

# SBE 63 Digital Optical Dissolved Oxygen Sensor Reference Sheet

(see SBE 63 User's Manual for complete details)

## Sampling Modes

- **Autonomous sampling** –SBE 63 samples at pre-programmed intervals of 1 to 32,767 sec. It can be set to average up to 255 samples, and transmit averaged data. SBE 63 can be programmed to begin autonomous sampling when power is applied or on command.
- **Polled sampling** – On command, SBE 63 takes one sample and transmits data.

## Setup

1. Wiring to SBE 63:
  - A. Install I/O cable connector, aligning raised bump on side of connector with large pin on SBE 63.
  - B. Install locking sleeve.
  - C. Connect I/O cable connector to computer.
  - D. Connect I/O cable connector's red and black wires to power supply (6 -24 VDC).
2. Double click on SeatermV2.exe. SeatermV2 opens. In SeatermV2's Instruments menu, select SBE 63 Optical Dissolved Oxygen. Seaterm232 opens.
3. In Seaterm232's Communications menu, select Configure. Select Comm port and baud rate (default is 9600), and click OK.  
Note: If using another terminal program, set it to 8 data bits, no parity, 1 stop bit.
4. In Seaterm232's Communications menu, click Connect. SBE 63 returns **S**> prompt. Send commands to set up SBE 63 as desired (see commands on other side).

## Deployment when Integrating with SeaCAT CTD (SBE 16plus V2, 16plus-IM V2, 19plus V2)

Prior to installing SBE 63 on CTD, verify that SBE 63 is set up as follows:

- **SetBaud**= to baud rate set in CTD (always 1200 for 16plus-IM V2); **SetEcho=1**; **SetAvg=1 to 16** (recommended value is 2); **SetFormat=1**; **SetAutoRun=0**
- Factory-set <SerPause> in **GetSD** response: For 19plus V2 in Profiling mode, verify set to 1. For 19plus V2 in Moored mode, or for other SeaCATs, can be 0 or 1.
- Factory-set <TxPwrSave> in **GetSD** response set to 0.

Install on CTD as follows:

1. Install SBE 63 in sensor mount:
  - A. Align 4-pin connectors and push SBE 63 onto mount.
  - B. Install two #10-24, 1/2" titanium cap screws from back of sensor mount to secure SBE 63 in mount.
2. Mount SBE 63 on CTD. Install Tygon tubing to connect SBE 63 inline between CTD conductivity cell outlet and pump inlet. Verify that large arrow on sensor mount is pointing in direction of flow (flow enters through conductivity cell, exits from pump).
3. Install I/O cable on SBE 63 sensor mount.
4. Connect I/O cable to 4-pin RS-232 auxiliary sensor connector on CTD.
5. Verify that hardware and external fittings are secure.

## Deployment when Integrating with MicroCAT CTD (SBE 37-SMP-ODO, IMP-ODO, SIP-ODO)

SBE 63 is factory-integrated with ODO MicroCAT. You can communicate with SBE 63 **through** MicroCAT with **Send63=command**; **command** can be any command recognized by SBE 63. Verify that SBE 63 is set up as follows by sending **Send63=GetSD** (see *Command Descriptions* above for command details):

- **SetBaud=2400** (factory set; cannot be changed by command through MicroCAT); **SetEcho=1**; **SetAvg=1 to 16** (recommended value is 2); **SetFormat=1**; **SetAutoRun=0**
- Factory-set <SerPause> in **GetSD** response: For IM or RS-485 MicroCATs, verify set to 1. For other MicroCATs, can be 0 or 1.
- Factory-set <TxPwrSave> in **GetSD** response set to 0.

Note: Precede **Send63=** with **#ii** (ii= MicroCAT ID) for Inductive Modem (IM) or RS-485 MicroCAT (for example, **#01Send63=GetSD**).

## Command Instructions and List

- Input commands in upper or lower case letters and register commands by pressing Enter key (0xD).
- Commands to enable a parameter can be entered with *argument* as Y or 1 for yes, and N or 0 for no (for example, **SetAutoRun=y** and **SetAutoRun=1** are equivalent; both enable automatic starting of sampling when power is applied).
- SBE 63 sends `Command failed: Unknown command` if invalid command is entered.
- If SBE 63 does not return S> prompt after executing a command, press Enter or Esc key to get S> prompt.
- If SBE 63 is transmitting data and you want to stop it, press Esc or send **Stop**. Alternatively, remove power.
- All commands that change setup take effect immediately; SBE 63 retains settings when power is removed.

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

CATEGORY	COMMAND	DESCRIPTION
Status	<b>GetSD</b>	Get and display Status Data.
	<b>GetHD</b>	Get and display Hardware Data.
	<b>GetCC</b>	Get and display Calibration Coefficients.
	<b>DS</b>	Get and display Status Data in non-XML format.
Setup	<b>SetBaud=x</b>	x= Baud rate (600, 1200, 2400, 4800, 9600, 19200, 38400, 57600, 115200). <b>Default 9600.</b>
	<b>SetEcho=x</b>	x=1: Echo characters received from computer. <b>Default.</b> x=0: Do not.
	<b>SetFormat=x</b>	x=0: Converted oxygen and temperature (with units). x=1: Raw phase angle and thermistor voltage, converted oxygen and temperature (no units), for compatibility with SBE 41 (Argo) CTD, SeaCATs (16plus V2, 16plus-IM V2, 19plus V2), and MicroCATs (37-SMP-ODO, 37-IMP-ODO, 37-SIP-ODO). <b>Default.</b> x=2: Raw and converted data. x=3: Instrument name, serial number, and converted oxygen.
	<b>SetBootDelay=x</b>	x= delay after power is applied before sampling (1 - 255 sec). <b>Default 1.</b> Only applicable if <b>AutoRun=1</b> .
	<b>SetInterval=x</b>	x= interval (sec) between samples (1 – 32,767) if power remains on, and <b>Start</b> has been sent or <b>AutoRun=1</b> . <b>Default 4.</b>
	<b>SetAvg=x</b>	x = number of measurements to average per sample (1–64, or 1–32 for 1Hz sampling); each measurement takes approximately 0.0167 sec. Increasing <b>SetAvg=</b> may shorten sensor film life. <b>Default 2.</b>
	<b>SetAutoRun=x</b>	x=0: Wait for command when power is applied. <b>Default.</b> Required setting for compatibility with SBE 41 (Argo) CTD, SeaCATs (16plus V2, 16plus-IM V2, 19plus V2), MicroCATs (37-SMP-ODO, IMP-ODO, SIP-ODO). <b>Default.</b> x=1: Begin sampling when power is applied. First sample is taken after <b>SetBootDelay=</b> .
Sampling	<b>*Default</b>	Reset most Setup parameters to their factory defaults ( <b>SetEcho=1, SetFormat=1, SetBootDelay=1, SetInterval=4, SetAvg=2, SetAutoRun=0</b> ). Also resets factory-set parameters SerPause (0), BlueTUpdate (0), TxPwrSave (0), Gain (2), and Offset (0). Baud ( <b>SetBaud=</b> ) is <b>not</b> reset.
	<b>Start or Go</b>	Start autonomous sampling at rate set by <b>SetInterval=</b> . To stop autonomous sampling, click Esc or send <b>Stop</b> (which then allows you to enter status or setup commands) or remove power.
	<b>Stop</b>	Stop autonomous sampling.
	<b>TS</b>	Take <b>1</b> sample and transmit data in format defined by <b>SetFormat=</b> .
Calibration Coefficients (S=integer, F=floating point number)  Initially factory-set and should agree with Calibration Certificate shipped with SBE 63.	<b>TSR</b>	Take <b>1</b> sample and transmit data in raw format (for factory diagnostics).
	<b>SetCalDate=S</b>	S=number of days since January 1, 2000.
	<b>SetTA0=F</b>	F= TA0 coefficient.
	<b>SetTA1=F</b>	F= TA1 coefficient.
	<b>SetTA2=F</b>	F= TA2 coefficient.
	<b>SetTA3=F</b>	F= TA3 coefficient.
	<b>SetA0=F</b>	F= A0 coefficient.
	<b>SetA1=F</b>	F= A1 coefficient.
	<b>SetA2=F</b>	F= A2 coefficient.
	<b>SetB0=F</b>	F= B0 coefficient.
	<b>SetB1=F</b>	F= B1 coefficient.
	<b>SetC0=F</b>	F= C0 coefficient.
	<b>SetC1=F</b>	F= C1 coefficient.
	<b>SetC2=F</b>	F= C2 coefficient.
	<b>SetE=F</b>	F= E coefficient.
	<b>SetSolB0=F</b>	F= SolB0 coefficient.
	<b>SetSolB1=F</b>	F= SolB1 coefficient.
	<b>SetSolB2=F</b>	F= SolB2 coefficient.
	<b>SetSolB3=F</b>	F= SolB3 coefficient.
	<b>SetSolC0=F</b>	F= SolC0 coefficient.
<b>SetRefSal=F</b>	F= Reference salinity (psu) for oxygen calculation if outputting converted units. Default 0. For moorings, enter approximate value expected for deployment. For profiling, enter 0, and correct for salinity in post-processing.	
<b>SetRefP=F</b>	F= Reference pressure (dbar) for oxygen calculation if outputting converted units. Default 0. For moorings, enter approximate value expected for deployment. For profiling, enter 0; correct for pressure in post-processing.	