SINAPSI

SIN.EQRTU1T - QuickStart Guide
M-Bus/Wireless M-Bus DATALOGGER

equobox ENERGY SUPERVISOR

1.OVERVIEW

- Datalogger with webserver interface
- Manages up to 500 meters of which a max of 250 wired
- Manages up to 23 SIN.EQRPT868XT gateways
- Archived data over the last 10 years
- Wired meters data acquisition interval from 15' to 1 month
- Wireless meters data acquisition through SIN.EQRPT868XT gateway
- Meters reading, report sending, system remote management
- 24Vdc +/- 10%, 24Vac (min 20Vac, max 40Vac) power Supply or PoE
- DIN rail mounting (4 modules)
- Graphic display and digital I/O

A. Graphic display
B. Navigation keys
C. Led power supply
D. Ethernet Port 1 (PoE)
E. Ethernet Port 2
F. SMA antenna connector

G. M-Bus connector (max 20 meters*)
H. Power supply connector
I. Relay 1 connector
L. Relay 2 connector
M. Digital input connector
N. Auxiliary output voltage connector

* Meter means an M-Bus load unit ≤1.5 mA

2. CONNECTIONS

Digital Inputs:
(7) - Common for digital inputs
(8) - Digital input 1 (Vin 12-24Vdc)
(9) - Digital input 2 (Vin12-24Vdc)
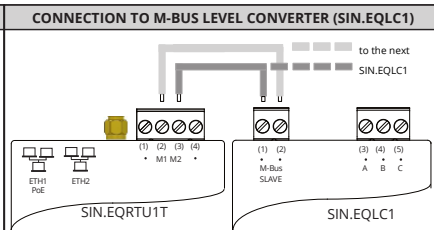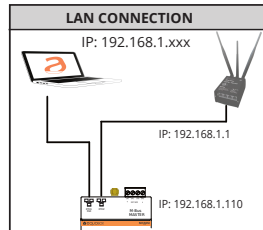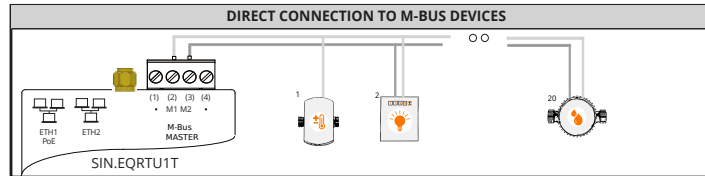(10) - Digital input 3 (Vin12-24Vdc)

Relay Output:
(11) - Common Relay 1
(12) - NO Relay 1 Contact
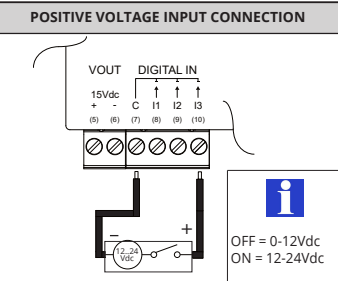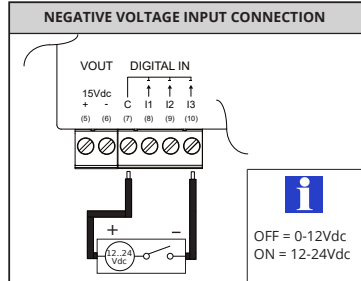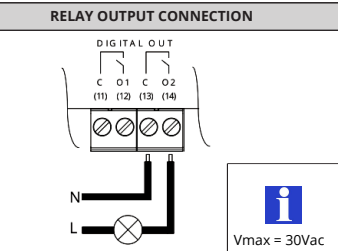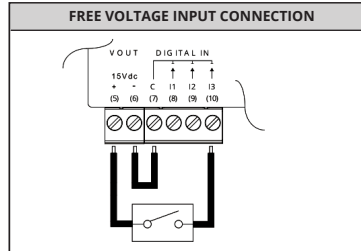(13) - Common Relay 2
(14) - NO Relay 2 Contact

Connection to the fieldbus
(1) - Not connected
(2) - Pole 1 for connection to M-Bus meters
(3) - Pole 2 for connection to M-Bus meters
(4) - Not connected

Power Supply:
(15) - Input 1 for power supply
(16) - Input 2 for power supply
(ETH1) - Ethernet Port for LAN connection (PoE)

Auxiliary output voltage:
(5) - Vout positive pole +15V, Imax = 10mA
(6) - Vout negative pole

DIRECT CONNECTION TO M-BUS DEVICES

SIN.EQRTU1T

LAN CONNECTION

IP: 192.168.1.xxx
IP: 192.168.1.1
IP: 192.168.1.110

CONNECTION TO M-BUS LEVEL CONVERTER (SIN.EQLC1)

to the next SIN.EQLC1

SIN.EQRTU1T   SIN.EQLC1

⚠ In order to avoid damaging the device, apply a voltage equal to 24Vdc +/- 10%, 24 Vac (min 20 Vac, max 40 Vac) power supply to the terminals (15) and (16).
Before making any connections, turn off the power, remove the terminals, complete the wiring and the plug terminals with the correct position.

FREE VOLTAGE INPUT CONNECTION

RELAY OUTPUT CONNECTION

Vmax = 30Vac

NEGATIVE VOLTAGE INPUT CONNECTION

OFF = 0-12Vdc
ON = 12-24Vdc

POSITIVE VOLTAGE INPUT CONNECTION

OFF = 0-12Vdc
ON = 12-24Vdc

3. FIRST SETUP VIA DISPLAY

ℹ **On first use of the device:**

1) Connect the M-Bus devices to SIN.EQRTU1T to terminals M1 (2) and M2 (3) as indicated in the manufacturer's guide
2) Enter the default password 000000 to access the menu.
3) Press OK at the menu "Search" and follow the instructions given below.

Default password 000000

LCD OFF
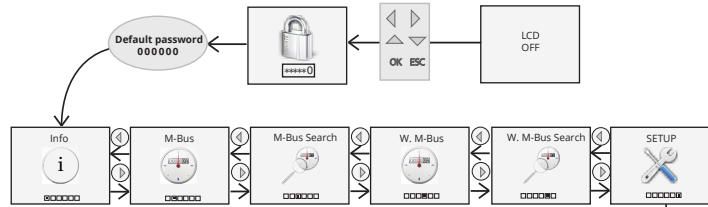
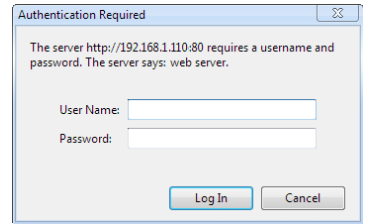|	
Info:	General Information
M-Bus:	M-Bus meters List
M-Bus Search:	M-Bus meters search mode
W. M-Bus:	W. M-Bus meters List
W. M-Bus Search:	W. M-Bus meters search mode

General Settings, M-Bus, Net,etc..
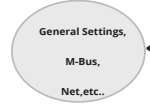
Password entry:
The blinking cursor indicates which of the six-digit of the password you are entering:

- Use △ key to increase the current number
- Use ▽ key to decrease the current number
- Use (OK) key to confirm the current value and move to the next or confirm
- Use △▽ keys to change the language

## 4. FIRST ACCESS TO THE VEBSERVER

1) Connect one of the two Ethernet ports to your PC
2) Make sure that your PC has an IP address of 192.168.1.xxx type where xxx is a number between 1 and 254 and different from 110
3) Open an internet browser (Chrome, Firefox or Safari)
4) On the address bar type192.168.1.110
5) At autenthication request enter the default credentials (User Name: **Admin** Password: **Admin**)
6) Click on the upper right "help" icon to display the user manual and follow the instructions given for the use of web part
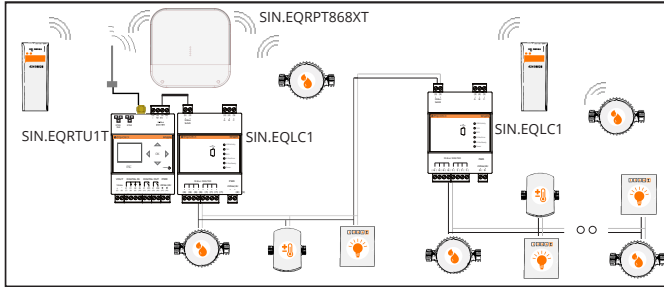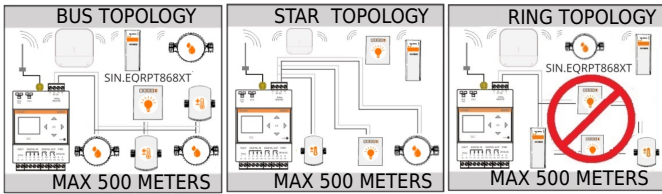

Authentication Required

The server http://192.168.1.110:80 requires a username and password. The server says: web server.

User Name: _____
Password: _____

[Log In] [Cancel]

5. TECHNICAL DATA

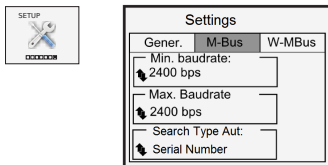|	
Temperature range:	Operative: -20°C ... +55°C
	Storage: -25°C ... +65°C
Protection Grade:	IP 20 (EN60529)
Mounting:	35mm DIN Rail (EN60715)
Dimensions:	4 DIN modules (90x72x64.5)
Power supply:	24Vdc +/- 10%, 24Vac (min 20Vac, max 40 Vac) or PoE
Consumption:	7.5W
Max load relays:	5A@30Vdc (Resistive Load)
	2A@30Vdc (Inductive Load cosfi=0.4 ; L/R=7ms)

CE   +55°C   -20°C
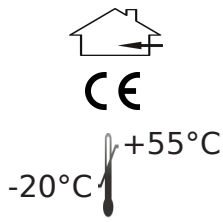
ℹ TROUBLESHOOTING

1) The datalogger does not turn ON:
- Check with the aid of a multimeter that the voltage between the terminals (15) and (16) is 24Vdc +/- 10%, 24Vac (min 20Vac, max 40 Vac)
- In case of power supply from the LAN (Power Over Ethernet) verify that the LAN cable is connected to the PoE switch

2) The display is off:
- After 10 minutes of inactivity, the display turns off. To turn it on again, press any key.

3) Not all the meters are detected:
- Verify that not detected meters support 2400 bps default communication speed and addressing for primary and secondary address
- Verify that the maximum number of allowed wired meters hasn't been already configured
- Make sure that the antenna position provides a good radio signal for all devices
- Check that the maximum number of allowed radio meters hasn't been already configured

4) None of the meters is detected:
- Check that the meters are correctly connected to the terminals (2) and (3) of the SIN.EQRTU1T
- Check with a multimeter the connection between SIN.EQRTU1T and the devices
- Check for short circuit on M-Bus wiring
- Make sure that the antenna is enclosed in a shielded location
- check that the meters that were not revealed are not too distant from SIN.EQRPT868XT or that the signal is not disturbed by thick concrete or metal walls
- check that the devices are on the list loaded in SIN.EQRPT868XT or that the W. M-Bus devices list receivable from SIN.EQRPT868XT is not blocked
- warning: some W. M-Bus devices transmit periodically (within hours)
- check that the MESH network is not interrupted using SIN.EQRTU1T web interface or SIN.EQSW1 sw

5) Unable to access the webserver:
- Verify that your PC has an address in the same network as the datalogger. The datalogger default IP address is 192.168.1.110, then the PC must have a 192.168.1.xxx address different from 192.168.1.110
- Verify that there is no firewall blocking the port TCP / IP 80
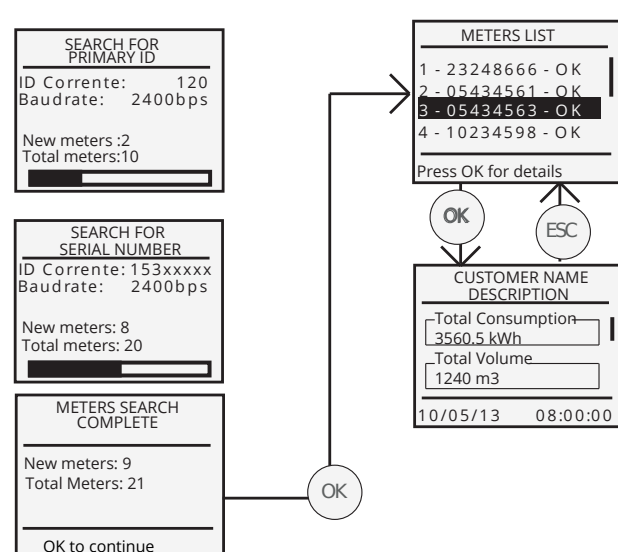
6. WIRED AND WIRELESS METERS CONNECTION

BUS TOPOLOGY	STAR TOPOLOGY	RING TOPOLOGY
SIN.EQRPT868XT		SIN.EQRPT868XT
MAX 500 METERS	MAX 500 METERS	MAX 500 METERS

SIN.EQRPT868XT
SIN.EQRTU1T SIN.EQLC1 SIN.EQLC1

9. ANTENNA INSTALLATION

FEATURES

Dimensions:	100x80x30 mm
Connection:	SMA Male
Cable:	RG174 1.5 m
Operating Temperature range:	-40°/+80° C
Polarization:	Linear
Radiation:	Omnidirectional
Gain:	2.1 dBi
Antenna constituens:	thermoplastic Elastomer
Material of radiating element:	stainless steel, brass
Antenna stand:	stainless steel

ATTENTION

For a correct installation of the product,
mount the antenna in vertical position and at
5 cm away from any metallic surface,
which it is not closed in a metal box.
Please always use the remotable antenna provided.

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7. M-Bus SETUP

Settings — Gener. | M-Bus | W-MBus
Min. baudrate: 2400 bps
Max. Baudrate: 2400 bps
Search Type Aut: Serial Number

Min. Baudrate:	Minimum baudrate value for the detection of devices on wired M-Bus network
Max. Baudrate:	Maximum baudrate value for the detection of devices on wired M-Bus network
Search Type Aut:	Search by serial number or Primary Address EN13757-3 (Application Layer)

The M-Bus interface complies with EN13757-2 (Physical Layer)

10. W. M-Bus CONFIGURATION

Setup — Gener. | M-Bus | W-MBus
W-Mbus Mode: C1+T1+T2
Scan Mode: All
Timeout search: 24 h

W. M-Bus Mode:	select the transmission mode EN13757-3:2004 and layer dedicated ETSI EN 300 220 v2.3.1	S1 / S1 + S2 / T1 / T1 + T2 / S1 + T1 / C1 + T1 +T2
Scan Mode:	select ALL if you want to acquire all of the present devices. Select SND_IR to acquire only the devices that send the package Installation_Request.	All / SND_IR
Timeout Search:	defines the timeout for devices search in a range from a minimum of 1 hour to a maximum of 24h	1-24h

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8. M-Bus SEARCH PROCESS

a. start the search
b. check the progress of the search
c. control the detected M-Bus devices
d. select a device
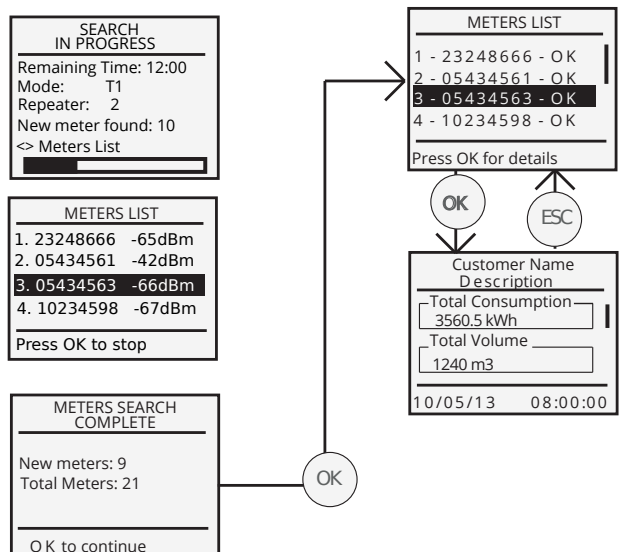e. reading of the current values of the meters

SEARCH FOR PRIMARY ID
ID Corrente: 120
Baudrate: 2400bps
New meters :2
Total meters:10

SEARCH FOR SERIAL NUMBER
ID Corrente: 153xxxxx
Baudrate: 2400bps
New meters: 8
Total meters: 20

METERS SEARCH COMPLETE
New meters: 9
Total Meters: 21
OK to continue

METERS LIST
1 - 23248666 - OK
2 - 05434561 - OK
3 - 05434563 - OK
4 - 10234598 - OK
Press OK for details

CUSTOMER NAME DESCRIPTION
Total Consumption
3560.5 kWh
Total Volume
1240 m3
10/05/13   08:00:00

Wait until the process is complete

11. W. M-Bus SEARCH PROCESS

a. start the search
b. check the progress of the search
c. control the detected W. M-Bus devices
d. select a device
e. reading of the current values of the meters

SEARCH IN PROGRESS
Remaining Time: 12:00
Mode: T1
Repeater: 2
New meter found: 10
<> Meters List

METERS LIST
1. 23248666 -65dBm
2. 05434561 -42dBm
3. 05434563 -66dBm
4. 10234598 -67dBm
Press OK to stop

METERS SEARCH COMPLETE
New meters: 9
Total Meters: 21
O K to continue

METERS LIST
1 - 23248666 - OK
2 - 05434561 - OK
3 - 05434563 - OK
4 - 10234598 - OK
Press OK for details

Customer Name Description
Total Consumption
3560.5 kWh
Total Volume
1240 m3
10/05/13   08:00:00

Wait until the value Time Remaining is "0:00"