RAIN GAUGE PMB2 and PMB2/R

The PMB2 rain gauge is a mechanical sensor designed to measure the quality and intensity of atmospheric precipitations.

The real time monitoring of these two parameters, integrated by other factors like wind and general environmental information, allows to predict hydraulic risks (like overflowing or floods) and take decisions about the interventions to be carried out for the protection of the population, and the right time for them.

In the long term, precipitation data are used to elaborate the water balance. This is the reference instrument to plan and implement correct water management strategies, referred to either the industrial or the agro-meteorological fields. Finally, the historical archives of data on precipitations, furnish essential material for the statistical analysis of climate change.

The PMB2/R version of the rain gauge is equipped with a heater that allows the measurement of water content in snow precipitations.

TECNOLOGY AND FUNCTIONING

The PMB2 sensor works according to a mechanical procedure: water precipitation, passing through a 1000 cm² calibrated mouth, flows in a tipping-bucket container balanced by especially designed supports to reduce dumping factor to a minimal. One of the buckets collects the flowing water until the weight (equivalent to 0.2mm of rain) turns it over. At each turnover, an electric impulse is generated and delivered to the processing unit. The number of impulses gives the measurement of the fallen rain.

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This mechanical structure allows a very accurate calibration of the instrument. All recorded data are delivered to SPM20 station and processed by the installed software packages. The software plays a fundamental role, "cleaning" the signal from the systematic error that occurs when the intensity of the precipitation is increasing, forcing the tipping-bucket device to very rapid and continuous movements, triggering a sort of "rebound".

The automatic compensation of errors guarantees data accuracy from 5% down to 2%. The CAE sensor not only conforms to standard W.M.O (World Meteorological Organization) recommendations, but it is fully respondent to rainfall intensity tests carried over by W.M.O. itself (laboratory and field), resulting the very best product in its sector on the market. W.M.O tests results are reported at the link "WMO Laboratory Intercomparison of Rainfall Intensity Gauges" {De Bilt (the Netherlands), Genoa (Italy) Trappes (France) September 2004 - September 2005}.

According to W.M.O. reports, CAE rain gauge proved to be "the most accurate in measuring rain intensity", giving the lowest error rate in range of the rain intensity test (page 16 in the second part of the Report). The sensor's accuracy proved to be the best for rain intensity up to 300 mm/h, with practically zero delay on initial response. On the basis of the W.M.O. tests' result, CAE PMB2 is now used as the reference instrument for rain measuring.

TECHNICAL SPECIFICATIONS

- Resolution: 0.2 mm of rain

- Tipping-bucket with knife support

- Rain collection vessel surface: 1000 cm²

- Reed magnetic contact

- Measurement range: 0-300 mm/h

- Working temperature: 0-60°C

- Size: 358x584 mm

- Weight: 7 Kg

HEATED RAIN GAUGE PMB2/R

Same specifications of model PMB2 plus:

- Thermostat heater of 350 W with low tension charger of 24 V

- Lowest working temperature: -30°C

- Size: 400x548 mm

- Weight: 10.9 Kg

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