

Rain and Snow Sensor

JW-CQ11(YN10)



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1. Product Introduction

JW-CQ11(YN10) rain and snow sensor is a qualitative measuring device that measures whether there is rain or snowfall outdoors or in nature. It can be widely used in the qualitative measurement of rain and snow in environment, greenhouse, aquaculture, construction, building, etc. It is safe and reliable, beautiful in appearance and convenient to install.

2. Features

- 1)Whether there is rain or snow measurement, response time is $\leq 0.5s$;
- 2)Unique AC measurement technology prevents oxidation of the induction disk and ensures long-term sensitivity;
- 3)IP68 protection grade design, can work outdoors for a long time;
- 4)Multiple transmission modes are available, providing 485 mode upload or switch output for easy centralized monitoring;
- 5)Optional automatic heating function, can be used for snow detection, in the case of long-term below 0°C and high humidity environment, to prevent icing condensation;
- 6)When heating, the temperature is strictly controlled within 40°C (default) to prevent dry oxidation and prolong the service life;
- 7)The sensitivity of the sensor is adjustable and the use is more flexible;
- 8)You can set alarm and reset delay to avoid frequent alarms on site.

3. Product Information

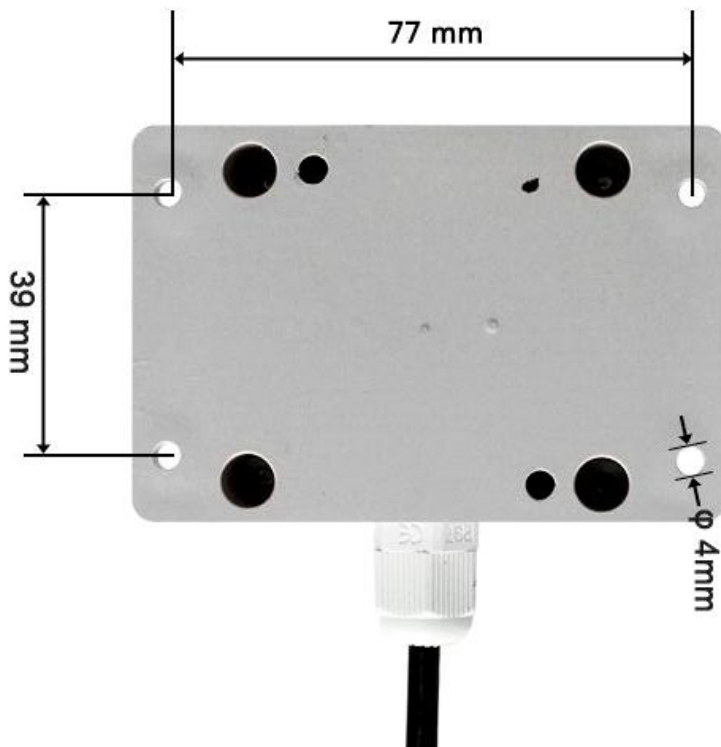
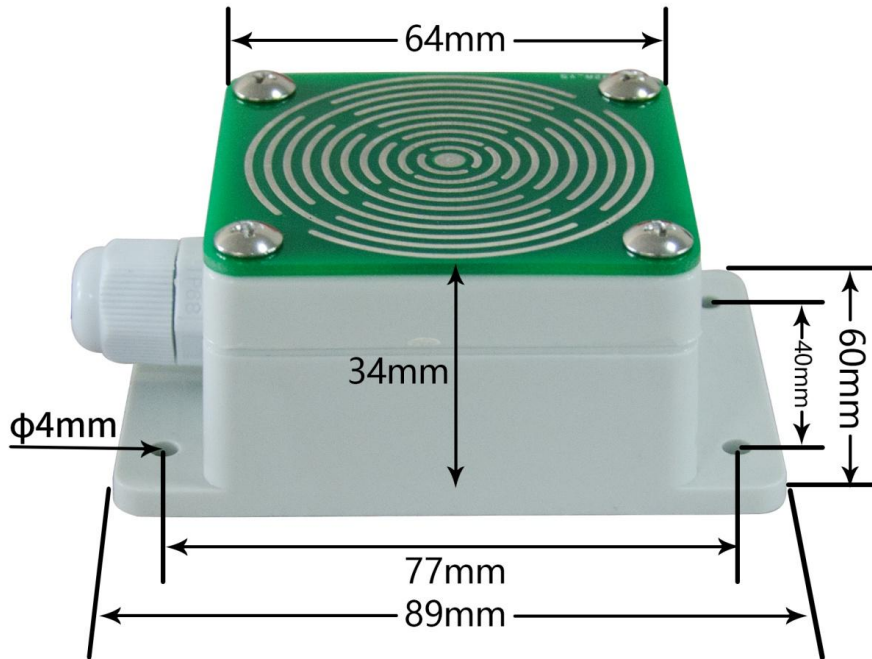
3.1 Technical parameters

Item	Content
Power supply	12~24V DC
Normal working power	0.4W
Operating power when heating	0.3W
Output signal	1: RS485; 2: Relay; 3: Voltage: 0-2V;0-5V;0-10V (Choose one) 4: Current: 4-20mA 5: NPN 6: RS485+Relay
Storage environment	-40°C~80°C
Heating start ambient temperature	<15°C (default)
Maximum heating temperature	40°C
Output relay with load capacity	220VAC 1A/24VDC2A

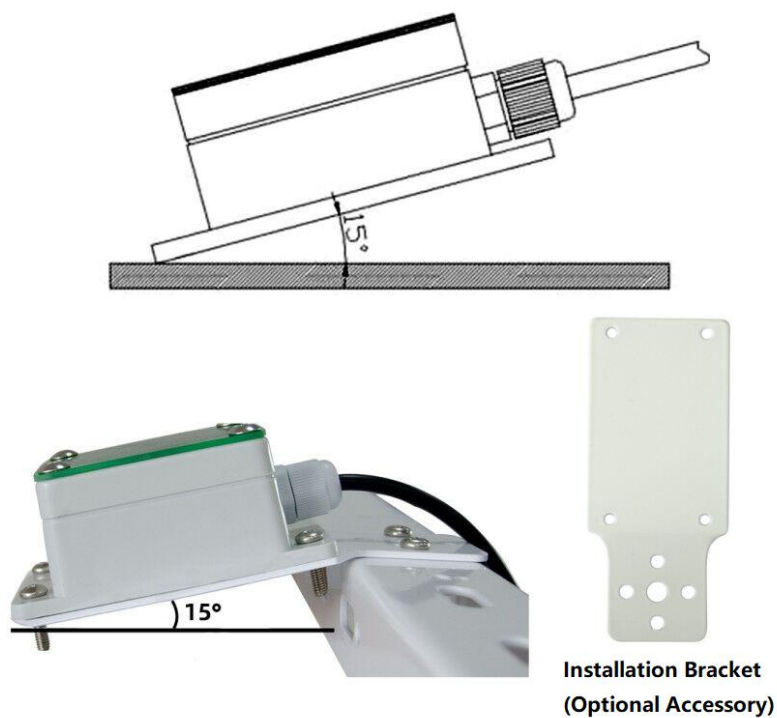
3.2 Impedance requirement of current signal

Power supply	9V	12V	20V	24V
Max impedance	125 Ω	250 Ω	500 Ω	> 500 Ω

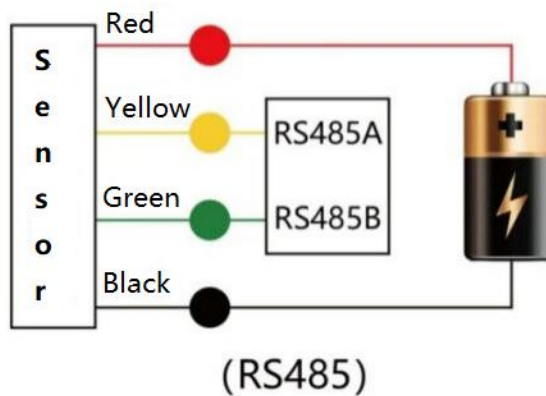
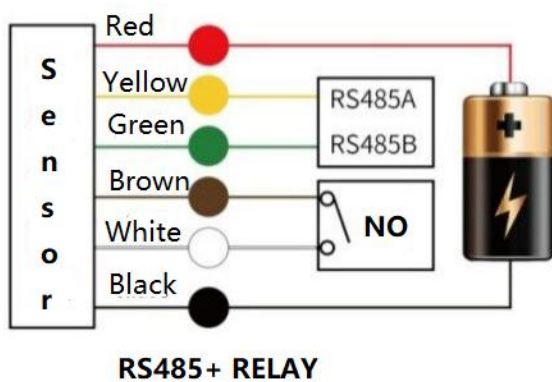
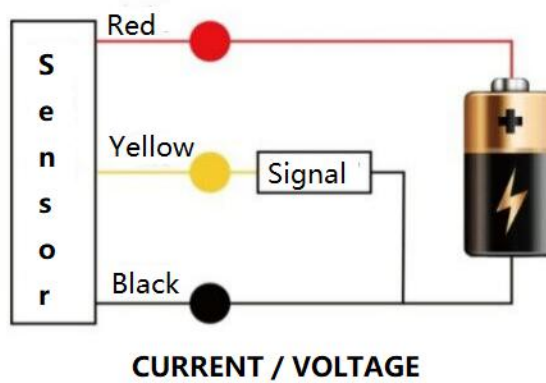
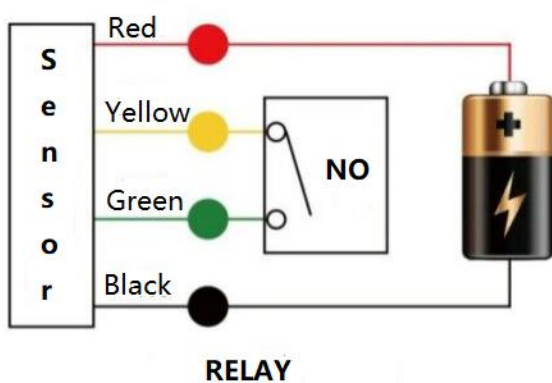
4. Product Dimension



5. Equipment installation instructions



6. Wiring Definition



The voltage power input can be 12-24VDC. When wiring the 485 signal line, note that the A/B lines cannot be connected in reverse, and the addresses between multiple devices on the bus cannot conflict. Switching type devices are equipped with one relay output as standard, and two outgoing lines are normally open contacts.

7. Data Conversion Method

The voltage power input can be 12-24VDC. When wiring the 485 signal line, note that the A/B lines cannot be connected in reverse, and the addresses between multiple devices on the bus cannot conflict. Switching type devices are equipped with one relay output as standard, and two outgoing lines (green and white) are normally open contacts.

Output Signal	No Rain(Snow)	Rain(Snow)
Relay (NP)	Open	Close
0 ~ 2V DC	0.6V	1.6V
0 ~ 5V DC	1.5V	4V
0 ~ 10V DC	3V	8V
4 ~ 20mA	6mA	16mA
RS485	0X000A	0X000B

8. Communication protocol

8.1 Basic communication parameters

Output	RS485 Modbus (Default address 01)
Data bit	8 digits
Parity bit	no
Stop bit	1 digits
Protocol	Standard RS485 Modbus protocol
Baud rate	9600

8.2 Modify Address

Eg:Change the address of the sensor whose address is 1 to 2.Host computer→slave computer

Primary address	Function code	Register address high	Register address low	Start address high	Start address low	CRC16 low	CRC16 high
0X01	0X06	0X00	0X30	0X00	0X02	0X08	0X04

If the sensor receives correctly, the data is returned in the original way

Mark:If you forget the original address of the sensor.You can use the broadcast address 0XFE instead.When 0XFE is used, the host can be connected to only one slave.The return address is still the original address.Can be used as an address query method.

8.3 Query Data

Query sensor (address is 01) data(rain snow yes or no).Host computer→slave computer

Address	Function code	start register address high	start register address low	Register length high	Register length low	CRC16 low	CRC16 high
0X01	0X03	0X00	0X00	0X00	0X01	0X84	0X0A

If the sensor receives correctly, the following data is returned.Slave computer→host computer

When there is no rain (snow)

Address	Function code	Data length	Register 0 data high	Register 0 data low	CRC16 low	CRC16 high
0X01	0X03	0X02	0X00	0X0A	0X38	0X43
			no rain (snow)			

When there is rain (snow)

Address	Function code	Data length	Register 0 data high	Register 0 data low	CRC16 low	CRC16 high
0X01	0X03	0X02	0X00	0X0B	0XF9	0X83
			Have rain (snow)			

8.4 Setting active reporting

When the active reporting mode needs to be set, the host → slave server

Address	Function code	Report mode high	Report mode low	reporting time high	reporting time low	CRC16 low	CRC16 high
0X01	0X06	0X00	0X33	0X00	0X3C	0X79	0XD4
		0X0000 : close automatic reporting		Automatic reporting interval, Unit : second The upload speed is 60 seconds per time Invalid when automatic reporting is disabled			

If the data returned from the slave computer to the host is the same with the sending data .the setting is successful

8.5 Set or query the start and stop temperatures of automatic heating

8.5.1 Set the initial heating temperature

Host computer →slave computer

Address	Function code	start register address high	start register address low	Start temperature, data high	Start temperature, data low	CRC16 low	CRC16 high
0X01	0X06	0X00	0X5A	0X00	0X96	0X29	0XB7
				15.0°C			

If the data returned from the slave computer to the host is the same with the sending data .the setting is successful.

8.6 Set the heating stop temperature

Host computer →slave computer

Address	Function code	start register address high	start register address Low	Stop temperature data high	Stop temperature data low	CRC16 low	CRC16 high
0X01	0X06	0X00	0X5B	0X00	0XC8	0XF9	0X8F
				20.0°C			

If the data returned from the slave computer to the host is the same with the sending data .the setting is successful

9. Precautions for Use

- (1) When you receive the product, please check whether the package is intact, and check whether the sensor model and specifications are consistent with the product you choose.
- (2) The installation place should be far away from the chemical corrosive environment.
- (3) Sensor and wire should be away from high voltage, heat source, etc.
- (4) The sensor is a precision instrument and should be stored in a dry and ventilated indoor environment at room temperature.
- (5) The sensor is a precision device. Please do not disassemble the sensor by yourself in order to avoid damage to the product.