SBE 37-SM (RS-232) MicroCAT Reference Sheet

(see SBE 37-SM MicroCAT User's Manual for complete details)

Sampling Modes

- **Autonomous sampling** – At pre-programmed intervals, MicroCAT wakes up, samples, stores data in FLASH memory, and powers off.
- **Polled sampling** – The MicroCAT takes one sample and sends data to computer. Polled sampling is useful for integrating MicroCAT with satellite, radio, or wire telemetry equipment.
- **Serial line sync**- The MicroCAT wakes up, samples, stores data in FLASH memory, sends data to computer, and powers off in response to a pulse on serial line. This provides an easy method for synchronizing MicroCAT sampling with other instruments such as Acoustic Doppler Current Profilers (ADCPs) or current meters, without drawing on their battery or memory resources.

Communication Setup Parameters

1. Double click on SeaTerm.exe.
2. Once main screen appears, in Configure menu select SBE 37. 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: No Parity
   - Mode: RS-232 (Full Duplex)

Deployment

1. Batteries:
   A. *Remove I/O connector end cap*: Wipe dry housing/end cap seam. Remove 2 flat Phillips-head screws from end cap. Pull end cap out. Disconnect Molex connector connecting end cap to battery pack. Wipe dry O-ring mating surfaces in housing with lint-free cloth.
   B. *Remove battery pack and install batteries*: Remove large screw/washer from upper PCB. Lift battery pack out of housing, using handle. Remove 2 small screws/washers from upper PCB. Lift upper PCB off brass sleeve. Insert batteries onto lower PCB. Press upper PCB onto batteries, mating plugs and aligning screw holes. Refasten with two small screws/washers.
   C. *Reinstall battery pack and I/O connector end cap*: Align D-shaped opening and notch. Lower battery pack into housing; push gently to mate. Reinstall large screw/washer in upper PCB. 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 flat Phillips-head screws to secure.
2. Program MicroCAT for intended deployment (see other side of this sheet for *Command Instructions and List*):
   A. Set time and date.
   B. Establish logging parameters.
   C. Ensure all data has been uploaded, and then set **SAMPLENUM=0** to make entire memory available for recording. If **SAMPLENUM** is not reset to zero, data will be stored after last recorded sample.
   D. Use one of following sequences to initiate logging:
      - **STARTNOW** to start logging now, taking a sample every **INTERVAL** seconds
      - **STARTMMDDYY=, STARTHHMMSS=,** and **STARTLATER** to start logging at specified date and time, taking a sample every **INTERVAL** seconds
      - **SYNCMODE=Y** to place MicroCAT in serial line sync mode, so that a simple pulse on RS-232 line will initiate sample
3. Anti-foul cups: Remove protective plugs and verify cups contain anti-foul cylinders. Leave protective plugs off for deployment.
4. Wiring to MicroCAT – deploy with dummy plug, I/O cable (for optional external power and/or serial communication during deployment), or cable from pump (for MicroCAT with optional pump):
   A. Align raised bump on side of dummy plug/connector with large pin on MicroCAT.
   B. Install locking sleeve.
5. Mount MicroCAT, using Sea-Bird or customer-supplied hardware.

Command Instructions and List

- Input commands in upper or lower case letters and register commands by pressing Enter key.
- MicroCAT 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, MicroCAT returns to quiescent (sleep) mode.
- If in quiescent (sleep) mode, 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.
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.
	FORMAT=x	**x=1** (default): output converted data, date dd mmm yyyy **x=2**: output converted data, date mm-dd-yyyy
	REFPRESS=n	**n** = reference pressure (decibars) (used when MicroCAT has no pressure sensor).
	QS	Quit session and place MicroCAT in quiescent (sleep) mode. Data logging and memory retention are not affected.
Logging	**INTERVAL=n**	**n** = interval between samples (5 to 32767 seconds). When commanded to start sampling with **STARTNOW** or **STARTLATER**, MicroCAT takes sample, stores data in FLASH memory, transmits real-time data (if **TXREALTIME=Y**), and powers down at **n** second intervals.
	SAMPLENUM=n	Set sample number for first sample when logging begins to **n**. After uploading data, set to zero before starting to log again to make entire memory available for recording. If not reset to zero, data stored after last sample.
	STORETIME=x	**x=Y**: store date and time with each sample **x=N**: do not store date and time
	TXREALTIME=x	**x=Y**: output real-time data as it is sampled. Does not affect storing data to memory. Do not set **INTERVAL** to less than 10 seconds if transmitting real-time data. **x=N**: do not output real-time data
	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.
	STARTNOW	Start logging now, as defined by **INTERVAL**.
	STARTLATER	Start logging at delayed start time, as defined by **INTERVAL**.
	STOP	Stop logging data or stop waiting to start logging. Press Enter key to get **S>** prompt before entering this command. Must send this command before uploading data.
Operating	**TS**	Take sample and output converted data. Data not stored in FLASH memory.
	TSR	Take sample and output raw data. Data not stored in FLASH memory.
	TSS	Take sample, **store in FLASH memory**, output converted data, and turn power off.
	TSSON	Take sample, **store in FLASH memory**, and output converted data.
	SLT	Output converted data from last sample, and then take new sample. Data not stored in FLASH memory.
	SLTR	Output raw data from last sample, and then take new sample. Data not stored in FLASH memory.
	SL	Output data from last sample taken with either Operating Command or Logging Commands.
Serial Line Sync	**SYNCMODE=x**	**x=Y**: enable serial line sync mode. When RS-232 RX line is high (3-10 VDC) for 1-1000 milliseconds, MicroCAT takes sample, stores data in FLASH memory, transmits real-time data, and powers down. **x=N**: disable serial line sync mode.
	SYNCWAIT=n	**n**= time (in seconds) MicroCAT monitors RS-232 line for commands after taking a sample in serial line sync mode. Range 0 - 120 seconds; default 0 seconds.
Data Upload	**DDb,e**	Upload data from scan b to scan e. Send **STOP** before sending this command.
Coefficients	**DC**	Display calibration coefficients.