RAINFALL SENSOR

RY-YLH02

MANUAL

INTRODUCTION & PRINCIPLE

The RY-YLH02 rainfall sensor is used to measure ground rainfall. It can be widely used in small weather stations, hydrological stations, agriculture and forestry and other related departments to measure precipitation, precipitation intensity, and precipitation time.

Rain flows into the dump bucket through a receiver. When a certain amount of rainwater flows into the dump bucket, the dump bucket flips over, emptying the rain in the dump bucket, and the dump bucket starts to receive water again. Each reversing action of the dump bucket is converted into a pulse signal by a reed switch (1 pulse = 0.2mm precipitation) to the acquisition system. This instrument is suitable for equipping national basic rainfall stations, encrypted automatic meteorology (rainfall stations) and telemetry stations in various places and under different climatic conditions to complete the automatic measurement and data collection of the precipitation process. The device consists of a bucket, a black bucket, a control circuit board, a floor box, a chassis, a right-angle fixing bracket (1), and a right-angle mounting bracket (2).

TECHNICAL SPECIFICATION

●Rian collector diameter：￠159.6mm
●Measuring range：≤4mm/min
●Resolution 0.2mm(customizable 0.1mm)
●Cutting edge acute angle: 40 ～ 45 °
●Outpur：

RY-YLH02	RY-YLH02/S	RY-YLH02/485
pulse (1 pulse = 0.2mm rainfall)	4-20 mA	RS485modbus

●Weigth：0.42KG
●Height:250mm
●Color:White
●Material：ABS
●Respond time：1S
●Work environment：Temperature 0～+60℃
●Standard line length：1.5m
●Farthest lead wire：Current200m、 RS485 100 m、voltage 50m
●Ingress Protection：IP65

COMMUNICATION PROTOCOL

Communication specification

9600,8,1,N,N

Write station number：

Device address Function code Start register address No. of registers Data length Data CRC check

00 10 0001 0001 02 00xx CRCloCRChi（XX=0X01-0XFF）

Write register response

Device address Function code Start register address No. of registers CRC check

00 10 0001 0001 CRCloCRChi

Example

Command 00 10 00 01 00 01 02 00 33 EA 04

Respond 00 10 00 01 00 01 51 D8

Initial station number: FF

Read station number command (fixed command)

Device address Function code Start register address No. of registers CRC check

00 03 0001 0001 CRCloCRChi

Station respond

Device address Function code Data length Data CRC check

00 03 02 00xx CRCloCRChi（XX=01-ff）

Example

Read station number

Command 00 03 00 01 00 01 D4 1B

Respond 00 03 02 00 FF C5 C4

Modify cumulative time interval

Device address Function code Start register address No. of registers Data length Data(new station number) CRC check

xx 10 0010 0001 02 00xx CRCloCRChi（XX=0X0001-0X7FFF）

Write register response

Device address Function code Start register address No. of registers CRC check

xx 10 0010 0001 CRCloCRChi

Example

Command FF 10 00 10 00 01 02 00 0A 6C A3

Respond FF 10 00 10 00 01 15 D2

00 0A in the command is the time interval to be changed, and the unit is minute, Cleared in 10 minutes

The initial default is zero every ten minutes

Read Date

Device address Function code Start register address No. of registers CRC check

xx 03 0000 0001 CRCloCRChi

Data respond

Device address Function code Data length Data CRC check

xx 03 02 00yy CRCloCRChi

Example

Command FF 03 00 00 00 01 91 D4

Respond FF 03 02 00 14 91 9F

Note：Rainfall：4th, 5th 00 14

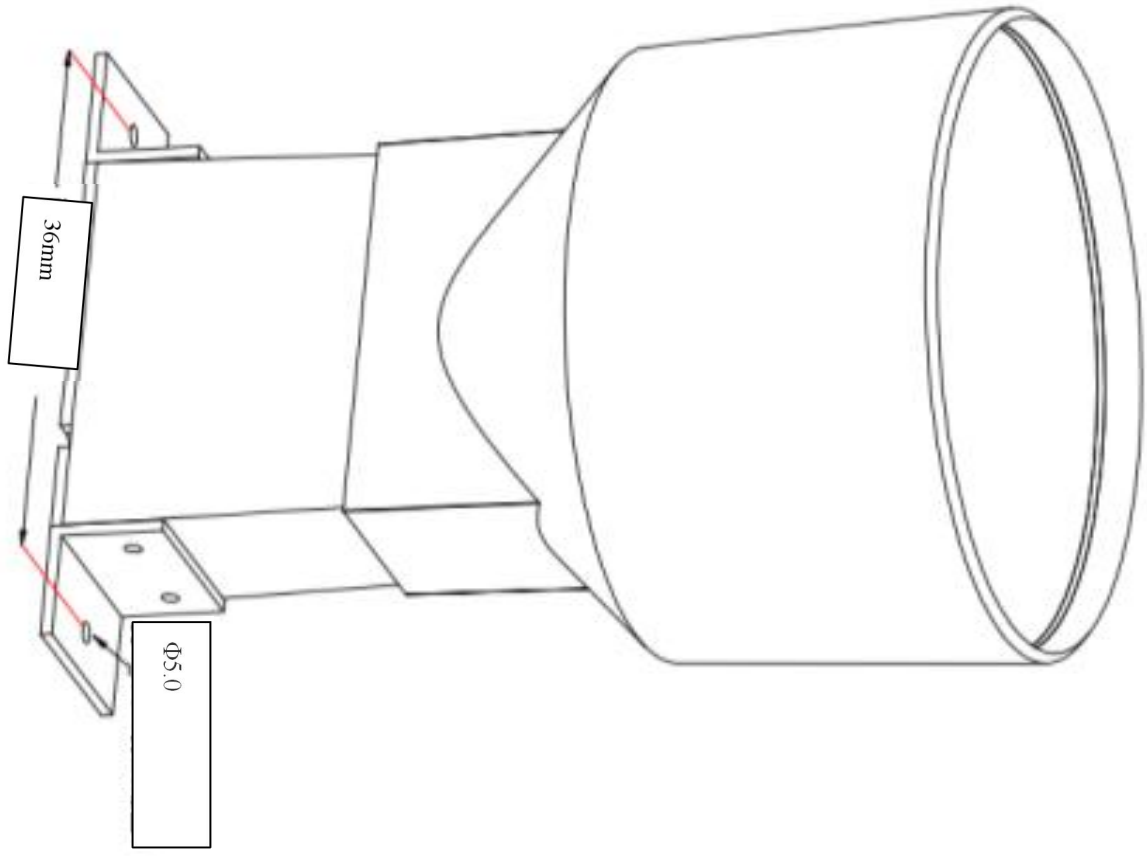
Example Rspond FF 03 02 00 B4 91 E7

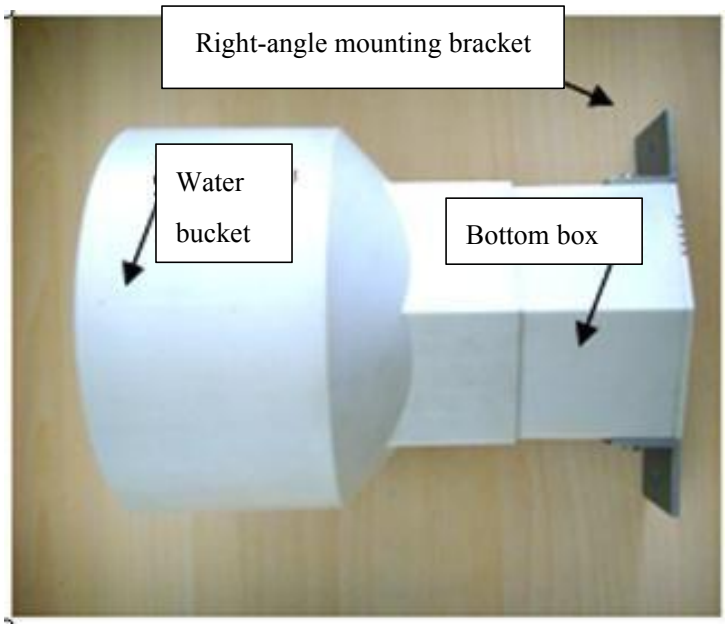
The 4th and 5th bytes respectively are 00 B4

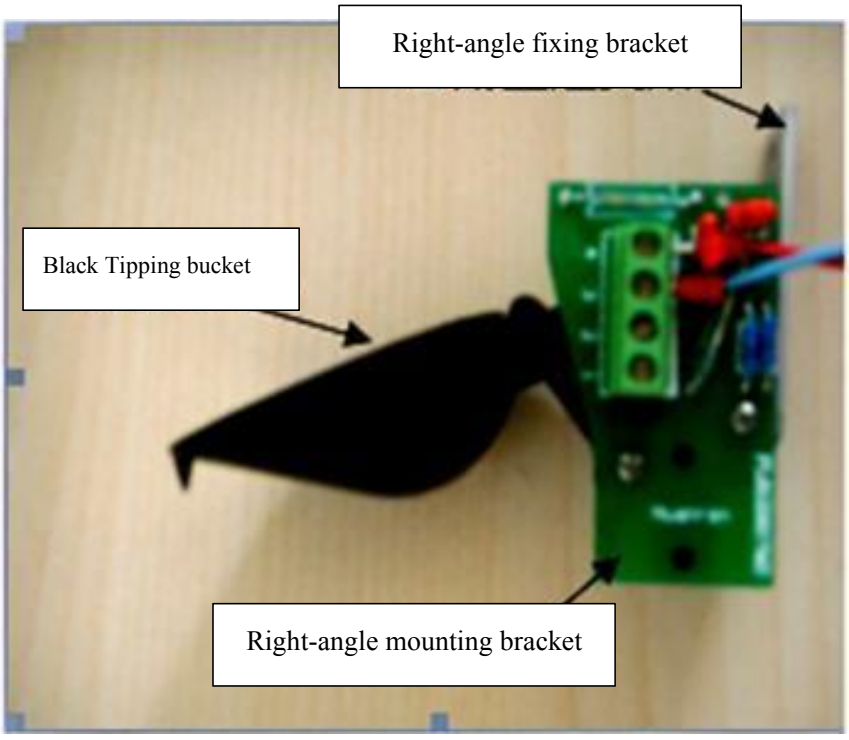
Rainfall Decimal = 0 + B*16+4 = 11*16 +4 = 180

Rianfall = Rainfall Decimal /10 = 180/10 = 18mm

STRUCTURE DIAGRAM




Right-angle mounting bracket
Water bucket
Bottom box


Right-angle fixing bracket
Black Tipping bucket
Right-angle mounting bracket

INSTALLATION, USE & MAINTENANCE

Remove the two Phillips screws on one side of the rain sensor;

Remove the bucket and remove the black bucket. Pass the cable through the side hole of the chassis and connect the two wires to the four-pin PCB green terminal blocks labeled 3 and 4 on the circuit control board.

Place the control board in the bottom box, align the two holes, and fix the circuit board;

Fix the bucket and the bottom box with screws;

Fix the rainfall sensor on the horizontal arm and use the spirit level to adjust it to the horizontal position. It is forbidden to collide and deform when picking up and placing the sensor;

Do not shift the long fixing screw on the other side of the black dumper, otherwise it will affect the measurement accuracy;

Avoid wearing edges of buckets;

Pay attention to the rain gauge bottom box with one hand, and carefully leave the bucket with the other hand (off the bottom box)

The installation location of the instrument is usually in an open area. There are no big trees or tall buildings to block the precipitation. Try to avoid the leaves and other debris from falling into the bucket, which will affect the normal operation of the rain gauge.

MAINTENANCE

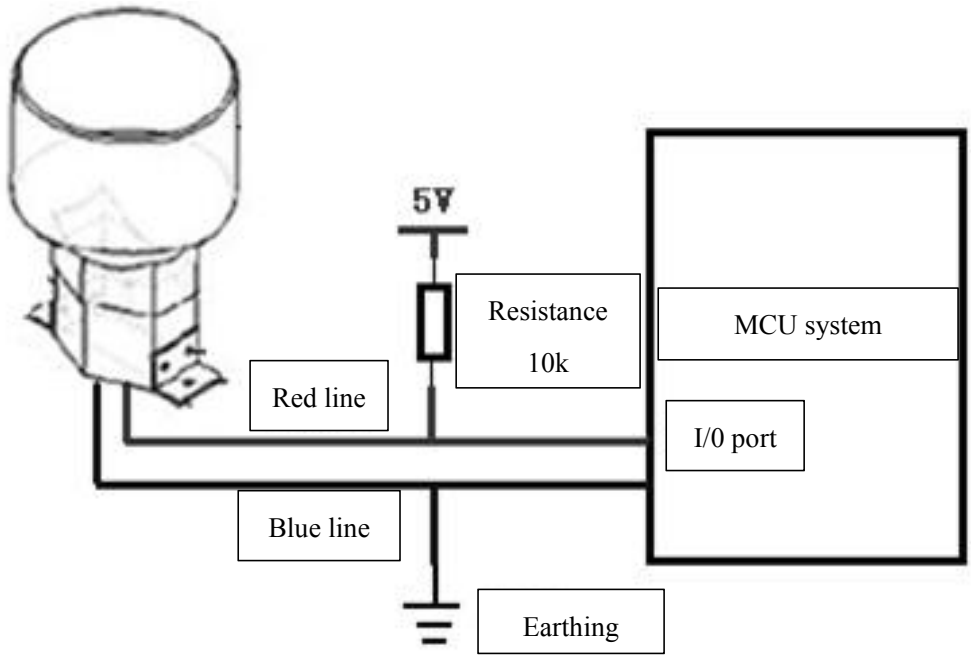
The instrument should be maintained once a month during use to prevent wind and sand and other factors from affecting normal use;

Observe whether there is any dirt in the bucket. If so, clean the dirt;

Remove the bucket and observe whether there is sediment in the black bucket. If there is, remove the bucket gently, and then clean the mud (note that the control board and the long screws on the side of the bucket cannot be wet during the cleaning process. (Loose and dislodged) and wipe the cleaned bucket with a clean tissue. Then return the bucket back to the original position and gently flip the bucket so that it can flip normally.

After the above work is completed, fix the bucket and the chassis;

In winter or when it does not rain for a long time, the sensor housing should be covered with plastic to prevent wind and sand from blocking the sensor water inlet;



WARRANTY & SERVICE

Warranty commitment: the warranty period is 12 months from the delivery period (except for the product problems caused by the failure to operate according to the corresponding technical requirements or other human behaviors).

After sales commitment: users can consult relevant technical problems by phone and get clear solutions. If it is a quality problem, it can be returned to the factory for maintenance or replacement.

Service Phone：0310-8033736