

SEACAT Profiler

SBE 19*plus*



The SBE 19*plus* is the next generation *Personal CTD*, bringing numerous improvements in accuracy, resolution (in fresh as well as salt water), reliability, and ease-of-use to the wide range of research, monitoring, and engineering applications pioneered by its legendary SEACAT predecessor. The 19*plus* samples faster (4 Hz vs 2), is more accurate (0.005 vs 0.01 in T, 0.0005 vs 0.001 in C, and 0.1% vs 0.25% — with *seven times* the resolution — in D), and has more memory (8 Mbyte vs 1). There is more power for auxiliary sensors (500 ma vs 50), and they are acquired at higher resolution (14 bit vs 12). Cabling is simpler and more reliable because there are four differential auxiliary inputs on two separate connectors, and a dedicated connector for the pump. All exposed metal parts are titanium, instead of aluminum, for long life and minimum maintenance.

The 19*plus* can be operated without a computer from even the smallest boat, with data recorded in non-volatile FLASH memory and processed later on your PC. Simultaneous with recording, real-time data can be transmitted over single-core, armored cable directly to your PC's serial port (maximum transmission distance dependent on number of auxiliary sensors, baud rate, and cable properties). The 19*plus*' faster sampling and pump-controlled TC-ducted flow configuration significantly reduces salinity spiking caused by ship heave, and allows slower descent rates for improved resolution of water column features. Auxiliary sensors for dissolved oxygen, pH, turbidity, fluorescence, and PAR can be added. For moored deployments, the 19*plus* can be set to *time-series* mode using software commands. External power and two-way real-time communication over 10,000 meters of cable can be provided with the SBE 36 CTD Deck Unit and Power and Data Interface Module (PDIM).

The 19*plus* uses the same temperature and conductivity sensors proven in 5000 SEACAT and MicroCAT instruments, and a superior new micro-machined silicon strain gauge pressure sensor developed by Druck, Inc. Improvements in design, materials, and signal acquisition techniques yield a low-cost instrument with superior performance that is also easy to use. Calibration coefficients, obtained in our computer-controlled high-accuracy calibration baths, are stored in EEPROM memory. They permit data output in ASCII engineering units (degrees C, Siemens/m, decibars, Salinity [PSU], sound velocity [m/sec], etc.).

Accuracy, convenience, portability, software, and support: compelling reasons why the 19*plus* is today's best low-cost CTD.

CONFIGURATION AND OPTIONS

A standard SBE 19*plus* is supplied with:

- Plastic housing for depths to 600 meters
- Strain-gauge pressure sensor
- 8 Mbyte FLASH RAM memory
- 9 D-size alkaline batteries
- Impulse glass-reinforced epoxy bulkhead connectors: 4-pin I/O, 2-pin pump, and two 6-pin (two differential auxiliary A/D inputs each)
- SBE 5M miniature pump and T-C Duct

Options include:

- Titanium housing for depths to 7000 meters
- SBE 5T pump in place of SBE 5M for use with dissolved oxygen and/or other pumped sensors
- Bulkhead connector for use with PAR sensor
- Sensors for oxygen, pH (for integration in Profiling mode only), fluorescence, light (PAR), light transmission, and turbidity
- Stainless steel cage
- MCBH *Micro* connectors in place of glass-reinforced epoxy connectors
- Nickel Metal Hydride (NiMH) batteries and charger
- Nickel-Cadmium (Ni-Cad) batteries and charger
- Moored mode conversion kit with anti-foulant device fittings

SOFTWARE

The SBE 19*plus* is supplied with a powerful Windows 95/98/NT/2000/XP software package, SEASOFT®-Win32, which includes:

- SEATERM® — communication and data retrieval
- SEASAVE® — real-time data acquisition and display
- SBE Data Processing® — filtering, aligning, averaging, and plotting of CTD and auxiliary sensor data and derived variables



Shown with optional cage, SBE 5T pump, & SBE 43 DO sensor



Sea-Bird Electronics, Inc.

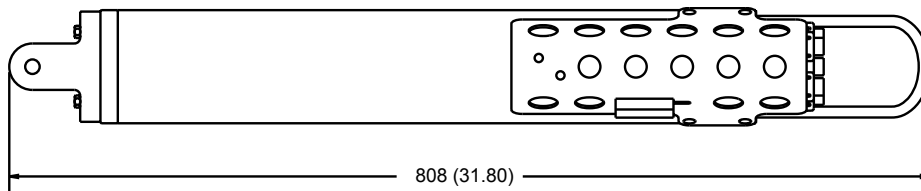
1808 136th Place NE, Bellevue, Washington 98005 USA

Website: <http://www.seabird.com>

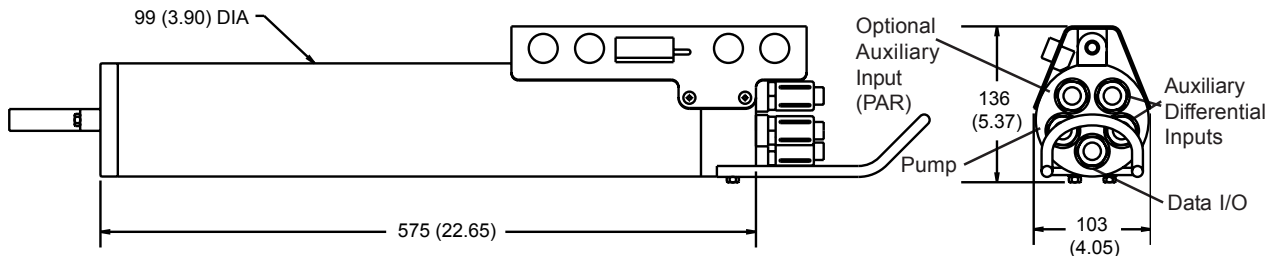
E-mail: seabird@seabird.com

Telephone: (425) 643-9866

Fax: (425) 643-9954



Dimensions
in millimeters
(inches)



SPECIFICATIONS

	Measurement Range	Initial Accuracy	Typical Stability (per month)	Resolution
Conductivity (S/m)	0 to 9	0.0005	0.0003	0.00005 (most oceanic waters; resolves 0.4 ppm in salinity) 0.00007 S/m (high salinity waters; resolves 0.4 ppm in salinity) 0.00001 S/m (fresh waters; resolves 0.1 ppm in salinity)
Temperature (°C)	-5 to +35	0.005	0.0002	0.0001
Pressure	0 to 20/100/350/600/ 1000/2000/3500/ 7000 meters	0.1% of full scale range	0.004% of full scale range	0.002% of full scale range

- Memory** 8 Mbyte non-volatile FLASH memory
- Data Storage**

Recorded Parameter	Bytes/Sample
T + C	6
pressure	5
each external voltage	2
- Real-Time Clock** 32,768 Hz TCXO accurate to ±1 minute/year
- Internal Batteries** 9 alkaline D-cells (Duracell MN1300, LR20) provide 60 hours profiling; optional 9-cell NiMH battery pack provides 40 hours profiling per charge; optional 9-cell Ni-Cad battery pack provides 24 hours profiling per charge
- External Power Supply** 9 - 28 VDC; consult factory for required current

Power Requirements

- Sampling 65 mA
- SBE 5M pump 100 mA
- Optional SBE 5T pump 150 mA
- Communications 60 mA
- Quiescent 30 µA

Auxiliary Voltage Sensors

- Auxiliary power out up to 500 mA at 10.5 - 11 VDC
- A/D resolution 14 bits
- Input range 0 - 5 VDC

Housing Materials, Depth Rating, Weight in air*, Weight in water*

- Acetal Copolymer Plastic housing, 600 meter (1950 feet), 7.3 kg (16 lbs), 2.3 kg (5 lbs)
- 3AL-2.5V Titanium housing, 7000 meter (22,900 feet), 13.7 kg (30 lbs), 8.6 kg (19 lbs)
- *Weights listed above are without pump; add:
SBE 5M pump (standard) 0.4 kg (0.9 lbs) in air, 0.3 kg (0.6 lbs) in water
SBE 5T pump (optional) 0.7kg (1.5 lbs) in air, 0.3 kg (0.6 lbs) in water

Optional Cage

- 1016 mm x 241 mm x 279 mm (40 in. x 9.5 in. x 11 in.), 6.3 kg (14 lbs)

