

# **SBE 17plus V2 SEARAM Reference Sheet**

(see SBE 17plus V2 SEARAM User's Manual for complete details)

## **System Setup**

1. In SeatermAF's Configure menu, select SBE 17plus V2. Input:
  - A. SBE 17plus Communications tab
    - Serial Port: COM1 through COM10 are available.
    - Baud Rate: 9600 (or other if applicable).
    - Battery Type: NiMH (standard for SEARAM) or Ni-Cad or Alkaline.
    - Upload data type: define data upload for when you use Upload button on Toolbar.
    - Header options: define header information included with uploaded data.
    - SBE 3/4 serial number: temperature and conductivity sensor serial numbers (from SBE 9plus) needed for post-processing data.
  - B. SBE 17 Bottle Closure Logic tab
    - 9+ Configuration File: .con file provided by Sea-Bird contains pressure coefficients.
    - Bottle Closure Parameters: define whether to close a bottle at bottom of downcast, and define when bottom is reached and upcast begins.
  - C. Bottle Closure Pressures/Times tab
    - Define total number of bottles to close, and bottle positions and closure pressures.
2. In Configure menu, select Header Form to customize header if desired.
3. Click Connect on Toolbar. SeatermAF should return an S> prompt.
4. Set Date and Time — see Command Instructions and List on other side.
5. Set up other parameters if desired — see Command Instructions and List on other side.
6. Program and Arm Auto Fire
  - A. Click Program on Toolbar to send previously input auto fire parameters to SEARAM.
  - B. Click Arm on Toolbar to arm auto fire, which enables SEARAM to command Carousel to take samples.

## **Deployment**

1. Remove I/O cable from 4-pin connector on SEARAM. Replace with dummy plug and locking sleeve.
2. *Aluminum housing:* Verify that anodes have not eroded away.
3. Verify that hardware and external fittings are secure. Verify that cable connections from SEARAM to SBE 9plus CTD underwater unit and SBE 32 Carousel Water Sampler are secure.
4. Push in SEARAM's switch plunger to turn on power to system and begin logging. Deploy.

## **Data Uploading**

1. If not done already, command SEARAM to stop logging by pulling out switch plunger.
2. Remove dummy plug and locking sleeve from 4-pin connector on SEARAM. Replace with I/O cable.
3. In SeatermAF, click Connect on Toolbar. SeatermAF should return an S> prompt.
4. Click Upload on Toolbar to upload stored data. Resulting dialog boxes are dependent on Upload and Header settings selected in *System Setup* above.
5. Ensure all data has been uploaded by processing file and reviewing data in SBE Data Processing or SEASAVE.

## Command Instructions and List

- Input commands in upper or lower case letters and register commands by pressing Enter key.
- SEARAM sends ? CMD if an invalid command is entered.
- If SEARAM does not return an S> prompt after executing a command, press Enter key to get S> prompt.
- If a new command is not received within 2 minutes, SEARAM returns to quiescent (sleep) state to prevent battery exhaustion.
- **If in quiescent (sleep) state, re-establish communications by pressing Connect on Toolbar or Enter key to get S> prompt.**
- Commands marked with \* (\* is not part of command) alter SEARAM's memory and require verification before executing.
- Use Toolbar's Upload button or Data menu's Upload Data to upload data that will be post-processed by SEASOFT.
- If SEARAM is transmitting data and you want to stop it, type ^C or press Esc key. Press Enter key to get S> prompt.
- Braces [ ] indicate optional command parameters. Items in braces need not be entered.

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

CATEGORY	COMMAND	DESCRIPTION
Status	DS	Display operating status and setup parameters.
	CP	Display bottle closure parameters.
General Setup	MMDDYY=mmddy	Set real-time clock month, day, year. Follow with HHMMSS= or it will not set date.
	DDMMYY=ddmmyy	Set real-time clock day, month, year. Follow with HHMMSS= or it will not set date.
	HHMMSS=hmmss	Set real-time clock hour, minute, second.
	BAUD=x	x= baud rate for general communication and uploading (300, 600, 1200, 2400, 4800, 9600, 19200, or 38400)
	BATTERYTYPE=x	NiMH (x=nimh), or optional nickel-cadmium (x=nicad) or alkaline (x=alkaline) battery.
	SAMPLENUM=0 * or CASTNUM=0 *	Reset data pointers and cast number <b>after existing data has been uploaded.</b>
	ERASE MEMORY *	Erase memory, <b>destroying all data in SEARAM.</b>
SBE 9plus Setup	QS	Quit session, place SEARAM in quiescent (sleep) state. Main power is turned off.
	AVE=x	x= number of scans to average in SEARAM (1-96).
	SF=x	x= number of frequency channels to suppress. x = 0 (dual redundant sensors), 1 (single redundant sensor), or 2 (no redundant sensors)
	SV=x	x= number of voltage channels to suppress (0, 2, 4, 6, or 8).
	AC0=x	x= number of scans to advance primary conductivity (0-3).
	AC1=x	x= number of scans to advance secondary conductivity (0-3).
Carousel Setup	Fx	Turn SEARAM power to SBE 9plus on (x=O) or off (x=F).
	Cx	Turn SEARAM power to Carousel on (x=O) or off (x=F).
Auto Fire: Arm/Disarm	#XXX	Relay character string to Carousel. XXX can be any command recognized by Carousel.
Data Upload Pull out plunger first.	ARM or DISARM	Enable (ARM) or disable (DISARM) auto fire.
	DC [x]	Display raw data in hex from cast x. If x omitted, data from cast 0 displays.
Diagnostics	DD [x1,x2]	Display raw data in hex from scan x1 through x2. If x1 and x2 omitted, all data displays.
	DH	Display headers from all casts.
	BV	Display main battery voltage.
	BI	Display main battery current (amps).
	VR	Continuously display voltages – main battery voltage and operating current (amps). SEARAM switches on power to CTD and Carousel, so operating current is total current drawn by SEARAM, CTD, and Carousel. Press Esc key to stop test.
	TESTEE	Test EEPROM.
	FLASH INITIALIZE *	Perform 20 minute memory test, <b>destroying all data in SEARAM.</b>
FLASH MAP	Display results of FLASH INITIALIZE. Press Esc key to abort at any time.	
Commands Not Typically Sent: Auto Fire General Setup	NB=x	x= total number of bottles to be closed during deployment (maximum 24).
	BC n,m	Perform closure n at pressure m (db). Repeat NB times.
	BS n,m	Bottle closure n closes bottle number m. Repeat NB times.
Commands Not Typically Sent: Bottle Bottom Closure & Upcast Logic Setup	BBx	Enable (x=Y) or disable (x=N) bottom bottle closure.
	BBP=x	x= bottom bottle pressure window (db).
	BBT=x	x= bottom bottle time (minutes).
	BUP=x	x= pressure (db) to enable upcast.
Commands Not Typically Sent: Pressure Coefficients	BUD=x	x= pressure decrease (db) from maximum to signal upcast.
Commands Not Typically Sent: Pressure Coefficients	PC1=x, PC2=x, PC3=x, PD=x, PT1=x, PT2=x, PT3=x, PT4=x, PADM=x, PADB=x	x= pressure coefficient (C1, C2, C3, D, T1, T2, T3, T4, Adm, Adb) from Calibration Certificate.