



Photo by S. Compoint / Sygma

SBE 32 Carousel Water Sampler - is an innovative design free of the reliability problems associated with motor-driven types. The Carousel has no moving-shaft seals that can bind up at low temperatures or under pressure because each bottle position has its own magnetically-activated lanyard release latch. Only the magnetic field -- not a moving part -- links the Carousel's lanyard release mechanism with the pylon control electronics.

Sea-Bird's Carousel has been extensively deployed throughout the world's oceans, where it has built a reputation for reliability and ease of use. The Carousel has rapidly become *the* standard for oceanographic water sampling.

- **Reliable - no motors or oil-filled seals**
- **Drop-in replacement for existing pylons**
- **Variety of sizes and configurations**
- **Compatible with most CTDs**
- **No interruption of CTD data or power**
- **Easy one-handed lanyard attachment**
- **Fire bottles in any order**
- **Programmable autonomous operation**

SYSTEM ENGINEERED - PERFORMANCE PROVEN - TIME TESTED

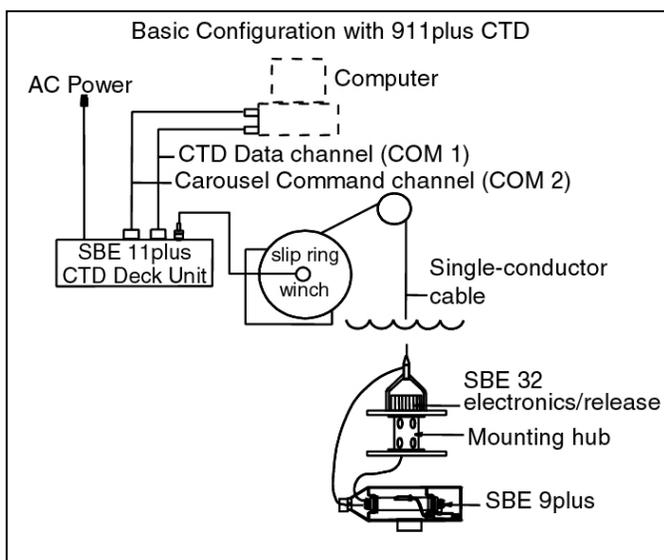
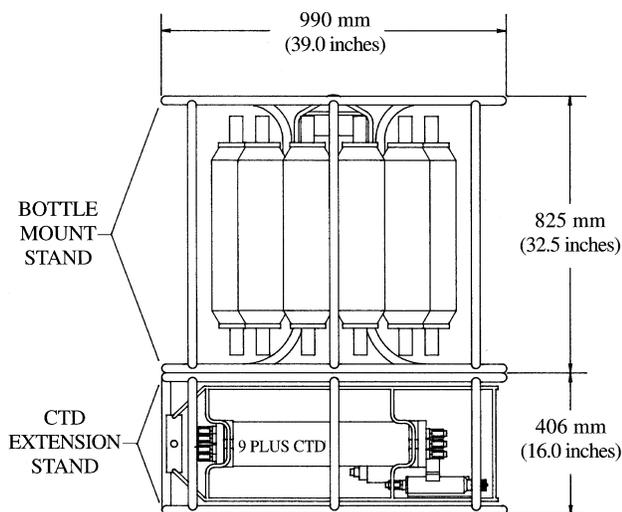
The heart of every Carousel system is the magnetically-actuated lanyard release (shown at right). A pressure-proof electromagnet at each bottle position is energized on command to release the latch holding the bottle lanyard. Titanium, acetal plastic, and other corrosion-resistant materials are used in the latch and magnet assembly. The modular construction of the latch array makes servicing easy.

BASIC CAROUSEL

The basic Carousel is optimized for use with Sea-Bird's 911plus CTD and includes the electronics/release assembly (12, 24, or 36 position), mounting hub, adapter plates, protective frame, and CTD extension stand -- ready to accept a 9plus CTD underwater unit. A 12-bottle, 5-liter system is shown below with a 9plus mounted.

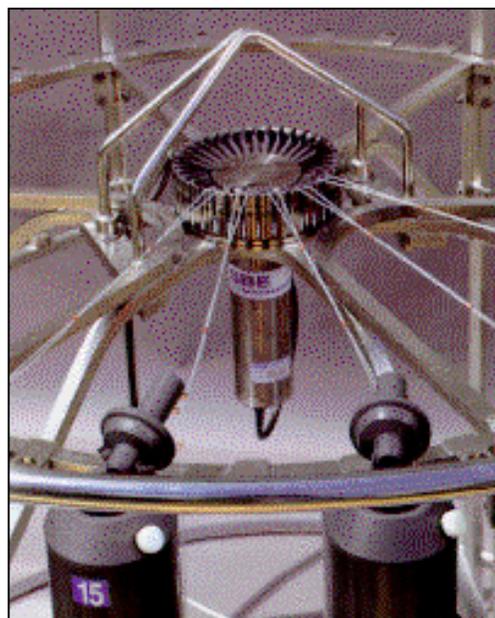


When used with a 911plus, the CTD system provides Carousel power and control.



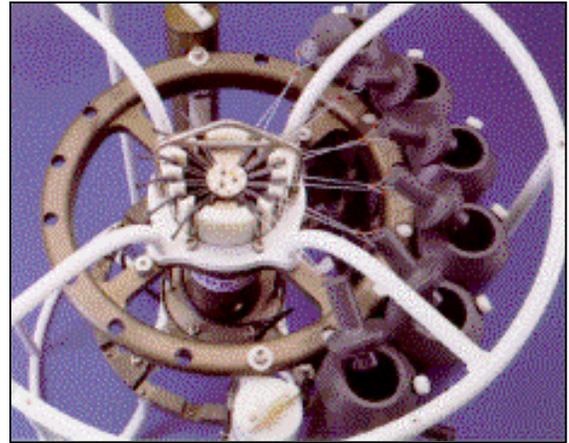
The 36-position Carousel design departs from the standard 12- and 24-position Carousel only in that the diameter of the latch array is increased and the protective stainless steel bottle mount frame has integral bottle mounts, eliminating the need for a mounting hub and adapter plates. This economical design improves flushing and reduces drag.

The Carousel's electronics/release assembly and mounting hub are available separately. An electronics/release assembly in a 10,500 meter titanium housing (option) is shown at right, installed in a 36-position frame. When the electronics/release assembly is bolted into the mounting hub, they serve as a drop-in replacement for the "pylon" assembly commonly found in many existing water samplers, allowing reuse of existing bottle mount stands and adapter plates when upgrading to the more reliable and convenient Carousel design. For some custom-built water sampler frames, the electronics/release assembly can be used without a mounting hub, as done on the 36-position Carousel.



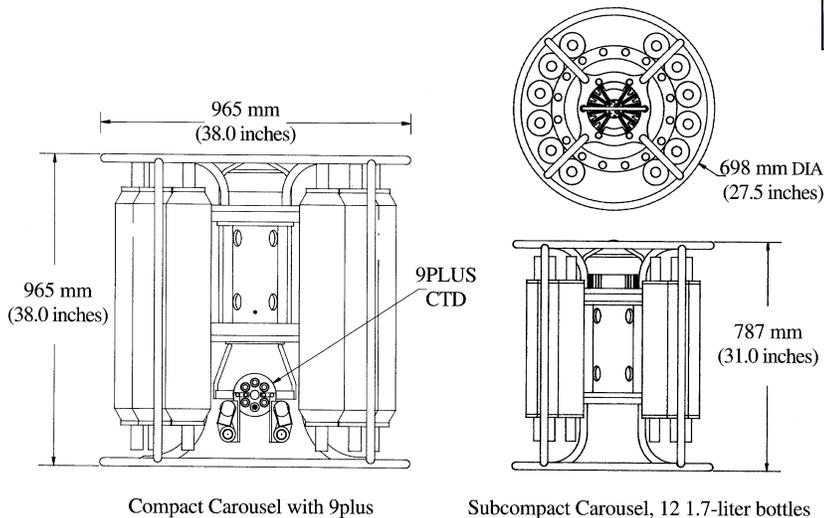
COMPACT CAROUSEL

A Carousel with reduced height and slightly smaller diameter is available for use where vertical clearance is limited. The Compact Carousel (SBE 32C) is a 12-position (only) sampler without a CTD extension, supporting bottles up to 8 liters, and accommodating a 9plus CTD underwater unit mounted horizontally inside the bottle circle. The bottle positions are closely spaced into 2 arcs, leaving two spaces between the ends of the arcs to provide unobstructed flow to the 9plus. The spaces also allow mounting a SBE 19 SEACAT CTD and/or other instruments vertically using an accessory mounting fixture.



SUBCOMPACT CAROUSEL

The subcompact Carousel is available in sizes for 1.7 or 2.5 liter bottles. When used with SEACAT Profilers and either the SBE 33 Deck Unit or Auto-Fire Module, it offers a small yet full-featured system, well suited to operation from small boats.

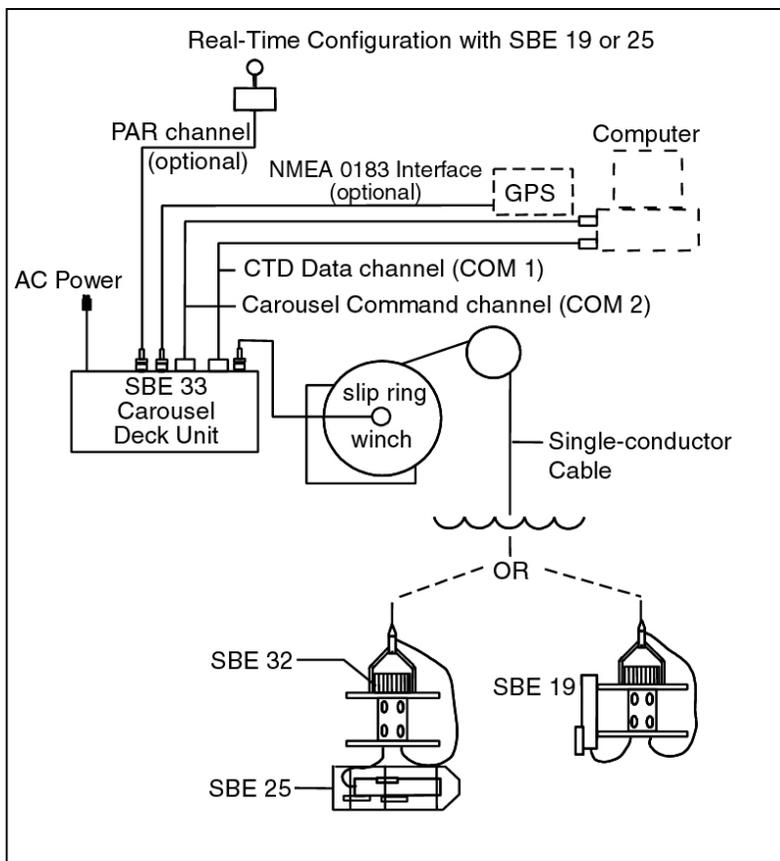


SBE 33 CAROUSEL DECK UNIT

For stand-alone Carousel use (without a CTD), the Deck Unit provides power and real-time control to the water sampler. When used with a CTD other than the 911plus, it also provides a real-time data telemetry link and power for the CTD and auxiliary instruments. Two optional interfaces can be added to the SBE 33; a NMEA 0183 interface to allow GPS position data to be appended to Sea-Bird CTD data, and an auxiliary A/D channel to interface a surface PAR sensor.

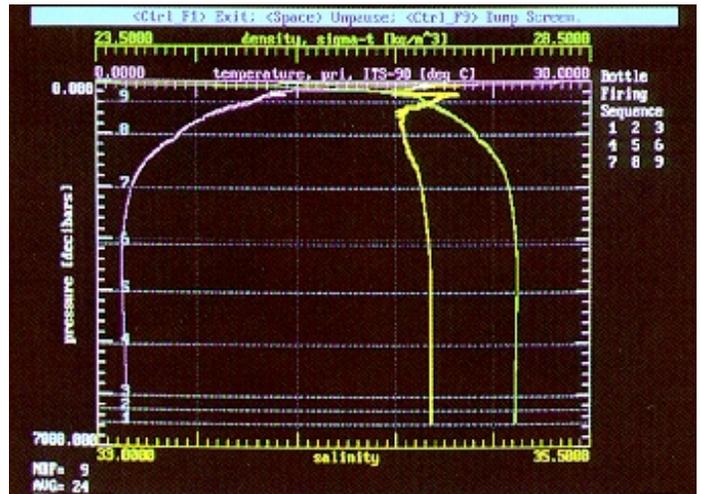
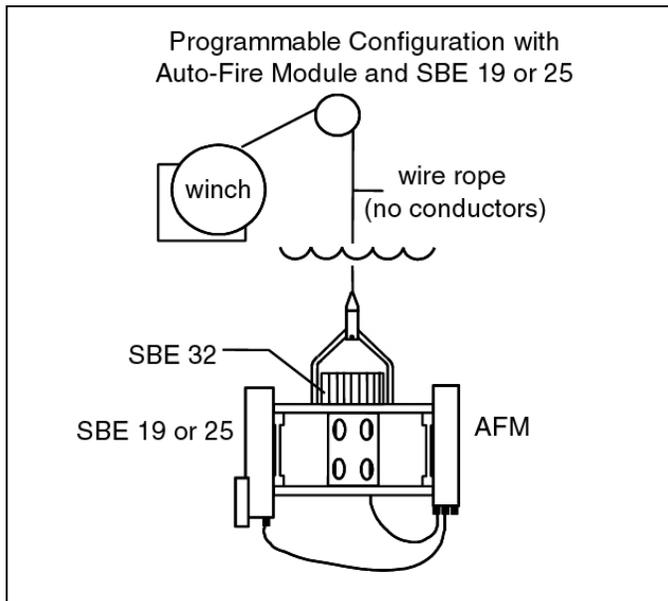
SEA-BIRD SOFTWARE CONTROL

SEASOFT® Version 4 CTD software for IBM-PC compatibles provides real-time data acquisition and simultaneous keyboard control of bottle firing. A typical real-time CTD data plot on the following page shows how SEASOFT automatically marks the display with bottle numbers, keeps track of which bottles have been fired, and creates a "bottle data" file during real-time data collection with SBE 911plus, SBE 25 Sealogger, or SBE 19 SEACAT Profiler CTD systems.



AUTO-FIRE MODULE (AFM)

The AFM allows Carousel operation without a conducting sea cable by firing bottles at user-programmed time intervals, or when used with SBE 19 or 25 CTDs (only), the AFM monitors CTD pressure data and fires bottles at user-programmed depths. The AFM also records bottle number, firing confirmation, and 5 scans of CTD data for each bottle fired. At the end of a cast, data from the CTD and the bottle summary file from the AFM are both uploaded using the same utility program. Set-up and check-out are also performed (without opening the housing) through the menu-driven program supplied with the AFM.



The AFM, supplied with 9 alkaline 'D' size cells, provides Carousel power and AFM operation of at least 40 hours endurance.

DIMENSIONS, mm [inches]

Standard Carousel	Diameter	Overall Height	Dry Weight, kg [lb] [no CTD or bottles]	Standard Carousel	Diameter	Overall Height	Dry Weight, kg [lb] [no CTD or bottles]
12 bottle 1.2 liter	991 [39]	1380 [55]	68 [150]	24 bottle 1.2 liter	1143 [45]	1384 [55]	95 [210]
12 bottle 1.7 liter	991 [39]	1176 [47]	68 [150]	24 bottle 1.7 liter	1143 [45]	1219 [48]	73 [160]
12 bottle 2.5 liter	991 [39]	1380 [55]	73 [160]	24 bottle 2.5 liter	1143 [45]	1384 [55]	95 [210]
12 bottle 5 liter	991 [39]	1231 [49]	78 [172]	24 bottle 5 liter	1550 [61]	1371 [54]	180 [397]
12 bottle 8 liter	991 [39]	1430 [57]	79 [174]	24 bottle 8 liter	1550 [61]	1570 [62]	187 [410]
12 bottle 10 liter	991 [39]	1582 [63]	83 [182]	24 bottle 10 liter	1550 [61]	1725 [68]	195 [430]
12 bottle 12 liter	991 [39]	1710 [68]	84 [184]	24 bottle 12 liter	1550 [61]	1875 [74]	200 [440]
12 bottle 20 liter	1550 [61]	1710 [68]	165 [363]	36 bottle 12 liter	2134 [84]	1700 [67]	341 [750]
12 bottle 30 liter	1550 [61]	1880 [74]	172 [378]				
Compact Carousel				Sub-Compact Carousel			
12 bottle 1.2-8 liter	966 [38]	966 [38]	68 [150]	12 bottle 1.7 liter	699 [27.5]	788 [31]	50 [111]
				12 bottle 2.5 liter	699 [27.5]	991 [39]	52 [114]

SPECIFICATIONS

Depth Rating	6800 meters (10,000 meters optional)
SBE 33 Deck Unit	89 mm [3.5 in.] height cabinet with standard 19 inch rack mounting brackets
Power requirement	110/230 VAC (user selectable), 100 watts
Sea Cable Compatibility	single or multi-core armored cable up to 10,000 meters long with an inner core resistance of 0 - 350 ohms