URSALINK

LoRaWAN®
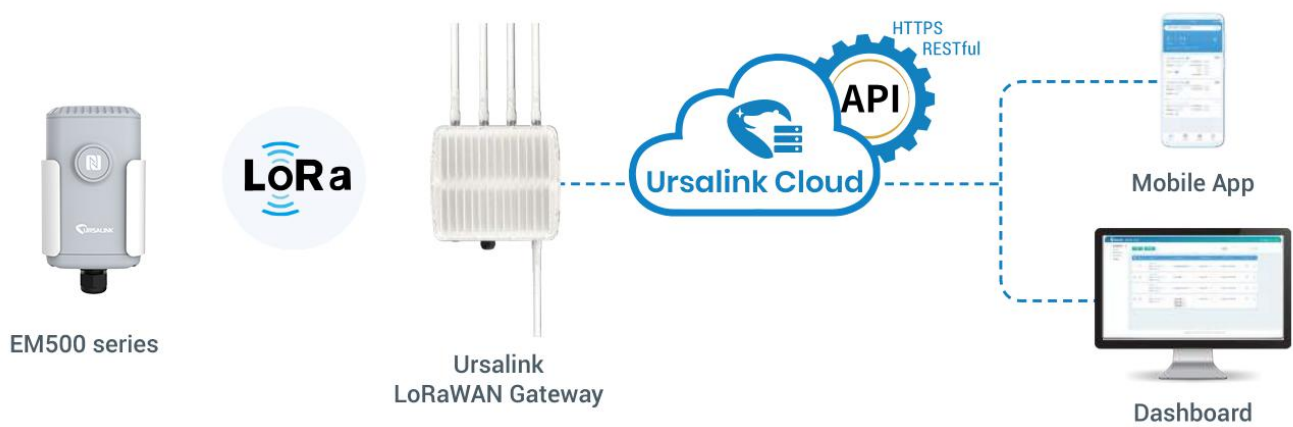
EM500 series

Environment Monitoring Sensors

▶ Introduction

The EM500 series is LoRaWAN sensors designed for different professional applications. These sensors utilize a high ingress protection rating enclosure for use in the most challenging outdoor environmental conditions, and are powered by built-in battery for years of use.
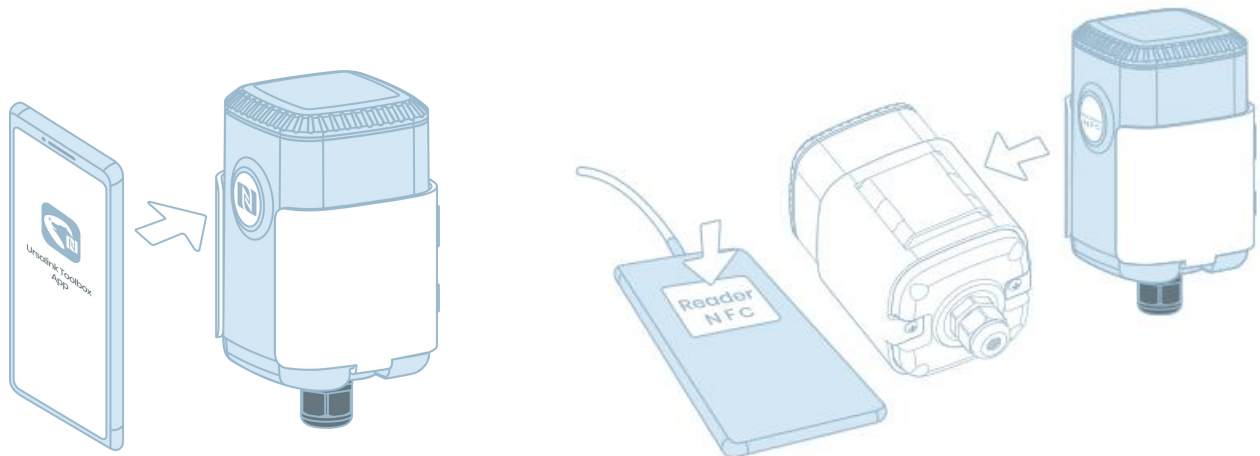
▶ Features

- Robust LoRa Connectivity for professional applications
- Easy Configuration via NFC
- IP66 rating waterproof
- LoRaWAN v1.0/v1.0.2
- Ursalink Cloud compliant
- 19000mAh Replaceable Battery

▶ Application Example

EM500 series

Ursalink LoRaWAN Gateway

Ursalink Cloud

HTTPS RESTful API

Mobile App

Dashboard

▶ Configuration via NFC

Mode 1: Mobile APP Configuration

Mode 2: Computer Configuration

▶ Hardware Specifications

➢ EM500-UDL Ultrasonic Distance/Level Sensor

Application

- ✓ Water level monitoring in running water
- ✓ Flood Monitoring
- ✓ Level/depth monitoring in water/oil tanks
- ✓ Waste water management
- ✓ Smart agriculture: fill level monitoring in grain, fertilizer or pellets silos
- ✓ Irrigation pond monitoring

LoRaWAN

Frequency	EU433/CN470/IN865/EU868/RU864/US915/AU915/KR920/AS923
Tx Power	20dBm
Sensitivity	-147dBm @300bps
Mode	OTAA/ABP Class A

Distance Measurement

Range	EM500-UDL-W050:0.3-5m EM500-UDL-W100:0.5-10m (Customizable for snow level detection)
Resolution	1 mm
Accuracy	±1%

Physical Characteristics

Power Supply	19000 mAh Li-SOCL$_2$ battery
Operating Temperature	-20°C to +70°C
Ingress Protection	IP66
Dimension	156.1 × 71 × 69.5 mm
Mounting	Pole, wall, DIN rail

➢ EM500-PT100 Sensor

Application	
✓ Liquid or air temperature monitoring	
✓ Industrial machine temperature monitoring	
✓ Oven and cooking device monitoring	
✓ Chimney and boiler temperature monitoring	

LoRaWAN	
Frequency	EU433/CN470/IN865/EU868/RU864/US915/AU915/KR920/AS923
Tx Power	20dBm
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Temperature Measurement	
Range	EM500-PT100-T050:-200 °C to +50 °C
	EM500-PT100-T200: -50 °C to +200 °C
	EM500-PT100-T500: -50 °C to +500 °C
	EM500-PT100-T800: -50 °C to +800 °C
	(Customizable from -200 °C to +800 °C)
Accuracy	±0.5°C

Physical Characteristics	
Cable Length	1.5m (Customizable)
Probe Type	Straight tube (Bolt-on ring, magnet and other types customizable)
Power Supply	19000 mAh Li-SOCL$_2$ battery
Operating Temperature	-20°C to +70°C
Ingress Protection	IP66
Dimension	105.4 × 71 × 69.5 mm (Waterproof connector and sensor are not included)
Mounting	Pole, wall, DIN rail

➢ EM500-SMT Soil Sensor

Application	
✓ Agriculture	
✓ Horticulture	
✓ Golf courses	

LoRaWAN	
Frequency	EU433/CN470/IN865/EU868/RU864/US915/AU915/KR920/AS923
Tx Power	20dBm
Sensitivity	-147dBm @300bps
Mode	OTAA/ABP Class A

Measurement	
Moisture	
Range	0% to 100%
Accuracy	±2%

Physical Characteristics	
Cable Length	5m
Power Supply	19000 mAh Li-SOCL$_2$ battery
Operating Temperature	-20°C to +70°C
Ingress Protection	IP66
Dimension	105.4 × 71 × 69.5 mm (Waterproof connector and sensor are not included)
Mounting	Pole, wall, DIN rail

➢ EM500-SWL Submersible Water Level Sensor

Application	
✓ Groundwater level monitoring	
✓ Level/depth monitoring in tanks or wells	
✓ Depth/level monitoring in open or running water	

LoRaWAN	
Frequency	EU433/CN470/IN865/EU868/RU864/US915/AU915/KR920/AS923
Tx Power	20dBm
Sensitivity	-147dBm @300bps
Mode	OTAA/ABP Class A

Measurement	
Range	EM500-SWL-L003: 3m (H_2O)
	EM500-SWL-L005: 5m (H_2O)
	EM500-SWL-L010: 10m (H_2O)
	(Customizable up to 200m and for other liquids)
Accuracy	±0.5% FS

Physical Characteristics	
Cable Length	At least should be 1-1.5m longer than measuring range
Power Supply	19000 mAh Li-$SOCL_2$ battery
Operating Temperature	-20°C to +70°C
Ingress Protection	IP66
Dimension	105.4 × 71 × 69.5 mm (Waterproof connector and sensor are not included)
Mounting	Pole, wall, DIN rail

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