SBE 37-IM MicroCAT Reference Sheet

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

Sampling Modes

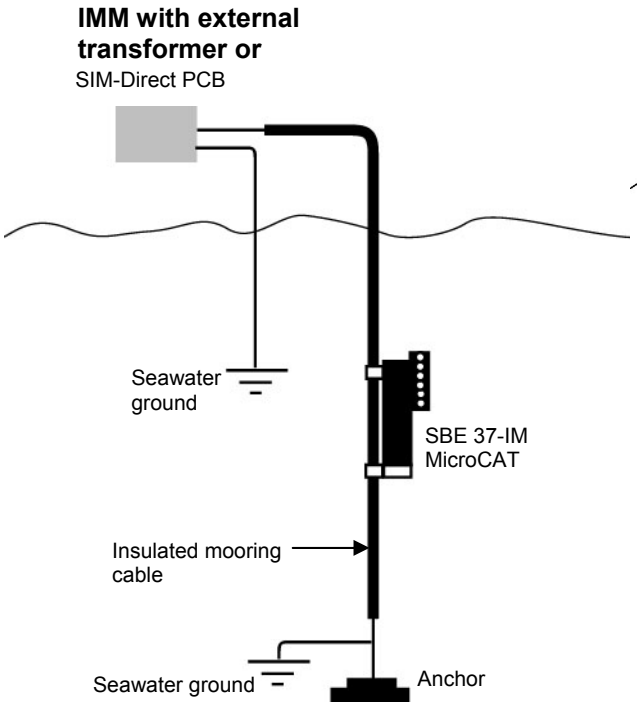
- **Polled** – On command, MicroCAT wakes up, takes one sample, transmits data, and goes to sleep.
- **Autonomous** – At pre-programmed intervals, MicroCAT wakes up, samples, stores data in FLASH memory, and goes to sleep.
- **Combo** – On command, last Autonomous sampling data is transmitted.
- **Averaging** – On command, average of Autonomous sampling data since last request is calculated and transmitted.

Communication Setup Parameters

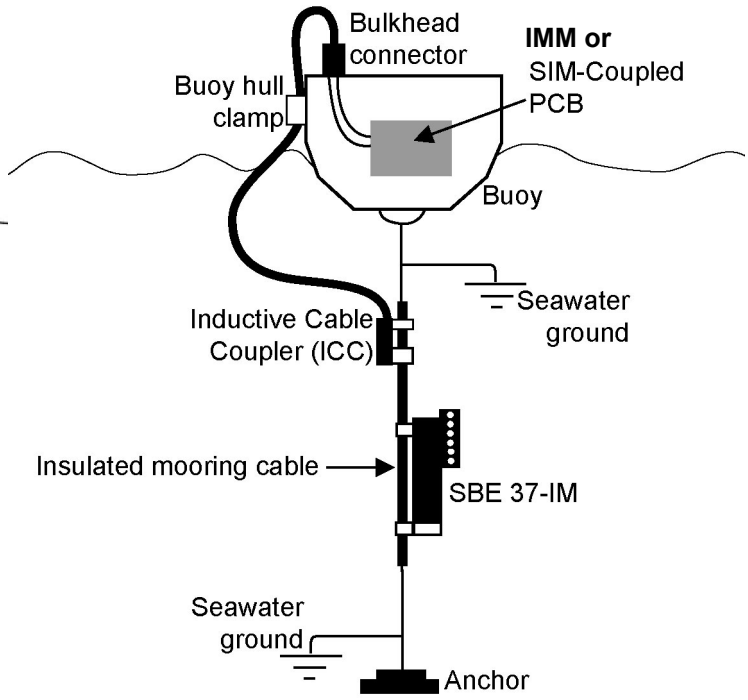
1. Double click on SeatermV2.exe. In Instruments menu, select *SBE 37 IM*. SeatermIM opens.
2. In Communications menu, select *Configure*. In dialog box, input Comm port and baud rate. Set ID to *Automatically get ID* for 1 MicroCAT on line; set ID to *Use fixed ID* for multiple MicroCATs on line.

Deployment

1. Batteries:
   A. *Remove modem 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 O-ring mating surfaces in housing with lint-free cloth.
   B. *Remove battery pack and install batteries*: Loosen captured screw in battery pack cover. Use handle to lift battery pack out of housing. Keep handle upright. Unscrew red cover plate from top of battery pack assembly. Roll 2 O-rings on side of battery pack out of grooves. Insert batteries into battery pack, and roll 2 O-rings into grooves on side of battery pack. Align pin on battery cover plate PCB with post hole, keep handle upright, and screw red cover plate onto battery pack assembly.
   C. *Reinstall battery pack and modem end cap*: Align D-shaped opening and notch. 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 flat Phillips-head screws to secure.
2. Attach MicroCAT to insulated mooring cable with Sea-Bird mounting brackets. Install (optional) ICC on mooring cable.
3. SIM wiring and configuration (see IMM manual for IMM wiring and configuration):
   A. *Power* – Normal Setting: Power common to JP1 pin 1, 7-25 VDC to JP1 pin 2, jumper on J3.
   B. *Interface* – Connect I/O cable to JP2 and to computer serial port.
   RS-232: J1 pins 2 and 3, J2 pins 2 and 3, J4 no jumper. RS-485: J1 pins 1 and 2, J2 pins 1 and 2, J4 jumper.
   C. *Inductive Cable Connection* –
   With ICC: Connect ICC to JP4; Without ICC: Connect mooring cable and seawater ground to JP4.
   D. *Deployed Operation* – Jumper J5 *Instrument Setup and Lab Testing* – No jumper on J5.



Direct Connection



Connection with Inductive Cable Coupler (ICC)

Command Instructions and List

- Input commands in upper or lower case letters and register commands by pressing Enter key.
- MicroCAT sends an error message 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) state.
- If in quiescent (sleep) state, re-establish communications by selecting Connect in SeatermIM's Communications menu.

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

FUNCTION	CATEGORY	COMMAND	DESCRIPTION
SIM Commands	**Power-On**	**PwrOn**	Send wakeup tone to **all** IMs.
		PwrOff	Send power off command to **all** IMs. Logging and memory retention unaffected.
		AutoPwrOn=x	**x**=Y: Send **PwrOn** to IMs when power applied to SIM. **x=N**: do not.
	Status	**DS**	Display SIM firmware version and status.
	Communications	**Baud=x**	**x=** baud from SIM to computer (1200, 2400, 4800, or 9600). Default 9600.
		DataNNMax=x	**x=** timeout that applies to **Dataii**; default 1000 milliseconds.
		RelayMax=x	**x=** timeout that applies to all other commands; default 20 seconds.
		EchoOn	Echo characters received from computer.
		EchoOff	Do not echo characters received from computer.
MicroCAT Communications Microcontroller Commands (ii = MicroCAT ID)	**Global**	**DateTime= mmddyyyyhhmmss**	Set **all** real-time clocks: month day year hour minute second.
		ResumeLogging	Simultaneously command **all** MicroCATs to start logging.
		GData	Command **all** communication microcontrollers to get average data from acquisition units, hold in buffer, and start next averaging cycle.
		StayOn	Command **all** MicroCATs to reset counting for 2-minute timeout.
	Get data	**!iiData** or **Dataii**	Get data obtained with **GData** from MicroCAT with ID=**ii**.
	MicroCAT ID	**ID?**	Get MicroCAT ID (0-99).
		***ID=ii**	Set ID to **ii** (ii=0-99). Only 1 MicroCAT can be on line. Must be sent twice.
	Firmware	**!iiGetHD**	Get and display hardware data.
		!iiDS	Display MicroCAT communication microcontroller firmware version.
MicroCAT Acquisition Microcontroller Commands (ii = MicroCAT ID)	**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	Display status.
		#iiDC	Display calibration coefficients.
	General Setup	**#iiDateTime= mmddyyyyhhmmss**	Set real-time clock month day year hour minute second.
		#iiBaudRate=x	**x=** baud rate (600, 1200, 2400, 4800, 9600, 19200, 38400, 57600, 94 115200) for communicating in Serial Mode (through internal RS-232 connector).
		#iiOutputExecutedTag=x	**x=Y**: output XML Executed and Executing tags. **x=N**: do not.
		#iiReferencePressure=x	**x** = reference pressure (decibars) (for MicroCAT without pressure sensor).
		QS	Place MicroCAT in quiescent (sleep) state; for use in Serial mode only.
	Memory Setup	**#iiInitLogging**	Initialize logging, setting memory pointer to 0.
		#iiSampleNumber=x	**x=** sample number for first sample when logging begins.
	Output Format Setup	**#iiOutputFormat=x**	**x=0**: output converted hex data. **x=1**: output converted decimal data. **x=2**: output converted data, alternate format. **x=3**: output raw decimal data. **x=4**: output converted decimal data, XML.
		#iiCompatibleMode=x	**x=Y**: Output data compatible with firmware < 3.0. **x=N**: do not.
		#iiTxHexTime=x	**x=Y**: Output date and time with hex data. **x=N**: do not
		#iiTxSampleNum=x	**x=Y**: Output sample number with data. **x=N**: do not.
	Autonomous Sampling (logging)	**#iiSampleInterval=x**	**x** = interval between samples (6 – 21,600 seconds).
		#iiStartNow	Start logging now. Data stored in FLASH memory.
		#iiStartDateTime= mmddyyyyhhmmss	Delayed logging start: month day year hour minute second.
		#iiStartLater	Start logging at delayed start time. Data stored in FLASH memory.
		#iiStop	Stop logging or waiting to log.
	Polled Sampling (data not stored in FLASH memory unless noted; format specified by **#iiOutputFormat** = unless noted)	**#iiTS**	Take sample, output data.
		#iiTSR	Take sample, output **raw** data.
		#iiTSH	Take sample, do not output data.
		#iiTSS	Take sample, **store in FLASH memory**, output data.
		#iiTSn:x	Take **x** samples and output data.
		#iiSL	Output last sample.
		#iiSLT	Output data from last sample, then take new sample.
		#iiSLTR	Output **raw** data from last sample, then take new sample.
		#iiDNx	Upload last **x** scans from memory; can send while logging
	Data Upload	**#iiGetSamples:b,e**	Upload data from scan **b** to **e**. Send **#iiStop** before sending.
		#iiDDb,e	Upload data from scan **b** to **e**. Send **#iiStop** before sending.