



RainVue 10

SDI-12 Precipitation Sensor with Plastic Funnel



Simple and Economical with Digital Output

Overview

The RainVue™10 is ideal for many hydrological or meteorological applications such as weather stations and flood warning systems. The RainVue 10 is an SDI-12 tipping bucket rain gage in the RainVue™ family of products. Advanced algorithms and digital processing within the sensor compensate for errors caused by high-intensity rain and provide accurate precipitation and intensity measurements.

Constructed of an aerodynamic plastic funnel, the RainVue 10 is cost effective and minimizes the amount of liquid precipitation that is lost due to the effects of wind. This rain gage offers the user flexibility with the option to select from a series of set cable lengths or a user-defined cable length.

Benefits and Features

- › Durable ASA plastic construction providing UV stability and exceptional strength for all environments
- › Digital processing to correct for high-intensity precipitation errors up to 500 mm/h (20 in./h)
- › Precipitation intensity measurements up to 1000 mm/h
- › Meets WMO recommendations for funnel area
- › Tilt, internal temperature, and voltage measurement for remote diagnostics on the sensor
- › Built-in bubble level for easy leveling
- › Adjustable mounting feet to simplify leveling
- › Unique aerodynamic shape to increase accuracy by minimizing effects of wind
- › Built-in data recording and battery backup to prevent data loss from power or communications disruptions

Detailed Description

The RainVue 10 funnels rainfall through a stainless-steel gauze filter that traps and removes debris. The rainfall flows through a nozzle into one of the two halves of the tipping bucket. The internal tipping bucket assembly rotates around precision rolling pivot bearings and tips when the first bucket fills to a fixed calibrated level. Then the balance arm moves the second

bucket under the funnel. A magnet attached to the balance arm actuates a reed switch as the bucket tips.

The aerodynamic design of the RainVue 10 prevents wind from carrying the rainfall away from the collecting vessel. With traditional cylindrical rain gages, wind can reduce the rainfall

catch by up to 20 percent. The deep funnel catch also minimizes splashing out and loss due to high winds and heavy

rainfall. The RainVue 10 also includes a microprocessor that corrects for rainfall intensity and outputs an SDI-12 signal.

Specifications

Sensor Type	Tipping bucket with magnetic reed switch
Material	Injection-molded, highly robust, UV-stabilized plastic (ASA LI-911)
Output	SDI-12 version 1.4
Sensor Configuration	SDI-12 or USB
Operating Temperature Range	<ul style="list-style-type: none"> › -40 to +70°C (including melting snow) › 1 to 70°C (liquid precipitation only)
Power Requirements	6 to 18 Vdc
Current Drain	<ul style="list-style-type: none"> › 1 mA (active) › 0.07 mA (quiescent)
Internal Battery	240 mAh lithium battery (provides up to 15 days of continual operation after power loss; battery will last longer under ideal conditions)
Response Time	<ul style="list-style-type: none"> › 1 s (for M1! command) › 0 s (for M0! command)
Measurement Uncertainty	<ul style="list-style-type: none"> › 1° (tilt) › 0.25°C (temperature) › 0.5 V (supply voltage) › <i>Note: Accuracy over the rain intensity range requires a mechanical calibration that is within 1% at a 1 in./h intensity.</i> <p><i>RainVue 10 sensors are calibrated at the factory to meet this specification but should be verified prior to deployment.</i></p>
Orifice Diameter	20.0 cm (7.87 in.)
Collecting Area	314.16 cm ² (48.67 in. ²)
Height	43.5 to 46.5 cm (17.1 to 18.3 in.) with feet adjustment
Weight	2 kg (4.5 lb)

0.01 Inch Option

Measurement Range	0 to 1200 mm/h (0 to 48 in./h)
Precipitation Amount Resolution	0.254 mm (0.01 in.)
Precipitation Amount Measurement Uncertainty	1% at 0 to 1200 mm/h intensity (0 to 48 in./h intensity)
Precipitation Intensity Range	0 to 1200 mm/h (0 to 48 in./h)
WMO Compliant	No

0.1 Millimeter Option

Measurement Range	0 to 500 mm/h (0 to 19.7 in./h)
Precipitation Amount Resolution	0.1 mm (0.004 in.)
Precipitation Amount Measurement Uncertainty	The larger of 0.1 mm or 4% error at 0 to 500 mm/h intensity (0 to 19.7 in./h intensity)
Precipitation Intensity Range	0 to 500 mm/h (0 to 19.7 in./h)
Precipitation Intensity Measurement Uncertainty	<ul style="list-style-type: none"> › ≤ 3.5% at 0 to 300 mm/h (7.9 to 11.8 in./h) › ≤ 5% at 0 to 500 mm/h (11.8 to 19.7 in./h)
WMO Compliant	Yes

0.2 Millimeter Option

Measurement Range	0 to 1000 mm/h (0 to 39.4 in./h)
Precipitation Amount Resolution	0.2 mm (0.008 in.)
Precipitation Amount Measurement Uncertainty	< 4% at 0 to 1000 mm/h intensity (0 to 39.4 in./h intensity)
Precipitation Intensity Range	0 to 500 mm/h (0 to 19.7 in./h)
Precipitation Intensity Measurement Uncertainty	4% at 0 to 1000 mm/h (0 to 39.4 in./h)
WMO Compliant	No

For comprehensive details, visit: www.campbellsci.com/rainvue10



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