



LoRaWAN Temperature & Humidity Sensor

MacSync LTS X1



Introduction

The MacSync LTS X1 is a Industrial-grade, battery-powered LoRaWAN temperature and humidity sensor engineered for precise environmental monitoring across industrial, commercial, and agricultural applications. Built on low-power wide-area network (LPWAN) technology, the device ensures long-range wireless communication with ultra-low power consumption, making it ideal for remote, distributed, and large-scale deployments.

From cold storage facilities and pharmaceutical warehouses to smart buildings and greenhouse environments, the sensor provides real-time temperature and humidity data to maintain optimal conditions, enhance operational efficiency, ensure regulatory compliance, and enable proactive decision-making through continuous environmental insights.

Features

- High-precision temperature & humidity sensing with SHT40 series sensor
- Ultra-long battery life with high-capacity lithium battery (up to 10+ years depending on configuration)
- Rugged IP65-rated enclosure suitable for industrial and outdoor deployments
- BLE-enabled configuration and diagnostics via mobile application
- Supports periodic, event-based, and threshold-based data transmission
- Macnman MacTalk Protocol Support (Gateway-Free Communication Device to Device Communication)
- Quick Deployment with No Wiring Infrastructure Required
- Universal LoRaWAN Gateway Compatibility

Key Advantages

- Ensures environmental stability in critical storage conditions
- Reduces operational risk through real-time monitoring
- Enables data-driven decision making across facilities
- Supports regulatory compliance with reliable data tracking
- Minimizes manual intervention and maintenance efforts
- Delivers consistent performance in remote and distributed environments
- Enhances asset protection and quality assurance

Temperature Sensor Measurement

| | |
|---------------|-----------------------|
| Range | -30°C to +70°C |
| Accuracy | ±0.3°C (typical) |
| Resolution | 0.1°C |
| Response Time | ≤ 8 seconds (typical) |
| Repeatability | ±0.1°C |

| | |
|-----------------|---|
| Long-Term Drift | < 0.03°C/year |
| Sensor Type | Digital Temperature Sensor (SHT Series) |

Humidity Sensor Measurement

| | |
|---------------|--------------------------------------|
| Range | 0% to 100% RH |
| Accuracy | ±2% RH (typical) |
| Resolution | 0.1% RH |
| Repeatability | ±2% RH (typical) |
| Sensor Type | Digital Humidity Sensor (SHT Series) |

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 | X 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 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 |
| Battery Type | Lithium Thionyl Chloride (Li-SOCl ₂) |
| Estimated Battery Life at 25 °C | |
| 5-minute reporting interval | ~2 years |
| 15-minute reporting interval | ~4 years |
| 60-minute reporting interval | ~7+ years |

Physical & Environmental Specifications

Enclosure & Mechanical

| | |
|-------------------|------------------------|
| Material | Glass Filled Nylon |
| Protection Rating | IP65 |
| Dimensions | 183 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 Model
- Mounting Clip
- User Manual
- Warranty Card
- IP68 Cable Extender *
- Mounting Screws
- Power Adapters *

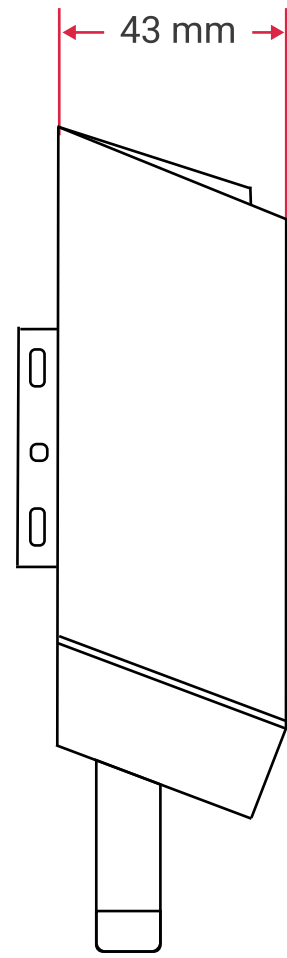
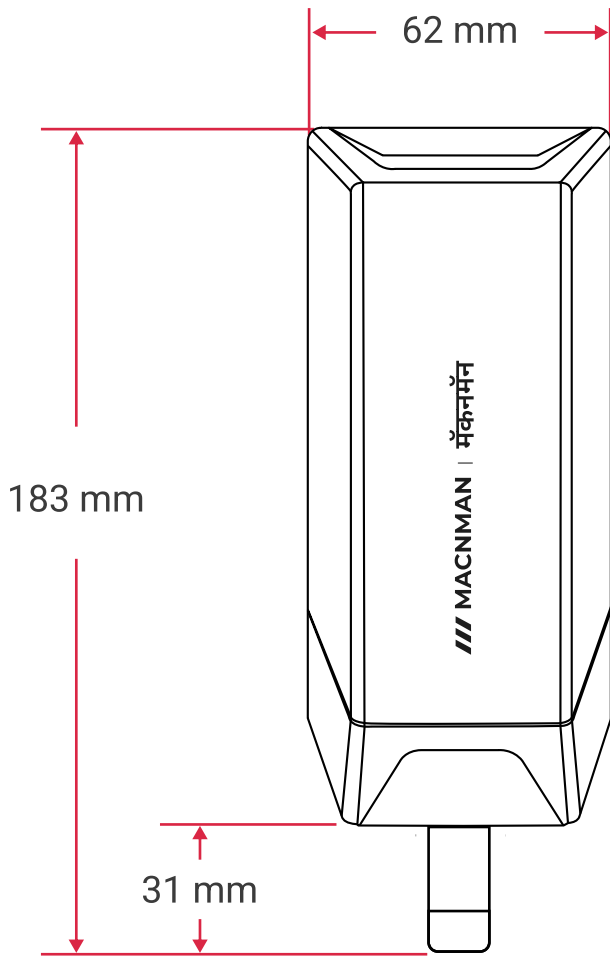
Models & Ordering Information

| Variant Name | Power Source |
|-------------------|----------------------------|
| MacSync LTS X1 PO | External Power (9–36 V DC) |
| MacSync LTS X1 BO | Inbuilt Battery (19 Ah) |

Notes

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

Device Dimensions






y to serve you. तुमची सेवा करण्याची संधी दिल्याबद्दल धन्यवाद. మీకు సేవ చేసే అ
के अवसर के लिए धन्यवाद भवतः सेवायाः अवसरस्य कृते धन्यवादः तमारी सेवा करवानी

Say Hello 🙌

-  www.macnman.com
-  info@macnman.com
-  +91 7972856163
-  Office -15, 635 1B, Bibwewadi, Pune,
Maharashtra 411037

Support Mails

-  chat@macnman.com
-  helpdesk@macnman.com
-  support@macnman.com

This manual and all its contents are the intellectual property of Macnman Technologies Pvt. Ltd. and are protected under Indian copyright laws and applicable international conventions.

All trademarks, certifications, and logos mentioned in this document or related products are used with appropriate licensing. These may include, but are not limited to, certifications such as CE, FCC, RoHS, REACH, BQB, WEEE, and others. Ownership of trademarks, logos, and trade names remains with their respective owners. For instance, the Bluetooth® trademark and logo are the property of Bluetooth SIG, Inc. Other trademarks belong to their rightful proprietors.

Given the compact size of the module, the "®" symbol is omitted from Bluetooth-related trademarks in compliance with applicable regulations.

Macnman Technologies Pvt. Ltd. reserves the right to modify the content of this manual to align with advancements in technology. Updated versions may be released without prior notification. Unauthorized modification, reproduction, or use of part or all of this manual without written consent from Macnman Technologies Pvt. Ltd. is strictly prohibited. Legal action will be taken against violators in accordance with Indian law.

By using this manual, you agree to comply with the terms stated herein.