

RK400-04 Economical Tipping Bucket Rainfall

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RK400-04 Economical Tipping Bucket Rainfall Sensor is a hydrology, meteorological instrument used to measure the nature of rainfall, and it converts the precipitation into a pulse signal output. Designed with insect-proof nets, free blocking nozzle and built-in leveller. The model can be used in meteorology, hydrology, agriculture, forestry, field monitoring stations and other industries .Combined with rainfall recorder can be used to measure measure precipitation, precipitation intensity, precipitation time.

FEATURES

- Compact size for easy use
- High accuracy, good stability
- Mesh in the funnel preventing debris such as leaves and insects from entering the working of rain sensor
- Well made tipping bucket with low resistance
- The main body made of high strength ABS
- Horizontal Bubble in the bottom

Parts:

1. Rainfall sensor with cable: 1
2. Fixed foot and screw: 3

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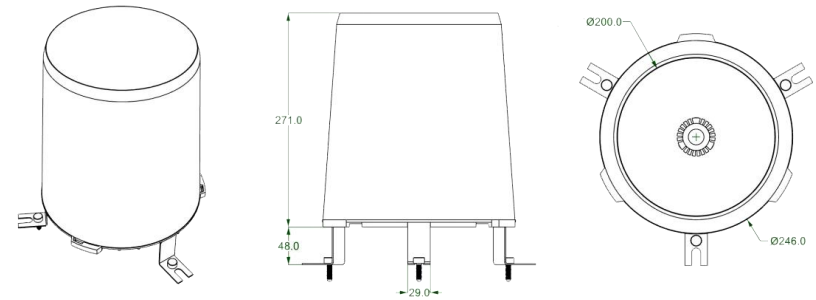
SPECIFICATIONS

Item	Specification
Collector	Diameter : ϕ 200mm, height: 271mm
Measured rainfall intensity	Max: 4mm/min
Allow rainfall intensity	Max: 8mm/min
Resolution	0.2mm
Accuracy(2mm/min)	\pm 4%
Maximum load voltage	30VDC(pulse output)
Maximum load current	20mA
Output	Pulses(@10k Ω &0.01uF),RS485(12-24VDC supply)
Operating temperature	0-60 $^{\circ}$ C@0%-100%RH
Main material	Rainfall collector & tipping bucket: ABS,
Weight(unpacked)	2.5kg

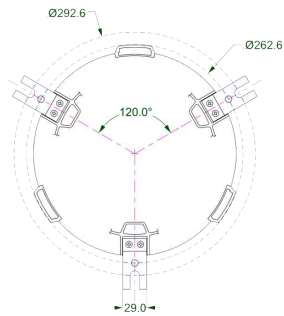
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MOUNTING

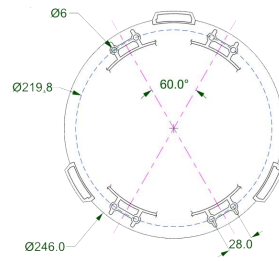
- 1.Remove the collector;
- 2.Using three fastening screws to fix this three support legs at the platform to keep the entire apparatus at an optimum level , which ensure the accuracy of rainfall data;
- 3.Take down the fixed rubber band, re-install the collector and then connect the cable to work normally.



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Installation hole position No.1



Installation hole position No.2

WARRANTY

This product is warranted to be free of defects in materials and construction for a period of 12 months from date of lead time. Liability is limited to repair or replacement of defective item.

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ELECTRICAL CONNECTIONS:

Cable	Pulse	RS485
Brown	Signal_A	V+
Blue	Signal_B	RS485A
Grey		RS485B
Black		V-

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

WORKING PROCESS

Rainfall is captured in the 200mm diameter collector funnel and is directed through a delivery pipe to fill a divided ABS injection molded tipping bucket device. The bucket is pivoted through its center and has a preset calibration to tip for 0.2 mm of rainfall. When the bucket is "full", it pivots and empties - this action magnetically closes and opens a reed switch, sending a pulse signal to the data logger or electronic counter. Through this tipping "seesaw" action, the other side of the bucket is aligned to receive the flow from the delivery pipe. This recording and tipping cycle continues with rainfall.

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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)

- The 03H Function Code Example: Read The Rainfall

Host Scan Order (slave address: 0x02)

02 03 00 00 00 01 8439

Slave Response

02 03 02 00 08 FD82

Rainfall: $(0008)H = (8)D, 8/10 = 0.8mm$

- 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

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- 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).

 Complies with applicable CE directives.

Manual subject to change without notice. Version 1.0

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