



R102 PLUVIOMETRE

Rainfall intensity measurement sensor



PRODUCT DESCRIPTION

The pluviometric sensor, consisting of a collector funnel with a usable surface and a pair of swinging tanks, complies with the precision requirements, both low density and high density of rain, of the WMO standards. A spherical bubble, an integral part of the sensor, allows the sensor to be properly levelled.

The surface treatment of the funnel guarantees that no drops stagnate. Furthermore, filters placed in the funnel and on the drains prevent foreign objects or insects from depositing in the tanks and obstructing the regular flow of rain. The external treatment of the pluviometre container minimises losses due to evaporation.

OPERATION

The R102 pluviometric sensor measures the precipitation collected by a circular orifice (funnel-shaped) calibrated 1000 cm², supplying a signal for every one-fifth millimetre of fallen water (20 g).

The sensitive element is made up of a pair of swinging tanks; the central oscillation pin consists of two stainless steel knives resting on a Teflon support. The water collected by the funnel is guided to the empty tank situated near the orifice outlet by a drain, while the other serves as a counterweight to prevent it from filling. The system is calibrated so that the full tank turns downwards to empty after one-fifth of a millimetre of water has fallen, and the other rises to position itself under the calibrated orifice. A magnet passes in front of a "reed" contact with each swing of the tanks to close it.

MAIN FEATURES

Correction algorithm:

since the transit time between the loading position of one tank and the other is not zero, the datalogger with a specific software stratagem compensates the water quantity that continues to fall into the full tank before the other reaches the loading position based on the rainfall intensity. Special mechanical stratagems have also been adopted to increase the transit speed and to reduce the distance between the tank loading positions.

Easy maintenance:

the benefits offered by our pluviometric sensor are not limited to precision, but also include simplicity and speed of maintenance. In fact, the internal platform scale unit is accessed by unscrewing the three screws that block the shell on the aluminium cylindrical base. The swinging tank instead is quickly removed from the oscillation base with simple rotation. In this way the cleaning is much easier, can be properly performed on the entire platform scale, and all impurities can be removed.

Sturdy and reliable construction:

lastly makes it an instrument with a long lifetime, which safeguards the customer's investment.

INSTALLATION

The calibrated orifice must be positioned horizontal with the ground. A template with four stud bolts is embedded on a cement plinth, to which the base of the post supporting the pluviometre is anchored. The R102 pluviometric sensor will be installed using a sturdy hot-galvanised steel post 1.4 metres tall, 60 mm in diameter and 5 mm thick, supported by a special concrete base and connected to the control unit using reinforced sheaths. The minimum distance between pluviometre and the first close-by obstacle higher than the pluviometre must be twice the difference of the heights of the two. Where possible, it is always best to avoid a situation with vegetation surrounding the pluviometre, even if lower, because it can create whirlwinds.

The distance of the control unit must be no greater than 500 metres. The sensor does not drift due to aging and requires no periodic calibrations. It periodically necessary to clean the greasing filter of the water and tanks, and check the levelling of the sensor base. Since it is totally passive, the sensor is not sensitive to electronic discharges.

COMPONENTS THAT CAN BE ADDED OR BE BUILT INTO THE PRODUCT

For the pluviometres also affected by snowfall, the cylinder has an internal coating that reduces heat exchange between inside and outside; a set of heaters are also activated when the external temperature is lower than 4°C so that the snow dissolves in the water when heated in the funnel.

TECHNICAL SPECIFICATIONS

SPECIFICATIONS	
Sensor type	Tank Swinging
Collection orifice	1000 cm ²
Measurement range	0-300 mm/h
Resolution	0,2 mm
Overall precision	±3%
Connection with datalogger	0-5 reed switch contact

CERTIFICATIONS AND PROTOCOLS

CERTIFICATIONS	REFERENCE STANDARDS
Electromagnetic Compatibility	CEI EN 61326-1
EMC (Part 1)	EN 301 489-1 V.1.8.1
EMC (Part 3)	EN 301 489-3 V.1.4.1