

# **Wireless Noise Sensor**

## **R718PA7**

## **User Manual**

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## 1. Introduction

R718PA7 is a Class A device based on LoRaWAN™ of NETVOX and is compatible with LoRaWAN protocol. R718PA7 can be connected with a noise sensor (RS485) externally. The noise value collected by the device will be reported to the corresponding gateway.

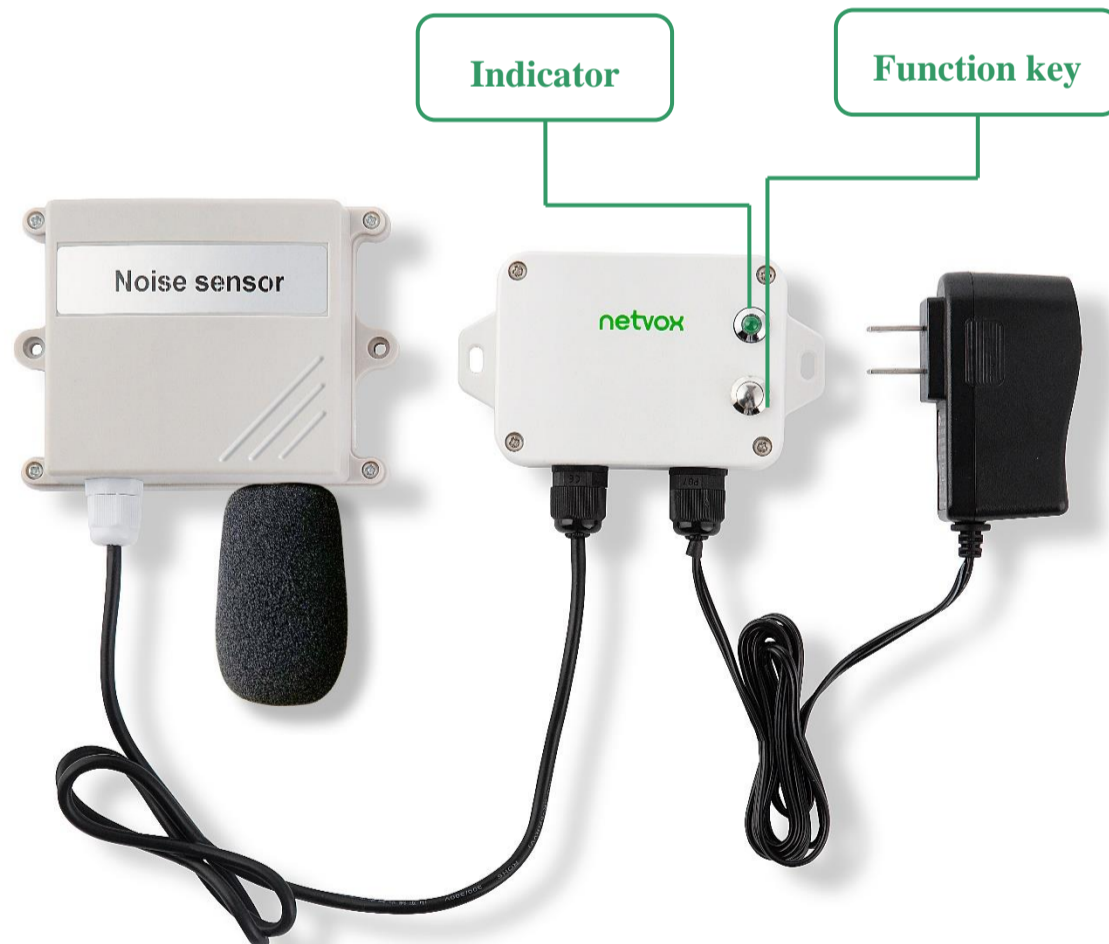
### LoRa Wireless Technology

LoRa is a wireless communication technology dedicated to long distance and low power consumption. Compared with other communication methods, LoRa spread spectrum modulation method greatly increases to expand the communication distance. Widely used in long-distance, low-data wireless communications. For example, automatic meter reading, building automation device, wireless security systems, industrial monitoring. Features include small size, low power consumption, transmission distance, anti-interference ability and so on.

### LoRaWAN

LoRaWAN uses LoRa technology to define end-to-end standard specifications to ensure interoperability between devices and gateways from different manufacturers.

## 2. Appearance



### 3. Features

- SX1276 wireless communication module
- DC 12V adapter power supply
- Main body: IP65/IP67 (Optional)
- Main body adopts PG7 waterproof fixed joint
- Magnetic base
- RS485 communication
- Noise sensor lifespan: 1 – 2 years (Note: Lifespan may vary due to the environment.)
- 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 third-party platforms: Actility/ThingPark, TTN, MyDevices/Cayenne

### 4. Set up Instruction

#### On/Off

Power on	DC12V adapter
Turn on	The green indicator flashing once: success
Restore to factory setting	Press and hold the function key for 5 seconds until the green indicator flashes 20 times.
Power off	Remove DC12V adapter.
Note	<ol style="list-style-type: none"> <li>1. 5 seconds after power on, the device will be in engineering test mode.</li> <li>2. On/off interval is suggested to be about 10 seconds long to avoid the interference of capacitor inductance and other energy storage components.</li> </ol>

#### Network Joining

Never joined the network	<u>Turn on the device to search the network.</u> The green indicator stays on for 5 seconds: success The green indicator remains off: fail
Had joined the network (without resetting to factory setting)	<u>Turn on the device to search the previous network.</u> The green indicator stays on for 5 seconds: success The green indicator remains off: fail
Fail to join the network	Please check the device verification information on the gateway or consult your platform server provider.

## Function Key

Press and hold for 5 seconds	<u>Back to factory setting</u> The green indicator flashes 20 times: success The green indicator remains off: fail
Press once	The device is in the network: the green indicator flashes once and the device sends a data report The device is not in the network: green indicator remains off

## 5. Data Report

The device will immediately send a version package after powering on. 20 seconds later, it will send a data report of the noise value. The device sends data according to the default configuration before any other configuration.

### Default setting:

MaxTime: Max Interval = 0xB4 (180s)

MinTime must be greater than 0 due to the software limitation.

Please refer to the Netvox LoRaWAN Application Command and <http://www.netvox.com.cn:8888/cmddoc> for devices' data analysis.

### 5.1 Example of ReportDataCmd

**FPort:** 0x06

Bytes	1	1	1	Var (Fix=8 Bytes)
	Version	DeviceType	ReportType	NetvoxPayLoadData

**Version**– 1 byte –0x01—the Version of Netvox LoRaWAN Application Command Version

**DeviceType**– 1 byte – Device Type of Device

**Report Type** – 1 byte –the presentation of the NetvoxPayLoadData, according the device type

**NetvoxPayLoadData**– Fixed bytes (Fixed =8bytes)

### Tips

#### 1. Battery Voltage:

If the battery is equal to 0x00, it means that the device is powered by a DC power supply.

#### 2. Version Packet:

When Report Type=0x00 is the version packet, such as 0157000B04202306010000, the firmware version is 2023.06.01

#### 3. Data Packet:

When Report Type=0x01 is data packet.

Device	Device Type	Report Type	NetvoxPayloadData				
R718PA Series	0x57	0x07	Battery (1Byte, unit:0.1V)	CO2 (2Byte ,0.1ppm)	NH3 (2Byte ,0.1ppm)	Noise (2Byte ,0.1db)	Reserved (1Byte, fixed 0x00)

**Example of Uplink:** 01570700FFFFFFFFF025800

1<sup>st</sup> byte (01): Version

2<sup>nd</sup> byte (57): DeviceType 0x09 — R718PASeries

3<sup>rd</sup> byte (07): ReportType

4<sup>th</sup> byte (00): Battery — DC in

5<sup>th</sup>6<sup>th</sup> byte (FFFF): CO2

7<sup>th</sup> 8<sup>th</sup> byte (FFFF): NH3

9<sup>th</sup>10<sup>th</sup> byte (0258): Noise — 60db , 258 H<sub>ex</sub>=600 D<sub>ec</sub> 600\*0.1v=60 db

11<sup>th</sup> byte (00): Reserved

## 5.2 Example of ConfigureCmd

FPort: 0x07

Bytes	1	1	Var (Fix =9 Bytes)
	CmdID	DeviceType	NetvoxPayLoadData

**CmdID**– 1 byte

**DeviceType**– 1 byte – Device Type of Device

**NetvoxPayLoadData**– var bytes (Max=9bytes)

Description	Device	CmdID	Device Type	NetvoxPayLoadData		
ConfigReportReq	R718PA Series	0x01	0x57	MinTime (2bytes Unit: s)	MaxTime (2bytes Unit: s)	Reserved (5Bytes, Fixed 0x00)
ConfigReportRsp		0x81		Status (0x00_success)	Reserved (8Bytes, Fixed 0x00)	
ReadConfigReportReq		0x02		Reserved (9Bytes, Fixed 0x00)		
ReadConfigReportRsp		0x82		MinTime (2bytes Unit: s)	MaxTime (2bytes Unit: s)	Reserved (5Bytes, Fixed 0x00)

(1) Configure R718PA7 device parameters

MaxTime = 60s (0x3C)

MinTime must be greater than 0 due to the software limitation.

Downlink: 0157000A003C0000000000

Device returns:

815700000000000000000000 (configuration success)

815701000000000000000000 (configuration failure)

(2) Read R718PA7 device parameters

Downlink: 0257000000000000000000

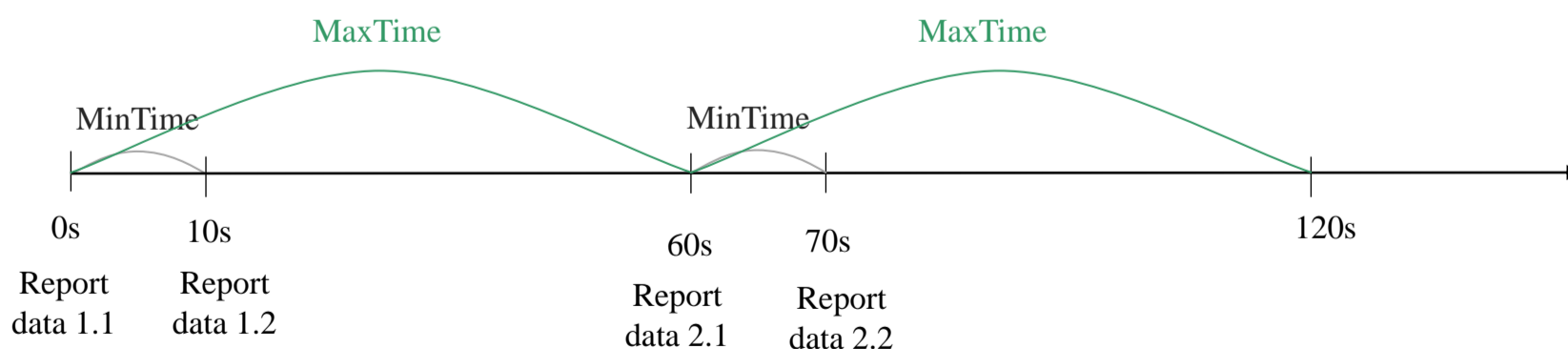
Device returns:

8257000A003C0000000000 (device current parameter)

### Example:

When the device of R718PA series has more than one data package, the MinTime only represents the interval of two data.

**Set MaxTime = 1 min; MinTime = 10s.**



(1) The device would report each data at MinTime.

(2) The device has two data (data 1.1 and 1.2), it would report the first one at the beginning; the second one at the 10<sup>th</sup> second.

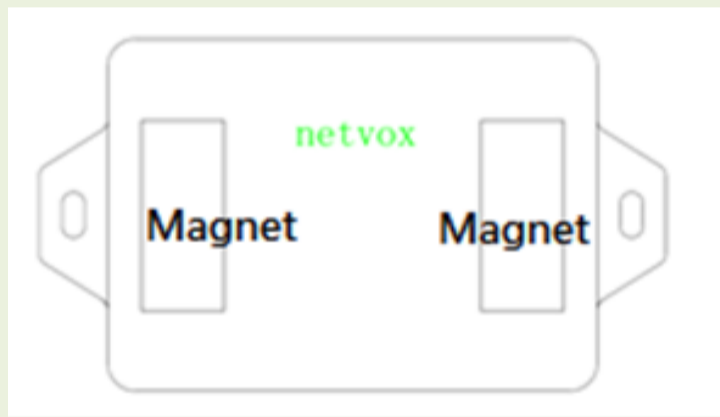
(3) After the device reports data 1.1 and 1.2, the next data (data 2.1) will be reported at the 60<sup>th</sup> second.

## 6. Installation

1. R718PA7 has a built-in magnet (as the figure below). It can be attached to the surface of an iron object when it is installed.

In order to make the device installation more secure, use screws (purchased) to fix the device to the wall or other surface (such as the installation diagram). The device is screwed by two screws in the middle (purchased by users).

Note: Do not install the device in a metal shielded box or in an environment with other electrical equipment around it to avoid affecting the wireless transmission of the device.

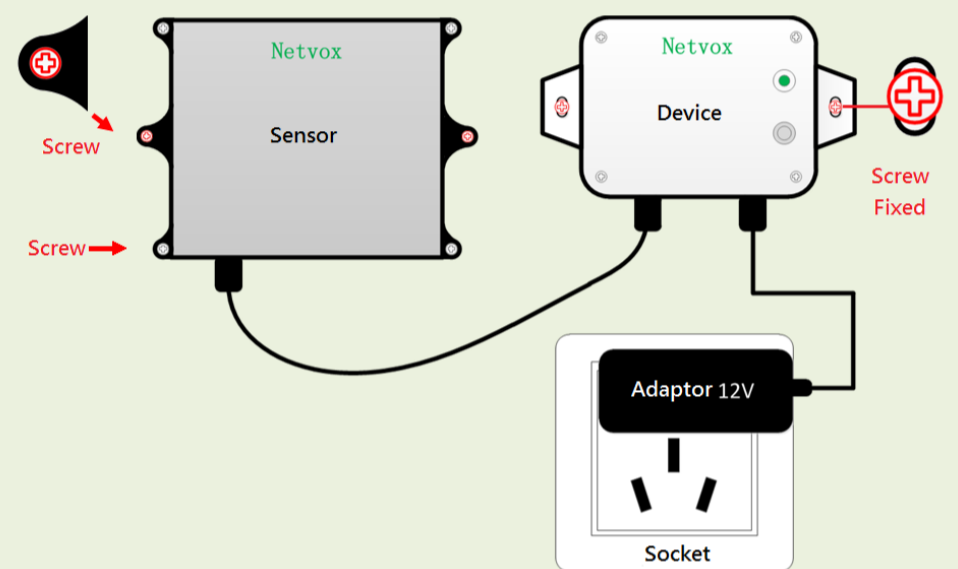


2. The device periodically reports the data according to Max Time. The default Max Time is 3min.

Note: Max Time can be modified by the downlink command.

3. The device can be used in scenarios such as:

- Smart city
- Construction site
- School
- Residential area



Note:

1. The noise sensor should be sent back to factory for calibration or replacement of the probe when it lasts longer than the lifespan (1 – 2 years) and users could not calibrate the errors by themselves.
2. The cables should be connected to the sensor in order. After user fixes the sensor on the wall, the lid should be closed.
3. The sensor should be placed vertically (The words on the sensor should be set right side up). When it is fixed on the wall, the pickup should be placed under the sensor.
4. The sensor should be installed in the area that users would like to measure.
5. The sensor should be installed in a stable environment. Installation under direct sunlight, near windows, air-conditioners, and heaters, or directly faced windows and doors could cause inaccurate results.
6. Keep the sensor away from high-power interference devices as far as possible to avoid inaccurate measurements, such as frequency converter, motor, etc.



## 7. Important Maintenance Instruction

Kindly pay attention to the following in order to achieve the best maintenance of the product:

- Do not put the device near or submerge into water. Minerals in rain, moisture, and other liquids could cause corrosion of electronic components. Please dry the device, if it gets wet.
- Do not use or store the device in dusty or dirty environments to prevent damage to parts and electronic components.
- Do not store the device in high temperatures. This may shorten the lifespan of electronic components, damage batteries, and deform plastic parts.
- Do not store the device in cold temperatures. Moisture may damage circuit boards as the temperatures rise.
- Do not throw or cause other unnecessary shocks to the device. This may damage internal circuits and delicate components.
- Do not clean the device with strong chemicals, detergents, or strong detergents.
- Do not apply the device with paint. This may block detachable parts and cause malfunction.
- Do not dispose of batteries in fire to prevent explosion.

The instructions are applied to your device, battery, and accessories.

If any device is not working properly, please bring it to the nearest authorized service provider for repair.