

# SBE 37-SI (RS-232) MicroCAT Reference Sheet

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

## Sampling Modes

- **Autonomous sampling** – There are two types of Autonomous sampling.  
*Interval sampling:* At pre-programmed intervals, the MicroCAT wakes up, samples, transmits data, and enters quiescent (sleep) mode.  
*Continuous sampling:* The MicroCAT continuously samples and transmits data, and does not enter quiescent (sleep) mode between samples.
- **Polled sampling** – The MicroCAT takes one sample and transmits data. Polled sampling is useful for integrating MicroCAT with satellite, radio, or wire telemetry equipment.
- **Serial Line Sync** - A pulse on the serial line causes a MicroCAT to wake up, sample, transmit data, and enter quiescent (sleep) mode automatically. This mode provides easy integration with Acoustic Doppler Current Profilers (ADCPs) or current meters which can synchronize MicroCAT sampling with their own, 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. Wiring to MicroCAT:
  - A. Install I/O cable connector, aligning raised bump on side of connector with large pin on MicroCAT.
  - B. Install locking sleeve.
  - C. Connect I/O cable connector to computer serial port.
  - D. Connect I/O cable connector's red and black wires to power supply (7-24 VDC).
2. Verify Power-Up Jumper J1 on Interface PCB (labeled 10200 or 10189) inside MicroCAT's housing is correctly set by observing response to **QS** command:
  - Normal (default) – pins 1 and 2
  - Autopower – pins 2 and 3 (see manual for procedure for removing PCB from housing to access)
3. Set time and date.
4. Establish setup and operating parameters.

Interface PCB's J1 Jumper	AUTORUN	SINGLESAMPLE	Effect
Normal	N	Y or N	Wake up (when Enter key pressed while in quiescent mode) and wait for command.
	Y	N	Wake up (when Enter key pressed while in quiescent mode) and sample at rate specified by <b>INTERVAL</b> . To stop sampling and get <b>S&gt;</b> prompt, type <b>STOP</b> and press Enter key.
	Y	Y	Wake up (when Enter key pressed while in quiescent mode), take and output a single sample, and automatically power-off (enter quiescent mode). To wake up and get <b>S&gt;</b> prompt, type <b>STOP</b> and press Enter key. Referred to as <b>Serial Line Sync Mode</b> .
Autopower	N	Y or N	Wake up (when power applied) and wait for command.
	Y	N	Wake up (when power applied) and sample at rate specified by <b>INTERVAL</b> until power removed.
	Y	Y	Wake up (when power applied) and take and output a single sample. Wait for another command until power removed.

5. Anti-foul cups: Remove protective plugs and verify cups contain anti-foul cylinders. Leave protective plugs off for deployment.
6. Deploy MicroCAT, using optional Sea-Bird mounting hardware or customer-supplied mounting hardware.

## Command Instructions and List

- Input commands in upper or lower case letters and register commands by pressing Enter key.
- If in quiescent (sleep) mode, re-establish communications by clicking Connect on Toolbar or pressing Enter key to get S> prompt.
- If system does not return S> prompt after executing a command, press Enter key twice to get S> prompt.
- MicroCAT sends ?CMD if invalid command is entered.

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

CATEGORY	COMMAND	DESCRIPTION
<b>Status</b>	<b>DS</b>	Display status.
<b>Setup</b>	<b>MMDDYY=mmddy</b>	Set real-time clock month, day, year. Must follow with <b>HHMMSS=.</b>
	<b>DDMMYY=ddmmy</b>	Set real-time clock day, month, year. Must follow with <b>HHMMSS=.</b>
	<b>HHMMSS=hhmss</b>	Set real-time clock hour, minute, second.
	<b>BAUD=x</b>	x= baud rate (1200, 2400, 4800, 9600, 19200, 38400). Default 9600.
	<b>OUTPUTTIME=x</b>	x=Y: output date and time with data. x=N: do not.
	<b>OUTPUTSAL=x</b>	x=Y: output salinity (psu) with data x=N: do not.
	<b>OUTPUTSV=x</b>	x=Y: output sound velocity (m/sec) with data x=N: do not.
	<b>OUTPUTDEPTH=x</b>	x=Y: output depth (meters) with data x=N: do not.
	<b>OUTPUTDENSITY=x</b>	x=Y: output local density sigma (kg/m <sup>3</sup> ) with data x=N: do not.
	<b>LATITUDE=x</b>	x= latitude (degrees) to use in depth calculation
	<b>REFPRESS=x</b>	x = reference pressure (decibars) (used when MicroCAT has no pressure sensor).
	<b>FORMAT=x</b>	x=1: output converted data, date dd mmm yyyy x=2: output converted data, date mm-dd-yyyy
	<b>OUTPUTBINARY=x</b>	x=Y: output data in binary form x=N: do not.
	<b>NCYCLES=x</b>	x = number of A/D cycles to average (range 1 to 127; default 4)
	<b>QS</b>	Quit session and place MicroCAT in quiescent (sleep) mode. Sampling stops. Applicable only if Interface PCB J1 jumper in Normal position.
<b>Operating Mode</b>	<b>INTERVAL=x</b>	x = interval between samples (10 to 32767 seconds). If x < 10, sample continuously.
	<b>AUTOOFF=x</b>	<b>(Functional only if J1 jumper in Normal position)</b> x=Y: Power-off (enter quiescent mode) if 2 minutes have elapsed without receiving command or sampling data. x=N: Do not automatically power-off.
	J1 jumper - Normal <b>AUTORUN=N</b> <b>SINGLESAMPLE=Y or N</b>	Wake up when Enter key pressed while in power-off mode, wait for command.
	J1 jumper - Normal <b>AUTORUN=Y</b> <b>SINGLESAMPLE=N</b>	Wake up when Enter key pressed while in power-off mode, sample at rate specified by <b>INTERVAL</b> . To stop sampling and get S> prompt, type <b>STOP</b> and press Enter key.
	J1 jumper - Normal <b>AUTORUN=Y</b> <b>SINGLESAMPLE=Y</b>	Wake up when Enter key pressed while in power-off mode, take and output single sample and automatically power-off. To wake up and get S> prompt, type <b>STOP</b> and press Enter key.
	J1 jumper - Autopower <b>AUTORUN=N</b> <b>SINGLESAMPLE=Y or N</b>	Wake up when power applied, wait for a command.
	J1 jumper - Autopower <b>AUTORUN=Y</b> <b>SINGLESAMPLE=N</b>	Wake up when power applied, sample at rate specified by <b>INTERVAL</b> until power removed.
	J1 jumper - Autopower <b>AUTORUN=Y</b> <b>SINGLESAMPLE=Y</b>	Wake up when power applied, take and output a single sample. Wait for another command until power removed.
	<b>GO</b>	Start sampling, as defined by <b>SINGLESAMPLE</b> and <b>INTERVAL</b> .
	<b>STOP</b>	Stop sampling data.
<b>Sampling</b> Do not send if MicroCAT is sampling data at pre-programmed intervals.	<b>TS</b>	Take sample, hold converted data in MicroCAT's RAM, output converted data
	<b>TSR</b>	Take sample, hold raw data in MicroCAT's RAM, output raw data.
	<b>SLT</b>	Send converted data from last sample in MicroCAT's RAM, then take new sample and hold converted data in MicroCAT's RAM.
	<b>TH</b>	Take sample, hold converted data in MicroCAT's RAM.
	<b>SH</b>	Send held converted data from MicroCAT's RAM.
	<b>SB</b>	Send held converted data from MicroCAT's RAM in binary (if <b>OUTPUTBINARY=Y</b> ).
<b>Coefficients</b>	<b>DC</b>	Display calibration coefficients.