# netvox™

**Wireless Three-phase Current Detection Sensor**

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# R718N3

# User Manual

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# 1. Introduction

The R718N3 is a three-phase current sensing device for Netvox Class A type devices based on the LoRaWAN open protocol and is compatible with the LoRaWAN protocol.
(1) Check the AC three-phase current according to reporting time configuration.
(2) Press the key to detect the current three-phase current, and report a command of three-phase current value report.
(3) The R718N3 is available in a variety of sub-models as below (split-core CT).

R718N37 Wireless 3-Phase Current Meter with 3 x 75A CT
R718N315 Wireless 3-Phase Current Meter with 3 x 150A CT
R718N325 Wireless 3-Phase Current Meter with 3 x 250A CT
R718N363 Wireless 3-Phase Current Meter with 3 x 630A CT

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    R718N3 (Split-core CT) Appearance

# 3. Main Features

- Compatible with LoRaWAN protocol.
- Powered by 2 x ER14505 3.6V Lithium battery
- Easy set up and installation
- Detect three phase current value

# 4.Set up Instruction

## 4.1 Power on and Turn on / off

(1) **Power on and turn on:** open the battery cover; insert 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. "Turn off" operation and "Restore to Factory Setting" operation are the same.

## 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 R718N3 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.

## 4.4 Data Report

When the device is turned on, it will immediately send a version package and a cluster report which includes battery voltage and three-phase current values.
Data will be reported once per hour by default setting.
Maximum time: 3600 seconds
Minimum time: 3600 seconds
Default reportchange:
Battery --- 0x01 (0.1V)


Note:
Data sending cycle is programmed by real configuration.
The interval between two reports must be Min. Interval.

Three-phase current detection:
When the key is pressed, a report is sent immediately to return the current three-phase current value.
Or it detects and returns current information when the time configuration is due.


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. R718N3 is at off mode by default setting after restoring to factory setting.

Note: "Turn off" operation and "Restore to Factory Setting" operation are the same.

# 6. Sleeping Mode

R718N3 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 of three-phase current is larger than setting value, it will wake up and send a data report).
(B) When it is not in the network → R718N3 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, R718N3 will send a low-power warning to the LoRa network.

# 8. Measurement Range and Accuracy

R718N37 (open loop CT) measurement range is 1A~75A ($\pm$1%),
R718N315 (open loop CT) measurement range is 1A~150A ($\pm$1%),
R718N325 (open loop CT) measurement range is 1A~250A ($\pm$1%),
R718N363 (open loop CT) measurement range is 10A ~ 630A ($\pm$ 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 of the three-phase electric power, and take out the fire wire through current transformer and start the measurement according to the wiring below:
(Current direction, K-->L)

Fire Wire to be Detected

L ← K

Ⓚ Close to Power Supply

Word Face

Glue Face

⊗

⊙ Power Supply
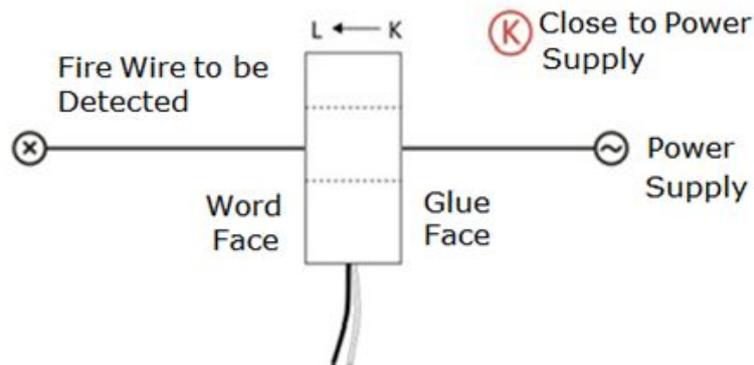
# 10. Important Maintenance Instruction

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.