

CIRCULAR MICRO-D CONNECTORS

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PLASTIC CONNECTORS**SOLDER CUP & PIGTAIL CONNECTOR - MCA**

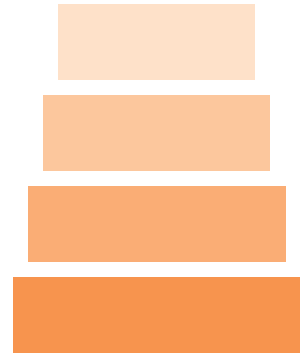
- Solder cup connector 412
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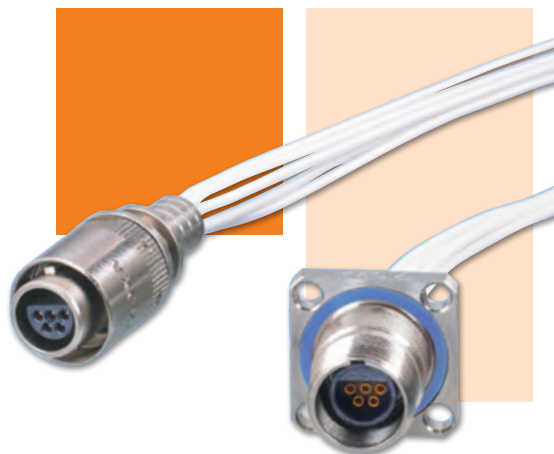
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▲ ENGINEERING DEPARTMENT

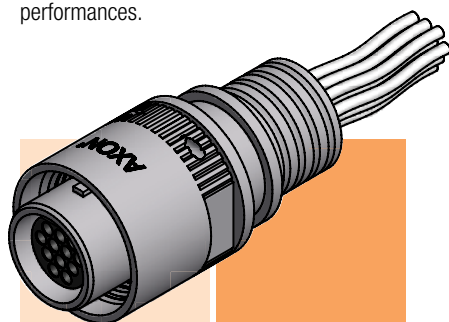
Micro-D Line[®], twist

MINIATURE CIRCULAR CONNECTORS SYSTEMS IN HIGH

WEIGHT & SPACE SAVING

AXON' miniature circular connectors offer reliable connections for systems requiring reduced weight and miniaturization. Medical sensors, military equipment, research centres, nuclear power control systems, aircraft electronics and avionics equipment are just a few examples.

The circular connector range benefits from the expertise in the AXON' D-Line[®] MIL-DTL-83513 D-Shape connectors and features easy-to-use connect and disconnect functionality. The MIL-DTL-83513 is the standard which dictates the design and performance for Micro-D connectors. These well-known robust connectors rise to the challenge of demanding applications and harsh environments. Despite their high pin density, small size and lightweight bodies, the AXON' miniature circular connectors offer similar performances to their rectangular Micro-D cousins with the added benefit of good EMI performances.



RELIABLE TWIST PIN CONTACT

The heart of both the rectangular and circular connectors is the twist pin contact, which by its design and performance is highly reliable and enables the system to meet the most severe requirements - often significantly more so than stipulated in the MIL-DTL-83513 standard.

A COMPLETE RANGE FOR EVERY REQUIREMENT

Designed with 360° shield termination, durable twist-pin contacts and IP 67/68* waterproofness (IEC60529), the connectors are suitable for use in many harsh environments.

The standard range of Micro-D circular connectors consists of 5 basic types:

- **Metric thread connectors - MCAT** - This variant is ideal for applications which require space and weight saving and good EMI performances.
- **Three lug bayonet connectors - MCA3B** - Used when quick coupling is needed.
- **Triple start connectors (with anti-decoupling) - MCAC** - This version is specially designed to withstand vibration.
- **Breakaway connectors - MCABK** - This is a connector with an in-built spring to secure the connection. Quick to connect and disconnect, lightweight and small.
- **Plastic shells - MCA** - These circular plastic connectors are easy to use, very small and lightweight. They are ideal for applications which require easy connection and space saving.

In addition to the standard range of circular Micro-D connectors, AXON' offers **PCB connectors** designed for our 4 types of metal shell connectors.

Please refer to our *Product selection guide* page 334 to choose the most appropriate solution.

*: IP 67: The standard defines an immersion up to 1 m for 30 minutes.

IP 68: Immersion beyond 1 m and conditions specified by the manufacturer.





▲ METROLOGY LABORATORY



▲ CLEAN ROOM

pin circular solutions

FOR CRITICAL INTERCONNECT TECHNOLOGY APPLICATIONS

CUSTOM DESIGNED SOLUTIONS

In addition to standard types, our engineering team can assist in designing any special version or custom design to meet specific requirements. Some examples of tailor-made connectors and assemblies are presented in this brochure (see page 77). Our sales and design team will help you in the choice and design of your specific requirements for a complete interconnect solution based on AXON' miniature circular connectors.

Maximize your supply chain efficiency by ordering D-Line® circular connectors from AXON' as complete cable assemblies with overmouldings.



▲ HIGH DENSITY CIRCULAR CONNECTOR

Main characteristics of AXON' miniature circular connectors

FEATURES	VALUE
CURRENT RATING	3 A max.
CONTACT RESISTANCE	8 mΩ max.
DURABILITY	500 mating cycles min.
TEMPERATURE RANGE	
- Standard Version	-55°C / +150°C
- High Temp. Version	-55°C / +200°C
VIBRATION	20 g's
SHOCK	50 g's
WATER RESISTANCE	IP67 / IP68*

*: IP 67: The standard defines an immersion up to 1 m for 30 minutes.

IP 68: Immersion beyond 1 m and conditions specified by the manufacturer.

QUALITY ASSURANCE

ISO 9001	EN 9100	ISO 14001	TS 16949	ISO 13485	OHSAS 18001
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TWIST PIN CONTACT TECHNOLOGY

The Micro-D male contact is made up of 10 strands of beryllium-copper and copper alloy twisted together, welded then bumped. These sprung strands are in fact compressed during insertion into the turned female contact and therefore a high number of electrical contact points is permanently assured, while retaining flexibility and ease of insertion / extraction.

The plating of these contacts is a minimum of 1.27 microns of gold in accordance with MIL-G-45204 type 2, class 1, and this gives additional operational security. Furthermore, the Twist Pin contact is auto-guided into its female contact, even if it is not centred in its recess.



▲ TWIST PIN CONTACTS

As with all contacts conforming to MIL-DTL-83513, the AXON' Micro-D contacts accept as standard 24, 26, 28 and 30 AWG wires. In order to meet specific customer requests, AXON' can also offer solutions for large section wires up to 22 AWG and for miniature wires as small as 36 AWG.

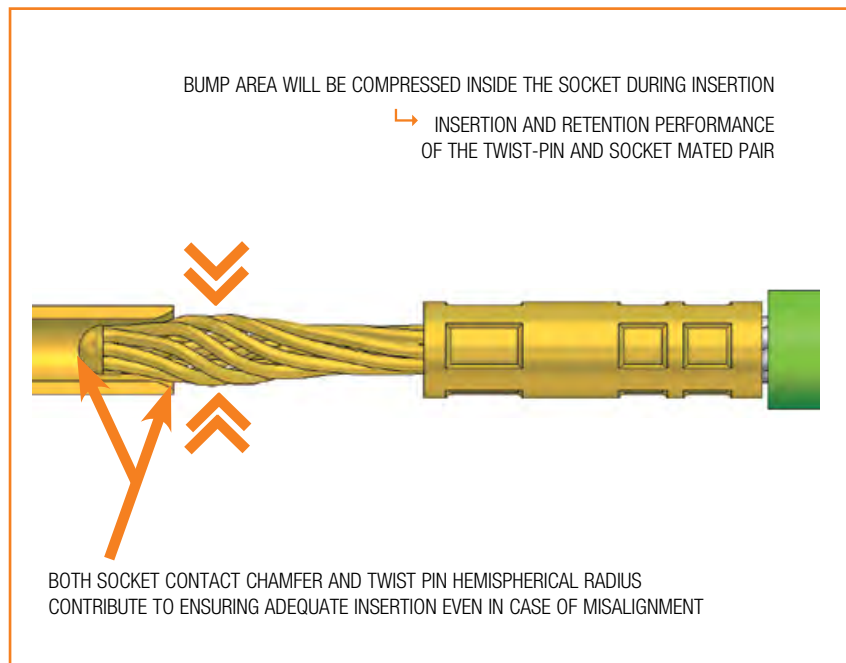
► Twist pin performance versus MIL-DTL-83513 specification

CHARACTERISTIC	AXON' TWIST PIN	MIL REQUIREMENT
NUMBER OF CONTACT POINTS WITH FEMALE CONTACT	7	No requirement
CONTACT RESISTANCE (FOLLOWING TEST §3.5.6)	Max 3 mΩ (under 3 A)	8 mΩ (under 2.5 A)
VIBRATION (NO DISCONTINUITY > 1 μs)	200 g*	20 g*
SHOCK (NO DISCONTINUITY > 1 μs)	500 g*	50 g*
CRIMPING	22 to 36 AWG	24 to 26 AWG

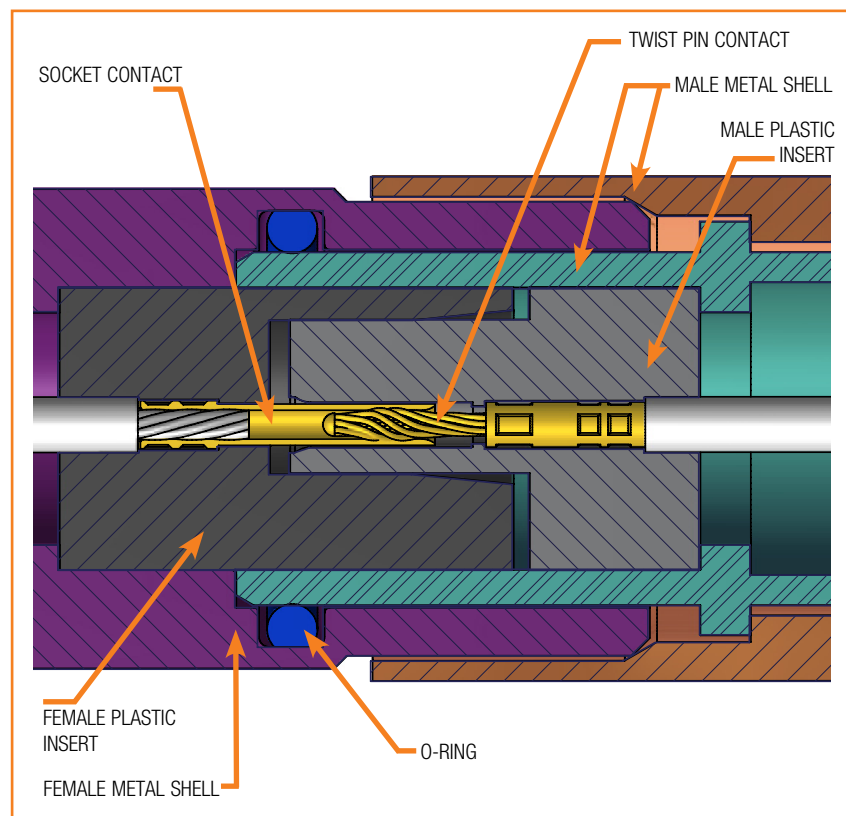
*: Vibration & shock values depending on test profiles.



► Before insertion



► After insertion



PRODUCT SELECTION GUIDE

	METRIC THREAD MCAT	THREE LUG BAYONET MCA3B	TRIPLE START THREAD (ANTI-DECOUPLING) MCAC
			
COUPLING TYPE	SIMPLE METRIC THREAD	QUICK COUPLING 3 LUG BAYONET	TRIPLE START TRAPEZOIDAL THREAD
SHELL TYPE	CABLE PLUGS AND JACKS PANEL RECEPTACLE: JAM NUT OR SQUARE FLANGE, REAR OR FRONT MOUNT		
PCB VERSIONS	AVAILABLE		
COUPLING METHOD	ISO METRIC THREAD, TORQUE TIGHTENING REQUIRED	HAND COUPLING	1.5 TURN TO MATE, SECURED WITH RATCHET SYSTEM, HAND COUPLING
MATERIAL & PLATING	BRASS + NICKEL PLATING	BRASS + NICKEL PLATING	BRASS + NICKEL PLATING
N° OF CONTACTS	5, 7, 12, 15, 19 & 37	5, 7, 12, 15, 19 & 37	5, 7, 12, 15, 19 & 37
ADVANTAGES	VERY SMALL SIZE	QUICK CONNECT / DISCONNECT	QUICK THREAD MATING, GOOD FOR VIBRATION
EASE OF CONNECTION	★★	★★★★	★★★
SPACE SAVING	★★★★	★★★	★★
WEIGHT SAVING	★★★★	★★★	★★
EMI PERFORMANCE	★★★★	★★	★★★
TEMPERATURE	-55°C / +150°C OR -55°C / +200°C, DEPENDING ON RESIN OPTION		
WATER RESISTANCE	IP67 / IP68*		
VIBRATION	20 g		
SHOCK	50 g		
MATING CYCLES	MINIMUM 500 CYCLES, PLEASE SPECIFY IF MORE ARE REQUIRED		
APPLICATIONS	AERONAUTICS, MILITARY, ON-BOARD ELECTRONICS, MISSILES, RADARS, ETC.		

*: IP 67: The standard defines an immersion up to 1 m for 30 minutes.

IP 68: Immersion beyond 1 m and conditions specified by the manufacturer.

PRODUCT SELECTION GUIDE

BREAKAWAY MCABK	PLASTIC SHELLS MCA	
		
BREAKAWAY TYPE CONNECTOR, WITH SPRING TO SECURE CONNECTION	READY TO MATE PLASTIC INSERT	COUPLING TYPE
CABLE PLUGS AND JACKS PANEL RECEPTACLE: JAM NUT OR SQUARE FLANGE, REAR OR FRONT MOUNT	CABLE PLUGS & JACKS, SOLDER CUPS	SHELL TYPE
AVAILABLE	ON REQUEST	PCB VERSIONS
HAND COUPLING	HAND COUPLING	COUPLING METHOD
ALUMINIUM + NICKEL PLATING	LCP PLASTIC	MATERIAL & PLATING
5, 7, 12, 15, 19 & 37	5, 7, 12, 15, 19 & 37	N° OF CONTACTS
QUICK CONNECT / DISCONNECT CALIBRATED RELEASE FORCE	«EASY TO USE», VERY SMALL AND LIGHTWEIGHT	ADVANTAGES
★★★★★	★★★★★	EASE OF CONNECTION
★★★	★★★★★	SPACE SAVING
★★★★★	★★★★★	WEIGHT SAVING
★★★	N/A	EMI PERFORMANCE
-55°C / +150°C OR -55°C / +200°C, DEPENDING ON RESIN OPTION		TEMPERATURE
IP67 / IP68*	N/A	WATER RESISTANCE
20 g	N/A	VIBRATION
50 g	N/A	SHOCK
MINIMUM 500 CYCLES, PLEASE SPECIFY IF MORE ARE REQUIRED		MATING CYCLES
MODERN SOLDIER SYSTEMS, GENERAL INDUSTRY.	MEDICAL, MILITARY, PROTOTYPING.	APPLICATIONS

CONNECTOR DIMENSIONS

All drawings on these two pages are drawn at scale 1:1. Dimensions are in millimeters.
The front views are 12 way connectors.

1:1

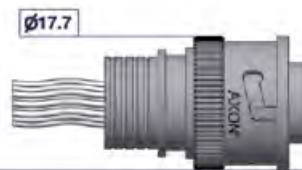
METRIC THREAD

THREE LUG BAYONET

37 WAYS



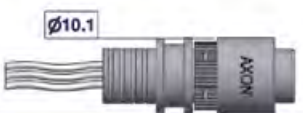
19 WAYS



12/15 WAYS



5/7 WAYS



CONNECTOR DIMENSIONS

	METRIC THREAD	THREE LUG BAYONET	ANTI- DECOUPLING	BREAKAWAY	PLASTIC
37 WAYS	18.9 (.744)	20.7 (.815)	20.5 (.807)	20.1 (.791)	11.8 (.465)
19 WAYS	16 (.63)	17.7 (.697)	17.5 (.689)	17.4 (.685)	9.2 (.362)
12/15 WAYS	12.6 (.496)	14.7 (.579)	15.5 (.61)	15.1 (.594)	6.9 (.272)
5/7 WAYS	10.1 (.398)	13.2 (.52)	13.5 (.531)	15.1 (.594)	5.7 (.224)

Dimensions are in millimeters (inches).

ANTI-DECOUPLING

BREAKAWAY

PLASTIC

1:1

Ø20.5

Ø20.1

Ø11.8

37 WAYS

Ø17.5

Ø17.4

Ø9.2

19 WAYS

Ø15.5

Ø15.1

Ø6.9

12/15 WAYS

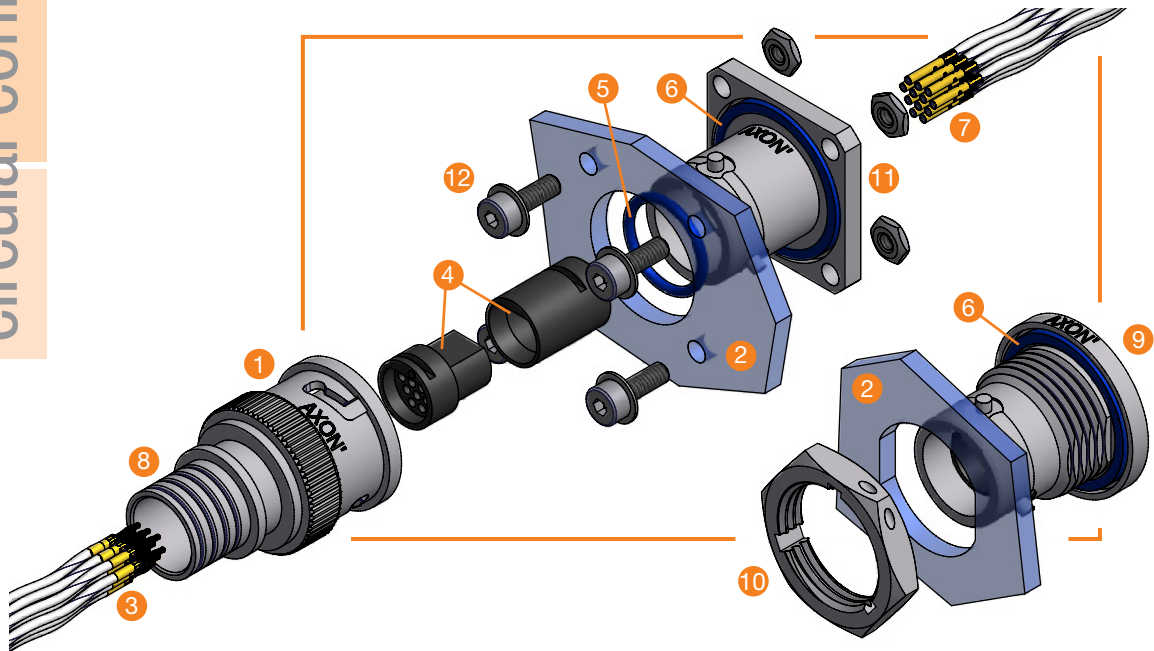
Ø13.5

Ø15.1

Ø5.7

5/7 WAYS

GLOSSARY OF TERMS



IN-LINE PLUG SHELL	1	Cable connector metal body
PANEL CUT-OUT	2	Shape used to lock socket receptacle in position
TWIST PIN	3	Male contact, fitted to male connector
INSERT	4	Moulded insulation housing, separating each connection
INTERNAL O-RING	5	For waterproofness between plug and socket connector
PANEL SEAL	6	For waterproofness between the panel and the socket connector
SOCKET	7	Female contact, fitted to female connector
REAR FUNNEL	8	For in-line plugs only - Short version for heatshrink boot only or long for screen termination and heatshrink boot
JAM NUT RECEPTACLE	9	Female connector metal body locked by special nut
SPECIAL NUT	10	Locks the jam nut socket receptacle to the panel
SQUARE FLANGE RECEPTACLE	11	Female connector metal body locked by 4 screws
HEX. SOCKET HEAD SCREW	12	Locks the square flange socket receptacle to the panel

- Standard connector ● Manufactured to the standard dimensions and specifications.
- Special connector ● A standard connector modified to meet specific customer requirements.
- Custom made connector ● Designed to meet specific customer requirements.
- Pigtail connector ● Connector with insulated or uninsulated wires.
- Solder cup connector ● Connector with solder cup type of contacts, usually used for prototyping.
- Harness ● Cable assembly with two or more connectorised ends.
- LCP ● Liquid Crystal Polymer.
- Potting ● Epoxy compound used as an encapsulant.
- In-line plug ● Male or female cable connector.
- Panel mount connector ● Female connector designed to be mounted onto a panel, either with a nut or 4 screws.

GENERAL CHARACTERISTICS

Based on the standard technology of our Micro-D rectangular range with twist pin contacts, the performances and characteristics of the Micro-D circular range are ideally suited to equipment and applications where weight, miniaturisation and long term performance are required. It is available in 6 contact arrangements, from 05 to 37 contacts.

TECHNICAL DATA SHEET

CHARACTERISTIC	SPECIFICATION	TEST METHOD
CURRENT RATING	3 A max.	EIA-364-70
CONTACT RESISTANCE	8 mΩ max.	EIA-364-06
INSULATION RESISTANCE	5000 MΩ min. @ 500 V _{dc}	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
CONTACT ENGAGING & SEPARATION FORCE (FOR TWIST-PIN CONTACT PAIR)	170 g max. (6 oz) 14 g min. (0.5 oz)	EIA-364-37
BREAKAWAY CONNECTOR DE-MATING FORCES (AVERAGE, FOR WHOLE CONNECTORS)	5 ways: 25 N - 7 ways: 27 N 12 ways: 30 N - 15 ways: 35 N 19 ways: 50 N - 37 ways: 65 N	EIA-364-09
CONTACT RETENTION	2.26 kg (5 lbs) for 5 seconds min.	EIA-364-29
DURABILITY	500 mating cycles min.	EIA-364-09
TEMPERATURE RANGE: - STANDARD - HIGH TEMPERATURE	-55°C / +150°C -55°C / +200°C	
VIBRATION	20 g - no discontinuity > 1 μs	EIA-364-28 TEST CONDITION IV
SHOCK	50 g - no discontinuity > 1 μs	EIA-364-27 TEST CONDITION E
SALT SPRAY	48 Hours	EIA-364-26 TEST CONDITION B
WATER RESISTANCE	IP67	IEC 60529
HUMIDITY	Insulation resistance > 1 MΩ	EIA-364-31 TEST METHOD IV
SHELL TO SHELL CONDUCTIVITY	10 mΩ max	EIA-364-83
SHIELDING EFFECTIVENESS	40 to 55 dB up to 10 GHz (depending on versions)	IEC 61276

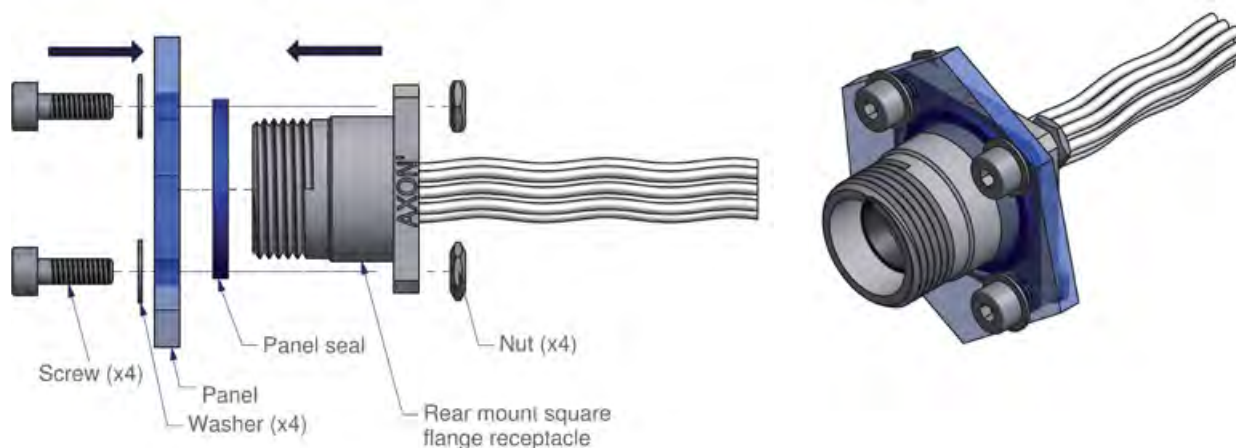
MATERIALS AND FINISHES

COMPONENT	MATERIAL	FINISH
MALE CONTACT (TWIST PIN)	COPPER AND BERYLLIUM COPPER	GOLD PLATING IN ACCORDANCE WITH ASTM-B488, TYPE II, CLASS 1 (1.27μm (0.00005 in) MIN), CODE C OVER NICKEL UNDERPLATE IN ACCORDANCE WITH SAE-AMS-QQ-N-290, CLASS 2 (1.27 μm (0.00005 in) TO 3.81μm (0.00015 in))
FEMALE CONTACT	COPPER ALLOY	
METAL SHELLS / FUNNELS / NUTS	ALUMINIUM ALLOY, TYPE 7075	ELECTROLESS NICKEL PLATING IN ACCORDANCE WITH SAE-AMS2404, CLASS 4, .0005 INCH MIN.
	BRASS	ELECTROLESS NICKEL PLATING IN ACCORDANCE WITH SAE-AMS2404, .0005 INCH MIN.
	STAINLESS STEEL, 300 SERIES	PASSIVATION IN ACCORDANCE WITH SAE-AMS2700
PLASTIC INSERT / PCB TRAY	LIQUID CRYSTAL POLYMER, 30% LOADED GLASS FIBRE POLYESTER, 94V0, IN ACCORDANCE WITH MIL-M-24519 (200°C)	-
O-RING / PANEL SEALS	FLUOROSILICONE RUBBER	-
ENCAPSULANT	EPOXY RESIN	-
INSULATED WIRE	PTFE INSULATED SILVER PLATED COPPER WITH NEMA-HP3	-
	PTFE INSULATED SILVER PLATED COPPER IN ACCORDANCE WITH SAE-AS22759/11	-
	CROSSLINKED ETFE INSULATED SILVER PLATED COPPER IN ACCORDANCE WITH SAE-AS22759/33	-
UNINSULATED WIRE	GOLD PLATED SOLID COPPER WIRE IN ACCORDANCE WITH A-A59551	-
	TIN PLATED SOLID COPPER WIRE IN ACCORDANCE WITH A-A59551	-
SPRINGS FOR BREAKAWAY	STAINLESS STEEL	-

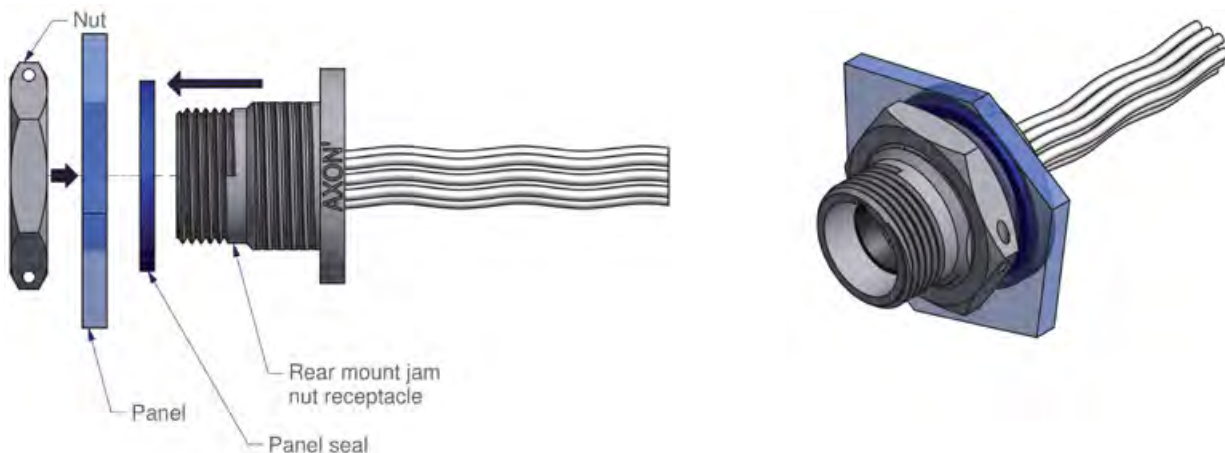
REAR PANEL MOUNTING GUIDE

In addition to our in-line male and female plugs, designed to be used with flying leads or composite cables, we have designed 4 versions of panel mount connectors, equipped with panel seal, to support a wide range of mounting configurations. Available for selection are either a jam nut round flange or square flange with 4 screws, both for front or rear mount configuration. Installation recommendations are presented in the following diagrams. All the details of panel cut-outs are available pages 350 to 353.

► SQUARE FLANGE RECEPTACLES

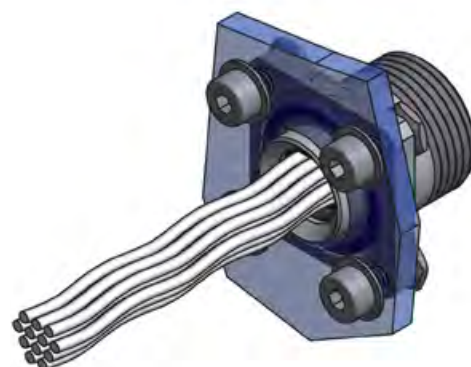
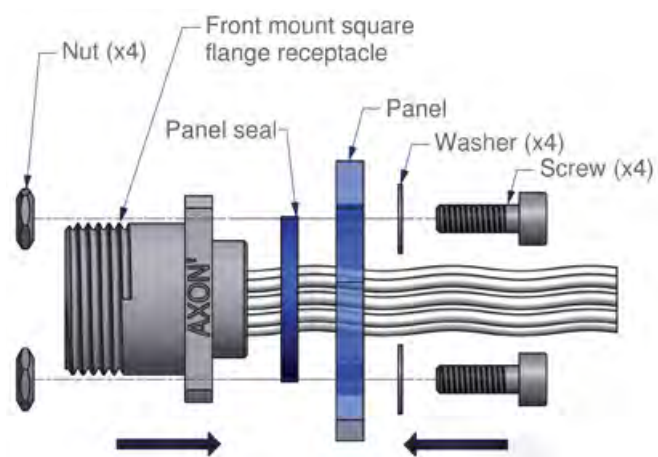


► JAM NUT RECEPTACLES

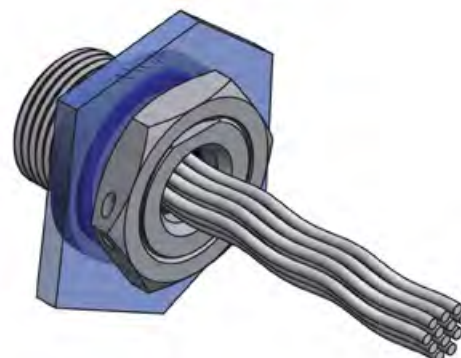
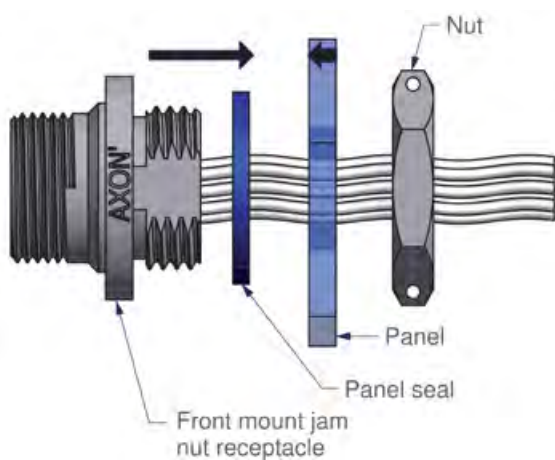


FRONT PANEL MOUNTING GUIDE

► SQUARE FLANGE RECEPTACLES



► JAM NUT RECEPTACLES

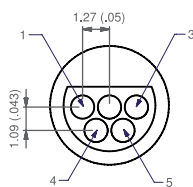


CONTACT ARRANGEMENTS

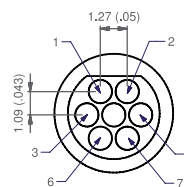
► Mating face of male circular connector

- 1.27 mm (.050") contact spacing.

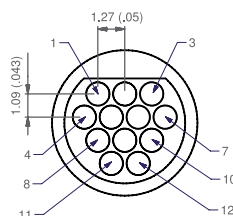
Dimensions are in millimeters (inches).



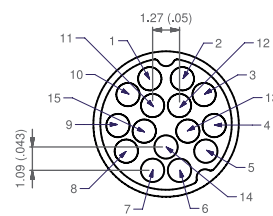
5 CONTACTS



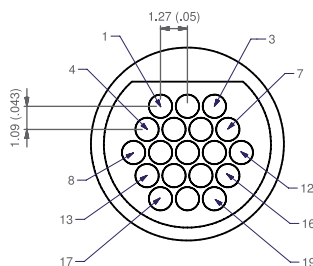
7 CONTACTS



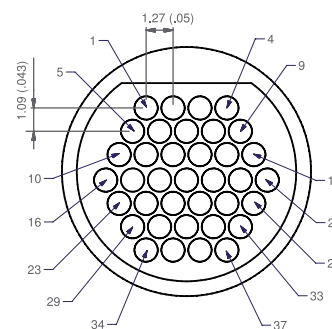
12 CONTACTS



15 CONTACTS



19 CONTACTS



37 CONTACTS

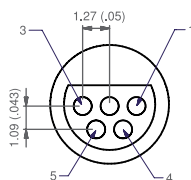
OTHER CONTACT ARRANGEMENTS AVAILABLE ON REQUEST

CONTACT ARRANGEMENTS

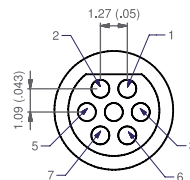
► Mating face of female circular connector

- 1.27 mm (.050") contact spacing.

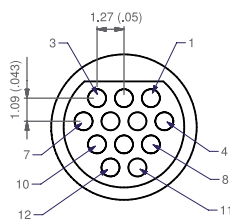
Dimensions are in millimeters (inches).



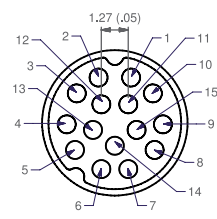
5 CONTACTS



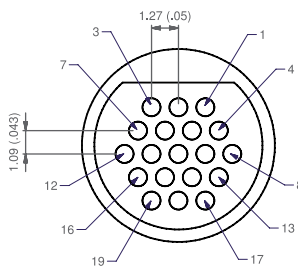
7 CONTACTS



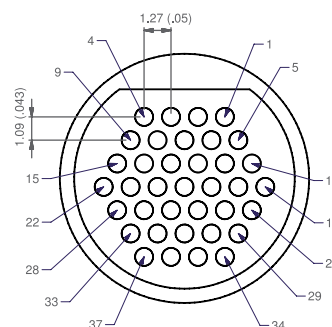
12 CONTACTS



15 CONTACTS



19 CONTACTS



37 CONTACTS

REACH & RoHS COMPLIANCE

► RoHS compliance

AXON' CABLE has been pro-actively implementing measures for many years to ensure compliance with the European Directive 2011/65/EU which came into force on 21st July 2011. The Directive prohibits the use of Hazardous Substances such as lead, mercury, hexavalent chromium, cadmium, bromine compounds (PBB and PBDE) and various phthalates. It relates to all components of products which are used in the manufacture of electrical and electronic equipment.

As a cable and connector manufacturer, AXON' has taken actions to ensure compliance with directive 2000/53/EC applicable since 21st October 2000.

COMPONENT SPECIFIC RoHS COMPLIANCE

COMPONENT	MATERIAL	FINISH	RoHS STATUS
PIN CONTACT (TWIST PIN)	COPPER + BERYLLIUM COPPER	GOLD	RoHS Compliant
SOCKET CONTACT	COPPER ALLOY	GOLD	RoHS Compliant
PLASTIC SHELL & INSERT	LIQUID CRYSTAL POLYMER	N/A	RoHS Compliant
PCB TRAY	PEEK SERIE 1000	N/A	RoHS Compliant
METAL SHELL	ALUMINIUM ALLOY SERIES 7000	ELECTROLESS NICKEL	RoHS Compliant
	BRASS	ELECTROLESS NICKEL	RoHS Compliant
O-RING SEAL	FLUOROSILICONE RUBBER	N/A	RoHS Compliant
SPRING WASHERS & LATCHING SPRINGS	STAINLESS STEEL 300 SERIES	PASSIVATION	RoHS Compliant
ENCAPSULANT	EPOXY RESIN 150°C VERSION	N/A	RoHS Compliant
	EPOXY RESIN 200°C VERSION	N/A	RoHS Compliant
«STANDARD» SERIES PCB TERMINATION	SOLID COPPER WIRE	GOLD	RoHS Compliant
	SOLID COPPER WIRE	NOT LEADED TIN 97% MAX TIN	RoHS Compliant

► Application of REACH

The new EU regulation on the Registration, Evaluation, Authorisation and restriction of Chemicals (REACH) came into force in June 2007. The regulation concerns the authorised use of chemicals. It requires manufacturers and importers to register substances and their use with the European Chemical Agency (ECHA).

AXON' CABLE is known as a "downstream user" with respect to the REACH regulation, and a manufacturer of "Articles". AXON' CABLE products are not intended to release any undesired substance under normal and reasonable operations of use.

To this day AXON' CABLE have not identified any component containing any SVHC in their product range.

WIRE CODES

Nominal dimensions are used throughout this chapter.

► Solid uninsulated wires

WIRE CODE	WIRE DESIGNATION	WEIGHT g/m	CONDUCTOR					
			MATERIAL	AWG	CONSTRUCTION mm (inch)	Ø mm (inch)	AREA mm ² (sq in)	RESISTANCE Ω/100m (Ω/1000 ft)
G	GPC2501	1.45	GOLD PLATED COPPER	25	1x0.455 1x.018	0.455 .018	0.163 .000252	11 33.5
T	TPCL2401	1.81	TIN PLATED COPPER	24	1x0.510 1x.0201	0.510 .0201	0.205 .000317	9 27.4
T (FOR PCB)	GPC2501 RoHS SOLDER DIPPED TIN	1.81	GOLD PLATED COPPER AND TIN LEAD-FREE (97% TIN MAX.)	24	1x0.510 1x.0201	0.510 .0201	0.205 .000317	11 33.5

► Insulated wires

WIRE CODE	WIRE DESIGNATION	WEIGHT g/m	CONDUCTOR						INSULATION		TEMPERATURE RATING	VOLTAGE RATING
			MATERIAL	AWG	CONSTRUCTION mm (inch)	Ø mm (inch)	AREA mm ² (sq in)	RESISTANCE Ω/100m (Ω/1000 ft)	MATERIAL	Ø mm (inch)		
1	E 2607	2.70	SPC **	26	7x0.160 7x.0063	0.480 .0189	0.141 .000218	12.8 39.0	EXTRUDED PTFE	1.00 .039	-90°C / +200°C	600 V _{AC}
3	M22759/11-26*	2.82	SPC **	26	19x0.102 19x.0040	0.504 .020	0.154 .000239	12.6 38.4	EXTRUDED PTFE	0.96 .038	-90°C / +200°C	600 V _{AC}
4	E 2619	3.00	SPC **	26	19x0.102 19x.0040	0.504 .020	0.154 .000239	12 36.6	EXTRUDED PTFE	1.00 .039	-90°C / +200°C	600 V _{AC}
6	E 2807	2.00	SPC **	28	7x0.127 7x.0050	0.381 .015	0.088 .000137	20.1 61.3	EXTRUDED PTFE	0.90 .035	-90°C / +200°C	600 V _{AC}
8	E 3007	1.50	SPC **	30	7x0.102 7x.0040	0.304 .012	0.057 .000882	31 94.5	EXTRUDED PTFE	0.80 .031	-90°C / +200°C	600 V _{AC}
E	M22759/33-26	2.08	HIGH STRENGTH SPCA ***	26	19x0.102 19x.0040	0.483 .019	0.154 .000238	14.7 44.8	CROSSLINKED EXTRUDED MODIFIED ETFE	0.81 .032	-90°C / +200°C	600 V _{AC}
F	E 2607*	2.70	SPC **	26	7x0.160 7x.0063	0.480 .0189	0.141 .000218	12.8 39.0	EXTRUDED PTFE	1.00 .039	-90°C / +200°C	600 V _{AC}

*: ONLY FOR COLOUR CODE V

** : SILVER PLATED COPPER

***: SILVER PLATED COPPER ALLOY

WIRE COLOUR CODES

► Colour codes F and L

All the wires have the same colour.
Available with all wire types.

COLOUR CODE	COLOUR
F	YELLOW
L	WHITE

OTHER COLOURS AVAILABLE ON REQUEST.

► Colour code W

Also called 10 colour repeat (10 colours repeated in sequence) as per MIL-DTL-83513.
Available with all wire types.

PIN NUMBER	MIL-STD-681 NUMBER	COLOUR
1	0	BLACK
2	1	BROWN
3	2	RED
4	3	ORANGE
5	4	YELLOW
6	5	GREEN
7	6	BLUE
8	7	VIOLET
9	8	GREY
10	9	WHITE
11	0	BLACK
12	1	BROWN
13	2	RED
14	3	ORANGE
15	4	YELLOW
16	5	GREEN
17	6	BLUE
18	7	VIOLET
19	8	GREY
20	9	WHITE
21	0	BLACK

► Colour code V

Only available with 2607 AWG wires (Micro-D wire code F) and 2619 AWG wires (Micro-D wire code 3).

Colours and coloured stripes as per MIL-STD-681 system (except the appropriate colour code is the contact number minus 1).

Only available for Micro-D connectors with 51 contacts or less.

CONTACT NUMBER	MIL-STD-681 NUMBER	BASE COLOUR	FIRST STRIPE	SECOND STRIPE
1	0	BLACK	-	-
2	1	BROWN	-	-
3	2	RED	-	-
4	3	ORANGE	-	-
5	4	YELLOW	-	-
6	5	GREEN	-	-
7	6	BLUE	-	-
8	7	VIOLET	-	-
9	8	GREY	-	-
10	9	WHITE	-	-
11	90	WHITE	BLACK	-
12	91	WHITE	BROWN	-
13	92	WHITE	RED	-
14	93	WHITE	ORANGE	-
15	94	WHITE	YELLOW	-
16	95	WHITE	GREEN	-
17	96	WHITE	BLUE	-
18	97	WHITE	VIOLET	-
19	98	WHITE	GREY	-
20	901	WHITE	BLACK	BROWN
21	902	WHITE	BLACK	RED
22	903	WHITE	BLACK	ORANGE
23	904	WHITE	BLACK	YELLOW
24	905	WHITE	BLACK	GREEN
25	906	WHITE	BLACK	BLUE
26	907	WHITE	BLACK	VIOLET
27	908	WHITE	BLACK	GREY
28	912	WHITE	BROWN	RED
29	913	WHITE	BROWN	ORANGE
30	914	WHITE	BROWN	YELLOW
31	915	WHITE	BROWN	GREEN
32	916	WHITE	BROWN	BLUE
33	917	WHITE	BROWN	VIOLET
34	918	WHITE	BROWN	GREY
35	923	WHITE	RED	ORANGE
36	924	WHITE	RED	YELLOW
37	925	WHITE	RED	GREEN

TEST & INSPECTION

▶ Micro-D components

▶ METAL SHELLS

- Dimensions measured with non-contact optical equipment.
- Plating thickness measured with X-ray spectrometer.

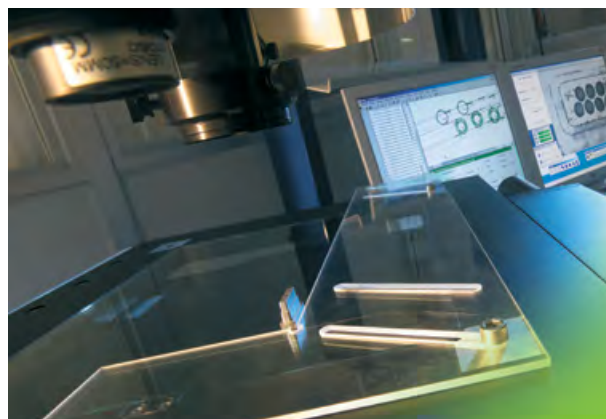
▶ PLASTIC COMPONENTS

(shells, inserts, trays for PCB connectors,...).

- Dimensions measured with non-contact optical equipment.

▶ CONTACTS

- Dimensions measured with non-contact optical equipment.
- Plating thickness measured with X-ray spectrometer.
- Insertion and retention forces.
- Electrical resistance of mated contacts.



▲ NON CONTACT OPTICAL MEASUREMENT



▲ EXAMPLE OF CONTACT INSPECTION

► Micro-D assemblies

AXON' carries out electrical tests on all the manufactured Micro-D harnesses and connectors.

► TYPICAL TESTS

FOR MICRO-D HARNESSSES	FOR MICRO-D PCB CONNECTORS
- continuity. - insulation resistance.	- contact resistance. - insulation resistance. - dielectric strength.

If requested by the customer for special products, AXON' can carry out other tests such as:

- Transfer impedance (Z_T) for shielded harnesses.
- Insertion and return loss for Micro-D with coaxial contacts.
- Attenuation plots for filtered products.
- Waterproofness tests.
- X-ray inspection.
- Mating and de-mating tests.
- And other specific tests as required.

AXON' carries out sample inspection for visual and dimensional criteria. The goods are delivered with:

- a certificate of compliance.
- a test report (on request).

AXON' maintains batch traceability records for 10 years (or more if required).

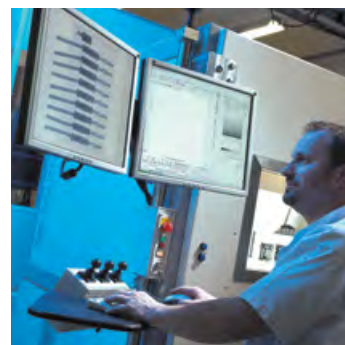
In order to guarantee a high quality level for each product, AXON' uses a wide variety of production tools, systems, machines and jigs. These include optimized line design, poka yoke, standardized operations and TPM (Total Productive Maintenance).



▲ STIRRED MODE CHAMBER

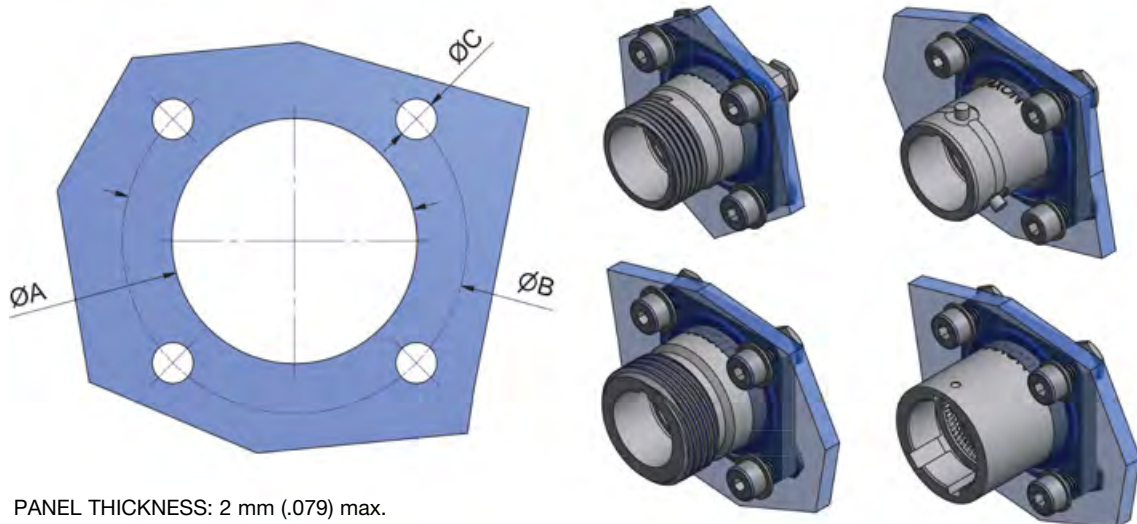


▲ AUTOMATIC CONTINUITY &
INSULATION RESISTANCE TEST



▲ X-RAY INSPECTION

PANEL CUT-OUTS FOR REAR MOUNT SQUARE FLANGE RECEPTACLES



► TABLE OF DIMENSIONS - millimetres (inches)

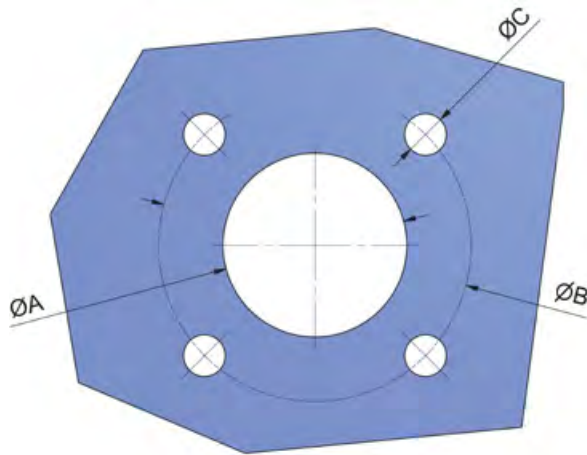
NUMBERS OF WAYS	CONNECTOR TYPE	A +0.3/-0 (+0.012/-0)	B (BSC)	C ±0.05 (±0.002)
5 OR 7	METRIC THREAD	9.7 (.382)	16 (.631)	2.2 (.087)
	THREE LUG BAYONET	11.7 (.461)	18.5 (.728)	2.2 (.087)
	TRIPLE START	11.7 (.461)	18.5 (.728)	2.2 (.087)
	BREAKAWAY	13.2 (.52)	19.5 (.768)	2.2 (.087)
12 OR 15	METRIC THREAD	11.7 (.461)	18.5 (.728)	2.2 (.087)
	THREE LUG BAYONET	13.2 (.52)	19.5 (.768)	2.2 (.087)
	TRIPLE START	13.2 (.52)	19.5 (.768)	2.2 (.087)
	BREAKAWAY	13.2 (.52)	19.5 (.768)	2.2 (.087)
19	METRIC THREAD	15.2 (.598)	22.5 (.886)	3.2 (.126)
	THREE LUG BAYONET	16.2 (.638)	24.5 (.965)	3.2 (.126)
	TRIPLE START	15.2 (.598)	22.5 (.886)	3.2 (.126)
	BREAKAWAY	15.9 (.626)	24.5 (.965)	3.2 (.126)
37	METRIC THREAD	17.2 (.677)	24.5 (.965)	3.2 (.126)
	THREE LUG BAYONET	19.2 (.756)	27 (1.063)	3.2 (.126)
	TRIPLE START	18.5 (.728)	27 (1.063)	3.2 (.126)
	BREAKAWAY	18.6 (.732)	27.5 (1.083)	3.2 (.126)

► Recommended screws for panel mounting

HOLE DIMENSIONS	ISO METRIC THREAD SCREWS	UNIFIED THREAD STANDARD SCREWS
2.2 (.087)	DIN EN ISO 4762 - CHC M2 x 6	CHC 2-56 UNC - 1/4
3.2 (.126)	DIN EN ISO 4762 - CHC M3 x 8	CHC 4-40 UNC - 5/16

SUPPLIED WITHOUT PANEL MOUNTING SCREWS

PANEL CUT-OUTS FOR FRONT MOUNT SQUARE FLANGE RECEPTACLES



PANEL THICKNESS: 2 mm (.079) max.

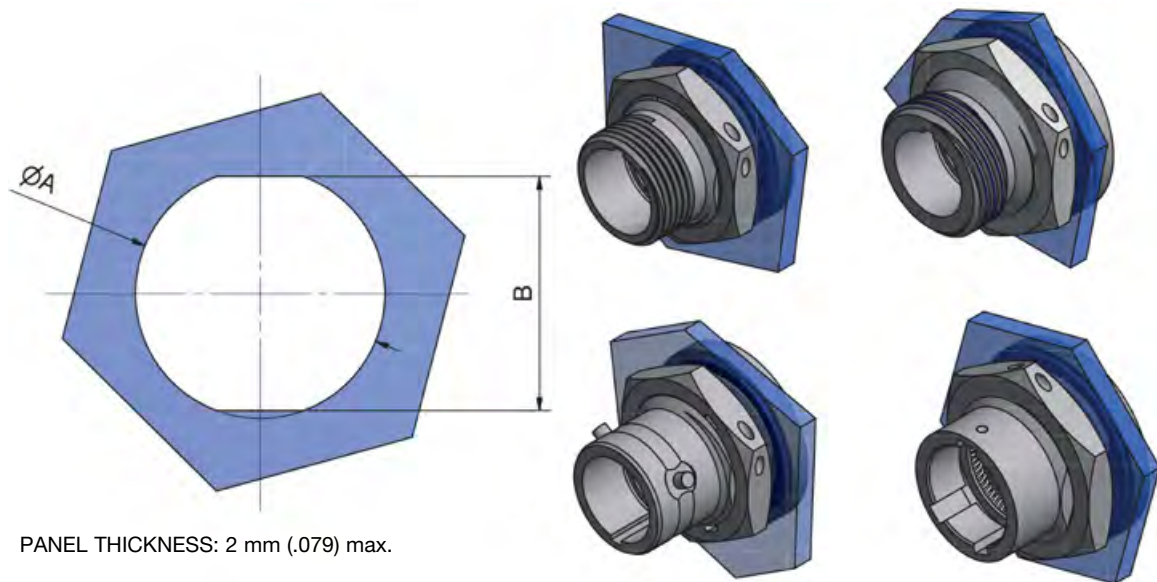
► TABLE OF DIMENSIONS - millimetres (inches)

NUMBERS OF WAYS	CONNECTOR TYPE	A +0.3/-0 (+0.012/-0)	B (BSC)	C ±0.05 (±0.002)
5 OR 7	METRIC THREAD	8.7 (.342)	16 (.631)	2.2 (.087)
	THREE LUG BAYONET	9.7 (.382)	16 (.631)	2.2 (.087)
	TRIPLE START	9.2 (.362)	16 (.631)	2.2 (.087)
	BREAKAWAY	9.7 (.382)	19 (.748)	2.2 (.087)
12 OR 15	METRIC THREAD	8.7 (.342)	16.5 (.65)	2.2 (.087)
	THREE LUG BAYONET	9.7 (.382)	17 (.669)	2.2 (.087)
	TRIPLE START	9.2 (.362)	17 (.669)	2.2 (.087)
	BREAKAWAY	9.7 (.382)	19 (.748)	2.2 (.087)
19	METRIC THREAD	12.2 (.48)	19 (.748)	2.2 (.087)
	THREE LUG BAYONET	12.2 (.48)	19 (.748)	2.2 (.087)
	TRIPLE START	12.2 (.48)	19 (.748)	2.2 (.087)
	BREAKAWAY	13.2 (.52)	23 (.906)	3.2 (.126)
37	METRIC THREAD	15.2 (.598)	24 (.945)	3.2 (.126)
	THREE LUG BAYONET	15.2 (.598)	24 (.945)	3.2 (.126)
	TRIPLE START	15.2 (.598)	24 (.945)	3.2 (.126)
	BREAKAWAY	15.2 (.598)	26 (1.024)	3.2 (.126)

► Recommended screws for panel mounting

HOLE DIMENSIONS	ISO METRIC THREAD SCREWS	UNIFIED THREAD STANDARD SCREWS
2.2 (.087)	DIN EN ISO 4762 - CHC M2 x 6	CHC 2-56 UNC - 1/4
3.2 (.126)	DIN EN ISO 4762 - CHC M3 x 8	CHC 4-40 UNC - 5/16

PANEL CUT-OUTS FOR REAR MOUNT JAM NUT RECEPTACLES



► TABLE OF DIMENSIONS - millimetres (inches)

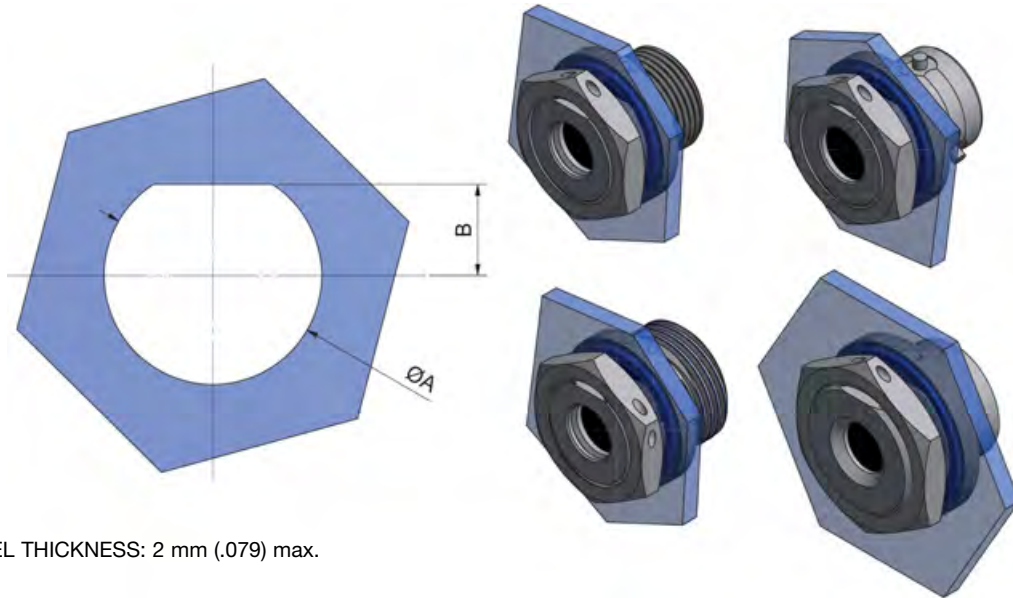
NUMBERS OF WAYS	CONNECTOR TYPE	A +0.3/-0 (+0.012/-0)	B +0.3/-0 (+0.012/-0)	NUT THREAD	RECOMMENDED TORQUE
5 OR 7	METRIC THREAD	12.2 (.48)	11.2 (.441)	M12x1	1.5 Nm
	THREE LUG BAYONET	12.2 (.48)	11.2 (.441)	M12x1 + NOTCH*	1.5 Nm
	TRIPLE START	13.2 (.62)	12.2 (.48)	M13x1	1.5 Nm
	BREAKAWAY	15.2 (.598)	13.2 (.62)	M14x0.75	1.5 Nm
12 OR 15	METRIC THREAD	13.2 (.62)	12.2 (.48)	M13x1	1.5 Nm
	THREE LUG BAYONET	13.2 (.52)	12.2 (.48)	M13x1 + NOTCH*	1.5 Nm
	TRIPLE START	15.2 (.598)	14.2 (.559)	M15x1	1.5 Nm
	BREAKAWAY	15.2 (.598)	13.2 (.62)	M14x0.75	1.5 Nm
19	METRIC THREAD	16.2 (.638)	15.2 (.598)	M16x1	2 Nm
	THREE LUG BAYONET	16.2 (.638)	15.2 (.598)	M16x1 + NOTCH*	2 Nm
	TRIPLE START	17.2 (.677)	16.2 (.638)	M17x1	2 Nm
	BREAKAWAY	18.2 (.717)	16.2 (.638)	M18x1	2 Nm
37	METRIC THREAD	19.2 (.756)	18.2 (.717)	M19x1	2 Nm
	THREE LUG BAYONET	19.2 (.756)	18.2 (.717)	M19x1 + NOTCH*	2 Nm
	TRIPLE START	20.2 (.795)	19.2 (.756)	M20x1	2 Nm
	BREAKAWAY	20.2 (.795)	19.2 (.756)	M20x1	2 Nm

*: We recommend front mount for Three Lug Bayonet, please contact us for specific rear mount cut-outs.

SUPPLIED WITH JAM NUTS

axon
cable & interconnect

PANEL CUT-OUTS FOR FRONT MOUNT JAM NUT RECEPTACLES



► TABLE OF DIMENSIONS - millimetres (inches)

NUMBERS OF WAYS	CONNECTOR TYPE	A +0.3/-0 (+0.012/-0)	B +0.3/-0 (+0.012/-s0)	NUT THREAD	RECOMMENDED TORQUE
5 OR 7	METRIC THREAD	9.2 (.362)	3.6 (.142)	M9x0.75	1 Nm
	THREE LUG BAYONET	9.2 (.362)	3.6 (.142)	M9x0.75	1 Nm
	TRIPLE START	9.2 (.362)	3.6 (.142)	M9x0.75	1 Nm
	BREAKAWAY	13.2 (.52)	5.6 (.22)	M13x1	1.5 Nm
12 OR 15	METRIC THREAD	12.2 (.48)	5.1 (.201)	M9x0.75	1 Nm
	THREE LUG BAYONET	12.2 (.48)	5.1 (.201)	M9x0.75	1 Nm
	TRIPLE START	12.2 (.48)	5.1 (.201)	M9x0.75	1 Nm
	BREAKAWAY	15.2 (.598)	6.6 (.26)	M15x1	1.5 Nm
19	METRIC THREAD	13.2 (.52)	5.85 (.201)	M12x1	1.5 Nm
	THREE LUG BAYONET	13.2 (.52)	5.85 (.201)	M12x1	1.5 Nm
	TRIPLE START	13.2 (.52)	5.85 (.201)	M12x1	1.5 Nm
	BREAKAWAY	17.2 (.677)	7.1 (.28)	M17x1	2 Nm
37	METRIC THREAD	16.2 (.64)	7.35 (.289)	M15x1	1.5 Nm
	THREE LUG BAYONET	16.2 (.64)	7.35 (.289)	M15x1	1.5 Nm
	TRIPLE START	16.2 (.64)	7.35 (.289)	M15x1	1.5 Nm
	BREAKAWAY	19.2 (.756)	8.6 (.339)	M19x1	2 Nm

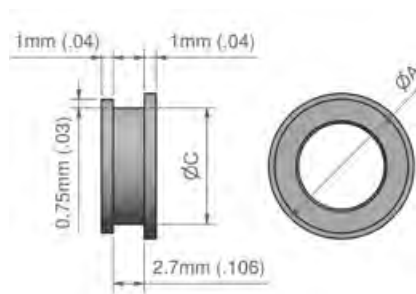
GENERAL
INFORMATION

Circular
Micro-D connectors

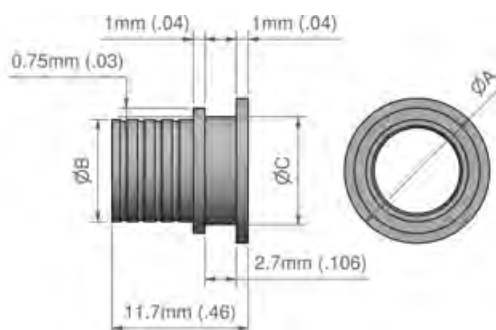
REAR FUNNEL DIMENSIONS

Our in-line male and female plugs are available with two types of funnel, both designed to provide effective cable termination with heat-shrink tubing and boots. A groove on the funnels is designed to ensure excellent grip with the lip of the heat-shrink boot.

Short version for heat shrinkable boots



Long version for AXOCLAMP® & heat shrinkable boots



► TABLE OF DIMENSIONS - millimetres (inches)

NUMBER OF WAYS	Ø A (MAX)	Ø B (MAX)	Ø C (MAX)
5 OR 7	9.6 (.378)	7.2 (.283)	8 (.315)
12 OR 15	12 (.472)	8.8 (.346)	9 (.354)
19	14.6 (.575)	12 (.472)	12 (.472)
37	17.1 (.673)	14.4 (.567)	15 (.591)

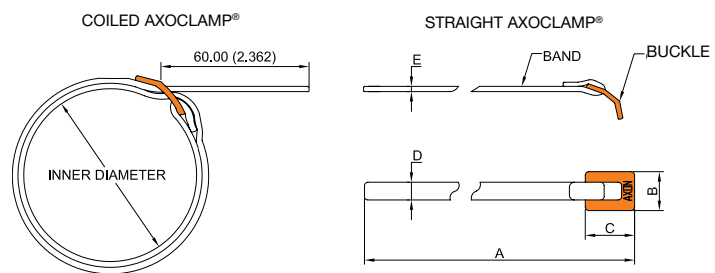


▲ HEAT SHRINKABLE BOOTS

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.

METAL PIGTAIL MICRO-D CIRCULAR CONNECTORS

METRIC THREAD CONNECTORS - MCA^T

- Metric Thread range 358
- Identification code. 359
- In-line plugs 360
- Panel mount, female receptacles. 362
- Master key positions / Weights / Torque 364

THREE LUG BAYONET CONNECTORS - MCA^{3B}

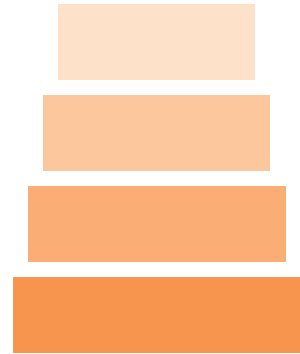
- Three Lug Bayonet range 366
- Identification code. 367
- In-line plugs 368
- Panel mount, female receptacles. 370
- Master key positions / Weights 372

TRIPLE START CONNECTORS (ANTI-DECOUPLING) - MCA^C

- Triple Start range 374
- Identification code. 375
- In-line plugs 376
- Panel mount, female receptacles. 378
- Master key positions / Weights 380

BREAKAWAY CIRCULAR CONNECTORS - MCA^{BK}

- Breakaway range 382
- Identification code. 383
- In-line plugs 384
- Panel mount, female receptacles. 386
- Master key positions / Weights 388



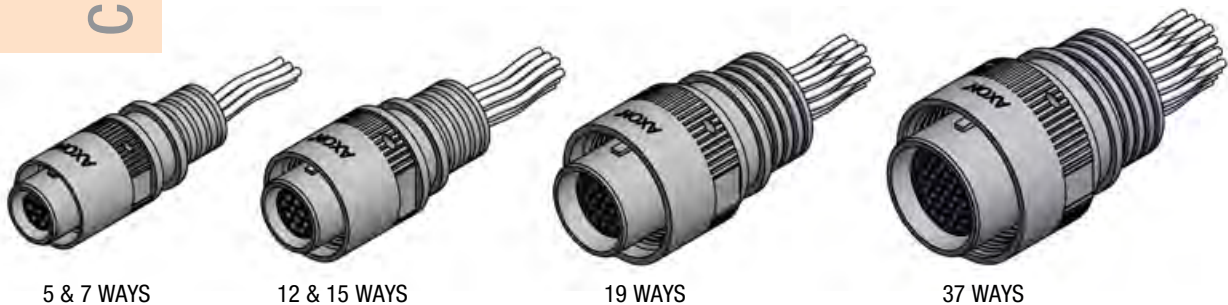
PIGTAIL
CONNECTORS

Circular
Micro-D connectors

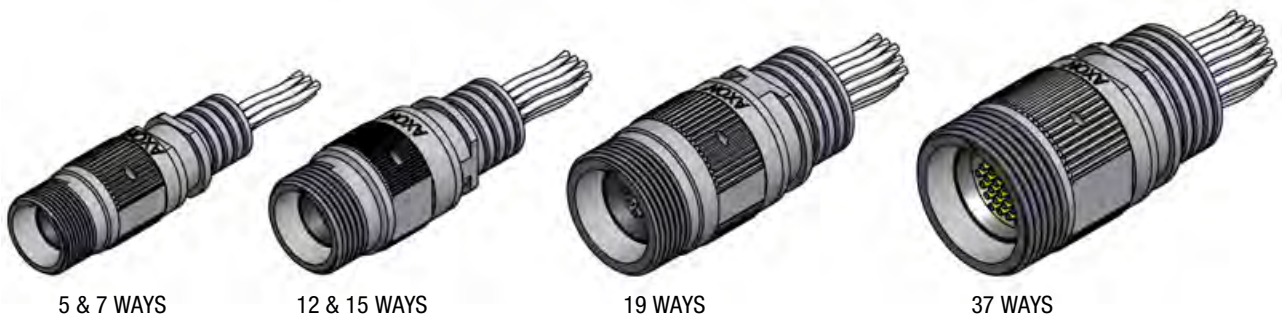
METRIC THREAD CONNECTOR RANGE - MCAT

The Metric Thread connector range is suited to systems where miniaturization, weight and EMI performances are paramount.

IN-LINE MALE PLUGS



IN-LINE FEMALE PLUGS

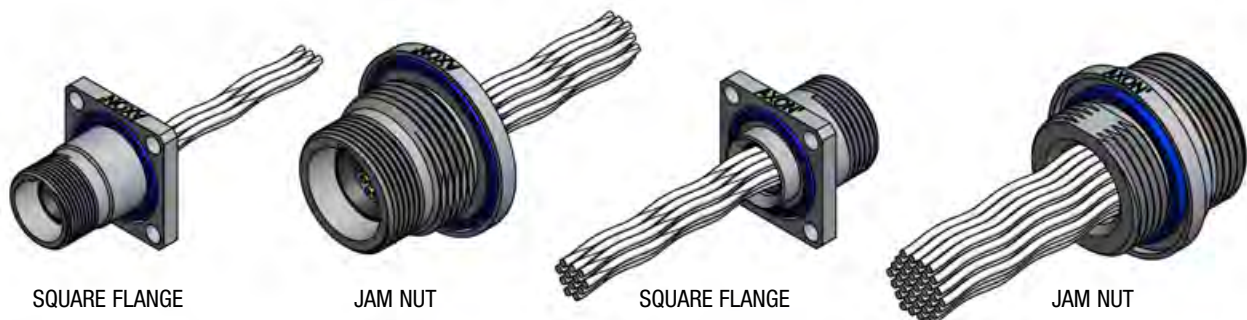


PANEL MOUNT JAM NUT & SQUARE FLANGE RECEPTACLES

Rear mount

AVAILABLE IN ALL SIZES

Front mount



SQUARE FLANGE

JAM NUT

SQUARE FLANGE

JAM NUT

IDENTIFICATION CODE

MCA

T

V

07

-

06

P

4

L

050

A

02

SERIES

MCA: Micro-D Circular AXON'.

COUPLING SYSTEM

T: Metric thread.

MATERIAL & FINISH TYPE

V: Nickel plated brass + epoxy resin 150°C.

W: Nickel plated brass + epoxy resin 200°C.

NUMBER OF CONTACTS 05, 07, 12, 15, 19, 37.

See pages 342 & 343 for contact arrangements.

CONNECTOR TYPE

00: Rear panel mount square flange receptacle (female only).

01: Front panel mount square flange receptacle (female only).

06: In-line plug (male or female).

07: Rear panel mount jam nut receptacle (female only).

08: Front panel mount jam nut receptacle (female only).

CONNECTOR GENDER

P: Male connector (pin contacts).

S: Female connector (socket contacts).

WIRE TYPE

1: E2607, AWG 26, 7 strands, 600 V.

4: E2619, AWG 26, 19 strands, 600 V.

6: E2807, AWG 28, 7 strands, 600 V.

8: E3007, AWG 30, 7 strands, 600 V.

E: M22759/33, AWG 26, 19 strands, 600 V.

Specific wires on request.

Uninsulated wires (for panel mount only)

G: AWG 25 Gold plated.

T: AWG 24 Tin plated.

See page 345 for wire types.

For colour code V

3: M22759/11, AWG 26, 19 strands, 600 V.

F: E2607, AWG 26, 7 strands, 600 V.

COLOUR CODE

L: All white.

F: All yellow.

BLANK: If wire type is **G** or **T**.

W: 10 colour repeated code.

V: MIL-STD-681 striped (only for wire types 3 and F).

See pages 346 & 347 for colour code.

WIRE LENGTH (in cm)

Caution! Wire length in centimetres - (1 cm = 10 mm = 0.394").

L	5 ≤ L ≤ 10	10 < L ≤ 100	L > 100
in cm (inches)	1.97 ≤ 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

MASTER KEY POSITION

A: 0°.

B: 90°.

C: 180°.

D: 270°.

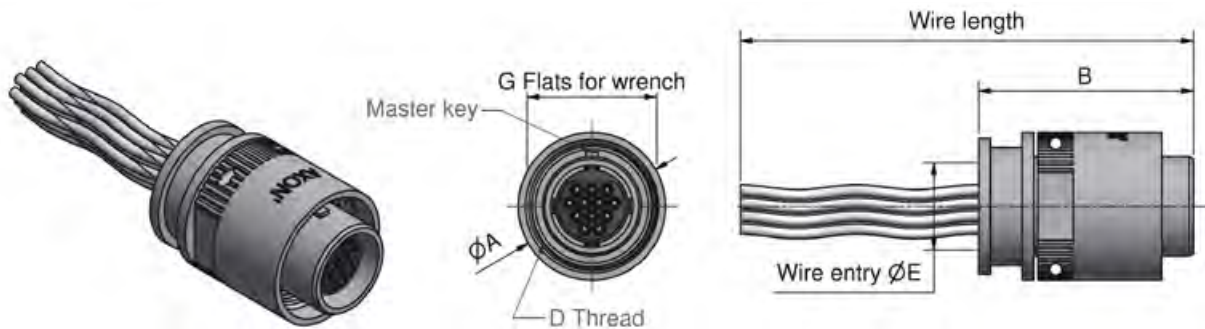
See page 364 for master key positions.

REAR FUNNEL (for In-line plugs only)

01: for heat-shrinkable boots only.

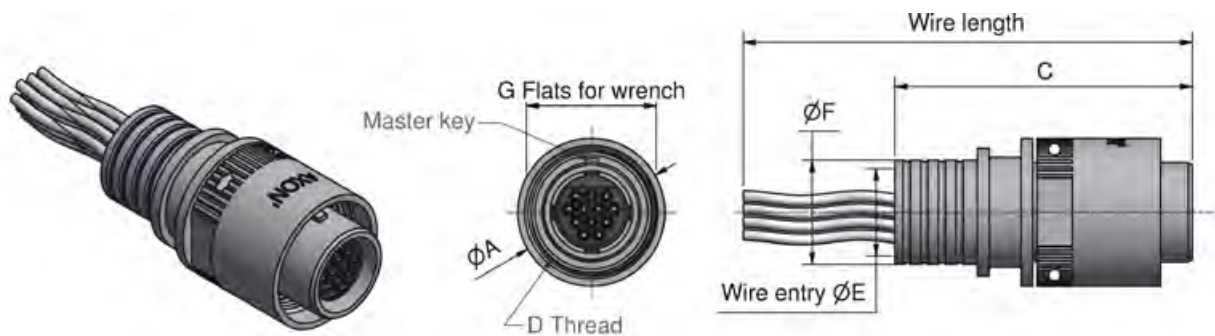
02: for 360° screen termination and heat-shrinkable boots.

METRIC THREAD IN-LINE MALE PLUGS



In-line male plug, short funnel (for heat-shrinkable boots only)

MCATxxx-06Pxxxxxx01



In-line male plug, screen termination funnel

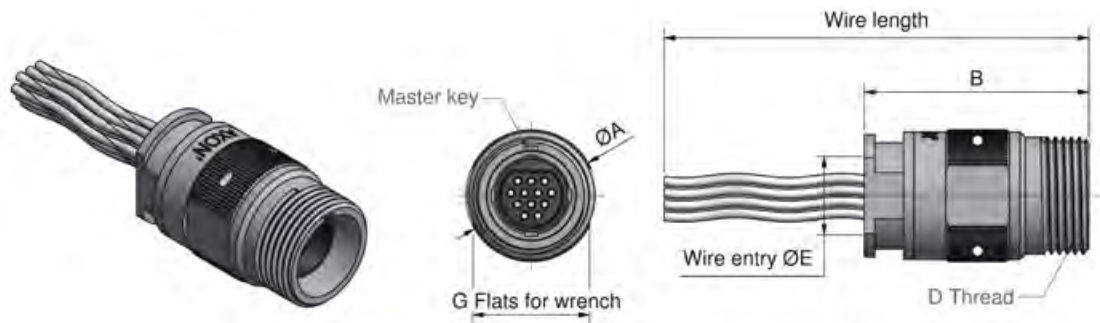
MCATxxx-06Pxxxxxx02

TABLE OF DIMENSIONS - millimetres (inches)

NUMBER OF WAYS	Ø A (MAX)	B (MAX)	C (MAX)	D THREAD	WIRE ENTRY Ø E	SCREEN TERM. FUNNEL Ø F	G FLATS FOR LOW PROFILE WRENCH
5 OR 7	10.1 (.398)	18.45 (.726)	25.45 (1.002)	M9x0.5	5.8 (.228)	7.2 (.283)	9 (.354)
12 OR 15	12.6 (.496)	18.45 (.726)	25.45 (1.002)	M11x0.75	7.4 (.291)	8.8 (.346)	11 (.433)
19	16 (.630)	20.2 (.795)	27.2 (1.071)	M14x0.75	9.6 (.378)	12 (.472)	15 (.591)
37	18.9 (.744)	20.2 (.795)	27.2 (1.071)	M17x1	12 (.472)	14.4 (.567)	18 (.709)

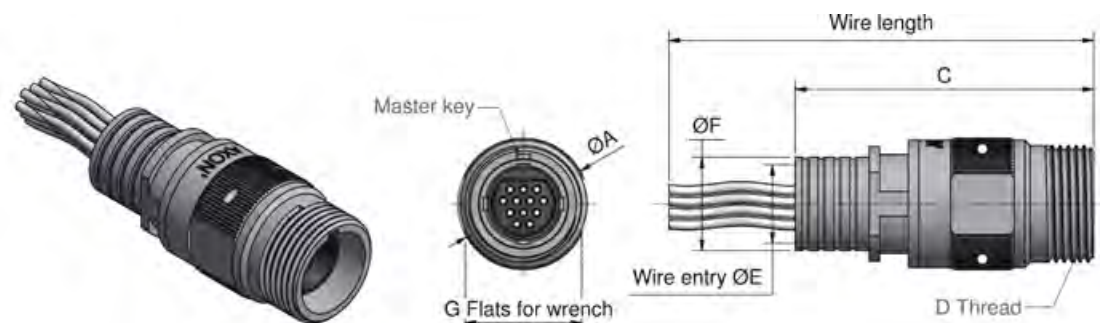
FOR RECOMMENDED TORQUE SEE PAGE 365
FOR MASTER KEY POSITIONS SEE PAGE 364
FOR REAR FUNNEL DIMENSIONS SEE PAGE 354

METRIC THREAD IN-LINE FEMALE PLUGS



In-line female plug, short funnel (for heat-shrinkable boots only)

MCATxxx-06Sxxxxxx01



In-line female plug, screen termination funnel

MCATxxx-06Sxxxxxx02

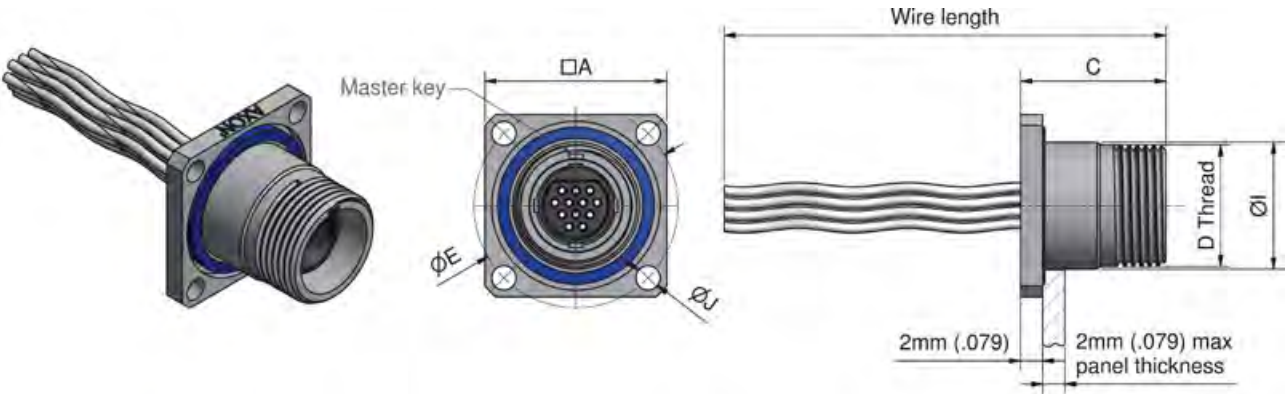
PIGTAIL
CONNECTORS

Circular
Micro-D connectors

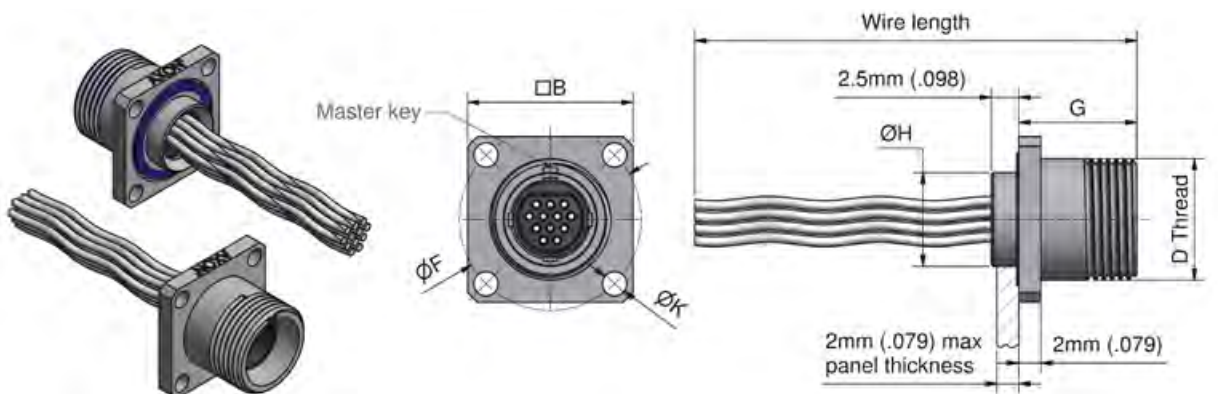
► TABLE OF DIMENSIONS - millimetres (inches)

NUMBER OF WAYS	Ø A (MAX)	B (MAX)	C (MAX)	D THREAD	WIRE ENTRY Ø E	SCREEN TERM, FUNNEL Ø F	G FLATS FOR LOW PROFILE WRENCH
5 OR 7	10 (.394)	21.4 (.843)	28.4 (1.118)	M9x0.5	5.8 (.228)	7.2 (.283)	9 (.354)
12 OR 15	12.5 (.492)	21.4 (.843)	28.4 (1.118)	M11x0.75	7.4 (.291)	8.8 (.346)	11 (.433)
19	15 (.591)	22.9 (.902)	29.9 (1.177)	M14x0.75	9.6 (.378)	12 (.472)	14 (.551)
37	17.5 (.689)	22.9 (.902)	29.9 (1.177)	M17x1	12 (.472)	14.4 (.567)	16 (0.63)

METRIC THREAD PANEL MOUNT SQUARE FLANGE FEMALE RECEPTACLES



Rear mount square flange female
MCATxxx-00Sxxxxxx



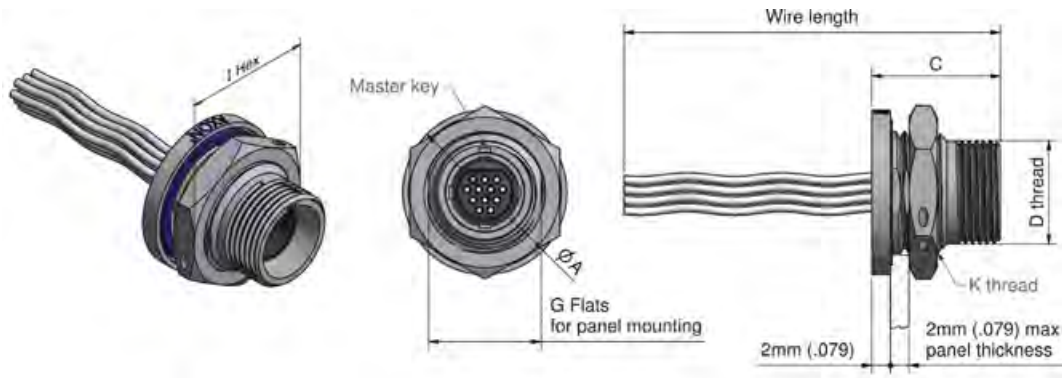
Front mount square flange female
MCATxxx-01Sxxxxxx

TABLE OF DIMENSIONS - millimetres (inches)

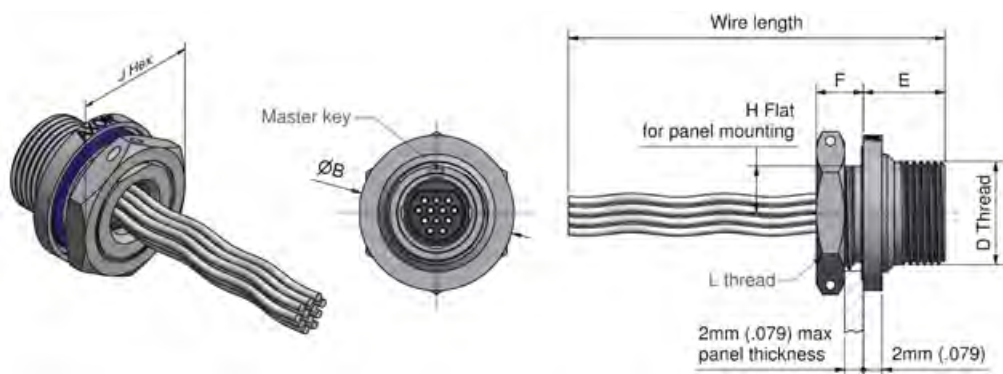
NUMBER OF WAYS	A (MAX)	B (MAX)	C (MAX)	D THREAD	Ø E BSC	Ø F BSC	G (MAX)	Ø H (MAX)	I (MAX)	Ø J +0.2 / -0 (+.008 / -.0)	Ø K +0.2 / -0 (+.008 / -.0)
5 OR 7	14.6 (.575)	14.6 (.575)	13.3 (.524)	M9X0.5	16 (.631)	16 (.631)	10.8 (.425)	8.6 (.339)	9.6 (.378)	2.2 (.087)	2.2 (.087)
12 OR 15	16.6 (.654)	15.1 (.594)	13.3 (.524)	M11X0.75	18.5 (.728)	16.5 (.65)	10.8 (.425)	8.6 (.339)	11.6 (.457)	2.2 (.087)	2.2 (.087)
19	20.1 (.791)	16.6 (.654)	14.8 (.583)	M14X0.75	22.5 (.886)	19 (.748)	12.3 (.484)	12.1 (.476)	15.1 (.594)	3.2 (.126)	2.2 (.087)
37	21.6 (.85)	21.1 (.831)	14.8 (.583)	M17X1	24.5 (.965)	24 (.945)	12.3 (.484)	15.1 (.595)	17.1 (.673)	3.2 (.126)	3.2 (.126)

SUPPLIED WITHOUT PANEL MOUNTING SCREWS
FOR PANEL MOUNTING GUIDE SEE PAGES 340 & 341
FOR MASTER KEY POSITIONS SEE PAGE 364
FOR PANEL CUT-OUT DIMENSIONS SEE PAGES 350 & 351

METRIC THREAD PANEL MOUNT JAM NUT FEMALE RECEPTACLES



Rear mount jam nut female
MCATxxx-07Sxxxxxx



Front mount jam nut female
MCATxxx-08Sxxxxxx

PIGTAIL
CONNECTORS

Circular
Micro-D connectors

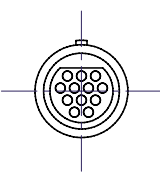
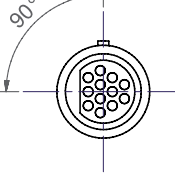
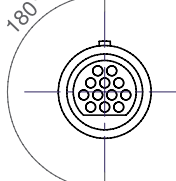
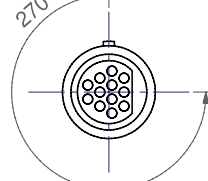
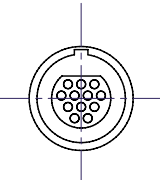
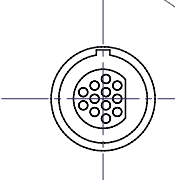
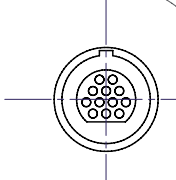
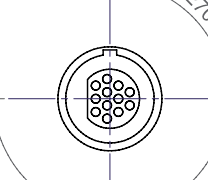
► TABLE OF DIMENSIONS - millimetres (inches)

NUMBER OF WAYS	Ø A (MAX)	Ø B (MAX)	C (MAX)	D THREAD	E (MAX)	F (MAX)	G BSC	H BSC	I HEX	J HEX	K THREAD	L THREAD
5 OR 7	16.6 (.654)	14.1 (.555)	13.8 (.543)	M9x0.5	8.8 (.346)	5.1 (.201)	11 (.433)	3.5 (.138)	15 (.591)	12 (.472)	M12x1	M9x0.75
12 OR 15	17.6 (.693)	16.6 (.654)	13.8 (.543)	M11x0.75	9.1 (.358)	5.1 (.201)	12 (.472)	5 (.197)	16 (.63)	15 (.591)	M13x1	M12x1
19	21.3 (.839)	17.6 (.693)	14.8 (.583)	M14x0.75	10.6 (.417)	5.6 (.22)	15 (.591)	5.75 (.226)	19 (.748)	16 (.63)	M16x1	M13x1
37	24.1 (.949)	21.3 (.839)	14.8 (.583)	M17x1	10.6 (.417)	5.6 (.22)	18 (.709)	7.25 (.285)	22 (.866)	19 (.75)	M19x1	M16x1

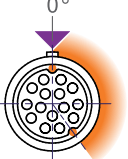
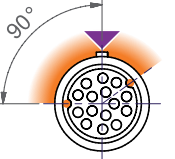
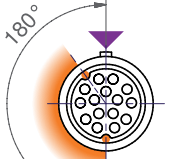
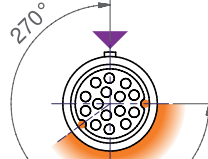
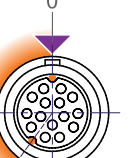
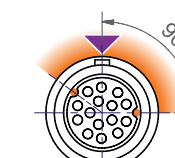
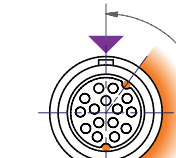
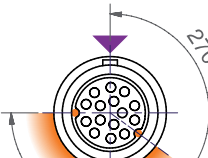
FOR PANEL MOUNTING GUIDE SEE PAGES 340 & 341
FOR MASTER KEY POSITIONS SEE PAGE 364
FOR PANEL CUT-OUT DIMENSIONS SEE PAGES 352 & 353

METRIC THREAD

► MASTER KEY POSITIONS (5, 7, 12, 19 & 37 way connectors)

KEY CODE	A	B	C	D
ORIENTATION	0°	90°	180°	270°
MALE KEYING (for in-line male plugs)				
FEMALE KEYING (for in-line female plugs & panel mount receptacles)				

► MASTER KEY POSITIONS (15 way connectors)

KEY CODE	A	B	C	D
ORIENTATION	0°	90°	180°	270°
MALE KEYING (for in-line male plugs)				
FEMALE KEYING (for in-line female plugs & panel mount receptacles)				

METRIC THREAD

► TABLE OF WEIGHTS (estimated) - grams (ounces)

METRIC THREAD (with insert)	IN-LINE MALE PLUG		IN-LINE FEMALE PLUG		PANEL MOUNT SQUARE FLANGE FEMALE RECEPTACLE		PANEL MOUNT JAM NUT FEMALE RECEPTACLE	
	SHORT FUNNEL	SCREEN TERMINATION FUNNEL	SHORT FUNNEL	SCREEN TERMINATION FUNNEL	REAR MOUNT	FRONT MOUNT	REAR MOUNT	FRONT MOUNT
5 OR 7	6.3 (.23)	6.8 (.24)	6.8 (.24)	7.7 (.27)	6.3 (.22)	6.3 (.22)	10.6 (.37)	6.5 (.23)
12 OR 15	9.3 (.33)	10 (.35)	10.7 (.38)	11.5 (.4)	8.7 (.31)	6.6 (.23)	12 (.42)	6.9 (.24)
19	13.2 (0.47)	15.5 (.55)	16.3 (.57)	18.9 (.67)	15 (.53)	10.7 (.38)	18.1 (.64)	12.6 (.45)
37	19 (.67)	21.6 (.76)	19.2 (.68)	22.8 (.8)	16.3 (.58)	14.6 (.52)	22.7 (.8)	16.9 (.6)

MAXIMUM WEIGHT OF THE CONNECTOR WITHOUT WIRES
FOR WIRE WEIGHTS SEE PAGE 345

► TORQUE

NUMBER OF CONTACTS	RECOMMENDED TORQUE
5	1.5 Nm
7	1.5 Nm
12	2 Nm
15	2 Nm
19	2 Nm
37	2 Nm

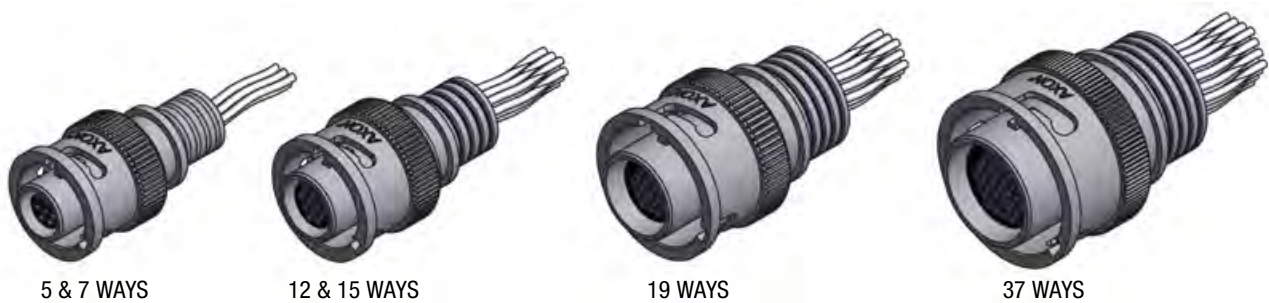
PIGTAIL
CONNECTORS

Circular
Micro-D connectors

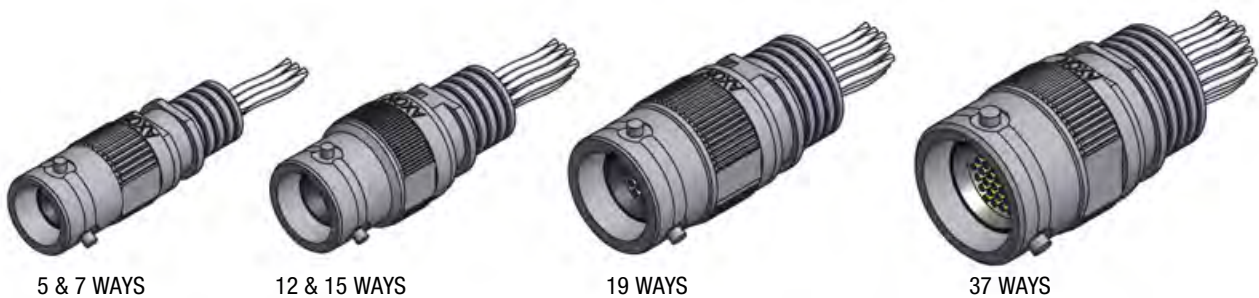
THREE LUG BAYONET CONNECTOR RANGE - MCA3B

The Three Lug Bayonet connectors are intended for use in applications which require quick coupling (connect / disconnect).

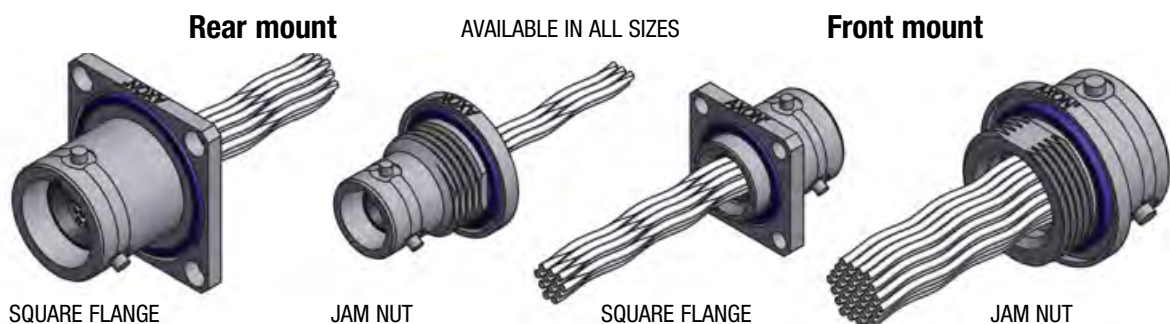
IN-LINE MALE PLUGS



IN-LINE FEMALE PLUGS



PANEL MOUNT JAM NUT & SQUARE FLANGE RECEPTACLES



IDENTIFICATION CODE

MCA
3B
V
07
-
06
P
4
L
050
A
02

SERIES

MCA: Micro-D Circular AXON'.

COUPLING SYSTEM

3B: Three lug bayonet.

SHELL TYPE

V: Nickel plated brass + epoxy resin 150°C.

W: Nickel plated brass + epoxy resin 200°C.

NUMBER OF CONTACTS 05, 07, 12, 15, 19, 37.

See pages 342 & 343 for contact arrangements.

CONNECTOR TYPE

00: Rear panel mount square flange receptacle (female only).

01: Front panel mount square flange receptacle (female only).

06: In-line plug (male or female).

07: Rear panel mount jam nut receptacle (female only).

08: Front panel mount jam nut receptacle (female only).

CONNECTOR GENDER

P: Male connector (pin contacts).

S: Female connector (socket contacts).

WIRE TYPE

1: E2607, AWG 26, 7 strands, 600 V.

4: E2619, AWG 26, 19 strands, 600 V.

6: E2807, AWG 28, 7 strands, 600 V.

8: E3007, AWG 30, 7 strands, 600 V.

E: M22759/33, AWG 26, 19 strands, 600 V.

Specific wires on request.

Uninsulated wires (for panel mount only)

For colour code V

3: M22759/11, AWG 26, 19 strands, 600 V.

F: E2607, AWG 26, 7 strands, 600 V.

G: AWG 25 Gold plated.

T: AWG 24 Tin plated.

See page 345 for wire types.

COLOUR CODE

L: All white.

F: All yellow.

BLANK: If wire type is **G** or **T**.

W: 10 colour repeated code.

V: MIL-STD-681 striped (only for wire types 3 and F).

See pages 346 & 347 for colour code.

WIRE LENGTH (in cm)

Caution! Wire length in centimetres - (1 cm = 10 mm = 0.394").

L	5 ≤ L ≤ 10	10 < L ≤ 100	L > 100
in cm (inches)	1.97 ≤ 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

MASTER KEY POSITION

A: 0°.

B: 90°.

C: 180°.

D: 270°.

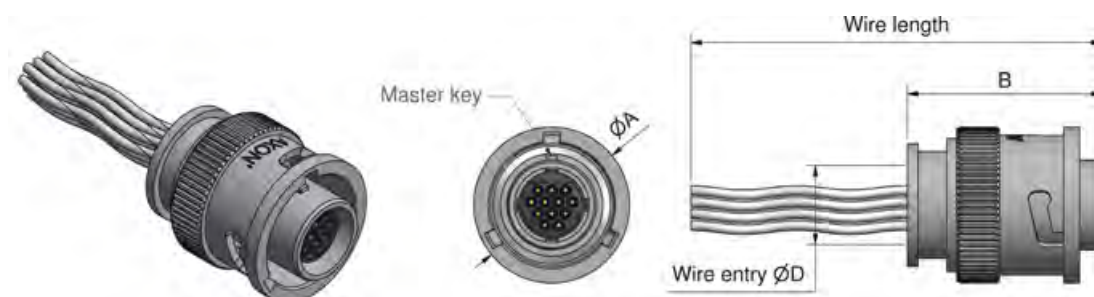
See page 372 for master key positions.

REAR FUNNEL (for In-line plugs only)

01: for heat-shrinkable boots only.

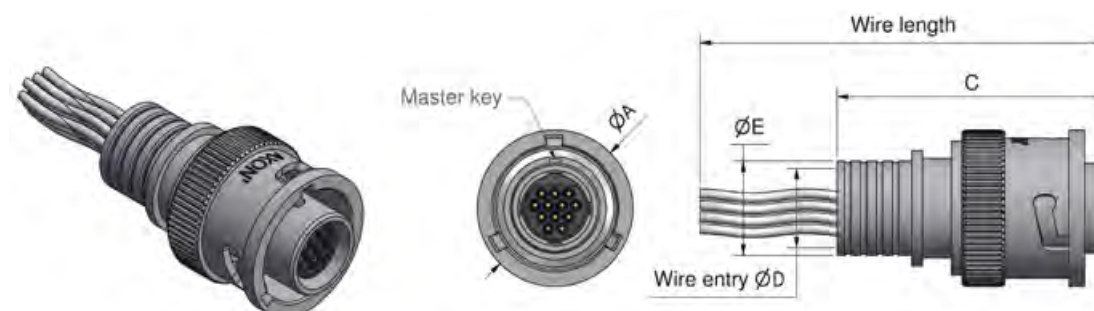
02: for 360° screen termination and heat-shrinkable boots.

THREE LUG BAYONET IN-LINE MALE PLUGS



In-line male plug, short funnel (for heat-shrinkable boots only)

MCA3Bxxx-06Pxxxxxx01



In-line male plug, screen termination funnel

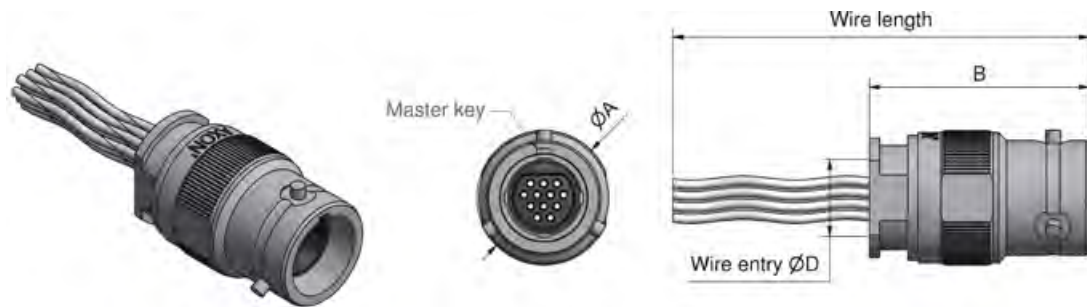
MCA3Bxxx-06Pxxxxxx02

TABLE OF DIMENSIONS - millimetres (inches)

NUMBER OF WAYS	Ø A (MAX)	B (MAX)	C (MAX)	WIRE ENTRY Ø D	SCREEN TERM. FUNNEL Ø E
5 OR 7	13.2 (.52)	18.5 (.728)	25.5 (1.003)	5.8 (.228)	7.2 (.283)
12 OR 15	14.7 (.579)	18.5 (.728)	25.5 (1.003)	7.4 (.291)	8.8 (.346)
19	17.7 (.695)	20.2 (.795)	27.2 (1.071)	9.6 (.378)	12 (.472)
37	20.7 (.815)	20.2 (.795)	27.2 (1.071)	12 (.472)	14.4 (.567)

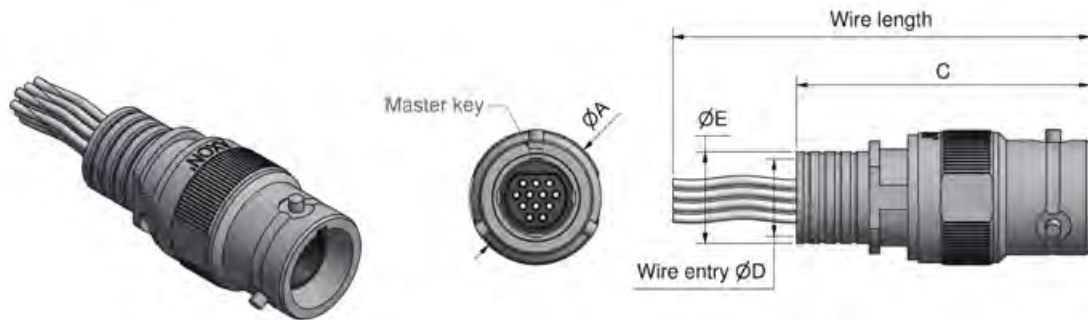
FOR MASTER KEY POSITIONS SEE PAGE 372
FOR REAR FUNNEL DIMENSIONS SEE PAGE 354

THREE LUG BAYONET IN-LINE FEMALE PLUGS



In-line female plug, short funnel (for heat-shrinkable boots only)

MCA3Bxxx-06Sxxxxxx01



In-line female plug, screen termination funnel

MCA3Bxxx-06Sxxxxxx02

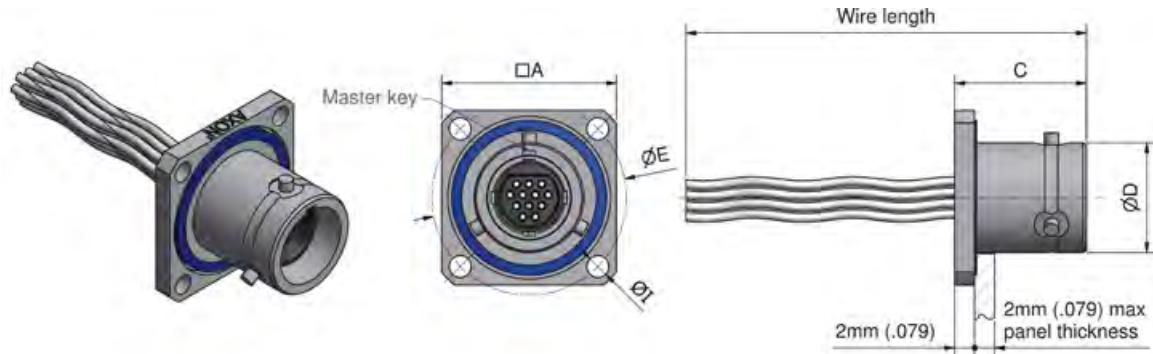
PIGTAIL
CONNECTORS

Circular
Micro-D connectors

► TABLE OF DIMENSIONS - millimetres (inches)

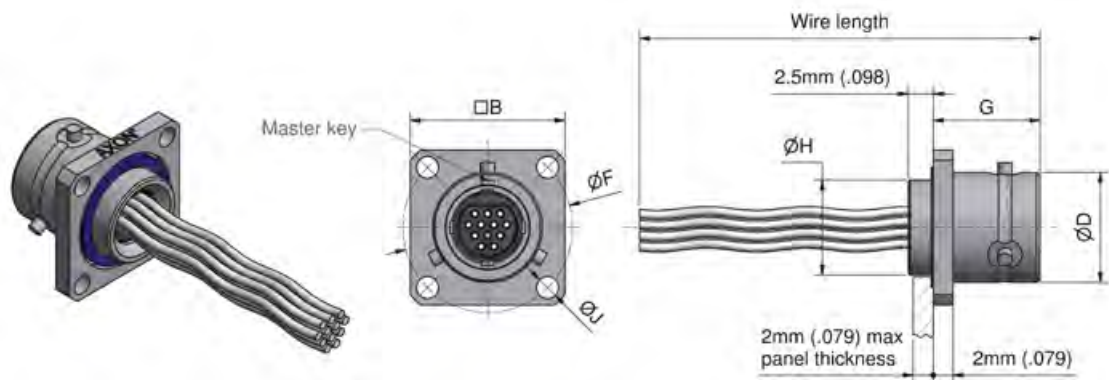
NUMBER OF WAYS	Ø A (MAX)	B (MAX)	C (MAX)	WIRE ENTRY Ø D	SCREEN TERM. FUNNEL Ø E
5 OR 7	10 (.394)	21.4 (.843)	28.4 (1.118)	5.8 (.229)	7.2 (.283)
12 OR 15	13 (.512)	21.4 (.843)	28.4 (1.118)	7.4 (.292)	8.8 (.346)
19	15 (.591)	22.9 (.902)	29.9 (1.177)	9.6 (.378)	12 (.472)
37	18 (.709)	22.9 (.902)	29.9 (1.177)	12 (.472)	14.4 (.567)

THREE LUG BAYONET PANEL MOUNT SQUARE FLANGE FEMALE RECEPTACLES



Rear mount square flange female

MCA3Bxxx-00Sxxxxxx



Front mount square flange female

MCA3Bxxx-01Sxxxxxx

TABLE OF DIMENSIONS - millimetres (inches)

NUMBER OF WAYS	□A (MAX)	□B (MAX)	C (MAX)	Ø D (MAX)	Ø E BSC	Ø F BSC	G (MAX)	Ø H (MAX)	Ø I +0.2 / -0 (+.008 / -.0)	Ø J +0.2 / -0 (+.008 / -.0)
5 OR 7	16.6 (.654)	14.6 (.575)	13.3 (.524)	9.6 (.378)	18.5 (.728)	16 (.631)	10.8 (.425)	9.6 (.378)	2.2 (.087)	2.2 (.087)
12 OR 15	17.6 (.693)	15.6 (.614)	13.3 (.524)	11.1 (.437)	19.5 (.768)	17 (.669)	10.8 (.425)	9.6 (.378)	2.2 (.087)	2.2 (.087)
19	21.6 (.85)	16.6 (.654)	14.8 (.583)	14.1 (.555)	24.5 (.965)	19 (.748)	12.3 (.484)	12.1 (.476)	3.2 (.127)	2.2 (.087)
37	24.1 (.949)	21.1 (.831)	14.8 (.583)	17.1 (.673)	27 (1.063)	24 (.945)	12.3 (.484)	15.1 (.594)	3.2 (.126)	3.2 (.126)

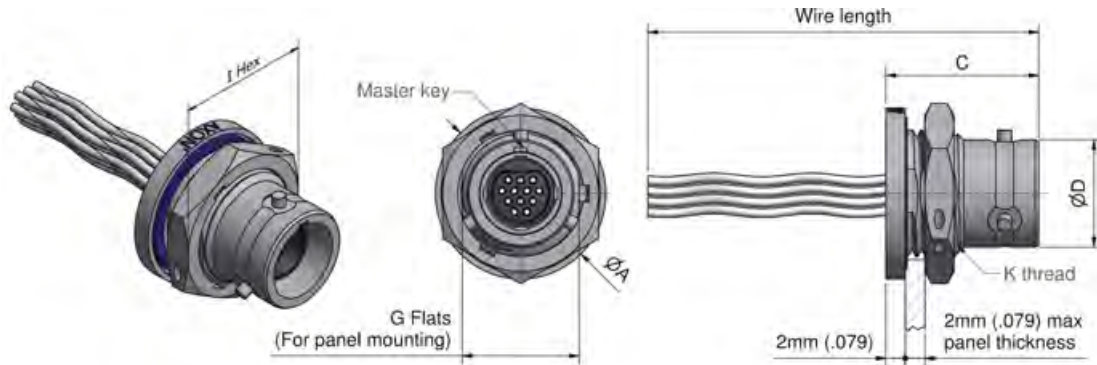
FOR PANEL MOUNTING GUIDE SEE PAGES 340 & 341

FOR MASTER KEY POSITIONS SEE PAGE 372

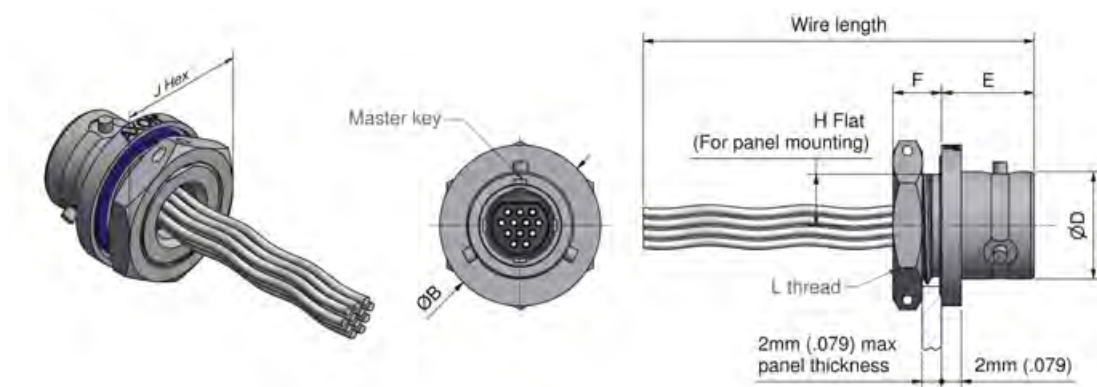
FOR PANEL CUT-OUT DIMENSIONS SEE PAGES 350 & 351

SUPPLIED WITHOUT PANEL MOUNTING SCREWS

THREE LUG BAYONET PANEL MOUNT JAM NUT FEMALE RECEPTACLES



Rear mount jam nut female
MCA3Bxxx-07Sxxxxxx



Front mount jam nut female
MCA3Bxxx-08Sxxxxxx

PIGTAIL
CONNECTORS

Circular
Micro-D connectors

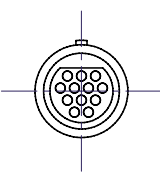
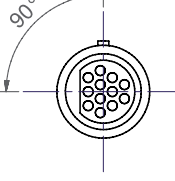
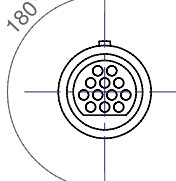
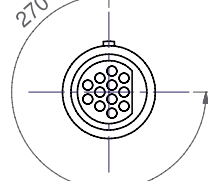
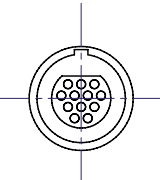
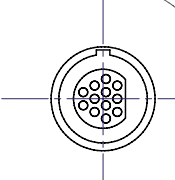
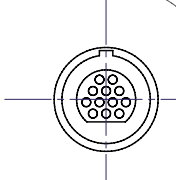
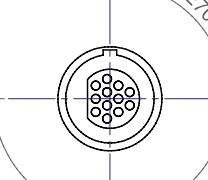
► TABLE OF DIMENSIONS - millimetres (inches)

NUMBER OF WAYS	Ø A (MAX)	Ø B (MAX)	C (MAX)	Ø D (MAX)	E (MAX)	F (MAX)	G BSC	H BSC	I HEX	J HEX	K THREAD	L THREAD
5 OR 7	16.6 (.654)	14.1 (.555)	15.8 (.622)	9.6 (.378)	9.6 (.378)	5.1 (.201)	11 (.433)	3.5 (.138)	15 (.591)	12 (.473)	M12x1	M9x0.75
12 OR 15	17.6 (.693)	16.6 (.654)	15.8 (.622)	11.1 (.437)	9.6 (.378)	5.1 (.201)	12 (.473)	5 (.197)	16 (.63)	15 (.591)	M13x1	M12x1
19	21.3 (.839)	17.6 (.693)	16.8 (.661)	14.1 (.555)	10.6 (.417)	5.6 (.22)	15 (.591)	5.75 (.226)	19 (.748)	16 (.63)	M16x1	M13x1
37	24.1 (.949)	21.3 (.839)	16.1 (.634)	17.1 (.673)	10.6 (.417)	5.6 (.22)	18 (.709)	7.25 (.285)	22 (.866)	19 (.75)	M19x1	M16x1

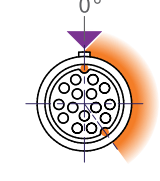
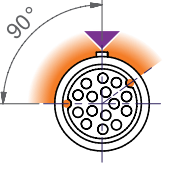
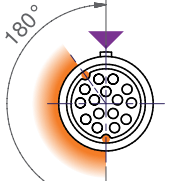
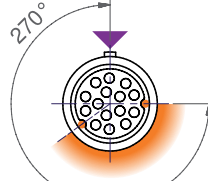
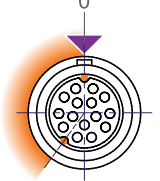
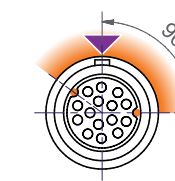
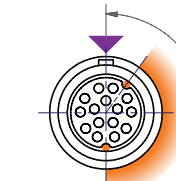
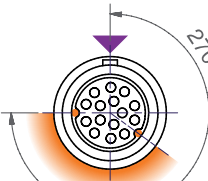
FOR PANEL MOUNTING GUIDE SEE PAGES 340 & 341
FOR MASTER KEY POSITIONS SEE PAGE 372
FOR PANEL CUT-OUT DIMENSIONS SEE PAGES 352 & 353

THREE LUG BAYONET

► MASTER KEY POSITIONS (5, 7, 12, 19 & 37 way connectors)

KEY CODE	A	B	C	D
ORIENTATION	0°	90°	180°	270°
MALE KEYING (for in-line male plugs)				
FEMALE KEYING (for in-line female plugs & panel mount receptacles)				

► MASTER KEY POSITIONS (15 way connectors)

KEY CODE	A	B	C	D
ORIENTATION	0°	90°	180°	270°
MALE KEYING (for in-line male plugs)				
FEMALE KEYING (for in-line female plugs & panel mount receptacles)				

THREE LUG BAYONET

► TABLE OF WEIGHTS (estimated) - grams (ounces)

THREE LUG BAYONET	IN-LINE MALE PLUG		IN-LINE FEMALE PLUG		PANEL MOUNT SQUARE FLANGE FEMALE RECEPTACLE		PANEL MOUNT JAM NUT FEMALE RECEPTACLE	
	SHORT FUNNEL	SCREEN TERMINATION FUNNEL	SHORT FUNNEL	SCREEN TERMINATION FUNNEL	REAR MOUNT	FRONT MOUNT	REAR MOUNT	FRONT MOUNT
5 OR 7	8.1 (.29)	8.6 (.30)	6.8 (.24)	7.6 (.27)	7.2 (.25)	6.2 (.22)	9.6 (.34)	6.8 (.24)
12 OR 15	9.9 (.35)	10.5 (.37)	10.5 (.37)	11.2 (.40)	8.4 (.30)	6.9 (.24)	12.3 (.43)	6.6 (.23)
19	14.0 (.49)	16.2 (.57)	15.1 (.53)	17.5 (.62)	13.8 (.47)	10.1 (.36)	18.5 (.65)	11.1 (.39)
37	18.0 (.64)	20.5 (.72)	19.0 (.67)	22.3 (.79)	17.4 (.61)	14.2 (.50)	22.5 (.79)	14.6 (.51)

MAXIMUM WEIGHT OF THE CONNECTOR WITHOUT WIRES
FOR WIRE WEIGHTS SEE PAGE 345

TRIPLE START (ANTI-DECOUPLING) CONNECTOR RANGE - MCAC

With its anti-decoupling system, the Triple Start Thread connector range is specially designed to withstand vibration.

IN-LINE MALE PLUGS



IN-LINE FEMALE PLUGS



PANEL MOUNT JAM NUT & SQUARE FLANGE RECEPTACLES

Rear mount

AVAILABLE IN ALL SIZES

Front mount



IDENTIFICATION CODE

MCA
C
V
07
-
06
P
4
L
050
A
02

SERIES

MCA: Micro-D Circular AXON'.

COUPLING SYSTEM

C: Triple start thread & anti-decoupling system.

MATERIAL & FINISH TYPE

V: Nickel plated brass + epoxy resin 150°C.

W: Nickel plated brass + epoxy resin 200°C.

NUMBER OF CONTACTS 05, 07, 12, 15, 19, 37.

See pages 342 & 343 for contact arrangements.

CONNECTOR TYPE

00: Rear panel mount square flange receptacle (female only).

01: Front panel mount square flange receptacle (female only).

06: In-line plug (male or female).

07: Rear panel mount jam nut receptacle (female only).

08: Front panel mount jam nut receptacle (female only).

CONNECTOR GENDER

P: Male connector (pin contacts).

S: Female connector (socket contacts).

WIRE TYPE

1: E2607, AWG 26, 7 strands, 600 V.

4: E2619, AWG 26, 19 strands, 600 V.

6: E2807, AWG 28, 7 strands, 600 V.

8: E3007, AWG 30, 7 strands, 600 V.

E: M22759/33, AWG 26, 19 strands, 600 V.

Specific wires on request.

Uninsulated wires (for panel mount only)

G: AWG 25 Gold plated.

T: AWG 24 Tin plated.

See page 345 for wire types.

For colour code V

3: M22759/11, AWG 26, 19 strands, 600 V.

F: E2607, AWG 26, 7 strands, 600 V.

COLOUR CODE

L: All white.

F: All yellow.

BLANK: If wire type is **G** or **T**.

W: 10 colour repeated code.

V: MIL-STD-681 striped (only for wire types 3 and F).

See pages 346 & 347 for colour code.

WIRE LENGTH (in cm)

Caution! Wire length in centimetres - (1 cm = 10 mm = 0.394").

L	5 ≤ L ≤ 10	10 < L ≤ 100	L > 100
in cm (inches)	1.97 ≤ 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

MASTER KEY POSITION

A: 0°.

B: 90°.

C: 180°.

D: 270°.

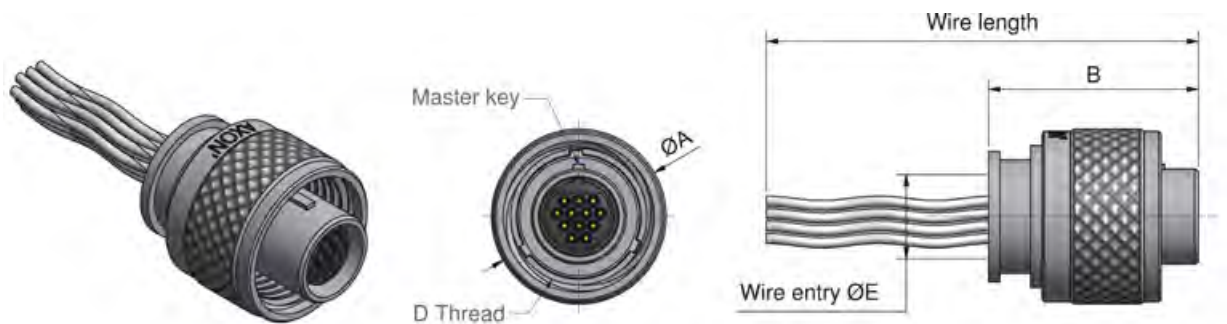
See page 380 for master key positions.

REAR FUNNEL (for In-line plugs only)

01: for heat-shrinkable boots only.

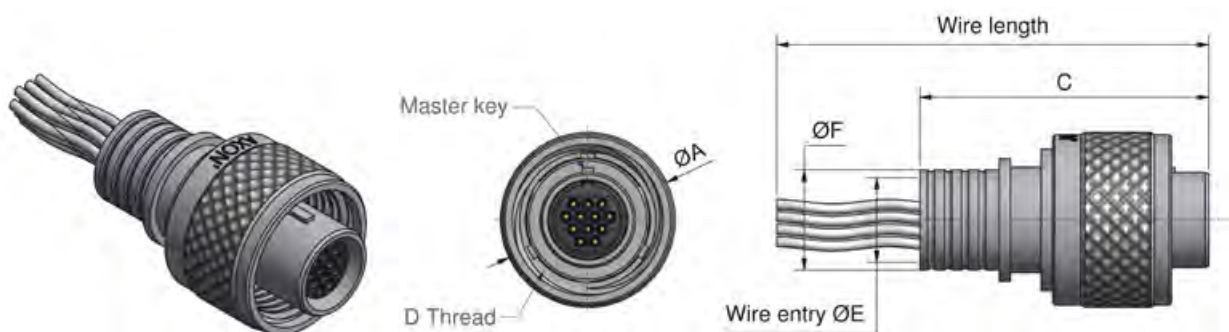
02: for 360° screen termination and heat-shrinkable boots.

TRIPLE START (ANTI-DECOUPLING) IN-LINE MALE PLUGS



In-line male plug, short funnel (for heat-shrinkable boots only)

MCACxxx-06Pxxxxxx01



In-line male plug, screen termination funnel

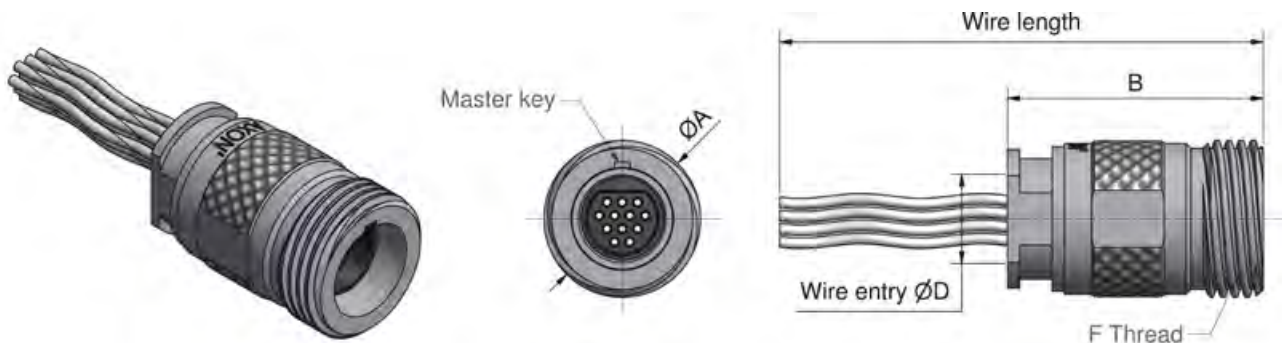
MCACxxx-06Pxxxxxx02

▶ TABLE OF DIMENSIONS - millimetres (inches)

NUMBER OF WAYS	Ø A (MAX)	B (MAX)	C (MAX)	D THREAD	WIRE ENTRY Ø E	SCREEN TERM. FUNNEL Ø F
5 OR 7	13.5 (.531)	18.7 (.736)	25.7 (1.012)	Tr11x3P1	5.8 (.228)	7.2 (.283)
12 OR 15	15.5 (.611)	18.7 (.736)	25.7 (1.012)	Tr13x3P1	7.4 (.291)	8.8 (.346)
19	17.5 (.689)	20.8 (.819)	27.8 (1.094)	Tr15x3P1	9.6 (.378)	12 (.472)
37	20.5 (.807)	20.8 (.819)	27.8 (1.094)	Tr18x3P1	12 (.472)	14.4 (.567)

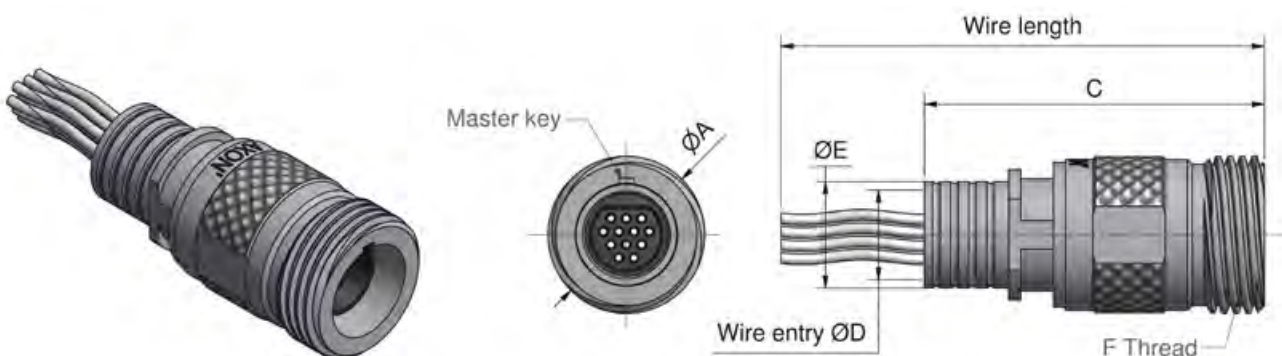
FOR MASTER KEY POSITIONS SEE PAGE 380
FOR REAR FUNNEL DIMENSIONS SEE PAGE 354

TRIPLE START (ANTI-DECOUPLING) IN-LINE FEMALE PLUGS



In-line female plug, short funnel (for heat-shrinkable boots only)

MCACxxx-06Sxxxxxx01



In-line female plug, screen termination funnel

MCACxxx-06Sxxxxxx02

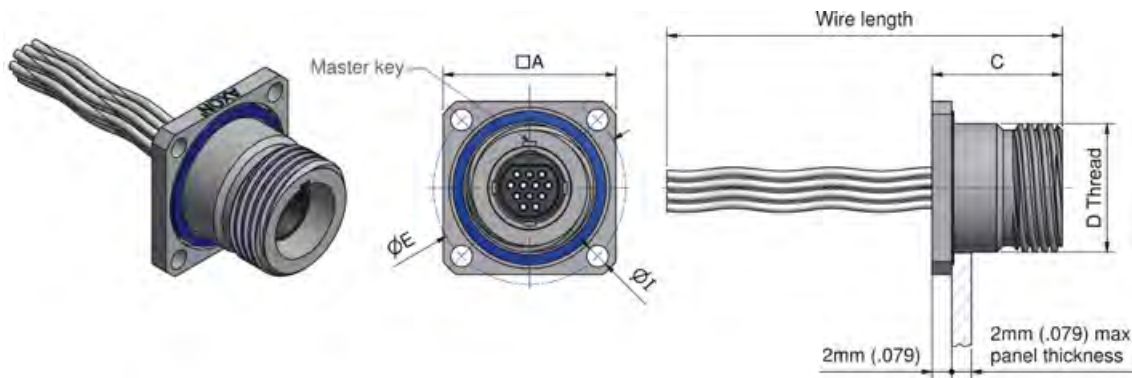
PIGTAIL
CONNECTORS

Circular
Micro-D connectors

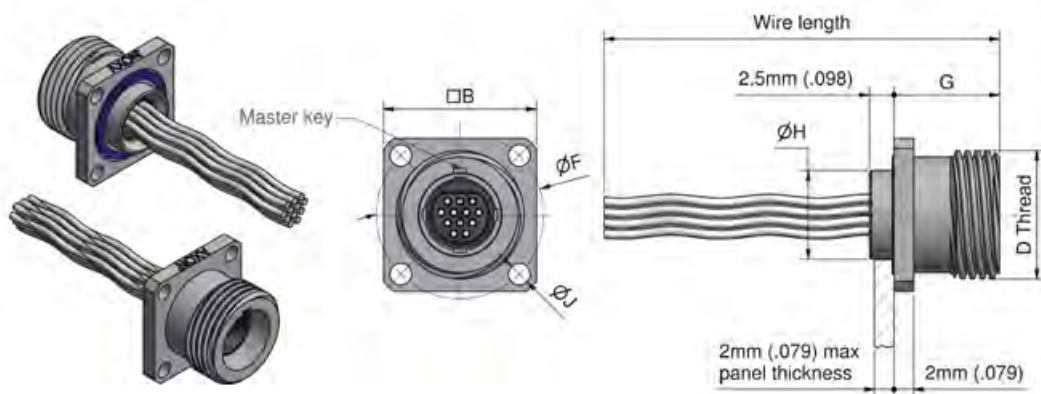
► TABLE OF DIMENSIONS - millimetres (inches)

NUMBER OF WAYS	Ø A (MAX)	B (MAX)	C (MAX)	WIRE ENTRY Ø D	SCREEN TERM. FUNNEL Ø E	F THREAD
5 OR 7	11 (.433)	21.4 (.843)	28.4 (1.118)	5.8 (.228)	7.2 (.283)	Tr11x3P1
12 OR 15	13 (.512)	21.4 (.843)	28.4 (1.118)	7.4 (.291)	8.8 (.346)	Tr13x3P1
19	15 (.591)	22.9 (.902)	29.9 (1.177)	9.6 (.378)	12 (.472)	Tr15x3P1
37	18 (.709)	22.9 (.902)	29.9 (1.177)	12 (.472)	14.4 (.567)	Tr18x3P1

TRIPLE START (ANTI-DECOUPLING) PANEL MOUNT SQUARE FLANGE FEMALE RECEPTACLES



Rear mount square flange female
MCACxxx-00Sxxxxxx



Front mount square flange female
MCACxxx-01Sxxxxxx

TABLE OF DIMENSIONS - millimetres (inches)

NUMBER OF WAYS	□ A (MAX)	□ B (MAX)	C (MAX)	D THREAD	Ø E BSC	Ø F BSC	G (MAX)	Ø H (MAX)	Ø I +0.2 / -0 (+.008 / -.0)	Ø J +0.2 / -0 (+.008 / -.0)
5 OR 7	16.6 (.654)	14.6 (.575)	13.3 (.524)	Tr11x3P1	18.5 (.728)	16 (.631)	10.8 (.425)	9.1 (.358)	2.2 (.087)	2.2 (.087)
12 OR 15	17.6 (.693)	15.6 (.614)	13.3 (.524)	Tr13x3P1	19.5 (.768)	17 (.669)	10.8 (.425)	9.1 (.358)	2.2 (.087)	2.2 (.087)
19	20.1 (.791)	16.6 (.654)	14.8 (.583)	Tr15x3P1	22.5 (.886)	19 (.748)	12.3 (.484)	12.1 (.476)	3.2 (.126)	2.2 (.087)
37	24.1 (.949)	21.1 (.831)	14.8 (.583)	Tr18x3P1	27 (1.063)	24 (.945)	12.3 (.484)	15.1 (.594)	3.2 (.126)	3.2 (.126)

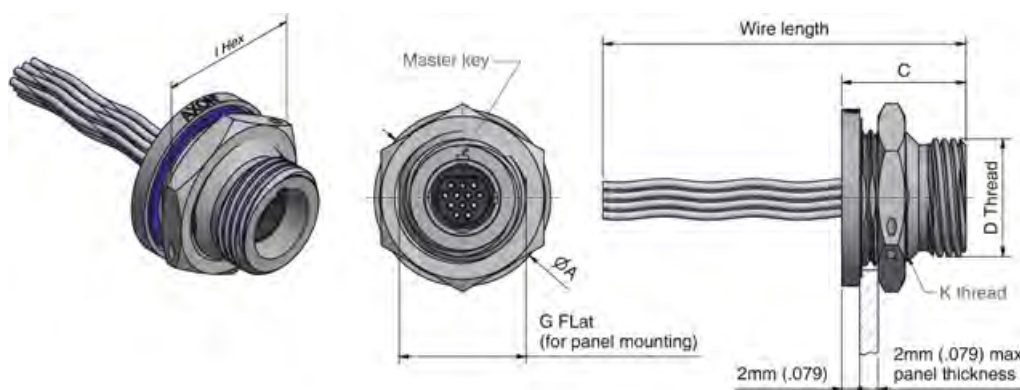
FOR PANEL MOUNTING GUIDE SEE PAGES 340 & 341

FOR MASTER KEY POSITIONS SEE PAGE 380

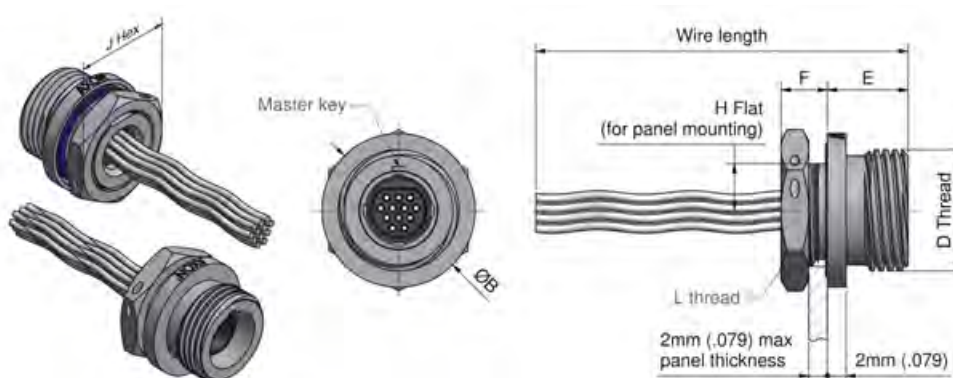
SUPPLIED WITHOUT PANEL MOUNTING SCREWS

FOR PANEL CUT-OUT DIMENSIONS SEE PAGES 350 & 351

TRIPLE START (ANTI-DECOUPLING) PANEL MOUNT JAM NUT FEMALE RECEPTACLES



Rear mount jam nut female
MCACxxx-07Sxxxxxx



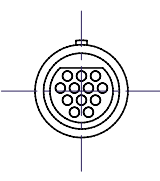
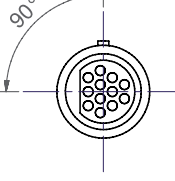
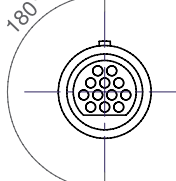
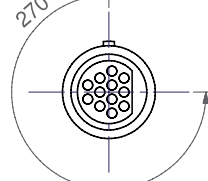
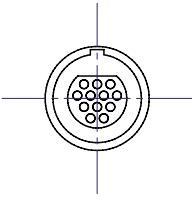
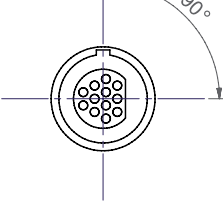
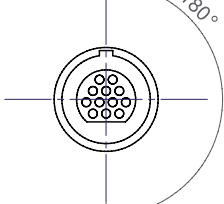
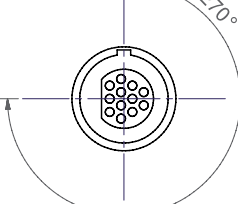
Front mount jam nut female
MCACxxx-08Sxxxxxx

► TABLE OF DIMENSIONS - millimetres (inches)

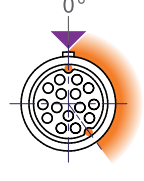
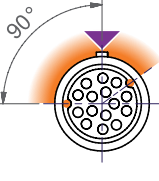
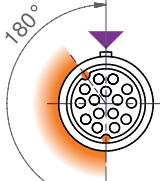
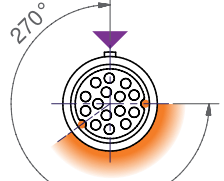
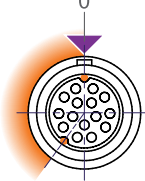
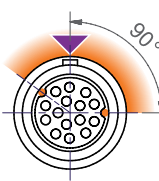
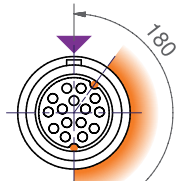
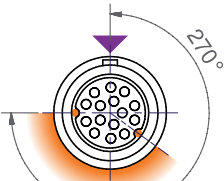
NUMBER OF WAYS	Ø A (MAX)	Ø B (MAX)	C (MAX)	D THREAD	E (MAX)	F (MAX)	G BSC	H BSC	I HEX	J HEX	K THREAD	L THREAD
5 OR 7	17.6 (.693)	14.1 (.555)	13.8 (.543)	Tr11x3P1	8.8 (.346)	5.1 (.201)	12 (.473)	3.5 (.138)	16 (.631)	12 (.473)	M13x1	M9x0.75
12 OR 15	19.6 (.772)	16.6 (.654)	13.8 (.543)	Tr13x3P1	9.1 (.358)	5.1 (.201)	14 (.551)	5 (.197)	18 (.709)	15 (.591)	M15x1	M12x1
19	21.6 (.85)	17.6 (.693)	14.8 (.583)	Tr15x3P1	10.6 (.417)	5.6 (.22)	16 (.631)	5.75 (.226)	20 (.787)	16 (.63)	M17x1	M13x1
37	24.6 (.969)	21.3 (.839)	14.8 (.583)	Tr18x3P1	10.6 (.417)	5.6 (.22)	19 (.748)	7.25 (.285)	23 (.906)	19 (.75)	M20x1	M16x1

TRIPLE START (ANTI-DECOUPLING)

► MASTER KEY POSITIONS (5, 7, 12, 19 & 37 way connectors)

KEY CODE	A	B	C	D
ORIENTATION	0°	90°	180°	270°
MALE KEYING (for in-line male plugs)				
FEMALE KEYING (for in-line female plugs & panel mount receptacles)				

► MASTER KEY POSITIONS (15 way connectors)

KEY CODE	A	B	C	D
ORIENTATION	0°	90°	180°	270°
MALE KEYING (for in-line male plugs)				
FEMALE KEYING (for in-line female plugs & panel mount receptacles)				

TRIPLE START (ANTI-DECOUPLING)

► TABLE OF WEIGHTS (estimated) - grams (ounces)

TRIPLE START	IN-LINE MALE PLUG		IN-LINE FEMALE PLUG		PANEL MOUNT SQUARE FLANGE FEMALE RECEPTACLE		PANEL MOUNT JAM NUT FEMALE RECEPTACLE	
	SHORT FUNNEL	SCREEN TERMINATION FUNNEL	SHORT FUNNEL	SCREEN TERMINATION FUNNEL	REAR MOUNT	FRONT MOUNT	REAR MOUNT	FRONT MOUNT
5 OR 7	9.0 (.32)	9.5 (.34)	8.1 (.29)	8.9 (.32)	8.7 (.30)	6.7 (.24)	12.3 (.43)	6.9 (.24)
12 OR 15	11.2 (.39)	11.8 (.42)	12.2 (.43)	12.9 (.45)	11.0 (.39)	8.1 (.29)	15.7 (.55)	7.6 (.27)
19	15.3 (.54)	17.48 (.62)	15.7 (.56)	18.0 (.64)	14.2 (.5)	10.1 (.36)	18.4 (.65)	11.1 (.39)
37	19.8 (.70)	22.23 (.70)	19.5 (.69)	22.8 (.80)	19.0 (.67)	14.3 (.51)	23.4 (.82)	14.8 (.52)

MAXIMUM WEIGHT OF THE CONNECTOR WITHOUT WIRES
FOR WIRE WEIGHTS SEE PAGE 345

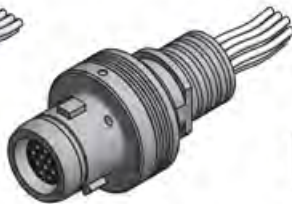
BREAKAWAY CONNECTOR RANGE - MCABK

Breakaway connectors are connectors with a spring to secure the connection. Easy to handle, they are lightweight and small.

IN-LINE MALE PLUGS



5 & 7 WAYS



12 & 15 WAYS



19 WAYS



37 WAYS

IN-LINE FEMALE PLUGS



5 & 7 WAYS



12 & 15 WAYS



19 WAYS



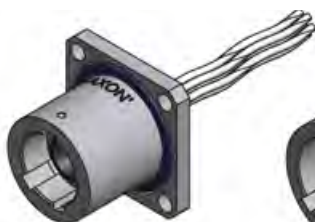
37 WAYS

PANEL MOUNT JAM NUT & SQUARE FLANGE RECEPTACLES

Rear mount

AVAILABLE IN ALL SIZES

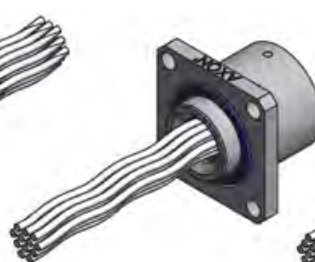
Front mount



SQUARE FLANGE



JAM NUT



SQUARE FLANGE



JAM NUT

IDENTIFICATION CODE

MCA
BK
L
07
-
06
P
4
L
050
A
02

SERIES

MCA: Micro-D Circular AXON'.

COUPLING SYSTEM

BK: Breakaway.

MATERIAL & FINISH TYPE

L: Nickel plated aluminium + epoxy resin 150°C.

M: Nickel plated aluminium + epoxy resin 200°C.

NUMBER OF CONTACTS 05, 07, 12, 15, 19, 37.

See pages 342 & 343 for contact arrangements.

CONNECTOR TYPE

00: Rear panel mount square flange receptacle (female only).

01: Front panel mount square flange receptacle (female only).

06: In-line plug (male or female).

07: Rear panel mount jam nut receptacle (female only).

08: Front panel mount jam nut receptacle (female only).

CONNECTOR GENDER

P: Male connector (pin contacts).

S: Female connector (socket contacts).

WIRE TYPE

1: E2607, AWG 26, 7 strands, 600 V.

4: E2619, AWG 26, 19 strands, 600 V.

6: E2807, AWG 28, 7 strands, 600 V.

8: E3007, AWG 30, 7 strands, 600 V.

E: M22759/33, AWG 26, 19 strands, 600 V.

Specific wires on request.

Uninsulated wires (for panel mount only)

G: AWG 25 Gold plated.

T: AWG 24 Tin plated.

See page 345 for wire types.

For colour code V

3: M22759/11, AWG 26, 19 strands, 600 V.

F: E2607, AWG 26, 7 strands, 600 V.

COLOUR CODE

L: All white.

F: All yellow.

BLANK: If wire type is **G** or **T**.

W: 10 colour repeated code.

V: MIL-STD-681 striped (only for wire types 3 and F).

See pages 346 & 347 for colour code.

WIRE LENGTH (in cm)

Caution! Wire length in centimetres - (1 cm = 10 mm = 0.394").

L	5 ≤ L ≤ 10	10 < L ≤ 100	L > 100
in cm (inches)	1.97 ≤ 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

MASTER KEY POSITION

A: 0°.

B: 90°.

C: 180°.

D: 270°.

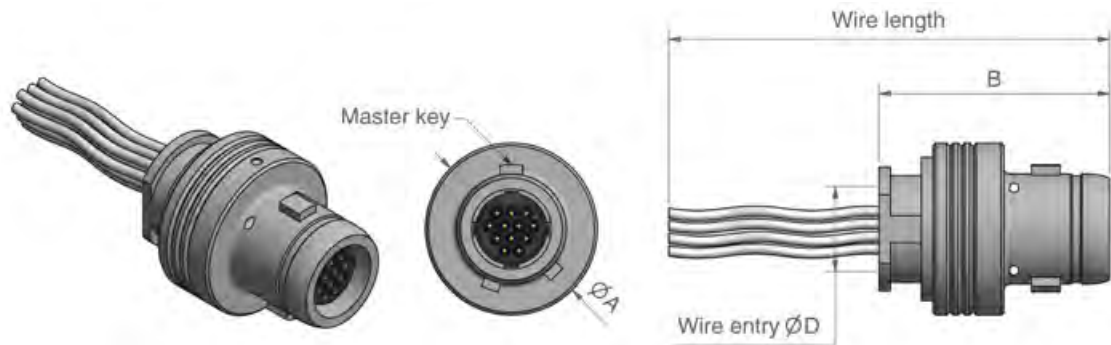
See page 388 for master key positions.

REAR FUNNEL (for In-line plugs only)

01: for heat-shrinkable boots only.

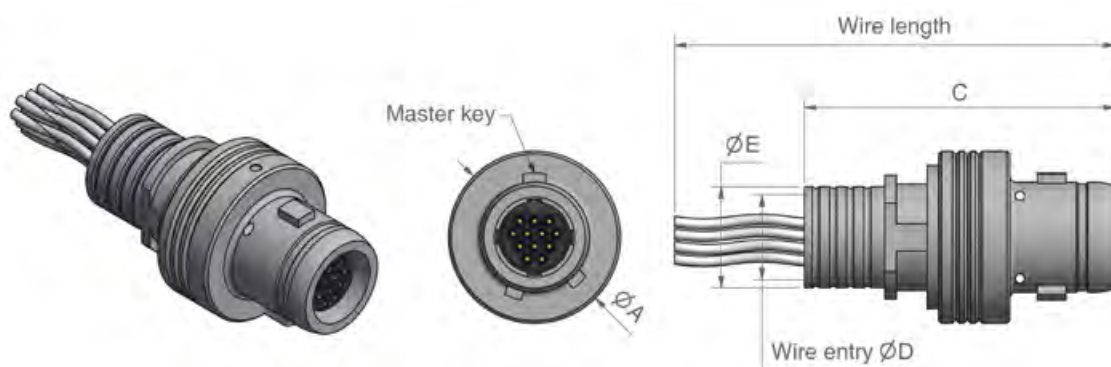
02: for 360° screen termination and heat-shrinkable boots.

BREAKAWAY IN-LINE MALE PLUGS



In-line male plug, short funnel (for heat-shrinkable boots only)

MCABKxxx-06Pxxxxxx01



In-line male plug, screen termination funnel

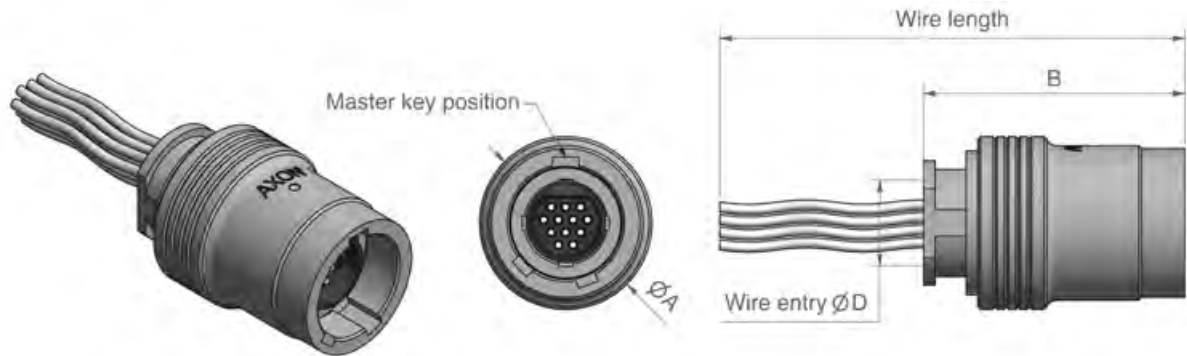
MCABKxxx-06Pxxxxxx02

TABLE OF DIMENSIONS - millimetres (inches)

NUMBER OF WAYS	Ø A (MAX)	B (MAX)	C (MAX)	WIRE ENTRY Ø D	SCREEN TERM. FUNNEL Ø E
5 OR 7	15.1 (.594)	20.3 (.799)	27.3 (1.074)	5.8 (.228)	7.2 (.283)
12 OR 15	15.1 (.594)	20.3 (.799)	27.3 (1.074)	7.4 (.291)	8.8 (.346)
19	17.4 (.685)	22 (.866)	29 (1.142)	9.6 (.378)	12 (.472)
37	20.1 (.791)	22 (.866)	29 (1.142)	12 (.472)	14.4 (.567)

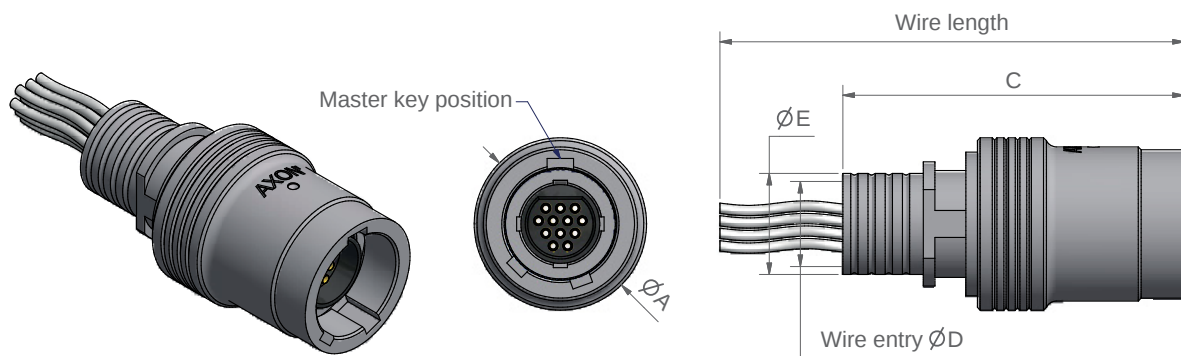
FOR MASTER KEY POSITIONS SEE PAGE 388
FOR REAR FUNNEL DIMENSIONS SEE PAGE 354

BREAKAWAY IN-LINE FEMALE PLUGS



In-line female plug, short funnel (for heat-shrinkable boots only)

MCABKxxx-06Sxxxxxx01



In-line female plug, screen termination funnel

MCABKxxx-06Sxxxxxx02

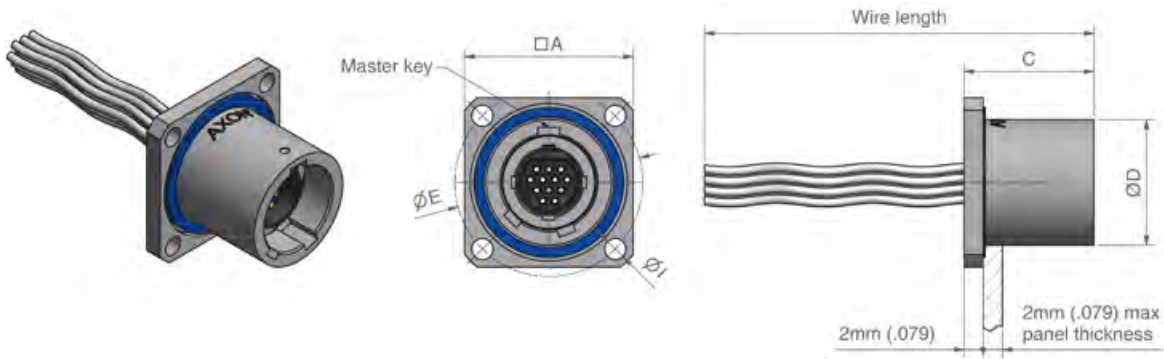
PIGTAIL
CONNECTORS

Circular
Micro-D connectors

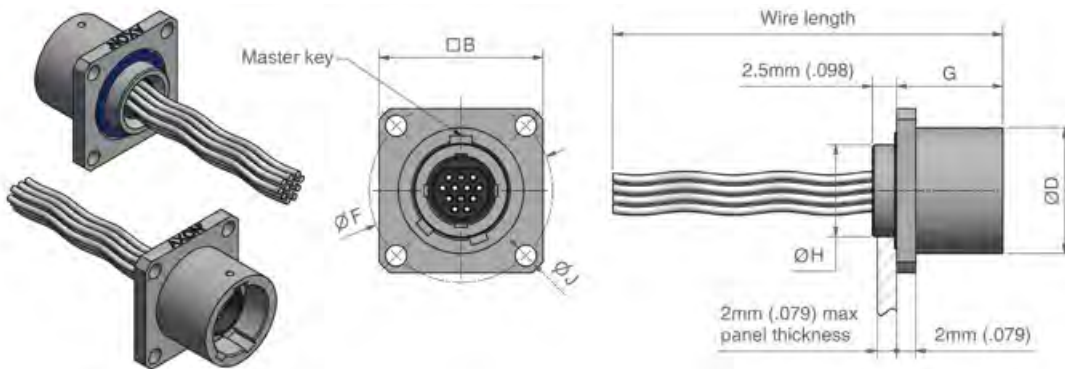
► TABLE OF DIMENSIONS - millimetres (inches)

NUMBER OF WAYS	Ø A (MAX)	B (MAX)	C (MAX)	WIRE ENTRY Ø D	SCREEN TERM. FUNNEL Ø E
5 OR 7	15.1 (.594)	22.9 (.902)	29.9 (1.177)	5.8 (.228)	7.2 (.283)
12 OR 15	15.1 (.594)	22.9 (.902)	29.9 (1.177)	7.4 (.291)	8.8 (.346)
19	17.4 (.685)	24.4 (.961)	31.4 (1.236)	9.6 (.378)	12 (.472)
37	20.1 (.791)	24.4 (.961)	31.4 (1.236)	12 (.472)	14.4 (.567)

PANEL MOUNT SQUARE FLANGE FEMALE BREAKAWAY RECEPTACLES



Rear mount square flange female
MCABKxxx-00Sxxxxxx



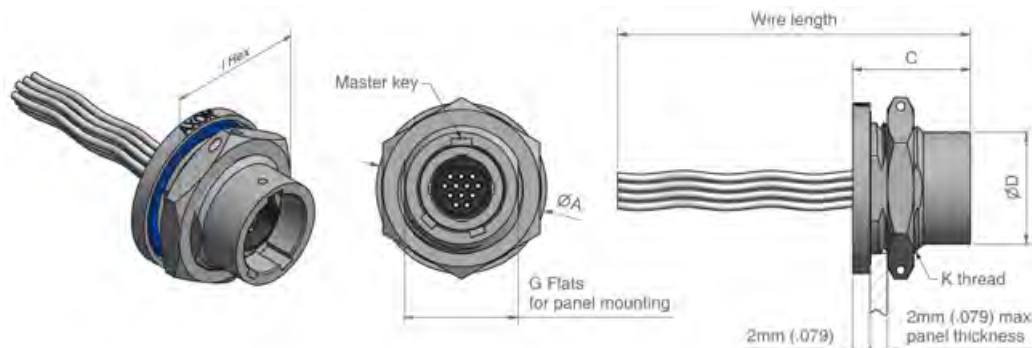
Front mount square flange female
MCABKxxx-01Sxxxxxx

TABLE OF DIMENSIONS - millimetres (inches)

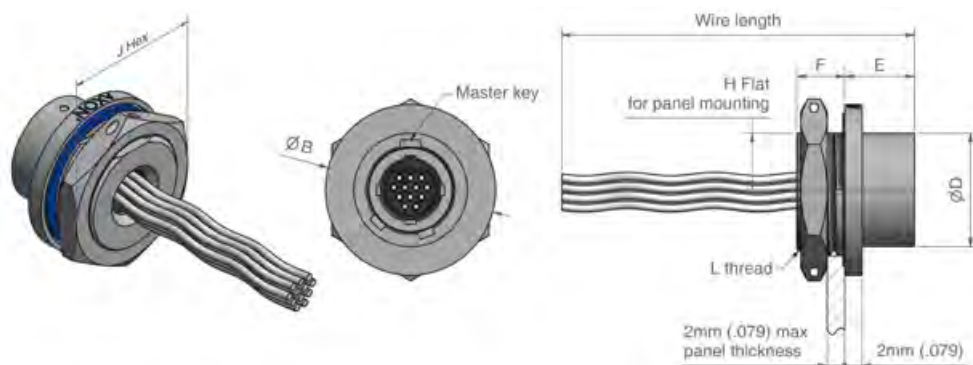
NUMBER OF WAYS	A (MAX)	B (MAX)	C (MAX)	D (MAX)	E BSC	F BSC	G (MAX)	H (MAX)	I +0.2 / -0 (+.008 / -.0)	J +0.2 / -0 (+.008 / -.0)
5 OR 7	17.6 (.693)	17.1 (.673)	13.7 (.539)	13.1 (.515)	19.5 (.768)	19 (.748)	11.2 (.441)	9.6 (.378)	2.2 (.087)	2.2 (.087)
12 OR 15	17.6 (.693)	17.1 (.673)	13.7 (.539)	13.1 (.515)	19.5 (.768)	19 (.748)	11.2 (.441)	9.6 (.378)	2.2 (.087)	2.2 (.087)
19	22.1 (.87)	21.1 (.831)	15.2 (.598)	15.8 (.622)	24.5 (.965)	23 (.906)	12.7 (.5)	13.1 (.516)	3.2 (.126)	3.2 (.126)
37	24.1 (.949)	23.1 (.909)	15.2 (.598)	18.5 (.728)	27.5 (1.083)	26 (1.024)	12.7 (.5)	15.1 (.594)	3.2 (.126)	3.2 (.126)

FOR PANEL MOUNTING GUIDE SEE PAGES 340 & 341
FOR MASTER KEY POSITIONS SEE PAGE 388
SUPPLIED WITHOUT PANEL MOUNTING SCREWS
FOR PANEL CUT-OUT DIMENSIONS SEE PAGES 350 & 351

PANEL MOUNT JAM NUT FEMALE BREAKAWAY RECEPTACLES



Rear mount jam nut female
MCABKxxx-07Sxxxxxx



Front mount jam nut female
MCABKxxx-08Sxxxxxx

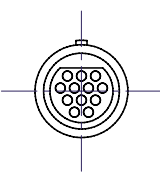
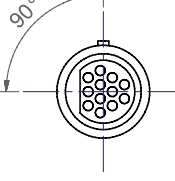
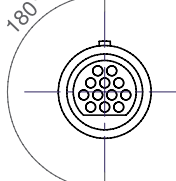
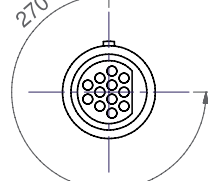
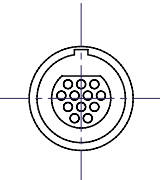
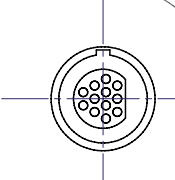
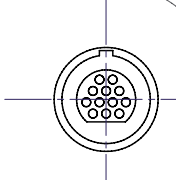
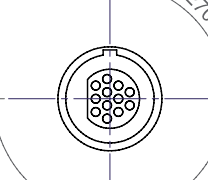
PIGTAIL
CONNECTORS

► TABLE OF DIMENSIONS - millimetres (inches)

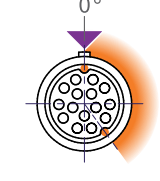
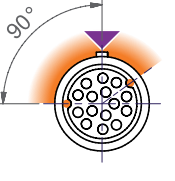
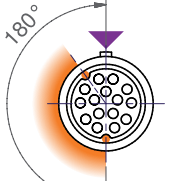
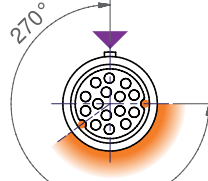
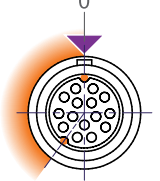
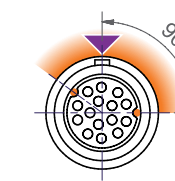
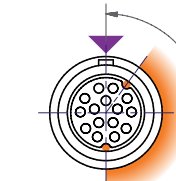
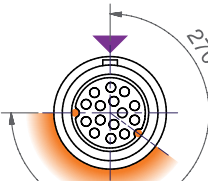
NUMBER OF WAYS	Ø A (MAX)	Ø B (MAX)	C (MAX)	Ø D (MAX)	E (MAX)	F (MAX)	G BSC	H BSC	I HEX	J HEX	K THREAD	L THREAD
5 OR 7	19.6 (.772)	17.6 (.693)	13.7 (.539)	13.1 (.516)	8.1 (.319)	5.6 (.22)	13 (.512)	5.5 (.217)	18 (.709)	16 (.63)	M14x0.75	M13x1
12 OR 15	19.6 (.772)	19.6 (.772)	13.7 (.539)	13.1 (.516)	8.1 (.319)	5.6 (.22)	13 (.512)	6.5 (.256)	18 (.709)	18 (.709)	M14x0.75	M15x1
19	22.3 (.878)	21.6 (.85)	15.2 (.598)	15.8 (.622)	9.6 (.378)	5.6 (.22)	16 (.63)	7 (.276)	22 (.866)	20 (.787)	M18x1	M17x1
37	24.6 (.969)	24.1 (.949)	15.2 (.598)	18.5 (.728)	9.6 (.378)	5.6 (.22)	19 (.748)	8.5 (.335)	23 (.906)	22 (.866)	M20x1	M19x1

Circular
Micro-D connectors

► **MASTER KEY POSITIONS (5, 7, 12, 19 & 37 way connectors)**

KEY CODE	A	B	C	D
ORIENTATION	0°	90°	180°	270°
MALE KEYING (for in-line male plugs)				
FEMALE KEYING (for in-line female plugs & panel mount receptacles)				

► **MASTER KEY POSITIONS (15 way connectors)**

KEY CODE	A	B	C	D
ORIENTATION	0°	90°	180°	270°
MALE KEYING (for in-line male plugs)				
FEMALE KEYING (for in-line female plugs & panel mount receptacles)				

BREAKAWAY

► TABLE OF WEIGHTS (estimated) - grams (ounces)

BREAKAWAY	IN-LINE MALE PLUG		IN-LINE FEMALE PLUG		PANEL MOUNT SQUARE FLANGE FEMALE RECEPTACLE		PANEL MOUNT JAM NUT FEMALE RECEPTACLE	
	SHORT FUNNEL	SCREEN TERMINATION FUNNEL	SHORT FUNNEL	SCREEN TERMINATION FUNNEL	REAR MOUNT	FRONT MOUNT	REAR MOUNT	FRONT MOUNT
5 OR 7	4.8 (.17)	5.2 (.19)	6.9 (.25)	7.3 (.26)	4.8 (.17)	4.3 (.16)	6.4 (.23)	5.2 (.19)
12 OR 15	5.0 (.18)	5.3 (.19)	6.2 (.22)	6.5 (.23)	4.2 (.15)	3.7 (.13)	5.6 (.20)	5.6 (.20)
19	6.8 (.24)	7.7 (.27)	8.4 (.30)	9.2 (.32)	6.5 (.23)	5.7 (.21)	8.3 (.30)	7.2 (.25)
37	8.8 (.31)	9.8 (.35)	10.5 (.37)	11.6 (.41)	7.9 (.28)	6.9 (.25)	9.2 (.32)	8.5 (.30)

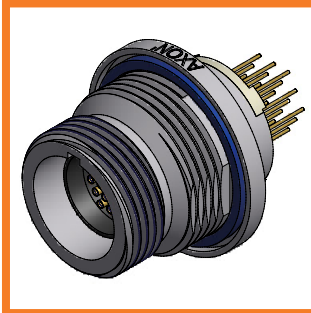
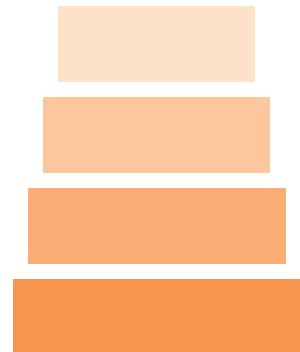
MAXIMUM WEIGHT OF THE CONNECTOR WITHOUT WIRES
FOR WIRE WEIGHTS SEE PAGE 345

PIGTAIL
CONNECTORS

Circular
Micro-D connectors

METAL PCB MICRO-D CIRCULAR CONNECTORS

PCB circular connector range	392
● Identification code	
(Metric Thread, Three Lug Bayonet & Triple Start)	393
<i>Metric Thread PCB connectors dimensions</i>	394
<i>Tree Lug Bayonet PCB connectors dimensions</i>	396
<i>Triple Start PCB connectors dimensions</i>	398
<i>Master Key positions</i>	400
● Identification code (Breakaway)	401
<i>Breakaway PCB connectors dimensions</i>	402
<i>Master Key positions</i>	404
● Tables of weights	405
● 0.050" pitch PCB layouts	406
● 0.075" pitch PCB layouts	408
● 15 way connectors PCB layout	410



PCB
CONNECTORS

Circular
Micro-D connectors

PCB CONNECTOR RANGE

In addition to the standard range of circular Micro-D connectors, AXON' offers PCB connectors designed for our 4 types of connector: Metric Thread, Three Lug Bayonet, Triple Start (anti-decoupling) and Breakaway. They are available in 2 layouts: 0.050" & 0.075" pitch.

AXON' Micro-D Printed Circuit Board connectors are designed for interconnection of printed circuit boards inside-the-box to external cables through panels. The gender of a PCB connector is female. On request, EMI optimized versions and ground-pins can be offered.

Printed Circuit Board connectors are available in rear mount version only.

LAYOUT PITCH OPTIONS



PCB layout, 0.050" (1.27 mm) pitch.



PCB layout, 0.075" (1.905 mm) pitch.

EXAMPLES

19 way
metric thread connector
rear mount jam nut panel
0.075" pitch
MCATV19-12S75SG3A



12 way
bayonet connector
rear mount square flange panel
0.075" pitch
MCA3BV12-10S75SG3A



15 way
breakaway connector
rear mount jam nut panel
0.075" pitch
MCABKL15-12S75SG3A



19 way
triple start connector
rear mount jam nut panel
0.075" pitch
MCACV19-12S75SG3A



IDENTIFICATION CODE

METRIC THREAD (MCAT), THREE LUG BAYONET (MCA3B)
& TRIPLE START THREAD (MCAC)

MCA
T
V
07
-
10
S
75S
G
3
A

SERIES

MCA: Micro-D Circular AXON'.

COUPLING SYSTEM

T: Metric thread.
3B: Three lug bayonet.
C: Triple start thread & anti-decoupling system.

MATERIAL & FINISH TYPE

V: Nickel plated brass + epoxy resin 150°C.
W: Nickel plated brass + epoxy resin 200°C.

NUMBER OF CONTACTS 05, 07, 12, 15, 19, 37.

See page 343 for contact arrangements.

CONNECTOR TYPE

10: Rear panel mount square flange receptacle, PCB version.
12: Rear panel mount jam nut receptacle, PCB version.

CONNECTOR GENDER

S: Female connector (socket contacts).

PCB VERSION

50S: 0.050" pitch board, straight.
75S: 0.075" pitch board, straight.

CONDUCTOR TYPE

G: Gold plated solid conductor AWG25.
T: Tin plated solid conductor AWG24.
See page 345 for conductor type.

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

MASTER KEY POSITION

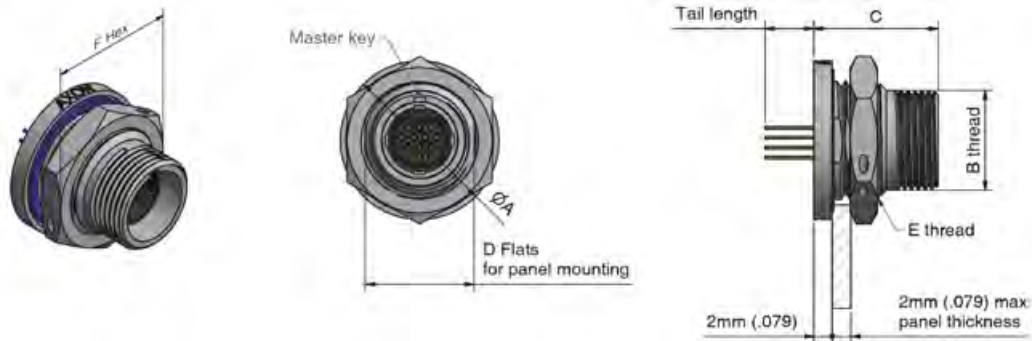
A: 0°. **B:** 90°. **C:** 180°. **D:** 270°. *See page 400 for master key positions.*

ADDITIONAL GROUND PINS AVAILABLE ON REQUEST

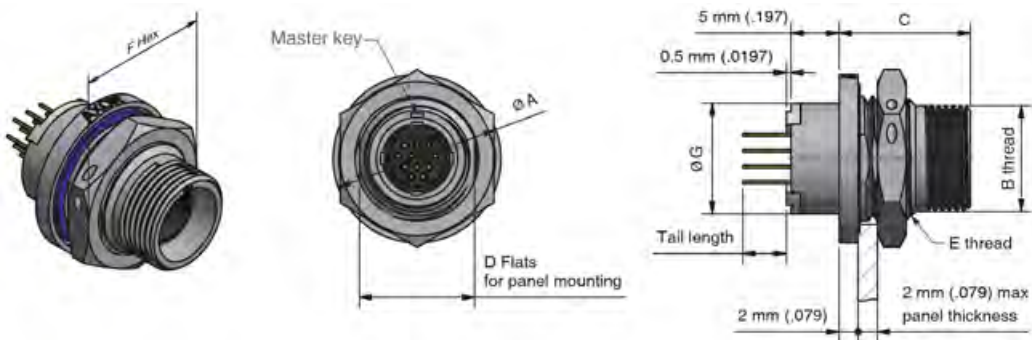
FOR PANEL MOUNTING GUIDE SEE PAGES 340 & 341
FOR PANEL CUT-OUT DIMENSIONS SEE PAGES 350 & 352

PANEL MOUNT SQUARE FLANGE CONNECTORS ARE SUPPLIED WITHOUT PANEL MOUNTING SCREWS

METRIC THREAD PCB CONNECTORS



Rear mount jam nut female PCB 0.050" pitch
MCATxxx-12S50Sxxx



Rear mount jam nut female PCB 0.075" pitch
MCATxxx-12S75Sxxx

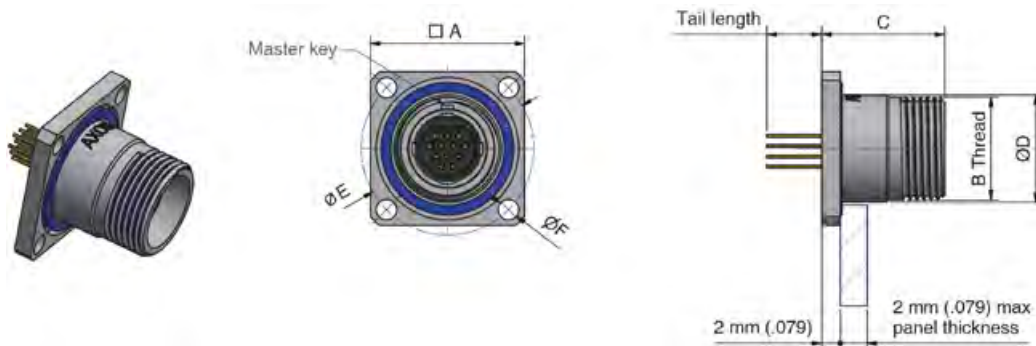
TABLE OF DIMENSIONS - millimetres (inches)

NUMBER OF WAYS	Ø A (MAX)	B THREAD	C (MAX)	D BSC	E THREAD	F HEX	Ø G (MAX)
5 OR 7	16.6 (.654)	M9x0.5	13.8 (.543)	11 (.433)	M12x1	15 (.591)	9.1 (.358)
12 OR 15	17.6 (.693)	M11x0.75	13.8 (.543)	12 (.472)	M13x1	16 (.63)	11.6 (.457)
19	21.3 (.839)	M14x0.75	14.8 (.583)	15 (.591)	M16x1	19 (.748)	13.6 (.535)
37	24.1 (.949)	M17x1	14.8 (.583)	18 (.709)	M19x1	22 (.866)	16.6 (.654)

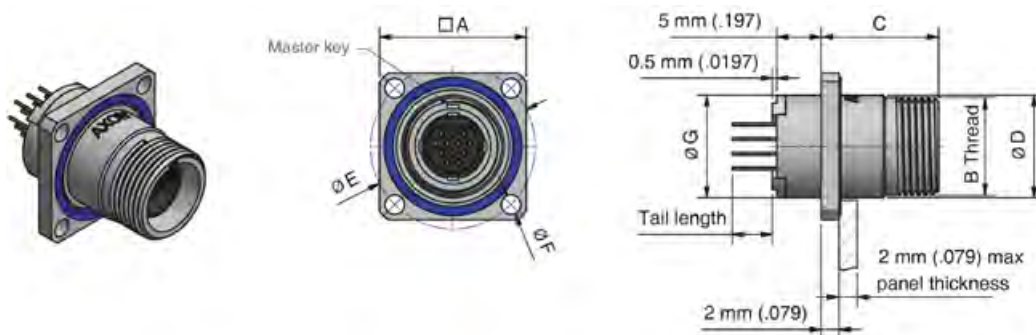
FOR PANEL MOUNTING GUIDE SEE PAGES 340 & 341
FOR MASTER KEY POSITIONS SEE PAGE 388
FOR PANEL CUT-OUT DIMENSIONS SEE PAGE 352

SUPPLIED WITH JAM NUTS

METRIC THREAD PCB CONNECTORS



Rear mount square flange female PCB 0.050" pitch
MCATxxx-10S50Sxxx



Rear mount square flange female PCB 0.075" pitch
MCATxxx-10S75Sxxx

PCB
CONNECTORS

Circular
Micro-D connectors

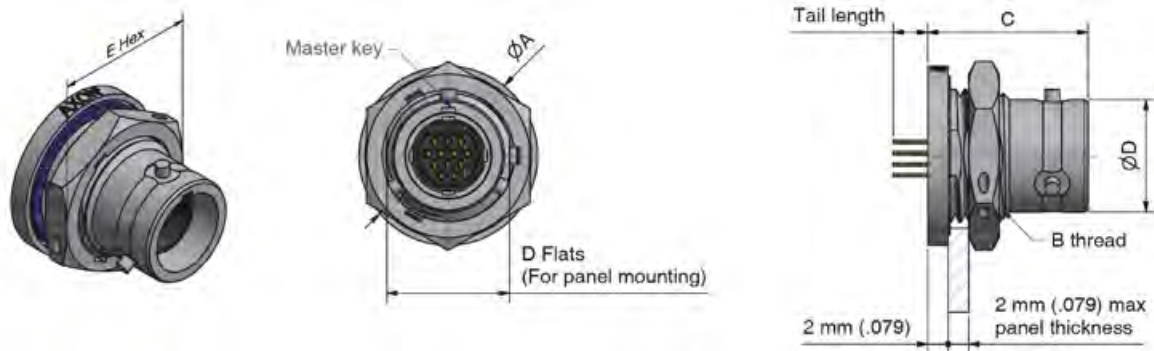
► TABLE OF DIMENSIONS - millimetres (inches)

NUMBER OF WAYS	□ A (MAX)	B THREAD	C (MAX)	Ø D BSC	Ø E BSC	Ø F +0.2 / -0 (+.008 / -.0)	Ø G (MAX)
5 OR 7	14.6 (.575)	M9x0.5	13.3 (.524)	9.6 (.378)	16 (.631)	2.2 (.087)	9.1 (.358)
12 OR 15	16.6 (.654)	M11x0.75	13.3 (.524)	11.6 (.457)	18.5 (.728)	2.2 (.087)	11.6 (.457)
19	20.1 (.791)	M14x0.75	14.8 (.583)	15.1 (.594)	22.5 (.886)	3.2 (.126)	13.6 (.535)
37	21.6 (.85)	M17x1	14.8 (.583)	17.1 (.673)	24.5 (.965)	3.2 (.126)	16.6 (.654)

FOR PANEL MOUNTING GUIDE SEE PAGES 340 & 341
FOR MASTER KEY POSITIONS SEE PAGE 388
FOR PANEL CUT-OUT DIMENSIONS SEE PAGES 350

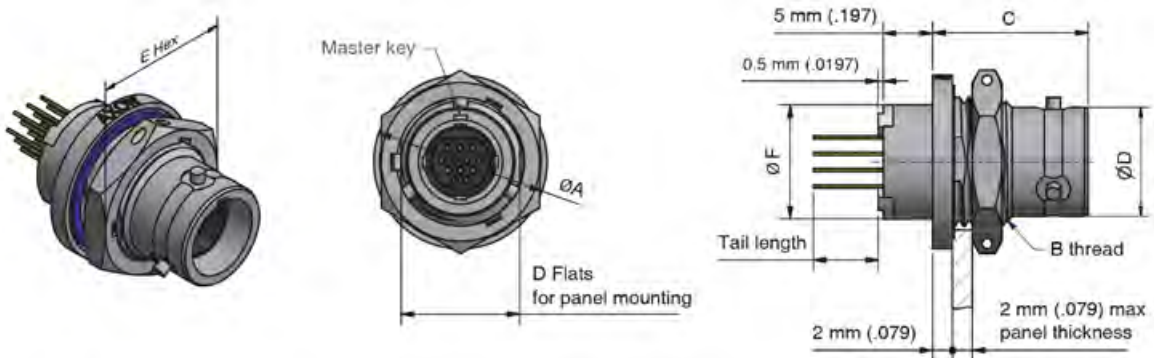
SUPPLIED WITHOUT PANEL MOUNTING SCREWS

THREE LUG BAYONET PCB CONNECTORS



Rear mount jam nut female PCB 0.050" pitch

MCA3Bxxx-12S50Sxxx



Rear mount jam nut female PCB 0.075" pitch

MCA3Bxxx-12S75Sxxx

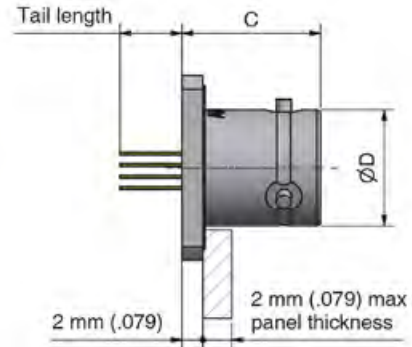
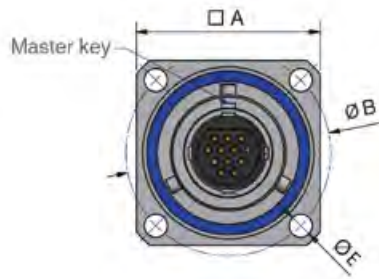
TABLE OF DIMENSIONS - millimetres (inches)

NUMBER OF WAYS	Ø A (MAX)	B THREAD	C (MAX)	D FLAT	E HEX	Ø F (MAX)
5 OR 7	16.6 (.654)	M12x1	15.8 (.622)	11 (.433)	15 (.591)	9.1 (.358)
12 OR 15	17.6 (.693)	M13x1	15.8 (.622)	12 (.473)	16 (.63)	11.6 (.457)
19	21.3 (.839)	M16x1	16.8 (.661)	15 (.591)	19 (.748)	13.6 (.535)
37	24.1 (.949)	M19x1	16.8 (.661)	18 (.709)	22 (.866)	16.6 (.654)

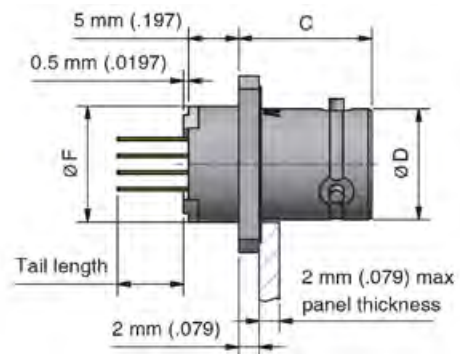
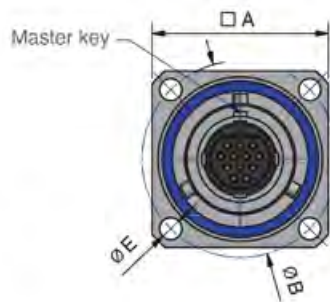
FOR PANEL MOUNTING GUIDE SEE PAGES 340 & 341
FOR MASTER KEY POSITIONS SEE PAGE 388
FOR PANEL CUT-OUT DIMENSIONS SEE PAGE 352

SUPPLIED WITH JAM NUTS

THREE LUG BAYONET PCB CONNECTORS



Rear mount square flange female PCB 0.050" pitch
MCA3Bxxx-10S50Sxxx



Rear mount square flange female PCB 0.075" pitch
MCA3Bxxx-10S75Sxxx

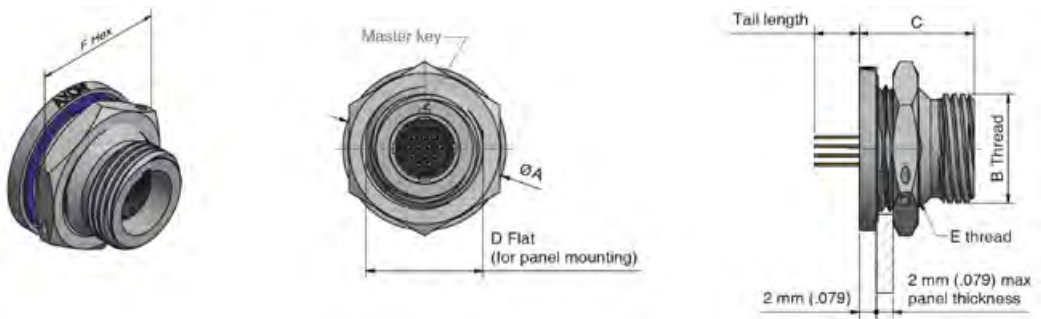
PCB
CONNECTORS

Circular
Micro-D connectors

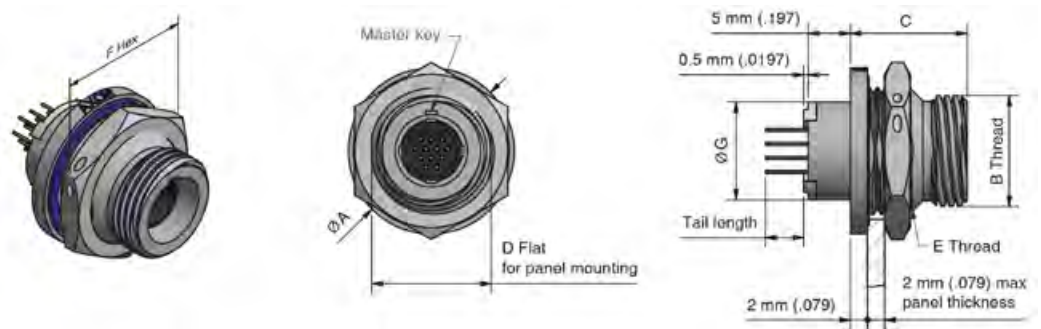
► TABLE OF DIMENSIONS - millimetres (inches)

NUMBER OF WAYS	□ A (MAX)	Ø B BSC	C (MAX)	Ø D (MAX)	Ø E +0.2 / -0 (+.008 / -.0)	Ø F (MAX)
5 OR 7	16.6 (.654)	18.5 (.728)	13.3 (.524)	9.6 (.378)	2.2 (.087)	9.1 (.358)
12 OR 15	17.6 (.693)	19.5 (.768)	13.3 (.524)	11.1 (.437)	2.2 (.087)	11.6 (.457)
19	21.6 (.85)	24.5 (.965)	14.8 (.583)	14.1 (.555)	3.2 (.126)	13.6 (.535)
37	24.1 (.949)	27 (1.063)	14.8 (.583)	17.1 (.673)	3.2 (.126)	16.6 (.654)

TRIPLE START (ANTI-DECOUPLING) PCB CONNECTORS



Rear mount jam nut female PCB 0.050" pitch
MCACxxx-12S50Sxxx



Rear mount jam nut female PCB 0.075" pitch
MCACxxx-12S75Sxxx

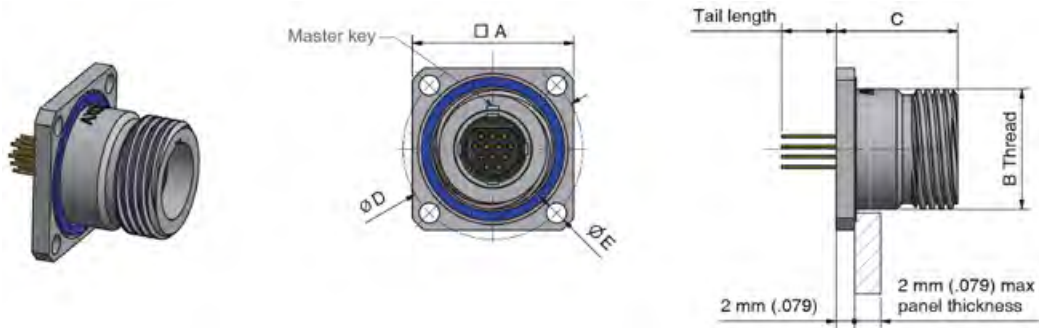
▶ TABLE OF DIMENSIONS - millimetres (inches)

NUMBER OF WAYS	Ø A (MAX)	B THREAD	C (MAX)	D BSC	E THREAD	F HEX	Ø G (MAX)
5 OR 7	17.6 (.693)	Tr11x3P1	13.8 (.543)	12 (.473)	M13x1	16 (.631)	9.1 (.358)
12 OR 15	19.6 (.772)	Tr13x3P1	13.8 (.543)	14 (.551)	M15x1	18 (.709)	11.6 (.457)
19	21.6 (.85)	Tr15x3P1	14.8 (.583)	16 (.631)	M17x1	20 (.787)	13.6 (.535)
37	24.6 (.969)	Tr18x3P1	14.8 (.583)	19 (.748)	M20x1	23 (.906)	16.6 (.654)

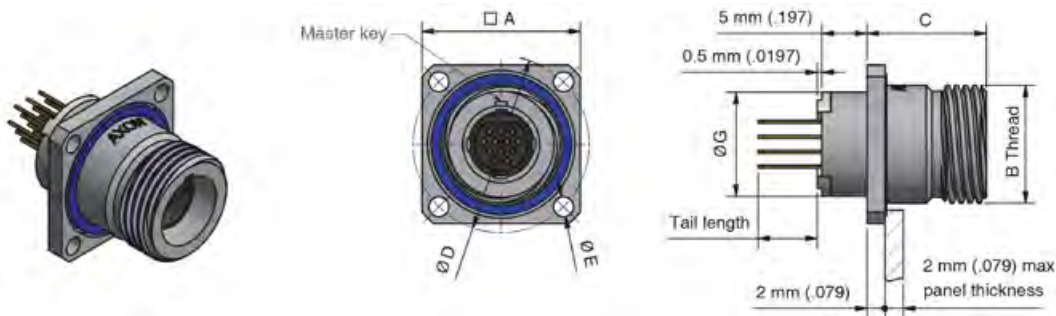
FOR PANEL MOUNTING GUIDE SEE PAGES 340 & 341
FOR MASTER KEY POSITIONS SEE PAGE 388
FOR PANEL CUT-OUT DIMENSIONS SEE PAGE 352

SUPPLIED WITH JAM NUTS

TRIPLE START (ANTI-DECOUPLING) PCB CONNECTORS



Rear mount square flange female PCB 0.050" pitch
MCACxxx-10S50Sxxx



Rear mount square flange female PCB 0.075" pitch
MCACxxx-10S75Sxxx

PCB
CONNECTORS

Circular
Micro-D connectors

► TABLE OF DIMENSIONS - millimetres (inches)

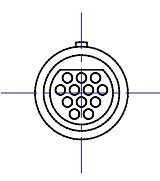
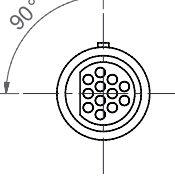
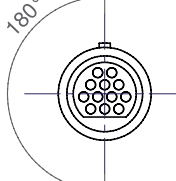
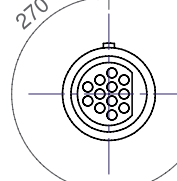
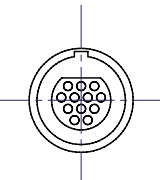
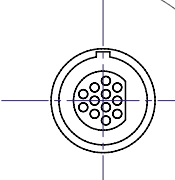
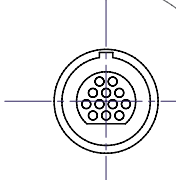
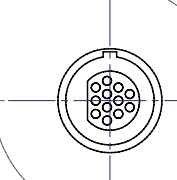
NUMBER OF WAYS	□ A (MAX)	B THREAD	C (MAX)	Ø D BSC	Ø E +0.2 / -0 (+.008 / -.0)	Ø G (MAX)
5 OR 7	16.6 (.654)	Tr11x3P1	13.3 (.524)	18.5 (.728)	2.2 (0.87)	9.1 (.358)
12 OR 15	17.6 (.693)	Tr13x3P1	13.3 (.524)	19.5 (.768)	2.2 (0.87)	11.6 (.457)
19	20.1 (.791)	Tr15x3P1	14.8 (.583)	22.5 (.886)	3.2 (.126)	13.6 (.535)
37	24.1 (.949)	Tr18x3P1	14.8 (.583)	27 (1.063)	3.2 (.126)	16.6 (.654)

FOR PANEL MOUNTING GUIDE SEE PAGES 340 & 341
FOR MASTER KEY POSITIONS SEE PAGE 388
FOR PANEL CUT-OUT DIMENSIONS SEE PAGES 350

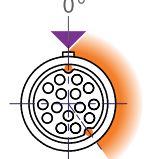
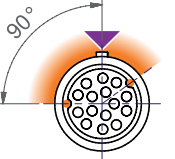
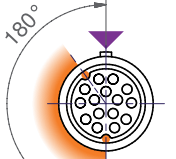
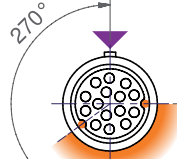
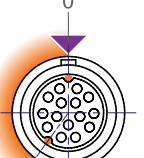
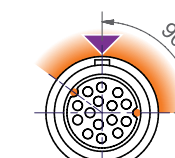
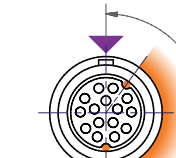
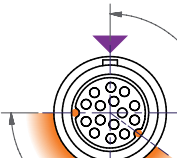
SUPPLIED WITHOUT PANEL MOUNTING SCREWS

PCB CONNECTORS

► MASTER KEY POSITIONS (5, 7, 12, 19 & 37 way connectors)

KEY CODE	A	B	C	D
ORIENTATION	0°	90°	180°	270°
MALE KEYING (for in-line male plugs)				
FEMALE KEYING (for in-line female plugs & panel mount receptacles)				

► MASTER KEY POSITIONS (15 way connectors)

KEY CODE	A	B	C	D
ORIENTATION	0°	90°	180°	270°
MALE KEYING (for in-line male plugs)				
FEMALE KEYING (for in-line female plugs & panel mount receptacles)				

IDENTIFICATION CODE BREAKAWAY (MCABK)

MCA

BK

L

12

-

12

S

75S

G

3

A

SERIES

MCA: Micro-D Circular AXON'.

COUPLING SYSTEM

BK: Breakaway.

MATERIAL & FINISH TYPE

L: Nickel plated aluminium + epoxy resin 150°C.

M: Nickel plated aluminium + epoxy resin 200°C.

NUMBER OF CONTACTS 05, 07, 12, 15, 19, 37.

See page 343 for contact arrangements.

CONNECTOR TYPE

10: Rear panel mount square flange receptacle, PCB version.

12: Rear panel mount jam nut receptacle, PCB version.

CONNECTOR GENDER

S: Female connector (socket contacts).

PCB VERSION

50S: 0.050" pitch board, straight.

75S: 0.075" pitch board, straight.

CONDUCTOR TYPE

G: Gold plated solid conductor AWG25.

T: Tin plated solid conductor AWG24.

See page 345 for conductor type.

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").

Tolerance: ±0.38 mm (0.015").

Other lengths available on request.

MASTER KEY POSITION

A: 0°.

B: 90°.

C: 180°.

D: 270°.

See page 404 for master key positions.

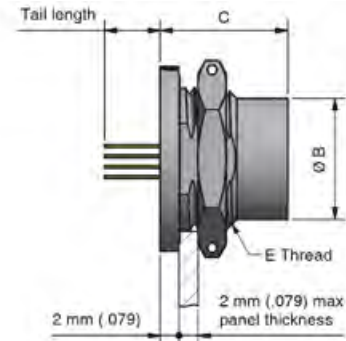
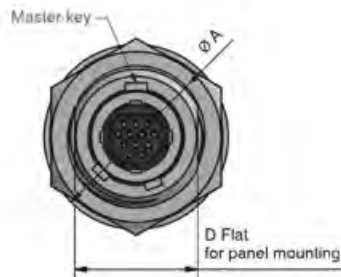
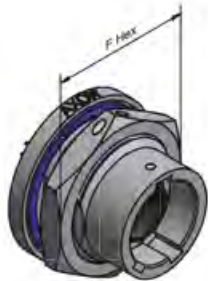
ADDITIONAL GROUND PINS AVAILABLE ON REQUEST

FOR PANEL MOUNTING GUIDE SEE PAGES 340 & 341

FOR PANEL CUT-OUT DIMENSIONS SEE PAGES 350 & 352

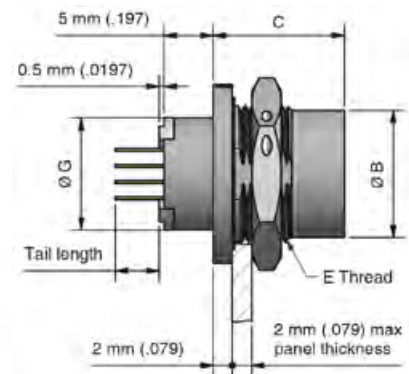
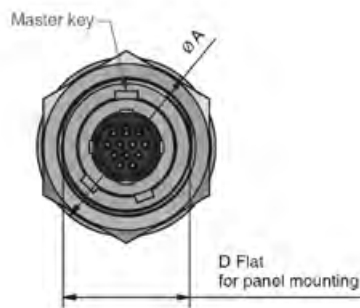
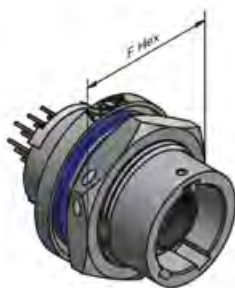
PANEL MOUNT SQUARE FLANGE CONNECTORS ARE SUPPLIED WITHOUT PANEL MOUNTING SCREWS

BREAKAWAY PCB CONNECTORS



Rear mount jam nut female PCB 0.050" pitch

MCABKxxx-12S50Sxxx



Rear mount jam nut female PCB 0.075" pitch

MCABKxxx-12S75Sxxx

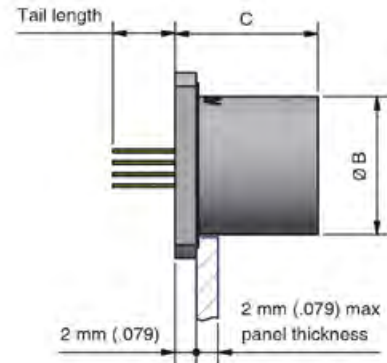
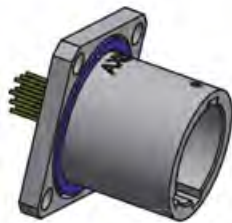
TABLE OF DIMENSIONS - millimetres (inches)

NUMBER OF WAYS	Ø A (MAX)	Ø B	C (MAX)	D BSC	E THREAD	F (MAX)	G
5 OR 7	19.6 (.772)	13.1 (.516)	13.7 (.539)	13 (.512)	M14x0.75	16 (.630)	9.1 (.358)
12 OR 15	19.6 (.772)	13.1 (.516)	13.7 (.539)	13 (.512)	M14x0.75	18 (.709)	11.6 (.457)
19	22.3 (.878)	15.8 (.622)	15.2 (.598)	16 (.63)	M18x1	22 (.866)	13.6 (.535)
37	24.6 (.969)	18.5 (.728)	15.2 (.598)	19 (.748)	M20x1	23 (.906)	16.6 (.654)

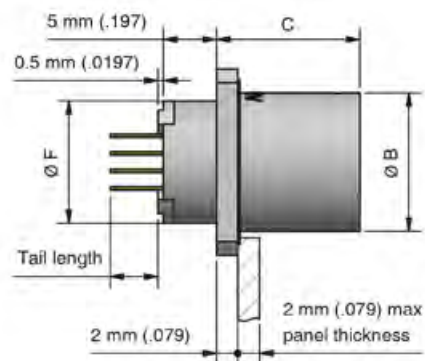
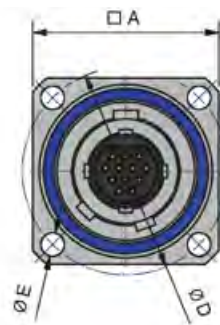
FOR PANEL MOUNTING GUIDE SEE PAGES 340 & 341
FOR MASTER KEY POSITIONS SEE PAGE 404
FOR PANEL CUT-OUT DIMENSIONS SEE PAGE 352

SUPPLIED WITH JAM NUTS

BREAKAWAY PCB CONNECTORS



Rear mount square flange female PCB 0.050" pitch
MCABKxxx-10S50Sxxx



Rear mount square flange female PCB 0.075" pitch
MCABKxxx-10S75Sxxx

PCB
CONNECTORS

Circular
Micro-D connectors

► TABLE OF DIMENSIONS - millimetres (inches)

NUMBER OF WAYS	□ A (MAX)	Ø B (MAX)	C (MAX)	Ø D BSC	Ø E +0.2 / -0 (+.008 / -.0)	Ø F (MAX)
5 OR 7	17.6 (.693)	13.1 (.515)	13.7 (.539)	19.5 (.768)	2.2 (.087)	9.1 (.358)
12 OR 15	17.6 (.693)	13.1 (.515)	13.7 (.539)	19.5 (.768)	2.2 (.087)	11.6 (.457)
19	22.1 (.87)	15.8 (.622)	15.2 (.598)	24.5 (.965)	3.2 (.126)	13.6 (.535)
37	24.1 (.949)	18.5 (.728)	15.2 (.598)	27.5 (1.083)	3.2 (.126)	16.6 (.654)

FOR PANEL MOUNTING GUIDE SEE PAGES 340 & 341
FOR MASTER KEY POSITIONS SEE PAGE 404
FOR PANEL CUT-OUT DIMENSIONS SEE PAGES 350

SUPPLIED WITHOUT PANEL MOUNTING SCREWS

PCB CONNECTORS

► MASTER KEY POSITIONS (5, 7, 12, 19 & 37 way connectors)

KEY CODE	A	B	C	D
ORIENTATION	0°	90°	180°	270°
MALE KEYING (for in-line male plugs)				
FEMALE KEYING (for in-line female plugs & panel mount receptacles)				

► MASTER KEY POSITIONS (15 way connectors)

KEY CODE	A	B	C	D
ORIENTATION	0°	90°	180°	270°
MALE KEYING (for in-line male plugs)				
FEMALE KEYING (for in-line female plugs & panel mount receptacles)				

PCB CONNECTORS

► TABLES OF WEIGHTS (estimated) - grams (ounces)

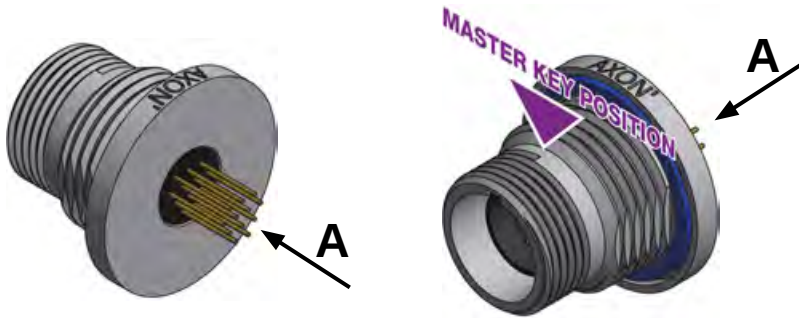
PCB 0.050" PITCH	METRIC THREAD		THREE LUG BAYONET		ANTI-DECOUPLING		BREAKAWAY	
	SQUARE FLANGE	JAM NUT	SQUARE FLANGE	JAM NUT	SQUARE FLANGE	JAM NUT	SQUARE FLANGE	JAM NUT
5 OR 7	5.7 (.21)	9.6 (.34)	7.2 (.26)	9.6 (.34)	8.8 (.31)	12.3 (.44)	4.8 (.17)	6.4 (.23)
12 OR 15	7.9 (.28)	11 (.39)	8.4 (.31)	12.3 (.44)	11.1 (.39)	15.7 (.56)	4.2 (.15)	5.6 (.20)
19	13.7 (.48)	16.5 (.58)	13.8 (.49)	18.5 (.66)	14.2 (.50)	18.5 (.65)	6.5 (.23)	8.3 (.30)
37	14.8 (.55)	20.7 (.73)	17.4 (.62)	22.5 (.80)	19 (.67)	23.4 (.83)	7.9 (.28)	9.2 (.33)

PCB 0.075" PITCH	METRIC THREAD		THREE LUG BAYONET		ANTI-DECOUPLING		BREAKAWAY	
	SQUARE FLANGE	JAM NUT	SQUARE FLANGE	JAM NUT	SQUARE FLANGE	JAM NUT	SQUARE FLANGE	JAM NUT
5 OR 7	7.3 (.26)	11.2 (.40)	8.8 (.31)	11.2 (.40)	10.4 (.37)	13.9 (.49)	5.6 (.20)	7.2 (.26)
12 OR 15	10.3 (.37)	13.4 (.48)	10.8 (.38)	14.7 (.52)	13.5 (.48)	18.1 (.64)	5.5 (.20)	6.9 (.25)
19	16.6 (.59)	19.4 (.69)	16.7 (.59)	21.4 (.76)	17.1 (.60)	21.4 (.76)	8.2 (.29)	9.9 (.35)
37	18.7 (.66)	24.6 (.87)	21.3 (.75)	26.4 (.94)	22.9 (.81)	27.3 (.97)	10.3 (.37)	11.6 (.41)

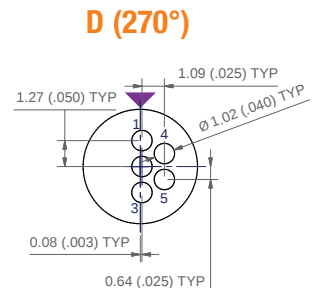
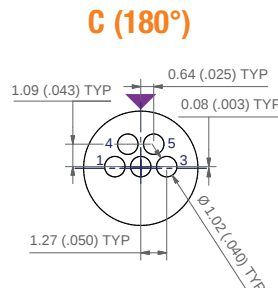
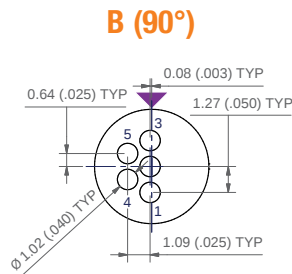
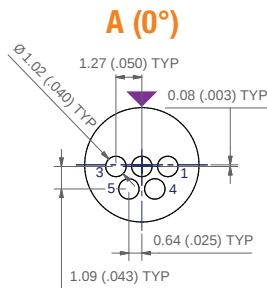
PCB
CONNECTORS

Circular
Micro-D connectors

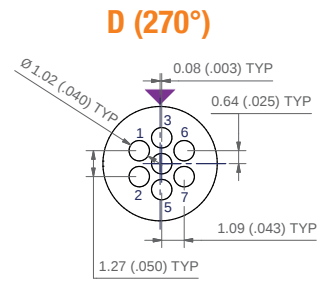
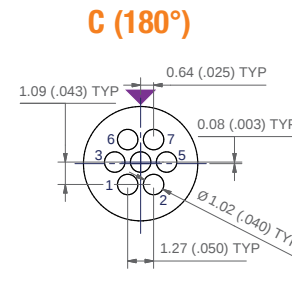
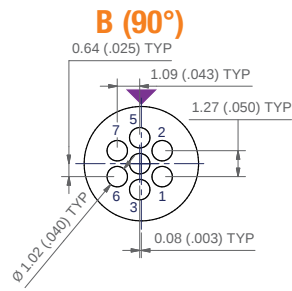
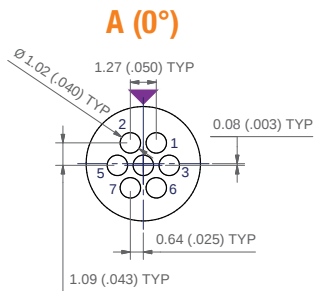
PCB LAYOUT 0.050" PITCH



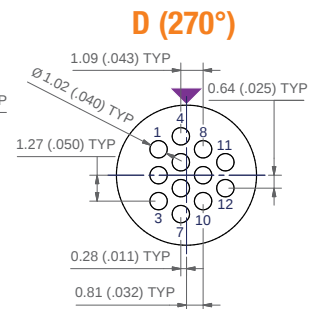
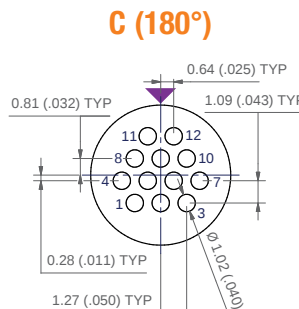
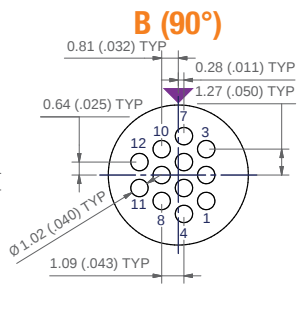
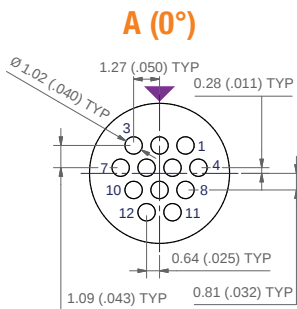
5 CONTACTS - VIEW A



7 CONTACTS - VIEW A

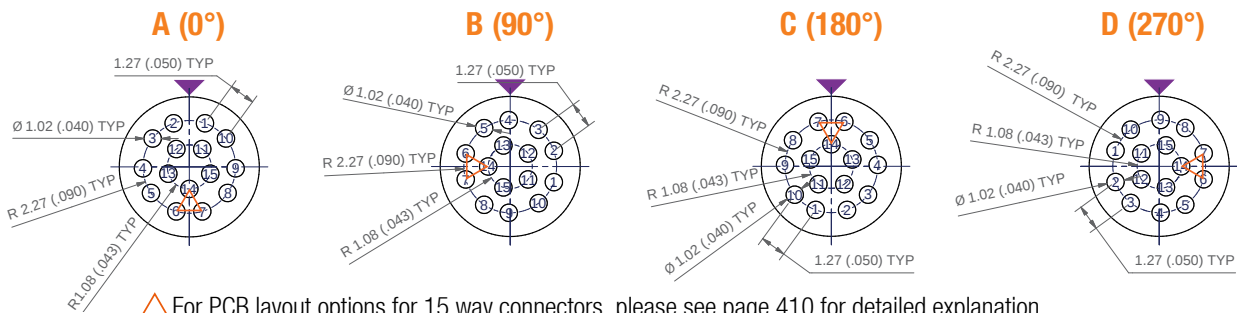


12 CONTACTS - VIEW A



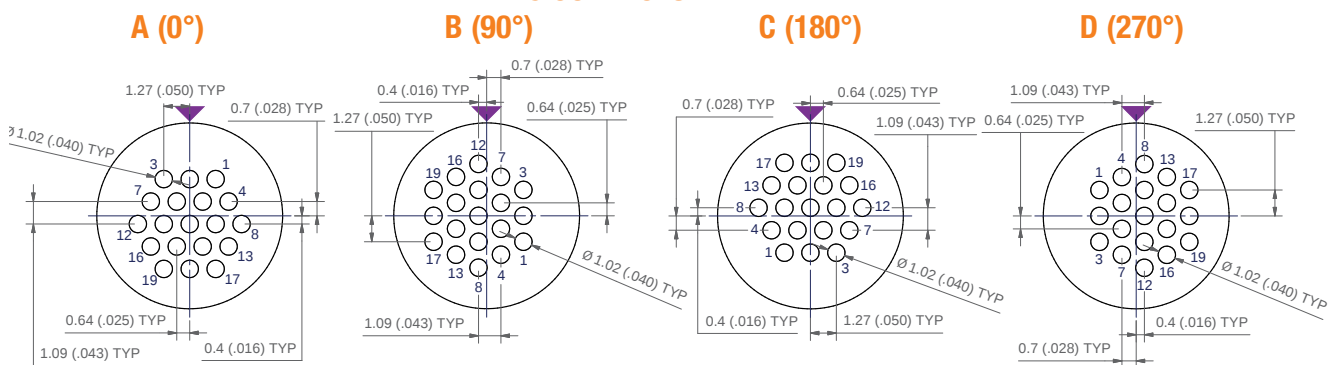
PCB LAYOUT 0.050" PITCH

15 CONTACTS - VIEW A

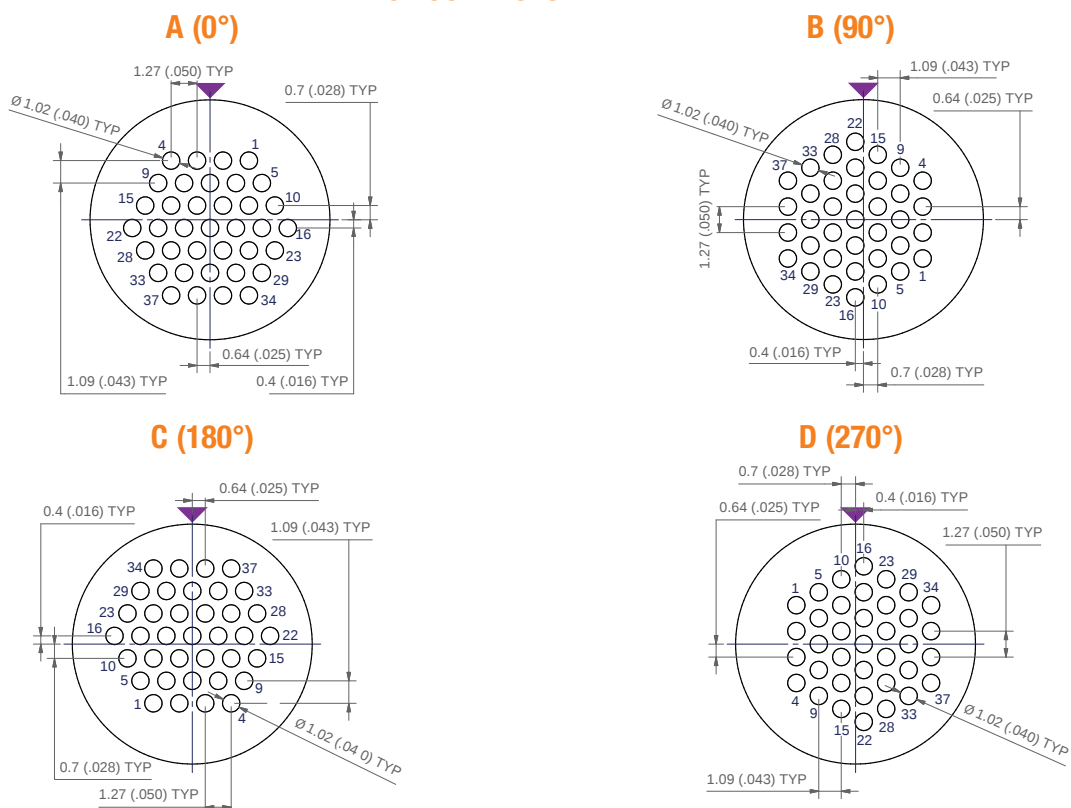


△ For PCB layout options for 15 way connectors, please see page 410 for detailed explanation

19 CONTACTS - VIEW A



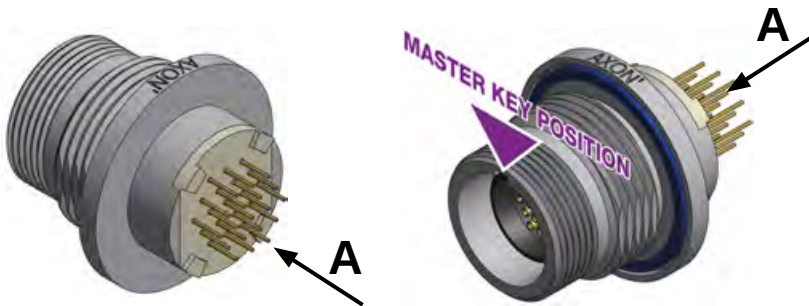
37 CONTACTS - VIEW A



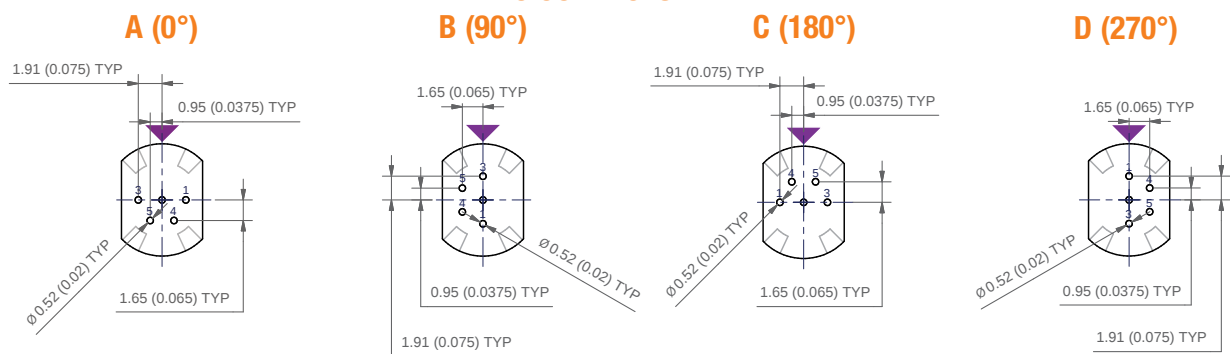
PCB
CONNECTORS

Circular
Micro-D connectors

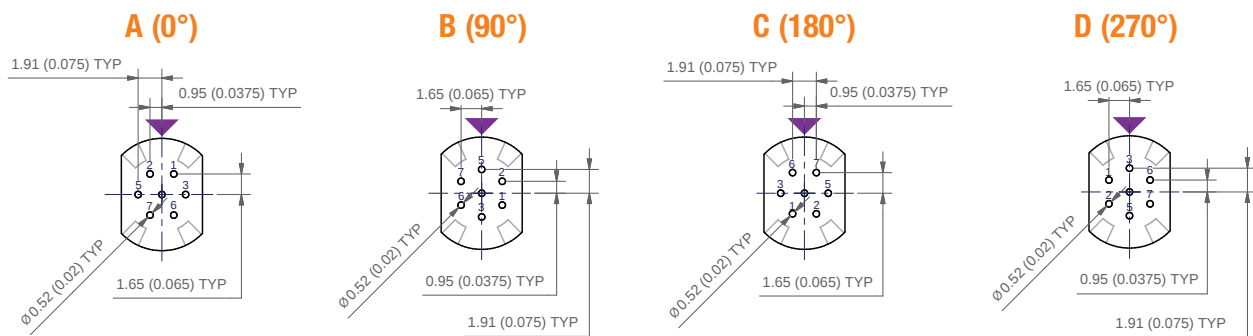
PCB LAYOUT 0.075" PITCH



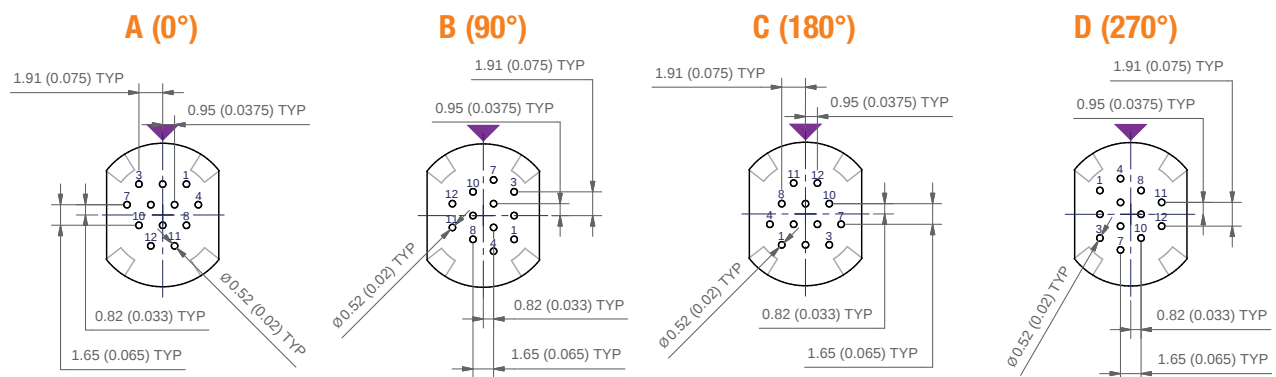
5 CONTACTS - VIEW A



7 CONTACTS - VIEW A



12 CONTACTS - VIEW A



PCB LAYOUT 0.075" PITCH

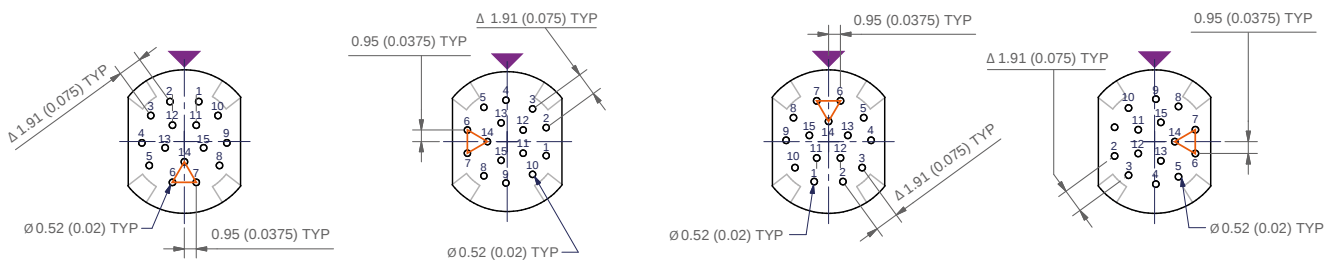
15 CONTACTS - VIEW A

A (0°)

B (90°)

C (180°)

D (270°)



△ For PCB layout options for 15 way connectors, please see page 410 for detailed explanation

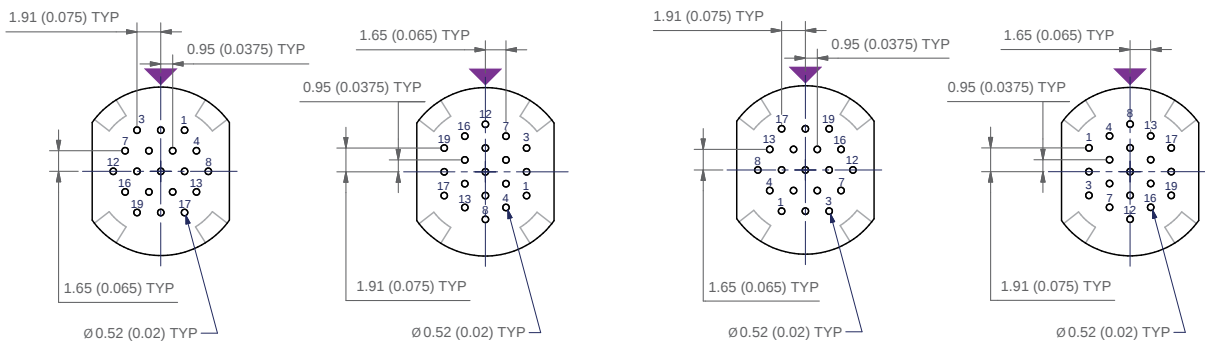
19 CONTACTS - VIEW A

A (0°)

B (90°)

C (180°)

D (270°)



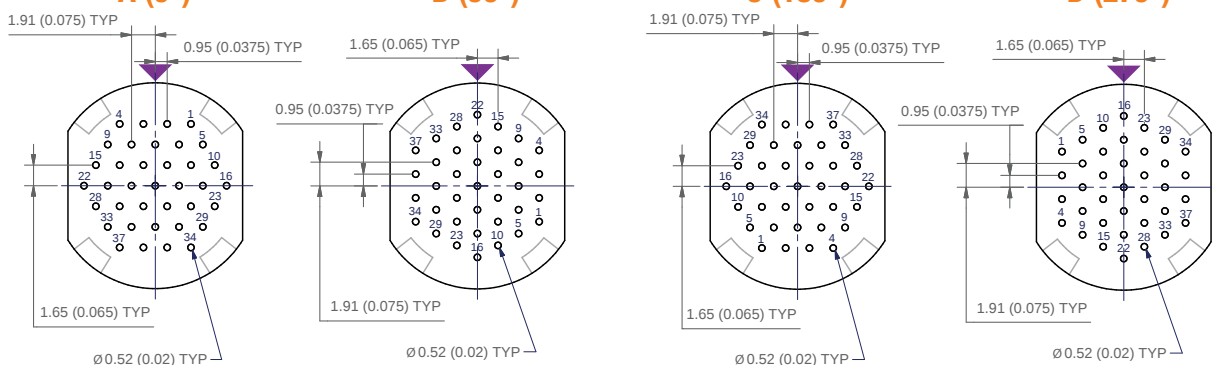
37 CONTACTS - VIEW A

A (0°)

B (90°)

C (180°)

D (270°)



PCB
CONNECTORS

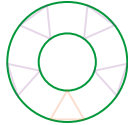
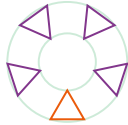
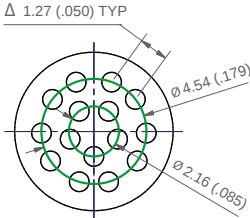
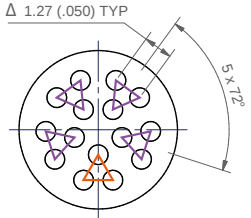
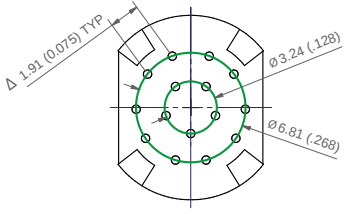
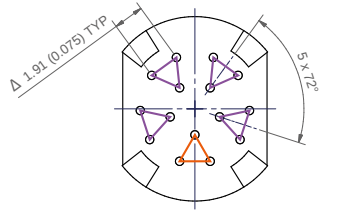
Circular
Micro-D connectors

15 WAY CONNECTORS

PCB LAYOUTS

This page describes in more detail the construction of the PCB layouts for the 15-way connectors shown on pages X (0.050" pitch) and Y (0.075" pitch).

Two geometrical patterns combine to create this layout:

PATTERNS	Two concentric circles.	A circular array of five equilateral triangles, 72° apart.
		
		
0.075" PITCH		

PLASTIC MICRO-D CIRCULAR CONNECTORS

SOLDER CUP & PIGTAIL CONNECTOR - MCA

- Solder cup connector 412
- Pigtail connector 414



PLASTIC
CONNECTORS

*Circular
Micro-D connectors*



SOLDER CUP CONNECTOR

PLASTIC SHELL

- Compact low weight connector.
- Small overall dimensions.
- Easy to integrate in custom solutions.
- Ideal for prototyping or where pigtail type connectors cannot be used.
- 5 to 15 contacts.

IDENTIFICATION CODE

MCA

P

12

S

FS

SERIES

MCA: Micro-D Circular AXON' plastic shell.

CONNECTOR TYPE

P: LCP shell + potting 150°C.

L: LCP shell + potting 200°C.

NUMBER OF CONTACTS

05, 07, 12, 15.

See pages 342 & 343 for contact arrangements.

CONNECTOR GENDER

P: male (pin contacts).

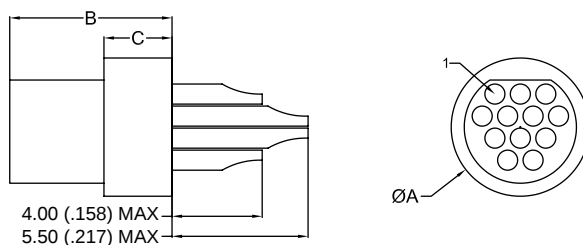
S: female (socket contacts).

SOLDER CUP

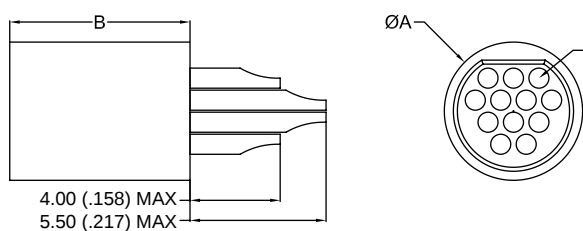
DIMENSIONS

Dimensions are in millimetres (inches).

MALE connector



FEMALE connector



NUMBER OF WAYS	Ø A ± 0.10 (.004)	B ± 0.10 (.004)		C max.
		Male (P)	Female (S)	
5 OR 7	5.60 .220	8.10 .319	9.00 .354	3.50 .138
12	6.86 .270	8.10 .319	9.00 .354	3.50 .138
15	6.86 .270	8.10 .319	9.00 .354	3.50 .138

SUMMARY OF CHARACTERISTICS

ELECTRICAL & MECHANICAL PERFORMANCE	
CURRENT RATING	3 A max.
CONTACT RESISTANCE	8 mΩ max.
INSULATION RESISTANCE	5000 MΩ min. @ 500 V _{DC}
DIELECTRIC WITHSTANDING VOLTAGE	Sea level: 600 V _{AC} Altitude 21 km (70,000 ft): 150 V _{AC}
CONTACT ENGAGING FORCE	170 g max. (6 oz)
CONTACT SEPARATING FORCE	14 g min. (0.5 oz)
CONTACT RETENTION	2.26 kg (5 lbs)
DURABILITY	500 mating cycles min.

MATERIAL & FINISH	
MOULDED SHELL	Liquid Crystal Polymer (LCP)
PIN CONTACT	Copper and beryllium copper, gold over nickel plating
SOCKET CONTACT	Copper alloy, gold over nickel plating
SOLDER CUP	Copper alloy, gold over nickel plating
ENCAPSULANT	Epoxy resin



PIGTAIL CONNECTOR

PLASTIC SHELL

- Low cost plastic connector.
- 5 to 37 contacts.

IDENTIFICATION CODE

MCA

P

12

S

4

L

050

SERIES

MCA: Micro-D Circular AXON' plastic shell.

CONNECTOR TYPE

P: LCP shell + potting 150°C.

L: LCP shell + potting 200°C.

NUMBER OF CONTACTS

05, 07, 12, 15, 19, 37.

See pages 342 & 343 for contact arrangements.

CONNECTOR GENDER

P: male (pin contacts).

S: female (socket contacts).

WIRE TYPE

For colour codes F, L, W

1: E 2607, AWG 26, 7 strands, 600 V.

4: E 2619, AWG 26, 19 strands, 600 V.

6: E 2807, AWG 28, 7 strands, 600 V.

8: E 3007, AWG 30, 7 strands, 600 V.

E: M22759/33, AWG 26, 19 strands, 600 V.

For colour code V only

3: M22759/11, AWG26,

19 strands, 600 V.

F: E 2607, AWG26, 7 strands, 600 V.

Solid uninsulated wires

G: AWG 25 gold plated.

T: AWG 24 tin plated.

See page 345 for wire types

COLOUR CODE

F: All yellow.

L: All white.

V: MIL-STD-681 striped (only for wire types 3 and F).

W: 10 colour repeated code.

BLANK: if wire type is **G** or **T**.

See pages 346 & 347 for colour code.

WIRE LENGTH (in cm)

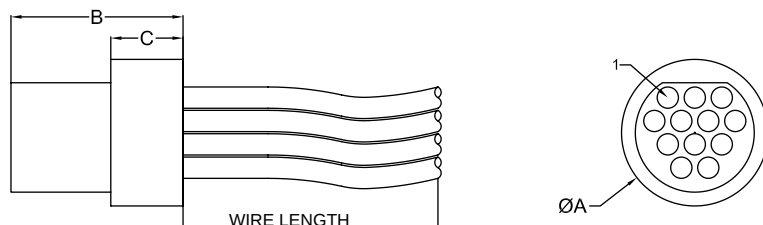
Caution! wire length in centimetres - (1 cm = 10 mm = 0.394").

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

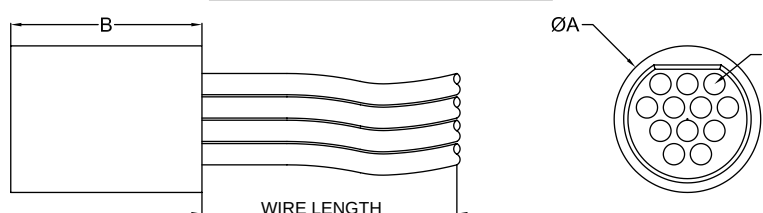
DIMENSIONS

Dimensions are in millimetres (inches).

MALE connector



FEMALE connector



NUMBER OF WAYS	Ø A ± 0.10 (.004)	B ± 0.10 (.004)		C max.
		Male (P)	Female (S)	
5 OR 7	5.60 .220	8.10 .319	9.00 .354	3.50 .138
12 OR 15	6.86 .270	8.10 .319	9.00 .354	3.50 .138
19	9.10 .358	9.00 .354	10.00 .393	4.50 .177
37	11.75 .463	9.00 .354	10.00 .393	4.50 .177

PLASTIC
CONNECTORS

SUMMARY OF CHARACTERISTICS

ELECTRICAL & MECHANICAL PERFORMANCE	
CURRENT RATING	3 A max.
CONTACT RESISTANCE	8 mΩ max.
INSULATION RESISTANCE	5 000 MΩ min. @ 500 V _{dc}
DIELECTRIC WITHSTANDING VOLTAGE	Sea level: 600 V _{ac} Altitude 21 km (70,000 ft): 150 V _{ac}
CONTACT ENGAGING FORCE	170 g max. (6 oz)
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