

# Indoor Ambience Monitoring Sensor

KL100 Series (KL104 & KL107)



## ◆ Introduction

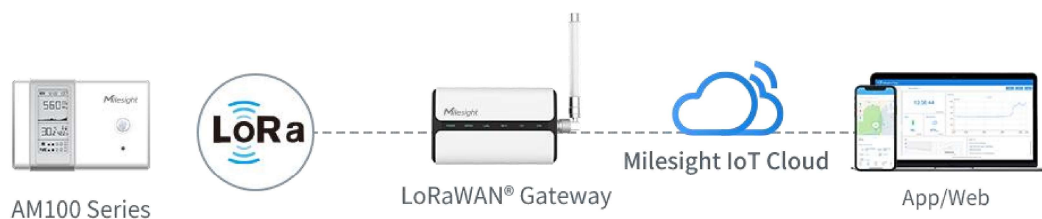
KL104/KL107 is a compact indoor ambience monitoring sensor for measurement of temperature, humidity, light, CO<sub>2</sub> concentration, TVOC, barometric pressure and motion. These data will be shown on the E-ink screen in real-time, which allow to quantify the indoor environment and comfort. KL104/KL107 is widely used for offices, stores, classrooms, hospitals, etc.

Apart from screen display, sensor data is also transmitted using LoRaWAN<sup>®</sup> technology. With this low power consumption technology, KL104/KL107 can work for one year with 2 replaceable AA batteries. Combining with Kled measurement LoRaWAN gateway and Kled measurement IoT Cloud solution, users can manage all sensor data remotely and visually.

## ◆ Features

- Integrated with multiple sensors like humidity, temperature, CO<sub>2</sub>, light, barometric pressure, etc.
- Visual display via E-ink screen
- Standard AA batteries
- One year work without replacing batteries
- Equipped with NFC and type-C port for easy configuration
- Compliant with standard LoRaWAN<sup>®</sup> gateways and network servers
- Quick and easy management with Kled measurement IoT Cloud solution

## ◆ Application Example



## ◆ Specifications

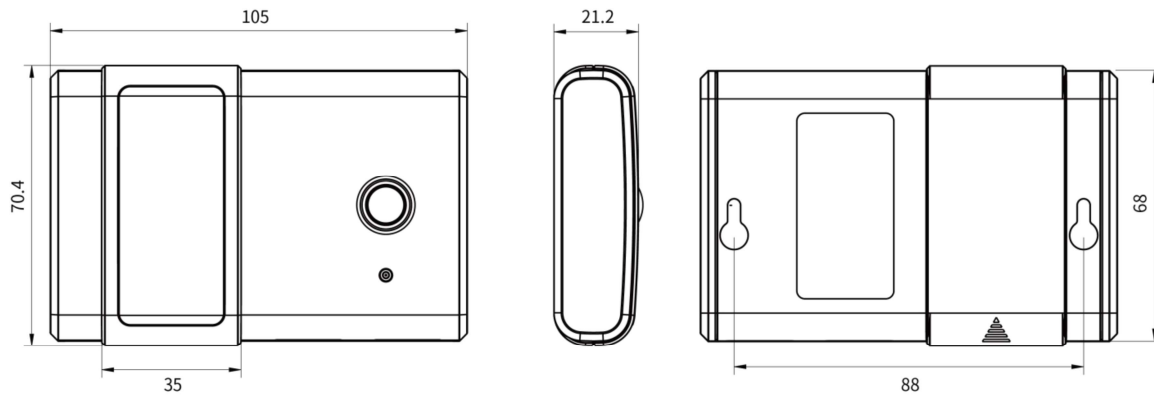
Model	KL104	KL107
<b>Wireless Transmission</b>		
Technology	LoRaWAN®	
Frequency	CN470/IN865/RU864/EU868/US915/AU915/KR920/AS923-1&2&3&4	
Tx Power	16dBm(868 MHz)/20dBm(915 MHz)/19dBm(470 MHz)	
Sensitivity	-137dBm @300bps	
Mode	OTAA/ABP Class A	
<b>Sensors</b>		
<b>Temperature</b>		
Sensor Type	MEMS	
Range	-20°C to + 70°C	
Accuracy	0°C to + 70°C (+/- 0.3°C), -20°C to 0°C (+/- 0.6°C)	
Resolution	0.1°C	
<b>Humidity</b>		
Sensor Type	MEMS	
Range	0% to 100% RH	
Accuracy	10% to 90% RH (+/- 3%), below 10% and above 90% RH (+/- 5%)	
Resolution	0.5% RH	
<b>PIR</b>		
Detection Area	94 ° Horizontal, 82 ° Vertical	
Detection Distance	5 m	
Output Range	0-65535	
<b>Light</b>		
Range	60000 lux (Visible + IR, IR)	
Accuracy	±30%	
<b>Carbon Dioxide (CO<sub>2</sub>)</b>		

Sensor Type	—	Nondispersive Infrared (NDIR)
Range	—	400 - 5000 ppm
Accuracy (0°C to +50°C)	—	± (30 ppm + 3 % of reading)
Resolution	—	1 ppm
<b>TVOC</b>		
Sensor Type	—	MEMS
Range	—	0 - 60000 ppb
Accuracy	—	±15 %
Resolution	—	1 ppb
Long-term Stability	—	1.3 % accuracy drift per year
<b>Barometric Pressure</b>		
Sensor Type	—	MEMS
Range	—	300 - 1100 hPa (-40°C - 85°C)
Accuracy	—	±1 hPa
Resolution	—	0.1 hPa
<b>Display &amp; Configuration</b>		
Display	2.13-inch Black & White E-Ink Screen	
Configuration	<ol style="list-style-type: none"> <li>1. Mobile App via NFC</li> <li>2. PC software via NFC or USB Type-C port</li> </ol>	
<b>Physical Characteristics</b>		
Power Supply	2 × 1.5V AA Alkaline Batteries or Type-C Port	
Battery Life <sup>1</sup>	Around 1.5 Years	Around 1 Year
Operating Temperature	0°C to +45°C	
Relative Humidity	0% to 100% (non-condensing)	
Ingress Protection	IP30	
Dimension	105 × 70.4 × 21.2 mm (4.1 × 2.8 × 0.8 in)	
Installation	Wall Mounting	
<b>Approvals</b>		
Regulatory	CE, FCC, RoHS, LoRaWAN <sup>®</sup> Certified	
EMC	EN 55032, EN 55035	
EMS	IEC 61000-4-2 Level 3	
	IEC 61000-4-3 Level 2	
	IEC 61000-4-4 Level 4	

<sup>1</sup> Test under laboratory conditions and for guideline purposes only.

	IEC 61000-4-5 Level 3 IEC 61000-4-6 Level 3 IEC 61000-4-8 Level 4
Radio Frequency	FCC Part 15B, FCC Part 15.247, EN 300 330, EN 301 489-1/3, EN 300 220-1/2
Safety	EN62368-1

◆ Dimensions(mm)



◆ PIR Area

