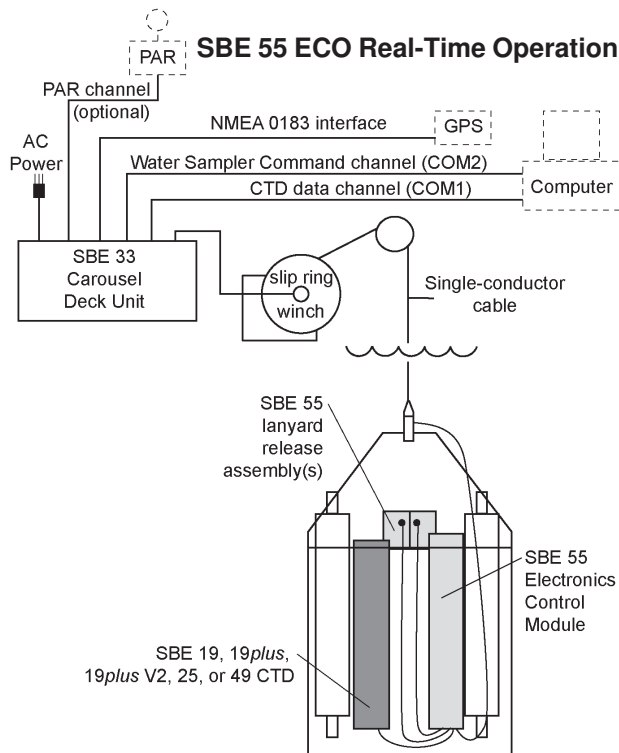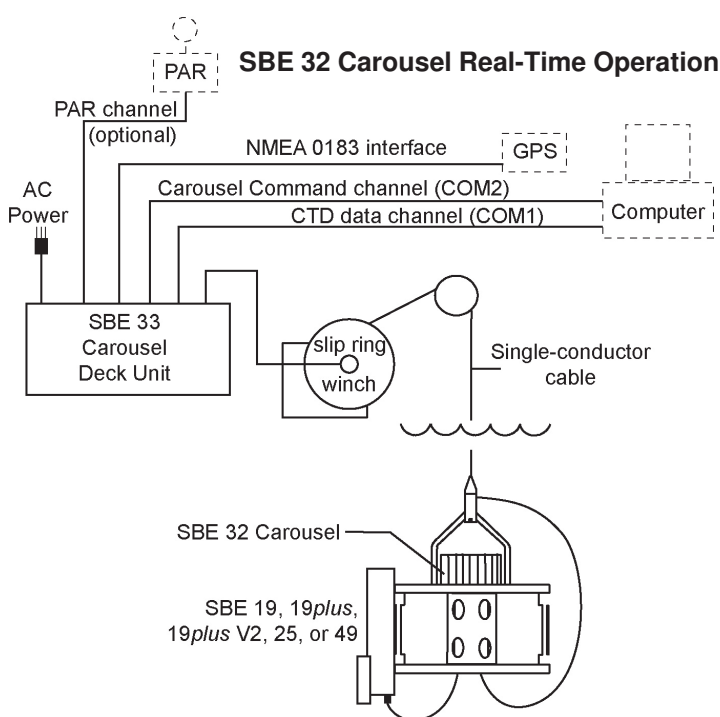# Carousel Deck Unit

SBE 33

The rack-mountable SBE 33 provides power and real-time data acquisition and control for an **SBE 32 Carousel Water Sampler** that has the SBE 33 interface option installed in its pylon. The SBE 33 is compatible with all Carousel sizes — standard, compact, and sub-compact. When powered and controlled by the SBE 33, the Carousel can be used:
- with an SBE 19, 19*plus*, 19*plus* V2, 25, or 49 CTD
- without a CTD
- with a Neil Brown Mk III CTD (requires optional interface for both SBE 32 and 33).

The SBE 33 can also be used to provide power and real-time data acquisiton and control for the smaller **SBE 55 ECO Water Sampler** used with an SBE 19, 19*plus*, 19*plus* V2, 25, or 49 CTD, or no CTD.

SBE 32 Carousel Real-Time Operation

SBE 55 ECO Real-Time Operation

The SBE 33 / Water Sampler system provides real-time data telemetry and surface power for the CTD, and permits Water Sampler control with the SBE 33 front panel buttons or via our SEASAVE software. Bottles can be fired sequentially or in any order; the front-panel LED display indicates which bottles have been fired.

The SBE 33 includes a **NMEA Interface** that merges position and date/time data with CTD data, decoding messages that are output from navigation devices supporting NMEA 0183 protocol. Decoded navigation data is appended to the CTD data stream in the SBE 33, and passed to the computer for storage and/or display with the CTD data.

The SBE 33 may also include an optional **A/D converter for a Surface PAR sensor**; the SBE 33 supplies 12 volts to power the sensor.

SOFTWARE

The SBE 33 is supplied with a powerful Windows 2000/XP software package, SEASOFT© V2, which includes:
- **SEATERM©** and **SeatermV2**, terminal programs for easy communication and data retrieval.
- **SEASAVE©**, program for real-time data acquisition and water sampler bottle firing control.
- **SBE Data Processing©**, which includes modules for calculation, display, and plotting of temperature, conductivity, pressure, auxiliary sensor data, and derived variables such as salinity and sound velocity.
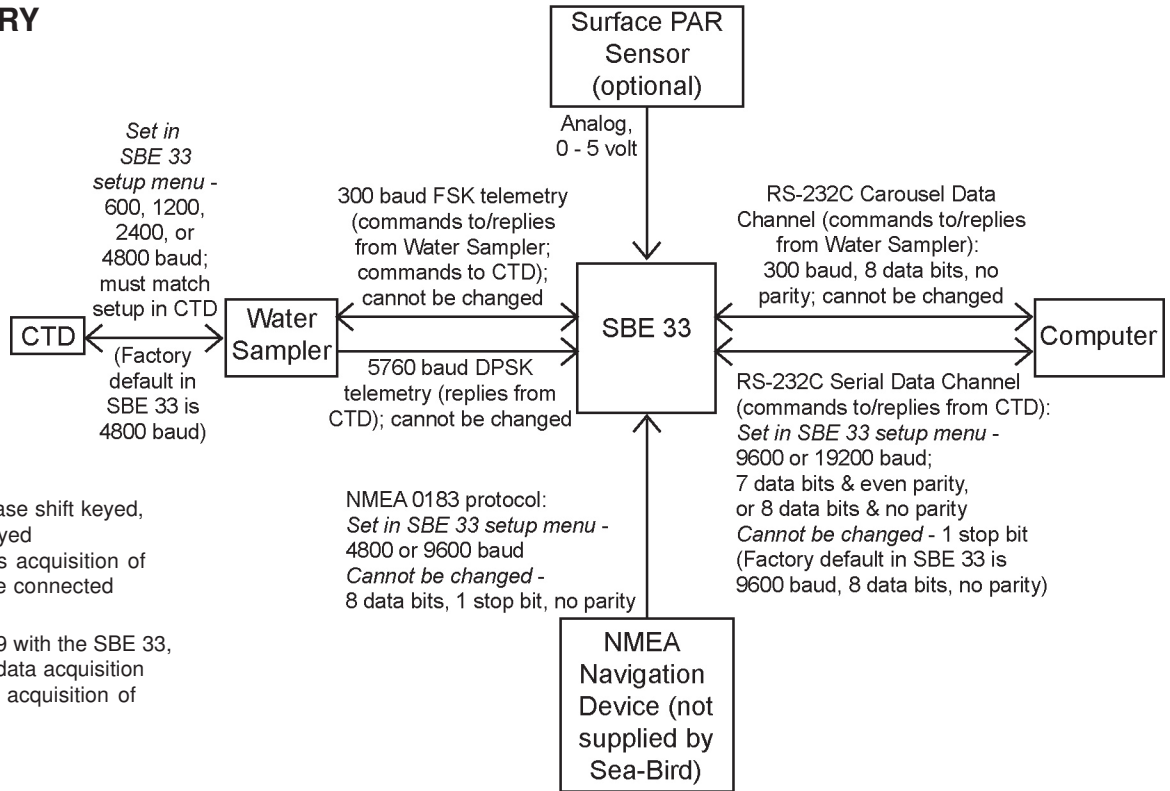
Carousel Deck Unit

SPECIFICATIONS

Power requirement: 120 or 240 VAC (user-selectable) 50/60 Hz
Cable compatibility: Single / multi-core armored cable up to 10,000 m (32,800 ft) long with inner core resistance < 350 ohms and armor used as return
Dimensions: 89 mm (3.5 in.) high cabinet with standard 48 mm (19 in.) electronics rack mounting brackets.
Detailed information:
89 mm high x 432 mm wide x 381 mm deep (3.5 inches x 17 inches x 15 inches);
Feet add 13 mm (0.5 inches) to height; Rack mount *ears* add 51 mm (2 inches) to depth.
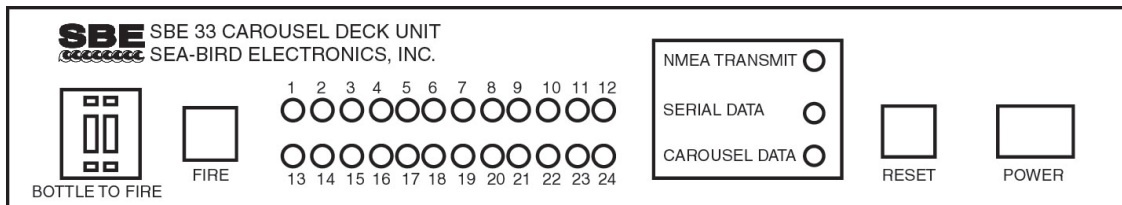**Weight:** 9.0 kg (20 lbs)

DATA TELEMETRY

Surface PAR Sensor (optional)

Analog, 0 - 5 volt

Set in SBE 33 setup menu - 600, 1200, 2400, or 4800 baud; must match setup in CTD

(Factory default in SBE 33 is 4800 baud)

300 baud FSK telemetry (commands to/replies from Water Sampler; commands to CTD); cannot be changed

RS-232C Carousel Data Channel (commands to/replies from Water Sampler): 300 baud, 8 data bits, no parity; cannot be changed

CTD

Water Sampler

SBE 33

Computer

5760 baud DPSK telemetry (replies from CTD); cannot be changed

RS-232C Serial Data Channel (commands to/replies from CTD): *Set in SBE 33 setup menu -* 9600 or 19200 baud; 7 data bits & even parity, or 8 data bits & no parity *Cannot be changed -* 1 stop bit (Factory default in SBE 33 is 9600 baud, 8 data bits, no parity)
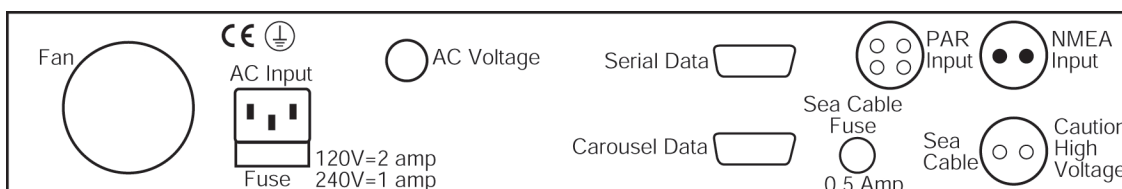
Notes:
1. DPSK = differential phase shift keyed, FSK = frequency shift keyed
2. Seasave also supports acquisition of data from a NMEA device connected directly to the computer.
3. When using the SBE 49 with the SBE 33, SEASAVE (our real-time data acquisition software) does not allow acquisition of Surface PAR data.

NMEA 0183 protocol: *Set in SBE 33 setup menu -* 4800 or 9600 baud *Cannot be changed -* 8 data bits, 1 stop bit, no parity

NMEA Navigation Device (not supplied by Sea-Bird)

FRONT AND BACK PANELS

SBE 33 CAROUSEL DECK UNIT
SEA-BIRD ELECTRONICS, INC.

1 2 3 4 5 6 7 8 9 10 11 12
13 14 15 16 17 18 19 20 21 22 23 24

BOTTLE TO FIRE   FIRE

NMEA TRANSMIT
SERIAL DATA
CAROUSEL DATA

RESET   POWER

SBE 33 Front Panel

Fan

CE

AC Input

AC Voltage

Serial Data

PAR Input

NMEA Input

Sea Cable Fuse

Carousel Data

Fuse   120V=2 amp 240V=1 amp

Sea Cable

0.5 Amp

Caution High Voltage

SBE 33 Back Panel

03/10