Wireless 1-Gang Water pH / ORP / Temperature Sensor

with 1 x Digital Output

R900PD05AO1 User Manual

Contents

1. Introduction

R900PD05AO1 is a wireless water pH and ORP sensor with a digital output. It transmits digital signals to a third-party device when a value exceeds the threshold. With up to 7 flexible installation options, R900PD05AO1 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.

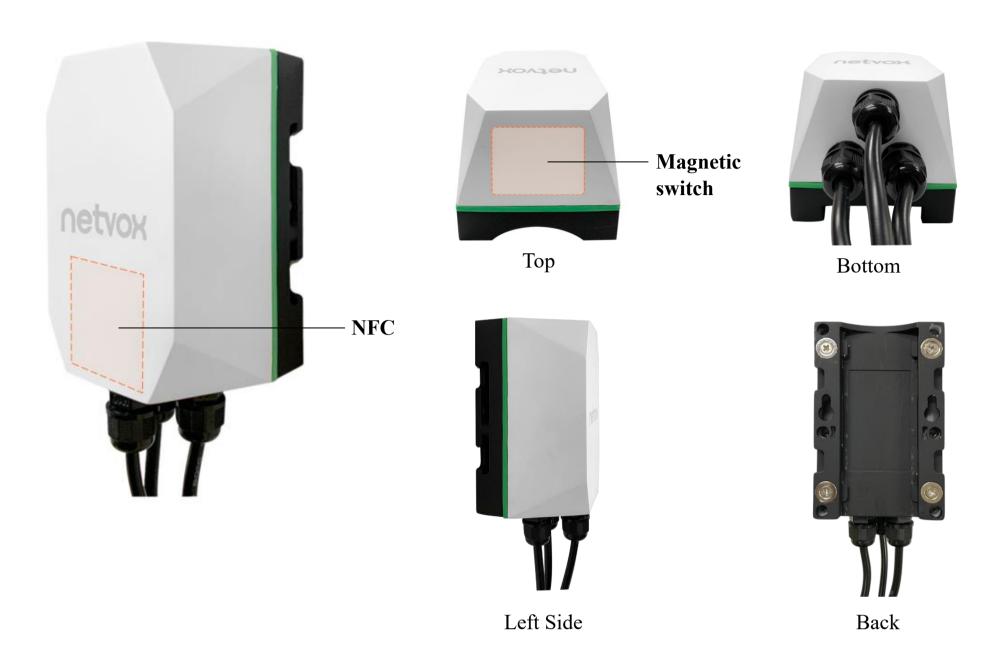**LoRa Wireless Technology**

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

2. Appearance

Digital Output

ORP Sensor

PH Sensor

netvox

NFC

Magnetic
switch

Top

Bottom

Left Side

Back

3. Features

- Main unit: IP65
- Detect water pH, ORP, and temperature
- Built-in vibration sensor for tamper alarm
- Output digital signals when a value exceeds the threshold
- Up to 7 installation methods for different kinds of scenarios
- Support NFC. Configure and upgrade firmware on Netvox NFC app
- Store up to 10000 data
- LoRaWAN^{TM} Class C 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

4. Setup Instructions

On / Off

Turn on	Plug in the DC12V power adapter. The green indicator flashes one time.
Turn off	Unplug the power adapter.

Function key

Reboot	Step 1. Press and hold the function key for 5 seconds. The 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.
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 seconds. Step 3. The green indicator flashes 20 times. R900 is factory reset and off.

Magnetic switch

Reboot	Step 1. Hold a magnet close to R900 for 5 seconds. The green indicator flashes once. Step 2. Remove the magnet and get close to R900 in 5 seconds. Step 3. The green indicator flashes 5 times.
Factory reset	Step 1. Hold a magnet close to R900 for 10 seconds. The green indicator flashes once every 5 seconds. Step 2. Remove the magnet and get close to R900 in 5 seconds. Step 3. The green indicator flashes 20 times. R900 is factory reset and reboot.

Note: 5 seconds after powering on, the device will be in engineering test mode.

Join a Network

First time joining the network	Turn on the device to search the network. The green indicator stays on: 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: Success The green indicator remains off: Fail
Fail to join the network	Please check the device verification information on the gateway or consult your platform server provider.

Function key

Short press	Device is in the network The green indicator flashes once. After sampling is completed, the device reports a data packet. Device is not in the network The green indicator remains off.

Magnetic switch

Move magnet close to the switch and remove it	Device is in the network The green indicator flashes once. After sampling is completed, the device reports a data packet. Device is not in the network The green indicator remains off.

5. Data Report

35 seconds after the device is powered on, it will send a version packet and data including water pH, water quality ORP, and water temperature.

Default setting:

    Min Interval = 0x0384 (900s) // should not be less than 30 seconds

    Max Interval = 0x0384 (900s)

    pH = 0x0064 (1 pH)

    Water quality ORP, = 0x0064 (100mv)

    Temperature = 0x01F4 (5°C)

Note: a. If no configuration is done, the device sends data based on the default settings.

      b. Please refer to 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

5.1 Example of Report Data Cmd

FPort: 0x16

Bytes	1	2	1	Var (length based on the payload)
	Version	Device Type	Report Type	Netvox PayLoad Data

Version – 1 bytes – 0x03——the Version of Netvox LoRaWAN Application Command Version

Device Type – 2 bytes – Device Type of Device

        The device type is listed in Netvox LoRaWAN Application Device type V3.0.doc

Report Type – 1 byte – the presentation of the Netvox PayLoad Data, according to the device type

Netvox PayLoad Data – Var bytes (length based on the payload)

Tips

1. Battery Voltage

If the battery is equal to 0x00, it means that the device is powered by a DC power supply.

2. Version Packet

When Report Type = 0x00 is the version packet, such as 030126000A0220250724, the firmware version is 2025.07.24.

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	Netvox PayLoad Data				
R900P D05A O1	0x0126	0x01	PH (2 Bytes) 0.01pH	Temperature with PH (Signed 2 Bytes) unit: 0.01°C	ORP (2 Bytes) unit: 1mv	0 Bit: Low PH Alarm 1 Bit: High PH Alarm 2 Bit: Low Temp With PH Alarm 3 Bit: High Temp With PH Alarm 4 Bit: Low ORP Alarm 5 Bit: High ORP Alarm 6~7 Bit: Reserved 0_false 1_true	Shock Tamper Alarm (1 Byte) 0x00_No Alarm 0x01_Alarm

Example of Uplink: **0301260103370A82009B02(00000010)01**

1st Byte (03): Version

2nd 3rd Byte (0126): Device Type－ R900PD05AO1

4th (01): Report Type

5th – 6th Byte (0337): pH – 8.23   0337 (Hex) = 823 (Dec), 823* 0.01 = 8.23 pH

7th – 8th Byte (0A82): Temperature with PH – 26.90°C   0A82 (Hex) = 2690 (Dec), 2690* 0.01* °C = 26.90°C

9th – 10th Byte (009B): ORP – 155mv   009B (Hex) = 155 (Dec), 155* 1mv = 155mv

11th – 0Bit (0): Low PH Alarm – 0 (HEX)= 2 (DEC), 2&01= 2

11th – 1Bit (1): High PH Alarm – 1 (HEX)= 2 (DEC), 2&02= 2

11th – 2Bit (0): Low Temp With PH Alarm – 0 (HEX)= 2 (DEC), 2&04= 2

11th – 3Bit (0): High Temp With PH Alarm – 0 (HEX)= 2 (DEC), 2&08= 2

11th – 4Bit (0): Low ORP Alarm – 0 (HEX)= 2 (DEC), 2&10= 2

11th – 5Bit (0): High ORP Alarm – 0 (HEX)= 2 (DEC), 2&20= 2

11th – 6~7Bit (-): Reserved

12th Byte (01): Shock Tamper Alarm

5.2 Example of Configure Cmd

Bytes	1	2	Var (length based on the payload)
	Cmd ID	Device Type	Netvox PayLoad Data

Cmd ID – 1 byte

Device Type – 2 bytes – Device Type of Device

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

Netvox Pay Load Data – Var bytes (length based on the payload)

Description	Device	Cmd ID	Device Type	Netvox PayLoad Data				
Config Report Req		0x01		Min Time (2 bytes Unit:s)	Max Time (2 bytes Unit:s)	PH Change (2Byte ,0.01pH)	Temperature Change (2Bytes,unit:0.01°C)	ORP Change (2Byte,1mv)
Config Report Rsp		0x81		Status (0x00_success)				
Read Config Report Req		0x02						
Read Config Report Rsp	R900PD05AO1	0x82	0x0126	Min Time (2bytes Unit:s)	Max Time (2bytes Unit:s)	PH Change (2Byte ,0.01pH)	Temperature Change (2Bytes,unit:0.01°C)	ORP Change (2Byte,1mv)
Set Shock Sensor Sensitivity Req		0x03		Shock Sensor Sensitivity (1Byte)				
Set Shock Sensor Sensitivity Rsp		0x83		Status (0x00_success)				
Get Shock Sensor Sensitivity Req		0x04						
Get Shock Sensor Sensitivity Rsp		0x84		Shock Sensor Sensitivity (1Byte)				

Config Digital OutPut Req	0x05	Digital OutPut Type (1Byte) 0x00_Normally Low Level, 0x01_Normally High Level	Out Pulse Time (1byte Unit:s)	Bind Alarm Source (1Byte) Bit0_Low PH Alarm, Bit1_High PH Alarm, Bit2_ Low Temp With PH Alarm, Bit3_ High Temp With PH Alarm, Bit4_ Low OPR Alarm, Bit5_High ORP Alarm, Bit6-7:Reserved	Channel (1Byte) 0x00_Channel 1 0x01_Channel 2
Config Digital OutPut Rsp	0x85	Status (0x00_success)			
Read Config Digital OutPut Req	0x06	Channel (1Byte) 0x00_Channel 1 0x01_Channel 2			
Read Config Digital OutPut Rsp	0x86	Digital OutPut Type (1Byte) 0x00_Normally Low Level 0x01_Normally High Level)	Out Pulse Time (1bytes Unit:s)	Bind Alarm Source (1Byte) Bit0_Low PH Alarm Bit1_High PH Alarm Bit2_ Low Temp With PH Alarm Bit3_ High Temp With PH Alarm Bit4_ Low ORP Alarm Bit5_High ORP Alarm Bit6-7:Reserved	Channel (1Byte) 0x00_Channel 1 0x01_Channel 2
Trigger Digital OutPut Req	0x07	Out Pulse Time (1byte Unit:s)		Channel (1Byte) 0x00_Channel 1 0x01_Channel 2	
Trigger Digital OutPut Rsp	0x87	Status(0x00_success)			

				Digital OutPut Type (1 Byte) 0x00_Normally Low Level 0x01_Normally High Level	Out Pulse Time (1 Byte, unit: s)	Bind Alarm Source (2 Bytes) Bit0_Low PH Alarm Bit1_High PH Alarm Bit2_Low NTU Alarm Bit3_High NTU Alarm Bit4_Low Residual Chlorine Alarm Bit5_High Residual Chlorine Alarm Bit6_Low Temp With PH Alarm Bit7_High Temp With PH Alarm Bit8_Low Temp With NTU Alarm Bit9_High Temp With NTU_Alarm Bit10-15: Reserved	Channel (1 Byte) 0x00_Channel 1 0x01_Channel 2
Config Digital OutPut Req		0x05					
Config Digital OutPut Rsp		0x85		Status (0x00_success)			
Read Config Digital OutPut Req		0x06		Channel (1Byte) 0x00_Channel 1 0x01_Channle 2			
Read Config Digital OutPut Rsp		0x86		Digital OutPut Type (1 Byte) 0x00_Normally Low Level 0x01_Normally High Level	Out Pulse Time (1 Byte, unit: s)	Bind Alarm Source (2 Bytes) Bit0_Low PH Alarm Bit1_High PH Alarm Bit2_Low NTU Alarm Bit3_High NTU Alarm Bit4_Low Residual Chlorine Alarm Bit5_High Residual Chlorine Alarm Bit6_Low Temp With PH Alarm Bit7_High Temp With PH Alarm Bit8_Low Temp With NTU Alarm Bit9_High Temp With NTU Alarm Bit10-15: Reserved	Channel (1 Byte) 0x00_Channel 1 0x01_Channel 2
Trigger Digital OutPut Req		0x07		Out Pulse Time (1 Byte, unit: s)		Channel (1Byte) 0x00_Channel 1 0x01_Channel 2	
Trigger Digital OutPut Rsp		0x87		Status (0x00_success)			

(1) Configure device parameters

   Min Time = 0x003C (60s), Max Time = 0x003C (60s)

   PH Change = 0x0064 (1), Temperature Change = 0x0064 (1°C) ,ORP Change = 0064 (100mv)

   Downlink: 010126003C003C006400640064

   Response: 81012600 (configuration success)

            81012601 (configuration fail)

(2) Read device parameters

   Downlink: 020126

   Response: 820126003C003C006400640064 (Current device parameters)

(3) Configure Shock Sensor Sensitivity = 0x14 (20)

   Downlink: 03012614

   Response: 83012600 (configuration success)

            83012601 (configuration fail)

   Note: Shock Sensor Sensitivity range = 0x01 to 0x14

                              0xFF (disables vibration sensor)

(4) Read Shock Sensor Sensitivity

   Downlink: 040126

   Response: 84012614 (Current device parameters)

(5) Configure Digital OutPut Type = 0x00 (Normally Low Level),

   OutPulse Time = 0xFF (disable pulse duration),

   Bind Alarm Source = 0x02= 0010 (BIN)

   Channel = 0x00_Channel 1

   Downlink: 05012600FF0200

   Response: 85012600 (configuration success)

            85012601 (configuration fail)

(6) Read DO parameters

   Downlink: 06012600

   Response: 86012600FF0200

(7) Configure OutPulse Time = 0x0A (10 seconds)

   Downlink: 0701260A00

   Response: 87012600 (configuration success)

5.3 Example of Set Sensor Alarm Threshold Cmd

FPort: 0x10

Cmd Descriptor	Cmd ID (1 Byte)	Payload (10 Bytes)			
Set Sensor Alarm Threshold Req	0x01	Channel (1 Byte) 0x00_Channel1, 0x01_Chanel2, 0x02_Channel3, etc.	Sensor Type (1Byte) 0x00_Disable ALL, 0x01_Temperature, 0x1A_ PH, 0x1B_ ORP	Sensor High Threshold (4 Bytes) unit: Temperature – 0.01°C pH – 0.01pH ORP – 1mv 0Xffffffff_DISABLE High Threshold	Sensor Low Threshold (4 Bytes) unit: Temperature – 0.01°C pH – 0.01pH ORP – 1mv 0Xffffffff_DISABLE Low Threshold
Set Sensor Alarm Threshold Rsp	0x81	Status (1 Byte) 0x00_success	Reserved (9 Bytes, Fixed 0x00)		
Get Sensor Alarm Threshold Req	0x02	Channel (1 Byte) 0x00_Channel1, 0x01_Chanel2, 0x02_Channel3, etc.	Sensor Type (1Byte) 0x00_Disable ALL, 0x01_Temperature, 0x1A_ PH, 0x1B_ ORP	Reserved (8 Bytes, Fixed 0x00)	
Get Sensor Alarm Threshold Rsp	0x82	Channel (1 Byte) 0x00_Channel1, 0x01_Chanel2, 0x02_Channel3, etc.	Sensor Type (1Byte) 0x00_Disable ALL, 0x01_Temperature, 0x1A_ PH, 0x1B_ ORP	Sensor High Threshold (4 Bytes) unit: Temperature – 0.01°C pH – 0.01pH ORP – 1mv 0Xffffffff_DISABLE High Threshold	Sensor Low Threshold (4 Bytes) unit: Temperature – 0.01°C pH – 0.01pH ORP – 1mv 0Xffffffff_DISABLE Low Threshold

Note: a. Set Sensor High/Low Threshold as 0xFFFFFFFF to disable threshold.

b. The last configuration will be saved when the device is reset to factory setting.

(1) Configure parameters

Channel = 0x00, Sensor Type = 0x1B (ORP),

Sensor High Threshold = 0x000000C8 (200mv), Sensor Low Threshold = 0x00000064 (100mv)

Downlink: 01 00 1B 000000C8 00000064

Response: 8100000000000000000000000

(2) Get Sensor Alarm Threshold Req

Downlink: 02001B0000000000000000

Response: 82001B000000C800000064 (Current device parameters)

(3) Clear all thresholds (Sensor Type = 0x00)

Downlink: 01000000000000000000000

Response: 8100000000000000000000000

13

5.4 Example of Global Calibrate Cmd

Description	Cmd ID	Sensor Type (1 Byte)	PayLoad (Fix = 9 Bytes)				
Set Global Calibrate Req	0x01		Channel (1 Byte) 0_Channel1 1_Channel2, etc.	Multiplier (2 Bytes, Unsigned)	Divisor (2 Bytes, Unsigned)	DeltValue (2 Bytes, Signed)	Reserved (2 Bytes, Fixed 0x00)
Set Global Calibrate Rsp	0x81	0x01_Temperature Sensor 0x13_PH Sensor 0x1B_ORP Sensor	Channel (1 Byte) 0_Channel1 1_Channel2, etc.	Status (1 Byte) 0x00_success)	Reserved (7 Bytes, Fixed 0x00)		
Get Global Calibrate Req	0x02		Channel (1 Byte) 0_Channel1 1_Channel2, etc.	Reserved (8 Bytes, Fixed 0x00)			
Get Global Calibrate Rsp	0x82		Channel (1 Byte) 0_Channel1 1_Channel2, etc.	Multiplier (2 Bytes, Unsigned)	Divisor (2 Bytes, Unsigned)	DeltValue (2 Bytes, Signed)	Reserved (2 Bytes, Fixed 0x00)
Clear Global Calibrate Req	0x03	Reserved (10 Bytes, Fixed 0x00)					
Clear Global Calibrate Rsp	0x83	Status (1 Byte, 0x00_success)	Reserved (9 Bytes, Fixed 0x00)				

0x01_Temperature Sensor; channel = 0x01

0x13_PH Sensor; channel = 0x00

0x1B_ORP Sensor; channel=0x02

(1) Set Global Calibrate Req

　　Calibrate ORP Sensor by increasing 100mv

　　Channel: 0x02 (channel 2); Multiplier: 0x0001 (1); Divisor: 0x0001 (1); Delt Value: 0x0064 (100)

　　Downlink: 011B020001000000640000

　　Response: 811B020000000000000000 (configuration success)

　　　　　　811B020100000000000000 (configuration fail)

(2) Get Global Calibrate Req: Read parameters

Downlink: 021B020000000000000000

Response: 821B020001000000640000 (Current device parameters)

(3) Clear Global Calibrate Req

Downlink: 030000000000000000000000

Response: 830000000000000000000000

5.5 Example of Netvox LoRaWAN Rejoin

Fport:0x20

Check if the device is connected to the network during Rejoin Check Period. If the device does not respond within the Rejoin Threshold, it will be rejoined back to the network automatically.

Cmd Descriptor	Cmd ID (1 Byte)	Payload (Var Bytes)						
Set Netvox LoRaWAN Rejoin Req	0x01	Rejoin Check Period (4 Bytes, unit: 1s) 0x FFFFFFFF_Disable Netvox Rejoin Function					Rejoin Threshold (1 Byte)	
Set Netvox LoRaWAN Rejoin Rsp	0x81	Status (1 Byte) 0x00_success		Reserved (4 Bytes, Fixed 0x00)				
Get Netvox LoRaWAN Rejoin Req	0x02	Reserved (5 Bytes, Fixed 0x00)						
Get Netvox LoRaWAN Rejoin Rsp	0x82	Rejoin Check Period (4 Bytes, unit: 1s) 0x FFFFFFFF_Disable Netvox Rejoin Function					Rejoin Threshold (1 Byte)	
Set Netvox LoRaWAN Rejoin Time Req	0x03	1st Rejoin Time (2 Bytes, unit:1 min)	2nd Rejoin Time (2 Bytes, unit: 1 min)	3rd Rejoin Time (2 Bytes, unit: 1 min)	4th Rejoin Time (2 Bytes, unit: 1 min)	5th Rejoin Time (2 Bytes, unit: 1 min)	6th Rejoin Time (2 Bytes, unit: 1 min)	7th Rejoin Time (2 Bytes, unit: 1 min)
Set Netvox LoRaWAN Rejoin Time Rsp	0x83	Status (1 Byte) 0x00_success		Reserved (13 Bytes, Fixed 0x00)				
Get Netvox LoRaWAN Rejoin Time Req	0x04	Reserved (15 Bytes, Fixed 0x00)						
Get Netvox LoRaWAN Rejoin Time Rsp	0x84	1st Rejoin Time (2 Bytes, unit:1 min)	2nd Rejoin Time (2 Bytes, unit: 1 min)	3rd Rejoin Time (2 Bytes, unit: 1 min)	4th Rejoin Time (2 Bytes, unit: 1 min)	5th Rejoin Time (2 Bytes, unit: 1 min)	6th Rejoin Time (2 Bytes, unit: 1 min)	7th Rejoin Time (2 Bytes, unit: 1 min)

Note:

a. Set Rejoin Check Threshold as 0xFFFFFFFF to stop the device from rejoining the network.

b. The last configuration would be kept when the device is factory reset.

c. Default setting:

Rejoin Check Period = 2 (hr) and Rejoin Threshold = 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)

d. If device loses connection from network before data are 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 data are reported, the report time will be back to the normal setting.

(1) Command Configuration

Set Rejoin Check Period = 0x00000E10 (3600s), Rejoin Threshold = 0x03 (3 times)

Downlink: 01<u>00000E1003</u>

Response: 810000000000 (Configuration success)

810100000000 (Configuration failure)

(2) Read Rejoin Check Period and Rejoin Threshold

Downlink: 020000000000

Response: 8200000E1003 (Current device parameters)

(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: 03<u>0001000200030004000500060007</u>

Response: 8300000000000000000000000000000 (Configuration success)

8301000000000000000000000000000 (Configuration failure)

(4) Read Rejoin Time parameter

Downlink: 0400000000000000000000000000000
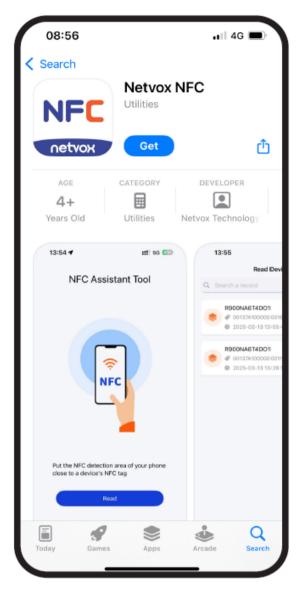
Response: 84000100020003000400050006007 (Current device parameters)
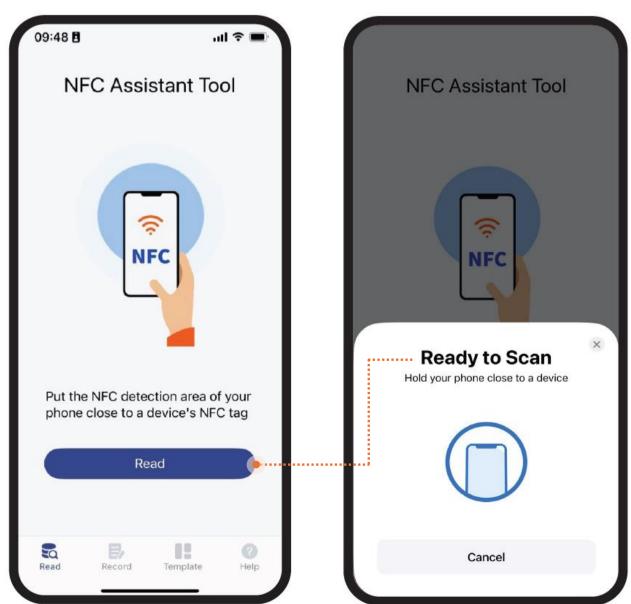
6. Read R900 Data on NFC App

(1) Download Netvox NFC app.

Please make sure your phone supports NFC.

(2) Enable NFC in Settings and find your phone's NFC area.
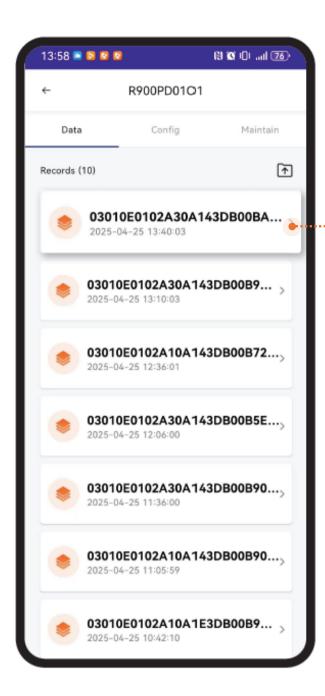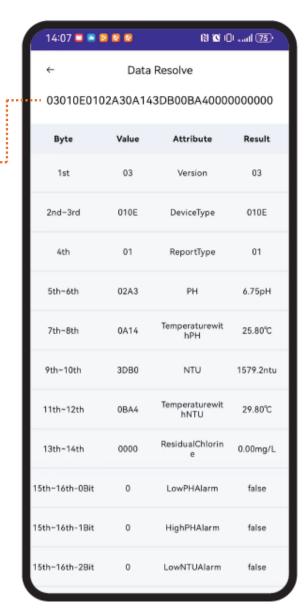
Open the app and click Read.
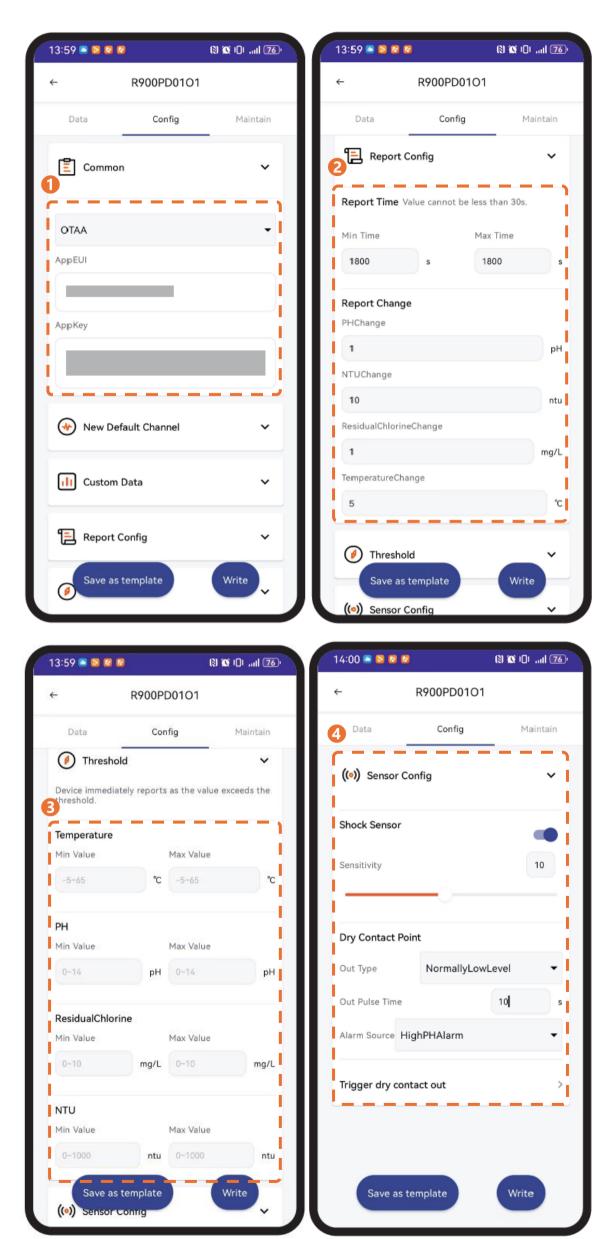
(3) Hold your phone near R900's NFC tag.

NFC area

(4) After R900 is successfully read, the latest 10 data will be displayed.

Select a data and go to the Data processing.

Screen 1: R900PD01O1

← R900PD01O1

| Data | Config | Maintain |

Records (10)

🔶	**03010E0102A30A143DB00BA...** 2025-04-25 13:40:03	>
🔶	**03010E0102A30A143DB00B9...** 2025-04-25 13:10:03	>
🔶	**03010E0102A10A143DB00B72...** 2025-04-25 12:36:01	>
🔶	**03010E0102A30A143DB00B5E...** 2025-04-25 12:06:00	>
🔶	**03010E0102A30A143DB00B90...** 2025-04-25 11:36:00	>
🔶	**03010E0102A10A143DB00B90...** 2025-04-25 11:05:59	>
🔶	**03010E0102A10A1E3DB00B9...** 2025-04-25 10:42:10	>

Screen 2: Data Resolve

14:07

← Data Resolve

03010E0102A30A143DB00BA40000000000

Byte	Value	Attribute	Result
1st	03	Version	03
2nd~3rd	010E	DeviceType	010E
4th	01	ReportType	01
5th~6th	02A3	PH	6.75pH
7th~8th	0A14	TemperaturewithPH	25.80℃
9th~10th	3DB0	NTU	1579.2ntu
11th~12th	0BA4	TemperaturewithNTU	29.80℃
13th~14th	0000	ResidualChlorine	0.00mg/L
15th~16th-0Bit	0	LowPHAlarm	false
15th~16th-1Bit	0	HighPHAlarm	false
15th~16th-2Bit	0	LowNTUAlarm	false

Screen 3: Data Resolve

14:08

← Data Resolve

03010E0102A30A143DB00BA40000000000

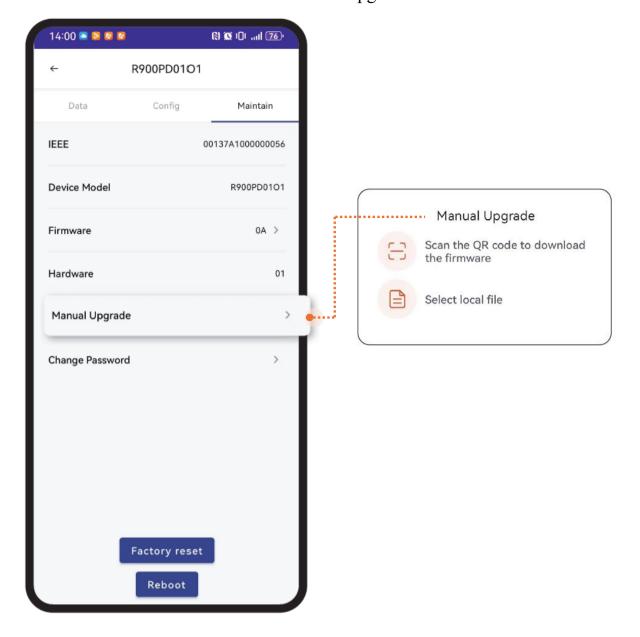| Byte	Value	Attribute	Result
15th~16th-1Bit	0	HighPHAlarm	false
15th~16th-2Bit	0	LowNTUAlarm	false
15th~16th-3Bit	0	HighNTUAlarm	false
15th~16th-4Bit	0	LowResidualChlorineAlarm	false
15th~16th-5Bit	0	HighResidualChlorineAlarm	false
15th~16th-6Bit	0	LowTempWithPHAlarm	false
15th~16th-7Bit	0	HighTempWithPHAlarm	false
15th~16th-8Bit	0	LowTempWithNTUAlarm	false
15th~16th-9Bit	0	HighTempWithNTUAlarm	false
15th~16th-10-15Bit	-	Reserved	-
17th	00	ShockTamperAlarm	false

(5) Click Config to edit R900's settings, including network connection, report configuration, threshold, and sensor parameters.

Note:　　a. To configure device parameters, users need to enter password: 12345678 (default).

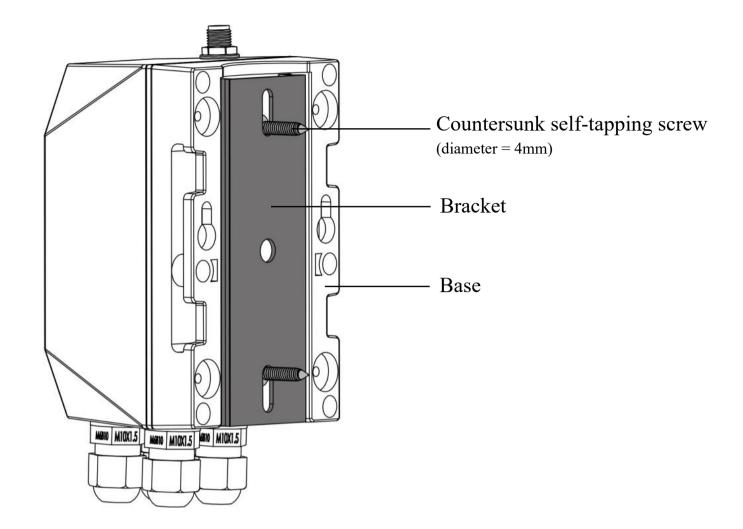　　　　b. Password can be changed on the app and reset to default when R900 is factory reset.

(6) Click Maintain to check R900PD05AO1's info and available upgrade.
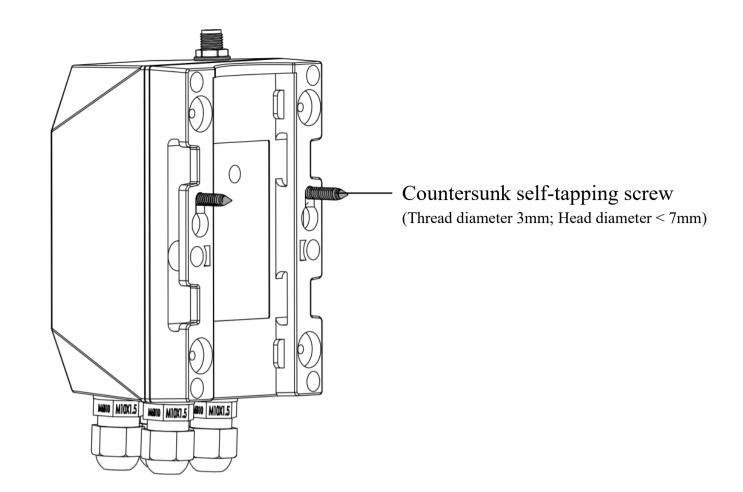
7. Installation

R900

- Standard

(1) Screws + Bracket

Countersunk self-tapping screw
(diameter = 4mm)

Bracket

Base

❶ Mount the bracket on a surface with 2 counter self-tapping screws.

❷ Hold R900 and slide down to connect the base and bracket.

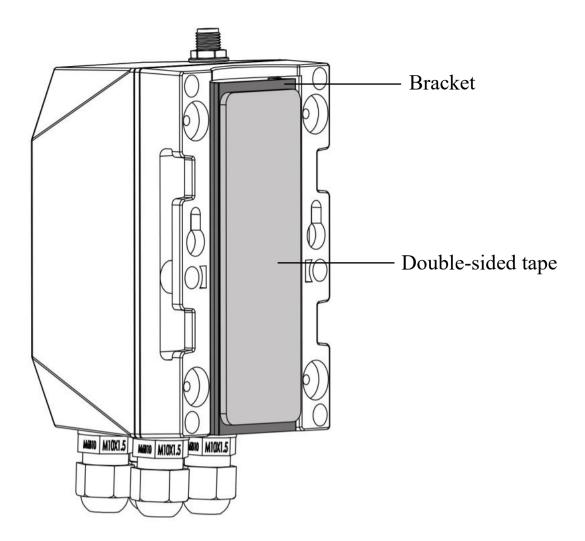(2) Screws

Countersunk self-tapping screw
(Thread diameter 3mm; Head diameter < 7mm)

❶ 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.

❷ After the screws are mounted, align the holes of the base with the screws.
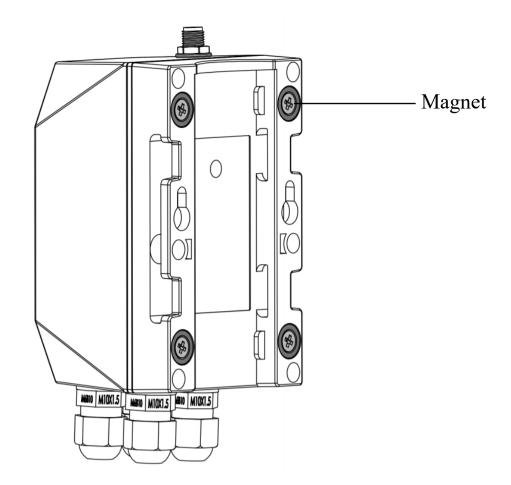
❸ Move R900 down to clamp it.

(3) Double-Sided Tape

Bracket

Double-sided tape

❶ Stick the double-sided tape on the bracket.

❷ Peel the liner and fix R900 on the surface.
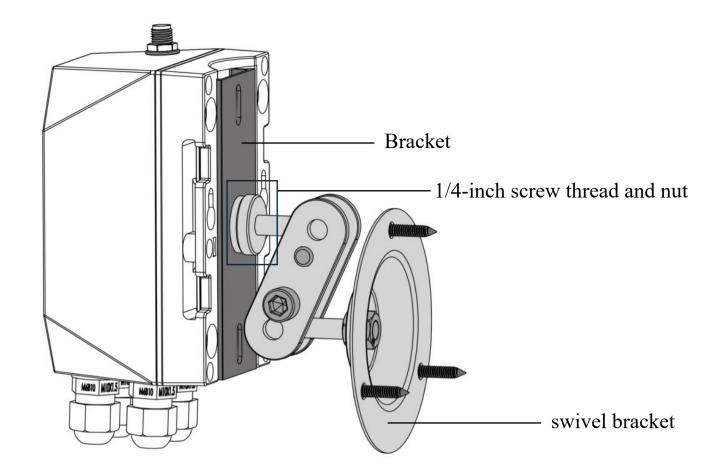
❸ Press to ensure R900 is firmly installed.

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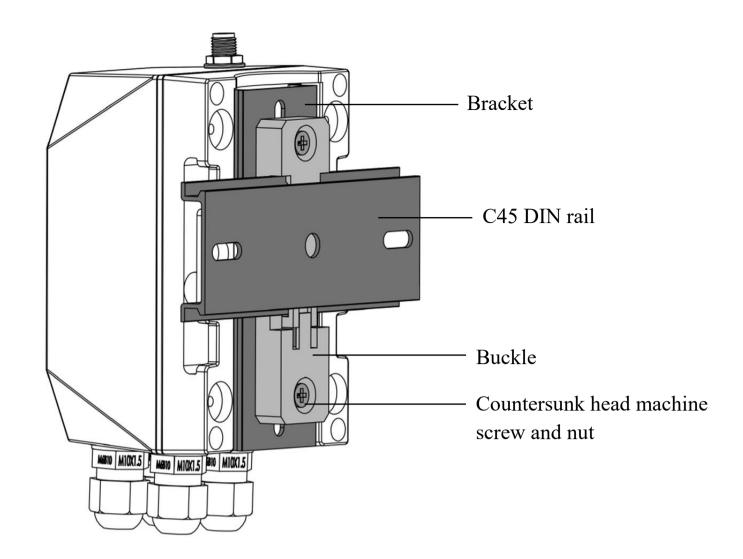
● Optional

(1) Magnet

Magnet

❶ Fix the R900 on a metal surface.

(2) Swivel Bracket

Bracket

1/4-inch screw thread and nut

swivel bracket

❶ Insert a 1/4-inch screw thread into the hole of the bracket.

❷ Tighten the thread with a nut.

❸ Mount the swivel bracket with self-tapping screws and expansion bolts.

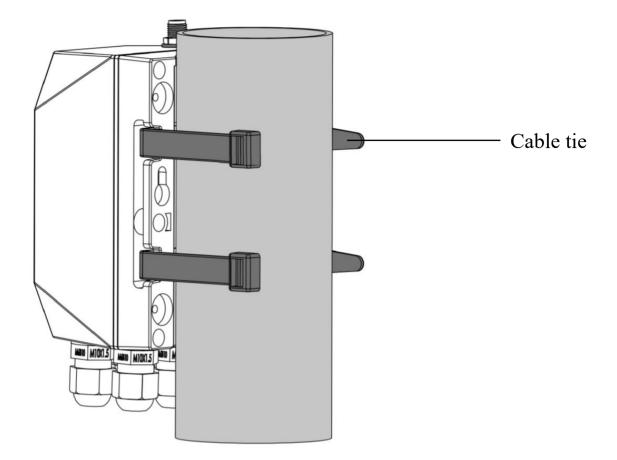❹ Hold R900 and slide down to connect the base and bracket.

(3) DIN Rail

Bracket

C45 DIN rail

Buckle

Countersunk head machine screw and nut

❶ Mount the rail buckle onto R900's bracket with countersunk head machine screws and nuts.

❷ Snap the buckle onto the DIN rail.

❸ Hold R900 and slide down to connect the base and bracket.

● Prepared by customers

(1) Cable Tie

Cable tie

❶ Insert cable ties through the holes of the base.

❷ Insert the pointed end through the slot.

❸ Tighten the cable ties and make sure R900 is fixed firmly around a column.

pH / ORP Sensor Installation

● Remove the protective cap from the front end of the device before use.
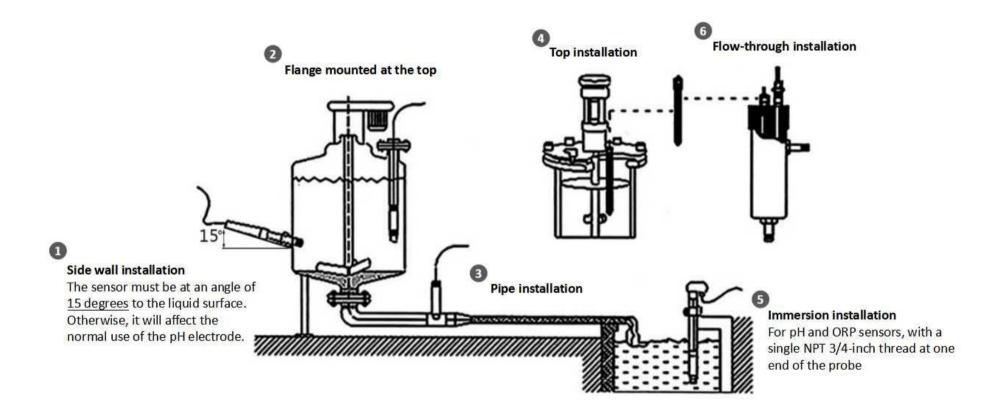
▼ pH sensor

▼ ORP sensor

● Both pH and ORP sensors have NPT 3/4 threads on both ends of the probe. They support the installation method shown in the picture below.

● Immersion Installation: The pH and ORP sensors' cable should pass through the waterproof bracket. The 3/4 thread on the top of the sensors should be connected to the 3/4 thread on the waterproof bracket using thread seal tape.

● Pipeline Installation: Connect the 3/4 thread at the bottom of the pH and ORP sensors transmitters to the pipeline.

Cautions:

1. The transmitter should be installed in an area with steady water flow and no bubbles and debris, to avoid significant measurement errors and potential damage to the device.

2. If the device malfunctions, do not try to open or repair it by yourself. Please contact the manufacturer as soon as possible.

3. Please do not use this device in corrosive liquids or liquids containing organic solvents.

4. During installation and use, make sure the cables are not pulled or placed under tension.

Maintenance

pH sensor & ORP sensor

- Before using the pH and the ORP sensor, please clean it with distilled water (or deionized water), and dry it with filter paper to prevent impurities from entering the liquid to be tested. After cleaning, dip 1/3 of the sensor into a liquid.

- Please clean the sensor when it's not in use. Insert it in a protective case or a container with 3.5 mol/L potassium chloride solution.

- Please check if the terminal is dry. If it is stained, wipe it with absolute alcohol and dry it. Avoid long-term immersion in distilled water or protein solution and prevent contact with silicone oil.

- For an aging sensor, its glass membrane may become translucent or have sediments, which can be washed with dilute hydrochloric acid and rinsed with water.

When the calibration and measurement cannot be performed after the sensor is maintained based on the instructions, please replace the electrode.

8. Important 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, 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 strong detergents.

- Do not apply the device with paint. Smudges might block the device and affect the 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 authorized service facility for repair