MacSync-LC021





MacSync-LCO21 Overview

 ${\bf MacSync\text{-}LCO21}$ is a compact and intelligent LoRaWAN® CO $_2$ sensor designed for accurate, real-time monitoring of indoor air quality in environments like smart buildings, greenhouses, factories, and HVAC systems. It combines advanced photoacoustic NDIR sensing with temperature and humidity monitoring to deliver dependable data for environmental control.

Perfect for applications such as ventilation optimization, energy-efficient climate control, and greenhouse gas tracking, MacSync-LCO21 integrates seamlessly with Macnman LoRaWAN® gateways and cloud platforms enabling smarter, healthier, and more sustainable indoor environments.

Sensors

CO2

Temperature

Humidity

Wireless Technology



Features

High Accuracy CO2 Sensing

High accuracy: ±(40 ppm + 5 %)

Compact & Industrial-Grade Design

Wide measurement range: 0 - 40,000 ppm

LoRaWAN® Class A & C communication

Communication for flexible uplink strategies

Photoacoustic NDIR (PASens®) technology

teomology

Integrated Sensing

Built-in temperature & humidity sensor

Low power consumption

Optimized for battery-powered operations

Supports Macnman Beam Protocol

Direct control, & local device-to-device actions

Secure onboarding with pre-flashed DevEUI / AppEUI / AppKey

Supports periodic, threshold-based, & event-driven uplinks

Compatible with all LoRaWAN® network servers & gateways



Specifications

Measurement		
CO2 Sensing		
Range	0 – 40,000 ppm (MacSync-LCO21)	
	400 ppm – 2'000 ppm (± 50 ppm + 5% of reading) (MacSync-LCO22)	
	400 ppm – 5'000 ppm (± 40 ppm + 5% of reading)(MacSync-LCO23)	
Repeatability	± 10 ppm	
Response time(Sensor)	60 s	
Additional accuracy drift per year	± (5 ppm + 0.5 % of reading)	
Calibration	Factory calibrated	
Temperature Sensing		
Range	- 10°C – 60°C	
Accuracy	± 0.8 °C	
Resolution	± 0.1°C	
Accuracy drift	< 0.03 °C / year	
Humidity Sensor		
Range	0% to 100% RH	
Accuracy	10% to 90% RH: ±3% RH & <10% or >90% RH: ±5% RH	
Resolution	0.5% RH	
Calibration	Factory calibrated	



Wireless Transmission	
Technology	LoRaWAN® (v1.0.4), Macnman Beam Protocol
Antenna	Internal high-efficiency antenna
Supported Bands	IN865 / RU864 / EU868 / US915 / AU915 / KR920 / AS923-1/2/3/4
Tx Power	16 dBm @ 868 MHz 20 dBm @ 915 MHz 19 dBm @ 470 MHz
Sensitivity	-137 dBm @ 300 bps
Activation	OTAA / ABP
LoRaWAN® Class	Class A (default), Configurable to Class C via Maya

Led Status	
LED Type	1 Internal Multi-Color LED
Solid Blue	Device is connected with Maya App
Flashing Blue	OTA (Over-the-Air) update in progress
Slow Blinking Green	Attempting to connect to the LoRaWAN® network
Single Red Blink	A confirmed parameter of MacSync is being modified

Configuration	
Configuration	Via Macnman Maya Android App
Maya Fatures	Threshold / Trigger / Sample based alarm triggers
Stored Records	30,000 Records (accessible via Maya) (optional)
Remote Configuration	Yes - JSON format Data



Physical Characteristics	
Power Supply	Inbuilt Battery - 19,000 mAh , Optional Solar Panel
Operating Temp	-40°C to +80°C
Humidity Range	0% to 100% RH (non-condensing)
Ingress Protection	IP65 standard (IP67 optional variant)
Housing Material	SS Metal(Sensor) , Glass field Nylon (MacSync)
Color	Matte White
Weight	~190g (with 19Ah battery)
Dimensions	Approx. 184 mm X 62 mm X 43 mm (customizable branding available)
Mounting Options	Pole Mounting / Wall Mounting

Device Dimensions





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