

# **Wireless PM2.5 / Noise/ Temperature / Humidity Sensor**

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Wireless Sensor Network Based on LoRa Technology



## **RA0723 Data Sheet**

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## Wireless PM2.5/ Noise/ Temperature/ Humidity Sensor

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### Introduction

RA0723 is a wireless communication device which can detect PM2.5, noise intensity, temperature and humidity of the environment. Then, the device transmits the detected data to other devices for display via the wireless network. It adopts the SX1276 wireless communication module.

### Main Feature

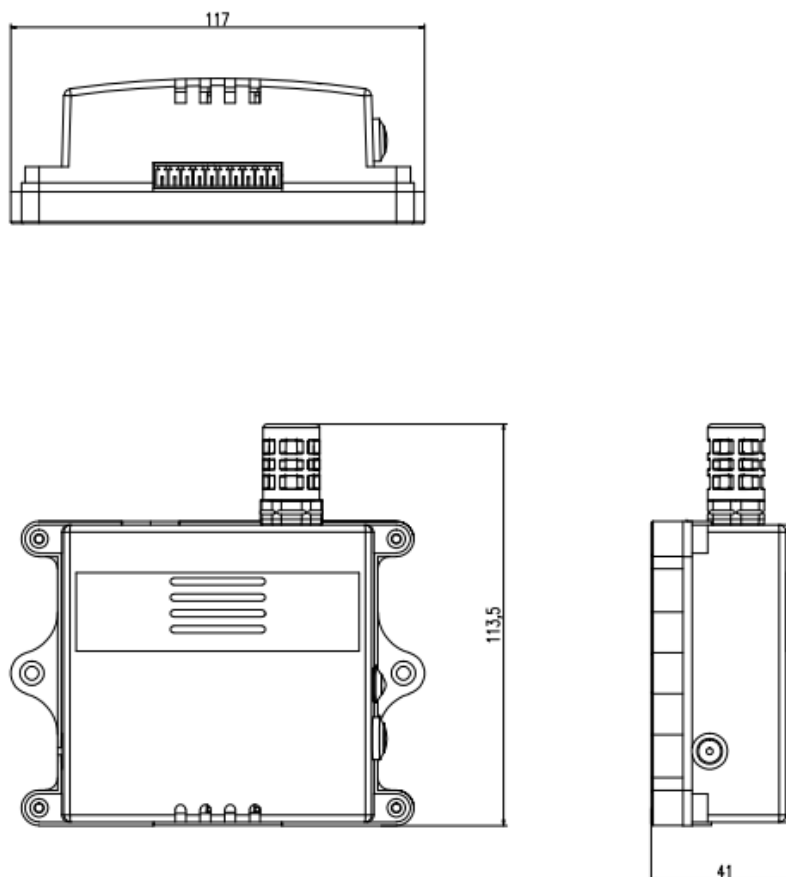
- Adopt SX1276 wireless communication module
- Noise detection
- Temperature and humidity detection  
(The accuracy of the temperature and humidity takes 30 minutes to stabilize)
- PM2.5 particulate concentration
- Compatible with LoRaWAN™ Class A
- Frequency hopping spread spectrum
- Configuration parameters can be configured via a third-party software platform, data can be read and alerts can be set via SMS text and email (optional)
- Applicable to the third-party platforms: Actility/ThingPark, TTN, MyDevices/Cayenne

### Application

- Temperature and humidity detection
- Noise detection
- PM 2.5 detection
- Others

**Wireless PM2.5/ Noise/ Temperature/ Humidity Sensor**

**Dimension**



**Electric**

Power Supply	DC 12V/1A
Operating Current 1	<150mA

**Temperature and Humidity Sensor**

Temperature Range	-20°C ~ 55°C
Temperature Accuracy	±0.8°C @ 25°C
Humidity Range	0%RH-100%RH
Humidity Accuracy	±4%RH @ 25°C

**Wireless PM2.5/ Noise/ Temperature/ Humidity Sensor****PM2.5 Particle Concentration Sensor**

Operating Current	100mA (typical value)
Particle Measurement Range	0.3 ~ 1.0 ; 1.0 ~ 2.5um
Particle Counting Efficiency	50% @0.3um, 98% @≥0.5um
Particle Mass Concentration Effective Range (PM2.5 standard value)	0~500µg/m <sup>3</sup>
Particle Mass Concentration Resolution	1µg/m <sup>3</sup>
Particle Mass Concentration Consistency (PM2.5 standard value)	±10% @ 100-500ug/m <sup>3</sup> ±10ug/m <sup>3</sup> @0-100ug/m <sup>3</sup>
Comprehensive Response Time	≤10 seconds

**Noise Sensor**

Power Consumption	0.4W (Max)
Measuring Range	30dB to 130dB
Measuring Error	3% F.S
Resolution	0.1dB
Frequency Weighted Characteristic	A weighted
Frequency Response	35Hz-20kHz
Response Time	≤ 2 seconds
Output Interface	RS485 output

**Wireless PM2.5/ Noise/ Temperature/ Humidity Sensor**
**Frequency**

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

**Physical**

Dimension	Host body: L 117mm* W 113.5mm* H 41mm
Operating Temperature Range	-20°C ~ 55°C
Operating Humidity Range	< 90%RH (No condensation)
Storage Temperature Range	-40°C ~ 85°C