



USER'S GUIDE











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Chapter 1 – About this guide

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

Guide History:

Date	Edition	Notes
15 May 2008	01	First Edition
26 June 2008	02	Typo corrections, added Modbus chapter and information about PLC functions
09 July 2008	03	Added chapter "Connecting multiple shelves together".
15 July 2009	05	Added section 6.8 with firmware upgrades instructions. Added information about SNMP V3 in section 5.5. and updated tables at section 8.1.
11 June 2010	06	Added canid function (plc)
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Chapter 2 – Overview

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

2.1 Comp@s Overview

Magell@n Comp@s is the product name of our new controller. It consists in a new platform extending the range of applications of a traditional dc-system shelf controller. Comp@s product is a "site" monitoring, allowing the supervision and the control of:

- Environmental issues: temperature, humidity, water detection, etc.
- Access control issues: RFID badge reader, door lock, open door detection, etc.
- Integrity issues: vandalism and traffic accident detection
- Whatever you may need, just ask us.

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

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

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

Comp@s has a very flexible hardware and software architecture, as shown on the following figure. Thanks to this architecture, our platform is open, scalable and evolvable. All our devices (rectifiers and extensions) are connected to a reliable digital bus (CAN Bus). This allows the main monitoring unit to retrieve information, configure and command the devices. This main monitoring unit is running the site management application. This site management application provides multiple communication interfaces: Web server, XML services and SNMP. These interfaces are available over Ethernet and also over USB for local connection (Rem: SNMP not available over USB). All the interfaces allowing access to the monitoring are secured. One administrator and up to five users can have different access and privileges:

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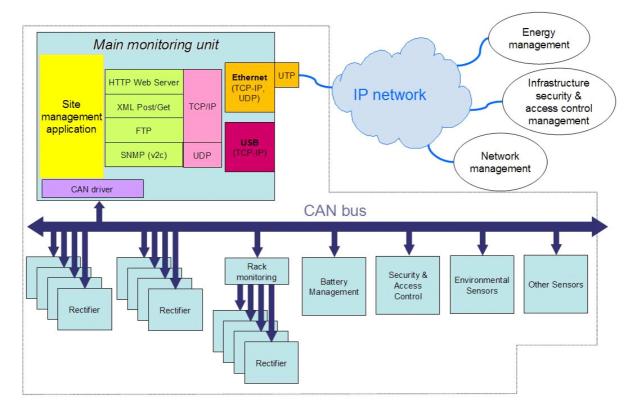


Figure 1 Comp@s Bloc Diagram

2.2 Block Diagram of Energy Systems managed by Comp@s

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

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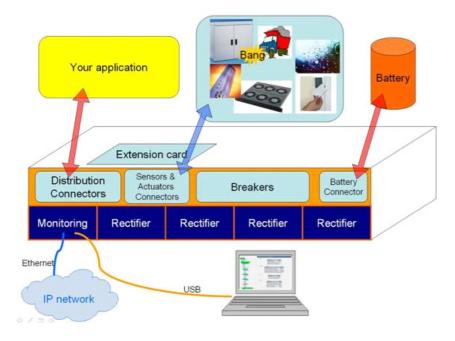


Figure 2 Schematic of the inside of a cabinet

2.3 DC System Overview

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

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2.3.1 DC Power System Principles

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

It is composed of:

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

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

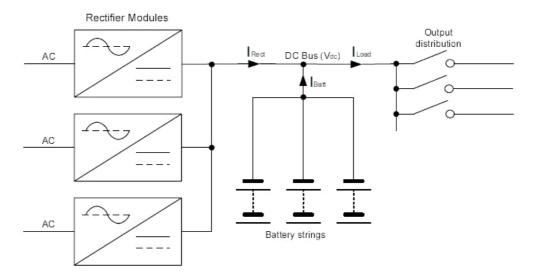


Figure 3 DC System

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

2.3.2 General Information on MCU

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

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

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

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

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There is often the followings Leds on the front plate:

- Status Led (Green):
 - Steady : Monitoring is OK
 - Quick Blinking (200ms): Comp@s is not present (or starting), the MCU is working in standalone (With the configuration saved inside the MCU - This can be copied from Comp@s with "Save In MCU" function)
 - Slow Blinking (1Hz): Battery test is running
 - o 800 ms On, 200 ms Off : System is in boost mode
- LVD OK (Green): Is steady on when the LVD is closed
- 4 Leds for Alarms (Red): The leds are linked to the dry alarm relays. Each alarm can be mapped to any relay number (1-4). By convention, we use by default the 1 for major alarms, the 2 for Minor alarms, the 3 for battery specific alarms, and the 4 when the system is in AC Failure.

There is often one push-button:

- Pressed for 1-5 sec : Save configuration
- Pressed for 5-10 sec : Start Battery Test
- Pressed for > 10 sec: Force Battery Test
- Pressed during battery test cancel the test.

2.3.3 Mode Of Operation

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

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

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2.3.4 Battery Temperature Compensation

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

BTC: General Overview

The controller includes a control loop that compares the bus voltage with a reference value, and pilots on the rectifiers programming voltage accordingly. It also measures the battery temperature through an external temperature probe (NTC 10K). This measurement, together with the "DC Bus Float Voltage at 25°C" and "Battery Temperature Compensation" configuration, determines the reference voltage. The maximum compensation can be configured.

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

BTC: Configuration Parameters

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

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

Theory Of Battery Temperature Compensation

Battery life expectancy and performance is directly related to battery ambient temperature. The optimum temperature for battery operation is 25 °C (77 °F). Without compensation, battery life is seriously compromised at temperatures above 25 °C, while battery performance is reduced below it.

Adjusting the battery's float voltage to correspond with temperature fluctuations will ensure maximum battery performance and life expectancy. With the MCU, this may be accomplished by using the software's built-in automatic temperature compensation function.

This function works by adjusting the system voltage, by step of 0.1V, as the temperature changes, according to the defined parameters.

Temp Comp occurs at standard rates commonly referred to as slope-compensation settings. For maximum performance, it's important to match the battery slope compensation with the setting recommended by the battery manufacturer. This is not to be confused with slope regulation; which refers to the process of regulating current among a group of parallel-operating rectifiers.

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The Temp Comp feature has programmable breakpoints. These are the points at which Temp Comp will cease. Further temperature decreases or increases will NOT increase or decrease the output voltage. This protects the connected load from excessive voltage conditions. As Temp Comp is active in either float or equalize mode, breakpoints should be set with this in mind.

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

2.3.5 Battery Charge Current Control

- BCCC: General Overview
- BCCC: Configuration Parameters.

BCCC: General Overview

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

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

BCCC: Configuration Parameters

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

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

2.3.6 Battery Low Voltage Disconnect Operation (LVD)

- LVD: General Overview
- LVD: Configuration Parameters.

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LVD: General Overview

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

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

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

When the LVD is opened, and that the system has no AC input power, the application will not be powered anymore.

It is possible to configure a delay before the opening. It allows to absorb peaks of consumptions without opening the LVD and/or to shut down properly the application thanks to the alarm "DC Bus Voltage Extra Low" for instance.

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

LVD: Configuration Parameters

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

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

2.3.7 DC System Alarms Overview

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

Alarms Related To DC Output Bus Voltage

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

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

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- DC Bus Low: with parameters "DC Bus Voltage Low" and "DC Bus Voltage Low Hysteresis"
- DC Bus High: with parameters "DC Bus Voltage High" and "DC Bus Voltage High Hysteresis"
- DC Bus Extra High: with parameters "DC Bus Voltage Extra High" and "DC Bus Voltage Extra High Hysteresis"

• DC Bus Voltage Sense Failure.

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

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

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

Alarms Related To Rectifiers

The alarms are the following:

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

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

Alarms Related To The Input AC Power Of The Rectifiers

The alarms are the following:

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

Alarms Related To Battery

The alarms are the following:

- Battery Last Test Failed
- Battery On Discharge

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- Battery LVD Relay Open
- Battery Temperature Too High: with parameters "Battery Temperature High" and "Battery Temperature Hysteresis"
- Battery Temperature Too Low: with parameters "Battery Temperature Low" and "Battery Temperature Hysteresis"
- Battery Temperature Sensor Fail.

Alarms Related To General Input

The alarms are the following:

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

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

2.3.8 Battery Test

A battery test can be started periodically, remotely, or when the front plate switch of the MCU is pressed for more than 5 seconds.

- Principle
- Applied Equations

Principle

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

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

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

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

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

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

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

Applied Equations

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

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

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

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

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

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

2.3.9 Boost Mode

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

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2.3.10 List Of Possible Events

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

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

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Chapter 3 – Getting Started

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

3.1 Connecting the Comp@s Web Server over Ethernet

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

Default Ethernet Configuration

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

Required material:

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

Required software:

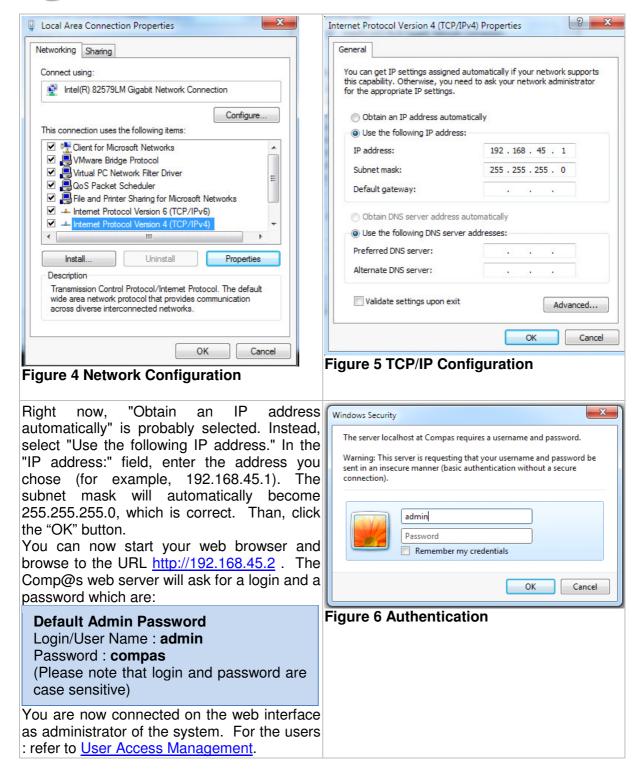
 Any operating system with an up to date web browser. It is recommended to use Firefox >= 2.x or Internet Explorer >=7.x.

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

To do this under Windows XP, Access the Network Connections control panel (**Start -> Control Panel -> Network Connections**). Pick the connection you're using, generally Local Area Connection. Right-click on that connection's icon and pick Properties. Under "this connection uses the following items," scroll down to "Internet Protocol (TCP/IP)" and double-click on that. The "Internet Protocol (TCP/IP) Properties" window will appear:

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3.2 Connecting the Comp@s Web Server over USB

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

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Required material:

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



Required software:

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

STEP 1: Do not connect the USB cable yet

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

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

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

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

Windows Registry Editor Version 5.00

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

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

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

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

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

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

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

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

(Please note that login and password are case sensitive)

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

3.3 Using The Web Interface

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

3.3.1 Web Page Layout Overview

The following figure shows the initial web page displayed after login. The left part displays the last refresh time of the web page and a hierarchy of the component of the system (Site, DC System, Rectifier, etc.). If all these tree nodes are in a grey color, no alarm is active. The main content concerns the description of a site, comprising address, GPS position, etc. One can see the presence of different tabs (Description, Alarms, Events, Data, Records, Configuration), allowing to see corresponding values related to the selected tree node:

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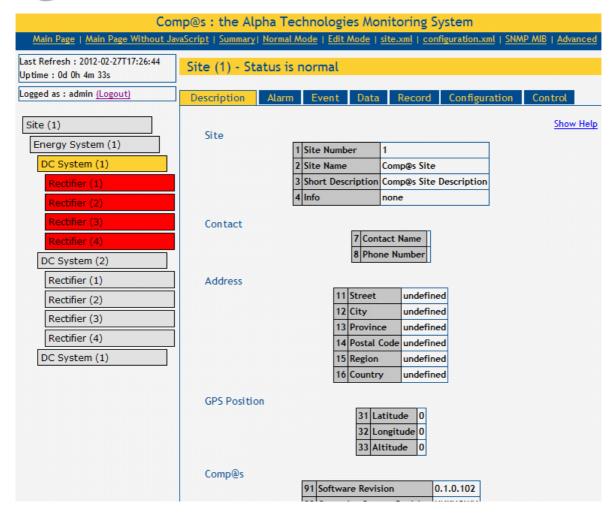


Figure 7 Initial page displayed

The following tabs are therefore available:

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

Description Tabs

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

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

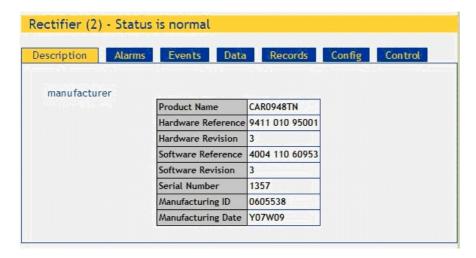
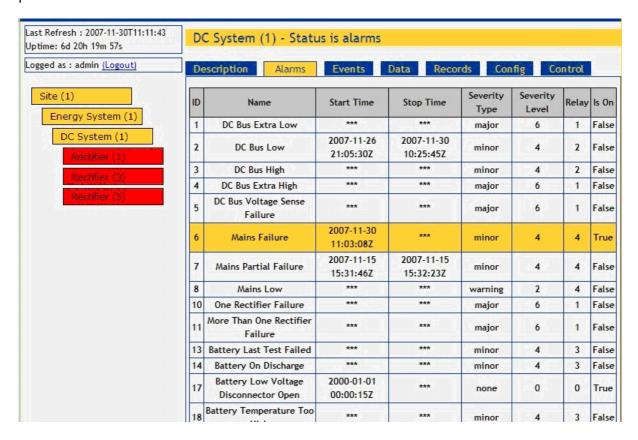


Figure 8 Rectifier Tab

Alarm Tabs

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



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Figure 9 Alarms at the DC System level

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

DC System (1) - Status is normal									
escription Alar	m Event	Data Rec	ord Confi	guration	Control				
Name	Severity Type	Severity Level	Relay	Set Delay	Clear Delay				
DC Bus Extra Low	major ▼ Modify	6 ▼ Modify	1 ▼ Modify	1 Modify	1 Modify				
DC Bus Low	minor ▼ Modify	4 ▼ Modify	2 V	1 Modify	1 Modify				
DC Bus High	minor ▼ Modify	4 ▼ Modify	2 V	1 Modify	1 Modify				
DC Bus Extra High	major 🔻	6 ▼ Modify	1 ▼ Modify	1 Modify	1 Modify				
DC Bus Voltage Sense Failure	major 🔻	6 ▼ Modify	1 ▼ Modify	1 Modify	1 Modify				
Mains Failure	minor	4 🔻	4 🔻	1	1 Modify				
	Name DC Bus Extra Low DC Bus Low DC Bus High DC Bus Extra High DC Bus Voltage Sense Failure	Name Severity Type DC Bus Extra Low Modify DC Bus Low Modify DC Bus High Modify DC Bus Extra High Modify DC Bus Voltage Sense Failure Modify	Name Severity Type DC Bus Extra Low Modify DC Bus Low Modify DC Bus High DC Bus Extra High DC Bus Extra High DC Bus Voltage Sense Failure Modify Modify	Name Severity Type DC Bus Extra Low Modify DC Bus High DC Bus Extra High DC Bus Voltage Sense Failure Severity Type Level Level Level Modify Modif	Name Severity Type Level DC Bus Extra Low Modify DC Bus Low Modify Modi				

Figure 10 Alarm configuration

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

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

Figure 11 Sensors and Actuators alarms

Event Tabs

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

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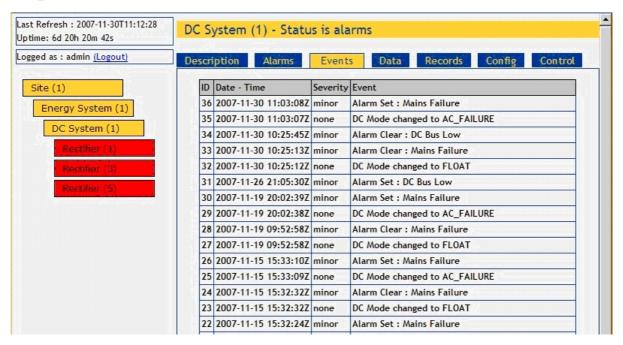


Figure 12 Events related to DC System

Data Tabs

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

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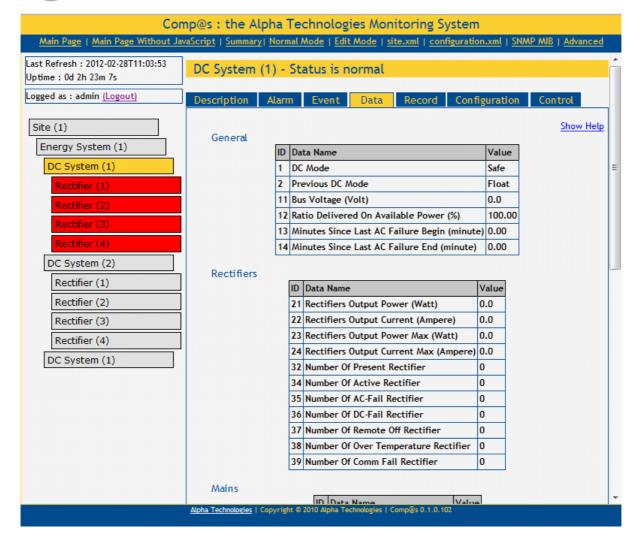


Figure 13 Data related to DC System

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

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Figure 14 Rectifier Data

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

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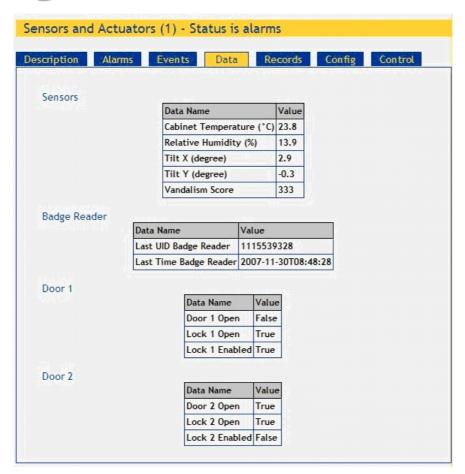


Figure 15 Sensors and Actuators data

Configuration Tabs

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

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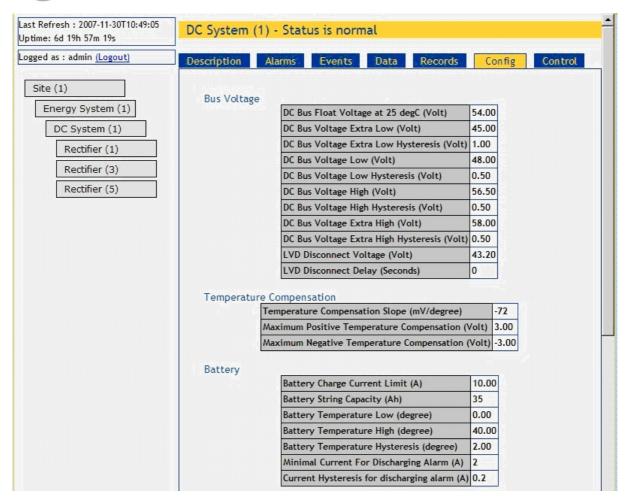


Figure 16 DC System Configuration Tab

The configuration of the site:

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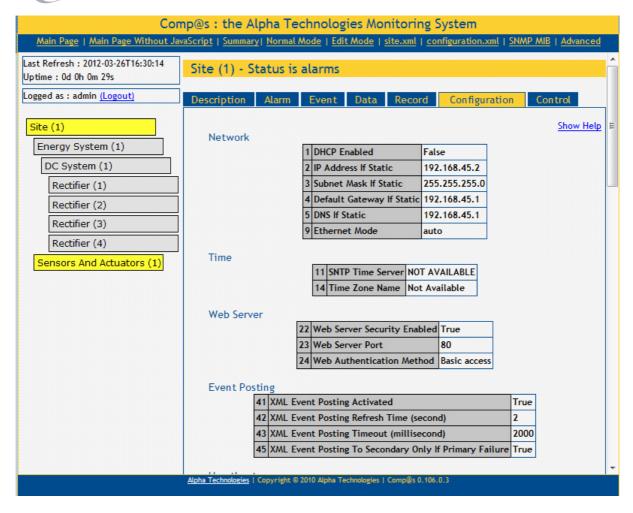


Figure 17 Site Configuration

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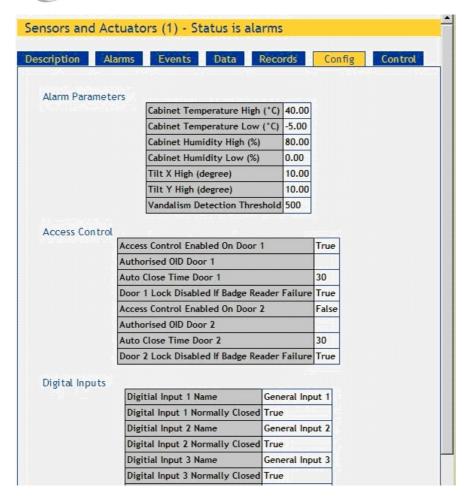


Figure 18 The configuration of an extension card

Record Tabs

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

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

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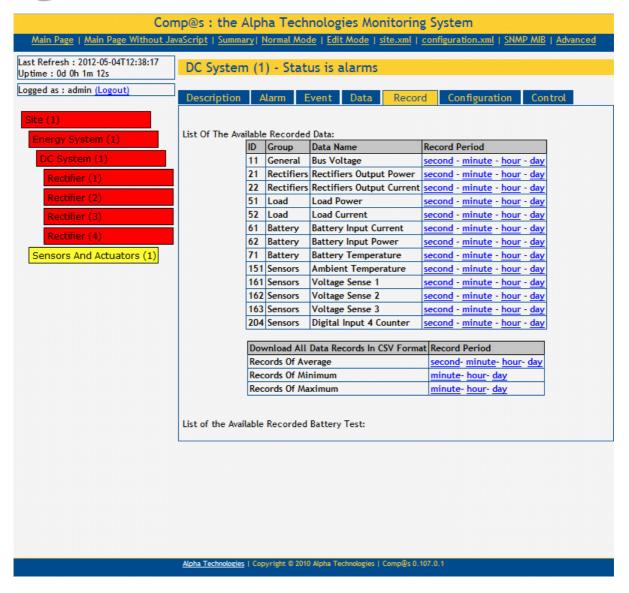


Figure 19 DC System Record Tab

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

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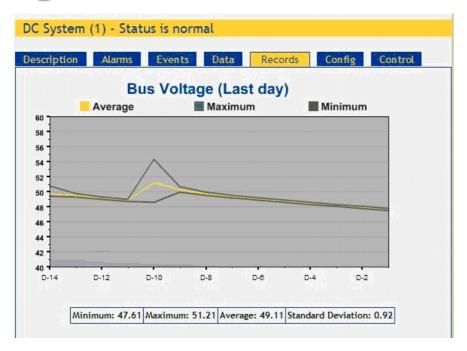


Figure 20 Bus Voltage record of the last days

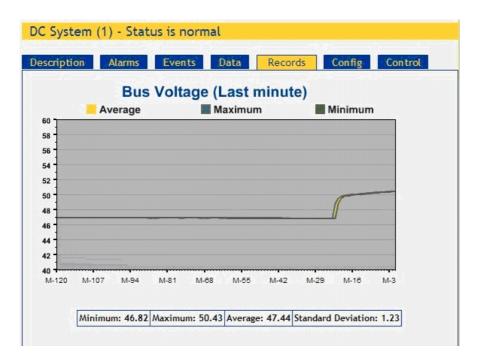


Figure 21 Bus Voltage record of the last minutes

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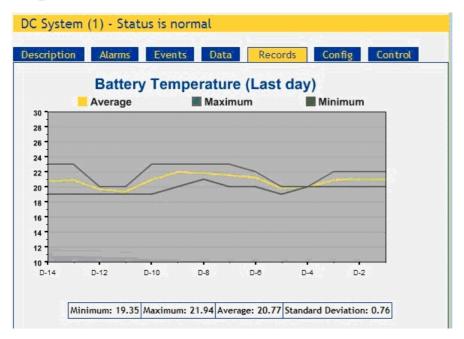


Figure 22 Battery Temperature record for the last days

Control Tabs

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

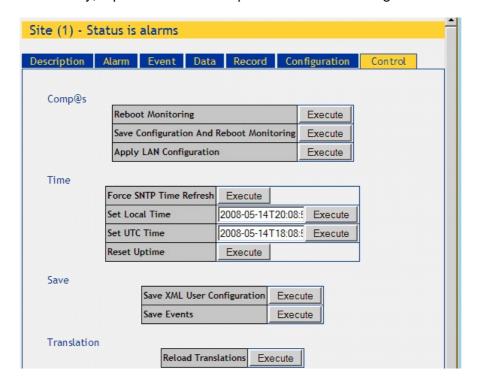


Figure 23 Control Tab at site level

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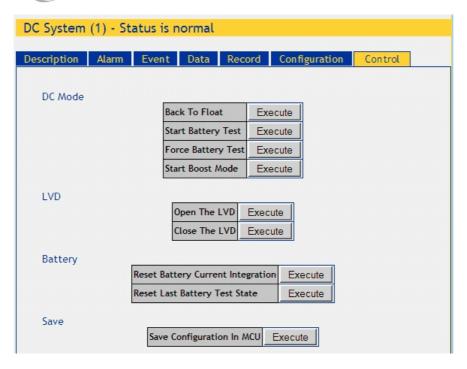


Figure 24 Control Tab at DC System level

3.3.2 Modifying Comp@s Settings

- Modifying values
- Saving The Changes.

Modifying values

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



Figure 25 Edit Mode

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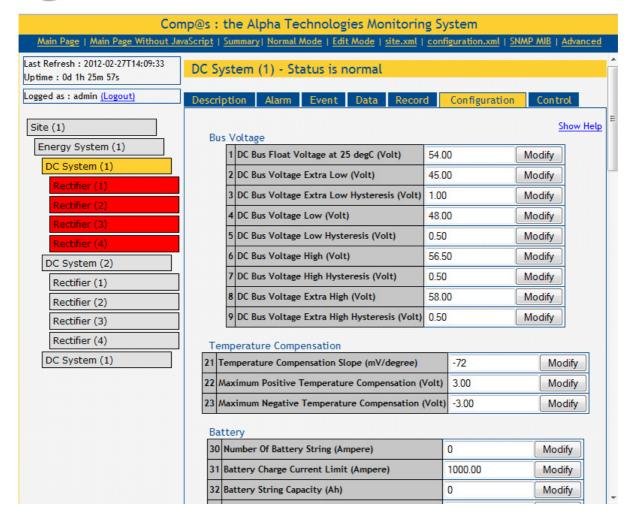


Figure 26 Modifying values

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

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

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

Saving The Changes

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

STEP 1: Click on "Site"

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

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

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

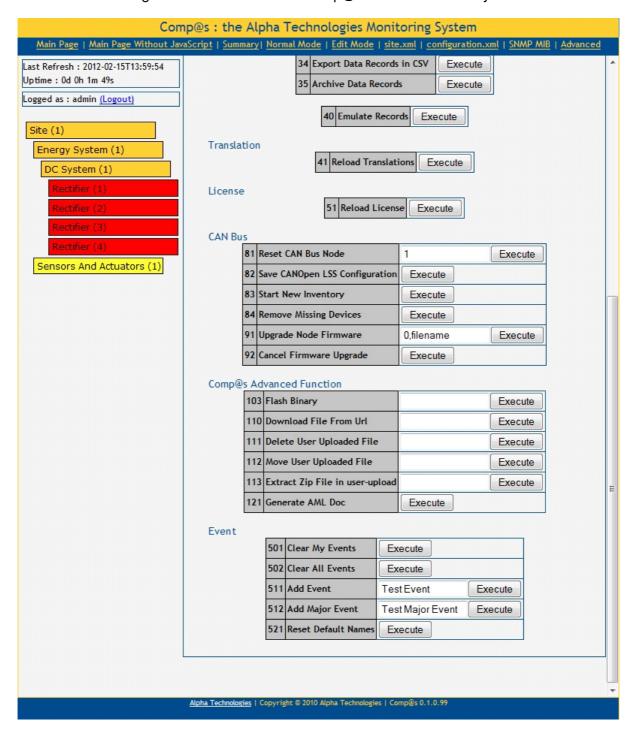


Figure 27 Saving of settings

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

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3.3.3 Changing the Network Configuration

Network configuration steps

STEP 1: Configure the Network Configuration:

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

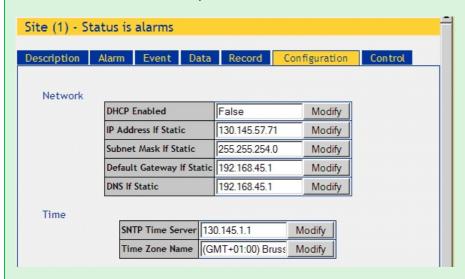


Figure 28 Network configuration

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

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

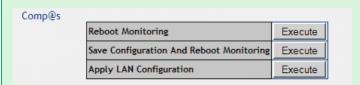


Figure 29 Apply changes

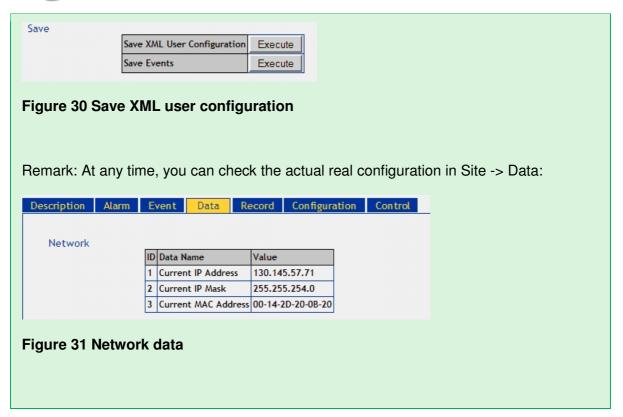
-> "Save Configuration And Reboot Monitoring"

Or

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

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3.4 Using the Comp@s SNMP Agent

The Simple Network Management Protocol (SNMP) exposes management data in the form of variables on the managed systems, which describe the system configuration. These variables can then be queried and sometimes set by managing applications.

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

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

"http://the ip/Compas.mib"

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



Figure 32 Download of the SNMP MIB

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

dc systems

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- · extension module
- · etc.

The default port running the SNMP agent is 161. This can be configured if requested.

When an event happens, a SNMP trap can be sent. Multiple target IP can be configured. These multiple IP must be configured for each sub-equipment to increase the flexibility of the system.

If you want free software to test SNMP, you can download iReasoning MIB Browser from URL: http://www.ireasoning.com/mibbrowser.shtml.

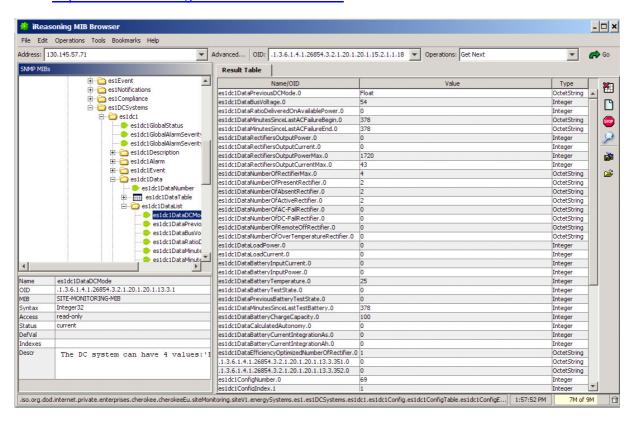


Figure 33 Ireasoning MIB Browser

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

- GET
- SET
- WALK

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

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

Figure 34 SNMP Configuration Level

SNMP v2c uses the mechanism of the SNMP communities (Read and Write). An SNMP community is the group that devices and management stations running SNMP belong to. It helps define where information is sent. The community name is used to identify the group. It will not respond to requests from management stations that do not belong to one of its communities. The login and password are the same as for the web server interface. BUT, as the community is only a string, the syntax is:

SNMP authentication syntax LOGIN:PASSWORD

Default login and password are

SNMP default login and password

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

SNMP V3 uses login and passwords. The same accounts are used as in the web interface.

You can define a minimum security level (an SNMP version) for SET and GET operations:

- No Authentication
- V1 Community
- V2c Community
- V3

If you are using SNMP V3, you can set an Auth Algorithm:

- MD5 : Message Digest Algorithm 5 HMAC-MD5-96
- SHA: Secure Hash Algorithm HMAC-SHA-96
- Any: Both MD5 and SHA will be tried.

You can also use privacy password with a privacy Algorithm:

- DES: Data Encryption Standard
- AES: Advanced Encryption Standard with key length of 128
- 3DES: Triple Data Encryption Standard.

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Chapter 4 – Functionalities

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

4.1 User Access Management

The web server and the SNMP agent are protected by an authentication mechanism based on login/password.

There are by default six users defined: one administrator and 5 users:

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

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

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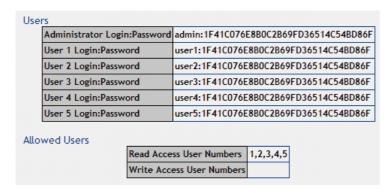


Figure 35 Users login and password configuration

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

The 5 users can only access the functionalities they are authorized to. It is possible to define, for each equipment of the site hierarchy, which user has read access and which user has write access. The following figure shows the "Read Access User Numbers" and the "Write Access User Numbers" configuration entries. The value is a list of coma separated values corresponding to the user number allowed to read or write at the Site level. These 2 parameters are also available in each "DC system" and in each "Sensors and Actuators".

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

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

STEP 1: Browse to Site -> Configuration

STEP 2: Click on "Edit Mode"

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





Figure 36 User login and password change screen

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



Figure 37 User new login and password change screen

STEP 5: Do not forget to save the configuration.

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4.2 Save / Load configuration

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

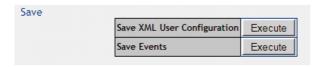


Figure 38 Save / Load configuration

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

4.3 Automatic events saving

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

4.4 Date and Time Management

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

4.4.1 Real Time Clock

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

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

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Figure 39 Setting the time

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

4.4.2 Time zone and Daylight Saving Time

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

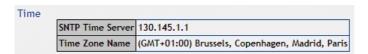


Figure 40 Time Configuration Elements

All the available time zone can be retrieved at URL:

Available time zone http://the-ip/timezones.txt

Here follows a screenshot of a part of this list:

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

Figure 41 Partial Time Zone List

You can copy/paste the correct one.

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

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

4.4.3 (S)NTP Time Protocol

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

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

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

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

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

4.5 Software Upgrade Management

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

4.5.1 Upgrading the Comp@s Software

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

Checking Comp@s revision

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



Figure 42 Software Revision

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

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Figure 43 Software Revision at bottom of web pages

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

- Upgrading remotely with Ethernet
- Upgrading locally with USB.

Upgrading Locally with USB

The upgrade is done trough the USB Active Sync connection.

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

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

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

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

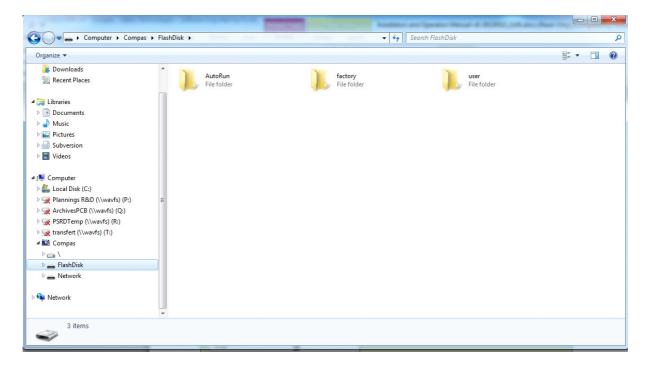


Figure 44 Browse to "\FlashDiskUser"

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

STEP 6: Reboot the monitoring with the Web Interface.

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

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Upgrading Remotely with Ethernet

- FTP
- HTTP POST

FTP

The upgrade is done trough FTP connection:

Upgrading Comp@s remotely with FTP

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

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

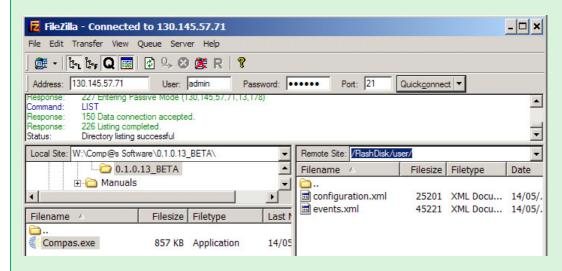


Figure 45 FTP Connection with Filezilla

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

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

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

HTTP POST

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

Upgrading Comp@s remotely with HTTP POST

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

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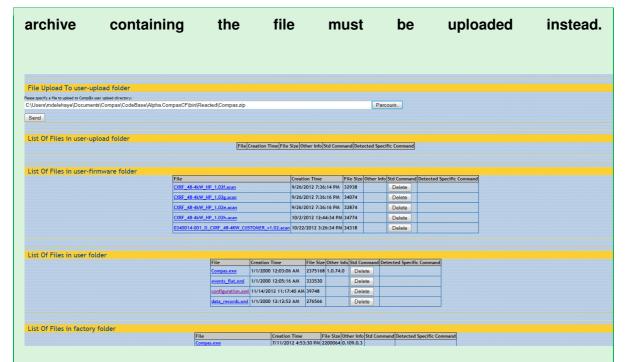


Figure 46 Comp@s Manage Files Page

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

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

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

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

4.5.2 Upgrading a Firmware with Comp@s

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

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

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STEP 1: You must first upload the firmware 'SOFT_XXXXX_XX.txt' file on the comp@s card. The correct folder is "\\FlashDisk\User\Firmware". This can be done through FTP or USB. The following screenshot shows the folder with one file, in a Windows Vista environment:

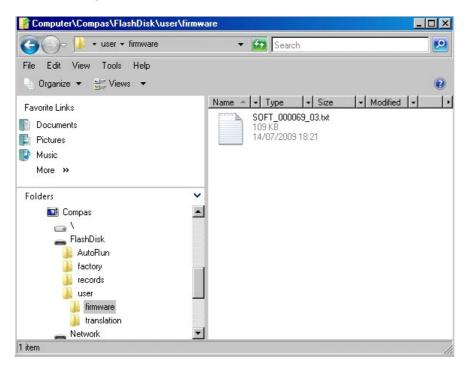


Figure 47 Firmware selection

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

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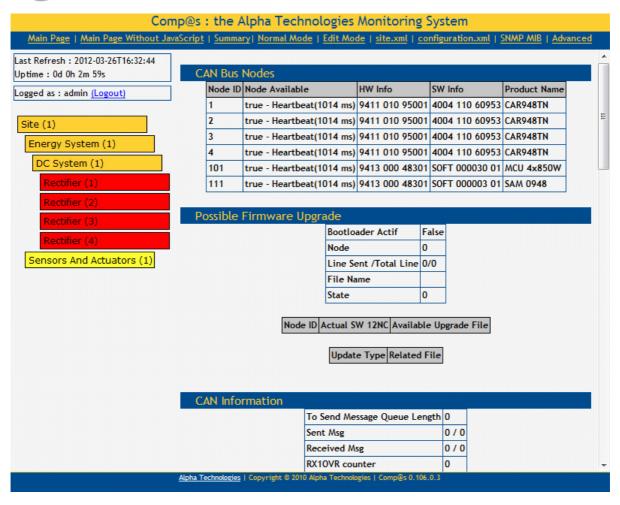


Figure 48 Comp@s web page Advanced link

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

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

Figure 49 File decoding

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



Figure 50 Equipment disappearing during upgrade

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

4.6 Reset Factory Settings

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

4.7 Copying configuration from a system to another

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

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

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

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

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Note

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

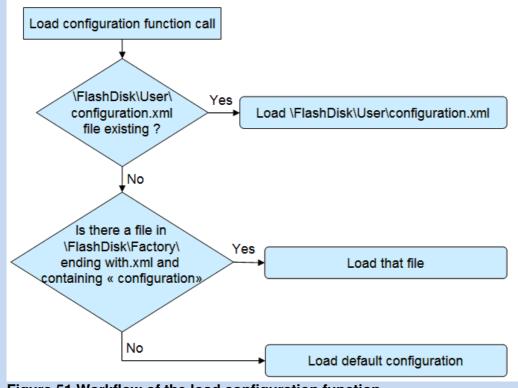


Figure 51 Workflow of the load configuration function

4.8 PLC Functionalities

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

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

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4.8.1 **Syntax**

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

Using Data Entries

Syntax	Signification
@(dataXXX)	The data with id XXX of the relative equipment
@(dcY_dataXXX)	The data with id XXX relative to the dc system with id Y. Example: @(dc1_data11) is the bus voltage of the DC System 1.
@(saY_dataXXX)	The data with id XXX relative to the Sensors And Actuators with id Y.

Using Alarm Entries

Syntax	Signification
@(alarmXXX)	The data with id XXX of the relative equipment
@(dcY_alarmXXX)	The data with id XXX relative to the dc system with id Y. Example: @(dc1_data11) is the bus voltage of the DC System 1.
@(saY_alarmXXX)	The data with id XXX relative to the Sensors And Actuators with id Y.
@(severity_level)	The severity level of the relative equipment (0->9). This can be useful to activate a relay based on the severity level.
@(dcY_ severity_level)	The severity level relative to the dc system with id Y.
@(saY_severity_level)	The severity level relative to the Sensors And Actuators with id Y.

Operators

Syntax	Signification
()	Parentheses
&&	Logical AND

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

Time Variables

Syntax	Signification
\$second()	Second part of the actual time
\$minute()	Minute part of the actual time
\$hour()	Hour part of the actual time
\$day()	Integer indicating the day of the month.
\$dayofweek()	Integer indicating the day of the week. This integer ranges from zero, indicating Sunday, to six, indicating Saturday
\$dayofyear()	Integer indicating the day of the year.
\$month()	Integer indicating the month of the year.
\$year()	Integer indicating the year.
\$time()	The time of the day
@ts(XXXXX)	Create a time span variable from XXXX string. Example: @ts(11:32) corresponds to 11h32.

Other Functions

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

4.8.2 Examples of Boolean Conditions

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

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The day of the week is sunday	\$dayofweek()==0
The alarm with id 17 is active	@(alarm17) ==True
The alarm with id 17 and 18 are active	@(alarm17) ==True && @(alarm18) ==True
true 5 seconds over 10	\$second()%10<5

4.8.3 Examples of Mathematical Expressions

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

4.8.4 PLC License Package

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



Figure 52 PLC Number

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

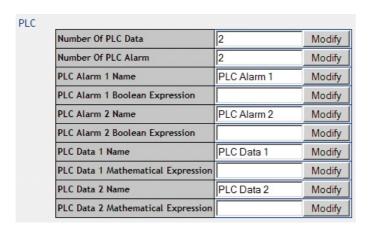


Figure 53 New configuration entries

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

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

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Figure 54 PLC Data

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

Figure 55 PLC Alarm

4.9 Translating The Web Interface

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

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

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

STEP 3: The first two lines are:

CSV file:

#LANGUAGE;MYLANGUAGE #LANG;MYLANG

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

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

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

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

Remark

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

Remark

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

STEP 8: Browsing to Site -> Control.

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



Figure 56 Reload Translations

4.10 Replacing a Rectifier in a DC System

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

The delay is usually around 15-20 seconds.

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

4.11 Measuring Power and Energy

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

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

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

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

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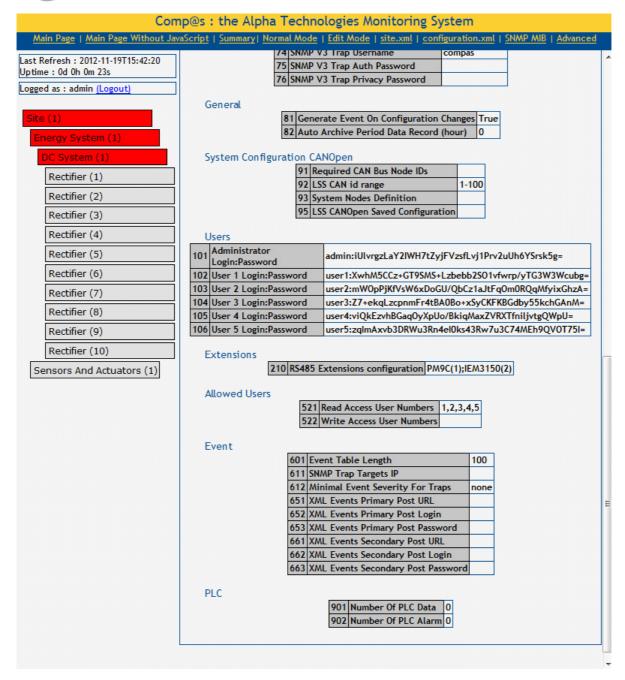


Figure 57 Configure Power and Energy Meter

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

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

Baudrade: 9600

Data bits: 8

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Parity: Odd

• Stop bits: 1.

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

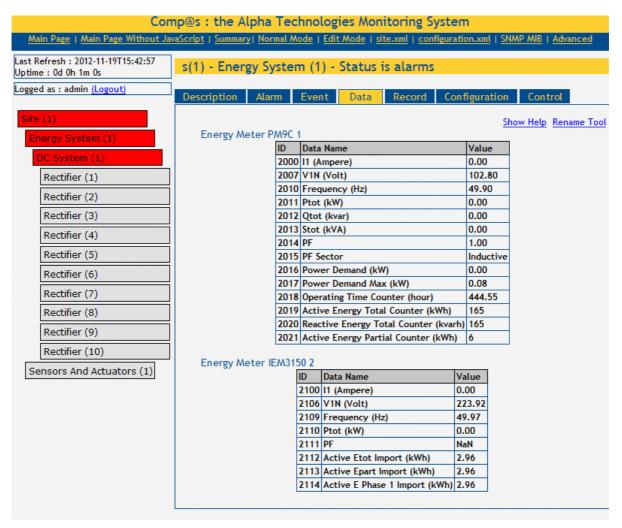


Figure 58 Power and Energy Meter Data

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

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

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

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

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Chapter 5 – Software Interfaces

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

5.1 Web Server

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

5.1.1 ETSI Protocol

The XML files described in <u>Retrieving XML files</u> are compliant with ETSI standard ES 202 336: "Environmental Engineering (EE); Monitoring and Control Interface for Infrastructure Equipment (Power, Cooling and Building Environment Systems used in Telecommunication Networks)".

This chapter provides a summary about the structure of this file:

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

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Common structure of any system/equipment

Any equipment XML node can have the following attributes:

Attribute	Description	Datatype	O/M
id	The id of the equipment, system or subsystem.	xs:integer	М
status	"normal" or "alarms" or "unknown".	xs:string	М
severity_type	If status is "alarms", this attribute gives the more severe "severity type" of the table of alarm. This attribute shall be present only when the attribute status is "alarms".		M
severity_level	If status is "alarms", this attribute gives the more severe "severity level" of the table of alarm. This attribute shall be present only when the attribute status is "alarms".		М
datetime	The datetime attribute can be used to know the date and the time at which the element was refreshed. It is possible to have different datetime in different elements because all the equipment/systems cannot provide the data at the same time.		Ο

For each equipment, system or subsystem, child elements that can be used are described in the following table:

Child Element	Description	Datatype	O/M	
<description_table></description_table>	A table with description elements of the equipment/system.	xs:complexType	0	
<alarm_table></alarm_table>	The table of alarms related to the equipment/system	xs:complexType	0	
<event_table></event_table>	A log of events related to the equipment/system	xs:complexType	0	
<data_table></data_table>	The table of the data (measurements, states and calculated values) related to the equipment/system			
<data_record_table></data_record_table>	Records of the historic of some data present xs:complexType in the data table			
<config_table></config_table>	The table of configuration of the equipment <u>xs:complexType</u>		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:		М
active	This value is "true" if the alarm is active or "false" if the xs:boo alarm is not active.		М
name	The name of the alarm xs:		М
severity_type	e 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).		0

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 replaced		
12	Missing Rectifiers	There is not enough rectifier according to the minimal number of rectifie configuration element	
13	Battery Last Test Failed	The last battery test did not succeed. Maybe the battery should be replaced.	
14	Battery On Discharge	The battery is discharging. This means	

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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	

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 Tes Discharged Capacity	Battery	0.01%	This is the battery capacity, in percent, discharged during the last battery test. This value is updated at the end of the battery test.
74	Battery Tes Discharged Capacity Ah	Battery	Ah	This is the battery capacity, in ampere hour, discharged during the last battery test. This value is updated at the end of the battery test.
75	Battery Test Fina Voltage	Battery	0.1 Volt	This is the bus voltage at the end of the last battery test. This value is updated at the end of the battery test.

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:

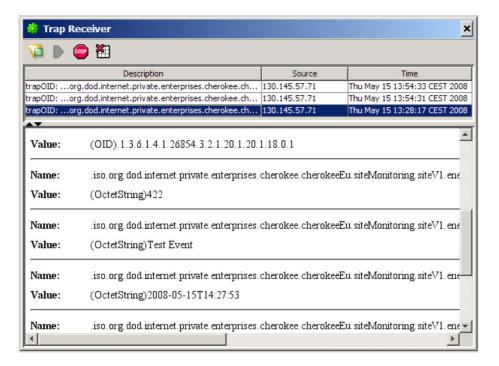


Figure 60 IReasoning trap receiver

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Chapter 6 – CAN information

Bus

related

IIIIOIIIIalioii

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

6.1 CAN Bus - The internal field bus

Comp@s systems use the CAN bus to communicate with the equipment. The CAN bus Controller Area Network (CAN) is an ISO approved standard for a low cost real time communication protocol. It is a fault tolerant and robust system. It is commonly used in automobiles, automated robots, airplanes, etc. In our application, the maximal bus length is 500m. The monitoring application is able to detect BUS problems like a short between the lines of the bus or devices which are unreachable.

Each node connected on the CAN Bus has an id. These ids are defined as shown in the following table:

Equipment Type	Range	Comments		
Node Rectifier	[1,100]	Each rectifier with CAN capabilities has an address comprised between 1 and 100.		
Node MCU Remote Central	[100,1]			
Node MCU	[101,110]	Up to 10 shelves monitoring (MCU)		
Node Extension	[111,120]	Up to 10 extension card.		
Node_CDM	[126]	Comp@s display module		
Node Comp@s	[127]	The Comp@s node id. (used by CDM)		

To see the list of the nodes connected on a Comp@s System, browse to Site -> Data. There, you can view the "CAN Bus Node IDs" list, as shown on the following figure:

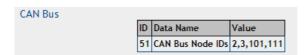


Figure 61 CAN Bus Node IDs

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6.2 Connecting multiple rectifier shelves together

It is possible to interconnect multiple shelves to increase the system power. If the DC outputs are interconnected, the shelves are working in parallel. If the DC outputs of the shelves are independent, the shelves are independent.

In both situations, the CAN bus has to be connected between the shelves. Each MCU must have a unique CAN Id.

On MCU1848, the DIP Switch use is described in the following table:

Switches	Parameter	Description		
1-3	CAN Id	Unique identifier of the MCU on the CAN bus. MCU CAN Id range begins at 101 and switch [1-3] represents a LSB encoded binary value that defines 8 successive Id's from 101 to 109.		
4-6	-	Reserved for future use		
7	Master/Slave	OFF: this MCU behaves as the master of the system ON: this MCU behaves as a slave of master MCU		
8	Termination	OFF: external CAN bus termination must be used ON: CAN bus is internally terminated by a 147Ω resistor		

- Multiple Shelves working in parallel
- Multiple Shelves Independent.

6.2.1 Multiple Shelves working in parallel

The CAN bus, VPROG and Sharing signals must be interconnected between the shelves. The whole system is seen as only one DC system by Comp@s. Here follows two typical configurations:

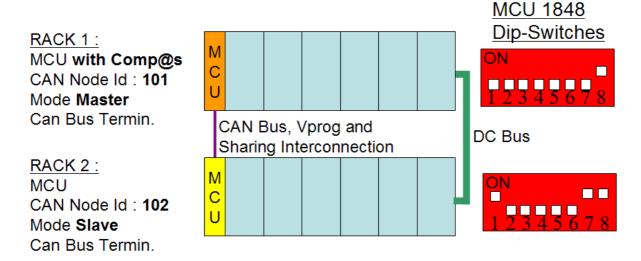


Figure 62 Example with a system with 2 shelves of 6x1800W rectifiers

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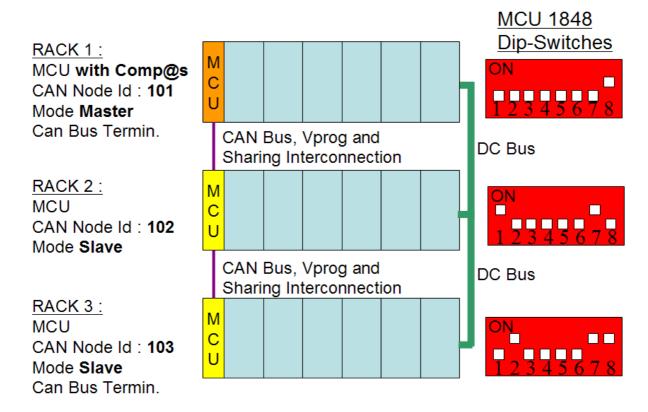


Figure 63 Example with a system of 3 shelves of 6x1800W rectifiers

6.2.2 Multiple Shelves Independent

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

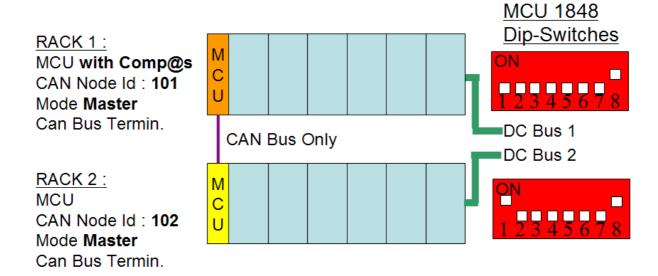


Figure 64 Example with a system with 2 shelves of 6x1800W rectifiers

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Chapter 7 – Equipment Tables

The following chapters list the description, data, alarm, configuration and control tables that will be available in Comp@s for most of the supported devices. (Rectifier, MCU, Extension board, etc.)

7.1 Site Tables

7.1.1 COMPAS

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

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

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

Alar	m Table		
<u>Id</u>	<u>Name</u>	Severity Type (Level)	Set/Clear Delay
1	CAN Bus Failure	major (6)	5 / 2
	This alarm is active when there is a problem	with the CAN Bus.	
3	Missing CAN Bus Node IDs	major (6)	10 / 2
	This alarm is active if configured node ids ar	e not detected on the bu	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 / 2
	This alarm is active if the system should be	rebooted for some reaso	n
21	XML Hearbeat Post Failure	major (6)	5 / 2
	This alarm is active when the heartbeat secondary post server. Please note that mechanism is inactive.		

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

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2	Current IP Mask	Network		basic		
	This is the actual IP address of the C correctly connected, the address will be		he Ethernet cable	e is not		
3	Current MAC Address	Network		basic		
	This is the MAC address of IP interface.					
11	Licensed Options	License		basic		
	This is the options of the actual license.					
21	Date And Time Local	Time		basic		
	This is the local time of the monitoring.					
22	Date And Time UTC	Time		basic		
	This is the UTC time of the monitoring.					
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 Comp@s card, in 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 an IP with the DHCP protocol if this parameter is set to True. By default, this parameter is set to False.				
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 the if 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 Configuration CANOpen			basic
	No information				
101	Administrator Login:Password	Users		(admin:compas)	basic
	This is the login and the pass syntax. First the login in clear password. If you change the log last is automatically hashed.	, followed of 2	2 points, fo	ollowed of the MD	5 hashed
102	User 1 Login:Password	Users		(user1:compas)	basic
	This is the login and the passwo	rd of the user n	umber 1.		
103	User 2 Login:Password	Users		(user2:compas)	basic
	This is the login and the passwo	rd of the user n	umber 2.		
104	User 3 Login:Password	Users		(user3:compas)	basic
	This is the login and the passwo	rd of the user n	umber 3.		
105	User 4 Login:Password	Users		(user4:compas)	basic
	This is the login and the passwo	rd of the user n	umber 4.		
106	User 5 Login:Password	Users		(user5:compas)	basic
	This is the login and the passwo		umber 5.	T	_
210	RS485 Extensions	Extensions		PM9C(1)	asset
	configuration				
504	The configuration string for RS4		<u> </u>	(4.0.0.4.5)	<u>.</u> .
521	Read Access User Numbers	Allowed Users		(1,2,3,4,5)	basic
Ì			_		
	The list of the user numbers v numbers are coma separated. T	vhich have rea			
522		vhich have rea			
522	numbers are coma separated. T	which have real he accepted us Allowed Users hich have write configuration e	ser id are 1, access to element, the	2,3,4 and 5. Ex: 1, () this equipment. The alarm settings are	basic his means nd use the
522 601	numbers are coma separated. T Write Access User Numbers The list of the user numbers what these users can modify the control elements. The user numbers where the control elements is the user numbers.	which have real he accepted us Allowed Users hich have write configuration e	ser id are 1, access to element, the	2,3,4 and 5. Ex: 1, () this equipment. The alarm settings are	basic his means nd use the
	numbers are coma separated. T Write Access User Numbers 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	which have really he accepted us Allowed Users hich have write configuration elbers are coma	access to element, the separated	2,3,4 and 5. Ex: 1, () this equipment. The alarm settings are. The accepted us	basic basic basic
	numbers are coma separated. T Write Access User Numbers 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 Event Table Length	which have really he accepted us Allowed Users hich have write configuration elbers are coma	access to element, the separated	2,3,4 and 5. Ex: 1, () this equipment. The alarm settings are. The accepted us	basic basic basic
601	numbers are coma separated. T Write Access User Numbers The list of the user numbers where the series can modify the control elements. The user num 1,2,3,4 and 5. Ex: 1,3,4 Event Table Length The maximum length of the table	which have really he accepted us Allowed Users in have write configuration of the accepted users. The value multiple is the salue multiple in the salue multiple in the salue multiple is the value multiple in the salue multiple is the salue the salue mu	access to element, the separated	2,3,4 and 5. Ex: 1, () this equipment. The alarm settings are. The accepted us 10/4000 (100) prised between 10 192.168.45.1	basic basic basic basic basic basic basic
601	numbers are coma separated. T Write Access User Numbers The list of the user numbers where the second of the user numbers where the second 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 user	which have reache accepted us Allowed Users in have write configuration obers are coma Event e. The value musers and traps,	access to element, the separated	2,3,4 and 5. Ex: 1, () this equipment. The alarm settings are. The accepted us 10/4000 (100) prised between 10 192.168.45.1	basic basic basic basic basic and 4000 basic
601	numbers are coma separated. T Write Access User Numbers The list of the user numbers where the second of the user numbers where the second of the user numbers. The user numbers in the user numbers in the user numbers. The user numbers in the user numbers in the user numbers in the user numbers. The user numbers in the user numbers in the user in the u	which have really he accepted used accepted used accepted used accepted used accepted users are written accomplished accepted acc	access to element, the separated ust be comp	2,3,4 and 5. Ex: 1, () this equipment. The alarm settings are the accepted use 10/4000 (100) prised between 10 192.168.45.1 parated. Ex: 130 (none)	basic basic basic basic basic and 4000 basic 1.145.23.1,
601	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 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	which have reached us he accepted us Allowed Users nich have write configuration of the series are coma Event e. The value multiple send traps, Event e event to send	access to element, the separated ust be comp	2,3,4 and 5. Ex: 1, () this equipment. The alarm settings are the accepted use 10/4000 (100) prised between 10 192.168.45.1 parated. Ex: 130 (none)	basic basic basic basic basic and 4000 basic 1.145.23.1,
601 611 612	The list of the user numbers where that 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 This is the minimal severity of the XML Events Primary Post URL This is the first URL at which the	which have reache accepted us Allowed Users hich have write configuration of the accepted us Allowed Users hich have write configuration of the accepted us Allowed Users hich have write configuration of the accepted users are comained by the accepted users are comained by the accepted users are comained users are comained users are compared to the accepted users a	access to element, the separated ust be compared a SNMP to this equal to the sequence of	2,3,4 and 5. Ex: 1, () this equipment. The alarm settings are accepted us 10/4000 (100) prised between 10 192.168.45.1 parated. Ex: 130 (none)	basic basic basic basic basic and 4000 basic 145.23.1, basic
601 611 612	numbers are coma separated. T Write Access User Numbers 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 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	which have reache accepted us Allowed Users hich have write configuration of abers are coma Event e. The value must be send traps, Event e event to send Event e events related the posted data	access to element, the separated ust be compared a SNMP to this equal to the sequence of	2,3,4 and 5. Ex: 1, () this equipment. The alarm settings are accepted us 10/4000 (100) prised between 10 192.168.45.1 parated. Ex: 130 (none)	basic basic basic basic basic and 4000 basic 145.23.1, 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	added in th n Name ar	ne alarm table. The the PLC Alarm	he alarm Boolean

C-11	aval Table		
	rol Table	Τ _	I
<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 nbe 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 many	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 nwith 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 eletime 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 monitoring	g
21	Save XML User Configuration	Save	basic
	Writing a '1' to this control element will say equipment in a XML format. This file is real configure the monitoring. This file is also a downloaded trough the web interface.	d when the monitoring is sta accessible trough the FTP s	erver or can be
22	Save Inventory	Save	underd ev
	Writing a '1' to this control element will say file is read when the monitoring is starting i is also accessible trough the FTP serve interface.	in order to configure the mon	itoring. 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.	ver 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 dat 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		1
41	Reload Translations	Translation	basic
	Writing a '1' to this control element will reloa	ad all the csv translation files	· · · · · · · · · · · · · · · · · · ·
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		
81	Reset CAN Bus Node	CAN Bus	basic
	Writing a valid CAN bus node id to this c device.	ontrol element will reset the	correspondent
82	Save CANOpen LSS Configuration No information	CAN Bus	basic
		OANI D	
		CAN Bus	11 .
83	Start New Inventory		basic
	No information		
83 91	No information Upgrade Node Firmware	CAN Bus	basic
	No information	irmware upgrade of a CAN o in the /user/firmware path.	basic bus Node. You Then you need
	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 the control of the CAN Node, followed the control of the CAN Node, followed the control of the cont	irmware upgrade of a CAN o in the /user/firmware path.	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 ufirmware trough ftp in the /user/firmware path.	update. You need	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 us these files are not used, they are temporary files.	ser-upload folder	. This is ris	kless as
112	Move User Uploaded File	Comp@s Function	Advanced	basic
	This control element is used to copy a file from the Be aware of what your are doing!	user-upload fold	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 us these files are not used, they are temporary files.	ser-upload folder	. This is ris	kless as
501	Clear My Events	Event		basic
	By writing '1' to this control element, all the events of		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 rule written to this control element	najor. The even	t name is	the text
521	Reset Default Names And Groups	Advanced		basic
	This control element resets all the element Names values	, Groups and Su	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	A free text zone to write the customer reference of the system					
11	Product Name	Monitoring	basic				
	The product name of the DC system monitoring						
12	Hardware Reference	Monitoring	basic				
	The hardware reference of the	DC system monitoring					
14	Software Reference	Monitoring	asset				
	The serial number of the DC system monitoring						
16	Serial Number	Monitoring	asset				
	The serial number of the DC sy	stem monitoring					
18	Manufacturing Date	Monitoring	asset				
	The production date of the DC:	system monitoring					

Alarr	n Table						
<u>Id</u>	<u>Name</u>	Severity Type (Level)	Set/Clear Delay				
1	DC Bus Extra Low	major (6)	5/2				
	The bus voltage is extra low. The alarm is set when the bus voltage is lower than the configuration parameter 'DC Bus Voltage Extra Low'. There is an hysteresis on the alarm: 'DC Bus Voltage Extra Low Hysteresis'. The alarm is not activated when DC mode is BATTERY TEST						
2	DC Bus Low	minor (4)	5 / 2				
	The bus voltage is low. The alarm is set when the bus voltage is lower than the configuration parameter 'DC Bus Voltage Low'. There is an hysteresis on the alarm: 'DC Bus Voltage Low Hysteresis'						
3	DC Bus High	minor (4)	5 / 2				
	The bus voltage is high. The alarm is set 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)	5 / 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 o	f 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 rectifier open breaker, a real phase failure, or by	s are in AC 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 One Rectifier Failure minor (4) 5 / 2					
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.'					
11	More Than One Rectifier Failure	major (6)	10 / 2			
	There is no mains failure and number of rectifier failures is greater than 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 be replaced.	was not cancelled.	Maybe 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 hysteresis'.	system in AC Failur	e 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 asks to open the LVD	is open. On Syste	ems without LVD_Status y if the signal LVD_COM			
18	Battery Temperature Too High	minor (4)	5 / 2			
	The temperature of the battery is too highysteresis corresponding to battery parar		nysteresis'.			
19	Battery Temperature Too Low	minor (4)	5 / 2			
	The temperature of the battery is too low hysteresis corresponding to battery parar					
20	Battery Temperature Sensor Fail	minor (4)	5 / 2			
	The battery temperature sensor (NTC) v not connected or defective.					
21	Ambient Temperature Too High	minor (4)	5 / 2			
	The ambient temperature is too high a hysteresis corresponding to parameter 'A only activated on MCU master types 30 0948 and 3048M6.	mbiant temperature	hysteresis'. This alarm is			
22	hysteresis corresponding to parameter 'A only activated on MCU master types 30	mbiant temperature	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) not connected or defective.	value is inferior to -500	units meaning that it is
25	Distribution Breaker Open	major (6)	5 / 2
	This alarm is related to digital input 1. different to configuration parameter '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 The sum of the delivered rectifier current Ampere						
	<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	T					
34 Number Of Active Rectifier Rectifiers	basic					
The actual number of active rectifier in this dc system. An active rectifier is a rectifier which is present, DC OK, AC OK and not in remote off.						
35 Number Of AC-Fail Rectifier Rectifiers	basic					
The actual number or rectifier in AC Failure.	· · · · · · · · · · · · · · · · · · ·					
36 Number Of DC-Fail Rectifier Rectifiers	basic					
The actual number or rectifier with DC 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	cond					
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 O Rectifier	f Smart Energy		asset				
	The optimal number of ON rectifier for E	fficiency Optimization	<u> </u>					
122	System Loss Without Optimisation	Smart Energy	Watt	under dev				
	Estimation of the losses without 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		T-	T				
151	Ambient Temperature	Sensors	degree C	basic				
	The ambiant temperature (second temperature sense)							
	The ambiant temperature (second temp	erature sense)	T	1				
161	The ambiant temperature (second temp Voltage Sense 1	erature sense) Sensors	Volt	basic				
161	Voltage Sense 1 The voltage measured by the sens measurement. Calculation can be done	Sensors se 1. Can be used with the PLC		1				
161	Voltage Sense 1 The voltage measured by the sens	Sensors se 1. Can be used		I .				
	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 d 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	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	mmetry basic mmetry basic				

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Con	fig Table				
<u>ld</u>	Name	<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	rtifiars' is sat			
26	Rectifier Model	Rectifiers			basic
	The rectifier model	riccincis			Dasic
27	Forced Remote Off Rectifers	Rectifiers			basic
	A list of rectifier which are force		l ff The id o	the rectifier must	
	separated. Ex: 1,3 will maintain			ino rodinor made	DO OOMA
31	Battery Charge Current Limit		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 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 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	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 th	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	le 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
	True/False value defining if the digital input 2 is normally closed. If this digital input is not in this default state, the related alarm is set.						
95	Digital 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 o	digital input 4				
98	Digital Closed	Input	4 Normally	Digital Inputs		True/False (True)	basic

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	T						
			e, the relat	ed alarm is set		closed. If this digita	al input is
99	Digital Input	5 Name)	Digital Inputs		Digital Input 5	basic
	The name of	the digit	al input 5				
100	Digital Inp Closed	ut 5	Normally	Digital Inputs		True/False (True)	basic
				digital input 5 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 digit	al input 6				
102	Digital Inp Closed	ut 6	Normally	Digital Inputs		True/False (True)	basic
				digital input 6 ed alarm is set		closed. If this digita	al input is
103	Digital Input	7 Name)	Digital Inputs		Digital Input 7	basic
	The name of	the digit	al input 7				
104	Digital Inp Closed	ut 7	Normally	Digital Inputs		True/False (True)	basic
				digital input 7 ed alarm is set		closed. If this digital	al input is
105	Digital Input	8 Name)	Digital Inputs		Digital Input 8	basic
	The name of	the digit	al input 8				
106	Digital Inp Closed	ut 8	Normally	Digital Inputs		True/False (True)	basic
				digital input 8 ed alarm is set		closed. If this digital	al input is
111	Dry Alarm Boolean Cor		Alternative	Dry Alarms		False	plc
	Another Bool condition is d				larm relay	1. The way to define	e boolean
112	Dry Alarm Boolean Cor		Alternative	Dry Alarms		False	plc
	Another Bool condition is d				larm relay 2	2. The way to define	e boolean
113	Dry Alarm Boolean Cor		Iternative	Dry Alarms		False	plc
	Another Bool condition is d			•	larm relay :	3. The way to define	e boolean
114	Dry Alarm Boolean Cor		Iternative	Dry Alarms		False	plc
	Another Bool condition is d				larm relay	4. The way to define	e boolean
131	Ambient Ten	nperatu	re Low	Sensors	degree C		basic
		•				ature Too Low' must	
132	Ambient Ten			Sensors	degree C		basic
		•				iture Too Low' must	
122							T .
133	Ambient Hysteresis		nperature	Sensors	degree C		basic
133	Hysteresis	Ter	nperature			nd 'Battery Tempera	

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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, 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	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	comatically add ne PLC Data N	led 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. Every equipment can manage up to 20 user programma alarms. Alarm elements are automatically added in the alarm table. The alaparameters are added to set the PLC Alarm Name and the PLC Alarm Boole condition. In order to use these functionalities, you need a licence with the 'P module				

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

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41	Reset Last Battery Test State	Battery	battery		
	Reset the state of the last battery test. If an alarm 'Battery Last Test Failed' is set, the alarm will be cleared.				
51	51 Save Configuration In MCU Save				
	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 clea	ared.		
502	Clear All Events	Event	basic		
	By writing '1' to this control element, all the events of all the sub-equipments will be cleared.	of this equipment and all th	e events		
511	Add Event	Event	basic		
	This control element adds an event of severity none to this control element	. The event name is the tex	kt written		
512	Add Major Event	Event	basic		
	This control element adds an event of severity 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 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 Voltag alarm: 'DC Bus Voltage Extra High Hyster	e Extra High'. There is a				
5	DC Bus Voltage Sense Failure	major (6)	5 / 2			
	The DC bus voltage sense is defective unconfigured.	The DC bus voltage	is unconnected or			
6	Mains Failure	minor (4)	5 / 2			
	The number of active rectifiers is equal to 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 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.'					
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 alaasks 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 parame					
19	Battery Temperature Too Low	minor (4)	5 / 2			
	The temperature of the battery is too low a hysteresis corresponding to battery parame					
20	Battery Temperature Sensor Fail	minor (4)	5 / 2			
	The battery temperature sensor (NTC) value not connected or defective.	e is inferior to -500 unit	s meaning that it is			
25	Distribution Breaker Open	major (6)	5 / 2			
	This alarm is related to digital input 1. Thi different to configuration parameter 'Digital I		igital input value is			
26	Battery Breaker Open	minor (4)	5 / 2			
	This alarm is related to digital input 2. Thi different to configuration parameter 'Digital I		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. This 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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13	Minutes Since Last AC Failure Begin	General	minute	basic
	The number of minute since the last AC		1	1300.0
14	Minutes Since Last AC Failure End	General	minute	basic
	The number of minute since the last AC			0.0.0
21	Rectifiers Output Power	Rectifiers	Watt	basic
	The sum of the delivered rectifier power	i tootiiioio	T Cate	Juli 10 10 10 10 10 10 10 1
22	Rectifiers Output Current	Rectifiers	Ampere	basic
	The sum of the delivered rectifier current		,po. o	J 40.0
23	Rectifiers Output Power Max	Rectifiers	Watt	basic
	The sum of the deliverable rectifier power		T Cate	000.0
24	Rectifiers Output Current Max	Rectifiers	Ampere	basic
	The sum of the deliverable rectifier curre		runpere	baolo
31	Number Of Rectifier Max	Rectifiers		basic
•	The maximum possible number of rectific			baolo
32	Number Of Present Rectifier	Rectifiers		basic
-	The actual number of present rectifier in		<u> </u>	24010
33	Number Of Absent Rectifier	Rectifiers		basic
J J	The actual number of absent rectifier in t			Dasic
34	Number Of Active Rectifier	Rectifiers		basic
J -	The actual number of active rectifier in t		tive rectifier is a	
	which is present, DC OK, AC OK and no		ctive rectiller is a	i ectillei
35	Number Of AC-Fail Rectifier	Rectifiers		basic
	The actual number or rectifier in AC Failu		I.	1001010
36	Number Of DC-Fail Rectifier	Rectifiers		basic
	The actual number or rectifier with DC Fa		I.	
37	Number Of Remote Off Rectifier	Rectifiers		basic
	The actual number or rectifier in remote			I.
38	Number Of Over Temperature	1		basic
	Rectifier			
	The actual number or rectifier in OVer Te	emperature.		
51	Load Power	Load	Watt	basic
	Estimation of the load power consumption	n		
52	Load Current	Load	Ampere	basic
İ	Estimation of the load current consumpti	on		
61	Battery Input Current	Battery	Ampere	basic
	Measurement of the battery input currer discharging	nt. A negative value	means that the ba	attery is
62	Battery Input Power	Battery	Watt	basic
	Measurement of the battery input power discharging	r. A negative value r	means that the ba	attery is
71	Battery Temperature	Battery	degree C	basic
	The battery temperature		. -	
72	Battery Test State	Battery		basic
	This is about the result of the last NEVER_TESTED, SUCCESS, FAILED VBUS TOO LOW, FAILED	st battery test. 9 ON_GOING,	values are pos FAILED_TIM FAILED_AC FA	sible : IEOUT,

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	FAILED_CANCELED, FAILED_LVD_OF	PENED		
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 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	ent, 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	וְ	
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		

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 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 alarm 'DC Bus Voltage Extra Low' is set.					
3	DC Bus Voltage Extra Low		Volt	0/5 (1)	basic	
	Hysteresis					
	The voltage hysteresis on the alarm 'DC Bus Voltage Extra Low'.					
4	DC Bus Voltage Low	Bus Voltage	Volt	40/60 (48)	basic	
	The bus voltage under which the alarm 'DC Bus Voltage Low' is set.					
5	DC Bus Voltage Low	Bus Voltage	Volt	0/5 (0.5)	basic	
	Hysteresis			, ,		
	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 High' is set.					
7	DC Bus Voltage High Hysteresis	Bus Voltage	Volt	0/5 (0.5)	basic	
	The voltage hysteresis on the al	arm 'DC Bus V	oltage High		<u> </u>	
8	DC Bus Voltage Extra High	Bus Voltage	Volt	40/60 (58)	basic	
	The bus voltage over which the			. ,	1	
9	DC Bus Voltage Extra High		Volt	0/5 (0.5)	basic	
	Hysteresis			,		
	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 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			-1000/0 (-72)	basic	
21	Slope	Compensatio	e	-1000/0 (-72)	Dasic	
	•	n [']				
	The slope of the battery temperature compensation in mv/degree. For a 48V system, -					
	72mV/degree is often used.					
22	Maximum Positive Temperature Compensation	Temperature	Volt	0/10 (3)	basic	
	Temperature Compensation	Compensatio n				
	The maximal allowed positive compensation.					
23	<u>'</u>	Temperature	Volt	-10/0 (-3)	basic	
	Temperature Compensation	Compensatio				
		n				
	The maximal allowed negative compensation.					
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	•	•			
27	Forced Remote Off Rectifers	Rectifiers			basic	
	A list of rectifier which are forced in remote off. The id of the rectifier must b separated. Ex: 1,3 will maintain rectifier 1 and 3 off.					
31	Battery Charge Current Limit		Ampere	0.5/1000 (1000)	basic	
			1	1 3: 1 2 2 2 (1 2 2 2)		

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	The maximal battery current where the bus voltage in order to satisfaction to the bus voltage in order to satisfaction to 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.	<u> </u>	<u> </u>	[0.1000 (100)	
33	Battery Temperature Low	Battery	degree C	-100/20 (0)	basic
	The temperature under which th			. ,	1
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 (3)	basic
	The minimal discharging current	to set the 'Batt	tery On Disc	charge' alarm.	1
37	Current Hysteresis For Discharging Alarm	Battery	Ampere	0/50 (1)	basic
	The hysteresis on the 'Battery O	n Discharge' al	larm.	T	1
51	Boost Automatic	Boost		False/False (False)	battery
52	bus voltage went under the concharging the battery faster. Boost Activation Low Voltage		Volt	43/50 (46)	battery
	The voltage under which the boo	st mode can b	e activated		
53	Boost Termination Voltage	Boost	Volt	50/58 (56.4)	battery
	The voltage over which the systematical	em must go ba	ck to floatin	g mode.	
54	Boost Termination Current	Boost	Ampere	0/100 (4)	battery
	The battery charging current und	der which the s	ystem must	go back to floating	mode.
55	Boost Termination Time	Boost	minute	10/240 (120)	battery
	The time in minute after which the	ne system must	go back in	floating mode.	
70	Battery Test End Voltage	Battery Test	Volt	30/60 (46)	battery
	The voltage at which any battery	test must be s	stopped.		
71	Battery Test Discharge Ratio	Battery Test	%	0/100 (0)	battery
	The ratio of the battery capacity discharged during the test	y to discharge.	If 30 is se	t, 30% of the batte	ry will be
72	Battery Test Interval	Battery Test	day	0/3000 (0)	battery
	The number of days between 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

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	The battery current under which	n the battery te	st must be	stopped because th	ne load is
	too low.		T	T	1
75	Battery Test Time Out	Battery Test	minute	1/5000 (10)	battery
	The timeout in minute after which				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	ount when the b		s forced.	1
83	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	e Smart Electro	nic LVDs, c	. ,	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 relationship.			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 relationship.			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 relati			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		т		
98	Digital Input 4 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		e boolean
112	Dry Alarm 2 Alternative Boolean Condition	Dry Alarms		False	plc
	Another Boolean condition to accondition is detailed in the PLC		larm relay	2. The way to define	e boolean

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113	Dry Alarm 3 Alternative Boolean Condition	Dry Alarms		False	plc		
	Another Boolean condition to ac	tivate the drv a	larm relav 3	3. The way to define	e boolean		
	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. 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 equipment can manage up to 20 user programmable data. Data elements are automatically added in the data table. Configuration parameters are added to set the PLC Data Name and the PLC Data Mathematical calculation. In order to use these functionalities, you need a license with the 'PLC' module						
902	Number Of PLC Alarm	PLC		(0)	plc		
	The number of PLC alarm. Ever alarms. Alarm elements are a parameters are added to set condition. In order to use the module	automatically a the PLC Alarn	ıdded in t n Name aı	he alarm table. The contract of the PLC Alarm	ne alarm Boolean		

Cor	ntrol 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				

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	The LVD must be opened					
12	Close The LVD	LVD	basic			
	The LVD must be closed	1				
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 alarmalarm 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.	ocontroller. If comp@s is n	ot present,			
61	Set Digital Input 4 Counter Value	Counters	basic			
	Set Counter Value					
501	Clear My Events	Event	basic			
	By writing '1' to this control element, all the events	s of this equipment will be o	leared.			
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	the 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 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, Groups and Subgroups to default values					

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

Desc	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	rm Table					
ld	<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 when the bus voltage is higher than the configuration paramenter 'DC Bus Voltage High'. There is an hysterisis on the alarm: 'DC Bus Voltage High Hysteresis'					
4	DC Bus Extra High	major (6)	5 / 2			
	The bus voltage is extra high. The alarm is configuration paramenter 'DC Bus Voltage alarm: 'DC Bus Voltage Extra High Hystere	Extra High'. There is a				
5	DC Bus Voltage Sense Failure	major (6)	5 / 2			
	The DC bus voltage sense is defective. unconfigured.	The DC bus voltage	is unconnected or			
6	Mains Failure	minor (4)	5 / 2			
	The number of active rectifiers is equal to 0 greater than 0.	and the number of rectif	fiers in AC failure is			
7	Mains Partial Failure	minor (4)	10 / 2			
	The number of active rectifiers is greater than 0 and the number of rectifiers in AC failure is greater than 0. Some rectifiers are in AC Failure. It may be caused by an open breaker, a real phase failure, or by a rectifier failure.					
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
	One rectifier must be replaced or is not p rectifier is set. The number of rectifier wit mains failure, and the 'More Than One Rec	h DC Failure is higher	than 0, there is no
11	More Than One Rectifier Failure	major (6)	10 / 2
	There is no mains failure and number of red	tifier failures is greater t	han 1.
12	Missing Rectifiers	major (6)	5/2
	There is not enough rectifier according Number Of Rectifier'	to the configuration pa	arameter : 'Minimal
13	Battery Last Test Failed	minor (4)	5/2
	The last battery test did not succeed and w be replaced.	ras 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 symmetries is an hysteresis corresponding to hysteresis'.	ystem in AC Failure or d	uring a battery test.
17	Battery LVD Relay Open	major (6)	5 / 2
	The battery Low Voltage Disconnector is signal, like MCU 1848 or MCU 1x6, the alaasks 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 parame		
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) values not connected or defective.		
21	Ambient Temperature Too High	minor (4)	5 / 2
	The ambient temperature is too high and hysteresis corresponding to parameter 'Am only activated on MCU master types 301 0948 and 3048M6.	biant temperature hyster	resis'. This alarm is
22	Ambient Temperature Too Low	minor (4)	5 / 2
	The ambient temperature is too low and hysteresis corresponding to parameter 'Am only activated on MCU master types 301 0948 and 3048M6.	biant temperature hyster	resis'. This alarm is
		inalia a ir (4)	
23	Ambient Temperature Sensor Fail	minor (4)	5/2
23	Ambient Temperature Sensor Fail The ambiant temperature sensor (NTC) valuation of connected or defective.	. ,	
23 25	The ambiant temperature sensor (NTC) val	. ,	
	The ambiant temperature sensor (NTC) valued not connected or defective.	ue is inferior to -500 uni major (6) is alarm is activated if o	ts meaning that it is
	The ambiant temperature sensor (NTC) valued not connected or defective. Distribution Breaker Open This alarm is related to digital input 1. The	ue is inferior to -500 uni major (6) is alarm is activated if o	ts meaning that it is

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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. different to configuration parameter 'Digi			gital input value is
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 values: 'FLOAT', 'BOOST', 'BATTERY_TI'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 %.					
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		

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	The actual number of present rectifier in	this dc system		
33	Number Of Absent Rectifier	Rectifiers		basic
-	The actual number of absent rectifier in	this dc system		
34	Number Of Active Rectifier	Rectifiers		basic
	The actual number of active rectifier in which is present, DC OK, AC OK and no		ctive rectifier is a	rectifier
35	Number Of AC-Fail Rectifier	Rectifiers		basic
	The actual number or rectifier in AC Fail	ure.		
36	Number Of DC-Fail Rectifier	Rectifiers		basic
	The actual number or rectifier with DC F	ailure.		
37	Number Of Remote Off Rectifier	Rectifiers		basic
	The actual number or rectifier in remote	off.		
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			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	last battery test. Th	is value is update	d at the

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	end of the battery test.			
81	Previous Battery Test State	Battery		basic
	The result of the previous battery test	-	1	.
82	Minutes Since Last Test Battery	Battery		basic
	The number of minute without battery tes	st		•
91	Battery Charge Capacity	Battery	%	basic
	The battery charge capacity, calculated by integration of the current.			
92	Calculated Autonomy	Battery	minute	basic
	Calculation of the remaining autonomy			
93	Battery Current Integration Battery As			basic
	Actual value of the integration of the curr	ent, in Ampere * sec	ond	
94	Battery Current Integration	Battery	Ah	basic
	Actual value of the integration of the curr	ent, in Ampere * hou	ır	
101	LVD State	LVD		basic
	Actual state of the LVD			
121	Efficiency Optimized Number Of Rectifier	Smart Energy		asset
	The optimal number of ON rectifier for Ef	ficiency Optimization	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	n .	,	
151	Ambient Temperature	Sensors	degree C	basic
	The ambiant temperature (second temperature)	erature sense)	T	
161	Voltage Sense 1	Sensors	Volt	basic
	The voltage measured by the sense measurement. Calculation can be done with the contraction of the contracti		d for battery s	ymmetry
162	Voltage Sense 2	Sensors	Volt	basic
	The voltage measured by the sense measurement. Calculation can be done with the control of the c		d for battery s	ymmetry
163	Voltage Sense 3	Sensors	Volt	basic
	The voltage measured by the sense measurement. Calculation can be done		d for battery s	symmetry
204	Digital Input 4 Counter	Sensors		basic
	The counter value of the digital input 4.			

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		basic

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	degC				
	The floating dc bus voltage of th	e system at 25	Celsius de	aree	1
2		Bus Voltage	Volt	20/30 (22)	basic
	The bus voltage under which the		s Voltage E	, ,	1
3	DC Bus Voltage Extra Low	1	Volt	0/2 (0)	basic
	Hysteresis	0		,	
	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	alarm 'DC Bu	s Voltage L	ow' is set.	
5	DC Bus Voltage Low Hysteresis	Bus Voltage	Volt	0/2 (0.25)	basic
	The voltage hysteresis on the al	arm 'DC Bus V	oltage Low		
6	DC Bus Voltage High	Bus Voltage	Volt	20/30 (28.25)	basic
	The bus voltage over which the	alarm 'DC Bus	Voltage Hig	gh' is set.	
7		Bus Voltage	Volt	0/2 (0.25)	basic
	Hysteresis				
	The voltage hysteresis on the al		, , , , , , , , , , , , , , , , , , , 		1
8		Bus Voltage	Volt	20/30 (29)	basic
	The bus voltage over which the	1	Voltage Ex	tra High' is set.	1
9	DC Bus Voltage Extra High Hysteresis		Volt	0/2 (0.25)	basic
	The voltage hysteresis on the al	arm 'DC Bus V	oltage Extra	a High	1
10	LVD Disconnect Voltage	Bus Voltage	Volt	0/25 (21.6)	basic
	The dc bus voltage under whice allows preserving the battery life	•			bus. This
11	LVD Disconnect Delay	Bus Voltage	second	1/1000 (1)	basic
	The delay in second before disc configured disconnected voltage				
21	Temperature Compensation Slope	Temperature Compensatio n		-500/0 (-36)	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	0/5 (1)	basic
	The maximal allowed positive co	mpensation.			
23	Maximum Negative Temperature Compensation	Temperature Compensatio n	Volt	-5/0 (-1)	basic
	The maximal allowed negative of	ompensation.	l	ı	
25	Minimal Number Of Present Rectifiers	· ·		0/100 (0)	basic
	The minimal number of rectifications, the alarm 'Missing Rec		t be prese	nt. If there is less	present
26	Rectifier Model	Rectifiers			basic
	The rectifier model	<u> </u>	1	1	1
27		Rectifiers			basic
			Ī	ĺ	

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	A list of rectifier which are force			of the rectifier must	be coma
	separated. Ex: 1,3 will maintain		1	I/	
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 equ	uai io ine
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	nd 'Battery Tempera	ature Too
36	Discharging Alarm	Battery	Ampere	0/1000 (3)	basic
	The minimal discharging curren		tery On Dis	charge' alarm.	
37		Battery	Ampere	0/50 (1)	basic
	Discharging Alarm	Disabassat at	 		
41	The hysteresis on the 'Battery C Shunt Rating At 60mV			25/5000 (250)	basis
41	The rating of the battery shunt a	Battery	Ampere	25/5000 (250)	basic
51	Boost Automatic	Boost		False/False	battery
.		Boost		(False)	battory
	The boost mode must be auto				
	bus voltage went under the charging the battery faster.	oringured boos	Si Activatio	ii Low Vollage. II	iis allows
52	Boost Activation Low Voltage	Boost	Volt	21/25 (23)	battery
	The voltage under which the bo	1	e activated	\ /	<u> </u>
53	Boost Termination Voltage	Boost	Volt	25/29 (28.2)	battery
	The voltage over which the syst	em must go ba	ck to floatin	g mode.	,
54	Boost Termination Current	Boost	Ampere	0/100 (4)	battery
	The battery charging current un	der which the s	ystem must	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 in	floating mode.	
70	Battery Test End Voltage	Battery Test	Volt	15/30 (23)	battery
	The voltage at which any batter	y test must be s	topped.	1	
71	Battery Test Discharge Ratio	Battery Test	%	0/100 (0)	battery
	The ratio of the battery capacit discharged during the test	y to discharge.	If 30 is se	et, 30% of the batte	ry will be
72	Battery Test Interval	Battery Test	day	0/3000 (0)	battery
	The number of days between two set to 0, the battery test is not	•		•	
72	start or force this test.	Potton, Tost	Amnara	2/100 (1000)	hottor:
73	Battery Test Discharge Current	Battery Test	Ampere	3/100 (1000)	battery

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					1
	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.	, -	st must be	stopped because th	ne load is
75	Battery Test Time Out	Battery Test	minute	1/5000 (10)	battery
	The timeout in minute after whic	,	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				tart. This
83	Smart Energy Boolean Condition	Smart Energy		121-125	asset
	This is the boolean condition who frectifier in remote off.		ot to autom	natically optimize the	e number
86	Battery LVD Node Id	LVD		True/False (False)	basic
	This is a list of the node id of the	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 digital input 1 is normally closed. If this digital input is not in this default state, the related alarm is set.				
93	Digital Input 2 Name	Digital Inputs		Battery Breaker Open	basic
	The name of the digital input 2				
94	Digital Input 2 Normally Closed	Digital Inputs		True/False (True)	basic
	True/False value defining if the 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	<u> </u>	1	T	_
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
99	Digital Input 5 Name	Digital Inputs		Digital Input 5	basic
	The name of the digital input 5				
100	Digital Input 5 Normally	Digital Inputs		True/False (True)	basic

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		T	T	T	T
	Closed				
	True/False value defining if the not in this default state, the relat			closed. If this digita	al input is
101	Digital Input 6 Name	Digital Inputs		Digital Input 6	basic
	The name of the digital input 6				
102	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 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				
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 Alarms		False	plc
	Boolean Condition				
	Another Boolean condition to accondition is detailed in the PLC		larm relay	1. The way to define	e boolean
112	Dry Alarm 2 Alternative Boolean Condition	Dry Alarms		False	plc
	Another Boolean condition to accondition is detailed in the PLC		larm relay 2	2. The way to define	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. The way to define	boolean
131	Ambient Temperature Low	Sensors	degree C		basic
	The temperature under which th	l		ature Too Low' must	
132	Ambient Temperature High	Sensors	degree C		basic
	The temperature under which th			ture Too Low' must	
133	Ambient Temperature Hysteresis		degree C		basic
	The hysteresis on the 'Battery' Low' alarms.	Temperature T	oo High' ar	nd 'Battery Tempera	ature Too
521	Read Access User Numbers	Allowed Users		(1,2,3,4,5)	basic
	The list of the user numbers vinumbers are coma separated. T			• •	

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522	Write Access User Numbers	Allowed Users		()	basic
	The list of the user numbers what these users can modify the control elements. The user num 1,2,3,4 and 5. Ex: 1,3,4	configuration e	element, the	e alarm settings and	d use the
601	Event Table Length	Event		10/4000 (100)	basic
	The maximum length of the table	e. The value mu	ust be comp	prised between 10 a	nd 4000
602	Event Table Length By Rectifier	Event		10/4000 (100)	basic
	The maximum length of the table	e. The value mu	ıst be comp	orised between 10 a	nd 4000
901	Number Of PLC Data	PLC		(0)	plc
	The number of PLC data. Every equipment can manage up to 20 user programmable data. Data elements are automatically added in the data table. Configuration parameters are added to set the PLC Data Name and the PLC Data Mathematical calculation. In order to use these functionalities, you need a license with the 'PLC' module				
902	Number Of PLC Alarm	PLC		(0)	plc
	The number of PLC alarm. Every equipment can manage up to 20 user programmable alarms. Alarm elements are automatically added in the alarm table. The alarm parameters are added to set the PLC Alarm Name and the PLC Alarm Boolean condition. In order to use these functionalities, you need a licence with the 'PLC' module				

Con	trol Table					
<u>Id</u>	<u>Name</u>	<u>Group</u>	<u>Licens</u> <u>e</u>			
1	Back To Float	DC Mode	basic			
	The dc system must go back in floating mode.	·	·			
2	Start Battery Test	DC Mode	battery			
	The dc system must start a battery test.					
3	Force Battery Test	DC Mode	battery			
	The dc system must force a battery test.					
4	Start Boost Mode	DC Mode	battery			
	The dc system must go in boost mode.					
11	Open The LVD	LVD	basic			
	The LVD must be opened					
12	Close The LVD	LVD	basic			
	The LVD must be closed					
21	Correct Battery Current Offset	Battery	basic			
	No information					
31	Reset Battery Current Integration	Battery	basic			
	Reset the integration of the battery current.					
41	Reset Last Battery Test State	Battery	battery			
	Reset the state of the last battery test. If an alarm 'Battery Last Test Failed' is set, the alarm will be cleared.					
51	Save Configuration In MCU	Save	basic			

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	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	Event	basic			
	By writing '1' to this control element, all the events of this equipment and all the events of all the sub-equipments will be cleared.				
511	Add Event	Event	basic		
	This control element adds an event of severity none to this control element	e. 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 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				

7.2.4 MCU0348LP

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

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

Aları	n Table	
<u>Id</u>	<u>Name</u>	Severity Type (Level)
1	DC Bus Extra Low	major (6)
	The bus voltage is extra low. The alarm is set we configuration parameter 'DC Bus Voltage Extra alarm: 'DC Bus Voltage Extra Low Hysteresis'. mode is BATTERY TEST	Low'. There is an hysteresis on the
2	DC Bus Low	minor (4)
	The bus voltage is low. The alarm is set who configuration parameter 'DC Bus Voltage Low'. 'DC Bus Voltage Low Hysteresis'	•
3	DC Bus High	minor (4)
	The bus voltage is high. The alarm is set 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 w configuration 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 rectifier	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 hyst to the voltage lower limit	
10	One Rectifier Failure	minor (4)
	One rectifier must be replaced or is not powere rectifier is set. The number of rectifier with DC mains failure, and the 'More Than One Rectifier I	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'	e configuration parameter : 'Minimal
13	Battery Last Test Failed	minor (4)

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	The last battery test did not succeed and was no be replaced.	ot 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 There is an hysteresis corresponding to batter hysteresis'.	n in AC Failure or during a battery test.
17	Battery LVD Relay Open	major (6)
	The battery Low Voltage Disconnector is open signal, like MCU 1848 or MCU 1x6, the alarm in asks to open the LVD	
18	Battery Temperature Too High	minor (4)
	The temperature of the battery is too high and i hysteresis corresponding to battery parameter 'T	
19	Battery Temperature Too Low	minor (4)
	The temperature of the battery is too low and is hysteresis corresponding to battery parameter 'T	•
20	Battery Temperature Sensor Fail	minor (4)
	The battery temperature sensor (NTC) value is not connected or defective.	inferior to -500 units meaning that it is
21	Ambient Temperature Too High	minor (4)
	The ambient temperature is too high and is ghysteresis corresponding to parameter 'Ambiant only activated on MCU master types 30110, 3 0948 and 3048M6.	temperature hysteresis'. This alarm is
22	Ambient Temperature Too Low	minor (4)
	The ambient temperature is too low and is ghysteresis corresponding to parameter 'Ambiant only activated on MCU master types 30110, 30948 and 3048M6.	temperature hysteresis'. This alarm is
23	Ambient Temperature Sensor Fail	minor (4)
	The ambiant temperature sensor (NTC) value is not connected or defective.	inferior to -500 units meaning that it is
25	Distribution Breaker Open	major (6)
	This alarm is related to digital input 1. This ala different to configuration parameter 'Digital Input	Alarm Value'
26	Battery Breaker Open	minor (4)
-	This alarm is related to digital input 2. This ala different to configuration parameter 'Digital Input	Alarm Value'
27	Digital Input 3	none (0)
	This alarm is related to digital input 3. This ala	
20	different to configuration parameter 'Digital Input	
28	Digital Input 4 This alarm is related to digital input 4. This ala	none (0)
00	different to configuration parameter 'Digital Input	Alarm Value'
29	Digital Input 5	none (0)
•	This alarm is related to digital input 5. This aladifferent to configuration parameter 'Digital Input	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							
<u>Id</u>	<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	ST', 'BATTERY_	_TEST',				
2	Previous DC Mode	General		basic				
	The previous value of the DC Mode	1	1					
11	Bus Voltage	General	Volt	basic				
	The DC bus voltage in volt.		1	_				
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 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 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	ure.	-					
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				
	The actual number or rectifier in OVer Te	emperature.						

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The battery temperature Battery Dasic	E4	Lond Power	Lood	Mott	boois
Load Current Estimation of the load current consumption	5 1			vvatt	basic
Estimation of the load current consumption Battery Input Current Measurement of the battery input current. A negative value means that the battery is discharging Battery Input Power Measurement of the battery input power. A negative value means that the battery is discharging Battery Temperature Battery Temperature Battery Temperature Battery Temperature Battery Temperature Battery Temperature Battery Temperature Battery Temperature Battery Temperature Battery Test Stale This is about the result of the last battery test. 9 values are possible NEVER_TESTED, SUCCESS, ON_GOING, FAILED_TIMEOUT FAILED_CANCELED, FAILED_LOAD_TOO_LOW, FAILED_TIMEOUT FAILED_CANCELED, FAILED_LOAD_TOO_LOW, FAILED_TIMEOUT FAILED_CANCELED, FAILED_LOAD_TOO_LOW, FAILED_TIMEOUT FAILED_CANCELED, FAILED_LOAD_TOO_LOW, FAILED_TIMEOUT FAILED_TIM		·		A	la a a : a
Battery Input Current Battery Ampere basic Measurement of the battery input current. A negative value means that the battery is discharging	52			Ampere	basic
Measurement of the battery input current. A negative value means that the battery is discharging 82 Battery Input Power Battery Watt basic Measurement of the battery input power. A negative value means that the battery is discharging Battery Battery Description Des	0.1	· ·	1	1.	1
discharging 62 Battery Input Power Measurement of the battery input power. A negative value means that the battery is discharging 71 Battery Temperature 72 Battery Test State This is about the result of the last battery test. FAILED_VBUS_TOO_LOW, FAILED_LOAD_TOO_LOW, FAILED_AG FAILED_TIMEOUT FAILED_CANCELED, FAILED_LVD_OPENED 73 Battery Test Discharged Capacity Battery Test Discharged Capacity Battery Test Discharged Capacity Battery Test Discharged Capacity Battery Abasic This is the battery capacity, in percent, discharged during the last battery test. This value is updated at the end of the battery test. 74 Battery Test Discharged Capacity A Battery Ah basic This is the battery capacity, in ampere hour, discharged during the last battery test. This value is updated at the end of the battery test. 75 Battery Test Final Voltage Battery Battery Test. This value is updated at the end of the last battery test. This value is updated at the end of the last battery test. 81 Previous Battery Test State The result of the previous battery test 82 Minutes Since Last Test Battery The number of minute without battery test 91 Battery Charge Capacity Battery Battery Battery Calculated Autonomy Battery Battery As basic Actual value of the integration of the current, in Ampere *second 94 Battery Current Integration As Battery LVD basic Actual value of the integration of the current, in Ampere *second 94 Battery Current Integration Af 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 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 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 value of the integration of the current, in Ampere *hour LVD State Actual value of the inte	61				1
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Minutes Since Last Test Battery Battery Battery The number of minute without battery test	81	Previous Battery Test State	Battery		basic
The number of minute without battery test 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 As Battery As basic Actual value of the integration of the current, in Ampere * second 94 Battery Current Integration Ah 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 Asset Data asset Rectifier 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 System Loss With Optimisation Asset Data Watt asset		The result of the previous battery test			
Battery Charge Capacity Battery % basic	82	Minutes Since Last Test Battery	Battery		basic
The battery charge capacity, calculated by integration of the current. 92		The number of minute without battery tes	st		
Calculated Autonomy Battery minute basic	91	Battery Charge Capacity	Battery	%	basic
Calculation of the remaining autonomy 93 Battery Current Integration As Battery As basic Actual value of the integration of the current, in Ampere * second 94 Battery Current Integration Ah 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 Asset Data asset Rectifier 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 System Loss With Optimisation Asset Data Watt asset Data System Loss With Optimisation Asset Data Watt asset		The battery charge capacity, calculated I	by integration of the	current.	
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121 Efficiency Optimized Number Of Rectifier Asset Data asset The optimal number of ON rectifier for Efficiency Optimization 122 System Loss Without Optimisation The optimal number of ON rectifier for Efficiency Optimization Watt asset 123 System Loss With Optimisation Asset Data Watt asset			L	1	1
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The optimal number of ON rectifier for Efficiency Optimization 123 System Loss With Optimisation Asset Data Watt asset	122	·			asset
123 System Loss With Optimisation Asset Data Watt asset	_				1
, ,	123	·			asset
		•			12.3001

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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.					

Con	fig Table					
<u>Id</u>	Name	<u>Group</u>	<u>Unit</u>	Range: Min/Max (default)	<u>License</u>	
1	DC Bus Float Voltage at 25 degC	Bus Voltage	Volt	40/60 (54)	basic	
	The floating dc bus voltage of th	e system at 25	Celsius de	gree		
2	DC Bus Voltage Extra Low	Bus Voltage	Volt	40/60 (45)	basic	
	The bus voltage under which the		s Voltage E	xtra Low' is set.		
3	DC Bus Voltage Extra Low Hysteresis		Volt	0/5 (1)	basic	
	The voltage hysteresis on the al-	1	oltage Extra	a Low'.	1	
4	DC Bus Voltage Low	Bus Voltage	Volt	40/60 (48)	basic	
	The bus voltage under which the	1		ow' is set.	1	
5	DC Bus Voltage Low Hysteresis	Bus Voltage	Volt	0/5 (0.5)	basic	
	The voltage hysteresis on the al	arm 'DC Bus V	oltage Low	<u>, </u>		
6	DC Bus Voltage High	Bus Voltage	Volt	40/60 (56.5)	basic	
	The bus voltage over which the	1	Voltage Hig	ph' is set.	T	
7	DC Bus Voltage High Hysteresis	Bus Voltage	Volt	0/5 (0.5)	basic	
	The voltage hysteresis on the al	1	oltage High		1	
8	DC Bus Voltage Extra High	Bus Voltage	Volt	40/60 (58)	basic	
	The bus voltage over which the	1	Voltage Ex	tra High' is set.	1	
9	DC Bus Voltage Extra High Hysteresis	Bus Voltage	Volt	0/5 (0.5)	basic	
	The voltage hysteresis on the al		oltage Extra	a High		
10	LVD Disconnect Voltage	Bus Voltage	Volt	0/50 (43.2)	basic	
	The dc bus voltage under which 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 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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		T	ı	T	1
	Temperature Compensation	Compensatio			
	The maximal allowed possitive a	n			
0-	The maximal allowed negative of			0 (4 0 0 (0)	ī
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 when the bus voltage in order to satisfaction to a satisfaction of the control of the current when the current with the current wit	sfy this condition			
32	Battery String Capacity	Battery	Ah	3/1000 (100)	basic
	The battery capacity in Ah.		T	T	1
33	Battery Temperature Low	Battery	degree C	-100/20 (0)	basic
	The temperature under which th	e alarm 'Batter			oe set.
34	Battery Temperature High	Battery		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	ery On Disc	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 cocharging the battery faster.				
52	Boost Activation Low Voltage	Boost	Volt	43/50 (46)	battery
	The voltage under which the boo	ost mode can b	e activated		•
53	Boost Termination Voltage	Boost	Volt	50/58 (56.4)	battery
	The voltage over which the systematical	em must go ba	ck to floatin	g mode.	
54	Boost Termination Current	Boost	Ampere	0/100 (2)	battery
	The battery charging current und	der which the s	ystem 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	%	0/100 (0)	battery

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	The ratio of the battery capac discharged during the test	ity to discharge	. If 30 is s	et, 30% of the batt	ery will be
72	Battery Test Interval	Battery Test	day	0/3000 (0)	battery
	The number of days between to 0, the battery test is no start or force this test.				
73	Battery Test Discharg Current	Battery Test	Ampere	0.5/100 (1000)	battery
	The current at which the bamonitoring regulates the bus values be of course higher than	oltage in order t			
74	Discharge Current	Battery Test	Ampere	0.2/90 (2)	battery
	The battery current under which too low.	ch the battery te	est must be	e stopped because	the load is
75	Battery Test Time Out	Battery Test	minute	1/5000 (10)	battery
	The timeout in minute after wh	ich the battery to	est must be	e 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 wo frectifier in remote off.		not to auto		1
86	Battery LVD Node Id	LVD		True/False (False) basic
	This is a list of the node id of the		nic LVDs,	· ·	1
91	Digital Input 1 Name	Digital Inputs		Distribution Breaker Open	basic
	The name of the digital input 1		1		
92	Digital Input 1 Normall Closed	Digital Inputs		True/False (True)	basic
	True/False value defining if the not in this default state, the relationship.	ated alarm is set			
93	Digital Input 2 Name	Digital Inputs		Battery Breake Open	er basic
	The name of the digital input 2		1		
94	Digital Input 2 Normall	ly Digital Inputs		True/False (True)	basic
			is normall	, alacad If this digi	
	True/False value defining if the not in this default state, the relationship.	ated alarm is set		y closed. If this digi	tal input is
95	True/False value defining if th not in this default state, the relable Digital Input 3 Name	ated alarm is set Digital Inputs		Digital Input 3	tal input is
95	True/False value defining if the not in this default state, the relationship.	ated alarm is set Digital Inputs			· -
95 96	True/False value defining if th not in this default state, the relation Digital Input 3 Name The name of the digital input 3	ated alarm is set Digital Inputs			basic
	True/False value defining if the not in this default state, the relation Digital Input 3 Name The name of the digital input 3 Digital Input 3 Normalis	Digital Inputs Digital Inputs Digital Inputs e digital input 3	is normall	Digital Input 3 True/False (True)	basic

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	The nam	ne of the	diait	al input 4				
98	Digital	Input			Digital Inputs		Truo/Foloo (Truo)	basic
90	Closed	IIIput	4	Normany	Digital Inputs		True/False (True)	Dasic
		se value	defi	ning if the	digital input 4	is normally	closed. If this digita	al input is
					ed alarm is set		ologodi il tillo digita	ar input io
99	Digital I	nput 5 N	ame)	Digital Inputs		Digital Input 5	basic
		•		al input 5			, J	I.
100	Digital	Input		•	Digital Inputs		True/False (True)	basic
	Closed			,	J.g.taipato		1146/14155 (1145)	
	True/Fal	se value	defi	nina if the	digital input 5	is normally	closed. If this digita	al input is
					ed alarm is set		3	
101	Digital I	nput 6 N	ame)	Digital Inputs		Digital Input 6	basic
	The nam	ne of the	digita	al input 6				
102	Digital			•	Digital Inputs		True/False (True)	basic
	Closed	•		•			,	
	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	stat	e, the relat	ed alarm is set	•		
111				Alternative	Dry Alarms		False	plc
	Boolean							
						larm relay	 The way to define 	e boolean
				n the PLC o		1	T	1 -
112				liternative	Dry Alarms		False	plc
	Boolean			Pre i			<u> </u>	<u> </u>
				dition to ac n the PLC (larm relay i	2. The way to define	e boolean
113	1				Dry Alarms		False	plc
113	Boolean			liternative	Dry Alainis		raise	pic
				dition to ac	tivate the dry a	larm relav :	3. The way to define	hoolean
				n the PLC	•	ilaiiii rolay	or the may to domin	, 200.0a
114					Dry Alarms		False	plc
	Boolean	Conditi	on					
	Another	Boolean	con	dition to ac	tivate the dry a	larm relay	4. The way to define	e boolean
	condition	ı is detail	led ir	n the PLC o	chapter.	1	.	
131	Ambient	t Tempe	ratu	re Low	Sensors	degree C		basic
	The temp	perature	unde	er which th	e alarm 'Ambia	nt Tempera	ture Too Low' must	be set.
132	Ambient	t Tempe	ratu	re High	Sensors	degree C		basic
	The temp	perature	unde	er which th	e alarm 'Ambia	nt Tempera	ature Too Low' must	be set.
133	Ambien		Ter	mperature	Sensors	degree C		basic
	Hystere							
			n the	e 'Battery ⁻	Temperature T	oo High' ar	nd 'Battery Tempera	ature Too
	Low' alaı		_				I (,	l
521	Read Ac	cess Us	ser N	lumbers	Allowed		(1,2,3,4,5)	basic
	The "-"	- داد	•	حامور رور	Users	 	la this saudens and	
	The list of the user numbers which have read access to this equipment. The us numbers are coma separated. The accepted user id are 1,2,3,4 and 5. Ex: 1,3,4							
522	+			lumbers	Allowed	bei iu ai e i,	1	basic
522	WILLS AC	JUESS US	CI I	unibers	Users		()	Dasic
	The list	of the us	er n	umhere wh	l .	access to	this equipment. Th	is means
	that these users can modify the configuration element, the alarm settings and use the							

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	control elements. The user num 1,2,3,4 and 5. Ex: 1,3,4		· · · · · · · · · · · · · · · · · · ·	user ids are
601	Event Table Length	Event	10/4000 (100)	basic
	The maximum length of the table	e. The value mu	<u> </u>	10 and 4000
611	SNMP Trap Targets IP	Event	192.168.45.1	basic
	One or multiple target IP to 130.23.12.45	send traps,	coma separated. Ex: 1	30.145.23.1,
612	Minimal Event Severity For Traps	Event	(none)	basic
	This is the minimal severity of th	e event to send	l a SNMP trap	
651	XML Events Primary Post URL	Event		basic
	This is the first URL at which the XML ETSI standard is used in the			posted. The
652	XML Events Primary Post Login	Event		basic
	The login which must be used w	hen posting eve	ents to the primary server	
653	XML Events Primary Post Password	Event		basic
	The password which must be us	ed when postin	g events to the primary ser	ver
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			basic
	The login which must be used w	hen posting eve	ents to the secondary serve	er
663	XML Events Secondary Post Password	Event		basic
	The password which must be us	ed when postin	g events to the secondary	server
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 data table. (Name and the PLC Data I	Configuration Mathematical
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 thes module	automatically a the PLC Alarm	idded in the alarm table n Name and the PLC Ala	. The alarm arm Boolean

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	e.		

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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.	m 'Battery Last Test Failed'	is set, the			
51	Save Configuration In MCU	Save	basic			
	Save configuration parameters in the MCU microthe system will be correctly managed.	ocontroller. If comp@s is no	ot present,			
61	Set Digital Input 4 Counter Value	Counters	basic			
	Set Counter Value					
501	Clear My Events	Event	basic			
	By writing '1' to this control element, all the events	s of this equipment will be cl	eared.			
502	Clear All Events	Event	basic			
	By writing '1' to this control element, all the event of all the sub-equipments will be cleared.	ts of this equipment and all t	the events			
511	Add Event	Event	basic			
	This control element adds an event of severity no to this control element	one. The event name is the t	ext written			
512	Add Major Event	Event	basic			
	This control element adds an event of severity written to this control element	major. The event name i	s the text			
521	Reset Default Names	Event	basic			
	This control element adds an event of severity written to this control element	major. The event name i	s 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	stem 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				

Aları	Alarm Table				
<u>Id</u>	<u>Name</u>	Severity Type (Level)			
1	DC Bus Extra Low	major (6)			
	The bus voltage is extra low. The alarm is set we configuration parameter 'DC Bus Voltage Extra alarm: 'DC Bus Voltage Extra Low Hysteresis'. mode is BATTERY TEST	Low'. There is an hysteresis on the			
2	DC Bus Low	minor (4)			
	The bus voltage is low. The alarm is set who configuration parameter 'DC Bus Voltage Low'. 'DC Bus Voltage Low Hysteresis'				
3	DC Bus High	minor (4)			
	The bus voltage is high. The alarm is set 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 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)			
	The DC bus voltage sense is defective. The unconfigured.	DC bus voltage is unconnected or			
6	Mains Failure	minor (4)			

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_	T	
	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 Failure alarm is not set.'
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)
	The last battery test did not succeed and was not be replaced.	
14	Battery On Discharge	minor (4)
	The battery is discharging. This means that rectifiers. This alarm is inactive when the system There is an hysteresis corresponding to batter hysteresis'.	n in AC Failure or during a battery test.
17	Battery LVD Relay Open	major (6)
	The battery Low Voltage Disconnector is open signal, like MCU 1848 or MCU 1x6, the alarm is asks to open the LVD	
18	Battery Temperature Too High	minor (4)
	The temperature of the battery is too high and in hysteresis corresponding to battery parameter 'T	
19	Battery Temperature Too Low	minor (4)
	The temperature of the battery is too low and is hysteresis corresponding to battery parameter 'T	emperature hysteresis'.
20	Battery Temperature Sensor Fail	minor (4)
	The battery temperature sensor (NTC) value is not connected or defective.	
21	Ambient Temperature Too High	minor (4)
	The ambient temperature is too high and is only activated on MCU master types 30110, 3 0948 and 3048M6.	temperature hysteresis'. This alarm is
22	Ambient Temperature Too Low	minor (4)
	The ambient temperature is too low and is ghysteresis corresponding to parameter 'Ambiant only activated on MCU master types 30110, 30948 and 3048M6.	temperature hysteresis'. This alarm is

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23	Ambient Temperature Sensor Fail	minor (4)
	The ambiant temperature sensor (NTC) value is not connected or defective.	inferior to -500 units meaning that it is
25	Distribution Breaker Open	major (6)
	This alarm is related to digital input 1. This ala different to configuration parameter 'Digital Input	
26	Battery Breaker Open	minor (4)
	This alarm is related to digital input 2. This ala different to configuration parameter 'Digital Input	
27	Digital Input 3	none (0)
	This alarm is related to digital input 3. This ala different to configuration parameter 'Digital Input	
28	Digital Input 4	none (0)
	This alarm is related to digital input 4. This ala different to configuration parameter 'Digital Input	
29	Digital Input 5	none (0)
	This alarm is related to digital input 5. This ala different to configuration parameter 'Digital Input	
30	Digital Input 6	none (0)
	rm is activated if digital input value is Alarm Value'	

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

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31	Number Of Rectifier Max	Rectifiers		basic	
01	The maximum possible number of rectifi			basic	
32	Number Of Present Rectifier Rectifiers basic				
52	The actual number of present rectifier in this dc system				
33					
33	The actual number of absent rectifier in				
34	Number Of Active Rectifier	Rectifiers	I	basic	
34			ative veetifies is a	l .	
	The actual number of active rectifier in which is present, DC OK, AC OK and no		ctive rectiller is a	recuiler	
35	Number Of AC-Fail Rectifier	Rectifiers		basic	
	The actual number or rectifier in AC Fail	ure.			
36	Number Of DC-Fail Rectifier	Rectifiers		basic	
	The actual number or rectifier with DC F	ailure.			
37	Number Of Remote Off Rectifier	Rectifiers		basic	
	The actual number or rectifier in remote	off.	1		
38	Number Of Over Temperature	Rectifiers		basic	
	Rectifier				
	The actual number or rectifier in OVer T	emperature.			
51	Load Power	Load	Watt	basic	
	Estimation of the load power consumption	on			
52	Load Current	Load	Ampere	basic	
	Estimation of the load current consumpt	ion			
61	Battery Input Current	Battery	Ampere	basic	
	Measurement of the battery input curred 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 ba	attery is	
71	Battery Temperature	Battery	degree C	basic	
	The battery temperature	<u> </u>			
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	st battery test. 9 ON_GOING, LOAD_TOO_LOW,	values are pos FAILED_TIN FAILED_AC_FA	ssible : //EOUT,	
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.	<u> </u>		l .	
81	Previous Battery Test State	Battery		basic	
	The result of the previous battery test	,		1	
82	Minutes Since Last Test Battery	Battery		basic	

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	The number of minute without battery test			
91	Battery Charge Capacity	Battery	%	basic
	The battery charge capacity, calculated by	by integration of the o	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 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 Ef	fficiency Optimization	1	
151	Ambient Temperature	Sensors	degree C	basic
	The ambiant temperature (second temperature)	erature sense)		
204	Digital Input 4 Counter	Sensors		basic
	The counter value of the digital input 4.			_

Config Table						
<u>Id</u>	<u>Name</u>	<u>Group</u>	<u>Unit</u>	Range: Min/Max (default)	<u>License</u>	
1	DC Bus Float Voltage at 25 degC	Bus Voltage	Volt	40/60 (54)	basic	
	The floating dc bus voltage of the	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	a Low'.		
4	DC Bus Voltage Low	Bus Voltage	Volt	40/60 (48)	basic	
	The bus voltage under which the alarm 'DC Bus Voltage Low' is set.					
5	DC Bus Voltage Low Hysteresis	Bus Voltage	Volt	0/5 (0.5)	basic	
	The voltage hysteresis on the alarm 'DC Bus Voltage Low					
6	DC Bus Voltage High	Bus Voltage	Volt	40/60 (56.5)	basic	
	The bus voltage over which the	alarm 'DC Bus	Voltage Hig	ıh' is set.		
7	DC Bus Voltage High Hysteresis	Bus Voltage	Volt	0/5 (0.5)	basic	
The voltage hysteresis on the 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 disconfigured disconnected voltage	e. This avoids d	•	•	
21	Temperature Compensation Slope	Temperature Compensatio n	mV/degre e	-1000/0 (-72)	basic
	The slope of the battery temper 72mV/degree is often used.	ature compens	ation in mv	degree. For a 48V	system, -
22	Maximum Positive Temperature Compensation	Temperature Compensatio n	Volt	0/10 (3)	basic
	The maximal allowed positive co	mpensation.			
23		Temperature Compensatio n	Volt	-10/0 (-3)	basic
	The maximal allowed negative of	ompensation.			
25	Minimal Number Of Present Rectifiers	Rectifiers		0/100 (0)	basic
	The minimal number of rectifi rectifiers, the alarm 'Missing Rec		t be prese	nt. If there is less	present
26	Rectifier Model	Rectifiers			basic
	The rectifier model				
27	Forced Remote Off Rectifers	Rectifiers			basic
	A list of rectifier which are force separated. Ex: 1,3 will maintain			of the rectifier must	be coma
31	Battery Charge Current Limit	Battery	Ampere	0.5/1000 (1000)	basic
	The maximal battery current where the bus voltage in order to satisfaction to satisfaction or the bus voltage in order to satisfaction or the bus voltage in order to satisfaction or the bus voltage in order to satisfact the bus voltage in order to satisfaction or the bus voltage in order to satisfact the bus voltage in order to satisf	sfy this condition			
32	Battery String Capacity	Battery	Ah	3/1000 (100)	basic
	The battery capacity in Ah.				
33	Battery Temperature Low	Battery	degree C	-100/20 (0)	basic
	The temperature under which th	e alarm 'Batter	y Temperat	ure Too Low' must I	oe set.
34	Battery Temperature High	Battery	degree C	5/100 (40)	basic
	The temperature over which the	alarm 'Battery	Temperatu	re Too High' must b	e set.
35	Battery Temperature Hysteresis	Battery	degree C	0/10 (2)	basic
	The hysteresis on the 'Battery Low' alarms.		oo High' ar		ature Too
36	Discharging Alarm	Battery	Ampere	0/1000 (0.5)	basic
	The minimal discharging current	to set the 'Batt	ery On Disc	charge' alarm.	
37	Current Hysteresis For	Battery	Ampere	0/50 (0.2)	basic

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	Discharging Aları	n				
	The hysteresis on	the 'Battery O	n Discharge' a	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 whi	ch any battery	test must be s	stopped.		
71	Battery Test Disc	harge Ratio	Battery Test	%	0/100 (0)	battery
	The ratio of the badischarged during	y to discharge.	If 30 is se	et, 30% of the batte	ry will be	
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 vo	ltage in order t		during a battery is condition. The loa	
74	Battery Test Discharge Currer		Battery Test	Ampere	0.2/90 (2)	battery
	The battery current too 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. Thi 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	Smart Flectro	nic I VDe o	oma congrated		
91	Digital Input 1 Na		Digital Inputs	THE EVES, 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		ı	1
111	Dry Al Boolean			Iternative	Dry Alarms		False	plc
	Another Boolean condition to activate the dry alarm relay 1. The way to define boolean							
				the PLC	·	1	T	1 -
112	Dry Al Boolean			Ilternative	Dry Alarms		False	plc
				dition to ac	•	ılarm relay 2	2. The way to define	e boolean
113	Dry Al Boolean			Iternative	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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	T	T	1	T	1	
	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	,	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	iture 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 values are coma separated. T					
522	Write Access User Numbers	Allowed Users		()	basic	
	The list of the user numbers withat these users can modify the control elements. The user num 1,2,3,4 and 5. Ex: 1,3,4	configuration e	element, the	e alarm settings and	d use the	
601	Event Table Length	Event		10/4000 (100)	basic	
	The maximum length of the table	l .	ıst be comr	, ,		
611	SNMP Trap Targets IP	Event		192.168.45.1	basic	
	One or multiple target IP to 130.23.12.45	l .	coma se			
612	Minimal Event Severity For Traps	Event		(none)	basic	
	This is the minimal severity of th	e event to send	a SNMP to	rap		
651	XML Events Primary Post URL	Event			basic	
	This is the first URL at which the XML ETSI standard is used in the			uipment must be po	sted. The	
652	XML Events Primary Post Login	Event			basic	
	The login which must be used w	hen posting ev	ents to the	primary server		
653	XML Events Primary Post Password	Event			basic	
	The password which must be us	sed when postir	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 management	sed in the pos				
662	XML Events Secondary Post Login	Event			basic	
	The login which must be used when posting events to the secondary server					
663	XML Events Secondary Post Password	<u> </u>		-	basic	

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	The password which must be used when posting events to the secondary server					
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)					
	The number of PLC alarm. Every equipment can manage up to 20 user program alarms. Alarm elements are automatically added in the alarm table. The parameters are added to set the PLC Alarm Name and the PLC Alarm B condition. In order to use these functionalities, you need a licence with the module					

Cont	rol Table						
<u>Id</u>	<u>Name</u>	<u>Group</u>	<u>Licens</u> <u>e</u>				
1	Back To Float	DC Mode	basic				
	The dc system must go back in floating mode.						
2	Start Battery Test	DC Mode	battery				
	The dc system must start a battery test.						
3	Force Battery Test	DC Mode	battery				
	The dc system must force a battery test.						
4	Start Boost Mode	DC Mode	battery				
	The dc system must go in boost mode.						
11	Open The LVD	LVD	basic				
	The LVD must be opened						
12	Close The LVD	LVD	basic				
	The LVD must be closed						
21	Correct Battery Current Offset	Battery	basic				
	No information						
31	Reset Battery Current Integration	Battery	basic				
	Reset the integration of the battery current.						
41	Reset Last Battery Test State	Battery	battery				
	Reset the state of the last battery test. If an ala alarm will be cleared.	rm 'Battery Last Test	Failed' is set, the				
51	Save Configuration In MCU	Save	basic				
	Save configuration parameters in the MCU mid the system will be correctly managed.	crocontroller. If comp@	s is not present,				
61	Set Digital Input 4 Counter Value	Counters	basic				
	Set Counter Value						
501	Clear My Events	Event	basic				
	By writing '1' to this control element, all the events of this equipment will be cleared.						
502	Clear All Events	Event	basic				
	By writing '1' to this control element, all the eve of all the sub-equipments will be cleared.	nts of this equipment a	and all the events				
511	Add Event	Event	basic				

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

Alarm 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 larm : '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)	5 / 2
	The DC bus voltage sense is defective. unconfigured.	The DC bus voltage	
6	Mains Failure	minor (4)	5 / 2
	The number of active rectifiers is equal to 0 greater than 0.	and the number of rectif	iers in AC failure is
7	Mains Partial Failure	minor (4)	10 / 2
	The number of active rectifiers is greater than 0. Some rectifiers a open breaker, a real phase failure, or by a re-	re in AC Failure. It may	
8	Mains Low	warning (2)	10 / 2
	The main voltage is low on one or more ph master type is 30110, 3096 or 3048M6, an to the voltage lower limit		
10	One Rectifier Failure	minor (4)	5/2
	One rectifier must be replaced or is not por rectifier is set. The number of rectifier with mains failure, and the 'More Than One Rect	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'	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
1	The battery Low Voltage Disconnector is	anan On Cuatama III	LILE CALLE

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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 hy	steresis'.			
20	Battery Temperature Sensor Fail	minor (4)	5 / 2			
	The battery temperature sensor (NTC) not connected or defective.	value is inferior to -500	units meaning that it is			
21	Ambient Temperature Too High	minor (4)	5 / 2			
	The ambient temperature is too high hysteresis corresponding to parameter 's only activated on MCU master types 3 0948 and 3048M6.	Ambiant temperature hy	ysteresis'. This alarm is			
22	Ambient Temperature Too Low	minor (4)	5 / 2			
	The ambient temperature is too low a hysteresis corresponding to parameter 'n only activated on MCU master types 3 0948 and 3048M6.	Ambiant temperature hy	ysteresis'. This alarm is			
23	Ambient Temperature Sensor Fail	minor (4)	5 / 2			
	The ambiant temperature sensor (NTC) not connected or defective.	value is inferior to -500	units meaning that it is			
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 o	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 activated				
26	Battery Breaker Open	minor (4)	5 / 2			
	This alarm is related to digital input 2. different to configuration parameter 'Digi		d if digital input value is			
27	Digital Input 3	none (0)	5 / 2			
	This alarm is related to digital input 3. different to configuration parameter 'Digi		d if digital input value is			
28	Digital Input 4	none (0)	5 / 2			
	This alarm is related to digital input 4. different to configuration parameter 'Digi		d 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		d if digital input value is			
30	Digital Input 6	none (0)	5 / 2			
	This alarm is related to digital input 6. different to configuration parameter 'Digi	This alarm is activated	d if digital input value is			
31	Digital Input 7	none (0)	5 / 2			
J I	Digital input i	1	5 / L			

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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	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 nogativo 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_OP	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 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 optimisatio	n				
151	Ambient Temperature Sensors degree C bas					
	The ambiant temperature (second temperature)	erature sense)				
152	Relative Humidity	Sensors	%	basic		
	The relative humidity in the cabinet					
204	Digital Input 4 Counter	Sensors		basic		
	The counter value of the digital input 4.			•		

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

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	configured disconnected voltag				transient.
21	Temperature Compensation Slope	Temperature Compensatio n	mV/degre e	-1000/0 (-72)	basic
	The slope of the battery tempe 72mV/degree is often used.	rature 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 of	ompensation.			
23	Maximum Negative Temperature Compensation	Temperature Compensatio n	Volt	-10/0 (-3)	basic
	The maximal allowed negative	compensation.			
25	Minimal Number Of Presen Rectifiers	t Rectifiers		0/100 (0)	basic
	The minimal number of rectifiers, the alarm 'Missing Re		t be prese	nt. If there is les	s presen
26	Rectifier Model	Rectifiers			basic
	The rectifier model		T	1	
27	Forced Remote Off Rectifers	_			basic
	A list of rectifier which are fore separated. Ex: 1,3 will maintain			of the rectifier must	be coma
31	Battery Charge Current Limit	Rattery	Ampere	0.5/1000 (1000)	basic
• •		· · · · · · · · · · · · · · · · · · ·		` ,	
-	The maximal battery current we the bus voltage in order to sat nominal battery capacity divides	hen the batter	y is chargir	ng. The monitoring	regulate
	The maximal battery current withe bus voltage in order to sat	hen the batter	y is chargir	ng. The monitoring	regulate
	The maximal battery current we the bus voltage in order to sat nominal battery capacity divide	when the batter isfy this condition of by 10.	y is chargir on. This pa	ng. The monitoring rameter is often eq	regulate ual to the
32	The maximal battery current with the bus voltage in order to sat nominal battery capacity divided Battery String Capacity	when the batter isfy this condition of by 10.	y is chargir on. This pa	ng. The monitoring rameter is often eq	regulates ual to the
32	The maximal battery current with the bus voltage in order to sat nominal battery capacity divided Battery String Capacity The battery capacity in Ah.	when the battery isfy this condition to by 10. Battery Battery	y is chargir on. This pa Ah degree C	ng. The monitoring rameter is often eq 3/1000 (100)	regulates ual to the basic
32 33 34	The maximal battery current with the bus voltage in order to sat nominal battery capacity divided Battery String Capacity The battery capacity in Ah. Battery Temperature Low	when the battery isfy this condition to by 10. Battery Battery	y is chargir on. This pa Ah degree C y Temperat	ng. The monitoring rameter is often eq 3/1000 (100)	regulates ual to the basic
32 33 34	The maximal battery current withe bus voltage in order to sat nominal battery capacity divided Battery String Capacity The battery capacity in Ah. Battery Temperature Low The temperature under which the Battery Temperature High The temperature over which the	when the battery isfy this condition to by 10. Battery Battery Battery Battery Battery Battery Battery	Ah degree C y Temperat degree C Temperatu	ag. The monitoring rameter is often equal 3/1000 (100) -100/20 (0) ure Too Low' must 5/100 (40) re Too High' must be	regulates ual to the basic basic be set. basic
32 33	The maximal battery current withe bus voltage in order to sat nominal battery capacity divided Battery String Capacity The battery capacity in Ah. Battery Temperature Low The temperature under which the Battery Temperature over which the Battery Temperature Temperature Hysteresis	hen the battery isfy this condition d by 10. Battery Battery ne alarm 'Battery Battery e alarm 'Battery Battery Battery Battery Battery Battery Battery	Ah degree C y Temperatu degree C Temperatu degree C	rameter is often equal 3/1000 (100) -100/20 (0) ure Too Low' must 5/100 (40) re Too High' must be 0/10 (2)	basic basic basic basic basic basic basic basic basic
33 33 34 35	The maximal battery current withe bus voltage in order to sat nominal battery capacity divided Battery String Capacity The battery capacity in Ah. Battery Temperature Low The temperature under which the Battery Temperature High The temperature over which the Battery Temperature Under Which the Battery Temperature Under Which the Battery Temperature Under Which the Under Which I I I I I I I I I I I I I I I I I I I	hen the battery isfy this condition to by 10. Battery Battery Battery Battery Battery Battery Battery Battery Battery Temperature T	Ah degree C y Temperatu degree C Temperatu degree C	ng. The monitoring rameter is often equal 3/1000 (100) -100/20 (0) ure Too Low' must 5/100 (40) re Too High' must be 0/10 (2) nd 'Battery Temper	basic basic basic basic basic basic basic basic basic
32 33 34	The maximal battery current withe bus voltage in order to sat nominal battery capacity divided Battery String Capacity The battery capacity in Ah. Battery Temperature Low The temperature under which the Battery Temperature High The temperature over which the Battery Temperature Hysteresis The hysteresis on the 'Battery Low' alarms. Minimal Current For Discharging Alarm	hen the battery isfy this condition to by 10. Battery Battery Battery Battery Battery Battery Battery Battery Temperature T	Ah degree C y Temperatu degree C Temperatu degree C Too High' ar	ng. The monitoring rameter is often equal 3/1000 (100) -100/20 (0) ure Too Low' must 5/100 (40) re Too High' must be 0/10 (2) nd 'Battery Temper 0/1000 (0.5)	basic basic basic basic basic basic basic basic basic
32 33 34 35	The maximal battery current withe bus voltage in order to sat nominal battery capacity divided Battery String Capacity The battery capacity in Ah. Battery Temperature Low The temperature under which the Battery Temperature High The temperature over which the Battery Temperature Under Which the Battery Temperature Under Which the Battery Temperature Under Which the University Temperature Under Which the University Temperature Under Un	hen the battery isfy this condition by 10. Battery Temperature T	Ah degree C y Temperatu degree C Temperatu degree C Too High' ar Ampere tery On Dis	ng. The monitoring rameter is often equal 3/1000 (100) -100/20 (0) ure Too Low' must 5/100 (40) re Too High' must be 0/10 (2) nd 'Battery Temper 0/1000 (0.5) charge' alarm.	basic
32 33 34 35	The maximal battery current withe bus voltage in order to sat nominal battery capacity divided Battery String Capacity The battery capacity in Ah. Battery Temperature Low The temperature under which the Battery Temperature High The temperature over which the Battery Temperature With the Hysteresis The hysteresis on the 'Battery Low' alarms. Minimal Current For Discharging Alarm The minimal discharging current Current Hysteresis For Discharging Alarm	hen the battery isfy this condition by 10. Battery Battery Battery Battery Battery Battery Battery Battery Battery Temperature T Battery to set the 'Battery Battery	Ah degree C y Temperatu degree C Temperatu degree C Too High' ar Ampere tery On Dis Ampere	ng. The monitoring rameter is often equal 3/1000 (100) -100/20 (0) ure Too Low' must 5/100 (40) re Too High' must be 0/10 (2) nd 'Battery Temper 0/1000 (0.5)	regulates ual to the basic be set. basic be set. basic ature Too
32 33 34 35 36	The maximal battery current withe bus voltage in order to sat nominal battery capacity divided Battery String Capacity The battery capacity in Ah. Battery Temperature Low The temperature under which the Battery Temperature High The temperature over which the Battery Temperature Hysteresis The hysteresis on the 'Battery Low' alarms. Minimal Current For Discharging Alarm The minimal discharging current Current Hysteresis For Discharging Alarm The hysteresis on the 'Battery Current Hysteresis For Discharging Alarm The hysteresis on the 'Battery Current Hysteresis For Discharging Alarm The hysteresis on the 'Battery Current Hysteresis For Discharging Alarm	hen the battery isfy this condition of by 10. Battery Battery Battery Battery Battery Battery Battery Battery Temperature T Battery It to set the 'Battery Dn Discharge' a	Ah degree C y Temperatu degree C Temperatu degree C Too High' ar Ampere tery On Dis Ampere	ang. The monitoring rameter is often equal 3/1000 (100) -100/20 (0) -100/20 (0) -100/20 (0) -1000 (40) re Too High' must be compared by the compared by t	regulates ual to the basic basic be set. basic be set. basic basic basic basic
32 33 34 35	The maximal battery current withe bus voltage in order to sat nominal battery capacity divided Battery String Capacity The battery capacity in Ah. Battery Temperature Low The temperature under which the Battery Temperature High The temperature over which the Battery Temperature Wisheresis The hysteresis on the 'Battery Low' alarms. Minimal Current For Discharging Alarm The minimal discharging current Current Hysteresis For Discharging Alarm The hysteresis on the 'Battery Current Hysteresis For Discharging Alarm The hysteresis on the 'Battery Current Hysteresis For Discharging Alarm The hysteresis on the 'Battery Current Boost Automatic	hen the battery isfy this condition by 10. Battery Battery Battery Battery Battery Battery Battery Battery Temperature T Battery It to set the 'Battery Dn Discharge' a Boost	Ah degree C y Temperate degree C Temperate degree C Too High' ar Ampere tery On Dis Ampere	ng. The monitoring rameter is often equal 3/1000 (100) -100/20 (0) ure Too Low' must 5/100 (40) re Too High' must be 0/10 (2) nd 'Battery Temper 0/1000 (0.5) charge' alarm. 0/50 (0.2) False/False (False)	regulates ual to the basic be set. basic be set. basic ature Too basic basic
32 33 34 35 36	The maximal battery current withe bus voltage in order to sat nominal battery capacity divided Battery String Capacity The battery capacity in Ah. Battery Temperature Low The temperature under which the Battery Temperature High The temperature over which the Battery Temperature Hysteresis The hysteresis on the 'Battery Low' alarms. Minimal Current For Discharging Alarm The minimal discharging current Current Hysteresis For Discharging Alarm The hysteresis on the 'Battery Current Hysteresis For Discharging Alarm The hysteresis on the 'Battery Current Hysteresis For Discharging Alarm The hysteresis on the 'Battery Current Hysteresis For Discharging Alarm	hen the battery isfy this condition by 10. Battery Battery Battery Battery Battery Battery Battery Temperature T Battery It to set the 'Battery Dn Discharge' a Boost matically after	Ah degree C y Temperate degree C Temperate degree C Too High' ar Ampere tery On Dis Ampere larm.	ng. The monitoring rameter is often equal 3/1000 (100) -100/20 (0) ure Too Low' must 5/100 (40) re Too High' must be 0/10 (2) nd 'Battery Temper 0/1000 (0.5) charge' alarm. 0/50 (0.2) False/False (False) ut during a mains face	regulater ual to the basic

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	The voltage under which the	boost mode can	be activate	d.	
53	Boost Termination Voltage		Volt	50/58 (56.4)	battery
	The voltage over which the				collection
54	Boost Termination Curren	<u> </u>	Ampere	0/100 (2)	battery
	The battery charging current	t under which the	system mus	st go back to floating	g mode.
55	Boost Termination Time	Boost	minute	10/240 (120)	battery
	The time in minute after which	ch the system mu	st go back i	n floating mode.	
70	Battery Test End Voltage	Battery Test	Volt	30/60 (46)	battery
	The voltage at which any ba	` .			
71	Battery Test Discharge Ra	tio Battery Test	%	0/100 (0)	battery
	The ratio of the battery cap discharged during the test	acity to discharge	e. If 30 is s	et, 30% of the batt	ery will be
72	Battery Test Interval	Battery Test	day	0/3000 (0)	battery
	The number of days betwee set to 0, the battery test is start or force this test.	not started autom	natically. The	e user can remotely	or locally
73	Battery Test Discha Current	Battery Test	Ampere	0.5/100 (1000)	battery
	The current at which the monitoring regulates the bus must be of course higher that	s voltage in order	to satisfy the		
74	Battery Test Mini Discharge Current	mal Battery Test	Ampere	0.2/90 (2)	battery
	The battery current under w too low.		est must be	e stopped because	the load is
75	Battery Test Time Out	Battery Test	minute	1/5000 (10)	battery
	The timeout in minute after v				
76		Battery Test ains	minute	0/5000 (1440)	battery
	The minimal time in minute parameter is not taken into a			-	start. This
83	Smart Energy Bool Condition	ean Smart Energ	у	121-125	asset
	This is the boolean condition of rectifier in remote off.	n which allows or	not to auto	matically optimize the	ne number
86	Battery LVD Node Id	LVD		True/False (False) basic
	This is a list of the node id o	f the Smart Electr	onic LVDs,	coma separated	
	Divital Invest 4 Name	Digital Inputs	3	Distribution	basic
91	Digital Input 1 Name			Breaker Open	
91	The name of the digital input			Breaker Open	
91 92	The name of the digital input		S .	True/False (True)	basic
	The name of the digital inpu Digital Input 1 Norm	t 1 ally Digital Inputs the digital input	l is normall	True/False (True)	
	The name of the digital input Digital Input 1 Norm Closed True/False value defining if	t 1 ally Digital Inputs the digital input	is normallet.	True/False (True) y closed. If this digi	

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Closed True/False value defining if the digital input 2 is normally closed. not in this default state, the related alarm is set. 95 Digital Input 3 Name Digital Inputs Digital Input 3 Digital Input 3	lse (True) basic
not in this default state, the related alarm is set. 95 Digital Input 3 Name Digital Inputs Digital Input 3 The name of the digital input 3	, ,
The name of the digital input 3	If this digital input is
The name of the digital input 3	nput 3 basic
96 Digital Input 3 Normally Digital Inputs True/Fa	lse (True) basic
True/False value defining if the digital input 3 is normally closed. not in this default state, the related alarm is set.	If this digital input is
97 Digital Input 4 Name Digital Inputs Digital In	nput 4 basic
The name of the digital input 4	·
98 Digital Input 4 Normally Digital Inputs True/Fa	lse (True) basic
True/False value defining if the digital input 4 is normally closed. not in this default state, the related alarm is set.	If this digital input is
99 Digital Input 5 Name Digital Inputs Digital In	nput 5 basic
The name of the digital input 5	
100 Digital Input 5 Normally Digital Inputs True/Fa	lse (True) basic
True/False value defining if the digital input 5 is normally closed. not in this default state, the related alarm is set.	If this digital input is
101 Digital Input 6 Name Digital Inputs Digital In	nput 6 basic
The name of the digital input 6	·
102 Digital Input 6 Normally Digital Inputs True/Fa	lse (True) basic
True/False value defining if the digital input 6 is normally closed. not in this default state, the related alarm is set.	If this digital input is
103 Digital Input 7 Name Digital Inputs Digital In	nput 7 basic
The name of the digital input 7	
104 Digital Input 7 Normally Digital Inputs True/Fa	lse (True) basic
Oloseu	If this digital input is
True/False value defining if the digital input 7 is normally closed.	
True/False value defining if the digital input 7 is normally closed.	nput 8 basic
True/False value defining if the digital input 7 is normally closed. not in this default state, the related alarm is set.	nput 8 basic
True/False value defining if the digital input 7 is normally closed. not in this default state, the related alarm is set. 105 Digital Input 8 Name Digital Inputs Digital Inputs The name of the digital input 8	nput 8 basic Ise (True) basic
True/False value defining if the digital input 7 is normally closed. not in this default state, the related alarm is set. 105 Digital Input 8 Name Digital Inputs Digital Inputs The name of the digital input 8 106 Digital Input 8 Normally Digital Inputs True/Fa	lse (True) basic
True/False value defining if the digital input 7 is normally closed. not in this default state, the related alarm is set. 105 Digital Input 8 Name Digital Inputs Digital Inputs The name of the digital input 8 106 Digital Input 8 Normally Digital Inputs True/Fa Closed True/False value defining if the digital input 8 is normally closed. not in this default state, the related alarm is set. 111 Dry Alarm 1 Alternative Dry Alarms False	lse (True) basic
True/False value defining if the digital input 7 is normally closed. not in this default state, the related alarm is set. 105 Digital Input 8 Name Digital Inputs Digital Inputs The name of the digital input 8 106 Digital Input 8 Normally Digital Inputs True/Fa Closed True/False value defining if the digital input 8 is normally closed. not in this default state, the related alarm is set.	Ise (True) basic If this digital input is
True/False value defining if the digital input 7 is normally closed. not in this default state, the related alarm is set. 105 Digital Input 8 Name Digital Inputs Digital Inputs The name of the digital input 8 106 Digital Input 8 Normally Digital Inputs True/Fa Closed True/False value defining if the digital input 8 is normally closed. not in this default state, the related alarm is set. 111 Dry Alarm 1 Alternative Dry Alarms False	lse (True) basic If this digital input is plc
True/False value defining if the digital input 7 is normally closed. not in this default state, the related alarm is set. 105 Digital Input 8 Name Digital Inputs Digital Inputs The name of the digital input 8 106 Digital Input 8 Normally Digital Inputs True/Fa Closed True/False value defining if the digital input 8 is normally closed. not in this default state, the related alarm is set. 111 Dry Alarm 1 Alternative Dry Alarms Boolean Condition Another Boolean condition to activate the dry alarm relay 1. The ways of the related alarm is set.	lse (True) basic If this digital input is plc
True/False value defining if the digital input 7 is normally closed. not in this default state, the related alarm is set. 105 Digital Input 8 Name Digital Inputs Digital Inputs The name of the digital input 8 106 Digital Input 8 Normally Digital Inputs True/Fa Closed True/False value defining if the digital input 8 is normally closed. not in this default state, the related alarm is set. 111 Dry Alarm 1 Alternative Dry Alarms False Boolean Condition False Another Boolean condition to activate the dry alarm relay 1. The way condition is detailed in the PLC chapter. 112 Dry Alarm 2 Alternative Dry Alarms False	lse (True) basic If this digital input is plc ay to define boolean

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	Boolean Condition				
	Another Boolean condition to accondition is detailed in the PLC of		larm relay (I. 3. The way to define	e boolean
114	Dry Alarm 4 Alternative Boolean Condition			False	plc
	Another Boolean condition to accondition is detailed in the PLC of		larm relay 4	4. The way to define	boolean
131	Ambient Temperature Low	Sensors	degree C		basic
	The temperature under which the	e alarm 'Ambia	nt Tempera	ture Too Low' must	be set.
132	Ambient Temperature High	Sensors	degree C		basic
	The temperature under which the	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 too	o high	
136	Cabinet Humidity Low	Alarm Parameters	%	0/100 (0)	basic
	The relative humidity over which	the cabinet hu	midity is too	olow	
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 whethat these users can modify the control elements. The user num 1,2,3,4 and 5. Ex: 1,3,4	configuration 6	element, the	e alarm settings 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	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	he alarm table. The the PLC Alarm	he alarm Boolean

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Cont	rol Table		
<u>ld</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.	·	<u>.</u>
11	Open The LVD	LVD	basic
	The LVD must be opened	·	
12	Close The LVD	LVD	basic
	The LVD must be closed	·	
21	Correct Battery Current Offset	Battery	basic
	No information	·	
31	Reset Battery Current Integration	Battery	basic
	Reset the integration of the battery current.	·	
41	Reset Last Battery Test State	Battery	battery
	Reset the state of the last battery test. If an ala alarm will be cleared.	rm 'Battery Last Test I	Failed' is set, the
51	Save Configuration In MCU	Save	basic
	Save configuration parameters in the MCU mic the system will be correctly managed.	rocontroller. If comp@	s is not present,
61	Set Digital Input 4 Counter Value	Counters	basic
	Set Counter Value		
501	Clear My Events	Event	basic
	By writing '1' to this control element, all the ever	its of this equipment w	ill be cleared.
502	Clear All Events	Event	basic
	By writing '1' to this control element, all the ever of all the sub-equipments will be cleared.	nts of this equipment a	and all the events
511	Add Event	Event	basic
	This control element adds an event of severity not to this control element	one. The event name	is the text written
512	Add Major Event	Event	basic
	This control element adds an event of severi written to this control element	ty major. The event r	name is the text
521	Reset Default Names And Groups	Advanced	basic
	This control element resets all the element Narvalues	mes, Groups and Subo	groups to default

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	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		
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	

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 sometimes configuration parameter 'DC Bus Voltage Balarm: '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 a configuration paramenter 'DC Bus Voltage alarm : 'DC Bus Voltage Extra High Hysteres	Extra High'. There is an	•			

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5	DC Bus Voltage Sense Failure	major (6)	5 / 2
	The DC bus voltage sense is defective. unconfigured.	. ,	
6	Mains Failure	minor (4)	5 / 2
	The number of active rectifiers is equal to 0 greater than 0.	and the number of rectif	iers in AC failure is
7	Mains Partial Failure	minor (4)	10 / 2
	The number of active rectifiers is greater 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		
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	than 0, there is no set.'
11	More Than One Rectifier Failure	major (6)	10 / 2
	There is no mains failure and number of rec	tifier failures is greater th	
12	Missing Rectifiers	major (6)	5 / 2
	There is not enough rectifier according to Number Of Rectifier'	to the configuration pa	rameter : 'Minimal
13	Battery Last Test Failed	minor (4)	5 / 2
	The last battery test did not succeed and we 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 alaasks 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.	9	
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
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

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	F		
22	Ambient Temperature Too Low	minor (4)	5 / 2
	The ambient temperature is too low and hysteresis corresponding to parameter 'Amb only activated on MCU master types 3011	piant temperature hystere	esis'. This alarm is
	0948 and 3048M6.	0, 0000, 00120, 0024,	0040, 0040, 0040,
23	Ambient Temperature Sensor Fail	minor (4)	5 / 2
	The ambiant temperature sensor (NTC) values 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		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		gital input value is
29	Digital Input 5	none (0)	5 / 2
	This alarm is related to digital input 5. Thi different to configuration parameter 'Digital I		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		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.						

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12	Ratio Delivered On Available Power	Conorol	%	haaia		
12		General	1111	basic		
40	This is the ratio of the delivered power d	,	, ' 	ī. ·		
13	Minutes Since Last AC Failure Begin	General	minute	basic		
	The number of minute since the last AC		Τ	T		
14	Minutes Since Last AC Failure End	General	minute	basic		
	The number of minute since the last AC	T	Г			
21	Rectifiers Output Power	Rectifiers	Watt	basic		
	The sum of the delivered rectifier power	1		_		
22	Rectifiers Output Current	Rectifiers	Ampere	basic		
	The sum of the delivered rectifier curren	t	T			
23	Rectifiers Output Power Max	Rectifiers	Watt	basic		
	The sum of the deliverable rectifier power	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	ot in remote off.	T			
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	Rectifiers		basic		
	Rectifier					
	The actual number or rectifier in OVer T	· ·	T			
51	Load Power	Load	Watt	basic		
	Estimation of the load power consumption		T			
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 current	nt. A negative value	means that the b	attery is		
	discharging	1	Γ			
62	Battery Input Power	Battery	Watt	basic		
	Measurement of the battery input power. A negative value means that the battery is					
	discharging	ln		T		
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 la	st battery test. 9	values are pos	ssible :		

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	NEVED TESTED SUCCESS			/EQUIT
	NEVER_TESTED, SUCCESS, FAILED VBUS TOO LOW, FAILED	ON_GOING,	FAILED_TIN	
	FAILED_CANCELED, FAILED_LVD_OI		1711225_710_17	(ILO) (L,
73	Battery Test Discharged Capacity		%	basic
	Ratio			
	This is the battery capacity, in percent	, discharged during t	he last battery te	st. This
	value is updated at the end of the batter	y test.	-	
74	Battery Test Discharged Capacity	Battery	Ah	basic
	This is the battery capacity, in ampere		ring the last batte	ery test.
	This value is updated at the end of the b	1 -	1	1
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	Dattory		Dao.0
82	Minutes Since Last Test Battery	Battery		basic
	The number of minute without battery te	1		basio
91	Battery Charge Capacity	Battery	%	basic
31	The battery charge capacity, calculated	<u> </u>	1	Dasic
92	Calculated Autonomy	Battery	minute	basic
32	•	Dallery	minute	Dasic
93	Calculation of the remaining autonomy Battery Current Integration	Dotton	As	basis
93	,	Battery	l .	basic
0.4	Actual value of the integration of the cur	•	1	la a a la
94	Battery Current Integration	Battery	Ah	basic
404	Actual value of the integration of the cur	<u> </u>	ır T	1
101	LVD State	LVD		basic
	Actual state of the LVD	do . =	1	Τ .
121	Efficiency Optimized Number Of Rectifier	Smart Energy		asset
	The optimal number of ON rectifier for E	fficionay Ontimization	<u> </u>	
100	•	1	1	undor
122	System Loss Without Optimisation	Smart Energy	Watt	under dev
	Estimation of the losses without optimisation	l ation		ucv
123	System Loss With Optimisation	Smart Energy	Watt	under
120	Oystem 2003 With Optimisation	Omart Energy	VVall	dev
	Estimation of the losses with optimisation	n	1	
124	Rectifier Model Used For Calculation	Smart Energy		asset
	The rectifier model used	1	1	12000
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		15.09.00	1240.0
152	Relative Humidity	Sensors	%	basic
102	The relative humidity in the cabinet	Consors	/0	Dusic
	•	Sensors		basic
201		3 H 1 S 1 1 S		
204	Digital Input 4 Counter The counter value of the digital input 4.	Octions		Dasic

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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 Rec	ctifiers' is set.			
26	Rectifier Model	Rectifiers			basic
	The rectifier model		<u> </u>		10000
27	Forced Remote Off Rectifers	Rectifiers			basic
	A list of rectifier which are force		ff. The id o	the rectifier must	
	separated. Ex: 1,3 will maintain				
31	Battery Charge Current Limit		Ampere	0.5/1000 (1000)	basic
	The maximal battery current which the 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 'Batter	y Temperat	ure Too Low' must l	oe set.
34	Battery Temperature High	Battery	degree C	5/100 (40)	basic
<u></u>	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	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 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	<u>.</u>	
53	Boost Termination Voltage	Boost	Volt	50/58 (56.4)	battery
	The voltage over which the syste	em must go bad	ck to floatin	g mode.	
54	Boost Termination Current	Boost	Ampere	0/100 (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	stopped.		
71	Battery Test Discharge Ratio	Battery Test	%	0/100 (0)	battery
	The ratio of the battery capacity discharged during the test	y to discharge.	If 30 is se	et, 30% of the batte	ry will be
72	Battery Test Interval	Battery Test	day	0/3000 (0)	battery
	The number of days between two set to 0, the battery test is not start or force this test.	o automatically	started ba	ttery test. If this par	ameter is

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		T	1	1	<u> </u>
73	Battery Test Discharge Current	Battery Test	Ampere	0.5/100 (1000)	battery
	The current at which the bat	tery must be	discharged	during a battery	test. The
	monitoring regulates the bus vo		o satisfy thi	s condition. The loa	d 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 acco				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				
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				
96	Digital Input 3 Normally Closed	Digital Inputs		True/False (True)	basic
	True/False value defining if the not in this default state, the rela			closed. If this digita	al input is
97	Digital Input 4 Name	Digital Inputs		Digital Input 4	basic
	The name of the digital input 4	1 5 1	<u> </u>		I
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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		6.11						
	1			al input 5	<u></u>	1	<u> </u>	I
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 II	nput 6 N	ame		Digital Inputs		Digital Input 6	basic
	The nam	ne of the	digita	al input 6				
102	Digital Closed	Input	6	Normally	Digital Inputs		True/False (True)	basic
					digital input 6 ed alarm is set		closed. If this digita	al input is
103	Digital II	nput 7 N	ame		Digital Inputs		Digital Input 7	basic
	The nam	ne of the	digita	al input 7		•		
104	Digital Closed				Digital Inputs		True/False (True)	basic
					digital input 7 ed alarm is set		closed. If this digita	al input is
105	Digital II				Digital Inputs		Digital Input 8	basic
	The nam	ne of the	digita	al input 8			, ,	I
106	Digital	Input		•	Digital Inputs		True/False (True)	basic
	Closed	•		•	0 1		,	
							closed. If this digital	al input is
					ed alarm is set		T	T
111	•	larm 1 Conditi		Iternative	Dry Alarms		False	plc
				dition to oo	tivete the dry e	lorm roles:	The way to define	haalaan
				the PLC		liaiiii reiay	1. The way to define	boolean
112	Dry A		Α		Dry Alarms		False	plc
				dition to ac	l tivate the dry a	larm relay :	l 2. The way to define	hoolean
				the PLC		liaitii i ciay 2	2. The way to define	boolean
113		larm 3			Dry Alarms		False	plc
	Boolean	Conditi						
						ılarm relay (3. The way to define	e boolean
	1			the PLC		1	<u> </u>	<u> </u>
114	,	larm 4 Conditi		Iternative	Dry Alarms		False	plc
				dition to ac the PLC o		ılarm relay 4	4. The way to define	boolean
131	Ambient	t Tempe	ratui	e Low	Sensors	degree C		basic
	The temp	perature	unde	er which th	e alarm 'Ambia	int Tempera	ture Too Low' must	be set.
132	Ambient	t Tempe	ratui	e High	Sensors	degree C		basic
	The temp	perature			1	nt Tempera	ture Too Low' must	be set.
133	Ambient Hysteres		Ter	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 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 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	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 equipment can manage up to 20 user programmable data. Data elements are automatically added in the data table. Configuration parameters are added to set the PLC Data Name and the PLC Data Mathematical calculation. In order to use these functionalities, you need a license with the 'PLC module					
902	Number Of PLC Alarm	PLC		(0)	plc	
	The number of PLC alarm. Ever alarms. Alarm elements are a parameters are added to set 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>		
			<u>e</u>		
1	Back To Float	DC Mode	basic		
	The dc system must go back in floating n	node.			
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	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 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	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 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		

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	4 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			

	m Table	I	I			
<u>Id</u>	Name	Severity Type (Level)	<u>Set/Clear Delay</u>			
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 lalarm : 'DC Bus Voltage Extra Low Hystere					
	mode is BATTERY TEST	isis. The alaini is not a	activated when bo			
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 L					
	'DC Bus Voltage Low Hysteresis'	1				
3	DC Bus High	minor (4)	5 / 2			
	The bus voltage is high. The alarm is set					
	configuration paramenter 'DC Bus Voltage	High'. There is an hyste	risis on the alarm:			
4	'DC Bus Voltage High Hysteresis'		F / O			
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:		ii iiysterisis oli tile			
5	DC Bus Voltage Sense Failure	major (6)	5 / 2			
	The DC bus voltage sense is defective.		is unconnected or			
	unconfigured.					
6	Mains Failure	minor (4)	5 / 2			
	The number of active rectifiers is equal to 0	and the number of rectif	iers in AC failure is			
	greater than 0.	1				
7	Mains Partial Failure	minor (4)	10 / 2			
	The number of active rectifiers is greater to					
	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		10 / 2			
0		warning (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	Trysteresis _priaserzor	Tystorosis is added			
10	One Rectifier Failure	minor (4)	5 / 2			
	One rectifier must be replaced or is not po	wered correctly. The D	C fail alarm of the			
	rectifier is set. The number of rectifier with	n DC Failure is higher t	han 0, there is no			
	mains failure, and the 'More Than One Rect	ifier Failure alarm is not				
11	More Than One Rectifier Failure	major (6)	10 / 2			

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40	There is no mains failure and number of re	ctifier failures is greate	r than 1.
12	Missing Rectifiers	major (6)	5 / 2
	There is not enough rectifier according Number Of Rectifier'	to the configuration	parameter : 'Minimal
13	Battery Last Test Failed	minor (4)	5 / 2
	The last battery test did not succeed and vibe replaced.	was not cancelled. May	be the battery should
14	Battery On Discharge	minor (4)	10 / 2
	The battery is discharging. This means rectifiers. This alarm is inactive when the same there is an hysteresis corresponding to hysteresis'.	system in AC Failure or	during a battery test. discharging current
17	Battery LVD Relay Open	major (6)	5 / 2
	The battery Low Voltage Disconnector signal, like MCU 1848 or MCU 1x6, the a asks to open the LVD		
18	Battery Temperature Too High	minor (4)	5 / 2
	The temperature of the battery is too high hysteresis corresponding to battery parameters.	<u> </u>	
19	Battery Temperature Too Low	minor (4)	5 / 2
	The temperature of the battery is too low hysteresis corresponding to battery parameters.	•	
20	Battery Temperature Sensor Fail	minor (4)	5 / 2
	The battery temperature sensor (NTC) valuation not connected or defective.	lue is inferior to -500 u	nits meaning that it is
21	Ambient Temperature Too High	minor (4)	5 / 2
	The ambient temperature is too high an hysteresis corresponding to parameter 'Amonly activated on MCU master types 301 0948 and 3048M6.	nbiant temperature hys	teresis'. This alarm is
22	Ambient Temperature Too Low	minor (4)	5 / 2
	The ambient temperature is too low and hysteresis corresponding to parameter 'An only activated on MCU master types 301	nbiant temperature hys	
	0948 and 3048M6.	10, 3096, 30125, 002	
23		10, 3096, 30125, 002 minor (4)	
23	0948 and 3048M6.	minor (4)	4, 0948, 0548, 0348, 5 / 2
23 25	0948 and 3048M6. Ambient Temperature Sensor Fail The ambiant temperature sensor (NTC) va	minor (4)	4, 0948, 0548, 0348, 5 / 2
	0948 and 3048M6. Ambient Temperature Sensor Fail The ambiant temperature sensor (NTC) vanot connected or defective.	minor (4) alue is inferior to -500 u major (6) his alarm is activated in	4, 0948, 0548, 0348, 5 / 2 nits meaning that it is 5 / 2
	0948 and 3048M6. Ambient Temperature Sensor Fail The ambiant temperature sensor (NTC) vanot connected or defective. Distribution Breaker Open This alarm is related to digital input 1. The	minor (4) alue is inferior to -500 u major (6) his alarm is activated in	4, 0948, 0548, 0348, 5 / 2 nits meaning that it is 5 / 2
25	0948 and 3048M6. Ambient Temperature Sensor Fail The ambiant temperature sensor (NTC) vanot connected or defective. Distribution Breaker Open This alarm is related to digital input 1. The different to configuration parameter 'Digital'	minor (4) alue is inferior to -500 u major (6) nis alarm is activated in Input Alarm Value' minor (4) nis alarm is activated in	4, 0948, 0548, 0348, 5 / 2 15 / 2 5 / 2 5 / 2 5 / 2 5 / 2
25	O948 and 3048M6. Ambient Temperature Sensor Fail The ambiant temperature sensor (NTC) vanot connected or defective. 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 different is related to digital input 2.	minor (4) alue is inferior to -500 u major (6) nis alarm is activated in Input Alarm Value' minor (4) nis alarm is activated in	4, 0948, 0548, 0348, 5 / 2 nits meaning that it is 5 / 2 f digital input value is 5 / 2
25 26	O948 and 3048M6. Ambient Temperature Sensor Fail The ambiant temperature sensor (NTC) vanot connected or defective. 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 different to configuration parameter 'Digital Digital Input 2. The different to configuration parameter 'Digital Digital Input 2. The different to configuration parameter 'Digital Digital Dig	minor (4) alue is inferior to -500 u major (6) nis alarm is activated if Input Alarm Value' minor (4) nis alarm is activated if Input Alarm Value' none (0) nis alarm is activated if	4, 0948, 0548, 0348, 5 / 2 nits meaning that it is 5 / 2 f digital input value is 5 / 2 f digital input value is
25 26	O948 and 3048M6. Ambient Temperature Sensor Fail The ambiant temperature sensor (NTC) vanot connected or defective. 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 different to configuration parameter 'Digital Digital Input 3 This alarm is related to digital input 3. The different is related to digital input 3.	minor (4) alue is inferior to -500 u major (6) nis alarm is activated if Input Alarm Value' minor (4) nis alarm is activated if Input Alarm Value' none (0) nis alarm is activated if	4, 0948, 0548, 0348, 5 / 2 nits meaning that it is 5 / 2 f digital input value is 5 / 2 f digital input value is

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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. This alarm is activated if digital input valued 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		

	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	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 current				
31	Number Of Rectifier Max	Rectifiers		basic	
	The maximum possible number of rectifi	er in this dc system			
32	Number Of Present Rectifier	Rectifiers		basic	
	The actual number of present rectifier in	this dc system			
33	Number Of Absent Rectifier	Rectifiers		basic	
	The actual number of absent rectifier in this dc system				
34	Number Of Active Rectifier	Rectifiers		basic	
	The actual number of active rectifier in	this dc system. An 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 Failu			Juli 10 10 10 10 10 10 10 1
36	Number Of DC-Fail Rectifier	Rectifiers		basic
	The actual number or rectifier with DC Fa			Daoio
37	Number Of Remote Off Rectifier	Rectifiers		basic
0.	The actual number or rectifier in remote of			basio
38	Number Of Over Temperature Rectifier	I		basic
	The actual number or rectifier in OVer Te	emperature.		I.
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			I
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		1	
52	Load Current	Load	Ampere	basic
	Estimation of the load current consumption		F	
61	Battery Input Current	Battery	Ampere	basic
	Measurement of the battery input currer discharging	•	•	
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_FAILED_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 This value is updated at the end of the battery		ring the last batte	ery test.
75	Battery Test Final Voltage	Battery	%	basic
	This is the bus voltage at the end of the end of the battery test.	last battery test. Thi	s value is updated	d at the
81	Previous Battery Test State	Battery		basic
	The result of the previous battery test			·
	The result of the previous battery test			
82	Minutes Since Last Test Battery	Battery		basic

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

Config Table						
<u>Id</u>	<u>Name</u>	<u>Group</u>	<u>Unit</u>	Range: Min/Max (default)	<u>License</u>	
1	DC Bus Float Voltage at 25 degC	Bus Voltage	Volt	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 ala	l arm 'DC Rus V	oltage Extra	l a Low'		
4	DC Bus Voltage Low	Bus Voltage	Volt	40/60 (48)	basic	
•	The bus voltage under which the		1	. ,	Daoio	
5		Bus Voltage	Volt	0/5 (0.5)	basic	
Ū	Hysteresis	Bas Vollage	VOIL	0/0 (0.0)	Daoio	
	The voltage hysteresis on the al	arm 'DC Bus V	oltage Low		-1	
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.	1	
7	DC Bus Voltage High	Bus Voltage	Volt	0/5 (0.5)	basic	
	Hysteresis					
	The voltage hysteresis on the al				ı	
8		Bus Voltage	Volt	40/60 (58)	basic	
	The bus voltage over which the	1			T	
9	DC Bus Voltage Extra High	Bus Voltage	Volt	0/5 (0.5)	basic	
	Hysteresis	100 D 1/		I.P. I		
10	The voltage hysteresis on the al	1			l : -	
10	<u> </u>	Bus Voltage	Volt	0/50 (43.2)	basic	
	1	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		Bus Voltage	second	1/2000 (1)	basic	
• •	The delay in second before disc		ll	. ,		
	configured disconnected voltage					
21	Temperature Compensation			-1000/0 (-72)	basic	
	Slope	Compensatio	е	, ,		
		ln				
	<u></u>		<u> </u>			
	The slope of the battery tempera		ation in mv	<u> </u> /degree. For a 48V	system,	
22	72mV/degree is often used.	ature compens				
22	72mV/degree is often used. Maximum Positive	ature compens Temperature	Volt	/degree. For a 48V	system, basic	
22	72mV/degree is often used.	ature compens Temperature	Volt			
22	72mV/degree is often used. Maximum Positive	ature compens Temperature Compensatio n	Volt			
22	72mV/degree is often used. Maximum Positive Temperature Compensation The maximal allowed positive co	ature compens Temperature Compensatio n	Volt			
	72mV/degree is often used. Maximum Positive Temperature Compensation The maximal allowed positive co	Temperature Compensatio n	Volt	0/10 (3)	basic	
	72mV/degree is often used. Maximum Positive Temperature Compensation The maximal allowed positive co Maximum Negative Temperature Compensation	Temperature Compensatio n mpensation. Temperature Compensation	Volt	0/10 (3)	basic	
23	72mV/degree is often used. Maximum Positive Temperature Compensation The maximal allowed positive compensation Maximum Negative Temperature Compensation The maximal allowed negative compensation	Temperature Compensatio n mpensation. Temperature Compensatio n ompensation.	Volt	0/10 (3) -10/0 (-3)	basic	
	72mV/degree is often used. Maximum Positive Temperature Compensation The maximal allowed positive compensation Maximum Negative Temperature Compensation The maximal allowed negative compensation The maximal allowed negative compensation	Temperature Compensatio n mpensation. Temperature Compensatio n ompensation.	Volt	0/10 (3)	basic	
23	72mV/degree is often used. Maximum Positive Temperature Compensation The maximal allowed positive compensation Maximum Negative Temperature Compensation The maximal allowed negative compensation The maximal allowed negative compensation Minimal Number Of Present Rectifiers	Temperature Compensatio n mpensation. Temperature Compensatio n ompensation. Rectifiers	Volt	0/10 (3) -10/0 (-3) 0/100 (0)	basic	
23	72mV/degree is often used. Maximum Positive Temperature Compensation The maximal allowed positive compensation Maximum Negative Temperature Compensation The maximal allowed negative compensation The maximal allowed negative compensation Minimal Number Of Present Rectifiers The minimal number of rectifications	Temperature Compensatio n mpensation. Temperature Compensatio n ompensatio n ompensatio n ompensation. Rectifiers	Volt	0/10 (3) -10/0 (-3) 0/100 (0)	basic	
23	72mV/degree is often used. Maximum Positive Temperature Compensation The maximal allowed positive compensation Maximum Negative Temperature Compensation The maximal allowed negative compensation The maximal allowed negative compensation Minimal Number Of Present Rectifiers	Temperature Compensatio n mpensation. Temperature Compensatio n ompensatio n ompensatio n ompensation. Rectifiers	Volt	0/10 (3) -10/0 (-3) 0/100 (0)	basic	
23	72mV/degree is often used. Maximum Positive Temperature Compensation The maximal allowed positive compensation Maximum Negative Temperature Compensation The maximal allowed negative compensation The maximal allowed negative compensation The minimal number of rectification of rectification in the minimal number of rectifica	Temperature Compensatio n mpensation. Temperature Compensatio n ompensatio n ompensatio n empensatio n ompensatio n empensatio n ompensatio n etifiers	Volt	0/10 (3) -10/0 (-3) 0/100 (0)	basic basic basic s present	
23 25 26	72mV/degree is often used. Maximum Positive Temperature Compensation The maximal allowed positive compensation The maximal allowed positive compensation The maximal allowed negative compensation The maximal allowed negative compensation The maximal allowed negative compensation The maximal number of Present Rectifiers The minimal number of rectifier rectifiers, the alarm 'Missing Rectifier Model	Temperature Compensatio n mpensation. Temperature Compensatio n ompensation mpensation Rectifiers er which mus ctifiers' is set. Rectifiers	Volt	0/10 (3) -10/0 (-3) 0/100 (0)	basic basic basic s present	
23 25 26	72mV/degree is often used. Maximum Positive Temperature Compensation The maximal allowed positive compensation Maximum Negative Temperature Compensation The maximal allowed negative compensation The maximal number of rectification of rectification in the process of the process	Temperature Compensatio n mpensation. Temperature Compensatio n ompensatio n ompensation. Rectifiers er which mus ctifiers' is set. Rectifiers	Volt Volt t be prese	0/10 (3) -10/0 (-3) 0/100 (0) nt. If there is les	basic basic basic basic basic basic	
23 25 26	72mV/degree is often used. Maximum Positive Temperature Compensation The maximal allowed positive compensation The maximal allowed positive compensation The maximal allowed negative compensation The maximal number of Present Rectifiers The minimal number of rectifier ectifiers, the alarm 'Missing Rectifier Model The rectifier model Forced Remote Off Rectifers	Temperature Compensation mpensation. Temperature Compensation mpensation mpen	Volt Volt t be prese	0/10 (3) -10/0 (-3) 0/100 (0) nt. If there is les	basic basic basic basic basic basic	
23	Maximum Positive Temperature Compensation The maximal allowed positive compensation The maximal allowed positive compensation The maximal allowed negative compensation The minimal number of Present Rectifiers The minimal number of rectifier rectifiers, the alarm 'Missing Rectifier Model The rectifier model Forced Remote Off Rectifers A list of rectifier which are forced	Temperature Compensatio n mpensation. Temperature Compensatio n ompensatio n ompensation. Rectifiers er which mus ctifiers' is set. Rectifiers Rectifiers ed in remote of rectifier 1 and 3	Volt Volt t be prese	0/10 (3) -10/0 (-3) 0/100 (0) nt. If there is les	basic basic basic basic basic basic	
23 25 26 27	Maximum Positive Temperature Compensation The maximal allowed positive compensation The maximal allowed positive compensation The maximal allowed negative compensation Rectifiers The minimal number of rectifier ectifiers, the alarm 'Missing Recompensation Rectifier Model The rectifier model Forced Remote Off Rectifers A list of rectifier which are forced separated. Ex: 1,3 will maintain	Temperature Compensation Impensation Temperature Compensation Temperature Compensation Impensation Imp	Volt Volt t be prese off. The id color off. Ampere	0/10 (3) -10/0 (-3) 0/100 (0) nt. If there is les of the rectifier must 0.5/1000 (1000)	basic basic s presen basic basic basic basic	

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	nominal battery capacity divided	by 10.			
32	Battery String Capacity	Battery	Ah	3/1000 (100)	basic
	The battery capacity in Ah.	, ,			1
33	Battery Temperature Low	Battery	degree C	-100/20 (0)	basic
	The temperature under which th			. ,	
34	Battery Temperature High	Battery		5/100 (40)	basic
	The temperature over which the			. ,	l
35	Battery Temperature		degree C	0/10 (2)	basic
	Hysteresis	Battory	aogroo o	0/10 (2)	Daoio
	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 Dis	charge' alarm.	1
37		Battery	Ampere	0/50 (0.5)	basic
	Discharging Alarm				
	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	l.	e activated		
53	Boost Termination Voltage	Boost	Volt	50/58 (56.4)	battery
	The voltage over which the systematical	em must go ba	ck to floatin	g mode.	
54	Boost Termination Current	Boost	Ampere	0/100 (2)	battery
	The battery charging current und	der which the s	ystem 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	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

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75	Battery 7	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
				le 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 digital	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	put 3 N	lame		Digital Inputs		Digital Input 3	basic
	The nam	e of the	digita	ıl 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	put 4 N	lame		Digital Inputs		Digital Input 4	basic
	The nam	e of the		•		r		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	put 5 N	lame		Digital Inputs		Digital Input 5	basic
	The nam					Γ	T	T
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	ıl 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 the 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 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	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 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 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 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 writter to this control element			
512	Add Major Event	Event	basic	
	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			

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	C 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				

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	rm Table				
<u>ld</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 configuration parameter 'DC Bus Volta alarm : 'DC Bus Voltage Extra Low Hysmode is BATTERY TEST	ge Extra Low'. There is ar	n 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 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 Hyst	age Extra High'. There is a			
5	DC Bus Voltage Sense Failure	major (6)	5/2		
	The DC bus voltage sense is defective. The DC bus voltage is unconnected or unconfigured.				
6	Mains Failure	minor (4)	5/2		
	The number of active rectifiers is equal t greater than 0.	to 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 great failure is greater than 0. Some rectified open breaker, a real phase failure, or by	ers 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 no rectifier is set. The number of rectifier mains failure, and the 'More Than One F	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 Number Of Rectifier'	ng to the configuration pa	rameter : 'Minima		
13	Battery Last Test Failed	minor (4)	5/2		
	The last battery test did not succeed and be replaced.	d was not cancelled. Maybe	the battery should		
14	Battery On Discharge	minor (4)	10 / 2		
	The battery is discharging. This mean	ns that the load is too hid	nh for the installed		

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	rectifiers. This alarm is inactive when the sy	etem in AC Failure or du	ring a hattery test
	There is an hysteresis corresponding to hysteresis'.		
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		e signal LVD_COM
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
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 hysteresis corresponding to parameter 'Ambonly activated on MCU master types 3011 0948 and 3048M6.	piant temperature hyster	esis'. This alarm is
23	Ambient Temperature Sensor Fail	minor (4)	5 / 2
	The ambiant temperature sensor (NTC) values not connected or defective.	ue is inferior to -500 unit	s meaning that it is
25	Distribution Breaker Open	major (6)	5 / 2
	This alarm is related to digital input 1. 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> e			
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 divided by the installed power, in %.						
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 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 rectifi	er in this dc system	_				
32	Number Of Present Rectifier	Rectifiers		basic			
	The actual number of present rectifier in	this dc system					
33	Number Of Absent Rectifier	Rectifiers		basic			
	The actual number of absent rectifier in	this dc system					
34	Number Of Active Rectifier	Rectifiers		basic			
	The actual number of active rectifier in this dc system. An active rectifier is a rectifier which is present, DC OK, AC OK and not in remote off.						
35	Number Of AC-Fail Rectifier	Rectifiers		basic			
	The actual number or rectifier in AC Failure.						
36	Number Of DC-Fail Rectifier	Rectifiers		basic			
	The actual number or rectifier with DC 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 CHILDIE	1 - 1 / 1 / 1 / 1					

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	Estimation of the load current consumpti	on				
61	Battery Input Current	Battery	Ampere	basic		
	Measurement of the battery input current. A negative value means that the battery i discharging					
62	Battery Input Power	Battery	Watt	basic		
	Measurement of the battery input power. A negative value means that the battery is discharging					
71	Battery Temperature	Battery	degree C	basic		
	The battery temperature					
72	Battery Test State	Battery		basic		
	This is about the result of the last battery test. 9 values are possible: NEVER_TESTED, SUCCESS, ON_GOING, FAILED_TIMEOUT, FAILED_VBUS_TOO_LOW, FAILED_LOAD_TOO_LOW, FAILED_AC_FAILURE, FAILED_CANCELED, FAILED_LVD_OPENED					
73	Battery Test Discharged Capacity Ratio	,	%	basic		
	This is the battery capacity, in percent, discharged during the last battery test. This value is updated at the end of the battery test.					
74	Battery Test Discharged Capacity	Battery	Ah	basic		
	This is the battery capacity, in ampere hour, discharged during the last be a structured by 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 upon end of the battery test.					
81	Previous Battery Test State	Battery		basic		
	The result of the previous battery test	ı	1	T		
82	Minutes Since Last Test Battery	Battery		basic		
0.1	The number of minute without battery tes		T _a ,	I		
91	Battery Charge Capacity	Battery	%	basic		
00	The battery charge capacity, calculated			1:-		
92	Calculated Autonomy	Battery	minute	basic		
93	Calculation of the remaining autonomy	Pottoni	As	basic		
93	Battery Current Integration Actual value of the integration of the current	Battery	l	Dasic		
94	Battery Current Integration	Battery	Ah	basic		
5 4	Actual value of the integration of the curr	•		Dasic		
101	LVD State	LVD	A1	basic		
	Actual state of the LVD			Dasio		
121		Smart Energy		asset		
	The optimal number of ON rectifier for E	า	•			
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					

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124	Rectifier Model Used For Calculation	Smart Energy		asset
	The rectifier model used	joinait Energy	L	uooot
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 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 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.		_	

Con	fig Table					
<u>Id</u>	Name	<u>Group</u>	<u>Unit</u>	Range: Min/Max (default)	<u>License</u>	
1	DC Bus Float Voltage at 25 degC	Bus Voltage	Volt	40/60 (54)	basic	
	The floating dc bus voltage of th	e system at 25	Celsius de	gree		
2	DC Bus Voltage Extra Low	Bus Voltage	Volt	40/60 (45)	basic	
	The bus voltage under which the	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 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	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	h' 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.					
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		must be di	,	ous. 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				
0.1	configured disconnected voltage		1		1
21	Temperature Compensation	•	_	-1000/0 (-72)	basic
	Slope	Compensatio n	е		
	The slope of the battery temper	1	ation in my	/degree. For a 48V	svstem
	72mV/degree is often used.	o		, a g a a a a a a.	-
22	Maximum Positive	Temperature	Volt	0/10 (3)	basic
	Temperature Compensation	Compensatio			
		n			
	The maximal allowed positive co		h	1 (2 (2)	I
23	_	Temperature Compensatio	Volt	-10/0 (-3)	basic
	remperature Compensation	n			
	The maximal allowed negative of	1			
25	Minimal Number Of Present			0/100 (0)	basic
	Rectifiers				
	The minimal number of rectifi		t be prese	nt. If there is less	present
	rectifiers, the alarm 'Missing Red	ctifiers' is set.	_	T	_
26	Rectifier Model	Rectifiers			basic
	The rectifier model	T	1	T	
27	Forced Remote Off Rectifers	1			basic
		A list of rectifier which are forced in remote off. The id of the rectifier must be coma			
21	separated. Ex: 1,3 will maintain			0 E/1000 (1000)	basis
31	Battery Charge Current Limit		Ampere	0.5/1000 (1000)	basic
	The maximal battery current withe bus voltage in order to satisfied	•		· ·	_
	nominal battery capacity divided		on mo pa	ramotor io ottori oq	dai to trio
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 ever which the				Dasic
	The temperature over which the	alarm 'Battery	Temperatu	re Too High' must b	
35	Battery Temperature	· · · · · · · · · · · · · · · · · · ·		re Too High' must b 0/10 (2)	
35	Battery Temperature Hysteresis	Battery	degree C	0/10 (2)	e set. basic
35	Battery Temperature Hysteresis The hysteresis on the 'Battery'	Battery	degree C	0/10 (2)	e set. basic
	Battery Temperature Hysteresis The hysteresis on the 'Battery Low' alarms.	Battery Temperature T	degree C oo High' ar	0/10 (2) nd 'Battery Tempera	e set. basic ature Too
35 36	Battery Temperature Hysteresis The hysteresis on the 'Battery Low' alarms. Minimal Current For	Battery	degree C	0/10 (2)	e set. basic
	Battery Temperature Hysteresis The hysteresis on the 'Battery Low' alarms. Minimal Current For Discharging Alarm	Battery Temperature T Battery	degree C oo High' ar Ampere	0/10 (2) nd 'Battery Tempera 0/1000 (2)	e set. basic ature Too
36	Battery Temperature Hysteresis The hysteresis on the 'Battery Low' alarms. Minimal Current For Discharging Alarm The minimal discharging current	Battery Temperature T Battery to set the 'Battery	degree C oo High' ar Ampere	0/10 (2) nd 'Battery Tempera 0/1000 (2) charge' alarm.	e set. basic ature Too basic
	Battery Temperature Hysteresis The hysteresis on the 'Battery Low' alarms. Minimal Current For Discharging Alarm The minimal discharging current	Battery Temperature T Battery	degree C oo High' ar Ampere	0/10 (2) nd 'Battery Tempera 0/1000 (2)	e set. basic ature Too
36	Battery Temperature Hysteresis The hysteresis on the 'Battery Low' alarms. Minimal Current For Discharging Alarm The minimal discharging current Current Hysteresis For	Battery Temperature T Battery to set the 'Battery Battery	degree C oo High' ar Ampere tery On Dis	0/10 (2) nd 'Battery Tempera 0/1000 (2) charge' alarm.	e set. basic ature Too basic
36	Battery Temperature Hysteresis The hysteresis on the 'Battery Low' alarms. Minimal Current For Discharging Alarm The minimal discharging current Current Hysteresis For Discharging Alarm	Battery Temperature T Battery to set the 'Battery Battery	degree C oo High' ar Ampere tery On Dis	0/10 (2) nd 'Battery Tempera 0/1000 (2) charge' alarm.	e set. basic ature Too basic
36	Battery Temperature Hysteresis The hysteresis on the 'Battery Low' alarms. Minimal Current For Discharging Alarm The minimal discharging current Current Hysteresis For Discharging Alarm The hysteresis on the 'Battery C	Battery Temperature T Battery to set the 'Battery Battery n Discharge' a	degree C oo High' ar Ampere tery On Dis	0/10 (2) nd 'Battery Tempera 0/1000 (2) charge' alarm. 0/50 (0.5)	e set. basic ature Too basic basic

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	1				
	bus voltage went under the contarging the battery faster.		1	n Low Voltage'. Th	nis allows
52	Boost Activation Low Voltage	l .	Volt	43/50 (46)	battery
	The voltage under which the boo		ı	1	
53	Boost Termination Voltage	Boost	Volt	50/58 (56.4)	battery
	The voltage over which the syst			Ť .	
54	Boost Termination Current	Boost	Ampere	0/100 (2)	battery
	The battery charging current und		ĭ	, <u> </u>	1
55	Boost Termination Time	Boost	minute	10/240 (120)	battery
	The time in minute after which the		, <u> </u>		F.
70	Battery Test End Voltage	Battery Test	Volt	30/60 (46)	battery
	The voltage at which any battery			1	F.
71	Battery Test Discharge Ratio		%	0/100 (0)	battery
	The ratio of the battery capacit discharged during the test		If 30 is se	et, 30% of the batte	ry will be
72	Battery Test Interval	,	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 the	ne load is
75	Battery Test Time Out	Battery Test	minute	1/5000 (10)	battery
	The timeout in minute after whic	h the battery te	est must be	stopped.	
76	Battery Test Requested Minutes Without Mains Failure	Battery Test	minute	0/5000 (1440)	battery
	The minimal time in minute with parameter is not taken into acco				start. This
83	Smart Energy Boolean Condition	Smart Energy		121-125	asset
	This is the boolean condition who frectifier in remote off.	nich allows or n	ot to auton	natically optimize the	e number
86	Battery LVD Node Id	LVD		True/False (False)	basic
	This is a list of the node id of the	Smart Electro	nic LVDs, c	coma separated	
91	Digital Input 1 Name	Digital Inputs		Distribution Breaker Open	basic
	The name of the digital input 1				
92	Digital Input 1 Normally Closed	Digital Inputs		True/False (True)	basic
	True/False value defining if the not in this default state, the relat			closed. If this digita	al input is

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	<u></u>		I	T	
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			closed. If this digital	al input is
	not in this default state, the relat		T	T	T
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			closed. If this digital	al input is
	not in this default state, the relat		·	T	1
97	Digital Input 4 Name	Digital Inputs		Digital Input 4	basic
	The name of the digital input 4		T	T	
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
İ	Boolean Condition				
	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 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			False	plc
	Another Boolean condition to accondition is detailed in the PLC of	•	larm relay	4. The way to define	boolean
131	Ambient Temperature Low	Sensors	degree C		basic
	The temperature under which th	e alarm 'Ambia	nt Tempera	ture Too Low' must	be set.
132	Ambient Temperature High	Sensors	degree C		basic
	The temperature under which th	l.		ture Too Low' must	
133	Ambient Temperature Hysteresis		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		d access	to this equipment	The user
	numbers are coma separated. T				
522	Write Access User Numbers	Allowed Users	,	()	basic
	i e e e e e e e e e e e e e e e e e e e	1	l .	i	

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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 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	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
	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 ar	ne alarm table. T nd 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 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 n	ot present,		

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61	Set Digital Input 4 Counter Value	Counters	basic
	Set Counter Value		
501	Clear My Events	Event	basic
	By writing '1' to this control element, all the events of	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 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	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

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	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			

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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 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 s 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 set when the bus voltage is higher than the 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 parameter 'DC Bus Voltage Extra High'. There is an hysterisis on the alarm: 'DC Bus Voltage Extra High Hysteresis'				
5	DC Bus Voltage Sense Failure	major (6)	5/2		
	The DC bus voltage sense is defective 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 and the number of rect	fiers in AC failure is		
7	Mains Partial Failure	minor (4)	10 / 2		
	The number of active rectifiers is greate failure is greater than 0. Some rectifiers open breaker, a real phase failure, or by a	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, a 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	vith 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	ectifier failures is greater t	han 1.		
40	Missing Rectifiers	major (6)	5 / 2		
12		, , ,			
12	There is not enough rectifier according Number Of Rectifier'	g to the configuration pa	arameter : 'Minimal		

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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 the rectifiers. This alarm is inactive when the sy There is an hysteresis corresponding to hysteresis'.	stem in AC Failure or du	ıring 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 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
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		gital input value is

Data	Table			
<u>Id</u>	<u>Name</u>	Group	<u>Unit</u>	<u>Licens</u>
				<u>e</u>
1	DC Mode	General		basic
	The DC system can have 4 value 'AC_FAILURE' or SAFE	es: 'FLOAT', 'BOO	ST', 'BATTERY_	_TEST',
2	Previous DC Mode	General		basic
	The previous value of the DC Mode			
11	Bus Voltage	General	Volt	basic
	The DC bus voltage in volt.			
12	Ratio Delivered On Available Power	General	%	basic
	This is the ratio of the delivered power 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		

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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 this dc system. An active rectifier is a rectifie which is present, DC OK, AC OK and not in remote off.			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 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 battery capacity.		uring the last batt	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	nis value is update	ed at the	
81	Previous Battery Test State	Battery		basic	
	The result of the previous battery test				
82	Minutes Since Last Test Battery	Battery		basic	
	The number of minute without battery te	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 current, in Ampere * second				
94	Battery Current Integration	Battery	Ah	basic	
	Actual value of the integration of the cur	rent, in Ampere * ho	ur		
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	n		
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	on			
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	Config Table					
<u>Id</u>	<u>Name</u>	<u>Group</u>	<u>Unit</u>	Range: Min/Max (default)	<u>License</u>	
1	DC Bus Float Voltage at 25 degC	Bus Voltage	Volt	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	
	The bus voltage under which the alarm 'DC Bus Voltage Extra Low' is set.					
3	DC Bus Voltage Extra Low Hysteresis	Bus Voltage	Volt	0/5 (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	alarm 'DC Bu	s Voltage L	ow' is set.	JI
5	DC Bus Voltage Low Hysteresis	Bus Voltage	Volt	0/5 (0.5)	basic
	The voltage hysteresis on the al	arm 'DC Bus V	oltage Low		•
6	DC Bus Voltage High	Bus Voltage	Volt	40/60 (56.5)	basic
	The bus voltage over which the	alarm 'DC Bus	Voltage Hig	ph' is set.	
7	DC Bus Voltage High Hysteresis	Bus Voltage	Volt	0/5 (0.5)	basic
	The voltage hysteresis on the al		oltage High	T	1
8	DC Bus Voltage Extra High	Bus Voltage	Volt	40/60 (58)	basic
	The bus voltage over which the	1			
9	DC Bus Voltage Extra High Hysteresis	Ŭ	Volt	0/5 (0.5)	basic
	The voltage hysteresis on the al			, <u> </u>	T
10	LVD Disconnect Voltage	Bus Voltage	Volt	0/50 (43.2)	basic
	The dc bus voltage under which allows preserving the battery life				bus. This
11	LVD Disconnect Delay	Bus Voltage	second	1/2000 (1)	basic
	The delay in second before disc			. ,	
	configured disconnected voltage				
21	Temperature Compensation			-1000/0 (-72)	basic
	Slope	Compensatio	е		
		n			
	The slope of the battery temper 72mV/degree is often used.	ature compens	ation in my	degree. For a 48V	system, -
22		Temperature	Volt	0/10 (3)	basic
22	Temperature Compensation	Compensatio n	VOIL	0/10 (3)	Dasic
	The maximal allowed positive co	mpensation.			
23		Temperature	Volt	-10/0 (-3)	basic
	Temperature Compensation	Compensatio			
	T	<u>ı. </u>			
05	The maximal allowed negative of			0/400 (0)	ī
25	Minimal Number Of Present Rectifiers	Rectifiers		0/100 (0)	basic
	The minimal number of rectifier which must be present. If there is less prese				present
26	rectifiers, the alarm 'Missing Rec Rectifier Model	Rectifiers	<u> </u>		basis
20		Rectiliers			basic
07	The rectifier model	Dootifions		T	basis
27		Rectifiers	ff Thaida	f the rectifier milet	basic
	A list of rectifier which are force separated. Ex: 1,3 will maintain			i the rectifier must	ue coma
31	Battery Charge Current Limit		Ampere	0.5/1000 (1000)	basic
	The maximal battery current we the bus voltage in order to satisfication to a state of the bus voltage in order to satisficate	hen the battery sfy this condition	is chargir	g. The monitoring	regulates

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		T	T	T	-
32	Battery String Capacity	Battery	Ah	3/1000 (100)	basic
	The battery capacity in Ah.	T	1	T	
33	Battery Temperature Low	Battery	degree C	-100/20 (0)	basic
	The temperature under which th		<u> </u>	•	be set.
34	Battery Temperature High	Battery	degree C	5/100 (40)	basic
	The temperature over which the	alarm 'Battery	Temperatu	re Too High' must b	e set.
35	Battery Temperature Hysteresis	Battery	degree C	0/10 (2)	basic
	The hysteresis on the 'Battery Low' alarms.	Temperature T	oo High' ar	nd 'Battery Tempera	ature Too
36	Minimal Current For Discharging Alarm	Battery	Ampere	0/1000 (3)	basic
	The minimal discharging current	to set the '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 systematical	em must go ba	ck to floatin	g mode.	
54	Boost Termination Current	Boost	Ampere	0/100 (4)	battery
	The battery charging current und	der which the s	ystem must	go back to floating	mode.
55	Boost Termination Time	Boost	minute	10/240 (120)	battery
	The time in minute after which the	ne system must	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	t, 30% of the batte	ry will be
72	Battery Test Interval	Battery Test	day	0/3000 (0)	battery
	The number of days between tweet to 0, the battery test is not start or force this test.				
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 th	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
	<u> </u>		1	. ,	

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	The timeout in minute after whi	ch the battery te	est must be	stopped.	
76	Battery Test Requester Minutes Without Main Failure	Battery Test	minute	0/5000 (1440)	battery
	The minimal time in minute wit parameter is not taken into acc				tart. This
83	Condition	Smart Energy		121-125	asset
	This is the boolean condition w of rectifier in remote off.		ot to auton	natically optimize the	e number
86	Battery LVD Node Id	LVD		True/False (False)	basic
	This is a list of the node id of the		nic LVDs, c		1
91	Digital Input 1 Name	Digital Inputs		Distribution Breaker Open	basic
	The name of the digital input 1		T	1	1
92	Digital Input 1 Normall 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
93	Digital Input 2 Name	Digital Inputs		Battery Breaker Open	basic
	The name of the digital input 2				
94	Digital Input 2 Normall Closed	y Digital Inputs		True/False (True)	basic
	True/False value defining if the not in this default state, the rela			closed. If this digital	al input is
95	Digital Input 3 Name	Digital Inputs		Digital Input 3	basic
	The name of the digital input 3				
96	Digital Input 3 Normall Closed	y Digital Inputs		True/False (True)	basic
	True/False value defining if the not in this default state, the rela			closed. If this digital	al input is
97	Digital Input 4 Name	Digital Inputs		Digital Input 4	basic
	The name of the digital input 4				
98	Digital Input 4 Normall Closed	y 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 Alternativ Boolean Condition	e Dry Alarms		False	plc
	Another Boolean condition to a condition is detailed in the PLC		ılarm relay	1. The way to define	boolean
112	Dry Alarm 2 Alternativ Boolean Condition	e Dry Alarms		False	plc
	Another Boolean condition to a condition is detailed in the PLC	•	larm relay	2. The way to define	boolean
440		e Dry Alarms		False	plc
113	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 accondition is detailed in the PLC of		larm relay 4	4. The way to define	e boolean
521	Read Access User Numbers	Allowed Users		(1,2,3,4,5)	basic
	The list of the user numbers v numbers are coma separated. T				
522	Write Access User Numbers	Allowed Users		()	basic
	The list of the user numbers what these users can modify the control elements. The user num 1,2,3,4 and 5. Ex: 1,3,4	configuration 6	element, the	e alarm settings and	d use the
601	Event Table Length	Event		10/4000 (100)	basic
	The maximum length of the table	e. The value mu	ust be comp	orised between 10 a	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	led 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	ıdded in tl n Name ar	he alarm table. The the PLC Alarm	he alarm Boolean

Con	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		

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21	Correct Battery Current Offset	Battery	basic		
	No information		1		
31	Reset Battery Current Integration	Battery	basic		
	Reset the integration of the battery current.				
41	Reset Last Battery Test State	Battery	battery		
	Reset the state of the last battery test. If an alarm alarm will be cleared.	'Battery Last Test Failed' is	s set, the		
51	Save Configuration In MCU	Save	basic		
	Save configuration parameters in the MCU microcithe system will be correctly managed.	ontroller. If comp@s is not	present,		
61	Set Digital Input 4 Counter Value	Counters	basic		
	Set Counter Value				
501	Clear My Events	Event	basic		
	By writing '1' to this control element, all the events of 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 r 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 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

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

Alar	m Table		
<u>Id</u>	<u>Name</u>	Severity Type (Level)	Set/Clear Delay
1	DC Bus Extra Low	major (6)	5/2
	The bus voltage is extra low. The alarm is configuration parameter 'DC Bus Voltage lalarm : 'DC Bus Voltage Extra Low Hysteremode is BATTERY TEST	Extra Low'. There is an esis'. The alarm is not a	hysteresis on the activated when DC
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 Hysteres	Extra High'. There is a	
5	DC Bus Voltage Sense Failure	major (6)	5 / 2
	The DC bus voltage sense is defective. unconfigured.	The DC bus voltage	is unconnected or
6	Mains Failure	minor (4)	5 / 2
	The number of active rectifiers is equal to 0 greater than 0.	and the number of rectif	iers in AC failure is
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 to the number of active rectifiers is greater to the number of active rectifiers and the number of active rectifiers and the number of active rectifiers and the number of active rectifiers and the number of active rectifiers and the number of active rectifiers and the number of active rectifiers and the number of active rectifiers and the number of active rectifiers and the number of active rectifiers and the number of active rectifiers and the number of active rectifiers and the number of active rectifiers are number of active rectifiers and the number of active rectifiers are number of active rectifiers and the number of active rectifiers and the number of active rectifiers are number of active rectifiers and the number of active rectifiers are number of active rectifiers and active rectifiers are number of active rectifiers and active rectifiers are number of active rectifiers and active rectifiers are number of active rectifiers and active rectifiers are number of active rectifiers and active rectifiers are number of active rectifiers and active rectifiers are number of active rectifiers and active rectifiers are number of active rectifiers.	ire 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		

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	mains failure, and the 'More Than One Red	ctifier Failure alarm is not	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 t	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 vibe replaced.	was not cancelled. Mayb	e the battery should		
14	Battery On Discharge	minor (4)	10 / 2		
	The battery is discharging. This means rectifiers. This alarm is inactive when the same there is an hysteresis corresponding to hysteresis'.	system in AC Failure or d	during 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 a asks to open the LVD				
18	Battery Temperature Too High	minor (4)	5 / 2		
	The temperature of the battery is too high				
40	hysteresis corresponding to battery parame	<u> </u>			
19	Battery Temperature Too Low	minor (4)	5 / 2		
	The temperature of the battery is too low and is greater than -600 units. There is an hysteresis corresponding to battery parameter 'Temperature hysteresis'.				
20	Battery Temperature Sensor Fail	minor (4)	5 / 2		
	The battery temperature sensor (NTC) valued not connected or defective.	()			
21	Ambient Temperature Too High	minor (4)	5 / 2		
	The ambient temperature is too high an hysteresis corresponding to parameter 'Am only activated on MCU master types 301 0948 and 3048M6.	nbiant temperature hyste	resis'. This alarm is		
22	Ambient Temperature Too Low	minor (4)	5 / 2		
	The ambient temperature is too low and hysteresis corresponding to parameter 'Amonly activated on MCU master types 301 0948 and 3048M6.	nbiant temperature hyste	resis'. This alarm is		
23	Ambient Temperature Sensor Fail	minor (4)	5 / 2		
	The ambiant temperature sensor (NTC) vanot connected or defective.	alue is inferior to -500 un	its meaning that it is		
25	Distribution Breaker Open	major (6)	5 / 2		
	This alarm is related to digital input 1. The different to configuration parameter 'Digital				
	Battery Breaker Open	minor (4)	5 / 2		
26					
	This alarm is related to digital input 2. The different to configuration parameter 'Digital'		,		
26 27	This alarm is related to digital input 2. The	Input Alarm Value' none (0)	5 / 2		

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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 'Digital	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	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 rectifior in OVer To	emnerature			
51	The actual number or rectifier in OVer Te		Mott	boois	
3 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 consumpti		Amnoro	basis	
61	Macaurament of the bettery input ourrer	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	
	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_OF	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 I	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	ond		
94	Battery Current Integration	Battery	Ah	basic	
	Actual value of the integration of the curr		ır	_	
101	LVD State	LVD		basic	
	Actual state of the LVD	T	1		
121	Efficiency Optimized Number Of Rectifier	Smart Energy		asset	
	The optimal number of ON rectifier for Ef	fficiency Optimization	1		
122	System Loss Without Optimisation	Smart Energy	Watt	under dev	

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Estimation of the losses without antimication					
'		T			
System Loss With Optimisation	Smart Energy	Watt	under		
			dev		
Estimation of the losses with optimisation	n				
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	n				
Ambient Temperature	degree C	basic			
The ambiant temperature (second temperature sense)					
Voltage Sense 1	Sensors	Volt	basic		
The voltage measured by the sens	e 1. Can be use	d for battery s	ymmetry		
measurement. Calculation can be done	with the PLC				
Voltage Sense 2	Sensors	Volt	basic		
The voltage measured by the sense	e 2. Can be use	d for battery s	ymmetry		
measurement. Calculation can be done	with the PLC				
Voltage Sense 3	Sensors	Volt	basic		
The voltage measured by the sense	e 3. Can be use	d for battery s	ymmetry		
measurement. Calculation can be done	with the PLC				
Digital Input 4 Counter	Sensors		basic		
The counter value of the digital input 4.					
	System Loss With Optimisation Estimation of the losses with optimisation Rectifier Model Used For Calculation The rectifier model used Smart Energy Savings Estimation of the losses with optimisation Ambient Temperature The ambiant temperature (second temperature of the voltage measured by the sense measurement. Calculation can be done of the voltage measured by the sense measurement. Calculation can be done of the voltage of the voltage of the sense measurement. Calculation can be done of the voltage of the sense measurement. Calculation can be done of the voltage of the sense measurement. Calculation can be done of the voltage of the sense measurement. Calculation can be done of the voltage of the sense measurement. Calculation can be done of the voltage of the sense measurement. Calculation can be done of the voltage of the sense measurement. Calculation can be done of the voltage of the sense measurement. Calculation can be done of the voltage of the sense measurement. Calculation can be done of the voltage of the sense measurement. Calculation can be done of the voltage of the sense measurement. Calculation can be done of the voltage of the sense measurement. Calculation can be done of the voltage of the sense measurement. Calculation can be done of the voltage of the sense measurement. Calculation can be done of the voltage of the sense measurement. Calculation can be done of the voltage of the sense measurement.	Estimation of the losses with optimisation Rectifier Model Used For Calculation Smart Energy The rectifier model used Smart Energy Savings Smart Energy Estimation of the losses with optimisation Ambient Temperature Sensors The ambiant temperature (second temperature sense) Voltage Sense 1 Sensors The voltage measured by the sense 1. Can be used measurement. Calculation can be done with the PLC Voltage Sense 2 Sensors The voltage measured by the sense 2. Can be used measurement. Calculation can be done with the PLC Voltage Sense 3 Sensors The voltage measured by the sense 3. Can be used measurement. Calculation can be done with the PLC Voltage Sense 3 Sensors The voltage measured by the sense 3. Can be used measurement. Calculation can be done with the PLC Digital Input 4 Counter Sensors	System Loss With Optimisation Estimation of the losses with optimisation Rectifier Model Used For Calculation Smart Energy The rectifier model used Smart Energy Savings Smart Energy Watt Estimation of the losses with optimisation Ambient Temperature Sensors degree C The ambiant temperature (second temperature sense) Voltage Sense 1 Sensors Volt The voltage measured by the sense 1. Can be used for battery s measurement. Calculation can be done with the PLC Voltage Sense 2 Sensors Volt The voltage measured by the sense 2. Can be used for battery s measurement. Calculation can be done with the PLC Voltage Sense 3 Sensors Volt The voltage measured by the sense 2. Can be used for battery s measurement. Calculation can be done with the PLC Voltage Sense 3 Sensors Volt The voltage measured by the sense 3. Can be used for battery s measurement. Calculation can be done with the PLC Voltage Input 4 Counter Sensors Sensors		

Con	fig Table						
<u>Id</u>	Name	<u>Group</u>	<u>Unit</u>	Range: Min/Max (default)	<u>License</u>		
1	DC Bus Float Voltage at 25 degC	Bus Voltage	Volt	40/60 (54)	basic		
	The floating dc bus voltage of th	e system at 25	Celsius de	gree			
2	DC Bus Voltage Extra Low	Bus Voltage	Volt	40/60 (45)	basic		
	The bus voltage under which the	alarm 'DC 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	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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	Hysteresis				
	The voltage hysteresis on the al	 arm 'DC Rue V	oltage Extr	 	
10	LVD Disconnect Voltage	Bus Voltage	Volt	0/50 (43.2)	basic
10	The dc bus voltage under which allows preserving the battery life	the battery	must be di	sconnected of the	1
11	LVD Disconnect Delay	Bus Voltage	second	1/2000 (1)	basic
• •	The delay in second before disc			. ,	l .
	configured disconnected voltage	. This avoids d	isconnectio	n during a low bus	
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.	•	-	u .
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	rectifier 1 and 3		of the rectifier must	be coma
31	Battery Charge Current Limit	Battery	Ampere	0.5/1000 (1000)	basic
	The maximal battery current with the bus voltage in order to satisfication to satisfication of the satisfication o	sfy this condition			
32	Battery String Capacity	Battery	A I-		
			Ah	3/1000 (100)	basic
1	The battery capacity in Ah.	,	An	3/1000 (100)	basic
33	The battery capacity in Ah. Battery Temperature Low	Battery	I	-100/20 (0)	basic
33		Battery	degree C	-100/20 (0)	basic
33 34	Battery Temperature Low	Battery	degree C	-100/20 (0)	basic
	Battery Temperature Low The temperature under which th	Battery e alarm 'Batter Battery	degree C y Temperat degree C	-100/20 (0) ure Too Low' must 5/100 (40)	basic be set. basic
	Battery Temperature Low The temperature under which th Battery Temperature High The temperature over which the Battery Temperature	Battery e alarm 'Batter Battery alarm 'Battery	degree C y Temperat degree C	-100/20 (0) ure Too Low' must 5/100 (40)	basic be set. basic
34	Battery Temperature Low The temperature under which th Battery Temperature High The temperature over which the Battery Temperature Hysteresis	Battery e alarm 'Battery Battery alarm 'Battery Battery	degree C y Temperat degree C Temperatu degree C	-100/20 (0) cure Too Low' must 5/100 (40) re Too High' must b	basic be set. basic se set. basic
34	Battery Temperature Low The temperature under which th Battery Temperature High The temperature over which the Battery Temperature	Battery e alarm 'Battery Battery alarm 'Battery Battery	degree C y Temperat degree C Temperatu degree C	-100/20 (0) cure Too Low' must 5/100 (40) re Too High' must b	basic be set. basic se set. basic
34	Battery Temperature Low The temperature under which the Battery Temperature High The temperature over which the Battery Temperature Hysteresis The hysteresis on the 'Battery Low' alarms.	Battery e alarm 'Battery Battery alarm 'Battery Battery	degree C y Temperat degree C Temperatu degree C	-100/20 (0) cure Too Low' must 5/100 (40) re Too High' must b	basic be set. basic se set. basic
34 35	Battery Temperature Low The temperature under which the Battery Temperature High The temperature over which the Battery Temperature Hysteresis The hysteresis on the 'Battery Low' alarms. Minimal Current For	Battery e alarm 'Battery Battery alarm 'Battery Battery Temperature T Battery	degree C y Temperate degree C Temperatu degree C oo High' ar	-100/20 (0) cure Too Low' must 5/100 (40) re Too High' must b 0/10 (2) nd 'Battery Tempera	basic be set. basic be set. basic ature Too

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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]==:/	10000
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	ı
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	ty to discharge.	If 30 is se	et, 30% of the batte	ry will be
	discharged during the test	1	T	1	1
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	3/100 (1000)	battery
	The current at which the bat monitoring regulates the bus vomust be of course higher than the state of the current at which the bat monitoring regulates the bat monitoring regulates the current at which the bat monitoring regulates the current at which the bat monitoring regulates the current at which the bat monitoring regulates the current at which the bat monitoring regulates the bat monitoring regulates the bat monitoring regulates the bat monitoring regulates the bat monitoring regulates the bat monitoring regulates the bus volumes to be at monitoring regulates the bus volumes to be at monitoring regulates the bus volumes to be at monitoring regulates.	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 witl parameter is not taken into account				tart. This
83	Smart Energy Boolear Condition	Smart Energy		121-125	asset
	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		1
86	of rectifier in remote off. Battery LVD Node Id	LVD		True/False (False)	basic
86		<u> </u>	nic LVDs, c	, ,	basic

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				Breaker Open	
	The name of the digital input 1			Dioditor 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	ed alarm is set.		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	T		T	T
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 of		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 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. 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		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 To	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 alarm table 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	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

7.2.12 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	ription 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 s			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 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	

1.1	m Table		
<u>Id</u>	<u>Name</u>	Severity Type (Level)	Set/Clear Delay
1	DC Bus Extra Low	major (6)	5/2
	The bus voltage is extra low. The alarm is configuration parameter 'DC Bus Voltage alarm : 'DC Bus Voltage Extra Low 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 se configuration parameter 'DC Bus Voltage 'DC Bus Voltage Low Hysteresis'		
3	DC Bus High	minor (4)	5 / 2
	The bus voltage is high. The alarm is se configuration paramenter 'DC Bus Voltage 'DC Bus Voltage High Hysteresis'		
4	DC Bus Extra High	major (6)	5/2
	The bus voltage is extra high. The alarm is configuration paramenter 'DC Bus Voltage alarm : 'DC Bus Voltage Extra High Hystere	e Extra High'. There is a	
5	DC Bus Voltage Sense Failure	major (6)	5 / 2
	The DC bus voltage sense is defective. 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		of rectifiers in AC
	failure is greater than 0. Some rectifiers open breaker, a real phase failure, or by a		y be caused by an
8			y be caused by an
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, at 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 plants 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 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) va	lue is inferior to -500 uni	ts 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 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. Thi different to configuration parameter 'Digital I		gital input value is
31	Digital Input 7	none (0)	5 / 2
	This alarm is related to digital input 7. Thi different to configuration parameter 'Digital I		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 rectifi	er in this dc system			
32	Number Of Present Rectifier	Rectifiers		basic	
	The actual number of present rectifier in	this dc system	•	•	
33	Number Of Absent Rectifier	Rectifiers		basic	
	The actual number of absent rectifier in	this dc system	•	•	
34	Number Of Active Rectifier	Rectifiers		basic	
	The actual number of active rectifier in	this dc system. An a	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	ire.		•
36	Number Of DC-Fail Rectifier	Rectifiers		basic
	The actual number or rectifier with DC Fa	ailure.	l	
37	Number Of Remote Off Rectifier	Rectifiers		basic
	The actual number or rectifier in remote	off.	l	l
38	Number Of Over Temperature Rectifier	Rectifiers		basic
	The actual number or rectifier in OVer Te	emperature.		
41	Mains Phase 1 Voltage	Mains	Volt	basic
	The voltage on AC phase 1			
42	Mains Phase 2 Voltage	Mains	Volt	basic
	The voltage on AC phase 2			
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 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	<u>-</u>		•
71	Battery Temperature	Battery	degree C	basic
	The battery temperature	T	1	_
72	Battery Test State	Battery		basic
	This is about the result of the last NEVER_TESTED, SUCCESS, FAILED_VBUS_TOO_LOW, FAILED_LVD_OP	ON_GOING, LOAD_TOO_LOW,	FAILED_TIM	,
73	Battery Test Discharged Capacity Ratio		%	basic
	This is the battery capacity, in percent,	discharged during t	he last battery te	st. This

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	value is updated at the end of the batter	y 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	ry test.
75	Battery Test Final Voltage	Battery	%	basic
	This is the bus voltage at the end of the end of the battery test.	last battery test. Thi	s value is updated	d at the
81	Previous Battery Test State	Battery		basic
	The result of the previous battery test			
82	Minutes Since Last Test Battery	Battery		basic
	The number of minute without battery te	st		
91	Battery Charge Capacity	Battery	%	basic
	The battery charge capacity, calculated	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 cur	rent, in Ampere * sec	ond	
94	Battery Current Integration	Battery	Ah	basic
	Actual value of the integration of the cur	•		1
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 E	fficiency Optimization	1	
122	System Loss Without Optimisation	Smart Energy	Watt	under dev
	Estimation of the losses without optimisa	ation		1
123	System Loss With Optimisation	Smart Energy	Watt	under dev
	System Loss With Optimisation Estimation of the losses with optimisatio	Smart Energy	Watt	under
123	System Loss With Optimisation	Smart Energy	Watt	under
	System Loss With Optimisation Estimation of the losses with optimisatio	Smart Energy	Watt	under dev
	System Loss With Optimisation Estimation of the losses with optimisatio Rectifier Model Used For Calculation	Smart Energy	Watt	under dev
124	System Loss With Optimisation Estimation of the losses with optimisatio Rectifier Model Used For Calculation The rectifier model used	Smart Energy Smart Energy Smart Energy		under dev asset
124	System Loss With Optimisation Estimation of the losses with optimisatio Rectifier Model Used For Calculation The rectifier model used Smart Energy Savings	Smart Energy Smart Energy Smart Energy		under dev asset
124 125	System Loss With Optimisation Estimation of the losses with optimisatio Rectifier Model Used For Calculation The rectifier model used Smart Energy Savings Estimation of the losses with optimisatio Ambient Temperature The ambiant temperature (second temperature)	Smart Energy Smart Energy Smart Energy Smart Energy Sensors	Watt	under dev asset asset
124 125	System Loss With Optimisation Estimation of the losses with optimisatio Rectifier Model Used For Calculation The rectifier model used Smart Energy Savings Estimation of the losses with optimisatio Ambient Temperature	Smart Energy Smart Energy Smart Energy Smart Energy Sensors	Watt	under dev asset asset
124 125 151 161	Estimation of the losses with optimisation Rectifier Model Used For Calculation The rectifier model used Smart Energy Savings Estimation of the losses with optimisatio Ambient Temperature The ambiant temperature (second temperature Voltage Sense 1 The voltage measured by the sense measurement. Calculation can be done	Smart Energy Smart Energy Smart Energy Sensors Erature sense) Sensors e 1. Can be used with the PLC	Watt degree C Volt for battery sys	under dev asset asset basic basic mmetry
124 125 151	System Loss With Optimisation Estimation of the losses with optimisatio Rectifier Model Used For Calculation The rectifier model used Smart Energy Savings Estimation of the losses with optimisatio Ambient Temperature The ambiant temperature (second temperature voltage Sense 1) The voltage measured by the sense	Smart Energy Smart Energy Smart Energy Smart Energy Sensors erature sense) Sensors e 1. Can be used	Watt degree C	under dev asset asset basic basic
124 125 151 161	Estimation of the losses with optimisation Rectifier Model Used For Calculation The rectifier model used Smart Energy Savings Estimation of the losses with optimisatio Ambient Temperature The ambiant temperature (second temperature Voltage Sense 1 The voltage measured by the sense measurement. Calculation can be done	Smart Energy Smart Energy Smart Energy Sensors erature sense) Sensors e 1. Can be used with the PLC Sensors e 2. Can be used	Watt degree C Volt for battery sys	under dev asset asset basic basic mmetry basic
124 125 151 161	Estimation of the losses with optimisation Rectifier Model Used For Calculation The rectifier model used Smart Energy Savings Estimation of the losses with optimisatio Ambient Temperature The ambiant temperature (second temperature voltage Sense 1 The voltage measured by the sense measurement. Calculation can be done voltage Sense 2 The voltage measured by the sense sen	Smart Energy Smart Energy Smart Energy Sensors erature sense) Sensors e 1. Can be used with the PLC Sensors e 2. Can be used	Watt degree C Volt for battery sys	under dev asset asset basic basic mmetry basic
124 125 151 161	Estimation of the losses with optimisation Rectifier Model Used For Calculation The rectifier model used Smart Energy Savings Estimation of the losses with optimisatio Ambient Temperature The ambiant temperature (second temperature 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	Smart Energy Smart Energy Smart Energy Sensors Erature sense) Sensors e 1. Can be used with the PLC Sensors e 2. Can be used with the PLC Sensors e 3. Can be used	Watt degree C Volt d for battery synthetic	under dev asset asset basic mmetry basic mmetry basic
124 125 151 161	Estimation of the losses with optimisation Rectifier Model Used For Calculation The rectifier model used Smart Energy Savings Estimation of the losses with optimisatio Ambient Temperature The ambiant temperature (second temperature voltage Sense 1 The voltage measured by the sense measurement. Calculation can be done voltage Sense 2 The voltage measured by the sense measurement. Calculation can be done voltage Sense 3 The voltage measured by the sense measurement. Calculation can be done voltage Sense 3 The voltage measured by the sense s	Smart Energy Smart Energy Smart Energy Sensors Erature sense) Sensors e 1. Can be used with the PLC Sensors e 2. Can be used with the PLC Sensors e 3. Can be used	Watt degree C Volt d for battery synthetic	under dev asset asset basic mmetry basic mmetry 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	40/60 (54)	basic	
	The floating dc bus voltage of th		1	Ĭ	Г	
2			Volt	40/60 (45)	basic	
	The bus voltage under which the			1	T	
3	DC Bus Voltage Extra Low Hysteresis	_	Volt	0/5 (1)	basic	
	The voltage hysteresis on the al			1	I	
4		Bus Voltage	Volt	40/60 (48)	basic	
	The bus voltage under which the	e alarm 'DC Bu	s Voltage L	ow' is set.		
5	Hysteresis	Bus Voltage	Volt	0/5 (0.5)	basic	
	The voltage hysteresis on the al		oltage Low	T	T	
6	DC Bus Voltage High	Bus Voltage	Volt	40/60 (56.5)	basic	
	The bus voltage over which the	alarm 'DC Bus	Voltage Hig	/oltage High' is set.		
7	Hysteresis	Bus Voltage	Volt	0/5 (0.5)	basic	
	The voltage hysteresis on the al		oltage High	T	1	
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				T	
10	LVD Disconnect Voltage			0/50 (43.2)	basic	
	The dc bus voltage under which the battery must be disconnected of the bus. T allows preserving the battery life. The load will be unpowered.					
11	LVD Disconnect Delay				basic	
	The delay in second before disconnecting the battery if the dc bus voltage is unconfigured disconnected voltage. This avoids disconnection during a low bus train					
21	Temperature Compensation Slope	Temperature Compensatio n	mV/degre e	-1000/0 (-72)	basic	
	The slope of the battery temperature compensation in mv/degree. For a 48V system, -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		0/100 (0)	basic	

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Rectifier Model Rectifiers	basic basic basic basic ring regulates ring equal to the basic basic ust be set. basic				
Forced Remote Off Rectifers Rectifiers A list of rectifier which are forced in remote off. The id of the rectifier in separated. Ex: 1,3 will maintain rectifier 1 and 3 off. Rectifier CAN Node IDs Rectifiers Rectifier Ids Declared Rectifiers No information	basic basic basic basic basic basic basic basic basic basic basic basic basic st be set. basic st be set.				
A list of rectifier which are forced in remote off. The id of the rectifier in separated. Ex: 1,3 will maintain rectifier 1 and 3 off. 28 Rectifier CAN Node IDs Rectifiers Range No information 29 Rectifier Ids Declared No information 31 Battery Charge Current Limit Battery The maximal battery current when the battery is charging. The monitor the bus voltage in order to satisfy this condition. This parameter is ofter nominal battery capacity divided by 10. 32 Battery String Capacity The battery capacity in Ah. 33 Battery Temperature Low The temperature under which the alarm 'Battery Temperature Too Low' materials altery The temperature over which the alarm 'Battery Temperature Too High' must be alarm. 35 Battery Temperature Battery Temperature Too High' must be alarm. 36 Minimal Current For Battery Discharging Alarm The minimal discharging current to set the 'Battery On Discharge' alarm. 37 Current Hysteresis For Battery Discharging Alarm Ampere O/500 (1)	basic basic basic basic basic ing regulates n equal to the basic basic ust be set. basic ust be set. st be set.				
A list of rectifier which are forced in remote off. The id of the rectifier in separated. Ex: 1,3 will maintain rectifier 1 and 3 off. 28 Rectifier CAN Node IDs Rectifiers Range No information 29 Rectifier Ids Declared No information 31 Battery Charge Current Limit Battery The maximal battery current when the battery is charging. The monitor the bus voltage in order to satisfy this condition. This parameter is ofter nominal battery capacity divided by 10. 32 Battery String Capacity The battery capacity in Ah. 33 Battery Temperature Low The temperature under which the alarm 'Battery Temperature Too Low' materials altery The temperature over which the alarm 'Battery Temperature Too High' must be alarm. 35 Battery Temperature Battery Temperature Too High' must be alarm. 36 Minimal Current For Battery Discharging Alarm The minimal discharging current to set the 'Battery On Discharge' alarm. 37 Current Hysteresis For Battery Discharging Alarm Ampere O/500 (1)	basic basic basic basic basic ing regulates n equal to the basic basic ust be set. basic ust be set. st be set.				
Separated. Ex: 1,3 will maintain rectifier 1 and 3 off.	basic basic basic basic ing regulates in equal to the basic basic ust be set. basic ust be set.				
Range No information	basic basic ing regulates n equal to the basic basic ust be set. basic ust be set.				
Rectifier Ids Declared Rectifiers No information	basic basic basic basic basic ust be set. basic basic				
No information Battery Charge Current Limit Battery Ampere 0.5/3250 (1000)	basic basic basic basic basic ust be set. basic basic				
Battery Charge Current Limit Battery Ampere 0.5/3250 (1000) The maximal battery current when the battery is charging. The monitor the bus voltage in order to satisfy this condition. This parameter is ofter nominal battery capacity divided by 10. Battery String Capacity Battery Ah 3/6500 (100) The battery capacity in Ah.	basic basic ust be set. basic ust be set.				
The maximal battery current when the battery is charging. The monitor the bus voltage in order to satisfy this condition. This parameter is ofter nominal battery capacity divided by 10. 32 Battery String Capacity Battery Ah 3/6500 (100) The battery capacity in Ah. 33 Battery Temperature Low Battery degree C -100/20 (0) The temperature under which the alarm 'Battery Temperature Too Low' mage and the temperature over which the alarm 'Battery Temperature Too High' must be alarm 'Battery Temperature Too High' must be alarm alarm and the sattery Temperature Too High' must be alarm ala	basic basic ust be set. basic ust be set.				
the bus voltage in order to satisfy this condition. This parameter is ofter nominal battery capacity divided by 10. 32 Battery String Capacity Battery Ah 3/6500 (100) The battery capacity in Ah. 33 Battery Temperature Low Battery degree C -100/20 (0) The temperature under which the alarm 'Battery Temperature Too Low' material Battery Temperature Too Low' material Battery Temperature Too High' muture Too High' and 'Battery Temperature Too High' and '	basic basic ust be set. basic ust be set.				
The battery capacity in Ah. 33 Battery Temperature Low Battery degree C -100/20 (0) The temperature under which the alarm 'Battery Temperature Too Low' m 34 Battery Temperature High Battery degree C 5/100 (40) The temperature over which the alarm 'Battery Temperature Too High' mu 35 Battery Temperature Battery degree C 0/10 (2) Hysteresis The hysteresis on the 'Battery Temperature Too High' and 'Battery Tem Low' alarms. 36 Minimal Current For Battery Ampere 0/5000 (3) Discharging Alarm The minimal discharging current to set the 'Battery On Discharge' alarm. 37 Current Hysteresis For Battery Ampere 0/500 (1) Discharging Alarm	basic ust be set. basic ust be set.				
Battery Temperature Low Battery degree C -100/20 (0) The temperature under which the alarm 'Battery Temperature Too Low' mage Battery Temperature High Battery degree C 5/100 (40) The temperature over which the alarm 'Battery Temperature Too High' must Battery Temperature Battery degree C 0/10 (2) Hysteresis The hysteresis on the 'Battery Temperature Too High' and 'Battery Temperature Indicates The hysteresis on the 'Battery Temperature Too High' and 'Battery Temperature Indicates Ampere 0/5000 (3) Discharging Alarm Discharging Current to set the 'Battery On Discharge' alarm. Current Hysteresis For Battery Ampere 0/500 (1) Discharging Alarm Discha	ust be set. basic ust be set.				
The temperature under which the alarm 'Battery Temperature Too Low' mode and the state of the st	ust be set. basic ust be set.				
Battery Temperature High Battery degree C 5/100 (40) The temperature over which the alarm 'Battery Temperature Too High' mu 35 Battery Temperature Battery degree C 0/10 (2) Hysteresis The hysteresis on the 'Battery Temperature Too High' and 'Battery Temperature alarms. 36 Minimal Current For Battery Ampere 0/5000 (3) Discharging Alarm The minimal discharging current to set the 'Battery On Discharge' alarm. 37 Current Hysteresis For Battery Ampere 0/500 (1)	basic ust be set.				
The temperature over which the alarm 'Battery Temperature Too High' mu 35 Battery Temperature Battery degree C	ıst be set.				
Battery Temperature Battery degree C 0/10 (2)					
Hysteresis The hysteresis on the 'Battery Temperature Too High' and 'Battery Tem Low' alarms. 36 Minimal Current For Battery Ampere 0/5000 (3) The minimal discharging current to set the 'Battery On Discharge' alarm. 37 Current Hysteresis For Battery Ampere 0/500 (1) Discharging Alarm	hasic				
Low' alarms. 36 Minimal Current For Battery Ampere 0/5000 (3) The minimal discharging current to set the 'Battery On Discharge' alarm. 37 Current Hysteresis For Battery Ampere 0/500 (1) Discharging Alarm	Jacolo				
Discharging Alarm The minimal discharging current to set the 'Battery On Discharge' alarm. Current Hysteresis For Battery Ampere 0/500 (1) Discharging Alarm	perature Too				
37 Current Hysteresis For Battery Ampere 0/500 (1) Discharging Alarm	basic				
Discharging Alarm					
	basic				
The bustomed on the ID-Ham. On Dischause I starte					
The hysteresis on the 'Battery On Discharge' alarm.					
40 Number of Battery String Battery 1-3	basic				
The Number of Battery String in the system					
41 Shunt Rating At 60mV Battery Ampere 25/5000 (250)	basic				
The rating of the battery shunt at 60mV.					
42 Battery 2 Charge Current Battery 2 Ampere 0.5/3250 (1000 Limit	,				
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.	1.500.0				
44 Shunt Rating At 60mV Battery 2 Ampere 25/5000 (250)	ı				
The rating of the battery shunt at 60mV.	1				
45 Battery 3 Charge Current Battery 3 Ampere 0.5/3250 (1000 Limit	basic				
The maximal battery current when the battery is charging. The monitor	basic				

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	the bus volt nominal bat	•		•	on. This pa	arameter is often ed	qual to the
46	Battery 3 S			Battery 3	Ah	3/6500 (100)	basic
	The battery			,			
47	Shunt Ratin			Battery 3	Ampere	25/5000 (250)	basic
<u>-</u>	The rating o				1		10000
51	Boost Auto		,	Boost		False/False (False)	battery
		went un	der the co			at during a mains ton Low Voltage'. T	
52	Boost Activ	ation Lo	w Voltage	Boost	Volt	43/50 (46)	battery
	The voltage	under wh	ich the boo	ost mode can b	oe activated	d.	
53	Boost Term	nination V	oltage	Boost	Volt	50/58 (56.4)	battery
	The voltage	over which	h the syste	em must go ba	ck to floati	ng mode.	
54	Boost Term		-	Boost	Ampere	0/100 (4)	battery
	The battery	charging of	current und	der which the s	system mus	st go back to floating	mode.
55	Boost Term			Boost	minute	10/240 (120)	battery
	The time in	minute aft	er which th	ne system mus	t go back i	n floating mode.	
70	Battery Tes			Battery Test	Volt	30/60 (46)	battery
				test must be		()	, ,
71				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 Tes			Battery Test	day	0/3000 (0)	battery
The number of days between two automatically started battery test. If set to 0, the battery test is not started automatically. The user can restart or force this test.							
73	Battery Current	Test [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 Discharge	Test Current	Minimal	Battery Test	Ampere	2/90 (2)	battery
	The battery too low.	current u	nder which	the battery te	est must be	stopped because	the load is
75	Battery Tes	t Time O	ut	Battery Test	minute	1/5000 (10)	battery
	The timeout	in minute	after whic	h the battery te	est must be	e stopped.	
76	Battery Minutes Failure	Test R Without		Battery Test	minute	0/5000 (1440)	battery
				out mains failu unt when the b		r to allow a battery is forced.	start. This
83	Smart E Condition	nergy	Boolean	Smart Energy		121-125	asset
	This is the bound of rectifier in			nich allows or r	not to auto	matically optimize tl	ne numbe

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86	Battery LVD Node Id	LVD		Truo/Ealco (Ealco)	basic	
			nia I V/Da la	True/False (False)	Dasic	
This is a list of the node id of the Smart Electronic LVDs, coma sep 91 Digital Input 1 Name Digital Inputs Distribut			Distribution	basis		
91	Digital input 1 Name	Digital Inputs		Breaker Open	basic	
	The name of the digital input 1					
92	•	y Digital Inputs		True/False (True)	basic	
_	Closed			(1100)		
	True/False value defining if the	e digital input 1	is normally	closed. If this digit	al input is	
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		1	<u> </u>	I	
94	Closed	y Digital Inputs		True/False (True)	basic	
	True/False value defining if the			closed. If this digit	al input is	
95	not in this default state, the rela			Digital Innut C	boois	
95	Digital Input 3 Name	Digital Inputs		Digital Input 3	basic	
96	The name of the digital input 3 Digital Input 3 Normall	y Digital Inputs	<u> </u>	Truo/Foloo /Truo	basis	
90	Closed	y Digital Inputs		True/False (True)	basic	
	True/False value defining if the digital input 3 is normally closed. If this digital in					
	not in this default state, the rela			oloooda ii tiilo digit	ол. н. р олг но	
97	Digital Input 4 Name	Digital Inputs		Digital Input 4	basic	
	The name of the digital input 4	•				
98	Digital Input 4 Normall Closed	y Digital Inputs		True/False (True)	basic	
True/False value defining if the digital input 4 is normally closed. If this dig					al input io	
					ai iriput is	
	not in this default state, the rela	ated alarm is set			-	
99	not in this default state, the relable Digital Input 5 Name			Digital Input 5	basic	
99	not in this default state, the rela	ated alarm is set			-	
99	not in this default state, the relable Digital Input 5 Name The name of the digital input 5	ated alarm is set			·	
	not in this default state, the relationship in the relationship in the name of the digital input 5 Digital Input 5 Normall Closed True/False value defining if the	Digital Inputs Digital Inputs p Digital Inputs e digital input 5	is normally	Digital Input 5 True/False (True)	basic	
100	not in this default state, the relationship in the name of the digital input 5 Digital Input 5 Normall Closed True/False value defining if the not in this default state, the relationship in the not in this default state, the relationship in the not in this default state, the relationship in the not in this default state, the relationship in the not in this default state, the relationship in the not in this default state, the relationship in the notation in this default state, the relationship in the notation in the notation in this default state, the relationship in the notation in the notation in the notation in the notation in this default state, the relationship in the notation in the not	Digital Inputs Digital Inputs Digital Inputs digital input 5 ated alarm is set.	is normally	Digital Input 5 True/False (True) closed. If this digit	basic basic al input is	
	not in this default state, the relationship in the name of the digital input 5 Digital Input 5 Normall Closed True/False value defining if the not in this default state, the relationship is the not in this default of Name	Digital Inputs Digital Inputs p Digital Inputs e digital input 5	is normally	Digital Input 5 True/False (True)	basic	
100	not in this default state, the relationship in the name of the digital input 5 Digital Input 5 Normall Closed True/False value defining if the not in this default state, the relationship in the name of the digital input 6	Digital Inputs Digital Inputs Digital Inputs digital input 5 ated alarm is set. Digital Inputs	is normally	Digital Input 5 True/False (True) closed. If this digit Digital Input 6	basic basic al input is basic	
100	not in this default state, the relationship in the name of the digital input 5 Digital Input 5 Normall Closed True/False value defining if the not in this default state, the relationship in the name of the digital input 6	Digital Inputs Digital Inputs Digital Inputs digital input 5 ated alarm is set.	is normally	Digital Input 5 True/False (True) closed. If this digit	basic basic al input is	
100	not in this default state, the relationship in the name of the digital input 5 Digital Input 5 Normall Closed True/False value defining if the not in this default state, the relationship in the name of the digital input 6 Digital Input 6 Normall	pigital Inputs digital Inputs digital Inputs digital Input 5 ated alarm is set Digital Inputs y Digital Inputs	is normally	Digital Input 5 True/False (True) closed. If this digit Digital Input 6 True/False (True)	basic basic al input is basic basic	
100	not in this default state, the relationship in the name of the digital input 5 Digital Input 5 Normall Closed True/False value defining if the not in this default state, the relationship in the name of the digital input 6 Digital Input 6 Normall Closed	pigital Inputs digital Inputs digital Inputs digital input 5 ated alarm is set. Digital Inputs pigital Inputs y Digital Inputs digital Inputs digital Inputs digital Inputs	is normally is normally	Digital Input 5 True/False (True) closed. If this digit Digital Input 6 True/False (True)	basic basic al input is basic basic	
100	not in this default state, the relationship in the name of the digital input 5 Digital Input 5 Normall Closed True/False value defining if the not in this default state, the relationship in the name of the digital input 6 Digital Input 6 Normall Closed True/False value defining if the Closed	pigital Inputs digital Inputs digital Inputs digital input 5 ated alarm is set. Digital Inputs pigital Inputs y Digital Inputs digital Inputs digital Inputs digital Inputs	is normally is normally	Digital Input 5 True/False (True) closed. If this digit Digital Input 6 True/False (True)	basic basic al input is basic basic	
100 101 102	not in this default state, the relationship in the name of the digital input 5 Digital Input 5 Normall Closed True/False value defining if the not in this default state, the relationship in the name of the digital input 6 Digital Input 6 Normall Closed True/False value defining if the not in this default state, the relationship in the not in the not in this default state, the relationship in the not in the	pigital Inputs digital Inputs pigital Inputs digital input 5 ated alarm is set Digital Inputs pigital Inputs pigital Inputs digital Inputs digital input 6 ated alarm is set	is normally is normally	Digital Input 5 True/False (True) closed. If this digit Digital Input 6 True/False (True) closed. If this digit	basic basic al input is basic basic al input is	
100 101 102	not in this default state, the relationship in the name of the digital input 5 Digital Input 5 Normall Closed True/False value defining if the not in this default state, the relationship in the name of the digital input 6 Digital Input 6 Normall Closed True/False value defining if the not in this default state, the relationship in this default state, the relationship in this default state, the relationship in the name of the digital input 7	pigital Inputs digital Inputs pigital Inputs digital input 5 ated alarm is set Digital Inputs pigital Inputs pigital Inputs digital Inputs digital input 6 ated alarm is set	is normally is normally	Digital Input 5 True/False (True) closed. If this digit Digital Input 6 True/False (True) closed. If this digit	basic basic basic basic basic al input is	
100 101 102	not in this default state, the relationship in the name of the digital input 5 Digital Input 5 Normall Closed True/False value defining if the not in this default state, the relationship in the name of the digital input 6 Digital Input 6 Normall Closed True/False value defining if the name of the digital input 6 Digital Input 6 Normall Closed True/False value defining if the not in this default state, the relationship in the name of the digital input 7 Digital Input 7 Name	pigital Inputs Digital Inputs	is normally is normally is normally	Digital Input 5 True/False (True) closed. If this digit Digital Input 6 True/False (True) closed. If this digit Digital Input 7 True/False (True)	basic basic basic basic basic basic basic basic basic	
100 101 102	not in this default state, the relationship in the name of the digital input 5 Digital Input 5 Normall Closed True/False value defining if the not in this default state, the relationship in the name of the digital input 6 Digital Input 6 Normall Closed True/False value defining if the not in this default state, the relationship in the not in this default state, the relationship in the name of the digital input 7 Digital Input 7 Name The name of the digital input 7 Digital Input 7 Normall Closed True/False value defining if the Closed	pigital Inputs Digital Inputs	is normally is normally is normally	Digital Input 5 True/False (True) closed. If this digit Digital Input 6 True/False (True) closed. If this digit Digital Input 7 True/False (True)	basic basic basic basic basic basic basic basic basic	

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106	Digital Input 8 Normally Closed	Digital Inputs		True/False (True)	basic	
	True/False value defining if the digital input 8 is normally closed. If this digital input is not in this default state, the related alarm is set.					
111	Dry 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	e boolean	
113	Dry Alarm 3 Alternative Boolean Condition	Dry Alarms		False	plc	
	Another Boolean condition to accondition is detailed in the PLC		larm relay :	3. The way to define	e boolean	
114	Dry Alarm 4 Alternative Boolean Condition	Dry Alarms		False	plc	
	Another Boolean condition to activate the dry alarm relay 4. The way to define boolean condition is detailed in the PLC chapter.					
131	Ambient Temperature Low	Sensors	degree C		basic	
	The temperature under which the	e alarm 'Ambia	nt Tempera	ture Too Low' must	be set.	
132	Ambient Temperature High	Sensors	degree C		basic	
	The temperature under which th	1		ature I oo Low' must		
133	Ambient Temperature Hysteresis		degree C		basic	
	The hysteresis on the 'Battery Low' alarms.			nd 'Battery Tempera	ature Too	
141	AC Voltage Low	Mains	Volt		basic	
	The AC voltage under which the	alarm AC Low	is set.	T	1	
142	AC Voltage High	Mains	Volt		basic	
	The AC voltage over which the	alarm AC High i	s 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 fPLC chapter. The PLC data elements of the syntax filters are the syntax filters.	or writting math	nematical e	xpression is describ		
145	AC Phase 2 PLC	Mains	lit of the ca		basic	
143	This is the mathematical expre	l .	l alculation o	l f ΔC nhase 2 If e		
	rectifiers are used. The syntax f PLC chapter. The PLC data eler	or writting math	nematical e	xpression is describ		
146	AC Phase 3 PLC	Mains			basic	
	This is the mathematical expression of the calculation of AC phase 3. If empty, trectifiers are used. The syntax for writting mathematical expression is described in telephone. The PLC data element is the result of the calculation.					
151	PLD Conditition	PLD			basic	
	The PLC conditon to enable the	l .	<u> </u>	I	1 2 - 2 - 2	
521	Read Access User Numbers	Allowed	-	(1,2,3,4,5)	basic	
			i .	1 \ · 1 - 1 - 1 - 1 - 1		

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		Users				
	The list of the user numbers which have read access to this equipment. The user numbers are coma separated. The accepted user id are 1,2,3,4 and 5. Ex: 1,3,4					
522	Write Access User Numbers	Allowed Users		()	basic	
	The list of the user numbers which have write access to this equipment. This 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	prised between 10 a	ınd 4000	
602	Event Table Length By Rectifier	Event		10/4000 (100)	basic	
	orised between 10 a	een 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 programmalarms. Alarm elements are automatically added in the alarm table. The aparameters are added to set the PLC Alarm Name and the PLC Alarm Bocondition. In order to use these functionalities, you need a licence with the module					

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

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	Reset the state of the last battery test. If an alarm 'Battery Last Test Failed' is set, the alarm will be cleared.				
51	Save Configuration In MCU	Save	basic		
	Save configuration parameters in the MCU microcontroller. If comp@s is not prese 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	. 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 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 divalues				

7.2.13 MCU3096M6

Device Information	
Name	MCU3096M6
Short Description	MCU for rack 6x3000W +96V
Long Description	
Hardware Reference	9413 063 07041
Software Reference	SOFT 000091 XX
Equipment Type	Monitoring Control Unit
ETSI Level	/site/energy_system/dc_system

Desc	Description Table					
<u>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			

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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 Example 19 mode is BATTERY TEST					
2	DC Bus Low	minor (4)	5 / 2			
	The bus voltage is low. The alarm is se configuration parameter 'DC Bus Voltage 'DC Bus Voltage Low Hysteresis'					
3	DC Bus High	minor (4)	5 / 2			
	The bus voltage is high. The alarm is se configuration paramenter 'DC Bus Voltage 'DC Bus Voltage High Hysteresis'					
4	DC Bus Extra High	major (6)	5/2			
	The bus voltage is extra high. The alarm is configuration paramenter 'DC Bus Voltage alarm : 'DC Bus Voltage Extra High Hystere	e Extra High'. There is a				
5	DC Bus Voltage Sense Failure	major (6)	5 / 2			
	The DC bus voltage sense is defective. 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					
8						
8	open breaker, a real phase failure, or by a	rectifier failure. warning (2) hases. No rectifier is in	y be caused by an 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	y be caused by an 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	rectifier failure. 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	rectifier failure. 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) wowered correctly. The Eth DC Failure is higher	10 / 2 AC failure. If MCU Hysteresis is added 10 / 2 in AC failure. The M6. Therefore, an limit. 5 / 2 CC fail alarm of the than 0, there is no			

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40	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 p	parameter : 'Minimal		
13	Battery Last Test Failed	minor (4)	5 / 2		
	The last battery test did not succeed and vibe replaced.	was not cancelled. May	be the battery should		
14	Battery On Discharge	minor (4)	10 / 2		
	The battery is discharging. This means rectifiers. This alarm is inactive when the sometime is an hysteresis corresponding to hysteresis'.	system in AC Failure or	during a battery test. discharging current		
17	Battery LVD Relay Open	major (6)	5 / 2		
	The battery Low Voltage Disconnector signal, like MCU 1848 or MCU 1x6, the a asks to open the LVD				
18	Battery Temperature Too High	minor (4)	5 / 2		
	The temperature of the battery is too high hysteresis corresponding to battery parameters.	<u> </u>			
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) value is inferior to -500 units meaning that it is not connected or defective.				
21	Ambient Temperature Too High	minor (4)	5 / 2		
	The ambient temperature is too high an hysteresis corresponding to parameter 'An only activated on MCU master types 301 0948 and 3048M6.	nbiant temperature hyst	eresis'. This alarm is		
22	Ambient Temperature Too Low	minor (4)	5 / 2		
	The ambient temperature is too low and hysteresis corresponding to parameter 'An only activated on MCU master types 301	nbiant temperature hyst	eresis'. This alarm is		
	0948 and 3048M6.		., , , ,		
23	O948 and 3048M6. Ambient Temperature Sensor Fail	minor (4)	5/2		
23		. ,	5 / 2		
23 25	Ambient Temperature Sensor Fail The ambiant temperature sensor (NTC) va	. ,	5 / 2		
	Ambient Temperature Sensor Fail The ambiant temperature sensor (NTC) vanot connected or defective.	major (6)	5 / 2 nits meaning that it is		
	Ambient Temperature Sensor Fail The ambiant temperature sensor (NTC) vanot connected or defective. Distribution Breaker Open This alarm is related to digital input 1. The sensor Fail The ambient Temperature Sensor (NTC) vanot connected or defective.	major (6)	5 / 2 nits meaning that it is		
25	Ambient Temperature Sensor Fail The ambiant temperature sensor (NTC) vanot connected or defective. Distribution Breaker Open This alarm is related to digital input 1. The different to configuration parameter 'Digital'	major (6) nis alarm is activated if Input Alarm Value' minor (4) nis alarm is activated if	5 / 2 nits meaning that it is 5 / 2 digital input value is		
25	Ambient Temperature Sensor Fail The ambiant temperature sensor (NTC) vanot connected or defective. Distribution Breaker Open This alarm is related to digital input 1. Tidifferent to configuration parameter 'Digital Battery Breaker Open This alarm is related to digital input 2. Tile	major (6) nis alarm is activated if Input Alarm Value' minor (4) nis alarm is activated if	5 / 2 nits meaning that it is 5 / 2 digital input value is		
25 26	Ambient Temperature Sensor Fail The ambiant temperature sensor (NTC) vanot connected or defective. 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 different to configuration parameter 'Digital different to configuration parameter 'Digital different to configuration parameter 'Digital	major (6) nis alarm is activated if Input Alarm Value' minor (4) nis alarm is activated if Input Alarm Value' none (0) nis alarm is activated if Input Alarm Value'	5 / 2 nits meaning that it is 5 / 2 digital input value is 5 / 2 digital input value is		
25 26	Ambient Temperature Sensor Fail The ambiant temperature sensor (NTC) vanot connected or defective. 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 different to configuration parameter 'Digital Digital Input 3 This alarm is related to digital input 3. The different is related to digital input 3.	major (6) nis alarm is activated if Input Alarm Value' minor (4) nis alarm is activated if Input Alarm Value' none (0) nis alarm is activated if Input Alarm Value'	5 / 2 nits meaning that it is 5 / 2 digital input value is 5 / 2 digital input value is		

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	1					
	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. This alarm is activated if digital input value 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 no	t in remote off.		
35	Number Of AC-Fail Rectifier	Rectifiers		basic
	The actual number or rectifier in AC Failu			Juli 10 10 10 10 10 10 10 1
36	Number Of DC-Fail Rectifier	Rectifiers		basic
	The actual number or rectifier with DC Fa			Daoio
37	Number Of Remote Off Rectifier	Rectifiers		basic
0.	The actual number or rectifier in remote of			basio
38	Number Of Over Temperature Rectifier	I		basic
	The actual number or rectifier in OVer Te	emperature.		I.
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			I
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		1	
52	Load Current	Load	Ampere	basic
	Estimation of the load current consumption		F	
61	Battery Input Current	Battery	Ampere	basic
	Measurement of the battery input currer discharging	•	•	
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_FAILED_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 This value is updated at the end of the battery		ring the last batte	ery test.
75	Battery Test Final Voltage	Battery	%	basic
	This is the bus voltage at the end of the end of the battery test.	last battery test. Thi	s value is updated	d at the
81	Previous Battery Test State	Battery		basic
	The result of the previous battery test			·
	The result of the previous battery test			
82	Minutes Since Last Test Battery	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	I	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 e 2. Can be used with the PLC Sensors e 3. Can be used	for battery sy	mmetry basic	

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	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 Voltage Extra Low' is set.					
3	DC Bus Voltage Extra Low	Bus Voltage	Volt	0.5/10 (2)	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	65/105 (84)	basic
	The bus voltage under which the	•		, ,	10000
5		Bus Voltage	Volt	0.5/10 (1)	basic
	Hysteresis	_ as remage			
	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		Bus Voltage	Volt	0.5/10 (1)	basic
	Hysteresis	IDO D. V	11 11 1		
	The voltage hysteresis on the al				1
8		Bus Voltage	Volt	70/105 (101.5)	basic
	The bus voltage over which the				<u>.</u>
9	DC Bus Voltage Extra High Hysteresis	Bus Voltage	Volt	0.5/10 (1)	basic
	The voltage hysteresis on the al	l arm 'DC Rus V	oltage Extra	L High	
10	LVD Disconnect Voltage		Volt	65/87.5 (75.6)	basic
	The dc bus voltage under which			. ,	
	allows preserving the battery life	•			DUO. 11110
11	LVD Disconnect Delay	Bus Voltage	second	1/4000 (1)	basic
	The delay in second before disc	onnecting the l	cattery if the	e dc bus voltage is	under the
	configured disconnected voltage	. This avoids d	isconnectio	n during a low bus t	ransient.
21	Temperature Compensation		•	-2000/0 (-126)	basic
	Slope	Compensatio n	е		
	The slope of the battery temper		ation in my	 degree For a 48V	evetem -
	72mV/degree is often used.	ature compens	alion in miv	degree. For a 40 v	System, -
22		Temperature	Volt	0/20 (6)	basic
	Temperature Compensation	Compensatio		- (-)	
		n			
	The maximal allowed positive co		ı	T	1
23		Temperature	Volt	-20/0 (-6)	basic
	Temperature Compensation	Compensatio n			
	The maximal allowed negative of				
25	Minimal Number Of Present			0/100 (0)	basic
	Rectifiers	ricolinero		0/100 (0)	basio
	The minimal number of rectifi	er which must	be prese	nt. If there is less	present
	rectifiers, the alarm 'Missing Red	tifiers' is set.			
26	Rectifier Model	Rectifiers			basic
	The rectifier model	<u> </u>	T	T	
27	Forced Remote Off Rectifers	l .			basic
	A list of rectifier which are force			of the rectifier must	be coma
0.4	separated. Ex: 1,3 will maintain			0.5/4000 /4000	l. ·
31	Battery Charge Current Limit		Ampere	0.5/1000 (1000)	basic
	The maximal battery current withe bus voltage in order to satis				
		COHOIII			

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	nominal batt	ery capacity div	vided	by 10.			
32		ng Capacity		Battery	Ah	3/1000 (100)	basic
-		capacity in Ah.		Ballory	<i> </i>	0/1000 (100)	Daoio
33	1	perature Low	,	Battery	degree C	-100/20 (0)	basic
00		•				ture Too Low' must	
34	•	perature High		Battery	· ·	5/100 (40)	basic
34						re Too (40) re Too High' must b	L
25	·					<u>_</u>	ı
35	Battery Hysteresis	Tempera		•	degree C	0/10 (2)	basic
	Low' alarms.					nd 'Battery Tempera	ature Ioo
36	Minimal Discharging	Current g Alarm	For	Battery	Ampere	0/1000 (3)	basic
	The minimal	discharging cu	ırrent	to set the 'Batt	ery On Dis	charge' alarm.	
37	Current Discharging	Hysteresis g Alarm	For	Battery	Ampere	0/50 (1)	basic
	The hysteres	sis on the 'Batte	ery O	n Discharge' al	arm.		
41	Shunt Ratin	g At 60mV		Battery	Ampere	25/5000 (250)	basic
	The rating of	the battery sh	unt a	t 60mV.			1
51	Boost Auto	matic		Boost		False/False (False)	battery
52	Boost Activ	battery faster.			Volt	75.25/87.5 (80.5)	battery
				ost mode can b Boost			1
53		ination Voltag			Volt	87.5/101.5 (98.7)	battery
				em must go bad		Ť	I
54		ination Curre		Boost	Ampere	0/100 (4)	battery
	 		nt und	l '	1	t go back to floating	T
55		ination Time		Boost	minute	10/240 (120)	battery
	t		ıch th		, <u> </u>	floating mode.	Τ.
70		t End Voltage		Battery Test	Volt	52.5/105 (80.5)	battery
		•		test must be s		T	1.
71		t Discharge R			%	0/100 (0)	battery
		the battery ca during the test	pacity	y to discharge.	If 30 is se	et, 30% of the batte	ery will be
72	Battery Tes	t Interval		Battery Test	day	0/3000 (0)	battery
		battery test is				attery test. If this par user can remotely	
73	Battery Current	Test Disch	arge	Battery Test	Ampere	10/5000 (2000)	battery
	monitoring re		ıs vo	ltage in order to		during a battery is condition. The loa	
74	Battery Discharge (imal	Battery Test	Ampere	2/90 (2)	battery

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	The battery current under which too low.			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 wh	ich allows or n	nt to autom	l natically ontimize the	number
	of rectifier in remote off.	non anowo or n	or to daton	iatioany optimize the	3 110111001
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		10 010 10
91	Digital Input 1 Name	Digital Inputs		Distribution	basic
.		- Igital Inputs		Breaker Open	240.0
	The name of the digital input 1		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	l		•	ı
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
33	The name of the digital input 3	Digital Impats		Digital Input 0	basic
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
91	<u> </u>	Digital Imputs		Digital Input 4	Dasic
00	The name of the digital input 4 Digital Input 4 Normally	Digital Inguita		Truo/Eoloo /Truo	basis
98	Closed	Digital Inputs		True/False (True)	basic
	True/False value defining if the not in this default state, the relat	•	•	closed. If this digita	al input is
99	Digital Input 5 Name	Digital Inputs		Digital Input 5	basic
	The name of the digital input 5				
100	Digital Input 5 Normally Closed	Digital Inputs		True/False (True)	basic
	True/False value defining if the not in this default state, the relat			closed. If this digita	al input is
101	Digital Input 6 Name	Digital Inputs		Digital Input 6	basic
	The name of the digital input 6	•	•	•	

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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	: T	ı	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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	rectifiers are used. The syntax f PLC chapter. The PLC data eler	•		•	oed in the
145	AC Phase 2 PLC	Mains			basic
	This is the mathematical expre rectifiers are used. The syntax f PLC chapter. The PLC data eler	or writting math	nematical e	xpression is descrit	
146	AC Phase 3 PLC	Mains			basic
	This is the mathematical expre rectifiers are used. The syntax f PLC chapter. The PLC data eler	or writting math	nematical e	xpression is describ	
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 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 an	d use the
601	Event Table Length	Event		10/4000 (100)	basic
	The maximum length of the table	e. The value mu	ust be comp	orised between 10 a	and 4000
602	Event Table Length By Rectifier	Event		10/4000 (100)	basic
	The maximum length of the table	e. The value mu	ust be comp	orised between 10 a	and 4000
901	Number Of PLC Data	PLC		(0)	plc
	The number of PLC data. Every equipment can manage up to 20 user programmable data. Data elements are automatically added in the data table. Configuration parameters are added to set the PLC Data Name and the PLC Data Mathematical calculation. In order to use these functionalities, you need a license with the 'PLC' module				
902	Number Of PLC Alarm	PLC		(0)	plc
	The number of PLC alarm. Ever alarms. Alarm elements are a parameters are added to set 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	<u> </u>	
21	Correct Battery Current Offset	Battery	basic
	No information		
31	Reset Battery Current Integration	Battery	basic
	Reset the integration of the battery current.		
41	Reset Last Battery Test State	Battery	battery
	Reset the state of the last battery test. If an alarm alarm will be cleared.	n 'Battery Last Test Failed' i	s set, the
51	Save Configuration In MCU	Save	basic
	Save configuration parameters in the MCU micro the system will be correctly managed.	controller. If comp@s is no	t present,
61	Set Digital Input 4 Counter Value	Counters	basic
	Set Counter Value		
501	Clear My Events	Event	basic
	By writing '1' to this control element, all the events	of this equipment will be cle	eared.
502	Clear All Events	Event	basic
	By writing '1' to this control element, all the events of all the sub-equipments will be cleared.	of this equipment and all the	ne events
511	Add Event	Event	basic
	This control element adds an event of severity nor to this control element	ne. The event name is the te	ext written
512	Add Major Event	Event	basic
	This control element adds an event of severity written to this control element	major. The event name is	the text
521	Reset Default Names And Groups	Advanced	basic
	This control element resets all the element Name values	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>	Name	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	

Alar	m Table		
<u>Id</u>	<u>Name</u>	Severity Type (Level)	Set/Clear Delay
1	DC Bus Extra Low	major (6)	5/2
	The bus voltage is extra low. The alarm is configuration parameter 'DC Bus Voltage alarm : 'DC Bus Voltage Extra Low 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 configuration parameter 'DC Bus Voltage L'DC Bus Voltage Low Hysteresis'		
3	DC Bus High	minor (4)	5/2
	The bus voltage is high. The alarm is set configuration paramenter 'DC Bus Voltage 'DC Bus Voltage High Hysteresis'		
4	DC Bus Extra High	major (6)	5/2
	The bus voltage is extra high. The alarm is configuration paramenter 'DC Bus Voltage alarm : 'DC Bus Voltage Extra High Hystere	Extra High'. There is a	
5	DC Bus Voltage Sense Failure	major (6)	5/2
	The DC bus voltage sense is defective. unconfigured.	The DC bus voltage	is unconnected or
6	Mains Failure	minor (4)	5/2
	The number of active rectifiers is equal to 0 greater than 0.	and the number of rectif	iers in AC failure is
7	Mains Partial Failure	minor (4)	10 / 2
	The number of active rectifiers is greater 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
O	manis Low	···a······9 (-)	10 / 2

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	master type is 30110, 3096 or 3048M6, to the voltage lower limit	an hysteresis _phase	e123Hysteresis 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 3	3048M6. Therefore, a
10	One Rectifier Failure	minor (4)	5 / 2
	One rectifier must be replaced or is no rectifier is set. The number of rectifier mains failure, and the 'More Than One F	with DC Failure is hig	gher than 0, there is n
11	More Than One Rectifier Failure	major (6)	10 / 2
	There is no mains failure and number of	rectifier failures is grea	ater than 1.
12	Missing Rectifiers	major (6)	5 / 2
	There is not enough rectifier according Number Of Rectifier'	ng to the configuratio	n 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. M	laybe the battery should
14	Battery On Discharge	minor (4)	10 / 2
	rectifiers. This alarm is inactive when the There is an hysteresis corresponding hysteresis'.	to battery parameter	'Is discharging currer
17	Battery LVD Relay Open	major (6)	5 / 2
			l e e e e e e e e e e e e e e e e e e e
	The battery Low Voltage Disconnecto signal, like MCU 1848 or MCU 1x6, the asks to open the LVD	r is open. On Syster	ms without LVD_Statu
18	signal, like MCU 1848 or MCU 1x6, the	r is open. On Syster	ms without LVD_Statu
18	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	r is open. On Syster alarm is present only minor (4) gh and is greater than meter 'Temperature hy	if the signal LVD_Statu- if the signal LVD_COM 5/2 -600 units. There is any steresis'.
18 19	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 Syster alarm is present only minor (4) gh and is greater than meter 'Temperature hy	if the signal LVD_Statu- if the signal LVD_COM 5/2 -600 units. There is any steresis'.
	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	minor (4) minor (4) meter 'Temperature hy minor (4) minor (4)	swithout LVD_Staturif the signal LVD_COM 5 / 2 -600 units. There is all steresis'. 5 / 2 -600 units. There is all steresis'.
19	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	minor (4) minor (4) meter 'Temperature hy minor (4) minor (4)	swithout LVD_Statu if the signal LVD_COM 5 / 2 -600 units. There is a steresis'. 5 / 2 -600 units. There is a
19	signal, like MCU 1848 or MCU 1x6, the asks to open the LVD Battery Temperature Too High The temperature of the battery is too highysteresis 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.	minor (4) minor (4) minor (4) minor (4) minor (4) minor (4) minor (4) minor (4) mater 'Temperature hy minor (4) minor (4)	swithout LVD_Statu if the signal LVD_COM 5 / 2 -600 units. There is a verteresis'. 5 / 2 -600 units. There is a verteresis'. 5 / 2 0 units meaning that it is
19	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	minor (4) minor (4) minor (4) minor (4) minor (4) minor (4) minor (4) minor (4) mater 'Temperature hy minor (4) minor (4)	swithout LVD_Statu if the signal LVD_COM 5 / 2 -600 units. There is a system of the signal LVD_COM 5 / 2 -600 units. There is a system of the signal LVD_COM 5 / 2 -600 units. There is a system of the signal LVD_COM 5 / 2 5 / 2
19	signal, like MCU 1848 or MCU 1x6, the asks to open the LVD Battery Temperature Too High The temperature of the battery is too highysteresis 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.	minor (4) minor (4) minor (4) minor (4) minor (4) minor (4) minor (4) mand is greater than meter 'Temperature hy minor (4) minor (4) value is inferior to -500 minor (4) and is greater than -600 minor (4) minor (4)	swithout LVD_Staturif the signal LVD_COM 5 / 2 -600 units. There is a steresis'. 5 / 2 -600 units. There is a steresis'. 5 / 2 -600 units meaning that it is 5 / 2 -600 units meaning that it is 5 / 2 -600 units. There is a steresis'. This alarm is
19 20 21	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 'A only activated on MCU master types 3	minor (4) minor (4) minor (4) minor (4) minor (4) minor (4) minor (4) mand is greater than meter 'Temperature hy minor (4) minor (4) value is inferior to -500 minor (4) and is greater than -600 minor (4) minor (4)	swithout LVD_Statu if the signal LVD_COM 5 / 2 -600 units. There is a verteresis'. 5 / 2 -600 units. There is a verteresis'. 5 / 2 -600 units meaning that it is 5 / 2 -600 units meaning that it is 5 / 2 -600 units. There is a verteresis'. This alarm is
19 20 21	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.	minor (4) minor (4) minor (4) minor (4) minor (4) minor (4) mand is greater than meter 'Temperature hy minor (4)	swithout LVD_Staturif the signal LVD_COM 5 / 2
18 19 20 21 22	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 hy minor (4)	systeresis'. 5 / 2 -600 units. There is all ysteresis'. 5 / 2 -600 units. There is all ysteresis'. 5 / 2 -600 units. There is all ysteresis'. 5 / 2 -600 units meaning that it is

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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 'Digita	al Input Alarm Value'				
26	Battery Breaker Open	minor (4)	5 / 2			
	This alarm is related to digital input 2. Idifferent to configuration parameter 'Digital'		ligital input value is			
27	Digital Input 3	none (0)	5 / 2			
	This alarm is related to digital input 3. different to configuration parameter 'Digital'		ligital input value is			
28	Digital Input 4	none (0)	5 / 2			
	This alarm is related to digital input 4. different to configuration parameter 'Digital'		ligital input value is			
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 activated if c				
29 30	This alarm is related to digital input 5.	This alarm is activated if c				
	This alarm is related to digital input 5. different to configuration parameter 'Digital'	This alarm is activated if cal Input Alarm Value' none (0) This alarm is activated if c	ligital input value is			
	This alarm is related to digital input 5. different to configuration parameter 'Digital Digital Input 6 This alarm is related to digital input 6.	This alarm is activated if cal Input Alarm Value' none (0) This alarm is activated if c	ligital input value is			
30	This alarm is related to digital input 5. I different to configuration parameter 'Digital Digital Input 6 This alarm is related to digital input 6. I different to configuration parameter 'Digital Input 6.	This alarm is activated if cal Input Alarm Value' none (0) This alarm is activated if cal Input Alarm Value' none (0) This alarm is activated if cal Input Alarm Value	5 / 2 5 / 2 5 / 2 5 / 2 5 / 2 5 / 2			
30	This alarm is related to digital input 5. I different to configuration parameter 'Digital Digital Input 6 This alarm is related to digital input 6. I different to configuration parameter 'Digital Digital Input 7 This alarm is related to digital input 7.	This alarm is activated if cal Input Alarm Value' none (0) This alarm is activated if cal Input Alarm Value' none (0) This alarm is activated if cal Input Alarm Value	5 / 2 5 / 2 5 / 2 5 / 2 5 / 2 5 / 2			

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 pov	wer		
24	Rectifiers Output Current Max	Rectifiers	Ampere	basic
	The sum of the deliverable rectifier cur	rent		•
31	Number Of Rectifier Max	Rectifiers		basic
	The maximum possible number of rect	ifier 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	n 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 it		active rectifier is a	rectifie
35	Number Of AC-Fail Rectifier	Rectifiers		basic
	The actual number or rectifier in AC Fa	ailure.		
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 remot	e off.		
38	Number Of Over Temperatu Rectifier	re Rectifiers		basic
	The actual number or rectifier in OVer	Temperature.		
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 consump	tion		
52	Load Current	Load	Ampere	basic
	Estimation of the load current consump	otion		
61	Battery Input Current	Battery	Ampere	basic
	Measurement of the battery input curr discharging	ent. A negative value	means that the b	attery is
62	Battery Input Power	Battery	Watt	basic
	Measurement of the battery input pov discharging	ver. 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 NEVER_TESTED, SUCCESS, FAILED_VBUS_TOO_LOW, FAILED_FAILED_CANCELED, FAILED_LVD_C	ON_GOING, D_LOAD_TOO_LOW,	FAILED_TII	MEOUT
73	Battery Test Discharged Capaci Ratio		%	basic
	This is the battery capacity, in percer	nt. discharged during	the last battery to	est This

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	value is updated at the end of the batter	v 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	hour, discharged du		l
75	Battery Test Final Voltage	Battery	%	basic
. •	This is the bus voltage at the end of the			l
81	end of the battery test. Previous Battery Test State	Battery		basic
0.	The result of the previous battery test	Battory		Dasio
82	Minutes Since Last Test Battery	Battery		basic
	The number of minute without battery te			<u> </u>
91	Battery Charge Capacity	Battery	%	basic
	The battery charge capacity, calculated	by integration of the	current.	I
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	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 Of Rectifier	Smart Energy		asset
	The optimal number of ON rectifier for E	fficiency Optimization	1	1
122	System Loss Without Optimisation	Smart Energy	Watt	under dev
	Estimation of the losses without optimisa	ation		
123	System Loss With Optimisation	Smart Energy	Watt	under dev
	Estimation of the losses with optimisatio	n		
124	Rectifier Model Used For Calculation	Smart Energy		asset
	The rectifier model used			
125	Smart Energy Savings	Smart Energy	Watt	asset
	Estimation of the losses with optimisatio		T	1
151	Ambient Temperature	Sensors	degree C	basic
	Ambient Temperature The ambiant temperature (second temperature)	Sensors erature sense)		basic
151 161	Ambient Temperature The ambiant temperature (second temperature Sense 1	Sensors erature sense) Sensors	Volt	basic
161	Ambient Temperature The ambiant temperature (second temperature Second	Sensors erature sense) Sensors e 1. Can be used with the PLC	Volt d for battery sy	basic basic mmetry
	Ambient Temperature The ambiant temperature (second temperature Second	Sensors erature sense) Sensors e 1. Can be used	Volt	basic
161	Ambient Temperature The ambiant temperature (second temperature Second	Sensors erature sense) Sensors e 1. Can be used with the PLC Sensors e 2. Can be used	Volt d for battery sy	basic basic mmetry basic
161	Ambient Temperature The ambiant temperature (second temperature (second temperature) Voltage Sense 1 The voltage measured by the sens measurement. Calculation can be done voltage Sense 2 The voltage measured by the sens	Sensors erature sense) Sensors e 1. Can be used with the PLC Sensors e 2. Can be used	Volt d for battery sy	basic basic mmetry basic
161 162	Ambient Temperature The ambiant temperature (second temperature) Voltage Sense 1 The voltage measured by the sense measurement. Calculation can be done voltage Sense 2 The voltage measured by the sense measurement. Calculation can be done measurement. Calculation can be done to the sense measurement.	Sensors erature sense) Sensors e 1. Can be used with the PLC Sensors e 2. Can be used with the PLC Sensors e 3. Can be used	Volt d for battery sy Volt d for battery sy Volt	basic mmetry basic mmetry
161 162	Ambient Temperature The ambiant temperature (second temperature) Voltage Sense 1 The voltage measured by the sense measurement. Calculation can be done voltage Sense 2 The voltage measured by the sense measurement. Calculation can be done voltage Sense 3 The voltage measured by the sense	Sensors erature sense) Sensors e 1. Can be used with the PLC Sensors e 2. Can be used with the PLC Sensors e 3. Can be used	Volt d for battery sy Volt d for battery sy Volt	basic mmetry basic mmetry
161 162 163	Ambient Temperature The ambiant temperature (second temperature) Voltage Sense 1 The voltage measured by the sense measurement. Calculation can be done with the voltage measured by the sense measurement. Calculation can be done woltage Sense 3 The voltage measured by the sense measurement. Calculation can be done measurement. Calculation can be done measurement. Calculation can be done	Sensors erature sense) Sensors e 1. Can be used with the PLC Sensors e 2. Can be used with the PLC Sensors e 3. Can be used with the PLC	Volt d for battery sy Volt d for battery sy Volt	basic mmetry basic mmetry basic mmetry

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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		Volt	60/120 (108)	basic
	The floating dc bus voltage of th		Celsius de	gree	T
2	<u> </u>	Bus Voltage	Volt	60/120 (90)	basic
	The bus voltage under which the				,
3	DC Bus Voltage Extra Low Hysteresis	Bus Voltage	Volt	0/10 (2)	basic
	The voltage hysteresis on the al	arm 'DC Bus V			.
4	DC Bus Voltage Low	Bus Voltage	Volt	60/120 (96)	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	0/10 (1)	basic
	The voltage hysteresis on the al	arm 'DC Bus V	oltage Low	T	
6	DC Bus Voltage High	Bus Voltage	Volt	60/120 (113)	basic
	The bus voltage over which the	alarm 'DC Bus	Voltage Hig	ph' is set.	
7	DC Bus Voltage High Hysteresis	Bus Voltage	Volt	0/10 (1)	basic
	The voltage hysteresis on the al	1	 	T	
8	DC Bus Voltage Extra High	Bus Voltage	Volt	60/120 (116)	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 al	arm 'DC Bus V	oltage Extra	a High	
10		Bus Voltage	Volt	0/100 (86.4)	basic
	The dc bus voltage under which allows preserving the battery life				ous. This
11	LVD Disconnect Delay	Bus Voltage	second	1/4000 (1)	basic
	The delay in second before disc configured disconnected voltage				
21	Temperature Compensation Slope		mV/degre e	-2000/0 (-144)	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	0/20 (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 c	ompensation.	•		•
25	Minimal Number Of Present Rectifiers	•		0/100 (0)	basic

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	The minimal number of rectifi		t be prese	nt. If there is less	present
	rectifiers, the alarm 'Missing Red		T	T	I
26	Rectifier Model	Rectifiers			basic
	The rectifier model	T	T	T	
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 satisfication to be a superior of the maximal battery capacity divided	sfy this condition			
32	Battery String Capacity	Battery	Ah	3/1000 (100)	basic
	The battery capacity in Ah.				
33	Battery Temperature Low	Battery	degree C	-100/20 (0)	basic
	The temperature under which th	e alarm 'Batter	y Temperat	ure Too Low' must I	oe set.
34	Battery Temperature High	Battery	degree C	5/100 (40)	basic
	The temperature over which the	alarm 'Battery	Temperatu	re Too High' must b	e set.
35	Battery Temperature Hysteresis	Battery	degree C	0/10 (2)	basic
	The hysteresis on the 'Battery Low' alarms.	Temperature T	oo High' ar	nd 'Battery Tempera	ature Too
36	Minimal Current For Discharging Alarm	Battery	Ampere	0/1000 (3)	basic
	The minimal discharging current	to set the 'Batt	ery On Disc	charge' alarm.	
37	Current Hysteresis For Discharging Alarm	Battery	Ampere	0/50 (1)	basic
	The hysteresis on the 'Battery 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 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	60/120 (92)	battery
	The voltage at which any battery		topped.		
71	Battery Test Discharge Ratio		%	0/100 (0)	battery
	The ratio of the battery capacit discharged during the test		If 30 is se	. ,	

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72	Pottony Toot Intonyol	Pottory Toot	dov	0/2000 (0)	hattanı
12	Battery Test Interval The number of days between tw		day	0/3000 (0)	battery
	set to 0, the battery test is not start or force this test.				
73	Battery Test Discharge Current	Battery Test	Ampere	10/5000 (2000)	battery
	The current at which the batt				
	monitoring regulates the bus vo	•	o satisfy thi	s condition. The loa	d current
74	must be of course higher than the Battery Test Minimal		A	0/00 /0)	la a 44 a
74	Battery Test Minimal Discharge Current	Battery Test	Ampere	2/90 (2)	battery
	The battery current under which	the battery te	st must be	stopped because th	ne load is
	too low.	·		· ·	
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.	
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	unt when the b		_	tart. This
83	Condition	Smart Energy		121-125	asset
	This is the boolean condition who f rectifier in remote off.		ot to autom	natically optimize the	e number
86	Battery LVD Node Id	LVD		\ /	basic
	This is a list of the node id of the	Smart Electro	nic LVDs, c	oma separated	1
91	Digital Input 1 Name	Digital Inputs		Distribution Breaker Open	basic
	The name of the digital input 1			T	
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	ed alarm is set		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		_	T	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 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	-	<u> </u>		·
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	digital input 5	is normally	closed. If this digital	al input is
	not in this default state, the relat	ed alarm is set	r T		T
101	Digital Input 6 Name	Digital Inputs		Digital Input 6	basic
	The name of the digital input 6				
102	Digital Input 6 Normally Closed	Digital Inputs		True/False (True)	basic
	True/False value defining if the not in this default state, the 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		·		
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	boolean
131	Ambient Temperature Low	Sensors	degree C		basic
	The temperature under which th	1		ture Too Low' must	be set.
132	Ambient Temperature High	Sensors	degree C		basic
	The temperature under which th			iture Too Low' must	l
133	Ambient Temperature Hysteresis	1	degree C		basic
	· ·	<u> </u>	1	i	i .

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	The hysteresis on the 'Battery'	Temperature T	oo High' ar	nd 'Battery Tempera	ature Too
4 / 4	Low' alarms.	Mains	Valt		bos!s
141	AC Voltage Low	Mains	Volt		basic
4.40	The AC voltage under which the		ı	<u> </u>	
142	AC Voltage High	Mains	Volt		basic
	The AC voltage over which the		1	<u> </u>	I
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 exprerectifiers are used. The syntax for PLC chapter. The PLC data elements of the plant of the p	for writting math ment is the resu	nematical e	xpression is describ	ped in the
146	AC Phase 3 PLC	Mains			basic
	This is the mathematical expre rectifiers are used. The syntax the PLC chapter. The PLC data elements	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 aur parameters 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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1 -1	A1	0	1:
<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 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	1	•
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 rwritten 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

Des	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 system monitoring					
12	Hardware Reference	Monitoring	basic			
	The hardware reference of the DC system monitoring					
14	Software Reference	Monitoring	asset			
	The serial number of the DC sy	stem monitoring				
16	Serial Number	Monitoring	asset			
	The serial number of the DC sy	stem monitoring				
18	Manufacturing Date	Monitoring	asset			
	The production date of the DC system monitoring					

Aları	n Table				
<u>Id</u>	<u>Name</u>	Severity Type (Level)	Set/Clear Delay		
1	DC Bus Extra Low	major (6)	5 / 2		
	The bus voltage is extra low. The alarm is set when the bus voltage is lower than the configuration parameter 'DC Bus Voltage Extra Low'. There is an hysteresis on the alarm: 'DC Bus Voltage Extra Low Hysteresis'. The alarm is not activated when DC mode is BATTERY TEST				
2	DC Bus Low	minor (4)	5 / 2		
	The bus voltage is low. The alarm is set configuration parameter 'DC Bus Voltage L 'DC Bus Voltage Low Hysteresis'				
3	DC Bus High	minor (4)	5 / 2		
	The bus voltage is high. The alarm is set configuration paramenter 'DC Bus Voltage I 'DC Bus Voltage High Hysteresis'				
4	DC Bus Extra High	major (6)	5 / 2		
	The bus voltage is extra high. The alarm is sometimes configuration paramenter 'DC Bus Voltage alarm: 'DC Bus Voltage Extra High Hysteres	Extra High'. There is an	9		
5	DC Bus Voltage Sense Failure	major (6)	5 / 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 equagreater than 0.	al to 0 and the number	of rectifiers in AC failure is
7	Mains Partial Failure	minor (4)	10 / 2
	The number of active rectifiers is greater than 0. Some rectifier open breaker, a real phase failure, or the state of the	fiers are in AC Failure	
8	Mains Low	warning (2)	10 / 2
	The main voltage is low on one or momaster type is 30110, 3096 or 3048N 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	nigher 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 gr	eater than 1.
12	Missing Rectifiers	major (6)	5/2
	There is not enough rectifier accord Number Of Rectifier'	ding to the configurat	ion parameter : 'Minima
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 best and the allege and the Third and		
	The battery is discharging. This me rectifiers. This alarm is inactive when there is an hysteresis corresponding hysteresis.	the system in AC Failu	re or during a battery test
17	rectifiers. This alarm is inactive when the There is an hysteresis corresponding hysteresis'.	the system in AC Failung to battery paramete	re or during a battery test er 'Is discharging curren
17	rectifiers. This alarm is inactive when the There is an hysteresis corresponding hysteresis'. Battery LVD Relay Open The battery Low Voltage Disconnections ignal, like MCU 1848 or MCU 1x6, the MCU 1x6 of MCU 1x6 or MCU 1x6.	the system in AC Failung to battery parameter major (6) stor is open. On Syst	re or during a battery test er 'Is discharging curren 5 / 2 rems without LVD_Status
17	rectifiers. This alarm is inactive when the There is an hysteresis corresponding hysteresis. Battery LVD Relay Open The battery Low Voltage Disconnections	the system in AC Failung to battery parameter major (6) stor is open. On Syst	re or during a battery test er 'Is discharging curren 5 / 2 rems without LVD_Status
	rectifiers. This alarm is inactive when the There is an hysteresis corresponding hysteresis'. Battery LVD Relay Open The battery Low Voltage Disconnecting signal, like MCU 1848 or MCU 1x6, the asks to open the LVD	major (6) minor (4) mithe system in AC Failure of the battery parameter major (6) minor (4) minor (4)	re or during a battery tester 'Is discharging curren 5 / 2 tems without LVD_Statustly if the signal LVD_CON 5 / 2 an -600 units. There is an
	rectifiers. This alarm is inactive when the There is an hysteresis corresponding hysteresis'. Battery LVD Relay Open The battery Low Voltage Disconnecting signal, like MCU 1848 or MCU 1x6, the asks to open the LVD Battery Temperature Too High The temperature of the battery is too	major (6) minor (4) mithe system in AC Failure of the battery parameter major (6) minor (4) minor (4)	re or during a battery tester 'Is discharging current 5 / 2 2
18	rectifiers. This alarm is inactive when the There is an hysteresis corresponding hysteresis'. Battery LVD Relay Open The battery Low Voltage Disconnect signal, like MCU 1848 or MCU 1x6, the asks to open the LVD Battery Temperature Too High The temperature of the battery is too hysteresis corresponding to battery page	major (6) tor is open. On System in AC Failure (6) tor is open. On System in AC Failure (6) tor is open. On System in AC Failure (7) minor (4) high and is greater that arameter 'Temperature (7) minor (4) low and is greater that	re or during a battery tester 'Is discharging current 5 / 2 rems without LVD_Statustry if the signal LVD_CON 5 / 2 an -600 units. There is an hysteresis'. 5 / 2 n -600 units. There is an incomplete the signal current 5 / 2 n -600 units. There is an incomplete the signal current 5 / 2 n -600 units. There is an incomplete the signal current 5 / 2 n -600 units. There is an incomplete the signal current 5 / 2 n -600 units. There is an incomplete the signal current 5 / 2 n -600 units. There is an incomplete the signal current 5 / 2 n -600 units. There is an incomplete the signal current 5 / 2 n -600 units. There is an incomplete the signal current 5 / 2 n -600 units. There is an incomplete the signal current 5 / 2 n -600 units. There is an incomplete the signal current 5 / 2 n -600 units. There is an incomplete the signal current 5 / 2 n -600 units. There is an incomplete the signal current 5 / 2 n -600 units. There is an incomplete the signal current 5 / 2 n -600 units. There is an incomplete the signal current 5 / 2 n -600 units. There is an incomplete the signal current 5 / 2 n -600 units. There is an incomplete the signal current 5 / 2 n -600 units. There is an incomplete the signal current 5 / 2 n -600 units. There is an incomplete the signal current 5 / 2 n -600 units. There is an incomplete the signal current 5 / 2 n -600 units. There is an incomplete the signal current 5 / 2 n -600 units. There is an incomplete the signal current 5 / 2 n -600 units. The signal current 5 / 2 n -600 units. The signal current 5 / 2 n -600 units. The signal current 5 / 2 n -600 units. The signal current 5 / 2 n -600 units. The signal current 5 / 2 n -600 units. The signal current 5 / 2 n -600 units. The signal current 5 / 2 n -600 units. The signal current 5 / 2 n -600 units. The signal current 5 / 2 n -600 units. The signal current 5 / 2 n -600 units. The signa
18 19	rectifiers. This alarm is inactive when the There is an hysteresis corresponding hysteresis'. Battery LVD Relay Open The battery Low Voltage Disconnect signal, like MCU 1848 or MCU 1x6, the asks to open the LVD Battery Temperature Too High The temperature of the battery is too hysteresis corresponding to battery particles. Battery Temperature Too Low The temperature of the battery is too	major (6) tor is open. On System in AC Failure (6) tor is open. On System in AC Failure (6) tor is open. On System in AC Failure (7) minor (4) high and is greater that arameter 'Temperature (7) minor (4) low and is greater that	re or during a battery tester 'Is discharging current 5 / 2 rems without LVD_Statustry if the signal LVD_CON 5 / 2 an -600 units. There is an hysteresis'. 5 / 2 n -600 units. There is an incomplete the signal current 5 / 2 n -600 units. There is an incomplete the signal current 5 / 2 n -600 units. There is an incomplete the signal current 5 / 2 n -600 units. There is an incomplete the signal current 5 / 2 n -600 units. There is an incomplete the signal current 5 / 2 n -600 units. There is an incomplete the signal current 5 / 2 n -600 units. There is an incomplete the signal current 5 / 2 n -600 units. There is an incomplete the signal current 5 / 2 n -600 units. There is an incomplete the signal current 5 / 2 n -600 units. There is an incomplete the signal current 5 / 2 n -600 units. There is an incomplete the signal current 5 / 2 n -600 units. There is an incomplete the signal current 5 / 2 n -600 units. There is an incomplete the signal current 5 / 2 n -600 units. There is an incomplete the signal current 5 / 2 n -600 units. There is an incomplete the signal current 5 / 2 n -600 units. There is an incomplete the signal current 5 / 2 n -600 units. There is an incomplete the signal current 5 / 2 n -600 units. There is an incomplete the signal current 5 / 2 n -600 units. There is an incomplete the signal current 5 / 2 n -600 units. There is an incomplete the signal current 5 / 2 n -600 units. There is an incomplete the signal current 5 / 2 n -600 units. The signal current 5 / 2 n -600 units. The signal current 5 / 2 n -600 units. The signal current 5 / 2 n -600 units. The signal current 5 / 2 n -600 units. The signal current 5 / 2 n -600 units. The signal current 5 / 2 n -600 units. The signal current 5 / 2 n -600 units. The signal current 5 / 2 n -600 units. The signal current 5 / 2 n -600 units. The signal current 5 / 2 n -600 units. The signa
18 19	rectifiers. This alarm is inactive when the There is an hysteresis corresponding hysteresis'. Battery LVD Relay Open The battery Low Voltage Disconned signal, like MCU 1848 or MCU 1x6, the asks to open the LVD Battery Temperature Too High The temperature of the battery is too hysteresis corresponding to battery paths and the battery is too hysteresis corresponding to battery paths and the battery is too hysteresis corresponding to battery paths and the battery is too hysteresis corresponding to battery paths.	major (6) tor is open. On System in AC Failure (6) tor is open. On System in AC Failure (7) minor (4) high and is greater that (7) minor (4) low and is greater that (7) low and is greater that (7) minor (4)	re or during a battery tester 'Is discharging current 5 / 2 tems without LVD_Statusty if the signal LVD_COM 5 / 2 an -600 units. There is an hysteresis'. 5 / 2 thysteresis'. 5 / 2 thysteresis'. 5 / 2 thysteresis'. 5 / 2
18 19 20	rectifiers. This alarm is inactive when the There is an hysteresis corresponding hysteresis'. Battery LVD Relay Open The battery Low Voltage Disconnecting signal, like MCU 1848 or MCU 1x6, the asks to open the LVD Battery Temperature Too High The temperature of the battery is too hysteresis corresponding to battery pattern and the properties of the battery is too hysteresis corresponding to battery pattern and the properties of the battery is too hysteresis corresponding to battery pattern and the properties of the battery is too hysteresis corresponding to battery pattern and the properties of the battery is too hysteresis corresponding to battery pattern and the properties of the battery is too hysteresis corresponding to battery pattern and the properties of the battery is too hysteresis corresponding to battery pattern and the properties of the battery is too hysteresis corresponding to battery pattern and the properties of the battery is too hysteresis corresponding to battery pattern and the properties of the battery is too hysteresis corresponding to battery pattern and the properties of the battery is too hysteresis corresponding to battery pattern and the properties of the battery is too hysteresis corresponding to battery pattern and the properties of the battery is too hysteresis corresponding to battery pattern and the properties of the battery is too hysteresis corresponding to battery pattern and the properties of the battery is too hysteresis corresponding to battery pattern and the properties of the battery is too hysteresis corresponding to battery pattern and the properties of the battery is too hysteresis corresponding to battery pattern and the properties of the battery is too hysteresis corresponding to battery pattern and the properties of the battery is too hysteresis corresponding to battery pattern and the properties of the battery is too hysteresis corresponding to battery pattern and the properties of the battery is too hysteresis corresponding to battery pattern and the properties	major (6) tor is open. On System in AC Failure (6) tor is open. On System in alarm is present on (4) high and is greater that trameter 'Temperature (7) low and is greater that trameter 'Temperature (4) low and is greater that trameter 'Temperature (4) with a continuous	re or during a battery tester 'Is discharging current 5 / 2 lems without LVD_Statustly if the signal LVD_COM 5 / 2 an -600 units. There is an hysteresis'. 5 / 2 lens without LVD_Statustly if the signal LVD_COM 5 / 2 an -600 units. There is an hysteresis'. 5 / 2 on units meaning that it is
18 19 20	rectifiers. This alarm is inactive when the There is an hysteresis corresponding hysteresis'. Battery LVD Relay Open The battery Low Voltage Disconnecting signal, like MCU 1848 or MCU 1x6, the asks to open the LVD Battery Temperature Too High The temperature of the battery is too hysteresis corresponding to battery part and the same of the battery is too hysteresis corresponding to battery part and the same of the battery is too hysteresis corresponding to battery part and the same of the battery is too hysteresis corresponding to battery part and the same of the battery is too hysteresis corresponding to battery part and the same of the battery is too hysteresis corresponding to battery part and the same of the battery temperature sensor (NTC not connected or defective.	major (6) tor is open. On System in AC Failure (6) tor is open. On System in alarm is present on (4) high and is greater that (7) low and is greater that (7) minor (4) low and is greater that (7) minor (4) you will be in a single of the control of the c	re or during a battery tester 'Is discharging current 5 / 2 rems without LVD_Statusty if the signal LVD_CON 5 / 2 ran -600 units. There is an hysteresis'. 5 / 2 ran -600 units. There is an hysteresis'. 5 / 2 ran -600 units. There is an hysteresis'. 5 / 2 ran -600 units. There is an hysteresis'. 5 / 2 ran -600 units. There is an hysteresis'. This alarm is
18	rectifiers. This alarm is inactive when the There is an hysteresis corresponding hysteresis'. Battery LVD Relay Open The battery Low Voltage Disconnect signal, like MCU 1848 or MCU 1x6, the asks to open the LVD Battery Temperature Too High The temperature of the battery is too hysteresis corresponding to battery parable battery Temperature Too Low The temperature of the battery is too hysteresis corresponding to battery parable 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	major (6) tor is open. On System in AC Failure (6) tor is open. On System in alarm is present on (4) high and is greater that (7) low and is greater that (7) minor (4) low and is greater that (7) minor (4) you will be in a single of the control of the c	re or during a battery tester 'Is discharging current 5 / 2 rems without LVD_Statusty if the signal LVD_CON 5 / 2 ran -600 units. There is an hysteresis'. 5 / 2 ran -600 units. There is an hysteresis'. 5 / 2 ran -600 units. There is an hysteresis'. 5 / 2 ran -600 units. There is an hysteresis'. 5 / 2 ran -600 units. There is an hysteresis'. This alarm is

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	only activated on MCU master types 30 0948 and 3048M6.	110, 3096, 30125, 0024,	0948, 0548, 0348,
23	Ambient Temperature Sensor Fail	minor (4)	5 / 2
	The ambiant temperature sensor (NTC) vanot connected or defective.	alue 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. T different to configuration parameter 'Digita		ligital input value is
26	Battery Breaker Open	minor (4)	5 / 2
	This alarm is related to digital input 2. T different to configuration parameter 'Digita		ligital input value is
27	Digital Input 3	none (0)	5 / 2
	This alarm is related to digital input 3. T different to configuration parameter 'Digita		ligital input value is
28	Digital Input 4	none (0)	5 / 2
	This alarm is related to digital input 4. T different to configuration parameter 'Digita		ligital input value is
29	Digital Input 5	none (0)	5 / 2
	This alarm is related to digital input 5. T different to configuration parameter 'Digita		ligital input value is
30	Digital Input 6	none (0)	5 / 2
	This alarm is related to digital input 6. T different to configuration parameter 'Digita		ligital input value is
31	Digital Input 7	none (0)	5 / 2
	This alarm is related to digital input 7. T different to configuration parameter 'Digita		ligital input value is
32	Digital Input 8	none (0)	5 / 2
	This alarm is related to digital input 8. T different to configuration parameter 'Digita		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	-	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					
	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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	5.11.55 VDUO 700 LOW 5.11.55			
	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	d at the
81	Previous Battery Test State	Battery		basic
	The result of the previous battery test	T	1	
82	Minutes Since Last Test Battery	Battery		basic
	The number of minute without battery te		1	I
91	Battery Charge Capacity	Battery	%	basic
00	The battery charge capacity, calculated		1	ī. ·
92	Calculated Autonomy	Battery	minute	basic
00	Calculation of the remaining autonomy	Dotton	As	basis
93	Battery Current Integration	Battery		basic
94	Actual value of the integration of the curl Battery Current Integration	Battery	Ah	basic
34	Actual value of the integration of the curr			Dasic
101	LVD State	LVD		basic
	Actual state of the LVD	1212		Daoio
121		Smart Energy		asset
	The optimal number of ON rectifier for E	L fficiency Optimization	า	
122	System Loss Without Optimisation	Smart Energy	Watt	under dev
	Estimation of the losses without optimisa	ntion		
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	1	1	
125	Smart Energy Savings	Smart Energy	Watt	asset
	Estimation of the losses with optimisation		T	T
151	Ambient Temperature	Sensors	degree C	basic
	The ambiant temperature (second temperature)	,	l	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 sens measurement. Calculation can be done		used 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 svstem must	go back in	floating mode.	
70		1	Volt	69/138 (105.8)	battery
	The voltage at which any battery			(100/100	Date. y
71	Battery Test Discharge Ratio		%	0/100 (0)	battery
	The ratio of the battery capacit discharged during the test	y to discharge.	If 30 is se	t, 30% of the batte	ry will be
72	Battery Test Interval	Battery Test	day	0/3000 (0)	battery
	The number of days between tw set to 0, the battery test is not start or force this test.				
73	Battery Test Discharge Current	Battery Test	Ampere	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	Ampere	2/90 (2)	battery
	Discharge Current				
	The battery current under which too low.	the battery te	st must be	stopped because tr	ie ioad is
75	Battery Test Time Out	Battery Test	minute	1/5000 (10)	battery
	The timeout in minute after which		l.	. ,	- Carron y
76		Battery Test	minute	0/5000 (1440)	battery
	Minutes Without Mains Failure	•		(**************************************	,
	The minimal time in minute with parameter is not taken into acco			,	tart. This
83	Condition	Smart Energy		121-125	asset
	This is the boolean condition who f rectifier in remote off.				
86		LVD	•	True/False (False)	basic
	This is a list of the node id of the	ı	nic LVDs, c	<u>'</u>	T
91	Digital Input 1 Name	Digital Inputs		Distribution Breaker Open	basic
	The name of the digital input 1	T	T	T	T
92	Closed	Digital Inputs		True/False (True)	basic
	True/False value defining if the not in this default state, the relat	ed alarm is set			
93	Digital Input 2 Name	Digital Inputs		Battery Breaker Open	basic
_	The name of the digital input 2	T	T	T	I
94	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	T	1	T	T
96	Digital Input 3 Normally	Digital Inputs		True/False (True)	basic

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	1						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	Dry Al	arm 4	Α .	lternative				False	plc
	Boolean Condition Another Boolean condition to activate the dry alarm relay 4. The way to define boolea condition is detailed in the PLC chapter.				e boolean				

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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 ¹ 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 6	element, the	e alarm settings and	d use the
601	Event Table Length	Event		10/4000 (100)	basic
	The maximum length of the table	e. The value mu	ust be comp	orised between 10 a	nd 4000
602	Event Table Length By Rectifier	Event		10/4000 (100)	basic
	The maximum length of the table	e. The value mi	ust be comp	orised between 10 a	nd 4000
901	Number Of PLC Data	PLC		(0)	plc
	The number of PLC data. Every data. Data elements are aut parameters are added to set the calculation. In order to use the module	omatically add ne PLC Data N 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	added in tl n Name ar	he alarm table. The the PLC Alarm	ne alarm Boolean

Con	Control Table						
<u>Id</u>	<u>Name</u>	<u>Group</u>	<u>Licens</u>				
			<u>e</u>				
1	Back To Float	DC Mode	basic				
	The dc system must go back in floating mode.						
2	Start Battery Test	DC Mode	battery				
	The dc system must start a battery test.						
3	Force Battery Test	DC Mode	battery				
	The dc system must force a battery test.						
4	Start Boost Mode DC Mode b						
	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 'Battery Last Test Failed' is set, the 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 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 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 values	s, 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, -48V 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 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	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	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 (With CAN capable rectifiers)			
2	Hardware Reference	Product Info	asset	
	The rectifier hardware reference. This corresponds to the Mitra 12NC (With CAN capable rectifiers)			
3	Hardware Revision	Product Info	asset	
	The rectifier hardware revision. (With CAN capable Rectifiers)			
4	Software Reference	Product Info	asset	
	The rectifier software reference. This corresponds to the Mitra 12NC (With CAN capable rectifiers)			
6	Serial Number	Product Info	asset	
	The rectifier serial number - Wb (With CAN capable rectifiers)			
8	Manufacturing Date	Product Info	asset	
	The rectifier production date (With CAN capable rectifiers)			
21	CAN Node Id	CAN Bus	basic	
	The CAN Bus Node ID			

Alarm Table				
<u>Id</u>	<u>Name</u>	Severity Type (Level)	Set/Clear Delay	
1	AC Failure	major (0)	5 / 2	
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	

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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>Id</u>	<u>Name</u>	Group	Unit	Licens
		-		<u>e</u>
1	Output Current	Output	Ampere	basic
	The current delivered by the rectifier			_
2	Output Power	Output	Watt	basic
	The power delivered by the rectifier			
3	Output Voltage	Output	Volt	basic
	The output voltage of the rectifier			_
4	Output Current Max	Output	Ampere	basic
	The maximal current deliverable by the for CAN capable rectifiers.	rectifier. This takes	into account the o	derating
5	Output Power Max	Output	Watt	basic
	The maximal power deliverable by the for CAN capable rectifiers.	rectifier. This takes	into account the 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	ble rectifiers)		
15	Service Time	General	second	asset
	The rectifier total service time, in second	(For CAN capable r	ectifiers)	_
16	Thermal Aging Time	General	second	asset
	The rectifier thermal aging time, in secon	nd (For CAN capable	rectifiers)	
17	Converted Energy	General	kJ	asset
	The total energy converted by the rect rectifiers)	ifier since the produ	ction. (For CAN	capable

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

7.3.4 CAR1024TP

Device Information	
Name	CAR1024TP
Short Description	1000W switched mode rectifier

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

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
	_		

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	nto account the o	derating

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 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)	ce. This corresponds to the	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>	<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 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 CAN capable rectifiers)			
14	Power Rating	General	%	asset
	The rectifier power rating (For CAN capa	able rectifiers)		
15	Service Time	General	second	asset
	The rectifier total service time, in second (For CAN capable 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 rectirectifiers)	ifier since the produ	ction. (For CAN o	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)	ce. This corresponds to the	ne Mitra 12NC (With CAN		
6	Serial Number	Product Info	asset		
	The rectifier serial number - Wb (With CAN capable rectifiers)				
8	Manufacturing Date	Product Info	asset		
	The rectifier production date (With CAN capable rectifiers)				
21	CAN Node Id	CAN Bus	basic		
	The CAN Bus Node ID				

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

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

Data	Table	_	_	
<u>Id</u>	<u>Name</u>	<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 CAN capable rectifiers)			
14	Power Rating	General	%	asset
	The rectifier power rating (For CAN capa	able rectifiers)		
15	Service Time	General	second	asset
	The rectifier total service time, in second	d (For CAN capable r	ectifiers)	
16	Thermal Aging Time	General	second	asset
	The rectifier thermal aging time, in seco	nd (For CAN capable	rectifiers)	
17	Converted Energy	General	kJ	asset
	The total energy converted by the recirectifiers)	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>	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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7.3.8 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>	<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 rectifier. This takes into account the derating for CAN capable rectifiers.			

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

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7.3.10 **CAR2648TN**

Device Information			
Name	CAR2648TN		
Short Description	1800W switched mode rectifier extended input range		
Long Description	1800W switched mode rectifier, -48Vdc fixed output, 150-280Vac input		
Hardware Reference	9411 012 65001		
Software Reference	SOFT 000075 XX		
Equipment Type	Rectifier		
ETSI Level	/site/energy_system/dc_system/rectifier		

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

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

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7.3.11 **CAR30110TP**

Device Information	
Name	CAR30110TP
Short Description	3000W +110V switched mode rectifier
Long Description	3000W switched mode rectifier, +110Vdc fixed output
Hardware Reference	9411 013 07001
Software Reference	SOFT 000065 XX
Equipment Type	Rectifier
ETSI Level	/site/energy_system/dc_system/rectifier

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

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

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

Data	Table			
<u>Id</u>	Name	Group	Unit	Licens
				<u>e</u>
1	Output Current	Output	Ampere	basic
	The current delivered by the rectifier			
2	Output Power	Output	Watt	basic
	The power delivered by the rectifier			
3	Output Voltage	Output	Volt	basic
	The output voltage of the rectifier			
4	Output Current Max	Output	Ampere	basic
	The maximal current deliverable by the for CAN capable rectifiers.	rectifier. This takes	into account the o	derating
5	Output Power Max	Output	Watt	basic
	The maximal power deliverable by the for CAN capable rectifiers.	rectifier. This takes	into account the	derating
11	Input Voltage	Input	Volt	asset
	The rectifier AC Input voltage (For CAN	capable rectifiers)	•	•
12	Temperature	General	degree C	asset
	The rectifier temperature (For CAN capa	ble rectifiers)	•	
13	Fan Speed	General	RPM	asset
	The rectifier FAN Speed in RPM. (For CAN capable rectifiers)			
14	Power Rating	General	%	asset
	The rectifier power rating (For CAN capa	able rectifiers)	•	
15	Service Time	General	second	asset
	The rectifier total service time, in second	(For CAN capable r	ectifiers)	
16	Thermal Aging Time	General	second	asset
	The rectifier thermal aging time, in secon	nd (For CAN capable	rectifiers)	
17	Converted Energy	General	kJ	asset
	The total energy converted by the rect rectifiers)	ifier since the produ	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	asset		
	The rectifier software reference. This corresponds to the Mitra 12NC (Witcapable rectifiers)				
6	Serial Number	Product Info	asset		
	The rectifier serial number - Wb (With CAN capable rectifiers)				
8	Manufacturing Date	Product Info	asset		
	The rectifier production date (With CAN capable rectifiers)				
21	CAN Node Id	CAN Bus	basic		
	The CAN Bus Node ID				

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

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

Data	Table			
<u>Id</u>	<u>Name</u>	<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	ble rectifiers)		
13	Fan Speed	General	RPM	asset
	The rectifier FAN Speed in RPM. (For Ca	AN capable rectifiers	5)	_
14	Power Rating	General	%	asset
	The rectifier power rating (For CAN capa	able rectifiers)		1
15	Service Time	General	second	asset
	The rectifier total service time, in second	(For CAN capable r	ectifiers)	
16	Thermal Aging Time	General	second	asset
	The rectifier thermal aging time, in secon	nd (For CAN capable	rectifiers)	1
17	Converted Energy	General	kJ	asset
	The total energy converted by the rect rectifiers)	ifier since the produ	iction. (For CAN	capable

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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	

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

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7.3.14 **CXRF48-4kW**

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

Des	cription 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 referen	ice	
5	Serial Number	Product Info	asset
	The rectifier serial number		
21	CAN Node Id	CAN Bus	basic
	The CAN Bus Node ID		

Alarr	n Table			
<u>Id</u>	<u>Name</u>	Severity Type (Level)		
1	Rectifier Fail	major (0)		
	The rectifier must be replaced because of a DC F	-ailure.		
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 k	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>	<u>Group</u>	<u>Unit</u>	Licens
				<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 capable rectifiers)			
13	Phase Number	General		basic
	The rectifier Phase - 0 means unconfig	ured		
14	Service Time	General	second	asset
	The rectifier total service time, in second (For CAN capable rectifiers)			
15	Converted Energy	General	kJ	asset
	The total energy converted by the recrectifiers)	ctifier since the production	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 sw 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 Rectifiers)				
4	Software Reference	Product Info	asset		
	The rectifier software reference. This corresponds to the Mitra 12NC (With CAN capable rectifiers)				
6	Serial Number	Product Info	asset		
	The rectifier serial number - Wb	(With CAN capable rectifie	rs)		
8	Manufacturing Date	Product Info	asset		
	The rectifier production date (W				
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.	<u>, , , , , , , , , , , , , , , , , , , </u>	
2	DC Failure	major (0)	5 / 2
	The rectifier must be replaced because of a	DC Failure.	
3	Over Temperature	major (0)	5 / 2
	The rectifier is too warm.		
4	Remote Off	warning (0)	5 / 2
	The rectifier is in remote off.		
7	Communication Error	warning (0)	5 / 2
	The Communication With the rectifier has b	een lost.	
10	AC High	minor (0)	5 / 2
	The AC input in too high		
11	Short Error	major (0)	5 / 2
	A short circuit is present on the bus		
12	Fan Error	major (0)	5 / 2
	The FAN is defect		
13	Derating Error	major (0)	5 / 2
	The rectifier is in derating		
14	AC Derating	major (0)	5 / 2
	The rectifier is in AC derating		
15	Thermal Derating	major (0)	5 / 2
	The rectifier is in thermal derating		

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

7.3.16 ECOR0348

Device Information		
Name	ECOR0348	
Short Description	Rectifer 300W -54V	
Long Description	Replaced by CXRF 48-300W	
Hardware Reference	9411 010 35001	
Software Reference	SOFT 000097 XX	
Equipment Type	Rectifier	
ETSI Level	/site/energy_system/dc_system/rectifier	

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Desc	Description Table				
<u>Id</u>	<u>Name</u>	Group	<u>License</u>		
1	Product Name	Product Info	asset		
	The rectifier product name (Wit	h CAN capable rectifiers)			
2	Hardware Reference	Product Info	asset		
	The rectifier hardware reference capable rectifiers)	nce. This corresponds to the	he Mitra 12NC (With CAN		
3	Hardware Revision	Product Info	asset		
	The rectifier hardware revision. (With CAN capable Rectifiers)				
4	Software Reference	Product Info	asset		
	The rectifier software reference. This corresponds to the Mitra 12NC (With CAN capable rectifiers)				
6	Serial Number	Product Info	asset		
	The rectifier serial number - Wb	(With CAN capable rectifie	rs)		
8	Manufacturing Date	Product Info	asset		
	The rectifier production date (W				
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	
<u>ld</u> 1	AC Failure	major (0)	5 / 2	
	The rectifier is in AC Failure.			
2	DC Failure	major (0)	5 / 2	
	The rectifier must be replaced because of a	DC Failure.		
3	Over Temperature	major (0)	5 / 2	
	The rectifier is too warm.			
4	Remote Off	warning (0)	5 / 2	
	The rectifier is in remote off.			
7	Communication Error	warning (0)	5 / 2	
	The Communication With the rectifier has be	een lost.		
10	AC High	minor (0)	5 / 2	
	The AC input in too high			
11	Short Error	major (0)	5 / 2	
	A short circuit is present on the bus			
12	Fan Error	major (0)	5 / 2	
	The FAN is defect			
13	Derating Error	major (0)	5 / 2	
	The rectifier is in derating			
14	AC Derating	major (0)	5 / 2	
	The rectifier is in AC derating			
15	Thermal Derating	major (0)	5 / 2	
	The rectifier is in thermal derating			

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Data	a Table			
<u>Id</u>	<u>Name</u>	<u>Group</u>	<u>Unit</u>	<u>Licens</u> <u>e</u>
1	Output Current	Output	Ampere	basic
	The current delivered by the rectifier			
2	Output Power	Output	Watt	basic
	The power delivered by the rectifier			
3	Output Voltage	Output	Volt	basic
	The output voltage of the rectifier			
4	Output Current Max	Output	Ampere	basic
	The maximal current deliverable by the for CAN capable rectifiers.	ne rectifier. This takes	s into account the	e derating
5	Output Power Max	Output	Watt	basic
	The maximal power deliverable by th for CAN capable rectifiers.	e rectifier. This takes	s into account the	ederating
11	Input Voltage	Input	Volt	asset
	The rectifier AC Input voltage (For CAI	N capable rectifiers)		
12	Temperature	General	degree C	asset
	The rectifier temperature (For CAN ca	pable rectifiers)		
13	Fan Speed	General	RPM	asset
	The rectifier FAN Speed in RPM. (For	CAN capable rectifie	rs)	
14	Power Rating	General	%	asset
	The rectifier power rating (For CAN ca	pable rectifiers)		
15	Service Time	General	second	asset
	The rectifier total service time, in second (For CAN capable rectifiers)			
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 re rectifiers)	ctifier since the proc	duction. (For CAN	l 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>	<u>Group</u>	<u>License</u>			
1	Product Name	Product Info	basic			
	The commercial name of the	extension card.				
2	Hardware Reference	Product Info	basic			
	The hardware refence					
3	Hardware Revision	Product Info	basic			
	The hardware revision					
4	Software Reference	Product Info	basic			
	The software reference					
6	Serial Number	Product Info	basic			
	The serial number.					
7	Manufacturing ID	Product Info	basic			
	The production batch id.					
8	Manufacturing Date	Product Info	basic			
	The production date.					
11	Description	Description	basic			
	A free text zone to write a syst	tem description				
12	Reference	Description	basic			
	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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General Input 9	warning (2)	5 / 2
Alarm related to digital input 9		
General Input 10	warning (2)	5 / 2
Alarm related to digital input 10		
General Input 11	warning (2)	5 / 2
Alarm related to digital input 11		
General Input 12	warning (2)	5 / 2
Alarm related to digital input 12		
General Input 13	warning (2)	5 / 2
Alarm related to digital input 13		
General Input 14	warning (2)	5 / 2
Alarm related to digital input 14		
General Input 15	warning (2)	5 / 2
Alarm related to digital input 15		
General Input 16	warning (2)	5 / 2
Alarm related to digital input 16		
General Input 17	warning (2)	5 / 2
Alarm related to digital input 17		
General Input 18	warning (2)	5 / 2
Alarm related to digital input 18		
General Input 19	warning (2)	5 / 2
Alarm related to digital input 19		
General Input 20	warning (2)	5 / 2
Alarm related to digital input 20		
General Input 21	warning (2)	5 / 2
Alarm related to digital input 21		
General Input 22	warning (2)	5 / 2
Alarm related to digital input 22		
General Input 23	warning (2)	5 / 2
Alarm related to digital input 23		
General Input 24	warning (2)	5 / 2
Alarm related to digital input 24		
	Alarm related to digital input 9 General Input 10 Alarm related to digital input 10 General Input 11 Alarm related to digital input 11 General Input 12 Alarm related to digital input 12 General Input 13 Alarm related to digital input 13 General Input 14 Alarm related to digital input 14 General Input 15 Alarm related to digital input 15 General Input 16 Alarm related to digital input 16 General Input 17 Alarm related to digital input 17 General Input 18 Alarm related to digital input 18 General Input 19 Alarm related to digital input 19 General Input 20 Alarm related to digital input 20 General Input 21 Alarm related to digital input 21 General Input 22 Alarm related to digital input 22 General Input 23 Alarm related to digital input 23 General Input 24	Alarm related to digital input 9 General Input 10 Alarm related to digital input 10 General Input 11 Alarm related to digital input 11 General Input 12 Alarm related to digital input 12 General Input 13 Alarm related to digital input 13 General Input 14 Alarm related to digital input 14 General Input 15 Alarm related to digital input 15 General Input 16 Alarm related to digital input 16 General Input 17 Alarm related to digital input 17 General Input 18 Alarm related to digital input 17 General Input 19 Alarm related to digital input 18 General Input 19 Alarm related to digital input 19 General Input 20 Alarm related to digital input 20 General Input 21 Alarm related to digital input 21 General Input 22 Alarm related to digital input 22 General Input 23 Alarm related to digital input 23 General Input 24 Warning (2)

Data	a Table					
IdNameGroupUnit						
1	Temperature 1	Temperature Sensor	degree C	basic		
	Temperature Measurement 1					
2	Temperature 2 Temperature degree C bas Sensor					
	Temperature Measurement 2					
3	Temperature 3	Temperature Sensor	degree C	basic		
	Temperature Measurement 3					

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

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

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	True/False value defining if the not in this default state, the rela			closed. If this digita	al input is
77	Digital Input 4 Name	Digital Inputs		General Input 4	basic
	The name of the digital input 4				
78	Digital Input 4 Normally Closed	Digital Inputs		True/False (True)	basic
	True/False value defining if the not in this default state, the rela			closed. If this digital	al input is
79	Digital Input 5 Name	Digital Inputs		General Input 5	basic
	The name of the digital input 5	•			
80	Digital Input 5 Normally Closed	Digital Inputs		True/False (True)	basic
	True/False value defining if the not in this default state, the rela			closed. If this digita	al input is
81	Digital Input 6 Name	Digital Inputs		General Input 6	basic
	The name of the digital input 6			,	
82	Digital Input 6 Normally Closed	Digital Inputs		True/False (True)	basic
	True/False value defining if the			closed. If this digital	al input is
	not in this default state, the rela		I	T	I
83	Digital Input 7 Name	Digital Inputs		General Input 7	basic
	The name of the digital input 7	I	<u> </u>	<u> </u>	I
84	Digital Input 7 Normally Closed			True/False (True)	basic
	True/False value defining if the not in this default state, the rela	ted alarm is set.		closed. If this digita	al input is
85	Digital Input 8 Name	Digital Inputs		General Input 8	basic
	The name of the digital input 8	T	ı	1	_
86	Digital Input 8 Normally Closed	Digital Inputs		True/False (True)	basic
	True/False value defining if the not in this default state, the rela			closed. If this digital	al input is
87	Digital Input 9 Name	Digital Inputs		General Input 9	basic
	The name of the digital input 9	T	ı	1	
88	Digital Input 9 Normally Closed	Digital Inputs		True/False (True)	basic
	True/False value defining if the not in this default state, the rela	•	•	closed. If this digita	al input is
89	Digital Input 10 Name	Digital Inputs		General Input 10	basic
	The name of the digital input 10		T	1	
90	Digital Input 10 Normally Closed	Digital Inputs		True/False (True)	basic
	True/False value defining if the			closed. If this digit	al input is
	not in this default state, the rela		T	T	ī
91	Digital Input 11 Name	Digital Inputs		General Input 11	basic
	The name of the digital input 11		Γ	T	I
92	Digital Input 11 Normally Closed	Digital Inputs		True/False (True)	basic

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

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	True/False value defining if the not in this default state, the relat			closed. If this digita	al input is
109		Digital Inputs		General Input 20	basic
109	The name of the digital input 20			General Input 20	Dasic
110	Digital Input 20 Normally Closed	1		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	Digital Input 21 Name	Digital Inputs		General Input 21	basic
	The name of the digital input 21				1
112	Digital Input 21 Normally Closed			True/False (True)	basic
	True/False value defining if the not in this default state, the relat	ed alarm is set.		_	
113	Digital Input 22 Name	Digital Inputs		General Input 22	basic
	The name of the digital input 22				1
114	Digital Input 22 Normally Closed			True/False (True)	basic
	True/False value defining if the not in this default state, the relat	ed alarm is set.			
115	Digital Input 23 Name	Digital Inputs		General Input 23	basic
	The name of the digital input 23				1
116	Digital Input 23 Normally Closed	,		True/False (True)	basic
	True/False value defining if the not in this default state, the relat	ed alarm is set.			
117	Digital Input 24 Name	Digital Inputs		General Input 24	basic
110	The name of the digital input 24	Б. т. II — . — .		T /F /T)	l
118	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 venumbers 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 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
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'				

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

Cont	rol Table		
<u>ld</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	4 Set Pulse Counter 4 Pulse Counters		
	Set Counter 4 Value		
105	Set Pulse Counter 5	Pulse Counters	basic
	Set Counter 5 Value		
106	Set Pulse Counter 6	Pulse Counters	basic
	Set Counter 6 Value		
501	Clear My Events	Event	basic
	By writing '1' to this control element, all the events of	of this equipment will be cle	ared.
502	Clear All Events	Event	basic
	By writing '1' to this control element, all the events of all the sub-equipments will be cleared.	of this equipment and all th	e events
511	Add Event	Event	basic
	This control element adds an event of severity none to this control element	e. The event name is the te	xt written
512	Add Major Event	Event	basic
	This control element adds an event of severity rule 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

7.4.2 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	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		

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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	Voltage Sensor		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>ld</u>	<u>Name</u>				<u>Group</u>	<u>Unit</u>	Range: Min/Max (default)	<u>License</u>
71	Digital Ir	nput 1 N	lame		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 ed alarm is set		closed. If this digita	al input is
73	Digital Ir	nput 2 N	lame		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 ed alarm is set		closed. If this digita	al input is
75	Digital Ir	nput 3 N	lame		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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	T		I	T	
	Closed				
	True/False value defining if the not in this default state, the relationship.			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 relationship.			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 relationship.			closed. If this digital	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 relationship.			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 relationship.			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 relationship.			closed. If this digital	al input is
87	Digital Input 9 Name	Digital Inputs		General Input 9	basic
	The name of the digital input 9	•			•
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		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 relationship.			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	, 5 , 12.23	I	1,	1
92	·	Digital Inputs		True/False (True)	basic
			1	1 \ - /	1

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	Closed			
	True/False value defining if the	udigital input 11 is r	normally closed. If this digital	al input is
	not in this default state, the relat		Torriany Globbar II time digita	ii ii pat io
93	Digital Input 12 Name	Digital Inputs	General Input 12	basic
	The name of the digital input 12		<u>.</u>	
94	Digital Input 12 Normally Closed	Digital Inputs	True/False (True)	basic
	True/False value defining if the not in this default state, the relat	ed alarm is set.	normally closed. If this digita	al input is
121	Output Relay 1 Boolan Condition	Digital Outputs	(False)	basic
	Relay 1 Boolean Condition	I I		
122	Output Relay 1 Normal State	Digital Outputs	(Energized / De- energized)	basic
	Relay 1 Normal State	T T		
123	Output Relay 2 Boolan Condition	Digital Outputs	(False)	basic
	Relay 2 Boolean Condition		1	
124	Output Relay 2 Normal State	Digital Outputs	(Energized / De- energized)	basic
	Relay 2 Normal State		1	
125	Output Relay 3 Boolan Condition	Digital Outputs	(False)	basic
	Relay 3 Boolean Condition			
126	Output Relay 3 Normal State	Digital Outputs	(Energized / De- energized)	basic
	Relay 3 Normal State	· · · · · · · · · · · · · · · · · · ·		
127	Output Relay 4 Boolan Condition	Digital Outputs	(False)	basic
	Relay 4 Boolean Condition			
128	Output Relay 4 Normal State	Digital Outputs	(Energized / De- energized)	basic
	Relay 4 Normal State	T T		
129	Output Relay 5 Boolan Condition	Digital Outputs	(False)	basic
	Relay 5 Boolean Condition	I I		
130	Output Relay 5 Normal State	Digital Outputs	(Energized / De- energized)	basic
_	Relay 5 Normal State	Г		
131	Output Relay 6 Boolan Condition	Digital Outputs	(False)	basic
	Relay 6 Boolean Condition	<u> </u>		
132	Output Relay 6 Normal State	Digital Outputs	(Energized / De- energized)	basic
	Relay 6 Normal State	, ·		
133	Output Relay 7 Boolan Condition	Digital Outputs	(False)	basic
	Relay 7 Boolean Condition			

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134	Output Relay 7 Normal State	Digital	(Energized / De-	basic
		Outputs	energized)	
	Relay 7 Normal State			
135	Output Relay 8 Boolan		(False)	basic
	Condition	Outputs		
	Relay 8 Boolean Condition	<u></u>	1,	l
136	Output Relay 8 Normal State	Digital Outputs	(Energized / De- energized)	basic
	Relay 8 Normal State	Outputs	energized)	
137	Output Relay 9 Boolan	Digital	(False)	basic
	Condition	Outputs	(1 4.00)	Daoio
	Relay 9 Boolean Condition			
138	Output Relay 9 Normal State	Digital	` •	basic
		Outputs	energized)	
100	Relay 9 Normal State	D		
139	Output Relay 10 Boolan Condition	Digital Outputs	(False)	basic
	Relay 10 Boolean Condition	σαιραίο		
140	Output Relay 10 Normal State	Digital	(Energized / De-	basic
		Outputs	energized)	
	Relay 10 Normal State	,	,	
521	Read Access User Numbers	Allowed	(1,2,3,4,5)	basic
	The list of the common several area.	Users	to their consistences and	
	The list of the user numbers vinumbers are coma separated. T		• •	
522	Write Access User Numbers	Allowed	()	basic
		Users	V	Sub-io
	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	ibers are coma separateo	i. The accepted use	er ius are
601	Event Table Length	Event	10/4000 (100)	basic
	The maximum length of the table	e. The value must be com	, ,	ind 4000
901	Number Of PLC Data	PLC	(0)	plc
	The number of PLC data. Every	equipment can manage	up to 20 user progr	ammable
	data. Data elements are aut			
	parameters are added to set the calculation. In order to use the			
	module	ioo ranononamioo, you ne	od a noonee wan	
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 these			
	module	o ranononamios, you no	ou a hoofido with	

Cont	Control Table			
<u>Id</u>	<u>Name</u>	<u>Group</u>	<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 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 to this control element				
512	Add Major Event	Event	basic		
	This control element adds an event of severity r written to this control element	major. The event name is	the text		
521	Reset Default Names And Groups	Advanced	basic		
	This control element resets all the element Names, 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					
<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 sy	stem description			

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12	Reference	Description	basic
	A free text zone to write the c	ustomer reference of the systematical	em

Alaı	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	a Table					
<u>Id</u>	<u>Name</u>	<u>Group</u>	<u>Unit</u>	<u>Licens</u> <u>e</u>		
1	Temperature 1	Temperature Sensor	degree C	basic		
	Temperature Measurement 1					
2	Temperature 2	Temperature Sensor	degree C	basic		
	Temperature Measurement 2					
3	Temperature 3	Temperature Sensor	degree C	basic		
	Temperature Measurement 3					
4	Temperature 4	Temperature Sensor	degree C	basic		
	Temperature Measurement 4	<u>.</u>	<u>.</u>	•		
71	Shunt 1	Current Sensor	Ampere	basic		
	Shunt Measurement 1					
72	Shunt 2	Current Sensor	Ampere	basic		
	Shunt Measurement 2	<u>.</u>		•		
73	Shunt 3	Current Sensor	Ampere	basic		
	Shunt Measurement 3			•		
74	Shunt 4	Current Sensor	Ampere	basic		
	Shunt Measurement 4			•		

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

Conf	ig Table				
<u>Id</u>	<u>Name</u>	<u>Group</u>	<u>Unit</u>	Range: Min/Max (default)	<u>License</u>
71	Digital 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	ıl input is
77	Digital Input 4 Name	Digital Inputs		General Input 4	basic
	The name of the digital input 4		•		
78		Digital Inputs		True/False (True)	basic
	closed. If this digita	ıl input is			

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79	Digital In	put 5 N	ame		Digital Inputs		General Input 5	basic
	The name	•			, ,	<u>I</u>	'	ı
80	Digital Closed	Input	5	Normally	Digital Inputs		True/False (True)	basic
					digital input 5 ed alarm is set		closed. If this digita	al input is
81	Digital In	•			Digital Inputs		General Input 6	basic
	The name	e of the	digita	•	T	1	l	T
82	Digital Closed	Input			Digital Inputs		True/False (True)	basic
	not in this	default	state	e, the relat	ed alarm is set		closed. If this digita	al input is
83	Digital In	•			Digital Inputs		General Input 7	basic
	The name			•	la		<u> </u>	
84	Digital Closed	•			Digital Inputs		True/False (True)	basic
	not in this	default	state	e, the relat	ed alarm is set		closed. If this digita	al input is
85	Digital In	•			Digital Inputs		General Input 8	basic
	The name				la		<u> </u>	
86	Digital Closed	Input			Digital Inputs		True/False (True)	basic
					digital input 8 ed alarm is set		closed. If this digita	al input is
521	Read Ac	cess Us	ser 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
	that these	e users ements	can . The	modify the user num	configuration (element, the	this equipment. The alarm settings and the accepted use	d use the
601	Event Ta	ble Len	gth		Event		10/4000 (100)	basic
•			_			ust be comp	orised between 10 a	1
901	Number				PLC		(0)	plc
	data. Da paramete	ita eler ers are a	nents adde	s are aut d to set th	omatically add ne PLC Data N ese functionaliti	ded in the Name and	up to 20 user progred data table. Con the PLC Data Mathed a license with	figuration hematical
902	Number				PLC		(0)	plc
	alarms. <i>I</i>	Alarm e ers are	eleme adde	ents are a ed to set	automatically a the PLC Alarr	added in t n Name a	up to 20 user progr ne alarm table. T nd the PLC Alarm ed a licence with	he alarm Boolean

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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				
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 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		

7.4.4 ADIO 10

Device Information			
Name	ADIO 10		
Short Description Standard I/O module DC systems			
Long Description	I/O module with 2 inputs for temperature measurement, 4 voltage measurements, 2 current measurements, 8 digital inputs and 8 relays		
Hardware Reference	9413 060 05101		
Software Reference	SOFT 000099 XX		
Equipment Type	System Extension		
ETSI Level	/site/sensors_and_actuators		

Desc	Description Table				
<u>Id</u>	Name <u>Group</u> <u>License</u>				
1	Product Name	Product Info	basic		
	The commercial name of the extension card.				
2	Hardware Reference	Product Info	basic		

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	The hardware refence				
3	Hardware Revision	Product Info	basic		
	The hardware revision				
4	Software Reference	Product Info	basic		
	The software reference				
6	Serial Number	Product Info	basic		
	The serial number.				
7	Manufacturing ID	Product Info	basic		
	The production batch id.				
8	Manufacturing Date	Product Info	basic		
	The production date.				
11	Description	Description	basic		
	A free text zone to write a system description				
12	Reference	Description	basic		
	A free text zone to write the cu	stomer reference of the syst	em		

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>	Group	<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	•		

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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					

Con	fig Table				
<u>Id</u>	<u>Name</u>	<u>Group</u>	<u>Unit</u>	Range: Min/Max (default)	<u>License</u>
41	Shunt 1 Rating At 60mV	Battery	Ampere		basic
	The rating of the shunt 1 at 60m	V.			
42	Shunt 2 Rating At 60mV	Battery	Ampere		basic
	The rating of the shunt 2 at 60m	V	1	,	
71	Digital Input 1 Name	Digital Inputs		General Input 1	basic
	The name of the digital input 1	T	T		
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				

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80	Digital Closed	Input	5	Normally	Digital Inputs		True/False (True)	basic
							closed. If this digita	al input is
	1				ed alarm is set.	·	1	1
81	Digital In	put 6 N	lame		Digital Inputs		General Input 6	basic
	The name			•		T		,
82	Digital Closed	Input			Digital Inputs		True/False (True)	basic
					digital input 6 i ed alarm is set		closed. If this digita	al input is
83	Digital In	put 7 N	lame		Digital Inputs		General Input 7	basic
	The name				,		,	
84	Digital Closed	Input	7	Normally	Digital Inputs		True/False (True)	basic
					ed alarm is set.		closed. If this digita	al input is
85	Digital In	•			Digital Inputs		General Input 8	basic
	The name of the digital input 8				<u> </u>	т	1	_
86	Digital Closed	Input	8	Normally	Digital Inputs		True/False (True)	basic
					digital input 8 i ed alarm is set		closed. If this digita	al input is
121	Output Conditio	Relay n	1	Boolan	Digital Outputs		(False)	basic
	Relay 1 E	Boolean	Cond	dition	,		,	
122	Output F	Relay 1 I	Norn	nal State	Digital Outputs		(Energized / De- energized)	basic
	Relay 1 N	Normal S	State			T		,
123	Output Conditio			Boolan	Digital Outputs		(False)	basic
	Relay 2 E				I	ı	1	1
124	Output F				Digital Outputs		(Energized / De- energized)	basic
	Relay 2 N						1	1
125	Output Conditio	Relay n	3	Boolan	Digital Outputs		(False)	basic
	Relay 3 E	Boolean	Cond	dition	<u> </u>	т	1	
126	Output F	Relay 3 I	Norn	nal State	Digital Outputs		(Energized / De- energized)	basic
	Relay 3 N	Normal S	State		,		,	
127	Output Conditio	Relay n	4	Boolan	Digital Outputs		(False)	basic
	Relay 4 E	Boolean	Cond	dition				
128	Output F	Relay 4 I	Norm	nal State	Digital Outputs		(Energized / De- energized)	basic
	Relay 4 N	Normal S	State					
129	Output Conditio	Relay n	5	Boolan	Digital Outputs		(False)	basic

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	Relay 5 Boolean Condition				
130	Output Relay 5 Normal State	Digital Outputs		(Energized / De- energized)	basic
	Relay 5 Normal State				
131	Output Relay 6 Boolan Condition	Digital Outputs		(False)	basic
	Relay 6 Boolean Condition				•
132	Output Relay 6 Normal State	Digital Outputs		(Energized / De- energized)	basic
	Relay 6 Normal State				
133	Output Relay 7 Boolan Condition	Digital Outputs		(False)	basic
	Relay 7 Boolean Condition				
134	Output Relay 7 Normal State	Digital Outputs		(Energized / De- energized)	basic
	Relay 7 Normal State				
135	Output Relay 8 Boolan Condition	Digital Outputs		(False)	basic
	Relay 8 Boolean Condition				
136	Output Relay 8 Normal State	Digital Outputs		(Energized / De- energized)	basic
	Relay 8 Normal State				
137	Default Digital Output Binary Vector	Digital Outputs		(0b00000000)	basic
	This configuration is stored insic	le the module in	case of co	onfiguration failure	
521	Read Access User Numbers	Allowed Users		(1,2,3,4,5)	basic
	The list of the user numbers v numbers are coma separated. T				
522	Write Access User Numbers	Allowed Users		()	basic
	The list of the user numbers what these users can modify the control elements. The user num 1,2,3,4 and 5. Ex: 1,3,4	configuration e	lement, the	e alarm settings and	d use the
601	Event Table Length	Event		10/4000 (100)	basic
	The maximum length of the table		ist be comp	prised between 10 a	nd 4000
901	Number Of PLC Data	PLC		(0)	plc
	The number of PLC data. Every data. Data elements are aut parameters are added to set the calculation. In order to use the module	omatically add	ed in the lame 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 Alarm	dded in tl Name ar	ne alarm table. The alarm table is a second the PLC Alarm	ne alarm Boolean

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Cont	rol Table				
<u>Id</u>	<u>Name</u>	<u>Group</u>	<u>Licens</u> <u>e</u>		
11	Calibrate V1	Calibration	basic		
	No information				
12	Calibrate V2	Calibration	basic		
	No information				
13	Calibrate V3	Calibration	basic		
	No information				
14	Calibrate V4	Calibration	basic		
	No information				
501	Clear My Events	Event	basic		
	By writing '1' to this control element, all the events of	of this equipment will be cle	ared.		
502	Clear All Events	Event	basic		
	By writing '1' to this control element, all the events of all the sub-equipments will be cleared.	of this equipment and all th	e events		
511	Add Event	Event	basic		
	This control element adds an event of severity none to this control element	e. The event name is the 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		

7.4.5 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			

Description Table				
<u>Id</u>	<u>Name</u>	Group	<u>License</u>	
1	Product Name	Product Info	basic	
	The commercial name of the ex	rtension card.		
2	Hardware Reference	Product Info	basic	
	The hardware refence			

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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 cu	stomer reference of the syst	em		

Alar	m Table						
<u>Id</u>	Name	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	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 Table				
<u>Id</u>	<u>Name</u>	<u>Group</u>	<u>Unit</u>	<u>Licens</u>

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				<u>e</u>
1	Temperature 1	Sensors	degree C	basic
	The temperature 1			
2	Temperature 2	Sensors	degree C	basic
	The temperature 2			

Con	fig Table				
<u>ld</u>	Name	<u>Group</u>	<u>Unit</u>	Range: Min/Max (default)	<u>License</u>
71	Digital Input 1 Name	Digital Inputs		General Input 1	basic
	The name of the digital input 1				
72	Digital Input 1 Normally Closed	Digital Inputs		True/False (True)	basic
	True/False value defining if the not in this default state, the relat			closed. If this digita	al input is
73	Digital Input 2 Name	Digital Inputs		General Input 2	basic
	The name of the digital input 2				
74	Digital Input 2 Normally Closed	Digital Inputs		True/False (True)	basic
	True/False value defining if the not in this default state, the relat			closed. If this digita	al input is
75	Digital Input 3 Name	Digital Inputs		General Input 3	basic
	The name of the digital input 3				
76	Digital Input 3 Normally Closed	Digital Inputs		True/False (True)	basic
	True/False value defining if the digital input 3 is normally closed. If this digital input in this default state, the related alarm is set.				
77	Digital Input 4 Name	Digital Inputs		General Input 4	basic
	The name of the digital input 4				
78	Digital Input 4 Normally 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
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 digita	al input is
83	Digital Input 7 Name	Digital Inputs		Digital Input 7 Name	basic

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	T	(4	-11 14 -	-1 Sec. 4 7				
	1			al input 7	<u></u>	1	<u> </u>	I
84	Digital Closed	Input			Digital Inputs		True/False (True)	basic
					digital input 7 ed alarm is set		closed. If this digita	al input is
85	Digital In	nput 8 N	ame	1	Digital Inputs		General Input 8	basic
	The nam	e of the	digita	al input 8				
86	Digital Closed	Input	8	Normally	Digital Inputs		True/False (True)	basic
					digital input 8 ed alarm is set		closed. If this digital	al input is
87	Digital In	nput 9 N	ame		Digital Inputs		General Input 9	basic
	The nam	e of the	digita	al input 9				-
88	Digital Closed	Input	9	Normally	Digital Inputs		True/False (True)	basic
							closed. If this digital	al input is
					ed alarm is set	•	<u> </u>	I
89	Digital In	•			Digital Inputs		General Input 10	basic
00	1			al input 10	D: :	1	T (F) (T)	ļ
90	Digital Closed	•			Digital Inputs		True/False (True)	basic
					digital input 10 ed alarm is set		closed. If this digit	al input is
91	Digital In	nput 11	Nam	е	Digital Inputs		General Input 11	basic
	The nam	e of the	digita	al input 11	.	T	T	
92	Digital Closed	Input	11	Normally	Digital Inputs		True/False (True)	basic
							closed. If this digit	al input is
	1				ed alarm is set		T	T
93	Digital In	•			Digital Inputs		General Input 12	basic
	 			al input 12		1	<u> </u>	I
94	Digital Closed	Input	12	Normally	Digital Inputs		True/False (True)	basic
					digital input 12 ed alarm is set		closed. If this digit	al input is
121	Digital Energize	Outpu ed Boola		Relay 1 ondition	Digital Outputs		(False)	basic
	PLC Boo	lean cor	nditio	n to energ	ize the relay 1			
122	Digital Energize	Outpu ed Boola		Relay 2 ondition	Digital Outputs		(False)	basic
	PLC Boo	lean cor	nditio	n to energ	ze the relay 2			
123	Digital Energize	Outpu ed Boola		Relay 3 ondition	Digital Outputs		(False)	basic
					ize the relay 3	•		•
124	Digital	Outpu	t I		Digital Outputs		(False)	basic
					ize the relay 4		•	
521					Allowed		(1,2,3,4,5)	basic
					i.			

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		1			1		
		Users					
	The list of the user numbers which have read access to this equipment. The user numbers are coma separated. The accepted user id are 1,2,3,4 and 5. Ex: 1,3,4						
522	Write Access User Numbers	Allowed Users		()	basic		
	The list of the user numbers what these users can modify the control elements. The user num 1,2,3,4 and 5. Ex: 1,3,4	configuration 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		
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	trol Table				
<u>Id</u>	<u>Name</u>	<u>Group</u>	<u>Licens</u> <u>e</u>		
501	Clear My Events	Event	basic		
	By writing '1' to this control element, all the events of	of this equipment will be clea	ared.		
502	Clear All Events	Event	basic		
	By writing '1' to this control element, all the events of 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 ruritten 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, Groups and Subgroups to values					

7.4.6 SAM0948

Device Information	
Name	SAM0948
Short Description	Site management card

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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		

Des	cription Table						
<u>Id</u>	<u>Name</u>	Group	<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.	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	e customer reference of t	he system				

Aları	n Table		
<u>Id</u>	<u>Name</u>	Severity Type (Level)	Set/Clear Delay
1	Cabinet Temperature High	major (6)	5/2
	The temperature of the cabinet is too high.		
2	Cabinet Temperature Low	major (6)	5/2
	The temperature of the cabinet is too low.		
3	Cabinet Temperature Sensor Fail	minor (4)	5/2
	The cabinet temperature sense is defect.		
11	Cabinet Humidity High	major (6)	5 / 2
	The cabinet humidity is too high		
12	Cabinet Humidity Low	major (6)	5/2
	The cabinet humidity is too low		
21	Water Detection Alarm	major (6)	5/2
	Water is detected by the water sensor.		

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31	Tilt X Alarm	major (6)	5 / 2				
	The X-tilt absolute value is too high						
32	Tilt Y Alarm	major (6)	5/2				
	The Y-tilt absolute value is too high						
41	Vandalism Alarm	major (6)	5 / 2				
	The vandalism score is too high						
51	Badge Reader Failure	major (6)	5/2				
	The badge reader is defect or not connected	d					
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	Door 1 Open	warning (2)	5 / 2				
	Alarm related to digital input 7, used for acco	ess control by default					
78	Door 2 Open	warning (2)	5 / 2				
	Alarm related to digital input 8, used for acce	ess control by default					
79	Door 3 Open	warning (2)	5 / 2				
	Alarm related to digital input 9, used for acce	ess 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	a Table						
<u>Id</u>	<u>Name</u>	Group	<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 cabinet						
21	Tilt X	Sensors	degree	basic			
	The tilt-X value	·					
22	Tilt Y	Sensors	degree	basic			
	The tilt-Y value						
31	Vandalism Score	Sensors		basic			
	The vandalism score. This depend	ds of the cabinet acceler	ation over time.				
41	Last UID Badge Reader	Badge Reader		basic			
	The last uid value read by the bac	lge reader					
42	Last Time Badge Reader	Badge Reader		basic			

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	The date and time at which the badge reader has been used					
52	Lock 1 Open	Access Control 1	basic			
The lock 1 is mechanically closed						
53	3 Lock 1 Enabled Access Control 1 basic					
	The access control 1 is enabling	the electronic lock 1				
62	Lock 2 Open	Access Control 2	basic			
	The lock 2 is mechanically closed					
63 Lock 2 Enabled Access Control 2						
	The access control 2 is enabling the electronic lock 2					

Con	fig Table				
<u>Id</u>	Name	<u>Group</u>	<u>Unit</u>	Range: Min/Max (default)	<u>License</u>
1	Cabinet Temperature High	Alarm Parameters	degree C	-50/100 (50)	basic
	The temperature over which the	cabinet tempe	rature is too	high	
2	Cabinet Temperature Low	Alarm Parameters	degree C	-50/100 (-5)	basic
	The temperature under which th	e cabinet temp	erature is to	oo low	
11	Cabinet Humidity High	Alarm Parameters	%	0/100 (80)	basic
	The relative humidity over which	the cabinet hu	midity is to	o high	
12	Cabinet Humidity Low	Alarm Parameters	%	0/100 (0)	basic
	The relative humidity over which	the cabinet hu	midity is to	o low	
21	Tilt X High	Alarm Parameters	degree	0/90 (10)	basic
	The maximum absolute tilt-X val	ue allowed for	the cabinet		
22	Tilt Y High	Alarm Parameters	degree	0/90 (10)	basic
	The maximum absolute tilt-Y val	ue allowed for	the cabinet		
31	Vandalism Detection Threshold	Alarm Parameters			basic
	The maximum vandalism score	allowed for the	cabinet.		
41	Access Control 1 Enabled	Access Control 1		True/False (False)	basic
	The access control 1 is enabled	The electronic	lock 1 mus	st be managed.	
42	Access Control 1 Authorized UID	Access Control 1			basic
	Coma separated list of the UID a	allowed to disal	ole the elec	tronic lock 1	
43	Access Control 1 Auto Close Time	Access Control 1	second	0/1000 (30)	basic
	Time in second after which the	electronic lock 1	I must be a	utomatically locked	again
44	Access Control 1 Disabled If Badge Reader Failure	Access Control 1		True/False (True)	basic
	The electronic lock 1 must be di	sabled if the 'Ba	adge reade	r failure' alarm is se	t.
45	Access Control 1 Doors	Access		(7,9,10)	basic

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	Inputs	Control 1			
	This is the coma separated list	L	l Inuts which	are door contacts	related to
	the access control 1	or the digital in	ipato Willon	are door contacts	i cialca lo
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	allowed to disat	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
54	Access Control 2 Disabled If Badge Reader Failure	Control 2		True/False (True)	basic
	The electronic lock 1 must be di		adge reade		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	T	T	T	T
72	Digital Input 1 Normally Closed	Digital Inputs		True/False (True)	basic
	True/False value defining if the			closed. If this digital	al input is
72	not in this default state, the relat			Canaval Innut 0	basis
73	Digital Input 2 Name The name of the digital input 2	Digital Inputs		General Input 2	basic
74	Digital Input 2 Normally	Digital Inputs		True/False (True)	basic
/4	Closed	Digital Inputs		True/Taise (True)	basic
	True/False value defining if the not in this default state, the relat	•	•	closed. If this digital	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 digital	al input is
79	Digital Input 5 Name	Digital Inputs		General Input 5	basic
	The name of the digital input 5	· - ·	·	•	1
80	- '	Digital Inputs		True/False (True)	basic
	True/False value defining if the	digital input 5 i	is normally	closed. If this digita	al input is

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	not in this default	t ctat	a tha ralat	ad alarm ic cat			
81	Digital Input 6 N			Digital Inputs		General Input 6	basic
01	The name of the			Digital Inputs		General Input o	Dasic
82	Digital Input Closed			Digital Inputs		True/False (True)	basic
	True/False value not in this default					closed. If this digita	al input is
83	Digital Input 7 N	lame		Digital Inputs		Digital Input 7 Name	basic
	The name of the	digita		T	T		ı
84	Digital Input Closed			Digital Inputs		True/False (True)	basic
	not in this defaul	t state	e, the relat	ed alarm is set		closed. If this digita	· -
85	Digital Input 8 N			Digital Inputs		Door 2 Open	basic
	The name of the			T	T	I	T.
86	Digital Input Closed			Digital Inputs		True/False (True)	basic
	not in this defaul	t state	e, the relat	ed alarm is set		closed. If this digita	
87	Digital Input 9 N			Digital Inputs		Door 3 Open	basic
	The name of the		•	T	Τ	<u></u>	1
88	Digital Input Closed	9	Normally	Digital Inputs		True/False (True)	basic
				l .			1
	not in this defaul	t state	e, the relat	ed alarm is set		closed. If this digital	Г
89	not in this default Digital Input 10	t state Nam	e, the relat e			closed. If this digitation	al input is
	not in this default Digital Input 10 The name of the	t state Nam digita	e, the relat e al input 10	ed alarm is set Digital Inputs		Door 4 Open	basic
89 90	not in this default Digital Input 10	t state Nam digita	e, the relat e al input 10	ed alarm is set		I	Г
90	not in this default Digital Input 10 The name of the Digital Input Closed	Nam digita 10	e, the relat e al input 10 Normally ning if the e, the relat	ed alarm is set Digital Inputs Digital Inputs digital input 10 ed alarm is set	is normally	Door 4 Open	basic
	not in this default Digital Input 10 The name of the Digital Input Closed True/False value not in this default Digital Output Energized Book	Nam digita 10 define define t state an Ce	e, the relate al input 10 Normally ning if the e, the relate Relay 1 ondition	ed alarm is set Digital Inputs Digital Inputs digital input 10 ed alarm is set Digital Outputs	is normally	Door 4 Open True/False (True)	basic
90	not in this default Digital Input 10 The name of the Digital Input Closed True/False value not in this default Digital Output Energized Book PLC Boolean con	Nam digita 10 definite definite state an Cendition	e, the relate al input 10 Normally ning if the e, the relate Relay 1 ondition n to energi	ed alarm is set Digital Inputs Digital Inputs digital input 10 ed alarm is set Digital Outputs	is normally	Door 4 Open True/False (True) closed. If this digital	basic basic al input is
90	not in this default Digital Input 10 The name of the Digital Input Closed True/False value not in this default Digital Output Energized Book	Nam digita 10 definite definite state an Cendition	e, the relate al input 10 Normally ning if the e, the relate Relay 1 ondition n to energi	ed alarm is set Digital Inputs Digital Inputs digital input 10 ed alarm is set Digital Outputs	is normally	Door 4 Open True/False (True) closed. If this digital	basic basic al input is
90	not in this default Digital Input 10 The name of the Digital Input Closed True/False value not in this default Digital Output Energized Boole PLC Boolean cool Read Access Us The list of the use	Nam digita 10 de defin t state t state an Condition ser N	e, the relate al input 10 Normally ning if the e, the relate Relay 1 ondition n to energe lumbers	ed alarm is set Digital Inputs Digital Input 10 ed alarm is set Digital Outputs ize the relay 1 Allowed Users which have rea	is normally	Door 4 Open True/False (True) closed. If this digital (False)	basic basic basic basic basic
90	not in this default Digital Input 10 The name of the Digital Input Closed True/False value not in this default Digital Output Energized Boole PLC Boolean cool Read Access Us The list of the use	Nam digita 10 de definit state an Condition ser N user in a ser	e, the relate al input 10 Normally ning if the e, the relate Relay 1 ondition n to energillumbers numbers verbarated. T	ed alarm is set Digital Inputs Digital Input 10 ed alarm is set Digital Outputs ize the relay 1 Allowed Users which have rea	is normally	Door 4 Open True/False (True) closed. If this digital (False) (1,2,3,4,5) to this equipment.	basic basic basic basic basic
90 121 521	not in this default Digital Input 10 The name of the Digital Input Closed True/False value not in this default Digital Output Energized Boole PLC Boolean cool Read Access Us The list of the use that these users	digital digita	e, the relate al input 10 Normally ning if the e, the relate Relay 1 ondition n to energifumbers numbers verbarated. Tolumbers umbers with the energy of the energy of the related. Tolumbers umbers with the energy of t	Digital Inputs Digital Inputs Digital Inputs digital input 10 ed alarm is set Digital Outputs ize the relay 1 Allowed Users which have rea he accepted us Allowed Users nich have write configuration of	is normally ad access to element, the	Door 4 Open True/False (True) closed. If this digital (False) (1,2,3,4,5) to this equipment. 2,3,4 and 5. Ex: 1,3	basic basic basic basic basic The user 3,4 basic is means d use the
90 121 521	not in this default Digital Input 10 The name of the Digital Input Closed True/False value not in this default Digital Output Energized Boole PLC Boolean cool Read Access Us The list of the use that these users control elements	t state Nam digita 10 e define t state an Condition ser N user I na se ser N ser n can can can can can can can can can	e, the relate al input 10 Normally ning if the e, the relate Relay 1 ondition n to energifumbers numbers verbarated. Tolumbers umbers with the energy of the energy of the related. Tolumbers umbers with the energy of t	Digital Inputs Digital Inputs Digital Inputs digital input 10 ed alarm is set Digital Outputs ize the relay 1 Allowed Users which have rea he accepted us Allowed Users nich have write configuration of	is normally ad access to element, the	True/False (True) closed. If this digital (False) (1,2,3,4,5) to this equipment. 2,3,4 and 5. Ex: 1,3 () this equipment. The alarm settings and	basic basic basic basic basic The user 3,4 basic is means d use the
90 121 521	not in this default Digital Input 10 The name of the Digital Input Closed True/False value not in this default Digital Output Energized Boole PLC Boolean cont Read Access Us The list of the use that these users control elements 1,2,3,4 and 5. Exercise Event Table Ler	t state Nam digita 10 e define t state t state an Conditio ser N user n user n can can can can can can can can can ca	e, the relate e al input 10 Normally ning if the e, the relate Relay 1 ondition n to energifumbers numbers veparated. The sumbers with the energy the energy that the energy t	Digital Inputs Digital Inputs Digital Input 10 ed alarm is set Digital Outputs ize the relay 1 Allowed Users which have rea the accepted us Allowed Users nich have write configuration of the are coma	is normally ad access to element, the separated	True/False (True) closed. If this digital (False) (1,2,3,4,5) to this equipment. 2,3,4 and 5. Ex: 1,3 () this equipment. The alarm settings and The accepted use	basic basic basic basic basic The user 3,4 basic is means d use the er ids are basic
90 121 521	not in this default Digital Input 10 The name of the Digital Input Closed True/False value not in this default Digital Output Energized Boole PLC Boolean cont Read Access Us The list of the use that these users control elements 1,2,3,4 and 5. Exercise Event Table Ler	t state Nam digita 10 e definit state an Condition ser N user In na ser ser N ser N can can can can can tan Cindition ser N	e, the relate e al input 10 Normally ning if the e e, the relate Relay 1 ondition n to energifumbers umbers verbarated. Tolumbers umbers who diffy the every nume, 4 of the table	Digital Inputs Digital Inputs Digital Input 10 ed alarm is set Digital Outputs ize the relay 1 Allowed Users which have rea the accepted us Allowed Users nich have write configuration of the are coma	is normally ad access to element, the separated	True/False (True) closed. If this digital (False) (1,2,3,4,5) to this equipment. 2,3,4 and 5. Ex: 1,3 () this equipment. The alarm settings and The accepted use	basic basic al input is basic basic The user 3,4 basic is means d use the er ids are basic

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The number of PLC alarm. Every equipment can manage up to 20 user programmable alarms. Alarm elements are automatically added in the alarm table. The alarm parameters are added to set the PLC Alarm Name and the PLC Alarm Boolean condition. In order to use these functionalities, you need a licence with the 'PLC' module

Cont	rol Table			
<u>Id</u>	<u>Name</u>	Group	<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	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 r written to this control element	major. The event name is	the text	
521	Reset Default Names And Groups	Advanced	basic	
	This control element resets all the element Names, Groups and Subgroups to defau values			

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7.5 Remote Power Feeding System Tables

7.5.1 CEM03_Remote_Power_Feeding_System

Device Information	
Name	CEM03_Remote_Power_Feeding_System
Short Description	Monitoring for Central Up Converter system
Long Description	Central monitoring card for 4 down converter cards with CAN IN/CAN OUT and 4 relays
Hardware Reference	9413 044 89421
Software Reference	SOFT 000022 XX
Equipment Type	Monitoring For Remote (About Remote Power Feeding System)
ETSI Level	/site/energy_system/remote_power_feeding_ system

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

Conf	Config Table					
<u>Id</u>	<u>Name</u>	<u>Group</u>	<u>Unit</u>	Range: Min/Max (default)	<u>License</u>	
1	Number of CEM03 By Shelf	Up			basic	
		Converters				
Maximum number of CEM03 cards that are authorized by shelf. This paramete must be comprised between 1 and 4.						

7.6 Up Converter System Tables

7.6.1 CEM03_Up_Converter_System

Device Information	
Device information	

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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

Des	escription 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	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					
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				

Alarm Table						
<u>Id</u>	<u>Name</u>	Severity Type (Level)	Set/Clear Delay			
1	One Up Converter Failure	minor (4)	5 / 2			
	One Up converter is defect or not connected	to a down converter (ar	id enabled)			
2	More Than One Up Converter Failure	major (6)	5 / 2			
	More than one Up converter is defect or not connected to a down converted enabled)					
3	More Than One Up Converter Card Failure	major (6)	5 / 2			
	More than one up converter card is defect or not connected to a down converter (and enabled)					
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					

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14	Configuration Problem	minor (4)	5 / 2
	There is a configuration problem. A configuration problem.	. ,	
20	Slot 0 Alarm	minor (4)	5 / 2
	Slot 0 is in alarm	·······•· (·)	
21	Slot 1 Alarm	minor (4)	5 / 2
	Slot 1 is in alarm	·······•· (·)	
22	Slot 2 Alarm	minor (4)	5 / 2
	Slot 2 is in alarm	[3 . (·)	
23	Slot 3 Alarm	minor (4)	5 / 2
	Slot 3 is in alarm	- ()	
24	Slot 4 Alarm	minor (4)	5 / 2
	Slot 4 is in alarm		
25	Slot 5 Alarm	minor (4)	5 / 2
	Slot 5 is in alarm		
26	Slot 6 Alarm	minor (4)	5 / 2
	Slot 6 is in alarm	1 ,	
27	Slot 7 Alarm	minor (4)	5 / 2
	Slot 7 is in alarm	1 ,	
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>	Group	<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

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	No information		
13	Number Of Up Converter Card NOK	Up Converters	basic
	No information		
20	Status Slot 0	Slots Status	basic
	No information		<u> </u>
21	Status Slot 1	Slots Status	basic
	No information	-	l
22	Status Slot 2	Slots Status	basic
	No information	-	l
23	Status Slot 3	Slots Status	basic
	No information	-	l
24	Status Slot 4	Slots Status	basic
	No information		u .
25	Status Slot 5	Slots Status	basic
	No information	-	l
26	Status Slot 6	Slots Status	basic
	No information	-	l
27	Status Slot 7	Slots Status	basic
	No information		u .
28	Status Slot 8	Slots Status	basic
	No information		1
29	Status Slot 9	Slots Status	basic
	No information		1
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		- 1
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		

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

Control Table

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<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	of this equipment will be clea	ared.
502	Clear All Events	Event	basic
	By writing '1' to this control element, all the events of all the sub-equipments will be cleared.	of this equipment and all the	e events
511	Add Event	Event	basic
	This control element adds an event of severity none 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 to	o default

7.7 Remote Site Tables

7.7.1 CEM03_Remote_Site

Device Information	
Name	CEM03_Remote_Site
Short Description	Monitoring for Central Up Converter system
Long Description	Central monitoring card for 4 down converter cards with CAN IN/CAN OUT and 4 relays
Hardware Reference	9413 044 89421
Software Reference	SOFT 000022 XX
Equipment Type	Monitoring For Remote (About Remote Site)
ETSI Level	/site/energy_system/remote_power_feeding_ system/remote_site

Desc	Description 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 the site					
11	Street	Address	basic			
	Street part of the site address					

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12	City	Address	basic		
	City part of the site address				
13	Province	Address	basic		
	Province part of the site addre	ess			
14	Postal Code	Address	basic		
	Postal Code part of the site ad	ddress			
15	Region	Address	basic		
	Region part of the site address				
16	Country	Address	basic		
	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				

Alar	m Table				
<u>ld</u>	<u>Name</u>	Severity Type (Level)	Set/Clear Delay		
1	One Down Converter Failure	minor (4)	10 / 2		
2	More Than One Down Converter Failure	major (6)	10 / 2		
3	One Fan Failure	minor (4)	30 / 2		
4	More Than One FAN Failure	major (6)	30 / 2		
5	Possible Power Feed Reduced	warning (2)	5 / 2		
9	Output 1 Off	major (6)	5 / 2		
		T			
10	Output 2 Off	major (6)	5 / 2		
15	Communication Failure	major (6)	5 / 2		
		T			
25	Digital Input 1	major (6)	5 / 2		
	This alarm is related to digital input 1	T			
26	Digital Input 2	major (6)	5 / 2		
	This alarm is related to digital input 2	T			
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				

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30	Digital Input 6	minor (4)	5/2
	This alarm is related to digital input 6		

Data	ı 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	
Ì	No information			•	
11	Remote Type	Remote DC System		basic	
	No information				
12	Input Voltage	Remote DC System	Volt	basic	
	No information				
13	Input Common Mode Voltage	Remote DC System	Volt	basic	
	Input Common Mode Voltage with respect to ground				
14	Output Voltage	Remote DC System	Volt	basic	
	No information				
15	Temperature	Remote DC System	degree C	basic	
	No information				
21	Number Of Declared Down Converters	Remote DC System		basic	
	No information				

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				

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Cont	rol Table			
<u>Id</u>	<u>Name</u>	<u>Group</u>	<u>Licens</u> <u>e</u>	
501	Clear My Events	Event	basic	
	By writing '1' to this control element, all the events 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	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, Groups and Subgrouvalues				

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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:

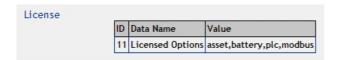


Figure 65 Installed License

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">

cproduct version="0.1.X.X">Cherokee Comp@s/product>

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

<options>asset,battery

<key>vddR+a7oQcx4Qrmt24padm3hSd1DJtbC3LEsKtzxdSJ5mCloN9uZMg

NnvemA13CWE5pOZxZBJY/uTsuCPHEwAQ==</key>

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

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

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Chapter 9 – Software Components

Release

A comp@s release is composed of different components.

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

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

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

9.1 System bootloader

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

9.2 The Operating System

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

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

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

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

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

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

9.3 Comp@s Starter Executable

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

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

9.4 Comp@s Executable

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

When Compas is executed, the followings tasks are run:

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

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9.4.1 C Drivers

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

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

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

Microchip MCP 2515 details.

CAN Message Receiving

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

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

CAN Message Sending

Message can be sent via 3 different output buffers:

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

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

Other Driver Functions

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

9.4.2 Environment Configuration

Global variables are configured depending of the environment:

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

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BSP Version

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

Flash path

Default path to access the flash memory is \\FlashDisk

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

Ethernet Device

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

- DM90001
- AX887961

9.4.3 License

The license is validated and loaded if trusted.

9.4.4 Translation Dictionary

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

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

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

9.4.5 Site Object

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

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

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

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9.4.6 Decode CAN Msg

See MonitoringThreadDecodeCANMsg()()()()

9.4.7 Web Server Interface

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

Default listening port number is 80.

9.4.8 SNMP Management

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

9.4.9 Process Scheduled Tasks

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

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

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

9.4.10 Inventory Management and Equipment Mounting

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

Procedure is the following:

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

9.4.11 Alarm Set-up and Clearance

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

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

9.4.12 System and Application Configuration

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

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9.4.13 Data Record Management

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

9.4.14 Equipment Emulation

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

9.5 Comp@s FTP Server Executable

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

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

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

Wikipedia - FTP

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Chapter 10 – Software Changelog

- .NET Executable Versioning
- Comp@s Changelog.

10.1.NET Executable Versioning

The software versioning is the process of assigning unique version numbers to unique states of computer software. Each assembly has a version number as part of its identity.

Since March 2012, the standardized format used is:

<major version>.<minor version>.<build number>.<revision>

All the fields are integers.

- The major version changes when a release is made that breaks backwards compatibility.
- The minor version will be used in other cases when we release versions.
- The build number increments as we do code reviews and check in working code to the repository. (this number is not displayed to the customer to avoid confusion it is showned as 0.
- The revision is used for internal build, it designate alpha or beta status for releases that are not stable enough for general or practical deployment and are intended for testing/internal use only:
 - o <revision> 0 : for alpha (non-stable)
 - o <revision> 1: for beta (internal)
 - <revision> 2 : for release candidate (QA-passed, final tests)
 - o <revision> 3 : for public (release)
 - <revision> 4 and following: for releasing specific modifications on a released version (for specific customers - should be avoided as much as possible)

Before that version, the used format was:

0.Y.0.X where:

- X is the minor revision number and is:
 - o odd for beta version
 - even for stable version

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Y is the major revision number.

10.2Comp@s Changelog

Note: Only revisions with a SOFT 000031 XX code were released in production. The other versions were distributed to customers for upgrade when necessary.

Legend:+ Added feature * Improved/changed feature - Bug fixed ! Known issue / missing feature

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

- + Implementation of the periodic automatic battery test
- * Finalization of the equalize feature for Cordex dc systems
- * New parameters for site.xml, allowing to download only some resolutions of the records (day, hour, minute, second). By default, it retrieves only dayly and hourly data records/
- + Inverter system with T2S New control element to Turn On/Off all modules
- Inverter system with T2S Save to T2s is now more reliable
- + When the Site Name is configured, it is now the title of the web page. This needs a complete refresh of the web page (Ctrl-F5)
- * New control elements to calibrate voltage and currents on ADIO10
- Fix for relay control problem on ADIO10 (introduced in 0.115.0.3 changes)

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

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

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

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

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- * Better implementation of the data_record management. Thread safe and faster.
- If events.xml was corrupted, the system could never start without deleting the file
- Randomly, system could reboot at midnight during data records saving

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

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

Revision 0.111.0.5 (12/10/2012)

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

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

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

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

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

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Feeding System level

- + New alarm at the site level to notify that the last configuration changes are not saved
- + New site control to remove absent equipments
- + Introduction of 'Absent' status for Cordex Rectifiers
- + Auto detection of the rectifier model for smart energy
- + Support of 850W/1000W systems with embedded distribution.
- + Added possibilites to store a fix information about alarms
- + SNMP Initial Support of monitoring of SNMP device like the Cordex CXC

Revision 0.106.0.3 (22/03/2012) - SOFT 000031 21

* Changed the versioning method to allow modifications of release - 0.106.0.3 is the version after 0.1.0.104

Revision 0.1.0.104 (15/03/2012)

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

Revision 0.1.0.102 (23/02/2012)

* Modbus Slave – Do not reply anymore until modbus variable are updated on dc system creation. This avoids to send transiant 'fake' data

Revision 0.1.0.100 (15/02/2012)

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

Revision 0.1.0.98 (30/11/2011)

- In configurations with multiple independent racks, Modbus data were not correctly updated when multiple request on different racks were processed during one second.

Revision 0.1.0.96 (21/11/2011)

- + 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

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

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

Revision 0.1.0.86 (12/07/2011) - SOFT 000031 19

* The auto-save of records happening at midnight is now running in a separated thread to avoid any loss of communication and any problem in the main loop.

Revision 0.1.0.84 (21/06/2011)

* Support of up to 4 master racks on the modbus interface. (Previously 4). Modbus id 1-->4 are reserved for the 4 first DC Systems. If a request if sent to another id, the dc system 1 will reply.

Revision 0.1.0.82 (16/06/2011) - SOFT 000031 18

 Problem with reload of current limitation regulation parameter (because development test on going with hard coded values)

Revision 0.1.0.80 (16/06/2011)

- Modbus Slave communication could fail when there are socket problems. (Cable disconnection, timeout, etc.) - This problems appeared with the new Ethernet drivers of BSP 3.9.
- + Support of rack CAPTIN 300W
- + Initial support for Alpha Cordex Rectifiers regulation of the dc system

Revision 0.1.0.78 (30/05/2011) - SOFT 00031 17

+ Added support of PLC functions for es1 device.

Revision 0.1.0.76 (27/05/2011) - SOFT 00031 17

* RS485 communications was corrupted when interrupted by another task with higher priority.

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)

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Revision 0.1.0.70 (10/05/2011)

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

Revision 0.1.0.68 (20/04/2011)

- Hardware watchdog - forgot to uncomment after test.

Revision 0.1.0.66 (20/04/2011)

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

Revision 0.1.0.64 (16/04/2011)

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

Revision 0.1.0.62 (10/04/2011)

- Snmp walk was buggy with some PLC data configurations
- * Added possibilities to rename all the variable names. Change the name in the xml configuration file and the related id will be updated on start. (for description, data, alarm, 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)

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Revision 0.1.0.58 (5/04/2011)

- Rewrite of the Modbus RTU Master driver to solve random crash after a few days (windows serial driver bug)

Revision 0.1.0.56 (9/03/2011)

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

Revision 0.1.0.54 (21/02/2011)

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

Revision 0.1.0.52 (6/01/2011)

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

Revision 0.1.0.50 (29/10/2010) - SOFT 000031 16

* Improved support of 300W rack family

Revision 0.1.0.48 (18/10/2010)

+ Initial support of 300W rack family

Revision 0.1.0.46 (29/06/2010)

* Support of 3 dc-system over Modbus interface

Revision 0.1.0.44 (3/06/2010)

* Added concept of dc system and rectifier models (for smart functions)

Revision 0.1.0.42 (20/04/2010)

- 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

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Revision 0.1.0.38 (19/01/2010)

* Review of the logic for ac fail conditions

Revision 0.1.0.34 (24/11/2009)

* Increased reliability of the CAN bootloader reset algorithm

Revision 0.1.0.32 (19/11/2009)

+ Support of large system with CAN regulation (up to 90x2600W rectifiers)

Revision 0.1.0.30 (19/10/2009)

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

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

- Modification of one registry parameter, to disable the "auto sense mode" of Ethernet, which was disabling the Ethernet when connected to a hub.
- * Added cold start type event (to be able to rediscover the site in XML after power outage according to ES 202 336 standard change request)
- * Added support of energy consumption measurement at the energy system level (pulse counter)
- * Full support of SNMP V3 traps
- * Support of compressed XML file in ZIP (xml.zip)
- * Optimization of the XML file generation
- * Data records are reloaded on startup
- * Data records are now stored in XML, and are auto-saved

Revision 0.1.0.26 (16/06/2009)

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

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* (Updated OS drivers on 25 March 2009, because of new booloader on Comp@s card.)

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

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

Revision 0.1.0.18 (1/08/2008)

- * PLC license is now included in the Asset license.
- * Functional battery test is configured (1000A as discharge current, 0% of discharge capacity, duration of 10 minutes). --> Must me correctly configured with the battery parameters for reliable battery test.
- * No current limitation by default (1000A by default, must be set correctly).
- * Modbus compatibility improvements
- * New configuration parameter: XML Heartbeat Time (minute): Define the time in minutes between two heartbeats. It is now possible to request the monitoring to send heartbeat in order to check the communication availability. This XML heartbeat looks like: Note that the same behavior with primary/secondary server is used.
- * New configuration parameter: XML Event Posting To Secondary Only If Primary Failure (Set to True by default). This allows sending XML events to the redundant server only if the first fails.

Revision 0.1.0.16 (1/07/2008)

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

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

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- 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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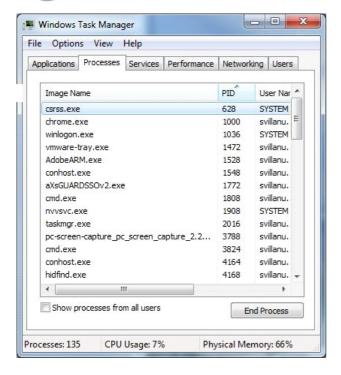


Figure 67 Windows Task Manager

- 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":

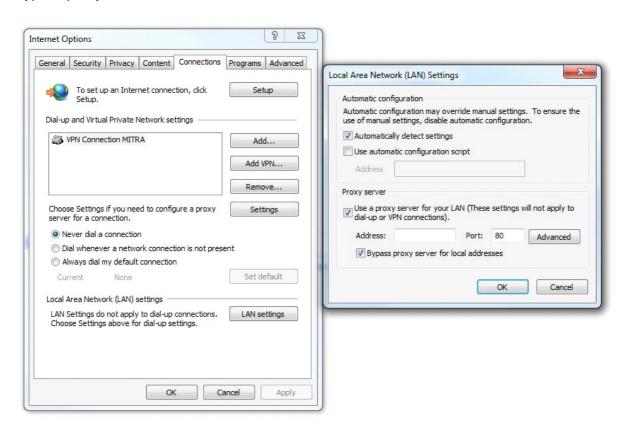


Figure 69 Bypass Proxy Server for Local Address

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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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