TippingBucket
Rain Gauge

HD2013

- WE MEASURE IT ALL
  Versions with heating to measure all kind of precipitation

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

- WMO COMPLIANT
  Developed and designed according to WMO guidelines

Main Applications
- Meteorology
- Early warning systems
- Agriculture
- Agrometeorology
- Hydrology

400 cm² 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 locally by using a local (battery operated) datalogger. But it is also possible to communicate directly the results through one of our dataloggers of the HD33 series. The built-in 4G/3G/GPRS modem makes it easy to upload the data directly to one of our cloud applications or to your 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 Specification

<table>
<thead>
<tr>
<th>Principle</th>
<th>Tipping Bucket</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type of precipitation</td>
<td>Liquid, mixed*, solid*</td>
</tr>
<tr>
<td>Collector area</td>
<td>400 cm²</td>
</tr>
<tr>
<td>Contact output</td>
<td>Voltage free</td>
</tr>
<tr>
<td>Analog output</td>
<td>4…20 mA or 0…10 V</td>
</tr>
<tr>
<td>Digital output</td>
<td>SDI-12</td>
</tr>
<tr>
<td>Power supply</td>
<td>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</td>
</tr>
<tr>
<td>Consumption</td>
<td>165 W heating</td>
</tr>
<tr>
<td></td>
<td>≈26 mA for I_{ma} @ 18 Vdc</td>
</tr>
<tr>
<td></td>
<td>≈4 mA for V_{ma} @ 18 Vdc</td>
</tr>
<tr>
<td></td>
<td>≈100 µA for SDI-12 @ 18 Vdc</td>
</tr>
<tr>
<td>Resolution</td>
<td>0.1 – 0.2 or 0.5 mm/tip</td>
</tr>
<tr>
<td>Accuracy</td>
<td>± 2 % (using correction curves - see graphs)</td>
</tr>
<tr>
<td>Maximum rainfall</td>
<td>600 mm/h (0.2 res. version)</td>
</tr>
<tr>
<td>rate</td>
<td>1000 mm/h (0.5 res. version)</td>
</tr>
<tr>
<td>Operating temperature range</td>
<td>0 °C …+70 °C</td>
</tr>
<tr>
<td></td>
<td>-20 °C …+70 °C*</td>
</tr>
<tr>
<td>Heating intervention temperature*</td>
<td>+4 °C</td>
</tr>
<tr>
<td>Protection Degree</td>
<td>IP64</td>
</tr>
<tr>
<td>Minimum section of the wires of the connecting cable</td>
<td>0.5 mm², 2.5 mm²*</td>
</tr>
</tbody>
</table>

*Specifications refer to the version with heating system HD2013R

In order to ensure the quality of our instruments, we may have to develop our products. We may make changes or corrections at any time. Check on our website to make sure your documentation is up to date.

Installation modes

- Raised above ground
- Flat base for floor fixing
- Base with ground tip

Dimensions

- Ø 248 mm
- Ø 224 mm
- 300 mm

Dimensions for Bird spikes

- Ø 248 mm
- Ø 224 mm
- 300 mm

Accessories

- Bird spikes (eight spikes Ø 3 mm, height 60 mm)
- Kit for the installation of the rain gauge raised 500 mm off the ground and the levelling
- Kit for the installation of the rain gauge raised 1 m off the ground and the levelling
- Flange with tip for the ground
- Flat base for floor fixing
- Rain indicator data logger with LCD display; reads and stores up to 32,255 pulses.
- 4G / 3G / GPRS data logger series for remote communication / Cloud

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

Rev.1.1 05.20