
# netvox RB02C Wireless 3-Gang Push Button User Manual



Contents



## netvox RB02C Wireless 3-Gang Push Button



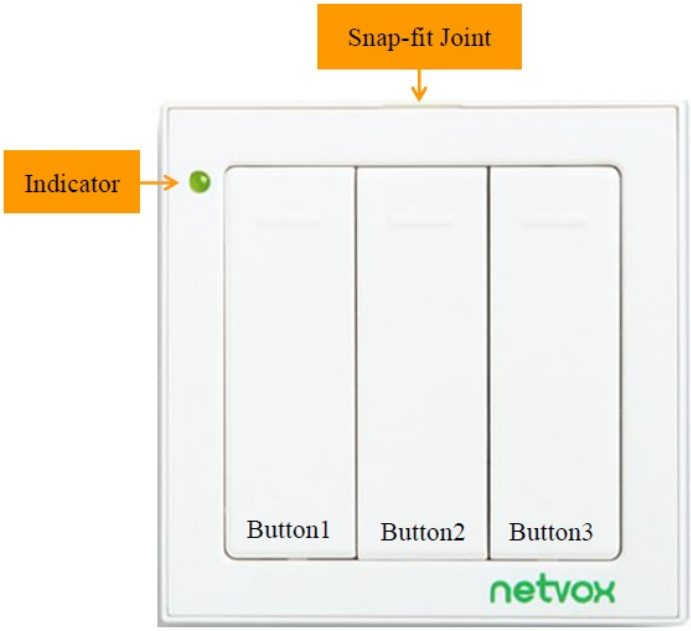

## Introduction

RA02C is the Class A device based on the LoRaWAN protocol of Netvox.
RB02C, a smart wall switch, is a long-distance trigger device.
According to the needs of different scenarios, press the trigger button of RB02C, and the device will immediately send the trigger information to the gateway. RB02C is compatible with the LoRaWAN protocol. The device has three trigger buttons.

**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





## Main Feature

- Adopt SX1276 wireless communication module
- 2 AAA size batteries 1.5V/ section series power supply
- Press the smart switch button to send trigger information to the gateway
- Compatible with LoRaWANTM Class A
- Frequency hopping spread spectrum technology
- 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
- Low power consumption and long battery life

**Note:**

Battery life is determined by sensor reporting frequency and other variables.
Please refer to web: **http://www.netvox.com.tw/electric/electric_calc.html**
In this website, users can find battery lifetime for various models at different configurations.

## Set up Instruction

**On/Off**

| | |
|---|---|
| Power on | Insert batteries. (users may need a screwdriver to open the cover) |
| Turn on | Press the function key till seeing one green indicator flash and one red indicat or flash. |
| Turn off (Restore to original set ting) | Press and hold the function key for 5 seconds till green indicator flashes 20 ti mes. |
| Power off | Remove Batteries. |
| Note | 1. Remove and insert the battery; the device is at off state by default.<br>2. On/off interval is suggested to be about 10 seconds to avoid the interferen ce of capacitor inductance and other energy storage components.<br>3. After insert batteries and press any button, the device will be in engineering test mode. |

**Network Joining**

| | |
|---|---|
| Never joined the network | Turn on the device to search the network to join.<br>The green indicator stays on for 5 seconds: success The green indicator rema ins off: fail |
| Had joined the network (not at factory setting) | Turn on the device to search the previous network to join. The green indicator stays on for 5 seconds: success<br>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 / Turn off<br>The green indicator flashes 20 times: success The green indicator remains off : fail |
| Press once | The device is in the network: green indicator flashes once and sends a report<br>The device is not in the network: green indicator remains off |
| The time of pressing the alarm button exceeds the default | The device is in the network: red indicator flashes once and sends a report Th e device is not in the network: red indicator remains off<br>Note: If the button of the device is kept pressed that leads to exceeding the se t value, the device will automatically send the data packet and flash once whet her the button is released or not. |

**Sleeping Mode**

| | |
|---|---|
| The device is on and in the network | Sleeping period: Min Interval.<br><br>When the reportchange exceeds setting value or the state changes: send a data report according to Min Interval. |

**Low Battery Voltage Threshold**

| | |
|---|---|
| Low Voltage | 2.4 V |

## Data Report

After power on, the device will immediately send a version packet report and a data report including the voltage and button status. The device sends data according to the default configuration before any other configuring.
Report MaxTime: Max Interval =3600s
Report MinTime: Min Interval =3600s
Default reportchange  BatteryvoltageChange —- 0x01(0.1V)
**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 MinTime.

The data parsing that is reported by the device please refer to
Netvox LoraWAN Application Command document and Netvox Lora Command Resolver
**http://www.netvox.com.cn:8888/page/index**

Report configuration and sending period are as following:

| Min Interval<br><br>(Unit: second) | Max Interval<br><br>(Unit: second) | Reportable Change | Current Change≥<br><br>Reportable Change | Current Change<br><br>Reportable Change |
|---|---|---|---|---|
| Any number between<br><br>1~65535 | Any number between<br><br>1~65535 | Can not be 0. | Report<br><br>per Min Interval | Report<br><br>per Max Interval |

| | | | |
|---|---|---|---|
| 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 | | | |
|---|---|---|---|---|---|---|---|
| ConfigReport Req | RB02C | 0x01 | 0x A7 | MinTime (2bytes Unit: s) | MaxTime (2bytes Unit: s) | BatteryChange (1byte Unit: 0.1v) | Reserved (4Bytes, Fixed 0x00) |
| ConfigReport Rsp | | 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) | BatteryChange (1byte Unit: 0.1v) | Reserved (4Bytes, Fixed 0x00) |

(1) Configure RB02C report parameters:

MinTime = 1min MaxTime = 1min
BatteryChange = 0.1v Downlink: 01A7003C003C0100000000
Device Return:
81A7000000000000000000 (Configuration success)
81A7010000000000000000 (Configuration failure)

**Example of Button Pressing**
FPort : 0x0D

| Description | CmdID | PayLoad(Var bytes) |
|---|---|---|
| SetButtonPress TimeReq | 0x01 | PressTime(1byte) 0x00_QuickPush_Less then 1 Second, Other value pr esent the presstime such as 0x01_1 Second push, 0x02_2 Seconds push, 0x03_ 3 Seconds push, 0x04_4 Seconds push, 0x05_5 Seconds push, and so on |
| SetButtonPress TimeRsp | 0x81 | Status (0x00_Success 0x01_Failure) |
| GetButtonPress TimeReq | 0x02 | |
| GetButtonPress TimeRsp | 0x82 | PressTime(1byte) Other value present the presstime such as 0x01_1 Second push, 0x02_2 Seconds push, 0x03_3 Seconds push, 0x04_4 Seconds push, 0x05_5 Seconds push, and so on Other value is reserved |

Configure RB02C device parameter ButtonPressTime=0x0A ( Press and hold the button for 10 seconds to report )

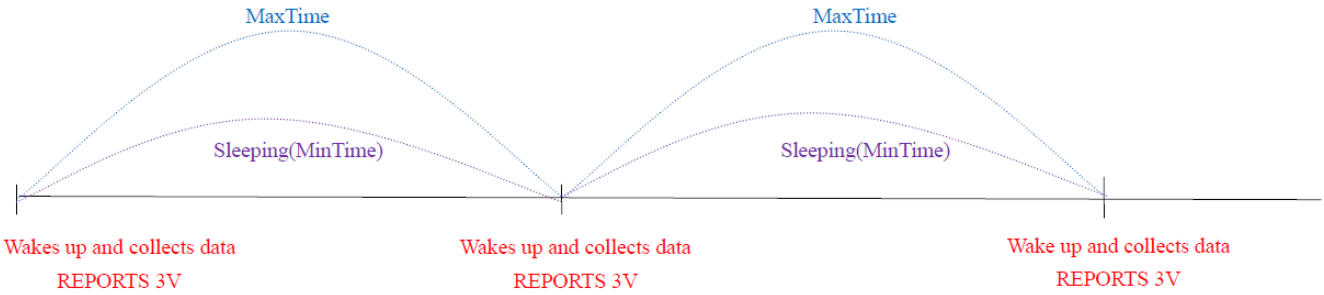
Downlink: 010A
**Device Return:**

8100 (Configuration success)
810 1(Configuration failure)

Read RB02C device parameter:

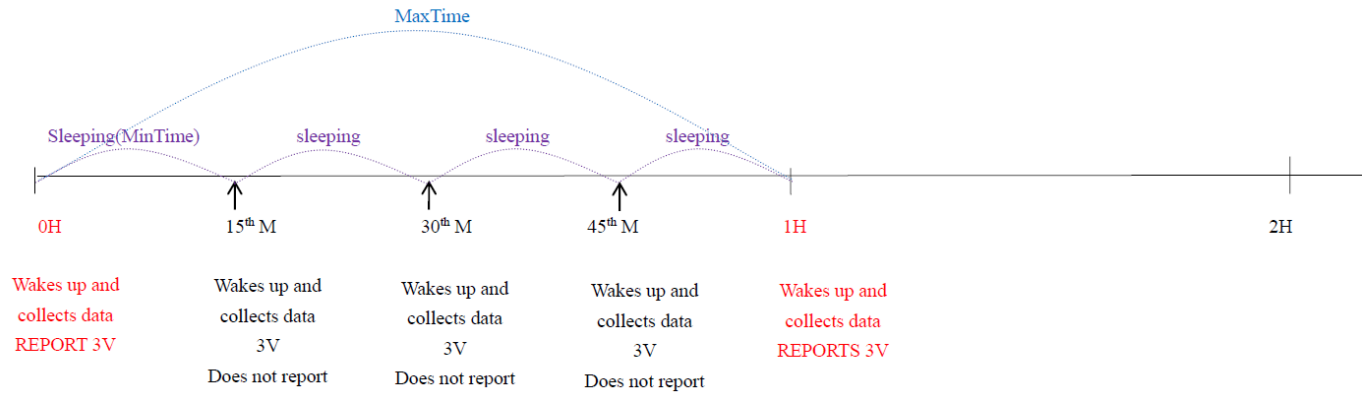
**Example for MinTime/MaxTime logic:**

Example#1 based on MinTime = 1 Hour, MaxTime= 1 Hour, Reportable Change i.e. BatteryVoltageChange=0.1V

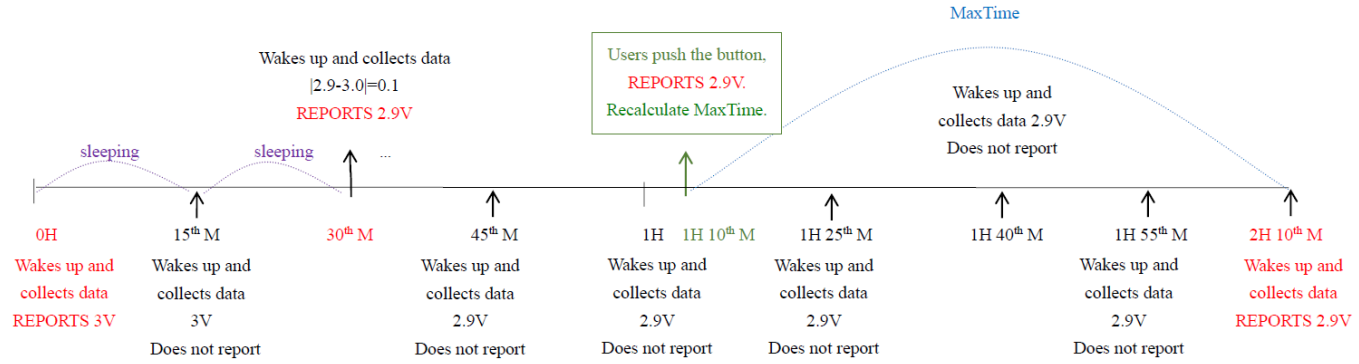



**Note:** MaxTime=MinTime. Data will only be report according to MaxTime (MinTime) duration regardless BatteryVoltageChange value.

**Example#2** based on MinTime = 15 Minutes, MaxTime= 1 Hour, Reportable Change i.e. BatteryVoltageChange= 0.1V.




**Example#3** based on MinTime = 15 Minutes, MaxTime= 1 Hour, Reportable Change i.e. BatteryVoltageChange= 0.1V.




**Notes:**

1. The device only wakes up and performs data sampling according to MinTime Interval. When it is sleeping, it does not collect data.
2. The data collected is compared with the last data reported. If the data variation is greater than the ReportableChange value, the device reports according to MinTime interval. If the data variation is not greater than the last data reported, the device reports according to MaxTime interval.
3. We do not recommend to set the MinTime Interval value too low. If the MinTime Interval is too low, the device wakes up frequently and the battery will be drained soon.
4. Whenever the device sends a report, no matter resulting from data variation, button pushed or Maxime interval, another cycle of MinTime/Maxime calculation is started.

## Installation

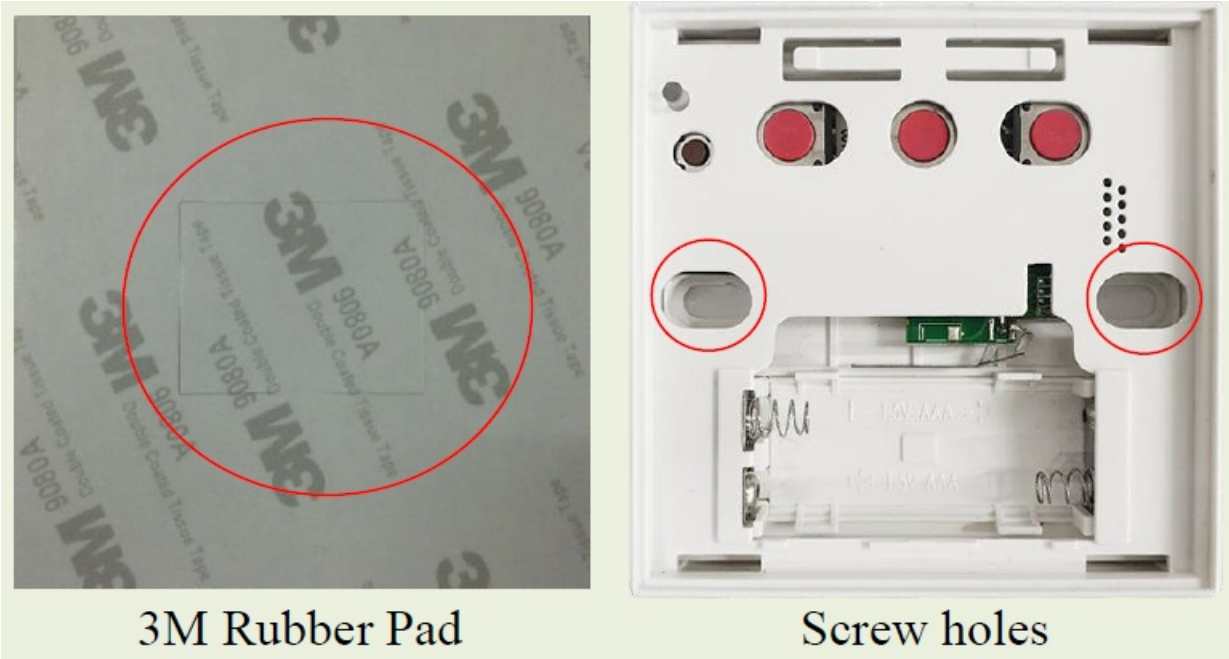
1. Use the attached 3M rubber pad, stick one side to the Wireless 3-Gang Push Button (RB02C), and stick the other side to the wall.
2. To make the installation firmer, please use screws (purchased separately) to fix the device to the wall.
3. Install the battery in the battery slot, and close the snap-fit joint of the device, as shown in the figure below.

   ***Note:**

   If the user wants to open the snap-fit joint, the user can pry it gently.

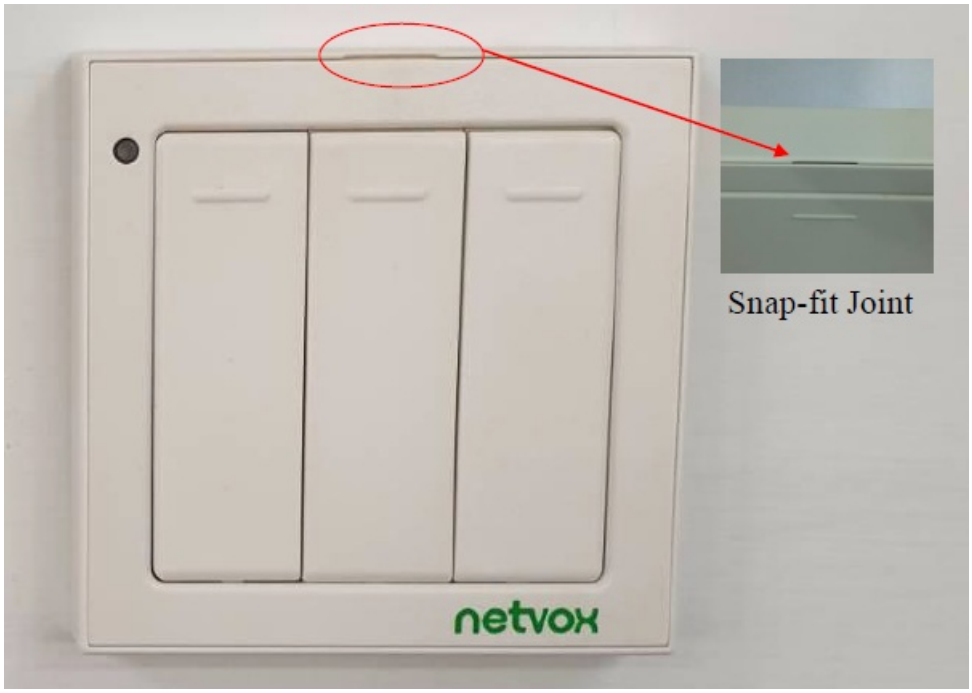
*** Note:**

- Please don’t stick it on the rough wall to avoid the device clean before installation to avoid dust on the wall and affect the effect of the paste.
- The middle part of the 3M rubber pad (the part with the red frame in the left picture below) is where the label is attached to the device. Please remove the rubber pad that has been cut.
- Do not install the device in a metal shielded box or in an environment surrounded by other electrical equipment to avoid affecting the wireless transmission of the device.




When the button of the device is pressed, the device will send button status.

When the device periodically reports data next time, it restores the “normal” state and sends the “normal” state information.
When button pressing, the bit of data is “1”.
When button no pressing, the bit of data is “0”.




**RB02C can be applied to the following scenarios:**

- Home (bathroom)
- School
- Nursing home
- Hospital
- Bank
- Hotel

The place where an emergency may occur.

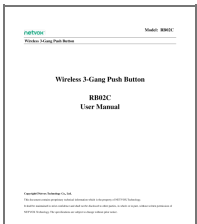
### Important Maintenance Instruction

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

- 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 RB02C Wireless 3-Gang Push Button [pdf] User Manual<br>RB02C, Wireless 3-Gang Push Button |