



RADIO M-BUS WIRELESS RECEIVER AND REPEATER



ECVRRB

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## 1. PACKAGE CONTENT

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

## 2. OVERVIEW

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- Receiver and radio repeater for W. M-Bus devices (EN13757-4)
  - Manages up to 500 meters
  - Last acquired data stored in a non-volatile memory
  - Easy installation with software setup
  - 100..240Vac power or via USB
  - Wall mounting like installation
  - Optional WEB interface usable with ECVCONB
- A. Cable compartment lid  
B. "ON" LED light

## 3. CONNECTIONS/BUTTONS/LED LIGHTS

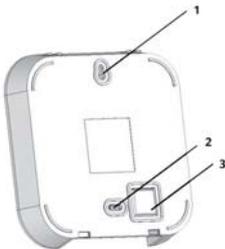
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1. Power input 100..240Vac (with clips)
2. Scan-mode button
3. Pulsante non utilizzato
4. Reset button
5. USB port
6. MESH network TX-RX LED
7. M-Bus network TX-RX LED
8. Signal/reception level LED
9. State LED

## 4. WALL FASTENING AND CABLE PASS

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

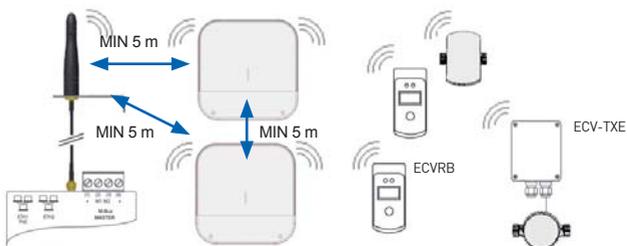


## 5. CONNECTION ECVCONB

ECVRRB repeater devices are provided with a MESH- ID=1 and channel 13.

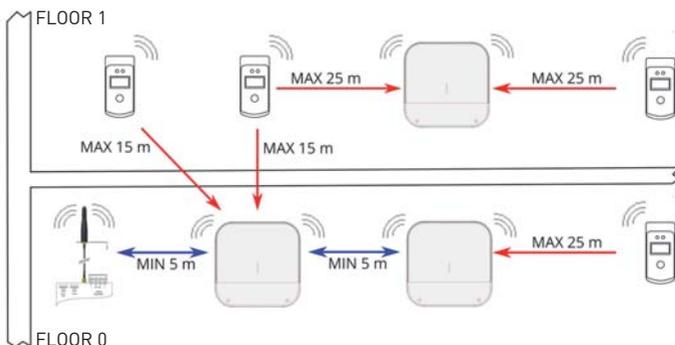
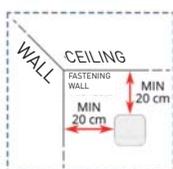
Make sure that all the repeaters and/or ECVCONB have the same MESH network ID.

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



## 6. POSITIONING AND OPERATING DISTANCES

1. Fix the ECVRRB repeater 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 25 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
4. installed on different floors is 15 meters.

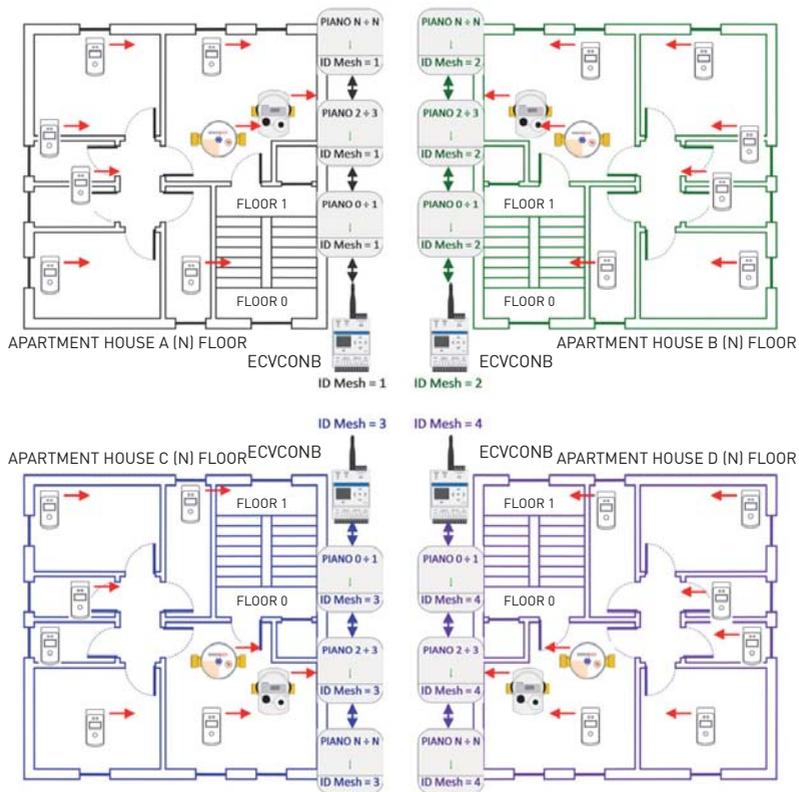


## 7. REPEATER NETWORK CONFIGURATION

1. Power on ECVCONB, connect to web interface and start antenna and device scan following the user's manual
  2. Power on the first device ECVRRB to be installed and move it away to a minimum distance of 5 metres from ECVCONB
  3. Fixed blue ECVRRB 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 ECVRRB in a place where the reception signal is  $\geq 2$  and the reception of all the W. M-Bus devices you expect to receive with this antenna is satisfactory
  6. Check through ECVCONB web interface that W. M-Bus devices, that you want to receive, reach the ECVRRB
  7. Fasten the ECVRRB and proceed with powering a second repeater keeping it at least 5 metres away from both the ECVRRB and ECVCONB
  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 ECVRRB.
- The scanning phase is 12 hours. You can modify its duration through ECVCONB
  - You can have various independent ECVRRB networks in the same building. In that case, you need to have different ID or channel for each ECVRRB group and the relative ECVCONB.
  - You can modify these parameters through ECVCONB software installed
  - The USB / Mini USB cable is not included and is not present in the package.

## 8. 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 500 for each ECVCONB), it is necessary to create four different networks of ECVRRB Repeaters. Obviously the following is valid also in cases where there are 2, 3, 5 or a higher number of Repeaters networks.



## 9. SETTING OF MESH NETWORK ID

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



The same Mesh network ID setting must be carried out also on all Repeaters that are part of the network of the ECVCONB which they have to communicate with. For this procedure it is necessary to connect a PC to the Repeater to be configured (via USB cable). Use the ECC60MBUS software (downloadable from the download section of [sinapsitech.it](http://sinapsitech.it)) and follow the instructions in the manual.

**RF Converter configuration**

Serial number	RP16507268
Description 1	DEV_RP16507268
Description 2	
Install date	3/7/2018
Mesh ID	1
Mesh channel	13
wM-Bus mode	T1

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 ECVCONB and on Repeaters), because the change may involve the transmission power of the devices.

## 10. LOADING ON REPEATERS OF A W. M-BUS DEVICES LIST IN THE PLANT (ONLY ON REPEATERS WITH FIRMWARE VERSION FWRPT1\_V1R20.HEX ONWARDS)

Referring to the same image of the previous installation, the various Repeaters 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 Repeaters receive the signal from more than 500 devices (Max 500 for each repeater), 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 Repeater, 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 Repeater.

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;Matricola Dispositivo;Note;Via e civico;Interno;Cognome;Nome;Citta
;;;;;
1;13012678;Cucina;Via del lavoro 28;1-A;Rossi;Mario;Bastia Umbra
2;14112874;Soggiorno;Via del lavoro 28;1-A;Rossi;Mario;Bastia Umbra
3;15990000;Bagno;Corso Cavur;2-A;Bianchi;Paolo;Bastia Umbra
4;15246531;Camera 1;Corso Cavur;2-A;Bianchi;Paolo;Bastia Umbra
```

ECC60MBUS

For this procedure it is necessary to connect a PC to the Repeater to be configured (via USB cable). Use the ECC60MBUS software and follow the instructions in the manual.

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## 12. REPEATERS FIRMWARE UPGRADE

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You should always check the possible release of the latest firmware available version of the Repeaters, compared to the one installed on the devices in the production phase.

For this procedure it is necessary to connect a PC to the repeater to be configured (via cable USB). Use the ECC60MBUS software (downloadable from the download section of [sinapsitech.it](http://sinapsitech.it)) and follow the instructions in the manual..

The screenshot displays the ECC60MBUS software interface, divided into two main sections: 'Manage access to RF Converter' and 'Firmware'.

**Manage access to RF Converter:**

- USB COM port:** A dropdown menu is set to 'AUTO', with a red '1' next to it.
- Password login:** A dropdown menu is set to 'COM43'. A checkbox labeled 'Standard password' is checked.
- Serial Number:** A text input field is present but empty.
- Connect:** A button is located to the right of the USB COM port dropdown.

**Firmware:**

- FW revision available:** A dropdown menu is set to 'FWRPT1\_V1R23.hex', with a red '2' next to it.
- Load file:** A button is located below the FW revision dropdown.
- Upgrade firmware:** A green button is located to the right of the FW revision dropdown, with a red '3' next to it.

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## 13. TECHNICAL DATA

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- Temperature range: operative: -20° ... +55°C.  
storage: -25° ... +85°C.
- Protection degree IP 40 (EN60529).
- Fastening: wall clipped
- Dimensions: LxHxP 160 x 160 x 35 mm
- Power supply 100...240Vac 50-60Hz, USB (5Vdc, 500mA) for commissioning
- Consumption: 4.5W
- Radio frequency 868 MHz - Max transmission power 27 dBm
- WMBUS Mode: CT1 + T1 + T2, S1 + T1, T1+T2, T1
- Max distance between two RPT RPT: 500mt free field - 40mt in building



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## 14. TROUBLESHOOTING

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### 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

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### THE BLUE LED LIGHT DOES NOT STOP FLASHING:

- check that the device ECVCONB is on and that the antenna is connected and in good position (avoid placing it in switchboards or shielded environments)
- check that ECVRRB is at least 5 metres distant from ECVCONB and from others ECVRRB
- check that the ID and the MESH network channel are correct using the same ones used by ECVCONB

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### NOT ALL THE METERS ARE REVEALED:

- check that the meters that were not revealed are not too distant from ECVRRB or that the signal is not disturbed by thick concrete or metal walls.
  - check that the devices are on the list loaded in ECVRRB or that the W. M-Bus devices list receivable from ECVRRB is not blocked
  - warning: some W. M-Bus devices transmit periodically (within hours)
  - check that the MESH network is not interrupted using ECVCONB web interface.
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