



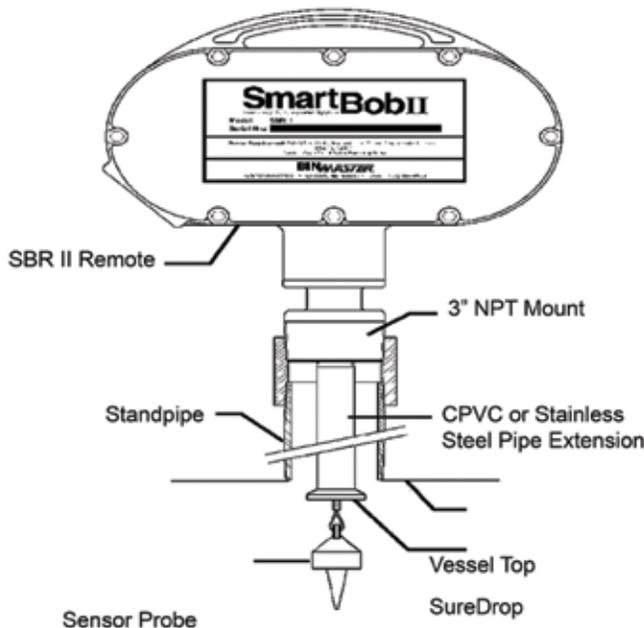
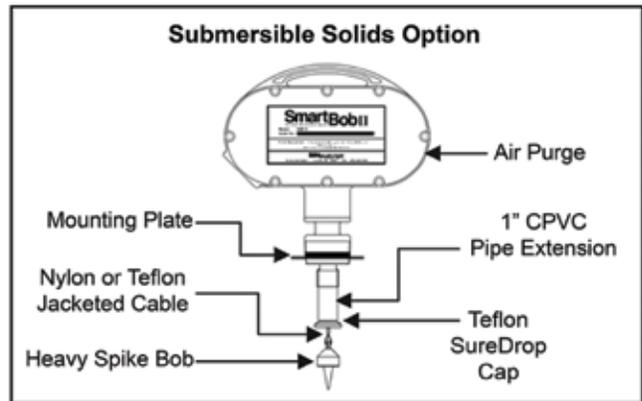
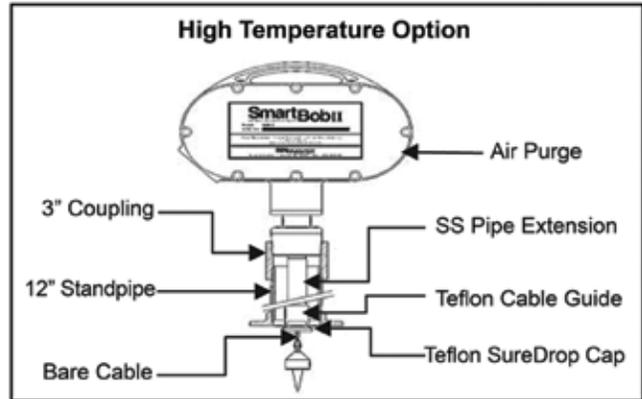
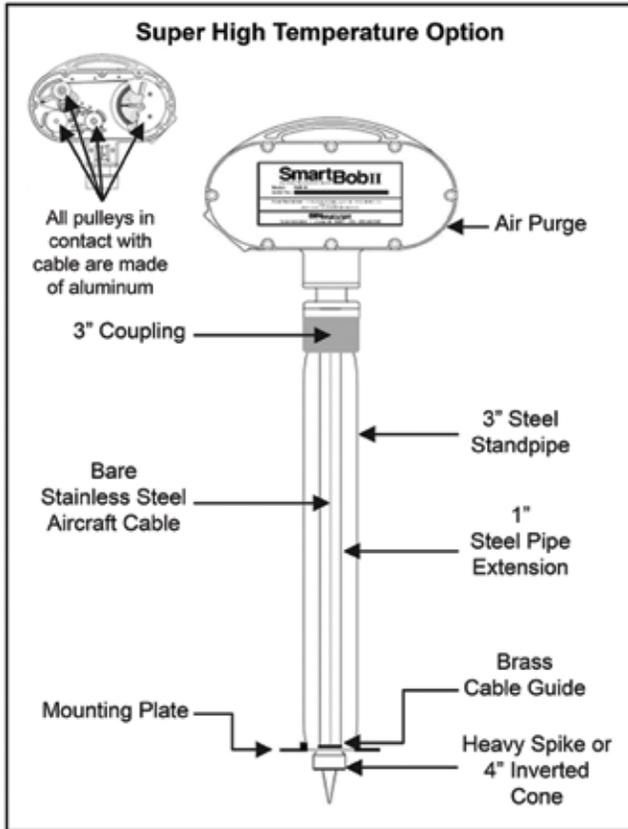
### SmartBob II

The SmartBob II is a reliable level measurement system using cable-based sensing technology. SmartBob II can be uniquely configured using a variety of cables, probe designs, and special options for solid, slurry, brine, and liquid applications. Long-lasting, hassle-free service is ensured by SmartBob's cable cleaning system. SmartBob II is extremely rugged, featuring the industry's strongest cable and motor design completely sealed in a strong, lightweight molded polycarbonate enclosure which is explosion proof and rated for Class II, Groups E, F & G certifications.

Description	CODE
<b>BASE</b>	
SBR II 115 - Microprocessor-driven SmartBob II remote sensor, 115 VAC, corrosion-resistant polycarbonate enclosure, air inlet port, hazardous location approved, C/US listed for Class II, Groups E, F, G	SBR.1
SBR II 230 - Microprocessor-driven SmartBob II remote sensor, 230 VAC, corrosion-resistant polycarbonate enclosure, air inlet port, hazardous location approved, C/US listed for Class II, Groups E, F, G	SBR.2
SBR AO 115 - Microprocessor-driven SmartBob2 AO remote sensor, 115 VAC, corrosion-resistant polycarbonate enclosure with integrated 4-20 mA output. The SmartBob AO is a stand-alone analog transmitter that includes automatic measurement initiation and two configurable relay outputs.	SBA.1
SBR AO 230 - Microprocessor-driven SmartBob2 AO remote sensor, 230 VAC, corrosion-resistant polycarbonate enclosure with integrated 4-20 mA output. The SmartBob AO is a stand-alone analog transmitter that includes automatic measurement initiation and two configurable relay outputs.	SBA.2
<b>PROBE</b>	
B1 - stainless steel heavy spike bob probe	A
B2 - 416 stainless steel heavy spike bob probe	B
B3 - Weighted 4" Stainless steel inverted cone for light solids	C
B4 - Hollow 6" stainless steel inverted cone for liquid applications	D
B5 - Plastic digestible bottle 32 oz. filled with paraffin wax	E
B6 - Plastic digestible bottle empty, to be filled with 32 oz. of material in field	F
B9 - 6" stainless steel sphere float for liquid, slurry, and light powder applications	I
B11 - Glass spike bob filled with 32 oz. sand	K
B12 - Plastic digestible bottle 32 oz. wax & stainless steel balls	L
B13 - 6" stainless steel Teflon-coated sphere float for liquid, slurry, and light powder applications	M
B14 - Teflon-coated stainless steel heavy spike bob probe	N
<b>CABLE TYPE</b>	
C1 - ft. of Nylon jacketed 7 x 19 stainless steel cable for temperatures up to 250°F with 270 lb. tensile strength and SureDrop system	1
C2 - ft. of Teflon jacketed 7 x 19 stainless steel cable for temperatures up to 500°F with 270 lb. tensile strength and SureDrop system	2
C3 - ft. of bare 7 x 19 stainless steel cable for temperatures up to 1,000°F with 270 lb. tensile strength and SureDrop system	3
C5 - ft. of FDA approved Nylon jacketed 7 x 19 stainless steel cable for temperatures up to 250°F with 270 lb. tensile strength and SureDrop system	5
<b>MOUNTING PLATE</b>	
M1 - 0° Mounting plate, 3" NPT, powder coated malleable iron, 5.18" diameter bolt circle	M1
M2 - 0° Mounting plate, 3" NPT, powder coated carbon steel, 7" diameter bolt circle	M2
M3 - 5° Mounting plate, 3" NPT, powder coated carbon steel, 7" diameter bolt circle	M3
M4 - 10° Mounting plate, 3" NPT, powder coated carbon steel, 7" diameter bolt circle	M4
M6 - 15° Mounting plate, 3" NPT, powder coated carbon steel, 7" diameter bolt circle	M6

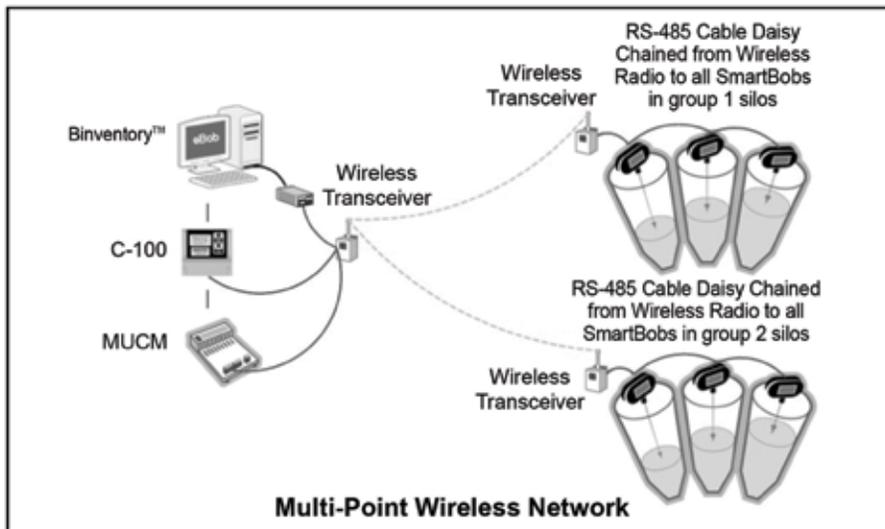
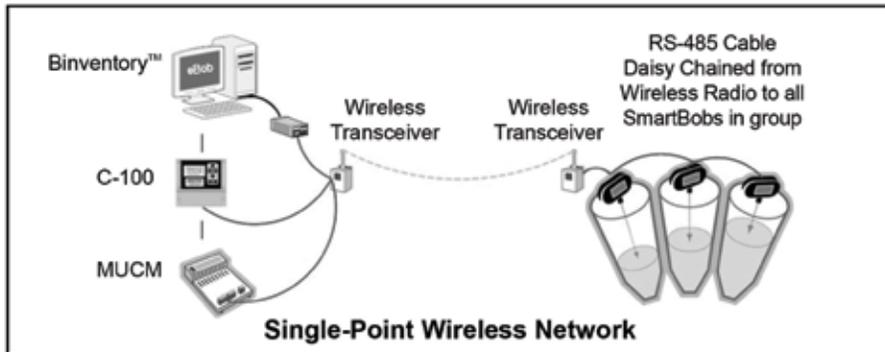
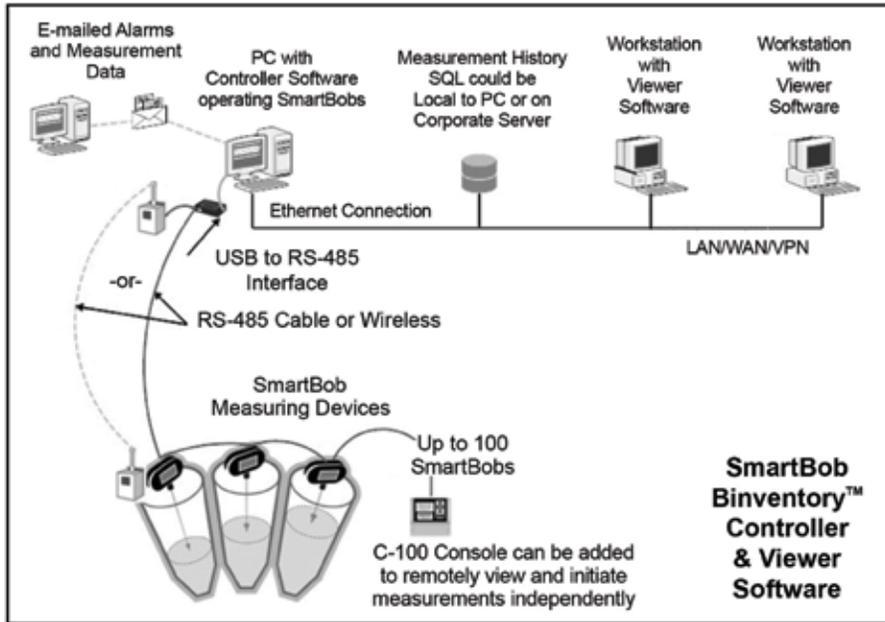
Description	CODE
M7 - 20° Mounting plate, 3" NPT, powder coated carbon steel, 7" diameter bolt circle	M7
M8 - 24° Mounting plate, 3" NPT, powder coated carbon steel, 7" diameter bolt circle	M8
M5 - 30° Mounting plate, 3" NPT, powder coated carbon steel, 7" diameter bolt circle	M5
M10 - 35° Mounting plate, 3" NPT, powder coated carbon steel, 7" diameter bolt circle	M10
M9 - 40° Mounting plate, 3" NPT, powder coated carbon steel, 7" diameter bolt circle	M9
<b>HEATER</b>	
H - 115 VAC Gear box heater for SBR	H
H2 - 230 VAC Gear box heater for SBR	H
<b>OPTIONS</b>	
HT - SmartBob II high temperature option for process temperatures above 250°F and not to exceed 500°F. Includes a 12" long, 3" diameter galvanized pipe standoff to extend the remote sensor away from heat source, a 1" stainless steel pipe extension fitted with a Teflon cable guide keeps the sensor probe out of the standpipe and level with the vessel top.	T
SHT - SmartBob II super high temperature option for process temperatures above 500°F not to exceed 1000°F. Includes a 36" long, 3" diameter galvanized pipe standoff to extend the remote sensor away from heat source, a 1-1/4" galvanized pipe extension fitted with a bronze cable guide keeps the sensor probe out of the standpipe and level with the vessel top. All Delrin pulleys are replaced with aluminum pulleys in the super high temperature option.	S
SS - SmartBob II submersible solids option lowers a weighted heavy stainless steel spike bob from the top of a vessel through the liquid to measure the submersed solids in the liquid. Includes a 1" CPVC pipe extension.	B
HM - SmartBob II horizontal mounting option	H
<b>PIPE EXTENSIONS</b>	
SBPE-1 - Pipe Extension - 1" CPVC. Available in 6" minimum to 60" maximum length	V
SBPE-2 - Pipe Extension - 1" stainless steel. Available in 6" minimum to 60" maximum length	S

## SmartBob II Remote Options

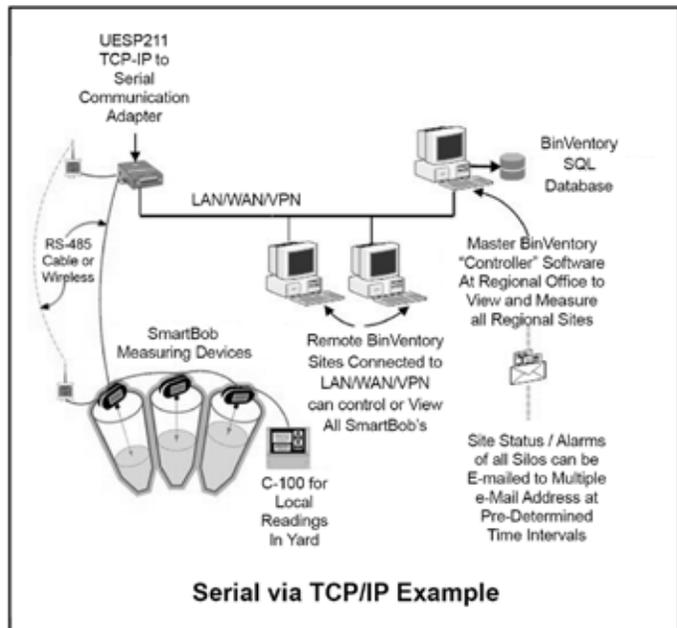
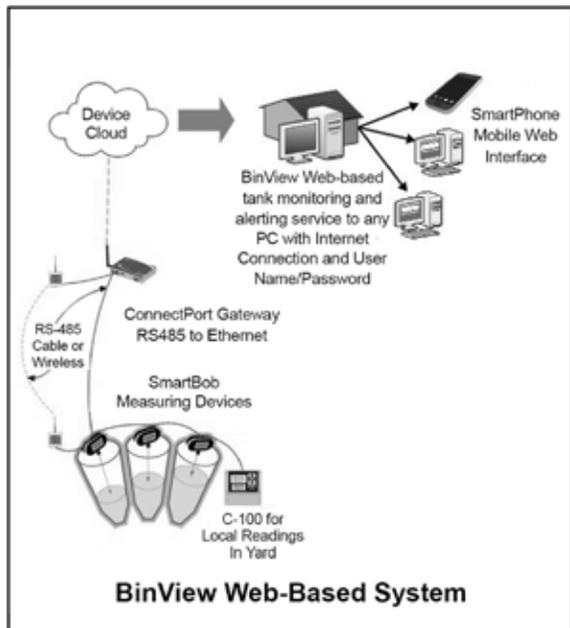
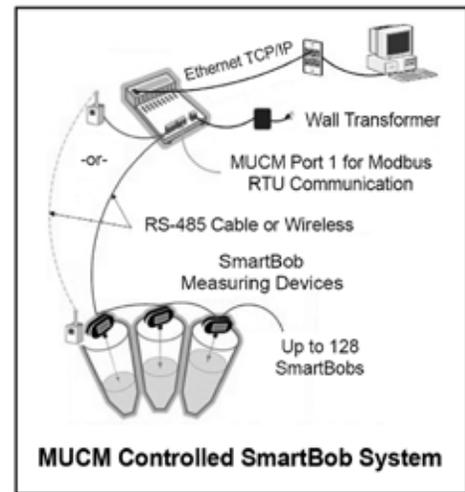
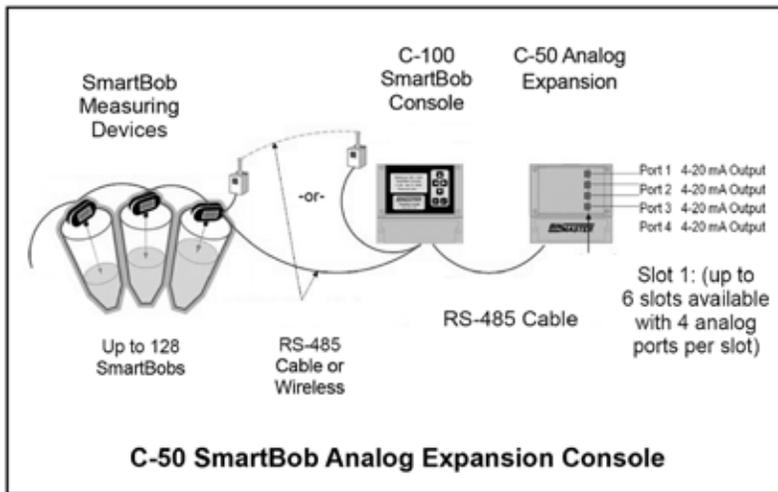
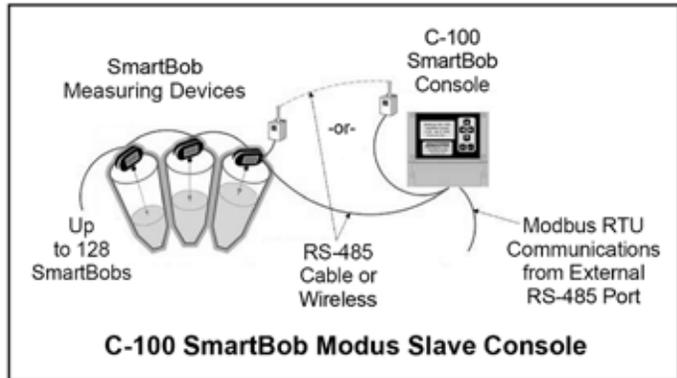
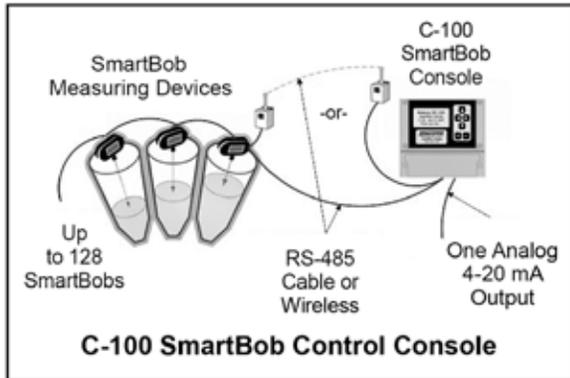


The CPVC pipe extension is an optional feature that is screwed to the 3" NPT SmartBob2 mount. The pipe extension keeps the sensor probe from being pulled up into the standpipe, functions as a bushing, and keeps the cable from fraying on sharp objects if the sensor probe swings while taking a measurement. It also functions to keep the sensor probe flush with the vessel top. The extension pipes are available in CPVC, galvanized pipe, or stainless steel. They are available in custom lengths from 4" to 20'. The reason for a longer extension is so the SmartBob2 remote can be mounted on a catwalk above the vessel and the sensor probe extended down to the vessel top for easy access to the remote.

# SmartBob Wireless



## SmartBob Control Options



Description	Part No.
<b>CONSOLES</b>	
C-100 - Control console for 1 to 128 bins, wall mount console with LCD display, NEMA 4X or 24 VDC. Measurement formats can be displayed as headroom percentage, headroom height, headroom weight, product percentage, product height and product weight. Vessel configuration and user settings are stored in non-volatile memory and will be retained during a power failure. The C-100 has one 4-20 mA output and remote start contact to provide a traditional interface to a PLC/DCS system for 1 SmartBob sensor.	730-5094
C-100-MB - Modbus control console allows Modbus serial masters to gather data from SmartBob sensors. Modbus protocol is defined as a master/slave protocol, meaning a device operating as a master (the host PC or PLC controller) will poll the Modbus control console operating as a slave. The master will write data to the control console registers, as well as read the data from the control console registers.	730-5124
C-50 - Analog expansion box with vertical slots available for 6 analog cards (four 4-20 mA analog loops per card). Must be powered with 24 VDC.	530-5110
C-50 Analog expansion card for new applications	530-0596
<b>TRANSFORMERS</b>	
XFMR-13 - 100-230 VAC / 24 VDC, 15 W, switching power supply to power C-100	730-0318
PSDC-5 Power Supply 90-264 VAC converted to 24 VDC 1 A to power C-100 and C-50	399-0030
PSDC-4 - 24 VDC / 30 VA, NEMA 4X enclosure mounted power supply	730-0577
<b>COMMUNICATION MODULES</b>	
MUCM Profibus communication tophat	344-0004
MUCM DeviceNet communication tophat	344-0003
XFMR-14 - MUCM wall mounted power supply	388-0049
MESR901 - gateway bridge can be used to integrate the C-100MB (Modbus serial master) on a Modbus TCP/IP network. With Modbus TCP/IP, the message is "wrapped" and sent over a computer network instead of serial data cables.	344-0011
MUCM - SmartBob2 Momentum Universal Communication Module (MUCM) allows Modbus serial masters to gather data from SBR II remotes.	730-0480
MUCM Ethernet communication tophat	344-0001
MUCM Modbus plus communication tophat	344-0002
<b>BINVENTORY</b>	
Binventory controller software with graphical display and inventory history in a SQL database for up to 99 SBR II remote sensors.	730-0537
Binventory Client Viewer software allows multiple-user updating through a GUI front end to a shared SQL database. One Binventory client software package is required per site where the Binventory server software is running. The Binventory client software can be installed on up to five PCs.	730-0538
Binventory software upgrade	323-0060
<b>WIRELESS</b>	
WL-19 - Indoor / outdoor standard (-20°F to +140°F) wireless transceiver unit NEMA 4X with 4dBi omnidirectional antenna, selectable 115 VAC / 230 VAC, RS-485 connection terminal	730-0514
WL-19 - Indoor / outdoor standard (-20°F to +140°F) wireless transceiver unit NEMA 4X with 900 MHz directional Yagi antenna, selectable 115 VAC / 230 VAC, RS-485 connection terminal	730-0515
YDA - Yagi directional antenna	730-0431
<b>SERIAL CONVERTERS</b>	
RS-232 to RS-485 interface used to connect computer serial port to RS-485 network when using Binventory software.	730-0202
Isolated USB to RS-485 converter used to connect USB port to RS-485 network.	530-0174
Mini USB	530-0570
UESP211 - TCP/IP to serial communication adapter	344-0006
ft. of Allen-Bradley blue hose RS-485 data cable, 20 AWG shielded twin axial, twisted pair, low capacitance, Belden #9463 or equivalent	398-0090

Description	Part No.
<b>SMARTBOB II REPLACEMENT PARTS</b>	
B1 - SS heavy spike Bob replacement kit for SmartBob II	416-0471
B2 - 416 SS heavy spike (magnetic) Bob replacement kit for SmartBob II	416-0472
B3 - Weighted 4" stainless steel inverted cone for light solids	416-0473
B4 - Hollow 6" stainless steel inverted cone for liquid applications	416-0474
B5 - Plastic digestible bottle 32 oz. filled with paraffin wax	416-0475
B6 - Plastic digestible bottle empty, to be filled with 32 oz. of material in field	416-0476
B9 - 6" stainless steel sphere float for liquid, slurry, and light powder applications	416-0545
B11 - Glass spike bob filled with 32 oz. sand	416-0687
B12 - Plastic digestible bottle 32 oz. wax & stainless steel balls	416-0711
B13 - 6" stainless steel Teflon-coated sphere float for liquid, slurry, and light powder applications	416-0696
B14 - Teflon-coated stainless steel heavy spike bob probe	416-0697
SS - Brine spike Bob includes SS heavy spike Bob, SS thimble & crimps for submersed solids applications	416-0590
Brush for SmartBob II sensor's cables or cords	299-0575
Motor brush assembly for SmartBob II DC motor. Sold as a set of 2.	350-0055
Cable brush retainer assembly for SmartBob II throat, includes two cord brushes. Order two for each SmartBob remote when replacing	416-0540
Oval plated copper cable crimp for SmartBob II	165-0011
Oval stainless steel cable crimp for SmartBob II	165-0028
Round cable crimp stop for SmartBob II	165-0026
Push-in slow blow fuse for SmartBob II	328-0062
Flat replacement gasket for SmartBob II electrical cavity	280-0060
Flat gasket replacement for SmartBob II mechanical cavity	280-0061
Version 2.4 of the IC pic processor for SmartBob II	340-0090
IC, RS-485 transceiver for SmartBob II	340-0033
SmartBob II PC board	530-0158
SmartBob AO PC board	530-0797
Photo interrupter assembly for SmartBob II	530-0619
Idler arm including aluminum pulley with bearing	416-0563
Idler arm including plastic pulley with bearing	416-0642
Plastic pulley kit with double idler for SmartBob II	416-0407
Timing pulley for SmartBob II	272-0079
Replacement 24V motor for SmartBob II remote	350-0049
SmartBob II replacement 3" NPT male connection	258-0092
SmartBob II adapter 1" NPT male to 1" female coupler CPVC	175-0142
SmartBob II removable power terminal - For Demo Units	380-0058
SmartBob II removable communications terminal	380-0054
SmartBob II resistor kit with 5 ohm and 1.5 ohm resistor	530-0599
SmartBob II round rubber ball/shock for plastic digestible bottle	299-0564
SmartBob II SureDrop round Teflon ball (high temp)	299-0625
SmartBob II SureDrop round Acetal ball	299-0799
SmartBob II slotted timing wheel	299-0331

Description	Part No.
SmartBob II SureDrop assembly	416-0364
SmartBob II SureDrop Teflon cap only	212-0038
SmartBob II SureDrop Acetal cap only	212-0042
SmartBob II Terminal crimp ring, holds cable to supply pulley	318-0168
SmartBob II Thimble for 1/16" stainless steel cable, to loop cable around probe	299-0584
SmartBob II Internal transformer 115 VAC / 16 VAC 3A	388-0037
SmartBob II Internal transformer 230 VAC / 16 VAC 3.7A	388-0040
SmartBob II wiper for cable	280-0085
SmartBob II Idler arm extension spring (for units purchase before Dec 15, 2013)	292-0040
SmartBob II Idler arm extension spring (for units purchase after Dec 15, 2013)	292-0049
SmartBob II Idler arm extension spring heavy torsion	292-0045
SmartBob II Idler arm extension spring light torsion for B4, B9, and B13 probes	292-0041
Idler arm including plastic pulley with bearing	416-0624
ft. of C1 - Nylon jacketed 7 x 19 stainless steel cable for temperatures up to 250°F with 270 lb. tensile strength (Cable only not on spool or with crimping parts)	213-0019
ft. of C2 - Teflon jacketed 7 x 19 stainless steel cable for temperatures up to 500°F with 270 lb. tensile strength (Cable only not on spool or with crimping parts)	213-0021
ft. of C3 - bare 7 x 19 stainless steel cable for temperatures up to 500°F with 270 lb. tensile strength (Cable only not on spool or with crimping parts)	213-0020
ft. of C5 - FDA approved Nylon jacketed 7 x 19 stainless steel cable for temperatures up to 250°F with 270 lb. tensile strength (Cable only not on spool or with crimping parts)	213-0025
ft. of C1 - Nylon coated stainless steel cable replace kit, includes thimble, terminal crimp ring and crimps.	416-0341-XX
ft. of C2 - Teflon-coated stainless steel cable replace kit, includes thimble, terminal crimp ring and crimps.	416-0480-XX
ft. of C3 - bare stainless steel cable replace kit, includes thimble, terminal crimp ring and crimps.	416-0481-XX
ft. of C1 - Nylon coated stainless steel cable replace kit, includes thimble, terminal crimp ring and crimps for Brine applications.	416-0591-XX
ft. of C1 - Nylon coated stainless steel cable replace kit, includes thimble, terminal crimp ring, crimps, and pulley hub.	416-0419-C1-XX
ft. of C2 - Teflon-coated stainless steel cable replace kit, includes thimble, terminal crimp ring, crimps, and pulley hub.	416-0419-C2-XX
ft. of C3 - bare stainless steel cable replace kit, includes thimble, terminal crimp ring, crimps, and pulley hub.	416-0419-C3-XX
C-50 Analog expansion card for replacement applications	530-0602
Cover for mechanical side	220-0321
Cover for electrical cavity	220-0322