Saf-D-Grid®

Connector System for Higher Voltage Power Distribution

Anderson Power Products®

An IDEAL Company

Saf-D-Grid®

Safe Connections for Higher Voltage Power Distribution Systems

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.

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.*

| SPECIFICATIONS |

Mechanical

Contact Retention (lbf)	20
(N)	89
Plug Latch Retention (lbf)	20
(N)	89
Panel Latch Retention (lbf)	60
(N)	267
Durability	5,000 cycles - no load
Receptacle Max Wire OD (in)	0.22
(mm)	5.6
Creep & Clearance per UL & IEC 60950 Between live parts of different polarity, earthing circuit and the mating surface.	
• Short and Flush Receptacle with Crimp Contacts	8.0 mm
• Ultra Short Receptacle, Short and Flush Receptacle with Solder or PCB Contacts	7.0 mm
Maximum PCB Thickness [A] (in)	0.093
(mm)	2.4
Mechanical Shock [B] IEC 60512-4-6C	50g's
Vibration, High Frequency [B] IEC 60512-4-6d	20g's

Electrical

Voltage (AC/DC)	
• UL 1977 / CSA 22.2	600
• IEC	400
Current Rating (Amperes)	40
Wire Range (AWG)	#12 to #18
(mm²)	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.

Protection

IEC 60529	IP20

c US File No. E26226

c UL us LISTED File No. E343569

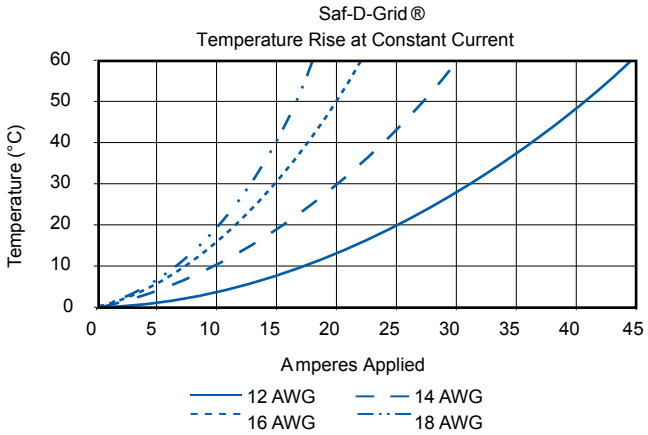
Materials (RoHS Compliant)

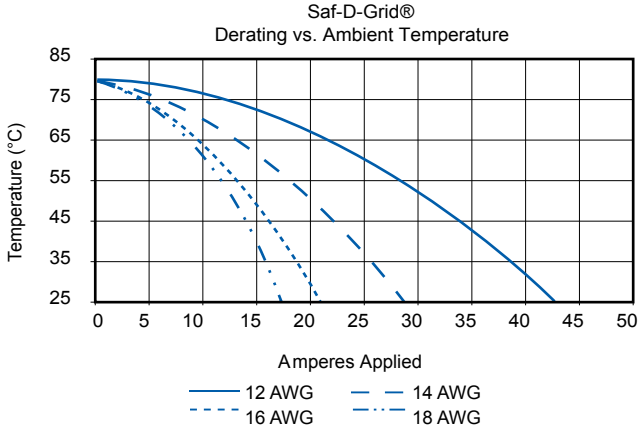
Housings	
• 2006G1 Series Receptacles	Hi Temp Nylon + 30% GF, UL94 V-0, Halogen Free
• All other Receptacles & Plugs	Polycarbonate UL94 V-0
Springs	Stainless Steel
Contacts	Copper, Silver Plate
Cable / Strain Relief	Thermoplastic UL94 V-2

A Applicable only to receptacles intended for termination to PCB

B Tested with straight plug and flush mount receptacle with #14 AWG wire and 2003G1 contacts.

| TEMPERATURE CHARTS |





| UL 1977 & IEC 61984 RATINGS |

Receptacle Series	Wire Size	Conditions of Use	Agency Rating	Rated Current Amp	Rated Voltage AC / DC
Flush 2002 & Short 2005	18 AWG plug & receptacle	Disconnect Only	CNR	12	600
			UL 1977	18	600
		Current Interrupt	UL 1977	12	400
Flush 2002 & Short 2005	16 AWG plug & receptacle	Disconnect Only	CNR	14	600
			UL 1977	18	600
		Current Interrupt	UL 1977	14	400
Flush 2002 & Short 2005	1.5 mm² plug & receptacle	Disconnect Only	IEC 61984 [3]	14	400
		Current Interrupt			
Flush 2002 & Short 2005	14 AWG plug & receptacle	Disconnect Only	IEC 61984 [3]	25	400
		Current Interrupt	UL 1977, CNR	20	400
			IEC 61984 [3]		
Flush 2002 & Short 2005	12 AWG plug & receptacle	Disconnect Only	CNR	30	600
			UL 1977	40	600
		Current Interrupt	UL 1977	30	400
Ultra Short 2006G	18 AWG plug & receptacle	Disconnect Only	CNR	13	600
			IEC 61984	13	400
			UL 1977	21	600
		Current Interrupt	IEC 61984	13	400
			UL 1977, CNR	12	400
Ultra Short 2006G	1.5 mm² plug & receptacle	Disconnect Only	IEC 61984	14	400
		Current Interrupt			
Ultra Short 2006G	14 AWG plug & receptacle	Disconnect Only	CNR	25	600
			IEC 61984	25	400
			UL 1977	35	600
		Current Interrupt	UL 1977, CNR	20	400
			IEC 61984		

[3] Note: No IEC 61984 approvals for 2002N, 2002V, 2005N & 2005V series receptacles.

| UL 817 RATINGS |

Connector Type / Cable Type	Wire Size	Disconnect Only (600V Max)	Current Interrupt (400V Max)
Straight Plug / SOOW 600V	14 AWG	18	18
Straight Plug / ST 600V	18 AWG	10	10
	16 AWG	13	13
	14 AWG	18	18
Straight Plug / SJT 300V	14 AWG	18[1]	18[1]
IEC C20 Plug / SJT 250V	14 AWG	16[2]	N/A
Right Angle Plug / ST 600V	18 AWG	10	10
	16 AWG	13	13
	14 AWG	18	18
T-Latch Plug / ST 600V	18 AWG	10	10
	16 AWG	13	13
	14 AWG	18	18

[1] Note: Voltage limited by wire insulation rating
[2] Note: Voltage limited by the IEC connector on the cord set

| CCC RATINGS | - Pending

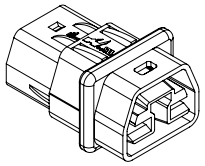
Receptacle Series	Wire Size AWG	Conditions of Use	Rated Current Amp	Rated Voltage AC / DC
Ultra Short 2006G	2.5 mm² plug & receptacle	Current Interrupt	20	400

- UL1977 ratings are for recognized components under UL1977 file# E26226. Ratings may vary once the final listing category is considered. Do not exceed maximum operating temperature of connector or wire insulation. Ratings are based on an ambient temperature of 25˚C.
- CNR - indicates investigation to Canadian National Standards, C22.2 No. 182.3.
- UL817 recognized or listed cord sets under UL file number E 343569.
- IEC 61984 certification by TUV certification number R 7212289.
- "Disconnect Only" indicates the devices are not for interrupting current.
- "Current Interrupt" indicates the devices have been investigated for the interruption of current.
- APP assembly tooling is required for UL, CSA & other safety agency compliance. Use of unapproved tooling will void connector warranty.
- CCC Certification to: GB/T11918-2001: Part 1 (idt IEC 60309-1:1999) & GB/T11919-2001: Part 2 (idt IEC 60309-2:1999)
- CCC Certification is only required for connectors which are built to CCC recognized dimensional & performance standards. Saf-D-Grid was voluntarily submitted to CCC under performance only aspects of relevant standards.

| PANEL MOUNT RECEPTACLES | - For Crimp Termination to Wire

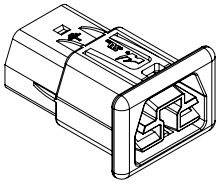
Receptacle Housings Only

Housing Style & Panel Thickness	Non-Bulk - Part Numbers -	Std. Pack	Bulk - Part Numbers -	Std. Pack
Short Depth				
0.8mm	2005G1	1	2005G1-BK	100
1.0mm	2005G3	1	2005G3-BK	100
1.6mm	2005G4	1	2005G4-BK	100
Flush Mount				
0.8mm	2002G1	1	2002G1-BK	100
1.0mm	2002G3	1	2002G3-BK	100
1.2mm	2002G2	1	2002G2-BK	100
1.6mm	2002G4	1	2002G4-BK	100
2.0mm	2002G5	1	2002G5-BK	100
2.5mm	2002G6	1	2002G6-BK	100



Short Receptacle

Mid-flange snap-in panel mount design shortens space required inside the panel. For use with crimp wire contacts.

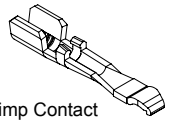


Flush Mount Receptacle

Flush snap-in panel mount design is compatible with crimp wire contacts.

Contacts - #12 to 18 AWG

Compatible Receptacles	Loose Piece - Part Numbers -	Std. Pack	Reeled - Part Numbers -	Std. Pack
Flush Mount	2003G1-LPBK	1	2003G1	2,500



Crimp Contact

| TOOLING |

Tooling Available Directly from Anderson Power Products (All Customers)

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

Press

Hand Tool

Applicator

Additional Tooling Available Directly from ATS (North American Customers Only)

Contact Part Number	Description	Automated Tooling		
		Press	Air Feed	Applicator
2003G1	Receptacle Contact, Reeled	354500-1	354578-1	1852859-3

- **Contact ATS Directly to Purchase or Lease Tooling**
  P.O. Box 6780, Harrisburg, PA 17112 USA
  T: 877-671-2955 F: 717-810-2862
  www.applicationtooling.com

NOTE: Tooling recommended by APP is required for UL, CSA & other safety agency compliance. Use of unapproved tooling will void connector warranty.

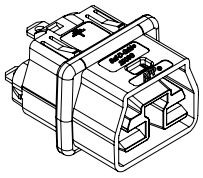
NOTE: Shading Indicates Build to Order

| PANEL MOUNT RECEPTACLES | - For Solder Termination to Wire

Receptacle Kits (Housing & Contacts)

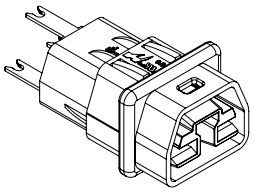
Housing	Termination Type	Panel Thickness	Non-Bulk - Part Numbers -	Std. Pack	Bulk - Part Numbers -	Std. Pack
Flush Mount	Wire, Crimp*	0.8mm	2002G1KIT	1	N/A	N/A
Flush Mount	Wire, Crimp*	1.0mm	2002G3KIT	1	N/A	N/A
Flush Mount	Wire, Crimp*	1.2mm	2002G2KIT	1	N/A	N/A
Flush Mount	Wire, Crimp*	1.6mm	2002G4KIT	1	N/A	N/A
Flush Mount	Wire, Solder	0.8mm	2002N1	1	2002N1-BK	100
Flush Mount	Wire, Solder	1.0mm	2002N3	1	2002N3-BK	100
Flush Mount	Wire, Solder	1.2mm	2002N2	1	2002N2-BK	100
Flush Mount	Wire, Solder	1.6mm	2002N4	1	2002N4-BK	100
Short Depth	Wire, Crimp*	0.8mm	2005G1KIT	1	N/A	N/A
Short Depth	Wire, Crimp*	1.0mm	2005G3KIT	1	N/A	N/A
Short Depth	Wire, Crimp*	1.6mm	2005G4KIT	1	N/A	N/A
Short Depth	Wire, Solder	0.8mm	2005N1	1	2005N1-BK	100
Short Depth	Wire, Solder	1.0mm	2005N3	1	2005N3-BK	100
Short Depth	Wire, Solder	1.6mm	2005N4	1	2005N4-BK	100
Ultra Short Depth	Wire, Solder	0.8mm	2006G1	1	2006G1-BK	100
Ultra Short Depth	Wire, Solder	1.0mm	2006G3	1	2006G3-BK	100
Ultra Short Depth	Wire, Solder	1.2mm	2006G2	1	2006G2-BK	100
Ultra Short Depth	Wire, Solder	1.6mm	2006G4	1	2006G4-BK	100
Ultra Short Depth	Wire, Solder	2.0mm	2006G5	1	2006G5-BK	100
Ultra Short Depth	Wire, Solder	2.5mm	2006G6	1	2006G6-BK	100

*Includes Contact Part Number 2003G1 Pre-Terminated to 12 inches of #16 AWG, 600V Wire



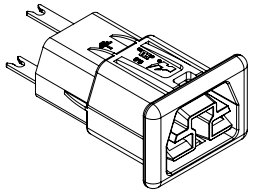
Ultra Short Receptacle

Mid-flange snap in panel mount design for direct solder wire termination uses minimal space inside the panel. Halogen free.



Short Receptacle

Short receptacle housing fully assembled with contacts for direct solder wire termination.



Flush Mount Receptacle

Standard receptacle housing fully assembled with contacts for direct solder wire termination.

Receptacle Housings Only

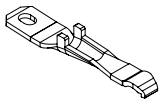
Housing Style & Panel Thickness	Non-Bulk - Part Numbers -	Std. Pack	Bulk - Part Numbers -	Std. Pack
Ultra Short Depth				
0.8mm	2006G1-NC	1	2006G1-NC-BK	100
1.0mm	2006G3-NC	1	2006G3-NC-BK	100
1.2mm	2006G2-NC	1	2006G2-NC-BK	100
1.6mm	2006G4-NC	1	2006G4-NC-BK	100
2.0mm	2006G5-NC	1	2006G5-NC-BK	100
2.5mm	2006G6-NC	1	2006G6-NC-BK	100

Contacts - #14 to 18 AWG

Compatible Receptacles	Loose Piece - Part Numbers -	Std. Pack	Reeled - Part Numbers -	Std. Pack
Ultra Short	2016G1-LPBK	1	-	-

NOTE:

- Ultra short contacts are to be used with ultra short depth housings only, for soldering to stranded copper wire.

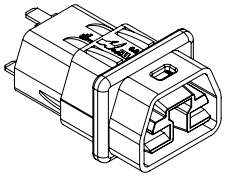


Ultra Short Solder Contact

| PANEL MOUNT RECEPTACLES | - For Solder Termination to PCB

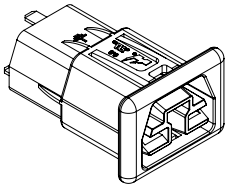
Receptacle Kits (Housing & Contacts)

Housing	Termination Type	Panel Thickness	Non-Bulk - Part Numbers -	Std. Pack	Bulk - Part Numbers -	Std. Pack
Flush Mount	PCB, Solder	0.8mm	2002V1	1	2002V1-BK	100
Flush Mount	PCB, Solder	1.0mm	2002V3	1	2002V3-BK	100
Flush Mount	PCB, Solder	1.2mm	2002V2	1	2002V2-BK	100
Flush Mount	PCB, Solder	1.6mm	2002V4	1	2002V4-BK	100
Short Depth	PCB, Solder	0.8mm	2005V1	1	2005V1-BK	100
Short Depth	PCB, Solder	1.0mm	2005V3	1	2005V3-BK	100
Short Depth	PCB, Solder	1.6mm	2005V4	1	2005V4-BK	100



Short Receptacle

Short receptacle housing fully assembled with PCB contacts for 0.062 (1.57 mm) to 0.093 (2.36 mm) inch boards.

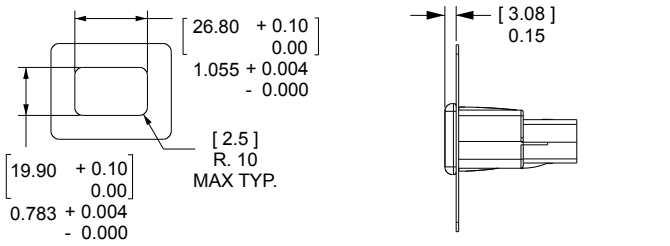


Flush Mount Receptacle

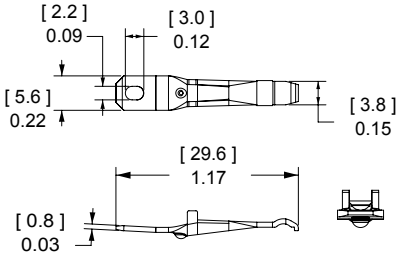
Standard receptacle housing fully assembled with PCB contacts for 0.062 (1.57 mm) to 0.093 (2.36 mm) inch boards.

NOTE: Shading Indicates Build to Order

| DRAWINGS | - See Product Drawings on the Website for Additional Information

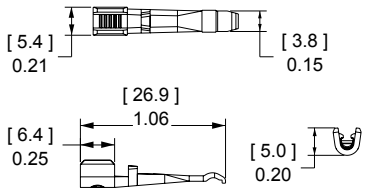


Panel Cut Out for All Receptacle Types



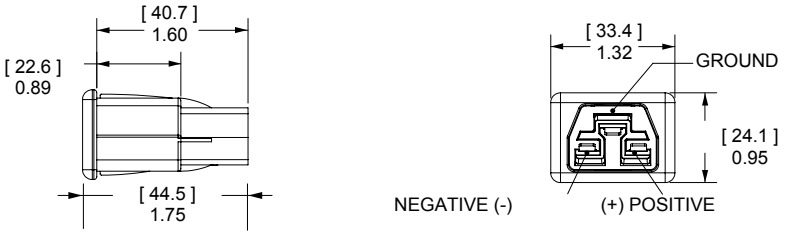
Ultra Short Contact

Ultra Short Depth - For Solder Termination to Wire

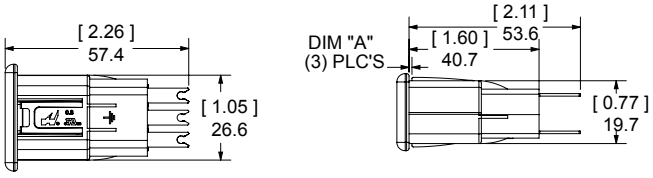


Flush Mount & Short Contact

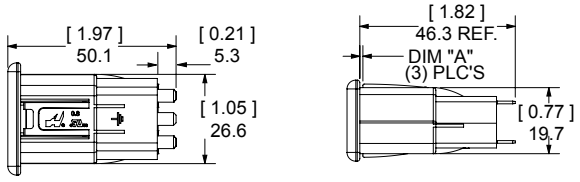
Short Depth - For Crimp Termination to Wire



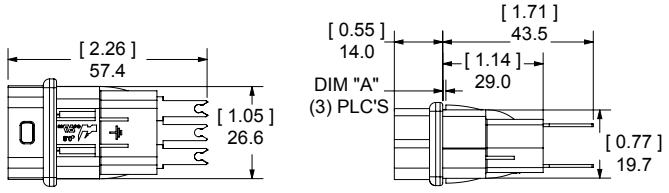
Flush Mount - For Crimp Termination to Wire



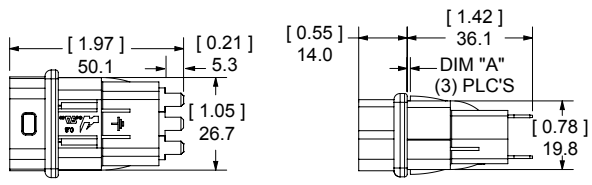
Flush Mount - For Solder Termination to Wire



Flush Mount - For Solder Termination to PCB



Short Depth - For Solder Termination to Wire

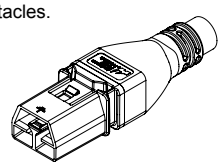


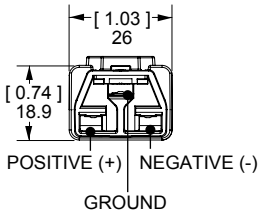
Short Depth - For Solder Termination to PCB

| POWER CORDS | - All Plug Types Mate to All Receptacle Types

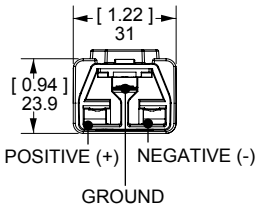
Wide "T" Latch Plug

Wide latch release button across the top of the plug body to allow easy latch access around PSU handles or other obstacles.





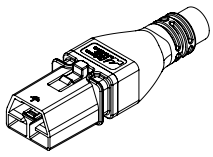
18 - 14 AWG | 1.0mm² - 2.0mm²

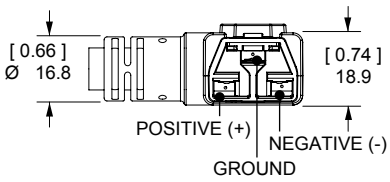


12 AWG

Small Latch Plug

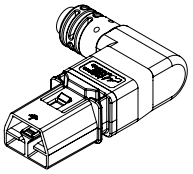
Small latch release button in the center top of the plug body.

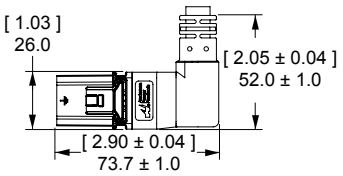




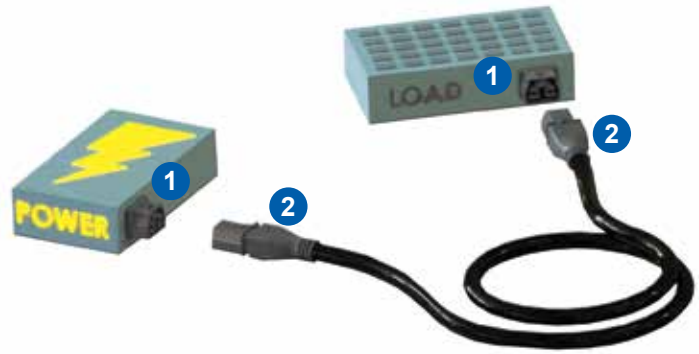
Right Angle "T" Latch Plug

Right angle cord over mold to the plug with wide latch button.





Simplified Power Connection Design



1. The Same Receptacle is Used on Both the Power & Load Sides.
2. The Same Plug is Used on Both Sides of the Power Cord.
3. Both Plug & Receptacle Connectors are Touch Safe.

| Common Cable Types Used in Saf-D-Grid® Power Cords |

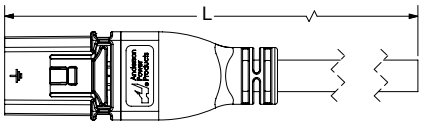
Cable Type	Voltage Rating	Approvals	Jacket Material	Conductor Insulation	Conductor Insulation Coloring	Notes
SJT	300V	UL, CSA	PVC	PVC	Black, White, Green	North American Junior Hard Service, Suitable for Medium Duties in Office or Home, Not Outdoor Rated
ST	600V	UL, CSA	PVC	PVC	Black, White, Green	North American Hard Service, Suitable for Medium Duties in Office or Home, Not Outdoor Rated
SOOW	600V	UL, CSA	Rubber	Rubber	Black, White, Green	North American Extra Hard Service, Outdoor Rated, Oil Resistant
HVCT	600V	PSE	PVC	PVC	Black, White, Green	Japanese, JIS C 3312, Suitable for Medium Duties in Office or Home, Not Outdoor Rated
H05VVF	300/500V	IEC	PVC	PVC	Blue, Brown, Green/Yellow	International Harmonized, Suitable for Medium Duties in Office or Home, Not Outdoor Rated
60245 IEC 57	300/500V	CCC	Rubber	Rubber	Blue, Brown, Green/Yellow	Suitable for Low Mechanical Stress Open Air Environment

NOTE: Reference the plug cordset drawings for exact information on the cable used. Some of the above cables may be for special order use only. Plug cordsets that are available with short lead times are shown in the part number charts of this catalog without a shaded background. Additional cable types may be available on request. Contact customer service.

Single-Ended “T” Latch Plug Power Cord

Length M	Length FT	Description	UL 817	TUV	CCC *	Non-Bulk - Part Numbers -	Std. Pack	Bulk - Part Numbers -	Std. Pack
2.0	6.56	12 AWG ST UL 600V 90C				2034KZ2	1	2034KZ2-BK	20
3.0	9.84	12 AWG ST UL 600V 90C				2034KZ3	1	2034KZ3-BK	13
6.0	19.68	12 AWG ST UL 600V 90C				2034KZ6	1	2034KZ6-BK	7
2.0	6.56	14 AWG ST UL 600V 90C	•	•		2031KZ2	1	2031KZ2-BK	50
3.0	9.84	14 AWG ST UL 600V 90C	•	•		2031KZ3	1	2031KZ3-BK	30
6.0	19.68	14 AWG ST UL 600V 90C	•	•		2031KZ6	1	2031KZ6-BK	6
2.0	6.56	16 AWG ST UL 600V 90C	•	•		2036KZ2	1	2036KZ2-BK	50
3.0	9.84	16 AWG ST UL 600V 90C	•	•		2036KZ3	1	2036KZ3-BK	30
6.0	19.68	16 AWG ST UL 600V 90C	•	•		2036KZ6	1	2036KZ6-BK	6
2.0	6.56	18 AWG ST UL 600V 90C	•	•		2033KZ2	1	2033KZ2-BK	50
3.0	9.84	18 AWG ST UL 600V 90C	•	•		2033KZ3	1	2033KZ3-BK	30
6.0	19.68	18 AWG ST UL 600V 90C	•	•		2033KZ6	1	2033KZ6-BK	6
2.0	6.56	1.0 mm² H05VVF CE 500/300V 75C				2043KZ2	1	2043KZ2-BK	50
3.0	9.84	1.0 mm² H05VVF CE 500/300V 75C				2043KZ3	1	2043KZ3-BK	30
6.0	19.68	1.0 mm² H05VVF CE 500/300V 75C				2043KZ6	1	2043KZ6-BK	6
2.0	6.56	1.5 mm² H05VVF CE 500/300V 75C		•		2047KZ2	1	2047KZ2-BK	50
3.0	9.84	1.5 mm² H05VVF CE 500/300V 75C		•		2047KZ3	1	2047KZ3-BK	30
6.0	19.68	1.5 mm² H05VVF CE 500/300V 75C		•		2047KZ6	1	2047KZ6-BK	6
2.0	6.56	2.5 mm² 60245 IEC 57 / CCC 500/300V 60C			•	2045KZ2	1	2045KZ2-BK	50
3.0	9.84	2.5 mm² 60245 IEC 57 / CCC 500/300V 60C			•	2045KZ3	1	2045KZ3-BK	30
6.0	19.68	2.5 mm² 60245 IEC 57 / CCC 500/300V 60C			•	2045KZ6	1	2045KZ6-BK	6
2.0	6.56	1.0 mm² HVCT PSE 600V 75C				2023KZ2	1	2023KZ2-BK	50
3.0	9.84	1.0 mm² HVCT PSE 600V 75C				2023KZ3	1	2023KZ3-BK	30
6.0	19.68	1.0 mm² HVCT PSE 600V 75C				2023KZ6	1	2023KZ6-BK	6
2.0	6.56	1.25 mm² HVCT PSE 600V 75C				2025KZ2	1	2025KZ2-BK	50
3.0	9.84	1.25 mm² HVCT PSE 600V 75C				2025KZ3	1	2025KZ3-BK	30
6.0	19.68	1.25 mm² HVCT PSE 600V 75C				2025KZ6	1	2025KZ6-BK	6
2.0	6.56	2.0 mm² HVCT PSE 600V 75C				2021KZ2	1	2021KZ2-BK	50
3.0	9.84	2.0 mm² HVCT PSE 600V 75C				2021KZ3	1	2021KZ3-BK	30
6.0	19.68	2.0 mm² HVCT PSE 600V 75C				2021KZ6	1	2021KZ6-BK	6

* CCC Pending

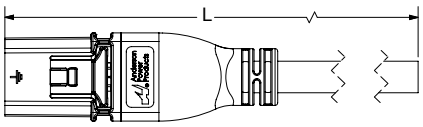


Top View

Single Ended Plug Assembly

Single-Ended Small Latch Plug Power Cord

Length M	Length FT	Description	UL 817	TUV	Non-Bulk - Part Numbers -	Std. Pack	Bulk - Part Numbers -	Std. Pack
2.0	6.56	12 AWG ST UL 600V 90C			2034G2	1	2034G2-BK	20
3.0	9.84	12 AWG ST UL 600V 90C			2034G3	1	2034G3-BK	13
6.0	19.68	12 AWG ST UL 600V 90C			2034G6	1	2034G6-BK	7
2.0	6.56	14 AWG ST UL 600V 90C	•	•	2030G2	1	2030G2-BK	50
3.0	9.84	14 AWG ST UL 600V 90C	•	•	2030G3	1	2030G3-BK	30
6.0	19.68	14 AWG ST UL 600V 90C	•	•	2030G6	1	2030G6-BK	6
2.0	6.56	18 AWG ST UL 600V 90C	•	•	2032G2	1	2032G2-BK	50
3.0	9.84	18 AWG ST UL 600V 90C	•	•	2032G3	1	2032G3-BK	30
6.0	19.68	18 AWG ST UL 600V 90C	•	•	2032G6	1	2032G6-BK	6
2.0	6.56	1.5 mm² H05VVF CE 500/300V 75C		•	2040G2	1	2040G2-BK	50
3.0	9.84	1.5 mm² H05VVF CE 500/300V 75C		•	2040G3	1	2040G3-BK	30
6.0	19.68	1.5 mm² H05VVF CE 500/300V 75C		•	2040G6	1	2040G6-BK	6
1.5	4.92	2.0 mm² HVCT PSE 600V 75C			2020G1	1	2020G1-BK	50
2.0	6.56	2.0 mm² HVCT PSE 600V 75C			2020G2	1	2020G2-BK	50
3.0	9.84	2.0 mm² HVCT PSE 600V 75C			2020G3	1	2020G3-BK	30
6.0	19.68	2.0 mm² HVCT PSE 600V 75C			2020G6	1	2020G6-BK	6



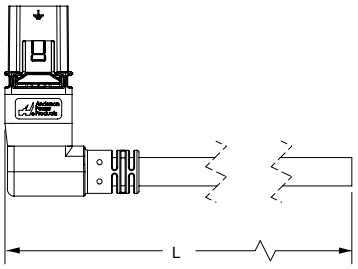
Top View

Single Ended Plug Assembly

NOTE: Shading Indicates Build to Order

Single-Ended Right Angle “T” Latch Plug Power Cord

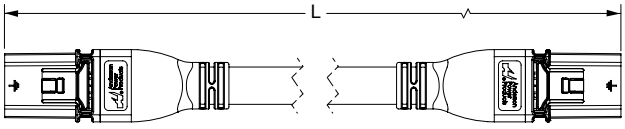
Length M	Length FT	Description	UL 817	TUV	Non-Bulk - Part Numbers -	Std. Pack	Bulk - Part Numbers -	Std. Pack
2.0	6.56	14 AWG ST UL 600V 90C	•	•	2031LZ2	1	2031LZ2-BK	50
3.0	9.84	14 AWG ST UL 600V 90C	•	•	2031LZ3	1	2031LZ3-BK	30
6.0	19.68	14 AWG ST UL 600V 90C	•	•	2031LZ6	1	2031LZ6-BK	6
2.0	6.56	16 AWG ST UL 600V 90C	•		2036LZ2	1	2036LZ2-BK	50
3.0	9.84	16 AWG ST UL 600V 90C	•		2036LZ3	1	2036LZ3-BK	30
6.0	19.68	16 AWG ST UL 600V 90C	•		2036LZ6	1	2036LZ6-BK	6
2.0	6.56	18 AWG ST UL 600V 90C	•		2033LZ2	1	2033LZ2-BK	50
3.0	9.84	18 AWG ST UL 600V 90C	•		2033LZ3	1	2033LZ3-BK	30
6.0	19.68	18 AWG ST UL 600V 90C	•		2033LZ6	1	2033LZ6-BK	6
2.0	6.56	2.0 mm² HVCT PSE 600V 75C			2021LZ2	1	2021LZ2-BK	50
3.0	9.84	2.0 mm² HVCT PSE 600V 75C			2021LZ3	1	2021LZ3-BK	30
6.0	19.68	2.0 mm² HVCT PSE 600V 75C			2021LZ6	1	2021LZ6-BK	6



Double-Ended “T” Latch Plug Power Cord

Length M	Length FT	Description	UL 817	TUV	CCC *	Non-Bulk - Part Numbers -	Std. Pack	Bulk - Part Numbers -	Std. Pack
2.0	6.56	12 AWG ST UL 600V 90C				2035KK2	1	2035KK2-BK	20
3.0	9.84	12 AWG ST UL 600V 90C				2035KK3	1	2035KK3-BK	13
6.0	19.68	12 AWG ST UL 600V 90C				2035KK6	1	2035KK6-BK	7
2.0	6.56	14 AWG ST UL 600V 90C	•	•		2031KK2	1	2031KK2-BK	50
3.0	9.84	14 AWG ST UL 600V 90C	•	•		2031KK3	1	2031KK3-BK	30
6.0	19.68	14 AWG ST UL 600V 90C	•	•		2031KK6	1	2031KK6-BK	6
2.0	6.56	16 AWG ST UL 600V 90C	•	•		2036KK2	1	2036KK2-BK	50
3.0	9.84	16 AWG ST UL 600V 90C	•	•		2036KK3	1	2036KK3-BK	30
6.0	19.68	16 AWG ST UL 600V 90C	•	•		2036KK6	1	2036KK6-BK	6
2.0	6.56	18 AWG ST UL 600V 90C	•	•		2033KK2	1	2033KK2-BK	50
3.0	9.84	18 AWG ST UL 600V 90C	•	•		2033KK3	1	2033KK3-BK	30
6.0	19.68	18 AWG ST UL 600V 90C	•	•		2033KK6	1	2033KK6-BK	6
2.0	6.56	1.0 mm² H05VVF CE 500/300V 75C				2043KK2	1	2043KK2-BK	50
3.0	9.84	1.0 mm² H05VVF CE 500/300V 75C				2043KK3	1	2043KK3-BK	30
6.0	19.68	1.0 mm² H05VVF CE 500/300V 75C				2043KK6	1	2043KK6-BK	6
2.0	6.56	1.5 mm² H05VVF CE 500/300V 75C		•		2047KK2	1	2047KK2-BK	50
3.0	9.84	1.5 mm² H05VVF CE 500/300V 75C		•		2047KK3	1	2047KK3-BK	30
6.0	19.68	1.5 mm² H05VVF CE 500/300V 75C		•		2047KK6	1	2047KK6-BK	6
2.0	6.56	2.5 mm² 60245 IEC 57 / CCC 500/300V 60C			•	2045KK2	1	2045KK2-BK	50
3.0	9.84	2.5 mm² 60245 IEC 57 / CCC 500/300V 60C			•	2045KK3	1	2045KK3-BK	30
6.0	19.68	2.5 mm² 60245 IEC 57 / CCC 500/300V 60C			•	2045KK6	1	2045KK6-BK	6
2.0	6.56	1.0 mm² HVCT PSE 600V 75C				2023KK2	1	2023KK2-BK	50
3.0	9.84	1.0 mm² HVCT PSE 600V 75C				2023KK3	1	2023KK3-BK	30
6.0	19.68	1.0 mm² HVCT PSE 600V 75C				2023KK6	1	2023KK6-BK	6
2.0	6.56	1.25 mm² HVCT PSE 600V 75C				2025KK2	1	2025KK2-BK	50
3.0	9.84	1.25 mm² HVCT PSE 600V 75C				2025KK3	1	2025KK3-BK	30
6.0	19.68	1.25 mm² HVCT PSE 600V 75C				2025KK6	1	2025KK6-BK	6
2.0	6.56	2.0 mm² HVCT PSE 600V 75C				2021KK2	1	2021KK2-BK	50
3.0	9.84	2.0 mm² HVCT PSE 600V 75C				2021KK3	1	2021KK3-BK	30
6.0	19.68	2.0 mm² HVCT PSE 600V 75C				2021KK6	1	2021KK6-BK	6

* CCC Pending



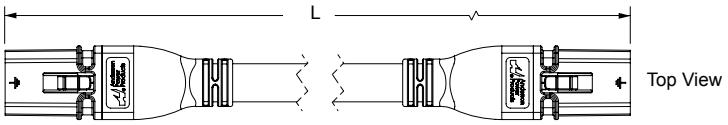
Top View

Double Ended Plug Assembly

NOTE: Shading Indicates Build to Order

Double-Ended Small Latch Plug Power Cord

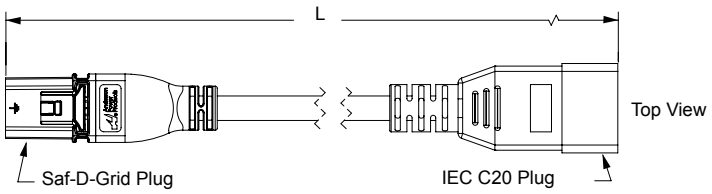
Length M	Length FT	Description	UL 817	TUV	Non-Bulk - Part Numbers -	Std. Pack	Bulk - Part Numbers -	Std Pack
2.0	6.56	12 AWG ST UL 600V 90C			2035G2	1	2035G2-BK	20
3.0	9.84	12 AWG ST UL 600V 90C			2035G3	1	2035G3-BK	13
6.0	19.68	12 AWG ST UL 600V 90C			2035G6	1	2035G6-BK	7
2.0	6.56	14 AWG ST UL 600V 90C	•	•	2031G2	1	2031G2-BK	50
3.0	9.84	14 AWG ST UL 600V 90C	•	•	2031G3	1	2031G3-BK	30
6.0	19.68	14 AWG ST UL 600V 90C	•	•	2031G6	1	2031G6-BK	6
2.0	6.56	18 AWG ST UL 600V 90C	•	•	2033G2	1	2033G2-BK	50
3.0	9.84	18 AWG ST UL 600V 90C	•	•	2033G3	1	2033G3-BK	30
6.0	19.68	18 AWG ST UL 600V 90C	•	•	2033G6	1	2033G6-BK	6
2.0	6.56	1.5 mm² H05VVF CE 500/300V 75C		•	2041G2	1	2041G2-BK	50
3.0	9.84	1.5 mm² H05VVF CE 500/300V 75C		•	2041G3	1	2041G3-BK	30
6.0	19.68	1.5 mm² H05VVF CE 500/300V 75C		•	2041G6	1	2041G6-BK	6
2.0	6.56	2.0 mm² HVCT PSE 600V 75C			2021G2	1	2021G2-BK	50
3.0	9.84	2.0 mm² HVCT PSE 600V 75C			2021G3	1	2021G3-BK	30
6.0	19.68	2.0 mm² HVCT PSE 600V 75C			2021G6	1	2021G6-BK	6



Double-Ended “T” Latch / IEC C20 Power Cord

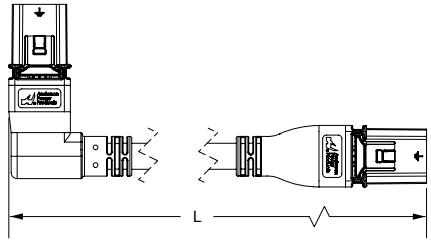
Length M	Length FT	Description	UL 817	TUV*	Non-Bulk - Part Numbers -	Std. Pack	Bulk - Part Numbers -	Std. Pack
2.0	6.56	14 AWG SJT UL 250V 105C	•	•	2052KH2	1	2052KH2-BK	50
3.0	9.84	14 AWG SJT UL 250V 105C	•	•	2052KH3	1	2052KH3-BK	30
6.0	19.68	14 AWG SJT UL 250V 105C	•	•	2052KH6	1	2052KH6-BK	6

* TUV applies only to Saf-D-Grid® connector side.



Double-Ended Right Angle “T” Latch / Straight “T” Latch Plug Power Cord

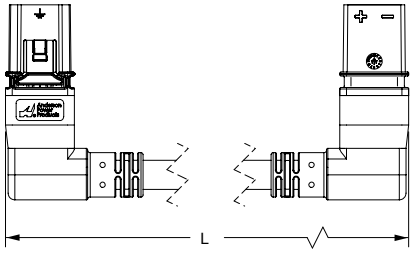
Length M	Length FT	Description	UL 817	TUV	Non-Bulk - Part Numbers -	Std. Pack	Bulk - Part Numbers -	Std. Pack
2.0	6.56	14 AWG ST UL 600V 90C	•	•	2031KL2	1	2031KL2-BK	50
3.0	9.84	14 AWG ST UL 600V 90C	•	•	2031KL3	1	2031KL3-BK	30
6.0	19.68	14 AWG ST UL 600V 90C	•	•	2031KL6	1	2031KL6-BK	6
2.0	6.56	16 AWG ST UL 600V 90C	•		2036KL2	1	2036KL2-BK	50
3.0	9.84	16 AWG ST UL 600V 90C	•		2036KL3	1	2036KL3-BK	30
6.0	19.68	16 AWG ST UL 600V 90C	•		2036KL6	1	2036KL6-BK	6
2.0	6.56	18 AWG ST UL 600V 90C	•		2033KL2	1	2033KL2-BK	50
3.0	9.84	18 AWG ST UL 600V 90C	•		2033KL3	1	2033KL3-BK	30
6.0	19.68	18 AWG ST UL 600V 90C	•		2033KL6	1	2033KL3-BK	6
2.0	6.56	2.0 mm² HVCT PSE 600V 75C			2021KL2	1	2021KL2-BK	50
3.0	9.84	2.0 mm² HVCT PSE 600V 75C			2021KL3	1	2021KL3-BK	30
6.0	19.68	2.0 mm² HVCT PSE 600V 75C			2021KL6	1	2021KL6-BK	6



NOTE: Shading Indicates Build to Order

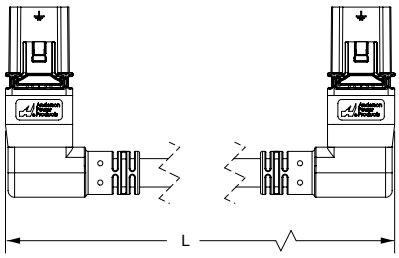
Double-Ended Right Angle “T” Latch / Right Angle “T” Latch Power Cord

Length M	Length FT	Description	UL 817	TUV	Non-Bulk - Part Numbers -	Std. Pack	Bulk - Part Numbers -	Std. Pack
2.0	6.56	14 AWG ST UL 600V 90C	•	•	2031LL2	1	2031LL2-BK	50
3.0	9.84	14 AWG ST UL 600V 90C	•	•	2031LL3	1	2031LL3-BK	30
6.0	19.68	14 AWG ST UL 600V 90C	•	•	2031LL6	1	2031LL6-BK	6
2.0	6.56	16 AWG ST UL 600V 90C	•		2036LL2	1	2036LL2-BK	50
3.0	9.84	16 AWG ST UL 600V 90C	•		2036LL3	1	2036LL3-BK	30
6.0	19.68	16 AWG ST UL 600V 90C	•		2036LL6	1	2036LL6-BK	6
2.0	6.56	18 AWG ST UL 600V 90C	•		2033LL2	1	2033LL2-BK	50
3.0	9.84	18 AWG ST UL 600V 90C	•		2033LL3	1	2033LL3-BK	30
6.0	19.68	18 AWG ST UL 600V 90C	•		2033LL6	1	2033LL6-BK	6
2.0	6.56	2.0 mm² HVCT PSE 600V 75C			2021LL2	1	2021LL2-BK	50
3.0	9.84	2.0 mm² HVCT PSE 600V 75C			2021LL3	1	2021LL3-BK	30
6.0	19.68	2.0 mm² HVCT PSE 600V 75C			2021LL6	1	2021LL6-BK	6



Double-Ended Right Angle “T” Latch / Left Angle “T” Latch Power Cord

Length M	Length FT	Description	UL 817	TUV	Non-Bulk - Part Numbers -	Std. Pack	Bulk - Part Numbers -	Std. Pack
2.0	6.56	14 AWG ST UL 600V 90C	•	•	2031LM2	1	2031LM2-BK	50
3.0	9.84	14 AWG ST UL 600V 90C	•	•	2031LM3	1	2031LM3-BK	30
6.0	19.68	14 AWG ST UL 600V 90C	•	•	2031LM6	1	2031LM6-BK	6
2.0	6.56	16 AWG ST UL 600V 90C	•		2036LM2	1	2036LM2-BK	50
3.0	9.84	16 AWG ST UL 600V 90C	•		2036LM3	1	2036LM3-BK	30
6.0	19.68	16 AWG ST UL 600V 90C	•		2036LM6	1	2036LM6-BK	6
2.0	6.56	18 AWG ST UL 600V 90C	•		2033LM2	1	2033LM2-BK	50
3.0	9.84	18 AWG ST UL 600V 90C	•		2033LM3	1	2033LM3-BK	30
6.0	19.68	18 AWG ST UL 600V 90C	•		2033LM6	1	2033LM6-BK	6
2.0	6.56	2.0 mm² HVCT PSE 600V 75C			2021LM2	1	2021LM2-BK	50
3.0	9.84	2.0 mm² HVCT PSE 600V 75C			2021LM3	1	2021LM3-BK	30
6.0	19.68	2.0 mm² HVCT PSE 600V 75C			2021LM6	1	2021LM6-BK	6



NOTE: Shading Indicates Build to Order

DC Electrical Power Distribution Systems

DC Efficiency

DC electrical distribution systems have a basic advantage over AC systems. By eliminating AC to DC conversions a DC distribution system is simpler than an AC system. With less electrical and electronic devices, a DC system can be designed with lower electrical losses and higher reliability. These advantages are further multiplied for systems having DC energy storage for backup power or peak shaving, or a local DC energy source such as photovoltaic cells, wind turbines or fuel cells.

Standardization

APP® has been a leader in the development of system and product safety standards for low voltage DC. We are active on key product and safety committees within the EMerge Alliance®, NEMA and the IEC.

Saf-D-Grid® meets or exceeds all relevant industry safety standards. The product has also been successfully tested to new product safety standards under consideration for adoption.

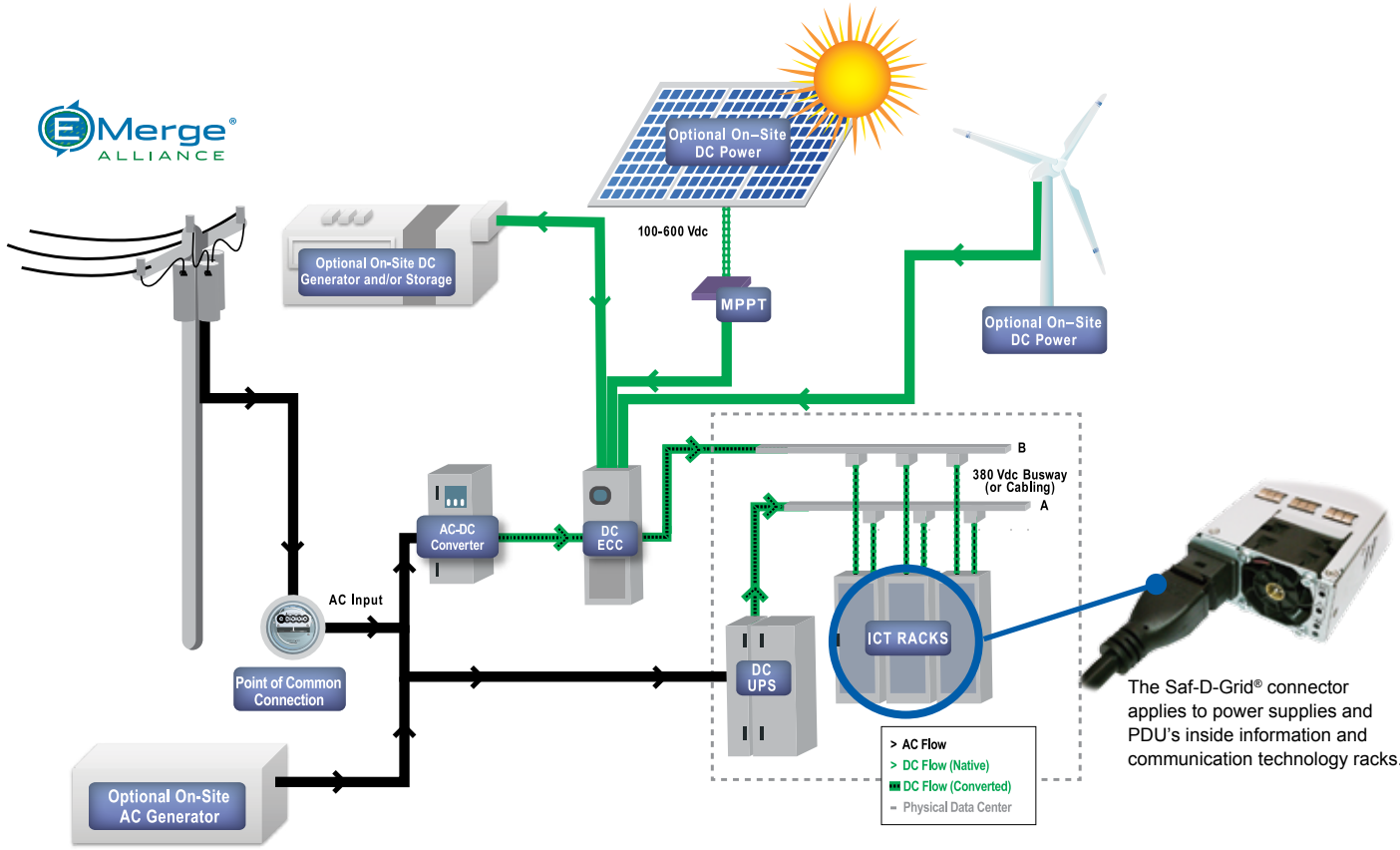
On September 26, 2012 the Emerge Alliance® board of directors ratified the Emerge Standard for DC Power Distribution Systems (DC-PDS) in Data & Telecom Centers (DTC). Within the Standard, the APP® Saf-D-Grid® connector system is designated as the interconnection of choice for power strip, power cord and device inlet power connections.

DC Arcing

AC system voltage phases cause the voltage to pass through zero at some point during the disconnection sequence. This zero crossing significantly reduces the damage to a contact system from an AC arc. DC arcing is more destructive to contact systems due to the lack of phasing to a zero voltage point. The APP® Saf-D-Grid® connector overcame this technical challenge by using adequate contact mass, arc reducing geometry, and a sacrificial contact tip. Saf-D-Grid® has undamaged electrical contact surfaces after 250 DC arcing cycles.

DC Safety

There is near global acceptance that 380V is the most practical voltage for low voltage DC distribution systems. By using a center-point ground, a +/- 190 volt DC distribution system can be constructed which has lower risk of electrocution than the 200-250 VAC systems installed throughout the world. The system can additionally be made safe by using connectors such as Saf-D-Grid®, which meet IEC and UL finger probe requirements for touch safety and have a latching system to avoid accidental disconnection. Saf-D-Grid® also has adequate voltage isolation to contain arcing from disconnection within the insulating housings. Video of the disconnection of APP® Saf-D-Grid® connectors under load shows extinguishing of the internal arc well in advance of the connector separation and potential exposure to the user.



The Saf-D-Grid® connector applies to power supplies and PDU's inside information and communication technology racks.

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