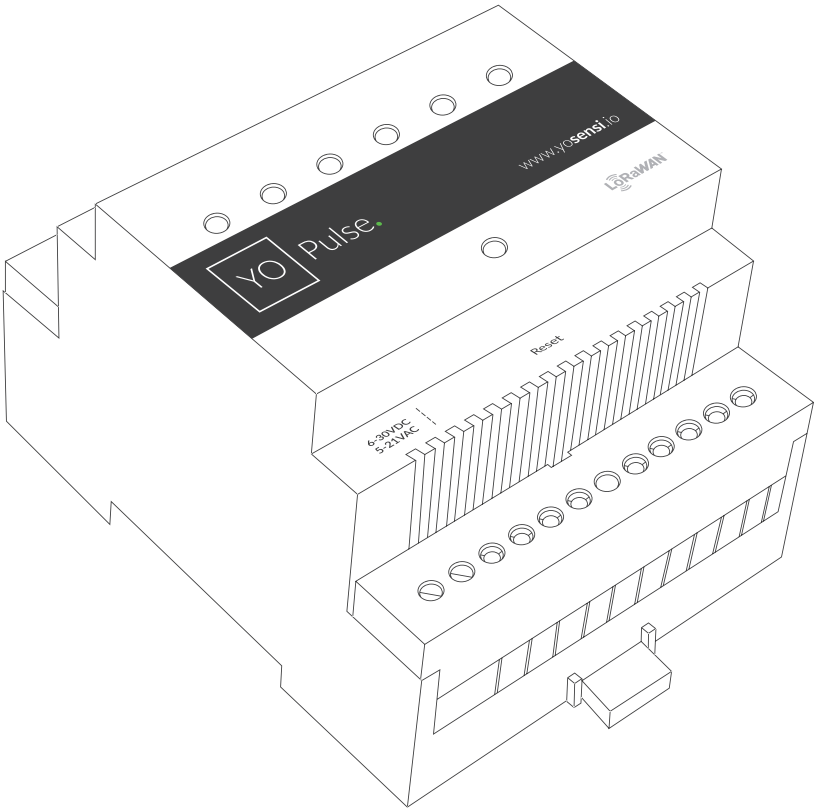
Pulse.

Datasheet



YOSENSI.IO

LoRa Alliance™ Member CE

YO Pulse.

Application

- The YO Pulse is used for monitoring logical states, alarm detection or pulse counting.
- Based on the data collected by the device, it is possible to:
  – monitor the states of devices and processes in automation,
  – collect the number of pulses from measuring devices, for example, from water meters.
- The device includes six configurable measuring inputs, each of which can operate in one of the three modes: normally open contact monitoring, normally closed contact monitoring, pulse counter.

Components

- The device consists of a microcontroller (with Bluetooth Low Energy), communication modules (LoRa), power supplies and digital inputs.
- The enclosure of the device is adapted for installation in power panels or automation cabinets on standard 35 mm DIN rails.
- On special request, the YO Pulse can be prepared in an IP67-rated protective enclosure.
- The device comes with an RGBW diode that indicates the operating status of the device. In addition, each channel has an orange diode indicating the input status.
- The device is tailored to the customer's needs. At the order stage, the customer determines the demand for contact type to be potential-free or potential.

Operation of the device

- A LoRaWAN network is required for data transmission.
- The device must be powered from the power supply.
- When connected, the individual digital inputs record logical states at specific time intervals in the case of no state changes and immediately whenever input states or pulse rates change.
- Device parameters can be configured or reconfigured at any time via BLE.
- Yosensi provides access to a Command Line Interface application as a part of a comprehensive solution, allowing the device to be configured.
- 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 type configuration (Normally Closed, Normally Open, Pulse Meter)

Advantages

- Production quality - made in the European Union by qualified engineers.
- The YO Pulse is protected by galvanic isolation consisting of input paths to detect external potentials (external voltages).
- Detects external voltages regardless of polarity.
- 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 enable all recorded data from the measuring inputs to reach the server on time.
- 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

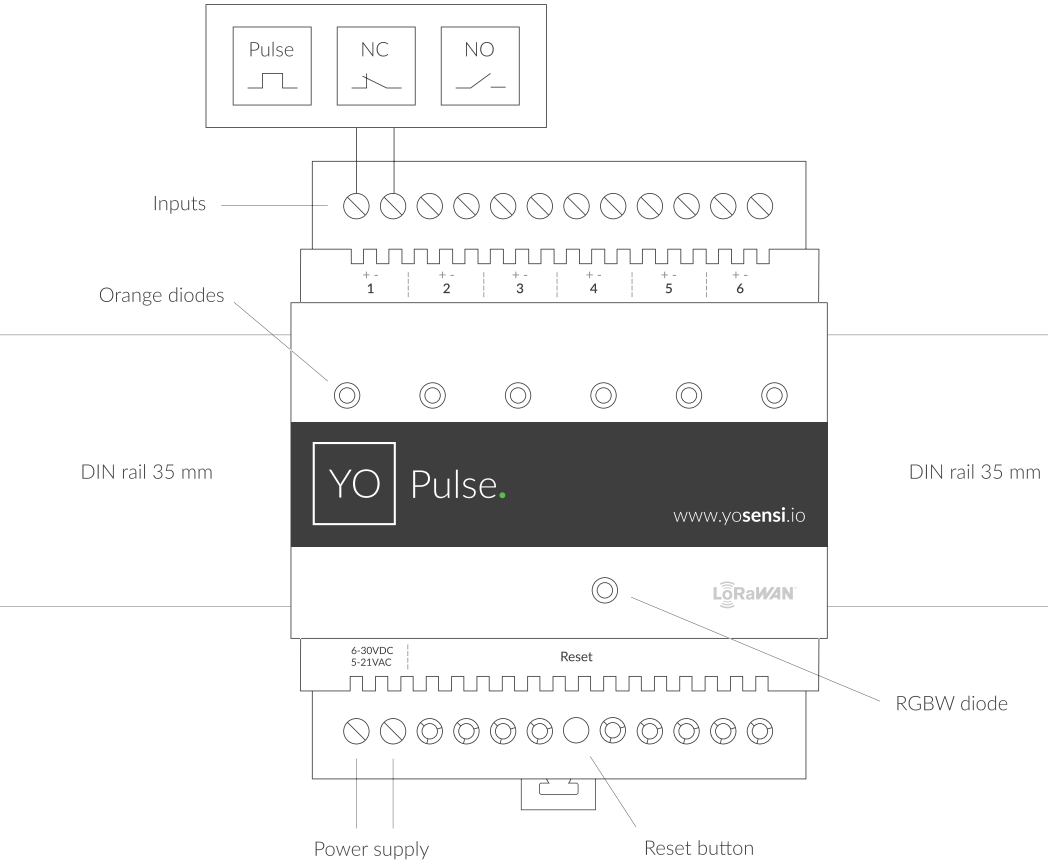


Figure 1. Top view of the device.

Enclosure of the device

Dimensions	Height: 90 mm Depth: 58 mm	Width: 71,2 mm (4 pole)
Colour	Light grey (RAL 7035)	
Installation	35 mm DIN rail standard	
Enclosure material	Polycarbonate	
Fire resistance class	UL94-VO	
Level of protection	IP20	

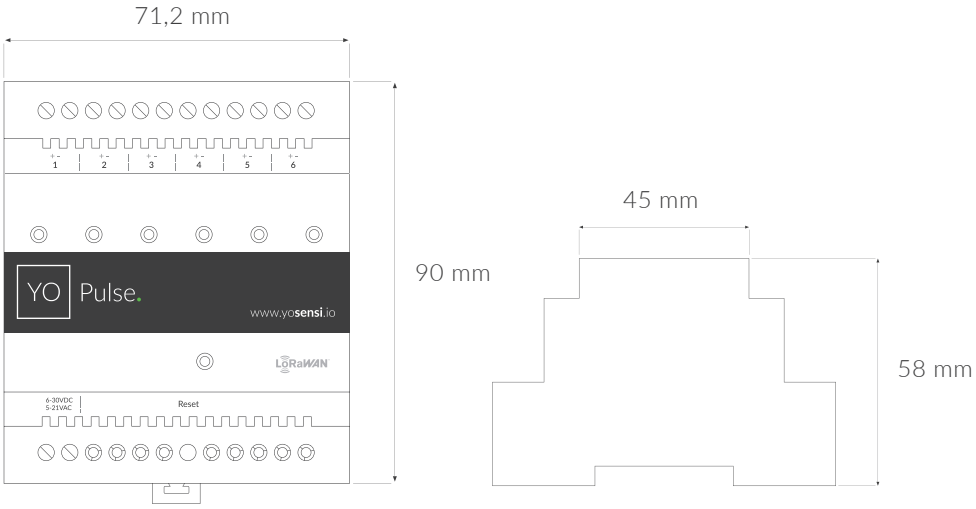
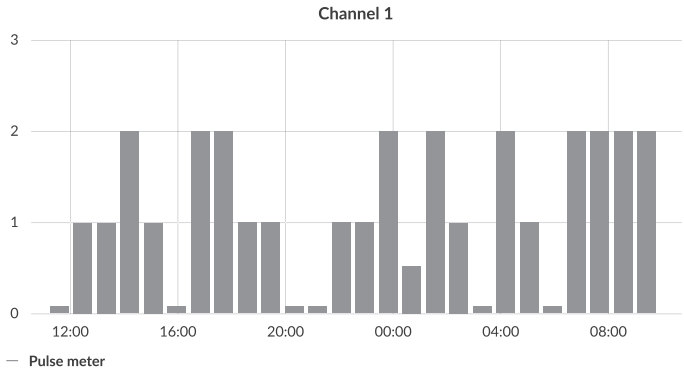


Figure 2. Dimensions of the device.

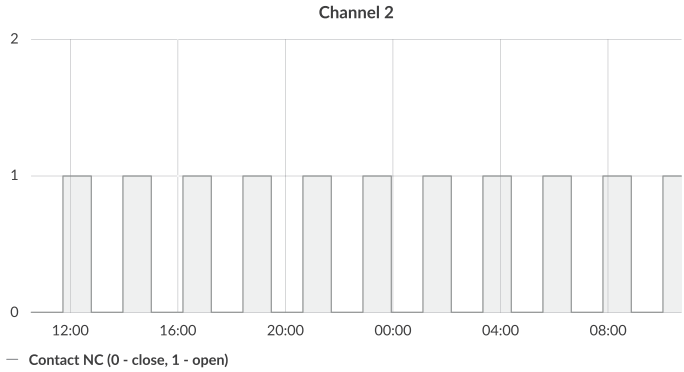
Parameters

Tx Power	LoRa EU868: to +14 [dBm] LoRa US915, AU915, AS923: to +22 [dBm] Bluetooth Low Energy (BLE): -20 to +6 [dBm]
Power supply	6 - 30 V DC 5 - 21 V AC
Power consumption	Typical: 20 mA DC (12 V DC) Maximum: 110 mA DC (12 V DC)
Weight	151 g
Certificates	CE

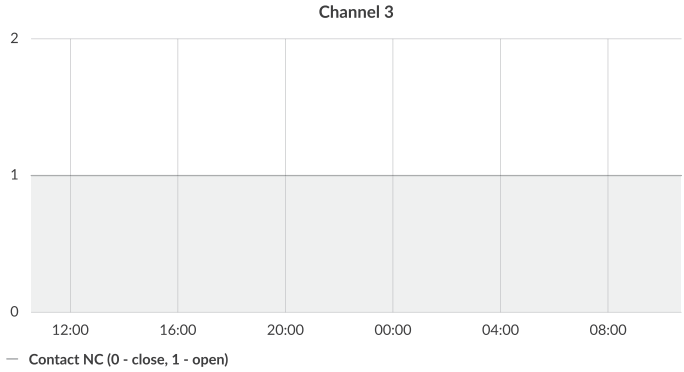
Sample charts



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



Example of a **normally closed contact** monitoring chart.



Example of a **normally open contact** monitoring chart.

Revision history

Date	Version	Page(s)	Changes
August 2020	1	All	Initial version
February 2021	1.1	1, 2, 5, 6	Removal of one of the diodes. Change of diode type to RGBW (in the text and the device outline).
December 2021	2	1, 5, 6, 7	Change of power supply from 100~240 V AC, 50/60 Hz to 6 - 30 V DC, 5 - 21 V AC
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.

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