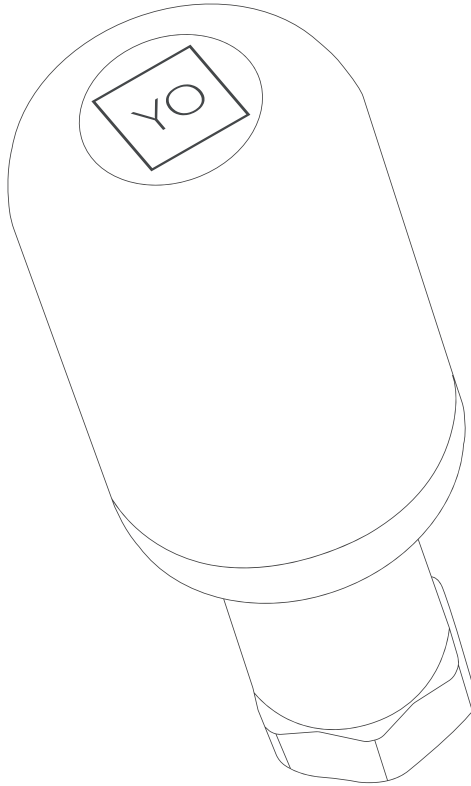




Refrigerant Monitor.

Datasheet





Refrigerant Monitor.

Application

- The YO Refrigerant Monitor is a device used to measure pressure in installations where pressure occurs.
- The device provides data on the pressure in the installation. Based on this information, it is possible to verify the correct functioning of the installation and prevent potential damage and loss of materials and products that this installation maintains.

Components

- The device consists of a microcontroller, communication modules (LoRa, Bluetooth Low Energy), sensors, and battery.
- The device is equipped with a 7/16-20 UNF (unified fine thread) female connector, for connecting to an existing pressurised installation.
- The enclosure of the device is made of Nylon PA12 (water, dust and shock resistant). The two parts of the enclosure are connected by a thread, and the tightness of the connection is ensured by fluorine-rubber gaskets.
- Different types of pressure sensors can be connected to the device:
 - Sensors supplied with 3,3 V or 5 V
 - Sensors with analogue or digital output

Operation of the device

- A LoRaWAN network is required for data transmission.
- The device must be configured or reconfigured via BLE.
- Installation of the YO Refrigerant Monitor is straightforward: simply screw the device into a pre-existing valve where pressure measurements are required.
- The device takes measurements at the interval specified in the configuration parameters.
- 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 easy management of the data transmitted by the devices.

Device configuration

Device settings

Measuring interval

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.
- The device is equipped with a compact, small enclosure for easy installation. Installing the YO Refrigerant Monitor is simple.
- Depending on the version, the LoRa radio can operate in different regions (e.g., EU868, US915, AU915), adapted to different ISM frequency bands.
- Very low power consumption – the device can run on batteries for a long period.
- 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.

Enclosure of the device

Dimensions	Diameter: 40 mm Length: 104,5 mm
Colour	Light grey (RAL 7035)
Installation	Thread 7/16-20 UNF
Enclosure material	Nylon PA12 and stainless steel (sensor)
Level of protection	IP67

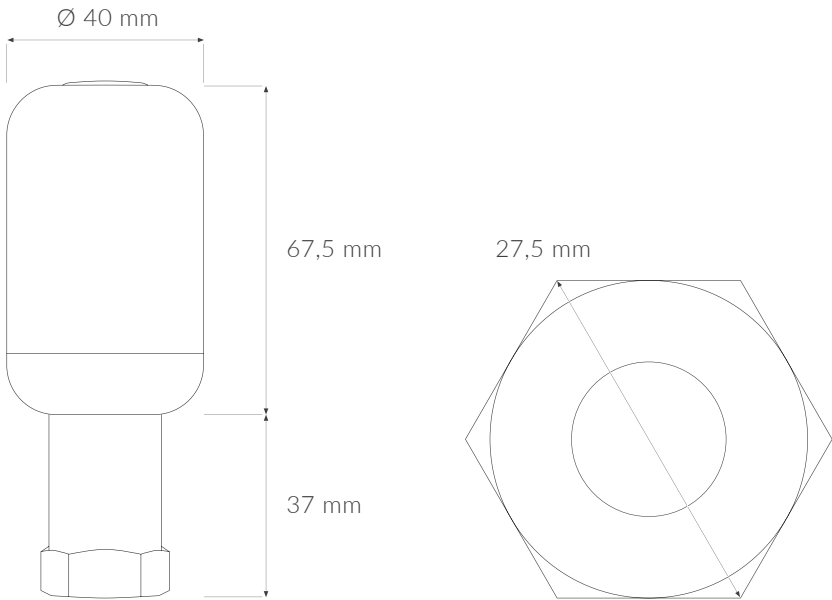


Figure 1. Dimensions of the device.

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

Battery: 2 × CR2477

Output signal

Choose from

Digital I2C
Analogue 0–10 V
Analogue 4–20 mA

Working temperature

-20°C to 85°C (-4°F to 185°F)

Measuring range

Pressure:

Measuring range (optional): 0–20 bar, 0–50 bar, 0–100 bar
Accuracy: ±0,5% (at temperatures from -20°C to 85°C (-4°F to 185°F))

Temperature (sensor):

Measuring range: -20°C to +70°C (-4°F to 158°F)

Temperature (internal):

Measuring range: -40°C to 125°C (-40°F to 257°F)
Accuracy: ±0,2°C (32,36°F) (at temperatures from 5°C to 60°C) (41°F to 140°F))

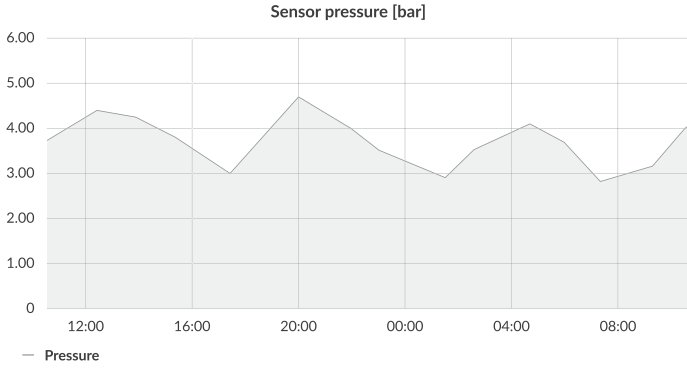
Relative humidity (internal):

Measuring range: 0% to 100%
Accuracy: ±2% (at 20% RH to 80% RH)

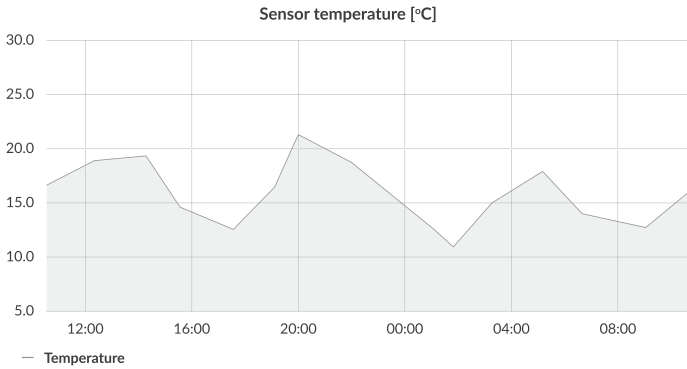
Weight

160 g (without batteries)
181 g (with batteries)

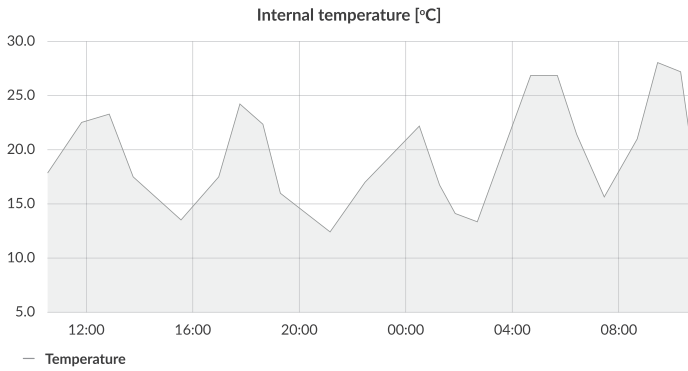
Sample charts



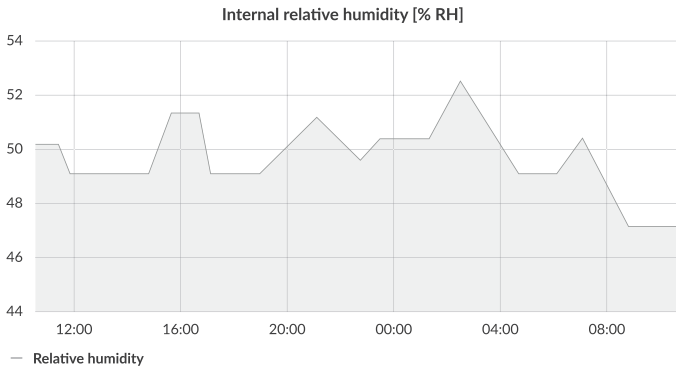
Example of a **pressure** monitoring chart.



Example of a **temperature** monitoring chart.



Example of an **internal temperature** monitoring chart.



Example of an **internal relative humidity** monitoring chart.

Revision history





Date	Version	Page(s)	Changes
August 2020	1	All	Initial version

The logo for YOSSENSI.IO is displayed in a white rectangular box with a thin black border. The text 'YOSENSI' is in a bold, black, sans-serif font, and '.IO' is in a smaller, regular weight of the same font. A small green dot is positioned above the 'I' in '.IO'. The background of the entire page is a light gray circuit board pattern overlaid on a world map outline.

YOSENSI.IO

LoRa Alliance Member

Contact us

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

