PreciBal

Weighing Principle Precipitation Gauge

Meteorology

App included

General Description

KISTERS' PreciBal 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**. PreciBal is a low power device even during cold winter times by using anti-freeze agent to decrease the freezing point of collected water. The optional heating is controlled by a combination of temperature settings and solid precipitation events to avoid snow capping and ice accretion at extreme environmental conditions.

PreciBal 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. The result is outstanding measuring performance in terms of accuracy, long term calibration for real-time precipitation monitoring at entire intensity range up to 3000 mm/h.

The compact design allows for easy installation. Due to its **low power consumption** PreciBal is ideal for remote stations powered by battery or a small solar panel. Two different versions regarding the bucket orifice (200 / 314 cm^2) and collecting size (1.500 / 1.000 mm) are available. **Processed precipitation data** (one-minute intensity, various cumulative precipitation data, weight, temperature) are available via serial interfaces and via the PreciBal app (see flipside).

PreciBal with its solid state design without any moving part measures liquid and solid precipitation by its factory life time calibrated and adjusted load cell at highest standards and performance on accuracy and reliability. **Low power consumption, low maintenance and high accuracy** provide reduced operational costs, less staff deployment in the field, better data and high data availability.

In addition to KISTERS' data loggers (see flipside), PreciBal is compatible with other data loggers and ideal for deployment at new sites or expansion of precipitation monitoring networks.

Applications

- Precipitation and automatic weather stations
- Synoptical and climatological stations
- Hydrometeorological stations at remote sites without main grid (e.g. high mountain applications)
- Flood warning systems
- Weather radar calibration
- Mesonet and climate change
- Urban and municipalities

Features

- Linear characteristic at entire intensity range up to 3000 mm/h
- Extra low power consumption < 40 mW
- Long term maintenance schedule for emptying the bucket
- Sustainable design for long term calibration, high MTBF and low costs of ownership
- Hermetical sealed load cell for life time calibration







- Easy installation and field deployment by M12-8pol connector for sensor and M12-4pol connector for heater
- Bluetooth® communication for monitoring, settings and firmware update via app
- Output signals: SDI-12, RS 485 (MODBUS-RTU/ASCII), Pulse Output
- Metric or imperial units

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Technical Specifications

Type	PreciBal 200	PreciBal 314	PreciBal 400
Orifice area	200 cm² (31.00 in²)	314 cm² (48.67 in²)	400 cm² (62.00 in²)
Precipitation range	1500 mm (59.06 in)	955 mm (37.60 in)	750 mm (29.53 in)
Absolute accuracy	±0.1 %		
Relative accuracy	±1 %		
Accuracy of precipitation amount	0.025 mm (0.001 in)		
Accuracy of precipitation intensity	0.025 mm/min (0.001 in/min)		
Threshold	0.05 mm (0.002 in)	0.032 mm (0.0013 in)	0.025 mm (0.001 in)
Maximum precipitation intensity	3600 mm/hr (141.73 in/hr)		
Resolution	0.001/0.01 mm (0.00004/0.0004 in)		
Measuring element	load cell		
Supply voltage	5 … 30 V DC (reverse polarity protection)		
Power consumption/ Current consumption	<25 mW; 4 mA (5 V) … 0.5 mA (24 V)		
Heating voltage (heating power)	10–30 V AC/DC; I ≈ 0.8–2.5 A; P ≈ 8–75 W		
Pulse output	Relay contact; 2 Hz (250/250 ms); 1/0.1/0.01 mm per pulse; max. 24 V / 0.5 A		
Interfaces	SDI-12, RS-485 (2-wire, 300–115,200 bit/s), Bluetooth® Low Energy, USB (optional)		
Installation	SDI-12 Version 1.4, Modbus RTU		
Dimensions (without base)	Ø 385 × 650 mm (Ø 15.16 × 25.59 in)	Ø 385 × 610 mm (Ø 15.16 × 24.02 in)	Ø 385 × 610 mm (Ø 15.16 × 24.02 in)
Mass	9.5 kg (20.94 lb)	9.5 kg (20.94 lb)	9.5 kg (20.94 lb)
Operating temperature range	-40 … +70 °C (-40 … +158 °F)		
Storage temperature	-50 … +70 °C (-58 … +158 °F)		
Operating humidity	0 … 100 %		

Options & Accessories



PreciBal App (for Android and iOS): Enables streamlined set-up, viewing of measured data, real time diagnostics and the performance of service tasks all right from within the app. It gives immediate confirmation that PreciBal is fully operational. Bluetooth® enabled, the app is extremely helpful in challenging weather conditions: No need to plug in cables or reach up poles to remove the enclosure. Download: KISTERS' website or Apple / Google Play store.

Versions and Accessories:

- **Versions**: PreciBal 200, 314 (unheated) / Precibal 200-RH, 314-RH (heated)
- **M12 cable**: 10 m / 8-pol (sensor) and 4-pol (heater)
- **Mounting Bracket** HS 334 (3 point to 2") / HS 334-X (3 point to 4")
- **Poles**:
  2" poles for 1 to 1.5 m measuring height;
  4" poles for 1 to 4 m measuring height
- **Bird Guard**
- **SDI 12-USB converter**
- **Wind Shield**
- **iRIS dataloggers and data modems**:
  Robust housing; IP over one or two channels of your choice (xG / GPRS, satellite, IoT); I/O: analog, digital, SDI-12, Modbus; iLink software; Telemetry or cloud app

Please ask for details.

Specifications are subject to change without notice. Weights and dimensions are indicative. - © 2024 KISTERS AG | Version: 2026-04

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