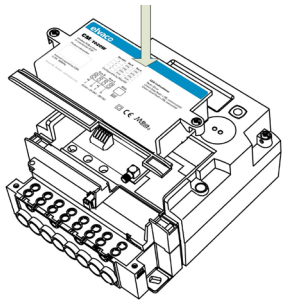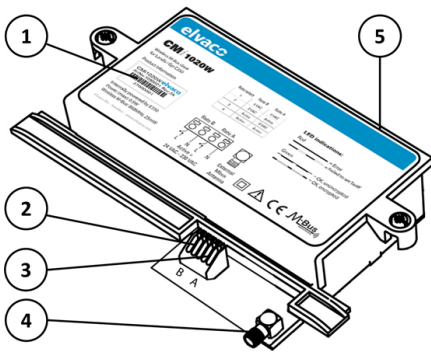# CM*i*1020W

Integrated MCM for L+G E350, Wireless M-Bus

INTRODUCTION

The CMi1020W is an integrated meter connectivity module (MCM) for Landis+Gyr E350 electricity meters. By enabling the meter to communicate as a wireless M-Bus slave, CMi1020W becomes very suitable for projects where a high flexibility is needed at an attractive price point, for example within sub-metering or meter rooms. The product is designed to automatically work together with all Landis+Gyr E350 electricity meters. The standardized interface for sending metering information makes it compatible with all Wireless M-Bus Receivers on the market that complies with standard EN13757.

OVERVIEW

1. Serial number
2. Rate input B
3. Rate input A
4. Antenna connection
5. LEDs (red and green)

MOUNTING

The mounting must be performed by a qualified electrician or installer with required knowledge. Always disconnect the power to the electricity meter and rate inputs before mounting or performing service work. The CMi1020W is mounted in the dedicated module slot of the meter. Be careful when placing the product in the slot to prevent accidental pin damages on the meter's connectors. Press the CMi1020W firmly into place until it is fully inserted and secure the module using the screws on each side. Make sure that the CMi1020W is mounted correctly!

OPERATION AND FUNCTION

After power up, the CMi1020W will start to communicate with the electricity meter (E350). It will take a few seconds before the communication is established with the meter. During this period the red LED is constantly lit. When the red LED is no longer lit, the communication has been established and CMi1020W starts to transmit wireless M-Bus messages with meter readings.

CMi1020W can be configured to either send encrypted or unencrypted messages. Encrypted messages are protected by a 128bit AES key encryption. The green LED indicates normal operation. Its flash duration indicates which encryption mode that is currently in use (encrypted/unencrypted).

CONFIGURATION

The CMi1020W can be ordered with a default or a custom configuration. The default configuration is suitable for most applications and optimized for excellent range performance. The information that is transmitted with the default configuration will contain the fields in the table below and will be transmitted in the same order as configured in the electricity meter.

C.1.0 / C.1	Meter ID
C.5.0 / C.5	Status Flag
C.7.0 / C.7	Power Fail Count
1.8.0 / 1.8	Active Energy - Import [+A] {+kWh}
2.8.0 / 2.8	Active Energy - Export [-A] {-kWh}
15.8.0 / 15.8	Active Energy - Absolute Value [|+A|+|-A|] {+kWh}
16.7.0 / 16.7	Total (R+S+T) kW

A custom configuration allows for a complete customization of all configuration parameters and transmitted meter data. Together with a meter configuration tool from Landis+Gyr, e.g. MAP110, you may configure what fields to transmit and the order of transmission by changing priority. Please see product user manual for more information about CMi1020W's configuration and available parameters.

RATE INPUTS

CMi1020W has two galvanically isolated rate inputs. Active voltage for inputs is between 24VAC and 230VAC. The voltage from the inputs must be fused with a 10A fuse and connected through an easily accessed and clearly marked switch. When the installation of the rate inputs is completed, secure the wiring with cable ties. In CMi1020W's default configuration as a safety feature, the rate inputs are disabled to prevent any misconfigured product to accidently change the tariff information.

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LED INDICATIONS

LED	Description	Visual
Green	Normal operation unencrypted mode. Short flashes (100ms on / 900ms off).	
Green	Normal operation encrypted mode. Long flashes (900ms on / 100ms off).	
Red steady on	CMi1020W doesn't transmit any wireless messages. CMi1020W failed to establish contact with electricity meter or the data available from the meter does not contain the OBIS-code 'C.1.0' or 'C.1' (Meter ID). This field must be available from the meter so that CMi1020W can identify the meter. Please note that after power up, the red LED will be constantly lit for around 15 seconds during product initialization.	
Red flashing	CMi1020W failed to set a new tariff. This status is also available through reading bit 6 in the status byte.	

TROUBLESHOOTING

Red LED is flashing

Please verify rate configuration:

- CMi1020W's rate configuration is matching the meter's configuration and available rates.
- P1/P2 passwords are correctly set in CMi1020W (if required by the meter).

Red LED is constantly lit

Please verify the connection and meter configuration:

- Mounting and connection between E350 and CMi1020W.
- Meter is configured so that OBIS-code C.1 or C.1.0 (meter ID) is available.

Red LED is off but receiver doesn't receive any messages

Please verify receiver configuration and radio reception:

- Check receiver's configuration, matching transmission mode and encryption settings.
- CMi1020W might need an external antenna to reach the receiver.
- Try adjusting the position of the receiver's antenna.

ORDERING INFORMATION

Product	Part number	Description
CMi1020W	1050021	CMi1020W for L+G E350, Wireless M-Bus, 3-Phase
CMi1020W	1100229	CMi1020W for L+G E350, Wireless M-Bus, 1-Phase
L+G E350 CMi102W	1100230	L+G E350 ZMF AC incl. CMi1020W, 3-Phase, no breaker
L+G E350 CMi102W	1100231	L+G E350 ZCF AC incl. CMi1020W, 1-Phase, no breaker
Customization	Per request	Custom configuration (contact sales)

TECHNICAL SPECIFICATIONS

Mechanics

Protection class	IP20
Mounting	In Landis+Gyr E350 meter

Electrical connections

Supply voltage	Supplied from E350
Rate inputs	Screw terminal 0.25-1.5 mm²

Electrical characteristics

Nominal voltage	220-240 VAC (+/- 10%)
Frequency	50/60 Hz
Power consumption (max)	<0.5 W
Power consumption (nom)	<0.3 W
Installation category	CAT 4
Rate input low voltage	<10 VAC
Rate input high voltage	>24 VAC
Rate input max voltage	230 VAC
Rate input minimum detection time	1 s

User interface

Green LED	Power
Red LED	Error

M-Bus slave interface

M-Bus information	Default or custom configuration

Integration

Meter implementation	Landis+Gyr E350
Maximum number of connected meters	1

Approvals

EMC	EN 31489-1, EN31489-3
Safety	EN 61010-1-2010, CAT 4

SAFETY

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

CONTACT TECHNICAL SUPPORT

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

EU DECLARATION OF CONFORMITY

This declaration of conformity is issued under the sole responsibility of the manufacturer:
Elvaco AB, Teknikgatan 18, S-434 37 Kungsbacka, Sweden.

Product	Year of CE-marking
CMi1020W	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