



LoRaWAN® Water EC Sensor

MacSync LWQS X1

LoRaWAN-based Water EC Sensor for real-time electrical conductivity monitoring with long-range connectivity and ultra-low power operation.



Introduction

The MacSync LWQS X1 delivers accurate and stable water EC measurements for industrial and environmental monitoring applications. Designed for outdoor and harsh operating environments, the device combines a high-precision EC sensing probe with long-range LoRaWAN wireless connectivity, enabling seamless integration into smart IoT monitoring platforms.

The sensor continuously measures electrical conductivity levels in water and transmits data securely over LoRaWAN networks to cloud dashboards, SCADA systems, industrial gateways, or local monitoring software. Its rugged enclosure, low maintenance requirements, and low-power architecture make it ideal for long-term field deployment.

Features

- LoRaWAN® Wireless Water EC Monitoring
- Industrial Grade Water EC Probe
- High Accuracy and Stable Performance
- Ultra-Low Power with Multi-Year Battery Operation
- Wireless Configuration via BLE (Maya App)
- LoRaWAN & Macnman MacTalk Protocol Support (Gateway-Free Device to Device Communication)
- Compatible with Public & Private LoRaWAN® Networks & Macnman MacTalk Protocol
- Designed for Harsh Environmental Conditions

Key Advantages

- Reduces Manual Water Quality Inspection Efforts
- Supports Predictive Maintenance and Smart Automation
- Fast and Easy Deployment Without Complex Wiring
- Enables Centralized Monitoring Across Multiple Sites
- Optimized for Smart Agriculture and Water Treatment Applications

Water EC Sensor Measurement

Sensing Principle	2-Electrode Contact Method
Range	0–2000 $\mu\text{S}/\text{cm}$, 0–5000 $\mu\text{S}/\text{cm}$ (Cell Constant: 1.0)
Resolution	1 $\mu\text{S}/\text{cm}$
Accuracy	$\pm 1\%$ of Full Scale (FS)
Working Temperature	0°C to +65°C
Working Pressure	< 0.6 MPa
Ingress Protection (Probe)	IP68

Wireless Specifications

Wireless Protocols	LoRaWAN® (v1.0.4), Macnman MacTalk Protocol
Antenna	Internal high-efficiency antenna
Supported Bands	IN865 / RU864 / EU868 / US915 / AU915
Tx Power	23 dBm @ 865 MHz
Sensitivity	-137 dBm @ 300 bps
LoRaWAN® Class	Class A (Default), Configurable to Class C via Macnman Maya App
Device Activation	OTAA
Supported LNS	Private LNS ,ChirpStack ,The Things Network , MQTT, Orbiwise

Device Management

Configuration Method	Via Macnman Maya Android App
Local Configuration	BLE-Based Local Configuration
Remote Configuration	Over-the-Air Configuration (Downlink Commands)
Cloud-Based	Cloud-Based Configuration via Macnman IoT Platform*
Status LED	1 x Internal Multi-Color LED

Device Configuration Parameters

Data Reporting Mode	Periodic / Event-based / Hybrid
Transmission Interval	Independent uplink interval for optimized power consumption
Threshold-Based Alerts	Configurable EC level threshold for event-triggered transmission
Sampling Interval	Configurable data acquisition interval (e.g., 1 min to 24 hours)

Power & Battery Performance

Power Supply	Integrated 19 Ah Lithium Battery, Optional Solar Panel
Battery Type	Lithium Thionyl Chloride (Li-SOCl ₂)
Estimated Battery Life at 25 °C	
5-minute reporting interval	~1.5 years
15-minute reporting interval	~3 years
60-minute reporting interval	~5+ years

Physical & Environmental Specifications

Enclosure & Mechanical

Material	Glass Filled Nylon
Protection Rating	IP 65
Dimensions	152 mm X 62 mm X 43 mm
Weight	175 grams

Mounting & Installation

Wall-mounted installation	Yes , With Clip
Pole - mounted installation	Yes , Without Clip

Environmental Conditions

Operating Temperature	-20 °C to + 50°C
Operating Humidity	0% to 95% RH (Non-Condensing)

Regulatory Certifications & Compliance

Wireless Certification	WPC
Environmental	RoHS Compliant

What's in the Box?

- MacSync LWQS X1 Sensor
- Mounting Clip
- User Manual
- Warranty Card
- IP68 Cable Extender *
- Mounting Screws
- Power Adapters *

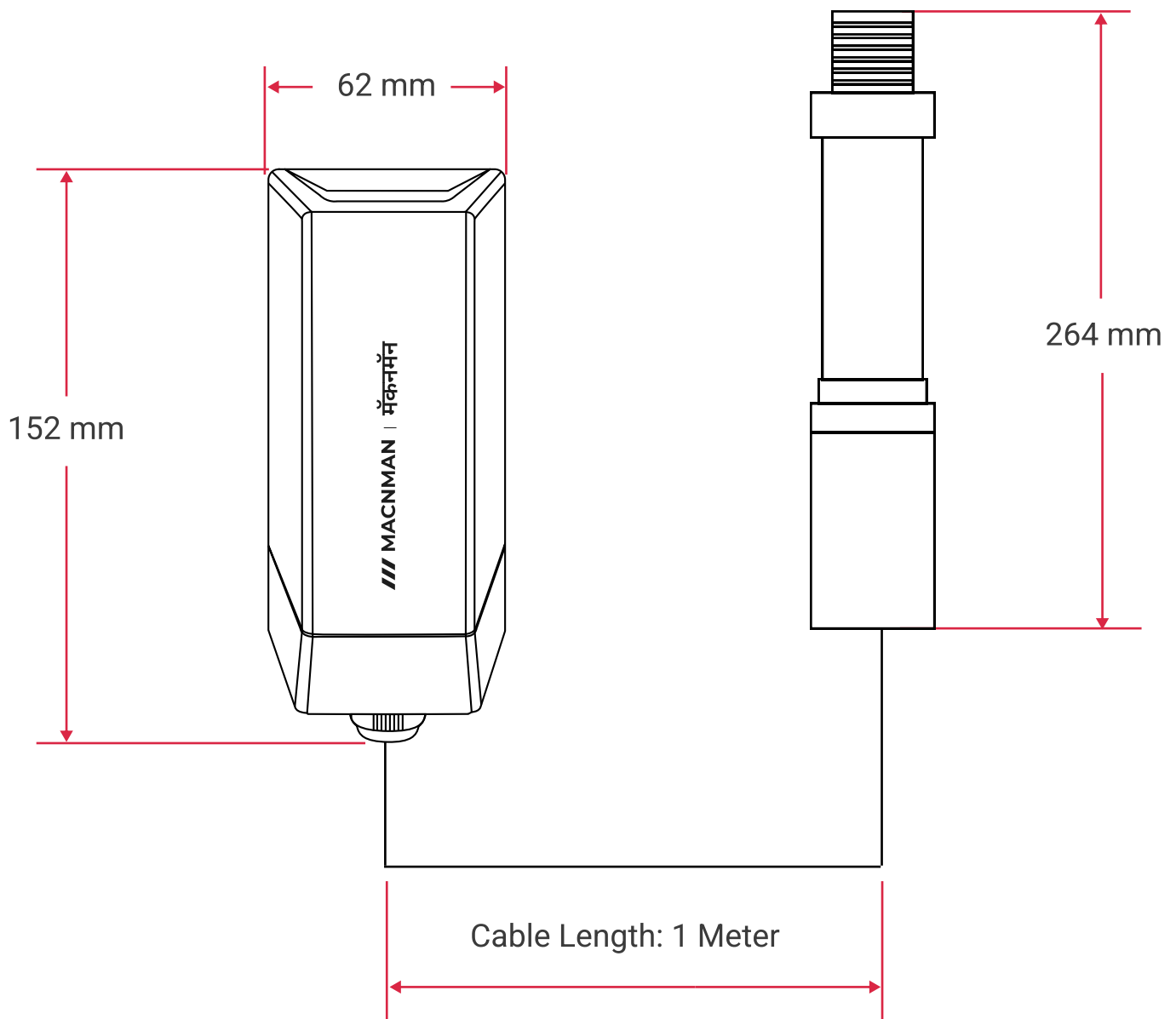
Models & Ordering Information

Variant Name	Power Source
MacSync LWQS X1 B0	Integrated 19 Ah Lithium Battery
MacSync LWQS X1 S0	20 W Solar Panel + 8000 mAh Battery

Notes

- Power operated models are only available with external probe option
- (*) Marked accessories need to be purchased separately.
- Battery life may vary depending on network conditions, transmission interval, ambient temperature, & device configuration.

Device Dimensions






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