netvox ®

Netvox LoRa Sensors & Devices

Wireless Sensor Network Based on LoRa Technology

Product Catalogue

2019

Intellectual System Based on LoRa Technology

What is LoRa?

LoRa technology was developed by a company called Semtech and it is a new wireless protocol designed specifically for long-range, low-power communications. LoRa stands for Long Range Radio and is mainly targeted for M2M and IoT networks. This technology will enable public or multi-tenant networks to connect a number of applications running on the same network.

LoRa Alliance was formed to standardize LPWAN (Low Power Wide Area Networks) for IoT and is a non-profit association which features membership from a number of key market shareholders such as CISCO, actility, MicroChip, IBM, STMicro, SEMTECH, Orange mobile and many more. This alliance is key to providing interoperability among multiple nationwide networks.

Each LoRa gateway has the ability to handle up to millions of nodes. The signals can span a significant distance, which means that there is less infrastructure required, making constructing a network much cheaper and faster to implement.

LoRa also features an adaptive data rate algorithm to help maximize the nodes life and network capacity. The LoRa protocol includes a number of different layers including encryption at the network, application and device level for secure communications.

Specification	LoRa Feature
Range	2-5Km Urban (1.24-3.1 mi), 15Km suburban (9.3 mi)
Frequency	ISM 868/915 MHz
Standard	IEEE 802.15.4g
Modulation	Spread spectrum modulation type based on FM pulses which vary.
Capacity	One LoRa gateway takes thousands of nodes
	Long life
LoRa Physical layer	Frequency, power, modulation and signaling between nodes and gateways

Where does LPWAN fit?

One technology cannot serve all of the projected applications and volumes for IoT. WiFi and BTLE are widely adopted standards and serve the applications related to communicating personal devices quite well. Cellular technology is a great fit for applications that need high data throughput and have a power source. LPWAN offers multi-year lifetime and is designed for sensors and applications that need to send small amounts of data over long distances a few times per hour from varying environments.

Local Area Network Short Range Communication	Low Power Wide Area (LPWAN) Internet of Things	Cellular Network Traditional M2M
40%	45%	15%
Well established standards In building	Low power consumption Low cost Positioning	Existing coverage High data rate
Battery Live Provisioning Network cost & dependencies	High data rate Emerging standards	Autonomy Total cost of ownership
Bluetooth 4.0 / ZigBee / WiFi	LoRa	GSM / 3G+ / H+ / 4G

Important Factors in LPWAN?

The most critical factors in a LPWAN are:

- Network architecture
- Communication range
- lifetime or low power
- Robustness to interference
- Network capacity (maximum number of nodes in a network)
- Network security
- One-way vs two-way communication
- Variety of applications served

What is LoRaWAN™?

LoRaWAN™ defines the communication protocol and system architecture for the network while the LoRa® physical layer enables the long-range communication link. The protocol and network architecture have the most influence in determining the lifetime of a node, the network capacity, the quality of service, the security, and the variety of applications served by the network.

Application				
LoRa® MAC				
MAC options				
Class A (Baseline)	Class B (Baseline)		Class C (Continuous)	
LoRa® Modulation				
Regional ISM band				
EU 868	EU 433	US 915	AS 430	—
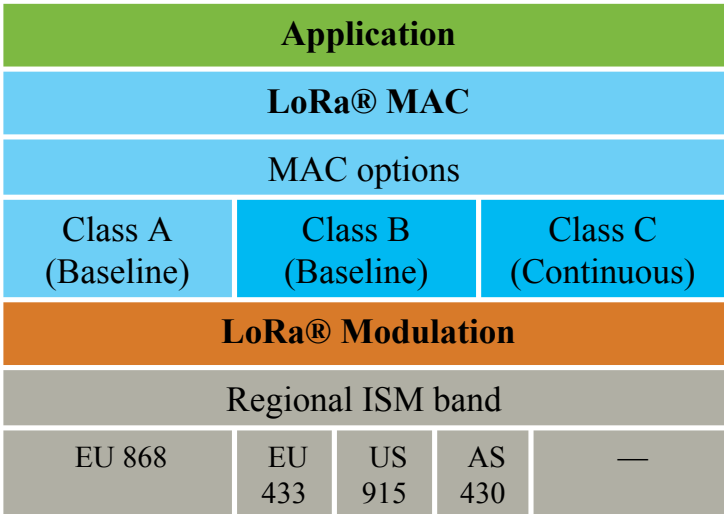
Network Architecture

Many existing deployed networks utilize a mesh network architecture. In a mesh network, the individual end-nodes forward the information of other nodes to increase the communication range and cell size of the network.

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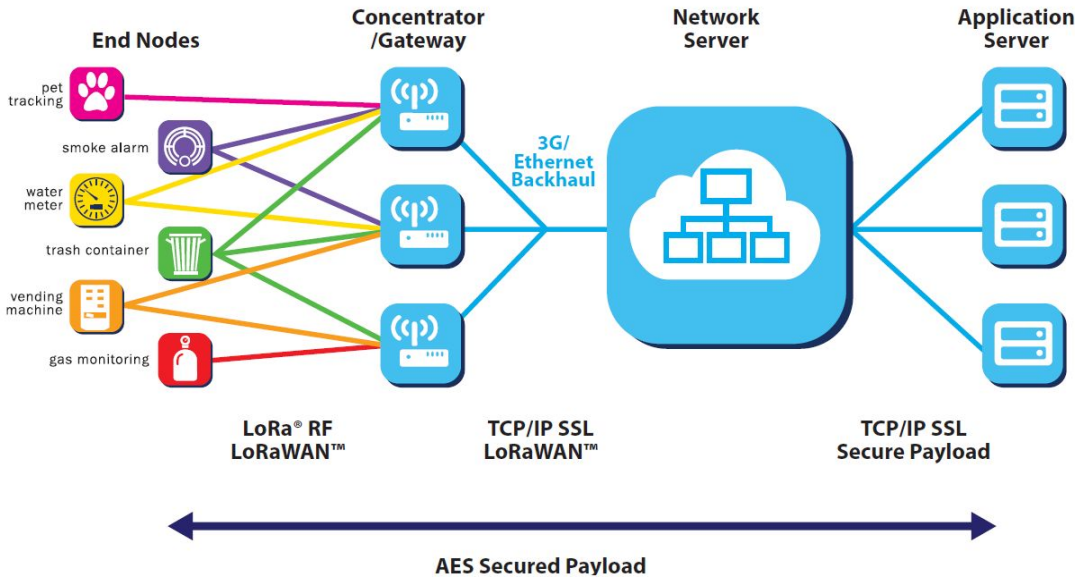
Netvox Network Architecture

While this increases the range, it also adds complexity, reduces network capacity, and reduces lifetime as nodes receive and forward information from other nodes that is likely irrelevant for them. Long range star architecture makes the most sense for preserving lifetime when long-range connectivity can be achieved.
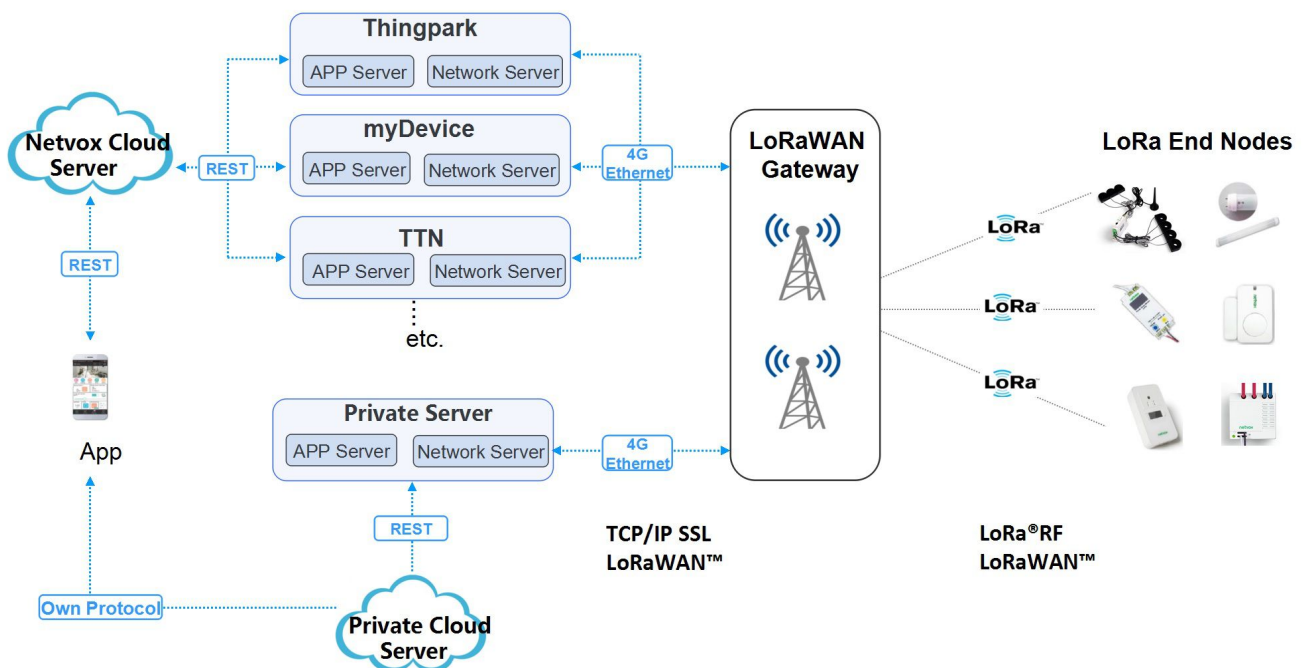
In a LoRaWAN™ network nodes are not associated with a specific gateway. Instead, data transmitted by a node is typically received by multiple gateways. Each gateway will forward the received packet from the end-node to the cloud-based network server via some backhaul (either cellular, Ethernet, satellite, or Wi-Fi).

The intelligence and complexity is pushed to the network server, which manages the network and will filter redundant received packets, perform security checks, schedule acknowledgments through the optimal gateway, and perform adaptive data rate, etc.

If a node is mobile or moving there is no handover needed from gateway to gateway, which is a critical feature to enable asset tracking applications–a major target application vertical for IoT.

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LoRaWAN™ Regional Summery

The LoRaWAN™ specification varies slightly from region to region based on the different regional spectrum allocations and regulatory requirements. The LoRaWAN™ specification for Europe and North America are defined, but other regions are still being defined by the technical committee.

Joining the LoRa® Alliance as a contributor member and participating in the technical committee can have significant advantages to companies targeting solutions for the Asia market.

	Europe	North America	China	Korea	Japan	India
Frequency band	867-869MHz	902-928MHz	470-510MHz	920-925MHz	920-925MHz	865-867MHz
Channels	10	64 + 8 +8				
Channel BW Up	125/250kHz	125/500kHz				
Channel BW Dn	125kHz	500kHz	In definition by Technical Committee	In definition by Technical Committee	In definition by Technical Committee	In definition by Technical Committee
TX Power Up	+14dBm	+20dBm typ (+30dBm allowed)				
TX Power Dn	+14dBm	+27dBm				
SF Up	7-12	7-10				
Data rate	250bps- 50kbps	980bps-21.9kpbs				
Link Budget Up	155dB	154dB				
Link Budget Dn	155dB	157dB				

LoRaWAN™ Features

Long Range

1. Greater than cellular
2. Deep indoor coverage
3. Star topology

Max Lifetime

4. Low power optimized
5. 10-20yr lifetime
6. >10x vs cellular M2M

Multi-Usage

7. High capacity
8. Multi-tenant
9. Public network

Low Cost

10. Minimal infrastructure
11. Low cost end node
12. Open SW

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LoRa Alliance™ Member

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Frequency Characters for All Netvox LoRa Devices

The LoRa frequency characters are shown as below. Applicable to all Netvox LoRa Devices which are equipped with SX1276 wireless communication module.

LoRa Frequency Characters

TX Power	19dBm±1dBm
Rx Sensitivity	-136dBm (LoRa，Spreading Factor=12，Bit Rate=293bps) -121dBm (FSK, Frequency deviation=5kHz, Bit Rate=1.2kbps)
Antenna Type	Built-in antenna
Communication Range	Up to10 km, the actual transmission distance depends on the environment.
Data Transfer Rate	0.3kbps～50kbps
Spread Technique	LoRa/FSK
Available Frequency	EU863-870，US902-928，AU915-928， KR920-923，AS923，CN470-510 Configured before shipment

Note.
*1. Actual data sheet value may vary depending on developing progress and other variables.
   Please contact sales department for detail data sheet document.

Wireless Door/Window Sensor

R311A

LoRa Alliance Certified™

When the window is opened, R311A sends alarm message to the control center. R311A utilizes the latest ultra-low power consumption technology and requires no wiring. It requires just button batteries to support its operation.

The communication method is compatible with LoRaWAN™ protocol (ClassA).

R311A has been LoRaWAN ™ certified.

**R311A
Wireless Door/Window Sensor**

Technical Parameter

Input Power	2 x 3.0V CR2450 button batteries
Working Voltage	DC 2.4V～3V
Standby Current	12uA/3.0V
Transmitting Current (max)	120mA/3.0V
Receiving Current (max)	11mA @3.0V
Low Voltage Threshold	2.4V
Voltage Measurement Accuracy	±0.1V

Main Body Dimension	57mm x 35mm x 15mm
Magnet Dimension	43mm x 13mm x 12mm
Weight	43.8g
Operating Temperature	-20℃ ～ 55℃
Environment Humidity Range	<90% RH (No condensation)
Storage Temperature	-40℃ ～ 85℃

* Actual range may vary depending on environment.
** Life is determined by sensor reporting frequency and other variables.

Wireless 2-Gang Dry Contact Sensor

R311CA

The R311CA device has two built-in reed switch sensors, and can be connected to a certain number of reed switches through external expansion. It can be used for door and window switch status detection. It can realize wireless alarm and other functions through built-in wireless module, and is compatible with LoRaWAN protocol.

It can be easily networked with other related devices. The R311CA is durable and ensures optimum use and is a low power consumption device. Due to their small size, they can be installed anywhere, they are wireless, so they take up very little space.

R311CA
Wireless 2-Gang Dry Contact Sensor

Technical Parameter

Input Power	2 x 3.0V CR2450 button batteries
Working Voltage	DC 2.4V～3V
Standby Current	10uA /3.0V
Transmitting Current (max)	120mA/3.0V
Receiving Current (max)	11mA @3.0V
Low Voltage Threshold	2.4V
Voltage Measurement Accuracy	±0.1V

Main Body Dimension	57mm x 35mm x 15mm
Weight	43.8g
Operating Temperature	-20℃ ～ 55℃
Environment Humidity Range	<90% RH (No condensation)
Storage Temperature	-40℃ ～ 85℃

* Actual range may vary depending on environment.
** Life is determined by sensor reporting frequency and other variables.

Wireless Activity Detection Sensor

R311FA

It can detect the sudden movement or vibration of the device and send an alarm signal to the gateway for processing. It uses the SX1276 wireless communication module.

R311FA
Wireless Activity Detection Sensor

Technical Parameter

Input Power	2 x 3.0V CR2450 button batteries
Working Voltage	DC 2.4V～3V
Standby Current	40uA /3.0V
Transmitting Current (max)	120mA/3.0V
Receiving Current (max)	11mA @3.0V
Low Voltage Threshold	2.4V
Voltage Measurement Accuracy	±0.1V

Main Body Dimension	57mm x 35mm x 15mm
Weight	48.9g
Operating Temperature	-20℃ ～ 55℃
Environment Humidity Range	<90% RH (No condensation)
Storage Temperature	-40℃ ～ 85℃

* Actual range may vary depending on environment.
** Life is determined by sensor reporting frequency and other variables.

Wireless Activity Event Counter

R311FB

R311FB
Wireless Activity Event Counter

The device detects the number of movements or vibrations (such as detecting the motor a few times a day), the maximum number of movements or vibrations can reach 232 times (theoretical value), and sends the information of the number of movements or vibrations to the gateway for processing. Apply SX1276 wireless communication module.

Technical Parameter

Input Power	2 x 3.0V CR2450 button batteries
Working Voltage	DC 2.4V～3V
Standby Current	41uA /3.0V
Transmitting Current (max)	120mA/3.0V
Receiving Current (max)	11mA @3.0V
Low Voltage Threshold	2.4V
Voltage Measurement Accuracy	±0.1V

Main Body Dimension	57mm x 35mm x 14mm
Weight	48.9g
Operating Temperature	-20℃ ～ 55℃
Environment Humidity Range	<90% RH (No condensation)
Storage Temperature	-40℃ ～ 85℃

* Actual range may vary depending on environment.
** Life is determined by sensor reporting frequency and other variables.

Wireless Activity Timer

R311FC

The device detects the duration of the movement or vibration (timekeeping) and sends the duration or timing information of the movement or vibration to the gateway for processing. The duration of the movement or vibration can be up to 1000 hours (theoretical value). Apply SX1276 wireless communication module.

R311FC
Wireless Activity Timer

Technical Parameter

Input Power	2 x 3.0V CR2450 button batteries
Working Voltage	DC 2.4V～3V
Standby Current	42uA /3.0V
Transmitting Current (max)	120mA/3.0V
Receiving Current (max)	11mA @3.0V
Low Voltage Threshold	2.4V
Voltage Measurement Accuracy	±0.1V

Main Body Dimension	57mm x 35mm x 14mm
Weight	48.9g
Operating Temperature	-20℃ ～ 55℃
Environment Humidity Range	<90% RH (No condensation)
Storage Temperature	-40℃ ～ 85℃

* Actual range may vary depending on environment.
** Life is determined by sensor reporting frequency and other variables.

Wireless Light Sensor

R311G

LoRa Alliance Certified™

R311G has a built-in photosensitive sensor, and it measures external ambient light intensity. It can work with other devices to perform wireless dimming functions, and the wireless communication is compatible with LoRaWAN™ protocol (ClassA).

R311G is an ambient light sensor which reports the light level periodically.

R311G has been LoRaWAN ™ certified.

**R311G
Wireless Light Sensor**

Technical Parameter

Input Power	2 x 3.0V CR2450 button batteries
Operating Power	DC 2.4V～3V
Standby Current	12uA/3.0V
Transmitting Current (max)	120mA/3.0V
Receiving Current (max)	11mA/3.0V
Brightness Detecting Range	1～3000LUX
Low Voltage Threshold	2.4V
Voltage Measurement Accuracy	±0.1V

Main Body Dimension	57mm x 35mm x 15mm
Weight	32.3g
Operating Temperature	-20℃ ～ 55℃
Environment Humidity Range	<90% RH (No condensation)
Storage Temperature	-40℃ ～ 85℃

* Actual range may vary depending on environment.
** Life is determined by sensor reporting frequency and other variables.

Wireless Water Leak Detector

R311W

LoRa Alliance Certified™

R311W
Wireless Water leak Sensor

NETVOX Wireless Water Sensor R311W is a LoRaWAN™ device compatible with LoRaWAN™ protocol (ClassA). When the Z311W sensor detects the 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.

R311W has been LoRaWAN™ certified.

Technical Parameter

Input Power	2 x 3.0V CR2450 button batteries
Operation Voltage	DC +2.4V～3.0V
Standby Current	12uA/3.0V
Transmitting Current (max)	120mA/3.0V
Receiving Current (max)	11mA @3.0V
Low Voltage Threshold	2.4V
Voltage Measurement	±0.1V

Water Leakage Material	UL2468 28AWG
Water Line Maximum Temperature	80°C
Water Line Weight	5g
Water Line Core resistance	1.3 Ohm / meter
Water Line Diameter	1mm
Water Line Length	1000mm (±5mm)
Water Line Flame Rating	VW-1

* Actual range may vary depending on environment.
** Life is determined by sensor reporting frequency and other variables.

Wireless Emergency Button

R312A

The R312A is an emergency button switch device that detects the closing or opening signal of the emergency button switch and sends an alarm signal to the gateway for processing. It uses the SX1276 wireless communication module.

R312A
Wireless Emergency Button

Technical Parameter

Input Power	2 sections of 3V CR2450 button batteries in parallel (single CR2450 battery capacity 620mah)
Working Voltage	DC 2.4V～3V
Standby Current	13uA/3.0V
Transmitting Current (max)	120mA/3.0V
Receiving Current (max)	11mA @3.0V
Low Voltage Threshold	2.4V
Voltage Measurement Accuracy	±0.1V

Main Body Dimension	57mm x 35mm x 15.2mm
Weight	45g
Operating Temperature	-20℃ ～ 55℃
Environment Humidity Range	<90% RH (No condensation)
Storage Temperature	-40℃ ～ 85℃

Wireless Indoor Temperature Humidity Sensor

R711

LoRa Alliance Certified™

Netvox R711, mainly used to measure the indoor ambient temperature and humidity, collects the data and sends it to the gateway through the wireless network communication module. The wireless communication is compatible with LoRaWAN™ protocol (ClassA).

R711 has been LoRaWAN™ certified.

R711
Wireless Indoor
Temperature Humidity Sensor

Technical Parameter

Input power	2 x 1.5V AA batteries
Operating power	DC 2.4V～3V
Standby current	12uA/3V
Transmitting current (max)	120mA/3V
Receiving current (max)	11mA/3V
Voltage Measurement	±0.1V

Dimension	L:112mm*W:34mm*H:17mm
Weight	83.8g
Operating Humidity	＜90%RH
Operating Temperature	-20°C - 55°C
Storage Temperature	-40°C — 85°C
Temperature Measurement Range	-20°C — 55°C
Temperature Measurement Accuracy	±0.5°C @25°C Max. +/-0.8°C@ -20°C~55°C
Humidity Measurement Range	10%RH — 0%RH
Humidity Measurement Accuracy	±4%RH @25°C

 * Actual range may vary depending on environment.
** Life is determined by sensor reporting frequency and other variables.

Wireless Outdoor Temperature Humidity Sensor

R712

**R712
Wireless Outdoor
Temperature Humidity Sensor**

R712 is a long-range wireless temperature and humidity device based on the LoRaWAN™ open protocol (Class A). R712 carries a splash-proof housing, and it is mainly used to measure the outdoor ambient temperature and humidity. It collects data and sends it to the gateway through LoRaWAN™.

Technical Parameter

Input power	2 x 1.5V AA batteries
operating voltage	DC 2.1V
Standby current	12uA/3V
Transmitting current (max)	120mA/3.6V
Receiving current (max)	11mA/3.6V

Dimension	L:222mm*W:130mm*H:195mm
Working Temp	-10°C － 50°C
Storage Temp	-40°C － 85°C
Temperature Detecting Range	-10℃～50℃
Temperature Accuracy	±0.5℃ @25℃
Humidity Detecting Range	5%RH～95%RH
Humidity Accuracy	±4.5%RH @25℃

* Actual range may vary depending on environment.
** Life is determined by sensor reporting frequency and other variables.

Wireless Temperature and Humidity Sensor for Low Temperature Environment

R718A

R718A
Temperature and Humidity Sensor for Low Temperature Environment

R718A is mainly used to measure the temperature and humidity in low temperature environment such as a freezer. It collects data and sends it to the gateway through LoRaWAN™. It is fully compatible with LoRaWAN™ protocol (Class A).

Technical Parameter

Input Power	2 x 3.6V ER14505 AA lithium batteries (3.6V 2400mAh/pc)
Sleeping Mode	20uA
Wake up Mode	6.3mA@3.3V
Low Voltage Threshold	3.2V
Transmitting current (max)	120mA@3.3V
Receiving current (max)	11mA @3.3V
Dimension	Main Body: L: 112mm*W: 65mm*H: 28.8mm Sensor cover size: D: 16mm*L: 34.5mm,
Weight	141g
Environment Temperature Range	-40℃ ～ 55℃
Environment Humidity Range	< 90% RH (No condensation)
Temperature Measurement Range	-40℃～55℃
Humidity Measurement Range	0%RH～80%RH
Build-in Temp. & Humi. Sensor	SHT-35

* Actual range may vary depending on environment.
** Life is determined by sensor reporting frequency and other variables.

Wireless Temperature and Humidity Sensor

R718AB

R718AB
Temperature and Humidity Sensor

R718AB is mainly used to measure the ambient temperature and humidity. Fully compatible with LoRaWAN™ protocol (Class A), it collects data and sends it to the gateway through LoRaWAN™.

Technical Parameter

Input Power	2 x 3.6V ER14505 AA lithium batteries (3.6V 2400mAh/pc)
Sleeping Mode	24uA
Wake up Mode	6.3mA@3.3V
Low Voltage Threshold	3.2V
Transmitting current (max)	120mA@3.3V
Receiving current (max)	11mA @3.3V
Dimension	Main Body: L: 112mm*W: 65mm*H: 28.8mm Sensor cover size: D: 16mm*L: 34.5mm,
Weight	141g
Environment Temperature Range	-20°C－55°C
Environment Humidity Range	< 90% RH (No condensation)
Temperature Measurement Range	-20°C－55°C
Humidity Measurement Range	10%RH-90%RH
Build-in Temp. & Humi. Sensor	SHT-30

* Actual range may vary depending on environment.
** Life is determined by sensor reporting frequency and other variables.

Wireless 2-Gang Temperature Sensor

R718B2

**R718B2
Wireless 2-Gang
Temperature Sensor**

R718B2 is a 2-gang thermistor-based temperature sensor mainly used to measure the temperature. It collects data and sends it to the gateway through LoRaWAN™.

R718B4 is a 4-gang thermistor-based temperature sensor mainly used to detect the temperature. It collects data and sends it to the gateway through LoRaWAN™. They are fully compatible with LoRaWAN™ protocol (Class A).

Technical Parameter

Input Power	2 x 3.6V ER14505 AA lithium batteries (3.6V2400mah/section）
Sleeping Mode	23uA
Wake up Mode	6.3mA@3.3V
Receiving Current (max)	11mA @3.3V
Transmitting Current (max)	120mA/3.3V
Battery Voltage Measurement Accuracy	±0.1V
Low Voltage Threshold	3.2V

PT100 Platinum Thermal Resistance

Temperature Range	-50~200°C
Lead Length	1m (default) 2m, 5m, 10m, others
Probe Specification	4mm in diameter and 30mm in length
Standard	IEC751-1995/JIS

Physical

Dimension	Main Part: L: 112mm*W: 65mm*H: 32mm
Weight	141g
Environment Temperature Range	-20℃ ～ 55℃
Environment Humidity Range	<90% RH (No condensation)
Storage Temperature	-40℃ ～ 85℃

* Actual range may vary depending on environment.
** Life is determined by sensor reporting frequency and other variables.

Wireless Thermocouple Sensor - Type K

R718CK

This equipment is used to detect temperature of the object and medium which thermocouple is contacted. It can be connected to two thermocouples for sampling. It uses SX1276 wireless communication module.

R718CX can be connected according to requirements: type T thermocouple (R718CT), type K thermocouple (R718CK), type N thermocouple (R718CN), type R thermocouple (R718CR) and display the collected data in the gateway.

R718CK Wireless Thermocouple Sensor

Technical Parameter

Input Power	2 x 3.6V ER14505 AA lithium batteries (3.6V2400mah/section）
Battery Life	5 years (Conditions: ambient temperature 25 °C, 15 min heartbeats, txpower = 20dBm, LoRa spreading factor SF = 10)
Sleeping Mode	34uA
Wake up Mode	6.3mA@3.3V
Transmitting current (max)	120mA/3.3V
Receiving current (max)	11mA @3.3V
Battery Measurement Accuracy	±0.1V

Thermocouple characteristics

Measurement accuracy	Measurement error which the wire causes : ≦ 2℃
	The basic error limit of the thermocoupl: Type K thermocouple: -40~375℃ +-1.5℃
Thermocouple Wire Length	1 meter

Wireless Thermocouple Sensor - Type N

R718CN

This equipment is used to detect temperature of the object and medium which thermocouple is contacted. It can be connected to two thermocouples for sampling. It uses SX1276 wireless communication module.

R718CX can be connected according to requirements: type T thermocouple (R718CT), type K thermocouple (R718CK), type N thermocouple (R718CN), type R thermocouple (R718CR) and display the collected data in the gateway.

R718CN Wireless Thermocouple Sensor

Technical Parameter

Input Power	2 x 3.6V ER14505 AA lithium batteries (3.6V2400mah/section）
Battery Life	5 years (Conditions: ambient temperature 25 °C, 15 min heartbeats, txpower = 20dBm, LoRa spreading factor SF = 10)
Sleeping Mode	34uA
Wake up Mode	6.3mA@3.3V
Transmitting current (max)	120mA/3.3V
Receiving current (max)	11mA @3.3V
Battery Measurement Accuracy	±0.1V

Thermocouple characteristics

Measurement accuracy	Measurement error which the wire causes : ≦ 2℃
	The basic error limit of the thermocoupl: Type N thermocouple: -40~375°C +-1.5°C; 375~800°C +-0.4%t (t is temperature)
Thermocouple Wire Length	1 meter

* Actual range may vary depending on environment.
** Life is determined by sensor reporting frequency and other variables.

Wireless Thermocouple Sensor - Type R

R718CR

This equipment is used to detect temperature of the object and medium which thermocouple is contacted. It can be connected to two thermocouples for sampling. It uses SX1276 wireless communication module.

R718CX can be connected according to requirements: type T thermocouple (R718CT), type K thermocouple (R718CK), type N thermocouple (R718CN), type R thermocouple (R718CR) and display the collected data in the gateway.

R718CR Wireless Thermocouple Sensor

Technical Parameter

Input Power	2 x 3.6V ER14505 AA lithium batteries (3.6V2400mah/section）
Battery Life	5 years (Conditions: ambient temperature 25 °C, 15 min heartbeats, txpower = 20dBm, LoRa spreading factor SF = 10)
Sleeping Mode	34uA
Wake up Mode	6.3mA@3.3V
Transmitting current (max)	120mA/3.3V
Receiving current (max)	11mA @3.3V
Battery Measurement Accuracy	±0.1V

Thermocouple characteristics

Measurement accuracy	Measurement error which the wire causes : $\leqq 2℃$
	The basic error limit of the thermocoupl: Type R thermocouple: 0~1100℃ +-1℃
Thermocouple Wire Length	1 meter

* Actual range may vary depending on environment.
** Life is determined by sensor reporting frequency and other variables.

Wireless Thermocouple Sensor - Type T

R718CT

R718CT Wireless Thermocouple Sensor

This equipment is used to detect temperature of the object and medium which thermocouple is contacted. It can be connected to two thermocouples for sampling. It uses SX1276 wireless communication module.

R718CX can be connected according to requirements: type T thermocouple (R718CT), type K thermocouple (R718CK), type N thermocouple (R718CN), type R thermocouple (R718CR) and display the collected data in the gateway.

Technical Parameter

Input Power	2 x 3.6V ER14505 AA lithium batteries (3.6V2400mah/section）
Battery Life	5 years (Conditions: ambient temperature 25 °C, 15 min heartbeats, txpower = 20dBm, LoRa spreading factor SF = 10)
Sleeping Mode	34uA
Wake up Mode	6.3mA@3.3V
Transmitting current (max)	120mA/3.3V
Receiving current (max)	11mA @3.3V
Battery Measurement Accuracy	±0.1V

Thermocouple characteristics

Measurement accuracy	Measurement error which the wire causes : ≦ 2℃
	The basic error limit of the thermocoupl: Type T thermocouple: -40~125℃ +-0.5℃
Thermocouple Wire Length	1 meter

Wireless 2-Gang Thermocouple Sensor - Type K

R718CK2

R718CK2 Wireless 2-Gang Thermocouple Sensor

This equipment is used to detect temperature of the object and medium which thermocouple is contacted. It can be connected to two thermocouples for testing. It uses SX1276 wireless communication module.

R718CX2 can be connected according to requirements: type K (R718CK2), type T thermocouple (R718CT2), type R thermocouple (R718CR2), type N thermocouple (R718CN2). The collected data is displayed in the gateway.

Technical Parameter

Input Power	2 x 3.6V ER14505 AA lithium batteries (3.6V2400mah/section）
Battery Life	5 years (Conditions: ambient temperature 25 °C, 15 min heartbeats, txpower = 20dBm, LoRa spreading factor SF = 10)
Sleeping Mode	36uA
Wake up Mode	6.3mA@3.3V
Transmitting current (max)	120mA/3.3V
Receiving current (max)	11mA @3.3V
Battery Measurement Accuracy	±0.1V

Thermocouple characteristics

Measurement accuracy	Measurement error which the wire causes : $\leqq 2℃$
	The basic error limit of the thermocoupl: Type K thermocouple: -40~375℃ +-1.5℃
Thermocouple Wire Length	1 meter

Wireless 2-Gang Thermocouple Sensor - Type N

R718CN2

R718CN2 Wireless 2-Gang Thermocouple Sensor

This equipment is used to detect temperature of the object and medium which thermocouple is contacted. It can be connected to two thermocouples for testing. It uses SX1276 wireless communication module.

R718CX2 can be connected according to requirements: type K (R718CK2), type T thermocouple (R718CT2), type R thermocouple (R718CR2), type N thermocouple (R718CN2). The collected data is displayed in the gateway.

Technical Parameter

Input Power	2 x 3.6V ER14505 AA lithium batteries (3.6V2400mah/section）
Battery Life	5 years (Conditions: ambient temperature 25 °C, 15 min heartbeats, txpower = 20dBm, LoRa spreading factor SF = 10)
Sleeping Mode	36uA
Wake up Mode	6.3mA@3.3V
Transmitting current (max)	120mA/3.3V
Receiving current (max)	11mA @3.3V
Battery Measurement Accuracy	±0.1V

Thermocouple characteristics

Measurement accuracy	Measurement error which the wire causes : $\leqq 2℃$
	The basic error limit of the thermocoupl: Type N thermocouple: -40~375°C +-1.5°C; 375~800°C +-0.4%t (t is temperature)
Thermocouple Wire Length	1 meter

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Wireless 2-Gang Thermocouple Sensor - Type R

R718CR2

**R718CR2 Wireless
2-Gang Thermocouple
Sensor**

This equipment is used to detect temperature of the object and medium which thermocouple is contacted. It can be connected to two thermocouples for testing. It uses SX1276 wireless communication module.

R718CX2 can be connected according to requirements: type K (R718CK2), type T thermocouple (R718CT2), type R thermocouple (R718CR2), type N thermocouple (R718CN2). The collected data is displayed in the gateway.

Technical Parameter

Input Power	2 x 3.6V ER14505 AA lithium batteries (3.6V2400mah/section）
Battery Life	5 years (Conditions: ambient temperature 25 °C, 15 min heartbeats, txpower = 20dBm, LoRa spreading factor SF = 10)
Sleeping Mode	36uA
Wake up Mode	6.3mA@3.3V
Transmitting current (max)	120mA/3.3V
Receiving current (max)	11mA @3.3V
Battery Measurement Accuracy	±0.1V

Thermocouple characteristics

Measurement accuracy	Measurement error which the wire causes : ≦ 2℃
	The basic error limit of the thermocoupl: Type R thermocouple: 0~1100℃ +-1℃
Thermocouple Wire Length	1 meter

Wireless 2-Gang Thermocouple Sensor - Type T

R718CT2

R718CT2 Wireless 2-Gang Thermocouple Sensor

This equipment is used to detect temperature of the object and medium which thermocouple is contacted. It can be connected to two thermocouples for testing. It uses SX1276 wireless communication module.

R718CX2 can be connected according to requirements: type K (R718CK2), type T thermocouple (R718CT2), type R thermocouple (R718CR2), type N thermocouple (R718CN2). The collected data is displayed in the gateway.

Technical Parameter

Input Power	2 x 3.6V ER14505 AA lithium batteries (3.6V2400mah/section）
Battery Life	5 years (Conditions: ambient temperature 25 °C, 15 min heartbeats, txpower = 20dBm, LoRa spreading factor SF = 10)
Sleeping Mode	36uA
Wake up Mode	6.3mA@3.3V
Transmitting current (max)	120mA/3.3V
Receiving current (max)	11mA @3.3V
Battery Measurement Accuracy	±0.1V

Thermocouple characteristics

Measurement accuracy	Measurement error which the wire causes : $\leqq 2℃$
	The basic error limit of the thermocoupl: Type T thermocouple: -40~125℃ +-0.5℃
Thermocouple Wire Length	1 meter

Wireless Vibration Sensor, Rolling Ball Type

R718DA

R718DA is equipped with an external rolling ball type vibration sensor. When the vibration sensor moves or vibrates, R718DA can detect vibration or moving signals and send an alert to data center through LoRaWAN™. It is fully compatible with LoRaWAN™ protocol (Class A).

R718DA
Wireless Vibration Sensor
Rolling Ball Type

Technical Parameter

Input Power	2 x 3.6V ER14505 AA lithium batteries (3.6V2400mah/section）
Sleeping Mode	R718DA: 20 uA
Wake up Mode	6.3mA@3.3V
Receiving Current (max)	11mA @3.3V
Transmitting Current (max)	120mA/3.3V

Dimension	Main Part: L: 112mm*W: 65mm*H: 32mm
Weight	141g
Environment Temperature Range	-20℃ ～ 55℃
Environment Humidity Range	<90% RH (No condensation)
Storage Temperature	-40℃ ～ 85℃

* Actual range may vary depending on environment.
** Life is determined by sensor reporting frequency and other variables.

Wireless 2-Gang Vibration Sensor, Rolling Ball Type

R718DA2

R718DA2
Wireless 2-Gang
Vibration Sensor
Rolling Ball Type

R718DA2 is equipped with two external rolling ball type vibration sensors. When the vibration sensor moves or vibrates, R718DA2 can detect vibration or moving signals and send an alert to data center through LoRaWAN™.

It is fully compatible with LoRaWAN™ protocol (Class A).

Technical Parameter

Input Power	2 x 3.6V ER14505 AA lithium batteries (3.6V2400mah/section）
Sleeping Mode	R718DA2:26uA
Wake up Mode	6.3mA@3.3V
Receiving Current (max)	11mA @3.3V
Transmitting Current (max)	120mA/3.3V

Dimension	Main Part: L: 112mm*W: 65mm*H: 32mm
Weight	150g
Environment Temperature Range	-20℃ ～ 55℃
Environment Humidity Range	<90% RH (No condensation)
Storage Temperature	-40℃ ～ 85℃

* Actual range may vary depending on environment.
** Life is determined by sensor reporting frequency and other variables.

Wireless Vibration Sensor, Spring Type

R718DB

**R718DB
Wireless Vibration Sensor
Spring Type**

R718DB is equipped with an external spring type vibration sensor.. When the vibration sensor moves or vibrates, R718DB can detect vibration or moving signals and send an alert to data center through LoRaWAN™.

It is fully compatible with LoRaWAN™ protocol (Class A).

Technical Parameter

Input Power	2 x 3.6V ER14505 AA lithium batteries (3.6V2400mah/section）
Sleeping Mode	R718DB: 23uA
Wake up Mode	6.3mA@3.3V
Receiving Current (max)	11mA @3.3V
Transmitting Current (max)	120mA/3.3V
Battery Voltage Measurement Accuracy	±0.1V
Low Voltage Threshold	3.2V

Vibration Sensor Case Size	L:43mm*W:13mm*H:12mm
Vibration Sensor Maximum Voltage	5V
Sensor Switch Life	Up to 200,000 times
Vibration Sensor Working Principle	When it is at rest, it is in the open state OFF state. When the external force is touched to reach the corresponding vibration force, or when the moving speed reaches the appropriate centrifugal force, the conductive pin will instantly reach the ON state. When the external force disappears, the switch returns to the OFF state.

* Actual range may vary depending on environment.
** Life is determined by sensor reporting frequency and other variables.

Wireless 2-Gang Vibration Sensor, Spring Type

R718DB2

R718DB2 is equipped with an external spring type vibration sensor.. When the vibration sensor moves or vibrates, R718DB2 can detect vibration or moving signals and send an alert to data center through LoRaWAN™.

It is fully compatible with LoRaWAN™ protocol (Class A).

**R718DB2
Wireless 2-Gang
Vibration Sensor
Spring Type**

Technical Parameter

Input Power	2 x 3.6V ER14505 AA lithium batteries (3.6V2400mah/section）
Sleeping Mode	R718DB2:23uA
Wake up Mode	6.3mA@3.3V
Receiving Current (max)	11mA @3.3V
Transmitting Current (max)	120mA/3.3V
Battery Voltage Measurement Accuracy	±0.1V
Low Voltage Threshold	3.2V

Vibration Sensor Case Size	L:43mm*W:13mm*H:12mm
Vibration Sensor Maximum Voltage	5V
Sensor Switch Life	Up to 200,000 times
Vibration Sensor Working Principle	When it is at rest, it is in the open state OFF state. When the external force is touched to reach the corresponding vibration force, or when the moving speed reaches the appropriate centrifugal force, the conductive pin will instantly reach the ON state. When the external force disappears, the switch returns to the OFF state.

* Actual range may vary depending on environment.
** Life is determined by sensor reporting frequency and other variables.

Wireless Reed Switch Open/Close Detection Sensor

R718F

R718F
Wireless Reed Switch
Open/Close
Detection Sensor

R718F utilizes a reed switch to detect whether two objects are separated or not. An example of R718F's application is to detect the state of a door or window for security purposes. It is based on SX1276 wireless communication module, and the communication is fully compatible with LoRaWAN™ protocol (Class A).

Technical Parameter

Input Power	2 x 3.6V ER14505 AA lithium batteries (3.6V2400mah/section）
Sleeping Mode	R718F: 20 uA
Wake up Mode	6.3mA@3.3V
Receiving Current (max)	11mA @3.3V
Transmitting Current (max)	120mA/3.3V
Battery Voltage Measurement Accuracy	±0.1V
Low Voltage Threshold	3.2V

Dimension	Main Part: L: 112mm*W: 65mm*H: 32mm
Weight	141g
Environment Temperature Range	-20℃ ～ 55℃
Environment Humidity Range	<90% RH (No condensation)
Storage Temperature	-40℃ ～ 85℃

* Actual range may vary depending on environment.
** Life is determined by sensor reporting frequency and other variables.

Wireless 2-Gang Reed Switch Open/Close Detection Sensor

R718F2

R718F2
Wireless 2-Gang Reed Switch
Open/Close
Detection Sensor

R718F2 utilizes a reed switch to detect whether two objects are separated or not. An example of R718F2 application is to detect the state of a door or window for security purposes. It is based on SX1276 wireless communication module, and the communication is fully compatible with LoRaWAN™ protocol (Class A).

Technical Parameter

Input Power	2 x 3.6V ER14505 AA lithium batteries (3.6V2400mah/section）
Sleeping Mode	R718F2: 26uA
Wake up Mode	6.3mA@3.3V
Receiving Current (max)	11mA @3.3V
Transmitting Current (max)	120mA/3.3V
Battery Voltage Measurement Accuracy	±0.1V
Low Voltage Threshold	3.2V

Dimension	Main Part: L: 112mm*W: 65mm*H: 32mm
Weight	150g
Environment Temperature Range	-20℃ ～ 55℃
Environment Humidity Range	<90% RH (No condensation)
Storage Temperature	-40℃ ～ 85℃

* Actual range may vary depending on environment.
** Life is determined by sensor reporting frequency and other variables.

Wireless Light Sensor

R718G

The device has a built-in light sensor that can be used for ambient light intensity detection. It uses the SX1276 wireless communication module. The R718G detects the ambient light intensity value and adds it to the gateway. The collected data is displayed in other devices.

R718G
Wireless Light Sensor

Technical Parameter

Input Power	2 x 3.6V ER14505 AA lithium batteries (3.6V2400mah/section）
Sleeping Mode	18uA
Wake up Mode	6.3mA@3.3V
Receiving Current (max)	11mA @3.3V
Transmitting Current (max)	120mA/3.3V
Battery Voltage Measurement Accuracy	±0.1V
Low Voltage Threshold	3.2V

Light Sensor

Supply Voltage Range	2.3VDC-3.3VDC
Light Sensor Model	TSL45315
Illuminance Range	3LUX-220KLUX
Communication Method	I2C communication

* Actual range may vary depending on environment.
** Life is determined by sensor reporting frequency and other variables.

Wireless Pulse Counter Interface

R718H

R718H wireless pulse counter series can be integrated with up to four dry contact or mechanical switch and closure devices to count the number of actuations occurring within a given time frame for each input. The wireless communication is compatible with LoRaWAN™ protocol (ClassA).

R718H

Technical Parameter

Input Power	2 x 3.6V ER14505 AA lithium batteries (3.6V2400mah/section）
Sleeping Mode	R718H: 23 uA
Wake up Mode	6.3mA@3.3V
Receiving Current (max)	11mA @3.3V
Transmitting Current (max)	120mA/3.3V
Battery Voltage Measurement Accuracy	±0.1V

Dimension	Main Part: L: 112mm*W: 65mm*H: 32mm
Weight	141g
Environment Temperature Range	-20℃ ～ 55℃
Environment Humidity Range	<90% RH (No condensation)
Storage Temperature	-40℃ ～ 85℃

Wireless 2-Input Pulse Counter Interface

R718H2

R718H2

R718H2 wireless pulse counter series can be integrated with up to four dry contact or mechanical switch and closure devices to count the number of actuations occurring within a given time frame for each input. The wireless communication is compatible with LoRaWAN™ protocol (ClassA).

Technical Parameter

Input Power	2 x 3.6V ER14505 AA lithium batteries (3.6V2400mah/section）
Sleeping Mode	R718H: 23 uA R718H2: 24 uA
Wake up Mode	6.3mA@3.3V
Receiving Current (max)	11mA @3.3V
Transmitting Current (max)	120mA/3.3V
Battery Voltage Measurement Accuracy	±0.1V

Dimension	Main Part: L: 112mm*W: 65mm*H: 32mm
Weight	150g
Environment Temperature Range	-20℃ ～ 55℃
Environment Humidity Range	<90% RH (No condensation)
Storage Temperature	-40℃ ～ 85℃

* Actual range may vary depending on environment.
** Life is determined by sensor reporting frequency and other variables.

Wireless 0-5V ADC Sampling Interface

R718IA

This device can be connected to an ADC sampling interface device. As shown in the figure, black is the ground line, red is the ADC sampling interface line, and the ADC sampling voltage range is 0-5V. It uses the SX1276 wireless communication module. The wireless communication is compatible with LoRaWAN™ protocol (ClassA).

R718IA Wireless 0-5V ADC Sampling Interface

Technical Parameter

Input Power	2 x 3.6V ER14505 AA lithium batteries (3.6V2400mah/section）
Sleeping Mode	22 uA
Wake up Mode	6.3mA@3.3V
Receiving Current (max)	11mA @3.3V
Transmitting Current (max)	120mA/3.3V
Battery Voltage Measurement Accuracy	±0.1V
Low Voltage Threshold	3.2V

Dimension	Main Part: L: 112mm*W: 65mm*H: 32mm
Weight	141g
Environment Temperature Range	-20℃ ～ 55℃
Environment Humidity Range	<90% RH (No condensation)
Storage Temperature	-40℃ ～ 85℃

* Actual range may vary depending on environment.
** Life is determined by sensor reporting frequency and other variables.

Wireless 2-Input 0-5V ADC Sampling Interface

R718IA2

This device can be connected to an ADC sampling interface device. As shown in the figure, black is the ground line, red is the ADC sampling interface line, and the ADC sampling voltage range is 0-5V. It uses the SX1276 wireless communication module. The wireless communication is compatible with LoRaWAN™ protocol (ClassA).

R718IA2 Wireless 2-Input 0-5V ADC Sampling Interface

Technical Parameter

Input Power	2 x 3.6V ER14505 AA lithium batteries (3.6V2400mah/section）
Sleeping Mode	26uA
Wake up Mode	6.3mA@3.3V
Receiving Current (max)	11mA @3.3V
Transmitting Current (max)	120mA/3.3V
Battery Voltage Measurement Accuracy	±0.1V
Low Voltage Threshold	3.2V

Dimension	Main Part: L: 112mm*W: 65mm*H: 32mm
Weight	150g
Environment Temperature Range	-20℃ ～ 55℃
Environment Humidity Range	<90% RH (No condensation)
Storage Temperature	-40℃ ～ 85℃

* Actual range may vary depending on environment.
** Life is determined by sensor reporting frequency and other variables.

Wireless 0-10V ADC Sampling Interface

R718IB

This device can be connected to an ADC sampling interface device. As shown in the figure, black is the ground line, red is the ADC sampling interface line, and the ADC sampling voltage range is 0-10V. It uses the SX1276 wireless communication module.

The wireless communication is compatible with LoRaWAN™ protocol (ClassA).

R718IB Wireless 0-10V ADC Sampling Interface

Technical Parameter

Input Power	2 x 3.6V ER14505 AA lithium batteries (3.6V2400mah/section）
Sleeping Mode	22 uA
Wake up Mode	6.3mA@3.3V
Receiving Current (max)	11mA @3.3V
Transmitting Current (max)	120mA/3.3V
Battery Voltage Measurement Accuracy	±0.1V
Low Voltage Threshold	3.2V

Dimension	Main Part: L: 112mm*W: 65mm*H: 32mm
Weight	141g
Environment Temperature Range	-20℃ ～ 55℃
Environment Humidity Range	<90% RH (No condensation)
Storage Temperature	-40℃ ～ 85℃

* Actual range may vary depending on environment.
** Life is determined by sensor reporting frequency and other variables.

Wireless 2-Input 0-10V ADC Sampling Interface

R718IB2

This device can be connected to an ADC sampling interface device. As shown in the figure, black is the ground line, red is the ADC sampling interface line, and the ADC sampling voltage range is 0-10V. It uses the SX1276 wireless communication module. The wireless communication is compatible with LoRaWAN™ protocol (ClassA).

R718IB2

R718IB2 Wireless 2-Input 0-10V ADC Sampling Interface

Technical Parameter

Input Power	2 x 3.6V ER14505 AA lithium batteries (3.6V2400mah/section）
Sleeping Mode	27uA
Wake up Mode	6.3mA@3.3V
Receiving Current (max)	11mA @3.3V
Transmitting Current (max)	120mA/3.3V
Battery Voltage Measurement Accuracy	±0.1V
Low Voltage Threshold	3.2V

Dimension	Main Part: L: 112mm*W: 65mm*H: 32mm
Weight	150g
Environment Temperature Range	-20℃ ～ 55℃
Environment Humidity Range	<90% RH (No condensation)
Storage Temperature	-40℃ ～ 85℃

* Actual range may vary depending on environment.
** Life is determined by sensor reporting frequency and other variables.

Wireless Dry Contact Interface

R718J

R718J

R718Jcan be connected to external dry contact devices, such as various switches, buttons, relays and reed switch outputs. It can detect the closure or disconnection signal of the dry contacts. Based on SX1276 wireless communication module, the wireless communication is compatible with LoRaWAN™ protocol (ClassA).

R718J Wireless Dry Contact Interfac

Technical Parameter

Input Power	2 x 3.6V ER14505 AA lithium batteries (3.6V2400mah/section）
Sleeping Mode	22uA
Wake up Mode	6.3mA@3.3V
Receiving Current (max)	11mA @3.3V
Transmitting Current (max)	120mA/3.3V
Battery Voltage Measurement Accuracy	±0.1V
Low Voltage Threshold	3.2V

Dimension	Main Part: L: 112mm*W: 65mm*H: 32mm
Weight	141g
Environment Temperature Range	-20℃ ～ 55℃
Environment Humidity Range	<90% RH (No condensation)
Storage Temperature	-40℃ ～ 85℃

* Actual range may vary depending on environment.
** Life is determined by sensor reporting frequency and other variables.

Wireless 2-Input Dry Contact Interface

R718J2

R718J2 can be connected to external dry contact devices, such as various switches, buttons, relays and reed switch outputs. It can detect the closure or disconnection signal of the dry contacts. Based on SX1276 wireless communication module, the wireless communication is compatible with LoRaWAN™ protocol (ClassA).

R718J2 Wireless 2-Input Dry Contact Interface

Technical Parameter

Input Power	2 x 3.6V ER14505 AA lithium batteries (3.6V2400mah/section）
Sleeping Mode	22uA
Wake up Mode	6.3mA@3.3V
Receiving Current (max)	11mA @3.3V
Transmitting Current (max)	120mA/3.3V
Battery Voltage Measurement Accuracy	±0.1V
Low Voltage Threshold	3.2V

Dimension	Main Part: L: 112mm*W: 65mm*H: 32mm
Weight	150g
Environment Temperature Range	-20℃ ～ 55℃
Environment Humidity Range	<90% RH （No condensation)
Storage Temperature	-40℃ ～ 85℃

* Actual range may vary depending on environment.
** Life is determined by sensor reporting frequency and other variables.

Wireless mA Current Meter Interface, 4~20mA

R718KA

The Wireless 4-20 mA DC Current Meter is designed to offer a large selection of easy-to-use current 4-20 mA data loggers for load monitoring. The wireless communication is compatible with LoRaWAN™ protocol (ClassA).

R718KA Wireless mA Current Meter Interface, 4~20mA

Technical Parameter

Input Power	2 x 3.6V ER14505 AA lithium batteries (3.6V2400mah/section）
Sleeping Mode	21 uA
Wake up Mode	6.3mA@3.3V
Receiving Current (max)	11mA @3.3V
Transmitting Current (max)	120mA/3.3V
Battery Voltage Measurement Accuracy	±0.1V
Low Voltage Threshold	3.2V

Dimension	Main Part: L: 112mm*W: 65mm*H: 32mm
Weight	141g
Environment Temperature Range	-20℃ ～ 55℃
Environment Humidity Range	<90% RH (No condensation)
Storage Temperature	-40℃ ～ 85℃

* Actual range may vary depending on environment.
** Life is determined by sensor reporting frequency and other variables.

Wireless 2-Input mA Current Meter Interface, 4~20mA

R718KA2

The Wireless 4-20 mA DC Current Meter is designed to offer a large selection of easy-to-use current 4-20 mA data loggers for load monitoring. The wireless communication is compatible with LoRaWAN™ protocol (ClassA).

R718KA2 Wireless 2-Input mA Current Meter Interface, 4~20 mA

Technical Parameter

Input Power	2 x 3.6V ER14505 AA lithium batteries (3.6V2400mah/section）
Sleeping Mode	21uA
Wake up Mode	6.3mA@3.3V
Receiving Current (max)	11mA @3.3V
Transmitting Current (max)	120mA/3.3V
Battery Voltage Measurement Accuracy	±0.1V
Low Voltage Threshold	3.2V

Dimension	Main Part: L: 112mm*W: 65mm*H: 32mm
Weight	150g
Environment Temperature Range	-20℃ ～ 55℃
Environment Humidity Range	<90% RH (No condensation)
Storage Temperature	-40℃ ～ 85℃

* Actual range may vary depending on environment.
** Life is determined by sensor reporting frequency and other variables.

Wireless Hall Type Open/Close Detection Sensor

R718LB

R718L is a open/close detection sensor based on hall effect sensors. Unlike the R718F devices, the two ferromagnetic contacts do not have to be joined together for the device to detect the closed state.

The communication is fully compatible with LoRaWAN™ protocol (Class A).

R718LB Wireless Hall Type Open/Close Detection Sensor

Technical Parameter

Input Power	2 x 3.6V ER14505 AA lithium batteries (3.6V2400mah/section）
Sleeping Mode	23 uA
Wake up Mode	6.3mA@3.3V
Receiving Current (max)	11mA @3.3V
Transmitting Current (max)	120mA/3.3V
Battery Voltage Measurement Accuracy	±0.1V
Low Voltage Threshold	3.2V

Dimension	Main Part: L: 112mm*W: 65mm*H: 32mm
Weight	141g
Environment Temperature Range	-20℃ ～ 55℃
Environment Humidity Range	<90% RH (No condensation)
Storage Temperature	-40℃ ～ 85℃

* Actual range may vary depending on environment.
** Life is determined by sensor reporting frequency and other variables.

Wireless 2-Gang Hall Type Open/Close Detection Sensor

R718LB2

R718LB2

R718L2 is a open/close detection sensor based on hall effect sensors. Unlike the R718F2 devices, the two ferromagnetic contacts do not have to be joined together for the device to detect the closed state. The communication is fully compatible with LoRaWAN™ protocol (Class A).

R718LB2 Wireless 2-Gang Hall Type Open/Close Detection Sensor

Technical Parameter

Input Power	2 x 3.6V ER14505 AA lithium batteries (3.6V2400mah/section）
Sleeping Mode	26uA
Wake up Mode	6.3mA@3.3V
Receiving Current (max)	11mA @3.3V
Transmitting Current (max)	120mA/3.3V
Battery Voltage Measurement Accuracy	±0.1V
Low Voltage Threshold	3.2V

Dimension	Main Part: L: 112mm*W: 65mm*H: 32mm
Weight	150g
Environment Temperature Range	-20℃ ～ 55℃
Environment Humidity Range	<90% RH (No condensation)
Storage Temperature	-40℃ ～ 85℃

* Actual range may vary depending on environment.
** Life is determined by sensor reporting frequency and other variables.

Wireless Asset Sensor

R718MA

R718MA has a simple positioning function that detects the position status of the device. It regularly reports RSSI and SNR information to the gateway for processing. Users can locate the device's position according to the reported RSSI and SNR information.

The communication is fully compatible with LoRaWAN™ protocol (Class A).

Technical Parameter

Input Power	2 x 3.6V ER14505 AA lithium batteries (3.6V2400mah/section）
Sleeping Mode	22 uA
Wake up Mode	6.3mA@3.3V
Receiving Current (max)	11mA @3.3V
Transmitting Current (max)	120mA/3.3V
Dimension	Main Part: L: 112mm*W: 65mm*H: 32mm
Weight	141g
Environment Temperature Range	-20℃ ～ 55℃
Environment Humidity Range	<90% RH (No condensation)
Storage Temperature	-40℃ ～ 85℃

Wireless Activity Detection Sensor

R718MBA

It detects the sudden movement or vibration of the device and sends an alarm signal to the gateway for processing. It uses the SX1276 wireless communication module.

R718MBA   Wireless Activity Detection Sensor

Technical Parameter

Input Power	2 x 3.6V ER14505 AA lithium batteries (3.6V2400mah/section）
Sleeping Mode	76 uA
Wake up Mode	6.3mA@3.3V
Receiving Current (max)	11mA @3.3V
Transmitting Current (max)	120mA/3.3V

Dimension	Main Part: L: 112mm*W: 65mm*H: 32mm
Weight	141g
Environment Temperature Range	-20℃ ～ 55℃
Environment Humidity Range	<90% RH (No condensation)
Storage Temperature	-40℃ ～ 85℃

* Actual range may vary depending on environment.
** Life is determined by sensor reporting frequency and other variables.

Wireless Activity Event Counter

R718MBB

The device detects the number of movements or vibrations (such as detecting the motor a few times a day), the maximum number of movements or vibrations can reach 2^{32} times (theoretical value), and sends the information of the number of movements or vibrations to the gateway for processing. Apply SX1276 wireless communication module.

R718MBB   Wireless Activity Event Counter

Technical Parameter

Input Power	2 x 3.6V ER14505 AA lithium batteries (3.6V2400mah/section）
Sleeping Mode	R718MBB: 76 uA
Wake up Mode	6.3mA@3.3V
Receiving Current (max)	11mA @3.3V
Transmitting Current (max)	120mA/3.3V

Dimension	Main Part: L: 112mm*W: 65mm*H: 32mm
Weight	141g
Environment Temperature Range	-20℃ ～ 55℃
Environment Humidity Range	<90% RH (No condensation)
Storage Temperature	-40℃ ～ 85℃

* Actual range may vary depending on environment.
** Life is determined by sensor reporting frequency and other variables.

Wireless Activity Timer

R718MBC

The device detects the duration of the movement or vibration (timekeeping) and sends the duration or timing information of the movement or vibration to the gateway for processing. The duration of the movement or vibration can be up to 1000 hours (theoretical value). SX1276 wireless communication module.

R718MBC   Wireless Activity Timer

Technical Parameter

Input Power	2 x 3.6V ER14505 AA lithium batteries (3.6V2400mah/section）
Sleeping Mode	76 uA
Wake up Mode	6.3mA@3.3V
Receiving Current (max)	11mA @3.3V
Transmitting Current (max)	120mA/3.3V

Dimension	Main Part: L: 112mm*W: 65mm*H: 32mm
Weight	141g
Environment Temperature Range	-20℃ ～ 55℃
Environment Humidity Range	<90% RH (No condensation)
Storage Temperature	-40℃ ～ 85℃

* Actual range may vary depending on environment.
** Life is determined by sensor reporting frequency and other variables.

Wireless 1-Phase Current Meter with 1 x 30A CT

R718N1

The NETVOX wireless single-phase current detector is used to detect single-phase electrical input current. The device is compatible with the LoRaWAN protocol, and integrates a chip module that conforms to the LoRaWAN wireless protocol, and joins the gateway to display the collected data in the gateway.

The device is powered by a battery and receives the load AC current through a current transformer.

R718N1 Wireless 1-Phase Current Meter with 1 x 30A CT

Technical Parameter

Input Power	2 x 3.6V ER14505 AA lithium batteries (3.6V2400mah/section）
Sleeping Current	25uA
Wake up Current	7mA
Receiving Current (max)	11mA @3.3V
Transmitting Current (max)	127mA @3.3V
Battery Voltage Measurement Accuracy	±0.1V
Current Measurement Accuracy	<+-1%
Current measurement Accuracy Range	100mA to 30A (depending on the current transformer configuration)

Rated Input Current	30A, 50Hz~60Hz
Rated Output Current	10mA
Ratio	3000:1
Phase Difference (at rated input)	≤10' (100Ω)
Linearity	0.1%
Isolation Withstand Voltage	3000V
Housing Material	Flame Retardant Grade 94-V0 UL Material
Environmentally Friendly	In line with ROHS
Working Temperature	-40°C~+85°C

* Actual range may vary depending on environment.
** Life is determined by sensor reporting frequency and other variables.

Wireless 1-Phase Current Meter with 1 x 75A CT

R718N17

The NETVOX wireless single-phase current detector is used to detect single-phase electrical input current. The device is compatible with the LoRaWAN protocol, and integrates a chip module that conforms to the LoRaWAN wireless protocol, and joins the gateway to display the collected data in the gateway.
The device is powered by a battery and obtains the load AC current value through a current transformer. The device adopts a switch-on current transformer, which can be conveniently connected to the device to be measured.

R718N17 Wireless 1-Phase Current Meter with 1 x 75A CT

Technical Parameter	
Input Power	2 x 3.6V ER14505 lithium batteries parallel power supply (3.6V2400mah/section）
Sleeping Current	25uA
Wake up Current	7mA
Receiving Current (max)	11mA @3.3V
Transmitting Current (max)	127mA @3.3V
Battery Voltage Measurement Accuracy	±0.1V
Current Measurement Accuracy	<+-1%
Current measurement Accuracy Range	100mA to 75A (depending on the current transformer configuration)

Rated Input Current	30A, 50Hz~60Hz
Rated Output Current	10mA
Saturation Current	≥75A
Ratio	3000:1
Load Resistance	10 Ω
Accuracy Level	1%
Isolation Withstand Voltage	3000V
Housing Material	Flame Retardant Grade 94-V0 UL Material
Environmentally Friendly	In line with ROHS
Working Temperature	-40°C~+85°C

* Actual range may vary depending on environment.
** Life is determined by sensor reporting frequency and other variables.

Wireless 1-Phase Current Meter with 1 x 150A CT

R718N115

The NETVOX wireless single-phase current detector is used to detect single-phase electrical input current. The device is compatible with the LoRaWAN protocol, and integrates a chip module that conforms to the LoRaWAN wireless protocol, and joins the gateway to display the collected data in the gateway.

The device is powered by a battery and obtains the load AC current value through a current transformer. The device adopts a switch-on current transformer, which can be conveniently connected to the device to be measured.

R718N115 Wireless 1-Phase Current Meter with 1 x 150A CT

Technical Parameter	
Input Power	2 x 3.6V ER14505 lithium batteries parallel power supply (3.6V2400mah/section）
Sleeping Current	25uA
Wake up Current	7mA
Receiving Current (max)	11mA @3.3V
Transmitting Current (max)	127mA @3.3V
Battery Voltage Measurement Accuracy	±0.1V
Current Measurement Accuracy	<+-1%
Current measurement Accuracy Range	1A to 150A (depending on the current transformer configuration)

Rated Input Current	100A, 50Hz~60Hz
Rated Output Current	33.33mA
Saturation Current	≥150A
Ratio	3000:1
Load Resistance	10Ω
Accuracy Level	1%（1A-150A）
Isolation Withstand Voltage	3000V
Housing Material	Flame Retardant Grade 94-V0 UL Material
Environmentally Friendly	In line with ROHS
Working Temperature	-40°C~+85°C

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* Actual range may vary depending on environment.
** Life is determined by sensor reporting frequency and other variables.

Wireless 1-Phase Current Meter with 1 x 250A CT

R718N125

The NETVOX wireless single-phase current detector is used to detect single-phase electrical input current. The device is compatible with the LoRaWAN protocol, and integrates a chip module that conforms to the LoRaWAN wireless protocol, and joins the gateway to display the collected data in the gateway.

The device is powered by a battery and obtains the load AC current value through a current transformer. The device adopts a switch-on current transformer, which can be conveniently connected to the device to be measured.

R718N125 Wireless 1-Phase Current Meter with 1 x 250A CT

Technical Parameter	
Input Power	2 x 3.6V ER14505 lithium batteries parallel power supply (3.6V2400mah/section）
Sleeping Current	25uA
Wake up Current	7mA
Receiving Current (max)	11mA @3.3V
Transmitting Current (max)	127mA @3.3V
Battery Voltage Measurement Accuracy	±0.1V
Current Measurement Accuracy	<+-1%
Current measurement Accuracy Range	1A to 250A (depending on the current transformer configuration)

Rated Input Current	200A, 50Hz~60Hz
Rated Output Current	66.66 mA
Saturation Current	≥250A
Ratio	3000:1
Load Resistance	10 Ω
Accuracy Level	1%（1A-250A）
Isolation Withstand Voltage	3000V
Housing Material	Flame Retardant Grade 94-V0 UL Material
Environmentally Friendly	In line with ROHS
Working Temperature	-40°C~+85°C

* Actual range may vary depending on environment.
** Life is determined by sensor reporting frequency and other variables.

Wireless 1-Phase Current Meter with 1 x 630A CT

R718N163

The NETVOX wireless single-phase current detector is used to detect single-phase electrical input current. The device is compatible with the LoRaWAN protocol, and integrates a chip module that conforms to the LoRaWAN wireless protocol, and joins the gateway to display the collected data in the gateway.

The device is powered by a battery and obtains the load AC current value through a current transformer. The device adopts a switch-on current transformer, which can be conveniently connected to the device to be measured.

R718N163 Wireless 1-Phase Current Meter with 1 x 630A CT

Technical Parameter	
Input Power	2 x 3.6V ER14505 lithium batteries parallel power supply (3.6V2400mah/section）
Sleeping Current	25uA
Wake up Current	7mA
Receiving Current (max)	11mA @3.3V
Transmitting Current (max)	127mA @3.3V
Battery Voltage Measurement Accuracy	±0.1V
Current Measurement Accuracy	<+-1%
Current measurement Accuracy Range	5A to 630A (depending on the current transformer configuration)

Rated Input Current	300A, 50Hz~60Hz
Rated Output Current	50mA
Saturation Current	≥630A
Ratio	6000:1
Load Resistance	10 Ω
Accuracy Level	1%（1A-250A）
Isolation Withstand Voltage	3000V
Housing Material	Flame Retardant Grade 94-V0 UL Material
Environmentally Friendly	In line with ROHS
Working Temperature	-40°C~+85°C

* Actual range may vary depending on environment.
** Life is determined by sensor reporting frequency and other variables.

Wireless 3-Phase Current Meter with 3 x 60A CT

R718N3

The NETVOX wireless 3-phase current detector is used to detect 3-phase electrical input current. The device is compatible with the LoRaWAN protocol, and integrates a chip module that conforms to the LoRaWAN wireless protocol, and joins the gateway to display the collected data in the gateway.
The device is powered by batteries and receives the load AC current through a current transformer.

R718N3 Wireless 1-Phase Current Meter with 3 x 60A CT

Technical Parameter	
Input Power	2 x 3.6V ER14505 AA lithium batteries (3.6V2400mah/section）
Sleeping Current	25uA
Wake up Current	7mA
Receiving Current (max)	11mA @3.3V
Transmitting Current (max)	127mA @3.3V
Battery Voltage Measurement Accuracy	±0.1V
Current Measurement Accuracy	<+-1%
Current measurement Accuracy Range	100mA to 60A (depending on the current transformer configuration)

Rated Input Current	60A, 50Hz~60Hz
Rated Output Current	20mA
Ratio	3000:1
Phase Difference (at rated input)	≤10' (100Ω)
Linearity	0.1%
Isolation Withstand Voltage	3000V
Housing Material	Flame Retardant Grade 94-V0 UL Material
Environmentally Friendly	In line with ROHS
Working Temperature	-40°C~+85°C

* Actual range may vary depending on environment.
** Life is determined by sensor reporting frequency and other variables.

Wireless 3-Phase Current Meter with 3 x 75A CT

R718N37

The NETVOX wireless three-phase current detector is used to detect three-phase electrical input current. The device is powered by a battery and receives AC current through a current transformer.

This device adopts open-loop current transformer, which can be easily connected to the device to be tested. The A phase line, the B phase line and the C phase line of the three-phase electric power are respectively connected into the corresponding current transformers.

R718N37 Wireless 3-Phase Current Meter with 3 x 75A CT

Technical Parameter	
Input Power	2 x 3.6V ER14505 AA lithium batteries (3.6V2400mah/section）
Sleeping Current	25uA
Wake up Current	7mA
Receiving Current (max)	11mA @3.3V
Transmitting Current (max)	127mA @3.3V
Battery Voltage Measurement Accuracy	±0.1V
Current Measurement Accuracy	<+-1%
Current measurement Accuracy Range	1A to 75A (depending on the current transformer configuration)

Rated Input Current	75A, 50Hz~60Hz
Rated Output Current	10mA
Saturation Current	≥75A
Ratio	3000:1
Load Resistance	10 Ω
Accuracy Level	1%
Isolation Withstand Voltage	3000V
Housing Material	Flame Retardant Grade 94-V0 UL Material
Environmentally Friendly	In line with ROHS
Working Temperature	-40°C~+85°C

* Actual range may vary depending on environment.
** Life is determined by sensor reporting frequency and other variables.

Wireless 3-Phase Current Meter with 3 x 150A CT

R718N315

The NETVOX wireless three-phase current detector is used to detect three-phase electrical input current. The device is powered by a battery and receives AC current through a current transformer.

This device adopts open-loop current transformer, which can be easily connected to the device to be tested. The A phase line, the B phase line and the C phase line of the three-phase electric power are respectively connected into the corresponding current transformers.

R718N315 Wireless 3-Phase Current Meter with 3 x 150A CT

Technical Parameter	
Input Power	2 x 3.6V ER14505 AA lithium batteries (3.6V2400mah/section）
Sleeping Current	25uA
Wake up Current	7mA
Receiving Current (max)	11mA @3.3V
Transmitting Current (max)	127mA @3.3V
Battery Voltage Measurement Accuracy	±0.1V
Current Measurement Accuracy	<+-1%
Current measurement Accuracy Range	1A to 150A (depending on the current transformer configuration)

Rated Input Current	100A, 50Hz~60Hz
Rated Output Current	33.33mA
Saturation Current	≥150A
Ratio	3000:1
Load Resistance	10Ω
Accuracy Level	1%（1A-150A）
Isolation Withstand Voltage	3000V
Housing Material	Flame Retardant Grade 94-V0 UL Material
Environmentally Friendly	In line with ROHS
Working Temperature	-40°C~+85°C

* Actual range may vary depending on environment.
** Life is determined by sensor reporting frequency and other variables.

Wireless 3-Phase Current Meter with 3 x 250A CT

R718N325

The NETVOX wireless three-phase current detector is used to detect three-phase electrical input current. The device is powered by a battery and receives AC current through a current transformer.

This device adopts open-loop current transformer, which can be easily connected to the device to be tested. The A phase line, the B phase line and the C phase line of the three-phase electric power are respectively connected into the corresponding current transformers.

R718N325 Wireless 3-Phase Current Meter with 3 x 250A CT

Technical Parameter

Input Power	2 x 3.6V ER14505 AA lithium batteries (3.6V2400mah/section）
Sleeping Current	25uA
Wake up Current	7mA
Receiving Current (max)	11mA @3.3V
Transmitting Current (max)	127mA @3.3V
Battery Voltage Measurement Accuracy	±0.1V
Current Measurement Accuracy	<+-1%
Current measurement Accuracy Range	1A to 250A (depending on the current transformer configuration)

Rated Input Current	200A, 50Hz~60Hz
Rated Output Current	66.66 mA
Saturation Current	≥250A
Ratio	3000:1
Load Resistance	10 Ω
Accuracy Level	1%（1A-250A）
Isolation Withstand Voltage	3000V
Housing Material	Flame Retardant Grade 94-V0 UL Material
Environmentally Friendly	In line with ROHS
Working Temperature	-40°C~+85°C

* Actual range may vary depending on environment.
** Life is determined by sensor reporting frequency and other variables.

Wireless 3-Phase Current Meter with 3 x 630A CT

R718N363
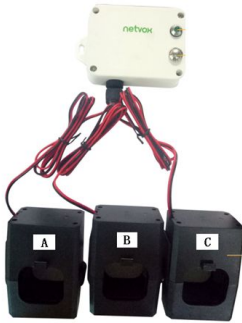
The NETVOX wireless three-phase current detector is used to detect three-phase electrical input current. The device is powered by a battery and receives AC current through a current transformer.
 This device adopts open-loop current transformer, which can be easily connected to the device to be tested. The A phase line, the B phase line and the C phase line of the three-phase electric power are respectively connected into the corresponding current transformers.

R718N363 Wireless 3-Phase Current Meter with 3 x 630A CT

Technical Parameter	
Input Power	2 x 3.6V ER14505 AA lithium batteries (3.6V2400mah/section）
Sleeping Current	25uA
Wake up Current	7mA
Receiving Current (max)	11mA @3.3V
Transmitting Current (max)	127mA @3.3V
Battery Voltage Measurement Accuracy	±0.1V
Current Measurement Accuracy	<+-1%
Current measurement Accuracy Range	10A~630A (depending on the current transformer configuration)

|	
Rated Input Current	300A，50Hz~60Hz
Rated Output Current	50mA
Saturation Current	≥630A
Ratio	6000:1
Load Resistance	10Ω
Accuracy Level	1%（5A-720A）
Isolation Withstand Voltage	3000V
Housing Material	Flame Retardant Grade 94-V0 UL Material
Environmentally Friendly	In line with ROHS
Working Temperature	-40°C~+85°C

* Actual range may vary depending on environment.
** Life is determined by sensor reporting frequency and other variables.

Wireless Push Button Interface

R718T

The device is connected to an external push button device (2 lines are connected to the 2 end of the push button) that can detect the signal when the button is pushed.

It uses SX1276 wireless communication module, and the communication is fully compatible with LoRaWAN™ protocol (Class A).

R718T Wireless Push Button Interface

Technical Parameter

Input Power	2 x 3.6V ER14505 AA lithium batteries (3.6V2400mah/section）
Sleeping Mode	22 uA
Wake up Mode	6.3mA@3.3V
Receiving Current (max)	11mA @3.3V
Transmitting Current (max)	120mA/3.3V

Dimension	Main Part: L: 112mm*W: 65mm*H: 32mm
Weight	141g
Environment Temperature Range	-20℃ ～ 55℃
Environment Humidity Range	<90% RH (No condensation)
Storage Temperature	-40℃ ～ 85℃

* Actual range may vary depending on environment.
** Life is determined by sensor reporting frequency and other variables.

Wireless 2-Input Push Button Interface

R718T2

The device is connected to an external push button device (2 lines are connected to the 2 end of the push button) that can detect the signal when the button is pushed.

It uses SX1276 wireless communication module, and the communication is fully compatible with LoRaWAN™ protocol (Class A).

R718T2 Wireless 2-Input Push Button Interface

Technical Parameter

Input Power	2 x 3.6V ER14505 AA lithium batteries (3.6V2400mah/section）
Sleeping Mode	24uA
Wake up Mode	6.3mA@3.3V
Receiving Current (max)	11mA @3.3V
Transmitting Current (max)	120mA/3.3V

Dimension	Main Part: L: 112mm*W: 65mm*H: 32mm
Weight	150g
Environment Temperature Range	-20℃ ～ 55℃
Environment Humidity Range	<90% RH (No condensation)
Storage Temperature	-40℃ ～ 85℃

* Actual range may vary depending on environment.
** Life is determined by sensor reporting frequency and other variables.

Wireless Water Leak Detector

R718WA

The device is a LoRaWAN™ device compatible with LoRaWAN™ protocol (Class A). When the sensor detects the leak, it will send an alarm message to the gateway.

R718WA carries 1 water leak sensor.

It uses SX1276 wireless communication module.

R718WA

R718WA Wireless Water Leak Detector

Technical Parameter

Input Power	2 x 3.6V ER14505 AA lithium batteries (3.6V2400mah/section）
Sleeping Mode	22 uA
Wake up Mode	6.3mA@3.3V
Receiving Current (max)	11mA @3.3V
Transmitting Current (max)	120mA/3.3V

Dimension	Main Part: L: 112mm*W: 65mm*H: 32mm
Weight	141g
Environment Temperature Range	-20℃ ～ 55℃
Environment Humidity Range	<90% RH (No condensation)
Storage Temperature	-40℃ ～ 85℃

* Actual range may vary depending on environment.
** Life is determined by sensor reporting frequency and other variables.

Wireless Water Leak Detector

R718WA2

The device is a LoRaWAN™ device compatible with LoRaWAN™ protocol (Class A). When the sensor detects the leak, it will send an alarm message to the gateway.

R718WA2 carries 2 water leak sensors.

It uses SX1276 wireless communication module.

R718WA2   Wireless 2-Gang Water Leak Detector

Technical Parameter

Input Power	2 x 3.6V ER14505 AA lithium batteries (3.6V2400mah/section）
Sleeping Mode	23uA
Wake up Mode	6.3mA@3.3V
Receiving Current (max)	11mA @3.3V
Transmitting Current (max)	120mA/3.3V

Dimension	Main Part: L: 112mm*W: 65mm*H: 32mm
Weight	150g
Environment Temperature Range	-20℃ ～ 55℃
Environment Humidity Range	<90% RH (No condensation)
Storage Temperature	-40℃ ～ 85℃

* Actual range may vary depending on environment.
** Life is determined by sensor reporting frequency and other variables.

Wireless Water Leak Detector with Rope Sensor

R718WB

The device is a LoRaWAN™ device compatible with LoRaWAN™ protocol (Class A). When the sensor detects the leak, it will send an alarm message to the gateway.

R718WA carries 1-gang water rope sensor.

It uses SX1276 wireless communication module.

R718WB Wireless Water Leak Detector with Rope Sensor

Technical Parameter

Input Power	2 x 3.6V ER14505 AA lithium batteries (3.6V2400mah/section）
Sleeping Mode	22 uA
Wake up Mode	6.3mA@3.3V
Receiving Current (max)	11mA @3.3V
Transmitting Current (max)	120mA/3.3V

Dimension	Main Part: L: 112mm*W: 65mm*H: 32mm
Weight	141g
Environment Temperature Range	-20℃ ～ 55℃
Environment Humidity Range	<90% RH (No condensation)
Storage Temperature	-40℃ ～ 85℃

* Actual range may vary depending on environment.
** Life is determined by sensor reporting frequency and other variables.

Wireless Two-Gang Water Leak Detector with Rope Sensor

R718WB2

R718WB2

The device is a LoRaWAN™ device compatible with LoRaWAN™ protocol (Class A). When the sensor detects the leak, it will send an alarm message to the gateway.

R718WA2 carries 2 water rope sensors.

It uses SX1276 wireless communication module.

R718WB2   Wireless Two Gang Water Leak Detector with Rope Sensor

Technical Parameter

Input Power	2 x 3.6V ER14505 AA lithium batteries (3.6V2400mah/section）
Sleeping Mode	22uA
Wake up Mode	6.3mA@3.3V
Receiving Current (max)	11mA @3.3V
Transmitting Current (max)	120mA/3.3V

Dimension	Main Part: L: 112mm*W: 65mm*H: 32mm
Weight	150g
Environment Temperature Range	-20℃ ～ 55℃
Environment Humidity Range	<90% RH (No condensation)
Storage Temperature	-40℃ ～ 85℃

* Actual range may vary depending on environment.
** Life is determined by sensor reporting frequency and other variables.

Wireless Outdoor CO2/Temperature/Humidity Sensor with Solar Panel

R72615

The R72615 is equipped with a temperature and humidity sensor that detects and transmits ambient temperature and humidity data. It is a wireless communication method that uses the SX1276 wireless communication module. The R72615 has a CO_2 sensor that detects the concentration of CO_2 in the air.

Technical Parameter

Power Supply	3 rechargeable lithium batteries in series (single-cell rechargeable lithium battery 3.7V, capacity recommended 5000mah)
Operating Voltage Range	9VDC ~ 12.6VDC
Operating Current 1	15mA (Standby mode)
Operating Current 2	30mA (When the sensor is working.)

CO2 Sensor Characteristic

Operating Voltage	4.5VDC-5.5VDC
Working Current	<85mA
CO2 Accuracy	+/- （100ppm+6% read value）
CO2 Range	0-5000ppm
Preheat Time	3min
Response Time	T<90s
Output Signal	UART

SHT-30 Temperature and Humidity Sensor

Operating Voltage	+3.3VDC
Temperature Measurement Range	-20°C－55°C
Temperature Measurement Accuracy	+/-0.5°C@25°C Max.+/-0.8°C@ -20°C－55°C
Humidity Measurement Range	0%RH-100%RH
Humidity Measurement Accuracy	+/-4%RH @25°C

* Actual range may vary depending on environment.
** Life is determined by sensor reporting frequency and other variables.

Wireless Outdoor PM2.5/Noise/Temperature/ Humidity Sensor with Solar Panel

R72623

NETVOX Wireless Sensor R72623 is capable to measure PM2.5 / noise / temperature / humidity at outdoor environment.
 R72623 can be used in construction site / agricultural environment / airport surroundings / business environment data collection. Suitable as a data logger.

Technical Parameter

PM2.5 Particle Concentration Sensor

Particle measurement range	0.3~1.0; 1.0~2.5um
Particle counting efficiency	50% @ 0.3um, 98% @ ≥ 0.5um
Particle mass concentration effective range (PM2.5 standard value)	0~500 μg/m^3
Particle mass concentration resolution	1ug/m^3
Particle mass concentration consistency (PM2.5 standard value)	±10% @100-500ug/m^3 ±10ug/m3@0-100ug/m^3
Comprehensive response time	≤10s

Noise Sensor Specifications

Operating Voltage	10VDC
Power Consumption	0.4W（Max.）
Measuring Range	30dB-130dB
Measurement Error	3% F.S
Resolution	0.1dB
Frequency Weighting Characteristics	A weighted
Frequency Response	35Hz-20kHz
Response Time	≤2 seconds
Output Interface	RS485 output

* Actual range may vary depending on environment.
** Life is determined by sensor reporting frequency and other variables.

Wireless Outdoor Noise/Temperature/Humidity Sensor with Solar Panel

R72624

NETVOX Wireless Sensor R72624 is capable to measure noise / temperature / humidity at outdoor environment. R72624 can be used in construction site / agricultural environment / airport surroundings / business environment data collection. Suitable as a data logger.

Technical Parameter

Power Supply	3 rechargeable lithium batteries in series (single-cell rechargeable lithium battery 3.7V, capacity recommended 5000mah)
Operating Voltage range	9VDC～12.6VDC
Operating Current 1	15mA (Standby mode）
Operating Current 2	30mA
Wireless idle mode Cycle	3 minutes

Noise Sensor Specifications

Operating Voltage	10VDC
Power Consumption	0.4W（Max.）
Measuring Range	30dB-130dB
Measurement Error	3% F.S
Resolution	0.1dB
Frequency Weighting Characteristics	A weighted
Frequency Response	35Hz-20kHz
Response Time	≤2 seconds
Output Interface	RS485 output

* Actual range may vary depending on environment.
** Life is determined by sensor reporting frequency and other variables.

Wireless Outdoor CO2/Temperature/Humidity Sensor (DC-powered)

R72715

The R72715 has a temperature and humidity sensor that detects and transmits ambient temperature and humidity data. The R72715 has a CO2 sensor that detects the concentration of CO2 in the air and transmits the detected data to other devices via LoRa wireless network. It uses the SX1276 wireless communication method.

Technical Parameter

Electric

Power Supply	Power adapter DC power supply, DC12V/1A
Operating Current 1	40mA (No radio frequency signal transmission)
Operating Current 2	80mA (With radio frequency signal transmission)

CO2 Sensor Characteristic

Working Voltage	4.5VDC-5.5VDC
Working Current	<85mA
CO2 Accuracy	+/- (100ppm + 6% reading)
CO2 Range	0-5000ppm
Warm-up Time	3mins
Response Time	T<90s
Output Signal	PWM UART

SHT-30 Temperature and Humidity Sensor

Operating Voltage	+3.3VDC
Temperature Measurement Range	-20°C－55°C
Temperature Measurement Accuracy	+/-0.5°C@25°C Max.+/-0.8°C@ -20°C－55°C
Humidity Measurement Range	0%RH-100%RH
Humidity Measurement Accuracy	+/-4%RH @25°C

Wireless Outdoor PM2.5/Temperature/Humidity Sensor (DC-powered)

R72716

R72716 carrying temperature and humidity sensors that can detect and send the environment temperature and humidity data with wireless communication, compatible with LoRa protocol standards. R72716 carrying PM2.5 dust sensor which can obtain the concentration of suspended particulate matter in the air per unit volume.

Technical Parameter

Power supply	Adapter DC powered
Working voltage	40mA/12V(DC)
RX current	11mA @3.3V
TX current	120mA @3.3V
Particle measurement range	0.3~1.0
Particle mass concentration Effective range (PM2.5 standard value)	0~500 (μg/m3)
Temperature measurement range	0°C
Temperature measurement accuracy	+-0.5°C @25°C
Humidity measurement range	10%RH---90%RH
Humidity measurement accuracy	+/-4%RH @25°C

* Actual range may vary depending on environment.
** Life is determined by sensor reporting frequency and other variables.

Wireless Plug-and-Play Power Outlet with Consumption Monitoring

R809A
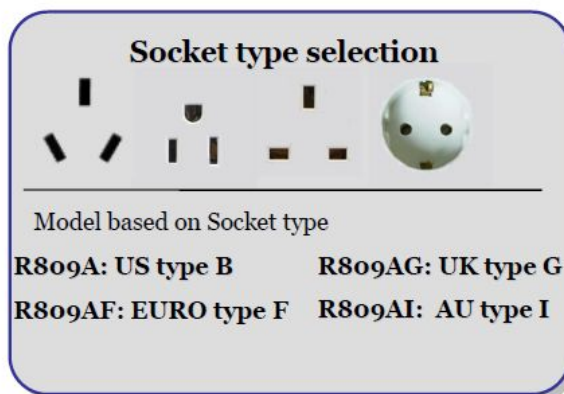
Socket Type Selection

The R809A is a wireless power plug converter for indoor use. It can remotely control the output switch and detect the output power. It integrates the LoRa/FSK modulation communication wireless module SX1276, which can realize wireless remote control. R809A has a 10A/230VAC output load capability and is primarily used to measure electrical power consumption and wireless switch control.

Technical Parameter

Rated working power supply	100-240VAC, 50/60Hz
Typical Operating Current	15mA/220VAC/1W
Typical Load Characteristics	Resistive load: 16A/250VAC; P: 4000VA Inductive load: 8A/220VAC; P: 1760VA (COSφ=0.4) Motor load: 1.5HP/240VAC White Lamp, fluorescent lamp, gold halogen lamp: 3000W/220VAC
Relay Switch Life Times	100,000 times
Current Measurement Accuracy Range	100mA~16A
Energy Measurement Error	<+-1%
Dimension	95mm*58mm*42.5mm (without plug part)

* Actual range may vary depending on environment.
** Life is determined by sensor reporting frequency and other variables.

Wireless Smoke Detector

RA02A

RA02A is a smoke detection alarm. RA02A has built-in photoelectric smoke detector and buzzer, which can detect the smoke concentration in the environment. When the smoke density exceeds the preset value, it will generate a high sound pressure level alarm sound. At the same time, the alarm data can be transmitted to the wireless network.

The device is a LoRaWAN™ device compatible with LoRaWAN™ protocol (Class A).

RA02A Wireless Smoke Detector (powered by 2 x 1.5V AAA battery)

Technical Parameter

Input power	2 x1.5V AAA alkaline batteries
Life time	3 years (25°C, heart beat: 60 mins , txpower=20dBm, LoRa SF=10)
Standby current	12uA @3VDC
Working current while alarming	580mA/3VDC
Alarming dBm	85dBm @3m
Alarming concentration	0.65
TX Power	19dBm
Rx Sensitivity	-136dBm (LoRa-121dBm (FSK,Frequency deviation=5kHz, Bit Rate=1.2kbps)
Antenna Type	Build-in antenna
Communication Range	10 km (line-of-sight, the actual transmission distance depends on the environment)
Data Transfer Rate	0.3kbps
Spread Technique	LoRa/FSK
Available Frequency	US915 AU915 AS923 EU868 KR920 CN470Configured before shipment

* Actual range may vary depending on environment.
** Life is determined by sensor reporting frequency and other variables.

Wireless CO Detector

RA02C

RA02A is a smoke detection alarm. RA02A has built-in photoelectric smoke detector and buzzer, which can detect the smoke concentration in the environment. When the smoke density exceeds the preset value, it will generate a high sound pressure level alarm sound. At the same time, the alarm data can be transmitted to the wireless network.

The device is a LoRaWAN™ device compatible with LoRaWAN™ protocol (Class A).

RA02C Wireless CO Detector (powered by 2 x 1.5V AAA battery)

Technical Parameter

Power Input	2*AAA alkaline battery
Standby Current	18uA/3VDC
Average Operating Current	70uA/3VDC
Current While alarming	20mA/3VDC
Alarm Sound Intensity	85dBm at 3m
CO Detection Concentration Range	0 ~ 1000ppm

TX Power	19dBm±1dBm
Rx Sensitivity	-136dBm (LoRa，Spreading Factor=12, Bit Rate=293bps) -121dBm (FSK,Frequency deviation=5kHz, Bit Rate=1.2kbps)
Antenna Type	Build-in antenna
Communication Range	10 km (line-of-sight, the actual transmission distance depends on the environment)
Data Transfer Rate	0.3kbps～50kbps
Spread Technique	LoRa/FSK
Available Frequency	EU863-870，US902-928，AU915-928，KR920-923，AS923，CN470-510 Configured before shipment

* Actual range may vary depending on environment.
** Life is determined by sensor reporting frequency and other variables.

Wireless CO Sensor

RA0711

RA07 carries an RS485 communication interface, and RA0711 comes with an external CO sensor (RS485). The communication is fully compatible with LoRaWAN™ protocol (Class A).

RA0711 is mainly used in the detection of automobile exhaust.

Technical Parameter

Power Supply	Adapter (12VDC/1A)
Operating Current 1	80mA (RX)
Operating Current 2	120mA (TX)

CO Sensor Power supply	+12VDC
CO measurement range	0-1000ppm
CO measurement method	Electrochemical sensor
CO measurement accuracy	$<\pm$ reading 3% (@25°C)
CO measurement resolution	0.5ppm
Response time	$\leq$50s
Service life	>5 years in the air
Working pressure range	Standard atmospheric pressure ±10%

* Actual range may vary depending on environment.
** Life is determined by sensor reporting frequency and other variables.

Wireless pH Sensor (DC-powered)

RA0708

RA0708 is a device for pH detection in water environment. It can detect and send environmental pH data. to data center. It is a wireless communication method. It adopts SX1276 wireless communication module

Technical Parameter

Electric

Power Supply	Adapter DC Power Supply (12V/1A)
Operating Current 1	40mA (RX)
Operating Current 2	80mA (TX)

PH Sensor

Operating voltage	12VDC-24VCD±10%
Operating temperature range	0-65° C
Range	0-14PH
Accuracy	±0.01PH
Working pressure	<0.2MPa
Temperature Compensation	Automatic Temperature Compensation (NTC)
Signal output	RS485
Wet material	PPR
Mounting Method	3/4" NPT Thread, Immersion Mount
Cable length	5m, other lengths can be customized
Calibration method	2-point calibration
Power Consumption	<0.5W
Protection class	IP68

* Actual range may vary depending on environment.
** Life is determined by sensor reporting frequency and other variables.

Wireless Turbidity Sensor (DC-powered)

RA0710

The RA0710 is connected to the ZS-206 integrated online turbidity sensor, and the ZS-206 is designed and manufactured using the principle of scattered light turbidity measurement. The LoRa module of the RA0710 communicates with the turbidity sensor in the form of RS485 communication to obtain the current turbidity signal value and display it through the wireless gateway.

Technical Parameter

Electric

Power Supply Power Supply	DC Power Supply, DC12V/1A
Operating current 1	50mA (RX)
Operating current 2	90mA (TX)

Turbidity Sensor

Model	ZS-206
Measuring principle	Scattered light method
Range	0-1000NTU
Resolution	0.1NTU, 0.1°C
Accuracy	±5% F.S., ±0.5°C
Correction Function	Supported
Temperature Compensation	Supported
Output Mode	RS-485 bus, MODBUS-RTU protocol
Working Conditions	0-50 ° C, <0.2MPa
Storage Temperature	-5°C - 65°C
Installation Method	3/4" NPT thread, immersion installation
Cable Length	5 meters, other lengths can be customized
Power Supply	12V-24VDC ±10%
Protection Level	IP68

* Actual range may vary depending on environment.
** Life is determined by sensor reporting frequency and other variables.

Wireless Liquid Level Sensor

RA0711

RA07 carries an RS485 communication interface, and RA0711 comes with an external water level sensor (RS485). The communication is fully compatible with LoRaWAN™ protocol (Class A).

RA0711 is mainly used to measure water level.

Technical Parameter

Power Supply	Adapter (12VDC/1A)
Operating Current 1	80mA (RX)
Operating Current 2	120mA (TX)

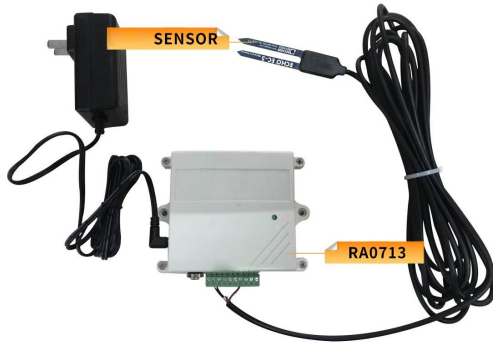| Power supply	12VDC
Level sensor range	3m, 5m, 10m, etc. (requires confirmation of model selection)
Level sensor accuracy class	0.25%FS (typical)

Dimension	Main Body: 111mm*86mm*42mm
Environment Humidity Range	< 90% RH (No condensation)
Working Temp	-20°C ～ +55°C
Storage Temp	-40°C ～ +85°C

* Actual range may vary depending on environment.
** Life is determined by sensor reporting frequency and other variables.

Wireless Soil Moisture Sensor

RA0713

RA0713 can be used to measure the amount of soil water and transmit the data to the gateway through the wireless network. It is fully compatible with LoRaWAN™ protocol (Class A).

Technical Parameter

Electric

Power supply	Adapter DC powered
Working power（max）	70mA(RX) 110mA(TX)
Sensor resolution	0.1% vwc in mineral soil 0.25% vwc in growth medium
Sensor accuracy	+-3%
Sensor detect range	0-100%VWC

Physical

Dimension	111mm*86mm*42mm
Working Temp	-20°C ～ +55°C
Storage Temp	-40°C ～ +85°C
Humidity Detecting Range	＜90%RH

* Actual range may vary depending on environment.
** Life is determined by sensor reporting frequency and other variables.

Wireless CO2/Temperature/Humidity Sensor

RA0715

Netvox RA0715 is designed to monitor temperature, humidity and CO2 for Indoor Air Quality (IAQ) applications based on LoRa® wireless connectivity.

The communication is fully compatible with LoRaWAN™ protocol (Class A).

Technical Parameter

Input power	DC 12V /1A
Working Current	40mA (RX), 80mA (TX)

CO_2 Sensor

Working Voltage	4.5VDC-5.5VDC
Working Current	<85mA
Accuracy	+/-{Value}）
Range	0-5000ppm
Worm-up Time	3min
Response Time	T<90s
Output	PWM UART

SHT-30 T/H Sensor

|	
Working Voltage	+3.3VDC
Temperature Range	-20°C
Temperature Accuracy	+/-0.8°C
Humidity Range	10%RH-90%RH
Humidity Accuracy	+/-4%RH @25°C

* Actual range may vary depending on environment.
** Life is determined by sensor reporting frequency and other variables.

Wireless PM2.5/Temperature/Humidity Sensor (DC-powered)

RA0716

LoRa Alliance Certified™

Netvox RA0716 is mainly used to measure PM2.5, ambient temperature and humidity in an indoor environment, communicating over the LoRa® network with standard LoRaWAN™ protocol (Class A). RA0716 carries a PM2.5 sensor that can be used to obtain the concentration of suspended particles per unit volume in the air.

RA0716 has been LoRaWAN™ certified.

Technical Parameter

Input power	12VDC/1A
Operating current 1	40mA (RX)
Operating current 2	80mA (TX)
Particle measurement range	0.3~1.0；1.0~2.5（um）
Particle counting efficiency	50%@0.3um，98%@≥0.5um
Particle mass concentration effective range (PM2.5 standard value)	0~500 ug/m³
Particle mass concentration resolution	1ug/m³
Particle mass concentration accuracy (PM2.5 standard value)	±10%@100-500ug/ m³ ±10ug/ m³@0-100ug/ m³
Response time	≤10s
Temperature measurement range	-20°C 55°C
Temperature measurement accuracy	±0.8°C @25°C
Humidity measurement range	10%RH －90%RH
Humidity measurement accuracy	±4%RH @25°C

Wireless Water Leak Detection & Location Sensor
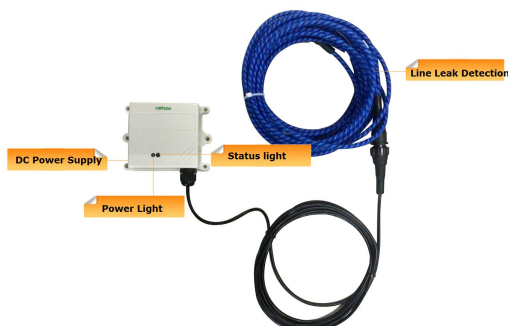
RA07W

RA07W is a water leak detection and location sensor. Its external four-core positioning leak detection rope sensor can detect the water leak location and transmit the detected data to the gateway through the wireless network. It is fully compatible with LoRaWAN™ protocol (Class A).

RA07w
Water Leak Detection & Location Sensor

Technical Parameters

Power supply	Adapter DC powered（12V/1A）
Working power（max）	40mA(RX)， 80mA (TX)
Position Water Leak Detector	100M（max）
Leak detection error range	1% ± 0.5 meters of sensor cable length

Dimension	111mm*86mm*41mm
Working Temp	-20°C ～ 55°C
Humidity Detecting Range	5%RH～95%RH
Storage Temp	-40°C ～ 85°C

* Actual range may vary depending on environment.
** Life is determined by sensor reporting frequency and other variables.

Wireless Emergency Push Button

RB02I

RB02I sends an alert to the gateway when the button is pushed. With a silicone cover, it is waterproof and widely used for smart home and building applications with high reliability. It features low standby power consumption, and the communication is fully compliant with the LoRaWAN™ protocol (Class A).

Technical Parameters

Power supply	2 x 1.5V AAA batteries
operating voltage	2.1V-3V
Standby current	14uA
Transmitting current (max)	120mA/3.0V
Receiving current (max)	11mA/3.0V

Dimension	82mm*82mm*15mm
Working Temp	-20°C ～ +55°C
Storage Temp	-40°C ～ +85°C
Humidity Detecting Range	＜90%RH

* Actual range may vary depending on environment.
** Life is determined by sensor reporting frequency and other variables.

Wireless Occupancy & Temperature & Light Sensor

RB11E

LoRa Alliance Certified™

**RB11E Wireless
Occupancy & Temperature & Light Sensor**

RB11E is a long distance LoRaWAN™ PIR-based device (Class A). RB11E combines motion detection, temperature, and illumination sensors. With real-time motion detection, RB11E senses the movement of people, animal or other objects, and if a person or an object moves in the monitoring area, RB11E will detect the infrared signal and report the status information to the gateway. Users can execute different instructions or scenes according to different configurations. RB11E also reports temperature and light level. It is mainly used for indoor detection.

RB11E has been LoRaWAN™ certified.

Technical Parameter

Power Supply	2pcs of 3.6V ER14505 AA
Operating Voltage Range	3V～3.6V
Standby Current	110uA
Transmitting Current (max)	120mA
Receiving Current (max)	11mA
Measurement Accuracy	±0.1V

Dimension	78mm*78.8mm*82.2mm
Weight	125.8g
Operating Humidity	＜90%RH
Operating Temperature	-20°C ～ 55°C
Storage Temperature	-40°C ～ 85°C
Built-in Devices	Tamper switch, light sensor, temperature sensor

* Actual range may vary depending on environment.
** Life is determined by sensor reporting frequency and other variables.

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All specifications are subjected to change with prior notice