

SBE 37-SIP-IDO (RS-232) MicroCAT Reference Sheet

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

Sampling Modes

- **Autonomous sampling** – There are three types of Autonomous sampling.
 - **Continuous (1, 2, 3, or 4 sec)** – Pump runs continuously. MicroCAT samples at 1 Hz (1 sample/sec), stores data in memory, and transmits data. MicroCAT does not go to sleep between samples. Interval of 2, 3, or 4 sec provides no power savings over 1 sec (MicroCAT still samples at 1 Hz), but less memory used (data is stored to memory and transmitted at specified interval).
 - **Fast Interval (5-179 sec)** – Pump runs continuously. At pre-programmed intervals, sample, store data in memory, and transmit data.
 - **Slow Interval (≥ 180 sec)** – At pre-programmed intervals, wake up, run pump, sample, store data in memory, transmit data, and go to sleep.
- **Polled sampling** – On command, run pump, take 1 sample, and transmit data. Useful for integrating MicroCAT with satellite, radio, or wire telemetry equipment.
- **Serial Line Sync** - In response to a pulse on serial line, wake up, run pump for 1 sec, sample, transmit data, store data in memory, and go to sleep. 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.

Setup

1. Install cable. Connect to computer serial port and power supply (9-24 VDC).
2. Double click on SeatermV2.exe. SeatermV2 opens; in the Instruments menu, select *SBE 37 RS232*. Seaterm232 opens.
3. In Seaterm232's Communications menu, select Configure. Select Comm port and baud rate (factory set to 9600), and click OK.
4. Seaterm232 automatically connects to MicroCAT. As it connects, it sends **GetHD** and displays response, and then fills Send Commands window with list of commands for your MicroCAT.
5. 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.
6. Set Date and Time (**DateTime=**).
7. Establish setup and operating parameters.

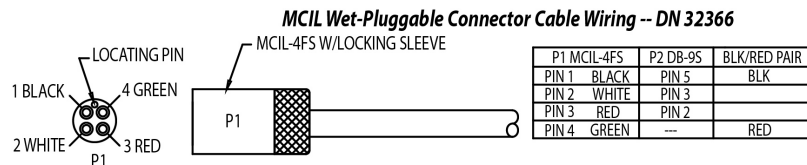
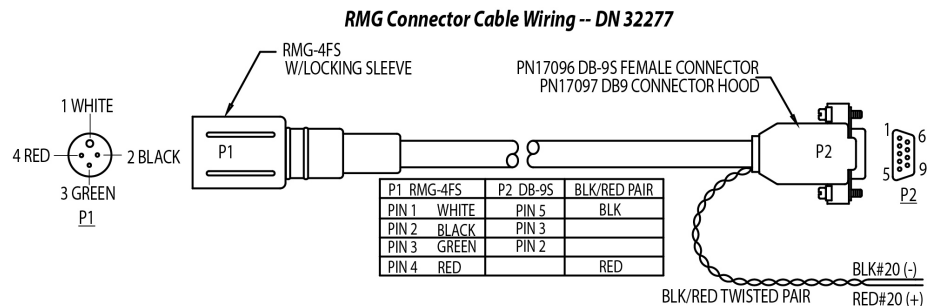
Deployment

1. Install cable and locking sleeve. Connect to computer serial port, and connect red and black wires to power supply (9 - 24 VDC).
2. Mount MicroCAT, using optional Sea-Bird mounting hardware or customer-supplied mounting hardware. **MicroCAT is intended for deployment with connector at bottom for proper operation – see manual for details.**
3. Program MicroCAT for intended deployment (see other side of this sheet for *Command Instructions and List*). Use one of following sequences to initiate logging:
 - **Start** to start autonomous sampling (logging) now, taking a sample every **SampleInterval=** seconds.
 - **SyncMode=Y** for serial line sync mode, so that a simple pulse on RS-232 line will initiate sample.

4. Mount MicroCAT, using Sea-Bird mounting hardware or customer-supplied mounting hardware. **MicroCAT is intended for deployment with connector at bottom for proper operation – see manual.**

Data Upload

1. Connect cable from MicroCAT to computer and power supply.
2. Double click on SeatermV2.exe. SeatermV2 opens; in Instruments menu, select *SBE 37 RS232*. Seaterm232 opens.
3. In Seaterm232's Communications menu, select Configure. Select Comm port and baud rate (factory set to 9600), and click OK.
4. Seaterm232 automatically connects to MicroCAT. As it connects, it sends **GetHD** 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 **Stop**.
6. Click Upload menu to upload stored data.
7. Seaterm232 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 and List

- Input commands in upper or lower case letters and register commands by pressing Enter key.
- If in quiescent (sleep) state, re-establish communications by clicking Connect in Communications menu or pressing Enter key.
- If a new command is not received within 2 minutes after completion of a command, MicroCAT returns to quiescent (sleep) state.
- MicroCAT sends an error message 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
Status	GetCD	Get and display configuration data.
	GetSD	Get and display status data.
	GetCC	Get and display calibration coefficients.
	GetEC	Get and display event counter data.
	ResetEC	Reset event counter.
	GetHD	Get and display hardware data.
	DS	Get and display status.
	DC	Get and 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, or 115200). Default 9600.
	RS232ForceOn=x	x=Y: RS-232 transceiver always enables Tx. Use this setting if providing 3-wire interface (power, ground, transmit) and setting AutoRun=Y (to start sampling when power applied). x=N: RS-232 transceiver enables Tx only when Rx is valid. Default.
	OutputExecutedTag=x	x=Y: Output XML Executed and Executing tags. x=N: Do not.
	ReferencePressure=x	x = reference pressure (decibars) (used when MicroCAT has no pressure sensor).
	QS	Quit session and place MicroCAT in quiescent (sleep) state. Logging and memory not affected.
Pump Setup	MinCondFreq=	x= minimum conductivity frequency (Hz) to enable pump turn-on for sampling.
	AdaptivePumpControl=x	x=Y: Use <i>Adaptive Pump Control</i> methodology to calculate pump run time. x=N: Do not use <i>Adaptive Pump Control</i> , run pump for 3.5 sec before sampling (for testing)..
	PumpOn	Turn pump on, for testing.
	PumpOff	Turn pump off, if turned on with PumpOn .
Memory Setup	StoreData=x	x=Y: Store data to memory when sampling. x=N: Do not.
	InitLogging	Initialize logging to make entire memory available for recording.
	SampleNumber=x	x= sample number for last sample in memory. SampleNumber=0 equivalent to InitLogging .
Output Format Setup	OutputFormat=x	x=0: Output raw decimal data. x=1: Output converted decimal data. x=2: Output converted decimal data in XML.
	OutputTime=x	x=Y: Output date and time. x=N: Do not.
	OutputSal=x	x=Y: Output salinity (psu). x=N: Do not.
	OutputSV=x	x=Y: Output sound velocity (m/sec). x=N: Do not.
	OutputDepth=x	x=Y: Output depth (m). x=N: Do not.
	Latitude=x	x= latitude (degrees) to use in depth calculation.
Autonomous Sampling (Logging)	SampleInterval=x	x = interval between samples (1 - 21600 sec).
	AutoRun=x	x=Y: When power applied, automatically sample as defined by SampleInterval= and SyncMode= . x=N: When power applied, do not begin to automatically sample.
	Start	Start sampling.
	Stop	Stop logging. Press Enter key before entering Stop . Must send Stop before uploading data.
Serial Line Sync	SyncMode=x	x=Y: Enable serial line sync. If AutoRun=N and a simple pulse is transmitted, or AutoRun=Y and power is applied, MicroCAT runs pump, takes sample, transmits data, stores data in memory (if StoreData=Y), and goes to sleep. Pump operation is dependent on setting for MinCondFreq= and AdaptivePumpControl= , and temperature and pressure of previous sample. x=N: Disable serial line synchronization.
Polled Sampling	TS	Take sample, store data in buffer, output data.
	TSR	Take sample, store data in buffer, output data in raw decimal format.
	TPS	Run pump, take sample, store data in buffer, output data.
	TPSH	Run pump, take sample, store data in buffer, do not output data.
	TPSS	Run pump, take sample, store data in buffer and in memory, output data.
	TSN:x	Do not pump. Take x samples, output data.
	TPSN:x	Run pump continuously while taking x samples and outputting data.
	SL	Output last sample stored in buffer.
	SLTP	Output last sample stored in buffer, then run pump, take new sample, and store data in buffer.
Data Upload	GetSamples:b,e	Upload scan b to scan e, in format defined by OutputFormat= . Send Stop before sending.
	DDb,e	Upload scan b to scan e, in converted decimal form (OutputFormat=1) (regardless of user setup for OutputFormat=). Send Stop before sending.
Calibration Coefficients	See manual.	