Tipping Bucket Rain Gauge

HD2013

WATER, SNOW OR ICE...WE MEASURE IT ALL

Versions **with heating** to measure all kind of precipitations

ACCURATE AND RELIABLE SYSTEM

Individual **calibration**

Internal **leveling device** for perfect horizontal positioning

SMART DESIGN - LONG STABILITY PERFORMANCE

Corrosion resistance materials

Rugged design

DATA WHERE YOU NEED THEM

Direct cloud visualization when combined with our loggers. Or with **local database** if preferred.

WMO COMPLIANT

Developed and designed according to **WMO guidelines**

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Main Applications

Meteorology
Early warning systems
Agriculture
Agrometeorology
Hydrology

400 cm^2 tipping bucket rain gauge: according to recommendations of WMO

Reliability, accuracy and durability. That is the basic thought behind the design of the HD2013. Completely constructed of corrosion resistant materials, the HD2013 rain gauge is built to **withstand even extreme conditions**. To guarantee a wide range of use, depending on the environment where the rain gauge is placed, there is a choice between heated or non-heated version.

The principle of a tipping bucket rain gauge is simple: depending on the quantity of rainfall, **the tipping bucket mechanism fills and empties**. Every tipping action operates a reed contact: in this way, counting the quantity of the rainfall. This means that the tipping bucket has one enormous advantage: it needs no power supply to operate. Power supply is only a necessity when circumstances demand heating because of low environmental temperatures.

Reading the **number of counts**, in other words reading the rainfall, can be done by using a datalogger. This can be a rain indicator datalogger such as HD2013-DB as well as a datalogger of the HD33 series with built-in 4G/3G/GPRS modem for a direct communciation of the measured data to the Delta OHM Cloud or a to an own secured server.

When ordering, the rain gauge is **completely setup to be used**. Easy to install, adjustable feet and leveling device integrated. Bird spikes and accessories for raised mounting available.

Technical Specifications

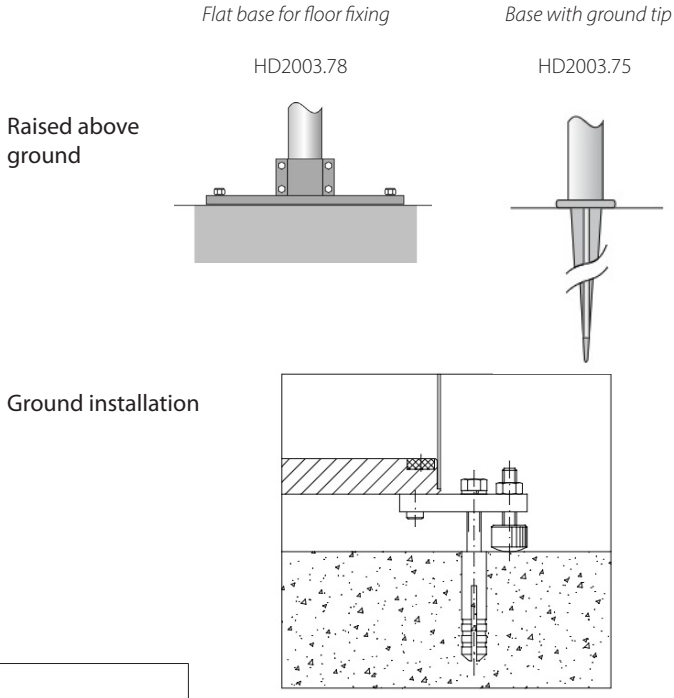
Principle	Tipping Bucket
Precipitation type	Liquid, mixed*, solid*
Collector area	400 cm²
Contact output	Voltage free
Optional outputs	Analog 4…20 mA Analog 0…10 V Digital SDI1-2
Power supply	12 or 24 Vdc for version with heating 7…30 Vdc for 4…20 mA or SDI-12 output 13…30 Vdc for 0…10 V output
Consumption	165 W heating ≈26 mA for I_{out} @ 18 Vdc ≈4 mA for V_{out} @ 18 Vdc ≈100 µA for SDI-12 @ 18 Vdc
Resolution	0.1 – 0.2 or 0.5 mm/tip
Accuracy	<± 2 % (using correction curves)
Maximum rainfall rate	600 mm/h (0.1 and 0.2 res. versions) 1000 mm/h (0.5 res. version)
Operating Temp.	0 °C…+70 °C -20 °C…+70 °C*
Heating intervention Temp.*	+4 °C
Protection Degree	IP64
Minimum section of the wires of the connecting cable	0.5 mm² 2.5 mm²*

*Specifications refer to the version with heating system HD2013xR

The rain gauge is supplied **already calibrated** and the calibration value (resolution) is shown on the instrument label.
If the amount of rain is calculated using the correction curve as a function of the rainfall rate, the error is typically less than ± 2% in the interval 0…200 mm/h.
If the HD2013-DB data logger is used, the measurement can be automatically corrected according to to the graphs available in the instrument's operating manual.
With the analog and SDI-12 output options, the curve can be stored in the rain gauge itself.

Installation modes

The rain gauge can be installed on the ground or raised 500 mm or 1 m above the ground (see ordering codes scheme).



Ordering Codes

HD2013

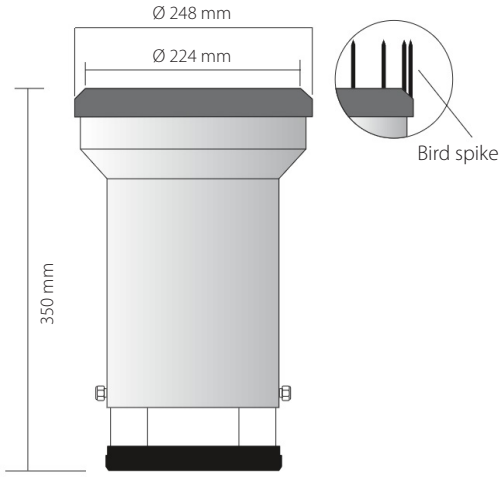
Mast (Ø40 mm) / bird spikes kit:
Blank = ground installation with feet, without bird spikes (default)
H0 = with support for mast installation, without bird spikes
H1 = 1 m mast installation kit, without bird spikes
H5 = 500 mm mast installation kit, without bird spikes
K = ground installation with feet, with bird spikes
K0 = with support for mast installation, with bird spikes
K1 = 1 m mast installation kit, with bird spikes
K5 = 500 mm mast installation kit, with bird spikes

Heating
Blank = not heated (default)
R = heated – power voltage 24 Vdc
R1 = heated – power voltage 12 Vdc

Output
Blank = contact (default)
A = contact + analog 4…20 mA
V = contact + analog 0…10 V
S = contact + digital SDI-12

Resolution
Blank = 0.2 mm (default)
/1 = 0.1 mm
/5 = 0.5 mm

Dimensions



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In order to ensure the quality of our instruments, we are constantly re-evaluating our products. Improvements can imply changes in specification; we advise you to always check our website for the newest version of our documentation.

We look forward to your enquiry:
Phone +39 049 89 77 150
Email: sales@deltaohm.com

Delta OHM S.r.l.
Single Member Company subject to direction and coordination of GHM MESSTECHNIK GmbH
Via Marconi 5 | 35030 Caselle di Selvazzano (PD) | ITALY

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