



LoRaWAN[®] H₂S Gas Monitoring Sensor

MacSync L H2S X1



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Introduction

The MacSync L H2S X1 is an industrial-grade LoRaWAN® Hydrogen Sulfide (H₂S) Monitoring Sensor designed for continuous real-time monitoring of H₂S gas emissions across wastewater treatment plants, sewage systems, STP & WWTP facilities, industrial plants, landfills, chemical processing sites, and environmental monitoring applications.

With long-range LoRaWAN® connectivity, ultra-low power architecture, rugged industrial construction, and intelligent event-triggered alerting, the MacSync L H2S X1 enables scalable remote gas monitoring deployments without requiring complex wired infrastructure.

Features

- Real-Time qualitative hydrogen sulfide detection Hydrogen Sulfide (H₂S)
- Industrial-Grade MEMS Gas Sensing Technology
- High Sensitivity to Sulfur-Based Gas Conditions
- BLE-enabled configuration and diagnostics via mobile application
- Supports periodic, event-based, and threshold-based data transmission
- LoRaWAN & Macnman MacTalk Protocol Support (Gateway-Free Device to Device Communication)
- Quick Deployment with No Wiring Infrastructure Required
- Compatible with Public & Private LoRaWAN® Networks

Key Advantages

- Ideal for STP, WWTP & Sewage Monitoring Applications
- Supports Worker Safety in Gas-Prone Environments
- Enables Continuous Monitoring Across Distributed Industrial Sites
- Reduces Manual Environmental Inspection Requirements
- Supports Environmental Compliance & Safety Monitoring
- Designed for Harsh Outdoor & Industrial Deployments
- Enables Faster Incident Response Through Real-Time Alerts

H₂S Gas Sensor Specifications

Measurement Range	0 to 100 ppm
Maximum Detectable Concentration	500 ppm
Sensitivity	(0.8 ± 0.15) μA / ppm
Resolution	0.1 ppm
Repeatability	< 2% of Output Value

Stability (Per Month)	< 2%
Zero Drift	≤ 0.2 ppm
Expected Sensor Life	2 Years (in Air)
Calibration	Factory Calibrated

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 Maya
Device Activation	OTAA
Supported LNS	Private LNS ,ChirpStack ,TTN , MQTT, Orbiwise, Netmore (Activity)

Device Management

Configuration Method	Via Macnman Maya Android App
Local Configuration	BLE-Based Local Configuration
Remote Configuration	Over-the-Air Configuration (Downlink Commands)
Status LED	1 × Internal Multi-Color LED

Server Data Reporting Options

Data Reporting Mode	Periodic / Event-based / Hybrid
Transmission Interval	Independent uplink interval for optimized power consumption
Threshold-Based Alerts	Configurable gas detection thresholds 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
Battery Type	Lithium Thionyl Chloride (Li-SOCl ₂)

Estimated Battery Life at 25 °C

5-minute reporting interval ~ 6 Months

15-minute reporting interval ~ 1.5 years

60-minute reporting interval ~ 3 years

Physical & Environmental Specifications**Enclosure & Mechanical**

Material Glass Filled Nylon

Protection Rating IP65

Dimensions 165 mm X 62 mm X 43 mm

Weight ~175 g

Mounting & Installation

Wall - Mounted Supported

Pole - Mounted Supported

Environmental Conditions

Operating Temperature -40 °C to + 65°C

Operating Humidity 0% to 95% RH (non-condensing)

Regulatory Certifications & Compliance

Wireless Certification WPC

Environmental RoHS Compliant

What's in the Box?

- MacSync L H2S X1 Sensor
- Mounting Clip
- User Manual
- Warranty Card
- IP68 Cable Extender *
- Mounting Screws
- Power Adapters *

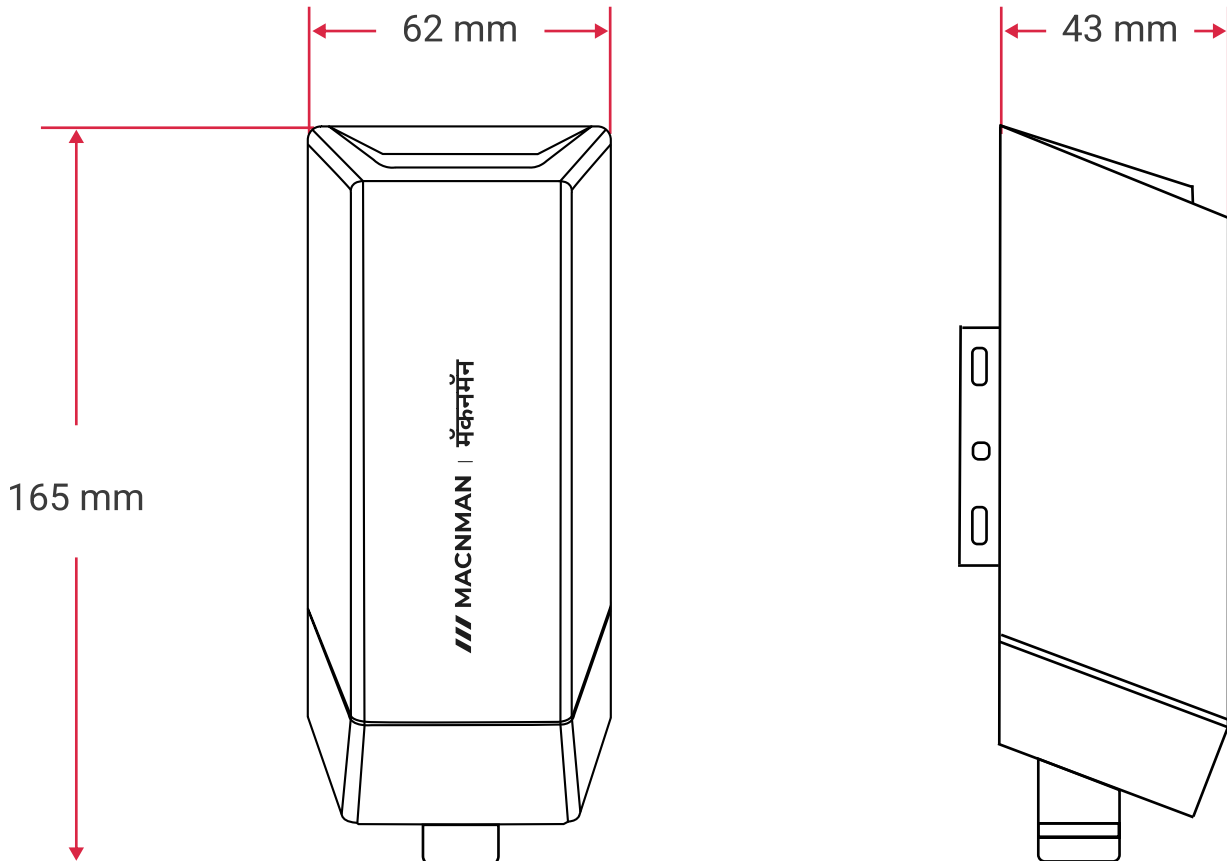
Models & Ordering Information

Variant Name	Power Source
MacSync L H2S X1 PO	External Power (9–36 V DC)
MacSync L H2S X1 BO	Integrated 19 Ah Lithium Battery

Notes

- Power operated models are only available with external probe option
- (*) Marked accessories must be purchased separately
- Battery life is estimated under standard operating conditions

Device Dimensions






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