

## RBR CTD Setup and Data Retrieval SOP

**Procedure Number: SOP # 3.2.3.6 F3**

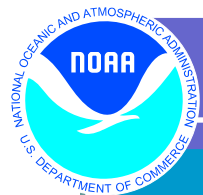
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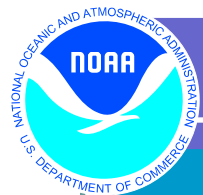
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**Approved: Peter Stone**

1. **Title:** RBR CTD Setup and Data Retrieval Procedure
2. **Purpose:** To provide guidance on actions required to initialize, deploy, and retrieve data from the RBR XR-620 CTD instrument.
3. **Background/History:** The RBR CTD is cast at every station during reconnaissance and during both current meter deployments and recoveries of instruments. The more CTD casts the better as the salinity and temperature profile of the water column provides useful information for oceanographic data analyses.
4. **Scope/Applicability:** This SOP is applicable for field technicians who take CTD casts during reconnaissance, current meter deployments and recoveries.
5. **Main Processes:** Gain some knowledge about the water under observation (salinity and temperature) and read the atmospheric pressure from the **Fetch Live Readings**. Follow the serial procedure in the detailed processes below.
6. **Detailed Processes:**
  1. Twist off the white end cap
  2. Plug in telephone serial cable to RBR
  3. Plug in serial cable to laptop
  4. Open RBR software
  5. Press **Setup**. If communications fail, go to configurations com settings and switch your port from com 1 to your USB/Serial port.
  6. Sync your laptop to GMT. In **Setup**, press **Sync to PC** button (to sync time)
  7. Press the **Thresholding** drop down and pick the start when ABOVE threshold option.
  8. Click the blue **Thresholding** configuration bar to access the pop-up screen
  9. Basic Sampling "when above the threshold of", input **1.00** (Other thresholds may be more appropriate depending on the water under investigation)
  10. On Channel Drop down menu select number 1 - conductivity
  11. Power Saving - Power cycled every **10** seconds - to check the conductivity switch
  12. Hysteresis - click enable and type **30** [this tells it to sample for 30 more seconds after the conductivity is below the threshold- *i.e.* out of the water.].
  13. Click Accept



14. Make sure Blue **Thresholding** button indicates all of your selections.
15. Under **Start of Logging** click the **NOW** button
16. Make start time equal now (check box) and make end time a year from now (just so it doesn't shut off)
17. Sampling period is 6 Hz profiling.
18. Click **Accept**.
19. Press **Enable Logging** Button.
20. Logger might give warning that data have not been downloaded yet. Click continue if you have downloaded data.
21. Make sure that software tells you logger was enabled on the bottom of the RBR window.
22. Disconnect the telephone cable from RBR.
23. Replace the white end cap after first checking the O-ring for damage; hand tighten.
24. Deploy.
25. When you are done with the sampling, open the end cap, and plug in the telephone cable.
26. Click **Retrieve Data** on software, it will say logger is still logging, press Stop Logging.
27. Click **Retrieve Data** again.
28. It will save data in the **Program Files/RBR/dat** folder, choose a name for the deployment. If possible, Save after every cast with a unique file name.
29. Check the data with the software using **Configuration-Derived Units** menu
30. If you want to check the data after the first deployment to make sure that you have data, just make sure that after you say **Retrieve Data** that you don't touch any commands except the **Setup - Resume Logging** button. (i.e. Make sure that you don't change any parameters or it will erase the data that you have.) It will say that you have data on the file, just press Add Data to File to keep all the data on the RBR.
31. Tighten the blue RBR holders on the cage and make sure the bottom of the sensor is not below the cage.
32. Put a tie-wrap through the end cap holes and tie it to the metal cage frame, just to catch it should it fall off.
33. Add about 15 lbs of weight to the cage.
34. Deploy the CTD into the water about 1 meter deep. Hold it here for about 30 seconds to make sure the power cycling has activated and readings are being collected.
35. Bring the CTD back to the surface, then begin the cast of the CTD down through the water column at about 1 meter a second.
36. Once the line goes slack, the CTD has reached the bottom. Let the captain and note taker know the bottom has been reached (or not). A latitude and longitude mark should be made at this point.
37. Bring the CTD back up through the water column at up to 2 meters per second.
38. Bring the CTD on board the ship and let the captain and note taker know all instruments are out of the water.
39. At the completion of the last cast for the day, rinse the sensor with distilled or tap water and dry before long term storage.



7. **Quality Assurance/Control**: Verify the RBR is setup with the desired parameter settings. View the data collected and evaluate if the RBR is collecting salinity in the expected range for the area sampled. Check that the depth matches the amount of cable paid out during the cast or is near the relative depth read by the boat fathometer. In cases of questionable results, redo the cast and compare your findings.
8. **Management/Responsibility**: The Task Manager oversees contractor performance if this project is an IDIQ task. If it is a CO-OPS project, the project lead or task manager oversees performance of these steps. The responsibility for maintaining this SOP resides with NCOP.