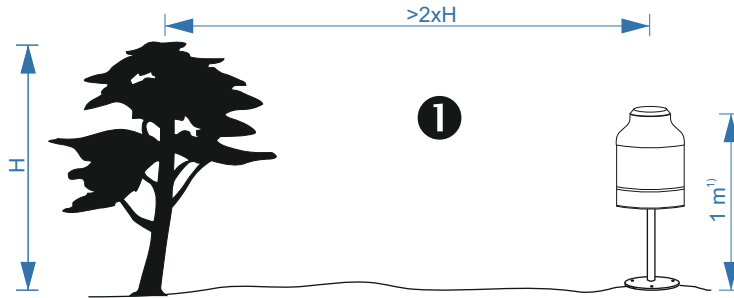


# PRECIBAL WEIGHING PRECIPITATION GAUGE

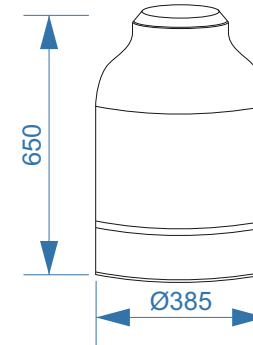
## Package contents

- PreciBal model: 200/314-RH
- M12 SAC cable - 10 m: 8-Pin, optional 4-Pin for heated version
- This guide

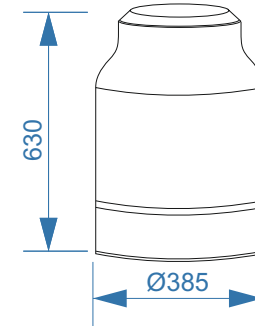


## Dimensions of the PreciBal Precipitation Gauges with optional heater

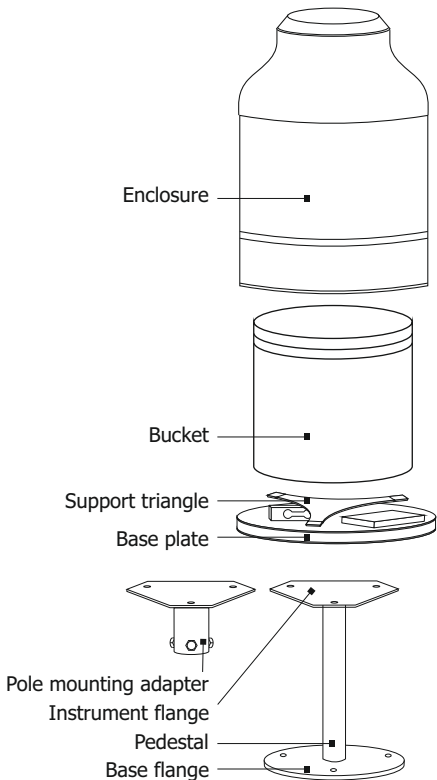
PreciBal 200 (in cm<sup>2</sup>)  
Collecting diameter: 160mm  
Range: 1500mm



PreciBal 314 (in cm<sup>2</sup>)  
Collecting diameter: 200mm  
Range: 1000mm



## Main parts



<sup>1)</sup> For the correct height follow local regulations

## Mounting

### Precipitation site

- Site selection according WMO guideline and final instrument assembly.
- Selection criteria for precipitation sites according to national weather service, or specific agency guidelines.
- Recommended installation heights are 1 and 1,5 m by 2" poles, installation heights from 2 m by 4" poles.
- Detach the enclosure from the rain gauge base plate losing three screws at the bottom edge and remove the bucket from the base plate before mounting.

### Mounting onto threaded 2" poles by accessory item HS 334M - point to 2" threaded pole mounting adapter

Maximum installation height is 1,5 m. Detailed assembly and mounting instruction see Mounting instruction Multi-Adapter for PreciBal/RainBal/TB type HS 334M. Use a threaded pole with base plate to reach out the required measuring height of the instrument: 330 mm for 1 m / 830 mm for 1,5 m. Level the gauge by its internal bubble after mounting the gauge onto the pole, see HS 334M instruction guide.

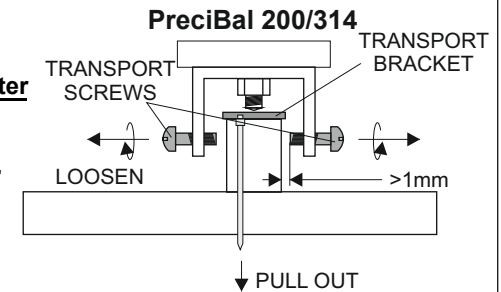
### Mounting onto 4" poles by accessory item HS 334X - 3-point to 4" pole mounting adapter

Recommended installation heights: 1 to 3 m. Prepare a Ø 100 to 120 mm vertical pole to a stable concrete. Put the mounting adapter onto the instrument base plate - 3-point mounting by fixing screws. Put the instrument with mounting adapter onto the 4" pole (non threaded). Level the instrument by its internal level bubble by fixing screws of the mounting adapter.

### Finalization

The precipitation gauge is fitted with two transport screws and transport bracket to prevent damage of the load cell during transportation. Loosen both screws so there is no space of at least 1 millimeter between the tip of the screw and the body of the instrument and remove the transport bracket. Put back the bucket and the enclosure. Mind the right position of the enclosure; the male part of the heating connector has to be plugged into the female one located at the base plate of the instrument. Fix the enclosure by tightening the 3 screws around the lower part of the gauge. Use your finger to check proper assembling with equidistance between bucket and enclosure. The bucket must not touch the enclosure for correct measuring mode instrument.

2



# PRECIBAL WEIGHING PRECIPITATION GAUGE

## Serial interface

Serial interfaces can be selected either SDI-12 or RS485 by IOS/Android APP plus pulse output. Pulse Output can be used for redundant and simultaneous monitoring or for HS Field Calibration device to be connected to the HS counter.

## Sensor connection cables and assignments

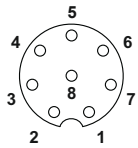
All non-heated PreciBal are equipped with a M12 8pol connector (male) and the heated PreciBal-H with additional M12 4pol connector (male). Connection towards data-logger and power supply to be applied with corresponding accessories sensor cables SOC-8P-M12 and SOC-4P-M12.

**Caution: improper or false connection can damage the instrument. All interface lines and power lines are reverse protected but false connection of power lines to the interface lines can damage the instrument.**

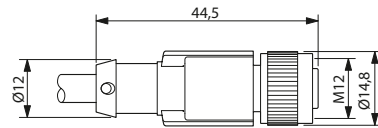
Illustration and drawings below does show the sensor cables only. Shield to be connected to PE inside the corresponding control cabinet by both end grounding.

### Sensor cable M12 SAC-8pol

Pin assignment

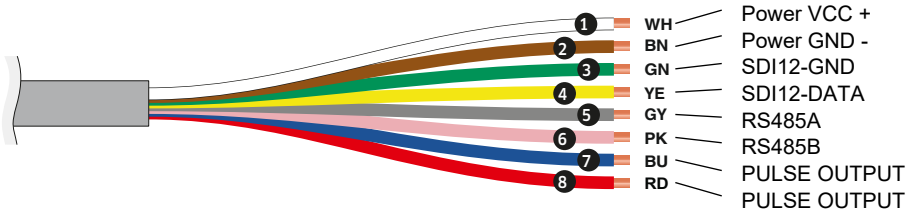


Dimensioned drawing



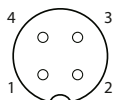
M12 x 1 socket, straight, shielded

Connection diagram



### Heater cable M12 SAC-4pol

Pin assignment



Connection diagram



## Specifications

Operating voltage	5...30VDC
Power consumption	4mA@5V... 1.2 mA@12 VDC ... 0.5mA@24V
Heating voltage/power	10...30VDC / cca 0.8 ... 2.5A (cca 8...75W)
Interfaces	SDI-12, RS-485 2Wire, Bluetooth LE
Pulse output (relay)	2 Hz; 1/0.1/0.01 mm or 1/0.1/0.01/0.001 inch/pulse
Dimensions (PreciBal 200/314)	Ø385x650 / Ø385x630
Weight (PreciBal 200/314)	9.5kg
Optional connection cables	M12 SAC-8pol (Sensor) and M12 SAC-4pol (Heater)
Operating temperature	-40...+70°C
Operating humidity	0...100%
IP grade	IP 65 (instrument); IP 68 (load cell)

## SDI-12 protocol and commands for metric and imperial units

Start **basic** measurement: 0M! (Metric units M! to M4! Imperial units by M5! to M9!)

Response: 00003<CR><LF> → sensor address (default address is '0')

Send data: 0D0!

Response:

0+0.134+7995.146+21.246<CR><LF>

→ total amount of precipitation (21.246mm)  
 → total weight (7795.146g)  
 → amount of precipitation since previous reading (0.134mm)  
 → sensor address (default '0')

## HyQuest ASCII protocol (RS-485)

Factory-set communication parameters: 9600,8,N,1

Data request (**basic** message): <ENQ>0<CR> → sensor address (default address is '0')

Response:

<SOH>0<STX>134<TAB>7995146<TAB>21246<ETX><CR><LF>

→ total amount of precipitation (21.246mm)  
 → total weight (7795.146g)  
 → amount of precipitation since previous reading (0.134mm)  
 → sensor address (default '0')

## MODBUS RTU/ASCII (RS485)

Factory-set communication parameters: 9600,8,E,1

Factory-set device address: 48

Function code: 04 (read input registers)

Some important register addresses: 290 = amount of precipitation [mm]  
 292 = weight of the bucket content [g]  
 294 = temperature [°C]

All registers are of type float, read two consecutive registers to get a value.

## HS Application

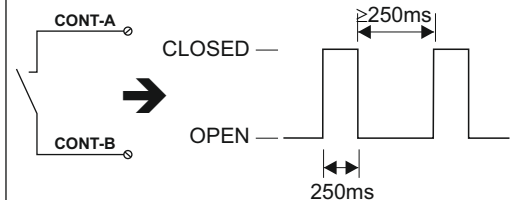
Default password: S/N of the instrument left-padded with zeroes to 6 characters.

for Android

for iOS



## Pulse output



Metric or imperial pulse factors selectable by iOS/Android App