SBE 19*plus* SEACAT Profiler Reference Sheet

(see SBE 19*plus* User's Manual for complete details)

Sampling Modes

- **Profiling** (**MP**) –Vertical profiles, sampling at 4 Hz. SBE 19*plus* runs continuously.
- **Moored** (**MM**) – Time series measurements once every 10 seconds to once every 4 hours. SBE 19*plus* powers down between samples.

Communication Setup Parameters

1. Double click on SeaTerm.exe.

2. Once main screen appears, in Configure menu select SBE 19*plus*. Click on COM Settings tab in dialog box. Input:
   - Serial Port: COM1 through COM10 are available
   - Baud Rate: 9600 (or other if applicable)
   - Data Bits: 8
   - Parity: None
   - Mode: RS-232 (Full Duplex)

Deployment

1. Batteries:
   A. *Remove battery end cap*: Wipe dry housing/end cap seam. Unthread end cap by rotating counter-clockwise. Wipe dry O-ring mating surfaces in housing with lint-free cloth.
   B. *Remove and replace battery cover plate and batteries*: Remove three Phillips-head screws and washers from battery cover plate, and remove cover plate. Turn SBE 19*plus* over and remove batteries. Install new batteries, + terminals against flat contacts and - terminals against spring contacts. Align battery cover plate with housing. Reinstall three Phillips-head screws and washers, while pushing hard on battery cover plate to depress spring contacts at bottom of battery compartment.
   C. *Reinstall battery end cap*: Remove water from O-rings and mating surfaces with lint-free cloth. Inspect O-rings and mating surfaces for dirt, nicks, and cuts. Clean/replace as necessary. Apply light coat of O-ring lubricant to O-ring and mating surfaces. Fit end cap into housing and rethread into place, using a wrench to ensure end cap is tightly secured.

2. Program SBE 19*plus* for intended deployment (see other side of this sheet for *Command Instructions and List*):
   A. Set date and time.
   B. Ensure all data has been uploaded, and then send **INITLOGGING** to make entire memory available for recording. If **INITLOGGING** is not sent, data will be stored after last recorded sample.
   C. Establish setup and logging parameters. Use **STARTMMDDYY=**, **STARTHHMMSS=**, and **STARTLATER** to establish delayed start date and time for Moored mode, or for Profiling mode (if **IGNORESWITCH=Y**).

3. Install a cable or dummy plug for each connector on SBE 19*plus* sensor end cap. Install a locking sleeve over each plug/cable connector. Connect other end of cables to appropriate sensors.

4. Verify hardware and external fittings are secure.

5. Remove Tygon tubing that was looped end-to-end around conductivity cell for storage. Reconnect Tygon tubing from pump to conductivity cell.

6. To start logging in **Profiling mode** –
   - (if **IGNORESWITCH=N**) Turn on magnetic switch;
   - (if **IGNORESWITCH=Y**) If not already done, send **STARTNOW** or **STARTMMDDYY=, STARTHHMMSS=,** and **STARTLATER**;
   - (if **AUTORUN=Y**) Turn on power.

7. To start logging in **Moored mode** - If not already done, send **STARTNOW** or **STARTMMDDYY=, STARTHHMMSS=,** and **STARTLATER**.

Command Instructions and List

- Input commands in upper or lower case letters and register commands by pressing Enter key.
- SBE 19*plus* sends `?CMD` if invalid command is entered.
- If system does not return `S>` prompt after executing a command, press Enter key to get `S>` prompt.
- If new command is not received within 2 minutes after completion of a command, SBE 19*plus* returns to quiescent (sleep) state.
- If in quiescent (sleep) state, re-establish communications by clicking Connect on Toolbar or pressing Enter key to get `S>` prompt.

Shown below are the commands used most commonly in the field. See the Manual for complete listing and detailed descriptions.

CATEGORY	COMMAND	DESCRIPTION
Status	**DS**	Display status and setup parameters.
General Setup	**MMDDYY=mmddyy**	Set real-time clock month, day, year. Must follow with **HHMMSS=**.
	DDMMYY=ddmmyy	Set real-time clock day, month, year. Must follow with **HHMMSS=**.
	HHMMSS=hhmmss	Set real-time clock hour, minute, second.
	BAUD=x	**x=** baud rate (1200, 2400, 4800, 9600, 19200, 38400). Default 9600.
	ECHO=x	**x=Y**: Echo characters as you type. **x=N**: Do not.
	BATTERYTYPE=x	**x=ALKALINE**: Alkaline batteries. **x=NICAD**: Nickel-Cadmium batteries. **x=NIMH**: Nickel Metal Hydride batteries.
	INITLOGGING	After uploading data, initialize logging to make entire memory available for recording.
	SAMPLENUMBER=x	**x=** sample number for first sample when logging begins.
	HEADERNUMBER=x	**x=** header and cast number for first cast when logging begins.
	FLASHINIT	Map bad blocks and erase FLASH memory, destroying all data.
	QS	Place SBE 19*plus* in quiescent (sleep) state. Logging and memory retention not affected.
Sensor Setup	**PTYPE=x**	**x=1**: Strain gauge pressure.
	VOLT0=x VOLT1=x **VOLT2=x VOLT3=x**	**x=Y**: Sample external voltage (voltage 0, 1, 2, or 3). **x=N**: Do not.
	BIOWIPER=x	**x=Y**: Configuration includes ECO-FL fluorometer with Bio-Wiper. **x=N**: Does not.
Profiling Mode Setup (no effect if in moored mode)	**MP**	Set to Profiling mode.
	MINCONDFREQ=x	**x=** minimum conductivity frequency (Hz) to enable pump turn-on.
	PUMPDELAY=x	**x=** time (seconds) to wait after minimum conductivity frequency reached before turning pump on.
	IGNORESWITCH=x	**x=Y**: Ignore switch for starting/stopping logging. **x=N**: Do not.
	AUTORUN=x	**x=Y:** Start / stop logging when external power applied / removed. **x=N:** Do not.
	NAVG=x	**x=** number of samples to average (always samples at 4 Hz).
Moored Mode Setup (no effect if in profiling mode)	**MM**	Set to Moored mode.
	MOOREDTXREALTIME=x	**x=Y**: Output real-time data. **x=N**: Do not.
	DELAYBEFORESAMPLING=x	**x=** time (seconds) to wait after switching on external voltage before sampling.
	MOOREDPUMPMODE=x	**x=0**: No pump. **x=1**: Run pump for 0.5 seconds before each sample. **x=2**: Run pump during each sample.
	SAMPLEINTERVAL=x	**x** = interval (seconds) between samples (10 - 14,400).
	NCYCLES=x	**x=** number of measurements to take and average every **SAMPLEINTERVAL** seconds.
Output Format	**OUTPUTFORMAT=x**	**x=0**: Output raw frequencies/voltages in Hex. **x=1**: output converted data in Hex. **x=2**: Output raw frequencies/voltages in decimal. **x=3**: Output converted data in decimal. **x=4**: Output pressure and scan number in Hex.
	OUTPUTSAL=x	**x=Y**: Output salinity (psu). **x=N**: Do not.
	OUTPUTSV=x	**x=Y**: Output sound velocity (m/sec). **x=N**: Do not.
	OUTPUTUCSD=x	**x=Y**: Output sigma-t (kg/m^3), battery voltage, operating current (mA). **x=N**: Do not.
Logging	**STARTNOW**	Start logging now.
	STARTMMDDYY=mmddyy	Delayed logging start: month, day, year. Must follow with **STARTHHMMSS=**.
	STARTDDMMYY=ddmmyy	Delayed logging start: day, month, year. Must follow with **STARTHHMMSS=.**
	STARTHHMMSS=hhmmss	Delayed logging start: hour, minute, second.
	STARTLATER	Start logging at delayed start time.
	STOP	Stop logging or waiting to start logging. Press Enter key to get **S>** prompt before entering command. Must stop logging before uploading data.
Data Upload	**DDb,e**	Upload data from scan b to scan e.
	DCn	**Profiling mode.** Upload data from cast n.
	DHb,e	Upload headers from header b to header e
Sampling	**SL**	Output last sample from buffer and leave power on.
	SLT	Output last sample from buffer, take new sample and store in buffer. Leave power on.
	TS	Take sample, store in buffer, output data. Leave power on.
	TSS	Take sample, **store in buffer and FLASH memory**, output data, turn power off.
	TSSON	Take sample, **store in buffer and FLASH memory**, output data, leave power on.
Coefficients	**DCAL**	Display calibration coefficients.