TBRG400 Tipping Bucket Rain Gauge

- USER GUIDE FOR TBRG400 TIPPING BUCKET RAIN GAUGE

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TBRG400-01-MN-10	AUG-2020

This document is applied for the following products

SKU	TBRG400	**HW Ver.**	1.0	**FW Ver.**	1.0
Item Code	TBRG400-01	Tipping Bucket Rain Gauge, Dry-Contact Pulse Output, 304SS, Max 10mm/Min, 4% Accuracy			

1. Introductions

TBRG400 is Tipping Bucket Rain Gauge Sensor, an instrument for testing rainfall in nature. In order to meet the requirement of information transmission, processing, recording, and display, the amount of rainfall is converted to pulse output. It can be widely used in weather stations, hydrometric stations, agriculture & forestry, field monitoring stations. It can provide the original data for flood prevention, water-supply systems, and reservoir water management in plants.



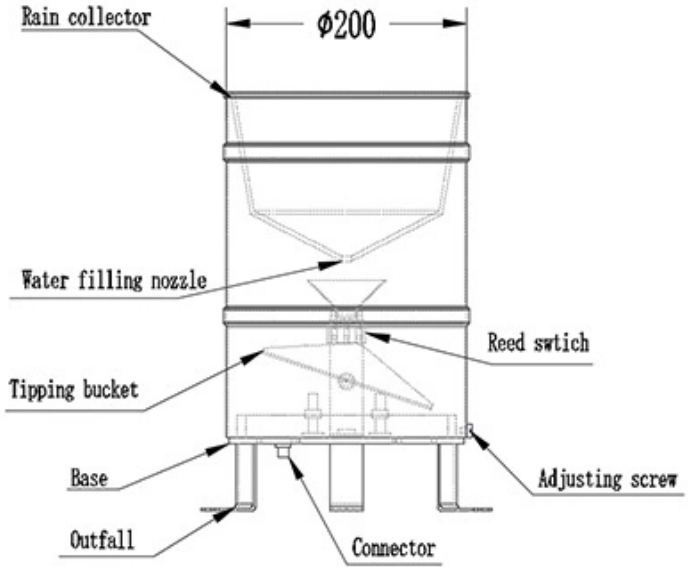
2. Specification

Rainfall collector	Diameter :φ200mm, height: 350mm
Measured rainfall intensity	Max: 4mm/min
Allow rainfall intensity	Max: 10mm/min
Resolution	0.1mm, 0.2mm
Accuracy(2mm/min)	±4%
Maximum load voltage	30VDC(pulse output)
Maximum load current	20mA(pulse output)
Output	Reed switch pulses
Operating temperature(no freeze)	-20-+80℃

Main material	Collector: 304SS, tipping bucket: ABS
Tipping bucket	Single
Heating(optional)	Heating power: approx.1000W
Weight(unpacked)	3.5kg

3. Working Process

Rainfall is captured in the 200mm diameter collector funnel and is directed through a delivery pipe to fill a divided ABS injection molded tipping bucket device. The bucket is pivoted through its center and has a preset calibration to tip for 0.2 mm of rainfall. When the bucket is “full”, it pivots and empties - this action magnetically closes and opens a reed switch, sending a pulse signal to the data logger or electronic counter. Through this tipping “seesaw” action, the other side of the bucket is aligned to receive the flow from the delivery pipe. This recording and tipping cycle continues with rainfall.

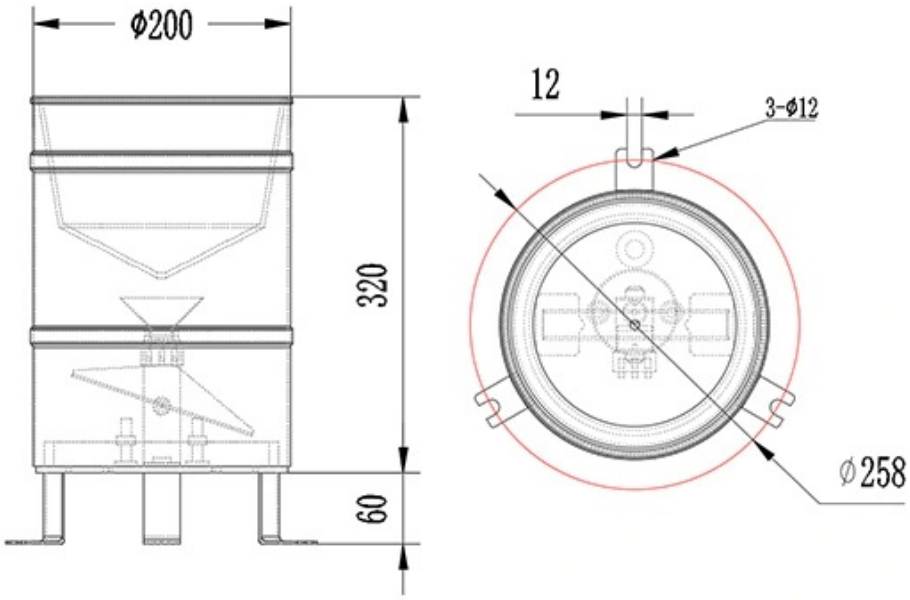


4. Electrical Connections

Connector	***Pulse***
Pin 1 (Red/Brown)	V+
Pin 2 (Black/Blue)	V-
Pin 3 (Yellow)	N/A
Pin 4 (Green)	N/A

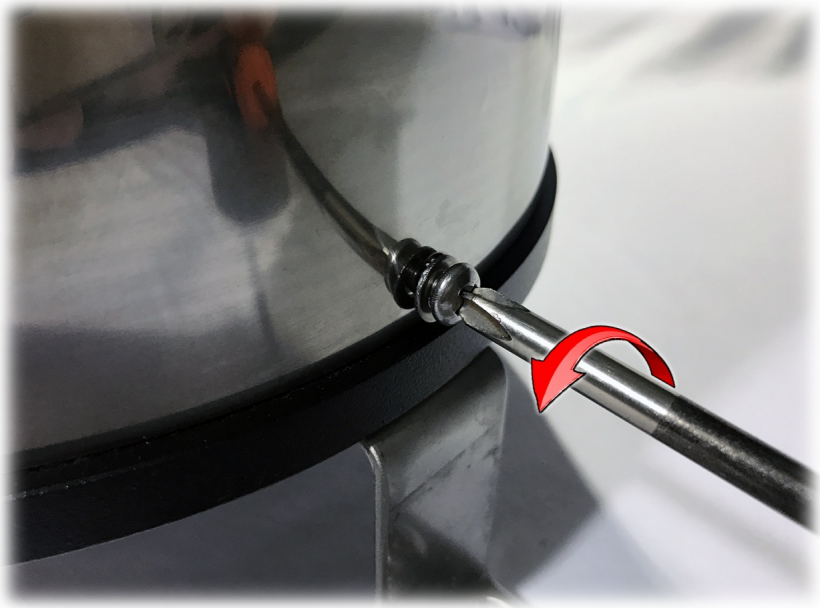


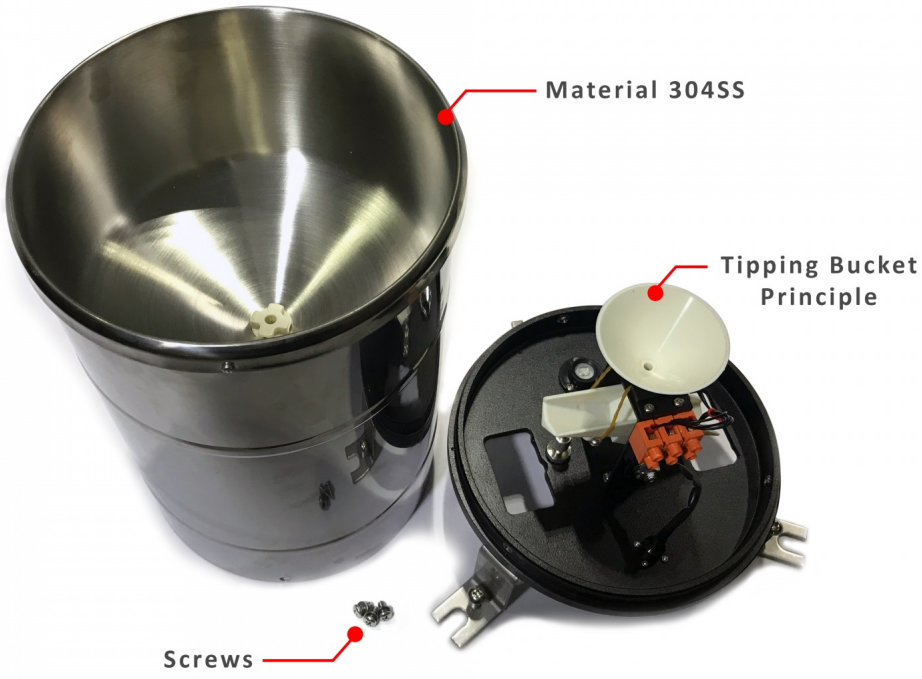
5. Dimensions



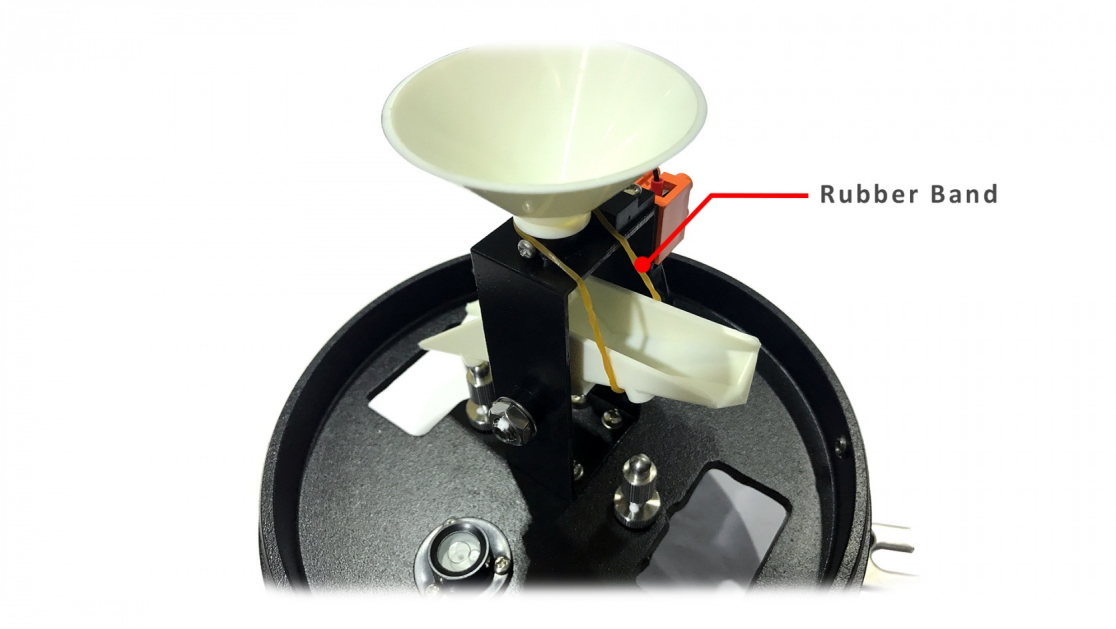
6. Installation

Step 1: Open the sensor cover with a Phillips screwdriver.



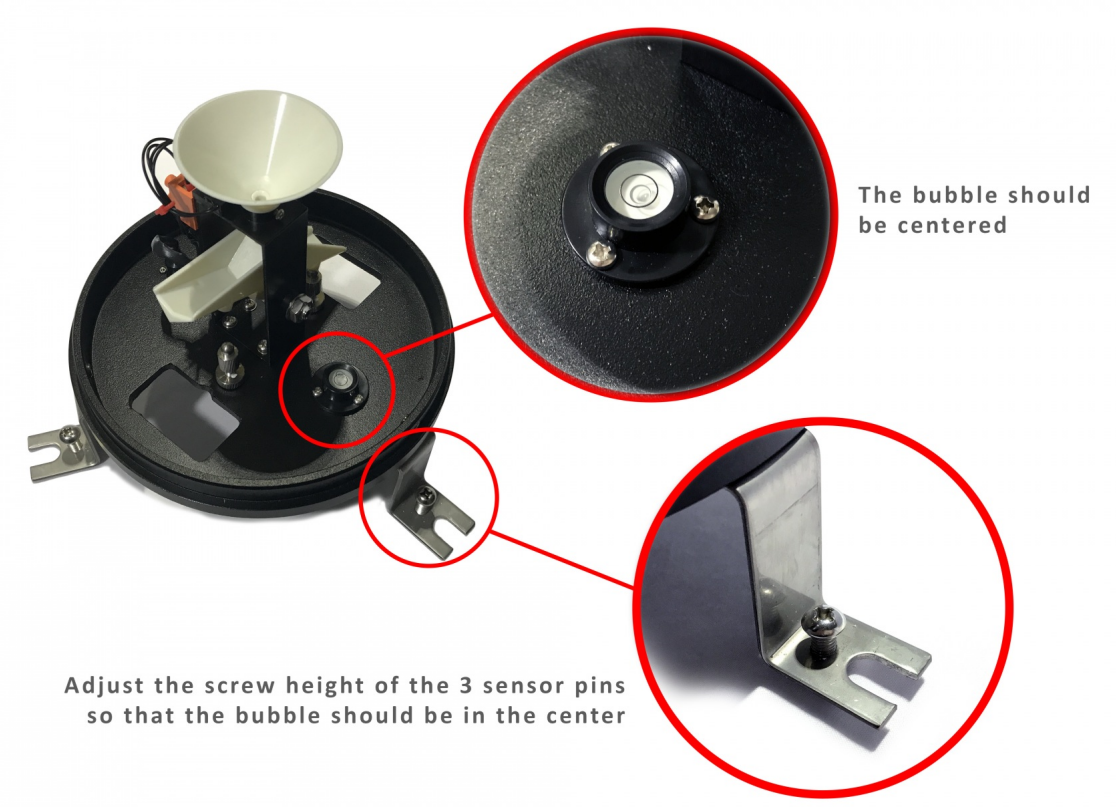


Step 2: Remove the rubber band (used to secure the tipping bucket for shipping) on the sensor.

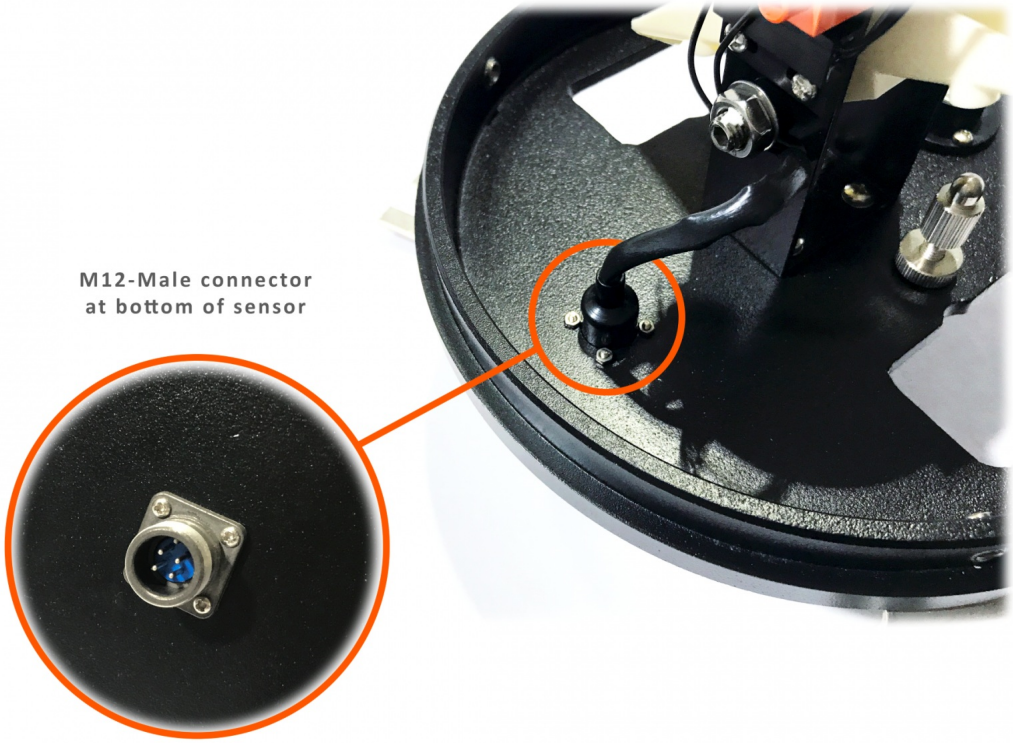


Step 3: Fix the sensor pins and adjust the height of the pins so that the bubble inside the sensor is centered.

(If the bubble is centered, it means the sensor is balanced)

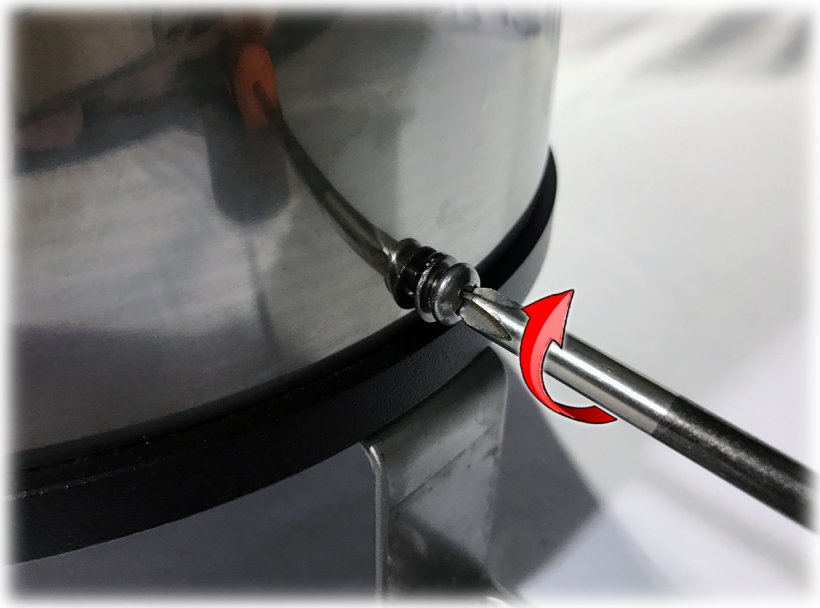


Step 4: Connect the M12-Female connector to the M12-Male connector of the sensor.





Step 5: Check the steps again (remove the rubber band, sensor bubble, fix and adjust the pins, wiring, ...), close the sensor cover and attach the screws.



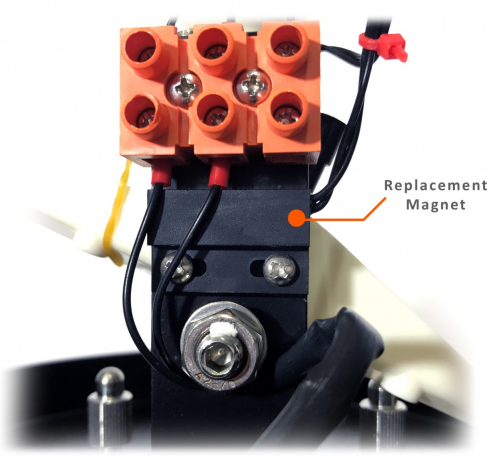
7. Appendix

7.1 Rainfall Intensity Scale

Scale	24-hour rainfall (mm)
Light rain	1-9.9
Moderate rain	10-24.9
Heavy rain	25-49.9
Rainstorm	50-99.9
Torrential rain	100-200
Super-Torrential rain	>200

7.2 Replacement magnet

Below the sensor terminal block there is a pre-wired replacement magnet. If you need to replace the main magnet above just remove the screw, relocate the magnet and reverse the signal wires to use.





8. Troubleshooting

If some error occurs, such as no output or unreliable. Please disconnect the sensor first, then check if the sensor installation and connection is correct with the instruction manual.

If still not successful, please contact our company.

9. Support contacts:

Manufacturer

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