SBE39 STANDARD OPERATING PROCEDURE

GENERAL INFORMATION

The SBE 39 is a high-accuracy, fast-sampling temperature (pressure optional) recorder with USB interface, internal batteries, and memory. The 39 is designed for moorings or other long-duration, fixed-site deployments, as well as deployments on nets, towed vehicles, or ROVs.

SBE39:

Drop Sheet: \\pearl\ocean\OGTECH\Docs\DropsheetTemplates\Seabird\IMOS_DropSheet_sbe39.xls

SPECIFICATIONS:

- Sampling rates: 0.5 seconds to 21600seconds (6 hours) intervals.
- Depth Rating: 600m plastic or 10500m titanium housing
- Memory Capacity: 9.5 million samples with pressure
- Pressure Accurary: +/- 0.1% of full scale range
- Pressure Resolution: 0.002% of full scale range
- Pressure Range: 600 dBar
- Pressure Stability: 0.05% of full scale range/year
- Temperature Accuracy: +-0.002°C (-5 to +35 °C); ± 0.01 °C (+35 to +45 C)
- Temperature Range: -5 to +45°C
- Temperature Resolution: 0.0001°C
- Temperature Stability: 0.0002 °C/month (0.002 °C/year)

SOFTWARE:

Seaterm V1 (Select SBE39 Temperature Logger)

User Interface:
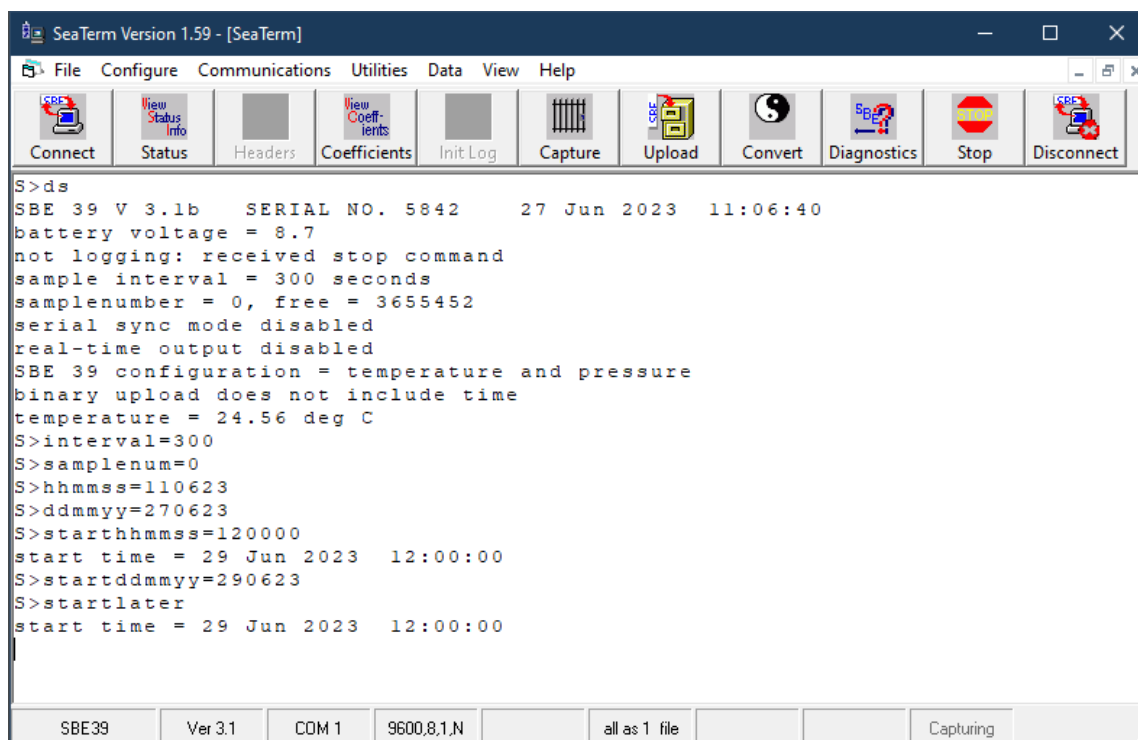
CONNECTION

SBE 39 uses an rs-232 6 pin connector in conjunction with an rs-232 serial adapter.

rs-232 6 pin

rs-232 Serial Adapter

If connecting to the instrument without a battery installed, an in-line battery will need to be attached to the cable. You may be required to select a COM port
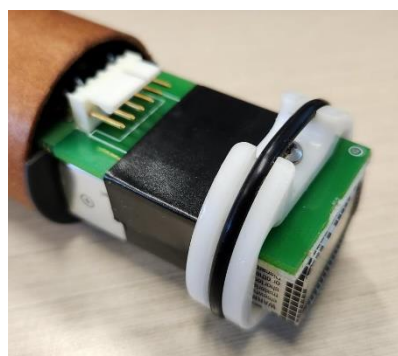
SETUP (AIMS IMOS)

HANDS-ON

- Unscrew head of SBE39 with an appropriate wrench or multi grips
- Install new **voltage tested 9V** lithium batteries
- Tape the battery in place
- Attach bracket and o-ring over the battery as shown

Pressure Sensor

DIGITAL

- Set computer time to UTC, sync if required.
- Connect SBE39 with rs-232 cable and adapter.
- Open Seaterm **V1** software (Seaterm V1 will be in the same directory as Seaterm V2 – Use "Open File Location" to step through shortcuts if necessary), open the "Configure" dropdown menu at the top and select SBE39.
- To determine the COM port in use, open Device Manager on your machine and scroll down to Ports. Identify the COM port being used by your serial adapter – COM1 in this case:
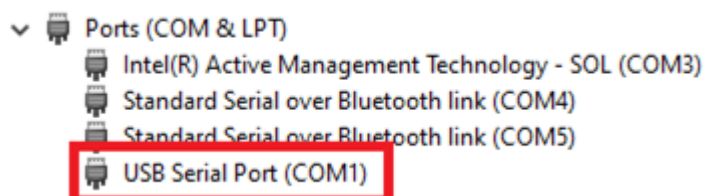
- Click connect and allow the software to cycle through baud rates until connected (you should see "S>").
- Display the status and setup information of the instrument with "ds".
- Check the instrument's most recent calibration date with "dc". Should be no older than 2 years.
- Set the sample period with "interval=X":
  - X = 120 (seconds) if the instrument doesn't have pressure.
  - X = 300 (seconds) if the instrument has pressure (Has a white plate as seen in the SBE39 head image).
  - Eg. interval=300
- Clear the instrument memory with "samplenum=0"
- Set the instrument time with "hhmmss=XXXXXX"
  - Eg. hhmmss=123420 for 12:34:20 (UTC, 24 hour time)
- Set the instrument date with "ddmmyy=XXXXXX"
  - Eg. ddmmyy=120123 for 12th January, 2023
- Set the instrument start time with "starthhmmss=XXXXXX"
  - Eg. starthhmmss=123420 for 12:34:20 (UTC, 24 hour time)
- Set the instrument start date with "startddmmyy=XXXXXX"
  - Eg. startddmmyy=120123 for 12th January, 2023
- **IMPORTANT**: Deploy or test deploy the current configuration with "**startlater**". The instrument will not start without this.
- Disconnect cable from instrument

BENCH TEST

- Start sampling for at least 10 samples
- Follow digital recovery procedure to recover bench test deployment
- Once satisfied, recheck and redo digital setup steps

DEPLOYMENT (AIMS IMOS)

- Inspect o-ring, replace if required – Apply silicone grease. Ensure instrument is screwed hand tight closed once setup is complete
- If deploying on mooring wire, fit clamp - test that screws are not stripped beforehand
- Wrap instrument in plastic shrink wrap, secure with duct tape **Do not cover sensor or head with tape or plastic**
- **Clearly** label instrument with serial number
- Attach doubled up stainless steel wire around instrument to be twisted onto mooring cable
- Apply zinc cream to probe end to reduce fouling
- **Picture of setup 39 pre-deployment**
- Ensure instrument is deployed facing sensor **down** on the mooring cable
- Screw clamp onto cable
- Twist stainless steel wire onto mooring cable – Make it tight enough to secure the instrument onto cable in case of clamp failure

RECOVERY (AIMS IMOS)

HANDS-ON

- Recover instrument from cable
- Find and photograph serial number to identify sensor
- Photograph sensor on instrument head *prior to cleaning* – Does not need to be particularly close – Just a clear photo to be cropped later

- Note any issues e.g. particularly fouled temperature probe
- Remove wrapping if any and clean instrument
- Place instrument into 'test tank' along with other instruments from its deployment to assess any time or sensor drifts

DIGITAL

- Open Seaterm V1 software
- Connect rs-232 cable and adapter
- ** confirm with OGTECH sketchy method to get stop time and timedrift estimate **
- Enter 'stop' to end the deployment. Note the time and date in UTC.
- Click 'Upload' to recover deployment data
- Save the data in relevant trip and site data directory. Naming convention is to either leave as default or use shortened version of "SBE39_*Serial Number*_*Date Code*.xml" eg. "SBE39_4881_2305.xml"
- Checks:
  - o 'Events recorded' (Errors during sampling)
  - o Sampling period remained as setup
  - o Expected number of samples
  - o Reasonable temperature profile
  - o Start/Stop times as expected
  - o Current date/time
- Record metadata and note any observed anomalies/observations

TROUBLESHOOTING

- If you are having issues, check the instrument is not an SBE39**Plus** as these have some key differences.