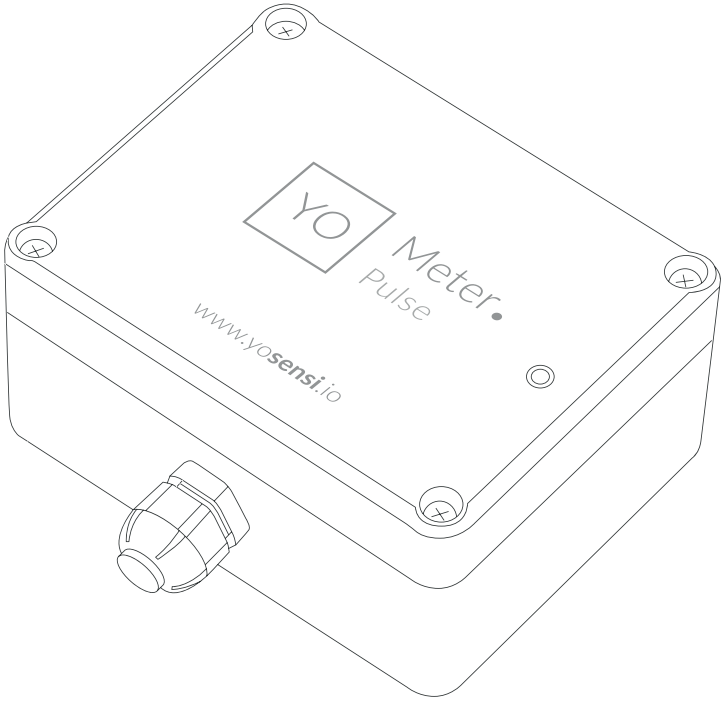
YO

Meter.

Pulse (Datasheet)



YOSENSI.IO

LoRa Alliance™ Member CE

YO Meter.
Pulse

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 (with Bluetooth Low Energy), communication modules (LoRa), 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 provides access to the Yosensi Configuration Web Tool as part of the Yosensi Management Platform comprehensive solution, allowing device configuration and firmware updates.
- It is recommended to add the device to the Yosensi Management Platform, which allows detailed and easy monitoring of the data transmitted by the devices.

Device configuration

LoRaWAN settings	Network type (private or public) Operating mode selection (OTAA or ABP) **OTAA** • Device EUI • Application EUI • Application key • Number of trials **ABP** • Device address • Network session key • Application session key
Bluetooth Low Energy (BLE) settings	Transmission power Advertising frame interval
Device settings	Measuring interval Input configuration (Contact debounce time)

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, AS923 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 (in a user-friendly way via a JSON data exchange format),
  – possibility of firmware update via OTA,
  – very low energy consumption.
- Supported LoRaWAN network type: private or public and connection over ABP or OTAA.
- Access to the Yosensi Management Platform for device configuration, firmware updates and infrastructure management.

Technical details

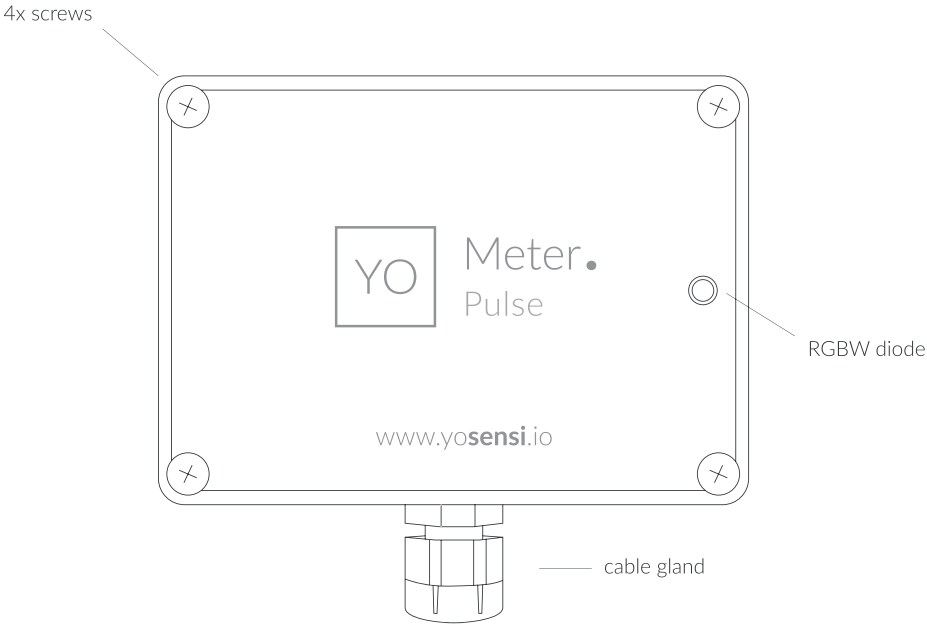


Figure 1. Top view of the device.

Enclosure of the device

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

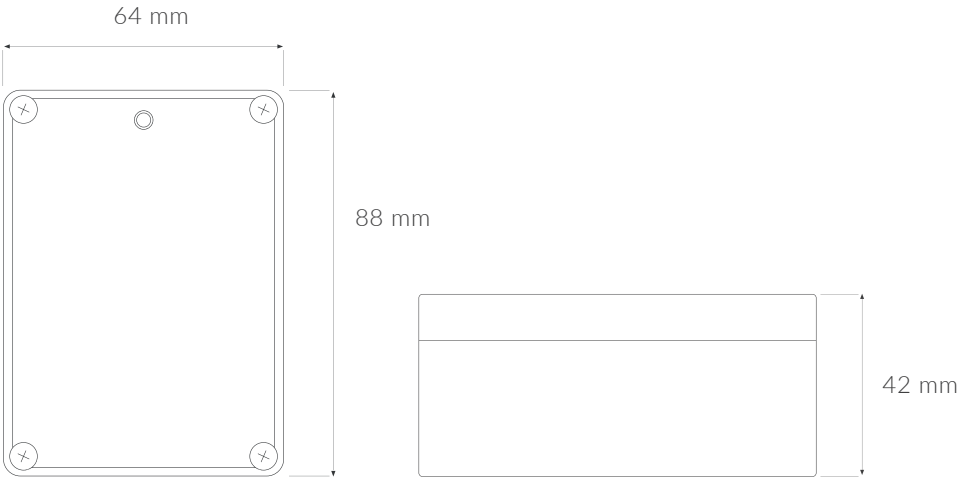
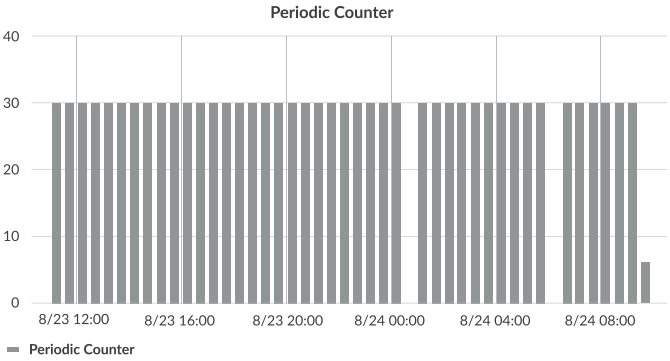


Figure 2. Dimensions of the device.

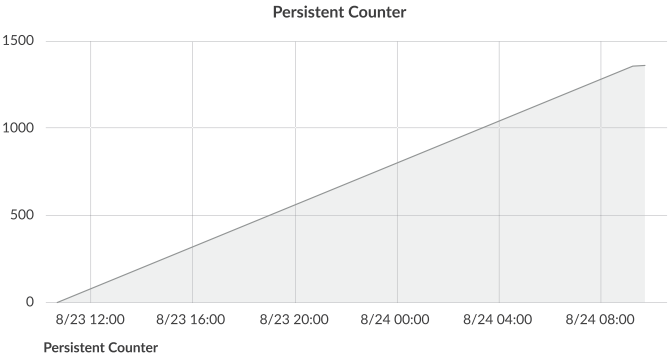
Parameters

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 (3 x 1,5 V)
Power consumption	Maximum: 120 mA DC (4,5 V DC)
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	126,5 g (without batteries)
Certificates	CE

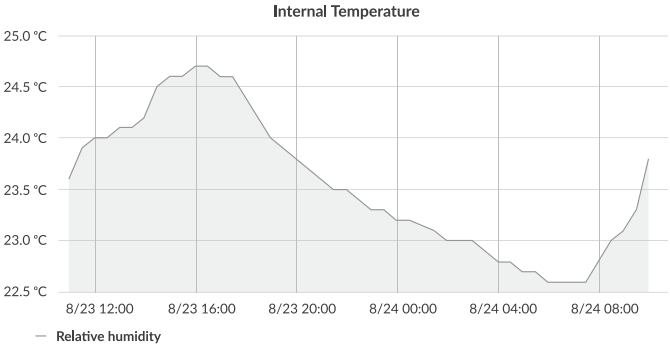
Sample charts



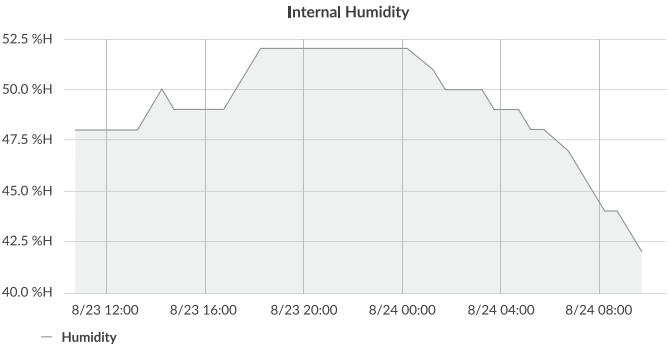
Example of a **periodic counter** monitoring chart.



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	1. Added in “Application”: • 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). 2. Added in “Components”: • 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. 3. Added measurement range in the „Parameters” table. 4. Added sample charts.
February 2022	2.1	3, 4	Changes are related to the firmware and apply to devices working with firmware version 2.0.0 and above.

YOSENSI.IO

LoRa Alliance Member

Contact us

www.yosensi.io

contact@yosensi.io

+48 884 980 357

Zurawia 71A, Bialystok, Poland

Version 2.1 - February 2022