OTT Pluvio²

Universal precipitation gauge using the balance principle
for liquid, solid, and mixed precipitation



Setting standards with the OTT Pluvio²

It does not matter whether it is drizzle or a cloudburst, sleet, hail or snow, the new **OTT** Pluvio² reliably and accurately measures both the amount and the intensity of liquid, solid, and mixed precipitation. It works according to the balance principle, taking account of external factors such as temperature and wind that could distort the results. Both digital outputs (impulse/0.1 mm and status) and the serial interface (freely configurable as SDI-12 or RS-485) are available for transferring the data.

High-precision technology and robust design provide high accuracy and complete reliability. Load cell and sensor electronics are reliably protected from damaging environmental influences. We have designed the carrier, bucket, and protective housing parts to be particularly robust and we have ensured the use of high-quality materials. And the best thing is: The OTT Pluvio² saves valuable time, as it not only provides precise precipitation data, but is also practically maintenance-free. How's that for a benchmark!

Ready for anything

When collecting climate data throughout the world, different demands are made regarding the bucket orifice of the rain gauge

In accordance with the standards applicable in the world, we therefore offer the OTT Pluvio² in two versions.

OTT Pluvio² 200
Bucket orifice 200 cm², measuring capacity 1500 mm, ring heating optional

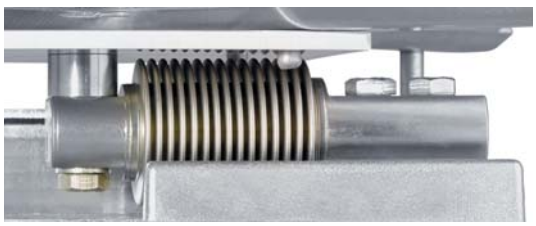


OTT Pluvio² 400
Bucket orifice 400 cm², measuring capacity 750 mm



The balance measuring process

Below the collecting bucket and well protected from damaging environmental factors, there is a high-precision, hermetically sealed load cell in stainless steel.



This measures the total weight on it. The sensor electronics attached use the measured value to calculate the net weight of the precipitation collected and to derive the temperature-compensated amount and intensity. An integrated temperature sensor provides the current environmental temperature at the time. The raw data obtained is subjected to a plausibility check by the OTT Pluvio². Factors affecting the result, such as wind, are eliminated by using a mathematical algorithm, thus providing adjusted precipitation data.

Innovative, professional, and practical

Developed in conjunction with technologically leading meteorological services, the OTT Pluvio² fulfills the highest expectations and at the same time stands out with relatively low operating costs. A price/performance ratio that will convince you.

Accurate and stable long-term



- Fulfills all requirements of WMO manual No. 8 (WMO = World Meteorological Organisation).
- Calibration of the load cell and sensor electronics is valid for the life of the unit.
- The individual temperature characteristic curve of the load cell is continually and drift-free compensated during the measurement.
- Measurement accuracy of ± 0.1 mm, for the whole life of the unit.

Non-sensitive and robust

The big plus of the OTT Pluvio² is its robust nature, which also resists adverse environmental conditions.

- The calculation electronics are hermetically protected from environmental influences and achieve the highest EMC.
- Formed parts are made by machine, they are particularly strong, and of high-quality materials.
- A cushioning spring system protects the load cell from damage from impact, for example.
- The electrical supply and output interfaces are protected against overload.



Suitable for any location

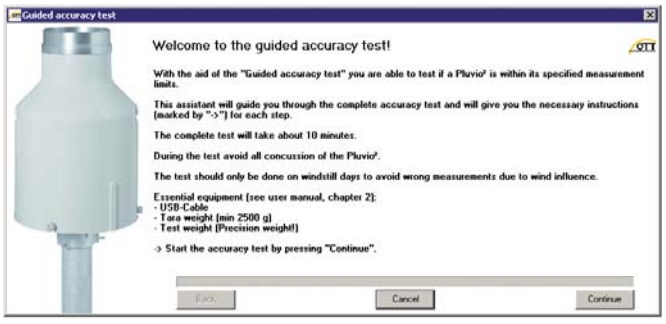
Conceived for a precipitation intensity range of 0.1 to 30 mm/min, the OTT Pluvio² reliably measures the drizzle of the temperate zones as well as heavy tropical rains and arctic snow showers.

- Bucket orifice without a funnel – heavy and solid precipitation are also recorded with precise timing.
- Continuous precipitation measurement and the highest availability of data – no evaporation losses from heated funnels or buckets.
- Anti-freeze prevents freezing – operation without compromise even in areas with high levels of snow and frost.
- Ring heating optionally available – no formation of snow caps.
- Possibility of power supply using solar energy – can also be used at self-sufficient measuring stations, even with snow and hail.

Virtually maintenance-free

The OTT Pluvio² is supplied with lifetime calibration. Calibration work on location is therefore no longer necessary.

- Maintenance work is limited to emptying the collecting bucket, occasional visual checks, and adding anti-freeze as necessary.
- Onerous cleaning work due to blocked funnels or filters are a thing of the past.
- Alarm and error messages are available for remote data transfer via the output interfaces – thus, an overflow, for example, can automatically be detected by the status.
- Data output is blocked during maintenance work and accuracy tests.



The OTT Pluvio² operating software is menu-driven and allows simple functional checks and accuracy tests on location using a notebook computer. The power supply is simply provided via USB.

Technical Data

General data	
Types of precipitation	liquid, solid, and mixed
Collecting area	Pluvio² 200: 200 cm² / Pluvio² 400: 400 cm²
Collection volume	Pluvio² 200: 1500 mm / Pluvio² 400: 750 mm
Sensor element	sealed load cell
Measuring range	
Precipitation	0 … 50 mm/min or 0 … 3000 mm/h
Cumulative precipitation threshold (at 60 min. collection time)	Pluvio² 200: 0.2 mm / Pluvio² 400: 0.1 mm
Precipitation intensity threshold	0.1 mm/min or 6 mm/h
Resolution	
Impulse output	0.1 mm (remaining amounts in 1/100 mm will be factored in during the collecting time of 60 minutes)
SDI-12 and RS-485 interface	0.01 mm, 0.01 mm/min or mm/h
Accuracy (at –25 … +45 °C)	
Amount	±0.1 mm or ±1 % of measured value
Intensity	±0.1 mm/min, ±6 mm/h or ±1 % of measured value
Interfaces	
USB	configuration/service mode and firmware update
Serial interfaces	SDI-12 or RS-485 (SDI-12 protocol or ASCII.txt)
Digital outputs	impulse 0.1 mm and status (0 … 120 impulses/min; configurable: 5 Hz or 2 Hz)
Measurement output	intensity RT; amount RT/NRT, amount NRT, amount total NRT bucket content RT and NRT; temperature of load cell OTT Pluvio² status; heating status (if present)
Intensity output interval	1 minute
Output delay	RT 18 seconds; NRT 5 minutes
Query interval	6 seconds … 60 minutes
Electrical and mechanical data	
Power supply	9.6 … 28 VDC
Power/current consumption	≤ 180 mW / max. 15 mA at 12 V, typically 12 mA at 12 V
Ring heating, optional	24 VDC / 50 Watt
Dimensions (Ø x H)	Pluvio² 200: 450 mm x 740 mm / Pluvio² 400: 450 mm x 660 mm
Pedestal diameter	110 … 120 mm (4")
Weight (bucket empty)	15 kg
Material for base plate / bucket / pipe housing	aluminium / polyethylene / ASA, UV-resistant
Environmental conditions	
Temperature, in operation	–40 … +60 °C
Temperature, storage	–50 … +70 °C
Relative humidity	0 … 100 % (non-condensing)
Protection	
Housing / load cell	IP 65 / IP 67, resistant to salt fog
EMC	complies with EN 61000-4-2/3/4/5/6, CE conformity
Pluvio² operating software	
(supplied with unit)	measured value display, configuration, diagnosis, firmware update, guided accuracy test

RT = real-time; NRT = non real-time; units can be configured in mm or in (inch), mm/min or mm/h, in/min or in/h and °C or °F

OTT – Your partner for:

- Water level measurement in ground and surface water
- Discharge measurement
- Precipitation measurement
- Water quality measurement
- Data management and communication
- HydroService: consulting, training, installation and maintenance

OTT MESSTECHNIK GmbH & Co. KG
Ludwigstrasse 16
87437 Kempten · Germany
Phone +49 (0)831/5617-0
Fax +49 (0)831/5617-209
info@ott.com · www.ott.com

We reserve the right to make technical changes and improvements without notice. 70.020.020.P.E Version: 04-11/2008