netvox R718TB Wireless Push Button User Manual

R718TB Wireless Push Button
User Manual

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Introduction

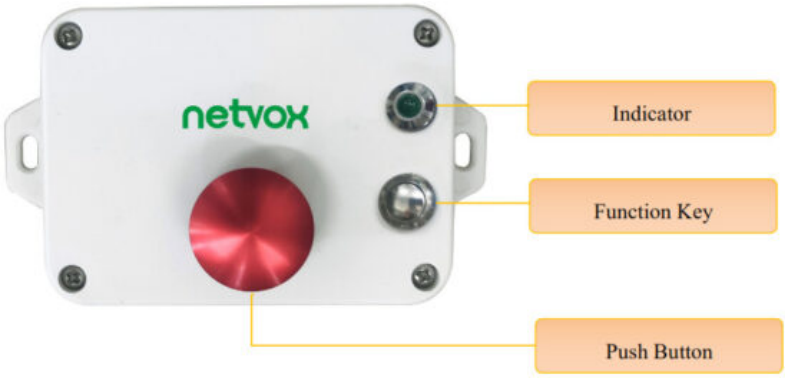
R718TB is a wireless push-button device.
When people encounter danger and need emergency help, press the push button.
R718TB will immediately send an alarm message to the gateway. R718TB is compatible with LoRaWAN. Protocol.
LoRa Wireless Technology:
Lora is a wireless communication technology dedicated to long-distance and low power consumption. Compared

with other communication methods, the LoRa spread spectrum modulation method greatly increases to expand the communication distance. Widely used in long-distance, low-data wireless communications. For Examples, 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.

Appearance



Main Features

- Apply SX1276 wireless communication module
- 2 ER14505 batteries AA size (3.6V / section) in parallel
- Press the push button to send a message
- The base is attached with a magnet that can be attached to a ferrous object
- Protection class IP65
- Compatible with LoRaWAN™ Class A
- Frequency hopping spread spectrum technology
- Configuration parameters can be configured through third-party software platforms, data can be read and alarms can be set via SMS text and email (optional)
- Available third-party platforms: Actility / ThingPark, TTN, MyDevices/Cayenne
- Low power consumption and long

Battery life:

⁻ Please refer to the web: **http://www.netvox.com.tw/electric/electric_calc.html**
⁻ On this website, users can find battery lifetime for various models at different configurations.

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

Set up Instruction

On/Off

Power on	Insert batteries. (The users may need a screwdriver to open.)
Turn on	Press and hold the function key for 3 seconds till the green indicator flashes once.
Turn off (Restore to factory setting)	Press and hold the function key for 5 seconds, and the green indicator flashes 20 times.
Power off	Remove Batteries.
Note:	1. Remove and insert the battery; the device is at off state by default. 2. On/off interval is suggested to be about 10 seconds to avoid the interference of capacitor inductance and other energy storage components. 3. The first 5 seconds after power-on, the device will be in engineering test mode.

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	Turn on the device to search the previous network. The green indicator stays on for 5 seconds: success The green indicator remains off: fail

Function Key

Press and hold for 5 seconds	Restore to factory setting / Turn off 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 The device is not in the network: the green indicator remains off

Sleeping Mode

The device is on and in the network	Sleeping period: Min Interval. When the report change exceeds the setting value or the state changes: send a data report according to Min Interval.

Low Voltage Warning

Low Voltage	3.2V

Data Report

When the device is powered on, it will immediately send a version package Report and the report data with the voltage.
The device sends data in the default configuration before any configuration is done.
Default setting:
MaxTime: Max Interval = 60 min = 3600s
MinTime: Max Interval = 60 min = 3600s
BatteryChange = 0x01 (Unit: 0.1v)
Note:

1. By default, it will detect the current-voltage every Min Interval.
   If there is special customization, the settings will be changed according to the customer's requirements.
2. The device report interval will be programmed based on the default firmware which may vary.
3. The interval between two reports must be the minimum time.
4. Please refer Netvox LoRaWAN Application Command document and Netvox Lora Command Resolver http://loraresolver.netvoxcloud.com:8888/page/index to resolve uplink data.

Data report configuration and sending period are as follows:

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

ExampleofReportDataCmd
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 **device type** — is listed in Netvox LoRaWAN Application Devicetype doc
ReportType – 1 byte –the presentation of the NetvoxPayLoadData, according to the device type
NetvoxPayLoadData– Fixed bytes (Fixed =8bytes)

Device	**DeviceType**	**ReportType**	**NetvoxPayLoadData**		
R718TB	0x31	0x01	Battery (1Byte, unit:0.1V)	Alarm(1Byte) 0:noalarm 1:alarm)	Reserved (6Bytes,fixed 0x00)

Example of Uplink: 0131012401000000000000
1st byte (01): Version
2nd byte (31): DeviceType 0x31 R718T(R718TB)
3rd byte (01): ReportType
4th byte (24): Battery 3.6v , 24 Hex=36 Dec 36*0.1v=3.6v
5th byte (01): Alarm
6th ~ 11 th byte (000000000000): Reserved
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	R718TB	0x01	0x31	Minime (2bytes, Unit: s)	Maxime (2bytes, Unit: s)	BatteryChange (1byte, Unit: 0.1v)	Reserved (4Bytes, Fixed 0x00)
Config ReportRsp		0x81		Status (0x00_success)		Reserved (8Bytes, Fixed 0x00)	
ReadConfig ReportReq		0x02		Reserved (9Bytes,Fixed 0x00)			
ReadConfig ReportRsp		0x82		Minime (2bytes, Unit: s)	Maxime (2bytes, Unit: s)	BatteryChange (1byte, Unit: 0.1v)	Reserved (4Bytes, Fixed 0x00)

(1). Configure device parameters MinTime = 1min, MaxTime = 1min, BatteryChange = 0.1vFPort7
Downlink: 0131003C003C0100000000
003C(Hex) = 60(Dec)
Device returns:
8131000000000000000000 (configuration successful)
8131010000000000000000 (configuration failed)
(2). Read device parameters
Downlink: 0231000000000000000000
Device returns:
8231003C003C0100000000 (current device parameters)

Example of ButtonPressTime

FPort 0x0D

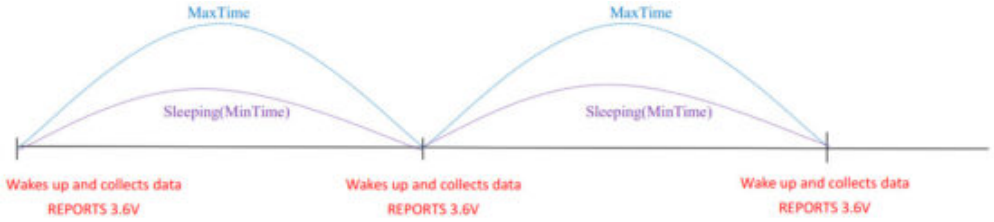
Description	CmdID	PayLoad(Var bytes)
SetButtonPressTimeReq	0x01	PressTime(1byte) 0x00_QuickPush_Less then 1 Second, Other Value present the presstime such as 0x01_1 Second push, 0x02_2 Seconds push, 0x03_3 Seconds push, 0x04_4 Seconds push, 0x05_5 Seconds push, and so on
SetButtonPressTimeRsp	0x81	Status(0x00_Success
		0x01_Failure)
GetButtonPressTimeReq	0x02	
GetButtonPressTimeRsp	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

(3) Configure device parameters ButtonPressTime=0x0A
Downlink: 010A
Device returns:
8100 (configuration successful)
8101 (configuration failed)
(4) Read device parameters

Downlink: 02
Device returns:
820A (current device parameters)

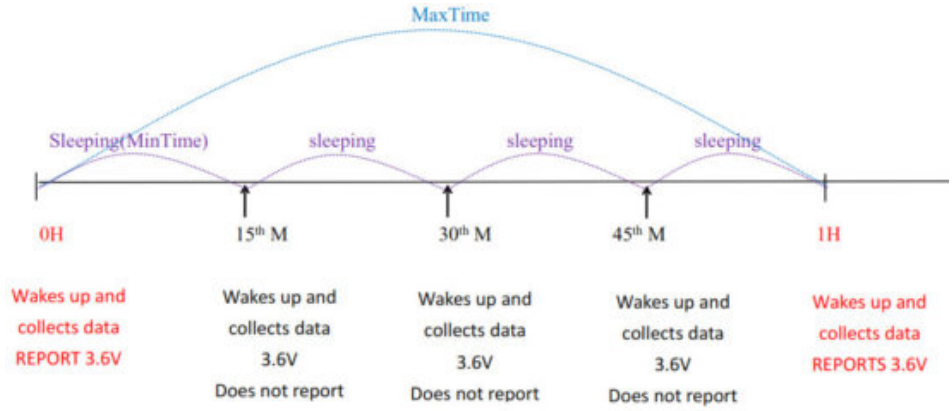
Example for MinTime/MaxTime logic

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

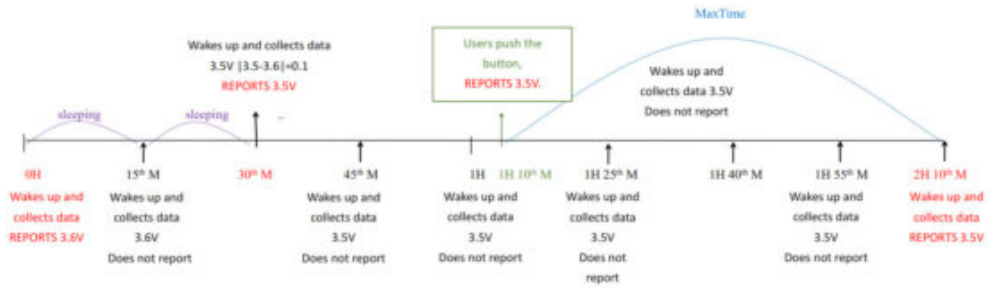


Note: MaxTime=MinTime. Data will only be report according to MaxTime (MinTime) duration regardless BatteryVoltageChange value.

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 the MinTime interval. If the data variation is not greater than the last data reported, the device reports according to the Maxime interval.
3. We do not recommend setting 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 the resulting data variation, button push, or Maxime interval, another cycle of MinTime/Maxime calculation is started.

Information about Battery Passivation

Many Netvox devices are powered by 3.6V ER14505 Li-SOCl2 (lithium-thionyl chloride) batteries that offer many advantages including low self-discharge rate and high energy density.
However, primary lithium batteries like Li-SOCl2 batteries will form a passivation layer as a reaction between the lithium anode and thionyl chloride if they are in storage for a long time or if the storage temperature is too high. This lithium chloride layer prevents rapid self-discharge caused by a continuous reaction between lithium and thionyl chloride, but battery passivation may also lead to voltage delay when the batteries are put into operation, and our devices may not work correctly in this situation.
As a result, please make sure to source batteries from reliable vendors, and the batteries should be produced within the last three months.
If encountering the situation of battery passivation, users can activate the battery to eliminate the battery hysteresis.

To determine whether a battery requires activation

Connect a new ER14505 battery to a 68ohm resistor in parallel, and check the voltage of the circuit.
If the voltage is below 3.3V, it means the battery requires activation.

How to activate the battery

a. Connect a battery to a 68ohm resistor in parallel
b. Keep the connection for 6~8 minutes
c. The voltage of the circuit should be ≧3.3V

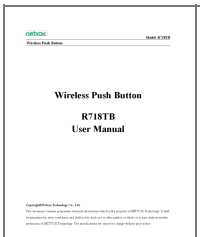
Important Maintenance Instruction

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 a dusty or dirty environment. It might damage its detachable parts and electronic components.
- Do not store the device under excessive heat conditions. 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 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.

Documents / Resources

 Wireless Push Button R718TB User Manual	netvox R718TB Wireless Push Button [pdf] User Manual R718TB, Wireless Push Button, Push Button

References

- Netvox Command Resolver
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