Manual

RIM-FVU Field Verification Unit (FVU)

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Document history

The Observator range is in continuous development and so specifications may be subject to change without prior notice. When in doubt about the accuracy of this document, contact the Observator Group.

Reference documents

Type of document / tool	Product type and name (incl. url)
Manual	RIM-FVU

Revision history

Date	Amendments	Company, position
2017-07-31	Initial document creation	Observator Australia, Document Controller
2017-10-24	Updated warranty conditions	Observator Australia, Document Controller
2018-04-09	Introduced document control	Observator Australia, Document Controller
2019-08-09	Quality review	Observator Australia, Operation Manager
2019-08-27	Update product name	Observator Australia, Document Controller
2019-08-30	Compress document images	Observator Australia, Document Controller
2020-01-30	Updated document format	Observator Australia, Document Controller
2020-03-09	Updated maintenance section	Observator Australia, Document Controller

Procedure sign-off:

Date	Company, position	Status
2019-07-15	Observator Australia, Document Controller	Finished
2019-12-06	Observator Australia, Managing Director	Approved
2020-02-10	Observator Group, Communication Officer	Approved

Distribution list

Date	Company, position

Summary

Thank you for purchasing an Observator Instruments Field Verification Unit (FVU). The RIMCO RIM-FVU is a simple unit for the verification of tipping bucket rain gauges calibrations in the field. The FVU is ideal for hydrologists who do rain gauge maintenance checks in remote locations. The RIM-FVU is manufactured to exact tolerances and can produce repeatable volumes when used in accordance to this manual. As such, the RIM-FVU can be used as a primary standard in field and laboratory calibrations of rain gauges.

The RIM-FVU comes with an approximate 200mm/hr nozzle as a standard.

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1 Applications

Typical use of the RIM-FVU device includes many types of applications:

1. In the factory.
2. Upon receipt by the reseller or end user.
3. In the field.

RIM-FVU products are also ideal for rain gauge calibrations and validations.

2 Safety

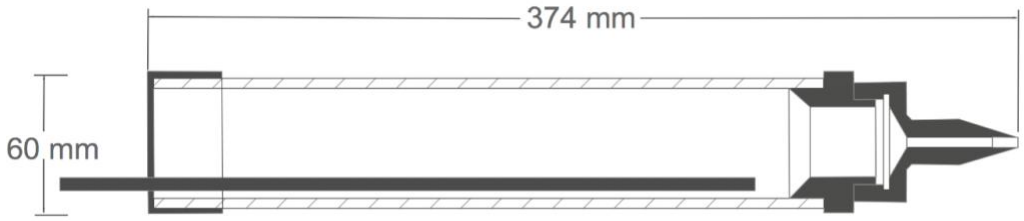
For correct functioning of the Observator RIM-FVU, the calibration unit must be installed according to the installation instructions.

Always clean and dry the RIM-FVU after use.

After end of life, please dispose of this product according to your local regulations or return it to the manufacturer.

3 Specifications

Field Verification Unit dimensions	
Length	374mm
Diameter	60mm
Weight	564.5g
Capacity	653mls
Nozzle flow	200mm/hr (approximately)
Material body	Polyvinyl Chloride (PVC) and PERSPEX®
Material vent / nozzle	Stainless steel
Material funnel mount	Acrylic



Case details	
Case construction	Acrylonitrile Butadiene Styrene (ABS)
Length	515mm
Width	434mm
Depth	225mm

4 What you will find in the box

When the product is delivered, this is what you will find in the box:

Items found in the box	
Field Verification Unit **RIM-FVU**	
Allen key	
Funnel mounting plate	
Instrument case	

5 Calibration

5.1 Calibration validation

Rain gauge calibration using the RIM-FVU is performed as outlined below. Repeat the calibration check at least once for more accurate results.

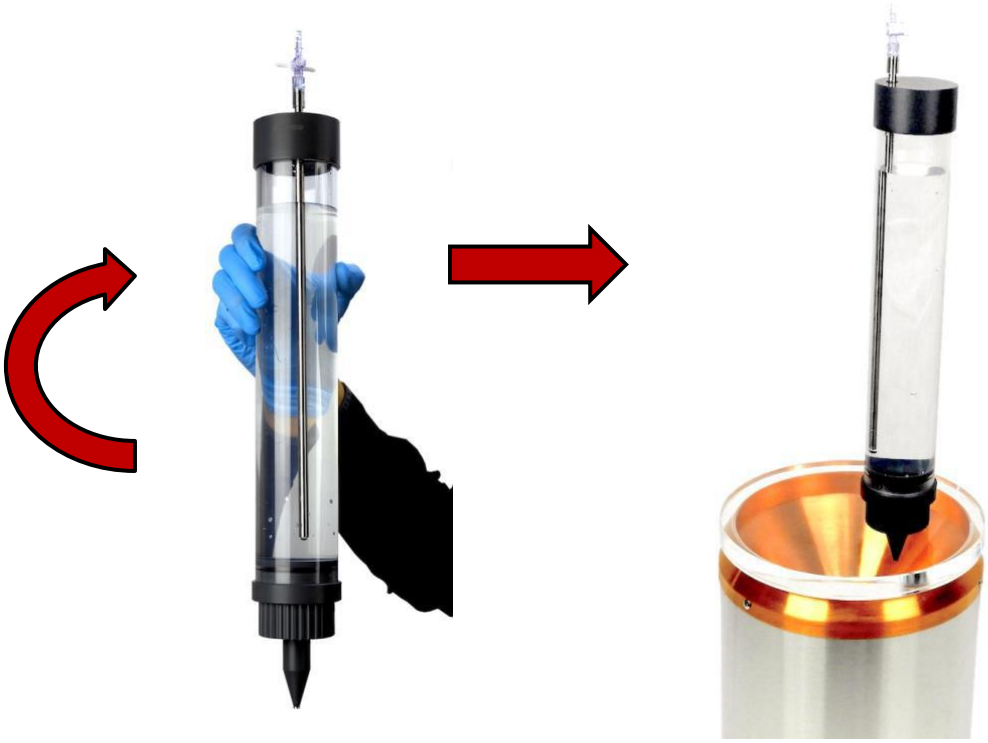
1. Unscrew the nozzle from the RIM-FVU and make sure the valve, on the opposite end is closed.

2. Fill in the cylinder with clean water until the top.

3. Reattach the nozzle to the RIM-FVU.

Note: Wet the rain gauge system prior to the calibration check to try to minimise any irregularities with your readings.

4. Flip the RIM-FVU and position it on top of the rain gauge through the mounting plate on the catch of the rain gauge.



5. Open the siphon valve. The water will flow out of the RIM-FVU to the tipping bucket rain gauge at a predetermined rate. The number of tips can either be audibly counted or digitally counted (these can be bought as an option), or the counts can be retrieved from a data logger and checked against calibration specifications.

6. With an approximate volume of 653mls, the tip count should be around 101, but can vary with each unit. Check the label for expected tip counts.

7. The Field Verification Unit comes with a 1.5mm nozzle orifice as standard for field verification. The unit can be ordered with a 0.9mm orifice nozzle if it is necessary to perform a calibration to the Australian Standard (AS3580.14). Drain time is around six minutes with a 1.5mm nozzle and up to twenty minutes with the 0.9mm nozzle.

8. You will need to do the test repeated times to achieve ±2 tips counted on two progressive runs*, then the instrument is within acceptable calibration limits. If not, then the tipping bucket limit screws will have to be adjusted until an acceptable result is obtained after several passes

(*) Special note:
Please be aware that tip counts can vary from tube to tube.

5.2 Maintenance

The RIM-FVU is relatively maintenance-free apart from routine cleaning. This is performed with the following:

- fresh water;
- warm water;
- mild soapy solution.

Important: Do not use any solvent as it will damage the FVU.

Manually clean the Field Verification Unit using a fine tool to clean the nozzle hole.

Figure 5.A: The tool should fit in the hole as a close fit (not too tight and not too loose).

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