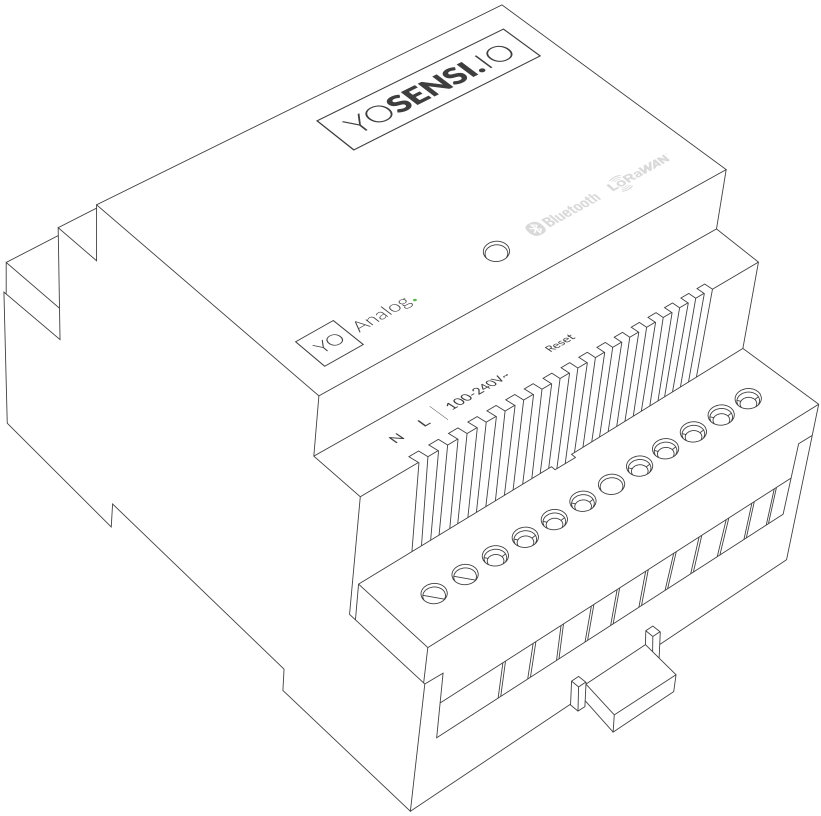
YO

Analog.

Datasheet



YOSENSI.IO

LoRa Alliance® Member

YO Analog.

Application

- YO Analog is used for measuring analogue signals.
- Based on the data collected by YO Analog, it is possible to monitor measurement values of devices and processes in automation.
- The device has six configurable measurement inputs, each of which can be used in one of two modes: voltage input (0–10 V) or current input (4–20 mA).

Components

- The device consists of a microcontroller, communication modules (LoRa, Bluetooth Low Energy), power supply systems and analogue inputs.
- The enclosure of the device is designed to be mounted in electrical switchboards or automation cabinets on standard 35 mm DIN rails.
- YO Analog is also available in an IP67-rated sealed enclosure (with a variety of enclosures to choose from).
- The device is equipped with an RGBW diode that signals the operating status.
- At the configuration stage, the type of input is selected: voltage/current.

Operation of the device

- A LoRaWAN network is required for data transmission.
- The device must be powered from the mains.
- Upon connecting the analogue signals, the individual inputs register the voltage/current value.
- When connected, the device should be configured/reconfigured 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: current or voltage
Bluetooth Low Energy (BLE) settings	Transmission power Advertising frame interval
LoRaWAN settings	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

Advantages

- Production quality – made in the European Union by qualified engineers.
- YO Analog is equipped with overvoltage and overcurrent protection of measuring paths.
- Wireless communication without the need for additional wires and modifications to existing installations.
- Low energy consumption.
- Depending on the version LoRa radio can operate in various regions, e.g. EU868, US915, AU915 etc. that are adapted to different ISM frequency bands.
- The software uses specific mechanisms thanks to which all recorded data from the measurement inputs will reach the server in time.
- Using Bluetooth Low Energy (BLE) provides:
  – Configuration convenience
  – Live preview of the data collected
  – Possibility of firmware update via OTA
  – Very low energy consumption
  – Wide range
- 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

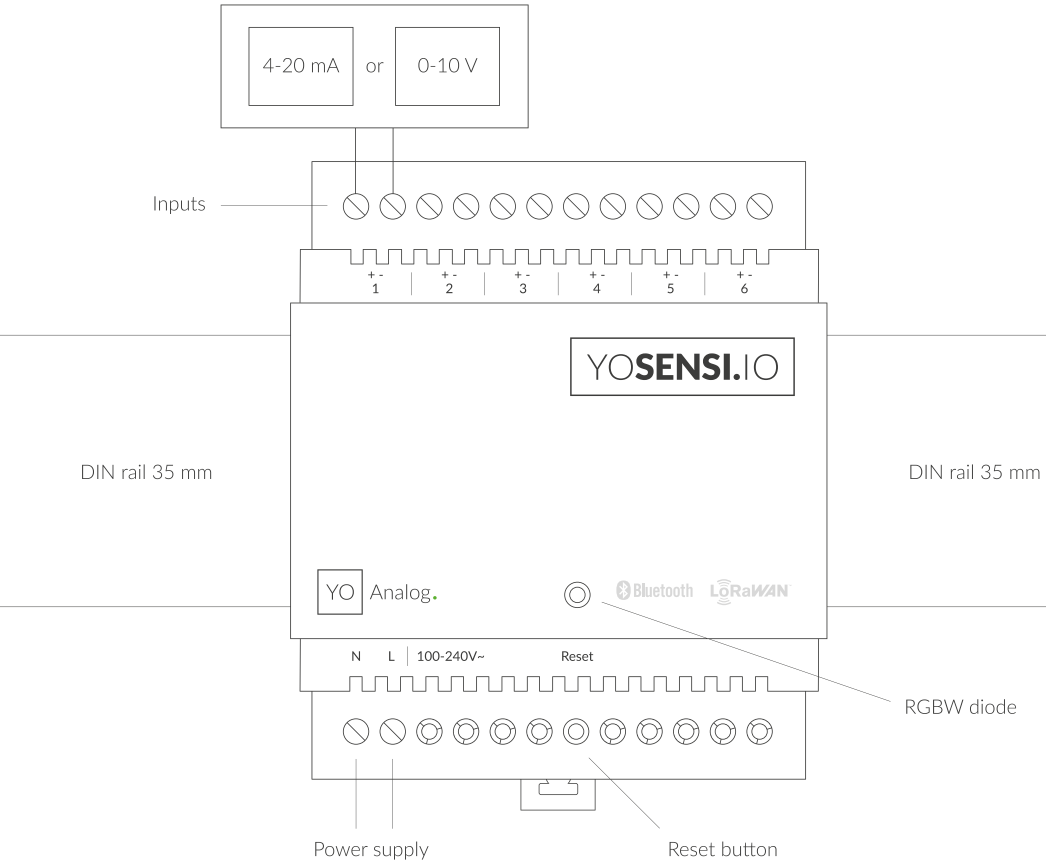


Figure 1. Top view of the device.

Enclosure of the device

Dimensions	Height: 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	

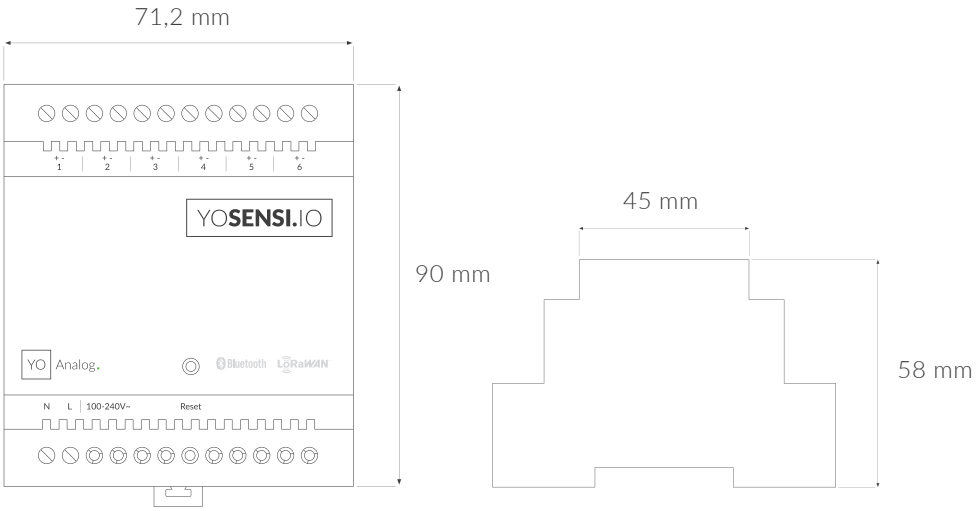
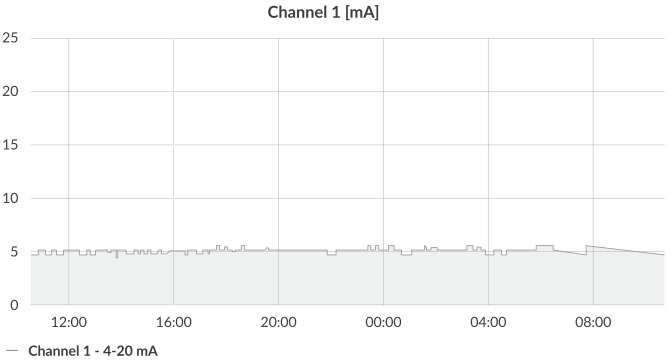


Figure 2. Dimensions of the device.

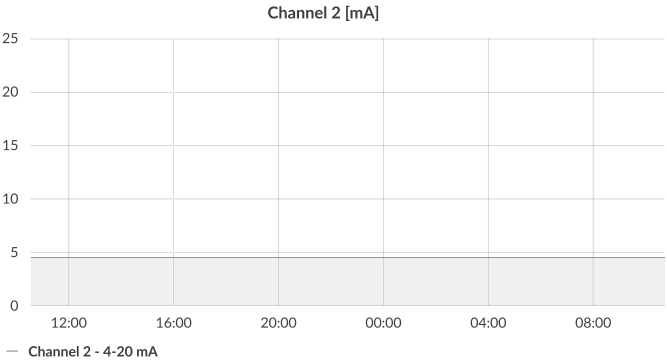
Parameters

Tx Power	LoRa EU868: to +14 [dBm] LoRa US915, AU915, AS923: to +22 [dBm] Bluetooth Low Energy (BLE): -20 to +6 [dBm]
Power supply	100~240 V AC 50/60 Hz

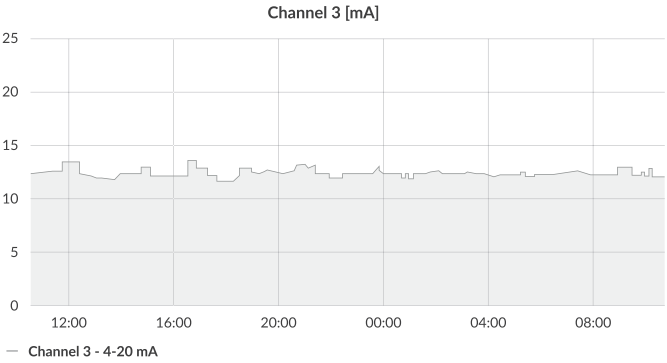
Sample charts



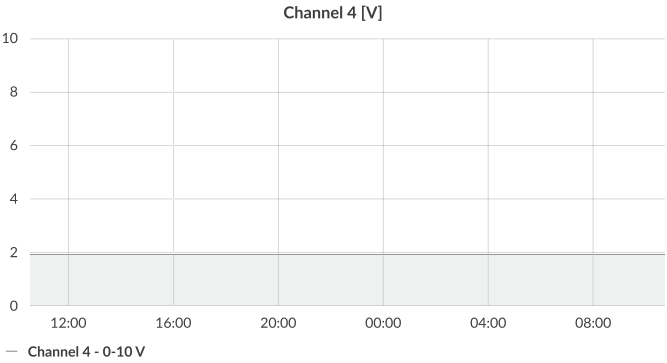
Example of a **4-20 mA** monitoring chart for channel two.



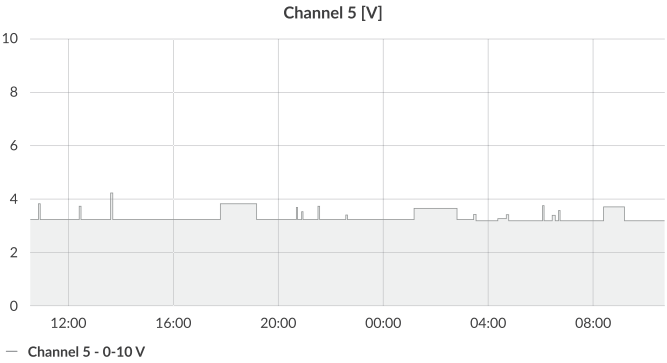
Example of a **4-20 mA** monitoring chart for channel two.



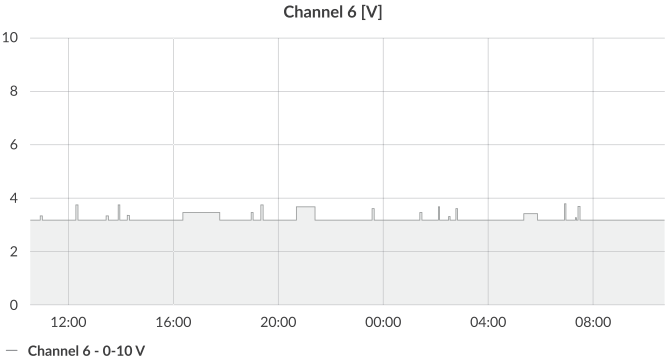
Example of a **4-20 mA** monitoring chart for channel three.



Example of a **0–10 V** monitoring chart for channel four.



Example of a **0–10 V** monitoring chart for channel five.



Example of a **0–10 V** monitoring chart for channel six.

Revision history

Date	Version	Page(s)	Changes
August 2020	1	All	Initial version
February 2021	1.1	1, 2, 3, 4, 5, 6	Removal of one of the diodes. Change of diode type to RGBW (in the text and the device outline). Add in table “Device Settings” information about input configuration.

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