

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.

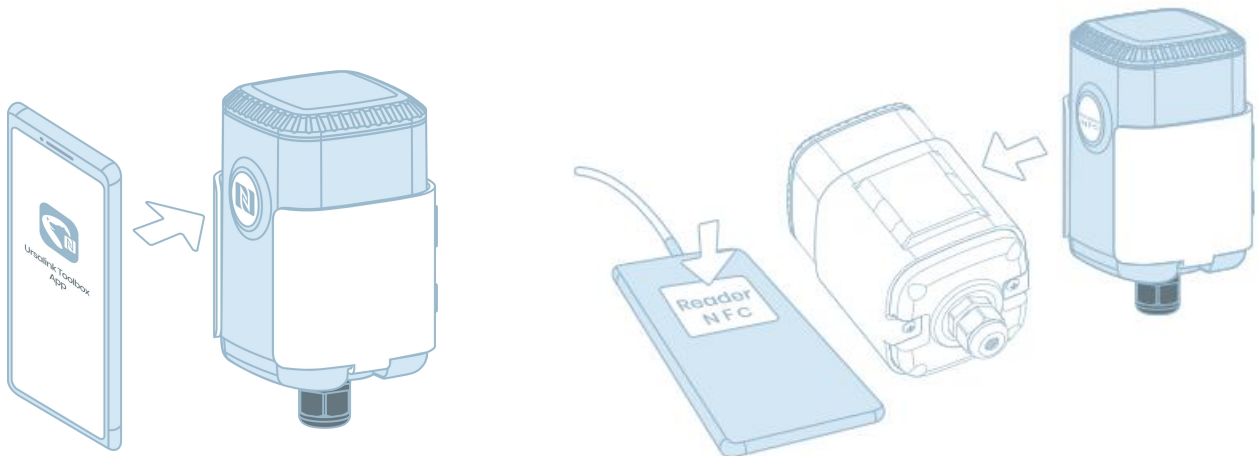
► Features

- Robust LoRa Connectivity for professional applications
- Easy Configuration via NFC
- IP66~68 rating waterproof
- LoRaWAN v1.0/v1.0.2
- Ursalink Cloud compliant
- 19000mAh Replaceable Battery

► Application Example



► 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	0.3-5m/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	IP67
Dimension	156.1 × 71 × 69.5 mm
Mounting	Pole, wall, DIN rail

➤ EM500-PAR Photo-synthetically Active Radiation Sensor



Application

- ✓ Greenhouse or Farmland (Agriculture)
- ✓ Parks or Gardens (Horticulture)
- ✓ Growth chambers

LoRaWAN

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

Measurement

Spectral Range	400-700 nm
Range	0-4000 $\mu\text{mol}/\text{m}^2 \text{ s}$
Resolution	10-80 $\mu\text{mol}/\text{m}^2 \text{ s}$
Accuracy	$\pm 5\%$

Physical Characteristics

Power Supply	19000 mAh Li-SOCL ₂ battery
Operating Temperature	-20°C to +70°C
Ingress Protection	IP68
Dimension	105.4 × 71 × 69.5 mm (Sensor and cable are not included)
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
Sensitivity	-147dBm @300bps
Mode	OTAA/ABP Class A

Temperature Measurement

Range	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

Probe 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	IP68
Dimension	105.4 × 71 × 69.5 mm (Probe and cable 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

Probe Length	3m
Power Supply	19000 mAh Li-SOCL ₂ battery
Operating Temperature	-20°C to +70°C
Ingress Protection	IP68
Dimension	105.4 × 71 × 69.5 mm (Probe and cable 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	3m/5m/10m H ₂ O (Customizable up to 200m and for other liquids)
Accuracy	±0.5% FS

Physical Characteristics

Probe 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	IP68
Dimension	105.4 × 71 × 69.5 mm (Probe and cable are not included)
Mounting	Pole, wall, DIN rail

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