Indoor Ambience Monitoring Sensor

Featuring LoRaWAN®

AM300(L) Series

Introduction

AM300(L) series is a compact indoor ambience monitoring sensor for measurement of temperature, humidity, light, CO_2 concentration, $HCHO/O_3$ level, TVOC, barometric pressure, PM2.5, PM10 and motion. The data will be shown on the E-ink screen in real-time, which helps to measure the indoor environment and comfort. AM300 series is widely used for offices, stores, classrooms, hospitals, etc.

Sensor data is transmitted using LoRaWAN® technology. Combining Milesight LoRaWAN® gateway and Milesight IoT Cloud, users can manage all sensor data remotely and visually.

Features

- Integrated with multiple sensors like humidity, temperature, CO_2, light, barometric pressure, PM2.5, PM10, etc.
- Multiple display modes and clear emoticon to easily understand the comfort levels via screen
- Support batteries or DC power supply
- Equipped with traffic light indicator and buzzer to indicate device status and threshold alarms
- Store locally 18, 000 historical records and support retransmission to prevent data loss
- Compliant with standard LoRaWAN® gateways and network servers
- Quick and easy management with Milesight IoT Cloud

◆ Specifications

Model	AM307(L)	AM308(L)	AM319(L)
Wireless Transmission			
Technology	LoRaWAN®		
Frequency	CN470/RU864/IN865/EU868/US915/AU915/KR920/AS923-1&2&3&4		
Tx Power	16dBm(868MHz)/22dBm(915MHz)/19dBm(470MHz)		
Sensitivity	-137dBm @300bps		
Work Mode	OTAA/ABP Class A	OTAA/ABP Class A	OTAA/ABP Class C
Sensors			
Temperature			
Operating Principle	Digital CMOSens® technology (MEMS)		
Range	-20°C~60°C		
Accuracy	± 0.2°C		
Resolution	0.1°C		
Humidity			
Operating Principle	Digital CMOSens® technology (MEMS)		
Range	0% ~ 100% RH		
Accuracy	± 2% RH		
Resolution	0.5% RH		
Motion			
Operating Principle	Passive infrared (PIR)		
Detection Range	80 ° Horizontal, 55 ° Vertical, 5m		
Status	Vacant/Occupied		
Light			
Operating Principle	Photodiode		
Range	0-60000 Lux (Determine as 6 levels, 0-5)		
TVOC			
Operating Principle	MOX (MEMS)		
Range[1]	1.00 ~ 5.00 (IAQ Rating)		
Accuracy	±1		
Resolution	0.01		
Barometric Pressure			
Operating Principle	Piezoresistive absolute pressure sensor (MEMS)		
Range	260 - 1260 hPa		

Accuracy	±0.5 hPa		
Resolution	0.1 hPa		
Carbon Dioxide (CO_2)			
Operating Principle	Nondispersive Infrared (NDIR)		Photoacoustic
Range	400 ~ 5000 ppm		400 ~ 2000 ppm
Accuracy	± (30 ppm + 3 % of reading) (0°C~ 50°C, 0% to 85%RH)		± (50 ppm + 5 % of reading) (-10°C~ 60°C)
Resolution	1 ppm		1 ppm
PM2.5 & PM10			
Operating Principle	—	Laser Scattering	
Range	—	0 ~ 1000 μg/m^3	
Accuracy	—	0~100(±10μg/m^3), 100~1000(±10 %) (-10°C~ 60°C)	
Resolution	—	1 μg/m^3	
Formaldehyde (HCHO)[2]			
Operating Principle	—	—	Electrochemical
Range[3]	—	—	0 ~ 1.25 mg/m^3
Accuracy	—	—	±10 %
Resolution	—	—	0.01 mg/m^3
Working Life			6 Years
Ozone (O_3)[2]			
Operating Principle	—	—	Electrochemical
Range	—	—	0 ~ 10 ppm
Accuracy	—	—	±5 % FS
Resolution	—	—	0.01 ppm
Working Life			2 Years
Display & Configuration			
Display	AM307 & AM308 & AM319: 4.2-inch Black & White E-Ink Screen AM307L & AM308L & AM319L: Not Support		
Button	1 × Power Button + 1 × Reset Button		
LED & Buzzer	1 × Traffic Light Status Indicator + 1 × Buzzer		
Configuration	1. Mobile App via NFC 2. PC software via NFC or USB Type-C port		
Physical Characteristics			
Power Supply	1. 4 × 2700 mAh ER14505 Li-$SOCl_2$ Replaceable Batteries		5V/1A by Type-C Port

	2. 5V/1A by Type-C Port		
Battery Life[4] (10 min interval, 25°C)	AM307: Around 3 Years AM307L: Around 4 Years	AM308: Over 1 Year AM308L: Around 1.5 Year	—
Operating Temperature	-20°C - 60°C (E-Ink Screen: 0°C - 40°C)		
Relative Humidity	10% - 90% (non-condensing)		
Ingress Protection	IP30		
Dimension	100.8 × 114 × 22 mm (3.97 × 4.49 × 0.87 in)		
Installation	3M Tape Mounting, Wall Screw Mounting		
Approvals			
Regulatory	CE, FCC, ISED		
Environmental	RoHS		

Note:

1. Reference to IAQ rating guideline (conversion from mg/m3 to ppm by the factor is about 0.5):

IAQ Rating	Air Quality
≤1.99	Very Good
2.00 to 2.99	Good
3.00 to 3.99	Medium (not recommended for exposure > 12 months)
4.00 to 4.99	Poor (not recommended for exposure > 1 months)
≥5.00	Bad (not recommended)

2. HCHO or O_3 sensor is alternative option and both support replacement.
3. For HCHO at 760 mmHg and 20°C, 1 ppm = 1.25 mg/m^3.
4. The battery life is tested under laboratory conditions and for guideline purposes only.