

MW7 Weighing Rain Gauge

The new MW7 Weighing Rain Gauge embodies METEOSERVIS's twenty-year experiences in development of rain gauges with weighing principle of measurement.

Basic Characteristic:

- Weighing principle of measurement
- High accuracy of liquid and solid precipitation measurement
- Data and pulse output
- Integrated data-logger
- Tempering of inner rain gauge space for prevention of dew formation
- Heating of catching orifice in winter season
- Auto-diagnostics of weighing system
- Special design and software for limitation of wind influence
- Connection by help of connectors
- Different solutions for different modes of operation:
 - summer or all-season operation
 - automatic or manual discharge of measured vessel
 - use of service liquids



Technical parameters :

Capture area	500 cm ²
Principle of measurement	Weighing principle
Range of precipitation measurement	0.05 ... ∞ mm - Automatic discharge by pump or overflow . Possibility manual start of pump by button. Usable measured vessel volume until discharge... max. 170 mm of precipitation
Max. measured intensity of precipitation	For data output ... practically unlimited within the frame of the real precipitation For pulse output ... 30 mm/ minute respective 1800 mm/hour
Resolution	Working resolution0,01 mm Output resolution.....0,1 mm
Accuracy	0,1 % in the whole range
Other parameters	Weight capacity0...8900g (ml) ... it corresponds to 0 -200 mm of precipitation Nonlinearity< 0.2 % in the whole range Temperature compensation ... ±0.04 mm of precipitation in the whole range operational temperature
Outputs: Service output	USB or RS232 (115200,8,N,1)
Data output	RS232 or RS485 (9600-115200,8,N,1) or SDI-12 (1200,7,E,1) RS485 and SDI-12 are galvanic separated 1.5 kV
Pulse output	"Open solid state relay" with insulation 1.5 kV, time duration of pulse ... 100 ms, 0-400 V, max. current ... 150 mA DC
Communication protocols	Binary protocolconfiguration and data downloading from data-logger ASCII (Text) ... output of instantaneous values on query or in periodic intervals METDATA output in the set interval SDI-12 protocol, version 1.3
Inputs: Rain Detector	External rain detector can be connected for increasing the sensitivity of rain gauge at settled and light precipitation (to 0,1 mm/hour). But not prerequisite.
Additional measurement	Outdoor temperature under rain gauge base Temperature of rain gauge collar Inner space tempering temperature Temperature of strain gauge
Other function	Adjustable temperature for tempering of inner space. "Shock" heating of rain gauge collar. Internal self diagnosis of weighing system. Wind influence correction. Acoustic and optic signalization of operating states. Simulated rain detector output. Outflow, blocking and reset by outer button.
Data-logger	Integrated data-logger with capacity over 30000 records Storage interval - optional: 1 60 min. Capacity 21 1260 days Battery backed-up RTC circuit
Power supply	Electronics, pump 12 V DC or max. 24 V AC/DC Heating 24-46 VAC
Consumption	Electronics <1 W Pump 20 W Tempering 50 W "Shock" heating of collar 100 W Tempering and shock heating not work at the same time
Operating liquids	Optionally according operational destination : <u>Silicone oil</u> – the using significantly increases of measurement accuracy at long time light intensity precipitation - limits the evaporation of rain water from weighed vessel. This evaporation is going on also in time of precipitation. From this reason the balance between amount of evaporated water and amount of captured precipitation is cannot be reliably established another way. <u>Antifreeze liquid</u> - using at measuring of solid precipitation in winter season Modes of operation: 1. <u>Summer operation</u> (0°C...+60°C) a) precipitation water only (lower sensitivity, quite service-free operation) b) precipitation water + silicone oil (higher sensitivity, sporadic check of oil) 2. <u>Winter operation</u> (-20°C...+60°C) Ecological antifreeze liquid + silicone oil (need pouring of antifreeze liquid into vessel). Rain gauge can be supplemented with an external container to catch the discharged water with antifreeze liquid
Operating temperature	-20°C...+60°C
Dimensions	Diameter 280 mm High 446 mm
Weight	7,8 kg