

GLOBALSAT WORLDCOM CORPORATION

PRODUCT SPECIFICATIONS

LoRaWAN Sensor Device

MODEL: LS-111 (CO₂)

Document Version: V0.2



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Introduction:

LS-111 is designed to measure Carbon Dioxide (CO₂), Temperature and Humidity by LoRa long-range and low-power wireless connectivity. It is integrated LoRa wireless technology, CO₂ sensor knowhow and high-performance MCU solution for various IoT markets usage. With calibrated CO₂ sensor module and compensated Temperature/ Humidity sensor integration, the data is ready for use. It is perfect for monitoring air quality in schools, office buildings, greenhouses, factories, hotels, hospitals, transportation lines and anywhere high levels of carbon dioxide are generated.

Product Features:

- LoRaWAN compliant
- High Receiver Sensitivity, long range solution
- Integrated with calibrated CO₂ sensor
 - Accuracy: ± 30 ppm, $\pm 3\%$ of reading
 - Range: 0 ~ 10,000 ppm
- Integrated with Compensated Temp/ RH sensor
- Wide range DC power-in, 8~24V /or Micro-USB DC power-in, 5V
- Display CO₂ concentration, Temp/ RH

Specifications

Wireless	
LoRa Module	LoRa Alliance certified module
Sensitivity	-132 dBm @ 980bps
Tx Power	Up to 100mW
Standard/ Protocol	Comply with LoRaWAN protocol
LoRa Antenna	External Omni Antenna 824~960 MHz 2dBi SMA Male connector
Frequency	865~868MHz (Model : LS-111E) 902~928MHz (Model : LS-111H)
Sensor Operation	
Sensing Element	CO ₂ : Gold-plated infrared (NDIR) wave-guide technology with Automatic Baseline Correction (ABC) and passive gas diffusion (no moving parts) Temperature & Humidity: CMOS sensor
Response Time	CO ₂ : < 10 sec. @ 30 cc/min. flow rate < 3 min. diffusion time Temperature: min. 3 sec. ; max. 30sec. at 63% Humidity: < 8 sec. at 63%
Accuracy (at 25°C)	CO ₂ : ±30ppm + (± reading *3%) Temperature: ±0.3°C Humidity: ±3 %RH
Repeatability	CO ₂ : ± 20ppm + (±reading * 1%) Temperature: ±0.1°C Humidity: ±0.1 %RH
Zero Drift	CO ₂ : < ± 10ppm/yr. with Automatic Baseline Correction (ABC) Temperature: < 0.04 °C/yr Humidity: < 0.5 %RH/yr
Measurement Range*	CO ₂ : 0 ~ 10,000ppm Temperature: -40 ~ +125°C Humidity: 0 ~ 95 %RH
Pressure Dependence	CO ₂ : 1.6% reading per kPa
System Operation	
Temperature	-10 ~ +60 °C
Humidity	0 ~ 95%RH, Non-condensing
Storage Temperature	-20 ~ +70 °C.
Warm-up Time	≤ 1 min. (at full specs ≤ 15 minutes)

Specifications

Signal Output	NA
Alarm Output	NA
Power Supply	DC 8~24V or Micro-USB DC 5V
Power Consumption	TBD
Installation	Wall-mount
Dimension (mm)	Wall-mount: 113.57(H) x 80(W) x 28.79(D)
Case Material	ABS