CDQ-X100 Piezoelectric Type Rain

For weather automation applications

Features

- Light and strong
- High accuracy, good stability
- Easy to install
- Low power consumption
- Compact design, no moving parts
- One year warranty
- Maintenance-free

CDQ-X100 piezoelectric rain gauge is a monitoring equipment developed for hydrology and water conservancy industry. Through a maintenance-free, no moving parts piezoelectric principle to measure rainfall, outdoor rainfall parameters can be realized 24 hours continuous online monitoring.

Typical installation locations

- Top of building
- Solar energy
- Open areas
- Outdoor locations

Design structure

The piezoelectric rain sensor uses the piezoelectric effect to measure the rainfall. When a raindrop hits the sensor's piezoelectric element, it creates a small change in electrical charge. This change in charge is proportional to the size of the raindrop and the force of the impact, and by measuring the change in charge, the amount of rain can be calculated.

Specifically, piezoelectric elements are usually made of piezoelectric ceramics or piezoelectric crystal materials. When a raindrop hits a piezoelectric element, the piezoelectric material deforms, creating an electric charge.

Easy installation

Should be installed in an open, flat and unobstructed area, and avoid installation near buildings, trees or other objects that may affect the accurate measurement of rainfall. It is generally required that the distance between the height of the instrument's rain socket and the ground plane is 70cm, and it is ensured that no shelter higher than the instrument's rain socket is allowed within 3-5 meters around the instrument's mouth.

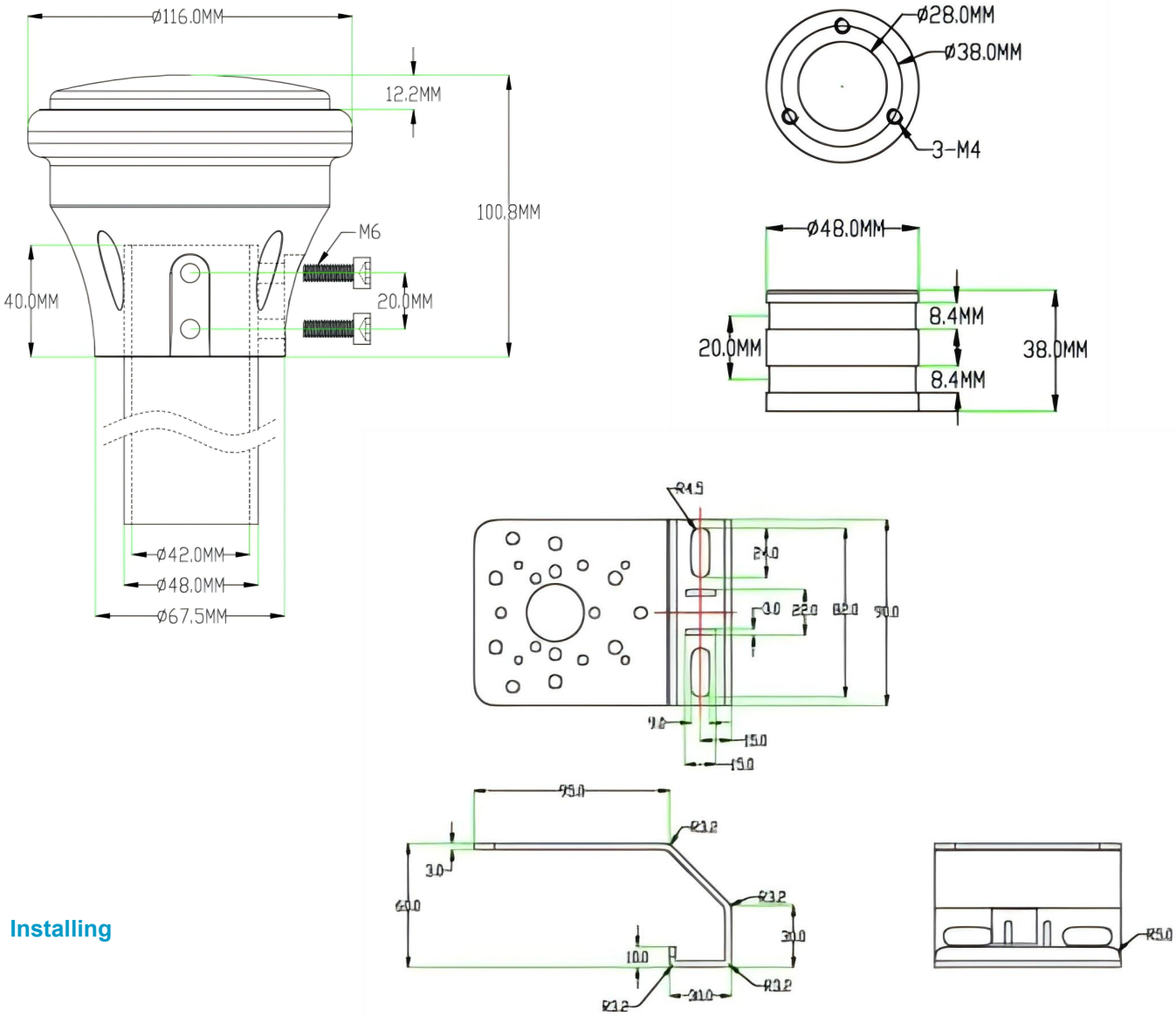
Reliable operation

The correct installation position and method are critical to the reliability of the sensor. The sensor should be installed in an open, unobstructed place to ensure that rainwater can accurately flow into the water receiver. At the same time, the installation should ensure the level of the sensor to avoid affecting the measurement accuracy due to tilt.

Regular maintenance and calibration are important measures to ensure the reliability of the sensor. This includes cleaning the water carrier, checking the rotation flexibility of the tipper, and calibrating the measurement accuracy of the sensor. Detecting and handling sensor faults in a timely manner can prevent fault expansion and improve sensor reliability.

Dimensions & packing

CDQ-X100 connector dimension



Installing

Mounting bracket (if required) :

Select the appropriate mounting bracket according to the characteristics of the installation position.

Install the bracket firmly in the selected position using screws or other fastening methods.

Install sensors:

Fix the optical rainfall sensor on the mounting bracket to ensure that it is firmly installed without loosening or shaking.

Depending on the type of sensor and installation requirements, the orientation and Angle of the sensor are adjusted so that it can best detect rainfall conditions.

Connecting cable:

Connect the cable of the sensor to the corresponding monitoring device or control system.

Ensure that the cable is securely connected and not loose or in poor contact.

Pay attention to the direction and protection of cables to avoid cable damage or interference.

Technical data

Measurement performance, models CDQ-X100

Item	Specification
Rainfall	Measurement form: piezoelectric type; Measuring range: 0-200mm/h; Resolution: 0.2mm; Sampling frequency: 1HZ
Electrical Parameters	Power supply: DC12-24V; RS485 interface (MODBUS protocol); Power consumption <0.2W
Optional Output	Continuous rainfall; rainfall duration;rainfall intensity;maximum rain intensity
Maximum output frequency	Passive mode:1/S
Operating Temperature	0℃—70℃
Protect level	IP65
Fixed Method	The standard product is sleeve-type fixed,see the product size drawing (optional flange fixing or bending plate fixing method)
Fixed Bracket (additional purchased)	Optional 1.5m or 1.8m brackets

Model number	Type	Output	Special features
CDF-10A	Wind speed	Pulses(PNP) RS485 4-20MA 0-5V	Three cup plastic wind speed
CDF-11A	Wind direction	RS485 4-20MA 0-5V	Plastic wind direction sensor
CDF-20B	Combined Wind Speed & Direction	RS485 4-20MA 0-5V 0-10V	Integrated wind speed and direction
CDG-10B	Solar Radiation	0-5V,4-20mA,RS485	Spectral range:300～1100nm
CDG-13B	Ultraviolet(UV) Radiation	0-5V 0-10V 4-20mA RS485	Spectral range:280～400nm
CDW-33A	Atmospheric Temperature,Humidity & Pressure	RS485	Shelter installation
CDY-10B	Metal Economical Tipping Bucket Rainfall	Pulses(@10kΩ&0.01uF),RS485	Diameter :φ200mm, height: 330mm
CDY-11A	Rain & Snow Sensor	Relay(NO) RS485	Gold-plated(Strong corrosion resistance)
CDY-12A	Economical Tipping Bucket Rainfall	Pulses(@10kΩ&0.01uF),RS485	Diameter :φ200mm, height: 271mm
CDY-14B	Evaporation sensor	RS485	Range 75mm
CDY-15A	Optical Rain Sensor	Pulses(@10kΩ&0.01uF),RS485(12VDC supply)	Diameter :φ82mm, height: 80mm
CDQ-X100	Piezoelectric Type Rain	RS485	Measuring range: 0-200mm/h
CDY-18B	Automatic rainfall station	4G/WIFI/Ethernet	LCD display

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