EM500 series

Environment Monitoring Sensors

Introduction

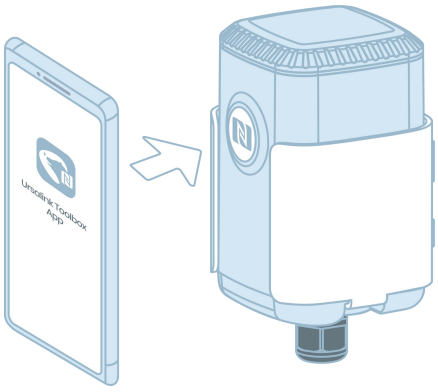
The EM500 series is LoRaWAN sensors designed for different professional applications. These sensors utilize a high ingress protection rating enclosure for use in the most challenging outdoor environmental conditions, and are powered by built-in battery for years of use.

Features

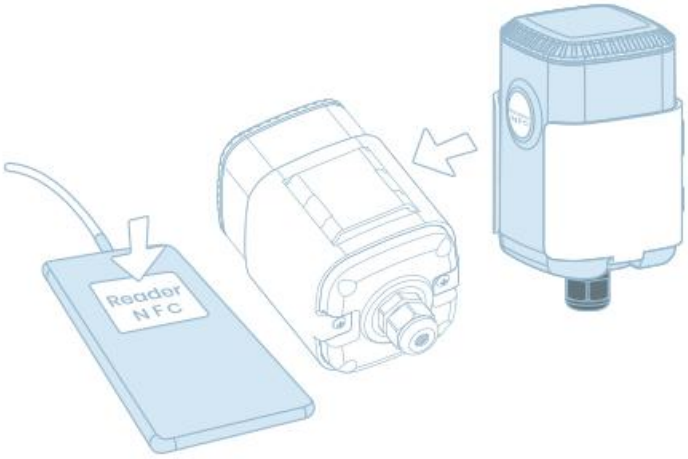
- Robust LoRa Connectivity for professional applications
- Easy Configuration via NFC
- IP66~68 rating waterproof
- LoRaWAN v1.0/v1.0.2
- Ursalink Cloud compliant
- 19000mAh Replaceable Battery

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	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	IP67
Dimension	156.1 × 71 × 69.5 mm
Mounting	DIN rail, wall

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 µmol/㎡ s
Resolution	10-80 µmol/㎡ s
Accuracy	±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	DIN rail, wall

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	±0.15°C

Physical Characteristics	
Probe Length	1m (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	DIN rail, wall

➢ 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	DIN rail, wall

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_2O (Customizable up to 200m)
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	DIN rail, wall

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