

Rugged, reliable, battle-field tested power connectors
excel in mission critical environments

MIL-DTL-55181 power connectors



EATON

Powering Business Worldwide

MIL-DTL-55181 QPL and modified solutions

Eaton offers a comprehensive range of MIL-DTL-55181 QPL and specialized solutions. This extensive range of field-proven products can be leveraged to quickly develop application specific solutions including custom cable assemblies.

Innovations include a stacking connector that enables power splitting in the field without the use of Y cables. The stacking connector incorporates plug contacts that are mated to the battery pictured to the right. Internal contacts split power between the attached cable and receptacle contacts that are mated to the QPL connector stacked on top of it.



Heritage-proven designs are rated for 500 mate and demate cycles.



Voltage drops for mated four-contact connectors less than 20mV at 35 amps; 9 and 18 contact models less than 25mV at 7.5 amps.

Gold over nickel contact platings.

Heat treated, alloy-steel nosepiece.

QPL and RoHS compliant finish options include electroless nickel with black-trivalent chromate.

End-to-end connectivity capabilities include custom-cable assemblies.

Product overview

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MIL-DTL-55181 general specifications

Materials and Finishes

Shells

Plugs	Aluminum alloy body, steel alloy nosepieces, cadmium plate with olive drab chromate.
Receptacles	Brass, cadmium plate with olive drab chromate.
Spanner Nut	Brass, olive drab chromate.
Draw Screws	Stainless steel.

Contacts

Socket	Copper alloy with beryllium-copper spring, gold over nickel plating.
Pin	Yellow brass, gold over nickel plating.
Insulator	Glass-filled diallyl phthalate, type GDF-30 F or SDG F.

Electrical

Dielectric Strength - 4 Contacts	200 volts RMS
Dielectric strength - 9 and 18 contacts	1500 volts RMS
Insulation Resistance	1000 megohms minimum at 500 volts DC
Voltage drop - 4 contacts	20 mV at 35 amps
Voltage drop - 9 and 18 contacts	25 mV at 7.5 amps

Mechanical

Air pressure	2.5 PSI
Water immersion	6 feet for 48 hours
Durability	500 cycles with a coupling torque of 25 inch pounds.
Contact retention	10 pounds
Insert strength	400 pounds

*MIL-DTL-55181
end-to-end
connectivity
solutions include
quick turn,
custom cable
assemblies.*



MIL-DTL-55181 panel-mount receptacles

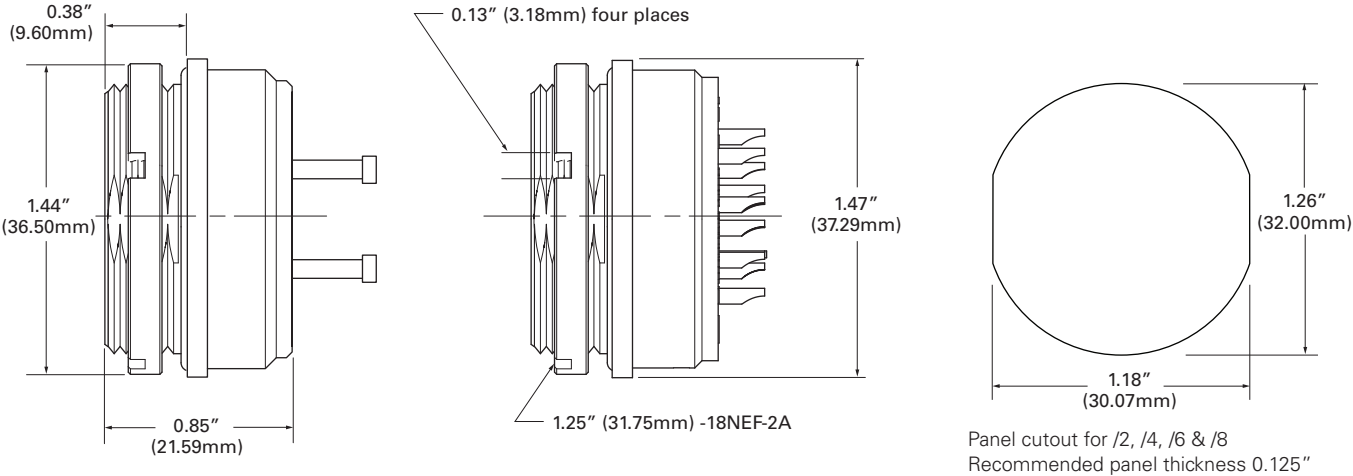
- QPL-certified 4, 9, and 18-contact configurations.
- Gold over nickel contacts.
- Rated for 500 mate/demate cycles.
- Please refer to the accessories section for dust cap and backshell information.
- Custom capabilities include factory installed wiring harnesses and cable assemblies.



Government Designation	Manufacturers' Designations	# Contacts	Contact Type	Contact size	Amps/Contact	Termination	NSN
M55181/2-01	MW20M(M)A00	4	Pin	12	35	Turret	5935-01-378-9152
M55181/4-01	MW20F(M)A00	4	Socket	12	35	Turret	5935-01-199-7156
M55181/6-01	MW20F(M)B00	9	Socket	20	7.5	Solder cup	5935-00-853-5942
M55181/8-01	MW20F(M)D00	18	Socket	20	7.5	Solder cup	5935-00-133-0394

Please refer to page 4 for additional specifications.

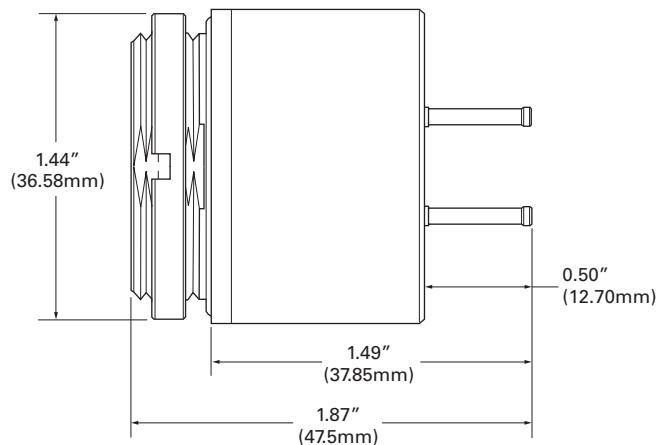
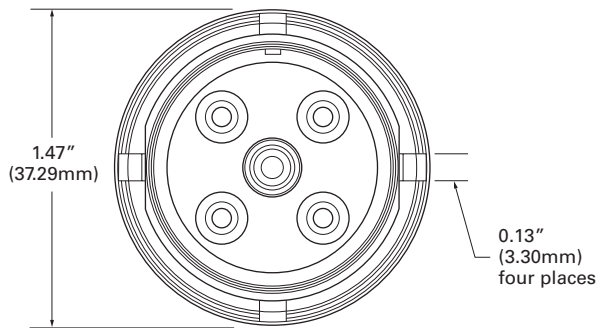
Solder turret and solder cup configurations share the same dimensions



Backshells facilitate cable attachments and shielding. Please contact Eaton for additional information.

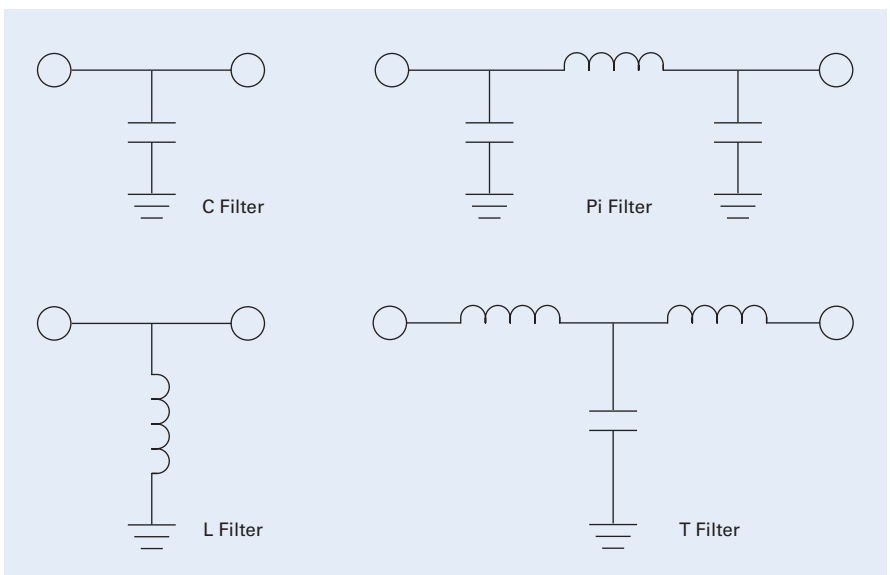
MIL-DTL-55181 filtered receptacles

- Application optimized filter solutions are available to support a broad range of requirements.
- 8, 9, and 18 pin panel-mount configurations.
- Please refer to the accessories section for dust cap information.
- Custom capabilities include factory installed wiring harnesses and cable assemblies.
- Contact Eaton to discuss filter solutions optimized for your exact voltage, frequency, and impedance requirements.



Rugged, high-density filter designs can be optimized for any frequency, voltage, and impedance requirements.

Additional design options include transient voltage suppression.



MIL-DTL-55181 QPL plugs

- Finish options include RoHS compliant, electroless nickel with black-trivalent chromate.
- Gold over nickel contacts.
- Heat treated, alloy-steel nosepiece.
- Rated for 500 mate and demate cycles.
- Custom capabilities include wiring harnesses and cable assemblies.

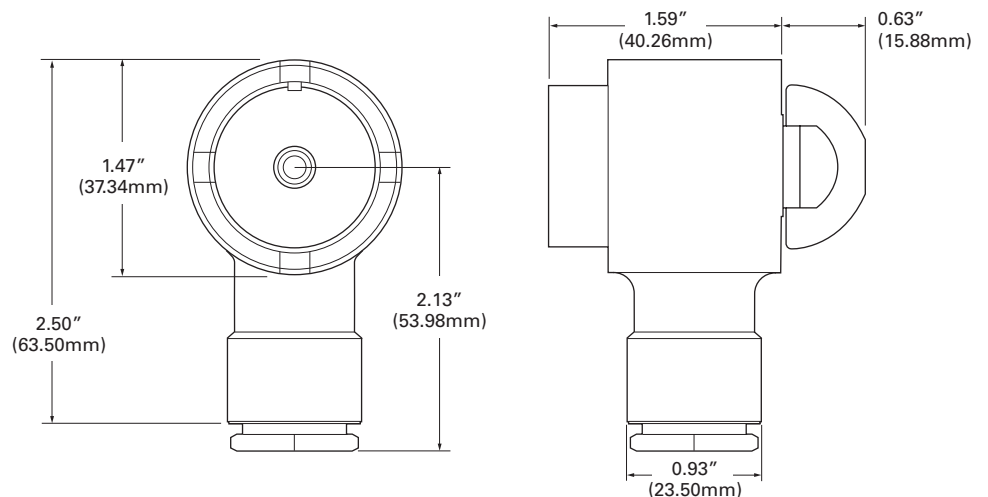


Government Designation	Manufacturers' Designations	Description	Cable Ø (Inches)	NSN
M55181/1-01	MW10F(M)A11		0.292 – 0.343	5935-00-603-6952
M55181/1-02	MW10F(M)A13	# Sockets : 4	0.323 – 0.406	5935-01-204-7312
M55181/1-03	MW10F(M)A17	Socket size: 12	0.448 – 0.531	5935-00-921-3399
M55181/1-04	MW10F(M)A19	Amps/socket: 35	0.511 – 0.593	5935-01-249-7559
M55181/1-05	MW10F(M)A15	Termination: turret	0.386 – 0.468	5935-01-329-4190
M55181/3-01	MW10M(M)A11		0.292 – 0.343	5935-01-208-2345
M55181/3-02	MW10M(M)A13	# Pins : 4	0.323 – 0.406	5935-01-124-9341
M55181/3-03	MW10M(M)A17	Pin size: 12	0.448 – 0.531	5935-01-167-6095
M55181/3-04	MW10M(M)A19	Amps/pin: 35	0.511 – 0.593	n/a
M55181/3-05	MW10M(M)A15	Termination: turret	0.386 – 0.468	n/a
M55181/5-01	MW10M(M)B11		0.292 – 0.343	5935-01-184-1460
M55181/5-02	MW10M(M)B13	# Pins : 9	0.323 – 0.406	5935-01-149-1162
M55181/5-03	MW10M(M)B17	Pin size: 20	0.448 – 0.531	5935-01-081-6484
M55181/5-04	MW10M(M)B19	Amps/pin: 7.5	0.511 – 0.593	n/a
M55181/5-05	MW10M(M)B15	Termination: solder cup	0.386 – 0.468	n/a
M55181/7-01	MW10M(M)D11		0.292 – 0.343	5935-01-111-9956
M55181/7-02	MW10M(M)D13	# Pins : 18	0.323 – 0.406	5935-01-116-3608
M55181/7-03	MW10M(M)D17	Pin size: 20	0.448 – 0.531	5935-00-815-2325
M55181/7-04	MW10M(M)D19	Amps/pin: 7.5	0.511 – 0.593	5935-01-300-3701
M55181/7-05	MW10M(M)D15	Termination: solder cup	0.386 – 0.468	5935-01-329-8690

Please refer to page 4 for additional specifications.

QPL cadmium plating requires no finish designator in the part number. RoHS compliant, electroless nickel with black-trivalent chromate is specified by adding an "F" suffix to the QPL part numbers.

RoHS compliant zinc nickel is specified by adding an "Z" suffix to the QPL part numbers. Example M55181/1-03Z

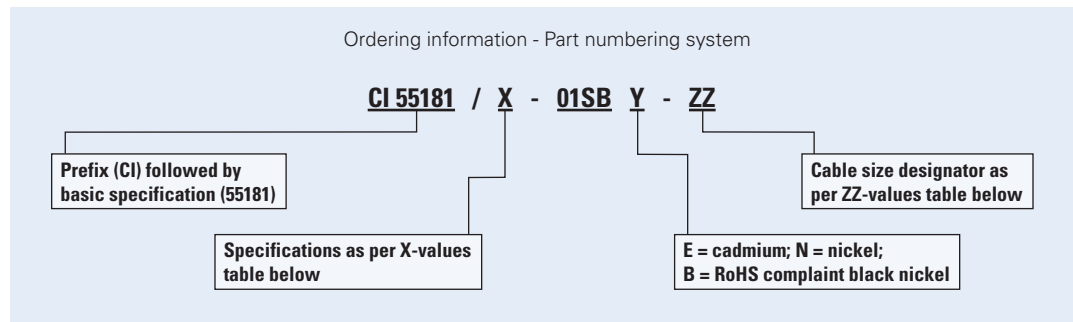


Straight backshell MIL-DTL-55181 connectors

- Suitable for in-line and panel-mount applications.
- Shielded ferrules facilitate cable-shield terminations.
- Finish options include cadmium chromate, electroless-nickel, and RoHS compliant electroless nickel with black-trivalent chromate.
- Custom capabilities include wiring harnesses and cable assemblies.



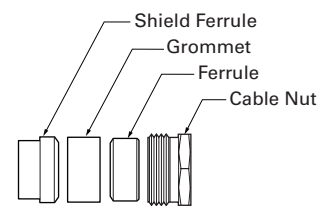
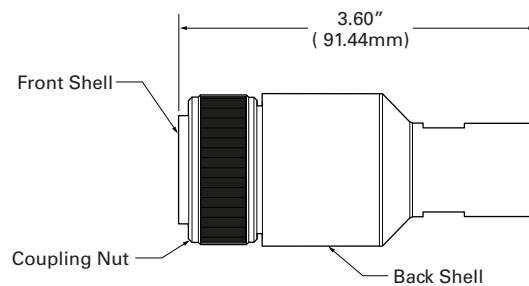
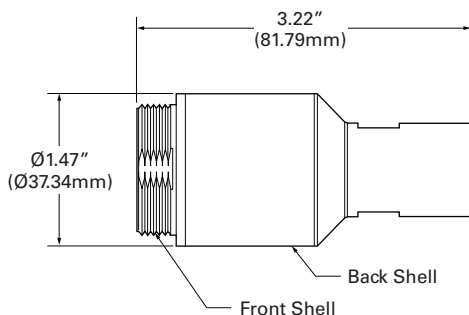
Straight backshell design enables cable mounting of M55181 receptacles.



X Value	# Contacts	Type	Mount	Contact Type	Amps	Contact Size	Termination
1	4	Plug	Cable	Socket	35	12	Turret
2	4	Receptacle	Panel	Pin	35	12	Turret
3	4	Plug	Cable	Pin	35	12	Turret
4	4	Receptacle	Panel	Socket	35	12	Turret
5	9	Plug	Cable	Pin	7.5	20	Solder Cup
6	9	Receptacle	Panel	Socket	7.5	20	Solder Cup
7	18	Plug	Cable	Pin	7.5	20	Solder Cup
8	18	Receptacle	Panel	Socket	7.5	20	Solder Cup

ZZ Value	Cable Diameter (Inches)
01	.292 to .343
02	.323 to .405
03	.448 to .531
04	.511 to .593
05	.386 to .468

Please refer to page 4 for additional specifications.



Cable hardware for receptacles and plugs

MIL-DTL-55181 stacking connectors

Stacking connectors enable power splitting without the use of Y cables by incorporating receptacle contacts in addition to plug and cable contacts. As depicted below, a stacking connector is mated to a battery receptacle and distributes power to the QPL plug mounted on top of it and an attached cable.

When used without a "piggybacked" connector mated to the receptacle contacts, the stacking connector will electrically function in the same manner as a MIL-DTL-55181 QPL plug.

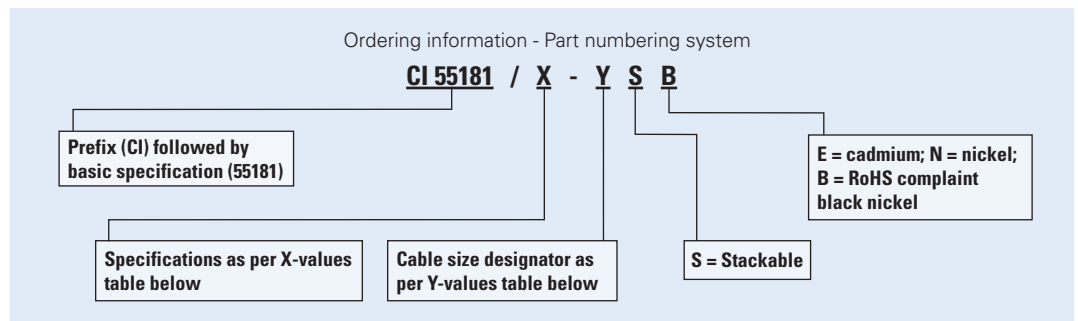
Stacking connectors can be ordered with factory-installed cables or customers can perform installation with the same processes used to attach QPL plugs.



Front (Plug)

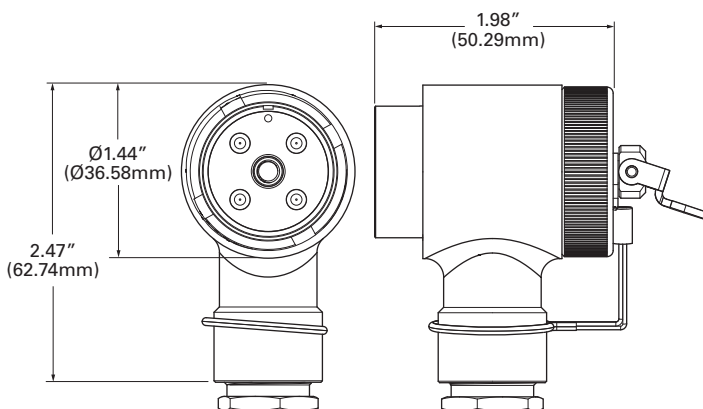
Rear (Receptacle)

Stacking connectors share power without the use of Y cables



X Value	Type	Mount	# Contact	Contact Type	Amps	Contact Size	Termination	Y Value	Cable Diameter (Inches)
1	Plug	Cable	4	Socket	35	12	Turret	01	.292 to .343
3	Plug	Cable	4	Pin	35	12	Turret	02	.323 to .406
7	Plug	Cable	18	Pin	7.5	20	Solder Cups	03	.448 to .531
								04	.511 to .593
								05	.386 to .468

Please refer to page 4 for additional specifications.

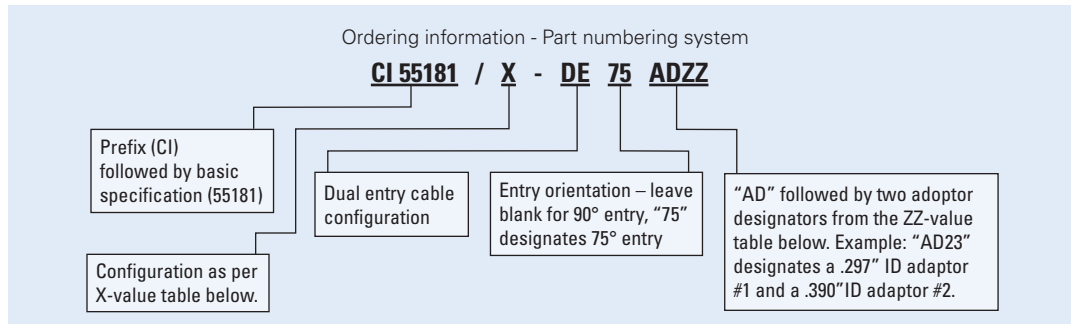


Dual cable entry MIL-DTL-55181 plugs

- Dual-entry connectors incorporate a single-plug body that distributes power to two cables.
- Available with 75° and 90° cable-entry configurations.
- Sealed aluminum housings with cadmium/olive-drab chromate or RoHS-compliant platings.
- Custom capabilities include wiring harnesses and cable assemblies.



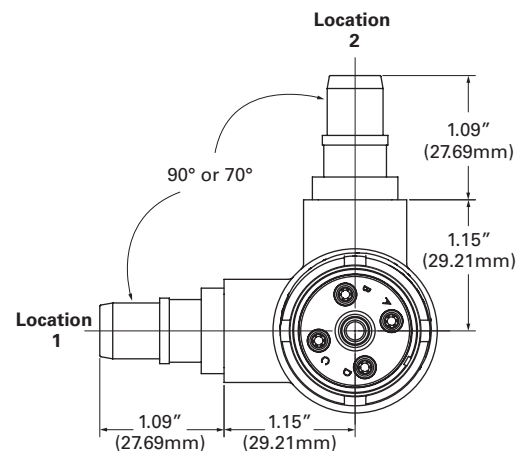
Dual-entry plugs facilitate lower cost solutions than traditional Y cables.



X Value	Type	Mount	Configuration	# Contacts	Contact Type	Amps	Contact Size	Termination
1	Plug	Cable	Dual Entry	4	Socket	35	12	Turret
3	Plug	Cable	Dual Entry	4	Pin	35	12	Turret
5	Plug	Cable	Dual Entry	9	Pin	7.5	20	Solder Cup
7	Plug	Cable	Dual Entry	18	Pin	7.5	20	Solder Cup

Please refer to page 4 for additional specifications. Contact Eaton for ordering information for RoHS compliant configurations.

ZZ Value	Adaptor ID	Adaptor OD
1	.203	.303
2	.297	.397
3	.390	.490

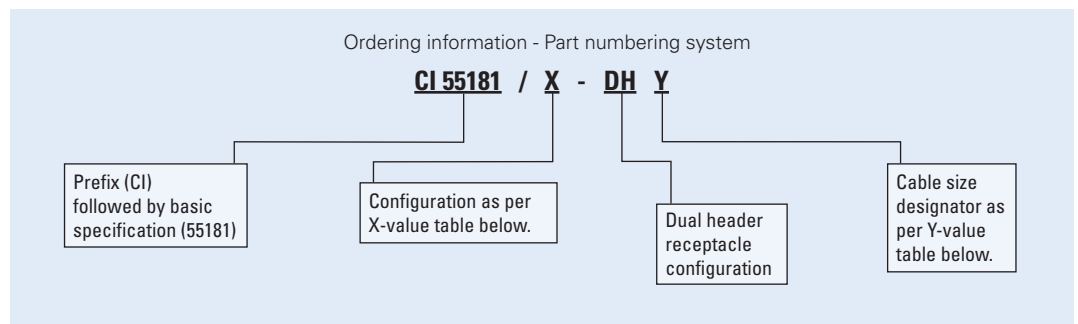


MIL-DTL-55181 dual-header receptacles

- Dual-header connectors provide two sets of receptacle contacts that share power from a single cable.
- Lower cost alternative to traditional Y cables.
- Sealed aluminum housings with cadmium/olive-drab chromate or RoHS-compliant platings.
- Custom capabilities include factory installed wiring harnesses and cable assemblies.
- Rugged design is rated for 500 mate and demate cycles.



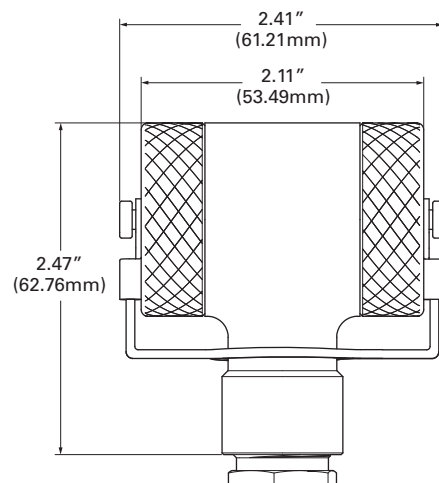
Dual header receptacles facilitate powering two devices from a single cable.



X Value	Type	Mount	Configuration	# Contacts	Contact Type	Amps	Contact Size	Termination
2	Receptacle	Panel	Dual Header	4	Pin	35	12	Turret
4	Receptacle	Panel	Dual Header	4	Socket	35	12	Turret
6	Receptacle	Panel	Dual Header	9	Socket	7.5	20	Solder Cup
8	Receptacle	Panel	Dual Header	18	Socket	7.5	20	Solder Cup

Please refer to page 4 for additional specifications. Contact Eaton for ordering information for RoHS compliant configurations.

Y Value	Cable Diameter (Inches)
01	.292 to .343
02	.323 to .406
03	.448 to .531
04	.511 to .593
05	.386 to .468



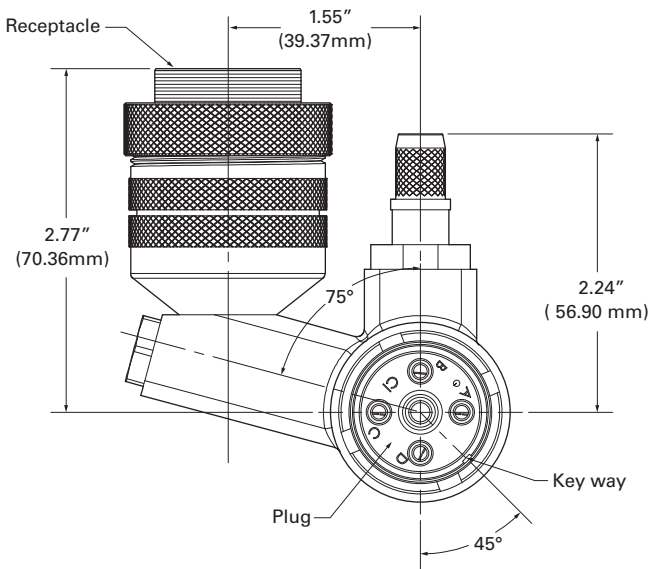
MIL-DTL-55181 Multiple Power Access Units

Multiple Power Access Units (MPAUs) provide two power outputs from a single input. The MPAU body incorporates a cable adaptor and a receptacle to facilitate power splitting and a plug that connects to the power source. Additional features and specifications include:

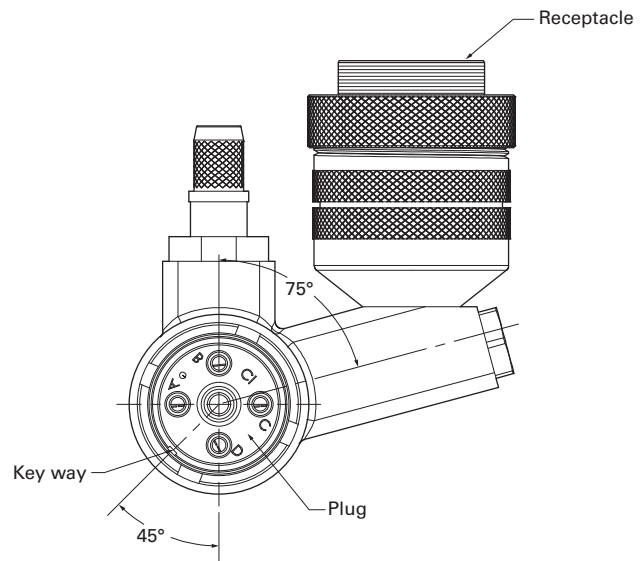
- Meets MIL-DTL-55181 electrical, mechanical, and environmental requirements.
- Ideal solutions for height-constrained applications.
- Quickly replaces QPL plugs by using standard MIL-DTL-55181 plug-to-cable attachment processes.
- Extensive range of solutions includes standard products and application-specific configurations.



Part Number	# Contacts	Plug Contacts	Receptacle Contacts	Cable Adaptor Inside/Outside Ø	Connector orientations with plug mated in downward position
MPAUP/1-2A-2B0175	4	Sockets	Pins	0.297"/0.397"	Receptacle left / cable right
MPAUP/3-4A-2BL175	4	Sockets	Pins	0.297"/0.397"	Receptacle right / cable left



MPAUP/1-2A-2B0175 – The receptacle is oriented to the left as depicted above with the plug facing forward.



MPAUP/3-4A-2BL175 – The receptacle is oriented to the right as depicted above with the plug facing forward.



Multiple power access units can be configured to support a broad range of requirements including:

- 4, 9 or 18 contacts.
- RoHS-compliant finishes.
- Alternate configurations including a 90° offset from the cable adaptor to the receptacle as depicted to the left.
- Adapters to accommodate any a wide range of cable diameters.
- End-to-end connectivity solutions include cable assemblies and wiring harnesses.

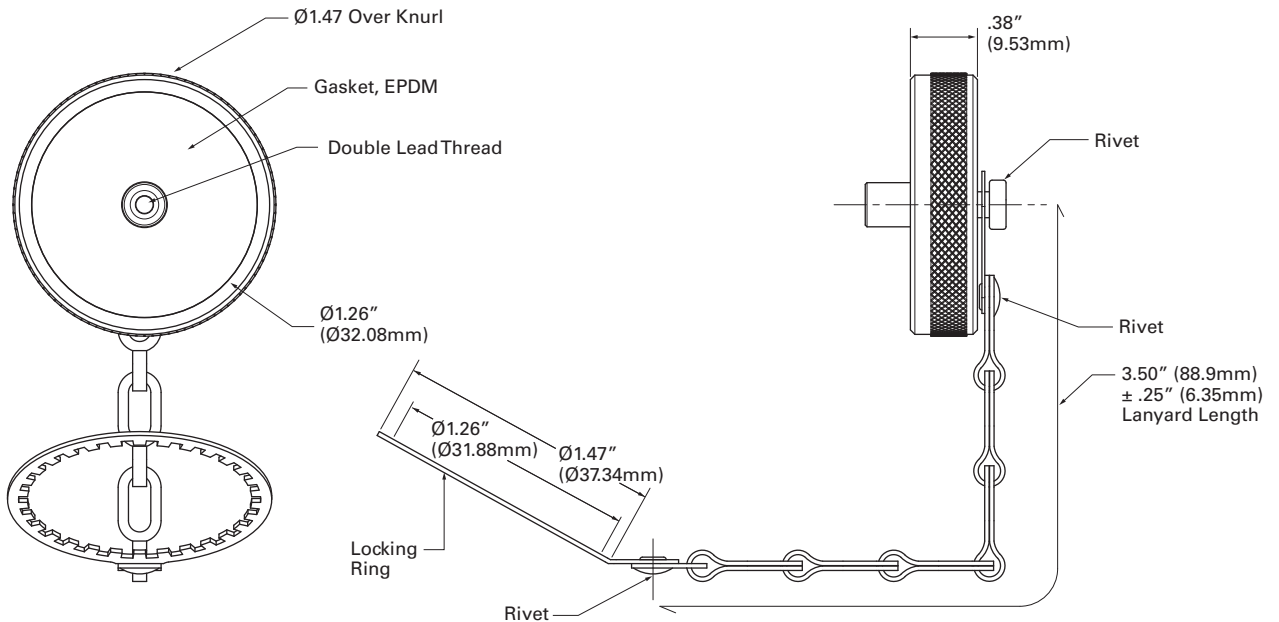
MIL-DTL-55181 dust caps

- Meets all requirements of MIL-DTL-55181.
- Compatible with MW Series standard and filtered receptacles and SB Series straight-backshell connectors.
- Custom dust caps available for nuclear, biological, and chemical applications.
- RoHS-compliant platings are available; please contact Eaton for ordering information.
- Long lasting EPDM gasket material.



Part Number	Lanyard Style	Length	End Configuration	Materials	Finishes	Gasket Material
GC821	Brass Chain	3.50	1.255 ID Ring	Half Hard Brass	Cadmium Plated	EPDM
GC821-1	Nylon Cord	3.50	1.255 ID Ring	Aluminum Alloy	Cadmium Plated	EPDM
GC821-3	Brass Chain	6.00	0.280 Dia Loop	Aluminum Alloy	Cadmium Plated	EPDM
GC821-4	Brass Chain	2.25	0.750 ID Ring	Aluminum Alloy	Cadmium Plated	EPDM

Contact Eaton for ordering information for RoHS compliant configurations.

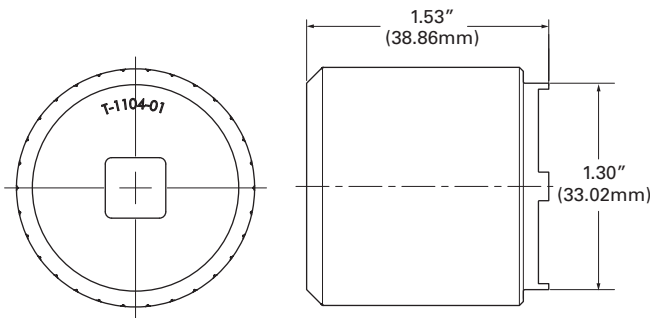


MIL-DTL-55181 tools and assembly instructions

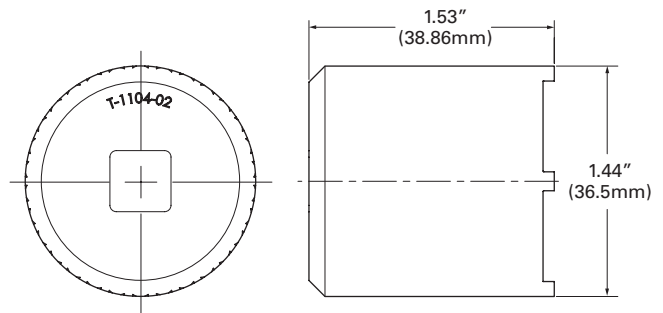
- Spanner wrenches are specifically designed to provide positive engagements with the MIL-DTL-55181 specified, slotted nuts depicted to the right.
- T-1104-01 and T-1104-02 spanner wrenches are compatible with 3/8" drive torque wrenches.
- QPL, filtered, and straight backshell connectors can be assembled in accordance with MIL-DTL-55181 assembly instructions.
- Please contact Eaton for stacking, dual entry, and dual-header connector assembly instructions.



Mounting	Connectors	Spanner Wrench Part Number	Driver Compatibility	Recommended Spanner Wrench Torque	Recommended Cable Nut Torque
Panel	QPL Receptacles	T-1104-02	3/8"	21 - 33 foot pounds	n/a
Panel	Filtered Receptacles	T-1104-02	3/8"	21 - 33 foot pounds	n/a
Cable	QPL Plugs	T-1104-01	3/8"	90 - 95 inch pounds	34 - 40 inch pounds
Cable	SB Series Receptacles	T-1104-02	3/8"	21 - 33 foot pounds	34 - 40 inch pounds
Cable	Stacking Connectors	T-1104-01	3/8"	90 - 95 inch pounds	34 - 40 inch pounds
Cable	Dual Entry Plugs	T-1104-01	3/8"	90 - 95 inch pounds	34 - 40 inch pounds
Cable	Dual Header Receptacles	T-1104-01	3/8"	90 - 95 inch pounds	34 - 40 inch pounds



MW10 connectors utilize the T -1104-01 Spanner Wrench.



MW20 connectors utilize the T -1104-02 Spanner Wrench.