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.

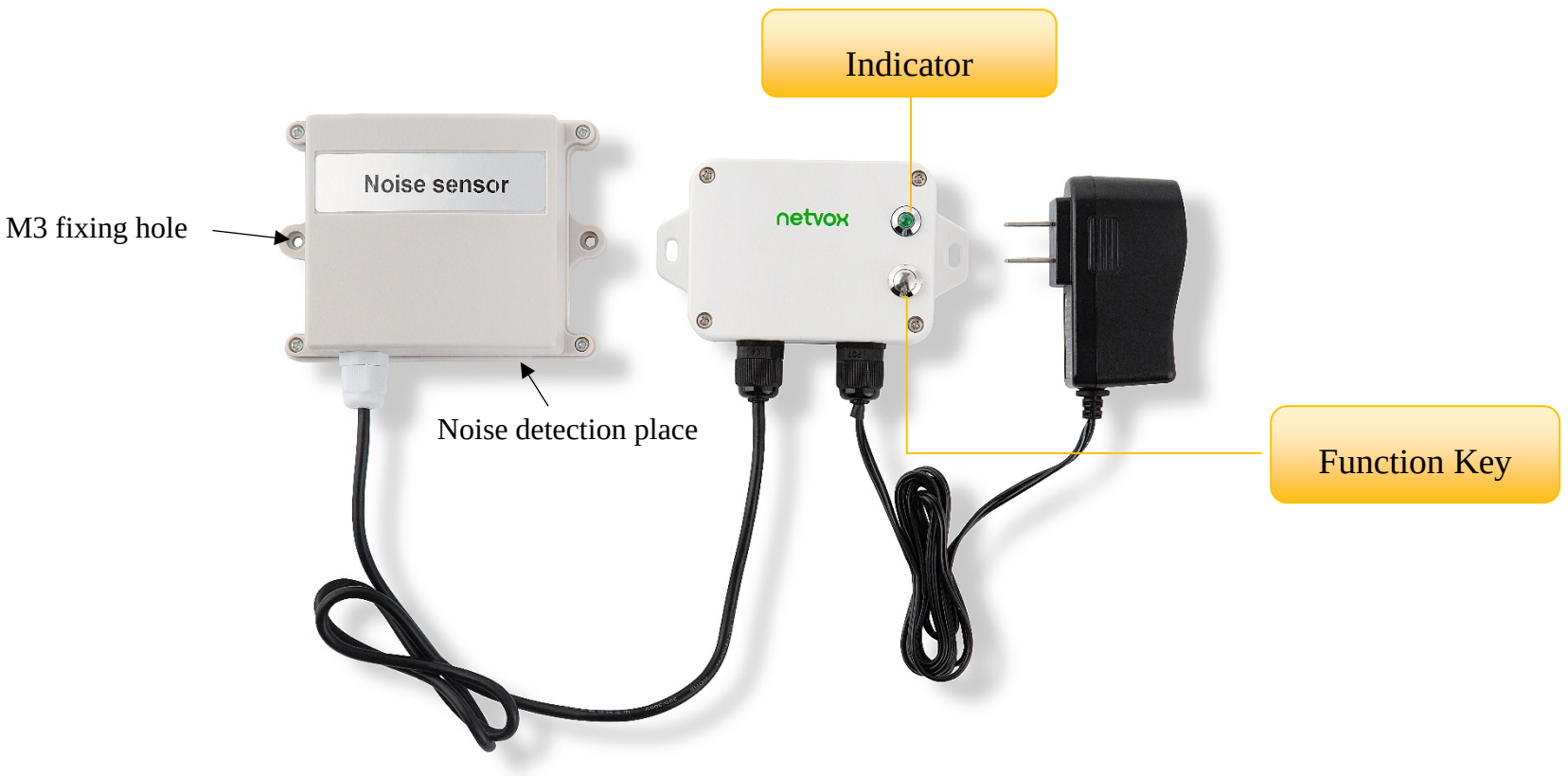
LoRa Wireless Technology

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. Main 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



*Please pay attention to the direction when installing the noise sensor and keep the pickup facing down

3. Main Feature

- Adopt SX1276 wireless communication module
- DC 12V adapter power supply
- Noise detection
- The base is attached with a magnet, which can be attached to iron objects.
- Protection class- Main body: IP67/IP65(Optional)
- 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	DC12V power supply, the green indicator flashing once means turn on successfully.
Restore to factory setting	Press and hold the function key for 5 seconds till green indicator flashes 20 times.
Power off	Remove DC12V adapter.
Note:	1. 5 second after power on, the device will be in engineering test mode. 2. On/off interval is suggested to be about 10 seconds to avoid the interference of capacitor inductance and other energy storage components.

Network Joining

Never joined the network	Turn on the device to search the network. The green indicator stays on for 5 seconds: success The green indicator remains off: fail
Had joined the network (Not restore to the factory setting)	Turn on the device to search the previous network. The green indicator stays on for 5 seconds: success The green indicator remains off: fail
Fail to join the network	Suggest to check the device verification information on the gateway or consult your platform server provider.

Function Key

Press and hold for 5 seconds	Restore to factory setting The green indicator flashes for 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 report. Then, it will send a report data with the noise value after it is powered on for 20s.

The device sends data according to the default configuration before any other configuration.

Default setting:

MaxTime: Max Interval = 3min = 180s

MinTime: The MinTime configuration is not available.

*But the software has restriction, MinTime must be configured a number greater than 0.

Note:

1. The cycle of the device sending the data report is according to the default.
2. R718PA7 reports the noise value.

The data parsing reported by the device is referenced by the Netvox LoraWAN Application Command document and http://www.netvox.com.cn:8888/page/index

5.1 Example of ReportDataCmd

FPort：0x06

Bytes	1	1	1	Var (Fix=8 Bytes)
	Version	DeviceType	Report Type	NetvoxPayLoadData

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

DeviceType– 1 byte – Device Type of Device

The device type is listed in Netvox LoRaWAN Application Device type.doc

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

NetvoxPayLoadData– Fixed bytes (Fixed =8bytes)

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: 01570700FFFFFFFF025800

1st byte (01): Version

2nd byte (57): DeviceType 0x09 － R718PASeries

3rd byte (07): ReportType

4th byte (00): Battery－ DC in

5th6th byte (FFFF): CO2

7th 8th byte (FFFF): NH3

9th10th byte (0258): Noise－60db , 258 H_{ex}=600 D_{ec} 600*0.1v=60 db

11th 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	Cmd ID	Device Type	NetvoxPayLoadData		
Config ReportReq	R718PA Series	0x01	0x57	MinTime (2bytes Unit: s)	MaxTime (2bytes Unit: s)	Reserved (5Bytes, Fixed 0x00)
Config ReportRsp		0x81		Status (0x00_success)	Reserved (8Bytes, Fixed 0x00)	
ReadConfig ReportReq		0x02		Reserved (9Bytes, Fixed 0x00)		
ReadConfig ReportRsp		0x82		MinTime (2bytes Unit: s)	MaxTime (2bytes Unit: s)	Reserved (5Bytes, Fixed 0x00)

(1) Configure R718PA7 device parameters MaxTime = 60s

(The MinTime configuration is useless, but it needs to be set greater than 0 because of the software limitation.)

Downlink: 0157000A003C0000000000

Device returns:

8157000000000000000000 (configuration success)

8157010000000000000000 (configuration failure)

(2) Read R718PA7 device parameters

Downlink: 0257000000000000000000

Device returns:

8257000A003C0000000000 (device current parameter)

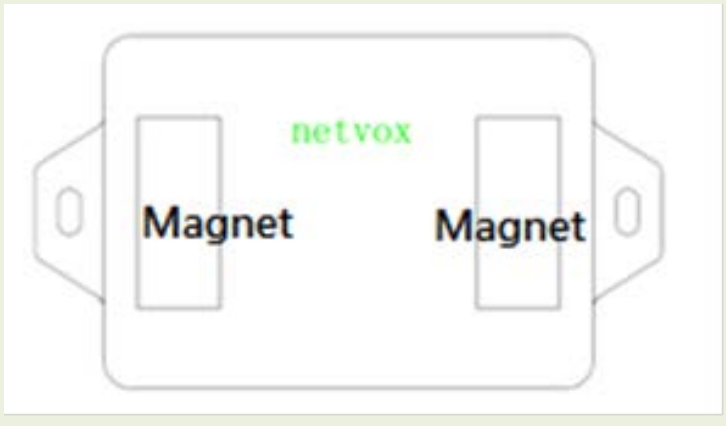
6. Installation

1. R718PA7 has a built-in magnet (as the figure below). It can be attached to the surface of an iron object conveniently and quickly 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.



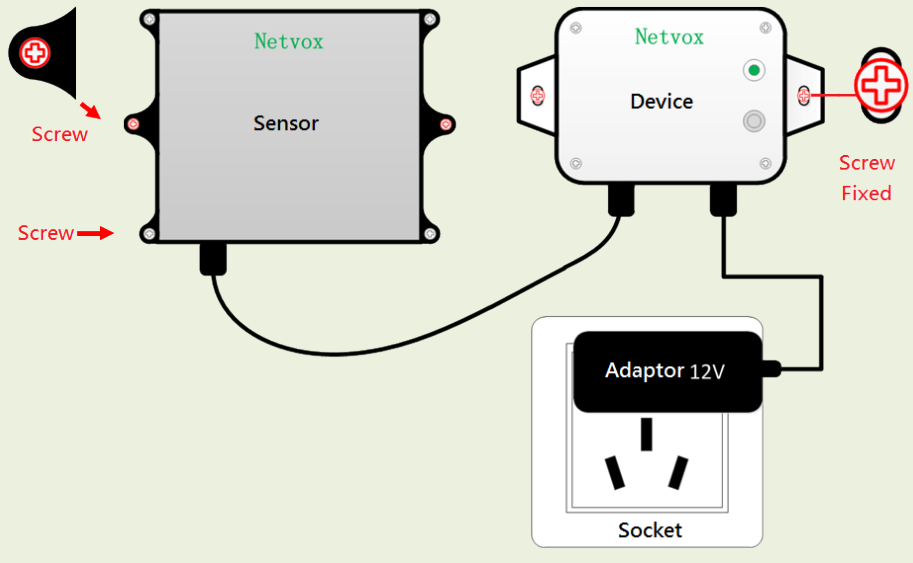
2. The device periodically reports the data according to Max Time. The default Max Time is 3min.

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



7. Important Maintenance Instruction

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

• Keep the device dry. Rain, moisture and various liquids or water may contain minerals that can corrode electronic circuits. In case the device is wet, please dry it completely.

• Do not use or store in dusty or dirty areas. This way can damage its detachable parts and electronic components.

• Do not store in excessive heat place. High temperatures can shorten the life of electronic devices, destroy batteries, and deform or melt some plastic parts.

• Do not store in excessive cold place. Otherwise, when the temperature rises to normal temperature, moisture will form inside which will destroy the board.

• Do not throw, knock or shake the device. Treating device roughly can destroy internal circuit boards and delicate structures.

• Do not wash with strong chemicals, detergents or strong detergents.

• Do not paint the device. Smudges can make debris block detachable parts up and affect normal operation.

• Do not throw the battery into the fire to prevent the battery from exploding.

Damaged batteries may also explode.

All the above suggestions apply equally to your device, batteries and accessories.

If any device is not operating properly.

Please take it to the nearest authorized service facility for repairing.