Rain Sensor User Manual

JXBS-3001-YL
VER1.1

I. Brief Introduction

1.1 Product Overview

JXBS-3001-YL series rainfall sensor is small and light, easy to carry and assemble, used to measure the rainfall in nature, and convert the rainfall into digital information output in the form of switch, in order to meet the needs of information transmission, processing, Record and display needs. It can be used in meteorological stations (stations), hydrological stations, agriculture and forestry, national defense, field observation and reporting stations and other related departments to cooperate with the rain sensor developed and produced by our company to measure precipitation, precipitation intensity, precipitation time, etc. It can provide raw data for flood control, water supply dispatching, and water regime management of power stations and reservoirs.

1.2 Product Specs

| Parameters	Details
Measure Range	≤30mm/min
Resolution	0.2mm
Response Time	＜2s
Communication Port	Lorawan
Power Supply	12-24V DC
Power Consumption	＜1W
Working Environment	-30~80℃; 0-100%RH (15-95%RH)
Material	Stainless Steel

II. Installation

2.1 Size & Picture

2.2 Installation & Structure

First, fix the iron plate under the sensor with 4 nuts, and then evenly distribute the four screw holes to fix the iron plate at the lower part of the iron plate base. Use expansion screws to fix the sensor at the location to be installed through the screw hole; observe the horizontal bubble (yellow), and firmly fix the base on the pre-built platform to keep the entire instrument at the best level to ensure the accuracy of the rainfall data Sex.

Note: The fixed position of the device must be able to use expansion screws.
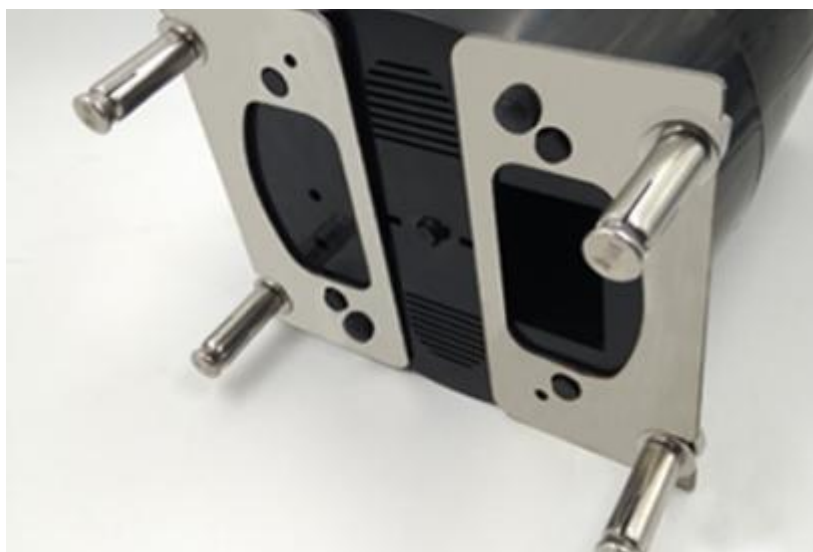
III. Communication Protocol

3.1 Basic Specs

Specs	Content
Coding	8-bit binary
Data Bit	8 bit
Parity bit	None
Stop Bit	1 Bit
Error calibration	CRC lengthy cyclic code
Baud Rate	2400bps/4800bps/9600 bps Optional. Factory default 9600bps.

3.2 Data frame format definition

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

Initial structure >= 4 byte time

Address code = 1 byte

Function code = 1 byte

Data area = N bytes

Error check = 16-bit CRC code

End structure >= 4 bytes time

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

Function code: The command function prompt sent by the host, this transmitter only uses function code 0x03 (read memory data).

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

CRC code: two-byte check code.

Inquiry Frame					
Address Code	Function Code	Register start address	Register Length	Check Code Low bit	Check Code High bit
1 byte	1 byte	2 bytes	2 bytes	1 byte	1 byte

Answer Frame					
Address Code	Function Code	Effective bytes	Data area 1	Data area 2	Data area N
1 byte	1 byte	1 byte	2 bytes	2 bytes	2 bytes

3.3 Register Address

Register Address	PLC configuration address	Contents	Operation
0105H	40106	Rain Volume（Unit 0.1mm）	Read Only
0100H	40101	Device Address (0-252)	Read Write
0101H	40102	Baud Rate (2400/4800/9600)	Read Write

3.4 Communication protocol example and explanation

3.4.1 Read Rain Volume of Device Address 0x01

Inquiry Frame					
Address Code	Function Code	Start Address	Data Length	Check Code Low bit	Check Code High bit
0x01	0x03	0x01,0x05	0x00,0x01	0x95	0xF7

Answer Frame (Example: rain volume is 2.3mm)					
Address Code	Function Code	Effective bytes	Rain Volume	Check Code Low bit	Check Code High bit
0x01	0x03	0x02	0x00 0x17	0xFC	0x44

Rain Volume:

0017 H(Hexadecimal)=23=>Rain=2.3mm

3.4.2 Rain clear instruction for device address 0x01

Inquiry Frame					
Address Code	Function Code	Start Address	Data Length	Check Code Low bit	Check Code High bit
0x01	0x06	0x01,0x08	0x00,0x01	0xC8	0x34

Answer Frame					
Address Code	Function Code	Effective bytes	Rain Volume	Check Code Low bit	Check Code High bit
0x01	0x06	0x02	0x00 0x01	0xFC	0x44