

# **Wireless Outdoor PM2.5/ Noise/Temperature/Humidity Sensor with a Solar Panel**

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Wireless Sensor Network Based on LoRa Technology



## **R72623 Data Sheet**

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## Wireless Outdoor PM2.5/Noise/Temperature/Humidity Sensor with a Solar Panel

### General Description

R72623 has built-in PM2.5 concentration sensor, noise intensity detector, the temperature and humidity sensor. The device can detect the PM2.5 particle concentration, noise intensity, the temperature and humidity, and then transmit the detected data to other devices through the wireless network to display it.

The device adopts SX1276 wireless communication module.

### Features

- Adopt SX1276 wireless communication module
- PM2.5 / Noise / Temperature / Humidity detection
- With solar panel charging function
- With rechargeable battery (Customers can purchase by self)
- LoRaWAN™ Class A compatible
- Frequency Hopping Spread Spectrum (FHSS)
- Third-Party online wireless sensor monitoring and notification system to configure sensors, view data and set alerts via SMS text and email (optional)
- Available third-party platform: Actility/ThingPark, TTN, MyDevices/Cayenne
- Battery Life:

Please refer to web: [http://www.netvox.com.tw/electric/electric\\_calc.html](http://www.netvox.com.tw/electric/electric_calc.html)

At this website, users can find battery life time for variety models at different configurations.

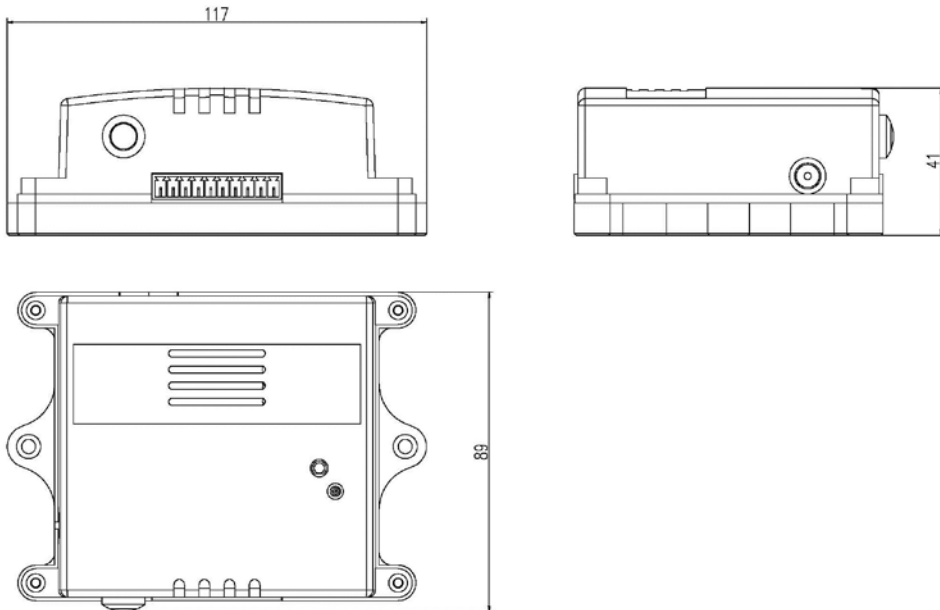
\*1. Actual range may vary depending on environment.

\*2. Battery life is determined by sensor reporting frequency and other variables

### Application

- Temperature / Humidity detection
- Noise intensity
- PM2.5 detection
- Other

**Technical Specifications**



Main Body



Noise sensor

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**Wireless Outdoor PM2.5/Noise/Temperature/Humidity Sensor with a Solar Panel**


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**Electric**

Power Supply	3 x 18650 Rechargeable lithium batteries in series (3.7V/section) *Capacity recommended 3500 mah
Operating Voltage range	9.8V to 12.6V
Operating Current 1	15mA (Standby state )
Operating Current 2	60mA (Operating state)
Low Voltage Threshold	10.5V

**Solar Panel Specifications**

Solar Panel Specifications	5W / 18VDC
Lithium Battery Specifications	3 x 18650 Rechargeable lithium batteries in series *Capacity recommended 3500 mah
Lithium Battery Charging Current	300 mA (guaranteed enough sunshine intensity)
Lithium Battery Charging Time	Filled with about 4 days (guaranteed enough sunshine intensity, calculated with a rechargeable battery capacity of 3500 mah)
How long does the device work when lithium batteries are fully charged once ?	About 400 hours (report data once every 30 minutes, with a rechargeable battery capacity of 3500 mah)

**Wireless Outdoor PM2.5/Noise/Temperature/Humidity Sensor with a Solar Panel**
**PM2.5 Particle Concentration Sensor**

Operating Current	100mA (typical value)
Particle Measurement Range	0.3 ~ 1.0 $\mu$ m
	1.0 ~ 2.5 $\mu$ m
Particle Counting Efficiency	50% @ 0.3 $\mu$ m
	98% @ $\geq$ 0.5 $\mu$ m
Particle Mass Concentration Effective Range (PM2.5 standard value)	0~500 $\mu$ g/m <sup>3</sup>
Particle Mass Concentration Resolution	1 $\mu$ g/m <sup>3</sup>
Particle Mass Concentration Consistency (PM2.5 standard value)	$\pm$ 10% @ 100 ~ 500 $\mu$ g/m <sup>3</sup> $\pm$ 10 $\mu$ g/m <sup>3</sup> @ 0 ~ 100 $\mu$ g/m <sup>3</sup>
Comprehensive Response Time	$\leq$ 10 seconds

**Noise Sensor**

Power Consumption	0.4W ( Max. )
Measuring Range	30dB to 130dB
Measurement Error	3% F.S
Resolution	0.1dB
Frequency Weighting Characteristics	A weighted
Frequency Response	35Hz to 20kHz
Response Time	$\leq$ 2 seconds
Output Interface	RS485 output

**Temperature and Humidity Sensor**

Temperature Measurement Range	-20°C to 55°C
Temperature Measurement Accuracy	$\pm$ 1°C @25°C
Humidity Measurement Range	0%RH to 100%RH
Humidity Measurement Accuracy	$\pm$ 4%RH @25°C

**Wireless Outdoor PM2.5/Noise/Temperature/Humidity Sensor with a Solar Panel**
**Frequency**

TX Power (Max. EIRP)	US915 20dbm ; AS923 16dbm ; AU915 20dbm ; CN470 19.15dbm ; EU868 16dbm ; KR920 14dbm ; IN865 20dbm ;
Rx Sensitivity	-136dBm (LoRa, Spreading Factor=12, Bit Rate=293bps ) -121dBm (FSK,Frequency deviation=5kHz, Bit Rate=1.2kbps)
Antenna Type	Build-in antenna
Communication Range	Up to10 km, ( The actual transmission distance depends on the environment. )
Data Transfer Rate	0.3kbps ~ 50kbps (LoRa) 1.2kbps ~ 300kbps (FSK)
Modulation	LoRa / FSK
Available Frequency	EU863-870,US902-928,AU915-928,KR920-923, AS923-1,AS923-2,AS923-3,IN865-867,CN470-510 (Note: optional, to be done in the factory configuration)

**Wireless Outdoor PM2.5/Noise/Temperature/Humidity Sensor with a Solar Panel****Physical**

Dimension	Mask body: D220mm*H340mm, Solar panel size: 290mm*150mm*25mm Main Body:117mm*89mm*41mm
Weight	Partial weight of the mask body (with lithium battery inside the mask body, main body): About 2657g Solar panel weight (solar panel, solar panel bracket, anti bird pin): about 1355g
Mask Life Time	Cover material is ABS material, 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