takes	into account the	derating
11	Input Voltage	Input	Volt	asset
	The rectifier AC Input voltage (For CAN	capable rectifiers)		
12	Temperature	General	degree C	asset
	The rectifier temperature (For CAN capa	able rectifiers)		
13	Fan Speed	General	RPM	asset
	The rectifier FAN Speed in RPM. (For C	AN capable rectifiers	s)	
14	Power Rating	General	%	asset
	The rectifier power rating (For CAN capa	able rectifiers)		
15	Service Time	General	second	asset
	The rectifier total service time, in second	(For CAN capable r	ectifiers)	
16	Thermal Aging Time	General	second	asset
	The rectifier thermal aging time, in second	nd (For CAN capable	rectifiers)	
17	Converted Energy	General	kJ	asset
	The total energy converted by the rect rectifiers)	ifier since the produ	iction. (For CAN	capable

7.3.7 CAR1548TN

Device Information		
Name	CAR1548TN	
Short Description	1500W switched mode rectifier	

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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

Alar	Alarm Table			
<u>Id</u>	<u>Name</u>	Severity Type (Level)	Set/Clear Delay	
1	AC Failure	major (0)	5 / 2	
	The rectifier is in AC Failure.			
2	DC Failure	major (0)	5 / 2	
	The rectifier must be replaced because of a	DC Failure.		
3	Over Temperature	major (0)	5/2	
	The rectifier is too warm.			
4	Remote Off	warning (0)	5/2	
	The rectifier is in remote off.			
7	Communication Error	warning (0)	5/2	
	The Communication With the rectifier has been lost.			

Data	Table			
<u>Id</u>	<u>Name</u>	Group	<u>Unit</u>	<u>Licens</u>
				<u>e</u>
1	Output Current	Output	Ampere	basic
	The current delivered by the rectifier			
2	Output Power	Output	Watt	basic
	The power delivered by the rectifier			
3	Output Voltage	Output	Volt	basic
	The output voltage of the rectifier			
4	Output Current Max	Output	Ampere	basic
	The maximal current deliverable by the for CAN capable rectifiers.	rectifier. This takes	into account the c	lerating
5	Output Power Max	Output	Watt	basic
	The maximal power deliverable by the for CAN capable rectifiers.	rectifier. This takes i	nto account the c	lerating

7.3.8 CAR1848TN-1A

Device Information

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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	

Alar	Alarm Table		
<u>Id</u>	<u>Name</u>	Severity Type (Level)	Set/Clear Delay
1	AC Failure	major (0)	5/2
	The rectifier is in AC Failure.		
2	DC Failure	major (0)	5/2
	The rectifier must be replaced because of a	DC Failure.	
3	Over Temperature	major (0)	5/2
	The rectifier is too warm.		
4	Remote Off	warning (0)	5/2
	The rectifier is in remote off.		
7	Communication Error	warning (0)	5/2
The Communication With the rectifier has been lost.		_	

Data	Table			
<u>Id</u>	<u>Name</u>	<u>Group</u>	<u>Unit</u>	<u>Licens</u>
				<u>e</u>
1	Output Current	Output	Ampere	basic
	The current delivered by the rectifier			
2	Output Power	Output	Watt	basic
	The power delivered by the rectifier			
3	Output Voltage	Output	Volt	basic
	The output voltage of the rectifier			
4	Output Current Max	Output	Ampere	basic
	The maximal current deliverable by the for CAN capable rectifiers.	rectifier. This takes	into account the c	lerating
5	Output Power Max	Output	Watt	basic
	The maximal power deliverable by the rectifier. This takes into account the derating for CAN capable rectifiers.			

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7.3.9 CAR1848TN-2A

Device Information	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		

Alarr	Alarm Table		
<u>Id</u>	<u>Name</u>	Severity Type (Level)	Set/Clear Delay
1	AC Failure	major (0)	5 / 2
	The rectifier is in AC Failure.		
2	DC Failure	major (0)	5 / 2
	The rectifier must be replaced because of a	DC Failure.	
3	Over Temperature	major (0)	5 / 2
	The rectifier is too warm.		
4	Remote Off	warning (0)	5 / 2
	The rectifier is in remote off.		
7	Communication Error	warning (0)	5 / 2
	The Communication With the rectifier has been lost.		

Data	Table			
<u>Id</u>	<u>Name</u>	<u>Group</u>	<u>Unit</u>	<u>Licens</u>
				<u>e</u>
1	Output Current	Output	Ampere	basic
	The current delivered by the rectifier			
2	Output Power	Output	Watt	basic
	The power delivered by the rectifier			
3	Output Voltage	Output	Volt	basic
	The output voltage of the rectifier			
4	Output Current Max	Output	Ampere	basic
	The maximal current deliverable by the for CAN capable rectifiers.	rectifier. This takes	into account the c	derating
5	Output Power Max	Output	Watt	basic
	The maximal power deliverable by the for CAN capable rectifiers.	rectifier. This takes	into account the o	derating

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7.3.10 **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

Aları	Alarm Table			
<u>Id</u>	<u>Name</u>	Severity Type (Level)	Set/Clear Delay	
1	AC Failure	major (0)	5 / 2	
	The rectifier is in AC Failure.			
2	DC Failure	major (0)	5 / 2	
	The rectifier must be replaced because of a	DC Failure.		
3	Over Temperature	major (0)	5/2	
	The rectifier is too warm.			
4	Remote Off	warning (0)	5 / 2	
	The rectifier is in remote off.			
7	Communication Error	warning (0)	5/2	
The Communication With the rectifier has been lost.		_		

Data	Table			
<u>Id</u>	<u>Name</u>	<u>Group</u>	<u>Unit</u>	<u>Licens</u>
				<u>e</u>
1	Output Current	Output	Ampere	basic
	The current delivered by the rectifier			
2	Output Power	Output	Watt	basic
	The power delivered by the rectifier			
3	Output Voltage	Output	Volt	basic
	The output voltage of the rectifier			
4	Output Current Max	Output	Ampere	basic
	The maximal current deliverable by the for CAN capable rectifiers.	rectifier. This takes	into account the c	lerating
5	Output Power Max	Output	Watt	basic
	The maximal power deliverable by the rectifier. This takes into account the derating for CAN capable rectifiers.			

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7.3.11 **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	

Desc	Description Table				
<u>Id</u>	<u>Name</u>	<u>Group</u>	<u>License</u>		
1	Product Name	Product Info	asset		
The rectifier product name (With CAN capable rectifiers)					
2	asset				
	The rectifier hardware reference capable rectifiers)	ice. This corresponds to the	ne Mitra 12NC (With CAN		
3	Hardware Revision	Product Info	asset		
The rectifier hardware revision. (With CAN capable Rectifiers)					
4	Software Reference	Product Info	asset		
The rectifier software reference. This corresponds to the Mitra 12NC (W capable rectifiers)					
6	Serial Number	Product Info	asset		
	The rectifier serial number - Wb (With CAN capable rectifiers)				
8	Manufacturing Date	Product Info	asset		
	The rectifier production date (With CAN capable rectifiers)				
21	CAN Node Id	CAN Bus	basic		
	The CAN Bus Node ID				

Aları	Alarm Table				
<u>Id</u>	<u>Name</u>	Severity Type (Level)	Set/Clear Delay		
1	AC Failure	major (0)	5 / 2		
	The rectifier is in AC Failure.				
2	DC Failure	major (0)	5 / 2		
	The rectifier must be replaced because of a	DC Failure.			
3	Over Temperature	major (0)	5 / 2		
	The rectifier is too warm.				
4	Remote Off	warning (0)	5 / 2		
	The rectifier is in remote off.				
7	Communication Error	warning (0)	5 / 2		
	The Communication With the rectifier has been lost.				
10	AC High	minor (0)	5 / 2		

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	The AC input in too high		
11	Short Error	major (0)	5 / 2
	A short circuit is present on the bus		
12	Fan Error	major (0)	5 / 2
	The FAN is defect		
13	Derating Error	major (0)	5 / 2
	The rectifier is in derating		
14	AC Derating	major (0)	5 / 2
	The rectifier is in AC derating		
15	Thermal Derating	major (0)	5 / 2
	The rectifier is in thermal derating		

Data	Table			
<u>Id</u>	<u>Name</u>	Group	<u>Unit</u>	Licens
				<u>e</u>
1	Output Current	Output	Ampere	basic
	The current delivered by the rectifier			
2	Output Power	Output	Watt	basic
	The power delivered by the rectifier			
3	Output Voltage	Output	Volt	basic
	The output voltage of the rectifier			
4	Output Current Max	Output	Ampere	basic
	The maximal current deliverable by the for CAN capable rectifiers.	rectifier. This takes	into account the o	derating
5	Output Power Max	Output	Watt	basic
	The maximal power deliverable by the for CAN capable rectifiers.	rectifier. This takes	into account the	derating
11	Input Voltage	Input	Volt	asset
	The rectifier AC Input voltage (For CAN	capable rectifiers)		
12	Temperature	General	degree C	asset
	The rectifier temperature (For CAN capa	able rectifiers)		
13	Fan Speed	General	RPM	asset
	The rectifier FAN Speed in RPM. (For CAN capable rectifiers)			
14	Power Rating	General	%	asset
	The rectifier power rating (For CAN capa	able rectifiers)		•
15	Service Time	General	second	asset
	The rectifier total service time, in second	(For CAN capable r	ectifiers)	
16	Thermal Aging Time	General	second	asset
	The rectifier thermal aging time, in secon	nd (For CAN capable	rectifiers)	
17	Converted Energy	General	kJ	asset
	The total energy converted by the rect rectifiers)	ifier since the produ	ction. (For CAN	capable

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7.3.12 **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

Desc	Description Table				
<u>Id</u>	<u>Name</u>	Group	<u>License</u>		
1	Product Name	Product Info	asset		
	The rectifier product name (Wit	h CAN capable rectifiers)			
2	Hardware Reference	Product Info	asset		
	The rectifier hardware reference capable rectifiers)	ice. This corresponds to the	ne Mitra 12NC (With CAN		
3	Hardware Revision	Product Info	asset		
	The rectifier hardware revision.	sion. (With CAN capable Rectifiers)			
4	Software Reference	Product Info	asset		
	ne Mitra 12NC (With CAN				
6	Serial Number	Product Info	asset		
	The rectifier serial number - Wb (With CAN capable rectifiers)				
8	Manufacturing Date	Product Info	asset		
21	CAN Node Id	CAN Bus	basic		
	The CAN Bus Node ID				

Aları	Alarm Table				
<u>Id</u>	<u>Name</u>	Severity Type (Level)	Set/Clear Delay		
1	AC Failure	major (0)	5 / 2		
	The rectifier is in AC Failure.				
2	DC Failure	major (0)	5 / 2		
	The rectifier must be replaced because of a	DC Failure.			
3	Over Temperature	major (0)	5 / 2		
	The rectifier is too warm.				
4	Remote Off	warning (0)	5 / 2		
	The rectifier is in remote off.				
7	Communication Error	warning (0)	5 / 2		
	The Communication With the rectifier has been lost.				
10	AC High	minor (0)	5 / 2		

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	The AC input in too high		
11	Short Error	major (0)	5 / 2
	A short circuit is present on the bus		
12	Fan Error	major (0)	5 / 2
	The FAN is defect		
13	Derating Error	major (0)	5 / 2
	The rectifier is in derating		
14	AC Derating	major (0)	5 / 2
	The rectifier is in AC derating		
15	Thermal Derating	major (0)	5 / 2
	The rectifier is in thermal derating		

Data	Table			
	Table	0	I In it	1:
<u>Id</u>	<u>Name</u>	<u>Group</u>	<u>Unit</u>	<u>Licens</u> <u>e</u>
1	Output Current	Output	Ampere	basic
	The current delivered by the rectifier			
2	Output Power	Output	Watt	basic
	The power delivered by the rectifier			
3	Output Voltage	Output	Volt	basic
	The output voltage of the rectifier			
4	Output Current Max	Output	Ampere	basic
	The maximal current deliverable by the for CAN capable rectifiers.	rectifier. This takes	into account the c	derating
5	Output Power Max	Output	Watt	basic
	The maximal power deliverable by the for CAN capable rectifiers.	rectifier. This takes i	nto account the o	derating
11	Input Voltage	Input	Volt	asset
	The rectifier AC Input voltage (For CAN	capable rectifiers)		
12	Temperature	General	degree C	asset
	The rectifier temperature (For CAN capa	ble rectifiers)		
13	Fan Speed	General	RPM	asset
	The rectifier FAN Speed in RPM. (For CAN capable rectifiers)			
14	Power Rating	General	%	asset
	The rectifier power rating (For CAN capa	ble rectifiers)		
15	Service Time	General	second	asset
	The rectifier total service time, in second	(For CAN capable re	ectifiers)	
16	Thermal Aging Time	General	second	asset
	The rectifier thermal aging time, in secon	nd (For CAN capable	rectifiers)	
17	Converted Energy	General	kJ	asset
	The total energy converted by the rectirectifiers)	fier since the produ	ction. (For CAN o	capable

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7.3.13 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				
<u>ld</u>	<u>Name</u>	Severity Type (Level)	Set/Clear Delay	
1	AC Failure	major (0)	5/2	
	The rectifier is in AC Failure.			
2	DC Failure	major (0)	5 / 2	
	The rectifier must be replaced because of a	DC Failure.		
3	Over Temperature	major (0)	5/2	
	The rectifier is too warm.			
4	Remote Off	warning (0)	5 / 2	
	The rectifier is in remote off.			
7	Communication Error	warning (0)	5/2	
The Communication With the rectifier has been lost.				

Data	ı Table			
<u>Id</u>	<u>Name</u>	<u>Group</u>	<u>Unit</u>	<u>Licens</u> <u>e</u>
1	Output Current	Output	Ampere	basic
	The current delivered by the rectifier			
2	Output Power	Output	Watt	basic
	The power delivered by the rectifier			
3	Output Voltage	Output	Volt	basic
	The output voltage of the rectifier			
4	Output Current Max	Output	Ampere	basic
	The maximal current deliverable by the for CAN capable rectifiers.	rectifier. This takes	into account the c	derating
5	Output Power Max	Output	Watt	basic
	The maximal power deliverable by the for CAN capable rectifiers.	rectifier. This takes	into account the o	derating

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7.3.14 **CXRF48-4kW**

Device Information	
Name	CXRF48-4kW
Short Description	4kW high efficiency rectifier
Long Description	Cordex HP 4kW, high efficiency switched mode rectifier, -48Vdc fixed output
Hardware Reference	D010 623 20040
Software Reference	Unknown
Equipment Type	Rectifier
ETSI Level	/site/energy_system/dc_system/rectifier

Desc	Description Table			
<u>Id</u>	<u>Name</u>	Group	<u>License</u>	
1	Product Name	Product Info	asset	
	The rectifier product name			
4	Software Reference	Product Info	asset	
	The rectifier software reference			
5	Serial Number	Product Info	asset	
	The rectifier serial number			
21	CAN Node Id	CAN Bus	basic	
	The CAN Bus Node ID			

Alar	m Table	
<u>Id</u>	<u>Name</u>	Severity Type (Level)
1	Rectifier Fail	major (0)
	The rectifier must be replaced because of a DC	Failure.
2	Minor Problem	minor (0)
	There is a minor problem.	
3	AC Failure	major (0)
	The rectifier is in AC Failure.	
4	Over Temperature	major (0)
	The rectifier is too warm.	
5	Remote Off	warning (0)
	The rectifier is in remote off.	
7	Communication Error	warning (0)
	The Communication With the rectifier has been I	ost.
10	Fan Error	major (0)
	The FAN is defect	
11	Current Limitation	warning (0)
	The rectifier is in current limit	
12	Power Limitation	warning (0)
	The rectifier is in power limit	

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Data	Table				
<u>Id</u>	<u>Name</u>	Group	<u>Unit</u>	<u>Licens</u> <u>e</u>	
1	Output Current	Output	Ampere	basic	
	The current delivered by the rectifier	•		•	
3	Output Voltage	Output	Volt	basic	
	The output voltage of the rectifier				
7	Power Ratio	Output	%	basic	
	This is the ratio power/available power				
8	Rectifier Mode	Mode		basic	
	The internal mode of the rectifier				
11	Input Voltage	Input	Volt	asset	
	The rectifier AC Input voltage (For CAN	l capable rectifiers)			
12	Temperature	General	degree C	asset	
	The rectifier temperature (For CAN cap	able rectifiers)			
13	Phase Number	General		basic	
	The rectifier Phase - 0 means unconfig	ured			
14	Service Time	General	second	asset	
	The rectifier total service time, in second (For CAN capable rectifiers)				
15	Converted Energy	General	kJ	asset	
	The total energy converted by the recreatifiers)	ctifier since the prod	uction. (For CAN	capable	

Con	Control Table			
<u>Id</u>	<u>Name</u>	Group	<u>Licens</u>	
			<u>e</u>	
1	Locate Rectifier	Locate	basic	
	No information			
5	Change Phase Number	Phase	basic	
	No information			

7.3.15 **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	

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Desc	Description Table				
<u>Id</u>	<u>Name</u>	Group	<u>License</u>		
1	Product Name	Product Info	asset		
	The rectifier product name (Wit	h CAN capable rectifiers)			
2	Hardware Reference	Product Info	asset		
	The rectifier hardware reference capable rectifiers)	nce. This corresponds to the	he Mitra 12NC (With CAN		
3	Hardware Revision	Product Info	asset		
	The rectifier hardware revision.	(With CAN capable Rectifie	rs)		
4	Software Reference	Product Info	asset		
	The rectifier software reference capable rectifiers)	ce. This corresponds to the	ne Mitra 12NC (With CAN		
6	Serial Number	Product Info	asset		
	The rectifier serial number - Wb (With CAN capable rectifiers)				
8	Manufacturing Date	Product Info	asset		
	The rectifier production date (With CAN capable rectifiers)				
21	CAN Node Id	CAN Bus	basic		
	The CAN Bus Node ID				

Δlar	Alarm Table			
	Name	Severity Type (Level)	Set/Clear Delay	
<u>Id</u> 1	AC Failure	major (0)	5/2	
	The rectifier is in AC Failure.	-3- (-)		
2	DC Failure	major (0)	5 / 2	
	The rectifier must be replaced because of a			
3	Over Temperature	major (0)	5 / 2	
	The rectifier is too warm.	, ,		
4	Remote Off	warning (0)	5 / 2	
	The rectifier is in remote off.			
7	Communication Error	warning (0)	5/2	
	The Communication With the rectifier has be	een lost.		
10	AC High	minor (0)	5 / 2	
	The AC input in too high			
11	Short Error	major (0)	5 / 2	
	A short circuit is present on the bus			
12	Fan Error	major (0)	5 / 2	
	The FAN is defect			
13	Derating Error	major (0)	5 / 2	
	The rectifier is in derating			
14	AC Derating	major (0)	5 / 2	
	The rectifier is in AC derating			
15	Thermal Derating	major (0)	5 / 2	
	The rectifier is in thermal derating			

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Data	Table			
<u>Id</u>	<u>Name</u>	<u>Group</u>	<u>Unit</u>	<u>Licens</u> <u>e</u>
1	Output Current	Output	Ampere	basic
	The current delivered by the rectifier			
2	Output Power	Output	Watt	basic
	The power delivered by the rectifier		·	
3	Output Voltage	Output	Volt	basic
	The output voltage of the rectifier			
4	Output Current Max	Output	Ampere	basic
	The maximal current deliverable by the for CAN capable rectifiers.	rectifier. This takes	into account the	derating
5	Output Power Max	Output	Watt	basic
	The maximal power deliverable by the for CAN capable rectifiers.	rectifier. This takes	into account the	derating
11	Input Voltage	Input	Volt	asset
	The rectifier AC Input voltage (For CAN	capable rectifiers)	_	
12	Temperature	General	degree C	asset
	The rectifier temperature (For CAN capa	able rectifiers)		
13	Fan Speed	General	RPM	asset
	The rectifier FAN Speed in RPM. (For C	AN capable rectifiers	5)	
14	Power Rating	General	%	asset
	The rectifier power rating (For CAN capa	able rectifiers)		
15	Service Time	General	second	asset
	The rectifier total service time, in second	d (For CAN capable r	ectifiers)	
16	Thermal Aging Time	General	second	asset
	The rectifier thermal aging time, in second (For CAN capable rectifiers)			
17	Converted Energy	General	kJ	asset
	The total energy converted by the rect rectifiers)	ifier since the produ	ction. (For CAN	capable

7.3.16 ECOR0348

Device Information		
Name	ECOR0348	
Short Description	Rectifer 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	

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Desc	Description Table				
<u>Id</u>	<u>Name</u>	Group	<u>License</u>		
1	Product Name	Product Info	asset		
	The rectifier product name (Wit	h CAN capable rectifiers)			
2	Hardware Reference	Product Info	asset		
	The rectifier hardware reference capable rectifiers)	nce. This corresponds to the	he Mitra 12NC (With CAN		
3	Hardware Revision	Product Info	asset		
	The rectifier hardware revision.	(With CAN capable Rectifie	rs)		
4	Software Reference	Product Info	asset		
	The rectifier software reference capable rectifiers)	ce. This corresponds to the	ne Mitra 12NC (With CAN		
6	Serial Number	Product Info	asset		
	The rectifier serial number - Wb (With CAN capable rectifiers)				
8	Manufacturing Date	Product Info	asset		
	The rectifier production date (W	(With CAN capable rectifiers)			
21	CAN Node Id	CAN Bus	basic		
	The CAN Bus Node ID				

Alar	Alarm Table			
<u>Id</u>	<u>Name</u>	Severity Type (Level)	Set/Clear Delay	
1	AC Failure	major (0)	5 / 2	
	The rectifier is in AC Failure.	<u>, , , , , , , , , , , , , , , , , , , </u>		
2	DC Failure	major (0)	5 / 2	
	The rectifier must be replaced because of a	DC Failure.		
3	Over Temperature	major (0)	5 / 2	
	The rectifier is too warm.			
4	Remote Off	warning (0)	5 / 2	
	The rectifier is in remote off.			
7	Communication Error	warning (0)	5 / 2	
	The Communication With the rectifier has b	een lost.		
10	AC High	minor (0)	5 / 2	
	The AC input in too high			
11	Short Error	major (0)	5 / 2	
	A short circuit is present on the bus			
12	Fan Error	major (0)	5 / 2	
	The FAN is defect			
13	Derating Error	major (0)	5 / 2	
	The rectifier is in derating			
14	AC Derating	major (0)	5 / 2	
	The rectifier is in AC derating			
15	Thermal Derating	major (0)	5 / 2	
	The rectifier is in thermal derating			

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Data	Table			
<u>Id</u>	<u>Name</u>	<u>Group</u>	<u>Unit</u>	<u>Licens</u> <u>e</u>
1	Output Current	Output	Ampere	basic
	The current delivered by the rectifier			
2	Output Power	Output	Watt	basic
	The power delivered by the rectifier			
3	Output Voltage	Output	Volt	basic
	The output voltage of the rectifier			
4	Output Current Max	Output	Ampere	basic
	The maximal current deliverable by the for CAN capable rectifiers.	rectifier. This takes	into account the o	derating
5	Output Power Max	Output	Watt	basic
	The maximal power deliverable by the for CAN capable rectifiers.	rectifier. This takes	into account the o	derating
11	Input Voltage	Input	Volt	asset
	The rectifier AC Input voltage (For CAN	capable rectifiers)		
12	Temperature	General	degree C	asset
	The rectifier temperature (For CAN capa	able rectifiers)		
13	Fan Speed	General	RPM	asset
	The rectifier FAN Speed in RPM. (For C	AN capable rectifiers)	
14	Power Rating	General	%	asset
	The rectifier power rating (For CAN capa	able rectifiers)	1	
15	Service Time	General	second	asset
	The rectifier total service time, in second	(For CAN capable r	ectifiers)	
16	Thermal Aging Time	General	second	asset
	The rectifier thermal aging time, in secon	nd (For CAN capable	rectifiers)	
17	Converted Energy	General	kJ	asset
	The total energy converted by the rect rectifiers)	ifier since the produ	ction. (For CAN	capable

7.4 Sensors And Actuators Tables

7.4.1 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

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Hardware Reference	9413 060 05071
Software Reference	SOFT 000095 XX
Equipment Type	System Extension
ETSI Level	/site/sensors and actuators

Des	cription Table							
<u>Id</u>	<u>Name</u>	Group	<u>License</u>					
1	Product Name	Product Info	basic					
	The commercial name of th	e extension card.						
2	Hardware Reference	Product Info	basic					
	The hardware refence							
3	Hardware Revision	Product Info	basic					
	The hardware revision							
4	Software Reference	Product Info	basic					
	The software reference							
6	Serial Number	Product Info	basic					
	The serial number.							
7	Manufacturing ID	Product Info	basic					
	The production batch id.							
8	Manufacturing Date	Product Info	basic					
	The production date.							
11	Description	Description	basic					
	A free text zone to write a s	ystem description						
12	Reference	Description	basic					
	A free text zone to write the	customer reference of t	he system	A free text zone to write the customer reference of the system				

Alar	m Table		
<u>Id</u>	<u>Name</u>	Severity Type (Level)	Set/Clear Delay
71	General Input 1	warning (2)	5 / 2
	Alarm related to digital input 1		
72	General Input 2	warning (2)	5 / 2
	Alarm related to digital input 2		
73	General Input 3	warning (2)	5 / 2
	Alarm related to digital input 3		
74	General Input 4	warning (2)	5 / 2
	Alarm related to digital input 4		
75	General Input 5	warning (2)	5 / 2
	Alarm related to digital input 5		
76	General Input 6	warning (2)	5 / 2
	Alarm related to digital input 6		
77	General Input 7	warning (2)	5 / 2
	Alarm related to digital input 7		
78	General Input 8	warning (2)	5 / 2
	Alarm related to digital input 8		

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79	General Input 9	warning (2)	5 / 2
	Alarm related to digital input 9		
80	General Input 10	warning (2)	5 / 2
	Alarm related to digital input 10		
81	General Input 11	warning (2)	5 / 2
	Alarm related to digital input 11		
82	General Input 12	warning (2)	5 / 2
	Alarm related to digital input 12		
83	General Input 13	warning (2)	5 / 2
	Alarm related to digital input 13		
84	General Input 14	warning (2)	5 / 2
	Alarm related to digital input 14		
85	General Input 15	warning (2)	5 / 2
	Alarm related to digital input 15		
86	General Input 16	warning (2)	5 / 2
	Alarm related to digital input 16		
87	General Input 17	warning (2)	5 / 2
	Alarm related to digital input 17		
88	General Input 18	warning (2)	5 / 2
	Alarm related to digital input 18		
89	General Input 19	warning (2)	5 / 2
	Alarm related to digital input 19		
90	General Input 20	warning (2)	5 / 2
	Alarm related to digital input 20		
91	General Input 21	warning (2)	5 / 2
	Alarm related to digital input 21		
92	General Input 22	warning (2)	5 / 2
	Alarm related to digital input 22		
93	General Input 23	warning (2)	5 / 2
	Alarm related to digital input 23		
94	General Input 24	warning (2)	5 / 2
	Alarm related to digital input 24		

Data	a Table						
<u>Id</u>	<u>Id</u> <u>Name</u> <u>Group</u> <u>Unit</u>						
1	Temperature 1	Temperature Sensor	degree C	basic			
	Temperature Measurement 1						
2	Temperature 2	Temperature Sensor	degree C	basic			
	Temperature Measurement 2						
3	Temperature 3	Temperature Sensor	degree C	basic			
	Temperature Measurement 3						

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4	Temperature 4	Temperature Sensor	degree C	basic				
	Temperature Measurement 4							
5	Temperature 5	Temperature Sensor	degree C	basic				
	Temperature Measurement 5							
6	Temperature 6	Temperature Sensor	degree C	basic				
	Temperature Measurement 6							
7	Temperature 7	Temperature Sensor	degree C	basic				
	Temperature Measurement 7							
8	Temperature 8	Temperature Sensor	degree C	basic				
	Temperature Measurement 8							
131	Pulse Counter 1	Pulse Counter		basic				
	Energy Consumption Counter 1							
132	Pulse Counter 2	Pulse Counter		basic				
	Energy Consumption Counter 2							
133	Pulse Counter 3	Pulse Counter		basic				
	Energy Consumption Counter 3							
134	Pulse Counter 4	Pulse Counter		basic				
	Energy Consumption Counter 4							
135	Pulse Counter 5	Pulse Counter		basic				
	Energy Consumption Counter 5							
136	Pulse Counter 6	Pulse Counter		basic				
	Energy Consumption Counter 6							

Conf	ig Table				
<u>Id</u>	<u>Name</u>	<u>Group</u>	<u>Unit</u>	Range: Min/Max (default)	<u>License</u>
71	Digital Input 1 Name	Digital Inputs		General Input 1	basic
	The name of the digital input 1				
72	Digital Input 1 Normally Closed	Digital Inputs		True/False (True)	basic
	True/False value defining if the not in this default state, the relat			closed. If this digita	al input is
73	Digital Input 2 Name	Digital Inputs		General Input 2	basic
	The name of the digital input 2				
74	Digital Input 2 Normally Closed	Digital Inputs		True/False (True)	basic
	True/False value defining if the not in this default state, the relat	•	,	closed. If this digita	al input is
75	Digital Input 3 Name	Digital Inputs		General Input 3	basic
	The name of the digital input 3				
76	Digital Input 3 Normally Closed	Digital Inputs		True/False (True)	basic

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	True/False value defining if the not in this default state, the rela			closed. If this digita	al input is
77	Digital Input 4 Name	Digital Inputs		General Input 4	basic
	The name of the digital input 4				
78	Digital Input 4 Normally Closed	Digital Inputs		True/False (True)	basic
	True/False value defining if the not in this default state, the rela			closed. If this digital	al input is
79	Digital Input 5 Name	Digital Inputs		General Input 5	basic
	The name of the digital input 5				
80	Digital Input 5 Normally Closed	Digital Inputs		True/False (True)	basic
	True/False value defining if the not in this default state, the rela			closed. If this digita	al input is
81	Digital Input 6 Name	Digital Inputs		General Input 6	basic
	The name of the digital input 6			<u>, </u>	
82	Digital Input 6 Normally Closed	Digital Inputs		True/False (True)	basic
	True/False value defining if the			closed. If this digital	al input is
	not in this default state, the rela			I	
83	Digital Input 7 Name	Digital Inputs		General Input 7	basic
	The name of the digital input 7	I		<u> </u>	ļ
84	Digital Input 7 Normally Closed			True/False (True)	basic
	True/False value defining if the not in this default state, the rela	ted alarm is set.		closed. If this digita	al input is
85	Digital Input 8 Name	Digital Inputs		General Input 8	basic
	The name of the digital input 8			T	
86	Digital Input 8 Normally Closed	Digital Inputs		True/False (True)	basic
	True/False value defining if the not in this default state, the rela			closed. If this digital	al input is
87	Digital Input 9 Name	Digital Inputs		General Input 9	basic
	The name of the digital input 9	T		T	
88	Digital Input 9 Normally Closed	Digital Inputs		True/False (True)	basic
	True/False value defining if the not in this default state, the rela	•	•	closed. If this digita	al input is
89	Digital Input 10 Name	Digital Inputs		General Input 10	basic
	The name of the digital input 10		Ī		
90	Digital Input 10 Normally Closed	Digital Inputs		True/False (True)	basic
	True/False value defining if the			closed. If this digit	al input is
	not in this default state, the rela			Τ	T
91	Digital Input 11 Name	Digital Inputs		General Input 11	basic
	The name of the digital input 11			T	<u> </u>
92	Digital Input 11 Normally Closed	Digital Inputs		True/False (True)	basic

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	True/False value defining if the not in this default state, the relat	•	,	closed. If this digital	al input is
93	Digital Input 12 Name	Digital Inputs		General Input 12	basic
	The name of the digital input 12				
94	Digital Input 12 Normally Closed	Digital Inputs		True/False (True)	basic
	True/False value defining if the not in this default state, the relat			closed. If this digital	al input is
95	Digital Input 13 Name	Digital Inputs		General Input 13	basic
	The name of the digital input 13				
96	Digital Input 13 Normally Closed	Digital Inputs		True/False (True)	basic
	True/False value defining if the not in this default state, the relat	ed alarm is set.			al input is
97	Digital Input 14 Name	Digital Inputs		General Input 14	basic
	The name of the digital input 14		T		
98	Digital Input 14 Normally Closed			True/False (True)	basic
	True/False value defining if the not in this default state, the relat	ed alarm is set.		closed. If this digital	al input is
99	Digital Input 15 Name	Digital Inputs		General Input 15	basic
	The name of the digital input 15				
100	Digital Input 15 Normally Closed	Digital Inputs		True/False (True)	basic
	True/False value defining if the not in this default state, the relat	ed alarm is set.		closed. If this digital	al input is
101	Digital Input 16 Name	Digital Inputs		General Input 16	basic
	The name of the digital input 16		I	I	1
102	Digital Input 16 Normally Closed			True/False (True)	basic
	True/False value defining if the not in this default state, the relat	ed alarm is set.	,		
103	Digital Input 17 Name	Digital Inputs		General Input 17	basic
	The name of the digital input 17		Τ		T
104	Closed	Digital Inputs		True/False (True)	basic
	True/False value defining if the not in this default state, the relat	ed alarm is set.			,
105	Digital Input 18 Name	Digital Inputs		General Input 18	basic
	The name of the digital input 18		T	T	_
106	Closed	Digital Inputs		True/False (True)	basic
	True/False value defining if the			closed. If this digital	al input is
107	not in this default state, the relat			Congred Input 10	basis
107	Digital Input 19 Name	Digital Inputs		General Input 19	basic
108	The name of the digital input 19 Digital Input 19 Normally			Truo/Ealaa /Truo	basis
100	Closed	Digital Inputs		True/False (True)	basic

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	T				-
	True/False value defining if the not in this default state, the relat	ed alarm is set.		closed. If this digit	al input is
109	· ·	Digital Inputs		General Input 20	basic
	The name of the digital input 20				
110	Digital Input 20 Normally Closed	Digital Inputs		True/False (True)	basic
	True/False value defining if the not in this default state, the relat			closed. If this digit	al input is
111	Digital Input 21 Name	Digital Inputs		General Input 21	basic
	The name of the digital input 21				
112	Digital Input 21 Normally Closed	Digital Inputs		True/False (True)	basic
	True/False value defining if the not in this default state, the relat			closed. If this digit	al input is
113	Digital Input 22 Name	Digital Inputs		General Input 22	basic
	The name of the digital input 22				
114	Digital Input 22 Normally Closed	Digital Inputs		True/False (True)	basic
	True/False value defining if the not in this default state, the relat			closed. If this digit	al input is
115	Digital Input 23 Name	Digital Inputs		General Input 23	basic
	The name of the digital input 23				
116	Digital Input 23 Normally Closed	Digital Inputs		True/False (True)	basic
	True/False value defining if the not in this default state, the relat			closed. If this digit	al input is
117	Digital Input 24 Name	Digital Inputs		General Input 24	basic
	The name of the digital input 24			,	
118	Digital Input 24 Normally Closed	Digital Inputs		True/False (True)	basic
	True/False value defining if the not in this default state, the relat	ed alarm is set.			
521	Read Access User Numbers	Allowed Users		(1,2,3,4,5)	basic
	The list of the user numbers vinumbers are coma separated. T	he accepted us			
522	Write Access User Numbers	Allowed Users		()	basic
	The list of the user numbers when the list of the user numbers when the list of the list o				
	that these users can modify the				
	control elements. The user num 1,2,3,4 and 5. Ex: 1,3,4	ibers are coma	separateu	. The accepted us	ei ius aie
601	Event Table Length	Event		10/4000 (100)	basic
	The maximum length of the table		ust be comr	, ,	
901	Number Of PLC Data	PLC		(0)	plc
	The number of PLC data. Every		n manage	1. ' /	1.
	data. Data elements are aut parameters are added to set the calculation. In order to use the	omatically add ne PLC Data N	led in the lame and	data table. Con the PLC Data Mat	figuration hematical

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	module				
902	Number Of PLC Alarm	PLC		(0)	plc
	The number of PLC alarm. Ever alarms. Alarm elements are a parameters are added to set condition. In order to use the module	automatically a the PLC Alarn	idded in th n Name ar	ne alarm table. T nd the PLC Alarm	he alarm Boolean

Cont	rol Table				
<u>Id</u>	<u>Name</u>	Group	<u>Licens</u> <u>e</u>		
101	Set Pulse Counter 1	Pulse Counters	basic		
	Set Counter 1 Value				
102	Set Pulse Counter 2	Pulse Counters	basic		
	Set Counter 2 Value	·	_		
103	Set Pulse Counter 3	Pulse Counters	basic		
	Set Counter 3 Value		_		
104	Set Pulse Counter 4	Pulse Counters	basic		
	Set Counter 4 Value		_		
105	Set Pulse Counter 5	Pulse Counters	basic		
	Set Counter 5 Value	·	_		
106	Set Pulse Counter 6	Pulse Counters	basic		
	Set Counter 6 Value				
501	Clear My Events	Event	basic		
	By writing '1' to this control element, all the events of	of this equipment will be cle	ared.		
502	Clear All Events	Event	basic		
	By writing '1' to this control element, all the events of all the sub-equipments will be cleared.	of this equipment and all th	e events		
511	Add Event	Event	basic		
	This control element adds an event of severity none to this control element	e. The event name is the te	xt written		
512	Add Major Event	Event	basic		
	This control element adds an event of severity r written to this control element	major. The event name is	the text		
521	Reset Default Names And Groups	Advanced	basic		
	This control element resets all the element Names values for this equipment	, Groups and Subgroups t	o default		
522	Reset Default Names And Groups Recursive	Advanced	basic		
	This control element resets all the element Names values for this equipment and all sub equipments	s, Groups and Subgroups t	o default		

7.4.2 ADIO 8

Device Information	
Name	ADIO 8

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Short Description	Standard I/O module D9 ACR5 LVD PLD DCR2
Long Description	I/O module with 9 digital inputs, 5 relays for AC, Low Voltage Disconnection, Partial Load Disconnection and 2 relays for outputs
Hardware Reference	9413 060 05081
Software Reference	SOFT 000096 XX
Equipment Type	System Extension
ETSI Level	/site/sensors_and_actuators

Desc	Description Table					
<u>Id</u>	<u>Name</u>	Group	<u>License</u>			
1	Product Name	Product Info	basic			
	The commercial name of the ex	rtension card.				
2	Hardware Reference	Product Info	basic			
	The hardware refence					
3	Hardware Revision	Product Info	basic			
	The hardware revision					
4	Software Reference	Product Info	basic			
	The software reference					
6	Serial Number	Product Info	basic			
	The serial number.					
7	Manufacturing ID	Product Info	basic			
	The production batch id.					
8	Manufacturing Date	Product Info	basic			
	The production date.					
11	Description	Description	basic			
	A free text zone to write a system description					
12	Reference	Description	basic			
	A free text zone to write the cus	stomer reference of the syste	em			

Alar	m Table		
<u>Id</u>	<u>Name</u>	Severity Type (Level)	Set/Clear Delay
71	General Input 1	warning (2)	5 / 2
	Alarm related to digital input 1		
72	General Input 2	warning (2)	5 / 2
	Alarm related to digital input 2		
73	General Input 3	warning (2)	5 / 2
	Alarm related to digital input 3		
74	General Input 4	warning (2)	5 / 2
	Alarm related to digital input 4		
75	General Input 5	warning (2)	5 / 2
	Alarm related to digital input 5		
76	General Input 6	warning (2)	5 / 2

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	Alarm related to digital input 6		
77	General Input 7	warning (2)	5 / 2
	Alarm related to digital input 7		
78	General Input 8	warning (2)	5/2
	Alarm related to digital input 8		
79	General Input 9	warning (2)	5 / 2
	Alarm related to digital input 9		
80	General Input 10	warning (2)	5/2
	Alarm related to digital input 10		
81	General Input 11	warning (2)	5 / 2
	Alarm related to digital input 11		
82	General Input 12	warning (2)	5 / 2
	Alarm related to digital input 12		

Data	Table						
<u>Id</u>	<u>Name</u>	<u>Group</u>		<u>Unit</u>	<u>Licens</u> <u>e</u>		
1	Temperature 1	rature 1 Temperature Sensor		degree C	basic		
	Temperature Measurement 1						
101	Voltage 5V 1Voltage SensormVoltbath						
	Voltage Measurement 5V 1						
102	Voltage 5V 2	Voltage S	Voltage Sensor		basic		
	Voltage Measurement 5V 2						
111	Current 4-20mA 1	Current Sensor	4-20mA	mAmpere	basic		
	Current 4-20mA Sensor 1	·					
112	Current 4-20mA 2	Current Sensor	4-20mA	mAmpere	basic		
	Current 4-20mA Sensor 2						

Con	ig Table					
<u>Id</u>	<u>Name</u>	<u>Group</u>	<u>Unit</u>	Range: Min/Max (default)	<u>License</u>	
71	Digital Input 1 Name	Digital Inputs		General Input 1	basic	
	The name of the digital input 1					
72	Digital Input 1 Normally Closed	Digital Inputs		True/False (True)	basic	
	True/False value defining if the not in this default state, the relat			closed. If this digita	al input is	
73	Digital Input 2 Name	Digital Inputs		General Input 2	basic	
	The name of the digital input 2					
74	Digital Input 2 Normally Closed	Digital Inputs		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.					

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75	Digital In	put 3 N	ame		Digital I	nputs		General Input 3	basic
	The name	•						,	1
76		Input		Normally	Digital I	nputs		True/False (True)	basic
				ning if the e, the relat				closed. If this digit	al input is
77	Digital In	put 4 N	ame		Digital I	nputs		General Input 4	basic
	The name	of the	digita	al input 4			T	T	1
78	Closed	Input		Normally		•		True/False (True)	basic
	not in this	default	state	e, the relat	ed alarn	ı is set.		closed. If this digit	1
79	Digital In	•			Digital I	nputs		General Input 5	basic
	The name			•	1			T	
80	Closed	Input		Normally		•		True/False (True)	basic
_	not in this	default	state	e, the relat	ed alarn	n is set.		closed. If this digit	- -
81	Digital In	•			Digital I	nputs		General Input 6	basic
	The name			•	I		I	<u> </u>	1
82	Closed	Input		Normally		•		True/False (True)	basic
	not in this	default	state	e, the relat	ed alarn	is set.		closed. If this digit	
83	Digital In	•			Digital I	nputs		General Input 7	basic
	The name				<u> </u>		<u> </u>	<u> </u>	1
84	Closed	•		Normally		•		True/False (True)	basic
	not in this	default	state	e, the relat	ed alarn	is set.		closed. If this digit	
85	Digital In	•			Digital I	nputs		General Input 8	basic
	The name			•	I		I	<u></u>	1
86	Closed	Input	8	Normally		•		True/False (True)	basic
	not in this	default	state	e, the relat	ed alarn	n is set.		closed. If this digit	
87	Digital In	•			Digital I	nputs		General Input 9	basic
	The name			<u> </u>	ī		T	T	1
88	Closed	Input	9	Normally		•		True/False (True)	basic
	not in this	default	state	e, the relat	ed alarn	is set.		closed. If this digit	
89	Digital In	•			Digital I	nputs		General Input 10	basic
	+			al input 10	ı		T	T	1
90	Digital Closed	Input	10	Normally	Digital I	nputs		True/False (True)	basic
				ning if the e e, the relat				closed. If this digit	al input is

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91	Digital Input 11 Name	Digital Inputs	General Input 11	basic
0.	The name of the digital input 11	Digital inputs	General Input 11	σασισ
92		Digital Inputs	True/False (True)	basic
-	Closed	Digital inputs	1146/14166 (1146)	Daoio
	True/False value defining if the	digital input 11 is normally	closed. If this digital	al input is
	not in this default state, the relat		<u>-</u>	
93	Digital Input 12 Name	Digital Inputs	General Input 12	basic
	The name of the digital input 12		T	T
94	Digital Input 12 Normally Closed		True/False (True)	basic
	True/False value defining if the not in this default state, the relat	ed alarm is set.	closed. If this digita	al input is
121	Output Relay 1 Boolan Condition	Digital Outputs	(False)	basic
	Relay 1 Boolean Condition	,	,	
122	Output Relay 1 Normal State	Digital	(Energized / De-	basic
	Relay 1 Normal State	Outputs	energized)	
123	Output Relay 2 Boolan	Digital	(False)	basic
123	Condition 2 Boolan	Outputs	(1 alse)	Dasic
	Relay 2 Boolean Condition			•
124	Output Relay 2 Normal State	Digital	`	basic
	D. I. O. I. O. I.	Outputs	energized)	
105	Relay 2 Normal State	Divisal	/F-1>	la a a la
125	Output Relay 3 Boolan Condition	Outputs	(False)	basic
	Relay 3 Boolean Condition	, , , , , , , , , , , , , , , , , , ,	I	L
126	Output Relay 3 Normal State	Digital	(Energized / De-	basic
		Outputs	energized)	
	Relay 3 Normal State		T	T
127	Output Relay 4 Boolan Condition	Digital Outputs	(False)	basic
	Relay 4 Boolean Condition	Outputs		
128	Output Relay 4 Normal State	Digital	(Energized / De-	basic
1.20	Catput Holay 4 Hollian State	Outputs	energized)	Basio
	Relay 4 Normal State		,	•
129	Output Relay 5 Boolan		(False)	basic
	Condition	Outputs		
400	Relay 5 Boolean Condition	D: :: 1	l/=	l
130	Output Relay 5 Normal State	Digital Outputs	(Energized / De- energized)	basic
	Relay 5 Normal State	<u> </u>	<u> </u>	l
131	Output Relay 6 Boolan	Digital	(False)	basic
	Condition	Outputs		
	Relay 6 Boolean Condition	1	T	T
132	Output Relay 6 Normal State	Digital Outputs	(Energized / De- energized)	basic
	Relay 6 Normal State		<u> </u>	<u>I</u>
	,			

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133	Output Relay 7 Boolan Condition	Digital Outputs		(False)	basic
	Relay 7 Boolean Condition				
134	Output Relay 7 Normal State	Digital Outputs		(Energized / De- energized)	basic
	Relay 7 Normal State				
135	Output Relay 8 Boolan Condition	Digital Outputs		(False)	basic
	Relay 8 Boolean Condition				
136	Output Relay 8 Normal State	Digital Outputs		(Energized / De- energized)	basic
	Relay 8 Normal State				
137	Output Relay 9 Boolan Condition	Digital Outputs		(False)	basic
	Relay 9 Boolean Condition				
138	Output Relay 9 Normal State	Digital Outputs		(Energized / De- energized)	basic
	Relay 9 Normal State				
139	Output Relay 10 Boolan Condition	Digital Outputs		(False)	basic
	Relay 10 Boolean Condition				
140	Output Relay 10 Normal State	Digital Outputs		(Energized / De- energized)	basic
	Relay 10 Normal State				
521	Read Access User Numbers	Allowed Users		(1,2,3,4,5)	basic
	The list of the user numbers v numbers are coma separated. T				
522	Write Access User Numbers	Allowed Users		()	basic
	The list of the user numbers what these users can modify the control elements. The user num 1,2,3,4 and 5. Ex: 1,3,4	configuration e	lement, the	e alarm settings and	d use the
601	Event Table Length	Event		10/4000 (100)	basic
	The maximum length of the table	e. The value mu	st be comp	prised between 10 a	nd 4000
901	Number Of PLC Data	PLC		(0)	plc
	The number of PLC data. Every data. Data elements are aut parameters are added to set the calculation. In order to use the module	omatically add ne PLC Data N	ed in the ame and	data table. Con the PLC Data Math	figuration nematical
902	Number Of PLC Alarm	PLC		(0)	plc
	The number of PLC alarm. Ever alarms. Alarm elements are a parameters are added to set condition. In order to use the module	automatically a the PLC Alarm	dded in th Name ar	ne alarm table. The nd the PLC Alarm	ne alarm Boolean

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Cont	rol Table				
<u>Id</u>	<u>Name</u>	<u>Group</u>	<u>Licens</u> <u>e</u>		
501	Clear My Events	Event	basic		
	By writing '1' to this control element, all the events o	f this equipment will be clea	ared.		
502	Clear All Events	Event	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.				
511	Add Event	Event	basic		
	This control element adds an event of severity none to this control element	. The event name is the tex	kt written		
512	Add Major Event	Event	basic		
	This control element adds an event of severity n written to this control element	najor. The event name is	the text		
521	Reset Default Names And Groups	Advanced	basic		
	This control element resets all the element Names values for this equipment	, Groups and Subgroups to	o default		
522	Reset Default Names And Groups Recursive	Advanced	basic		
	This control element resets all the element Names values for this equipment and all sub equipments	, Groups and Subgroups to	o default		

7.4.3 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_and_actuators

Desc	escription Table					
<u>Id</u>	<u>Name</u>	Group	<u>License</u>			
1	Product Name	Product Info	basic			
	The commercial name of the ex	tension card.				
2	Hardware Reference	Product Info	basic			
	The hardware refence					
3	Hardware Revision	Product Info	basic			
	The hardware revision					
4	Software Reference	Product Info	basic			
	The software reference					
6	Serial Number	Product Info	basic			
	The serial number.					

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7	Manufacturing ID	Product Info	basic	
	The production batch id.			
8	Manufacturing Date	Product Info	basic	
	The production date.			
11	Description	Description	basic	
	A free text zone to write a system description			
12	Reference	Description	basic	
	A free text zone to write the customer reference of the system			

Alar	m Table		
<u>ld</u>	<u>Name</u>	Severity Type (Level)	Set/Clear Delay
71	General Input 1	warning (2)	5/2
	Alarm related to digital input 1		
72	General Input 2	warning (2)	5/2
	Alarm related to digital input 2		
73	General Input 3	warning (2)	5/2
	Alarm related to digital input 3		
74	General Input 4	warning (2)	5/2
	Alarm related to digital input 4		
75	General Input 5	warning (2)	5 / 2
	Alarm related to digital input 5		
76	General Input 6	warning (2)	5/2
	Alarm related to digital input 6		
77	General Input 7	warning (2)	5/2
	Alarm related to digital input 7		
78	General Input 8	warning (2)	5 / 2
	Alarm related to digital input 8		

Data	a Table			
<u>Id</u>	<u>Name</u>	<u>Group</u>	<u>Unit</u>	<u>Licens</u> <u>e</u>
1	Temperature 1	Temperature Sensor	degree C	basic
	Temperature Measurement 1			
2	Temperature 2	Temperature Sensor	degree C	basic
	Temperature Measurement 2			
3	Temperature 3	Temperature Sensor	degree C	basic
	Temperature Measurement 3	·		·
4	Temperature 4	Temperature Sensor	degree C	basic
	Temperature Measurement 4	·		·
71	Shunt 1	Current Sensor	Ampere	basic
	Shunt Measurement 1			

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72	Shunt 2	Current Sensor	Ampere	basic
	Shunt Measurement 2			
73	Shunt 3	Current Sensor	Ampere	basic
	Shunt Measurement 3			
74	Shunt 4	Current Sensor	Ampere	basic
	Shunt Measurement 4			
75	Shunt 5	Current Sensor	Ampere	basic
	Shunt Measurement 5			
76	Shunt 6	Current Sensor	Ampere	basic
	Shunt Measurement 6			
77	Shunt 7	Current Sensor	Ampere	basic
	Shunt Measurement 7			
78	Shunt 8	Current Sensor	Ampere	basic
	Shunt Measurement 8			
91	Voltage 1	Voltage Sensor	Volt	basic
	Voltage Measurement 1			
131	Pulse Counter 1	Pulse Counter		basic
	Energy Consumption Counter 1			
132	Pulse Counter 2	Pulse Counter		basic
	Energy Consumption Counter 2			
133	Pulse Counter 3	Pulse Counter		basic
	Energy Consumption Counter 3			
134	Pulse Counter 4	Pulse Counter		basic
	Energy Consumption Counter 4			

Conf	ig Table								
<u>Id</u>	<u>Name</u>				<u>Group</u>	<u>Unit</u>	Range: Min/Max (default)	<u>License</u>	
71	Digital In	put 1 N	ame	!	Digital Inputs		General Input 1	basic	
	The name	e of the	digita	al input 1					
72	Digital Closed	Input	1	Normally	Digital Inputs		True/False (True)	basic	
				•	digital input 1 i ed alarm is set.	•	closed. If this digita	al input is	
73	Digital Input 2 Name			Digital Inputs		General Input 2	basic		
	The name	The name of the digital input 2							
74	Digital Closed	Input	2	Normally	Digital Inputs		True/False (True)	basic	
					digital input 2 i ed alarm is set.		closed. If this digita	al input is	
75	Digital In	put 3 N	ame	1	Digital Inputs		General Input 3	basic	
	The name	e of the	digita	al input 3					
76	Digital Closed	Input	3	Normally	Digital Inputs		True/False (True)	basic	
	True/False value defining if the digital input 3 is normally closed. If this digital input in not in this default state, the related alarm is set.					al input is			

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	D:				D: :: 1.1	. 1		<u> </u>	I
77	Digital Input 4 Name The name of the digital input 4			Digital Inpu	ıts		General Input 4	basic	
	1			•					Т
78	Digital Closed	Input	4		Digital Inpu			True/False (True)	basic
					digital inpu ed alarm is		s normally	closed. If this digita	al input is
79	Digital In	put 5 N	ame		Digital Inpu	ıts		General Input 5	basic
	The name	e of the	digita	al input 5					
80	Digital Closed	Input	5	Normally	Digital Inpu	ıts		True/False (True)	basic
					digital inpu ed alarm is		s normally	closed. If this digita	al input is
81	Digital In	put 6 N	ame		Digital Inpu	ıts		General Input 6	basic
	The name	e of the	digita	al input 6					
82	Digital Closed	Input	6	Normally	Digital Inpu	ıts		True/False (True)	basic
	not in this	s default	state	e, the relat	ed alarm is	set.	s normally	closed. If this digita	al input is
83	Digital In	-			Digital Inpu	ıts		General Input 7	basic
	The name	e of the	digita	al input 7					
84	Digital Closed	Input	7	Normally	Digital Inpu	ıts		True/False (True)	basic
					digital inpu ed alarm is		s normally	closed. If this digita	al input is
85	Digital In	put 8 N	ame		Digital Inpu	ıts		General Input 8	basic
	The name	e of the	digita	al input 8					
86	Digital Closed	Input	8	Normally	Digital Inpu	ıts		True/False (True)	basic
	not in this	s default	state	e, the relat	digital inpu ed alarm is		-	closed. If this digita	al input is
521	Read Ac	cess Us	er N	umbers	Allowed Users			(1,2,3,4,5)	basic
								o this equipment. 2,3,4 and 5. Ex: 1,3	
522	Write Ac	cess Us	ser N	lumbers	Allowed Users			()	basic
								this equipment. The alarm settings an	
		lements.	The	user num				The accepted us	
601	Event Ta	ble Len	gth		Event			10/4000 (100)	basic
	The maxi	imum lei	ngth	of the table	e. The value	e mu	st be comp	orised between 10 a	and 4000
901	Number	Of PLC	Data	1	PLC			(0)	plc
	Number Of PLC Data PLC (0) plc The number of PLC data. Every equipment can manage up to 20 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								
902	Number	Of PLC	Alar	m	PLC			(0)	plc
		- · · - ·						\-/	ام.

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The number of PLC alarm. Every equipment can manage up to 20 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

Cont	rol Table		
<u>Id</u>	<u>Name</u>	<u>Group</u>	<u>Licens</u> <u>e</u>
101	Set Pulse Counter 1	Pulse Counters	basic
	Set Counter 1 Value		
102	Set Pulse Counter 2	Pulse Counters	basic
	Set Counter 2 Value		
103	Set Pulse Counter 3	Pulse Counters	basic
	Set Counter 3 Value		
104	Set Pulse Counter 4	Pulse Counters	basic
	Set Counter 4 Value		
501	Clear My Events	Event	basic
	By writing '1' to this control element, all the events o	f this equipment will be clea	ared.
502	Clear All Events	Event	basic
	By writing '1' to this control element, all the events of all the sub-equipments will be cleared.	of this equipment and all th	e events
511	Add Event	Event	basic
	This control element adds an event of severity none to this control element	. The event name is the tex	kt written
512	Add Major Event	Event	basic
	This control element adds an event of severity n written to this control element	najor. The event name is	the text
521	Reset Default Names And Groups	Advanced	basic
	This control element resets all the element Names values for this equipment	, Groups and Subgroups to	o default
522	Reset Default Names And Groups Recursive	Advanced	basic
	This control element resets all the element Names values for this equipment and all sub equipments	, Groups and Subgroups to	o default

7.4.4 ADIO 10

Device Information	
Name	ADIO 10
Short Description	Standard I/O module DC systems
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

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Equipment Type	System Extension
ETSI Level	/site/sensors_and_actuators

Description Table						
<u>Id</u>	<u>Name</u>	Group	<u>License</u>			
1	Product Name	Product Info	basic			
	The commercial name of the	extension card.				
2	Hardware Reference	Product Info	basic			
	The hardware refence					
3	Hardware Revision	Product Info	basic			
	The hardware revision	The hardware revision				
4	Software Reference	Product Info	basic			
	The software reference					
6	Serial Number	Product Info	basic			
	The serial number.					
7	Manufacturing ID	Product Info	basic			
	The production batch id.					
8	Manufacturing Date	Product Info	basic			
	The production date.					
11	Description	Description	basic			
	A free text zone to write a system description					
12	Reference	Description	basic			
A free text zone to write the customer reference of the system			stem			

Alar	m Table		
<u>Id</u>	<u>Name</u>	Severity Type (Level)	Set/Clear Delay
71	General Input 1	warning (2)	5 / 2
	Alarm related to digital input 1		
72	General Input 2	warning (2)	5 / 2
	Alarm related to digital input 2		
73	General Input 3	warning (2)	5 / 2
	Alarm related to digital input 3		
74	General Input 4	warning (2)	5/2
	Alarm related to digital input 4		
75	General Input 5	warning (2)	5 / 2
	Alarm related to digital input 5		
76	General Input 6	warning (2)	5 / 2
	Alarm related to digital input 6		
77	General Input 7	warning (2)	5 / 2
	Alarm related to digital input 7		
78	General Input 8	warning (2)	5 / 2
	Alarm related to digital input 8		

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Data	Table				
<u>Id</u>	<u>Name</u>	<u>Group</u>	<u>Unit</u>	<u>Licens</u> <u>e</u>	
1	Temperature 1	Temperature Sensor	degree C	basic	
	Temperature Measurement 1				
2	Temperature 2	Temperature Sensor	degree C	basic	
	Temperature Measurement 2				
71	Shunt 1	Current Sensor	Ampere	basic	
	Shunt Measurement 1				
72	Shunt 2	Current Sensor	Ampere	basic	
	Shunt Measurement 2				
91	Voltage 1	Voltage Sensor	Volt	basic	
	Voltage Measurement 1				
92	Voltage 2	Voltage Sensor	Volt	basic	
	Voltage Measurement 2	·			
93	Voltage 3	Voltage Sensor	Volt	basic	
	Voltage Measurement 3			•	
94	Voltage 4	Voltage Sensor	Volt	basic	
	Voltage Measurement 4			•	

Conf	ig Table						
<u>Id</u>	<u>Name</u>	<u>Group</u>	<u>Unit</u>	Range: Min/Max (default)	<u>License</u>		
41	Shunt 1 Rating At 60mV	Battery	Ampere		basic		
	The rating of the shunt 1 at 60m	V.					
42	Shunt 2 Rating At 60mV	Battery	Ampere		basic		
	The rating of the shunt 2 at 60m	V.					
71	Digital Input 1 Name	Digital Inputs		General Input 1	basic		
	The name of the digital input 1						
72	Digital Input 1 Normally Closed	Digital Inputs		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.						
73	Digital Input 2 Name	Digital Inputs		General Input 2	basic		
	The name of the digital input 2						
74	Digital Input 2 Normally Closed	Digital Inputs		True/False (True)	basic		
	True/False value defining if the not in this default state, the relat			closed. If this digita	al input is		
75	Digital Input 3 Name	Digital Inputs		General Input 3	basic		
The name of the digital input 3							
76	Digital Input 3 Normally Closed	Digital Inputs		True/False (True)	basic		
	True/False value defining if the	digital input 3 i	is normally	closed. If this digita	al input is		

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	not in this	s default	state	e. the relat	ed alarm is set	_		
77	Digital Ir				Digital Inputs	-	General Input 4	basic
	The name of the digital input 4		- igital lilputs	1	Sonoral Input +	24510		
78	Digital Closed	Input		•	Digital Inputs		True/False (True)	basic
	True/Fals	se value s default	defi stat	ning if the e, the relat	digital input 4 ed alarm is set	is normally	closed. If this digita	al input is
79	Digital Ir	-			Digital Inputs		General Input 5	basic
	+			al input 5	I	1	T	1
80	Digital Closed	Input			Digital Inputs		True/False (True)	basic
	not in this	s default	stat	e, the relat	ed alarm is set		closed. If this digita	
81	Digital Ir	•			Digital Inputs		General Input 6	basic
				al input 6	I	1	T	
82	Digital Closed	Input			Digital Inputs		True/False (True)	basic
	not in this	s default	stat	e, the relat	ed alarm is set		closed. If this digita	
83	Digital Ir	nput 7 N	lame)	Digital Inputs		General Input 7	basic
	The nam	e of the	digita	al input 7	<u> </u>		T	1
84	Digital Closed	Input	7	Normally	Digital Inputs		True/False (True)	basic
							closed. If this digital	al input is
	1			-	ed alarm is set	•	<u> </u>	1
85	Digital Ir	•			Digital Inputs		General Input 8	basic
	1			al input 8	D		<u> </u>	I
86	Digital Closed	Input			Digital Inputs		True/False (True)	basic
	not in this	s default	stat	•	digital input 8 ed alarm is set	•	closed. If this digita	al input is
121	Output	Relay	1	Boolan	_		(False)	basic
	Conditio		Ca:-	dition	Outputs			
122	Relay 1 E				Digital		(Energized / De	hacia
122				nal State	Digital Outputs		(Energized / De- energized)	Dasic
	Relay 1 N					1		1
123	Output Conditio				Digital Outputs		(False)	basic
	Relay 2 E	Boolean	Con	dition	-		-	1
124	Output F	Relay 2 N	Norn	nal State	Digital Outputs		(Energized / De- energized)	basic
	Relay 2 N	Normal S	State					
125	Output Conditio	Relay on	3	Boolan	Digital Outputs		(False)	basic
	Relay 3 E	Boolean	Con	dition				
126	-			nal State	Digital Outputs		(Energized / De- energized)	basic

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	Relay 3 Normal State				
127	Output Relay 4 Boolan	Digital	(False)	basic	
121	Condition	Outputs	(Faise)	Dasic	
	Relay 4 Boolean Condition	Catpato			
128	Output Relay 4 Normal State	Digital	(Energized / De-	hasic	
120	Output Helay 4 Normal State	Outputs	energized)	Dasic	
	Relay 4 Normal State	C 0.1p 0.10			
129	Output Relay 5 Boolan	Digital	(False)	basic	
	Condition	Outputs	(* 55 5)		
	Relay 5 Boolean Condition			•	
130	Output Relay 5 Normal State	Digital	(Energized / De-	basic	
	-	Outputs	energized)		
	Relay 5 Normal State				
131	Output Relay 6 Boolan		(False)	basic	
	Condition	Outputs			
	Relay 6 Boolean Condition	<u></u>		Т.	
132	Output Relay 6 Normal State	Digital	()	basic	
	Dolov C Normand Chat-	Outputs	energized)		
100	Relay 6 Normal State	District	(Falss)	la = -!-	
133	Output Relay 7 Boolan Condition	Digital Outputs	(False)	basic	
	Relay 7 Boolean Condition	Outputs			
134	Output Relay 7 Normal State	Digital	(Energized / De-	basic	
104	Cutput Helay / Horman State	Outputs	energized)	basic	
	Relay 7 Normal State		, ,		
135	Output Relay 8 Boolan	Digital	(False)	basic	
	Condition	Outputs			
	Relay 8 Boolean Condition	,			
136	Output Relay 8 Normal State	Digital	1\ 3	basic	
		Outputs	energized)		
407	Relay 8 Normal State	D: ': 1	(01,000,000)	l	
137	Default Digital Output Binary Vector	Outputs	(0b0000000)	basic	
	This configuration is stored insid		of configuration failure		
521	Read Access User Numbers	Allowed	(1,2,3,4,5)	basic	
02.	Tioda 7100000 Cool Hambolo	Users	(1,2,0,1,0)	Daoio	
	The list of the user numbers v	vhich have read acce	ess to this equipment.	The user	
	numbers are coma separated. T	he accepted user id ar	• •		
522	Write Access User Numbers	Allowed	()	basic	
		Users		<u> </u>	
	The list of the user numbers what those users can modify the				
	that these users can modify the control elements. The user num				
	1,2,3,4 and 5. Ex: 1,3,4	boro aro doma dopare	atod. The decepted de	or ido di o	
601	Event Table Length	Event	10/4000 (100)	basic	
	The maximum length of the table	e. The value must be o	comprised between 10 a	and 4000	
901	Number Of PLC Data	PLC	(0)	plc	
Ì	The number of DLC data Even	equipment can mana	1 ' '	rammahle	
	Title number of FLG data. Every	The number of PLC data. Every equipment can manage up to 20 user programmable data. Data elements are automatically added in the data table. Configuration			

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module

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

902 Number Of PLC Alarm

PLC

(0)

The number of PLC alarm. Every equipment can manage up to 20 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'

Cont	rol Table				
<u>ld</u>	<u>Name</u>	Group	<u>Licens</u> <u>e</u>		
11	Calibrate V1	Calibration	basic		
	No information				
12	Calibrate V2	Calibration	basic		
	No information				
13	Calibrate V3	Calibration	basic		
	No information				
14	Calibrate V4	Calibration	basic		
	No information				
501	Clear My Events	Event	basic		
	By writing '1' to this control element, all the events of	of this equipment will be cle	ared.		
502	Clear All Events	Event	basic		
	By writing '1' to this control element, all the events of all the sub-equipments will be cleared.	of this equipment and all th	e events		
511	Add Event	Event	basic		
	This control element adds an event of severity none to this control element	e. The event name is the tex	kt written		
512	Add Major Event	Event	basic		
	This control element adds an event of severity major. The event name is the text written to this control element				
521	Reset Default Names And Groups	Advanced	basic		
	This control element resets all the element Names values for this equipment	, Groups and Subgroups t	o default		
522	Reset Default Names And Groups Recursive	Advanced	basic		
	This control element resets all the element Names values for this equipment and all sub equipments	, Groups and Subgroups t	o default		

7.4.5 **BIOM**

Device Information	
Name	BIOM
Short Description	COMP@S BASIC I/O MODULE SYS BIOM
Long Description	12 Digital Inputs, 4 output relay, 2 temperature sensors

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Hardware Reference	9413 060 05051
Software Reference	SOFT 000037 XX
Equipment Type	System Extension
ETSI Level	/site/sensors_and_actuators

Desc	Description Table					
<u>Id</u>	<u>Name</u>	<u>Group</u>	<u>License</u>			
1	Product Name	Product Info	basic			
	The commercial name of the	extension card.				
2	Hardware Reference	Product Info	basic			
	The hardware refence					
3	Hardware Revision	Product Info	basic			
	The hardware revision					
4	Software Reference	Product Info	basic			
	The software reference					
6	Serial Number	Product Info	basic			
	The serial number.					
7	Manufacturing ID	Product Info	basic			
	The production batch id.					
8	Manufacturing Date	Product Info	basic			
	The production date.					
11	Description	Description	basic			
	A free text zone to write a system description					
12	Reference	Description	basic			
	A free text zone to write the customer reference of the system					

Alar	Alarm Table					
<u>Id</u> 71	<u>Name</u>	Severity Type (Level)	Set/Clear Delay			
71	General Input 1	warning (2)	5 / 2			
	Alarm related to digital input 1					
72	General Input 2	warning (2)	5 / 2			
	Alarm related to digital input 2					
73	General Input 3	warning (2)	5 / 2			
	Alarm related to digital input 3					
74	General Input 4	warning (2)	5 / 2			
	Alarm related to digital input 4					
75	General Input 5	warning (2)	5 / 2			
	Alarm related to digital input 5					
76	General Input 6	warning (2)	5 / 2			
	Alarm related to digital input 6					
77	General Input 7	warning (2)	5 / 2			
	Alarm related to digital input 7					
78	General Input 8	warning (2)	5 / 2			
	Alarm related to digital input 8					

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79	General Input 9	warning (2)	5 / 2
	Alarm related to digital input 9		
80	General Input 10	warning (2)	5 / 2
	Alarm related to digital input 10		
81	General Input 11	warning (2)	5 / 2
	Alarm related to digital input 11		·
82	General Input 12	warning (2)	5 / 2
	Alarm related to digital input 12		

Data	Data Table						
<u>Id</u>	<u>Name</u>	<u>Group</u>	<u>Unit</u>	<u>Licens</u>			
				<u>e</u>			
1	Temperature 1	Sensors	degree C	basic			
	The temperature 1						
2	Temperature 2	Sensors	degree C	basic			
	The temperature 2						

Digital Input 1 Name Digital Inputs General Input 1 basic						
Digital Input 1 Name Digital Inputs General Input 1 basic	Conf	ig Table				
The name of the digital input 1 72 Digital Input 1 Normally Digital Inputs True/False (True) Digital Input Send Input 1 Normally Digital Input 1 is normally closed. If this digital input is not in this default state, the related alarm is set. 73 Digital Input 2 Name Digital Inputs General Input 2 basic The name of the digital input 2 74 Digital Input 2 Normally Digital Inputs True/False (True) Digital Input Send	<u>Id</u>	<u>Name</u>	<u>Group</u>	<u>Unit</u>		<u>License</u>
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. 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. Digital Input 2 Name Digital Inputs General Input 2 basic The name of the digital input 2 Digital Inputs True/False (True) basic Closed 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. Digital Input 3 Name Digital Inputs General Input 3 basic The name of the digital input 3 Digital Inputs True/False (True) basic Closed 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. Digital Input 4 Name Digital Inputs General Input 4 basic The name of the digital input 4 Digital Input 4 Normally Digital Inputs True/False (True) basic True/False value defining if the digital inputs General Input 4 basic True/False value defining if the digital inputs True/False (True) basic True/False value defining if the digital inputs True/False (True) basic Closed 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.	71	Digital Input 1 Name	Digital Inputs		General Input 1	basic
Closed 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. 73 Digital Input 2 Name The name of the digital input 2 74 Digital Input 2 Normally Closed 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. 75 Digital Input 3 Name Digital Input 3 Normally Digital Input 3 is normally closed. If this digital input is not in this default state, the related alarm is set. 77 Digital Input 4 Name Digital Input 5 General Input 4 basic The name of the digital input 4 True/False value defining if the digital Inputs Digital Input 4 Normally Digital Input 5 True/False (True) Digital Input 4 Normally Digital Input 5 General Input 4 basic The name of the digital input 4 True/False value defining if the digital Inputs True/False (True) Digital Input 4 Normally Digital Input 5 True/False (True) Digital Input 6 Normally Digital Input 7 Normally Digital Input 8 Input 7 Normally Digital Input 9 Input 8 Input 8 Input 9		The name of the digital input 1				
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not in this default state, the related alarm is set. 75 Digital Input 3 Name Digital Inputs General Input 3 basic The name of the digital input 3 76 Digital Input 3 Normally Digital Inputs True/False (True) basic Closed 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. 77 Digital Input 4 Name Digital Inputs General Input 4 basic The name of the digital input 4 78 Digital Input 4 Normally Digital Inputs True/False (True) basic Closed 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.	74		Digital Inputs		True/False (True)	basic
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76 Digital Input 3 Normally Digital Inputs 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. 77 Digital Input 4 Name The name of the digital input 4 True/False (True) basic The name of the 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.	75	Digital Input 3 Name	Digital Inputs		General Input 3	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. 77 Digital Input 4 Name Digital Inputs General Input 4 basic The name of the digital input 4 78 Digital Input 4 Normally Digital Inputs True/False (True) basic Closed 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.		The name of the digital input 3				
not in this default state, the related alarm is set. 77 Digital Input 4 Name Digital Inputs General Input 4 basic The name of the digital input 4 78 Digital Input 4 Normally Digital Inputs True/False (True) basic Closed 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.	76		Digital Inputs		True/False (True)	basic
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78 Digital Input 4 Normally Digital Inputs True/False (True) basic Closed 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.	77	Digital Input 4 Name	Digital Inputs		General Input 4	basic
Closed 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.		The name of the digital input 4				
not in this default state, the related alarm is set.	78		Digital Inputs		True/False (True)	basic
					closed. If this digita	al input is
79 Digital Input 5 Name Digital Inputs General Input 5 basic	79	Digital Input 5 Name	Digital Inputs		General Input 5	basic
The name of the digital input 5		The name of the digital input 5	•			

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Digital Closed	Input	5	Normally	Digital Inputs	3	True/False (True)	basic	
						closed. If this digit	al input is	
not in this	s default	state	e, the relat	ed alarm is s	et.	T-	1	
Digital Ir	put 6 N	ame		Digital Inputs	3	General Input 6	basic	
The nam	e of the	digita	al input 6	,				
Digital Closed	Input	6	Normally	Digital Inputs	3	True/False (True)	basic	
			•	•	•	closed. If this digit	al input is	
Digital Ir	put 7 N	ame		Digital Inputs	3	Digital Input 7 Name	basic	
The nam	e of the	digita	al input 7					
Digital Closed	Input	7	Normally	Digital Inputs	3	True/False (True)	basic	
						closed. If this digit	al input is	
Digital Ir	put 8 N	ame		Digital Inputs	3	General Input 8	basic	
The nam	e of the	digita	al input 8					
Digital Closed	Input	8	Normally	Digital Inputs	3	True/False (True)	basic	
						closed. If this digit	nis digital input is	
Digital Ir	put 9 N	ame		Digital Inputs	3	General Input 9	basic	
The nam	e of the	digita	al input 9				•	
Digital Closed	Input	9	Normally	Digital Inputs	3	True/False (True)	basic	
						closed. If this digit	al input is	
Digital Ir	put 10	Nam	е	Digital Inputs	3	General Input 10	basic	
The nam	e of the	digita	al input 10				•	
Digital Closed	Input	10	Normally	Digital Inputs	3	True/False (True)	basic	
						closed. If this digit	al input is	
Digital Ir	put 11	Nam	е	Digital Inputs	3	General Input 11	basic	
The nam	e of the	digita	al input 11					
Digital Closed	Input	11	Normally	Digital Inputs	3	True/False (True)	basic	
						closed. If this digit	al input is	
Digital Ir	put 12	Nam	е	Digital Inputs	6	General Input 12	basic	
The nam	e of the	digita	al input 12	-	•			
Digital Closed			•	Digital Inputs	3	True/False (True)	basic	
						closed. If this digit	al input is	
Digital				Digital Outputs		(False)	basic	
	True/Fals not in this Digital Ir The nam Digital Closed True/Fals not in this Digital Ir The nam Digital Closed True/Fals not in this Digital Ir The nam Digital Closed True/Fals not in this Digital Ir The nam Digital Closed True/Fals not in this Digital Ir The nam Digital Closed True/Fals not in this Digital Ir The nam Digital Closed True/Fals not in this Digital Ir The nam Digital Closed True/Fals not in this Digital Ir The nam Digital Closed True/Fals not in this Digital Ir The nam Digital Closed True/Fals not in this Digital Ir The nam Digital Closed True/Fals not in this Digital Ir The nam Digital Closed True/Fals not in this Digital Ir The nam Digital Closed True/Fals not in this Digital Ir The nam Digital Closed True/Fals not in this Digital	Closed True/False value not in this default Digital Input 6 N The name of the Digital Input Closed True/False value not in this default Digital Input 7 N The name of the Digital Input 6 N The name of the Digital Input 6 N The name of the Digital Input 8 N The name of the Digital Input 6 N The name of the Digital Input 9 N The name of the Digital Input 9 N The name of the Digital Input 10 Input 11	Closed True/False value defir not in this default state Digital Input 6 Name The name of the digital Digital Input 6 Closed True/False value defir not in this default state Digital Input 7 Name The name of the digital Digital Input 7 Closed True/False value defir not in this default state Digital Input 8 Name The name of the digital Digital Input 8 Closed True/False value defir not in this default state Digital Input 9 Name The name of the digital Digital Input 9 Name The name of the digital Digital Input 9 Name The name of the digital Digital Input 10 Name The name of the digital Digital Input 10 Name The name of the digital Digital Input 11 Name The name of the digital Digital Input 11 Name The name of the digital Digital Input 11 Name The name of the digital Digital Input 11 Name The name of the digital Digital Input 11 Name The name of the digital Digital Input 11 Name The name of the digital Digital Input 12 Name The name of the digital Digital Input 12 Name The name of the digital Digital Input 12 Name The name of the digital Digital Input 12 Name The name of the digital Digital Input 12 Name The name of the digital Digital Input 12 Name The name of the digital Digital Input 12 Name The name of the digital Digital Input 13 Name The name of the digital Digital Input 14 Name The name of the digital	Closed True/False value defining if the not in this default state, the relat Digital Input 6 Name The name of the digital input 6 Digital Input 6 Normally Closed True/False value defining if the not in this default state, the relat Digital Input 7 Normally Closed True/False value defining if the not in this default state, the relat Digital Input 7 Normally Closed True/False value defining if the not in this default state, the relat Digital Input 8 Normally Closed True/False value defining if the not in this default state, the relat Digital Input 9 Normally Closed True/False value defining if the not in this default state, the relat Digital Input 9 Normally Closed True/False value defining if the not in this default state, the relat Digital Input 10 Name The name of the digital input 10 Digital Input 10 Normally Closed True/False value defining if the not in this default state, the relat Digital Input 10 Normally Closed True/False value defining if the not in this default state, the relat Digital Input 11 Normally Closed True/False value defining if the not in this default state, the relat Digital Input 11 Normally Closed True/False value defining if the not in this default state, the relat Digital Input 11 Normally Closed True/False value defining if the not in this default state, the relat Digital Input 12 Normally Closed True/False value defining if the not in this default state, the relat Digital Input 12 Normally Closed True/False value defining if the not in this default state, the relat	Closed True/False value defining if the digital input so the in this default state, the related alarm is so Digital Input 6 Name The name of the digital input 6 Digital Inputs Closed True/False value defining if the digital input so the name of the digital input 7 The name of the digital input 7 Digital Inputs 7 Digital Input 7 Normally Digital Inputs Closed True/False value defining if the digital input 5 Digital Input 7 Normally Closed True/False value defining if the digital input 6 Digital Input 8 Name The name of the digital input 8 Digital Input 8 Normally Digital Input 8 Digital Input 8 Normally Digital Input 8 Digital Input 8 Digital Input 8 Digital Input 9 Name The name of the digital input 9 Digital Input 9 Digital Input 9 Normally Digital Input 9 Digital Input	True/False value defining if the digital input 5 is normally not in this default state, the related alarm is set. Digital Input 6 Name Digital Inputs The name of the digital input 6 Digital Input 6 Normally Closed True/False value defining if the digital input 6 is normally not in this default state, the related alarm is set. Digital Input 7 Name Digital Inputs The name of the digital input 7 Digital Input 7 Normally Digital Input 8 Digital Input 9 True/False value defining if the digital input 7 is normally not in this default state, the related alarm is set. 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	PLC Boolean condition to energ	ize the relay 1			
122		Digital		(False)	basic
	Energized Boolan Condition	Outputs			
	PLC Boolean condition to energ	ize the relay 2		T	
123		Digital		(False)	basic
	Energized Boolan Condition	Outputs			
	PLC Boolean condition to energ	,		I. .	1
124		Digital		(False)	basic
	Energized Boolan Condition	Outputs			
F01	PLC Boolean condition to energ Read Access User Numbers	· · · · · · · · · · · · · · · · · · ·		(1.0.0.4.5)	la a a i a
521	Read Access User Numbers	Allowed Users		(1,2,3,4,5)	basic
	The list of the user numbers v	which have rea	d access t	to this equipment.	The user
	numbers are coma separated. T				
522	Write Access User Numbers	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				
601	Event Table Length	Event		10/4000 (100)	basic
	The maximum length of the table	e. The value mu	ist be comp	orised between 10 a	nd 4000
901	Number Of PLC Data	PLC		(0)	plc
	The number of PLC data. Every data. Data elements are autoparameters are added to set to calculation. In order to use the module	tomatically add he PLC Data N ese functionalitie	led in the lame and	e data table. Con the PLC Data Mat	figuration nematical
902	Number Of PLC Alarm	PLC		(0)	plc
	The number of PLC alarm. Ever alarms. Alarm elements are a parameters are added to set condition. In order to use the module	automatically a the PLC Alarm	dded in tl n Name ar	he alarm table. T nd the PLC Alarm	he alarm Boolean

Cont	rol Table				
<u>Id</u>	<u>Name</u>	<u>Group</u>	<u>Licens</u> <u>e</u>		
501	Clear My Events	Event	basic		
	By writing '1' to this control element, all the events of	of this equipment will be clea	ared.		
502	Clear All Events	Event	basic		
	By writing '1' to this control element, all the events of all the sub-equipments will be cleared.	of this equipment and all the	e events		
511	Add Event	Event	basic		
	This control element adds an event of severity none. The event name is the text writ to this control element				
512	Add Major Event	Event	basic		
	This control element adds an event of severity major. The event name is the text written to this control element				

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521	Reset Default Names And Groups	Advanced	basic		
	This control element resets all the element Names values for this equipment	, Groups and Subgroups to	default		
522	Reset Default Names And Groups Recursive	Advanced	basic		
	This control element resets all the element Names, Groups and Subgroups to default values for this equipment and all sub equipments				

7.4.6 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_and_actuators

<u>Id</u>	<u>Name</u>	Group	<u>License</u>		
1	Product Name	Product Info	basic		
	The commercial name of the e	xtension card.			
2	Hardware Reference	Product Info	basic		
	The hardware refence				
3	Hardware Revision	Product Info	basic		
	The hardware revision				
4	Software Reference	Product Info	basic		
	The software reference				
6	Serial Number	Product Info	basic		
	The serial number.				
7	Manufacturing ID	Product Info	basic		
	The production batch id.				
8	Manufacturing Date	Product Info	basic		
	The production date.				
11	Description	Description	basic		
	A free text zone to write a system description				
12	Reference	Description	basic		
	A free text zone to write the cu	stomer reference of the syst	em		

Alarm Table

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Id	Name	Severity Type (Level)	Set/Clear Delay				
<u>Id</u> 1	Cabinet Temperature High	major (6)	5/2				
	The temperature of the cabinet is too high.	, , ,					
2	Cabinet Temperature Low	major (6)	5 / 2				
	The temperature of the cabinet is too low.	, , ,	1				
3	Cabinet Temperature Sensor Fail	minor (4)	5 / 2				
	The cabinet temperature sense is defect.	. ,					
11	Cabinet Humidity High	major (6)	5 / 2				
	The cabinet humidity is too high						
12	Cabinet Humidity Low	major (6)	5/2				
	The cabinet humidity is too low						
21	Water Detection Alarm	major (6)	5 / 2				
	Water is detected by the water sensor.						
31	Tilt X Alarm	major (6)	5 / 2				
	The X-tilt absolute value is too high						
32	Tilt Y Alarm	major (6)	5 / 2				
	The Y-tilt absolute value is too high						
41	Vandalism Alarm	major (6)	5 / 2				
	The vandalism score is too high						
51	Badge Reader Failure	major (6)	5 / 2				
	The badge reader is defect or not connected						
71	General Input 1	warning (2)	5 / 2				
	Alarm related to digital input 1						
72	General Input 2	warning (2)	5 / 2				
	Alarm related to digital input 2						
73	General Input 3	warning (2)	5 / 2				
	Alarm related to digital input 3						
74	General Input 4	warning (2)	5 / 2				
	Alarm related to digital input 4						
75	General Input 5	warning (2)	5 / 2				
	Alarm related to digital input 5	T.	T.				
76	General Input 6	warning (2)	5 / 2				
	Alarm related to digital input 6	T.	T.				
77	Door 1 Open	warning (2)	5 / 2				
	Alarm related to digital input 7, used for acc	ess control by default					
78	Door 2 Open	warning (2)	5 / 2				
	Alarm related to digital input 8, used for acc		T				
79	Door 3 Open	warning (2)	5 / 2				
	Alarm related to digital input 9, used for acc		T				
80	Door 4 Open	warning (2)	5 / 2				
	Alarm related to digital input 10, used for ac	cess control by default					

Data Table					
<u>Id</u>	<u>Name</u>	<u>Group</u>	<u>Unit</u>	<u>Licens</u> e	

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1	Cabinet Temperature	Sensors	degree C	basic				
	The temperature in the cabinet							
11	Relative Humidity	Sensors	%	basic				
	The relative humidity in the cabinet							
21	Tilt X	Sensors	degree	basic				
	The tilt-X value							
22	Tilt Y	Sensors	degree	basic				
	The tilt-Y value							
31	Vandalism Score	Sensors		basic				
	The vandalism score. This depends of t	he cabinet accelerati	on over time.					
41	Last UID Badge Reader	Badge Reader		basic				
	The last uid value read by the badge reader							
42	Last Time Badge Reader	Badge Reader		basic				
	The date and time at which the badge reader has been used							
52	Lock 1 Open	Access Control 1		basic				
	The lock 1 is mechanically closed							
53	Lock 1 Enabled	Access Control 1		basic				
	The access control 1 is enabling the ele	ectronic lock 1						
62	Lock 2 Open	Access Control 2		basic				
	The lock 2 is mechanically closed							
63	Lock 2 Enabled	Access Control 2		basic				
	The access control 2 is enabling the electronic lock 2							

Con	fig Table					
<u>Id</u>	<u>Name</u>	<u>Group</u>	<u>Unit</u>	Range: Min/Max (default)	<u>License</u>	
1	Cabinet Temperature High	Alarm Parameters	degree C	-50/100 (50)	basic	
	The temperature over which the	cabinet temper	rature is too	high		
2	Cabinet Temperature Low	Alarm Parameters	degree C	-50/100 (-5)	basic	
The temperature under which the cabinet temperature is too low						
11	Cabinet Humidity High	Alarm Parameters	%	0/100 (80)	basic	
	The relative humidity over which the cabinet humidity is too high					
12	Cabinet Humidity Low	Alarm Parameters	%	0/100 (0)	basic	
	The relative humidity over which the cabinet humidity is too low					
21	Tilt X High	Alarm Parameters	degree	0/90 (10)	basic	
	The maximum absolute tilt-X val	ue allowed for	the cabinet			
22	Tilt Y High	Alarm Parameters	degree	0/90 (10)	basic	
	The maximum absolute tilt-Y val	ue allowed for	the cabinet			
31	Vandalism Detection Threshold	Alarm Parameters			basic	

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Access Control 1 Enabled	basic basic ded again e) basic set. basic cts related to se) basic		
Access Control 1 Authorized Access Control 1	basic led again e) basic set. basic cts related to se) basic		
Control 1 Coma separated list of the UID allowed to disable the electronic lock 1	basic led again e) basic set. basic cts related to se) basic		
Access Control 1 Auto Close Control 1 Time in second after which the electronic lock 1 must be automatically lock Access Control 1 Disabled If Access Badge Reader Failure Control 1 The electronic lock 1 must be disabled if the 'Badge reader failure' alarm is Control 1 Access Control 1 Doors Access Control 1 This is the coma separated list of the digital inputs which are door contact the access control 1 Access Control 2 Enabled Access Control 2 The access control 2 is enabled. The electronic lock 2 must be managed. Access Control 2 Authorized Access	ded again e) basic set. basic cts related to se) basic		
Time Time in second after which the electronic lock 1 must be automatically lock Access Control 1 Disabled If Access Badge Reader Failure The electronic lock 1 must be disabled if the 'Badge reader failure' alarm is Control 1 Access Control 1 Doors Access Inputs This is the coma separated list of the digital inputs which are door contact the access control 1 Access Control 2 Enabled Access Control 2 Enabled True/False (False Control 2 The access control 2 is enabled. The electronic lock 2 must be managed. Access Control 2 Authorized Access	ded again e) basic set. basic cts related to se) basic		
Access Control 1 Disabled If Badge Reader Failure The electronic lock 1 must be disabled if the 'Badge reader failure' alarm is Access Control 1 Doors Access Control 1 This is the coma separated list of the digital inputs which are door contact the access control 1 Access Control 2 Enabled Access Control 2 The access control 2 is enabled. The electronic lock 2 must be managed. Access Control 2 Authorized Access	e) basic set. basic cts related to se) basic		
Badge Reader Failure The electronic lock 1 must be disabled if the 'Badge reader failure' alarm is Access Control 1 Doors Access Inputs This is the coma separated list of the digital inputs which are door contact the access control 1 Access Control 2 Enabled True/False (False Control 2 The access control 2 is enabled. The electronic lock 2 must be managed. Access Control 2 Authorized Access	set. basic cts related to se) basic		
45 Access Control 1 Doors Access Control 1 This is the coma separated list of the digital inputs which are door contact the access control 1 51 Access Control 2 Enabled Access Control 2 The access control 2 is enabled. The electronic lock 2 must be managed. 52 Access Control 2 Authorized Access	basic cts related to se) basic		
Inputs Control 1 This is the coma separated list of the digital inputs which are door contact the access control 1 Access Control 2 Enabled Access Control 2 The access control 2 is enabled. The electronic lock 2 must be managed. Access Control 2 Authorized Access	ets related to		
the access control 1 Access Control 2 Enabled	se) basic		
Control 2 The access control 2 is enabled. The electronic lock 2 must be managed. 52 Access Control 2 Authorized Access	<u> </u>		
52 Access Control 2 Authorized Access			
OUTION 2	basic		
Coma separated list of the UID allowed to disable the electronic lock 2			
53 Access Control 2 Auto Close Access Second 0/1000 (30)	basic		
Time in second after which the electronic lock 2 must be automatically lock	ed again		
54 Access Control 2 Disabled If Access Badge Reader Failure True/False (True/False (True/	e) basic		
The electronic lock 1 must be disabled if the 'Badge reader failure' alarm is	set.		
55 Access Control 2 Doors Access Control 2 Control 2 (8)	basic		
This is the coma separated list of the digital inputs which are door contact the access control 2	ts related to		
71 Digital Input 1 Name Digital Inputs General Input 1	basic		
The name of the digital input 1			
72 Digital Input 1 Normally Digital Inputs True/False (Tru	e) basic		
True/False value defining if the digital input 1 is normally closed. If this digital input in this default state, the related alarm is set.			
73 Digital Input 2 Name Digital Inputs General Input 2	basic		
The name of the digital input 2	•		
74 Digital Input 2 Normally Digital Inputs True/False (Tru	e) basic		
True/False value defining if the digital input 2 is normally closed. If this d not in this default state, the related alarm is set.	gital input is		
75 Digital Input 3 Name Digital Inputs General Input 3	basic		
The name of the digital input 3			
76 Digital Input 3 Normally Digital Inputs True/False (Tru	e) basic		

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1				Г				1
-								
						normally	closed. If this digit	al input is
Digital Inp	out 4 Na	ame		Digital Inputs			General Input 4	basic
The name	of the	digita	al input 4					
Digital I Closed	nput	4	Normally	Digital Inputs			True/False (True)	basic
True/False	e value default	defir state	ning if the e, the relat	digital input 4 ed alarm is se	is t.	normally	closed. If this digit	al input is
Digital Inp	out 5 N	ame		Digital Inputs			General Input 5	basic
The name	of the	digita	al input 5					
Digital I Closed	nput	5	Normally	Digital Inputs			True/False (True)	basic
						normally	closed. If this digit	al input is
Digital Inp	out 6 Na	ame		Digital Inputs			General Input 6	basic
The name	of the	digita	al input 6					
Digital I Closed	nput	6	Normally	Digital Inputs			True/False (True)	basic
						normally	closed. If this digit	al input is
Digital Inp	out 7 Na	ame		Digital Inputs			Digital Input 7 Name	basic
The name	of the	digita	al input 7					
Digital I Closed	nput	7	Normally	Digital Inputs			True/False (True)	basic
						normally	closed. If this digit	al input is
Digital Inp	out 8 N	ame		Digital Inputs			Door 2 Open	basic
The name	of the	digita	al input 8					
Digital I Closed	nput	8	Normally	Digital Inputs			True/False (True)	basic
			_	0 1		normally	closed. If this digit	al input is
Digital Inp	out 9 Na	ame		Digital Inputs			Door 3 Open	basic
The name	of the	digita	al input 9					
Digital I Closed	nput	9	Normally	Digital Inputs			True/False (True)	basic
						normally	closed. If this digit	al input is
Digital Inp	out 10 l	Nam	е	Digital Inputs			Door 4 Open	basic
The name	of the	digita	al input 10					
Digital II	nput	10	Normally	Digital Inputs			True/False (True)	basic
Ciosea					True/False value defining if the digital input 10 is normally closed. If this digital in not in this default state, the related alarm is set.			
True/False						normally	closed. If this digit	al input is
	not in this Digital Inp The name Digital Inp Closed True/False not in this Digital Inp The name True/False value not in this default Digital Input 4 N The name of the Closed True/False value not in this default Digital Input 5 N The name of the Closed True/False value not in this default Digital Input 6 N The name of the Closed True/False value not in this default Digital Input Closed True/False value not in this default Digital Input 7 N The name of the Closed True/False value not in this default Digital Input Closed True/False value not in this default Digital Input 8 N The name of the Closed True/False value not in this default Digital Input 8 N The name of the Closed True/False value not in this default Digital Input 9 N The name of the Closed True/False value not in this default Digital Input 9 N The name of the Closed True/False value not in this default Digital Input 10 I The name of the Closed	True/False value defir not in this default state Digital Input 4 Name The name of the digital Digital Input 4 Closed True/False value defir not in this default state Digital Input 5 Name The name of the digital Digital Input 5 Closed True/False value defir not in this default state Digital Input 6 Name The name of the digital Digital Input 6 Closed True/False value defir not in this default state Digital Input 7 Name The name of the digital Digital Input 7 Name The name of the digital Digital Input 7 Name The name of the digital Digital Input 8 Name The name of the digital Digital Input 8 Name The name of the digital Digital Input 8 Name The name of the digital Digital Input 9 Name The name of the digital Digital Input 9 Name The name of the digital Digital Input 9 Name The name of the digital Digital Input 9 Name The name of the digital Digital Input 9 Name The name of the digital Digital Input 10 Name The name of the digital	True/False value defining if the not in this default state, the relation Digital Input 4 Name The name of the digital input 4 Digital Input 4 Normally Closed True/False value defining if the not in this default state, the relation Digital Input 5 Normally Closed True/False value defining if the not in this default state, the relation Digital Input 5 Normally Closed True/False value defining if the not in this default state, the relation Digital Input 6 Normally Closed True/False value defining if the not in this default state, the relation Digital Input 7 Normally Closed True/False value defining if the not in this default state, the relation Digital Input 7 Normally Closed True/False value defining if the not in this default state, the relation Digital Input 8 Normally Closed True/False value defining if the not in this default state, the relation Digital Input 8 Normally Closed True/False value defining if the not in this default state, the relation Digital Input 9 Normally Closed True/False value defining if the not in this default state, the relation Digital Input 9 Normally Closed True/False value defining if the not in this default state, the relation Digital Input 9 Normally Closed True/False value defining if the not in this default state, the relation Digital Input 9 Normally Closed True/False value defining if the not in this default state, the relation Digital Input 10 Name The name of the digital input 10 Name	True/False value defining if the digital input 3 not in this default state, the related alarm is se Digital Input 4 Name Digital Inputs The name of the digital input 4 Normally Closed True/False value defining if the digital input 4 not in this default state, the related alarm is se Digital Input 5 Name Digital Inputs The name of the digital input 5 Digital Input 5 Normally Closed True/False value defining if the digital input 5 not in this default state, the related alarm is se Digital Input 6 Name Digital Input 6 Normally Closed True/False value defining if the digital input 5 not in this default state, the related alarm is se Digital Input 6 Normally Closed True/False value defining if the digital input 6 not in this default state, the related alarm is se Digital Input 7 Normally Digital Inputs The name of the digital input 7 Digital Inputs The name of the digital input 7 Digital Inputs Closed True/False value defining if the digital input 7 not in this default state, the related alarm is se Digital Input 8 Normally Digital Inputs The name of the digital input 8 Digital Inputs The name of the digital input 8 Digital Inputs Closed True/False value defining if the digital input 8 not in this default state, the related alarm is se Digital Input 9 Normally Digital Inputs The name of the digital input 9 Digital Inputs The name of the digital input 9 Digital Inputs The name of the digital input 9 Digital Inputs The name of the digital input 9 Digital Inputs The name of the digital input 9 Digital Inputs The name of the digital input 9 Digital Inputs The name of the digital input 10 Digital Inputs The name of the digital input 10 Digital Inputs	True/False value defining if the digital input 3 is not in this default state, the related alarm is set. Digital Input 4 Name	True/False value defining if the digital input 3 is normally not in this default state, the related alarm is set. Digital Input 4 Name The name of the digital input 4 Digital Input 4 Normally Digital Inputs Closed True/False value defining if the digital input 4 is normally not in this default state, the related alarm is set. Digital Input 5 Name The name of the digital input 5 Digital Input 5 Normally Digital Inputs Closed True/False value defining if the digital input 5 is normally not in this default state, the related alarm is set. Digital Input 6 Name Digital Input 6 Normally Digital Inputs The name of the digital input 6 Digital Input 6 Normally Digital Inputs Closed True/False value defining if the digital input 6 is normally not in this default state, the related alarm is set. Digital Input 7 Name Digital Input 7 Normally Digital Input 9 Digital Input 9 Digital Input 8 Name The name of the digital input 7 Digital Input 8 Name Digital Input 8 Normally Digital Input 8 Normally Digital Input 8 Normally The name of the digital input 8 Digital Input 8 Normally Digital Input 8 Normally Digital Input 9 is normally not in this default state, the related alarm is set.	True/False value defining if the digital input 3 is normally closed. If this digit not in this default state, the related alarm is set. Digital Input 4 Name Digital Inputs General Input 4 The name of the digital input 4 Normally Digital Inputs True/False (True) Closed True/False value defining if the digital input 4 is normally closed. If this digit not in this default state, the related alarm is set. Digital Input 5 Name Digital Inputs General Input 5 Digital Input 5 Normally Digital Inputs General Input 5 Digital Input 5 Normally Digital Inputs True/False (True) Closed True/False value defining if the digital input 5 is normally closed. If this digit not in this default state, the related alarm is set. Digital Input 6 Normally Digital Inputs General Input 6 Digital Input 6 Normally Digital Inputs General Input 6 Digital Input 6 Normally Digital Inputs True/False (True) Closed True/False value defining if the digital input 6 is normally closed. If this digit not in this default state, the related alarm is set. Digital Input 7 Normally Digital Inputs Digital Input 7 Digital Input 7 Normally Digital Inputs Digital Input 7 Digital Input 7 Normally Digital Inputs True/False (True) Closed True/False value defining if the digital input 7 is normally closed. If this digit not in this default state, the related alarm is set. Digital Input 8 Name Digital Inputs Door 2 Open The name of the digital input 8 Normally Digital Inputs Door 2 Open The name of the digital input 8 Normally Digital Inputs Door 3 Open True/False value defining if the digital input 8 is normally closed. If this digit not in this default state, the related alarm is set. Digital Input 9 Normally Digital Inputs Door 3 Open True/False value defining if the digital input 8 is normally closed. If this digit not in this default state, the related alarm is set. Digital Input 9 Normally Digital Inputs Door 4 Open True/False value defining if	

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	PLC Boolean condition to energize the relay 1					
521	Read Access User Numbers	Allowed Users		(1,2,3,4,5)	basic	
	The list of the user numbers values of the user numbers are coma separated. T					
			l are i,	2,5,4 and 5. Lx. 1,5		
522	Write Access User Numbers	Allowed Users		()	basic	
	The list of the user numbers withat these users can modify the control elements. The user num 1,2,3,4 and 5. Ex: 1,3,4	configuration e	element, the	e alarm settings and	d use the	
601	Event Table Length	Event		10/4000 (100)	basic	
	The maximum length of the table	e. The value mi	ust be comp	orised between 10 a	ınd 4000	
901	Number Of PLC Data	PLC		(0)	plc	
	The number of PLC data. Every data. Data elements are autoparameters are added to set to calculation. In order to use the module	tomatically add	ded in the Name and	data table. Con the PLC Data Matl	figuration nematical	
902	Number Of PLC Alarm	PLC		(0)	plc	
	The number of PLC alarm. Every equipment can manage up to 20 user program alarms. Alarm elements are automatically added in the alarm table. The parameters are added to set the PLC Alarm Name and the PLC Alarm E condition. In order to use these functionalities, you need a licence with the module					

Cont	rol Table		
<u>Id</u>	<u>Name</u>	<u>Group</u>	<u>Licens</u> <u>e</u>
1	Unlock Door 1	Lock Control	basic
	Electronic lock 1 must be disabled		
2	Unlock Door 2	Lock Control	basic
	Electronic lock 2 must be disabled		
11	Lock Door 1	Lock Control	basic
	Electronic lock 1 must be enabled		
12	Lock Door 2	Lock Control	basic
	Electronic lock 2 must be enabled		
31	Auto Calibrate Tilt Zero	Calibration	basic
	The tilt-X and tilt-Y must be calibrated to 0 with the	e actual tilt.	
501	Clear My Events	Event	basic
	By writing '1' to this control element, all the events	of this equipment will be cle	eared.
502	Clear All Events	Event	basic
	By writing '1' to this control element, all the events of all the sub-equipments will be cleared.	s of this equipment and all th	ne events
511	Add Event	Event	basic
	This control element adds an event of severity not to this control element	ne. The event name is the te	ext written
512	Add Major Event	Event	basic

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	This control element adds an event of severity major. The event name is the text written to this control element					
521	Reset Default Names And Groups	Advanced	basic			
	This control element resets all the element Names, Groups and Subgroups to default values for this equipment					
522	Reset Default Names And Groups Recursive	Advanced	basic			
	This control element resets all the element Names values for this equipment and all sub equipments	, Groups and Subgroups to	default			

7.5 Remote Power Feeding System Tables

7.5.1 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

Desc	Description Table					
<u>Id</u>	<u>Name</u>	Group	<u>License</u>			
1	Description	Description	basic			
	A free text zone to write a system description					
2	Reference Description basic					
	A free text zone to write the customer reference of the system					

Con	Config Table						
<u>Id</u>	<u>Name</u>	<u>Group</u>	<u>Unit</u>	Range: Min/Max (default)	<u>License</u>		
1	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.						

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7.6 Up Converter System Tables

7.6.1 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

Desc	Description Table					
<u>Id</u>	<u>Name</u>	Group	<u>License</u>			
1	Description	Description	basic			
	A free text zone to write a syste	m description				
2	Reference	Description	basic			
	A free text zone to write the cus	stomer reference of the syste	em			
11	Product Name	Monitoring	basic			
	The product name of the DC sy	stem monitoring				
12	Hardware Reference	Monitoring	basic			
	The hardware reference of the	DC system monitoring				
14	Software Reference	Monitoring	asset			
	The serial number of the DC sy	stem monitoring				
16	Serial Number	Monitoring	asset			
	The serial number of the DC system monitoring					
17	Manufacturing ID	Monitoring	asset			
	The batch id of the DC system monitoring					
18	Manufacturing Date	Monitoring	asset			
	The production date of the DC:	system monitoring				

Aları	Alarm Table					
<u>Id</u>	<u>Name</u>	Severity Type (Level)	Set/Clear Delay			
1	One Up Converter Failure	minor (4)	5 / 2			
	One Up converter is defect or not connected	to a down converter (an	id enabled)			

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More than one Up converter is defect or not connected to a down converter (and enabled) More Than One Up Converter Card major (6) 5 / 2	2	More Than One Up Converter Failure	major (6)	5 / 2
More Than One Up Converter Card major (6) 5 / 2	_	•	. ,	
Failure			not connected to a do	wii converter (and
More than one up converter card is defect or not connected to a down converter (and enabled) 10 One FAN Failure	3		major (6)	5/2
International Content		Failure		
11 One FAN Failure		·	or not connected to a do	wn converter (and
More Than One FAN Failure	11	,	minor (4)	5/2
More Than One FAN has a problem		One FAN has a problem		
Configuration Problem	12	More Than One FAN Failure	major (6)	5 / 2
There is a configuration problem. A card is configuted but not available 20		More Than One FAN has a problem		
Slot 0 Alarm	14	Configuration Problem	minor (4)	5 / 2
Slot 0 is in alarm		There is a configuration problem. A card is c	onfiguted but not availab	ole
Slot 1 Alarm	20	Slot 0 Alarm	minor (4)	5 / 2
Slot 1 is in alarm		Slot 0 is in alarm		
Slot 2 Alarm	21	Slot 1 Alarm	minor (4)	5 / 2
Slot 2 is in alarm		Slot 1 is in alarm		
Slot 3 Alarm	22	Slot 2 Alarm	minor (4)	5 / 2
Slot 3 is in alarm		Slot 2 is in alarm		
Slot 4 Alarm	23	Slot 3 Alarm	minor (4)	5 / 2
Slot 4 is in alarm		Slot 3 is in alarm		
Slot 5 Alarm	24	Slot 4 Alarm	minor (4)	5 / 2
Slot 5 is in alarm		Slot 4 is in alarm		
Slot 6 Alarm	25	Slot 5 Alarm	minor (4)	5 / 2
Slot 6 is in alarm		Slot 5 is in alarm		
Slot 7 Alarm	26	Slot 6 Alarm	minor (4)	5 / 2
Slot 7 is in alarm		Slot 6 is in alarm		
Slot 8 Alarm	27	Slot 7 Alarm	minor (4)	5 / 2
Slot 8 is in alarm		Slot 7 is in alarm		_
Slot 9 Alarm	28	Slot 8 Alarm	minor (4)	5 / 2
Slot 9 is in alarm		Slot 8 is in alarm		
Slot 10 Alarm	29	Slot 9 Alarm	minor (4)	5 / 2
Slot 10 is in alarm		Slot 9 is in alarm		T
Slot 11 Alarm	30	Slot 10 Alarm	minor (4)	5 / 2
Slot 11 is in alarm 32		Slot 10 is in alarm		
Slot 12 Alarm	31	Slot 11 Alarm	minor (4)	5 / 2
Slot 12 is in alarm 33		Slot 11 is in alarm		T
Slot 13 Alarm minor (4) 5 / 2 Slot 13 is in alarm minor (4) 5 / 2 Slot 14 Alarm minor (4) 5 / 2	32	Slot 12 Alarm	minor (4)	5 / 2
Slot 13 is in alarm 34		Slot 12 is in alarm		T
Slot 14 Alarm minor (4) 5 / 2	33		minor (4)	5 / 2
			T	T
	34		minor (4)	5 / 2
		Slot 14 is in alarm	T	T
	35		minor (4)	5 / 2
Slot 15 is in alarm			T	T
36 Slot 16 Alarm minor (4) 5 / 2	36	Slot 16 Alarm	minor (4)	5 / 2

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Slot 16 is in alarm

Data	Table			
<u>Id</u>	<u>Name</u>	<u>Group</u>	<u>Unit</u>	<u>Licens</u> <u>e</u>
1	Input Voltage	Rack	Volt	basic
	No information			
2	Temperature	Rack	degree C	basic
	No information			
12	Number Of Up Converter NOK	Up Converters		basic
	No information			
13	Number Of Up Converter Card NOK	Up Converters		basic
	No information			
20	Status Slot 0	Slots Status		basic
	No information			
21	Status Slot 1	Slots Status		basic
	No information			
22	Status Slot 2	Slots Status		basic
	No information			
23	Status Slot 3	Slots Status		basic
	No information			
24	Status Slot 4	Slots Status		basic
	No information			
25	Status Slot 5	Slots Status		basic
	No information			
26	Status Slot 6	Slots Status		basic
	No information		·	
27	Status Slot 7	Slots Status		basic
	No information		•	•
28	Status Slot 8	Slots Status		basic
	No information		·	
29	Status Slot 9	Slots Status		basic
	No information		·	
30	Status Slot 10	Slots Status		basic
	No information		•	•
31	Status Slot 11	Slots Status		basic
	No information			
32	Status Slot 12	Slots Status		basic
	No information	•	1	I
33	Status Slot 13	Slots Status		basic
	No information	1	l	<u> </u>
34	Status Slot 14	Slots Status		basic
	No information	1	l	<u> </u>
35	Status Slot 15	Slots Status		basic
. =	No information	1	1	1

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36	Status Slot 16	Slots Status		basic	
	No information				
51	Powered Site Ids	Monitoring		basic	
	No information				
52	Monitored Site Ids	Monitoring		basic	
	No information				
53	Powered Site Ids with Possible Line Feed Problem	Monitoring		basic	
	No information				

Cor	nfig Table				
<u>Id</u>	<u>Name</u>	<u>Group</u>	<u>Unit</u>	Range: Min (default)	/Max <u>License</u>
20	Slot 0	Config Site			basic
	No information				
21	Slot 1	Config Site			basic
	No information				
22	Slot 2	Config Site			basic
	No information				
23	Slot 3	Config Site			basic
	No information				
24	Slot 4	Config Site			basic
	No information				
25	Slot 5	Config Site			basic
	No information				
26	Slot 6	Config Site			basic
	No information	·		·	·
27	Slot 7	Config Site			basic
	No information	·		·	·
28	Slot 8	Config Site			basic
	No information				
29	Slot 9	Config Site			basic
	No information				
30	Slot 10	Config Site			basic
	No information				
31	Slot 11	Config Site			basic
	No information	·		·	·
32	Slot 12	Config Site			basic
	No information				
33	Slot 13	Config Site			basic
	No information	·			·
34	Slot 14	Config Site			basic
	No information		•	•	•
35	Slot 15	Config Site			basic
	No information	, <u> </u>	1	.	•

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36	Slot 16	Config Site	basic		
	No information				
51	Urgent Relay Energize Boolean Condition	ed Relays	basic		
	No information	No information			
52	Non Urgent Relay Energize Boolean Condition	ed Relays	basic		
	No information				

Cont	rol Table			
<u>Id</u>	<u>Name</u>	<u>Group</u>	<u>Licens</u> <u>e</u>	
501	Clear My Events	Event	basic	
	By writing '1' to this control element, all the events o	f this equipment will be clea	ared.	
502	Clear All Events	Event	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.			
511	Add Event	Event	basic	
	This control element adds an event of severity none to this control element	. The event name is the tex	kt written	
512	Add Major Event	Event	basic	
	This control element adds an event of severity n written to this control element	najor. The event name is	the text	
521	Reset Default Names And Groups	Advanced	basic	
	This control element resets all the element Names values for this equipment	, Groups and Subgroups to	o default	
522	Reset Default Names And Groups Recursive	Advanced	basic	
	This control element resets all the element Names values for this equipment and all sub equipments	, Groups and Subgroups to	o default	

7.7 Remote Site Tables

7.7.1 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_

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system/remote_site

Desc	cription Table				
<u>Id</u>	Name	Group	<u>License</u>		
2	Site Name	Site	basic		
	The name of the site				
3	Short Description	Site	basic		
	A short description of the site				
4	Info	Site	basic		
	Some more information about t	he site			
11	Street	Address	basic		
	Street part of the site address				
12	City	Address	basic		
	City part of the site address				
13	Province	Address	basic		
	Province part of the site address				
14	Postal Code	Address	basic		
	Postal Code part of the site add	dress			
15	Region	Address	basic		
	Region part of the site address				
16	Country	Address	basic		
	Country part of the site address	5			
31	Latitude	GPS Position	asset		
	The latitude of the site				
32	Longitude	GPS Position	asset		
	The longitude of the site				
33	Altitude	GPS Position	asset		
	The altitude of the site				

Alaı	m Table		
<u>Id</u>	<u>Name</u>	Severity Type (Level)	Set/Clear Delay
1	One Down Converter Failure	minor (4)	10 / 2
2	More Than One Down Converter Failure	major (6)	10 / 2
3	One Fan Failure	minor (4)	30 / 2
4	More Than One FAN Failure	major (6)	30 / 2
5	Possible Power Feed Reduced	warning (2)	5 / 2
9	Output 1 Off	major (6)	5 / 2
10	Output 2 Off	major (6)	5 / 2

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15	Communication Failure	major (6)	5 / 2
25	Digital Input 1	major (6)	5 / 2
	This alarm is related to digital input 1		
26	Digital Input 2	major (6)	5 / 2
	This alarm is related to digital input 2		
27	Digital Input 3	major (6)	5 / 2
	This alarm is related to digital input 3		
28	Digital Input 4	minor (4)	5 / 2
	This alarm is related to digital input 4		
29	Digital Input 5	minor (4)	5 / 2
	This alarm is related to digital input 5		
30	Digital Input 6	minor (4)	5 / 2
	This alarm is related to digital input 6		

Data	Table				
<u>Id</u>	Name	Group	<u>Unit</u>	Licens	
<u></u>	<u> </u>	<u> </u>	<u> </u>	<u>e</u>	
1	Number of Configured Power Lines	Lines		basic	
	No information				
2	Line Configured for Monitoring	Lines		basic	
	No information				
11	Remote Type	Remote DC System		basic	
	No information				
12	Input Voltage	Remote DC System	Volt	basic	
	No information				
13	Input Common Mode Voltage	Remote DC System	Volt	basic	
	Input Common Mode Voltage with respect to ground				
14	Output Voltage	Remote DC System	Volt	basic	
	No information				
15	Temperature	Remote DC System	degree C	basic	
	No information				
21	Number Of Declared Down Converters	Remote DC System		basic	
	No information				

Con	fig Table					
<u>Id</u>	<u>Name</u>	Group	Unit	Range:	Min/Max	<u>License</u>
				(default)		

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91	Digital Input 1 Name	Digital Inputs	Digital Input 1	basic
	The name of the digital input 1		·	
93	Digital Input 2 Name	Digital Inputs	Digital Input 2	basic
	The name of the digital input 2		·	
95	Digital Input 3 Name	Digital Inputs	Digital Input 3	basic
	The name of the digital input 3		•	
97	Digital Input 4 Name	Digital Inputs	Digital Input 4	basic
	The name of the digital input 4		·	
99	Digital Input 5 Name	Digital Inputs	Digital Input 5	basic
	The name of the digital input 5		·	
101	Digital Input 6 Name	Digital Inputs	Digital Input 6	basic
	The name of the digital input 6	·		

Control Table			
<u>Id</u>	<u>Name</u>	Group	<u>Licens</u>
			<u>e</u>
501	Clear My Events	Event	basic
	By writing '1' to this control element, all the events of this equipment will be cleared.		
502	Clear All Events	Event	basic
	By writing '1' to this control element, all the events of all the sub-equipments will be cleared.	of this equipment and all the	e events
511	Add Event	Event	basic
	This control element adds an event of severity none. The event name is the text written to this control element		
512	Add Major Event	Event	basic
	This control element adds an event of severity major. The event name is the text written to this control element		
521	Reset Default Names And Groups	Advanced	basic
	This control element resets all the element Names, Groups and Subgroups to default values for this equipment		
522	Reset Default Names And Groups Recursive	Advanced	basic
	This control element resets all the element Names, Groups and Subgroups to default values for this equipment and all sub equipments		

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Chapter 8 - Licenses

- The Comp@s license packages
- How can I upgrade my license?
- How is the license stored?

8.1 The Comp@s license packages

The Comp@s software has functionalities which are accessible depending of the licensed options. For the time being, 4 license packages are available: battery, asset, plc and modbus.

- The Battery Package
- The Asset Package
- The PLC Package
- The Modbus Package
- License currently in use.

8.1.1 The Battery Package

This package allows using advanced functionalities related to the battery management. It allows configuring and starting battery test, it allows to retrieve test battery records, etc. The detailed table, in chapter 8, details the table entries only available with the battery package.

8.1.2 The Asset Package

This package allows:

- To retrieve any available data record, with a resolution of second, minute, hour or day. This includes also some statistics about the data. The records can be viewed with a web browser with Flash installed. The records can also be downloaded in CSV;
- To retrieve any information about the components of a system, like serial numbers, batch ids, production dates, software information, etc;
- To retrieve detailed information about smart rectifiers:

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To use strategy to optimize the global efficiency.

Note: The PLC package is also included in the Asset Package.

8.1.3 The PLC Package

This PLC package allows:

- The creation of customer defined data, like in a Programmable Logic Controller: a PCL Data is defined by any mathematical operation over any data;
- The creation of customer defined alarms, like in a Programmable Logic Controller: a PLC Alarm is defined by any combination of any data and any alarm.

8.1.4 The Modbus Package

This Mobdus package allows retrieving the data and the alarms related to one dc system with the Modbus RTU over TCP protocol. This protocol is used in some industrial environment.

8.1.5 License currently in use

In order to check which license is currently used by Comp@s, browse to SiteàData. The entry "Licensed Options" provides the information, as shown on the following figure:

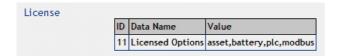


Figure 65 Installed License

8.2 How can I upgrade my license?

If you want to unlock functionalities thanks to a new license:

STEP 1: Please contact your vendor.

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STEP 2: He will ask you to send you actual license file.

STEP 3: A new license file will be returned.

STEP 4: Copy it to \\FlashDisk\\User

STEP 5: After a reboot, your system is using the new license.

8.3 How is the license stored?

The Comp@s license is a XML file named "licenseKey_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) When the file is installed at factory, it is located in "\\FlashDisk\Factory".

The content of this XML file looks like:

XML licence file content:

clicenseKey version="1.0">

comp@s/product>

<macAddress>00-14-2D-20-0B-20</macAddress>

<options>asset,battery

<key>vddR+a7oQcx4Qrmt24padm3hSd1DJtbC3LEsKtzxdSJ5mCloN9uZMg

NnvemA13CWE5pOZxZBJY/uTsuCPHEwAQ==</key>

The interesting part is "<options>asset,battery</options>" which corresponds to the licensed option you bought.

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

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Chapter 9 – Software Components

Release

A comp@s release is composed of different components.

Comp@s is evolving every day to satisfy new customer and new products needs. It supports more and more devices.

When required, we release a production release. This release is composed of the following components:

- System bootloader
- The Operating System
- Comp@s Starter Executable
- Comp@s Executable
- Comp@s FTP Server Executable.

9.1 System bootloader

The Bootloader is the first piece of code being executed at start-up. Its main purpose is to load and start the OS (WinCE). The Boot loader is also the place where various settings can be changed.

9.2 The Operating System

Comp@s is running on Windows CE 5.0 operating system, featuring nice features like:

- Real Time
- A reliable TCP/IP stack
- USB driver for local connection
- Fast development capabilities.

The system image is build with the Microsoft Platform Builder. It uses the Toradex BSP (Board Support Package).

An external watchdog system is present to automatically restart the monitoring application if loss of activity is detected.

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Microsoft® Windows® CE 5.0 is an open, scalable, 32-bit operating system (OS) that integrates reliable, real time capabilities with advanced Windows technologies. Windows CE allows you to build a wide range of innovative, small footprint devices. A typical Windows CE—based device is designed for a specific use, often runs disconnected from other computers, and requires a small OS that has a deterministic response to interrupts. Examples include enterprise tools, such as industrial controllers, communications hubs, and point-of-sale terminals, and consumer products, such as cameras, Internet appliances, and interactive televisions.

See MSDN Win CE 5.0 for more information: http://msdn.microsoft.com/en-us/library/ms905511.aspx.

9.3 Comp@s Starter Executable

That application is stored on the Flash, in the AutoRun folder. The exact file name is: "Compas_Starter.exe".

The application is written in c# and run over the .NET CF 2.0.

9.4 Comp@s Executable

The application is written in c# and run over the .NET CF 2.0.

When Compas is executed, the followings tasks are run:

- 1. Extract and load of C Drivers
- 2. Retrieve Environment Configuration
- 3. Load License
- 4. Load <u>Translation Dictionary</u>
- 5. Create a Site Object
- 6. Create Thread "Decode CAN Msg " >
- 7. Create Thread "Web Server"
- 8. Create Thread SNMP
- 9. Create Thread "Modbus Slave"
- 10. Create Thread "Modbus Master"
- 11. Create Thread "ProcessScheduledTasks".

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9.4.1 C Drivers

In order to guarantee fast and reliable CAN communication, the can drivers is build in a C DLL (Dynamic Link Library).

The driver is not build in the operating system to allow easy upgrade and avoid compatibility issues.

The hardware CAN controller model is Microchip MCP 2515. It provides a SPI interface used to communicate with the Compas electronic board.

Microchip MCP 2515 details.

CAN Message Receiving

Each time a message is received, the MCP 2515 use hardware interrupt to request the driver to read the new message.

The CAN messages are stored in a large circular buffer queue. These messages can be read without real time issues.

CAN Message Sending

Message can be sent via 3 different output buffers:

- High Priority Buffer
- Normal Priority Buffer
- Low Priority Buffer

They can be sent one by one or in block of maximum 10 messages. (Block sending is required by the CANOpen LSS algorithm to guarantee the message order)

Other Driver Functions

The C driver is also used to control led, and to reset the hardware watchdog, depending of the hardware configuration.

9.4.2 Environment Configuration

Global variables are configured depending of the environment:

- BSP Version
- Flash path
- <u>Ethernet Device</u>.

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BSP Version

The Board Support Package is related to the operating system version.

Flash path

Default path to access the flash memory is \\FlashDisk

But, on previous versions of Compas, \\NOR Flash was used.

Ethernet Device

Depending of the comp@s hardware revision, different chipset are used for Ethernet:

- DM90001
- AX887961

9.4.3 License

The license is validated and loaded if trusted.

9.4.4 Translation Dictionary

On start-up, the list of all the used strings is generated dynamically.

Then, the associated translations are loaded in memory from csv files stored in the user dedicated Flash.

The Namespace in charge of the translations is Compas. Strings.

9.4.5 Site Object

The site object is the root node of the equipments controlled and monitored by Compas.

Any detected equipment/device will be a child of this object.

After the object creation, the associated site configuration is loaded.

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9.4.6 Decode CAN Msg

See MonitoringThreadDecodeCANMsg()()()()

9.4.7 Web Server Interface

The internal Web server of the application is launched at startup in a separate thread. It is constituted of an request extractor that listens to the HTTP messages, and calls back a method to process them.

Default listening port number is 80.

9.4.8 SNMP Management

A new SNMP agent is instantiated at application startup. This agent is called in order to send an event trap each time a new event is added by an equipment.

9.4.9 Process Scheduled Tasks

This thread is looping on the function "ProcessTasks", and sleep 20 milliseconds after each execution. It executes the following tasks:

- Execute the "RefreshSlow" of all the equipments. It recalculate the internal variables, the PLC data, manage the regulation, etc. (Every 1000ms)
- Execute the "UpdateAlarmTableAndStatus" of all the equipments. It recalculate each alarm, and update the global status of the equipment. (Every 1000ms)
- Update Led status, for led controlled directly by Comp@s. (every 100ms)
- Ask necessary CANOpen variables refresh (every 100ms)
- Manage CANOpen Nodes, detect nodes to remove (Every 1500ms)
- Check if new CANOpen LSS node has been detected (Every 2000ms)
- Refresh the equipment structure if needed (Every 2000ms)
- Send SNMP trap if Authentication Failure (Every 2000ms)
- Process Data Records elements with second resolution (Every 1 sec)
- Process Data Records elements with minute resolution (Every time the system ime as changed of minute)
- Process Data Records elements with hour resolution (Every time the system time as changed of hour)

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- Archive Data records (Every x hours if x is configured and different of 0)
- Process Data Records elements with day resolution, and save all records in flash (Every time the system time as changed of day)
- Post XML events if any and if configured, for all equipments (Every 2 seconds)

9.4.10 Inventory Management and Equipment Mounting

The device inventory is initialized and loaded at startup. First application is searching for the file devices.xml in \\User\\ directory of the flash memory path. If this file doesn't exist, a default initialization procedure is started.

Procedure is the following:

- If a site doesn't exist, application is creating or getting one. Getting one means that
 application is searching for an equipment with the same name or ID. Otherwise, a
 new site is created.
- If an energy system doesn't exist, application is creating or getting one.
- After CAN bus initialization, LSS (Layer Setting Services) messages are processed.
 Each time a new CANOpen node is found, corresponding device is added to the device dictionary.

9.4.11 Alarm Set-up and Clearance

Each time a new alarm is created, two "Set" and "Clear" delay parameters are associated to it. By default they are equal to 0 and 2 seconds respectively:

- Alarm is set if its severity type is different to "Disabled" AND if its alarm condition is true since a time in seconds superior to the set delay parameter.
- Alarm is cleared if its alarm condition is NOT true since a time in seconds superior to the clear delay parameter.

9.4.12 System and Application Configuration

Each equipment of the application possess its own configuration elements. They appear in the Web page Config tab related to the equipment in order to be editable by application user.

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9.4.13 Data Record Management

In addition to instantaneous Data objects, the application manages Data Records objects that accumulate information from Data objects. Real-time statistics like average, max. and min. values are computed. The Comp@s Web server uses an integrated javascript applet in order to generate a dyncamical display of the data record information.

9.4.14 Equipment Emulation

If equipment emulation is used, CANDriver is emulating a set of equipments by sending corresponding CAN messages.

9.5 Comp@s FTP Server Executable

The application is written in c# and run over the .NET CF 2.0.

This program implements a FTP server. The program is separated from Comp@s to allow software upgrade also when Compas.exe is not running. The security management is separated from the Comp@s one.

File Transfer Protocol (FTP) is a standard network protocol used to transfer files from one host to another host over a TCP-based network, such as the Internet. FTP is built on a client-server architecture and uses separate control and data connections between the client and server.

Wikipedia - FTP

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Chapter 10 – Software Changelog

- .NET Executable Versioning
- Comp@s Changelog.

10.1.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:
 - o <revision> 0 : for alpha (non-stable)
 - o <revision> 1: for beta (internal)
 - <revision> 2 : for release candidate (QA-passed, final tests)
 - o <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:
 - o odd for beta version
 - even for stable version

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Y is the major revision number.

10.2Comp@s Changelog

Note: Only revisions with a SOFT 000031 XX code 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 0.117.0.3 (21/01/2013) - SOFT 000031 28

- + 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
- + Web Server: Display the Site Name as title of the web page
- * Remote Power System: Alarms are now grouped
- * Remote Site: Alarms list is updated depending on remote system (no fan alarm with 60W module for example)
- Fix bug introduced in 0.116.0.3 about the data record xml generation)

Revision 0.116.0.3 (16/01/2013) - SOFT 000031 27

- + Implementation of the periodic automatic battery test
- * Finalization of the equalize feature for Cordex dc systems
- * New parameters for site.xml, allowing to download only some resolutions of the records (day, hour, minute, second). By default, it retrieves only dayly and hourly data records/
- + Inverter system with T2S New control element to Turn On/Off all modules
- Inverter system with T2S Save to T2s is now more reliable
- + 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)
- * New control elements to calibrate voltage and currents on ADIO10
- Fix for relay control problem on ADIO10 (introduced in 0.115.0.3 changes)

Revision 0.115.0.3 (20/12/2012) - SOFT 000031 26

- * Relay of Alarm 'Missing Rectifiers' can now be saved in MCU
- * Support of the T2S with Media Inverters
- * Better support of T2S alarms
- Some Alarm Set delay were not reloaded correctly after reboot, lile the bus voltage sense failure
- Reworked relay boolean condition on ADIOs. Possibility to configure normal condition as 'Energized' or 'De-Energized'.

Revision 0.114.0.7 (17/12/2012) - SOFT 000031 25

- PLC functions without arguments like \$second() where broken unless used as \$second(0)
- * Better support of zip files generation (site.xml.zip). The files are now fully compliant (before, it was a compressed stream)

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- * Optimisation of the Web Server Faster and uses less memory when files are posted
- 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)
- * Reboot improved to reply to request, delayed by 10 seconds to allow events to be sent to Arm@da
- * More robust and faster startup
- Digital Input alarm logic was inverted on ADIO 7-8-9-10. If you are using it, care required when upgrading.
- * Improvement of the DC bus voltage sense failure detection on Cordex
- * Better implementation of the data_record management. Thread safe and faster.
- If events.xml was corrupted, the system could never start without deleting the file
- Randomly, system could reboot at midnight during data records saving

Revision 0.113.0.3 (15/11/2012) - SOFT 000031 24

- + Cordex Initial support of firmware upgrade
- SNMP Traps content oids where shifted of 1
- * SNMP Improved MIB compliance Some oid related name were too long
- * Better implementation of the battery test for Cordex DC Systems
- * CEM03 Remote Site can now have an id > 100 (up to 1000)
- * Improved RS485 modbus driver allowing different types of device on the same bus
- + Support of energy meter IEM3150 on RS485 bus
- + Initial limited support of Cordex Converters
- + Possibility to rename Name and Group of any element from the web interface
- + Group is now loaded from configuration.xml for any element, allowing total customisation of name/group of elements
- + Events are now automatically saved in a flat file: events_flat.xml. events.xml is converted on first boot.
- + Introduced group possibilities for the alarm table
- SNMP walk was not working from top snmp node

Revision 0.111.0.5 (12/10/2012)

- Corrected bugs in Cordex regulation, load sharing was wrong if canid did not match rectifier id

Revision 0.111.0.3 (31/07/2012) - SOFT 000031 23

- + Initial support of Alpha CXC over SNMP
- * Allow to limit the request of one CAN message at the time (for T2S)
- + Support of multiple Inverter System (T2S)

Revision 0.110.0.3 (11/07/2012) - SOFT 000031 22

- Changed unit of Rectifier Cordex 'Service Time'(s->m) and 'Converted Energy'(KJ->kwh)
- It was no possible to reset to empty the list of required node on the can bus (config Required CAN Bus Node IDs)
- CAN Driver The can driver was crashing when there was only one node on the bus and it

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was removed

- CAN Driver Randomly, a can message was corrupted because of an OS interrupt during SPI communication
- * 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
- * Better support of T2S inverter monitoring
- * Remote Power Feeding Possiblitly to define the number of CEM03 by rack, in master/slave configuration --> up to 64 racks
- * Remote Power Feeding Added customer description element at the Remote Power Feeding System level
- + New alarm at the site level to notify that the last configuration changes are not saved
- + New site control to remove absent equipments
- + Introduction of 'Absent' status for Cordex Rectifiers
- + Auto detection of the rectifier model for smart energy
- + Support of 850W/1000W systems with embedded distribution.
- + Added possibilites to store a fix information about alarms
- + SNMP Initial Support of monitoring of SNMP device like the Cordex CXC

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)

- * Remote Power Feeding system New alarm is generated 'Configuration problem' when the slot is empty but there is a configuration
- Remote Powering System was not detected anymore correctly broken with 1.0.96
- CET Inverter were not detected anymore correctly -broken with 1.0.96

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 transiant 'fake' data

Revision 0.1.0.100 (15/02/2012)

- In remote Site in relation of a remote power feeding system, the latitude position parameter was not set correctly. (And changed the longitude).
- Modbus Slave Socket was closed if the device id did not exist. Comp@s will now send a Modbus exception according to the standard.

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)

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- + Web interface allows minimizing parts of the tables, by group.
- + 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.
- + Complete support of LSS devices (Dynamic CanOpen node addressing for Cordex rectifiers)
- + CanOpen Node definition is now managed to avoid any interference between new development and old qualified developments. (Thanks to better use of the polymorphism)
- + First official release supporting cordex 4kw rectifier, with new UCC

Revision 0.1.0.88 (11/09/2011) - SOFT 000031 20

- * Support of rack 300W, with specific battery configuration possibilities with the help of the front button (electronic LVD)
- * Added debug features to analyze Modbus problems (connection timeout, new sockets, etc.)

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 if 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)

- 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.
- + Support of rack CAPTIN 300W
- + Initial support for Alpha Cordex Rectifiers regulation of the dc system

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.

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Revision 0.1.0.74 (24/05/2011)

- BSP 3.9 new Ethernet driver is now synchronous to solve problems when communication is very high Microsoft bug (Mobdus fast request in loop for instance)
- * New production tool display instructions also in English
- * New operating system BSP 3.9
- * New CAN driver reduced CPU usage by up to 30%.

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)

- + Initial support of predefined configurations
- + Initial support of independent LVD
- + Possibilities to rename descriptions, alarms, data, configuration and control elements with the configuration.xml file
- + Possibilities to auto save records in xml, download files from web interface, and delete files.

Revision 0.1.0.68 (20/04/2011)

- Hardware watchdog - forgot to uncomment after test.

Revision 0.1.0.66 (20/04/2011)

- Records of the energy system pulse counter were loaded twice with a PM9C device
- + Added zip extraction functions : Extract Zip File in user-upload

Revision 0.1.0.64 (16/04/2011)

- + 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
- + The zip files are analysed to discover the compressed file. (Only one file by zip is allowed to avoid unmanageable folder structure)
- + The exe file are analysed to retrieve the software revision
- + New web page accessible from "Advanced": manage files.html
- + Support for the http post of files
- + Added description at site level : Operating System Revision
- + Added data at site level: 'CPU Percentage Usage' and 'Free Flash Memory Space', with associated records.
- + Support of remote upgrade of the operating system and boot loader. (very advanced, necessary only for specific new functionalities)

Revision 0.1.0.62 (10/04/2011)

- Snmp walk was buggy with some PLC data configurations
- * 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,

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config and control)

* Support of snmp get bulk

Revision 0.1.0.60 (6/04/2011)

- + Improved support of default snmp oid (1.3.6.1.2.1.1.4,5,6,9.1.3
- + Initial support of snmp get bulk
- + Added configuration parameters to force the Ethernet mode (10-100Mb Half-full duplex. (Require OS 3.5 at least)

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 PM9C energy counter over RS485
- + Support of additional extensions for Opera Net Project (sensors and actuators)

Revision 0.1.0.54 (21/02/2011)

- * Added PLC functions to get site level info
- + CANOpen LSS master implementation
- Initial support of Alpha rectifiers

Revision 0.1.0.52 (6/01/2011)

- * Added entry 151 in Modbus
- + Initial support of RS485 Modbus Master

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)

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- Bug correction of removed rectifiers if not declared in large systems
- * Improved support of CET inverters

Revision 0.1.0.40 (21/01/2010) - SOFT 000031 14

- Correction of Ethernet bug with HUB (drivers was switching of the Ethernet devices if disconnected from hub)
- * Change of OS, minor security updates (BSP 0.5)
- + Minor support of CET inverters

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 bootloader 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)

- * Changed remote system type name (3x120w, etc)
- + Support of MCU0548

Revision 0.1.0.28 (19/10/2009) - SOFT 000031 13

- Modification of one registry parameter, to disable the "auto sense mode" of Ethernet, which was disabling the Ethernet when connected to a hub.
- * 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)
- * Added support of energy consumption measurement at the energy system level (pulse counter)
- * Full support of SNMP V3 traps
- * Support of compressed XML file in ZIP (xml.zip)
- * Optimization of the XML file generation
- * Data records are reloaded on startup
- * Data records are now stored in XML, and are auto-saved

Revision 0.1.0.26 (16/06/2009)

- Bug in the data record queue for last days and last hours records.
- * Updated version of operation system, with latest windows update and latest drivers. (in production with SOFT 000031 12)
- * Web page layout changed from Cherokee to Mitra E&I
- * Compilation in VS2008
- * Added support of remote power feeding systems

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* Added support for SNMP V3, with updated libraries

Revision 0.1.0.24 (27/03/2009)

- * Optimization of the CAN driver
- * Added support of MCU3048M6

Revision 0.1.0.22 (1/10/2008) - SOFT 000031 12

- DC System Refresh Task buggy if only one rectifier in current limitation --> nothing was refreshed
- * (Updated OS drivers on 25 March 2009, because of new booloader on Comp@s card.)

Revision 0.1.0.20 (1/09/2008) - SOFT 000031 11

- With a very low probability, the application could crash during startup. (It restarted correctly after 5 minutes thanks to the watchdog).
- * Support of XXXXconfigurationYYYY.xml files in Factory folder. This allows naming easily the configuration files.
- * With the Modbus interface, the currents are now given in 0.1A as unit.

Revision 0.1.0.18 (1/08/2008)

- * PLC license is now included in the Asset license.
- * Functional battery test is configured (1000A as discharge current, 0% of discharge capacity, duration of 10 minutes). --> Must me correctly configured with the battery parameters for reliable battery test.
- * No current limitation by default (1000A by default, must be set correctly).
- * Modbus compatibility improvements
- * 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: Note that the same behavior with primary/secondary server is used.
- * 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.

Revision 0.1.0.16 (1/07/2008)

- On system reboot, the set delay of the alarms was replaced by the clear delay.
- On system reboot, for alarm related events, the datetime is not parsed correctly
- The web server function 'processXML.cgi' processed only site level configuration
- Firmware boot loading may fail under some circumstances
- * CSV Log file of battery tests can be downloaded from web interface
- * Comp@s Display Module Support (CDM)
- * MCU30110 support
- * New Modbus license option

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Revision 0.1.0.14 (28/05/2008) - SOFT 000031 10

- Possible web server crash if socket not correctly closed
- XML event posting locked when server answers badly
- The system time could be badly loaded during booting
- + Daylight Saving Time
- + Time Zone support
- * Web page generation 4x faster
- * Web interface compatible with older browser (Internet Explorer 6)

Revision 0.1.0.12 (14/02/2008) - SOFT 000031 09

- The severy_type attribute in the XML syntax was not correctly encoded
- + PLC module added (customization of data and alarm)
- + Support of 2x6x1800W DC systems (with 2 MCU1848)
- + Support of multi-language web interface

Revision 0.1.0.8 (6/01/2008) - SOFT 000031 06

- Problem with reload of customized alarm related to the digital inputs of the dc system.
- DC system alarm relay configuration was not saved if configured on '0'.
- * Improvement of the logic of the site access control with SAM0948. Any digital input can be associated with a door.
- + Support of 3U rack with up to 8 CAR0948TN.
- * The default value of the minimal number of rectifier is 0, to avoid alarm by default.

Revision 0.1.0.2 (1/11/2007)

- Configuration of the SAM0948 was not kept after system reboot
- * Added configuration parameter "Minimal number of rectifier" at DC system level
- * Added alarm "Missing Rectifiers" at DC system level
- + Support of MCU1848

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Chapter 11 – Emulation Capabilities

On demand, we can provide an emulation program of the real monitoring application. This emulation program can run on any personal computer running Windows. Thanks to this last, you can develop and test the integration of our monitoring platform inside your network management application.

- What is the Comp@s emulator?
- What are the requirements?
- How to run the emulator?
- How to use the emulator?
- Simulating a network of Comp@s system
- Where can I get the emulator?
- Remarks.

11.1 What is the Comp@s emulator?

This is software which allows the simulation of the Comp@s monitoring, with some DC Systems and extension cards.

By default, the emulator simulates the presence of 2 sub-shelves 4x850W, with some rectifiers. Also an AC failure alarm appears and disappears, generating events and modifications of element status. An extension card with some sensors and access control is also simulated.

With the emulator, you can develop and test the integration of our monitoring platform inside your network management application.

11.2What are the requirements?

- Any personal computer running Windows 2000, XP or later.
- You need the Microsoft .NET Framework 2.0 installed on your computer. This is freely available through Microsoft website or Windows Update.

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11.3How to run the emulator?

- When you execute the provided "Compas_Emulator.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.
- To stop the emulator, you just have to close the opened shell window.

11.4How to use the emulator?

- Start the Compas_Emulator.exe application
- Testing the Web Server :
 - a. Start you favorite web browser (Firefox 2.x or Internet Explorer 7.x)
 - b. Browse to http://127.0.0.1/ or http://localhost/
 - c. You are asked for a login/password which is admin/compas by default
 - d. Please refer to 5.3. to use the Web Interface
- Testing SNMP :
 - a. You need a SNMP MIB browser (see <u>Using the Comp@s SNMP Agent</u>)
 - 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.

11.5Simulating a network of Comp@s system

If you want to simulate multiple sites, you can start the emulator on different port. For example, to execute an instance on port 85, execute "Compas_Emulator 85".

11.6Where can I get the emulator?

Please contact your vendor.

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11.7Remarks

- This emulator is just an introduction to the different interfaces
- It is not possible to have a real overview of all the Comp@s 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 80 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 emulated.

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Chapter 12 – Frequently Questions

Asked

• USB Connection Troubles

12.1 USB Connection Troubles

Q: I can browse Comp@s flash disk but I cannot open the Comp@s webpage in my web browser.

A: 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:

Open cmd prompt and type the following command:

Figure 66 Administrator Command Prompt

- 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.
- 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:

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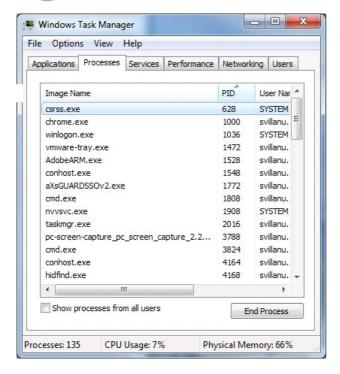


Figure 67 Windows Task Manager

- 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.
- 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:

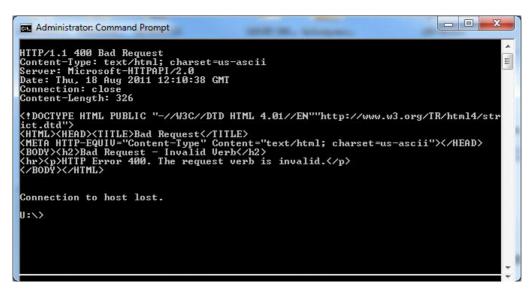


Figure 68 ISS Shutdown

 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.

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Q : After plug in, the usb cable in my computer, i see the device is not recognized and the driver could not successfully installed.

A: You have to take care of using multiple mobile devices at the same time. For exemple, 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 brower, I see access denied to 127.0.0.1.

A: 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":

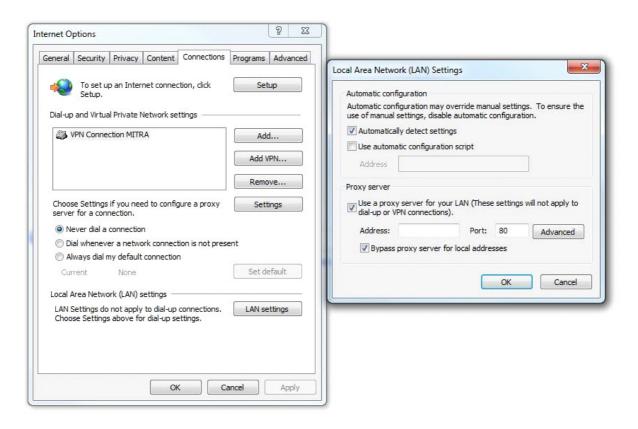


Figure 69 Bypass Proxy Server for Local Address

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Chapter 13 – Support

Do not hesitate to contact us in case of questions, problems, suggestions, etc. We want to be your partner in a successful network management.

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