Compact LoRaWAN® Temperature Humidity Sensor

Narmada TSX1

MACNMAN

Introduction

The Narmada TSX1 is a compact industrial-grade LoRaWAN® Temperature Humidity Sensor designed for reliable environmental monitoring across smart buildings, warehouses, agriculture, HVAC systems, cold storage, pharmaceutical facilities, and industrial IoT applications.

Built with a space-efficient compact form factor, the device delivers accurate real-time temperature and humidity monitoring while enabling long-range wireless communication through LoRaWAN® networks. Its ultra-low power architecture and optimized wireless performance make it ideal for large-scale indoor and distributed sensing deployments.

Features

- Compact LoRaWAN® Temperature & Humidity Sensor
- Ultra-Low Power Wireless Architecture
- Compact Form Factor for Indoor 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

- Suitable for Offices, Hospitals & Commercial Facilities
- Ideal for Smart Buildings & HVAC Monitoring
- Enables Large-Scale Indoor Sensor Deployments
- Reduces Installation Complexity & Wiring Costs
- Supports Warehouse & Cold Storage Monitoring
- Minimizes Maintenance Through Ultra-Low Power Operation
- Supports Smart Agriculture & Greenhouse Monitoring

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 (Actility)

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 temperature & humidity thresholds
Sampling Interval	Configurable data acquisition interval (e.g., 1 min to 24 hours)

Power & Battery Performance

Power Supply	Integrated 8 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	IP55
Dimensions	83 mm X 53 mm X 38 mm
Weight	~110 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 ?

- Narmada TSX1
- Mounting Clip
- User Manual
- Warranty Card
- IP68 Cable Extender *
- Mounting Screws
- Power Adapters *

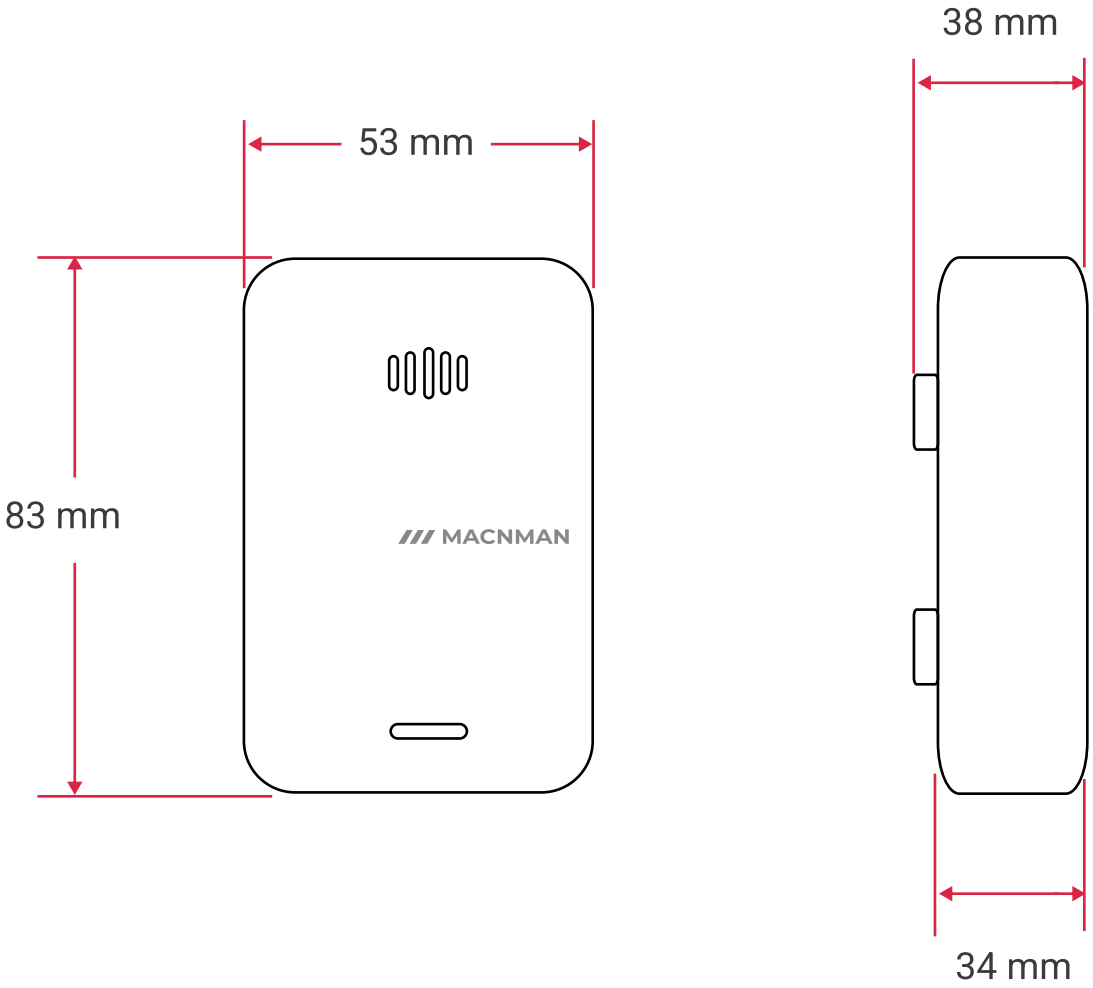
Models & Ordering Information

Variant Name	Power Source
Narmada TSX1	Integrated 8 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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