YO | Ambience.

Telemetry experts

LoRaWAN-based communication

BLE 5.0 support

Efficient device deployment& management

Support for multiple LoRaWAN regions

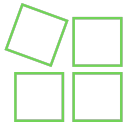High-quality products made in EU

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Release notes

Released	Version	Key changes
25.08.2023	1.0	Initial release.
22.11.2023	1.1	Added infrared motion sensor to the device.

Content

Application

- YO Ambience is a compact indoor ambience monitoring device designed to measure temperature, humidity, illuminance, and CO_2 levels.
- It also has an infrared **presence** sensor, which is equipped with an occupancy counter algorithm, enabling it to count the passes of people to the room where the sensor is located.
- Intended for use in offices, stores, classrooms, hospitals, and more, the YO Ambience device provides valuable insights into indoor conditions and occupancy of the room.
- The YO Ambience device is an ideal solution for assessing and maintaining optimal indoor environments, enhancing occupant comfort, productivity, and overall well-being. Additionally, it is a wireless battery-operated device.

Components

- The device consists of a **microcontroller** (with Bluetooth Low Energy), communication modules (LoRa), CO2, illuminance, temperature, humidity and infrared presence sensor.
- YO Ambience includes an **ABS enclosure**, ideal for a wall or ceiling mount and smart applications.

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.
- 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	• Device address
• Application EUI	• Network session key
• Application Key	• Application key
• Number of trails	

Bluetooth Low Energy (BLE) settings	Transmission power Advertising frame interval
Device settings	Measuring interval CO2 calibration value Temperature offset Illuminance coefficient

Advantages

- **Production quality** - made in the **European Union** by **qualified engineers**.
- Possibility of calibration CO_2 sensor and temperature sensor.
- Built in infrared presence occupancy sensor.
- Indoor condition monitoring all in one device.
- Depending on the version, the **LoRa radio** can operate in different regions (e.g., EU868, US915, AU915, AS923) adapted to several 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 OTAA*
    - *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.
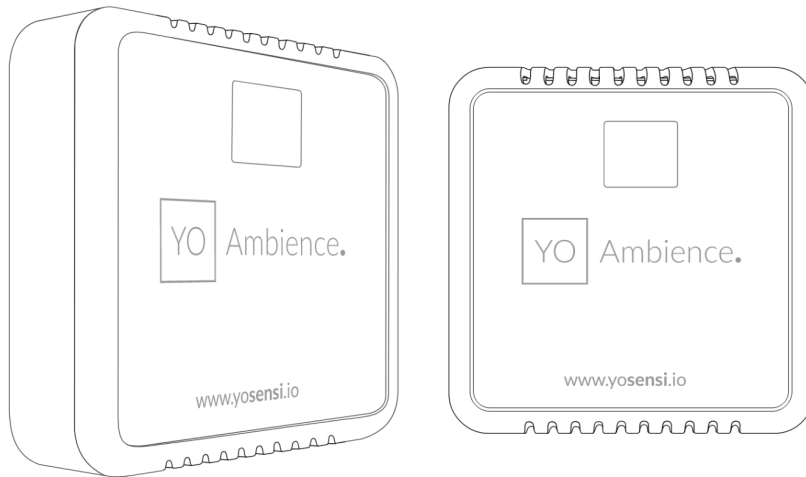
Technical details
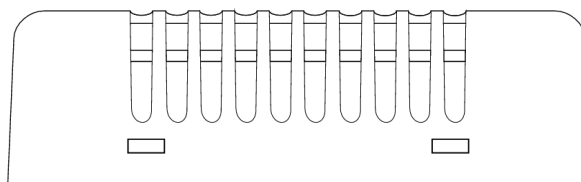

Figure 1 *Top view of the device.*

Figure 2 *Side view of the device.*

Enclosure of the device

Dimensions	Height: 25,5 mm Width: 86 mm Depth: 86 mm
Colour	White
Installation	Horizontal Vertical (can be screwed to the wall or ceiling)
Enclosure material	ABS (FR)
Level of protection	IP40, UL94-V0
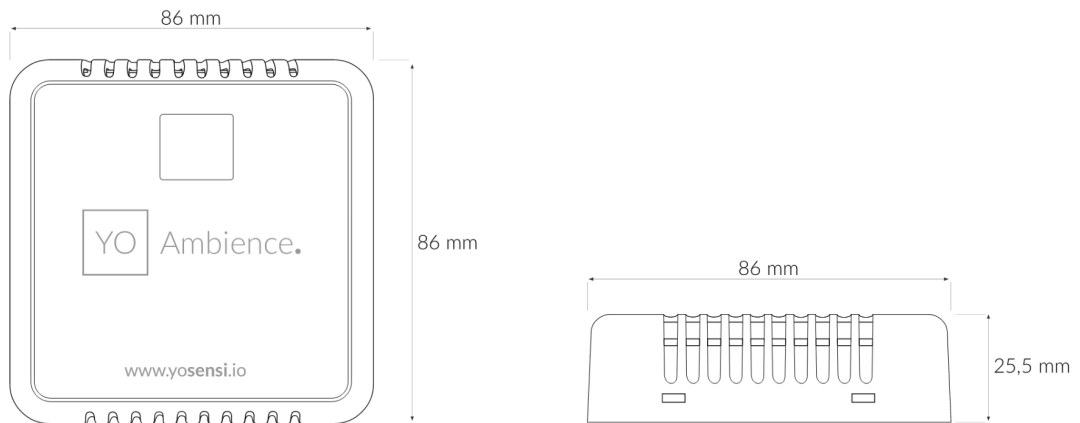
Figure 3 Dimension of the device.

Parameters

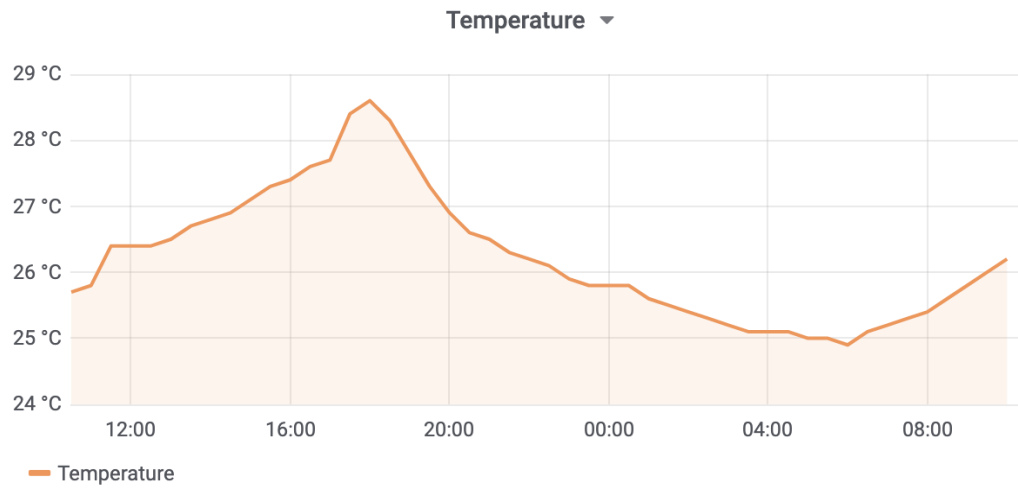|	
Tx power	LoRa EU868: to +14 [dBm] LoRa US915, AU915, AS923: to +22 [dBm] Bluetooth Low Energy (BLE): -20 to +6 [dBm]
Power supply	3 x AA battery (3 x 1,5 V)
Power consumption	Maximum: 120mA (4,5 VDC)
Measuring range	**Temperature:** Measuring range: −40°C to 125°C (-40°F to 257°F) Accuracy: ±0,2°C *(at temperatures between 5°C and 60°C (41°F to 140°F))* **Humidity:** Measuring range: 0% to 100% Accuracy: ±2% *(relative humidity from 20% to 80%)* **CO2:** Measuring range: 0 ppm to 40 000 ppm Recommended working conditions: -10 - 60 °C (14°F to 140°F) / from 0% RH to 95% RH Accuracy of measurements: ±(40 ppm+5%) (in the measuring range from 400 ppm to 5000 ppm) **Illuminance:** Measuring range: 0 lx to 120 klx Recommended working conditions: -25°C to 85°C (-13°F to 185°F) Accuracy: 10% (in temperature 25°C (77°F) **Infrared presence sensor:** Measuring range: 0 to 6 meters, 80° field of view Accuracy: 99%
Weight	82,5 g
Certificates	C E

Sample charts

Temperature ▾

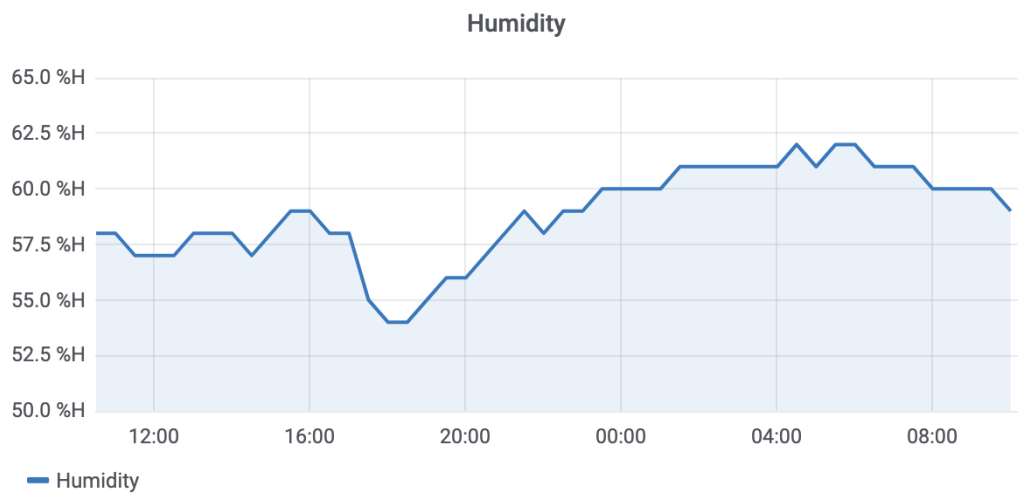*Figure 4 Internal temperature example chart.*

Humidity

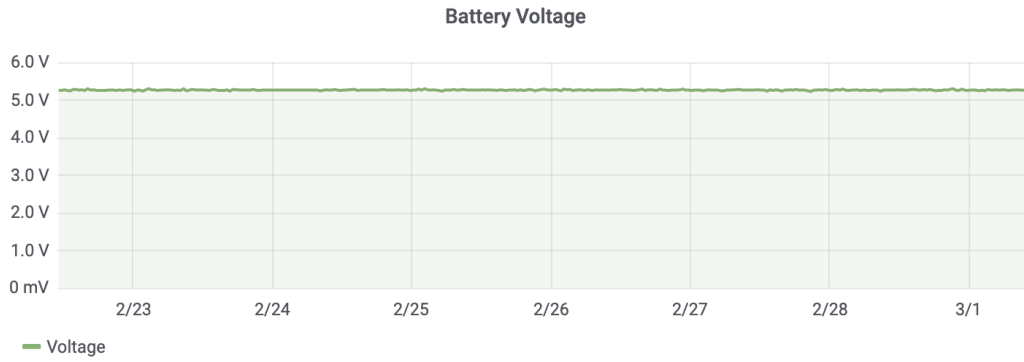*Figure 5 Internal humidity example chart.*

Figure 6 Example of battery voltage monitoring chart.
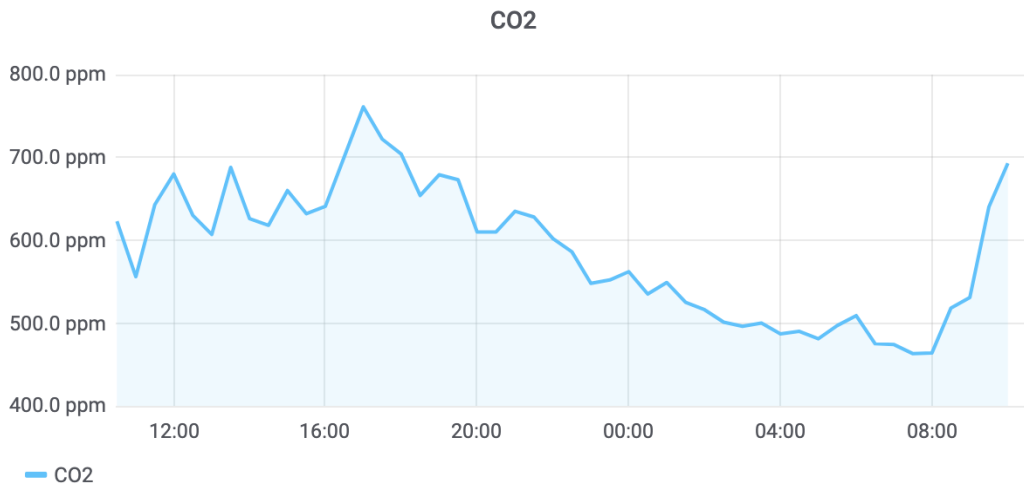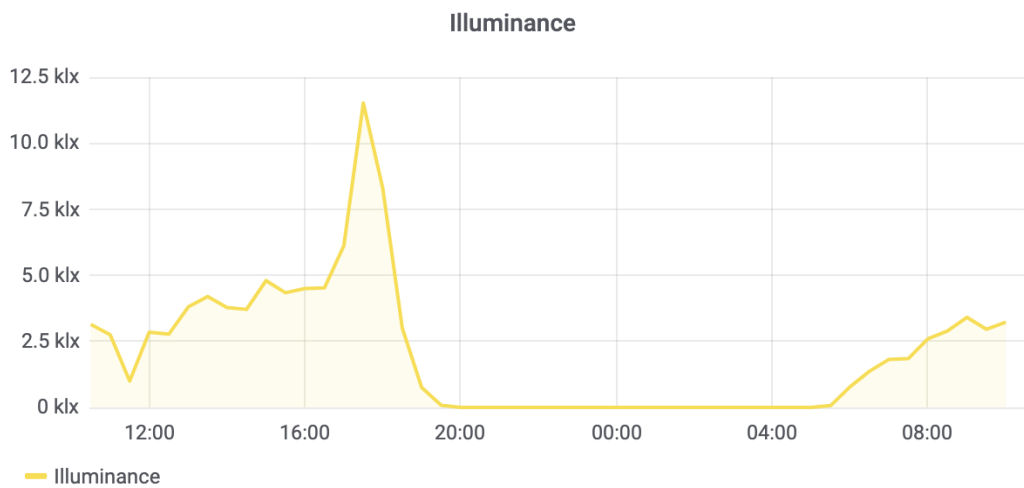

Figure 7 Example of CO$_2$ monitoring chart.

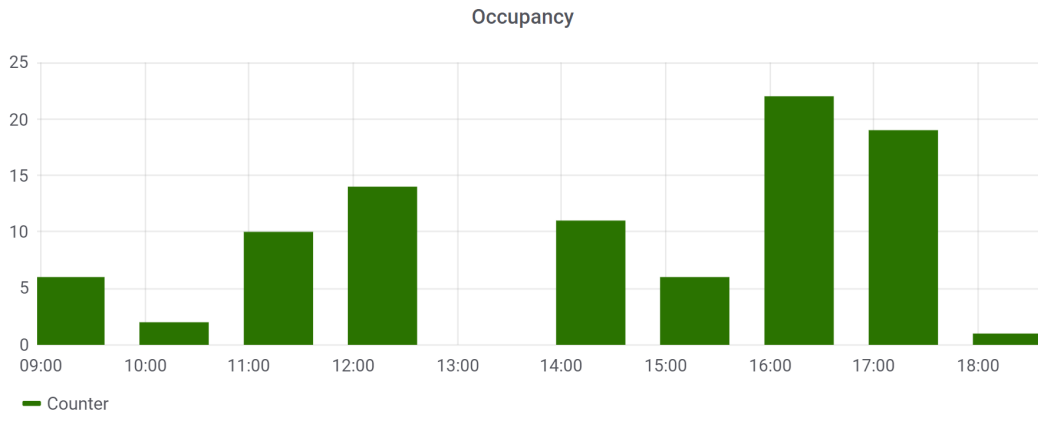*Figure 8 Example of illuminance monitoring chart.*

Figure 9 Example of occupancy monitoring chart.

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