

**1.OVERVIEW**

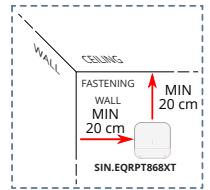
- W.M-Bus 868 MHz / OMS EN13757 data gateway
- Remarkable radio coverage due to multi-hop network architecture (MESH)
- Manages up to 500 meters
- Last acquired data stored in a non-volatile memory
- Easy installation with software setup
- Simple and elegant design
- 100..240Vac power or via USB
- "Wall mounting" like installation
- USB interface for local data reading
- Optional WEB interface usable with SIN.EQRTUEVO1T

- A. Cable compartment lid
- B. "ON" LED light



**5.POSITIONING AND OPERATING DISTANCES**

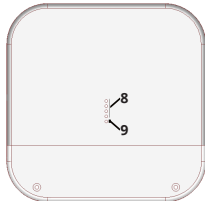
- 1) Fix the SIN.EQRPT868XT gateway on fastening wall at a minimum distance of 20 cm from the ceiling and from the adjacent wall.
- 2) The maximum operating distance between the devices installed on the same floor is 15 meters, with no major obstacles such as reinforced concrete or metal walls, columns or beams or other metal structures.
- 3) The maximum operating distance between the devices installed on different floors is 6 meters.



**2.Connections/buttons/led lights**



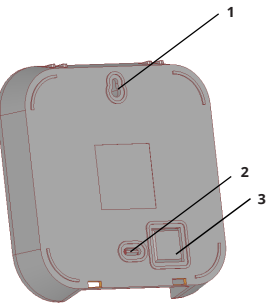
- 1 - Power input 100..240Vac (with clips)
- 2 - Multifunction button
- 3 - Multifunction button
- 4 - Reset button
- 5 - USB port



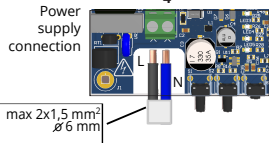
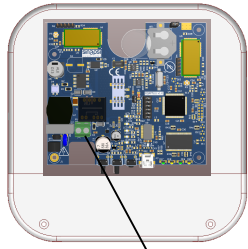
- 6 - MESH network TX-RX LED
- 7 - W. M-Bus network TX-RX LED
- 8 - Signal/reception level LED
- 9 - State LED

**i** For details on the configuration of the SIN.EQRPT868XT using the buttons, see the back of this document, in the dedicated section.

**3.WALL FASTENING AND CABLE PASS**



- 1 - upper hole
- 2 - low pre-hole
- 3 - cable pass pre-hole
- 4 - power supply connection



**4.PACKAGE CONTENT**



1 x SIN.EQRPT868XT

- 1 x clamp headband
- 2 x Screw 2,2x9,5
- 2 x Anchor 5x25
- 2 x Screws 5x30
- 2 x Glands

**6. GATEWAY NETWORK CONFIGURATION**

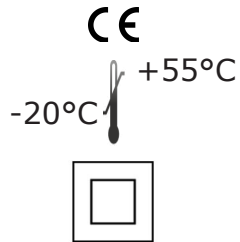
1. Power on SIN.EQRTUEVO1T, connect to web interface and start antenna and device scan following the user's manual
2. Power on the first device SIN.EQRPT868XT to be installed and move it away to a minimum distance of 5 metres from SIN.EQRTUEVO1T
3. Fixed blue SIN.EQRPT868XT LED shows the connection to the MESH network
4. Once connected, it shows the MESH radio signal quality to the gateway, by turning on the green front LED, 1 - insufficient reception, 2 - sufficient, 3- good, 4 - excellent
5. Put SIN.EQRPT868XT in a place where the reception signal is >=2 and the reception of all the W. M-Bus devices you expect to receive with this antenna is satisfactory
6. Check through SIN.EQRTUEVO1T web interface or through SIN.EQSW1 software and a PC connected to the antenna by USB that W. M-Bus devices, that you want to receive, reach the SIN.EQRPT868XT
7. Fasten the SIN.EQRPT868XT and proceed with powering a second gateway keeping it at least 5 metres away from both the SIN.EQRPT868XT and SIN.EQRTUEVO1T
8. Once connected, it shows the MESH radio signal quality to the gateway, by turning on the front LED, so proceed as for the first SIN.EQRPT868XT.



- a) The scanning phase is 12 hours. You can modify its duration through SIN.EQRTUEVO1T
  - b) You can have various independent SIN.EQRPT868XT networks in the same building. In that case, you need to have different ID or channel for each SIN.EQRPT868XT group and the relative SIN.EQRTUEVO1T. You can modify these parameters through SIN.EQSW1 software installed on a pc and connected via USB to SIN.EQRPT868XT, see user's manual for details.
  - c) In case the receiver receives more than 500 W. M-Bus devices or it receives devices belonging to other plants, it might be necessary to make it selective. Therefore, you can load a list of W. M-Bus devices marked by their serial number through SIN.EQSW1 software.
  - d) In this way, the gateway will receive the data exclusively from the listed devices.
- The USB / Mini USB cable is not included and is not present in the package.

**7.TECHNICAL DATA**

- Temperature range: Operative: -20°C ... +55°C  
Storage: -25°C ... +85°C
- Ingress Protection: IP 40 (EN60529)
- Protection Class: II
- Fastening: wall clipped
- Dimensions: LxHxP 160x160x35mm
- Power supply: 100..240Vac 50/60Hz  
USB (5Vdc, 500mA) for commissioning
- Consumption: 4,5W
- Radio Frequency: 868MHz - Max transmission power: 27dBm
- W. M-Bus Mode: S / T / C + T / S & C + T
- Max distance between two RPT868XT: 500mt free field - 40mt in building



**TROUBLESHOOTING**

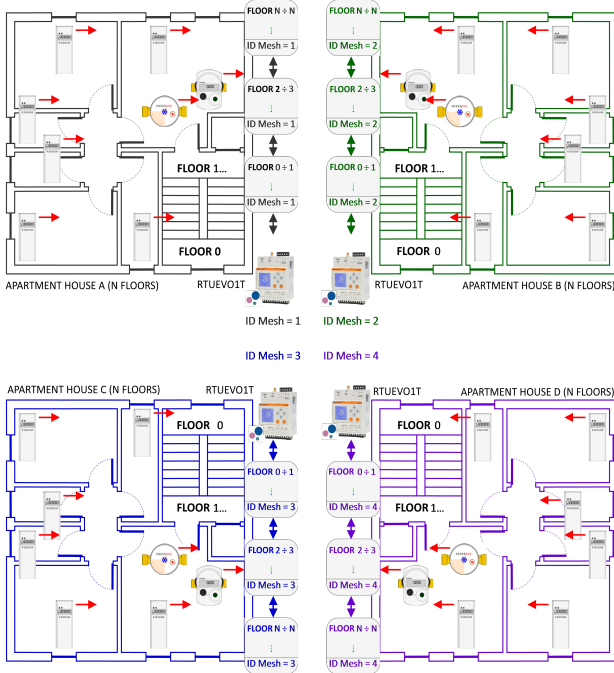
- 1) The device does not start:**
  - in case of network power supply, check that the power is on
  - in case you are using a USB port, check the USB cable quality and that the PC is enabled to handle 500 mA of electrical power
- 2) The blue LED light does not stop flashing:**
  - check that the device SIN.EQRTUEVO1T is on and that the antenna is connected and in good position (avoid placing it in switchboards or shielded environments)
  - 1 blink "RAM memory error", 2 blinks "W.M-Bus radio module error", 3 blinks "MESH radio module error", 4 blinks "FLASH memory error", 5 blinks "Real Time Clock error"
  - If turning off and restarting the SIN.EQRPT868XT, the error does not reset, the hardware must be replaced.
  - check that SIN.EQRPT868XT is at least 5 metres distant from SIN.EQRTUEVO1T and from other SIN.EQRPT868XT
  - check that the ID and the MESH network channel are correct using SIN.EQSW1 sw and are the same ones used by SIN.EQRTUEVO1T
- 3) Not all the meters are revealed:**
  - 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.EQRTUEVO1T web interface or SIN.EQSW1 sw

**i** SIN.EQRPT868XT gateway devices are provided with a MESH- ID=1 and channel 13. Make sure that all the gateways and/or SIN.EQRTUEVO1T have the same MESH network ID and radio channel through SIN.EQSW1

**!** Before connecting anything, switch the power off, complete the cabling, close the lid and power the device on.

**SPECIAL CASES OF USE**

The following image shows an installation in which, for different properties reasons, or for number of devices to be controlled exceeds 500 (Max 2500 for each RTUEVO1T), it is necessary to create four different networks of SIN.EQRPT868XT Gateways. Obviously the following is valid also in cases where there are 2, 3, 5 or a higher number of Gateways networks.



**SETTING OF MESH NETWORK ID**

In order to avoid interferences between the various systems, assign to each RTUEVO1T a different Mesh network ID. The setting is done on RTU1T through its web interface; **Settings / Wireless Devices / Wireless Setup / Setup Mesh Network**.

**Setup Mesh network**

Mesh ID:  →

Channel:  →

The same Mesh network ID setting must be carried out also on all Gateways that are part of the network of the RTUEVO1T which they have to communicate with. For this procedure it is necessary to connect a PC to the Gateway to be configured (via USB cable). Use the SIN.EQSW1 software (downloadable from the dedicated section of sinapsi.store) and follow the instructions in the manual.

**RF Converter configuration**

Serial number	RP16507268
Description 1	DEV_RP16507268
Description 2	
Install date	3/7/2018
<b>Mesh ID</b>	<input type="text" value="1"/> <span style="color: red; font-size: 2em;">1</span>
Mesh channel	<input type="text" value="13"/>
W-MBus mode	<input type="text" value="T1"/>
<input type="checkbox"/> Change password	

2  
**Save configuration**

3  
**Send configuration to RF Converter**

**Note:** It is recommended not to change the Mesh Network Channel (default = 13 both on RTUEVO1Ts and on Gateways), because the change may involve the transmission power of the devices.

**LOADING ON GATEWAYS OF A W. M-Bus DEVICES LIST IN THE PLANT (ONLY ON GATEWAYS WITH FIRMWARE VERSION FWRPT1\_V1R20.hex ONWARDS)**

Referring to the same image of the previous installation, the various Gateways receive W. M-Bus signal from their plant devices but they can also receive the signal from devices of adjacent plants. If one or more Gateways receive the signal from more than 500 devices (Max 500 for each gateway),

those exceeding 500 are ignored, and may in fact belong to the plant to be checked. In this case it is necessary to charge, in the same Gateway, a file with a list of devices that are part of its plant (Maximum 500); after uploading the file, the signal of the devices that are not included in the list is ignored by the Gateway. The file, whose name must be list.rpt, must be a CSV file with a format such as the one shown in the following figure.

```
list.rpt - Blocco note
File Modifica Formato Visualizza ?
id;Serial Device;Note;Address;Internal;Surname;Name;City;AES Key;
;
1;00000001;Bathroom;Fifth Avenue;1-A;Apartment A;Floor 1;New York;00112233445566778899AABCCDDEEFF;
2;00000002;Living room;Fifth Avenue;2-A;Apartment B;Floor 2;New York;00112233445566778899AABCCDDEEFF;
```

For this procedure it is necessary to connect a PC to the Gateway to be configured (via USB cable). Use the SIN.EQSW1 software and follow the instructions in the manual.

**GATEWAY CONFIGURATION THROUGH FUNCTIONALITY OF KEYS**



- 1 - 100.240VAC power supply input (screw clamps)
- 2 - "Multi-function" button
- 3 - "Multi-function" button
- 4 - Reset button
- 5 - USB Port

- 6 - MESH network TX-RX LED
- 7 - W. M-Bus network TX-RX LED
- 8 - Signal level LED
- 9 - Status LED

**Change ID MESH - SIN.EQRPT868XT**

1. Press keys 2 and 3 (2s. < T < 6s) simultaneously.
2. On release all the LEDs (8) will flash at the same time to indicate that you have entered edit mode ID MESH
3. Now press button 3 (at least 1s) to switch the ID MESH.
  - ID MESH 1 => Green LED (8.1) on - the others off
  - ID MESH 2 => Green LED (8.2) on - the others off
  - ID MESH 3 => Green LED (8.3) on - the others off
  - ID MESH 4 => Green LED (8.4) on - the others off
4. To SAVE press keys 2 and 3 simultaneously for more than 1s. Press the 2 button to exit without saving.
5. Verify that the blue LED does not remain on steady.
6. Otherwise, restart from point 1. by selecting another MESH ID.
6. If, after switching on all four MESH IDs, the blue LED continues to remain on steady, it will be necessary to configure the SIN.EQRPT868XT via SIN.EQSW1 software.
7. Repeat for each SIN.EQRPT868XT.

**Activate SND\_IR mode (Installation Mode) - SIN.EQRPT868XT**

- a) It typically involves the installation of the AMR system and subsequently the installation of the heat cost allocators
  - b) Both the AMR system and the distributors must be configured to work in this mode
  - c) SND\_IR mode activation procedure on a newly installed SIN.EQRPT868XT
    1. Press button 2 (t > 6s.). When pressing button 2, the green LED (8.1) flashes every second, until you are under the 6s. Once the 6s have passed, the LED (8.1) flashes every 500ms => this indicates that the "SND\_IR" scan mode has been changed.
    2. RPT enters the "SND\_IR" scan mode. RPT receives and takes over all the devices that transmit the installation W. M-Bus telegram. (This frame contains no data)
    3. Scan duration without user intervention 12 hours -> Manual stop of the scan => press key 2 (no coded pressure time)
- Note: SIN.EQRPT868XT automatically exits the SCAN mode after 12 hours.

**Accept mode activation ALL - SIN.EQRPT868XT**

- a) It is used when the commissioning is carried out after with respect to the installation of the heat cost allocators
  - b) To activate the accept ALL mode on a newly installed SIN.EQRPT868XT
    1. Press button 2 (2s. < T < 6s)
    2. When pressing button 2, the LED (8.1) flashes every second. When the key 2 is released, the LED (8.1) remains lit to indicate the activation of the accept ALL mode.
  3. RPT receives and takes charge of all devices transmitting in W-MBus including frames in Installation Mode (SND\_IR) - The first green LED lights up permanently - Scan duration without user intervention 12 hours
  4. press the button 2 (no coded pressure time) to stop the scan manually
- Note: if during the scan the RPT connects into the MESH network the mode of operation will automatically change with the value set on the RTU.

**SIN.EQRPT868XT - S - T - C Mode of operation modification**

1. Press keys 2 and 3 simultaneously (t > 6s.)
    - during the simultaneous pressing of keys 2 and 3, the green LEDs (8.1) and (8.2) will flash every second, until you are under the 6s. Exceeded the 6s, they flash every 500ms
    - When keys 2 and 3 are released, one of the green LEDs (8) starts to flash (500ms) to indicate the currently active mode of operation on that SIN.EQRPT868XT
  2. The mode of operation is changed by pressing the 3 key briefly
    - Mode C+T => Green LED (8.1) on - the other off
    - Mode S => Green LED (8.2) on - the other off
    - Mode T => Green LED (8.3) on - the other off
  3. save settings by pressing the 2 and 3 button (t > 2s.)
  4. exit => key 2 for ESC function without saving (during programming status). Automatic ESC from programming status after 10 minutes later.
- Note: SIN.EQRPT868XT automatically exits the SCAN mode after 12 hours.

**Restore factory settings**

1. Press and hold keys 2 and 3 simultaneously.
2. Then press the reset button 4, without releasing the keys 2 and 3
3. As soon as all the LEDs (8) and (9) flash quickly, release all three keys.

**GATEWAYS FIRMWARE UPGRADE**

You should always check the possible release of the latest firmware available version of the Gateways, compared to the one installed on the devices in the production phase. For this procedure it is necessary to connect a PC to the gateway to be configured (via cable USB). Use the SIN.EQSW1 software (downloadable from the dedicated section of sinapsi.store) and follow the instructions in the manual.

**Manage access to RF Converter**

USB COM port:  1

Password login:   Standard password

Serial Number:

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Firmware

FW revision available:  2  3