# Indoor Ambience Monitoring Sensor

## Featuring LoRaWAN®

# AM30x (L)




## ◆ Introduction

AM30x(L) is a compact indoor ambience monitoring sensor for measurement of temperature, humidity, light, $CO_2$ concentration, 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.

Sensor data is transmitted using LoRaWAN® technology. Combining Milesight LoRaWAN® gateway and Milesight Development Platform solution, users can manage all sensor data remotely.

AM30x(L) can be used in offices, stores, classrooms, hospitals, etc.

## ◆ 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 historical records and support retransmission to prevent data loss

- Compliant with standard LoRaWAN® gateways and network servers
- Quick and easy management with Milesight Development Platform
- Supports Milesight D2D protocol for ultra-low latency and direct control without gateways for AM304L & AM305L Only
- Integrates with Milesight IoT Cloud for AM307 & AM308(L) Only

## ◆ Specifications

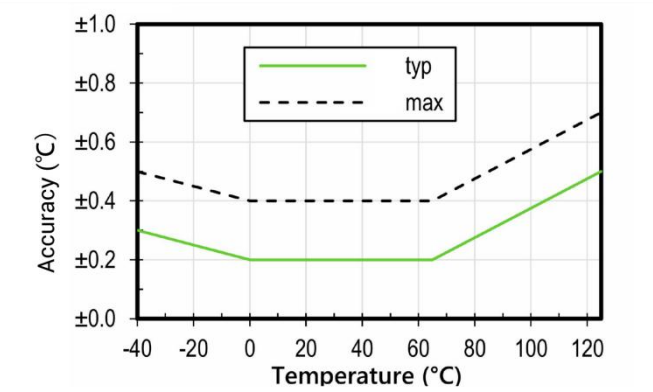
| Model | AM304L | AM305L | AM307 | AM308(L) |
|---|---|---|---|---|
| **Wireless Transmission** | | | | |
| Technology | LoRaWAN® , Milesight D2D | | LoRaWAN® | |
| Antenna | Internal Antenna | | | |
| Frequency | CN470/RU864/IN865/EU868/US915/AU915/KR920/AS923-1&2&3&4 | | | |
| Tx Power | 16dBm(868MHz)/22dBm(915MHz)/19dBm(470MHz) | | | |
| Sensitivity | -137dBm @300bps | | | |
| Work Mode | OTAA/ABP Class A | | | |
| **Sensors** | | | | |
| **Temperature** | | | | |
| Operating Principle | Digital CMOSens® technology (MEMS) | | | |
| Range | -20°C~60°C | | | |
| Accuracy[1] | Typ. ±0.3°C (-20°C ~ 0°C), ± 0.2°C (0°C ~ 60°C) | | | |
| Resolution | 0.1°C | | | |
| **Humidity** | | | | |
| Operating Principle | Digital CMOSens® technology (MEMS) | | | |
| Range | 0% ~ 100% RH | | | |
| Accuracy[2][3] | Typ. ± 2% RH (25°C) | | | |
| Resolution | 0.5% RH | | | |
| **Motion** | | | | |
| Operating Principle | Passive infrared (PIR) | | | |
| Detection Range | 80 ° Horizontal, 55 ° Vertical, 3m | | | |
| Status | Vacant/Trigger | | | |
| **Light** | | | | |
| Operating Principle | Photodiode | | | |
| Range | 0-60000 Lux | | | |
| Report Mode | Illuminance Value or | | Illuminance Level (0-5) | |

| | | |
|---|---|---|
| | Illuminance Level (0-5) | |
| Accuracy | ±30% of reading | / |
| Resolution | 1 Lux | / |
| **Carbon Dioxide ($CO_2$)** | | |
| Operating Principle | / | Nondispersive Infrared (NDIR) |
| Range | | 400 ~ 5000 ppm |
| Accuracy | | ± (30 ppm + 3 % of reading)<br>(0°C~ 50°C, 0% to 85%RH) |
| Resolution | | 1 ppm |
| **Barometric Pressure** | | |
| Operating Principle | / | Piezoresistive absolute pressure sensor (MEMS) |
| Range | | 260 - 1260 hPa |
| Accuracy | | ±0.5 hPa |
| Resolution | | 0.1 hPa |
| **TVOC** | | |
| Operating Principle | / | MOX (MEMS) |
| Range[4] | | 1.00 ~ 5.00 (IAQ Rating) |
| Accuracy | | ± 1 |
| Resolution | | 0.01 |
| **PM2.5 & PM10** | | |
| Operating Principle | / | Laser Scattering |
| Range | | 0 ~ 1000 μg/m$^3$ |
| Accuracy | | 0~100(±10μg/m$^3$),<br>100~500(±10 %)<br>(-10°C~ 60°C) |
| Resolution | | 1 μg/m$^3$ |
| **Other Interfaces** | | |
| Display | AM307 & AM308: 4.2-inch Black & White E-Ink Screen<br>AM304L & AM305L & AM308L: Not Support | |
| Button | 1 × Power Button + 1 × Reset Button | |
| LED | 1 × Traffic Light Status Indicator | |
| Buzzer | / | 1 × Buzzer |
| USB | 1 × Type-C Port for Power Supply or Console | 1 × Type-C Port for Power Supply, Configuration or Console |

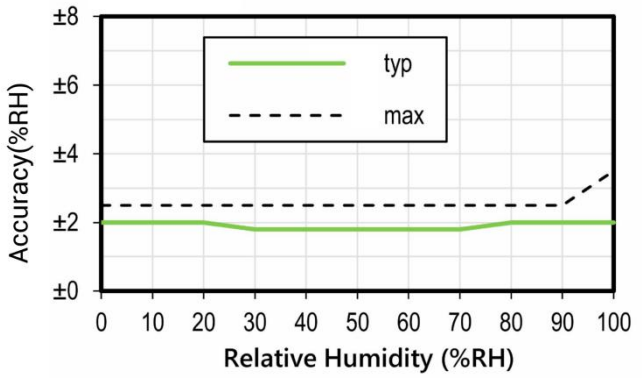
| | | | | |
|---|---|---|---|---|
| **Software** | | | | |
| Configuration | 1. Mobile App via NFC<br>2. Downlink | | 1. Mobile App via NFC<br>2. PC software via USB Type-C port<br>3. Downlink | |
| Advanced Features | Calibration, Threshold Alarm, Data Storage (4320 entries), Data Retrievability, Data Retransmission, Button Lock, D2D Data Transmission, D2D Controller | | Calibration, Threshold Alarm, Data Storage (18, 000 entries), Data Retrievability, Data Retransmission, Smart Screen Mode, Button Lock | |
| **Physical Characteristics** | | | | |
| Power Supply | 1. 4 × 2700 mAh ER14505 Li-$SOCl_2$ Replaceable Batteries<br>2. 5V/1A by Type-C Port | | | |
| Battery Life[5]<br>(10 min interval, 25°C) | Around 14 Years (SF7, EU868)<br>Around 12.5 Years (SF7, US915)<br>Around 7.5 Years (SF10, EU868)<br>Around 3.9 Years (SF10, US915) | Around 11 Years (SF7, EU868 &US915)<br>Around 6.3 Years (SF10, EU868)<br>Around 3.7 Years (SF10, US915) | Around 3.9 Years (SF7, EU868 &US915)<br>Around 3.1 Years (SF10, EU868)<br>Around 2 Years (SF10, US915) | Around 1.3 Years (SF7, EU868 & US915)<br>Around 1.2 Years (SF10, EU868)<br>Around 1 Year (SF10, US915) |
| Operating Temperature | -20°C - 60°C (E-Ink Screen: 0°C - 40°C) | | | |
| Relative Humidity | 10% - 90% (non-condensing) | | | |
| Ingress Protection | IP30 | | | |
| Housing&Color | PC+ABS (V0), White | | | |
| Weight<br>(With Batteries) | 181.25g | 187.55g | 182.5g | 222.6g |
| Dimension | 100.8 × 114 × 22 mm (3.97 × 4.49 × 0.87 in) | | | |
| Installation | Wall Mounting via 3M Tape or Screws | | | |
| **Approvals** | | | | |
| Regulatory | CE, CE (RED), FCC | | CE, CE (RED), FCC, ISED | |
| Environmental | RoHS | | | |

**Note:**

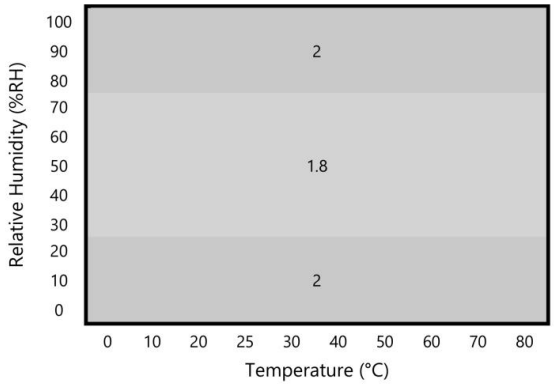
1. Accuracy corresponding to the temperature:




2. Accuracy corresponding to the relative humidity:




3. Typical RH accuracy corresponding to the temperature at 25°C:




4. Reference to IAQ rating guideline (conversion from mg/m$^3$ to ppm by the factor is about 0.5):

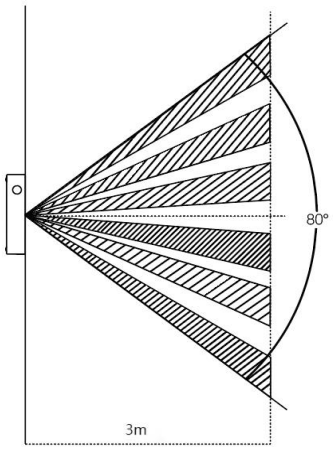
| IAQ Rating | Air Quality |
|---|---|
| ≤1.99 | Very Good |
| 2.00 to 2.99 | Good |
| 3.00 to 3.99 | Medium (not recommended for exposure > 12 months) |
| 4.00 to 4.99 | Poor (not recommended for exposure > 1 months) |
| ≥5.00 | Bad (not recommended) |

5. The battery life is based on test results under laboratory conditions using the standard battery provided by Milesight. Actual performance may vary depending on battery brand and environmental factors.

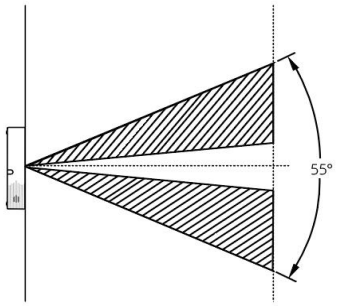
## ◆ Ordering Information

| Model | Description |
|---|---|
| AM304L | Temperature, Humidity, Light, Motion |
| AM305L | Temperature, Humidity, Light, Motion, $CO_2$ |
| AM307 | Temperature, Humidity, Light, Motion, $CO_2$, TVOC, Pressure |
| AM308 (L) | Temperature, Humidity, Light, Motion, $CO_2$, TVOC, Pressure, PM2.5 & PM10 |

## ◆ PIR Area



Horizon View



Vertical View

## ◆ Dimensions (mm)

