

Objectives:

To test for waterproofness of SmartRock with sensors epoxied and to set up the device for further testing and calibration

Supplies Needed:

- Smart Rock with sensors epoxied in one end, epoxy is dry
- Blank acrylic end
- 2 caps
- 5 gallon bucket
- 2 j-hooks
- 1 u-bolt
- 2 weights
- Water



Procedure:

Note: Rightsey Tightsey (clockwise) - Leftie Loosey (anti-clockwise)

1. Unscrew end caps (if needed)



2. Set blank acrylic plate onto one end of Smart Rock case onto the black o-ring



3. Screw end cap onto acrylic plate to close this end of the Smart Rock
Note: Hand tightening is sufficient. A waterproof seal is formed when you look at the O-ring and see it pressed flat against the acrylic plate.



4. Put TDS and turbidity sensor boards into case. No other electronics need to be inside the case besides sensor boards



5. Insert weights into Smart Rock case on either side of the rail



6. Set sensor acrylic end onto black o-ring



7. Close Smart Rock case by screwing down remaining end cap



8. Check that each o-ring is pressed against each acrylic end and hand screw firmly

Attach U-Bolt Mount

1. Attach u-bolt around pvc and through j-hooks



3. Secure to edge of 5 gallon bucket with sensors facing down and tighten u-bolt nuts to keep in place



5. Fill bucket with 30 centimeters of water so that sensor end is completely submerged (Optional: use food dye to color the water to assist with leak detection)



6. Leave for one hour
7. Loosen bolts and detach from side of bucket
8. Flip j-hooks over and set SmartRock into the bucket this time with sensors-side-up
9. Leave for one hour



10. Retrieve, dry off outside thoroughly with towel, open and check inside for water

Results and troubleshooting:

If there is water inside your SmartRock, check the following for sealing issues:

- O-ring: make sure it is not dry and cracked and that the end caps are screwed on enough to put pressure against the ring. Overtime the o-ring will become dry and might crack, purchase and apply a [silicone lubricant](#)
- Epoxy: check that all sensors are surrounded by a layer of epoxy and the epoxy is dry. Mixing superglue with epoxy will prevent it from making a smooth seal
- PVC: check the fittings on PVC for any leaks. Marine epoxy can be applied to seal if necessary