



LoRaWAN® Water pH Sensor

MacSync LWQS X2

LoRaWAN-based Water pH Sensor for real-time water acidity and alkalinity monitoring with long-range connectivity and ultra-low power operation.



Introduction

The MacSync LWQS X2 is a LoRaWAN-based water pH sensor designed for real-time monitoring of water quality in industrial, agricultural, and environmental applications. The device combines a high-precision pH probe with long-range wireless connectivity, enabling reliable remote monitoring across large deployment areas.

Built for harsh outdoor environments, the sensor supports ultra-low power operation, cloud integration, and industrial IoT platforms. It is ideal for applications such as water treatment plants, hydroponics, aquaculture, wastewater monitoring, cooling towers, and smart irrigation systems.

Features

- Continuous Real-Time Water pH Monitoring
- Detects Acidic and Alkaline Water Conditions
- Accurate and Stable pH Measurement Performance
- Ultra-Low Power with Multi-Year Battery Operation
- Wireless Deployment Without Complex Cabling
- Designed for Continuous Industrial Water pH Monitoring
- Compatible with Public & Private LoRaWAN® Networks & Macnman MacTalk Protocol
- Designed for Outdoor and Harsh Environments

Key Advantages

- Enables Remote Monitoring Across Multiple Locations
- Improves Operational Efficiency and Response Time
- Scalable for Large Industrial Monitoring Networks
- Improves Decision-Making with Real-Time Data
- Optimized for Industrial and Environmental Applications

Water pH Sensor Measurement

Sensing Principle	Ion Selection Method
Range	0 to 14 pH
Resolution	0.01 pH
Accuracy	±0.1 pH
Calibration Method	Two-Point Calibration
Temperature Compensation	Automatic Temperature Compensation (NTC)
Service Life	Sensor - 1 Year (Typical)

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 pH 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 X2 Sensor
- Mounting Clip
- User Manual
- Warranty Card
- IP68 Cable Extender *
- Mounting Screws
- Power Adapters *

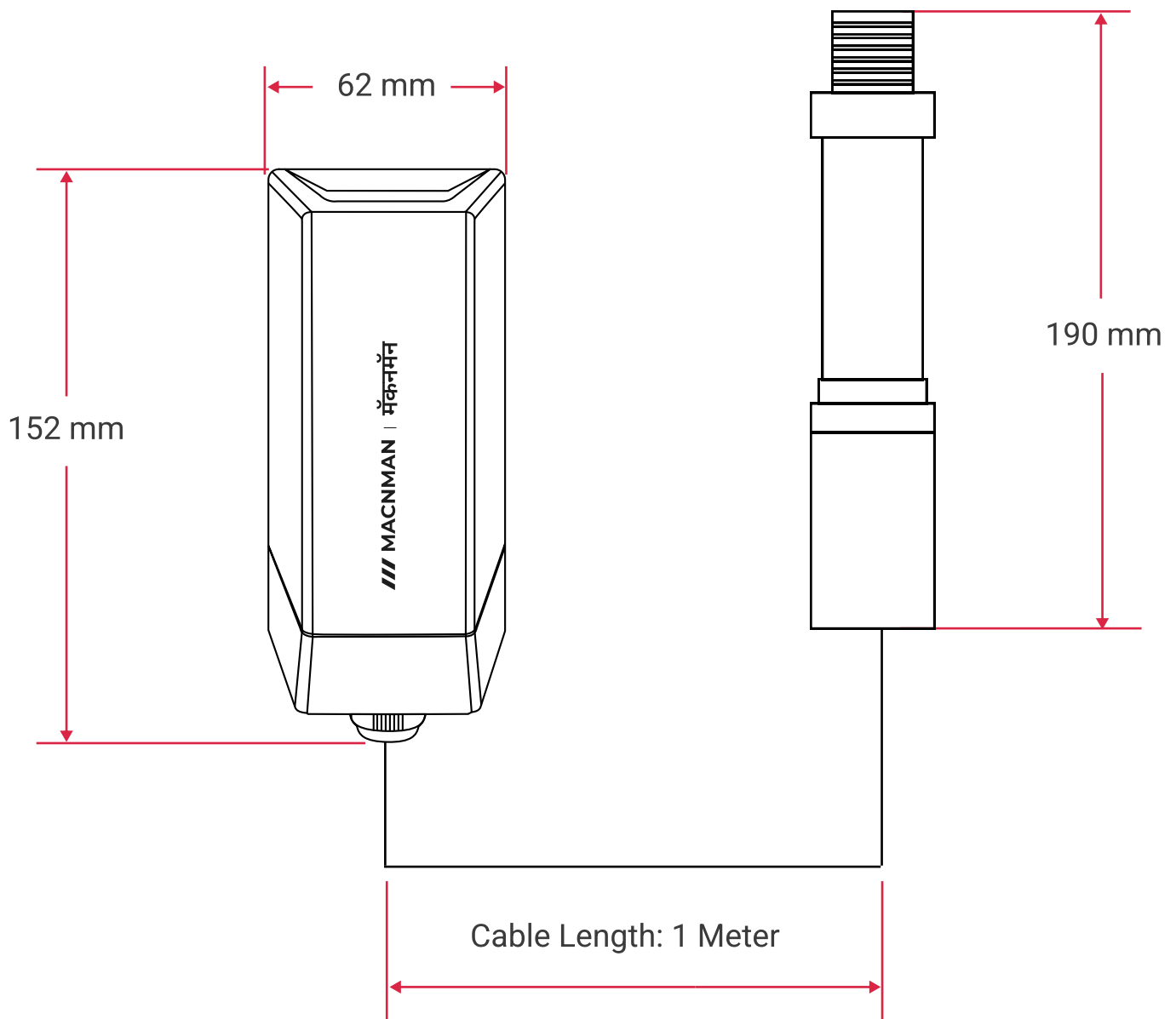
Models & Ordering Information

Variant Name	Power Source
MacSync LWQS X2 B0	Integrated 19 Ah Lithium Battery
MacSync LWQS X2 S0	20 W Solar Panel + 8 Ah 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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