

Sealed Connector Technical Application Guide



SBS® X-75A Sealed Connector

**Industrial
Consumer
Material Handling
Automation
Agricultural/Construction
Lawn & Garden**

Built on the success and proven reliability of Anderson Power Products® (APP®) SBS® Series for both lead acid and lithium-ion battery technology, the NEW SBS® X-75A Sealed Waterproof Connector Series combines both power and signaling in one connector rated up to 135A at 600 volts. Product is rated for IP 68 ingress protection and is durable for up to 5,000 mating cycles. Positive metal latches help safeguard against accidental disconnects that may be caused by vibration, while built in cable clamp allows for strain relief on wires.

The compact sleek high-power design of these environmentally rugged connectors makes them ideal for electrical outdoor applications.



600 Volts / 135A



5,000 Mating Cycles



Operating Temperature
-20°C to 105°C / -4°F to 221°F



Dust - Water - Shock

Why Anderson Power Products®

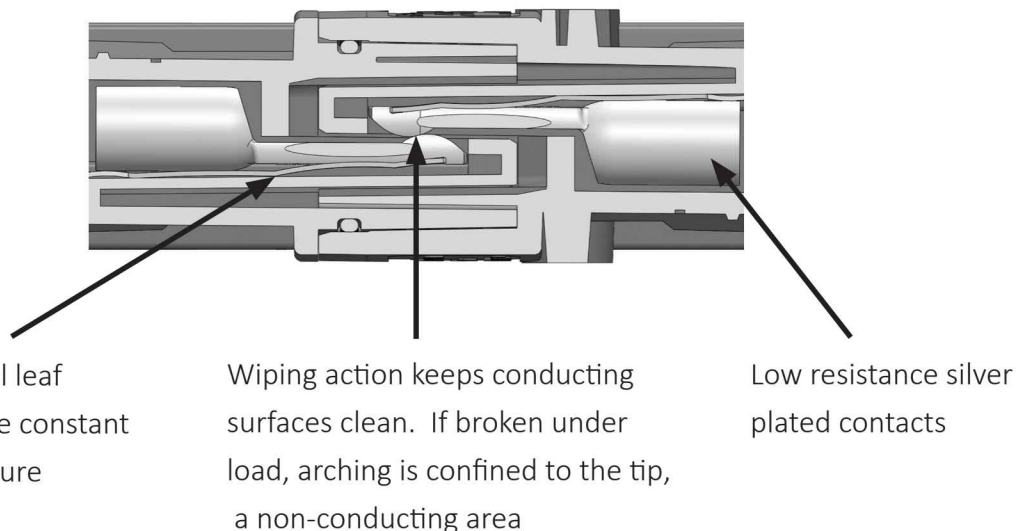
Anderson Power Product® has established a reputation as being the leader for high quality products, on-time deliveries, and excellent customer service. As a result of modern manufacturing techniques, rigorous quality control measures, best practice training and extensive testing we assure our customers receive the quality products and service they deserve.

Anderson Power Products® is a leader in designing high quality connectors built for robust applications for the following markets:

- Power Equipment
- Agricultural Equipment
- Industrial / Commercial
- Lawn / Garden Equipment
- Material Handling / Automation
- Marine

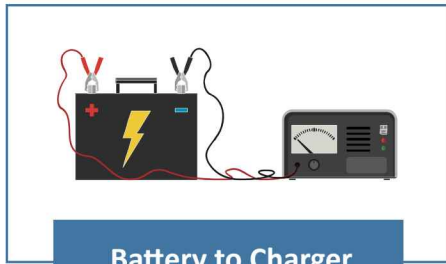


Our patented flat-wiping contact technology provides a low resistance connection with large conducting surface and high normal force ensuring a more stable connection. Housings have been proven to withstand 5,000 mating cycles while our contacts have been proven to withstand over 10,000 mating cycles with routine maintenance. The sacrificial tip confines damage to the non-conducting area when mating or breaking under load.

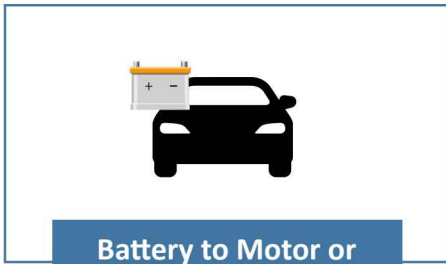


Bringing Power & Signal to Your Application

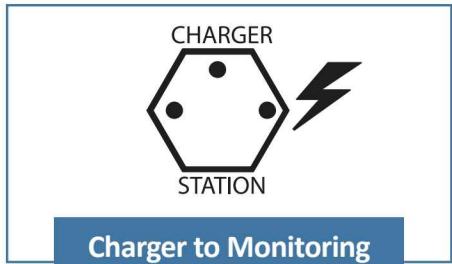
Anderson Power Connectors are designed to work within our applications to bring power and signaling to and from the following equipment.



Battery to Charger



Battery to Motor or Controller



Charger to Monitoring System

SBS[®]X-75A Sealed Connectors



Female Receptacle



Male Plug



Panel Mount Receptacle



Panel Mount Plug

Design Features

System Flexibility

- Available in wire-to-wire, wire-to-panel mount, panel mount-to-panel mount ⁴
- Offers both power and signaling
- Accepts 12 to 4 AWG (2.5 to 25 mm²) wire for power and 24 to 14 AWG (0.05 to 1.5 mm²) wire for signal
- 4 Different keying options

Safety

- Hot plugging for AC or DC power
- UL94 V-0
- Touch Safe
- Keyed housings to prevent incorrect voltage mating

Reliability

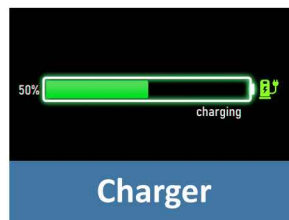
- Up to 135A with signals
- Reliable operation between: -20°C and 105°C (-4 to 221°F)
- Latching to avoid accidental disconnects
- 5,000 mating cycles

Housing

- Includes cable clamp for strain relief
- Impact resistant
- Ingress protection to IP68 to prevent against water and dust



Male Plug



Panel Mount Receptacle

Specifications

ELECTRICAL

Current Rating Amperes ¹

Wire to Wire		No Signals		Signals Energized	
AWG	mm ²	UL	CSA	UL	CSA
4 AWG	25	140	85	135	80
6 AWG	16	100	65	95	60
8 AWG	10	95	58	93	53
10 AWG	6	75	45	75	45
Wire Plug to Panel Mount Receptacle					
4 AWG (25 mm ²) Wire		145	90	140	85
Panel Mount Plug to Panel Mount Receptacle					
4 AWG (25 mm ²) Wire		140	85	135	80
Voltage Rating AC/DC					
UL 1977		600V			
Dielectric Withstanding Voltage					
Volts AC		2,200			
Average Mated Contact Resistance Milliohms ¹					
Power 1/4 in. of 4 AWG (25 mm ²) Wire		0.16m Ω			
Auxiliary 14 AWG (1.0 to 1.5 mm ²) Wire		2.50m Ω			
UL Hot Plug Current Rating Amperes					
4 AWG (25 mm ²) Wire		250 cycles at 120V DC			
		50A			
Touch Safe					
		Per UL 60950-1, UL 62368-1 & IEC 60529 ³			

MECHANICAL

Wire Size Range

Power Contacts	10 to 4 AWG (2.5 to 25.0 mm ²)
Auxiliary Contacts	14 to 24 AWG (0.50 to 1.5 mm ²)

Maximum Wire Insulation Diameter

Power	0.44 AWG (11.18 mm ²)
Auxiliary	0.44 AWG (11.18 mm ²)

Operating Temperature ²

-20° to 105°C (-4 to 221°F)

Mating Cycles No Load by Plating

5,000

Average Mating / Unmating Force

Wire	4 AWG (25 mm ²)
Lbs / Kg	6.5 Lbs (2.95 Kg)

Minimum Creepage / Clearance Distance

	Creepage	Clearance
Power to Power	1.50 in. (38.1 mm)	0.900 in. (22.86 mm)
Power to Signal	1.12 in. (28.4 mm)	0.640 in. (16.26 mm)
Pin to Pin	0.097 in. (2.46 mm)	0.097 in. (2.46 mm)
Socket to Socket	0.352 in. (8.94 mm)	0.352 in. (8.94 mm)
Pin to Socket	1.15 in. (29.21 mm)	0.485 in. (12.3 mm)

Pull Out Force with Cable Clamp

60 lb.

Retention Force Auxiliary Housing

35 lb.

Drop Test

Per UL 486A-486B

IP68

Per UL50E⁴

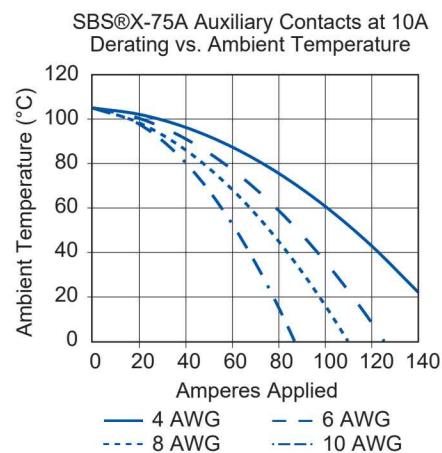
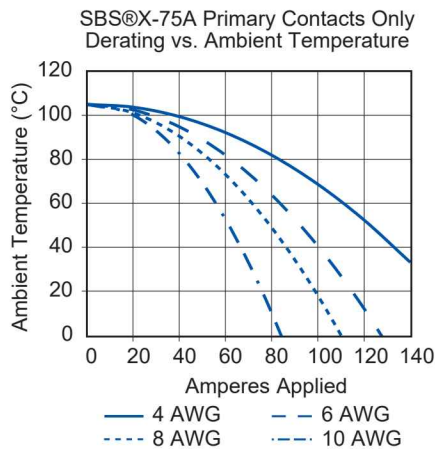
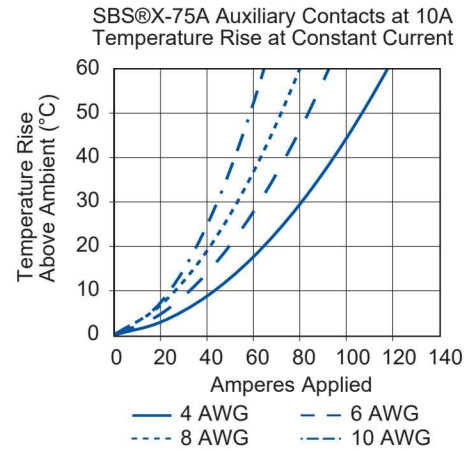
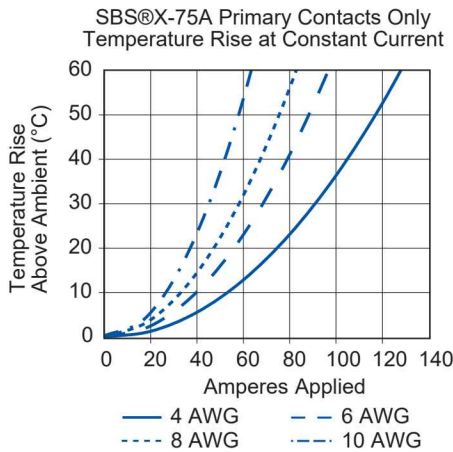
MATERIALS

Housing, Cable Clamps, Covers	PC/PBT
Signal Housing	PC
Latches, Spring, Screws	Stainless Steel
O-Rings, Grommets	Silicone
Panel Mount Gasket	NBR
Housing Flammability Rating	UL94 V0
Glow Wire (1.0 mm)	960°C per 60695-2-12
Wire Power Contact	Silver Plated Copper Alloy
SBS® 75X Auxiliary Contacts	
Pin	Copper Alloy, Au over Ni
Socket	Be Cu, Au over Ni
Socket Body	Copper Alloy, Tin Bright over Ni
Retention Clip	Stainless Steel

NOTES:

- 1 - Current amperage ratings are based on 105°C rated or better cable of the largest wire size using properly calibrated APP® recommended tooling, and a 25°C ambient temperature, or CSA rating below a 30°C temperature rise. UL rating not to exceed the maximum operating temperature. Connector to be assembled and installed according to the manufacturer's instructions.
- 2 - Operating Temperatures are limited by the thermal properties of the connector's plastic housing.
- 3 - Sealed Connector Series offers protection against electric shock for finger safety both in mated and unmated condition. The Sealed SBS®X-75A Connector Series was tested for IP Code 1X-2X per clause 12- & 13 of IEC 60529, Edition 2.2, issued 2013-8 + Corr. 1:2013-10 + Corr. 2:2015-01. The connector was tested for IP1X and IP2 in mated and unmated condition, which is representative of protection against access to energized parts contained in UL 60950-1 2nd Edition, 2011-12-19 and UL 62368-1 3rd Edition, 2021-10-22.
- 4 - The Sealed SBS®X-75A Connector Series was subjected to submersion test, covered by UL 50E Standard for Enclosures for Electrical Equipment Environmental Considerations, 3rd Edition, with a pressure equivalent to 6 feet of water and for a duration of 30 minutes for the equivalent IP68 compliance. Note Panel Mount-to-Panel Mount configurations has not been tested for an ingress protection rating; contact manufacturer to determine if it will work for your application needs.

Temperature Charts



Don't see your market or the connector that meets your needs?

We invite you to contact our sales department below or check out our web site at www.andersonpower.com. We specialize in the design and manufacture of custom high current connection systems to meet specific customer requirements. Our expertise in high amperage connections, multiple types of contact technology and molded plastic insulators allow us to provide durable, high power connections that fulfill our customer needs.

United States

+1 978-422-3800 Customer Service
+1 978-422-3801 Technical Assistance
USTechSupport@andersonpower.com

Hong Kong

+(852) 2636 0836 Main
CustServAPAC@andersonpower.com

United Kingdom

+44 (0) 1925 428390 Customer Service
custserveurope@andersonpower.com
EMEATechSupport@andersonpower.com

INDIA

+(91) 956-0075905 Cell
+(91) 124-4495101 Main
Indiasales@ideal-industries.in

GERMANY

+49 (0) 711 – 997606666 Main
custserveurope@andersonpower.com
EMEATechSupport@andersonpower.com

CHINA

+(86) 755 2768 2118 Main
CustServAPAC@andersonpower.com

Certifications

Anderson™ connectors strictly follow applicable standards and certifications. The product complies with UL, CSA and RoHS.



Application Notes

- Modifications to the product will void all warranties. For warranty information, please visit www.andersonpower.com.
- Users and installers are required to read and understand the supplied installation guides and warnings.
- Solid wires are not recommended.

All Data Subject to Change Without Notice AG-SBSX75A REV 0 **Your Best Connection™**

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HEADQUARTERS: Anderson Power Products®, 13 Pratts Junction Road, Sterling, MA 01564-2305 USA T: +1 978-422-3800 F: +1 978-422-0128 • **EUROPE:** Anderson Power Products® Ltd., Unit 3, Europa Court, Europa Boulevard, Westbrook, Warrington, Cheshire, WA5 7TN United Kingdom T: +44 (0) 1925 428390 F: +44 (0) 1925 520203 • **GERMANY:** IDEAL® Industries Germany GmbH, Esslinger Strasse 7, D – 70771 Leinfelden-Echterdingen, T: +49 (0) 711 – 997606666 • **ASIA / PACIFIC:** IDEAL® Anderson Asia Pacific Ltd., Unit 922-928 Topsail Plaza, 11 On Sum Street, Shatin N.T., Hong Kong T: +(852) 2636 0836 F: +(852) 2635 9036 • **INDIA:** IDEAL® INDUSTRIES India Private Limited, 229-230, SPAZEDGE, Tower B, Sector 47, Sohna Road, Gurgaon – 122018, Haryana, India T: +(91) 956-0075905 T: +(91) 124-4495101 • **CHINA:** IDEAL® Anderson Technologies (Shenzhen) Ltd., Block A8 Tantou Western Industrial Park, Songgang Baoan District, Shenzhen, PR. China 518105 T: +(86) 755 2768 2118 F: +(86) 755 2768 2218 • www.ideal-industries.in • www.andersonpower.com