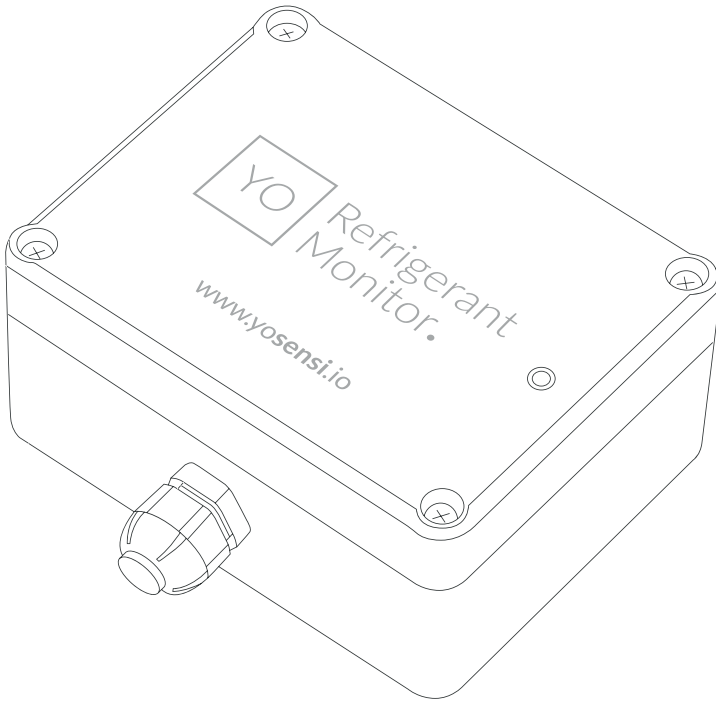




Refrigerant Monitor.

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 (with Bluetooth Low Energy), communication modules (LoRa), sensors, and batteries.
- No pressure sensor is attached to the device. Recommended pressure sensor with measuring range 0-50 bar and connection type 7/16-20 UNF female (fits with 1/4 SAE Flare) or 1/2-20 UNF female (fits with 1/2 SAE Flare).
- YO Refrigerant Monitor is equipped with an enclosure made of ABS with IP67 protection class.
- The enclosure of the device has an IP67 buffer in which the sensor can be connected via wire.
- The enclosure is designed to be easily mounted on the wall.
- YO Refrigerant Monitor is equipped with an RGBW diode that indicates the operating status.

Operation of the device

- A LoRaWAN network is required for data transmission.
- YO Refrigerant Monitor does not require an external power supply.
- Device parameters can be configured or reconfigured at any time via BLE.
- The device takes measurements at the interval specified in the configuration parameters.
- 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

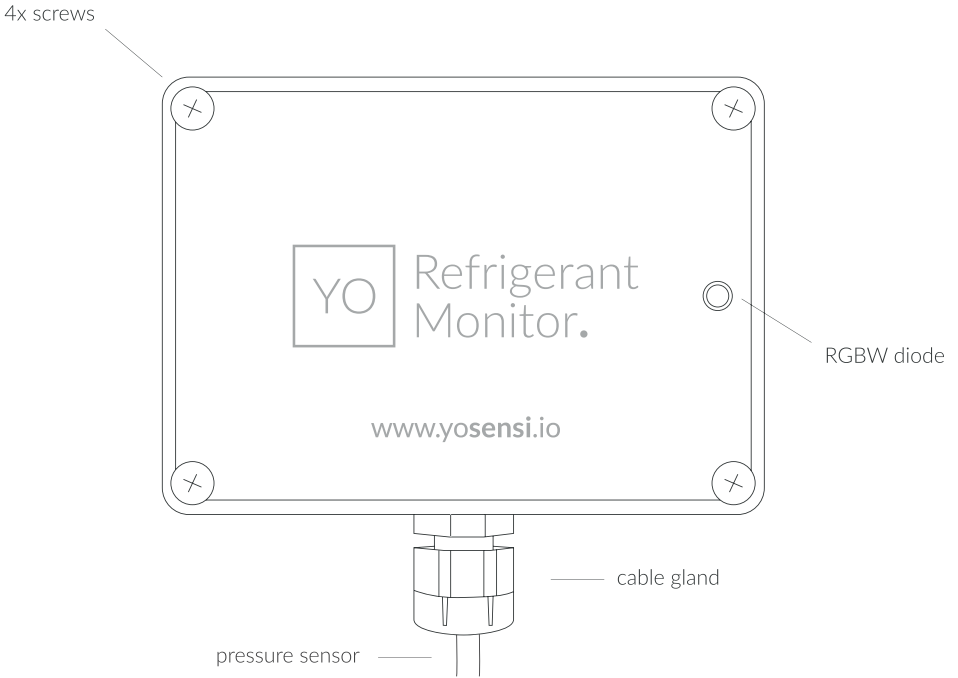
Device settings

Measuring interval
Pressure transducer range

Advantages

- Production quality – made in the European Union by qualified engineers.
- Indicates a pressure drop caused by a coolant leak in the system where such a sensor is installed.
- Wireless communication without the need for additional cabling or modifications to existing installations.
- YO Refrigerant Monitor is able to work with different models of pressure sensors, please contact Yosensi if you are interested in implementing a different sensor than the recommended one.
- 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.
- 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



Enclosure of the device

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

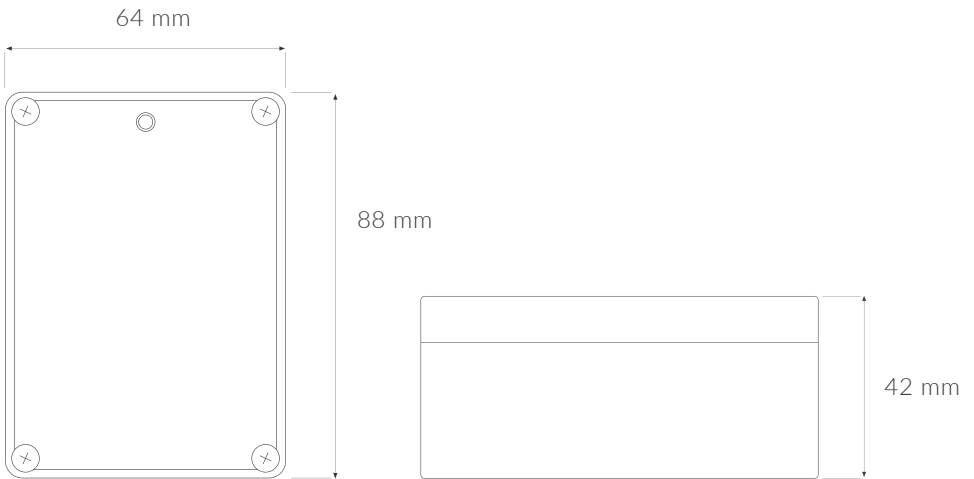


Figure 2. Dimensions of the device.

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)

Input signal

Digital I2C

Measuring range

Pressure:

Measuring range (optional): 0–20 bar, 0–50 bar, 0–100 bar
Accuracy: ±1% (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)

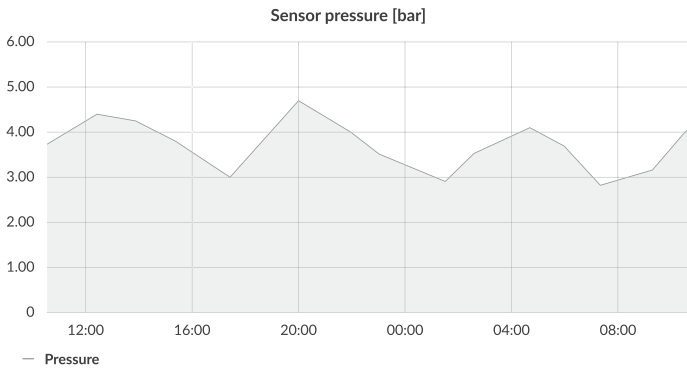
Weight

326,5 g (without batteries)

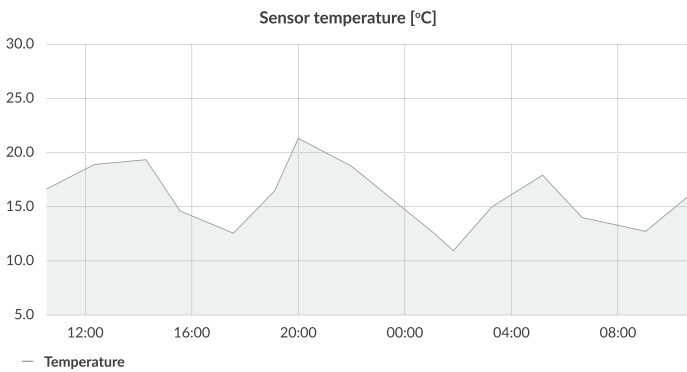
Certificates

CE

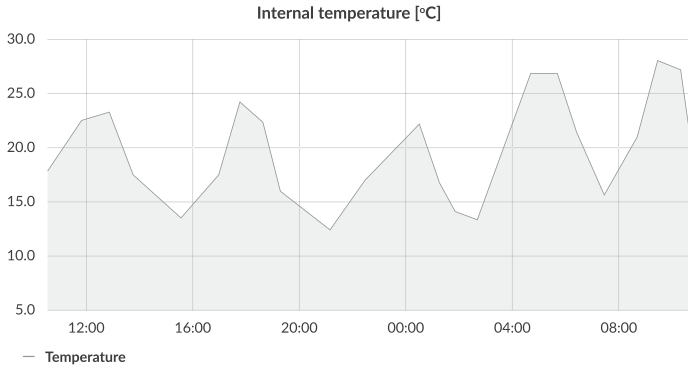
Sample charts



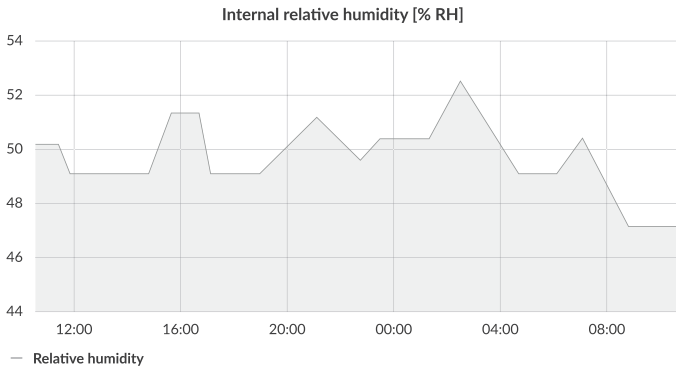
Example of a **pressure** monitoring chart.



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
January 2022	2	1, 2, 3, 4, 5, 6, 7	Changing the device enclosure (including battery type). The changes relate to devices operating from firmware version 2.0.0 and above.

The logo for YOSSENSI.IO is displayed in a white rectangular box with a thin black border. The text 'YOSENSI' is in a bold, sans-serif font, and '.IO' is in a smaller, regular weight of the same font. The background of the entire page is a stylized world map where the continents are filled with intricate white circuit board patterns.

 **LoRa Alliance** Member

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