SBE 39-IM Temperature (& pressure) Recorder Reference Sheet
(see SBE 39-IM User's Manual for complete details)

Sampling Modes
- **Polled** – On command, 39-IM wakes up, takes one sample, and transmits data.
- **Autonomous** – At pre-programmed intervals, 39-IM wakes up, samples, stores data in FLASH memory, and goes to sleep.
- **Combo** – On command, the last Autonomous sampling data is transmitted.
- **Averaging** – On command, the average of the Autonomous sampling data since the last request is calculated and transmitted.

Communication Setup Parameters
1. Double click on SeaTerm.exe.
2. Once main screen appears, in Configure menu select SBE 39. Click on COM Settings tab in dialog box. Input:
   - Serial Port: COM1 through COM10 are available
   - Baud Rate: 1200, 2400, 4800, or 9600
   - Data Bits: 8
   - Parity: No Parity
   - Mode: Inductive Modem
   - Modem/RS-485 ID:
     Pre-deployment testing: Automatically get ID
     Deployment with multiple 39-IMs: Prompt ID

Deployment
1. Batteries:
   A. *Remove sensor end cap*: Wipe dry housing/end cap seam. Unscrew end cap. Pull end cap and attached electronics out of housing. Wipe O-ring mating surfaces in housing with lint-free cloth.
   B. *Replace batteries*: Use two 3.6 volt, AA lithium batteries (manufactured by Saft or Tadaran).
      Do not use AA alkaline batteries.
   C. *Reinstall sensor end cap*: Remove water from O-ring and mating surfaces with lint-free cloth. Inspect O-ring and mating surfaces for dirt, nicks, and cuts. Clean as necessary. Apply light coat of O-ring lubricant to O-ring and mating surfaces. Fit electronics into housing, and use a wrench to secure end cap to housing.
2. Attach 39-IM to insulated mooring cable with Sea-Bird mounting brackets. Install (optional) ICC on mooring cable.
3. SIM 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)
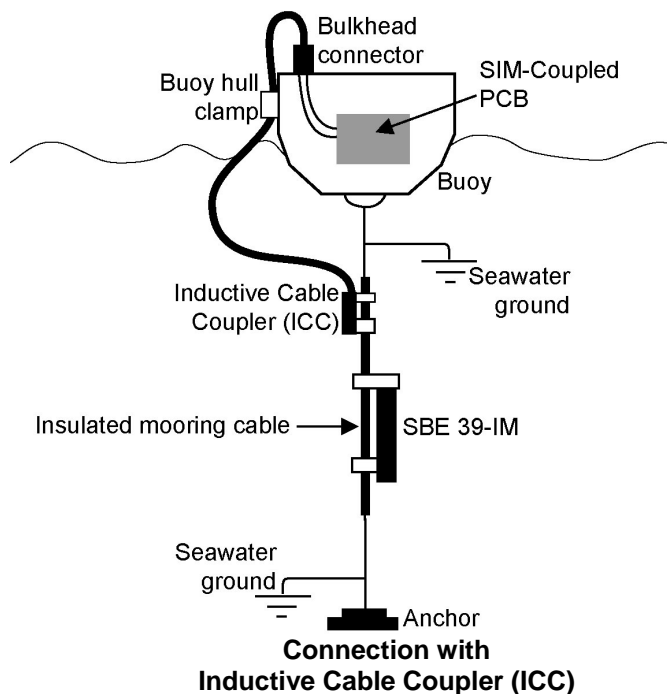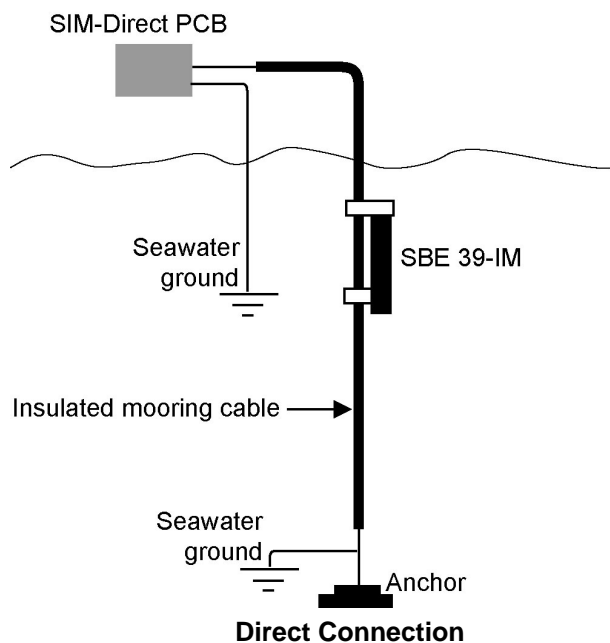
Command Instructions and List (see manual for complete listing and detailed descriptions)

- **ii** in commands (**!ii** or **#ii** prefix, etc.) is the 39-IM ID (1 – 99).
- Input commands in upper or lower case letters and register commands by pressing Enter key.
- 39-IM 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, 39-IM returns to quiescent (sleep) state.
- If in quiescent (sleep) state, re-establish communications by clicking Connect on Toolbar or entering **PwrOn** to get S> prompt.

Function	Category	Command	Description
SIM	-	-	See 39-IM manual for SIM commands.
39-IM Comm Microcontroller Commands	**Status**	**!iiDS**	Display status and setup parameters.
		!iiGetSD	Display status data.
		!iiGetCD	Display configuration data.
		!iiGetHD	Display hardware data.
		!iiGetHostID	Display host ID.
	ID	**ID?**	Get ID (0-99).
		*ID=ii	Set ID to **ii** (0-99). Only 1IM can be on line when setting ID or all IMs will have same ID.
		!iiSetDeviceID=nn	**nn**= *new* instrument ID (ii= old instrument ID).
		!Sx:SetDeviceID=nn	**nn**= *new* instrument ID (x= instrument serial number).
		!iiSetHostID=x	**x**= host ID, 4 – 64 character string.
	Setup	**!iiSetLowPwrTx**	Set 39-IM's transmitter voltage to power saving setting.
		!iiSetFullPwrTx	Set 39-IM's transmitter voltage to maximum signal strength.
		!iiSetGDataStr=x	**x**= string sent to acq microcontroller when **GData** received by comm microcontroller.
		!iiSetGroupNumber=x	**x**= 39-IM group number. Group 0 is pre-defined as group of all instruments.
		!iiStayOn	Command 39-IM to reset counting for 2-minute timeout.
	Global	**MMDDYY=x**	**x**=mmddyy (**all** real-time clocks month day year). Must follow with **HHMMSS=**.
		DDMMYY=x	**x**=ddmmyy (**all** real-time clocks day month year). Must follow with **HHMMSS=**.
		HHMMSS=x	**x**=hhmmss (**all** real-time clocks hour minute second).
		GData	Command **all** IMs to send command defined by **!iiSetGDataStr=**. Data held in buffer.
		StayOn	Command **all** IMs to reset counting for 2-minute timeout.
	Get data	**!iiGData**	Send command defined by **!iiSetGDataStr=**. Data held in buffer.
		!iiData or **Dataii** or **!iiGetReply**	Get data in buffer , obtained with **GData**, from IM with ID=ii.
	Diagnostics	**!iiEchoIMx**	**x**= string (24 characters maximum, letter and numbers only) to be echoed back to SIM.
		!iiTxTest	Test line conditions.
		!iiTestCableCoupler	Test cable coupler in 39-IM.
		!iiGetEventCounters	Transmit list of *events* (unexpected conditions and/or errors) and number of times they occurred.
		!iiResetEventCounters	Clear event counters to 0.
39-IM Acq Microcontroller Commands	**Status**	**#iiDS**	Display status and setup.
	Setup	**#iiDateTime=x**	**x**=mmddyyyyhhmmss (real-time clock month day year hour minute second).
		#iiMMDDYY=x	**x**=mmddyy (real-time clock month day year). Must follow with **#iiHHMMSS=**.
		#iiDDMMYY=x	**x**=ddmmyy (real-time clock day month year). Must follow with **#iiHHMMSS=**.
		#iiHHMMSS=x	**x**=hhmmss (real-time clock hour minute second).
		#iiTxSampleNum=x	**x**=**Y**: Output sample number with data from **!iiData** and **Dataii**.
		#iiFormat=x	**x**=0 or 1 (default): Date format dd mmm yyyy. **x**=2: Date format mm-dd-yyyy.
		#iiQS	Place 39-IM in quiescent (sleep) state. Only accepted in Serial mode.
	Autonomous Sampling (Logging)	**#iiInterval=x**	**x** = interval between samples (10 - 30000 sec).
		#iiInitLogging	After uploading data, send this before starting to log to make entire memory available for recording. If not sent, data stored after last sample. Equivalent to **#iiSampleNum=0**.
		#iiSampleNum=x	**x**= sample number for first sample when logging begins. If 0, equivalent to **#iiInitLogging**.
		#iiStartNow	Start logging in 10 sec.
		#iiResumeLogging or **#iiStartInterval**	Start logging in **#iiInterval** sec.
		#iiStartDateTime=x	**x**=mmddyyyyhhmmss (delayed logging start month day year hour minute second).
		#iiStartMMDDYY=x	**x**=mmddyy (delayed logging start month day year). Must follow with **#iiStartHHMMSS=**.
		#iiStartDDMMYY=x	**x**=ddmmyy (delayed logging start day month year). Must follow with **#iiStartHHMMSS=**.
		#iiStartHHMMSS=x	**x**=hhmmss (delayed logging start hour minute second)
		#iiStartLater	Start logging at delayed start time.
		#iiGetAvgRestart	Get and transmit **average** data, (re)start logging in (**#iiInterval** / 2) sec, start next averaging cycle.
		#iiGetAvg	Get and transmit **average** data and start next averaging cycle. Do not reset logging time base.
		#iiGetLastRestart	Get and transmit **last** data, and (re)start logging in (**#iiInterval** / 2) sec.
		#iiGetLast	Get and transmit **last** data. Do not reset logging time base.
		#iiGetNew	Get (take) and transmit new sample. Data **not** stored in FLASH memory.
		#iiStop	Stop logging or waiting to log. Press Connect on Toolbar to get S> prompt before entering this.
	Polled Sampling	**#iiTS**	Take sample, output converted data.
		#iiTSR	Take sample, output raw data.
		#iiTSS	Take sample, **store in FLASH memory**, output converted data.
		#iiSLT	Output converted data from last sample, then take new sample.
		#iiSLTR	Output raw data from last sample, then take new sample.
		#iiSL	Output converted data from last sample.
	Data Upload	**#iiDDb,e**	Upload data in ASCII from scan **b** to scan **e**.
		#iiDNx	Upload last **x** scans from memory. Do not need to send **#iiStop** before sending **#iiDNx**.
		DB,n,b,e	**Only if connected to internal RS-232 connector.** Upload data in **binary** at baud **n** from scan **b** to **e**.
	Coefficients	**#iiDC**	Display calibration coefficients.