

# Indoor Ambience Monitoring Sensor

Featuring LoRaWAN®

MPC6102 - 6104-SN



MPC6102



MPC6103



MPC6104

## ◆ Introduction

MPC6102-6104 series 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. The ambience monitoring sensors are widely used for offices, stores, classrooms, hospitals, etc.

Sensor data is transmitted using wireless technology. Combining MobiCom Pro gateway and 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 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 MobiCom Pro gateways and network servers
- Quick and easy management via MobiCom Pro IoT Cloud

## ◆ Specifications

Model	MPC6102	MPC6103	MPC6104
Wireless Transmission			
Technology	Wireless		
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 <sup>1</sup>	± 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 <sup>1</sup>	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 <sub>2</sub> )			
Operating Principle	Nondispersive Infrared (NDIR)		Photoacoustic
Range	400 - 5000 ppm		400 - 2000 ppm
Accuracy	± (30 ppm + 3 % of reading) (0°C to +50°C)		± (50 ppm + 5 % of reading) (-10°C to +60°C)
Resolution	1 ppm		1 ppm
PM2.5 & PM10			
Operating Principle	—	Laser Scattering	
Range	—	0 - 1000 µg/m <sup>3</sup>	
Accuracy	—	0-100(±10µg/m <sup>3</sup> ), 100-1000(±10 %) (-10°C to +60°C)	
Resolution	—	1 µg/m <sup>3</sup>	
Formaldehyde (HCHO) <sup>2</sup>			
Operating Principle	—	—	Electrochemical
Range <sup>3</sup>	—	—	0 - 1.25 mg/m <sup>3</sup>
Accuracy	—	—	±10 %
Resolution	—	—	0.01 mg/m <sup>3</sup>
Working Life			6 Years
Ozone (O <sub>3</sub> ) <sup>2</sup>			
Operating Principle	—	—	Electrochemical
Range	—	—	0 - 10 ppm
Accuracy	—	—	±5 % FS
Resolution	—	—	0.01 ppm
Working Life			2 Years
Display & Configuration			
Display	4.2-inch Black & White E-Ink Screen		
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 <sub>2</sub> Replaceable Batteries		5V/1A by Type-C Port

	2. 5V/1A by Type-C Port		
Battery Life <sup>4</sup> (10 min interval)	Around 3 Years	Over 1 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, 86 Box Mounting		
Approvals			
Regulatory	CE, FCC		
Environmental	RoHS		

**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>.

4. The battery life is tested under laboratory conditions and for guideline purposes only.

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