

# Datacenter Application Guide



## Datacom Solutions

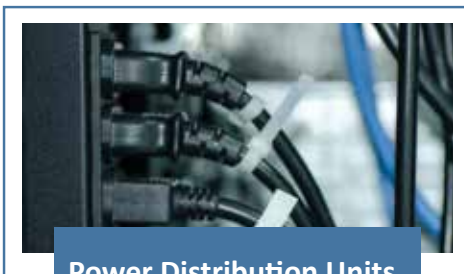
**Saf-D-Grid®**  
**Power Pak**  
**SB® / SBS®**

Anderson Power technology is the industry' best connection for superior power performance in the datacenter. Whether supporting a single rack in office or a hyperscale datacenter. Anderson provides the performance and reliability to support efficient design and consistent operation.

# Why Anderson Power Products®

Anderson Power Products® is provider of mid to high power connectors for both AC and DC applications. Since 1877, Anderson has been synonymous with reliable products and has been the chosen power connection for material handling equipment for 40 years. Today, the lessons learned from those demanding applications have propelled our products into a wide number of industries from rail to data communications.

Anderson Power Products® is a subsidiary of IDEAL® INDUSTRIES, INC., a global enterprise with companies serving technicians and workers across a wide range of industries, from electrical to construction to aerospace to automotive.



**Power Distribution Units**

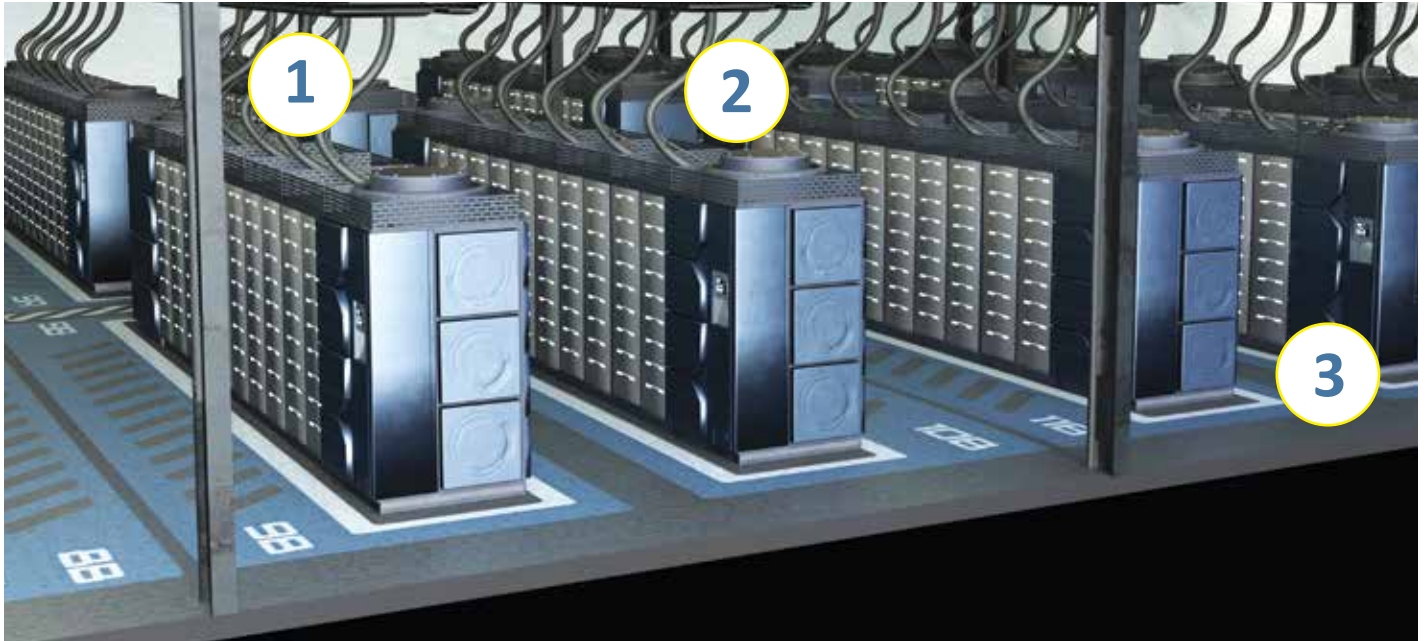


**Power Supply Units**


Anderson can help get Power where it's needed in the datacenter with connector solutions for Busways, Uninterruptible Power Supplies, Power Distribution Units, and Power Supply Units. It doesn't matter whether it's coming through direct or alternating current. Anderson's power interconnect solutions are rated for both giving the designer the flexibility to incorporate a variety of redundant and alternative sources. As always power density is king. Anderson can deliver that power in a footprint that saves precious space.

# Carrying Power to the Cloud

Anderson™ connectors enable reliable and safe transmission of higher voltage and current in the datacenter. Whether an local server rack or a hyperscale facility, Anderson™ makes the connections which keep critical network assets powered.




**1** Powerpole® Pak



- Main PDU Output
- Busway
- Rack PDU Input

**2** Saf-D-Grid®



- PDU Input
- Rack PDU Output
- Busway
- PSU Input

**3** SB®50 / SBS®75



- UPS (Uninterruptible Power Supply)

# Product Focus—Saf-D-Grid®



## Saf-D-Grid® Product Features

### System Compatibility

- Innovative connector meets footprint of standard IEC 60320 C14

### Safety

- Unlike IEC 60320 connectors, Saf-D-Grid® connectors are touch safe for both the plug and the receptacle
- Shatterproof polycarbonate or nylon material
- Rated for disconnect, both AC and DC

### Reliability

- Reliable operation between  $-40^{\circ}\text{C}$  and  $105^{\circ}\text{C}$
- Saf-D-Grid® connectors have an integrated active latch

## Saf-D-Grid® Product Features

### Higher Voltage Ratings with hot plugging

- Saf-D-Grid® is rated up to 600V (400V hot plug) for AC AND DC applications
- Saf-D-Grid® connectors are rated for voltages which include current interrupt for both AC AND DC up to 400V

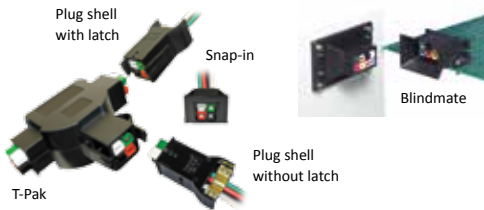
### Increased Power Density

- Saf-D-Grid® connectors are rated to carry 1.4x more current and 1.6x the voltage than the standard IEC 60320 C20 connector within the same footprint of an IEC 60320 C14 connector.

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

We invite you to contact our sales department at 978-422-3800 or check out our webstore at [www.andersonpower.com](http://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.

# Technical Specifications



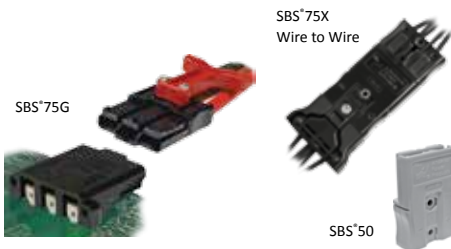
- **Package Groupings of PP15-45 Connectors**

Provides a finished appearance while protecting the individual connectors with an outer shell

- **Inline, Panel Mount, “T” or Blindmate Configurations**

Allows one connection system to meet multiple needs

- **Optional Latching and Strain Relief Secures your Connection and Wires**



- **Wire-to-Wire and Wire-to-Board Configurations Both Provide Power Contacts Rated up to 110 Amps.**

- **SBS®75X Offers up to 4 Mate-Last Break-First Auxiliary Power/Signal Contacts Rated up to 20 Amps.**

- **SBS®75G Features a Third First-Mate Last-Break Ground or Power Contact.**

- All contact positions are rated for circuit interruption (hot plugging).

- **Touch Safe Interface**

- Can safely be used in through panel applications  
 - Minimizes potential contact with live circuits per IEC 60950

## Electrical

### Current Rating Amperes <sup>1</sup>

	UL 1977	CSA/TUV
Singlepole Wire to Wire (10 AWG)	55	40
Singlepole Ground Wire to Wire or PCB (10 AWG)	45	35
3x3 Block Wire to Wire (10 AWG)	40	27
Singlepole 25A PCB to Wire (12 AWG)	25	-
2x3 Block 25A PCB to Wire (12 AWG)	25	22 *
Singlepole 45A PCB to Wire (10 AWG)	45	40 *
2x3 Block 45A PCB to Wire (10 AWG)	45	25 *

### Voltage Rating AC/DC

UL 1977	600
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### Dielectric Withstanding Voltage

Volts AC	2,200
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### Avg. Mated Contact Resistance Milliohms <sup>1</sup>

15A Wire Contact with 5/8" of #16 AWG	0.875
30A Wire Contact with 5/8" of #12 AWG	0.600
45A Wire Contact with 5/8" of #10 AWG	0.525
45A PCB Contact to Contact	0.500
25A PCB Contact to Contact	0.600

### UL Hot Plug Current Rating Amperes <sup>5</sup>

250 cycles at 72V DC	45A
250 cycles at 120V DC	30A

### UL Ground Short Time Current Test - 45A Premate Ground

750 Amps, #10 AWG Wire	4 Seconds
470 Amps, #12 AWG Wire	4 Seconds

## Electrical

### Current Rating Amperes <sup>1</sup>

	UL 1977	CSA/TUV
Primary Power (6 AWG)	110	75
Auxiliary (12 AWG)	20	10

### Voltage Rating AC/DC

UL 1977	600
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### Dielectric Withstanding Voltage

Volts AC	2,200
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### Avg. Mated Contact Resistance Milliohms <sup>1</sup>

Power & Ground: 1 1/4" of #6 AWG wire	0.200	
Auxiliary: Wire & PCB		3.000

### UL Hot Plug Current Rating Amperes - 250 cycles at 120V DC

Wire & PCB Power	50A
Wire & PCB Auxiliary	5A

### UL Ground Short Time Current Test - SBS75G Wire & PCB

1530 Amps, #6 AWG Wire	6 seconds
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# Safe Connections for Higher Voltage Power Distribution Systems

## First Mate, Last Break Ground Contact

- Provides the safety of an earthing path before engagement of the power contacts.



## Integral Latch

- Connectors cannot be accidentally unmated, preventing unwanted power loss to critical equipment.



## Hot Plug Rated

- The connectors are rated for current interruption for both electronic (capacitive) and electrical (resistive) loads.

## Touch Safe / Shock Protection

- Minimizes the risk of personal contact with a hazardous voltage. Passes UL & IEC finger probe (plug & receptacle) and 3mm probe tests (receptacle).

## Arcing Protection

- Housings contain the arc if connectors are mated or unmated while under load minimizing risk to personnel.

## Electrical

### Voltage (AC/DC)

- UL 1977 / CSA 22.2 600
- IEC 400

### Current Rating (Amperes)

- Wire Range (AWG) #12 to #18
- (mm<sup>2</sup>) 2.5 to 0.75

### Hot Plug Rated

- 250 cycles 400V @ 440A in-rush
- 250 cycles (UL) 400V @ 20A load

### Dielectric Withstanding Voltage

- 3,300
- Operating Temperature (°C) -20° to 80°
- (°F) -4° to 176°

### Fault Current Withstand

- UL 467 14 AWG, 300A, 4 Sec.

Anderson Power Products® has lead the connector industry in development of DC power connection solutions since the introduction of the SB® electrical connector in 1953. Saf-D-Grid® builds on the proven contact technology used in SB® and Powerpole® connectors by offering features required in 380-400 VDC power distribution systems.

APP® introduced the Saf-D-Grid® connector system in January 2009 as a safe appliance power connector for server, telecommunication, and other devices up to 600 VDC.

The APP® Saf-D-Grid® plug and receptacle provide for the direct connection of DC electronic devices to a DC micro-grid powered by renewable energy or high efficiency DC sources. The connector meets international safety requirements for hazardous, low voltage applications including UL 950 and IEC 60950. The Saf-D-Grid® is size compatible with the IEC 320 C13 and C14 AC connection system. It is the only connector system so sized that is UL rated for disconnect of a 400 VDC, 20 amp load.

Saf-D-Grid® also enables greater power density by allowing up to 40A and 600V DC or AC within the same space of the IEC 320 C13 & C14 system that is limited to 10A and 250 VAC. This allows the use of Saf-D-Grid® in AC systems that require more power by increasing the wattage capability within the existing connector space.

All Data Subject To Change 2020-0009 AG-SDGDC REV 1

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**HEADQUARTERS:** Anderson Power Products®, 13 Pratts Junction Road, Sterling, MA 01564-2305 USA T:978-422-3600 F: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 • **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 • **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 • **TAIWAN:** IDEAL Anderson Asia Pacific Ltd., Taiwan Branch, 4F-2, No.116, Dadun 20th St., Situn District, Taichung City 407, Taiwan (R.O.C.) T: +(886) 4 2310 6451 F:+(886) 4 2310 6460 • **INDIA:** IDEAL INDUSTRIES India Private Limited, 229-230, SPAZEDGE, Tower B, Sector 47, Sohna Road, Gurgaon – 122018, Haryana, India T: +(91) 956 007 5905 [www.ideal-industries.in](http://www.ideal-industries.in)



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