

TOIP *Pty
Ltd*
Telemetry Over Internet Protocol

User Manual

Rika RK400-01 Rain Gauge



Version 1.1

March 2018

Copyright TOIP Pty Ltd

Table of Contents

1 Rika RK400-01 Rain Gauge.....	3
2 Specifications.....	4
3 Assembly.....	5
4 Wiring.....	6
5 Mounting.....	7
6 Driver Setup.....	8
7 Maintenance.....	9
8 Calibration.....	10
9 Warranty.....	11

1 Rika RK400-01 Rain Gauge

Rika's RK400-01 Rain Gauge is a high quality double tipping bucket gauge designed to meet the most stringent requirements for rainfall monitoring.



The sensor is supplied with 1.8m bare wire cable.

A post mount to suit a 40mm pole is supplied with the sensor.

The gauge provides a pulse output for every 0.2mm of rainfall. The gauge is wired for a Normally Open connection (closes momentarily for each pulse).

2 Specifications

Unit	Parameter	Value
Physical	Orifice Size	200 cm ²
	Weight	3.5 kg
	Height	350 mm
	Width (Diameter)	225 mm
Output	Type	Pulse (dry contact)
	Power Requirements	Nil
Measurement Range	Min	0 mm/hr
	Max	480 mm/hr
	Resolution	0.2 mm
	Accuracy	2 %
Cable Length	-	2 m

3 Assembly

The tipper assembly must be unpacked prior to using the gauge

- locate the 3 knurled lock screws around the base of the funnel
- loosen these, taking care to collect the washers as you remove them
- remove the funnel
- remove the rubber band holding the tipping bucket assembly in place
- check that the tipper tips freely
- replace the funnel and lock screws

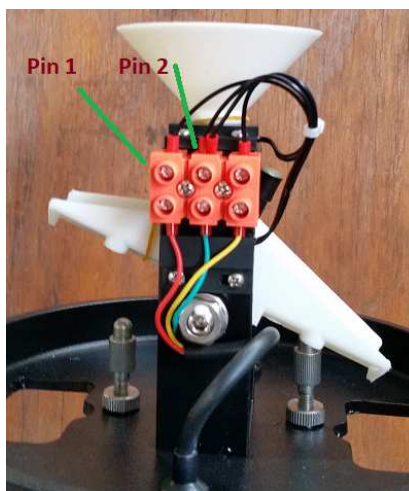
4 Wiring

The tipper unit on the rain gauge is fitted with a terminal block which connects to the reed switch. Three wires then run from the terminal block down to a socket located on the base of the gauge. The rain gauge cable connects to this socket.

The rain gauge cable should be wired as follows:

Pin 1 – Red	Contact
Pin 2 – White	Ground

If you are not using the Socket and want to wire directly to the Terminal Block, connect as follows:



The gauge should be connected to a pulse input on your data logger or telemetry unit or data logger.

5 Mounting

The rain gauge base has been designed to allow the unit to be mounted on a plinth.

The simplest mounting method is to secure the gauge to a concrete paving block using the masonry anchors supplied with the gauge (250 x 250 or 300 x 300)

- if the supplied anchors are too large, purchase some smaller diameter masonry anchors - 8mm should be OK.
- Flatten the ground and if needed lay down some quarry crushings and level it out.
- Then place the paver on the ground.
- Sit the gauge on top of the paver and make sure it is centred. Mark the paver with a texta or pencil at the position of the holes in the legs.
- Remove the gauge and drill the holes to suit the masonry anchors, then place the gauge on the block and lock it in place.

Alternatively you can manufacture a post mounting bracket which can be bolted to the legs.

For accurate rain measurement the mouth of the gauge should sit at a height of 0.6 to 1.0m above ground level.

6 Driver Setup

A driver will need to be set up in your data logger / telemetry unit to match the sensor specifications.

Component	Parameter	Value
Precipitation	Name	Precipitation
	Manufacturer	Rika
	Type	Rain
	Engineering Unit	mm
	Icon	Rain
	Technology	Pulse
	Linear Input Value	0 to 1
	Linear Output Value	0 to 0.2
	Verifier	0 to 100
	Display Scale	0 to 40
	Level above ground	0.6

7 Maintenance

All sensors require periodic maintenance to keep them operating within specifications and to maximize their working life. The rain gauge should be maintained as follows:

Monthly

- Remove bucket and empty of any leaves or debris.

3 Monthly

- Remove bucket and empty of any leaves or debris
- While holding the tipping bucket to one side, wash it using clean water and a cloth to remove any build-up of silt
- Wipe the outside of the gauge clean with a damp cloth and mild detergent.

8 Calibration

The Rain Gauge is calibrated during initial assembly. The calibration should be checked after 3 years or if you have concerns about the gauge accuracy.

Note if you have questions about the readings from the gauge (especially when comparing it to readings from another manual or automatic gauge), first consider the following:

- The two gauges must be installed at the same height: as height above the ground increases, wind turbulence increases. A gauge at 2m can read up to 50% different to one at 1m. The nominal height for rain gauges is for the top of the bucket to be set at 0.6 to 1.0 m above ground level
- The two gauges must be within reasonable close proximity: rainfall can vary dramatically, particularly during storm events. When comparing gauges they must be close enough together so that they always receive the same rainfall.

For details on how to calibrate the sensors, contact TOIP to obtain a copy of the Rika calibration procedure.

9 Warranty

The sensors are covered by a one year warranty.

Warranty is available on a return to base basis only. End users must pay for return shipment of faulty products either to TOIP Pty Ltd or their local distributor. If the unit is assessed by TOIP Pty Ltd and found to be a warranty failure, it will be replaced free of charge. TOIP Pty Ltd will pay the return shipment to the owner.

The warranty does not cover mechanical damage, damage inflicted during installation or removal or damage caused by animals.

Prior to using the product, please ensure that you read, understand and accept the Warranty Statement. If you do not accept the conditions of the Warranty Statement, please return the probe for a refund.