

Product Brief

Model: LAS-301 Series

Carbon Dioxide (CO₂) and Temperature & Humidity



Ver. 1.4

LAS-301 is designed to measure carbon dioxide, 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.

Features

- LoRaWAN compliant/TELEC Certificate
- High Receiver Sensitivity, long range solution
- Integrated with calibrated CO2 sensor
 - Accuracy ± 50 ppm, $\pm 3\%$ of reading
 - Range 0 ~ 10,000 ppm
- Integrated with Compensated Temp/RH sensor
- Micro-USB DC power-in, 5V
- Display CO2 concentration, Temp/ RH

Wireless	
Lora Module	Kiwi TLM-922S-P01A module
Frequency	862-932 MHz ISM bands
Tx Power	< 100 mW
Sensitivity	-137 dBm
Receiver	LoRaWAN comply Receiver Gateway
Antenna	2dBi SMA Male connector
Sensor Operation	
Sensing element	CO2: 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	CO2: < 2 min.(90%) Temperature: min. 3 sec. ; max. 30sec. at τ 63% Humidity: < 8 sec. at τ 63%
Accuracy (at 25°C)	CO2: ± 50 ppm +(\pm reading *3%) Temperature: $\pm 0.5^{\circ}\text{C}$ Humidity: ± 5 %RH
Repeatability	CO2: ± 20 ppm + (\pm reading * 1%) Temperature: $\pm 0.3^{\circ}\text{C}$ Humidity: ± 0.3 %RH
Zero Drift	CO2: < ± 10 ppm/yr. with Automatic Baseline Correction (ABC) Temperature: < 0.04 $^{\circ}\text{C}/\text{yr}$. Humidity: < 0.5 %RH/yr.
Measurement range*	CO2: 0 ~ 10,000ppm Temperature: 0 ~ +50°C Humidity: 0 ~ 85 %RH
Pressure dependence	CO2: 1.6% reading per kPa
System operation	
Temperature	0 ~ +50 $^{\circ}\text{C}$
Humidity	0 to 85% RH non-condensed, 0 to 50 $^{\circ}\text{C}$
Storage temperature	-20 ~ +70 $^{\circ}\text{C}$.
Warm-up time	≤ 1 min. (at full specs ≤ 15 minutes)
Power supply	Micro-USB DC power-in, 5V
Power consumption	TBD
Installation	Wall-mount
Dimension (mm)	Wall-mount: 113.57(H) x 80(W) x 28.79(D)
Case material	ABS
Certifications	TELEC/VCCI