



SBE 37-SM,SMP,SMP-ODO MicroCAT Configurations

Model	37-SM	37-SMP	37-SMP-ODO
Pump	No	Yes	Yes
Dissolved Oxygen Sensor	No	No	Yes
Housing	1 - 350 m (plastic) 3 - 7000 m (titanium)	1 - 350 m (plastic) 3 - 7000 m (titanium)	1 - 350 m (plastic) 3 - 7000 m (titanium)
Pressure Sensor/Range	0 - none 1 - 20 m strain gauge 2 - 100 m strain gauge 3 - 350 m strain gauge 4 - 600 m strain gauge 5 - 1000 m strain gauge 6 - 2000 m strain gauge 7 - 3500 m strain gauge 8 - 7000 m strain gauge	0 - none 1 - 20 m strain gauge 2 - 100 m strain gauge 3 - 350 m strain gauge 4 - 600 m strain gauge 5 - 1000 m strain gauge 6 - 2000 m strain gauge 7 - 3500 m strain gauge 8 - 7000 m strain gauge	0 - none 1 - 20 m strain gauge 2 - 100 m strain gauge 3 - 350 m strain gauge 4 - 600 m strain gauge 5 - 1000 m strain gauge 6 - 2000 m strain gauge 7 - 3500 m strain gauge 8 - 7000 m strain gauge


Connector	1 - XSG 2 - MCBH	1 - XSG 2 - MCBH	1 - XSG 2 - MCBH
Communications	0 - RS-232 1 - RS-485	0 - RS-232 1 - RS-485 2 - SDI-12 (requires MCBH connector)	0 - RS-232 1 - RS-485 2 - RS-232 / SDI-12 (requires MCBH connector)
SBE 63 Optical Dissolved Oxygen	0 - none	0 - none	2 - 600 m 3 - 5000 m 4 - 7000 m

SBE 37-SM MicroCAT C-T (P) Recorder

Example: 37SM.13100 is an SBE 37-SM with 350 m housing, 350 m strain gauge pressure sensor, XSG connector, and RS-232 communications. See table below for description of each selection:

PART #	DESCRIPTION	NOTES


37SM	<p>MicroCAT C and T (pressure optional)</p> <p>Recorder with Serial interface and Memory - Includes mooring clamp, 8 MB Flash memory, serial interface, external power input capability (power plus serial on connector), lithium battery (non-hazardous), AF24173 Anti-Foulant Devices, data/power interface cable (cable may be deleted for credit), Seasoftware, and complete documentation.</p>	<p>37-SM MicroCAT includes:</p> <ul style="list-style-type: none"> • Serial interface • Memory <p>Compare features of the numerous SBE 37 MicroCAT models.</p>
<div>SBE 37-SM Housing (depth) Selections — MUST SELECT ONE</div>		
37SM.1xxx0	350 m plastic housing	

37SM.3xxx 0	7000 m titanium housing	
SBE 37-SM Pressure Sensor Range (depth) Selections — MUST SELECT ONE		
37SM.x0xx 0	No pressure sensor	 <p>Pressure sensor is installed in end cap, & is not field replaceable / swappable. While highest pressure rating gives you most flexibility in using MicroCAT, it is at expense of accuracy & resolution. It is advantageous to 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 2000 & 7000 m sensors:</p> <ul style="list-style-type: none"> 2000 m sensor: initial accuracy = 2 m ($= 0.1\% * 2000 \text{ m}$), resolution = 0.04 m ($= 0.002\% * 2000 \text{ m}$) 7000 m sensor: initial accuracy = 7 m ($= 0.1\% * 7000 \text{ m}$), resolution = 0.14 m ($= 0.002\% * 7000 \text{ m}$)
37SM.x1xx 0	20 m strain gauge pressure sensor	
37SM.x2xx 0	100 m strain gauge pressure sensor	
37SM.x3xx 0	350 m strain gauge pressure sensor	
37SM.x4xx 0	600 m strain gauge pressure sensor	
37SM.x5xx 0	1000 m strain gauge pressure sensor	

37SM.x6xx 0	2000 m strain gauge pressure sensor	
37SM.x7xx 0	3500 m strain gauge pressure sensor	
37SM.x8xx 0	7000 m strain gauge pressure sensor	
SBE 37-SM Connector Selections — MUST SELECT ONE		
37SM.xx1x 0	XSG connector (includes data/power interface cable 801385)	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.


37SM.xx2x0	Wet-pluggable (MCBH) connector (includes data/power interface cable 801206)	 <p>XSG connector on left, Wet-pluggable (MCBH) connector on right</p>
SBE 37-SM Communications Selections— MUST SELECT ONE		
37SM.xxx00	RS-232 serial interface	Note: Each interface version of 37-SM has a separate manual.

<p>37SM.xxx1 0</p>	<p>RS-485 (half duplex ONLY) serial interface</p>	<p>Two-wire, RS-485 interface provides communication with individual 37-SM or with all 37-SMs attached to RS-485 interface. This allows for coordination of sampling among many instruments. However, note that half-duplex communication is one-direction at a time (i.e., you cannot send commands & receive data at same time).</p> <p>Note: Each interface version of 37-SM has a separate manual.</p>
<p>SBE 37-SM Mooring Clamp Wire Size Selections (Specify clamp to match O.D. of mooring wire jacket) — MUST SELECT ONE</p>		

50261.I	Wire guide & mounting clamp for 1/4 in. diameter mooring wire	 <p>Cable fits loosely through wire guide, & is clamped only at mounting clamp. See document 67094. '.I' designation indicates that guide and clamp are to be installed on instrument at factory.</p> <p>Thread for clamping to mooring cable:</p> <ul style="list-style-type: none"> • 1/4 in. diameter: 1/4-28 UNF • 5/16 in./8 mm diameter: 5/16-24 UNF • 3/8 in. diameter: 3/8-24 UNF • 1/2 in. diameter: 9/16-12 UNC • 5/8 in./16 mm diameter: 5/8-18 UNF • 6 mm diameter: 1/4-20 UNF • 8 mm diameter: 5/16-24 UNF • 10 mm diameter: 7/16 -14 UNF • 12 mm diameter: 1/2-13 UNF <p>Clamp Size Note: Mooring wire is typically specified by wire size, not by outer diameter</p>
50263.I	Wire guide & mounting clamp for 5/16 in. or 8 mm diameter mooring wire	
50262.I	Wire guide & mounting clamp for 3/8 in. diameter mooring wire	
50269.I	Wire guide & mounting clamp for 1/2 in. diameter mooring wire	

50267.I	Wire guide & mounting clamp for 6 mm diameter mooring wire	<p>(O.D.) of the mooring wire jacket. Verify the wire jacket O.D. before selecting the clamp size. The clamp size must be less than or equal to the wire jacket O.D. but larger than the wire diameter. For example, Mooring System Inc.’s specifications for 3x19 wire rope (in 2016) are as follows:</p> <table><tr><th>Wire Diameter</th><th>Jacket Diameter</th><th>Recommended Sea-Bird Clamp</th></tr><tr><td>3/16 inch (5.0 mm)</td><td>0.255 inch (6.5 mm)</td><td>1/4 inch</td></tr><tr><td>1/4 inch (6.5 mm)</td><td>0.330 inch (8.4 mm)</td><td>5/16 inch</td></tr><tr><td>5/16 inch (8.0 mm)</td><td>0.392 inch (9.9 mm)</td><td>3/8 inch</td></tr><tr><td>3/8 inch (9.5 mm)</td><td>0.453 inch (11.5 mm)</td><td>10 mm (0.394 inch)</td></tr></table>	Wire Diameter	Jacket Diameter	Recommended Sea-Bird Clamp	3/16 inch (5.0 mm)	0.255 inch (6.5 mm)	1/4 inch	1/4 inch (6.5 mm)	0.330 inch (8.4 mm)	5/16 inch	5/16 inch (8.0 mm)	0.392 inch (9.9 mm)	3/8 inch	3/8 inch (9.5 mm)	0.453 inch (11.5 mm)	10 mm (0.394 inch)
Wire Diameter	Jacket Diameter		Recommended Sea-Bird Clamp														
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5/16 inch (8.0 mm)	0.392 inch (9.9 mm)		3/8 inch														
3/8 inch (9.5 mm)	0.453 inch (11.5 mm)	10 mm (0.394 inch)															
50268.I	Wire guide & mounting clamp for 10 mm diameter mooring wire																
50270.I	Wire guide & mounting clamp for 12 mm diameter mooring wire																
50271.I	Wire guide & mounting clamp for 5/8 in. or 16 mm diameter mooring wire																

		<table> <tr> <td>7/16 inch (11.1 mm)</td><td>0.5 inch (12.7 mm)</td><td>1/2 inch</td></tr> </table> <p>For mounting on a rope, verify the rope outer diameter, and select a clamp smaller than the rope O.D. to account for the rope compressibility (for example, for 5/16 inch rope, select a 1/4 inch clamp; a 5/16 inch clamp will be too large).</p>	7/16 inch (11.1 mm)	0.5 inch (12.7 mm)	1/2 inch
7/16 inch (11.1 mm)	0.5 inch (12.7 mm)	1/2 inch			
50264.I	Alternative mounting - plastic brackets to provide through-bolt mounting to a flat surface	See document 67096 . 'I' designation indicates that brackets are to be installed on instrument at factory.			
SBE 37-SM Spares & Accessories					

801542	AF24173 Anti-Foulant Device pair (spare, bagged, labeled for shipping)	 <p>Anti-foulant devices fit into anti-foulant device cups at each end of conductivity cell. Anti-foulant devices included with standard shipment; these are spares.</p> <p>Useful life varies, depending on several factors. We recommend that customers consider more frequent replacement when high biological activity & strong current flow (greater dilution of anti-foulant concentration) are present. Moored instruments in high growth & strong dilution environments have been known to obtain a few months of quality data, while drifters that operate in non-photoc, less turbid deep ocean environments may achieve years of quality data. Experience may be strongest determining factor in specific deployment environments.</p>
50441	SBE 37 & 44 lithium batteries (spare), package of twelve 3.6V AA cells (Saft LS 14500)	<p>One set of batteries is included with standard shipment; 50441 are spares. Batteries are easily accessed by removing 2 screws from connector end cap & pulling out end cap. Shipping restrictions apply for lithium batteries; see SBE 37-SM manual for details. Click here to buy Saft LS 14500 from Amazon.</p> <p>In 2008, original battery pack was replaced with red top battery holder, which uses 12 AA</p>

801797	Red top battery holder (7V nominal, Version 1) for use with twelve 3.6V AA lithium cells, for SBE 37 (SM, SMP, IM, IMP with firmware version < 4.0) & SBE 44	<p>lithium batteries instead of 50243.1 battery set. See Application Note 89 for details.</p> <p>801797 is battery holder, without batteries.</p> <p>Price for 50442, which includes both battery holder (801797) & batteries (50441), is less than price when ordering battery holder & batteries separately. Sea-Bird is helping to absorb some cost for new battery holders by providing a reduced price.</p> <p>Note: Newer MicroCATs (SMP & IMP with firmware > 4.0, and all IDO & ODO MicroCATs) use a battery pack with a yellow cover plate; the wiring of that pack is different from this one, and cannot be used with SBE 37-SM.</p>
50442	Red top battery holder (7V nominal, Version 1) (PN 801797) and twelve AA lithium cells (PN 50441), for SBE 37 (SM, SMP, IM, IMP with firmware version < 4.0) and SBE 44	



801797 shown
with 50441 cells
installed

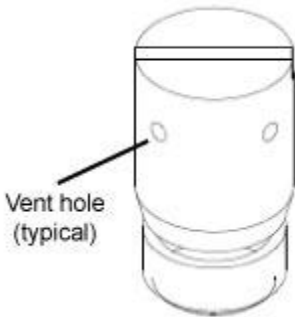
(Note: Cells
cannot be
shipped
installed in
battery holder)




Cells packed in
heat-sealed plastic
(above),
then placed in
bubble-wrap outer
sleeve & strong
packaging for
shipment (below)



233540	Anti-foulant cap without hose barb, black (for use with SBE 37 [SM, SMP, IM, IMP, SI, SIP] with firmware version < 4.0)	<p>Anti-foulant cap holds AF24173 Anti-Foulant Device in place. This cap, without a hose barb, is a spare, and is intended for use during deployment.</p> <p>Note: Do not deploy MicroCAT with barbed anti-foulant device cap(s)!</p>
50087.1	Cell filler/storage device with hose barbs (Application Note 34)	<p>This kit includes a syringe & tubing assembly, & 2 anti-foulant device caps with hose barbs. Remove installed anti-foulant device cap(s) & replace them with caps with hose barbs for cleaning & storage only.</p> <ul style="list-style-type: none"> • Cleaning instructions require use of syringe & tubing assembly at intake end of conductivity cell (requiring 1 barbed cap). • Storage instructions require looping Tygon tubing from end to end of conductivity cell (requiring 2 barbed caps). <p>Do not deploy MicroCAT with barbed anti-foulant device cap(s)!</p>
801385	Data/Power interface cable, RMG-4FS to DB-9S & red/black twisted wire leads, 2.4 m (DN 32277)	Included with standard shipment if 37SM.xx1x0 (XSG connector) selected; this is spare.

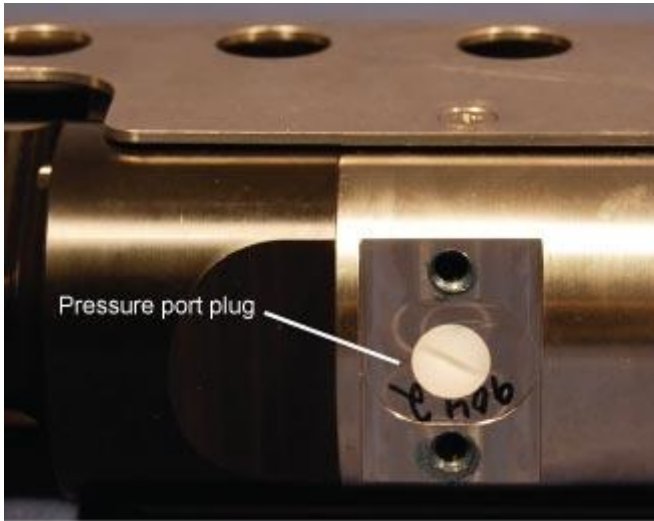
801206	Data/Power interface cable, Wet-Pluggable, MCIL-4FS to DB-9S & red/black twisted wire leads, 2.4 m (DN 32366)	Included with standard shipment if 37SM.xx2x0 (MCBH connector) selected; this is spare.
20200	USB to Serial Port Adapter, FTDI UC232R-10 (connects computers with USB ports to RS-232 instruments)	Many newer PCs & laptop computers have USB port(s) instead of RS-232 serial port(s). USB serial adapter plugs into USB port, & allows a serial device to be connected through adapter. Multi-port adapters are available from other companies; see Application Note 68 .
233186	High-head pressure port plug for muddy/biologically productive environments (Application Note 84), for use with SBE 37 [SM, SMP, IM, IMP, SI, SIP] with firmware version < 4.0	 <p><i>High-Head Pressure Port Plug, Part Number 233186</i></p> <p>This pressure port plug extends beyond surface of instrument end cap, and has 4 horizontal vent holes connecting internally to a vertical vent hole. If you are deploying 37-SM in an orientation close to horizontal, with pressure port up, horizontal</p>

		<p>orientation of vent holes prevents deposit of sediment inside pressure port. Each of the 4 vent holes is larger than single vent hole in standard pressure port plug, significantly reducing possibility that biological growth will cover all holes. See Application Note 84.</p>
31632	<p>Storm Shipping Case (iM2950) - holds up to 4 SBE 37SMs</p>	 <p>Storm shipping case with custom foam inserts holds up to 4 MicroCATs that do not include dissolved oxygen — IMP, IM, SMP, SM, SIP, SI.</p> <ul style="list-style-type: none"> • Injection molded case with HPX resin plastic body, recessed wheels, automatic pressure equalization valve, hinged push-button latches, fold-down padded handle, & O-ring seal. Meets airline luggage regulations. • Inner dimensions: 29 x 18 x 10.5 inches (74 x 46 x 27 cm). • Outer dimensions: 31.3 x 20.4 x 12.2 inches (80 x 52 x 31 cm).

SBE 37-SMP MicroCAT C-T (P) Recorder

Example: 37SMP.13100 is an SBE 37-SMP with 350 m housing, 350 m strain gauge pressure sensor, XSG connector, and RS-232 communications. See table below for description of each selection:

PART #	DESCRIPTION	NOTES
37SMP	MicroCAT C and T (pressure optional) Recorder with Serial interface, Memory and internal Pump - Includes mooring clamp, 8 MB Flash memory, serial interface, external power input capability (power plus serial on connector), lithium battery (non-hazardous), AF24173 Anti-Foulant Devices, data/power interface cable (cable may be deleted for credit), Seasoftware, and	37-SMP MicroCAT includes: <ul style="list-style-type: none">• Serial interface• Memory• internal, integral Pump — pump provides improved conductivity response & improved anti-foul protection over 37-SM Compare features of the numerous SBE 37 MicroCAT models.

	complete documentation.	
SBE 37-SMP Housing (depth) Selections — MUST SELECT ONE		
37SMP.1xxx 0	350 m plastic housing	
37SMP.3xxx 0	7000 m titanium housing	
SBE 37-SMP Pressure Sensor Range (depth) Selections — MUST SELECT ONE		
37SMP.x0xx 0	No pressure sensor	 <p>Pressure sensor is installed in end cap (behind mount clamp), & is not field replaceable / swappable. While highest pressure rating gives you most flexibility in using MicroCAT, it is at expense of accuracy &</p>
37SMP.x1xx 0	20 m strain gauge pressure sensor	
37SMP.x2xx 0	100 m strain gauge pressure sensor	


37SMP.x3xx 0	350 m strain gauge pressure sensor	<p>resolution. It is advantageous to 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 2000 & 7000 m sensors:</p> <ul style="list-style-type: none">• 2000 m sensor: initial accuracy = 2 m (= 0.1% * 2000 m), resolution = 0.04 m (= 0.002% * 2000 m)• 7000 m sensor: initial accuracy = 7 m (= 0.1% * 7000 m), resolution = 0.14 m (= 0.002% * 7000 m)
37SMP.x4xx 0	600 m strain gauge pressure sensor	
37SMP.x5xx 0	1000 m strain gauge pressure sensor	
37SMP.x6xx 0	2000 m strain gauge pressure sensor	
37SMP.x7xx 0	3500 m strain gauge pressure sensor	
37SMP.x8xx 0	7000 m strain gauge pressure sensor	

SBE 37-SMP Connector Selections — MUST SELECT ONE

<p>37SMP.xx1x0</p>	<p>XSG connector (includes data/power interface cable 801385)</p>	<p>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>
<p>37SMP.xx2x0</p>	<p>Wet-pluggable (MCBH) connector (includes data/power interface cable 801206)</p>	

		  <p>XSG connector on left, Wet-pluggable (MCBH) connector on right</p>
SBE 37-SMP Communications Selections— MUST SELECT ONE		
37SMP.xxx00	RS-232 serial interface	Note: Each interface version of 37-SMP has a separate manual.


37SMP.xxx1 0	RS-485 (half duplex ONLY) serial interface	<p>Two-wire, RS-485 interface provides communication with individual 37-SMP or with all 37-SMPs attached to RS-485 interface. This allows for coordination of sampling among many instruments. However, note that half-duplex communication is one-direction at a time (i.e., you cannot send commands & receive data at same time).</p> <p>Note: Each interface version of 37-SMP has a separate manual.</p>
37SMP.xxx2 0	SDI-12 interface (in addition to RS-232 interface); requires MCBH connector	<p>SDI-12 interface is in addition to RS-232 interface. Instrument can be set up via RS-232, using full set of commands, and then a more limited set of commands can be sent via SDI-12 to make small setup changes in the field.</p> <p>Note: Each interface version of 37-SMP has a separate manual.</p>
<div data-bbox="217 1297 1372 1394"> <p>SBE 37-SMP Mooring Clamp Wire Size Selections (Specify clamp to match O.D. of mooring wire jacket) — MUST SELECT ONE</p> </div>		

50465.I	Wire guide & mounting clamp for 1/4 in. diameter mooring wire	 <p>Mounting Clamp. 37-SMP clamped to mooring cable here.</p> <p>Wire Guide. Cable goes through here but is not clamped, to avoid putting through tension on end cap (which could pull off end cap).</p> <p>Cable fits loosely through wire guide, & is clamped only at mounting clamp. See document 67219. '.I' designation indicates that guide and clamp are to be installed on instrument at factory.</p> <p>Thread for clamping to mooring cable:</p> <ul style="list-style-type: none"> • 1/4 in. diameter: 1/4-28 UNF • 5/16 in./8 mm diameter: 5/16-24 UNF • 3/8 in. diameter: 3/8-24 UNF • 1/2 in. diameter: 9/16-12 UNC • 5/8 in./16 mm diameter: 5/8-18 UNF • 6 mm diameter: 1/4-20 UNF • 10 mm diameter: 7/16 -14 UNF • 12 mm diameter: 1/2-13 UNF
50469.I	Wire guide & mounting clamp for 5/16 in. or 8 mm diameter mooring wire	
50470.I	Wire guide & mounting clamp for 3/8 in. diameter mooring wire	
50473.I	Wire guide & mounting clamp for 1/2 in. diameter mooring wire	

50467.I	Wire guide & mounting clamp for 6 mm diameter mooring wire	Clamp Size Note: Mooring wire is typically specified by wire size, not by outer diameter (O.D.) of the mooring wire jacket. Verify the wire jacket O.D. before selecting the clamp size. The clamp size must be less than or equal to the wire jacket O.D. but larger than the wire diameter. For example, Mooring System Inc.’s specifications for 3x19 wire rope (in 2016) are as follows:
50471.I	Wire guide & mounting clamp for 10 mm diameter mooring wire	
50474.I	Wire guide & mounting clamp for 12 mm diameter mooring wire	
50476.I	Wire guide & mounting clamp for 5/8 in. or 16 mm diameter mooring wire	


Wire Diameter	Jacket Diameter	Recommended Sea-Bird Clamp
3/16 inch (5.0 mm)	0.255 inch (6.5 mm)	1/4 inch
1/4 inch (6.5 mm)	0.330 inch (8.4 mm)	5/16 inch
5/16 inch (8.0 mm)	0.392 inch (9.9 mm)	3/8 inch
3/8 inch (9.5 mm)	0.453 inch	10 mm (0.394 inch)

		<table> <tr> <td></td><td>(11.5 mm)</td><td></td></tr> <tr> <td>7/16 inch (11.1 mm)</td><td>0.5 inch (12.7 mm)</td><td>1/2 inch</td></tr> </table> <p>For mounting on a rope, verify the rope outer diameter, and select a clamp smaller than the rope O.D. to account for the rope compressibility (for example, for 5/16 inch rope, select a 1/4 inch clamp; a 5/16 inch clamp will be too large).</p>		(11.5 mm)		7/16 inch (11.1 mm)	0.5 inch (12.7 mm)	1/2 inch
	(11.5 mm)							
7/16 inch (11.1 mm)	0.5 inch (12.7 mm)	1/2 inch						
50479.I	Alternative mounting - plastic brackets to provide through-bolt mounting to a flat surface	See document 67218. 'I' designation indicates that brackets are to be installed on instrument at factory.						
SBE 37-SMP Spares & Accessories								

801542	AF24173 Anti-Foulant Device pair (spare, bagged, labeled for shipping)	 <p>Anti-foulant devices fit into anti-foulant device cups at each end of conductivity cell. Anti-foulant devices included with standard shipment; these are spares.</p> <p>Useful life varies, depending on several factors. We recommend that customers consider more frequent replacement when high biological activity & strong current flow (greater dilution of anti-foulant concentration) are present. Moored instruments in high growth & strong dilution environments have been known to obtain a few months of quality data, while drifters that operate in non-photic, less turbid deep ocean environments may achieve years of quality data. Experience may be strongest determining factor in specific deployment environments.</p>
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50441	SBE 37 & 44 lithium batteries (spare), package of twelve 3.6V AA cells (Saft LS 14500)	<p>One set of batteries is included with standard shipment; 50441 are spares. Batteries are easily accessed by removing 2 screws from connector end cap & pulling out end cap. Shipping restrictions apply for lithium batteries; see SBE 37-SMP manual for details. Click here to buy Saft LS 14500 from Amazon.</p> <p>801863 is battery holder, without batteries. Battery holder is included with standard shipment; this is a spare.</p> <p>Note: Older MicroCATs use a battery pack with a red cover plate (see 50442 below); wiring of that pack is different from this one, and cannot be used with 37-SMP MicroCATs with firmware version ≥ 4.0.</p>
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<p>801863</p>	<p>Yellow top battery holder (14V nominal, Version 2) for use with twelve 3.6V AA lithium cells, for pumped SBE 37 (SMP & IMP with firmware version > 4.0 & all SMP-ODO, IMP-ODO, SMP-IDO, & IMP-IDO)</p>	<div data-bbox="782 275 1044 963" data-label="Image"> </div> <div data-bbox="777 1003 992 1123" data-label="Caption"> <p>801863 shown with 50441 cells installed</p> </div> <div data-bbox="777 1159 935 1281" data-label="Text"> <p>(Note: Cells cannot be shipped</p> </div> <div data-bbox="777 1314 976 1392" data-label="Text"> <p>installed in battery holder)</p> </div> <div data-bbox="1076 275 1369 436" data-label="Image"> </div> <div data-bbox="1073 451 1325 844" data-label="Caption"> <p>Cells packed in heat-sealed plastic (above), then placed in bubble-wrap outer sleeve & strong packaging for shipment (below)</p> </div> <div data-bbox="1076 879 1369 1192" data-label="Image"> </div>
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801797	Red top battery holder (7V nominal, Version 1) for use with twelve 3.6V AA lithium cells, for SBE 37 (SM, SMP, IM, IMP with firmware version < 4.0) & SBE 44	
50442	Red top battery holder (7V nominal, Version 1) (PN 801797) and twelve AA lithium cells (PN 50441), for SBE 37 (SM, SMP, IM, IMP with firmware version < 4.0) and SBE 44	 <p>In 2008, original battery pack was replaced with red top battery holder, which uses 12 AA lithium batteries instead of 50243.1 battery set. See Application Note 89 for details.</p> <p>801797 is battery holder, without batteries.</p> <p>Price for 50442, which includes both battery holder (801797) & batteries (50441), is less than price when ordering battery holder & batteries separately. Sea-Bird is helping to absorb some cost for new battery holders by providing a reduced price.</p> <p>Note: Newer MicroCATs use a battery pack with a yellow cover plate (see above); wiring of that pack is different from this one, and cannot be used with 37-SMP MicroCATs with firmware version < 4.0.</p>

233540	Anti-foulant cap without hose barb, black (for use with SBE 37 [SM, SMP, IM, IMP, SI, SIP] with firmware version < 4.0)	Anti-foulant cap holds AF24173 Anti-Foulant Device in place. Note: Anti-Foulant Devices are held in place by conductivity cell guard in newer 37-SMPs (firmware version > 4.0).
801385	Data/Power interface cable, RMG-4FS to DB-9S & red/black twisted wire leads, 2.4 m (DN 32277)	Included with standard shipment if 37SMP.xx1x0 (XSG connector) and 37SMP.xxx00 or 37SMP.xxx10 (RS-232 or RS-485 interface) selected; this is spare.
801206	Data/Power interface cable, Wet-Pluggable, MCIL-4FS to DB-9S & red/black twisted wire leads, 2.4 m (DN 32366)	Included with standard shipment if 37SMP.xx2x0 (MCBH connector) and 37SMP.xxx00 or 37SMP.xxx10 (RS-232 or RS-485 interface) selected; this is spare.

802220	Data/Power interface cable for RS-232 and SDI-12 interface, Wet-pluggable, MCIL-6FS to DB-9S & red/black twisted wire leads, 2.4 m (DN 33733)	Included with standard shipment if 37SMP.xx2x0 (MCBH connector) and 37SMP.xxx20 (SDI-12 interface) selected; this is spare.
20200	USB to Serial Port Adapter, FTDI UC232R-10 (connects computers with USB ports to RS-232 instruments)	Many newer PCs & laptop computers have USB port(s) instead of RS-232 serial port(s). USB serial adapter plugs into USB port, & allows a serial device to be connected through adapter. Multi-port adapters are available from other companies; see Application Note 68 .

233186	<p>High-head pressure port plug for muddy/biologically productive environments (Application Note 84), for use with SBE 37 [SM, SMP, IM, IMP, SI, SIP] with firmware version < 4.0</p>	<div data-bbox="764 247 1057 567" data-label="Image"> </div> <p data-bbox="850 594 1081 678"><i>High-Head Pressure Port Plug,</i> Part Number 233186</p> <p data-bbox="745 657 1372 1226">This pressure port plug extends beyond surface of instrument end cap, and has 4 horizontal vent holes connecting internally to a vertical vent hole. If you are deploying 37-SMP in an orientation close to horizontal, with pressure port up, horizontal orientation of vent holes prevents deposit of sediment inside pressure port. Each of the 4 vent holes is larger than single vent hole in standard pressure port plug, significantly reducing possibility that biological growth will cover all holes. See Application Note 84.</p> <p data-bbox="745 1329 1341 1493">Note: High-head pressure port plug is not compatible with newer 37-SMPs (firmware version > 4.0), because pressure port plug is behind mount clamp.</p>
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31632	<p>Storm Shipping Case (iM2950) - holds up to 4 SBE 37SMPs</p>	<div data-bbox="753 245 1252 833" data-label="Image"> </div> <p>Storm shipping case with custom foam inserts holds up to 4 MicroCATs that do not include dissolved oxygen — IMP, IM, SMP, SM, SIP, SI.</p> <ul style="list-style-type: none"> • Injection molded case with HPX resin plastic body, recessed wheels, automatic pressure equalization valve, hinged push-button latches, fold-down padded handle, & O-ring seal. Meets airline luggage regulations. • Inner dimensions: 29 x 18 x 10.5 inches (74 x 46 x 27 cm). • Outer dimensions: 31.3 x 20.4 x 12.2 inches (80 x 52 x 31 cm).
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SBE 37-SMP-ODO MicroCAT C-T-DO (P) Recorder

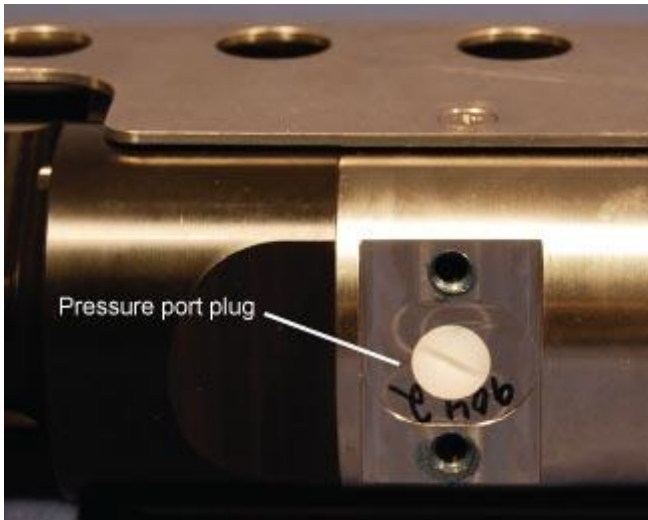
Example: 37SMP.13102 is an SBE 37-SMP-ODO with 350 m housing, 350 m strain gauge pressure sensor, XSG connector, RS-232 communications, and integrated SBE 63 Optical Dissolved Oxygen Sensor with DO sensor rated to 600 m. See table below for description of each selection:

PART #	DESCRIPTION	NOTES
37SMP-ODO	<p>MicroCAT C and T (pressure optional) Recorder with Integrated SBE 63 Optical Dissolved Oxygen sensor (ODO), Serial interface, Memory and internal Pump - Includes mooring clamp, 8 MB Flash memory, serial interface, external power input capability (power plus serial on connector), lithium battery (non-hazardous), AF24173 Anti-Foulant Devices, data/power interface cable (cable may be deleted for credit), Seasoftware, and complete documentation.</p>	<p>37-SMP-ODO MicroCAT includes:</p> <ul style="list-style-type: none"> • Serial interface • Memory • internal, integral Pump • integrated Optical Dissolved Oxygen sensor <p>Compare features of the numerous SBE 37 MicroCAT models.</p>

SBE 37-SMP-ODO Housing (depth) Selections — MUST SELECT ONE

37SMP.1xxx x	350 m plastic housing	
37SMP.3xxx x	7000 m titanium housing	

SBE 37-SMP-ODO Pressure Sensor Range (depth) Selections — MUST SELECT ONE

37SMP.x0xx x	No pressure sensor	 <p>Pressure sensor is installed in end cap (behind mount clamp), & is not field replaceable / swappable. While highest pressure rating gives you most flexibility in using MicroCAT, it is at expense of accuracy & resolution. It is advantageous to use lowest range pressure sensor compatible with your intended maximum operating depth, because accuracy & resolution are proportional to</p>
37SMP.x1xx x	20 m strain gauge pressure sensor	
37SMP.x2xx x	100 m strain gauge pressure sensor	
37SMP.x3xx x	350 m strain gauge pressure sensor	


37SMP.x4xx x	600 m strain gauge pressure sensor	<p>pressure sensor's full scale range. For example, comparing 2000 & 7000 m sensors:</p> <ul style="list-style-type: none">2000 m sensor: initial accuracy = 2 m (= 0.1% * 2000 m), resolution = 0.04 m (= 0.002% * 2000 m)7000 m sensor: initial accuracy = 7 m (= 0.1% * 7000 m), resolution = 0.14 m (= 0.002% * 7000 m)
37SMP.x5xx x	1000 m strain gauge pressure sensor	
37SMP.x6xx x	2000 m strain gauge pressure sensor	
37SMP.x7xx x	3500 m strain gauge pressure sensor	
37SMP.x8xx x	7000 m strain gauge pressure sensor	

SBE 37-SMP-ODO Connector Selections — MUST SELECT ONE

<p>37SMP.xx1x x</p>	<p>XSG connector (includes data/power interface cable 801385)</p>	<p>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>
<p>37SMP.xx2x x</p>	<p>Wet-pluggable (MCBH) connector (includes data/power interface cable 801206)</p>	


		  <p>XSG connector on left, Wet-pluggable (MCBH) connector on right</p>
SBE 37-SMP-ODO Communications Selections— MUST SELECT ONE		
37SMP.xxx0 x	RS-232 serial interface	Note: Each interface version of 37-SMP-ODO has a separate manual.

37SMP.xxx1 x	RS-485 (half duplex ONLY) serial interface	<p>Two-wire, RS-485 interface provides communication with individual 37-SMP-ODO or with all 37-SMP-ODOs attached to RS-485 interface. This allows for coordination of sampling among many instruments. However, note that half-duplex communication is one-direction at a time (i.e., you cannot send commands & receive data at same time).</p> <p>Note: Each interface version of 37-SMP-ODO has a separate manual.</p>
37SMP.xxx2 x	SDI-12 interface (in addition to RS-232 interface); requires MCBH connector	<p>SDI-12 interface is in addition to RS-232 interface. Instrument can be set up via RS-232, using full set of commands, and then a more limited set of commands can be sent via SDI-12 to make small setup changes in the field.</p> <p>Note: Each interface version of 37-SMP-ODO has a separate manual.</p>
<div>SBE 37-SMP-ODO Optical Dissolved Oxygen Sensor Selections— MUST SELECT ONE</div>		
37SMP.xxxx 2	600 meter	
37SMP.xxxx 3	5000 meter	

37SMP.xxxx 4	7000 meter	
SBE 37-SMP-ODO Mooring Clamp Wire Size Selections (Specify clamp to match O.D. of mooring wire jacket) — MUST SELECT ONE		
50465.I	Wire guide & mounting clamp for 1/4 in. diameter mooring wire	 <p>Mounting Clamp 37-SMP-ODO clamped to mooring cable here.</p> <p>Wire Guide Cable goes through here but is not clamped, to avoid putting tension on end cap (which could pull off end cap).</p> <p>37-SMP-ODO shown; mooring clamp detail for 37-SMP-ODO identical</p>
50469.I	Wire guide & mounting clamp for 5/16 in. or 8 mm diameter mooring wire	
50470.I	Wire guide & mounting clamp for 3/8 in. diameter mooring wire	

50473.I	Wire guide & mounting clamp for 1/2 in. diameter mooring wire	<p>Cable fits loosely through wire guide, & is clamped only at mounting clamp. See document 67219. 'I' designation indicates that guide and clamp are to be installed on instrument at factory.</p> <p>Thread for clamping to mooring cable:</p> <ul style="list-style-type: none"> • 1/4 in. diameter: 1/4-28 UNF • 5/16 in./8 mm diameter: 5/16-24 UNF • 3/8 in. diameter: 3/8-24 UNF • 1/2 in. diameter: 9/16-12 UNC • 5/8 in./16 mm diameter: 5/8-18 UNF • 6 mm diameter: 1/4-20 UNF • 10 mm diameter: 7/16 -14 UNF • 12 mm diameter: 1/2-13 UNF 						
50467.I	Wire guide & mounting clamp for 6 mm diameter mooring wire							
50471.I	Wire guide & mounting clamp for 10 mm diameter mooring wire	<p>Clamp Size Note: Mooring wire is typically specified by wire size, not by outer diameter (O.D.) of the mooring wire jacket. Verify the wire jacket O.D. before selecting the clamp size. The clamp size must be less than or equal to the wire jacket O.D. but larger than the wire diameter. For example, Mooring System Inc.'s specifications for 3x19 wire rope (in 2016) are as follows:</p>						
50474.I	Wire guide & mounting clamp for 12 mm diameter mooring wire	<table> <tr> <th>Wire Diameter</th><th>Jacket Diameter</th><th>Recommended Sea-Bird Clamp</th></tr> <tr> <td>3/16 inch (5.0 mm)</td><td>0.255 inch (6.5 mm)</td><td>1/4 inch</td></tr> </table>	Wire Diameter	Jacket Diameter	Recommended Sea-Bird Clamp	3/16 inch (5.0 mm)	0.255 inch (6.5 mm)	1/4 inch
Wire Diameter	Jacket Diameter	Recommended Sea-Bird Clamp						
3/16 inch (5.0 mm)	0.255 inch (6.5 mm)	1/4 inch						

50476.I	Wire guide & mounting clamp for 5/8 in. or 16 mm diameter mooring wire	<table border="1"> <tr> <td data-bbox="748 222 927 457">1/4 inch (6.5 mm)</td><td data-bbox="927 222 1105 457">0.330 inch (8.4 mm)</td><td data-bbox="1105 222 1369 457">5/16 inch</td></tr> <tr> <td data-bbox="748 457 927 693">5/16 inch (8.0 mm)</td><td data-bbox="927 457 1105 693">0.392 inch (9.9 mm)</td><td data-bbox="1105 457 1369 693">3/8 inch</td></tr> <tr> <td data-bbox="748 693 927 978">3/8 inch (9.5 mm)</td><td data-bbox="927 693 1105 978">0.453 inch (11.5 mm)</td><td data-bbox="1105 693 1369 978">10 mm (0.394 inch)</td></tr> <tr> <td data-bbox="748 978 927 1220">7/16 inch (11.1 mm)</td><td data-bbox="927 978 1105 1220">0.5 inch (12.7 mm)</td><td data-bbox="1105 978 1369 1220">1/2 inch</td></tr> </table> <p>For mounting on a rope, verify the rope outer diameter, and select a clamp smaller than the rope O.D. to account for the rope compressibility (for example, for 5/16 inch rope, select a 1/4 inch clamp; a 5/16 inch clamp will be too large).</p>	1/4 inch (6.5 mm)	0.330 inch (8.4 mm)	5/16 inch	5/16 inch (8.0 mm)	0.392 inch (9.9 mm)	3/8 inch	3/8 inch (9.5 mm)	0.453 inch (11.5 mm)	10 mm (0.394 inch)	7/16 inch (11.1 mm)	0.5 inch (12.7 mm)	1/2 inch
1/4 inch (6.5 mm)	0.330 inch (8.4 mm)	5/16 inch												
5/16 inch (8.0 mm)	0.392 inch (9.9 mm)	3/8 inch												
3/8 inch (9.5 mm)	0.453 inch (11.5 mm)	10 mm (0.394 inch)												
7/16 inch (11.1 mm)	0.5 inch (12.7 mm)	1/2 inch												
50479.I	Alternative mounting - plastic brackets to provide through-bolt	See document 67218. 'I' designation indicates that brackets are to be installed on instrument at factory.												

	mounting to a flat surface	
SBE 37-SMP-ODO Spares & Accessories		
801542	AF24173 Anti-Foulant Device pair (spare, bagged, labeled for shipping)	 <p>AF24173 Anti-Foulant Device</p> <p>Anti-foulant devices fit into anti-foulant device cups at each end of conductivity cell. Anti-foulant devices included with standard shipment; these are spares.</p> <p>Useful life varies, depending on several factors. We recommend that customers consider more frequent replacement when high biological activity & strong current flow (greater dilution of anti-foulant concentration) are present. Moored instruments in high growth & strong dilution environments have been known to obtain a few months of quality data, while drifters that operate in non-photic, less turbid deep ocean environments may achieve years of quality data. Experience may be strongest determining factor in specific deployment environments.</p>

50441	SBE 37 & 44 lithium batteries (spare), package of twelve 3.6V AA cells (Saft LS 14500)	<p>One set of batteries is included with standard shipment; 50441 are spares. Batteries are easily accessed by removing 2 screws from connector end cap & pulling out end cap. Shipping restrictions apply for lithium batteries; see SBE 37-SMP-ODO manual for details. Click here to buy Saft LS 14500 from Amazon.</p> <p>801863 is battery holder, without batteries. Battery holder is included with standard shipment; this is a spare.</p> <p>Note: Other MicroCATs use a battery pack with a red cover plate; the wiring of that pack is different from this one, and cannot be used with ODO MicroCATs (37-IMP-ODO or 37-SMP-ODO).</p>
801863	Yellow top battery holder (14V nominal, Version 2) for use with twelve 3.6V AA lithium cells, for pumped SBE 37 (SMP & IMP with firmware version > 4.0 & all SMP-ODO, IMP-ODO, SMP-IDO, & IMP-IDO)	

		<div data-bbox="781 275 1042 961" data-label="Image"> </div> <div data-bbox="1073 275 1367 434" data-label="Image"> </div> <div data-bbox="1062 447 1328 842" data-label="Text"> <p>Cells packed in heat-sealed plastic (above), then placed in bubble-wrap outer sleeve & strong packaging for shipment (below)</p> </div> <div data-bbox="771 999 993 1121" data-label="Text"> <p>801863 shown with 50441 cells installed</p> </div> <div data-bbox="771 1152 937 1278" data-label="Text"> <p>(Note: Cells cannot be shipped</p> </div> <div data-bbox="771 1308 977 1390" data-label="Text"> <p>installed in battery holder)</p> </div> <div data-bbox="1073 877 1367 1190" data-label="Image"> </div>
801385	Data/Power interface cable, RMG-4FS to DB-9S & red/black twisted	Included with standard shipment if 37SMP.xx1xx (XSG connector) and 37SMP.xxx0x or 37SMP.xxx1x (RS-232 or RS-485 interface) selected; this is spare.

	<p>wire leads, 2.4 m (DN 32277)</p>	
801206	<p>Data/Power interface cable, Wet-Pluggable, MCIL-4FS to DB-9S & red/black twisted wire leads, 2.4 m (DN 32366)</p>	<p>Included with standard shipment if 37SMP.xx2xx (MCBH connector) and 37SMP.xxx0x or 37SMP.xxx1x (RS-232 or RS-485 interface) selected; this is spare.</p>
802220	<p>Data/Power interface cable for RS-232 and SDI-12 interface, Wet-pluggable, MCIL-6FS to DB-9S & red/black twisted wire leads, 2.4 m (DN 33733)</p>	<p>Included with standard shipment if 37SMP.xx2xx (MCBH connector) and 37SMP.xxx2x (SDI-12 interface) selected; this is spare.</p>
20200	<p>USB to Serial Port Adapter, FTDI UC232R-10 (connects computers with USB ports to RS-232 instruments)</p>	<p>Many newer PCs & laptop computers have USB port(s) instead of RS-232 serial port(s). USB serial adapter plugs into USB port, & allows a serial device to be connected through adapter. Multi-port adapters are available from other companies; see Application Note 68.</p>

<p>31632</p>	<p>Storm Shipping Case (iM2950) - holds up to 3 SBE 37SMP-ODOs</p>	<div data-bbox="751 365 1252 953" data-label="Image"> </div> <p>Case holds only 3 ODO MicroCATs (photo shows 4 non-ODO MicroCATs)</p>
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