
Temperature and Humidity Sensor for Low Temperature Environment

Temperature and Humidity Sensor for Low Temperature Environment R718A Data Sheet

Wireless Sensor Network Based on LoRa Technology



R718A

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 **LoRa Alliance Member™** **zigbee alliance member**

Temperature and Humidity Sensor for Low Temperature Environment

General Description

NETVOX Wireless Sensor R718A is capable to measure temperature and humidity at low temperature environment.

- Accurate to $\pm 0.3^{\circ}\text{C}$ @25°C
- R718A can be used in domestic and commercial refrigerators to store and transport food, medicines, flowers and other perishable goods, on the walls or in logistics refrigerators. Suitable as a data logger.

Principle of Operation

NETVOX Wireless Temperature Sensor outputs the ambient temperature in degrees Celsius. It is programmed to sleep for a user-given time interval (heartbeat) and then wakeup. To stay within the abilities of the processor, the temperature is computed off a data table provided by the manufacturer.

Example Applications

- Ambient Temperature Monitoring
- Environmental Monitoring
- Smart City & Smart Building
- HVAC Operation & Testing
- Data Center Monitoring
- Store and Transport Food, Medicines
- Flowers and Other Perishable Goods
- On the Walls or in Logistics Refrigerators
- And many more...

Features of NETVOX Sensors

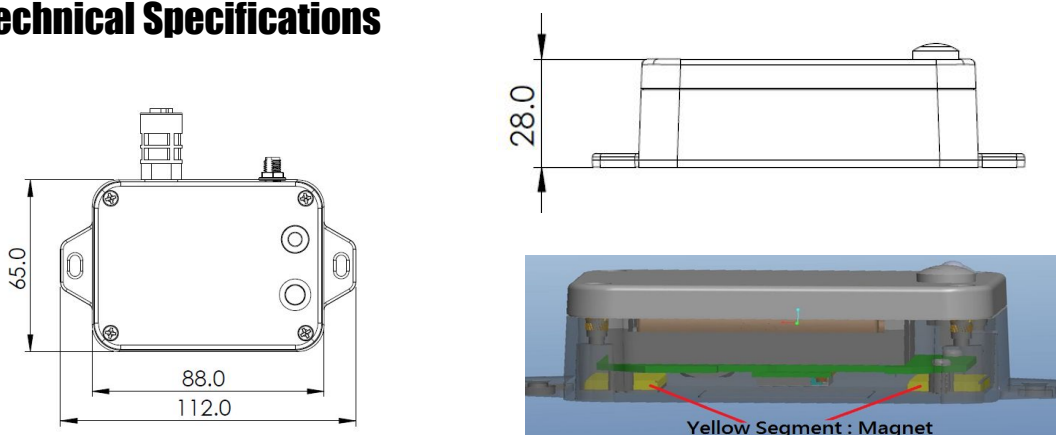
- Wireless range of 10km *1
- LoRaWAN™ Class A compatible
- Frequency Hopping Spread Spectrum (FHSS)
- Improved interference immunity
- Improved power management for longer battery life
- Encrypt-RF™ Security (Diffie-Hellman Key Exchange + AES-128 CBC for sensor data messages)
- Battery Life*2:
 - 15 min heartbeats = 5 years
 - (Conditions: ambient temperature 25 °C, txpower = 20dBm, LoRa spreading factor SF = 10)
- Over-the-air updates (future)
- Third-Party online wireless sensor monitoring and notification system to configure sensors, view data and set alerts via SMS text and email (optional)
- Available third-party platform: Actility/ThingPark, TTN, MyDevices/Cayenne
- R718X series carry magnets which can be attached to ferromagnetic materials and objects
- IP Rating Level: IP64

*1. Actual range may vary depending on environment.

*2. Battery life is determined by sensor reporting frequency and other variables

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Technical Specifications



Electric

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	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

Thermistor SHT-35

Model	SHT-35 (Brand: Sensirion)
Power Supply	+3.3VDC
Temperature Detecting Range	-40°C ~ 55°C
Temperature Accuracy	±0.3°C @25°C
Humidity Detecting Range	0%RH ~ 100%RH
Humidity Accuracy	±2%RH @25°C

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Frequency

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	US915 AU915 AS923 EU868 KR920 CN470 Configured before shipment

Physical

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)
Storage Temperature	-40℃ ~ 85℃
IP Rating	IP64

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