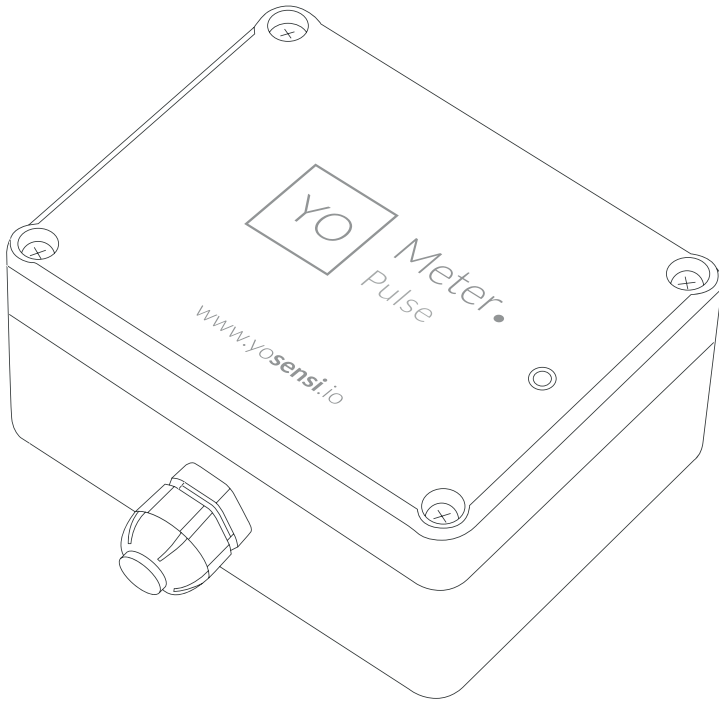




Meter.

Pulse (Datasheet)





Application

- YO Meter (Pulse) is used for pulse counting. Additionally, the device measures temperature and humidity.
- The YO Meter (Pulse) input is applied with potential-free contacts. Device input can detect pulses with different contact debounce times. This parameter is configurable and by default is 50ms - max. 10 pulses per 1s (boundary range 1-50 pulses per 1s depending on the contact debouncing setting).
- Based on the data collected by the device, it is possible to get the number of pulses from measuring devices, for example, from water meters.

Components

- The device consists of a microcontroller, communication modules (LoRa, Bluetooth Low Energy), pulse counters (Periodic Counter and Persistent Counter), sensors, and batteries.
- YO Meter (Pulse) is equipped with two counters: periodic and persistent counters. The periodic counter counts pulses cyclically with time interval defined by LoRa sending interval, while persistent counter accumulates pulses and stores them in non-volatile memory - this counter can be reset (cleared) using one of the parameters via BLE.
- YO Meter (Pulse) is equipped with an enclosure made of ABS with IP67 protection class.
- The enclosure of the device has an IP67 buffer in which a measuring probe can be installed.
- The enclosure is designed to be easily mounted on the wall.
- YO Meter (Pulse) is equipped with a RGBW diode that indicates the operating status.

Operation of the device

- A LoRaWAN network is required for data transmission.
- YO Meter (Pulse) does not require an external power supply.
- Device parameters can be configured or reconfigured at any time via BLE.
- Yosensi can provide access to a mobile application as a part of a comprehensive solution, allowing the device to be configured and connected to the LoRaWAN network. Additionally, it offers a preview of the operating parameters via BLE.
- It is recommended that the device be added to the Yosensi Suite system, which allows for the easy management of the data transmitted by the devices.

Device configuration

| | |
|-------------------------------------|---|
| Device settings | Measuring interval Input configuration (Contact debounce time) |
| Bluetooth Low Energy (BLE) settings | Transmission power Advertising frame interval |
| LoRaWAN settings | Mode selection (OTAA or ABP) |

OTAA

- Device EUI
- Application EUI
- Application key
- Number of trials

ABP

- Device address
- Network session key
- Application session key

Advantages

- Production quality – made in the European Union by qualified engineers.
- Wireless communication without the need for additional cabling or modifications to existing installations.
- Low energy consumption.
- Depending on the version, the LoRa radio can operate in different regions (e.g., EU868, US915, AU915 etc.) adapted to different ISM frequency bands.
- Specific mechanisms have been used in the software that enables all recorded data from the measuring input to reach the server.
- Using Bluetooth Low Energy (BLE) provides:
 - Configuration convenience
 - Possibility of firmware update via OTA
 - Very low energy consumption
- Supported LoRaWAN connection over ABP or OTAA.
- Mobile application for convenient device configuration and network monitoring.
- Access to the Yosensi Suite system for configuring devices and managing infrastructure.

Technical details

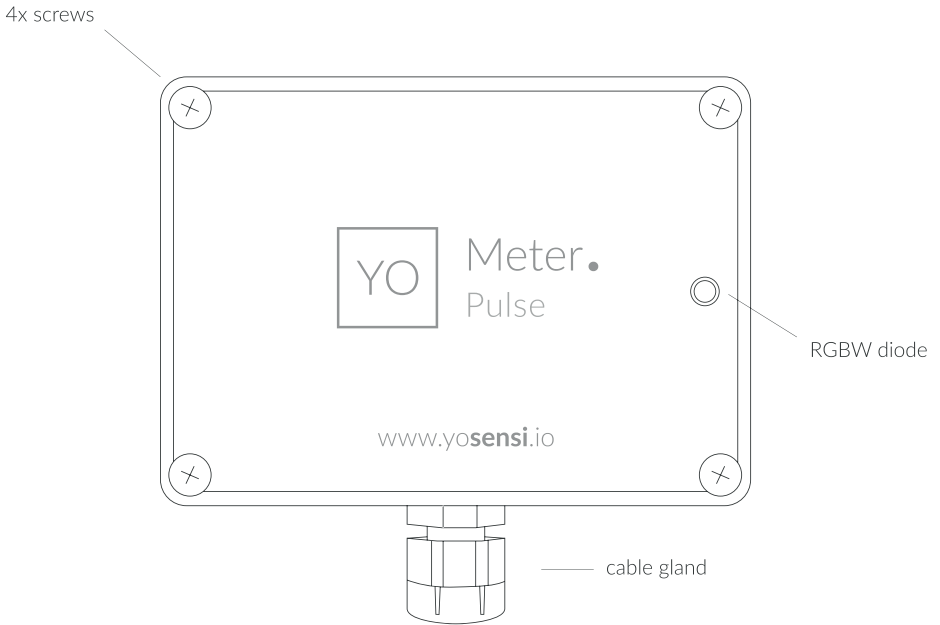


Figure 1. Top view of the device.

Enclosure of the device

| | | |
|------------------------------------|---|--------------|
| Dimensions | Height: 42 mm Depth: 64 mm | Width: 88 mm |
| Colour | Light grey | |
| Installation Choose from | Horizontal Vertical (can be screwed to the wall) | |
| Enclosure material | ABS | |
| Level of protection | IP67 | |

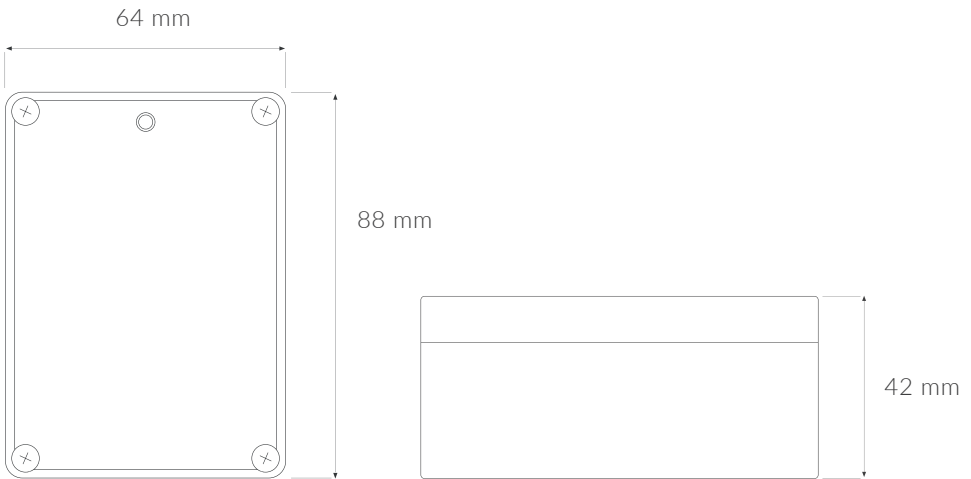
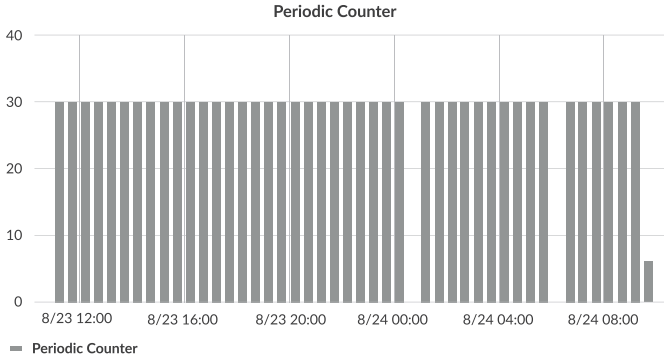


Figure 2. Dimensions of the device.

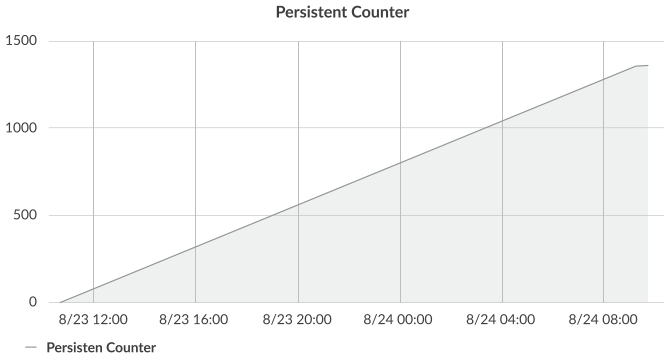
Parameters

| | |
|-------------------|---|
| Tx Power | LoRa EU868: to +14 [dBm] LoRa US915, AU915, AS923: to +22 [dBm] Bluetooth Low Energy (BLE): -20 to +6 [dBm] |
| Power supply | 3 × AA battery |
| Measurement range | Temperature: Measurement range: from -40°C to 125°C (-40°F to 257°F) Accuracy: ±0.2°C (32.36°F) (in temperatures from 5°C to 60°C (41°F to 140°F)) Relative humidity: Measurement range: from 0% to 100% Accuracy: ±2% (relative humidity from 20% to 80%) |
| Weight | Without batteries: 126,5 g With batteries: 200 g |

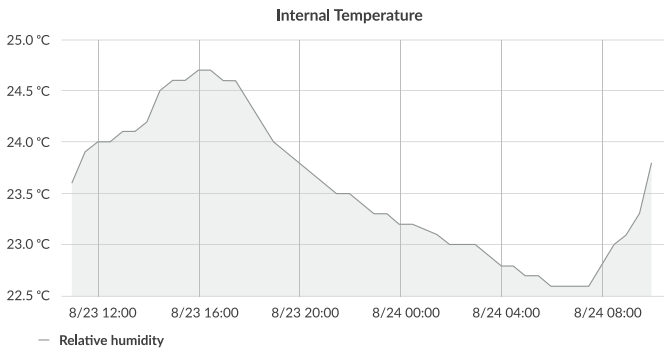
Sample charts



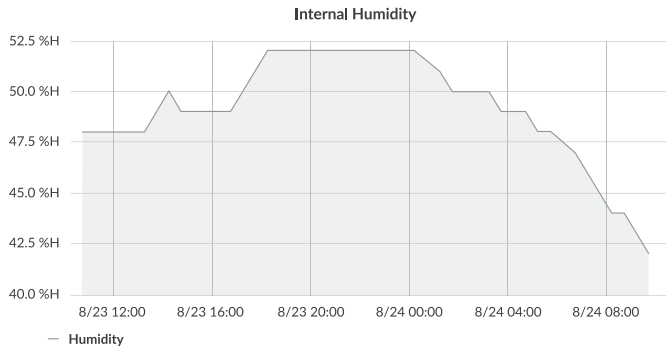
Example of a **periodic counter** monitoring chart.



Example of a **persistent counter** monitoring chart.



Example of a **temperature** monitoring chart.



Example of a **humidity** monitoring chart.

Revision history

| Date | Version | Page(s) | Changes |
|--------------|---------|------------|--|
| June 2021 | 1 | All | Initial version |
| October 2021 | 2 | 2, 7, 8, 9 | <ol style="list-style-type: none">Added in "Application":<ul style="list-style-type: none">The YO Meter (Pulse) input is applied with potential-free contacts. Device input can detect pulses with different contact debounce times. This parameter is configurable and by default is 50ms - max. 10 pulses per 1s (boundary range 1-50 pulses per 1s depending on the contact debouncing setting).Added in "Components":<ul style="list-style-type: none">YO Meter (Pulse) is equipped with two counters: periodic and persistent counters. The periodic counter counts pulses cyclically with time interval defined by LoRa sending interval, while persistent counter accumulates pulses and stores them in non-volatile memory - this counter can be reset (cleared) using one of the parameters via BLE.Added measurement range in the „Parameters” table.Added sample charts. |





The logo for YOSSENSI.IO is displayed in a white rectangular box with a thin black border. The text 'YOSENSI' is in a bold, sans-serif font, and '.IO' is in a smaller, regular font. A small green dot is positioned above the 'I' in '.IO'.

YOSENSI.IO

The LoRa Alliance Member logo features the LoRa Alliance symbol (three curved lines above the text) followed by the text 'LoRa Alliance Member' in a sans-serif font.

LoRa Alliance Member

Contact us

-  www.yosensi.io
-  contact@yosensi.io
-  +48 884 980 357
-  Zurawia 71A, Bialystok, Poland

