SBE 47 V2 WOCE Drifter CT Recorder – Operating Instructions

1. The SBE 47 I/O connector is an Impulse type XSG-4BCL. Terminate the mating cable with an Impulse (or equal) RMG-4FS. Connections are as follows (see drawing 90592 'SBE 47 WOCE Drifter CTD Sensor External Layout'):

pin 1 (large pin)	power and data common
pin 2	Receive (Rx) RS-232 in (5-volt logic level)
pin 3	Transmit (Tx) RS-232 out (5-volt logic level)
pin 4	+DC power (7 to 16 volts at 30 ma)

2. 5 Volt CMOS logic level. RS-232 protocol: 9600 baud, 8 data bits, 1 stop bit, no parity.

3. To command for data: any character powers-on the CT and initiates acquisition of a single CT measurement at the conclusion of which (after about 3 seconds) the CT replies with temperature and salinity in ASCII:

   13.3333, 33.3333[CR][LF]
   (temperature = 13.3333 degrees C [note leading space preceding temperature]; and salinity = 33.3333 psu)

   Actual response depends on ocean temperature and salinity. The CT sensor powers-off at completion of its reply.

4. The power line is meant to be kept in the range +7 to +16 all the time -- the SBE 47 draws only about 10 microamps until receipt of the data command. The command line from (XSG-4BCL Rx Pin 2) must be kept low or open until actual communications is desired, otherwise the SBE 47 input circuits cause a current draw of approximately 0.3 ma at the XSG-4BCL Pin 4.

5. When communicating, the UART maintains the Rx resting state at approximately +5 volts. Enter Diagnostic mode by sending any character (toggles Rx to 0 and back to resting +5), followed within 2 seconds or less by a break character (holding line at 0 volts) for about 5 seconds. Then send one character (e.g., [CR]) to clear the UART. Various diagnostic commands can be sent as follows:

DS	display firmware version and serial number
TTC	measure temperature (100 cycles; Ctrl-C to stop)
TCC	measure conductivity (100 cycles; Ctrl-C to stop)
TTR	measure temperature (100 cycles, output raw counts; Ctrl-C to stop)
TCR	measure conductivity (100 cycles, output raw counts; Ctrl-C to stop)
DC	display calibration coefficients
QS	power-down SBE 47 (otherwise will time out in approximately 140 seconds)

   The calibration coefficients shown on the calibration certificates were downloaded at the factory into EEPROM. These coefficients are reported when the DC command is invoked.

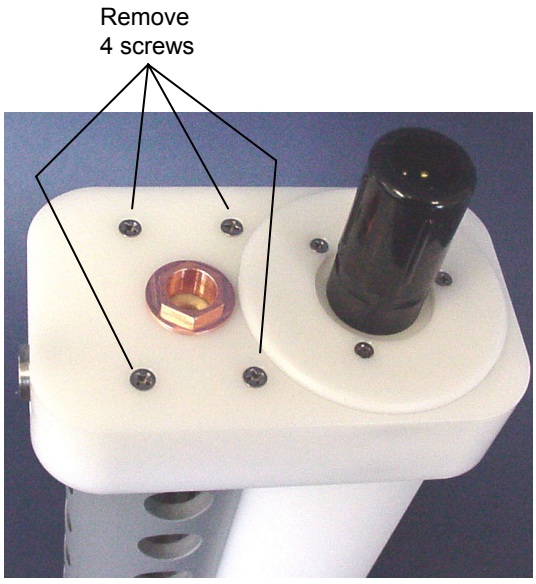
6. Consult Sea-Bird before disassembling any of the CTD electrical or mechanical components.

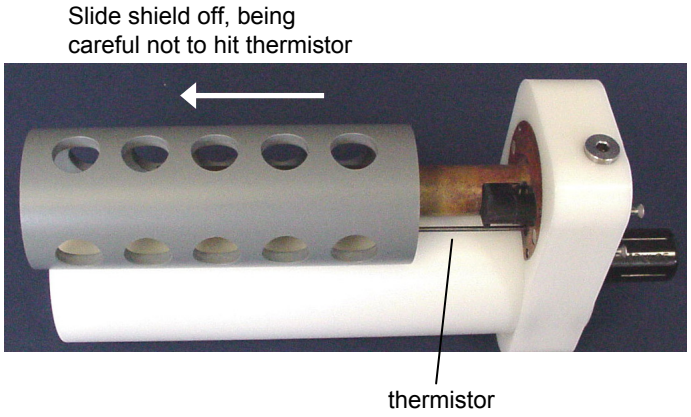
7. Sea-Bird recommends that the user apply anti-foulant paint to both sides of the shield. In addition, it may be advisable to apply the anti-foulant paint to other parts of the housing. The only part of the instrument that **must not** have anti-foulant paint applied are:

   - copper anti-foulant device cap
   - conductivity cell tube
   - thermistor
   - connector

   See the photos on the next page for details.

Removing Shield:





Applying Anti-Foulant Paint: