

# Wireless Multifunctional CO2 Sensor

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Wireless Sensor Network Based on LoRa Technology



## R718UBB Series Data Sheet

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## Wireless Multifunctional CO2 Sensor

### Introduction

R718UBB series is a wireless communication device that can detect CO2 in the environment and can be combined with a variety of sensors. And transmits the detected data to other devices through the wireless network for display, which adopts the SX1276 wireless communication module.

### Model Combination

R718UBB represents the basic function of battery powered CO2

“1” represents temperature and humidity

“2” represents vibration

“3” represents air pressure

“5” represents light

Model Combination	Product function
R718UBB	CO2
R718UBB1	CO2, Temperature, Humidity
R718UBB12	CO2, Temperature, Humidity, Vibration
R718UBB123	CO2, Temperature, Humidity, Vibration, Air Pressure
R718UBB23	CO2, Vibration, Air Pressure
R718UBB25	CO2, Vibration, Light
R718UBB125	CO2, Temperature, Humidity, Vibration, Light
R718UBB235	CO2, Vibration, Air Pressure, Light
R718UBB1235	CO2, Temperature, Humidity, Vibration, Air Pressure, Light

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## Wireless Multifunctional CO2 Sensor

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### Main Characteristic

- Adopt SX1276 wireless communication module
- 2 x ER14505 AA size batteries in parallel (3.6V/ section)
- CO2 detection
- Temperature and humidity sensor, vibration sensor, light sensor, and air pressure sensor  
(see model combination for optional combination)
- IP rating: IP65
- Compatible with LoRaWAN™ Class A
- Frequency hopping spread spectrum (FHSS)
- The base is attached with a magnet that can be attached to a ferromagnetic material object
- Applicable to the third-party platforms: Actility/ThingPark, TTN, MyDevices/Cayenne
- Low power consumption and long battery life

Note:

Battery life is determined by the sensor reporting frequency and other variables, please refer to [http://www.netvox.com.tw/electric/electric\\_calc.html](http://www.netvox.com.tw/electric/electric_calc.html)

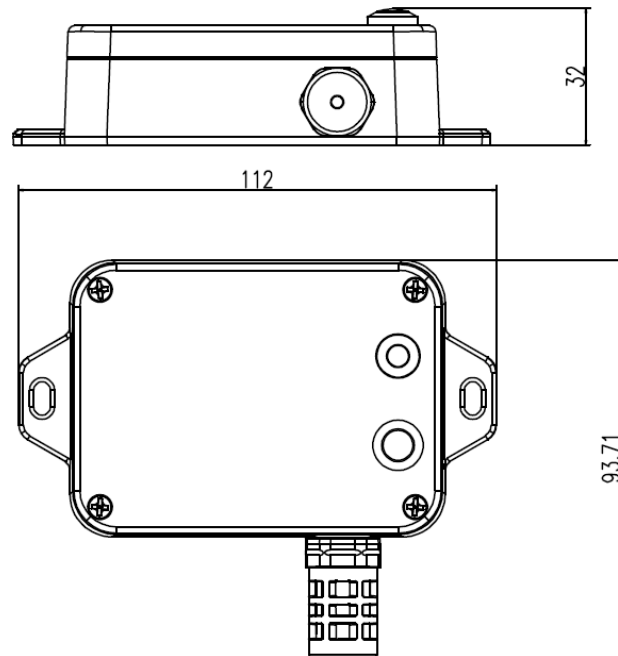
On this website, users can find battery life of various models in different configurations.

### Application

- In the fields of building automation, telecommunications machine room, paper making, warehousing and logistics, shopping malls, hotels, cinemas, railway stations, museums, cinemas, agricultural greenhouses, hospitals, meteorology, clean workshops and other areas where air quality needs to be measured
- Others

**Wireless Multifunctional CO2 Sensor**

**Dimension**



**Electric**

Power Supply	2 ER14505 lithium batteries (3.6 V, 2400 mAh/ section) in parallel
Battery Lifetime	The battery life of R718UBB/R718UBB1/R718UBB12 is 4.35 years, and that of other models is 2.7 years  (condition: ambient temperature 25°C, report once every 15 minutes, TX power = 20 dBm , LoRa spreading factor SF = 10)
Standby Current	≤ 35uA
Wake-up Current	7.11mA (Typical value) Wakeup current range 0.8mA-20 mA (When not transmitting /receiving LoRa data)
Low Battery Threshold	3.2V

**Module-R100H**

RF Receiving Current	11 mA @3.3V
RF Emission Current	120mA @3.3 V

\* Specific electrical characteristics will vary depending on the power supply voltage.

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**CO2 Sensor**

CO2 Range	400 to 5000 ppm extended range up to 10000ppm
CO2 Accuracy	$\pm (50\text{ppm} \pm 3\% \text{ of reading})$ Extended range: $\pm 10\% \text{ of reading}$
Communication Mode	UART
Sensor Life Expectancy	>15 years (No corrosion and condensation in storage and working environment)

Note: Extended range accuracy is not calibrated or guaranteed, it is extrapolated from calibrated range.

**Temperature and Humidity Sensor (Optional)**

Temperature Range	0°C to 50°C
Temperature Accuracy	$\pm 1^\circ\text{C} @ 25^\circ\text{C}$
Humidity Range	0%RH to 100%RH
Humidity Accuracy	$\pm 4\% \text{RH} @ 25^\circ\text{C}$

**Air Pressure Sensor (Optional)**

Air Pressure Range	300hPa to 1100hPa
Air Pressure Accuracy	$\pm 1.5\text{hPa}$ (950 to 1050 hPa, 0 to 40 °C)

**Light Sensor (Optional)**

Illuminance Range	0.01 LUX to 157K LUX
Illuminance Accuracy	$\pm 10\%$ , under stable and controlled light source conditions: white LED lamp, 6500K, room temperature $\pm 20\%$ , under the sun
Communication Mode	I2C communication

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**Vibration Sensor (Optional)**

Sensor Type	Ball-type omnidirectional signal trigger switch
Insulation Resistance	>10M Ω
Trigger Rate	100% (amplitude > 1 mm, frequency > 20 Hz)
Trigger Frequency	>50Hz

**Frequency**

Frequency Range	863MHz-928MHz 470MHz-510MHz
TX Power	US915 20dbm; AS923 16dbm; AU915 20dbm; CN470 19.15dbm; EU868 16dbm; KR920 14dbm; IN865 20dbm;
Receiving Sensitivity	-136 dBm (LoRa, Spreading Factor=12, Bit Rate = 293bps) -121 dBm (FSK, Frequency deviation=5kHz, Bit Rate=1.2kbps)
Antenna Type	Built-in antenna
Communication Distance	10 km (Visible linear obstacle-free transmission distance, actual transmission distance depending on the environment.)
Data Transfer Rate	0.3kbps ~ 50kbps (LoRa) 1.2kbps ~ 300kbps (FSK)
Modulation	LoRa / FSK (Note: choose one of them)
Supportable LoRaWAN Frequency	EU863-870, US902-928, AU915-928, KR920-923, AS923-1, AS923-2, AS923-3, IN865-867, CN470-510 (Note: The frequency band is optional and needs to be configured before shipment.)

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**Physical**

Dimension	112mm x 93.7mm x 32mm
Main Body Weight	About 146g (including batteries)
Operating Temperature	0°C to 50 °C
Environment Humidity Range	<85 %RH (No condensation)
Storage Temperature	-40°C to 70 °C