

AWG 25

Tail leng

0.25
.010



Miniature high performance twist pin connectors

Micro-D & Nano-D,
Rectangular & Circular



COMBO MICRO-D CONNECTORS

COMBO-D GENERAL INFORMATION

- Rectangular Combo Micro-D connectors 142
- Contact arrangements 143
- Coaxial and power contacts and cables 144
- General characteristics 147

PCB COMBO CONNECTORS

- PCB connectors 148
- Board Straight type (BS) - 0.075" pitch 149
- Condensed Board Right angle (CBR) - 0.100" pitch 153

PIGTAIL COMBO CONNECTORS

- Male and female pigtail connectors 157

SPECIAL COMBO CONNECTORS 160



COMBO-D
CONNECTORS

Rectangular
Micro-D connectors

COMBO Micro-D
connectorsRECTANGULAR COMBO
MICRO-D CONNECTORS

Continuous miniaturisation in electronics makes it ever more challenging to route power and RF signals through very small connectors.

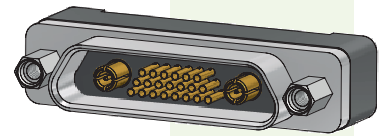
The ideal solution is the AXON® Combo Micro-D. These special, hybrid connectors accommodate a mixture of power and coaxial cables, along with regular signal wires, all in one compact body.

They are available in 2 types and 3 different styles.

► PCB connectors

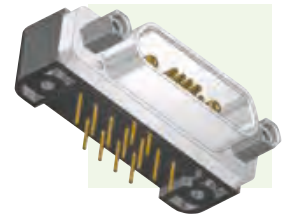
► BS TYPE

- Board Straight connector for flexible and rigid printed circuit boards,
- Various tail lengths available.



► CBR TYPE

- Condensed Board Right angle connector for flexible and rigid printed circuit boards,
- Various tail lengths available.



► Pigtail connectors

- With coaxial cables (different types and sizes available),
- Connectors are backpotted to protect contacts,
- A mixed arrangement with coaxial and power cables is also possible.



▲ COMBO MICRO-D
WITH Ø2.2MM CONTACT



▲ COMBO MICRO-D WITH
Ø3MM CONTACT

CONTACT ARRANGEMENTS

Combo Micro-D connectors use two types of contacts in two sizes:

- 2.2 mm and 3 mm diameter coaxial contacts.
- 2.2 mm and 3 mm diameter power contacts.

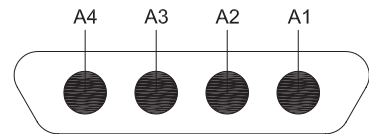
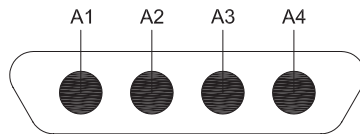
Arrangements can vary depending on the number and the size of the coaxial, power and signal contacts.

AXON' standard combo Micro-D connectors are available with four different mating faces.

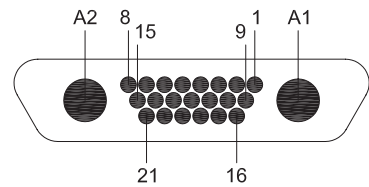
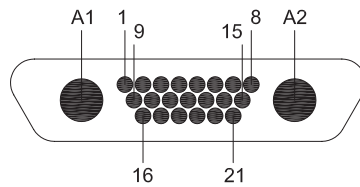
▶ MATING FACE VIEW

MALE MATING FACE

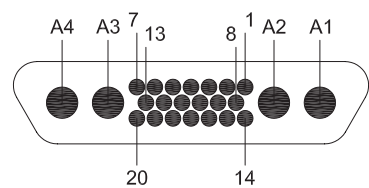
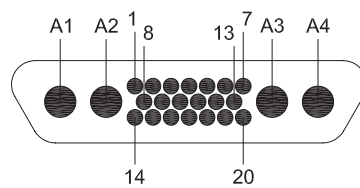
FEMALE MATING FACE



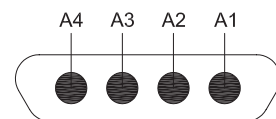
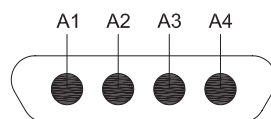
C1/P1: 4 CONTACTS Ø3MM IN A 51 WAY MICRO-D SHELL



C3/P3: 2 CONTACTS Ø3MM + 21 SIGNALS IN A 51 WAY MICRO-D SHELL



C10/P10: 4 CONTACTS Ø2.2MM + 20 SIGNALS IN A 51 WAY MICRO-D SHELL



C8/P8: 4 CONTACTS Ø2.2MM IN A 25 WAY MICRO-D SHELL

COMBO Micro-D
connectorsCOAXIAL & POWER CONTACTS
& CABLES

AXON' uses micro-miniature high frequency and high power contacts to provide the optimum performance within the smallest available space. Two contacts sizes are available: 2.2 mm and 3.0 mm.

AXON' also offers coaxial contacts in 2 different impedances - 50Ω and 75Ω - and power contacts in different current ratings, from 5A to 20A.

Their characteristics are detailed below:

COAXIAL CONTACTS					
CONTACT TYPE mm (inch)	MEDIA	CONTACT IMPEDANCE	INSULATION RESISTANCE (contacts only)	SWR (contacts only) (Standing Wave Ratio)	FREQUENCY (max.) (for the final assembly)
∅ 3.00 0.118	PCB	50 Ω AND 75 Ω	10 ⁶ MΩ / 250 V _{RMS} (*)	< 1.05 + 0.04 F (GHz) (*)	3 GHz
∅ 3.00 0.118	Coaxial cable	50 Ω AND 75 Ω	10 ⁶ MΩ / 250 V _{RMS}	< 1.05 + 0.04 F (GHz)	6 GHz (depending on cable)
∅ 2.20 0.086	PCB	50 Ω	10 ⁶ MΩ / 250 V _{RMS} (*)	< 1.05 + 0.04 F (GHz) (*)	1 GHz
∅ 2.20 0.086 (*)	Coaxial cable	50 Ω	10 ⁶ MΩ / 250 V _{RMS}	< 1.05 + 0.04 F (GHz)	3 GHz (depending on cable)

(*)The above values depend on the impedance of the PCB the connector is connected to.

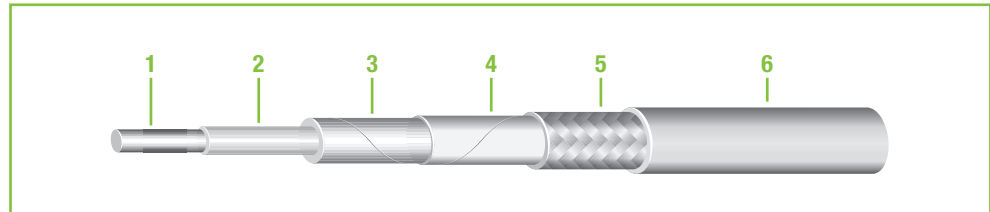
POWER CONTACTS			
CONTACT TYPE mm (inch)	AWG	CONTACT RESISTANCE	CURRENT (max.)
∅ 3.00 0.118	20	6 mΩ max.	5A
	18	6 mΩ max.	8A
	16	6 mΩ max.	10A
	14	6 mΩ max.	15A
	12	6 mΩ max.	20A
∅ 2.20 0.086	20	6 mΩ max.	5A
	18	6 mΩ max.	8A
	16	6 mΩ max.	10A

► Coaxial cable specification

CONTACT DIAMETER mm (inch)	IMPEDANCE	COAXIAL CABLE AVAILABLE	NOMINAL DIAMETER mm (inch)	AXON' P/N
∅3.00 0.118	50 Ω	AX086 RG316	2.50 .098 2.59 .102	P531437 RG316
	75 Ω	RG179	2.66 .105	RG179
∅2.20 0.086	50 Ω	AX047 RG178	1.50 .059 1.90 .075	P535846 RG178

► AX047 and AX086 coaxial cable specification

► CABLE CONSTRUCTION



	1 - CONDUCTOR		2 - DIELECTRIC		3 - SHIELDING	4 - TAPE	5 - SHIELDING		6 - JACKET	
VERSION	MATERIAL	Ø mm (inch)	MATERIAL	Ø mm (inch)	MATERIAL	MATERIAL	MATERIAL	Ø mm (inch)	MATERIAL	Ø mm (inch)
AX047	SPC*	0.25 .010	PTFE	0.82 .033	SPC* TAPE	POLYESTER	SPC* BRAID	1.17 .046	FEP	1.50 .059
AX086	SPC*	0.51 .020	PTFE	1.66 .065	SPC* TAPE	POLYESTER	SPC* BRAID	2.17 .085	FEP	2.50 .098

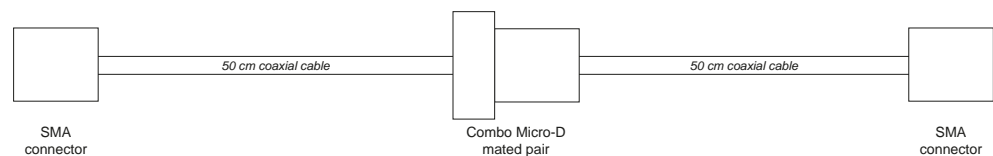
* Silver Plated Copper

► ELECTRICAL CHARACTERISTICS

	AX047	AX086
IMPEDANCE (ohms)	50 ± 2	50 ± 1
CAPACITANCE (pF/m)	97	97
INSERTION LOSS @ 23°C @ 18 GHz (dB/m)	6.6	3.45

► ELECTRICAL CHARACTERISTICS OF A PIGTAIL WITH COAXIAL CONTACT SIZE 3.0 MM

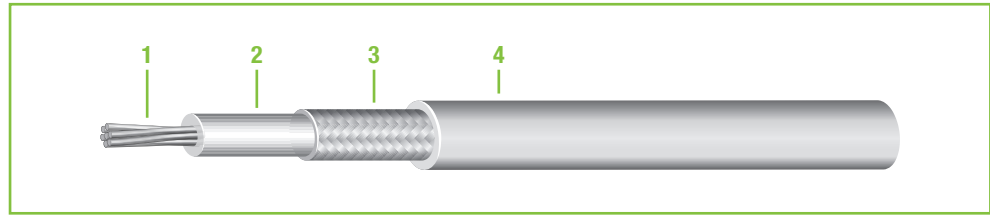
The performances mentioned in the following table have been obtained with the configuration below.



	COMBO WITH S3 CONTACTS AND RG316	COMBO WITH S3 CONTACTS AND AX086
Max. VSWR DC-6 GHz	1.40	1.35
Max. attenuation at 1 GHz (dB)	1.04	0.87
Max. attenuation at 2 GHz (dB)	1.52	1.25
Max. attenuation at 4 GHz (dB)	2.26	1.80
Max. attenuation at 6 GHz (dB)	2.88	2.24

▶ RGxxx coaxial cable specification

▶ CABLE CONSTRUCTION

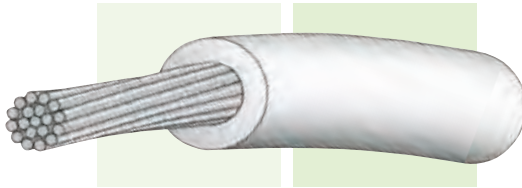


VERSION	1 - CONDUCTOR		2 - DIELECTRIC		3 - SHIELDING		4 - JACKET		IMPEDANCE (Ohms)
	MATERIAL	Ø mm (inch)	MATERIAL	Ø mm (inch)	MATERIAL	Ø mm (inch)	MATERIAL	Ø mm (inch)	
RG178	SPC*	0.30 .0118	PTFE	0.85 .033	SPC* Braid	1.30 .051	FEP	1.90 .0354	50
RG179	SPC*	0.30 .0118	PTFE	1.60 .063	SPC* Braid	2.05 .080	FEP	2.66 .105	75
RG316	SPC*	0.51 .02	PTFE	1.06 .042	SPC* Braid	1.97 .076	FEP	2.59 .102	50

*: Silver Plated Copper

▶ Power cable specification

For pigtails with power contacts, we recommend PTFE-insulated wire AXON' reference Exx19, xx being the AWG of the wire.



WIRE DESIGNATION	CONDUCTOR						INSULATION		TEMPERATURE RATING	VOLTAGE RATING
	MATERIAL	AWG	CONSTRUCTION mm (inch)	Ø mm (inch)	AREA mm ² (SQ IN)	RESISTANCE Ω/100M (Ω/1000FT)	MATERIAL	Ø mm (inch)		
E1219	SPC*	12	19x0.455 19x.018	2.273 .09	3.10 .0048	0.58 1.77	EXTRUDED PTFE	2.85 .112	-90°C / +200°C	600 V _{AC}
E1419	SPC*	14	19x0.360 19x.014	1.803 .07	1.94 .00300	0.92 2.8	EXTRUDED PTFE	2.35 .0925	-90°C / +200°C	600 V _{AC}
E1619	SPC*	16	19x0.300 19x.012	1.500 .06	1.34 .00207	1.3 3.96	EXTRUDED PTFE	2.1 .083	-90°C / +200°C	600 V _{AC}
E1819	SPC*	18	19x0.254 19x.010	1.269 .05	0.96 .0015	1.9 5.9	EXTRUDED PTFE	1.75 .070	-90°C / +200°C	600 V _{AC}
E2019	SPC*	20	19x0.203 19x.008	1.009 .04	0.62 .00096	2.9 8.84	EXTRUDED PTFE	1.50 .060	-90°C / +200°C	600 V _{AC}

*: Silver Plated Copper

GENERAL CHARACTERISTICS

► Electrical & mechanical characteristics

CHARACTERISTICS	SPECIFICATION	TEST METHOD
SIGNAL CONTACT CURRENT RATING	3 A max.	EIA-364-70
SIGNAL CONTACT RESISTANCE	8 mΩ max.	EIA-364-06
INSULATION RESISTANCE	5000 MΩ min. @ 500 Vdc	EIA-364-21
DIELECTRIC WITHSTANDING VOLTAGE - SEA LEVEL 0 m - ALTITUDE 21 km (70,000 ft)	600 V _{ac} 150 V _{ac}	EIA-364-20
VSWR	Depending on contact and coaxial cable	
INSERTION LOSS	Depending on contact and coaxial cable	
CONTACT ENGAGING AND SEPARATION FORCE (SIGNAL LINES)	170 g max. (6 oz) 14 g min. (0.5 oz)	EIA-364-37
CONTACT RETENTION (SIGNAL LINES)	2.26 kg (5 lbs) for 5 seconds min.	EIA-364-29
DURABILITY	500 mating cycles min.	EIA-364-09
TEMPERATURE RANGES - WITH COAXIAL CONTACTS - WITH POWER CONTACTS	- 55°C / +125°C - 55°C / +150°C	
VIBRATION	20 g's - No discontinuity >1μs	EIA-364-28 -TEST CONDITION IV
SHOCK	50 g's - No discontinuity >1μs	EIA-364-27 -TEST CONDITION E
SALT SPRAY	48 hours	EIA-364-26 -TEST CONDITION B
HUMIDITY	Insulation resistance > 1MΩ	EIA-364-31 - METHOD IV

► Material & Finish

COMPONENT	MATERIAL	FINISH
SIGNAL CONTACT	MALE CONTACT (TWIST PIN)	COPPER AND BERYLLIUM COPPER
	FEMALE CONTACT	COPPER ALLOY
COAXIAL CONTACT AND POWER CONTACT	SPRING LOADED PARTS	BERYLLIUM COPPER
	OTHER METAL PARTS	COPPER ALLOY
	INSULATOR	PTFE
METAL SHELL	ALUMINIUM ALLOY, TYPE 6061	YELLOW CHROMATE OVER CADMIUM : IN ACCORDANCE WITH SAE-AMS-QQ-P-416, TYPE II, CLASS 3 ELECTROLESS NICKEL PLATING IN ACCORDANCE WITH SAE-AMS2404, CLASS 4, .0005 INCH MIN. BLACK ZINC NICKEL OVER NICKEL UNDERPLATE
	STAINLESS STEEL, 300 SERIES	PASSIVATION IN ACCORDANCE WITH SAE-AMS2700
PLASTIC SHELL / INSERT / PCB TRAY	LIQUID CRYSTAL POLYMER, 30% LOADED GLASS FIBRE POLYESTER, 94VO, IN ACCORDANCE WITH MIL-M-24519 (200°C)	
HARDWARE	STAINLESS STEEL, 300 SERIES	PASSIVATION IN ACCORDANCE WITH SAE-AMS2700
ENCAPSULANT	EPOXY RESIN	
INSULATED WIRE (SIGNAL LINES)	PTFE INSULATED SILVER PLATED COPPER IN ACCORDANCE WITH NEMA-HP3 PTFE INSULATED SILVER PLATED COPPER IN ACCORDANCE WITH SAE-AS22759/11 ETFE INSULATED SILVER PLATED COPPER IN ACCORDANCE WITH SAE-AS22759/33	
UNINSULATED WIRE (SIGNAL LINES)	GOLD PLATED SOLID COPPER WIRE IN ACCORDANCE WITH A-A-59551 TIN PLATED SOLID COPPER WIRE IN ACCORDANCE WITH A-A-59551	



PCB connectors

METAL SHELL

- Condensed board right angle connector for flexible and rigid printed circuit boards.
- Operating temperature: 125°C with coaxial contacts, 150°C with power contacts.
- Several tail lengths available.

IDENTIFICATION CODE

MDCA 2 P3 S - CBR P G 1

SERIES

MDCA: Micro-D Combo AXON'.

CONNECTOR TYPE

1: Cadmium aluminium shell / **Z:** Black zinc nickel aluminium shell.
2: Nickel aluminum shell.

CONTACT ARRANGEMENT

C1 or **P1:** 4 contacts S3 - 51 way shell.
C3 or **P3:** 2 contacts S3 + 21 signals - 51 way shell.
C8 or **P8:** 4 contacts S2.2 - 25 way shell.
C10 or **P10:** 4 contacts S2.2 + 20 signals - 51 way shell.
Cx: coaxial contact; Px: power contact.

CONNECTOR GENDER

S: Receptacle connector.

ELECTRICAL CHARACTERISTICS OF THE COMBO CONTACTS

Coaxial contacts (S3) ■

50: 50Ω.
75: 75Ω.

Coaxial contact (S2.2) ■

50: 50Ω.

Power contacts ■

-: Power contacts.

PCB VERSION

with coaxial contacts:

75S: Board straight connector, 0.075" pitch for signal lines.
CBR: Condensed board right 0.100" pitch for signal lines.

with power contacts:

CBR: Condensed board right 0.100" pitch for signal lines.

HARDWARE

B: No hardware.

P: Jackposts.

Px (x: 1 to 5): Panel mount jackposts.

T: Threaded inserts installed.

W: Jackpost and threaded inserts installed.

Wx (x: 1 to 5): Panel mount jackposts and threaded inserts installed.

See pages 190 to 200 for hardware description.

CONDUCTOR TYPE (for signals)

G: Gold plated solid conductor AWG25.

T: Tin plated solid conductor AWG24.

Blank: For contact arrangements without signal contacts (C1/P1 or C8/P8).

TAIL LENGTH

1: 2.80mm (0.110").

2: 3.80mm (0.150").

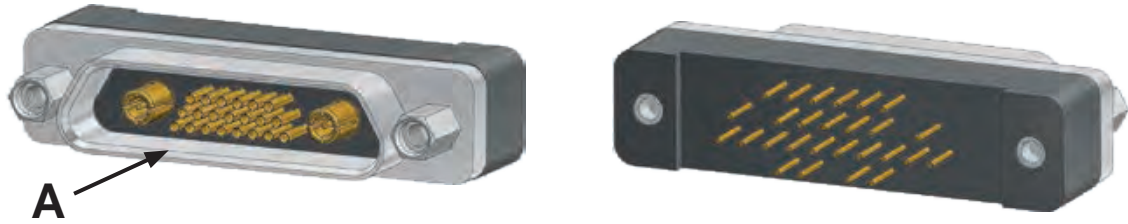
3: 4.80mm (0.190").

METAL CONNECTORS ARE SUPPLIED WITH ANTI-STATIC PROTECTIVE DUST CAPS

BOARD STRAIGHT TYPE (BS) 0.075" PITCH (with coaxial contacts only)

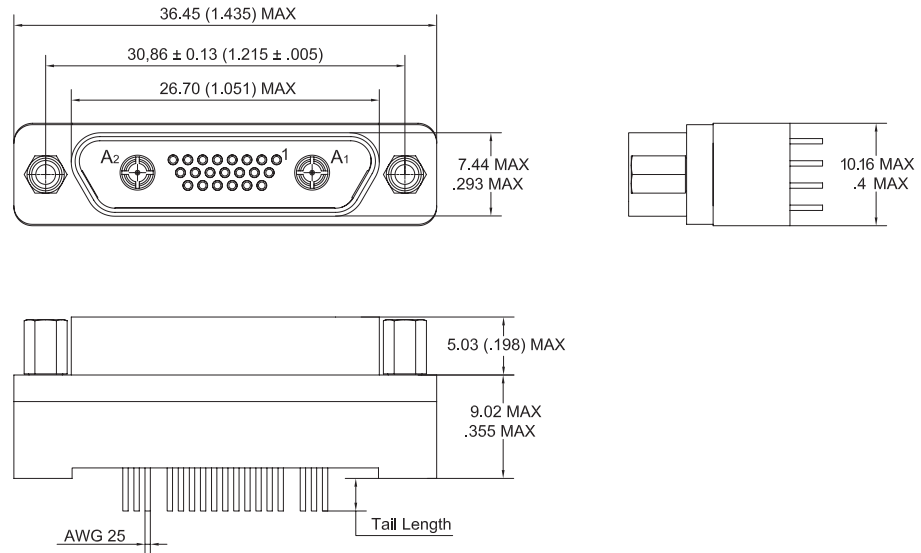
► In a 51 way shell

- FEMALE PCB CONNECTOR (C3 CONFIGURATION)
- 2 COMBO CONTACTS (3.0 mm) + 21 SIGNALS

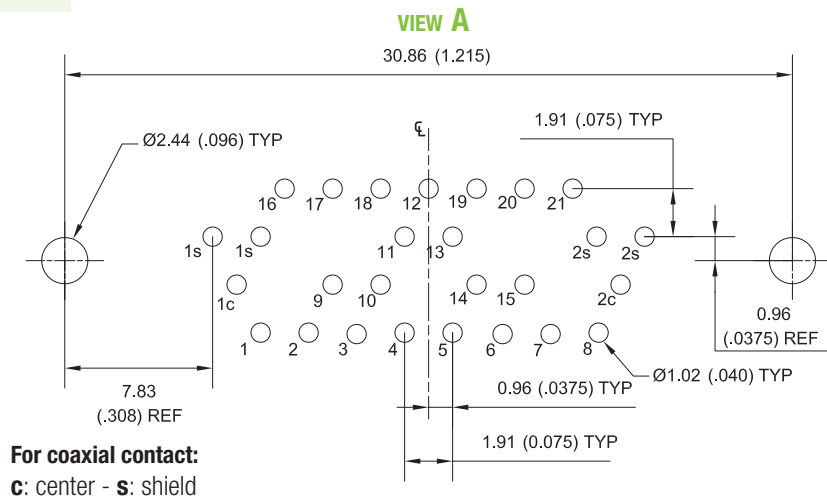


DIMENSIONS

Dimensions are in millimetres (inches).



PCB LAYOUT



► In a 51 way shell

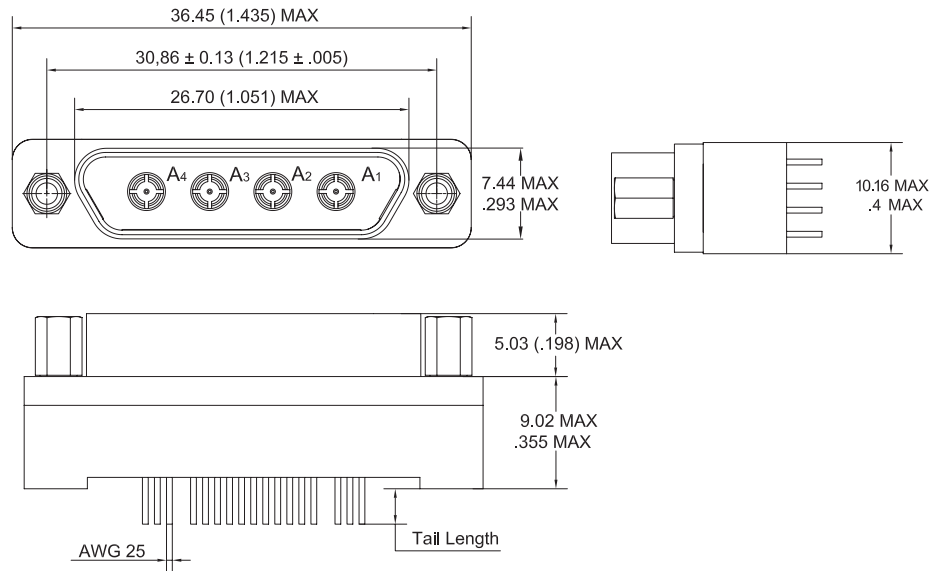
- FEMALE PCB CONNECTOR (C1 CONFIGURATION)
- 4 COMBO CONTACTS (3.0 mm)



A

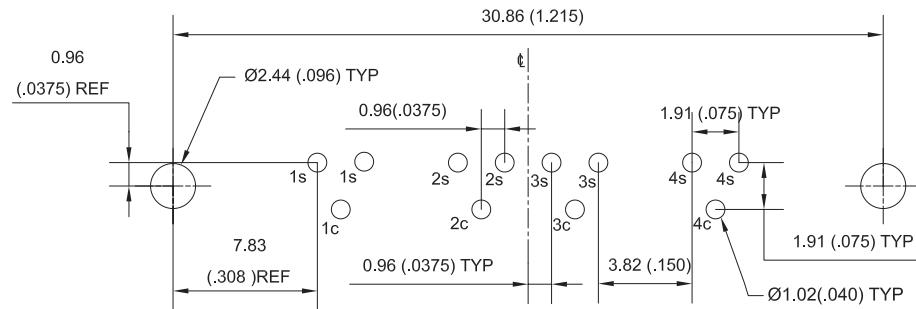
DIMENSIONS

Dimensions are in millimetres (inches).



PCB LAYOUT

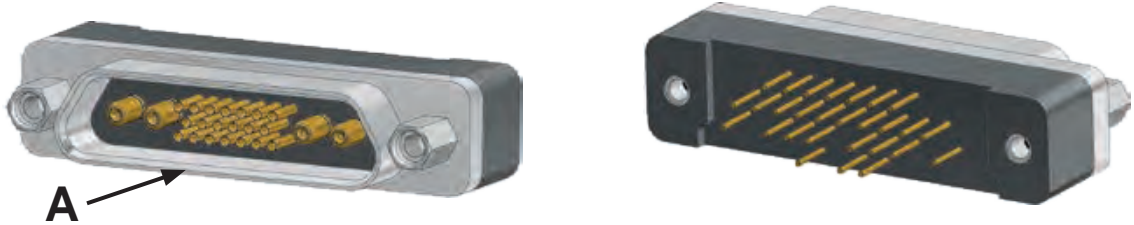
VIEW A



For coaxial contact:
c: center - s: shield

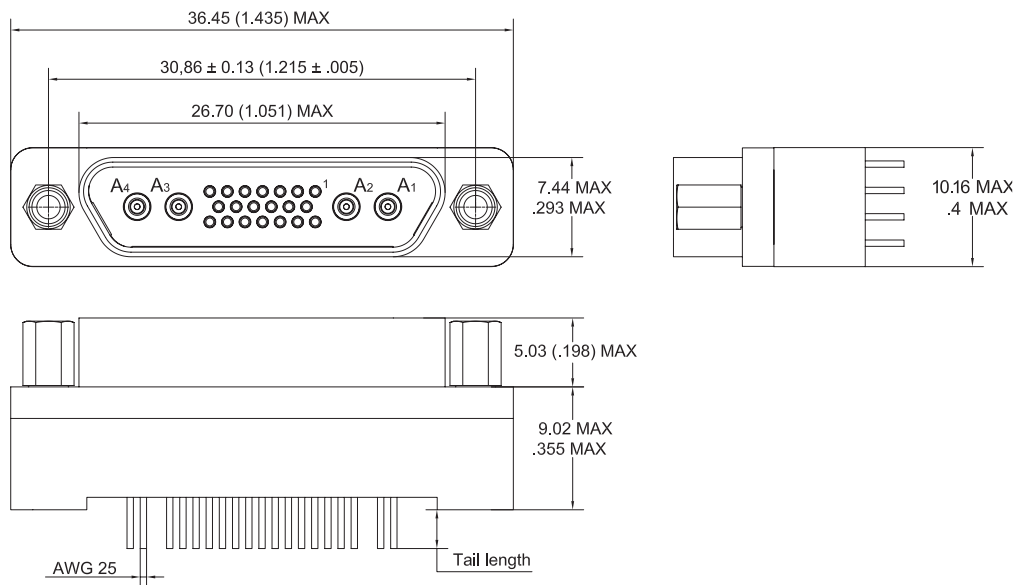
► In a 51 way shell

- FEMALE PCB CONNECTOR (C10 CONFIGURATION)
- 4 COMBO CONTACTS (2.2 mm) + 20 SIGNALS

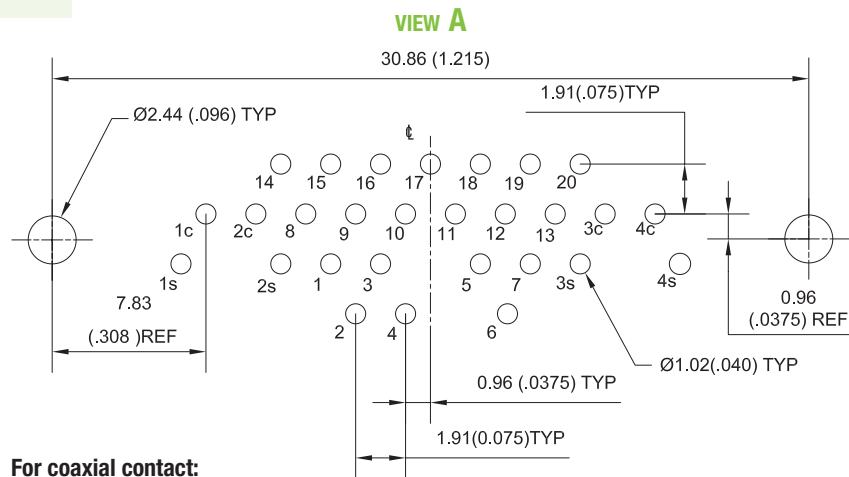


DIMENSIONS

Dimensions are in millimetres (inches).



PCB LAYOUT



For coaxial contact:
c: center - s: shield

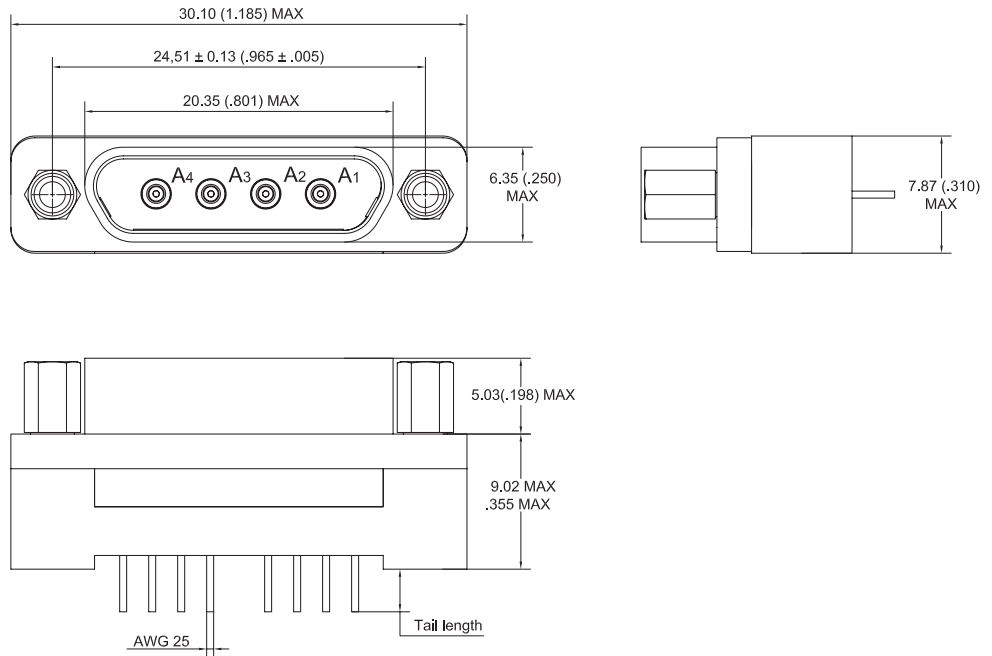
► In a 25 way shell

- FEMALE PCB CONNECTOR (C8 CONFIGURATION)
- 4 COMBO CONTACTS (2.2 mm)



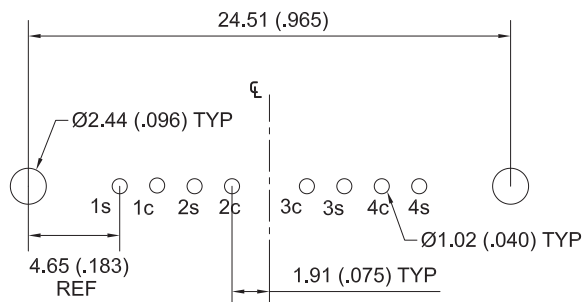
DIMENSIONS

Dimensions are in millimetres (inches).



PCB LAYOUT

VIEW A

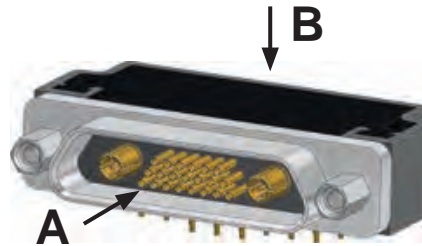


For coaxial contact:
c: center - s: shield

CONDENSED BOARD RIGHT ANGLE (0.100" PITCH) (coaxial and power combo contacts)

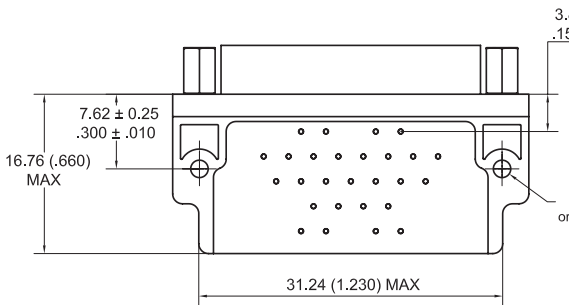
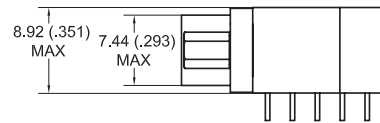
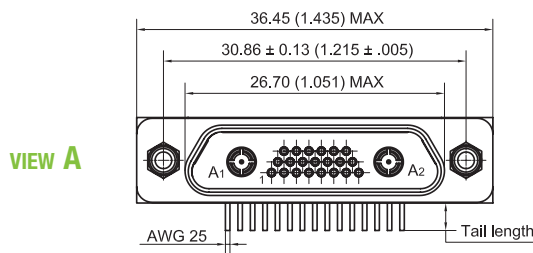
► In a 51 way shell

- FEMALE PCB CONNECTOR (C3/P3 CONFIGURATIONS)
- 2 COMBO CONTACTS (3.0 mm) + 21 SIGNALS

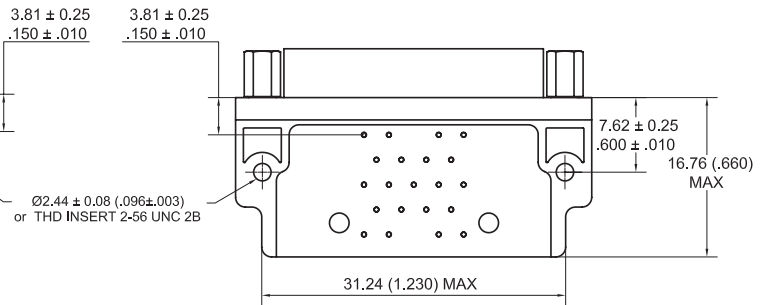


DIMENSIONS

Dimensions are in millimetres (inches).

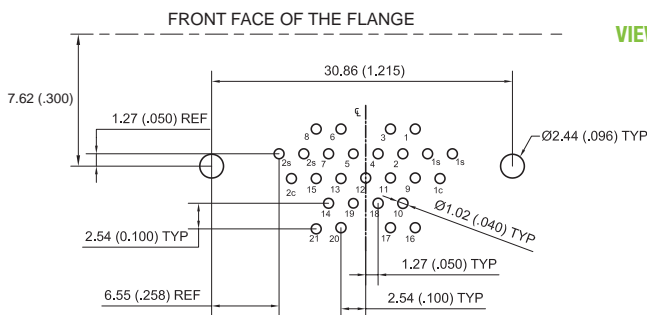


with coaxial contacts (C3)



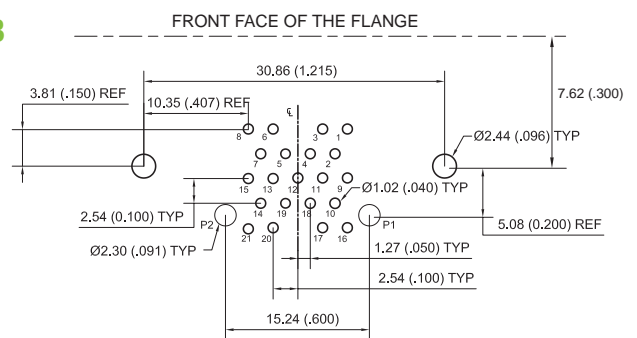
with power contacts (P3)

PCB LAYOUT



with coaxial contacts (C3)

VIEW B

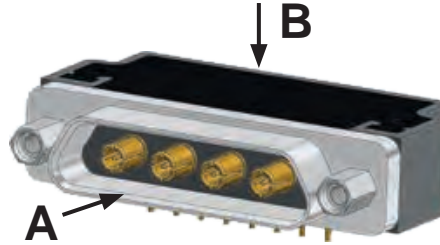


with power contacts (P3)

For coaxial contact:
c: center - s: shield

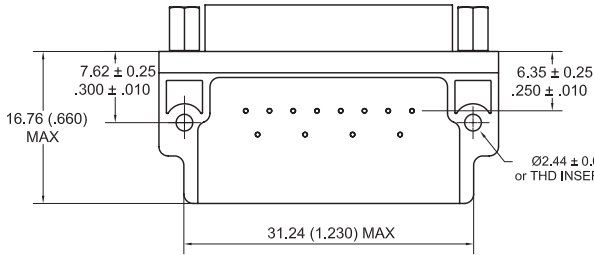
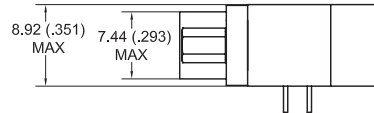
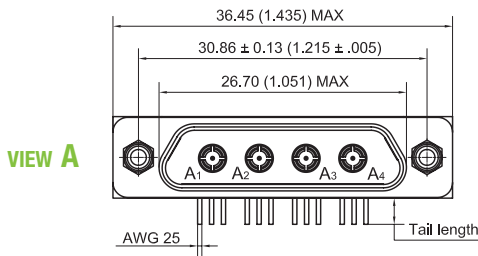
► In a 51 way shell

- FEMALE PCB CONNECTOR (C1/P1 CONFIGURATIONS)
- 4 COMBO CONTACTS (3.0 mm)

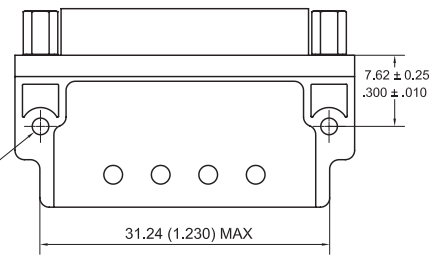


DIMENSIONS

Dimensions are in millimetres (inches).

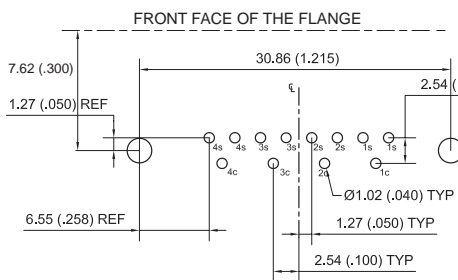


with coaxial contacts (C1)



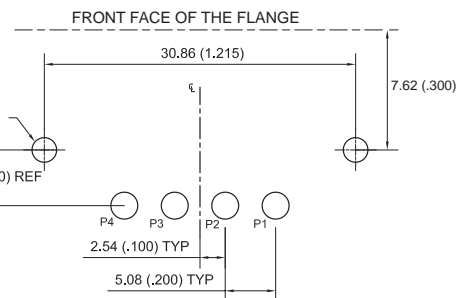
with power contacts (P1)

PCB LAYOUT



with coaxial contacts (C1)

VIEW B

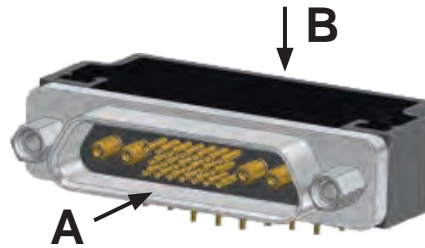


with power contacts (P1)

For coaxial contact:
c: center - s: shield

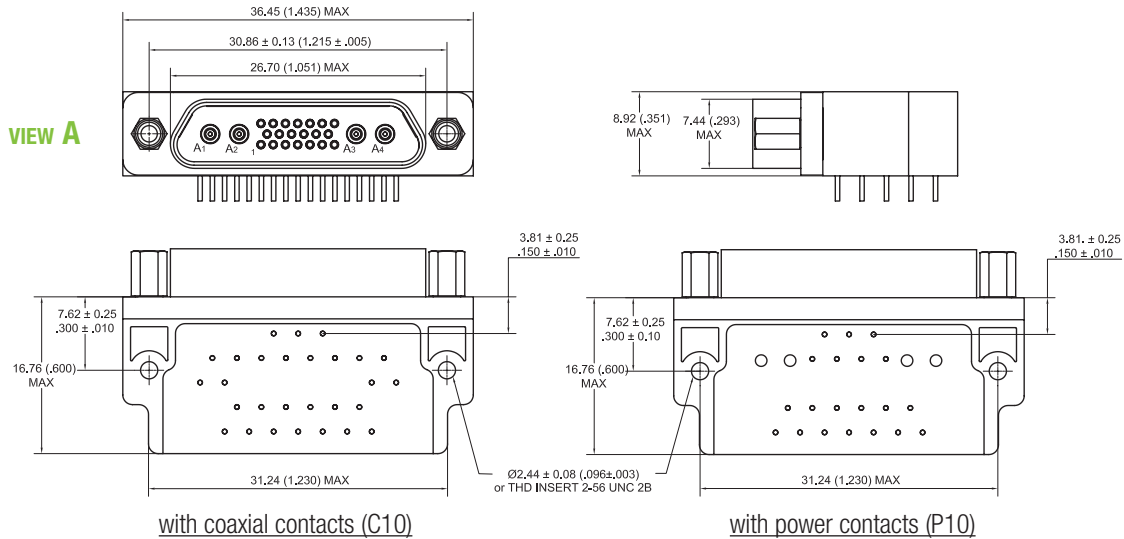
► In a 51 way shell

- FEMALE PCB CONNECTOR (C10/P10 CONFIGURATIONS)
- 4 COMBO CONTACTS (2.2 mm) + 20 SIGNALS

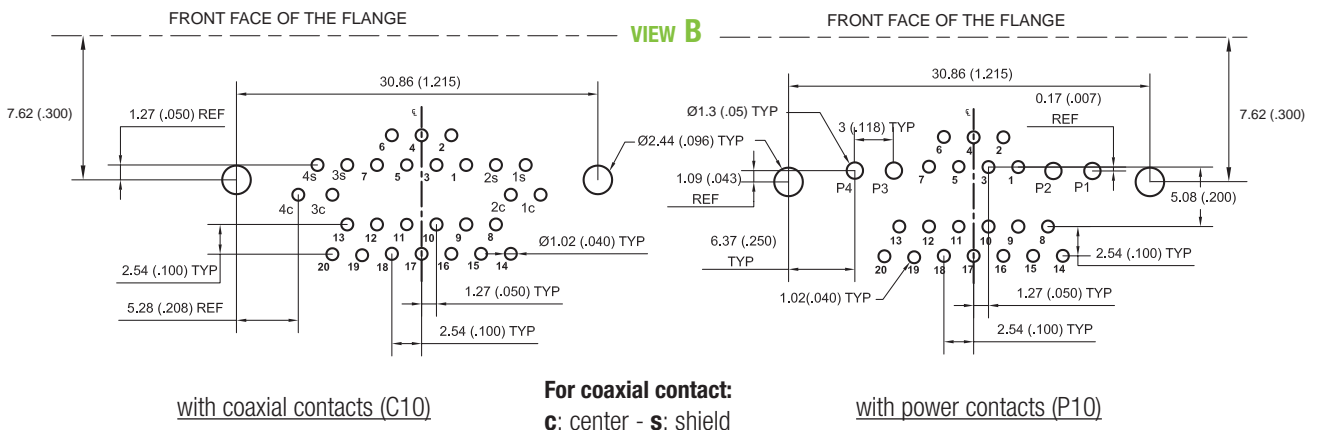


DIMENSIONS

Dimensions are in millimetres (inches).



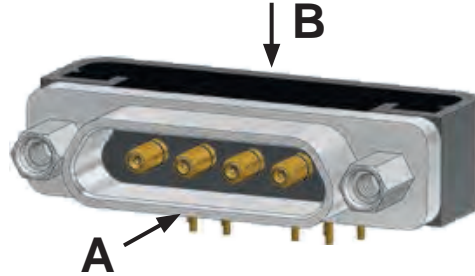
PCB LAYOUT



For coaxial contact:
c: center - s: shield

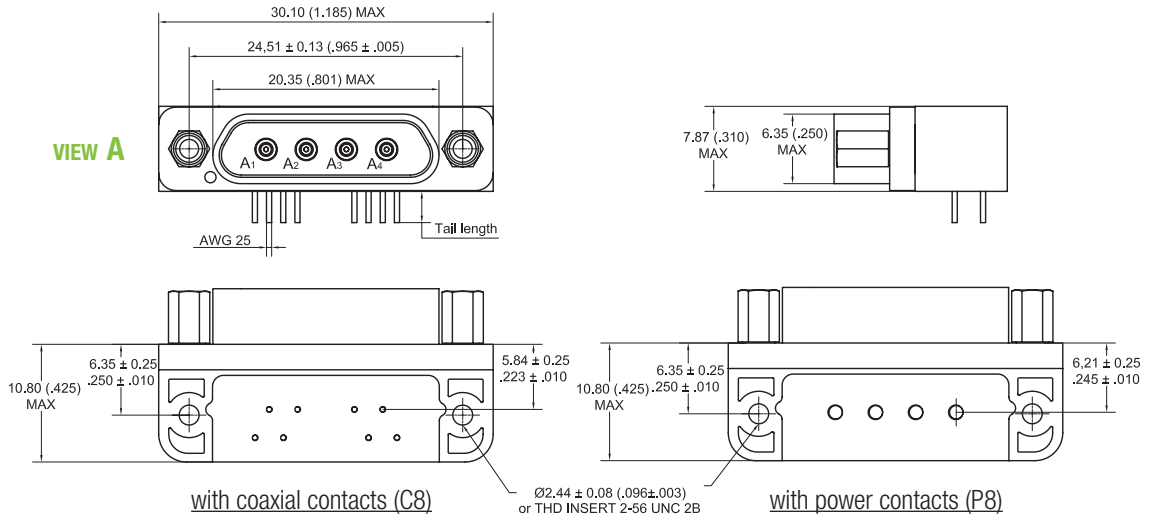
► In a 25 way shell

- FEMALE PCB CONNECTOR (C8/P8 CONFIGURATIONS)
- 4 COMBO CONTACTS (2.2 mm)

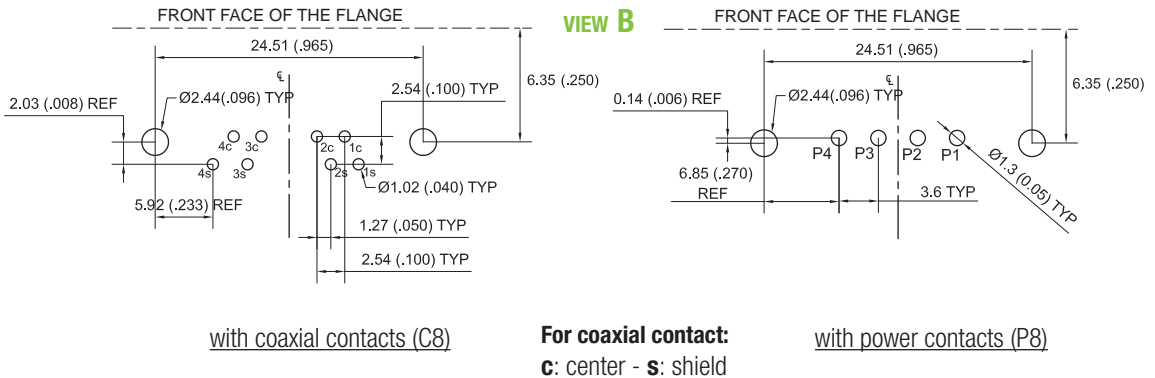


DIMENSIONS

Dimensions are in millimetres (inches).



PCB LAYOUT



Pigtail connectors

METAL SHELL

- High performance metal connectors
- Operating temperature: 125°C with coaxial contacts, 150°C with power contacts.



COMBO-D
CONNECTORS

Rectangular
Micro-D connectors

IDENTIFICATION CODE

MDCA 2 C1 P A 020 L 8 L 050 M

SERIES

MDCA: Micro-D Combo AXON'.

CONNECTOR TYPE

1: Cadmium aluminium shell / **Z:** Black zinc nickel aluminium shell.
2: Nickel aluminum shell.

CONTACT ARRANGEMENTS

C1 or P1: 4 contacts S3 - 51 way shell.
C3 or P3: 2 contacts S3 + 21 signals - 51 way shell.
C8 or P8: 4 contacts S2.2 - 25 way shell.
C10 or P10: 4 contacts S2.2 + 20 signals - 51 way shell.
Cx: coaxial contact - Px: power contact.

CONNECTOR GENDER

P: Plug connector. - **S:** Receptacle connector.

CABLE TYPE FOR COMBO LINES

Coaxial cable (S3) ■

A: AX086 (50Ω).
B: RG316 (50Ω).
C: RG179 (75Ω).

Coaxial cable (S2.2) ■

A: AX047 (50Ω).
C: RG178 (50Ω).

Power cable ■

A: AWG12 (only for S3).
B: AWG14 (only for S3).
C: AWG16 (recommended for S2.2).
D: AWG18 (recommended for S2.2).
E: AWG20 (recommended for S2.2).

Wires type Exx19 for power lines (xx=AWG)

WIRE LENGTH FOR COMBO LINES (in cm)

Attention! Wire length in centimeters (1cm = 10mm = 0.394").

L	L ≤ 10	10 < L ≤ 100	L > 100
in cm (inches)	L ≤ 3.940	3.940 < L ≤ 39.40	L > 39.40
TOLERANCE	-0 / +0.5	-0 / +3	-0 / +5
in cm (inches)	-0 / +0.200	-0 / +1.180	-0 / +1.970

COLOUR CODE FOR COMBO LINES

Coaxial lines: **C:** Brown (mandatory for and only for coaxial lines).
Power: **F:** All Yellow. - **L:** All white. - **W:** 10 color repeat (*see page 30 for colour code*).

WIRE TYPE FOR SIGNAL LINES

1: E 2607, AWG 26, 7 strands, 600V. **8:** E 3007, AWG 30, 7 strands, 600V.
4: E 2619, AWG 26, 19 strands, 600V. **A:** E 2407, AWG 24, 7 strands, 600V.
6: E 2807, AWG 28, 7 strands, 600V. **C:** E 2419, AWG 24, 19 strands, 600V.

COLOUR CODE FOR SIGNAL LINES

F: All yellow. - **L:** All white. - **W:** 10 color repeat (*see page 30 for colour code*).

WIRE LENGTH FOR SIGNAL LINES (in cm)

Attention! Wire length in centimeters (1cm = 10mm = 0.394").

L	L ≤ 10	10 < L ≤ 100	L > 100
in cm (inches)	L ≤ 3.940	3.940 < L ≤ 39.40	L > 39.40
TOLERANCE	-0 / +0.5	-0 / +3	-0 / +5
in cm (inches)	-0 / +0.200	-0 / +1.180	-0 / +1.970

HARDWARE

B: No hardware.
C: U-clips with low profile socket hex head jackscrews (removable).
D: U-clips with low profile slot head jackscrews (removable).
M: Low profile socket hex head jackscrews (removable).
N: High profile socket hex head jackscrews (removable).
S: low profile slot head jackscrews (removable).
FR: Float mount, rear panel mount (non removable).
Px (x: 1 to 5): Panel mount jackposts.

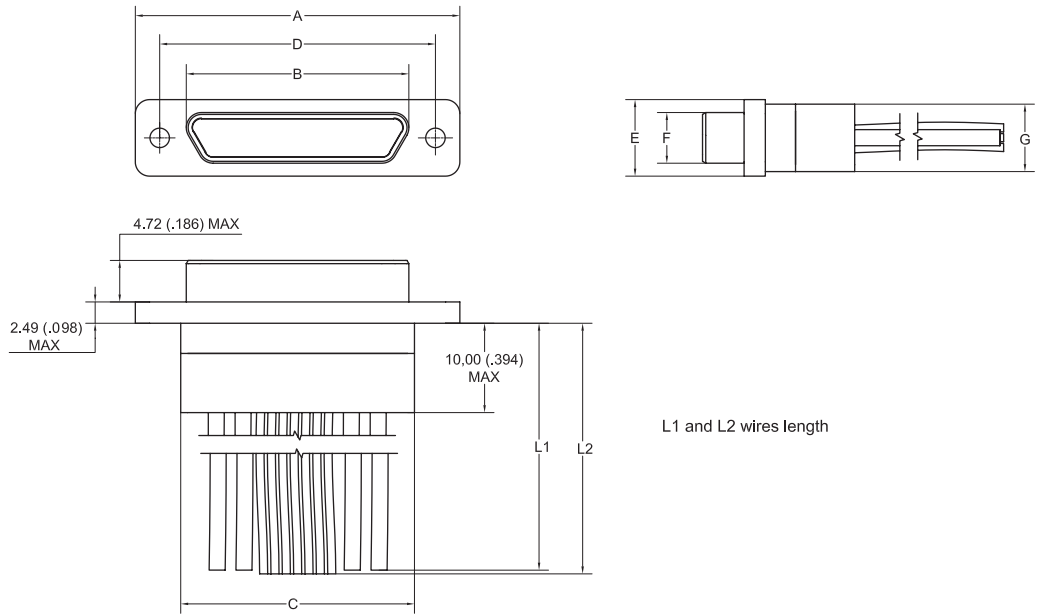
T: High profile slot head jackscrews (removable).
P: Jackposts (removable).
K: High profile slot head jackscrews (non removable).
L: Low profile socket hex head jackscrews (non removable).
F: Float mount, front panel mount (non removable).

See pages 190 to 200 for hardware description.

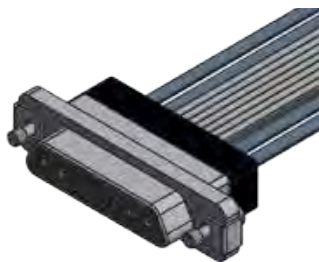
DIMENSIONS

Dimensions are in millimetres (inches).

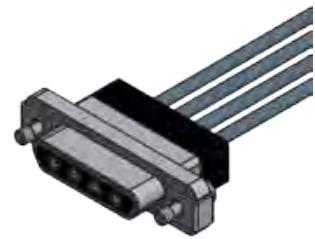
MALE connector



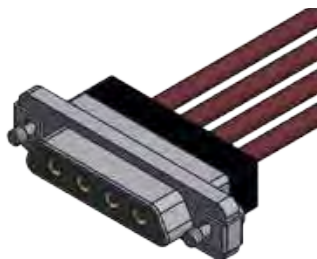
MALE PIGTAIL	A ± 0.25 (±.010)	B max	C -0.46/+0.25 (-.018/+ .010)	D ± 0.13 (±.005)	E ± 0.25 (±.010)	F max	G max
		Male				Male	
C1 or P1	36.20 1.425	24.99 .984	26.42 1.040	30.86 1.215	8.66 .341	5.79 .228	7.87 .310
C3 or P3	36.20 1.425	24.99 .984	26.42 1.040	30.86 1.215	8.66 .341	5.79 .228	7.87 .310
C8 or P8	29.85 1.175	18.64 .734	20.07 .790	24.51 .965	7.57 .298	4.69 .185	6.86 .270
C10 or P10	36.20 1.425	24.99 .984	26.42 1.040	30.86 1.215	8.66 .341	5.79 .228	7.87 .310



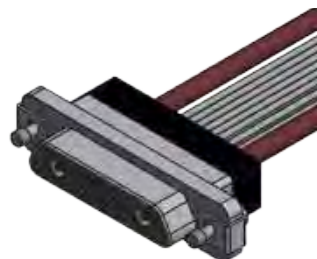
▲ COMBO 51 4 COAX S2.2 + 20 SIGN MALE PIGTAIL (C10)



▲ COMBO 25 4 COAX S2.2 MALE PIGTAIL (C8)



▲ COMBO 51 4 COAX S3 MALE PIGTAIL (C1)

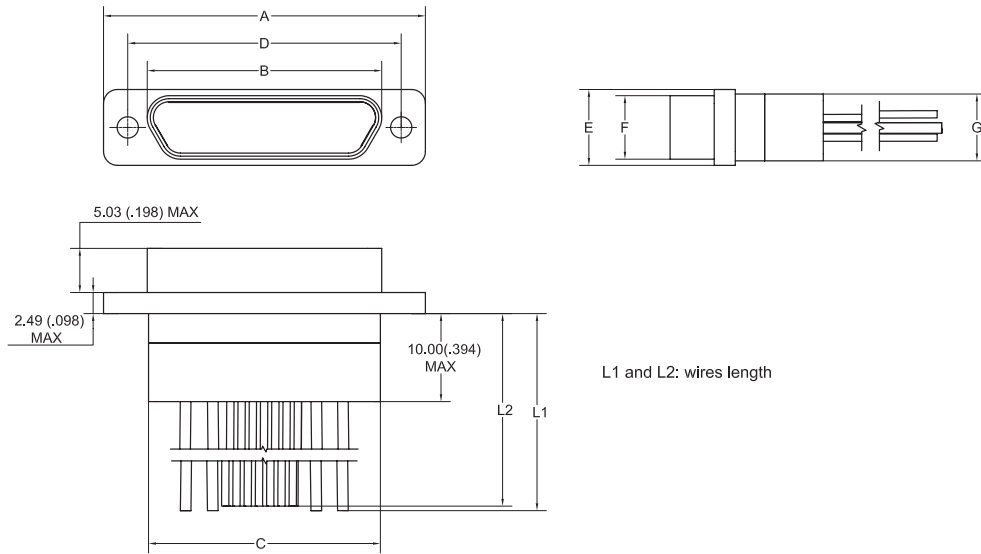


▲ COMBO 51 2 COAX S3 + 21SIGN MALE PIGTAIL (C3)

DIMENSIONS

Dimensions are in millimetres (inches).

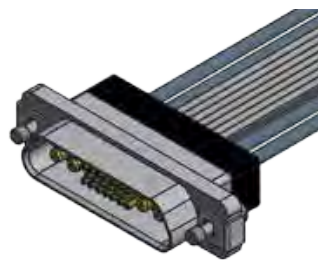
FEMALE connector



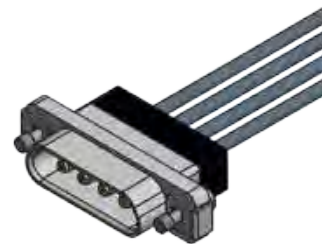
COMBO-D
CONNECTORS

Rectangular
Micro-D connectors

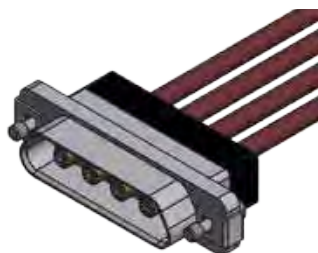
FEMALE PIGTAIL	A ± 0.25 (±.010)	B max	C -0.46/+0.25 (-.018/+0.010)	D ± 0.13 (±.005)	E ± 0.25 (±.010)	F max	G max
		Female				Female	
C1 or P1	36.20 1.425	26.70 1.101	26.42 1.040	30.86 1.215	8.66 .341	7.44 .293	7.87 .310
C3 or P3	36.20 1.425	26.70 1.101	26.42 1.040	30.86 1.215	8.66 .341	7.44 .293	7.87 .310
C8 or P8	29.85 1.175	20.35 .801	20.07 .790	24.51 .965	7.57 .298	6.35 .250	6.86 .270
C10 or P10	36.20 1.425	26.70 1.101	26.42 1.040	30.86 1.215	8.66 .341	7.44 .293	7.87 .310



▲ COMBO 51 4 COAX S2.2 + 20 SIGN FEMALE PIGTAIL (C10)



▲ COMBO 25 4 COAX S2.2 FEMALE PIGTAIL (C8)



▲ COMBO 51 4 COAX S3 FEMALE PIGTAIL (C1)



▲ COMBO 51 2 COAX S3 + 21 SIGN FEMALE PIGTAIL (C3)

COMBO Micro-D
connectors

SPECIAL COMBO CONNECTORS

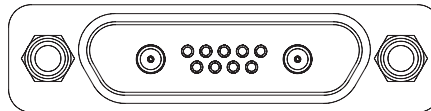
AXON' can develop on request special Combo Micro-D connectors based on all the standard shell sizes from 9 to 100 ways, or based on special shells such as the 120 way version or other custom configurations.

Combo Micro-D connectors can be offered as pigtails, as part of a complex harness or as PCB connectors, in either straight (BS style) or right angle versions (BR and CBR styles).

Some examples of special designs:

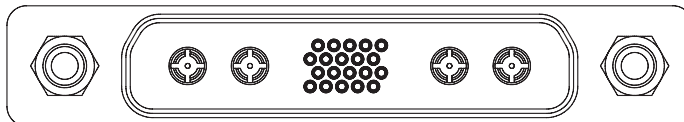
► Other possible arrangements

25 WAY



2 COMBO CONTACTS SIZE 2.2 mm + 9 SIGNALS

100 WAY



4 COMBO CONTACTS SIZE 3 mm + 20 SIGNALS

OTHER CONTACT ARRANGEMENTS AVAILABLE ON REQUEST

► Some examples of possible designs



2 POWER COMBO CONTACTS + 3 SIGNALS



4 POWER COMBO CONTACTS + 7 SIGNALS



8 COAXIAL COMBO CONTACTS + 16 SIGNALS IN A 120 WAY MICRO-D CONNECTOR



5 COAXIAL COMBO CONTACTS



2 POWER COMBO S2.2 + 2 COAXIAL COMBO S3 CONTACTS + 40 SIGNALS, INTEGRATED IN A HARNESS



LOW PROFILE COMBO IN A 31 WAY SHELL



COMBO CBR WITH REDUCED DEPTH

COMBO-D
CONNECTORS

Rectangular
Micro-D connectors

HERMETIC CONNECTORS

- Introduction to hermetic connectors 164
- Rear panel mounting guide 165
- Hermetic connectors 166



HERMETIC CONNECTORS

Rectangular Micro-D connectors

Custom designed solutions

INTRODUCTION TO HERMETIC CONNECTORS

Hermetic connectors are used in applications where an enclosure needs to be isolated from the outside environment. Panel feed through is the main application for this type of connector.

In the vast majority of applications, the use of a hermetic encapsulant offers sufficient levels of hermeticity at a reasonable price. Only extreme environments require glass-to-metal sealing.

Furthermore, AXON' fully tests its hermetic Micro-D solutions to provide reliability and satisfaction to its customers. Helium leak rate is the most common and most reliable method to quantify a small leak.

Based on its expertise, AXON' can also design tailor-made connectors to fit your application needs.

CONNECTOR LEAK FLOW (mbar.l.s ⁻¹ or atm.cm ³ .s ⁻¹)	STANDARD MICRO-D MIL-DTL-83513	WATERPROOF ENCAPSULANT	AXON' HERMETIC ENCAPSULANT	AXON' GLASS-TO-METAL SEAL	LEVEL OF HERMETICITY
	1.E ⁺⁰⁰	↕	↕	↕	↕
1.E ⁻⁰¹					
1.E ⁻⁰²					
1.E ⁻⁰³					SOME MOISTURE INGRESS
1.E ⁻⁰⁴					
1.E ⁻⁰⁵					
1.E ⁻⁰⁶					GAS INGRESS
1.E ⁻⁰⁷					
1.E ⁻⁰⁸					
1.E ⁻⁰⁹					LIGHT WEIGHT GAS INGRESS
1.E ⁻¹⁰					

► ELECTRICAL & MECHANICAL PERFORMANCES

TECHNOLOGY CODE	HERMETIC ENCAPSULANT WITH SILICONE GASKET MDH1	HERMETIC ENCAPSULANT WITH FKM GASKET MDH2	GLASS-TO-METAL SEAL <i>on request</i>
MAXIMUM LEAK RATE*	1.10 ⁻⁶ mbar.l.s ⁻¹	1.10 ⁻⁸ mbar.l.s ⁻¹	< 1.10 ⁻¹¹ mbar.l.s ⁻¹
SERVICE TEMPERATURE RANGE	-55°C / +125°C	-30°C / +125°C	-55°C / +200°C**
CURRENT RATING	3 A MAX	3 A MAX	3 A MAX

*: Leak rates are measured by helium leak detection

**: temperature range can be increased depending on application

Other type of seals can also be offered

By mounting the flange to the panel, all AXON' hermetic Micro-D connectors can be used to maintain low or high pressure vacuum seals.

They are fully compatible with standard Micro-D connectors. A wide range of products is already available however custom interconnect solutions can be designed for specific panel cut-outs and thicknesses. Please contact us for any specific hermetic applications.

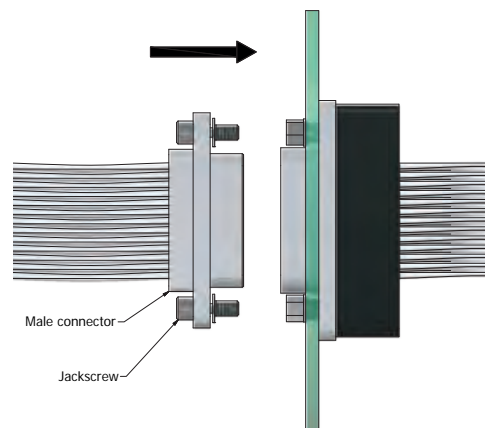
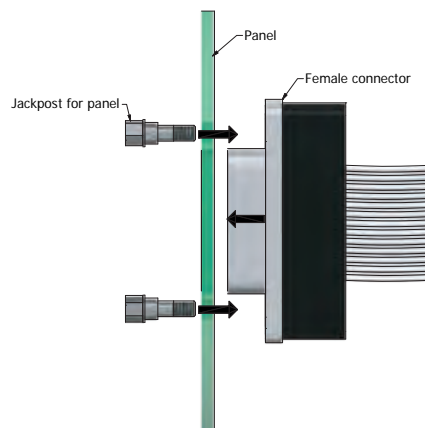
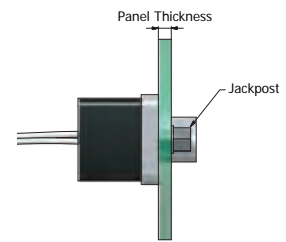
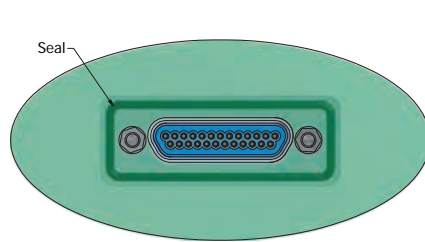


For other operating performances please refer to MIL-DTL-83513

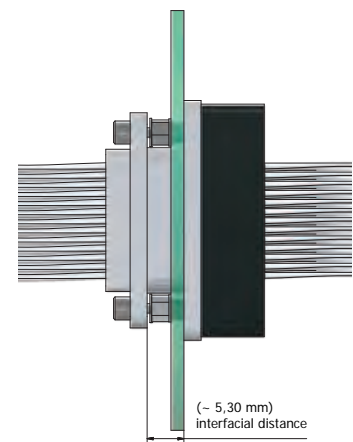
REAR PANEL MOUNTING GUIDE

HERMETIC FEED THROUGH CONNECTORS

Micro-D hermetic feed through is only available as rear panel mount connectors. Specific jackposts are used to secure the feed through on the panel.



- Recommended Ra for panel surface: $<0.8 \mu\text{m}$
- Recommended torque (jackposts): 0.35 N.m
- Connector parts and panel must be cleaned off before mounting for better performances
- Design is made to be used without vacuum grease





RECTANGULAR CONNECTORS

HERMETIC CONNECTOR

METAL SHELL

- High performance hermetic metal connector and PTFE wire.
- Male Twist Pin or female connector.
- 9 to 100 contacts.
- According to MIL-DTL-83513.

IDENTIFICATION CODE



SERIES

MDH: Micro-D Hermetic series.

HERMETIC TECHNOLOGY

- 1:** Hermetic potting fluorinated silicone gasket.
 - 2:** Hermetic potting FKM gasket.
- Glass-To-Metal seal on request.**

NUMBER OF CONTACTS 09, 15, 21, 25, 31, 37, 51, 100.
See pages 26 & 27 for contact arrangements.

CONNECTOR GENDER

- P:** Male (pin contacts).
- S:** Female (socket contacts).

TERMINATION TYPE

- Solid uninsulated wires**
- G:** AWG 25 gold plated.
- FS:** Solder cup.

See page 29 for wire types.

COLOUR CODE

- BLANK:** If wire type is G or FS.
 - W:** 10 colour repeat.
- See page 30 for colour code.

WIRE LENGTH (in cm)

Attention ! Wire length in centimetres - (1cm = 10mm = 0.394").
BLANK: If wire type is FS.

L	L ≤ 10	10 < L ≤ 100	L > 100
in cm (inches)	L ≤ 3.940	3.940 < L ≤ 39.40	L > 39.40
TOLERANCE	-0 / +0.5	-0 / +3	-0 / +5
in cm (inches)	-0 / +0.200	-0 / +1.180	-0 / +1.970

HARDWARE

- B:** No hardware.
 - Px** (x= 1 to 5): Panel mount jackposts.
- See pages 190 to 200 for hardware description.

For colour codes F, L, W

- 1:** E 2607, AWG 26, 7 strands, 600V.
- 4:** E 2619, AWG 26, 19 strands, 600V.
- 6:** E 2807, AWG 28, 7 strands, 600V.
- 8:** E 3007, AWG 30, 7 strands, 600V.
- A:** E 2407, AWG 24, 7 strands, 600V.
- C:** E 2419, AWG 24, 19 strands, 600V.
- E:** M22759/33, AWG 26, 19 strands, 600V.

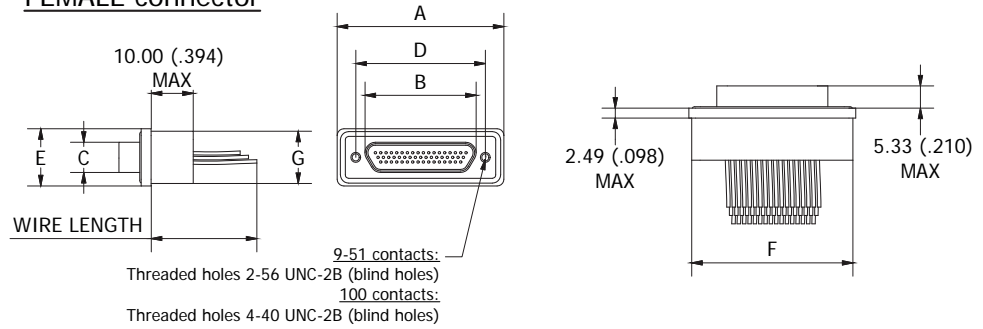
- F:** All yellow.
- L:** All white.

For other design or glass to metal sealed version, please consult us.

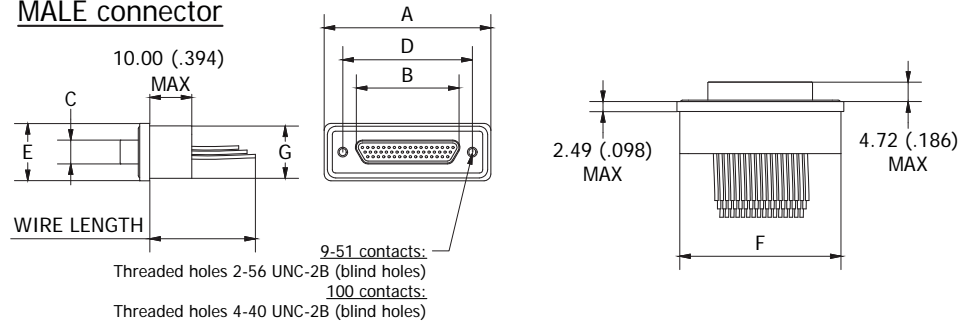
DIMENSIONS

Dimensions are in millimetres (inches).

FEMALE connector



MALE connector



	A ± 0.25 (±.010)	B max.		C max.		D ± 0.13 (±.005)	E ± 0.25 (±.010)	F max.	G max.
		Male	Female	Male	Female				
9 P / 9 S	23.20 .913	8.48 .334	10.16 .400	4.69 .185	6.35 .250	14.35 .565	12.50 .492	22.50 .886	12.00 .472
15 P / 15 S	27.00 1.063	12.29 .484	14.00 .551	4.69 .185	6.35 .250	18.16 .715	12.50 .492	26.30 1.035	12.00 .472
21 P / 21 S	30.81 1.213	16.10 .634	17.81 .701	4.69 .185	6.35 .250	21.97 .865	12.50 .492	30.10 1.185	12.00 .472
25 P / 25 S	33.40 1.315	18.64 .734	20.35 .801	4.69 .185	6.35 .250	24.51 .965	12.50 .492	32.70 1.287	12.00 .472
31 P / 31 S	37.16 1.463	22.45 .884	24.16 .951	4.69 .185	6.35 .250	28.32 1.115	12.50 .492	36.50 1.437	12.00 .472
37 P / 37 S	41.00 1.614	26.26 1.034	27.96 1.101	4.69 .185	6.35 .250	32.13 1.265	12.50 .492	40.30 1.586	12.00 .472
51 P / 51 S	39.70 1.563	24.99 .984	26.70 1.051	5.79 .228	7.44 .293	30.86 1.215	13.60 .535	39.00 1.536	13.00 .512
100 P / 100 S	59.70 2.350	35.15 1.384	36.86 1.451	6.88 .271	8.46 .333	45.72 1.800	15.70 1.618	59.00 2.323	14.50 .571

HERMETIC
CONNECTORS

Rectangular
Micro-D connectors

NON-MAGNETIC CONNECTORS

Non-magnetic Micro-D interconnect solutions 170

PIGTAIL CONNECTORS

- Non-magnetic metal shell connectors 172
- Non-magnetic low profile metal shell connectors 173
- Non-magnetic plastic shell connectors 174

PCB CONNECTORS

- PCB connectors overview 175
- Non-magnetic PCB connectors 176



NON-MAGNETIC CONNECTORS

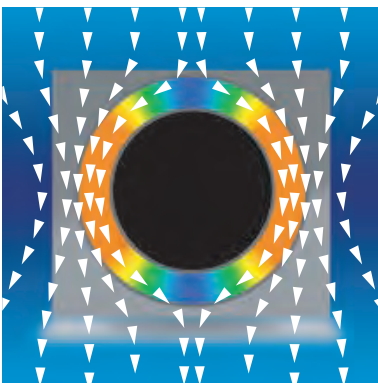
Rectangular Micro-D connectors



▲ FIGURE 1: Location of magnetic test facility (30m away from possible interference)



▲ FIGURE 2: This item's initial magnetic state is being measured using a three-axis probe, whilst protected by the magnetic shield



▲ FIGURE 3: Diagram showing the effect of the magnetic shield on the Earth's magnetic field. In white, the magnetic field lines. In color, the intensity of the magnetic field within the shield, red for high intensity and blue for low intensity. The black area in the center is the area used to measure the initial magnetic state of the item.

NON-MAGNETIC MICRO-D INTERCONNECT SOLUTIONS

Interest in powerful magnetic fields and accurate magnetic sensors has significantly increased in high-tech industries over the past decades. Various applications (MRI, low magnetic field detection systems, etc...) now use these complex phenomena, but accurately measuring a magnetic field is challenging. The difficulty comes mainly from interference caused by any ferromagnetic material surrounding the probes.

At the same time, systems using such magnetic fields are spreading and components tend to be closer to each other, further increasing magnetic interference.

A standard Micro-D connector made to the requirements of MIL-DTL-83513 contains materials such as austenitic stainless steel, which can easily be magnetized. To avoid interference from interconnects, AXON' has developed a new product range: non-magnetic Micro-D connectors.

These connectors have limited or no influence on magnetic field lines, improving the reliability of magnetic measurements, even down to nanoTesla level, 10^{-4} times lower than the Earth's magnetic field. AXON's non-magnetic Micro-D connectors have been designed using new materials and surface treatments, avoiding ferromagnetic materials. The manufacturing process has also been developed to keep them "as clean as possible" magnetically.

► MAGNETIC TESTING

In order to further enhance and test its non-magnetic product range, AXON' has developed its own test equipment and procedure, based on recognized standards, to characterize and quantify the magnetic influence of connectors on their environment.

The first step is to measure the initial magnetic state of the Unit Under Test (UUT) using a three-axis probe. Then a high magnetic field of 0.5T (Earth's magnetic field is about $50\mu\text{T}$ in Europe), is applied to the UUT.

Finally, the intensity of the field is gradually decreased to nil, and the residual magnetism level of the UUT is measured with the three-axis probe. As a result of this procedure, the influence of a strong magnetic field on the UUT is known.

To minimize the possibility of magnetic interference from the surrounding area, the tests are carried out in a specially-constructed facility (see figure 1) which is made from magnetically neutral materials. Additionally a magnetic shield is used to shield the item tested from the Earth's magnetic field (see figures 2 & 3).

NON-MAGNETIC MICRO-D INTERCONNECT SOLUTIONS

For a material studied in a magnetostatic state, a link between the physical quantities of the Maxwell's equations can be simplified to:

$$B = \mu_0 (H+M)$$

Where B is the magnetic flux density generated by the material in Tesla (T),
 μ_0 is the magnetic permeability of vacuum in Henry per meter (H/m),
 H is the magnetic field intensity generated by the environment in Ampere per meter (A/m),
 M is the sum of the magnetic moments of the material or magnetization in Ampere per meter (A/m).

If the item is perfectly non-magnetic, $M = 0$. So if the magnetic field generated by the environment is also nil ($H = 0$), the measured magnetic flux density B is also nil.

Relationship between physical quantities commonly used:

$$1 \text{ Oersted} = \left(\frac{10^3}{4\pi} \right) \text{ A/m}$$

$$1 \text{ T} = 10^4 \text{ Gauss} = 10^9 \text{ Gamma}$$

GENERAL PERFORMANCES

Residual Magnetic Level	NMB*: ≤ 200 nT residual magnetism level NMC*: ≤ 20 nT residual magnetism level NMD* on request: ≤ 2 nT residual magnetism level
Operating temperature range	-55°C / +200°C
Current rating	3 A max

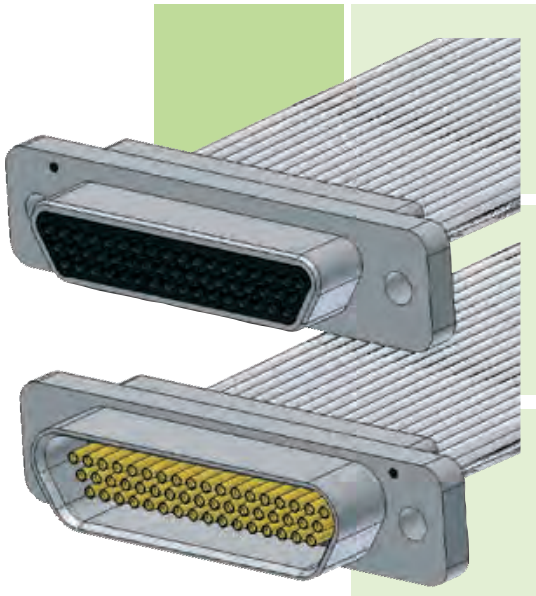
*: NMB, NMC & NMD levels are defined by NASA GSFC S-311 for non-magnetic subminiature connectors and adapted to the dimensions of microminiature connectors.



MATERIAL & FINISH

SHELL	Aluminium alloy 6061 with custom non-magnetic plating or titanium
MOULDED INSULATOR	Liquid Crystal Polymer (LCP)
INTERFACIAL SEAL	Fluorosilicone rubber
PIN CONTACT	Copper and beryllium copper, gold over nickel plating (custom non-magnetic plating)
SOCKET CONTACT	Copper alloy, gold over nickel plating (custom non-magnetic plating)
ENCAPSULANT	Epoxy resin
HARDWARE	Titanium TA6V and beryllium copper
SOLID UNINSULATED WIRES & PCB TERMINALS	AWG 25 Silver Plated Copper

LOWER MAGNETISM LEVEL: Please contact us for a 2 nT residual magnetism level or for other magnetic requirements



NON-MAGNETIC CONNECTOR

METAL SHELL

- For strong magnetic field environments.
 - Minimal magnetic disturbance.
- High performance metal connector and PTFE wire.
 - Environmentally sealed.
- Operating temperature: 125 or 200°C.
 - 9 to 100 contacts.

IDENTIFICATION CODE



SERIES

MDN: Micro-D Non-magnetic series.

CONNECTOR TYPE

- 1A:** < 200 nT - Nickel aluminium shell + potting 125°C.
 - 1B:** < 200 nT - Nickel aluminium shell + potting 200°C.
 - 2A:** < 20 nT - Titanium shell + potting 125°C.
 - 2B:** < 20 nT - Titanium shell + potting 200°C.
- Contact us for < 2 nT connectors.*

NUMBER OF CONTACTS 09, 15, 21, 25, 31, 37, 51DR, 51, 69, 100.
See pages 26 & 27 for contact arrangements.

CONNECTOR GENDER

- P:** Male (pin contacts).
- S:** Female (socket contacts).

TERMINATION TYPE

- For colour codes F, L, W
- 1:** E 2607, AWG 26, 7 strands, 600V.
 - 4:** E 2619, AWG 26, 19 strands, 600V.
 - 6:** E 2807, AWG 28, 7 strands, 600V.
 - 8:** E 3007, AWG 30, 7 strands, 600V.
 - A:** E 2407, AWG 24, 7 strands, 600V.
 - C:** E 2419, AWG 24, 19 strands, 600V.
 - E:** M22759/33, AWG 26, 19 strands, 600V.
- For colour code V only
- 3:** M22759/11, AWG26, 19 strands, 600V.
 - F:** E2607, AWG26, 7 strands, 600V.
 - S:** Solid uninsulated wires
 - S:** AWG 25 silver plated.
- FS:** Solder cup.
See page 29 for wire types.

COLOUR CODE

- F:** All yellow.
 - L:** All white.
 - BLANK:** If wire type is S or FS.
 - W:** 10 colour repeat.
 - V:** MIL-STD-681 striped (only for wire types 3 and F).
- See page 30 for colour code.*

WIRE LENGTH (in cm)

Attention! Wire length in centimetres - (1cm = 10mm = 0.394").
BLANK: If termination type is FS.

L	L ≤ 10	10 < L ≤ 100	L > 100
in cm (inches)	L ≤ 3.940	3.940 < L ≤ 39.40	L > 39.40
TOLERANCE	-0 / +0.5	-0 / +3	-0 / +5
in cm (inches)	-0 / +0.200	-0 / +1.180	-0 / +1.970

HARDWARE

- B:** No hardware.
- P:** Titanium jackposts (removable).
- M:** Titanium non-magnetic low profile hex socket head jackscrews (removable).
- N:** Titanium non-magnetic high profile hex socket head jackscrews (removable).
- Px** (x: 1 to 5): Titanium panel mount jackposts.
See pages 190 to 200 for hardware description.

NON-MAGNETIC CONNECTOR

NON-MAGNETIC CONNECTORS



LOW PROFILE METAL SHELL

- For strong magnetic field environments.
- Minimal magnetic disturbance.
- High performance metal connector and PTFE wire.
- Environmentally sealed.
- Operating temperature: 125 or 200°C.
- 9 to 51 contacts.

Rectangular Micro-D connectors

IDENTIFICATION CODE



SERIES

MDN: Micro-D Non-magnetic series.

CONNECTOR TYPE

- 1A:** < 200 nT - Nickel aluminium shell + potting 125°C.
 - 1B:** < 200 nT - Nickel aluminium shell + potting 200°C.
 - 2A:** < 20 nT - Titanium shell + potting 125°C.
 - 2B:** < 20 nT - Titanium shell + potting 200°C.
- Contact us for < 2 nT connectors.**

NUMBER OF CONTACTS L09, L15, L21, L25, L31, L37, L51.
See pages 26 & 27 for contact arrangements.

CONNECTOR GENDER

- P:** Male (pin contacts).
- S:** Female (socket contacts).

TERMINATION TYPE

- For colour codes F, L, W
- 1:** E 2607, AWG 26, 7 strands, 600V.
 - 4:** E 2619, AWG 26, 19 strands, 600V.
 - 6:** E 2807, AWG 28, 7 strands, 600V.
 - 8:** E 3007, AWG 30, 7 strands, 600V.
 - A:** E 2407, AWG 24, 7 strands, 600V.
 - C:** E 2419, AWG 24, 19 strands, 600V.
 - E:** M22759/33, AWG 26, 19 strands, 600V.
- For colour code V only
- 3:** M22759/11, AWG26, 19 strands, 600V.
- F:** E2607, AWG26, 7 strands, 600V.
Solid uninsulated wires
S: AWG 25 silver plated.
- FS:** Solder cup.
See page 29 for wire types.

COLOUR CODE

- F:** All yellow.
 - L:** All white.
 - BLANK:** If wire type is S or FS.
 - W:** 10 colour repeat.
 - V:** MIL-STD-681 striped (only for wire types 3 and F).
- See page 30 for colour code.

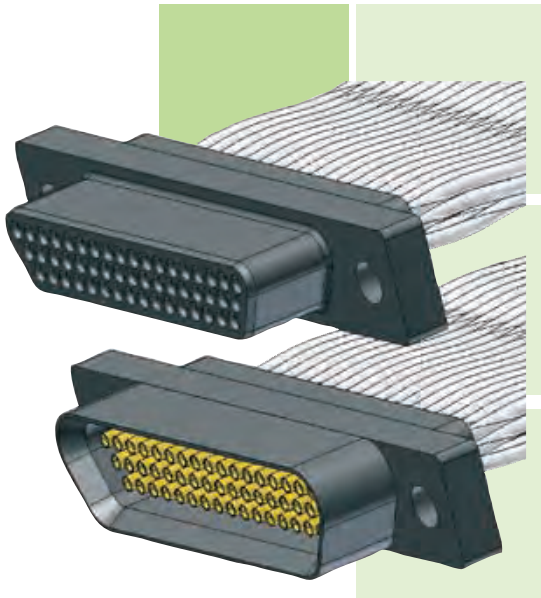
WIRE LENGTH (in cm)

Attention! Wire length in centimetres - (1cm = 10mm = 0.394").
BLANK: If termination type is FS.

L	L ≤ 10	10 < L ≤ 100	L > 100
in cm (inches)	L ≤ 3.940	3.940 < L ≤ 39.40	L > 39.40
TOLERANCE	-0 / +0.5	-0 / +3	-0 / +5
in cm (inches)	-0 / +0.200	-0 / +1.180	-0 / +1.970

HARDWARE

- B:** No hardware.
- P:** Titanium jackposts (removable).
- M:** Titanium non-magnetic low profile hex socket head jackscrews (removable).
- N:** Titanium non-magnetic high profile hex socket head jackscrews (removable).
- Px** (x: 1 to 5): Titanium panel mount jackposts.
See pages 190 to 200 for hardware description.



NON-MAGNETIC CONNECTOR

PLASTIC SHELL

- For strong magnetic field environments.
 - Minimal magnetic disturbance.
- High performance plastic connector and PTFE wire.
 - Environmentally sealed.
- Operating temperature: 125 or 200°C.
 - 9 to 51 contacts.

IDENTIFICATION CODE



SERIES

MDN: Micro-D Non-magnetic series.

CONNECTOR TYPE

P: < 20 nT - Plastic shell + potting 125°C.
L: < 20 nT - Plastic shell + potting 200°C.

NUMBER OF CONTACTS 09, 15, 21, 25, 31, 37, 51.
See pages 26 & 27 for contact arrangements.

CONNECTOR GENDER

P: Male (pin contacts).
S: Female (socket contacts).

TERMINATION TYPE

For colour code V only
3: M22759/11, AWG26, 19 strands, 600V.
F: E2607, AWG26, 7 strands, 600V.
S: AWG 25 silver plated.

FS: Solder cup.
See page 29 for wire types.

COLOUR CODE

F: All yellow.
L: All white.
BLANK: If wire type is S or FS.
W: 10 colour repeat.
V: MIL-STD-681 striped (only for wire types 3 and F).
See page 30 for colour code.

WIRE LENGTH (in cm)

Attention! Wire length in centimetres - (1cm = 10mm = 0.394").
BLANK: If termination is FS.

L	L ≤ 10	10 < L ≤ 100	L > 100
in cm (inches)	L ≤ 3.940	3.940 < L ≤ 39.40	L > 39.40
TOLERANCE	-0 / +0.5	-0 / +3	-0 / +5
in cm (inches)	-0 / +0.200	-0 / +1.180	-0 / +1.970

HARDWARE

B: No hardware.
P: Titanium jackposts (removable).
M: Titanium non-magnetic low profile hex socket head jackscrows (removable).
N: Titanium non-magnetic high profile hex socket head jackscrows (removable).
Px (x: 1 to 5): Titanium panel mount jackposts.
See pages 190 to 200 for hardware description.

PCB CONNECTORS OVERVIEW

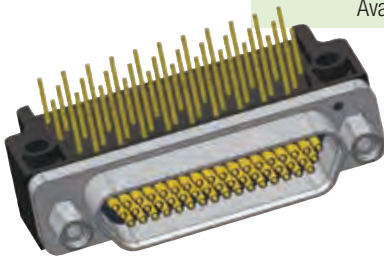
AXON' Micro-D Printed Circuit Board connectors are designed for interconnection of PCB's inside-the-box to external cables.
AXON' Micro-D PCB connectors are available in two layouts (0.100" pitch and 0.075" pitch) and in two configurations (vertical mount and right angle mount connectors) for flexible and rigid printed circuit boards.

NOTE: typically, the PCB connector tends to be female, however male versions are equally available.

NON-MAGNETIC PCB CONNECTORS 0.100" PITCH

CBR 0.100" Condensed Right Angle mount

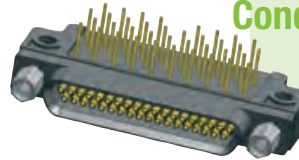
Available from 9 to 100 ways
Available in metal shell
PCB code: **CBR**



See pages 78 to 85*.

CBP 0.100" Condensed Right Angle mount low profile

Available from 9 to 51 ways
Available in metal and plastic shell
PCB code: **CBP**



See pages 86 to 91*.

NON-MAGNETIC PCB CONNECTORS 0.075" PITCH

BS 0.075" Vertical mount

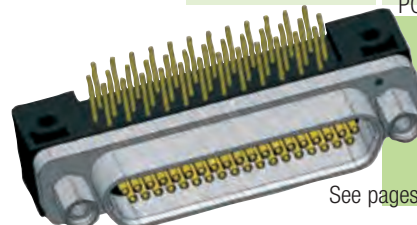
Available from 9 to 100 ways
Available in metal and plastic shell
PCB code: **75SB**



See pages 116 to 125*.

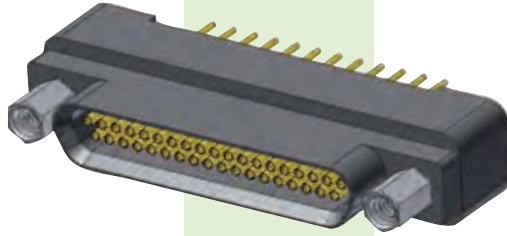
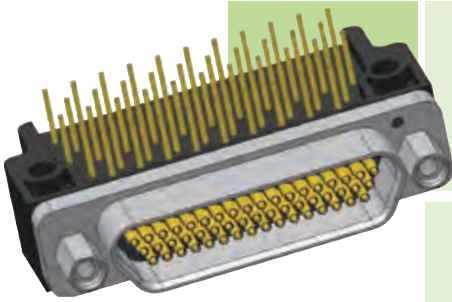
CBR 0.075" Condensed Right Angle mount

Available from 9 to 100 ways
Available in metal shell
PCB code: **75RB**



See pages 178 to 184*.

*: Non-magnetic PCB connectors have the same dimensions and PCB layouts as standard PCB connectors.
Construction of the references on the next page.



NON-MAGNETIC PCB CONNECTOR

- For strong magnetic field environments.
 - Minimal magnetic disturbance.
- Condensed board right angle connector for flexible and rigid printed circuit boards.
 - Operating temperature: 125 or 200°C.
 - Several tail lengths available.
- 9 to 100 contacts (up to 51 for plastic connectors).

IDENTIFICATION CODE

MDN 1A 51 S CBR P S 3

SERIES

MDN: Micro-D Non-magnetic series.

CONNECTOR TYPE

- 1A:** < 200 nT - Nickel aluminium shell + potting 125°C.
1B: < 200 nT - Nickel aluminium shell + potting 200°C.
2A: < 20 nT - Titanium + potting 125°C.
2B: < 20 nT - Titanium + potting 200°C.
P: < 20 nT - Plastic shell + potting 125°C.
L: < 20 nT - Plastic shell + potting 200°C.
Contact us for < 2 nT connectors.

NUMBER OF CONTACTS

- 09, 15, 21, 25, 31, 37, 51DR*, 51, 69*, 100*.**
L09*, L15*, L21*, L25*, L31*, L37*, L51*.
See pages 26 & 27 for contact arrangements.

CONNECTOR GENDER

- P:** Male (pin contacts).
S: Female (socket contacts).

PCB VERSION

- CBR:** 0.100" Condensed Board Right Angle**.
CBP: 0.100" Condensed Right Angle Low Profile***.
75RB: 0.075" Condensed Board Right Angle**.
75SB: 0.075" Board Straight.

HARDWARE

- B:** No hardware.
P: Titanium jackposts (removable).
Px (x: 1 to 5): Titanium panel mount jackposts.
See pages 190 to 200 for hardware description.

CONDUCTOR TYPE

- S:** Silver plated solid conductor AWG 25.

TAIL LENGTH

- 1:** 2.80 mm (0.110").
2: 3.80 mm (0.150").
3: 4.80 mm (0.190").
4: 6.35 mm (0.250").
5: 3.25 mm (0.127").
6: 3.56 mm (0.140").
7: 4.37 mm (0.172").

Tolerance: ± 0.38 mm (0.015").
Other lengths available on request.

*: not for plastic shell connectors.
 **: only for standard profile metal shells.
 ***: only for plastic and low profile metal shells.

120 WAY MICRO-D CONNECTORS

- 120 way Micro-D connectors 178
- 120 way connectors for cable and harnesses 181
- Surface mount PCB card edge connectors 182
- BS connector 183
- Connector saver 183
- PCB layouts 184



120 WAY MICRO-D
CONNECTORS

Rectangular
Micro-D connectors

Micro-D connectors

120 WAY MICRO-D CONNECTORS

An enduring trend in the electronics industry is the continuing drive towards miniaturisation. This leads in turn to ever greater cabling densities with an ever larger number of signals required within limited space constraints. In answer to these challenges, AXON' CABLE has developed a range of 120 way Micro-D connectors. They are available as pigtailed or within assemblies but can equally be supplied as PCB connectors in either surface mount or through hole format. Connector savers are part of the range.

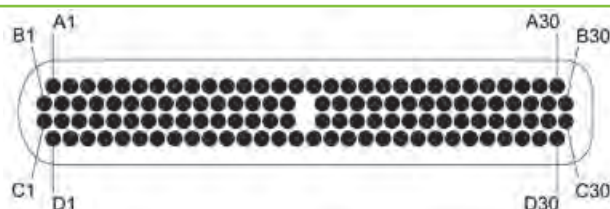
These connectors can be used for any applications where severe environmental conditions and high density cabling are critical. Keying hardware is an option.

AXON' can offer specific numbers of contacts for custom designed applications. Specific designs are not contained within the MIL specification but AXON's solutions remain fully compatible with the MIL-DTL-83513 standard as far as performance and construction are concerned.

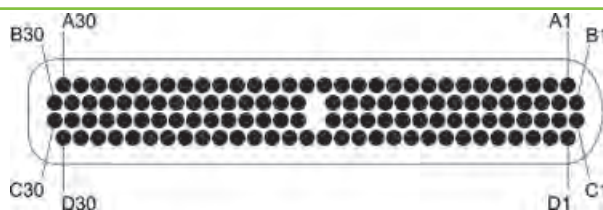


▲ 120 WAY MICRO-D CARD
EDGE CONNECTOR

► Contact arrangements



MATING FACE OF THE 120 WAY MALE CONNECTOR



MATING FACE OF THE 120 WAY FEMALE CONNECTOR

1.27 mm (.050") contact spacing.
1.27 mm (.050") spacing between two rows.

► References

DESIGNATION	REFERENCE	COMMENTS	PAGE
120 WAY PLUG CONNECTOR FOR CABLE OR ASSEMBLY	P562620	Wire, length and colour type to be defined	181
120 WAY SOCKET CONNECTOR FOR CABLE OR ASSEMBLY	P562621	Wire, length and colour type to be defined	181
120 WAY SOCKET SURFACE MOUNT PCB CONNECTOR	P562622	Can only be mated with pigtail plug	182
120 WAY PLUG BOARD STRAIGHT PCB CONNECTOR	P562623		183
120 WAY CONNECTOR SAVER	P562624		183

The AXON' 120 way Micro-D connector can be ordered with standard wires and colours (see pages 29 & 30).
For more AXON' 120 way Micro-D connectors references, please contact our engineering department.

► Keying Hardware

SPECIAL 120 WAY MALE HARDWARE KIT WITH KEYWAY: J	SPECIAL 120 WAY FEMALE HARDWARE KIT WITH KEYWAY: H
---	---



► Electrical & mechanical characteristics

FEATURES	SPECIFICATIONS	TEST METHODS
CURRENT RATING	2.5 A max @ 23°C	EIA-364-70
CONTACT RESISTANCE	8 mΩ max.	EIA-364-06
INSULATION RESISTANCE	5000 MΩ min. @ 500 Vdc	EIA-364-21
DIELECTRIC WITHSTANDING VOLTAGE - SEA LEVEL 0 M - ALTITUDE 21 KM (70,000 FT)	250 V _{AC} 100 V _{AC}	EIA-364-20
CONTACT ENGAGING AND SEPARATION FORCE	170 g max. (6 oz) / 14 g min. (0.5 oz)	EIA-364-37
CONNECTOR MATING AND DE-MATING FORCE	283 g (10 oz) X 120	EIA-364-13
CONTACT RETENTION	2.26 kg (5 lbs) for 5 seconds min.	EIA-364-29
DURABILITY	500 mating cycles min.	EIA-364-09
TEMPERATURE RANGE	-55°C / +150°C	
VIBRATION	20 g's - No discontinuity >1μs	EIA-364-28 TEST CONDITION IV
SHOCK	50 g's - No discontinuity >1μs	EIA-364-27 TEST CONDITION E
SALT SPRAY	48 hours	EIA-364-26 TEST CONDITION B
HUMIDITY	Insulation resistance > 1MΩ	EIA-364-31 TEST METHOD IV

► Materials & finish

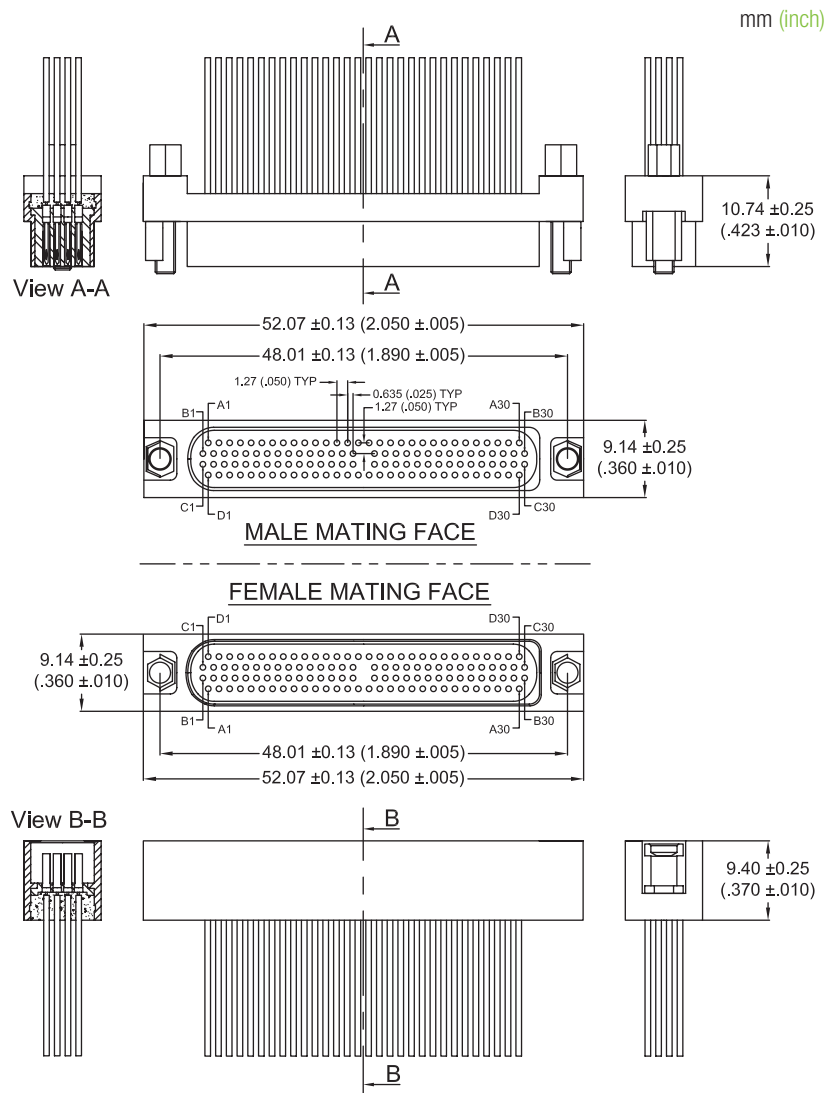
COMPONENTS	MATERIAL	FINISH
MALE CONTACT (TWIST PIN)	COPPER AND BERYLLIUM COPPER	GOLD PLATING IN ACCORDANCE WITH ASTM-B488, TYPE II, CLASS 1 (1.27μM (0.050") MIN), CODE C OVER NICKEL UNDERPLATE IN ACCORDANCE WITH SAE-AMS-QQ-N-290 CLASS 2 (1.27μM (0.050") TO 3.81μM (0.150"))
FEMALE CONTACT	COPPER ALLOY	
METAL SHELL	ALUMINIUM ALLOY, TYPE 6061	ELECTROLESS NICKEL PLATING IN ACCORDANCE WITH SAE-AMS2404, CLASS 4, .0005 INCH MIN.
INSERTS	LIQUID CRYSTAL POLYMER, 30% LOADED GLASS FIBRE POLYESTER, 94VO, IN ACCORDANCE WITH MIL-M-24519 (200°C)	
HARDWARE	STAINLESS STEEL, 300 SERIES	PASSIVATION IN ACCORDANCE WITH SAE-AMS2700
ENCAPSULANT	EPOXY RESIN	
UNINSULATED WIRE	AWG 2801 SOLID COPPER WIRE	GOLD PLATED IN ACCORDANCE WITH A-A-59551

▶ 120 way male and female connectors for cable and harnesses

Both male and female connectors can be assembled with various wire sizes in shielded and unshielded forms. High speed variants can also be produced, using controlled impedance shielded twisted pairs which allow data rates of up to 880 Mbps. For space applications, these connectors are assembled in a class 100,000 clean room, and can be terminated with ESA ESCC (European Space Agency) approved wires.



P562620
P562621



► Surface Mount PCB Card Edge Connectors

Surface Mount (SMT) connectors have two rows of 28 AWG gold plated leads at 0.635 mm (.025") pitch spacing to terminate to PCB's by soldering. Lugs on either side of the connector allow for mechanical clamping onto the PCB.

► AVAILABLE VERSIONS

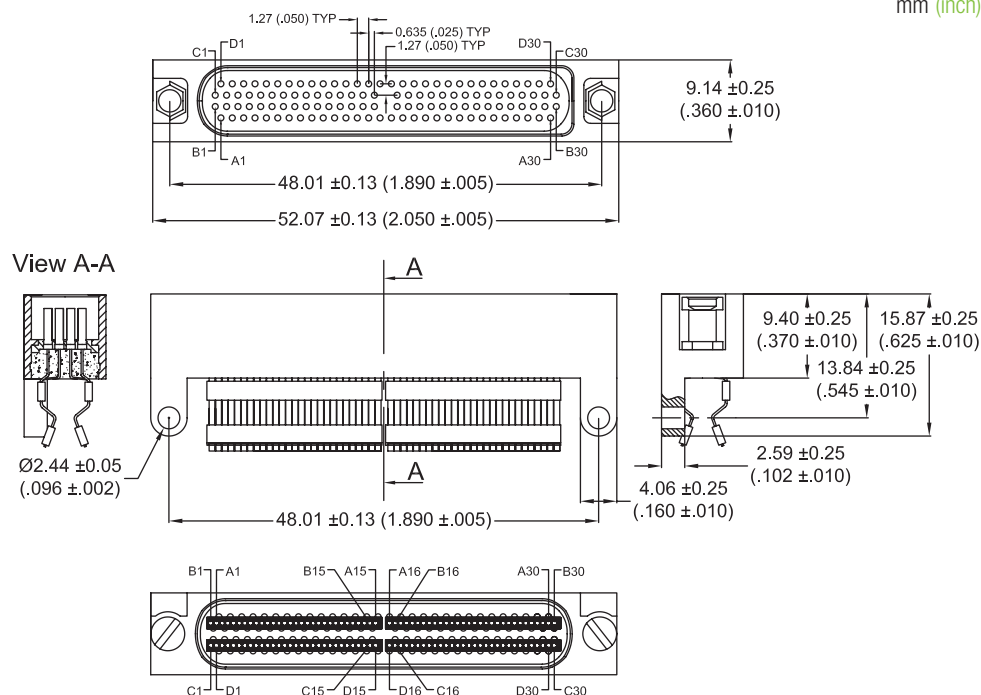
- Female style to mate with a male pigtail or assembly connector.
- Male and female styles to mate together (this option has a longer shell to retain the keying hardware system).
- Female style for panel mount.

► FEMALE SMT

to mate to a male cable connector.

P562622

mm (inch)

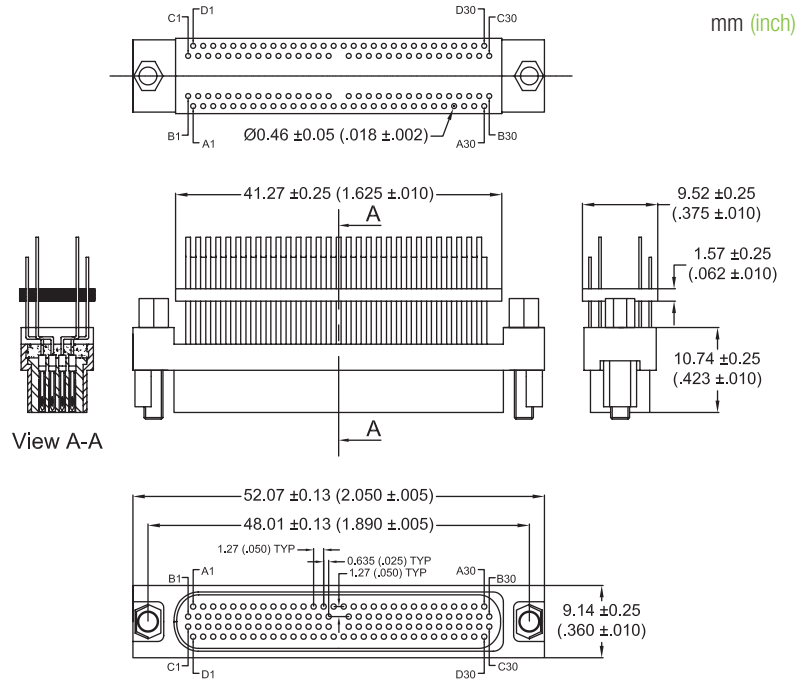


SEE CONTACT LAYOUT ON PCB PAGE 308

► BS Connector

The BS version is similar to the straight PCB connector style of the MIL standard. Available in male version only.

P562623

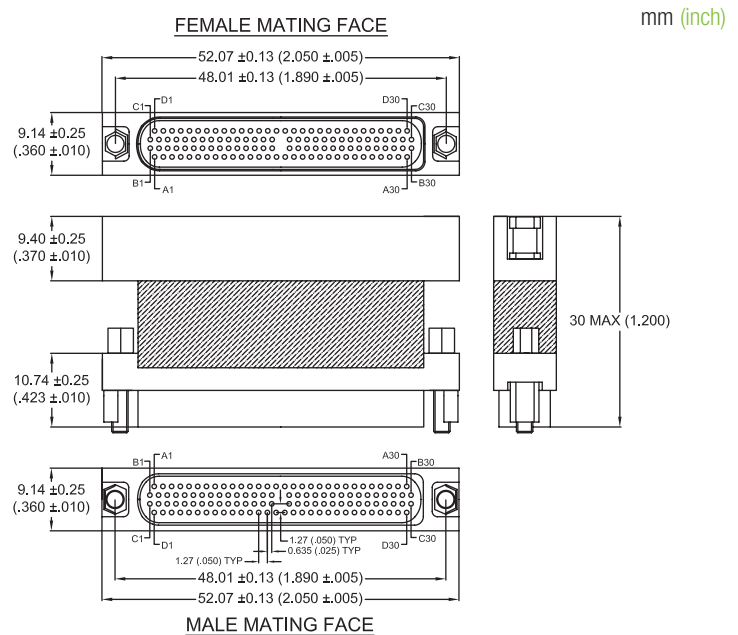


SEE CONTACT LAYOUT ON PCB PAGE 308

► Connector saver

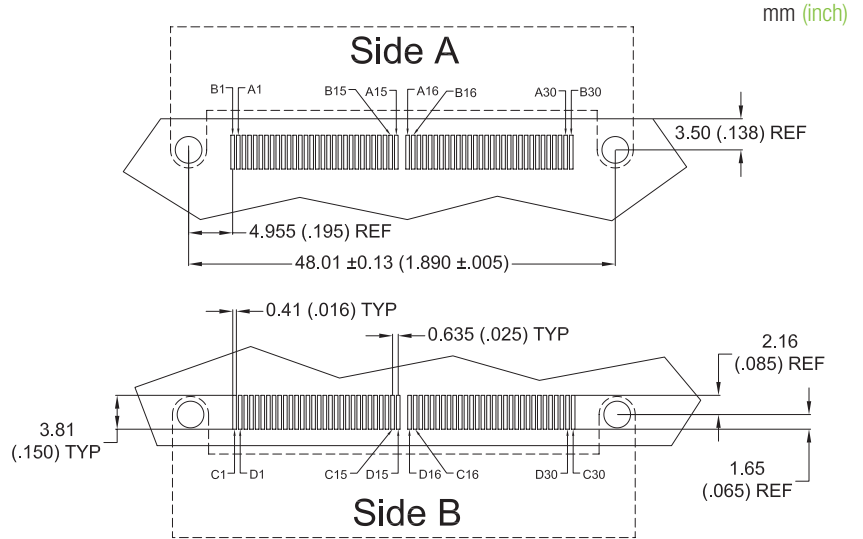
Connector savers have been developed to protect expensive equipment. Typical applications include test equipment and space-grade instruments.

P562624

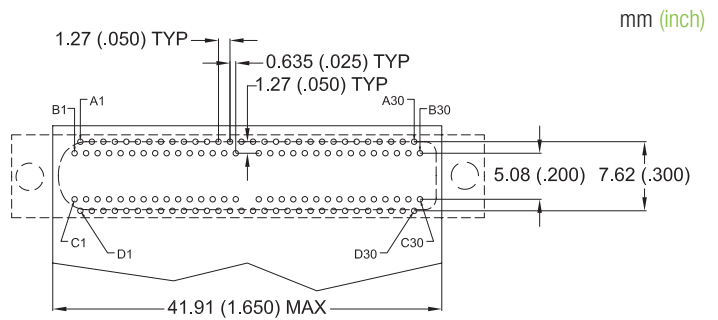


► PCB layout

► FEMALE SMT (SURFACE MOUNT STYLE)
CONNECTOR



► BS VERSION (MALE ONLY)



MICRO-D ACCESSORIES

BACKSHELL

- Micro-D EMI-backshell 186
- AXOCLAMP® EMI band termination 189

HARDWARE

- Removable jackscrews 190
- Removable jackposts 192
- Rear panel mount jackposts for pigtailed connectors 193
- Removable jackposts for PCB connectors 194
- Rear panel mount jackposts for PCB connectors 196
- Non-removable hardware 198
- Float mount inserts 199
- U-clip mounting jackscrews 200

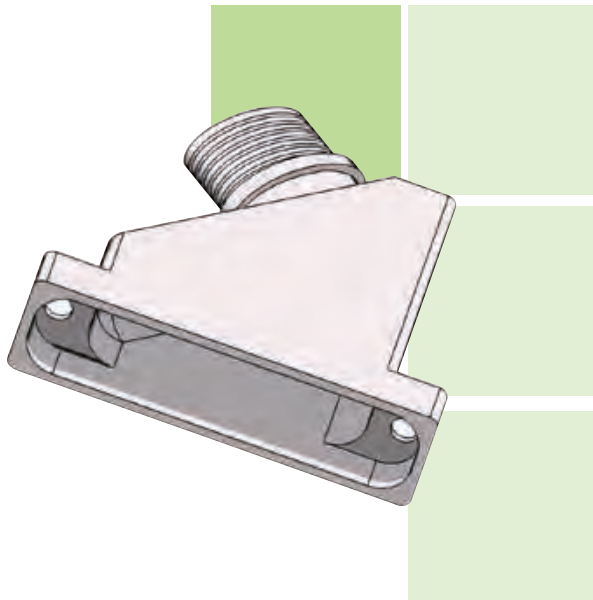
MICRO-D & NANO-D ASSEMBLY KIT 201



MICRO-D
ACCESSORIES

Rectangular
Micro-D connectors

MICRO-D EMI BACKSHELL



- Micro-D aluminium backshell for EMI termination.
- Supplied with stainless steel hardware.
 - Various entry sizes & shapes.
- Available for standard and micro AXOCLAMP® band termination.
 - Shell size from 9 to 100.

IDENTIFICATION CODE



SERIES

STYLE TYPE

- U:** Top entry.
- Z:** Side entry.
- F:** 45° entry.

CONNECTOR SIZE

09, 15, 21, 25, 31, 37, 51DR, 51, 69, 100.

ENTRY SIZE

From **01** to **11**,
See page 188 for dimensions.
Other entry sizes available on request.

ENTRY TYPE

- E:** Elliptical.
- BLANK:** Circular.

MATERIAL

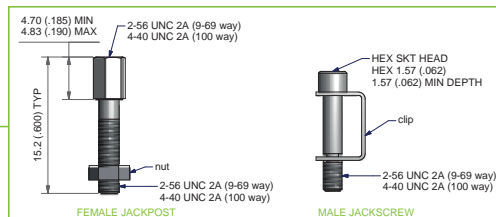
1: Aluminium.
Other materials available on request.

PLATING OPTION

- C:** Electroless nickel per SAE-AMS-2404, class 4. (13 µm/.0005 min).
- CHP:** Hi Phos electroless nickel plate to SAE-AMS-2404, class 4 (25.4µm/.001" min), 10% P min.
- Z:** Black zinc nickel over nickel under plate.
- Y:** Yellow chromate over cadmium per QQ-P-416, type II, class 3.

HARDWARE OPTION

- F:** Female jackpost (panel mount jackposts on request)
- BLANK:** Male jackscrew



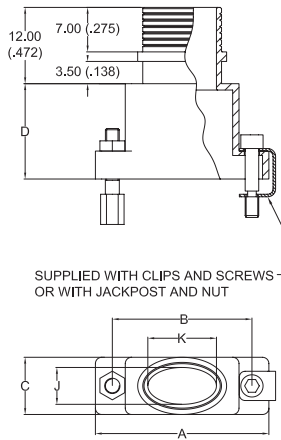
RECOMMENDED TORQUE

- 9 to 69 way jackscrew: 0.28 N.m / 2.5 inch-pounds.
- 100 way jackscrew: 0.51 N.m / 4.5 inch-pounds.
- 9 to 69 way jackpost: 0.35 N.m / 3.1 inch-pounds.
- 100 way jackpost: 0.55 N.m / 4.9 inch-pounds.

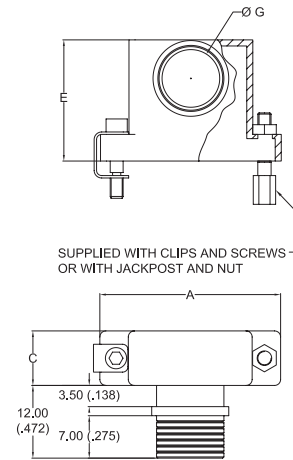
DIMENSIONS

Dimensions are in millimetres (inches).

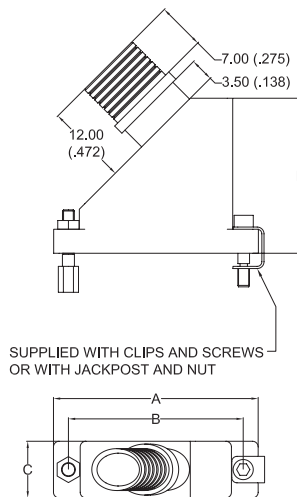
STYLE U: TOP ENTRY



STYLE Z: SIDE ENTRY



STYLE F: 45° ENTRY

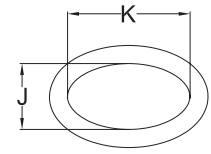


MICRO-D
ACCESSORIES

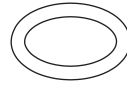
Rectangular
Micro-D connectors

SHELL SIZE	A	B	C	D	E	F
9	19.70 .776	14.35 .565	9.00 .354	10.00 .394	15.00 .591	21.00 .827
15	23.40 .921	18.16 .715	9.00 .354	12.00 .472	16.50 .650	23.00 .906
21	27.30 1.075	21.97 .865	9.00 .354	14.00 .551	18.00 .709	25.00 .984
25	29.85 1.175	24.51 .965	9.00 .354	16.00 .630	20.00 .787	27.00 1.063
31	33.70 1.327	28.32 1.115	9.00 .354	17.00 .669	21.00 .827	28.00 1.102
37	37.50 1.476	32.13 1.265	9.00 .354	18.00 .709	22.00 .866	29.00 1.142
51DR	46.30 1.823	41.02 1.615	9.00 .354	19.00 .748	23.00 .906	30.00 1.181
51	36.10 1.421	30.86 1.215	10.00 .394	19.00 .748	23.00 .906	30.00 1.181
69	43.75 1.722	38.48 1.515	10.00 .394	20.00 .787	24.00 .945	31.00 1.220
100	55.00 2.165	45.72 1.800	11.00 .433	21.00 .827	25.00 .984	38.00 1.496

▶ ELLIPTICAL ENTRY

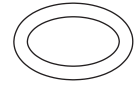


ELLIPTICAL ENTRY
STYLES U AND Z



ENTRY SIZE	SHELL SIZE	J	K
04 E	09-100	5.80 .228	7.00 .276
05 E	15-100	5.80 .228	10.80 .425
06 E	25-100	5.80 .228	15.20 .598
07 E	37-100	5.80 .228	20.10 .791
08 E*	51-100	6.80 .268	22.80 .898
09 E	100	7.80 .307	26.00 1.024

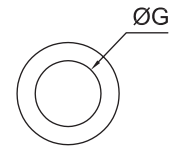
ELLIPTICAL ENTRY
STYLE F



ENTRY SIZE	SHELL SIZE	J	K
04 E	21-100	5.80 .228	7.00 .276
05 E	25-100	5.80 .228	10.80 .425
06 E	37-100	5.80 .228	15.20 .598
07 E*	51-100	6.80 .268	17.70 .697
08 E	100	7.80 .307	20.60 .811
09 E	100	7.80 .307	26.00 1.024

*: **Caution!** Entries for 51DR are the same as for 37 way shells.

▶ CIRCULAR ENTRY

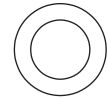


CIRCULAR ENTRY
STYLES U AND F



ENTRY SIZE	SHELL SIZE	G
01	09-100	1.60 .063
02	09-100	3.20 .126
03	09-100	4.80 .189
04*	51-100	6.40 .252
05	100	8.00 .315

CIRCULAR ENTRY
STYLE Z



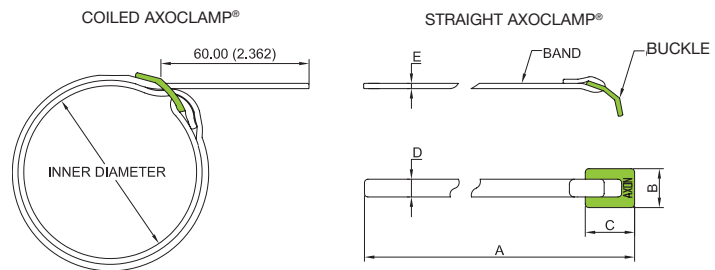
ENTRY SIZE	SHELL SIZE	G
01	09-100	1.60 .063
02	09-100	3.20 .126
03	09-100	4.80 .189
04	09-100	6.40 .252
05	15-100	8.00 .315
06	21-100	9.50 .374
07	25-100	11.10 .437
08	31-100	12.70 .500
09	37-100	14.30 .563
10*	51-100	15.90 .626
11	100	17.50 .689

*: **Caution!** Entries for 51DR are the same as for 37 way shells.

AXOCLAMP® EMI BAND TERMINATION

Material: stainless steel AISI 316.

360° shield termination for connectors can be carried out with a patented metal band called AXOCLAMP®. This ensures the continuity of shielding efficiency at the cable / connector junction.



IDENTIFICATION CODE

AXCL	01
AXOCLAMP®	BAND TYPES 01: standard 03: microband double wrapped

The standard version is coiled but straight AXOCLAMP® can be delivered on request (reference example AXCL03D). Minimum quantity: 100 pieces per reference.

DIMENSIONS

Dimensions are in millimetres (inches).

SPECIFICATIONS	AXOCLAMP® STANDARD	AXOCLAMP® MICROBAND
REFERENCE	AX CL 01	AX CL 03
DIMENSION A	375 (14.764)	200 (7.874)
DIMENSION B	9 (.364)	5.2 (.205)
DIMENSION C	10 (.394)	5.5 (.217)
DIMENSION D	5.9 (.232)	3 (.118)
DIMENSION E	0.5 (.020)	0.35 (.014)
MINIMUM DIAMETER*	10 (.394)	5 (.197)
MAXIMUM DIAMETER*	40 (1.575)	15 (.591)

*: Minimum and maximum diameter of the rear funnel on which the AXOCLAMP® can be mounted. For other dimensions, please consult us.

BANDING TOOLS

	MANUAL HAND TOOL	CLAMPING VALUES	PNEUMATIC CLAMPING TOOL	RECOMMENDED BANDING VALUES*	CALIBRATION DEVICE
AXOCLAMP® AX CL 01	A 40199	100-180 LBS	A 35199	160	A 50099
AXOCLAMP® AX CL 03	A 30199	60-100 LBS	A 35599	90	A 50099

*: Banding values are given for information only.

HARDWARE

▶ Removable jackscrews according to MIL-DTL-83513/05

FOR PIGTAIL & SOLDER CUP CONNECTORS ONLY.

- 2 sizes of hardware: one version for shell sizes from 9 to 69 ways and another version for the 100-way shell size.
- 1 kit consists of 2 screws and 2 e-rings.
- Hex socket head or slot head.
- Material: passivated 300 series stainless steel.

Note

1st line: kit part number (to be used for ordering).

2nd line: military specification number.

3rd line: hardware code for pigtail connector.

Dimensions are given in millimetres (inches).

9-69 WAY HARDWARE



KIT PART NUMBER: **MDAHM502**

According to M83513/05-02

Hardware code: **M**

KIT PART NUMBER: **MDAHM503**

According to M83513/05-03

Hardware code: **N**



KIT PART NUMBER: **MDAHM505**

According to M83513/05-05

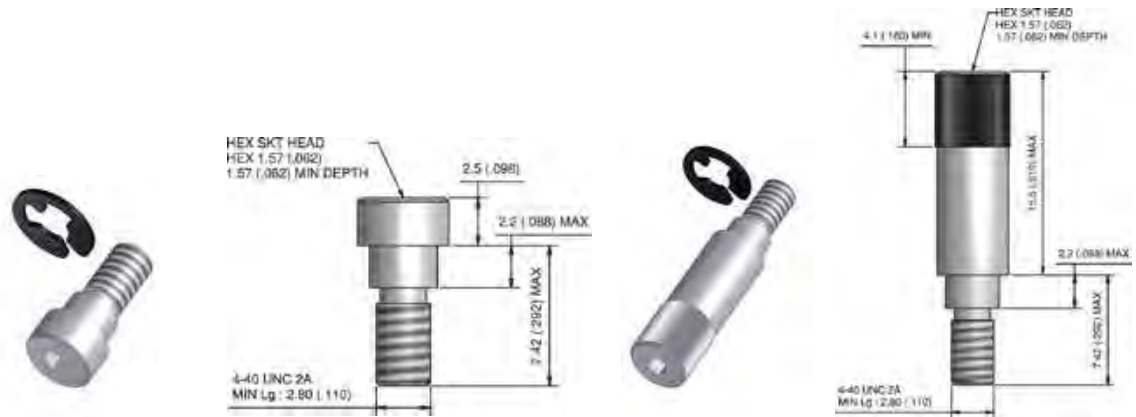
Hardware code: **S**

KIT PART NUMBER: **MDAHM506**

According to M83513/05-06

Hardware code: **T**

100 WAY HARDWARE



KIT PART NUMBER: **MDAHM512**
According to M83513/05-12
Hardware code: **M**

KIT PART NUMBER: **MDAHM513**
According to M83513/05-13
Hardware code: **N**



KIT PART NUMBER: **MDAHM515**
According to M83513/05-15
Hardware code: **S**

KIT PART NUMBER: **MDAHM516**
According to M83513/05-16
Hardware code: **T**

► RECOMMENDED TORQUE

- 9 to 69 way jackscrew: 0.28 N.m / 2.5 inch-pounds.
- 100 way jackscrew: 0.51 N.m / 4.5 inch-pounds.

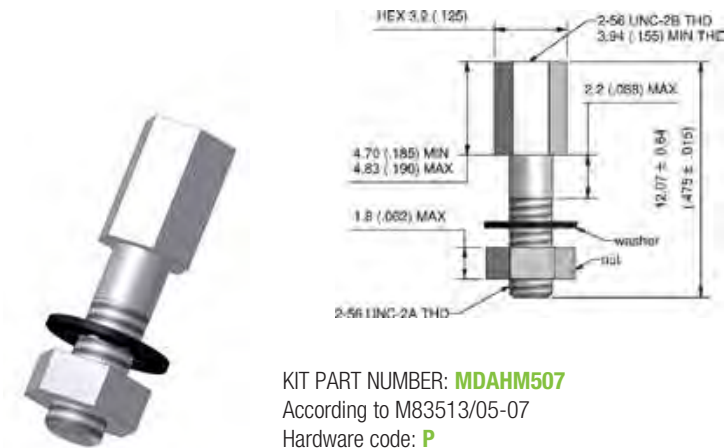
HARDWARE

▶ Removable jackposts according to MIL-DTL-83513/05

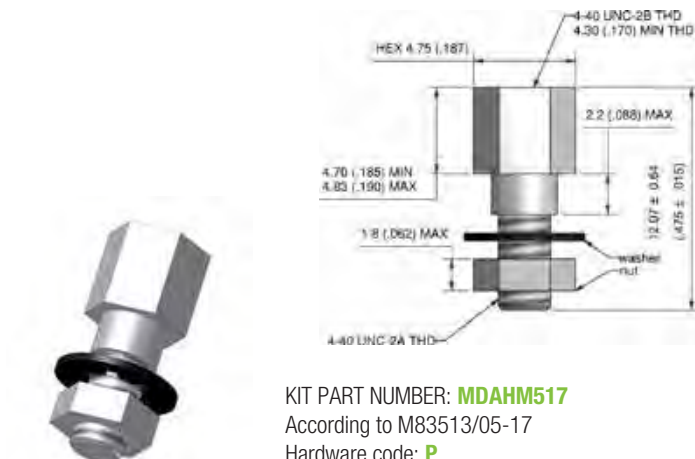
- 2 sizes of hardware: one version for shell sizes from 9 to 69 ways and another version for the 100-way shell size.
- 1 kit consists of 2 posts, 2 washers and 2 nuts.
- Material: passivated 300 series stainless steel.

Note
1st line: kit part number (to be used for ordering).
2nd line: military specification number.
3rd line: Hardware code.
Dimensions are given in millimetres (inches).

9-69 WAY HARDWARE



100 WAY HARDWARE



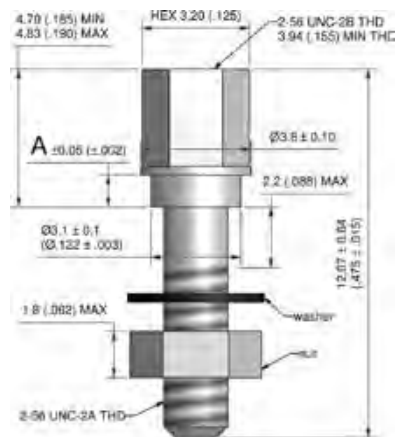
► Rear panel mount jackposts for pigtails

- 2 sizes of hardware: one version for all shell sizes for 9 to 69 way and another version for the 100 way shell size.
- 1 kit consists of 2 posts, 2 washers and 2 nuts.
- Material: passivated 300 series stainless steel.

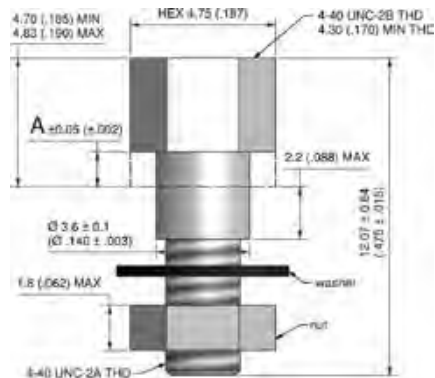
Dimensions are given in millimetres (inches).

HARDWARE CODE	Px	P1	P2	P3	P4	P5
PANEL THICKNESS -0.0 / +0.2 (-.000 / +.008)	mm	0.8	1.2	1.6	2	2.4
	inch	.031	.047	.062	.079	.094
KIT PART NUMBER	9-69 way	MDAHMP01	MDAHMP02	MDAHMP03	MDAHMP04	MDAHMP05
	100 way	MDAHMP11	MDAHMP12	MDAHMP13	MDAHMP14	MDAHMP15
DIM. A	mm	0.7	1.1	1.5	1.9	2.3
	inch	.028	.043	.059	.075	.091

9-69 WAY HARDWARE



100 WAY HARDWARE



► RECOMMENDED TORQUE

- 9 to 69 way jackpost: 0.35 N.m / 3.1 inch-pounds.
- 100 way jackpost: 0.55 N.m / 4.9 inch-pounds.

HARDWARE

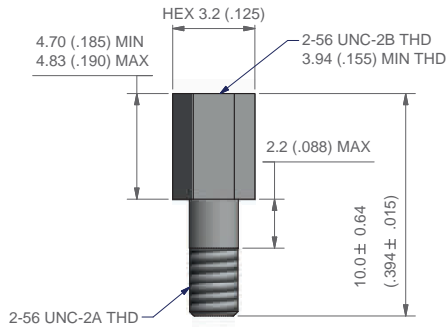
▶ Removable jackposts for PCB connectors

- 2 sizes of hardware: one version for shell sizes from 9 to 69 ways and another version for the 100-way shell size.
- Hardware kit depending on the PCB type (see table below).
- 1 kit consists of 2 posts.
- Material: passivated 300 series stainless steel.

Dimensions are given in millimetres (inches).

HARDWARE CODE	P		
KIT PART NUMBER	9-69 way	BS or BR	MDAHM507SPCB
		CBR or CBP	MDAHM507SM2PCB
	100 way	BS, BR or CBR 0.075"	MDAHM517SPCB
		CBR 0.100"	MDAHM517SLPCB

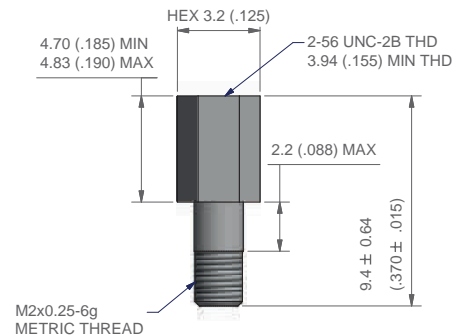
9-69 WAY HARDWARE



KIT PART NUMBER: **MDAHM507SPCB**

Based on M83513/05-07

Hardware code: **P**

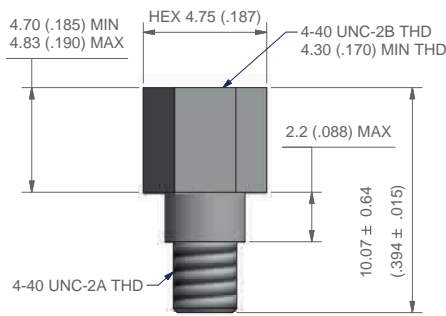


KIT PART NUMBER: **MDAHM507SM2PCB**

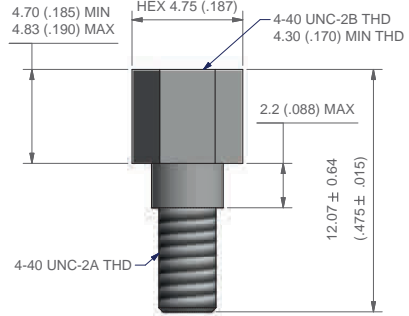
Based on M83513/05-07

Hardware code: **P**

100 WAY HARDWARE



KIT PART NUMBER: **MDAHM517SPCB**
 Based on M83513/05-17
 Hardware code: **P**



KIT PART NUMBER: **MDAHM517SLPCB**
 Based on M83513/05-17
 Hardware code: **P**

MICRO-D
ACCESSORIES

Rectangular
Micro-D connectors

➤ RECOMMENDED TORQUE

- 9 to 69 way jackpost: 0.35 N.m / 3.1 inch-pounds.
- 100 way jackpost: 0.55 N.m / 4.9 inch-pounds.

HARDWARE

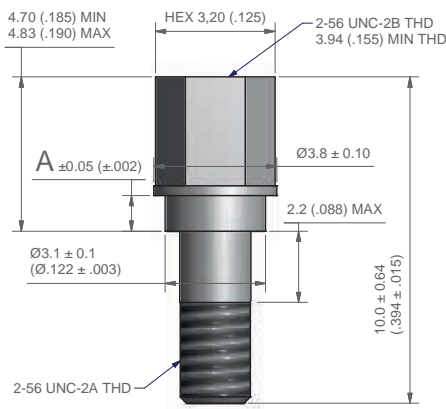
► Rear panel mount jackposts for PCB connectors

- 2 sizes of hardware: one version for shell sizes from 9 to 69 ways and another version for the 100-way shell size.
- Hardware kit depending on the PCB type (see table below).
- 1 kit consists of 2 posts.
- Material: passivated 300 series stainless steel.

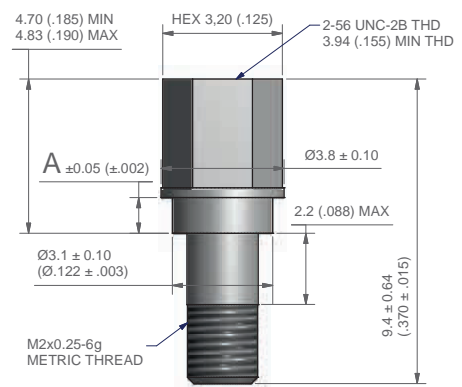
Dimensions are given in millimetres (inches).

HARDWARE CODE	Px	P1	P2	P3	P4	P5
PANEL THICKNESS -0.0 / +0.2 (-.000 / +.008)	mm	0.8	1.2	1.6	2	2.4
	inch	.031	.047	.062	.079	.094
9-69 way	BS or BR	MDAHMSP01	MDAHMSP02	MDAHMSP03	MDAHMSP04	MDAHMSP05
	CBR or CBP	MDAHMSM2P01	MDAHMSM2P02	MDAHMSM2P03	MDAHMSM2P04	MDAHMSM2P05
100 way	BS, BR or CBR 0.075"	MDAHMSP11	MDAHMSP12	MDAHMSP13	MDAHMSP14	MDAHMSP15
	CBR 0.100"	MDAHMSLP11	MDAHMSLP12	MDAHMSLP13	MDAHMSLP14	MDAHMSLP15
DIMENSIONS A	mm	0.7	1.1	1.5	1.9	2.3
	inch	.028	.043	.059	.075	.091

9-69 WAY HARDWARE



KIT PART NUMBER: **MDAHMSP0x**
Hardware code: **Px**

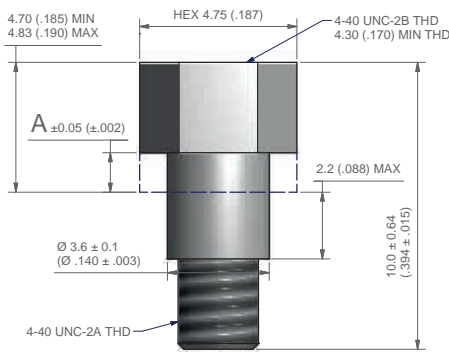


KIT PART NUMBER: **MDAHMSM2P0x**
Hardware code: **Px**

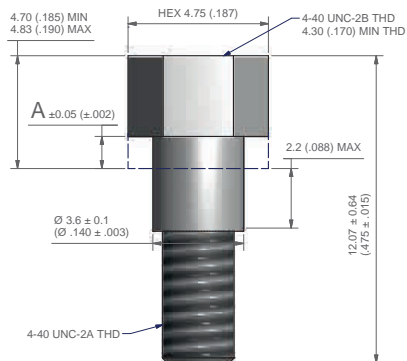
100 WAY HARDWARE

MICRO-D
ACCESSORIES

Rectangular
Micro-D connectors



KIT PART NUMBER: **MDAHMSP1x**
Hardware code: **Px**



KIT PART NUMBER: **MDAHMSLP1x**
Hardware code: **Px**

➤ RECOMMENDED TORQUE

- 9 to 69 way jackpost: 0.35 N.m / 3.1 inch-pounds.
- 100 way jackpost: 0.55 N.m / 4.9 inch-pounds.

Caution: When PCB connectors are mounted on panels, the assembly can potentially be hyperstatic (producing stresses and strains) if the printed circuit board is mechanically linked to the panel.

HARDWARE

► Non removable hardware

FOR PIGTAIL & SOLDER CUP CONNECTORS ONLY.

- Hardware is factory installed.
- Cannot be supplied in kit form.
- Material: passivated 300 series stainless steel.

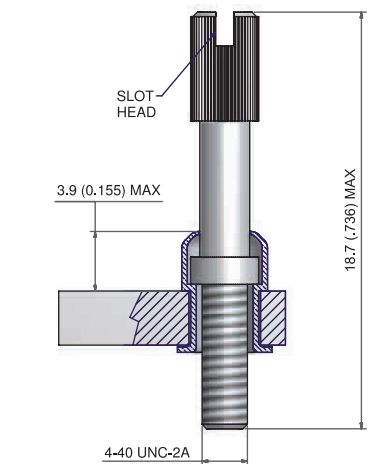
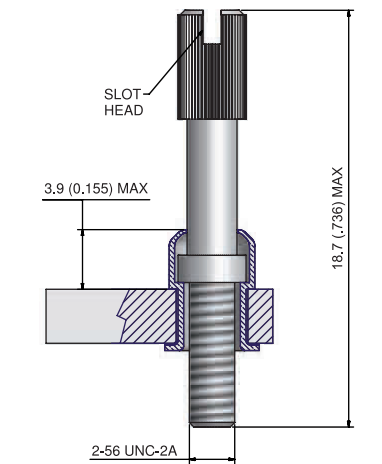
9-69 WAY HARDWARE

100 WAY HARDWARE

LONG JACKSCREW (SLOT HEAD)



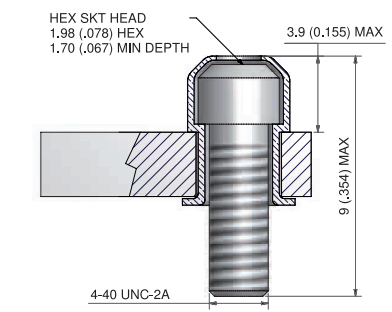
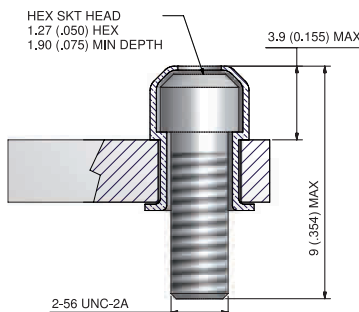
HARDWARE CODE: K



SHORT JACKSCREW (HEX SOCKET HEAD)



HARDWARE CODE: L



▶ Float mount inserts

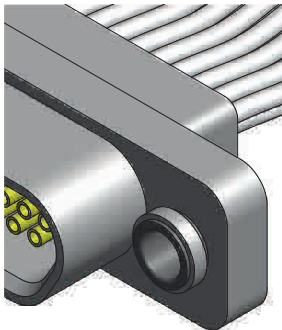
TO BE USED TO FIX CONNECTORS ON A SYSTEM WITH SCREWS.
FOR PIGTAIL & SOLDER CUP CONNECTORS ONLY.

- Hardware is factory installed.
- Cannot be supplied in kit form.
- Material: passivated 300 series stainless steel.

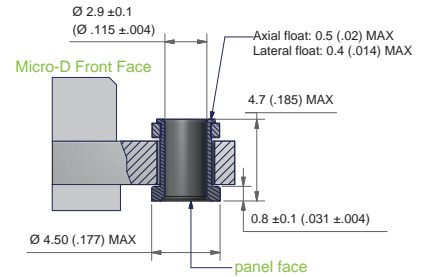
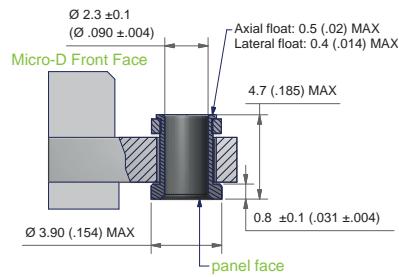
9-69 WAY HARDWARE

100 WAY HARDWARE

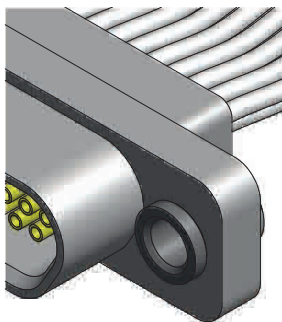
FRONT PANEL MOUNT



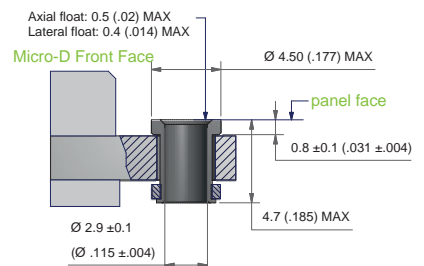
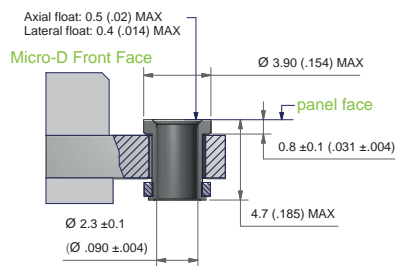
HARDWARE CODE: F



REAR PANEL MOUNT



HARDWARE CODE: FR



HARDWARE

► U-clip mounting jackscrews

FOR PIGTAIL & SOLDER CUP CONNECTOR ONLY.

- 2 sizes of hardware: one version for shell sizes from 9 to 69 ways and another version for the 100-way shell size.
- 1 kit consists of 2 screws and 2 U-clips.
- Hex socket head or slot head.
- Material: passivated 300 series stainless steel.

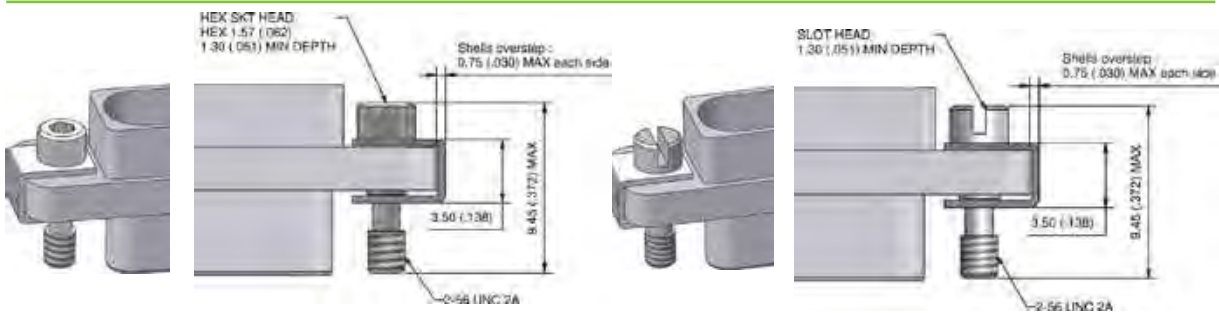
Note

1st line: kit part number (to be used for ordering).

2nd line: Hardware code for pigtail connector.

Dimensions are given in millimetres (inches).

9-69 WAY HARDWARE



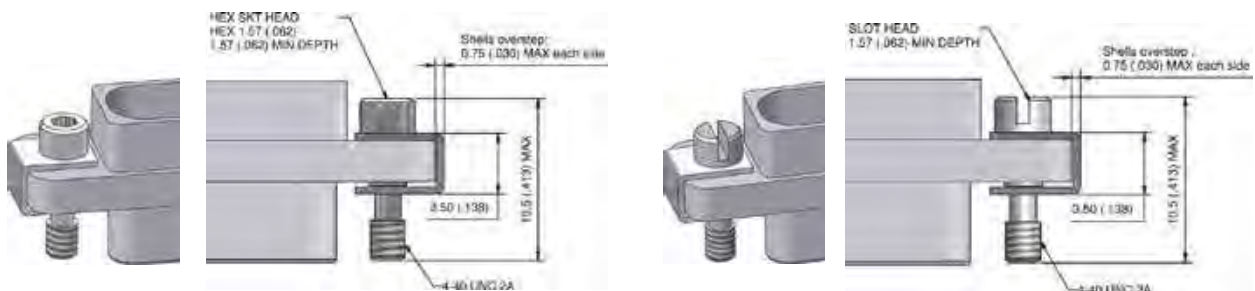
KIT PART NUMBER: **MDAHM008**

Hardware code: **C**

KIT PART NUMBER: **MDAHM009**

Hardware code: **D**

100 WAY HARDWARE



KIT PART NUMBER: **MDAHM018**

Hardware code: **C**

KIT PART NUMBER: **MDAHM019**

Hardware code: **D**

► RECOMMENDED TORQUE

- 9 to 69 way jackscrew: 0.28 N.m / 2.5 inch-pounds.
- 100 way jackscrew: 0.51 N.m / 4.5 inch-pounds.

MICRO-D & NANO-D ASSEMBLY KIT

Installation, maintenance and general handling of miniature connectors integrated within your system requires specific tooling and operating procedures. AXON' offers 2 toolboxes with all the proper tools and instructions on how to safely handle Micro-D & Nano-D connectors. These toolboxes greatly simplify connector handling, thus aiding correct installation. This will guarantee the connector's performance in terms of signal and power transmission, and of product life.

► Characteristics

- Assembly kits consisting of universal tools for the assembly of rectangular Micro-D & Nano-D connectors and the majority of custom-designed connectors.
- Easy-to-mount components in any situation.
- Both toolboxes delivered with mounting / dismounting procedures: short instructions and a demonstration video (CD).
- Dedicated tooling with torque values as defined in the MIL-DTL-83513 & MIL-DTL-32139 standards: optimisation of fastener / hardware performance and enhanced connection reliability.
- Each assembly kit is equipped with a screwdriver with dedicated torque range. Our whole line of miniature connectors is covered by both screwdrivers. See table hereafter.



▲ MICRO-D ASSEMBLY KIT COMPACT AND LIGHTWEIGHT PACKAGE:
DIMENSIONS 270 x 230 x 80 mm (10.6" x 9" x 3.1") FOR A WEIGHT OF 750g (1.7 lb)

ITEM	MICRO-D KIT (P541268) for Micro-D connectors (9 to 120 way)	MICRO-D / NANO-D KIT (P536692) for Nano-D connectors & Micro-D connectors (9 to 69 way)
1	Torque screwdriver	Torque screwdriver
2	3/16" spanner	0.050" bit for hex screw
3	5/32" spanner	1/16" bit for hex screw
4	1/8" spanner	5/32" spanner
5	Bit for slotted head screw	1/8" spanner
6	0.050" bit for hex screw	1/8" Socket
7	1/16" bit for hex screw	Bit for slotted head screw
8	5/64" bit for hex screw	Insertion tool
9	1/8" socket	Socket adaptor
10	3/16" socket	
11	100-way de-mating tool	
12	Socket adaptor	
13	Assembly tool	

>> BRAZIL

AXON' CABLE INDUSTRIA E COMÉRCIO LTDA
ED. CORPORATE LEAD AMERICAS
BARRA DA TIJUCA
AV. DAS AMÉRICAS, 2480 - BL. 2
VICTORY - SALAS 111/112
RIO DE JANEIRO, RJ, CEP.: 22640-101
TEL.: +55 21 3596-8002
e-mail: salesbrazil@axon-cable.com

>> CANADA

AXON' CABLE CANADIAN OFFICE
MONTREAL, QUEBEC
TEL.: +1 514 898 2044
e-mail: sales@axoncable.com

>> CHINA

AXON' INTERCONNECT LTD
HIGH TECH INDUSTRIAL PARK,
CHANG BAO XI ROAD
RONGGUI, 528306
SHUNDE, GUANGDONG
TEL.: +86 757 2838 7200
FAX: +86 757 2838 7212
e-mail: sales@axon-interconnect.com

>> GERMANY

AXON' KABEL GMBH
POSTFACH 1131 - 71201 LEONBERG
HERTICHSTR. 43 - 71229 LEONBERG
TEL.: +49 7152-97992-0
FAX: +49 7152-97992-7
e-mail: sales@axon-cable.de

>> HUNGARY

AXON' KÁBELGYÁRTÓ KFT.
KÜLSŐ-SZEGEDI ÚT 104.
H-6000 KECSKEMÉT,
TEL.: +36 76 508 195
FAX: +36 76 508 196
e-mail: axon@axon-cable.hu

>> INDIA

AXON' INTERCONNECTORS AND WIRES PVT LTD
PLOT NO. 102, KIADB HITECH DEFENSE AND AEROSPACE PARK
UNACHUR VILLAGE, B. MARENAHALLI, JALA HOBLI, BUDIGERE POST
BANGALORE NORTH TALUK
BANGALORE URBAN - 562 129
KARNATAKA
TEL.: +91 80 68162966
FAX: +91 80 68162999
e-mail: sales@axon-cable.in

>> JAPAN

AXON' CABLE JAPAN OFFICE
TEL./FAX: +81 26 217 6728
e-mail: axon-japan@axon-cable.com

>> LATVIA

AXON' CABLE SIA
VIŠĶU IELA, 21 C
LV-5410 DAUGAVPILS
TEL.: +371 6540 78 91
FAX: +371 6540 78 93
e-mail: axon@axoncable.lv

>> MEXICO

AXON' INTERCONEX, S.A. DE C.V.
AV. PEÑUELAS 21-A1.
INDUSTRIAL SAN PEDRITO PEÑUELAS
QUERÉTARO PARK
76148 QUERÉTARO, QRO.
TEL.: +52 442 215 2713
FAX: +52 442 220 6464
e-mail: axon-mexico@axoncable.com

>> SINGAPORE

AXON' CONNECT PTE LTD
50 GAMBAS CRESCENT
PROXIMA@GAMBAS
#08-08 SINGAPORE 757022
TEL.: +65 62 50 31 69
FAX: +65 62 50 31 67
e-mail: sales.singapore@axon-cable.com

>> SPAIN

AXON' CABLE SPANISH OFFICE
C/CAPITÁN HAYA, N°1, PLANTA 15
28020 MADRID
TEL.: +34 91 418 43 46
FAX: +34 91 556 28 80
e-mail: sales@axon-cable.com

>> UNITED KINGDOM

AXON' CABLE LTD
AXON' AGORA - ADMIRALTY PARK
ROSYTH, DUNFERMLINE
FIFE KY11 2YW
TEL.: +44 1383 421500
FAX: +44 8715 282789
e-mail: sales@axon-cable.co.uk

>> USA

AXON' CABLE INC.
1316 N PLUM GROVE ROAD
SCHAUMBURG, IL. 60173
TEL.: +1 847 230 7800
FAX: +1 847 230 7849
e-mail: sales@axoncable.com



VISIT OUR WEBSITE
www.axon-cable.com



HEADQUARTERS
>> France

>> AXON' CABLE S.A.S.

2 ROUTE DE CHALONS EN CHAMPAGNE - 51210 MONTMIRAIL
TEL.: +33 3 26 81 70 00 - FAX: +33 3 26 81 28 83
e-mail : sales@axon-cable.com - www.axon-cable.com

