

SINAPSI S.r.l.

Via delle Querce 11/13

06083 **Bastia Umbra** (PG) Italy

T.+39 075 8011604 F.+39 075 8014602

www.sinapsitech.it | info@sinapsitech.it



EQUOBOX RTU1

Datalogger for meters with M-Bus protocol

User Guide

Rev 2.7



This manual refers to the versions starting from:
Firmware 2.17.40 / Web 2.15.15 / Hardware 2.0

TABLE OF CONTENTS

1. INTRODUCTION.....	5
1.1 Purpose of the document	5
1.2 Content of the packaging	5
2. RTU TECHNICAL DATA.....	6
3. RTU APPEARANCE	7
3.1 Description of the RTU.....	7
3.2 RTU	7
4. GENERAL INFORMATION ON THE SYSTEM.....	8
4.1 Overview of the system	8
4.2 M-Bus system.....	8
4.3 Addressing.....	9
4.4 Sizing the M-Bus System	9
4.5 Bus signal specifications for SIN.EQLC1	10
5. INSTALLATION	11
5.1 Mechanical assembly.....	11
5.2 Electrical installation	11
5.3 Serial connection to the LC	12
5.4 Connection to a local PC via Ethernet (LAN)	12
5.5 Connection to a GPRS-UMTS modem/router	13
5.6 Connecting the digital inputs to voltage free contacts.....	14
5.7 Connecting the digital inputs to positive voltage contacts	14
5.8 Connecting the digital inputs to negative voltage contacts.....	15
5.9 Digital output connection.....	16
6. COMMISSIONING.....	17
7. SELECTING THE LANGUAGE	19
8. BUTTONS AND DISPLAY.....	20
8.1 Button description.....	20
8.2 Display.....	20
8.3 Display – Main menu.....	20
8.4 Display – RTU INFO.....	21
8.5 Display - METERS	22
8.6 Display - SETTINGS	24
8.7 Display – METER SEARCH.....	24
9. CONNECTING THE RTU TO THE PC.....	26
10. HOMEPAGE.....	27

11.	SETTINGS - SYSTEM	29
11.1	Plant Database.....	29
11.2	System settings.....	30
11.3	Maintenance	31
12.	SETTINGS - NETWORK	32
12.1	General Setup	32
12.2	Advanced Setup.....	32
12.3	Email Setup.....	34
12.4	DynDNS.....	35
13.	DATA SAMPLING	36
13.1	Defining sampling frequency and RAW data	36
14.	DEFINING SUMMARY DATA	37
14.1	Summary Data – None.....	37
14.2	Summary Data – Consumption	37
14.3	Summary Data – Maximum	38
14.4	Summary Data – Minimum	38
14.5	Summary Data – Average.....	39
15.	SETTINGS – WIRED DEVICES	40
15.1	Search Setup	40
15.2	Meters Setup.....	43
15.3	Meter Setup – Meters built into DataBase	44
15.4	Meter Setup – Meters not built into DataBase	49
16.	SETTINGS - EVENTS.....	54
16.1	I/O Events	54
16.2	M-bus events.....	55
16.3	Condition set according to the maximum value acquired.....	56
16.4	Condition set according to the minimum value acquired	57
16.5	Condition set according to the value out of range	58
16.6	Condition set according to the M-Bus status	59
17.	SETTING - GROUPS	61
17.1	Group creation.....	61
17.2	Group definition	62
18.	EXPORTING DATA	64
18.1	Create Reports - Meters	64
18.2	Create Reports - Groups.....	75
18.3	Example of data Summary for group in .xls and .csv	77

18.4	Planning	77
18.5	Repository	82
19.	USER ACCOUNT	83
20.	PLANT STATUS	84
20.1	Plant Status – System Status – System Status	84
20.2	Plant Status – System Status – Event Reports	85
20.3	Plant Status – Wired Devices.....	86
20.4	Plant Status – I/O Devices.....	87
20.5	Plant Status - Group	87
21.	APPENDIX.....	88
21.1	ROUTER Configuration.....	88

1. INTRODUCTION

1.1 Purpose of the document

This document is a guide to the installation, configuration, and commissioning of the EQUOBOX RTU, code SIN.EQRTU1, hereinafter referred to as RTU. This document is intended for technical personnel with an average knowledge of electrical engineering, IT, basic TCP/IP principles, and M-Bus systems.

The RTU has an embedded webserver and is a datalogging and consumption monitoring system for heating and cooling systems equipped with meters that communicate using the M-Bus protocol. The use of the EQUOBOX LC, code SIN.EQLC1, hereinafter referred to as LC, is required to communicate with the M-Bus devices.

Please read carefully the following notes

- Place the system Firewall undercovered and isolate it from the corporate network
- For remote access to the machine, we recommend the use of secure technologies such as Virtual Private Networks (VPNs), recognizing VPN in the most secure way to connect to the device

The first section of this guide is dedicated to the description of the technical specifications of the RTU and its commissioning. We will describe how to commission the plant, scanning and adding meters. Then, we will describe the advanced configuration via web interface and, finally, how to generate consumption reports and plans.

1.2 Content of the packaging

The RTU packaging contains:

- RTU datalogger
- Installation leaflet

2. RTU TECHNICAL DATA

The RTU is a hardware device with no moving parts, made in compliance with industrial standards, which can be DIN-rail mounted inside an electrical panel. The main technical specifications of the device are shown below:

- Operating temperature range: [-20 / +55 °C]
- Storage temperature range: [-25 / +65 °C]
- Protection Rating: IP20 (EN60529)
- Fastening: 35mm DIN bar (EN60715)
- Dimensions: 4 DIN modules (90x72x64.5)
- Power Supply: 24Vdc +/- 10%, 24Vac (min 20Vac, max 40Vac)
- Power consumption: Max 3W

3. RTU APPEARANCE

3.1 Description of the RTU

The RTU is one of the two dataloggers of the EQUOBOX family. The main functional features described in this document are summarised below:

- Webserver-based datalogger
- Manages up to 250 M-Bus meters
- 4G Byte internal memory
- Data logfile of daily synthetic data for up to 10 years
- Daily readout logfile for 1 year
- Data logging interval between 15 minutes and 1 month
- Remote system management, meter readout, report sending, alarm management, and event management
- 3 digital inputs for logic control and remote control
- 2 relay outputs (Max 2A@230Vac) for logic control and remote control
- 128x96 pixel OLED display for local consultation and configuration
- 6-key membrane keyboard

3.2 RTU

An image of the RTU with its main functional parts is shown below:

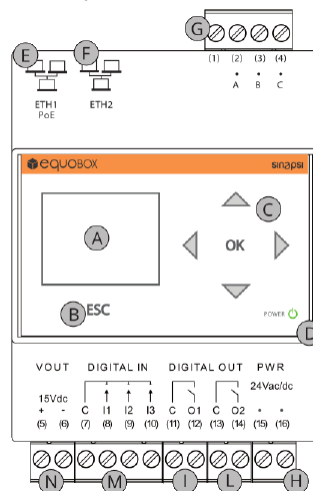


Figure 1 - View of the RTU

- A. Display
- B. Navigation button (ESC)
- C. 5-key navigation keyboard (UP-DOWN-LEFT-RIGHT-OK)
- D. Operating status LEDs
- E. Ethernet Port 1 (PoE)
- F. Ethernet Port 2
- G. LC bus connector
- H. Power supply input connector
- I. Output connector to relay 1 (normally open contact)
- J. Output connector to relay 2 (normally open contact)
- K. Digital input connector
- L. Auxiliary voltage output connector for digital inputs

4. GENERAL INFORMATION ON THE SYSTEM

4.1 Overview of the system

This is a consumption monitoring and metering system based on a standard M-Bus communication protocol (EN13757). All the meters that use this communication protocol can be connected and will be managed by the system with all the functions it features.

The LC is required to allow the RTU to communicate with the M-Bus devices. An example of the system architecture is shown below

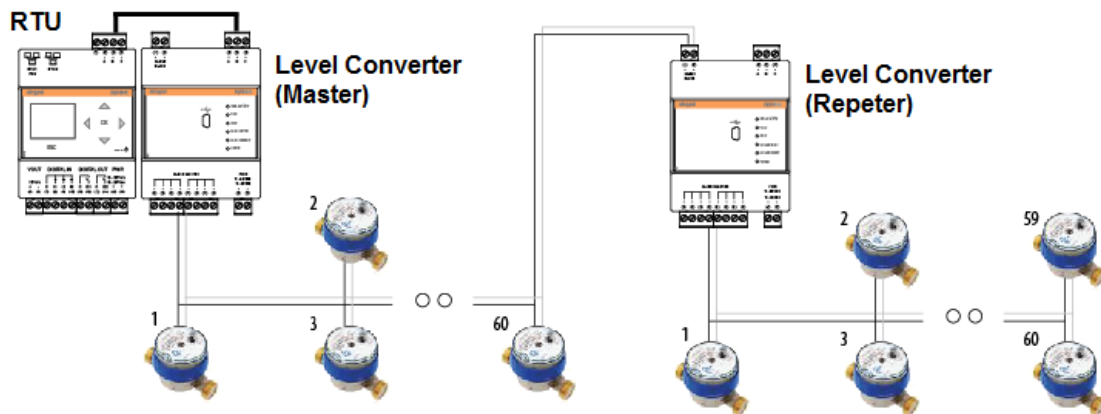


Figure 2 - System architecture

The RTU can manage up to 250 meters, whereas the single LC can manage up to 60 M-Bus nodes. In the event that there are more than 60 M-Bus nodes to be managed with the same RTU, you can use one or more LCs in Repeater mode.

4.2 M-Bus system

The M-Bus (Meter Bus) system is a communication protocol compliant with the EN1434-3 standard. The M-Bus System provides the following advantages:

- High level of data transmission security
- Low wiring costs
- Long distances without requiring repeaters
- Large number of central units
- Detection of both battery-powered and mains-powered devices
- Automatic device recognition
- Vast array of systems and components available
- Different types of bus topology: linear, star, and tree

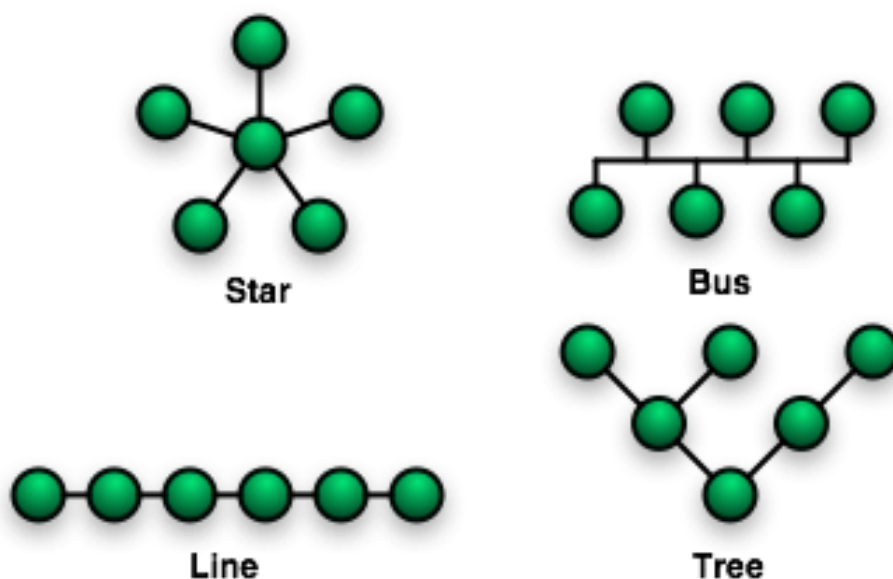


Figure 3 - Bus topologies

4.3 Addressing

The M-Bus protocol provides two types of addressing modes to detect and communicate with the devices connected to the bus

- *Primary addressing*: up to 250 primary addresses can be allocated within an M-bus system (hexadecimal format). The primary address is normally allocated while setting up the units.
- *Secondary address*: the secondary address consists of 8 bytes and allows the allocation of any number between 00000000 and 99999999. By default, the secondary address of the devices is the same as the manufacturer serial number. Readouts by secondary address while scanning the bus allow the acquisition of the meters that support the “Wildcard” logic, the same that enables the selection of a group of devices based on the section of their serial number.

4.4 Sizing the M-Bus System

Follow the instructions provided in the table to size the M-Bus system

Type of plant	Maximum distance	Overall cable length	Cross-section mm ²	Number of devices (slaves)	Max. transmission rate
Small residential buildings	350 m	1000 m	0.8 mm	250	9600 Baud
Large residential buildings	350 m	4000 m	0.8 mm	250	2400 Baud
				64	9600
Small complex	1000 m	4000 m	0.8 mm	64	2400 Baud
Large complex	3000 m	5000 m	1.5 mm ²	64	2400 Baud
Medium neighbourhood	5000 m	7000 m	1.5 mm ²	16	300 Baud

Point-to-point connection	10000 m	10000 m	1.5 mm ²	1	300 Baud
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4.5 Bus signal specifications for SIN.EQLC1

M-Bus system	Designation	Condition	Minimum	Typical	Maximum	Measurement unit
Number of devices per segment	n	SIN.EQLC1	0		60	
Transmission rate	T	$C_{segment} \leq 382nF$	300	2400	9600	Bd
Bus voltage	U	IM=0...400mA	12		42	V
Bus Voltage (Master)	U _M	IM=0...400mA	24	40	42	V
Bus Voltage (slave)	U _{S,R}	$I_S \leq 1.5mA$	±21		±42	V
Bus current	I _{M,V}	SIN.EQLC1	0		90	mA
DC Bus current	I _{M,K}	SIN.EQLC1	130	500	160	mA
Current (slave)	I _{S,R}	US=21...42V	0.75	1.2	1.2	mA
Transmitted current (slave)	I _{S,S}	US=21...42B	11		20	mA

5. INSTALLATION

Carefully follow these instructions to install the device, in order to be able to commission the system in the best possible way. The device must be installed by qualified personnel, specialised in the installation of electrical equipment.

5.1 Mechanical assembly

This device has been designed to be DIN-rail mounted; therefore, no other mounting options are allowed. The DIN-rail mount consists of the following steps:

- Fasten the DIN rail to the bottom of the electrical panel (if it is not already provided with it)
- Remove all the terminals of the device before hooking it on the DIN rail
- Place the recess at the bottom of the device on the upper part of the DIN rail, keeping it at a 45° angle with the rail. Turn the device until it engages with the rail.

Carefully read the following notes

To prevent mechanical stress on the terminals, which could damage the device, it is important to wire the terminals disconnected from the device. Follow these instructions:

- Remove the terminals from the device pulling outwards
- Tighten the cables to the removed terminal complying with the right polarity
- Reinsert the terminal with the cables placing it in its correct position

5.2 Electrical installation

Verify the following before commissioning the device:

- Ensure that the electrical panel where the device is installed is powered off
- Verify the presence of power supply protection devices (fuses, circuit breakers, differential switches)
- Ensure that the supply voltage is within the operating limits of the device and that the supply power is enough to ensure the proper operation of all the devices connected to it, verifying the maximum power consumption of each one of them
- If you opt for a PoE (Power Over Ethernet), ensure that the network cable is connected to Eth1 and that the PoE switch is suitable for the device.
- Ensure that the LC is connected properly to the M-Bus network and to the supply voltage (refer to the installation manual)
- Ensure that the RTU is connected properly to the LC via the serial bus marked A-B-C
- Ensure that the modem router (if any) is installed according to the instructions of the manual
- In the event of data connection, ensure that the Ethernet cable is crimped properly and connected to Eth1 or Eth2

5.3 Serial connection to the LC

Before connecting the device to the LC (SIN.EQLC1), ensure that the latter is installed correctly, according to the instructions in the installation manual.

Connect the RTU to the LC as shown in the figure:

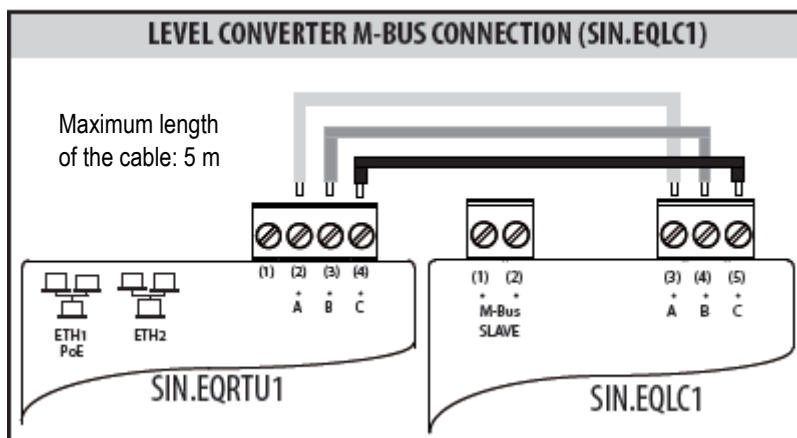


Figure 4 - Type of connection

If the serial connection to the LC is correct, the TX LED on the front of the LC will start blinking in synchrony with every communication with the M-Bus devices connected to it.

5.4 Connection to a local PC via Ethernet (LAN)

The device is equipped with two Ethernet ports ETH1 and ETH2 to connect it to a PC either connected to a LAN network or directly via an Ethernet cable.

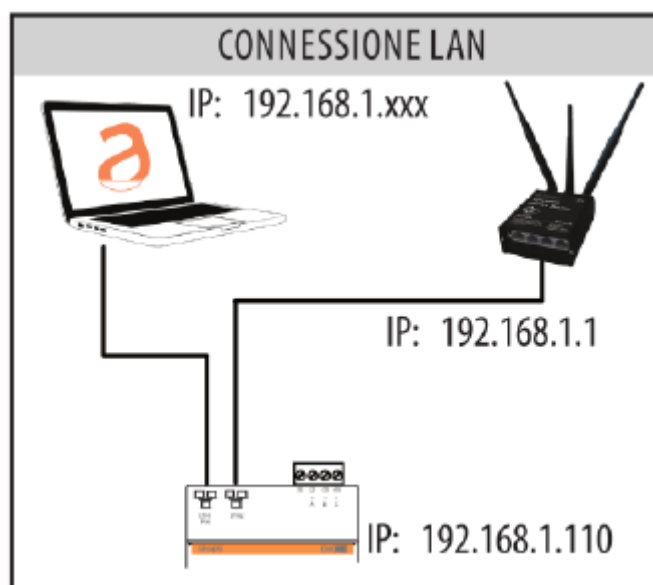


Figure 5 - LAN connection

To connect the device directly or via the LAN network of a PC, follow the instructions below:

- Use a standard T568A or T568B Ethernet cable (straight through or crossover) to connect the ETH1 or ETH2 port of the RTU to the Ethernet port of the computer or to an existing LAN socket. If you use an existing LAN, connect the computer to another LAN socket

- Verify the RTU IP address from the display by accessing the RTU INFO menu (Chapter 8.4) and ensure that the ETH icon corresponding to the Ethernet connection indicates that the cable is connected properly

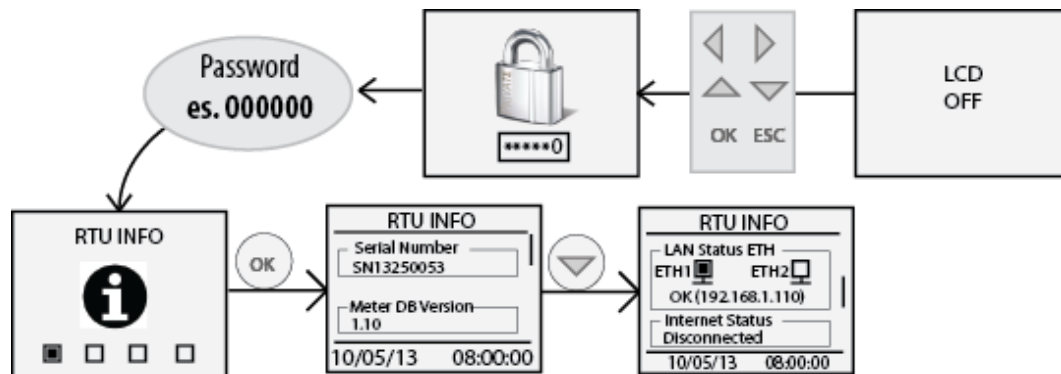


Figure 6 - LAN configuration

The default RTU network settings are:

- IP address: 192.168.1.110
- Netmask: 255.255.255.0
- IP allocation: Static
- Configure the PC network interface with an IP address that belongs to the same subnet as the RTU. The example in the figure shows that, in order for the computer to communicate via Ethernet with the RTU, you must configure the IP address of the computer network adapter to which the RTU is connected:
- IP address: **192.168.1.XXX (With XXX being a number ranging between 1 and 254 and different than 110)**
- Netmask: **255.255.255.0**
- IP allocation: **Static**
- To change the IP address of the computer network adapter, refer to the user manual of the Operating System of your PC
- In the event that the PC and the RTU are connected via an existing LAN (company or domestic network), make sure not to allocate the IP address of the RTU or of the PC
- For instructions on how to change the IP address of your PC, refer to your current OS

5.5 Connection to a GPRS-UMTS modem/router

A data connection to access the Internet ensures remote consultation of the webserver, sending of consumption reports, and monitoring of the system. Should a LAN/ADSL connection not be available, you must use a modem/router supplied as an option of the RTU.

The default settings of the RTU and SIN.ROUTER allow the connection of the two devices without having to change their network parameters. The router is configured to use a TIM (Telecom Italia Mobile) SIM. In this case, the user must carry out the following operations:

- Power off the router.
- Remove the front panel where the place to insert the SIM is indicated
- Ensure that the SIM PIN is disabled
- Insert the data SIM in the right direction
- Close the front panel
- Fasten the two GSM MAIN and AUX antennas to ensure sufficient transmission signal
- Wait for the router to connect to the mobile network
- Use a network cable to connect port LAN1 of the router to port ETH1 or ETH2 of the RTU
- Verify that the Internet connection is OK from the display (section RTU INFO, Chapter 8.4)

Should a TIM SIM not be available, the operator will have to change some router settings:

- Verify whether it is a Machine-To-Machine (M2M) SIM
- It is enabled for GPRS/UMTS traffic
- Check with the operator that it is bidirectional. i.e. that it allows access to port 80 for webserver consultation
- Change the APN of the router with the one provided by the operator (e.g. ibox.tim.it / m2mbis.vodafone.it)

Refer to the Appendix (Chapter 21) for in-detail information on router settings

5.6 Connecting the digital inputs to voltage free contacts

Follow the instructions below to connect the digital inputs to the device with voltage free contacts, such as switches, interface relays, or anything else that does not require voltage:

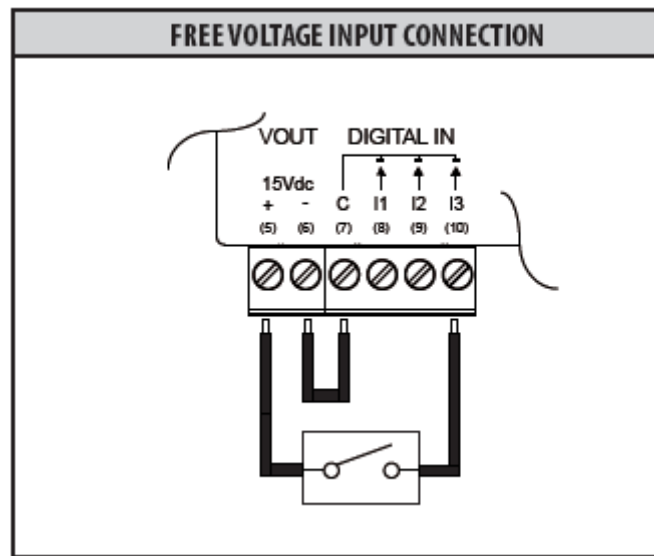


Figure 7 - Digital input connection

- Connect the digital input common (7) to the Vout terminal (6)
- Connect the Vout (+15Vdc) terminal (5) to one of the poles of the contact you want to connect
- Connect the other pole to the desired digital input: (8) for I1, (9) for I2 e (10) for I3

5.7 Connecting the digital inputs to positive voltage contacts

Follow the instructions below to connect the digital inputs to the device with positive voltage (in the event of closed contacts) and voltage free contacts (in the event of open contact):

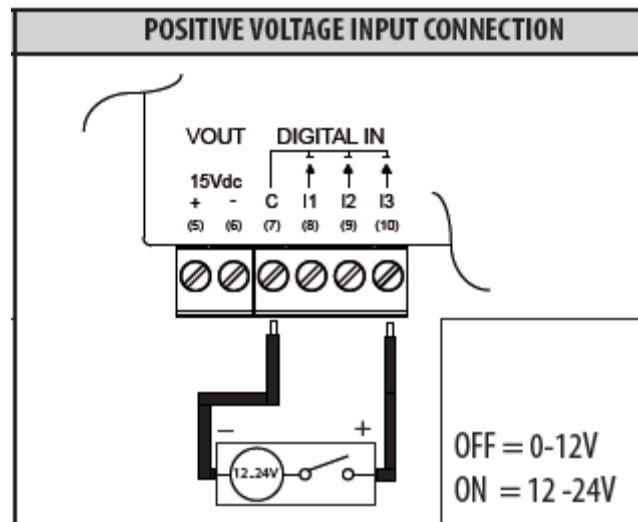


Figure 8 - Positive voltage digital input connection

- Connect the common pole (negative) of the contact to the common terminal (7) of the device
- Connect the positive pole of the contact to terminal (8)/(9)/(10) for inputs I1/I2/I3

When the voltage at the ends of the connected input – for example between (7) and (10) – ranges between 0V and 12V, the RTU input is considered open (OFF). When the voltage value ranges between 12V and 24V, it is considered closed (ON).

5.8 Connecting the digital inputs to negative voltage contacts

Follow the instructions below to connect the digital inputs to the device with negative voltage (in the event of closed contacts) and voltage free contacts (in the event of open contact):

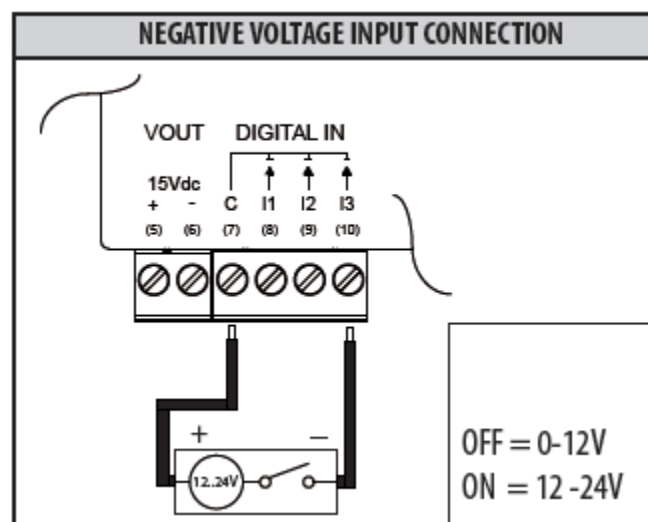


Figure 9 - Negative voltage digital input connection

- Connect the common pole (positive) of the contact to the common terminal (7) of the device
- Connect the negative pole of the contact to terminal (8)/(9)/(10) for inputs I1/I2/I3

When the voltage at the ends of the connected input – for example between (7) and (10) – ranges between 0V and 12V, the RTU input is considered open (OFF). When the voltage value ranges between 12V and 24V, it is considered closed (ON).

5.9 Digital output connection

The RTU is equipped with two relays that can be used as digital outputs. You can connect a load to them or use them to activate other systems. Outputs O1 and O2 can be controlled both remotely and via web server (Ref. Chapter 15). For connection to electrical loads follow the model in Figure 10 and the maximum values for each relay shown below:

- 5A@30Vdc (Resistive Load)
- 2A@30Vdc (Inductive Load $\cos\phi=0.4$; L/R=7ms)

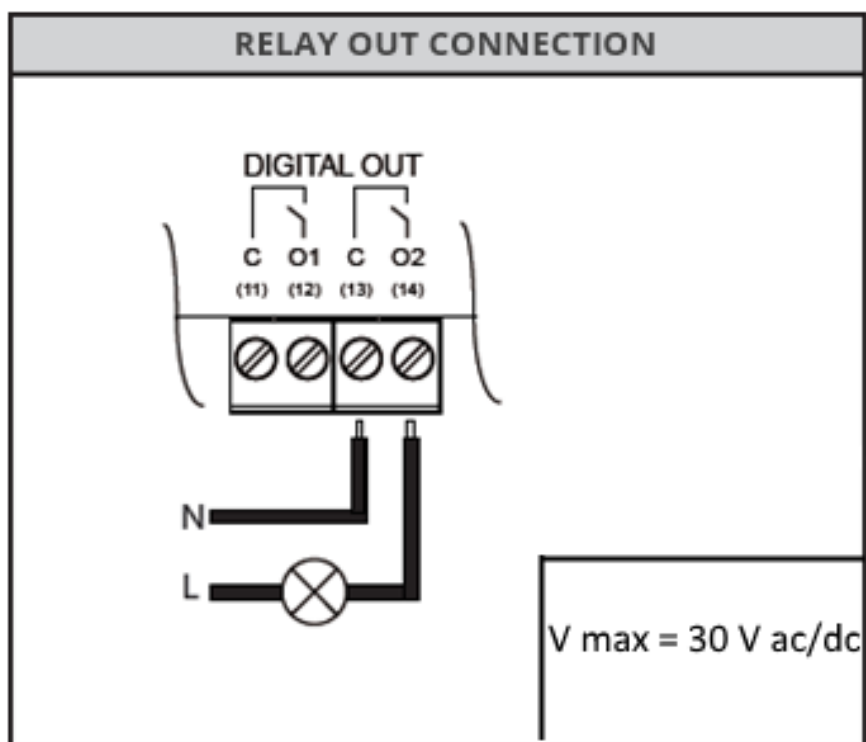
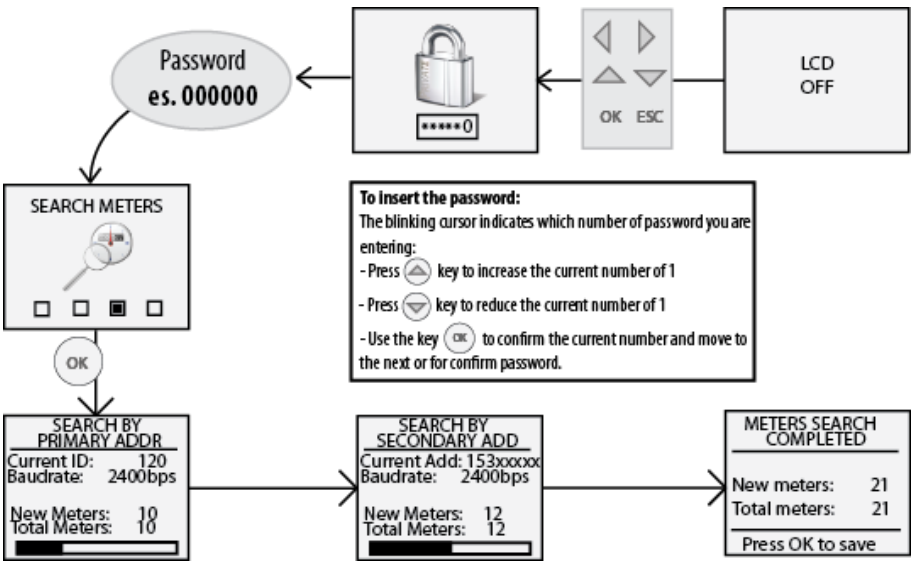
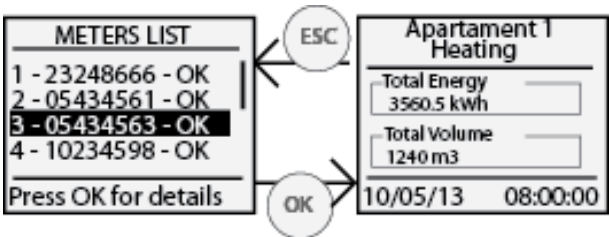


Figure 10 - Digital output connection

6. COMMISSIONING



Commissioning includes all the activities that allow full operation of the RTU connected to the M-Bus system. Upon completing the installation and verifying that all the connections have been made properly, the system can be commissioned following the instructions below:

<p>1</p> <p>Verify M-Bus</p> <p>(REQUIRED)</p>	<p>Ensure that the M-Bus Ready LED lights up on the LC (SIN.EQLC1) and the M-Bus error LED is off. Use a multimeter to verify that the voltage at terminals (6) and (7) of the LC (SIN.EQLC1) ranges between 24Vdc and 42Vdc.</p>
<p>2</p> <p>Start meter search</p> <p>(REQUIRED)</p>	<p>Start the meter search by clicking on OK on the SEARCH icon:</p> 
<p>3</p> <p>Verify Meters</p> <p>(REQUIRED)</p>	<p>Once the search is complete, the list of meters is displayed together with the communication status (OK or ERROR), as shown in the figure:</p>  <p>Press OK in correspondence of a meter to access the latest readout performed.</p>
<p>4</p> <p>Access to Webserver</p> <p>(RECOMMENDED)</p>	<p>After scanning the bus, we recommend accessing the RTU's webserver (see Chapter 10) to complete the configuration, adding the plant database and allocating the meters and settings to send the reports.</p> <ul style="list-style-type: none"> Use a network cable to connect the RTU to the computer, as described in Chapter 4.4

	<ul style="list-style-type: none"> • Open your web browser, such as Chrome, Safari, Firefox (We recommend Google Chrome) • Type in the RTU's IP address, indicated on the display, in the address bar, as described in Chapter 4.4 (e.g. 192.168.1.110) and press "Enter"
5 Meter name allocation (RECOMMENDED)	<p>To ensure easy consultation of the consumption through the reports or on the RTU display, the user should assign at least a Device Name to identify a meter with its utility, for example Apartment 1 or Apartment 12.</p> <ul style="list-style-type: none"> • See Chapter 15 allocate the name and add the description of the meters
6 Plant Database (RECOMMENDED)	<p>The plant database includes information on the property and location of the plant. These are shown in the heading of the reports generated by the datalogger.</p> <ul style="list-style-type: none"> • See Chapter 11 to set the plant database
7 Email settings (RECOMMENDED)	<p>To allow the datalogger to notify reports/events or anomalies/errors in a plant, we recommend setting the Email section carefully.</p> <ul style="list-style-type: none"> • See Chapter 12.3 for the email settings
8 Display/Webserver password changes (HIGHLY RECOMMENDED)	<p>Before completing the commissioning stage, we highly recommend changing the default password to access the display and webserver.</p> <ul style="list-style-type: none"> • See Chapter 0 for instructions to change the password to access the display • See Chapter 0 for instructions to change the password to access the webserver

7. SELECTING THE LANGUAGE

You can select the language directly from the RTU or via the Web.







In the former case, upon entering the password in the main menus, such as RTU INFO, METERS, SEARCH, and SETTINGS, all you have to do is press the arrows  or  to change the language. The available languages are English and Italian

Refer to Chapter 11.1 for instructions to change the language via the Web.

8. BUTTONS AND DISPLAY

8.1 Button description

The RTU is equipped with 6 navigation buttons, which allow browsing through the menus on the display. The functions of the buttons may change according to the context of the displayed menu; in general, we can summarise them as follows:

	Button to confirm field and value changes Button to access the submenus
	Button to cancel field and value changes Button to exit the submenus
	Left: for main menu / data cursor
	Right: for main menu / data cursor
	UP: To scroll pages up Change/add letters from A to Z or numbers from 0 to 9 Changes the language between Italian and English in the RTU INFO, METERS, SEARCH, and SETTINGS menus
	Down: To scroll pages down Change/add letters from A to Z or numbers from 0 to 9 Changes the language between Italian and English in the RTU INFO, METERS, SEARCH, and SETTINGS menus

8.2 Display

The RTU is equipped with a 96x128 pixel resolution OLED display (16-level greyscale), which allows the consultation of the readouts and basic settings of the RTU. To minimise electricity consumption, the display turns off automatically after 10 minutes of inactivity. To turn it on again, simply press one of the navigation buttons.

8.3 Display – Main menu

To access the main menu when the display is off, press any button and the screen to enter the LCD password will be displayed. Enter the password (default: 000000) using the UP and DOWN buttons to set the number between 0 and 9 on the position indicated by the blinking cursor; press OK to confirm the current position and proceed to the next one, until all the six numbers are entered.

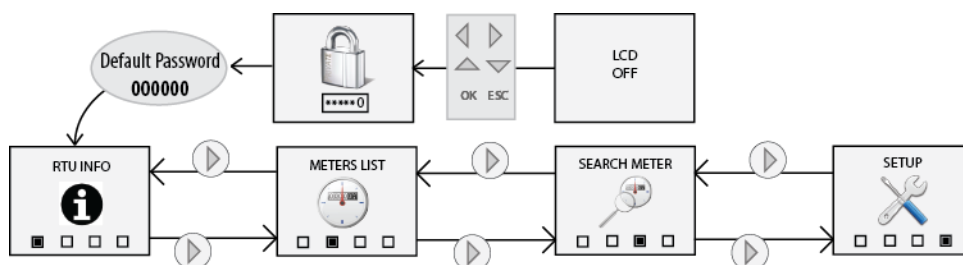


Figure 11 - Display navigation

If you enter the correct password, the main menu, consisting of 4 pages, will be displayed:

- RTU INFO: summarises all the information pertaining to the RTU (see Par. 6.4)
- METERS: shows the list of all the meters and allows access to the readout (see Par. 6.5)
- SEARCH: starts searching the meters according to the last settings saved (see Par 6.6)
- SETTINGS: allows access to the “settings” menu, through which you can change the main RTU parameters (see Par. 6.7)

8.4 Display - RTU INFO

Press OK in the RTU INFO menu to access the submenu that displays the network parameters as shown in the figure:

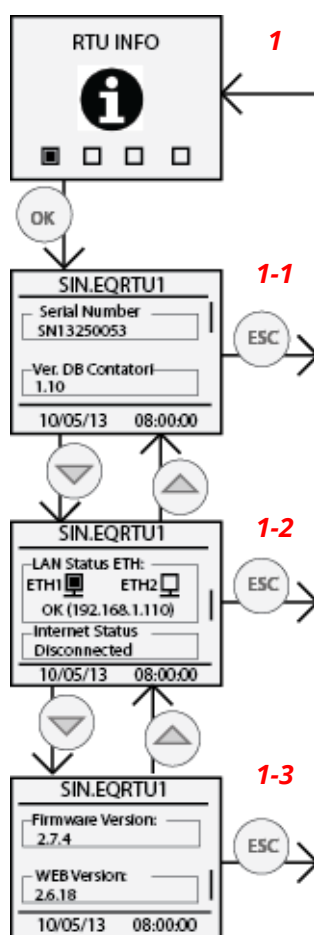


Figure 12 - RTU INFO

Each page, **1-1**, **1-2**, and **1-3** shows the model of the device and the current date and time. As for the content of the single sections, we have:

- **1-1**
 - *Serial Number*: Shows the serial number to be indicated in the event of technical support
 - *Meter DB Ver.*: Shows the version of the meter database installed in the datalogger
- **1-2**
 - *LAN ETH status*: Indicates the connection status of Ethernet ports ETH1 and ETH2. In the event at least one of the two ports is connected, it shows the IP address of the network interface
 - *Internet status*: Indicates whether the RTU can connect to the Internet or not. If an Internet connection is available, the public IP address, with which the RTU can be viewed remotely, is displayed
- **1-3**
 - *Firmware version*: Indicates the current firmware
 - *WEB version*: indicates the current version of the web interface

8.5 Display - METERS

Press OK in the METERS menu to access the submenu that allows you to view the list of all the meters and the latest readout performed. The following figure shows the possible steps that can be taken in the METERS menu:

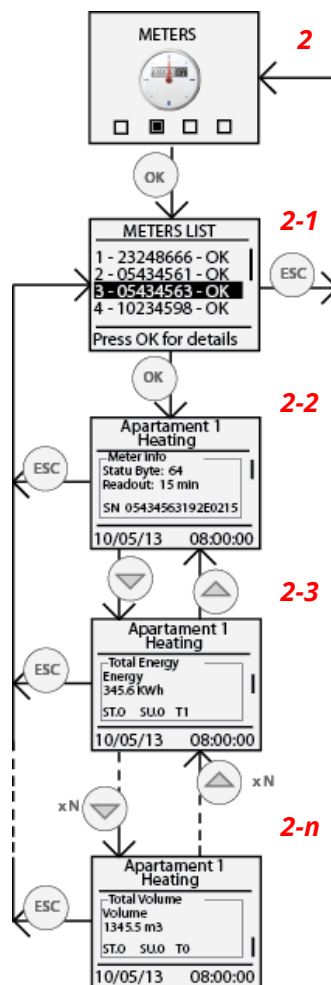


Figure 13 - Meters display

- **2-1**: shows the list of the previously saved meters identified with the first 8 numbers of the meter's serial number (e.g. 05434563). The communication status of every meter is shown

indicating OK if the last readout was carried out correctly or ERROR in the event of a communication error during the last readout

- Use navigation buttons UP and DOWN to scroll through the list of all the meters, highlighting the one you want to select to access the values of the last readout
- **2-2:** press OK in correspondence of a meter in the list to view the values of the last readout (if any). The first frame, indicated in Figure 14, is common to all three meters, as it is a summary of the main information pertaining to the meter, such as the M-bus status byte value, meter readout value, and the full serial number. If the M-Bus status byte is different from zero, it indicates possible meter anomalies. In the event that a meter is included in the datalogger database, you can identify an anomaly by accessing the webserver and consulting the Devices page in the Settings menu. In the event that the meter is not included in the datalogger database, refer to the meter user guide to identify the anomaly corresponding to the number indicated in the M-Bus status Byte
- **2-3/2-n:** use navigation buttons UP and DOWN to consult the value of the meter fields pertaining to the date and time of the readout. For every field, the following information is shown:

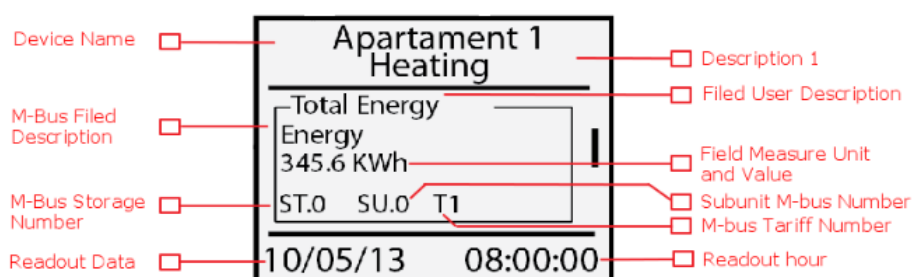


Figure 14 - Meter data readout

Carefully read the following notes

The display shows only the meter fields where the **"Display Data"** option is active in the **"Meter Data Setup"** section of the **"Devices"** page in the **"Settings"** menu (see Par. 15)

- Device Name: Shows the reference of the meter specified in the Device Name in the Devices page in the Settings menu. Refer to Chapter 15 to change the meter reference
- Description 1: Shows the value entered in *Description 1* in the Devices page in the Settings menu. Refer to Chapter 15 to change the meter reference
- Field User Description: Indicates the detailed description of the displayed field entered by the user or included in the meter database
- Field M-Bus Description: Shows the field description as defined in the M-Bus protocol.
- Field value and measurement unit: Indicates the value and measurement unit of the field displayed with reference to the readout being viewed
- M-bus Storage Number: Indicates the Storage Number of the displayed field. Refer to the meter manual guide for further information
- M-bus Subunit Number: Indicates the Subunit Number of the displayed field. Refer to the meter manual guide for further information
- M-bus Tariff Number: Indicates the Tariff Number of the displayed field. Refer to the meter manual guide for further information
- Readout Date: Indicates the date of the readout being viewed

- **Readout Time:** Indicates the time of the readout being viewed

8.6 Display - SETTINGS

The Display Settings section is divided into four subsections

- **General**
- **M-Bus**
- **Network**
- **Password**

Refer to Chapter 8 (Buttons and Display) and to Figure 15 to consult the various items.

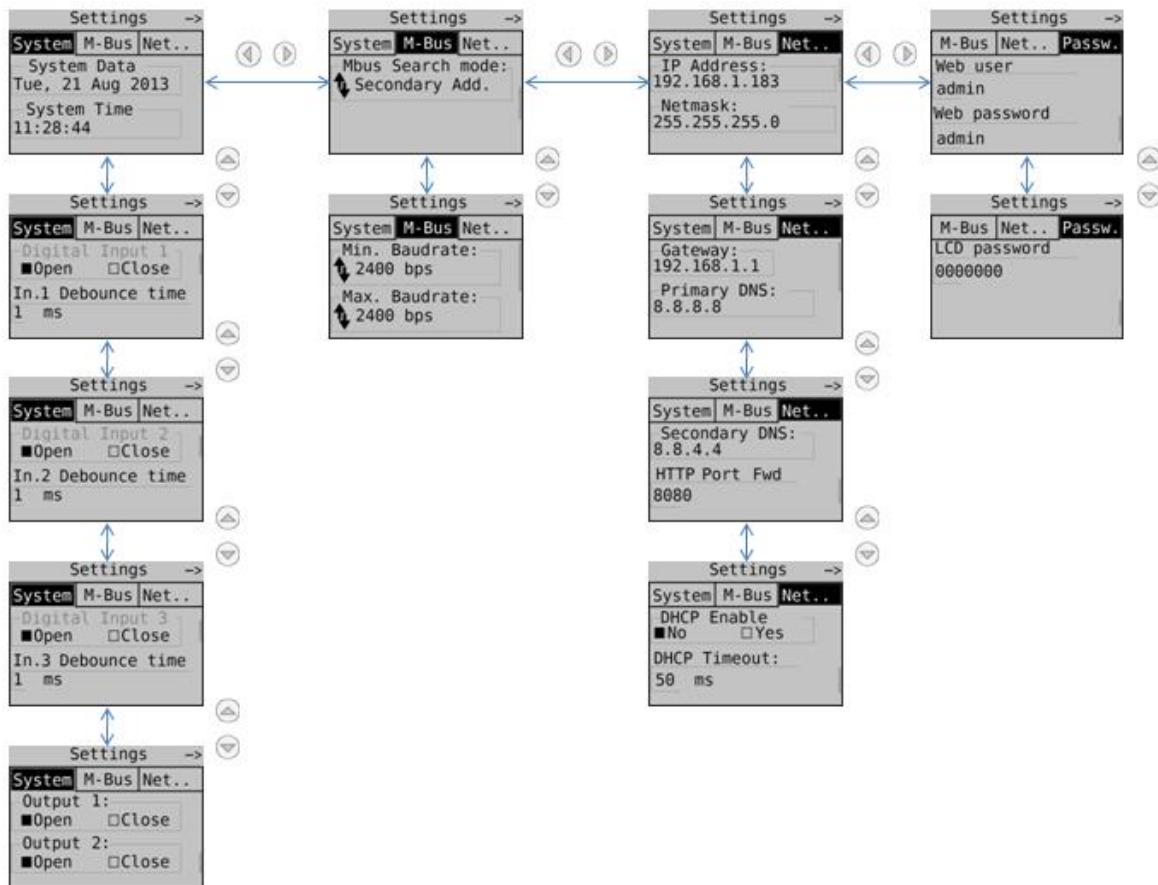


Figure 15 - SETTINGS structure

Press OK for every field reached via the navigation buttons to select the fields to be modified and then press OK again to change the values to enter using the navigation arrows, as shown in Chapter 8.

8.7 Display - METER SEARCH

Press OK in correspondence of the SEARCH METERS icon to start scanning the bus and acquire the connected meters. The search settings are those that have been previously saved as shown in Chapter 6.

The default search settings are:

- Transmission rate: 2400bps
- Type of search: Primary ID + Secondary ID
- Primary ID scanning interval 1-250

The figure below shows a typical bus scan with the default settings indicated above:

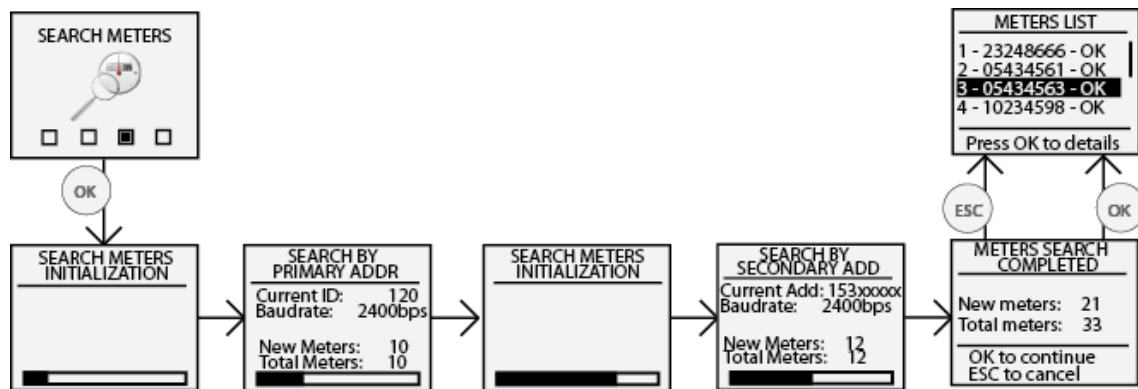


Figure 16 - Searching meters

Upon completing the meter search, second last block, press OK to save all the meters found; otherwise, press ESC if you do not want to save any of the meters found. Refer to the WEB section (Chapter 8, 15.4) to change or complete the settings of the meters found in this section.

9. CONNECTING THE RTU TO THE PC

Connect the RTU either to ETH1 or ETH2 using a T568A or T568B (straight through or crossover) Ethernet cable as shown in Figure 17

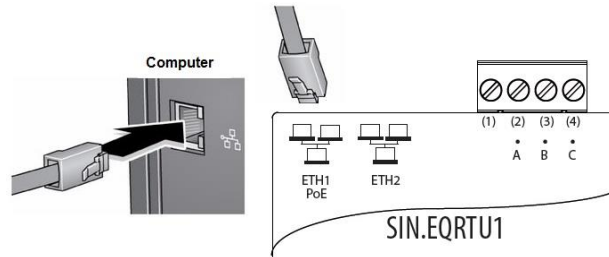


Figure 17 - LAN connection

Set the network adapter of your PC in such a way as to allow communication between the two devices. Below is a description of a possible configuration of the LAN between the two devices in the event that the RTU IP address has not been changed, as shown in Chapters 5.4, 8.4

Carefully read the following notes

In order for the RTU and PC to communicate, the two devices must have an IP address within the same subnet.

The default RTU network settings are:

- IP address: **192.168.1.110**
- Netmask: **255.255.255.0**
- IP allocation: **Static**

In order for the computer to communicate with the RTU via Ethernet, the IP address of the computer's network adapter must be set as follows:

- IP address: **192.168.1.XXX** (With XXX being a number ranging between 1 and 254 and different than 110)
- Netmask: **255.255.255.0**
- IP allocation: **Static**

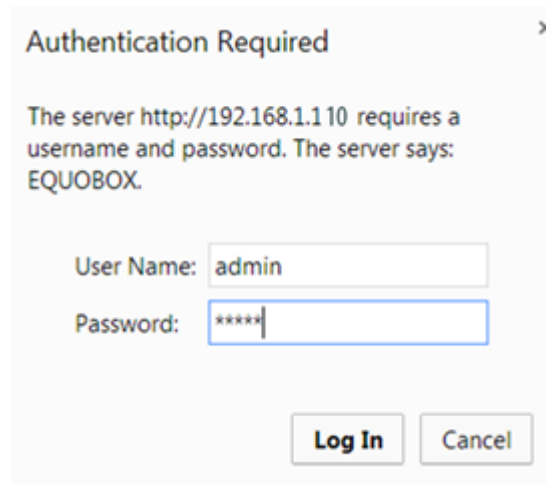
To change the IP address of your computer's network adapter, refer to its Operating System user guide.

In the event that the PC and the RTU are connected via an existing LAN (company or domestic network), make sure not to allocate the IP address of the RTU or of the PC.

In the event that the default IP address of the RTU has been changed, you can consult the current IP address as described in Chapters 5.4, 8.4

10. HOMEPAGE

Connect the device as shown in Figure 17 and type in the address 192.168.1.110 in your browser



Authentication Required

The server http://192.168.1.110 requires a username and password. The server says: EQUOBOX.

User Name:

Password:

Figure 18 - Login

The data for the first access are:

- User Name: admin
- Password: admin

Press Log in to access the Homepage appears as shown in the figure:

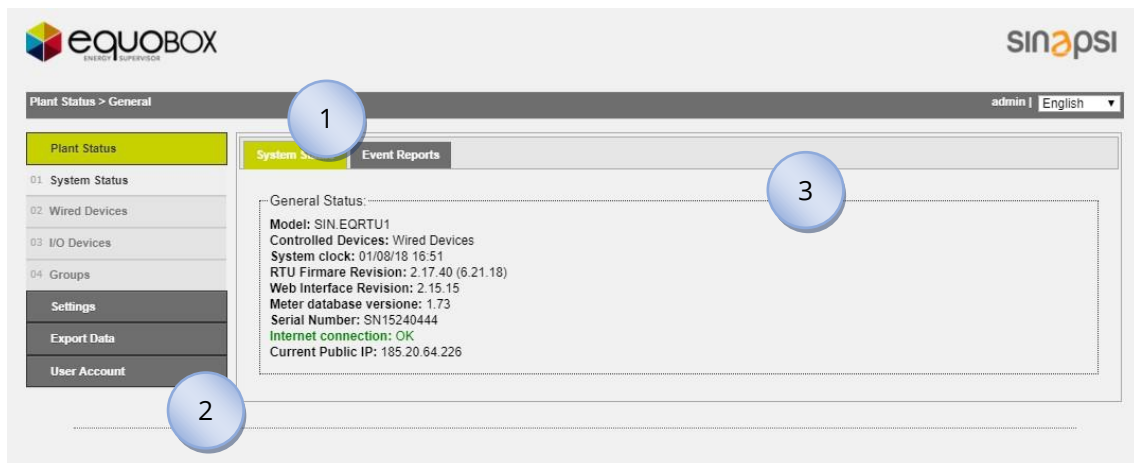


Figure 19 - Homepage

The screen is divided into three sections:

1	<ul style="list-style-type: none"> • Path of the page being consulted • Type of user connected • Selected language (Italian or English)
2	<ul style="list-style-type: none"> • Plant status <ul style="list-style-type: none"> ○ System status ○ Wired Devices

	<ul style="list-style-type: none"> ○ I/O Devices ○ Groups • Settings <ul style="list-style-type: none"> ○ System ○ Network ○ Wired Devices ○ Events ○ Groups • Export Data <ul style="list-style-type: none"> ○ Create Report ○ Planning ○ Report Archive • User Account <ul style="list-style-type: none"> ○ Login ○ Exit
3	Shows the submenu with the items pertaining to the main menu (Section 2)

11.SETTINGS - SYSTEM

The items that can be selected are:

- Settings
 - Plant Database
 - System settings
 - Maintenance
- Network
 - General Setup
 - Advanced Setup
 - Email Setup
 - DynDNS
- Wired Devices
 - Meter Setup
 - Search Setup
- Events
 - I/O Events
 - M-Bus Events
- Events
 - Groups
 - Definition

11.1 Plant Database

You can add only one plant for every RTU

The screenshot shows the EQUOBOX web interface. The top header includes the EQUOBOX logo and the SINAPSI logo. Below the header, there's a navigation bar with 'Settings > System' and a language dropdown set to 'English'. The main content area has a sidebar on the left with a tree view under 'Settings', including 'System', 'Network', 'Wired Devices', 'Events', and 'Groups'. The 'System' section is expanded, showing 'Plant Status' and 'Settings'. The 'Settings' section is further expanded, showing '01 System', '02 Network', '03 Wired Devices', '04 Events', and '05 Groups'. The '01 System' section is selected, showing 'Plant Data', 'System Setup', and 'Maintenance' tabs. The 'Plant Data' tab is active, displaying the following fields: 'Plant Name' (Equobox), 'Address' (Via delle Querce), 'Installer's Name' (Sinapsi S.R.L.), 'Customer's Name' (Sinapsi S.R.L.), and 'Install Date' (01/01/2014). A 'Save' button is located at the bottom right of the form.

Figure 20 - Plant data settings

Enter the plant data:

- Plant Name: enter the name of the plant
- Plant Address: enter the address of the plant
- Installer name: enter the name of the installer
- Customer Name: enter the name of the client
- Installation Date: if not entered, the RTU will enter the current date by default

11.2 System settings

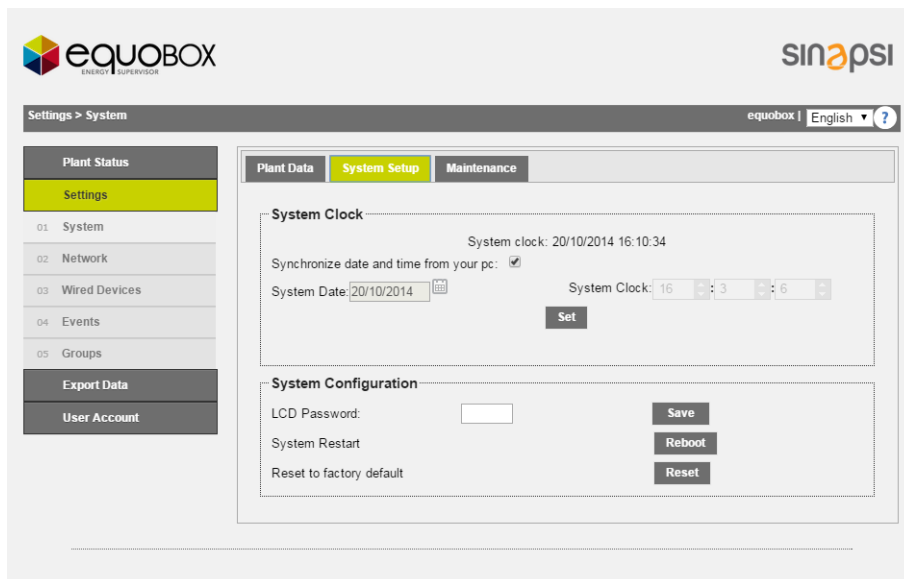


Figure 21 - System settings

The System Settings screen has two sections:

1. Date and Time: choose between the manual and automatic setting for the date and time, synchronising them with your PC
2. System configuration:
 - LCD Password: allows changing the password to access the controls on the device display. The default password is 000000
 - System Restart: allows you to restart the RTU
 - Reset to factory default: allows you to initialise the device according to the default settings

Selecting Reset to factory default will be reset the RTU configurations under the System and Network sections. For to delete all the historical devices data you have to delete manually delete all previously configured devices.

11.3 Maintenance

This page allows you to update and/or restore the RTU

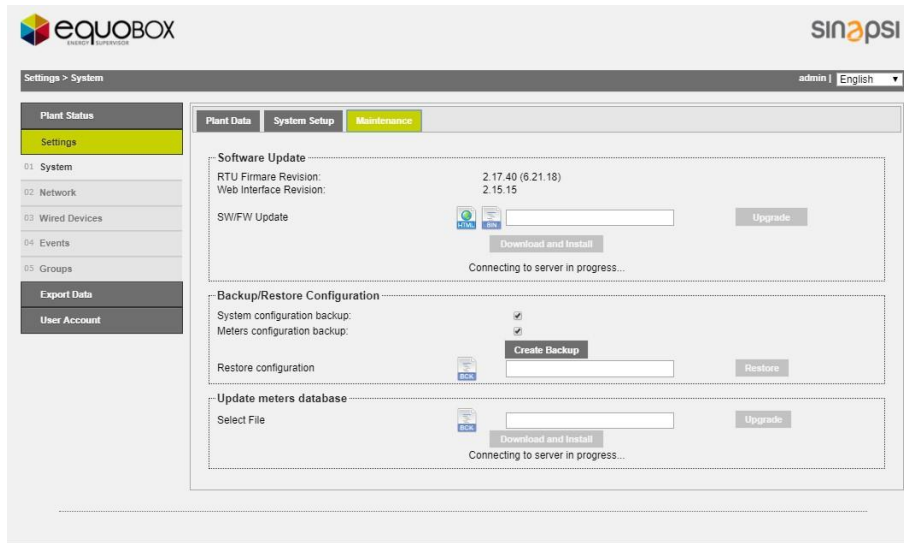


Figure 22 - Service Settings

The Service screen consists of:

1. Software update
 - RTU Firmware Version: shows the RTU's current firmware version
 - Web Interface Version: shows the RTU's current web interface version
 - SSW/FW Update: allows for manual or automatic online update; you need to have the binary file. This update will involve both the software and the web interface; the name of the update is equobox_rtu.bin

AFTER A SYSTEM UPDATE REFRESH THE WEB PAGE

2. Backup/Restore Configuration:
 - System Configuration Backup: select if you want to create a system backup. Press Create Backup to complete the operation. See Figure 23
 - Meter Configuration Backup: select if you want to create a meter configuration backup. Press Create Backup to complete the operation See Figure 23
 - Restore Configuration: select it if you want to restore the configuration of the meters and/or the previously meters configured; this operation can only be carried out if you have the backup file
3. Update meter database: allows you to update the RTU database. This operation can only be carried out if you have the update file.

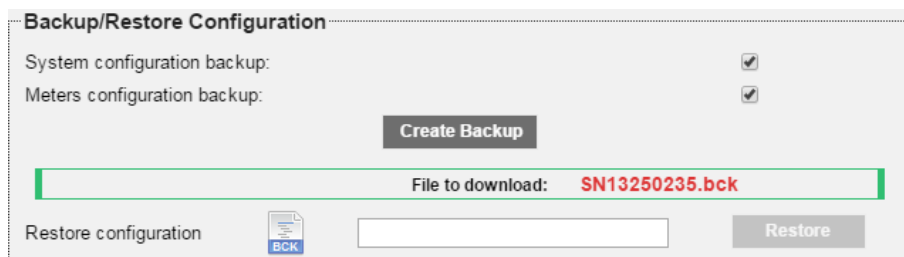


Figure 23 - Creating a backup

12.SETTINGS - NETWORK

12.1 General Setup

This section is dedicated to the RTU network settings

Figure 24 - Network settings

The fields to be filled out are:

- MAC Address: shows the RTU's MAC-Address
- Enable DHCP: select if you want to use the DHCP protocol
- IP Address: sets the machine's static LAN address
- Gateway address: sets the address of the LAN Gateway
- Network Mask: sets the LAN subnet mask
- Primary DNS: sets the primary DNS address
- Secondary DNS: sets the secondary DNS address

Pay particular attention to additions/changes. Always ask the company or domestic network administrator for information on the LAN class and on the data for a correct configuration.

12.2 Advanced Setup

This section is dedicated to the advanced parameters for the RTU system configuration. The parameters shown in Figure 25 should be managed by qualified personnel.

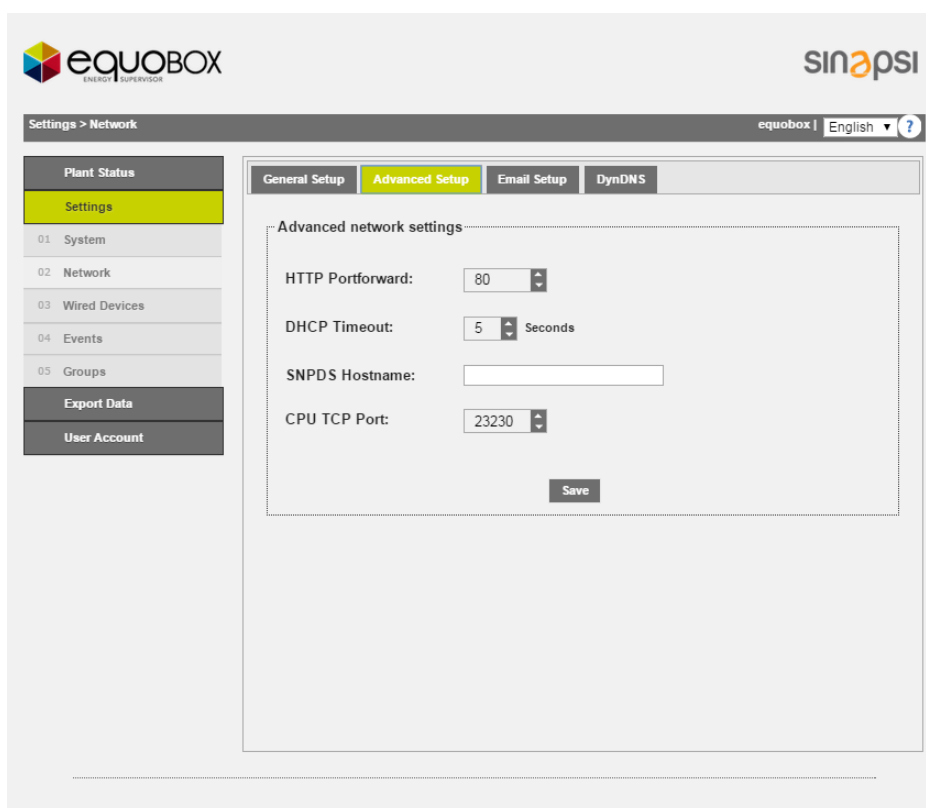


Figure 25 - Advanced network settings

The fields to fill out in this section are:

- HTTP Portforward: defines the external HTTP port if configured differently from 80, to ensure that emails are sent correctly. See Figure 26
- DHCP TimeOut: enter a timeout beyond which, the destination will be declared unreachable
- SNPDS Hostname: enter, if used, the remote address of the SNPDS service
- CPU TCP Port: enter, if used, the communication port of the SIN.EQCPU unit

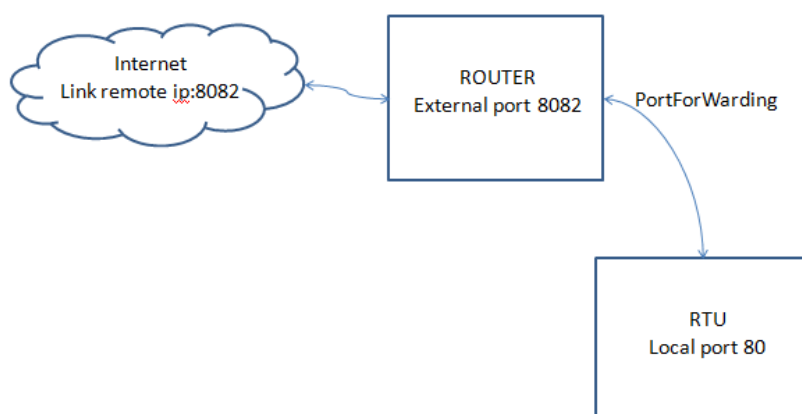


Figure 26 - Network infrastructure

12.3 Email Setup

This section allows you to configure the email management parameters in the RTU1.

You can set the sending of mail in 2 ways: with the attached report or with the link to connect to in order to save the report. In the first mode it is sufficient to set the sender's name and the destination address.

Figure 27-28.a - Email settings

Figure 29.b - Email settings

The page is divided into:

1. Email server settings
 - SMTP Hostname: enter the address of the SMTP server you want to use
 - SMTP Port: set the communication port for the SMTP server
 - SMTP Username: enter the username to access the SMTP server
 - SMTP password: enter the password to access the SMTP server
 - Email Sender: enter an email address to define the sender
 - Email Recipient n.1: enter the recipients of the email. Do not add more than 4 recipient addresses

Press Save to save the configuration. Press Test to verify whether the entered parameters are operating properly; if not, refer to Chapter 12.2

2. Alarm Email management

- Enable alarm email notification: Enable email notification upon alarm present in plant and acquired by the RTU device. The system will also manage an automatic signalling of alarm **communication error** if one or more devices in the field do not respond correctly the RTU queries. It will be sent a email when the alarm ceases. All notifications will always be consulted under Plant Status, System Status → Events Reports, see Cap. 20.2
- Number of alarms waiting to for notification: shows the number of alarms waiting to be notified. Press Delete pending notifications to delete the alarms that are yet to be notified by the RTU and verify the network and email management configurations

12.4 DynDNS

This section is dedicated to the configuration/activation of the DynDNS service

Figure 30 - DNS service settings

Enter:

- Domain Name: Enter the domain name provided by the no-ip.com service
- Enable Dynamic DNS: allows you to enable Dynamic DNS service. Actually works properly only the noip.com
- Server DynDNS: currently only noip.com
- Username: Enter the username to access the DynDNS service
- Password: Enter the password to access the DynDNS service

Press Save to save the configuration

13. DATA SAMPLING

13.1 Defining sampling frequency and RAW data

This section analyses how the RTU samples the values Figure 31 shows a curve sampled with $F_c = 1/T_c$ equal to one hour throughout the entire day. The RTU manages five sampling periods, which are:

- 15 minutes → 96 daily samples
- 1 hour → 24 daily samples (Figure 31)
- 6 hours → 4 daily samples
- 12 hours → 2 daily samples
- 1 day → 1 daily sample
- 1 month → 1 monthly sample

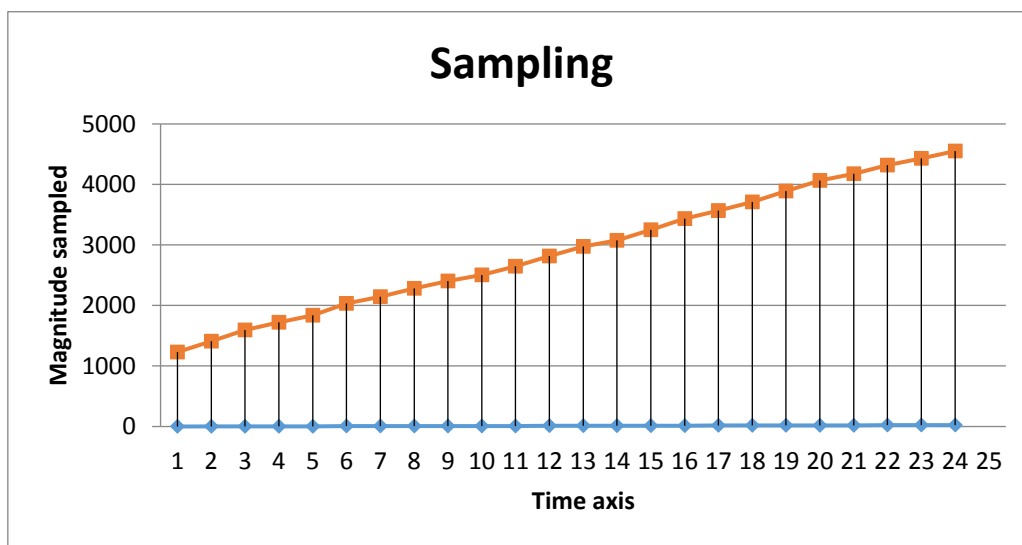


Figure 31 - Sampling

The samples stored in the RTU according to the sampling frequency are defined as RAW samples. **RAW samples will always refer to the consulted day and you can store up to 96 samples for every day of the year for 250 devices. The samples of the previous year will be cyclically deleted from the RTU mass memory (Ref. Chapter 18.1).** Pay special attention to the documentation of the devices before configuring the RTU sampling frequency. If the sampling value is too high, it can cause:

- no response from the devices in the field following the exhaustion of the possible responses from the unit.
- early device battery depletion compared to that declared in the datasheet

14. DEFINING SUMMARY DATA

The definition of Summary Data generated by the RTU is described in Figure 31 - Sampling. **The RTU manages four types of summary data for up to 10 years for 250 devices.** Regardless of the choice of the summary data during configuration, the RTU will generate all four summary values (15.3, 15.4); this way, any data change will change the entire logfile of the summary data generated up to that moment. **Changing any type of data involves regenerating all the data in the logfile of the data already generated in the RTU.** The summary data are:

- None: no data displayed
- Consumption: generates data as the maximum value at the end of the day and corresponding delta
- Minimum: generates data as the minimum value of the day
- Maximum: generates data as the maximum value of the day
- Average: generates data as the average value of the day

14.1 Summary Data - None

No summary data displayed in relation to the sampled data

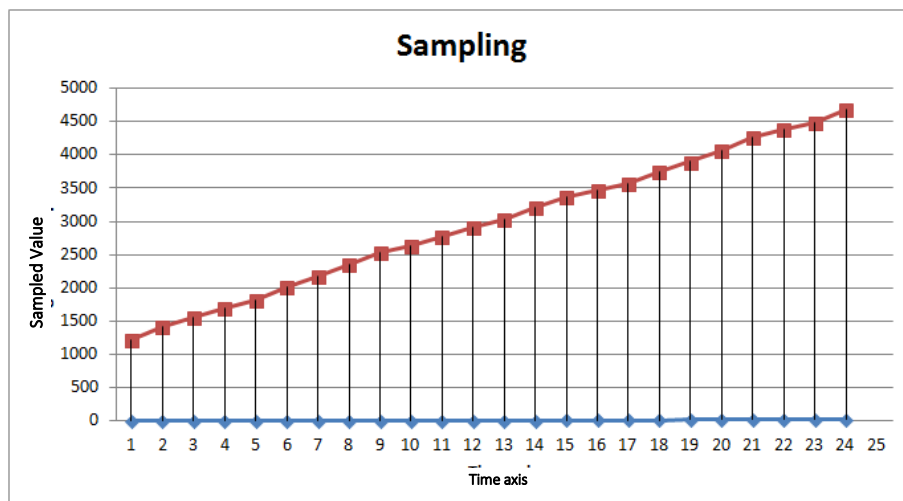


Figure 32 - Summary Data - None

14.2 Summary Data - Consumption

Summary data related to Consumption provide the maximum value logged during the day and the delta during the day

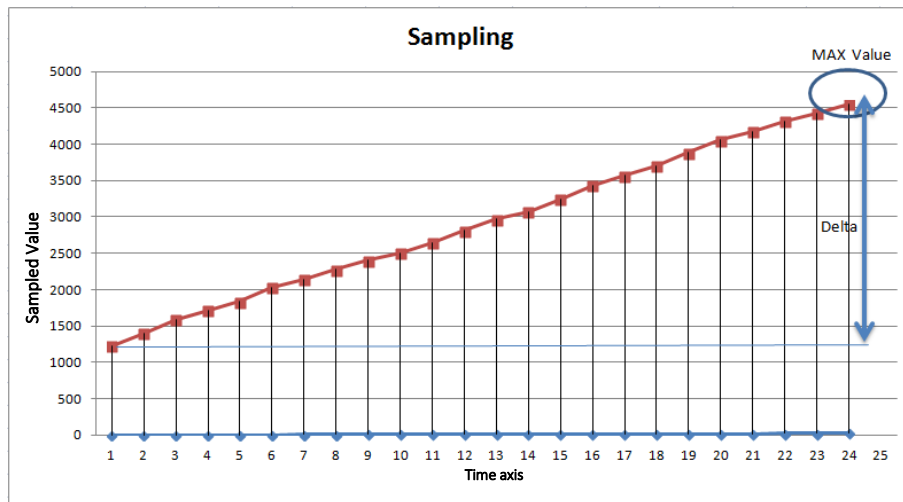


Figure 33 - Summary data - Consumption

14.3 Summary Data – Maximum

Summary data related to Maximum provide the maximum value logged during the day

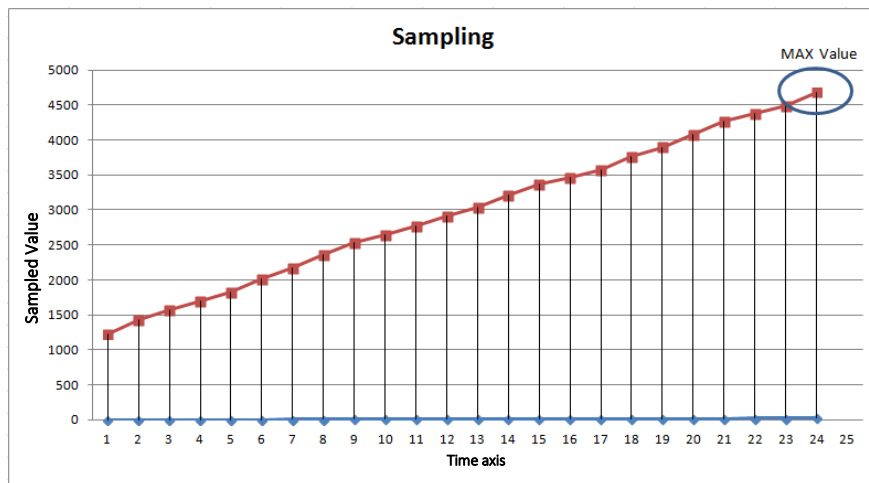


Figure 34 - Summary data – Maximum

14.4 Summary Data – Minimum

Summary data related to Minimum provide the minimum value logged during the day

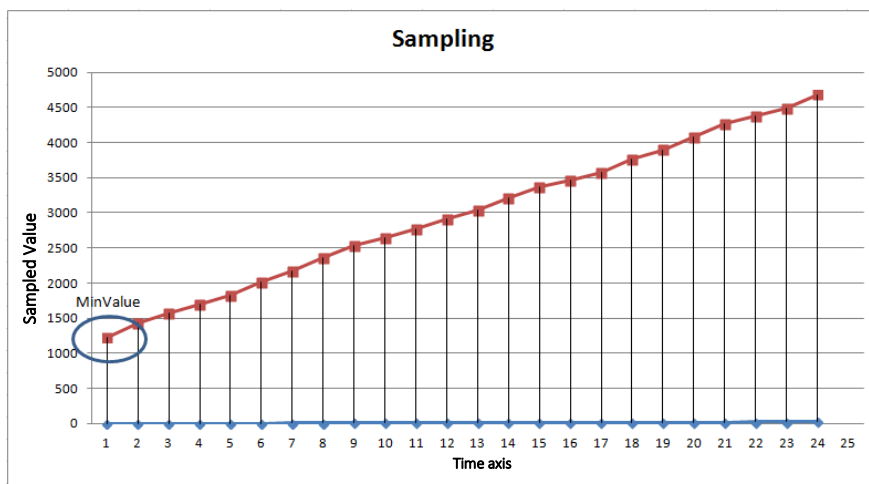


Figure 35 - Summary data - Minimum

14.5 Summary Data - Average

Summary data related to Average provide the averaged value logged during the day

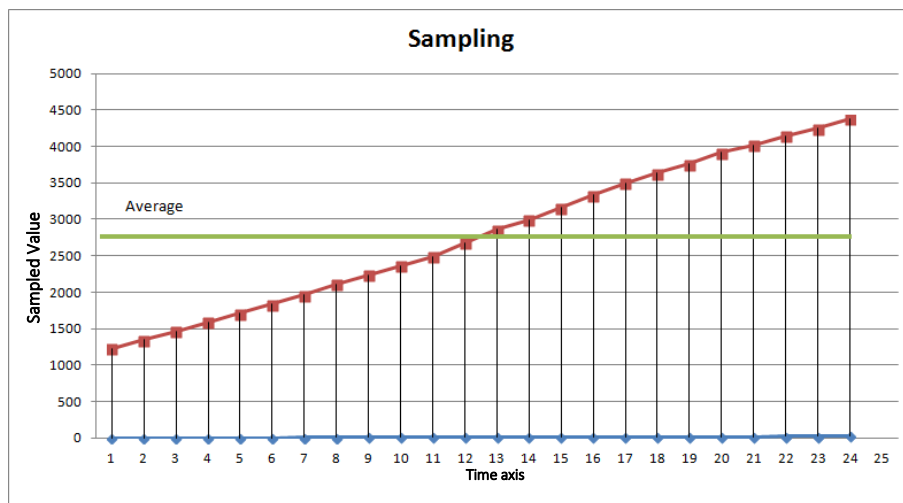


Figure 36 - Summary data - Average

15.SETTINGS – WIRED DEVICES

This section allows you to configure/search the meters in the plant.

15.1 Search Setup

To search the meters go to Meters → Search Meter. This section provides two types of search: manual and automatic. We recommend opting for the automatic search. Use the manual search only in the event that one or more devices are not recognised by the automatic search. This can occur in the event of collisions during the automatic search, which prevents the devices in the field from being retrieved automatically or in the event of devices with a non-standard baudrate (always refer to the meter datasheet for this information).

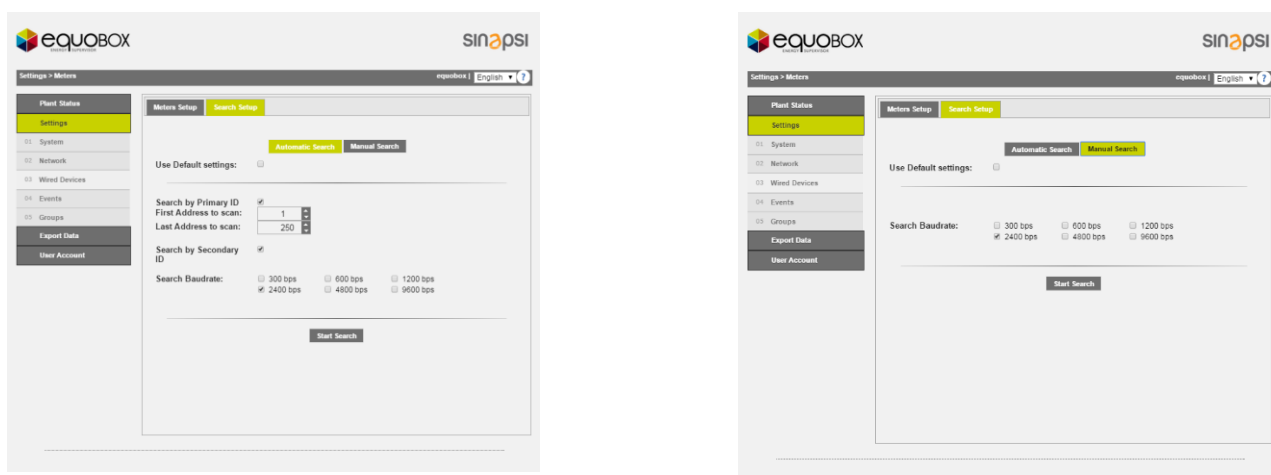


Figure 37 - Meter setup

1. Automatic search
 - Uses default settings:
 - If selected, it searches the meter by Serial number and ID with Baudrate equal to 2400bps.
 - If not selected, you can choose among:
 - Search by Primary ID: select this item if you want to search the meters by primary ID
 - First Address to scan: enter the value to start the search
 - Second Address to scan: enter the value to end the search
 - Search by Secondary ID: select this item if you want to search the meters by secondary ID (serial number)
 - Baudrate Search: enter the search baudrate
 - Press Start to start the search
2. Manual search: use this option only in the event that one or more devices are not recognised during the automatic search.
 - Use default settings: if selected, it automatically sets the baudrate to 2400; otherwise you can also select the baudrate for the search.
 - Baudrate Search: set the non-standard communication speed with which you want to query the devices that were not automatically recognised. Always refer to the meter datasheet to set the right non-standard baudrate.

Upon defining the transmission rate, press Start to start the search. At this point, you can choose whether to set the search by primary ID (if set in the meter) or secondary ID (8-digit serial number of the meter). This type of search allows you to search one device at a time, as shown in Figure 37

Figure 38 - Searching devices in manual mode

Upon starting the search, a window will appear, as shown in Figure 39. In this particular example, the devices were searched by primary/secondary address. You can interrupt the search at any time by pressing Stop.

	Serial Num.	Description 1	Description 2
<input checked="" type="checkbox"/>	65589631	DEV_65589631	Heating
<input checked="" type="checkbox"/>	65589632	DEV_65589632	Cooling

Figure 39 - Searching devices

At the end of the search, you can select the meters found. See Figure 40:

M-Bus Device Search

Search Finished

Total devices found: 4 New devices found: 0

Serial Num.	Description 1	Description 2
<input checked="" type="checkbox"/> 65589632	DEV_65589632	Cooling
<input checked="" type="checkbox"/> 65590050	DEV_65590050	Heating
<input checked="" type="checkbox"/> 66660211	DEV_66660211	Heating

Device Name: DEV_66660211
 Description 1: Heating
 Description 2: Label
 Scan interval: 1 day
 ID Device: 66660211
 Manufacturer Code: LUG
 Medium: Heat(outlet)
 Version (Hex): 28
 Save

Manufacturer: Siemens
 Model: WSM515-0E

Stop Close

M-Bus Device Search

Search Finished

Total devices found: 4 New devices found: 0

Serial Num.	Description 1	Description 2
<input checked="" type="checkbox"/> 65589632	DEV_65589632	Cooling
<input checked="" type="checkbox"/> 65590050	DEV_65590050	Heating
<input checked="" type="checkbox"/> 66660211	DEV_66660211	Heating

Device Name: DEV_65590050
 Description 1: Heating
 Description 2: Label
 Scan interval: 60 min
 ID Device: 65590050
 Manufacturer Code: LSE
 Medium: Heat(inlet)
 Version (Hex): 28
 Save

Stop Close

Figure 40 - Saving the meters

At the end of the research we will have two types of devices:

- ✓ A device built into RTU DataBase equipped with image, Cap. 15.3
- ✓ A device not built into RTU DataBase not equipped with image, Cap. 15.4

The following data will always be shown for every meter found:

- Serial number: shows the serial number of the selected meter
- Description 1: description of the meter
- Description 2: description of the meter

You can fill out the first four fields, such as:

- Device Name (modifiable): indicates the name of the device
- Description 1 (modifiable): if not already entered, add a first description to identify the meter
- Description 2 (modifiable): if not already entered, add a first description to identify the meter
- Readout interval (modifiable): interval with which readouts are performed: 15 minutes, 1 hour, 6 hours, 12 hours, 1 day, 1 month. **Refer to Chapter 13**
- ID Device: indicates the serial number of the selected meter
- Manufacturer Code: indicates the manufacturer's name in the event that the meter in the database is identified by the RTU.
- Measured value: indicates the type of value read by the meter
- Version (HEX): indicates the version of the meter.
- Manufacturer: indicates the manufacturer's name in the event that the meter in the database is identified by the RTU.
- Model: indicates the meter model in the event that the meter in the database is identified by the RTU.
- Press Save to add the meter.

To change the previously saved meters, access Meter setup, Chapters 15.3, 15.4

15.2 Meters Setup



In this section you have access to the list of saved wired meters. At first use the section will appear empty. The system allows the management of the meters according to two different types:

- i. Meter built into Database (see 15.3)
- ii. Not integrated meter into Database (see 15.4)

The screen is divided as follows:

1. Meter table

Import meters data				
N°	Serial Number	Device Name	Description	
1	66071926	DEV_66071926	DEV_66071926	X
2	00000180	DEV_00000180	DEV_00000180	X
3	00000000	DEV_00000000	DEV_00000000	X
4	00000280	DEV_00000280	DEV_00000280	X
5	00080461	DEV_00080461	DEV_00080461	X
6	65990398	DEV_65990398	DEV_65990398	X
7	65990399	DEV_65990399	DEV_65990399	X
8	65756963	DEV_65756963	DEV_65756963	X

-  **Import meters data** Import CSV with affiliate counters description. If the file contains devices other than those saved, the descriptions of the meters in the table of saved devices (affiliates) are copied.
-  downloading a file (.CSV or .XLS) with the meter list.
- Model: shows the serial number of the selected meter
- Device Name: name of the meter
- Description: refer to description1 of the meter
- Delete: click on the symbol to delete the meter

2. Meter data: the white cells are modifiable

Device Name:	DEV_65990399
Description 1:	Raffrescamento
Description 2:	PA_000
Installation Date:	16/01/2017
Scan interval:	1 month
Primary Address:	0
Baudrate:	2400 bps
Read by:	Secondary Address
ID Device:	65990399
Manufacturer Code:	LSE
Medium:	Cooling load meter(outlet)
Version (Hex):	29
Save	

Manufacturer: Siemens
Model: WFX5



- Device Name: indicates the name of the device
- Description 1: add a first description to identify the meter
- Description 2: add a first description to identify the meter
- Installation date: indicates when the meter was installed. This is set automatically upon saving the meter as described in the previous chapter.
- Scan interval: interval with which readouts are performed: 15 minutes, 1 hour, 6 hours, 12 hours, 1 day, 1 month. **Refer to Chapter 13**
- Primary Address: indicates the address of the meter. The addresses can range between 1 and 250 (not modifiable)
- Baudrate: Indicates the speed with which the meter communicates with the RTU. Check the meter manual to verify the communication speed.
- Read by: allows you to perform a readout by primary or secondary address
- ID device: indicates the serial number of the selected meter (not modifiable)
- Manufacturer Code: indicates the manufacturer's code, according to FLAG MANUFACTURERS ID DLMS standard (not modifiable)

- Medium: indicates the type of value read by the meter (not modifiable)
 - Version (HEX): indicates the version of the meter (not modifiable)
 - Save: to save any changes
3. Meter setup: the cells highlighted in green are modifiable

User description	M-Bus Description	Configuration standard report. [Data matching]	Configuration of report with data elaborated. [Type of elaboration]	Configuration of report data. [Favorites data]	Main Field
Energia raffrescamento	Energy	heat_energy	Consumption	<input checked="" type="checkbox"/>	<input checked="" type="radio"/>
Volume raffrescamento	Volume	none	None	<input checked="" type="checkbox"/>	<input type="radio"/>
Data ora dispositivo	Time Point	device_date_time	None	<input checked="" type="checkbox"/>	<input type="radio"/>
Tempo di funzionamento	On Time	error_flag_decimal	None	<input checked="" type="checkbox"/>	<input type="radio"/>
Data errore	Time Point	fabrication_number	None	<input checked="" type="checkbox"/>	<input type="radio"/>
Numero seriale	Fabrication Number	heat_energy	None	<input checked="" type="checkbox"/>	<input type="radio"/>
		cool_energy			
		HCA			
		heat_water_volume			
		cool_water_volume			
		water_volume			
		aux1_volume			
		aux2_volume			
		aux3_volume			
		gas_volume			
		electricity_active_energy			
		electricity_ractive_energy			

Subunit: 0
 Storage: 0
 Tariff: 0
 Type value: Instantaneous value
 Multiplier: 0.1
 Units: kWh
 Description: Energy
 REP_ID: 3

- User description: data coming from the device according to the modifiable protocol standard
- M-Bus description: data coming from the device according to the modifiable protocol standard
- Configuration standard report. [Data Matching]: bind the data to a particular column of the report in standard format.
The association also has an effect on the XML report. In particular, the selected field is the property of the tag datapoint rep_id

```
<?xml version="1.0" encoding="UTF-8"?>
- <content version="1" xsi:noNamespaceSchemaLocation="content.xsd" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
  - <custom>
    <datalogger model="SIN.EQRU1T" fw_rev="5.07.29" current_time="14:30:57" current_data="2016-09-27" sn="SN15030002"/>
    <plant total_wmbs_dev="5" total_mbus_dev="33" name="Name"/>
  </custom>
  - <device version="04" read_interval="604800" medium="07" manu="3265" id="00001234" bus="0" prog="0">
    - <readouts>
      - <readout errordate="every month" fabnr="05685095" dev_date="2016-04-20" dev_time="11:09:00" status="255" sys_timestamp="1474979300">
        - <datapoints>
          <datapoint value="0.010" rep_id="8" maindb="1" tolog="1" description="Volume attuale" unit="m3" field_id="0C14"/>
          <datapoint value="006724" maindb="0" tolog="1" description="Conta ore funzionamento" unit="hours" field_id="0B22"/>
          <datapoint value="20" rep_id="0" maindb="0" tolog="1" description="Data e ora correnti" unit="date e time" field_id="046D"/>
          <datapoint value="every month" maindb="0" tolog="1" description="Data errore" unit="date" field_id="326C"/>
          <datapoint value="05685095" rep_id="2" maindb="0" tolog="1" description="Matricola" field_id="0C78"/>
          <datapoint value="05685095" maindb="0" tolog="1" description="Indirizzo secondario" field_id="0CFD10"/>
          <datapoint value="2199023322098" maindb="0" tolog="1" description="Model / Version" field_id="06FD0C"/>
          <datapoint value="AEW31" maindb="0" tolog="1" description="Parameter set identification" field_id="0DFD0B"/>
          <datapoint value="every year" maindb="0" tolog="1" description="Data ora storico" unit="date" field_id="42EC7E"/>
          <datapoint value="0.010" maindb="0" tolog="1" description="Volume anno precedente" unit="m3" field_id="4C14"/>
          <datapoint value="31/12/2015" maindb="0" tolog="1" description="Giorno di riferimento" unit="date" field_id="426C"/>
          <datapoint value="37FD1700000000000000000027A350002783500" maindb="0" tolog="0" description="Dati costruttore" field_id="0F"/>
        </datapoints>
      </readout>
    </readouts>
  </device>
</content>
```

- Configuration of report with data elaborated. [Type of elaboration]: Select the type of elaboration to the figure reported in the raw data reports. **Any changes in the Configuration of report with data elaborated section involves the switching of all the data already stored in the RTU. Refer to Chapter 14.**

It is possible to select between:

- None: any data is shown
- Consumption: it generates the data as maximum period and delta equivalent

- Minimum: generates data as minimum value of the period
 - Maximum: generates the data as maximum value for the period
 - Mean: generates the data as mean value of the period
 - Configuration of report data. [Favorite Data]: tick the data to see in reports where there is the lettering [favorite data] and in System Status menu > 02 Wired Devices> [Device]
 - Main field: it is the Main field to be displayed in the System Status menu > 02 Wired Devices> [Device]
 - Save: to save any changes
4. Meter alarm settings: every meter has a series of errors that can be set individually. All the alarms managed by the RTU are shown in the following table. For every alarm, you can set the configurations described below. By default, all the checkmarks are disabled for every alarm. See "Max operating time", for example. After selecting an alarm will open the page of details.

Meter alarm settings

Log	Email	Event Name	Event Type	Status
		Ore max funzionamento superate	M-Bus status notification	NOT ACTIVE
		Errore permanente	M-Bus status notification	NOT ACTIVE
		Errore temporaneo	M-Bus status notification	NOT ACTIVE

M-Bus status notification

Event Name

Input condition

Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

↓

Output condition

Output1 <input type="text" value=""/>	Output2 <input type="text" value=""/>	Add to Log <input checked="" type="checkbox"/>	Send Email <input checked="" type="checkbox"/>	Notify end of event <input checked="" type="checkbox"/>
--	--	---	---	--

Save

For every alarm well be reported the alarm name (modifiable), the bit configuration for the alarm identification (not modifiable). In the lower part, you can choose whether to enable the digital outputs or not when an event occurs (Ref. 5.9)

M-Bus status notification

Event Name

Input condition

Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

↓

Output condition






Output1 <div> <input type="text" value=""/> <div> Open Closed Pulse </div> </div>	Output2 <input type="text" value=""/>	Add to Log <input checked="" type="checkbox"/>	Send Email <input checked="" type="checkbox"/>	Notify end of event <input checked="" type="checkbox"/>
--	--	---	---	--

Save

- Output 1: when an alarm occurs, you can enable an operation according to the device connected to Output 1, such as:

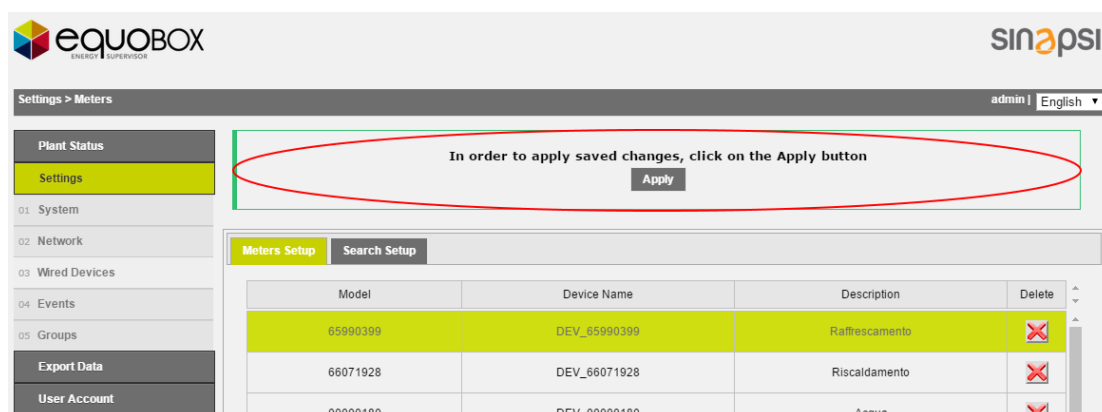
- Open: commands to open
- Closed: commands to close
- Pulse: generates a pulse
- Output 2: when an event occurs, you can enable an operation according to the device connected to Output 2, such as:
 - Open: commands to open
 - Closed: commands to close
 - Pulse: generates a pulse
- Add to Log: stores the alarm in the meter's log
- Send Email: sends an email notification in the event of an alarm (Ref. Chapters 5.4, 8.4.)
- Event closure notification: sends an email notification when an event is closed.

Once the single events are solved, the table will display the following information



Log	Email	Event Name	Event Type	Status
		Ore max funzionamento superate	M-Bus status notification	NOT ACTIVE
		Errore permanente	M-Bus status notification	NOT ACTIVE
		Errore temporaneo	M-Bus status notification	NOT ACTIVE

- Log: shows if the logging status is activated
- Email: shows whether the alarm email notification is active
- Event name: shows the name of the event Data coming from the device according to the modifiable protocol standard
- Event type: shows the type of event. Data coming from the device according to the modifiable protocol standard
- Status: shows the alarm status (activated or deactivated). Data coming from the device according to the modifiable protocol standard

After making all the changes confirm them through the appropriate window, see image below. Any changes you make will not be saved in the RTU without confirmation.



15.4 Meter Setup – Meters not built into DataBase

Settings > Meters admin | English


Plant Status
Settings
01 System
02 Network
03 Wired Devices
04 Events
05 Groups
Export Data
User Account

Meters Setup Search Setup

Import meters data

N°	Serial Number	Device Name	Description	
12	06129251	DEV_06129251	Acqua calda	✗
13	07964864	DEV_07964864	Riscaldamento/Raffrescamento	✗
14	10485501	DEV_10485501	Acqua	✗
15	10485502	DEV_10485502	Acqua calda	✗
16	13541848	DEV_13541848	Acqua	✗
17	15550082	DEV_15550082	Acqua	✗
18	23282974	DEV_23282974	Riscaldamento	✗
19	66091674	DEV_66091674	Riscaldamento	✗

Device Name: DEV_66091674
Description 1: Riscaldamento
Description 2: RA_157
Installation Date: 16/05/2018
Scan interval: 60 min
Primary Address: 157
Baudrate: 2400 bps
Read by: Secondary Address
ID Device: 66091674
Manufacturer Code: LUG
Medium: Heat(outlet)
Version (Hex): 04



Manufacturer: Unknown
Model: Unknown

EDIT

Save

Meter Data Block Settings

User description	M-Bus Description	Configuration standard report. [Data matching]	Configuration of report with data elaborated. [Type of elaboration]	Configuration of report data. [Favorites data]	Main Field
Actualy Duration	Actualy Duration	none	None	<input type="checkbox"/>	<input type="radio"/>
Averaging Duration	Averaging Duration	none	None	<input type="checkbox"/>	<input type="radio"/>
Energy	Energy	none	Consumption	<input checked="" type="checkbox"/>	<input checked="" type="radio"/>
Volume	Volume	none	Consumption	<input checked="" type="checkbox"/>	<input type="radio"/>
Power	Power	none	Average	<input checked="" type="checkbox"/>	<input type="radio"/>
Volume Flow	Volume Flow	none	Average	<input checked="" type="checkbox"/>	<input type="radio"/>

Save

Meter alarm settings











Log	Email	Event Name	Event Type	Status
		Flag Bit 0	M-Bus status notification	NOT ACTIVE
		Flag Bit 1	M-Bus status notification	NOT ACTIVE
		Flag Bit 2	M-Bus status notification	NOT ACTIVE
		Flag Bit 3	M-Bus status notification	NOT ACTIVE
		Flag Bit 4	M-Bus status notification	NOT ACTIVE

Figure 42 - Meter setup

The screen is divided as follows:

1. Meter table

Import meters data				
N°	Serial Number	Device Name	Description	
1	66071926	DEV_66071926	DEV_66071926	
2	00000180	DEV_00000180	DEV_00000180	
3	00000000	DEV_00000000	DEV_00000000	
4	00000280	DEV_00000280	DEV_00000280	
5	00080461	DEV_00080461	DEV_00080461	
6	65990398	DEV_65990398	DEV_65990398	
7	65990399	DEV_65990399	DEV_65990399	
8	65756963	DEV_65756963	DEV_65756963	

- Import meters data** Import CSV with affiliate counters description. If the file contains devices other than those saved, the descriptions of the meters in the table of saved devices (affiliates) are copied.
- downloading a file (.CSV or .XLS) with the meter list.
- Model: shows the serial number of the selected meter
- Device Name: name of the meter
- Description: refer to description1 of the meter
- Delete: click on the symbol to delete the meter

2. Meter data: the white cells are modifiable

Device Name:	DEV_00000000	<p>Manufacturer: Unknown Model: Unknown</p> <p>EDIT</p>
Description 1:	Altro	
Description 2:	PA_000	
Installation Date:	16/01/2017	
Scan interval:	6 h	
Primary Address:	0	
Baudrate:	2400 bps	
Read by:	Secondary Address	
ID Device:	00000000	
Manufacturer Code:	WZG	
Medium:	Other	
Version (Hex):	03	
Save		

- Device Name: indicates the name of the device
- Description 1: add a first description to identify the meter
- Description 2: add a first description to identify the meter
- Installation date: indicates when the meter was installed. This is set automatically upon saving the meter as described in the previous chapter.
- Scan interval: interval with which readouts are performed: 15 minutes, 1 hour, 6 hours, 12 hours, 1 day, 1 month. **Refer to Chapter 13**
- Primary Address: indicates the address of the meter. The addresses can range between 1 and 250 (not modifiable)
- Baudrate: Indicates the speed with which the meter communicates with the RTU. Check the meter manual to verify the communication speed.
- Read by: allows you to perform a reading by primary or secondary address
- ID device: indicates the serial number of the selected meter (not modifiable)
- Manufacturer Code: indicates the manufacturer code, according to FLAG MANUFACTURERS ID DLMS standard (not modifiable)

- Medium: indicates the type of value read by the meter (not modifiable)
- Version (HEX): indicates the version of the meter (not modifiable)
- Manufacturer: unknown, editable via EDIT
- Model: unknown, editable via EDIT
- EDIT: pushing the EDIT button will be possible insert
 - Manufacturer: insert the manufacturer name
 - Model: insert the model
 - Select Image: insert an image .gif, 150x150
 - SAVE: press SAVE to save any changes

- Save: to save any changes

3. Meter setup: the cells highlighted in green are modifiable

User description	M-Bus Description	Configuration standard report. [Data matching]	Configuration of report with data elaborated. [Type of elaboration]	Configuration of report data. [Favorites data]	Main Field
Energia raffrescamento	Energy	heat_energy	Consumption	<input checked="" type="checkbox"/>	<input checked="" type="radio"/>
Volume raffrescamento	Volume	none	None	<input checked="" type="checkbox"/>	<input type="radio"/>
Data ora dispositivo	Time Point	device_date_time	None	<input checked="" type="checkbox"/>	<input type="radio"/>
Tempo di funzionamento	On Time	error_flag_decimal	None	<input checked="" type="checkbox"/>	<input type="radio"/>
Data errore	Time Point	fabrication_number	None	<input checked="" type="checkbox"/>	<input type="radio"/>
Numero seriale	Fabrication Number	heat_energy	None	<input checked="" type="checkbox"/>	<input type="radio"/>
		cool_energy	None	<input checked="" type="checkbox"/>	<input type="radio"/>
		HCA	None	<input checked="" type="checkbox"/>	<input type="radio"/>
		heat_water_volume	None	<input checked="" type="checkbox"/>	<input type="radio"/>
		cool_water_volume	None	<input checked="" type="checkbox"/>	<input type="radio"/>
		water_volume	None	<input checked="" type="checkbox"/>	<input type="radio"/>
		aux1_volume			
		aux2_volume			
		aux3_volume			
		gas_volume			
		electricity_active_energy			
		electricity_ractive_energy			

Subunit: 0
 Storage: 0
 Tariff: 0
 Type value: Instantaneous value
 Multiplier: 0.1
 Units: kWh
 Description: Energy
 REP_ID: 3

- User description: data coming from the device according to the protocol standard, modifiable
- M-Bus description: data coming from the device according to the protocol standard, not modifiable
- Configuration Standard Report. [Data Association]: bind the data to a particular column of the report in standard format
- Configuration of report with data elaborated. [Type of elaboration]: Select the type of elaboration to the figure reported in the raw data reports. **Any changes to the summary data will change all the other data already stored in the RTU. Refer to Chapter 14** You can select among:
 - None: any data is shown

- Consumption: it generates the data as maximum period and delta equivalent
 - Minimum: generates data as minimum value of the period
 - Maximum: generates the data as maximum value for the period
 - Main: generates the data as Main field for the period
 - Configuration of report data. [Favorite Data]: tick the data to see in reports where there is the lettering [favorite data] and in System Status menu > 02 Wired Devices> [Device]
 - Main field: it is the Main field to be displayed in the System Status menu > 02 Wired Devices> [Device]
 - Save: to save any changes
4. Meter alarm settings: in this case we will refer to the STATUS BYTE defined by the M-Bus protocol and can be defined by associating alarms from bit 2 to bit 7. The alarms must be set manually by referring to the datasheet of the meter. The definition of alarms to be set according to binary logic by associating to each and every bit an alarm. **Require the integration of the product.**

Meter alarm settings

Log	Email	Event Name	Event Type	Status
		Ore max funzionamento superate	M-Bus status notification	NOT ACTIVE
		Errore permanente	M-Bus status notification	NOT ACTIVE
		Errore temporaneo	M-Bus status notification	NOT ACTIVE

M-Bus status notification

Event Name

Input condition

Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

↓

Output condition

Output1	Output2	Add to Log	Send Email	Notify end of event
<input type="text" value="Open"/>	<input type="text" value=""/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

Save

For each alarm will be associated a Flag Bit identifier and can be changed in the Event Name field. In the lower part, you can choose whether to enable the digital outputs or not when an event occurs (Ref. 5.9)

M-Bus status notification

Event Name

Input condition

Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

↓

Output condition






Output1	Output2	Add to Log	Send Email	Notify end of event
<input type="text" value="Open"/>	<input type="text" value=""/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

Save

- Output 1: when an alarm occurs, you can enable an operation according to the device connected to Output 1, such as:
 - Open: commands to open

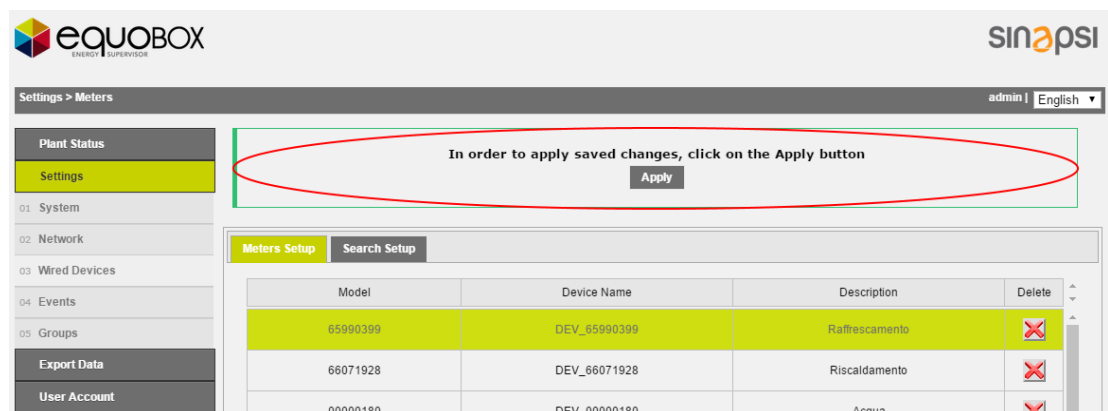
- Closed: commands to close
- Pulse: generates a pulse
- Output 2: when an event occurs, you can enable an operation according to the device connected to Output 2, such as:
 - Open: commands to open
 - Closed: commands to close
 - Pulse: generates a pulse
- Add to Log: stores the alarm in the meter's log
- Send Email: sends an email notification in the event of an alarm (Ref. Chapters 5.4, 8.4.)
- Event closure notification: sends an email notification when an event is closed.

Once the single events are solved, the table will display the following information

Log	Email	Event Name	Event Type	Status
		Ore max funzionamento superate	M-Bus status notification	NOT ACTIVE
		Errore permanente	M-Bus status notification	NOT ACTIVE
		Errore temporaneo	M-Bus status notification	NOT ACTIVE

- Email: shows whether the alarm email notification is active
- Event name: shows the name of the event Data coming from the device according to the modifiable protocol standard
- Event type: shows the type of event. Data coming from the device according to the modifiable protocol standard
- Status: shows the alarm status (activated or deactivated). Data coming from the device according to the modifiable protocol standard

After making all the changes confirm them through the appropriate window, see image below. Any changes you make will not be saved in the RTU without confirmation.



16.SETTINGS - EVENTS

16.1 I/O Events

This section allows you to set up to four conditions to control the actuators. Ref.5.9. With reference to that described in Chapter 5.9, the device is equipped with three digital inputs, I1, I2, and I3 and two digital outputs O1 and O2. Figure 44 - Programming the logic shows an example of programmable logic.

The screenshot displays the EQUOBOX Energy Supervisor web interface. The top navigation bar includes the EQUOBOX logo, the SINAPSI logo, and a language dropdown set to 'English'. The left sidebar shows a menu with 'Plant Status' and 'Settings' (highlighted). Under 'Settings', there are sub-items: 01 System, 02 Network, 03 Wired Devices, 04 Events, 05 Groups, Export Data, and User Account. The main content area is titled 'Settings > Events' and features two tabs: 'I/O Events' (active) and 'M-Bus events'. Below the tabs, there are four identical logic configuration sections for 'I/O Logic #1' through '#4'. Each section includes an 'I/O Logic Name' text field, an 'Input condition' section with three operators (Operator 1, Operator 2, Operator 3) and their corresponding operands, and an 'Output condition' section with two outputs (Output1, Output2) and checkboxes for 'Send Email' and 'Add to Log'. A large downward arrow indicates the flow from input to output. A 'Save' button is located at the bottom of the logic configuration area.

Figure 43 - Logic

Let's assume we want to set a logic, according to which O1 commands an opening and O2 sends a pulse. The logic is based on Boolean algebra.

$$(IN1=ON) \text{ AND } (IN2=OFF) \text{ OR } (IN3=OFF)$$

☒ I/O Logic #1

I/O Logic Name

Input condition

Operator 1 IN1 - ON ▼	Operand 1 AND ▼	Operator 2 IN2 - OFF ▼	Operand 2 OR ▼	Operator 3 IN3 - OFF ▼
--------------------------	--------------------	---------------------------	-------------------	---------------------------

↓

Output condition

Output1 Open ▼	Output2 Pulse ▼	Send Email <input type="checkbox"/>	Add to Log <input type="checkbox"/>
-------------------	--------------------	--	--

Figure 44 - Programming the logic

The logic settings allow you to select:

- Send email: sends an email to the recipients set in section 12.3
- Add to Log: adds the item to the Log after an event. See Chapter 20.2

Press Save to save the settings.

16.2 M-bus events

This section allows you to set the conditions with data coming from the meters in the plant to control outputs O1 and O2. Press the “New Event” button, as shown in Figure 45 to generate a new event

Settings > Events

equobox | English ?

Plant Status

Settings

01 System

02 Network

03 Wired Devices

04 Events

05 Groups

Export Data

User Account

I/O Events **M-Bus events**

Log	Email	Event Name	Event Type	Device Name	Status	Delete
-----	-------	------------	------------	-------------	--------	--------

New Event

Figure 45 - Creating a new event

Select a meter from which you want to obtain data to set the event

Add New M-Bus Event

Select M-Bus Device

ID Device	Description 1	Description 2
65589631	DEV_65589631	Heating
65589632	DEV_65589632	Cooling
65590050	DEV_65590050	Heating
66660211	DEV_66660211	Heating

Select Event ▼

Ok **Exit**

Figure 46 - Selecting a meter

Upon selecting the meter, specify the condition, among:

- Max Value: condition set according to the maximum value acquired by the data
- Min Value: condition set according to the minimum value acquired by the data
- Out of range: condition set according to the range acquired by the data
- M-bus status notify: condition set according to the creation of a new event. Always refer to the meter's documentation to activate this condition.

The next paragraphs will show in detail the parameters to configure the above.

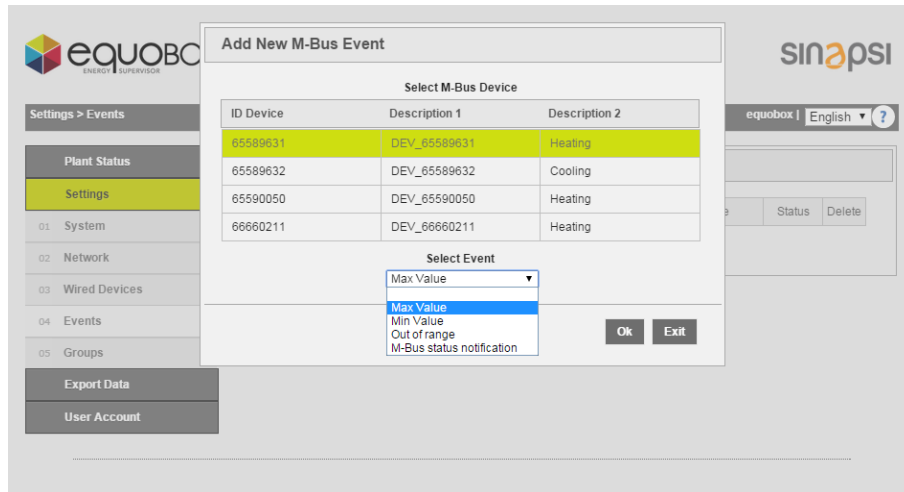


Figure 47 - Selecting an event

16.3 Condition set according to the maximum value acquired

Select Max Value.

Figure 48 - Completing the creation of an event

The cells to be filled out are:

- Event Name: enter the name of the event being created
- Data Type: select the type of meter data. The data you can select are those that have already been set for every single meter. For more information, refer to Chapter 15.3, 15.4
- Alarm threshold (Max): select an alarm threshold. The value can be both positive or negative
- Dead band: enter the value for which the condition does not occur. This feature allows the system to react with a certain delay to the actions to be taken based on the values measured beforehand

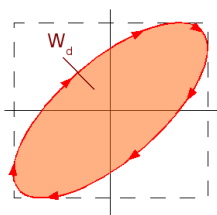


Figure 49 – Dead band

- Event closure notification: sends an email notification whenever an event is closed
- Output 1: when an event occurs, you can enable an operation according to the device connected to Output 1, such as:
 - Open: commands to open
 - Close: commands to close
 - Pulse: generates a pulse
- Output 2: when an event occurs, you can enable an operation according to the device connected to Output 2, such as:
 - Open: commands to open
 - Close: commands to close
 - Pulse: generates a pulse
- Add to Log: stores the alarm in the meter's log
- Send Email: sends an email notification in the event of an alarm (Ref. Chapters 5.4, 8.4.)
- Save: Press Save to save the configuration

16.4 Condition set according to the minimum value acquired

Select Min Value.

Figure 50 - Completing the creation of an event

The cells to be filled out are:

- Event Name: enter the name of the event being created
- Data Type: select the type of meter data. The data you can select are those that have already been set for every single meter. For more information, refer to Chapters 15.3, 15.4
- Alarm threshold (Min): select an alarm threshold. The value can be both positive or negative
- Dead band: enter the value for which the condition does not occur. This feature allows the system to react with a certain delay to the actions to be taken based on the values measured beforehand

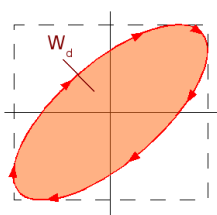


Figure 51 - Dead band

- Event closure notification: sends an email notification whenever an event is closed
- Output 1: when an event occurs, you can enable an operation according to the device connected to Output 1, such as:
 - Open: commands to open
 - Close: commands to close
 - Pulse: generates a pulse
- Output 2: when an event occurs, you can enable an operation according to the device connected to Output 2, such as:
 - Open: commands to open
 - Close: commands to close
 - Pulse: generates a pulse
- Add to Log: stores the alarm in the meter's log
- Send Email: sends an email notification in the event of an alarm (Ref. Chapters 15.3, 15.4.)
- Save: Press Save to save the configuration

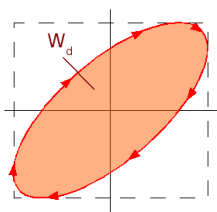
16.5 Condition set according to the value out of range

Select the **Out of range** item.

Figure 52 - Completing the creation of an event

The cells to be filled out are:

- Event Name: enter the name of the event being created
- Data Type: select the type of meter data. The data you can select are those that have already been set for every single meter. For more information, refer to Chapter 15.3, 15.4
- Lower threshold: select the lower alarm threshold. The value can be both positive or negative
- Upper threshold: select the upper alarm threshold. The value can be both positive or negative
- Dead band: enter the value for which the condition does not occur. This feature allows the system to react with a certain delay to the actions to be taken based on the values measured beforehand

**Figure 53 - Dead band**

- Event closure notification: sends an email notification whenever an event is closed

- Output 1: when an event occurs, you can enable an operation according to the device connected to Output 1, such as:
 - Open: commands to open
 - Close: commands to close
 - Pulse: generates a pulse
- Output 2: when an event occurs, you can enable an operation according to the device connected to Output 2, such as:
 - Open: commands to open
 - Close: commands to close
 - Pulse: generates a pulse
- Add to Log: stores the alarm in the meter's log
- Send Email: sends an email notification in the event of an alarm (Ref. Chapters 5.4, 8.4.)
- Save: Press Save to save the configuration

16.6 Condition set according to the M-Bus status

Select the M-Bus status notify item.

Figure 54 - Completing the creation of an event

The cells to be filled out are:

- Event Name: enter the name of the event being created
- Data Type: select the type of meter data. The data you can select are those that have already been set for every single meter. For more information, refer to Chapter 15.3, 15.4
- Event closure notification: sends an email notification whenever an event is closed
- Word Definition: define a 16 bit word to configure the new event to be created. Always refer to the meter's documentation for this type of configuration.
- Output 1: when an event occurs, you can enable an operation according to the device connected to Output 1, such as:
 - Open: commands to open
 - Close: commands to close
 - Pulse: generates a pulse
- Output 2: when an event occurs, you can enable an operation according to the device connected to Output 2, such as:
 - Open: commands to open
 - Close: commands to close
 - Pulse: generates a pulse

- Add to Log: stores the alarm in the meter's log
- Send Email: sends an email notification in the event of an alarm (Ref. Chapters 5.4, 8.4.)
- Save: Press Save to save the configuration

17.SETTING - GROUPS

Section dedicated to the creation and monitoring of virtual groups. It will be possible to manage up to a maximum of 250 distinct groups. Each group may have a minimum of one device up to a maximum of 250 devices, as many as the RTU supports.

The section is divided into:

- Groups: section dedicated for the groups creation
- Definition: section dedicated for the group definition. Definition is mean the inclusion, inside the groups, of the devices previously configured in the RTU

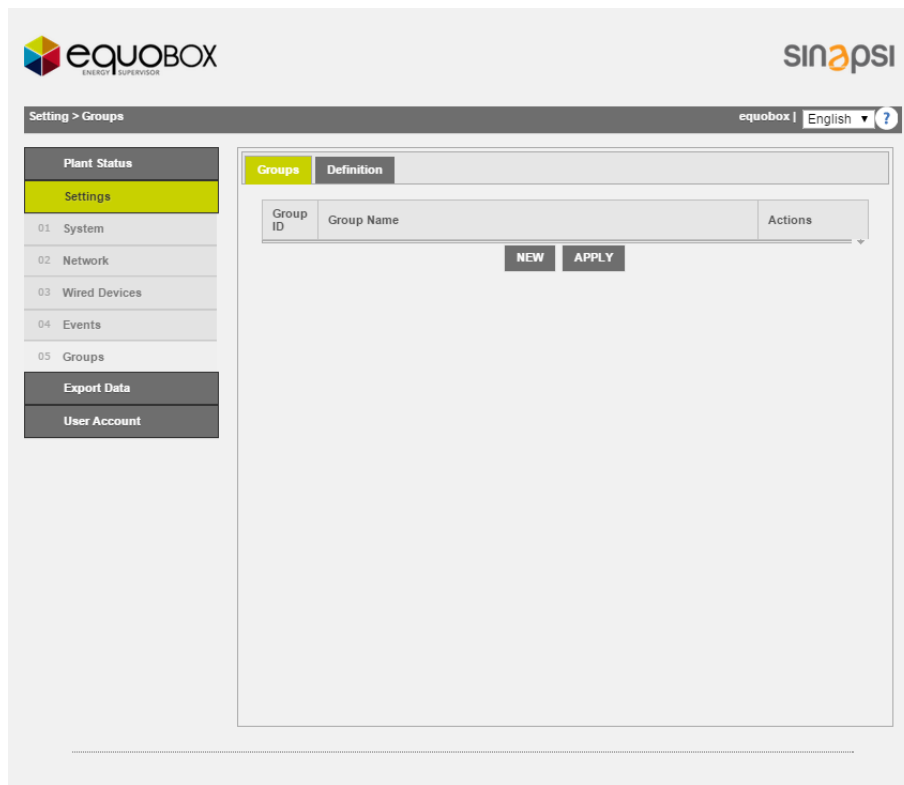


Figura 55 - Groups management

17.1 Group creation

To create a group just select NEW, associate a name and press OK:

Figure 56 - Group creation

Following the creation of the group, press APPLY. Once you have created the group will be displayed in tabular form.

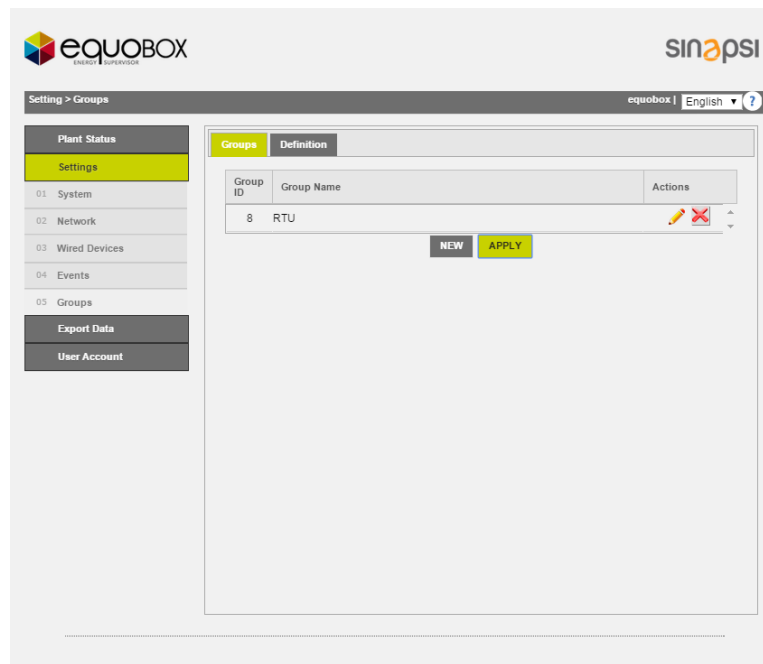


Figure 57 - Groups list

For every group it is possible

- - modify the group name
- - delete the group

At the end of the operations always press the APPLY button to set the changes.

17.2 Group definition

Once you create a group, Cap Ref. 17.1, it will be possible to define the components of the group. The window is divided into two separate boxes:

- Left box: displays all previously configured devices in the RTU
- Right box: shows all the devices configured into RTU and already forming part of a selected group

A single device can be placed in either the right box or the left box through the directional arrows placed between the two boxes.

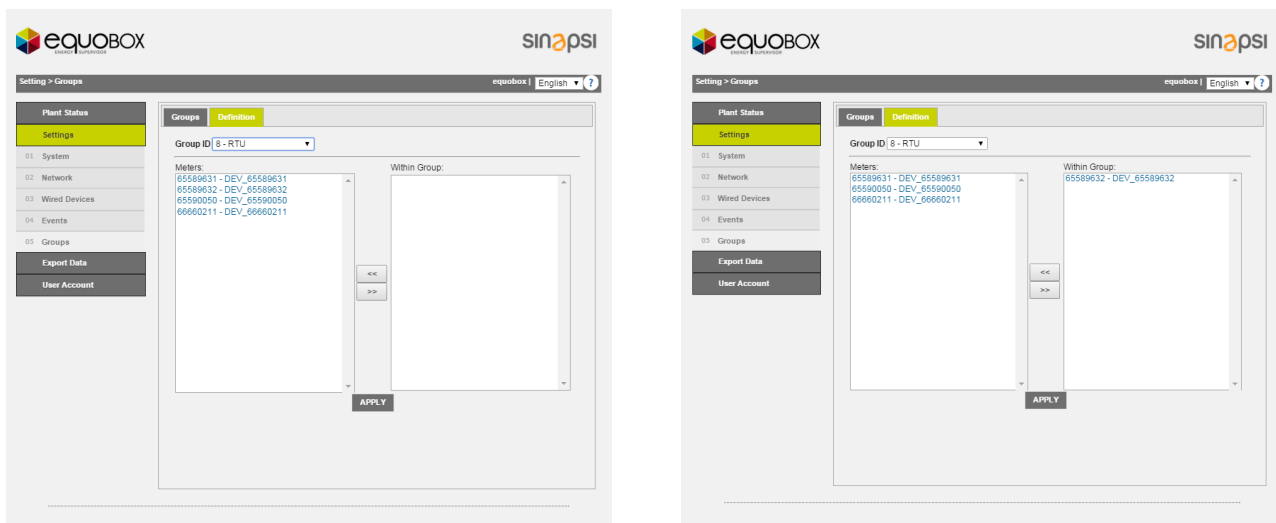


Figure 58 - Group definition

1. Select the group of interest in the Group ID box
2. Select the device you want to include in the group
3. Press the left arrow to include it

At the end of the operations always press the APPLY button to set the changes. Refer to Chap. 18.2 for the use of the Group.

18. EXPORTING DATA

This section allows you to process/export the data logged in the RTU. The data logged in every single meter are defined as shown in Chapters 15.3, 15.4 and in Chapters 13 and 14. The items that can be selected are:

- Create Reports: Meters - Groups
- Planning
- Repository

Every item will be described separately.

18.1 Create Reports - Meters

The pages to Create Reports - Meter are described below

The screenshot shows the 'Export Data > Create Report' page in the EQUOBOX interface. The sidebar on the left has 'Export Data' highlighted. The main content area has tabs for 'Meters' and 'Gruppi'. A table titled 'Select device (one or more) from the list' contains the following data:

	Name	Serial Num.	Description 1	Description 2
<input type="checkbox"/>	DEV_65990399	65990399	Raffrescamento	PA_000
<input type="checkbox"/>	DEV_66071928	66071928	Riscaldamento	PA_001
<input type="checkbox"/>	DEV_00000180	00000180	Acqua	PA_002
<input type="checkbox"/>	DEV_00000000	00000000	Altro	PA_000
<input type="checkbox"/>	DEV_00000280	00000280	Acqua calda	PA_000
<input type="checkbox"/>	DEV_00080461	00080461	Elettricità	PA_000
<input type="checkbox"/>	DEV_65990398	65990398	Riscaldamento	PA_000

Below the table, there are fields for 'Report type' (set to 'Standard Report'), 'File type' (set to 'CSV'), and 'Select day' (set to '17/1/2017'). A 'Create Report' button is at the bottom right.

Figure 59 - Creating a report

Select one or more devices from the list. For this option, all you have to do is select the box on the top left of the table. See Figure 60

This close-up shows the 'Cable [7]' checkbox on the left of the table, which is now checked (indicated by a red arrow). The table data is the same as in Figure 59, but all checkboxes in the first column are now checked.

Figure 60 - Selecting the devices

The Create report menu is divided as follows:

1. Device data:
 - Name: Name allocated to the meter

- Serial Number: Serial Number of the meter
 - Description 1: Description 1 associated to the meter. See Chapter, 15.4 and 15.4
 - Description 2: Description 2 associated to the meter. See Chapter 15.4 and 15.4
2. Data to be exported: you can choose between six types of export:

a) **Standard report**

It generates a file in the CSV format with the data of the selected meters about the latest reading performed until the selected day. **Note:** The image below shows where you can set the association between the data and the related descriptions of each meter.

User description	M-Bus Description	Configuration standard report. [Data matching]	Configuration of report with data elaborated. [Type of elaboration]	Configuration of report data. [Favorites data]	Main Field
Energia raffrescamento	Energy	heat_energy	Consumption	<input checked="" type="checkbox"/>	<input checked="" type="radio"/>
Volume raffrescamento	Volume	none	None	<input checked="" type="checkbox"/>	<input type="radio"/>
Data ora dispositivo	Time Point	device_date_t	None	<input checked="" type="checkbox"/>	<input type="radio"/>
Tempo di funzionamento	On Time	none	None	<input checked="" type="checkbox"/>	<input type="radio"/>
Data errore	Time Point	none	None	<input checked="" type="checkbox"/>	<input type="radio"/>
Numero seriale	Fabrication Number	fabrication_nu	None	<input checked="" type="checkbox"/>	<input type="radio"/>

- Select the day: select the day to be exported
- CSV format: to export a .CSV file (only available option)
- Press Create Report to generate the data files

- The file name will be created automatically and it will refer to the selected date (1)
- Move to the name of the file you just created and click to open it
- You can send the report via email and/or FTP if they're configured (2).

1

08052018.csv | Send file by email and/or by FTP if configured



2

The standard report file looks like in the picture:

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q
1	file_name	report_date	report_time	plant_reference	sw_version	total_devices_cable	rtu_serial										
2	17012017.csv	16/01/2017	08:54:08	Demo Sinapsi	2.17.33		7 SN15090237										
3																	
4	count	primary_address	device_serial_number	name_customer	device_description	device_detail	device_measure_hex	bus_type	model_id	readout_date	readout_time	communication_status	mbus_status	device_date_time	error_flag_decimal	fabrication_number	heat_energy
5	0	1	65990399	DEV_65990399	Raffrescamento	PA_000	0A Cooling	0	177	16/01/2017	16:59:45	OK	0	16/01/2017 16:58	0	56043855	0
6	1	1	66071928	DEV_66071928	Riscaldamento	PA_001	04 Heat	0	211	17/01/2017	00:00:14	OK	0	16/01/2017 23:59	0	66071928	0
7	2	2	180	DEV_00000180	Acqua	PA_002	07 Water	0	210	17/01/2017	00:00:20	OK	0	16/01/2017 23:59	0	66071928	0
8	3	0	0	DEV_00000000	Altro	PA_000	00 Other	0	-	17/01/2017	18:00:14	OK	0	-	-	-	-
9	4	0	280	DEV_00000280	Acqua calda	PA_000	06 Hot Water	0	209	17/01/2017	00:00:42	OK	0	16/01/2017 23:59	0	66071928	-
10	5	0	80461	DEV_00080461	Elettricità	PA_000	02 Electricity	0	-	17/01/2017	23:00:21	OK	0	-	-	-	-
11	6	0	65990398	DEV_65990398	Riscaldamento	PA_000	04 Heat	0	176	16/01/2017	16:59:34	OK	0	16/01/2017 16:57	0	56043854	0

Report heading

- file_name: file name
- report_date: generation date of the report
- report_time: report generation time
- plant_reference: plant name
- sw_version: version of the RTU software
- total_devices_cable: total number of wired devices
- total_devices_wireless: total number of wireless devices
- rtu_serial: serial number of the RTU

Devices section:

- count: device serial number in the report
- primary_address: primary address of the device
- device_serial_number: serial number of the device
- name_customer: device name
- device_description: description 1 of the device
- device_detail: description 2 of the device
- device_measure_hex: type of measured variable coded with hexadecimal number
- bus_type: bus type; 0 = wired, 1 = wireless
- model_id: ID number assigned to the model in the database

Readouts section:

- readout_date: date of the last reading of the device
- readout_time: time of the last reading of the device
- communication_status: communication status; OK = correct, Error = the device has not never been read by the RTU

Data section:

- M-Bus_status: M-Bus status
- device_date_time: date and time of the device
- error_flag_decimal: error code according M-Bus standards
- fabrication_number: serial number of the device
- heat_energy: heat
- heat_energy_units: heat unit
- cool_energy: cold
- cool_energy_units: cold unit
- HCA: Heat Cost Allocator / allocation unit
- heat_water_volume: ACS volume
- heat_water_units: ACS unit
- cool_water_volume: cold water volume
- cool_water_volume_units: cold water volume measuring unit
- water_volume: water volume

- water_volume_units: water volume measuring unit
- aux1_volume: auxiliary input 1 volume
- aux1_volume_units: auxiliary input 1 volume units
- aux2_volume: auxiliary input 2 volume
- aux2_volume_units: auxiliary input 2 volume units
- aux3_volume: auxiliary input 3 volume
- aux3_volume_units: auxiliary input 3 volume units
- gas_volume: gas volume
- gas_volume_units: gas volume unit
- electricity_active_energy: active electrical energy
- electricity_active_energy_units: active electrical energy measuring unit
- electricity_ractive_energy: reactive electrical energy
- electricity_ractive_energy_units: reactive electrical energy measuring unit

b. **Standard report + Readout**

It makes a reading of the selected meters and generates a file in the CSV format very similar to that of standard reports.

Note: If in the time of a reading is done some meters do not work or do not communicate with the RTU, the report will miss the data related to the above meters.

- CSV format: to export a .CSV file (only option available)
- Press Create Report to generate the data files

- The file name will be created automatically and will refer to the selected date
- **Note:** the read operation and report generation may take several minutes
- Move to the name of the file you just created and click to open it (1)
- You can send the report via email and/or FTP if they're configured (2).

The standard report + readout file looks like in the picture:

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q
1	file_name	report_date	report_time	plant_reference	sw_version	total_devices_cable	rtu_serial										
2	17012017.csv	18/01/2017	08:54:08	Demo Sinapsi	2.17.33		7 SN15090237										
3																	
4	count	primary_address	device_serial_number	name_customer	device_description	device_detail	device_measure_hex	bus_type	model_id	readout_date	readout_time	communication_status	mbus_status	device_date_time	error_flag_decimal	fabrication_number	heat_energy
5	0	1	65990399	DEV_65990399	Raffrescamento	PA_000	04	Cooling	0	177	16/01/2017	16:59:45	OK	0	16/01/2017 16:58	0	56043895
6	1	1	66071938	DEV_66071938	Riscaldamento	PA_001	04	Heat	0	211	17/01/2017	00:00:14	OK	0	16/01/2017 23:59	0	66071928
7	2	2	180	DEV_00000180	Acqua	PA_002	07	Water	0	210	17/01/2017	00:00:20	OK	0	16/01/2017 23:59	0	66071928
8	3	0	0	DEV_00000000	Altro	PA_000	00	Other	0	-	17/01/2017	18:00:14	OK	0	-	-	-
9	4	0	280	DEV_00000280	Acqua calda	PA_000	06	Hot Water	0	209	17/01/2017	00:00:42	OK	0	16/01/2017 23:59	0	66071928
10	5	0	80461	DEV_00080461	Elettricità	PA_000	02	Electricity	0	-	17/01/2017	23:00:21	OK	0	-	-	-
11	6	0	65990398	DEV_65990398	Riscaldamento	PA_000	04	Heat	0	176	16/01/2017	16:59:34	OK	0	16/01/2017 16:57	0	56043894

Report heading:

The heading of the standard + reading report is equal to that of the standard reports previously described.

Devices section:

The section of the report standard + reading devices is equal to that of the standard reports previously described.

Readout section:

- readout_date: date of the device reading (when the generation of the report starts)
- readout_time: time of the device reading (when the generation of the report starts)
- communication_status: communication status; OK = correct, Error = the device has not been read by the RTU after the start of the reporting)

Data section:

The section of the standard + reading report data is equal to that of the standard reports previously described.

c. XML reports

It generates a file in XML format with the data of the selected meters for the selected day.

- Select the day: select the day for which you want to generate the report
- XML format: to export an XML file (only option available)
- Press Create Report to generate the data files

- The file name will be created automatically and will refer to the selected date
- Move to the name of the file you just created and click to open it (1)
- You can send the report via email and/or FTP if they're configured (2).

In the figure a portion of the report file in XML format:

```

<?xml version="1.0" encoding="UTF-8"?>
- <content version="1" xsi:noNamespaceSchemaLocation="content.xsd" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
  - <custom>
    <datalogger model="SIN.EQRTU1" fw_rev="2.17.33" current_time="10:40:17" current_data="2017-01-18" sn="SN15090237"/>
    <plant total_mbus_dev="7" name="Demo Sinapsi"/>
  </custom>
- <device version="29" read_interval="2678400" medium="0A" manuf="3265" id="65990399" bus="0" prog="0">
  - <readouts>
    - <readout errordate="every month" fabnr="56043895" dev_date="2017-01-18" dev_time="09:55:00" status="0">
      sys_timestamp="1484733429">
        - <datapoints>
          <datapoint value="0.000" rep_id="3" maindb="1" tolog="1" description="Energia raffrescamento" unit="kWh" field_id="0C05"/>
          <datapoint value="0.000" maindb="0" tolog="1" description="Volume raffrescamento" unit="m3" field_id="0C13"/>
          <datapoint value="18" rep_id="0" maindb="0" tolog="1" description="Data ora dispositivo" unit="date e time" field_id="046D"/>
          <datapoint value="009454" maindb="0" tolog="1" description="Tempo di funzionamento" unit="hours" field_id="0B22"/>
          <datapoint value="every month" maindb="0" tolog="1" description="Data errore" unit="date" field_id="326C"/>
          <datapoint value="56043895" rep_id="2" maindb="0" tolog="1" description="Numero seriale" field_id="0C78"/>
          <datapoint value="2267742797844" maindb="0" tolog="1" description="Model / Version" field_id="06FD0C"/>
          <datapoint value="MHM51" maindb="0" tolog="1" description="Parameter set identification" field_id="0DFD08"/>
          <datapoint value="56043894" maindb="0" tolog="1" description="Dati cliente" field_id="0CFD10"/>
          <datapoint value="0" rep_id="1" maindb="0" tolog="1" description="Flag errori" field_id="32FD17"/>
          <datapoint value="0.000" maindb="0" tolog="1" description="Portata istantanea" unit="m3/h" field_id="033B"/>
          <datapoint value="17.000" maindb="0" tolog="1" description="Temperatura mandata" unit="°C" field_id="025A"/>
          <datapoint value="16.700" maindb="0" tolog="1" description="Temperatura di ritorno" unit="°C" field_id="025E"/>
          <datapoint value="300.000" maindb="0" tolog="1" description="Differenza temperatura" unit="mK" field_id="0262"/>
          <datapoint value="0.000" maindb="0" tolog="1" description="Potenza istantanea" unit="kW" field_id="042B"/>
        </datapoints>
      </readout>
    </readouts>
  </device>
</content>

```

Note: For details about the file format, refer to specific document "XML RTU Data Reports Technical Specification document " (MOD 05 B RTU XML API SPEC REVx.pdf).

d. **Report with all Readouts [Favorite Data]**

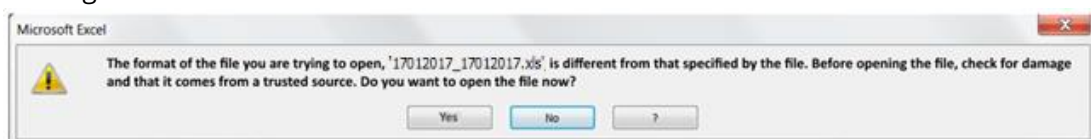
It generates a file in XLS or CSV format with preferred data for each selected meter relative to all the Readouts taken on the selected day. **Note:** The image below shows where you can set your favorite data for each meter]

User description	M-Bus Description	Configuration standard report. [Data matching]	Configuration of report with data elaborated. [Type of elaboration]	Configuration of report data. [Favorites data]	Main Field
Energia raffrescamento	Energy	heat_energy	Consumption	<input checked="" type="checkbox"/>	<input checked="" type="radio"/>
Volume raffrescamento	Volume	none	None	<input checked="" type="checkbox"/>	<input type="radio"/>
Data ora dispositivo	Time Point	device_date_t	None	<input checked="" type="checkbox"/>	<input type="radio"/>
Tempo di funzionamento	On Time	none	None	<input checked="" type="checkbox"/>	<input type="radio"/>
Data errore	Time Point	none	None	<input checked="" type="checkbox"/>	<input type="radio"/>
Numero seriale	Fabrication Number	fabrication_nu	None	<input checked="" type="checkbox"/>	<input type="radio"/>

- Select the day: select the day for which you want to generate the report
- XLS format (Single Sheet) to export a .XLS file
- CSV format: to export a .CSV file
- Press Create Report to generate the data file

- The file name will be automatically created and will refer to the selected date (1)
- Move to the name of the file you just created and click to open it.
- You can send the report via email and/or FTP if they're configured (2).

When you open a file generated with .XLS format the message is displayed as below; press Yes for proper viewing.



The report file with all the favorite Readouts data is presented as below:

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100	101	102	103	104	105	106	107	108	109	110	111	112	113	114	115	116	117	118	119	120	121	122	123	124	125	126	127	128	129	130	131	132	133	134	135	136	137	138	139	140	141	142	143	144	145	146	147	148	149	150	151	152	153	154	155	156	157	158	159	160	161	162	163	164	165	166	167	168	169	170	171	172	173	174	175	176	177	178	179	180	181	182	183	184	185	186	187	188	189	190	191	192	193	194	195	196	197	198	199	200	201	202	203	204	205	206	207	208	209	210	211	212	213	214	215	216	217	218	219	220	221	222	223	224	225	226	227	228	229	230	231	232	233	234	235	236	237	238	239	240	241	242	243	244	245	246	247	248	249	250	251	252	253	254	255	256	257	258	259	260	261	262	263	264	265	266	267	268	269	270	271	272	273	274	275	276	277	278	279	280	281	282	283	284	285	286	287	288	289	290	291	292	293	294	295	296	297	298	299	300	301	302	303	304	305	306	307	308	309	310	311	312	313	314	315	316	317	318	319	320	321	322	323	324	325	326	327	328	329	330	331	332	333	334	335	336	337	338	339	340	341	342	343	344	345	346	347	348	349	350	351	352	353	354	355	356	357	358	359	360	361	362	363	364	365	366	367	368	369	370	371	372	373	374	375	376	377	378	379	380	381	382	383	384	385	386	387	388	389	390	391	392	393	394	395	396	397	398	399	400	401	402	403	404	405	406	407	408	409	410	411	412	413	414	415	416	417	418	419	420	421	422	423	424	425	426	427	428	429	430	431	432	433	434	435	436	437	438	439	440	441	442	443	444	445	446	447	448	449	450	451	452	453	454	455	456	457	458	459	460	461	462	463	464	465	466	467	468	469	470	471	472	473	474	475	476	477	478	479	480	481	482	483	484	485	486	487	488	489	490	491	492	493	494	495	496	497	498	499	500	501	502	503	504	505	506	507	508	509	510	511	512	513	514	515	516	517	518	519	520	521	522	523	524	525	526	527	528	529	530	531	532	533	534	535	536	537	538	539	540	541	542	543	544	545	546	547	548	549	550	551	552	553	554	555	556	557	558	559	560	561	562	563	564	565	566	567	568	569	570	571	572	573	574	575	576	577	578	579	580	581	582	583	584	585	586	587	588	589	590	591	592	593	594	595	596	597	598	599	600	601	602	603	604	605	606	607	608	609	610	611	612	613	614	615	616	617	618	619	620	621	622	623	624	625	626	627	628	629	630	631	632	633	634	635	636	637	638	639	640	641	642	643	644	645	646	647	648	649	650	651	652	653	654	655	656	657	658	659	660	661	662	663	664	665	666	667	668	669	670	671	672	673	674	675	676	677	678	679	680	681	682	683	684	685	686	687	688	689	690	691	692	693	694	695	696	697	698	699	700	701	702	703	704	705	706	707	708	709	710	711	712	713	714	715	716	717	718	719	720	721	722	723	724	725	726	727	728	729	730	731	732	733	734	735	736	737	738	739	740	741	742	743	744	745	746	747	748	749	750	751	752	753	754	755	756	757	758	759	760	761	762	763	764	765	766	767	768	769	770	771	772	773	774	775	776	777	778	779	780	781	782	783	784	785	786	787	788	789	790	791	792	793	794	795	796	797	798	799	800	801	802	803	804	805	806	807	808	809	810	811	812	813	814	815	816	817	818	819	820	821	822	823	824	825	826	827	828	829	830	831	832	833	834	835	836	837	838	839	840	841	842	843	844	845	846	847	848	849	850	851	852	853	854	855	856	857	858	859	860	861	862	863	864	865	866	867	868	869	870	871	872	873	874	875	876	877	878	879	880	881	882	883	884	885	886	887	888	889	890	891	892	893	894	895	896	897	898	899	900	901	902	903	904	905	906	907	908	909	910	911	912	913	914	915	916	917	918	919	920	921	922	923	924	925	926	927	928	929	930	931	932	933	934	935	936	937	938	939	940	941	942	943	944	945	946	947	948	949	950	951	952	953	954	955	956	957	958	959	960	961	962	963	964	965	966	967	968	969	970	971	972	973	974	975	976	977	978	979	980	981	982	983	984	985	986	987	988	989	990	991	992	993	994	995	996	997	998	999	1000	1001	1002	1003	1004	1005	1006	1007	1008	1009	1010	1011	1012	1013	1014	1015	1016	1017	1018	1019	1020	1021	1022	1023	1024	1025	1026	1027	1028	1029	1030	1031	1032	1033	1034	1035	1036	1037	1038	1039	1040	1041	1042	1043	1044	1045	1046	1047	1048	1049	1050	1051	1052	1053	1054	1055	1056	1057	1058	1059	1060	1061	1062	1063	1064	1065	1066	1067	1068	1069	1070	1071	1072	1073	1074	1075	1076	1077	1078	1079	1080	1081	1082	1083	1084	1085	1086	1087	1088	1089	1090	1091	1092	1093	1094	1095	1096	1097	1098	1099	1100	1101	1102	1103	1104	1105	1106	1107	1108	1109	1110	1111	1112	1113	1114	1115	1116	1117	1118	1119	1120	1121	1122	1123	1124	1125	1126	1127	1128	1129	1130	1131	1132	1133	1134	1135	1136	1137	1138	1139	1140	1141	1142	1143	1144	1145	1146	1147	1148	1149	1150	1151	1152	1153	1154	1155	1156	1157	1158	1159	1160	1161	1162	1163	1164	1165	1166	1167	1168	1169	1170	1171	1172	1173	1174	1175	1176	1177	1178	1179	1180	1181	1182	1183	1184	1185	1186	1187	1188	1189	1190	1191	1192	1193	1194	1195	1196	1197	1198	1199	1200	1201	1202	1203	1204	1205	1206	1207	1208	1209	1210	1211	1212	1213	1214	1215	1216	1217	1218	1219	1220	1221	12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The report file with all the Readouts of all data is the same as the report with all the Readouts of the favorite data described above, except that it includes all the data instead of the preferred data only.

f. Report with processed data

It generates a file in XLS or CSV format with all the processed data of each selected meter relative to a selected time (From dd / mm / yyyy ÷ To dd / mm / yyyy). **Note:** The image below shows where you can set the type of elaboration to be performed on each data of each meter.

User description	M-Bus Description	Configuration standard report. [Data matching]	Configuration of report with data elaborated. [Type of elaboration]	Configuration of report data. [Favorites data]	Main Field
Energia riscaldamento	Energy	heat_energy	Consumption	<input checked="" type="checkbox"/>	<input type="radio"/>
Volume riscaldamento	Volume	none	None	<input checked="" type="checkbox"/>	<input type="radio"/>
Data ora dispositivo	Time Point	device_date_t	None	<input checked="" type="checkbox"/>	<input type="radio"/>
Tempo di funzionamento	On Time	none	None	<input checked="" type="checkbox"/>	<input type="radio"/>
Data errore	Time Point	none	None	<input checked="" type="checkbox"/>	<input type="radio"/>
Numero seriale	Fabrication Number	fabrication_nu	None	<input checked="" type="checkbox"/>	<input type="radio"/>

Report type: Report with elaborated daily data

File type: CSV

Select interval period

From: 17/11/2016 To: 17/01/2017

- From: Select the start day of the interval time
- To: select the end day of the interval time
- CSV format: to export a .CSV file
- XLS format (Single Sheet) to export a .XLS file
- Press Create Report to generate the data files

Create Report

Report generation in progress. Please wait.

28 %

- The file name will be automatically created and will refer to the dates of the beginning and ending of the selected time
- Move to the name of the file you just created (1) and click to open it
- You can send the report via email and/or FTP if they're configured (2).

1 08052018_08052018.csv | Send file by email and/or by FTP if configured 2

When you open a file generated with .XLS format the message is displayed as below; press Yes for proper viewing.



The report file with the Readouts of the data processed appears as shown here:

	A	B	C	D	E	F	G	H	I	J
1	1	2	3	4	5	6	7	8	9	10
2	SN15090237	Demo Sinapsi	Via Delle Querce 11/13 - 06083 - Bastia Umbra (PG) Italy	Rossi Andrea	Nessuno	16/01/2017				
3	Matricola	Nome Dispositivo	Descrizione 1	Descrizione 2	Data	Ora	Stato	[0.000 kWh] Energia riscaldamento	[0.000 m3] Volume totale	[0.000 kWh] Energia storico
4	66071928	DEV_66071928	Riscaldamento	PA_001	16/01/2017	16:58	0	0	0	0
5	66071928	DEV_66071928	Riscaldamento	PA_001	17/01/2017	00:00	0	0	0	0
6	Matricola	Nome Dispositivo	Descrizione 1	Descrizione 2	Data	Ora	Stato	[0.000 m3] Volume totale	[0.000 m3] Volume storico	
7	00000180	DEV_00000180	Acqua	PA_002	16/01/2017	16:58	0	0,085	0,085	
8	00000180	DEV_00000180	Acqua	PA_002	17/01/2017	00:00	0	0,085	0,085	
9	Matricola	Nome Dispositivo	Descrizione 1	Descrizione 2	Data	Ora	Stato	[0.000 m3] Volume	[0.000 m3] Volume	[0.000 m3] Volume
10	00000000	DEV_00000000	Altro	PA_000	16/01/2017	16:58	0	0	0	0
11	00000000	DEV_00000000	Altro	PA_000	17/01/2017	00:00	0	0	0	0
12	Matricola	Nome Dispositivo	Descrizione 1	Descrizione 2	Data	Ora	Stato	[0.000 m3] Volume totale	[0.000 m3] Volume storico	
13	00000280	DEV_00000280	Acqua calda	PA_000	16/01/2017	16:59	0	0,01	0,01	
14	00000280	DEV_00000280	Acqua calda	PA_000	17/01/2017	00:00	0	0,01	0,01	
15	Matricola	Nome Dispositivo	Descrizione 1	Descrizione 2	Data	Ora	Stato	[0.000 kWh] Energy	[0.000 kWh] Energy	[0.000 kWh] Energy
16	00080461	DEV_00080461	Elettricità	PA_000	16/01/2017	16:59	0	0	0	0
17	00080461	DEV_00080461	Elettricità	PA_000	17/01/2017	00:00	0	0	0	0

Report heading:

- Datalogger serial number
- Plant name
- Plant address
- Installer name
- Customer Name
- Date of Installation

Heading and processed data of the first device:

- Device serial number
- Device name
- Device description 1
- Device description 2
- Reading Date
- Reading time
- M-Bus status
- Processed data, refer to the selected time of the device

row of the first available read, in the selected interval time, of the first device:

- ...
- Date of the first available reading of the device
- Time of the first available reading of the device
- M-Bus status
- Processed data, refer to the first available reading of the device

row of the last available read, in the selected interval time, of the second device:

- ...
- Date of the last available reading of the device
- Time of the last available reading of the device
- M-Bus status
- Processed data, refer to the last available reading of the device

Section relative to the second device

Section concerning the third, fourth ... yet another device.

NB: the extrapolated data from the system provide

- **Use of dot for the separation of thousands**

- **Use of comma for the separation of tenths**

18.2 Create Reports - Groups

The pages to Create Reports - Group are described below

The screenshot shows the EQUOBOX web interface. On the left, there's a sidebar with 'Plant Status', 'Settings', and 'Export Data' (highlighted). Under 'Export Data', there are options: '01 Create Report', '02 Planning', '03 Repository', and 'User Account'. The main area is titled 'Setting > Groups'. It has a tab for 'Meters' and a selected tab for 'Gruppi'. Below the tabs, there's a section 'Select device (one or more) from the list' with a table:

<input type="checkbox"/>	Group ID	Group Name
<input type="checkbox"/>	10	Appartamento A-1
<input type="checkbox"/>	11	Appartamento Z-3
<input type="checkbox"/>	9	House 1
<input type="checkbox"/>	12	House 2
<input type="checkbox"/>	8	RTU

Below the table, there's a 'Report file settings' section with two radio buttons: 'CSV Format' and 'XLS Format (Single Sheet)' (selected). Then, there's a 'Select interval period' section with 'From' and 'To' date pickers. The 'From' date is 31/7/2014 and the 'To' date is 30/9/2014. At the bottom, there's a 'Create Report' button and a progress bar.

Figure 61 - Creating a report

Select one or more devices from the list. For this option, all you have to do is select the box on the top left of the table. See Figure 62

<input checked="" type="checkbox"/>	Group ID	Group Name
<input checked="" type="checkbox"/>	10	Appartamento A-1
<input checked="" type="checkbox"/>	11	Appartamento Z-3
<input checked="" type="checkbox"/>	9	House 1
<input checked="" type="checkbox"/>	12	House 2
<input checked="" type="checkbox"/>	8	RTU

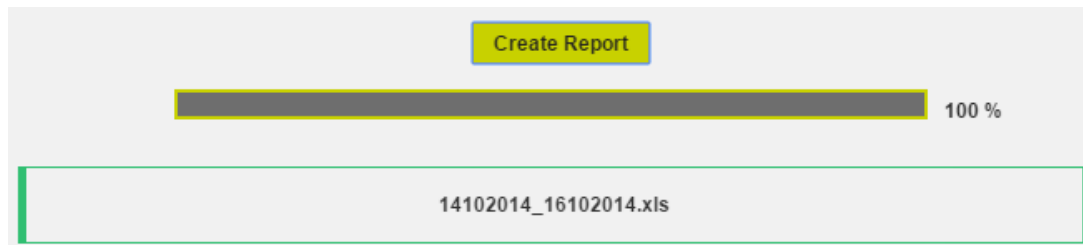
Figure 62 - Selecting the devices

The Create report menu is divided as follows:

- Device data:
 - Group ID: shows the progressive ID for the groups created
 - Group Name: shows the name associated with the group
- Data to be exported: you can choose between two types of export:

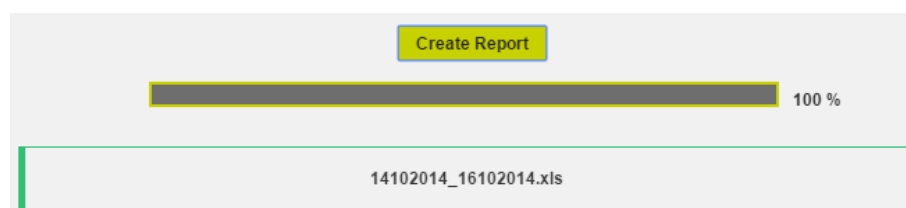
The screenshot shows the 'Report file settings' section. It has two radio buttons: 'CSV Format' and 'XLS Format (Single Sheet)' (selected). Below it, there's a 'Select interval period' section with 'From' and 'To' date pickers. The 'From' date is 31/7/2014 and the 'To' date is 30/9/2014. At the bottom, there's a 'Create Report' button and a progress bar.

- From: select the day from which to start the export
- To: select the day on which to end the export
- CSV format: to save in a .CSV file
- XLS format: to save in a .XLS file
- Press Download Data to download the data



- Allocate a name to the file to be generated
- Press Create Report
- Mouse over the newly created file and left-click on it to open it.

- Select the day: select the day to be exported
- Include non-displayed data: select to export all the saved data
- Press Download Data to download the data



- Allocate a name to the file to be generated
- Press Create Report
- Mouse over the newly created file and left-click on it to open it.

If you use an .XLS format, press YES to view it correctly.

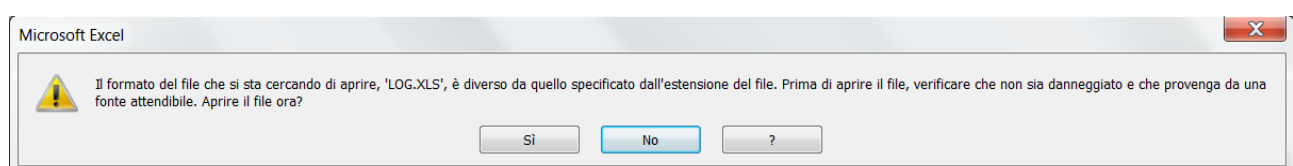


Figure 63 – Excel

18.3 Example of data Summary for group in .xls and .csv

	A	B	C	D	E	F	G	H	I	J	K	L	M	N
1	Datalogger serial	Nome Impianto	Indirizzo Impianto	Nome Installatore	Nome Cliente	Data di installazione								
2	SN13250235	Equobox	Via delle Querce	Sinapsi S.R.L.	Sinapsi S.R.L.	01/01/2014								
3														
4	Group Name	Serial Number	Device Name	Description 1	Description 2	Data Type	Units	From	Status	Value	To	Status	Value	Consumpt
5	Appartamento A-1	65589631	DEV_65589631_Energy	Heating	Label	4	Wh	14/10/2014	0	0	16/10/2014	0	0	0.000
6	Appartamento Z-3	65589632	DEV_65589632_Energy	Cooling	Label	10	Wh	14/10/2014	0	0	16/10/2014	0	0	0.000
7	House 1	65589632	DEV_65589632_Energy	Cooling	Label	10	Wh	14/10/2014	0	0	16/10/2014	0	0	0.000
8	House 1	65590050	DEV_65590050_Energy	Heating	Label	12	Wh	14/10/2014	0	0	16/10/2014	0	0	0.000
9	House 2	65589631	DEV_65589631_Energy	Heating	Label	4	Wh	14/10/2014	0	0	16/10/2014	0	0	0.000
10	House 2	66660211	DEV_66660211_Consumo Energia Totale	Heating	Label	4	kWh	14/10/2014	16	0	16/10/2014	16	0	0.000
11	RTU	65589631	DEV_65589631_Energy	Heating	Label	4	Wh	14/10/2014	0	0	16/10/2014	0	0	0.000
12	RTU	65589632	DEV_65589632_Energy	Cooling	Label	10	Wh	14/10/2014	0	0	16/10/2014	0	0	0.000
13	RTU	65590050	DEV_65590050_Energy	Heating	Label	12	Wh	14/10/2014	0	0	16/10/2014	0	0	0.000
14	RTU	66660211	DEV_66660211_Consumo Energia Totale	Heating	Label	4	kWh	14/10/2014	16	0	16/10/2014	16	0	0.000

Figura 64 - Esportazione dati di Sintesi in .xls e .CSV

NB: The data extracted from the system provide

- **Use the point for the thousands separator**
- **Use the comma to separate the tens**

18.4 Planning

From section you can:

1. plan, for each device, the period of reporting, available later in the section
2. set the type of report to be generated and the file type to generate the report
3. enable FTP transfer (File Transfer Protocol) data to an external server

Figure 65 - Planning

Note: each time a report is generated, automatically a link is sent to download the same report to e-mail addresses set in the corresponding menu

Planning refers to each individual device and the created document will always be available under the section Chap 18.5.

To program a device planning select

Serial Num.	Device Name	Description	Planning
65990399	DEV_65990399	Raffrescamento	none
66071928	DEV_66071928	Riscaldamento	monthly
00000180	DEV_00000180	Acqua	monthly
00000000	DEV_00000000	Altro	monthly
00000280	DEV_00000280	Acqua calda	monthly
00080461	DEV_00080461	Elettricità	monthly
65990398	DEV_65990398	Riscaldamento	monthly

Figure 66 – programmed planning

1. Planning

- None: doesn't enable the planning
- Daily: enables daily schedule at 08:10 AM every day
- Weekly: enables weekly schedule at 08:10 AM on the last day of the week
- Monthly: enables monthly schedule at 08:20 AM on the last day of the month
- Every two months: enables bimonthly schedule to 8:30 AM the last day of two months
- Every three months: enables quarterly schedule at 08:40 AM the last day of the trimester
- Every four months: enables quarterly schedule at 08:50 AM the last day of the quarter
- Every six months: enables half-year planning at 09:00 AM the last day of the half year
- Annual: enables annual planning at 09:10 AM on the last day of the year

2. Setting the type of report and file type

- Standard Report + Reading

This selection anticipates the operation of sending a reading operation for the acquired cable devices. It is possible to select start time. The two operations are performed on the selected day in the menu "Planning." The generated file has CSV format (only available option).

Note: If the time when the reading is done some meters do not work or do not communicate with the RTU, in the report the data related to the above meters will miss.

Note: The image below shows where you can set the association between the data and the related descriptions of each meter.

User description	M-Bus Description	Configuration standard report. [Data matching]	Configuration of report with data elaborated. [Type of elaboration]	Configuration of report data. [Favorites data]	Main Field
Cooling energy	Energy	heat_energy	Consumption	<input checked="" type="checkbox"/>	<input type="radio"/>
Cooling volume	Volume	none	None	<input checked="" type="checkbox"/>	<input type="radio"/>
Device date time	Time Point	device_date_ti	None	<input checked="" type="checkbox"/>	<input type="radio"/>
Operating time	On Time	none	None	<input checked="" type="checkbox"/>	<input type="radio"/>
Error date	Time Point	none	None	<input checked="" type="checkbox"/>	<input type="radio"/>
Serial number	Fabrication Number	fabrication_nu	None	<input checked="" type="checkbox"/>	<input type="radio"/>

- Standard Report

It generates a standard report to a file in CSV format (only option available).

Note: The image below shows where you can set the association between the data and the related descriptions of each meter.

User description	M-Bus Description	Configuration standard report. [Data matching]	Configuration of report with data elaborated. [Type of elaboration]	Configuration of report data. [Favorites data]	Main Field
Cooling energy	Energy	heat_energy	Consumption	<input checked="" type="checkbox"/>	<input type="radio"/>
Cooling volume	Volume	none	None	<input checked="" type="checkbox"/>	<input type="radio"/>
Device date time	Time Point	device_date_ti	None	<input checked="" type="checkbox"/>	<input type="radio"/>
Operating time	On Time	none	None	<input checked="" type="checkbox"/>	<input type="radio"/>
Error date	Time Point	none	None	<input checked="" type="checkbox"/>	<input type="radio"/>
Serial number	Fabrication Number	fabrication_nu	None	<input checked="" type="checkbox"/>	<input type="radio"/>

- Report in XML format

Generates a report to a file in XML format (only option available).

- Report with all the day's Readouts [Favorite Data]

It generates a report with all the Readouts of the day, only of the favorite data from each meter, in a file in the XLS or CSV format.

Note: The image below shows where you can set your favorite data for each meter.

User description	M-Bus Description	Configuration standard report. [Data matching]	Configuration of report with data elaborated. [Type of elaboration]	Configuration of report data. [Favorites data]	Main Field
Cooling energy	Energy	heat_energy	Consumption	<input checked="" type="checkbox"/>	<input type="radio"/>
Cooling volume	Volume	none	None	<input checked="" type="checkbox"/>	<input type="radio"/>
Device date time	Time Point	device_date_ti	None	<input checked="" type="checkbox"/>	<input type="radio"/>
Operating time	On Time	none	None	<input checked="" type="checkbox"/>	<input type="radio"/>
Error date	Time Point	none	None	<input checked="" type="checkbox"/>	<input type="radio"/>
Serial number	Fabrication Number	fabrication_nu	None	<input checked="" type="checkbox"/>	<input type="radio"/>

- Report with all the day's Readouts [All data]

It generates a report with the first reading of the day, with all the data for each meter in a file in the XLS or CSV format.

Note: except for the Standard Report + Readout [@ 23:00], in all other cases and only for the individual wired meters, if the set planning period is lower than the Scan interval for each meter, a window is displayed with a warning: the generated reports will miss data relating to the meters on which the serial number is displayed in the same window.

Attention. The following wired devices have a readout interval longer than the report generation !!! Some reports will be incomplete

ID: 00001234	ID: 00003234	ID: 00004234	ID: 00005234	ID: 00006234	ID: 00007234
ID: 00008234	ID: 00009234	ID: 00010234	ID: 00011234	ID: 00012234	ID: 00013234
ID: 00014234	ID: 00015234	ID: 00016234	ID: 00017234	ID: 00018234	ID: 00019234
ID: 00020234	ID: 00021234	ID: 00022234	ID: 00023234	ID: 00024234	ID: 00025234
ID: 00026234	ID: 00027234	ID: 00028234	ID: 00029234	ID: 00030234	ID: 00031234
ID: 00032234	ID: 00113234				

Note: The image below shows where you can set the intervals of each meter.

The Scan interval of each meter is set in the Settings > Wired Device > Meters Setup > Scan interval.

3. FTP file transfer (File Transfer Protocol)

Figure 67 - FTP activation

- Enable FTP sending: check to enable the FTP service
- FTP Server Address: enter the server address for the FTP service
- Username: enter the username for access to the FTP server
- Password: enter the password for access to the FTP server

To conclude the settings, press Save to save the configuration entered.

ATTENTION: The FTP access to the server is only available in "not sure" mode.

No TLS / SSL or SFTP transfers connections are managed.

The available port is 21 port and it can not be changed

The FTP server address can not contain references to paths or subfolders

18.5 Repository

The Repository section is the repository of all the planning documents created manually or according to plan (Ref. Chapters 18.1, 18.4). By selecting any file to be viewed, it will be automatically downloaded.

Nr.	Nome File	Dimensione	Data di creazione	
8	12032018.CSV	996	12.03.18-09:16	[X] [Download]
6	SN16440156_110318_110318.xls	13.916	12.03.18-08:10	[X] [Download]
5	SN16440156_100318_100318.xls	14.870	11.03.18-08:10	[X] [Download]
4	SN16440156_090318_090318.xls	14.870	10.03.18-08:10	[X] [Download]
3	SN16440156_080318_080318.xls	15.466	09.03.18-08:10	[X] [Download]
2	SN16440156_070318_070318.xls	13.929	08.03.18-14:39	[X] [Download]
7	08032018.CSV	1.721	08.03.18-14:36	[X] [Download]
1	SN16440156_050318_050318.xls	8.704	06.03.18-08:10	[X] [Download]

12032018.CSV

Mostra tutto

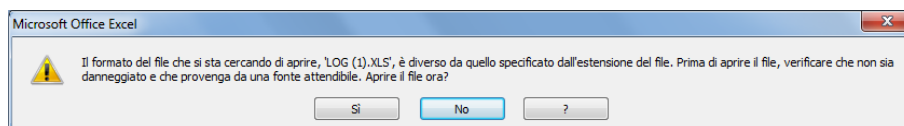
Figure 68 - Report Archive

To delete one or all the records from the list, press the appropriate button

It is possible to send file by e-mail and/or FTP if configured

It is also possible to sort the order of the archive reports differently

Upon downloading the file, select it in the lower section of the browser page. A window prompting you to confirm whether you want to open the file will appear automatically. Press YES to open the file



- press the button to delete the record

19. USER ACCOUNT

The User Account section allows you to change the data to access the webserver account. You can use two types of account: admin and user.

The user account only allows you to view the data contained in the RTU

The admin account allows you to view and change all the data contained in the RTU

The default access data for the User are:

- Username: user
- Password: user
- Re-type password: user
- Press Save to save the configuration

The default access data for the Admin user are:

- Username: admin
- Password: admin
- Re-type password: admin
- Press Save to save the configuration

The screenshot shows the 'User Configuration' page of the EQUOBOX web interface. The sidebar on the left contains the following menu items: Plant Status, Settings, Export Data, and User Account (which is currently selected). The main content area has a header with the EQUOBOX and SINAPSI logos, and a language dropdown menu set to 'English'. Below the header, the 'User Configuration' section is titled, followed by instructions: 'This page allows you to change the system. default password: **admin**. Enter the new settings for the board below:'. There are two main configuration sections: 'User Account' and 'Administrator Account'. Each section contains input fields for 'Username', 'Password', and 'Re-type password', and a 'Save' button. The 'User Account' section has pre-filled values: Username: 'user', Password: '...', and Re-type password: '...'. The 'Administrator Account' section has pre-filled values: Username: 'equobox', Password: '.....', and Re-type password: '.....'.

Figure 69 - Account configuration

20. PLANT STATUS

This section allows you to view the plant status. The items that can be selected are:

- Plant Status
 - System Status
 - Event Reports
- Wired Devices
- I/O Devices
- Groups
 - All
 - Errors Only

20.1 Plant Status – System Status – System Status

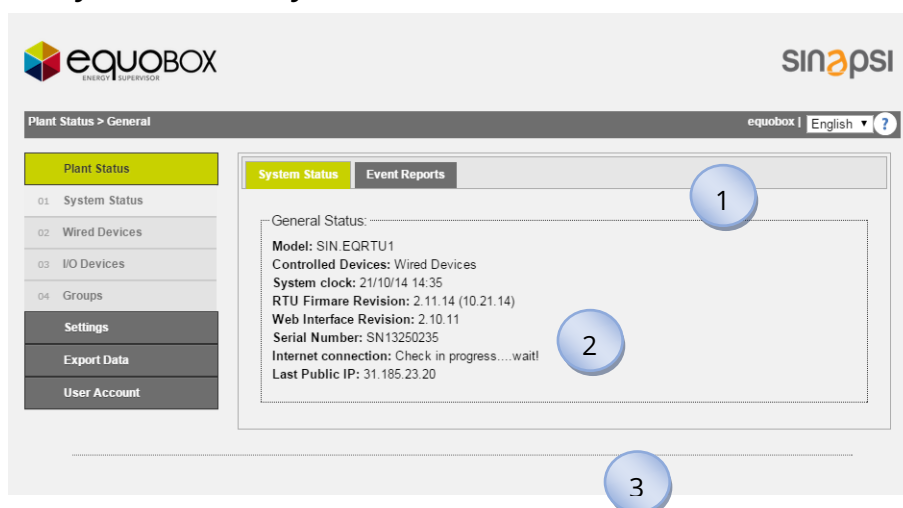


Figure 70 Plant status

The “Devices” screen is divided into:

- Model: shows the RTU model
- Controlled Devices: shows the type of devices controlled by RTU
- System clock: shows the current date and time of the RTU
- RTU Firmware Version: shows the firmware version
- Web Interface Version: shows the web interface version
- Serial number: shows the serial number of the machine
- Internet connection: shows the Internet connection status
- Last public IP: shows the public address acquired by the RTU

20.2 Plant Status – System Status – Event Reports

The screenshot shows the EQUOBOX web interface. On the left is a sidebar with a 'Plant Status' menu and sub-items: 01 System Status, 02 Wired Devices, 03 I/O Devices, 04 Groups, Settings, Export Data, and User Account. The main content area is titled 'Plant Status > General' and has a language dropdown set to 'English'. Below this, there are tabs for 'System Status' and 'Event Reports'. The 'Event Reports' tab is active, showing a table of events. Above the table are controls: 'Erase Event' (with a year dropdown set to 2014), an 'Update' button, and checkboxes for 'All', 'Email', 'I/O', 'M-Bus', and 'FTP Report'. The table has four columns: 'System Date', 'System Clock', 'Event Type', and 'Description'. It lists 24 events, alternating between 'Send alarm OK' (green background) and 'Communication error -13000235 (Device Name)' (pink background). The events are dated from 03/07/2014 to 09/10/2014.

System Date	System Clock	Event Type	Description
09/10/2014	10:40:22	MBus	88660211 Errore Temporaneo (ON)
09/10/2014	10:30:12	Email	Send alarm OK
09/10/2014	10:30:08	MBus	Communication error -13000235 (Device Name)
09/10/2014	10:28:43	Email	Send alarm OK
09/10/2014	10:28:39	MBus	Communication error -13000235 (Device Name)
09/10/2014	10:22:58	Email	Send alarm OK
09/10/2014	10:22:54	MBus	Communication error -13000235 (Device Name)
09/10/2014	10:20:04	Email	Send alarm OK
09/10/2014	10:20:00	MBus	Communication error -13000235 (Device Name)
09/10/2014	10:18:15	Email	Send alarm OK
09/10/2014	10:18:11	MBus	Communication error -13000235 (Device Name)
03/07/2014	15:01:24	Email	Send alarm OK
03/07/2014	15:01:18	MBus	Communication error -13000235 (Device Name)
03/07/2014	15:00:22	Email	Send alarm OK
03/07/2014	15:00:18	Email	alarm sending error Unable to connect SMTP Server
03/07/2014	14:58:28	MBus	Communication error -13000235 (Device Name)
03/07/2014	14:47:36	Email	Send alarm OK
03/07/2014	14:47:07	MBus	Communication error -13000235 (Device Name)
03/07/2014	14:45:35	Email	Send alarm OK
03/07/2014	14:45:13	MBus	Communication error -13000235 (Device Name)
03/07/2014	12:30:02	Email	Send alarm OK
03/07/2014	12:28:10	MBus	Communication error -13000235 (Device Name)
03/07/2014	12:23:37	Email	alarm sending error Unable to connect SMTP Server
03/07/2014	12:21:59	MBus	Communication error -13000235 (Device Name)

Figure 71 - Summery Event window

The items that can be selected are:

- Erase Event: allows you to permanently delete the events occurred during the year selected from the drop-down menu
- Update: updates the display of events according to the selected items described below
- All: shows, if selected, all the events
- Email: shows/hides, if selected, the events with email notification
- I/O: shows/hides, if selected, the input/output events
- M-Bus: shows/hides, if selected, the M-Bus events
- FTP Report: shows/hides, if selected, the FTP events

20.3 Plant Status – Wired Devices

66660211 - DEV_66660211 (Heating)
Energy 0 kWh

Read Now

Device Information
General:

User description:

Label

Communication Status:

OK

Last readout timestamp:

21/10/2014 00:00

Device clock:

20/10/2014 20:00

Medium:

Heat(outlet)

M-Bus byte status:

16

Advanced information:

User description	M-Bus Description	Value
Consumo Energia Totale	Energy	0 kWh
Volume Totale	Volume	0 m3
Potenza istantanea	Power	0 kW
Portata istantanea	Volume Flow	0 l/h
Temperatura mandata	Flow Temperature	19.9 C
Temperatura ritorno	Return Temperature	21.1 C
Temp mandata - Temp ritorno	Temperature Difference	-1100 mK
Numero Seriale	Fabrication Number	66660211
Tempo in errore	On Time (Error)	28041 hours
Tempo di funzionamento	On Time	28041 hours
Tempo tot. in portata	Operating Time	0 hours
Energia in errata config	Energy - Tariff: 5	0 kWh
Potenza max anno precedente	Power - Tariff: 1 (Max)	0 kW
Portata max anno precedente	Volume Flow - Tariff: 1 (Max)	0 l/h
Temperatura mandata (Max)	Flow Temperature - Tariff: 1 (Max)	92.9 C
Temperatura ritorno (Max)	Return Temperature - Tariff: 1 (Max)	51.2 C
Data e ora max potenza	Power - Tariff: 1 (Max)	every day
Data e ora max portata	Volume Flow - Tariff: 1 (Max)	every day
Data e ora max temp mandata	Flow Temperature - Tariff: 1 (Max)	22/03/2012 14:40
Data e ora max temp ritorno	Return Temperature - Tariff: 1 (Max)	09/08/2011 11:43
Energia totale anno precedente	Energy - St: 1	0 kWh
Volume totale anno precedente	Volume - St: 1	0 m3
Tempo errore anno precedente	On Time - St: 1 (Error)	21013 hours
Tempo funzion anno precedente	Operating Time - St: 1	0 hours
Energia errore anno precedente	Energy - Tariff: 5 - St: 1	0 kWh
Potenza max anno precedente	Power - Tariff: 1 - St: 1 (Max)	0 kW
Portata max anno precedente	Volume Flow - Tariff: 1 - St: 1 (Max)	0 l/h
T mandata max anno precedente	Flow Temperature - Tariff: 1 - St: 1 (Max)	92.9 C
T ritorno max anno precedente	Return Temperature - Tariff: 1 - St: 1 (Max)	51.2 C
Data ora storico	Time Point - St: 510 - at (every year)	every year

Figure 72 - Wired Device

Shows all the meters previously configured in the RTU. Every meter is displayed with its serial number, model, device name, description, and main value (Ref. Chapter 15.3, 15.4). Select a line corresponding to a meter and a window with all the relative information will be displayed as shown in Figure 72. If

SINAPSI S.r.l. | Via delle Querce 11/13 - 06083 BASTIA UMBRA (PG) - Italy

T.+39 075 8011604 - F.+39 075 8014602 | www.sinapsitech.it - info@sinapsitech.it

highlighted in Red, it means there is an Error. **Checked the Error entry it displays only the meters that are in a state of communication error.**

20.4 Plant Status – I/O Devices

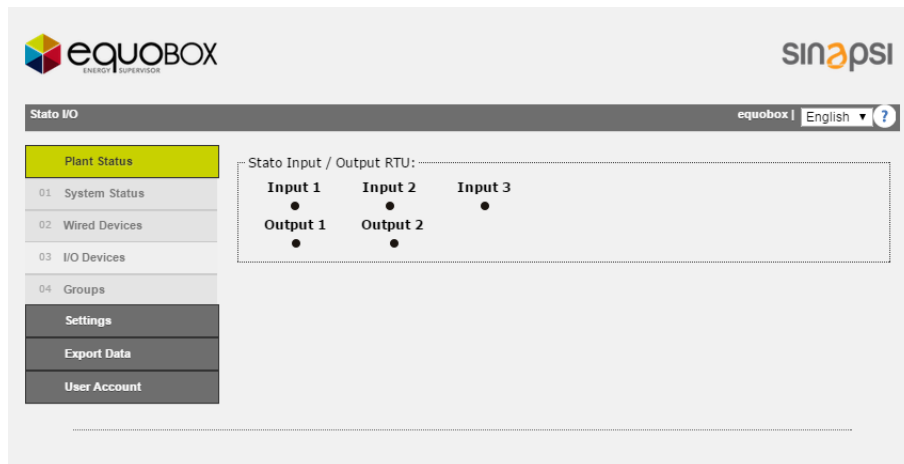


Figure 73 - Detailed information

Returns the current state of digital devices in relation to the configuration. Rif. Chap. 16.1.

20.5 Plant Status - Group

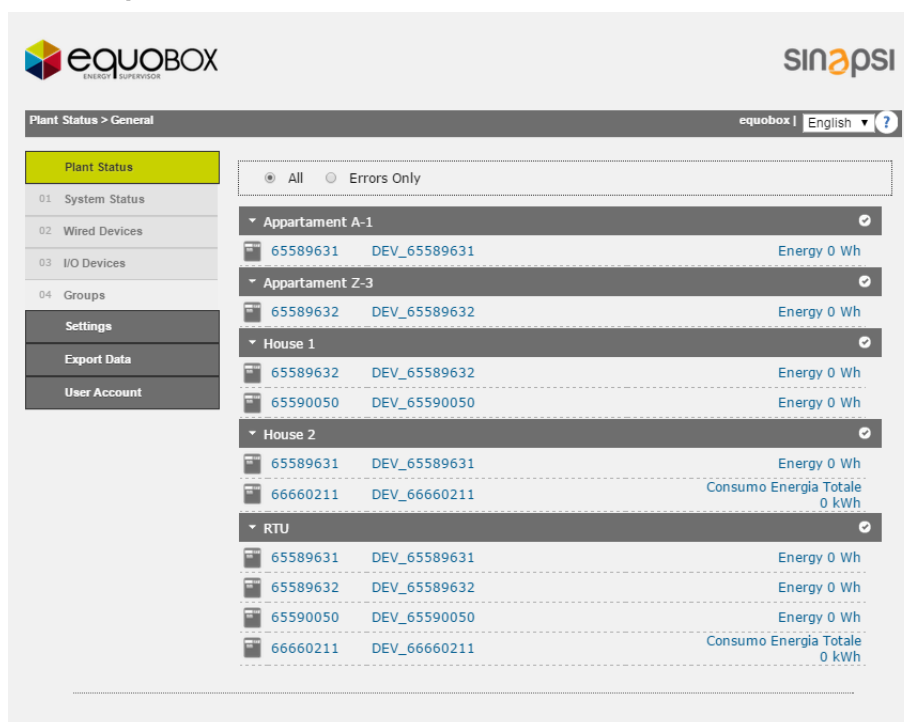


Figure 74 - Groups

Shows all groups previously configured in the RTU. For each group is given the name and the underlying devices to the group, Ref. Chap. 18.2. Checked the Error entry displays only the group that contains meters that are in a state of communication error.

21. APPENDIX

21.1 ROUTER Configuration

The router is provided with an operating configuration. Should you need to change the parameters, proceed as follows:

- activation of a flat contract with a traffic threshold greater or equal to 500Mb monthly and suppression / bandwidth limitation if the threshold upper limit is exceeded
- insert the SIM ensuring that it is PIN free
- connect the router to the power supply
- user a crossover cable to connect the router to the LAN port of a PC
- connect the antenna to the “GSM MAIN” output
- type in the following address in your browser: <http://192.168.1.1>
- You will be prompted to enter your access data:
 - Username: admin
 - Password: admin01

Upon accessing for the first time, a configuration wizard will help you to quickly set the basic information to ensure router operation. Check the connection status to ensure the presence of a signal. From the menu at the top, press Status followed by Network Information. A window will appear, as shown in Figure 75.

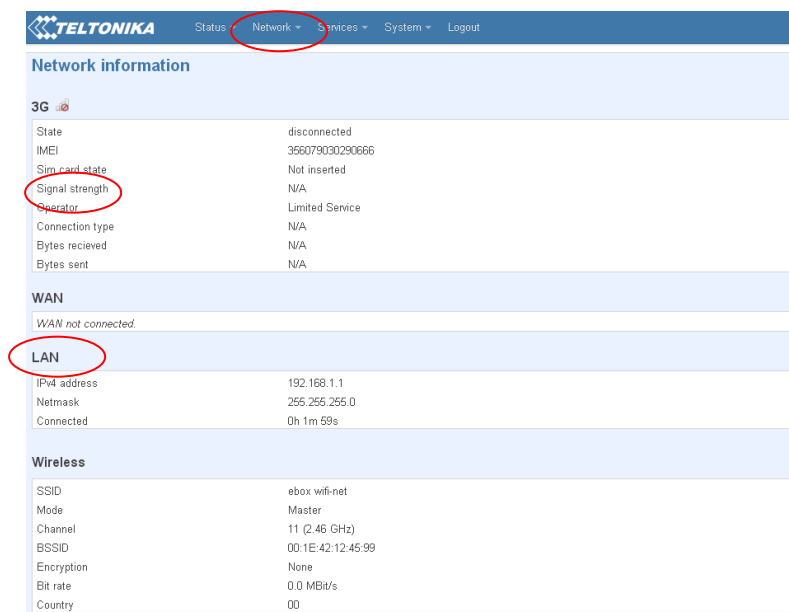


Figure 75 - Network Information

For an acceptable Internet connection which allows internet browsing, you need to have at least two green bars on the Signal Strength line. If not, connect the second antenna provided with the router to the GSM AUX output. A strong enough signal allows for Internet connection. Having a signal with the above requirements provides an internet connection suitable to the service to provide, the absence of an IP address in the IP Address line involves failure to network connection.

The Network section includes the sections in the initial wizard together with other functions. The following screen refers solely to the 3G area. Figure 76 shows the 3G CONFIGURATION submenu to enter the APN. For each service provider is associated an APN.

TELTONIKA Status **Network** Services System Logout

3G Configuration

Here you can configure your 3G settings.

3G Configuration

APN:

PIN number:

Dialing number:

3G authentication method:

Service mode:

Teltonika solutions: www.teltonika.it

Figure 76 - 3G Configuration

- Tim: ibox.tim.it
- Vodafone: m2mbis.vodafone.it
- Wind: internet.wind

We recommend the activation of a flat contract with a traffic threshold greater or equal to 500Mb monthly and suppression / bandwidth limitation if the threshold upper limit is exceeded. Insert the APN related to your service provider (if the provider does not correspond to those listed above please contact the respective customer service to get detailed information), the authentication method and any username and password. Remember for every operation to select the Save button located at the bottom right of each configuration page.

The screen below shows the LAN submenu, which is also part of the Network section. (Figure 77)

TELTONIKA Status **Network** Services System Logout

Common Configuration

General Setup **Advanced Settings**

Protocol:

IPv4 address:

IPv4 netmask:

IPv4 gateway:

IPv4 broadcast:

Use custom DNS servers: ☐

IP-Aliases

This section contains no values yet

DHCP Server

General Setup **Advanced Settings**

Disable: ☐

Start:

Limit:

Leasetime:

☒ Expiry time of leased addresses, minimum is 2 Minutes (2m).

Figure 77 - Common Configuration

It's possible to change the IP address of the router and eventually enable the DHCP service by inserting the range of active ports, in this case from 100 to 150 included.

In case it's necessary activate a wireless configuration, enter the Wireless, menu Network, (Figure 78). To activate the Wifi section **do not flag** the Hide ESSID. It's possible to give a name to the connection for a immediate recognition. In this case is ebox wifi-net.

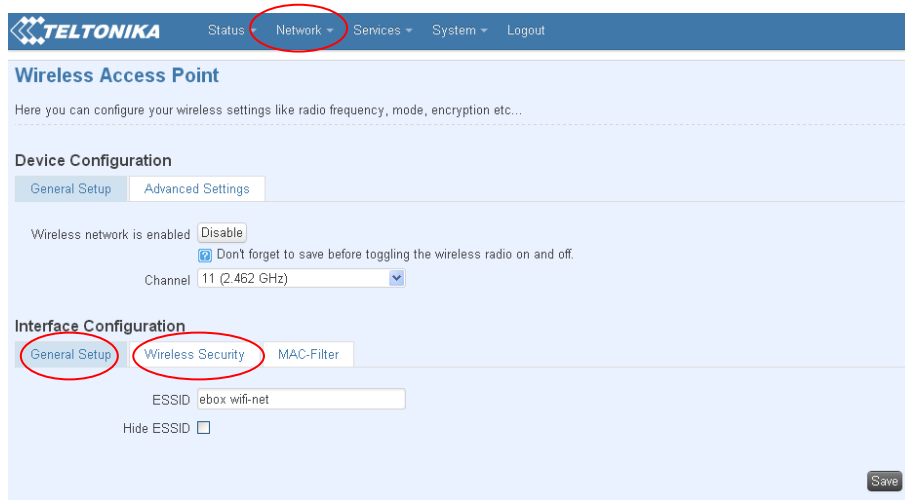


Figure 78 - Wireless Access Point

For security reasons we always recommend activate the Encryption in the Wireless Security subsection. Select the type of key generator to protection and enter a password. Click Save to save the settings. See Figure 79

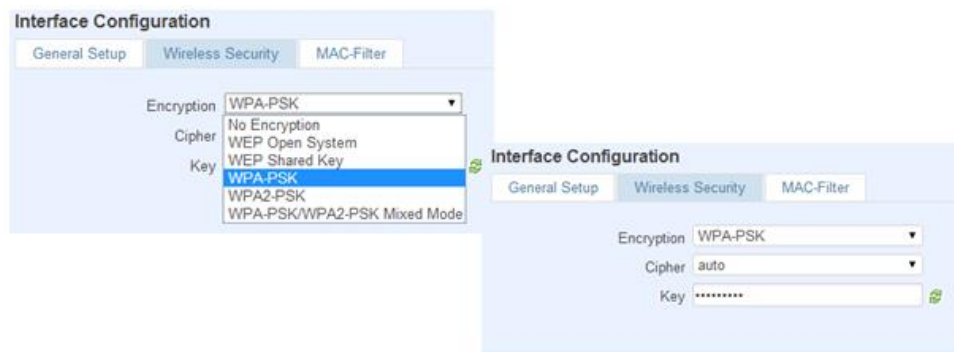


Figure 79 - Security

To use Port Forwarding rules, press Network from the main menu and then Firewall. From the submenu that will be displayed, you can access the Port Forwarding section and set its rules. (Figure 80)

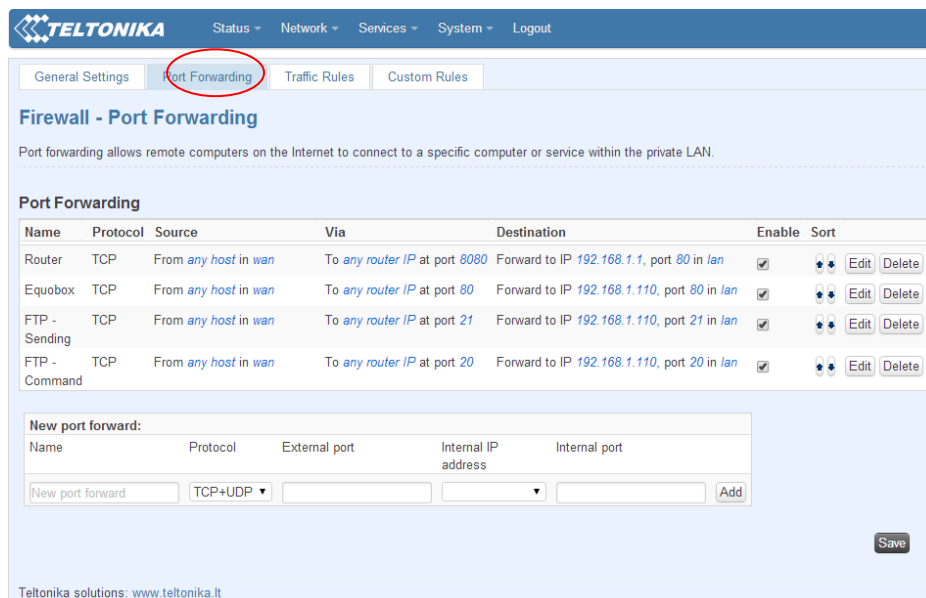


Figure 80 – Port Forwarding

Select Port Forwarding, menu Network, Firewall

In computer networks port forwarding is the process that allows the transfer of data (forwarding) from one computer to another over a specific communications port. This technique can be used to allow an external user to reach a host with a private IP address (within a LAN) through a public IP port of the same. To do this you need a router that can perform an automatic translation of network addresses, known as NAT. The port forwarding allows external computers to connect to a specific computer on the local network, depending on the port used for the connection.

Operationally, the user's browser to your PC with a "http:// router IP" access to the configuration options of the router, in which he states that a synchronization between a port on the router and the corresponding internal device.

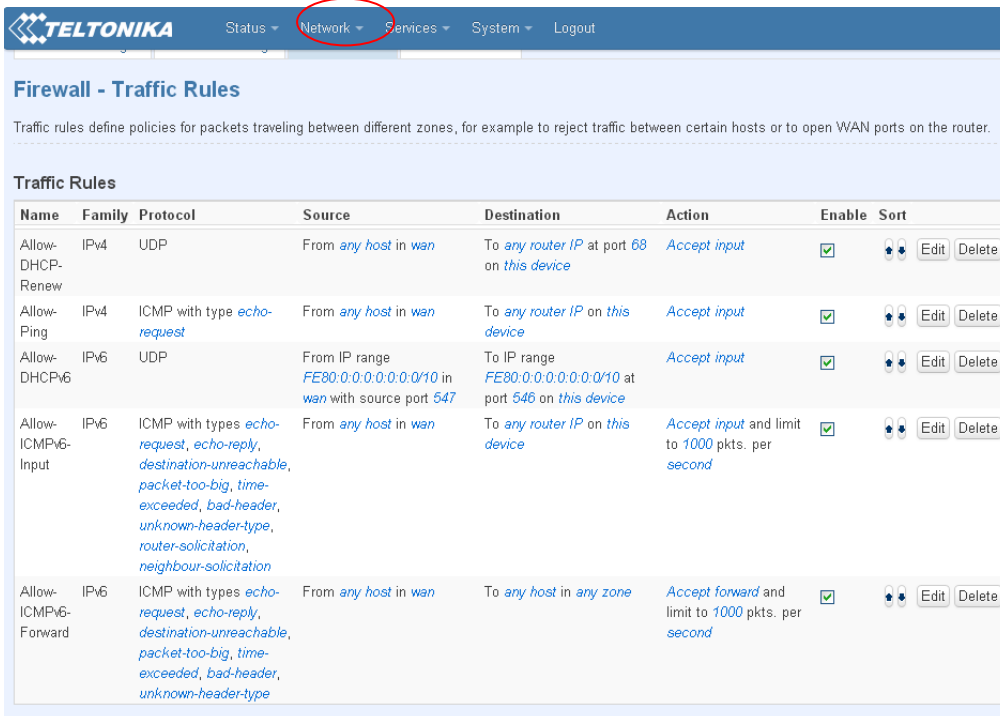
Because the router to recognize your computer, you need to create a static LAN IP address.

By defaults the rules in the router are:

- Router: external port 8080
- Equobox: external port 80
- FTP Sending: external port 21
- FTP Command: external port 20

Press Firewall from the menu at the top and then Traffic Rules to set security functions, such as addresses to be filtered, set HTTP addresses or asymmetric cryptographic protocols to manage the transfer of confidential information (Figure 81).

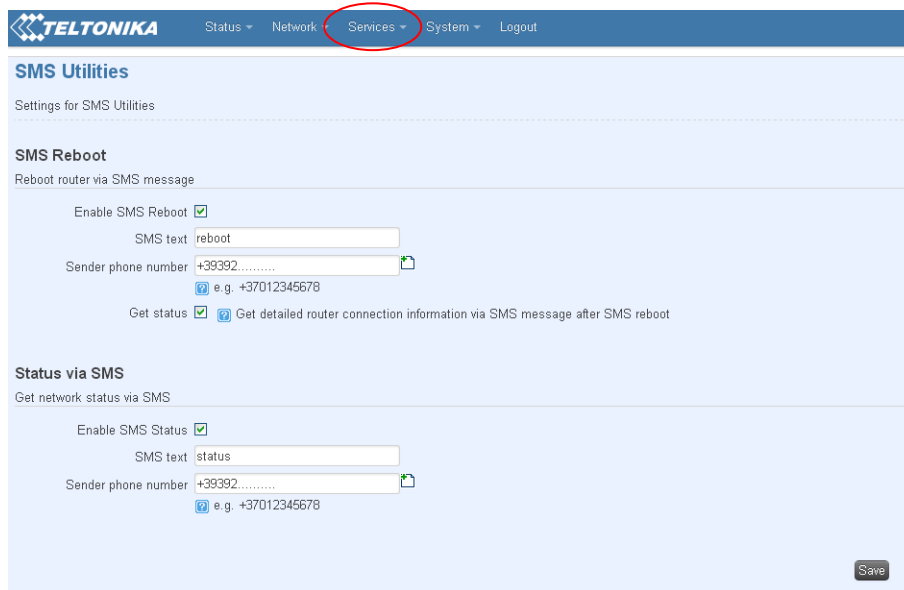
In the General Settings area, you will find DMZ Zone, which is a connection between a public address and a machine address. Remember to select Enable and, if necessary, press Save.



Name	Family	Protocol	Source	Destination	Action	Enable	Sort
Allow-DHCP-Renew	IPv4	UDP	From <i>any host</i> in <i>wan</i>	To <i>any router IP</i> at port 68 on <i>this device</i>	Accept input	<input checked="" type="checkbox"/>	⬆ ⬇ ⬆ Edit Delete
Allow-Ping	IPv4	ICMP with type <i>echo-request</i>	From <i>any host</i> in <i>wan</i>	To <i>any router IP</i> on <i>this device</i>	Accept input	<input checked="" type="checkbox"/>	⬆ ⬇ ⬆ Edit Delete
Allow-DHCPv6	IPv6	UDP	From IP range <i>FE80:0:0:0:0:0:0:0/10</i> in <i>wan</i> with source port 547	To IP range <i>FE80:0:0:0:0:0:0:0/10</i> at port 546 on <i>this device</i>	Accept input	<input checked="" type="checkbox"/>	⬆ ⬇ ⬆ Edit Delete
Allow-ICMPv6-Input	IPv6	ICMP with types <i>echo-request, echo-reply, destination-unreachable, packet-too-big, time-exceeded, bad-header, unknown-header-type, router-solicitation, neighbour-solicitation</i>	From <i>any host</i> in <i>wan</i>	To <i>any router IP</i> on <i>this device</i>	Accept input and limit to 1000 pkts. per second	<input checked="" type="checkbox"/>	⬆ ⬇ ⬆ Edit Delete
Allow-ICMPv6-Forward	IPv6	ICMP with types <i>echo-request, echo-reply, destination-unreachable, packet-too-big, time-exceeded, bad-header, unknown-header-type</i>	From <i>any host</i> in <i>wan</i>	To <i>any host</i> in <i>any zone</i>	Accept forward and limit to 1000 pkts. per second	<input checked="" type="checkbox"/>	⬆ ⬇ ⬆ Edit Delete

Figure 81 - Traffic Rules

Should you wish to use the SMS service to receive the router status or reboot if from your cell phone, you can enter your phone number and select the Enable box (Figure 82). You can perform the two operations shown in the figure by sending a message from your telephone to the number of the board inserted in the router. The content of the message must be identical to that in the SMS text field (e.g. reboot). You will receive an SMS confirming that the operation has been carried out. Go under Service, SMS Utility



TELTONIKA Status Network **Services** System Logout

SMS Utilities

Settings for SMS Utilities

SMS Reboot

Reboot router via SMS message

Enable SMS Reboot ☒

SMS text

Sender phone number

☒ e.g. +37012345678

Get status ☒ ☒ Get detailed router connection information via SMS message after SMS reboot

Status via SMS

Get network status via SMS

Enable SMS Status ☒

SMS text

Sender phone number

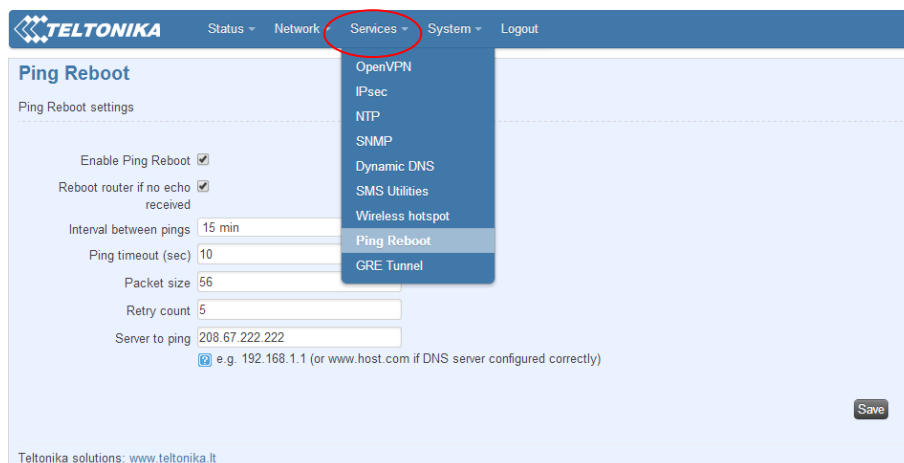
☒ e.g. +37012345678

Save

Figure 82 - SMS Utility

By default is active the Ping Reboot, System section, Ping Reboot. The ping reboot is an automatism of the router to restart itself if the same has no answers to ping request in a configurable time interval. The standard parameters are shown in Figure 83

- Enable Ping Reboot: flag
- Reboot router if no echo received: flag
- Interval between pings: 15 minuts
- Ping timeout (sec): 10 seconds
- Packet Size: 54 bytes
- Retry count: 5
- Server to ping: 208.67.222.222



TELTONIKA Status Network **Services** System Logout

OpenVPN
IPsec
NTP
SNMP
Dynamic DNS
SMS Utilities
Wireless hotspot
Ping Reboot
GRE Tunnel

Ping Reboot

Ping Reboot settings

Enable Ping Reboot ☒

Reboot router if no echo received ☒

Interval between pings

Ping timeout (sec)

Packet size

Retry count

Server to ping

☒ e.g. 192.168.1.1 (or www.host.com if DNS server configured correctly)

Save

Teltonika solutions: www.teltonika.it

Figure 83 - Ping Reboot

To change the system password, access the System section from the main menu and click on the Administration submenu (Figure 84). You can upgrade the Firmware or upload a previous configuration from Backup and Firmware in the System submenu (Figure 85).

Figure 84 - Administration properties

Figure 85 - Backup and Firmware

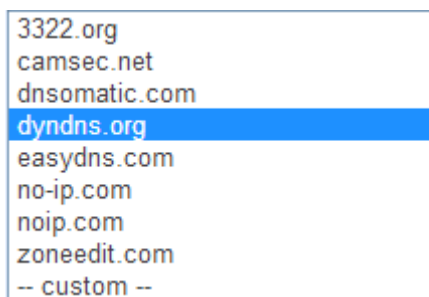
To set up the Dynamic DNS service go to menu Services, Dynamic DNS. Figure 86

Figure 86 - Dynamic DNS service activation

Select from the following service

SINAPSI S.r.l. | Via delle Querce 11/13 - 06083 BASTIA UMBRA (PG) - Italy

T. +39 075 8011604 - F. +39 075 8014602 | www.sinapsitech.it - info@sinapsitech.it



Upon completion of insert check Enable and populate fields. Vedi Figure 87

- Service: select the service from those offered
- Hostname: enter the Hostname of the service
- Username: enter the username for access to desired service
- Password: enter the password for access to desired service
- IP renew interval (min): enter a time interval for the renewal of IP. If not specifically requested leave the default value
- Force IP renew (min): enter a time interval to force the renewal of the IP. If not specifically requested leave the default value

Figure 87 - Configurazione parametri accesso per Dynamic DNS

To obtain the data for the correct filling of the fields refer to the following link

1. <http://dyn.com/support/>
2. <http://www.noip.com/support/>