



- AGRICULTURE
- COASTAL

- HYDROLOGY
- INDUSTRIAL & PLC

- METEOROLOGY
- SMART CITIES & IOT

- SOLAR POWER PLANTS
- WEATHER STATIONS

## Ø 200 cm<sup>2</sup> Self-Balancing, Self-Emptying Rain Gauge

**Wireless MeteoRain™ IoT Compact** features a self-balancing measuring mechanism with very high repeatability of measurement and accuracy even at high-rain rates. Highly resistant to soiling of the internal measuring mechanism over time, mechanical friction, residual water remaining in measuring spoon from last rain event, debris entering the measuring mechanism, vibrations and non-level mounting among many.

### Notable features include:

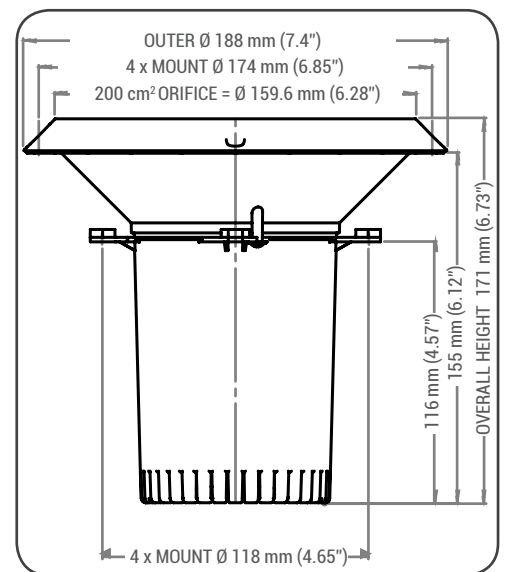
- No solar panel required
- 4+ years of battery life with 10 minute sending interval of data when raining
- Robust stainless steel mount with multiple mounting options
- Simple and highly reliable measuring principle and electronics
- Easy to maintain and simple to clean with a removable funnel sieve/sift
- Robust and impact resistant funnel and housing
- Effect of non-level mounting is minimized with this self-balancing design
- Easy adjustment and recalibration of internal measuring mechanism
- High-speed (0.13 s) self-emptying mechanism for high precipitation rate accuracy
- High-dynamic range up to 10 mm/minute (50 tips/minute) rain rates
- Bird-spikes and leaf fence are available
- Low-profile funnel for easy cleaning with a sharp edge for accuracy

Self-balancing, self-emptying magnetic tipping bucket technology to ensure uninterrupted measurement of precipitation regardless of amount and intensity.

It measures rain by means of a standardized orifice funnel which collects water into the precision measuring mechanism. The mechanism offers more **consistent long-term response** than standard tipping-bucket rain gauges and is accurate even in high rain rates.

### Individually tested

Rain gauges are individually tested and use high quality sealed reed switches. Electronics are protected against salt spray, water, frost and heat by a weather-resistant coating.



Pluviometer type	Accuracy	Stability	Resolution	Measuring range	Operating range	Starting threshold *	Rain orifice area
Precipitation type: Liquid (Rain)	< ±1% for rain rates < 100mm/hr	< 0.0125 mm per year	0.2 mm	Up to 600 mm/hr in above freezing conditions	-40 °C...80 °C	0.25 mm *	200 cm <sup>2</sup> (Ø 16.0 cm, 6.3")

\* Rain gauge starting value is the amount of precipitation required to register a first reading. All funnel based rain gauges trap a small amount of precipitation on the funnel surface before rain water reaches the measuring mechanism. This includes drops remaining on funnel surface (funnel wetting), evaporation from the funnel surface, wetting of debris, dirt, and dust in the funnel catch sieve/sift and water opening. Rain gauge inspection interval should be determined by user experience and the environment.

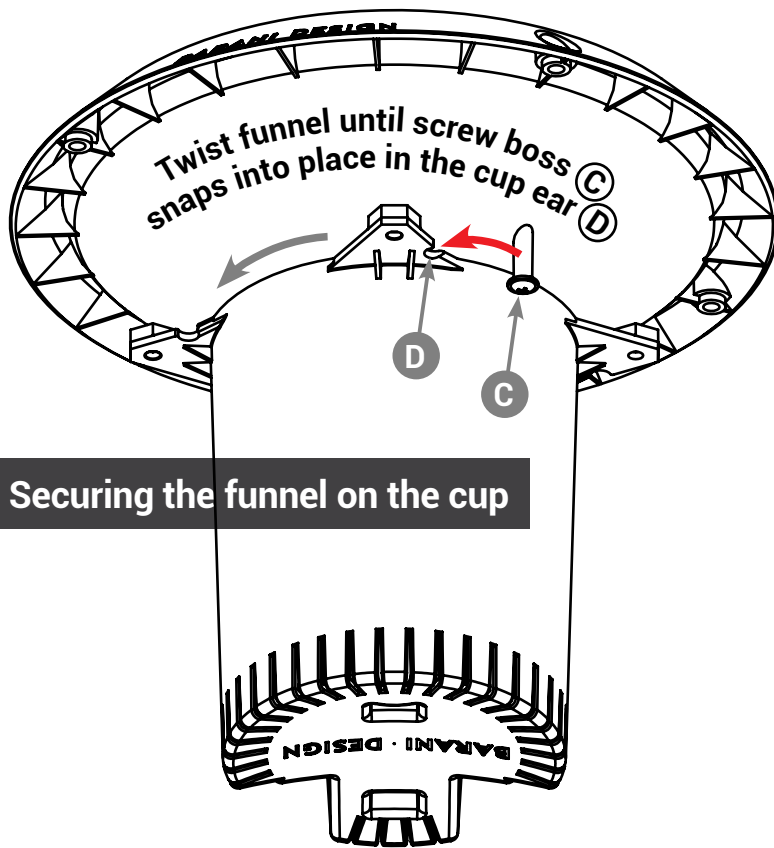
Electrical Interface	Wireless network compatibility	Battery type	Battery life **	Shock resistance
Wireless	All regions LoRaWAN and Sigfox. (NB-IoT coming soon)	Lithium Ion	4+ years **	15 g

\*\* Based on 2200 hours of rainfall per year.

**For agricultural and IoT use where consistent measurement and long-term reliable maintenance-free operation are important**

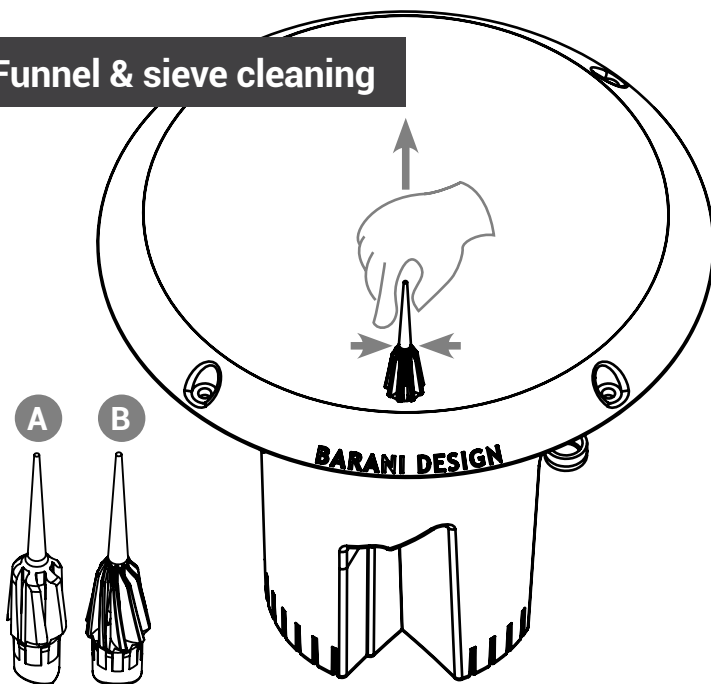


Weather resistant, robust and simple to maintain with reliable ultra-low power reed switch operation. ISO:9001 quality



## Securing the funnel on the cup

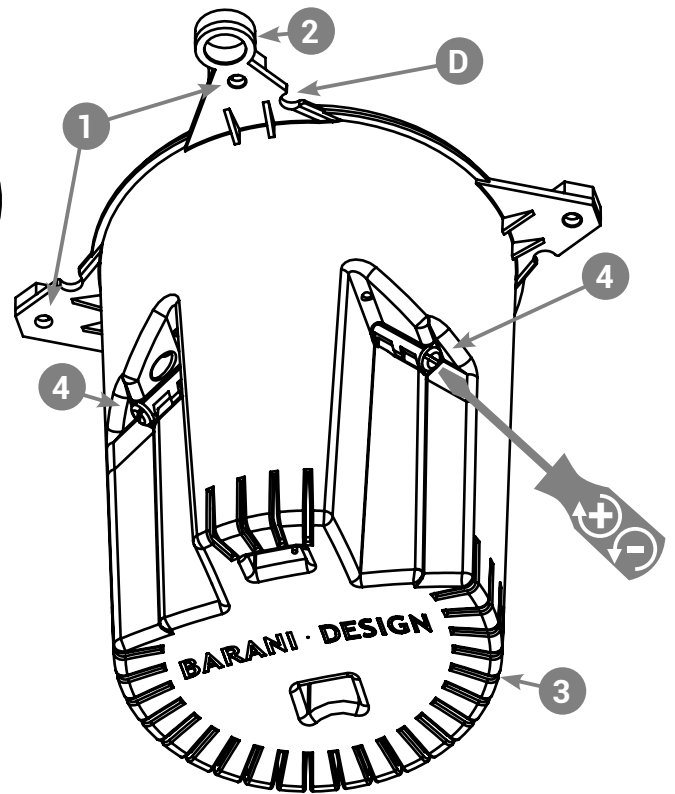
## Funnel & sieve cleaning



**A** Coarse sieve/sift

**B** Fine sieve/sift

1. Remove the funnel by twisting out of the snaps on the cup ears.
2. Remove the spiked sieve by gently pinching and pulling up.
3. Wipe the funnel with a moist cloth and clean the sieve.
4. Reinstall the funnel by twisting into the snaps on the cup ears.
5. Insert the sieve by pushing down until it snaps into place.



- 1 Cup leveling & mounting screw holes
- 2 Spirit level holder for rain gauge leveling
- 3 Drain slots all around the perimeter
- 4 Calibration adjustment screws for the self-balancing tipping bucket mechanism

## Calibration procedure

1. Make sure the rain gauge is sitting level before beginning this procedure.
2. Obtain a 4 ml or 5 ml syringe so that you can easily adjust the dose into each bucket, and dose single drops.
3. Practice filling the buckets from the electronics PCB board height so that you are able to dose exactly 4 ml.
4. Close to the tipping point of the bucket slow down and drop one drop at a time until it tips to the other side.
5. Adjust the calibration adjustment screws with a screwdriver so that each side of the tipping bucket mechanism tips with exactly 4 ml of water. Turning the adjustment screw clockwise = (+) tips with more water.
6. You should easily be able to achieve repeatability of  $\pm 1$  drop.

Due to this rain gauge's self-balancing measuring tipping bucket design, it is able to consistently achieve a  $\pm 1$  drop bucket tipping point. It is also much less sensitive to not sitting level than other rain gauges, which is one of the major causes of error in precipitation measurement.



## Mounting options

Rain gauge can either be mounted on the 4 funnel or on the 4 cup mounting points.

We recommend using only 3 of the 4 mounting points so that leveling can be performed easily since the mounting points are 90° apart.

Shown below are two available stainless steel mounts for the rain gauge.

Bubble **L** points to the spirit level holder for rain gauge leveling.

