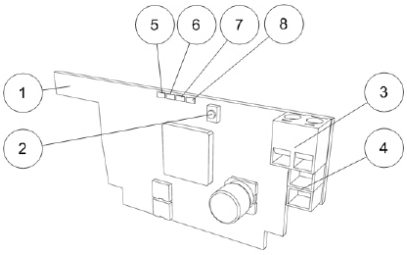
CMi5110
Wireless M-Bus Receiver

INTRODUCTION
CMi5110 is a wireless M-Bus Receiver, integrated in a CMi-Box, handling up to 800 wireless M-Bus meters. The product can operate in the following wireless M-Bus modes: T1, C1 and S1. For a complete description of the product or for information in Swedish, visit the Elvaco AB website, www.elvaco.com.

OVERVIEW


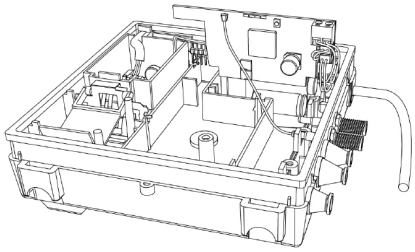
1. Internal antenna
2. Push button
3. M-Bus slave connection
4. Board connectors (2 pcs) power supply
5. Red LED
6. Green LED
7. Yellow LED
8. Blue LED

MOUNTING
The product is mounted in a CMi-Box or UH50/UC50/T550 meter from Landis+Gyr. Connect the power cable from the power supply to the CMi5110 as shown in the figure.

IMPORTANT
The CMi5110 can only be powered from the following power supplies:

- Elvaco 230 VAC art no: 1050130
- Elvaco 24 VAC art no: 1050055

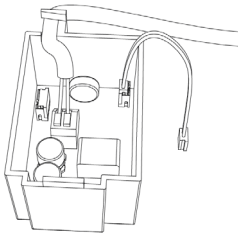
Carefully press the CMi5110 in the slide. Connect the M-Bus slave port to any 2-wire M-Bus master via screw terminal 3.



POWER SUPPLY
The installation should be performed by a qualified electrician or an installer with the required knowledge. The power supply should be connected via a clearly marked, easily accessible and close switch so the unit can be switched off during service work.

Power supply 230 VAC
The 230 VAC supply is equipped with a 5 m cable for connection to mains power.

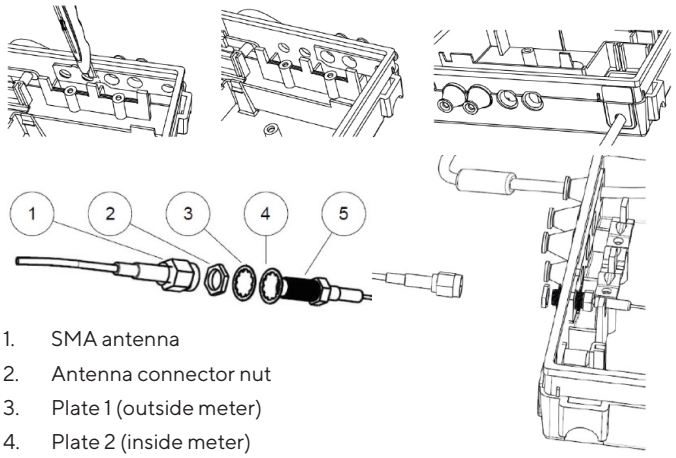
Power supply 24 VAC/VDC
Connect the external 24 V power supply to the push connector (polarity independent) on the Elvaco 24 VAC/VDC power supply according to the image on the right. Connect the cable from the power supply to the board connector (4).



ANTENNA
The product is available with external or internal antenna.

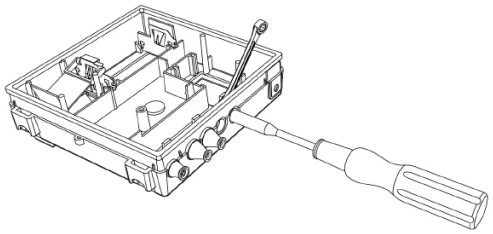
External antenna (not included)
Before mounting the antenna cable, the CMi-box/meter must be prepared. Use a scalpel and cut rubber seal as in the figure. Remove cut off rubber completely.

Use an 8 mm U-Wrench on the inside of the meter.



1. SMA antenna
2. Antenna connector nut
3. Plate 1 (outside meter)
4. Plate 2 (inside meter)
5. SMA connector

Use an 8 mm socket and a torque-screwdriver. Tighten the nut to a torque of 120 Ncm.



Mount the antenna in a suitable place. Connect the cable to the SMA connector. If the antenna's range is inadequate, please contact Elvaco for more information about antenna options.

IMPORTANT

- CMi5110 should be connected to the antenna when the antenna wiring is done. Otherwise the SMA connector can be damaged.
- Do not mount the antenna close to any metallic objects.
- Do not mount the antenna close to the M-Bus 2-wire bus.
- Do not mount the antenna inside a metallic cabinet.

Internal antenna
There is no possibility to connect an external antenna to the version of CMi5110 with internal antenna. If the internal antenna is inadequate, please contact Elvaco for information.

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M-BUS SLAVE PORT

The product is equipped with an M-Bus slave port to enable wide integration. The port can be used to read the connected wireless M-Bus slaves as normal M-Bus slaves. Slaves can be read using primary and/or secondary addressing. The CMi5110 itself is available as an M-Bus slave with the secondary address equal to the serial number. The M-Bus 2-wire interface acts like any other M-Bus slave device on the 2-wire bus. The nominal current is 1T (1.5 mA). This interface can be directly used with any standard M-Bus master.

GETTING STARTED

If CMi5110 should be able to deliver readings from wireless meters, these must first be installed. This can be made in two ways:

Option 1: Press button (2 in overview) to start the installation on CMi5110. When the installation mode is started, the blue LED will light up. The red LED will be on until a meter is installed.

Option 2: Start the installation via M-Bus commands, for example via Elvaco's CMe3100. This allows easy adjustments and administration of parameters and meter list.

LED INDICATIONS

LED	State	Description
Red	On	Meter list empty, no meters installed
Green	50/50	Power ON, operation
Yellow	Short flash	Receives data from meter
Blue	On	Product is in installation mode

TROUBLESHOOTING

When running installation, no wireless meters are found (Red LED on)
Please verify:

- CMi5110 antenna installation and position.
- Wireless M-Bus slave mode must be the same as configured CMi5110 wireless M-Bus mode.

CMi5110 does not respond to M-Bus master commands
Please verify M-Bus status:

- Voltage over M-Bus slave device should be between 21-42 VDC.
- All M-Bus slave devices must have unique secondary or primary M-Bus addresses depending on addressing mode.
- Verify M-Bus slave baud rate used by M-Bus master. M-Bus master baud rate must be identical to the CMi5110 baud rate.
- Encrypted wireless M-Bus slaves without uploaded keys will send meter data in container mode. Add keys to corresponding meter using M-Bus commands.

Change from T1/C1a/C1b mode to S1 mode or vice versa does not work:

- The CMi5110 needs to be switched off and on again to make the change take effect.

FACTORY RESET

Turn off power. Press push button (2) and turn on power. Keep pressing the button for 10 s, until the red and yellow LED is flashing.

SAFETY

The warranty does not cover damage to the product caused by usage in any other way than described in this manual. Elvaco AB can not be liable for personal injury or property damage caused by usage in any other way than described in this manual.

ORDERING INFORMATION

Product	Part No	Description
CMi5110I	1050067	Wireless M-Bus master internal antenna
CMi5110E	1050064	Wireless M-Bus master external antenna
Power supply 230 V	1050130	Power supply 230 V
Power supply 24 V	1050055	Power supply 24 V
Magnet antenna	9950470	868 MHz SMA 1.5 m
Omni antenna	9950472	7.1 dBi 824-890 MHz
Omni antenna	9950500	2.15 dBi 824-890 MHz

TECHNICAL SPECIFICATIONS

Mechanics	
Protection class	IP20
Mounting	In CMi-Box module slot
Electrical connections	
Power supply	Board connector 2 mm
M-Bus slave port	Screw terminal 0.5-2.5 mm²
Antenna	Built-in, or optionally external via SMA-f
Electrical characteristics	
Nominal voltage	230 V power supply: 100-240 VAC, 24 V power supply: 12-35 VAC or 12-48 VDC, Internal power supply: 4 VAC
Frequency	50/60 Hz
Power consumption	<0.2 W
Installation category	CAT 2
Wireless M-Bus Receiver	
Wireless M-Bus modes	S1, T1, C1
Maximum number of wireless M-Bus devices	800
Radio frequency band	868 MHz
Encryption	AES-128, OMS
RF sensitivity (standard / amplified version)	-104 dBm / -109 dBm
M-Bus slave interface	
M-Bus baud rate	300 and 2400 bit/s
Power consumption	1T/1.5 mA
Approvals	
EMC	EN 61000-6-2, EN 61000-6-3
Safety	EN 61010-1, CAT 2

CONTACT TECHNICAL SUPPORT

E-mail: support @elvaco.com
Online: www.elvaco.com

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