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Netvox R900A01O1 Wireless Temperature and Humidity Sensor

Product Specifications

- **Model:** R900A01O1
- **Type:** Wireless Temperature and Humidity Sensor
- **Output:** 1 x Digital Output

Product Usage Instructions

Introduction
R900A01O1 is a wireless temperature and humidity sensor with a digital output. It transmits digital signals to a third-party device when temperature or humidity exceeds the thresholds. With up to 7 flexible installation options, R900A01O1 integrates easily into various environments. In addition, with support for the Netvox NFC app, users can easily configure settings, update firmware, and access data simply by tapping their smartphone to the device.

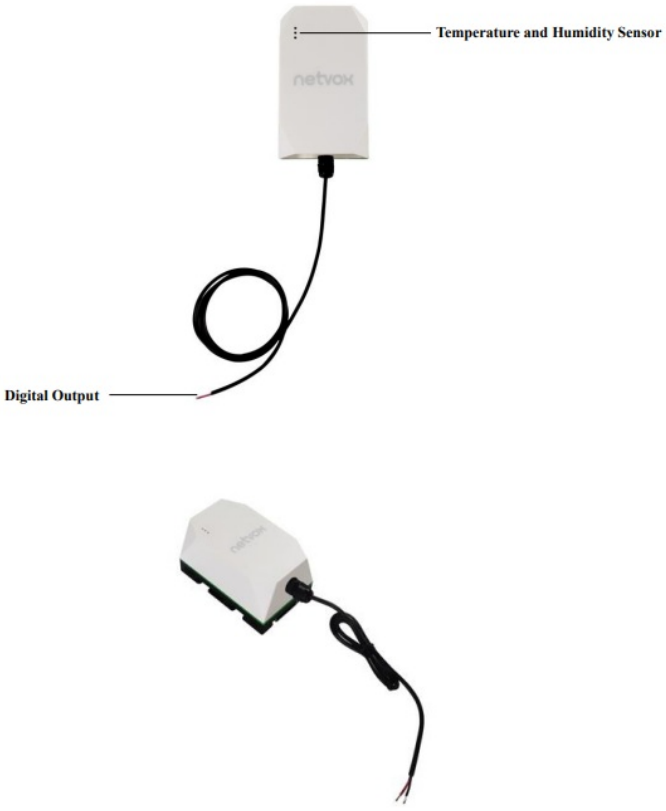
LoRa Wireless Technology
LoRa is a wireless communication technology famous for its long-distance transmission and low power consumption. Compared with other communication methods, LoRa's

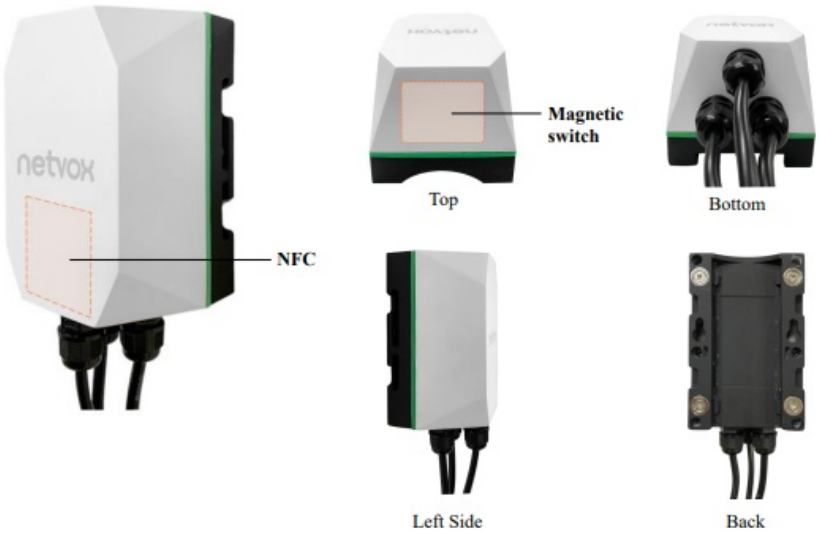
spread spectrum modulation technique greatly extends the communication distance. It can be widely used in any case that requires long-distance and low-data wireless communications. For example, automatic meter reading, building automation equipment, wireless security systems, and industrial monitoring. It has features like small size, low power consumption, long transmission distance, strong anti-interference ability, and so on.

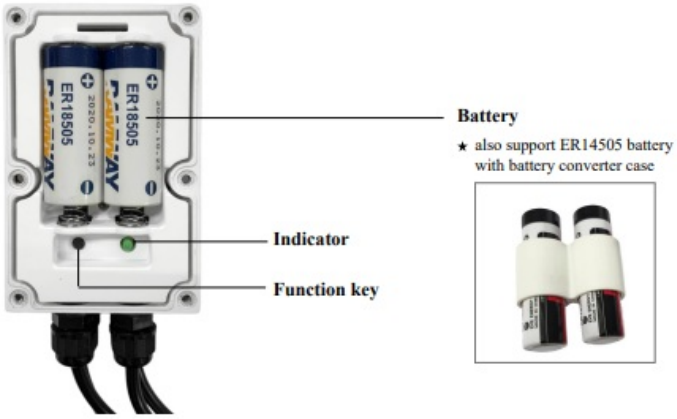
LoRaWAN

LoRaWAN uses LoRa technology to define end-to-end standard specifications to ensure interoperability between devices and gateways from different manufacturers.

Appearance







Features

- Powered by 2* 3.6V ER18505 batteries (also support ER14505 batteries with battery converter case)
- Support magnetic switch to turn on/off and factory reset the device
- Up to 7 installation methods for different kinds of scenarios
- Output a digital signal based on the threshold of temperature and humidity
- Report when the device disconnects from the network
- Support NFC. Configure and upgrade firmware on the Netvox NFC app
- Store up to 10000 data points
- LoRaWANTM 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/electriccalc.html for battery life and calculation.

Setup Instructions

On / Off

Power on	Insert 2* ER18505 batteries or 2* ER14505 batteries with the battery converter case.
Power off	Remove the batteries.

Function key

Turn on	Press and hold the function key for 3 seconds until the green indicator flashes once.
Turn off	Step 1. Press and hold the function key for 5 seconds until th e green indicator flashes once. Step 2. Release the function key and short press it in 5 seconds. Step 3. The green indicator flashes 5 times. R900 turns off.
Factory reset	Step 1. Press and hold the function key for 10 seconds. The green indicator flashes once every 5 seconds. Step 2. Release the function key and short-press it in 5 seco nds. Step 3. The green indicator flashes 20 times. R900 is factory reset and off.

Magnetic switch

Turn on	Hold a magnet near R900 for 3 seconds until the green indic ator flashes once.
Turn off	Step 1. Hold a magnet close to R900 for 5 seconds. The gre en indicator flashes once. Step 2. Remove the magnet and g et close to R900 in 5 seconds. Step 3. The green indicator flashes 5 times. R900 turns off.
Factory reset	Step 1. Hold a magnet close to R900 for 10 seconds. The gr een indicator flashes once every 5 seconds. Step 2. Remove the magnet and get close to R900 in 5 seco nds. Step 3. The green indicator flashes 20 times. R900 is factory reset and off.

Note:

- Remove and insert the battery; the device is off by default.
- 5 seconds after powering on, the device will be in engineering test mode.
- The on/off interval should be about 10 seconds to avoid the interference of capacitor inductance and other energy storage components.
- After the batteries are removed, the device can still operate for a while until the power supplied by the supercapacitor runs out.

Join a Network

First time joining the network	Turn on the device to search the network. The green indicator stays on for 5 seconds: Success. The green indicator remains off: Fail.
Had joined the network before (Device is not factory reset.)	Turn on the device to search the network. The green indicator stays on for 5 seconds: Success.s. The green indicator remains off: Fail.
Fail to join the network	(1) Please turn off the device and remove the batteries to save power. (2) Please check the device verification information on the gateway or consult your platform server provider.

Function key	
Short: The device	It is in the network. The green indicator flashes once. 6 seconds after sampling is completed, the device reports a data packet. The device is not on the network. The green indicator remains off.
Note: The function key does not work during sampling.	
Magnetic switch	

Move the magnet close to the switch and remove it	The device is in the network The green indicator flashes once. 6 seconds after sampling is completed, the device reports a data packet. The device is not on the network. The green indicator remains off.
Sleep Mode	
The device is on and in the network.	Sleeping period: Min Interval. When the reportchange exceeds the setting value or the state changes: send a data report based on the Min Interval.
Low Voltage Alarm	
Low voltage	3.2V

Data Report

35 seconds after the device is powered on, it will send a version packet and data, including battery power, temperature, and humidity.

Default setting

- Min Interval = 0x0384 (900s)
- Max Interval = 0x0384 (900s) // should not be less than 30 seconds
  TemperatureChange = 0x0064 (1°C)
- HumidityChange 0x0064 (1%)

Note:

- If no configuration is done, the device sends data based on the default settings.
- Please refer to the Netvox LoRaWAN Application Command document and Netvox LoRa Command Resolver http://www.netvox.com.cn:8888/cmddoc to resolve uplink data.

Data report configuration and sending period are as follows:

Min Interval (unit: second)	Max Interval (unit: second)	Reportable Change	Current Change ≥ Reportable Change	Current Change Reportable Change
Any number between 30 to 65535	Any number between Min time to 65535	Cannot be 0	Report per Min Interval	Report per Max Interval

Example of ReportDataCmd

FPort: 0x16

Bytes	1	2	1	Var (length according to the payload)
	Version	DeviceType	ReportType	NetvoxPayLoadData

- Version – 1 bytes – 0x03——the Version of NetvoxLoRaWAN Application Command Version
- DeviceType – 2 bytes – Device Type of Device
  - The device type is listed in Netvox LoRaWAN Application Device Type V3.0.doc.
- ReportType – 1 byte –the presentation of the NetvoxPayLoadData, according to the device type
- NetvoxPayLoadData – Var bytes (length according to the payload)

Tips

1. **Battery Voltage**
   - The voltage value is bit 0 – bit 6, bit 7=0 is normal voltage, and bit 7=1 is low voltage.
   - Battery=0xA0, binary= 1010 0000, if bit 7= 1, it means low voltage.
   - The actual voltage is 0010 0000 = 0x20 = 32, 32*0.1v =3.2v.
2. **Version Packet**
   - When Report Type = 0x00 is the version packet, such as 030111000A0120250424, the firmware version is 2025.04.24.
3. **Data Packet**
   - When Report Type=0x01 is the data packet.
4. **Signed Value**

   When the temperature is negative, 2's complement should be calculated.

Device	Device Type	Report Type	NeyvoxPayLoadData				
R900A01O1	0x0111	0x01	Battery (1 Byte, unit: 0.1V)	Temperature (Signed 2 Bytes, unit: 0.01°C)	Humidity (2 Bytes, unit: 0.01%)	ThresholdAlarm (1 Byte) Bit0_LowTemperatureAlarm, Bit1_HighTemperatureAlarm, Bit2_LowHumidityAlarm, Bit3_HighHumidityAlarm, Bit4-7: Reserved	ShockTamperAlarm (1 Byte) 0x00_NoAlarm, 0x01_Alarm

Example of Uplink: 03011101240DAC19640000

- 1st Byte (03): Version
- 2nd 3rd Byte (0111): DeviceType R900A01O1
- 4th (01): ReportType
- 5th Byte (24): Battery 3.6V 24 (Hex) = 36 (Dec), 36* 0.1v = 3.6V
- 6th – 7th Byte (0DAC): Temperature 35°C 0DAC (Hex) = 3500 (Dec), 3500* 0.01°C = 35°C 8th –9th Byte (1964): Humidity 65% 1964 (Hex) = 6500 (Dec), 6500* 0.01°% = 65%
- 10th Byte (00): ThresholdAlarm no alarm
- 11th Byte (00): ShockTamperAlarm no alarm

Example of ConfigureCmd

FPort: 0x17

Bytes	1	2	Var (length according to the payload)
	CmdID	DeviceType	NetvoxPayLoadData

- CmdID – 1 byte
- DeviceType – 2 bytes – Device Type of Device

The device type is listed in Netvox LoRaWAN Application 3.0.doc

- NetvoxPayLoadData– var bytes Var bytes (length according to the payload)

Description	Device	Cmd ID	Device Type	NetvoxPayLoadData			
ConfigReport				MinTime	MaxTime	TemperatureChange	HumidityChange

Req		0x01		(2 Bytes, unit: s)	(2 Bytes, unit: s)	(2 Bytes, unit: 0.01°C)	(2 Bytes, unit: 0.01%)
ConfigReport Rsp		0x81		Status (0x00_success)			
ReadConfigR							
eportReq		0x02 ReadConfigReportRsp					
sp		0x82		MinTime (2 Bytes, unit: s)	MaxTime (2 Bytes, unit: s)	Temperature Change (2 Bytes, unit: 0.01°C)	HumidityChange (2 Bytes, unit: 0.01%)

SetShock Sens							
orSensitivityR		0x 03		ShockSensorSensitivity (1 Byte)			
eq							
SetShock Sens							
orSensitivityR		0x 83		Status (0x00_success)			
sp	R900 A 01O1		0x01 11				
GetShock Sen							
sorSensitivity		0x 04					
Req							
GetShock Sen							
sorSensitivity		0x 84		ShockSensorSensitivity (1 Byte)			
Rsp							
						BindAlarmSource	
						(1 Byte)	

				DigitalOutPutType		Bit0_LowTemperature	
ConfigDigital OutPutReq		0x05		(1 Byte) 0x00_NormallyLow Level 0x01_NormallyHigh Level	OutPulseTime (1 Byte, unit: s)	Alarm Bit1_HighTemperature Alarm Bit2_LowHumidityAla rm Bit3_HighHumidityAla	Channel (1 Byte) 0x00_Channel1 0x01_Channle2
						rm	
						Bit4-7: Reserved	

ConfigDigital OutPutRsp		0x85		Status (0x00_success)
Read ConfigDigital OutputReq		0x06		Channel (1Byte) 0x00_Channel1 0x01_Channle2

Read ConfigDigitalOutputRsp		0x86	DigitalOutputType (1 Byte) 0x00_NormallyLow Level 0x01_Normally High Level	OutPulseTime (1 Byte, unit: s)	BindAlarmSource (1 Byte) Bit0_LowTemperature Alarm Bit1_HighTemperature Alarm Bit2_LowHumidityAlarm, Bit3_HighHumidityAlarm, Bit4-7: Reserved	Channel (1 Byte) 0x00_Channel1 0x01_Channle2
TriggerDigital OutPutReq		0x07	OutPulseTime (1 Byte, unit: s)		Channel (1Byte) 0x00_Channel1 0x01_Channle2	

TriggerDigital OutPutRsp		0x87		Status (0x00_success)

1. **Configure device parameters**
    - MinTime = 0x003C (60s), MaxTime = 0x003C (60s),
    - TemperatureChange = 0x012C (3°C), HumidityChange = 0x01F4 (5%)
    - Downlink: 010111003C003C012C01F4
    - Response: 81011100 (configuration success) 81011101 (configuration fail)
2. **Read device parameters**
    - Downlink: 020111
    - Response: 820111003C003C012C01F4
3. **Configure ShockSensorSensitivity = 0x14 (20)**
    - Downlink: 03011114
    - Response: 83011100 (configuration success) 83011101 (configuration fail)
    - Note: ShockSensorSensitivity range = 0x01 to 0x14 0xFF (disables vibration sensor)
4. **Read ShockSensorSensitivity**
    - Downlink: 040111
    - Response: 84011114 (device's current parameters)
5. **Configure DigitalOutputType = 0x00 (NormallyLowLevel),**
    - OutPulseTime = 0xFF (disable pulse duration),
    - BindAlarmSource = 0x01 = 0000 0001 (BIN) Bit0_LowTemperatureAlarm = 1
    - (When LowTemperatureAlarm is triggered, DO outputs signals) Channel = 0x00_Channel1
    - Downlink: 05011100FF0100
    - Response: 85011100 (configuration success)85011101 (configuration fail)
6. **Read DO parameters**
    - Downlink: 06011100
    - Response: 86011100FF0100
    - Configure OutPulseTime = 0x03 (3 seconds) Downlink: 0701110300
    - Response: 87011100 (configuration success)87011101 (configuration fail)

Example of SetSensorAlarmThresholdCmd

FPort: 0x10

CmdDescriptor	Cmd ID (1 Byte)	Payload (10 Bytes)			
SetSensorAlarmThresholdReq	0x01	Channel (1 Byte) 0x00_Channel1, 0x01_Channel2, 0x02_Channel3, etc.	SensorType (1 Byte) 0x00_Disable ALL 0x01_Temperature 0x02_Humidity	SensorHighThreshold (4 Bytes) unit: Temperature – 0.01°C Humidity – 0.01%	SensorLowThreshold (4 Bytes) unit: Temperature – 0.01°C Humidity – 0.01 %
SetSensorAlarmThresholdRsp	0x81	Status (0x00_success)	Reserved (9 Bytes, Fixed 0x00)		

GetSensorAlarmThresholdReq	0x02	Channel (1 Byte) 0x00_Channel1, 0x01_Channel2, 0x02_Channel3, etc.	SensorType (1 Byte) 0x00_Disable ALL 0x01_Temperature 0x02_Humidity	Reserved (8 Bytes, Fixed 0x00)	
GetSensorAlarmThresholdRsp	0x82	Channel (1Byte) 0x00_Channel1, 0x01_Chanel2, 0x02_Channel3, etc.	SensorType (1 Byte) 0x00_Disable ALL 0x01_Temperature 0x02_Humidity	SensorHighThreshold (4 Bytes) unit: Temperature – 0.01°C Humidity – 0.01%	SensorLowThreshold (4 Bytes) unit: Temperature – 0.01°C Humidity – 0.01 %

Note:

- Temperature Channel: 0x00; SensorType: 0x01
  - Humidity Channel: 0x01; SensorType: 0x02
- Set SensorHigh/LowThreshold as 0xFFFFFFFF to disable the threshold.
- The last configuration will be saved when the device is reset to factory settings.

Configure parameters

- Channel = 0x00, SensorType = 0x01 (Temperature),
- SensorHighThreshold = 0x00001388 (50°C), SensorLowThreshold = 0x000003E8 (10°C)
- Downlink: 0100010000138800003E8
- Response: 810000000000000000000 (configuration success)

810100000000000000000 (configuration fail)

Read parameters

- Downlink: 0200010000000000000000
- Response: 8200010000138800000 3E8 (device’s current parameters)

Configure parameters

- Channel = 0x00, SensorType = 0x02 (Humidity),
- SensorHighThreshold = 0x00001388 (50%), SensorLowThreshold = 0x000007D0 (20%)
- Downlink: 0100010000138800000 7D0
- Response: 810000000000000000000 (configuration success)
  810100000000000000000 (configuration fail)

Read parameters

- Downlink: 0200010000000000000000
- Response: 8200010000138800000 7D0 (device’s current parameters)

Example of GlobalCalibrateCmd

Fport: 0x0E

Description	Cmd ID	SensorType	PayLoad (Fix =9 Bytes)

SetGlobalCalibrate Req	0x01		Channel (1 Byte) 0_Channel 1 1_Channel 2, etc.	Multiplier (2 Bytes, Unsigned)	Divisor (2 Bytes, Unsigned)	DeltValue (2 Bytes, Signed)	Reserved (2 Bytes, Fixed 0x00)
SetGlobalCalibrate Rsp	0x81		Channel (1 Byte) 0_Channel 1 1_Channel 2, etc.	Status (1 Byte) 0x00_success)	Reserved (7 Bytes, Fixed 0x00)		
GetGlobalCalibrate Req	0x02	0x01_Temperature Sensor	Channel (1 Byte) 0_Channel 1 1_Channel 2, etc.	Reserved (8 Bytes, Fixed 0x00)			
GetGlobalCalibrate Rsp	0x82	0x02_Humidity Sensor	Channel (1 Byte) 0_Channel 1 1_Channel 2, etc.	Multiplier (2 Bytes, Unsigned)	Divisor (2 Bytes, Unsigned)	DeltValue (2 Bytes, Signed)	Reserved (2 Bytes, Fixed 0x00)

1. **SetGlobalCalibrateReq**
    - Calibrate the temperature sensor by increasing 10°C

- Channel: 0x00 (channel1); Multiplier: 0x0001 (1); Divisor: 0x0001 (1); DeltValue: 0x03E8 (1000)
- Downlink: 01010000010000003E80000
- Response: 8101000000000000000000 (configuration success) 8101000100000000000000 (configuration fail)

2. **Read parameters**
    - Downlink: 0201000000000000000000
    - Response: 8201000001000003E80000 (configuration success)
3. **Clear all the calibration**
    - Downlink: 0300000000000000000000
    - Response: 8300000000000000000000

Example of NetvoxLoRaWANRejoin

Fport:0x20

Check if the device is connected to the network during RejoinCheckPeriod. If the device does not respond within the RejoinThreshold, it will be rejoied back to the network automatically.

CmdDescriptor	CmdID (1 Byte)	Payload (5 Bytes)	
SetNetvoxLoRaWA NRejoinReq	0x01	RejoinCheckPeriod (4 Bytes, unit: 1s) 0x FFFFFFFF_DisableNetvoxRejoinFunction	RejoinThreshold (1 Byte)

SetNetvoxLoRaWA NRejoinRsp	0x81	Status (1 Byte) 0x00_success	Reserved (4 Bytes, Fixed 0x00)					
GetNetvoxLoRaWA NRejoinReq	0x02	Reserved (5 Bytes, Fixed 0x00)						
GetNetvoxLoRaWA NRejoinRsp	0x82	RejoinCheckPeriod (4 Bytes, unit: 1s) 0x FFFFFFFF_DisableNetvoxRejoinFunction					RejoinThreshold (1 Byte)	
		1st Rejoin	2nd Rejoin	3rd Rejoin	4th Rejoin	5th Rejoin	6th Rejoin	7th Rejoin
SetNetvoxLoRaWA NRejoinTimeReq	0x03	Time (2 Bytes, unit: 1 min)	Time (2 Bytes, unit: 1 min)	Time (2 Bytes, unit: 1 min)	Time (2 Bytes, unit: 1 min)	Time (2 Bytes, unit: 1 min)	Time (2 Bytes, unit: 1 min)	Time (2 Bytes, unit: 1 min)
SetNetvoxLoRaWA NRejoinTimeRsp	0x83	Status (1 Byte) 0x00_success	Reserved (13 Bytes, Fixed 0x00)					
GetNetvoxLoRaWA NRejoinTimeReq	0x04	Reserved (15 Bytes, Fixed 0x00)						

		1st Rejoin	2nd Rejoin	3rd Rejoin	4th Rejoin	5th Rejoin	6th Rejoin	7th Rejoin
GetNetvoxLoRaWA NRejoinTimeRsp	0x84	Time (2 Bytes, unit: 1 min)	Time (2 Bytes, unit: 1 min)	Time (2 Bytes, unit: 1 min)	Time (2 Bytes, unit: 1 min)	Time (2 Bytes, unit: 1 min)	Time (2 Bytes, unit: 1 min)	Time (2 Bytes, unit: 1 min)

Note:

1. Set RejoinCheckThreshold as 0xFFFFFFFF to stop the device from rejoining the
2. The last configuration would be kept when the device is factory reset
3. Default setting:

RejoinCheckPeriod = 2 (hr) and RejoinThreshold = 3 (times)

- 1st Rejoin Time = 0x0001 (1 min),
- 2nd Rejoin Time = 0x0002 (2 mins),
- 3rd Rejoin Time = 0x0003 (3 mins),
- 4th Rejoin Time = 0x0004 (4 mins),
- 5th Rejoin Time = 0x003C (60 mins),
- 6th Rejoin Time = 0x0168 (360 mins),
- 7th Rejoin Time = 0x05A0 (1440 mins)

If the device loses connection from the network before the data is reported, the data will be saved and reported every 30 seconds after the device is reconnected. Data will be reported based on the format of Payload + Unix timestamp. After all the data is reported, the report time will return to normal

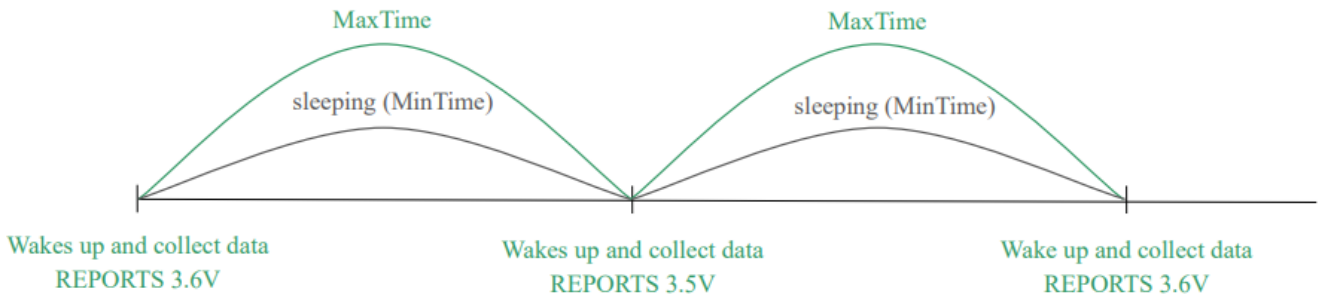
1. **C.ommand Configuration**
    - Set RejoinCheckPeriod = 0x00000E10 (3600s), RejoinThreshold = 0x03 (3 times)

- Downlink: 0100000E1003
- Response: 810000000000 (Configuration success) 810100000000 (Configuration failure)

2. Read RejoinCheckPeriod and RejoinThreshold
    - Downlink: 020000000000
    - Response: 8200000E1003
3. **Configure Rejoin Time**
    - 1st Rejoin Time = 0x0001 (1 min),
    - 2nd Rejoin Time = 0x0002 (2 mins),
    - 3rd Rejoin Time = 0x0003 (3 mins),
    - 4th Rejoin Time = 0x0004 (4 mins),
    - 5th Rejoin Time = 0x0005 (5 mins),
    - 6th Rejoin Time = 0x0006 (6 mins),
    - 7th Rejoin Time = 0x0007 (7 mins)
    - Downlink: 0300010002000300040005000600 07
    - Response: 830000000000000000000000000000 (Configuration success) 830100000000000000000000000000 (Configuration failure)
4. **Read the join Time parameter**
    - Downlink: 040000000000000000000000000000
    - Response: 840001000200030004000500060007

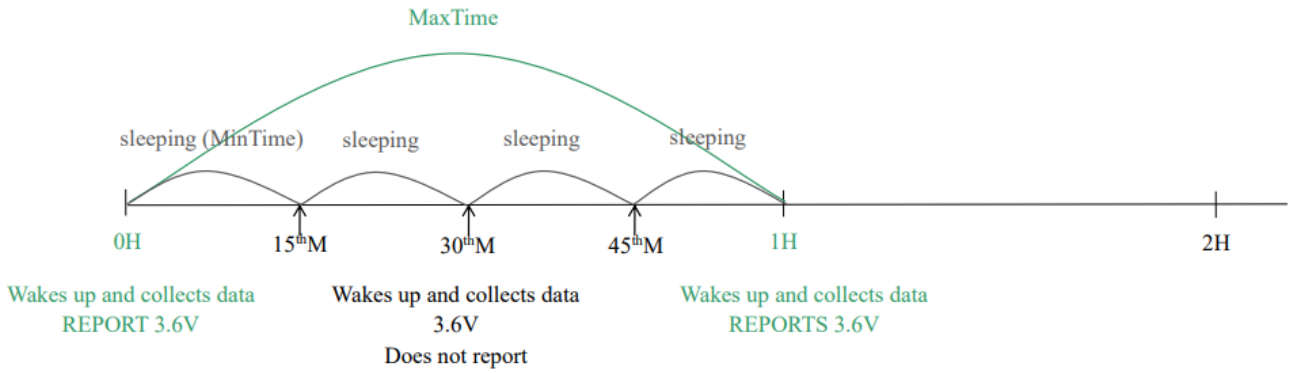
Example for MinTime/MaxTime logic

- **Example#1** based on MinTime = 1 hour, MaxTime = 1 hour, Reportable Change i.e. BatteryVoltageChange = 0.1V

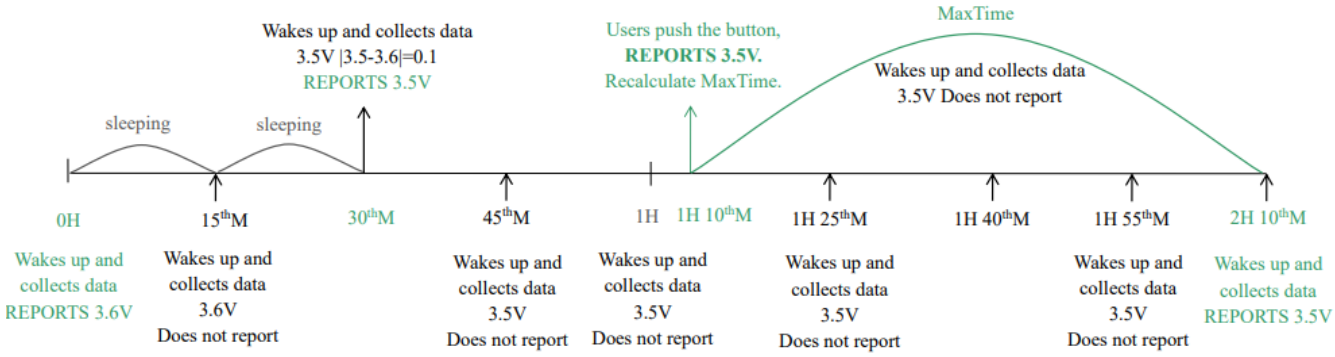


Note: MaxTime = MinTime. Data will only be reported according to the MaxTime (MinTime) duration regardless BatteryVoltageChange value.

- **Example#2** based on MinTime = 15 minutes, MaxTime = 1 hour, Reportable Change i.e. BatteryVoltageChange = 0.1V.



- **Example#3** based on MinTime = 15 minutes, MaxTime = 1 hour, Reportable Change i.e. BatteryVoltageChange = 0.1V.



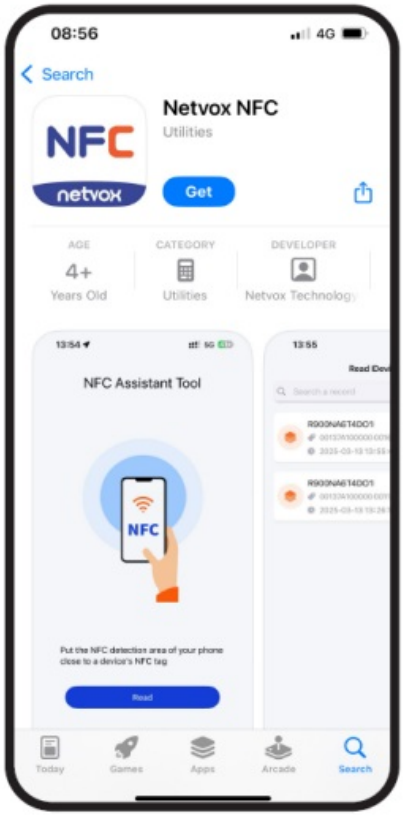
Notes:

- The device only wakes up and performs data sampling according to the MinTime Interval. When it is sleeping, it does not collect data.
- The data collected is compared with the last data reported. If the data variation is greater than the ReportableChange value, the device reports according to the MinTime interval. If the data variation is not greater than the last data reported, the device reports according to the MaxTime interval.
- We do not recommend setting the MinTime Interval value too low. If the MinTime Interval is too low, the device wakes up frequently and the battery will be drained soon.
- Whenever the device sends a report, no matter resulting from data variation, button pushed or MaxTime interval, another cycle of MinTime/MaxTime calculation is started.

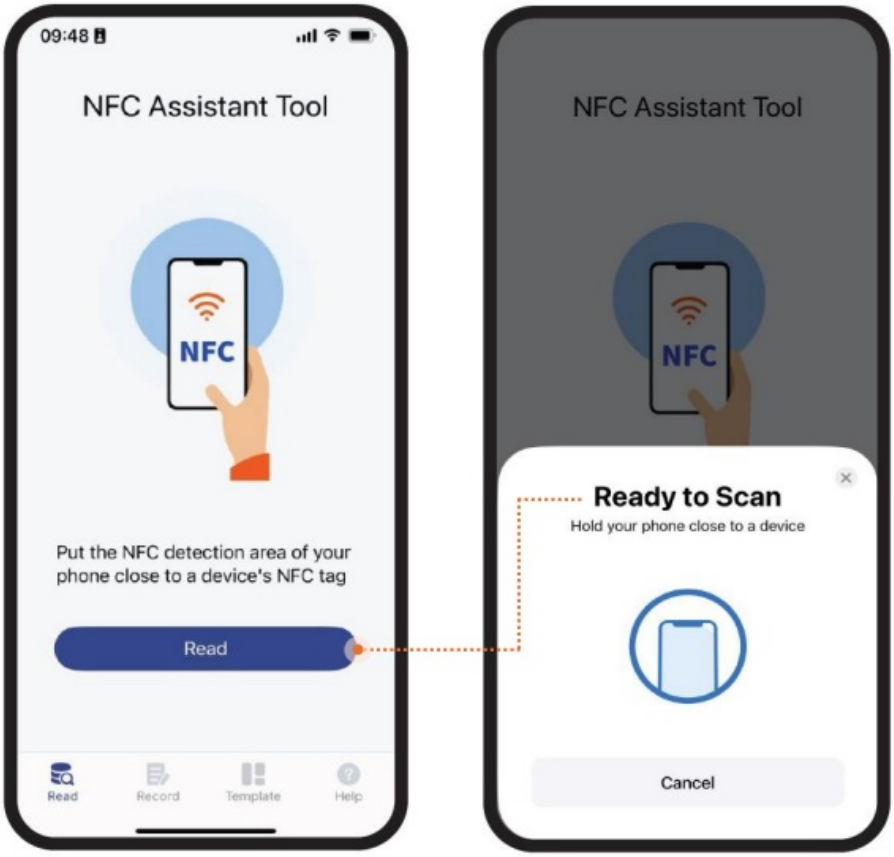
Read R900 Data on NFC App

- **Download Netvox NFC app.**

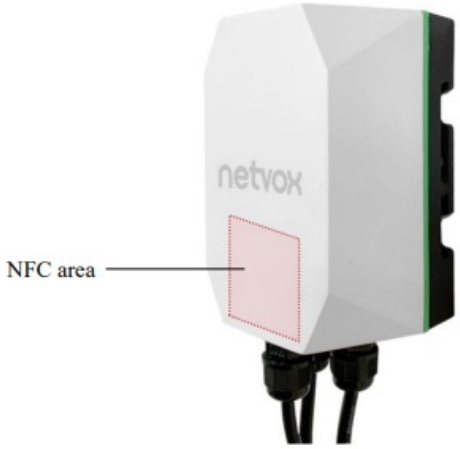
- Please make sure your phone supports NFC.



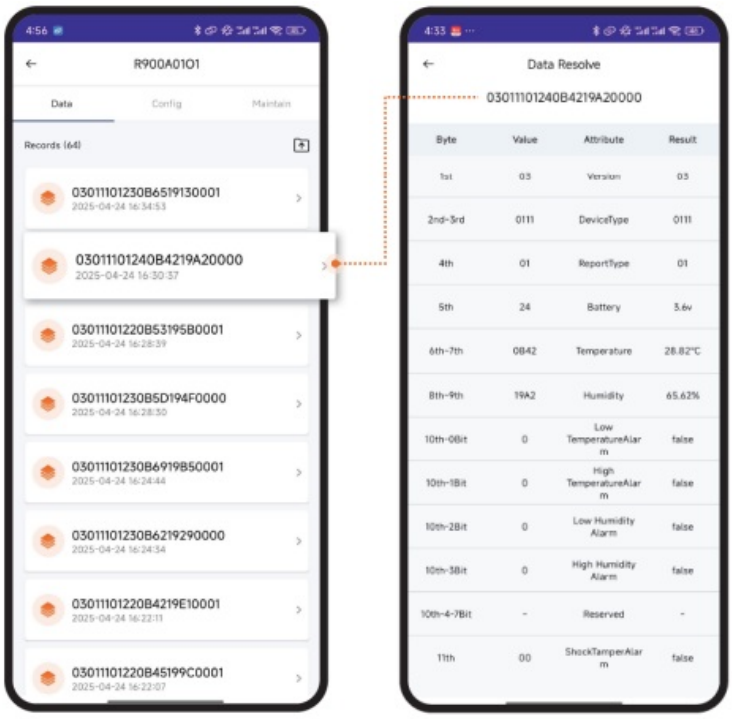
- Enable NFC in Settings and find your phone’s NFC area. Open the app and click Read.



- Hold your phone near R900’s NFC tag.



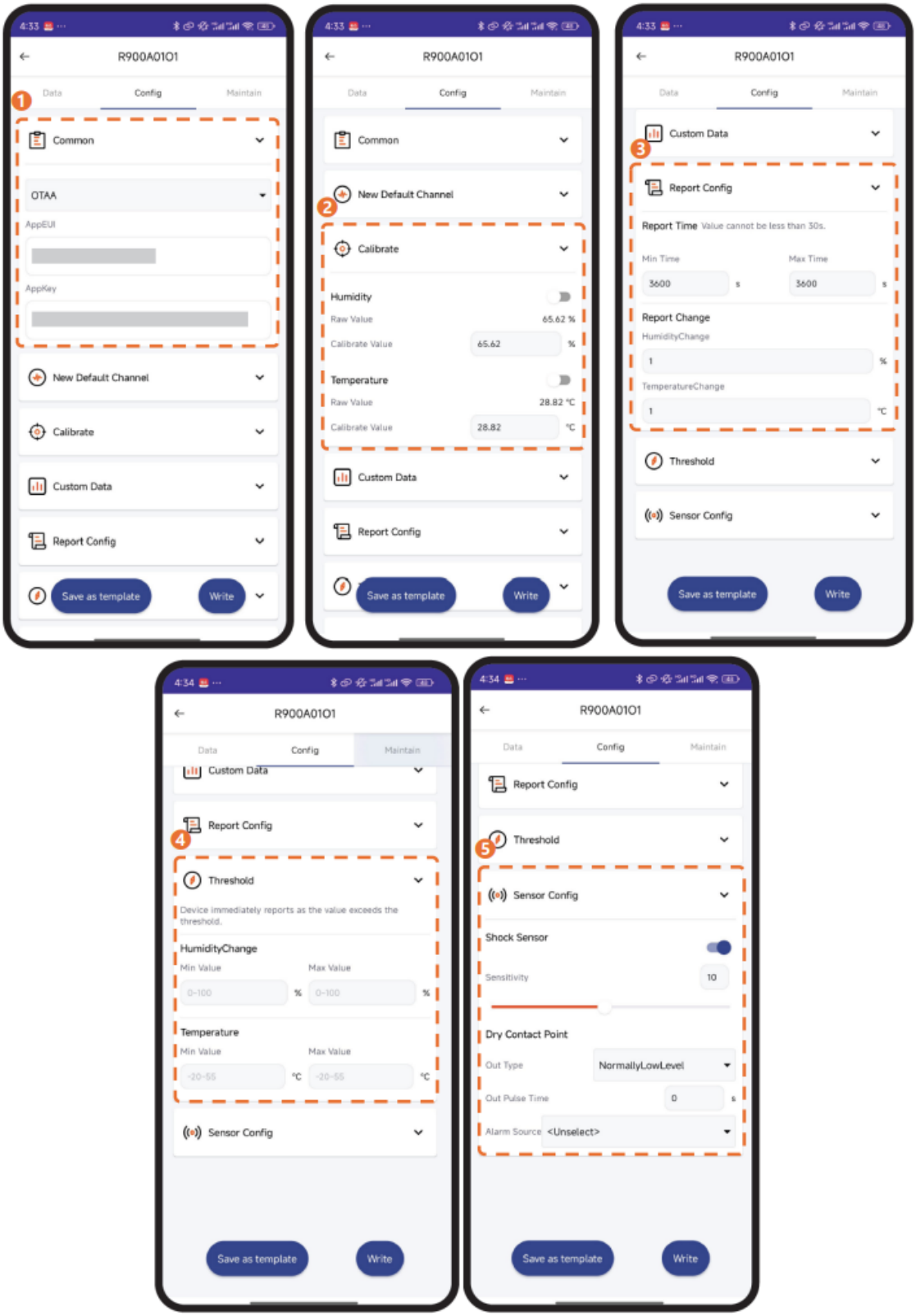
- After R900 is successfully read, the latest 10 data points will be displayed.
- Select a dataset and go to the Data processing.



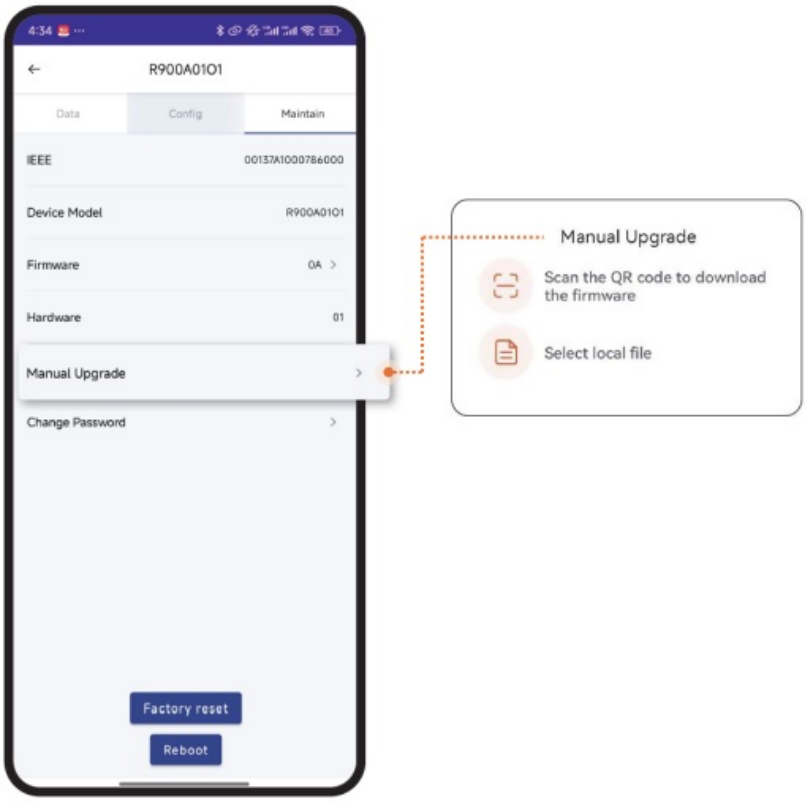
- Click Config to edit R900’s settings, including network connection, calibration, report configuration, threshold, and sensor parameters.

Note:

- To configure device parameters, users need to enter the password: 12345678 (default).
- The password can be changed on the app and reset to the default when R900 is factory reset.



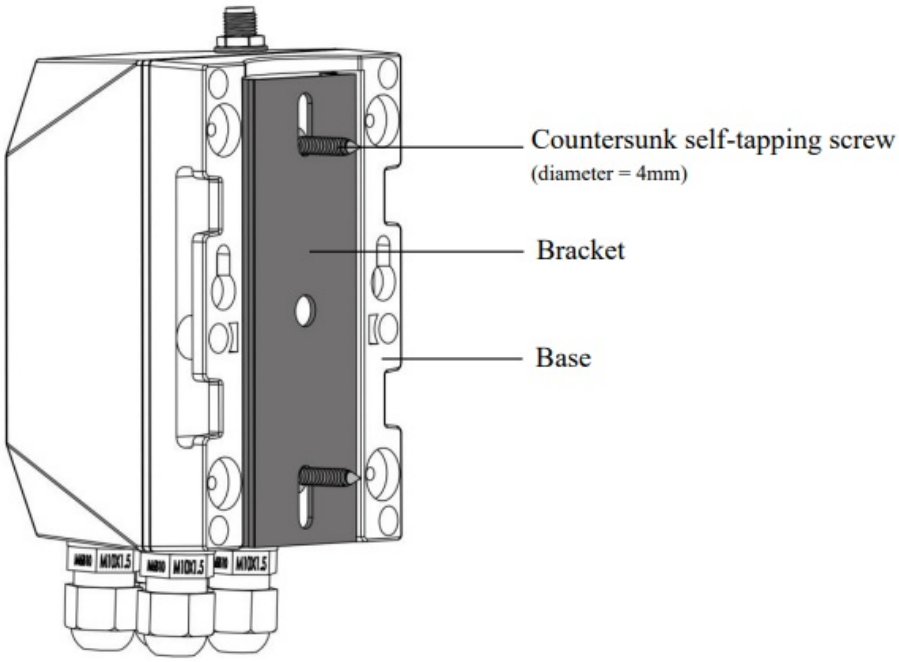
- Click Maintain to check R900A01O1's info and available upgrade.



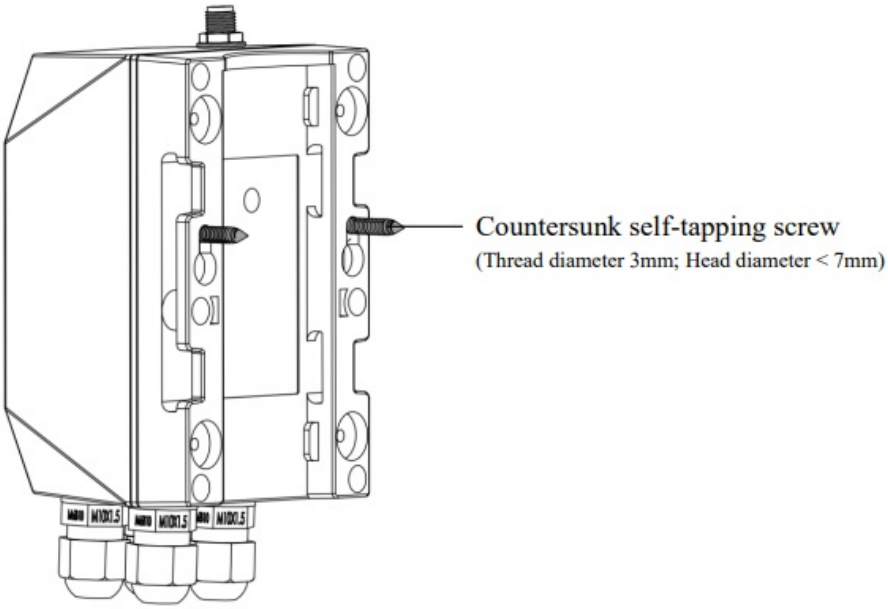
Installation

Standard

1. Screws + Bracket



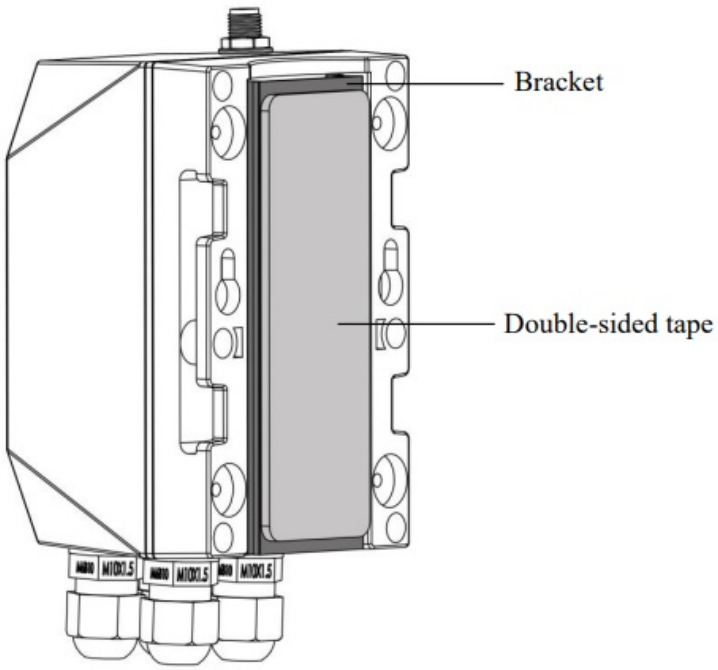
   1. Mount the bracket on a surface with 2 counter self-tapping screws.
   2. Hold R900 and slide down to connect the base and bracket.
2. **Screw**



1. Mount 2 countersunk self-tapping screws or expansion bolts on the wall. The distance between the two screws should be 48.5mm. The gap between the bottom of the screw head and the wall should be 3mm.
2. After the screws are mounted, align the holes of the base with the screws.
3. Move R900 down to clamp it.

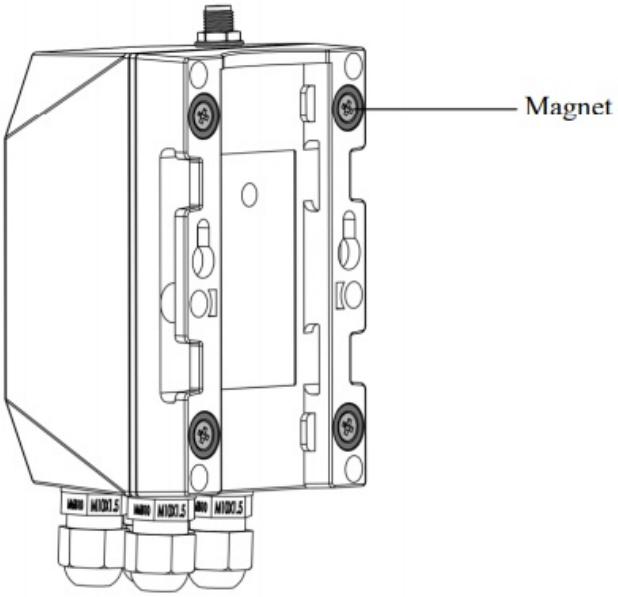
3. **Double-Sided Tape**
    1. Stick the double-sided tape on the bracket.
    2. Peel the liner and fix R900 on the surface.
    3. Press to ensure R900 is firmly installed.

       Note: Please make sure the surface is clean and dry before applying double-sided tape.

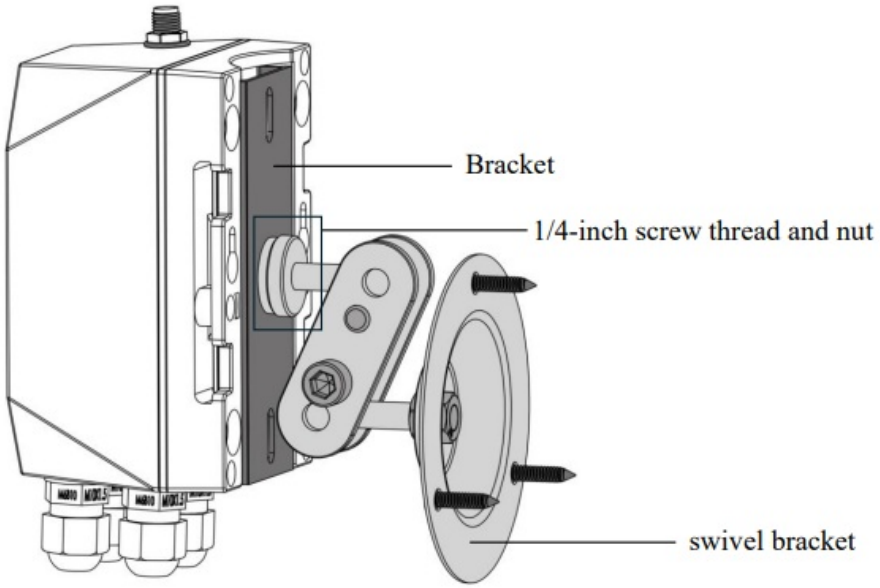


Optional

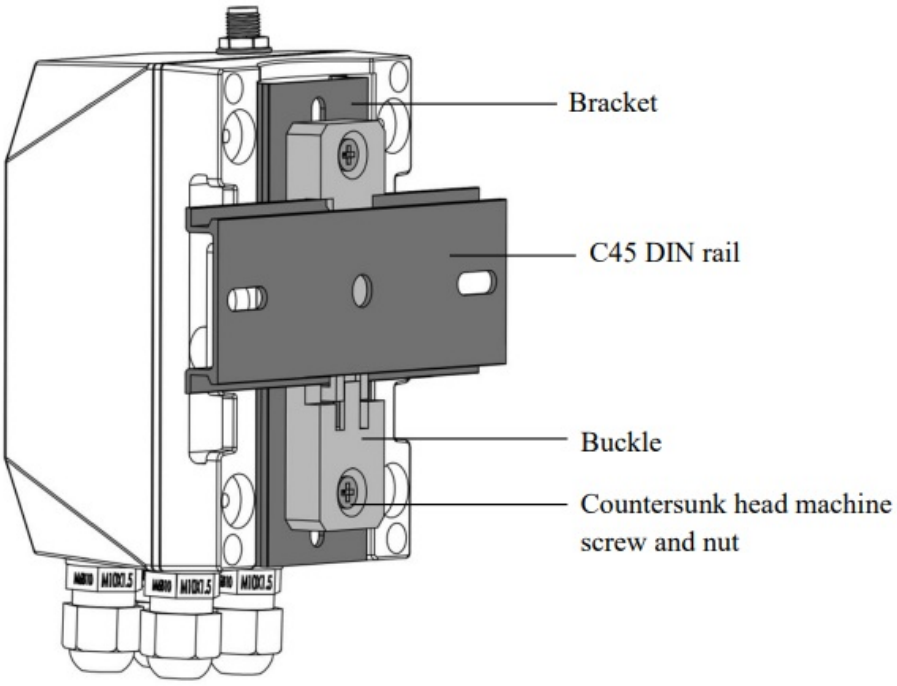
1. Magnet
    1. Fix the R900 on a metal surface.



2. **Swivel Bracket**
    1. Insert a 1/4-inch screw thread into the hole of the bracket.
    2. Tighten the thread with a nut.
    3. Mount the swivel bracket with self-tapping screws and expansion bolts.
    4. Hold R900 and slide down to connect the base and bracket.

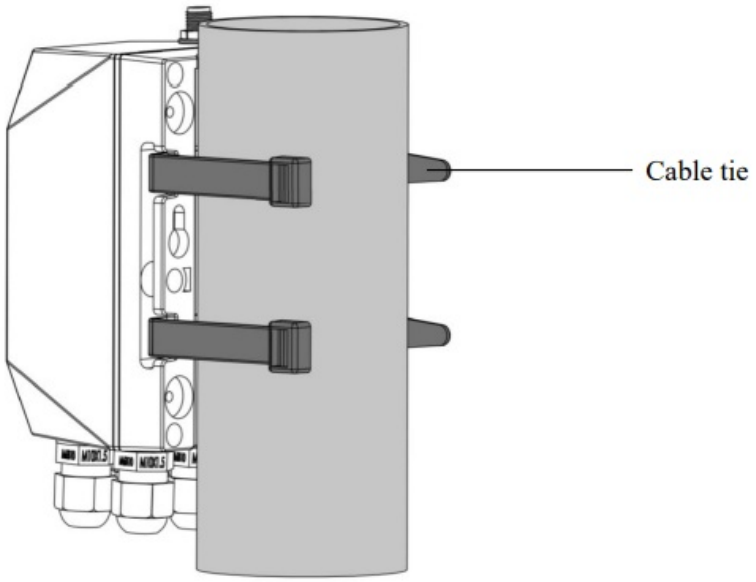


3. **DIN Rail**
    1. Mount the rail buckle onto R900’s bracket with countersunk head machine screws and nuts.
    2. Snap the buckle onto the DIN rail.
    3. Hold R900 and slide down to connect the base and bracket.



Prepared by customers

1. **Cable Tie**
    1. Insert cable ties through the holes of the base.
    2. Insert the pointed end through the slot.
    3. Tighten the cable ties and make sure R900 is fixed firmly around a column.



Battery Passivation

- Many Netvox devices are powered by 3.6V ER14505 / ER18505 Li-SOCl2 (lithium-thionyl chloride) batteries that offer many advantages including low self-discharge rate and high energy density. However, primary lithium batteries like Li-SOCl2 batteries will

form a passivation layer as a reaction between the lithium anode and thionyl chloride if they are in storage for a long time or if the storage temperature is too high.
- This lithium chloride layer prevents rapid self-discharge caused by continuous reactions between lithium and thionyl chloride, but battery passivation may also lead to voltage delay when the batteries are put into operation, and our devices may not work correctly in this situation.
- As a result, please make sure to purchase batteries from reliable vendors, and it is suggested that if the storage period is more than one month from the date of battery production, all the batteries should be activated. If encountering the situation of battery passivation, please activate the battery with a 68Ω load resistance for 1 minute to eliminate hysteresis in batteries.

Maintenance Instructions

Kindly pay attention to the following to achieve the best maintenance of the product:

- Keep the device dry. Rain, moisture, or any liquid might contain minerals and thus corrode electronic circuits. If the device gets wet, please dry it completely.
- Do not use or store the device in a dusty or dirty environment. It might damage its detachable parts and electronic components.
- Do not store the device under extremely hot conditions. High temperatures can shorten the life of electronic devices, destroy batteries, and deform or melt some plastic parts.
- Do not store the device in places that are too cold. Otherwise, when the temperature rises, the moisture that forms inside the device will damage the board.
- Do not throw, knock, or shake the device. Rough handling of equipment can destroy internal circuit boards and delicate structures.
- Do not clean the device with strong chemicals, detergents, or solvents.
- Do not apply the device with paint. Smudges might block the device and affect its operation.
- Do not throw the battery into the fire, or the battery will explode. Damaged batteries may also explode.

All of the above applies to your device, battery, and accessories. If any device is not operating properly, please take it to the nearest authorised service facility for repair.

Frequently Asked Questions

Q: How can I check the battery life of the sensor?

A: Battery life is determined by the sensor reporting frequency and other variables. You can visit http://www.netvox.com.tw/electric/electric_calc.html for battery life and calculation details.

Q: What platforms are compatible with the Temperature and Humidity Sensor?

A: The sensor applies to third-party platforms such as Actility/ThingPark, TTN, and MyDevices/Cayenne.

Documents / Resources

 Wireless Temperature and Humidity Sensor with 1 x Digital Output R900A01O1 User Manual	Netvox R900A01O1 Wireless Temperature and Humidity Sensor [pdf] User Manual R900A01O1, R900A01O1 Wireless Temperature and Humidity Sensor, R900A01O1, Wireless Temperature and Humidity Sensor, Temperature and Humidity Sensor, Humidity Sensor, Sensor

References

- User Manual

netvox

Humidity Sensor, netvox, R900A01O1, R900A01O1 Wireless Temperature and Humidity Sensor, Sensor, Temperature and Humidity Sensor, Wireless Temperature and Humidity Sensor

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