



HENNLICH

MERES

## TIPPING BUCKET RAIN GAUGE

### INTRODUCTION

HD2013 is our solution for precise rain measurement in any weather condition! Reliability, accuracy and durability. That is the basic thought behind the design of the HD2013. Crafted with unbeatable durability, this tipping bucket rain gauge is meticulously constructed from corrosion-resistant materials, ensuring it withstands the test of time

### FEATURE

#### Heating system

For extreme conditions, the HD2013 offers the option of integrated heating, providing reliable performance even in freezing temperatures. Automatically triggered at a temperature as low as +4 °C.

Say goodbye to snow build-up and ice formations, as this cutting-edge feature ensures accurate measurements, even in the most challenging climates.

#### Low maintenance

A removable filter prevents debris from obstructing the collector, while a non-adherent treatment ensures optimal water flow, keeping your measurements precise and hassle-free. For added convenience, customizable features like a bird dissuader are available upon request, ensuring your rain gauge remains in top-notch condition.

### CONFIGURATION & MEASUREMENT

#### Unparalleled versatility

Supplied with a contact output by default. Optionally, you can choose an additional analogue output (4...20 mA or 0...10 Vdc) or opt for the convenience of the SDI-12 protocol.

#### Designed with precision in mind

The HD2013 features a robust metal base housing a precision tipping bucket mechanism. As rainwater is collected in the specially engineered cone, it seamlessly funnels into the bucket. Once the predetermined level is reached, the bucket gracefully tips, triggering a quick and reliable impulse to the counter, ensuring accurate rainfall measurement.

#### Rainfall reading

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 communication of the measured data to our Cloud or a to an own secured server.

#### Calibration report

The rain gauge is supplied already calibrated and the calibration value (resolution) is shown on the instrument label. ISO 9001 Calibration Report available on request.

## HD2013



WATER, SNOW, ICE - WE MEASURE IT ALL

Versions with heating to measure



ACCURATE AND RELIABLE

Individual calibration.

Internal leveling device for perfect horizontal positioning.



WMO COMPLIANT

Developed and designed according to WMO guidelines.



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.



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## General specifications

Principle	Tipping bucket
Precipitation type	Liquid, mixed*, solid* (*with heating)
Collector area	400 cm <sup>2</sup>
Contact output	Voltage free
Optional outputs	Analog 4...20 mA Analog 0...10 V Digital SDI-12
Power supply	
basic version	---
with heating	12 or 24 Vdc ± 10% depending on model
analog output	7...30 Vdc (4...20 mA) / 13...30 Vdc (0...10 V)
SDI-12	7...30 Vdc
Consumption	
basic version	---
with heating	165 W
analog output	26 mA max. @ 18 Vdc (4...20 mA) ≈ 4 mA @ 18 Vdc (0...10 V)
SDI-12	≈ 100 μA @ 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 temperature	
without heating	0 °C...+70 °C
with heating	-20 °C...+70 °C (heating intervention temperature +4 °C)
Protection degree	IP 64
Minimum section of the wires of the connecting cable	
without heating	0.5 mm <sup>2</sup>
with heating	2.5 mm <sup>2</sup>

\*\*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 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.

## Ordering codes

### HD2013

<p>Heating Blank = No heating (default) R = 24 Vdc heating R1 = 12 Vdc heating</p>
<p>Output Blank = contact (default) A = contact + analog (4...20 mA) V = contact + analog (0...10 V) S = contact + SDI-12</p>
<p>Resolution Blank = 0.2 mm (default) /1 = 0.1 mm /5 = 0.5 mm</p>

## Installation modes

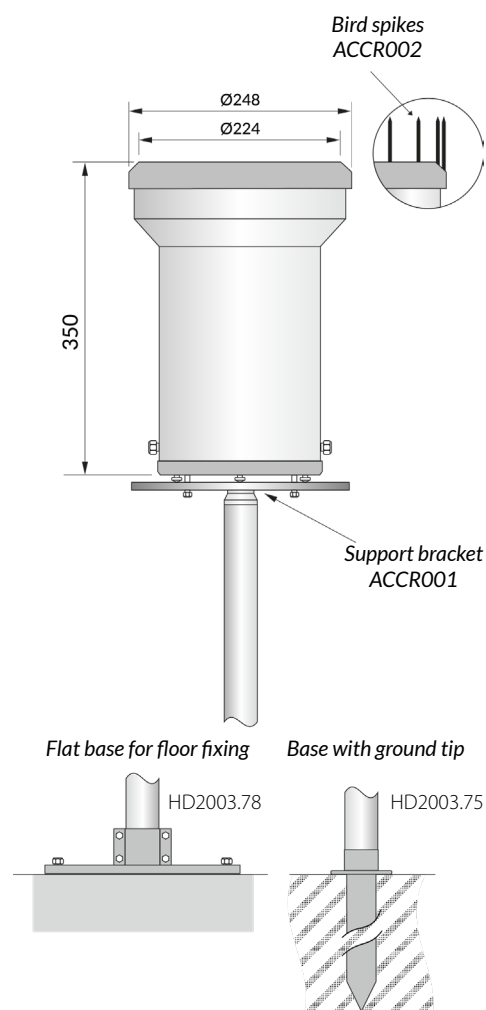
The rain gauge can be installed on the ground or raised above the ground.

For the raised installation, a specific support bracket complete with M37 threaded pin is available.

With the support bracket, the rain gauge can be then mounted on a 50 cm or 1 m mast threaded on one side M37 female.

According to the specific needs, flat bases or bases with ground tip can be used for fixing.

### Installation raised above ground



### Ground installation

