netvox R831A Wireless Multifunctional Control Box User Manual

Wireless Multifunctional Control Box
R831A
User Manual

Contents

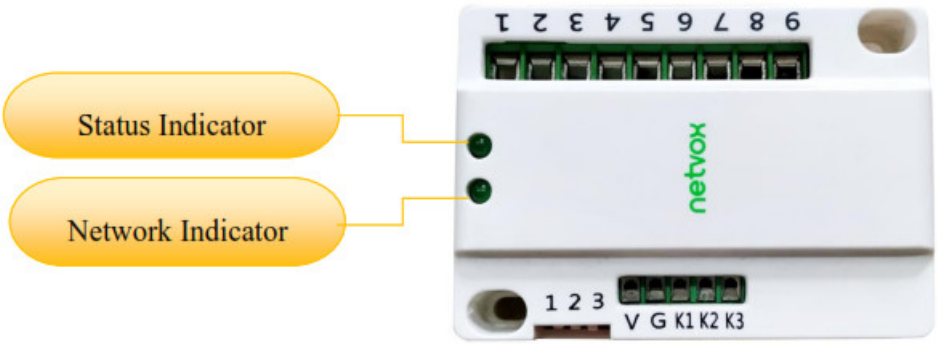
Introduction

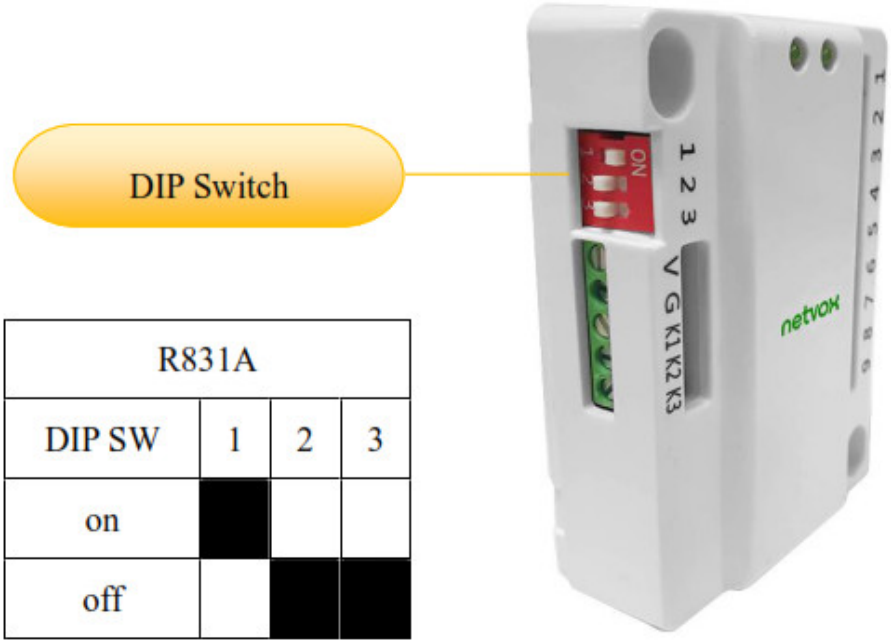
R831A is a high-reliability switch control device which is a Class C device of netvox based on the LoRaWAN open protocol. The device is compatible with LoRaWAN protocol. R831A is a device used to control the switch and is mainly used for the switch control of the strong electric motor control box.

LoRa Wireless Technology:
LoRa is a wireless communication technology famous for its long-distance transmission and low power consumption. Compared with other communication methods, LoRa spread spectrum modulation technique greatly extend the communication distance. It can be widely used in any use case that requires long-distance and low-data wireless communications. For example, automatic meter reading, building automation equipment, wireless security systems, industrial monitoring. It has features like small size, low power consumption, long transmission distance, strong 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





R831A			
DIP SW	1	2	3
on	■		
off		■	■

1	Port 1
2	Port 2
3	Port 3
4	Port 4
5	Port 5
6	Port 6
7	Port 7
8	GND
9	12V

1~3	DIP Switch (Change R831 series mode)
V	3.3V
G	GND
K1	Local switch-Forward
K2	Local switch-Reverse
K3	Local switch-Stop

Main Features

- Apply SX1276 wireless communication module
- Curtain and roller shutter control
- Compatible with LoRaWANTM Class C
- 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
- Improved power management for longer battery life

Battery Life:

- Please refer to web: **http://www.netvox.com.tw/electric/electric_calc.html** At this website, users can find battery life time for variety models at different configurations.

1. Actual range may vary depending on environment.
2. Battery life is determined by sensor reporting frequency and other variables.

Set up Instruction

On/Off

Power On	External 12V power supply
Turn On	After plug the power, the status indicator will stay on, it means the boot is successful.
Restore To Factory Setting	Press and hold the function key for 5 seconds till the status indicator flashes 20 times .
Power Off	Remove power
Note:	Press and hold the function key then power on, it will enter engineering mode

Network Joining

Never Joined The Network	Turn on the device, and it will search for the network to join. The network indicator stays on: joins the network successfully The network indicator stays off : fail to join the network
Had Joined The Network (Not Restore To Factory Setting)	Turn on the device, and it will search for the previous network to join. The network indicator stays on: joins the network successfully The network indicator stays off : fail to join the network
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 the function key and hold the pressing for 5 seconds	The device will be set to default and turned off The status indicator light flashes 20 times: success The status indicator light remains off: fail
Press the function key once	The device is in the network: the status indicator light flashes once and sends a report The device is not in the network: the status indicator light remains off
Press K1 local switch	Motor forward
Press K2 local switch	Motor reverse
Press K3 local switch	Motor stop

*The specific key refers to the physical appearance

Data Report

The device will immediately send a version packet and a report packet with the motor status. The device sends data in the default configuration before any configuration is done.

Default setting:
MaxTime: Max Interval = 900s
MinTime: Min Interval = 2s (The current power state will be checked every Min Interval by default.)

Note:
The report interval of the device will be programmed based on the default firmware which may vary.
The interval between two reports must be the MinTime.
If there are special customized shipments, the setting will be changed according to customer's requirements.

Please refer Netvox LoRaWAN Application Command document and Netvox Lora Command Resolver **http://www.netvox.com.cn:8888/page/index** to resolve uplink data.

Data report configuration and sending period are as following:

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

Example of ConfigureCmd
FPort: 0x07

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

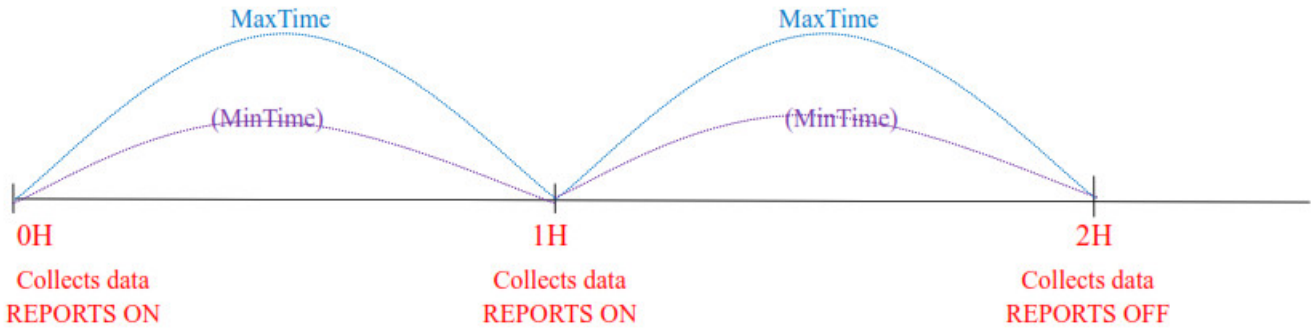
CmdID-1 byte
DeviceType- 1 byte Device Type of Device
NetvoxPayLoadData- var bytes (Max=9bytes)

Description	Device	CmdID	Device	NevoxPayLoadDitia
OR	RS3IA	0x90	0xB2	Reserved (9Bytes. Fixed 0x00)
On		0x91		Reserved (9Bytes. Fixed 0x00)
Tonle		0x92		Reserved (9Bytes. Fixed 0x00)
ReadCurrentStatus		0x94		Reserved (9Bytes. Fixed 0x00)
Stop		0x95		Reserved (9Bytes. Fixed 0x00)
ConfigReponReq		0x01		Minrime (2 bytes Unit: s) / MaxTime (2bytes Unit: s) / Reserved (8Bytes, Fixed 0x00)
ConfigReportRsp		0x81		Status I Ox00_success) / Reserved (0Bytet. Fixed Ox001
ReadContigReportRcq		0x02		Reserved (9Bytes. Fixed 0x00)
ReadConfigReportRsq		0x82		MenTime (2bytes Unit: s) / MaxTime (2bytes Unit: s) / Reserved (5 Bytes. Fixed 0x00)
SetSwitchbpeRcq		0x03		SnitehType(1 byte) 0x00_Toggle 0x01_Momemary / Reserved Mires. Fixed 0%001
SetSwitchTypcRsq		0x83		Status 1000_succeta / Reserved Offlytet, Fixed 0A0u I
GetSwitchTypeReq		0x04		Reserved (9Bytes. F zed 0x00)
GetSwitchTypeRsq		0x84		SwitchType(!byte) Ox00_Toggle otOlMomentary / Reserved (Mires. Fixed 0x00)

Max Time and Min Time setting

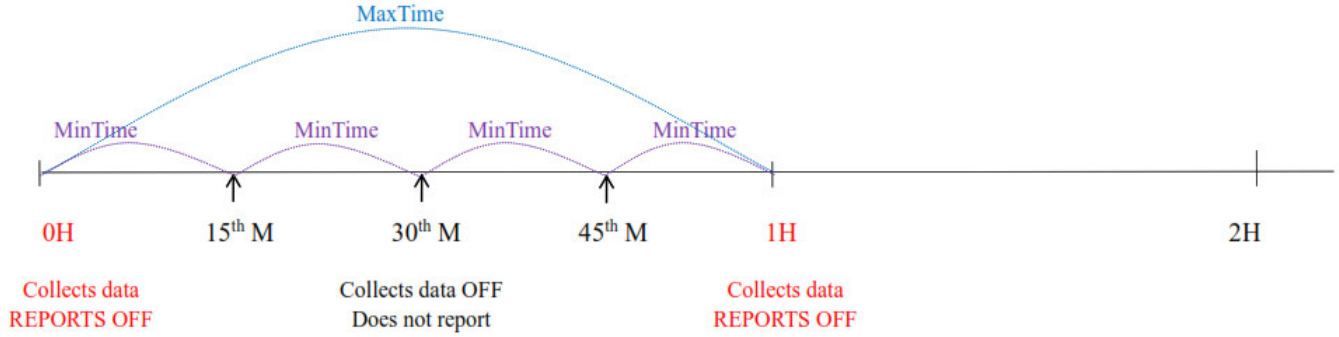
1. Command Configuration: MinTime = 1minMaxTime = 1min
   Downlink: 01B2003C003C0000000000
   Response: 81B2000000000000000000 (Configuration success) 81B2010000000000000000 (Configuration failure)
2. Read Configuration:
   Downlink02B2000000000000000000
   Response82B2003C003C0000000000 (Current configuration)
   Motor Switch Configuration
3. Motor Reverse Downlink90B2000000000000000000
4. Motor Advance
   Downlink91B2000000000000000000
5. Switch Motor State (Change from forward to reverse or from reverse to forward)
   Downlink92B2000000000000000000
6. Motor Stop
   Downlink95B2000000000000000000
   Switch Type Configuration
7. Setting switch type is tact type switch
   Downlink03B2010000000000000000
   Response83B2000000000000000000 (Configuration success)
8. Confirm switch type
   Downlink04B2000000000000000000
   Response84B2010000000000000000 (The switch type is tact type)

Example for MinTime/MaxTime logic:
Example#1 based on MinTime = 1 Hour, MaxTime= 1 Hour

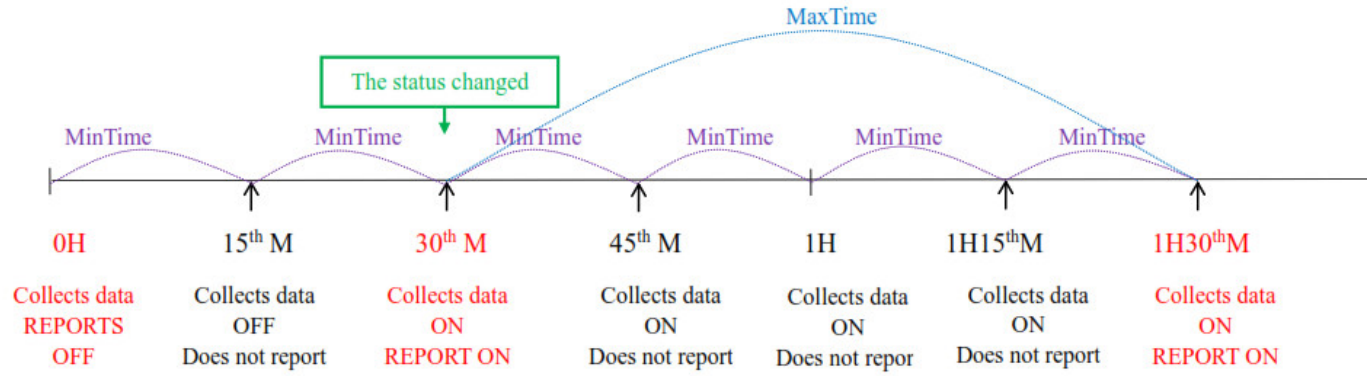


Note:
MaxTime=MinTime. Data will only be report according to MaxTime (MinTime) duration regardless ON/OFF value.

Example#2 based on MinTime = 15 Minutes, MaxTime= 1 Hour



Example#3 based on MinTime = 15 Minutes, MaxTime= 1 Hour



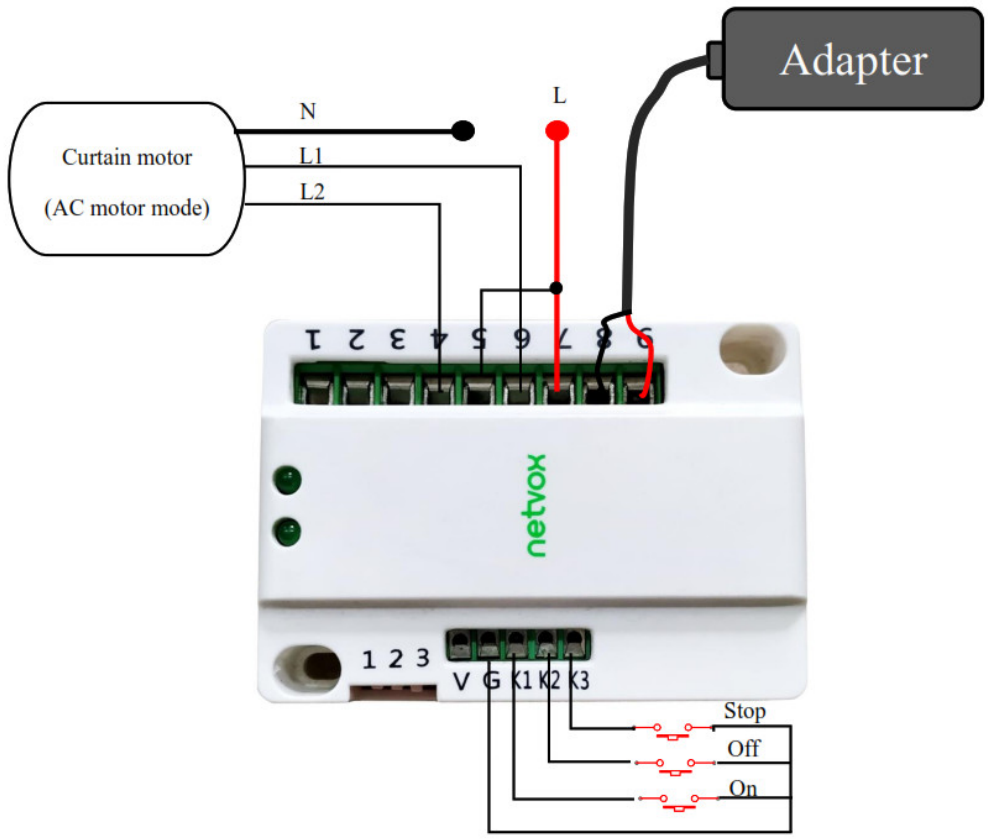
Note:
The status has changed, it will be reported at MinTime and recommend the MinTime Interval set as 2 seconds

Application

In the case of curtain control, the curtain can be forward, stopped and reversed by issuing instructions and three buttons.

Installation

This product does not have a waterproof function. After joined the network, please place it indoors.
The wiring diagram as follow below:



Instructions on switching the operating mode (If users do not strictly follow the manual connection, it may damage the product.) R831 has four operating modes corresponding to the three keys of the DIP switch. Toggle the switch and power on again to switch the corresponding state. (If the DIP switch is not correctly toggled, the network lights and status lights will flash alternately,users need to dial power down and power on again.)

1. R831A – strong electric motor mode: Toggle the DIP switch 1
   This mode has two relays involved in operation which are combined for on / off / stop.
2. R831B – light current motor mode : Toggle the DIP switch 2
   This mode has three relays involved in the operation which are respectively for on /off / stop.
3. R831C – relay mode : Toggle the DIP switch 3
   In this mode, the external dry contact can directly control the on / off of the local relay.
4. R831D – relay mode : Toggle the DIP switches 1 and 2
   In this mode, the external dry contact does not directly control the on/off of the local relay but reports the dry contact status and relay status.

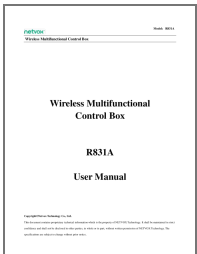
Important Maintenance Instruction

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

 Wireless Multifunctional Control Box R831A User Manual	netvox R831A Wireless Multifunctional Control Box [pdf] User Manual R831A, Wireless Multifunctional Control Box