# Wireless Temperature Sensor - Digital Sensor with 1 x Digital Output

Wireless Sensor Network Based on LoRa Technology


# R900A02O1 Data Sheet

**Wireless Temperature Sensor - Digital Sensor with 1 x Digital Output**

# Introduction

R900A02O1 is a wireless temperature sensor with a digital output. It transmits digital signals to a third-party device when temperature exceeds the threshold. With up to 7 flexible installation options, R900A02O1 integrates easily into various environments. In addition, with support for Netvox NFC app, users can easily configure settings, update firmware, and access data simply by tapping their smartphone to the device.

# Features

- Powered by 2* 3.6V ER18505 batteries (also support ER14505 batteries with battery converter case)
- Main unit: IP65
- Output digital signals when temperature exceeds the threshold
- Built-in vibration sensor for tamper alarm
- Up to 7 installation methods for different kinds of applications
- Support NFC. Configure and upgrade firmware on Netvox NFC app
- Store up to 10000 data
- LoRaWAN™ Class A compatible
- Frequency hopping spread spectrum
- Configuration parameters can be configured through third-party software platforms, data can be read, and alarms can be set via SMS text and email (optional)
- Applicable to the third-party platforms: Actility/ThingPark, TTN, MyDevices/Cayenne
- Low power consumption and longer battery life

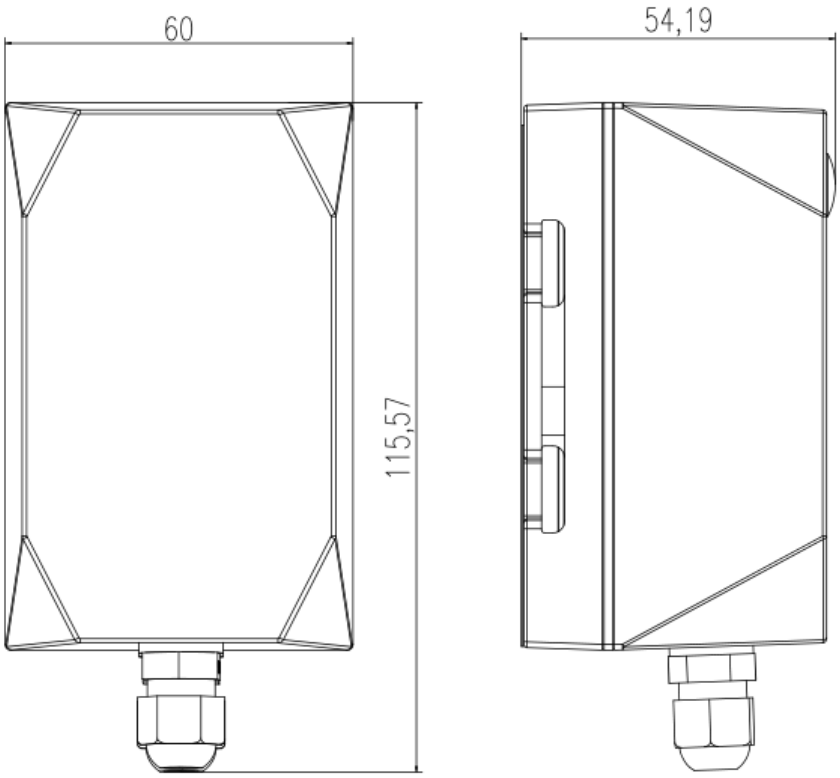
Note: Battery life is determined by the sensor reporting frequency and other variables, please visit http://www.netvox.com.tw/electric/electric_calc.html for battery life and calculation.

# Applications

- Smart Home
- Train station
- Warehousing and transportation
- Textile industry

# Dimensions

R900 (main unit)



# Electrical Specifications

| | |
|---|---|
| Power Supply | 2* ER18505 3.6V 4000mAh lithium batteries in parallel<br>(or 2* ER14505 3.6V 2400mAh lithium batteries with battery converter case) |
| Battery Lifespan | 5.22 years<br>(when powered by 2* ER18505 batteries, the temperature = 25℃, report interval = 15 minutes, TX power = 20dBm, and LoRa SF = 10) |
| Standby Current | 36uA |
| Wake-up Current | 7mA |
| RF Receiving Current | 12mA @3.3V |
| RF Transmitting Current | 138mA @3.3V, TX power = 22dB |
| Low voltage alarm | 3.2V |
| Battery Measurement Error | ±0.1V |

Note: The electrical specifications may vary due to the voltage of the power supply.

## Temperature Sensor

| | |
|---|---|
| Operating Voltage | 3V to 5.5V |
| Measurement Range | -40°C to +125°C |
| Accuracy | < ±1°C |

# Frequency

| | |
|---|---|
| Frequency Range | 863MHz-928MHz 470MHz-510MHz |
| TX Power | US915 22dBm<br>AS923 16dBm<br>AU915 22dBm<br>CN470 19.15dBm<br>EU868 16dBm<br>KR920 14dBm<br>IN865 20dBm |
| RX Sensitivity | –123 dBm for 2-FSK (at 1.2 Kbit/s),<br>–148 dBm for LoRa® (at 10.4 kHz, SF= 12) |
| Antenna Type | Built-in antenna |
| Communication Range | 10km (line of sight)<br>Note: The actual transmission distance depends on the environment. |
| Data Transfer Rate | FSK: 0.6 – 300Kbit/s<br>Lora: 0.018 – 62.5Kbit/s |
| Modulation | LoRa / FSK<br>Note: One modulation is required. |
| Available LoRaWan Band | EU863-870, US902-928, AU915-928, KR920-923,<br>AS923-1, AS923-2, AS923-3, IN865-867, CN470-510<br>Note: configured before shipment |

# Physical Properties

## Main Unit

| | |
|---|---|
| Dimensions | L: 115.57mm x W:60mm x H: 54.19mm |
| Ambient Operating Temperature | -20℃ to +55℃ |
| Ambient Storage Temperature | -40℃ to +85℃ |
| Ambient Humidity | <90%RH (no condensation) |
| Installation | Standard: (1) screws + bracket (2) screws (3) double-sided tape<br>Optional: (1) magnet (2) DIN rail buckle (3) swivel bracket<br>Prepared by customers: (1) cable tie |

## Temperature Sensor

| | |
|---|---|
| Cable Length | 1m |

## Digital Output

| | |
|---|---|
| Cable Length | 1m |