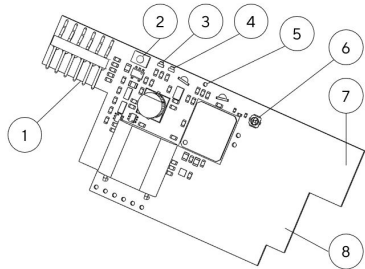


CMi4110 / WZU-LR

Integrated MCM for Landis+Gyr UH50/UC50, LoRaWAN

INTRODUCTION

CMi4110 is an integrated meter connectivity module mounted inside a Landis+Gyr UH50 meter / UC50 calculator to deliver meter data via a LoRaWAN network. For a complete description of the product or for information in other languages, please visit the Elvaco AB website, <http://www.elvaco.com>.



1. Meter Interface
2. Push Button
3. Green LED
4. Red LED
5. Tamper Switch (optional)
6. External antenna connector (optional)
7. LoRaWAN antenna
8. NFC antenna

MOUNTING

CMi4110 is mounted in module slot 2 (right slot) of a Landis+Gyr UH50 meter with software version 5.15 or higher or a UC50 calculator with software 8.06 or higher. Grab the device by the outer edges and gently press it into position.

NOTE

Electrostatic-sensitive device. Please observe the necessary ESD protective measures when installing the module.



ANTENNA

CMi4110 is available in two different versions. CMi4110Int uses an internal PCB antenna. CMi4110Ext is equipped with a SMA connector (6) to connect an external antenna.

NOTE

Make sure to mount the antenna at least 0.5 meters away from the meter.

ACTIVATION

Upon delivery, CMi4110 is set to passive mode, which means no messages will be transmitted from the module. The module can be activated in one of the following ways:

By using the module push button: Press and hold down the push button (2) for at least 5 seconds until the green LED lights up.

By using the Elvaco OTC App: Open the Elvaco OTC app (downloadable in Google Play) and scan the module (make sure NFC is activated on the phone). Remove the front enclosure of the meter if needed. Go to Apply mode, set the Power mode to "active" and click Apply settings. Place the phone with the back facing the right side of the meter, parallel to the module. New settings are applied via NFC.

Upon start-up, the green and the red LEDs will lighten up for one second. The module will thereafter attempt to join the LoRaWAN network. Each attempt is marked by a short blink of the green LED. Upon a successful join attempt, the green LED will lighten up for 8 seconds.

If the module fails to join the LoRaWAN network 6 times, it will wait for one hour before a new join attempt is performed in order to conserve battery. A new join attempt cycle can be initiated manually by using the push button (2).

INITIAL DATA RATE CALIBRATION

When activated, CMi4110 will initially transmit messages every minute in order to let the LoRaWAN network adjust to an optimal data rate. After 2 minutes, the module will start using its normal settings where the message transmit interval is determined by the device configuration.

DEVICE CONFIGURATION

Before activating the module, you should make sure to apply the correct configuration profile by using the Elvaco mobile application. Settings are transferred to the device using NFC.

Join EUI - The Join EUI sets the identification number of the application server where data from the module shall be delivered. The JoinEUI is by default set to 0000000000000000 in all CMi4110 modules.

Activation type - There are two different activation types for LoRaWAN - Over-the-air activation (OTAA) and Activation by personalization (ABP). Elvaco strongly recommends using OTAA, where all network keys are generated each time the module joins the LoRaWAN network. In contrast, for ABP, all keys are set manually and stay constant over time.

Application key - The application key of each CMi4110 device is generated by Elvaco and used in OTAA mode to generate network keys when the module joins the LoRaWAN network. Keys are managed in a secure way using Elvaco's OTC (One Touch Commissioning) solution which includes the mobile application for configuration.

Message format - CMi4110 supports four different message types: Standard, Compact, JSON and Scheduled-daily redundant. Please refer to the CMi4110 user's manual for more information about the structure and payload of each message format.

Transmit interval - The transmit interval parameter is used to set how often the module transmits messages.

EcoMode - EcoMode can be enabled to achieve a battery-life of 11 years. The EcoMode table is then used to determine how often the module is allowed to transmit data for each data rate. If the transmit interval exceeds the limit in the EcoMode table, it will be lowered accordingly.

Configuration lock - CMi4110 has a configuration lock feature which can be used to prevent unauthorized users to access the module. When configuration lock has been enabled, a user needs the device-specific Product Access Key in order to access the device. Keys are managed in a secure way using Elvaco's OTC solution which includes the mobile application for configuration.

After you have set all configuration parameters, place the phone with the back facing the right side of the meter, parallel to the module, and click **Apply settings**. Hold the phone still until it vibrates three times. This confirms that new settings have successfully been transferred to the device via NFC.

SERVER CONFIGURATION

Before CMI4110 is able to transmit messages via the LoRaWAN network, device information needs to be added to the network server. More specifically, the following parameters needs to be registered (in OTAA mode) in order to enable the network server to receive messages from the module:

- Device EUI (16-digit number printed on the device label)
- Application key
- Join EUI

NOTE

If activation mode is set to "ABP". the application key does not need to be added to the network server. Instead, the following information will be needed: Network session key, Application session key and Device address.

TECHNICAL SPECIFICATIONS

Mechanics

Dimensions	80 x 38 x 23 mm
Weight	35 g
Mounting	In module slot 2 of Landis+Gyr UH50 / UC50
External antenna connector	SMA female

Electrical connections

Supply voltage	Internal meter battery (D cell) or PSU (Elvaco: CMip2110 230V, Landis+Gyr WZU-AC230-xx or WZU-ACDC24-00)
----------------	--

Electrical characteristics

Nominal voltage	3.0 VDC
Power consumption (max)	40 mA
Power consumption (sleep mode)	~2.2 μ A

Environmental specifications

Operating temperature	+5 °C to +55 °C
Operating humidity	0 - 93 % RH, no condensation
Operating altitude	2000 m
Usage environment	Indoors
Storage temperature	-20 °C to +60 °C

Radio characteristics

Frequency	868 MHz
Output power	14 dBm
Receiver sensitivity	-135 dBm

LoRaWAN characteristics

Device class	Class A, Bi-directional
LoRaWAN version	1.0
Activation	OTAA or ABP
Data rate	DR0-DR5 (250 bit/s-5470 bit/s)

User Interface

Green LED	Start-up / reboot / switch-off indicator
Red LED	Start-up / reboot / switch-off indicator
Push Button	Start-up / reboot / switch-off
Configuration	NFC via Elvaco OTC app or downlink data

Approvals

EMC	EN 301 489-1, EN 301 489-3
-----	----------------------------

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.

CONTACT INFORMATION

Elvaco AB 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, Kolsjövägen 21, S-434 37 Kungälv, Sweden.

Product: CMI4110Int / CMI4110Ext
Year of CE-marking: 2018

The object(s) of the declaration listed above is in conformity with the relevant Community harmonization legislation:
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:

EN 301 489-1 (EMC standard for radio equipment and services)
EN 301 489-3 (EMC standard for radio equipment and services)
EN 300220-1 (SRD Low power radio equipment)
EN 300220-2 (SRD Low power radio equipment)
EN 55022 (Radiated emission)
EN 61000-4-2 (Immunity to ESD)
EN 61000-4-3 (Immunity to RF field)
EN 61000-4-4 (Immunity to burst)
EN 61000-4-5 (Immunity to surge)
EN 61000-4-6 (Immunity to HF injection)
EN 61000-4-11 (Immunity to voltage variation)

Kungälv, Sweden, 2018-06-26

David Vonasek, CEO