



**360.**  
Datasheet



## Application

- YO 360 measures temperature and humidity and sends information about its own position on the x, y and z axes (built-in accelerometer).
- Its small size, battery power supply and long data transmission range allow the device to be used in virtually any place.
- Depending on the selected option, the enclosure is suitable for indoor and outdoor use.
- The device is equipped with a lithium battery with very low self-discharge, which allows data to be collected for years.

## Components

- The device consists of a microcontroller, communication modules (LoRa, Bluetooth Low Energy), sensors and battery.
- YO 360 comes in two enclosure versions:
  - For indoor use – made of ABS
  - For outdoor use – made of epoxy resin
- For indoor use and depending on the installation needs, the device can be equipped with:
  - A mounting hole for hanging,
  - Two dedicated mounting holes for a watch strap (can be ordered with the strap).
- The device is additionally equipped with a RESET button and a diode to indicate operating status.

# Operation of the device

- A LoRaWAN network is necessary for data transmission.
- The device requires no external power supply.
- Place YO 360 at the location with the parameters you want to measure and configure / reconfigure the device via BLE.
- The device takes measurements at the interval specified in the configuration parameters.
- YO 360 transmits data over a distance of more than 3 km at 14 dBm in an open space with a medium density of buildings.
- 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.
- YO 360 is a very small wireless device with an ergonomic shape operating on LoRaWAN technology.
- Depending on the version, the LoRa radio can operate in different regions (e.g., EU868, US915, AU915), adapted to different ISM frequency bands.
- The device is radio-based, so there is no need for additional cables.
- Low energy consumption.
- 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

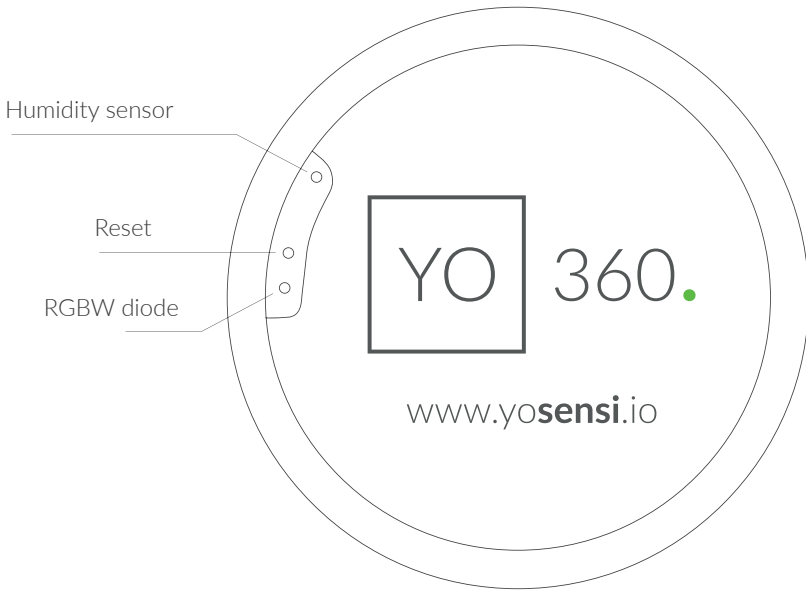


Figure 1. Top view of the device.

## Enclosure of the device

### Dimensions

Diameter: 47 mm  
Height: 13 mm

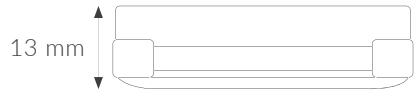
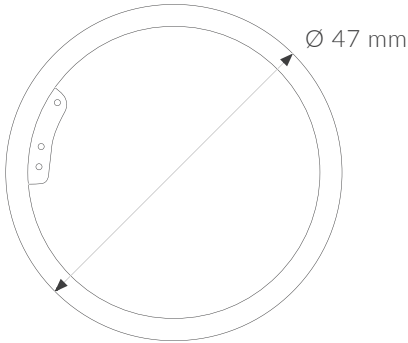
### Colour

Choose from

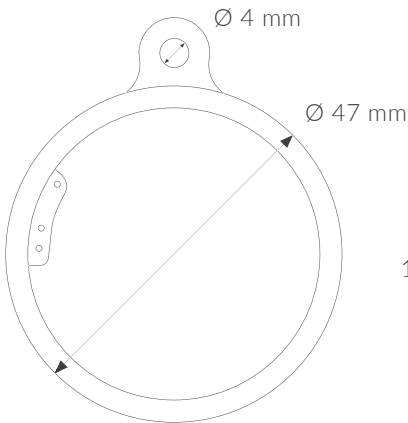
Light grey  
Black

**Installation**  
Choose from

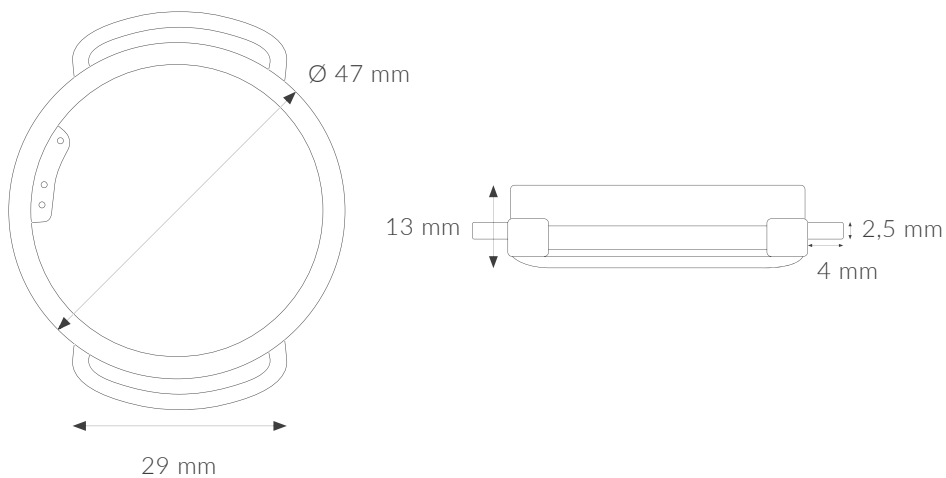
- No handles
- One handle (mounting hole)
- Two oval handles
- Strap



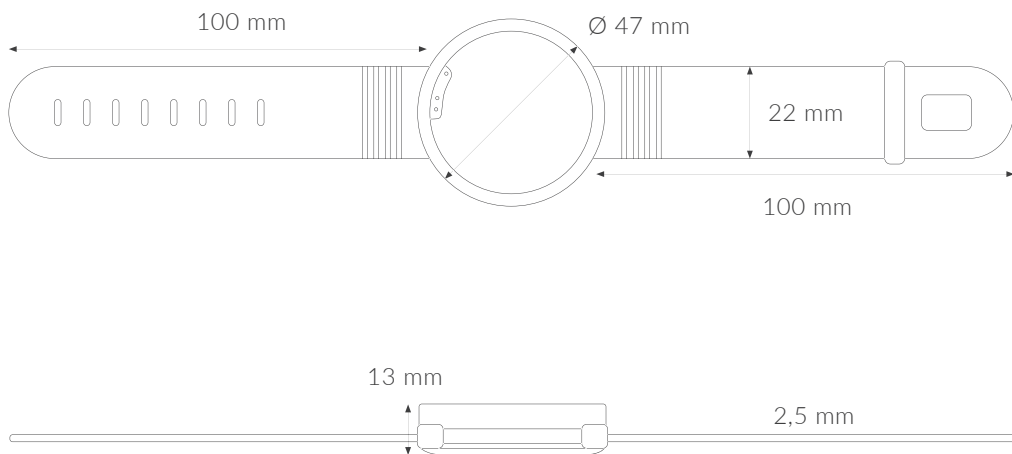
**Figure 2.** Dimensions of the device in no handles installation option.



**Figure 3.** Dimensions of the device in one handle (mounting hole) installation option.



**Figure 4.** Dimensions of the device in two oval handles installation option.



**Figure 5.** Dimensions of the device in strap installation option.

**Enclosure material**

Plastic - ABS

**Level of protection**

Choose from

IP40

IP67 – sealed with epoxy resin

## 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 CR2450 3 V

**Measuring range**

### Temperature

Measuring range: -40°C to 125°C (-40°F to 257°F)

Accuracy:  $\pm 0,2^{\circ}\text{C}$  (32,36°F) (at temperatures between 5°C to 60°C (41°F to 140°F))

### Relative humidity

Measuring range: 0% to 100%

Accuracy:  $\pm 2\%$  (at 20% to 80% relative humidity)

### Accelerometer

Measuring range:  $\pm 180^{\circ}$  on x, y and z axes

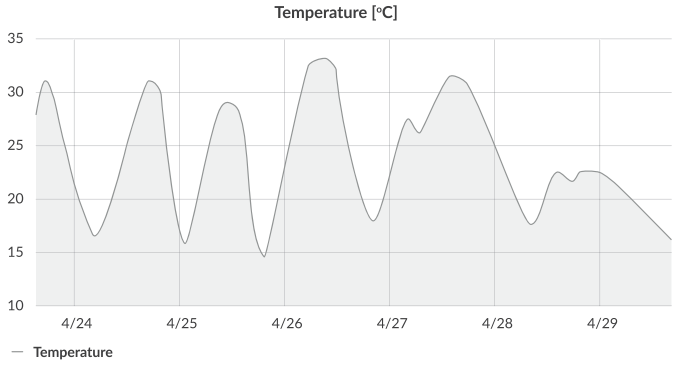
Accuracy:  $\pm 0,1^{\circ}$  (at temperatures between -40°C to 85°C (-40°F to 185°F))

**Weight**

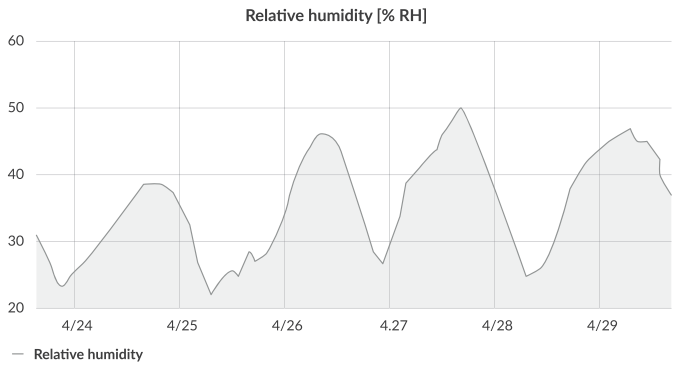
25 g (with battery)



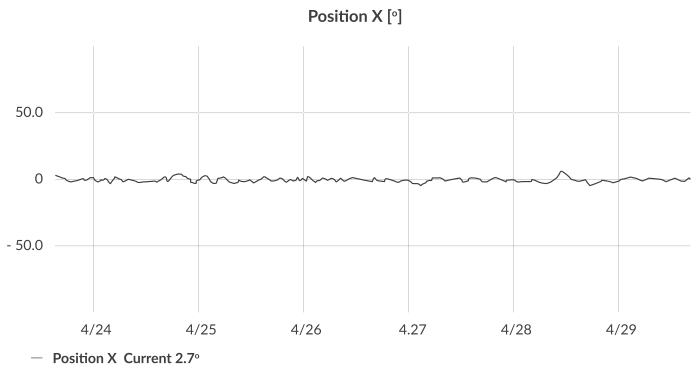
# Sample charts



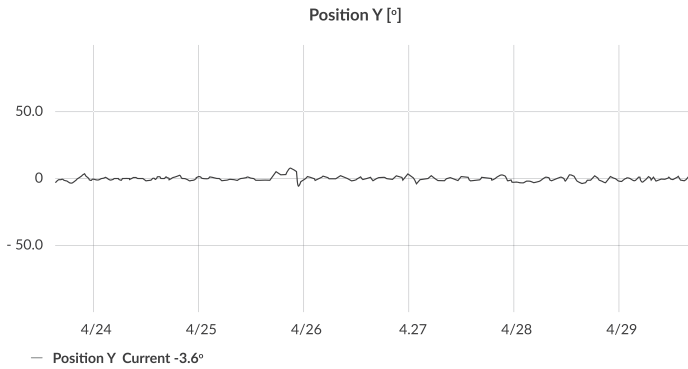
Example of a **temperature** monitoring chart.



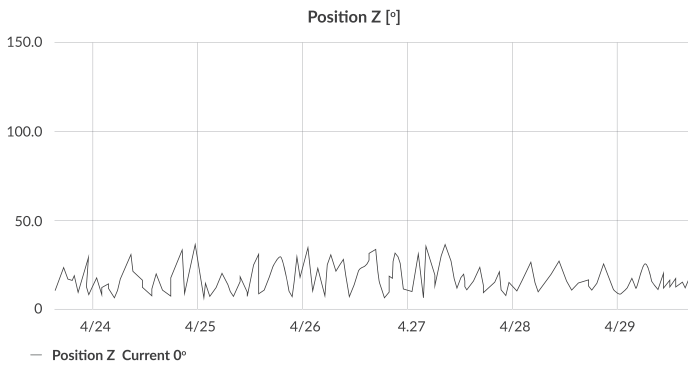
Example of a **relative humidity** monitoring chart.



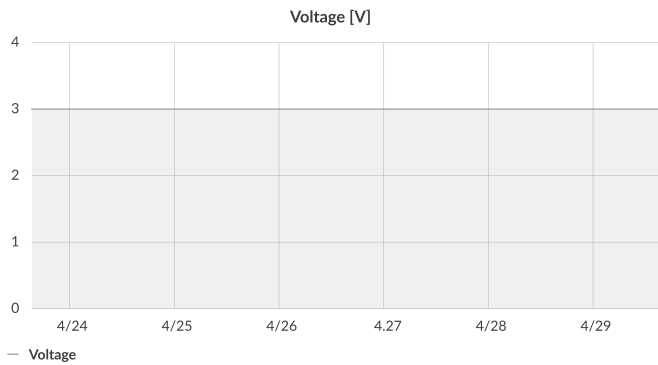
Example of an **X-axis accelerometer** chart.



Example of an **Y-axis accelerometer** chart.



Example of an **Z-axis accelerometer** chart.



Example of **battery voltage** chart.

# Revision history

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





The logo for YOSSENSI.IO, featuring the company name in a bold, sans-serif font with a green dot over the 'I' in 'IO'. The logo is enclosed in a thin black rectangular border.

YOSENSI.IO

The LoRa Alliance Member logo, consisting of the LoRa Alliance logo (a stylized 'L' with three curved lines above it) followed by the text 'LoRa Alliance Member' in a sans-serif font.

LoRa Alliance Member

## Contact us

-  [www.yosensi.io](http://www.yosensi.io)
-  [contact@yosensi.io](mailto:contact@yosensi.io)
-  +48 884 980 357
-  Zurawia 71A, Bialystok, Poland

