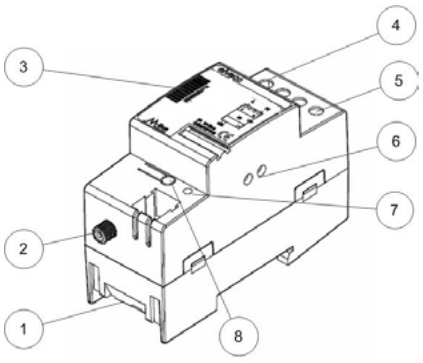
CMeX20w

External MCM for ABB B21/B23/B24, Wireless M-Bus

INTRODUCTION

CMeX20W enables ABB electricity meters with IR interface to communicate via Wireless M-Bus. The communication is automatically configured between CMeX20W and the ABB meter. CMeX20W allows transmission of meter values from the ABB meter via a standardized interface that can be handled by all receivers on the market that complies with the M-Bus standard.

OVERVIEW



1. DIN lock
2. Antenna connection
3. Serial number CMeX20W
4. Power supply L
5. Power supply N
6. IR interface
7. LED
8. Push button

MOUNTING

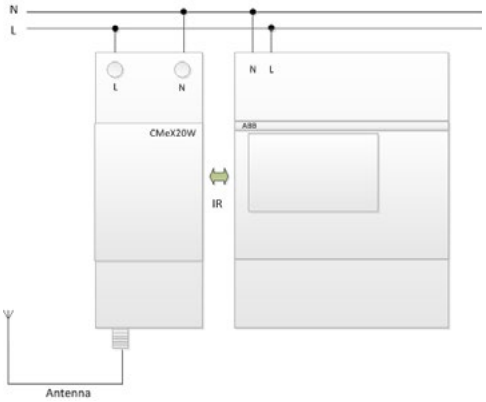
CMeX20W should be mounted on a DIN rail, to the left of the ABB electricity meter. The metallic clip on the bottom is used to mount and demount the unit from the DIN-rail. For safety reasons, a DIN-rail enclosure must cover the terminals.

CMeX20W should be equipped with an antenna mounted on the SMA connector (2). The included mini stub antenna works in most installations. If CMeX20W is mounted in a metal cabinet, it may require an external antenna that can be ordered from Elvaco.

POWER SUPPLY

The installation should be performed by a qualified electrician or an installer with the required knowledge. The power supply must be protected with a 10 A circuit breaker of characteristic C or slow blow fuse. The power supply should be connected via a clearly marked, easily accessible and nearby switch so the unit can be switched off during service work.

Main supply should be connected to screw terminals (4) and (5). Main supply voltage should be in the range of 220-240 VAC, 50 Hz.



OPERATION AND FUNCTION

After power up, the CMeX20W will try to communicate via the IR port with the electricity meter that is mounted to the right of the product. Before communication is established with the meter, the red LED (7) is on. In this mode, no wireless M-Bus messages are sent from CMeX20W.

CMeX20W can be configured to either send encrypted or unencrypted messages. By pressing the push button (8) for at least 5 seconds, the transmission is changed between encrypted and unencrypted mode. In encrypted mode, the LED (7) lights up yellow and in unencrypted mode, the LED lights up green.

When transmitting data, the LED is flashing (turned off) for 0.5 s.

CMeX20W uses the Wireless M-Bus mode T1. The product supports both encrypted and unencrypted messaging. Encrypted mode means that the Wireless M-Bus messages are protected with a 128 bit AES key.

When CMeX20W has created a connection to the electricity meter, the LED changes color from red to green in unencrypted mode, and yellow in encrypted mode. The CMeX20W now starts sending readings once every 16 seconds. The LED flashes (turns off for 500 ms) every time a wireless message is sent.

When a meter change is performed, the CMeX20W is automatically configured. Wait for green or yellow LED to light up which indicates that CMeX20W has contact with the new meter.

TROUBLESHOOTING

Red LED is on, no wireless messages are sent
This may be due to the following:

- ABB meter is not powered up.
- The distance between CMeX20W and the electricity meter is too large.
- The ABB meter is configured incorrectly or is of the wrong type. CMeX20W works on max 9600 baud.

The master does not receive any telegram from the product

This may be due to the following:

- The CMeX20W or ABB meter is not powered up.
- The antenna on CMeX20W is not installed correctly, or an external antenna is required to reach the receiver.
- The receiver is not configured correctly, mode T must be selected.
- The antenna on the receiver is not optimally positioned.

LED INDICATIONS

LED	Description	Visual
Off	Power supply is not connected	
Red steady on	CMeX20W has no contact with electricity meter, no messages are sent.	
Green Short dip	Normal operation unencrypted mode. Wireless telegram is sent.	
Yellow Short dip	Normal operation encrypted mode. Wireless telegram is sent.	
Yellow flashing Short dip	The ABB electricity meter's telegram is too large to fit in the encrypted wireless telegram. The telegram is sent wirelessly but up to nine byte may have been truncated at the end of the meter's telegram. Wireless telegram is sent.	

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 number	Description
CMeX20W	1050069	External MCM for ABB B21/B23/ B24, Wireless M-Bus

TECHNICAL SPECIFICATIONS

Mechanics

Protection class	IP20
Mounting	Mounted on DIN rail (DIN 50022) 35 mm

Electrical connections

Supply voltage	Screw terminal. Cable 0.25-1.5 mm^2

Electrical characteristics

Nominal voltage	220-240 VAC (+/- 10%)
Frequency	50 Hz
Power consumption (max)	<2.5 W
Power consumption (nom)	<1 W
Installation category	CAT 3

User interface

Green LED	Power
Red LED	Error
Orange LED	Encrypted mode
Push button	Configuration/activation

M-Bus

M-Bus information	All fields in the first telegram of the electricity meter

Integration

Meter implementation	ABB meters with IR interface
Maximum number of connected meters	1

Approvals

EMC	EN 61000-6-2, EN 61000-6-3
Safety	EN 60950-1, CAT 3

Factory default

Transmit interval	16 seconds
Encryption mode	Optional unencrypted/encrypted (128 bit AES)

EU DECLARATION OF CONFORMITY

This declaration of conformity is issued under the sole responsibility of the manufacturer:

Elvaco AB, Kabelgatan 2T, S-43437 Kungsbacka, Sweden

Product: CMeX20w
Year of CE-marking: 2016

The object(s) of the declaration listed above is in conformity with the relevant Community harmonization legislation:
LVD Directive 2014/35/EU
EMC Directive 2014/30/EU
Radio Equipment Directive 2014/53/EU
RoHS 2011/65/EU

And are in conformity with the following harmonization standards or other normative documents:
IEC 61010-1 (ed.3)
EN55022 (Radiated emission)
EN 61000-4-6 (Immunity to HF-injection)
EN 61000-4-3 (Immunity to RF-field)
EN 61000-4-11 (Immunity to voltage variation)
EN 61000-4-4 (Immunity to burst)
EN 61000-4-5 (Immunity to surge)
EN 61000-4-2 (Immunity to ESD)
EN 300 220-1 (SRD Low power radio equipment)

Kungsbacka, Sweden, 2016-04-16

David Vonasek, CEO

CONTACT INFORMATION

Elvaco AB Technical support:

Phone: +46 300 434300
E-mail: support@elvaco.com
Online: www.elvaco.com

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