

QuickStart:
Instructions for Operating the R/V Elakha Flow-through
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[Note: See R/V Elakha manual for a more complete list of instructions]

START-UP

AT DOCK

- **Down below:** open through-hull (*brass valve with yellow handle*) and discharge (*grey plastic valve with red handle located behind de-bubbler*) for flow-through system. **Do not adjust other valves.**
- **Top side:** Turn on Flow-through computer (*bottom laptop in cabinet, username and password are indicated on keyboard*)
- Start data acquisition on computer:
 - Flip power switch on the flow-through SBE21 deck box (*small metal switch on the white box on the right side of the top shelf*). Ensure that the red power light is on.
 - Open **SEATERM**
 1. Check HEX string. If HEX string is short (e.g. 78610428), the GPS data needs to be added (type “@”, then “2”, then “@” again).
 2. A long HEX string indicates proper handling of both CT data and GPS (e.g. 786104282455FC5D32B1410032FC) and is required.
 - Open **SEASAVE** (*top center icon on screen*)
 1. Select “Start” from “Real-Time Data” Menu at top of screen (*4th from left side*)
 2. In dialog box: Choose “Select Output Data File Name” to enter a NEW filename with the following format EYYMMDD.hex (*e.g. E070223.hex for Feb 23rd, 2007*). Add a letter to the filename if starting a second (or higher) file for the day (*e.g. E070223a.hex for the 2nd, E070223b.hex for the 3rd, etc.*).
 3. Select “Start” at the bottom-center of the dialog box.
 4. (*a new dialog box will appear to collect “Header Information”*)
 5. Enter a short description of the cruise (*user, purpose, destination, etc.*) and select “OK”

The program will now attempt to connect to the NMEA data and then to the SBE 21. If successful, data acquisition will commence and update every 3 seconds. If unsuccessful or if nothing happens, see troubleshooting section.

AFTER PASSING UNDER BRIDGE

- Ask Bridge to start ‘flow-thru’ pump (*check discharge outside to ensure operation*).

SHUTDOWN

INSIDE OF JETTY

- Select “Stop” from “Real-Time Data” Menu at top of screen (*4th from left side*)
- Close “SEASAVE” but **LEAVE THE COMPUTER ON.**
- Ask Bridge to stop ‘flow-thru’ pump.
- **Turn off SBE21 deck box.**

AT DOCK

- Rinse system with fresh water:
 - Open the port access hatch, bring the free end of the green garden hose out from below to just outside the aft door.
 - Connect this to the green garden hose from dock, open the yellow valves, and then open the red FRESHWATER valve (*inside the grey flow-through box*).
 - Rinse for 5 minutes.
 - Close (*in order*): (1) red FRESHWATER valve, (2) brass through-hull with yellow handle, and (3) red DISCHARGE valve behind de-bubbler.
 - Close yellow garden hose valves and return each to its storage spot.
 - Unscrew filter lid and clean plastic strainer basket.
 - Replace basket and lid. **Lid must be screwed on firmly** (does NOT require a wrench) to prevent air leaks.
- Shutdown flow-through computer.

TROUBLESHOOTING

- If SeaSave data Acquisition fails.
 - Ask the bridge if GPS and echosounder are both on.
 - Check deck box for blinking NMEA and CT lights.
 - Check connection of wires and cables into and out of deck box as well as laptop.
 - Go to “configure inputs.”
 1. Configuration file should be **3105.con**.
 2. NMEA position data and depth added should both be **Yes**.
 3. Frequency 1: Temperature, Frequency 2: Salinity, A/D Voltage: Fluorescence
 4. Serial Ports tab. CTD serial port should be COM5.
 - Close **SEASAVE** and open **SEATERM**. Check HEX string as in startup. If the HEX string does not appear sensible, force communications at the 9600 baud rate.

CONTACT INFORMATION

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Instructions for Operating the R/V Elakha Thermosalinograph and Fluorometer Flow-through System

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Assuming the system was flushed with fresh water and the strainer was cleaned at the end of the previous cruise. The following valves should be positioned as indicated:

- Seawater into CTD open
- Seawater into fluorometer open
- Seawater out of CTD partially open (**DON'T ADJUST !!!**)
- Fresh water in valve closed

At the dock:

- Open sea cock
- Open discharge valve (last valve before overboard discharge)
- Run pump by turning on "Flow-thru sys pump" circuit breaker on bridge electrical panel
- Occasionally monitor discharge on port side to make sure water is flowing thru the system

Acquiring data:

- Power up Flow-Thru PC
- The blue "Fn" then "F8 CRT/LCD" key on the laptop will cycle through displaying the computer screen on the laptop alone, the remote flat-panel display alone or both together. You might need to use this feature to make sure you can see the display on the laptop screen in order to perform the steps below.
- Apply power to SBE21 junction box (in closet on shelf above flow-thru PC)
- Double-click on "**Shortcut to SEATERM**"
- HEX data should appear on the screen. If there is difficulty establishing communications, force the communications baud rate between the PC and the CTD to be 9600 baud by using the **F7** key. If communications fails, just try again and keep forcing to 9600 baud.
- Good HEX data will be either a short stream of numbers without GPS data (e.g. 78610428) or a longer stream (e.g. 786104282455FC5D32B1410032FC) if the GPS connection is part of the data stream.
- If the HEX data does not include GPS, it must be added (type "@", then "2", then "@" again); The longer HEX data will appear on screen.
- Exit SEATERM

- Double-click on "**Shortcut to SEASAVE**"
- Select "**Acquire and Display Real-Time Data**"
- Enter a unique "**Data File Name**", e.g. **EYYMMDD.HEX** where E=elakha, YY=year, MM=month, DD=day; if more than one file is needed per day, add the suffix "**a**", "**b**", etc, e.g. **EYYMMDDa.HEX**
- Start acquiring data by hitting **Start**.
- Enter header info about cruise; exit header and begin acquiring data

- Scrolled display should have: *Time (Julian Day), latitude, longitude, T, S, Volt#0* (Volt#0 is the WETstar chlorophyll fluorescence).

[NOTE ON GPS DATA INPUT: IF THE GPS DATA INPUT IS BAD, FOR EXAMPLE DUE TO NOISE IN THE SERIAL TRANSMISSION LINE FROM THE BRIDGE GPS UNITS, SEASAVE WILL HANG UP WHEN TRYING TO HANDSHAKE WITH THE NMEA INTERFACE. WE SOLVED THIS IN THE PAST BY EITHER REBOOTING THE FURUNO GPS ON THE BRIDGE AND/OR TURNING OFF THE GARMIN BRIDGE GPS. IF SEASAVE IS STILL HUNG UP, YOU CAN CHECK THE NMEA DATA STREAM BY USING A DIAGNOSTICS MODE IN SEATERM. APPLY POWER TO SBE21 JUNCTION BOX, DOUBLE-CLICK ON **SHORTCUT TO SEATERM**. TO CHECK NMEA DATA STREAM TYPE "@", SELECT "3" THEN "4". RAW NMEA SHOULD COME TO THE SCREEN. IF THE FEED FROM THE BRIDGE GPS IS NOISY, THIS DISPLAY WILL BE GARBAGE. TRY WORKING ON THE BRIDGE GPSs AS DESCRIBED ABOVE. TO EXIT THE NMEA DIAGNOSTICS MODE, YOU MUST EXIT SEATERM AND PWR DOWN THE JUNCTION BOX.

- Stop acquiring data by hitting **CTRL-F1**
- Exit *Seasave* by hitting **ESC** twice; choose "Quit without Saving" when asked about the display file; select "Yes" to exit Seasave
- Double-click on "**Shortcut to SEATERM**"; should see HEX data still scrolling

[NOTE: IF HEX DATA IS NOT SCROLLING TRY:

1. FORCING THE COMMUNICATIONS BAUD RATE BETWEEN THE PC AND THE CTD TO BE 9600 BAUD BY USING THE **F7** KEY. TRY THIS SEVERAL TIMES IF NECESSARY BEFORE FOLLOWING THE NEXT SUGGESTION.
2. POWERING DOWN THE CTD, WAITING SEVERAL MINUTES, AND THEN POWERING IT BACK UP TO SEE IF COMMUNICATIONS CAN BE RE-ESTABLISHED. YOU MAY OR MAY NOT NEED TO EXIT FROM SEATERM DURING THE PWR DOWN-UP SEQUENCE. ALSO, IN THIS CASE THE GPS FEED MAY HAVE BEEN LOST. IF SO, YOU NEEDN'T DO THE "**Stop GPS data**" STEP BELOW.]

- Stop GPS data going into data stream (type "@", then "1", then "@" again); should see shorter HEX data word scrolling
- Exit SEATERM by hitting **F10** and selecting "Yes" to exit
- Turn off power to SBE21 junction box

Inside jetty (calm water) but before dock to avoid contamination:

- Turn off pump

At dock:

- Connect shore line fresh water hose to green hose connected to CTD *** **make sure the discharge valve is open before you open the freshwater in valve** ***
- Open fresh water valve and flush system for several minutes
- Turn off shore line fresh water supply
- Close fresh water in valve
- Disconnect shore line freshwater hose
- Close discharge valve
- Close sea cock
- Unscrew filter lid, remove and clean plastic strainer basket
- Replace basket and lid. Lid must be screwed on firmly (does NOT require a wrench) to prevent air leaks (pump won't prime with air leaks)

- **Copy data from hard drive to USB drive**
- **Power down Flow-Thru PC**
- **Turn off SBE junction box**

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