

Mode: R718H2

netvox™

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**Wireless 2-Input Pulse Counter Interface**

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***DIREKTRONIK***

*Dataprodukter utöver det vanliga*

**Wireless 2-Input Pulse Counter Interface**

**R718H2**

**User Manual**

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## 1. Introduction

R718H2 is the wireless 2-Input Pulse Counter Interface of Netvox ClassA type device based on LoRaWAN open protocol, 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

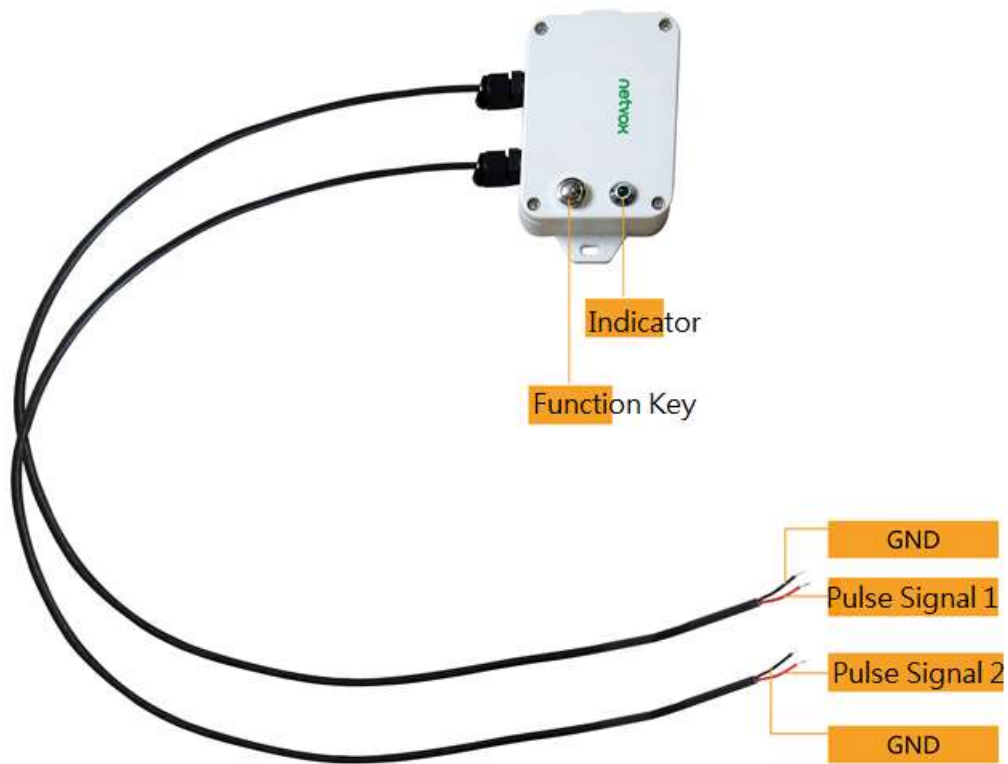


Fig.1 R718H2 Appearance

## 3. Main Features

- Compatible with LoRaWAN
- Detect pulse status
- Simple operation and setting
- External pulse input level is not higher than 3.0V
- 2 ER14505 lithium batteries (3.6V / section) parallel power supply

## 4.Set up Instruction

### 4.1 Power on and Turn on / off

- (1) **Power on:** Insert batteries: open the battery cover; insert two sections of 3.6V ER14505 AA batteries and close the battery cover.
- (2) **Turn on:** Press and hold function key for 3 seconds till the green indicator flashes once and release.
- (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 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. 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 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 will be off.
- (2) If R718H2 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 powered on, it will immediately send a version package report and a report data including the current pulse count and voltage value.

The device sends data in the default configuration before any configuration is done.

The pulse count is sent according to the maximum and minimum interval, and the count is automatically cleared after transmission;

When the count reaches 65535 (0XFF), a report is automatically sent (sending value is 65535), and the report loop is restarted.

The relevant instructions are as follows:

Uplink:

|                        |      |      |                              |                    |                    |                                 |
|------------------------|------|------|------------------------------|--------------------|--------------------|---------------------------------|
| R<br>71<br>8<br>H<br>2 | 0x3F | 0x01 | Battery(1Byte,<br>unit:0.1V) | Pulse1Count(2byte) | Pulse2Count(2byte) | Reserved(3Bytes, fixed<br>0x00) |
|------------------------|------|------|------------------------------|--------------------|--------------------|---------------------------------|

DownLink:

|                     |            |      |      |                              |                              |                                   |                              |  |
|---------------------|------------|------|------|------------------------------|------------------------------|-----------------------------------|------------------------------|--|
| ConfigReportReq     | R718<br>H2 | 0x01 | 0x3F | MinTime(2bytes<br>Unit:s)    | MaxTime(2bytes<br>Unit:s)    | BatteryChange(1byte<br>Unit:0.1v) | Reserved (4Bytes,Fixed 0x00) |  |
| ConfigReportRsp     |            | 0x81 |      | Status(0x00_success)         | Reserved (8Bytes,Fixed 0x00) |                                   |                              |  |
| ReadConfigReportReq |            | 0x02 |      | Reserved (9Bytes,Fixed 0x00) |                              |                                   |                              |  |
| ReadConfigReportRsp |            | 0x82 |      | MinTime(2bytes<br>Unit:s)    | MaxTime(2bytes<br>Unit:s)    | BatteryChange(1byte<br>Unit:0.1v) | Reserved (4Bytes,Fixed 0x00) |  |

Configure pulse filtering time (default FilterTime is 10ms):

|                  |        |      |      |                              |                              |  |
|------------------|--------|------|------|------------------------------|------------------------------|--|
| SetFiltertimeReq | R718H2 | 0x03 | 0x3F | FilterTime(1byte,Unit:1ms)   | Reserved (8Bytes,Fixed 0x00) |  |
| SetFiltertimeRsp |        | 0x83 |      | Status(0x00_success)         | Reserved (8Bytes,Fixed 0x00) |  |
| GetFiltertimeReq |        | 0x04 |      | Reserved (9Bytes,Fixed 0x00) |                              |  |
| GetFiltertimeRsp |        | 0x84 |      | FilterTime(1byte,Unit:1ms)   | Reserved (8Bytes,Fixed 0x00) |  |

Battery voltage Report default variation: Mintime = Maxtime = 1hr, reportchange = 0x01 (0.1V)

Note:

- 1.Input pulse width greater than 100ms can be accurately counted
- 2.The device data sending cycle depends on the burning configuration before shipment.
- 3.The interval between two reports must be the minimum interval.

Data report configuration and sending period are as following:

| Min Interval<br>(Unit:second) | Max Interval<br>(Unit:second) | Reportable<br>Change | Current Change $\geq$<br>Reportable Change | Current Change $<$<br>Reportable Change |
|-------------------------------|-------------------------------|----------------------|--|---|
| Any number<br>between 1~65535 | Any number<br>between 1~65535 | Can not be 0.        | Report<br>per Min Interval                 | Report<br>per Max Interval              |

## 5. Restore to Factory Setting

R718H2 saves data including network key information, configuration information, etc. 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. R718H2 is at off mode by default setting after restoring to factory setting.

Note: The device operation of turning off is the same as the device restore factory settings.

## 6. Sleeping Mode

R718H2 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 → R718H2 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.

Remarks: Min Interval and Max Interval are subject to configuration before shipment.

## 7. Low Voltage Alarming

The operating voltage threshold is 3.2V. If the battery voltage is lower than 3.2V, R718H2 will send a low-power warning to the LoRa network.

## 8. 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.

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

## 9. 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.

The logo for DIREKTRONIK is displayed in a bold, italicized, sans-serif font. The letters are white with a thick red outline, set against a yellow background that forms a curved shape at the bottom of the page.

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