

Wireless Siren with Rechargeable Battery Backup

R602B User Manual

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1. Introduction

R602B is a long-range wireless alarm device for Netvox Class C type devices based on the LoRaWAN open protocol, compatible with the LoRaWAN protocol, and it can be controlled through AppServer.

The R602B has five kinds of alarm sounds - fire/ emergency / burglar / doorbell /mute mode. After receiving an alarm, it will emit a high-brightness flash and an alarm sound, which can be applied to security-related scenes. The switch and mode can be customized, and only the alarm sound or the flashing light can be turned on, or both can be turned on.

The device supports rechargeable backup batteries. When the external power supply fails to provide power for the R602B, the backup batteries (3*AAA 1.2v rechargeable Ni-MH batteries) will be activated to continue the power supply.

LoRa Wireless Technology:

LoRa is a wireless communication technology dedicated to long distances 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, and 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



3. Main Features

- Compatible with LoRaWAN
- 12V DC power supply
- Backup 3 sections rechargeable AAA 1.2v NiMH batteries for power supply
- Simple operation and setting
- Five types of alarm sounds and different ways of flashing lights, and can be controlled separately
- Compatible with LoRaWAN™ Class C (Please make sure the Network Server support Class C.)
- Frequency hopping spread spectrum.
- Applicable to third-party platforms: Actility/ThingPark, TTN, MyDevices/Cayenne

4. Set up Instruction

On/Off

Power on	<p>Connect 12V DC power supply to the power interface or directly load 3 AAA rechargeable Ni-MH batteries for power supply. When the power is turned on, the network indicator flashes once and a clear sound is heard.</p> <p>Note:</p> <p>When the battery is installed under the condition of 12V DC power supply, the DC power supply will be used first)</p>
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Network Joining

Never joined the network (Or at factory setting)	<p>After power-on, R602B will request to join the network.</p> <p>The network indicator stay on : success</p> <p>The network indicator stay off : fail</p>
Had joined the network (Not at factory setting.)	<p>After power-on, R602B will search the network.</p> <p>The network indicator stay on: success</p> <p>The network indicator stay off: fail</p>
Fail to join the network (when the device is on)	<p>Suggest checking the device verification information on the gateway or consulting your platform service provider.</p>

Function Key

Press 2 function key for 5 seconds	<p>Restore to factory setting</p> <p>The network indicator flashes for 10 times: success</p> <p>The network indicator is not flash: fail</p>
Short press any function key	<p>Function: trigger reporting.</p> <p>Phenomenon: When the device has been connected to the network, the network indicator flashes once, and an uplink command is reported immediately at the same time. When the device is not connected to the network, there is no indication.</p>

Remote Control

Remote Control	<p>The R602B can be controlled by sound and light alarms, and there are five alarm sounds that can be controlled are as follows:</p> <ol style="list-style-type: none"> 1. Fire Mode 2. Emergency Mode 3. Burglar 4. Doorbell 5. Mute Mode
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	<p>According to the received command, it can also be determined whether the alarm flash of the device is blinking, and the alarm flash of the device is divided into three types of flashing modes: flowing light, blink, and unlighted.</p>
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Battery Backup Function

<p>Battery Backup Function</p>	<ol style="list-style-type: none"> 1. R602B supports a backup battery power supply. When the DC power supply and backup battery exist at the same time, the device will preferentially use the DC power supply for power supply. 2. When the DC power supply fails due to power failure or other reasons, the device will automatically switch to the backup battery for power supply. 3. When powered by a backup battery, the device can operate for about 24 hours without any alarm, and if there is a continuous alarm, the device can operate for about 3 hours. If the DC power supply is restored during this period, the device will automatically switch to DC power supply. 4. The backup battery <u>must be powered by three rechargeable AAA 1.2V Ni-MH batteries.</u> 5. When the device is under low voltage (3.6V) and the DC power supply is present at the same time, the battery charging function will be activated. <u>The network indicator light will flash once every 5 seconds to indicate that it is currently charging,</u> and it will stop flashing after it is fully charged. 6. <u>It is forbidden to install non-rechargeable batteries, otherwise, it may cause serious abnormalities such as battery explosion and other problems.</u> 7. When the battery is under low voltage, if the external DC power supply is still not restored, the backup battery power is used until it runs out of power, and the device may generate non-alarm abnormal sounds. Therefore, please provide DC power for the device in time after low voltage so that the device can charge the backup battery.
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5. Data Report

When the device is turned on, it will immediately send a version package.

Data will be reported by default setting before any configuration.

Default setting:

Maximum time: 0x0E10 (3600s)

Minimum time: 0x0E10 (3600s) // Mintime and Maxtime must be set to the same report time.

The reported data is decoded by the Netvox LoRaWAN Application Command document and

<http://cmddoc.netvoxcloud.com/cmddoc>

Data report configuration and sending period are as following:

Min Interval (Unit: second)	Max Interval (Unit: second)
Any number between 1~65535	Any number between 1~65535

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 NetvoxLoRaWAN Application Command Version

DeviceType– 1 byte – Device Type of Device

The devicetype is listed in Netvox LoRaWAN Application Devicetype doc

ReportType – 1 byte –the presentation of the NetvoxPayloadData, according the devicetype

NetvoxPayloadData– Fixed bytes (Fixed =8bytes)

Device	DeviceType	ReportType	NetvoxPayloadData			
R602B	0x69	0x01	Hearbeattime (2Bytes,Unit:1s)	WarningStatus(1Byte) 0x00_NoWarnring, 0x01_Warning	Battery (1Byte, unit:0.1V)	Reserved (4Bytes, fixed 0x00)

Example of Uplink1: 0169010E10000000000000

// Heartbeat is 3600s, no warning and DC power supply. //0E10 (Hex) = 3600

Example of Uplink2: 0169010E10002A00000000

// Heartbeat is 3600s, no warning and battery power supply (4.2V)

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				
StartWarning	R602B	0x90	0x69	WarningMode (1byte) 0x00_FireMode, 0x01_EmergencyMode, 0x02_Burglar, 0x03_Doorbell, 0x04_MuteMode Other Value is Reserved	StrobeMode (1byte) 0x00_NoLedIndication, 0x01_LedBlinkMode1 in Parallel to Warning, 0x02_LedBlinkMode2 in Parallel to Warning	Warning Duration (2bytes,Unit:1s)	Reserved (5Bytes, Fixed 0x00)	
Config ReportReq		0x01		MinTime (2bytes Unit:s)	MaxTime (2bytes Unit:s)	Reserved (5Byte,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 (5Byte,Fixed 0x00)		
StartWarning WithAckReq		0x03		WarningMode(1byte) 0x00_FireMode, 0x01_EmergencyMode, 0x02_Burglar, 0x03_Doorbell, 0x04_MuteMode Other value is Reserved	StrobeMode(1byte) 0x00_NoLedIndication, 0x01_LedBlinkMode1 in Parallel to Warning, 0x02_LedBlinkMode2 in Parallel to Warning	Warning Duration (2bytes,Unit:1s)	Reserved (5Bytes, Fixed 0x00)	
StartWarning WithAckRsp		0x83		Status (0x00_success)	Reserved (8Bytes,Fixed 0x00)			

(1) Command Configuration:


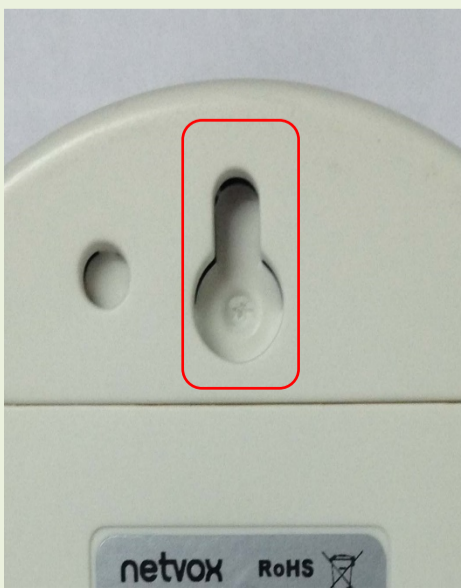
- a. WarningMode= FireMode、 StrobeMode= LedBlinkMode1、 WarningDuration=10s
Downlink: 90690001000A0000000000
- b. WarningMode= Doorbell 、 StrobeMode= NoLedIndication、 WarningDuration=10s
Downlink: 90690300000A0000000000
- c. WarningMode= MuteMode、 StrobeMode= LedBlinkMode1、 WarningDuration=10s
Downlink: 90690401000A0000000000
- d. Stopping sounds and flashing lights
(WarningMode= MuteMode、 StrobeMode= NoLedIndication、 WarningDuration=0s
Downlink: 90690400000000000000000000000000
- e. Setting MinTime / MaxTime = 300s = 5min //MinTime / MaxTime must equal.
Downlink: 0169012C012C000000000000 012C (Hex) = 300 (Dec)
Response: 81690000000000000000000000000000 (Configuration success)
81690100000000000000000000000000 (Configuration failure)
- f. Read MinTime / MaxTime
Downlink: 02690000000000000000000000000000
Response: 8269012C012C000000000000 (Current configuration)

Note:

If the StartWarning (0x90) is issued, the action will be executed but the status will not be reported.If you want to receive the report status, you need to issue StartWarningWithAckRsp (0x03) instead.

6. Installation and Precaution

This product does not have a waterproof function. After the join the network, please place it indoors.

<p>1. Use screws (should be purchased) to fix it on the wall.</p> <p>It is recommended that the distance between the screw head and the wall is more than 3mm, so that the sound and light alarm can be hung, as shown below.</p> <p>Note:</p> <p>Do not install the device in a metal enclosure or other electrical equipment around it to avoid affecting the wireless transmission of the device.</p> 	<p>2. Hang the groove on the back of the sound and light alarm (red circle in the figure below) on the screw head .</p> 
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3. Insert the adapter output cable (included) interface into the power interface (DC 12V) of the sound and light alarm, as shown on the right.

The other end of the adapter is plugged into a traditional socket (AC 220V) to power the sound and light alarm (as shown below).



4. The device is compatible with the LoRaWAN open protocol Class C class device, which supports four kinds of sound and mute functions such as fire alarm, emergency, burglar, doorbell and the like through the downlink command control device; and also supports the LED light function: flowing light, blink and unlighted.

R602B can be applied to the following scenarios:

1. Family
2. Engine room
3. School
4. Mining plant site

As a reminder of a security alert.



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, or any liquid, might contain minerals and thus corrode electronic circuits. If the device gets wet, please dry it completely.
- Do not use or store the device in dusty or dirty environment. It might damage its detachable parts and electronic components.
- Do not store the device under excessive heat condition. High temperature can shorten the life of electronic devices, destroy batteries, and deform or melt some plastic parts.
- Do not store the device in places that are too cold. 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. Rough handling of equipment can destroy internal circuit boards and delicate structures.
- Do not clean the device with strong chemicals, detergents or strong detergents.
- Do not apply the device with paint. Smudges might block in the device and affect the operation.
- Do not throw the battery into the fire, or the battery will explode. Damaged batteries may also explode.

All of the above applies to your device, battery and accessories.

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