1. Overview

CI201-LW is a battery-powered gas meter pulse reader. It is installed in the standard mounting seat for Honeywell Elster Metronica gas meters of BK series, reads the meter, stores the readings, and transmits the results via the LoRaWAN network. CI201-LW doesn't need any wired connections for readings. It's obtained by detecting a magnetic field.

2. Specifications

Parameter	Value
Data transmission interface	
Data transmission	LoRaWAN 1.0.4, Class A
LoRaWAN channels	8
Frequency bands	EU868 - default, US915 and others - by request
ADR support	Yes
Transmitter power, max.	+20 dBm, 100 mW
Receiver sensitivity	-137 dBm
Data transmission period	1, 5, 10 or 30 min 1, 4, 6, 12 or 24 hours
Non-volatile memory capacity for storing packets	20 000 packets
Activation method	ABP/OTAA
Antenna type	Internal
Encryption algorithm	Hardware AES-128
Configuration interface	
Device initialization	NFC-A
Device setup	Bluetooth LE 5.1
Configuration software	
Mobile and desktop (Windows) application	akYtec IoT Configurator
Digital output	
Number	1
Type	Open collector
Maximum load current	1 A
Switching voltage	Up to 24 V
Memory	
Type	Flash
Built-in memory size	8 MB
Power supply	
Battery voltage	3 V
Battery type	2 × CR123A
Total capacity	3100 mAh
Battery life	Up to 5 years (depending on settings)
Mechanical	
Color	RAL 7035 (light gray)
Enclosure	ABS+PC plastic
IP code	IP65
Dimensions	114 x 76 x 30 mm
Net/Gross weight (without battery)	99 / 139 g
Net/Gross weight (with batteries)	131 / 171 g
MTBF	50 000 hours

3. Environmental conditions

The device is designed for natural convection cooling which should be taken into account when choosing the installation site.

The following environmental conditions must be observed:

- non-hazardous areas, free of corrosive or flammable gases

Table 1 Environmental conditions

Condition	Permissible range
Ambient temperature, operation and transportation	-40…+65 °C
Ambient temperature, storage	+5…+40 °C
Relative humidity, operation	10…95 % (non-condensing)
Relative humidity, storage	up to 85%
Altitude	up to 2000 m ASL
Regulations and certifications	conforms to directives 2014/53/EU and 2011/65/EU with amended by 2015/863/EU

4. Dimensions

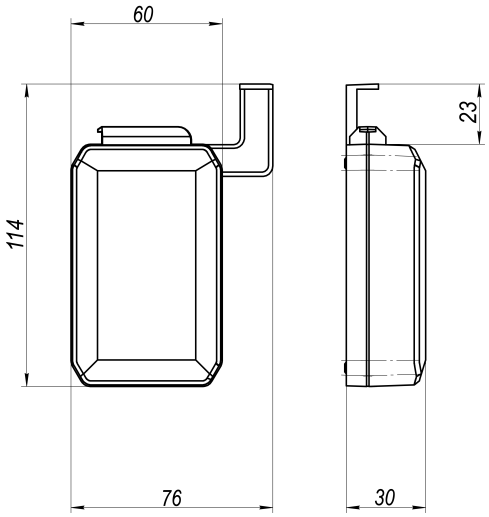


Fig. 1 – Dimensions

5. Installation and connection

Mounting

Install the device in the standard mounting seat and secure it with a screw and nut.

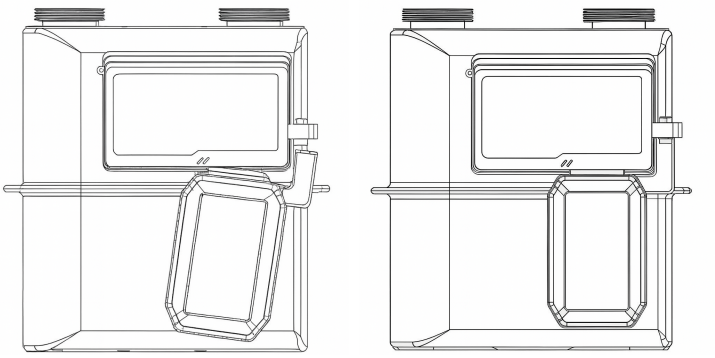


Fig. 2 – Standard installation

Digital output

Use the DO and COM contacts to connect an external actuator.

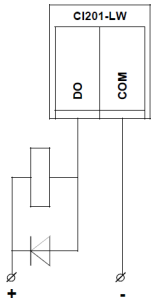


Fig. 3 – External device connection diagram

NOTICE
The digital output uses an NPN open-collector transistor. Maximum load current is 1 A. Switching voltage is up to 24 V.

6. Quick start

- Go to the device page on the akYtec website via the QR code and download the application in a convenient way. The full version of the user guide is also available on the website.
- Download the **akYtec IoT Configurator** mobile application to your smartphone or desktop application to your PC.
- Install and connect the device.

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- Activate NFC and Bluetooth on your smartphone or PC.
- Start **akYtec IoT Configurator**.
- Hold your smartphone close to the NFC mark on the front panel of the device to activate it.
- When you start the application, the application window appears. Click the **Connect** button and select the desired device by tapping its name. Please note that it may take 10-15 seconds before your device appears in the list.
- After selecting the device, enter the password to access the device (default password: 1111).

NOTICE
Change the default password before device usage.

NOTICE
The application is currently available only for Android and Windows.

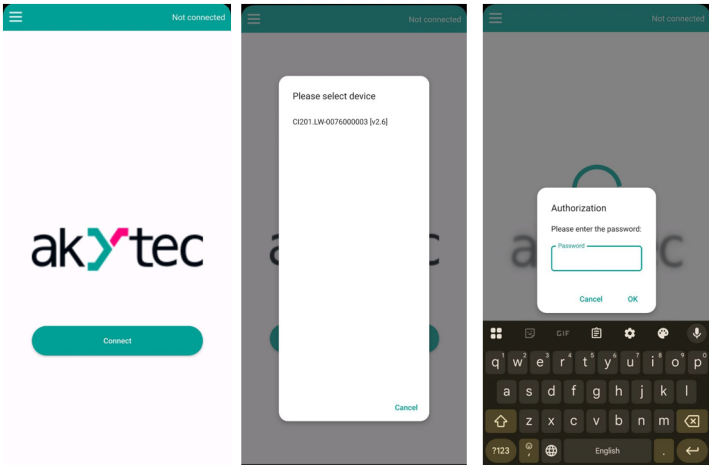


*Fig. 4 – Device connection using **akYtec IoT Configurator***

- Open the **Settings** tab and set **Data transmission period**, and change the **Activation** mode (OTAA or ABP).

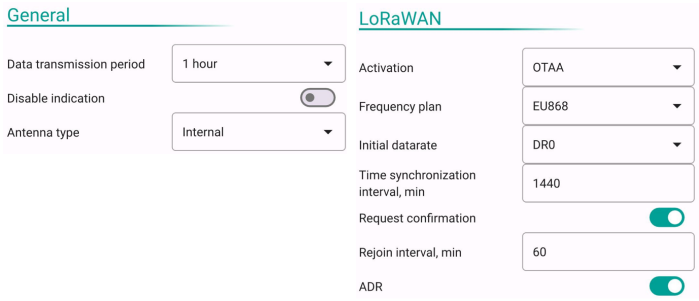


Fig. 5 – Selection of settings

- Open the **Personalization** tab to check and save the **data for device integration** to the networks:

OTAA keys:

– DevEUI: Unique device identifier in the LoRaWAN network

– AppEUI: Unique application ID to identify the application provider

– AppKey: Application key used to get NwkSKey and AppSKey session keys

ABP keys:

– DevAddr: Unique device ID in the LoRaWAN network

– AppSKey: Unique encryption key

– NwkSKey: Unique encryption key

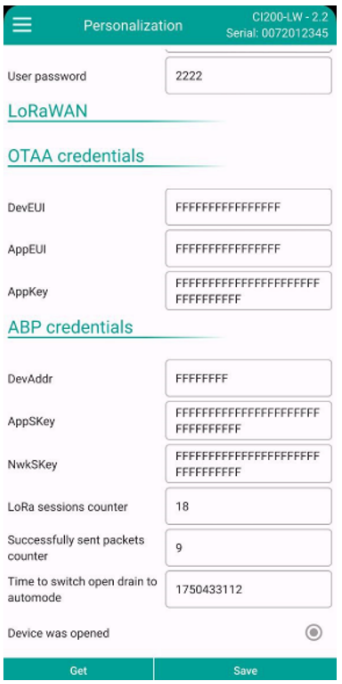


Fig. 6 – LoRaWAN settings

7. Indication

You can disable/enable indication in ***Setting > General > Disable indication***.

- **Operating mode indication**: Two-color green-blue indicator
- **Data transmission indication**: During data transmission the indicator flashes blue. Upon successful packet transmission, if the confirmation of successful packet transmission is enabled, the green indicator will flash once.
- **Measurement indication**: Series of green flashes

8. LoRaWAN network integration

Device integration to LoRaWAN network server (LNS) requires performing a few standard steps in the LNS interface.

- In the window with the list of available devices, click the **+New Device** button.
- In the window that appears, fill the standard fields:
  - Name: Device name
  - Class: Device class
  - Activation: Activation mode: ABP, OTAA, OTAA+ABP
    - To register the device using OTAA, enter DevEUI, AppEUI and AppKey.
    - To register the device using ABP, enter DevEUI, DevAddr, NwkSKey and AppSKey.

NOTICE
The device activation mode (OTAA/ABP) can be set on the **Settings** tab of the **akYtec IoT Configurator** mobile application. You can find all necessary data to add the device to the LoRaWAN network on the **Personalization** tab of the **akYtec IoT Configurator** mobile application.

- After entering the data, click the **Save** button.

The new device and its status are indicated in the window. The device is ready to use.

9. BATTERY REPLACEMENT SAFETY NOTICE (IEC 62368-1)

DANGER

- **Replacement**: Use only the specified battery type recommended by akYtec. Verify the correct battery type before installation.
- **Polarity**: Insert the battery correctly, observing polarity (+/-). Incorrect installation may damage the device or cause a safety hazard.
- **Burn Hazard**: Do not swallow the battery.

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