

**RG – Rain gauge 200, 400cm²
(option heater for snow and ice)
(Rev.3 010917)**



Description

The RG rain gauges series are tipping bucket sensors for the continuous measurement of liquid or solid atmospheric precipitation. The sensor is available with a funnel collection area of 200 or 400 cm². It's entirely built with corrosion-resistant materials to ensure a long life, reliability and robustness.

The tipping bucket system is housed within a sealed compartment that protects it from dirt and insects. The sealed compartment is fixed on a basement platform, moreover includes 2 mounting holes to drain the measured rain and three adjustment screws for rain gauge leveling by a bubble level .

The funnel rain collector, has an internal shaping debounce that meets the guidelines of the WMO – World Meteorological Organization, it's treated with special non-stick coatings to ensure optimal flow of the rain precipitated.

The bottom of the funnel is equipped with two filters to prevent that debris could end into the tipping bucket system and stuff it.

1. The first filter is constituted by a removable device that retains the larger depositions such as leaves, twigs, solids precipitated, preventing these elements could block the opening hole that brings water to the measurement system.
2. The second filter is a overflow system that retains the small and dusty depositions and conveys the perfectly clean water in to the tipping bucket measurement system, avoiding in this way sediment deposition that may alter the tilting balance ensuring the correctness of the measurement.

Reached the set level, the bucket under the action of its own weight, rotates draining the rain. During the rotation, the normally open reed contact closes generating an electrical pulse. The precipitation measurement is based on the number of bucket emptying cycles. The reed contacts closes at the time of rotation between one section and the other. The number of pulses can be detected and recorded by the data logger mod. mMET1-2-3 Geoves or by any standard pulse counter.

To ensure an accurate measurement even under low temperature climatic conditions or in case of presence of snowfall, it's available a heated version which is automatically powered around +4 °C in order to prevent the deposit of snow and ice formation



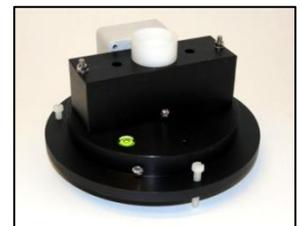
Raingauge with 200cm² orifice

Advantages

- ✓ Excellent quality / price ratio
- ✓ Excellent accuracy
- ✓ Excellent behavior in temperature

Main Applications

- ✓ Environmental Analysis
- ✓ Meteorology
- ✓ Hydrometry and Glaciology
- ✓ Agriculture
- ✓ Reclamation and dams



Rain gauge internal view



View of the rainfall collection funnel

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Technical Specs

Model	RG200, RG400	RG200R, RG400R (with heater)
Measurement range	infinite	
Transducer	Tipping bucket	
Funnel area	Vers. RG200: 200cm ² Vers. RG400: 400cm ²	
Outputs: Vers. -N with CP/VI interface	NO Contact (normally open, closes during the commutation) 4...20mA or 0...10Vdc (automatic reset when it reaches the full scale)	
Power supply	None	12-24Vdc 60W
Accuracy	Class B ref.UNI 11452:2012 (class A with linking to the dataloggers Geoves)	
Resolution	Versions RG200: 0.2mm/commutation, Versions RG400: 0.1mm/commutation	
Heater turn-on temperature	/	+4°C
Working temperature	0...+80°C	-30...+80°C
Protection degree	IP67	
Materials	Painted AISI304 stainless steel (body), teflon (base and tilting bucket system)	
Dimensions, weight	RG200: h210 x ø160mm, 1000g, RG400: h350 x ø224mm, 1100g	

Accessories

Cable	Shielded for outdoor. Available lengths: 4, 12, 22m (others upon request)
Cod. CSxx (xx= meters of cable)	Sensor cable with open wires (sensor and datalogger side)
Cod. CSDxx	Sensor- Geoves' datalogger cable with open wires (sensor side) and terminal (datalogger side)
Supports and brackets	Zinc-coated steel
Cod. SPL100 Cod. SPL100P Cod. SPL100T	Rain gauge support with pole ø45mm h=100cm, plate SPL-B and the following bracket (at your choice): () fastening on the concrete floor (standard version if not specified in the order) (P) fastening on the wall (to specify in the order). (T) fastening to the tubular or special structures (to specify in the order).
Cod. SPL150	Rain gauge support with plate SPL-B, pole ø45mm h=150cm (100cm above ground and 50cm in the soil).
Cod. SPL-B	Rain gauge base for mounting on the poles ø30...50mm.
Cod. SPL-P	Bracket for mounting on the wall
Cod. SPL-L	L bracket for mounting on the poles ø25...76mm.
Interfaces	
Cod. TERMST Cod. AL220-24 Cod. CP/VI	Thermostatisation device for rain gauges and anemometers Power supply device for rain gauge heater RGxxx IN: 220Vac/OUT:24Vdc, Box IP65. 4...20mA or 0...10Vdc converter with automatic reset

Mounting

The rain gauge is supplied calibrated with instrumental constant 0.1mm/commutation for 400cm² and 0.2mm for 200cm² models. This constant is written on the instrument label to allow the correct measure calculation in case of interfacing to dataloggers not Geoves.

The rain gauge has several accessories that allow the following installation:

- Raised from the ground**, mounted on the pole with base for anchoring on concrete slab (cod. SPL100) or with plug-in buried pipe (SPL150)
- On the pole mounted on the **wall** (cod. SPL100P) or **other structures** such as cabins, railings, tubular brackets, etc.. (cod. SPL100T)
- Directly on **the floor** using the two holes in the base plat of rain gauge

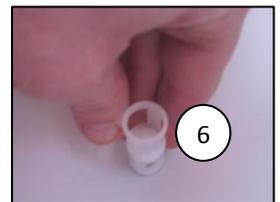
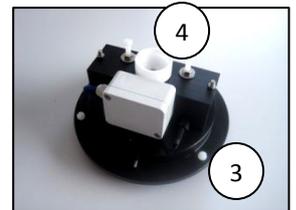
For every installation, there are three support feet adjustable in height for a correct leveling of the instrument seen from a spirit level.



Rain gauge installation raised from the ground with support cod. SPL100 (h=100cm, ø45mm)

Sequential operations for the mounting on the pole (typical installation)

1. Fastening the pole in the soil, on the floor or on the wall
2. Insert the metallic base plate ① on the top of the pole.
3. Unthread the rain gauge cilinder from the base unscrewing the three screws in the bottom border of the cilinder
4. Mount the rain gauge base ② to the metallic plate ① using the two screws supplied with the instrument without tighten them
5. Adjust the sensor level setting the three white plastic screws ③, checking that the bubble was in the center of the reference circle
6. Tighten the 2 fixing screws to the raingauge metallic plate
7. Insert the cilinder paying attention to center the orifice hole with the funnel ④ then push the cilinder till it lay to the base. Block the cilinder to the base of raingauge with the 3 nuts ⑤ at 120°
8. Insert the external filter in the conic orifice hole ⑥
9. Fasten the connecting cable ⑦ to the pole using plastic clamps. In this way the cable won't damage with the wind



Installation

Application	Height of mounting	Localization e orienting
Meteorology (ref. WMO Annex 8)	Top of the orifice 0,5...2,5m from the ground	Distance from eventual obstacles at least 2 times their height (better 4 times). Avoid installation close to the trees or other obstacles overlaying that could falsify the measurement. It's not recommended the installation on windy sites or with turbulence (eg. On hilltops). The sensor must be installed possibly on a dedicate pole with a heavy-duty structure to avoid false measurements caused from vibrations of the wind that can generate not correct tilting movement. Install the rain gauge on sites easy to reach for maintenance and cleaning of orifice and filter from leaves or atmospheric depositions.

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