MDual Power Connector

Overview

Utilizing the efficient high-current design of the PowerBud® contact technology, the MDual power connectors carry high power in a small package and features self-aligning contacts enabling blind-mating in hidden engagement applications. Contact terminations can be crimp wire, wired lugs, or bus bar attached.

Key Specifications

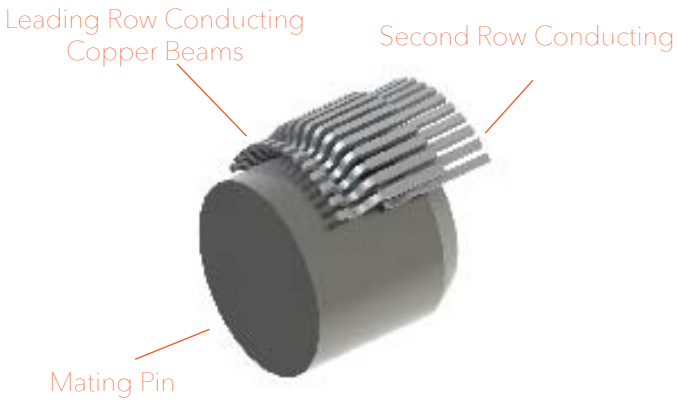
- High current capacity - up to 365 A per contact when bus terminated
- Low insertion force
- Low voltage drop
- Low contact resistance
- Low contact wear
- High cycle life
- Available in 3 sizes - 6.4, 9.1 and 12.7mm
- Multiple points of contact - low loss
- UL Standard 1977 Compliant
- CSA Standard C22.2 No. 182.3-16 Compliant
- RoHS compliant
- Halogen Free

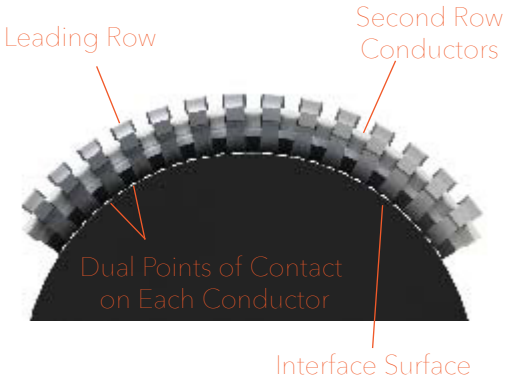
The PowerBud® Contact System

Methode's PowerBud® power contacts use an innovative, multiple contact point design that creates lower insertion force, lower temperature rise, lower power loss and higher cycle life than conventional power connectors. This unique design uses two rows of performance-engineered copper-alloy conductors arranged one over the other, which creates highly redundant contact points. This feature lowers both contact resistance and normal contact force. The PowerBud's insertion force is three to five times lower than equivalently rated electrical connectors. Less metal-on-metal wear during mating and unmating translates to a typical 10,000 cycle life. Additionally, PowerBud's power connector contact resistance is two to three times lower than equivalently-rated power connectors.

How Does It Work?

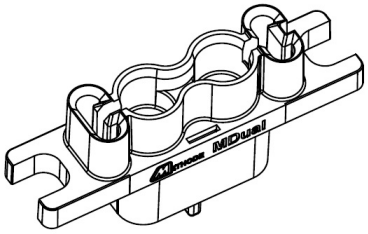
The PowerBud uses two rows of conductors arranged one over the other. The material of the beams is a proprietary performance-engineered copper alloy which is substantially better than the more commonly used beryllium copper alloy.





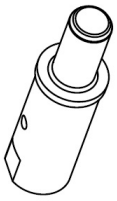
Each copper alloy beam includes a slight indentation in the finger tip to create dual contact points, adding to the massively parallel contact points.

- PIN CONNECTOR -



PN: 6316-07660-01100
SUBASSEMBLY INSULATOR HOUSING
INCLUDING RETENTION SPRINGS
NO CONTACTS

- PIN CONTACTS-

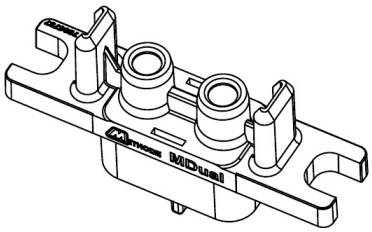


PN: 9104-06655-02104
6.4 MM PIN DIAMETER
M5 THREAD TERMINATION

PN: 9104-06454-02104
6.4 MM PIN DIAMETER
4 AWG CRIMP TERMINATION

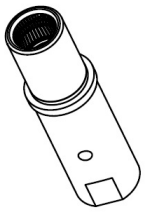
PN: 9104-07303-02104
6.4 MM PIN DIAMETER
8 AWG CRIMP TERMINATION

- SOCKET CONNECTOR -



PN: 6315-07657-01100
SUBASSEMBLY INSULATOR HOUSING
INCLUDING RETENTION SPRINGS
NO CONTACTS

- SOCKET CONTACTS-

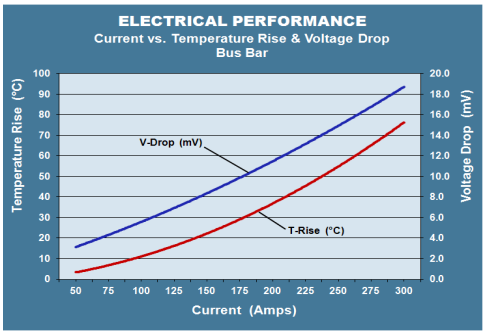


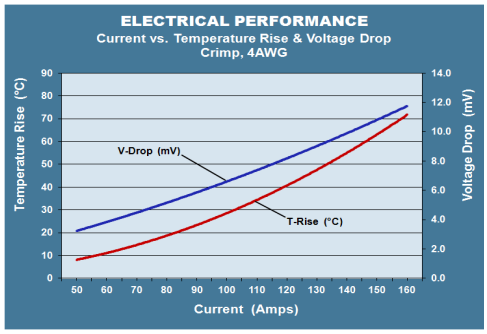
PN: 9303-06656-01104
6.4 MM PIN DIAMETER
M5 THREAD TERMINATION

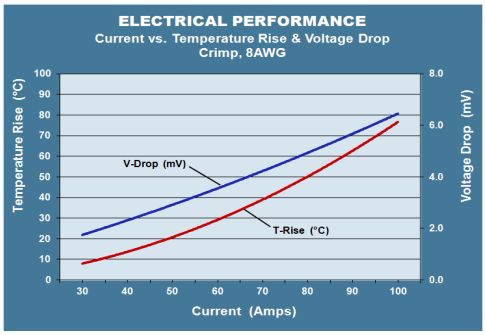
PN: 9303-06442-01104
6.4 MM PIN DIAMETER
4 AWG CRIMP TERMINATION

PN: 9303-07304-01104
6.4 MM PIN DIAMETER
8 AWG CRIMP TERMINATION

Normalized Graphs for 6.4 mm MDual Connector Mated Pairs







TEST CONDITION:

- Applied Current: 50A to 300A through each contact in series
- Current at 30°C Temp Rise: 175A
- Calculated Resistance at 30°C Temp Rise: 60 μΩ
- Contact Configuration: M5 Internal Threads
- Termination: 25.4 mm x 3.2 mm Copper Bus Bar

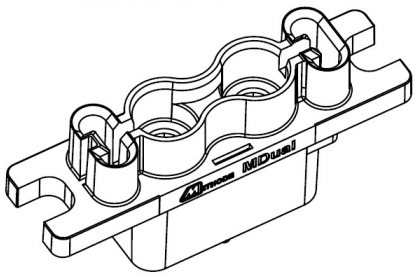
TEST CONDITION:

- Applied Current: 50A to 160A through each contact in series
- Current at 30°C Temp Rise: 100A
- Calculated Resistance at 30°C Temp Rise: 70 μΩ
- Contact Configuration: 4 AWG Crimp Barrels
- Termination: PowerFlex 1000 4 AWG Stranded Cable

TEST CONDITION:

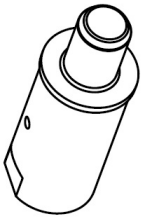
- Applied Current: 30A to 100A through each contact in series
- Current at 30°C Temp Rise: 60A
- Calculated Resistance at 30°C Temp Rise: 70 μΩ
- Contact Configuration: 8 AWG Crimp Barrels
- Termination: PowerFlex 1000 8 AWG Stranded Cable

- PIN CONNECTOR -



PN: 6316-07667-01100
SUBASSEMBLY INSULATOR HOUSING
INCLUDING RETENTION SPRINGS
NO CONTACTS

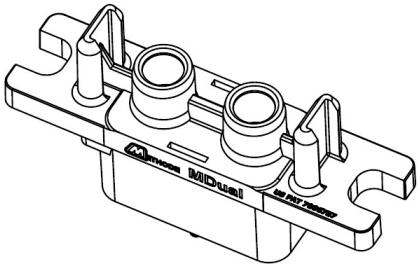
- PIN CONTACTS-



PN: 9104-07215-02104
9.1 MM PIN DIAMETER
M6 THREADED TERMINATION

PN: 9104-06933-02104
9.1 MM PIN DIAMETER
2/0 AWG CRIMP TERMINATION

- SOCKET CONNECTOR -



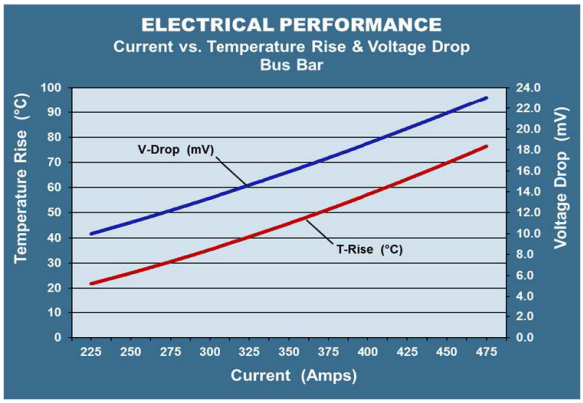
PN: 6315-07664-01100
SUBASSEMBLY INSULATOR HOUSING
INCLUDING RETENTION SPRINGS
NO CONTACTS

- SOCKET CONTACTS-

PN: 9303-07081-01104
9.1 MM PIN DIAMETER
M6 THREADED TERMINATION

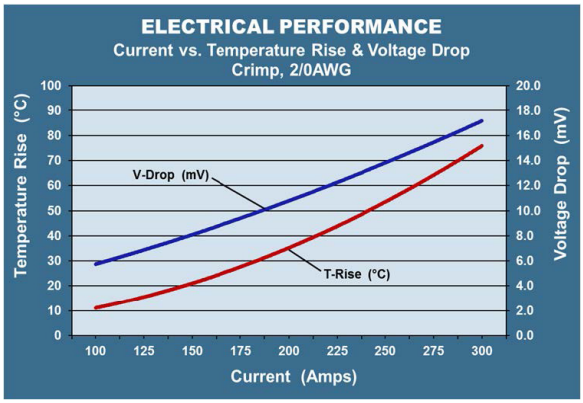
PN: 9303-07207-01104
9.1 MM PIN DIAMETER
2/0 AWG CRIMP TERMINATION

Normalized Graphs for 9.1 mm MDual Connector Mated Pairs



TEST CONDITION:

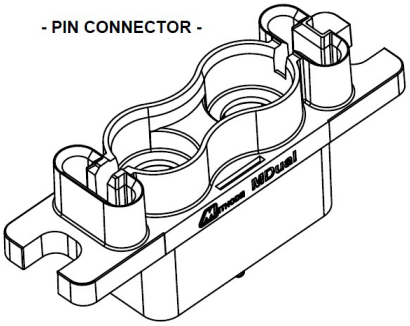
- Applied Current: 225A to 475A through each contact in series
- Current at 30°C Temp Rise: 265A
- Calculated Resistance at 30°C Temp Rise: 45 µΩ
- Contact Configuration: M6 Internal Threads
- Termination: 38.1 mm x 4.8 mm Copper Bus Bar



TEST CONDITION:

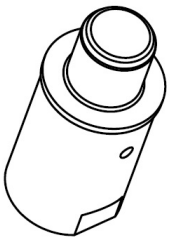
- Applied Current: 100A to 300A through each contact in series
- Current at 30°C Temp Rise: 180A
- Calculated Resistance at 30°C Temp Rise: 55 µΩ
- Contact Configuration: 2/0 AWG Crimp Barrels
- Termination: PowerFlex 1000 2/0 AWG Stranded Cable

- PIN CONNECTOR -

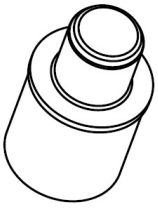


PN: 6316-07674-01100
SUBASSEMBLY INSULATOR HOUSING
INCLUDING RETENTION SPRINGS
NO CONTACTS

- PIN CONTACTS-

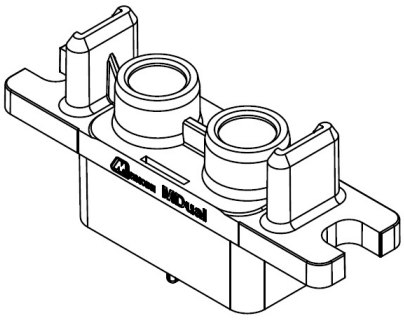


PN: 9104-07925-02104
12.7 MM PIN DIAMETER
M8 THREADED TERMINATION



PN: 9104-07924-02104
12.7 MM PIN DIAMETER
4/0 AWG CRIMP TERMINATION

- SOCKET CONNECTOR -



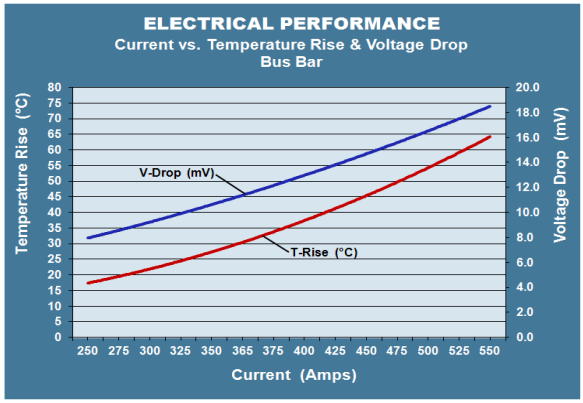
PN: 6315-07671-01100
SUBASSEMBLY INSULATOR HOUSING
INCLUDING RETENTION SPRINGS
NO CONTACTS

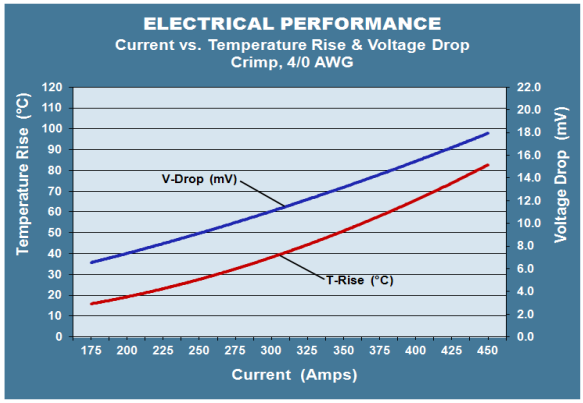
- SOCKET CONTACTS-

PN: 9303-07922-01104
POWERBUD 12.7 MM PIN DIAMETER
M8 THREADED TERMINATION

PN: 9303-07920-01104
POWERBUD 12.7 MM PIN DIAMETER
4/0 AWG CRIMP TERMINATION

Normalized Graphs for 12.7 mm MDual Connector Mated Pairs





TEST CONDITION:

- Applied Current: 250A to 550A through each contact in series
- Current at 30°C Temp Rise: 365A
- Calculated Resistance at 30°C Temp Rise: 31 µΩ
- Contact Configuration: M8 Internal Threads
- Termination: 38.1 mm x 6.4 mm Copper Bus Bar

TEST CONDITION:

- Applied Current: 175A to 450A through each contact in series
- Current at 30°C Temp Rise: 250A
- Calculated Resistance at 30°C Temp Rise: 38 µΩ
- Contact Configuration: 4/0 AWG Crimp Barrels
- Termination: PowerFlex 1000 4/0 AWG Stranded Cable

Specifications

Identification

MDUAL Pin Diameter	Termination Type	Part Number			
		Pin		Socket	
		Housing	Contact	Housing	Contact
6.4 mm	Bus Bar, M5 Thread	6316-07660-01100	9104-06655-02104	6315-07657-01100	9303-06656-01104
	Crimp, 4 AWG		9104-06454-02104		9303-06442-01104
	Crimp, 8AWG		9104-07303-02104		9303-07304-01104
9.1 mm	Bus Bar, M6 Thread	6316-07667-01100	9104-07215-02104	6315-07664-01100	9303-07081-01104
	Crimp, 2/0 AWG		9104-06933-02104		9303-07207-01104
12.7 mm	Bus Bar, M8 Thread	6316-07674-01100	9104-07925-02104	6315-07671-01100	9303-07922-01104
	Crimp, 4/0 AWG		9104-07924-02104		9303-07920-01104

Electrical & Mechanical Specificiations

MDUALPin Diameter	Termination Type	Operating Current Per Contact @ 30°C T-Rise	Typical Contact Resistance	Voltage Rating	Dielectric Withstand Voltage	Typical Connector Mating Force	Blind Mate Gatherability	Temperature Rating
6.4 mm	Bus Bar, M5 Thread	175 A	60 µΩ	600 VAC & 600 VDC	2200 VAC & 2200 VDC	15 N (3.4 lbf)	2.5 mm	- 40 to 130° C
	Crimp, 4 AWG	100 A	70 µΩ					
	Crimp, 8 AWG	60 A	70 µΩ					
9.1 mm	Bus Bar, M6 Thread	265 A	45 µΩ			23 N (5.2 lbf)	2.5 mm	
	Crimp, 2/0 AWG	180 A	55 µΩ					
12.7 mm	Bus Bar, M8 Thread	365A	31 µΩ			28 (6.3 lbf)	2.5mm	
	Crimp, 4/0 AWG	250A	38 µΩ					

Materials & Finishes

Description	Material	Finish
Insulators	Thermoplastic, UL94 V-0	-
Socket Contacts	Copper Alloy and Stainless Steel	Silver over Nickel
Pin Contacts	Copper Alloy	Silver over Nickel

Regulatory Specifications

SAFETY: UL Standard 1977, CSA Standard C22.2 No. 182.3-16
UL file Number E303434
RoHS: IEC Directive 2015/863/EU