SBE 19*plus* V2 SeaCAT Profiler Reference Sheet
(see SBE 19*plus* V2 User's Manual for complete details)

Sampling Modes

- **Profiling** (**MP**) –Vertical profiles, sampling at 4 Hz (2 Hz with optional Quartz pressure sensor). SBE 19*plus* V2 runs continuously.
- **Moored** (**MM**) – Time series measurements once every 10 seconds to once every 4 hours. SBE 19*plus* V2 powers down between samples.

Setup

1. Double click on SeatermV2.exe. SeatermV2 opens, select *SBE 19plus V2*. Seaterm232 opens.
2. In the Communications menu, select Configure. Select the Comm port and baud rate (factory set to 9600), and click OK.
3. Seaterm232 should automatically connect to the 19*plus* V2. As it connects, it sends **GetHD** and displays the response, and then fills the Send Commands window with the list of commands for your 19*plus* V2.
4. Program 19*plus* V2 for intended deployment (see other side of this sheet for *Command Instructions and List*):
   A. Ensure all data has been uploaded from memory, and then send **InitLogging** to make entire memory available for recording. If **InitLogging** is not sent, data will be stored after last recorded sample.
   B. Send **DateTime=mmddyyyyhhmmss** (month, day, year, hour, minute, second) to set date and time.
   C. Set up other parameters as desired — see *Command Instructions and List*. If desired, use **StartDateTime=** and **StartLater** to establish delayed start date and time for Moored mode or (if **IgnoreSwitch=Y**) for Profiling mode.

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 19*plus* V2 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. Install a cable or dummy plug for each connector on 19*plus* V2 sensor end cap. Install a locking sleeve over each plug/cable connector. Connect other end of cables to appropriate sensors.
3. Verify hardware and external fittings are secure.
4. Remove Tygon tubing that was looped end-to-end around conductivity cell for storage. Reconnect Tygon tubing from pump to conductivity cell.
5. To start logging in **Profiling mode** –
   - (if **IgnoreSwitch=N**) Turn on magnetic switch;
   - (if **IgnoreSwitch=Y**) If not already done, send **StartNow** or send **StartDateTime=** and **StartLater**;
   - (if **AutoRun=Y**) Turn on power.
6. To start logging in **Moored mode** - If not already done, send **StartNow** or send **StartDateTime=** and **StartLater**.

Data Upload

1. Double click on SeatermV2.exe. SeatermV2 opens, select *SBE 19plus V2*. Seaterm232 opens.
2. In the Communications menu, select Configure. Select the Comm port and baud rate (factory set to 9600), and click OK.
3. Seaterm232 should automatically connect to the 19*plus* V2. As it connects, it sends **GetHD** and displays the response, and then fills the Send Commands window with the list of commands for your 19*plus* V2.
4. If sampling autonomously (logging), command 19*plus* V2 to stop logging by turning off the magnetic switch, sending **Stop**, or removing power (as applicable to your setup).
5. Click Upload menu to upload stored data.
6. Run SBE Data Processing to convert uploaded .hex file to .cnv file for use by other modules in data processing software. Process file and review data to ensure all data has been uploaded.

Command Instructions and List (see manual for complete list and descriptions)

- Input commands in upper or lower case letters and register commands by pressing Enter key.
- 19*plus* V2 sends an error message if an invalid command is entered.
- If new command is not received within 2 minutes after completion of a command, 19*plus* V2 returns to quiescent (sleep) state.
- If in quiescent (sleep) state, re-establish communications by clicking Connect in Communications menu or pressing Enter key.

Category	Command	Description
Status	GetCD	Get and display Configuration Data.
	GetSD	Get and display Status Data.
	GetCC	Get and display Calibration Coefficients.
	GetEC	Get and display Event Counters.
	ResetEC	Reset Event Counters.
	GetHD	Get and display Hardware Data.
	DS	Display status and setup parameters.
	DCal	Display calibration coefficients.
General Setup	DateTime=mmddyyyyhhmmss	Set real-time clock month, day, year, hour, minute, second
	BaudRate=x	**x**= baud rate (600, 1200, 2400, 4800, 9600, 19200, 38400, 57600, 115200). Default 9600.
	Echo=x	**x=Y**: Echo characters as you type. **x=N**: Do not.
	OutputExecutedTag=x	**x=Y**: Display XML Executing and Executed tags. **x=N**: Do not.
	BatteryType=x	**x=alkaline**: Alkaline. **x=nicad**: Nickel-Cadmium. **x=nimh**: Nickel Metal Hydride.
	InitLogging	After uploading data, initialize logging to make entire memory available for recording.
	BioWiper=x	**x=Y**: Configuration includes WET Labs sensor with Bio-Wiper. **x=N**: Does not.
	QS	Place in quiescent (sleep) state. Logging and memory retention not affected.
Voltage Sensor Setup	Volt0=x Volt1=x Volt2=x Volt3 =x Volt4=x Volt5=x	**x=Y**: Enable external voltage (voltage 0, 1, 2, 3, 4, and 5). **x=N**: Do not.
RS-232 Sensor Setup	SBE63=x	**x=Y**: Enable SBE 63 optical dissolved oxygen sensor. **x=N**: Do not.
	SBE38=x	**x=Y**: Enable SBE 38 secondary temperature sensor. **x=N**: Do not.
	WetLabs=x	**x=Y**: Enable WET Labs RS-232 sensor. **x=N**: Do not.
	GTD=x and DualGTD=x	**x=Y**: Enable 1 or 2 GTDs (Pro-Oceanus Gas Tension Device). **x=N**: Do not.
	TGTD	Measure Gas Tension Device(s), output 1 converted data sample for each GTD.
	Optode=x	**x=Y**: Enable Aanderaa Optode. **x=N**: Do not.
	SendOptode=command	Send **command** to Optode (any command recognized by Optode) and receive response.
Output Format	OutputFormat=x	**x=0**: Raw, Hex. **x=1**: Converted, Hex. **x=2**: Raw, decimal. **x=3**: Converted, decimal. **x=4**: Pressure and scan number, Hex. **x=5**: Converted, decimal, XML.
	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.
Profiling Mode Setup (no effect if in moored mode)	MP	Set to Profiling mode.
	NAvg=x	**x**= number of samples to average. Default 1. Must be even number (2, 4, etc.) if 19*plus* V2 includes optional Quartz pressure sensor.
	MinCondFreq=x	**x**= minimum conductivity frequency (Hz) to enable pump turn-on.
	PumpDelay=x	**x**= time (sec) to wait after minimum conductivity frequency reached before turning pump on.
	AutoRun=x	**x=Y**: Start / stop logging when external power applied / removed. **x=N**: Do not.
	IgnoreSwitch=x	**x=Y**: Ignore switch for starting/stopping logging. **x=N**: Do not.
Moored Mode Setup (no effect if in profiling mode)	MM	Set to Moored mode.
	SampleInterval=x	**x** = interval (sec) between samples (10 - 14,400).
	NCycles=x	**x**= number of measurements to take and average every **SampleInterval** sec. Must be even number (2, 4, etc.) if 19*plus* V2 includes optional Quartz pressure sensor).
	MooredPumpMode=x	**x=0**: No pump. **x=1**: Run pump for 0.5 sec before each sample. **x=2**: Run pump during each sample.
	DelayBeforeSampling=x	**x**= time (sec) to wait after switching on external voltages and RS-232 sensors before sampling.
	DelayAfterSampling=x	**x**= time (sec) to wait after sampling complete, before turning off power to external voltage and RS-232 sensors.
	ParosIntegration=x	**x**= integration time (sec) for optional Quartz pressure sensor (1 – 600; default 1).
	MooredTxRealTime=x	**x=Y**: Output real-time data. **x=N**: Do not.
Logging	StartNow	Start logging now.
	StartDateTime=mmddyyyyhhmmss	Delayed logging start: month, day, year, hour, minute, second.
	StartLater	Start logging at delayed start time.
	Stop	Stop logging or waiting to start logging. Press Enter key before entering command.
Data Upload	GetSamples:b,e or DDb,e	Upload data from scan **b** to scan **e**.
	GetCast:x or DCx	**Profiling mode only.** Upload data from cast **x**.
	GetHeaders:b,e or 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 data 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.
	GetLastSamples:x	Output last **x** samples from FLASH memory.