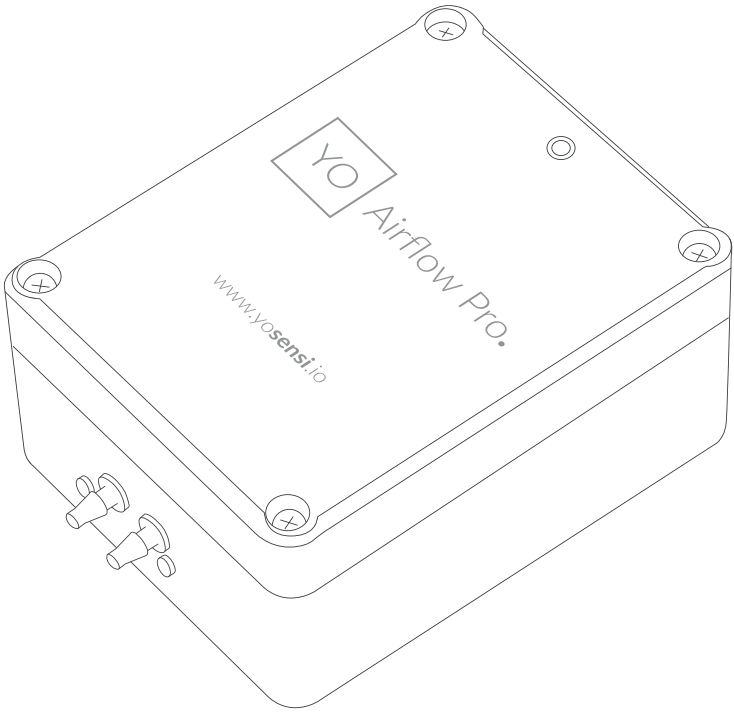
Airflow Pro.

Datasheet



YOSENSI.IO

LoRa Alliance Member

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, communication modules (LoRa, Bluetooth Low Energy 5.0), sensors and battery.
- 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 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.
- 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. in EU868, US915, AU915 etc., adapted to different ISM frequency bands.
- 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

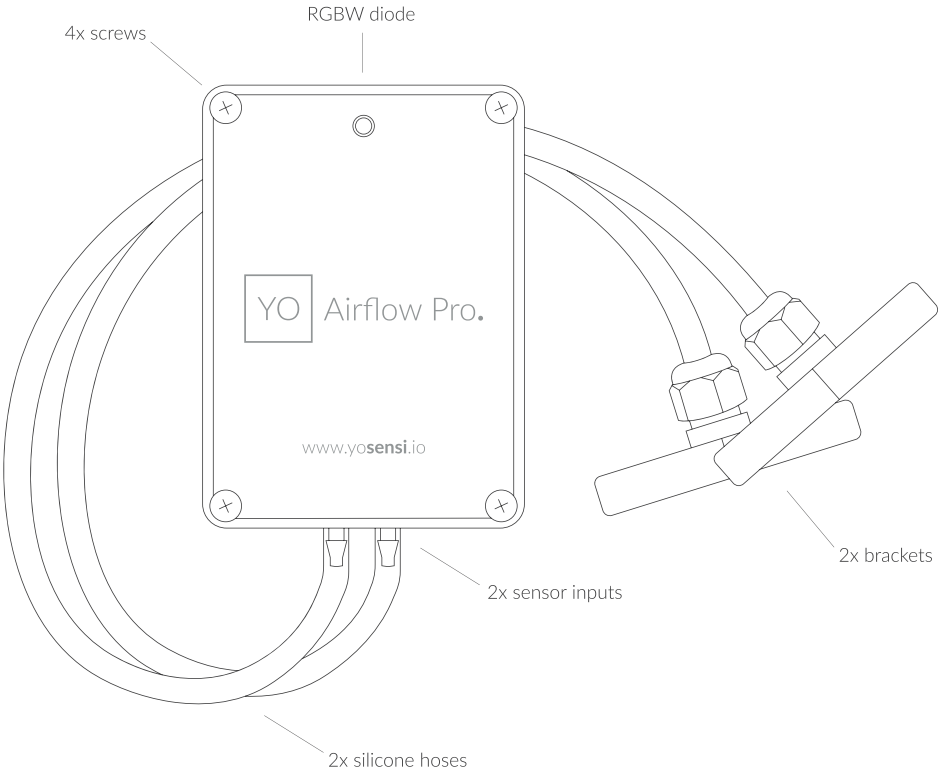


Figure 1. Top view of the device.

Enclosure of the device

Dimensions	Height: 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

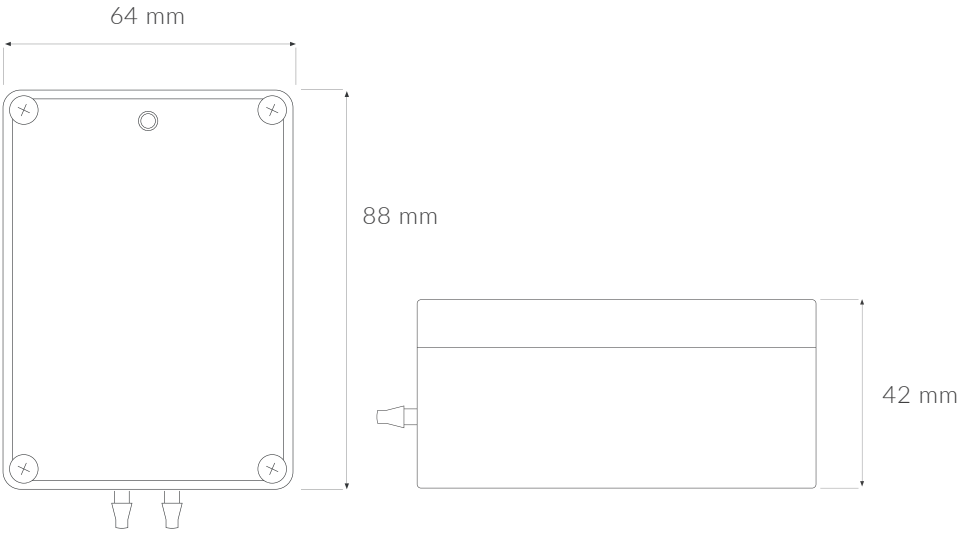
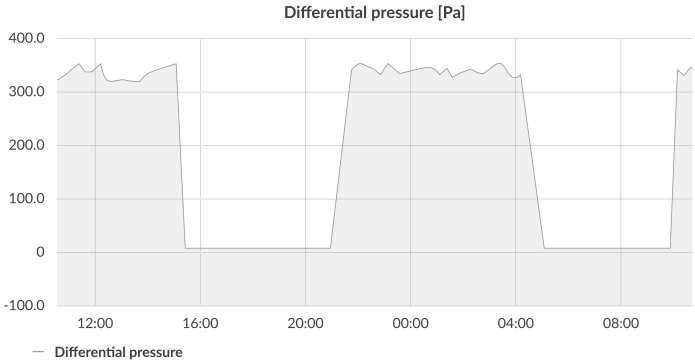


Figure 2. Dimensions of the device.

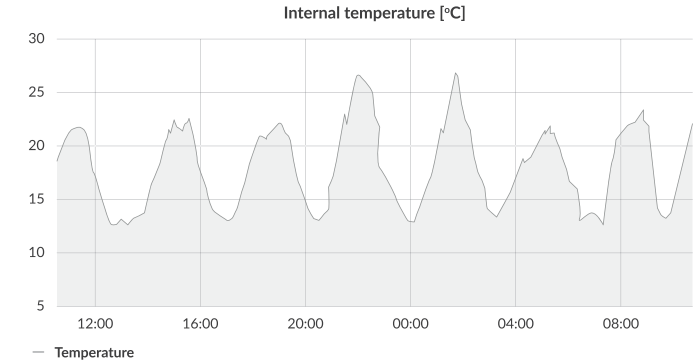
Parameters

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 x AA battery
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) **Accelerometer:** Measuring range: ±180° in x, y, z axes Accuracy: ±0,1° (at temperatures between –40°C and 85°C (–40°F to 185°F))
Weight	Without batteries: 248 g With batteries: 318 g

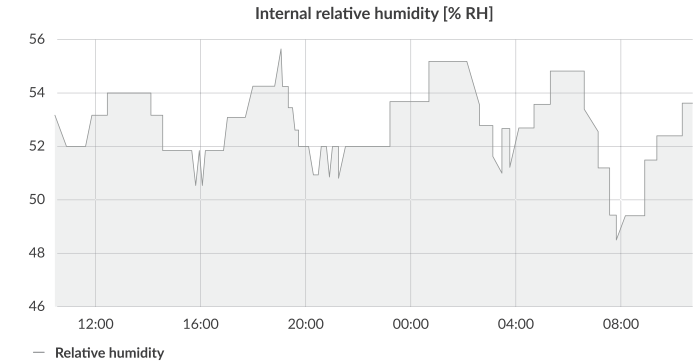
Sample charts



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).

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