

# Indoor Ambience Monitoring Sensor

## Featuring LoRaWAN®

### AM319

**Milesight**



## ◆ Introduction

AM319 is a compact indoor ambience monitoring sensor for measurement of temperature, humidity, light, CO<sub>2</sub> concentration, HCHO/O<sub>3</sub> 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. AM319 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<sub>2</sub>, light, barometric pressure, PM2.5, PM10, etc.
- Multiple display modes and clear emoticon to easily understand the comfort levels via screen
- Support 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 and Milesight Development Platform

## ◆ Specifications

Wireless Transmission	
Technology	LoRaWAN®
Antenna	Internal Antennas
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 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, Maximum 5m
Status	Vacant/Occupied
Light	
Operating Principle	Photodiode
Range	0-60000 Lux (Determine as 6 levels, 0-5)
TVOC	
Operating Principle	MOX (MEMS)
Report Mode <sup>1</sup>	IAQ Rating or Concentration Value
IAQ Rating	Range: 1.00 - 5.00 Accuracy: ±1 Resolution: 0.01
Concentration	Range: 0 - 2000 µg/m³ Accuracy: 20 µg/m³ ±15% of readings (1 - 500 µg/m³)

	Resolution: 1 $\mu\text{g}/\text{m}^3$
<b>Barometric Pressure</b>	
Operating Principle	Piezoresistive absolute pressure sensor (MEMS)
Range	260 - 1260 hPa
Accuracy	$\pm 0.5$ hPa
Resolution	0.1 hPa
<b>Carbon Dioxide (CO<sub>2</sub>)<sup>2</sup></b>	
Operating Principle	Photoacoustic
Range	400 ~ 2000 ppm
Accuracy	$\pm$ (50 ppm + 5 % of reading) (-10°C~ 60°C)
Resolution	1 ppm
<b>PM2.5 &amp; PM10</b>	
Operating Principle	Laser Scattering
Range	0 ~ 1000 $\mu\text{g}/\text{m}^3$
Accuracy	0~100( $\pm 10\mu\text{g}/\text{m}^3$ ), 100~1000( $\pm 10$ %) (-10°C~ 60°C)
Resolution	1 $\mu\text{g}/\text{m}^3$
<b>Formaldehyde (HCHO)<sup>2</sup></b>	
Operating Principle	Electrochemical
Range <sup>3</sup>	0 ~ 1.25 mg/m <sup>3</sup>
Accuracy	$\pm 10$ %
Resolution	0.01 mg/m <sup>3</sup>
Working Life	6 Years
<b>Ozone (O<sub>3</sub>)<sup>2</sup></b>	
Operating Principle	Electrochemical
Range	0 ~ 10 ppm
Accuracy	$\pm 5$ % FS
Resolution	0.01 ppm
Working Life	2 Years
<b>Other Interfaces</b>	
Display	4.2-inch Black & White E-Ink Screen
Button	1 × Power Button + 1 × Reset Button
LED & Buzzer	1 × Traffic Light Status & Alarm Indicator + 1 × Buzzer
USB	1 × Type-C Port for Power Supply, Configuration or Debug
<b>Software</b>	
Power On/Off	1. Mobile App via NFC

	2. PC software via NFC or USB Type-C port 3. Power Button
Configuration	1. Mobile App via NFC 2. PC software via NFC or USB Type-C port 3. Downlink
Advanced Features	Threshold Alarm, Data Storage, Data Retrievability, Data Retransmission

### Physical Characteristics

Power Supply	5V/1A by Type-C Port
Operating Temperature	-20°C - 60°C (E-Ink Screen: 0°C - 40°C)
Relative Humidity	10% - 90% (non-condensing)
Ingress Protection	IP30
Housing & Color	ABS (UL94 HB), White
Weight	148g
Dimension	100.8 × 114 × 22 mm (3.97 × 4.49 × 0.87 in)
Installation	Wall Mounting via 3M Tape or Screws

### Approvals

Regulatory	CE, FCC, ISED
Environmental	RoHS, Works with WELL

#### Note:

1. Reference to IAQ rating guideline (conversion from mg/m<sup>3</sup> to ppm by the factor is about 0.5):

IAQ Rating	TVOC (mg/m <sup>3</sup> )	Air Quality
≤1.99	<0.3	Very Good
2.00 to 2.99	0.3 to 1.0	Good
3.00 to 3.99	1.0 to 3.0	Medium (not recommended for exposure > 12 months)
4.00 to 4.99	3.0 to 10.0	Poor (not recommended for exposure > 1 months)
≥5.00	>10.0	Bad (not recommended)

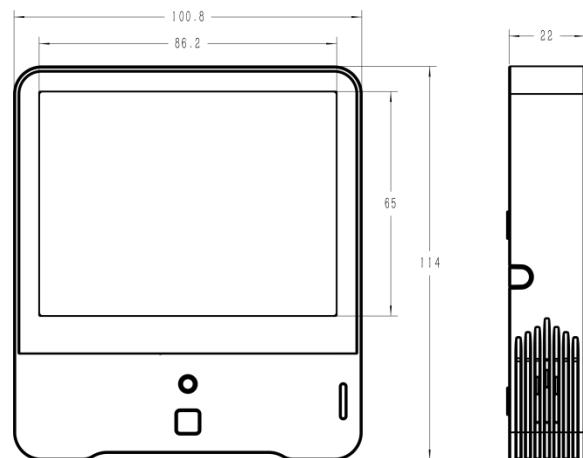
2. HCHO or O<sub>3</sub> sensor is alternative option and both support replacement.

3. For HCHO at 760 mmHg and 20°C, 1 ppm = 1.25 mg/m<sup>3</sup>.

## ◆ Ordering Information

Model	PN	Description
AM319	HCHO-IR	Temperature, Humidity, Light, Motion, CO <sub>2</sub> , TVOC, Pressure, PM2.5, PM10, <b>HCHO</b>
	O <sub>3</sub>	Temperature, Humidity, Light, Motion, CO <sub>2</sub> , TVOC, Pressure, PM2.5, PM10, <b>O<sub>3</sub></b>

## ◆ Dimensions (mm)



## ◆ PIR Area

