SBE 37-SMP-ODO (RS-485) MicroCAT Reference Sheet
(see SBE 37-SMP-ODO [RS-485] MicroCAT User's Manual for complete details)

Setup

1. Install AA lithium cells (Note: **ODO MicroCATs use a battery pack with a yellow cover plate**):
   A. *Remove connector end cap*: Wipe dry housing/end cap seam. Remove 2 cap screws from end cap, and twist end cap counterclockwise. Pull end cap out. Disconnect Molex connecting to battery pack. Wipe dry O-ring mating surfaces in housing with lint-free cloth.
   B. *Remove battery pack and install cells*: Loosen captured screw in battery pack cover. Use handle to lift pack out of housing. Keep handle upright. Unscrew cover plate. Roll 2 O-rings on side of pack out of grooves. Insert cells, and roll 2 O-rings back into grooves. Align pin on cover plate PCB with post hole, keep handle upright, and screw cover plate onto battery pack.
   C. *Reinstall battery pack and connector end cap*: Align D-shaped opening and pins on shaft. Lower battery pack into housing; push gently to mate. Tighten captured screw to secure battery pack in housing. Remove water from O-rings and mating surfaces with lint-free cloth. Inspect O-rings and mating surfaces for dirt, nicks, and cuts. Clean as necessary. Apply light coat of O-ring lubricant to O-ring and mating surfaces. Plug Molex connector together. Fit end cap into housing. Reinstall 2 cap screws.
2. Install cable. Connect to computer serial port.
3. Double click on SeatermV2.exe. SeatermV2 opens; in Instruments menu, select *SBE 37 RS485*. Seaterm485 opens.
4. In Seaterm485's Communications menu, select *Configure*. In dialog box, select Comm port and baud rate (factory set to 9600). Set ID to *Automatically get ID* for 1 MicroCAT on line; set ID to *Use fixed ID* for multiple MicroCATs on line. Click OK.
5. Seaterm485 should automatically connect to MicroCAT. As it connects, it sends **#iiGetHD** (ii=ID) and displays response, and then fills Send Commands window with list of commands for your MicroCAT.
6. Program MicroCAT for intended deployment (see other side of this sheet for command list):
   A. Ensure all data has been uploaded from memory, and then send **#iiInitLogging** to make entire memory available for recording.
   B. Set Date and Time (**DateTime=** or **#iiDateTime=**).
   C. Set up other parameters if desired. User-selectable sampling modes include:
      • **Autonomous** – At pre-programmed intervals, wake up, run pump, sample, store data in memory, and go to sleep.
      • **Polled** – On command, run pump, take 1 sample, and send data to computer.
   D. Use one of following sequences to start logging:
      • **#iiStartNow** to start logging now, taking a sample every **#iiSampleInterval=** seconds.
      • **#iiStartDateTime=** and **#iiStartLater** to start logging at specified date and time, taking a sample every **#iiSampleInterval=** seconds.

Deployment

1. Wiring – deploy with dummy plug or cable (for external power and/or serial communication during deployment). Install locking sleeve.
2. Mount MicroCAT, using Sea-Bird or customer-supplied hardware. **MicroCAT is intended for deployment with connector at bottom for proper operation – see manual for details.**

Data Upload

1. Connect cable from MicroCAT to computer.
2. Double click on SeatermV2.exe. SeatermV2 opens; in Instruments menu, select *SBE 37 RS485*. Seaterm485 opens.
3. In Seaterm485's Communications menu, select *Configure*. In dialog box, select Comm port and baud rate (factory set to 9600). Set ID to *Automatically get ID* for 1 MicroCAT on line; set ID to *Use fixed ID* for multiple MicroCATs on line. Click OK.
4. Seaterm485 should automatically connect to MicroCAT. As it connects, it sends **#iiGetHD** and displays response, and then fills Send Commands window with list of commands for your MicroCAT.
5. If sampling autonomously (logging), command MicroCAT to stop logging by sending **#iiStop**.
6. Click Upload menu to upload stored data. Seaterm485 prompts you for upload file name and other upload options.
7. When upload completed, Seaterm485 prompts you to 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

• Input commands in upper or lower case letters, and register commands by pressing Enter key.
• MicroCAT sends error message if invalid command is entered.
• If new command is not received within 2 minutes after completion of a command, MicroCAT returns to quiescent (sleep) state.
• If in quiescent (sleep) state, re-establish communications by selecting *Connect* in Seaterm485's Communications menu, sending two @ characters, or pressing any key.
• For reliable operation, all commands *may* need to be preceded with two @ characters.
   Example (status command for MicroCAT 01):   `@@#01DS`

Command List

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

CATEGORY	COMMAND	DESCRIPTION
MicroCAT ID	**ID?**	Get MicroCAT ID.
	***ID=ii**	Set MicroCAT ID to **ii**, where ii= 0-99. Command must be sent twice.
Global	**DateTime= mmddyyyyhhmmss**	Set clock month, day, year, hour, minute, second.
	GData	Command **all** MicroCATs to run pump and take 1 sample. MicroCATs hold data in buffer until receiving **Dataii**. Data not stored in FLASH memory.
	PwrOff	Enter quiescent (sleep) state. Main power turned off, but data logging and memory retention unaffected.
Get Data	**Dataii**	Get data obtained with **GData**.
Status	**#iiGetCD**	Get and display configuration data.
	#iiGetSD	Get and display status data.
	#iiGetCC	Get and display calibration coefficients.
	#iiGetEC	Get and display event counter data.
	#iiResetEC	Reset event counter.
	#iiGetHD	Get and display hardware data.
	#iiDS	Get and display status.
	#iiDC	Get and display calibration coefficients.
General Setup	**#iiBaudRate=x**	**x**= baud rate (4800, 9600, 19200, 38400, 57600, or 115200).
	#iiRxDelay=x	**x**= delay after MicroCAT receives command until transmitter enabled (1 - 500 msec). Default 25 msec.
	#iiTxDelay=x	**x**= delay after MicroCAT transmits reply until transmitter disabled (1 - 500 msec). Default 25 msec.
	#iiDateTime= mmddyyyyhhmmss	Set clock month, day, year, hour, minute, second.
	#iiOutputExecutedTag=x	**x=Y**: output XML Executed and Executing tags. **x=N**: do not.
	#iiOutputBusyTag=x	**x=Y**: output Busy tag if a command is sent while MicroCAT is sampling in response to **GData**. **x=N**: do not.
	#iiReferencePressure=x	**x**= reference pressure (gauge) in db (used when MicroCAT has no pressure sensor).
Pump Setup	**#iiMinCondFreq=x**	**X**= minimum conductivity frequency (Hz) to enable pump turn-on for sampling.
	#iiAdaptivePumpControl =x	**x=Y**: Use *Adaptive Pump Control*. **x=N**: Run pump for [**#iiOxNTau * #iiOxTau20**] before each sample.
	#iiOxNTau=x	**x**= pump time multiplier. Range 1 – 100; *default 7*.
	#iiPumpOn	Turn pump on for testing or to remove sediment.
	#iiPumpOff	Turn pump off, if turned on with **#iiPumpOn**.
SBE 63 Setup	**#iiSend63=command**	Command MicroCAT to send **command** to SBE 63, receive response (any command recognized by SBE 63).
	Other commands	See SBE 63 manual for command list. Following setup of *SBE 63* is required for use with MicroCAT: **SetEcho=1**, **SetFormat=1**, **SetAvg=1 to 16** (recommended value is **2**), **SetAutoRun=0**.
Memory Setup	**#iiInitLogging**	Initialize logging to make entire memory available for recording.
Output Format Setup	**#iiOutputFormat=x**	**x=0**: output raw decimal data. **x=1**: output converted decimal data. **x=2**: output converted decimal data in XML.
	#iiOutputSal=x	**x=Y**: calculate and output salinity (psu). **x=N**: do not.
	#iiTxSampleNum=x	**x=Y**: calculate and output sample number with polled sampling data. **x=N**: do not.
Autonomous Sampling (Logging)	**#iiSampleInterval=x**	**x** = interval between samples (10-21600 sec). When commanded to start sampling with **#iiStartNow** or **#iiStartLater**, MicroCAT runs pump, takes sample, stores data in FLASH memory, and goes to sleep at **x** sec intervals.
	#iiStartNow	Start logging now.
	#iiStartDateTime= mmddyyyyhhmmss	Delayed logging start: month, day, year, hour, minute, second.
	#iiStartLater	Start logging at delayed logging start time.
	#iiStop	Stop logging or waiting to start logging. Send **#iiStop** before uploading data.
Polled Sampling	**#iiTS**	Do not pump. Take sample, store in buffer, output data.
	#iiTSR	Do not pump. Take sample, store in buffer, output data in raw decimal form (regardless of **#iiOutputFormat=**).
	#iiTPS	Run pump, take sample, store in buffer, output data.
	#iiTPSH	Run pump, take sample, store in buffer, do not output data.
	#iiTPSS	Run pump, take sample, store in buffer and in FLASH memory, output data.
	#iiTSN:x	Do not pump. Take **x** samples, output data.
	#iiTPSN:x	Run pump continuously while taking **x** samples and outputting data.
	#iiT63	Do not pump. Take sample from SBE 63, output oxygen data in format set by **SetFormat=** in SBE 63.
	#iiSL	Output last sample stored in buffer.
	#iiSLTP	Output last sample stored in buffer, then run pump, take new sample, and store in buffer.
	#iiSLTPR	Output last sample stored in buffer in raw decimal format (regardless of setting for **#iiOutputFormat=**), then run pump, take new sample, and store in buffer.
	#iiDNx	Upload last **x** scans from FLASH memory.
Data Upload	**#iiGetSamples:b,e**	Upload data from scan **b** to **e**, in format defined by **#iiOutputFormat**.
	#iiDDb,e	Upload data from scan **b** to **e**, in converted decimal form (**#iiOutputFormat=1**) (regardless of setting for **#iiOutputFormat**).
Calibration Coefficients	*See manual*	