USER GUIDE FOR CDY-12A TIPPING BUCKET RAIN SENSNOR

This document is applied for the following products

SKU	CDY	HW Ver.	1.0	FW Ver.	1.0
Item Code	CDY-12A	Rain Sensor, RS485 Relay(NO) Output, ABS			

1. Introductions

CDY-11A Rain & Snow Sensor is a high sensitive detector to achieve qualitative detection of rain and snow. There is a ring conductor sense rain board on the surface. Products are optional automatic melting snow and melting ice function (automatic heating). When it rains or snows, it will output switch signal.

2. Specification

| Item	Specification
Collector	Diameter :φ200mm, height: 271mm
Measured rainfall intensity	Max: 4mm/min
Allow rainfall intensity	Max: 8mm/min
Resolution	0.2mm
Accuracy(2mm/min)	±4%
Maximum load voltage	30VDC(pulse output)
Maximum load current	20mA
Output	Pulses(@10kΩ&0.01uF),RS485(12-24VDC supply)
Operating temperature	0-60℃@0%-100%RH
Main material	Rainfall collector & tipping bucket: ABS, Supporting leg:304SS
Weight(unpacked)	2kg

3.Working Process

The rain water enters the water bearing device through the water bearing mouth, and then flows into the tipping bucket through the funnel mouth. When the amount of water in the tipping bucket reaches a certain degree (such as 0.1mm, 0.2mm, 0.5mm, etc., different types of sensors may have different set values), the tipping bucket will be turned over due to the loss of balance due to gravity. Each time the skip is turned over, a switching signal is triggered (for example by a reed tube, etc.), producing a pulse signal. By recording the number of pulse signals, the corresponding precipitation can be converted.
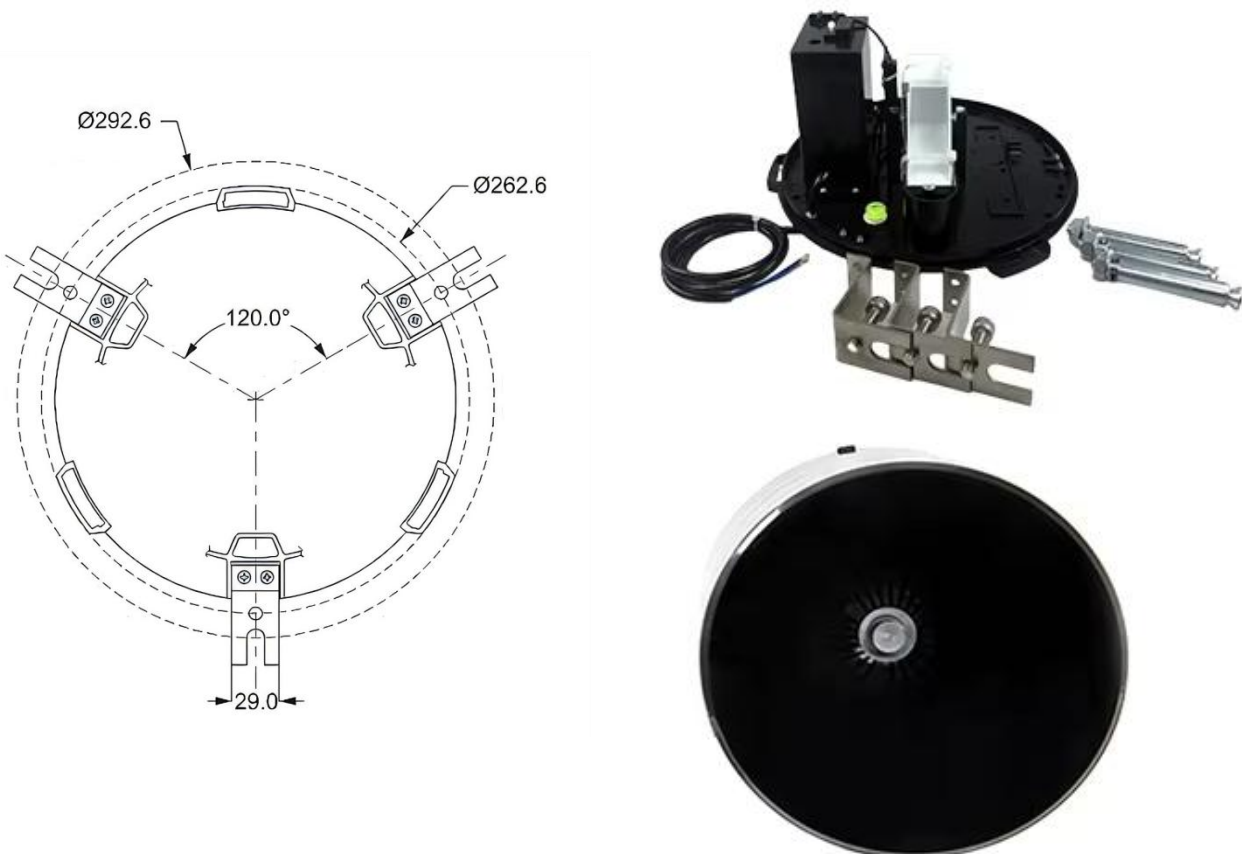
4. Electrical Connections

Cable	Pulse	RS485
Red	Signal_A	V+
Yellow	Signal_B	RS485A
Green	/	RS485B
Black	/	V-

5. Dimensions
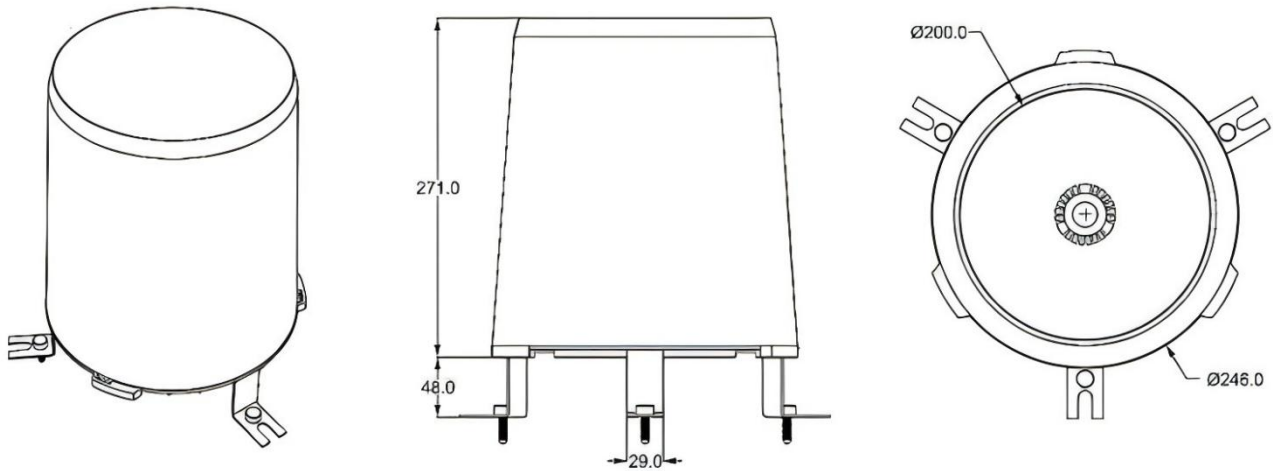
6. Installation

1.Remove the collector;

2.Using three fastening screws to fix this three support legs at the platform to keep the entire apparatus at an optimum level , which ensure the accuracy of rainfall data;

3.Take down the fixed rubber band, re-install the collector and then connect the cable to work normally.

7. Communication Protocol（MODBUS）

Transmission mode: MODBUS-RTU,**Baud rate:** 9600bps,**Data bits:**8,**Stop bit:**1,**Check bit:**no

Slave address:the factory default is 02H (set according to the need,00H to FFH)

7.1 The 03H Function Code Example: Read The Rainfall

Host Scan Order(slave address:0x02)

02 03 00 02 00 01 25F9
Slave Response

02 03 02 00 08 FD82
Rainfall:(0008)H=(8)D,8/10=0.8mm

7.2 The 10H Function Code Example: Clear The Rainfall Value(Restart the sensor can also be clear)

Host Scan Order(slave address:0x02)
02 10 00 00 00 01 02 00 00 B2A0

Slave Response
02 10 00 00 00 01 01FA

7.3 The 10H Function Code Example: Modify the slave address

Host Scan Order (Changed from 02H to 03H):

02 10 10 00 00 01 02 00 03 E360

Slave Response:

02 10 10 00 00 01 053A

If you forget the original address, you should use the broadcast address(00H) (ensure that no other devices on the bus at this time).

Note:
1. All underlined is fixed bit;

2. The last two bytes is CRC check command.

Note: This product has been tested and complies with European CE requirements for EMC directive.

8. Support contacts: