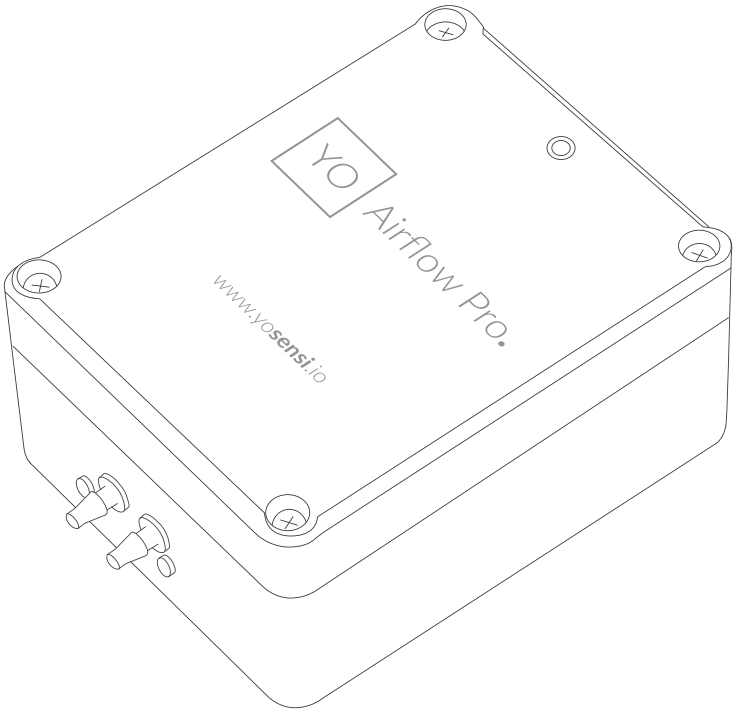
Airflow Pro.

Datasheet



YOSENSI.IO

LoRa Alliance™ Member CE

YO Airflow Pro.

Application

- YO Airflow Pro is a differential pressure measuring device.
- By analysing differential pressure data, you can:
  – Verify the degree of air filter contamination (ventilation ducts).
  – Control the pressure in air conditioning systems.
  – Control and monitor airflow.
  – Control air blowers.
- The device is used in:
  – HVAC industry.
  – Gas boilers, pellet stoves and fuel cells.
  – Filter monitoring.
  – Heat recovery.

Components

- The device consists of a microcontroller (with Bluetooth Low Energy), communication modules (LoRa), sensors and batteries.
- YO Airflow Pro is equipped with an IP67-rated sealed enclosure made of ABS plastic.

Operation of the device

- A LoRaWAN network is required for data transmission.
- It is possible to configure or reconfigure device parameters, at any time, via BLE.
- The device is installed by connecting silicone hoses to the YO Airflow Pro sensor and involves running an installation where you want to measure differential pressure.
- The device measures 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

Advantages

- Production quality – made in the European Union by qualified engineers.
- By using YO Airflow Pro you can replace local differential pressure reading from an analogue sensor with a remote reading transmitted over a long distance by radio.
- Air pressure measurement range: from –500 Pa to 500 Pa (it is possible to install a sensor with a different measurement range).
- Compatibility of measurement with such media as Air, N_2, O_2.
- Measurement accuracy of 0,1 Pa + 3% of reading (temperature dependent).
- The device is equipped with a compact, small enclosure for easy installation. The installation of YO Airflow Pro itself is simple.
- Very-low power consumption — the device can run on batteries for a long time.
- 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

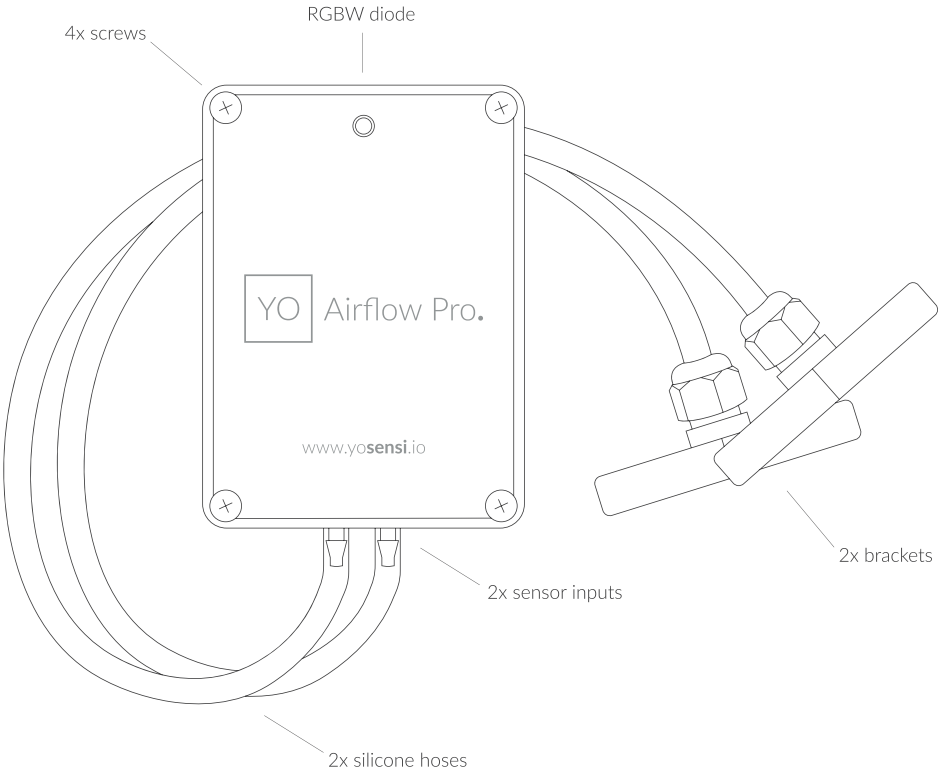


Figure 1. Top view of the device.

Enclosure of the device

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

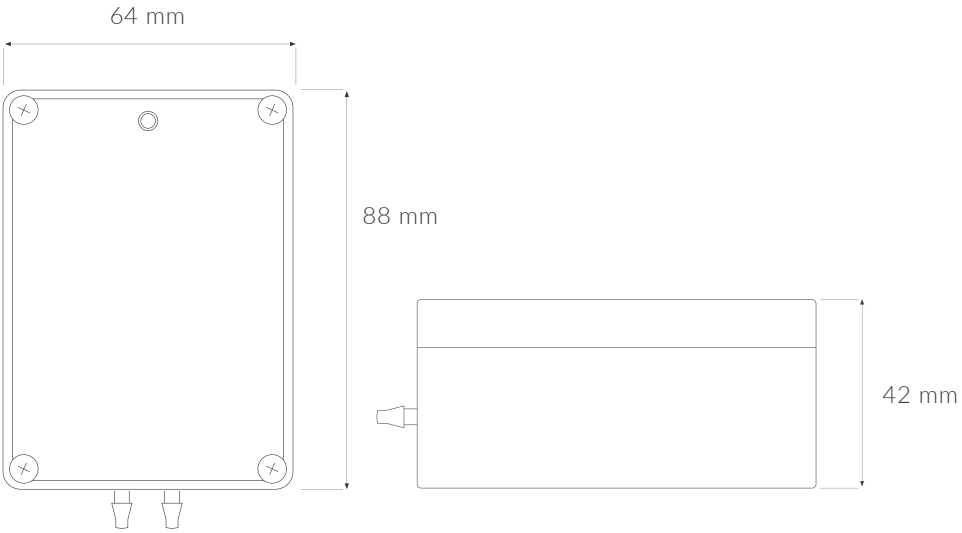
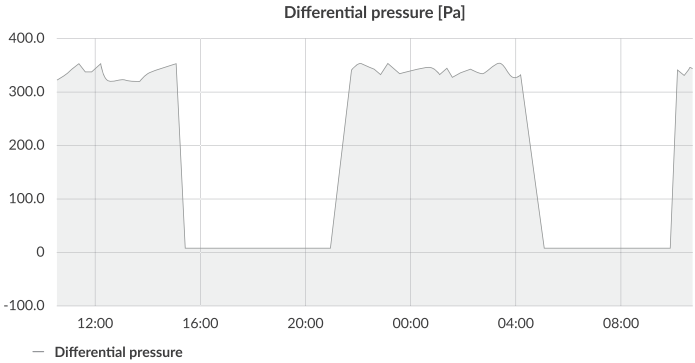


Figure 2. Dimensions of the device.

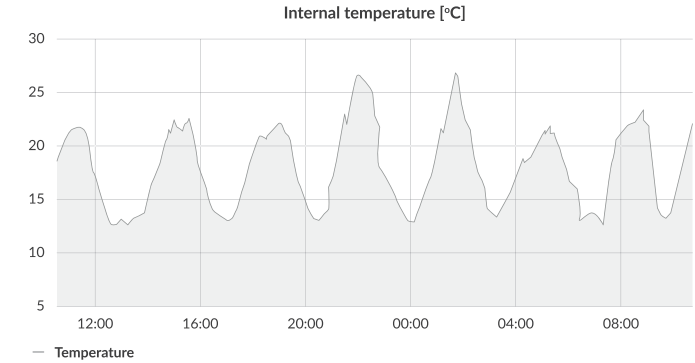
Parameters

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)
Measuring range	**Differential pressure:** Measuring range: -500 Pa to 500 Pa Accuracy: 0,1 Pa + 3% of reading (temperature dependent) Media compatibility: Air, N_2, O_2 **Temperature (internal):** Measuring range: –40°C to 125°C (-40°F to 257°F) Accuracy: ±0,2°C (at temperatures between 5°C and 60°C (41°F to 140°F)) **Relative humidity (internal):** Measuring range: 0% to 100% Accuracy: ±2% (at 20% RH to 80% RH)
Weight	213 g (without batteries)
Certificates	CE

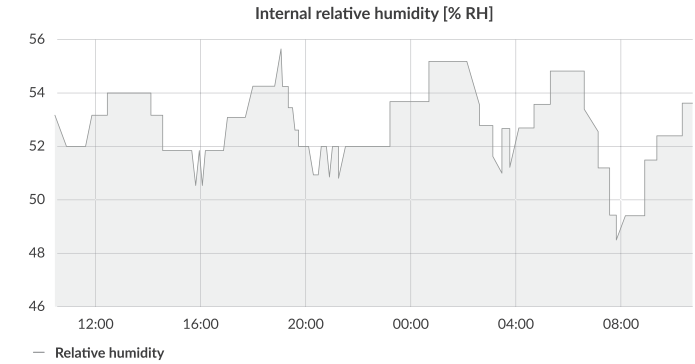
Sample charts



Example of a **differential pressure** 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 2021	1.1	6, 7	Change of enclosure dimensions and battery type (sections: Enclosure of the device and Parameters table). Atmospheric pressure sensor removed from the measuring range (section: Parameters table).
February 2022	1.2	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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