SB® Smart Connector

Up to 230 Amps



Battery



Vehicle Device



Charger

The SB® Smart is designed for applications where storage batteries intelligently interact with the system. Two primary power positions (up to 230 amps each) are combined with sixteen auxiliary power / signal positions (up to 15 amps each) into a single interconnect solution. This allows one connection to be used to route high power lines, low power lines, and signal circuits.

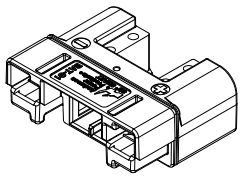
Unique to the SB® Smart is it's selective keyed housings that allow only mating between select connector halves. This prevents motors from mating with chargers, chargers from mating with chargers, or other undesirable connection scenarios.

- **Selective Keyed Housings**
  Unique keying feature only allows intended connector halves to mate
- **Power and Auxiliary Contacts**
  Provides power up to 230 amps plus signal & low power in a single connector
- **16 Last-Mate First-Break Auxiliary Power / Signal Poles**
  Enables the power connector to also transmit signals for intelligent power switching, battery monitoring, CAN communication, loop circuitry, and other signal or power circuits up to 15 amps
- **Sequencing of Auxiliary Contacts**
  Male auxiliary contacts available in 3 lengths
- **Wire and Busbar Connections**
  Satisfies multiple interconnect needs with one connection solution
- **Low Resistance Connection**
  Silver plated power contacts are strongly forced together by stainless steel springs
  Gold plated auxiliary contacts ensure signal quality or reliable power
- **Hot Plug Capable Contacts**
  Power contacts are hot plug capable up to 60A at 120VDC
  Auxiliary contacts are hot plug capable up to 5A at 120VDC

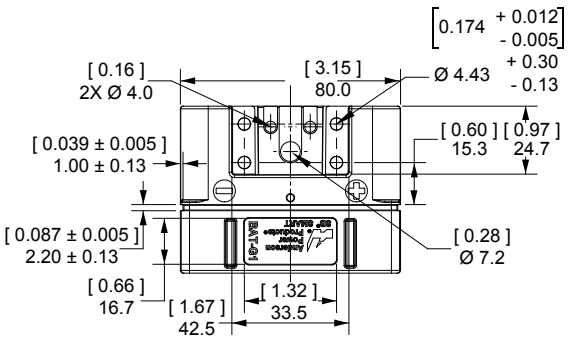
ORDERING INFORMATION

SB® Smart Housings (Auxiliary Module Sold Separately)

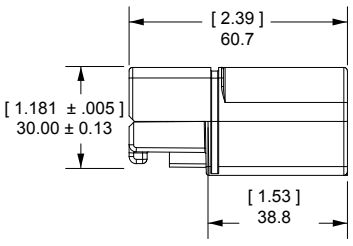
Color	Housing Type / Marking	Mates With	Part Numbers
Minimum Quantity			100
Black	Battery BAT-G1	VEH-G2 & CHRG-G4	115158G1
Black	Vehicle / Device VEH-G2	BAT-G1	115158G2
Black	Charger CHRG-G4	BAT-G1	115158G4



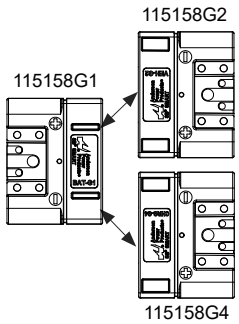
Top View



Side View



Mated Pairings Illustrations

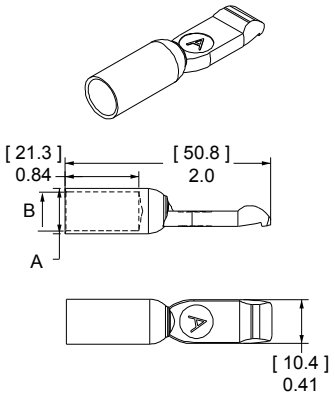


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SB® Smart Silver Plated Wire Contacts

Silver plated contacts offer superior electrical performance and durability up to 10,000 mating cycles. New contacts for 1 to 1/0 AWG (35 to 50 mm²) offer extended capability in the same housings.

AWG	mm²	Mating Force	Loose Piece Part Numbers			- A - inches	- A - mm	- B - inches	- B - mm
Minimum Quantity			600	500	50				
1/0	53.5	Low	1323G2-BK	-	1323G2	0.52	13.21	0.44	11.18
1	42.4	Low	1323G1-BK	-	1323G1	0.47	11.94	0.39	9.91
2	33.6	High	-	1319-BK	1319	0.44	11.18	0.34	8.64
4	21.1	High	-	1319G4-BK	1319G4	0.44	11.18	0.29	7.37
6	13.3	High	-	1319G6-BK	1319G6	0.44	11.18	0.22	5.59

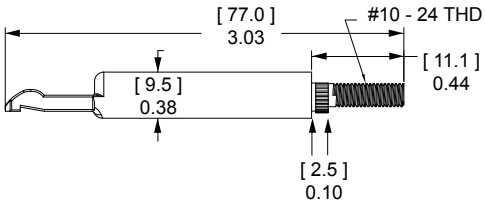


SB® Smart Silver Plated Busbar Contacts

Use 2 busbar contacts per housing to provide a quick disconnect input or output busbar connection. Busbar contacts are for mating with wire contacts only. Part number 120BBS includes lock nuts. Locknuts must be ordered separately for B01997P1.

See Busbar contact drawing on website for further detail.

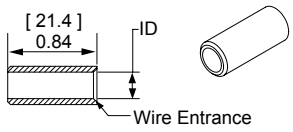
Type	Thread	Mating Force	Loose Piece Part Numbers			
Minimum Quantity			1,000	300	20	10
Busbar	10 to 24	High	-	B01997P1	-	120BBS
Lock Nut	10 to 24	-	H1216P8	-	110G54	-



Reducing Bushings

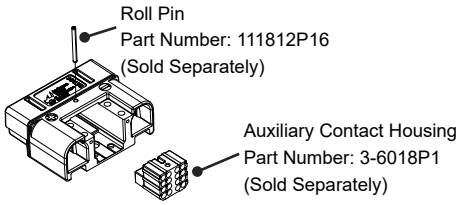
Use with contact part number 1319-BK or 6811G6-BK to allow a smaller wire to be used with the connector. Electrical capability is derated with smaller wire.

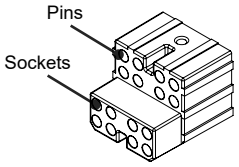
Contact Barrel Size AWG	Contact Barrel Size mm²	Wire Size AWG	Wire Size mm²	Part Numbers			Dimensions - ID - inches	Dimensions - ID - mm
Minimum Quantity				2,000	1,000	100		
2	33.6	4	21.2	5919-BK	-	5919	0.28	7.11
2	33.6	6	16	-	5920-BK	5920	0.23	5.84
2	33.6	10 to 8	5.3 to 8.4	5921-BK	-	5921	0.18	4.57



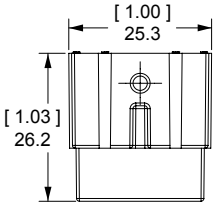
SB® Smart Auxiliary Module

Color	Number of Positions	Part Number
Minimum Quantity		100
Black	8 Pins + 8 Sockets	3-6018P1

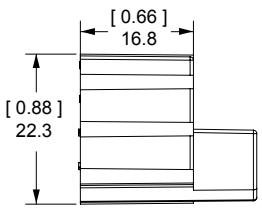




Top View



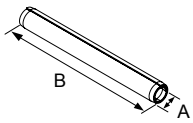
Side View



Retaining Pins

Retaining pins are used to hold the auxiliary module in the SB® Smart housings. Dimension “B” is +/- 0.01 in or 0.25 mm.

Description	Part Number	Dimensions - A - inches		Dimensions - B - mm
Minimum Quantity	100			
For SB® Smart Auxiliary Module	111812P16	0.099 / 0.106	2.51 / 2.69	1.125 28.58



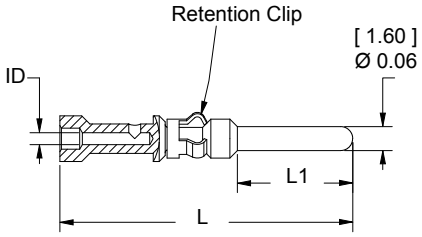
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Pin Contacts for 1x4 Auxiliary Connector

Gold plated contacts are available in 3 lengths to allow sequencing of circuits.

Description	AWG	mm²	Part Numbers	
Minimum Quantity			500	50
Standard Length 7.7 mm	12	2.5	PM16P12S30	PM16P12S30-50
	16 to 14	1.0 to 1.5	PM16P1416S30	PM16P1416S30-50
	20 to 16	0.75 to 1.0	PM16P1620S30	PM16P1620S30-50
	24 to 20	0.50 to 0.75	PM16P2024S30	PM16P2024S30-50
Pre-Mate 9.3 mm	12	2.5	PM16P12A30	PM16P12A30-50
	16 to 14	1.0 to 1.5	PM16P1416A30	PM16P1416A30-50
	20 to 16	0.75 to 1.0	PM16P1620A30	PM16P1620A30-50
	24 to 20	0.50 to 0.75	PM16P2024A30	PM16P2024A30-50
Post-Mate 6.4 mm	12	2.5	PM16P12C30	PM16P12C30-50
	16 to 14	1.0 to 1.5	PM16P1416C30	PM16P1416C30-50
	20 to 16	0.75 to 1.0	PM16P1620C30	PM16P1620C30-50
	24 to 20	0.50 to 0.75	PM16P2024C30	PM16P2024C30-50

Auxiliary Pin	- L -		- L1 -	
Contact Lengths	**in.**	**mm**	**in.**	**mm**
Standard Length 7.7 mm	0.77	19.6	0.30	7.7
Pre-Mate 9.3 mm	0.83	21.2	0.37	9.3
Post-Mate 6.6 mm	0.72	18.3	0.25	6.4

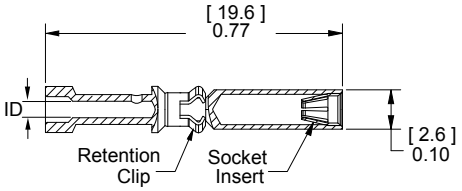


Socket Contacts for 1x4 Auxiliary Connector

Selectively gold plated contacts offer low resistance and durability up to 10,000 mating cycles.

Description	AWG	mm²	Part Numbers	
Minimum Quantity			500	50
Socket Contact	12	2.5	PM16S12S32	PM16S12S32-50
	16 to 14	1.0 to 1.5	PM16S1416S32	PM16S1416S32-50
	20 to 16	0.75 to 1.0	PM16S1620S32	PM16S1620S32-50
	24 to 20	0.50 to 0.75	PM16S2024S32	PM16S2024S32-50

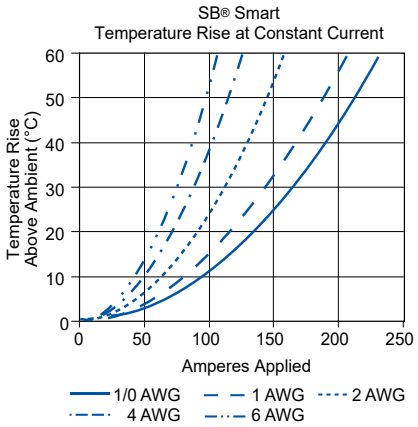
Auxiliary Socket Contacts Crimp Barrel ID		
Wire Gauge	**in.**	**mm.**
24 / 20	0.04	1.1
20 / 16	0.07	1.7
16 / 14	0.08	2.1
12	0.10	2.6

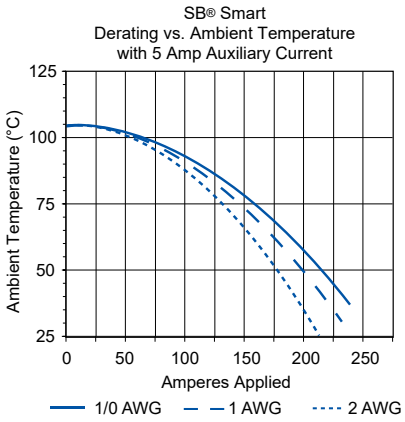


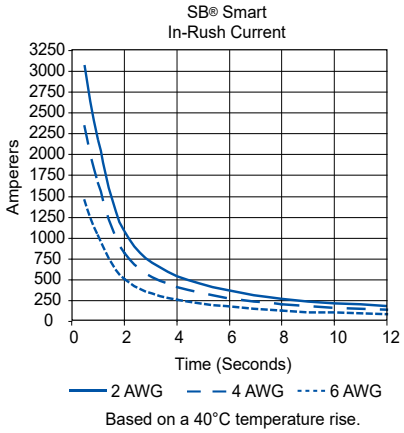
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SB® SMART TEMPERATURE CHARTS - Temperature rise charts are based on a 25°C ambient temperature.

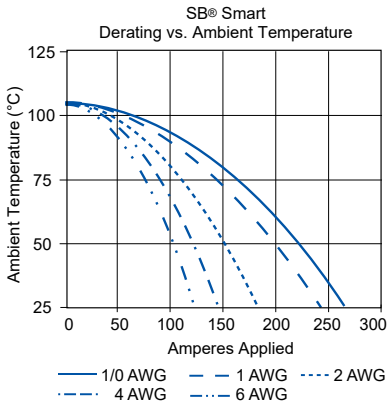
Current - Temperature Derating per IEC 60512-5-2 Test 5B

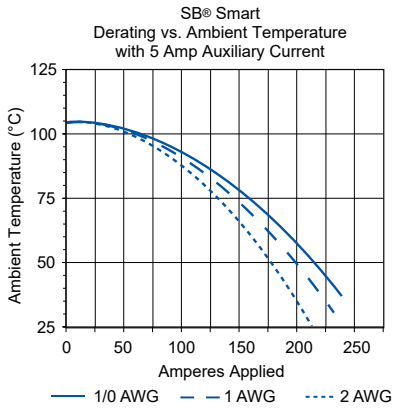






Based on a 40°C temperature rise.





SPECIFICATIONS

ELECTRICAL		
Current Rating (Amperes) [1]		
Primary Contacts	230	
Auxiliary Contacts	15	
Operating Temperature [2]	**°C**	**°F**
PC Housing	-20° to 105°	-4° to 221°
Voltage Rating (AC/DC)		600
Dielectric Withstanding Voltage (AC)		2,200

MATERIALS	
Standard Housing	PC
Flammability Rating	UL94 V-0
Wire Power Contact	Copper Alloy, Silver Plate
PCB Power Contact	Copper Alloy, Tin Plate
Auxiliary Pin	Copper Alloy, Au over Ni
Auxiliary Socket	BeCu, Au over Ni
Auxiliary Socket Body	Copper Alloy, Sn Bright over NI

MECHANICAL		Primary Power	Auxiliary Power
Contact Wire Range	**(AWG)**	10 to 1/0	24 to 12
	(mm²)	5.3 to 53.5	0.25 to 3.3
MAX Wire Insulation Diameter	**(in)**	0.65	0.12
	(mm)	16.25	3.2
AVG Contact Resistance (milli-ohms) [3]		0.136	3.00
AVG Contact Retention Force	**(lbf)**	60	18
	(N)	267	80
Mating Cycles (no load)		10,000	10,000
Mating Cycles (hot plug @ 120V)		250 @ 50A	250@ 5A
Connector AVG Connect / Disconnect	**(lbf)**	82	
	(N)	365	

1 - Based on: 105°C rated or better cable of the largest size. Properly calibrated APP® recommended tooling, and a 25°C ambient temperature.

2 - Limited by the thermal properties of the connector plastic housing.

3 - Use APP® recommended tooling only. Alternate tools may adversely affect the performance of our connectors.

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TOOLING INFORMATION

Wire Size		Loose Piece Part Number		Loose Piece Contact Crimp Tools							
AWG	mm²	Tin Plating	Silver Plating	Hand Tool or	OR	Pneumatic Bench Tool	+	Die	+	Locator	Number of Crimps
SMART Connector											
1/0	53.5	N/A	1323G2	1368		1387G1		1388G3		1389G4	Single
1	42.4		1323G1								
2	33.6		1319					1388G4			
4	21.2		1319G4								
6	13.3		1319G6								

NOTE: See website for the most current information.

Wire Size		Loose Piece Part Number			Loose Piece Contact Crimp Tools					
AWG	mm²	Auxiliary Contact Part Number	APP® Hand Tool with Integral Locator	OR	Mil Std. Hand Tool * M22520/1-01	OR	Pneumatic Tool*	Number of Crimps	+	Locator for: TM0001 & TP0001
SMART Connector										
12 to 25	2.5 to 0.25	All Crimp Pins	PM1000G1		TM0001		TP0001	Single		TL0001
		All Crimp Sockets								TL0002

PM1002G1 - 1 x 4 Auxiliary Contact Insertion Tool - For use with PM contacts and 1x4 auxiliary housing (444G1 housings and 441G kits)

PM1003G1 - 1 x 4 Auxiliary Contact Insertion Tool - For use with PM contacts and 1x4 auxiliary housing (444G1 housings and 441G kits)

PM1003GX - 1x4 Auxiliary contacts Inspection Tool - For use with PM contacts and 1x4 auxiliary housing (444G1 housings and 441G kits)

969P1 - SBE® 160 / SBX® 175 Power Contact Extraction Tool

970P1 - SBE® 320 / SBX® 350 Power Contact Extraction Tool

* TP0001 and TM0001 tools require locators TL0001 for Pins and TL0002 for Sockets.

NOTE: See website for the most current information.

			Automated Tooling	
Contact Part Number	Description	Hand Tool	Press	Applicator
2003G1	Receptacle Contact, Reeled	-	115V = TE0101 230V = TE0102	TD0104
2003G1-LPBK	Receptacle Contact, Loose Piece	1309G9	-	-
2003G2-LPBK	Receptacle Contact, Loose Piece, 10AWG	1309G10	-	-

Your Best Connection™

2020-0055 DS-SMART REV C7

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