



USER'S GUIDE











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Chapter 13 - Support

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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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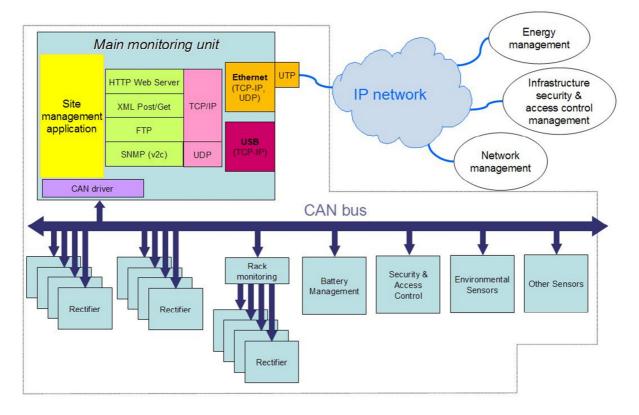


Figure 1 Comp@s Bloc Diagram

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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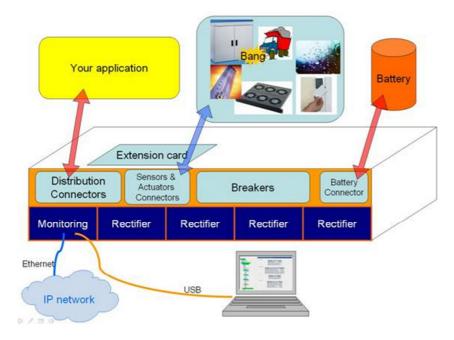


Figure 2 Schematic of the inside of a cabinet

2.3 DC System Overview

- <u>DC Power System Principles</u>
- 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:

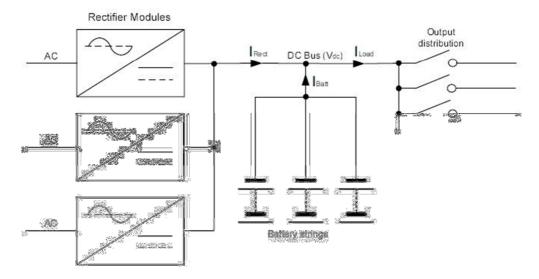


Figure 3 DC System

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:

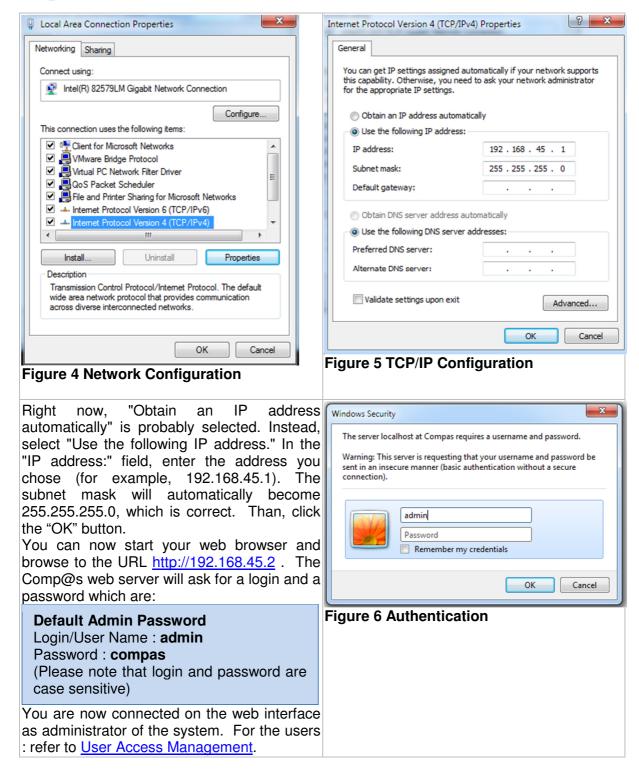
 Any operating system with an up to date web browser. It is recommended to use Firefox >= 2.x or Internet Explorer >=7.x.

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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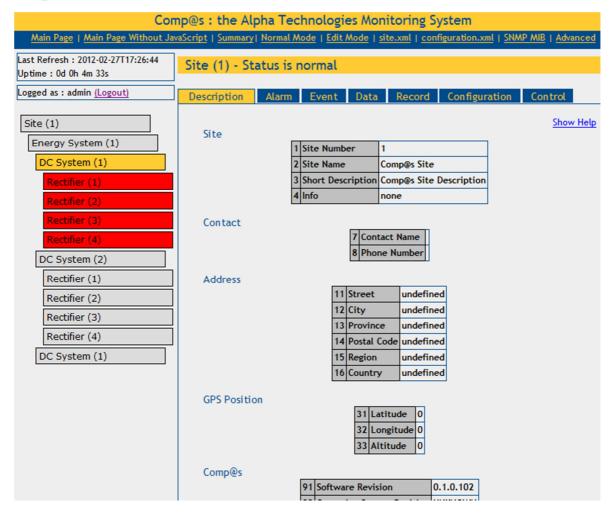


Figure 7 Initial page displayed

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:

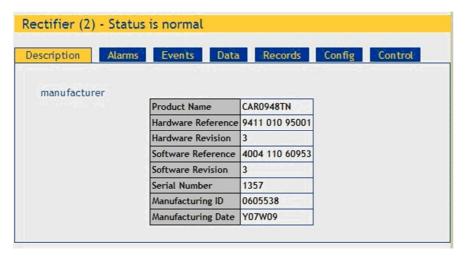
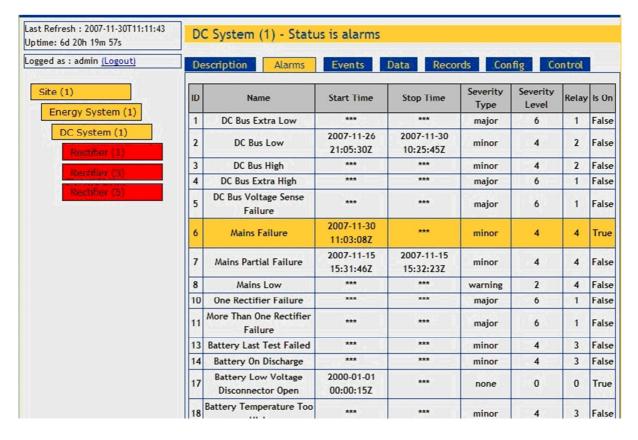


Figure 8 Rectifier Tab

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:

DC System (1) - Status is normal									
De	escription Alar	m Event	Data Rec	ord Confi	guration	Control			
ID	Name	Severity Type	Severity Level	Relay	Set Delay	Clear Delay			
1	DC Bus Extra Low	major 🔻	6 ▼ Modify	1 V	1 Modify	1 Modify			
2	DC Bus Low	minor 🔻	4 V	2 V Modify	1 Modify	1 Modify			
3	DC Bus High	minor Modify	4 V	2 V Modify	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 🔻	6 ▼ Modify	1 V	1 Modify	1 Modify			
6	Mains Failure	minor 🔻	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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Sen	nsors And Actuators (1) - Status is alarms										
Desc	rip	otion A	llarm	Event	D	ata	Record	Со	nfiguratio	n Contr	ol
	ID		Name	е			Start Time		Stop Time	Severity	Is Se
	1	Cabinet	Tempe	rature High	1		***		***	major (6)	False
	2	Cabinet	Tempe	rature Low	7	2008	05-14 15:57	:18Z	***	major (6)	True
	3	Cabinet Te	mperat	ure Sensor	Fail		***		***	minor (4)	False
	11	Cabin	et Hum	idity High			***		***	major (6)	False
	12	Cabin	et Hum	idity Low			***		***	major (6)	False
	21	Water	Detect	ion Alarm			***		***	major (6)	False
	31		Tilt X A	larm			***		***	major (6)	False
	32		Tilt Y A	larm			***		***	major (6)	False
-	41	Va	ndalism	Alarm			***		***	major (6)	False
	51 Badge Reader Failure 7		2008-05-14 15:57:16Z		***	major (6)	True				
	71	Ge	eneral li	nput 1			***		***	warning (2)	False
	72	Ge	eneral li	nput 2			***		***	warning (2)	False
	73	Ge	eneral li	nput 3			***		***	warning (2)	False
	74	Ge	eneral li	nput 4			***		***	warning (2)	False
	75	Ge	eneral li	nput 5			***		***	warning (2)	False
	76	Ge	eneral li	nput 6			***		***	warning (2)	False
	77	1	Door 1 ()pen		2008	05-14 15:57	:15Z	***	warning (2)	True
	78	-	Door 2 (Open		2008	05-14 15:57	:15Z	***	warning (2)	True
	79	- 1	Door 3 ()pen		2008	05-14 15:57	:15Z	***	warning (2)	True
	80	- 1	Door 4 ()pen		2008	05-14 15:57	:15Z	***	warning (2)	True

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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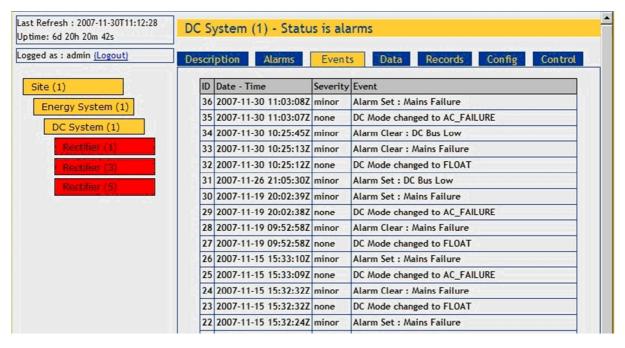


Figure 12 Events related to DC System

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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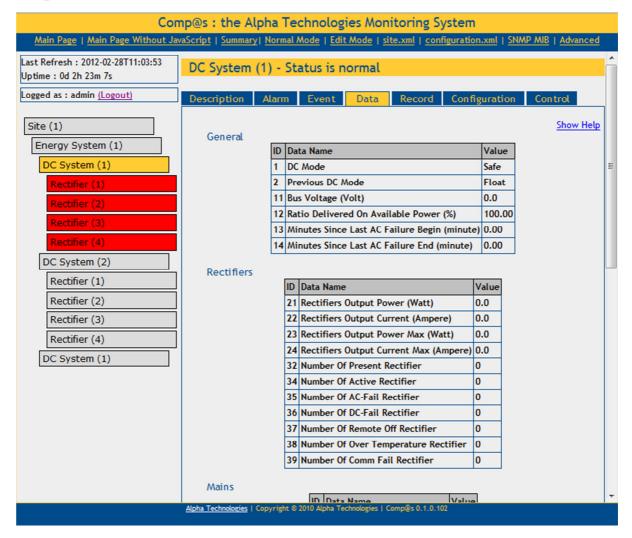


Figure 13 Data related to DC System

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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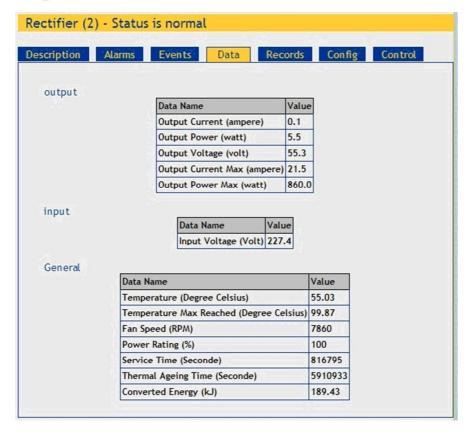


Figure 14 Rectifier Data

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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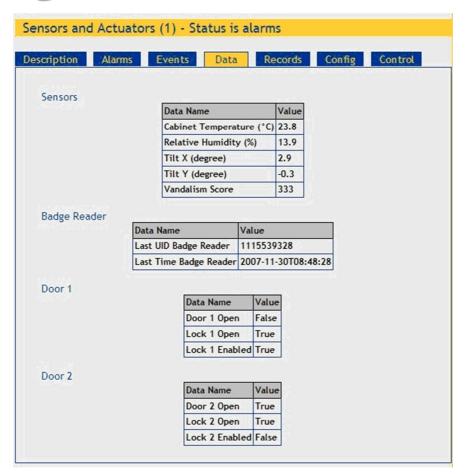


Figure 15 Sensors and Actuators data

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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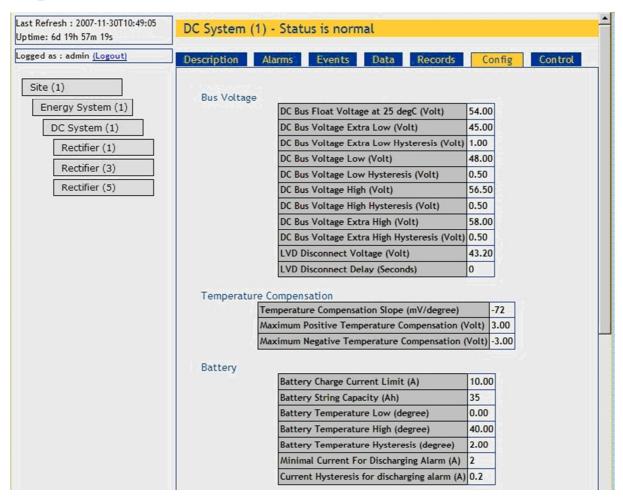


Figure 16 DC System Configuration Tab

The configuration of the site:

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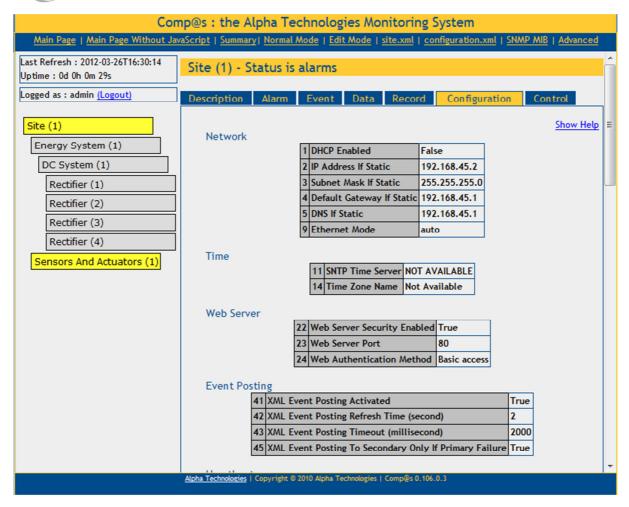


Figure 17 Site Configuration

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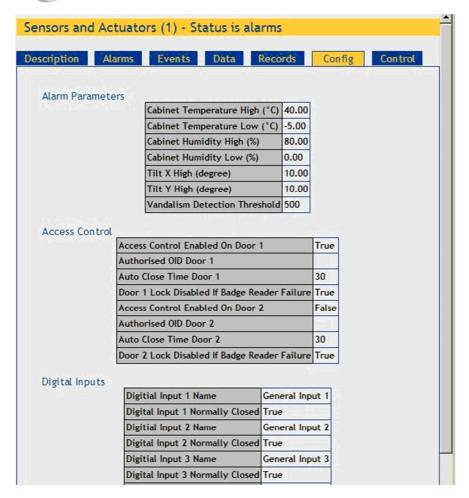


Figure 18 The configuration of an extension card

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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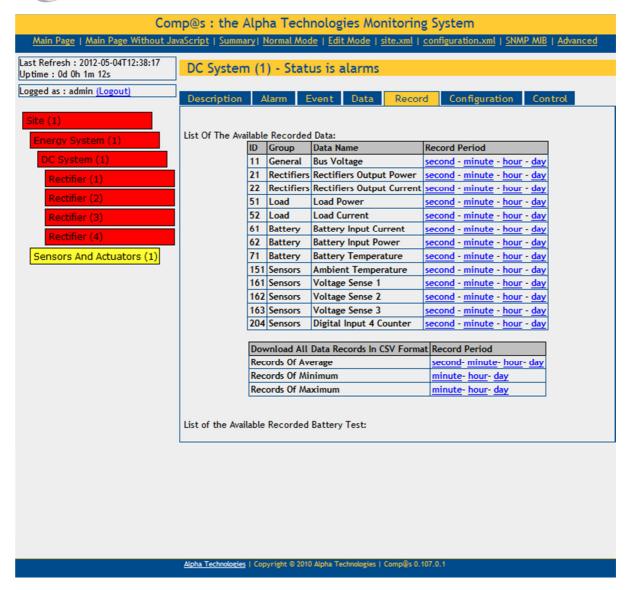


Figure 19 DC System Record Tab

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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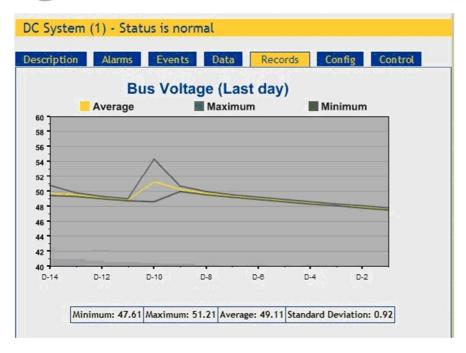


Figure 20 Bus Voltage record of the last days

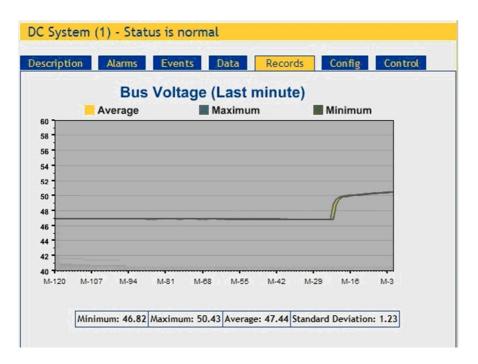


Figure 21 Bus Voltage record of the last minutes

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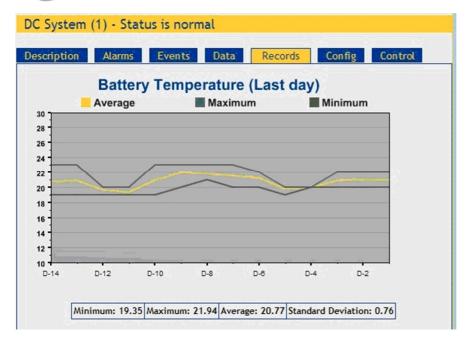


Figure 22 Battery Temperature record for the last days

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:

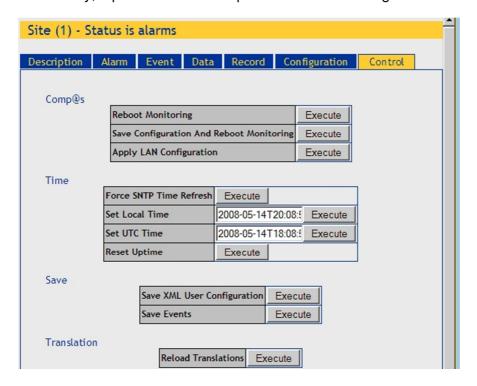


Figure 23 Control Tab at site level

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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:

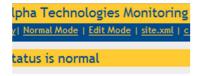


Figure 25 Edit Mode

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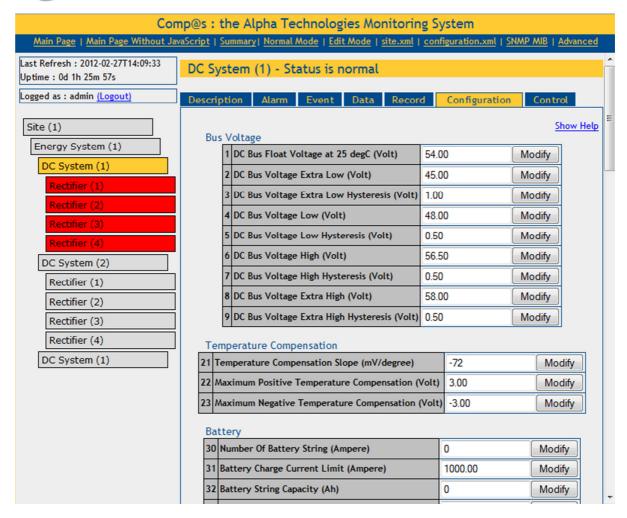


Figure 26 Modifying values

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:

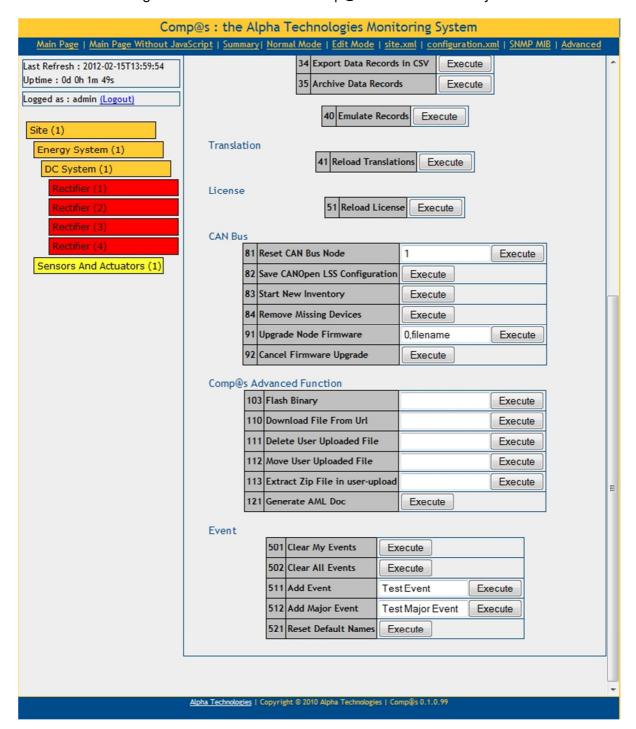


Figure 27 Saving of settings

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.:

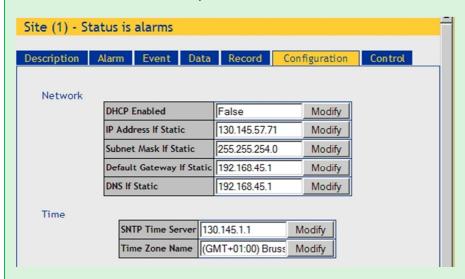


Figure 28 Network configuration

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

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

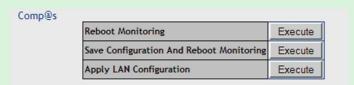


Figure 29 Apply changes

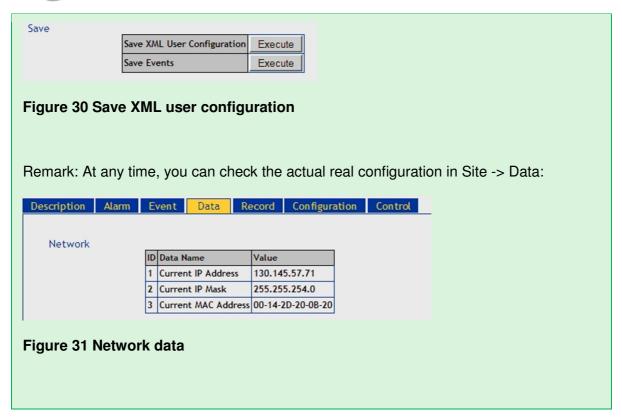
-> "Save Configuration And Reboot Monitoring"

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.

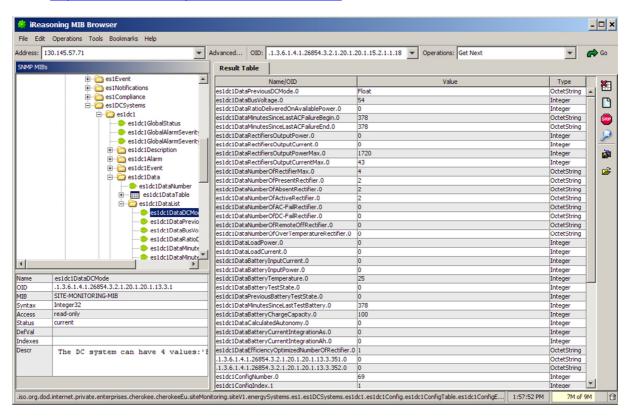


Figure 33 Ireasoning MIB Browser

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 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:

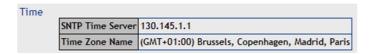


Figure 40 Time Configuration Elements

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) Tehrer
```

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):

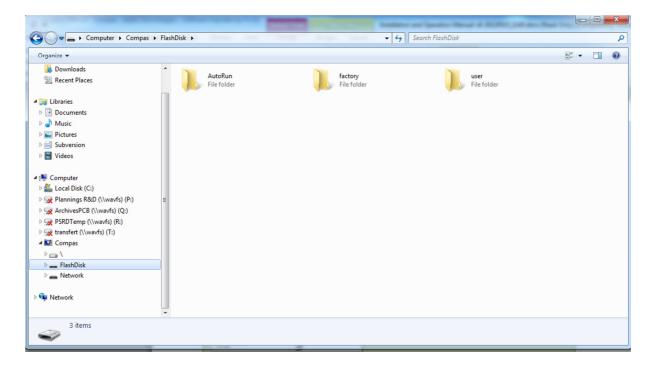


Figure 44 Browse to "\FlashDiskUser"

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):

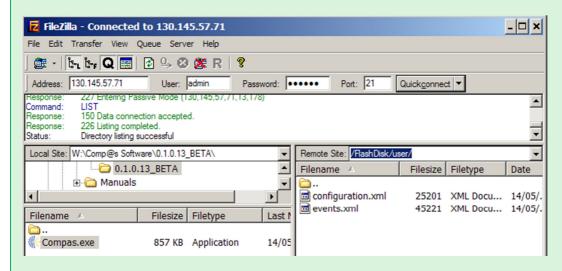


Figure 45 FTP Connection with Filezilla

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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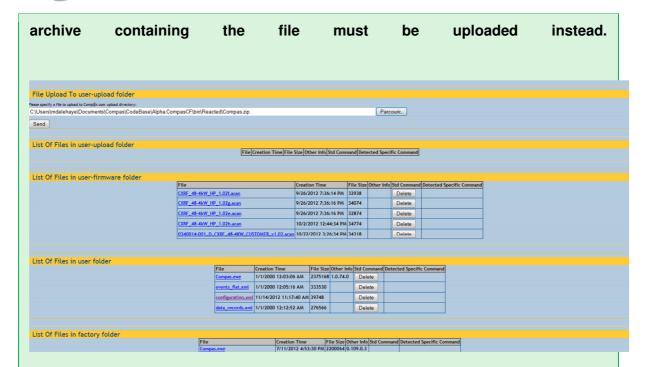


Figure 46 Comp@s Manage Files Page

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:

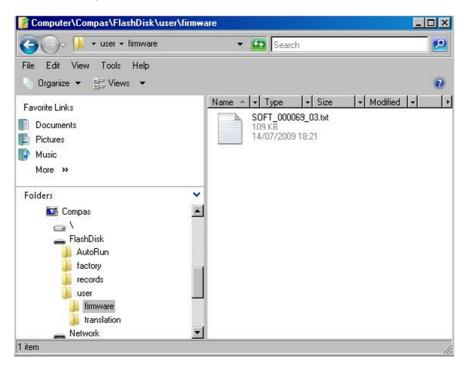


Figure 47 Firmware selection

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

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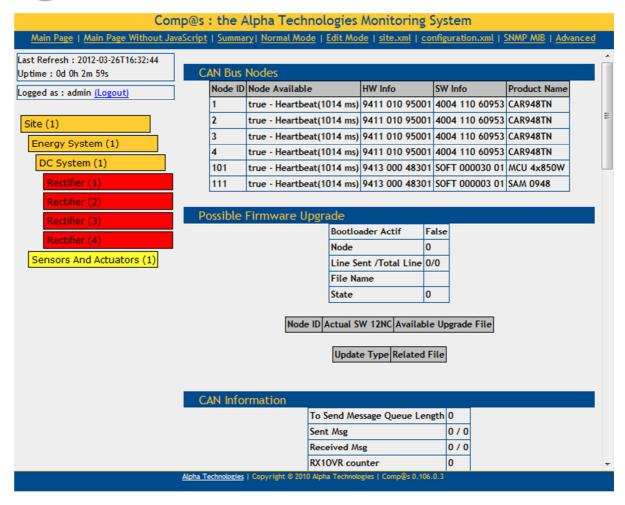


Figure 48 Comp@s web page Advanced link

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	
	ide Filo 03.txt	,

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:

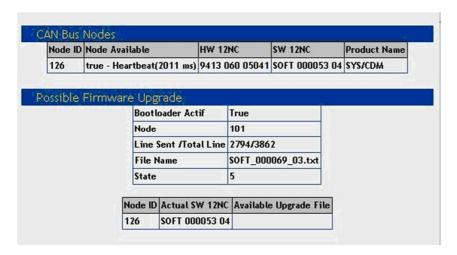


Figure 50 Equipment disappearing during upgrade

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.

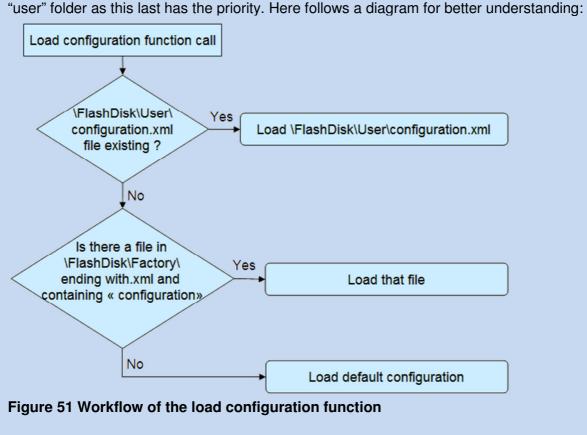
You copy also the network configuration, including the IP address. Keep in mind that if two systems with the same IP address are present on same network, it will not work! A solution to this is to edit the XML file before copying it and to change the IP address.

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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

<u>Tested Condition</u>	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:

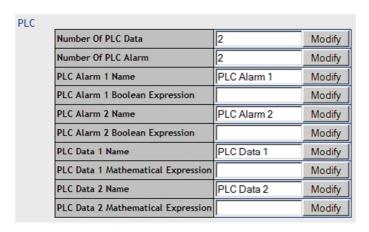


Figure 53 New configuration entries

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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Com	np@s : the Alpha Techno	ologies Monitoring Syste	em
Main Page Main Page Without Jav	aScript <u>Summary</u> <u>Normal Mode</u>	<u>Edit Mode</u> <u>site.xml</u> <u>configur</u>	ation.xml SNMP MIB Advanced
Last Refresh : 2012-11-19T15:42:20			mpas .
Uptime : 0d 0h 0m 23s		/3 Trap Auth Password	
Logged as : admin (Logout)	76 SNMP V	/3 Trap Privacy Password	
Eoggod as I domini (Eoggod)	General		
Site (1)		rate Event On Configuration Cha	nges True
		Archive Period Data Record (hor	
Energy System (1)			
DC System (1)	System Configuration CA		
Rectifier (1)		equired CAN Bus Node IDs	1-100
Rectifier (2)		S CAN id range stem Nodes Definition	1-100
Rectifier (3)		S CANOpen Saved Configuration	
Rectifier (4)	Users	,	
Rectifier (5)	101 Administrator Login:Password	admin:iUlvrgzLaY2IWH7tZyjFVz	zsfLvj1Prv2uUh6YSrsk5g=
Rectifier (6)	102 User 1 Login:Password	user1:XwhM5CCz+GT9SMS+Lzb	ebb2S01vfwrp/yTG3W3Wcubg=
Rectifier (7)	103 User 2 Login:Password		bCz1aJtFqOm0RQqMfyixGhzA=
Rectifier (8)	104 User 3 Login:Password	user3:Z7+ekqLzcpnmFr4tBA0B	
	105 User 4 Login:Password 106 User 5 Login:Password	user4:viQkEzvhBGaqOyXpUo/Bl user5:zqlmAxvb3DRWu3Rn4el0	
Rectifier (9)	res osci s cognini assivore	aset steeling to be strained	io i
Rectifier (10)	Extensions		
Sensors And Actuators (1)	210 RS485 E	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
		L Events Primary Post URL	none .
		L Events Primary Post Login	
		L Events Primary Post Password	
	661 XM	L Events Secondary Post URL	
		L Events Secondary Post Login	
	[663]XM	L Events Secondary Post Passwo	ord
	PLC		
		901 Number Of PLC Data 0	
		902 Number Of PLC Alarm 0	
			,

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:

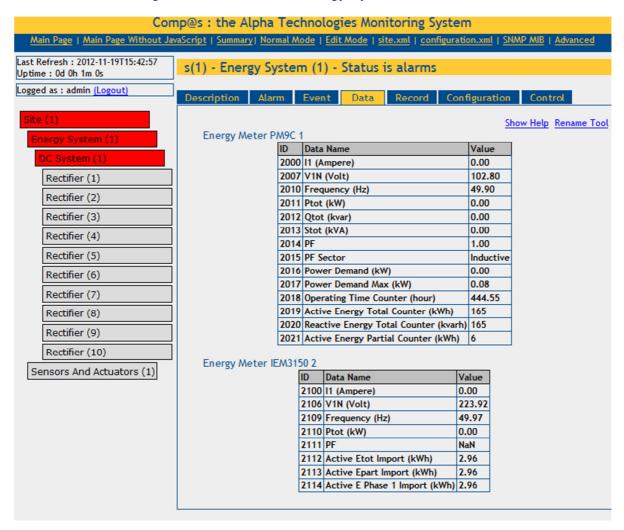


Figure 58 Power and Energy Meter Data

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.schneider-electric.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".		Μ
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.		0

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	0
<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 <u>Microsoft C# Express</u>.

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:

- <u>Discrete Inputs (Read Only)</u>
- 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	2 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 Te Discharged Capacity	st 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 Te Discharged Capacity Ah	st 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 Fir Voltage	alBattery	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:

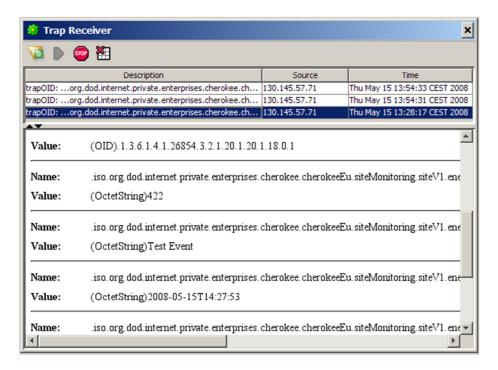


Figure 60 IReasoning trap receiver

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Chapter 6 – CAN information

Bus

related

- 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:

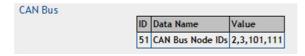


Figure 61 CAN Bus Node IDs

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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:

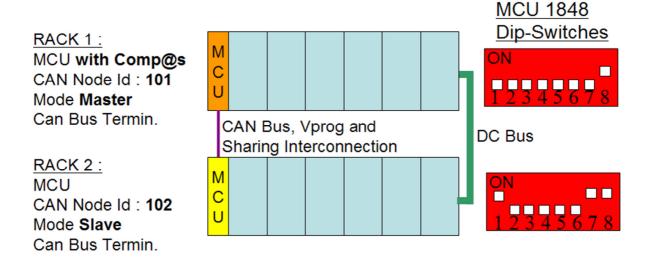


Figure 62 Example with a system with 2 shelves of 6x1800W rectifiers

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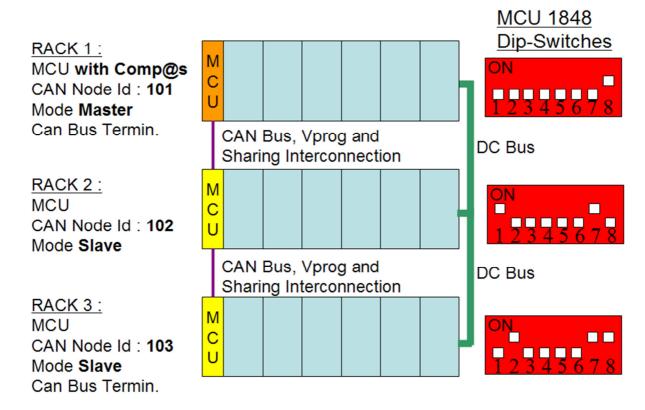


Figure 63 Example with a system of 3 shelves of 6x1800W rectifiers

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:

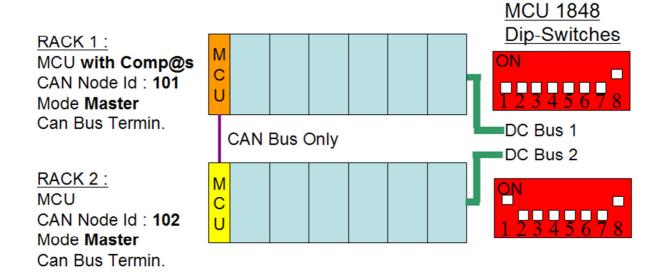


Figure 64 Example with a system with 2 shelves of 6x1800W rectifiers

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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>	Name	Group	<u>License</u>				
1	Site Number	Description	basic				
	The identification number of	of the site					
2	Site Name	Description	basic				
	The name of the site						
3	Short Description	Description	basic				
	A short description of the s	ite					
4	Info	Description	basic				
	Some more information about the site						
5	Description	Description	basic				
	A free text zone to write a	A free text zone to write a system description					
6	Reference	Description	basic				
	A free text zone to write the customer reference of the system						
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				
	• •	T	ī		
13	Province	Address	basic		
	Province part of the site address	SS			
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	Country part of the site address			
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	IS	
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 / 1	
	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 is not accepted by the primary or the secondary post server. Please note that this alarm is inactive if the heartbeat mechanism is inactive.			

Data	Table			
<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 Comp@s platform. If the Ethernet cable is not correctly connected, the address will be 0.0.0.0.			

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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	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.				
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	present on the CAN I	ous.		

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 monitoring. This configuration parameter is not used if the DHCP is enabled. The default mask is 255.255.25.0.				
4	Default Gateway If Static	Network		192.168.45.1	basic
	The static Default Gateway of thif DHCP is enabled. This is only				

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	generally not necessary. The de	fault nateway is	192 168 <i>4</i>	5.1	
5	DNS If Static	Network	102.100.4	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	g. This configu ecessary if you		meter is used to res	solve URI
9	Ethernet Mode	Network		True/False (False)	basic
	The monitoring will try to get ar True. By default, this parameter		HCP protoc	col if this parameter	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		T		_
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	rate 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	the port is 80). If you ch	ange this port, you	
24	Web Authentication Method	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	sed to activate	or deactive	ate the XML event p	osting.
42	XML Event Posting Refresh Time				
	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	at. If set to	0, no hearbeat.	
61	SNMP Activated	SNMP		True/False (True)	basic
	This is a True/False parameter u	used to activate	or deactive	, ,	
63	SNMP Trap Version	SNMP			basic
	Traps/Notification can be sent w	ith SNMP V1, \	/2c or V3 fo	ormat.	1

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64	SNMP GET Minimum Security Level				basic
	4 choices are available: No Auth	entication, V1	Community	, V2c Community or	r V3 .
65	SNMP SET Minimum Security Level	SNMP			basic
	4 choices are available: No Auth	entication, V1	Community	, V2c Community or	r 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		L	
68	SNMP V3 Privacy Password	SNMP			basic
	The global SNMP V3 Encryption avoid complexity	n Password. T	his one is	common for all the	users to
69	SNMP V3 Engine ID	SNMP			basic
	The SNMP V3 Local Engine ID	string		•	
72		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	sword			
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 re needed). 0 means disabled.	cords (when d	letailled an	d long duration red	cords 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		like rectifie	rs with CAN Id 50 to	o 100. To
93	System Nodes Definition	System Configuration CANOpen			basic

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	dc3(30-100)					
95	·	System			basic	
93	Configuration	Configuration			Dasic	
	gg	CANOpen				
	No information		•		-	
101	Administrator	Users		(admin:compas)	basic	
	Login:Password					
	This is the login and the pass					
	syntax. First the login in clear password. If you change the log					
	last is automatically hashed.	Jiii.password b	y entering a	a non nasneu pas	sword, triis	
102	User 1 Login:Password	Users		(user1:compas)	basic	
	This is the login and the passwo		umber 1.	1 /		
103	User 2 Login:Password	Users		(user2:compas)	basic	
	This is the login and the passwo	rd of the user r	umber 2.	1 /		
104	User 3 Login:Password	Users		(user3:compas)	basic	
	This is the login and the passwo	rd of the user r	umber 3.		•	
105	User 4 Login:Password	Users		(user4:compas)	basic	
	This is the login and the passwo	rd of the user r	umber 4.			
106	User 5 Login:Password	Users		(user5:compas)	basic	
	This is the login and the passwo	rd of the user r	number 5.			
210	RS485 Extensions	Extensions		PM9C(1)	asset	
	configuration					
	• •	ı	The configuration string for RS485 Extensions			
521	Read Access User Numbers	Allowed		(1,2,3,4,5)	basic	
521		Users	nd access t			
521	The list of the user numbers v	Users vhich have rea		to this equipment.	The user	
521 522	The list of the user numbers v numbers are coma separated. T	Users vhich have rea		to this equipment. 2,3,4 and 5. Ex: 1,	The user	
	The list of the user numbers v numbers are coma separated. T	Users vhich have rea he accepted us		to this equipment.	The user 3,4	
	The list of the user numbers venumbers are coma separated. The list of the user numbers with the list of the user numbers with the list of the user numbers with the list of the user numbers.	Users which have rea he accepted us Allowed Users nich have write	ser id are 1,	to this equipment. 2,3,4 and 5. Ex: 1,	The user 3,4 basic	
	The list of the user numbers volumbers are coma separated. The list of the user numbers withat these users can modify the	Users vhich have rea he accepted us Allowed Users nich have write configuration of	ser id are 1, access to element, th	to this equipment. 2,3,4 and 5. Ex: 1, () this equipment. Te alarm settings are	The user 3,4 basic basic bis means and use the	
	The list of the user numbers volumbers are coma separated. The list of the user numbers with these users can modify the control elements. The user numbers with the user numbers with the user users can modify the control elements.	Users vhich have rea he accepted us Allowed Users nich have write configuration of	ser id are 1, access to element, th	to this equipment. 2,3,4 and 5. Ex: 1, () this equipment. Te alarm settings are	The user 3,4 basic basic bis means and use the	
522	The list of the user numbers verification numbers are coma separated. The list of the user numbers where the list of the user numbers where the user seems can modify the control elements. The user numbers 1,2,3,4 and 5. Ex: 1,3,4	Users vhich have rea he accepted us Allowed Users nich have write configuration of	ser id are 1, access to element, th	to this equipment. 2,3,4 and 5. Ex: 1, () this equipment. Te alarm settings and the accepted us	The user 3,4 basic basic bis means and use the	
	The list of the user numbers volumbers are coma separated. The list of the user numbers with the sequence of the user numbers with the sequence of the user numbers. The user numbers in the user numbers in the user numbers in the user numbers. The user numbers in the	Users vhich have rea he accepted us Allowed Users hich have write configuration of bers are coma	e access to element, the separated	to this equipment. 2,3,4 and 5. Ex: 1, () this equipment. Te alarm settings at The accepted us	The user 3,4 basic basic basic basic	
522	The list of the user numbers verification numbers are coma separated. The list of the user numbers where the list of the user numbers where the user seems can modify the control elements. The user numbers 1,2,3,4 and 5. Ex: 1,3,4	Users vhich have rea he accepted us Allowed Users hich have write configuration of bers are coma	e access to element, the separated	to this equipment. 2,3,4 and 5. Ex: 1, () this equipment. Te alarm settings at The accepted us	The user 3,4 basic basic basic basic	
522 601	The list of the user numbers venumbers are coma separated. To write Access User Numbers The list of the user numbers where the list of the user numbers where the users can modify the control elements. The user numbers 1,2,3,4 and 5. Ex: 1,3,4 Event Table Length The maximum length of the table SNMP Trap Targets IP One or multiple target IP to	Users vhich have rea he accepted us Allowed Users nich have write configuration o bers are coma Event Event	e access to element, the separated	to this equipment. 2,3,4 and 5. Ex: 1, () this equipment. Te alarm settings at The accepted us 10/4000 (100) prised between 10 192.168.45.1	The user 3,4 basic his means and use the ser ids are basic and 4000 basic	
522 601	The list of the user numbers venumbers are coma separated. To write Access User Numbers The list of the user numbers withat these users can modify the control elements. The user numbers 1,2,3,4 and 5. Ex: 1,3,4 Event Table Length The maximum length of the table SNMP Trap Targets IP One or multiple target IP to 130.23.12.45	Users which have rea he accepted us Allowed Users nich have write configuration of bers are coma Event Event Event send traps,	e access to element, the separated	to this equipment. 2,3,4 and 5. Ex: 1, () this equipment. The alarm settings at a compared using the sequence of the sequenc	The user 3,4 basic his means and use the ser ids are basic and 4000 basic	
522 601 611	The list of the user numbers venumbers are coma separated. To write Access User Numbers The list of the user numbers where the list of the user numbers where the users can modify the control elements. The user numbers 1,2,3,4 and 5. Ex: 1,3,4 Event Table Length The maximum length of the table SNMP Trap Targets IP One or multiple target IP to	Users which have rea he accepted us Allowed Users nich have write configuration of bers are coma Event Event Event send traps,	e access to element, the separated	to this equipment. 2,3,4 and 5. Ex: 1, () this equipment. Te alarm settings at The accepted us 10/4000 (100) prised between 10 192.168.45.1	The user 3,4 basic his means and use the ser ids are basic and 4000 basic 0.145.23.1,	
522 601 611	The list of the user numbers volumbers are coma separated. The list of the user numbers with the sequence of the user numbers with the sequence of the user numbers. The user numbers of the user numbers of the user numbers. The user numbers of the user numbers of the user numbers. The user numbers of the user numbers of the user numbers of the user numbers. The user numbers of the use	Users which have reached users Allowed Users nich have write configuration of the same comands Event Event send traps, Event	e access to element, the separated ust be completed comp	to this equipment. 2,3,4 and 5. Ex: 1, () this equipment. The alarm settings and the accepted use to the accepted use to the accepted between 10 and the accepted betwee	The user 3,4 basic his means and use the ser ids are basic and 4000 basic 0.145.23.1,	
522 601 611	The list of the user numbers venumbers are coma separated. To write Access User Numbers The list of the user numbers withat these users can modify the control elements. The user numbers 1,2,3,4 and 5. Ex: 1,3,4 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	Users which have reache accepted users Allowed Users hich have write configuration obers are coma Event Event Send traps, Event e event to send	e access to element, the separated ust be completed comp	to this equipment. 2,3,4 and 5. Ex: 1, () this equipment. The alarm settings and the accepted use to the accepted use to the accepted between 10 and the accepted betwee	The user 3,4 basic his means and use the ser ids are basic and 4000 basic 0.145.23.1,	
522 601 611	The list of the user numbers volumbers are coma separated. The list of the user numbers with the list of the user numbers with these users can modify the control elements. The user numbers in the list of the user numbers with the list of the user numbers. The user numbers in the list of the li	Users which have reache accepted users Allowed Users nich have write configuration obers are coma Event Event Send traps, Event e event to send Event e events related	e access to element, the separated ust be compared to this equal to this equal to this equal to the compared t	to this equipment. 2,3,4 and 5. Ex: 1, () this equipment. The alarm settings at a compared using the sequipment of the	The user 3,4 basic basic basic basic basic basic	
522 601 611 612	The list of the user numbers venumbers are coma separated. To write Access User Numbers The list of the user numbers withat these users can modify the control elements. The user nument, 2, 3, 4 and 5. Ex: 1, 3, 4 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 the XML Events Primary Post URL This is the first URL at which the XML ETSI standard is used in the severity of the table used in the table used in the table user to the t	Users which have reache accepted users Allowed Users nich have write configuration of the same comand the same comand the same comand the same complete event to send the same complete eve	e access to element, the separated ust be compared to this equal to this equal to this equal to the compared t	to this equipment. 2,3,4 and 5. Ex: 1, () this equipment. The alarm settings at a compared using the sequipment of the	The user 3,4 basic his means and use the ser ids are basic and 4000 basic 0.145.23.1, basic basic basic basic	
522 601 611	The list of the user numbers volumbers are coma separated. The list of the user numbers with the list of the user numbers with these users can modify the control elements. The user numbers in the list of the user numbers with the list of the user numbers. The user numbers in the list of the li	Users which have reache accepted users Allowed Users nich have write configuration of the same comand the same comand the same comand the same complete event to send the same complete eve	e access to element, the separated ust be compared to this equal to this equal to this equal to the compared t	to this equipment. 2,3,4 and 5. Ex: 1, () this equipment. The alarm settings at a compared using the sequipment of the	The user 3,4 basic basic basic basic basic 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		
<u>Id</u>	<u>Name</u>	<u>Group</u>	<u>Licens</u> <u>e</u>
1	Reboot Monitoring	Comp@s	basic
	Writing a '1' to this control element will reboot the nobe 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 witho	
11	Force SNTP Time Refresh	Time	basic
	Writing a '1' to this control element will force the rwith the configured SNTP Time Server.	nonitoring 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 electime of the monitoring. The syntax of the date			
14	Reset Uptime	Time	basic	
	Writing a '1' to this control element will rese	t the uptime of the monitorin	g.	
21	Save XML User Configuration	Save	basic	
	Writing a '1' to this control element will save equipment in a XML format. This file is reacconfigure the monitoring. This file is also a downloaded trough the web interface.	d when the monitoring is stated accessible trough the FTP s	urting in order to erver or can be	
22	Save Inventory	Save	underd ev	
	Writing a '1' to this control element will saving file is read when the monitoring is starting is also accessible trough the FTP serve interface.	n order to configure the mor	nitoring. This file	
33	Save Data Records	Save	basic	
	Writing a '1' to this control element will records. This is useful if you want to unpow called automatically everyday.	rer the Comp@s monitoring.		
34	Export Data Records in CSV	Save	basic	
	Writing a '1' to this control element will force files. The CSV files are stored in the record		he CVS records	
35	Archive Data Records	Save	basic	
	Writing a '1' to this control element will force the monitoring to save all the data records. This is useful if you want to unpower the Comp@s monitoring. This function is called automatically everyday.			
40	Emulate Records	Emulation	underd ev	
	No information			
41	Reload Translations	Translation	basic	
	Writing a '1' to this control element will reloa	ad all the csv translation files	<u>, </u>	
51	Reload License	License	basic	
	Writing a '1' to this control element will reloa	ad the license file		
61	Remove Absent Equipments	Inventory	basic	
	No information			
04	Reset CAN Bus Node	CAN Bus		
81		OAN Dus	basic	
ช1	Writing a valid CAN bus node id to this codevice.			
81 82	device. Save CANOpen LSS Configuration			
82	device. Save CANOpen LSS Configuration No information	ontrol element will reset the	e correspondent basic	
	device. Save CANOpen LSS Configuration No information Start New Inventory	ontrol element will reset the	correspondent	
82 83	device. Save CANOpen LSS Configuration No information Start New Inventory No information	CAN Bus CAN Bus	basic basic	
82	device. Save CANOpen LSS Configuration No information Start New Inventory	ontrol element will reset the	e correspondent basic	
82 83	device. Save CANOpen LSS Configuration No information Start New Inventory No information	CAN Bus CAN Bus CAN Bus CAN Bus CAN Bus rmware upgrade of a CAN in the /user/firmware path.	basic basic basic basic bus Node. You Then you need	
82 83	device. Save CANOpen LSS Configuration No information Start New Inventory No information Upgrade Node Firmware This control element is used to start the fineed to upload first the firmware trough ftp to write the id number of the CAN Node, followed	CAN Bus CAN Bus CAN Bus CAN Bus CAN Bus rmware upgrade of a CAN in the /user/firmware path.	basic basic basic bus Node. You Then you need	

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	Node.			
103	Flash Binary	Comp@s Function	Advanced	basic
	This control element is used to start a binary flash firmware trough ftp in the /user/firmware path.	update. You nee	d 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	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 u 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 fol	der 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 u 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		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 equipmen	t and all the	e events
511	Add Event	Event		basic
	This control element adds an event of severity none to this control element	e. The event nam	e is the tex	t written
512	Add Major Event	Event		basic
	This control element adds an event of severity r written to this control element	major. The even	t name is	the text
521	Reset Default Names And Groups	Advanced		basic
	This control element resets all the element Names values	s, Groups and Si	ubgroups to	default

7.2 DC System Tables

7.2.1 MCU1X6

Device Information	
Name	MCU1X6
Short Description	Controller without LCD display
Long Description	Monitoring and control unit with USB and

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	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>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 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 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 sconfiguration paramenter 'DC Bus Voltage alarm: 'DC Bus Voltage Extra High Hysteres	Extra High'. There is an	
5	DC Bus Voltage Sense Failure	major (6)	1 / 2
	The DC bus voltage sense is defective. unconfigured.	The DC bus voltage i	s unconnected or

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6	Mains Failure	minor (4)	5 / 2
	The number of active rectifiers is equa greater than 0.	. ,	of rectifiers in AC failure is
7	Mains Partial Failure	minor (4)	10 / 2
	The number of active rectifiers is gre failure is greater than 0. Some rectif open breaker, a real phase failure, or to	iers are in AC Failure.	
8	Mains Low	warning (2)	10 / 2
	The main voltage is low on one or momentum master type is 30110, 3096 or 3048M to the voltage lower limit		
10	One Rectifier Failure	minor (4)	5 / 2
	One rectifier must be replaced or is rectifier is set. The number of rectifier mains failure, and the 'More Than One	er with DC Failure is h	igher than 0, there is no
11	More Than One Rectifier Failure	major (6)	10 / 2
	There is no mains failure and number	of rectifier failures is gre	eater than 1.
12	Missing Rectifiers	major (6)	5 / 2
	There is not enough rectifier accord Number Of Rectifier'		<u>'</u>
13	Battery Last Test Failed	minor (4)	5 / 2
	The last battery test did not succeed a be replaced.	and was not cancelled.	Maybe the battery should
14	Battery On Discharge	minor (4)	10 / 2
	The battery is discharging. This merectifiers. This alarm is inactive when the There is an hysteresis corresponding hysteresis.	he system in AC Failur	e or during a battery test.
17	Battery LVD Relay Open	major (6)	5 / 2
	The battery Low Voltage Disconnect signal, like MCU 1848 or MCU 1x6, the asks to open the LVD	tor is open. On Systo	ems without LVD_Status
18	Battery Temperature Too High	minor (4)	5 / 2
	The temperature of the battery is too hysteresis corresponding to battery pa	•	
19	Battery Temperature Too Low		<u> </u>
	Dattery reiniperature 100 Low	minor (4)	5 / 2
	The temperature of the battery is too hysteresis corresponding to battery pa	low and is greater that	n -600 units. There is an nysteresis'.
20	The temperature of the battery is too	low and is greater that	n -600 units. There is an
	The temperature of the battery is too hysteresis corresponding to battery pa Battery Temperature Sensor Fail The battery temperature sensor (NTC not connected or defective.	low and is greater that rameter 'Temperature Iminor (4)	n -600 units. There is an hysteresis'. 5 / 2 00 units meaning that it is
	The temperature of the battery is too hysteresis corresponding to battery pa Battery Temperature Sensor Fail The battery temperature sensor (NTC not connected or defective. Ambient Temperature Too High	low and is greater that rameter 'Temperature I minor (4)) value is inferior to -50 minor (4)	n -600 units. There is an hysteresis'. 5 / 2 00 units meaning that it is
	The temperature of the battery is too hysteresis corresponding to battery pa Battery Temperature Sensor Fail The battery temperature sensor (NTC not connected or defective.	low and is greater that rameter 'Temperature I minor (4)) value is inferior to -50 minor (4) a and is greater than 'Ambiant temperature	5 / 2 ounits. There is an anysteresis'. 5 / 2 ounits meaning that it is 5 / 2 -600 units. There is an hysteresis'. This alarm is
20 21 22	The temperature of the battery is too hysteresis corresponding to battery pa 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	low and is greater that rameter 'Temperature I minor (4)) value is inferior to -50 minor (4) a and is greater than 'Ambiant temperature	5 / 2 ounits. There is an enysteresis'. 5 / 2 ounits meaning that it is 5 / 2 -600 units. There is an hysteresis'. This alarm is

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	only activated on MCU master types 30 0948 and 3048M6.	0110, 3096, 30125, 00	24, 0948, 0548, 0348,
23	Ambient Temperature Sensor Fail	minor (4)	5 / 2
	The ambiant temperature sensor (NTC) vnot 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 'Digit		
26	Battery Breaker Open	minor (4)	5 / 2
	This alarm is related to digital input 2. different to configuration parameter 'Digit		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 'Digit		if digital input value is
28	Digital Input 4	none (0)	5 / 2
	This alarm is related to digital input 4. different to configuration parameter 'Digit		if digital input value is
29	Digital Input 5	disabled (0)	5 / 2
	This alarm is related to digital input 5. different to configuration parameter 'Digit		if digital input value is
30	Digital Input 6	disabled (0)	5 / 2
	This alarm is related to digital input 6. different to configuration parameter 'Digit		if digital input value is
31	Digital Input 7	disabled (0)	5 / 2
	This alarm is related to digital input 7. different to configuration parameter 'Digit		if digital input value is
32	Digital Input 8	disabled (0)	5 / 2
	This alarm is related to digital input 8. different to configuration parameter 'Digit		if 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', '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		
21	Rectifiers Output Power	Rectifiers	Watt	basic

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The sum of the delivered rectifier power 22 Rectifiers Output Current Rectifiers Ampere The sum of the delivered rectifier current	
	<u> </u>
I I ne sum of the delivered rectifier current	basic
	<u> </u>
23 Rectifiers Output Power Max Rectifiers Watt	basic
The sum of the deliverable rectifier power	<u>.</u>
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	
Number Of Absent Rectifier Rectifiers	basic
The actual number of absent rectifier in this dc system	<u> </u>
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.	<u> </u>
37 Number Of Remote Off Rectifier Rectifiers	basic
The actual number or rectifier in remote off.	l .
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 t	he battery is
discharging	basic
discharging 71 Battery Temperature Battery degree C	
71 Battery Temperature Battery degree C	
71 Battery Temperature Battery degree C The battery temperature	basic
71 Battery Temperature The battery temperature 72 Battery Test State This is about the result of the last battery test. 9 values are NEVER_TESTED, SUCCESS, ON_GOING, FAILED	D_TIMEOUT,
71 Battery Temperature The battery temperature 72 Battery Test State This is about the result of the last battery test. 9 values are NEVER_TESTED, SUCCESS, ON_GOING, FAILED_FAILED_VBUS_TOO_LOW, FAILED_LOAD_TOO_LOW, FAILED_A	l .
71 Battery Temperature The battery temperature 72 Battery Test State This is about the result of the last battery test. 9 values are NEVER_TESTED, SUCCESS, ON_GOING, FAILED_VBUS_TOO_LOW, FAILED_LOAD_TOO_LOW, FAILED_A FAILED_CANCELED, FAILED_LVD_OPENED 73 Battery Test Discharged Capacity Battery Battery Discharged Capacity Battery Mailed Capacity Capacity	possible : D_TIMEOUT, C_FAILURE, basic

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	This is the battery capacity, in ampere This value is updated at the end of the battery capacity.	,	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.	e last battery test. Th	is 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 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	ond	
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 O Rectifier	f Smart Energy		asset
	The optimal number of ON rectifier for E	fficiency Optimization	ו	_
122	System Loss Without Optimisation	Smart Energy	Watt	under dev
	Estimation of the losses without optimis	ation	1	
123	System Loss With Optimisation	Smart Energy	Watt	under dev
	Estimation of the losses with optimisation		1	
124	Rectifier Model Used For Calculation	Smart Energy		asset
	The rectifier model used		1	
125	Smart Energy Savings	Smart Energy	Watt	asset
	Estimation of the losses with optimisation		1	
151	Ambient Temperature	Sensors	degree C	basic
	The ambiant temperature (second temp	erature sense)	1	1
161	The ambiant temperature (second temp Voltage Sense 1	erature sense) Sensors	Volt	basic
	Voltage Sense 1 The voltage measured by the sens measurement. Calculation can be done	Sensors se 1. Can be used with the PLC	d for battery sy	mmetry
161 162	Voltage Sense 1 The voltage measured by the sens	Sensors se 1. Can be used		
	Voltage Sense 1 The voltage measured by the sens measurement. Calculation can be done	Sensors Se 1. Can be used with the PLC Sensors Se 2. Can be used	Volt for battery sy	mmetry basic
	Voltage Sense 1 The voltage measured by the sens measurement. Calculation can be done Voltage Sense 2 The voltage measured by the sens	Sensors Se 1. Can be used with the PLC Sensors Se 2. Can be used	d for battery sy	mmetry basic
162	Voltage Sense 1 The voltage measured by the sens measurement. Calculation can be done Voltage Sense 2 The voltage measured by the sens measurement. Calculation can be done	Sensors ee 1. Can be used with the PLC Sensors ee 2. Can be used with the PLC Sensors ee 3. Can be used	Volt Volt Volt Volt	mmetry basic mmetry basic
162	Voltage Sense 1 The voltage measured by the sens measurement. Calculation can be done Voltage Sense 2 The voltage measured by the sens measurement. Calculation can be done Voltage Sense 3 The voltage measured by the sens	Sensors ee 1. Can be used with the PLC Sensors ee 2. Can be used with the PLC Sensors ee 3. Can be used	Volt Volt Volt Volt	mmetry basic mmetry basic

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Con	fig Table				
<u>ld</u>	<u>Name</u>	<u>Group</u>	<u>Unit</u>	Range: Min/Max (default)	<u>License</u>
1	DC Bus Float Voltage at 2 degC	Bus Voltage	Volt	40/60 (54)	basic
	The floating dc bus voltage of		Celsius de	egree	
2	DC Bus Voltage Extra Low	Bus Voltage	Volt	40/60 (45)	basic
	The bus voltage under which t	he alarm 'DC Βι	ıs Voltage I	Extra Low' is set.	
3	DC Bus Voltage Extra Lo Hysteresis		Volt	0/5 (1)	basic
	The voltage hysteresis on the	alarm 'DC Bus \	/oltage Extr	a Low'.	
4	DC Bus Voltage Low	Bus Voltage	Volt	40/60 (48)	basic
	The bus voltage under which t	he alarm 'DC Βι	ıs Voltage I	_ow' is set.	
5	DC Bus Voltage Lo Hysteresis	w Bus Voltage	Volt	0/5 (0.5)	basic
	The voltage hysteresis on the	alarm 'DC Bus \	oltage Low	1	
6	DC Bus Voltage High	Bus Voltage	Volt	40/60 (56.5)	basic
	The bus voltage over which th	e alarm 'DC Bus	Voltage Hi	gh' is set.	•
7		h Bus Voltage	Volt	0/5 (0.5)	basic
	The voltage hysteresis on the	alarm 'DC Bus \	oltage Higl	n	
8	DC Bus Voltage Extra High	Bus Voltage	Volt	40/60 (58)	basic
	The bus voltage over which th	e alarm 'DC Bus	Voltage Ex	rtra High' is set.	•
9	DC Bus Voltage Extra Hig Hysteresis		Volt	0/5 (0.5)	basic
	The voltage hysteresis on the	alarm 'DC Bus \	/oltage Extr	a High	
10	LVD Disconnect Voltage	Bus Voltage	Volt	0/50 (43.2)	basic
	The dc bus voltage under whallows preserving the battery li	•			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		-1000/0 (-72)	basic
	The slope of the battery temporal 72mV/degree is often used.	erature compens	sation in m	//degree. For a 48V	system,
22	Maximum Positive Temperature Compensation	Temperature Compensatio n	Volt	0/10 (3)	basic
	The maximal allowed positive	compensation.			
23	Maximum Negative Temperature Compensation	Temperature Compensatio	Volt	-10/0 (-3)	basic
	The maximal allowed negative	compensation.	,	•	
25	Minimal Number Of Prese			0/100 (0)	basic
	Rectifiers				

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	rectifiers, the alarm 'Missing Red	ctifiers' is set.			
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 which 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		·	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 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		
53	Boost Termination Voltage	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 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 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

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		the batte	ery test is not			attery test. If this par user can remotely	
73	Battery Current	Test	Discharge	Battery Test	Ampere	3/100 (1000)	battery
	monitorin	ig regula		ltage in order to		during a battery is condition. The loa	
74	Battery Dischar	Test ge Curre		Battery Test	Ampere	2/90 (2)	battery
	The batte too low.	ery curre	nt under which	the battery te	st must be	stopped because the	ne load is
75	Battery 7	Test Tim	e Out	Battery Test	minute	1/5000 (10)	battery
	The time	out in mii	nute after whic	h the battery te	st must be	stopped.	
76	Battery Minutes Failure	Test With	•	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 n	y Boolean	Smart Energy		121-125	asset
	This is the of rectified			nich allows or n	ot to auton	natically optimize the	e number
86	Battery I	_VD Nod	e 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 Ir	put 1 Na	ame	Digital Inputs		Distribution Breaker Open	basic
	The nam	e of the o	digital 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 Ir	put 2 Na	ame	Digital Inputs		Battery Breaker Open	basic
	The nam	e of the c	digital 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 Ir	put 3 Na	ame	Digital Inputs		Digital Input 3	basic
	The nam	e of the c	digital input 3				
96	Digital Closed	Input	3 Normally	Digital Inputs		True/False (True)	basic
				digital input 3 ed alarm is set		closed. If this digita	al input is
97	Digital Ir	put 4 Na	ame	Digital Inputs		Digital Input 4	basic
	The nam	e of the c	digital input 4				
98	Digital Closed	Input	4 Normally	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 digital	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 rela			closed. If this digital	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 rela			closed. If this digital	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 rela			closed. If this digital	al input is
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 rela	•	•	closed. If this digital	al input is
111	Dry Alarm 1 Alternative Boolean Condition	Dry Alarms		False	plc
	Boolean Sonation	l .			
	Another Boolean condition to a condition is detailed in the PLC		larm relay	1. The way to define	e boolean
112	Another Boolean condition to a condition is detailed in the PLC	chapter.	larm relay	1. The way to define	e boolean plc
112	Another Boolean condition to a condition is detailed in the PLC Dry Alarm 2 Alternative	chapter. Dry Alarms ctivate the dry a		False	plc
112	Another Boolean condition to a condition is detailed in the PLC Dry Alarm 2 Alternative Boolean Condition Another Boolean condition to a condition is detailed in the PLC	chapter. Dry Alarms ctivate the dry a		False	plc
	Another Boolean condition to a condition is detailed in the PLC Dry Alarm 2 Alternative Boolean Condition Another Boolean condition to a condition is detailed in the PLC Dry Alarm 3 Alternative	chapter. Dry Alarms ctivate the dry a chapter. Dry Alarms ctivate the dry a	llarm relay :	False 2. The way to define False	plc e boolean plc
	Another Boolean condition to a condition is detailed in the PLC Dry Alarm 2 Alternative Boolean Condition Another Boolean condition to a condition is detailed in the PLC Dry Alarm 3 Alternative Boolean Condition Another Boolean condition to a condition is detailed in the PLC	chapter. Dry Alarms ctivate the dry a chapter. Dry Alarms ctivate the dry a	llarm relay :	False 2. The way to define False	plc e boolean plc
113	Another Boolean condition to a condition is detailed in the PLC Dry Alarm 2 Alternative Boolean Condition Another Boolean condition to a condition is detailed in the PLC Dry Alarm 3 Alternative Boolean Condition Another Boolean condition to a condition is detailed in the PLC Dry Alarm 4 Alternative Dry Alarm 4 Alternative	chapter. Dry Alarms ctivate the dry a chapter. Dry Alarms ctivate the dry a chapter. Dry Alarms chapter. Dry Alarms ctivate the dry a chapter. Ctivate the dry a chapter.	larm relay :	False 2. The way to define False 3. The way to define False	plc e boolean plc e boolean
113	Another Boolean condition to a condition is detailed in the PLC Dry Alarm 2 Alternative Boolean Condition Another Boolean condition to a condition is detailed in the PLC Dry Alarm 3 Alternative Boolean Condition Another Boolean condition to a condition is detailed in the PLC Dry Alarm 4 Alternative Boolean Condition Another Boolean condition Another Boolean condition to a	chapter. Dry Alarms ctivate the dry a chapter. Dry Alarms ctivate the dry a chapter. Dry Alarms chapter. Dry Alarms ctivate the dry a chapter. Ctivate the dry a chapter.	larm relay :	False 2. The way to define False 3. The way to define False	plc e boolean plc e boolean
113	Another Boolean condition to a condition is detailed in the PLC Dry Alarm 2 Alternative Boolean Condition Another Boolean condition to a condition is detailed in the PLC Dry Alarm 3 Alternative Boolean Condition Another Boolean condition to a condition is detailed in the PLC Dry Alarm 4 Alternative Boolean Condition Another Boolean condition Another Boolean condition to a condition is detailed in the PLC	chapter. Dry Alarms ctivate the dry a chapter. Dry Alarms ctivate the dry a chapter. Dry Alarms ctivate the dry a chapter. Ctivate the dry a chapter. Ctivate the dry a chapter. Sensors	llarm relay	False 2. The way to define False 3. The way to define False 4. The way to define	plc e boolean plc plc boolean plc basic
113	Another Boolean condition to a condition is detailed in the PLC Dry Alarm 2 Alternative Boolean Condition Another Boolean condition to a condition is detailed in the PLC Dry Alarm 3 Alternative Boolean Condition Another Boolean condition to a condition is detailed in the PLC Dry Alarm 4 Alternative Boolean Condition Another Boolean condition Another Boolean condition to a condition is detailed in the PLC Ambient Temperature Low	chapter. Dry Alarms ctivate the dry a chapter. Dry Alarms ctivate the dry a chapter. Dry Alarms ctivate the dry a chapter. Ctivate the dry a chapter. Ctivate the dry a chapter. Sensors	llarm relay	False 2. The way to define False 3. The way to define False 4. The way to define	plc e boolean plc plc boolean plc basic
113 114 131	Another Boolean condition to a condition is detailed in the PLC Dry Alarm 2 Alternative Boolean Condition Another Boolean condition to a condition is detailed in the PLC Dry Alarm 3 Alternative Boolean Condition Another Boolean condition to a condition is detailed in the PLC Dry Alarm 4 Alternative Boolean Condition Another Boolean condition Another Boolean condition to a condition is detailed in the PLC Boolean Condition Another Boolean condition to a condition is detailed in the PLC Ambient Temperature Low The temperature under which the condition is detailed in the place of the period of	chapter. Dry Alarms ctivate the dry a chapter. Sensors ne alarm 'Ambia Sensors	llarm relay a	False 2. The way to define False 3. The way to define False 4. The way to define ature Too Low' must	plc e boolean plc e boolean plc boolean basic basic basic
113 114 131	Another Boolean condition to a condition is detailed in the PLC Dry Alarm 2 Alternative Boolean Condition Another Boolean condition to a condition is detailed in the PLC Dry Alarm 3 Alternative Boolean Condition Another Boolean condition to a condition is detailed in the PLC Dry Alarm 4 Alternative Boolean Condition Another Boolean condition Another Boolean condition to a condition is detailed in the PLC Ambient Temperature Low The temperature under which the Ambient Temperature High	chapter. Dry Alarms ctivate the dry a chapter. Sensors ne alarm 'Ambia Sensors ne alarm 'Ambia	llarm relay a	False 2. The way to define False 3. The way to define False 4. The way to define ature Too Low' must	plc e boolean plc e 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 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, th	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 mi	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 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
	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 standard the PLC Alarm	he alarm Boolean

Con	trol 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.			

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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	set, the
51	Save Configuration In MCU	Save	basic
	Save configuration parameters in the MCU microconthe 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 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 the	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	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	, Groups and Subgroups to	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>	<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			

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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	rm 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 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 Voltag alarm: 'DC Bus Voltage Extra High Hyster	e Extra High'. There is a				
5	DC Bus Voltage Sense Failure	major (6)	1 / 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 greater than 0.	0 and the number of rect	ifiers 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 pmaster type is 30110, 3096 or 3048M6, at 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 with 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	to the configuration pa	arameter : 'Minimal			

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	Number Of Rectifier'					
13	Battery Last Test Failed	minor (4)	5 / 2			
	The last battery test did not succeed and was not cancelled. Maybe the battery should be replaced.					
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 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 parameters.					
19	Battery Temperature Too Low	minor (4)	5/2			
	The temperature of the battery is too low a hysteresis corresponding to battery parameters					
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			
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		igital 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		igital 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		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 divided by the installed power, in %.						

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_			1 .	1
13	Minutes Since Last AC Failure Begin	1	minute	basic
	The number of minute since the last AC			
14	Minutes Since Last AC Failure End	General	minute	basic
	The number of minute since the last AC	1		1
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	1	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	J.		Daoio
36	Number Of DC-Fail Rectifier	Rectifiers		basic
	The actual number or rectifier with DC F			Daoio
37	Number Of Remote Off Rectifier	Rectifiers		basic
-	The actual number or rectifier in remote	1		D40.0
38	Number Of Over Temperature	_		basic
	Rectifier			Daoio
	The actual number or rectifier in OVer T	<u> </u>		ı
51	Load Power	Load	Watt	basic
	Estimation of the load power consumption	on	1	
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 curred discharging	nt. A negative value	means that the ba	attery is
62	Battery Input Power	Battery	Watt	basic
-	Measurement of the battery input power	•	L.	
71	discharging 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_	ON_GOING,	FAILED_TIM	MEOUT,

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	FAILED CANCELED, FAILED LVD OF	PENED		
73	Battery Test Discharged Capacity	1	%	basic
	Ratio	<u> </u>		<u> </u>
	This is the battery capacity, in percent, value is updated at the end of the battery		the last battery te	est. 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		
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			
121	Efficiency Optimized Number Of Rectifier	Smart Energy		asset
	The optimal number of ON rectifier for E	fficiency Optimization	n .	•
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		

Con	Config Table						
<u>ld</u>	<u>Name</u>	<u>Group</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 the system at 25 Celsius degree						
2	DC Bus Voltage Extra Low	Bus Voltage	Volt	40/60 (45)	basic		

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	The bus voltage under which the	e alarm 'DC Bu	s Voltage E	xtra Low' is set.		
3	DC Bus Voltage Extra Low		Volt	0/5 (1)	basic	
	Hysteresis					
	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	Bus Voltage	Volt	0/5 (0.5)	basic	
	Hysteresis	_		, ,		
	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	ı 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			. ,	34310	
9	DC Bus Voltage Extra High		Voltage	0/5 (0.5)	basic	
	Hysteresis			(0.0)	24310	
	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				bus. This	
	allows preserving the battery life		be unpowe	red.	T	
11	LVD Disconnect Delay	Bus Voltage	second	1/2000 (1)	basic	
	The delay in second before disconnecting the battery if the dc bus voltage is under the configured disconnected voltage. This avoids disconnection during a low bus transient.					
01					1	
21	Temperature Compensation Slope	Compensatio	mv/aegre e	-1000/0 (-72)	basic	
	Clope	n				
	The slope of the battery temper	ature compens	ation in mv	degree. For a 48V	system, -	
	72mV/degree is often used.			_		
22		Temperature	Volt	0/10 (3)	basic	
	Temperature Compensation	Compensatio n				
	The maximal allowed positive co	l				
23	<u>'</u>	Temperature	Volt	-10/0 (-3)	basic	
	Temperature Compensation	Compensatio	VOIL	10/0 (0)	Dasio	
		n [']				
	The maximal allowed negative of	ompensation.				
25	Minimal Number Of Present Rectifiers	Rectifiers		0/100 (0)	basic	
	The minimal number of rectifi	er which mus	t be prese	nt. If there is less	present	
	rectifiers, the alarm 'Missing Red					
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	
<u> </u>	=		J	13.3, 1333 (1333)	200.0	

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	The maximal battery current we the bus voltage in order to sat nominal battery capacity divides	isfy this condition			
32	Battery String Capacity	Battery	Ah	3/1000 (100)	basic
	The battery capacity in Ah.	<u>,</u>		[()	
33	Battery Temperature Low	Battery	degree C	-100/20 (0)	basic
	The temperature under which the			. ,	
34	Battery Temperature High	Battery	, '	5/100 (40)	basic
	The temperature over which the	•		, ,	
35	Battery Temperature Hysteresis		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 (3)	basic
	The minimal discharging currer	t to set the 'Bat	tery On Dis	charge' alarm.	
37	Current Hysteresis Fo Discharging Alarm	r Battery	Ampere	0/50 (1)	basic
	The hysteresis on the 'Battery (On Discharge' a	larm.	1	_
51	Boost Automatic	Boost		False/False (False)	battery
52	The boost mode must be autobus voltage went under the charging the battery faster. Boost Activation Low Voltage	onfigured 'Boo			
32		_	1	. ,	Dallery
53	The voltage under which the bo Boost Termination Voltage	Boost	Volt	50/58 (56.4)	battery
33	The voltage over which the sys			\ /	Dallery
54	Boost Termination Current	Boost	Ampere	0/100 (4)	battery
54	The battery charging current ur		<u> </u>	. ,	
55	Boost Termination Time	Boost	minute	10/240 (120)	battery
55	The time in minute after which t			\ /	battery
70	Battery Test End Voltage	Battery Test	Volt	30/60 (46)	battery
	The voltage at which any batter	_ · ·		00/00 (10)	battory
71	Battery Test Discharge Ratio	•	%	0/100 (0)	battery
	The ratio of the battery capaci discharged during the test			. ,	
72	Battery Test Interval	Battery Test	day	0/3000 (0)	battery
	The number of days between to set to 0, the battery test is not start or force this test.	wo automatically	y started ba	ttery test. If this par	ameter is
73	Battery Test Discharge Current	Battery Test	Ampere	3/100 (1000)	battery
	The current at which the bar monitoring regulates the bus vo must be of course higher than t	oltage in order t			
74	Battery Test Minima Discharge Current	Battery Test	Ampere	2/90 (2)	battery

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	The best on a comment on along orders				l	
	The battery current under which 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	,	minute	0/5000 (1440)	battery	
	The minimal time in minute with			_	tart. This	
00	parameter is not taken into acco		allery lest r			
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 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		ı	
91	Digital Input 1 Name	Digital Inputs	, -	Distribution Breaker Open	basic	
	The name of the digital input 1			•		
92		Digital Inputs		True/False (True)	basic	
	True/False value defining if the	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 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	Digital inputs		p.g.ta. mpar o	J	
96		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	1 -9		j g.:	1 2.2.0	
98		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 Alarms		False	plc	
	Another Boolean condition to accondition is detailed in the PLC		larm relay	1. The way to define	boolean	
112		Dry Alarms		False	plc	
	Another Boolean condition to accondition is detailed in the PLC		larm relay 2	2. The way to define	boolean	

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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	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		larm relay 4	1. The way to define	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	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	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 ese functionaliti	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	ıdded in th n Name ar	ne alarm table. The nd the PLC Alarm	ne alarm Boolean

Cor	ntrol 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 r	node.					
2	Start Battery Test	DC Mode	battery				
	The dc system must start a battery test.	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				

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	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 alarn 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	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 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 none. The event name is the text writte to this control element						
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	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			
Software Reference	SOFT 000042 XX			
Equipment Type	Monitoring Control Unit			
ETSI Level	/site/energy_system/dc_system			

Description Table					
<u>Id</u>	<u>Name</u>	<u>Group</u>	<u>License</u>		
1	Description	Description	basic		

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	A free text zone to write a system 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			

Ala.	ma Tabla		
Alar Id	m Table Name	Savarity Type (Lavel)	Set/Clear Delay
<u>10</u> 1	DC Bus Extra Low	Severity Type (Level)	5 / 2
	The bus voltage is extra low. The alarm is	major (6)	17.
	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)	1/2
	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 failure is greater than 0. Some rectifiers a open breaker, a real phase failure, or by a re	are 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		

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10	One Rectifier Failure	minor (4)	5 / 2			
10	One rectifier must be replaced or is not po					
	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			
	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'	to the configuration pa	rameter : 'Minima			
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 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 parameters.					
19	Battery Temperature Too Low	minor (4)	5 / 2			
	The temperature of the battery is too low a hysteresis corresponding to battery parameters					
20	Battery Temperature Sensor Fail	minor (4)	5 / 2			
	The battery temperature sensor (NTC) value not connected or defective.	e is inferior to -500 unit	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.	piant temperature hyster	esis'. 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	esis'. This alarm is 0948, 0548, 0348,			
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			

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27	Digital Input 3	I	none (0)		5 / 2
	This alarm is related to digital input 3. different to configuration parameter 'Digi				gital input value is
28	Digital Input 4	I	none (0)		5 / 2
	This alarm is related to digital input 4. different to configuration parameter 'Digi				gital input value is
29	Digital Input 5	l	none (0)		5 / 2
	This alarm is related to digital input 5. This alarm is activated if digital input value is different to configuration parameter 'Digital Input Alarm Value'				
30	Digital Input 6	l	none (0)		5 / 2
	This alarm is related to digital input 6. different to configuration parameter 'Digi				gital input value is
31	Digital Input 7	l	none (0)		5 / 2
	This alarm is related to digital input 7. different to configuration parameter 'Digi				gital input value is
32	Digital Input 8	I	none (0)		5 / 2
	This alarm is related to digital input 8. different to configuration parameter 'Digi				gital input value is

Data	Table					
<u>Id</u>	Name	Group	Unit	Licens		
<u>10</u>	<u>Name</u>	<u>Croup</u>	<u>Orm</u>	<u>e</u>		
1	DC Mode	General		basic		
	The DC system can have 4 valu 'AC_FAILURE' or SAFE	es: 'FLOAT', 'BOO	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 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 curren	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		

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	The actual number of present rectifier in	this dc system		
33	Number Of Absent Rectifier	Rectifiers		basic
24	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.		
38	Number Of Over Temperature Rectifier	Rectifiers		basic
	The actual number or rectifier in OVer To	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	1		
72	Battery Test State	Battery		basic
	This is about the result of the la NEVER_TESTED, SUCCESS, FAILED_VBUS_TOO_LOW, FAILED_LVD_OF	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		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 b		ring the last batte	ery test.
75	Battery Test Final Voltage	Battery	%	basic
	This is the bus voltage at the end of the		is value is update	d at the

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Previous Battery Test State Battery Desicon The result of the previous battery test		end of the battery test.			
The result of the previous battery test Minutes Since Last Test Battery The number of minute without battery test Pattery Charge Capacity The battery Charge capacity, calculated by integration of the current. Pattery Charge capacity, calculated by integration of the current. Calculated Autonomy Battery Calculation of the remaining autonomy Battery Current Integration Actual value of the integration of the current, in Ampere * second Battery Current Integration Battery Actual value of the integration of the current, in Ampere * hour LVD State Actual value of the LVD LVD State Actual state of the LVD Efficiency Optimized Number Of Smart Energy Rectifier The optimal number of ON rectifier for Efficiency Optimization 122 System Loss Without Optimisation Smart Energy Watt Under dev Estimation of the losses without optimisation 123 System Loss With Optimisation Smart Energy Watt Under dev Estimation of the losses with optimisation 124 Rectifier Model Used For Calculation Smart Energy The rectifier model used 125 Smart Energy Savings Smart Energy Smart Energy Savings Smart Energy Smart Energy Savings Smart Energy The rectifier model used 126 Voltage Sense 1 Sensors Volt Sensors Volt Spasic The voltage measured by the sense 1. Can be used for battery symmetry measurement. Calculation can be done with the PLC Voltage Sense 2 Sensors Volt Spasic The voltage measured by the sense 2. Can be used for battery symmetry measurement. Calculation can be done with the PLC Voltage Sense 3 Sensors Volt Sensors Volt Spasic The voltage measured by the sense 2. Can be used for battery symmetry measurement. Calculation can be done with the PLC Voltage Sense 3 Sensors Volt Sensors Volt Spasic The voltage measured by the sense 3. Can be used for battery symmetry measurement. Calculation can be done with the PLC Voltage Sense 3 Sensors Volt Sensors Volt Spasic	Q1		Rattory		hacio
Minutes Since Last Test Battery Battery The number of minute without battery test	01	-	Dattery		Dasic
The number of minute without battery test Battery Charge Capacity The battery charge capacity, calculated by integration of the current. Calculation of the remaining autonomy Calculation of the remaining autonomy Battery Current Integration Actual value of the integration of the current, in Ampere * second Battery Current Integration Battery Actual value of the integration of the current, in Ampere * hour LVD State Actual value of the integration of the current, in Ampere * hour LVD State Actual state of the LVD Efficiency Optimized Number Of Smart Energy Rectifier The optimal number of ON rectifier for Efficiency Optimization 122 System Loss Without Optimisation Smart Energy Watt under dev Estimation of the losses with optimisation System Loss With Optimisation Smart Energy Watt under dev Estimation of the losses with optimisation 124 Rectifier Model Used For Calculation Smart Energy Estimation of the losses with optimisation 125 Smart Energy Savings Smart Energy Smart Energy Savings Estimation of the losses with optimisation 126 Smart Energy Savings Smart Energy Estimation of the losses with optimisation 127 Ambient Temperature Sensors Volt basic The ambiant temperature (second temperature sense) 128 Voltage Sense 1 Sensors Volt basic The voltage measured by the sense 1. Can be used for battery symmetry measurement. Calculation can be done with the PLC Voltage Sense 2 Sensors Volt basic The voltage measured by the sense 2. Can be used for battery symmetry measurement. Calculation can be done with the PLC Voltage Sense 3 Sensors Volt basic The voltage measured by the sense 3. Can be used for battery symmetry measurement. Calculation can be done with the PLC Digital Input 4 Counter Sensors Sensors Sensors Volt basic	82	·	Rattery		hasic
Battery Charge Capacity	02	-	•		Dasic
The battery charge capacity, calculated by integration of the current. Pattern	91	-		%	basic
Calculated Autonomy Battery minute basic			•	1	Daoi0
Calculation of the remaining autonomy Battery Current Integration Actual value of the integration of the current, in Ampere * second Battery Current Integration Battery Actual value of the integration of the current, in Ampere * second Battery Current Integration Battery Actual value of the integration of the current, in Ampere * hour LVD State Actual state of the LVD 121 Efficiency Optimized Number Of Smart Energy Rectifier The optimal number of ON rectifier for Efficiency Optimization 122 System Loss Without Optimisation Smart Energy Watt under dev Estimation of the losses without optimisation 123 System Loss With Optimisation Smart Energy Watt under dev Estimation of the losses with optimisation 124 Rectifier Model Used For Calculation Smart Energy Watt under dev Estimation of the losses with optimisation 125 Smart Energy Savings Smart Energy Watt asset Estimation of the losses with optimisation 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 sense 1. Can be used for battery symmetry measurement. Calculation can be done with the PLC 162 Voltage Sense 2 Sensors Volt basic The voltage measured by the sense 2. Can be used for battery symmetry measurement. Calculation can be done with the PLC 163 Voltage Sense 3 Sensors Volt basic The voltage measured by the sense 3. Can be used for battery symmetry measurement. Calculation can be done with the PLC 164 Digital Input 4 Counter Sensors basic	92		1		basic
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Actual value of the integration of the current, in Ampere * second 94 Battery Current Integration Battery Ah basic Actual value of the integration of the current, in Ampere * hour 101 LVD State	93	-	Battery	As	basic
Battery Current Integration Battery Ah basic			•	ond	
Actual value of the integration of the current, in Ampere * hour 101 LVD State	94	<u> </u>			basic
Actual state of the LVD 121 Efficiency Optimized Number Of Smart Energy Rectifier The optimal number of ON rectifier for Efficiency Optimization 122 System Loss Without Optimisation Smart Energy Watt under dev Estimation of the losses without optimisation 123 System Loss With Optimisation Smart Energy Watt under dev Estimation of the losses with optimisation 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 126 Smart Energy Savings Sensors degree C basic The ambiant temperature (second temperature sense) 127 Voltage Sense 1 Sensors Volt basic The voltage measured by the sense 1. Can be used for battery symmetry measurement. Calculation can be done with the PLC 128 Voltage Sense 2 Sensors Volt basic The voltage measured by the sense 2. Can be used for battery symmetry measurement. Calculation can be done with the PLC 129 Voltage Sense 3 Sensors Volt basic The voltage measured by the sense 2. Can be used for battery symmetry measurement. Calculation can be done with the PLC 139 Voltage Sense 3 Sensors Volt basic The voltage measured by the sense 3. Can be used for battery symmetry measurement. Calculation can be done with the PLC 140 Voltage Measured by the sense 3. Can be used for battery symmetry measurement. Calculation can be done with the PLC 150 Digital Input 4 Counter Sensors basic		Actual value of the integration of the cur		ir	
Efficiency Optimized Number Of Smart Energy Rectifier The optimal number of ON rectifier for Efficiency Optimization	101	LVD State	LVD		basic
Rectifier The optimal number of ON rectifier for Efficiency Optimization		Actual state of the LVD		•	
System Loss Without Optimisation Smart Energy Watt Under dev	121	1	Smart Energy		asset
Estimation of the losses without optimisation System Loss With Optimisation Smart Energy Watt under dev Estimation of the losses with optimisation Rectifier Model Used For Calculation Smart Energy asset The rectifier model used Smart Energy Savings Smart Energy Watt asset Estimation of the losses with optimisation 125 Smart Energy Savings Smart Energy Watt asset Estimation of the losses with optimisation 151 Ambient Temperature Sensors degree C basic The ambiant temperature (second temperature sense) Voltage Sense 1 Sensors Volt basic The voltage measured by the sense 1. Can be used for battery symmetry measurement. Calculation can be done with the PLC Voltage Sense 2 Sensors Volt basic The voltage measured by the sense 2. Can be used for battery symmetry measurement. Calculation can be done with the PLC Voltage Sense 3 Sensors Volt basic The voltage measured by the sense 3. Can be used for battery symmetry measurement. Calculation can be done with the PLC Voltage Sense 3 Sensors Volt basic The voltage measured by the sense 3. Can be used for battery symmetry measurement. Calculation can be done with the PLC Digital Input 4 Counter Sensors basic		The optimal number of ON rectifier for E	fficiency Optimization	า	
System Loss With Optimisation	122	System Loss Without Optimisation	Smart Energy	Watt	
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The rectifier model used Smart Energy Savings Estimation of the losses with optimisation 151 Ambient Temperature The ambiant temperature (second temperature sense) 161 Voltage Sense 1 The voltage measured by the sense 1. Can be used for battery symmetry measurement. Calculation can be done with the PLC 162 Voltage Sense 2 The voltage measured by the sense 2. Can be used for battery symmetry measurement. Calculation can be done with the PLC 163 Voltage Sense 3 Sensors Volt Sensors Volt basic The voltage measured by the sense 2. Can be used for battery symmetry measurement. Calculation can be done with the PLC 163 Voltage Sense 3 Sensors Volt basic The voltage measured by the sense 3. Can be used for battery symmetry measurement. Calculation can be done with the PLC 164 Voltage Sense 3 Sensors Volt basic The voltage measured by the sense 3. Can be used for battery symmetry measurement. Calculation can be done with the PLC 165 Digital Input 4 Counter Sensors basic	123	System Loss With Optimisation	Smart Energy	Watt	
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Smart Energy Savings Smart Energy Watt asset	124	Rectifier Model Used For Calculation	Smart Energy		asset
Estimation of the losses with optimisation 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 sense 1. Can be used for battery symmetry measurement. Calculation can be done with the PLC 162 Voltage Sense 2 Sensors Volt basic The voltage measured by the sense 2. Can be used for battery symmetry measurement. Calculation can be done with the PLC 163 Voltage Sense 3 Sensors Volt basic 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 rectifier model used			
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The voltage measured by the sense 2. Can be used for battery symmetry measurement. Calculation can be done with the PLC 163 Voltage Sense 3 Sensors Volt basic 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		, , , , , , , , , , , , , , , , , , , ,		d for battery	symmetry
measurement. Calculation can be done with the PLC Voltage Sense 3 Sensors Volt basic The voltage measured by the sense 3. Can be used for battery symmetry measurement. Calculation can be done with the PLC Digital Input 4 Counter Sensors basic	162				
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				d for battery	symmetry
measurement. Calculation can be done with the PLC 204 Digital Input 4 Counter Sensors basic	163	Voltage Sense 3	Sensors	Volt	basic
				d for battery	symmetry
The counter value of the digital input 4.	204	Digital Input 4 Counter	Sensors		basic
		The counter value of the digital input 4.			

Conf	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	Bus Voltage	Volt	20/30 (27)	basic

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	degC				
	The floating dc bus voltage of th	e system at 25	Celsius de	oree	
2		Bus Voltage	Volt	20/30 (22)	basic
	The bus voltage under which the	alarm 'DC Bu	s Voltage E	. ,	I
3	DC Bus Voltage Extra Low		Volt	0/2 (0)	basic
	Hysteresis			,	
	The voltage hysteresis on the al	arm 'DC Bus V	oltage Extra	a Low'.	
4	DC Bus Voltage Low	Bus Voltage	Volt	20/30 (24)	basic
	The bus voltage under which the	e alarm 'DC Bus	s Voltage L	ow' is set.	
5	•	Bus Voltage	Volt	0/2 (0.25)	basic
	Hysteresis		1. 1		
	The voltage hysteresis on the al			I/ /\	l
6	DC Bus Voltage High	Bus Voltage	Volt	20/30 (28.25)	basic
_	The bus voltage over which the	1		î .	
7	DC Bus Voltage High Hysteresis	Bus Voltage	Volt	0/2 (0.25)	basic
	The voltage hysteresis on the al	 	oltage High		
8	<u> </u>	Bus Voltage	Volt	20/30 (29)	basic
	The bus voltage over which the		l .	` '	Dasic
9	DC Bus Voltage Extra High	1	Voltage	0/2 (0.25)	basic
	Hysteresis	Bas Vollage	VOIC	0.20)	basio
	The voltage hysteresis on the al	arm 'DC Bus V	oltage Extra	a High	I
10	LVD Disconnect Voltage	Bus Voltage	Volt	0/25 (21.6)	basic
	The dc bus voltage under which	the battery	must be di	sconnected of the	bus. This
	allows preserving the battery life		be unpowe	red.	
11		Bus Voltage	second	1/1000 (1)	basic
	The delay in second before disc				
01	configured disconnected voltage				
21	Temperature Compensation Slope	Compensatio		[-500/0 (-36)	basic
		n			
	The slope of the battery tempera	ature compens	ation in mv	degree. For a 48V	system, -
	72mV/degree is often used.	·			
22		Temperature	Volt	0/5 (1)	basic
	Temperature Compensation	Compensatio			
	The maximal allowed positive as	n			
23	The maximal allowed positive co	Temperature	Volt	5/0 / 1)	basis
23	Temperature Compensation	Compensatio	VOIL	-5/0 (-1)	basic
	romporatare componedation	n			
	The maximal allowed negative of	ompensation.	l		
25	Minimal Number Of Present			0/100 (0)	basic
	Rectifiers				
	The minimal number of rectifi		t be prese	nt. If there is less	present
	Iractitions the clarm ! Missing Dag	ctifiers' is set.			
	rectifiers, the alarm 'Missing Red				
26	Rectifier Model	Rectifiers			basic
26 27	Rectifier Model The rectifier model				basic basic

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	A list of rectifier which are force			of the rectifier must	be coma
04	separated. Ex: 1,3 will maintain		1	0.5(4.000 (4.000)	la:-
31	Battery Charge Current Limit		Ampere	0.5/1000 (1000)	basic
	The maximal battery current w the bus voltage in order to sati				
	nominal battery capacity divided	•	ni. Tilis pa	rameter is often eq	uai to tric
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	be set.
34	Battery Temperature High	Battery	degree C	5/100 (40)	basic
	The temperature over which the		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.				ature Too
36	Minimal Current For Discharging Alarm	Battery	Ampere	0/1000 (3)	basic
	The minimal discharging curren	t to set the 'Bat	tery On Dis	charge' alarm.	
37		Battery	Ampere	0/50 (1)	basic
	Discharging Alarm	<u> </u>			
44	The hysteresis on the 'Battery C			05/5000 (050)	l
41	Shunt Rating At 60mV	Battery	Ampere	25/5000 (250)	basic
51	The rating of the battery shunt a Boost Automatic	Boost		False/False	battery
J 1	boost Automatic	Boost		(False)	ballery
	The boost mode must be auto				
	bus voltage went under the charging the battery faster.	onfigured 'Boos	st Activatio	n Low Voltage'. If	ns allows
52	Boost Activation Low Voltage	Roost	Volt	21/25 (23)	battery
<u> </u>	The voltage under which the bo		l .	\ /	battery
53	Boost Termination Voltage	Boost	Volt	25/29 (28.2)	battery
	The voltage over which the syst	1		. ,	battory
54	Boost Termination Current	Boost	Ampere	0/100 (4)	battery
	The battery charging current un	1		. ,	
55	Boost Termination Time	Boost	minute	10/240 (120)	battery
	The time in minute after which t	1	t go back in	, ,	
70	Battery Test End Voltage	Battery Test	Volt	15/30 (23)	battery
	The voltage at which any batter	y 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 tv		, ,	. ,	
	set to 0, the battery test is not start or force this test.	started automa	tically. The	user can remotely	or locally
73	Battery Test Discharge Current	Battery Test	Ampere	3/100 (1000)	battery

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The current at which the battery must be discharged during a battery test. The monitoring regulates the bus voltage in order to satisfy this condition. The load currer must be of course higher than this parameter. 74 Battery Test Minimal Battery Test Ampere 2/90 (2) battery Discharge Current The battery current under which the battery test must be stopped because the load is too low. 75 Battery Test Time Out Battery Test minute 1/5000 (10) battery The timeout in minute after which the battery test must be stopped. 76 Battery Test Requested Minutes Without Mains Failure The minimal time in minute without mains failure in order to allow a battery start. Thi parameter is not taken into account when the battery test is forced. 83 Smart Energy Boolean Smart Energy 121-125 asset Condition This is the boolean condition which allows or not to automatically optimize the number of rectifier in remote off. 86 Battery LVD Node Id LVD True/False (False) basic This is a list of the node id of the Smart Electronic LVDs, coma separated 91 Digital Input 1 Name Digital Inputs Distribution Breaker Open The name of the digital input 1 92 Digital Input 1 Normally Digital Inputs Distribution Breaker Open True/False value defining if the digital input 1 is normally closed. If this digital input in not in this default state, the related alarm is set. 93 Digital Input 2 Normally Digital Inputs Battery Breaker basic Open The name of the digital input 2 94 Digital Input 2 Normally Digital Inputs Digital Input 3 basic True/False value defining if the digital input 2 is normally closed. If this digital input in ont in this default state, the related alarm is set. 95 Digital Input 3 Normally Digital Inputs Digital Input 3 basic True/False (True) basic Closed True/False value defining if the digital input 2 is normally closed. If this digital input in ont in this default state, the related alarm is set. 96 Digital Input 4 Normally Digital Inputs Digital Input 4 basic True/False (True) basic Closed True/False value defining						
Discharge Current The battery current under which the battery test must be stopped because the load is too low. Battery Test Minute 1/5000 (10) battery The timeout in minute after which the battery test must be stopped.		monitoring regulates the bus vo must be of course higher than th	Itage in order to nis parameter.	o satisfy thi	s condition. The loa	d current
too low. Battery Test Time Out Battery Test minute 1/5000 (10) battery The timeout in minute after which the battery test must be stopped.	74		Battery Test	Ampere	2/90 (2)	battery
The timeout in minute after which the battery test must be stopped. Battery Test Requested Minutes Without Mains Fallure The minimal time in minute without mains failure in order to allow a battery start. Thi parameter is not taken into account when the battery test is forced. Smart Energy Boolean Smart Energy 121-125 asset Condition This is the boolean condition which allows or not to automatically optimize the number of rectifier in remote off. Battery LVD Node Id LVD True/False (False) basic This is a list of the node id of the Smart Electronic LVDs, coma separated 10 Digital Input 1 Name Digital Inputs Distribution Breaker Open True/False value defining if the digital input 1 is normally closed. If this digital input in not in this default state, the related alarm is set. 10 Digital Input 2 Name Digital Inputs Battery Breaker basic Open True/False value defining if the digital input 2 is normally closed. If this digital input into in this default state, the related alarm is set. 10 Digital Input 2 Normally Digital Inputs True/False (True) basic Closed True/False value defining if the digital input 2 is normally closed. If this digital input into in this default state, the related alarm is set. 11 Digital Input 3 Normally Digital Inputs Digital Input 3 basic The name of the digital input 3 Digital Input 5 Digital Input 4 basic Closed True/False value defining if the digital input 5 Digital Input 4 basic True/False value defining if the digital input 5 Digital Input 4 basic True/False value defining if the digital input 5 Digital Input 4 Digital Input 5 Digital Input 4 Digital Input 5 Digital Input 4 Digital Input 5 Digital Input 5 Digital Input 5 Digital Input 5 Digital Input 6 Digital Input 7 Digital Input 8 Digital Input 8 Digital Input 8 Digital Input 9 Digital			·	st must be	stopped because th	ne load is
Battery Test Requested Battery Test minute 0/5000 (1440) battery battery The minimal time in minute without mains failure in order to allow a battery start. Thi parameter is not taken into account when the battery test is forced. Samart Energy Boolean Smart Energy 121-125 asset Condition	75	Battery Test Time Out	Battery Test	minute	1/5000 (10)	battery
Minurés Without Mains Failure				st must be	stopped.	<u>, </u>
parameter is not taken into account when the battery test is forced. Smart	76	Minutes Without Mains		minute	0/5000 (1440)	battery
Condition		parameter is not taken into acco	ount when the b		-	tart. This
of rectifier in remote off. 86 Battery LVD Node Id LVD True/False (False) basic This is a list of the node id of the Smart Electronic LVDs, coma separated 91 Digital Input 1 Name Digital Inputs Distribution Breaker Open The name of the digital input 1 92 Digital Input 1 Normally Digital Inputs True/False (True) basic Closed True/False value defining if the digital input 1 is normally closed. If this digital input in not in this default state, the related alarm is set. 93 Digital Input 2 Name Digital Inputs Battery Breaker basic Open The name of the digital input 2 94 Digital Input 2 Normally Digital Inputs True/False (True) basic Closed True/False value defining if the digital input 2 is normally closed. If this digital input in not in this default state, the related alarm is set. 95 Digital Input 3 Name Digital Inputs Digital Inputs Digital Input 3 basic The name of the digital input 3 96 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 in not in this default state, the related alarm is set. 97 Digital Input 4 Normally Digital Inputs Digital Input 4 basic The name of the digital input 4 98 Digital Input 4 Normally Digital Inputs True/False (True) basic Closed True/False value defining if the digital input 5 Input 5 in not in this default state, the related alarm is set. 99 Digital Input 5 Name Digital Inputs Digital Input 5 basic The name of the digital input 5	83		Smart Energy		121-125	asset
This is a list of the node id of the Smart Electronic LVDs, coma separated Digital Input 1 Name				ot to auton	natically optimize the	e number
Digital Input 1 Name Digital Inputs Distribution Breaker Open	86	Battery LVD Node Id	LVD		True/False (False)	basic
The name of the digital input 1 Prue/False value defining if the digital input 1 is normally closed. If this digital input in not in this default state, the related alarm is set. Digital Input 2 Normally Digital Inputs Battery Breaker basic Open The name of the digital input 2 Digital Input 2 Normally Digital Inputs True/False (True) basic Closed True/False value defining if the digital input 2 is normally closed. If this digital input in not in this default state, the related alarm is set. Digital Input 3 Name Digital Inputs Digital Input 3 basic The name of the digital input 3 Digital Input 3 Normally Digital Input 5 Digital Input 3 Normally Digital Input 3 is normally closed. If this digital input in not in this default state, the related alarm is set. Digital Input 3 Normally Digital Input 3 is normally closed. If this digital input in not in this default state, the related alarm is set. Digital Input 4 Name Digital Inputs Digital Input 4 basic The name of the digital input 4 Digital Inputs True/False (True) basic Closed True/False value defining if the digital Inputs Digital Input 4 basic True/False value defining if the digital Input 5 Digital Input 5 Name Digital Input 5 Digital		This is a list of the node id of the	Smart Electro	nic LVDs, c	oma separated	
Digital Input 1 Normally Digital Inputs True/False (True) Digital Input into the default state, the related alarm is set.	91	Digital Input 1 Name	Digital Inputs			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.		The name of the digital input 1				
Digital Input 2 Name	92		Digital Inputs		True/False (True)	basic
The name of the digital input 2 94 Digital Input 2 Normally Digital Inputs					closed. If this digita	al input is
Digital Input 2 Normally Digital Inputs True/False (True) Disciple	93	Digital Input 2 Name	Digital Inputs		_	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.		• .				
not in this default state, the related alarm is set. Digital Input 3 Name	94		Digital Inputs		True/False (True)	basic
The name of the digital input 3 Poigital 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. Poigital Input 4 Name Digital Inputs Digital Input 4 basic The name of the digital input 4 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. Digital Input 5 Name Digital Inputs Digital Input 5 basic The name of the digital input 5					closed. If this digita	al input is
Digital Input 3 Normally Digital Inputs True/False (True) basic	95	Digital Input 3 Name	Digital Inputs		Digital 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. 97 Digital Input 4 Name Digital Inputs Digital Input 4 basic The name of the digital input 4 98 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. 99 Digital Input 5 Name Digital Inputs Digital Input 5 basic The name of the digital input 5		The name of the digital input 3				
not in this default state, the related alarm is set. 97 Digital Input 4 Name Digital Inputs Digital Input 4 basic The name of the digital input 4 98 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 in not in this default state, the related alarm is set. 99 Digital Input 5 Name Digital Inputs Digital Input 5 basic The name of the digital input 5	96		Digital Inputs		True/False (True)	basic
The name of the digital input 4 98 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. 99 Digital Input 5 Name Digital Inputs Digital Input 5 basic The name of the digital input 5			0 1	,	closed. If this digita	al input is
98 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. 99 Digital Input 5 Name Digital Inputs Digital Input 5 basic The name of the digital input 5	97	Digital Input 4 Name	Digital Inputs		Digital 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. 99 Digital Input 5 Name The name of the digital input 5		The name of the digital input 4				
not in this default state, the related alarm is set. 99 Digital Input 5 Name Digital Inputs Digital Input 5 D	98		Digital Inputs		True/False (True)	basic
The name of the digital input 5				,	closed. If this digita	al input is
The name of the digital input 5	99				Digital Input 5	basic
400 Birth Land E Namell British A T (E.L. (E.) Li		The name of the digital input 5	· · · · · · · · · · · · · · · · · · ·	•	•	·
100 Digital Input 5 Normally Digital Inputs True/False (True) basic	100	Digital Input 5 Normally	Digital Inputs		True/False (True)	basic

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	Closed				
	True/False value defining if the	digital input 5 i	is normally	closed If this digits	l al innut is
	not in this default state, the relat			olosea. Il tilis algite	ii iiipat is
101	Digital Input 6 Name	Digital Inputs		Digital Input 6	basic
	The name of the digital input 6		I.		
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.	•	•	closed. If this digita	al input is
103	Digital Input 7 Name	Digital Inputs		Digital Input 7	basic
	The name of the digital input 7	1	T		1
104	Digital Input 7 Normally Closed	Digital Inputs		True/False (True)	basic
	True/False value defining if the not in this default state, the relati	ed alarm is set.		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	ı	T		г
106	Digital Input 8 Normally Closed	Digital Inputs		True/False (True)	basic
	True/False value defining if the not in this default state, the relationship.			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. The way to define	boolean
114		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			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 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 vnumbers are coma separated. T				

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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 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	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	orised between 10 a	nd 4000
901	Number Of PLC Data	PLC		(0)	plc
	The number of PLC data. Every data. Data elements are autiparameters are added to set to calculation. In order to use the module	tomatically add he 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 aparameters 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 alarm the PLC Alarm	he alarm Boolean

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			

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			1
	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
	Set Counter Value		
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 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 numbers 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	, Groups and Subgroups to	o default

7.2.4 MCU0348LP

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

Desc	Description 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 system monitoring						
16	Serial Number	Monitoring	asset				
	The serial number of the DC sy	stem monitoring					

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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					

Alar	m Table	
Id	Name	Severity Type (Level)
1	DC Bus Extra Low	major (6)
	The bus voltage is extra low. The alarm is set vonfiguration parameter 'DC Bus Voltage Extra alarm: 'DC Bus Voltage Extra Low Hysteresis' mode is BATTERY TEST	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 ligh 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 failure is greater than 0. Some rectifiers are in open breaker, a real phase failure, or by a rectifi	n AC Failure. It may be caused by an
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	
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	C 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 the Number Of Rectifier'	ne configuration parameter : 'Minimal
13	Battery Last Test Failed	minor (4)

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	The last battery test did not succeed and was	s not cancelled. Maybe the battery should
	be replaced.	
14	Battery On Discharge	minor (4)
	The battery is discharging. This means the rectifiers. This alarm is inactive when the syst There is an hysteresis corresponding to bahysteresis'.	tem in AC Failure or during a battery test.
17	Battery LVD Relay Open	major (6)
	The battery Low Voltage Disconnector is a signal, like MCU 1848 or MCU 1x6, the alarmasks to open the LVD	
18	Battery Temperature Too High	minor (4)
	The temperature of the battery is too high an hysteresis corresponding to battery parameter	
19	Battery Temperature Too Low	minor (4)
	The temperature of the battery is too low and hysteresis corresponding to battery parameter	•
20	Battery Temperature Sensor Fail	minor (4)
	The battery temperature sensor (NTC) value not connected or defective.	is inferior to -500 units meaning that it is
21	Ambient Temperature Too High	minor (4)
	The ambient temperature is too high and is hysteresis corresponding to parameter 'Ambia only activated on MCU master types 30110, 0948 and 3048M6.	ant temperature hysteresis'. This alarm is
22	Ambient Temperature Too Low	minor (4)
	The ambient temperature is too low and is hysteresis corresponding to parameter 'Ambia only activated on MCU master types 30110, 0948 and 3048M6.	ant temperature hysteresis'. This alarm is
23	Ambient Temperature Sensor Fail	minor (4)
	The ambiant temperature sensor (NTC) value not connected or defective.	e is inferior to -500 units meaning that it is
25	Distribution Breaker Open	major (6)
	This alarm is related to digital input 1. This different to configuration parameter 'Digital Input 1.	
26	Battery Breaker Open	minor (4)
	This alarm is related to digital input 2. This different to configuration parameter 'Digital Input 2.	
27	Digital Input 3	none (0)
	This alarm is related to digital input 3. This	
28	different to configuration parameter 'Digital Inp Digital Input 4	
40	This alarm is related to digital input 4. This	none (0)
00	different to configuration parameter 'Digital Inp	out Alarm Value'
29	Digital Input 5	none (0)
	This alarm is related to digital input 5. This different to configuration parameter 'Digital Input 1.	out Alarm Value'
30	Digital Input 6	none (0)

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This alarm is related to digital input 6. This alarm is activated if digital input value is different to configuration parameter 'Digital Input Alarm Value'

Data	Table						
Id	Name	Group	Unit	Licens			
				<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 d	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						
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	nt					
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 t	his 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 no		1	1			
35	Number Of AC-Fail Rectifier	Rectifiers		basic			
	The actual number or rectifier in AC Faile		1	T			
36	Number Of DC-Fail Rectifier	Rectifiers		basic			
	The actual number or rectifier with DC F	ailure.	1				
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.					

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E1	Lood Dower	Lood	Mott	boois
51	Load Power	Load	Watt	basic
	Estimation of the load power consumption		A	la a a : a
52	Load Current	Load	Ampere	basic
04	Estimation of the load current consumption	1	T.a.	1
61	Battery Input Current		Ampere	basic
	Measurement of the battery input currer discharging		T	
62	Battery Input Power	Battery	Watt	basic
	Measurement of the battery input power discharging	r. A negative value r	neans that the ba	attery is
71	Battery Temperature	Battery	degree C	basic
	The battery temperature	T	T	
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	ΙΕΟUT,
73	Battery Test Discharged Capacity	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 Ah	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	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	r	
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 Ef	fficiency Optimization	1	
122	System Loss Without Optimisation	Asset Data	Watt	asset
	The optimal number of ON rectifier for Ef	fficiency Optimization)]	.1
123	System Loss With Optimisation	Asset Data	Watt	asset
	The optimal number of ON rectifier for Et	fficiency Optimization	1	

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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.						

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 the	e system at 25	Celsius de	gree	ı
2	DC Bus Voltage Extra Low	Bus Voltage	Volt	40/60 (45)	basic
	The bus voltage under which the		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				T
4	DC Bus Voltage Low	Bus Voltage	Volt	40/60 (48)	basic
	The bus voltage under which the	l			T
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		ı
6		Bus Voltage	Volt	40/60 (56.5)	basic
	The bus voltage over which the		`		T
7	DC Bus Voltage High Hysteresis	Bus Voltage	Volt	0/5 (0.5)	basic
	The voltage hysteresis on the ala	arm 'DC Bus V	oltage High	<u> </u>	
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	. The load will	be unpowe	red.	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 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	0/10 (3)	basic
	The maximal allowed positive co	mpensation.			
23	Maximum Negative	Temperature	Volt	-10/0 (-3)	basic

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		I	1	T	1
	Temperature Compensation	Compensatio n			
	The maximal allowed negative of	ompensation.	1		1
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 w the bus voltage in order to satis nominal battery capacity divided	sfy this condition		rameter is often eq	
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	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 (0.5)	basic
	The minimal discharging current				
37	Current Hysteresis For Discharging Alarm	Battery	Ampere	0/50 (0.2)	basic
	The hysteresis on the 'Battery C	n Discharge' al	larm.		
51	Boost Automatic	Boost		False/False (False)	battery
	The boost mode must be autor bus voltage went under the concharging 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	, ,	
54	Boost Termination Current	Boost	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			, ,	1-2-0.1019
70	Battery Test End Voltage	Battery Test	Volt	30/60 (46)	battery
	The voltage at which any battery			100/00 (10)	Jaccory
71	· · · · · · · · · · · · · · · · · · ·	Battery Test	%	0/100 (0)	hattory
/ 1	pattery rest pistriarye natio	panery rest	/0	0/100 (0)	battery

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	The ratio of the battery capacit	y to discharge.	If 30 is se	et, 30% of the batte	ry will be
	discharged during the test	T	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	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 to	•	0	
74	Battery Test Minimal Discharge Current	Battery Test	Ampere	0.2/90 (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	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 frectifier in remote off.	nich allows or n	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	1	nic LVDs, c		_
91	Digital Input 1 Name	Digital Inputs		Distribution Breaker Open	basic
	The name of the digital input 1	1	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				
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	•	,	closed. If this digital	al input is
97	Digital Input 4 Name	Digital Inputs		Digital Input 4	basic

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	The nam	e of the	diait	al input 4				
98	Digital	Input		•	Digital Inputs		Truo/Eoloo /Truo	basic
90	Closed						,	
	True/Fal	se value s default	defii state	ning if the e, the relat	digital input 4 i ed alarm is set	is normally	closed. If this digita	al input is
99	Digital I	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
					digital input 5 i ed alarm is set.		closed. If this digita	al input is
101	Digital I	nput 6 N	ame		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
					digital input 6 led alarm is set.		closed. If this digita	al input is
111	+	arm 1	Α		Dry Alarms		False	plc
				dition to ac		larm relay	1. The way to define	boolean
112	Dry Al Boolean			lternative	Dry Alarms		False	plc
				dition to ac the PLC o	•	larm relay 2	2. The way to define	boolean
113	Dry Al Boolean			Iternative	Dry Alarms		False	plc
				dition to ac the PLC o		larm relay (3. The way to define	boolean
114	Dry Al Boolean			lternative	Dry Alarms		False	plc
				dition to ac		larm relay	4. The way to define	boolean
131	Ambien	Tempe	ratuı	e Low	Sensors	degree C		basic
	The tem	oerature	unde	er which th	e alarm 'Ambia	nt Tempera	ture Too Low' must	be set.
132	Ambien	Tempe	ratui	e High	Sensors	degree C		basic
	The temp	oerature	unde	er which the	e alarm 'Ambia	nt Tempera	ture Too Low' must	be set.
133	Ambient Hysteres		Ter	nperature	Sensors	degree C		basic
	The hyst		n the	e 'Battery ⁻	Temperature T	oo High' ar	nd 'Battery Tempera	ature Too
521	Read Ac	cess Us	er N	umbers	Allowed Users		(1,2,3,4,5)	basic
							to 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 and	

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					.,
	control elements. The user num 1,2,3,4 and 5. Ex: 1,3,4				er ids are
601	Event Table Length	Event		10/4000 (100)	basic
	The maximum length of the table		ust be comp	rised between 10 a	ınd 4000
611	SNMP Trap Targets IP	Event	l l	192.168.45.1	basic
	One or multiple target IP to 130.23.12.45	send traps,	coma sep	parated. Ex: 130.	145.23.1,
612	Minimal Event Severity For Traps	Event		(none)	basic
	This is the minimal severity of th	e event to send	a SNMP tra	ар	
651	XML Events Primary Post URL	Event			basic
	This is the first URL at which the XML ETSI standard is used in the			ipment 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 p	rimary server	
653	XML Events Primary Post Password	Event			basic
	The password which must be us	ed when postin	ig 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 eve	ents to the s	econdary server	
663	XML Events Secondary Post Password	Event			basic
	The password which must be us	ed when postin	g 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	comatically add he PLC Data N	ded in the Name and th	data table. Con he 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 th n Name an	e alarm table. To d the PLC Alarm	he alarm Boolean

Cont	Control 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.				

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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 alarm will be cleared.	'Battery Last Test Failed' is	set, the
51	Save Configuration In MCU	Save	basic
	Save configuration parameters in the MCU microconthe 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	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	. The event name is the tex	kt written
512	Add Major Event	Event	basic
	This control element adds an event of severity r written to this control element	najor. The event name is	the text
521	Reset Default Names	Event	basic
	This control element adds an event of severity r written to this control element	najor. The event name is	the text

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	

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Hardware 12NC	9413 060 10131
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 syste	em 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	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			
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				

Alarr	n Table		
<u>Id</u> 1	<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 when the bus voltage is lower configuration parameter 'DC Bus Voltage Low'. There is an hysteresis on the 'DC Bus Voltage Low Hysteresis'			
3	DC Bus High	minor (4)	
	The bus voltage is high. The alarm is set whe 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 w configuration paramenter 'DC Bus Voltage Extra alarm: 'DC Bus Voltage Extra High Hysteresis'		
5	DC Bus Voltage Sense Failure	major (6)	
	The DC bus voltage sense is defective. The unconfigured.	DC bus voltage is unconnected or	
6	Mains Failure	minor (4)	

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	The number of active rectifiers is equal to 0 an greater than 0.	d the number of rectifiers in AC failure is
7	Mains Partial Failure	minor (4)
	The number of active rectifiers is greater that failure is greater than 0. Some rectifiers are open breaker, a real phase failure, or by a rect	in AC Failure. It may be caused by an
8	Mains Low	warning (2)
	The main voltage is low on one or more phas master type is 30110, 3096 or 3048M6, an hy to the voltage lower limit	
10	One Rectifier Failure	minor (4)
	One rectifier must be replaced or is not power rectifier is set. The number of rectifier with Emains failure, and the 'More Than One Rectifier is a set. The number of rectifier with Emains failure, and the 'More Than One Rectifier is set.'	OC Failure is higher than 0, there is no er Failure alarm is not set.'
11	More Than One Rectifier Failure	major (6)
	There is no mains failure and number of rectific	er failures is greater than 1.
12	Missing Rectifiers	major (6)
	There is not enough rectifier according to Number Of Rectifier'	the configuration parameter : 'Minimal
13	Battery Last Test Failed	minor (4)
	The last battery test did not succeed and was be replaced.	not cancelled. Maybe the battery should
14	Battery On Discharge	minor (4)
	The battery is discharging. This means that rectifiers. This alarm is inactive when the system of th	em in AC Failure or during a battery test.
17	Battery LVD Relay Open	major (6)
	The battery Low Voltage Disconnector is o signal, like MCU 1848 or MCU 1x6, the alarm asks to open the LVD	
18	Battery Temperature Too High	minor (4)
	The temperature of the battery is too high and hysteresis corresponding to battery parameter	
19	Battery Temperature Too Low	minor (4)
	The temperature of the battery is too low and hysteresis corresponding to battery parameter	
20	Battery Temperature Sensor Fail	minor (4)
	The battery temperature sensor (NTC) value i not connected or defective.	s inferior to -500 units meaning that it is
21	Ambient Temperature Too High	minor (4)
	The ambient temperature is too high and is hysteresis corresponding to parameter 'Ambia only activated on MCU master types 30110, 0948 and 3048M6.	nt temperature hysteresis'. This alarm is
22	Ambient Temperature Too Low	minor (4)
	The ambient temperature is too low and is hysteresis corresponding to parameter 'Ambia' only activated on MCU master types 30110, 0948 and 3048M6.	nt temperature hysteresis'. This alarm is

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23	Ambient Temperature Sensor Fail	minor (4)			
	The ambiant temperature sensor (NTC) value is inferior to -500 units meaning that i not connected or defective.				
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	<u> </u>			
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>Id</u>	<u>Name</u>	Group	<u>Unit</u>	<u>Licens</u>
1	DC Mode	General		<u>e</u> 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		
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 curre	nt		

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31	Number Of Rectifier Max	Rectifiers		basic
J 1	The maximum possible number of rectifi			Dasic
32				
02	The actual number of present rectifier in			basic
33	Number Of Absent Rectifier	Rectifiers		basic
00	The actual number of absent rectifier in			Dasio
34	Number Of Active Rectifier	Rectifiers		basic
07	The actual number of active rectifier in		ctive rectifier is a	<u> </u>
	which is present, DC OK, AC OK and no			Tectiner
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.		
38	Number Of Over Temperature Rectifier	Rectifiers		basic
	The actual number or rectifier in OVer To	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 currer discharging	nt. A negative value	means that the b	attery is
62	Battery Input Power	Battery	Watt	basic
	Measurement of the battery input powe discharging	r. A negative value	means that the b	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_OF	ON_GOING, LOAD_TOO_LOW,	values are pos FAILED_TIN FAILED_AC_FA	MEOUT,
73	Battery Test Discharged Capacity	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 Ah	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.			1
81	Previous Battery Test State	Battery		basic
	The result of the previous battery test	, ,	1	1
82	Minutes Since Last Test Battery	Battery		basic
		1 - a	Î.	~~~

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	The number of minute without battery test			
91	Battery Charge Capacity	Battery	%	basic
	The battery charge capacity, calculated by	oy 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	rent, in Ampere * hou	ır	
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 Efficiency Optimization			
122	System Loss Without Optimisation	Asset Data	Watt	asset
	The optimal number of ON rectifier for Efficiency Optimization			
123	System Loss With Optimisation	Asset Data	Watt	asset
	The optimal number of ON rectifier for Efficiency Optimization			
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	Config Table					
<u>ld</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	arm 'DC Bus Vo	oltage 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 Lo	ow' 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 alarm 'DC Bus Voltage High					
8	DC Bus Voltage Extra High	Bus Voltage	Volt	40/60 (58)	basic	
The bus voltage over which the alarm 'DC Bus Voltage Extra 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 disconnecting the battery if the dc bus voltage is under the configured disconnected voltage. This avoids disconnection during a low bus transie					
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.	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	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 Alarr	n					
	The hysteresis on	the 'Battery O	n Discharge' al	larm.	1		
51	Boost Automatic	·	Boost		False/False (False)	battery	
	bus voltage went charging the batter	under the cory faster.	onfigured 'Boos		at during a mains fa n Low Voltage'. Th		
52	Boost Activation	Low Voltage	Boost	Volt	43/50 (46)	battery	
	The voltage under		ost mode can b	e activated			
53	Boost Terminatio	n Voltage	Boost	Volt	50/58 (56.4)	battery	
	The voltage over w	•		ck to floatin	g mode.		
54	Boost Terminatio	n Current	Boost	Ampere	0/100 (2)	battery	
	The battery charging	ng current und	der which the s	ystem mus	t go back to floating	mode.	
55	Boost Terminatio	n Time	Boost	minute	10/240 (120)	battery	
	The time in minute	after which th	ne system must	t go back ir	floating mode.		
70	Battery Test End	Voltage	Battery Test	Volt	30/60 (46)	battery	
	The voltage at which	ch any battery	test must be s	stopped.			
71	Battery Test Disc	harge Ratio	Battery Test	%	0/100 (0)	battery	
	The ratio of the battery capacity to discharge. If 30 is set, 30% of the battery will be discharged during the test						
72	Battery Test Inter	val	Battery Test	day	0/3000 (0)	battery	
73		ry test is not s est.			attery test. If this par user can remotely 0.5/100 (1000)		
	The current at w	es the bus vol	ltage in order to		during a battery is condition. The loa		
74	Battery Test Discharge Curren		Battery Test	Ampere	0.2/90 (2)	battery	
	The battery currentoo low.	t under which	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 min	ute after whic	h the battery te	st must be	stopped.		
76	Battery Test Minutes Witho Failure		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 Condition	Boolean	Smart Energy		121-125	asset	
	This is the boolean condition which allows or not to automatically optimize the number of rectifier in remote off.						
86	Battery LVD Node		LVD		, ,	basic	
	This is a list of the node id of the Smart Electronic LVDs, coma separated						
91	Digital Input 1 Na		Digital Inputs	nic LVDs, c	Distribution	1	

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	The nam	o of the	diait	al input 1				
92	+				Digital Inguita		Two /Folos /Two)	basis
92	Digital Closed	Input			Digital Inputs		True/False (True)	basic
							closed. If this digital	al input is
					ed alarm is set	T	D D	l
93	Digital II	nput 2 N	lame		Digital Inputs		Battery Breaker Open	basic
	The nam	ne 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 I	nput 3 N	lame		Digital Inputs		Digital Input 3	basic
	The nam	ne of the	digita	al input 3				I.
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 I			-	Digital Inputs		Digital Input 4	basic
		•		al input 4	9	ı	<u> </u>	
98	Digital Closed	Input		•	Digital Inputs		True/False (True)	basic
	True/Fal				digital input 4 ed alarm is set		closed. If this digita	al input is
99	Digital I				Digital Inputs	_	Digital Input 5	basic
		•		al input 5	Digital inpute		Digital input o	Daoio
100	Digital Closed	Input		· ·	Digital Inputs		True/False (True)	basic
				•	digital input 5 ed alarm is set	,	closed. If this digita	al input is
101	Digital I				Digital Inputs		Digital Input 6	basic
	_	•		al input 6	9	ı	<u> </u>	
102	Digital Closed	Input		•	Digital Inputs		True/False (True)	basic
	True/Fal						closed. If this digita	al input is
					ed alarm is set		T	1
111	Dry Al Boolean			lternative	Dry Alarms		False	plc
					•	ılarm relay	1. The way to define	e boolean
				the PLC	·	1	T	1 -
112	Dry Al Boolean			lternative	Dry Alarms		False	plc
				dition to ac	•	ılarm relay 2	2. The way to define	e boolean
113		larm 3	3 A		Dry Alarms		False	plc
	Another	Boolean	cond	dition to ac		larm relay :	3. The way to define	boolean
114	†				Dry Alarms		False	plc
114					,	1		115.5

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	I	T	1	T	
	Boolean Condition				
	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	iture 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	he accepted us			
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		ust be com	, ,	l
611	SNMP Trap Targets IP	Event		192.168.45.1	basic
	One or multiple target IP to 130.23.12.45		coma se		l
612	Minimal Event Severity For Traps	Event		(none)	basic
	This is the minimal severity of th	e event to send	d 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 pos	sted. The
652	XML Events Primary Post Login	Event			basic
	The login which must be used w	hen posting ev	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 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			•	basic

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	The password which must be used when posting events to the secondary server						
901	01 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	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 Boolear 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>					
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, alarm will be cleared.							
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					
	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 event of all the sub-equipments will be cleared.							
511	Add Event	Event	basic					

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	This control element adds an event of severity none. The event name is the text to this control element	t written
512	Add Major Event Event	basic
	This control element adds an event of severity major. The event name is written to this control element	the text
521	Reset Default Names Event	basic
	This control element adds an event of severity major. The event name is written to this control element	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 LCD display, USB and Ethernet port - Captin300 line / Low profile monitoring and control unit for CAPTIN300 line
Hardware Reference	9413 060 10131 / 9413 060 10141
Software Reference	SOFT 000081 XX
Equipment Type	Monitoring Control Unit
ETSI Level	/site/energy_system/dc_system

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	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	m Table		
<u>Id</u>	<u>Name</u>	Severity Type (Level)	Set/Clear Delay
1	DC Bus Extra Low	major (6)	5 / 2

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	The bus voltage is extra low. The alarm is configuration parameter 'DC Bus Voltage lalarm : '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'	ow'. There is an hystere	esis on the alarm :
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 Hysteres	Extra High'. There is a	
5	DC Bus Voltage Sense Failure	major (6)	1 / 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 than 0. Some rectifiers a open breaker, a real phase failure, or by a re-	are 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	owered correctly. The Down 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'	to 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'.	rstem in AC Failure or di	uring a battery test.
17	Battery LVD Relay Open	major (6)	5 / 2
Ī	The battery Low Voltage Disconnector is		

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	asks to open the LVD						
18	Battery Temperature Too High	minor (4)	5 / 2				
	The temperature of the battery is too high and is greater than -600 units. There is an						
40	hysteresis 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	meter 'Temperature h	ysteresis'.				
20	Battery Temperature Sensor Fail	minor (4)	5 / 2				
	The battery temperature sensor (NTC) not connected or defective.	value is inferior to -500	0 units meaning that it is				
21	Ambient Temperature Too High	minor (4)	5 / 2				
	The ambient temperature is too high hysteresis corresponding to parameter to only activated on MCU master types 3 0948 and 3048M6.	Ambiant temperature h	nysteresis'. This alarm is				
22	Ambient Temperature Too Low	minor (4)	5 / 2				
	The ambient temperature is too low a hysteresis corresponding to parameter 's only activated on MCU master types 3 0948 and 3048M6.	Ambiant temperature h	nysteresis'. 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 -50	0 units meaning that it is				
24	Humidity Out Of Range	major (6)	5 / 2				
	The humidity is not comprised between parameter 'Humidity Low', and a upper 'Humidity High'. There is an hysteres 'Humidity Hysteresis'. This alarm is only	limit, corresponding to sis corresponding to	configuration parameter configuration parameter				
25	Distribution Breaker Open	major (6)	5/2				
	This alarm is related to digital input 1. different to configuration parameter 'Digi	This alarm is activate					
26	Battery Breaker Open	minor (4)	5 / 2				
	This alarm is related to digital input 2. different to configuration parameter 'Digi		ed 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		ed if digital input value is				
28	Digital Input 4	none (0)	5 / 2				
	This alarm is related to digital input 4. different to configuration parameter 'Digi		ed if digital input value is				
29	Digital Input 5	none (0)	5 / 2				
	This alarm is related to digital input 5. different to configuration parameter 'Digi		ed if digital input value is				
30	Digital Input 6	none (0)	5 / 2				
00	This alarm is related to digital input 6. different to configuration parameter 'Digi	This alarm is activate	ed if digital input value is				
31	Digital Input 7	none (0)	5 / 2				

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32	Digital Input 8	none (0)	5 / 2
	This alarm is related to digital input 8.	This alarm is activated	d if digital input value is
	different to configuration parameter 'Digi	tal Input Alarm Value'	

Data	Table				
Id	<u>Name</u>	Group	<u>Unit</u>	Licens	
				<u>e</u>	
1	DC Mode	General		basic	
	The DC system can have 4 value '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	į			
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	nt			
31	Number Of Rectifier Max	Rectifiers		basic	
	The maximum possible number of rectific	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 t	his dc system			
34	Number Of Active Rectifier	Rectifiers		basic	
	The actual number of active rectifier in t	his dc system. An a	ctive rectifier is a	rectifier	
	which is present, DC OK, AC OK and no			1	
35	Number Of AC-Fail Rectifier	Rectifiers		basic	
	The actual number or rectifier in AC Faile	_		1	
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.	,		
38	Number Of Over Temperature Rectifier	Rectifiers		basic	

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	The actual number or rectifier in OVer To	omporaturo		
51	The actual number or rectifier in OVer Telload Power	Emperature. Load	Watt	boois
31	Estimation of the load power consumption		vvall	basic
52	Load Current	Load	Ampere	basic
32	Estimation of the load current consumpti		Ampere	Dasic
61	Battery Input Current	Battery	Ampere	basic
01	Measurement of the battery input currer			
	discharging	ii. 7 Hogalivo valdo		attory to
62	Battery Input Power	Battery	Watt	basic
	Measurement of the battery input power discharging	r. A negative value	means that the ba	attery is
71	Battery Temperature	Battery	degree C	basic
	The battery temperature	Dattery	acgree o	Dasio
72	Battery Test State	Battery		basic
_	This is about the result of the last		values are pos	
	NEVER_TESTED, SUCCESS, FAILED_VBUS_TOO_LOW, FAILED_FAILED_CANCELED, FAILED_LVD_OF	ON_GOING, LOAD_TOO_LOW,	FAILED_TIN	MEOUT,
73	Battery Test Discharged Capacity Ratio	Battery	%	basic
	This is the battery capacity, in percent, value is updated at the end of the battery		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 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.		is value is update	
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 to	oy integration of the	current.	_
92	Calculated Autonomy	Battery	minute	basic
	Calculation of the remaining autonomy	T	1	
93	Battery Current Integration	Battery	As	basic
_	Actual value of the integration of the curr	1		F.
94	Battery Current Integration	Battery	Ah	basic
	Actual value of the integration of the curr	•	ır T	I
101	LVD State	LVD		basic
	Actual state of the LVD	lo . =	1	
121	Rectifier	Smart Energy		asset
	The optimal number of ON rectifier for Ef	1		
122	System Loss Without Optimisation	Smart Energy	Watt	under dev

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	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 ass					
	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)					
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	alarm 'DC Bus	Voltage Hig	jh' is set.		
7	DC Bus Voltage High Hysteresis	Bus Voltage	Volt	0/5 (0.5)	basic	
	The voltage hysteresis on the al	The voltage hysteresis on the alarm 'DC Bus Voltage High				
8	DC Bus Voltage Extra High	Bus Voltage	Volt	40/60 (58)	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 (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 the battery must be disconnected of the bus. This allows preserving the battery life. The load will be unpowered.					
11	LVD Disconnect Delay	Bus Voltage	second	1/2000 (1)	basic	
	The delay in second before disc	onnecting the b	cattery if the	e dc bus voltage is	under the	

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	configured disconnected voltage	e. This avoids d	isconnectio	n during a low bus	transient.
21	Temperature Compensation Slope			-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, -
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	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		T	T	
27		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 what 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 th	e alarm 'Batter	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		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	ery 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' al	arm.		
51	Boost Automatic	Boost		False/False (False)	battery
	The boost mode must be autor bus voltage went under the co				
	charging the battery faster. Boost Activation Low Voltage				

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Boost Termination Voltage Boost Volt 50/58 (56.4) batter The voltage over which the system must go back to floating mode.		The voltage under which the boo	ost mode can b	e activated		
The voltage over which the system must go back to floating mode. 54 Boost Termination Current Boost Ampere 0/100 (2) batte The battery charging current under which the system must go back to floating mode. 55 Boost Termination Time Boost minute 10/240 (120) batte The time in minute after which the system must go back in floating mode. 70 Battery Test End Voltage Battery Test Volt 30/60 (46) batte The voltage at which any battery test must be stopped. 71 Battery Test Discharge Ratio Battery Test % 0/100 (0) batte The ratio of the battery capacity to discharge. If 30 is set, 30% of the battery widischarged during the test 72 Battery Test Interval Battery Test day 0/3000 (0) batte The number of days between two automatically started battery test. If this paramet set to 0, the battery test is not started automatically. The user can remotely or lost start or force this test. 73 Battery Test Discharge Battery Test Ampere 0.5/100 (1000) batte Current The current at which the battery must be discharged during a battery test. monitoring regulates the bus voltage in order to satisfy this condition. The load cumust be of course higher than this parameter. 74 Battery Test Minimal Battery Test Ampere 0.2/90 (2) batte Discharge Current The battery current under which the battery test must be stopped because the lost too low. 75 Battery Test Time Out Battery Test minute 1/5000 (10) batte Minute Without Mains Failure The minimal time in minute without mains failure in order to allow a battery start. parameter is not taken into account when the battery test must be stopped. 83 Smart Energy Boolean Smart Energy 121-125 asset Condition This is the boolean condition which allows or not to automatically optimize the nur of rectifier in remote off. 86 Battery LVD Node Id LVD True/False (False) basis Frailure In mame of the digital input 1 92 Digital Input 1 Normally Digital Inputs Distribution Breaker Open The name of the digital input 1 94 Digital Input 1 Normally Digital Inputs Distribution in this default state,	53		ı			battery
Boost Termination Current Boost Ampere 0/100 (2) batter The battery charging current under which the system must go back to floating mode The time in minute after which the system must go back to floating mode.			l .		. ,	battory
The battery charging current under which the system must go back to floating mode. Boost Termination Time	54				ř	battery
Boost Termination Time Boost minute 10/240 (120) batter The time in minute after which the system must go back in floating mode.			l .		. ,	
The time in minute after which the 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 stopped. 71 Battery Test Discharge Ratio Battery Test % 0/100 (0) battery Test of the battery capacity to discharge. If 30 is set, 30% of the battery will discharged during the test The ratio of the battery and discharged during the test The number of days between two automatically started battery test. If this paramet set to 0, the battery test is not started automatically. The user can remotely or lost start or force this test. 73 Battery Test Discharge Battery Test Ampere 0.5/100 (1000) battery test monitoring regulates the bus voltage in order to satisfy this condition. The load cumust be of course higher than this parameter. 74 Battery Test Minimal Battery Test Ampere 0.2/90 (2) battery Discharge Current Disch	55			1	<u> </u>	battery
The voltage at which any battery test must be stopped. Battery Test Discharge Ratio Battery Test % 0/100 (0) battery the ratio of the battery capacity to discharge. If 30 is set, 30% of the battery will discharged during the test		The time in minute after which the	ne system must	go back in	. ,	,
Battery Test Discharge Ratio Battery Test % 0/100 (0) battery	70	Battery Test End Voltage	Battery Test	Volt	30/60 (46)	battery
The ratio of the battery capacity to discharge. If 30 is set, 30% of the battery widischarged during the test 72 Battery Test Interval Battery Test day O/3000 (0) battery Test unmber of days between two automatically started battery test. If this parameter set to 0, the battery test is not started automatically. The user can remotely or lost start or force this test. 73 Battery Test Discharge Current The current at which the battery must be discharged during a battery test. monitoring regulates the bus voltage in order to satisfy this condition. The load currents be of course higher than this parameter. 74 Battery Test Minimal Discharge Current The battery current under which the battery test must be stopped because the lost too low. 75 Battery Test Time Out The timeout in minute after which the battery test must be stopped. 86 Battery Test Requested Minutes Without Mains Failure The minimal time in minute without mains failure in order to allow a battery start. parameter is not taken into account when the battery test is forced. 87 Smart Energy Boolean Smart Energy Condition This is the boolean condition which allows or not to automatically optimize the nur of rectifier in remote off. 88 Battery LVD Node Id Digital Input 1 Name Digital Input 1 Normally Digital Inputs True/False (False) basic True/False value defining if the digital input 1 is normally closed. If this digital input of in this default state, the related alarm is set.		The voltage at which any battery	test must be s	stopped.		
discharged during the test Battery Test day 0/3000 (0) battery	71	Battery Test Discharge Ratio	Battery Test	%	0/100 (0)	battery
The number of days between two automatically started battery test. If this paramet set to 0, the battery test is not started automatically. The user can remotely or lostart or force this test. 73 Battery Test Discharge Battery Test Ampere 0.5/100 (1000) batte Current The current at which the battery must be discharged during a battery test. monitoring regulates the bus voltage in order to satisfy this condition. The load current bischarge Current Battery Test Minimal Battery Test Ampere 0.2/90 (2) batte Discharge Current The battery current under which the battery test must be stopped because the load too low. 75 Battery Test Time Out Battery Test minute 1/5000 (10) batter The timeout in minute after which the battery test must be stopped. 76 Battery Test Requested Battery Test minute 0/5000 (1440) batter Minutes Without Mains Failure The minimal time in minute without mains failure in order to allow a battery start. parameter is not taken into account when the battery test is forced. 83 Smart Energy Boolean Smart Energy 121-125 asset Condition This is the boolean condition which allows or not to automatically optimize the nur of rectifier in remote off. 86 Battery LVD Node Id LVD True/False (False) basin This is a list of the node id of the Smart Electronic LVDs, coma separated 91 Digital Input 1 Normally Digital Inputs Distribution Breaker Open The name of the digital input 1 92 Digital Input 1 Normally Digital Inputs True/False (True) basin 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.			y to discharge.	If 30 is se	t, 30% of the batte	ry will be
set to 0, the battery test is not started automatically. The user can remotely or los start or force this test. 73 Battery Test Discharge Battery Test Ampere 0.5/100 (1000) batter Current The current at which the battery must be discharged during a battery test. monitoring regulates the bus voltage in order to satisfy this condition. The load current be of course higher than this parameter. 74 Battery Test Minimal Battery Test Ampere 0.2/90 (2) battery Discharge Current The battery current under which the battery test must be stopped because the load too low. 75 Battery Test Time Out Battery Test minute 1/5000 (10) battery The timeout in minute after which the battery test must be stopped. 76 Battery Test Requested Battery Test minute 0/5000 (1440) battery Failure The minimal time in minute without mains failure in order to allow a battery start. parameter is not taken into account when the battery test is forced. 83 Smart Energy Boolean Smart Energy 121-125 assecting the boolean condition which allows or not to automatically optimize the nurror rectifier in remote off. 86 Battery LVD Node Id LVD True/False (False) basis This is a list of the node id of the Smart Electronic LVDs, coma separated 91 Digital Input 1 Name Digital Inputs Distribution Breaker Open The name of the digital input 1 92 Digital Input 1 Normally Digital Inputs True/False (True) basis Closed 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.	72	Battery Test Interval	Battery Test	day	0/3000 (0)	battery
The current at which the battery must be discharged during a battery test. monitoring regulates the bus voltage in order to satisfy this condition. The load cur must be of course higher than this parameter. 74 Battery Test Minimal Battery Test Ampere 0.2/90 (2) battery to lost battery test battery t		set to 0, the battery test is not start or force this test.	started automa	tically. The	user can remotely	
monitoring regulates the bus voltage in order to satisfy this condition. The load cur must be of course higher than this parameter. 74 Battery Test Minimal Battery Test Ampere 0.2/90 (2) batted Discharge Current The battery current under which the battery test must be stopped because the load too low. 75 Battery Test Time Out Battery Test minute 1/5000 (10) batted The timeout in minute after which the battery test must be stopped. 76 Battery Test Requested Minutes Without Mains Failure The minimal time in minute without mains failure in order to allow a battery start. parameter is not taken into account when the battery test is forced. 83 Smart Energy Boolean Smart Energy 121-125 assection This is the boolean condition which allows or not to automatically optimize the nur of rectifier in remote off. 86 Battery LVD Node Id LVD True/False (False) basis This is a list of the node id of the Smart Electronic LVDs, coma separated 91 Digital Input 1 Name Digital Inputs Distribution Breaker Open The name of the digital input 1 92 Digital Input 1 Normally Digital Inputs True/False (True) basis Closed 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		Battery Test	Ampere	0.5/100 (1000)	battery
Discharge Current The battery current under which the battery test must be stopped because the load too low. 75 Battery Test Time Out The timeout in minute after which the battery test must be stopped. 76 Battery Test Requested Minutes Without Mains Failure The minimal time in minute without mains failure in order to allow a battery start. parameter is not taken into account when the battery test is forced. 83 Smart Energy Boolean Smart Energy Condition This is the boolean condition which allows or not to automatically optimize the nur of rectifier in remote off. 86 Battery LVD Node Id True/False (False) basis This is a list of the node id of the Smart Electronic LVDs, coma separated 91 Digital Input 1 Name Digital Inputs Distribution Breaker Open The name of the digital input 1 92 Digital Input 1 Normally Digital Inputs True/False (True) basis Closed 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.		monitoring regulates the bus vol	tage in order to			
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Requested Battery Test Minutes Without Mains Failure	75	•		ı	. ,	battery
Minutes Without Mains Failure					• • • • • • • • • • • • • • • • • • • •	T
parameter is not taken into account when the battery test is forced. 83 Smart Energy Boolean Smart Energy 121-125 assection assection. This is the boolean condition which allows or not to automatically optimize the number of rectifier in remote off. 86 Battery LVD Node Id LVD True/False (False) basic This is a list of the node id of the Smart Electronic LVDs, coma separated 91 Digital Input 1 Name Digital Inputs Distribution Breaker Open The name of the digital input 1 92 Digital Input 1 Normally Digital Inputs True/False (True) basic Closed 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.	76	Minutes Without Mains		minute	0/5000 (1440)	battery
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Digital Input 1 Name Digital Inputs Distribution Breaker Open	86	Battery LVD Node Id	LVD		True/False (False)	basic
The name of the digital input 1 Pigital Input 1 Normally Digital Inputs True/False (True) basic Closed 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.			Smart Electro	nic LVDs, c	· · · · · · · · · · · · · · · · · · ·	
92 Digital Input 1 Normally Digital Inputs True/False (True) basic Closed 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.	91	Digital Input 1 Name	Digital Inputs			basic
Closed 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.		• •				
not in this default state, the related alarm is set.	92		Digital Inputs		True/False (True)	basic
					closed. If this digita	al input is
Open	93	·	Digital Inputs		,	basic
The name of the digital input 2		The name of the digital input 2	<u> </u>	1		1

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94	Digital Closed	Input	2	Normally	Digital Inputs		True/False (True)	basic
							closed. If this digital	al input is
					ed alarm is set		D: :: 11	l
95	Digital II	•			Digital Inputs		Digital Input 3	basic
	1			al input 3	T	1	T	
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 II	nput 4 N	Name	•	Digital Inputs		Digital Input 4	basic
	The nam	ne of the	digita	al input 4				
98	Digital Closed	Input	4	Normally	Digital Inputs		True/False (True)	basic
				•	digital input 4 ed alarm is set	,	closed. If this digita	al input is
99	Digital II	nput 5 N	Name)	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 digital	al input is
101	Digital II	nput 6 N	Name)	Digital Inputs		Digital Input 6	basic
	The nam	e of the	digit	The name of the digital input 6 Digital Inputs				
			uigit	ai iriput o				
102	Digital Closed			•	Digital Inputs		True/False (True)	basic
102	Closed True/Fals	Input se value	6 e defi	Normally ning if the			True/False (True)	
102 103	Closed True/Fals	Input se value s defaul	6 e defi t stat	Normally ning if the e, the relat	digital input 6		, ,	
	Closed True/Fals not in thi Digital II	Input se value s defaul nput 7 N	6 e defi t stat Name	Normally ning if the e, the relat	digital input 6 ed alarm is set		closed. If this digital	al input is
	Closed True/Fals not in thi Digital II	Input se value s defaul nput 7 N	6 defit state	Normally ning if the e, the relate al input 7	digital input 6 ed alarm is set		closed. If this digital	al input is
103	Closed True/Fals not in thi Digital II The nam Digital Closed True/Fals	se value s defaul nput 7 N ne of the Input	6 defiit state digitar 7	ning if the e, the relate al input 7 Normally	digital input 6 ed alarm is set Digital Inputs Digital Inputs digital input 7	is normally	closed. If this digital Digital Input 7	al input is basic
103 104	Closed True/Fals not in thi Digital II The nam Digital Closed True/Fals not in thi	se value s defaul nput 7 N ne of the Input se value s defaul	e defit state digit: 7 e defit state t state	ning if the e, the relate al input 7 Normally ning if the e, the relate e, the relate	digital input 6 ed alarm is set Digital Inputs Digital Inputs digital input 7 ed alarm is set	is normally	closed. If this digital Input 7 True/False (True) closed. If this digital	al input is basic basic al input is
103	Closed True/Fals not in thi Digital II The nam Digital Closed True/Fals not in thi Digital II	se value s defaul nput 7 N ne of the Input se value s defaul nput 8 N	6 defit state digitary 7 defit state Name	ning if the e, the relate al input 7 Normally ning if the e, the relate e, the relate e	digital input 6 ed alarm is set Digital Inputs Digital Inputs digital input 7	is normally	closed. If this digital Input 7 True/False (True)	al input is basic
103 104	Closed True/Fals not in thi Digital II The nam Digital Closed True/Fals not in thi Digital II	se value s defaul nput 7 N ne of the Input se value s defaul nput 8 N	e defit state digitary for the defit state land land land land land land land land	ning if the e, the relate al input 7 Normally ning if the e, the relate e, the relate al input 8	digital input 6 ed alarm is set Digital Inputs Digital Inputs digital input 7 ed alarm is set	is normally	closed. If this digital Input 7 True/False (True) closed. If this digital	al input is basic basic al input is
103 104 105	Closed True/Fals not in thi Digital II The nam Digital Closed True/Fals not in thi Digital II The nam Digital II The nam Closed True/Fals	se value s defaul nput 7 N ne of the Input se value s defaul nput 8 N ne of the Input	e defit state Name digita 7 e defit state Name digita 8	ning if the e, the relate al input 7 Normally ning if the e, the relate al input 8 Normally Normally	digital input 6 ed alarm is set Digital Inputs Digital Inputs digital input 7 ed alarm is set Digital Inputs Digital Inputs	is normally is normally	closed. If this digital Input 7 True/False (True) closed. If this digital Input 8	basic basic basic basic basic basic basic
103 104 105 106	Closed True/Fals not in thi Digital II The nam Digital Closed True/Fals not in thi Digital II The nam Digital II The nam Digital II The nam Digital Closed True/Fals not in thi	se value s defaul nput 7 N ne of the Input se value s defaul nput 8 N ne of the Input	e defit state Name digita 7 defit state Name digita 8 defit state digita 8	ning if the e, the relate al input 7 Normally ning if the e, the relate al input 8 Normally ning if the e, the relate al input 8 Normally ning if the e, the relate	digital input 6 ed alarm is set Digital Inputs Digital Inputs digital input 7 ed alarm is set Digital Inputs Digital Inputs digital input 8 ed alarm is set	is normally is normally	closed. If this digital Input 7 True/False (True) closed. If this digital Input 8 True/False (True)	basic basic basic basic basic basic basic
103 104 105	Closed True/Fals not in thi Digital II The nam Digital Closed True/Fals not in thi Digital II The nam Digital II The nam Digital II The nam Digital Closed True/Fals not in thi	se value s defaul nput 7 N ne of the Input se value s defaul nput 8 N ne of the Input se value s defaul larm	e defit state Name digits 7 e defit state Name digits 8 e defit state 1 A	ning if the e, the relate al input 7 Normally ning if the e, the relate al input 8 Normally ning if the e, the relate al input 8 Normally ning if the e, the relate	digital input 6 ed alarm is set Digital Inputs Digital Inputs digital input 7 ed alarm is set Digital Inputs Digital Inputs Digital Inputs digital input 8	is normally is normally	closed. If this digital Input 7 True/False (True) closed. If this digital Input 8 True/False (True) closed. If this digital Input 8	basic basic basic basic basic basic basic
103 104 105 106	Closed True/Falsnot in thi Digital II The nam Digital Closed True/Falsnot in thi Digital II The nam Digital II The nam Digital II The nam Digital II The nam Digital Closed True/Falsnot in thi Dry Al Boolean Another	se value s defaul nput 7 N ne of the Input se value s defaul nput 8 N ne of the Input se value s defaul larm n Condit Boolear	e defit state Alame digita Alame digita Be defit state st	ning if the e, the relate al input 7 Normally ning if the e, the relate al input 8 Normally ning if the e, the relate al input 8 Normally ning if the e, the relate alternative	digital input 6 ed alarm is set Digital Inputs Digital Inputs digital input 7 ed alarm is set Digital Inputs Digital Inputs Digital Inputs digital input 8 ed alarm is set Dry Alarms	is normally is normally	closed. If this digital Input 7 True/False (True) closed. If this digital Input 8 True/False (True) closed. If this digital Input 8	basic basic basic basic basic basic basic basic
103 104 105 106	Closed True/Falsnot in thi Digital II The nam Digital Closed True/Falsnot in thi Digital II The nam Digital II The nam Digital II The nam Digital Closed True/Falsnot in thi Dry Al Boolean Another condition	se value s defaul nput 7 Note of the Input se value s defaul nput 8 Note of the Input se value s defaul larm of Condit Boolear in is detaul	e defit state Alame digit: 7 e defit state Name digit: 8 e defit state 1 Alion n condition	ning if the e, the relate ning if the PLC of the PLC of the relate ning if the PLC of the relate ning if the PLC of the relate ning if the e, the re	digital input 6 ed alarm is set Digital Inputs Digital Inputs digital input 7 ed alarm is set Digital Inputs Digital Inputs Digital Inputs digital input 8 ed alarm is set Dry Alarms tivate the dry achapter.	is normally is normally	closed. If this digital Input 7 True/False (True) closed. If this digital Input 8 True/False (True) closed. If this digital Input 8 True/False (True) closed. If this digital Input Selection (True)	basic basic basic basic basic basic basic basic basic
103 104 105 106	Closed True/Falsnot in thi Digital II The nam Digital Closed True/Falsnot in thi Digital II The nam Digital II The nam Digital II The nam Digital Closed True/Falsnot in thi Dry Al Boolean Another condition	se value s defaul nput 7 N ne of the Input se value s defaul nput 8 N ne of the Input se value s defaul larm n Condit Boolear n is deta	e defit state lame digita 7 e defit state lame digita 8 e defit state lame digita 1 A tion n condiled in	ning if the e, the relate ning if the PLC of the PLC of the relate ning if the PLC of the relate ning if the PLC of the relate ning if the e, the re	digital input 6 ed alarm is set Digital Inputs Digital Inputs digital input 7 ed alarm is set Digital Inputs Digital Inputs Digital Inputs digital input 8 ed alarm is set Dry Alarms	is normally is normally	closed. If this digital Input 7 True/False (True) closed. If this digital Input 8 True/False (True) closed. If this digital Input 8 True/False (True) closed. If this digital Input 8 True/False (True) closed. If this digital Input 8	basic basic basic basic basic basic basic basic
103 104 105 106	Closed True/Falsnot in thi Digital II The nam Digital Closed True/Falsnot in thi Digital II The nam Digital II The nam Digital II The nam Digital Closed True/Falsnot in thi Dry Al Boolean Another condition Dry Al Boolean Another	se value s defaul nput 7 None of the Input 8 None of the Input 8 None of the Input 1 Condit Boolear 1 Condit C	e defit state Alame digit: 7 e defit state Name digit: 8 e defit state t state 1 A tion n condition n condition	ning if the e, the relate ning if the e, the	digital input 6 ed alarm is set Digital Inputs Digital Inputs digital input 7 ed alarm is set Digital Inputs Digital Inputs Digital Inputs digital input 8 ed alarm is set Dry Alarms tivate the dry achapter. Dry Alarms	is normally is normally liarm relay	closed. If this digital Input 7 True/False (True) closed. If this digital Input 8 True/False (True) closed. If this digital Input 8 True/False (True) closed. If this digital Input 8 True/False (True) closed. If this digital Input 8	basic
103 104 105 106	Closed True/Falsnot in thi Digital II The nam Another condition Dry Al Boolean Another condition	se value s defaul nput 7 Ne of the Input 8 Ne of the Input 8 Ne of the Input Se value s defaul larm Condit Boolearm is deta Boolearm is deta	e defit state Alame digita 7 e defit state Name digita 8 e defit state 1 Alame iled in condition n condition n condition	ning if the e, the relate al input 7 Normally ning if the e, the relate al input 8 Normally ning if the e, the relate al input 8 Normally ning if the e, the relate alternative dition to acount the PLC of the P	digital input 6 ed alarm is set Digital Inputs Digital Inputs digital input 7 ed alarm is set Digital Inputs Digital Inputs Digital Inputs digital input 8 ed alarm is set Dry Alarms tivate the dry achapter. Dry Alarms	is normally is normally liarm relay	closed. If this digital Digital Input 7 True/False (True) closed. If this digital Digital Input 8 True/False (True) closed. If this digital False 1. The way to define False	basic

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	Boolean Condition				
	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	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	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 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 too	o 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		()	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	prised between 10 a	and 4000
602	Event Table Length By Rectifier	Event		10/4000 (100)	basic
	The maximum length of the table		ust be comp	orised between 10 a	1
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 Mat	figuration hematical
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	he alarm table. T nd the PLC Alarm	he alarm Boolean

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<u>ID</u>	Licens
	<u>e</u>
/lode	basic
/lode	battery
/lode	battery
/lode	battery
	basic
	basic
ery	basic
ery	basic
ery	battery
ry Last Test Failed' is	set, the
	basic
er. If comp@s is not	present,
nters	basic
t	basic
equipment will be clea	ıred.
t	basic
equipment and all the	e events
t	basic
event name is the tex	t written
t	basic
The event name is	the text
nced	basic
ups and Subgroups to	default
	Mode Mode Pry Pry Pry Pry Pry Pry Pry Pr

7.2.7 MCU0548M4

Device Information

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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	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				

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 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 th configuration parameter 'DC Bus Voltage Extra High'. There is an hysterisis on th alarm: 'DC Bus Voltage Extra High Hysteresis'					

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5	DC Bus Voltage Sense Failure	major (6)	1 / 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 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 than 0. Some rectifiers a open breaker, a real phase failure, or by a rectifier open breaker.	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 portectifier 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					
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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	I		I- / -
22	Ambient Temperature Too Low	minor (4)	5 / 2
	The ambient temperature is too low and hysteresis corresponding to parameter 'Amb	piant temperature hystere	esis'. This alarm is
	only activated on MCU master types 3011 0948 and 3048M6.	0, 3096, 30125, 0024,	0948, 0548, 0348,
23	Ambient Temperature Sensor Fail	minor (4)	5 / 2
	The ambiant temperature sensor (NTC) valued not connected or defective.	ue is inferior to -500 units	s meaning that it is
24	Humidity Out Of Range	major (6)	5 / 2
	The humidity is not comprised between a parameter 'Humidity Low', and a upper limit 'Humidity High'. There is an hysteresis 'Humidity Hysteresis'. This alarm is only act	, corresponding to config corresponding to config	guration parameter juration parameter
25	Distribution Breaker Open	major (6)	5 / 2
	This alarm is related to digital input 1. Thi different to configuration parameter 'Digital I		gital 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		igital 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		igital 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		igital 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		gital 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>	<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', '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.			

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	<u> </u>	<u>.</u>	1	T.	
12	Ratio Delivered On Available Power	General	%	basic	
	This is the ratio of the delivered power d	· · · · · · · · · · · · · · · · · · ·	T .		
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	
	which is present, DC OK, AC OK and no		T		
35	Number Of AC-Fail Rectifier	Rectifiers		basic	
	The actual number or rectifier in AC Fail	T	T		
36	Number Of DC-Fail Rectifier	Rectifiers		basic	
	The actual number or rectifier with DC F	ailure.	T		
37	Number Of Remote Off Rectifier	Rectifiers		basic	
	The actual number or rectifier in remote	off.			
38	Number Of Over Temperature	Rectifiers		basic	
	Rectifier				
	The actual number or rectifier in OVer To	- ·	I	T	
51	Load Power	Load	Watt	basic	
	Estimation of the load power consumption		Γ_	1	
52	Load Current	Load	Ampere	basic	
	Estimation of the load current consumpt		Τ_	T	
61	Battery Input Current	Battery	Ampere	basic	
	Measurement of the battery input current. A negative value means that the battery is discharging				
62	Battery Input Power	Battery	Watt	basic	
02				l .	
	Measurement of the battery input power discharging	i. A negative value	means mat me D	allery 18	
71	Battery Temperature	Battery	degree C	basic	
	The battery temperature		12.09.00 O	124010	
72	Battery Test State	Battery		basic	
	•	st battery test. 9	values are pos	ssible	
	prins is about the result of the la	or pariery lest. 9	values are pos	รอเมเษ	

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	T			
	NEVER_TESTED, SUCCESS,		FAILED_TIN	
	FAILED_VBUS_TOO_LOW, FAILED_		FAILED_AC_FA	AILURE,
	FAILED_CANCELED, FAILED_LVD_OF		la.	T
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
	This is the battery capacity, in ampere This value is updated at the end of the b		uring 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.	e 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		•
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		1	•
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	ur	
101	LVD State	LVD		basic
	Actual state of the LVD	1	1	
121	Efficiency Optimized Number Of Rectifier	Smart Energy		asset
	The optimal number of ON rectifier for E	fficiency Optimization	n	
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)		
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.			

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Con	fig Table				
<u>ld</u>	<u>Name</u>	<u>Group</u>	<u>Unit</u>	Range: Min/Max (default)	<u>License</u>
1	DC Bus Float Voltage at 2 degC	Bus Voltage	Volt	40/60 (54)	basic
	The floating dc bus voltage of		Celsius de	egree	
2	DC Bus Voltage Extra Low	Bus Voltage	Volt	40/60 (45)	basic
	The bus voltage under which t	he alarm 'DC Βι	ıs Voltage I	Extra Low' is set.	
3	DC Bus Voltage Extra Lo Hysteresis		Volt	0/5 (1)	basic
	The voltage hysteresis on the	alarm 'DC Bus \	/oltage Extr	a Low'.	
4	DC Bus Voltage Low	Bus Voltage	Volt	40/60 (48)	basic
	The bus voltage under which t	he alarm 'DC Βι	ıs Voltage I	_ow' is set.	
5	DC Bus Voltage Lo Hysteresis	w Bus Voltage	Volt	0/5 (0.5)	basic
	The voltage hysteresis on the	alarm 'DC Bus \	oltage Low	1	
6	DC Bus Voltage High	Bus Voltage	Volt	40/60 (56.5)	basic
	The bus voltage over which th	e alarm 'DC Bus	Voltage Hi	gh' is set.	•
7		h Bus Voltage	Volt	0/5 (0.5)	basic
	The voltage hysteresis on the	alarm 'DC Bus \	oltage Higl	n	
8	DC Bus Voltage Extra High	Bus Voltage	Volt	40/60 (58)	basic
	The bus voltage over which th	e alarm 'DC Bus	Voltage Ex	rtra High' is set.	•
9	DC Bus Voltage Extra Hig Hysteresis		Volt	0/5 (0.5)	basic
	The voltage hysteresis on the	alarm 'DC Bus \	/oltage Extr	a High	
10	LVD Disconnect Voltage	Bus Voltage	Volt	0/50 (43.2)	basic
	The dc bus voltage under whallows preserving the battery li	•			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		-1000/0 (-72)	basic
	The slope of the battery temporal 72mV/degree is often used.	erature compens	sation in m	//degree. For a 48V	system,
22	Maximum Positive Temperature Compensation	Temperature Compensatio n	Volt	0/10 (3)	basic
	The maximal allowed positive	compensation.			
23	Maximum Negative Temperature Compensation	Temperature Compensatio	Volt	-10/0 (-3)	basic
	The maximal allowed negative	compensation.	,	•	
25	Minimal Number Of Prese			0/100 (0)	basic
	Rectifiers				

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	rectifiers, the alarm 'Missing Red	ctifiers' is set.			
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 satist 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 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 (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' al	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	ost mode can b	e activated		
53	Boost Termination Voltage	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 Current	Boost	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			. ,	, ,
70	Battery Test End Voltage	Battery Test	Volt	30/60 (46)	battery
	The voltage at which any battery			. ,	,
71		Battery Test	%	0/100 (0)	battery
	The ratio of the battery capacity discharged during the test			. ,	
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.	o automatically	started ba	ttery test. If this par	ameter is

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<u> </u>	T	1		T	1		
73	Battery Test Discharge Current	Battery Test	Ampere	0.5/100 (1000)	battery		
	The current at which the battery must be discharged during a battery test. The						
	monitoring regulates the bus voltage in order to satisfy this condition. The load current						
	must be of course higher than the		1.	T	I.		
74	Battery Test Minima Discharge Current	Battery Test	Ampere	0.2/90 (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	est must be	stopped.			
76		Battery Test	minute	0/5000 (1440)	battery		
	Minutes Without Mains Failure						
	The minimal time in minute witl parameter is not taken into account	ount when the b	attery test i	s forced.	tart. This		
83	Smart Energy Boolear Condition	Smart Energy		121-125	asset		
	This is the boolean condition w of rectifier in remote off.	hich 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	e 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 rela			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	1	•		•		
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 digita	al input is		
95	Digital Input 3 Name	Digital Inputs		Digital Input 3	basic		
	The name of the digital input 3	1 5 1	<u> </u>		I		
96	· ·	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		
97	Digital Input 4 Name	Digital Inputs		Digital Input 4	basic		
	The name of the digital input 4	1- 19.11	l.	- ·9····			
98	·	Digital Inputs		True/False (True)	basic		
	Closed			, ,			
	True/False value defining if the not in this default state, the rela			closed. If this digita	al input is		
99	Digital Input 5 Name	Digital Inputs		Digital Input 5	basic		

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	Tho nam	o of the	diaita	al input 5				
100	Digital	Input		•	Digital Inquita		True/False (True)	basis
100	Closed	input	5	Normany	Digital Inputs		True/Faise (True)	basic
		se value	defii	ning if the	digital input 5	is normally	closed. If this digita	al input is
					ed alarm is set		oloood. If the digite	ar iripat io
101	Digital II	nput 6 N	ame		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
	True/Fal:	se value	defi	ning if the	digital input 6	is normally	closed. If this digita	al input is
	not in thi	s default	state	e, the relat	ed alarm is set	•		
103	Digital II	•			Digital Inputs		Digital Input 7	basic
	The nam	e of the	digita	al input 7	<u> </u>	T	T	
104	Digital Closed	Input	7	Normally	Digital Inputs		True/False (True)	basic
							closed. If this digital	al input is
105	!				ed alarm is set	T	Distract to a con-	la a c ! c
105	Digital II	•			Digital Inputs		Digital Input 8	basic
100				al input 8	Digital Inc. 45		True/Folgo /T····s	hoc's
106	Digital Closed	Input			Digital Inputs		True/False (True)	basic
	True/False value defining if the digital input 8 is normally closed. If this digital input not in this default state, the related alarm is set.				al input is			
111				•	Dry Alarms		False	plc
	Boolean			iterriative	Dry Alainis		i aise	pic
				dition to ac		larm relay	1. The way to define	boolean
112		arm 2	Α		Dry Alarms		False	plc
				dition to ac	•	larm relay 2	2. The way to define	boolean
113		arm 3	Α		Dry Alarms		False	plc
	-			dition to ac	tivate the dry a	larm relay (boolean
				the PLC o				
114	Dry Al Boolean	arm 4 Conditi		Iternative	Dry Alarms		False	plc
				dition to ac the PLC o		larm relay 4	4. The way to define	boolean
131	Ambient	Tempe	ratur	e Low	Sensors	degree C		basic
	The temp	oerature	unde	er which the	e alarm 'Ambia	nt Tempera	ture Too Low' must	be set.
132	Ambient	Tempe	ratur	e High	Sensors	degree C		basic
	The temp	oerature				nt Tempera	ture Too Low' must	be set.
133	Ambient Hysteres		Ten	nperature	Sensors	degree C		basic
	The hyst Low' alar		n the	'Battery	Temperature T	oo High' ar	nd 'Battery Tempera	ature Too
135	Cabinet	Humidit	y Hi	gh	Alarm Parameters	%	0/100 (80)	basic

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	The relative humidity over which the cabinet humidity is too 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 values are coma separated. T						
522	Write Access User Numbers	Allowed Users		()	basic		
The list of the user numbers which have write access to this exthat these users can modify the configuration element, the alar control elements. The user numbers are coma separated. The 1,2,3,4 and 5. Ex: 1,3,4				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 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 10 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						

Cor	itrol 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		

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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 microcontroller. If comp@s is not the system will be correctly managed.					
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 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 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 te	kt written		
512	Add Major Event	Event	basic		
This control element adds an event of severity major. The event nam written to this control element			the text		
521	Reset Default Names And Groups	Advanced	basic		
	This control element resets all the element Names values	s, Groups and Subgroups t	o default		

7.2.8 MCU0948DW

Device Information				
Name	MCU0948DW			
Short Description	MCU for rack 2x850W -54V			
Long Description				
Hardware Reference	9413 000 XXXXX			
Software Reference	SOFT 000076 XX			
Equipment Type	Monitoring Control Unit			
ETSI Level	/site/energy_system/dc_system			

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 customer reference of the system					
11	Product Name	Monitoring	basic			

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

Δları	m Table			
<u>Id</u>	Name	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	set when the bus voltag 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)	1 / 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 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			
10	One Rectifier Failure	minor (4)	5 / 2	
	One rectifier must be replaced or is not powered correctly. The DC fail alarm of the rectifier is set. The number of rectifier with DC Failure is higher than 0, there is no mains failure, and the 'More Than One Rectifier Failure alarm is not set.'			

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	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'				
13	Battery Last Test Failed	minor (4)	5/2		
	The last battery test did not succeed and we 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 battery parameter 'Is	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 al asks to open the LVD		e signal LVD_COM		
18	Battery Temperature Too High	minor (4)	5 / 2		
	The temperature of the battery is too high hysteresis corresponding to battery parame	eter 'Temperature hyster			
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			
21	Ambient Temperature Too High	minor (4)	5 / 2		
	The ambient temperature is too high and hysteresis corresponding to parameter 'Amonly 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 'Amonly 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 is inferior to -500 units meaning that it is				
	not connected or defective.	. (0)	T5 / 0		
25	Distribution Breaker Open	major (6)	5/2		
	This alarm is related to digital input 1. The different to configuration parameter 'Digital'	Input Alarm Value'			
26	Battery Breaker Open	minor (4)	5 / 2		
	This alarm is related to digital input 2. The different to configuration parameter 'Digital'	Input Alarm Value'			
27	Digital Input 3	none (0)	5 / 2		
	This alarm is related to digital input 3. The different to configuration parameter 'Digital'				
28	Digital Input 4	none (0)	5 / 2		
20	9	110110 (0)	1		

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	T				
	different to configuration parameter 'Digital Input Alarm Value'				
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. This alarm is activated if digital input valifferent to configuration parameter 'Digital Input Alarm Value'				
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		

	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 valu 'AC_FAILURE' or SAFE	es: 'FLOAT', 'BOO 	DST', '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 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						

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	which is present, DC OK, AC OK and no	t in remote off.		
35	Number Of AC-Fail Rectifier	Rectifiers		basic
	The actual number or rectifier in AC Failu		I.	l
36	Number Of DC-Fail Rectifier	Rectifiers		basic
	The actual number or rectifier with DC Fa		<u> </u>	
37	Number Of Remote Off Rectifier	Rectifiers		basic
	The actual number or rectifier in remote		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	n		
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 i	means that the ba	ittery is
71	Battery Temperature	Battery	degree C	basic
	The battery temperature	T	1	T
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	ON_GOING, LOAD_TOO_LOW,	FAILED_TIM	IEOUT,
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 This value is updated at the end of the battery		ring the last batte	ry test.
	Battery Test Final Voltage	Battery	%	basic
75				
75	This is the bus voltage at the end of the end of the battery test.	last battery test. Thi	is value is updated	d at the
75 81	This is the bus voltage at the end of the	last battery test. Thi	is value is updated	d at the
	This is the bus voltage at the end of the end of the battery test.		is value is updated	Г
	This is the bus voltage at the end of the end of the battery test. Previous Battery Test State		s value is updated	Г

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91	Battery Charge Capacity	Battery	%	basic				
	The battery charge capacity, calculated		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 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)			_				
161	Voltage Sense 1	Sensors	Volt	basic				
	The voltage measured by the sensemeasurement. Calculation can be done		d for battery s	ymmetry				
162	Voltage Sense 2	Sensors	Volt	basic				
	The voltage measured by the sense measurement. Calculation can be done		d for battery s	ymmetry				
163	Voltage Sense 3	Sensors	Volt	basic				
	The voltage measured by the sense measurement. Calculation can be done		d for battery s	ymmetry				
		_		I!-				
204	Digital Input 4 Counter	Sensors		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 Voltage Extra Low' is set.				
3	DC Bus Voltage Extra Low	Bus Voltage	Volt	0/5 (1)	basic

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	Hysteresis						
	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	ı arm 'DC Bus V	oltage I ow				
6	DC Bus Voltage High	Bus Voltage	Volt	40/60 (56.5)	basic		
	The bus voltage over which the		l .	, ,	Daoio		
7	DC Bus Voltage High	Bus Voltage	Volt	0/5 (0.5)	basic		
	Hysteresis						
	The voltage hysteresis on the al	ı		l	I		
8		Bus Voltage	Volt	40/60 (58)	basic		
	The bus voltage over which the			1	T		
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	l		
10	• •		Volt	0/50 (43.2)	basic		
	The dc bus voltage under which	der which the battery must be disconnected of the bus. attery life. The load will be unpowered.			bus. This		
11	LVD Disconnect Delay	Bus Voltage	second	1/2000 (1)	basic		
				\ /	l		
	The delay in second before disconnecting the battery if the dc bus voltage is under the configured disconnected voltage. This avoids disconnection during a low bus transient.						
21	Temperature Compensation Slope	Compensatio	mV/degre e	-1000/0 (-72)	basic		
	The slope of the battery temperature	n atura compone	ation in my	 dograp	cyctom		
	72mV/degree is often used.	ature compens	alion in inv	degree. For a 40V	System, -		
22	<u> </u>	Temperature	Volt	0/10 (3)	basic		
		Compensatio n		(e)			
	The maximal allowed positive co	mpensation.	l	I			
23		Temperature	Volt	-10/0 (-3)	basic		
	Temperature Compensation	Compensatio n					
	The maximal allowed negative c	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.						
26	Rectifier Model	Rectifiers			basic		
	The rectifier model	ricoliners			Dasic		
	Forced Remote Off Rectifers	Rectifiers			basic		
27	. STOCK TEMPOLE ON HECKINGIS		ff The ide	l If the rectifier must	l		
27	A list of roctifior which are force	A list of rectifier which are forced in remote off. The id of the rectifier must be consequented by 1.3 will maintain rectifier 1 and 3 off					
27				Tille rectiller mast	De Coma		
27 31	separated. Ex: 1,3 will maintain	rectifier 1 and 3	off.		basic		
		rectifier 1 and 3 Battery	off. Ampere	0.5/1000 (1000)	basic		

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	nominal battery capacity divided	l by 10.			
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	·		be set.
34	Battery Temperature High	Battery		5/100 (40)	basic
	The temperature over which the	-		, ,	
35	Battery Temperature Hysteresis		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 (2)	basic
	The minimal discharging current	to set the 'Batt	ery On Disc	charge' alarm.	
37	Current Hysteresis For Discharging Alarm	Battery	Ampere	0/50 (0.5)	basic
	The hysteresis on the 'Battery C	n Discharge' al	arm.		
51	Boost Automatic	Boost		False/False (False)	battery
	The boost mode must be autor bus voltage went under the concharging the battery faster.				
52	Boost Activation Low Voltage	Boost	Volt	43/50 (46)	battery
	The voltage under which the boo		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 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 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	3/100 (1000)	battery
	The current at which the batt monitoring regulates the bus vo must be of course higher than the	Itage in order to			
74		Battery Test	Ampere	2/90 (2)	battery
	The battery current under which too low.	n the battery te	st must be	stopped because th	ne load is

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75	Battery 1	Test Tim	ne Ou	ıt	Battery Test	minute	1/5000 (10)	battery
					h the battery te		` ,	Janes, j
76	Battery Minutes Failure	Test			Battery Test	minute	0/5000 (1440)	battery
	paramete	er is not	taken	into acco	unt when the b	attery test i		tart. This
83	Smart Conditio				Smart Energy		121-125	asset
	This is th of rectifie				nich allows or n	ot to auton	natically optimize the	e number
86	Battery I	_VD No	de Id		LVD		True/False (False)	basic
				e id of the	Smart Electro	nic LVDs, c	oma separated	1
91	Digital Ir	put 1 N	lame		Digital Inputs		Distribution Breaker Open	basic
	The nam			•		T		1
92	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
93	Digital Ir	put 2 N	lame		Digital Inputs		Battery Breaker Open	basic
	The nam	e of the	digita	l input 2				
94	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
95	Digital Ir	nput 3 N	lame		Digital Inputs		Digital Input 3	basic
	The nam	e of the	digita	I input 3				
96	Digital Closed	Input	3	Normally	Digital Inputs		True/False (True)	basic
					digital input 3 i ed alarm is set.		closed. If this digita	al input is
97	Digital Ir	•			Digital Inputs		Digital Input 4	basic
	The nam			•	.	T	T	1
98	Digital Closed	Input	4	Normally	Digital Inputs		True/False (True)	basic
					digital input 4 i ed alarm is set.		closed. If this digita	al input is
99	Digital Ir	nput 5 N	lame		Digital Inputs		Digital Input 5	basic
	The nam	e of the	_ <u> </u>		-			1
100	Digital Closed	Input	5	Normally	Digital Inputs		True/False (True)	basic
					digital input 5 i ed alarm is set.		closed. If this digita	al input is
101	Digital Ir	put 6 N	lame		Digital Inputs		Digital Input 6	basic
	The nam	e of the	digita	I input 6				
102	Digital Closed	Input	6	Normally	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 digita	al input is
103		Digital Inputs		Digital Input 7	basic
	The name of the digital input 7	- 1911an 11 parts		- 1911an m an 1	10000
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			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	<u>, </u>		,	
106	Digital Input 8 Normally Closed	,		True/False (True)	basic
	True/False value defining if the not in this default state, the relat	ed alarm is set.			
111	Dry Alarm 1 Alternative Boolean Condition	j		False	plc
	Another Boolean condition to accondition is detailed in the PLC of	chapter.	larm relay		
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	chapter.	larm relay (e boolean
114	Dry Alarm 4 Alternative Boolean Condition	·		False	plc
	Another Boolean condition to accondition is detailed in the PLC of	chapter.		4. The way to define	
131	Ambient Temperature Low		degree C		basic
	The temperature under which the	1	nt Tempera	iture Too Low' must	he set
132	Ambient Temperature Lieb				
	Ambient Temperature High	Sensors	degree C		basic
	The temperature under which th	e alarm 'Ambia	nt Tempera	ature Too Low' must	basic be set.
133	The temperature under which the Ambient Temperature Hysteresis	e alarm 'Ambia Sensors	nt Tempera degree C		basic be set. basic
	The temperature under which the Ambient Temperature Hysteresis The hysteresis on the 'Battery Low' alarms.	e alarm 'Ambia Sensors Temperature To	nt Tempera degree C	nd 'Battery Tempera	basic be set. basic ature Too
133 521	The temperature under which th Ambient Temperature Hysteresis The hysteresis on the 'Battery Low' alarms. Read Access User Numbers	e alarm 'Ambia Sensors Temperature To Allowed Users	nt Tempera degree C oo High' ar	nd 'Battery Tempera	basic basic ature Too basic
	The temperature under which the Ambient Temperature Hysteresis The hysteresis on the 'Battery Low' alarms. Read Access User Numbers The list of the user numbers v	e alarm 'Ambia Sensors Temperature To Allowed Users vhich have rea	nt Tempera degree C oo High' ar	nd 'Battery Tempera (1,2,3,4,5) to this equipment.	basic basic ature Too basic The user
	The temperature under which the Ambient Temperature Hysteresis The hysteresis on the 'Battery Low' alarms. Read Access User Numbers The list of the user numbers we numbers are come separated. The Interpretation of the user numbers we number are come separated. The Interpretation of the user numbers we number are come separated. The Interpretation of the user numbers we number are come separated.	e alarm 'Ambia Sensors Temperature To Allowed Users which have rea he accepted us Allowed	nt Tempera degree C oo High' ar	nd 'Battery Tempera (1,2,3,4,5) to this equipment.	basic basic ature Too basic The user
521	The temperature under which the Ambient Temperature Hysteresis The hysteresis on the 'Battery Low' alarms. Read Access User Numbers The list of the user numbers we numbers are come separated. The Interpretation of the user numbers we number are come separated. The Interpretation of the user numbers we number are come separated. The Interpretation of the user numbers we number are come separated.	e alarm 'Ambia Sensors Temperature To Allowed Users which have rea he accepted us Allowed Users nich have write configuration e	nt Tempera degree C oo High' ar d access to element, the	(1,2,3,4,5) to this equipment. 2,3,4 and 5. Ex: 1,3 () this equipment. The alarm settings an	basic basic the set. basic basic the user 4 basic is means d use the

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	The maximum length of the table. The value must be comprised between 10 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	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 lame and	data table. Cont 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						

Cont	rol 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.						
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' is set, the				
51	Save Configuration In MCU	Save	basic				
	Save configuration parameters in the MCU microcontroller. If comp@s is not present, he system will be correctly managed.						
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 w	vill be cleared.				
502	Clear All Events	Event	basic				

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	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 is the tex	t written	
512	Add Major Event	ent Event		
	This control element adds an event of severity muritten 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	, Groups and Subgroups to	default	

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		
ETSI Level	/site/energy_system/dc_system		

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 sy	system monitoring		
12	Hardware Reference	Monitoring	basic	
	The hardware reference of the			
14	Software Reference	Monitoring	asset	
	The serial number of the DC system 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		

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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 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 th configuration parameter '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 parametre '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)	1 / 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 and the number of rectifiers in AC f 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 A failure is greater than 0. Some rectifiers are in AC Failure. It may be caused by a 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 MC master type is 30110, 3096 or 3048M6, an hysteresis _phase123Hysteresis is adde 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	ian 1.	
12	Missing Rectifiers	major (6)	5/2	
	There is not enough rectifier according to the configuration parameter Number Of Rectifier'			
13	Battery Last Test Failed	minor (4)	5/2	
	The last battery test did not succeed and was be replaced.	The last battery test did not succeed and was not cancelled. Maybe the battery should		
14	Battery On Discharge	minor (4)	10 / 2	
	The battery is discharging. This means the	hat the load is too hig	h for the installed	

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	rectifiers. This alarm is inactive when the sy There is an hysteresis corresponding to hysteresis'.			
17	Battery LVD Relay Open	major (6)	5 / 2	
	The battery Low Voltage Disconnector is open. On Systems without LVD_Statusignal, like MCU 1848 or MCU 1x6, the alarm is present only if the signal LVD_COI asks to open the LVD			
18	Battery Temperature Too High	minor (4)	5 / 2	
	The temperature of the battery is too high and is greater than -600 units. Then hysteresis corresponding to battery parameter 'Temperature hysteresis'.			
19	Battery Temperature Too Low	minor (4)	5 / 2	
	The temperature of the battery is too low and is greater than -600 units. hysteresis corresponding to battery parameter 'Temperature hysteresis'.			
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.	piant temperature hyster	esis'. This alarm is 0948, 0548, 0348,	
22	Ambient Temperature Too Low	minor (4)	5 / 2	
	The ambient temperature is too low and is greater than -600 units. There is a hysteresis corresponding to parameter 'Ambiant temperature hysteresis'. This alarm only activated on MCU master types 30110, 3096, 30125, 0024, 0948, 0548, 0348 0948 and 3048M6.			
23	Ambient Temperature Sensor Fail	minor (4)	5/2	
	The ambiant temperature sensor (NTC) value is inferior to -500 units meaning that it is not connected or defective.			
25	Distribution Breaker Open	major (6)	5 / 2	
	This alarm is related to digital input 1. This alarm is activated if digital input value is different to configuration parameter 'Digital Input Alarm Value'			
26	Battery Breaker Open	minor (4)	5 / 2	
	This alarm is related to digital input 2. This alarm is activated if digital input value is different to configuration parameter 'Digital Input Alarm Value'			
27	Digital Input 3	none (0)	5 / 2	
	This alarm is related to digital input 3. Thi different to configuration parameter 'Digital I		igital 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		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', 'BOO	ST', 'BATTERY_	_TEST',

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2	Previous DC Mode	Conoral		basis	
2		General		basic	
4.4	The previous value of the DC Mode	0	1/-14	1	
11	Bus Voltage	General	Volt	basic	
40	The DC bus voltage in volt.		0/	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		Τ.	1	
14	Minutes Since Last AC Failure End	General	minute	basic	
	The number of minute since the last AC	1	Table	1	
21	Rectifiers Output Power	Rectifiers	Watt	basic	
	The sum of the delivered rectifier power	1	1	1	
22	Rectifiers Output Current	Rectifiers	Ampere	basic	
	The sum of the delivered rectifier curren	1	_	1	
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 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.				
38	Number Of Over Temperature Rectifier	Rectifiers		basic	
	The actual number or rectifier in OVer To	emperature.	1	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			1	
43	Mains Phase 3 Voltage	Mains	Volt	basic	
	The voltage on AC phase 3		1-20		
51	Load Power	Load	Watt	basic	
	Estimation of the load power consumption	l .		24010	
52	Load Current	Load	Ampere	basic	
	I SOUR VALIDIL	1 - 1 / 1 / 1 / 1			

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	Estimation of the load current consumpt	ion			
61	Battery Input Current	Battery	Ampere	basic	
01					
	Measurement of the battery input current. A negative value means that the battery is discharging				
62	Battery Input Power	Battery	Watt	basic	
	Measurement of the battery input power		means that the ba	attery 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 la	•	•	sible :	
	NEVER_TESTED, SUCCESS, FAILED VBUS TOO LOW, FAILED	ON_GOING,	_	-	
	FAILED_VB0S_TOO_LOW, FAILED_		FAILED_AO_FA	IILUNE,	
73	Battery Test Discharged Capacity	T	%	basic	
	Ratio				
	This is the battery capacity, in percent		the last battery te	st. This	
	value is updated at the end of the batter	<u>, </u>	T	T	
74	Battery Test Discharged Capacity	Battery	Ah	basic	
	This is the battery capacity, in ampere hour, discharged during the last battery This value is updated at the end of the battery test.				
75	Battery Test Final Voltage	Battery	%	basic	
13	This is the bus voltage at the end of the		1		
	end of the battery test.	riasi ballery lest. Th	is value is update	u ai iiie	
81	Previous Battery Test State	Battery		basic	
	The result of the previous battery test				
82	Minutes Since Last Test Battery	Battery		basic	
		•		Daoio	
	The number of minute without battery te	_			
91	Battery Charge Capacity	Battery	%	basic	
	Battery Charge Capacity The battery charge capacity, calculated	Battery by integration of the	current.	basic	
91 92	Battery Charge Capacity The battery charge capacity, calculated Calculated Autonomy	Battery			
92	Battery Charge Capacity The battery charge capacity, calculated Calculated Autonomy Calculation of the remaining autonomy	Battery by integration of the Battery	current. minute	basic	
	Battery Charge Capacity The battery charge capacity, calculated Calculated Autonomy Calculation of the remaining autonomy Battery Current Integration	Battery by integration of the Battery Battery	current. minute As	basic	
92 93	Battery Charge Capacity The battery charge capacity, calculated Calculated Autonomy Calculation of the remaining autonomy Battery Current Integration Actual value of the integration of the cur	Battery by integration of the Battery Battery Battery rent, in Ampere * sec	current. minute As	basic basic basic	
92	Battery Charge Capacity The battery charge capacity, calculated Calculated Autonomy Calculation of the remaining autonomy Battery Current Integration Actual value of the integration of the cur Battery Current Integration	Battery by integration of the Battery Battery Battery rent, in Ampere * sec	As cond	basic	
92 93 94	Battery Charge Capacity The battery charge capacity, calculated Calculated Autonomy Calculation of the remaining autonomy Battery Current Integration Actual value of the integration Actual value of the integration Actual value of the integration	Battery by integration of the Battery Battery rent, in Ampere * secondary rent, in Ampere * hours	As cond	basic basic basic basic	
92 93	Battery Charge Capacity The battery charge capacity, calculated Calculated Autonomy Calculation of the remaining autonomy Battery Current Integration Actual value of the integration of the cur Battery Current Integration Actual value of the integration of the cur LVD State	Battery by integration of the Battery Battery Battery rent, in Ampere * sec	As cond	basic basic basic	
92 93 94 101	Battery Charge Capacity The battery charge capacity, calculated Calculated Autonomy Calculation of the remaining autonomy Battery Current Integration Actual value of the integration of the cur Battery Current Integration Actual value of the integration of the cur LVD State Actual state of the LVD	Battery by integration of the Battery Battery rent, in Ampere * sec Battery rent, in Ampere * hou	As cond	basic basic basic basic basic	
92 93 94	Battery Charge Capacity The battery charge capacity, calculated Calculated Autonomy Calculation of the remaining autonomy Battery Current Integration Actual value of the integration of the cur Battery Current Integration Actual value of the integration of the cur LVD State Actual state of the LVD	Battery by integration of the Battery Battery rent, in Ampere * secondary rent, in Ampere * hours	As cond	basic basic basic basic	
92 93 94 101	Battery Charge Capacity The battery charge capacity, calculated Calculated Autonomy Calculation of the remaining autonomy Battery Current Integration Actual value of the integration of the cur Battery Current Integration Actual value of the integration of the cur LVD State Actual state of the LVD Efficiency Optimized Number Or	Battery by integration of the Battery Battery rent, in Ampere * sec Battery rent, in Ampere * hou LVD Smart Energy	As cond Ah	basic basic basic basic basic	
92 93 94 101	Battery Charge Capacity The battery charge capacity, calculated Calculated Autonomy Calculation of the remaining autonomy Battery Current Integration Actual value of the integration of the cur Battery Current Integration Actual value of the integration of the cur LVD State Actual state of the LVD Efficiency Optimized Number Of Rectifier	Battery by integration of the Battery Battery rent, in Ampere * sec Battery rent, in Ampere * hou LVD Smart Energy	As cond Ah	basic basic basic basic under	
92 93 94 101 121	Battery Charge Capacity The battery charge capacity, calculated Calculated Autonomy Calculation of the remaining autonomy Battery Current Integration Actual value of the integration of the cur Battery Current Integration Actual value of the integration of the cur LVD State Actual state of the LVD Efficiency Optimized Number Or Rectifier The optimal number of ON rectifier for E System Loss Without Optimisation	Battery by integration of the Battery Battery rent, in Ampere * sec Battery rent, in Ampere * hou LVD f Smart Energy fficiency Optimization Smart Energy	current. minute As cond Ah ur	basic basic basic basic asset	
92 93 94 101 121	Battery Charge Capacity The battery charge capacity, calculated Calculated Autonomy Calculation of the remaining autonomy Battery Current Integration Actual value of the integration of the cur Battery Current Integration Actual value of the integration of the cur LVD State Actual state of the LVD Efficiency Optimized Number Or Rectifier The optimal number of ON rectifier for E System Loss Without Optimisation Estimation of the losses without optimisation	Battery by integration of the Battery Battery rent, in Ampere * sec Battery rent, in Ampere * hou LVD Smart Energy fficiency Optimization Smart Energy	current. minute As cond Ah ur Watt	basic basic basic basic under dev	
92 93 94 101 121	Battery Charge Capacity The battery charge capacity, calculated Calculated Autonomy Calculation of the remaining autonomy Battery Current Integration Actual value of the integration of the cur Battery Current Integration Actual value of the integration of the cur LVD State Actual state of the LVD Efficiency Optimized Number Or Rectifier The optimal number of ON rectifier for E System Loss Without Optimisation	Battery by integration of the Battery Battery rent, in Ampere * sec Battery rent, in Ampere * hou LVD f Smart Energy fficiency Optimization Smart Energy	current. minute As cond Ah ur	basic basic basic basic under	

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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 1. Can be used for battery symmetry measurement. Calculation can be done with the PLC			
162	Voltage Sense 2	Sensors	Volt	basic
	The voltage measured by the sens measurement. Calculation can be done		d for battery	symmetry
163	Voltage Sense 3	Sensors	Volt	basic
	The voltage measured by the sens measurement. Calculation can be done		d for battery	symmetry
204	Digital Input 4 Counter	Sensors		basic
	The counter value of the digital input 4.			

Con	Config Table					
<u>Id</u>	Name	Group	<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	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			Volt	0/50 (43.2)	basic	
	The dc bus voltage under which		must be di	sconnected of the	bus. This	

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	allows preserving the battery life	. The load will	be unpowe	red.	
11	LVD Disconnect Delay	Bus Voltage	second	1/2000 (1)	basic
	The delay in second before disc				
04	configured disconnected voltage	1	1		
21	Temperature Compensation	•	_	-1000/0 (-72)	basic
	Slope	Compensatio n	е		
	The slope of the battery tempera		ation in my	/degree For a 48V	system -
	72mV/degree is often used.			augiou. For a for	Cyclon,
22	<u> </u>	Temperature	Volt	0/10 (3)	basic
	Temperature Compensation	Compensatio			
		n			
	The maximal allowed positive co		_	_	ı
23		Temperature	Volt	-10/0 (-3)	basic
	Temperature Compensation	Compensatio			
	The maying a lallowed penative of	n			
25	The maximal allowed negative c Minimal Number Of Present			0/100 (0)	basis
25	Rectifiers	Rectifiers		0/100 (0)	basic
	The minimal number of rectifi		t be prese	nt. If there is less	s present
	rectifiers, the alarm 'Missing Rec	1	T	1	Т
26	Rectifier Model	Rectifiers			basic
	The rectifier model	T	1	1	T
27	Forced Remote Off Rectifers				basic
	A list of rectifier which are forced in remote off. The id of the rectifier must be coma separated. Ex: 1,3 will maintain rectifier 1 and 3 off.				
31	Battery Charge Current Limit		Ampere	0.5/1000 (1000)	basic
٠.	The maximal battery current w			, ,	
	the bus voltage in order to satisf	•		0	•
	nominal battery capacity divided		·	·	
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	Battery	degree C	0/10 (2)	basic
	Hysteresis	-			
	The hysteresis on the 'Battery'	Temperature T	oo High' ar	nd 'Battery Tempera	ature Too
00	Low' alarms.	Ь	T.	0 (4 000 (0)	
36	Minimal Current For Discharging Alarm	Battery	Ampere	0/1000 (2)	basic
	The minimal discharging current	to set the 'Bati	terv On Dis	L	1
37		Battery	Ampere	0/50 (0.5)	basic
٠.	Discharging Alarm	Battory	, unporo	0,00 (0.0)	Baoio
	The hysteresis on the 'Battery On Discharge' alarm.				
	The hysteresis on the 'Battery O	ii Discriarge a	iaiii.		
51	The hysteresis on the 'Battery O Boost Automatic			False/False	batterv
51		Boost		False/False (False)	battery

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	bus voltage went under the c charging the battery faster.	onfigured 'Boo	st Activation	n Low Voltage'. Th	nis allows
52	Boost Activation Low Voltage	Roost	Volt	43/50 (46)	battery
<i>5</i> 2	The voltage under which the bo	ı		. ,	Dattery
53	Boost Termination Voltage	Boost	Volt	50/58 (56.4)	battery
	The voltage over which the syst	em must go ba	ck to floatir	ng mode.	<u> </u>
54	Boost Termination Current	Boost	Ampere	0/100 (2)	battery
	The battery charging current un	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 t	he system mus	t go back ir	n floating mode.	
70	Battery Test End Voltage	Battery Test	Volt	30/60 (46)	battery
	The voltage at which any batter	y 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	ty to discharge	. If 30 is se	et, 30% of the batte	ery 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	3/100 (1000)	battery
	The current at which the bat monitoring regulates the bus vomust be of course higher than the course higher than the current at which the bat monitoring regulates the bat monitoring regulates the bat monitoring regulates the bus volumes the current at which the bat monitoring regulates the bus volumes the current at which the bat monitoring regulates the bus volumes the current at the bat monitoring regulates the bus volumes the current at the bat monitoring regulates the bus volumes the current at the current	oltage in order t his parameter			
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 t	he load is
75	Battery Test Time Out	Battery Test	minute	1/5000 (10)	battery
	The timeout in minute after which	ch 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 witl parameter is not taken into accordance.				start. This
83		Smart Energy		121-125	asset
	Condition				
	This is the boolean condition w	hich allows or r	not to autor	natically optimize th	e numbe
06	of rectifier in remote off.	LVD		Т /Г /Г	la a a i a
86	Battery LVD Node Id This is a list of the node id of the	LVD	nio I V/Da	True/False (False)	basic
04	This is a list of the node id of the	1	nic LVDS, (· ·	basis
91	Digital Input 1 Name	Digital Inputs		Distribution Breaker Open	basic
	The name of the digital input 1	1	1	12.00.01 Opon	1
92	•	Digital Inputs		True/False (True)	basic
	True/False value defining if the not in this default state, the rela			closed. If this digit	al input is

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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			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			closed. If this digita	al input is
111	Dry Alarm 1 Alternative	Dry Alarms		False	plc
	Boolean Condition				
	Another Boolean condition to accondition is detailed in the PLC		larm relay		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	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	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	d Battery Tempera	ature Too
521	Read Access User Numbers	Allowed Users		(1,2,3,4,5)	basic
	The list of the user numbers v	vhich have rea	d access t	this equipment.	The user
	numbers are coma separated. T				
522	Write Access User Numbers	Allowed Users		()	basic
				-	

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	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 ar	nd 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	and 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	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>	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.	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 a alarm will be cleared.	larm 'Battery Last Test F	ailed' is set, the				
51	Save Configuration In MCU	Save	basic				
	Save configuration parameters in the MCU m the system will be correctly managed.	icrocontroller. If comp@	s is not 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	of 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 even 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	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 twritten to this control element			
521	Reset Default Names And Groups	Advanced	basic	
	This control element resets all the element Names values	, Groups and Subgroups to	o default	

7.2.10 MCU1848M3 / MCU1848M3D

Device Information	
Name	MCU1848M3 / MCU1848M3D
Short Description	Controller without LCD display / Controller with LCD display
Long Description	Monitoring and control unit with USB and Ethernet port, no LCD display - ACE153 and ACE156 lines / Monitoring and control unit with LCD display, USB and Ethernet port - ACE153 and ACE156 line
Hardware Reference	9413 061 85041 / 9413 061 85051
Software Reference	SOFT 000066 XX
Equipment Type	Monitoring Control Unit
ETSI Level	/site/energy_system/dc_system

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 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				

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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		

Alar	m Table				
<u>Id</u>	Name	Severity Type (Level)	Set/Clear Delay		
1	DC Bus Extra Low	major (6)	5/2		
	The bus voltage is extra low. The alarm configuration parameter 'DC Bus Voltage alarm : 'DC Bus Voltage Extra Low Hystmode is BATTERY TEST	ge Extra Low'. There is a	n hysteresis on the		
2	DC Bus Low	minor (4)	5 / 2		
	The bus voltage is low. The alarm is 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 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 configuration paramenter 'DC Bus Voltage Extra High Hyste	ge Extra High'. There is a			
5	DC Bus Voltage Sense Failure	major (6)	1 / 2		
	The DC bus voltage sense is defective unconfigured.	e. 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 0 and the number of recti	fiers in AC failure is		
7	Mains Partial Failure	minor (4)	10 / 2		
	The number of active rectifiers is greatefailure is greater than 0. Some rectifier open breaker, a real phase failure, or by	s are in AC Failure. It ma			
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 not rectifier is set. The number of rectifier mains failure, and the 'More Than One R	with 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	rectifier failures is greater t	han 1.		
12	Missing Rectifiers	major (6)	5/2		
	There is not enough rectifier according to the configuration parameter : 'Minimal Number Of Rectifier'				
	_	g to the configuration pa	arameter : 'Mınımal		

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	The last battery test did not succeed and was not cancelled. Maybe the battery should be replaced.			
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'.	rstem in AC Failure or du	uring a battery test.	
17	Battery LVD Relay Open	major (6)	5 / 2	
	The battery Low Voltage Disconnector is open. On Systems without LVD_Status signal, like MCU 1848 or MCU 1x6, the alarm is present only if the signal LVD_COM asks to open the LVD			
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	•		
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	
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		igital 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		igital 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		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', '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		

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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		T	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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	I					
	This is the battery capacity, in percent value is updated at the end of the batter		the last battery t	est. 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.		uring the last bat	tery 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	est				
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 * se	cond			
94	Battery Current Integration	Battery	Ah	basic		
	Actual value of the integration of the cur	rent, in Ampere * ho	our			
101	LVD State	LVD		basic		
	Actual state of the LVD					
121	Efficiency Optimized Number O Rectifier	f Smart Energy		asset		
	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 optimis	Estimation of the losses without optimisation				
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	on				

Cor	nfig 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 Voltage Extra Low' is s							
3	DC Bus Voltage Extra Low Hysteresis	Bus Voltage	Volt	0/5 (1)	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	40/60 (48)	basic
•	The bus voltage under which the		l .	, ,	basis
5	•	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				_
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		Volt	0/5 (0.5)	basic
	The voltage hysteresis on the al	1	, , , , , , , , , , , , , , , , , , , 		
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				
21	configured disconnected voltage Temperature Compensation				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	ompensation.			
23	Maximum Negative Temperature Compensation	Temperature Compensatio n	Volt	-10/0 (-3)	basic
	The maximal allowed negative of	ompensation.	l		l
25	Minimal Number Of Present Rectifiers			0/100 (0)	basic
	The minimal number of rectifier which must be present. If there is less rectifiers, the alarm 'Missing Rectifiers' is set.				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 we the bus voltage in order to satisfication to satisfication of the satisfication of	sfy this condition			

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		T	T	T	
32	Battery String Capacity	Battery	Ah	3/1000 (100)	basic
	The battery capacity in Ah.	Γ	T	T	
33	•	Battery		-100/20 (0)	basic
	The temperature under which th		<u> </u>	•	
34	Battery Temperature High	Battery	degree C	5/100 (40)	basic
	The temperature over which the	alarm 'Battery		· · · · · · · · · · · · · · · · · · ·	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 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.		
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		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 tw set to 0, the battery test is not start or force this test.				
73	Battery Test Discharge Current	Battery Test	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
	•				

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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			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	Dry Alarms		False	plc		
		Another Boolean condition to activate the dry alarm relay 4. The way to define boolean condition is detailed in the PLC chapter.					
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 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. The value must be comprised between 10 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	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	led in the lame and	e 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 programmable alarms. Alarm elements are automatically added in the alarm table. The alarm parameters are added to set the PLC Alarm Name and the PLC Alarm Boolean condition. In order to use these functionalities, you need a licence with the 'PLC' module						

Control Table					
<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				

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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 microcontroller. If comp@s is not present, the system will be correctly managed.				
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	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 major. The event name is the te written to this control element				
521	Reset Default Names And Groups	Advanced	basic		
	This control element resets all the element Names values	s, Groups and Subgroups t	o 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 system description				
2	Reference	Description	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 system 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				

Ala	rm 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 Hyster 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 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 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)	1 / 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 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				
10	One Rectifier Failure	minor (4)	5 / 2		
	One rectifier must be replaced or is not porrectifier is set. The number of rectifier with				

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	mains failure, and the 'More Than One Red	ctifier Failure alarm 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	than 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 was not cancelled. Maybe the battery shou be replaced.				
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 is open. On Systems without LVD_Si signal, like MCU 1848 or MCU 1x6, the alarm is present only if the signal LVD_G asks to open the LVD				
18	Battery Temperature Too High	minor (4)	5 / 2		
	The temperature of the battery is too high and is greater than -600 units. There is an hysteresis corresponding to battery parameter 'Temperature hysteresis'.				
19	<u> </u>	· · · · · · · · · · · · · · · · · · ·	5 / 2		
19	Battery Temperature Too Low The temperature of the battery is too low	minor (4)			
	hysteresis corresponding to battery parame				
20	Battery Temperature Sensor Fail	minor (4)	5 / 2		
	The battery temperature sensor (NTC) valuation not connected or defective.	ue is inferior to -500 uni	its meaning that it is		
21	Ambient Temperature Too High	minor (4)	5 / 2		
	The ambient temperature is too high and is greater than -600 units. There is an hysteresis corresponding to parameter 'Ambiant temperature hysteresis'. This alarm is only activated on MCU master types 30110, 3096, 30125, 0024, 0948, 0548, 0348 0948 and 3048M6.				
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.	nbiant temperature hyste	resis'. This alarm is		
23	Ambient Temperature Sensor Fail	minor (4)	5 / 2		
	The ambiant temperature sensor (NTC) values and connected or defective.	llue is inferior to -500 un	its meaning that it is		
25	Distribution Breaker Open	major (6)	5 / 2		
	Distribution Breaker Open This alarm is related to digital input 1. The different to configuration parameter 'Digital'	nis alarm is activated if Input Alarm Value'	digital input value is		
25 26	Distribution Breaker Open This alarm is related to digital input 1. The	nis alarm is activated if			
	Distribution Breaker Open This alarm is related to digital input 1. The different to configuration parameter 'Digital'	nis alarm is activated if Input Alarm Value' minor (4)	digital input value is		
	Distribution Breaker Open This alarm is related to digital input 1. The different to configuration parameter 'Digital Battery Breaker Open This alarm is related to digital input 2. The	nis alarm is activated if Input Alarm Value' minor (4)	digital input value is		

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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 'Digit	al Input Alarm Value'	-

Data	Table				
Id	<u>Name</u>	Group	<u>Unit</u>	Licens	
				<u>e</u>	
1	DC Mode	General		basic	
	The DC system can have 4 value '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	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	į			
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	nt			
31	Number Of Rectifier Max	Rectifiers		basic	
	The maximum possible number of rectific	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 t	his 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 no			1	
35	Number Of AC-Fail Rectifier	Rectifiers		basic	
	The actual number or rectifier in AC Faile	_		1	
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.	,		
38	Number Of Over Temperature Rectifier	Rectifiers		basic	

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	The actual number or rectifior in OVer To	amnerature		
51	The actual number or rectifier in OVer Te		Mott	boois
၁ I	Load Power Estimation of the load power consumption	Load	Watt	basic
52	Load Current	Load	Amporo	basic
52			Ampere	Dasic
61	Estimation of the load current consumption	1	Amnoro	basis
61	Battery Input Current	Battery	Ampere	basic
	Measurement of the battery input currer discharging	ii. A negative value	means that the ba	allery is
62	Battery Input Power	Battery	Watt	basic
	Measurement of the battery input power discharging	•	means that the ba	attery is
71	Battery Temperature	Battery	degree C	basic
	The battery temperature	,	19	
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_TIN	sible : MEOUT,
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. 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 tes	st		
91	Battery Charge Capacity	Battery	%	basic
	The battery charge capacity, calculated by	oy 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		T
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	I		
121	Efficiency Optimized Number Of Rectifier	Smart Energy		asset
	The optimal number of ON rectifier for Et	ficiency Optimization	ו	
122	System Loss Without Optimisation	Smart Energy	Watt	under dev

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	Estimation of the losses without optimisa	ation			
123	System Loss With Optimisation Smart Energy Watt		under dev		
	Estimation of the losses with optimisation				
124	Rectifier Model Used For Calculation Smart Energy		asset		
	The rectifier model used				
125	25 Smart Energy Savings Smart Energy Watt Estimation of the losses with optimisation				
151	51 Ambient Temperature Sensors degree C barrier The ambiant temperature (second temperature sense)				
161	Voltage Sense 1	Sensors Volt			
	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				
<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 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	jh' 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	Bus Voltage	Volt	0/5 (0.5)	basic

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	I becken all				1 1
	Hysteresis	1000		1.12.1	
40	The voltage hysteresis on the al				<u>.</u>
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 unpowe		1
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	. '	т		1
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		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 with the bus voltage in order to satisfication to satisficate the common of the common of the common of the common of the current with the current w	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	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	Battery	degree C	0/10 (2)	basic
	Hysteresis	<u> </u>	1.11.7.5		<u> </u>
	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 Dis	charge' alarm.	•
37		Battery	Ampere	0/50 (1)	basic
	-	î	•	•	

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	The hysteresis on the 'Battery C	n Discharge' a	larm.			
41	Shunt Rating At 60mV	Battery	Ampere	25/5000 (250)	basic	
	The rating of the battery shunt a		1		1.00.010	
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		1	
53	Boost Termination Voltage	Boost	Volt	50/58 (56.4)	battery	
	The voltage over which the syst	·	ck to floatin	ĭ	1	
54	Boost Termination Current	Boost	Ampere	0/100 (4)	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	he 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 batter	y test must be s	topped.	,		
71	Battery Test Discharge Ratio	Battery Test	%	0/100 (0)	battery	
	The ratio of the battery capacit	y to discharge.	If 30 is se	et, 30% of the batte	ry will be	
	discharged during the test	<u></u>	1.	T	1.	
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	3/100 (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 regulates at the current at which the bat monitoring regulates at the current at which the bat monitoring regulates at the current at which the bat monitoring regulates at the current at which the bat monitoring regulates at the current at which the bat monitoring regulates the bat monitoring regulates at the current at which the bat monitoring regulates at the bus volumes at the current at the curr	oltage in order t				
74	-	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		est must be		1	
76	Battery Test Requested Minutes Without Mains Failure	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 Boolear Condition	Smart Energy		121-125	asset	
i	This is the boolean condition w	hich allows or n	not to auton	natically optimize the	e number	
	of rectifier in remote off.	1		1		
86		LVD		True/False (False)	basic	
86	of rectifier in remote off.	<u> </u>	nic LVDs, c	, ,	basic	

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				Breaker Open	
	The name of the digital input 1			breaker Open	
92		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	,	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			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. 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. 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		larm relay	4. The way to define	boolean
131	Ambient Temperature Low	Sensors	degree C		basic
	The temperature under which th	1		ature Too Low' must	
132	Ambient Temperature High	Sensors	degree C		basic
	The temperature under which th			ature Too 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

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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	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	ndded in tl n Name ar	ne alarm table. The t	he alarm Boolean

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		

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	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 microcontroller. If comp@s is not present the system will be correctly managed.				
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 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 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 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	, Groups and Subgroups t	o default		

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	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		

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	The serial number of the DC system 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			

14	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 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 D 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 set when the bus voltage is higher than the configuration parametrer '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)	1 / 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 recti	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		y be caused by an		
8			10 / 2		
8	open breaker, a real phase failure, or by a	rectifier failure. warning (2) hases. No rectifier is in	10 / 2 AC failure. If MCU		
8	open breaker, a real phase failure, or by a mains Low The main voltage is low on one or more plaster type is 30110, 3096 or 3048M6, and	rectifier failure. warning (2) hases. No rectifier is in	10 / 2 AC failure. If MCU		
	open breaker, a real phase failure, or by a mains Low The main voltage is low on one or more plaster type is 30110, 3096 or 3048M6, and to the voltage lower limit	warning (2) hases. No rectifier is in hysteresis _phase123l warning (2) phases. No rectifier is is 30110, 3096 or 3048	10 / 2 AC failure. If MCU Hysteresis is added 10 / 2 in AC failure. The M6. Therefore, an		
	open breaker, a real phase failure, or by a mains Low The main voltage is low on one or more plaster type is 30110, 3096 or 3048M6, as to the voltage lower limit Mains High The main voltage is low on one or more alarm is only active if MCU master type	warning (2) hases. No rectifier is in hysteresis _phase123l warning (2) phases. No rectifier is is 30110, 3096 or 3048	10 / 2 AC failure. If MCU Hysteresis is added 10 / 2 in AC failure. The M6. Therefore, an		
9	open breaker, a real phase failure, or by a mains Low The main voltage is low on one or more plaster type is 30110, 3096 or 3048M6, at to the voltage lower limit Mains High The main voltage is low on one or more alarm is only active if MCU master type hysteresis _phase123Hysteresis is substra	warning (2) hases. No rectifier is in hysteresis _phase123h warning (2) phases. No rectifier is is 30110, 3096 or 3048 cted to the voltage lower minor (4) howered correctly. The Eth DC Failure is higher	10 / 2 AC failure. If MCU-dysteresis is added 10 / 2 in AC failure. The M6. Therefore, an limit. 5 / 2 C fail alarm of the than 0, there is no		

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	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'		
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 battery parameter 'Is	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 al 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
21	Ambient Temperature Too High	minor (4)	5 / 2
	The ambient temperature is too high and hysteresis corresponding to parameter 'Amonly 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 'Amonly 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.	lue 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'	nis alarm is activated if o	
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	nis alarm is activated if o	digital input value is
	different to configuration parameter 'Digital		J 1
28			5 / 2

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	different to configuration parameter 'Digita	al Input Alarm Value'		
29	Digital Input 5	none (0)	5 / 2	
	This alarm is related to digital input 5. T different to configuration parameter 'Digital'		igital input value is	
30	0 Digital Input 6 none (0) 5 / 2			
	This alarm is related to digital input 6. This alarm is activated if digital input value is different to configuration parameter 'Digital Input Alarm Value'			
31	Digital Input 7	none (0)	5 / 2	
	This alarm is related to digital input 7. This alarm is activated if digital input value is different to configuration parameter 'Digital Input Alarm Value'			
32	Digital Input 8	none (0)	5 / 2	
	This alarm is related to digital input 8. This alarm is activated if digital input va different to configuration parameter 'Digital Input Alarm Value'			

Data	Table			
<u>ld</u>	<u>Name</u>	Group	Unit	Licens
				<u>e</u>
1	DC Mode	General		basic
	The DC system can have 4 value '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	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 rectific	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 t	this dc system		
34	Number Of Active Rectifier	Rectifiers		basic
	The actual number of active rectifier in t	this dc system. An a	ctive rectifier is a	rectifier

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	which is present, DC OK, AC OK and no	t in remote off.		
35	Number Of AC-Fail Rectifier	Rectifiers		basic
	The actual number or rectifier in AC Faile	ire.		ı
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.		ı
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	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
63	Battery String 1 Input Current	Battery	Ampere	basic
	Measurement of the battery 1 input curr is discharging	ent. A negative valu	e means that the	battery
64	Battery String 2 Input Current	Battery	Ampere	basic
	Measurement of the battery 2 input curr is discharging	ent. A negative valu	e means that the	battery
65	Battery String 3 Input Current	Battery	Ampere	basic
	Measurement of the battery 3 input curr is discharging	ent. A negative valu	e means that the	battery
67	Voltage Offset For Shunt regulation	Battery	Volt	basic
	No information			
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,	discharged during t	he last batterv te	st. This

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	value is updated at the end of the battery	/ test.						
74	 	Battery	Ah	basic				
	This is the battery capacity, in ampere		ring the last batte	1				
	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	- a		1000.0				
82	Minutes Since Last Test Battery	Battery		basic				
	The number of minute without battery test							
91	Battery Charge Capacity	Battery	%	basic				
	The battery charge capacity, calculated I	by integration of the c	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	Actual value of the integration of the current, in Ampere * hour						
101	LVD State	LVD		basic				
	Actual state of the LVD	T	T	1				
121	Efficiency Optimized Number Of Rectifier	Smart Energy		asset				
	The optimal number of ON rectifier for Et	fficiency Optimization	1	,				
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		T	1				
151	Ambient Temperature	Sensors	degree C	basic				
	The ambiant temperature (second temperature)	· · · · · · · · · · · · · · · · · · ·	T	1				
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.							

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Conf	ig Table						
<u>Id</u>	<u>Name</u>	Group	<u>Unit</u>	Range: Min/Max	License		
				(default)			
1	DC Bus Float Voltage at 25 degC		Volt	40/60 (54)	basic		
	The floating dc bus voltage of the system at 25 Celsius degree						
2		Bus Voltage	Volt	40/60 (45)	basic		
	The bus voltage under which the				Г		
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'.	T		
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	Hysteresis	Bus Voltage	Volt	0/5 (0.5)	basic		
	The voltage hysteresis on the al				Г		
6	<u> </u>	Bus Voltage	Volt	40/60 (56.5)	basic		
	The bus voltage over which the	T	,	,	T		
7	DC Bus Voltage High Hysteresis	Bus Voltage	Volt	0/5 (0.5)	basic		
	The voltage hysteresis on the al	1			r		
8		Bus Voltage	Volt	40/60 (58)	basic		
	The bus voltage over which the			tra High' is set.	r		
9	DC Bus Voltage Extra High Hysteresis		Volt	0/5 (0.5)	basic		
	The voltage hysteresis on the al				r		
10	<u> </u>	Bus Voltage	Volt	0/50 (43.2)	basic		
	The dc bus voltage under which the battery must be disconnected of the bus. This allows preserving the battery life. The load will be unpowered.						
11	LVD Disconnect Delay	Bus Voltage	second	1/2000 (1)	basic		
	The delay in second before disconnecting the battery if the dc bus voltage is under the configured disconnected voltage. This avoids disconnection during a low bus transient.						
0.1							
21	Temperature Compensation Slope	Compensation	mV/degre e	-1000/0 (-72)	basic		
The slope of the battery temperature compensation in mv/degree. For a 72mV/degree is often used.							
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 compensation.						
25	Minimal Number Of Present Rectifiers	Rectifiers		0/100 (0)	basic		

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	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		I			
27	Forced Remote Off Rectifers	Rectifiers			basic	
	A list of rectifier which are force	ed in remote o	ff. The id o	of the rectifier must		
	separated. Ex: 1,3 will maintain rectifier 1 and 3 off.					
28	Rectifier CAN Node IDs Range	Rectifiers			basic	
	No information					
29	Rectifier Ids Declared	Rectifiers			basic	
	No information					
31	Battery Charge Current Limit	Battery	Ampere	0.5/3250 (1000)	basic	
	The maximal battery current where the bus voltage in order to satisfication to the common street to the common str	sfy this condition	on. This pa			
32	Battery String Capacity	Battery	Ah	3/6500 (100)	basic	
	The battery capacity in Ah.		T	1		
33	Battery Temperature Low	Battery	degree C	-100/20 (0)	basic	
	The temperature under which th	e alarm 'Batter		1	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' aı	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	ery On Dis	charge' alarm.		
37		Battery	Ampere	0/500 (1)	basic	
	Discharging Alarm					
	The hysteresis on the 'Battery O	·	arm.	1	T	
40	Number of Battery String	Battery		1-3	basic	
	The Number of Battery String in	the system	ı	1		
41	Shunt Rating At 60mV	Battery	Ampere	25/5000 (250)	basic	
	The rating of the battery shunt a	1	1	1	1	
42	Battery 2 Charge Current Limit	•	Ampere	0.5/3250 (1000)	basic	
	The maximal battery current when the battery is charging. The monitoring regulates the bus voltage in order to satisfy this condition. This parameter is often equal to the nominal battery capacity divided by 10.					
43	Battery 2 String Capacity	Battery 2	Ah	3/6500 (100)	basic	
. •	The battery capacity in Ah.		<u> </u>	5, 5555 (155)	134310	
44	Shunt Rating At 60mV	Battery 2	Ampere	25/5000 (250)	basic	
-T-T	The rating of the battery shunt a		mpere	25/5555 (250)	Dasio	
45	Battery 3 Charge Current Limit		Ampere	0.5/3250 (1000)	basic	
		hen the hatter	l Lis chardir	a. The monitoring	regulates	
	The maximal battery current when the battery is charging. The monitoring regulates					

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	the bus voltage in nominal battery ca		•	on. This pa	arameter is often eq	ual to the
46	Battery 3 String C		Battery 3	Ah	3/6500 (100)	basic
	The battery capaci		,		,	
47	Shunt Rating At 6	-	Battery 3	Ampere	25/5000 (250)	basic
	The rating of the b		-	<u> </u>	, ,	
51	Boost Automatic	,	Boost		False/False (False)	battery
		under the co			at during a mains f on Low Voltage'. T	
52	Boost Activation	Low Voltage	Boost	Volt	43/50 (46)	battery
	The voltage under	which the boo	ost mode can b	e activated	d.	
53	Boost Terminatio	n Voltage	Boost	Volt	50/58 (56.4)	battery
	The voltage over v	hich the syst	em must go ba	ck to floatir	ng mode.	
54	Boost Terminatio		Boost	Ampere	0/100 (4)	battery
	The battery charging	ng current und	der which the s	ystem mus	st go back to floating	mode.
55	Boost Terminatio		Boost	minute	10/240 (120)	battery
	The time in minute	after which th	ne system mus	t go back i	n floating mode.	, ,
70	Battery Test End		Battery Test	Volt	30/60 (46)	battery
	The voltage at whi			stopped.	, ,	, ,
71	Battery Test Disc			%	0/100 (0)	battery
	The ratio of the ba	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 Inter		Battery Test	day	0/3000 (0)	battery
The number of days between two automatically started battery test. If this set to 0, the battery test is not started automatically. The user can remot start or force this test.						
73	Battery Test Current	Discharge	Battery Test	Ampere	3/5000 (1000)	battery
	The current at which the battery must be discharged during a battery test. The monitoring regulates the bus voltage in order to satisfy this condition. The load current must be of course higher than this parameter.					
74	Battery Test Discharge Currer		Battery Test	Ampere	2/90 (2)	battery
	The battery currer too low.	t under which	the battery te	st must be	stopped because t	he load is
75	Battery Test Time	Out	Battery Test	minute	1/5000 (10)	battery
	The timeout in min	ute after whic	h the battery te	est must be	stopped.	
76	Battery Test Minutes Witho Failure		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 Condition	Boolean	Smart Energy		121-125	asset
	This is the boolean condition which allows or not to automatically optimize the number of rectifier in remote off.					

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86	Battery LVD Node Id	LVD		Truo/Ealco (Ealco)	basic	
00	•	l	ia I VDa a	\ /	Dasic	
01	This is a list of the node id of the		IIC LVDS, C	Distribution	basis	
91	Digital Input 1 Name	Digital Inputs		Breaker Open	basic	
	The name of the digital input 1				1	
92		Digital Inputs		True/False (True)	basic	
	Closed	3 1		,		
	True/False value defining if the		s normally	closed. If this digita	al input is	
	not in this default state, the related alarm is set.					
93	Digital Input 2 Name	Digital Inputs		Battery Breaker	basic	
	The magnetic state of the distribution of the			Open		
0.4	The name of the digital input 2	District		T /C-1 /T	l	
94	Closed	Digital Inputs		True/False (True)	basic	
	True/False value defining if the		s normally	closed. If this digita	al input is	
95	not in this default state, the relat Digital Input 3 Name	Digital Inputs		Digital Input 2	basic	
33	The name of the digital input 3	טושונמו וווףענט		Digital Input 3	Dasic	
96		Digital Inputs		True/False (True)	basic	
30	Closed	Digital Inputs		True/Faise (True)	Dasic	
	True/False value defining if the	digital input 3 is	s normally	closed. If this digita	al input is	
	not in this default state, the relat		,,	one of the same of gran		
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 digital input 4 is normally closed. If this digital input is					
	not in this default state, the relat				1	
99	Digital Input 5 Name	Digital Inputs		Digital Input 5	basic	
	The name of the digital input 5				1	
100	Digital Input 5 Normally Closed	Digital Inputs		True/False (True)	basic	
	True/False value defining if the digital input 5 is normally closed. If this digital input is					
	not in this default state, the relat			<u></u>	1	
101	Digital Input 6 Name	Digital Inputs		Digital Input 6	basic	
100	The name of the digital input 6	<u> </u>		<u> </u>	1	
102	Digital Input 6 Normally Closed	Digital Inputs		True/False (True)	basic	
		digital input 6 is	e normally	closed If this digits	l al innut ie	
	True/False value defining if the digital input 6 is normally closed. If this digital input is not in this default state, the related alarm is set.					
103	Digital Input 7 Name	Digital Inputs		Digital Input 7	basic	
	The name of the digital input 7	, , ,		, ,	1	
104	Ů I	Digital Inputs		True/False (True)	basic	
	True/False value defining if the not in this default state, the relat		s normally	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	- ·g.tai iiipato		18.10. 11.100.0	1343.0	
The hame of the digital input o						

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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 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	Dry Alarms		False	plc	
	Another Boolean condition to activate the dry alarm relay 3. The way to define booles condition is detailed in the PLC chapter.					
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 the	1	nt Lempera	iture I oo Low' must	be set.	
132	Ambient Temperature High	Sensors	degree C	tura Taa Laud musat	basic	
	The temperature under which th	1		iture 100 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	
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	٧.		
144	AC Phase 1 PLC	Mains			basic	
	This is the mathematical expre rectifiers are used. The syntax f					
	PLC chapter. The PLC data eler	ment is the resu	ılt of the cal	culation.		
4 4 5	•					
145	AC Phase 2 PLC	Mains			basic	
145	This is the mathematical expre	ssion of the ca			npty, the	
145	This is the mathematical expre rectifiers are used. The syntax f	ssion of the ca	nematical e	xpression is describ	npty, the	
	This is the mathematical expre rectifiers are used. The syntax f PLC chapter. The PLC data eler	ssion of the ca or writting math ment is the resu	nematical e	xpression is describ	npty, the ed in the	
146	This is the mathematical expre rectifiers are used. The syntax f PLC chapter. The PLC data eler AC Phase 3 PLC	ssion of the ca for writting math ment is the resu Mains	nematical eal	xpression is describ culation.	mpty, the ed in the basic	
	This is the mathematical exprerectifiers are used. The syntax fPLC chapter. The PLC data elerated AC Phase 3 PLC This is the mathematical exprerectifiers are used. The syntax f	ssion of the castor writting mathement is the resultations. Mains ssion of the castor writting mathematics.	nematical ealit of the cal	xpression is describ culation. f AC phase 3. If ex xpression is describ	npty, the ed in the basic npty, the	
146	This is the mathematical exprerectifiers are used. The syntax fPLC chapter. The PLC data elemants are used. This is the mathematical exprerectifiers are used. The syntax fPLC chapter. The PLC data elemants are used.	ssion of the care or writting mathement is the results of the care or writting mathement is the results.	nematical ealit of the cal	xpression is describ culation. f AC phase 3. If ex xpression is describ	npty, the ed in the basic npty, the ed in the	
	This is the mathematical exprerectifiers are used. The syntax for PLC chapter. The PLC data elements are as a PLC. This is the mathematical exprerectifiers are used. The syntax for PLC chapter. The PLC data elements are plus condition.	ssion of the castor writting mathement is the resultation of the castor writting mathement is the resultation.	nematical eallt of the callalculation of the	xpression is describ culation. f AC phase 3. If ex xpression is describ	npty, the ed in the basic npty, the	
146	This is the mathematical exprerectifiers are used. The syntax fPLC chapter. The PLC data elemants are used. This is the mathematical exprerectifiers are used. The syntax fPLC chapter. The PLC data elemants are used.	ssion of the castor writting mathement is the resultation of the castor writting mathement is the resultation.	nematical eallt of the callalculation of the	xpression is describ culation. f AC phase 3. If ex xpression is describ	npty, the ed in the basic npty, the ed in the	

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		Users			
	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 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	prised 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 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 ti n Name ai	he alarm table. The the PLC Alarm	he alarm Boolean

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		

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	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 microconthe 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	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 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	, Groups and Subgroups t	o 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	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	

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	The serial number of the DC system 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		
Id	<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 Hyster mode is BATTERY TEST	Extra Low'. There is ar	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)	1 / 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	fiers 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	are in AC Failure. It ma	
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		
9	Mains High	warning (2)	10 / 2
	The main voltage is low on one or more palarm is only active if MCU master type is hysteresis _phase123Hysteresis is substractive.	s 30110, 3096 or 3048l	M6. Therefore, an
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	than 0, there is no
11	More Than One Rectifier Failure	major (6)	10 / 2

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	There is no mains failure and number of	rectifier failures is greate	
12	Missing Rectifiers	major (6)	5 / 2
	There is not enough rectifier according Number Of Rectifier'	ng to the configuration	parameter : 'Minima
13	Battery Last Test Failed	minor (4)	5 / 2
	The last battery test did not succeed an be replaced.	d was not cancelled. Ma	ybe the battery should
14	Battery On Discharge	minor (4)	10 / 2
	The battery is discharging. This mear 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	alarm is present only if	the signal LVD_COM
18	Battery Temperature Too High	minor (4)	5 / 2
	The temperature of the battery is too highly hysteresis 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 u	units meaning that it is
21	Ambient Temperature Too High	minor (4)	5 / 2
	The ambient temperature is too high hysteresis corresponding to parameter to only activated on MCU master types 3 0948 and 3048M6.	Ambiant temperature hys	steresis'. This alarm is
22	Ambient Temperature Too Low	minor (4)	5 / 2
	The ambient temperature is too low a	and is greater than -60	0 units. There is an
	hysteresis corresponding to parameter 'a only activated on MCU master types 3 0948 and 3048M6.		
23	Ambient Temperature Sensor Fail	minor (4)	5 / 2
	The ambiant temperature sensor (NTC) not connected or defective.	. ,	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	This alarm is activated	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.	This alarm is activated	if digital input value is
	different to configuration parameter 'Digi		ii digitai iripat valde le
28	•		5 / 2

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	T			
	different to configuration parameter 'Digital I	nput Alarm Value'		
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. This alarm is activated if digital input value is different to configuration parameter 'Digital Input Alarm Value'			
31	Digital Input 7	none (0)	5 / 2	
	This alarm is related to digital input 7. Thi different to configuration parameter 'Digital I		gital 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 valu 'AC_FAILURE' or SAFE	es: 'FLOAT', 'BO	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	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 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	this dc system. An a	active rectifier is a	rectifier	

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	which is present, DC OK, AC OK and not	t in remote off.		
35	 	Rectifiers		basic
	The actual number or rectifier in AC Failu	ıre.	1	
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 of	off.		
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	n		
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 currendischarging	t. 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 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_IFAILED_CANCELED, FAILED_LVD_OP	ON_GOING, LOAD_TOO_LOW,	FAILED_TIM	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 I 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. The	is value is updated	d at the
81	Previous Battery Test State	Battery		basic
	The result of the previous battery test			
82	· · · · · · · · · · · · · · · · · · ·	Battery		basic

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91	Battery Charge Capacity	Battery	%	basic
	The battery charge capacity, calculated I	by integration of the o	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			_
94	Battery Current Integration	Battery	Ah	basic
	Actual value of the integration of the curr	· ·	r	1
101	LVD State	LVD		basic
	Actual state of the LVD	1	ı	1
121	Rectifier	Smart Energy		asset
	The optimal number of ON rectifier for E	· · · · · · · · · · · · · · · · · · ·		,
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	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)	, , , , , , , , , , , , , , , , , , ,	T	,
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
. 52	Voltage Gelise 2	00110010	VOIL	Daoio
.02	The voltage measured by the sense measurement. Calculation can be done	e 2. Can be used		l .
163	The voltage measured by the sense	e 2. Can be used		l .
	The voltage measured by the sense measurement. Calculation can be done	e 2. Can be used with the PLC Sensors e 3. Can be used	for battery sy	mmetry basic
	The voltage measured by the sense measurement. Calculation can be done voltage Sense 3 The voltage measured by the sense sens	e 2. Can be used with the PLC Sensors e 3. Can be used	for battery sy	mmetry basic

Conf	ig Table				
<u>ld</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	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	Bus Voltage	Volt	0.5/10 (2)	basic

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		I	1	1	
	Hysteresis				
	The voltage hysteresis on the al		oltage Extra	a Low'.	_
4	DC Bus Voltage Low The bus voltage under which the	Bus Voltage	Voltage	65/105 (84)	basic
_	+	1			la : -
5	DC Bus Voltage Low Hysteresis	Bus Voltage	Volt	0.5/10 (1)	basic
	The voltage hysteresis on the al	arm 'DC Bus V	oltage Low		
6	DC Bus Voltage High	Bus Voltage	Volt	70/105 (98.875)	basic
	The bus voltage over which the	alarm 'DC Bus	Voltage Hig	gh' is set.	
7	DC Bus Voltage High Hysteresis	Bus Voltage	Volt	0.5/10 (1)	basic
	The voltage hysteresis on the al-	arm 'DC Bus V	oltage High		
8	DC Bus Voltage Extra High	Bus Voltage	Volt	70/105 (101.5)	basic
	The bus voltage over which the		Voltage Ex	tra High' is set.	l
9	DC Bus Voltage Extra High	1	Volt	0.5/10 (1)	basic
	Hysteresis				
	The voltage hysteresis on the al	arm 'DC Bus V	oltage Extra	a High	•
10	LVD Disconnect Voltage	Bus Voltage	Volt	65/87.5 (75.6)	basic
	The dc bus voltage under which allows preserving the battery life	the battery		sconnected of the	bus. This
11	<u> </u>	Bus Voltage	second	1/4000 (1)	basic
	The delay in second before disc			\ /	l
	configured disconnected voltage				
21	Temperature Compensation Slope	Compensatio	mV/degre e	-2000/0 (-126)	basic
	T1 1 (1) 1 1 1	<u> n</u>		/	<u> </u>
	The slope of the battery temperature 72mV/degree is often used.	ature compens	ation in my	degree. For a 48V	system, -
22	+ •	Temperature	Volt	0/20 (6)	basic
	Temperature Compensation	Compensatio n		J. 20 (3)	
	The maximal allowed positive co	mpensation.			
23	Maximum Negative Temperature Compensation	Temperature Compensatio	Volt	-20/0 (-6)	basic
	The manifest allowed as subjects	n 			
0.5	The maximal allowed negative c			0(4.00, (0)	l
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	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	1	Ampere	0.5/1000 (1000)	basic
	The maximal battery current when the bus voltage in order to satisfy	nen the battery	is chargir	ng. The monitoring	regulates

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	nominal battery capacity divided	1	T = -	Г	I
32	Battery String Capacity	Battery	Ah	3/1000 (100)	basic
	The battery capacity in Ah.	T	I	T	l
33	Battery Temperature Low			-100/20 (0)	basic
_	The temperature under which th	1	•		1
34	Battery Temperature High	Battery		5/100 (40)	basic
	The temperature over which the			·	
35	Battery Temperature Hysteresis		J	0/10 (2)	basic
	The hysteresis on the 'Battery' Low' alarms.				T
36	Discharging Alarm	Battery	Ampere	0/1000 (3)	basic
	The minimal discharging current	1		, <u> </u>	I
37	Discharging Álarm	Battery	Ampere	0/50 (1)	basic
	The hysteresis on the 'Battery C	·	1	I	I
41	Shunt Rating At 60mV	Battery	Ampere	25/5000 (250)	basic
<u> </u>	The rating of the battery shunt a	1	<u> </u>	F-1/F !	111
51	Boost Automatic	Boost		False/False (False)	battery
	The boost mode must be autor bus voltage went under the contarging the battery faster.				
52	Boost Activation Low Voltage	Boost	Volt	75.25/87.5 (80.5)	battery
	The voltage under which the bo	ost mode can b	e activated		1
53	Boost Termination Voltage	Boost	Volt	87.5/101.5 (98.7)	battery
	The voltage over which the syst	·		ĭ	1
54	Boost Termination Current	Boost	Ampere	0/100 (4)	battery
	The battery charging current un	1		, <u> </u>	1
55	Boost Termination Time	Boost	minute	10/240 (120)	battery
	The time in minute after which the	, , , , , , , , , , , , , , , , , , , 	, -		T.
70	Battery Test End Voltage	Battery Test	Volt	52.5/105 (80.5)	battery
	The voltage at which any battery	1		Ι.	T.
71	Battery Test Discharge Ratio		%	0/100 (0)	battery
	The ratio of the battery capacit discharged during the test		T		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	Ampere	10/5000 (2000)	battery
	The current at which the batt monitoring regulates the bus vo must be of course higher than the	Itage in order to			
74		Battery Test	Ampere	2/90 (2)	battery
	•	•	•		

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	The battery current under which too low.		1	stopped because th	
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	out mains failu	re in order	to allow a battery s	tart. This
	parameter is not taken into acco	unt when the b	attery test i	s forced.	
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 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	, ,	
91	Digital Input 1 Name	Digital Inputs	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	Distribution Breaker Open	basic
	The name of the digital input 1	1		•	
92		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		l .		
96		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		l .		l .
98		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	ı	T	T	T
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	6	Normally	Digital Inputs		True/False (True)	basic
							closed. If this digital	al input is
	+				ed alarm is set	·	I	I
103	Digital Ir	put 7 Na	ame		Digital Inputs		Digital Input 7	basic
	The nam	e of the o	digita	al input 7				
104	Digital Closed	Input	7	Normally	Digital Inputs		True/False (True)	basic
	True/Fals	se value	defii	ning if the	digital input 7	is normally	closed. If this digital	al input is
	not in this	s default	state	e, the relat	ed alarm is set	•		
105	Digital Ir	put 8 Na	ame		Digital Inputs		Digital Input 8	basic
	The nam	e of the o	digita	al input 8				
106	Digital Closed	Input	8	Normally	Digital Inputs		True/False (True)	basic
	True/Fals	se value	defii	ning if the	digital input 8	is normally	closed. If this digital	al input is
	+				ed alarm is set	· ·		
111	Dry Al Boolean			Iternative	Dry Alarms		False	plc
	Another I	Boolean	cond	dition to ac	tivate the dry a	larm relay	1. The way to define	boolean
	condition	is detail	ed ir	the PLC o	chapter.			
112	Dry Al Boolean			Iternative	Dry Alarms		False	plc
				dition to ac the PLC o		larm relay 2	2. The way to define	boolean
113	Dry Al Boolean			Iternative	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
				dition to ac the PLC o	•	larm relay	4. The way to define	boolean
131	Ambient	Temper	atur	e Low	Sensors	degree C		basic
	The temp	perature	unde	er which the	e alarm 'Ambia	nt Tempera	ture Too Low' must	be set.
132	Ambient				Sensors	degree C		basic
		•					ture Too Low' must	L
133	Ambient Hysteres			nperature	1	degree C		basic
	The hyst Low' alar		n the	e 'Battery	Temperature T	oo High' ar	nd 'Battery Tempera	ature Too
141	AC Volta	ige Low			Mains	Volt		basic
	The AC v							I
——			nder	which the	alarm AC Low	ıs set.		,
142	1	oltage u		which the	alarm AC Low Mains			basic
142	AC Volta	oltage u nge High	1		Mains	Volt		basic
	AC Volta The AC v	oltage u nge High oltage o	ver v	which the a	Mains alarm AC High i	Volt s set.		
142	AC Volta The AC volta	voltage u nge High voltage o nge Hyst	ver v	which the a	Mains alarm AC High i Mains	Volt s set. Volt		basic
143	The AC volta The AC volta The AC v	voltage u nge High voltage o nge Hyst voltage h	ver v eres yste	which the a	Mains alarm AC High Mains arms AC High a	Volt s set. Volt	V.	basic
	AC Volta The AC volta The AC volta AC Phase	voltage u nge High voltage o nge Hyst voltage h se 1 PLC	ver v eres yste	which the a sis resis on ala	Mains Alarm AC High i Mains arms AC High a Mains	Volt is set. Volt and AC Lov	v. f AC phase 1. If e	basic basic

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	T				
	rectifiers are used. The syntax f PLC chapter. The PLC data elei	•		•	bed in the
145	AC Phase 2 PLC	Mains			basic
	This is the mathematical expre rectifiers are used. The syntax fPLC chapter. The PLC data elements	or writting math	nematical e	xpression is descril	
146	AC Phase 3 PLC	Mains			basic
	This is the mathematical expre rectifiers are used. The syntax fPLC chapter. The PLC data elements of the syntax function of the syntax f	or writting math	nematical e	xpression is descri	
521	Read Access User Numbers	Allowed Users		(1,2,3,4,5)	basic
	The list of the user numbers values are coma separated. T	he accepted us			
522	Write Access User Numbers	Allowed Users		()	basic
	The list of the user numbers w that these users can modify the control elements. The user num 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 com	orised between 10 a	and 4000
901	Number Of PLC Data	PLC		(0)	plc
	The number of PLC data. Every data. Data elements are aur 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	nfiguration 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

Con	itrol 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	ode.	<u>.</u>
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 micro the system will be correctly managed.	controller. 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 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	ne. The event name is the te	xt 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	es, Groups and Subgroups	to default

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

Description Table

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<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 sy	stem monitoring	
18	Manufacturing Date	Monitoring	asset
	The production date of the DC	system monitoring	

Alas	Table		
	m Table	0 ' 7 ' 0	0.1/01
<u>Id</u>	Name	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 Hyster 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 seconfiguration parameter 'DC Bus Voltage I 'DC Bus Voltage Low Hysteresis'		
3	DC Bus High	minor (4)	5 / 2
	The bus voltage is high. The alarm is seconfiguration 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)	1 / 2
	The DC bus voltage sense is defective. unconfigured.	The DC bus voltage	is unconnected or
	anooningaroa.		
6	Mains Failure	minor (4)	5 / 2
6			1
6 7	Mains Failure The number of active rectifiers is equal to 0		1
	Mains Failure The number of active rectifiers is equal to 0 greater than 0.	and the number of rectiful minor (4) than 0 and the number are in AC Failure. It may	iers in AC failure is 10 / 2 of rectifiers in AC
	Mains Failure 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 a	and the number of rectiful minor (4) than 0 and the number are in AC Failure. It may	iers in AC failure is 10 / 2 of rectifiers in AC

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	master type is 30110, 3096 or 3048M6, to the voltage lower limit	, an nysteresis _pnase	e izanysteresis is added
9	Mains High	warning (2)	10 / 2
	The main voltage is low on one or moralarm is only active if MCU master typhysteresis _phase123Hysteresis is subs	e is 30110, 3096 or	3048M6. Therefore, an
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 high	gher than 0, there is no
11	More Than One Rectifier Failure	major (6)	10 / 2
	There is no mains failure and number of	rectifier failures is gre	
12	Missing Rectifiers	major (6)	5 / 2
	There is not enough rectifier according Number Of Rectifier'	ng to the configuration	on parameter : 'Minima
13	Battery Last Test Failed	minor (4)	5 / 2
	The last battery test did not succeed and be replaced.	d was not cancelled. N	Maybe the battery should
14	Battery On Discharge	minor (4)	10 / 2
	rectifiers. This alarm is inactive when the There is an hysteresis corresponding hysteresis'.	•	•
	† ·		T .
17	Battery LVD Relay Open	major (6)	5 / 2
17	† ·	r is open. On Syste	ms without LVD_Status
17	Battery LVD Relay Open The battery Low Voltage Disconnecto signal, like MCU 1848 or MCU 1x6, the	r is open. On Syste	ms without LVD_Status
	Battery LVD Relay Open The battery Low Voltage Disconnecto signal, like MCU 1848 or MCU 1x6, the asks to open the LVD	r is open. On Syste alarm is present only minor (4) gh and is greater than	ms without LVD_Status y if the signal LVD_COM 5 / 2 n -600 units. There is ar
	Battery LVD Relay Open The battery Low Voltage Disconnecto 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	r is open. On Syste alarm is present only minor (4) gh and is greater than meter 'Temperature h	tms without LVD_Status y if the signal LVD_COM 5 / 2 n -600 units. There is an ysteresis'.
18	Battery LVD Relay Open The battery Low Voltage Disconnecto signal, like MCU 1848 or MCU 1x6, the asks to open the LVD Battery Temperature Too High The temperature of the battery is too highlysteresis corresponding to battery para	r is open. On Syste alarm is present only minor (4) gh and is greater than meter 'Temperature h minor (4) w and is greater than	this without LVD_Status if the signal LVD_COM 5 / 2 1 -600 units. There is an ysteresis'. 5 / 2 1 -600 units. There is an arrow of the status is an arrow of the status is an arrow of the status in the status
18	Battery LVD Relay Open The battery Low Voltage Disconnecto signal, like MCU 1848 or MCU 1x6, the asks to open the LVD Battery Temperature Too High The temperature of the battery is too highlysteresis corresponding to battery para Battery Temperature Too Low The temperature of the battery is too lo hysteresis corresponding to battery para Battery Temperature Sensor Fail	minor (4) mand is greater than meter 'Temperature h minor (4) minor (4)	the signal LVD_Status of the signal LVD_COM 5 / 2 1 -600 units. There is an open state of the signal LVD_COM 5 / 2 1 -600 units. There is an open state of the signal LVD_COM 5 / 2 1 -600 units. There is an open state of the signal LVD_COM 5 / 2 5 /
18 19 20	Battery LVD Relay Open The battery Low Voltage Disconnecto 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 para Battery Temperature Too Low The temperature of the battery is too lo hysteresis corresponding to battery para Battery Temperature Sensor Fail The battery temperature sensor (NTC) is not connected or defective.	minor (4) mand is greater than meter 'Temperature h minor (4) minor (4)	sms without LVD_Status of if the signal LVD_COM 5 / 2 1 -600 units. There is an open side of the signal LVD_COM 5 / 2 -600 units. There is an open side of the s
18	Battery LVD Relay Open The battery Low Voltage Disconnecto 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 para Battery Temperature Too Low The temperature of the battery is too lo hysteresis corresponding to battery para Battery Temperature Sensor Fail The battery temperature sensor (NTC) volumes to battery temperature sensor (NTC) volumes temperature sensor (NT	minor (4) mand is greater than meter 'Temperature h minor (4) minor (4)	tms without LVD_Status if the signal LVD_COM 5 / 2 1 -600 units. There is an ysteresis'. 5 / 2 1 -600 units. There is an ysteresis'. 5 / 2 5 / 2 5 / 2
18 19 20	Battery LVD Relay Open The battery Low Voltage Disconnecto 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 para Battery Temperature Too Low The temperature of the battery is too lo hysteresis corresponding to battery para Battery Temperature Sensor Fail The battery temperature sensor (NTC) is not connected or defective.	minor (4) minor (4) minor (4) minor (4) minor (4) minor (4) mand is greater than meter 'Temperature h minor (4)	sms without LVD_Status of if the signal LVD_COM 5 / 2 1 -600 units. There is an open side of the signal LVD_COM 5 / 2 1 -600 units. There is an open side of the
18 19 20	Battery LVD Relay Open The battery Low Voltage Disconnecto 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 steres corresponding to battery para Battery Temperature Too Low The temperature of the battery is too lo hysteresis corresponding to battery para Battery Temperature Sensor Fail The battery temperature sensor (NTC) is not 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 3	minor (4) minor (4) minor (4) minor (4) minor (4) minor (4) mand is greater than meter 'Temperature h minor (4)	sms without LVD_Status if the signal LVD_COM 5 / 2 1 -600 units. There is an experience of the signal LVD_COM 5 / 2 1 -600 units. There is an experience of the signal LVD_COM 5 / 2 1 -600 units. There is an experience of the signal o
18 19 20 21	Battery LVD Relay Open The battery Low Voltage Disconnecto 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 para Battery Temperature Too Low The temperature of the battery is too lo hysteresis corresponding to battery para Battery Temperature Sensor Fail The battery temperature sensor (NTC) on to 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 3 0948 and 3048M6.	minor (4) minor (4) minor (4) minor (4) minor (4) minor (4) mand is greater than meter 'Temperature h minor (4)	sms without LVD_Status of the signal LVD_COM 5 / 2 1 -600 units. There is an experience of the signal LVD_COM 5 / 2 1 -600 units. There is an experience of the signal LVD_COM 5 / 2 1 -600 units. There is an experience of the signal of the signal luminose
18 19 20 21	Battery LVD Relay Open The battery Low Voltage Disconnecto 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 para. Battery Temperature Too Low The temperature of the battery is too loo hysteresis corresponding to battery para. Battery Temperature Sensor Fail The battery temperature sensor (NTC) is not connected or defective. Ambient Temperature Too High The ambient temperature is too high a hysteresis corresponding to parameter 1/2 only activated on MCU master types 3 0948 and 3048M6. Ambient Temperature Too Low The ambient temperature is too low a hysteresis corresponding to parameter 1/2 only activated on MCU master types 3 only activated on MCU master types 3	minor (4) minor (4) minor (4) minor (4) minor (4) minor (4) mand is greater than meter 'Temperature h minor (4)	sms without LVD_Status of the signal LVD_COM 5 / 2 1 -600 units. There is an experience of the signal LVD_COM 5 / 2 1 -600 units. There is an experience of the signal LVD_COM 5 / 2 1 -600 units. There is an experience of the signal of the signal luminose

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25	Distribution Breaker Open	major (6)	5 / 2
	This alarm is related to digital input 1. different to configuration parameter 'Digit		
26	Battery Breaker Open	minor (4)	5 / 2
	This alarm is related to digital input 2. different to configuration parameter 'Digit		
27	Digital Input 3	none (0)	5 / 2
	This alarm is related to digital input 3. different to configuration parameter 'Digit		• ,
28	Digital Input 4	none (0)	5/2
	This alarm is related to digital input 4. different to configuration parameter 'Digit		
29	Digital Input 5	none (0)	5 / 2
29	Digital Input 5 This alarm is related to digital input 5. different to configuration parameter 'Digital'.	This alarm is activa	ted if digital input value is
29 30	This alarm is related to digital input 5.	This alarm is activa	ted if digital input value is
	This alarm is related to digital input 5. different to configuration parameter 'Digit	This alarm is actival al Input Alarm Value none (0) This alarm is actival	ted if digital input value is 5 / 2 ted if digital input value is
	This alarm is related to digital input 5. different to configuration parameter 'Digit Digital Input 6 This alarm is related to digital input 6.	This alarm is actival al Input Alarm Value none (0) This alarm is actival	ted if digital input value is 5 / 2 ted if digital input value is
30	This alarm is related to digital input 5. different to configuration parameter 'Digit Digital Input 6 This alarm is related to digital input 6. different to configuration parameter 'Digit	This alarm is actival al Input Alarm Value none (0) This alarm is actival al Input Alarm Value none (0) This alarm is actival none (0)	ted if digital input value is 5 / 2 ted if digital input value is 5 / 2 5 / 2 ted if digital input value is
30	This alarm is related to digital input 5. different to configuration parameter 'Digit Digital Input 6 This alarm is related to digital input 6. different to configuration parameter 'Digit Digital Input 7 This alarm is related to digital input 7.	This alarm is actival al Input Alarm Value none (0) This alarm is actival al Input Alarm Value none (0) This alarm is actival none (0)	ted if digital input value is 5 / 2 ted if digital input value is 5 / 2 5 / 2 ted if digital input value is

Data	Table			
<u>Id</u>	<u>Name</u>	<u>Group</u>	<u>Unit</u>	Licens
				<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		
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	1		
23	Rectifiers Output Power Max	Rectifiers	Watt	basic

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	The sum of the deliverable rectifier pow	er		
24	Rectifiers Output Current Max	Rectifiers	Ampere	basic
	The sum of the deliverable rectifier curre		runpere	Daoio
31	Number Of Rectifier Max	Rectifiers		basic
-	The maximum possible number of rectif			1000.0
32	Number Of Present Rectifier	Rectifiers		basic
	The actual number of present rectifier in			1
33	Number Of Absent Rectifier	Rectifiers		basic
	The actual number of absent rectifier in	this dc system		-1
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 Fai	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	1	T.	1
38	Number Of Over Temperature Rectifier	Rectifiers		basic
	The actual number or rectifier in OVer T	emperature.	T.	1
41	Mains Phase 1 Voltage	Mains	Volt	basic
	The voltage on AC phase 1	T		Т
42	Mains Phase 2 Voltage	Mains	Volt	basic
	The voltage on AC phase 2	T	T	ı
43	Mains Phase 3 Voltage	Mains	Volt	basic
	The voltage on AC phase 3	T	L	1
51	Load Power	Load	Watt	basic
	Estimation of the load power consumption		T.	1
52	Load Current	Load	Ampere	basic
<u></u>	Estimation of the load current consumpt		A	1
61	Battery Input Current	Battery	Ampere	basic
	Measurement of the battery input curre discharging	ni. A negative value	means that the ba	allery IS
62	Battery Input Power	Battery	Watt	basic
	Measurement of the battery input power discharging	•	1	1
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		values are pos FAILED_TIN FAILED_AC_FA	
73	Battery Test Discharged Capacity Ratio		%	basic
	This is the battery capacity, in percent	, discharged during	the last batterv te	st. This

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	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. 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 te	st		_
91	Battery Charge Capacity	Battery	%	basic
	The battery charge capacity, calculated	by integration of the c	current.	
92	Calculated Autonomy	Battery	minute	basic
	Calculation of the remaining autonomy	<u>, </u>	,	
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	r	
101	LVD State	LVD		basic
	Actual state of the LVD			
121	Rectifier	Smart Energy		asset
	The optimal number of ON rectifier for E			_
122	System Loss Without Optimisation	Smart Energy	Watt	under dev
	Estimation of the losses without optimisa		T	
123	System Loss With Optimisation	Smart Energy	Watt	under dev
	Estimation of the losses with optimisation		T	
124	Rectifier Model Used For Calculation	Smart Energy		asset
	The rectifier model used	T	T	
125	Smart Energy Savings	Smart Energy	Watt	asset
	Estimation of the losses with optimisation		T	
151	Ambient Temperature	Sensors	degree C	basic
	The ambiant temperature (second temperature)	erature sense)	I	
161	Voltage Sense 1	Sensors	Volt	basic
	The voltage measured by the sensemeasurement. Calculation can be done	with the PLC		mmetry
162	Voltage Sense 2	Sensors	Volt	basic
	The voltage measured by the sensemeasurement. Calculation can be done		l for battery sy	mmetry
163	Voltage Sense 3	Sensors	Volt	basic
	The voltage measured by the sense		for battery sy	mmetry
	measurement. Calculation can be done	with the PLC		
204	measurement. Calculation can be done be Digital Input 4 Counter	Sensors		basic

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Conf	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		Volt	60/120 (108)	basic
	The floating dc bus voltage of th				Г
2			Volt	60/120 (90)	basic
	The bus voltage under which the				I
3	DC Bus Voltage Extra Low Hysteresis	_	Volt	0/10 (2)	basic
	The voltage hysteresis on the al		, <u> </u>	1	T
4	DC Bus Voltage Low	Bus Voltage	Volt	60/120 (96)	basic
	The bus voltage under which the	1	s Voltage L	1	1
5	Hysteresis	Bus Voltage	Volt	0/10 (1)	basic
	The voltage hysteresis on the al		,	T	I
6		Bus Voltage	Volt	60/120 (113)	basic
	The bus voltage over which the	1	, ,	1	Г
7	Hysteresis	Bus Voltage	Volt	0/10 (1)	basic
	The voltage hysteresis on the al		, , , , , , , , , , , , , , , , , , , 	1	Г
8		Bus Voltage	Volt	60/120 (116)	basic
	The bus voltage over which the alarm 'DC Bus Voltage Extra High' is set.				Г
9	DC Bus Voltage Extra High Hysteresis		Volt	0/10 (1)	basic
	The voltage hysteresis on the al				T
10	LVD Disconnect Voltage		•	0/100 (86.4)	basic
	The dc bus voltage under which allows preserving the battery life	. The load will	be unpowei	red.	
11	LVD Disconnect Delay				basic
	The delay in second before disc configured 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	ompensation.			
25	Minimal Number Of Present	Rectifiers		0/100 (0)	basic

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	The minimal number of rectifi		be prese	nt. If there is less	present
	rectifiers, the alarm 'Missing Red		T		1
26	Rectifier Model	Rectifiers			basic
	The rectifier model	T	T		1
27	Forced Remote Off Rectifers				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 withe bus voltage in order to satis 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 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 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 C	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	100/116 (112.8)	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 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	60/120 (92)	battery
	The voltage at which any battery			1 /	, ,
71		Battery Test	%	0/100 (0)	battery
	The ratio of the battery capacit discharged during the test			. ,	

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72	Battery Test Int	erval	Battery Test	day	0/3000 (0)	battery
12					ittery test. If this par	
		tery test is not			user can remotely	
73	Battery Test Current		Battery Test	Ampere	10/5000 (2000)	battery
					during a battery	
				o satisty thi	s condition. The loa	d current
74	must be of cours Battery Tes		Battery Test	Ampere	2/90 (2)	battery
/ 4	Discharge Curr		ballery rest	Ampere	2/90 (2)	ballery
			the battery te	st must be	stopped because th	ne load is
75	Battery Test Tir	ne Out	Battery Test	minute	1/5000 (10)	battery
	The timeout in m	inute after whic	h the battery te	st must be	stopped.	
76	Battery Test Minutes Wit Failure	Requested hout Mains	Battery Test	minute	0/5000 (1440)	battery
	The minimal time parameter is not				to allow a battery s s forced.	tart. This
83	Smart Energical Condition	gy Boolean	Smart Energy		121-125	asset
	This is the boole of rectifier in rem		nich allows or n	ot to auton	natically optimize the	e number
86	Battery LVD No	de Id	LVD		True/False (False)	basic
	This is a list of th	e node id of the	Smart Electro	nic LVDs, c	oma separated	_
91	Digital Input 1 N	lame	Digital Inputs		Distribution Breaker Open	basic
	The name of the	<u> </u>		_		1
92	Digital Input Closed		Digital Inputs		True/False (True)	basic
	not in this defaul	t state, the relat	ed alarm is set		closed. If this digita	al input is
93	Digital Input 2 N	lame	Digital Inputs		Battery Breaker Open	basic
	The name of the			_		1
94	Digital Input Closed	2 Normally	Digital Inputs		True/False (True)	basic
	True/False value not in this defaul				closed. If this digita	al input is
95	Digital Input 3 N		Digital Inputs		Digital Input 3	basic
	The name of the	digital input 3				
96	Digital Input Closed	3 Normally	Digital Inputs		True/False (True)	basic
	True/False value not in this defaul				closed. If this digita	al input is
97	Digital Input 4 N	lame	Digital Inputs		Digital Input 4	basic
	The name of the	digital input 4				
98	Digital Input	4 Normally	Digital Inputs		True/False (True)	basic

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	T	T	1		1
	Closed				
	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				
100	Digital Input 5 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 relat	ed alarm is set	r T		
101	Digital Input 6 Name	Digital Inputs		Digital Input 6	basic
	The name of the digital input 6	1	T		T
102	Digital Input 6 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
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			closed. If this digital	al input is
	not in this default state, the relat		·	I	1
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			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. 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		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	ture Too Low' must	be set.
132	Ambient Temperature High	Sensors	degree C		basic
	The temperature under which th	e alarm 'Ambia		ture Too Low' must	be set.
133	Ambient Temperature Hysteresis	1	degree C		basic
	•				

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	The hysteresis on the 'Battery'	Temperature T	oo High' ar	nd 'Battery Tempera	ature Too
4 4 4	Low' alarms.	N 4 = 1 = =	\ / - It		1 ! -
141	AC Voltage Low	Mains	Volt		basic
4.40	The AC voltage under which the		ı	<u> </u>	I
142	AC Voltage High	Mains	Volt		basic
	The AC voltage over which the		1	<u> </u>	<u> </u>
143	AC Voltage Hysteresis	Mains	Volt		basic
	The AC voltage hysteresis on al		and AC Lov	V. T	T
144	AC Phase 1 PLC	Mains			basic
	This is the mathematical expre rectifiers are used. The syntax fPLC chapter. The PLC data elements of the syntax function of the syntax f	for writting matl	nematical e	xpression is describ	
145	AC Phase 2 PLC	Mains			basic
	This is the mathematical expre rectifiers are used. The syntax fPLC chapter. The PLC data elements of the syntax from the synt	for writting matl	nematical e	xpression is describ	
146	AC Phase 3 PLC	Mains			basic
	This is the mathematical expre rectifiers are used. The syntax fPLC chapter. The PLC data elements of the syntax filters are used.	for writting matl	nematical e	xpression is describ	
521	Read Access User Numbers	Allowed Users		(1,2,3,4,5)	basic
	The list of the user numbers values are coma separated. T	he accepted us			
522	Write Access User Numbers	Allowed Users		()	basic
	The list of the user numbers w that these users can modify the control elements. The user num 1,2,3,4 and 5. Ex: 1,3,4	configuration	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 m	ust be comp	orised between 10 a	and 4000
602	•	Event		10/4000 (100)	basic
	The maximum length of the tabl	e. The value m	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 autrearmeters are added to set to calculation. In order to use the module	tomatically add	ded in the Name and	e data table. Con the PLC Data Mat	figuratior hematica
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 Alarr	added in t n Name a	up to 20 user progr he alarm table. T nd the PLC Alarm	he alarm Boolear

Control Table

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ld	Name	Group	<u>Licens</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 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 microc the 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	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 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	s, Groups and Subgroups t	o default

7.2.15 MCU30125M6

Device Information	
Name	MCU30125M6

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Short Description	MCU for rack 6x3000W +125V
Long Description	
Hardware Reference	9413 000 XXXX
Software Reference	SOFT 000057 XX
Equipment Type	Monitoring Control Unit
ETSI Level	/site/energy_system/dc_system

Description Table							
<u>Id</u>	Name	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 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				
	The serial number of the DC sy	stem monitoring					
18	Manufacturing Date	Monitoring	asset				
	The production date of the DC system monitoring						

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 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 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)	1 / 2			
	The DC bus voltage sense is defective. unconfigured.	The DC bus voltage i	s unconnected or			

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6	Mains Failure	minor (4)	5 / 2				
	The number of active rectifiers is equal to greater than 0.	0 and the number of r	rectifiers 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					
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					
10	One Rectifier Failure	minor (4)	5 / 2				
	One rectifier must be replaced or is not rectifier is set. The number of rectifier w mains failure, and the 'More Than One Re	<i>i</i> ith DC Failure is high	her than 0, there is no				
11	More Than One Rectifier Failure	major (6)	10 / 2				
	There is no mains failure and number of re	ectifier failures is great					
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.	was not cancelled. Ma	aybe the battery should				
14	Battery On Discharge	minor (4)	10 / 2				
	The battery is discharging. This means rectifiers. This alarm is inactive when the There is an hysteresis corresponding to hysteresis'.	system in AC Failure	or 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 aasks to open the LVD	is open. On System	ns without LVD_Status if the signal LVD_COM				
18	Battery Temperature Too High	minor (4)	5 / 2				
	The temperature of the battery is too high hysteresis corresponding to battery param	•	steresis'.				
19	Battery Temperature Too Low	minor (4)	5 / 2				
	The temperature of the battery is too low hysteresis corresponding to battery param						
20	Battery Temperature Sensor Fail	minor (4)	5 / 2				
	The battery temperature sensor (NTC) vanot connected or defective.	1					
	Ambient Temperature Too High	minor (4)	5 / 2				
21		The ambient temperature is too high and is greater than -600 units. There is an hysteresis corresponding to parameter 'Ambiant temperature hysteresis'. This alarm is only activated on MCU master types 30110, 3096, 30125, 0024, 0948, 0548, 0948 and 3048M6.					
21	hysteresis corresponding to parameter 'Aronly activated on MCU master types 30	mbiant temperature hy	steresis'. This alarm is				
21	hysteresis corresponding to parameter 'Aronly activated on MCU master types 30	mbiant temperature hy	steresis'. This alarm is				

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	only activated on MCU master types 30 0948 and 3048M6.	0110, 3096, 30125, 0024,	0948, 0548, 0348,			
23	Ambient Temperature Sensor Fail	minor (4)	5 / 2			
	The ambiant temperature sensor (NTC) not connected or defective.	value 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. different to configuration parameter 'Digit		ligital 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 value is different to configuration parameter 'Digital Input Alarm Value'					
27	Digital Input 3	none (0)	5 / 2			
	This alarm is related to digital input 3. different to configuration parameter 'Digit		ligital input value is			
28	Digital Input 4	none (0)	5 / 2			
	This alarm is related to digital input 4. different to configuration parameter 'Digit		ligital input value is			
29	Digital Input 5	none (0)	5 / 2			
	This alarm is related to digital input 5. different to configuration parameter 'Digit		ligital input value is			
30	Digital Input 6	none (0)	5 / 2			
	This alarm is related to digital input 6. different to configuration parameter 'Digit		ligital input value is			
31	Digital Input 7	none (0)	5 / 2			
	This alarm is related to digital input 7. different to configuration parameter 'Digit		ligital input value is			
32	Digital Input 8	none (0)	5 / 2			
	This alarm is related to digital input 8. different to configuration parameter 'Digit		ligital 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 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	

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	The sum of the delivered rectifier power	ſ					
22	Rectifiers Output Current	Rectifiers	Ampere	basic			
	The sum of the delivered rectifier currer	nt	·				
23	Rectifiers Output Power Max	Rectifiers	Watt	basic			
	The sum of the deliverable rectifier pow						
24	Rectifiers Output Current Max	Rectifiers	Ampere	basic			
	The sum of the deliverable rectifier curr						
31	Number Of Rectifier Max	Rectifiers		basic			
	The maximum possible number of rectif	fier in this dc system		L			
32	Number Of Present Rectifier	Rectifiers		basic			
	The actual number of present rectifier in	n this dc system					
33	Number Of Absent Rectifier	Rectifiers		basic			
	The actual number of absent rectifier in	this dc system	1	l .			
34	Number Of Active Rectifier	Rectifiers		basic			
	The actual number of active rectifier in which is present, DC OK, AC OK and n		active rectifier is a	rectifier			
35	Number Of AC-Fail Rectifier	Rectifiers		basic			
33	The actual number or rectifier in AC Fai			Dasic			
36	Number Of DC-Fail Rectifier	Rectifiers		basic			
30	The actual number or rectifier with DC I			Dasic			
37	Number Of Remote Off Rectifier	Rectifiers		basic			
31	The actual number or rectifier in remote	l .		Dasic			
38	Number Of Over Temperatur	1		basic			
50	Rectifier			Dasic			
	The actual number or rectifier in OVer 1	emperature.	1				
41	Mains Phase 1 Voltage	Mains	Volt	basic			
	The voltage on AC phase 1	I					
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				
51	Load Power	Load	Watt	basic			
	Estimation of the load power consumpti	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 current. A negative value means that the battery is discharging						
62	Battery Input Power	Battery	Watt	basic			
0_	Measurement of the battery input power. A negative value means that the battery is						
	discharging	or. A nogative value	means that the s	attory to			
71	Battery Temperature	Battery	degree C	basic			
	The battery temperature	· · · · · · · · · · · · · · · · · · ·		1			
72	Battery Test State	Battery		basic			
	This is about the result of the la	-	values are no	ssible :			
	NEVER_TESTED, SUCCESS,	ON_GOING,	FAILED TIN				

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	544 55 VOVO 500 100V 544 55			
	FAILED_VBUS_TOO_LOW, FAILED_ FAILED CANCELED, FAILED LVD OF		FAILED_AC_FA	AILUKE,
73	Battery Test Discharged Capacity Ratio		%	basic
	This is the battery capacity, in percent, value is updated at the end of the battery		the last battery to	est. 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.		is value is update	ed at the
81	Previous Battery Test State	Battery		basic
	The result of the previous battery test	T	1	T
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		1	T
92	Calculated Autonomy	Battery	minute	basic
	Calculation of the remaining autonomy	T_	1_	1
93	Battery Current Integration	Battery	As	basic
	Actual value of the integration of the curr		1	T
94	Battery Current Integration	Battery	Ah	basic
101	Actual value of the integration of the curr		ır T	1 ! -
101	LVD State	LVD		basic
121	Actual state of the LVD Efficiency Optimized Number Of	Smart Energy	1	asset
121	Rectifier			asset
	The optimal number of ON rectifier for E	· · ·	1	T .
122	System Loss Without Optimisation	Smart Energy	Watt	under dev
	Estimation of the losses without optimisa		T	1 .
123	System Loss With Optimisation	Smart Energy	Watt	under dev
	Estimation of the losses with optimisation		1	
124	Rectifier Model Used For Calculation	Smart Energy		asset
	The rectifier model used	Īa . =	J	1 .
125	Smart Energy Savings	Smart Energy	Watt	asset
4=4	Estimation of the losses with optimisation		1. 0	T
151	Ambient Temperature	Sensors	degree C	basic
	The ambiant temperature (second temperature)	,	ls	T
161	Voltage Sense 1	Sensors	Volt	basic
	The voltage measured by the sens measurement. Calculation can be done	with the PLC		
162	Voltage Sense 2	Sensors	Volt	basic
	The voltage measured by the sens measurement. Calculation can be done		d for battery sy	mmetry

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

	fig Table				
<u>Id</u>	Name	Group	<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 the	ne 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 th		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 a	larm '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 th	e 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 a	larm '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	gh' is set.	
7	DC Bus Voltage High Hysteresis	Bus Voltage	Volt	0/10 (1)	basic
	The voltage hysteresis on the a	larm 'DC Bus V	oltage High	1	
8	DC Bus Voltage Extra High	Bus Voltage	Volt	92/138 (133.4)	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	0/10 (1)	basic
	The voltage hysteresis on the a				
10	LVD Disconnect Voltage	Bus Voltage	Volt	0/115 (99.36)	basic
	The dc bus voltage under whi allows preserving the battery life	e. The load will	be unpowe	red.	
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 (-165)	basic
	The slope of the battery temper 72mV/degree is often used.	rature compens	ation in mv	/degree. For a 48V	system, -
	Maximum Positive	Temperature	Volt	0/20 (6)	basic
22	Temperature Compensation	Compensatio n			

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		T	•	1	1
23	_	Temperature Compensatio n	Volt	-20/0 (-6)	basic
	The maximal allowed negative of	ompensation.		1	1
25	Minimal Number Of Present Rectifiers	· ·		0/100 (0)	basic
	The minimal number of rectifi	er which mus	t be prese	ent. If there is less	present
	rectifiers, the alarm 'Missing Red	ctifiers' is set.			
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 satisfication or satisfication of the satisfication o	sfy this condition	on. This pa	rameter is often eq	
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		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	tery On Dis	charge' alarm.	
37	Current Hysteresis For Discharging Alarm	Battery	Ampere	0/50 (1)	basic
	The hysteresis on the 'Battery C	n Discharge' a	larm.		
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 systematical	em must go ba	ck to floatin	g mode.	1
54	Boost Termination Current	Boost	Ampere	0/100 (4)	battery
	The battery charging current und	der which the s		, ,	
55	Boost Termination Time	Boost	minute	10/240 (120)	battery
	1	i .	1	, ,	

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	The time in minute after which the	ne system mus	t go back ir		
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	· ,	%	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 tw set to 0, the battery test is not start or force this test.				
73	Battery Test Discharge Current	Battery Test	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 t			
74		Battery Test	Ampere	2/90 (2)	battery
	Discharge Current				<u> </u>
	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	est must be	stopped.	1
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.		not to auton		
86	Battery LVD Node Id	LVD		True/False (False)	basic
	This is a list of the node id of the		nic LVDs, o	<u> </u>	1
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 i
95	Digital Input 3 Name	Digital Inputs		Digital Input 3	basic
	The name of the digital input 3				
	Digital Input 3 Normally	Digital Inputs		True/False (True)	basic

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							1	1	
	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 digital	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
	+	e of the		al input 6			T		1
102	Digital Closed	Input	6	Normally	Digital	Inputs		True/False (True)	basic
								closed. If this digital	al input is
				e, the relat				I= =	1
103	Digital Ir	•			Digital	Inputs		Digital Input 7	basic
				al input 7	.			<u> </u>	T
104	Digital Closed			Normally	Ū			True/False (True)	basic
	True/Fals	se value	defi	ning if the	digital i	nput 7 i	is normally	closed. If this digital	al input is
105				e, the relat				Digital lagget 0	la a a la
105	Digital Ir	•			Digital	inputs		Digital Input 8	basic
106	The nam				Digital	Innuta		True/Folgo (True)	basis
106	Digital Closed			Normally	_	•		, , ,	basic
	not in this	s default	stat	e, the relat	ed alarr	n is set.	•	closed. If this digita	al input is
111	Dry Al Boolean			Iternative	Dry Ala	arms		False	plc
				dition to ac		•	larm relay	1. The way to define	e boolean
112	Dry Al Boolean			Iternative	Dry Ala	ırms		False	plc
				dition to ac			larm relay 2	2. The way to define	e boolean
113	†	arm 3	A	lternative				False	plc
				dition to ac			larm relay :	3. The way to define	e boolean
114		arm 4	Α .	lternative				False	plc
				dition to ac			larm relay	4. The way to define	e boolean

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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
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	orised between 10 a	ind 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 Mathematica calculation. In order to use these functionalities, you need a license with the 'PLC module			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	he alarm table. The high the PLC Alarm	he alarm Boolean

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.			
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	

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	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.	'Battery Last Test Failed' is	s 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	
	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	
	This control element adds an event of severity none. The event name is the text writt 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 values	, Groups and Subgroups t	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	

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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 of	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	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 rectifier. This takes into account the derating for CAN capable rectifiers.			
5	Output Power Max	Output	Watt	basic
	The maximal power deliverable by the rectifier. This takes into account the derating for CAN capable rectifiers.			

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		

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Software Reference	SOFT 000092 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)	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 CA 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 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

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

Data	Table			
<u>ld</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	ble 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 (For CAN capable rectifiers)			•
16	Thermal Aging Time	General	second	asset
	The rectifier thermal aging time, in secon	nd (For CAN capable	· · · · · · · · · · · · · · · · · · ·	1
17	Converted Energy	General	kJ	asset
	The total energy converted by the rect rectifiers)	ifier since the produ	iction. (For CAN	capable

7.3.3 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

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Hardware Reference	9411 010 95031
Software Reference	SOFT 000084 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 Rectifie	rs)		
4	Software Reference	Product Info	asset		
The rectifier software reference. This corresponds to the Mitra 12NC (capable rectifiers)			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					

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	been 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>	<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	ble rectifiers)		
13	Fan Speed	General	RPM	asset
	The rectifier FAN Speed in RPM. (For Ca	AN capable rectifiers)	
14	Power Rating	General	%	asset
	The rectifier power rating (For CAN capa	,		_
15	Service Time	General	second	asset
	The rectifier total service time, in second	· · · · · · · · · · · · · · · · · · ·	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 rectirectifiers)	ifier since the produ	ction. (For CAN	capable

7.3.4 CAR1024TP

Device Information	
Name	CAR1024TP
Short Description	1000W switched mode rectifier

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Long Description	1000W switched mode rectifier, +24Vdc fixe output	
Hardware Reference	9411 011 02001	
Software Reference	NO SOFT	
Equipment Type	Rectifier	
ETSI Level	/site/energy_system/dc_system/rectifier	

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

7.3.5 CAR1048TN-1A

Device Information

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Name	CAR1048TN-1A
Short Description	1000W switched mode rectifier
Long Description	1000W switched mode rectifier, -48Vdc fixed output
Hardware Reference	9411 011 05001
Software Reference	SOFT 000067 XX
Equipment Type	Rectifier
ETSI Level	/site/energy_system/dc_system/rectifier

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)	ice. This corresponds to the	ne 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 (Wicapable rectifiers)			ne Mitra 12NC (With CAN		
6	Serial Number	Product Info	asset		
	The rectifier serial number - Wb	(With CAN capable rectifier	rs)		
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.			
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			

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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>	Name Name	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	derating
5	Output Power Max	Output	Watt	basic
	The maximal power deliverable by the for CAN capable rectifiers.	rectifier. This takes	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 Ca	AN 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 re	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

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7.3.6 CAR1048TN-2A

Device Information		
Name	CAR1048TN-2A	
Short Description	1000W switched mode rectifier, AC & DC input	
Long Description	1000W switched mode rectifier, -48Vdc fixed output, AC & DC input	
Hardware Reference	9411 011 05021	
Software Reference	SOFT 000083 XX	
Equipment Type	Rectifier	
ETSI Level	/site/energy_system/dc_system/rectifier	

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 (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 Rectifie	rs)	
4	Software Reference	Product Info	asset	
	The rectifier software reference capable rectifiers)	e reference. This corresponds to the Mitra 12NC (With CAN		
6	Serial Number	Product Info	asset	
	The rectifier serial number - Wb	(With CAN capable rectifier	rs)	
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				

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 be	een 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>	<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	nd (For CAN capable	rectifiers)	
17	Converted Energy	General	kJ	asset
	The total energy converted by the rect rectifiers)	tifier since the produ	iction. (For CAN	capable

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7.3.7 CAR1548TN

Device Information		
Name	CAR1548TN	
Short Description	1500W switched mode rectifier	
Long Description	1500W switched mode rectifier, -48Vdc fixed output	
Hardware Reference	9411 011 55001	
Software Reference	NO SOFT	
Equipment Type	Rectifier	
ETSI Level	/site/energy_system/dc_system/rectifier	

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	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

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7.3.8 CAR1848TN-1A

Device Information	
Name	CAR1848TN-1A
Short Description	1800W switched mode rectifier
Long Description	1800W switched mode rectifier, -48Vdc fixed output
Hardware Reference	9411 011 85001
Software Reference	NO SOFT
Equipment Type	Rectifier
ETSI Level	/site/energy_system/dc_system/rectifier

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	derating
5	Output Power Max	Output	Watt	basic
	The maximal power deliverable by the for CAN capable rectifiers.	rectifier. This takes i	into account the o	derating

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7.3.9 CAR1848TN-2A

Device Information	
Name	CAR1848TN-2A
Short Description	1800W switched mode rectifier extended input range
Long Description	1800W switched mode rectifier, -48Vdc fixed output, 150-280Vac input
Hardware Reference	9411 011 85011
Software Reference	NO SOFT
Equipment Type	Rectifier
ETSI Level	/site/energy_system/dc_system/rectifier

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 for CAN capable rectifiers.	rectifier. This takes i	nto account the c	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

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	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

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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 (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 Rectifie	rs)		
4 Software Reference Product Info		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)		rs)		
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 be	een 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>	<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	3)	
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 rectifiers)			
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	iction. (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>	<u>Group</u>	<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 Rectifie	rs)		
4 Software Reference Product Info		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)		rs)		
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 be	een 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>	<u>Group</u>	<u>Unit</u>	<u>Licens</u> e
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	d (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

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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 rectifier. This takes into account the derating for CAN capable rectifiers.			

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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	Alarm Table		
<u>Id</u>	<u>Name</u>	Severity Type (Level)	
1	Rectifier Fail	major (0)	
	The rectifier must be replaced because of a DC I	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 le	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 secon	nd (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)		rs)		
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 been 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 (For CAN capable rectifiers)			
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

7.3.16 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	cription 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	ith 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	en 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			

7.4 Sensors And Actuators Tables

7.4.1 ADIO 7

Device Information	
Name	ADIO 7
Short Description	Standard I/O module D24 T7
	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

Desc	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					
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 c	ustomer reference of the sys	tem			

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		

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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		<u></u>
94	General Input 24	warning (2)	5 / 2
	Alarm related to digital input 24		

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	·	·	

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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	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>				Group	<u>Unit</u>	Range: Min/Max (default)	<u>License</u>	
71	Digital II	nput 1 N	lame)	Digital Inputs		General Input 1	basic	
	The nam	e of the	digit	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 II	nput 2 N	lame	•	Digital Inputs		General Input 2	basic	
	The nam	The name of the digital input 2							
74	Digital Closed	Input	2	Normally	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.						al input is		
75	Digital II	nput 3 N	lame	}	Digital Inputs		General Input 3	basic	
	The nam	e of the	digita	al input 3					
76	Digital Closed	Input	3	Normally	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 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 relat			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 relat			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				
82	Digital Input 6 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
83	Digital Input 7 Name	Digital Inputs		General Input 7	basic
	The name of the digital input 7				•
84	Digital Input 7 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
85	Digital Input 8 Name	Digital Inputs		General Input 8	basic
	The name of the digital input 8				
86	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
87	Digital Input 9 Name	Digital Inputs		General Input 9	basic
	The name of the digital input 9				
88	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
89	Digital Input 10 Name	Digital Inputs		General Input 10	basic
	The name of the digital input 10	1	T	1	_
90	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
91	Digital Input 11 Name	Digital Inputs		General Input 11	basic
	The name of the digital input 11				
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 rela			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 rela			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			True/False (True)	basic
	True/False value defining if the not in this default state, the rela			closed. If this digita	al input is
97	Digital Input 14 Name	Digital Inputs		General Input 14	basic
	The name of the digital input 14	,	1		
98	Digital Input 14 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		I
99	Digital Input 15 Name	Digital Inputs		General Input 15	basic
	The name of the digital input 15	1	T		T
100	Digital Input 15 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
101	Digital Input 16 Name	Digital Inputs		General Input 16	basic
	The name of the digital input 16		T		_
102	Digital Input 16 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
103	Digital Input 17 Name	Digital Inputs		General Input 17	basic
	The name of the digital input 17		T		_
104	Digital Input 17 Normally Closed	Digital Inputs		True/False (True)	basic
	True/False value defining if the not in this default state, the relationship.	ted alarm is set	•	closed. If this digita	al input is
105	Digital Input 18 Name	Digital Inputs		General Input 18	basic
	The name of the digital input 18				
106	Digital Input 18 Normally 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 rela			Conord Innet 10	basis
107	Digital Input 19 Name	Digital Inputs		General Input 19	basic
100	The name of the digital input 19			Truo/Eoloo /Truo	basis
108	Digital Input 19 Normally 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	ed alarm is set.		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	ed alarm is set.		closed. If this digit	al input is
117	-	Digital Inputs		General Input 24	basic
	The name of the digital input 24			ı	
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 we numbers are coma separated. T	he accepted us		2,3,4 and 5. Ex: 1,3	3,4
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 comi	, ,	
901	Number Of PLC Data	PLC	2.20 00111	(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			
90	Number Of PLC Alarm	PLC	(0)	plc
	The number of PLC alarm. Everall alarms. Alarm elements are parameters are added to set condition. In order to use the module	automatically a the PLC Alarn	idded in the alarm table n Name and the PLC Al	e. The alarm Iarm 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 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 non- 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 values	s, Groups and Subgroups t	o default				

7.4.2 ADIO 8

Device Information	
Name	ADIO 8
Short Description	Standard I/O module D9 ACR5 LVD PLD DCR2
Long Description	I/O module with 9 digital inputs, 5 relays for

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	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	cription Table						
<u>Id</u>	<u>Name</u>	<u>Group</u>	<u>License</u>				
1	Product Name	Product Info	basic				
	The commercial name of the	ne 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	system description					
12	Reference	Description	basic				
	A free text zone to write the	e customer reference of t	he system				

Alar	Alarm 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							

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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>	Group		<u>Unit</u>	<u>Licens</u> <u>e</u>
1	Temperature 1	Temperature Sensor	Э	degree C	basic
	Temperature Measurement 1				
101	Voltage 5V 1	Voltage Sen	sor	mVolt	basic
	Voltage Measurement 5V 1				
102	Voltage 5V 2	Voltage Sen	sor	mVolt	basic
	Voltage Measurement 5V 2				·
111	Current 4-20mA 1	Current 4 Sensor	4-20mA	mAmpere	basic
	Current 4-20mA Sensor 1				·
112	Current 4-20mA 2	Current 4 Sensor	4-20mA	mAmpere	basic
	Current 4-20mA Sensor 2				

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	nput 1 N	ame		Digital Inputs		General Input 1	basic
	The nam	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 In	nput 2 N	ame		Digital Inputs		General Input 2	basic
	The nam	e of the	digita	al 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	nput 3 N	ame		Digital Inputs		General Input 3	basic
	The nam	e of the	digita	al input 3				
76	Digital	Input	3	Normally	Digital Inputs		True/False (True)	basic

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	Closed				
	True/False value defining if the	digital input 3	ic normally	closed If this digit	l al input ic
	not in this default state, the rela	ted alarm is set			
77	Digital Input 4 Name	Digital Inputs		General Input 4	basic
	The name of the digital input 4	1	1	T	
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 digita	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				
82	Digital Input 6 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
83	Digital Input 7 Name	Digital Inputs		General Input 7	basic
	The name of the digital input 7				
84	Digital Input 7 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
85	Digital Input 8 Name	Digital Inputs		General Input 8	basic
	The name of the digital input 8				
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 digita	al input is
87	Digital Input 9 Name	Digital Inputs		General Input 9	basic
	The name of the digital input 9				
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 digital	al input is
89	Digital Input 10 Name	Digital Inputs		General Input 10	basic
	The name of the digital input 10			·	
90	Digital Input 10 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
91	Digital Input 11 Name	Digital Inputs		General Input 11	basic
	The name of the digital input 11		ı	1	1
92	<u> </u>	Digital Inputs		True/False (True)	basic
			1	\ -/	1

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	Closed				
		diaital input 11	المسمم الد	alacad If this digit	
	True/False value defining if the not in this default state, the relat	ed alarm is set.			
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			closed. If this digital	al input is
	not in this default state, the relat	ı		T	1
121		Digital Outputs		(False)	basic
	PLC Boolean condition to energ				
122		Digital		(False)	basic
122	Energized Boolan Condition	Outputs		(i dise)	Dasic
	PLC Boolean condition to energ			T	1
123		Digital		(False)	basic
	Energized Boolan Condition	Outputs			
404	PLC Boolean condition to energ			(E.L.)	l
124		Digital Outputs		(False)	basic
	PLC Boolean condition to energ				
125		Digital		(False)	basic
		Outputs		(· a.55)	545.5
	PLC Boolean condition to energ	ize the relay 5			
126	Digital Output Relay 6 Energized Boolan Condition	Digital Outputs		(False)	basic
	PLC Boolean condition to energ	ize the relay 6			
127	Digital Output Relay 7 Energized Boolan Condition	Digital Outputs		(False)	basic
	PLC Boolean condition to energ	ize the relay 7			
128	Digital Output Relay 8 Energized Boolan Condition	Digital Outputs		(False)	basic
	PLC Boolean condition to energ	ize the relay 8			
129	Digital Output Relay 9 Energized Boolan Condition	Digital Outputs		(False)	basic
	PLC Boolean condition to energ	ize the relay 9		I	I.
130	· ·	Digital Outputs		(False)	basic
	PLC Boolean condition to energ			I	I.
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	vhich have rea			
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				

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601	Event Table Length	Event		10/4000 (100)	basic
	The maximum length of the table. The value must be comprised between 10 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				

Cont	Control 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 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				

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			

Description Table

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<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			
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
	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	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

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	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			
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			

Con	onfig 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 digital input 1 is normally closed. If this digital input not in this default state, the related alarm is set.							

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70	Digital In	14 O 41 O	0000		Diaital	Innuta		Conorel Innet 0	basis
73	Digital In	•			Digital	inputs		General Input 2	basic
	The name			-	D: :: 1		1	-	I
74	Digital Closed	Input	2	Normally				True/False (True)	basic
				ning if the e, the relat				closed. If this digita	al input is
75	Digital In	put 3 N	ame		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
				ning if the e, the relat				closed. If this digital	al input is
77	Digital In	put 4 N	ame		Digital	Inputs		General Input 4	basic
	The name	e of the	digita	al input 4					
78	Digital Closed	Input	4	Normally	Digital	Inputs		True/False (True)	basic
				ning if the e, the relat				closed. If this digita	al input is
79	Digital In	put 5 N	ame		Digital	Inputs		General Input 5	basic
	The name	e of the	digita	al input 5					
80	Digital Closed	Input	5	Normally	Digital	Inputs		True/False (True)	basic
				ning if the e, the relat				closed. If this digita	al input is
81	Digital In	put 6 N	ame		Digital	Inputs		General Input 6	basic
	The name	e of the	digita	al input 6	1		T	T	
82	Digital Closed	Input	6	Normally	Digital	Inputs		True/False (True)	basic
				ning if the e, the relat				closed. If this digital	al input is
83	Digital In	put 7 N	ame		Digital	Inputs		General Input 7	basic
	The name	e of the	digita	al input 7				,	
84	Digital Closed	Input	7	Normally	Digital	Inputs		True/False (True)	basic
				ning if the e, the relat				closed. If this digital	al input is
85	Digital In	put 8 N	ame		Digital	Inputs		General Input 8	basic
	The name	e of the	digita	al input 8					_
86	Digital Closed	Input	8	Normally	Digital	Inputs		True/False (True)	basic
				ning if the e, the relat				closed. If this digita	al input is
521	Read Ac	cess Us	ser N	lumbers	Allowe Users	d		(1,2,3,4,5)	basic
								to this equipment. 2,3,4 and 5. Ex: 1,3	
522	Write Ac	cess Us	ser N	lumbers	Allowe Users	d		()	basic

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	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	ust be comp	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	
	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>
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 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 rule written to this control element	major. The event name is	the text
521 Reset Default Names And Groups Advanced			
	This control element resets all the element Names values	s, Groups and Subgroups t	o default

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7.4.4 ADIO 10

Device Information	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				
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	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 system description					
12	Reference	Description	basic			
	A free text zone to write the	customer reference of the	ne system			

Alaı	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

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	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	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	Config Table						
<u>Id</u>	<u>Name</u>	<u>Group</u>	<u>Unit</u>	Range: Min/Max (default)	<u>License</u>		
41	Shunt Rating At 60mV	Battery	Ampere		basic		
	The rating of the shunt 1 at 60mV.						
42	Shunt 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 in not in this default state, the related alarm is set.							

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73	Digital In	put 2 N	ame		Digital	Inputs			General Input 2	basic
	The name	•				•				
74		Input		Normally	Digital	Inputs			True/False (True)	basic
				ning if the e, the relat				mally	closed. If this digit	al input is
75	Digital In	put 3 N	ame		Digital	Inputs			General Input 3	basic
	The name	e of the	digita	al input 3					,	
76	Closed	Input	3	Normally		•			True/False (True)	basic
	not in this	default	state	e, the relat	ed aları	n is set		mally	closed. If this digit	· -
77	Digital In	•			Digital	Inputs			General Input 4	basic
	The name			•	1		1		T	
78	Closed	Input		Normally		•			True/False (True)	basic
	not in this	default	state	e, the relat	ed aları	n is set		mally	closed. If this digit	
79	Digital In	•			Digital	Inputs			General Input 5	basic
	The name				I		1		<u> </u>	1
80	Closed	Input		Normally		•			True/False (True)	basic
	not in this	default	state	e, the relat	ed aları	n is set		mally	closed. If this digit	•
81	Digital In	•			Digital	Inputs			General Input 6	basic
	The name				<u> </u>		l		<u> </u>	1
82	Closed	Input				•			True/False (True)	basic
	not in this	default	state	e, the relat	ed aları	n is set		nally	closed. If this digit	· -
83	Digital In	•			Digital	Inputs			General Input 7	basic
84	The name	e of the Input	digita 7	al input 7 Normally	Digital	Inputs			True/False (True)	basic
								nally	closed. If this digit	 al input is
85				e, the relat					Conoral Innut 0	boois
00	Digital In The name	•			Digital	iriputs			General Input 8	basic
86	Digital Closed	Input	8	Normally	Digital	Inputs			True/False (True)	basic
	True/Fals	e value	defi	ning if the e, the relat	digital i ed aları	nput 8	is norr	nally	closed. If this digit	al input is
121	Digital Energize	Outpu	t I	Relay 1	Digital Output				(False)	basic
				n to energ			1		1	1
122	Digital Energize	Outpu	t I	Relay 2	Digital Output	•			(False)	basic
							<u>I</u>		I	1
	PLC Boolean condition to energ					, -				

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123		Digital Outputs		(False)	basic
	PLC Boolean condition to energi	ze the relay 3			
124		Digital Outputs		(False)	basic
	PLC Boolean condition to energi	ze the relay 4			
125		Digital Outputs		(False)	basic
	PLC Boolean condition to energi		l		
126	Digital Output Relay 6	Digital Outputs		(False)	basic
	PLC Boolean condition to energi				
107				/ΓοΙοο\	basis
127	Energized Boolan Condition			(False)	basic
	PLC Boolean condition to energi	ze the relay 7			
128		Digital Outputs		(False)	basic
	PLC Boolean condition to energi	ze the relay 8			
129	Default Digital Output Binary Vector	Digital Outputs		(False)	basic
	This configuration is stored insid	e the module in	case of co	nfiguration failure	
521	Read Access User Numbers	Allowed		(1,2,3,4,5)	basic
		Users		<i>,</i> , , , , , , , , , , , , , , , , , ,	
	The list of the user numbers w				
	numbers are coma separated. T	he accepted use	er 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 when that these users can modify the control elements. The user num 1,2,3,4 and 5. Ex: 1,3,4	configuration el	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	rised 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 addene PLC Data N	ed in the ame and t	data table. Con he PLC Data Math	figuration nematical
902	Number Of PLC Alarm	PLC		(0)	plc
	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	Control Table					
<u>Id</u>	<u>Name</u>	Group	<u>Licens</u>			
			<u>e</u>			

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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	s Event					
	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	dd Event Event						
	This control element adds an event of severity none to this control element	his control element adds an event of severity none. The event name is the text written 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	1 Reset Default Names And Groups Advanced basic						
	This control element resets all the element Names, Groups and Subgroups to defavalues						

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

Des	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 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			

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	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>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						
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	1 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			

Conf	Config 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						

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72	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 relat		Ta	l
73	Digital Input 2 Name	Digital Inputs	General Input 2	basic
	The name of the digital input 2	D: ::	T (F) (F)	
74	Digital Input 2 Normally Closed		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	<u> </u>	, ene e e pere	
76	Digital Input 3 Normally Closed	Digital Inputs	True/False (True)	basic
	True/False value defining if the not in this default state, the relat	ted alarm is set.	closed. If this digita	al input is
77	· ·	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 relat		closed. If this digita	al input is
79	Digital Input 5 Name	Digital Inputs	General Input 5	basic
	The name of the digital input 5			
80	Closed	Digital Inputs	True/False (True)	basic
	True/False value defining if the not in this default state, the relat	ted alarm is set.		al input is
81	Digital Input 6 Name	Digital Inputs	General Input 6	basic
	The name of the digital input 6		_	1
82	Digital Input 6 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
83	Digital Input 7 Name	Digital Inputs	Digital Input 7 Name	basic
	The name of the digital input 7			
84	Digital Input 7 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
85	Digital Input 8 Name	Digital Inputs	General Input 8	basic
	The name of the digital input 8	·		
86	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 digital	al input is
87	Digital Input 9 Name	Digital Inputs	General Input 9	basic

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	The nam	ne of the	digita	al input 9				
88	Digital Closed	Input	9	Normally	Digital Inputs		True/False (True)	basic
					digital input 9 ed alarm is set		closed. If this digita	al input is
89	Digital I	nput 10	Nam	е	Digital Inputs		General Input 10	basic
	The nam	ne of the	digita	al input 10	,	T-	,	
90	Digital Closed	Input	10	Normally	Digital Inputs		True/False (True)	basic
					digital input 10 ed alarm is set		closed. If this digital	al input is
91	Digital I	nput 11	Nam	е	Digital Inputs		General Input 11	basic
	The nam	ne of the	digita	al input 11				
92	Digital Closed	Input	11	Normally	Digital Inputs		True/False (True)	basic
					digital input 11 ed alarm is set		closed. If this digital	al input is
93	Digital I				Digital Inputs		General Input 12	basic
		•		al input 12		1	·	1
94	Digital Closed				Digital Inputs		True/False (True)	basic
					digital input 12 ed alarm is set		closed. If this digital	al input is
121	Digital	Outpu	ıt l	Relay 1	Digital		(False)	basic
	Energiz	ed Bool	an C	ondition	Outputs			
	1	olean co	nditio	n to energ	ize the relay 1		T	
122	Digital Energiz	Outpu ed Book		•	Digital Outputs		(False)	basic
	PLC Boo	olean co	nditio		ize the relay 2			
123	Digital Energiz			Relay 3 ondition	Digital Outputs		(False)	basic
	PLC Boo	olean co	nditio	n to energ	ize the relay 3			
124	Digital Energiz	Outpu ed Book		Relay 4 ondition	Digital Outputs		(False)	basic
	PLC Boo	olean co	nditio	n to energ	ize the relay 4			
521	Read Ad	cess U	ser N	lumbers	Allowed Users		(1,2,3,4,5)	basic
							to this equipment. 2,3,4 and 5. Ex: 1,3	
522	Write A	ccess U	ser N	lumbers	Allowed Users		()	basic
	that thes	se users elements	can . The	modify the user num	configuration (element, the	this equipment. The alarm settings and The accepted use	d use the
601	Event T	able Ler	ngth		Event		10/4000 (100)	basic
				of the table	e. The value m	ust be com	orised between 10 a	
901	Number				PLC		(0)	plc
	The nun	nber of F	PLC o	data. Every	equipment ca	n manage	up to 20 user progr	

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	data. Data elements are aut parameters are added to set the calculation. In order to use the module	ne PLC Ďata N	Name and t	he PLC Data Math	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	dded in th Name ar	ne alarm table. Th nd the PLC Alarm	ne 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	02 Clear All Events Event				
	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	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, Groups and Subgroups to defivalues				

7.4.6 **SAM**0948

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

Description Table			
<u>Id</u>	<u>Name</u>	<u>Group</u>	<u>License</u>

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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 syste	em description	
12	Reference	Description	basic
	A free text zone to write the cus	stomer reference of the syste	em

m Table					
<u>Name</u>	Severity Type (Level)	Set/Clear Delay			
Cabinet Temperature High	major (6)	5 / 2			
The temperature of the cabinet is too hig	jh.				
Cabinet Temperature Low	major (6)	5 / 2			
The temperature of the cabinet is too lov	V				
Cabinet Temperature Sensor Fail	minor (4)	5 / 2			
The cabinet temperature sense is defect	.				
Cabinet Humidity High	major (6)	5/2			
The cabinet humidity is too high					
Cabinet Humidity Low	major (6)	5/2			
The cabinet humidity is too low					
Water Detection Alarm	major (6)	5/2			
Water is detected by the water sensor.					
Tilt X Alarm	major (6)	5/2			
The X-tilt absolute value is too high					
Tilt Y Alarm	major (6)	5/2			
The Y-tilt absolute value is too high					
Vandalism Alarm	major (6)	5/2			
The vandalism score is too high					
Badge Reader Failure	major (6)	5/2			
The badge reader is defect or not connected					
General Input 1	warning (2)	5/2			
Alarm related to digital input 1					
General Input 2	warning (2)	5/2			
Alarm related to digital input 2					
	Cabinet Temperature High The temperature of the cabinet is too hig Cabinet Temperature Low The temperature of the cabinet is too lov Cabinet Temperature Sensor Fail The cabinet temperature sense is defect Cabinet Humidity High The cabinet humidity is too high Cabinet Humidity Low The cabinet humidity is too low Water Detection Alarm Water is detected by the water sensor. Tilt X Alarm The X-tilt absolute value is too high Tilt Y Alarm The Y-tilt absolute value is too high Vandalism Alarm The vandalism score is too high Badge Reader Failure The badge reader is defect or not connected General Input 1 Alarm related to digital input 1 General Input 2	Name Severity Type (Level)			

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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	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	ess control by default			
79	Door 3 Open	warning (2)	5 / 2		
	Alarm related to digital input 9, used for access control by default				
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>	Name	<u>Group</u>	<u>Unit</u>	<u>Licens</u> <u>e</u>		
1	Cabinet Temperature	Sensors	degree C	basic		
	The temperature in the cabinet					
11	Relative Humidity	Sensors	%	basic		
	The relative humidity in the cabine	t				
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 the cabinet acceleration 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 Contro	11	basic		
	The lock 1 is mechanically closed					
53	Lock 1 Enabled	Access Contro	l 1	basic		
	The access control 1 is enabling the electronic lock 1					
62	Lock 2 Open	Access Contro	12	basic		
	The lock 2 is mechanically closed					
63	Lock 2 Enabled	Access Contro	12	basic		
	The access control 2 is enabling the electronic lock 2					

Config Table

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Id	Name	Group	Unit	Range: Min/Max	License
				(default)	
1	Cabinet Temperature High	Alarm Parameters	degree C	-50/100 (50)	basic
	The temperature over which the	cabinet tempe		high	1
2	Cabinet Temperature Low	Alarm Parameters	degree C	-50/100 (-5)	basic
	The temperature under which th		ı	po low	1
11	Cabinet Humidity High	Alarm Parameters	%	0/100 (80)	basic
	The relative humidity over which				I
12	Cabinet Humidity Low	Alarm Parameters	%	0/100 (0)	basic
	The relative humidity over which		· · · · · · · · · · · · · · · · · · ·		1
21	Tilt X High	Alarm Parameters	degree	0/90 (10)	basic
	The maximum absolute tilt-X val		the cabinet		1
22	Tilt Y High	Alarm Parameters	degree	0/90 (10)	basic
	The maximum absolute tilt-Y val		the cabinet	Γ	T
31	Vandalism Detection Threshold	Parameters			basic
	The maximum vandalism score		cabinet.	<u></u>	I
41	Access Control 1 Enabled	Access Control 1		True/False (False)	basic
	The access control 1 is enabled		lock 1 mus	st be managed.	I
42	Access Control 1 Authorized UID	Control 1			basic
	Coma separated list of the UID a			1	I
43	Access Control 1 Auto Close Time	Control 1	second	0/1000 (30)	basic
	Time in second after which the		must be a	,	
44	Access Control 1 Disabled If Badge Reader Failure	Control 1		True/False (True)	basic
	The electronic lock 1 must be dis		adge reade	1	
45	Inputs	Access Control 1		(7,9,10)	basic
	This is the coma separated list the access control 1	of the digital in	puts which	are door contacts	related to
51	Access Control 2 Enabled	Access Control 2		True/False (False)	basic
	The access control 2 is enabled	. The electronic	lock 2 mus	st be managed.	
52	Access Control 2 Authorized UID	Access Control 2			basic
	Coma separated list of the UID a		ole the elec	tronic lock 2	
53	Access Control 2 Auto Close Time	Access Control 2	second	0/1000 (30)	basic
	Time in second after which the	electronic lock 2	2 must be a	utomatically locked	again

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		1		1	
54	Access Control 2 Disabled If Badge Reader Failure	Access Control 2		True/False (True)	basic
	The electronic lock 1 must be dis	sabled if the 'Ba	adge reade	r failure' alarm is se	t.
55	Access Control 2 Doors Inputs	Access Control 2		(8)	basic
	This is the coma separated list the access control 2	of the digital in	puts which	are door contacts	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 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
	True/False value defining if the not in this default state, the relat			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 relat	•	•	closed. If this digita	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 relat			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	•		-	
82	Digital Input 6 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
83	Digital Input 7 Name	Digital Inputs		Digital Input 7 Name	basic
	The name of the digital input 7	<u> </u>	I.	<u>I</u>	I
84		Digital Inputs		True/False (True)	basic
		1	I	i	1

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	True/False value defining if the not in this default state, the relationship.			closed. If this digital	al input is		
85	Digital Input 8 Name	Digital Inputs		Door 2 Open	basic		
	The name of the digital input 8						
86	Digital Input 8 Normally 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		
87	Digital Input 9 Name	Digital Inputs		Door 3 Open	basic		
	The name of the digital input 9						
88	Digital Input 9 Normally 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		
89	Digital Input 10 Name	Digital Inputs		Door 4 Open	basic		
	The name of the digital input 10						
90	Digital Input 10 Normally Closed	Digital Inputs		True/False (True)	basic		
	True/False value defining if the not in this default state, the relationship.			closed. If this digit	al input is		
121	Digital Output Relay 1 Energized Boolan Condition	Digital Outputs		(False)	basic		
	PLC Boolean condition to energ	ize the relay 1		,			
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 w that 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 tabl	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 aur parameters are added to set to calculation. In order to use the module	tomatically add	led in the Name and	data table. Con the PLC Data Mat	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	ıdded in t n Name aı	up to 20 user progr he alarm table. T nd the PLC Alarm	he alarm Boolean		

Control Table

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<u>ld</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	actual tilt.	_	
501	Clear My Events	Event	basic	
	By writing '1' to this control element, all the events	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 non 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 tex 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			

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 concards with CAN IN/CAN OUT and 4 rela		
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	

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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	em 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: (default)	Min/Max	<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.						

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 system description					
2	Reference Description basic					
	A free text zone to write the customer reference of the system					

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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				

Alar	m Table		
<u>Id</u>	Name	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 (ar	nd enabled)
2	More Than One Up Converter Failure	major (6)	5 / 2
	More than one Up converter is defect or enabled)	not connected to a do	wn converter (and
3	More Than One Up Converter Card Failure	major (6)	5 / 2
	More than one up converter card is defect (enabled)	or not connected to a do	own converter (and
11	One FAN Failure	minor (4)	5 / 2
	One FAN has a problem		
12	More Than One FAN Failure	major (6)	5 / 2
	More Than One FAN has a problem		1
14	Configuration Problem	minor (4)	5 / 2
	There is a configuration problem. A card is c	onfiguted but not availab	ole
20	Slot 0 Alarm	minor (4)	5 / 2
	Slot 0 is in alarm	T	_
21	Slot 1 Alarm	minor (4)	5 / 2
	Slot 1 is in alarm	T	1
22	Slot 2 Alarm	minor (4)	5 / 2
	Slot 2 is in alarm	T	1
23	Slot 3 Alarm	minor (4)	5 / 2
	Slot 3 is in alarm	T	1
24	Slot 4 Alarm	minor (4)	5 / 2
_	Slot 4 is in alarm	T	ı
25	Slot 5 Alarm	minor (4)	5 / 2
	Slot 5 is in alarm	T	1
26	Slot 6 Alarm	minor (4)	5 / 2
	Slot 6 is in alarm	Γ	T
27	Slot 7 Alarm	minor (4)	5 / 2

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	Slot 7 is in alarm		
28	Slot 8 Alarm	minor (4)	5 / 2
	Slot 8 is in alarm	•	·
29	Slot 9 Alarm	minor (4)	5 / 2
	Slot 9 is in alarm		
30	Slot 10 Alarm	minor (4)	5 / 2
	Slot 10 is in alarm		
31	Slot 11 Alarm	minor (4)	5 / 2
	Slot 11 is in alarm		
32	Slot 12 Alarm	minor (4)	5 / 2
	Slot 12 is in alarm		
33	Slot 13 Alarm	minor (4)	5 / 2
	Slot 13 is in alarm		
34	Slot 14 Alarm	minor (4)	5 / 2
	Slot 14 is in alarm		
35	Slot 15 Alarm	minor (4)	5 / 2
	Slot 15 is in alarm		
36	Slot 16 Alarm	minor (4)	5 / 2
	Slot 16 is in alarm		

Data	a 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			

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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		
33	Status Slot 13	Slots Status	basic
	No information		
34	Status Slot 14	Slots Status	basic
	No information		
35	Status Slot 15	Slots Status	basic
	No information		
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		

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

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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				
36	Slot 16	Config Site	basic		
	No information				
51	Urgent Relay Energized Boolean Condition	Relays	basic		
	No information				
52	Non Urgent Relay Energized Boolean Condition	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 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 is the tex	t 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	, Groups and Subgroups to	default

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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 converged with CAN IN/CAN OUT and 4 relay		
Hardware Reference	9413 044 89421	
Software Reference	SOFT 000022 XX	
Equipment Type	Monitoring For Remote (About Remote Site)	
ETSI Level	/site/energy_system/remote_power_feeding_ system/remote_site	

Desc	cription Table				
<u>Id</u>	<u>Name</u>	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	<u></u>			
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				

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Alaı	rm 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			
		Г	T .			
3	One Fan Failure	minor (4)	30 / 2			
4	More Than One FAN Failure	major (6)	30 / 2			
4	More man One FAN Fanure	iliajoi (6)	30 / 2			
5	Possible Power Feed Reduced	warning (2)	5 / 2			
		[manning (=)	0 / _			
9	Output 1 Off	major (6)	5 / 2			
			•			
10	Output 2 Off	major (6)	5 / 2			
15	Communication Failure	major (6)	5 / 2			
05	D'ATALLA A	. (0)	F / O			
25	Digital Input 1	major (6)	5 / 2			
26	This alarm is related to digital input 1 Digital Input 2	major (6)	5 / 2			
20	This alarm is related to digital input 2	iliajoi (6)	5/2			
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>	<u>Name</u>	<u>Group</u>	<u>Unit</u>	<u>Licens</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	Volt	basic

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		System				
	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		<u>, </u>			

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

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 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 is the tex	t 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	, Groups and Subgroups to	o default	

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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:

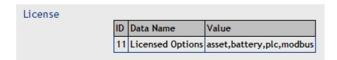


Figure 65 Installed License

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:
 - < 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 0.114.0.7 (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)
- * 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

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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 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

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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)

- + 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)

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- 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.

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

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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, 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

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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)

- 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)

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- * 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
- * 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

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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

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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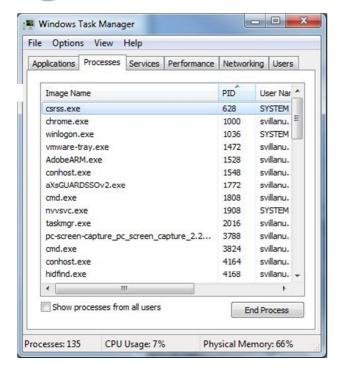


Figure 67 Windows Task Manager

- 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:

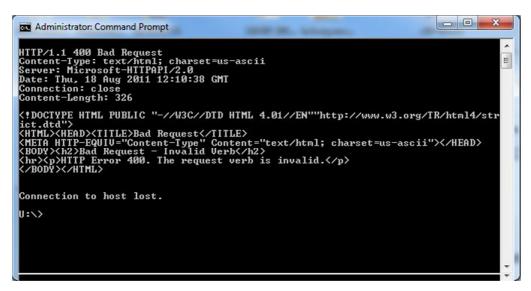


Figure 68 ISS Shutdown

 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":

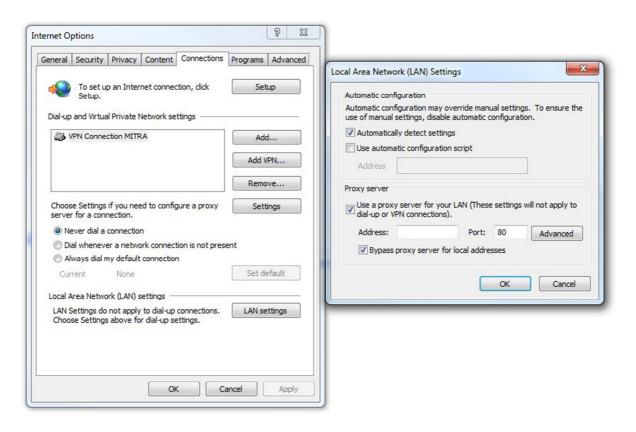


Figure 69 Bypass Proxy Server for Local Address

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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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