

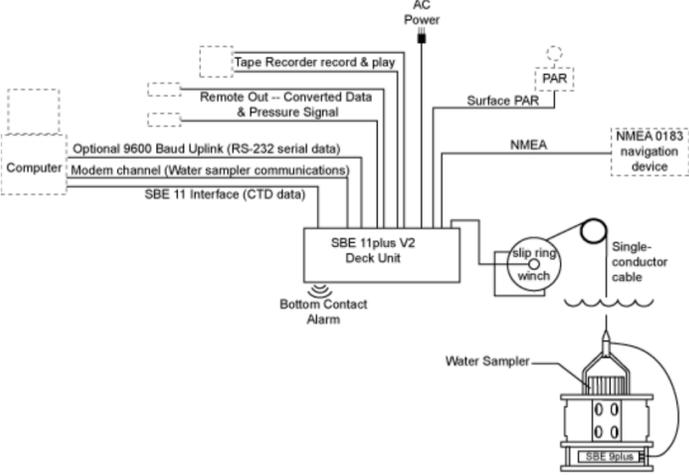
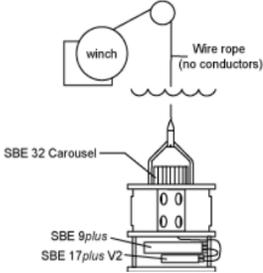


SBE 911plus Configurations

An SBE 911plus order requires ordering the SBE 9plus CTD underwater unit as well as the SBE 11plus Deck Unit, shown in separate sections below. Alternatively, if using the SBE 9plus autonomously, an SBE 11plus Deck Unit is not required; order the SBE [17plus](#) instead.

Housing	Pressure Sensor/Range	Connectors	JT4 Connector End Cap Electronics	Pump Control	Number of Temperature/Conductivity Sensors	Integration
1 – 6800 m (aluminum)	G - 2000 psia Digiquartz	1 – XSG/AG	0 – None	0 – Frequency	1 - Single T/C pair	0 - Standard cage (vertical)
2 – 10,500 m (titanium)	H - 3000 psia Digiquartz	2 – MCBH	1 – GO 1015	1 – Manual	2 - Dual T/C pair	1 - SBE 32 (horizontal)
	I - 6000 psia Digiquartz		2 – Serial Data Uplink, sensor communication 9600 baud	2 – Water Contact		2 - SBE 32C (vertical)
	J - 10,000 psia Digiquartz		3 – Serial Data Uplink, sensor communication 19200 baud			3 - no cage or integration
	K - 15,000 psia Digiquartz		4 - Serial Output			

Example: 09P.1J20020 is an SBE 9plus with 6800 m housing, 10,000 psia Digiquartz pressure sensor, MCBH connectors, no additional electronics for JT4 connector, frequency pump control, dual temperature/conductivity sensors, and standard cage integration. See table below for description of each selection:

PART #	DESCRIPTION	NOTES
<p>9plus</p>	<p>UNDERWATER UNIT for 911plus CTD - 24 Hz sampling rate, includes modular Temperature & Conductivity sensors with TC Duct, SBE 5T submersible pump, redundant T & C input channels, 8 differential input, low pass-filtered A/D channels, water sampler modem channel, stainless steel guard cage, seacable pigtail, Seasoft software, & complete documentation.</p>	<p>SBE 9plus includes SBE 3plus temperature sensor, SBE 4C conductivity sensor, SBE 5T pump, & associated cabling, plumbing, & mounting.</p> <p>Real-Time Data Operation: 9plus provides real-time data when controlled with 11plus Deck Unit (see below). Deck Unit provides power, decodes data stream, passes data to computer, & allows user control of water sampler.</p>  <p>Notes:</p> <ul style="list-style-type: none"> • Computer, slip-ring-equipped winch, conductive cable, & NMEA 0183 navigation device not supplied by Sea-Bird. • See 9p-4b for G.O. 1015 water sampler control. • When used without water sampler, 9plus is deployed in vertical orientation. • Standard & optional auxiliary sensors on 9plus not shown. • Seasave also supports acquisition of data from a NMEA device connected directly to computer (instead of deck unit). • Serial Data Uplink (9600 Baud Uplink in diagram above) is supported by current version of standard 11plus V2 (which includes water sampler modem channel and serial data interface electronics). It also requires standard water sampler modem channel in 9plus as well as serial data uplink selection in 9plus. <p>Autonomous operation: Autonomous operation (no conducting wire required) is provided when 9plus is controlled with 17plus V2 Searam Memory & Auto Fire Module. Searam provides power, stores data in memory, & allows operation of water sampler with pre-programmed closure pressures.</p>  <p>Notes:</p> <ul style="list-style-type: none"> • Winch & cable not supplied by Sea-Bird. • When used without SBE 32 or 32C Carousel water sampler, 9plus is deployed in vertical orientation. • Standard & optional auxiliary sensors on 9plus not shown.

SBE 9plus Housing (Depth) Selections — MUST SELECT ONE

09P.1xxxxxx	Aluminum housing, 6800 m depth rating	9plus is available for maximum depths of 6800 m (aluminum housing for main housing & T & C sensors) or 10,500 m (titanium housing for main housing & T & C sensors). SBE 5T pump is titanium, regardless of housing option, & is rated for 10,500 m.
09P.2xxxxxx	Titanium housing, 10,500 m depth rating	

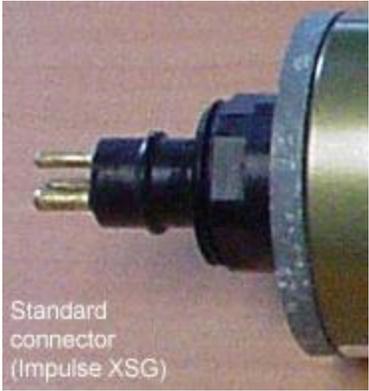
SBE 9plus Pressure Sensor Range (Depth Limit) Selections — MUST SELECT ONE

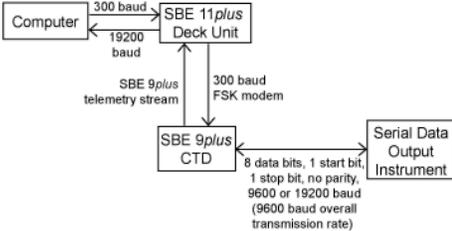
09P.xGxxxxx	0 - 2000 psia (1400 m) pressure sensor	 <p>Pressure sensor is installed in main housing bottom end cap. Unlike modular T & C sensors, pressure sensor is not field-replaceable / swappable. While highest pressure rating gives you most flexibility in using 9plus, it is at expense of accuracy & resolution. It is advantageous to</p>
09P.xHxxxxx	0 - 3000 psia (2000 m) pressure sensor	

09P.xIxxxxx	0 - 6000 psia (4200 m) pressure sensor	<p>use lowest range pressure sensor compatible with your intended maximum operating depth, because accuracy & resolution are proportional to pressure sensor's full scale range. For example, comparing 1400 & 4200 m sensors:</p> <ul style="list-style-type: none"> ● 1400 m sensor: initial accuracy = 0.21 m (= 0.015% * 1400 m), resolution = 0.014 m (= 0.001% * 1400 m) ● 4200 m sensor: initial accuracy = 0.63 m (= 0.015% * 4200 m), resolution = 0.042 m (= 0.001% * 4200 m)
09P.xJxxxxx	0 - 10,000 psia (6800 m) pressure sensor	
09P.xKxxxxx	0 - 15,000 psia (10,500 m) pressure sensor	

SBE 9plus Connector Selections — MUST SELECT ONE

09P.xx1xxxx	XSG/AG connectors on CTD, T&C sensors, pump, and related cables	Wet-pluggable connectors may be mated in wet conditions. Their pins do not need to be dried before mating. By design, water on connector pins is forced out as connector is mated. However, they must not be mated or un-mated while submerged. Wet-pluggable connectors have a non-conducting guide pin to assist pin alignment & require less force to mate, making them easier to mate reliably under dark or cold conditions, compared to XSG/AG connectors. Like XSG/AG connectors, wet-pluggables need proper lubrication & require care during use to avoid trapping water in sockets.
-------------	------------------------------------------------------------------------	-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

<p>09P.xx2xxxx</p>	<p>Wet-pluggable (MCBH) connectors on CTD, T&C sensors, pump, and related cables</p>	 <p>Standard connector (Impulse XSG)</p>  <p>Wet-pluggable connector (MCBH)</p> <p>Connector on SBE 3plus Temperature Sensor with aluminum housing shown, to illustrate difference between XSG/AG & wet-pluggable connectors.</p>
<p>SBE 9plus JT4 Connector End Cap Electronics Selections— MUST SELECT ONE</p>		
<p>09P.xxx0xxx</p>	<p>No electronics installed for JT4 connector, 3-pin dummy connector installed</p>	<p>3-pin connector is installed for JT4, but not connected to any electronics.</p>

<p>09P.xxx1xxx</p>	<p>Control module for GO 1015 water sampler, includes interface cables (requires water sampler modem)</p>	<p>300 baud modem for water sampler control (see note) is required to support GO 1015 water sampler. With this selection in 9plus, system provides real-time control for G.O. 1015 Rosette water sampler through 3-pin JT4 connector on 9plus top end cap.</p> <p>*Note: 300 baud modem in 9plus & 11plus has been standard since 2005. For older instruments, it was optional.</p>
<p>09P.xxx2xxx</p>	<p>Serial Data Uplink, 9600 unidirectional RS-232, with 9600 baud sensor communication interface (requires water sampler modem channel, limits cable length to 8,000 m, & makes 9plus incompatible with SBE 17plus Searam & other 911plus CTDs that do NOT have this option)</p>	 <p>300 baud modem for water sampler control (see note) is required to support serial data uplink. Serial data is multiplexed into 9plus telemetry stream & de-multiplexed by 11plus, outputting to computer through standard 9600 Baud Uplink connector. System supports use of serial data output instrument & water sampler in same cast.</p> <p>If 09P.xxx3x (19200 baud sensor communication) selected, continuous transmission rate may not exceed 9600 baud (960</p>

09P.xxx3xxx	<p>Serial Data Uplink, 9600 unidirectional RS-232, with 19200 baud sensor communication interface (requires water sampler modem channel, limits cable length to 8,000 m, & makes 9plus incompatible with SBE 17plus Searam & other 911plus CTDs that do NOT have this option)</p>	<p>bytes/second). Therefore, serial data output instrument must transmit at 19200 baud in burst mode (transmissions separated by intervals with no data transmission, resulting in average rate of 960 bytes/second).</p> <p>When 09P.xxx2x or 09P.xxx3x is ordered, JT4 connector on 9plus top end cap is a 4-pin connector.</p> <p>*Note: 300 baud modem in 9plus & 11plus has been standard since 2005. For older instruments, it was optional.</p>
09P.xxx4xxx	<p>RS-232 serial output interface, installed in place of 1015 interface. 9plus data output duplicates output from SBE 11plus deck unit, except that averaging and alignment must be done in post processing. This is a custom option for AUV integration applications. A PC running Seasave will be able to display and archive CTD data directly from 9plus – no deck unit required.</p>	<p>This option is typically desired when an AUV / ROV is logging 9plus data. When this is ordered, 9plus transmits serial data through 3-pin JT4 connector on 9plus top end cap at 19,200 baud, 8 data bits, no parity. Power can also be supplied to 9plus through JT4 connector.</p>
<p>SBE 9plus Pump Control Selections — MUST SELECT ONE</p>		

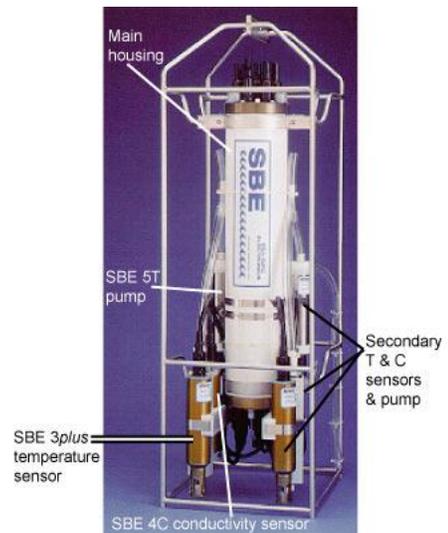
09P.xxxx0xx	<p>Pump turn-on controlled by conductivity frequency (turns on 60 seconds after conductivity frequency exceeds hardwired value); may not be suitable for fresh water applications</p>	<p>This selection is appropriate for most salt water applications.</p>
09P.xxxx1xx	<p>Manual pump control allows user to turn pump on and off by command from Seasave software; typically used for fresh water applications</p>	<p>These selections are typically used for fresh water applications:</p> <ul style="list-style-type: none"> ● Manual Pump Control - Pump control commands are sent via Seasave V7 through SBE 11plus Deck Unit's Modem Channel connector, but pump control does not interfere with water sampler operation. Manual pump control is enabled/disabled on Pump Control tab in Seasave V7's Configure Inputs dialog box. Pump is turned on and off from Seasave V7's Real-Time Control menu. Note that you must remember to turn pump on; it will not turn on automatically if this option is installed. ● Water Contact Pump Control - Pump control is independent of water conductivity. Contact pin is on a special dummy plug that connects to JB6 on

<p>09P.xxxx2xx</p>	<p>Water contact pump control connector allows pump to automatically turn on 60 seconds after contact pin is immersed in water (salt or fresh), and automatically turn off when contact pin is removed from water (prevents use of bottom contact switch); typically used for fresh water applications</p>	<p>9plus bottom end cap. Modifications to 9plus internal wiring to JB6 for this option prevent use of JB6 for a bottom contact switch. Note that you must inspect contact pin periodically for corrosion; corrosion may prevent pump from turning on.</p>
--------------------	-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

SBE 9plus Temperature and Conductivity Sensor Selections — MUST SELECT ONE

09P.xxxxx1x

Single T & C sensors, with TC Duct & Pump



If you select Dual T & C Sensors, secondary (redundant) sensors can be used to verify data from primary T & C sensors, for applications requiring very high accuracy. Secondary sensors come complete with TC Duct & secondary pump (& all associated plumbing), & mount onto main housing bottom end cap like primary sensors. 9plus is compatible with secondary T & C sensors; secondary sensors can be added to system in field without any modification to 9plus electronics.

09P.xxxxx2x includes additional SBE 3plus temperature sensor, SBE 4C conductivity sensor, SBE 5T pump, & associated cabling, TC Duct & plumbing, & mounting. Note that secondary pump is powered via same bulkhead

09P.xxxxx2x	Dual T & C sensors, with TC Duct & Pump	connector as primary pump, via included Y-cable (DN 31522 for XSG connectors, DN 32673 for wet-pluggable connectors).
SBE 9plus Integration Selections — MUST SELECT ONE		
09P.xxxxxx0	Standard cage (vertical plumbing)	Includes cage, mounting of 9plus to cage, and plumbing installed for vertical deployment.
09P.xxxxxx1	SBE 32 Carousel Water Sampler extension stand (horizontal plumbing)	Includes cage, mounting of 9plus to cage, and plumbing installed for horizontal deployment in SBE 32 Carousel Water Sampler extension stand. Does not include extension stand or hardware to

		mount 9plus cage to extension stand.
09P.xxxxxx2	SBE 32C Carousel Water Sampler (horizontal plumbing)	Includes special cage for horizontal mounting under SBE 32C Compact Carousel Water Sampler, and plumbing installed for horizontal deployment.
09P.xxxxxx3	No cage, no integration	Sensors, cables, & plumbing are not integrated, but all parts are provided. This selection may be useful for integration in your own vehicle/platform.
SBE 9plus Auxiliary Sensor Options		
9p-6a	SBE 43 Dissolved Oxygen sensor (Profiling Configuration), 7000 m (XSG/AG) connectors). Cable & mount included. (requires 9P.xx1xx)	General Information: <ul style="list-style-type: none"> 9p-6, -7, & -8 include auxiliary sensor, mount, & straight cable to connect sensor to 9plus bulkhead connector. See auxiliary sensor specification sheets (SBE 43, 18, 27) for sensor descriptions. Auxiliary sensor connector type (XSG/AG or wet-pluggable) must match 9plus connector type.
9p-6b	SBE 43 Dissolved Oxygen sensor (Profiling Configuration), 7000 m (Wet-pluggable) connectors). Cable & mount included. (requires 9P.xx2xx)	

9p-6c	<p>SBE 43 Dissolved Oxygen sensor (Profiling Configuration), 600 m plastic housing (XSG/AG connectors). Cable & mount included. (requires 9P.xx1xx)</p>	 <ul style="list-style-type: none"> ● SBE 9plus has 8 differential input A/D channels for auxiliary sensors. Each of 4 auxiliary sensor bulkhead connectors on 9plus end cap can obtain input from up to 2 sensors. If connecting 2 sensors to 1 bulkhead connector, YMOLD (to create a y-cable) applies in addition to 9p-6, -7, & -8 price. ● Additional sensors not listed here — fluorometers, transmissometers, turbidity meters, PAR sensors, altimeters, etc. from third party manufacturers — are compatible with 9plus. These sensors can be purchased from Sea-Bird & integrated with 9plus at our factory, or you can purchase mount kits & cables from Sea-Bird & perform integration yourself. See Third Party portion of price list. ● User can change sensors on 9plus in field. However,
9p-6d	<p>SBE 43 Dissolved Oxygen sensor (Profiling Configuration), 600 m plastic housing (Wet-pluggable connectors). Cable & mount included. (requires 9P.xx2xx)</p>	
9p-7a	<p>SBE 18 pH sensor, 1200 m (XSG/AG connectors). Cable & mount included. (requires 9P.xx1xx)</p>	
9p-7b	<p>SBE 18 pH sensor, 1200 m (Wet-pluggable connectors). Cable & mount included. (requires 9P.xx2xx)</p>	
9p-8a	<p>SBE 27 pH/ORP sensor, 1200 m (XSG/AG connectors). Cable & mount included. (requires 9P.xx1xx)</p>	

9p-8a	<p>SBE 27 pH/ORP sensor, 1200 m (Wet-pluggable connectors). Cable & mount included. (requires 9P.xx2xx)</p>	<p>as noted above, Y-cable is required to connect 2 auxiliary sensors to 1 bulkhead connector on 9plus; each Y-cable is unique to sensors being integrated, so changing sensors may require changing Y-cable. In addition, sensor mechanical mountings may need to be changed to suit selected combination of sensors.</p> <p>Sensor-Specific Information:</p> <ul style="list-style-type: none"> • SBE 43 — SBE 43 is plumbed between conductivity sensor & pump. SBE 43 is available in 600 m plastic housing or 7000 m titanium housing. • SBE 18 & SBE 27 — These sensors are only available with a depth rating to 1200 m.
YMOLD	<p>Extra charge for Y-cable to connect two (2) or more sensors to one (1) auxiliary sensor input bulkhead connector on CTD</p>	

9p-9a

Bottom Contact Switch module
(**XSG** connector, cable & mount
included) (requires 9P.xx1xx)



Weight is attached with heavy line to switch. Switch closes when weight removed, setting bit in 9plus data stream. This causes alarm to turn on in 11plus Deck Unit, providing early warning that CTD is nearing ocean floor. Bottom contact switch does not use one of 8 A/D channels, so system can accommodate switch in addition to 8 auxiliary sensors.

Bottom contact switch connector type (XSG or wet-pluggable) must match 9plus connector type.

Note: Since 2007, Sea-Bird uses a female bulkhead connector on 9plus for bottom contact switch, in place of male bulkhead connector. This change was made to differentiate bottom contact switch

9p-9b	<p>Bottom Contact Switch module (Wet-pluggable connector, cable & mount included) (requires 9P.xx2xx)</p>	<p>connector from sea cable connector. See bottom end cap photo above & Application Note 86.</p>
-------	-----------------------------------------------------------------------------------------------------------------------------	----------------------------------------------------------------------------------------------------------------------

SBE 9plus Wide Range Calibration Options

9p-12a	<p>Wide Range Calibration - Primary T & C (+45 degrees C & 9 S/m)</p>	<p>Standard calibration range goes up to +32.5 °C & 6 S/m; more than 99% of oceanographic work is below this temperature & conductivity. Our calibration equations & fits permit extrapolations significantly beyond this range with only minor loss of accuracy. Wide range calibration goes up to +45 °C (additional calibration points at 36, 40, & 45 °C) & 9 S/m. See Application Note</p>
--------	--------------------------------------------------------------------------------------	-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

9p-12b	Wide Range Calibration - Secondary T & C (requires option 9p-12a)	<p>94: Wide-Range Conductivity Calibration.</p> <p>Wide range calibrations require a 12-week lead time.</p>
SBE 9plus Spares & Accessories		
<p>50088</p> <p>Buy Now</p>	<p>Seaspares (for Aluminum housing with XSG/AG connectors), SBE 9Plus support kit containing spare sensor cables, connectors, hardware, o-rings, clamps, tubing, fittings, anodes, etc.</p>	<p>Order appropriate Seaspares kit for housing type & connector type on 9plus:</p> <ul style="list-style-type: none"> ● 50088 for aluminum 9plus with XSG/AG connectors — See document 67025 for complete listing of parts. ● 50139 for titanium 9plus with XSG/AG connectors — See document 67128 for complete listing of parts. ● 50321 for aluminum 9plus with wet-pluggable connectors — See document 67129 for complete listing of parts. ● 50322 for titanium 9plus with wet-pluggable connectors — See document 67130 for complete listing of parts.
<p>50139</p> <p>Buy Now</p>	<p>Seaspares (for Titanium housing with XSG/AG connectors), SBE 9Plus support kit containing spare sensor cables, connectors, hardware, O-rings, clamps, tubing, fittings, etc.</p>	
<p>50321</p> <p>Buy Now</p>	<p>Seaspares (for Aluminum housing with Wet-pluggable connectors), SBE 9Plus support kit containing spare sensor cables, connectors, hardware, O-rings, clamps, tubing, fittings, anodes, etc.</p>	

<p>50322 Buy Now</p>	<p>Seaspares (for Titanium housing with Wet-pluggable connectors), SBE 9Plus support kit containing spare sensor cables, connectors, hardware, O-rings, clamps, tubing, fittings, etc.</p>	
<p>17252 Buy Now</p>	<p>2-pin seacable extension, RMG connectors, 0.7 m (DN 30588)</p>	<p>Female end connects to JT1 on 9plus top end cap (connector type must match 9plus); male end connects to sea cable. Many users leave extension connected to 9plus, & make connection to sea cable at end of extension (instead of at end cap, which is crowded with a number of connectors & may be difficult to access).</p>
<p>17120 Buy Now</p>	<p>2-pin seacable extension, RMG connectors, 2 m (DN 30588)</p>	
<p>171090 Buy Now</p>	<p>2-pin seacable extension, RMG connectors, 3 m (DN 30588)</p>	
<p>171743 Buy Now</p>	<p>2-pin seacable extension, Wet-pluggable connectors, 2 m (DN 32763)</p>	
<p>171744 Buy Now</p>	<p>2-pin seacable extension, Wet-pluggable connectors, 3 m (DN 32763)</p>	
<p>17198 Buy Now</p>	<p>Interface cable, 9plus to 32, AG connectors, 2 m (DN 30568)</p>	<p>Connects 9plus to SBE 32 or 32C Carousel Water Sampler. Connector type (AG or wet-pluggable) must match 9plus & SBE 32 or 32C connector type. Note that interface cable & mounting hardware are included with Carousel if Carousel is</p>

171741 Buy Now	Interface cable, 9plus to 32 , Wet-pluggable connectors, 2 m (DN 32758)	ordered with CTD integration kit for 9plus.
17086 Buy Now	SBE 3 (Temperature) or SBE 4 (Conductivity) interface cable , RMG connectors, 0.63 m (DN 30566)	Spare cable to connect 9plus to SBE 3plus or 4C . Connector type (RMG or wet-pluggable) must match 9plus & SBE 3plus or 4C connector type.
171669 Buy Now	SBE 3 (Temperature) or SBE 4 (Conductivity) interface cable , Wet-pluggable connectors, 0.7 m (DN 32671)	
17133 Buy Now	Pump cable, RMG-2FS to RMG-2FS , 1.1 m (DN 30565)	Spare cable to connect 9plus to SBE 5T pump. Connector type (RMG or wet-pluggable) must match 9plus & SBE 5T connector type.
171503 Buy Now	Pump cable , Wet-pluggable connectors, MCIL-2FS to MCIL-2FS , 1.1 m (DN 32499)	
41713	Sea cable interface assembly (replaces 80593)	Spare PCBs for 9plus. Contact Sea-Bird with serial number of your 9plus to verify correct part number for PCB. (Click here to see an example of where to find the serial number on your instrument.)
41799	9plus Modem Card (replaces 801017)	
40540	Control module for model 1015 water sampler (replaces 80585)	
40968	Analog interface card (replaces 80589)	

80581	Transmitter card	
41613	Logic card (replaces 80621)	
80935	Modulo 12P card (substitute for PN 80640)	
80609	AP counter card	
801042	9plus Control, store - A/D card (substitute for 80590)	
50025	Pressure sensor oil refill kit (document 67066)	Due to temperature and pressure cycling over long periods, it is normal for some oil to slowly leak out of pressure sensor external capillary tube. When oil is not visible or is receding inside translucent tube, or if fitting has been damaged, refill oil using this kit. See Application Note 12-1: Pressure Port Oil Refill Procedure & Nylon Capillary Fitting Replacement .
50087 Buy Now	Cell filler/storage device (Application Note 34)	For cleaning conductivity cell after each use & storing instrument between uses. See document 67043 & Application Note 2D: Instructions for Care and Cleaning of Conductivity Cells .

various	Plumbing spares	For air bleed valve & y-fitting, snap-on connector, & assorted sizes of Tygon tubing, see SBE 5T Configuration.
801283	SBE 9plus stainless steel protective cage (includes PN 23559C, mounting hardware, etc.)	Spare cage (cage DN 20287).

31634

Hardigg shipping case
(AL4915-1105)



Hardigg shipping case with custom foam inserts holds SBE 9plus with auxiliary sensors in standard cage.

- Rotationally molded high-impact polyethylene with reinforced corners & edges, molded-in corrugations, reinforced corners & edges, tongue-in-groove seal, positive anti-shear locks, comfort-grip handle, recessed hardware. Meets airline luggage regulations.
- Inner dimensions:
49 x 14.8 x 16.2 inches
(124 x 38 x 41 cm).
- Outer dimensions:
52 x 17.8 x 18.4 inches
(132 x 45 x 47 cm).

Notes regarding features of Hardigg case supplied by Sea-Bird:

1. Case does not have wheels, because we prefer that the case is not rolled along the ground:

		<ul style="list-style-type: none"> - Rolling along the ground could cause unnecessary vibration of the CTD. - Rolling over a curb could cause unnecessary impact to the CTD. <p>2. Case has small holes on each metal latch, into which you could insert a small, TSA-approved lock or some zip ties. Case cannot accommodate a large padlock.</p>
--	--	----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

Family	Model	.	Power	CTD Connector (for test cable)
11	P	.	1 – 120 VAC	1 – XSG
			2 - 240 VAC	2 – MCBH
			3 - EU 240 VAC	

Example: 11P.12 is an SBE 11plus V2 with 120 VAC power input and test cable for CTD with MCBH.

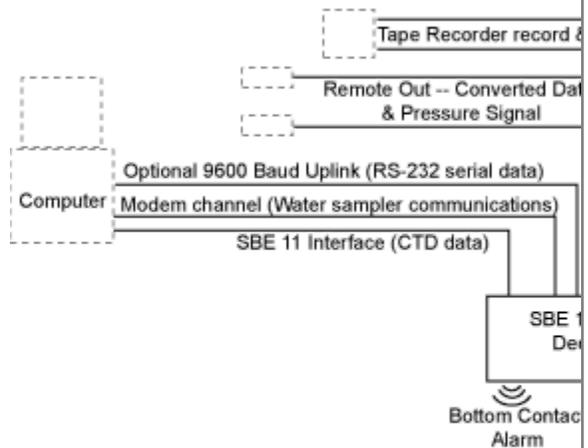
See table below for description of each selection:

PART #	DESCRIPTION	NOTES
--------	-------------	-------

**11plus
V2**

DECK UNIT for 911plus CTD - (Version 2) includes IEEE-488 and RS-232 interfaces, water sampler modem channel, NMEA 0183 GPS interface, A/D input channel for Surface PAR reference sensor, ASCII serial data output port, CTD pressure signal output, audible bottom contact alarm, audio tape interface, 120/240 VAC (switchable) input power, AC power cord, 10 m CTD test cable, NMEA test cable, remote output cable, serial data cable, rack mount kit, Seasoft software, and complete documentation.

9plus provides real-time data when controlled with 11plus V2 Deck Unit. 11plus V2 provides power, decodes data stream, passes data to computer, & allows user control of water sampler.



Notes:

- Computer, slip-ring-equipped winch, conductive cable, & NMEA 0183 navigation device not supplied by Sea-Bird.
- When used without water sampler, 9plus is deployed in vertical orientation.
- Standard & optional auxiliary sensors on 9plus not shown.

		<ul style="list-style-type: none"> • Version of 11plus in current production is referred to as 11plus V2. • Seasave also supports acquisition of data from a NMEA device connected directly to computer (instead of deck unit). • Serial Data Uplink (9600 Baud Uplink in diagram above) is supported by current version of standard 11plus V2 (which includes water sampler modem channel and serial data interface electronics). It also requires standard water sampler modem channel in 9plus as well as serial data uplink selection in 9plus.
--	--	----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

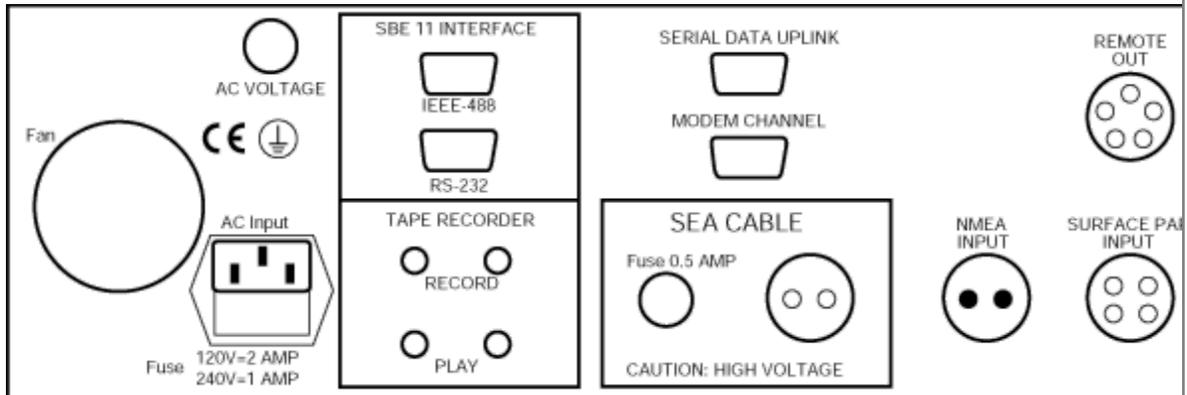
SBE 11plus Power Selections — MUST SELECT ONE

11P.1x	120 VAC	
11P.2x	240 VAC	
11P.3x	EU 240 VAC	

SBE 11plus CTD Connector (for test cable) Selections — MUST SELECT ONE

11P.x1	For SBE 9plus with XSG/AG connectors	This defines the connector on the CTD end of the test cable.
11P.x2	For SBE 9plus with MCBH connectors	

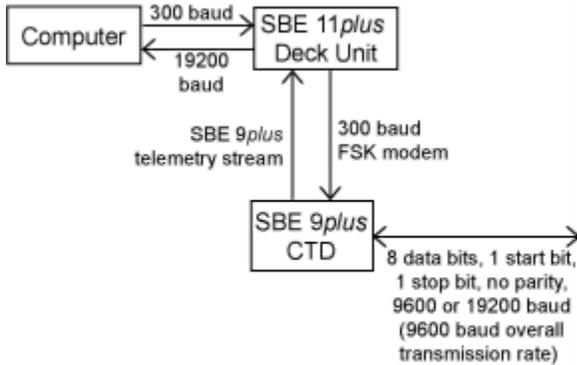
SBE 11plus Spares & Accessories



11plus V2 Back Panel; many of remaining parts relate to connections to back panel

31043	Hardigg Case, AL-2221-0604, White, air tight, breather valve, SS hardware	Hardigg shipping case holds SBE 11plus.
17556 Buy Now	Deck Unit signal input cable (from slip rings to Deck Unit), 10 m (DN 31371)	Pigtail connects Sea Cable on 11plus V2 to slip rings.
17557 Buy Now	Deck Unit signal input cable (from slip rings to Deck Unit), 20 m (DN 31371)	
17841 Buy Now	Deck Unit signal input cable (from slip rings to Deck Unit), 30 m (DN 31371)	
17912 Buy Now	Deck Unit signal input cable (from slip rings to Deck Unit), 50 m (DN 31371)	

50086	2-pin connector, deck unit seacable input	Connects to Sea Cable on 11plus V2. Included with standard shipment; this is spare.
80915 Buy Now	Test cable , 11/33/36 deck unit to 9/32/PDIM, RMG connector, 10 m (DN 31314)	Connects Sea Cable on 11plus V2 to 9plus CTD for testing. Included with standard shipment; these are spares: <ul style="list-style-type: none"> • 80915 for XSG connector on 9plus • 801587 for Wet-pluggable connector on 9plus
801587 Buy Now	Test cable , 11/33/36 Deck Unit to 9/32/PDIM, Wet-pluggable connector, 10 m (DN 32695)	
801422 Buy Now	NMEA Test Cable , DB-9S to MS3106A, SBE 11p/33/36/45, 1.8 m (DN 32786)	Connects NMEA Input on 11plus V2 to computer simulating NMEA input for testing 11plus V2 NMEA interface. Included with standard shipment; this is spare. NMEA simulation program, NMEATest, is part of Seasoft software, & is installed when you install SBE Data Processing .
801429 Buy Now	Remote Data Output Test Cable , DB-9S to MS3106A, 1.8 m (DN 32799)	Connects Remote Out on 11plus V2 to computer to set up Remote Output interface. Cable is included with standard shipment; this is spare.
171887 Buy Now	RS-232 serial cable , DB-9F to DB-9M, 3 m (171887)	Connects SBE 11 Interface (RS-232) or Modem Channel on 11plus V2 to computer COM ports. Two cables included with standard shipment; this is spare.
801367 Buy Now	Cable, QSR/QCR-2200 SPAR to Deck Unit , 15 m (DN 32704)	Connects Surface PAR Input on 11plus V2 to Biospherical Surface PAR sensor.

<p>801368 Buy Now</p>	<p>Cable, QSR/QCR-2200 SPAR to Deck Unit, 30 m (DN 32704)</p>	
<p>171890 Buy Now</p>	<p>RS-232 serial data uplink cable, DB-9P to DB-9S, 3 m</p>	 <p>Null modem cable connects computer to Serial Data Uplink on 11plus V2 back panel. See 171890 for pinouts.</p> <p>300 baud modem for water sampler control (see note below) & Serial Data Uplink selection in 9plus is required to support serial data uplink. Serial data is multiplexed into 9plus telemetry stream & de-multiplexed by 11plus V2, outputting to computer through standard 9600 Baud Uplink connector. System supports use of serial data output instrument & water sampler in same cast.</p> <p>If 19200 baud serial data uplink selected, continuous transmission rate may not exceed 9600 baud (960 bytes/second). Therefore, serial data output instrument must transmit at 19200 baud in burst mode (transmissions separated by intervals with no data transmission, resulting in average rate of 960 bytes/second).</p>

		*Note: 300 baud modem in 9plus & 11plus has been standard since 2005. For older instruments, it was optional.
17015 Buy Now	AC power cord (US Standard), 2 m	One of these (as applicable) as included with standard shipment; this is spare.
17824	AC power cord, European plug , 2 m	
30017	SBE 11plus rack mounting kit (spare)	For mounting 11plus V2 in standard rack. Included with standard shipment; this is spare. See document 67059 .
80673	11plus modem board	
40934C	Receiver Board	
40937C	Digital Board	
20033	Mallory SC628MN alarm buzzer	Alarm sounds based on data from bottom contact switch &/or altimeter connected to 9plus, &/or minimum/maximum user-input pressure values.
22002	Primary power supply (Power One HTAA-16W-A)	
80811	NMEA interface board (V1 deck units only)	

80040	LED display board	11plus V2 front panel provides numeric display of frequency & voltage data via thumbwheel switch & 8-digit LED readout.
20018	Cooling Fan	
80586	11plus sea cable power supply	
19006	Thumbwheel switch	11plus V2 front panel provides numeric display of frequency & voltage data via thumbwheel switch & 8-digit LED readout.