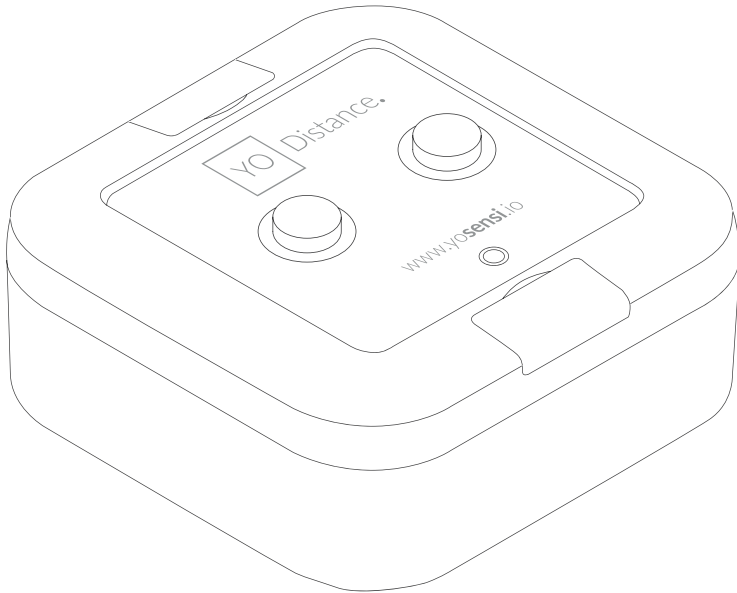




Distance.

Datasheet





Application

- YO Distance is a LoRaWAN device for ultrasonic distance measurement. One use case example is monitoring the water level in a remote tank.
- Additionally, the device contains sensors that measure temperature and relative humidity.

Components

- The device consists of a microcontroller (with Bluetooth Low Energy), communication modules (LoRa), sensors and batteries.
- YO Distance is equipped with an enclosure made of ASA with IP67 protection class.
- The enclosure is designed to be easily mounted on the ceiling.
- YO Distance is equipped with an RGBW LED to indicate the operating status.

Operation of the device

- A LoRaWAN network is required for data transmission.
- The device does not require an external power supply.
- The device should be placed at the location from which the distance is to be measured (e.g., at the sewer utility hole). The device must then be configured/reconfigured via BLE.

- The device takes measurements at the interval specified by 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 (of distance)

Advantages

- Production quality – made in the European Union by qualified engineers.
- YO Distance is a wireless device that uses LoRaWAN technology.
- The device transmits wirelessly, so it can be used in remote locations.
- The enclosure is adapted for use in wet environments, such as monitoring fill levels of water tanks.
- 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

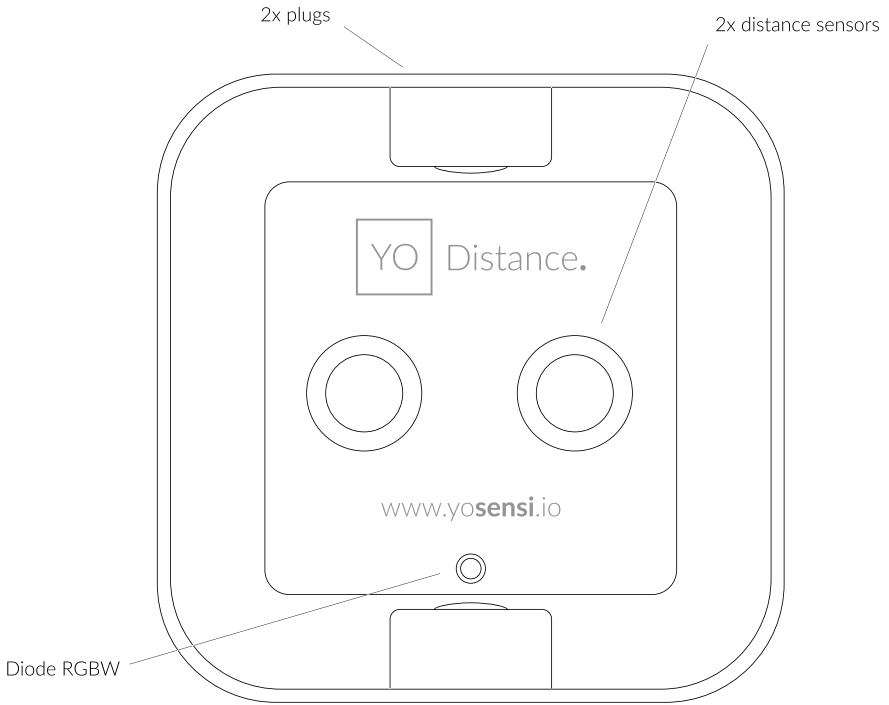


Figure 1. Bottom view of the device.

Enclosure of the device

Dimensions	Height: 40 mm Width: 100 mm Depth: 100 mm
Colour	Light grey
Installation	Horizontal, e.g., on the tank ceiling or lid
Casing material	ASA
International Protection Rating	IP67

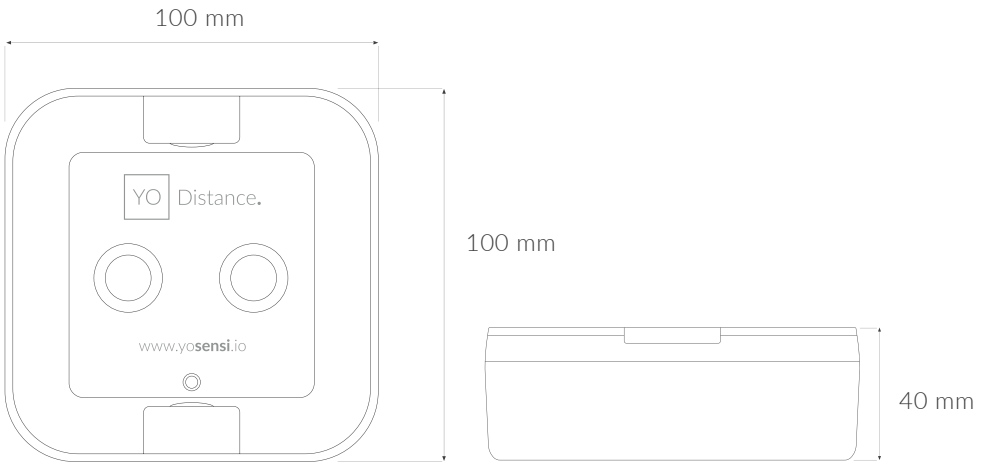


Figure 2. Dimensions of the device.

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	<p>Distance: Measuring range from flat surfaces (cardboard surface measuring 50 cm x 60 cm): 3 cm to 420 cm Blind distance: from 0 cm to 3 cm</p> <p>Temperature: Measurement range: from -40°C to 125°C (-40°F to 257°F) Accuracy: ±0,2°C (in temperatures from 5°C to 60°C (41°F to 140°F))</p> <p>Relative humidity: Measurement range: from 0% to 100% Accuracy: ±2% (relative humidity from 20% to 80%)</p>
Weight	176 g (without batteries)
Certificates	CE

Revision history

Date	Version	Page(s)	Changes
January 2021	1	All	Initial version
February 2022	1.1	3, 4	Changes are related to the firmware and apply to devices working with firmware version 2.0.0 and above
March 2023	1.2	2, 4, 7	Changes due to removal of accelerometer





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 font. The background of the entire page is a stylized world map where the continents are filled with intricate white circuit board traces on a light gray background.

YOSENSI.IO

The LoRa Alliance Member logo features the LoRa 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

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