



## Precipitation Gauges

### Continuous, automatic recording of precipitation amount

For recording any kind of precipitation (rain) with its intensity in the nature usually tipping bucket precipitation gauges and samplers are used. If precipitation has to be measured also in winter with temperatures below the freezing point, the measuring instrument has to be equipped with a heating.

#### precipitation gauge using the weighing principle NIWA-215/415

NIWA-215/415 is an innovative high-quality precipitation gauge using the weighing principle for measuring liquid, solid and mixed precipitation within a wide temperature range. It conforms to the most stringent requirements of the WMO. NIWA-215/415 is a low power device even during cold winter times, as the heating is controlled by a combination of temperature settings and rain events.

NIWA-215/415 achieves very high levels of accuracy by means of correcting the data to eliminate the influence of wind vibration, particles, unrealistic weight variations, evaporation, and temperature fluctuation.

Regarding the bucket orifice different NIWA-215/415 versions are on hand of 200 and 400cm<sup>2</sup>. The following readings are available via serial interfaces:

- One-minute intensity
- Total sum of precipitation
- Rain duration

The tried and proven design of the NIWA-215/415 ensures long-term accurate and repeatable results. It is manufactured from high quality, durable materials ensuring longterm stability in the harshest of environments. Above that, NIWA-215/415 has no moving parts. Rain and snow are weighed using a strain-gauge bridge.

The NIWA-215/415 excels by means of coupling a simple mechanical construction with advanced weight measuring cells and sophisticated firmware. NIWA-215/415 is designed as a low-maintenance device: large aperture to ensure inflow, load cell and simple mechanical design. The advanced high-resolution load cell turns the PreciBal into a balance determining rain mass rather than volume assuring a higher accuracy. Low power consumption, low maintenance, high accuracy and sophisticated algorithms ensure reduced operational costs and better data. In addition, the USB interface allows quick field checks of the device.

## Technical details

- **Measuring element/-principle** weighing principle
- **Measuring area** 200 cm<sup>2</sup> and 40cm<sup>2</sup>
- **Output** SDI-12 or impulse (potential-free contact)
- **Mounting** on pillar or bracket

## Tipping Bucket Precipitation Gauge MR2

The tipping bucket rain measuring system MR2 is a compact precipitation gauge for recording the rain quantity and intensity with a measuring area of 200 cm<sup>2</sup>. The MR2 works with a rocker, which is mounted smoothly. As an option, the precipitation gauge can be equipped with a heating system as to ensure an operation the whole year-round. For the heating of the gauge a power supply (220/230 V AC) is necessary because of the high power consumption of the self.

## Technical details

- **Measuring element/-principle** tipping bucket measuring system
- **Measuring area** 200 cm<sup>2</sup>; resolution: 0.2 mm
- **Output** impulse (potential-free contact)
- **Protection** IP 65
- **Dimensions** ø 180 mm; height 270 mm
- **Mounting** on pillar or bracket

## Tipping Bucket Precipitation Gauge MR3

The tipping bucket rain measuring system MR3 is a compact precipitation gauge for recording the rain quantity and intensity with a measuring area of 500 cm<sup>2</sup>. The MR3 works with a rocker, which is mounted smoothly. As an option, the precipitation gauge can be equipped with a heating system as to ensure an operation the whole year-round. For the heating of the gauge a power supply (220/230 V AC) is necessary because of the high power consumption of the self. The measuring area of 500cm<sup>2</sup> and the resolution of 0.1 mm conforms to the WMO-standards.

## Technical details

- **Measuring element/-principle** tipping bucket measuring system
- **Measuring area** 500 cm<sup>2</sup>; resolution: 0.1 mm
- **Output** impulse (potential-free contact)
- **Protection** IP 65
- **Dimensions** ø 275 mm; height 330 mm
- **Mounting** on pillar or bracket