Wireless Single-phase Current Detection Sensor

R718N1

User Manual

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1. Introduction

R718N1 series equipment is a current detection device of Netvox Class A type equipment based on LoRaWAN open protocol. It measures single-phase current through external current transformer. It is divided into:
R718N17 Wireless 1-Phase Current Meter with 1 x 75A CT
R718N115 Wireless 1-Phase Current Meter with 1 x 150A CT
R718N125 Wireless 1-Phase Current Meter with 1 x 250A CT
R718N163 Wireless 1-Phase Current Meter with 1 x630A CT

They are 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, 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

Fig.1 R718N1 Appearance

3. Main Features

- Compatible with LoRaWAN protocol.
- Powered by 2 x ER14505 3.6V Lithium AA battery
- Easy set up and installation
- Detect current value and device movement status

4.Set up Instruction

4.1 Power on and Turn on / off

(1) **Power on and turn on:** open the battery cover; insert two sections of 3.6V ER14505 AA batteries; close the battery cover; the device is at off mode by default setting. Press and hold function key for 3 seconds till the green indicator flashes and release to turn on.
(2) **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 the device is turned off.

Note:
1. The interval between shutting down twice or power off/on is suggested to be about 10 seconds to avoid the interference of capacitor inductance and other energy storage components.
2. Once the battery is removed, the device is at off mode by default setting.
4. Turn off operation is same with “Restore to Factory Setting” operation.

4.2 Join Into LoRa Network

To join the device into LoRa network to communicate with LoRa gateway.

The network operation is as following:
(1) If the device had never joined any network, 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 R718N1 had been joined into a LoRa network, remove and insert the batteries; it will repeat step (1).

4.3 Function Key

(1) Press and hold function key 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 to turn on the device which is in the network and the green indicator will flash once and the device will send a data report after sampling (it takes 15 seconds to take sample). If the device is not in the network, the indicator does not work.

4.4 Data Report

When the device is turned on, it will immediately send a version package and a cluster report which Includes current values (mA).
Data will be reported once every 30 minutes by default setting.
Maximum time: 1800s
Minimum time: 1800s
Default reportchange:
Current----0x0064 (100mA)

Note:
The data transmission period of the device is subject to the programming configuration. If the minimum time of report configuration is less than 30 seconds, all counted for 30 seconds. If the the maximum time of report configuration is less than minimum time, all counted for minimum time.

The device starts sampling 15 seconds before the minimum time is due, and lasts for 15 seconds. If the current changes frequently, the sampling result may be inaccurate. Press function key to trigger.

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 30~65535	Any number between Min.~65535	Can not be 0.	Report per Min. Interval	Report per Max. Interval

5. Restore to Factory Setting

To restore to factory setting, users need to execute below operations.
1. Press and hold function key for 5 seconds till the green indicator flashes and then release; LED flashes quickly 20 times.
2. The device is at off mode by default setting after restoring to factory setting.

Note: The device operation of turning off is the same as the “Restore Factory Settings” operation.

6. Sleeping Mode

R718N1 is designed to enter sleeping mode for power-saving in some situations:

(A) While the device is in the network → the sleeping period is Min Interval. (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 → R718N1 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 3.2V. If the battery voltage is lower than 3.2V, R718N1 will send a low-power warning to the LoRa network.

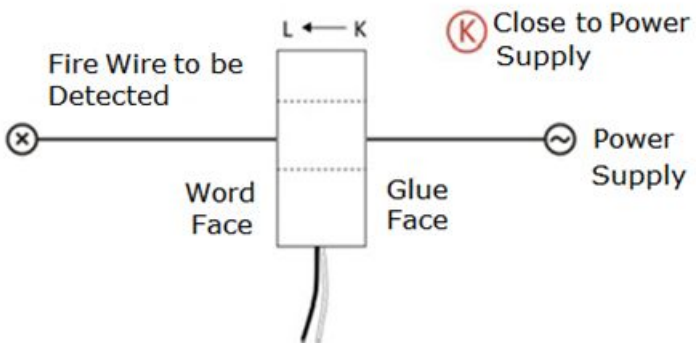
8. Measurement Range and Accuracy

R718N17 (open loop CT) measurement range is 100mA~75A (±1%),
R718N115 (open loop CT) measurement range is 1A~150A (±1%),
R718N125 (open loop CT) measurement range is 1A~250A (±1%),
R718N163 (open loop CT) measurement range is 5A~630A (±1%).

9. Installation

This product comes with waterproof function. When using it, the back of it can be adsorbed on the iron surface, or the two ends can be fixed to the wall with screws. When installing the current transformer, separate the fire and neutral wires, and take out the fire wire separately and start the measurement according to the wiring below.

Split-core CT



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 a 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.