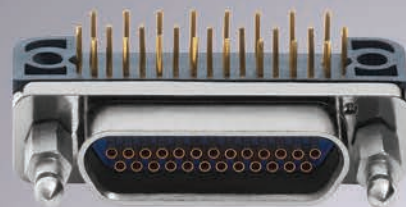




# D-Click® & Versatys® connectors

Fast-latching Micro-D and versatile combo solutions





## Fast-latching connectors

- D-Click® & Versatys® connectors for space applications – 6
- D-Click® fast-latching system – 8
- Panel mounting guide – 9
- D-Click® hardware – 10

Page  
5

## Micro-D connectors

- General information – 14
- Micro-D D-Click® pigtail connectors – 22
- Micro-D D-Click® backshells – 25
- Micro-D D-Click® PCB connectors – 27
- Custom Designed connectors – 42

Page  
13

## Versatys® connectors (MMC)

- General information – 44
- Dismountable Versatys® pigtail connectors – 53
- Non-dismountable Versatys® pigtail connectors – 58
- Versatys® PCB connectors – 61
- Versatys® kit components – 66

Page  
43

## Wires

- Wires codes for twist pin contacts – 70
- Wires codes for power contacts – 71
- Colour codes – 72
- LAT levels – 73

Page  
69

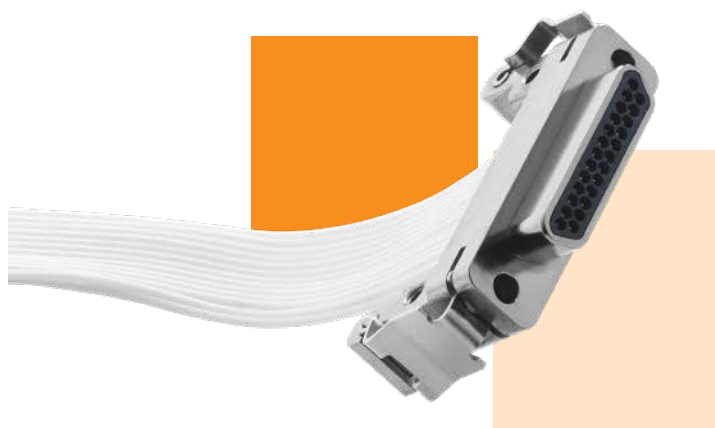




# AXON' CABLE D–Click® connectors

## Fast-latching connectors

|  |    |
|--|----|
| D–Click® & Versatys® connectors for space applications – | 6  |
| D–Click® fast–latching system –                          | 8  |
| Panel mounting guide –                                   | 9  |
| D–Click® hardware –                                      | 10 |



# D-Click® & Versatys® connectors

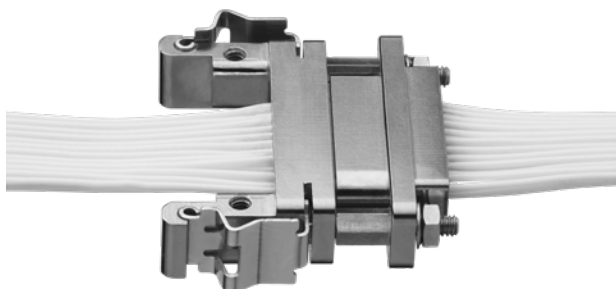
Headquartered in the beautiful Champagne region of France, AXON' is a worldwide leader in specialist interconnect. The company excels in the design and manufacture of wires, cables, terminated harnesses and interconnect solutions for high technology applications.

As a specialist in advanced interconnect solutions, Axon' Cable has extensive experience in Micro-D connectors including pigtail and PCB connectors, solder cup connectors, QPL qualified Micro-D to MIL-DTL-83513, micro-strip and saver connectors.



## ULTRA-FAST CONNECTION AND MODULARITY

Axon' Cable has developed miniature connectors equipped with a user-friendly latching system which gives greater flexibility to customers. A new range of Micro-D products equipped with the **D-Click®** fast latching system allows customers to use the Micro-D technology in space-constrained systems where access to the connectors is difficult. The company has also engineered **Versatys®**, a new concept of compact power connectors. Compared with power D-Sub connectors, this new range of connectors gives rise to substantial space and weight saving. With interchangeable lines (power contacts and wires), users can customize their own connectors. **Versatys®** connectors can optionally also be equipped with the fast-latching **D-Click®** system. Both innovative connector types generate real time savings as no tooling is required for this operation.



## A FAST LATCHING SYSTEM: ONE CLICK AND YOU'RE DONE!

Axon' Cable has enlarged their range of highly reliable Micro-D connectors by developing **D-Click®** fast latching connectors. Equipped with an easy-to-use mating and latching system, this range of Micro-D connectors enables a much faster installation during harness integration. **D-Click®** connectors are available from **9** to **37** ways.

The Micro-D connector range includes:

- Pigtail & PCB connectors
- Backshells
- Custom designed connectors

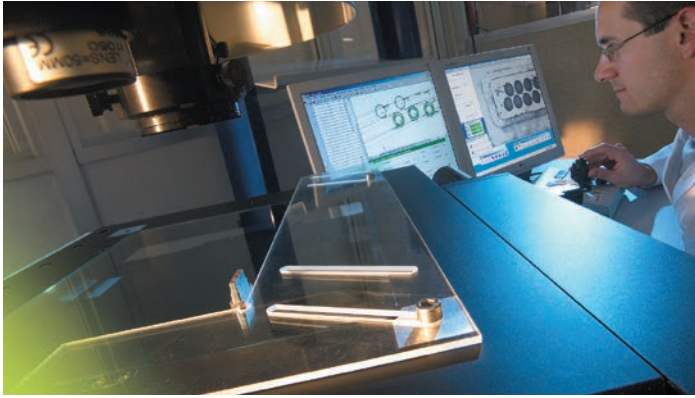
### How does the D-Click® system work ?

A very **quick** connection / disconnection:

- Latch-posts on one connector serve as guide pins into the shell of the mating connector, on which two latch springs then trap the waisted latch-posts for a very fast and reliable connection
- Just squeeze the **D-Click®** latch springs together to disconnect.

## WHY CHOOSE D-CLICK® FAST LATCHING CONNECTORS?

- No hardware and no tooling required for the connection: time-saving solution for harness integration.
- Very easy to move from standard Micro-D technology to **D-Click®** connectors: no mechanical changes required to either the PCB layout or to the equipment panel cut-outs.
- The **D-Click®** latching system can make it easier to use Micro-D technology in systems where gaining access with tools could be difficult.
- These low-insertion-force connectors equipped with Twist Pin contacts meet all the standard performance requirements of MIL-DTL-83513.
- The Micro-D **D-Click®** range is fully qualified according to ESCC 3401/091 and is particularly designed for satellite mega-constellations, where integration time is a key issue.



▲ METROLOGY LABORATORY



▲ WEIGHT & SPACE SAVING

# for space applications

## Applications:

- Mega-constellations
- Satellites, launchers
- Any space-constrained equipment where rapid integration is a must.

This catalogue presents solutions for space applications only. For any other applications including avionics and research centres, please contact us.



## VERSATYS®: MINIATURE VERSATILE CONNECTORS

**Versatys®** is a new concept of power connectors giving far greater flexibility to customers. Removable contacts and fast-locking versions make integration with customer equipment faster and easier. The modular and flexible design enables customers to build their own connector configurations. Compared with power D-Sub connectors, **Versatys®** connectors represent an ideal solution for weight and space saving, delivering greater flexibility for space applications.

**Versatys®** connectors equipped with the **D-Click®** system allow for substantial time saving during integration.

## WHY CHOOSE VERSATYS® MINIATURE VERSATILE CONNECTORS?

Users can build the connectors themselves which gives more flexibility to the design. In the case of a defective line or contact, the user just needs to change the concerned line but not the whole connector. This generates **real time savings** as no tooling is required for this operation.

Components of the **Versatys®** connector including the shell, contacts and wires can all be ordered in kit form. This is a real tailor-made solution!

**Versatys®** has already been chosen for a major new generation of satellites because of its technical qualities and fast locking system.



## QUALITY ASSURANCE

ISO 9001

ISO 9100

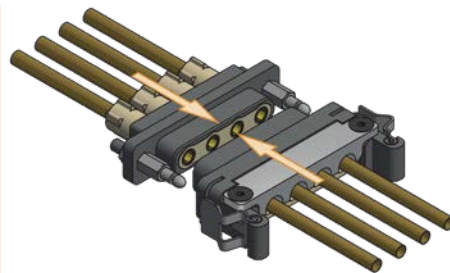
ISO 14001

ISO 45001

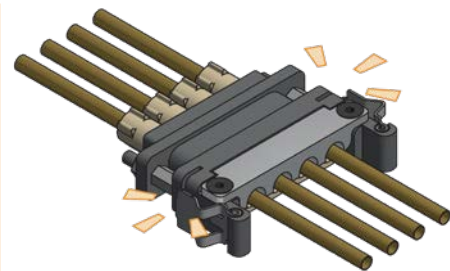
# D-CLICK® FAST-LATCHING SYSTEM

## ► How it works

### MATING



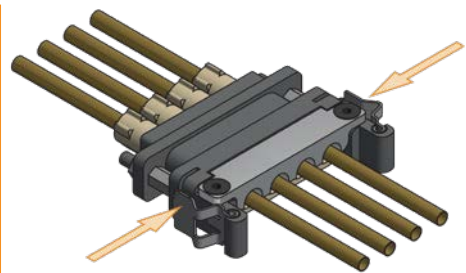
Simply mate the connectors together...



...until the hardware clicks.

### DE-MATING

STEP  
1

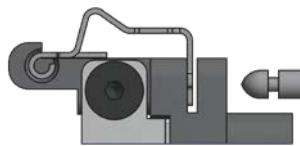


Squeeze the two latch springs together...

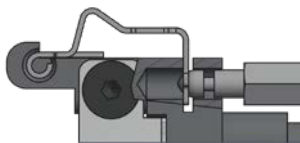
STEP  
2



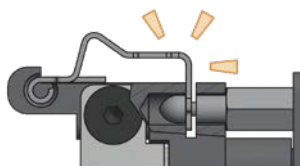
...and pull to de-mate the connectors.



Align the connectors face to face and push together



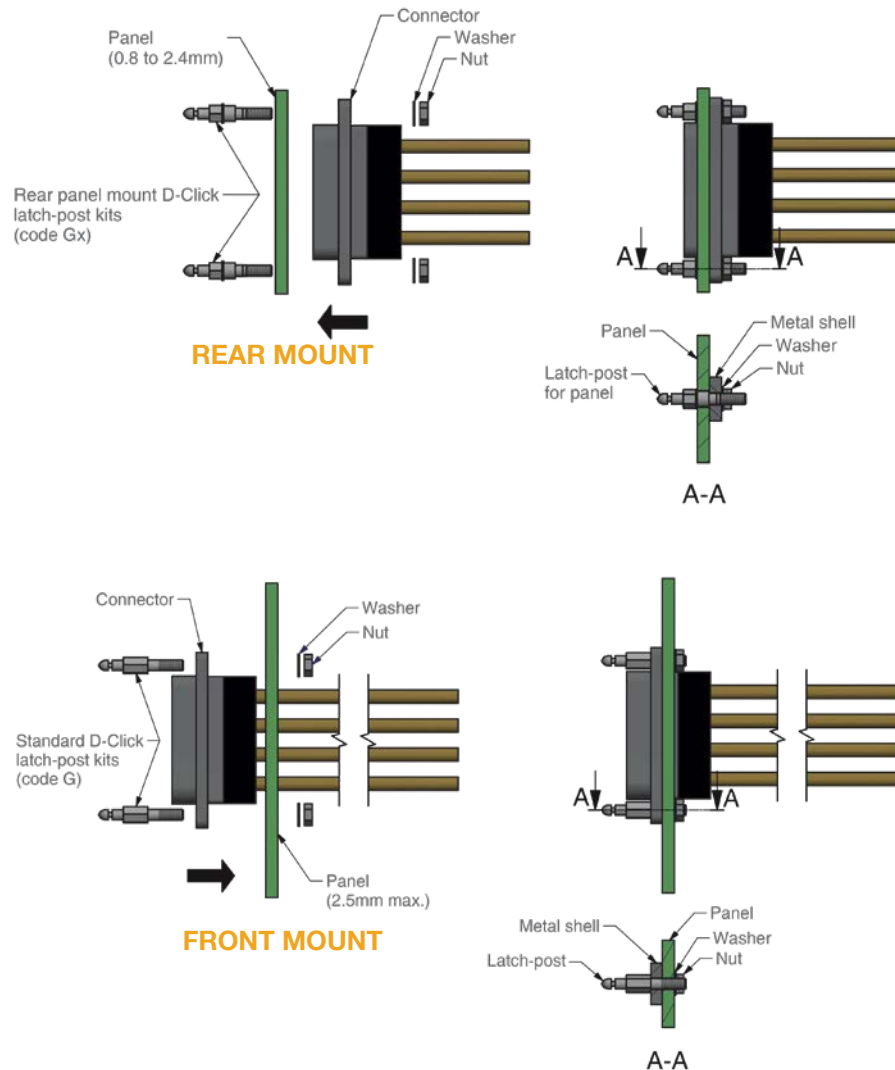
The head of the latch-post enters and starts to displace the latch spring until...



... it clicks audibly into place: the hardware is correctly locked.

# PANEL MOUNTING GUIDE

## ▶ Panel Mounting



## D-CLICK® HARDWARE

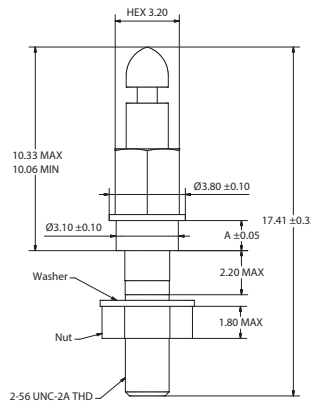
### ► Hardware for rear panel mount connectors

- 3 versions of rear panel mount latch-posts: - 1 version for pigtails connectors,  
- 2 versions for PCB connectors.
- 1 kit consists of : - 2 latch-posts, 2 washers and 2 nuts for pigtail connectors  
- 2 latch-posts for PCB connectors
- Material: passivated 300 series stainless steel.

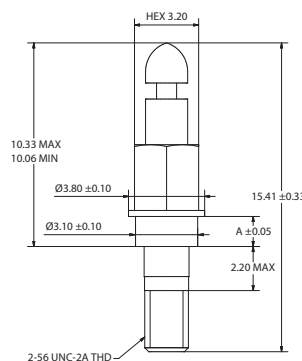
Dimensions are given in millimetres (inches).

| HARDWARE CODE                                     | Pigtails                       | G1/P1 | G2/P2 | G3/P3 | G4/P4 | G5/P5 |
|---|--------------------------------|-------|-------|-------|-------|-------|
|   | PCB (without threaded inserts) | G1/P1 | G2/P2 | G3/P3 | G4/P4 | G5/P5 |
|   | PCB (with threaded insert)     | H1/W1 | H2/W2 | H3/W3 | H4/W4 | H5/W5 |
| PANEL THICKNESS<br>-0.0 / +0.2<br>(-.000 / +.008) | mm                             | 0.8   | 1.2   | 1.6   | 2     | 2.4   |
|   | inch                           | .031  | .047  | .062  | .079  | .094  |
| DIM. A<br>±0.05<br>(±.002)                        | mm                             | 0.7   | 1.1   | 1.5   | 1.9   | 2.3   |
|   | inch                           | .028  | .043  | .059  | .075  | .091  |

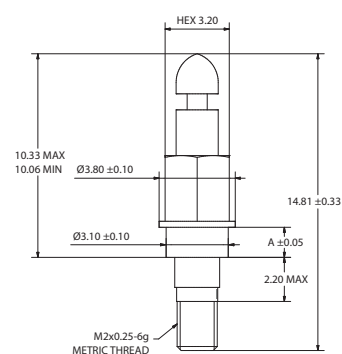
### FOR PIGTAILS (02, 07 & 09)\*



### FOR BS (04) & 75SB (05) PCB\*



### FOR CBR (03) & 75RB (06) PCB\*



\*: The figures in brackets indicate which D-Click® variants are compatible.

**RECOMMENDED TORQUE:** 0.39 N.m / 3.45 inch-pounds

# D-CLICK® HARDWARE

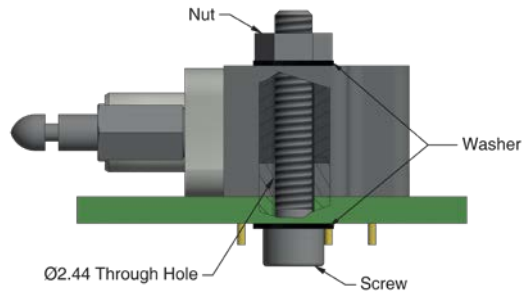
## ► PCB connector mounting instructions

Axon' offers two different ways to mount your connectors to your PCB.

### PCB CONNECTORS WITH NO THREADED INSERTS

The first method relies on a Ø2.44 through hole in the connector tray. The mounting of the connector to the PCB is made with a Screw/washers/nut assembly. The screw and nut can be either top- or bottom-mounted.

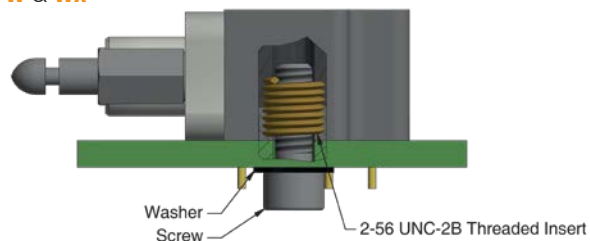
Hardware code: **G, Gx, P & Px**



### PCB CONNECTORS WITH THREADED INSERTS INSTALLED

The second method uses threaded inserts pre-installed in the connector tray. With this method a bottom-mounted screw alone is required with a recommended torque value of 0.14 N.m.

Hardware code: **H, Hx, W & Wx**





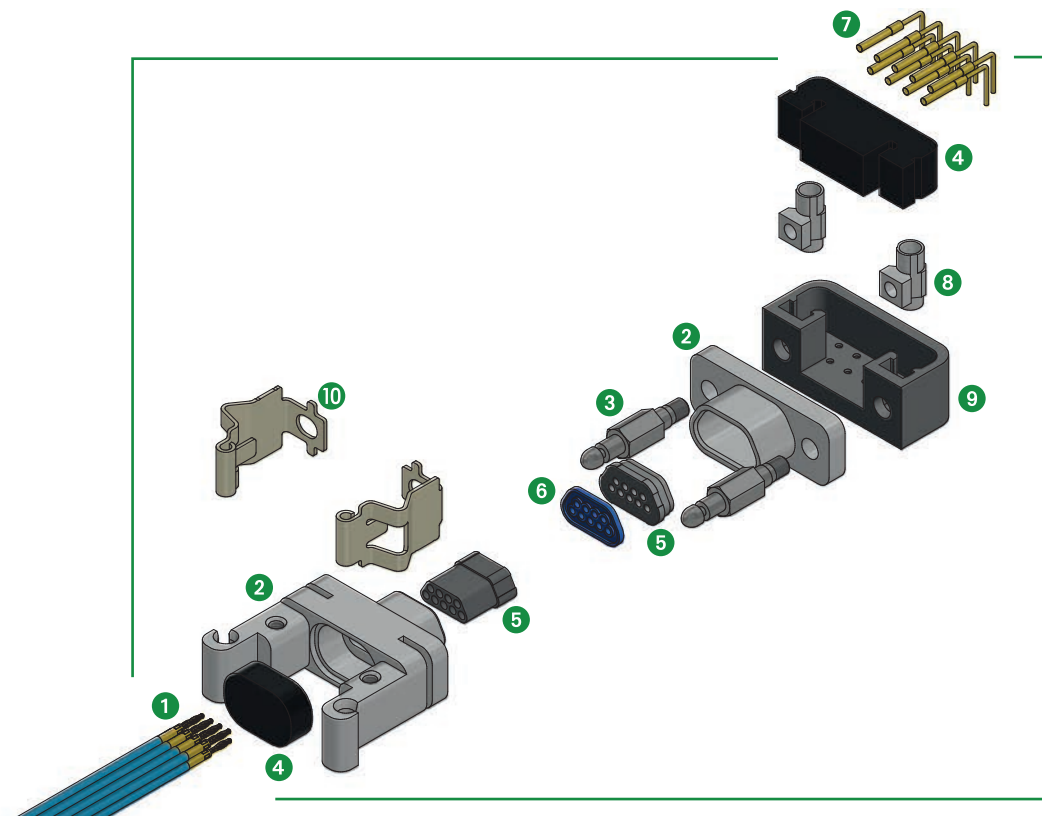


# AXON' CABLE D–Click® connectors

## Micro–D connectors

|                                       |    |
|---------------------------------------|----|
| General information –                 | 14 |
| Micro–D D–Click® pigtail connectors – | 22 |
| Micro–D D–Click® backshells –         | 25 |
| Micro–D D–Click® PCB connectors –     | 27 |
| Custom Designed connectors –          | 42 |

## GLOSSARY OF TERMS



|                               |    |  |
|-------------------------------|----|--|
| TWIST PIN                     | 1  | Male contact, fitted to plug connector.                            |
| SHELL                         | 2  | Connector metal body.  |
| D-CLICK® LATCH-POST           | 3  | Mates with latch spring.   |
| POTTING                       | 4  | Epoxy compound used as an encapsulant.                             |
| INSERT                        | 5  | Moulded insulation housing, separating each connection.            |
| INTERFACIAL SEAL              | 6  | Fitted to socket connector only.                                   |
| SOCKET                        | 7  | Female contact, fitted to socket connector (also known as socket). |
| THREADED INSERT (2-56 UNC 2A) | 8  | Used to screw the connector onto the PCB.                          |
| TRAY                          | 9  | Junction box used for PCB connectors only.                         |
| D-CLICK® LATCH SPRING         | 10 | Latches onto the D-Click® latch-post.                              |

|                    |   |  |
|--------------------|---|--|
| PCB connector      | ● | Connector with footprint for printed circuit board.                      |
| CBR connector      | ● | Condensed Board Right Angle connector.                                   |
| BS connector       | ● | Board Straight connector.  |
| Pigtail connector  | ● | Connector with insulated or uninsulated wires.                           |
| D-Click® connector | ● | Connector designed for D-Click® hardware.                                |
| D-Click® hardware  | ● | Mechanical hardware allowing quick mating & demating even without tools. |

CONNECTORS ARE SUPPLIED WITH ANTI-STATIC PROTECTIVE DUST CAPS

# GENERAL CHARACTERISTICS

per MIL-DTL-83513\*

Based on its Micro-D range, AXON's D-Click® connector range is designed for quick mating & de-mating. The innovative latching hardware allows rapid, reliable and secure connections with no tooling required. The Micro-D D-Click® range, which is covered by the MIL-DTL-83513\* standard, is ideally suited to equipment and applications where weight, miniaturisation and long term performance are required. It is available in 6 contact arrangements (9 to 37 contacts) for rectangular Micro-D connectors.

## ► Electrical & mechanical characteristics

| CHARACTERISTICS  | SPECIFICATION   | TEST METHOD                 |
|--|---|-----------------------------|
| CURRENT RATING   | 2.5 A max. for AWG26 & uninsulated wires*<br>1.5 A max. for AWG28 wires*  |                             |
| CONTACT RESISTANCE                                     | 5 mΩ @ current rating<br>6 mΩ @ low level current   | Para 9.1.1.3 OF ESCC 3401   |
| INSULATION RESISTANCE                                  | 5000 MΩ min. @ 500 Vdc  | Para 9.1.1.1 OF ESCC 3401   |
| DIELECTRIC WITHSTANDING VOLTAGE                        | 600 VRMS / 2 mA (leakage current)   | Para 9.1.1.2 OF ESCC 3401   |
| WORKING VOLTAGE<br>- SEA LEVEL 0 m<br>- ALTITUDE 33 km | 150 VRMS<br>100 VRMS  | Para 9.13.5 OF ESCC 3401    |
| CONTACT ENGAGING AND SEPARATION FORCE                  | 1.667 N max.<br>0.137 N max.  | Para 4.3.9 OF ESCC 3401/029 |
| CONNECTOR MATING AND DE-MATING FORCE                   | Mating: 20 N (9 ways) to 82 N (37 ways) max.<br>De-mating: 1.3 N min. / 20 N max. (9 ways)<br>to 5.1 N min. / 82 N max. (37 ways) | Para 9.20 OF ESCC 3401      |
| CONTACT RETENTION                                      | 22.25 N for female contacts   | Para 9.17 OF ESCC 3401      |
| DURABILITY   | 500 mating cycles min.  | Para 9.18 OF ESCC 3401      |
| TEMPERATURE RANGE                                      | -55°C / +125°C  |                             |
| VIBRATION  | 20 g's - no discontinuity >1μs  | Para 9.11 OF ESCC 3401      |
| SHOCK  | 50 g's - no discontinuity >1μs  | Para 9.12 OF ESCC 3401      |
| SALT SPRAY   | 48 hours  | Para 9.22 OF ESCC 3401      |

\*: For a single contact. Please refer to derating rule of ESCC 3401/029.

## ► Material & Finish

| COMPONENT                 | MATERIAL   | FINISH  |
|---------------------------|--|---|
| MALE CONTACT (TWIST PIN)  | COPPER AND BERYLLIUM COPPER  | GOLD PLATING IN ACCORDANCE WITH ASTM-B488, TYPE II, CLASS 1 (1.27 μm (0.00005") MIN), CODE C                  |
| FEMALE CONTACT            | COPPER ALLOY   | OVER NICKEL UNDERPLATE IN ACCORDANCE WITH SAE-AMS-QQ-N-290 CLASS 2 (1.27 μm (0.00005") TO 3.81 μm (0.00015")) |
| METAL SHELL               | ALUMINIUM ALLOY, TYPE 6061   | ELECTROLESS NICKEL PLATING IN ACCORDANCE WITH SAE-AMS2404, CLASS 4, .0005 INCH MIN.                           |
| PLASTIC INSERT / PCB TRAY | LIQUID CRYSTAL POLYMER, 30% LOADED GLASS FIBRE<br>POLYESTER, 94VO, IN ACCORDANCE WITH MIL-M-24519 (200°C)  |   |
| INTERFACIAL SEAL          | FLUOROSILICONE RUBBER  | HEAT-CURED TO MEET ECSS-Q-70-71 A OUTGASSING REQUIREMENTS   |
| LATCH-POST / HARDWARE     | STAINLESS STEEL, 300 SERIES  | PASSIVATION IN ACCORDANCE WITH SAE-AMS-2700   |
| LATCH SPRING              | BERYLLIUM COPPER   | ELECTROLESS NICKEL PLATING IN ACCORDANCE WITH SAE-AMS2404, CLASS 4, .00015 INCH MIN.                          |
| ENCAPSULANT               | SPACE GRADE EPOXY RESIN  |   |
| INSULATED WIRE            | - POLYIMIDE INSULATED WIRES IN ACCORDANCE WITH ESCC 3901/002<br>- PTFE INSULATED WIRES IN ACCORDANCE WITH ESCC 3901/013<br>- ETFE INSULATED SILVER PLATED COPPER IN ACCORDANCE WITH SAE-AS22759/33 |   |
| UNINSULATED WIRE          | SOLID COPPER WIRES IN ACCORDANCE WITH QQ-W-343 TYPE 'S' GOLD PLATED ACCORDING TO MIL-G-45204, CLASS 2 GRADE C OR D   |   |

\*: ISSUE G AT TIME OF GOING TO PRESS

# 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 21<sup>st</sup> 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 21<sup>st</sup> October 2000.

### COMPONENT SPECIFIC RoHS COMPLIANCE

| COMPONENT                        | MATERIAL                           | FINISH                     | RoHS STATUS    |
|----------------------------------|------------------------------------|----------------------------|----------------|
| <b>PIN CONTACT (TWIST PIN)</b>   | COPPER + BERYLLIUM COPPER          | GOLD                       | RoHS Compliant |
| <b>SOCKET CONTACT</b>            | COPPER ALLOY                       | GOLD                       | RoHS Compliant |
| <b>METAL SHELL</b>               | ALUMINIUM ALLOY TYPE 6061          | ELECTROLESS NICKEL         | RoHS Compliant |
| <b>PLASTIC INSERT / PCB TRAY</b> | LIQUID CRYSTAL POLYMER             | N/A                        | RoHS Compliant |
| <b>INTERFACIAL SEAL</b>          | FLUOROSILICONE RUBBER              | N/A                        | RoHS Compliant |
| <b>LATCH PIN / HARDWARE</b>      | STAINLESS STEEL 300 SERIES         | PASSIVATION                | RoHS Compliant |
| <b>LATCH SPRING</b>              | BERYLLIUM COPPER                   | ELECTROLESS NICKEL         | RoHS Compliant |
| <b>PCB TERMINATION</b>           | SOLID COPPER WIRE                  | GOLD                       | RoHS Compliant |
|                                  | SOLID COPPER WIRE                  | NOT LEADED TIN 97% MAX TIN | RoHS Compliant |
| <b>ENCAPSULANT</b>               | EPOXY RESIN 150°C & 200°C VERSIONS | N/A                        | 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.

## D-CLICK® CONNECTOR WEIGHTS

| D-CLICK® CONNECTOR WEIGHTS IN GRAMS |        |                     |                    |                     |                     |                    |                    |
|-------------------------------------|--------|---------------------|--------------------|---------------------|---------------------|--------------------|--------------------|
| NB OF CONTACT                       | GENDER | PIGTAIL DC HARDWARE | PIGTAIL G HARDWARE | PCB CBR .100" pitch | PCB CBR .075" pitch | PCB BS .100" pitch | PCB BS .075" pitch |
| 9                                   | MALE   | 4.1                 | 3.0                | 4.2                 | 4.2                 | 4.8                | 4.5                |
|                                     | FEMALE | 4.0                 | 3.0                | 4.2                 | 4.1                 | 4.8                | 4.5                |
| 15                                  | MALE   | 4.6                 | 3.5                | 5.0                 | 5.0                 | 5.4                | 5.3                |
|                                     | FEMALE | 4.5                 | 3.4                | 4.9                 | 4.9                 | 5.3                | 5.2                |
| 21                                  | MALE   | 5.1                 | 4.0                | 5.8                 | 5.6                 | 6.5                | 6.0                |
|                                     | FEMALE | 5.0                 | 3.9                | 5.7                 | 5.5                 | 6.4                | 5.9                |
| 25                                  | MALE   | 5.5                 | 4.3                | 6.2                 | 6.1                 | 6.9                | 6.4                |
|                                     | FEMALE | 5.3                 | 4.1                | 6.1                 | 6.0                 | 6.8                | 6.3                |
| 31                                  | MALE   | 6.0                 | 4.7                | 7.7                 | 6.9                 | 8.0                | 7.2                |
|                                     | FEMALE | 5.7                 | 4.6                | 7.5                 | 6.7                 | 7.8                | 7.0                |
| 37                                  | MALE   | 6.0                 | 5.3                | 8.7                 | 7.8                 | 9.2                | 8.0                |
|                                     | FEMALE | 5.7                 | 5.1                | 8.4                 | 7.5                 | 8.9                | 7.7                |

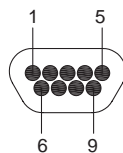
### NOTES

NOMINAL WEIGHT SHOWN. ADD 10% FOR MAXIMUM WEIGHT.  
CONNECTOR WEIGHT INCLUDES HARDWARE.  
PIGTAILS: SEE TABLE PAGE 70 FOR WIRE WEIGHT CALCULATION.

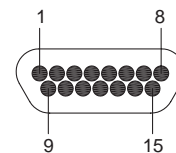
## CONTACT ARRANGEMENTS

### ► Mating face of male rectangular connector

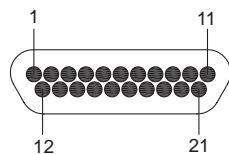
- 1.27 mm (.050") contact spacing.
- 1.09 mm (.043") spacing between rows.



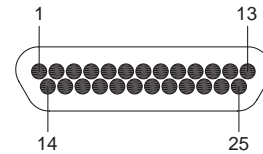
**9 CONTACTS**



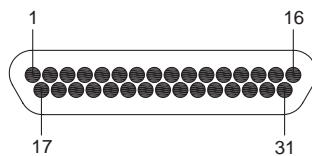
**15 CONTACTS**



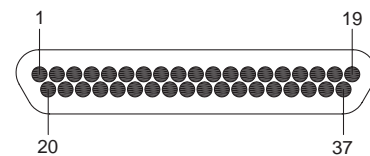
**21 CONTACTS**



**25 CONTACTS**



**31 CONTACTS**

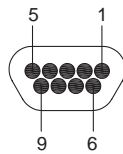


**37 CONTACTS**

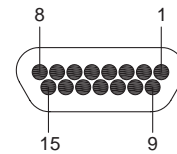
# CONTACT ARRANGEMENTS

## ► Mating face of female rectangular connector

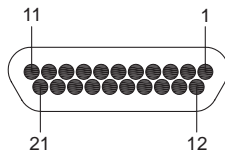
- 1.27 mm (.050") contact spacing.
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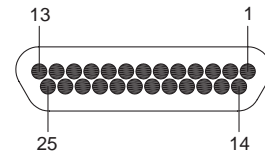
**9 CONTACTS**



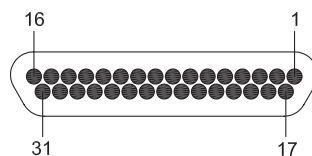
**15 CONTACTS**



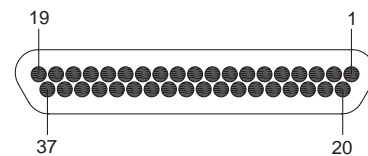
**21 CONTACTS**



**25 CONTACTS**



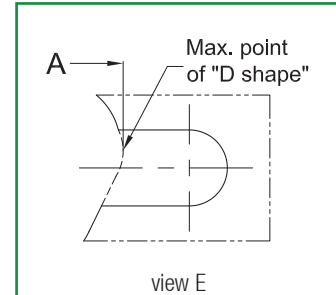
**31 CONTACTS**



**37 CONTACTS**

## PANEL CUTOUTS

### ► Metal shell

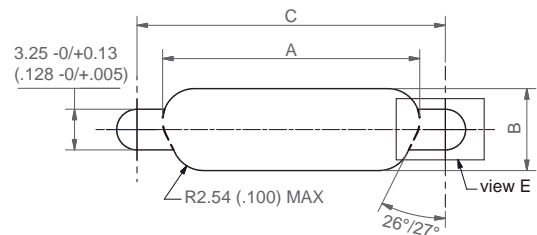
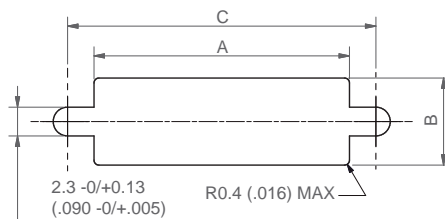


### 9 TO 37 CONTACTS

**FIGURE 1  
FRONT MOUNT**

**FIGURE 2  
REAR MOUNT**

Dimensions are in millimetres (inches).



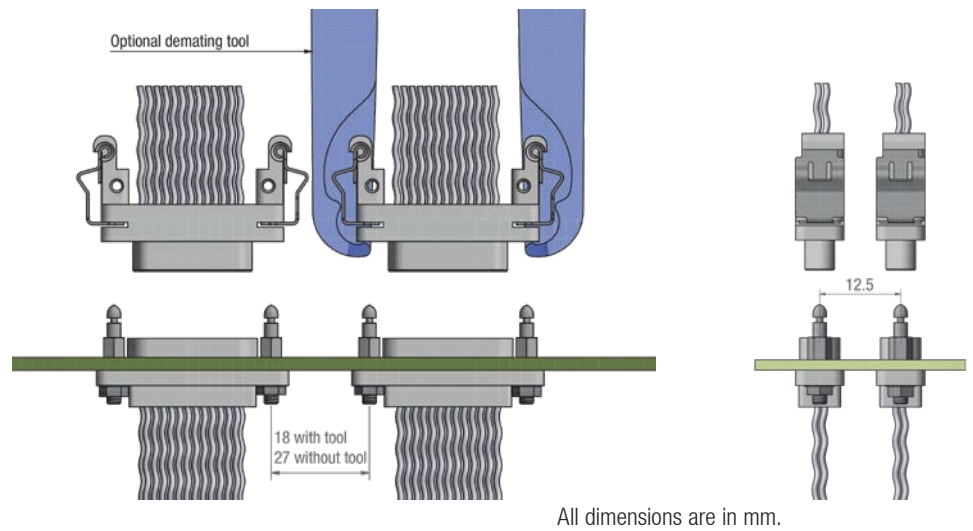
### ► Dimensions

Dimensions are in millimetres (inches).

| LAYOUT | FIGURE N° | A<br>-0/ +0.1<br>(-0 /+0.004) | B<br>-0/ +0.1<br>(-0 /+0.004) | C<br>-0/ +0.13<br>(-0 /+0.005) |
|--------|-----------|-------------------------------|-------------------------------|--------------------------------|
| 9      | 1         | 10.26 (.404)                  | 6.96 (.274)                   | 14.48 (.570)                   |
|        | 2         | 10.36 (.408)                  | 6.55 (.258)                   | 14.48 (.570)                   |
| 15     | 1         | 14.07 (.554)                  | 6.96 (.274)                   | 18.29 (.720)                   |
|        | 2         | 14.20 (.559)                  | 6.55 (.258)                   | 18.29 (.720)                   |
| 21     | 1         | 17.88 (.704)                  | 6.96 (.274)                   | 22.10 (.870)                   |
|        | 2         | 18.00 (.709)                  | 6.55 (.258)                   | 22.10 (.870)                   |
| 25     | 1         | 20.42 (.804)                  | 6.96 (.274)                   | 24.64 (.970)                   |
|        | 2         | 20.55 (.809)                  | 6.55 (.258)                   | 24.64 (.970)                   |
| 31     | 1         | 24.23 (.954)                  | 6.96 (.274)                   | 28.45 (1.120)                  |
|        | 2         | 24.36 (.959)                  | 6.55 (.258)                   | 28.45 (1.120)                  |
| 37     | 1         | 28.04 (1.104)                 | 6.96 (.274)                   | 32.26 (1.270)                  |
|        | 2         | 28.17 (1.109)                 | 6.55 (.258)                   | 32.26 (1.270)                  |



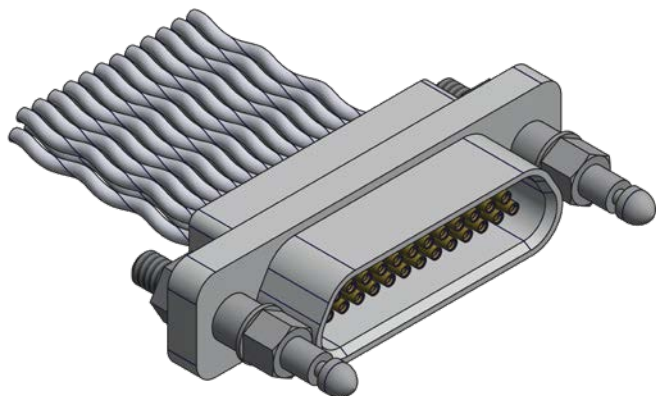
## ► Minimum spacing between D-Click® connectors



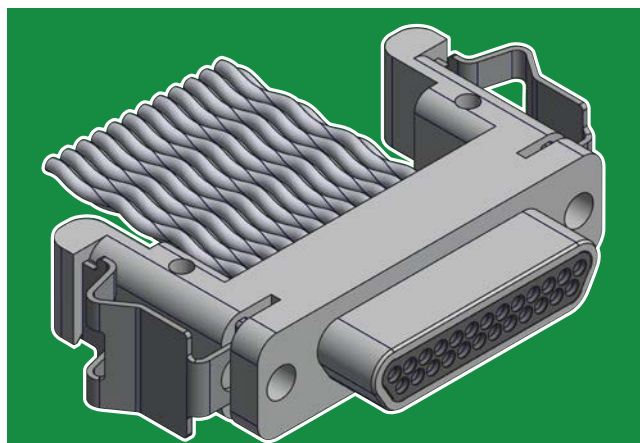
**With a dedicated tool:** 18.00 mm between nearest hardware hole centres

**Without tool:** 27.00 mm between nearest hardware hole centres

AXON' has designed a specific de-mating tool, to help squeeze the 2 latch springs together and remove the connector where there is limited space. The use of this tool makes it possible to install connectors closer to each other. Please contact AXON' for this tooling information.



ESCC 3401 091 02 B 25 S xxxxx Lxxx P5



ESCC 3401 091 01 B 25 P xxxxx Lxxx B

# MICRO-D D-CLICK® PIGTAIL CONNECTORS



## IDENTIFICATION CODE

ESCC3401 091 01 B 25 P xxxxx L050 B

### FAMILY

ESCC 3401 091: ESA approved Micro-D D-Click® AXON' Series.

### VARIANT

01: Pigtail with Latch Springs.  
02: Pigtail with Latch-posts.

### TESTING LEVEL

B: Level B.

### NUMBER OF CONTACTS

09, 15, 21, 25, 31, 37.

### GENDER

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

### CABLES

00256: ESCC 3901 002 variant 56.  
01203: ESCC 3901 012 variant 03.  
01302: ESCC 3901 013 variant 02.  
01804: ESCC 3901 018 variant 04.  
01903: ESCC 3901 019 variant 03.  
02403: ESCC 3901 024 variant 03.

00261: ESCC 3901 002 variant 61.  
01301: ESCC 3901 013 variant 01.  
01803: ESCC 3901 018 variant 03.  
01902: ESCC 3901 019 variant 02.  
02402: ESCC 3901 024 variant 02.

### WIRE LENGTH (cm)

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

### HARDWARE

B: Latch springs, no securing pieces (for variant 01 only).  
S: Latch springs and securing pieces (for variant 01 only).  
P: Latch-posts (for variant 02 only).

Px (x: 1 to 5) Jackposts, rear panel mount (for variant 02 only).

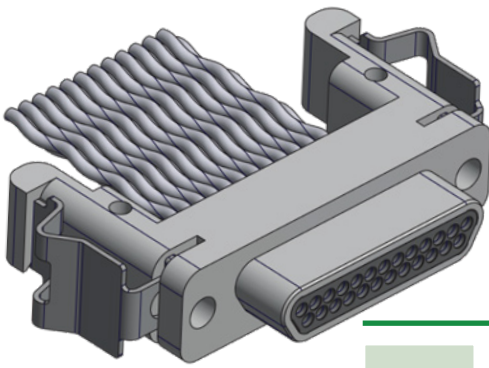
x= 1: 0.8 mm thickness 2: 1.2 mm thickness 3: 1.6 mm thickness

4: 2.0 mm thickness 5: 2.4 mm thickness

See page 10 & 11 for D-Click® hardware.

|                |                  |                   |             |
|----------------|------------------|-------------------|-------------|
| 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 |

CONNECTORS ARE SUPPLIED WITH ANTI-STATIC PROTECTIVE DUST CAPS

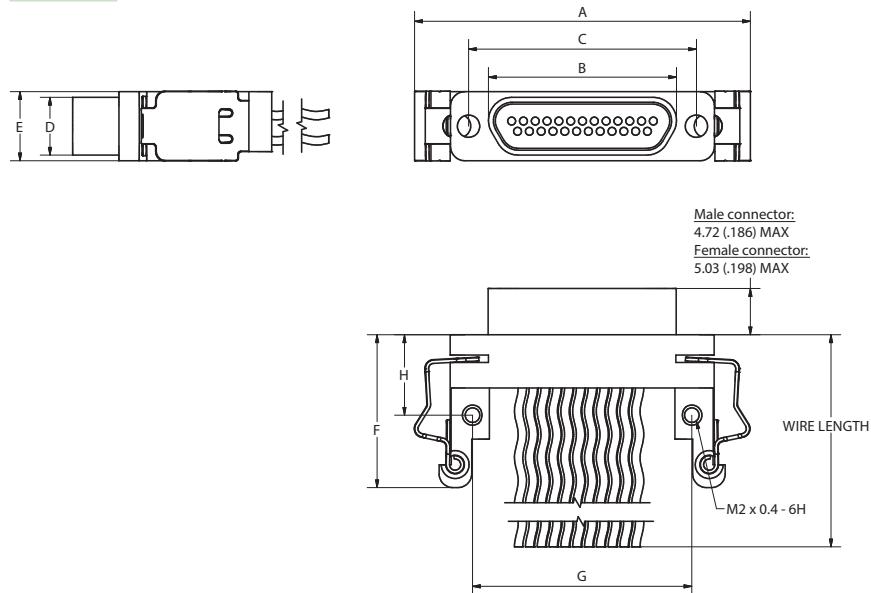


# PIGTAIL

## WITH LATCH SPRINGS (VAR. 01)

### DIMENSIONS

Dimensions are in millimetres (inches).



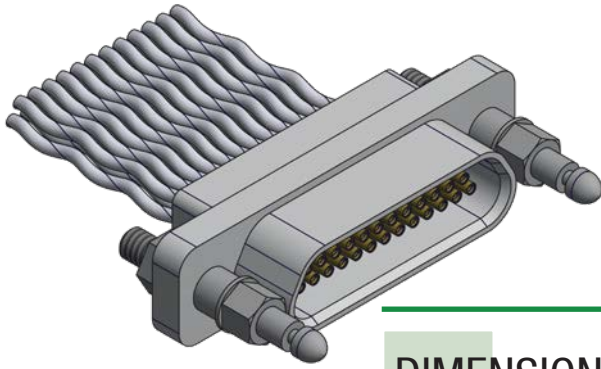
|             | A<br>max.      | B max.         |                | C<br>± 0.13<br>(±.005) | D max.       |              | E<br>max.    | F<br>max.     | G<br>± 0.13<br>(±.005) | H<br>± 0.13<br>(±.005) |
|-------------|----------------|----------------|----------------|------------------------|--------------|--------------|--------------|---------------|------------------------|------------------------|
|             |                | Male           | Female         |                        | Male         | Female       |              |               |                        |                        |
| 9 P / 9 S   | 26.34<br>1.037 | 8.48<br>.334   | 10.16<br>.400  | 14.35<br>.565          | 4.69<br>.185 | 6.35<br>.250 | 7.82<br>.308 | 16.73<br>.569 | 13.43<br>.529          | 8.67<br>.341           |
| 15 P / 15 S | 30.15<br>1.187 | 12.29<br>.484  | 14.00<br>.551  | 18.16<br>.715          | 4.69<br>.185 | 6.35<br>.250 | 7.82<br>.308 | 16.73<br>.569 | 17.24<br>.679          | 8.67<br>.341           |
| 21 P / 21 S | 33.96<br>1.337 | 16.10<br>.634  | 17.81<br>.701  | 21.97<br>.865          | 4.69<br>.185 | 6.35<br>.250 | 7.82<br>.308 | 16.73<br>.569 | 21.05<br>.829          | 8.67<br>.341           |
| 25 P / 25 S | 36.50<br>1.437 | 18.64<br>.734  | 20.35<br>.801  | 24.51<br>.965          | 4.69<br>.185 | 6.35<br>.250 | 7.82<br>.308 | 16.73<br>.569 | 23.59<br>.929          | 8.67<br>.341           |
| 31 P / 31 S | 40.27<br>1.585 | 22.45<br>.884  | 24.16<br>.951  | 28.32<br>1.115         | 4.69<br>.185 | 6.35<br>.250 | 7.82<br>.308 | 16.73<br>.569 | 27.36<br>1.077         | 8.67<br>.341           |
| 37 P / 37 S | 44.12<br>1.737 | 26.26<br>1.034 | 27.96<br>1.101 | 32.13<br>1.265         | 4.69<br>.185 | 6.35<br>.250 | 7.82<br>.308 | 16.73<br>.569 | 31.21<br>1.229         | 8.67<br>.341           |

## SUMMARY OF CHARACTERISTICS

| ELECTRICAL & MECHANICAL PERFORMANCE |   |
|-------------------------------------|---|
| CURRENT RATING                      | 2.5 A max.  |
| CONTACT RESISTANCE                  | 5 mΩ max.   |
| INSULATION RESISTANCE               | 5000 MΩ min. @ 500 V <sub>DC</sub>                                      |
| DIELECTRIC WITHSTANDING VOLTAGE     | Sea level: 150 V <sub>RMS</sub><br>Altitude 33 km: 100 V <sub>RMS</sub> |
| CONTACT ENGAGING FORCE              | 1.667 N max.  |
| CONTACT SEPARATING FORCE            | 0.137 N min.  |
| CONTACT RETENTION                   | 22.25 N   |
| DURABILITY                          | 500 mating cycles min.  |
| VIBRATION                           | 20g's – No discontinuity > 1 μs   |
| SHOCK                               | 50g's – No discontinuity > 1 μs   |

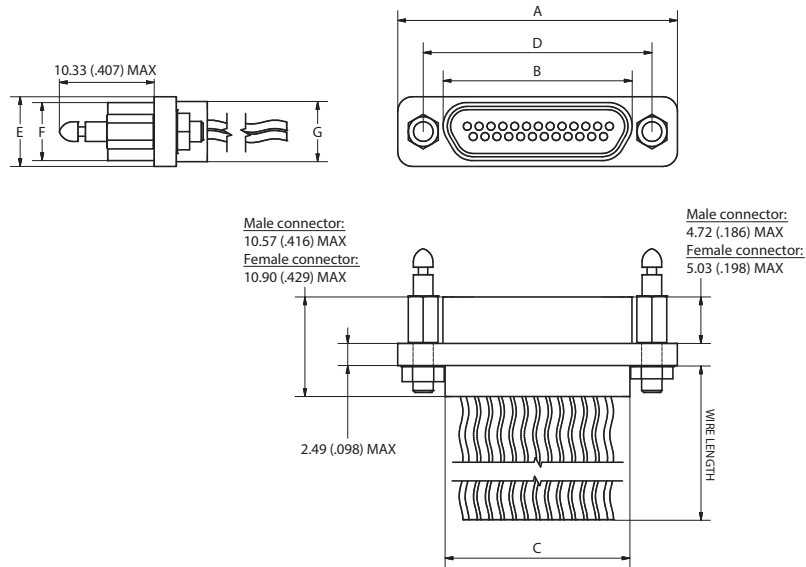
| MATERIAL & FINISH |   |
|-------------------|---|
| SHELL             | Aluminium alloy 6061 with electroless nickel          |
| MOULDED INSULATOR | Liquid Crystal Polymer (LCP)                          |
| INTERFACIAL SEAL  | Fluorosilicone rubber                                 |
| PIN CONTACT       | Copper and beryllium copper, gold over nickel plating |
| SOCKET CONTACT    | Copper alloy, gold over nickel plating                |
| ENCAPSULANT       | Epoxy resin   |
| LATCH SPRINGS     | Beryllium copper with nickel plating                  |

# PIGTAIL WITH LATCH-POSTS (VAR. 02)



## DIMENSIONS

Dimensions are in millimetres (inches).

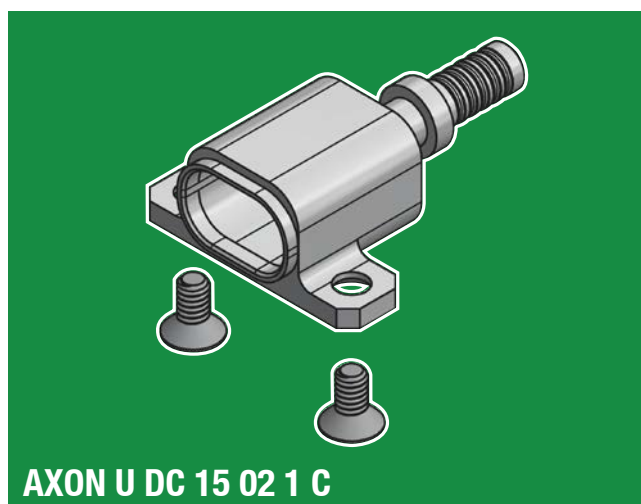
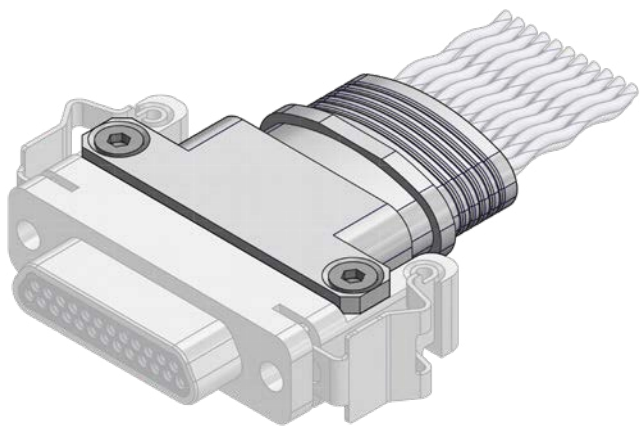


|             | A<br>± 0.25<br>(±.010) | B max.         |                | C<br>-0.46/+0.25<br>(-.018/+0.010) | D<br>± 0.13<br>(±.005) | E<br>± 0.25<br>(±.010) | F max.       |              | G<br>max.    |
|-------------|------------------------|----------------|----------------|------------------------------------|------------------------|------------------------|--------------|--------------|--------------|
|             |                        | Male           | Female         |                                    |                        |                        | Male         | Female       |              |
| 9 P / 9 S   | 19.69<br>.775          | 8.48<br>.334   | 10.16<br>.400  | 9.91<br>.390                       | 14.35<br>.565          | 7.57<br>.298           | 4.69<br>.185 | 6.35<br>.250 | 6.86<br>.270 |
| 15 P / 15 S | 23.50<br>.925          | 12.29<br>.484  | 14.00<br>.551  | 13.72<br>.540                      | 18.16<br>.715          | 7.57<br>.298           | 4.69<br>.185 | 6.35<br>.250 | 6.86<br>.270 |
| 21 P / 21 S | 27.31<br>1.075         | 16.10<br>.634  | 17.81<br>.701  | 17.53<br>.690                      | 21.97<br>.865          | 7.57<br>.298           | 4.69<br>.185 | 6.35<br>.250 | 6.86<br>.270 |
| 25 P / 25 S | 29.85<br>1.740         | 18.64<br>.734  | 20.35<br>.801  | 20.07<br>.790                      | 24.51<br>.965          | 7.57<br>.298           | 4.69<br>.185 | 6.35<br>.250 | 6.86<br>.270 |
| 31 P / 31 S | 33.66<br>2.040         | 22.45<br>.883  | 24.16<br>.951  | 23.88<br>.940                      | 28.32<br>1.115         | 7.57<br>.298           | 4.69<br>.185 | 6.35<br>.250 | 6.86<br>.270 |
| 37 P / 37 S | 37.47<br>1.475         | 26.26<br>1.034 | 27.96<br>1.101 | 27.69<br>1.090                     | 32.13<br>1.265         | 7.57<br>.298           | 4.69<br>.185 | 6.35<br>.250 | 6.86<br>.270 |

## SUMMARY OF CHARACTERISTICS

| ELECTRICAL & MECHANICAL PERFORMANCE |   |
|-------------------------------------|---|
| CURRENT RATING                      | 2.5 A max.  |
| CONTACT RESISTANCE                  | 5 mΩ max.   |
| INSULATION RESISTANCE               | 5000 MΩ min. @ 500 V <sub>DC</sub>                                      |
| DIELECTRIC WITHSTANDING VOLTAGE     | Sea level: 150 V <sub>RMS</sub><br>Altitude 33 km: 100 V <sub>RMS</sub> |
| CONTACT ENGAGING FORCE              | 1.667 N max.  |
| CONTACT SEPARATING FORCE            | 0.137 N min.  |
| CONTACT RETENTION                   | 22.25 N   |
| DURABILITY                          | 500 mating cycles min.  |
| VIBRATION                           | 20g's – No discontinuity > 1 μs   |
| SHOCK                               | 50g's – No discontinuity > 1 μs   |

| MATERIAL & FINISH      |   |
|------------------------|---|
| SHELL                  | Aluminium alloy 6061 with electroless nickel          |
| MOULDED INSULATOR      | Liquid Crystal Polymer (LCP)                          |
| INTERFACIAL SEAL       | Fluorosilicone rubber                                 |
| PIN CONTACT            | Copper and beryllium copper, gold over nickel plating |
| SOCKET CONTACT         | Copper alloy, gold over nickel plating                |
| ENCAPSULANT            | Epoxy resin   |
| LATCH-POSTS / HARDWARE | 300 series stainless steel, passivated                |



AXON U DC 15 02 1 C

# MICRO-D D-CLOCK® BACKSHELLS



## IDENTIFICATION CODE

AXON

U

DC

15

02

1

C

10

### SERIES

### STYLE TYPE

U: Top entry.

### VARIANT

DC: D-Click® connectors variant.

### CONNECTOR SIZE

09, 15, 21, 25, 31, 37.

Number of ways for the corresponding connector

### ENTRY SIZE & TYPE

#### Circular entries:

- 01: 1.6 mm diameter.
- 02: 3.2 mm diameter.
- 03: 4.8 mm diameter.

#### Elliptical entries:

- 04E: 7.0 mm width.
- 05E: 10.8 mm width.
- 06E: 15.2 mm width.
- 07E: 20.1 mm width.

See page 26 for dimensions.  
Other entry sizes available on request.

### MATERIAL

1: Aluminium.

Other materials available on request.

### PLATING OPTION

C: Electroless nickel per SAE-AMS-2404, class 4, (13 µm/.0005 min).

Other platings available on request.

### BACKSHELL DEPTH

10, 15, 20.

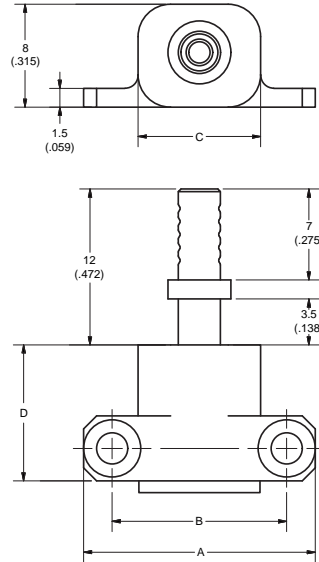
See page 26 for dimensions.

Backshells are supplied with passivated stainless steel hex drive flat head M2 screws.

## DIMENSIONS

Dimensions are in millimetres (inches).

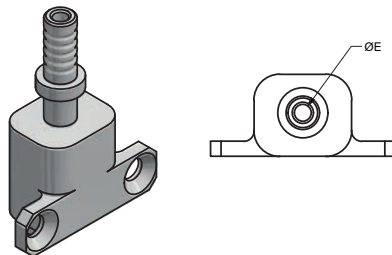
### BACKSHELL



| SHELL SIZE | A             | B             | C             |
|------------|---------------|---------------|---------------|
| 9          | 17.87 (.704)  | 13.43 (.529)  | 9.47 (.373)   |
| 15         | 21.68 (.854)  | 17.24 (.679)  | 13.28 (.523)  |
| 21         | 25.49 (1.003) | 21.05 (.832)  | 17.09 (.673)  |
| 25         | 28.03 (1.104) | 23.59 (.929)  | 19.63 (.773)  |
| 31         | 31.80 (1.252) | 27.36 (1.077) | 23.40 (.921)  |
| 37         | 35.65 (1.404) | 31.21 (1.229) | 27.25 (1.073) |

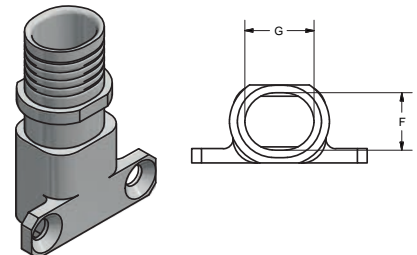
| BACKSHELL DEPTH | D ±0.10 (±.004) |
|-----------------|-----------------|
| 10              | 10.5 (.413)     |
| 15              | 15 (.951)       |
| 20              | 20 (.787)       |

### CIRCULAR ENTRY



| ENTRY SIZE | SHELL SIZE | Ø E        |
|------------|------------|------------|
| 01         | 09-37      | 1.6 (.063) |
| 02         | 09-37      | 3.2 (.126) |
| 03         | 09-37      | 4.8 (.189) |

### ELLIPTICAL ENTRY



| ENTRY SIZE | SHELL SIZE | F           | G           |
|------------|------------|-------------|-------------|
| 04E        | 09-37      | 5.80 (.228) | 7.0 (.276)  |
| 05E        | 15-37      | 5.80 (.228) | 10.8 (.425) |
| 06E        | 25-37      | 5.80 (.228) | 15.2 (.598) |
| 07E        | 37         | 5.80 (.228) | 20.1 (.791) |

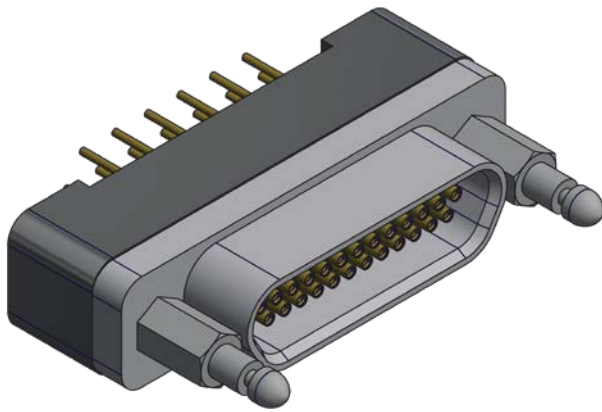
Depending on the number of contacts, we recommend different depths of backshells as follows:

| SIZE (Number of contacts) | BACKSHELL DEPTH (mm) |
|---------------------------|----------------------|
| 9, 15, 21                 | 10.5 (.413)          |
| 25, 31                    | 15 (.951)            |
| 37, 51                    | 20 (.787)            |

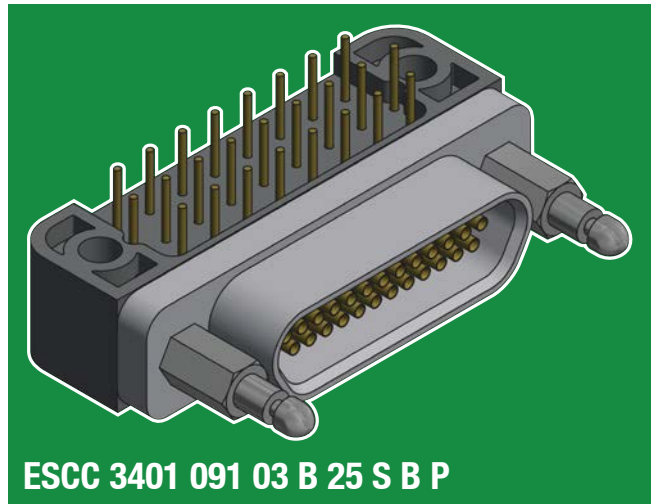
For any other dimensional requirements, our engineers will be pleased to help.

These backshells can be used only with pigtail connectors equipped with D-Click® latch springs.





**ESCC 3401 091 05 B 25 S B W**



**ESCC 3401 091 03 B 25 S B P**

# MICRO-D D-CLICK® PCB CONNECTORS



## IDENTIFICATION CODE

**ESCC 3401 091 04 B 25 S A P**

### FAMILY

**ESCC 3401 091:** ESA approved Micro-D D-Click® AXON® series.

### VARIANT

- 03:** 0.100" Condensed Board Right Angle (CBR).
- 04:** 0.100" Condensed Board Straight (BS).
- 05:** 0.075" Condensed Board Straight Specific Layout (75SB).
- 06:** 0.075" Condensed Board Right Angle (75RB).

### TESTING LEVEL

**B:** Level B.

### NUMBER OF CONTACTS

**09, 15, 21, 25, 31, 37.**

### CONNECTOR GENDER

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

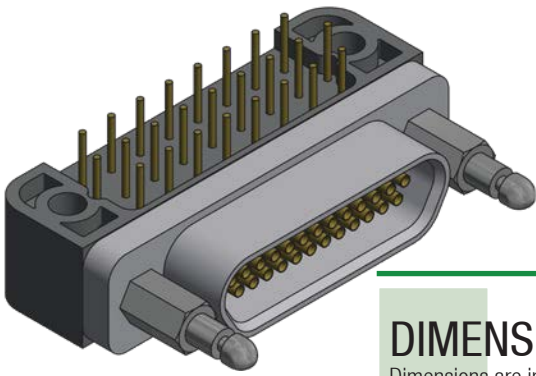
### TAIL LENGTH

- A:** 2.80 mm (0.110").
  - B:** 3.80 mm (0.150").
  - C:** 4.80 mm (0.190").
  - D:** 6.35 mm (0.250").
- Tolerance: ± 0.38 mm (0.015").*  
**Other lengths available on request.**

### HARDWARE

- P:** Latch-posts.
  - W:** Latch-posts & threaded mounting insert.
  - Px** (x: 1 to 5): Latch-posts, rear panel mount.
  - Wx** (x: 1 to 5): Latch-posts, rear panel mount & threaded mounting insert.
  - x= 1:** 0.8 mm thickness
  - 2:** 1.2 mm thickness
  - 3:** 1.6 mm thickness
  - 4:** 2.0 mm thickness
  - 5:** 2.4 mm thickness
- See page 10 & 11 for D-Click® hardware.**

CONNECTORS ARE SUPPLIED WITH ANTI-STATIC PROTECTIVE DUST CAPS

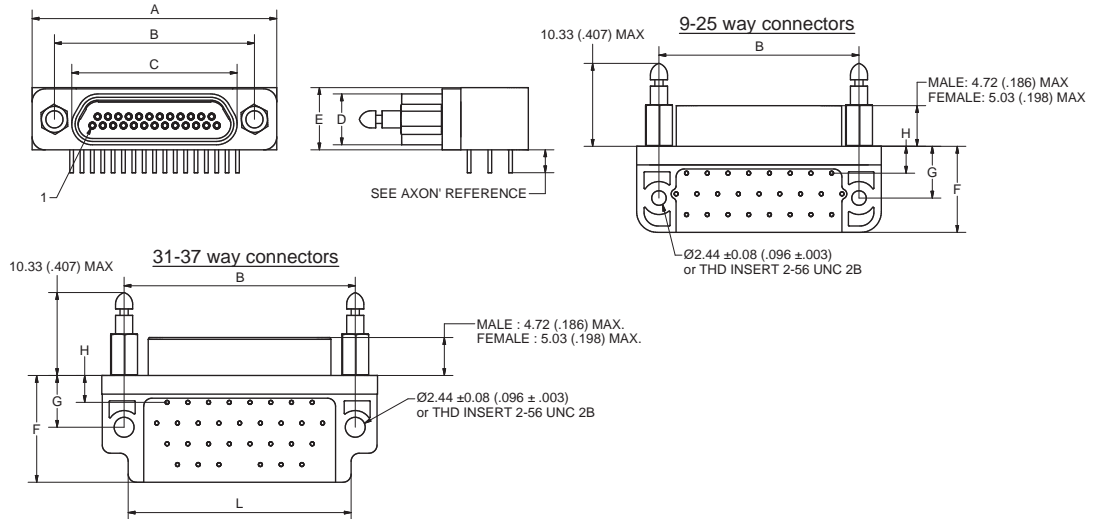


# CBR TYPE

## 0.100" PITCH (VAR. 03)

### DIMENSIONS

Dimensions are in millimetres (inches).



SEE CONTACT LAYOUT ON PCB PAGES 29 & 30

|             | A<br>max.      | B<br>± 0.13<br>(±.005) | C max.         |                | D max.       |              | E<br>max.    | F<br>max.     | G<br>± 0.25<br>(±.010) | H<br>± 0.25<br>(±.010) | L<br>max.      |
|-------------|----------------|------------------------|----------------|----------------|--------------|--------------|--------------|---------------|------------------------|------------------------|----------------|
|             |                |                        | Male           | Female         | Male         | Female       |              |               |                        |                        |                |
| 9 P / 9 S   | 19.94<br>.785  | 14.35<br>.565          | 8.48<br>.334   | 10.16<br>.400  | 4.69<br>.185 | 6.35<br>.250 | 7.82<br>.308 | 10.80<br>.425 | 6.35<br>.250           | 5.84<br>.230           | -              |
| 15 P / 15 S | 23.75<br>.935  | 18.16<br>.715          | 12.29<br>.484  | 14.00<br>.551  | 4.69<br>.185 | 6.35<br>.250 | 7.82<br>.308 | 10.80<br>.425 | 6.35<br>.250           | 3.30<br>.130           | -              |
| 21 P / 21 S | 27.56<br>1.085 | 21.97<br>.865          | 16.10<br>.634  | 17.81<br>.701  | 4.69<br>.185 | 6.35<br>.250 | 7.82<br>.308 | 10.80<br>.425 | 6.35<br>.250           | 3.30<br>.130           | -              |
| 25 P / 25 S | 30.10<br>1.185 | 24.51<br>.965          | 18.64<br>.734  | 20.35<br>.801  | 4.69<br>.185 | 6.35<br>.250 | 7.82<br>.308 | 10.80<br>.425 | 6.35<br>.250           | 3.30<br>.130           | -              |
| 31 P / 31 S | 33.91<br>1.335 | 28.32<br>1.115         | 22.45<br>.883  | 24.16<br>.951  | 4.69<br>.185 | 6.35<br>.250 | 7.82<br>.308 | 13.34<br>.525 | 6.35<br>.250           | 3.30<br>.130           | 27.69<br>1.090 |
| 37 P / 37 S | 37.72<br>1.485 | 32.13<br>1.265         | 26.26<br>1.034 | 27.96<br>1.101 | 4.69<br>.185 | 6.35<br>.250 | 7.82<br>.308 | 13.34<br>.525 | 6.35<br>.250           | 3.30<br>.130           | 30.23<br>1.190 |

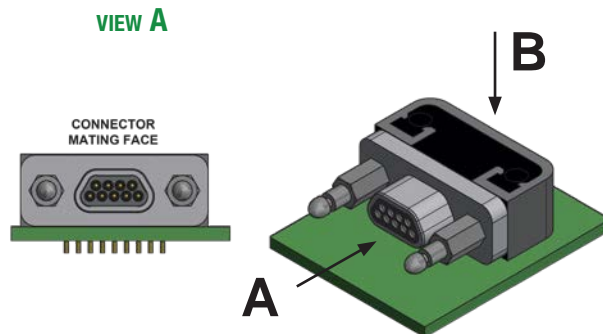
## SUMMARY OF CHARACTERISTICS

| ELECTRICAL & MECHANICAL PERFORMANCE |   |
|-------------------------------------|---|
| CURRENT RATING                      | 2.5 A max.  |
| CONTACT RESISTANCE                  | 5 mΩ max.   |
| INSULATION RESISTANCE               | 5000 MΩ min. @ 500 V <sub>DC</sub>                                      |
| DIELECTRIC WITHSTANDING VOLTAGE     | Sea level: 150 V <sub>RMS</sub><br>Altitude 33 km: 100 V <sub>RMS</sub> |
| CONTACT ENGAGING FORCE              | 1.667 N max.  |
| CONTACT SEPARATING FORCE            | 0.137 N min.  |
| CONTACT RETENTION                   | 22.25 N   |
| DURABILITY                          | 500 mating cycles min.  |
| VIBRATION                           | 20g's – No discontinuity > 1 μs   |
| SHOCK                               | 50g's – No discontinuity > 1 μs   |

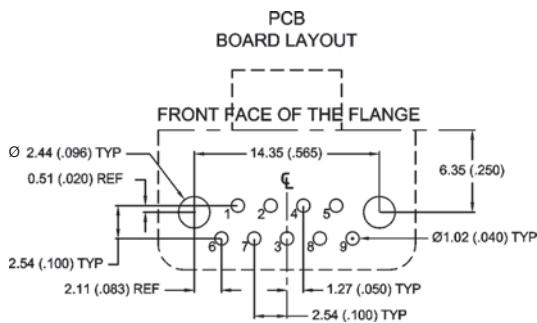
| MATERIAL & FINISH      |   |
|------------------------|---|
| SHELL                  | Aluminium alloy 6061 with electroless nickel          |
| MOULDED INSULATOR      | Liquid Crystal Polymer (LCP)                          |
| INTERFACIAL SEAL       | Fluorosilicone rubber                                 |
| PIN CONTACT            | Copper and beryllium copper, gold over nickel plating |
| SOCKET CONTACT         | Copper alloy, gold over nickel plating                |
| ENCAPSULANT            | Epoxy resin   |
| LATCH-POSTS / HARDWARE | 300 series stainless steel, passivated                |



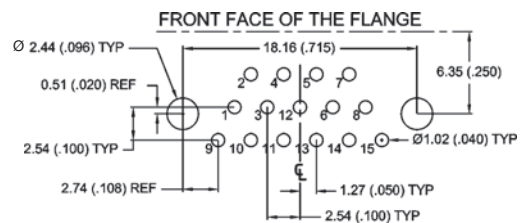
# PCB LAYOUT FOR CBR TYPE 0.100" PITCH - MALE CONNECTORS VARIANT 03



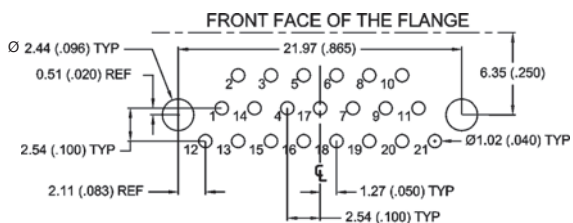
## 9 CONTACTS - VIEW B



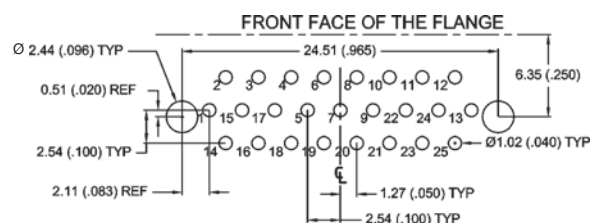
## 15 CONTACTS - VIEW B



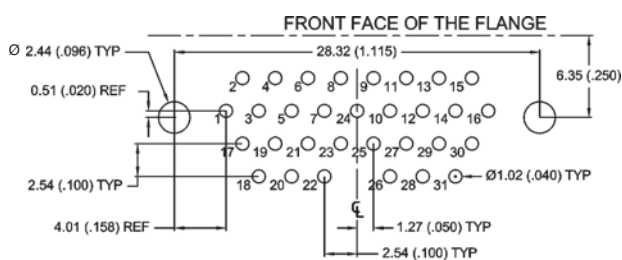
## 21 CONTACTS - VIEW B



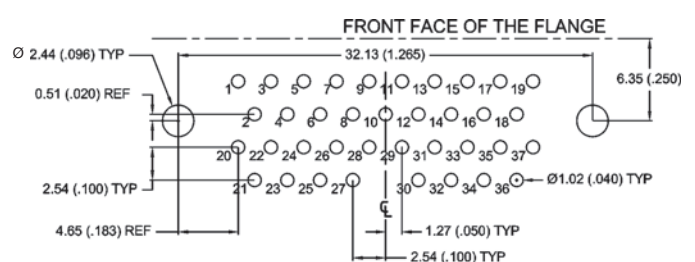
## 25 CONTACTS - VIEW B



## 31 CONTACTS - VIEW B

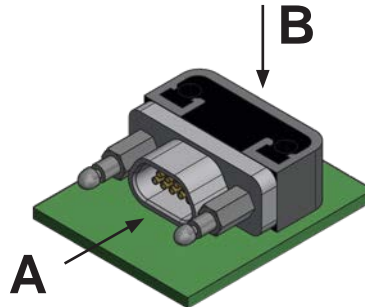


## 37 CONTACTS - VIEW B

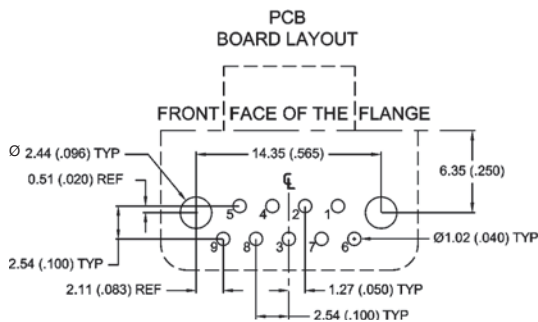


# PCB LAYOUT FOR CBR TYPE 0.100" PITCH - FEMALE CONNECTORS VARIANT 03

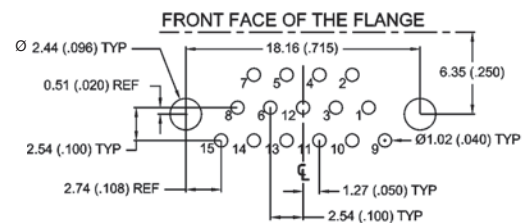
VIEW A



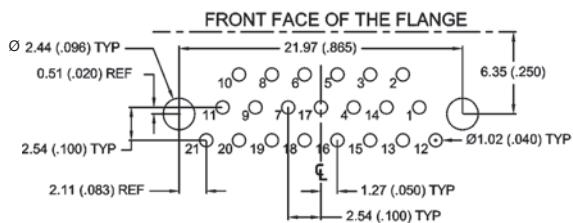
9 CONTACTS - VIEW B



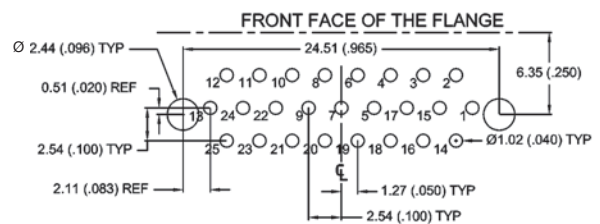
15 CONTACTS - VIEW B



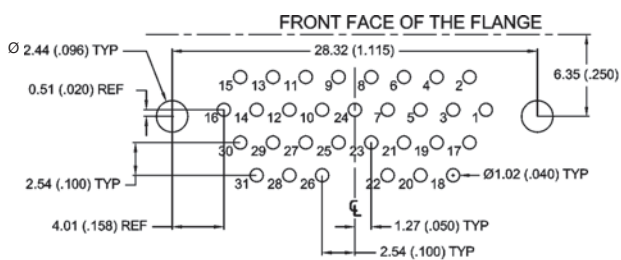
21 CONTACTS - VIEW B



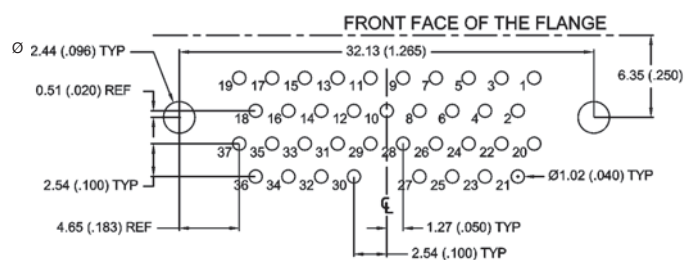
25 CONTACTS - VIEW B

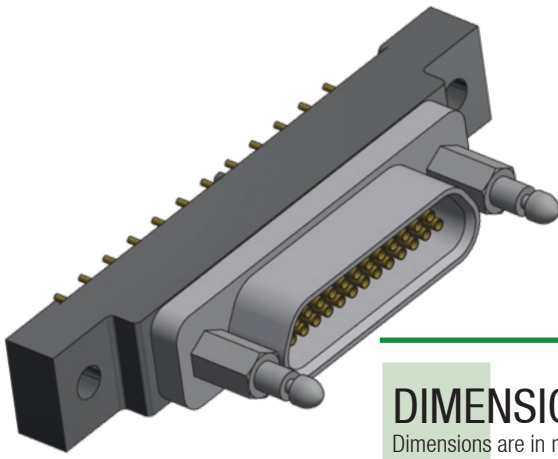


31 CONTACTS - VIEW B



37 CONTACTS - VIEW B



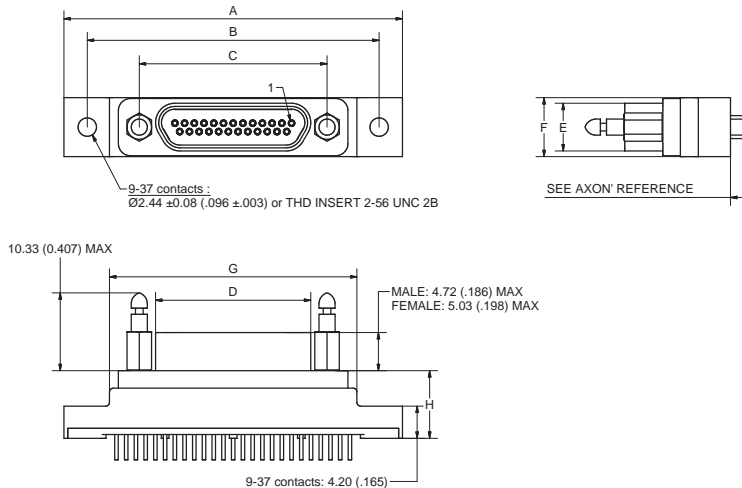


# BS TYPE

## 0.100" PITCH (VAR. 04)

### DIMENSIONS

Dimensions are in millimetres (inches).



SEE CONTACT LAYOUT ON PCB PAGES 32 & 33

|             | A<br>max.      | B<br>± 0.18<br>(±.007) | C<br>± 0.13<br>(±.005) | D max.         |                | E max.       |              | F<br>max.    | G<br>max.      | H<br>max.    |
|-------------|----------------|------------------------|------------------------|----------------|----------------|--------------|--------------|--------------|----------------|--------------|
|             |                |                        |                        | Male           | Female         | Male         | Female       |              |                |              |
| 9 P / 9 S   | 35.31<br>1.390 | 29.21<br>1.150         | 14.35<br>.565          | 8.48<br>.334   | 10.16<br>.400  | 4.69<br>.185 | 6.35<br>.250 | 7.82<br>.308 | 19.94<br>.785  | 9.02<br>.355 |
| 15 P / 15 S | 35.31<br>1.390 | 29.21<br>1.150         | 18.16<br>.715          | 12.29<br>.484  | 14.00<br>.551  | 4.69<br>.185 | 6.35<br>.250 | 7.82<br>.308 | 24.00<br>.945  | 9.02<br>.355 |
| 21 P / 21 S | 42.93<br>1.690 | 36.83<br>1.450         | 21.97<br>.865          | 16.10<br>.634  | 17.81<br>.701  | 4.69<br>.185 | 6.35<br>.250 | 7.82<br>.308 | 29.72<br>1.170 | 9.02<br>.355 |
| 25 P / 25 S | 44.20<br>1.740 | 38.10<br>1.500         | 24.51<br>.965          | 18.64<br>.734  | 20.35<br>.801  | 4.69<br>.185 | 6.35<br>.250 | 7.82<br>.308 | 32.39<br>1.275 | 9.02<br>.355 |
| 31 P / 31 S | 51.82<br>2.040 | 45.72<br>1.800         | 28.32<br>1.115         | 22.45<br>.883  | 24.16<br>.951  | 4.69<br>.185 | 6.35<br>.250 | 7.82<br>.308 | 40.01<br>1.575 | 9.02<br>.355 |
| 37 P / 37 S | 59.44<br>2.340 | 53.34<br>2.100         | 32.13<br>1.265         | 26.26<br>1.034 | 27.96<br>1.101 | 4.69<br>.185 | 6.35<br>.250 | 7.82<br>.308 | 47.63<br>1.875 | 9.02<br>.355 |

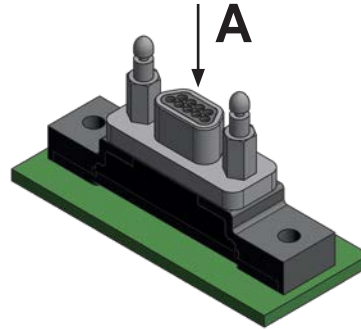
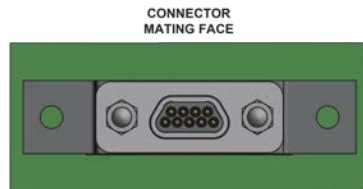
## SUMMARY OF CHARACTERISTICS

| ELECTRICAL & MECHANICAL PERFORMANCE |   |
|-------------------------------------|---|
| CURRENT RATING                      | 2.5 A max.  |
| CONTACT RESISTANCE                  | 5 mΩ max.   |
| INSULATION RESISTANCE               | 5000 MΩ min. @ 500 V <sub>DC</sub>                                      |
| DIELECTRIC WITHSTANDING VOLTAGE     | Sea level: 150 V <sub>RMS</sub><br>Altitude 33 km: 100 V <sub>RMS</sub> |
| CONTACT ENGAGING FORCE              | 1.667 N max.  |
| CONTACT SEPARATING FORCE            | 0.137 N min.  |
| CONTACT RETENTION                   | 22.25 N   |
| DURABILITY                          | 500 mating cycles min.  |
| VIBRATION                           | 20g's – No discontinuity > 1 μs   |
| SHOCK                               | 50g's – No discontinuity > 1 μs   |

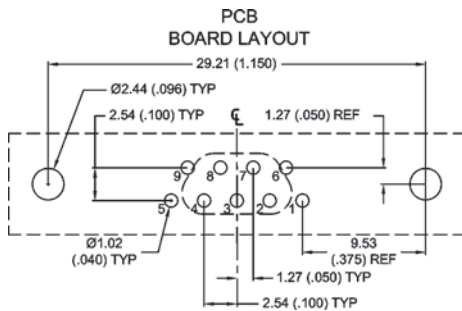
| MATERIAL & FINISH      |   |
|------------------------|---|
| SHELL                  | Aluminium alloy 6061 with electroless nickel          |
| MOULDED INSULATOR      | Liquid Crystal Polymer (LCP)                          |
| INTERFACIAL SEAL       | Fluorosilicone rubber                                 |
| PIN CONTACT            | Copper and beryllium copper, gold over nickel plating |
| SOCKET CONTACT         | Copper alloy, gold over nickel plating                |
| ENCAPSULANT            | Epoxy resin   |
| LATCH-POSTS / HARDWARE | 300 series stainless steel, passivated                |

# PCB LAYOUT FOR BS TYPE 0.100" PITCH - MALE CONNECTORS VARIANT 04

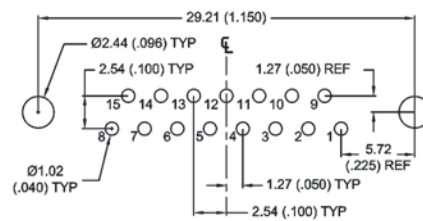
VIEW A



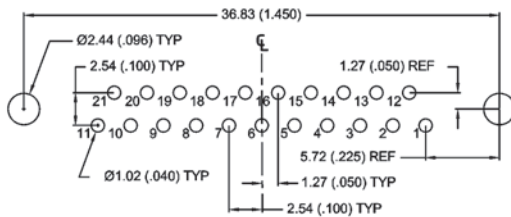
9 CONTACTS - VIEW A



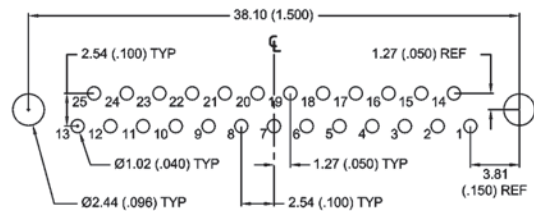
15 CONTACTS - VIEW A



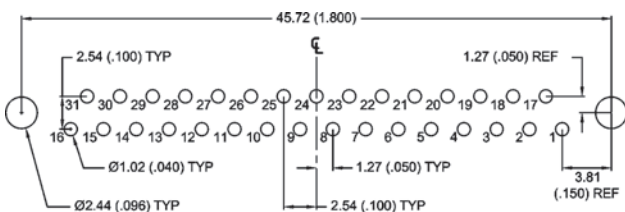
21 CONTACTS - VIEW A



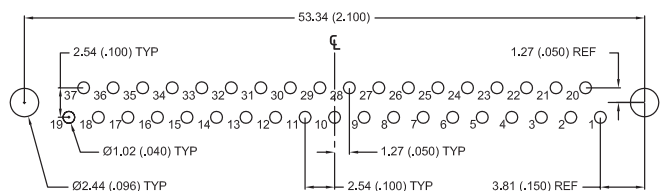
25 CONTACTS - VIEW A



31 CONTACTS - VIEW A

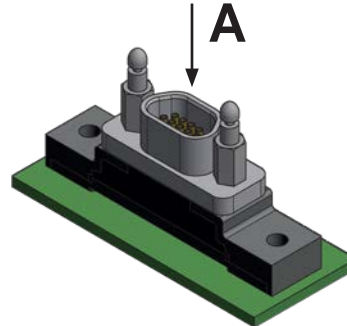
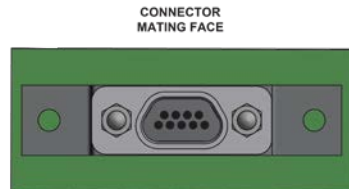


37 CONTACTS - VIEW A

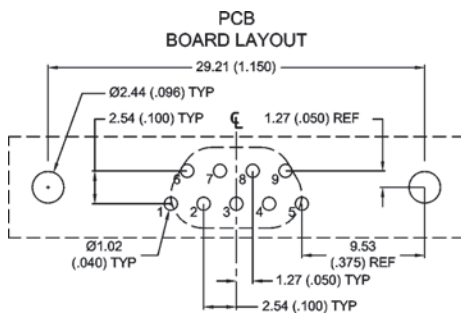


# PCB LAYOUT FOR BS TYPE 0.100" PITCH - FEMALE CONNECTORS VARIANT 04

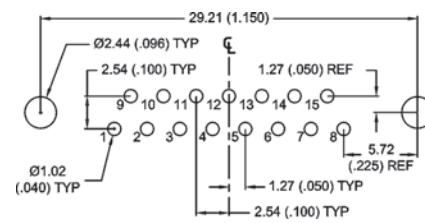
VIEW A



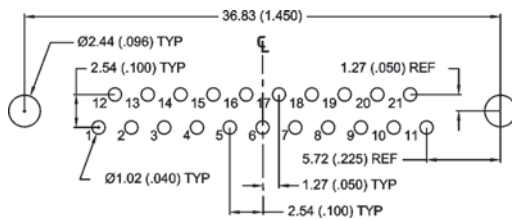
9 CONTACTS - VIEW A



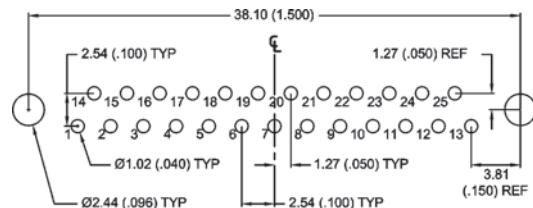
15 CONTACTS - VIEW A



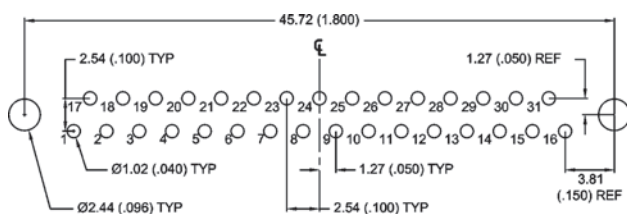
21 CONTACTS - VIEW A



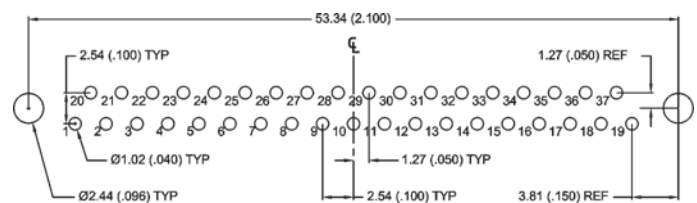
25 CONTACTS - VIEW A

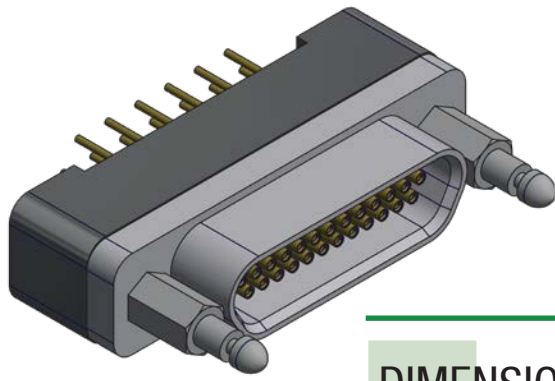


31 CONTACTS - VIEW A



37 CONTACTS - VIEW A



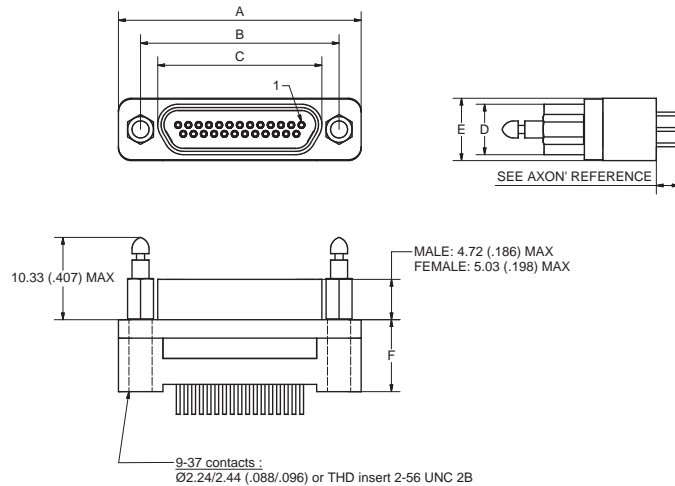


# BS TYPE

## 0.075" PITCH (VAR. 05)

### DIMENSIONS

Dimensions are in millimetres (inches).



SEE CONTACT LAYOUT ON PCB PAGES 35 & 36

|             | A<br>max.      | B<br>± 0.13<br>(±.005) | C max.         |                | D max.       |              | E<br>max.    | F<br>max.    |
|-------------|----------------|------------------------|----------------|----------------|--------------|--------------|--------------|--------------|
|             |                |                        | Male           | Female         | Male         | Female       |              |              |
| 9 P / 9 S   | 19.94<br>.785  | 14.35<br>.565          | 8.48<br>.334   | 10.16<br>.400  | 4.69<br>.185 | 6.35<br>.250 | 7.87<br>.310 | 9.02<br>.355 |
| 15 P / 15 S | 23.75<br>.935  | 18.16<br>.715          | 12.29<br>.484  | 14.00<br>.551  | 4.69<br>.185 | 6.35<br>.250 | 7.87<br>.310 | 9.02<br>.355 |
| 21 P / 21 S | 27.56<br>1.085 | 21.97<br>.865          | 16.10<br>.634  | 17.81<br>.701  | 4.69<br>.185 | 6.35<br>.250 | 7.87<br>.310 | 9.02<br>.355 |
| 25 P / 25 S | 30.10<br>1.185 | 24.51<br>.965          | 18.64<br>.734  | 20.35<br>.801  | 4.69<br>.185 | 6.35<br>.250 | 7.87<br>.310 | 9.02<br>.355 |
| 31 P / 31 S | 33.91<br>1.335 | 28.32<br>1.115         | 22.45<br>.883  | 24.16<br>.951  | 4.69<br>.185 | 6.35<br>.250 | 7.87<br>.310 | 9.02<br>.355 |
| 37 P / 37 S | 37.72<br>1.485 | 32.13<br>1.265         | 26.26<br>1.034 | 27.96<br>1.101 | 4.69<br>.185 | 6.35<br>.250 | 7.87<br>.310 | 9.02<br>.355 |

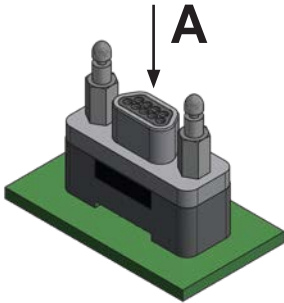
## SUMMARY OF CHARACTERISTICS

| ELECTRICAL & MECHANICAL PERFORMANCE |   |
|-------------------------------------|---|
| CURRENT RATING                      | 2.5 A max.  |
| CONTACT RESISTANCE                  | 5 mΩ max.   |
| INSULATION RESISTANCE               | 5000 MΩ min. @ 500 V <sub>DC</sub>                                      |
| DIELECTRIC WITHSTANDING VOLTAGE     | Sea level: 150 V <sub>RMS</sub><br>Altitude 33 km: 100 V <sub>RMS</sub> |
| CONTACT ENGAGING FORCE              | 1.667 N max.  |
| CONTACT SEPARATING FORCE            | 0.137 N min.  |
| CONTACT RETENTION                   | 22.25 N   |
| DURABILITY                          | 500 mating cycles min.  |
| VIBRATION                           | 20g's – No discontinuity > 1 μs   |
| SHOCK                               | 50g's – No discontinuity > 1 μs   |

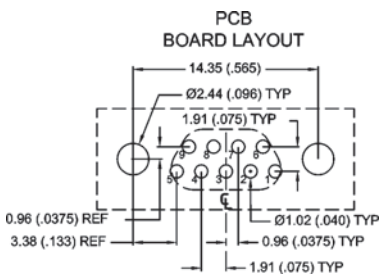
| MATERIAL & FINISH      |   |
|------------------------|---|
| SHELL                  | Aluminium alloy 6061 with electroless nickel          |
| MOULDED INSULATOR      | Liquid Crystal Polymer (LCP)                          |
| INTERFACIAL SEAL       | Fluorosilicone rubber                                 |
| PIN CONTACT            | Copper and beryllium copper, gold over nickel plating |
| SOCKET CONTACT         | Copper alloy, gold over nickel plating                |
| ENCAPSULANT            | Epoxy resin   |
| LATCH-POSTS / HARDWARE | 300 series stainless steel, passivated                |

**S TYPE - 0.075" PITCH - 75SB**  
**LAYOUT - MALE CONNECTORS**  
**VARIANT 05**

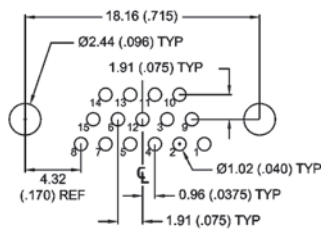
VIEW A



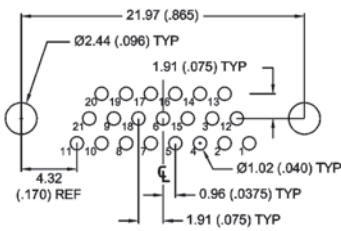
**9 CONTACTS - VIEW ALL**



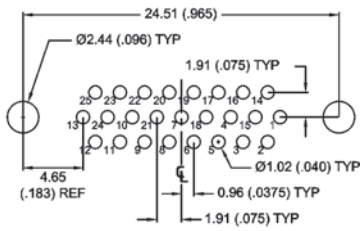
15 CONTACTS - VIEW A



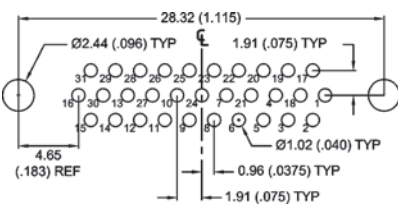
## 21 CONTACTS - VIEW A



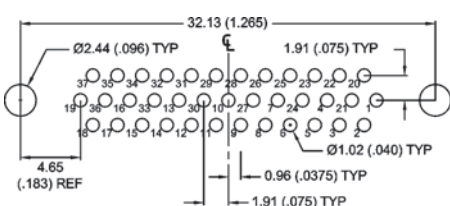
## 25 CONTACTS - VIEW A



## 31 CONTACTS - VIEW A



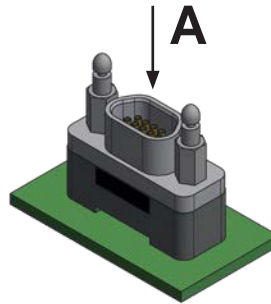
### 37 CONTACTS - VIEW A



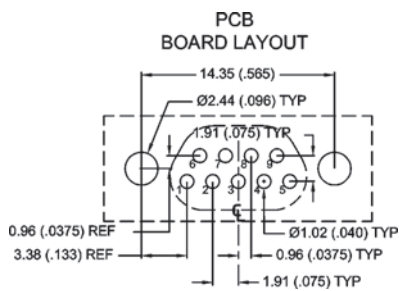


# PCB LAYOUT FOR BS TYPE - 0.075" PITCH - 75SB SPECIFIC LAYOUT - FEMALE CONNECTORS VARIANT 05

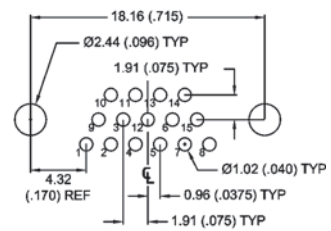
VIEW A



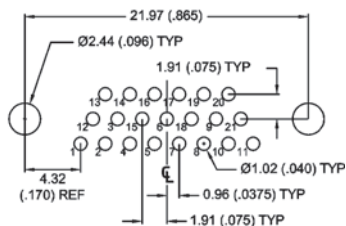
9 CONTACTS - VIEW A



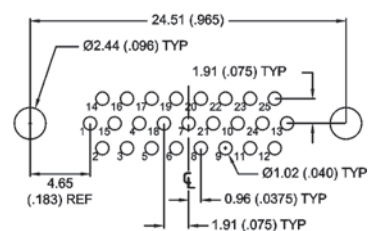
15 CONTACTS - VIEW A



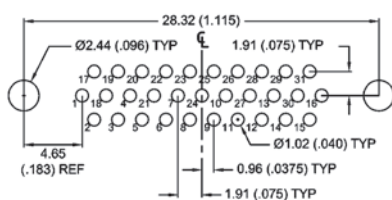
21 CONTACTS - VIEW A



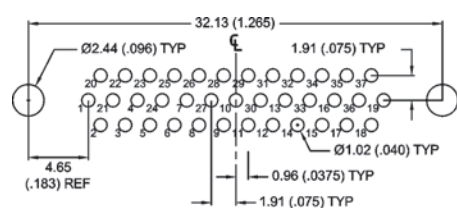
25 CONTACTS - VIEW A



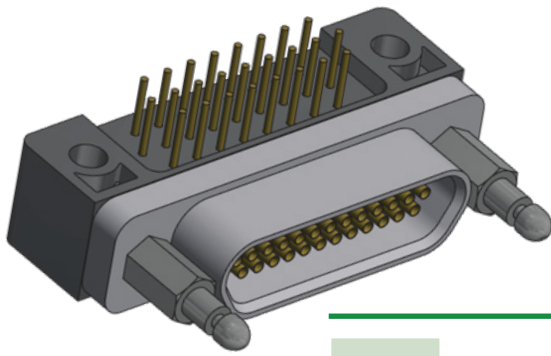
31 CONTACTS - VIEW A



37 CONTACTS - VIEW A





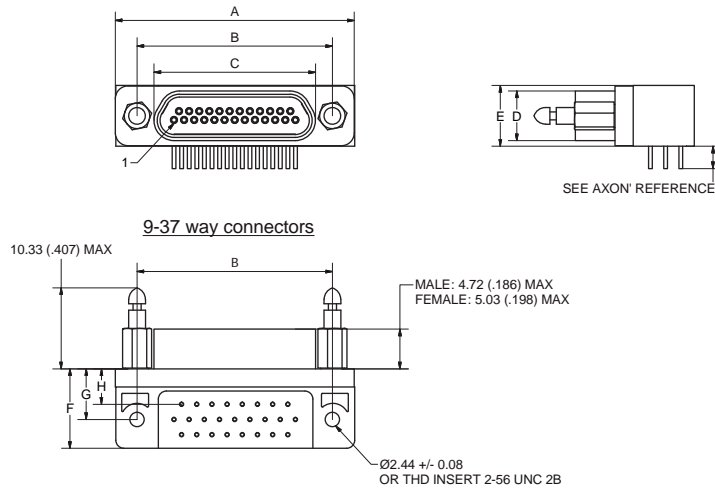


# CBR TYPE

## 0.075" PITCH (VAR. 06)

### DIMENSIONS

Dimensions are in millimetres (inches).



SEE CONTACT LAYOUT ON PCB PAGES 38 & 39

|             | A<br>max.      | B<br>± 0.13<br>(±.005) | C max.         |                | D max.       |              | E<br>max.    | F<br>max.     | G<br>± 0.25<br>(±.010) | H<br>± 0.25<br>(±.010) |
|-------------|----------------|------------------------|----------------|----------------|--------------|--------------|--------------|---------------|------------------------|------------------------|
|             |                |                        | Male           | Female         | Male         | Female       |              |               |                        |                        |
| 9 P / 9 S   | 19.94<br>.785  | 14.35<br>.565          | 8.48<br>.334   | 10.16<br>.400  | 4.69<br>.185 | 6.35<br>.250 | 7.82<br>.308 | 10.16<br>.400 | 6.35<br>.250           | 5.40<br>.213           |
| 15 P / 15 S | 23.75<br>.935  | 18.16<br>.715          | 12.29<br>.484  | 14.00<br>.551  | 4.69<br>.185 | 6.35<br>.250 | 7.82<br>.308 | 10.16<br>.400 | 6.35<br>.250           | 4.45<br>.175           |
| 21 P / 21 S | 27.56<br>1.085 | 21.97<br>.865          | 16.10<br>.634  | 17.81<br>.701  | 4.69<br>.185 | 6.35<br>.250 | 7.82<br>.308 | 10.16<br>.400 | 6.35<br>.250           | 4.45<br>.175           |
| 25 P / 25 S | 30.10<br>1.185 | 24.51<br>.965          | 18.64<br>.734  | 20.35<br>.801  | 4.69<br>.185 | 6.35<br>.250 | 7.82<br>.308 | 10.16<br>.400 | 6.35<br>.250           | 4.45<br>.175           |
| 31 P / 31 S | 33.91<br>1.335 | 28.32<br>1.115         | 22.45<br>.883  | 24.16<br>.951  | 4.69<br>.185 | 6.35<br>.250 | 7.82<br>.308 | 10.16<br>.400 | 6.35<br>.250           | 4.45<br>.175           |
| 37 P / 37 S | 37.72<br>1.485 | 32.13<br>1.265         | 26.26<br>1.034 | 27.96<br>1.101 | 4.69<br>.185 | 6.35<br>.250 | 7.82<br>.308 | 10.16<br>.400 | 6.35<br>.250           | 4.45<br>.175           |

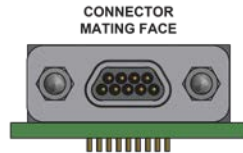
## SUMMARY OF CHARACTERISTICS

| ELECTRICAL & MECHANICAL PERFORMANCE |   |
|-------------------------------------|---|
| CURRENT RATING                      | 2.5 A max.  |
| CONTACT RESISTANCE                  | 5 mΩ max.   |
| INSULATION RESISTANCE               | 5000 MΩ min. @ 500 V <sub>DC</sub>                                      |
| DIELECTRIC WITHSTANDING VOLTAGE     | Sea level: 150 V <sub>RMS</sub><br>Altitude 33 km: 100 V <sub>RMS</sub> |
| CONTACT ENGAGING FORCE              | 1.667 N max.  |
| CONTACT SEPARATING FORCE            | 0.137 N min.  |
| CONTACT RETENTION                   | 22.25 N   |
| DURABILITY                          | 500 mating cycles min.  |
| VIBRATION                           | 20g's – No discontinuity > 1 μs   |
| SHOCK                               | 50g's – No discontinuity > 1 μs   |

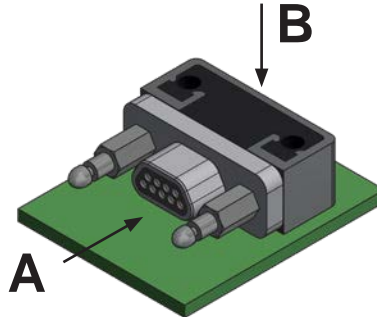
| MATERIAL & FINISH      |   |
|------------------------|---|
| SHELL                  | Aluminium alloy 6061 with electroless nickel          |
| MOULDED INSULATOR      | Liquid Crystal Polymer (LCP)                          |
| INTERFACIAL SEAL       | Fluorosilicone rubber                                 |
| PIN CONTACT            | Copper and beryllium copper, gold over nickel plating |
| SOCKET CONTACT         | Copper alloy, gold over nickel plating                |
| ENCAPSULANT            | Epoxy resin   |
| LATCH-POSTS / HARDWARE | 300 series stainless steel, passivated                |

# PCB LAYOUT FOR CBR TYPE - 0.075" PITCH - 75RB MALE CONNECTORS VARIANT 06

VIEW A

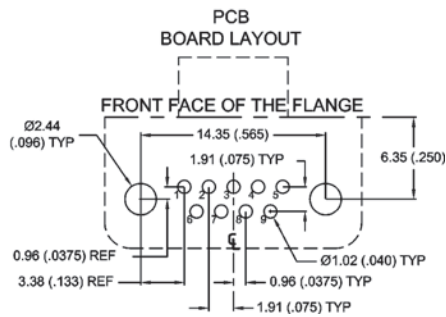


B

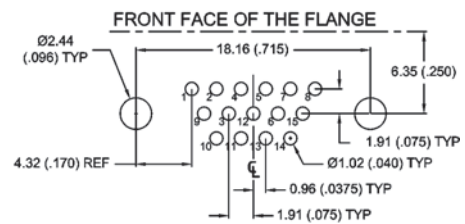


A

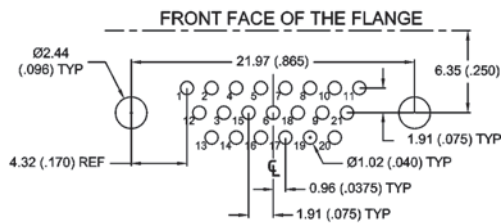
9 CONTACTS - VIEW B



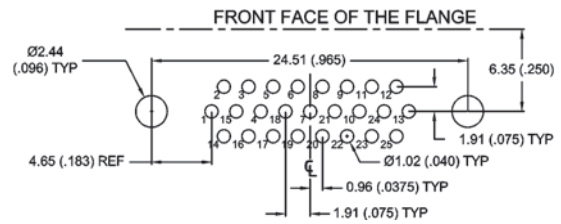
15 CONTACTS - VIEW B



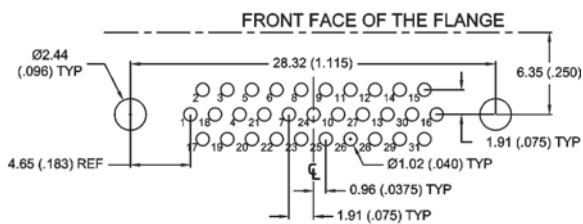
21 CONTACTS - VIEW B



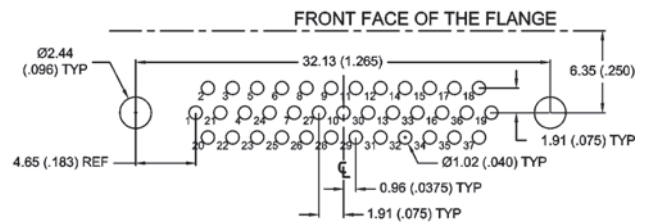
25 CONTACTS - VIEW B



31 CONTACTS - VIEW B

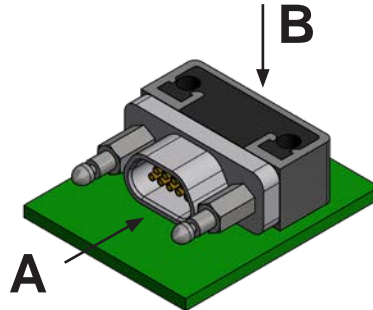


37 CONTACTS - VIEW B

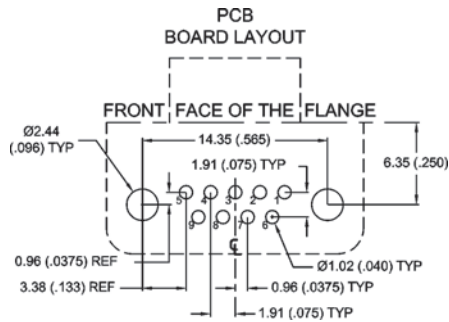


# PCB LAYOUT FOR CBR TYPE - 0.075" PITCH - 75RB FEMALE CONNECTORS VARIANT 06

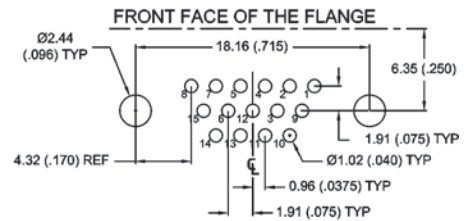
VIEW A



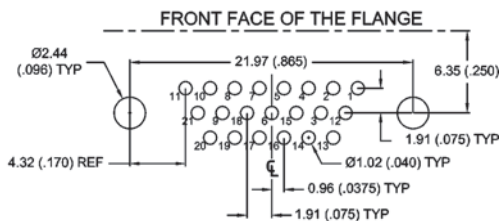
9 CONTACTS - VIEW B



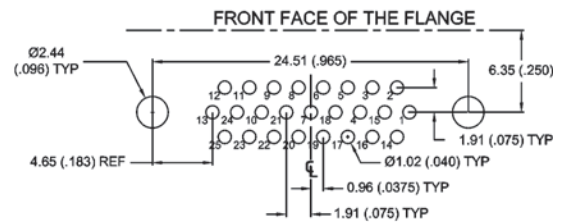
15 CONTACTS - VIEW B



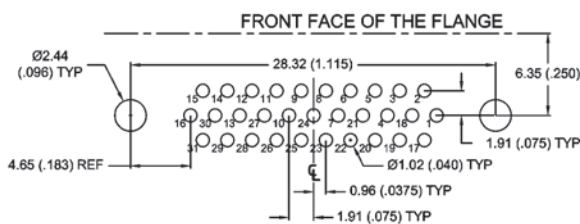
21 CONTACTS - VIEW B



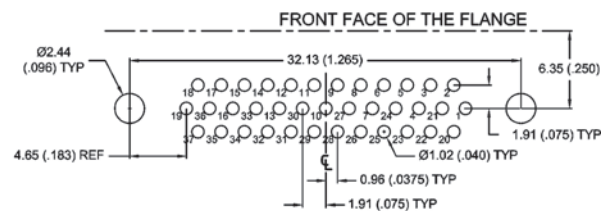
25 CONTACTS - VIEW B

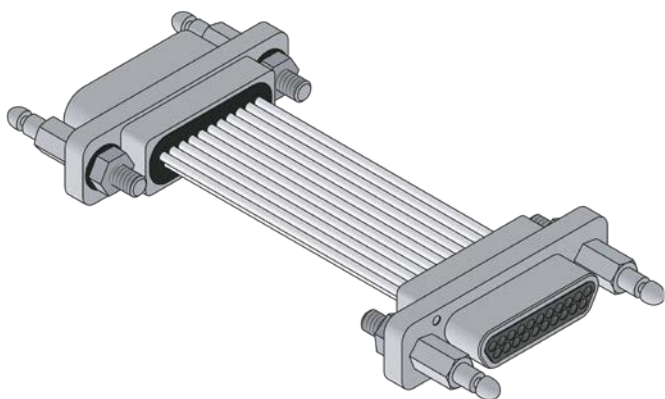


31 CONTACTS - VIEW B

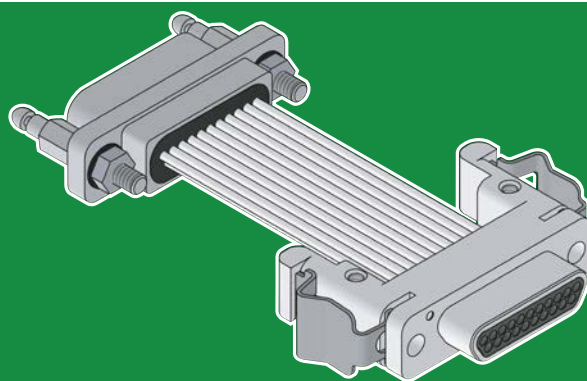


37 CONTACTS - VIEW B





ESCC 3401 091 09 B 21 PS D xxxxx Lxxx P P



ESCC 3401 091 07 B 21 PS D xxxxx Lxxx B P

# MICRO-D D-CLICK® JUMPER LINKS



## IDENTIFICATION CODE

ESCC  
3901 091

07

B

21

PP

D

xxxxx

L050

B

P

### FAMILY

ESCC 3401 091: ESA approved Micro-D D-Click® AXON' Series.

### VARIANT

07: Jumper with latch springs & latch-posts. 08: Jumper with latch springs.  
09: Jumper with latch-posts.

### TESTING LEVEL

B: Level B.

### NUMBER OF CONTACTS

09, 15, 21, 25, 31, 37.

### GENDER

PP: Male - Male. PS: Male - Female. SS: Female - Female.

### WIRING

D: Direct. I: Indirect.

### CABLES

00256: ESCC 3901 002 variant 56. 00261: ESCC 3901 002 variant 61.  
01203: ESCC 3901 012 variant 03. 01301: ESCC 3901 013 variant 01.  
01302: ESCC 3901 013 variant 02. 01803: ESCC 3901 018 variant 03.  
01804: ESCC 3901 018 variant 04. 01902: ESCC 3901 019 variant 02.  
01903: ESCC 3901 019 variant 03. 02402: ESCC 3901 024 variant 02.  
02403: ESCC 3901 024 variant 03.

### WIRE LENGTH (cm)

Wire length in centimeters (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 |

### HARDWARE (CONNECTOR 1)

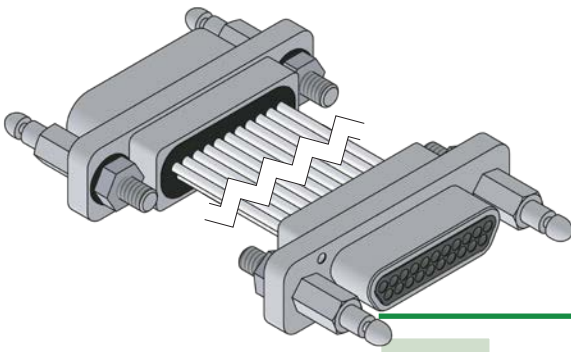
B: Latch springs, no securing pieces (for variant 7 & 8 only).  
S: Latch springs and securing pieces (for variant 7 & 8 only).  
P: Latch-posts (for variant 9 only).  
Px (x: 1 to 5) Jackposts, rear panel mount (for variant 9 only).

### HARDWARE (CONNECTOR 2)

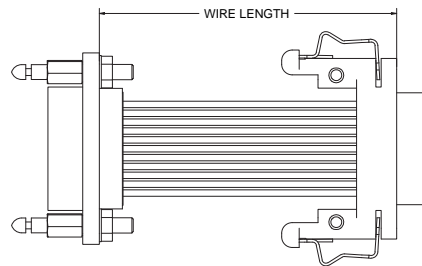
B: Latch springs, no securing pieces (for variant 8 only).  
S: Latch springs and securing pieces (for variant 8 only).  
P: Latch-posts (for variant 7 & 9 only).  
Px (x: 1 to 5) Jackposts, rear panel mount (for variant 7 & 9 only).  
x= 1: 0.8 mm thickness 2: 1.2 mm thickness 3: 1.6 mm thickness  
4: 2.0 mm thickness 5: 2.4 mm thickness

CONNECTORS ARE SUPPLIED WITH ANTI-STATIC PROTECTIVE DUST CAPS

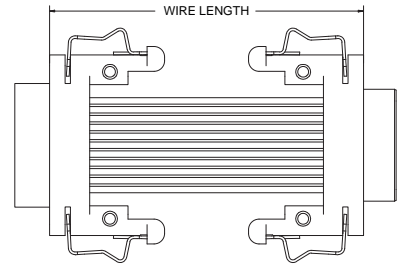
# JUMPER LINKS



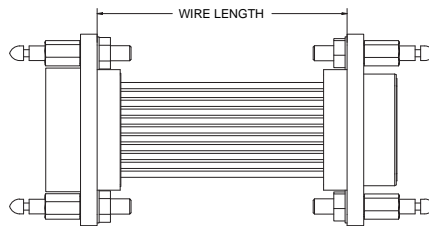
## DIMENSIONS



VARIANT 7



VARIANT 8



VARIANT 9

FOR CONNECTOR DIMENSIONS, PLEASE REFER TO PAGE 23 FOR LATCH SPRINGS CONNECTORS (CONNECTOR VARIANT 01)  
& TO PAGE 24 FOR LATCH-POSTS CONNECTORS (CONNECTOR VARIANT 02).

## SUMMARY OF CHARACTERISTICS

| ELECTRICAL & MECHANICAL PERFORMANCE |   |
|-------------------------------------|---|
| CURRENT RATING                      | 2.5 A max.  |
| CONTACT RESISTANCE                  | 5 mΩ max.   |
| INSULATION RESISTANCE               | 5000 MΩ min. @ 500 V <sub>DC</sub>                                      |
| DIELECTRIC WITHSTANDING VOLTAGE     | Sea level: 150 V <sub>RMS</sub><br>Altitude 33 km: 100 V <sub>RMS</sub> |
| CONTACT ENGAGING FORCE              | 1.667 N max.  |
| CONTACT SEPARATING FORCE            | 0.137 N min.  |
| CONTACT RETENTION                   | 22.25 N   |
| DURABILITY                          | 500 mating cycles min.  |
| VIBRATION                           | 20g's – No discontinuity > 1 μs   |
| SHOCK                               | 50g's – No discontinuity > 1 μs   |

| MATERIAL & FINISH |   |
|-------------------|---|
| SHELL             | Aluminium alloy 6061 with electroless nickel          |
| MOULDED INSULATOR | Liquid Crystal Polymer (LCP)                          |
| INTERFACIAL SEAL  | Fluorosilicone rubber                                 |
| PIN CONTACT       | Copper and beryllium copper, gold over nickel plating |
| SOCKET CONTACT    | Copper alloy, gold over nickel plating                |
| ENCAPSULANT       | Epoxy resin   |
| LATCH SPRINGS     | Beryllium copper with nickel plating                  |

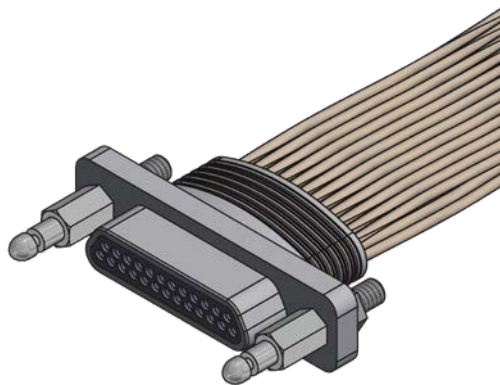
# CUSTOM DESIGNED CONNECTORS

In addition to the standard range of D-Click® connectors and assemblies, AXON' is able to develop custom solutions tailored to your needs, all based on D-Click® & twist pin contact technology.

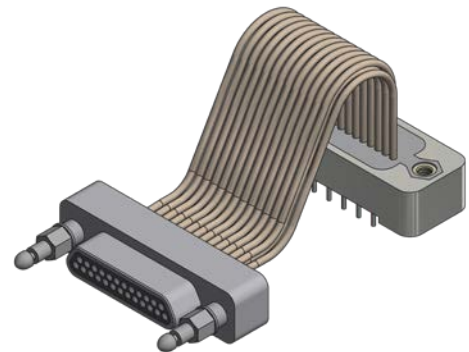
Built on years of customising Micro-D connectors, AXON' has considerable experience in a range of technologies aimed at providing enhanced properties to metal shell connectors, such as hermeticity, rendering the entire connector non-magnetic, or making it suitable for use in space. AXON' is the sole manufacturer in Europe to have fully integrated in-house the design and the manufacture of the Micro-D & D-Click® systems, including:

- Twist pins, shells, inserts and interfacial seals.
- Custom designed conductors, wires and cables.
- Complex assembly processes including optimised EMC shielding, branch braiding and overmoulding.

This high level of vertical integration enables AXON' to offer complete solutions which meet the demanding requirements of the aeronautics, space, military, industrial and off-shore markets.



▲ CUSTOM ALL-IN-ONE CONNECTOR AND SHIELDED BACKSHELL DESIGN, FITTED WITH D-CLICK® LATCH-POSTS



▲ REAR PANEL-MOUNT CONNECTOR WITH BLIND TAPPED HOLES AND FRONT-MOUNTING LATCH-POSTS, LINKED TO A CUSTOM PCB HEADER

# AXON' CABLE D–Click® connectors

## Versatys® connectors (MMC)

|   |    |
|---|----|
| General information –                           | 44 |
| Dismountable Versatys® pigtail connectors –     | 53 |
| Non–dismountable Versatys® pigtail connectors – | 58 |
| Versatys® PCB connectors –                      | 61 |
| Versatys® kit components –                      | 66 |



## VERSATYS® MINIATURE VERSATILE CONNECTORS



**Versatys®** is a new concept of compact power connectors giving far greater flexibility to customers. Removable contacts and fast-locking versions make integration with customer equipment faster and easier. **Versatys®** connectors represent an ideal solution for weight and space saving, delivering greater flexibility for avionics and space applications. **Versatys®** connectors equipped with the D-Click® system deliver substantial time saving during integration. The **Versatys®** range has been developed for space applications. For any other applications, do not hesitate to contact us.

### Features

- Miniature Power Combo connector with similar performance to Power D-Sub
- 4 way and 8 way versions, with D-Click® fast latching
- Available in potted or individually dismountable power lines
- Up to 40 A per line for the dismountable version

### Benefits

- Based on 3401 092 / 093 / 094
- Similar power performance to Sub-D power combo, but in a significantly smaller size
- Tool-less mating in under 1 second
- Quick and tool-less swapping / reconfiguring of lines with removable power line option
- 500 mates / de-mates guaranteed
- Selected for Space flight on mega constellation
- D-Click® latching - all the same advantages as for Micro-D D-Click®

### WHY CHOOSE VERSATYS® MINIATURE VERSATILE CONNECTORS?

Users can build the connectors themselves which gives more flexibility to the design. In the case of a defective line or contact, the user just needs to change the concerned line but not the whole connector. This generates **real time savings** as no tooling is required for this operation.

Components of the **Versatys®** connector including the shell, contacts and wires can all be ordered in kit form. This is a real tailor-made solution!

**Versatys®** has already been chosen for a major new generation of satellites because of its technical qualities and fast locking system.





Depending on your needs, Versatys® power connectors can be ordered in different forms: pigtails, kits or PCB. Irrespective of the version, Versatys® are offered with 4 or 8 lines.

### ➤ MMCSA DISMOUNTABLE VERSATYS® PIGTAIL CONNECTORS

MMCSA pigtails are delivered as a complete product ready to be connected into the customer's system. They are made with a housing, hardware and dismountable lines. They are identified by one single part number.

Example of a part number to order a dismountable Versatys® MMCSA pigtail **MMCSA 2 S 4S12 P G 020 DC** - see product coding page 53.

### ➤ MMCSA VERSATYS® CONNECTORS IN KIT FORM

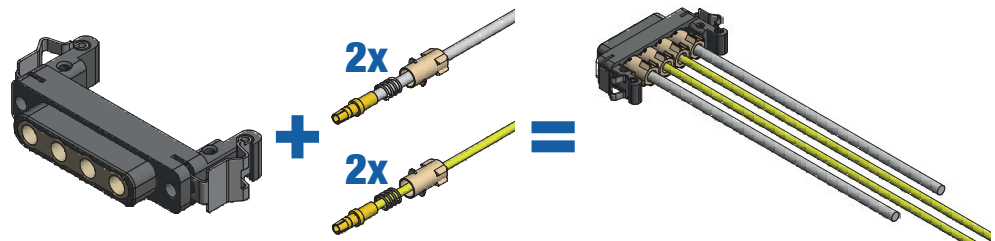
Housings and lines\* are ordered separately with different part numbers. Customers can build their connectors by themselves. This version is particularly interesting for user who need different AWG sizes or different line lengths. It gives much flexibility when the design is not fixed.

#### How to order MMCSA Versatys® connectors:

- 1/ Choose your type of housing: number of ways, gender (pin or socket), type of hardware (see page 66).
  - 2/ Choose your lines: wire types, wire lengths and contact sizes (see page 67). The number of ways in your housing has to correspond to the number of lines.
- If you order pin contacts, you have to order a pin housing.

#### Example of a kit:

- To order one 4-way socket contact housing with latch springs, the identification code is: **MMCSA H 2 S 4S12 P DC** - please refer to page 66).
- To order 2 socket contact lines (AWG12) with 20 cm long white wires, the identification code is: **MMCSA PL S12 F9 020 S** - please refer to page 67).
- To order 2 socket contact lines (AWG14) with 40 cm long yellow wires, the identification code is: **MMCSA PL S12 E4 040 S** - please refer to page 67).



### ➤ MMCS NON-DISMOUNTABLE VERSATYS® PIGTAIL CONNECTORS

Versatys® Micro Modular pigtails can also be ordered in non-dismountable (potted) configuration. This is a robust solution when the design is fixed. Non-dismountable pigtails can mate with dismountable versions. Both versions are compatible. Please refer to product coding on page 58.

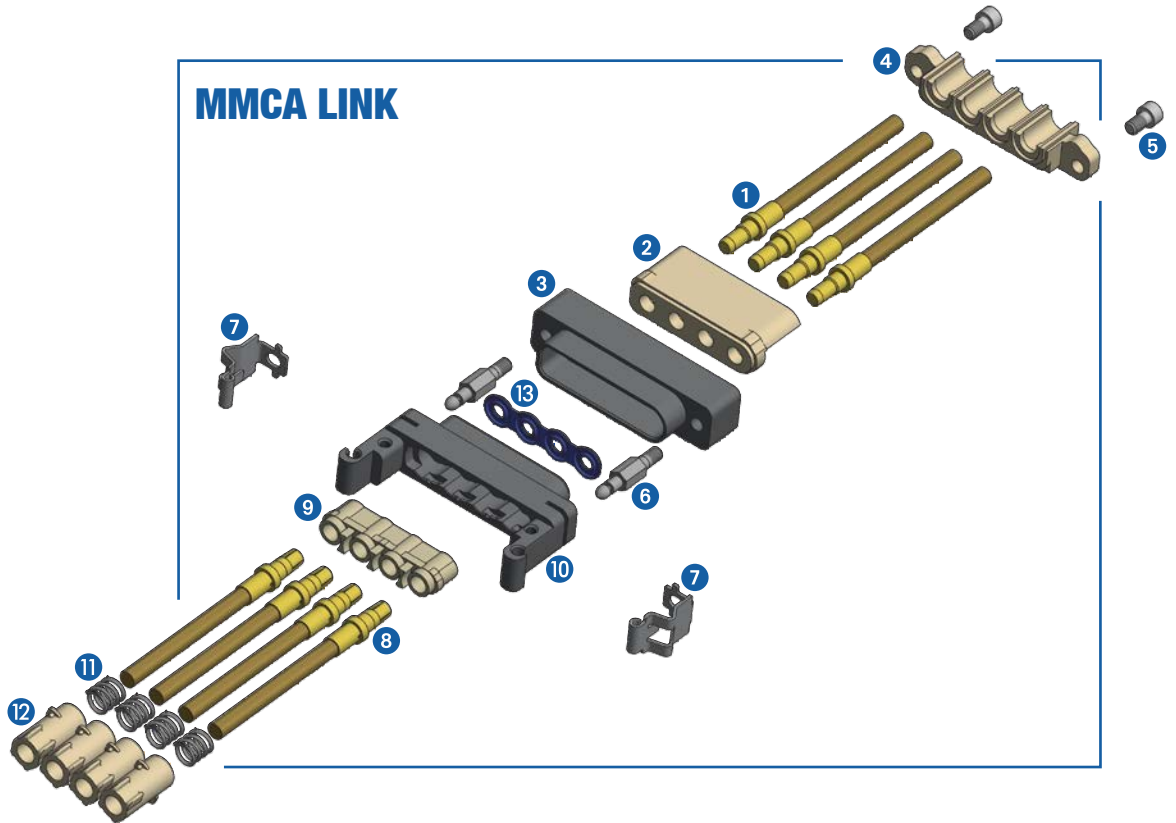
### ➤ MMCS VERSATYS® PCB CONNECTORS

All Versatys® pigtail versions can be connected to MMC PCB connectors. They are available in Straight and Right Angle versions. They are always equipped with latch-posts hardware. Please refer to the product coding on page 61.

\*: A line is a wire terminated with a contact (pin or socket).

# GLOSSARY OF TERMS

## MMCA LINK



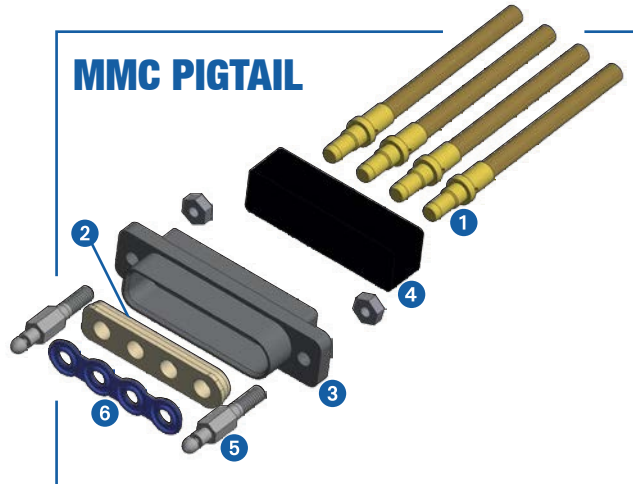
|                         |    |  |
|-------------------------|----|--|
| PIN                     | 1  | Male contact, fitted to pin contact connector.                     |
| PIN CONNECTOR INSERT    | 2  | Moulded insulation housing, separating each connection.            |
| PIN CONNECTOR SHELL     | 3  | Connector metal body.  |
| BACKSHELL               | 4  | Holds the contacts into place.                                     |
| SCREW                   | 5  | Holds the backshell.   |
| D-CLICK® LATCH-POST     | 6  | Mates with latch spring.   |
| D-CLICK® LATCH SPRING   | 7  | Latches onto the D-Click® latch-post.                              |
| SOCKET                  | 8  | Female contact, fitted to socket contact connector.                |
| SOCKET CONNECTOR INSERT | 9  | Moulded insulation housing, separating each connection.            |
| SOCKET CONNECTOR SHELL  | 10 | Connector metal body.  |
| SPRING                  | 11 | Helps the Contact Locking Part to lock the contact into the shell. |
| CONTACT LOCKING PART    | 12 | Locks the contact into the shell.                                  |
| INTERFACIAL SEAL        | 13 | Fitted to pin connector only.                                      |

|                          |   |   |
|--------------------------|---|---|
| PCB connector            | • | Connector with footprint for printed circuit board.                             |
| CBR connector            | • | Condensed Board Right Angle connector.  |
| BS connector             | • | Board Straight connector.   |
| Pigtail connector        | • | Connector with insulated wires.   |
| Versatys connector (MMC) | • | Power connector in a Micro-D based shell (also exists with removable contacts). |
| D-Click® connector       | • | Connector designed for D-Click® hardware.                                       |
| D-Click® hardware        | • | Mechanical hardware allowing quick mating & demating even without tools.        |

**CONNECTORS ARE SUPPLIED WITH ANTI-STATIC PROTECTIVE DUST CAPS**

# GLOSSARY OF TERMS

## MMC PIGTAIL



PIN OR SOCKET ① Male or female contact, fitted to connector (pin shown on the above scheme).

INSERT ② Moulded insulation housing, separating each connection.

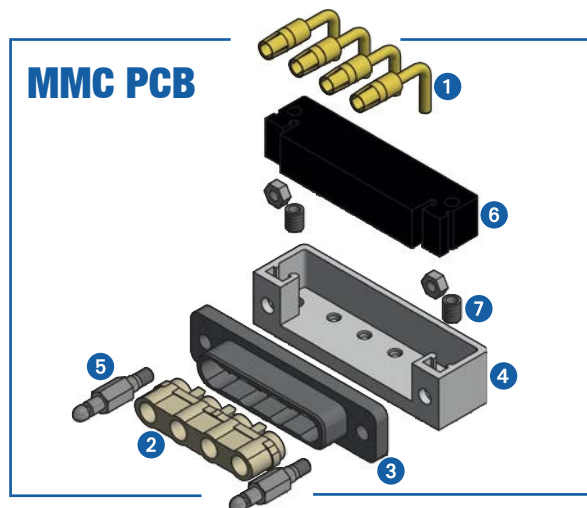
SHELL ③ Connector metal body.

POTTING ④ Epoxy compound used as an encapsulant.

D-CLICK® LATCH-POST ⑤ Mates with latch spring.

INTERFACIAL SEAL ⑥ Fitted to pin connector only.

## MMC PCB



PIN OR SOCKET ① Male or female contact, fitted to connector (socket shown on the above scheme).

INSERT ② Moulded insulation housing, separating each connection.

SHELL ③ Connector metal body.

TRAY ④ Junction box, used for PCB connectors only.

D-CLICK® LATCH-POST ⑤ Mates with latch spring.

POTTING ⑥ Epoxy compound used as an encapsulant.

THREADED INSERT (OPTIONAL) ⑦ Fixes the connector to the PCB.

# GENERAL CHARACTERISTICS

## ► Electrical & mechanical characteristics

| CHARACTERISTIC                        | SPECIFICATION  | TEST METHOD   |
|---------------------------------------|--|---|
|                                       | -55°C / 150°C for potted connectors (MMCS)<br>-55°C / 200°C for dismantable connectors (MMCSA)               |   |
| OPERATING TEMPERATURE                 |  |   |
| CURRENT RATING                        | 40 A max.*   | PARA 9.26 OF ESCC 3401                                      |
| CONTACT RESISTANCE                    | 2.5 mΩ max.  | PARA 9.1.1.3 OF ESCC 3401, TEST @ 1A                        |
| LOW LEVEL CONTACT RESISTANCE          | 2 mΩ max.  | PARA 9.1.1.3 OF ESCC 3401, TEST @ 10 mA                     |
| INSULATION RESISTANCE                 | 1000 MΩ min. under 500 Vdc   | PARA 9.1.1.1 OF ESCC 3401, IEC N°512, TEST 3A               |
| VOLTAGE PROOF                         | No breakdown or flashover  | PARA 9.1.1.2 OF ESCC 3401, IEC N°512, TEST 4A, 1000 VRMS    |
| VOLTAGE DROP                          | AWG12 wire: Vd ≤ 3 mV under 23 A<br>AWG14 wire: Vd ≤ 3.5 mV under 17 A<br>AWG16 wire: Vd ≤ 3.5 mV under 13 A | PARA 5-4-2 OF ECSS-Q-ST-7026                                |
| CONTACT ENGAGING AND SEPARATION FORCE | 0.85 N min. / 6.0 N max.   | PARA 9.28 OF ESCC 3401                                      |
| DURABILITY                            | 500 mating cycles min.   | PARA 9.18 OF ESCC 3401                                      |
| SINE VIBRATION                        | 20 g's - No discontinuity >1μs   | IEC N°512-4, TEST 6D  |
| RANDOM VIBRATION                      | No discontinuity >1μs  | IEC N°68-2-35, TEST FDA, 0.2 g² / Hz, 20 TO 2000 Hz, 3 AXIS |
| SHOCK                                 | 50 g's - No discontinuity >1μs   | IEC N°512-4, TEST 6C  |
| SALT SPRAY                            | 48 hours   | PARA 9.22 OF ESCC 3401, IEC N°68-2-11, TEST KA              |
| INSERT RETENTION                      | 50 N   | PARA 9.23 OF ESCC 3401                                      |
| CONTACT RETENTION                     | 30 N   | PARA 9.17 OF ESCC 3401                                      |

\*: Value for the contact only.

Derating values for pigtailed: please refer to ESCC 3901 specification to obtain maximum current.

Derating values for PCB connectors: maximum current to be applied depends on PCB design and use.

## ► Material & Finish

| COMPONENT  | MATERIAL  | FINISH   |
|--|---|--|
| POWER CONTACTS                                   | BERYLLIUM COPPER  | GOLD PLATING IN ACCORDANCE WITH MIL-DTL-45204, TYPE II, CLASS 1 (1.27 μm (0.00005") MIN), GRADE C OVER NICKEL UNDERPLATE |
| METAL SHELL                                      | ALUMINIUM ALLOY, TYPE 6061  | ELECTROLESS NICKEL PLATING IN ACCORDANCE WITH SAE-AMS2404, CLASS 4, .0005 INCH MIN.                                      |
| PLASTIC INSERT / PCB TRAY / CONTACT LOCKING PART | LIQUID CRYSTAL POLYMER, 30% LOADED GLASS FIBRE<br>POLYESTER, 94VO, IN ACCORDANCE WITH MIL-M-24519 (200°C)<br>NATURAL PEEK OR 30% LOADED GLASS FIBRE   |  |
| INTERFACIAL SEAL                                 | FLUOROSILICONE RUBBER   | HEAT-CURED TO MEET ECSS-Q-70-71 A OUTGASSING REQUIREMENTS  |
| LATCH-POST / HARDWARE                            | STAINLESS STEEL, 300 SERIES   | PASSIVATION IN ACCORDANCE WITH SAE-AMS2700   |
| LATCH SPRING                                     | BERYLLIUM COPPER  | ELECTROLESS NICKEL PLATING IN ACCORDANCE WITH SAE-AMS2404, CLASS 4, .00015 INCH MIN.                                     |
| ENCAPSULANT                                      | EPOXY RESIN   |  |
| INSULATED WIRE                                   | - ESCC 3901.001: POLYIMIDE INSULATED SILVER PLATED COPPER<br>- ESCC 3901.012: EXTRUDED CROSS-LINKED ETFE INSULATED SILVER PLATED COPPER<br>- ESCC 3901.013: PTFE INSULATED SILVER PLATED COPPER<br>- ESCC 3901.019: CELLOFLON® EXPANDED PTFE INSULATED SILVER PLATED COPPER |  |
| CONTACT SPRING                                   | STAINLESS STEEL   |  |

# VERSATYS® CONNECTOR WEIGHTS

| D-CLICK® CONNECTOR WEIGHTS IN GRAMS |                  |                     |                   |                        |         |        |
|-------------------------------------|------------------|---------------------|-------------------|------------------------|---------|--------|
| NB OF CONTACT                       | CONNECTOR GENDER | DISMOUNTABLE (MMCA) |                   | NON-DISMOUNTABLE (MMC) |         |        |
|                                     |                  | PIGTAIL DC HARDWARE | PIGTAIL G HARWARE | PIGTAIL G HARDWARE     | PCB CBR | PCB BS |
| 4                                   | PIN              | 9.5                 | 9.5               | 9.6                    | 9.7     | 8.3    |
|                                     | SOCKET           | 8.1                 | 7.9               | 9.9                    | 9.6     | 8.3    |
| 8                                   | PIN              | 15.1                | 15.1              | 18.8                   | 16.9    | 13.8   |
|                                     | SOCKET           | 13.2                | 13.0              | 19.4                   | 16.9    | 13.9   |

## NOTES

NOMINAL WEIGHT SHOWN. ADD 10% FOR MAXIMUM WEIGHT.

PIGTAILS: DOES NOT INCLUDE WIRE WEIGHT. SEE TABLE PAGE 71 FOR WIRE WEIGHT CALCULATION.

PCB CONNECTORS: NOMINAL WEIGHT INCLUDES THE HARDWARE WEIGHT

FOR COMPONENTS ORDERED IN KIT, PLEASE REFER TO THE WEIGHT OF THE ASSEMBLED COUNTERPART.

# 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 21<sup>st</sup> 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 21<sup>st</sup> October 2000.

### COMPONENT SPECIFIC RoHS COMPLIANCE

| COMPONENT                 | MATERIAL                   | FINISH             | RoHS STATUS    |
|---------------------------|----------------------------|--------------------|----------------|
| POWER CONTACTS            | BERYLLIUM COPPER           | GOLD               | RoHS Compliant |
| PLASTIC INSERT / PCB TRAY | LIQUID CRYSTAL POLYMER     | N/A                | RoHS Compliant |
|                           | PEEK                       | N/A                | RoHS Compliant |
| METAL SHELL               | ALUMINIUM ALLOY TYPE 6061  | ELECTROLESS NICKEL | RoHS Compliant |
| INTERFACIAL SEAL          | FLUOROSILICONE RUBBER      | N/A                | RoHS Compliant |
| LATCH PIN / HARDWARE      | STAINLESS STEEL 300 SERIES | PASSIVATION        | RoHS Compliant |
| LATCH SPRING              | BERYLLIUM COPPER           | ELECTROLESS NICKEL | RoHS Compliant |
| ENCAPSULANT               | EPOXY RESIN                | N/A                | RoHS Compliant |
| CONTACT SPRING            | STAINLESS STEEL            | N/A                | RoHS Compliant |

## ▶ Application of REACH

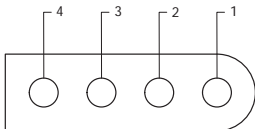
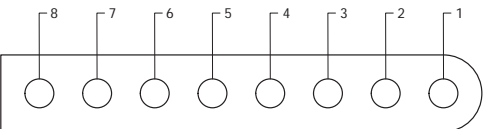
The new EU regulation on the Registration, Evaluation, Authorisation and restriction of Chemicals (REACH) came into force in June 2007. The regulation concerns the authorised use of chemicals. It requires manufacturers and importers to register substances and their use with the European Chemical Agency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

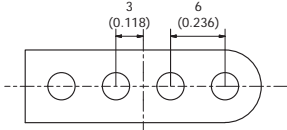
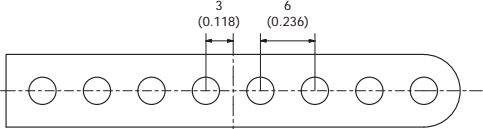
To this day AXON' CABLE have not identified any component containing any SVHC in their product range.

# CONTACT ARRANGEMENTS & SPACING

## ► Contact arrangements

| INSERT type | Front view of connector arrangement  |
|-------------|--|
| 4S12        |  |
| 8S12        |  |

## ► Contact spacing

|      |  |
|------|--|
| 4S12 |  |
| 8S12 |  |

Dimensions are in millimetres (inches).

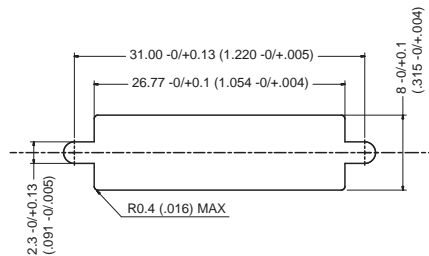
OTHER CONTACT ARRANGEMENTS AVAILABLE ON REQUEST

# PANEL CUTOUTS

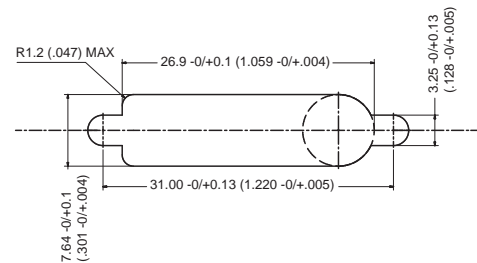
## ► Panel cutouts

### 4S12

#### FRONT MOUNT



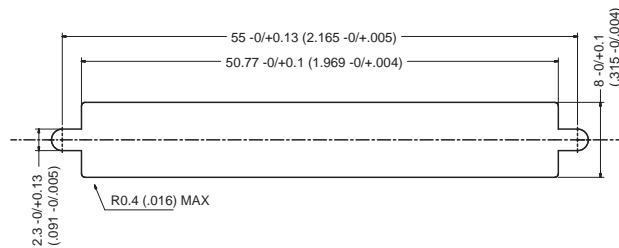
#### REAR MOUNT



Dimensions are in millimetres (inches).

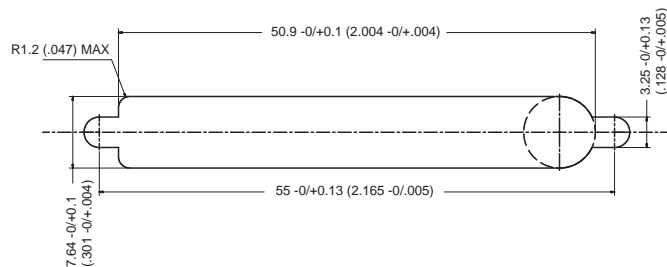
### 8S12

#### FRONT MOUNT



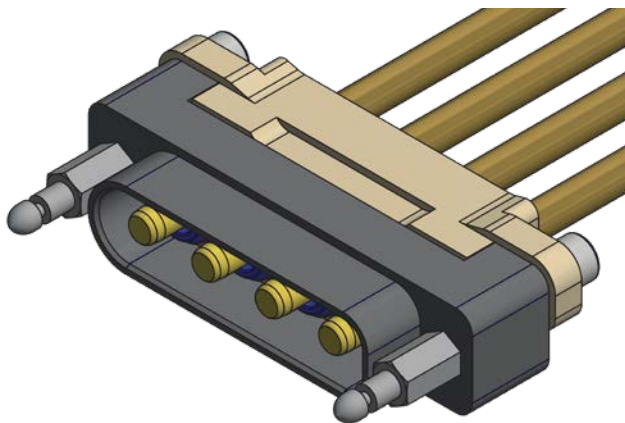
Dimensions are in millimetres (inches).

#### REAR MOUNT

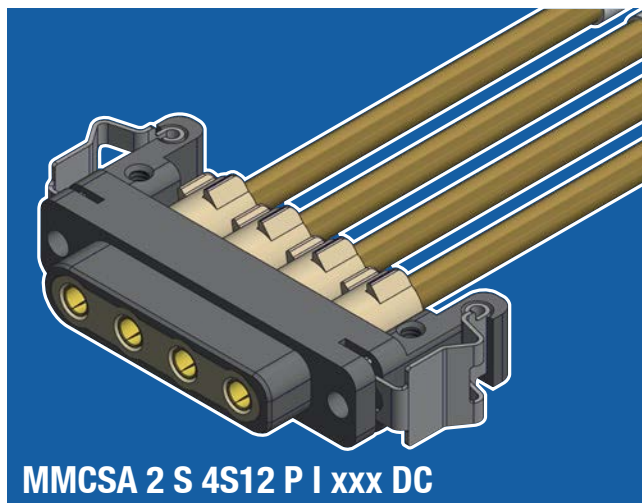


Dimensions are in millimetres (inches).





MMCSA 2 P 4S12 P I xxx G



MMCSA 2 S 4S12 P I xxx DC

# DISMOUNTABLE VERSATYS® PIGTAIL CONNECTORS



## IDENTIFICATION CODE

MMCSA 2 S 4S12 P I 020 DC

### SERIES

**MMCSA:** Space Micro Modular Connector Dismountable.

### CONNECTOR TYPE

**2:** Nickel aluminium shell.

### CONNECTOR GENDER

**P:** Pin (pin contacts).  
**S:** Socket (socket contacts).

### INSERT

**4S12:** 4 points size 12.  
**8S12:** 8 points size 12.  
Other configuration available on request.

### TYPE

**P:** Power.

### WIRE TYPE

#### ESCC 3901 001 (Polyimide):

**A:** ESCC 3901 001 29 (AWG16).  
**B:** ESCC 3901 001 30 (AWG14).  
**C:** ESCC 3901 001 31 (AWG12).

#### ESCC 3901 013 (PTFE):

**G:** ESCC 3901 013 57 (AWG16).

#### ESCC 3901 012 (cross-linked ETFE):

**Dx:** ESCC 3901 012 08 (AWG16).  
**Ex:** ESCC 3901 012 09 (AWG14).  
**Fx:** ESCC 3901 012 10 (AWG12).

**x= 4:** Yellow **9:** White.

Other colors available on request.

#### ESCC 3901 019 (CELLOFLON® PTFE):

**H:** ESCC 3901 019 07 (AWG16).

**I:** ESCC 3901 019 08 (AWG12).

See page 71 for wire types.

### WIRE LENGTH (in cm)

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

### HARDWARE

**DC:** D-Click® latch springs.

**G:** D-Click® latch-posts.

**Gx** (x: 1 to 5): D-Click® latch-posts, rear panel mount.

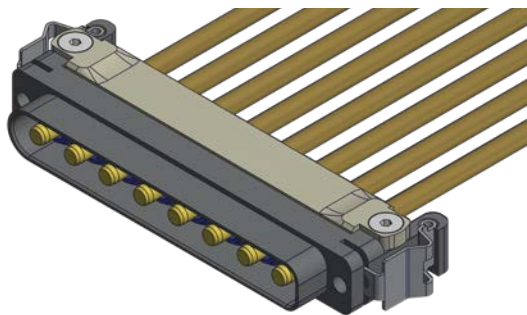
**x= 1:** 0.8 mm thickness **2:** 1.2 mm thickness **3:** 1.6 mm thickness  
**4:** 2.0 mm thickness **5:** 2.4 mm thickness

See page 10 & 11 for D-Click® hardware.

LAT level to be indicated when ordering - see page 73

| 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 |

CONNECTORS ARE SUPPLIED WITH ANTI-STATIC PROTECTIVE DUST CAPS

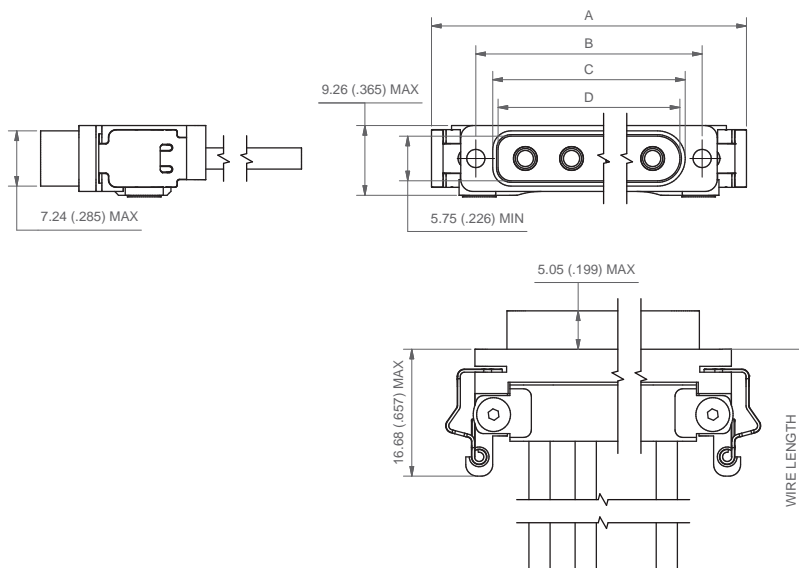


# PIN CONNECTORS WITH LATCH SPRINGS

## MMCSA SERIES

### DIMENSIONS

Dimensions are in millimetres (inches).

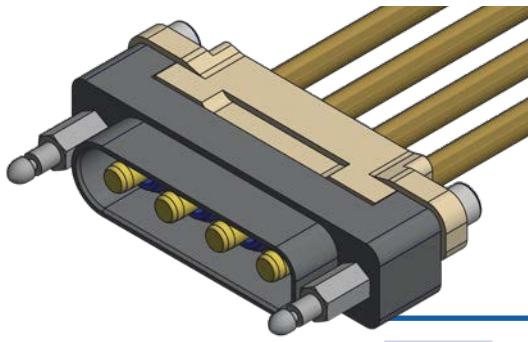


|      | A<br>max.   | B<br>± 0.13<br>(±.005) | C<br>max.      | D<br>min.      |
|------|-------------|------------------------|----------------|----------------|
| 4S12 | 43<br>1.693 | 30.86<br>1.215         | 26.53<br>1.044 | 25.04<br>.986  |
| 8S12 | 67<br>2.638 | 54.86<br>2.160         | 50.53<br>1.989 | 49.04<br>1.931 |

## SUMMARY OF CHARACTERISTICS

| ELECTRICAL & MECHANICAL PERFORMANCE |                                 |
|-------------------------------------|---------------------------------|
| TEMPERATURE                         | - 55°C / + 200°C                |
| CURRENT RATING                      | 40 A max.                       |
| CONTACT RESISTANCE                  | 2.5 mΩ max.                     |
| INSULATION RESISTANCE               | 1000 MΩ min. @ 500 Vdc          |
| VOLTAGE PROOF                       | 1000 VRMS                       |
| CONTACT ENGAGING FORCE              | 6.0 N max.                      |
| CONTACT SEPARATING FORCE            | 0.85 N min.                     |
| CONTACT RETENTION                   | 30 N                            |
| DURABILITY                          | 500 mating cycles min.          |
| VIBRATION                           | 20g's – No discontinuity > 1 μs |
| SHOCK                               | 50g's – No discontinuity > 1 μs |

| MATERIAL & FINISH |  |
|-------------------|--|
| SHELL             | Aluminium alloy 6061 with electroless nickel   |
| MOULDED INSULATOR | Liquid Crystal Polymer (LCP)                   |
| INTERFACIAL SEAL  | Fluorosilicone rubber                          |
| POWER CONTACT     | Beryllium copper with gold over nickel plating |
| ENCAPSULANT       | Epoxy resin                                    |
| LATCH SPRINGS     | Beryllium copper with nickel plating           |



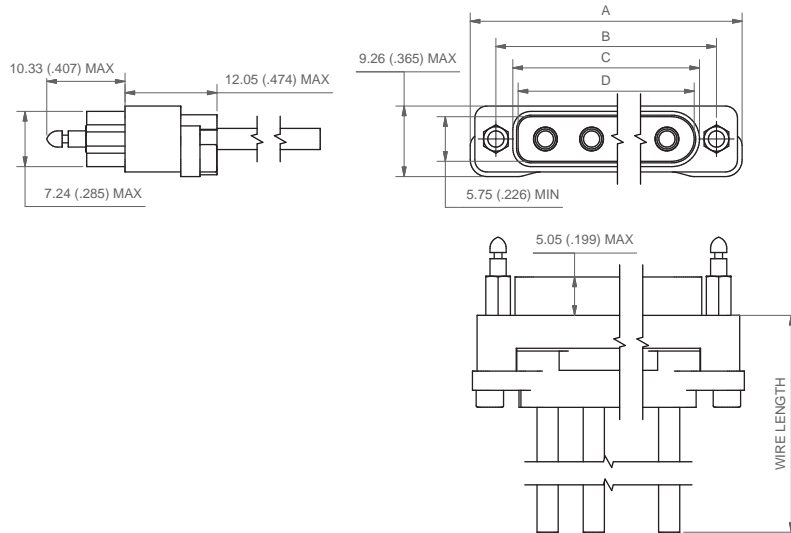
**DISMOUNTABLE VERSATYS® PIGTAILS**

# PIN CONNECTORS WITH LATCH-POSTS

**MMCSA SERIES**

## DIMENSIONS

Dimensions are in millimetres (inches).



|      | A<br>max.      | B<br>± 0.13<br>(±.005) | C<br>max.      | D<br>min.      |
|------|----------------|------------------------|----------------|----------------|
| 4S12 | 37.62<br>1.481 | 30.86<br>1.215         | 26.53<br>1.044 | 25.04<br>.986  |
| 8S12 | 61.62<br>2.426 | 54.86<br>2.160         | 50.53<br>1.989 | 49.04<br>1.931 |

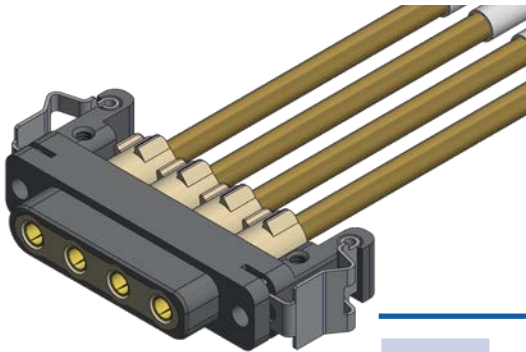
## SUMMARY OF CHARACTERISTICS

| ELECTRICAL & MECHANICAL PERFORMANCE |                                 |
|-------------------------------------|---------------------------------|
| TEMPERATURE                         | - 55°C / + 200°C                |
| CURRENT RATING                      | 40 A max.                       |
| CONTACT RESISTANCE                  | 2.5 mΩ max.                     |
| INSULATION RESISTANCE               | 1000 MΩ min. @ 500 Vdc          |
| VOLTAGE PROOF                       | 1000 VRMS                       |
| CONTACT ENGAGING FORCE              | 6.0 N max.                      |
| CONTACT SEPARATING FORCE            | 0.85 N min.                     |
| CONTACT RETENTION                   | 30 N                            |
| DURABILITY                          | 500 mating cycles min.          |
| VIBRATION                           | 20g's – No discontinuity > 1 μs |
| SHOCK                               | 50g's – No discontinuity > 1 μs |

| MATERIAL & FINISH      |  |
|------------------------|--|
| SHELL                  | Aluminium alloy 6061 with electroless nickel   |
| MOULDED INSULATOR      | Liquid Crystal Polymer (LCP)                   |
| INTERFACIAL SEAL       | Fluorosilicone rubber                          |
| POWER CONTACT          | Beryllium copper with gold over nickel plating |
| ENCAPSULANT            | Epoxy resin                                    |
| LATCH-POSTS / HARDWARE | 300 series stainless steel, passivated         |

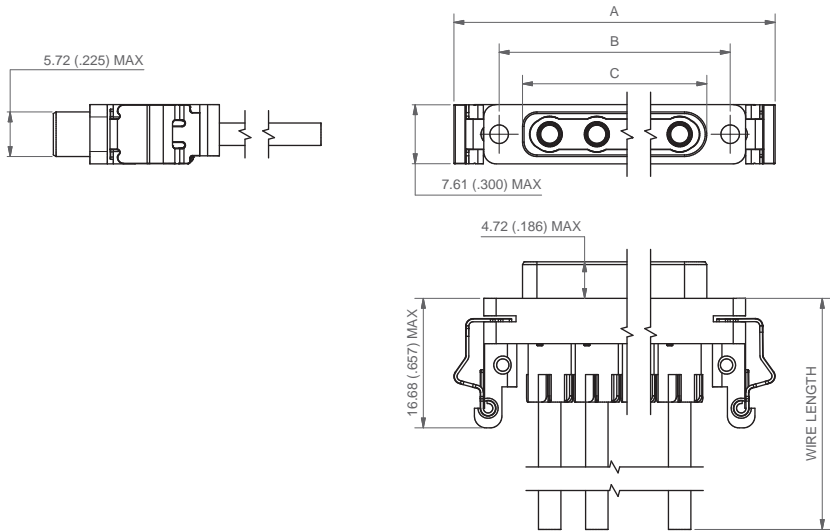
# SOCKET CONNECTORS WITH LATCH SPRINGS

## MMCSA SERIES



### DIMENSIONS

Dimensions are in millimetres (inches).

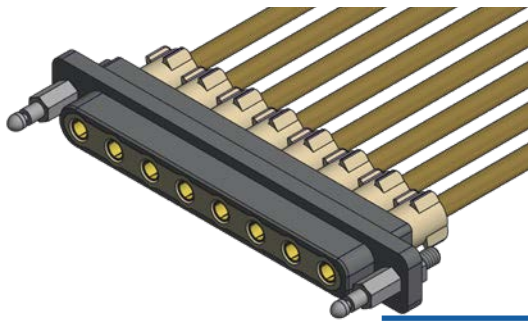


|      | A<br>max.   | B<br>± 0.13<br>(±.005) | C<br>max.      |
|------|-------------|------------------------|----------------|
| 4S12 | 43<br>1.693 | 30.86<br>1.215         | 24.96<br>.983  |
| 8S12 | 67<br>2.638 | 54.86<br>2.160         | 48.96<br>1.928 |

## SUMMARY OF CHARACTERISTICS

| ELECTRICAL & MECHANICAL PERFORMANCE |                                 |
|-------------------------------------|---------------------------------|
| TEMPERATURE                         | - 55°C / + 200°C                |
| CURRENT RATING                      | 40 A max.                       |
| CONTACT RESISTANCE                  | 2.5 mΩ max.                     |
| INSULATION RESISTANCE               | 1000 MΩ min. @ 500 Vdc          |
| VOLTAGE PROOF                       | 1000 VRMS                       |
| CONTACT ENGAGING FORCE              | 6.0 N max.                      |
| CONTACT SEPARATING FORCE            | 0.85 N min.                     |
| CONTACT RETENTION                   | 30 N                            |
| DURABILITY                          | 500 mating cycles min.          |
| VIBRATION                           | 20g's – No discontinuity > 1 µs |
| SHOCK                               | 50g's – No discontinuity > 1 µs |

| MATERIAL & FINISH |  |
|-------------------|--|
| SHELL             | Aluminium alloy 6061 with electroless nickel   |
| MOULDED INSULATOR | Liquid Crystal Polymer (LCP)                   |
| INTERFACIAL SEAL  | Fluorosilicone rubber                          |
| POWER CONTACT     | Beryllium copper with gold over nickel plating |
| ENCAPSULANT       | Epoxy resin                                    |
| LATCH SPRINGS     | Beryllium copper with nickel plating           |

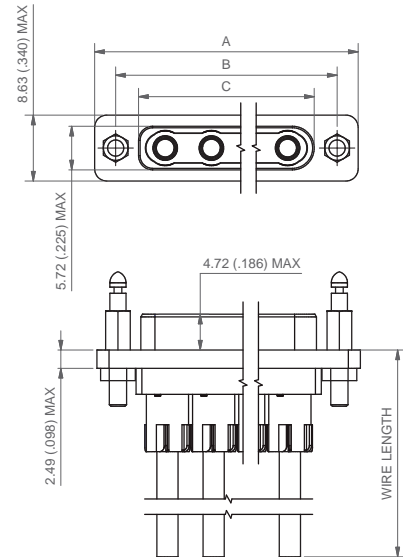
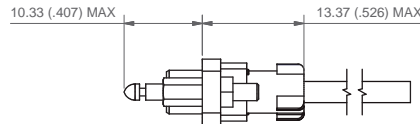


# SOCKET CONNECTORS WITH LATCH-POSTS

## MMCSA SERIES

### DIMENSIONS

Dimensions are in millimetres (inches).

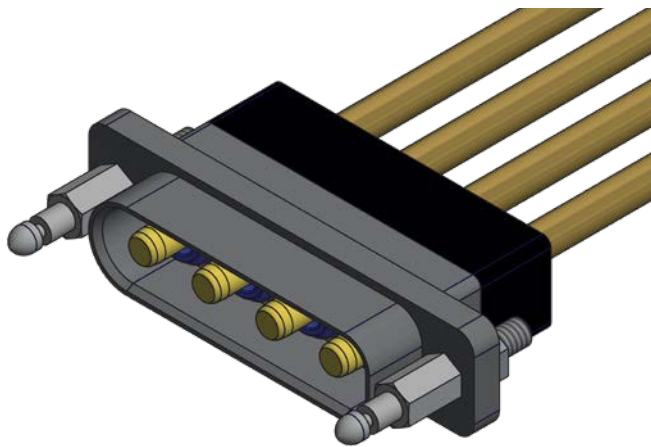


|      | A<br>max.      | B<br>± 0.13<br>(±.005) | C<br>max.      |
|------|----------------|------------------------|----------------|
| 4S12 | 36.39<br>1.433 | 30.86<br>1.215         | 24.96<br>.983  |
| 8S12 | 60.39<br>2.378 | 54.86<br>2.160         | 48.96<br>1.928 |

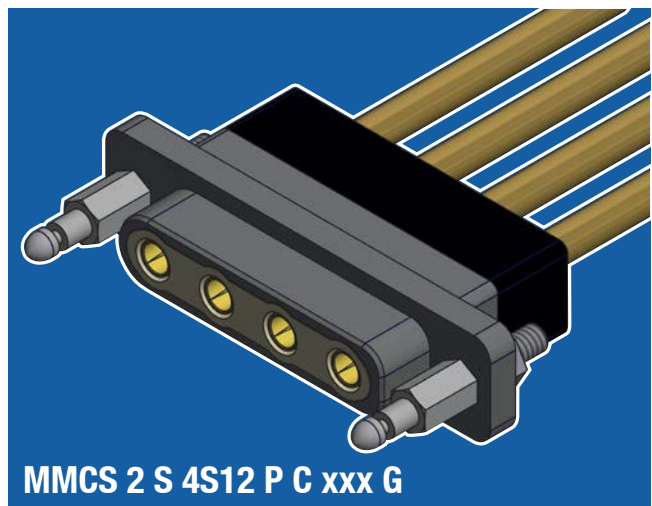
## SUMMARY OF CHARACTERISTICS

| ELECTRICAL & MECHANICAL PERFORMANCE |                                 |
|-------------------------------------|---------------------------------|
| TEMPERATURE                         | - 55°C / + 200°C                |
| CURRENT RATING                      | 40 A max.                       |
| CONTACT RESISTANCE                  | 2.5 mΩ max.                     |
| INSULATION RESISTANCE               | 1000 MΩ min. @ 500 Vdc          |
| VOLTAGE PROOF                       | 1000 VRMS                       |
| CONTACT ENGAGING FORCE              | 6.0 N max.                      |
| CONTACT SEPARATING FORCE            | 0.85 N min.                     |
| CONTACT RETENTION                   | 30 N                            |
| DURABILITY                          | 500 mating cycles min.          |
| VIBRATION                           | 20g's – No discontinuity > 1 μs |
| SHOCK                               | 50g's – No discontinuity > 1 μs |

| MATERIAL & FINISH      |  |
|------------------------|--|
| SHELL                  | Aluminium alloy 6061 with electroless nickel   |
| MOULDED INSULATOR      | Liquid Crystal Polymer (LCP)                   |
| INTERFACIAL SEAL       | Fluorosilicone rubber                          |
| POWER CONTACT          | Beryllium copper with gold over nickel plating |
| ENCAPSULANT            | Epoxy resin                                    |
| LATCH-POSTS / HARDWARE | 300 series stainless steel, passivated         |



MMCS 2 P 4S12 P C xxx G



MMCS 2 S 4S12 P C xxx G

# NON-DISMOUNTABLE VERSATYS® PIGTAIL CONNECTORS



## IDENTIFICATION CODE

MMCS

2

S

4S12

P

C

020

G

### SERIES

MMCS: Space Micro Modular Connector.

### CONNECTOR TYPE

2: Nickel aluminium shell.

### CONNECTOR GENDER

P: Pin (pin contacts).

S: Socket (socket contacts).

### NUMBER OF WAYS

4S12: 4 points size 12.

8S12: 8 points size 12.

Other configuration available on request.

### TYPE

P: Power.

### WIRE TYPE

#### ESCC 3901 001 (Polyimide):

A: ESCC 3901 001 29 (AWG16).

B: ESCC 3901 001 30 (AWG14).

C: ESCC 3901 001 31 (AWG12).

#### ESCC 3901 013 (PTFE):

G: ESCC 3901 013 57 (AWG16).

#### ESCC 3901 012 (cross-linked ETFE):

Dx: ESCC 3901 012 08 (AWG16).

Ex: ESCC 3901 012 09 (AWG14).

Fx: ESCC 3901 012 10 (AWG12).

x= 4: Yellow 9: White.

Other colors available on request.

#### ESCC 3901 019 (CELLOFLON® PTFE):

H: ESCC 3901 019 07 (AWG16).

I: ESCC 3901 019 08 (AWG12).

See page 71 for wire types.

### WIRE LENGTH (in cm)

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

### HARDWARE

Gx: D-Click® latch-posts.

Gx (x: 1 to 5): D-Click® latch-posts, rear panel mount.

x= 1: 0.8 mm thickness 2: 1.2 mm thickness 3: 1.6 mm thickness

4: 2.0 mm thickness 5: 2.4 mm thickness

See page 10 & 11 for D-Click® hardware.

LAT level to be indicated when ordering - see page 73

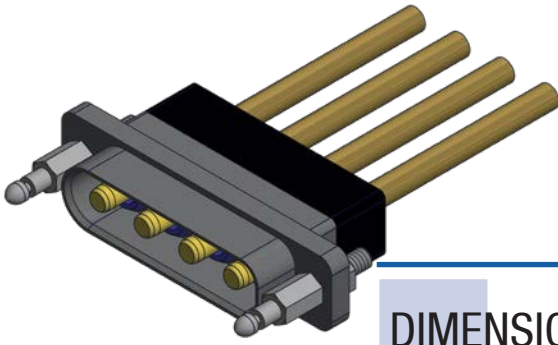
| L              | 5 ≤ L ≤ 10       | 10 < L ≤ 100      | L > 100     |
|----------------|------------------|-------------------|-------------|
| in cm (inches) | 1.97 ≤ L ≤ 3.940 | 3.940 < L ≤ 39.40 | L > 39.40   |
| TOLERANCE      | -0 / +0.5        | -0 / +3           | -0 / +5     |
| in cm (inches) | -0 / +0.200      | -0 / +1.180       | -0 / +1.970 |

CONNECTORS ARE SUPPLIED WITH ANTI-STATIC PROTECTIVE DUST CAPS



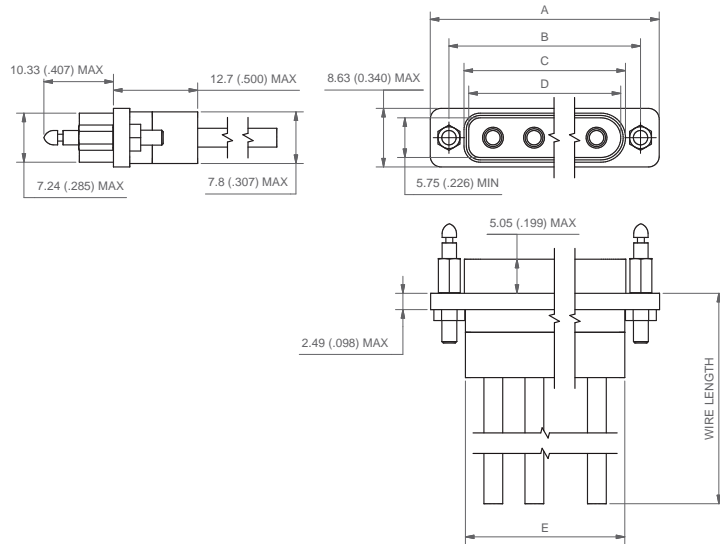
# PIN CONNECTORS WITH LATCH-POSTS

## MMCS SERIES



### DIMENSIONS

Dimensions are in millimetres (inches).



|      | A<br>max.      | B<br>± 0.13<br>(±.005) | C<br>max.      | D<br>min.      | E<br>max.     |
|------|----------------|------------------------|----------------|----------------|---------------|
| 4S12 | 36.39<br>1.433 | 30.86<br>1.215         | 26.53<br>1.044 | 25.04<br>.986  | 26.4<br>1.039 |
| 8S12 | 60.39<br>2.378 | 54.86<br>2.160         | 50.53<br>1.989 | 49.04<br>1.931 | 50.4<br>1.984 |

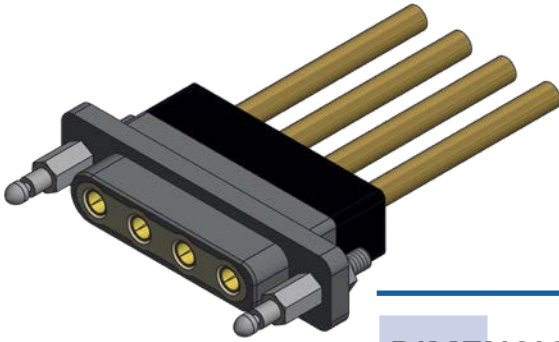
## SUMMARY OF CHARACTERISTICS

| ELECTRICAL & MECHANICAL PERFORMANCE |                                 |
|-------------------------------------|---------------------------------|
| TEMPERATURE                         | - 55°C / + 150°C                |
| CURRENT RATING                      | 25 A max.                       |
| CONTACT RESISTANCE                  | 2.5 mΩ max.                     |
| INSULATION RESISTANCE               | 1000 MΩ min. @ 500 Vdc          |
| VOLTAGE PROOF                       | 1000 VRMS                       |
| CONTACT ENGAGING FORCE              | 6.0 N max.                      |
| CONTACT SEPARATING FORCE            | 0.85 N min.                     |
| CONTACT RETENTION                   | 30 N                            |
| DURABILITY                          | 500 mating cycles min.          |
| VIBRATION                           | 20g's – No discontinuity > 1 μs |
| SHOCK                               | 50g's – No discontinuity > 1 μs |

| MATERIAL & FINISH       |  |
|-------------------------|--|
| SHELL                   | Aluminium alloy 6061 with electroless nickel   |
| MOULDED INSULATOR       | Liquid Crystal Polymer (LCP)                   |
| INTERFACIAL SEAL        | Fluorosilicone rubber                          |
| POWER CONTACT           | Beryllium copper with gold over nickel plating |
| ENCAPSULANT             | Epoxy resin                                    |
| LATCH -POSTS / HARDWARE | 300 series stainless steel, passivated         |

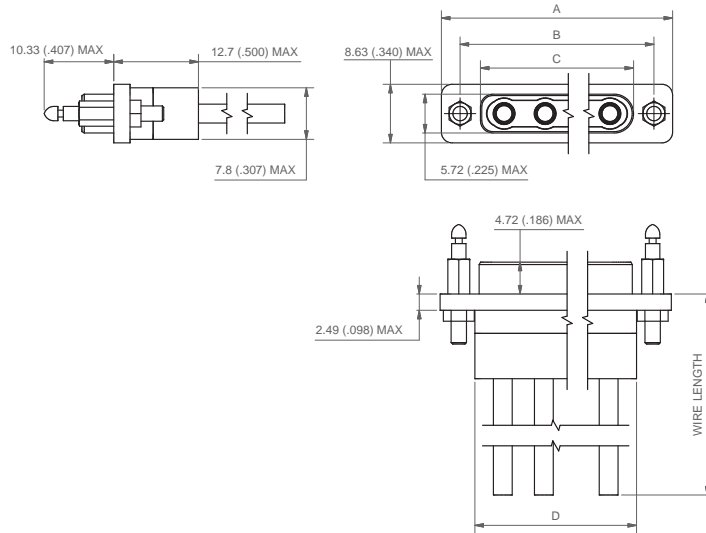
# SOCKET CONNECTORS WITH LATCH-POSTS

## MMCS SERIES



### DIMENSIONS

Dimensions are in millimetres (inches).



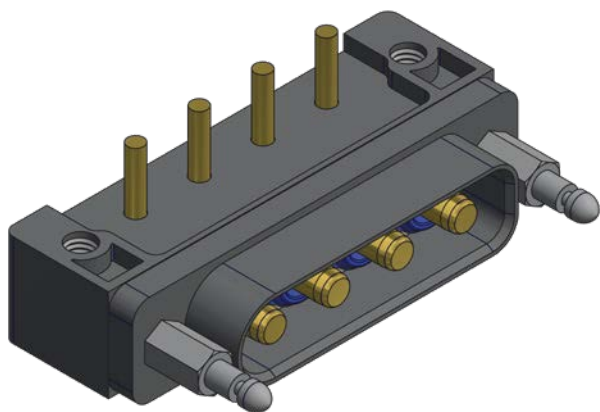
|      | A<br>max.      | B<br>± 0.13<br>(±.005) | C<br>max.      | D<br>max.     |
|------|----------------|------------------------|----------------|---------------|
| 4S12 | 36.39<br>1.433 | 30.86<br>1.215         | 24.96<br>.983  | 26.4<br>1.039 |
| 8S12 | 60.39<br>2.378 | 54.86<br>2.160         | 48.96<br>1.928 | 50.4<br>1.984 |

## SUMMARY OF CHARACTERISTICS

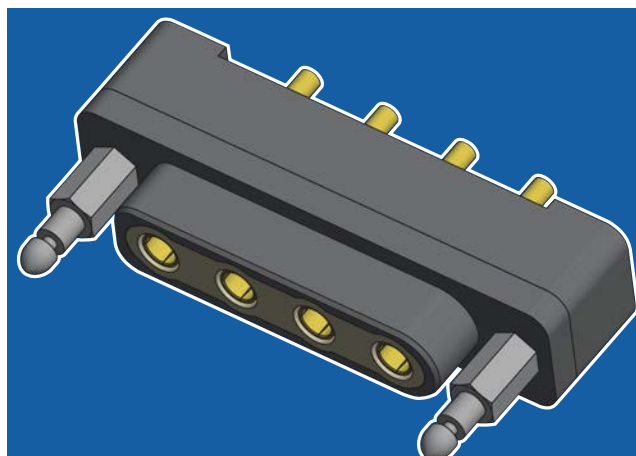
| ELECTRICAL & MECHANICAL PERFORMANCE |                                    |
|-------------------------------------|------------------------------------|
| TEMPERATURE                         | - 55°C / + 150°C                   |
| CURRENT RATING                      | 25 A max.                          |
| CONTACT RESISTANCE                  | 2.5 mΩ max.                        |
| INSULATION RESISTANCE               | 1000 MΩ min. @ 500 V <sub>DC</sub> |
| VOLTAGE PROOF                       | 1000 V <sub>RMS</sub>              |
| CONTACT ENGAGING FORCE              | 6.0 N max.                         |
| CONTACT SEPARATING FORCE            | 0.85 N min.                        |
| CONTACT RETENTION                   | 30 N                               |
| DURABILITY                          | 500 mating cycles min.             |
| VIBRATION                           | 20g's – No discontinuity > 1 μs    |
| SHOCK                               | 50g's – No discontinuity > 1 μs    |

| MATERIAL & FINISH      |  |
|------------------------|--|
| SHELL                  | Aluminium alloy 6061 with electroless nickel   |
| MOULDED INSULATOR      | Liquid Crystal Polymer (LCP)                   |
| INTERFACIAL SEAL       | Fluorosilicone rubber                          |
| POWER CONTACT          | Beryllium copper with gold over nickel plating |
| ENCAPSULANT            | Epoxy resin                                    |
| LATCH-POSTS / HARDWARE | 300 series stainless steel, passivated         |



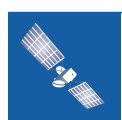


**MMCS 2 P 4S12 P CBR G 2**



**MMCS 2 S 4S12 P BS G 2**

# VERSATYS® PCB CONNECTORS



## IDENTIFICATION CODE

**MMCS**

**2**

**S**

**4S12**

**P**

**BS**

**G**

**2**

### SERIES

**MMCS:** Space Micro Modular Connector.

### CONNECTOR TYPE

**2:** Nickel aluminium shell.

### CONNECTOR GENDER

**P:** Pin (pin contacts).

**S:** Socket (socket contacts).

### NUMBER OF WAYS

**4S12:** 4 points size 12.

**8S12:** 8 points size 12.

**Other configuration available on request.**

### TYPE

**P:** Power.

### PCB VERSION

**BS:** Board Straight.

**CBR:** Condensed Board Right Angle.

### HARDWARE

**G:** D-Click® latch-posts, no threaded inserts.

**H:** D-Click® latch-posts and threaded inserts installed.

**Gx (x: 1 to 5):** D-Click® latch-posts, rear panel mount, no threaded inserts.

**Hx (x: 1 to 5):** D-Click® latch-posts, rear panel mount and threaded inserts installed.

**x= 1:** 0.8 mm thickness    **2:** 1.2 mm thickness    **3:** 1.6 mm thickness

**4:** 2.0 mm thickness    **5:** 2.4 mm thickness

**See page 10 & 11 for D-Click® hardware.**

### TAIL LENGTH

**1:** 2.70 mm (0.106").    **2:** 3.50 mm (0.138").    **3:** 4.30 mm (0.169").

*Tolerance: ± 0.38 mm (0.015").*

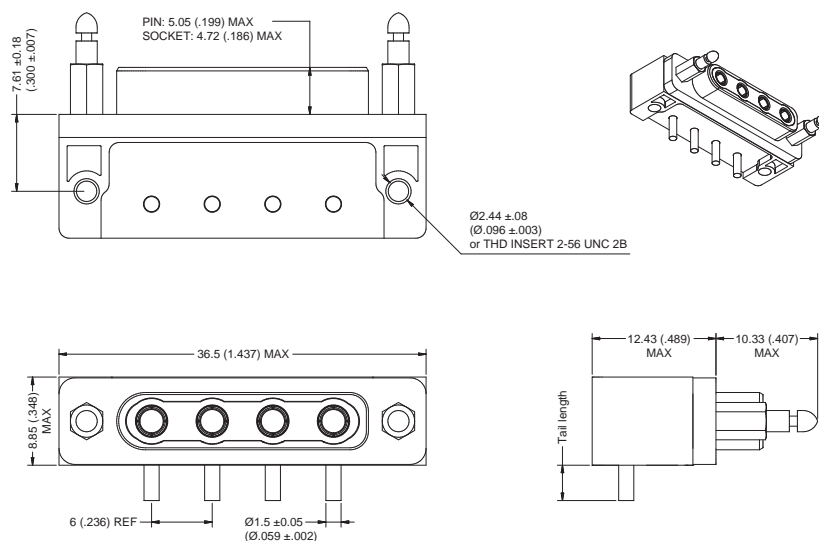
**Other lengths available on request.**

**LAT level to be indicated when ordering - see page 73**

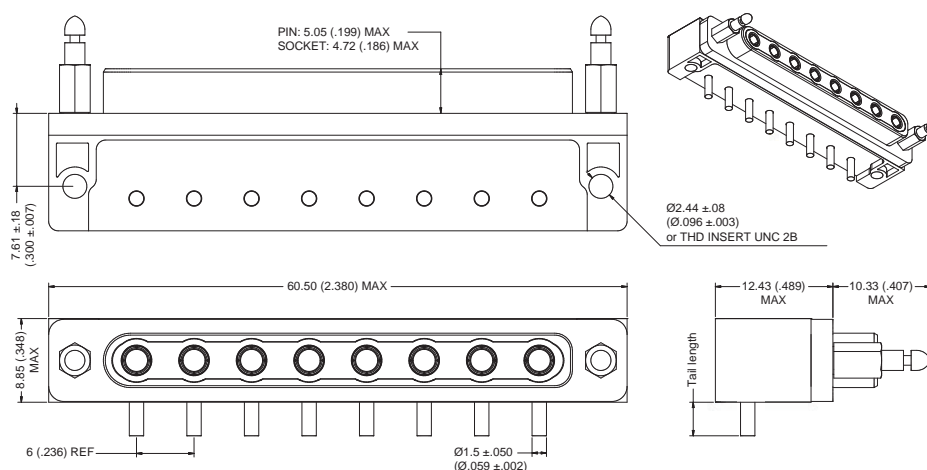
**CONNECTORS ARE SUPPLIED WITH ANTI-STATIC PROTECTIVE DUST CAPS**

# CBR PCB POWER CONNECTORS DIMENSIONS

## 4S12 CBR power connectors



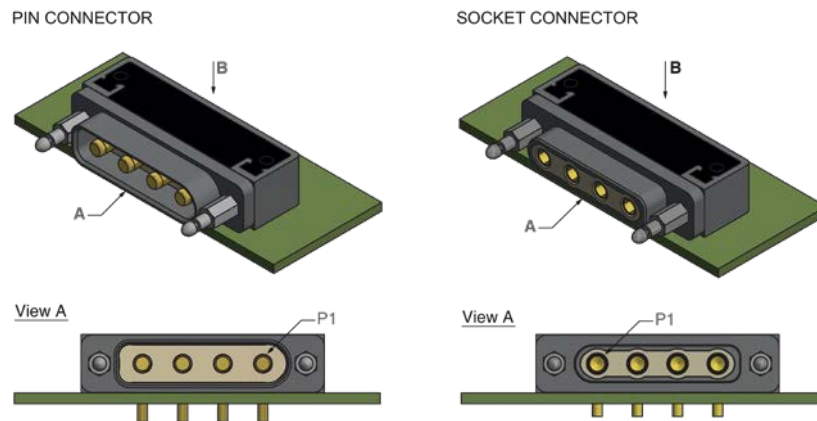
## 8S12 CBR power connectors



Dimensions are in millimetres

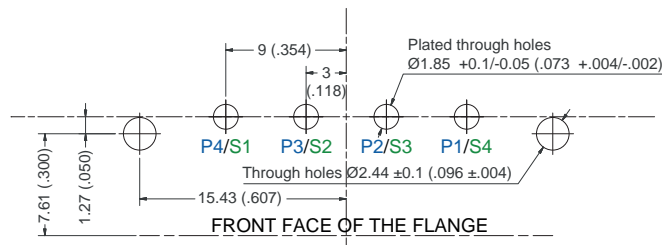
# CBR PCB POWER CONNECTORS DIMENSIONS

## CBR PCB layouts



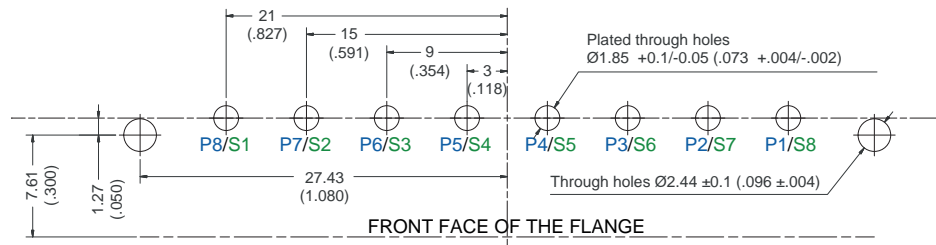
### 4S12 CBR power connectors (view B)

PIN CONNECTOR / SOCKET CONNECTOR



### 8S12 CBR power connectors (view B)

PIN CONNECTOR / SOCKET CONNECTOR

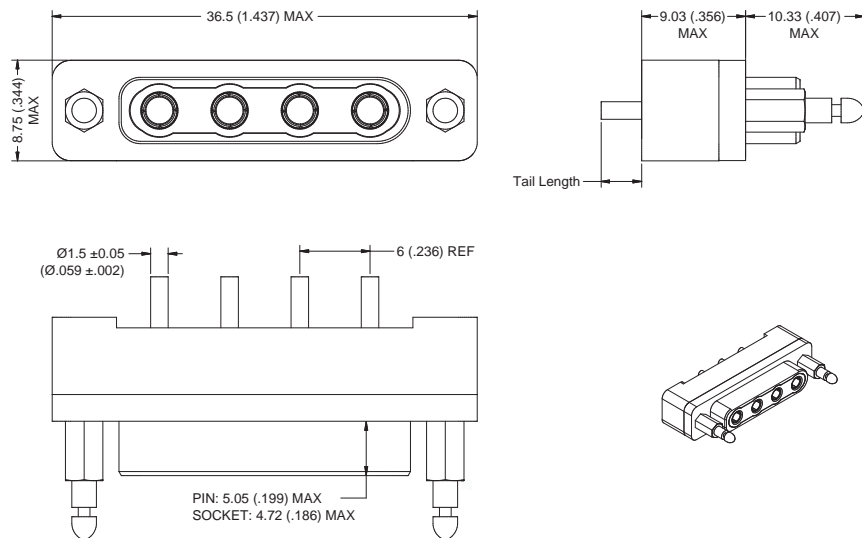


**Notes:**

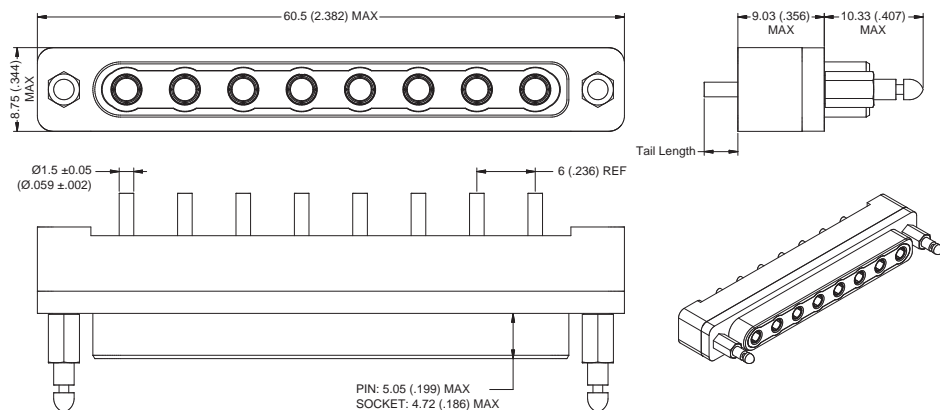
- Dimensions in mm (inches)
- PCB Mounting: Maximum torque 0.44 N.m with through hole and 0.14 N.m when threaded inserts installed.

# BS PCB POWER CONNECTORS DIMENSIONS

## 4S12 BS power connectors



## 8S12 BS power connectors

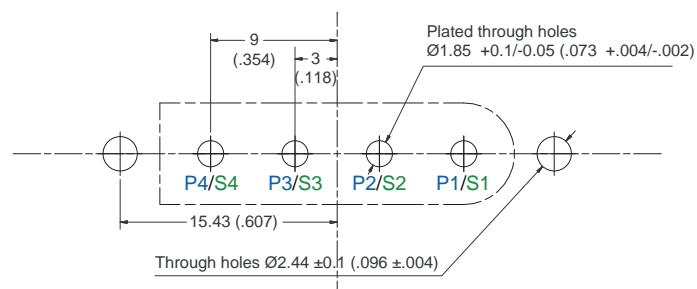


Dimensions are in millimetres

# BS PCB POWER CONNECTORS DIMENSIONS

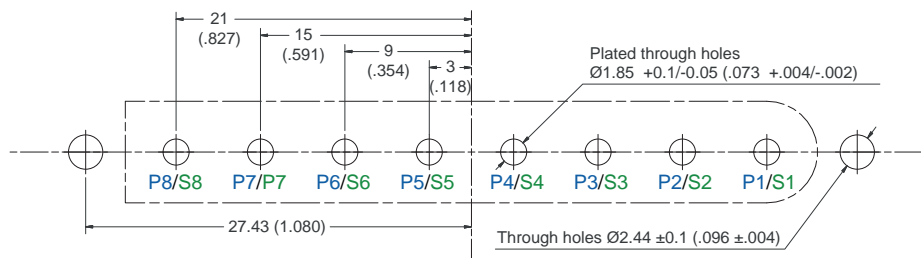
## ► 4S12 BS power connectors

PIN CONNECTOR / SOCKET CONNECTOR



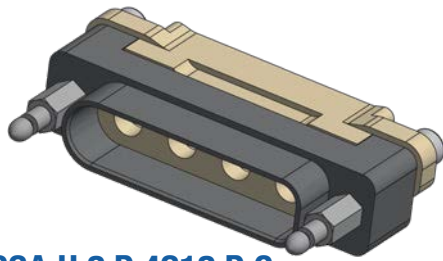
## ► 8S12 BS power connectors

PIN CONNECTOR / SOCKET CONNECTOR

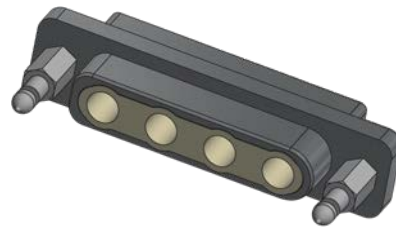


### Notes:

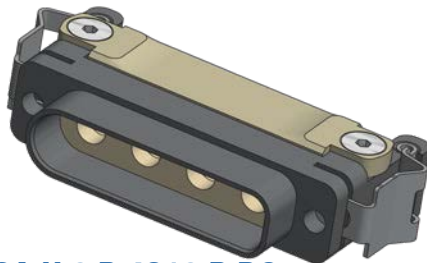
- Dimensions in mm (inches)
- Pin & socket are identical
- PCB Mounting: Maximum torque 0.44 N.m with through hole and 0.14 N.m when threaded inserts installed.



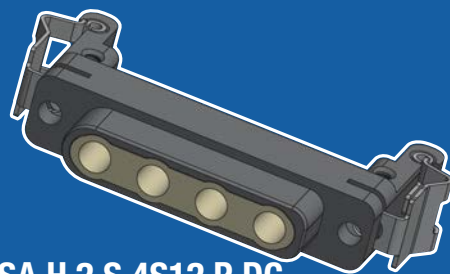
MMCSA H 2 P 4S12 P G



MMCSA H 2 S 4S12 P G

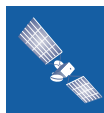


MMCSA H 2 P 4S12 P DC



MMCSA H 2 S 4S12 P DC

## KITS: VERSATYS® POWER HOUSINGS



### IDENTIFICATION CODE

MMCSA

H

2

S

4S12

P

DC

#### SERIES

**MMCSA:** Space Micro Modular Connector Dismountable kit.

#### SUBCOMPONENT

**H:** Housing (connector body + insulating insert + hardware).

#### CONNECTOR TYPE

**2:** Nickel aluminium shell.

#### CONNECTOR GENDER

**P:** Pin (pin contacts).

**S:** Socket (socket contacts).

#### NUMBER OF WAYS

**4S12:** 4 points size 12.

**8S12:** 8 points size 12.

*See pages 54 to 57 for housing dimensions.*

#### TYPE

**P:** Power connector.

#### HARDWARE

**DC:** D-Click® latch springs.

**G:** D-Click® latch-posts.

**Gx** (x: 1 to 5): D-Click® latch-posts, rear panel mount.

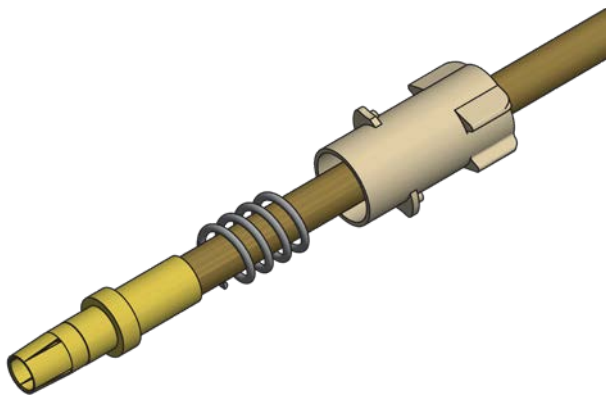
**x= 1:** 0.8 mm thickness    **2:** 1.2 mm thickness    **3:** 1.6 mm thickness

**4:** 2.0 mm thickness    **5:** 2.4 mm thickness

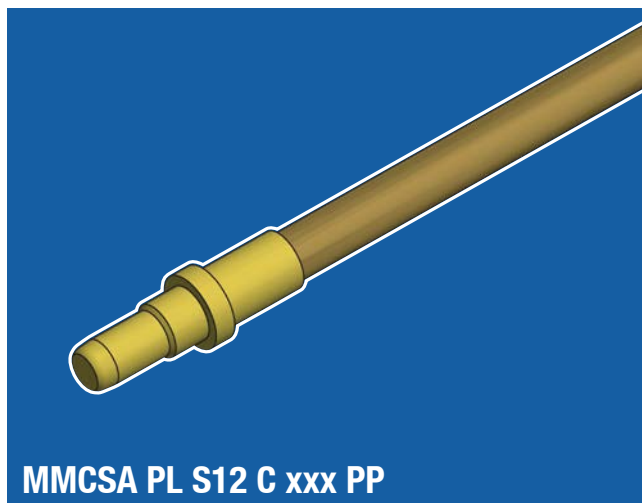
*See page 10 & 11 for D-Click® hardware.*

**LAT** level to be indicated when ordering - see page 73

CONNECTORS ARE SUPPLIED WITH ANTI-STATIC PROTECTIVE DUST CAPS

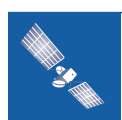


MMCSA PL S12 C xxx SS



MMCSA PL S12 C xxx PP

## KITS: VERSATYS® POWER LINES



### IDENTIFICATION CODE

MMCSA

PL

S12

C

020

PP

#### SERIES

MMCSA: Space Micro Modular Connector Dismountable kit.

#### SUBCOMPONENT

PL: Power line.

#### CONTACT SIZE

S12: Size 12.

#### WIRE TYPE

##### ESCC 3901 001 (Polyimide):

A: ESCC 3901 001 29 (AWG16).

B: ESCC 3901 001 30 (AWG14).

C: ESCC 3901 001 31 (AWG12).

##### ESCC 3901 013 (PTFE):

G: ESCC 3901 013 57 (AWG16).

##### ESCC 3901 012 (cross-linked ETFE):

Dx: ESCC 3901 012 08 (AWG16).

Ex: ESCC 3901 012 09 (AWG14).

Fx: ESCC 3901 012 10 (AWG12).

x= 4: Yellow 9: White.

Other colors available on request.

##### ESCC 3901 019 (CELLOFLON® PTFE):

H: ESCC 3901 019 07 (AWG16).

I: ESCC 3901 019 08 (AWG12).

See page 71 for wire types.

#### 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 |

#### TERMINATION CHOICE

P: One pin contact, one end only.

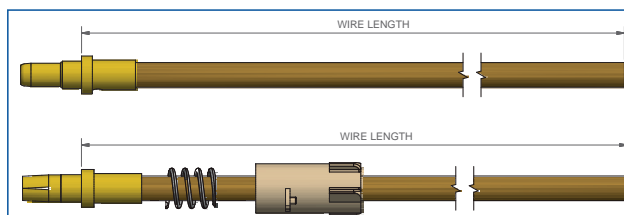
S: One socket contact, one end only.

PS: Pin to socket contacts.

PP: Pin to pin contacts.

SS: Socket to socket contacts.

LAT level to be indicated when ordering - see page 73







# AXON' CABLE D–Click® connectors

## Wires

Wire codes for twist pin contacts – 70

Wire codes for power contacts – 71

Colour codes – 72

LAT levels – 73

# WIRE CODES FOR TWIST PIN CONTACTS

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 <sup>2</sup> (sq in) | RESISTANCE Ω/100m (Ω/ 1000 ft) |
| G           | GPC2501                              | 1.45       | GOLD PLATED COPPER                                  | 25  | 1x0.455<br>1x.018      | 0.455<br>.018  | 0.163<br>.000252             | 11<br>33.5                     |
| T (FOR PCB) | GPC2501<br>RoHS SOLDER<br>DIPPED TIN | 1.81       | GOLD PLATED COPPER AND TIN LEAD-FREE (97% TIN MAX.) | 24  | 1x0.510<br>1x.0201     | 0.510<br>.0201 | 0.205<br>.000317             | 11<br>33.5                     |

## ► Insulated wires

| WIRE CODE | WIRE DESIGNATION | MAX. WEIGHT g/m | CONDUCTOR          |     |                        |               |                              |                                | INSULATION                               |                  | TEMPERATURE RATING | VOLTAGE RATING      |
|-----------|------------------|-----------------|--------------------|-----|------------------------|---------------|------------------------------|--------------------------------|--|------------------|--------------------|---------------------|
|           |                  |                 | MATERIAL           | AWG | CONSTRUCTION mm (inch) | Ø mm (inch)   | AREA mm <sup>2</sup> (sq in) | MAX. RESIST. Ω/1km (Ω/1000 ft) | MATERIAL                                 | MAX. Ø mm (inch) |                    |                     |
| A         | ESCC 3901 001 24 | 2.05            | SPCA               | 26  | 19x0.10<br>19x.0039    | 0.53<br>.020  | 0.15<br>.000232              | 148<br>45                      | POLYIMIDE                                | 0.84<br>.033     | -100°C / +200°C    | 600 V <sub>AC</sub> |
| B         | ESCC 3901 001 47 | 1.37            | SPCA               | 28  | 19x0.08<br>19x.0031    | 0.43<br>.017  | 0.10<br>.000155              | 242<br>74                      | POLYIMIDE                                | 0.73<br>.028     | -100°C / +200°C    | 600 V <sub>AC</sub> |
| C         | ESCC 3901 002 56 | 1.93            | SPCA               | 26  | 19x0.10<br>19x.0039    | 0.53<br>.020  | 0.15<br>.000232              | 148<br>45                      | POLYIMIDE LIGHT                          | 0.78<br>.031     | -100°C / +200°C    | 600 V <sub>AC</sub> |
| D         | ESCC 3901 002 61 | 1.23            | SPCA               | 28  | 19x0.08<br>19x.0031    | 0.43<br>.017  | 0.10<br>.000155              | 242<br>74                      | POLYIMIDE LIGHT                          | 0.68<br>.027     | -100°C / +200°C    | 600 V <sub>AC</sub> |
| E         | M22759/33-26     | 2.08            | HIGH STRENGTH SPCA | 26  | 19x0.102<br>19x.0040   | 0.483<br>.019 | 0.154<br>.000239             | 147<br>44.8                    | CROSS-LINKED EXTRUDED MODIFIED ETFE      | 0.86<br>.034     | -90°C / +200°C     | 600 V <sub>AC</sub> |
| J         | ESCC 3901 012 03 | 2.11            | SPCA               | 26  | 19x0.10<br>19x.0039    | 0.53<br>.020  | 0.15<br>.000232              | 149<br>45                      | CROSS-LINKED ETFE                        | 0.86<br>.034     | -100°C / +200°C    | 600 V <sub>AC</sub> |
| K         | ESCC 3901 012 02 | 1.35            | SPCA               | 28  | 7x0.12<br>7x.0047      | 0.38<br>.015  | 0.08<br>.000124              | 244<br>74                      | CROSS-LINKED ETFE                        | 0.70<br>.028     | -100°C / +200°C    | 600 V <sub>AC</sub> |
| L         | ESCC 3901 013 02 | 2.30            | SPCA               | 26  | 7x0.16<br>19x.0063     | 0.50<br>.020  | 0.14<br>.000217              | 146<br>45                      | PTFE & POLYIMIDE                         | 0.89<br>.035     | -100°C / +200°C    | 600 V <sub>AC</sub> |
| M         | ESCC 3901 013 01 | 1.80            | SPCA               | 28  | 7x0.127<br>7x.0050     | 0.42<br>.017  | 0.089<br>.000138             | 215<br>66                      | PTFE & POLYIMIDE                         | 0.82<br>.032     | -100°C / +200°C    | 600 V <sub>AC</sub> |
| N         | ESCC 3901 018 04 | 2.68            | SPCA               | 26  | 7x0.160<br>7x.0063     | 0.49<br>.019  | 0.14<br>.000217              | 150<br>46                      | CELLOFLO <sup>®</sup> , POLYIMIDE & PTFE | 1.03<br>.041     | -200°C / +200°C    | 600 V <sub>AC</sub> |
| O         | ESCC 3901 018 03 | 1.81            | SPCA               | 28  | 7x0.126<br>19x.0050    | 0.39<br>.015  | 0.089<br>.000138             | 239<br>73                      | CELLOFLO <sup>®</sup> , POLYIMIDE & PTFE | 0.9<br>.035      | -200°C / +200°C    | 600 V <sub>AC</sub> |
| P         | ESCC 3901 019 03 | 1.9             | SPCA               | 26  | 19x0.10<br>19x.0039    | 0.57<br>.022  | 0.15<br>.000232              | 157<br>48                      | CELLOFLO <sup>®</sup> & POLYIMIDE        | 0.96<br>.038     | -200°C / +200°C    | 600 V <sub>AC</sub> |
| Q         | ESCC 3901 019 02 | 1.4             | SPCA               | 28  | 7x0.127<br>19x.0050    | 0.47<br>.018  | 0.09<br>.000139              | 253<br>77                      | CELLOFLO <sup>®</sup> & POLYIMIDE        | 0.87<br>.034     | -200°C / +200°C    | 600 V <sub>AC</sub> |

SPCA = SILVER PLATED COPPER ALLOY

OTHER WIRE TYPES AVAILABLE ON REQUEST

# WIRE CODES FOR POWER CONTACTS

## ► Insulated wires for MMCS & MMCSA

| WIRE CODE | WIRE DESIGNATION | MAX. WEIGHT<br>g/m | CONDUCTOR |     |                              |                        |                                    |   | INSULATION                       |                        | WIRE COLOR      |
|-----------|------------------|--------------------|-----------|-----|------------------------------|------------------------|------------------------------------|---|----------------------------------|------------------------|-----------------|
|           |                  |                    | MATERIAL  | AWG | CONSTRUCTION<br>mm<br>(inch) | MAX. Ø<br>mm<br>(inch) | AREA<br>mm <sup>2</sup><br>(sq in) | MAX. DC<br>RESISTANCE<br>AT 20°C<br>Ω/km<br>(Ω/1000 ft) | MATERIAL                         | MAX. Ø<br>mm<br>(inch) |                 |
| A         | ESCC 3901 001 29 | 14.0               | SPC*      | 16  | 19x0.300<br>19x.0118         | 1.53<br>.0602          | 1.30<br>.00202                     | 14.3<br>4.360   | POLYIMIDE                        | 1.85<br>.073           | BROWN           |
| B         | ESCC 3901 001 30 | 19.6               | SPC*      | 14  | 27x0.300<br>27x.0118         | 1.87<br>.0736          | 1.90<br>.00295                     | 10.1<br>3.079   | POLYIMIDE                        | 2.19<br>.086           | KHAKI-BEIGE     |
| C         | ESCC 3901 001 31 | 32.1               | SPC*      | 12  | 45x0.300<br>45x.0118         | 2.50<br>.0984          | 3.20<br>.00496                     | 6.03<br>1.838   | POLYIMIDE                        | 2.80<br>.110           | KHAKI-BEIGE     |
| D         | ESCC 3901 012 08 | 14.59              | SPC*      | 16  | 19x0.300<br>19x.0118         | 1.55<br>.0610          | 1.20<br>.00186                     | 14.8<br>4.512   | EXTRUDED<br>CROSS-LINKED<br>ETFE | 1.90<br>.075           | TO BE SPECIFIED |
| E         | ESCC 3901 012 09 | 19.60              | SPC*      | 14  | 37x0.250<br>37x.0098         | 1.82<br>.0717          | 2.00<br>.00310                     | 10.2<br>3.110   | EXTRUDED<br>CROSS-LINKED<br>ETFE | 2.29<br>.090           | TO BE SPECIFIED |
| F         | ESCC 3901 012 10 | 31.23              | SPC*      | 12  | 37x0.320<br>37x.0126         | 2.28<br>.0898          | 3.00<br>.00465                     | 6.51<br>1.985   | EXTRUDED<br>CROSS-LINKED<br>ETFE | 2.74<br>.108           | TO BE SPECIFIED |
| G         | ESCC 3901 013 57 | 17                 | SPC*      | 16  | 19x0.285<br>19x.0112         | 1.44<br>.0567          | 1.23<br>.00191                     | 16.5<br>5.030   | PTFE                             | 2.23<br>.088           | AMBER           |
| H         | ESCC 3901 019 07 | 13.00              | SPC*      | 16  | 19x0.300<br>19x.0118         | 1.49<br>.0587          | 1.20<br>.00186                     | 14<br>4.268   | CELLOFLON®<br>PTFE               | 1.98<br>.078           | AMBER           |
| I         | ESCC 3901 019 08 | 27.00              | SPC*      | 12  | 37x0.320<br>37x.0126         | 2.18<br>.0858          | 3.00<br>.00465                     | 7<br>2.134  | CELLOFLON®<br>PTFE               | 2.73<br>.107           | AMBER           |

\*: SILVER PLATED COPPER

OTHER WIRE TYPES AVAILABLE ON REQUEST

# 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<br>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  |

# LAT LEVELS

The required level of Lot Acceptance Testing is to be specified when ordering.  
The sample size of the three Lot Acceptance Tests are shown in the diagram below.  
All components assigned to a subgroup shall be subjected to all the tests of that subgroup in the table test sequence.

AXON' Micro-D D-Click® & Versatys® connectors are tested according to ESCC 3401.

## Lot Acceptance "level 3":

No additional tests or inspections are required for this level.

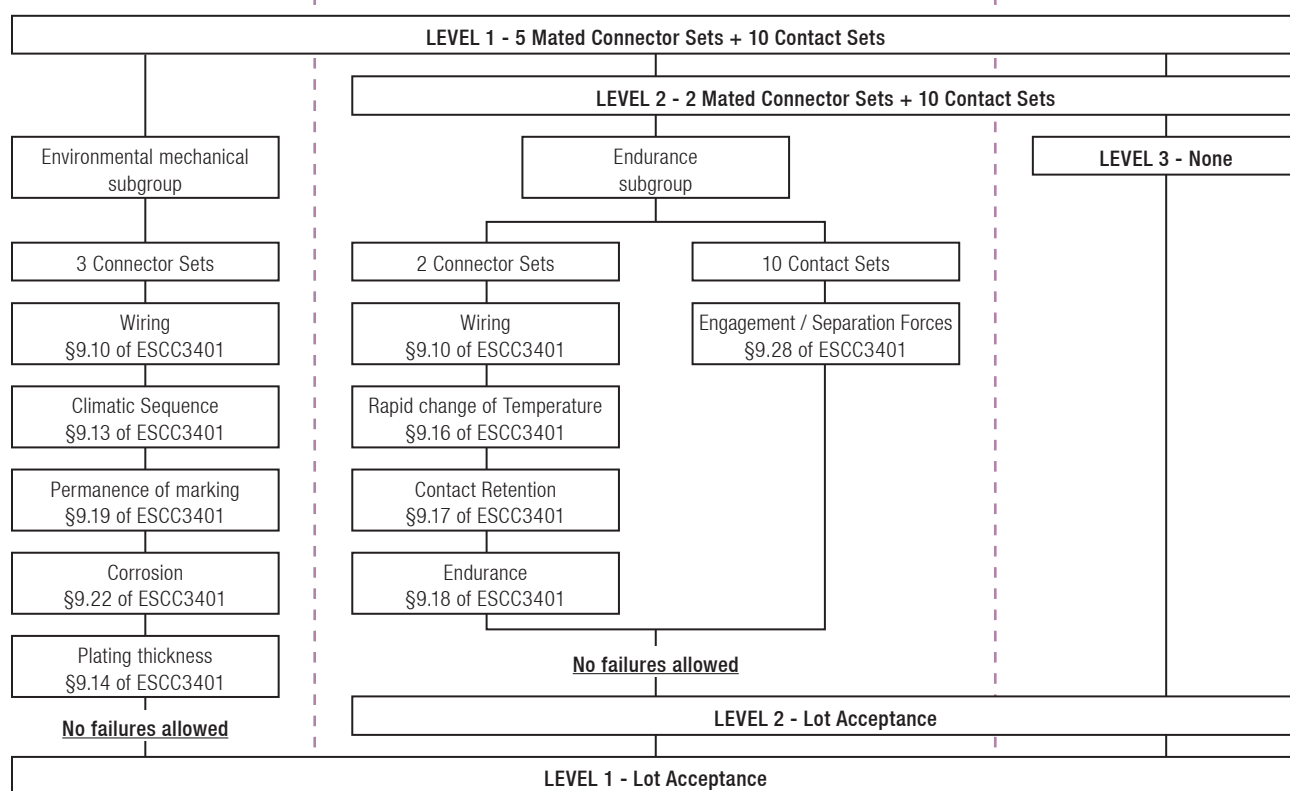
## Lot Acceptance "level 2":

This level includes the electrical and endurance subgroup.

## Lot Acceptance "level 1":

This level includes everything in level 2 plus environmental and mechanical subgroups.

## ► SAMPLE SIZES ACCORDING TO REQUIRED LAT LEVEL





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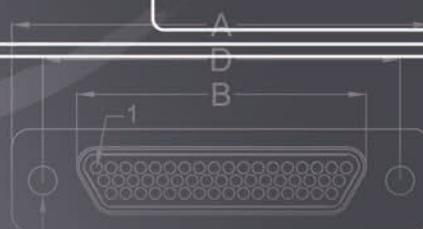
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