netvox ™

Wireless Water Leak Sensor

Water Leak Sensor
User Manual

Table of Content

1. Introduction

Netvox water leak sensor R311W is a LoRaWAN device compatible with LoRaWAN protocol (ClassA). When the Z311W sensor detects a leak, it will send an alarm message to the gateway. When the sensor detects no leaks, it will send a message that shows no leak to the gateway.
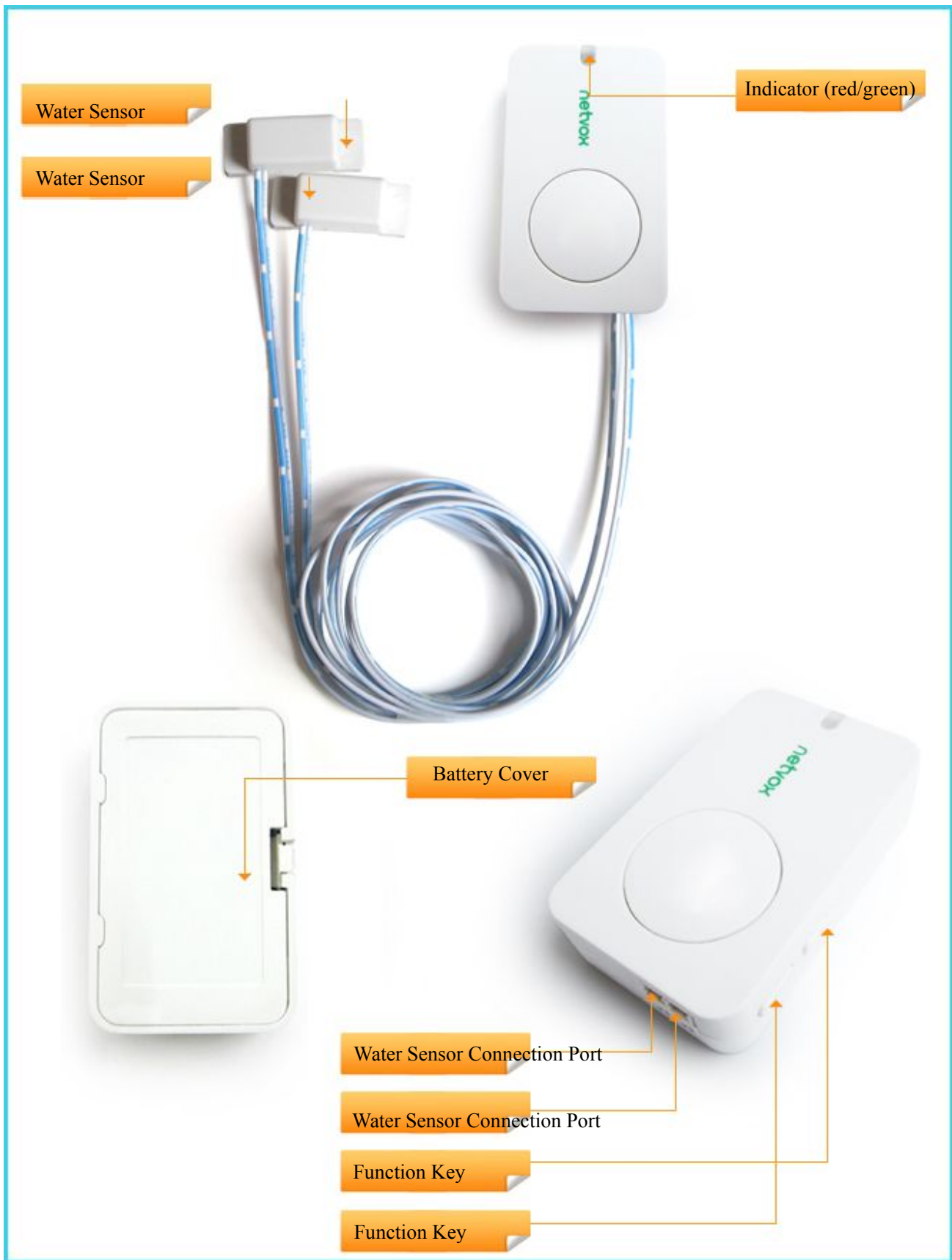
LoRa Wireless Technology:
LoRa is a wireless communication technology dedicated to long distance and low power consumption. Compared with other communication methods, LoRa spread spectrum modulation method greatly increases to expand the communication distance. Widely used in long-distance, low-data 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.

2. Appearance

Water Sensor

Water Sensor

Indicator (red/green)

Battery Cover

Water Sensor Connection Port

Water Sensor Connection Port

Function Key

Function Key

3. Main Features

- Compatible with LoRaWAN
- 2 section 3V CR2450 button battery powered
- Report voltage status, water leak status
- Easy set up and installation

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 two sections of 3V CR2450 button 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 R311W is turned on.
(3) Remove batteries (power off) when R311W is on. Wait till 10 seconds after the capacitance discharging. Insert batteries again, R311W will be setted to be previous mode by default. There is not need to press function key again 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 R311W into LoRa network to communicate with LoRa gateway (OTAA network mode by default).
The network operation is as following:
(1) If R311W 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 will be off.
(2) If R311W 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 any function key; the green indicator will flash once and it will send a data report.

4.4 Data Report

When the device is turned on, it will immediately send a version package.
The transmission frequency of sending version package is once every 24 hours.
Data will be reported once per hour by default setting.
Maximum time: 3600s
Minimum time: 3600s
Default reportchange:
Battery ---- 0x01 (0.1V)
R311W sensor is triggered:
When the R311W status changes, it will send warning report.
No water leak:0
Water leak:1

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

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

R311W 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 keys for 5 seconds till the green indicator flashes and then release; LED flashes quickly 20 times.
2. R311W will turn off after restoring to factory setting. Press function key to turn on R311W and to join a new LoRa network.

6. Sleeping Mode

R311W 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 → R311W 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, R311W will send a low-power report to the Lora network.

8. Mydevices Dashboard Demonstration

9. Installation

(1) This product is not waterproof. After the networking joining is completed, please place it indoor.
(2) The dust in the installation location of the equipment needs to be wiped clean and then users can stick equipment to it.

Note: When installing the battery, use a screwdriver or similar tool to assist in opening the battery cover

10. Important Maintenance Instruction

- This device is NOT truly waterproof/ resistant and is for indoor use.
- Please keep the device in a dry place. Precipitation, humidity, and all types of liquids or moisture can contain minerals that corrode electronic circuits. In cases of accidental liquid spills to a device, please leave the device dry properly before storing or using.
- Do not use or store the device in dusty or dirty areas.
- Do not use or store the device in extremely hot temperatures. High temperatures may damage the device or battery.
- Do not use or store the device in extremely cold temperatures. When the device warms to its normal temperature, moisture can form inside the device and damage the device or battery.
- Do not drop, knock, or shake the device. Rough handling would break it.
- Do not use strong chemicals or washing to clean the device.
- Do not paint the device. Paint would cause improper operation.

Handle your device, battery, and accessories with care. The suggestions above help you keep your device operational. For damaged device, please contact the authorized service center in your area.