



LoRaWAN® Oxygen Sensor

MacSync LOXGS X1

LoRaWAN® oxygen monitoring sensor for real-time O₂ concentration monitoring with long-range wireless connectivity and industrial-grade reliability.



Introduction

The MacSync LOXGS X1 is an industrial-grade LoRaWAN® Oxygen Monitoring Sensor designed for continuous real-time monitoring of oxygen (O₂) concentration across industrial plants, confined spaces, warehouses, medical facilities, process industries, laboratories, gas monitoring systems, and environmental safety applications.

Built with high-stability oxygen sensing technology and long-range LoRaWAN® connectivity, the device enables organizations to continuously monitor oxygen levels, improve workplace safety, detect abnormal atmospheric conditions, and support centralized industrial monitoring infrastructure.

Features

- Real-Time Oxygen (O₂) Concentration Monitoring
- Industrial-Grade Oxygen Sensing Technology
- Configurable Sampling & Transmission Intervals
- BLE-Based Configuration via Maya App
- Event-Triggered Low Oxygen Notifications
- Compatible with Public & Private LoRaWAN® Networks & Macnman MacTalk Protocol
- Designed for Industrial & Hazardous Environments

Key Advantages

- Supports Centralized Monitoring Across Distributed Facilities
- Enables Continuous Atmospheric Safety Monitoring
- Supports ESG & Environmental Safety Initiatives
- Minimizes Maintenance Through Ultra-Low Power Operation
- Enables Scalable Wireless Oxygen Monitoring Infrastructure

Oxygen (O₂) Measurement Specifications

Range	0 ~ 25% Vol
Maximum Detectable Concentration	30% Vol
Sensitivity	(0.1 ~ 0.3) mA (In Air)
Response Time (T90)	≤ 15 Seconds
Stability (Per Month)	< 2%
Repeatability	< 2% of Output Value
Pressure Range	Normal Atmosphere ±10%
Zero Drift (-20°C ~ 40°C)	≤ 0.1% Vol
Expected Sensor Life	2 Years

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 ,The Things Networks , 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)
Status LED	1 × 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 Oxygen Thresholds for Event-Triggered Transmission
Sampling Interval	Configurable data acquisition interval (e.g., 1 min to 24 hours)

Power & Battery Performance

Power Supply	Integrated Battery - 19,000 mAh
Battery Type	Lithium Thionyl Chloride (Li-SOCl ₂)
Estimated Battery Life at 25 °C	
5-minute reporting interval	~1 year
15-minute reporting interval	~2 years
60-minute reporting interval	~4+ 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 Installation	Supported , With Clip
Pole - Mounted Installation	Supported , Without Clip

Environmental Conditions

Operating Temperature	-40°C to +80°C
Operating Humidity	0% to 95% RH (non-condensing)

Regulatory Certifications & Compliance

Wireless Certification	WPC
Environmental	RoHS compliant

What's in the Box?

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

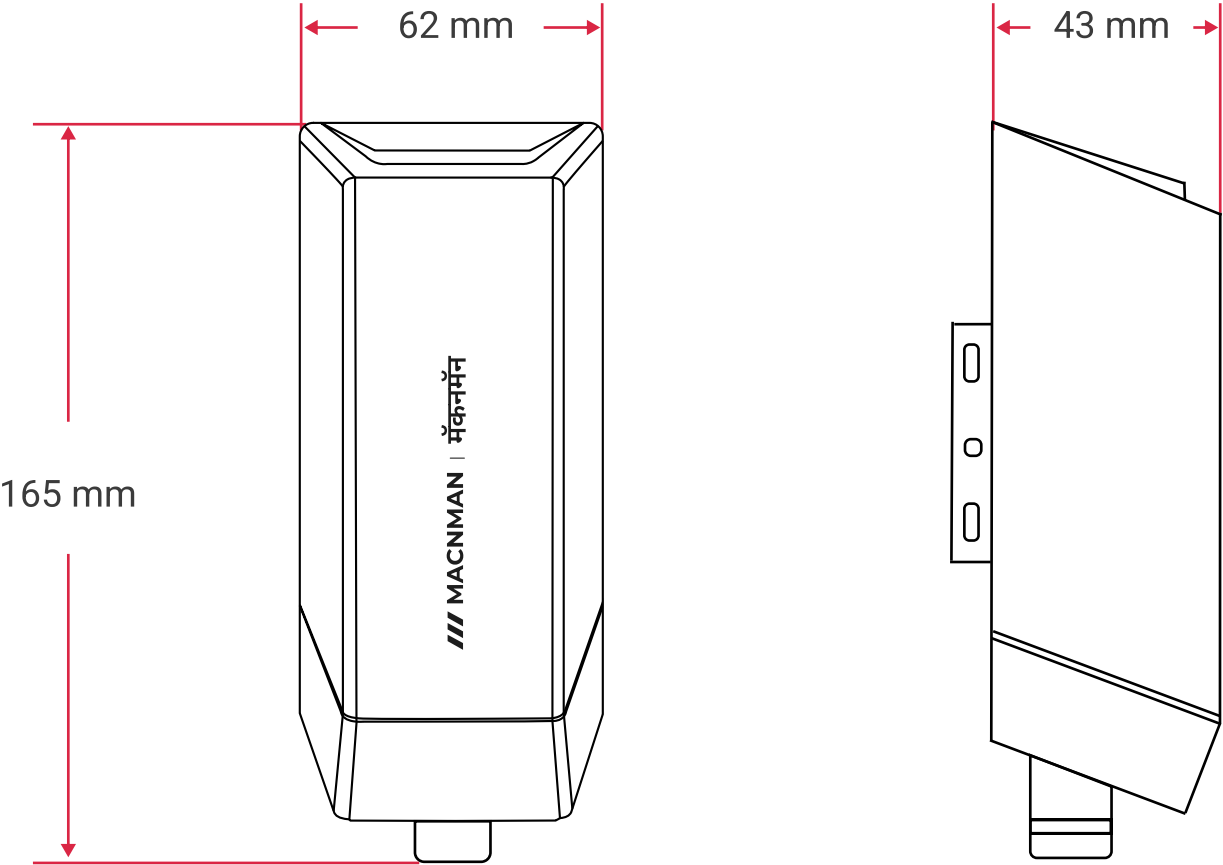
Models & Ordering Information

Variant Name	Power Source
MacSync LOXGS X1 PO	External Power (9–36 V DC)
MacSync LOXGS X1 BO	Integrated Battery - 19,000 mAh

Notes

- Power-operated variants require external DC power input & external sensor probe
- (*) Marked accessories must be purchased separately

Device Dimensions



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