

Wireless PM2.5 / Noise/ Temperature / Humidity Sensor

Wireless Sensor Network Based on LoRa Technology



RA0723Y Data Sheet

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Introduction

RA0723Y 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 uses the SX1276 wireless communication module.

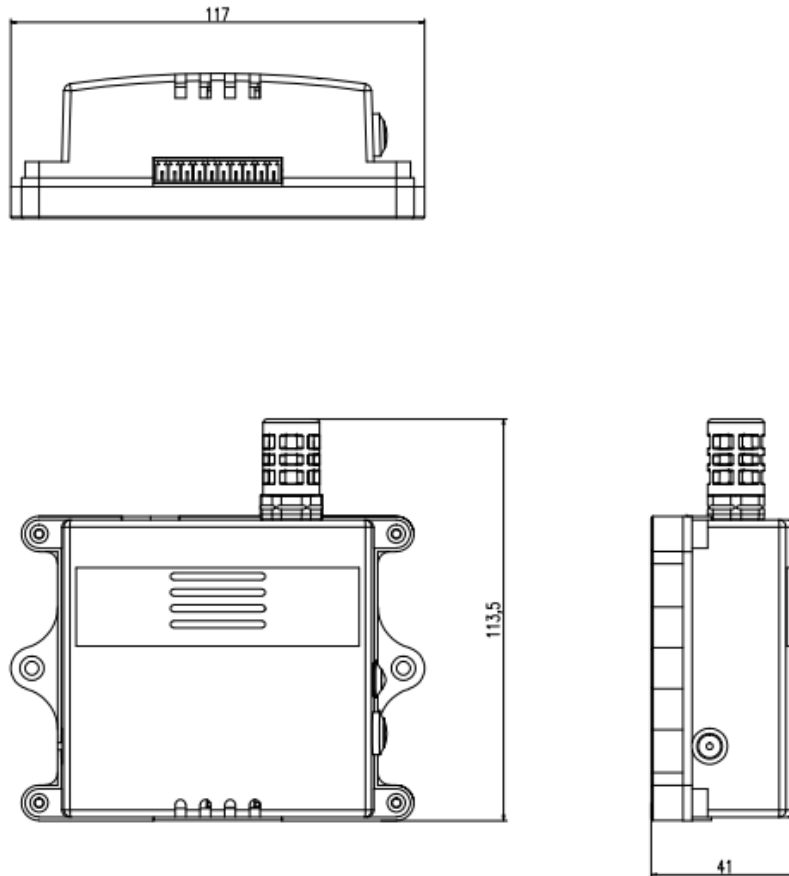
Main Feature

- Adopt SX1276 wireless communication module
- Noise detection
- Temperature and humidity detection
(The accuracy of the temperature and humidity takes 30 minutes to stabilize)
- 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

Dimension



Electric

| | |
|---------------------|-------------------------|
| Power Supply | DC adapter power supply |
| Operating Current 1 | <150mA |

Temperature and Humidity Sensor

| | |
|----------------------|--------------|
| Temperature Range | -20°C ~ 55°C |
| Temperature Accuracy | ±1°C @ 25°C |
| Humidity Range | 0%RH-100%RH |
| Humidity Accuracy | ±4%RH @ 25°C |

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 ³ |
| Particle Mass Concentration Resolution | 1µg/m ³ |
| Particle Mass Concentration Consistency (PM2.5 standard value) | ±10%@100-500ug/m ³ ±10ug/m ³ @0-100ug/m ³ |
| 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 |

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 | Mask Part: D 220mm*H 280mm Host body: L 117mm* W 113.5mm* H 41mm |
| Mask Lifetime | The material is ABS. The mask can be used outdoors for 3 years. |
| Operating Temperature Range | -20°C ~ 55°C |
| Operating Humidity Range | < 90%RH (No condensation) |
| Storage Temperature Range | -40°C ~ 85°C |