

netvox R718PA10 Wireless Turbidity Sensor



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netvox R718PA10 Wireless Turbidity Sensor



Specifications

- Model: R718PA10
- Wireless Turbidity Sensor
- Power Supply: 12V DC
- Communication: Wireless (LoRaWAN Class A) and RS485
- IP Rating: IP65 / IP67 (Optional)
- Main Features:
 - Detects turbidity value and solution temperature
 - Equipped with SX1276 wireless communication module
 - Base with magnet for easy attachment
 - Frequency hopping spread spectrum technology
 - Configurable parameters and data reading via third-party software platforms

Product Usage Instructions

- To power on the device, use a DC12V power supply.
- The green indicator will flash once to indicate successful power-on.
- To power off, remove the DC12V adapter.
- If the device has not joined a network, press and hold the function key for 5 seconds.
- The green indicator will flash 20 times to indicate success. If the device fails to join the network, check registration information on the gateway or consult your platform server provider.
- After powering on, the device will send a version packet report immediately, followed by a report with turbidity value and solution temperature after 20 seconds.

- Data is sent according to default configurations unless modified.

FAQ

- **Q:** How can I check the battery life of the sensor?
- **A:** Battery life is determined by reporting frequency and other variables. Refer to http://www.netvox.com.tw/electric/electric_calc.html for battery lifetime based on different configurations.
- **Q:** What third-party platforms are compatible with this sensor?
- **A:** The sensor is compatible with platforms like Actility, ThingPark, TTN, MyDevices, and Cayenne for configuring parameters, reading data, and setting alarms via SMS or email.

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Introduction

R718PA 10 is a Class A device based on the LoRaWANT™ protocol of Netvox and is compatible with the LoRaWAN protocol. R718PA 10 can be connected with a turbidity sensor (RS485) externally and report the turbidity value and the temperature of the solution collected by the device to the corresponding gateway.

LoRa Wireless Technology

LoRa is a wireless communication technology dedicated to long-distance and low power consumption. Compared with other communication methods, the LoRa spread spectrum modulation method greatly increases to expand the communication distance. Widely used in long-distance, low-data wireless communications. For example, automatic meter reading, building automation equipment, wireless security systems, and industrial monitoring. The main features include small size, low power consumption, transmission distance, anti-interference ability and so on.

LoRa WAN

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

Appearance



Main Feature

- Adopt SX1276 wireless communication module
- RS485 communication
- 12V DC power supply
- Detecting the turbidity value and the temperature of the solution
- The base is attached with a magnet that can be attached to a ferromagnetic material object
- Main body protection level IP65 / IP67 (Optional)
- Compatible with LoRaWANT™ Class A
- Frequency hopping spread spectrum technology
- Configuring parameters and reading data via third-party software platforms, and setting alarms via SMS text and email (optional)
- Applicable to the third-party platforms: Actility/ ThingPark/ TTN/ MyDevices/ Cayenne

Note

Battery life is determined by the sensor reporting frequency and other variables, please refer to http://www.netvox.com.tw/electric/electric_calc.html.

On this website, users can find battery lifetime for varied models at different configurations.

Set Up Instruction

On/Off	
Power On	DC12V adapter
Turn On	DC12V power supply, the green indicator flashing once means turn on successfully.
Restore To Factory Setting	Press and hold the function key for 5 seconds, and the green indicator flashes 20 times.
Power Off	Remove DC12V adapter
Note	<ol style="list-style-type: none"> 1. On/off interval is suggested to be about 10 seconds to avoid the interference of capacitor inductance and other energy storage components. 2. The first 5 seconds after power on, the device will be in engineering test mode.
Network Joining	
Never Join the Network	<p>Turn on the device to search the network.</p> <p>The green indicator keeps on for 5 seconds: success. The green indicator remains off: fail</p>
Had Joined the Network (Not restore to the factory setting)	<p>Turn on the device to search the previous network. The green indicator keeps on for 5 seconds: success.</p> <p>The green indicator remains off: fail.</p>
Fail to Join the Network	<p>Suggest checking the device registration information on the gateway or consulting your platform server provider if the device fails to join the network.</p>
Function Key	
Press and Hold for 5 Seconds	Restore to the original setting The green indicator flashes 20 times: success The green indicator remains off: fail
Press once	<p>The device is in the network: the green indicator flashes once and the device sends a data report</p> <p>The device is not in the network: the green indicator remains off</p>

Data Report

- After powering on, the device will immediately send a version packet report. Then, it will send another report with the data of the turbidity value and the temperature of the solution after it is powered on for 20s
- The device sends data according to the default configuration before any other configuration.

Default Setting

- Maxime: Max Interval = 3min = 180s
- Min Time: The MinTime configuration is not available.
- But the software has a restriction, MinTime must be configured with a number greater than 0.

Note

1. The report interval is based on the factory default.
2. R718PA10 reports the turbidity value and the temperature of the solution.
3. The device reported data parsing please refer to the Netvox LoRaWAN Application Command document and Netvox LoRa Command Resolver <http://www.netvox.com.cn:8888/cmddoc>

Example of ReportDataCmd

FPortFPort: 0x06

Bytes	1	1	1	Var(Fix=8 Bytes)
	Version	DeviceType	ReportType	NetvoxPayloadData

- Version- 1 byte -0x01 the Version of NetvoxLoRaWAN Application Command Version
- Device Type 1 byte – Device Type of Device
- Report Type – 1 byte -the presentation of the NetvoxPayloadData, according to the device type
- NetvoxPayloadData- Fixed bytes (Fixed =8bytes)

Device	Device Type	Report Type	NetvoxPayloadData				
R718PA series (R718PA10)	0x57	0x09	Battery (1Byte, unit:0.1 V)	NTU (2Byte ,0.1ntu)	TemperaturewithNTU (Signed 2Bytes, unit:0.01°C)	EC5SoildHumidity (2Bytes, unit:0.01%)	Reserved (1Bytes, fixed 0x00)

Uplink: 0157090007D009E2FFFF00

- 1st byte (01): Version
- 2nd byte (57): DeviceType R718PA Series
- 3rd byte (09): Report Type
- 4th byte (00): Battery; When Battery is 0x00, it represents is powered by DC/AC power source
- 5th 6th byte(07D0): NTU(Turbidity), 7D0 Hex = 2000 Dec, 2000*0.1 ntu = 200 ntu

- 7th 8th byte (09E2): Temperature with NTU, 9E2 Hex = 2530 Dec, $2530 \times 0.01^{\circ}\text{C} = 25.3^{\circ}\text{C}$
- 9th 10th byte (FFFF): Soil Humidity, please ignore.
- 11th byte (00): Reserved

Example of ConfigureCmd

FPortFPort: 0x07

Bytes	1	1	Var (Fix =9 Bytes)
	CmdID	DeviceType	NetvoxPayLoadData

- CmdID– 1 byte
- DeviceType– 1 byte – Device Type of Device
- NetvoxPayLoadData var bytes (Max=9bytes)

Description	Device	Cmd ID	Device Type	NetvoxPayLoadData		
ConfigReport Req	R718PA10	0x01	0x57	MinTime (2bytes Units: s)	Maxime (2bytes Units: s)	Reserved (5Bytes,Fixed 0x00)
ConfigReport Rsp		0x81		Status (0x00_success)	Reserved (8Bytes, Fixed 0x00)	
ReadConfig ReportReq		0x02		Reserved (9Bytes, Fixed 0x00)		
ReadConfig ReportRsp		0x82		MinTime (2bytes Units: s)	Maxime (2bytes Units: s)	Reserved (5Bytes,Fixed 0x00)

Configure R718PA10 device parameter Max Time = 1 min

(The MinTime configuration is useless, but it needs to be set greater than 0 because of the software limitation.)

- Downlink: 0157000A003C0000000000

Device Return

- 8157000000000000000000 (configuration success)
- 8157010000000000000000 (configuration failure)

Read R718PA 10 device parameter

- Downlink: 0257000000000000000000

Device Return

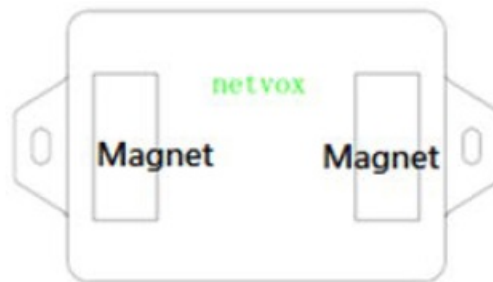
- 8257000A003C0000000000 (device current parameter)

Installation

- R718PA10 has a built-in magnet (as the figure below) that can be attached to the surface of an iron object during installation, which is convenient and quick. To make the installation firmer, please use screws (purchased separately) to fix the device to the wall or other surface (as Figure below).

Note

Do not install the device in a metal shielded box or in an environment surrounded by other electrical equipment to avoid affecting the wireless transmission of the device.



- R718PA 10 regularly reports the data of the turbidity value and the temperature of the solution according to Max Time.
- The default Max Time is 3 minutes.

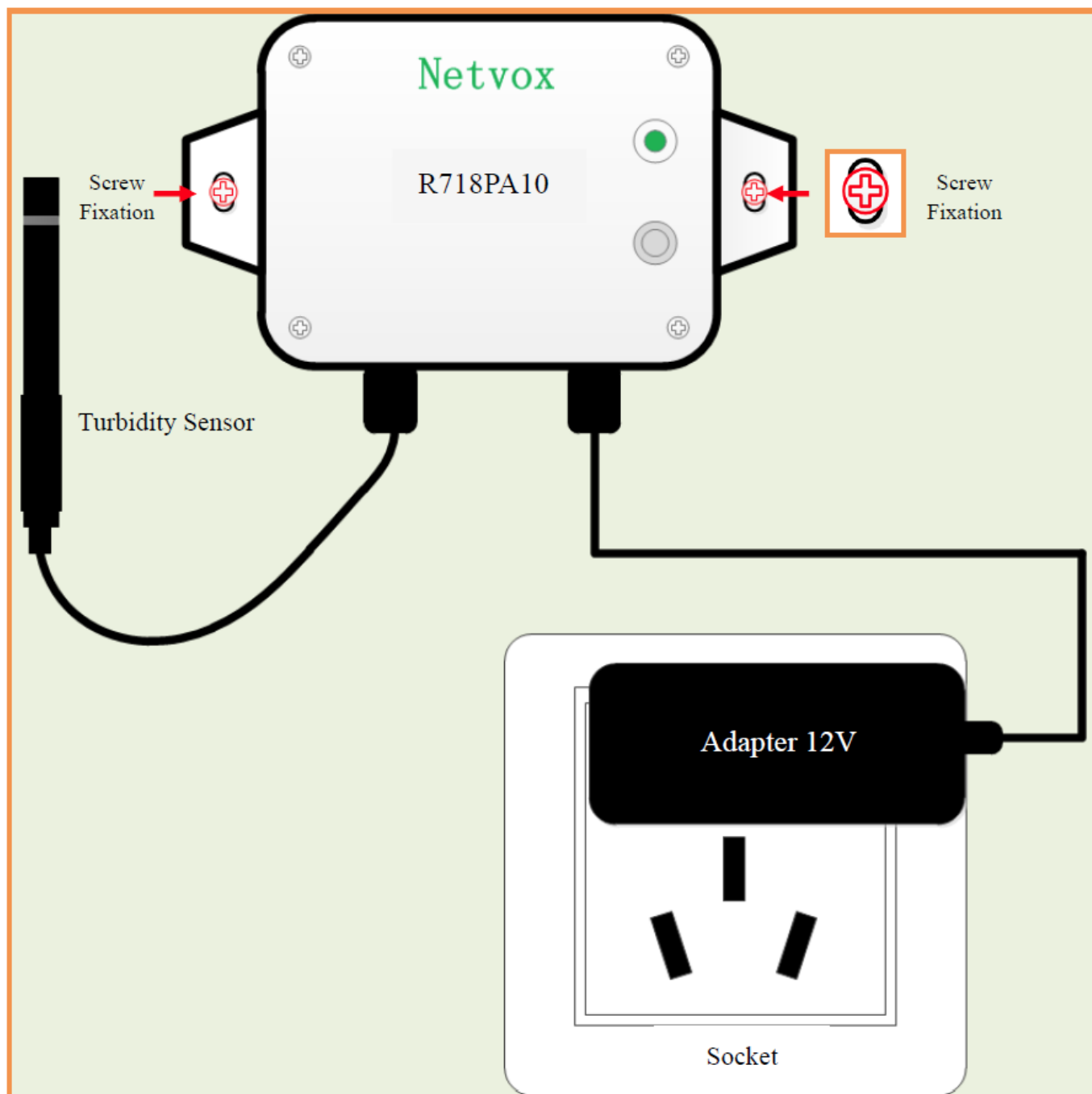
Note

Max Time can be modified by the downlink command, but it is recommended not to set the interval too short.

- R718PA10 can be applied to detect the turbidity and the temperature of the solution.

Example

- Water Quality Monitor



Note

1. The probe contains sensitive optical and electronic components. Make sure that the probe is not subject to severe mechanical shocks. There are no parts inside the probe that need users' maintenance.
2. The black plastic cap on the head of the turbidity sensor should be removed during the test; otherwise, it will affect the measurement.



Maintenance Method

1. External Surface of The Sensor:

Use tap water to clean the external surface of the sensor. If there are still debris remaining, wipe it with a moistened soft cloth.

For some stubborn dirt, users can add some household detergent to the tap water to clean it.

2. Check the Cable of The Sensor:

The cable should not be taut during normal operation; otherwise, the internal wires of the cable may break and the sensor cannot work normally.

3. Check whether the measuring part of the sensor is dirty, and whether the cleaning brush is normal.

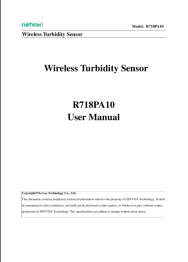
Important Maintenance Instruction

Kindly pay attention to the following in order 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 dusty or dirty environment. It might damage its detachable parts and electronic components.
- Do not store the device under excessive heat condition. High temperature 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 to normal temperature, moisture will form inside, which will destroy 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 in 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 working properly, please take it to the nearest authorized service facility for repair.

Documents / Resources

	netvox R718PA10 Wireless Turbidity Sensor [pdf] User Manual R718PA10 Wireless Turbidity Sensor, R718PA10, Wireless Turbidity Sensor, Turbidity Sensor, S ensor
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References

- [Y please ignore. please ignore.](#)
- [Netvox LoRaWAN Application Command](#)
- [ÉÔ°ò¡£¡£¡£](#)
- [User Manual](#)

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