netvox RA0724 Wireless Noise and Temperature and Humidity Sensor User Manual

Contents

Netvox RA0724 Wireless Noise and Temperature and Humidity Sensor

Introduction

RA0724_R72624_RA0724Y is a ClassA type device based on the LoRaWAN open protocol of Netvox and is compatible with the LoRaWAN protocol.
RA0724_R72624_RA0724Y can be connected to a variety of sensors. As detectors for noise, temperature, and humidity, the values collected by the sensor are 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 equipment, 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.

Appearance

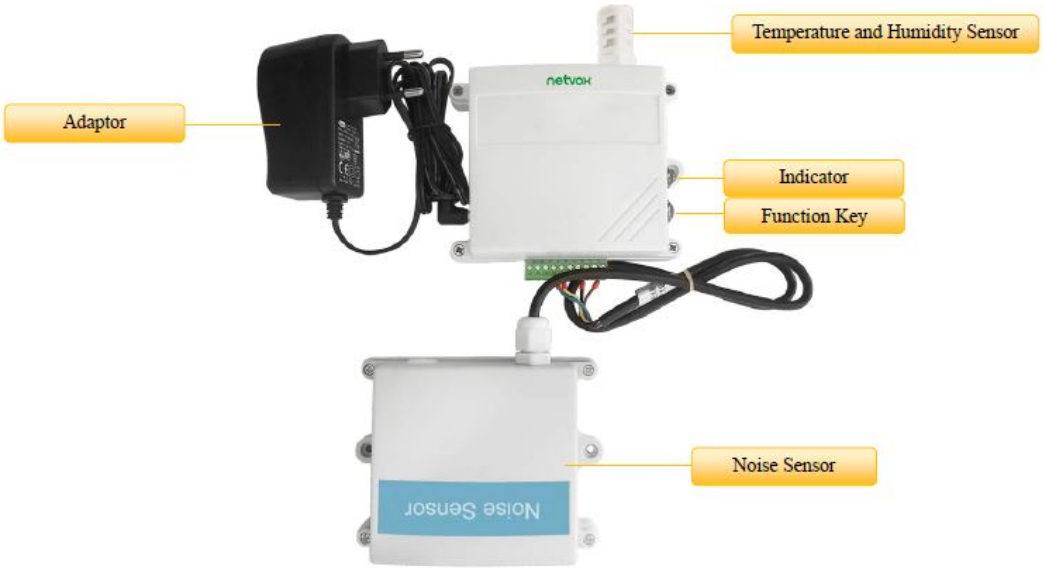


Fig 1. RA0724 Appearance (subject to the actual object)

Fig 2. R72624 Appearance (subject to the actual object)

Fig 3. RA0724Y Appearance (subject to the actual object)

Main Feature

- Compatible with LoRaWAN
- RA0724 and RA0724Y applies DC 12V adapters
- R72624 applies solar and rechargeable lithium batteries
- Simple operation and setting
- Noise detection
- Temperature and humidity detection
- Adopt SX1276 wireless communication module
- Frequency-hopping spread spectrum
- Configuring parameters and reading data via the third-party software platforms, and setting alarms via SMS text and email (optional)
- Applicable to the third-party platforms: Actility/ThingPark, TTN, MyDevices/Cayenne

Set-Up Instruction

On/Off

Power ON	RA0724 and RA0724Y are connected to DC 12V adapter for power on. R72624 applies solar and rechargeable lithium batteries.
Turn On	Connect with power on to turn on.
Restore to Factory Setting	Press and hold the function key for 5 seconds till the green indicator flashes 20 tim es.
Power Off	Disconnect from the power supply.
*The engineering test requires writing the engineering testing software separately.	

Note: The interval between on and off is suggested to be about 10 seconds to avoid the interference of capacitor inductance and other energy storage components.

Network Joining	
Never Join the Network	Turn on the device to search the network. The green indicator keeps on for 5 seconds: success. The green indicator remain s off: fail
Had Joined the Network (Not in the factory setting)	Turn on the device to search the previous network. The green indicator keeps on f or 5 seconds: success. The green indicator remains off: fail.
Fail to Join the Network	Suggest checking the device registration information on the gateway or consulting your platform server provider if the device fails to join the network.
Function Key	
Press and hold for 5 Secon ds	Restore to the factory setting / Turn off The green indicator flashes 20 times: success The green indicator remains off: f ail
Press once	The device is in the network: the green indicator flashes once and the device se nds a data report. The device is not in the network: the green indicator remains off.

Restore to Factory Setting

Description	RA0724_R72624_RA0724Y has the function of the power-down saving the memory of network-joining information. This function acquiesces, in turn, off, that is, it will rejoin every time when it is power on. If the device is turned on by the ResumeNetOnOff command, the last network-joining information will be recorded when every time it is powered on. (including saving the network address information that it is assigned, etc.) If users want to join a new network, the device needs to perform the factory setting, and it will not rejoin the last network.
Operation Method	1. Press and hold the binding button for 5 seconds and then release (release the binding button when the LED flashes), and the LED flashes 20 times. 2. The device automatically restarts to rejoin the network.

Low Voltage Threshold	
Low Voltage Threshold	10.5 V

Data Report

After power is on, the device will immediately send a version packet report and two data reports including noise value, temperature, humidity, and voltage. The device sends data according to the default configuration before any other configuring.

ReportMaxTime:

RA0724_ RA0724Y is 180s,
R72624 is 1800s (subject to factory setting)
ReportMaxTime should be greater than ReportType count *ReportMinTime+10 and should not be less than 300 seconds.
ReportType count = 2

ReportMinTime: 30s (Interval time between two reports)

Note:

1. The cycle of the device sending the data report is according to the default.
2. The interval between two reports must be the MaxTime.
3. ReportChange is not supported by RA0724_R72624_RA0724Y (Invalid configuration). The data report is sent according to ReportMaxTime as a cycle (the first data report is the start to the end of a cycle).
4. Data pocket: noise, temperature, and humidity
5. The device also supports the TxPeriod cycle configuration instructions of Cayenne. Therefore, the device can perform the report according to the TxPeriod cycle. The particular report cycle is ReportMaxTime or TxPeriod depending on which report cycle was configured last time.

6. It would take 35 seconds for the sensor to sample and process the collected value after pressing the button, please be patient.

The device reported data parsing please refer to the Netvox LoraWAN Application Command document and Netvox Lora Command
Resolver **http://loraresolver.netvoxcloud.com:8888/page/index**

Report Configuration:

<table>
<tr><th>Description</th><th>Device</th><th>Cmd

ID</th><th>Device

Type</th><th colspan="3">NetvoxPayLoadData</th></tr>
<tr><td>ConfigReport
Req</td><td rowspan="4">RA07

Series/
R726
Series/
R727
Series</td><td>0x01</td><td rowspan="4">0x05

0x09

0x0D</td><td>MinTime
(2bytes Unit: s)</td><td>MaxTime
(2bytes Unit: s)</td><td>Reserved
(5Bytes, Fixed 0x00)</td></tr>
<tr><td>ConfigReport
Rsp</td><td>0x81</td><td colspan="2">Status
(0x00_success)</td><td>Reserved
(8Bytes, Fixed 0x00)</td></tr>
<tr><td>ReadConfig
ReportReq</td><td>0x02</td><td colspan="3">Reserved
(9Bytes, Fixed 0x00)</td></tr>
<tr><td>ReadConfig
ReportRsp</td><td>0x82</td><td>MinTime
(2bytes Unit: s)</td><td>MaxTime
(2bytes Unit: s)</td><td>Reserved
(5Bytes, Fixed 0x00)</td></tr>
</table>

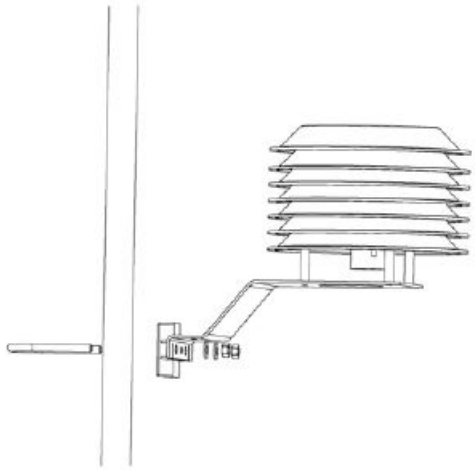
1. Configure RA0724 device parameter MinTime = 30s, MaxTime = 3600s // MaxTime cannot be less than 300s and conform to ReportType count *ReportMinTime+10
   Downlink 0109001E0E100000000000
   Device returns 810900000000000000000 (Configuration success) 8109010000000000000000 (Configuration)
2. Read RA0724 device parameter
   Downlink 0209000000000000000000
   Device return: 0209000000000000000000

Installation

1. **The RA0724** does not have the waterproof function. After the device completes joining the network, please place it indoor.
2. **The R72624** has a waterproof function. After the device completes joining the network, please place it outdoors.
    1. In the installed position, loosen the U-shaped screw, the mating washer, and the nut at the bottom of

R72624, and then make the U-shaped screw pass through the appropriate size cylinder and fix it on the fixing strut flap of R72624. Install the washer and the nut in order and lock the nut till R72624 body is stable and does not shake.

2. At the upper side of the fixed position of R72624, loosen the two U-shaped screws, the mating washer and nut on the side of the solar panel. Make the U-shaped screw pass through the appropriate size cylinder and fix them on the main bracket
   of the solar panel and install the washer and the nut in sequence. Lock nut till the solar panel is stable and does not shake.
3. After adjusting the angle of the solar panel completely, lock the nut.
4. Connect the top waterproof cable of R72624 with the wiring of the solar panel and lock it tight.

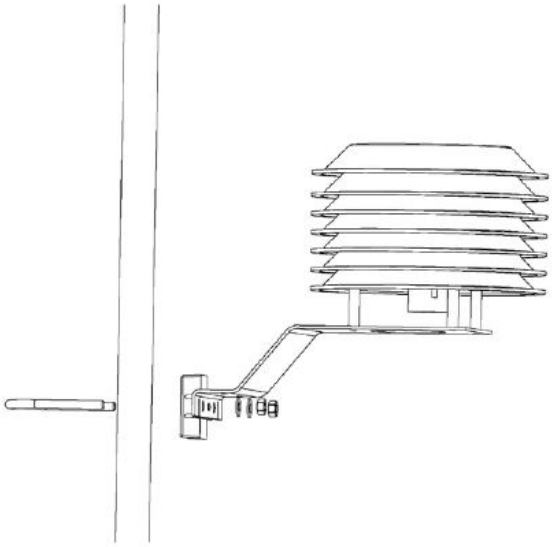


5. Rechargeable lithium battery
   R72624 has a battery pack inside. Users can buy and install rechargeable 18650 lithium battery, a total of 3 sections, voltage 3.7V/ every single rechargeable lithium battery, recommended capacity 5000mah. The installation of rechargeable lithium battery steps are as follows:
   1. Remove the four screws around battery cover.
   2. Insert three 18650 lithium batteries. (Please make sure the positive and negative level of the battery)
   3. Press the activation button on the battery pack for the first time.
   4. After activation, close the battery cover and lock the screws around battery cover.

Fig. Rechargeable Lithium Battery

3. **RA0724Y** is waterproof and can be placed outdoors after the device completes joining the network..
   1. In the installed position, loosen the U-shaped screw, the mating washer, and the nut at the bottom of RA0724Y, and then make the U-shaped screw pass through the appropriate size cylinder and fix it on the fixing strut flap of RA0724Y. Install the washer and the nut in order and lock the nut till RA0724Y body is stable and does not shake.

2. Loosen the M5 nut at the bottom of the RA0724Y matte and take the matte together with the screw.
3. Make the DC adaptor pass through the central hole of the bottom cover of RA0724Y and insert it into the RA0724Y DC socket, and then put the mating screw to the original position and lock the M5 nut tight.



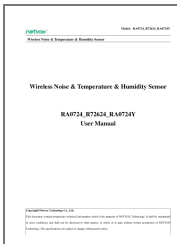
Important Maintenance Instruction

The device is a product with superior design and craftsmanship and should be used with care. The following suggestions will help you use the warranty service effectively.

- Keep the equipment 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 equipment 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.

Documents / Resources

	**netvox RA0724 Wireless Noise and Temperature and Humidity Sensor** [pdf] User Manual RA0724, R72624, RA0724Y, RA0724 Wireless Noise and Temperature Humidity Sensor, Wireless Noise and Temperature Humidity Sensor, Temperature Humidity Sensor, Humidity Sensor