SUCH

Water Leak Sensor/ Transmitte User Manual



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1. Product description

1.1 Product description

The water immersion sensor is widely used in communication base stations, hotels, restaurants, computer rooms, libraries, archives, warehouses, and equipment

Cabinets and other places that require water accumulation and alarm. The unique AC detection technology is used to effectively avoid the problem of water leakage sensitivity decreased due to oxidation of the immersion electrode for a long time. The device can choose 485 output, switch quantity dry contact output. The 485 output is standard ModBus-RTU, and the maximum communication distance is 2000 meters. It can be directly connected to the on-site PLC, industrial control instrument, configuration screen or configuration software. The maximum distance of the external leakage electrode can reach 2600 meters, and the external leakage rope of up to 2600 meters can also be connected. The equipment adopts a waterproof shell and has a high degree of protection. It can be used for a long time in harsh environments such as humidity and high dust.。

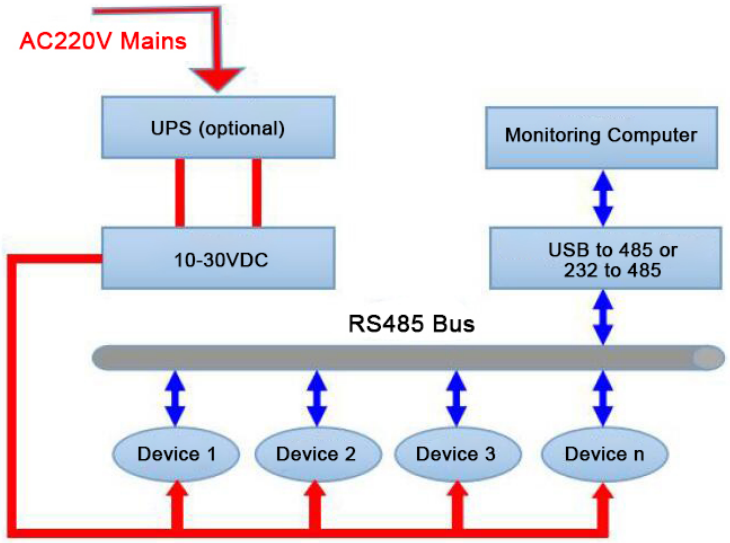
1.2 Features

Our company uses alternating current to collect the inductance parameters of stagnant water to accurately distinguish whether water is immersed, even pure water and tap water (the tap water is the default detection object, if you want to detect pure water, please give special instructions). Because of the use of alternating current detection, the electrode will not produce electrophoretic polarization even if it is immersed for a long time, and it does not rely on special electrodes to achieve long life and reliable detection. ---This technology is our company's patent and has been authorized by the Patent Office. Our company reserves the right to pursue legal liabilities for any counterfeiters.

1.3 Main specifications

powered by	DC10-30V	
Maximum power consumption	Relay output	1.2W
	RS485output	0.4W
Detection object	Tap water, purified water	
Transmitter circuit operating temperature	-20℃~+60℃，0%RH~95%RH（Non-condensing）	
output signal	Relay output	Normally open contact
	RS485output	Mod Bus RTU protocol
Relay with load capacity	250VAC 1A/30VDC 1A	

1.4 System frame diagram



System plan diagram

2. Product model

RS-				Company code
	SJ-			Flood sensor
		N01R01-		485+Relay normally open point
		N01-		485（Modbus-RTU）
		R01-		Relay normally open point
			2	Wall-mounted king-shaped shell

3. Install and use

3.1 Inspection before equipment installation

Equipment List:

1. 1 set of water sensor equipment

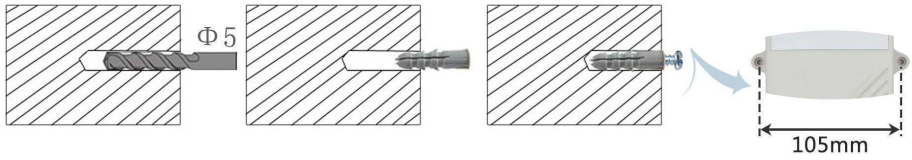
2. Self-tapping screws (2 pcs), expansion plugs (2 pcs)

3. Certificate of conformity, warranty card, wiring manual, etc.

4. USB to 485 (optional)

3.2 Installation step instructions



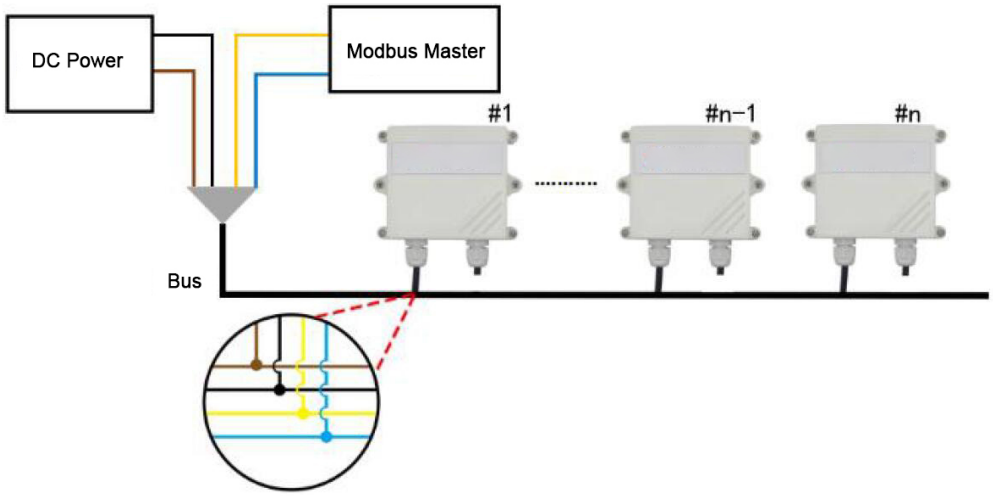




3.3 Wiring

3.3.1 Power supply and 485 signal wiring

Wide-voltage power input can be 10~30V. When wiring the 485 signal line, pay attention to the two lines A/B not to be reversed, and the addresses of multiple devices on the bus must not conflict.



3.3.2 Relay interface wiring

The standard equipment is equipped with 1 relay output, and the two outgoing wires are normally open contacts.

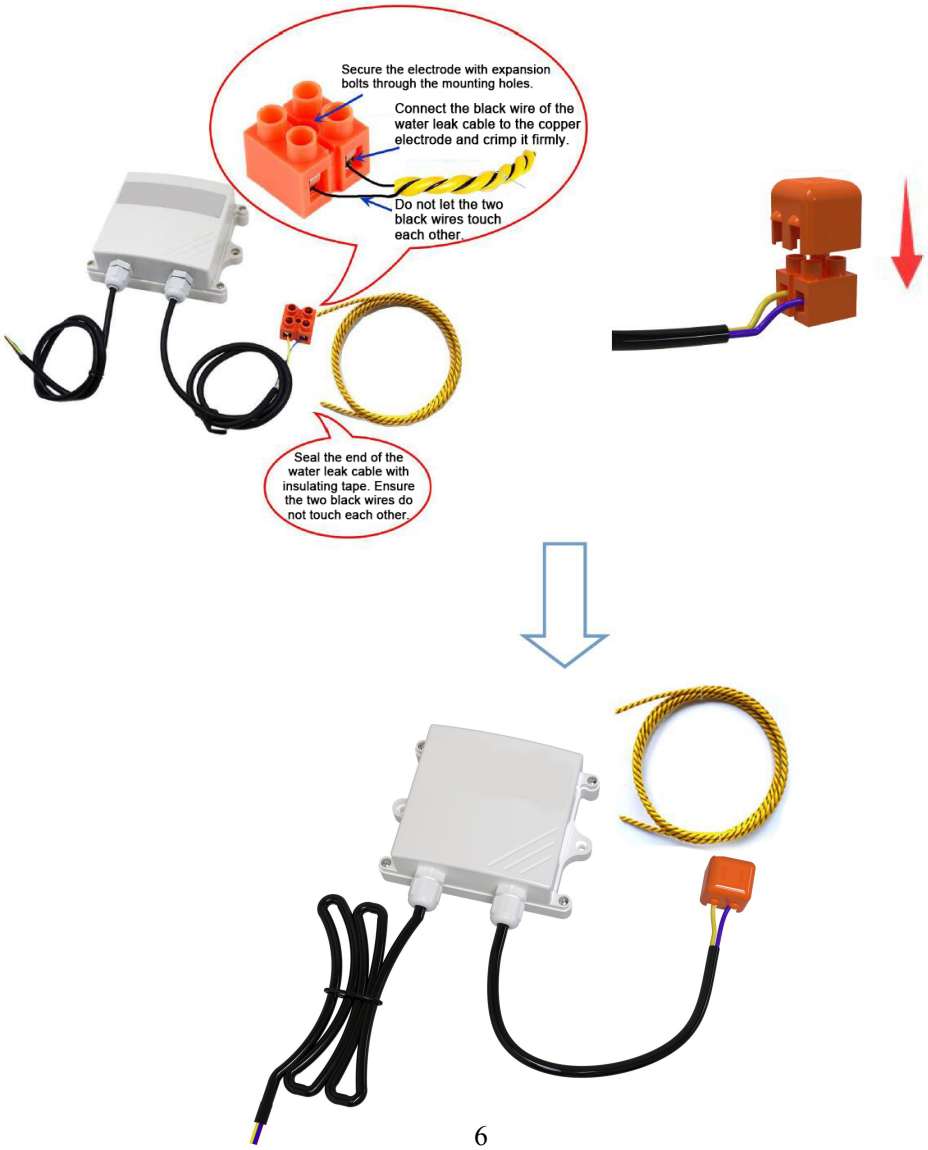
3.4 Specific model wiring

Wall-mounted king-shaped shell wiring

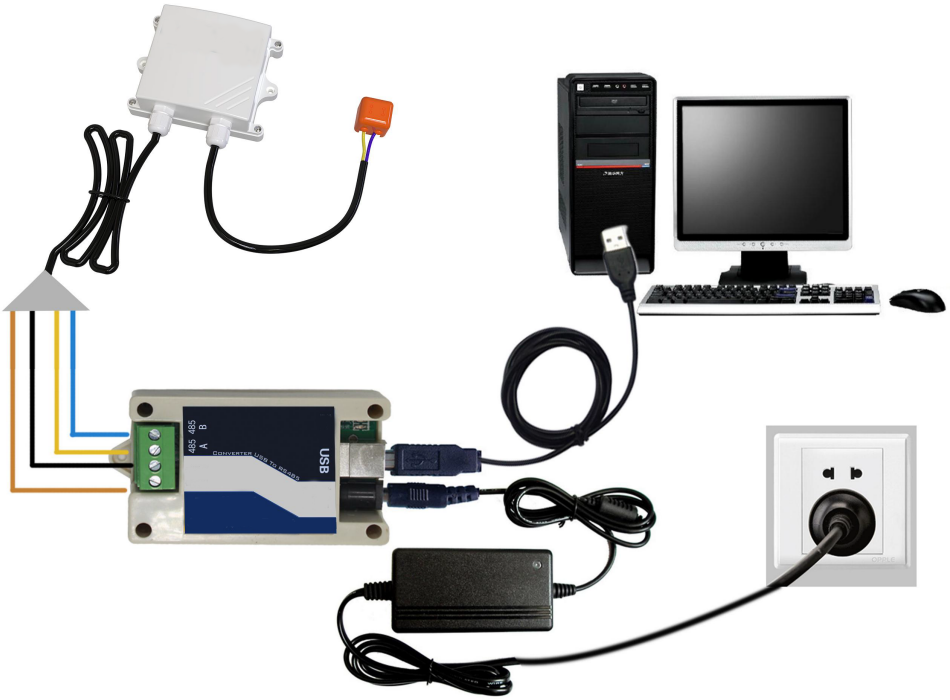
	Type 485	Switch type
power supply	V+ (Brown) （10~30V DC）	
	V-（black）	
Output	485-A（yellow）	Relay normally open contact (white, green)
	485-B（blue）	

3.5 Use of leaking rope

Customers who purchase our online water leakage sensor should pay attention to using it with a leaking rope. The black line of the leaking rope is the water leakage sensing line, and the yellow line is the support frame. The black sensing lines at both ends of the leaking rope should not touch each other. After fixing the water immersion terminal, insert the bulge of the water immersion terminal sheath into the water immersion terminal in the direction shown by the arrow。



4. Configuration software installation and use

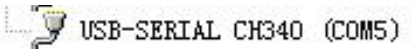


4.1 Software selection

Open the data package, select "Debug software" --- "485 parameter configuration software", find 485 Parameter Configuration Tool，Just open it.

4.2 Parameter settings

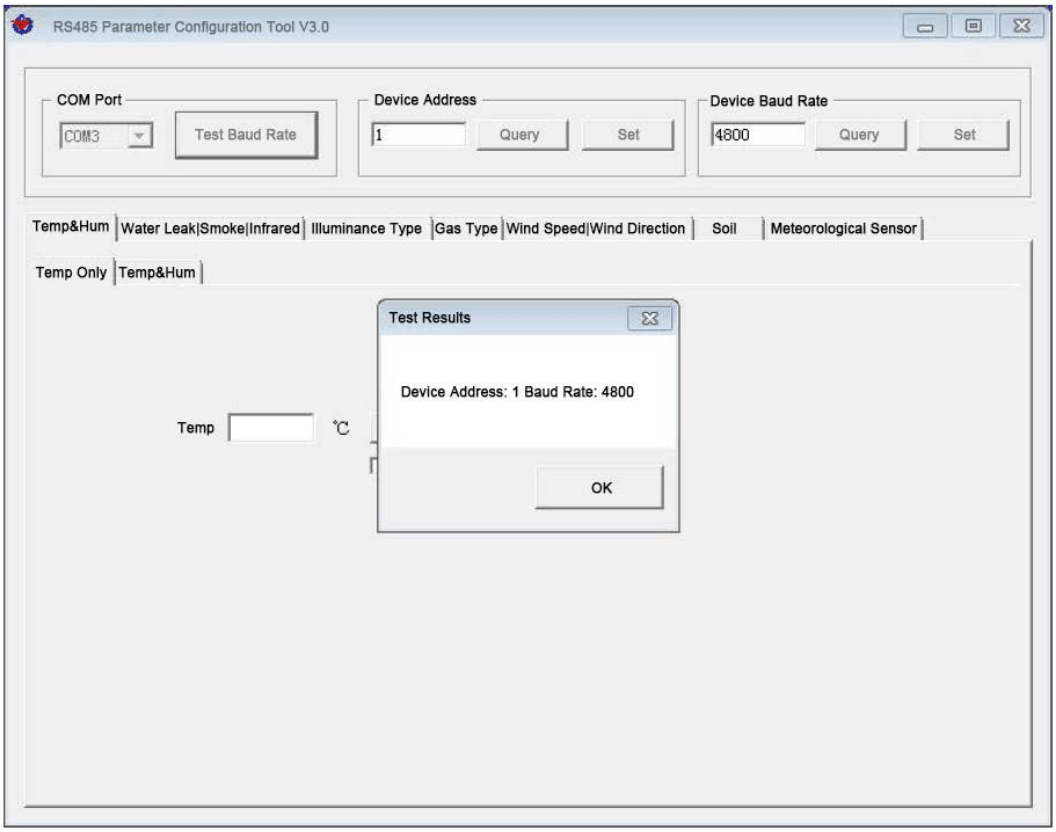
①. Select the correct COM port (check the COM port in "My Computer—Properties—Device Manager—Port"). The following figure lists the driver names of several different 485 converters.



② Connect only one device alone and power it on, click the test baud rate of the software, the software will test the baud rate and address of the current device, the default baud rate is 4800bit/s, and the default address is 0x01.

③. Modify the address and baud rate according to the needs of use, and at the same time, you can query the current function status of the device.

④. If the test is unsuccessful, please recheck the equipment wiring and 485 driver installation.



5. Letter of agreement

5.1 Basic communication parameters

Code	8-bit binary
Data bit	8-bit
Parity bit	-
Stop bit	1 person
Error checking	CRC (Redundant Cyclic Code)
Baud rate	2400bit/s, 4800bit/s, 9600 bit/s can be set, the factory default is 4800bit/s

5.2 Data frame format definition

Adopt Modbus-RTU communication protocol, the format is as follows:

Initial structure ≥ 4 bytes of time

Address code = 1 byte

Function code = 1 byte

Data area = N bytes

Error check = 16-bit CRC code

Time to end structure ≥ 4 bytes

Address code: the address of the transmitter, which is unique in the communication network (factory default 0x01).

Function code: The command function instruction issued by the host, this transmitter only uses function code 0x03 (read register data).

Data area: The data area is the specific communication data, pay attention to the high byte of the 16bits data first!

CRC code: two-byte check code.

Host query frame structure:

address code	function code	Register start address	Register length	Check code low byte	Check code high byte
1byte	1byte	2byte	2byte	1byte	1byte

Slave machine response frame structure:

address code	function code	Number of valid bytes	Data area	Data area two	Data N area	Check code low byte	Check code high byte
1byte	1byte	1byte	2byte	2byte	2byte	1byte	1byte

5.3 Register address

Register address	PLC or configuration address	content	operate	function code	Defaults	Definition description
0000 H	40001 (Decimal)	Real-time flooding status	Read only	03	0	0 means normal, 1 means water
0002 H	40003 (Decimal)	Real-time flooding status	Read only	03	1	1 means normal, 2 means there is water
0033 H	40052(Decimal）	Alarm delay	Read/ write	03/06	0S	16-bit unsigned, the default is 0s 0~65535s can be set
0034H	40053(Decimal）	Current sensitivity	Read/ write	03/06	102	16-bit unsigned, 0~1024 can be set

5.4 Communication protocol example and explanation

5.4.1Read the flooding status of device 0 register of device address 0x01

Interrogation frame：

address code	function code	initial address	Data length	Check code low byte	Check code high byte
0x01	0x03	0x00 0x00	0x00 0x01	0x84	0x0A

Response frame: response to normal flooding

address code	function code	Returns the number of valid bytes	Data area	Check code low byte	Check code high byte
0x01	0x03	0x02	0x00 0x00	0xB8	0x44

Interrogation frame： Flooded state with water response

address code	function code	Returns the number of valid bytes	Data area	Check code low byte	Check code high byte
0x01	0x03	0x02	0x00 0x01	0x79	0x84

5.4.2Read the flooding status of device No. 2 register of device address 0x01

Interrogation frame:

address code	function code	initial address	Data length	Check code low byte	Check code high byte
0x01	0x03	0x00 0x02	0x00 0x01	0x25	0xCA

Response frame: response to normal flooding

address code	function code	Returns the number of valid bytes	Data area	Check code low byte	Check code high byte
0x01	0x03	0x02	0x00 0x01	0x79	0x84

Response frame: Response with water in the flooding state

address code	function code	Returns the number of valid bytes	Data area	Check code low byte	Check code high byte
0x01	0x03	0x02	0x00 0x02	0x39	0x85

5.4.3 Modify the alarm delay

Inquiry frame: modify the delay time to 10s

address code	function code	initial address	Data length	Check code low byte	Check code high byte
0x01	0x06	0x00 0x33	0x00 0x0A	0xF9	0xC2

Reply frame:

address code	function code	initial address	Data length	Check code low byte	Check code high byte
0x01	0x06	0x00 0x33	0x00 0x0A	0xF9	0xC2

If flooding is continuously monitored within 10s, equipment alarms。

5.4.4Set the water sensitivity value (take 300 as an example)

Interrogation frame:

address code	function code	initial address	Data length	Check code low byte	Check code high byte
0x01	0x06	0x00 0x34	0x01 0x2C	0xC8	0x49

Response frame: the current sensitivity is 300

address code	function code	initial address	Data length	Check code low byte	Check code high byte
0x01	0x06	0x00 0x34	0x01 0x2C	0xC8	0x49

Sensitivity setting description

The sensitivity value is inversely proportional to the actual sensitivity. The larger the setting value, the less sensitive the device detection, the smaller the sensitivity value, the more sensitive the device detection. But it should be noted that if the sensitivity value is too small, it is easy to cause false alarms. It is recommended to use the factory default value.

Default value: 102

Range: 0-1024

6. Common problems and solutions

6.1 The device cannot connect to the PLC or computer

possible reason:

1) The computer has multiple COM ports, and the selected port is incorrect.

2) The device address is wrong, or there are devices with duplicate addresses (the factory defaults are all 1).

3) The baud rate, check method, data bit, stop bit are wrong.

4) The host polling interval and waiting response time are too short, and both need to be set above 200ms.

5) The 485 bus is disconnected, or the A and B wires are connected reversely.

6) If the number of equipment is too much or the wiring is too long, power supply should be nearby, add 485 booster, and add 120Ω terminal resistance at the same time.

7) The USB to 485 driver is not installed or damaged.

8) The equipment is damaged.

7. Appendix: Shell size

Wall-mounted king-shaped shell size: 110×85×44mm

