netvox™

Wireless Dry Contact Sensor

DirekTronik
Dataprodukter utöver det vanliga

Wireless Dry Contact Sensor
User Manual

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1. Introduction

The R311CA is a switch detection device for Netvox ClassA type devices based on the LoRaWAN open protocol and is compatible with the LoRaWAN protocol. When any dry contact of the R311CA detects a change, the R311CA sends a message to the gateway.

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.

This device has been certified by the LoRa Alliance and is allowed to use the following logo on the product:

2. Appearance

3. Main Features

- Compatible with LoRaWAN
- 2 x 3V CR2450 button battery power supply
- Detectable voltage value and dry contact status
- Simple operation and setting

4.Set up Instruction

4.1 Power on and Turn on / off

(1) Power on (insert batteries): open the battery cover (users may need a flat blade screwdriver to open); insert batteries and close the battery cover.

(2) Turn on. If the device had never joined in any network or at factory setting mode, after powering on, the device is at off mode by default setting. Press function key and release to turn on the device. The green and red indicator will flash once to show that R311CA is turned on.

(3) Turn off. Press and hold function key for 5 seconds till the green indicator flashes quickly and release. The green indicator will flash 20 times to show that R311CA is turned off.

(4) Remove batteries (power off) when R311CA is on. Wait till 10 seconds after the capacitance discharging. Insert batteries again, the device will be setted to be on mode by default. There is no need to press function key to turn on the device. The red and green indicators will both flash and then light off.

Note:

1. The interval between turning on/off or powering off/on is suggested to be about 10 seconds to avoid the interference of capacitor inductance and other energy storage components.

2. Do not press function key and insert batteries in the same time, otherwise, it will enter engineer testing mode.

4.2 Join Into Lora Network

To join R311CA into LoRa network to communicate with LoRa gateway.

  The network operation is as following:

(1) If R311CA had never joined any network or at factory setting mode, turn on the device; it will search an available LoRa network to join. The green indicator will stay on for 5 seconds to show it joins into the network, otherwise, the green indicator does not work.

(2) If R311CA had been joined into a LoRa network, remove and insert the batteries; the green indicator will stay on for 5 seconds to show it joins into the network.

4.3 Function Key

(1) Press and hold both function keys for 5 seconds to reset to factory setting. After restoring to factory setting successfully, the green indicator will flashes quickly 20 times.
(2) Press function key; the green indicator will flash once and the device will send a data report.

4.4 Data Report

When the device is turned on, it will immediately send a version package and data report.
Data will be reported once per hour by default setting.
Maximum time: 3600s
Minimum time: 3600s
Default reportchange:
Battery ---- 0x01 (0.1V)

Note: MinInterval is the sampling period for the Sensor. Sampling period >= MinInterval.

Dry contact trigger:
When the dry contact detects a status change, it will immediately issue a report.
Pull open: 1, closed: 0.

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

5. Restore to Factory Setting

R311CA saves data including network key information, configuration information, etc. To restore to factory setting, users need to execute below operations.
1. Press and hold both function key for 5 seconds till the green indicator flashes and then release; LED flashes quickly 20 times.
2. R311CA will be turned off mode after restoring to factory setting.

6. Sleeping Mode

R311CA is designed to enter sleeping mode for power-saving in some situations:

(A) While the device is in the network → the sleeping period is one hour. (During this period, if the reportchange is larger than setting value, it will wake up and send a data report).
(B) When it is not in the network → R311CA will enter sleeping mode and wake up every 15 seconds to search a network to join in the first two minutes. After two minutes, it will wake up every 15 minutes to request to join the network.
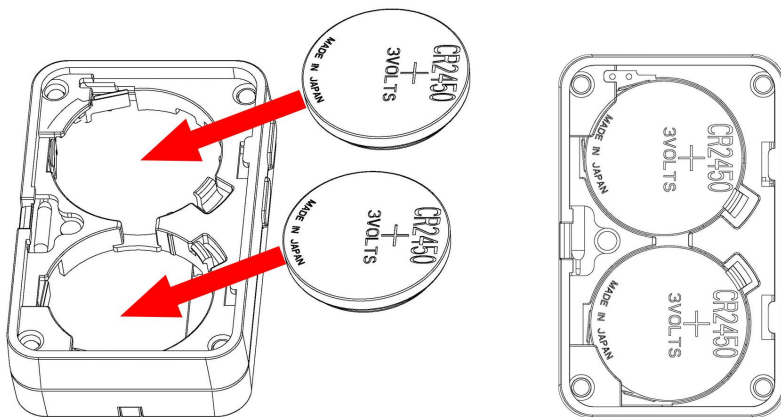
If it's at (B) status, to prevent this unwanted power consumption, we recommend that users remove the batteries to power off the device.

7. Low Voltage Alarming

The operating voltage threshold is 2.4V. If the voltage is lower than 2.4V, R311CA will send a low-power report to the Lora network.

9. Installation

(1) This product does not have a waterproof function. After the screening is completed, please place it indoors.
(2) Dust in the installation position of the equipment needs to be wiped clean and then affixed to the equipment.
(3) The battery installation method is shown in the figure below (battery with "+" facing outward).

Note: To install the battery, use a screwdriver or similar tool to assist in opening the battery cover.

10. 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 equipment dry. Rain, moisture, and various liquids or moisture 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 can damage its detachable parts and electronic components.
 ・ Do not store in excessive heat. 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. Rough handling of equipment can destroy internal circuit boards and delicate structures.
 ・ Do not wash with strong chemicals, detergents or strong detergents.
 ・ Do not apply with paint. Smudges can block debris in detachable parts and affect normal operation.
 ・ Do not throw the battery into a fire to prevent the battery from exploding. Damaged batteries may also explode.
All of the above suggestions apply equally to your device, battery and accessories. If any device is not working properly.
Please take it to the nearest authorized service facility for repair.

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