

# **Wireless Temperature/Humidity/ Reed Switch/Glass Break Sensor S31501 User Manual**

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## 1. Introduction

S31501 is a comprehensive detection device with temperature and humidity detection, door magnetic switch detection, and glass breaking state detection. The S31501 device is suitable for flow control, data collection, and other applications such as home intelligent terminals and industrial applications.

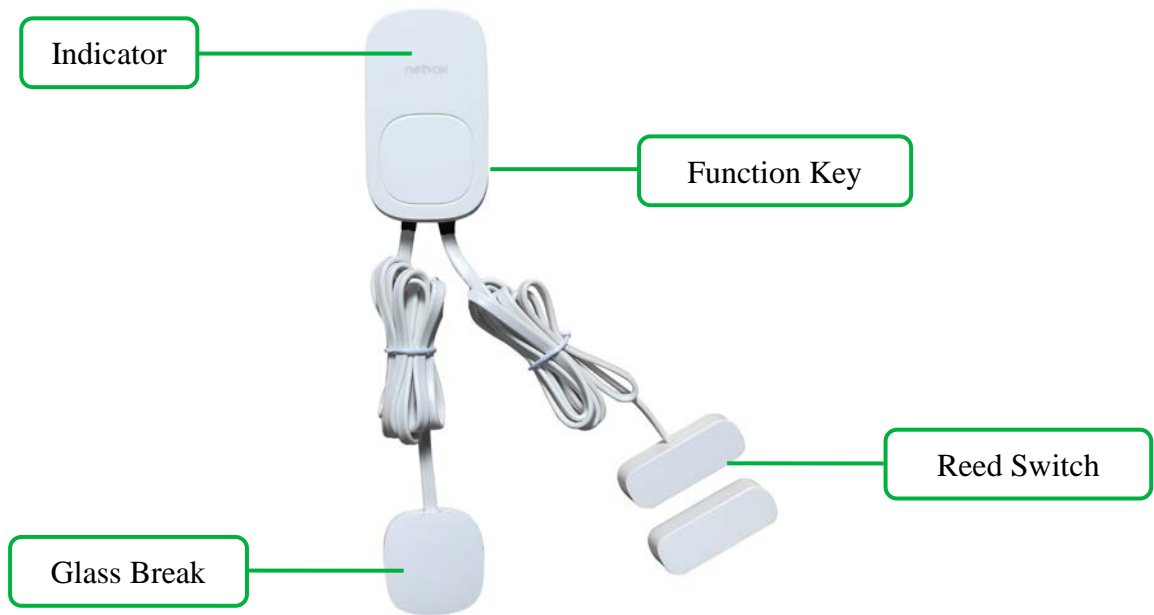
S31501 has great advantages of durability, nice compact design, multi-function integration, low power consumption, and convenient installation and use.

The S31501 device integrates the Amazon Sidewalk wireless module KG100S to enable its low power long range connectivity to the Amazon Sidewalk network over 2.4GHz Bluetooth® Low Energy and Sub-GHz LoRa/FSK radio technologies. Customers can keep their S31501 device to stay connected on the Amazon Sidewalk network at no additional costs. The integrated module also enables the highest level of IoT security from Secure Vault™ technology implemented on the module's microcontroller unit. Together with multi layers of data encryption by the Amazon Sidewalk communication protocol, this has brought the S31501 device to the next level of enabling a versatile sensing solution for person/family/asset protection while highly securing customers data and protecting their privacy.

### **Amazon Sidewalk:**

Amazon Sidewalk is a shared wireless network that uses Amazon Sidewalk Bridges, such as compatible Amazon Echo and Ring devices, to enable communication among devices communicating on the network. Amazon Sidewalk enables reliable, low-bandwidth, and long-range connectivity at home and beyond. It connects IoT devices and applications such as outdoor lights, motion sensors, and location-based devices. It uses Bluetooth Low Energy for short-distance communication and CSS and FSK radio protocols at 900 MHz frequencies to cover longer distances.

## 2. Appearance



## 3. Features

- Compatible with Amazon Sidewalk
- Powered by 2 x 3V CR2450 button batteries
- Simple operation and setting
- Low power consumption and long battery life

Note: Please refer to [http://www.netvox.com.tw/electric/electric\\_calc.html](http://www.netvox.com.tw/electric/electric_calc.html) for battery life calculation and other detailed information

## 4. S31501 Sensor Function

### (1) Reed Switch

Detect the opening and closing state of the reed switch.

Open: report 1

Close: report 0

➤The reed switch needs to be fixed when used, such as the double sided tape.

### (2) Temperature and Humidity Sensor

Detection of temperature and humidity in ambient air.

Temperature unit: 0.01°C, signed value.

Humidity unit: 0.5%

### (3) Glass Break

No broken glass detected: report 0

Broken glass detected: report 1

## 5. Set up Instruction

### --- On/Off ---

Power on/Turn on	Insert batteries. Press function key until green indicator flashes once.
Turn off (Reset to factory setting)	Press the function key for more than 8 seconds, and the green indicator light will flash continuously. Release the key after the flash starts, and the device will automatically shut down after the flash ends. (Indicator light display: the indicator light will flash once every 2s to prompt the current pressing duration)
Note	On/off interval is suggested to be about 10 seconds to avoid the interference of capacitor inductance and other energy storage components.

**--- Network Joining---**

Never joined the network	<p>Turn on the device to search the network.</p> <p>The green indicator stays on for 5 seconds: Success</p> <p>The green indicator remains off: Fail</p>
Had joined the network (without factory resetting)	<p>Turn on the device to search the previous network.</p> <p>The green indicator stays on for 5 seconds: Success</p> <p>The green indicator remains off: Fail</p>
Fail to join the network	<p>The device should be close to the sidewalk gateway while joining the network.</p>

**--- Function Key ---**

Press the function key for more than 8 seconds	<p>Restore to factory setting/Turn off</p> <p>The green indicator flashes for 20 times: Success</p> <p>The green indicator remains off: Fail</p>
Press once	<p>The device is in the network: green indicator flashes once and sends a report.</p> <p>The device is not in the network: green indicator remains off</p>

**--- Sleeping Mode ---**

The device is on and in the network	<p>Sleeping period: Min Interval.</p> <p>When the reportchange exceeds setting value or the state changes: send a data report according to Min Interval.</p>
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**---Low Voltage Warning----**

Low Voltage	2.4V
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## 6. Data Report

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

### Default setting:

Max Interval: 0x0E10 (3600s)

Min Interval: 0x0E10 (3600s) (Automatically checking the current voltage every Min Interval)

Battery Change: 0x01 (0.1V)

Temperature Change: 0x64 (1°C)

Humidity Change: 0x14 (10%)

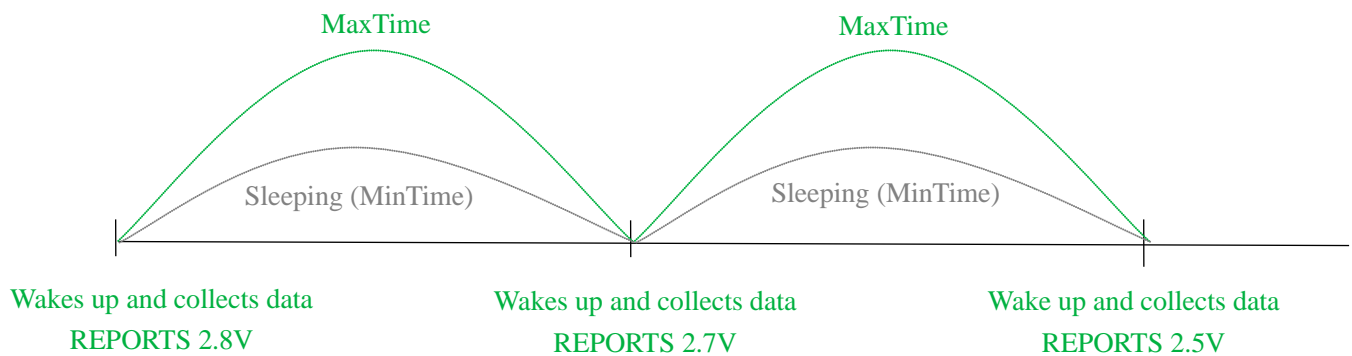
Note:

The device report interval will be programmed based on the default firmware.

The interval between two reports must be the minimum time.

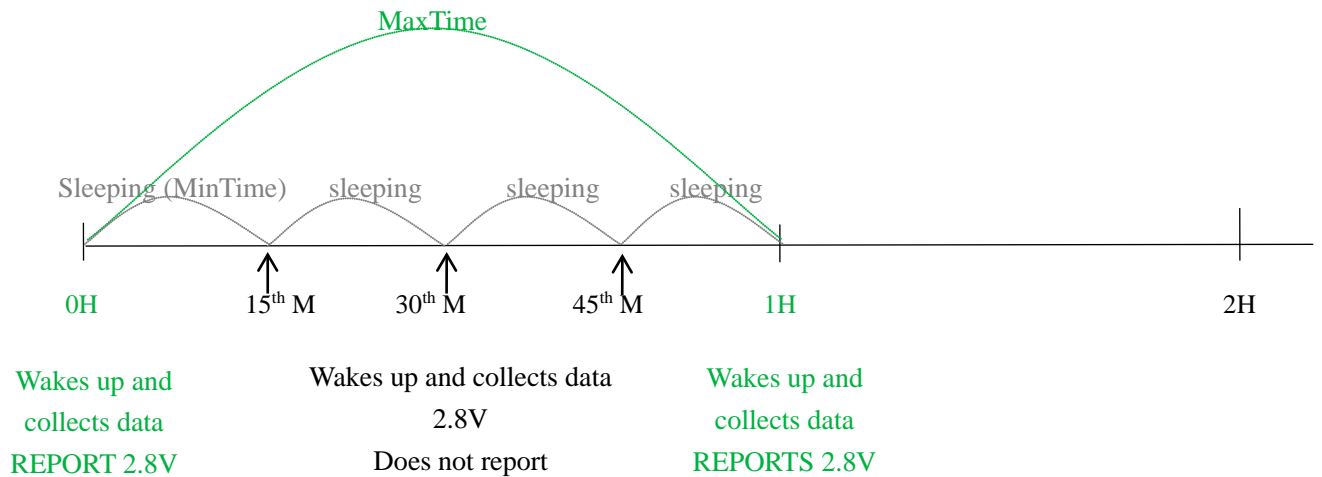
**Example#1 based on MinTime = 1 Hour, MaxTime= 1 Hour, Reportable Change i.e.**

**BatteryVoltageChange=0.1V**

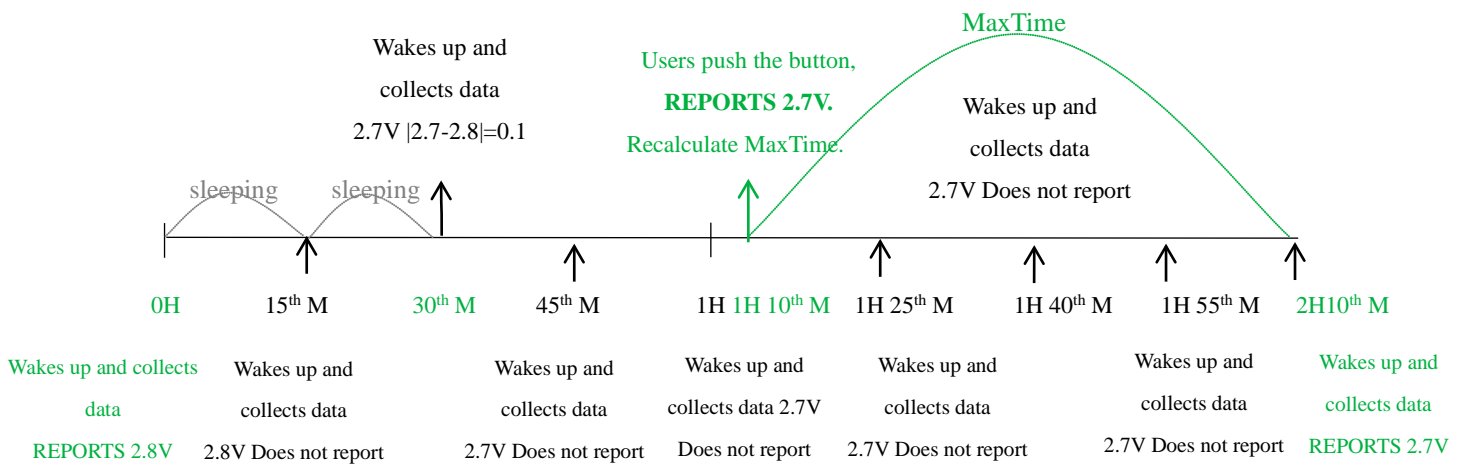


Note: MaxTime=MinTime. Data will only be report according to MaxTime (MinTime) duration regardless BtteryVoltageChange value.

**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.**



Note:

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 change value 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 MaxTime interval, another cycle of MinTime / MaxTime calculation is started.



## 7. Important Maintenance Instruction

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

- 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.