Outdoor Multifunction Environment Sensor User Manual

Firmware:V1.0
Hardware:V0.3

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1. Introduction

R727 is a ClassA type device based on LoRaWAN open protocol, compatible with LoRaWAN protocol.
R727 carries RA07 which can connect a variety of sensor, plus multi-layer mask, bracket, DC power supply for outdoor use. A variety of sensor combinations are required for specific requirements. A variety of sensor combinations are required for specific requirements. As PM2.5, temperature and humidity, CO, NO, liquid level, and soil detectors, the data collected by sensor will be reported to the corresponding gateways.

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

R727 Appearance

R727 Sensor Body Inside the Mask

3. Main Features

- Compatible with LoRaWAN
- DC 12V adapter powered
- Easy set up and installation

4.Set up Instruction

4.1 Join Into Lora Network

The R727 is powered by 12V DC and can communicate with the gateway. Users will firstly add R727 to the gateway's network.
Operations to join the network:
(1) After the device is powered on, the device which never be joined into the network will automatically scan a new network to join. After joining to the available network, the green indicator will light up for 5 seconds and the device will be successfully added. Otherwise, the indicator light will not work.
(2) For devices that have been added to the network, the green indicator light is on for 5s after the power is turned off and turned on, indicating that it is already in the network.

4.2 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 to turn on the device; the green indicator flashes once and it will send a data report.

4.3 Data Report

After the device is powered on, a version package will be sent immediately. The R727 device will send a power report (PM value and air temperature and humidity value) after about 10 seconds after power-on.
The default report configuration of the device is as follows:
ReportMaxTime: 180s;
ReportMinTime: 30s;
ReportChange: 0;

Note: The ReportMaxTime time can be programmed by NLPP CustomData, specify the default value of the factory ReportMaxTime (default factory setting is 3min = 180s).

The R727 device does not support the ReportChange function. That is, the configuration is invalid, and the sent report data string is always sent according to the ReportMaxTime. The ReportMinTime is the R727 device's sending interval of the report data string (since the R727 device needs to send multiple data strings at one time. So it is designed to use ReportMinTime to do separate the multiple data stings).

R727 data types for each series of Reports:
R72701: The Report data of the device is: CO gas, ReportType count = 1;
R72711: The data of this device Report is: the height of the liquid, ReportType count = 1;
R72713: The Report data of the device is: soil temperature, soil moisture and soil conductivity, ReportType count = 1;
R72715: The report data of the device is: air temperature and humidity and CO2 (MH-14), ReportType count = 2;
R72716: The Report data of the device is: air temperature and humidity and dust (PM2.5), ReportType count = 1 (integrated into one);
R72723: The Report data of the device is: air temperature and humidity, dust (PM2.5) and noise, ReportType count = 3;
R72724: The Report data of the device is: air temperature, humidity and noise, ReportType count = 2;

Note:
1.ReportMaxTime value must be greater than (ReportType count *ReportMinTime+10 units: seconds);
2. Since the dust sensor/CO2 (MH-14) is stable and requires about 60 seconds after power-on, the devices which carries dust sensor/CO2 (MH-14) is not reported until 60 seconds.

The R727 device also supports the Cayenne TxPeriod cycle configuration command. Therefore, the R727 can also perform the report according to the cycle time of the TxPeriod value. At a specific time, the report period is ReportMaxTime or TxPeriod, depending on which cycle time is last configured.

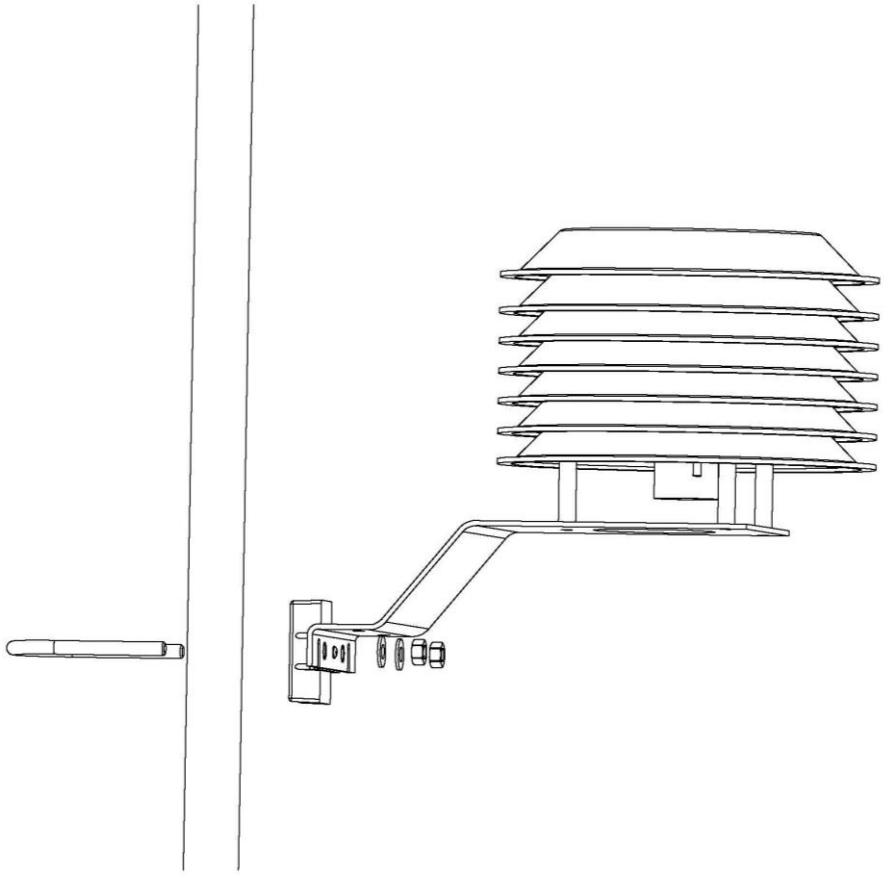
5. Restore to Factory Setting

R727 saves data including network key information, configuration information, etc. To restore to factory setting, users need to execute below operations.
The R727 has a function to save and save the network information and memory. This function is setted to be off by default, that is, it will be re-joined every time you turn on the power again. This function can be turned on through the ResumeNetOnOff command, then each time users power on the device, it will record the last network information (including saving its assigned network address information, etc., to join a new network, you need to perform a restoration of the factory setting) which will not be re-joined to network.

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. The R727 restarts automatically to re-join to a new network.

Note. Restore factory settings, ACK is off mode by default; ADR is on mode by default;

6. Installation



(1) In the position to be installed, loosen the U-shaped screw at the bottom of the R727 device and the mating washer nut, and fix the U-shaped screw through the appropriate size cylinder on the fixed post piece of R727. Fit the shim nut and lock nut in order till R727 device body is not stable shaken.

(2) Loosen the M5 nut on the bottom of the R727 device cover and remove the cover together with the screw.

(3) Insert the DC plug of the power supply from the center hole of the bottom cover of the R727, insert it into the position of the A07 socket, and return the shutter screw to its original position to lock the N5 nut.

Note. This product is equipped with water repellent function. After the networking is finished, please place it outside

7. 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.