YO | Analog.
Datasheet

LoRa Alliance™ Member   CE

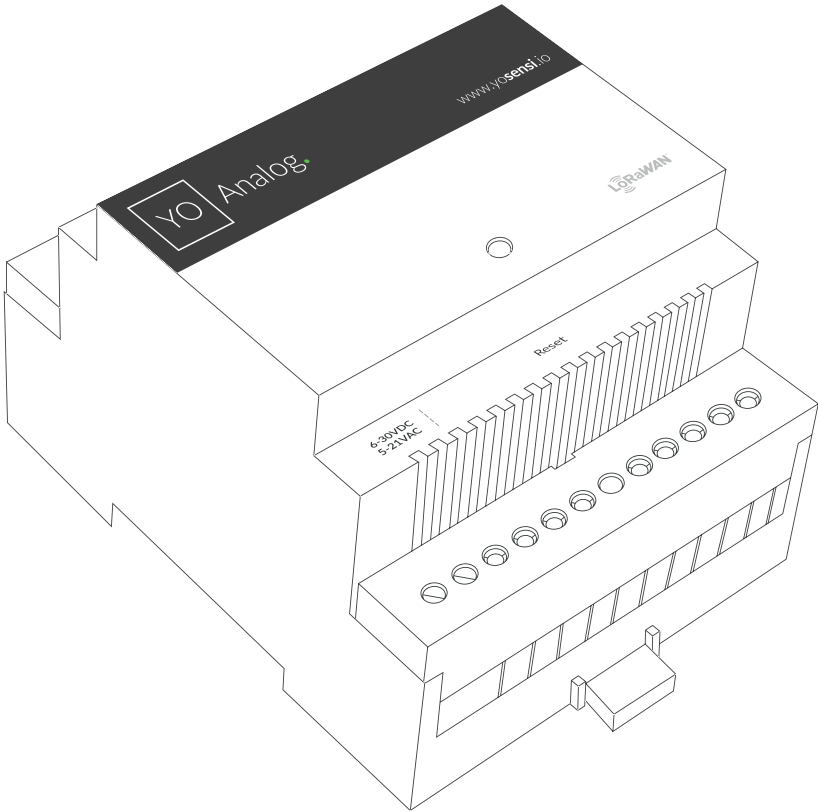# YO Analog.

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 (with Bluetooth Low Energy), communication modules (LoRa), 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 power supply.

- Upon connecting the analogue signals, the individual inputs register the voltage/current value.

- When connected, the device should be configured/reconfigured 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	**ABP**
	• Device EUI • Application EUI • Application key • Number of trials	• Device address • Network session key • Application session key
Bluetooth Low Energy (BLE) settings	Transmission power Advertising frame interval	
Device settings	Measurement interval Input configuration: current or voltage	

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, the LoRa radio can operate in different regions (e.g., EU868, US915, AU915, AS923) 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 (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.
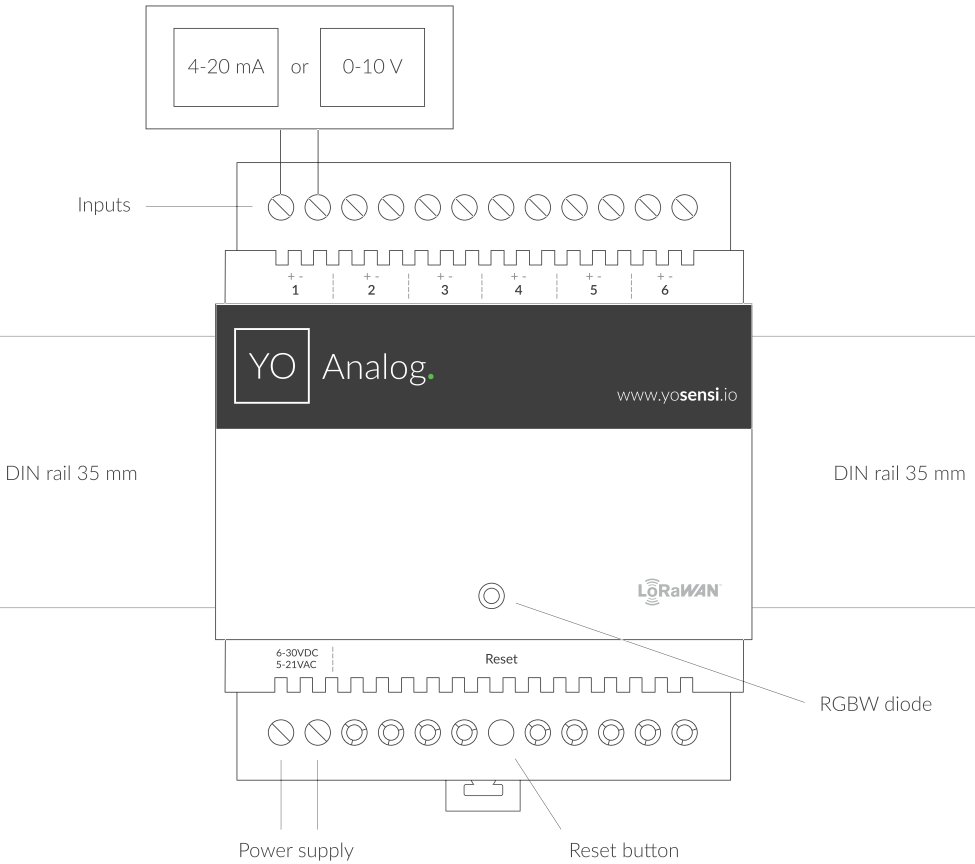
Technical details

Figure 1. Top view of the device.

Enclosure of the device

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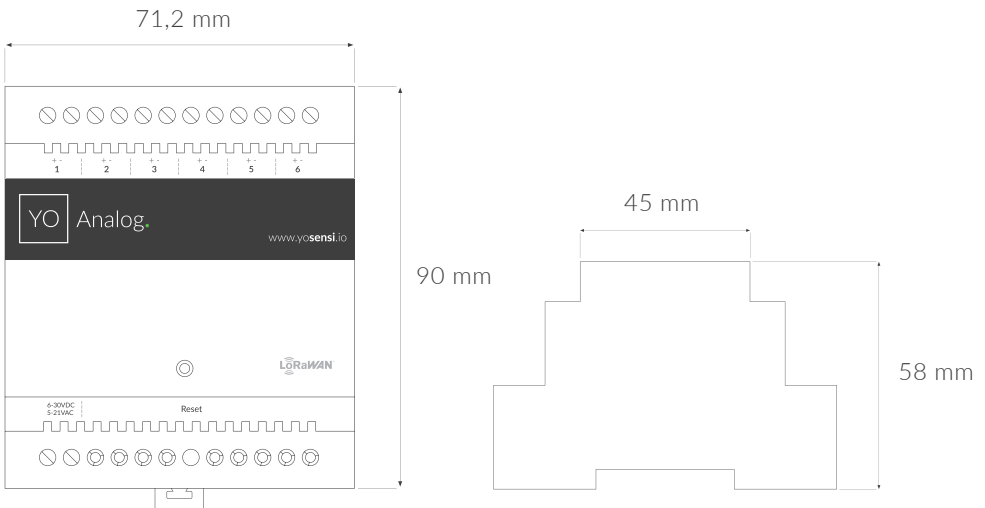
Figure 2. Dimensions of the device.

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: 80 mA (12 V DC) Maximum: 180 mA (12 V DC)
Weight	127 g
Certificates	C E

Sample charts
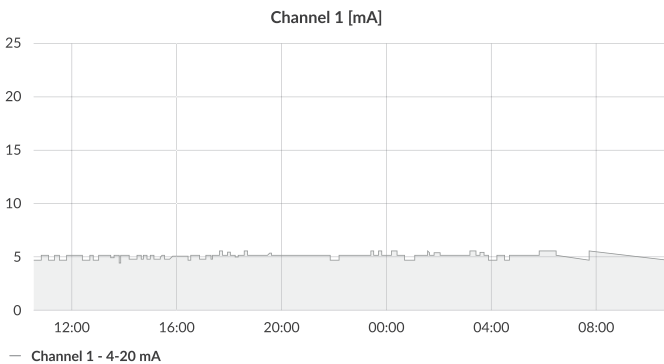
Example of a **4-20 mA** monitoring chart for channel two.
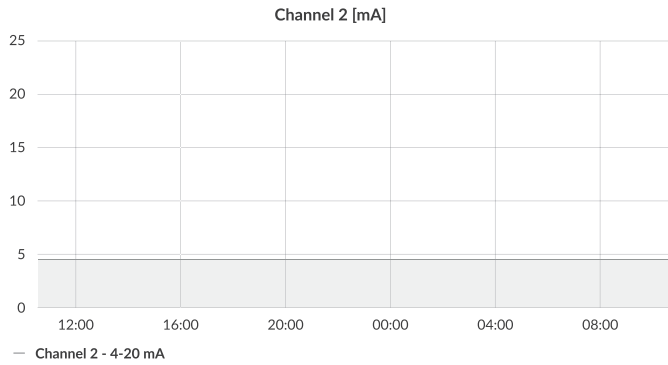
Channel 2 [mA]

— Channel 2 - 4-20 mA

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

Channel 3 [mA]

— Channel 3 - 4-20 mA

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

Channel 4 [V]

— Channel 4 - 0-10 V

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

Channel 5 [V]

— **Channel 5 - 0-10 V**

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

Channel 6 [V]

— **Channel 6 - 0-10 V**
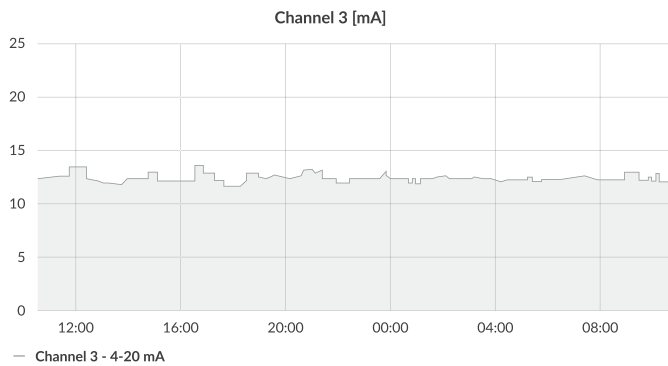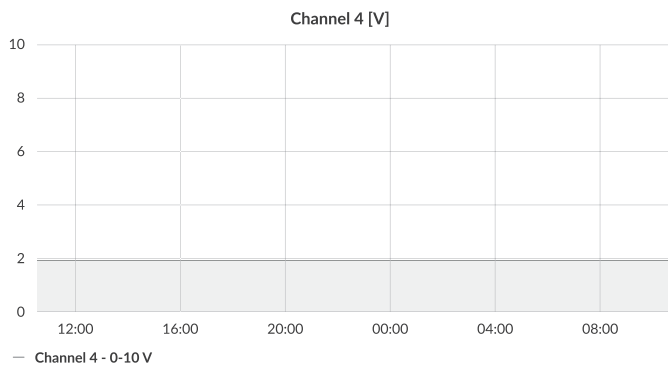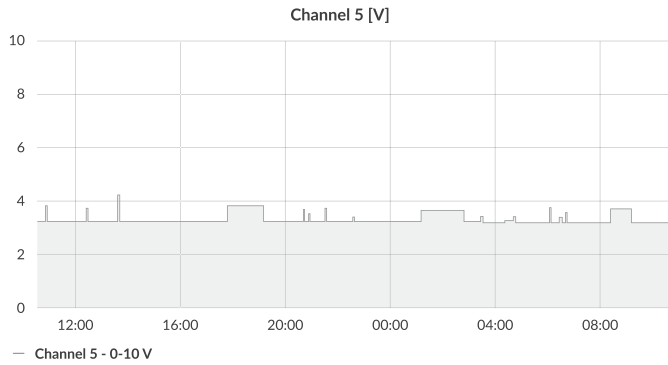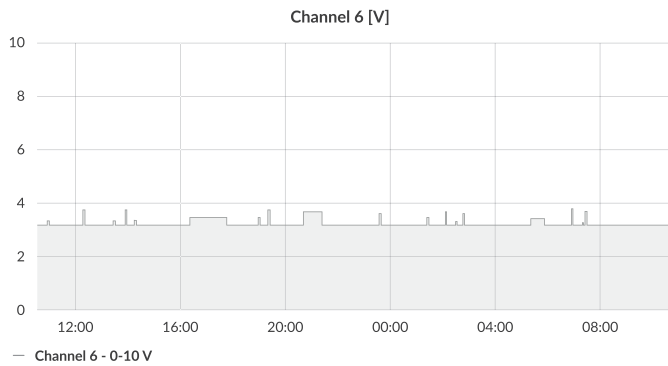
Example of a **0–10 V** monitoring chart for channel six.

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.
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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