



# Industrial Modbus RS485 & Analog to LoRaWAN® Datalogger

## MacSync LX1 P0



## Introduction

The **MacSync LX1** is an industrial-grade LoRaWAN® RS485 Modbus & Analog Data Logger designed for reliable real-time data acquisition from industrial sensors, transmitters, energy meters, PLCs, environmental monitoring devices, and field instrumentation. The device enables seamless collection of RS485 Modbus RTU, 4–20 mA, and 0–10 V sensor data and securely transmits it over long-range LoRaWAN® networks for centralized monitoring and analytics.

Built for industrial and remote monitoring applications, the MacSync LX1 combines flexible input interfaces, intelligent data logging, configurable reporting intervals, event-based transmission, BLE-based configuration, and ultra-low power operation. The device supports both public and private LoRaWAN® networks, making it ideal for scalable industrial IoT deployments.

## Features

- Connect Existing RS485 Modbus Devices to LoRaWAN® Networks
- Connect 4–20 mA Industrial Sensors Wirelessly
- Connect 0–10 V Analog Sensors Wirelessly
- Supports Both Analog & Modbus Devices in a Single Device
- BLE-Based Configuration via Macnman Maya App
- Compatible with Public & Private LoRaWAN® Networks & Macnman MacTalk Protocol
- Scalable Distributed Industrial Automation Support

## Key Advantages

- Modernize Legacy Industrial Infrastructure Without Replacing Existing Equipment
- Reduce Project Costs by Leveraging Existing Sensors & Field Devices
- Enable Centralized Monitoring Across Multiple Remote Assets
- Reduce Manual Data Collection & Site Inspection Requirements
- Accelerate Industrial IoT Deployment with Minimal Site Modifications
- Improve Operational Decision-Making Through Continuous Data Availability
- Improve Data Availability for Compliance, Reporting & Process Optimization

## RS485 Modbus Input Specifications

Number of RS485 Ports	1 x Independently Configurable
Interface	RS485 Modbus RTU
Modbus Mode	Modbus RTU Master
Baud Rate Support	1200 bps to 115200 bps
Data Format	8 Data Bits, No/Even/Odd Parity, 1 Stop Bit

Slave Devices	Multiple Modbus RTU Slave Devices
Function Codes	Read Holding Registers, Read Input Registers, Write Single Register, Write Multiple Registers
Polling Interval	User Configurable
Communication Direction	Half-Duplex

## Analog Input Specifications

Input Channels	2 x Independently Configurable
Input Range (Voltage)	2 x 0–10V Analog Input (Switchable)
Input Range (Current)	2 x 4-20 mA Analog Input (Switchable)
Input Modes per Channel	2 x Digital Input (Switchable)
Measurement Accuracy	±1% FS*
ADC Resolution	12-bit
Polling Interval	User Configurable

## 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	Up to 23 dBm @ 865 MHz
Sensitivity	Up to -137 dBm @ 300 bps
LoRaWAN® Class	Class A (Default), Configurable to Class C via Macnman Maya
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)
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	Threshold-based alerts configurable modbus data thresholds
Sampling Interval	Configurable data acquisition interval (e.g., 1 min to 24 hours)

## Power Input Specifications (PO Series)

Input Power Supply	12–36 V DC
Recommended Power Adapter	24 V DC, 2 A SMPS
Power Consumption (Idle)	< 15 $\mu$ A (Sleep / Low Activity)
Power Consumption (Tx)	< 250 mA (During LoRa Transmission)
Overvoltage Protection	Built-in

## Battery Performance (BO Series)

Power Supply	Inbuilt Battery - 19,000 mAh
Battery Type	Lithium Thionyl Chloride (Li-SOCl <sub>2</sub> )
<b>Estimated Battery Life at 25 °C</b>	
5-minute reporting interval	~2 years
15-minute reporting interval	~4 years
60-minute reporting interval	~7+ years

## Physical & Environmental Specifications

<b>Enclosure &amp; Mechanical</b>	
Material	Glass-Filled Nylon
Protection Rating	IP 65
Dimensions	152 mm X 62 mm X 43 mm
Weight	175 grams
<b>Mounting &amp; Installation</b>	
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 LX1 Device
- Mounting Clip
- User Manual
- Warranty Card
- IP68 Cable Extender \*
- Mounting Screws
- Power Adapters \*

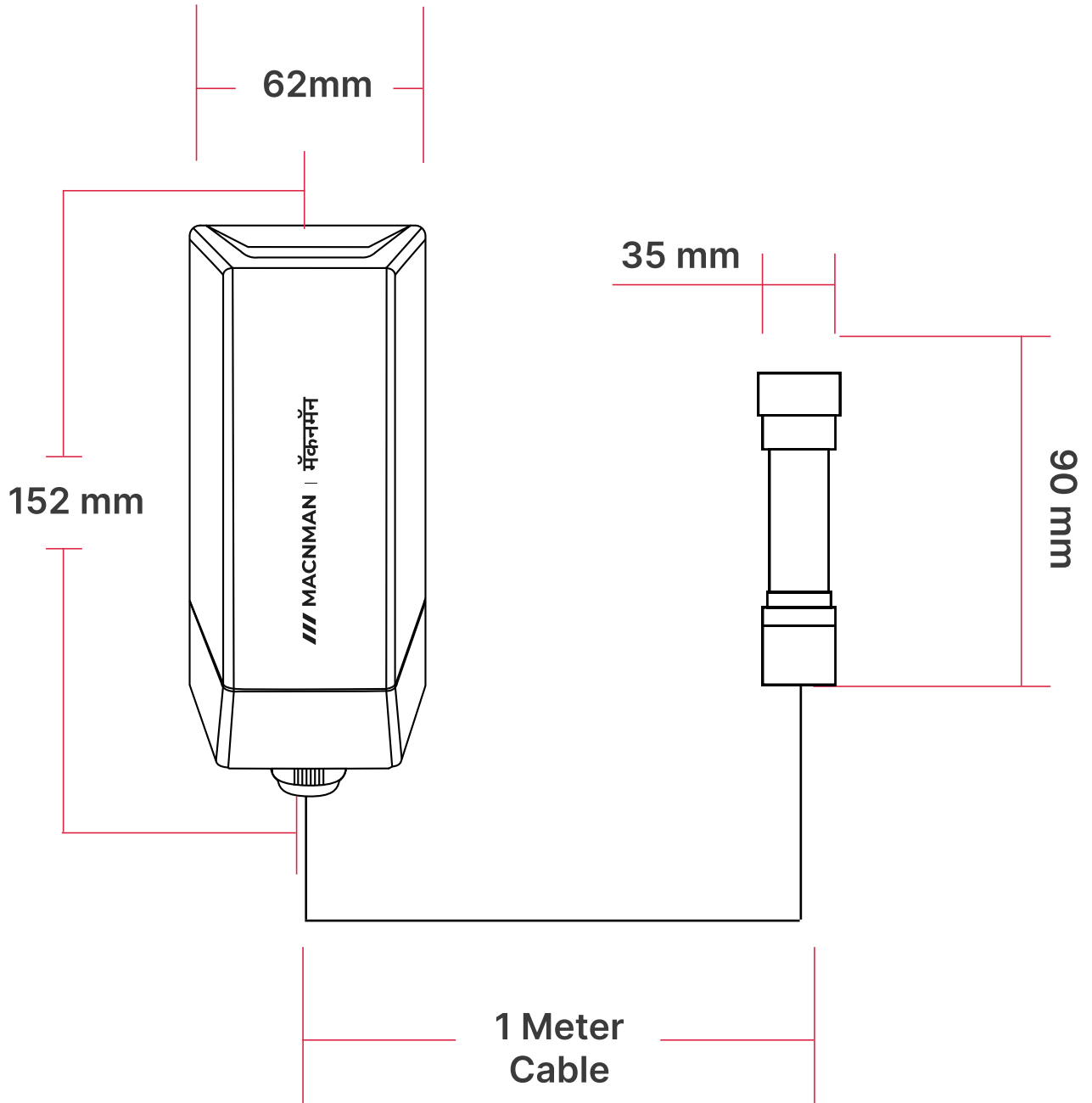
## Models & Ordering Information

Variant Name	Power Source
MacSync LX1 P0	External Power (9–36 V DC)
MacSync LX1 B0	Integrated Battery - 19,000 mAh

## Notes

- Power-operated variants require an external DC power supply.
- (\*) Marked accessories must be purchased separately

## Device Dimensions






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