

MULTIPIN
CONNECTORS

# **MULTIPIN** CONNECTORS

*Full Line Catalog*

**SIMPLIFICATION** IS OUR INNOVATION

Radiall™

## SIMPLIFICATION
### *is our* INNOVATION

*Radiall is a community of dedicated individuals with a shared purpose: simplify life for all those who innovate. Our manufacturing expertise allows us to deliver lighter and smaller products that simplify implementation and drive performance. We recognize that simplification starts with us, but proves its true benefits when it reaches you.*





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AEROSPACE
DEFENSE
RAIL
MEDICAL
SPACE
TELECOM
INDUSTRIAL
TEST & MEASUREMENT

# OUR **COMPANY**

*Since 1952, we have been enabling the future through collaboration with our customers. The results are a range of innovative and award-winning products that customers trust for unrivaled repeatability and performance.*

We are a global company with facilities around the world that specializes in manufacturing the highest-quality interconnect components to support the most demanding applications. At Radiall, you can rely on us to be the industry's global market leader.

## INDUSTRIES WE SERVE

For over 60 years, we have fostered relationships grounded in trust by sharing our extensive market knowledge, technological expertise and experience in each and every interaction. Through an understanding of our customers' unique challenges, we are able to design simple solutions specific to their application and requirements.

*Visit **www.radiall.com** for more information.*

## OUR VALUES

Guiding Our Actions
Every Day



**GROW TOGETHER**
*With Our Teams and the World Around Us*



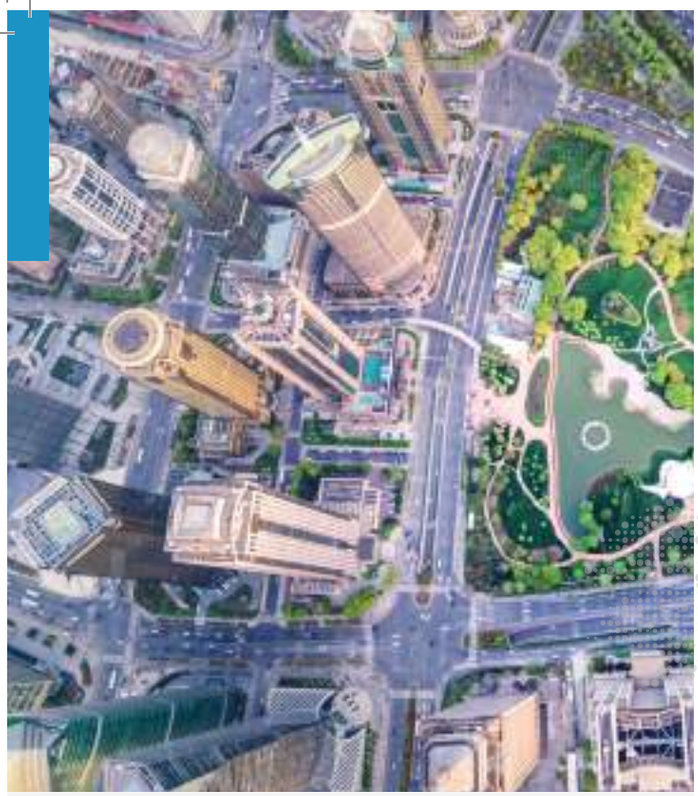
**BE GENUINE**
*To Foster Mutual Trust and Grow*



**MAKE IT SIMPLE**
*To Accelerate Innovation*



**DARE TO BE AUDACIOUS**
*To Make a Difference*





*Connecticut*

*Obregón*




## AWARDS & CERTIFICATIONS

Being recognized for our product performance, innovation and timely fulfillment is a testament to our employees' commitment to our customers. We are a world market leader in reliable, repeatable performance and take great pride in providing award-winning innovation and vendor support.

Our leadership is focused on long-term success and developing key technologies that simplify our customers' lives.

We're committed to our people, the environment and to the highest quality standards including ISO 9001, ISO 14001 and AS9100 certifications. We are compliant with the EU Restriction of Hazardous Substances (RoHS) as well as the Registration, Evaluation, Authorization and Restrictions of Chemicals (REACH) systems.

*Visit our website to view RoHS and REACH compliance information for specific Radiall part numbers.*

### IN-HOUSE TECHNOLOGIES

- *High-Precision Machining*
- *Stamping*
- *Plating*
- *Molding*
- *Polishing*
- *Laser, Ultrasonic, Vapor, Soldering*
- *Etching on Si*
- *Thick Film on AlN*
- *Testing and Simulation*




Château-Renault



Shanghai



L'Isle-d'Abeau

Centr'Alp

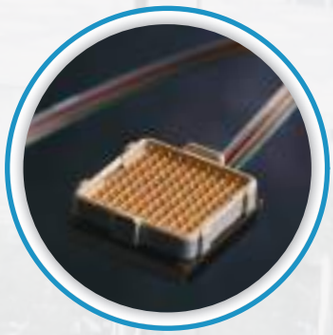


# **GLOBAL** PRESENCE

*Recognizing that relationships are rooted in trust, we strive to earn our customers' confidence by demonstrating our market knowledge, technological expertise and experience in each and every interaction.*

**SALES OFFICES** **INDUSTRIAL PLANTS**

# COMPREHENSIVE **PORTFOLIO**



***Active Optics***

Our high-performance, optical interconnection brand, D-Lightsys®, provides optical transceiver and electronic solutions suitable for harsh environments.



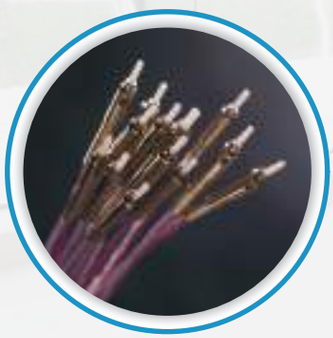
***Antennas***

With a military and industrial focus, we have solutions for radio tactical communications, vehicles, positioning, LMR/PMR and telemetry applications.



***Microwave Components***

Our range covers a wide frequency spectrum from DC to 50 GHz, and includes terminations, attenuators, couplers, power dividers, filters and other specialized components.



***Optical Connectors***

Designed for demanding applications where reliability and high performance are required, our cost-effective optical connectors serve telecom, industrial, aerospace and defense markets.



***Outdoor Connectors***

Designed for outdoor conditions, our range includes high-power RF coaxial connectors, linking antennas and radio units, as well as innovative multi-signal I/O solutions for optical, Ethernet, power or coaxial links between radio and network.

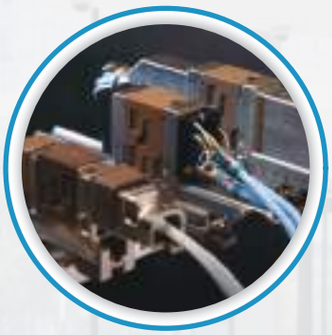


***RF & Microwave Switches***

The patented design of our unique, modular actuator and transmission links guarantees operation up to 10 million cycles with superior repeatability.

At Radiall, we provide a comprehensive portfolio of products that meet the application requirements of the key industries we serve. By listening to our customers, we continuously develop new solutions and update our extensive range of products.

With over sixty years of experience and an understanding of the ever-changing business and our customers' technical requirements, we deliver the optimal and most cost-effective, end-to-end interconnect solutions available today.



***Multipin Aerospace Connectors***

For more than 40 years, commercial airframes have trusted our range of rack and panel connectors and modular solutions. Our new miniature connector series combines high performance and reduced weight to meet civil and military aerospace industry demands.



***Multipin Industrial Connectors***

Our Van-System brand designs and produces a range of robust circular electrical connectors suitable for harsh environments, such as railways, machine tools, and plant engineering equipment.



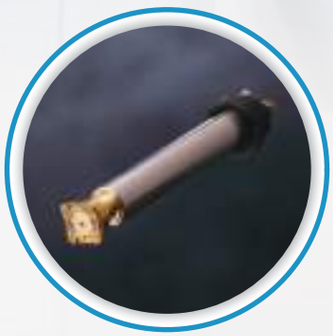
***Optical Cable Assemblies***

Our extensive product range and worldwide presence supports customers with standard configurations as well as optimized solutions based on customer requirements.



***RF Cable Assemblies***

Low-loss and high-frequency characterize our extensive range of cable assemblies, including flexible, semi-rigid and hand-formable solutions with a broad combination of cables and connectors.



***RF Coaxial Connectors***

We offer the widest range of RF coaxial connectors in the industry; 55 product series are available, including AEP and Mil QPL connectors.



***Space Qualified Components***

Known for high quality as well as reliability and performance, our product offering includes a wide range of coaxial connectors, cable assemblies, microwave components and switches with a frequency range up to $K_a$ band.



# SHIPPING **& PACKAGING**

*Radiall has various size boxes for optimum packaging and protection.*

- Eco-friendly labeling tape makes it easy to identify Radiall goods. Printing is minimized to reduce processing and all boxes can be recycled (except for the adhesive).
- Each product part number has a dedicated carton box adapted to the size of its packaging.

## SHIPPING INFORMATION

Shipping lead times may vary depending on the location and time zone in which products are stocked or manufactured.

Radiall offers five types of standard packaging, which dictate the first level product container. All of our packages are identified with the Radiall name, part number, lot number and quantity.



### TAPE & REEL

Available in 100, 500, 1,800, 3,000 or in custom quantities, products are arranged in an anti-static polyester blister tape covered with a ribbon defender and then rolled up on a polyester reel. This packaging is CEI 286-3 compliant and dedicated to surface mount components. It is compatible with all pick and place automatic machines.



## BLISTER TRAY

Custom, stackable trays minimize damage when shipping fragile or large connectors. These trays protect against shock and even have an anti-dust lid/wrapping.



## BULK

Bulk packaging is available in multiple bags or a box containing 10, 20, 25, 50 or 100 of each component part in separate bags.



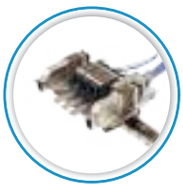
## BLISTER BULK PACK

This packaging is suitable for multipart products and small connectors. Radiall offers four types of blister bulk pack depending on the configuration of the product and number of pieces (10, 20, 50 or 100). It is easy to open and ideal for in-field assembly.



## UNIT PACKAGING

All connectors can be ordered in unit bags. The connector and all of the component parts come in individual tear-proof polyethylene bags. Unit packaging must be specified when ordering: add “W” at the end of the part number (except for adapters and specific products).

| | ON-BOARD MULTIPIN APPLICATIONS | |
|---|---|---|
| | CIVIL AEROSPACE | MILITARY AEROSPACE |
|  EPX® - EN4644 | • *Airframe production break*<br>• *Avionics*<br>• *Aerospace general purpose*<br>• *IFE*<br>• *Power & flight management*<br>• *Radar* | • *Power management*<br>• *Avionics*<br>• *Flight management*<br>• *Radar*<br>• *Weapons systems* |
|  HDQX | • *Avionics*<br>• *Aerospace general purpose*<br>• *IFE*<br>• *Flight management*<br>• *Radar* | |
|  NSX - ARINC 600 | • *Avionics*<br>• *Aerospace general purpose*<br>• *IFE*<br>• *Flight management* | |
|  QM | • *Airframe production break*<br>• *Aerospace general purpose*<br>• *IFE* | |
|  DSX - MIL-C-81659 ARINC 404 | • *Avionics*<br>• *Displays*<br>• *Aerospace general purpose*<br>• *IFE*<br>• *Flight management* | • *Avionics*<br>• *Displays*<br>• *Flight management* |
|  MM MB | • *Avionics*<br>• *Flight management*<br>• *Radar*<br>• *Weapons systems* | • *Avionics*<br>• *Flight management*<br>• *Radar*<br>• *Weapons systems* |
|  RTX - MIL-STD-1553 | • *Radar*<br>• *Aerospace general purpose* | • *Radar*<br>• *Weapons systems* |
|  MPX - MIL-C-83527 | | • *Avionics*<br>• *Flight management* |











| | ON-GROUND MULTIPIN APPLICATIONS | | |
|---|---|---|---|
| | RADARS | INDUSTRIAL | TEST EQUIPMENT |
| EPX® - EN4644 | • *Avionics*<br>• *Flight management*<br>• *Radar*<br>• *Weapons systems* | | |
| HDQX | • *Avionics*<br>• *Flight management*<br>• *Radar*<br>• *Weapons systems* | | |
| B | • *Avionics*<br>• *Flight management*<br>• *Radar*<br>• *Weapons systems* | • *Avionics*<br>• *Flight management*<br>• *Radar*<br>• *Weapons systems* | |
| MCSR | • *Avionics*<br>• *Flight management*<br>• *Radar*<br>• *Weapons systems* | | |
| MMC | • *Avionics*<br>• *Flight management*<br>• *Radar*<br>• *Weapons systems* | | • *Avionics*<br>• *Flight management*<br>• *Radar*<br>• *Weapons systems* |



# EPX® SERIES

***EN4644***

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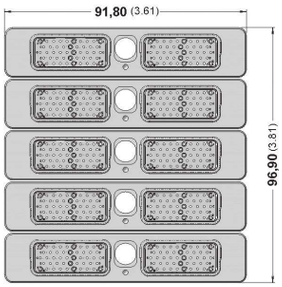
## INTRODUCTION

Radiall is recognized in the aerospace and defense industries for offering one of the broadest innovative product portfolios for connector interconnect solutions. The benefit of our experience with ARINC connectors permits Radiall to provide customers with a strong and global solution.

The EPX® series offers a wide range of solutions based on two insert sizes with a large variety of shells and contacts. This product range provides an excellent trade-off between the number of available contacts and the space used. The EPX® series is completely modular and expandable.

EPX® connectors are standardized by the EN4644 European standard.

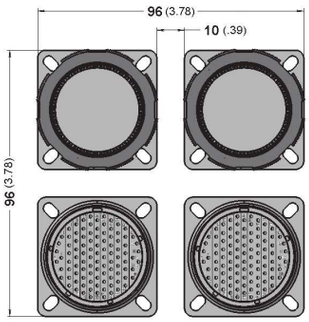
A **high-density solution** compared to circular connectors:
- Slim shell design with high contact density
- Stackable shells do not require additional space for locking and unlocking the connectors




**EPXB**

*5 shells #2 with 2*48 Cts*

- ***Total Cts:*** *480*
- ***Total surface:*** *96.90 * 91.80 = 8895.42 mm²*
- *Gives 18.53 mm²/contact*




**38999**

*4 shells #23 with 100 Cts*

- ***Total Cts:*** *400*
- ***Total surface:*** *96.00 * 96.00 = 9216 mm²*
- *Gives 23.04 mm²/contact*

A **cost saving** and **user-friendly** solution:
- Inserts can be wired in the workshop and later installed in the shells
- A common panel cut-out simplifies the connector installation
- Inserts can be easily installed and removed from the shell
- Inserts and shells are keyed to prevent mis-mating
- Standard Mil spec tools for contact crimping and contact insertion/extraction
- Field replaceable sub-assemblies
- Vibration resistant self-locking threads

A **modular concept** with a large variety of options:
- Shell can accommodate a wide variety of inserts for signal, power, coax, data bus, fiber optic and high-frequency BMA contacts
- Optional ground blocks (to meet the FAA HIRF requirements)
- Pin and socket inserts can be installed in either plug or receptacle shells (pin contacts are always fitted in the pin insert)

EPX® is a **versatile solution** available in two different versions:
- Aluminium
- Composite



**CABLE-CABLE** **PCB-CABLE**

## DISCONNECT APPLICATIONS

***Specially designed for panel integration on EWIS applications, EPX® disconnect connectors cover cable-to-cable and PCB-to-cable links in major commercial and business jet aircrafts.***

The connector can be easily identified by the locking device located directly on the connector (quarter turn device for A1 and B1 and central screws for EPXB2). This disconnect solution offers secure mating while answering OEM's most stringent requirements, and provides:

- Modularity with three shell sizes: EPXA1, EPXB1 and EPXB2 - available as lightweight shells and compatible with several options such as ground block functionality. EPX® connectors also feature a large variety of inserts and a unique range of contacts covering any technology. EPX® connectors answer all connecting needs with the use of a limited number of components.
- Space savings with the combination of a slim shell design and high density inserts. In addition, EPX® disconnect stackable shells do not require additional space to lock and unlock the connectors.
- Time savings and cost effectiveness with modular parts that enable pre-wiring. Connectors are easy to assemble as the receptacle can be pre-installed. Inserts will be wired in the shop and plugged later, which saves integration time.



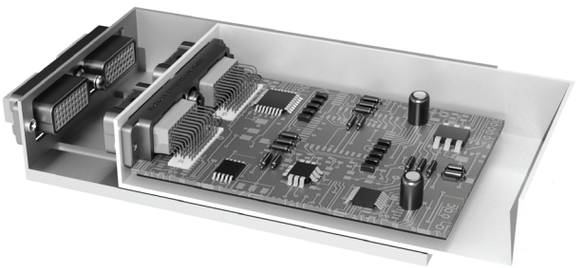
**EPXA1**



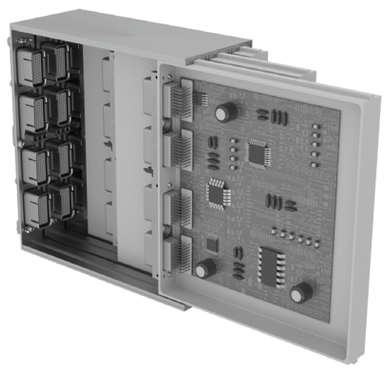
**EPXB1**



**EPXB2**



**EPXB2 FOR LRU**



**EPX RACK & PANEL FOR LRM**

## RACK & PANEL APPLICATIONS

***In response to the need of system miniaturization and new equipment design, Radiall offers EPX® connector solutions for Line Replaceable Unit (LRU) and Line Replaceable Module (LRM). Discover more about these blind mate connectors:***

### EPXB2 FOR LRU

Largely used in distributed architecture, small Line Replaceable Units in an aircraft need compact, lightweight and cost-effective connectors.

EPXB2 connectors equipped with centering guide will combine high density, low efforts and lightweight features. Discover the whole range of EPXB inserts offering from signal to power or quadrax contacts (available in straight or right angle PC tails and crimp contacts).

### EPX RACK & PANEL FOR LRM

Today, equipment manufacturers look for more cost-effective and easy to maintain solutions such as Line Replaceable Module (LRM). As a result, Radiall has developed a new generation of Rack & Panel connectors. EPX® Rack & Panel connectors feature a modular, lightweight and high density shell that can be used on standalone PCB architecture.

EPX® Rack & Panel connectors are the perfect solution when equipment needs to combine compactness, weight savings and very high density. They offer:

- A modular range: From size 1 to size 4 using the complete range of EPX® inserts.
- Low mating force contacts from EPX® range that can reach very high density.
- A comprehensive range of contacts: Right angle or straight PC tails for signal, coax, quadrax, or power contacts.

*EPX® Series*

# DISCONNECT CONNECTORS

## ELECTRICAL CHARACTERISTICS

*EMI Shielding Effectiveness EN2591-213*

| FREQUENCY (MHz) | LEAKAGE ATTENUATION (dB) |
|---|---|
| 100 | 65 |
| 200 or 300 | 63 |
| 400 | 62 |
| 500 and 600 | 60 |

### OTHER CHARACTERISTICS

- **Shell-to-Shell Conductivity:** < 2.5 mΩ
- **Operating Voltage:** 400 VRMS or 500 VDC at sea level, according to EN2591-205
- **Voltage Stability (Ground Block):** Maximum variation 4 mV according to SAE AS 81714 (MIL-T-81714)
- **Lightning Strike:**
  - 5 kA - 1,600 V for EPX® connectors in aluminium version
  - 3 kA - 1,600 V for EPX® connectors in composite version

## MECHANICAL CHARACTERISTICS

### MATING/UNMATING

| SHELL TYPE | MATERIAL | MATING/UNMATING |
|---|---|---|
| EPXA1/EPXB1/EPXB2 | Aluminium | 100 Cycles |
| EPXB1/EPXB2 | Composite | 100 Cycles |

- EPXB2 mating torque: 1.2N.m +/- 0.1

### VARIATION & SHOCK

| SHELL TYPE | MATERIAL | VIBRATION<br>*For 8 hrs on Each of the 3 Axis/Interruption < 1 µs EN2591-403 EIA 364-28* | SHOCK<br>*3 Shocks on Each Axis EN2591-402 EIA 364-27* |
|---|---|---|---|
| EPXA1 / EPXB1 | Aluminium | Acceleration 27.8 g (Test Condition 6 Letter G) | Shock Amplitude 50 g/Duration 11 ms |
| EPXB1 / EPXB2 | Composite | | |
| EPXB2 | Aluminium | | 100 Shock Amplitude 300 g/Duration 3 ms |
| Disconnect EPX® with Quadrax Contacts | - | Acceleration 16.9 g (Test Condition 5 Letter E) | 100 Shock Amplitude 50 g/Duration 11 ms |

## ENVIRONMENTAL CHARACTERISTICS

- **Temperature Range:** according to EIA364-32 and EN2591-305
  - For EPXB2 aluminium, EPXB1 and EPXA1 shells: -65 °C/+175 °C (-85 °F/+347 °F)
  - For EPXB2 composite shell: -65 °C/+125 °C (-85 °F/+257 °F)
- **Temperature Life:** 1,000 hours at maximum temperature
- **Salt Spray:** 96 hours (nickel-plated aluminium and composite) EN2591-307 EIA 364-26 test condition A
- **Humidity:** 10 days with temperature variation from -10 °C to +65 °C EIA 364-31 Method 4, test condition B
- **Altitude Immersion:** EN2591-314 EIA 364-03:
  - EPXB insert: 3 cycles at 50,000 ft
  - EPXB Bulkhead class insert: 3 cycles at 55,000 ft
- **Air Leakage for EPXB2 Bulkhead Receptacle:** Level from EN3645; test according EN2591-312 method B:
  - $4.4 \times 10^{-3}$ $cm^3/s$ (= 16 × 10-6 $m^3/h$)

# RACK & PANEL CONNECTORS

## ELECTRICAL CHARACTERISTICS

*EMI Shielding Effectiveness EN2591-213*

| FREQUENCY (MHz) | LEAKAGE ATTENUATION (dB) |
|---|---|
| 100 | 65 |
| 200 and 300 | 63 |
| 400 | 62 |
| 500 and 600 | 60 |

### OTHER CHARACTERISTICS

- **Shell-to-Shell Conductivity:** < 2.5 mΩ according to EN2591-205
- **Lightning Strike:** 5 kA - 1,600 V

## MECHANICAL CHARACTERISTICS

### MATING/UNMATING

| SHELL TYPE | MATERIAL | MATING/UNMATING |
|---|---|---|
| EPXB1/EPXB2/EPXB3/EPXB4 | Aluminium | 500 Cycles |

The minimum mating forces are described in the EN4644 standard and depends on the connector size and insert arrangement. Consult Radiall for more information.

### VARIATION & SHOCK

| SHELL TYPE | MATERIAL | VIBRATION<br>*For 8 hrs on Each of the 3 Axis/Interruption < 1 µs EN2591-403 EIA 364-28* | SHOCK<br>*3 Shocks on Each Axis EN2591-402 EIA 364-27* |
|---|---|---|---|
| EPXB1/EPXB2/EPXB3/EPXB4 | Aluminium | Acceleration 16.9 g<br>(Test Condition 5 Letter E) | Shock Amplitude 50 g/Duration 11 ms |

## ENVIRONMENTAL CHARACTERISTICS

- **Temperature Range:** -65 °C/+125 °C (-85 °F/+257 °F)
- **Temperature Life:** 1,000 hours at maximum temperature
- **Salt Spray:** 96 hours EN2591-307 EIA 364-26 test condition A
- **Humidity:** 10 days with temperature variation from -10 °C to +65 °C EIA 364-31 Method 4, test condition B
- **Altitude Immersion:** 3 cycles at 50,000 ft EN2591-314 EIA 364-03

*EPX® Series*

# INSERTS & CONTACT

## ELECTRICAL CHARACTERISTICS

*Electrical characteristics conform to SAE AS 39029 (MIL-C-39029, type A). Contacts conform to EN3155-076 and EN3155-077.*

### CONTACTS

| CONTACT SIZE | WIRE SIZE | MAX CURRENT AMPS |
|---|---|---|
| 22 | AWG22 | 5 |
| | AWG24 | 3 |
| | AWG26 | 2 |
| 20 | AWG20 | 7.5 |
| | AWG22 | 5 |
| | AWG24 | 3 |
| 16 | AWG16 | 13 |
| | AWG18 | 10 |
| | AWG20 | 7.5 |
| 12 | AWG12 | 23 |
| | AWG14 | 17 |
| | AWG16 | 13 |
| 8 | AWG8 | 46 |
| 5 | AWG8 | 46 [1] |
| | AWG12 | 23 |
| | AWG16 | 13 |

### GROUND BLOCK CONTACT

*617221050*

| | CONTACT WITH WIRE SIZE | MAX CURRENT AMPS |
|---|---|---|
| Contact to Contact | Contact + AWG20 | 7.5 |
| Contact to Mounting Surface | Contact + AWG20 | 7.5 |

### DIELECTRIC WITHSTANDING VOLTAGE

*EN2591-207 EIA 364-20 with Leakage Current < 1mΩ*

| LEVEL | ENVIRONMENTAL INSERTS VOLTAGE (VRMS) | NON-ENVIRONMENTAL INSERT VOLTAGE (VRMS) |
|---|---|---|
| Sea Level | 1,500 | 1,500 |
| 50,000 feet | 800 | 600 |
| 70,000 feet | 800 | 300 |

### INSULATION RESISTANCE

*EN2591-206 EIA 364-21*

| TEMPERATURE | INSULATION RESISTANCE |
|---|---|
| Ambient Temperature | > 5,000 mΩ |
| 175 °C (+347 °F) | > 200 mΩ |

***Notes***

*1. Size 5 contacts are not part of SAE AS 39029 (MIL-C-39029, type A).*

## INSERTS & CONTACT

### RETENTION CHARACTERISTICS

*Retention forces indicated below are valid for terminated contacts (as per EN2591-409 and EIA364-29).*

| CONTACT SIZE | RETENTION FORCE | MAX DISPLACEMENT |
|---|---|---|
| Ground Block | 88 N (20 lbs) | 0.30 mm (0.012 in.) |
| 22 | 53.4 N (12 lbs) | 0.38 mm (0.015 in.) |
| 20 | 89 N (20 lbs) | 0.38 mm (0.015 in.) |
| 16 | 111.2 N (25 lbs) | 0.38 mm (0.015 in.) |
| 12 | 133.45 N (30 lbs) | 0.38 mm (0.015 in.) |
| 8 | 133.45 N (30 lbs) | 0.38 mm (0.015 in.) |
| 5 | 133.45 N (30 lbs) | 0.38 mm (0.015 in.) |

- **Insert Retention:** 400 N (90 lbs) (EN2591-410 EIA 364-35)
- **Maximum Insert Displacement in the Shell Cavity:** 0.30 mm (0.012 in.)

## INSERT SELECTION TABLE

Insert name should be used when ordering EPX® insert.
Insert code should be used when ordering EPX® assembly kit
Inserts available in Bulkhead class are identified with the following icon:

| SERIES | INSERT NAME | INSERT CODE | CONTACT SIZE & TYPE [1] | | | | | | | | | | TOTAL CONTACTS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | 22* | 20* | 15 OR 16* | 16 | 16 | 12* | 8 | 8 | 5 | 5 | |
| | | | SIGNAL | POWER | POWER OR COAX | LUXCIS® FIBER OPTIC | POWER IN FIBER OPTIC CAVITY | POWER OR COAX | POWER | QUADRAX OR TWINAX | COAX OR TRIAX | POWER | |
| EPXA | 00 | 0 | - | - | - | - | - | - | - | - | - | - | 0 |
| | 1C1 | A | - | - | - | - | - | - | - | - | 1 | - | 1 |
| | 1P1 | B | - | - | - | - | - | - | - | - | - | 1 | 1 |
| | 04 | C | - | - | 2 | - | - | 2 | - | - | - | - | 4 |
| | 09 | D | - | 3 | 6 | - | - | - | - | - | - | - | 9 |
| | 14 | E | - | 14 | - | - | - | - | - | - | - | - | 14 |
| | 14M | F | 8 | 3 | 3 | - | - | - | - | - | - | - | 14 |
| | 17 | G | 12 | 5 | - | - | - | - | - | - | - | - | 17 |
| | 20 | H | 20 | - | - | - | - | - | - | - | - | - | 20 |
| EPXB | 00 | 0 | - | - | - | - | - | - | - | - | - | - | 0 |
| | C3 | A | - | - | - | - | - | - | - | - | 3 | - | 3 |
| | P3 | B | - | - | - | - | - | - | - | - | - | 3 | 3 |
| | 3Q3 | C | - | - | - | - | - | - | - | 3 | - | - | 3 |
| | 06 | D | - | - | - | - | - | 6 | - | - | - | - | 6 |
| | 10Q2 | E | - | 8 | - | - | - | - | - | 2 | - | - | 10 |
| | 12F6 | F | - | - | - | 6 | 6 | - | - | - | - | - | 12 |
| | F12C | G | - | - | - | 12 | - | - | - | - | - | - | 12 |
| | 13C1 | H | - | 6 | 4 | - | - | 2 | - | - | 1 | - | 13 |
| | 13P1 | J | - | 6 | 4 | - | | 2 | - | - | - | 1 | 13 |
| | 14 | K | - | - | 14 | - | - | - | - | - | - | - | 14 |
| | 17 | L | - | 14 | - | - | - | 3 | - | - | - | - | 17 |
| | 20C1 | M | - | 19 | - | - | - | - | - | - | 1 | - | 20 |
| | 20P1 | N | - | 19 | - | - | - | - | - | - | - | 1 | 20 |
| | 22 | P | - | 16 | 6 | - | - | - | - | - | - | - | 22 |
| | 22V | Q | - | 16 | 6 | - | - | - | - | - | - | - | 22 |
| | 25P1 | R | 24 | - | - | - | - | - | 1 | - | - | - | 25 |
| | 25Q1 | S | 24 | - | - | - | - | - | - | 1 | - | - | 25 |
| | 28 | T | 22 | - | 6 | - | - | - | - | - | - | - | 28 |
| | 30 | U | - | 30 | - | - | - | - | - | - | - | - | 30 |
| | 34 | W | 18 | 16 | - | - | - | - | - | - | - | - | 34 |
| | 40 | X | 40 | - | - | - | - | - | - | - | - | - | 40 |
| | 48 | Y | 48 | - | - | - | - | - | - | - | - | - | 48 |

*Notes*

*1. Only contacts marked with an asterisk (*) are included with EPX® insert kit. All other contacts must be ordered separately (i.e. coax, twinax, quadrax and fiber optic contacts).*

*Inserts*

## HOW TO ORDER EPX® INSERTS

Only crimp contacts can be delivered with insert.

EPX

**SERIES PREFIX**

**INSERT SIZE** [1]
**A:** Insert for EPXA
**B:** Insert for EPXB1, EPXB2, EPXB3 or EPXB4

**CLASS** [2]
**E:** Environmental
**N:** Non-environmental (no rear grommet, no interfacial seal)
**H:** Non-environmental with a rear grommet, available for pin insert only (recommended for crimp contacts)
**T:** Non-environmental with an interfacial seal, available for pin insert only (recommended for PC tail contacts)
**B:** Bulkhead insert with interfacial seal and a Bulkhead rear grommet, available for pin insert only

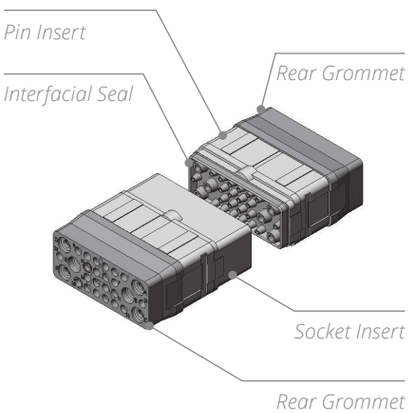
**INSERT NAME**
Refer to table on page 1-10 for insert arrangements

**INSERT TYPE**
**P:** Pin
**S:** Socket

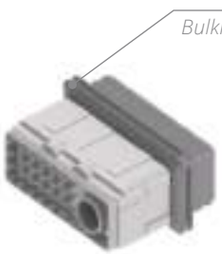
**INSERT KEYING** [3]
**A:** Keying A
**B:** Keying B

**CONTACT**
**Without Code:** Insert delivered without contacts
**S:** Signal and power contacts are delivered with inserts but are uninstalled (refer to page 1-10)
Inserts 00, 1C1, 1P1, C3, P3, 3Q3, 12F6, F12C and 3T3 are not available in S contact version

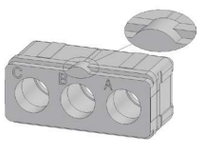
### ENVIRONMENTAL INSERT



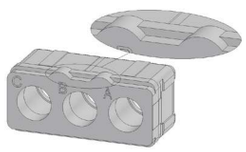

### BULKHEAD INSERT




### INSERT KEYING DETAIL




*Keying A*




*Keying B*

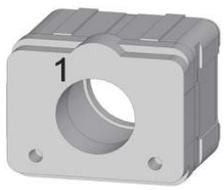
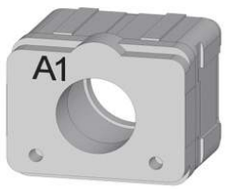
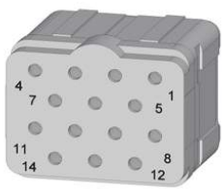
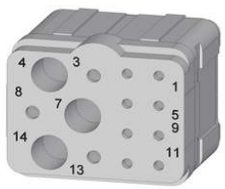
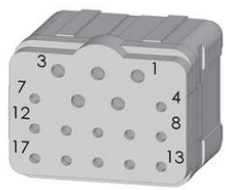
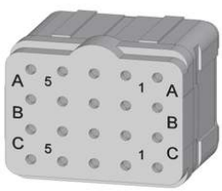
*Notes*

*1. Inserts are designed for rear-release and rear-removable contacts.*
*2. Pin and socket inserts can be installed in either plug or receptacle shell. F6, F12C and 12F6 are only available in E class. Insert 00 is only available in N class.*
*3. For EPXA1, EPXB1, EPXB3 and EPXB4 shells, use only insert keyed A. For EPXB2 shells, use one insert keyed A and one insert keyed B.*

*Inserts*

## EPX® INSERT ARRANGEMENTS

### EPXA INSERT ARRANGEMENTS

| | | | |
|---|---|---|---|
|  |  |  |  |
| **Insert Name 00**<br>**Insert Code 0**<br>Blank Insert [1] | **Insert Name 1C1**<br>**Insert Code A**<br>1 × size 5 Coax Contacts | **Insert Name 1P1**<br>**Insert Code B**<br>1 × Size 5 Power Contacts | **Insert Name 04**<br>**Insert Code C**<br>2 × Size 15 or 16 Contacts<br>2 × Size 12 Contacts |
|  |  |  |  |
| **Insert Name 09**<br>**Insert Code D**<br>3 × Size 20 Contacts<br>6 × Size 15 or 16 Contacts | **Insert Name 14**<br>**Insert Code E**<br>14 × Size 20 Contacts | **Insert Name 14M**<br>**Insert Code F**<br>8 × Size 22 Contacts<br>3 × Size 20 Contacts<br>3 × Size 15 or 16 Contacts | **Insert Name 17**<br>**Insert Code G**<br>12 × Size 22 Contacts<br>5 × Size 20 Contacts |
|  | | | |
| **Insert Name 20**<br>**Insert Code H**<br>20 × Size 22 Contacts | | | |

### WEIGHTS

*Average weight per class and type for EPXA inserts without contacts.*

| INSERT CLASS | INSERT TYPE | |
|---|---|---|
| | PIN | SOCKET |
| E | 4.10 g (0.14 oz) | 5.30 g (0.19 oz) |
| N | 2.60 g (0.09 oz) | 4.00 g (0.14 oz) |
| H | 3.90 g (0.14 oz) | N/A |
| T | 2.80 g (0.10 oz) | N/A |

*Notes*

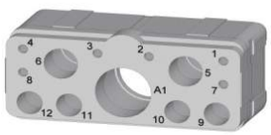
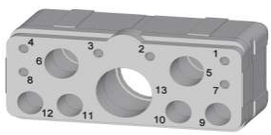
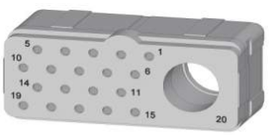
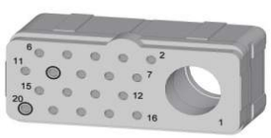
*1. P/N for blank insert is EPXAN00.*

*Inserts*

# EPX® INSERT ARRANGEMENTS

## EPXB INSERT ARRANGEMENTS

*Full size inserts arrangements are compliant with EN4644.*

| | | | |
|---|---|---|---|
|  |  |  |  |
| **Insert Name 00**<br>**Insert Code 0**<br>Blank Insert [1] | **Insert Name C3**<br>**Insert Code A**<br>3 × size 5 Coax Contacts | **Insert Name P3**<br>**Insert Code B**<br>3 × Size 5 Power Contacts | **Insert Name 3Q3**<br>**Insert Code C**<br>3 × Size 8 Quadrax Contacts |
|  |  |  |  |
| **Insert Name 06**<br>**Insert Code D**<br>6 × Size 12 Medium Power Contacts | **Insert Name 10Q2**<br>**Insert Code E**<br>8 × Size 20 Contacts<br>2 × Size 8 Quadrax Contacts | **Insert Name 12F6**<br>**Insert Code F**<br>6 × Size 16 Optical LuxCis® Termini<br>6 × Size 16 Special Electrical Contacts | **Insert Name F12C**<br>**Insert Code G**<br>12 × Size 16 Optical LuxCis® Termini |
|  |  |  |  |
| **Insert Name 13C1**<br>**Insert Code H**<br>6 × Size 20 Contacts<br>4 × Size 15 or 16 Contacts<br>2 × Size 12 Contacts<br>1 × Size 5 Coax Contacts | **Insert Name 13P1**<br>**Insert Code J**<br>6 × Size 20 Contacts<br>4 × Size 15 or 16 Contacts<br>2 × Size 12 Contacts<br>1 × Size 5 Coax Contacts | **Insert Name 14**<br>**Insert Code K**<br>14 × Size 15 or 16 Contacts | **Insert Name 17**<br>**Insert Code L**<br>14 × Size 20 Contacts<br>3 × Size 12 Contacts |
|  |  |  |  |
| **Insert Name 20C1**<br>**Insert Code M**<br>19 × Size 20 Contacts<br>1 × Size 5 Coax Contacts | **Insert Name 20P1**<br>**Insert Code N**<br>19 × Size 20 Contacts<br>1 × Size 5 Coax Contacts | **Insert Name 22**<br>**Insert Code P**<br>16 × Size 20 Contacts<br>6 × Size 15 or 16 Contacts | **Insert Name 22V**<br>**Insert Code Q**<br>16 × Size 20 Contacts<br>6 × Size 16 Contacts |

*Notes*

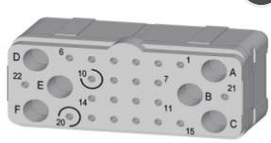
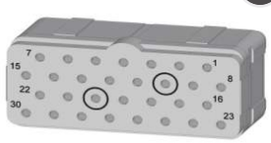
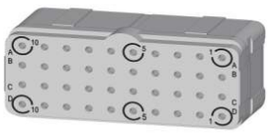
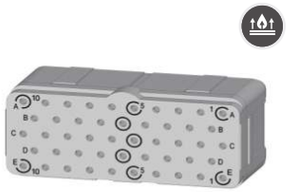
*1. P/N for blank insert is EPXBN00.*

*Inserts*

# EPX® INSERT ARRANGEMENTS

## EPXB INSERT ARRANGEMENTS

*Full size inserts arrangements are compliant with EN4644.*

| | | | |
|---|---|---|---|
|  |  |  |  |
| **Insert Name 25P1**<br>**Insert Code R**<br>24 × Size 22 Contacts<br>1 × Size 8 Power Contacts | **Insert Name 25Q1**<br>**Insert Code S**<br>24 × Size 22 Contacts<br>1 × Size 8 Quadrax Contacts | **Insert Name 28**<br>**Insert Code T**<br>22 × Size 22 Contacts<br>6 × Size 15 or 16 Contacts | **Insert Name 30**<br>**Insert Code U**<br>30 × Size 20 Contacts |
|  |  |  | |
| **Insert Name 34**<br>**Insert Code W**<br>18 × Size 22 Contacts<br>16 × Size 20 Contacts | **Insert Name 40**<br>**Insert Code X**<br>40 × Size 22 Contacts | **Insert Name 48**<br>**Insert Code Y**<br>48 × Size 22 Contacts | |

### WEIGHTS

*Average weight per class and type for EPXB inserts without contacts.*

| INSERT CLASS | INSERT TYPE | |
|---|---|---|
| | PIN | SOCKET |
| E | 7.90 g (0.28 oz) | 10.00 g (0.35 oz) |
| N | 5.20 g (0.18 oz) | 7.60 g (0.27 oz) |
| H | 7.70 g (0.27 oz) | N/A |
| T | 5.50 g (0.19 oz) | N/A |
| B | 8.50 g (0.30 oz) | N/A |

*Contacts*

## SIGNAL & POWER CRIMP CONTACTS

EPX® series offers a wide range of contacts compliant with EN3155 and SAE AS 39029. The available contacts cover aerospace applications for terminating to both cables and printed circuit boards.

- Signal and power contacts
- High frequency with coax, twinax and triax contacts
- Ethernet links with Quadrax contacts
- Optical links with LuxCis® contacts

### CONTACT SELECTION TABLE

| CONTACT SIZE | | WIRE SIZE | TYPE | ENVIRONMENTAL PART NUMBER | NON-ENVIRONMENTAL PART NUMBER | CRIMPING TOOL | POSITIONER | SELECTION | INS/EXT TOOL | MATERIAL OF TOOL |
|---|---|---|---|---|---|---|---|---|---|---|
| 22 | | 22 | Pin | 617200 | | 282281 M22520/2-01 | 282970 M22520/2-23 | 4 | 282522 (M81969/14-01) | Plastic |
| | | 24 | | | | | | 3 | | |
| | | 26 | Socket | 617300 | | | | | | |
| 20 | | 20 | Pin | 617221 | | 282281 M22520/2-01 | 282971 M22520/2-08 | 7 | 282522001 (M81969/39-01) | Plastic |
| | | 22 | | | | | | 6 | | |
| | | 24 | Socket | 617320 | | | | 5 | | |
| 16 | | 16 | Pin | 617240 | | 282291 M22520/1-01 | 282972 M22520/1-02 | 6 | 282515 (M81969/14-03) | Plastic |
| | | 18 | Socket | 617340 | | | | 5 | | |
| | | 20 | | | | | | 4 | | |
| | For Ground Block | 20 | Pin | 617221050 | | 282281 M225520/2-01 | 282581015 M22520/2-11 | 7 | 282886 M81969/1-02 | Metal |
| | | | Socket | N/A | | | | | | |
| | For Optical/ Electrical Cavity | 16 | Pin | 617235003 [1] | | 282291 M22520/1-01 | 282581013 | 6 | 282515 (M81969/14-03) | Plastic |
| | | 18 | | | | | | 5 | | |
| | | 20 | | | | | | 4 | | |
| 12 | | 12 | Pin | 617250 | | 282291 M22520/1-01 | 282972 M22520/1-02 | 8 | 282549004 (M81969/14-04) | Plastic |
| | | 14 | Socket | 617350 | | | | 7 | | |
| | | 16 | | | | | | 6 | | |
| 8 | | 8 | Pin | 617291007 for AWG8 | 617291002 [2&3] | R282600000 M22520/ 23-01 + Die set R282650000 M22520/23-02 | 282588 | N/A | 282549001 | Metal |
| | | 10 | Socket | 617391008 for AWG8 | 617391002 [2&3] | | | | | |
| 5 | | 8 | Pin | 617280003 for Size 8, 617280004 for Size 10 | 617280 [2&4] | R282600000 M22520/ 23-01 + Die set R282650000 M22520/23-02 | 282557020 | N/A | 282946 (M81969/28-01) | Metal |
| | | 10 | Socket | 617390003 for Size 8, 617390004 for Size 10 | 617390 [2&4] | | 282557021 | | | |
| | | 12 | Pin | 617260002 | 617260001 [2&4] | 282613 | 282586003 | 6 | | |
| | | 16 | Socket | 617370005 | 617370001 [2&4] | | 282586005 | 4 | | |

***Notes***

*1. Electrical contacts for optical inserts are always pin contacts (hermaphrodite).*
*2. In order to make these contacts environmental, it is necessary to add a sealing boot. Please contact us for additional information.*
*3. These power contacts can be used in power inserts only (25P1).*
*4. These power contacts can be used in power inserts only (P3, 13P1 and 20P1).*

## OVERSIZED & REDUCED CRIMP BARREL CONTACTS

| CONTACT SIZE | | WIRE SIZE | TYPE | PART NUMBER FULL PLATED | CRIMPING TOOL | POSITIONER | SELECTION | INS/EXT TOOL | MATERIAL OF TOOL |
|---|---|---|---|---|---|---|---|---|---|
| 22 | Reduced Crimp Barrel | 28 | Pin | 617201 | 282281 M22520/2-01 | 282970 M22520/2-23 | 5 | 282522 (M81969/14-01) | Plastic |
| | | 30 | Socket | 617301 | | | 4 | | |
| | Oversize Crimp Barrel | 20 | Pin | 617200200 | 282281 M22520/2-01 | 282970 M22520/2-23 | 5 | | |
| | | 22 | Socket | 617300200 | | | 4 | | |
| | | 24 | | | | | 3 | | |
| 20 | Reduced Crimp Barrel | 22 | Pin | 617224001 | 282281 M22520/2-01 | 282971 M22520/2-08 | 4 | 282522001 (M81969/39-01) | Plastic |
| | | 24 | Socket | 617324001 | | | 3 | | |
| | | 26 | | | | | 3 | | |
| | Oversize Crimp Barrel | 18 | Pin | 617221200 | 282281 M22520/2-01 | 282971 M22520/2-08 | 5 | | |
| | | 20 | Socket | 617320200 | | | 5 | | |
| | | 22 | | | | | 4 | | |
| 16 | Reduced Crimp Barrel | 20 | Pin | 617241 | 282291 M22520/1-01 | 282972 M22520/1-02 | 5 | 282515 (M81969/14-03) | Plastic |
| | | 22 | Socket | 617341 | | | 5 | | |
| | | 24 | | | | | 4 | | |
| | Reduced Crimp Barrel for Optical Electrical Cavity | 20 | Pin | 617235002 [1] | 282291 M22520/1-01 | 282581013 | 5 | | |
| | | 22 | | | | | 5 | | |
| | | 24 | | | | | 4 | | |
| | Oversize Crimp Barrel | 14 | Pin | 617240200 | 282291 M22520/1-01 | 282972 M22520/1-02 | 6 | | |
| | | 16 | Socket | 617340200 | | | 5 | | |
| | | 18 | | | | | 5 | | |

*Notes*

*1. Electrical contacts for optical inserts are always pin contacts (hermaphrodite).*

## COAXIAL CRIMP CONTACTS

| CONTACT SIZE | CABLE TYPE | TYPE | ENVIRONMENTAL PART NUMBER | NON-ENVIRONMENTAL PART NUMBER | INS/EXT TOOL | MATERIAL OF TOOL |
|---|---|---|---|---|---|---|
| 15-16 | RG188 FILECAF1709/6 F1709/8 RG174-RG179-RG316 ASNE0639XY 75 Ohms | Pin | 617130 | | 282512 (M81969/14-03) | Metal |
| | | Socket | 617030 | | | |
| | RG178 | Pin | 617131 | | | |
| | | Socket | 617031 | | | |
| | GORE/AXON P812817 FILECA F1703-134 FILOTEX SP132868 | Pin | 617132 | | | |
| | | Socket | 617032 | | | |
| | RG178 DT | Pin | 617133 | | | |
| | | Socket | 617033 | | | |
| | UT .047 | Pin | 617135 | | | |
| | | Socket | 617035 | | | |
| 12 | UT.085-RG405 | Pin | 617160 | | 282549004 (M81969/14-04) | Plastic |
| | | Socket | 617060 | | | |
| 5 | RG58-RG141 | Pin | 617101001 | 617101 | 282946 (M81969/28-01) | Metal |
| | | Socket | 617001001 | 617001 | | |
| | RG142 - RG400 | Pin | 617102001 | 617102 | | |
| | | Socket | 617002001 | 617002 | | |
| | RG174-RG316-RG188-RG178DS NEXAN 10036442 75 Ohms | Pin | 617103001 | 617103 | | |
| | | Socket | 617003001 | 617003 | | |
| | RG178-RG196 | Pin | 617104001 | 617104 | | |
| | | Socket | 617004001 | 617004 | | |
| | RG180 PAN6422XZ ANSE063WGH 96 Ohms | Pin | 617105001 | 617105 | | |
| | | Socket | 617005001 | 617005 | | |

## TWINAX & TRIAX CRIMP CONTACTS

| CONTACT SIZE | CABLE TYPE | TYPE | ENVIRONMENTAL PART NUMBER | NON-ENVIRONMENTAL PART NUMBER | INS/EXT TOOL | MATERIAL OF TOOL |
|---|---|---|---|---|---|---|
| 12 Triax | ECS0700 | Pin | 617190010 | | 282549004 (M81969/14-04) | Plastic |
| | | Socket | 617090010 | | | |
| | M17/176-00002 | Pin | 617190012 | | | |
| | | Socket | 617090012 | | | |
| 8 Triax | TENSOLITE 24463/9PO25X-2 100 Ohms | Pin | 617165021 | 617165020 | 282549001 | Metal |
| | | Socket | 617065021 | 617065020 | | |
| | WHITMOR W2675-1575 | Pin | 617165 | 617165001 | | |
| | | Socket | 617065 | 617065001 | | |
| 8 Twinax | ABS0386WF24 & TYCO 1726A1424A | Pin | 617165011 | 620165010 | 282549001 | Metal |
| | | Socket | 617065011 | 620065010 | | |
| 5 Triax | PAN6421ZA002 77 Ohms M17/176-00002 EN3375-003 Raychem 106113 77 Ohms | Pin | 617150001 | 617150 | 282946 (M81969/28-01) | Metal |
| | | Socket | 617050001 | 617050 | | |
| | TENSOLITE 24473/03159X 124 Ohms | Pin | 617152001 | 617152 | | |
| | | Socket | 617052001 | 617052 | | |

# QUADRAX & BMA CRIMP CONTACTS

## QUADRAX CONTACTS



The Quadrax contact offer is compliant with Arinc 600 and EN3155-072 and EN3155-073 standards.

### ENVIRONMENTAL QUADRAX

| CONTACT SIZE | CABLE TYPE | TYPE | ENVIRONMENTAL PART NUMBER | EXTRACTION TOOL IN METAL |
|---|---|---|---|---|
| 8 | Ethernet Cable ABS0972 and ABS1503 | Pin | 617175011 | 282549001 |
| | | Socket | 617075011 | |
| | TENSOLITE NF24Q100 | Pin | 617175051 | |
| | | Socket | 617075051 | |
| | TENSOLITE NF26Q100/JSF Y18 | Pin | 617175053 | |
| | | Socket | 617075053 | |
| | TENSOLITE NF22Q100 | Pin | 617175041 | |
| | | Socket | 617075041 | |

### NON-ENVIRONMENTAL QUADRAX

| CONTACT SIZE | CABLE TYPE | TYPE | NON-ENVIROMNMENTAL PART NUMBER | COMPATIBLE SEALING BOOT PART NUMBER | EXTRACTION TOOL IN METAL |
|---|---|---|---|---|---|
| 8 | Ethernet Cable ABS0972 and ABS1503 | Pin | 617175012 | 617939003 | 282549001 |
| | | Socket | 620075010 | | |
| | TENSOLITE NF24Q100 | Pin | 617175052 | | |
| | | Socket | 620075050 | | |
| | TENSOLITE NF26Q100/JSF Y18 | Pin | 617175054 | 617939005 | |
| | | Socket | 620075021 | | |
| | TENSOLITE NF22Q100 | Pin | 617175040 | 617939003 | |
| | | Socket | 620075040 | | |

## BMA CONTACTS



Extraction tool **282549001** is used for size 8 BMA contacts.
Environmental BMA contacts are all provided with sealing boots.

| CONTACT SIZE | CABLE TYPE | CONNECTOR TYPE | ENVIRONMENTAL PART NUMBER | NON-ENVIRONMENTAL PART NUMBER | FREQUENCY RANGE | MAX VSWR | INSERTION LOSS |
|---|---|---|---|---|---|---|---|
| 8 | SHF5 - SHF5M [1] | Pin | 617171011 | 617171010 | DC-18 GHz | 1.35 | 0.13 dB at Max Frequency (18 GHz) |
| | RG142 | Pin | 617171021 | 617171020 | DC-12.4 GHz | 1.35 | 0.11 dB at Max Frequency (12.4 GHz) |
| | SHF2.4M [1]/UT.085/ Harbour SS405/ Times Tflex405 | Pin | 617171031 | 617171030 | DC-18 GHz | 1.35 | 0.13 dB at Max Frequency (18 GHz) |
| | SHF5 - SHF5M [1] | Socket | 617071011 | 617071010 | DC-18 GHz | 1.35 | 0.13 dB at Max Frequency (18 GHz) |
| | RG142 | Socket | 617071021 | 617071020 | DC-12.4 GHz | 1.35 | 0.11 dB at Max Frequency (12.4 GHz) |
| | SHF3 [1] | Socket | 617071041 | 617071040 | DC-18 GHz | 1.35 | 0.13 dB at Max Frequency (18 GHz) |

***Notes***

*1. BMA contacts which can accommodate SHF cables require a termination by Radiall.*

## LUXCIS® FIBER OPTIC CONTACTS

The LuxCis® product range is a proven, flexible fiber optic interconnect solution offering high-speed communication in aerospace and other harsh environments.

### OPTICAL PERFORMANCE

| | MULTIMODE (PC)<br>850/1300 Nm | SINGLEMODE (UPC)<br>1310/1550 Nm |
|---|---|---|
| Insertion Loss (IL) Mean<br>(IEC 61300-3-4 Method B) | 0.1 dB | 0.15 dB |
| Return Loss (RL)<br>(IEC 61300-3-6) | > 20 dB | > 50 dB |

### MECHANICAL & ENVIRONMENTAL CHARACTERISTICS

| | STANDARD | PERFORMANCE |
|---|---|---|
| Thermal Cycling | SAE AS 13441 Method 1003.1 | -55 °C/+125 °C (Cable Dependant) |
| Temperature<br>Endurance | TIA/EIA 455-4 | 1,000 h at 125 °C (Cable Dependant) |
| Vibration | TIA/EIA 455-11 | 27 g |
| Shock | TIA/EIA 455-14 | 50 g, 11 ms |
| Durability | TIA/EIA 364-09 | 500 Cycles [1] |
| Maintenance | SAE AS 13441 Method 2002.1 | 10 Cycles |
| Cable Retention<br>1.8 mm Diameter<br>900 µm Diameter | SAE AS 13441 Method 2009.1 | 68 N<br>7 N |
| Humidity | TIA/EIA 455-5 | 10 Cycles/24 h<br>90% RH<br>-25 °C/+65 °C |

### LUXCIS® CONTACT PART NUMBERING SYSTEM

F7250

**LUXCIS® SERIES**

**FERRULE TYPE**
**00:** PC ferrule for single-mode fiber
**03:** PC ferrule for 50/125 or 62.5/125 µm multi-mode fiber
**04:** PC ferrule for 100/40 um multi-mode fiber
**05:** PC ferrule for 200/230 um multi-mode fiber
**50:** APC ferrule for single-mode fiber

**CABLE TYPE AND DIAMETER**
**118:** 900 µm cable
**318:** 1.2 mm cable with strengthening members, tight structure
**419:** 1.6 to 2.2 mm cable, loose structure
**519:** 1.6 to 2.2 mm cable, tight structure

The sealing plug F718 211 200 is specifically designed to fill the unused LuxCis® Arinc 801 cavities.



*Notes*
*1. Mating cycles are dependant on the connector series.*
*Radiall can support you with your cable and harness assemblies.*
*Please contact your sales representative.*

## SIGNAL PC TAIL CONTACTS

*Selection Table for Straight PC Tail Contacts*

Contact termination designations are a combination of 2 letters:

- The first letter characterizes the contact plating
  R = Pure-tin (RoHS); Z = Tin lead; Y = Gold
- The second letter characterizes the length of the PC tail: A to D
  The exact lengths can be found on the assembly kit sections

| CONTACT TERMINATION | CONTACT TYPE | SIZE 22 | SIZE 20 | SIZE 16 | SIZE 12 | SIZE 8 | SIZE 5 |
|---|---|---|---|---|---|---|---|
| RA | Pin | 617205510 | 617222514 | 617242510 | 617259505 | 617291501 | 617289506 |
| | Socket | 617305500 | 617322505 | 617342510 | 617359505 | 617391501 | 617389506 |
| YA | Pin | 617205010 | 617222014 | 617242010 | 617259005 | 617291001 | 617289006 |
| | Socket | 617305 | 617322005 | 617342010 | 617359005 | 617391001 | 617389006 |
| ZA | Pin | 617205710 | 617222714 | 617242710 | 617259705 | 617291701 | 617289706 |
| | Socket | 617305700 | 617322705 | 617342710 | 617359705 | 617391701 | 617389706 |
| RB | Pin | 617205501 | 617222512 | 617242508 | 617259506 | 617291503 | 617289504 |
| | Socket | 617305501 | 617322506 | 617342511 | 617359506 | 617391503 | 617389504 |
| YB | Pin | 617205001 | 617222012 | 617242008 | 617259006 | 617291003 | 617289004 |
| | Socket | 617305001 | 617322006 | 617342011 | 617359006 | 617391003 | 617389004 |
| ZB | Pin | 617205701 | 617222712 | 617242708 | 617259706 | 617291703 | 617289704 |
| | Socket | 617305701 | 617322706 | 617342711 | 617359706 | 617391703 | 617389704 |
| RC | Pin | 617205515 | 617222513 | 617242517 | 617259503 | 617291504 | 617289503 |
| | Socket | 617305508 | 617322507 | 617342513 | 617359503 | 617391504 | 617389503 |
| YC | Pin | 617205015 | 617222013 | 617242017 | 617259003 | 617291004 | 617289003 |
| | Socket | 617305008 | 617322007 | 617342013 | 617359003 | 617391004 | 617389003 |
| ZC | Pin | 617205715 | 617222713 | 617242717 | 617259703 | 617291704 | 617289703 |
| | Socket | 617305708 | 617322707 | 617342713 | 617359703 | 617391704 | 617389703 |
| RD | Pin | 617205509 | 617222510 | 617242509 | 617259507 | 617291505 | 617289507 |
| | Socket | 617305502 | 617322509 | 617342515 | 617359507 | 617391505 | 617389507 |
| YD | Pin | 617205009 | 617222010 | 617242009 | 617259007 | 617291005 | 617289007 |
| | Socket | 617305002 | 617322009 | 617342015 | 617359007 | 617391005 | 617389007 |
| ZD | Pin | 617205709 | 617222710 | 617242709 | 617259707 | 617291705 | 617289707 |
| | Socket | 617305702 | 617322709 | 617342715 | 617359707 | 617391705 | 617389707 |
| Ins/Ext. Tool | | 282522<br>M81969/14-01 | 282522001<br>M81969/39-01 | 282515<br>M81969/14-03 | 282549004<br>M81969/14-04 | 282549001<br>M81969/28-03 | 282946<br>M81969/28-01 |

## QUADRAX SIZE 8 PC TAIL CONTACTS

*Selection Table for Straight PC Tail Contacts*

Contact termination designations are a combination of 2 letters:

- The first letter characterizes the contact plating
  R = Pure-tin (RoHS); Z = Tin lead; Y = Gold
- The second letter characterizes the length: A to D. The exact dimensions of the lengths can be found on the assembly kit sections

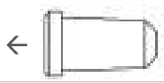
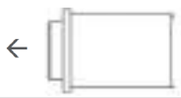
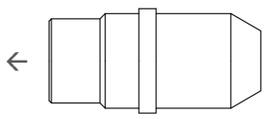
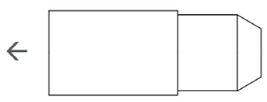


| CONTACT TERMINATION | CONTACT TYPE | PART NUMBERS |
|---|---|---|
| RA | Pin | 617177512 |
| | Socket | 617077512 |
| YA | Pin | 617177012 |
| | Socket | 617077012 |
| ZA | Pin | 617177712 |
| | Socket | 617077712 |
| RB | Pin | 617177501 |
| | Socket | 617077502 |
| YB | Pin | 617177001 |
| | Socket | 617077002 |
| ZB | Pin | 617177701 |
| | Socket | 617077702 |
| RC | Pin | 617177508 |
| | Socket | 617077508 |
| YC | Pin | 617177008 |
| | Socket | 617077008 |
| ZC | Pin | 617177708 |
| | Socket | 617077708 |
| RD | Pin | 617177513 |
| | Socket | 617077513 |
| YD | Pin | 617177013 |
| | Socket | 617077013 |
| ZD | Pin | 617177713 |
| | Socket | 617077713 |
| Ext. Tool | | 282549001 |

*Contacts*

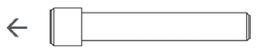
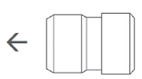
## FILLER PLUGS

*Filler plugs are dedicated to non-environmental insert cavities. The arrows show the direction which you have to insert the plug.*

| SIZE | CONTACT CAVITY VERSION | INS/EXT | COLOR | PART NUMBER | DRAWING |
|---|---|---|---|---|---|
| 22 | For Pin & Socket | Rear/Rear | Black | 620920 |  |
| 20 | | | White | 610941 |  |
| 16 For Electrical Cavity | | | Blue | 620922 |  |
| 16 For Optical Cavity | | | Green | F718211200 |  |
| 12 | | | Yellow | 620923 |  |
| 8 | Pin | | Nickel | 619953 |  |
| | Socket | | | 619950 |  |
| 5 | Pin | | White | 617930 |  |
| | Socket | | | 617931 |  |

## SEALING PLUGS

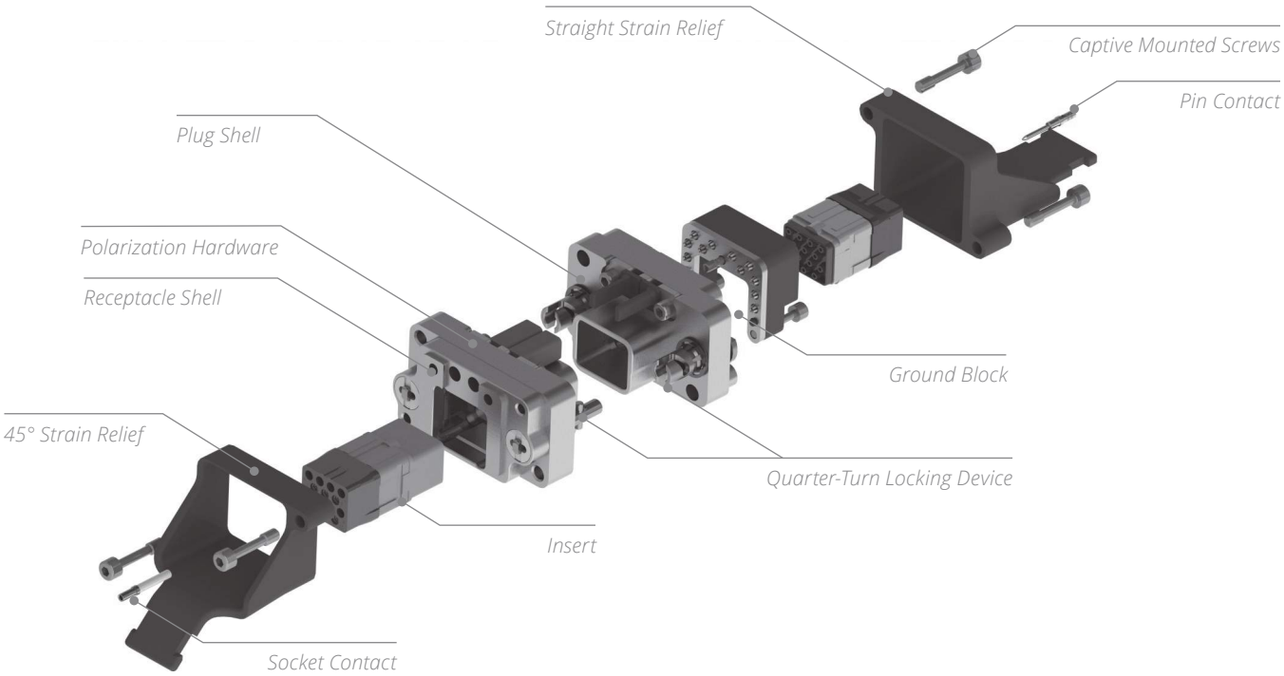
*Sealing plugs are dedicated to environmental insert cavities.*

| SIZE | CONTACT CAVITY VERSION | INS/EXT | COLOR | PART NUMBER | DRAWING |
|---|---|---|---|---|---|
| 22 | For Pin & Socket | Rear/ Rear | Black | 616910 |  |
| 20 | | | Red | 616911 |  |
| 16 For Electrical Cavity | | | Green | 616912 |  |
| 16 For Optical Cavity | | | | F718211200 |  |
| 12 | | | Orange | 616913 |  |
| 8 | | | Red | 618915 |  |
| 5 | | | | 616914013 |  |

*Disconnect Application*

## EPXA1 PRODUCT OVERVIEW

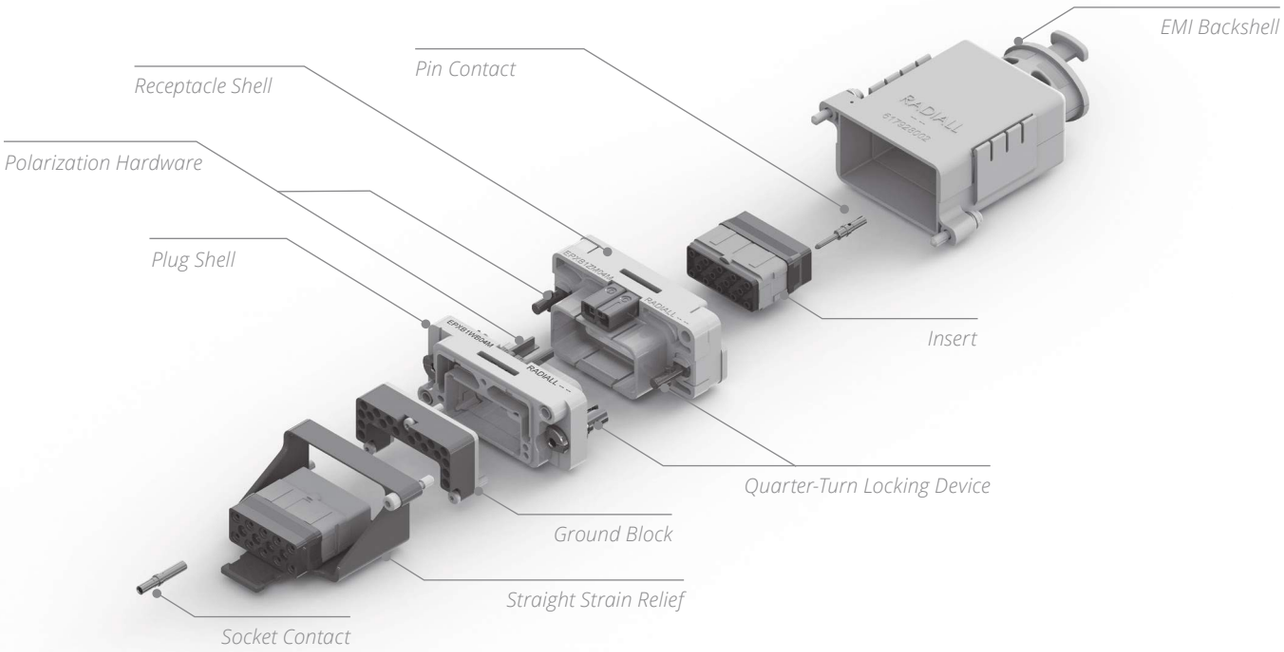
Detailed view of receptacle and plug with accessories for the EPXA1 connector:



*Disconnect Application*

## EPXB1 PRODUCT OVERVIEW

Detailed view of receptacle and plug with accessories for the EPXB1 connector:



*Disconnect Application*

## HOW TO ORDER EPXA1 & EPXB1 SHELL

EPX

**SERIES PREFIX**

**SHELL SIZE**
**A1:** Single small cavity shell
**B1:** Single large cavity shell

**SHELL STYLE**
**P:** Plug
**R:** Receptacle
**W:** Plug with ground block
**Z:** Receptacle with ground block

**SHELL MOUNTING OPTION** [1]
**B:** Plug without mounting holes
**M:** Receptacle with two mounting holes, 6-32 UNC for rear panel [2]

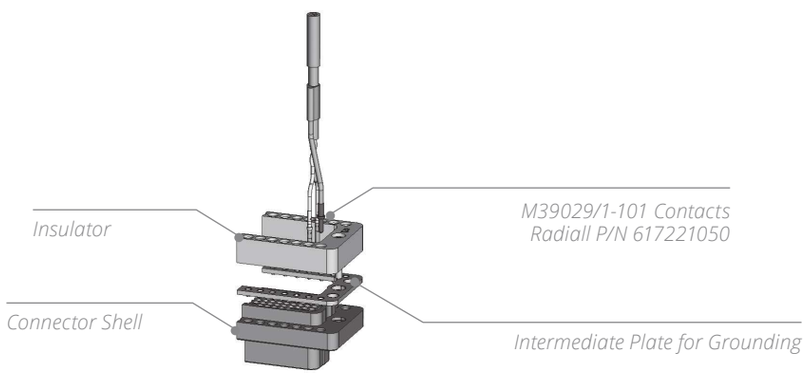
**LOCKING DEVICE**
**0:** Quarter-turn fastener

**POLARIZATION CODE** [3]
**4:** Shell delivered with polarizing hardware unassembled
**5:** Shell delivered with no polarizing hardware

**SHELL CLASS**
**M:** Nickel-plated composite for EPXB1
**K:** Nickel-plated aluminium for EPXB1 (mateable with version M composite shell)
**N:** Nickel-plated aluminium for EPXA1

### GROUND BLOCK

Radiall provides a unique patented feature by integrating a ground block directly on the shell. This option permits very short ground terminations.




*Notes*
*1. Recommended locking torque: 1.6 Nm (14.16 in.-lb) for metallic shell and 1.1 Nm (9.73 in.-lb) max for composite shell.*
*2. Self-locking mounting holes are designed for rear panel mounting.*
*3. Please see page 1-28 on how to use the polarization device.*

*Disconnect Application*

## HOW TO ORDER EPXA & EPXB1 ASSEMBLY KIT

*Assembly kit is delivered fully assembled including shell with insert mounted, with or without contacts, according to the selection.*

Tips to help you in your selection:

- You are free to use either pin or socket inserts in EPXA and EPXB1 plug or receptacles.
- Crimp contacts can be delivered with a kit; check which contacts would be included on page 1-10.
- If PC tail are selected, then all cavities including signal, power and quadrax are populated. Size 5 coax cavities are not populated.
- If PC tail contacts are needed, remember that they are available as pin straight PC tail contacts in receptacles only.

### SHELL SELECTION PART

EPX

**SERIES PREFIX**

**SHELL SIZE**
**A1:** Single small cavity shell
**B1:** Single large cavity shell

**SHELL STYLE**
**P:** Plug
**R:** Receptacle
**W:** Plug with ground block
**Z:** Receptacle with ground block

**POLARIZATION CODE**
**4:** Shell delivered with polarizing hardware unassembled
**5:** Shell delivered with no polarizing hardware

**SHELL CLASS**
**M:** Nickel-plated composite for EPXB1
**K:** Nickel-plated aluminium for EPXB1 (mateable with version M composite shell)
**N:** Nickel-plated aluminium for EPXA

### INSERT SELECTION PART

**INSERT CLASS**
**E:** Environmental
**N:** Non-environmental (no rear grommet, no interfacial seal)
**H:** Non-environmental insert with a rear grommet, available for pin insert only (recommended for crimp contact)
**T:** Non-environmental insert with an interfacial seal, available for pin insert only (recommended for PC tail contact)

**INSERT CODE**
Refer to page 1-10 to select insert code

**CONTACTS TERMINATION**
**XS:** Socket insert without contacts [1]
**XP:** Pin insert without contacts [1]
**SS:** Socket insert with crimp contacts [1]
**SP:** Pin insert with crimp contacts [1]

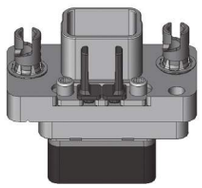
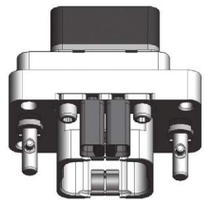
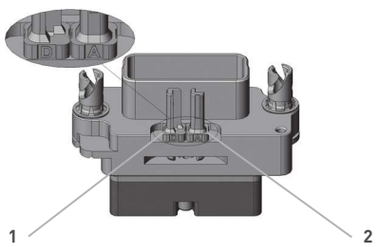
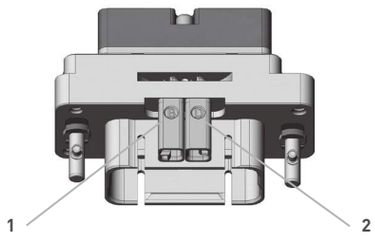
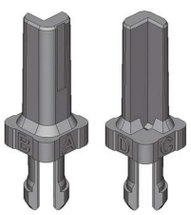
**YA:** Gold PC tail contacts length A [2]
**ZA:** Tin-lead PC tail contacts length A [2]
**RA:** Pure tin (RoHS) PC tail contacts length A [2]

*Notes*
*1. These contacts are delivered uninstalled*
*2. Refer to page 1-29 to select PC tail contacts for receptacle*

*Disconnect Application*

## POLARIZATION CODE FOR EPXA1 & B1

***Caution: Read the polarization code from left to right, the same way the part number marking can be read on the connector.***

| | PLUG | RECEPTACLE |
|---|---|---|
| EPXA1 |  |  |
| EPXB1 |   |   |
| Coding Device |  View A and B View C and D |  View A and D View C and B |

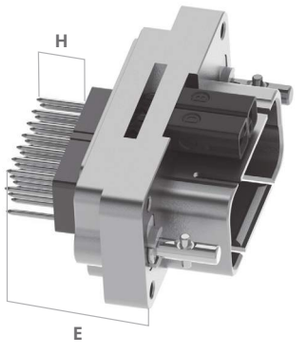
There are 16 possible codings:

| KEY POSITION 1 | A | A | A | A | B | B | B | B | C | C | C | C | D | D | D | D |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| KEY POSITION 2 | A | B | C | D | A | B | C | D | A | B | C | D | A | B | C | D |

*Disconnect Application*

## CONTACT TERMINATION FOR EPXB1

Aluminium and composite shell versions.




### STRAIGHT PC TAIL CONTACT TERMINATION

| MIN LENGTH E MM (INCH) | MIN LENGTH H MM (INCH) | GOLD | TIN-LEAD | PURE TIN (ROHS) |
|---|---|---|---|---|
| 16.20 (0.637) [1] | - | YA | ZA | RA |
| 19.40 (0.763) [1] | - | YB | ZB | RB |
| 21.25 (0.836) [1] | - | YC | ZC | RC |
| 25.20 (0.992) | 5.40 (0.212) | YD | ZD | RD |

*Notes*

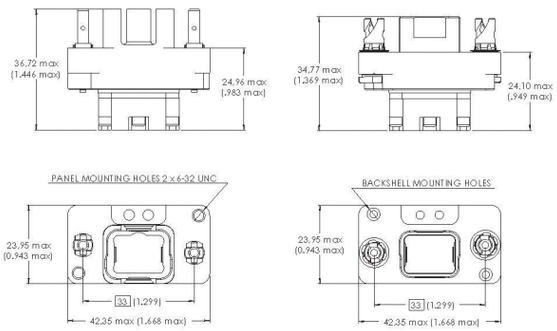
*1. These PC tail lengths are not compatible with EPXBE and EPXBH inserts.*

*Disconnect Application*

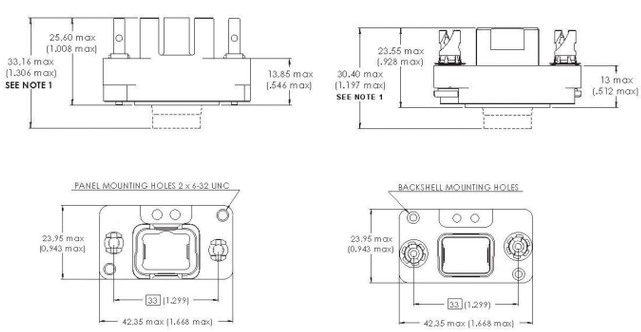
## EPXA1 SHELL DIMENSIONS

### WITHOUT GROUND BLOCK

*Receptacle*




*Plug*




### WITHOUT GROUND BLOCK

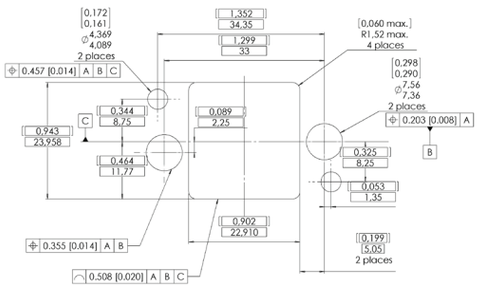
*Receptacle*



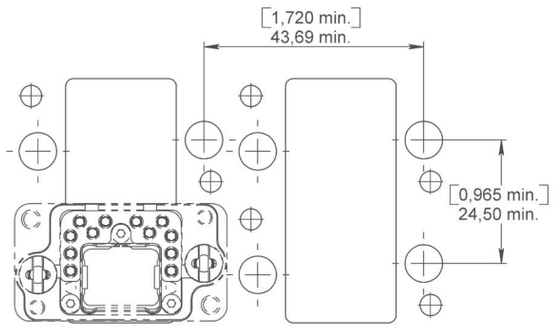

*Plug*




### SINGLE PANEL CUT-OUT [2]




### MULTIPLE PANEL CUT-OUT [2]




### EPXA1 SHELL WEIGHTS

Weights include the shell with polarization hardware.

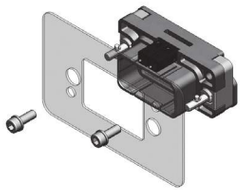
| EPXA1 | SHELL STYLE | WEIGHT |
|---|---|---|
| CLASS N | P | 27.0 g (0.95 oz) |
| | R | 33.0 g (1.16 oz) |
| | W | 35.0 g (1.23 oz) |
| | Z | 41.0 g (1.45 oz) |

***Notes***

*1. Maximum dimension for insert with grommets.*
*For insert without grommet maximum dimensions will be for receptacle 25.55 mm (1.006 in.) and for the plug 23.52 mm (0.926 in.).*
*2. Rear mounting side view with key post oriented to the upper side.*

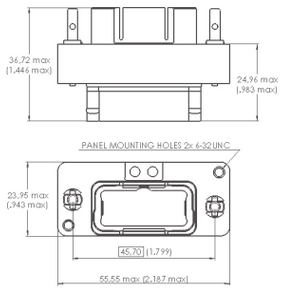
*Disconnect Application*

## EPXB1 SHELL DIMENSIONS

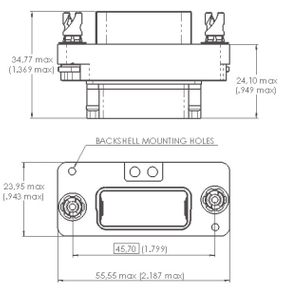


### WITHOUT GROUND BLOCK

*Receptacle*

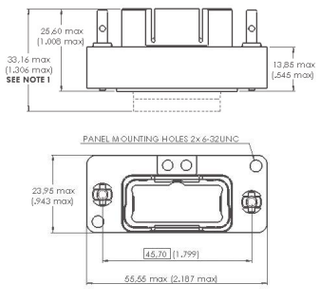



*Plug*

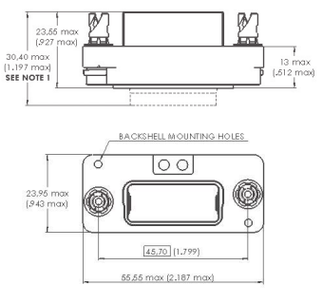



### WITHOUT GROUND BLOCK

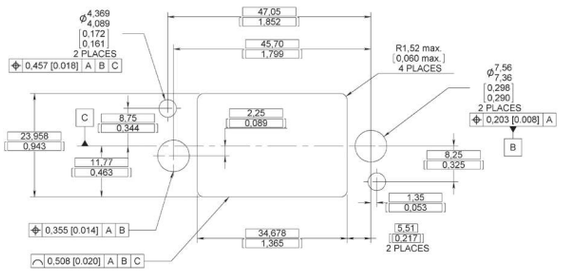
*Receptacle*



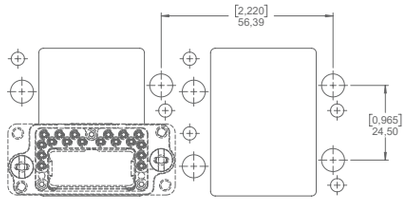

*Plug*




### SINGLE PANEL CUT-OUT [2]




### MULTIPLE PANEL CUT-OUT [2]




## EPXB1 SHELL WEIGHTS

Weights include the shell with polarization hardware.

| EPXB1 | SHELL STYLE | WEIGHT |
|---|---|---|
| CLASS K | P | 27.0 g (0.95 oz) |
| | R | 33.0 g (1.16 oz) |
| | W | 37.0 g (1.31 oz) |
| | Z | 43.0 g (1.52 oz) |
| CLASS M | P | 25.0 g (0.88 oz) |
| | R | 33.0 g (1.16 oz) |
| | W | 35.0 g (1.23 oz) |
| | Z | 43.0 g (1.52 oz) |

***Notes***

*1. Maximum dimension for insert with grommet. For insert without grommet: Insert is flush to the shell. Maximum dimension for the receptacle is 25.55 mm (1.006 in.) and for the plug is 23.52 mm (0.926 in.). For insert with optical contacts: the maximum dimension for the receptacle is 38.70 mm (1.524 in.) and the plug is 36.00 mm (1.418 in.).*

*2. Rear mounting side view with polarization hardware oriented to the upper side.*

*Disconnect Application*

## EPXA1 & EPXB1 SPARE PARTS

### SPARE PARTS & DUST CAPS

| | PART NUMBER | | DESCRIPTION |
|---|---|---|---|
| | EPXA | EPXB1 | |
|  | 617980032 | - | Polarization Kit for Plug Connector |
|  | 617980033 | - | Polarization Kit for Receptacle Connector |
|  | - | 617980030 | Polarization Post |
|  | - | 617980031 | Polarization Key |
|  | 617954006 | 617954008 | Dust Cap for Plug Shell (Pink Color) |
| | 617954007 | 617954009 | Dust Cap for Receptacle Shell (Pink Color) |
|  | 617954044 | 617954034 | ESD Dust Cap for Plug Shell (Black Color) |
| | 617954045 | 617954028 | ESD Dust Cap for Receptacle Shell (Black Color) |
|  | 617929033 | - | Sealing Inserts for Fly Away Applications: Mateable with Pin Insert |
|  | - | 617929023 | |
|  | 617929032 | - | Sealing Inserts for Fly Away Applications: Mateable with Socket Insert |
|  | - | 617929022 | |

*Disconnect Application*

## EPXA1 & EPXB1 ACCESSORIES

### STRAIN RELIEFS & EMI BACKSHELLS

| | PART NUMBER | | DESCRIPTION |
|---|---|---|---|
| | EPXA1 | EPXB1 | |
|  | 617921030 | 617921029 | Straight Strain Relief (Composite) |
|  | 617921032 | 617921031 | 45° Strain Relief (Composite) |
|  | - | 617924016 | Straight EMI Backshell (Nickel-Plated Aluminium) |
|  | - | 617928002 | Straight EMI Backshell (Nickel-Plated Composite) |
|  | - | 617921044 | Fiber Optic Backshell (Composite) |

*Notes*

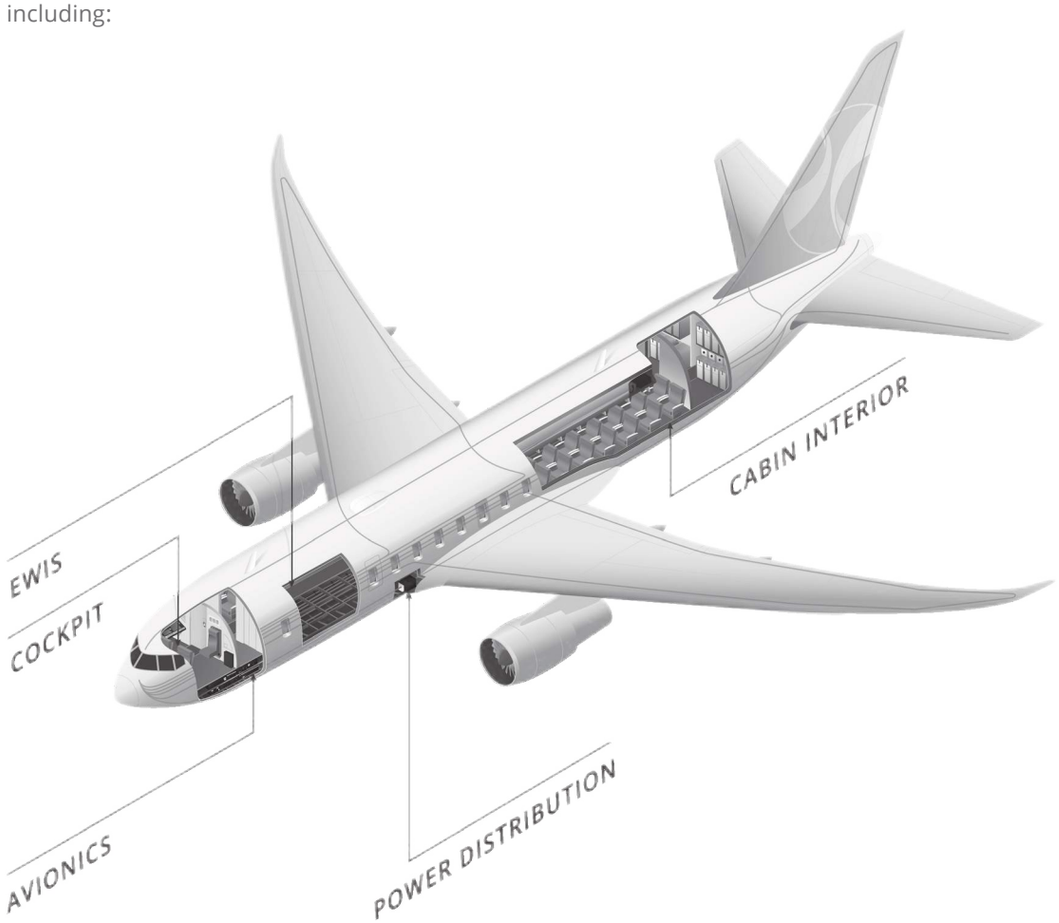
*For mounting instructions, please contact Radiall.*

*Disconnect Application*

## EPXB2 CONNECTORS

Radiall's EPXB2 disconnect connectors have been widely used in the aerospace industry for more than 10 years. Meant to be used in cable-to-cable and PCB-to-cable applications, EPXB2 connectors exceed civil aerospace market expectations in terms of high density, quick installation, and cost and weight savings.

Standardized by EN4644 European standard, Radiall's EPX® has been recognized as the leading rectangular modular connector and used in major commercial and business jet aircrafts. EPXB2 connectors are designed to cover any applications including:




**EWIS**
EPXB2 provides easy maintenance and high reliability, which are key characteristics of EWIS environments.

**CABIN INTERIOR**
EPXB2 combines high speed data with space savings to serve the latest generations of cabin systems.

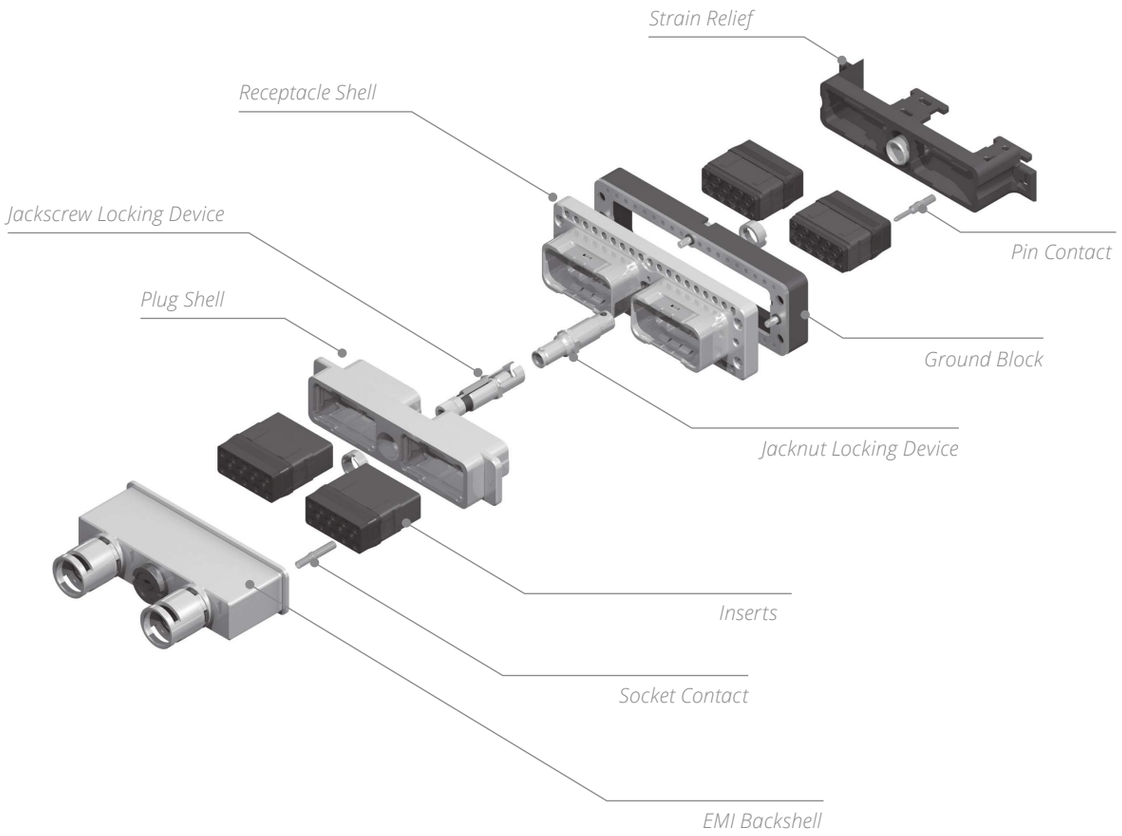
**COCKPIT**
EPXB2 offers simplified and intuitive installation for Fiber Optic and signal connections that are critical in cockpit design.

**AVIONICS**
EPXB2's compactness, weight and robust design efficiently support avionics systems needs.

**POWER DISTRIBUTION**
EPXB2's stackable and segregated features make it the perfect solution for power distribution.

## EPXB2 PRODUCT OVERVIEW

Detailed view of receptacle and plug with accessories for the EPXB2 disconnect connector:



*Disconnect Application*

## EPXB2 RANGE OVERVIEW

Modular and flexible, EPXB2 answers all disconnect connecting needs with the use of a limited number of components. With a large variety of shells and one range of inserts, contacts and accessories, EPXB2 range is completely expandable and fits to your exact needs. You can mix and match solutions to build your connector with:

### SHELL CLASSES - (ALL NICKEL-PLATED)




*Aluminium* | *Composite* | *Weight Optimized Aluminium*

### SHELL STYLES

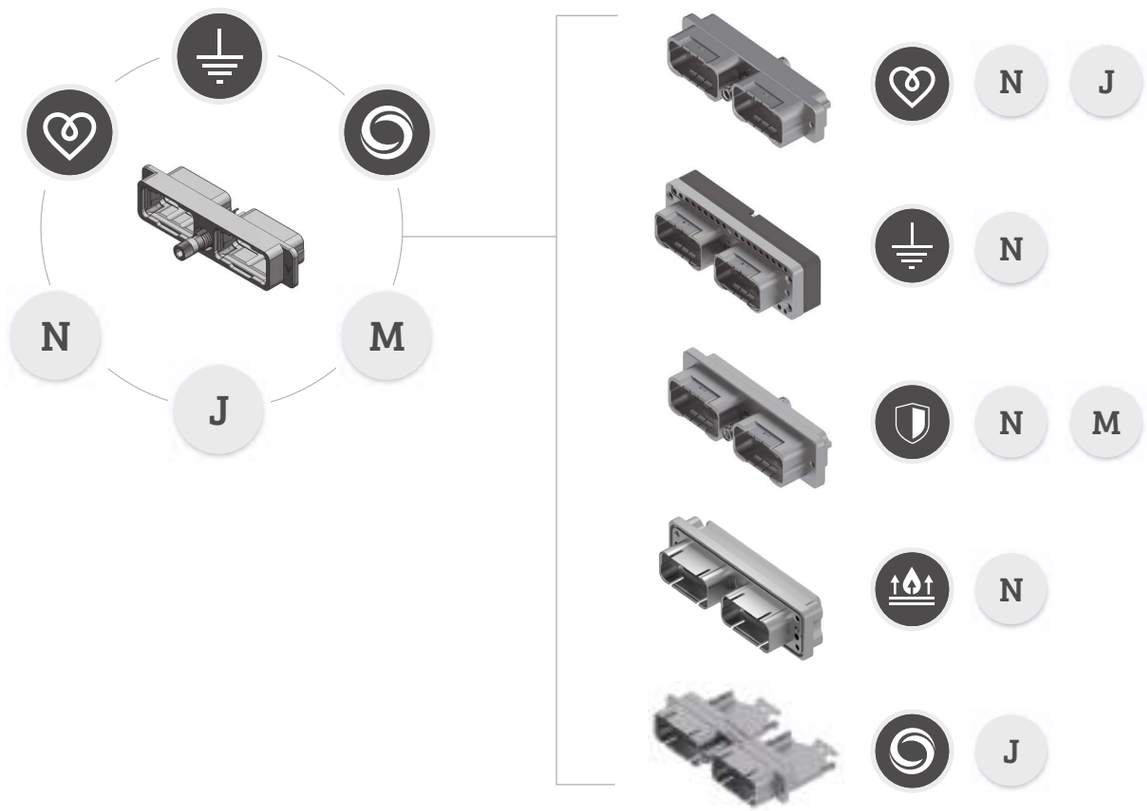
Defining connector types (plug or receptacle) and their key features.



*Classic EPXB2* | *Ground Block* | *Flange* | *Bulkhead* | *iEPX*

### EPXB2 GALAXY

*Plugs* *Receptacles*



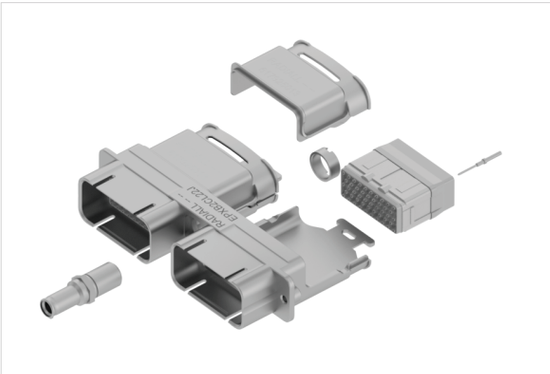
*Disconnect Application*

## EPXB2 LATEST INNOVATIONS

### iEPX



Radiall expands the EPX® series by offering iEPX, a new weight optimized EPXB2 shell designed to be used in disconnect panel applications. With an integrated strain relief and EMI backshell to press-in, iEPX provides EMI shielding while reducing cost and weight.



**FEATURES & BENEFITS:**

- Quick and easy to terminate
- Lightweight
- Prevents FOD
- Cable-to-cable connection
- Integrated strain relief

**MIX & MATCH:**

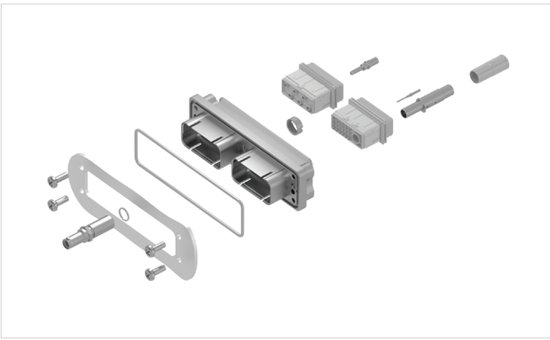
- Fully intermateable with all EPXB2 plugs and receptacles.
- Modular and comprehensive range: iEPX uses all contacts and inserts from EPX® range.

### EPX® BULKHEAD



Radiall's EPXB2 Bulkhead receptacle is a perfect solution for disconnect panel sealing applications. Combining EPX® proven technology with Bulkhead functionality, EPXB2 Bulkhead modular connectors provide effective panel sealing with a user friendly and cost saving approach.

With EPXB Bulkhead pin insert range, Bulkhead receptacle provides permanent sealing between two zones with different environmental conditions.



**FEATURES & BENEFITS:**

- Modular
- Competitive offer
- Optimized and mature design
- Easy and economical integration in the BOM
- PCB-to-cable or cable-to-cable connection

**MIX & MATCH:**

- Fully intermateable with all EPXB2 plugs
- Uses EPX® broad range of accessories and contacts including signal, power, quadrax and fiber optics

*Disconnect Application*

## HOW TO ORDER EPXB2 SHELL

**EPX**

**SERIES PREFIX**

**SHELL SIZE**
**B2:** Two cavity shell

**SHELL STYLE**
*For option compatibility, see the table below.*
**L:** Receptacle with flange
**H:** Classic receptacle
**Z:** Receptacle with ground block
**R:** Receptacle without ground fingers
**C:** iEPX receptacle with integrated strain-relief
**P:** Classic plug
**W:** Plug with ground block
**D:** iEPX plug with integrated strain-relief

**SHELL PLATING**
**N:** Nickel-plated aluminium
**M:** Nickel-plated composite
**J:** Nickel-plated, weight-optimized aluminium

**POLARIZATION CODE** [2]
**2:** Polarizing device A to F delivered unassembled
**3:** Polarizing device N to Z delivered unassembled

**LOCKING & POLARIZATION DEVICE** [1]
**1:** Jackscrew
**2:** Jacknut
**3:** Without locking device

**SHELL MOUNTING**
**A:** Panel rear mounted connector with 4 × 6-32 mounting holes
**B:** No mounting holes
**D:** Connector with 2 × Ø 3.10 mm thru holes
**F:** Panel rear mounted connector with 2 × 6-32 mounting holes
**L:** Panel rear mounted connector with 2 × 4-40 mounting holes

### AVAILABLE SHELL MOUNTING

| | SHELL STYLE | A *(4 × 6.32 UNC)* | B *(no holes)* | D *(2 × Ø 3.10 mm)* | F *(2 × 6.32 UNC)* | L *(2 × 4.40 UNC)* |
|---|---|---|---|---|---|---|
| **Class N** *(Aluminium)* | L | - | - | ✓ | ✓ | ✓ |
| | H | - | ✓ | ✓ | ✓ | ✓ |
| | Z | ✓ | ✓ | - | - | - |
| | R | ✓ | - | - | - | - |
| | P | - | ✓ | ✓ | - | ✓ |
| | W | ✓ | ✓ | - | - | - |
| | B | ✓ | | - | - | - |
| **Class J** *(Weight-Optimized Aluminium)* | H | - | - | - | - | ✓ |
| | C | - | - | - | - | ✓ |
| | P | - | ✓ | - | - | - |
| | D | - | ✓ | - | - | - |
| **Class M** *(Composite)* | L | - | - | ✓ | - | ✓ |
| | P | - | ✓ | ✓ | - | ✓ |

*Notes*
*1. Jackscrew/Jacknut can be mounted on either plug or receptacle shell. However, the standard options are:*
*- Jackscrew for plug shells*
*- Jacknut for receptacle shells*
*2. Please see page 1-40 for how to use the the polarization coding.*

*Disconnect Application*

## HOW TO ORDER EPXB2 ASSEMBLY KIT

***Assembly kits are delivered fully assembled including shell with inserts mounted, with or without contacts, according to the selection. When selecting your insert codes, do not forget to place them in the order you want them assembled. Locking and polarizing devices are delivered uninstalled.***

Tips to help you in your selection:

- You are free to use either pin or socket inserts in EPXB plug or receptacle.
- Crimp contacts can be delivered with a kit. Check which contacts will be included on page 1-10.
- PC tail contacts can also be delivered with a kit. Remember that only straight pin PC tail contacts are available, and in receptacle only.
- If PC tail contacts are selected, then all cavities including signal, power and quadrax are populated. Size 5 coax cavities are not populated.

*All connector inserts will use the same insert class and the same contact termination.*

**EPX**

### SHELL SELECTION PART

**SERIES PREFIX**

**SHELL SIZE**
**B2:** Two cavity shell

**SHELL STYLE**
For option compatibly, see table on page 1-38
**L:** Receptacle with flange
**H:** Classic receptacle
**Z:** Receptacle with ground block
**R:** Receptacle without ground fingers
**B:** Bulkhead receptacle (bulkhead pin inserts compulsory)
**C:** iEPX receptacle with integrated strain-relief
**P:** Classic plug
**W:** Plug with ground block
**D:** iEPX plug with integrated strain-relief

**SHELL MOUNTING**
**A:** Rear panel mounted connector with 4 × 6-32 mounting holes
**B:** No mounting holes
**D:** Connector with 2 × Ø 3.10 mm thru holes
**F:** Rear panel mounted connector with 2 × 6-32 mounting holes
**L:** Rear panel mounted connector with 2 × 4-40 mounting holes

**POLARIZATION**
**1:** Jackscrew polarizing device A to F
**2:** Jacknut polarizing device A to F
**3:** Without locking device
**6:** Jackscrew polarizing device N to Z
**7:** Jacknut polarizing device N to Z

**SHELL CLASS**
**N:** Nickel-plated aluminium
**M:** Nickel-plated composite
**J:** Nickel-plated, weight-optimized aluminium

### INSERT SELECTION PART

**CONTACTS TERMINATION**
**XS:** Socket insert without contacts
**XP:** Pin insert without contacts
**SS:** Socket insert with crimp contacts [1]
**SP:** Pin insert with crimp contacts [1]
**YA:** Gold PC tail contacts length A [2] [3]
**ZA:** Tin-lead PC tail contacts length A [2] [3]
**RA:** Pure tin (RoHS) PC tail contacts length A [2] [3]

**INSERT CODE**
Refer to page 1-12 to select insert code

**INSERT CLASS**
**B:** Bulkhead insert with interfacial seal and rear grommet, available for pin insert only
**E:** Environmental
**N:** Non-environmental
**H:** Non-environmental insert with a rear grommet, available for pin insert only (recommended for crimp contact)
**T:** Non-environmental insert with an interfacial seal, available for pin insert only (recommended for PC tail contact)

*Notes*
*1. These contacts are delivered uninstalled*
*2. Refer to pages 1-41 to select PC tail contacts for receptacle.*
*3. Not available with iEPX*

*Disconnect Application*

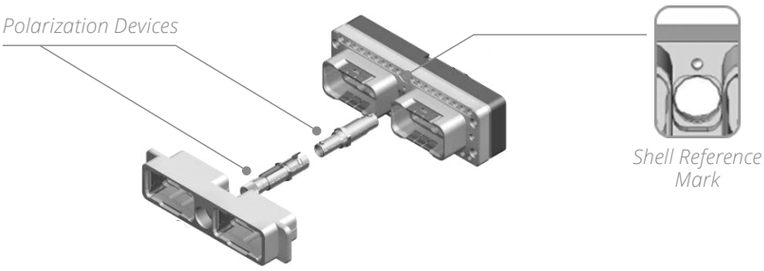
## EPXB2 POLARIZATION CODE

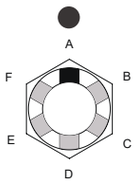
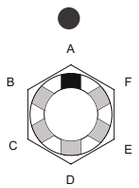
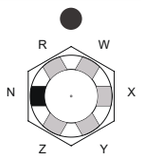
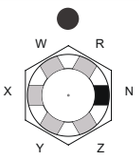
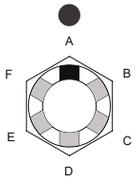
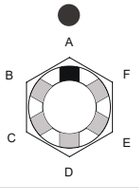
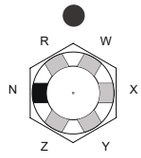
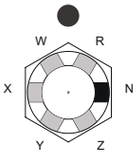


As a standard, jackscrews are installed in plugs, and jacknuts are installed in receptacle shells; however, they both can be installed in either plugs and receptacles. The nut can be fixed with your automatic screwdriver and the tool bit we provide (P/N 282664).

*Tip: Use the shell reference mark (located at the top of the locking cavity) to choose keying position.*

*Polarization Devices*




| | | KEYING POSITION | | AVAILABLE AS | |
|---|---|---|---|---|---|
| | | RECEPTACLE | PLUG | STANDARD | BULKHEAD |
| Jacknut  | From A to F |   |   | 617980029 | 617980066 |
| | From N to Z |   |   | 617980028 | 617980067 |
| | Universal |  | | 617980022 | N/A |
| Jackscrew  | From A to F |   |   | 617980012 | N/A |
| | From N to Z |   |   | 617980013 | N/A |
| | Universal |  | | 617980023 | N/A |

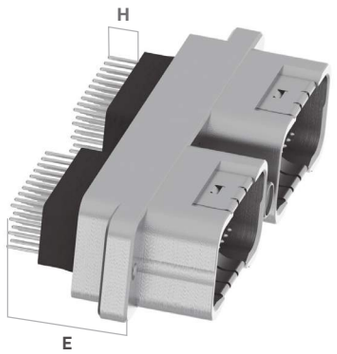
● *Shell Reference Mark*

*Disconnect Application*

## CONTACTS TERMINATION FOR RECEPTACLES

### EPXB2 COMPOSITE SHELL

| STRAIGHT PC TAIL CONTACT TERMINATION | | | | |
|---|---|---|---|---|
| MIN LENGTH E MM (INCH) | MIN LENGTH H MM (INCH) | GOLD | TIN-LEAD | PURE TIN (ROHS) |
| 14.20 (0.559) [1] | - | YA | ZA | RA |
| 17.35 (0.683) [1] | - | YB | ZB | RB |
| 19.20 (0.755) [1] | - | YC | ZC | RC |
| 23.10 (0.909) | 5.40 (0.212) | YD | ZD | RD |

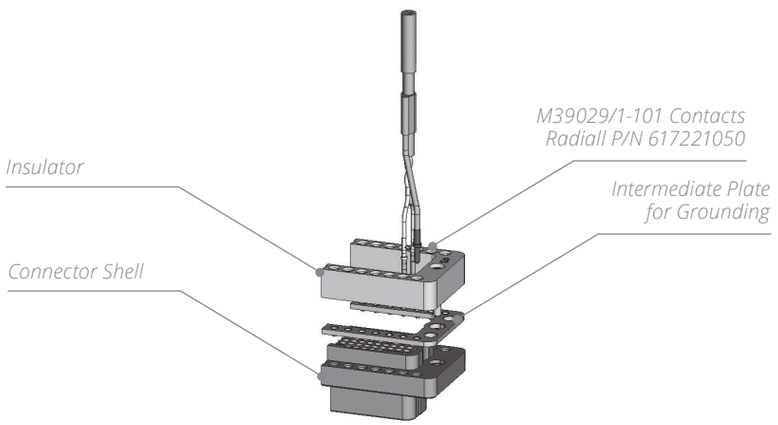



### EPXB2 WEIGHT OPTIMIZED ALUMINIUM AND ALUMINIUM SHELL

| STRAIGHT PC TAIL CONTACT TERMINATION | | | | |
|---|---|---|---|---|
| MIN LENGTH E MM (INCH) | MIN LENGTH H MM (INCH) | GOLD | TIN-LEAD | PURE TIN (ROHS) |
| 14.55 (0.572) [1] | - | YA | ZA | RA |
| 17.75 (0.698) [1] | - | YB | ZB | RB |
| 19.55 (0.769) [1] | - | YC | ZC | RC |
| 23.50 (0.925) | 5.40 (0.212) | YD | ZD | RD |

### GROUND BLOCK

Radiall provides a unique patented feature by integrating a ground block directly on the shell. This option permits very short ground terminations.




*Notes*

*1. These PC tail lengths are not compatible with EPXBE, EPXBH or EPXBB inserts.*

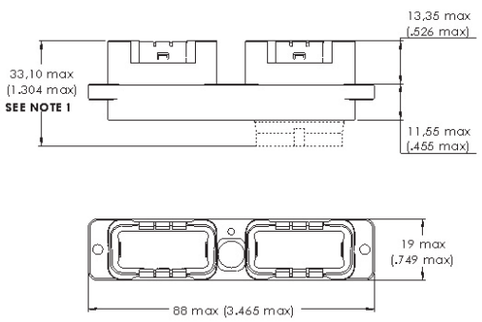
*Disconnect Application*

# EPXB2 ALUMINIUM SHELL DIMENSIONS

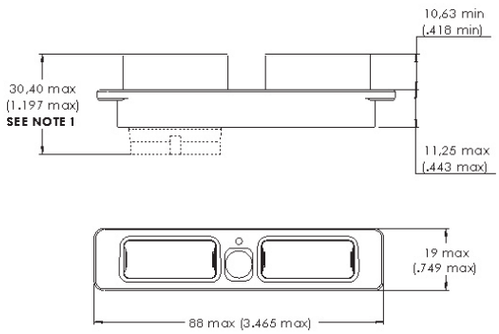
## CLASS N&J

### CLASSIC

*Receptacle [HL]*



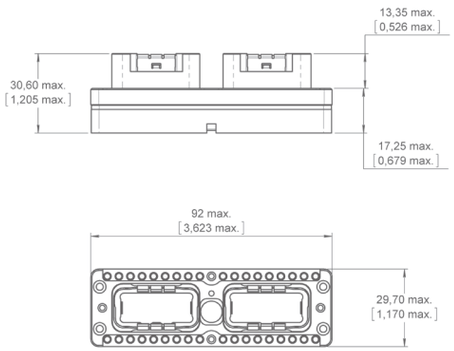

*Plug [PB]*



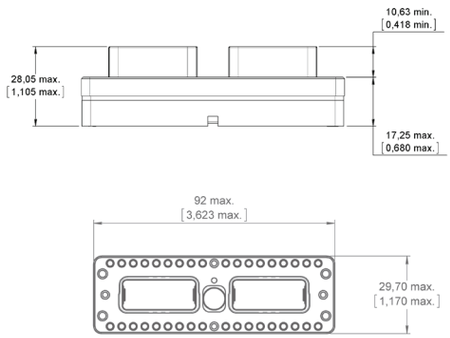

## CLASS N

### GROUND BLOCK

*Receptacle [ZA]*

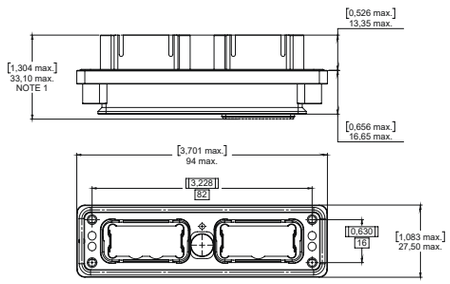



*Plug [WA]*




### BULKHEAD

*Receptacle [BA]*




*Notes*

*1. For insert with grommet: maximum dimension is the one shown in the drawing.*
*For insert without grommet: insert is flush to the shell. Maximum dimension for the receptacle is 25.55 mm (1.006 in.) and for the plug is 23.52 mm (0.926 in.) .*
*For insert with optical contacts: the maximum dimension for the receptacle is 38.70 mm (1.524 in.) and for the plug is 36.00 mm (1.418 in.).*

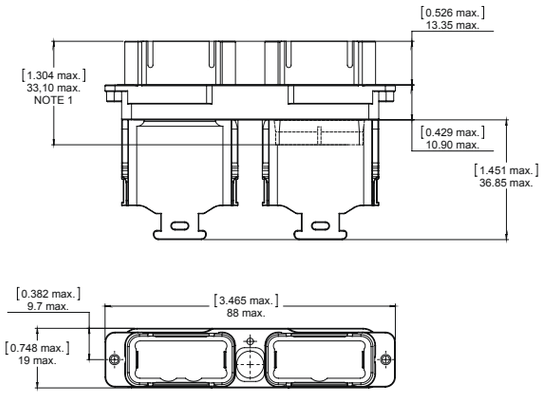
*Disconnect Application*

# EPXB2 ALUMINIUM SHELL DIMENSIONS

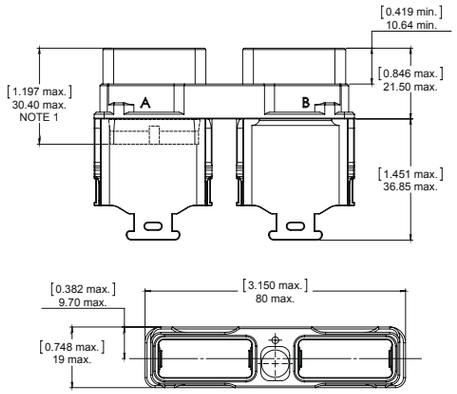
## CLASS J

### iEPX

*Receptacle [CL]*



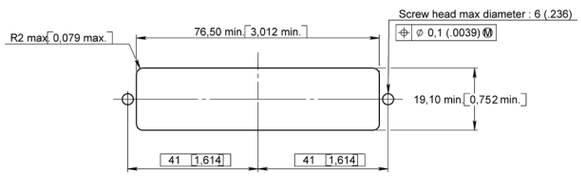

*Plug [DB]*



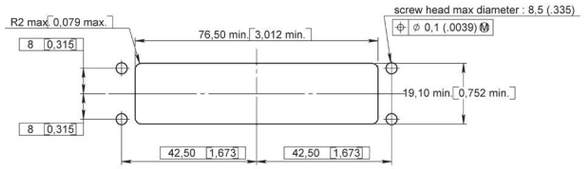

## SINGLE PANEL CUT-OUT

### CLASS N & J

*Shell Mounting Code D, F and L*

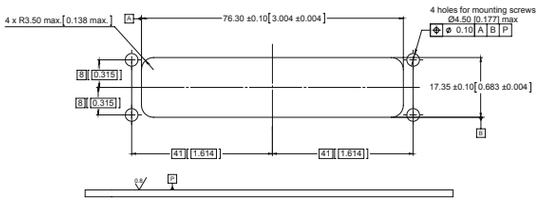



*Shell Mounting Code A*



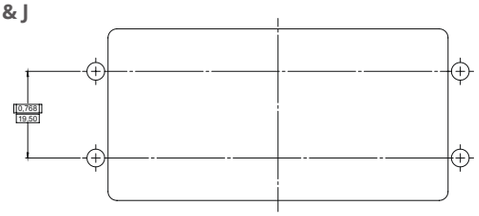

### CLASS N - BULKHEAD RECEPTACLE

*Shell Mounting Code A*




## MULTIPLE PANEL CUT-OUT

### CLASS N & J




*Notes*

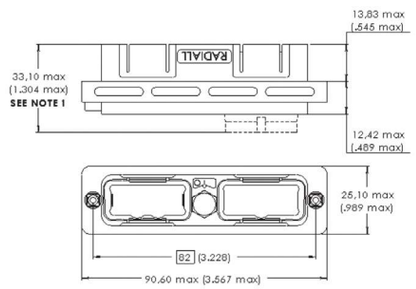
*1. For insert with grommet: maximum dimension is the one shown in the drawing.*
*For insert without grommet: insert is flush to the shell. Maximum dimension for the receptacle is 25.55 mm (1.006 in.) and for the plug is 23.52 mm (0.926 in.).*
*For insert with optical contacts: the maximum dimension for the receptacle is 38.70 mm (1.524 in.) and for the plug is 36.00 mm (1.418 in.).*

*Disconnect Application*

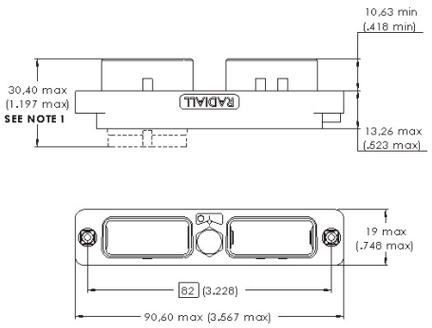
# EPXB2 COMPOSITE SHELL DIMENSIONS

## CLASS M

*Receptacle [LL]*

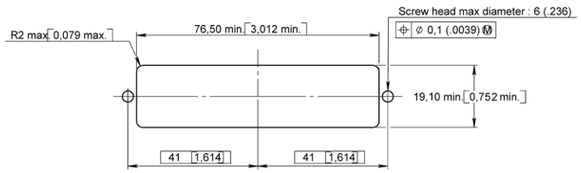



*Plug [PB]*

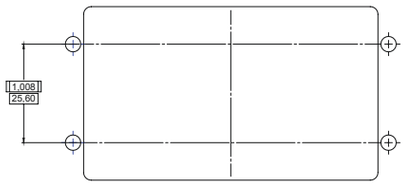



## SINGLE PANEL CUT-OUT

*Shell Mounting Code D and L*




## MULTIPLE PANEL CUT-OUT




*Notes*

*1. For insert with grommet (EPXBE and EPXBH): maximum dimension is the one shown in the drawing.*
*For insert without grommet (EPXBN): is flush to the shell. Maximum dimension for the receptacle is 25.55 mm (1.006 in.) and for the plug is 23.52 mm (0.926 in.).*
*For inserts with optical contacts: the maximum dimension for the receptacle is 38.70 mm (1.524 in.) and the plug is 36.00 mm (1.418 in.).*

*Disconnect Application*

## EPXB2 WEIGHTS

Weights include the shell with no polarization. If locking is needed, please add the following weights:

- Jackscrew: 9.0 g
- Jacknut: 7.8 g
- Bulkhead Jacknut: 8.7 g

| CLASS | SHELL MOUNTING / SHELL STYLE | A | B | D | F | L |
|---|---|---|---|---|---|---|
| Class N | L | - | - | 45 g (1.59 oz) | 45 g (1.59 oz) | 45 g (1.59 oz) |
| | H | - | 35 g (1.23 oz) | 36 g (1.27 oz) | 36 g (1.27 oz) | 36 g (1.27 oz) |
| | Z | 80 g (2.82 oz) | 80 g (2.82 oz) | - | - | - |
| | R | 45 g (1.59 oz) | - | - | - | - |
| | P | - | 30 g (1.06 oz) | 30 g (1.06 oz) | - | 30 g (1.06 oz) |
| | W | 75 g (2.65 oz) | 75 g (2.65 oz) | - | - | - |
| | B | 50 g (1.76 oz) | - | - | - | - |
| Class J | H | - | - | - | - | 27 g (0.95 oz) |
| | C | - | - | - | - | 35 g (1.23 oz) |
| | P | - | 25 g (0.88 oz) | - | - | - |
| | D | - | 30 g (1.06 oz) | - | - | - |
| Class M | L | - | - | 35 g (1.23 oz) | - | 35 g (1.23 oz) |
| | P | - | 24 g (0.85 oz) | 25 g (0.88 oz) | - | 25 g (0.88 oz) |

*Rack & Panel Application*

## EPXB2 ACCESSORIES

| | PART NUMBER | DESCRIPTION |
|---|---|---|
|  | 617922007 | Straight Strain Relief (Composite) |
|  | 617922014 | Straight Strain Relief for Fiber Optic Cable (Anodized Aluminium) |
|  | 617928100 | Straight EMI Backshell (Nickel-Plated Composite) |
|  | 617925069 | Short Straight EMI Backshell (Nickel-Plated Composite) |
|  | 617925052 | EMI Backshell for Braid Shield Termination (Nickel-Plated Aluminium) |
|  | 617925054 | EMI Backshell For Screened Twisted Pair Cables (Nickel-Plated Aluminium) |
|  | 617925056 | Backshell for Large Sized Wire Harnesses (Nickel-Plated Aluminium) [1] |
|  | 617925018 | EMI Backshell for iEPX Connectors (Composite) |
|  | 617922029 | Fiber Optic Backshell (Composite) |

***Notes***

*1. Not compatible with jackscrew*

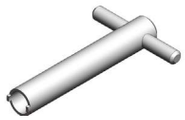
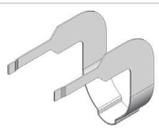
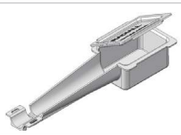
*Rack & Panel Application*

## EPXB2 SPARE PARTS

| | PART NUMBER | DESCRIPTION |
|---|---|---|
|  | 617954101 | Grounding Spring<br>(For EPXB2 Aluminium Only) |
|  | 617980029 | Jacknut – A/B/C/D/E/F |
| | 617980028 | Jacknut – N/R/W/X/Y/Z |
| | 617980022 | Universal Jacknut |
|  | 617980066 | Bulkhead Jacknut – A/B/C/D/E/F |
| | 617980067 | Bulkhead Jacknut – N/R/W/X/Y/Z |
|  | 617980012 | Jackscrew – A/B/C/D/E/F |
| | 617980013 | Jackscrew – N/R/W/X/Y/Z |
| | 617980023 | Universal Jackscrew |
|  | 617954002 | Dust Cap for Plug Shell<br>(Pink Color) |
| | 617954003 | Dust Cap for Receptacle Shell<br>(Pink Color) |
| | 617954004 | ESD Dust Cap Plug Shell<br>(Black Color) |
| | 617954005 | ESD Dust Cap Receptacle Shell<br>(Black Color) |
|  | 617929023 | Sealing Inserts for Fly Away Applications:<br>Mateable with Pin Insert |
|  | 617929022 | Sealing Inserts for Fly Away Applications:<br>Mateable with Socket Insert |

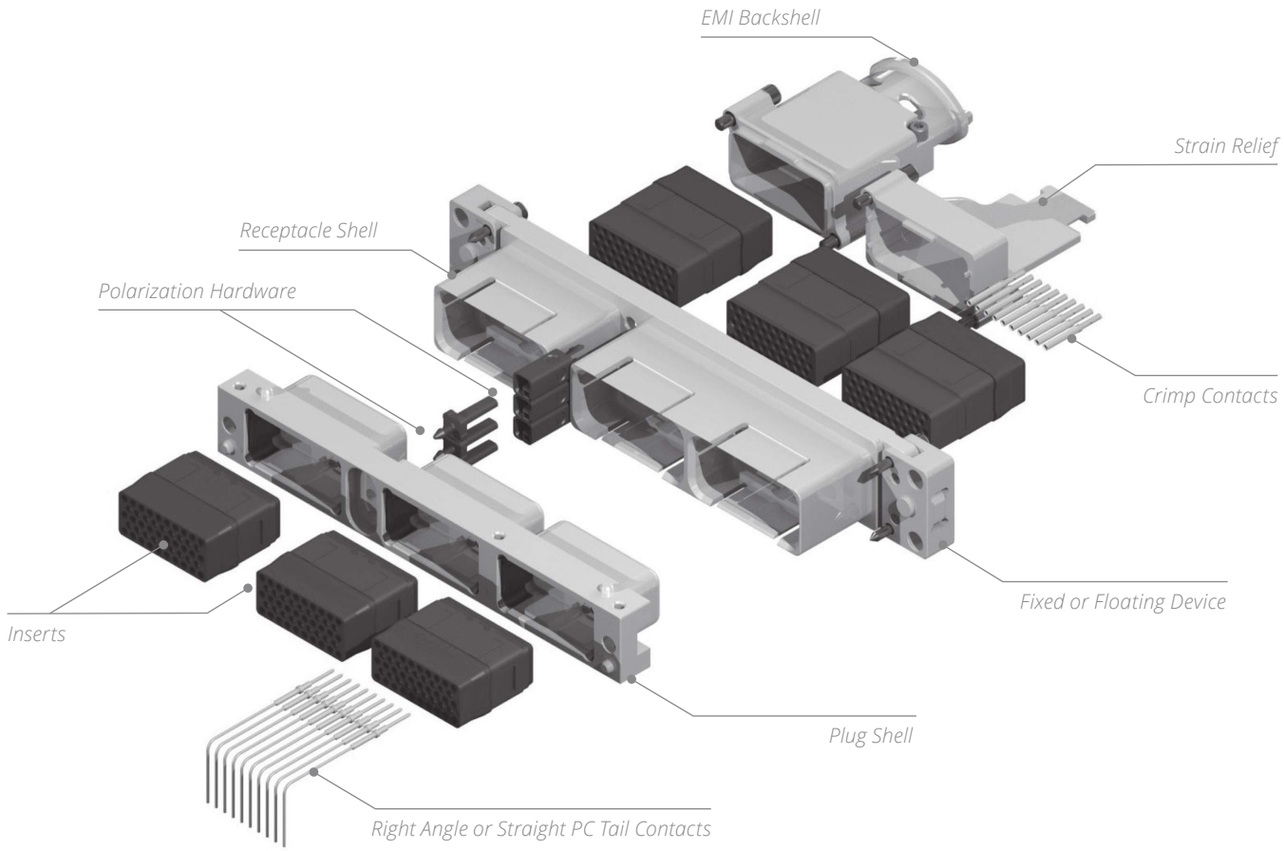
*Rack & Panel Application*

## DISCONNECT TOOLS

| | PART NUMBER | DESCRIPTION | TO BE USED WITH | | |
|---|---|---|---|---|---|
| | | | EPXA1 | EPXB1 | EPXB2 |
|  | 282664 | 1/4 in. Hex. Screwdriver Bit to Affix the Nut of the Jackscrew or the Jacknut to the EPXB2 Accessories | - | - | ✓ |
|  | 282665 | Spigot Wrench to Affix the Nut of the Jackscrew or the Jacknut to the EPXB2 Accessories | - | - | ✓ |
|  | 282666 | Allen Wrench for 1/4 turn Fasterner (3/32 in.) | ✓ | ✓ | - |
|  | 282666002 | Allen Wrench for Rear Accessories (5/64 in.) | - | ✓ | - |
|  | 282666001 | Allen Wrench for Jackscrew (9/64 in.) | - | - | ✓ |
|  | 282521002 | Insert Extraction Tool | - | ✓ | ✓ |
|  | 282521004 | Right Angle Insert Extraction Tool | - | ✓ | ✓ |
|  | 282521007 | Bulkhead Insert Extraction Tool | - | - | ✓ |
|  | 282521005 | Insert Extraction Tool | ✓ | - | - |
|  | 617954020 | Plastic Box to Protect Wired Inserts during Handling | ✓ | ✓ | ✓ |
|  | F780855000 | Hexagonal Key 2 mm (5/64 in.) Flats for Sleeve Holder Removal | - | ✓ | ✓ |
|  | 282668001 | Tweezers to Change Polarizing Posts and Keys | - | ✓ | - |

## EPXB3 PRODUCT OVERVIEW

***Detailed View of Receptacle and Plug with Accessories for the EPXB3 Rack & Panel Connector:***



*Rack & Panel Application*

## HOW TO ORDER EPXB1, B2, B3 & B4 SHELL

EPX

**SERIES PREFIX**

**SHELL SIZE**
**B1:** One cavity shell
**B2:** Two cavity shell
**B3:** Three cavity shell
**B4:** Four cavity shell

**SHELL STYLE**
**P:** Plug, nickel-plated
**R:** Receptacle, nickel-plated

**SHELL MOUNTING**
(refer to page 1-52 for codes)
**M:** Plug, fixed connector with Ø 3.96 mm holes and 4-40 UNC on side
**N:** Plug, fixed connector with 8-32 UNC and 4-40 UNC on side
**S:** Plug or Receptacle, fixed with 4 × 8-32 UNC
**T:** Receptacle, floating with 4 × 8-32 UNC (two axes) [1]

**POLARIZATION CODE**
**1:** Shell delivered with polarizing keys unassembled
**2:** Shell delivered with no polarizing keys

**PANEL CUT-OUT CODING**
**A TO Z:** Receptacle, refer to page 1-54 for the code selection
**0 (ZERO):** Plug, no panel cut-out coding

*Notes*
*1. This floating option is not available in EPXB4 version.*

*Rack & Panel Application*

## HOW TO ORDER EPXB1, EPXB2, B3 & B4 ASSEMBLY KIT FOR LRM

***Assembly kit is delivered fully assembled including shell with inserts mounted, with or without contacts according to the selection. When selecting your insert codes, do not forget to place them in the order you want them assembled. Polarization hardware are always provided unassembled with assembly kits.***

Tips to help you in your selection:

- You are free to use either pin or socket inserts in EPXB plug or receptacle.
- Crimp contacts can be delivered with a kit. Check which contacts will be included on page 1-10.
- If PC tail contacts are selected then all cavities including signal, power and quadrax are populated. Size 5 coax cavities are not populated.
- If PC tail contacts are needed, remember that only straight pin PC tail contacts are available, and in plug only.

*All connector inserts will use the same insert class and the same contact termination.*

EPX

### SHELL SELECTION PART

**SERIES PREFIX**

**SHELL SIZE**
**B1:** One cavity shell
**B2:** Two cavity shell
**B3:** Three cavity shell
**B4:** Four cavity shell

**SHELL STYLE**
**P:** Plug, nickel-plated
**R:** Receptacle, nickel-plated

**SHELL MOUNTING**
(refer to page 1-52 for codes)
**M:** Plug, fixed connector with Ø 3.96 mm holes and 4-40 UNC on side
**N:** Plug, fixed connector with 8-32 UNC and 4-40 UNC on side
**S:** Plug or Receptacle, fixed with 4 × 8-32 UNC
**T:** Receptacle, floating with 4 × 8-32 UNC (two axes) [1]

**PANEL CUT-OUT CODING**
**A TO Z:** For receptacle, refer to page 1-54 for the code selection
**0 (ZERO):** For plug, no panel cut-out coding

### INSERT SELECTION PART

**CONTACTS TERMINATION**
**XS:** Female insert without contacts
**XP:** Male insert without contacts
**SS:** Female insert with crimp contacts [2]
**SP:** Male insert with crimp contacts [2]
**YA:** Gold PC tail contacts length A [3]
**ZA:** Tin-lead PC tail contacts length A [3]
**RA:** Pure tin (RoHS) PC tail contacts length A [3]

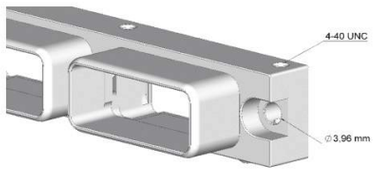
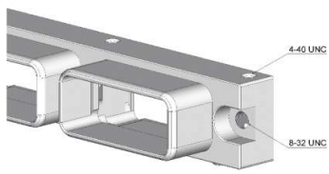
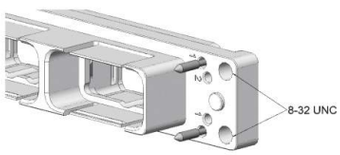
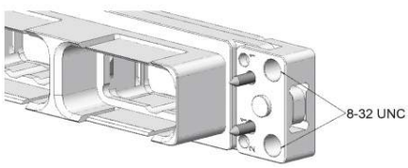
**INSERT CODE**
Refer to page 1-10 to select insert code

**INSERT CLASS**
**E:** Environmental
**N:** Non-environmental (no rear grommet, no interfacial seal)
**H:** Non-environmental insert with a rear grommet (recommended for crimp contact)
**T:** Non-environmental insert with interfacial seal (recommended for PC tail contact)

*Notes*
1. *This floating option is not available in EPXB4 version*
2. *These contacts are delivered uninstalled*
3. *Refer to page 1-53 to select PC tail contacts for plug*

*Rack & Panel Application*

## EPXB SHELL MOUNTING

| RECEPTACLE SIDE | CODE | PLUG SIDES |
|---|---|---|
| N/A | M | Fixed Connector with Ø 3.96 mm Holes and 4-40 UNC Front or Side Mount   |
| N/A | N | Connector with 8-32 UNC and 4-40 UNC Front or Side Mount   |
| Fixed with 4 × 8-32 UNC Panel Rear Mount   | S | N/A |
| Floating with 4 × 8-32 UNC Panel Rear Mount   | T | N/A |

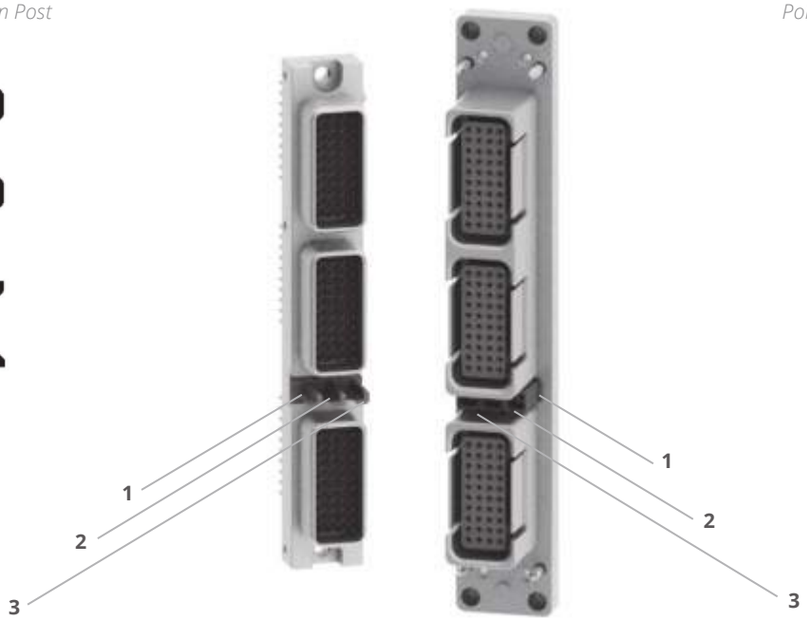
*Rack & Panel Application*

## EPXB POLARIZATION CODE

A polarization device is included in the part number and should be installed as shown below. Each shell has three polarization hardware, which can be in four different positions. Each polarization hardware can have its own position; this allows a large range of codification.

**PLUG SIZE 3**
*Polarization Post*



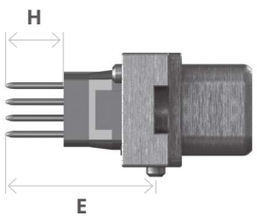

**RECEPTACLE SIZE 3**
*Polarization Key*



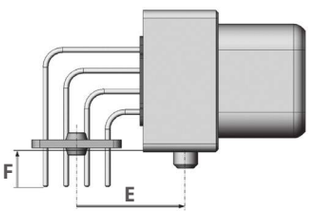

*Connectors are shown front side with cavity A upwards.*

## CONTACT TERMINATIONS FOR EPXB1, EPXB2, EPXB3 AND EPXB4 PLUGS

| STRAIGHT PC TAIL CONTACT TERMINATION | | | | |
|---|---|---|---|---|
| MINI LENGTH E MM (INCH) | MINI LENGTH H MM (INCH) | GOLD | TIN-LEAD | PURE TIN (ROHS) |
| 10.60 (0.417) [1] | - | YA | ZA | RA |
| 13.80 (0.543) [1] | - | YB | ZB | RB |
| 15.60 (0.614) [1] | - | YC | ZC | RC |
| 19.55 (0.769) | 5.40 (0.212) | YD | ZD | RD |




| RIGHT ANGLE PC TAIL CONTACT TERMINATION | | | | |
|---|---|---|---|---|
| MINI LENGTH F MM (INCH) | MINI LENGTH E MM (INCH) | GOLD | TIN-LEAD | PURE TIN (ROHS) |
| 2.20 (0.086) | 12.85 (0.505) [1] | GA | LA | TA |
| 3.60 (0.141) | 20.10 (0.791) | GB | LB | TB |
| 3.60 (0.141) | 12.85 (0.505) [1] | GC | LC | TC |
| 2.20 (0.141) | 20.10 (0.791) | GD | LD | TD |




*Notes*

*1. These PC tail lengths are not compatible with EPXBE and EPXBH inserts*

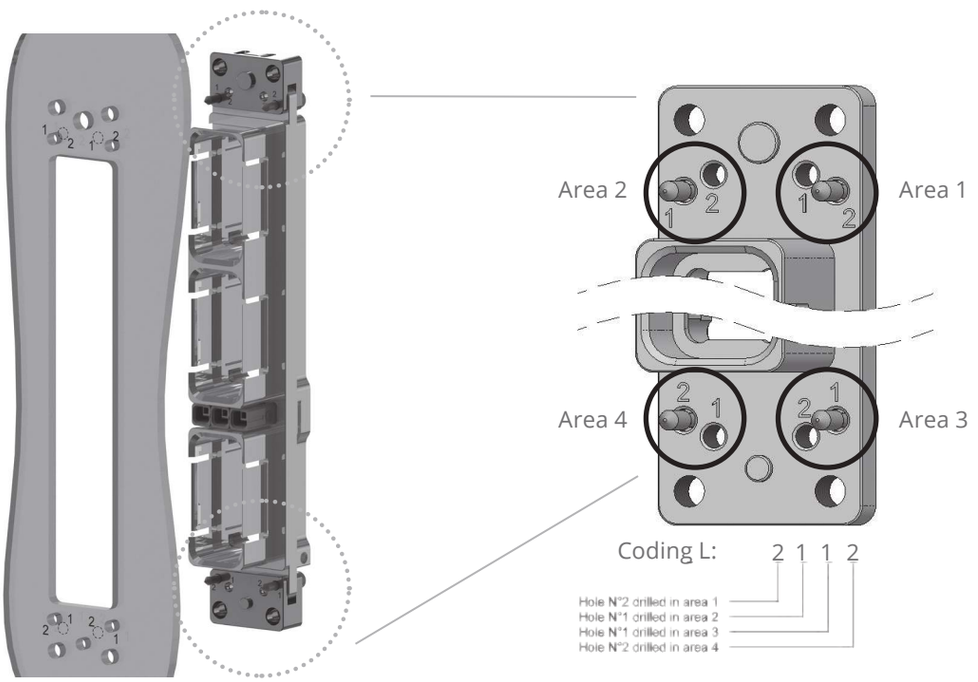
## EPXB PANEL CUT-OUT CODING

When several connectors are used with the same equipment, coding is available on the shell to correlate the correct shell with the correct panel cut-out.

On the panel cut-out, four areas are coded: area 1, 2, 3 and 4 (see figure below). For each area, one of the two holes should be drilled (hole n°1 or hole n°2). Each hole on the panel cut-out corresponds to the use of a coding pin on the shell.

| PANEL CUT-OUT CODING | PANEL HOLE NUMBER TO DRILL IN AREA 1 | PANEL HOLE NUMBER TO DRILL IN AREA 2 | PANEL HOLE NUMBER TO DRILL IN AREA 3 | PANEL HOLE NUMBER TO DRILL IN AREA 4 |
|---|---|---|---|---|
| A | Connector Delivered With Coding Device Uninstalled | | | |
| B | 1 | 1 | 1 | 1 |
| C | 1 | 1 | 1 | 2 |
| D | 1 | 1 | 2 | 1 |
| E | 1 | 1 | 2 | 2 |
| F | 1 | 2 | 1 | 1 |
| G | 1 | 2 | 1 | 2 |
| H | 1 | 2 | 2 | 1 |
| J | 1 | 2 | 2 | 2 |
| K | 2 | 1 | 1 | 1 |
| L | 2 | 1 | 1 | 2 |
| M | 2 | 1 | 2 | 1 |
| N | 2 | 1 | 2 | 2 |
| P | 2 | 2 | 1 | 1 |
| R | 2 | 2 | 1 | 2 |
| S | 2 | 2 | 2 | 1 |
| T | 2 | 2 | 2 | 2 |
| Z | Connector Delivered Without Coding Pin [1] | | | |

**CODING PINS ARE FOR RECEPTACLE ONLY.**




*Notes*

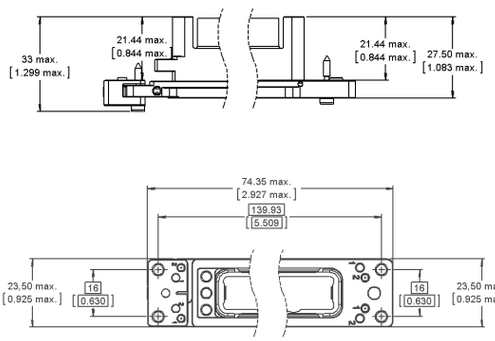
*1. Z panel cut-out coding is only available with fix mounting.*

*Rack & Panel Application*

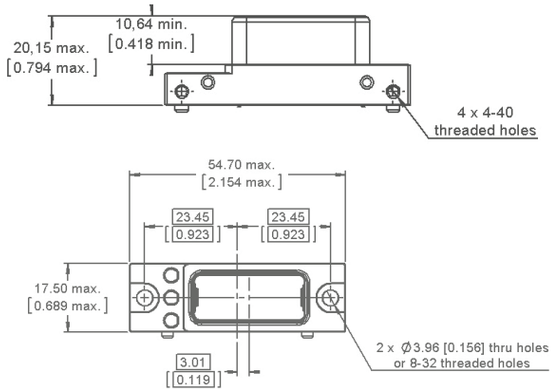
# EPXB1 SHELL DIMENSIONS & PANEL CUT-OUTS

## RECEPTACLE

*Floating Mount* *Fixed Mount*

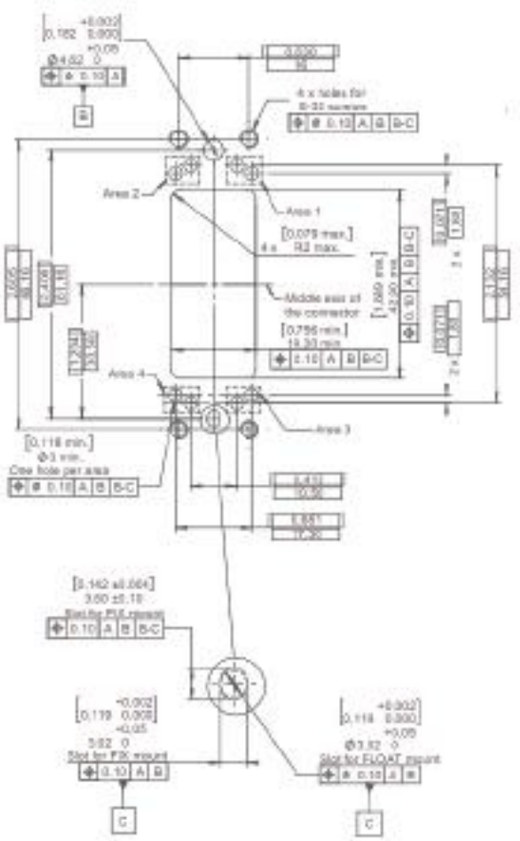



## PLUG

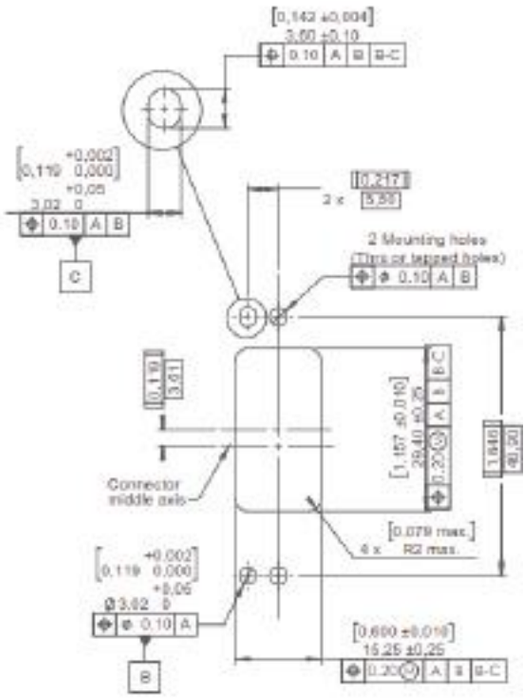



## PANEL CUT-OUTS

*Receptacle - Shown from the Rear Side*




*Plug - Shown from the Front Side*

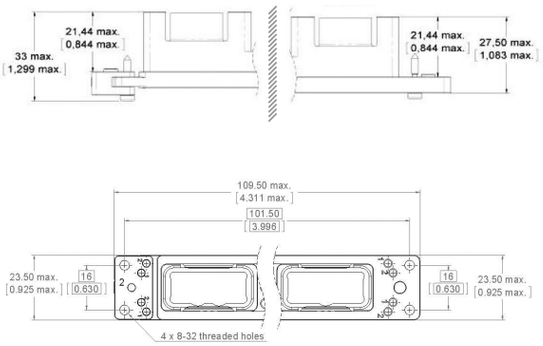


*Rack & Panel Application*

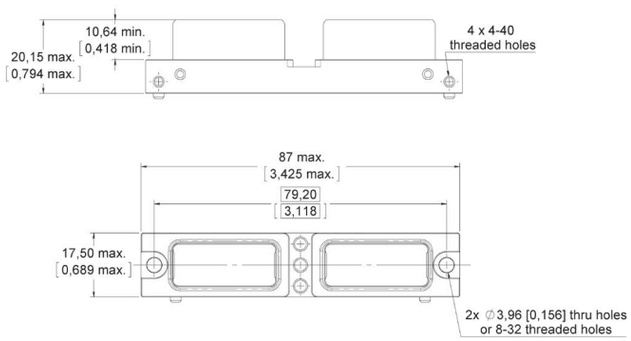
# EPXB2 SHELL DIMENSIONS & PANEL CUT-OUTS

## RECEPTACLE

*Floating Mount* *Fixed Mount*

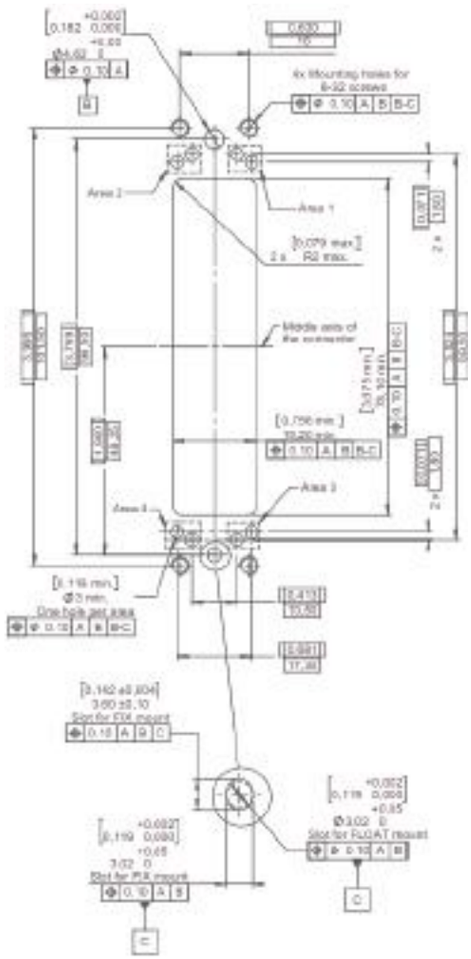



## PLUG

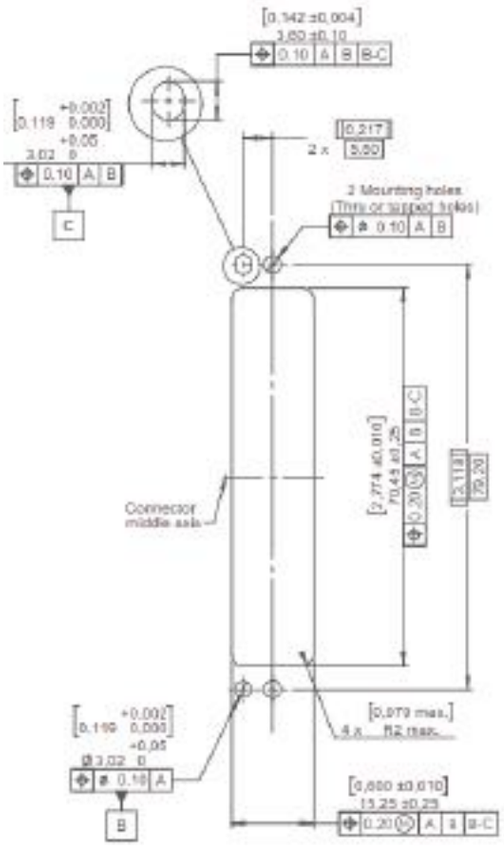



## PANEL CUT-OUTS

*Receptacle - Shown from the Rear Side*




*Plug - Shown from the Front Side*

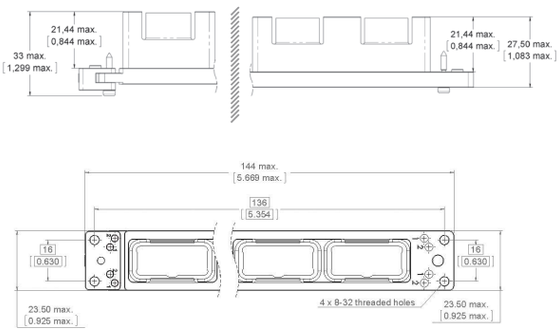


*Rack & Panel Application*

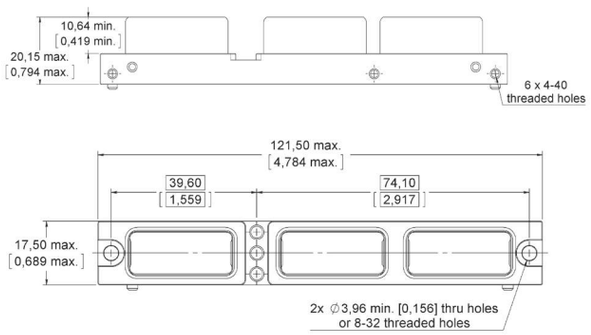
# EPXB3 SHELL DIMENSIONS & PANEL CUT-OUTS

## RECEPTACLE

*Floating Mount* *Fixed Mount*

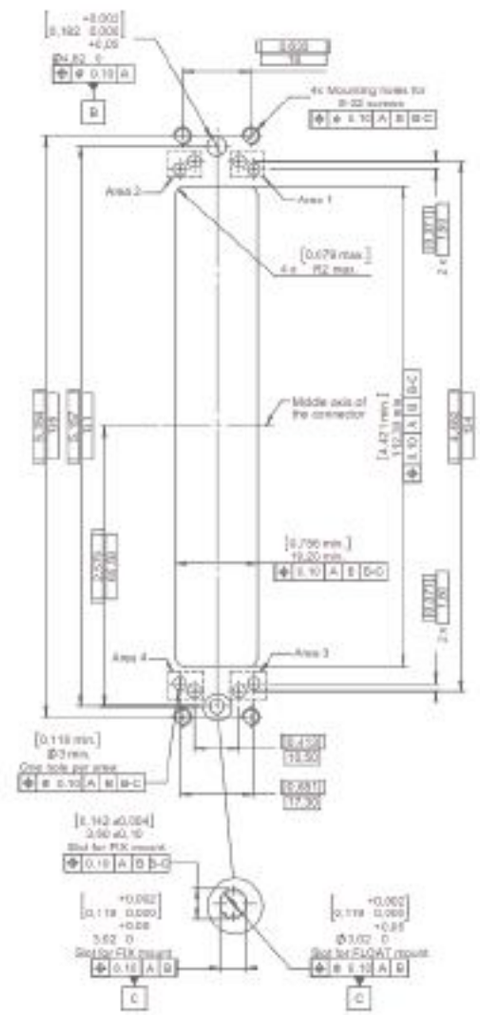



## PLUG

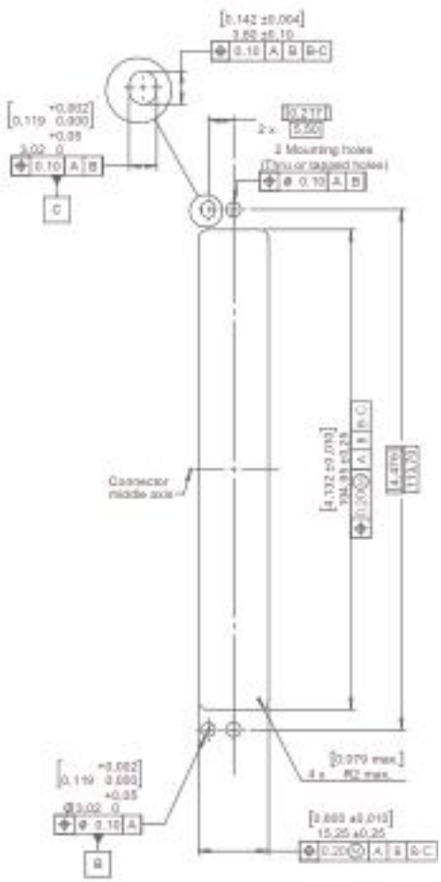



## PANEL CUT-OUTS

*Receptacle - Shown from the Rear Side*



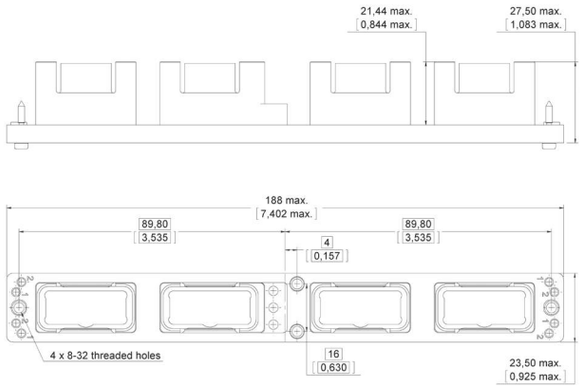

*Plug - Shown from the Front Side*



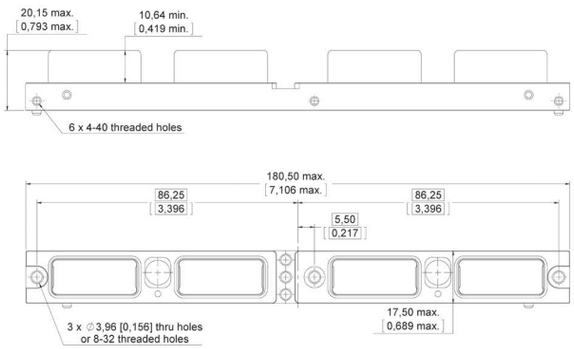
*Rack & Panel Application*

## EPXB4 SHELL DIMENSIONS & PANEL CUT-OUTS

### RECEPTACLE

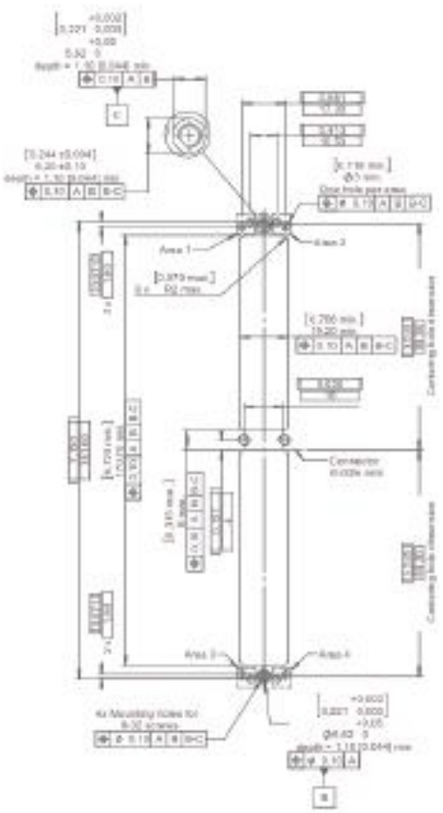



### PLUG

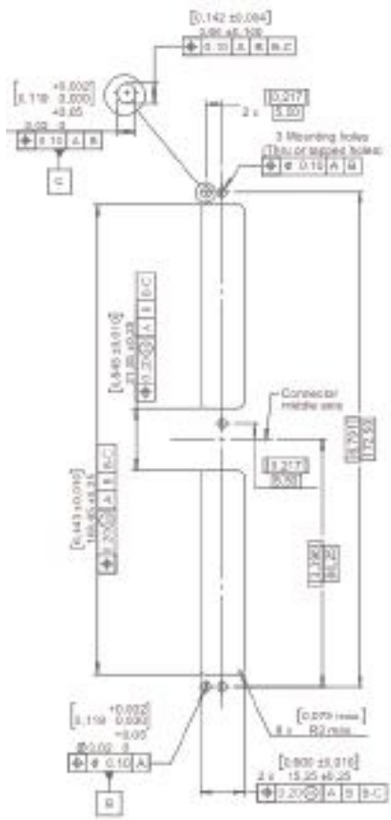



### PANEL CUT-OUT

*Receptacle - Shown from the Rear Side*



*Plug - Shown from the Front Side*



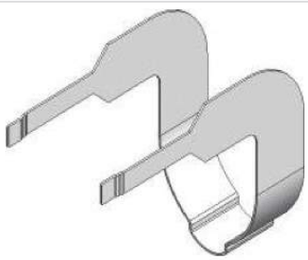
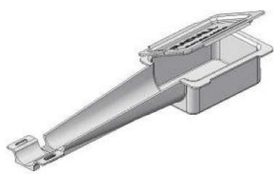
*Rack & Panel Application*

## RACK & PANEL ACCESSORIES

| | PART NUMBER | DESCRIPTION |
|---|---|---|
|  | 617925073 | EMI Backshell<br>for Receptacle Only<br>(Aluminium, Nickel-Plated) |
|  | 617922022 | Straight Strain Relief<br>for Receptacle Only<br>(Composite) |
|  | 617954002 | Dust Cap for Plug Shell<br>(Pink Color) |
| | 617954003 | Dust Cap for Receptacle Shell<br>(Pink Color) |
| | 617954004 | ESD Dust Cap Plug Shell<br>(Black Color) |
| | 617954005 | ESD Dust Cap Receptacle Shell<br>(Black Color) |
|  | 617980052 | Coding Pin |
|  | 617980030 | Polarization Post |
|  | 617980031 | Polarization Key |

*Rack & Panel Application*

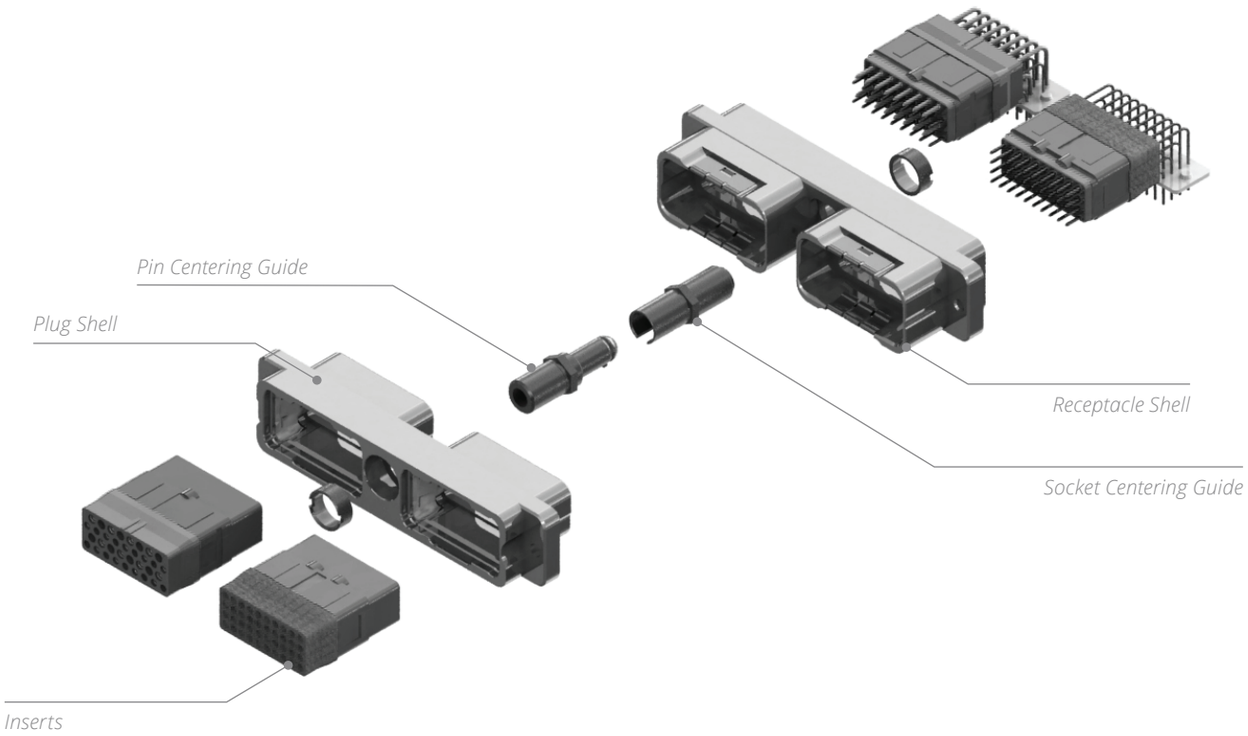
## RACK & PANEL TOOLS

| | PART NUMBER | DESCRIPTION |
|---|---|---|
|  | 282521002 | Insert Extraction Tool |
|  | 282521004 | Right Angle Insert Extraction Tool |
|  | 617954020 | Plastic Box to Protect Wired Inserts During Handling |
|  | F780855000 | Hexagonal Hey 2 mm (5/64 in.) Flats for Sleeve Holder Removal |

*Rack & Panel Application*

## EPXB2 FOR LRU PRODUCT OVERVIEW

*Detailed View of a Receptacle and Plug for the EPXB2 LRU Connector:*



*Rack & Panel Application*

## HOW TO ORDER EPXB2 SHELL FOR LRU

EPX

**SERIES PREFIX**

**SHELL SIZE**
**B2:** Two cavity shell

**SHELL STYLE**
For compatibility options, see the table below
**L:** Receptacle with flange
**H:** Classic receptacle
**Z:** Receptacle with ground block
**R:** Receptacle without ground fingers
**P:** Classic plug
**W:** Plug with ground block
**D:** iEPX plug with integrated stain-relief

**SHELL MOUNTING**
**A:** Panel rear mounted connector with 4 × 6-32 mounting holes
**D:** Connector with 2 × Ø 3.10 mm thru holes
**F:** Panel rear mounted connector with 2 × 6-32 mounting holes
**L:** Panel rear mounted connector with 2 × 4-40 mounting holes

**LOCKING & POLARIZATION DEVICE** [1]
**4:** Pin centering guide
**5:** Socket centering guide

**POLARIZATION CODE**
**2:** Polarizing device A to F delivered unassembled
**3:** Polarizing device N to Z delivered unassembled

**SHELL PLATING**
**N:** Nickel-plated aluminium
**M:** Nickel-plated composite
**J:** Nickel-plated, weight-optimized aluminium

### AVAILABLE SHELL MOUNTING

| | SHELL STYLE | **A** *(4 × 6.32 UNC)* | **B** *(No Holes)* | **D** *(2 × Ø 3.10 mm)* | **F** *(2 × 6.32 UNC)* | **L** *(2 × 4.40 UNC)* |
|---|---|---|---|---|---|---|
| **Class N** *(Aluminium)* | L | - | - | ✓ | ✓ | ✓ |
| | H | - | ✓ | ✓ | ✓ | ✓ |
| | Z | ✓ | ✓ | - | - | - |
| | R | ✓ | - | - | - | - |
| | P | - | ✓ | ✓ | - | ✓ |
| | W | ✓ | ✓ | - | - | - |
| **Class J** *(Weight-Optimized Aluminium)* | H | - | - | - | - | ✓ |
| | P | - | ✓ | - | - | - |
| **Class M** *(Composite)* | L | - | | ✓ | - | ✓ |
| | P | - | ✓ | ✓ | - | ✓ |

*Notes*
*1. Pin/Socket centering guides can be mounted on either plug or receptacle shells. However, the standard options are:*
*- Pin centering guide for plug shells*
*- Socket centering guide for receptacle shells*

*Rack & Panel Application*

## HOW TO ORDER EPXB2 ASSEMBLY KIT FOR LRU

***Assembly kits are delivered fully assembled including shell with inserts mounted, with or without contacts, according to the selection. When selecting your insert codes, do not forget to place them in the order you want them assembled. Locking and polarizing devices are delivered uninstalled.***

Tips to help you in your selection:

- You are free to use either pin or socket inserts in EPXB plug or receptacle.
- Crimp contacts can be delivered with a kit. Check which contacts will be included on page 1-10.
- PC tail contacts can also delivered with a kit. Remember that only straight pin PC tail contacts are available, and in receptacle only.
- If PC tail contacts are selected, then all cavities including signal, power and quadrax are populated. Size 5 coax cavities are not populated.

*All connector inserts will use the same insert class and the same contact termination.*

**EPX**

### SHELL SELECTION PART

**SERIES PREFIX**

**SHELL SIZE**
**B2:** Two cavity shell

**SHELL STYLE**
For option compatibility, see table on page 1-62
**L:** Receptacle with flange and ground fingers
**H:** Classic receptacle
**Z:** Receptacle with ground block
**R:** Receptacle without ground fingers
**P:** Classic plug
**W:** Plug with ground block
**B:** Bulkhead receptacle (bulkhead pin inserts compulsory)

**SHELL MOUNTING**
**A:** Rear panel mounted connector with 4 × 6-32 mounting holes
**B:** No mounting holes
**D:** Connector with 2 × Ø 3.10 mm thru holes
**F:** Rear panel mounted connector with 2 × 6-32 mounting holes
**L:** Rear panel mounted connector with 2 × 4-40 mounting holes

**POLARIZATION**
**1:** Jackscrew polarizing device A to F
**2:** Jacknut polarizing device A to F
**3:** Without locking device
**4:** Pin centering guide for plug shell for LRU application only, polarizing device A to F
**5:** Socket centering guide for receptacle shell for LRU application only, polarizing device A to F
**6:** Jackscrew polarizing device N to Z
**7:** Jacknut polarizing device N to Z

**SHELL PLATING**
**N:** Nickel-plated aluminium
**M:** Nickel-plated composite
**J:** Nickel-plated, weight-optimized aluminium

### INSERT SELECTION PART

**CONTACTS TERMINATION**
**XS:** Socket insert without contacts
**XP:** Pin insert without contacts
**SS:** Socket insert with crimp contacts [1]
**SP:** Pin insert with crimp contacts [1]
**YA:** Gold PC tail contacts length A [2] [3]
**ZA:** Tin-lead PC tail contacts length A [2] [3]
**RA:** Pure tin (RoHS) PC tail contacts length A [2] [3]

**INSERT CODE**
Refer to page 1-10 to select insert code

**INSERT CLASS**
**E:** Environmental
**N:** Non-environmental
**H:** Non-environmental insert with a rear grommet, available for pin insert only (recommended for crimp contact)
**T:** Non-environmental insert with an interfacial seal, available for pin insert only (recommended for PC tail contact)

*Notes*
*1. These contacts are delivered uninstalled.*
*2. Refer to pages 1-41 to select PC tail contacts for receptacle.*
*3. Not available with iEPX*

*Rack & Panel Application*

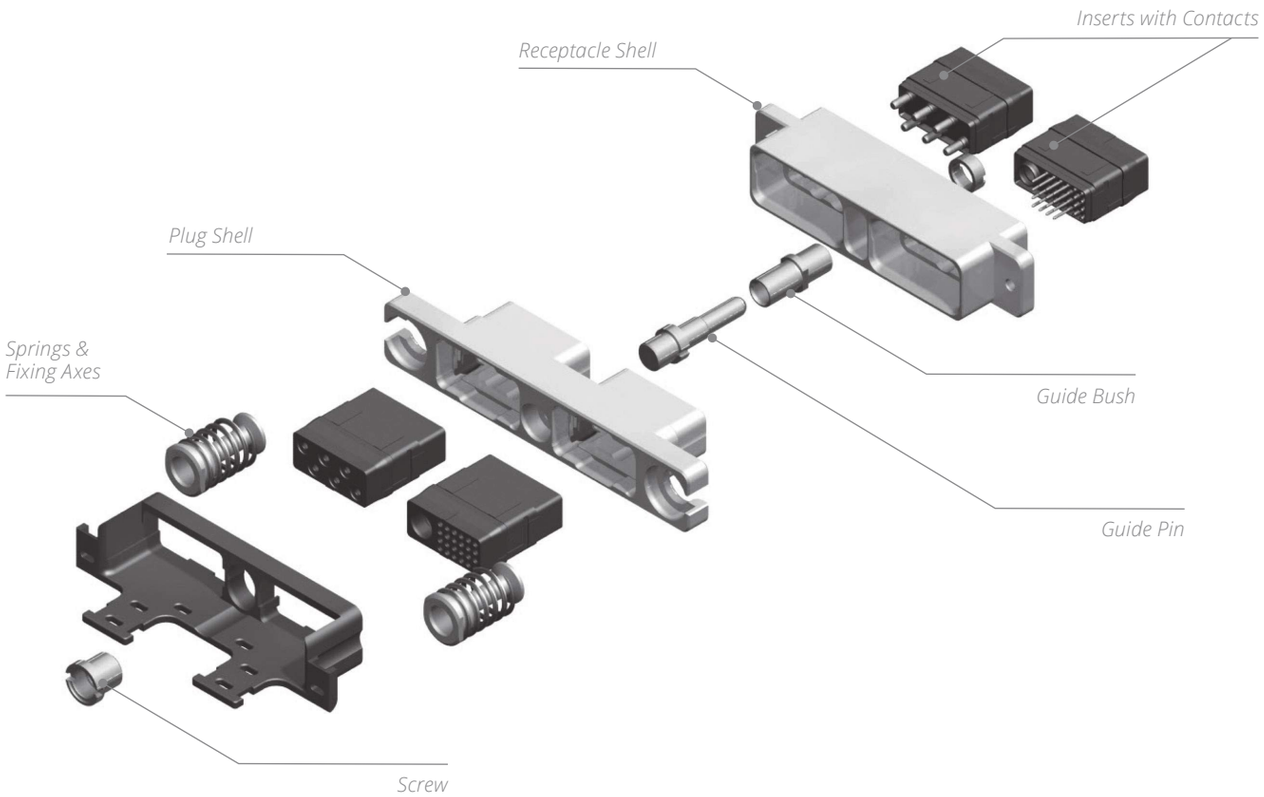
## EPX GALLEY ARINC 810 PRODUCT OVERVIEW

The new EPXB2 Galley connector was specially designed for the severe conditions required by galley equipment. A floating mechanism was developed to avoid any risk of jamming and to guarantee a fully sealed connection.

The EPXB2 is used on ovens, beverage makers, refrigerators, microwave ovens and other equipment that fits within the new standardized galley layouts.

The EPXB2 connector is modular and provides extra contact density to add new contacts such as the #8 Twinax CAN data bus contact. Backshell accessories are also available.

Detailed view of receptacle and plug with accessories for the EPXB2 galley connector:



*Rack & Panel Application*

## HOW TO ORDER EPX® GALLEY EQUIPMENT CONNECTOR

### RECEPTACLE AND PLUG ASSEMBLY KIT

| PART NUMBER | DESCRIPTION |
|---|---|
| 617610188 or 617610558 | Receptacle Assembled Kit [1] |
| 617610189 | Plug Assembled Kit [1] |

Each item included in the kit is indicated in the table below and can also be ordered separately.

### RECEPTACLE KITS

#### SHELL WITH 2 SELF-LOCKING THREADED HOLES

*617610188*

| PART NUMBER | DESCRIPTION | QUANTITY PER KIT |
|---|---|---|
| 617610212 | Receptacle Shell | 1 |
| EPXBE25Q1PA | Insert for Cavity A | 1 |
| EPXBE06PB | Insert for Cavity B | 1 |
| 617200 | Pin Crimp Contacts/Size 22 | 15 |
| 617250 | Pin Crimp Contacts/Size 12 | 6 |
| 616910 | Filler Plug | 9 |
| 617954003 | Dust Cap | 2 |

#### SHELL WITH 2 THRU HOLES

*617610558*

| PART NUMBER | DESCRIPTION | QUANTITY PER KIT |
|---|---|---|
| 617610419 | Receptacle Shell | 1 |
| EPXBE25Q1PA | Insert for Cavity A | 1 |
| EPXBE06PB | Insert for Cavity B | 1 |
| 617200 | Pin Crimp Contacts/Size 22 | 15 |
| 617250 | Pin Crimp Contacts/Size 12 | 6 |
| 616910 | Filler Plug | 9 |
| 617954003 | Dust Cap | 2 |

### PLUG KIT

*617610189 contents*

| PART NUMBER | DESCRIPTION | QUANTITY PER KIT |
|---|---|---|
| 617610213 | Plug Shell | 1 |
| EPXBE25Q1SA | Insert for Cavity A | 1 |
| EPXBE06SB | Insert for Cavity B | 1 |
| 617300 | Socket Crimp Contacts/Size 22 | 15 |
| 617350 | Socket Crimp Contacts/Size 12 | 6 |
| 616910 | Filler Plug | 9 |
| 617922007 | Strain Relief | 1 |
| 617954002 | Dust Cap | 2 |

### CAN DATA BUS CONTACTS

| PART NUMBER | DESCRIPTION |
|---|---|
| 617165011 | Size 8 Twinax Pin Contact |
| 617065011 | Size 8 Twinax Socket Contact |

*Notes*

*1. Part numbers for assembly kits include: plug or receptacle shell, inserts, contacts, sealing plugs and dust caps.*

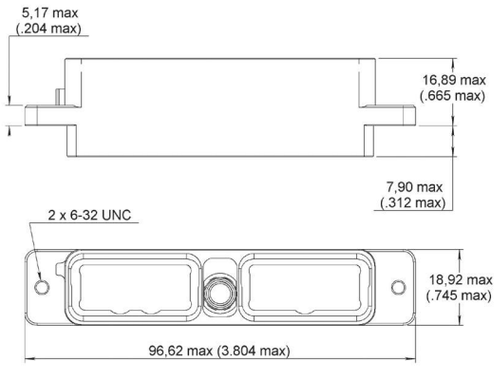
*Rack & Panel Application*

## DIMENSIONS & PANEL CUT-OUT

EPX® GALLEY EQUIPMENT CONNECTOR PER ARINC 810

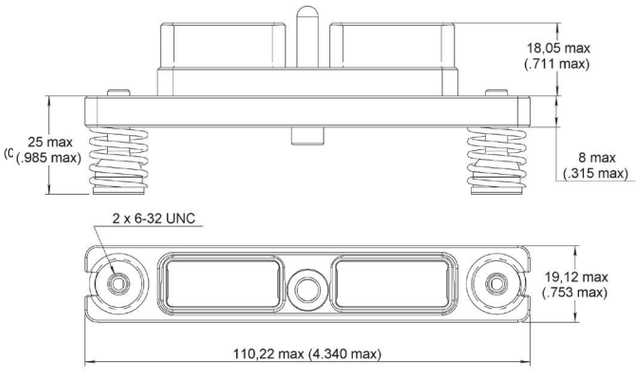
### RECEPTACLE

*Front Mount*



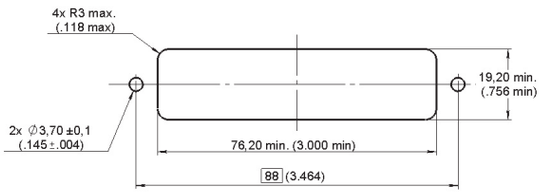

### PLUG

*Rear Mount*

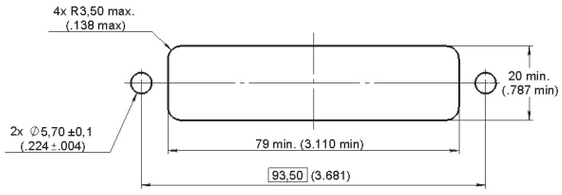



### PANEL CUT-OUT

*Receptacle*




*Plug*



*Rack & Panel Application*

## MULTI-GANG EPX® CONNECTORS

A whole range of multigang connectors are available for disconnect and Rack & Panel applications.

Multigang connectors features and benefits:

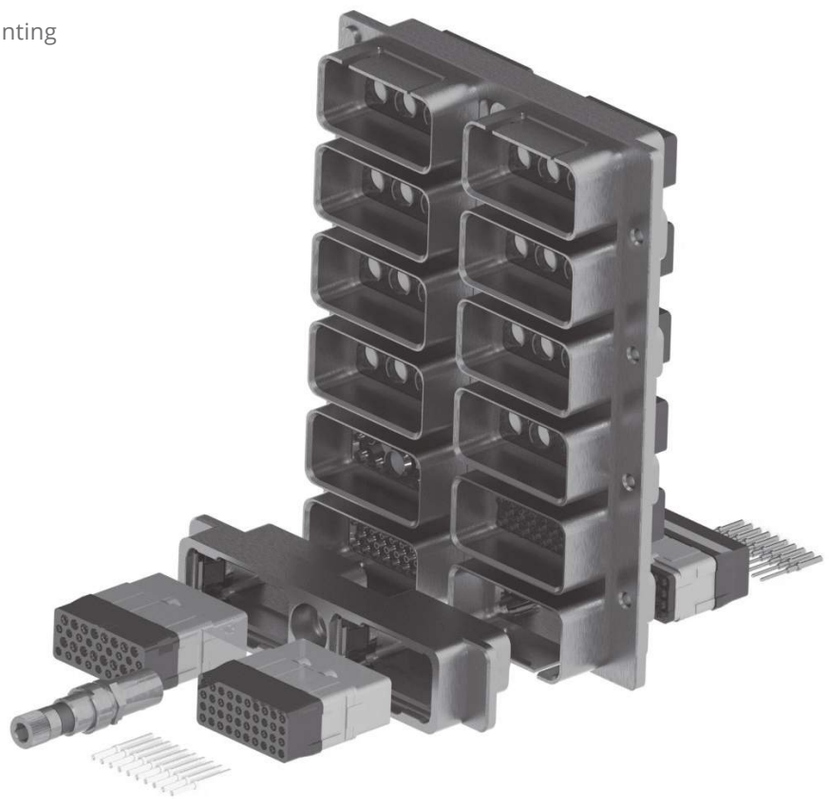
- Weight-saving design
- Make installation easier and quicker
- Utilize EPX modularity and its whole range of inserts
- Take advantage of EPX connector functionalities and use EPXB2 standard plug shells with a multigang shell

### SPECIFICATIONS

- Several cavities for EPXB inserts (4 to 20 cavities)
- Standard EPX strain reliefs and backshells available
- In accordance with EN4644 performances

Several options are available:

- Grounding block
- Grounding spring fingers
- Float mounting
- Spring-loaded mounting



*Notes*



# QM SERIES

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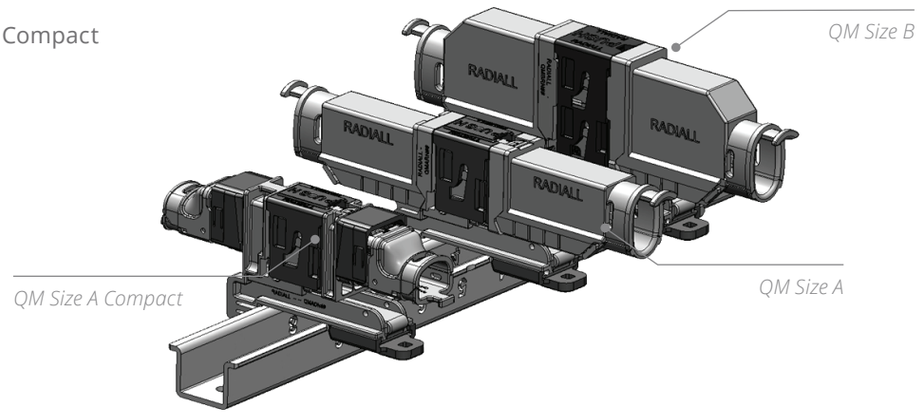
# INTRODUCTION

## A MODULAR & TOOL-LESS CONNECTOR

Radiall QM series connectors are designed for use with in-line disconnect applications on commercial airplanes. QM series offers outstanding electrical performances and are designed with environmental and mechanical characteristics that provide long-lasting durability needed for the most severe aerospace applications.

Three connector sizes are available in QM series to optimize disconnect connection in terms of weight and density in an aircraft wiring system:

- QM Size B
- QM Size A
- QM Size A Compact




QM series is developed to provide the following benefits:

- Save time during wiring with a tool-less connector
- Save weight with a composite connector
- Simplify the wiring design as no panel cut outs are needed

QM size A and size B are mounted on the same range of rails. QM size A will save weight and space when a smaller insert with less contacts can be utilized in the wiring design compared to the QM size B. QM series offers a wide range of inserts that cover all contact technology. It is manufactured under US patent App, No 11/614.642. QM series is available worldwide.

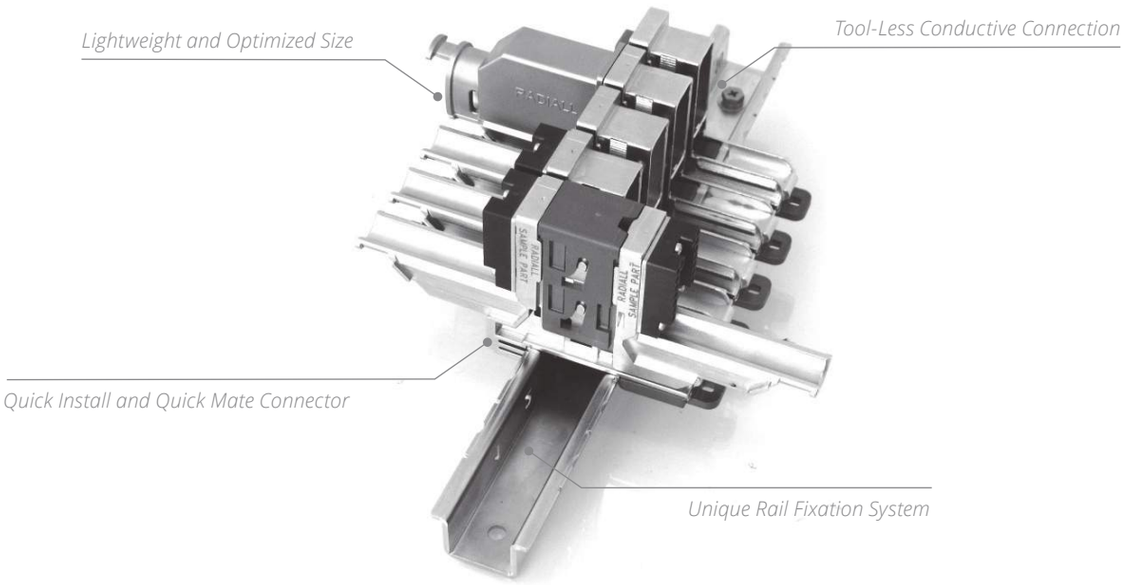
# APPLICATION

Interconnect solution for aerospace and harsh environment applications.

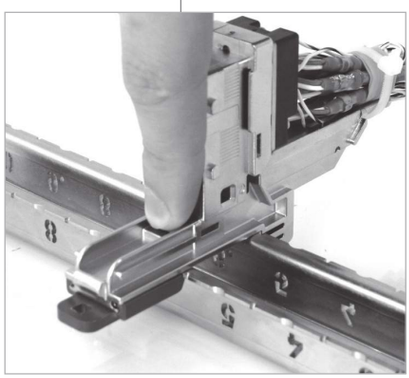


*Introduction*

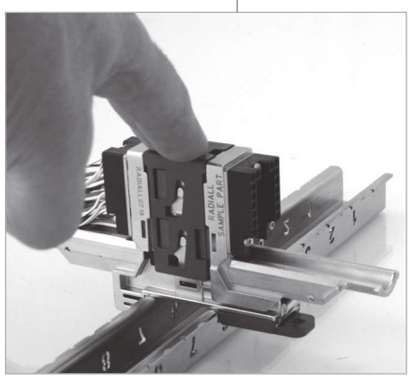
## FEATURES & BENEFITS




**USER FRIENDLY - NO TOOLS NEEDED**



*Click to Install*



*Push to Lock*

## ELECTRICAL CHARACTERISTICS

Contacts are per EN3155-76 and EN3155-77. Electrical characteristics conform to SAE AS 39029 (MIL-C-39029 type A).

### GROUND BLOCK CONTACT

| | CONTACT WITH WIRE SIZE | MAX CURRENT AMPS |
|---|---|---|
| Contact to Contact | Contact + AWG20 | 7.5 |
| Contact to Mounting Surface | Contact + AWG20 | 7.5 |

### CONTACTS

| CONTACT SIZE | WIRE SIZE | MAX CURRENT AMPS |
|---|---|---|
| 22 | AWG22 | 5 |
| | AWG24 | 3 |
| | AWG26 | 2 |
| 20 | AWG20 | 7.5 |
| | AWG22 | 5 |
| | AWG24 | 3 |
| 16 | AWG16 | 13 |
| | AWG18 | 10 |
| | AWG20 | 7.5 |
| 12 | AWG12 | 23 |
| | AWG14 | 17 |
| | AWG16 | 13 |
| 8 | AWG8 | 46 |
| 5 | AWG8 | 46 [1] |
| | AWG10 | 33 |
| | AWG12 | 23 |

### EMI SHIELDING EFFECTIVENESS

| FREQUENCY (MHZ) | LEAKAGE ATTENUATION (DB) |
|---|---|
| 100 | 65 |
| 200 | 63 |
| 300 | 61 |
| 400 | 59 |
| 500 | 58 |

*Notes*

*1. Size 5 contacts are not part of SAE AS 39029 (MIL-C-39029 type A). They are qualified by Radiall to 46 Amps.*

*Introduction*

## DIELECTRIC WITHSTANDING VOLTAGE

*EIA 364-20 (EIA364 Standard) with Leakage Current < 1mA*

| LEVEL | ENVIRONMENTAL INSERTS VOLTAGE (VRMS) | NON-ENVIRONMENTAL VOLTAGE (VRMS) |
|---|---|---|
| Sea Level | 1,500 | 1,500 |
| 50,000 ft | 800 | 600 |
| 70,000 ft | 800 | 300 |

## INSULATION RESISTANCE

*EIA 364-21 (EIA364 Standard)*

| TEMPERATURE | INSULATION RESISTANCE |
|---|---|
| Ambient Temperature | > 5,000 mΩ |
| 155 °C (+347 °F) | > 200 mΩ |

## ENVIRONMENTAL CHARACTERISTICS

- **Shell-to-Shell Conductivity:** < 2.5 mΩ, operating voltage: 400 Vrms or 500 Vdc at sea level
- **Voltage Stability (Ground Block):** Maximum variation 4 mV SAE AS 81714 (MIL-T-81714)
- **Magnetic Permeability:** < 2 µ
- **Lightning Strike:** 3.6 kA according to EIA-364, Test procedure 75, Type B Test level 1
- **Comparative Tracking Index (CTI), Including Inserts:** 250 V

*Introduction*

## MECHANICAL CHARACTERISTICS

### VIBRATION & SHOCK

| SHELL TYPE | MATERIAL | VIBRATION | SHOCK |
|---|---|---|---|
| | | FOR 5 HOURS IN EACH OF THE 3 AXIS/INTERRUPTION < 1MS EIA 364-28 (EIA364 STANDARD) | THREE SHOCKS IN EACH AXIS EIA 364-27 (EIA364 STANDARD) CONDITION A |
| QM Series | Composite | 4 Rail Positions = Acceleration 13.8 Grms 0.2G²/Hz from 10 to 400 HZ and 0.03 G²/hz from 400 to 2,000 Hz | 4 Rail Positions = Shock Amplitude 50 G/duration 11 ms |
| | | 22 Rail Positions = Acceleration 6.2 Grms 0.04 g²/Hz from 10 to 400 Hz 0.006 g²/Hz at 2,000 Hz | 22 Rail Positions = Shock Amplitude 15 G/duration 11 ms |

Interruption shall not exceed 1µs, they are measured on electrical contacts, between shells and between shell and rail.

### MATING/UNMATING

| SHELL TYPE | MATERIAL | MATING/UNMATING | MATING FORCE |
|---|---|---|---|
| QM Size B | Nickel-Plated Composite | 100 Cycles | 250 N max |
| QM Size A | | | 125 N max |

### RETENTION CHARACTERISTICS

*Contact retention EIA 364-29 (EIA364 standard) on terminated connectors.*

| CONTACT SIZE | RETENTION FORCE | MAX DISPLACEMENT |
|---|---|---|
| Ground Block | 88 N (20 lb) | 0.30 mm (0.012 in.) |
| 22 | 53.4 N (12 lb) | 0.38 mm (0.015 in.) |
| 20 | 89 N (20 lb) | 0.38 mm (0.015 in.) |
| 16 | 111.2 N (25 lb) | 0.38 mm (0.015 in.) |
| 12 | 133.45 N (30 lb) | 0.38 mm (0.015 in.) |
| 8 | 133.45 N (30 lb) | 0.38 mm (0.015 in.) |
| 5 | 133.45 N (30 lb) | 0.38 mm (0.015 in.) |

- **Insert Retention:** 400 N (90 lb) (EIA 364-35 = EIA364 standard)
- **Max Displacement:** 0.30 mm (0.012 in.)

### ENVIRONMENTAL CHARACTERISTICS

- **Temperature Range:** -65 °C/+155 °C (EIA 364-32 - test condition 4)
- **Temperature Life:** 1,000 H at 155 °C (EIA 364-17 - method A)
- **Salt Spray:** 96 hours (nickel-plating) EIA 364-26 (EIA364 standard) test condition A
- **Humidity:** 10 days with temperature variation from -10 °C to +65 °C EIA 364-31 Method 4, test condition B (EIA364 standard).
- **Altitude Immersion:** 3 cycles at 50,000 ft EIA 364-03 (EIA364 standard).

For more details, please refer to QM product specification.

*Inserts*

## INSERT SELECTION TABLE

*QM size B connectors will use EPXB inserts.*
*QM size A connectors will use EPXA inserts.*

| SERIES | INSERT NAME | INSERT CODE | CONTACT SIZE & TYPE [1] | | | | | | | | | | TOTAL CONTACTS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | 22* | 20* | 15 OR 16* | 16 | 16 | 12* | 8 | 8 | 5 | 5 | |
| | | | SIGNAL | POWER | POWER OR COAX | LUXCIS® FIBER OPTIC | POWER IN FIBER OPTIC CAVITY | POWER OR COAX | POWER | QUADRAX OR TWINAX | COAX OR TRIAX | POWER | |
| EPXA | 00 | 0 | - | - | - | - | - | - | - | - | - | - | 0 |
| | 1C1 | A | - | - | - | - | - | - | - | - | 1 | - | 1 |
| | 1P1 | B | - | - | - | - | - | - | - | - | - | 1 | 1 |
| | 04 | C | - | - | 2 | - | - | 2 | - | - | - | - | 4 |
| | 09 | D | - | 3 | 6 | - | - | - | - | - | - | - | 9 |
| | 14 | E | - | 14 | - | - | - | - | - | - | - | - | 14 |
| | 14M | F | 8 | 3 | 3 | - | - | - | - | - | - | - | 14 |
| | 17 | G | 12 | 5 | - | - | - | - | - | - | - | - | 17 |
| | 20 | H | 20 | - | - | - | - | - | - | - | - | - | 20 |
| | 6 | J | | | | 6 | | | | | | | 6 |
| EPXB | 00 | 0 | - | - | - | - | - | - | - | - | - | - | 0 |
| | C3 | A | - | - | - | - | - | - | - | - | 3 | - | 3 |
| | P3 | B | - | - | - | - | - | - | - | - | - | 3 | 3 |
| | 3Q3 | C | - | - | - | - | - | - | - | 3 | - | - | 3 |
| | 06 | D | - | - | - | - | - | 6 | - | - | - | - | 6 |
| | 10Q2 | E | - | 8 | - | - | - | - | - | 2 | - | - | 10 |
| | 12F6 | F | - | - | - | 6 | 6 | - | - | - | - | - | 12 |
| | F12C | G | - | - | - | 12 | - | - | - | - | - | - | 12 |
| | 13C1 | H | - | 6 | 4 | - | - | 2 | - | - | 1 | - | 13 |
| | 13P1 | J | - | 6 | 4 | - | | 2 | - | - | - | 1 | 13 |
| | 14 | K | - | - | 14 | - | - | - | - | - | - | - | 14 |
| | 17 | L | - | 14 | - | - | - | 3 | - | - | - | - | 17 |
| | 20C1 | M | - | 19 | - | - | - | - | - | - | 1 | - | 20 |
| | 20P1 | N | - | 19 | - | - | - | - | - | - | - | 1 | 20 |
| | 22 | P | - | 16 | 6 | - | - | - | - | - | - | - | 22 |
| | 22V | Q | - | 16 | 6 | - | - | - | - | - | - | - | 22 |
| | 25P1 | R | 24 | - | - | - | - | - | 1 | - | - | - | 25 |
| | 25Q1 | S | 24 | - | - | - | - | - | - | 1 | - | - | 25 |
| | 28 | T | 22 | - | 6 | - | - | - | - | - | - | - | 28 |
| | 30 | U | - | 30 | - | - | - | - | - | - | - | - | 30 |
| | 34 | W | 18 | 16 | - | - | - | - | - | - | - | - | 34 |
| | 40 | X | 40 | - | - | - | - | - | - | - | - | - | 40 |
| | 48 | Y | 48 | - | - | - | - | - | - | - | - | - | 48 |

*Notes*

*1. Only signal and power contacts with an asterisk (*) can be delivered with inserts. All other contacts must be orderedseparately (coax, twinax, quadrax and fiber optic contacts).*

## HOW TO ORDER QM INSERT

EPX

**SERIES PREFIX**

**INSERT SIZE** [1]
**A:** Insert for QM size A
**B:** Insert for QM size B

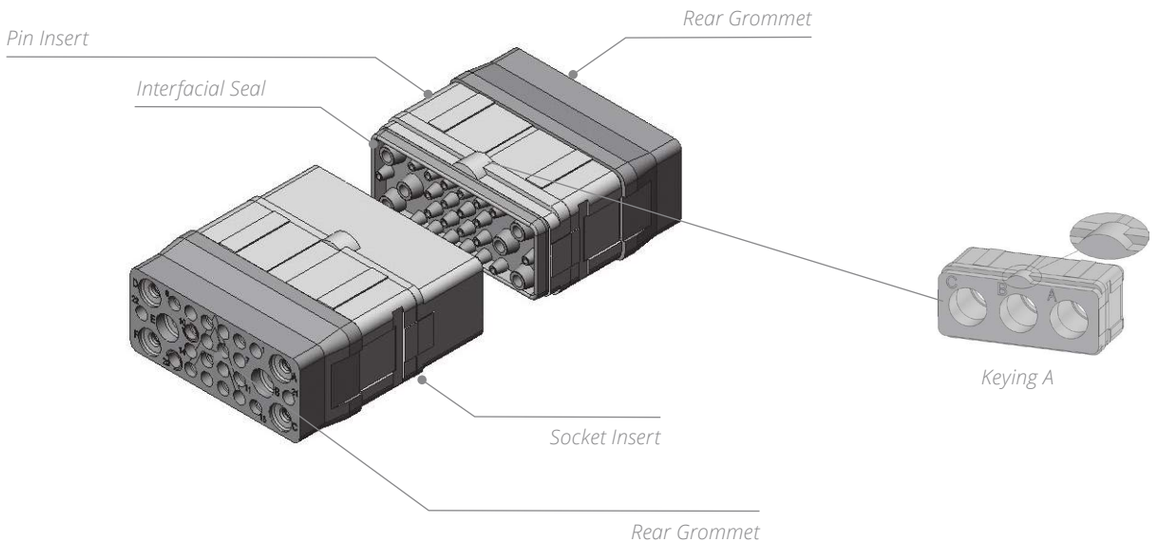
**CLASS** [2]
**E:** Environmental

**INSERT NAME**
Refer to table on page 2-7 for inserts arrangement.

**INSERT TYPE**
**P:** Pin
**S:** Socket

**INSERT KEYING**
**A:** Insert with keying A

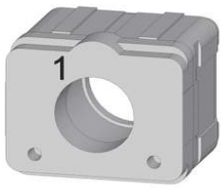
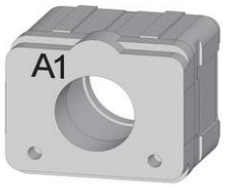
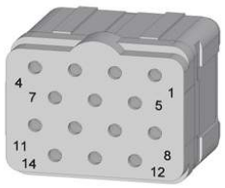
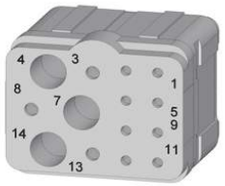
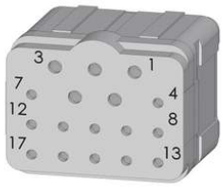
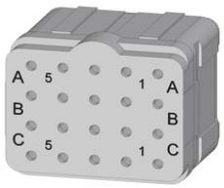
**CONTACT WITHOUT CODE**
**S:** Signal and power crimp contacts are delivered with insert but uninstalled (refer to page 2-4)
Inserts 00, 1C1, 1P1, F6, C3, P3, 3Q3, 12F6, F12C and 3T3 are not available in S contact version.




*Notes*
*1. Inserts are designed for rear release and rear removable contacts*
*2. Pin and socket inserts can be installed in either plug or receptacle shell*

*Inserts*

## EPXA INSERTS ARRANGEMENTS

| | | | |
|---|---|---|---|
|  |  |  |  |
| **Insert Name 1C1**<br>Insert Name A<br>1 × Size 5 Coax Contacts | **Insert Name 1P1**<br>Insert Code B<br>1 x Size 5 Power Contacts | **Insert Name 04**<br>Insert Code C<br>2 × Size 15 or 16 Contacts<br>2 × Size 12 Contacts | **Insert Name 09**<br>Insert Code D<br>3 × Size 20 Contacts<br>6 × Size 15 or 16 Contacts |
|  |  |  |  |
| **Insert Name 14**<br>Insert Code E<br>14 × Size 20 Contacts | **Insert Name 14M**<br>Insert Code F<br>8 × Size 22 Contacts<br>3 × Size 20 Contacts<br>3 × Size 15 or 16 Contacts | **Insert Name 17**<br>Insert Code G<br>12 × Size 22 Contacts<br>5 × Size 20 Contacts | **Insert Name 20**<br>Insert Code H<br>20 × Size 22 Contacts |
|  | | | |
| **Insert Name F6**<br>Insert Code J<br>6 × Size 16 Optical LuxCis® Termini | | | |

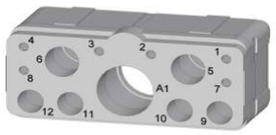
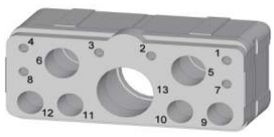
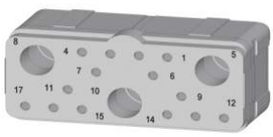
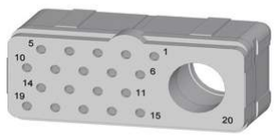
### WEIGHTS

*Average weight per class and type for EPXA inserts without contacts.*

| INSERT CLASS FOR EPXA | INSERT TYPE | |
|---|---|---|
| | PIN | SOCKET |
| E | 4.10 g (0.14 oz) | 5.30 g (0.19 oz) |

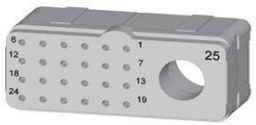
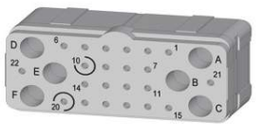
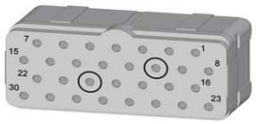
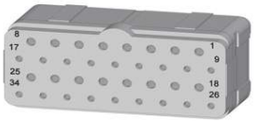
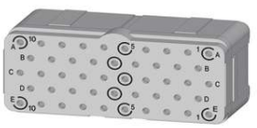
## EPXB INSERTS ARRANGEMENTS

Full size inserts arrangements are compliant with EN4644.

| | | | |
|---|---|---|---|
|  |  |  |  |
| **Insert Name C3**<br>Insert Code A<br>3 × Size 5 Coax Contacts | **Insert Name P3**<br>Insert Code B<br>3 × Size 5 Power Contacts | **Insert Name 3Q3**<br>Insert Code C<br>3 × Size 8 Quadrax Contacts | **Insert Name 06**<br>Insert Code D<br>6 × Size 12 Medium Power Contacts |
|  |  |  |  |
| **Insert Name 10Q2**<br>Insert Code E<br>8 × Size 20 Contacts<br>2 × Size 8 Quadrax Contacts | **Insert Name 12F6**<br>Insert Code F<br>6 × Size 16 Optical LuxCis® Termini<br>6 × Size 16 Special Electrical Contacts | **Insert Name F12C**<br>Insert Code G<br>12 × Size 16 Optical LuxCis® Termini | **Insert Name 13C1**<br>Insert Code H<br>6 × Size 20 Contacts<br>4 × Size 15 or 16 Contacts<br>2 × Size 12 Contacts<br>1 × Size 5 Contact |
|  |  |  |  |
| **Insert Name 13P1**<br>Insert Code J<br>6 × Size 20 Contacts<br>4 × Size 15 or 16 Contacts<br>2 × Size 12 Contacts | **Insert Name 14**<br>Insert Code K<br>14 × Size 15 or 16 Contacts | **Insert Name 17**<br>Insert Code L<br>14 × Size 20 Contacts<br>3 × Size 12 Contacts | **Insert Name 20C1**<br>Insert Code M<br>19 × Size 20 Contacts<br>1 × Size 5 Contact |
|  |  |  |  |
| **Insert Name 20P1**<br>Insert Code N<br>19 × Size 20 Contacts<br>1 × Size 5 Power Contact | **Insert Name 22**<br>Insert Code P<br>16 × Size 20 Contacts<br>6 × Size 15 or 16 Contacts | **Insert Name 22V**<br>Insert Code Q<br>16 × Size 20 Contacts<br>6 × Size 16 Contacts | **Insert Name 25P1**<br>Insert Code R<br>24 x Size 22 Contacts<br>1 x Size 8 Power Contact |

*Inserts*

Full size inserts arrangements are compliant with EN4644.

| | | | |
|---|---|---|---|
|  |  |  |  |
| **Insert Name 25Q1**<br>Insert Code S<br>24 x Size 22 Contacts<br>1 x Size 8 Quadrax Contact | **Insert Name 28**<br>Insert Code T<br>22 x Size 22 Contacts<br>6 x Size 15 or 16 Contacts | **Insert Name 30**<br>Insert Code U<br>30 x Size 20 Contacts | **Insert Name 34**<br>Insert Code W<br>18 x Size 22 Contacts<br>16 x Size 20 Contacts |
|  |  | | |
| **Insert Name 40**<br>Insert Code X<br>40 x Size 22 Contacts | **Insert Name 48**<br>Insert Code Y<br>48 x Size 22 Contacts | | |

## WEIGHTS

*Average weight per class and type for EPXB inserts without contacts.*

| INSERT CLASS FOR EPXB | INSERT TYPE | |
|---|---|---|
| | PIN | SOCKET |
| E | 7.90 g (0.28 oz) | 10.00 g (0.35 oz) |

## SIGNAL & POWER CRIMP CONTACTS

QM series offers a wide range of contacts compliant with EN3155 and SAE AS 39029. The available contacts cover aerospace applications for terminating cables.

- Signal and power contacts
- High frequency with coax, twinax and triax contacts
- Ethernet links with Quadrax contacts
- Optical links with LuxCis® contacts

### FEATURES & BENEFITS

- Significantly reduced cost of ownership
- Reduced dependence on gold rate fluctuation
- No change in the contact crimping or soldering process

### SPECIFICATIONS

- Same contact design as full plated version
- Contact interface gold plated with 1.27 µm
- For crimp version, no changes are required for the crimping process
- Product qualification is available upon request

#### CONTACT SELECTION TABLE

| CONTACT SIZE | | WIRE SIZE | TYPE | PART NUMBER FULL PLATED | CRIMPING TOOL | POSITIONER | SELECTOR | INS/EXT TOOL | MATERIAL OF TOOL |
|---|---|---|---|---|---|---|---|---|---|
| 22 | | 22 | Pin | 617200 | 282281 M22520/2-01 | 282970 M22520/2-23 | 4 | 282522 (M81969/14-01) | Plastic |
| | | 24 | | | | | 3 | | |
| | | 26 | Socket | 617300 | | | | | |
| 20 | | 20 | Pin | 617221 | 282281 M22520/2-01 | 282971 M22520/2-08 | 7 | 282522001 (M81969/39-01) | Plastic |
| | | 22 | | | | | 6 | | |
| | | 24 | Socket | 617320 | | | 5 | | |
| 16 | | 16 | Pin | 617240 | 282291 M22520/1-01 | 282972 M22520/1-02 | 6 | 282515 (M81969/14-03) | Plastic |
| | | 18 | Socket | 617340 | | | 5 | | |
| | | 20 | | | | | 4 | | |
| | For Ground Block | 20 | Pin | 617221050 | 282281 M225520/2-01 | 282581015 M22520/2-11 | 7 | 282886 M81969/1-02 | Metal |
| | | | Socket | N/A | | | | | |
| | For Optical/ Electrical Cavity | 16 | Pin | 617235003 [1] | 282291 M22520/1-01 | 282581013 | 6 | 282515 (M81969/14-03) | Plastic |
| | | 18 | | | | | 5 | | |
| | | 20 | | | | | 4 | | |

*Notes*

*1. Electrical contacts for optical inserts are always pin contacts (hermaphrodite).*

*Contacts*

### CONTACT SELECTION TABLE

| CONTACT SIZE | WIRE SIZE | TYPE | PART NUMBER FULL PLATED | CRIMPING TOOL | POSITIONER | SELECTOR | INS/EXT TOOL | MATERIAL OF TOOL |
|---|---|---|---|---|---|---|---|---|
| 12 | 12 | Pin | 617250 | 282291 M22520/ 1-01 | 282972 M22520/1-02 | 8 | 282549004 (M81969/14-04) | Plastic |
| | 14 | Socket | 617350 | | | 7 | | |
| | 16 | | | | | 6 | | |
| 8 | 8 | Pin | 617291002 [2] [3] | R282600000 M22520/ 23-01 + Die set R282650000 M22520/23-02 | 282588 | N/A | 282549001 | Metal |
| | | Socket | 617391002 [2] [3] | | | | | |
| 5 | 8 | Pin | 617280 [2] [4] | R282600000 M22520/ 23-01 + Die set R282650000 M22520/23-02 | 282557020 | N/A | 282946 (M81969/28-01) | Metal |
| | | Socket | 617390 [2] [4] | | 282557021 | | | |
| | 12 | Pin | 617260001 [2] [4] | 282613 | 282586003 | 6 | | |
| | 16 | Socket | 617370001 [2] [4] | | 282586005 | 4 | | |

## OVERSIZED & REDUCED CRIMP BARREL CONTACTS

| CONTACT SIZE | | WIRE SIZE | TYPE | PART NUMBER FULL PLATED | CRIMPING TOOL | POSITIONER | SELECTOR | INS/EXT TOOL | MATERIAL OF TOOL |
|---|---|---|---|---|---|---|---|---|---|
| 22 | Reduced Crimp Barrel | 28 | Pin | 617201 | 282281 M22520/2-01 | 282970 M22520/2-23 | 5 | 282522 (M81969/14-01) | Plastic |
| | | 30 | Socket | 617301 | | | 4 | | |
| | Oversize Crimp Barrel | 20 | Pin | 617200200 | 282281 M22520/2-01 | 282970 M22520/2-23 | 5 | | |
| | | 22 | Socket | 617300200 | | | 4 | | |
| | | 24 | | | | | 3 | | |
| 20 | Reduced Crimp Barrel | 22 | Pin | 617224001 | 282281 M22520/2-01 | 282971 M22520/2-08 | 4 | 282522001 (M81969/39-01) | Plastic |
| | | 24 | Socket | 617324001 | | | 3 | | |
| | | 26 | | | | | 3 | | |
| | Oversize Crimp Barrel | 18 | Pin | 617221200 | 282281 M22520/2-01 | 282971 M22520/2-08 | 5 | | |
| | | 20 | Socket | 617320200 | | | 5 | | |
| | | 22 | | | | | 4 | | |
| 16 | Reduced Crimp Barrel | 20 | Pin | 617241 | 282291 M22520/1-01 | 282972 M22520/1-02 | 5 | 282515 (M81969/14-03) | Plastic |
| | | 22 | Socket | 617341 | | | 5 | | |
| | | 24 | | | | | 4 | | |
| | Reduced Crimp Barrel for Optical Electrical Cavity | 20 | Pin | 617235002 [1] | 282291 M22520/1-01 | 282581013 | 5 | | |
| | | 22 | | | | | 5 | | |
| | | 24 | | | | | 4 | | |
| | Oversize Crimp Barrel | 14 | Pin | 617240200 | 282291 M22520/1-01 | 282972 M22520/1-02 | 6 | | |
| | | 16 | Socket | 617340200 | | | 5 | | |
| | | 18 | | | | | 5 | | |

*Notes*

*1. Electrical contacts for optical inserts are always pin contacts (hermaphrodite).*
*2. In order to make these contacts environmental, it is necessary to add a sealing boot. Please contact us for additional information.*
*3. These power contacts can be used in power inserts only (25P1 EPXB insert).*
*4. These power contacts can be used in power inserts only (P3, 13P1 and 20P1 EPXB inserts).*

## COAXIAL CRIMP CONTACTS

| CONTACT SIZE | CABLE TYPE | TYPE | ENVIRONMENTAL PART NUMBER | NON-ENVIRONMENTAL PART NUMBER | INS/EXT TOOL | MATERIAL OF TOOL |
|---|---|---|---|---|---|---|
| 15-16 | RG188 FILECAF1709/6 F1709/8 RG174-RG179-RG316 ASNE0639XY 75 Ohms | Pin | 617130 | | 282512 (M81969/14-03) | Metal |
| | | Socket | 617030 | | | |
| | RG178 | Pin | 617131 | | | |
| | | Socket | 617031 | | | |
| | GORE/AXON P812817 FILECA F1703-134 FILOTEX SP132868 | Pin | 617132 | | | |
| | | Socket | 617032 | | | |
| | RG178 DT | Pin | 617133 | | | |
| | | Socket | 617033 | | | |
| | UT .047 | Pin | 617135 | | | |
| | | Socket | 617035 | | | |
| 12 | UT.085-RG405 | Pin | 617160 | | 282549004 (M81969/14-04) | Plastic |
| | | Socket | 617060 | | | |
| 5 | RG58-RG141 | Pin | 617101001 | 617101 | 282946 (M81969/28-01) | Metal |
| | | Socket | 617001001 | 617001 | | |
| | RG142 - RG400 | Pin | 617102001 | 617102 | | |
| | | Socket | 617002001 | 617002 | | |
| | RG174-RG316-RG188-RG178DS NEXAN 10036442 75 Ohms | Pin | 617103001 | 617103 | | |
| | | Socket | 617003001 | 617003 | | |
| | RG178-RG196 | Pin | 617104001 | 617104 | | |
| | | Socket | 617004001 | 617004 | | |
| | RG180 PAN6422XZ ANSE063WGH 96 Ohms | Pin | 617105001 | 617105 | | |
| | | Socket | 617005001 | 617005 | | |

## TWINAX & TRIAX CRIMP CONTACTS

| CONTACT SIZE | CABLE TYPE | TYPE | ENVIRONMENTAL PART NUMBER | NON-ENVIRONMENTAL PART NUMBER | INS/EXT TOOL | MATERIAL OF TOOL |
|---|---|---|---|---|---|---|
| 12 Triax | ECS0700 | Pin | 617190010 | | 282549004 (M81969/14-04) | Plastic |
| | | Socket | 617090010 | | | |
| | M17/176-00002 | Pin | 617190012 | | | |
| | | Socket | 617090012 | | | |
| 8 Triax | TENSOLITE 24463/9PO25X-2 100 Ohms | Pin | 617165021 | 617165020 | 282549001 | Metal |
| | | Socket | 617065021 | 617065020 | | |
| | WHITMOR W2675-1575 | Pin | 617165 | 617165001 | | |
| | | Socket | 617065 | 617065001 | | |
| 8 Twinax | ABS0386WF24 & TYCO 1726A1424A | Pin | 617165011 | 620165010 | 282549001 | Metal |
| | | Socket | 617065011 | 620065010 | | |
| 5 Triax | PAN6421ZA002 77 Ohms M17/176-00002 EN3375-003 Raychem 106113 77 Ohms | Pin | 617150001 | 617150 | 282946 (M81969/28-01) | Metal |
| | | Socket | 617050001 | 617050 | | |
| | TENSOLITE 24473/03159X 124 Ohms | Pin | 617152001 | 617152 | | |
| | | Socket | 617052001 | 617052 | | |

# QUADRAX & BMA CRIMP CONTACTS

## QUADRAX CONTACTS



The Quadrax contact offer is compliant with Arinc 600 and EN3155-072 and EN3155-073 standards.

### ENVIRONMENTAL QUADRAX

| CONTACT SIZE | CABLE TYPE | TYPE | ENVIRONMENTAL PART NUMBER | EXTRACTION TOOL IN METAL |
|---|---|---|---|---|
| 8 | Ethernet Cable ABS0972 & ABS1503 | Pin | 617175011 | 282549001 |
| | | Socket | 617075011 | |
| | TENSOLITE NF24Q100 | Pin | 617175051 | |
| | | Socket | 617075051 | |
| | TENSOLITE NF26Q100/JSF Y18 | Pin | 617175053 | |
| | | Socket | 617075053 | |
| | TENSOLITE NF22Q100 | Pin | 617175041 | |
| | | Socket | 617075041 | |

### NON-ENVIRONMENTAL QUADRAX

| CONTACT SIZE | CABLE TYPE | TYPE | NON-ENVIRONMENTAL PART NUMBER | COMPATIBLE SEALING BOOT PART NUMBER | EXTRACTION TOOL IN METAL |
|---|---|---|---|---|---|
| 8 | Ethernet Cable ABS0972 & ABS1503 | Pin | 617175012 | 617939003 | 282549001 |
| | | Socket | 620075010 | | |
| | TENSOLITE NF24Q100 | Pin | 617175052 | | |
| | | Socket | 620075050 | | |
| | TENSOLITE NF26Q100/JSF Y18 | Pin | 617175054 | 617939005 | |
| | | Socket | 620075021 | | |
| | TENSOLITE NF22Q100 | Pin | 617175040 | 617939003 | |
| | | Socket | 620075040 | | |

## BMA CONTACTS



Extraction tool **282549001** is used for size 8 BMA contacts.
Environmental BMA contacts are all provided with sealing boots.

| CONTACT SIZE | CABLE TYPE | CONNECTOR TYPE | ENVIRONMENTAL PART NUMBER | NON-ENVIRONMENTAL PART NUMBER | FREQUENCY RANGE | MAX VSWR | INSERTION LOSS |
|---|---|---|---|---|---|---|---|
| 8 | SHF5 - SHF5M [1] | Pin | 617171011 | 617171010 | DC-18 GHz | 1.35 | 0.13 dB at Max Frequency (18 GHz) |
| | RG142 | Pin | 617171021 | 617171020 | DC-12.4 GHz | 1.35 | 0.11 dB at Max Frequency (12.4 GHz) |
| | SHF2.4M(1)/UT.085/ Harbour SS405/ Times Tflex405 | Pin | 617171031 | 617171030 | DC-18 GHz | 1.35 | 0.13 dB at Max Frequency (18 GHz) |
| | SHF5 - SHF5M [1] | Socket | 617071011 | 617071010 | DC-18 GHz | 1.35 | 0.13 dB at Max Frequency (18 GHz) |
| | RG142 | Socket | 617071021 | 617071020 | DC-12.4 GHz | 1.35 | 0.11 dB at Max Frequency (12.4 GHz) |
| | SHF3 [1] | Socket | 617071041 | 617071040 | DC-18 GHz | 1.35 | 0.13 dB at Max Frequency (18 GHz) |

*Notes*

*1. The BMA contacts, which can accommodate SHF cables, require a termination by Radiall.*

## LUXCIS® FIBER OPTIC CONTACTS

The LuxCis® product range is a proven, flexible fiber optic interconnect solution offering high-speed communication in aerospace and other harsh environments.

### OPTICAL PERFORMANCE

| | MULTIMODE (PC)<br>850 / 1300 NM | SINGLEMODE (UPC)<br>1310 / 1550 NM |
|---|---|---|
| Insertion Loss (IL) Mean<br>(IEC 61300-3-4 Method B) | 0.1 dB | 0.15 dB |
| Return Loss (RL)<br>(IEC 61300-3-6) | > 20 dB | > 50 dB |

### MECHANICAL & ENVIRONMENTAL CHARACTERISTICS

| | STANDARD | PERFORMANCE |
|---|---|---|
| Thermal Cycling | SAE AS 13441 Method 1003.1 | -55 °C/+125 °C (Cable Dependent) |
| Temperature Endurance | TIA/EIA 455-4 | 1000 h at 125 °C (Cable Dependent) |
| Vibration | TIA/EIA 455-11 | 27 Grms |
| Shock | TIA/EIA 455-14 | 50 G, 11 ms |
| Durability | TIA / EIA 364-09 | 500 Cycles [1] |
| Maintenance | SAE AS 13441 Method 2002.1 | 10 Cycles |
| Cable Retention<br>1.8 mm Diameter<br>900 µm Diameter | SAE AS 13441 Method 2009.1 | 68 N<br>7 N |
| Humidity | TIA / EIA 455-5 | 10 Cycles / 24 h<br>90% RH<br>-25 °C / +65 °C |

### LUXCIS® CONTACT PART NUMBERING SYSTEM

F7250

**LUXCIS® SERIES**

**FERRULE TYPE**
**00:** PC ferrule for single-mode fiber
**03:** PC ferrule for 50/125 or 62.5/125 µm multi-mode fiber
**04:** PC ferrule for 100/40 um multi-mode fiber
**05:** PC ferrule for 200/230 um multi-mode fiber

**CABLE TYPE AND DIAMETER**
**118:** 900 µm cable
**318:** 1.2 mm cable with strengthening members, tight structure
**419:** 1.6 to 2.2 mm cable, loose structure
**519:** 1.6 to 2.2 mm cable, tight structure

The sealing plug F718 211 200 is specifically designed to fill the unused LuxCis® Arinc 801 cavities.

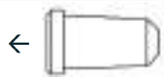
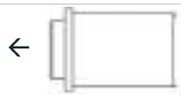
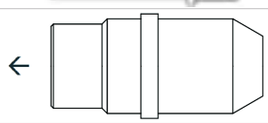


*Notes*
*1. Mating cycles are dependent on connector series. Radiall can support you with your cable and harness assemblies. Please contact your sales representative.*

*Contacts*

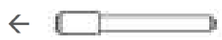
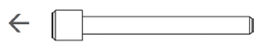
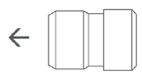
## FILLER PLUGS

*Filler plugs are dedicated to non-environmental insert cavities.*

| SIZE | CONTACT CAVITY VERSION | INS/EXT | COLOR | PART NUMBER | DRAWING |
|---|---|---|---|---|---|
| 22 | For Pin & Socket | Rear/Rear | Black | 620920 |  |
| 20 | | | White | 610941 |  |
| 16 For Electrical Cavity | | | Blue | 620922 |  |
| 16 For Optical Cavity | | | Green | F718211200 |  |
| 12 | | | Yellow | 620923 |  |
| 8 | Pin | | Nickel | 619953 |  |
| | Socket | | | 619950 |  |
| 5 | Pin | | White | 617930 |  |
| | Socket | | | 617931 |  |

## SEALING PLUGS

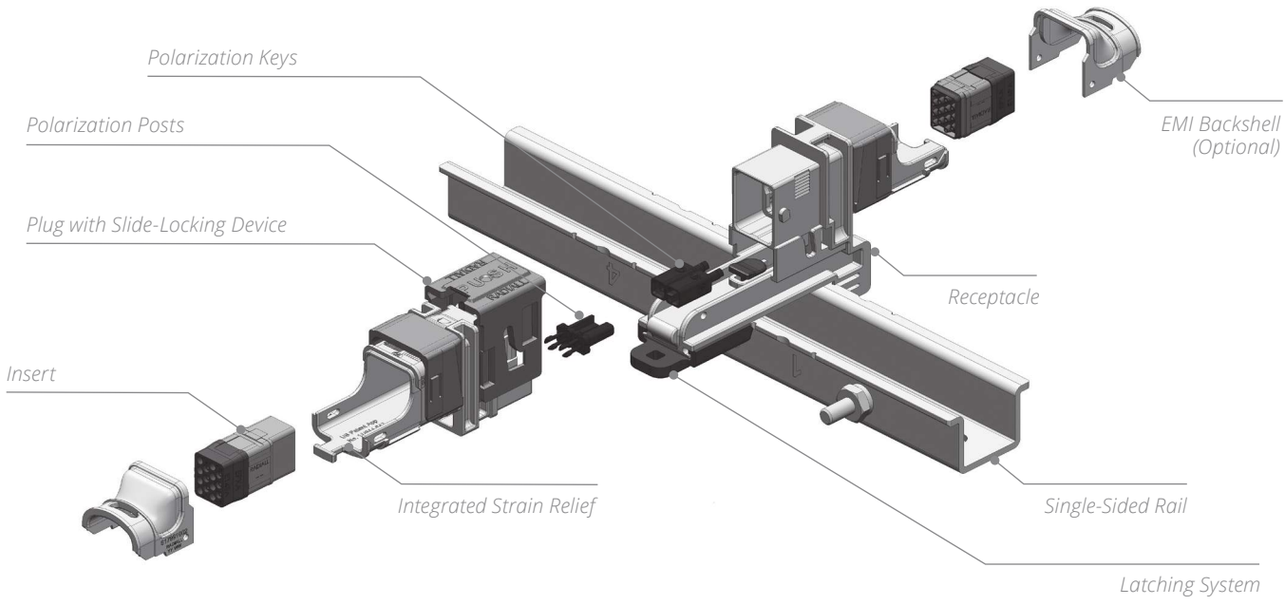
*Sealing plugs are dedicated to environmental insert cavities.*

| SIZE | CONTACT CAVITY VERSION | INS/EXT | COLOR | PART NUMBER | DRAWING |
|---|---|---|---|---|---|
| 22 | For Pin & Socket | Rear/Rear | Black | 616910 |  |
| 20 | | | Red | 616911 |  |
| 16 For Electrical Cavity | | | Green | 616912 |  |
| 16 For Optical Insert | | | | F718211200 |  |
| 12 | | | Orange | 616913 |  |
| 8 | | | Red | 618915 |  |
| 5 | | | | 616914013 |  |

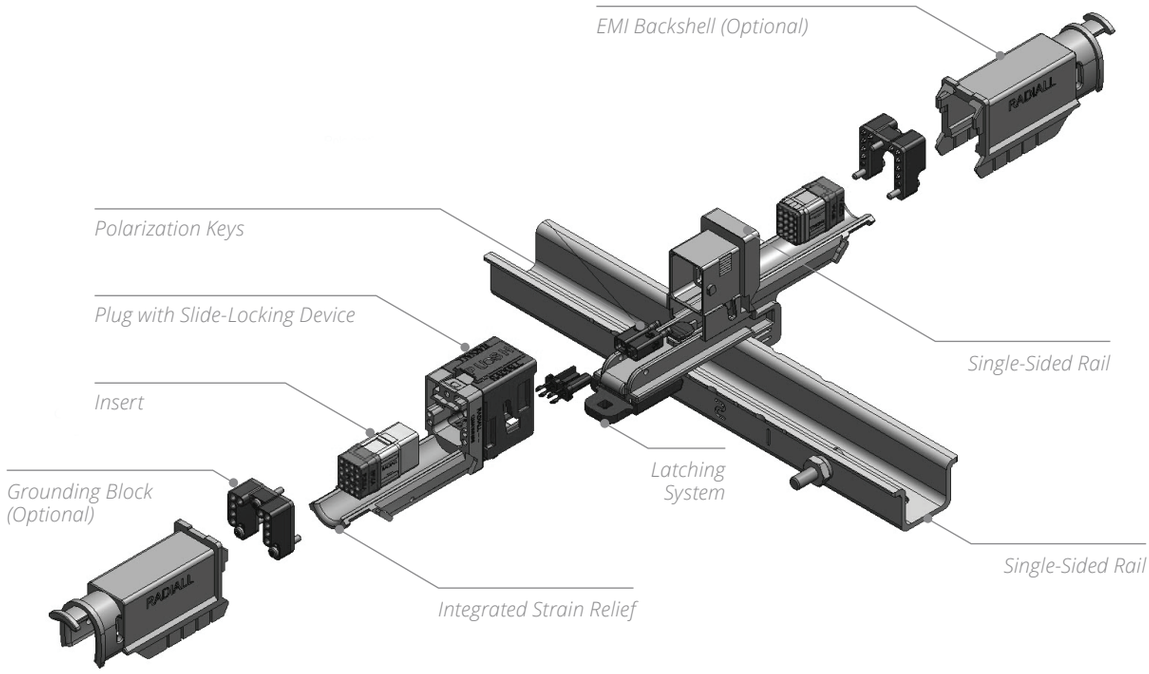
***Notes***

*The arrows show the direction which you have to insert the plug.*

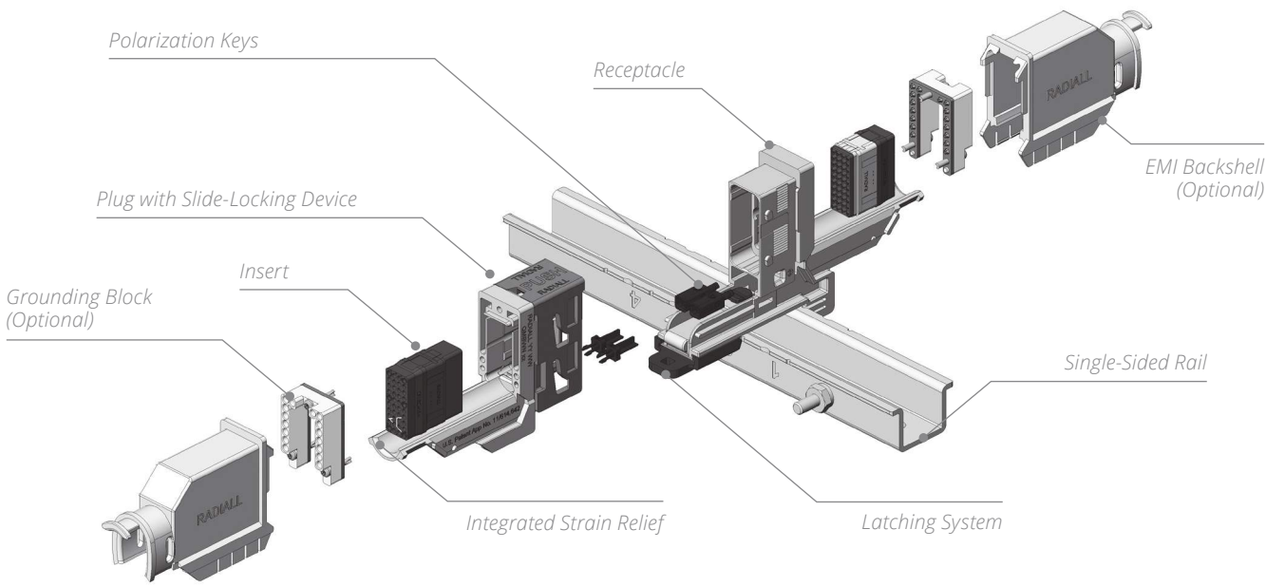
## QM SIZE A COMPACT PRODUCT OVERVIEW



## QM SIZE A GROUNDING BLOCK PRODUCT OVERVIEW



## QM SIZE B PRODUCT OVERVIEW



*Connectors*

## HOW TO ORDER QM SHELL

QM

**SERIES PREFIX**

**SHELL SIZE**
**A:** QM size A shell
**B:** QM size B shell

**PRODUCT TYPE**
**C:** Plug for QM size A Compact only
**D:** Receptacle for QM size A Compact only
**P:** Plug [2]
**R:** Receptacle [2]
**W:** Plug with ground block [1] [2]
**Z:** Receptacle with ground block [1] [2]

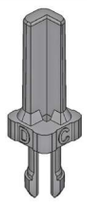
**FINISH**
**N:** Nickel-plating

**POLARIZATION**
**00:** Delivered without polarizing keys
**WITHOUT CODE:** Delivered with polarizing keys not installed
****:** Delivered with polarizing keys installed according to code (see table 2 on page 2-22).

*Notes*
*1. Shells with ground block are not compatible with EMI backshell.*
*2. Available with QM size A and QM size B.*

## POLARIZATION CODE

QM receptacle shell will be delivered with 2 polarization keys and QM plug with 2 polarization posts.

| POLARIZATION KEYS FOR RECEPTACLE | | POLARIZATION POSTS FOR PLUG | |
|---|---|---|---|
|  |  |  |  |
| View Shows A and D | View Shows C and B | View Shows A and B | View Shows C and D |

There are 16 possible codings:

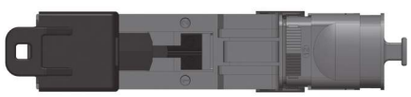
| KEY POSITION 1 | A | A | A | A | B | B | B | B | C | C | C | C | D | D | D | D |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| KEY POSITION 2 | A | B | C | D | A | B | C | D | A | B | C | D | A | B | C | D |

### QM SIZE A COMPACT CONNECTOR

**Tips to Read Polarization Code:** polarization code can be read when connector is unmated, underneath the plug and receptacle.



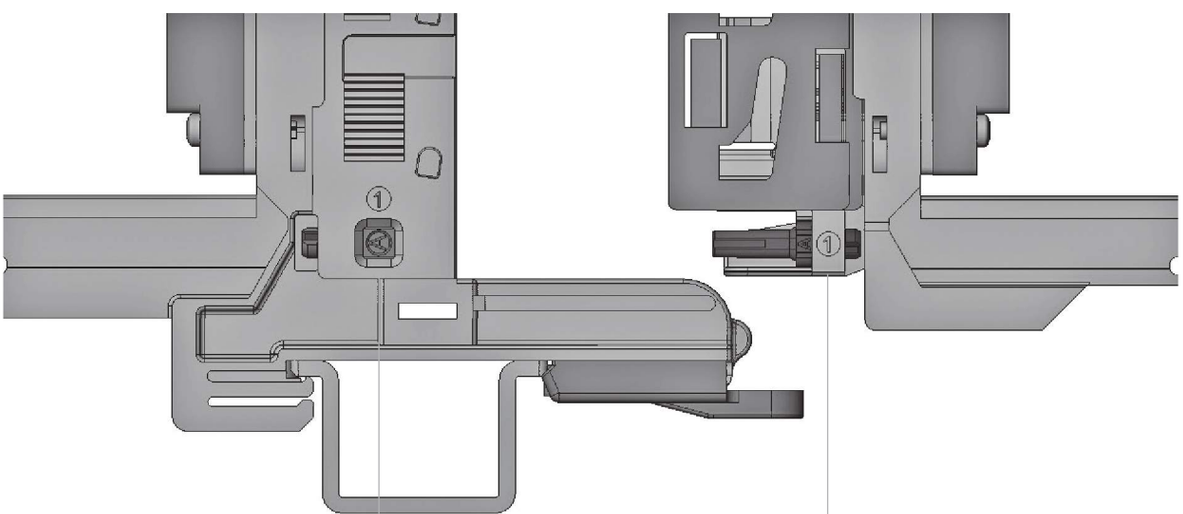
*Polarization Posts Under QMACN*



*Polarization Keys Under QMADN*

### QM SIZE A & B CONNECTOR

**Tips to Read Polarization Code:** In order to properly read the polarization code, you can read the part number marked on the connector at the same time.

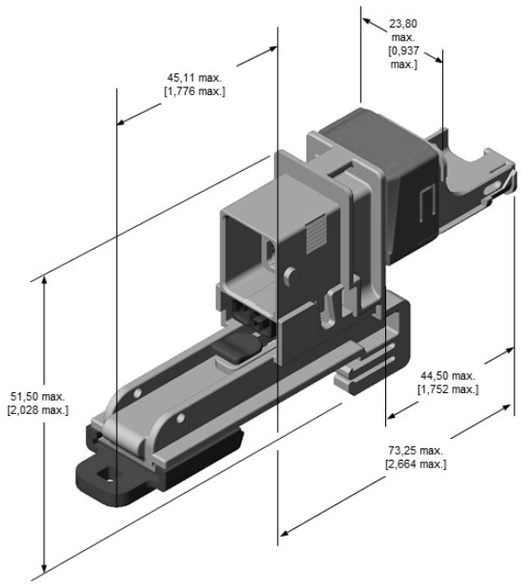


*Code on Polarization Keys*

*Code on Polarization Posts*

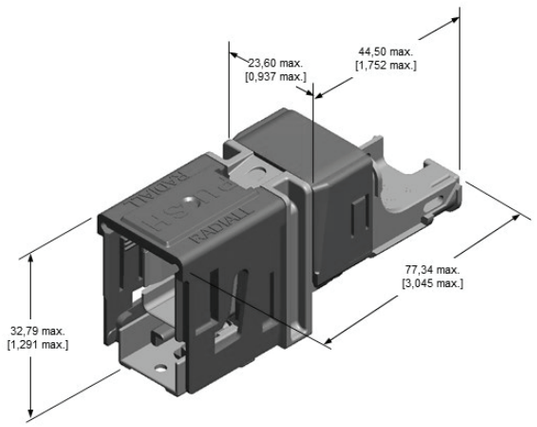
## QM SIZE A COMPACT SHELL DIMENSIONS

### RECEPTACLE



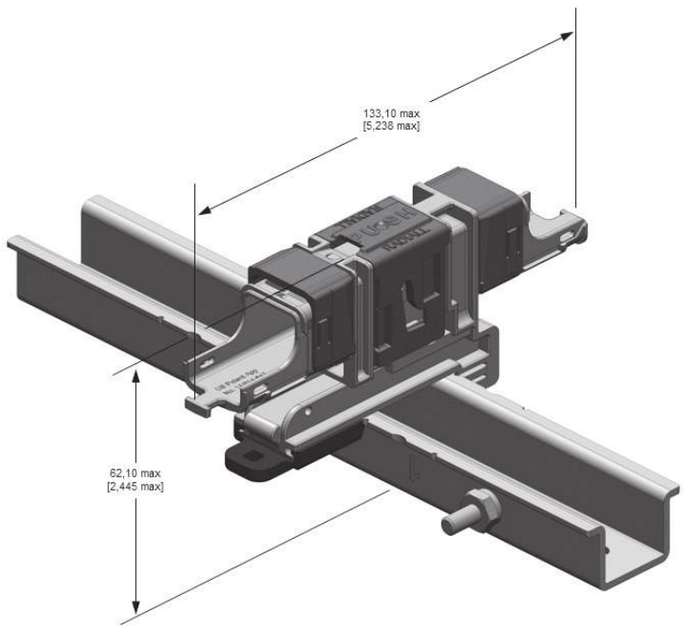

**QMADN: 39 G**

### PLUG



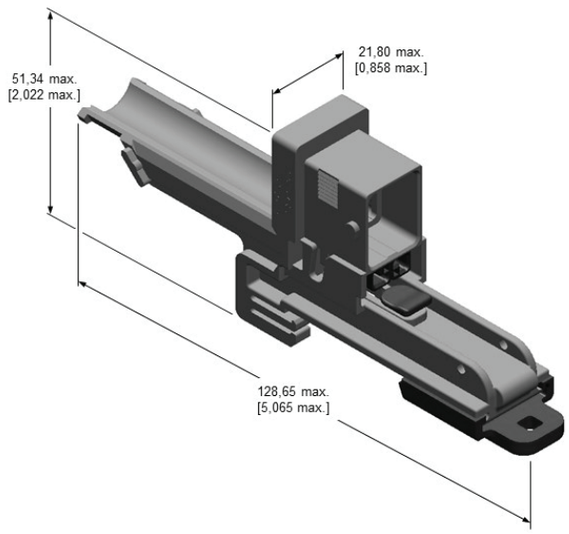

**QMACN: 24 G**

### MATED PAIR



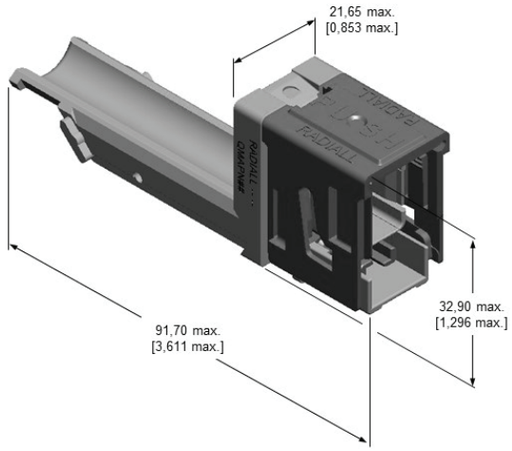
## QM SIZE A SHELL DIMENSIONS

### RECEPTACLE



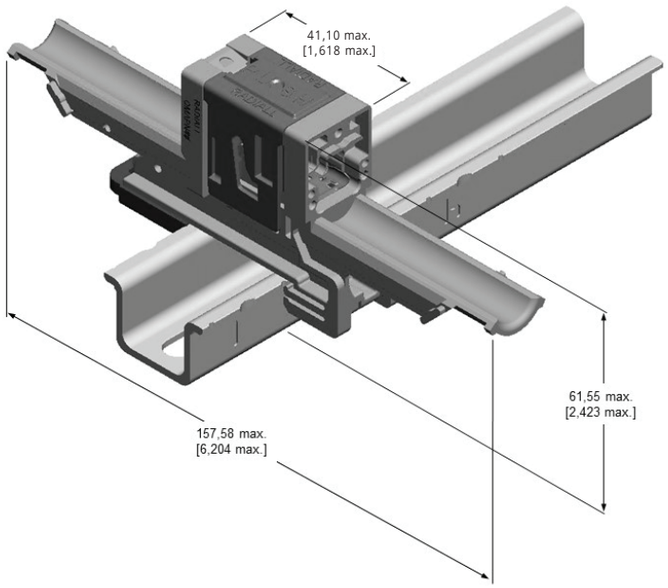

**QMARN: 39 G**
**QMAZN: 45 G**

### PLUG



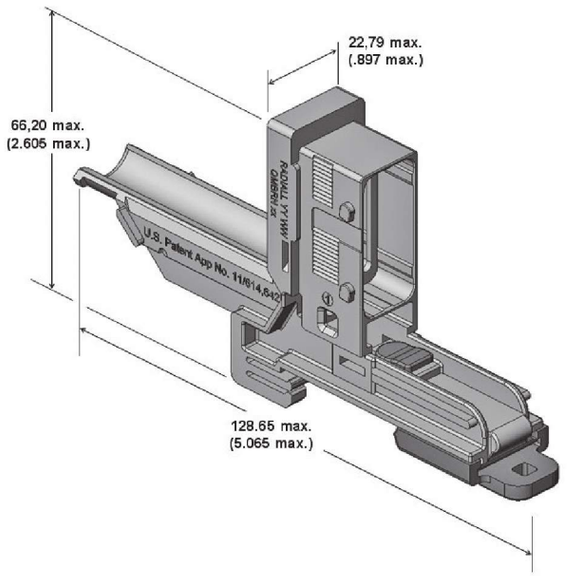

**QMAPN: 24 G**
**QMAWN: 30 G**

### MATED PAIR



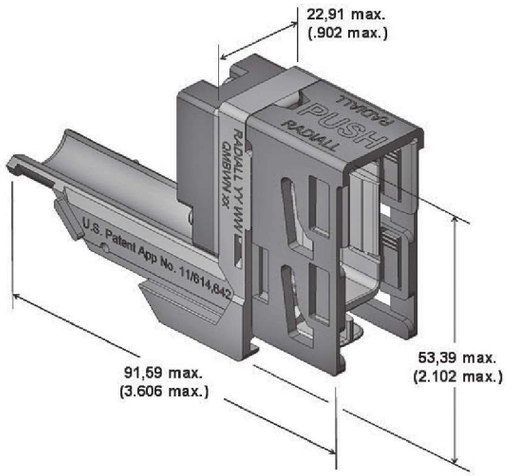
## QM SIZE B SHELL DIMENSIONS

### RECEPTACLE



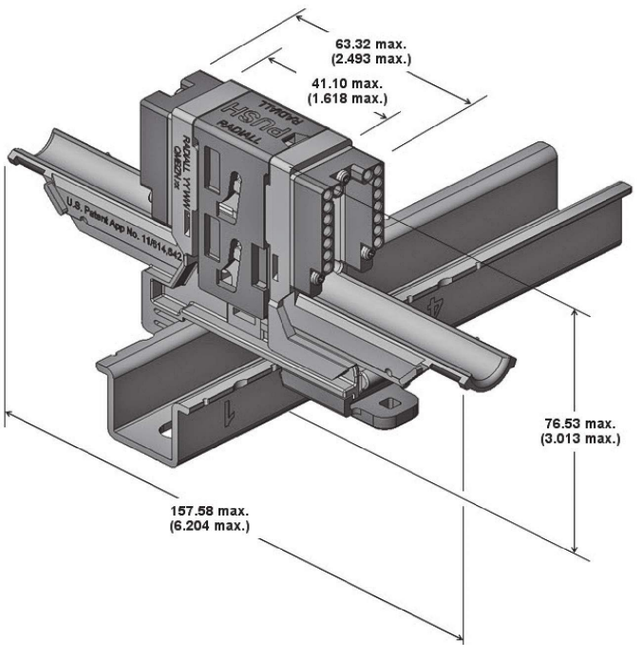

**QMBRN: 42 G**
**QMBZN: 50 G**

### PLUG




**QMBPN: 31 G**
**QMBWN: 38 G**

### MATED PAIR



*Accessories*

## HOW TO ORDER QM MOUNTING DEVICE

QM

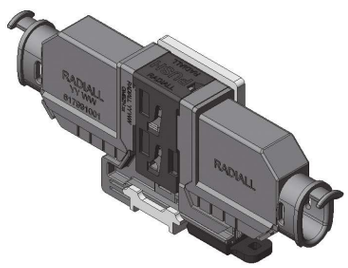
**SERIES PREFIX**

**MOUNTING DEVICE**
**L:** L-Bracket
**U:** Single-sided rail
**H:** Double-sided rail

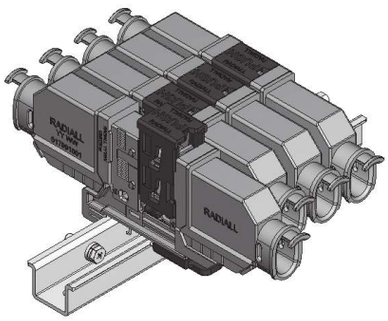
**RAIL NAME**
Refer to tables on page 2-28 for rail name.

**MOUNTING DEVICE MATERIAL**
**A:** Aluminium

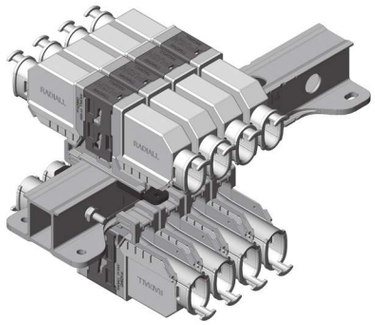
**FINISH**
**N:** Nickel



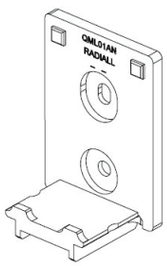
*L-Bracket*

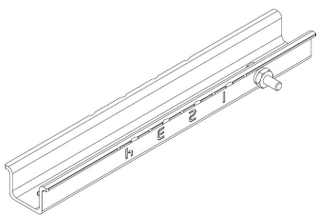


*Single-Sided Rail [1]*



*Double-Sided Rail*



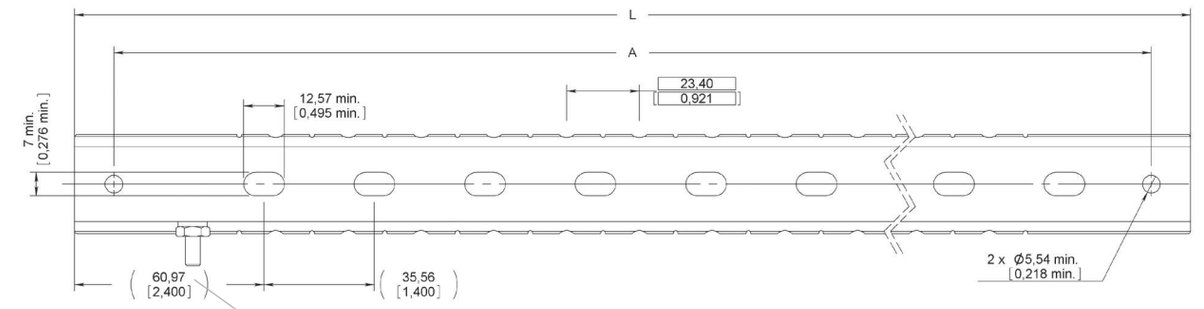




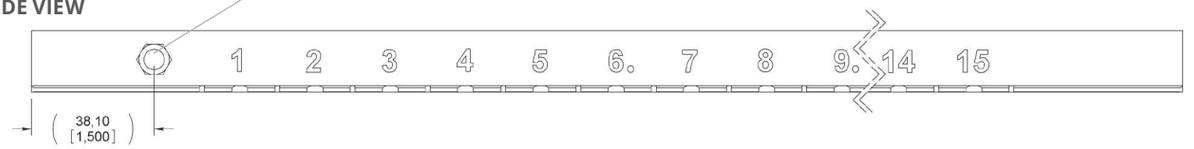
*Notes*
*1. Single-sided rails are delivered with slot and ground stud.*

*Accessories*

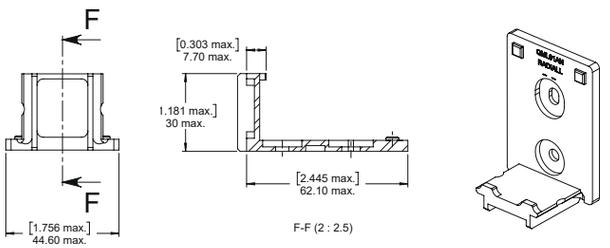
## TOP VIEW



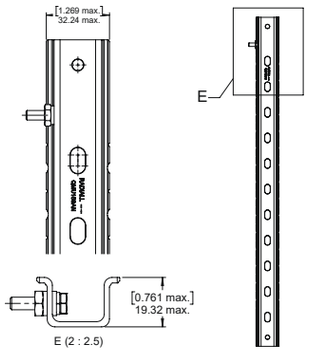

## SIDE VIEW



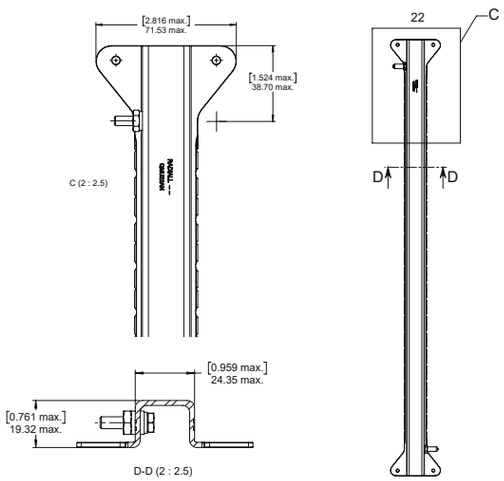

## RAIL QM L-BRACKET



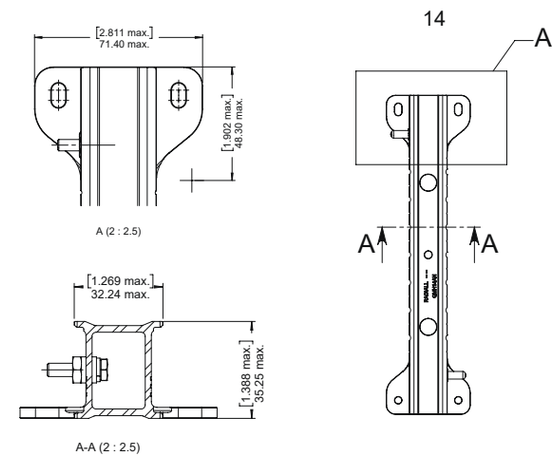

## SINGLE-SIDED RAIL QM GENERAL




## SINGLE-SIDED RAIL QM #22




## DOUBLE-SIDED RAIL QM

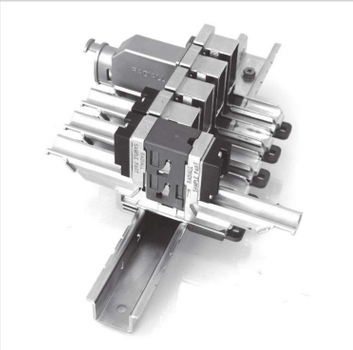


## DIMENSIONS OF MOUNTING DEVICES

| RAIL NAME | NUMBER OF CONNECTOR POSITIONS | TYPE OF MOUNTING DEVICE | LENGTH MM MAX (INCH) | NUMBER OF GROUND STUDS | WEIGHT G (OZ) |
|---|---|---|---|---|---|
| 01 | 1 | L-Bracket | 30 (1.181) | - | 27 (0.95) |
| 04M | 4 | Single | 127 (5.000) | 1 | 52 (1.83) |
| 06M | 6 | Single | 173.74 (6.840) | 1 | 69 (2.43) |
| 08M | 8 | Single | 220.50 (8.681) | 1 | 86 (3.03) |
| 10M | 10 | Single | 266.19 (10.48) | 1 | 100 (2.53) |
| 12M | 12 | Single | 313.95 (12.360) | 1 | 120 (4.23) |
| 14M | 14 | Single | 360.95 (14.211) | 1 | 137 (4.83) |
| 14 | 14 | Double | 270,76 (10,66) | 2 | 263 (9.28) |
| 16M | 16 | Single | 407.67 (16.050) | 1 | 156 (5.50) |
| 16 | 16 | Double | 294,3 (11,58) | 2 | 279 (9.84) |
| 18M | 18 | Single | 454.40 (17.890) | 1 | 171 (6.03) |
| 18 | 18 | Double | 317.5 (12.5) | 2 | 298 (10.51) |
| 20 | 20 | Double | 340.86 (13.42) | 2 | 313 (11.04) |
| 22 | 22 | Single | 621.54 (24.470) | 2 | 261 (9.21) |
| 22 | 22 | Double | 364.23 (14.34) | 2 | 332 (11.71) |
| 24 | 24 | Double | 387.6 (15.26) | 2 | 351 (12.38) |
| 26 | 26 | Double | 410.97 (16.18) | 2 | 370 (13.05) |
| 28 | 28 | Double | 434.34 (17.1) | 2 | 370 (13.05) |
| 30 | 30 | Double | 457.71 (18.02) | 2 | 405 (14.29) |
| 32 | 32 | Double | 481.33 (18.95) | 2 | 424 (14.96) |
| 34 | 34 | Double | 504.69 (19.87) | 2 | 443 (15.63) |
| 36 | 36 | Double | 528.06 (20.79) | 2 | 462 (16.30) |
| 38 | 38 | Double | 551.43 (21.71) | 2 | 481 (16.97) |
| 40 | 40 | Double | 574.8 (22.63) | 2 | 499 (17.60) |
| 42 | 42 | Double | 598.17 (23.55) | 2 | 519 (18.31) |
| 44 | 44 | Double | 621.54 (24.47) | 2 | 540 (19.05) |

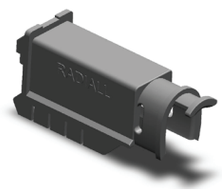
*Accessories*

## STRAIN RELIEFS & BACKSHELLS



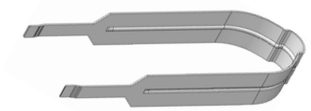
QM connectors can be equipped with backshells to provide complete shielding.

Backshells are compatible with plug and receptacle side. They provide EMI-RFI shielding specially needed in aircraft with a composite architecture. They are easy to install as they require no specific tools, and the backshells combine cost savings and high performances.

| | PART NUMBER | DESCRIPTION |
|---|---|---|
|  | 617 991 001 | QM Size B EMI Backshell |
|  | 617 991 002 | QM Size A Compact EMI Backshell |
|  | 617 991 010 | QM Size A EMI Backshell |

*Accessories*

## SPARE PARTS & TOOLS

| | PART NUMBER | DESCRIPTION |
|---|---|---|
|  | 617 954 041 | Dust Cap for QM<br>Size B Plug |
| | 617 954 042 | Dust Cap for QM<br>Size B Receptacle |
|  | 617 954 055 | Dust Cap for QM Size A<br>Plug and Receptacle |
|  | 617 980 030 | Polarization Post |
|  | 617 980 031 | Polarization Key |
|  | 282 668 001 | Tweezers for Polarizing<br>Post and Key |
|  | 282 521 004 | Right Angle Insert<br>Extraction Tool |
|  | F780 855 000 | Hexagonal Key 5/64 in. (2 mm)/<br>Flats for Sleeve Holder Removal |
|  | 282 521 005 | Insert Extraction Tool<br>for EPXA Insert |
|  | 282 521 002 | Insert Extraction Tool<br>for EPXB Insert |
|  | 617 954 020 | Plastic Box to Protect Wired<br>Inserts During Handling |
|  | 282 515 | Plastic Insert Extraction Tool<br>for LuxCis® Termini<br>(MIL M81 969/14-03) |



# QUICKFUSIO™ SERIES

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## INTRODUCTION

Radiall's experience in rectangular connectors and ability to design innovative solutions make the QuickFusio™ series the perfect miniature interconnect solution for cabin interiors and EWIS aerospace applications. Combining high performance with competitive costs, this lightweight, tool-less connector features The Radiall Touch: one finger mating - in a snap!

The QuickFusio™ series is a versatile range that covers any wiring systems including harness-to-harness and equipment-to-harness. The QuickFusio™ series is available in different shell styles in order to make installing the miniature connector in any aircraft area feasible.

**PANEL MOUNT**



**JAM NUT**



**BOX MOUNT**



**BUNDLE MOUNT**



**STRUCTURE MOUNT**



### APPLICATIONS

The QuickFusio™ series is the perfect solution for major commercial aerospace and defense OEMs and is perfectly suited for:

- Cabin Interiors: In Flight Entertainment (IFE), Lighting, Seat Actuators, In-Seat Power Supply, Passenger Service Units (PSU)
- Electrical Wiring Systems (EWIS)
- Sensors







*Introduction*

## FEATURES & BENEFITS



*Competitive Cost*

QuickFusio™ series is optimized to meet customer expectations in terms of competitive price positioning. The use of standard SAE-AS-38999 contacts in QuickFusio™ inserts and the unique mating mechanism enables quick mating and reduces overall cost.



*Simple Wiring*

By squaring a circle, Radiall has created an innovative design compatible with standard SAE-AS-38999 size 11 accessories. The unique design covers any type of wiring combination and is easy to install due to the Radiall Touch: one finger mating – in a snap!



*Lightweight Solution*

Extremely compact, QuickFusio™ series is 20% lighter and 40% smaller than the competition. This small, dense solution eliminates wasted space and reduces the overall weight. QuickFusio™ is only 20 grams per pair when equipped with size 22 contacts.



*Easy Assembly*

The jam nut features a simple and efficient installation process, reducing assembly time and labor costs. Its design allows for quick and straightforward attachment without the need for complex tools or procedures. This makes it ideal for environments where rapid installation and maintenance are essential, ensuring minimal downtime and increased productivity.

## RANGE OVERVIEW

| PLUGS | RECEPTACLES (MATEABLE WITH ALL PLUGS) | | | | |
|---|---|---|---|---|---|
| | *Receptacle Outputs* | *Square Flange Receptacle for Panel & Box Mount [1]* | *In-Line Receptacle & Platform for Bundle Mount* | *In-Line Receptacle & Platform for Structure Mount [2]* | *In-Line Jam Nut Receptacle for Panel & Box Mount* |
|  Threaded Accessory | Threaded Output |  |  |  |  |
| | Banding Platform Output |  |  |  |  |
|  Banding Platform | Banding Platform and Tie-Wrap Output |  |  |  | |
|  Banding Platform and Tie-Wrap | Short Receptacle Output with Straight PC Tail Contacts |  | | | |
| | Short Receptacle Output with Right Angle PC Tail Contacts |  | | | |

***Notes***

*1. Sealed square flange versions will soon complete the existing square flange receptacle range. Please contact your local representative for additional information.*

*2. Shell style not yet available. Please contact your local representative for additional information.*

*Introduction*

## PRODUCT SELECTION GUIDE

### TWO INNOVATIVE SOLUTIONS TO MEET CUSTOMERS' NEEDS

To meet all customers' needs and expectations, the QuickFusio™ series is available in two different versions: QuickFusio and QuickFusio+.

- The QuickFusio connector offers the perfect balance between extreme competitive cost and performance needed in pressurized environments, especially in cabin applications.
- Qualified in accordance to EWIS standard, the QuickFusio+ connector meets even more stringent requirements and is suitable for both pressurized and non-pressurized environments.

***To choose your connector, determine your performance requirements below:***

| PERFORMANCE | QUICKFUSIO | QUICKFUSIO+ |
|---|---|---|
| Operating Temperature | -55 °C to +125 °C (-67 °F to +257 °F) | -65 °C to +175 °C (-85 °F to +347 °F) |
| Altitude Immersion | No Sealing | 55,000 ft |
| DWV at 70,000 ft (Mated Connector) | 325 Vrms | 1,000 Vrms |
| Salt Spray | 48 h | 96 h |
| Vibrations | 20 g Sinus - 4 Hours on each of the 3 Axis | 27.8 grms - 8 Hours on each of the 3 Axis |
| Lightning Strike | N/A | 5 KA - 1,600 V |
| Shell to Shell Conductivity | 10 mΩ max | 2.5 mΩ max |

### HOW TO DIFFERENTIATE YOUR CONNECTORS?

**QUICKFUSIO**




**QUICKFUSIO+**



# TECHNICAL CHARACTERISTICS

## ELECTRICAL CHARACTERISTICS

| | | | *QuickFusio* | *QuickFusio+* |
|---|---|---|---|---|
| | **CONTACT SIZE** | **CABLE GAUGE** | **MAX CURRENT AMPS (A)** | **MAX CURRENT AMPS (A)** |
| **CURRENT RATING** | 23 | AWG22 | 5 | 5 |
| | | AWG24 | 3 | 3 |
| | | AWG26 | 2 | 2 |
| | 22 | AWG22 | 5 | 5 |
| | | AWG24 | 3 | 3 |
| | | AWG26 | 2 | 2 |
| | 20 | AWG20 | 7.5 | 7.5 |
| | | AWG22 | 5 | 5 |
| | | AWG24 | 3 | 3 |
| | 16 | AWG16 | 13 | 13 |
| | | AWG18 | 10 | 10 |
| | | AWG20 | 7.5 | 7.5 |
| | 12 | AWG12 | 23 | 23 |
| | | AWG14 | 17 | 17 |
| | | AWG16 | 13 | 13 |

| | | | *QuickFusio* | *QuickFusio+* |
|---|---|---|---|---|
| **DIELECTRIC WITHSTANDING VOLTAGE (DWV)** | At Sea Level | All Inserts | 1,500 Vrms | 1,500 Vrms |
| | | Insert 22 | 1,000 Vrms | 1,300 Vrms |
| | | Insert Q1 | N/A | 1,000 Vrms |
| | At 70,000 ft | All inserts | 325 Vrms | 1,000 Vrms |
| | | Insert 22 | 125 Vrms | 325 Vrms |
| | | Insert Q1 | N/A | 125 Vrms |
| **INSULATION RESISTANCE** | Ambient Temperature | | > 5,000 MΩ | > 5,000 MΩ |
| | At High Temperature | | > 200 MΩ at 125 °C | > 200 MΩ at 175 °C |
| **LIGHTNING STRIKE** | Current Pulse | | N/A | 5KA |
| | Voltage Pulse | | N/A | 1,600 V |

| | | *QuickFusio* | *QuickFusio+* |
|---|---|---|---|
| **EMI SHIELDING EFFECTIVENESS** | **FREQUENCY (MHz)** | **LEAKAGE ATTENUATION (dB)** | **LEAKAGE ATTENUATION (dB)** |
| | 100 | 65 | 65 |
| | 200 | 63 | 63 |
| | 300 | 63 | 63 |
| | 400 | 62 | 62 |
| | 500 | 60 | 60 |
| | 600 | 55 | 55 |
| | 800 | 50 | 50 |
| | 1000 | 50 | 50 |

| | *QuickFusio* | *QuickFusio+* |
|---|---|---|
| **SHELL TO SHELL CONDUCTIVITY** | 10 mΩ max | 2.5 mΩ max |
| **MAGNETIC PERMEABILITY** | < 2 µ | < 2 µ |

*Characteristics*

## MECHANICAL CHARACTERISTICS

| | | *QuickFusio* | | *QuickFusio+* | |
|---|---|---|---|---|---|
| | **CONTACT SIZE** | **RETENTION FORCE** | **MAX DISPLACEMENT** | **RETENTION FORCE** | **MAX DISPLACEMENT** |
| **CONTACT RETENTION** | 23 | 44 N | 0.30 mm | 44 N | 0.30 mm |
| | 22 | 44 N | | 44 N | |
| | 20 | 67 N | | 67 N | |
| | 16 | 110 N | | 110 N | |
| | 12 | 110 N | | 110 N | |

| | **CONTACT SIZE** | **MAXIMUM INSERTION FORCE** | **MAXIMUM EXTRACTION FORCE** | **MAXIMUM INSERTION FORCE** | **MAXIMUM EXTRACTION FORCE** |
|---|---|---|---|---|---|
| **CONTACT INSERTION EXTRACTION FORCE** | 23 | 44 N | 44 N | 44 N | 44 N |
| | 22 | 44 N | 44 N | 44 N | 44 N |
| | 20 | 89 N | 89 N | 89 N | 89 N |
| | 16 | 89 N | 89 N | 89 N | 89 N |
| | 12 | 133 N | 133 N | 133 N | 133 N |

| | | | *QuickFusio* | *QuickFusio+* |
|---|---|---|---|---|
| **MECHANICAL ENDURANCE** | | | 500 Mating Cycles | 500 Mating Cycles |
| **VIBRATIONS** | Square Flange Receptacle and Universal Plugs | Electrical and Optical Contacts | Acceleration 20 g Sinus (4 Hours on each of the 3 Axis) EN 2591 - 403 | Acceleration 27.8 g (8 Hours on each of the 3 Axis) EN 2591 - 403 |
| | | Quadrax Contact | N/A | Acceleration 16.91 g (8 Hours on each of the 3 Axis) EN 2591 - 403 |
| | In-Line Receptacle and Universal Plugs | - | Acceleration 11.33 g [1] RTCA-DO-160G Test Curve E1 | Acceleration 11.33 g [1] RTCA-DO-160G Test Curve E1 Windmilling & High Power Test |
| **SHOCK - 3 SHOCKS ON EACH AXIS** | | | Shock Amplitude 50 Half Sinus/ Duration 11 ms | Shock Amplitude 50 Half Sinus/ Duration 11 ms |
| **INSERT RETENTION IN SHELL** | | | 254 N | 254 N |

## ENVIRONMENTAL CHARACTERISTICS

| | *QuickFusio* | *QuickFusio+* |
|---|---|---|
| **OPERATING TEMPERATURE** | -55 °C to +125 °C (-67 °F to +257 °F) | -65 °C to +175 °C (-85 °F to +347 °F) |
| **TEMPERATURE LIFE** | 1,000 Hours at 125 °C | 1,000 Hours at 175 °C |
| **SALT SPRAY** | 48 Hours | 96 Hours |
| **ALTITUDE IMMERSION (ALL INSERTS EXCEPT 22)** | No Sealing | 55,000 ft |
| **SEAL LEAKAGE (CLASS B) - INSERT 22** | N/A | Resistant to Running Water |
| **FLAMMABILITY** | EN 2591-317 FAR 25,853 | EN 2591-317 FAR 25,853 |
| **SMOKE AND TOXICITY** | EN 2591-317 FAR 25,853 (F) | EN 2591-317 FAR 25,853 (F) |

*Notes*

*1. Minimum level validated by Radiall, other levels can be tested on demand.*

*Inserts*

## PRODUCT OVERVIEW




### MATERIALS AND PLATING

*Plug and Receptacle*

- Shell: high grade thermoplastic (nickel-plated)
- Insert retention clip: beryllium copper
- Slide lock (plug): high grade thermoplastic
- Nut plate (receptacle): stainless steel

*Insert*

- Grommet and interfacial seal: fluorosilicone elastomer
- Insulators: high grade thermoplastic
- Retention clip: metallic

*Contacts*

- Copper alloy, gold-plated over nickel

*Bundle Mount Platform (For In-Line Receptacle)*

- Silicone pad: silicone rubber
- Cradle: high grade thermoplastic

*How To Order*

## HOW TO ORDER QUICKFUSIO™

*QuickFusio™ is delivered fully assembled including the shell, with insert mounted and with or without contacts based on your selection.*

Tips to help you in your selection:

- QuickFusio+ connectors are fitted with environmental inserts (except for short receptacles with PC tail contacts which are fitted with non-environmental inserts).
- QuickFusio connectors are always fitted with non-environmental inserts.
- For crimp contacts, you can use either pin or socket inserts in QuickFusio and QuickFusio+ plugs or receptacles (however, if scoop proof option is needed, please use pin inserts in receptacles).
- PC tail contacts are only available as pin PC tail contacts in short receptacle rear output (if PC tails are selected then all the cavities are populated).
- Short receptacle is dedicated to PC tail terminations. If crimp contacts are needed in short receptacle, please ask your local representative.

**QFC**

**SERIES PREFIX**
**QFC:** QuickFusio
**QFP:** QuickFusio+

**SHELL SIZE**
**5:** One size available

**SHELL TYPE** [1]
**PN:** Plug (nickel-plated)
**RN:** Square flange receptacle (nickel-plated)
**WN:** In-Line receptacle (nickel-plated) with bundle mount platform
**LN:** In-Line receptacle (nickel-plated) without platform
**JM:** Jam nut receptacle (alu nickel-plated - QuickFusio only) [9]

**REAR OUTPUT**
**1:** Short receptacle [2]
**2:** Accessory thread
**3:** Banding platform
**A:** Banding platform and tie-wrap (orientation 0°) [1]

**INSERT CLASS** [3]
**N:** Non-environmental (without grommet, always the interfacial seal on pin insert)
**E:** Environmental (for QuickFusio+ only)

**INSERT NAME**
Refer to page 3-10 to select your insert name.

**INSERT TYPE** [4]
**P:** Pin inserts
**S:** Socket inserts

**CONTACT TERMINATION** [5]
**X:** Contact not supplied with the connector
**S:** Crimp contacts are supplied with connector
**YB:** Gold finish straight PC tail contacts [6] [7] [8]
**GB:** Gold finish right angle PC tail contacts [6] [7] [8]
**RB:** Pure tin straight PC tail contacts [6] [7] [8]
**TB:** Pure tin right angle PC tail contacts [6] [7] [8]

**CODING**
Refer to page 3-13 to select your coding (A to N).

*Notes*

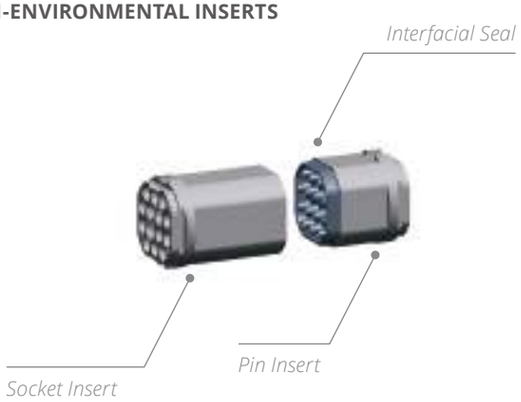
*1. For other options, please contact your local representative*
*2. Not available with shell types WN and LN*
*3. Refer to the table to the right to select your insert class.*
*4. For F4 insert: pin inserts only available on plug side and socket inserts with sleeve holder on receptacle side.*
*5. Size 8 and optical contacts must be ordered separately*
*6. F4 and Q1 inserts are not available with PC tail contacts*
*7. Only available with short receptacle rear output [1]*
*8. Refer to page 3-13 for PC tail lengths*
*9. Jam nut only available with: rear output 2 & 3 / Insert N / Contact termination X*

| CONTACT TERMINATION | QUICKFUSIO | QUICKFUSIO+ | |
|---|---|---|---|
| | NON-ENVIRONMENTAL | NON-ENVIRONMENTAL | ENVIRONMENTAL |
| X | √ | - | √ |
| S | √ | - | √ |
| YB to TB | √ | √ | - |

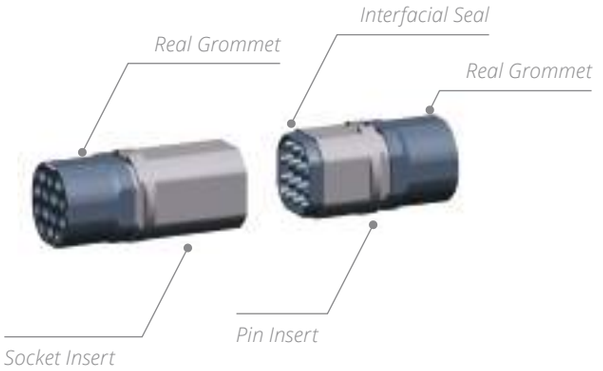
*How To Order*

## INSERT OVERVIEW

### NON-ENVIRONMENTAL INSERTS

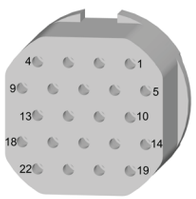
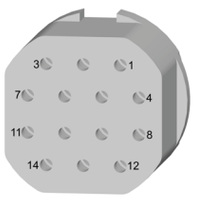
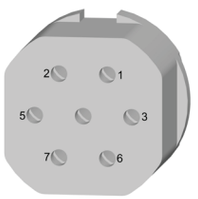
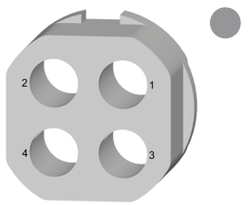
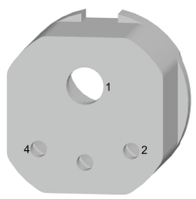
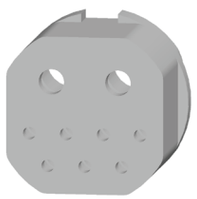
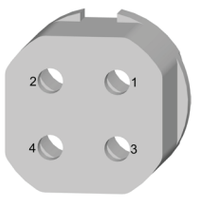
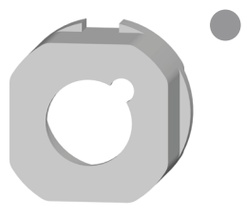
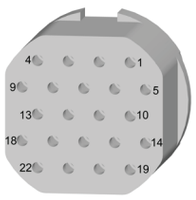
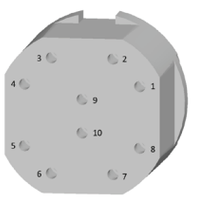



### ENVIRONMENTAL INSERTS




### INSERT ARRANGEMENTS

*Except for F4 and Q1 inserts, all inserts are available in environmental and non-environmental versions.*

| | | | |
|---|---|---|---|
|  |  |  |  |
| **Insert Name 22**<br>22 × Size 23 Contacts | **Insert Name 14**<br>14 × Size 22 Contacts | **Insert Name 07**<br>7 × Size 20 Contacts | **Insert Name F4**<br>4 × LuxCis® Arinc 801 Contacts |
|  |  |  |  |
| **Insert Name M4**<br>3 × Size 20 Contacts<br>1 × Size 12 Contact | **Insert Name M9**<br>2 × Size 16 Contacts<br>7 × Size 22 Contacts | **Insert Name 04**<br>4 × Size 16 Contacts | **Insert Name Q1**<br>1 × Size 8 Quadrax Contact |
|  |  | | |
| **Insert Name IG**<br>For 1 Gb/s Ethernet Applications | **Insert Name XG**<br>For 10 Gb/s Ethernet Applications [1] | | |

● Insert Only Available:
- In environmental version
- With accessory thread or banding plaform rear output shell

*Notes*

*1. To order insert XG, please contact your local representative.*

*How To Order*

## ELECTRICAL CONTACTS

QuickFusio™ connectors use highly standardized contacts per SAE-AS39029 and EN3155:

- Signal and power contacts
- High frequency with coax, twinax and triax contacts
- Ethernet links with quadrax contacts
- Fiber optic

| CONTACT SIZE | WIRE SIZE | TYPE | RADIALL PART NUMBER | STANDARD PART NUMBER | CRIMPING TOOL | POSITIONER | INS./EXT. TOOL | TYPE OF TOOL |
|---|---|---|---|---|---|---|---|---|
| 23 | AWG22<br>AWG24<br>AWG26 | Pin | 670210 | N/A | 282281<br>M22520/2-01 | 282581019 | 282549049<br>M81969/1-05 | Metal |
| | | Socket | 670310 | N/A | | | | |
| 22 | AWG22<br>AWG24<br>AWG26 | Pin | 670200 | M39029/58-360<br>EN3155-008P2222 | 282281<br>M22520/2-01 | 282562<br>M22520/2-09 | 282522<br>M81969/14-01 | Plastic |
| | | Socket | 670350 | M39029/57-354<br>EN3155-003S2222 | | | | |
| 20 | AWG20<br>AWG22<br>AWG24 | Pin | 670220 | M39029/58-363<br>EN3155-008P2020 | 282291<br>M22520/1-01 | 282567<br>M22520/1-04 | 282549029<br>M81969/14-10 | Plastic |
| | | Socket | 670370 | M39029/57-357<br>EN3155-003S2020 | | | | |
| 16 | AWG16<br>AWG18<br>AWG20 | Pin | 670230 | M39029/58-364<br>EN3155-008P1616 | 282291<br>M22520/1-01 | 282567<br>M22520/1-04 | 282515<br>M81969/14-03 | Plastic |
| | | Socket | 670380 | M39029/57-358<br>EN3155-003S1616 | | | | |
| 12 | AWG12<br>AWG14<br>AWG16 | Pin | 670240 | M39029/58-365<br>EN3155-008P1212 | 282291<br>M22520/1-01 | 282567<br>M22520/1-04 | 282549004<br>M81969/14-04 | Plastic |
| | | Socket | 670390 | M39029/57-359<br>EN3155-003S1212 | | | | |

### DOUBLE CRIMPING CONTACTS

To meet the requirement for double crimping—crimping two wires into the same contact—Radiall offers contacts with enlarged barrels compatible with the QuickFusio™ connector. This solution increases the number of connections through an existing connector without increasing contact density or adding an additional connector.

Please contact your representatives for any inquiries or requirements related to this exclusive solution.

### QUADRAX CRIMP CONTACTS

| CONTACT SIZE | WIRE SIZE | CLASS | TYPE | RADIALL PART NUMBER | EXTRACTION TOOL | TYPE OF TOOL |
|---|---|---|---|---|---|---|
| 8 | NF24Q100 | Environmental | Pin | 670175012 | 282549001<br>M81969/28-03<br>or M81969/14-06 | Metal |
| | | | Socket | 670075012 | | |
| | NF26Q100 | Environmental | Socket | 670075029 | | |
| | | Non-Environmental | Socket | 670075028 | | |
| | ABS1503KD24 | Environmental | Pin | 670175023 | | |
| | | | Socket | 670075023 | | |

QuickFusio is also compatible with coaxial contacts EN3155-067 and EN3155-068.

### TRIAX CONTACTS

QuickFusio™ is compatible with triax contacts per EN3155-012; EN3155-024; EN3155-013 and EN3155-025.

*How To Order*

## COAXIAL CRIMP CONTACTS

| CONTACT SIZE | WIRE SIZE | CLASS | TYPE | RADIALL PART NUMBER | EXTRACTION TOOL | TYPE OF TOOL |
|---|---|---|---|---|---|---|
| 8 | EN4604-010 (KX) | Non-Environmental | Pin | 670101007 | 282549001<br>M81969/28-03<br>or M81969/14-06 | Metal |
| | | | Socket | 670001007 | | |
| 16 | Contacts per MIL DTL 38999 | | | | | |



### QUICKFUSIO 6 COAX SOLUTION

In response to the increasing demand for high-frequency transfer solutions in compact settings, Radiall presents the new QuickFusio™ 6 GHz multicoax connector, which features an advanced sealing mechanism for improved reliability, requires no special tools for easy installation, and boasts a design that is 80% denser and 60% lighter, ultimately reducing overall project costs by streamlining the installation process.

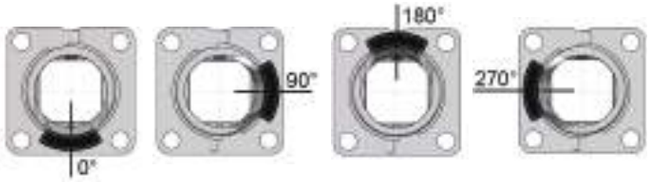
The key benefits of the 6 coax include its high data rate, supporting up to 6 Gb/s, and its high density, enabling the transmission of 6x 6 Gb/s within a QuickFusio connector.

Please contact your representatives for any inquiries or requirements related to this exclusive solution.

## TIE-WRAP OUTPUT POSITIONS, CONTACT TERMINATIONS & CODING

### TIE-WRAP OUTPUT ANGULAR POSITIONS

For tie-wrap output orientation 90°, 180° or 270° please contact your local representative for additional information.




### CONTACT TERMINATION

| STRAIGHT PC TAIL CONTACT TERMINATION SIZE #23 TO SIZE #12 CONTACTS | | | |
|---|---|---|---|
| MINI LENGTH E MM (INCH) | MINI LENGTH H MM (INCH) | GOLD | PURE TIN (ROHS) |
| 14.25 (0.561) | 7.42 (0.292) | YB | RB |

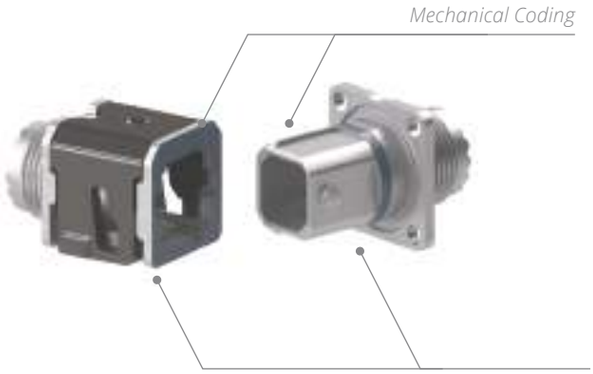


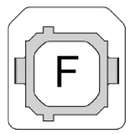
| RIGHT ANGLE PC TAIL CONTACT TERMINATION SIZE #23 TO SIZE #12 CONTACTS | | | |
|---|---|---|---|
| MINI LENGTH E MM (INCH) | MINI LENGTH H MM (INCH) | GOLD | PURE TIN (ROHS) |
| 12.19 (0.480) | 4.43 (0.174) | GB | TB |



### CODING

The QuickFusio™ series is available in 6 different codings through specific mechanical shapes. Each of these mechanical codings is associated with one particular color, which enables quick and easy wiring. One universal N coding, mateable with the 6 other codings, is also available.



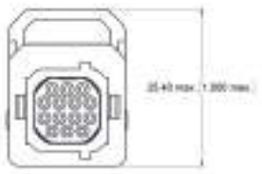

| | CODING A | CODING B | CODING C | CODING D | CODING E | CODING F | CODING N UNIVERSAL CODING |
|---|---|---|---|---|---|---|---|
| Color and Mechanical Shape Coding |  |  |  |  |  |  |  |

*Inserts*

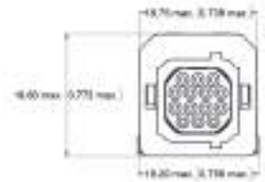
## DIMENSIONS

### PLUGS - QUICKFUSIO AND QUICKFUSIO+ (PN)

#### FRONT VIEW OF THE CONNECTOR

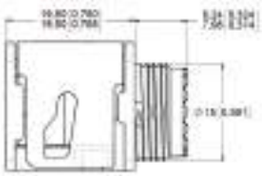


*Slide Open*

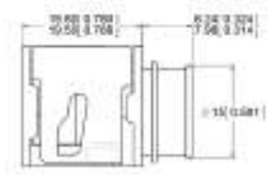


*Slide Closed*

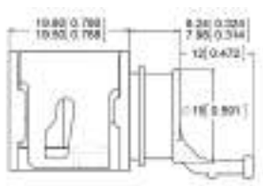
#### STANDARD DIMENSIONS



*Rear Output #2*
*Accessory Thread*

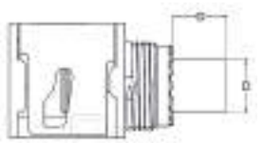


*Rear Output #3*
*Banding Platform*

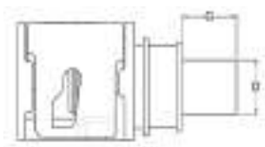


*Rear Output #A*
*Banding Platform*
*and Tie-Wrap*

#### STANDARD DIMENSIONS FOR ENVIRONMENTAL INSERTS F4 AND Q1



*Rear Output #2*
*Accessory Thread*



*Rear Output #3*
*Banding Platform*

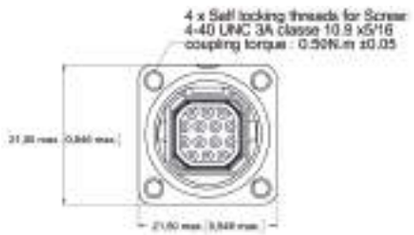
| INSERT NAME | GROMMET PROTRUSION (G) MAX MM (INCH) | GROMMET DIAMETER (D) MAX MM (INCH) |
|---|---|---|
| F4 | 9.50 (0.37) | 10.95 (0.43) |
| Q1 | 3.50 (0.14) | 11.25 (0.44) |

*Notes*
*Other inserts do not have grommet protrusion.*

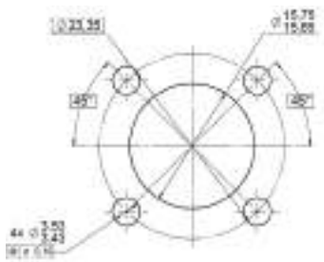
*Inserts*

## SQUARE FLANGE RECEPTACLES QUICKFUSIO AND QUICKFUSIO+ (RN)

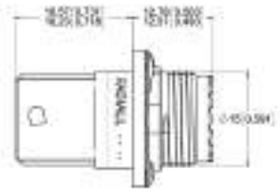
### FRONT VIEW OF THE CONNECTOR



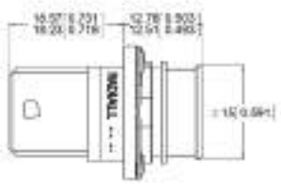

### PANEL CUT-OUT



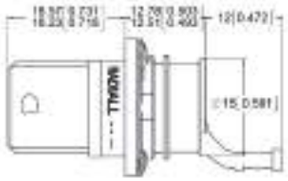
### STANDARD DIMENSIONS



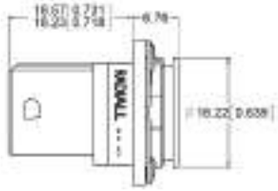
*Rear Output #2*
*Accessory Thread*



*Rear Output #3*
*Banding Platform*

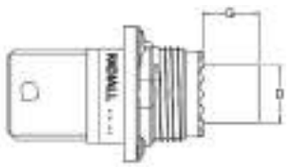


*Rear Output #A*
*Banding Platform*
*and Tie-Wrap*

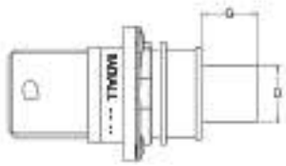


*Rear Output #1*
*Short Receptacle*

### STANDARD DIMENSIONS FOR ENVIRONMENTAL INSERTS F4 AND Q1



*Rear Output #2*
*Accessory Thread*



*Rear Output #3*
*Banding Platform*

| INSERT NAME | GROMMET PROTRUSION (G) MAX MM (INCH) | GROMMET DIAMETER (D) MAX MM (INCH) |
|---|---|---|
| F4 | 9.50 (0.37) | 10.95 (0.43) |
| Q1 | 3.50 (0.14) | 11.25 (0.44) |

*Notes*
*Other inserts do not have grommet protrusion.*

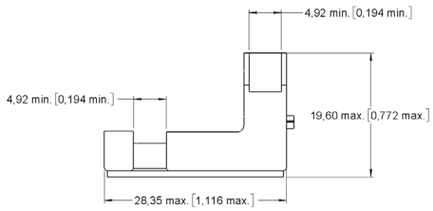
*Inserts*

## IN LINE RECEPTACLES QUICKFUSIO AND QUICKFUSIO+ (WN, LN AND JM)

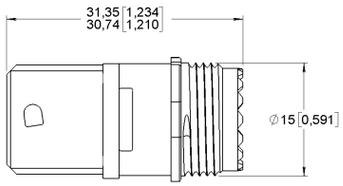
### FRONT VIEW OF THE CONNECTOR



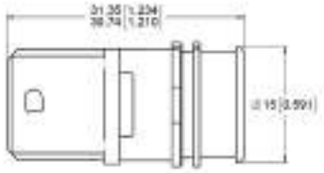
### BUNDLE MOUNT PLATFORM



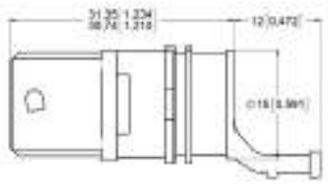

### STANDARD DIMENSIONS




*Rear Output #2*
*Accessory Thread*

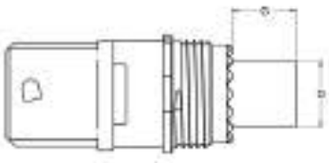


*Rear Output #3*
*Banding Platform*

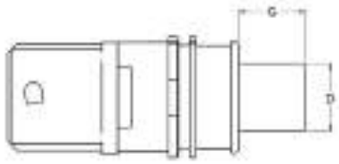


*Rear Output #A*
*Banding Platform*
*and Tie-Wrap*

### STANDARD DIMENSIONS FOR ENVIRONMENTAL INSERTS F4 AND Q1



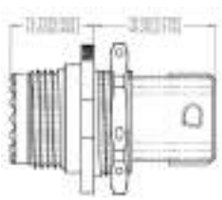

*Rear Output #2*
*Accessory Thread*



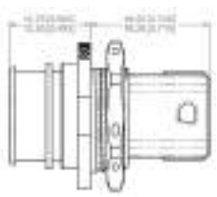

*Rear Output #3*
*Banding Platform*

| INSERT NAME | GROMMET PROTRUSION (G) MAX MM (INCH) | GROMMET DIAMETER (D) MAX MM (INCH) |
|---|---|---|
| F4 | 9.50 (0.37) | 10.95 (0.43) |
| Q1 | 3.50 (0.14) | 11.25 (0.44) |

### JAM NUT RECEPTACLE

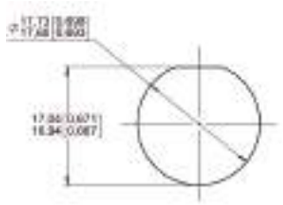


*Rear Output #2*
*Accessory Thread*



*Rear Output #3*
*Banding Platform*

### PANEL CUT-OUT



***Notes***
*Other inserts do not have grommet protrusion.*

## GIGABIT ETHERNET

To respond to the growing demand in civil aerospace for faster digital networks, Radiall has combined Gigabit Ethernet protocols into a miniature connector, opening new perspectives for cabin and avionics networks. To meet customers' every expectations, Radiall developed two different solutions:

- *A 10 Gb/s offer*
- *A 1 Gb/s offer*

### I. QUICKFUSIO™ 10 GB/S

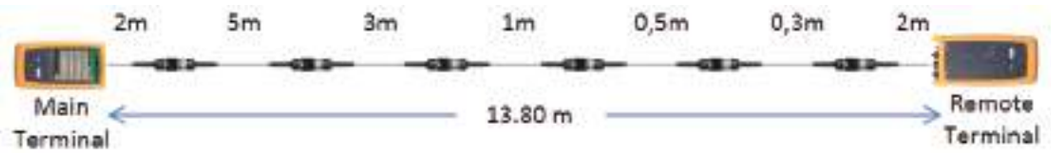
***Available with QuickFusio and QuickFusio+***

QuickFusio™ 10 Gb/s meets cat6A requirements following TIA568 C.2 specification and offers excellent high frequency and digital performance. Capitalizing on its expertise and ability to innovate, Radiall specifically designed a new insert called XG, which provides efficient crosstalk shielding between the pairs of cables.



*Insert XG*
*Contact Mapping*

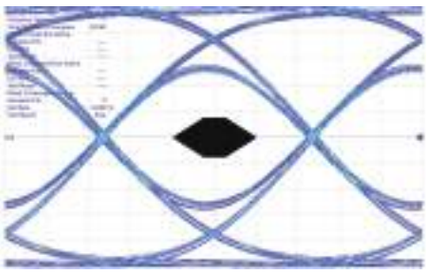
QuickFusio™ 10 Gb/s was successfully tested with cables measuring up to 68 meters fitted with 6 QuickFusio connections. The results shown below concern a set-up based on Arinc 800 part 4 specification, tested with a Gore Ethernet cable RCN9047-26 equipped as follow [1]:



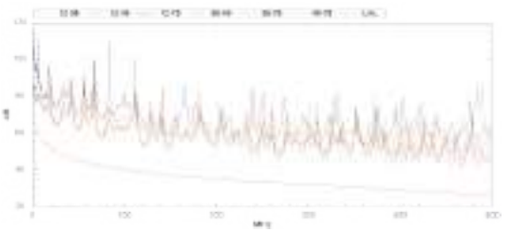

They proved QuickFusio™ 10 Gb/s to effectively minimize crosstalk, prevent perturbation from the environment, ensure reliability and maintain signal integrity.

*Transmission Characteristics:*

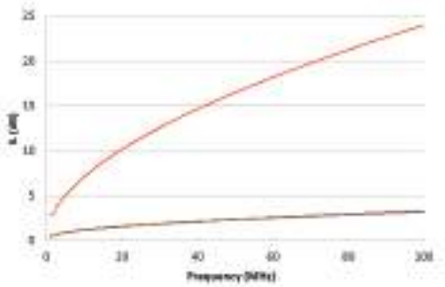
**EYE DIAGRAM**



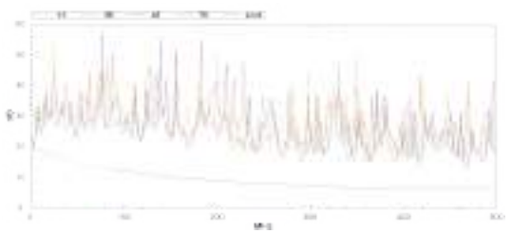
**NEAR-END CROSSTALK (NEXT):**



**INSERTION LOSS (IL):**



**RETURN LOSS (RL):**



***Notes***

*Test reports are available upon request.*

*1. For specific information on the Ethernet offer for QuickFusio™ equipped with PC tail contacts, please ask your local representative.*

## II. QUICKFUSIO™ 1 GB/S

The 1 Gb/s offer passes the Ethernet cat5e performance level due to a specific layout configuration developed in the insert IG, which preserves the signal integrity while minimizing crosstalk, insertion loss and return loss effects.

***Single Ethernet cable configuration (available with QuickFusio and QuickFusio+)***

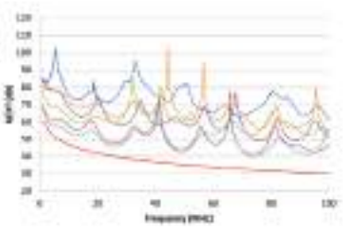
The single Ethernet configuration was tested with the same configuration (based on Arinc 800 part 4 specification) as QuickFusio™ 10 Gb/s. [1]



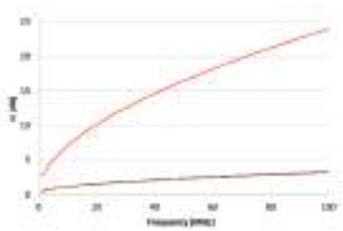
*Insert IG*
*Contact Mapping*

*Transmission Characteristics:*

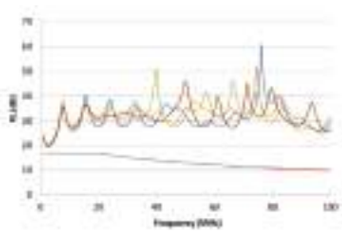
**NEAR-END CROSSTALK (NEXT):**



**INSERTION LOSS (IL):**



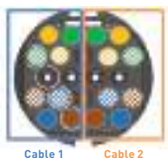
**RETURN LOSS (RL):**



### DOUBLE ETHERNET CABLE CONFIGURATION (AVAILABLE WITH QUICKFUSIO)

For this insert layout, the following configuration was tested with a Thermax MX10G-26FLX Ethernet cable. [1]

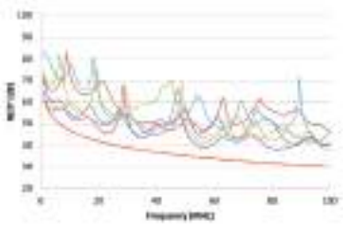


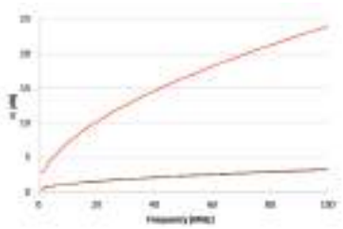

*Insert IG*
*Contact Mapping*

*Transmission Characteristics:*

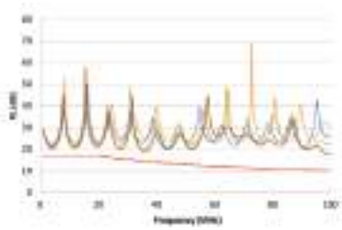
**NEAR-END CROSSTALK (NEXT):**



**INSERTION LOSS (IL):**



**RETURN LOSS (RL):**



*Refer to mounting instruction ref. MI IN 27 00004 EN (QuickFusio) and ref. MI IN 27 00001 EN (QuickFusio+) to ensure proper cable and connector assembly. Test reports are available upon request.*

***Notes***

*1. For specific information on the Ethernet offer for QuickFusio™ equipped with PC tail contacts, please ask your local representative.*

*Contacts*

## LUXCIS® ARINC 801 FIBER OPTIC CONTACTS

The LuxCis® Arinc 801 product range is a proven and flexible fiber optic interconnect solution that offers high speed communication in the aerospace market and other harsh environments.

### OPTICAL PERFORMANCE

| | SINGLEMODE UPC | SINGLEMODE APC | MULTIMODE PC |
|---|---|---|---|
| Wave length | 1,310-1,550 nm | | 850-1,300 nm |
| Insertion loss<br>Mean<br>Standard deviation | -<br>0.15 dB<br>0.1 dB | -<br>0.2 dB<br>0.12 dB | -<br>0.10 dB<br>0.07 dB |
| Return loss | > 50 dB | > 65 dB | > 20 dB |

Insertion Loss against a reference pathcord: IEC 61300-3-4 Method B, also described in ARINC 805
Return Loss: IEC 61300-3-6, also described in ARINC 805

### MECHANICAL AND ENVIRONMENTAL CHARACTERISTICS

| TEST | STANDARD | LUXCIS® ARINC 801 IN QUICKFUSIO+ CONNECTOR |
|---|---|---|
| Thermal Cycling | SAE AS 13441 Method 1003.1 | -55 °C/+125 °C (Cable Dependent) |
| Temperature Endurance | TIA/EIA 455-11 | 1,000 h @ 125 °C (Cable Dependent) |
| Vibration | EN2591-403-Method B-Level G | 27.8 grms |
| Shocks | EN2591-402 | 50 grms |
| Durability | TIA/EIA 364-09 | 500 Cycles |
| Maintenance Ageing | SAE AS 13441 Method 2002.1 | 10 Cycles |
| Cable Retention<br>1.8 mm Diameter<br>900 µm Diameter | SAE AS 13441 Method 2009.1 | <br>68 N<br>7 N |
| Humidity | TIA/EIA 455-5 | 10 Cycles/24 h - 90% RH - + 25 °C/+65 °C |
| Salt Spray | SAE AS 13441 Method 1001.1 | 96 h |
| Altitude Immersion | TIA/EIA 455-15A | Minimum Pressure Equivalent to an Altitude of 16,764 m (55,000 ft.). |

### LUXCIS® CONTACT PART NUMBERING SYSTEM

F725

**LUXCIS® SERIES**

**FERRULE TYPE**
**00:** PC ferrule for single-mode fiber
**03:** PC ferrule for 50/125 or 62.5/125 µm multi-mode fiber
**04:** PC ferrule for 100/40 um multi-mode fiber
**05:** PC ferrule for 200/230 um multi-mode fiber
**50:** APC ferrule for single-mode fiber

**CABLE TYPE AND DIAMETER**
**118:** 900 µm cable
**318:** 1.2 mm cable with strengthening members, tight structure
**419:** 1.6 to 2.2 mm cable, loose structure
**519:** 1.6 to 2.2 mm cable, tight structure



*Notes*
*Radiall can support you with your cable and harness assemblies.*
*Please contact your sales representative.*

## Q-MTITAN™ FIBER OPTIC CONTACTS

Q-MTitan™ is a ruggedized High Density optical solution for harsh environments. It brings multifiber capability through a standard #8 Quadrax cavity. With Q-MTitan™ protecting the MT ferrule, customers can take advantage of the parallel optic technology in harsh environments.

### OPTICAL PERFORMANCE

| | MULTIMODE PC |
|---|---|
| Wavelength | 850-1,300 nm |
| Insertion Loss | < 0.50 dB |
| Return Loss | > 20 dB |



### MECHANICAL AND ENVIRONMENTAL CHARACTERISTICS

The Q-MTitan™ contact has followed a full qualification test file in multipin connectors sharing the same quadrax cavity design with the QuickFusio™. The following data show the main performance of Q-MTitan™. For additional information, please contact your local Radiall representative.

| TEST | STANDARD | Q-MTITANTM CONTACTS |
|---|---|---|
| Thermal Cycling | EN 2591-6305 | -55 °C/+125 °C (Cable Dependent) |
| Temperature Endurance | EN 2591-6301 | 1,000 h @ 125 °C (Cable Dependent) |
| Vibration | TIA/EIA 455-11C | 28 g |
| Mechanical Endurance | EN 2591-406 | 200 Cycles |
| Cable Cycling Flexing | EN 2591-609 | 10 Cycles/3 N |
| Cable Pulling | EN2591-610 | 68 N |
| Damp Heat Cycling | EN 2591-6321 | 10 Cycles/24 h - 95% RH - + 38 °C/+65 °C |

*Q-MTitan™ Series F735 Offers:*

- High Density of MT ferrule (12 or 24 fibers)
- Compatibility with round and ribbon multi-fiber cables
- Sealing and cable retention functions on round multi-fiber cables
- Convenient inspection and cleaning with efficient tool kits provided
- User friendly solution: insertion and extraction using standard size 8 tool



Q-MTitan™ contacts are available as pre-terminated cable assembly designed and manufactured based on customer specifications, including various fiber management configurations. Please contact your local Radiall representative with your application requirement.

## ACCESSORIES

### ACCESSORIES FOR THREADED OUTPUT SHELLS

The QuickFusio™ series is compatible with a wide range of standard rear accessories.

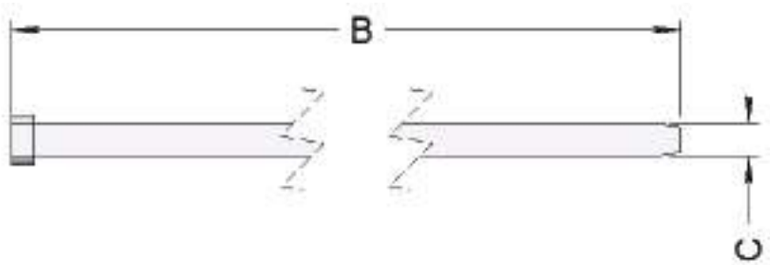
The threaded output has been designed per MIL-DTL-38999 series III size 11 rear dimensions. QuickFusio plug and receptacle connectors are suitable for use with Mil-DTL-38999 series III type backshells.

When using F4 and Q1 inserts, refer to page 3-23 to 3-26 to check special grommet protrusion.



### ACCESSORIES FOR BANDING OUTPUT SHELLS

| BAND SHIELD TERMINATOR | | | |
|---|---|---|---|
| Radiall Part Number | Size | Length B | Length C |
| 627990002 | Micro | 190.5 mm (7.5 in.) - 215.9 mm (8.5 in.) | 2.79 mm (0.110 in.) - 2.87 mm (0.113 in.) |




### SEALING PLUGS

*Sealing plugs are dedicated to environmental inserts.*

| CONTACT SIZE | RADIALL PART NUMBER | COLOR | STANDARD PART NUMBER |
|---|---|---|---|
| 22 | 616910 | Black | MS27488-22-2 |
| 20 | 616911 | Red | MS27488-20-2 |
| 16 | 616912 | Green | MS27488-16-2 |
| 12 | 616913 | Orange | MS27488-12-2 |
| 8 | 618915 | Red | N/A |

***Notes***

*To be used with banding tool A30199*

## SPARE PARTS & TOOLS

| | PART NUMBER | DESCRIPTION |
|---|---|---|
|  | 627954001 | Dust Cap for Plug Shell (Pink) |
|  | 627954002 | Dust Cap for Receptacle Shell (Pink) |
|  | 627954003 | ESD Dust Cap for Receptacle Shell (Black) |
|  | 627954004 | ESD Fly Cap for Receptacle Shell (Black) |
|  | 627802001 | Sleeve Holder for F4 Insert |
|  | 282549048 | Extraction Tool for Sleeve Holder |
|  | 670950013 | Sealing Boot for Size 8 Quadrax Contacts<br>Cable: NF 24 Q100 and ABS1503KD24 |
|  | 627990001 | Screw Kit<br>(4 × UNC 4-40 3A 5/16 Screws<br>and 4 x Washers) |
|  | 282690050 | Flat Screwdriver for Slide Lock Opening<br>FACOM_AN_2.5 x 50 |
|  | 627900001 | Bundle Mount Platform |
|  | 282690051 | Holding Wrench for Rear<br>Threaded Accessory |

*Inserts*

## WEIGHT - QUICKFUSIO

| PLUG [1] | | | | |
|---|---|---|---|---|
| INSERT NAME | INSERT TYPE | THREADED ACCESSORY | BANDING PLATFORM | BANDING PLATFORM & TIE WRAP |
| 22/IG | Pin | 8.50 g (0.30 oz) | 8.60 g (0.30 oz) | 8.90 g (0.31 oz) |
| 22/IG | Socket | 9.20 g (0.33 oz) | 9.30 g (0.33 oz) | 9.60 g (0.34 oz) |
| 14 | Pin | 8.50 g (0.30 oz) | 8.60 g (0.30oz) | 8.90 g (0.31 oz) |
| 14 | Socket | 9.20 g (0.33 oz) | 9.30 g (0.33 oz) | 9.60 g (0.34 oz) |
| 07 | Pin | 8.15 g (0.29 oz) | 8.25 g (0.29 oz) | 8.55 g (0.30 oz) |
| 07 | Socket | 8.60 g (0.30 oz) | 8.70 g (0.30 oz) | 9.00 g (0.32 oz) |
| 04 | Pin | 8.15 g (0.29 oz) | 8.25 g (0.29 oz) | 8.55 g (0.30 oz) |
| 04 | Socket | 8.60 g (0.30 oz) | 8.70 g (0.30 oz) | 9.00 g (0.32 oz) |
| M4 | Pin | 8.15 g (0.29 oz) | 8.25 g (0.29 oz) | 8.55 g (0.30 oz) |
| M4 | Socket | 8.60 g (0.30 oz) | 8.70 g (0.30 oz) | 9.00 g (0.32 oz) |
| M9 | Pin | 8.55 g (0.302 oz) | 8.65 g (0.305 oz) | 8.95 g (0.316 oz) |
| M9 | Socket | 9.25 g (0.326 oz) | 9.35 g (0.330 oz) | 9.65 g (0.340 oz) |
| XG | Pin | 8.45 g (0.30 oz) | 8.55 g (0.30 oz) | 8.85 g (0.31 oz) |
| XG | Socket | 9.30 g (0.33 oz) | 9.40 g (0.33 oz) | 9.70 g (0.34 oz) |

| SQUARE FLANGE RECEPTACLE [1] | | | | | |
|---|---|---|---|---|---|
| INSERT NAME | INSERT TYPE | THREADED ACCESSORY | BANDING PLATFORM | BANDING PLATFORM & TIE WRAP | SHORT RECEPTACLE |
| 22/IG | Pin | 7.20 g (0.25 oz) | 7.30 g (0.26 oz) | 7.60 g (0.27 oz) | 6.75 g (0.24 oz) |
| 22/IG | Socket | 7.85 g (0.28 oz) | 7.95 g (0.28 oz) | 8.25 g (0.29 oz) | N/A |
| 14 | Pin | 7.20 g (0.25 oz) | 7.30 g (0.26 oz) | 7.60 g (0.27 oz) | 6.75 g (0.24 oz) |
| 14 | Socket | 7.85 g (0.28 oz) | 7.95 g (0.28 oz) | 8.25 g (0.29 oz) | N/A |
| 07 | Pin | 6.85 g (0.25 oz) | 6.95 g (0.25 oz) | 7.25 g (0.26 oz) | 6.40 g (0.23 oz) |
| 07 | Socket | 7.30 g (0.26 oz) | 7.40 g (0.26 oz) | 7.70 g (0.27 oz) | N/A |
| 04 | Pin | 6.85 g (0.25 oz) | 6.95 g (0.25 oz) | 7.25 g (0.26 oz) | 6.40 g (0.23 oz) |
| 04 | Socket | 7.30 g (0.26oz) | 7.40 g (0.26 oz) | 7.70 g (0.27 oz) | N/A |
| M4 | Pin | 6.85 g (0.25 oz) | 6.95 g (0.25 oz) | 7.25 g (0.26 oz) | 6.40 g (0.23 oz) |
| M4 | Socket | 7.30 g (0.26 oz) | 7.40 g (0.26 oz) | 7.70 g (0.27 oz) | N/A |
| M9 | Pin | 7.25 g (0.256 oz) | 7.35 g (0.259 oz) | 7.65 g (0.270 oz) | 9.40 g (0.332 oz) |
| M9 | Socket | 7.90 g (0.279 oz) | 8.00 g (0.282 oz) | 8.30 g (0.293 oz) | N/A |
| XG | Pin | 7.10 g (0.25 oz) | 7.20 g (0.25 oz) | 7.50 g (0.27 oz) | 6.65 g (0.24 oz) |
| XG | Socket | 7.95 g (0.28 oz) | 8.05 g (0.28 oz) | 8.35 g (0.30 oz) | N/A |

*Notes*

*1. Connector weight includes non-environmental insert only without contacts.*

*Inserts*

| IN-LINE RECEPTACLE [1] [2] | | | | |
|---|---|---|---|---|
| INSERT NAME | INSERT TYPE | THREADED ACCESSORY | BANDING PLATFORM | BANDING PLATFORM & TIE WRAP |
| 22/IG | Pin | 5.40 g (0.19 oz) | 5.50 g (0.19 oz) | 5.80 g (0.20 oz) |
| 22/IG | Socket | 6.05 g (0.21 oz) | 6.15 g (0.22 oz) | 6.45 g (0.23 oz) |
| 14 | Pin | 5.40 g (0.19 oz) | 5.50 g (0.19 oz) | 5.80 g (0.20 oz) |
| 14 | Socket | 6.05 g (0.21 oz) | 6.15 g (0.22 oz) | 6.45 g (0.23 oz) |
| 7 | Pin | 5.05 g (0.18 oz) | 5.15 g (0.18 oz) | 5.45 g (0.19 oz) |
| 7 | Socket | 5.50 g (0.19 oz) | 5.60 g (0.20 oz) | 5.90 g (0.21 oz) |
| 4 | Pin | 5.05 g (0.18 oz) | 5.15 g (0.18 oz) | 5.45 g (0.19 oz) |
| 4 | Socket | 5.50 g (0.19 oz) | 5.60 g (0.20 oz) | 5.90 g (0.21 oz) |
| M4 | Pin | 5.05 g (0.18 oz) | 5.15 g (0.18 oz) | 5.45 g (0.19 oz) |
| M4 | Socket | 5.50 g (0.19 oz) | 5.60 g (0.20 oz) | 5.90 g (0.21 oz) |
| M9 | Pin | 5.45 g (0.192 oz) | 5.55 g (0.196 oz) | 5.85 g (0.206 oz) |
| M9 | Socket | 6.10 g (0.215 oz) | 6.20 g (0.219 oz) | 6.50 g (0.229 oz) |
| XG | Pin | 5.30 g (0.19 oz) | 5.40 g (0.19 oz) | 5.70 g (0.20 oz) |
| XG | Socket | 6.15 g (0.22 oz) | 6.25 g (0.22 oz) | 6.55 g (0.23 oz) |

| JAM NUT RECEPTACLE | | | |
|---|---|---|---|
| RECEPTACLES EQUIPPED WITH | | JAM NUT RECEPTACLE OUTPUT OPTIONS | |
| INSERT NAME | INSERT TYPE | THREADED ACCESSORY | BANDING PLATFORM |
| 22/IG | Pin | 10.60 g (0.374 oz) | 10.75 g (0.379 oz) |
| 22/IG | Socket | 11.25 g (0.397 oz) | 11.40 g (0.402 oz) |
| 14 | Pin | 10.60 g (0.374 oz) | 10.75 g (0.379 oz) |
| 14 | Socket | 11.25 g (0.397 oz) | 11.40 g (0.402 oz) |
| 7 | Pin | 10.25 g (0.362 oz) | 10.40 g (0.367 oz) |
| 7 | Socket | 10.70 g (0.377 oz) | 10.85 g (0.383 oz) |
| 4 | Pin | 10.25 g (0.362 oz) | 10.40 g (0.367 oz) |
| 4 | Socket | 10.70 g (0.377 oz) | 10.85 g (0.383 oz) |
| M4 | Pin | 10.25 g (0.362 oz) | 10.40 g (0.367 oz) |
| M4 | Socket | 10.70 g (0.377 oz) | 10.85 g (0.383 oz) |
| M9 | Pin | 10.65 g (0.376 oz) | 10.80 g (0.381 oz) |
| M9 | Socket | 11.30 g (0.399 oz) | 11.45 g (0.404 oz) |
| XG | Pin | 10.65 g (0.376 oz) | 10.80 g (0.381 oz) |
| XG | Socket | 11.30 g (0.399 oz) | 11.45 g (0.404 oz) |

*Notes*

*1. Connector weight includes non-environmental insert only without contacts.*
*2. Connector weight does not include the bundle mount platform. Bundle mount platform weight is 3.35 g (0.12 oz).*

*Inserts*

## WEIGHT - QUICKFUSIO+

| PLUG [1] | | | | |
|---|---|---|---|---|
| INSERT NAME | INSERT TYPE | THREADED ACCESSORY | BANDING PLATFORM | BANDING PLATFORM & TIE WRAP |
| 22/IG | Pin | 9.45 g (0.33oz) | 9.55 g (0.34 oz) | 9.85 g (0.35 oz) |
| 22/IG | Socket | 10.10 g (0.36 oz) | 10.20 g (0.36 oz) | 10.50 g (0.377 oz) |
| 14 | Pin | 9.35 g (0.33 oz) | 9.45 g (0.33 oz) | 9.75 g (0.34 oz) |
| 14 | Socket | 10.00 g (0.35 oz) | 10.10 g (0.36 oz) | 10.40 g (0.37 oz) |
| 07 | Pin | 9.05 g (0.32 oz) | 9.15 g (0.32 oz) | 9.45 g (0.33 oz) |
| 07 | Socket | 9.50 g (0.34 oz) | 9.60 g (0.34 oz) | 9.90 g (0.35 oz) |
| 04 | Pin | 9.00 g (0.32 oz) | 9.10 g (0.32 oz) | 9.40 g (0.33 oz) |
| 04 | Socket | 9.45 g (0.33 oz) | 9.55 g (0.34 oz) | 9.85 g (0.35 oz) |
| F4 | Pin | 9.50 g (0.34 oz) | 9.60 g (0.34 oz) | N/A |
| Q1 | Pin | 8.60 g (0.30 oz) | 8.70 g (0.31 oz) | N/A |
| Q1 | Socket | 9.25 g (0.33 oz) | 9.35 g (0.33 oz) | N/A |
| M4 | Pin | 9.05 g (0.32 oz) | 9.15 g (0.32 oz) | 9.45 g (0.33 oz) |
| M4 | Socket | 9.50 g (0.34 oz) | 9.60 g (0.34 oz) | 9.90 g (0.35 oz) |
| XG | Pin | 9.50 g (0.34 oz) | 9.60 g (0.34 oz) | 9.90 g (0.35 oz) |
| XG | Socket | 10.35 g (0.37 oz) | 10.45 g (0.37 oz) | 10.75 g (0.38 oz) |

| SQUARE FLANGE RECEPTACLE [1] | | | | | |
|---|---|---|---|---|---|
| INSERT NAME | INSERT TYPE | THREADED ACCESSORY | BANDING PLATFORM | BANDING PLATFORM & TIE WRAP | SHORT RECEPTACLE |
| 22/IG | Pin | 8.10 g (0.29 oz) | 8.20 g (0.29 oz) | 8.50 g (0.30 oz) | 6.75 g (0.24 oz) |
| 22/IG | Socket | 8.80 g (0.31 oz) | 8.90 g (0.31 oz) | 9.20 g (0.32 oz) | N/A |
| 14 | Pin | 8.00 g (0.28 oz) | 8.10 g (0.29 oz) | 8.40 g (0.30 oz) | 6.75 g (0.24 oz) |
| 14 | Socket | 8.65 g (0.31 oz) | 8.75 g (0.31 oz) | 9.05 g (0.32 oz) | N/A |
| 07 | Pin | 7.75 g (0.27 oz) | 7.85 g (0.28 oz) | 8.15 g (0.29 oz) | 6.40 g (0.23 oz) |
| 07 | Socket | 8.20 g (0.29 oz) | 8.30 g (0.29 oz) | 8.60 g (0.30 oz) | N/A |
| 04 | Pin | 7.70 g (0.27 oz) | 7.80 g (0.28 oz) | 8.10 g (0.29 oz) | 6.40 g (0.23 oz) |
| 04 | Socket | 8.10 g (0.29 oz) | 8.20 g (0.29 oz) | 8.50 g (0.30 oz) | N/A |
| F4 | Socket | 9.00 g (0.32 oz) | 9.10 g (0.32 oz) | N/A | N/A |
| Q1 | Pin | 7.30 g (0.26 oz) | 7.40 g (0.26 oz) | N/A | N/A |
| Q1 | Socket | 7.95 g (0.28 oz) | 8.05 g (0.28 oz) | N/A | N/A |
| M4 | Pin | 7.75 g (0.27 oz) | 7.85 g (0.28 oz) | 8.15 g (0.29 oz) | 6.40 g (0.23 oz) |
| M4 | Socket | 8.20 g (0.29 oz) | 8.30 g (0.29 oz) | 8.60 g (0.30 oz) | N/A |
| XG | Pin | 8.20 g (0.29 oz) | 8.30 g (0.29 oz) | 8.60 g (0.30 oz) | 6.65 g (0.24 oz) |
| XG | Socket | 9.05 g (0.32 oz) | 9.15 g (0.32 oz) | 9.45 g (0.33 oz) | N/A |

*Notes*

*1. Connector weight includes environmental insert without contacts, except for short receptacles which are equipped with non-environmental inserts.*

*Inserts*

| IN-LINE RECEPTACLE [1] [2] | | | | |
|---|---|---|---|---|
| INSERT NAME | INSERT TYPE | THREADED ACCESSORY | BANDING PLATFORM | BANDING PLATFORM & TIE WRAP |
| 22/IG | Pin | 6.30 g (0.22 oz) | 6.40 g (0.23 oz) | 6.70 g (0.24 oz) |
| 22/IG | Socket | 7.00 g (0.25 oz) | 7.10 g (0.25 oz) | 7.40 g (0.26 oz) |
| 14 | Pin | 6.20 g (0.22 oz) | 6.30 g (0.22 oz) | 6.60 g (0.23 oz) |
| 14 | Socket | 6.85 g (0.24 oz) | 6.95 g (0.25 oz) | 7.25 g (0.26 oz) |
| 7 | Pin | 5.95 g (0.22 oz) | 6.05 g (0.21 oz) | 6.35 g (0.22 oz) |
| 7 | Socket | 6.40 g (0.23 oz) | 6.50 g (0.23 oz) | 6.80 g (0.24 oz) |
| 4 | Pin | 5.90 g (0.21 oz) | 6.00 g (0.21 oz) | 6.30 g (0.22 oz) |
| 4 | Socket | 6.30 g (0.22 oz) | 6.40 g (0.23 oz) | 6.70 g (0.24 oz) |
| F4 | Socket | 7.20 g (0.25 oz) | 7.30 g (0.26 oz) | N/A |
| Q1 | Pin | 5.50 g (0.19 oz) | 5.60 g (0.20 oz) | N/A |
| Q1 | Socket | 6.15 g (0.22 oz) | 6.25 g (0.22 oz) | N/A |
| M4 | Pin | 5.95 g (0.21 oz) | 6.05 g (0.21 g) | 6.35 g (0.22 oz) |
| M4 | Socket | 6.40 g (0.23 oz) | 6.50 g (0.23 oz) | 6.80 g (0.24 oz) |
| XG | Pin | 6.40 g (0.23 oz) | 6.50 g (0.23 oz) | 6.80 g (0.24 oz) |
| XG | Socket | 7.25 g (0.26 oz) | 7.35 g (0.26 oz) | 7.65 g (0.27 oz) |

| JAM NUT RECEPTACLE | | | |
|---|---|---|---|
| RECEPTACLES EQUIPPED WITH | | JAM NUT RECEPTACLE OUTPUT OPTIONS | |
| INSERT NAME | INSERT TYPE | THREADED ACCESSORY | BANDING PLATFORM |
| 22/IG | Pin | 11.50 g (0.406 oz) | 11.65 g (0.411 oz) |
| 22/IG | Socket | 12.20 g (0.430 oz) | 12.35 g (0.436 oz) |
| 14 | Pin | 11.40 g (0.402 oz) | 11.55 g (0.407 oz) |
| 14 | Socket | 12.05 g (0.425 oz) | 12.20 g (0.430 oz) |
| 7 | Pin | 11.15 g (0.393 oz) | 11.30 g (0.399 oz) |
| 7 | Socket | 11.60 g (0.409 oz) | 11.75 g (0.414 oz) |
| 4 | Pin | 11.10 g (0.392 oz) | 11.25 g (0.397 oz) |
| 4 | Socket | 11.50 g (0.406 oz) | 11.65 g (0.411 oz) |
| M4 | Pin | 11.15 g (0.393 oz) | 11.30 g (0.399 oz) |
| M4 | Socket | 11.60 g (0.409 oz) | 11.75 g (0.414 oz) |
| M9 | Pin | 11.40 g (0.402 oz) | 11.55 g (0.407 oz) |
| M9 | Socket | 12.10 g (0.427 oz) | 12.25 g (0.432 oz) |
| XG | Pin | 11.60 g (0.409 oz) | 11.75 g (0.414 oz) |
| XG | Socket | 12.45 g (0.439 oz) | 12.60 g (0.444 oz) |
| F4 | Socket | 12.40 g (0.437 oz) | 12.55 g (0.443 oz) |
| Q1 | Pin | 10.70 g (0.377 oz) | 10.85 g (0.383 oz) |
| Q1 | Socket | 11.35 g (0.400 oz) | 11.50 g (0.406 oz) |

*Notes*

*1. Connector weight includes environmental insert without contacts, except for short receptacles which are equipped with non-environmental inserts.*
*2. Connector weight does not include the bundle mount platform. Bundle mount platform weight is 3.35 g (0.12 oz).*



# HDQX SERIES

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## CONNECTORS & ACCESSORIES

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## INTRODUCTION



Radiall introduces the new HDQX connector series, specially designed for the transmission of Ethernet and RF high speed signals required in harsh environment applications.

HDQX connectors combine both the compact and rugged qualities necessary for high reliability and signal integrity in aerospace and military environments.

The HDQX range offers Cable-to-Cable and Cable-to-PCB solutions. Offering twelve size 8 cavities in a high-density rectangular shell, the space saving HDQX accepts Quadrax and BMA RF contacts, as well as twinax and triaxial contacts.

## APPLICATIONS

Typical applications for the HDQX connectors include data networks, in-flight entertainment systems, video control centers and naval and military vehicle communications.







*© AIRBUS S.A.S 2007 _ photos by e'm company / H. GOUSSÉ*

*Introduction*

## FEATURES

### HDQX CONNECTOR BENEFITS

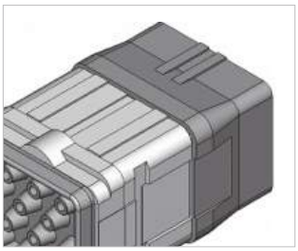
- High-density solution for size 8 cavities using standard ARINC 600 Quadrax contacts and size 8 BMA RF coax, triax and twinax contacts
- Space-saving connector for limited space applications
- Rectangular connector is stackable
- Lightweight composite strain relief
- Simple and secure connection with a central locking device
- Contacts grounded to the shell with extremely high electrical continuity



*Class P Connector Pair*

### AVAILABLE HDQX RANGE CONNECTORS

- Class N: Non-environmental plug and receptacle
- Class E: Environmental plug and receptacle (connector sealed on the electrical line)
- Class P: Panel sealed receptacle (feed-through sealed connector)



*Cable-to-PCB Application*

### MAIN FEATURES

- 12 contacts cavities
- Grounded size 8 standard cavities (ARINC 600 type)
- Cable-to-cable and cable-to-PCB application
- RoHS compliant
- 12 keying formatting possibilities positions
- 1 central position jacknut/jackscrew
- Uses standard insertion/extraction tool
- User Manual # MIIN1700002 is available



*Cable-to-Cable Application*

*Introduction*

## ELECTRICAL CHARACTERISTICS

- **Shell-to-Shell Conductivity:** 2.5 mΩ (level reached during initial and after testing as per EN2591-205).
- **Contact-to-Shell Conductivity:** maximum of 10 mΩ (level reached during initial and after environmental testing)
- **Lightning Strike:**
  - Pin injection: 1600V 320A as per RTCA DO160 (§22.5.1)
  - Current pulse: 3kA as per EN2591-214
- **DWV at Sea Level:**
  - 1,000 Vrms between outer body and signal contacts as per EN2591-207, Method C
  - 1,000 Vrms between signal contacts
  - DWV altitude (70,000 ft): 125 Vrms for the quadrax contacts as per ARINC 600

## MECHANICAL CHARACTERISTICS

- **Mating/Unmating:** 100 cycles
- **Impact Test:** 8 drops at 1.20 m as per EN2591-613
- **Bending Moment (Applied to Accessories):** 100 N as per EN2591-404
- **Mechanical Axial Strength (Applied to Accessories):** 100 N as per EN2591-420

### VIBRATION & SHOCKS

| SERIES | MATERIAL | VIBRATION | SHOCK |
|---|---|---|---|
| | | **For 8 Hours on each of the 3 Axis/ Interruption<1 µs EN2591-403 EIA 364-28** | **3 Shocks on each Axis EN2591-402 EIA 364-27** |
| HDQX | Aluminium | Acceleration 16.9 g (Method B Figure 2 Table 1 Level E) | Shock Amplitude 50 g/Duration 11 ms |

### OTHER CHARACTERISTICS

- **Temperature Range:** -65 °C/+150 °C (-85 °F/+302 °F), 5 cycles as per EN2591-305
- **Temperature Life:** 1,000 hours at 150 °C (+302 °F) as per EN2591-301 Method B
- **Salt Spray:** 96 hours as per EN2591-307
- **Sealing:** altitude immersion 50,000 ft as per EN2591-314
- **Sand and Dust:** wind velocity 3.5 ±0.5 ms as per EN2591-308
- **Mould Growth:** during 28 days, growth 0 as per EN2591-306 Method A
- **Fluid Immersion:** kerosene, phosphate base, mineral base, polyolester, solvent, detergent, aircraft deicers, heptafluoropropane, pentafluoroethane, radar coolant as per EN3909
- **Magnetic Permeability:** 2 µ as per EN2591-513

*Contacts*

# CRIMP CONTACTS

## QUADRAX CONTACTS

Standardized ARINC 600 Quadrax contacts are available with HDQX series.

| CONTACT SIZE | CABLE TYPE | TYPE | ENVIRONMENTAL PART NUMBER | NON-ENVIRONMENTAL PART NUMBER | INS/EXT TOOL IN METAL |
|---|---|---|---|---|---|
| 8 | Ethernet Cable ABS0972 & ABS1503 | Pin | Consult Radiall | 620175010 | 282549001 |
| | | Socket | | 620075010 | |
| | Tensolite NF24Q100 | Pin | | 620175050 | |
| | | Socket | | 620075050 | |
| | Tensolite NF26Q100 - JSF Y18 | Pin | | 620175021 | |
| | | Socket | | 620075021 | |

## BMA CONTACTS

| CONTACT SIZE | CABLE TYPE | CONNECTOR TYPE | NON-ENVIRONMENTAL PART NUMBER | FREQUENCY RANGE | MAX VSWR | INSERTION LOSS |
|---|---|---|---|---|---|---|
| 8 | SHF5 - SHF5M [1] | Pin | 617171010 | DC-18 GHz | 1.35 | 0.13 dB at Max Frequency (18 GHz) |
| 8 | RG142 | Pin | 617171020 | DC-12,4 GHz | 1.35 | 0.11 dB at Max Frequency (12.4 GHz) |
| 8 | SHF2.4 M [1]/UT.085 Harbour SS405 Times Tflex405 | Pin | 617171030 | DC-18 GHz | 1.35 | 0.13 dB at Max Frequency (18 GHz) |
| 8 | SHF5 - SHF5M [1] | Socket | 617071010 | DC-18 GHz | 1.35 | 0.13 dB at Max Frequency (18 GHz) |
| 8 | RG142 | Socket | 617071020 | DC-12,4 GHz | 1.35 | 0.11 dB at Max Frequency (12.4 GHz) |
| 8 | SHF3 [1] | Socket | 617071040 | DC-18 GHz | 1.35 | 0.13 dB at Max Frequency (18 GHz) |

Extraction tool 282549001 is used for size 8 BMA contacts.

# PC TAIL CONTACTS

## SIZE 8 QUADRAX PIN CONTACTS

| PART NUMBER | CONTACT TERMINATION | MINIMUM LENGTH IN MM (INCH) [2] |
|---|---|---|
| 620176009 | YA | 2.80 (0.110) |
| 620176016 | ZA | |
| 620176509 | RA | |
| 620176008 | Y | 5.65 (0.222) |
| 620176010 | Z | |
| 620176508 | R | |
| 620176011 | YB | 8.50 (0.334) |
| 620176012 | ZB | |
| 620176511 | RB | |
| 620176013 | YC | 11.90 (0.469) |
| 620176014 | ZC | |
| 620176513 | RC | |

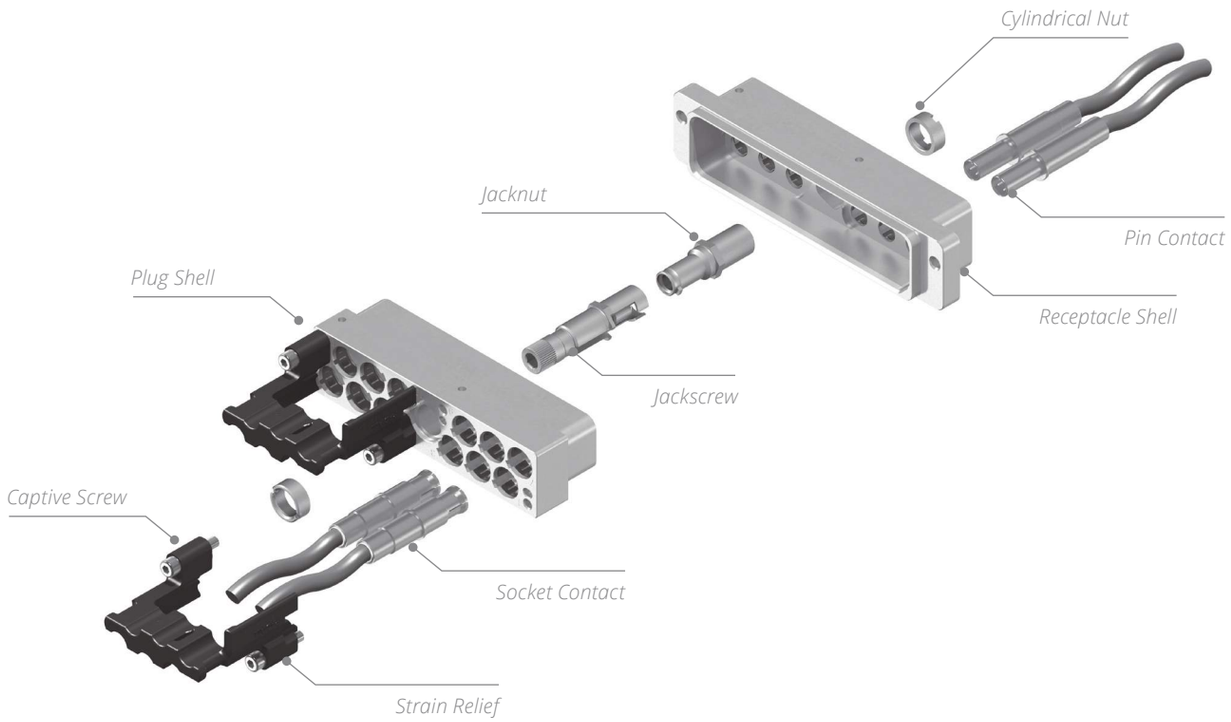
*Notes*

*1. BMA which have to accommodate SHF cable requires a wiring done by Radiall, please, contact Radiall for information.*

*2. Minimum length corresponds to straight PC tail length protruding from HDQX cavity.*

## PRODUCT OVERVIEW

Detailed view of the various parts of HDQX connector:



## HOW TO ORDER HDQX CONNECTORS

HDQX

**SERIES PREFIX**

**CONNECTOR SIZE**
**12:** 12 size 8 cavities

**SHELL STYLE**
**P:** Plug for RR/RR (rear release/rear removal) contacts
**R:** Receptacle for RR/RR (rear release/rear removal) contacts
**F:** Receptacle fot FR/FR (front release/front removal) contacts

**CLASS**
**E:** Environmental (upon request only)
**N:** Non-environmental
**P:** Panel sealing, receptacle only (upon request only)

**SHELL PLATING**
**N:** Nickel

**CONTACT TERMINATION**
**X:** No contacts
**Qx:** Crimp Quadrax contacts [2]
**Cx:** Crimp BMA contacts [1] [2]
**Yx:** Gold PC tail Quadrax contacts [3]
**Zx:** Tin lead PC tail Quadrax contacts [3]
**Rx:** Pure tin PC tail Quadrax contacts [3]

**SHELL MOUNTING**
**00:** Flangeless plug
**00:** 2 self-locking threads for 6-32 UNC 2A screws for receptacle
**01:** 4 self-locking threads for 6-32 UNC 2A screws for receptacle

**POLARIZATION**
**WITHOUT:** No polarization system provided
**POLARIZATION:** See page 4-11 for codes

*Notes*
*1. BMA contacts are not available with class E and P.*
*2. See Table 1 on page 4-8*
*3. See Table 2 on 4-8*

## CONTACTS TERMINATION

**TABLE 1:**
**CRIMPED CONTACT TERMINATION**
**FOR RR/RR RECEPTACLE AND PLUG**

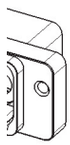
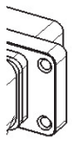
| CABLE | QUADRAX | BMA |
|---|---|---|
| ABS1503KD24 | Q1 | - |
| NF24Q100 | Q2 | - |
| JSFY18 | Q3 | - |
| RG142 | - | C1 |
| UT 0.085 | - | C2 |

**TABLE 2:**
**PC-TAIL CONTACT TERMINATION**
**FOR FR/FR RECEPTACLE**

| MINIMUM LENGTH MM (INCH) | GOLD | TIN-LEAD | PURE TIN |
|---|---|---|---|
| 2.80 (0.110) | YA | ZA | RA |
| 5.65 (0.222) | Y | Z | R |
| 8.50 (0.334) | YB | ZB | RB |
| 11.90 (0.469) | YC | ZC | RC |

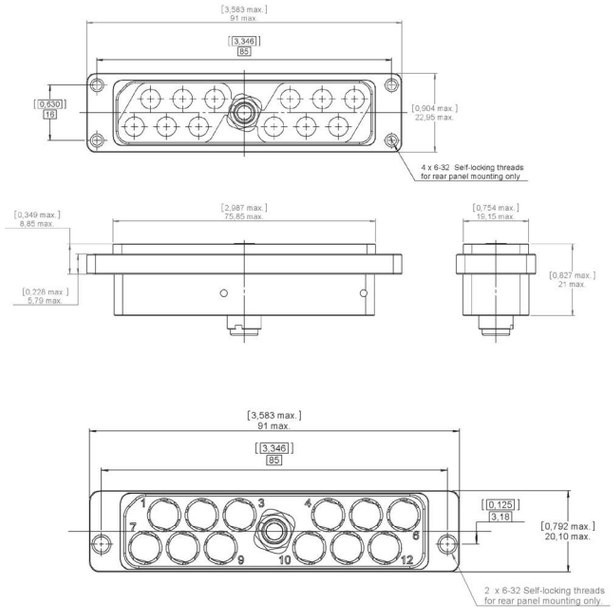
## SHELL MOUNTING

Both shell mounting 00 and 01 are available with RR/RR and FR/FR receptacle.

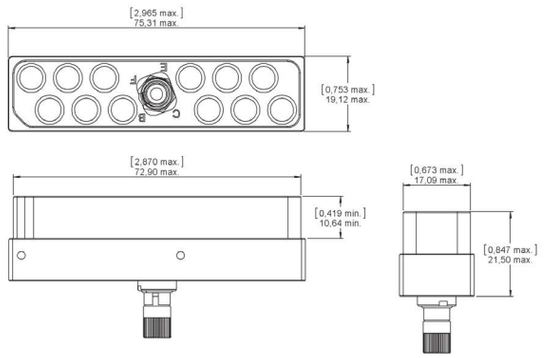
| CODE | DETAIL | |
|---|---|---|
| 00 | Flangeless Plug (No Fixing System) |  |
| 00 | Rear Panel Mounting Receptacle:<br>2 Self-Locking Threads for 6-32 UNC 2A Screws |  |
| 01 | Rear Panel Mounting Receptacle:<br>4 Self-Locking Threads for 6-32 UNC 2A Screws |  |

# DIMENSIONS

## RECEPTACLE



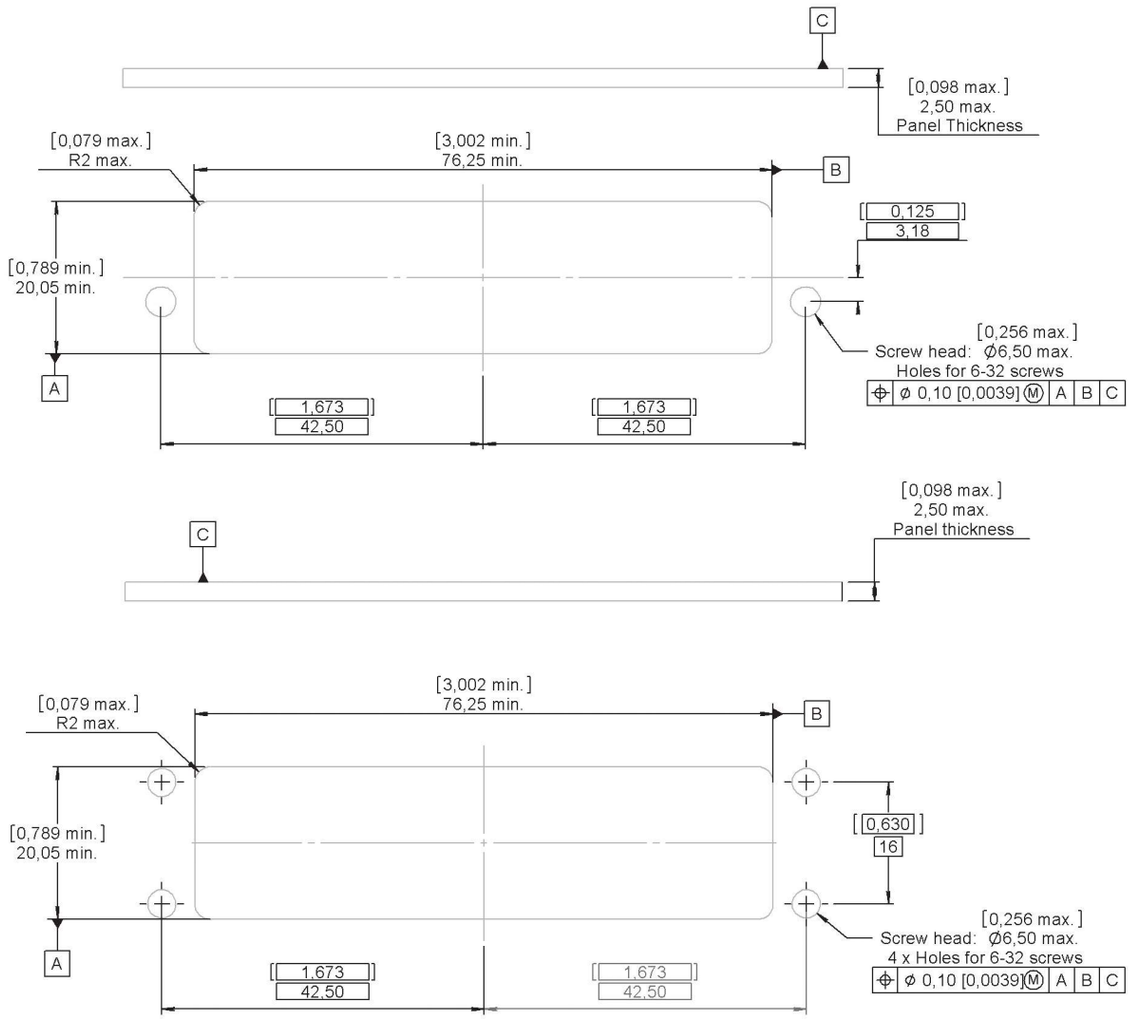

## PLUG




*Not Applicable*

## PANEL CUT-OUT

### RECEPTACLE



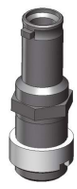
## POLARIZATION CODE

| CODE | DEVICE | DEVICE DELIVERED |
|---|---|---|
| 12 | Jackscrew, A to F | Unassembled |
| 13 | Jackscrew, N to Z | Unassembled |
| 22 | Jacknut, A to F | Unassembled |
| 23 | Jacknut, N to Z | Unassembled |
| 1A | Jackscrew, position A to Z | Assembled |
| 2A | Jacknut, position A to Z | Assembled |

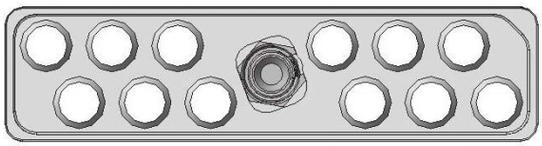
### HDQX JACKSCREW & JACKNUT

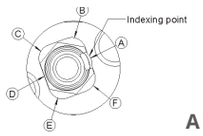
In the standard version, the jackscrew is mounted on the plug shell and the jack nut is mounted on the receptacle shell.

There are two sets of jackscrews and jacknuts. Each set provides 6 polarizing positions A, B, C, D, E, and F and the second set provides polarizing positions N, R, W, X, Y and Z. The difference between the two sets is accomplished using an indexing point shown below in the drawings:

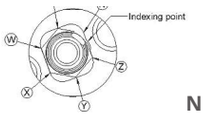
| DESIGNATION | POLARIZING POSITIONS | CODING DEVICE | PART NUMBER | |
|---|---|---|---|---|
| Jackscrew | A to F |  | 617612801 |  |
| | N to Z |  | 617612803 | |
| | Universal |  | 617612806 |  |
| Jacknut for Front Release Receptacle | A to F |  | 617612805 |  |
| | N to Z |  | 617612804 | |
| Jacknut for Rear Release Receptacle | A to F |  | 617612800 |  |
| | N to Z |  | 617612802 | |
| Jacknut | Universal |  | 617612807 |  |

## PLUG SHELL



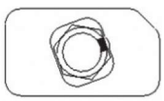
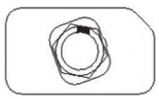
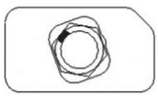
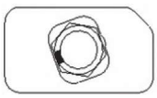
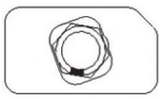
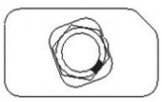


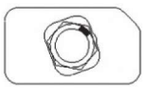
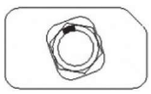
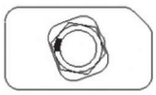
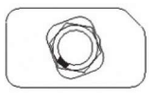
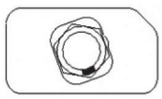
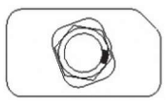

A TO F



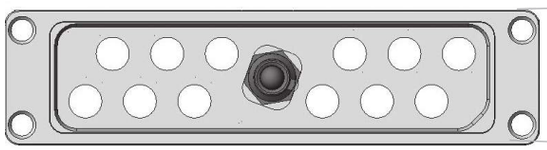

N TO Z

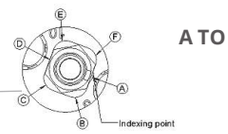
## MATING FACE SHOWN

| A | B | C | D | E | F |
|---|---|---|---|---|---|
|  |  |  |  |  |  |

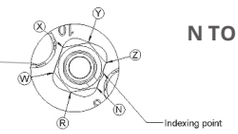
| N | R | W | X | Y | Z |
|---|---|---|---|---|---|
|  |  |  |  |  |  |

## RECEPTACLE SHELL



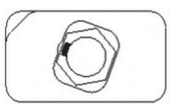
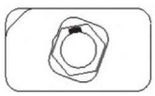
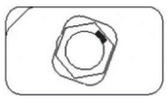
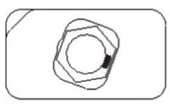
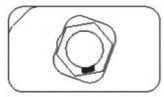
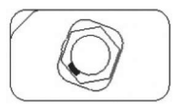


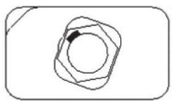
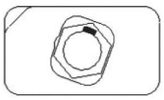
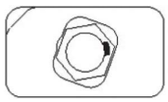
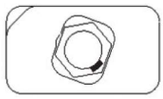
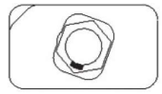
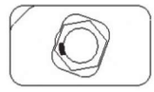

A TO F



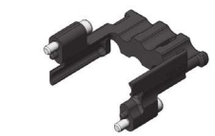
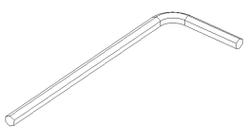
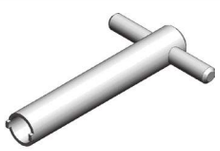

N TO Z

## MATING FACE SHOWN

| A | B | C | D | E | F |
|---|---|---|---|---|---|
|  |  |  |  |  |  |

| N | R | W | X | Y | Z |
|---|---|---|---|---|---|
|  |  |  |  |  |  |

## ACCESSORIES & TOOLS

| | PART NUMBER | DESCRIPTION |
|---|---|---|
|  | 617922024 | Strain Relief for Plug<br>Assembly Torque 0.55 ±0.05 Nm |
|  | 617922026 | Strain Relief for Receptacle<br>Assembly Torque 0.55 ±0.05 Nm |
|  | 282666001 | Connector Locking: Allen Wrench<br>(9/64 inch) |
|  | 282666002 | Strain Relief Locking: Allen Wrench<br>(5/64 in.) |
|  | 282549001 | Extraction Tool<br>(For Quadrax and BMA Contacts) |
|  | 282664 | 1/4 inch Hex. Screwdriver Bit to Affix the<br>Nut of the Jackscrew or the Jacknut |
|  | 282665 | Spigot Wrench to Affix the Nut of the<br>Jackscrew or the Jacknut |

*Notes*



# NSX - BPX SERIES

***Arinc 600***

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*NSX-Arinc*

## INTRODUCTION

### NSX & BPX MULTICONTACT CONNECTORS

NSX series (defined by ARINC 600 specification) and BPX series (defined by Boeing S280W551 specification) are multipin rack and panel connectors used to connect high performance aeronautical equipment.

*Items in this catalog are covered by French and foreign Patents and/or Patents pending.*

These two series manufactured by Radiall show the following characteristics:

- High contact density
- Wide range of contact types and arrangement
- Numerous shell polarization possibilities which give maximum security when mating the equipment in the rack
- Low mating forces
- Separation of power and signal contacts
- EMI/RFI shielding option provided by shell to shell conductivity

Major aircraft manufacturers and equipment manufacturers have been entrusting Radiall for many years using NSX and BPX series.

### NSX SERIES (ARINC 600 STANDARD)

Radiall NSX series offers the following versions including a new cost effective solution:

Connectors for **rear removable** contacts:

- NSX N
  - Plug and receptacle connectors.
  - Non-environmental version, inserts without grommet and compound, plugs without groove and O-ring.
- NSX C
  - Plug and receptacle connectors.
  - Non-environmental version, inserts with grommet but without compound, plugs without groove and O-ring.
- NSX E
  - Plug and receptacle connectors.
  - Environmental version, inserts with grommet and compound, plugs with groove and O-ring.
- NSX H
  - Plug connector only.
  - Environmental version, inserts with grommet and compound, plugs without groove and O-ring.

Connectors for **front removable** contacts:

- NSX F
  - Receptacle connectors only.
  - Only signal contacts are Front release/Front Removable (FR/FR), others will be Rear Release/Rear Removable (RR/RR). Non-environmental version, inserts without grommet and compound.
- NSX G
  - Receptacle connectors only.
  - Signal, power, coax, triax and quadrax contacts are FR/FR. Non-environmental version, inserts without grommet and compound.
- NSX K
  - New cost effective solution. 100% RoHS compliant for shell plating selection F and S. Receptacle connectors only.
  - Inserts fully completed with harpooned size 22 contacts. Non-environmental version.

As an option, EMI/RFI features are available to get shell to shell conductivity.

*NSX-Arinc*

## SHELL

Radiall NSX series offers three metallic shell sizes fitted with polarization hardware offering 216 polarizing possibilities.

NSX shells answer all requirements with three different platings, all compliant with ARINC 600 standard: nickel, RoHS.

The plug shell is fitted with inserts for signal (size 22) pin contacts, coax, triax and quadrax socket contacts. The receptacle shell is fitted with inserts for signal socket contacts, coax, triax and quadrax pin contacts.



## INSERTS

Environmental inserts have a wire sealing grommet on the rear face and compound between insert and shell. The different kinds of inserts available are:

- Insert for rear release rear removable contacts (blue colored on the terminating face).
- Insert for front release front removable contacts (red colored on the mating face).
- Insert for front release rear removable contacts (yellow colored on the mating face).

## CONTACTS

A whole range of crimp or PC tail contacts are available with NSX connectors: signal, coax, triax, quadrax or fiber optic contacts. Signal and power contacts were designed to be low insertion force contacts so that they are perfectly orientated into the cavities and contacts are not damaged when insertion is made. Front release and rear release inserts use contact retention system (clips) which meets the ARINC 600 contact retention requirements. This system allows contacts to be removed from the insert using an extraction tool.

## NEW COST EFFECTIVE SOLUTION

Radiall is constantly looking for cost saving solutions to answer our customers' expectations. Based on this concept, Radiall proudly introduces:

### Inserts with Harpooned Contacts

Discover the new class K available for front removable contacts. They show the following features and benefits:

- Improved pricing stability and reduced dependence on fluctuating gold prices
- Lightweight solution as insert is one piece
- 100% intermateable with any ARINC 600 plug
- 100% backwards compatibility with existing PCB and PGA connectors
- RoHS compliant
- Fully qualified under Arinc 600 specification requirements

### Selective Plating Contacts

A brand new range of PC tail contacts with gold selective plating is now available. They offer the following features and benefits:

- Significant reduction of cost of ownership
- N - more dependence t- gold rate fluctuation
- N - change in the contact integration process



### Specifications

- Same contact design as full plated version
- Contact interface gold plated with 1.27 µm
- No impact on PCB design
- Product qualification is available upon request

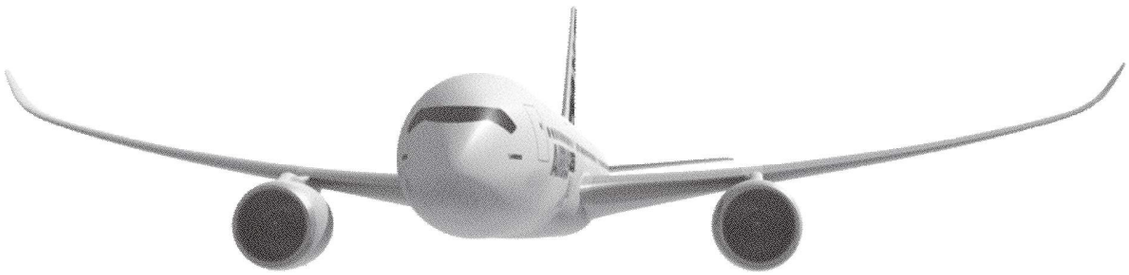
*NSX-Arinc*

## APPLICATION

These connectors are mostly used to connect high performance aeronautical equipment.

Most of the NSX connectors are used in the main avionics bay on commercial airplanes. Electronic functions are found in an LRU (Line Replaceable Unit).

Refer to Arinc 600 document for more information.





## CHARACTERISTICS

### TECHNICAL CHARACTERISTICS

| DESCRIPTION | MATERIAL | PLATING |
|---|---|---|
| Shell | Aluminum Alloy | Chromatation or Nickel |
| Inserts | Thermosetting or Thermoplastic | - |
| Metallic Inserts | Aluminum Alloy | Nickel |
| O-Ring and Grommet | Fluorosilicone | - |
| Contacts | Copper Alloy | Gold over Nickel |
| Retention Clip | Copper Alloy | - |
| Insert Retention Plate | Aluminum Alloy | Blue Anodized or Nickel |
| Polarization Posts and Keys Retention Plate | Aluminum Alloy | Chromatation or Nickel |
| Screws Vashers and Clinch-Nuts | Stainless Steel | - |
| | Steel | Cadmium Yellow Chromate |
| Polarization Posts and Keys | Zinc Alloy | Nickel |

*NSX-Arinc*

## ELECTRICAL CHARACTERISTICS

| CONTACT SIZE | WIRE | | | | MAX CURRENT (A) |
|---|---|---|---|---|---|
| | AWG | CROSS SECTION ($MM^2$) | OUTSIDE DIA. MM (INCHES) | | |
| | | | MIN. | MAX. | |
| 22 | 22<br>24<br>26 | 0.38<br>0.21<br>0.14 | 0.66 (0.026) | 1.4 (0.055) | 5<br>3<br>2 |
| 20 | 20<br>22<br>24 | 0.60<br>0.38<br>0.21 | 1 (0.040) | 1.8 (0.071) | 7.5<br>5<br>3 |
| 16 | 16<br>18<br>20 | 1.34<br>0.93<br>0.60 | 1.7 (0.066) | 2.6 (0.102) | 13<br>10<br>7.5 |
| 12 | 12<br>14<br>16 | 3.18<br>1.91<br>1.34 | 2.4 (0.094) | 3.4 (0.134) | 23<br>17<br>13 |
| 8 | 8<br>10 | 9<br>5 | 4.65 (0.183) | 6.48 (0.255) | 46<br>33 |

## MECHANICAL & ENVIRONMENTAL CHARACTERISTICS

- **Temperature Range:** - 65 °C/+125 °C
- **Temperature Life:** 1,000 hours at 125 °C.
- **Salt Spray:** MIL-STD-1344 method 1001.1 test condition B (48 hours).
- **Moisture Resistance:** MIL-STD-1344 method 1002.1 test condition II (10 times 24 hours).
- **Sealing:** environment resistant to running water (environmental version only).
- **Fluid Resistance:** resistance to MIL-STD-1344 method 1016 (fluids a, e, i).
- **Durability:** 500 mating and unmating cycles.
- **Random Vibration:**
  - Conforming to MIL-STD-1344 method 2005.1 test condition 5 letter E. (16.4 g from 50 to 2,000 Hz, 8 hours per direction)
- **Shock:** 50g 11 ms half sine, MIL-STD-1344 method 2004.1 three impacts per direction
- **Mating Force:**
  - Connector size 1: 27 pounds (120 N) max
  - Connector size 2: 60 pounds (267 N) max
  - Connector size 3: 105 pounds (467 N) max

## CONTACT RETENTION FORCE

| CONTACT SIZE | 22 | 20 | 16 | 12 | 8 | COAX TRIAX QUADRAX |
|---|---|---|---|---|---|---|
| Rentention Force min (oz) | 12 | 20 | 25 | 30 | 25 | 25 |

*NSX-Arinc*

## COAX CONTACTS ELECTRICAL CHARACTERISTICS

- **Nominal Impedance:** 50Ω
- **DWV:** 1,500 VAC – IR at 25°C = 5,000 MΩ
- **V.S.W.R.:** Size 5 → 1.3 from DC to 1,500 MHz and insertion loss = 0.3 dB, Size 1 → 1.3 from DC to 5,000 MHz

## MASS G (OZ)

### SHELLS

*Includes screws, washers, insert retention plate and polarization hardware.*

| PLUG | | | RECEPTACLE | | |
|---|---|---|---|---|---|
| Size 1 | Size 2 | Size 3 | Size 1 | Size 2 | Size 3 |
| 110 (3.88) | 130 (4.59) | 220 (7.76) | 130 (4.59) | 140 (4.94) | 245 (8.64) |

### INSERTS

| CONTACT ARRANGEMENT DESIGNATION | FOR PLUG SHELL | | FOR RECEPTACLE SHELL | |
|---|---|---|---|---|
| | ENVIRONMENTAL TYPE | NON-ENVIRONMENTAL TYPE | ENVIRONMENTAL TYPE | NON-ENVIRONMENTAL TYPE |
| 5C2 | 15.25 (0.54) | 12.39 (0.44) | 9.92 (0.35) | 7.25 (0.26) |
| 40 | 13.52 (0.48) | 11.15 (0.39) | 9.22 (0.33) | 8.22 (0.29) |
| 60 | 18.78 (0.66) | 15.53 (0.55) | 12.78 (0.45) | 11.43 (0.40) |
| 30T2 | 17.86 (0.63) | 14.75 (0.52) | 11.38 (0.40) | 9.36 (0.33) |
| 150 | 41.80 (1.47) | 20.87 (0.74) | 28.01 (0.99) | 24.32 (0.86) |
| 121 | 45.93 (1.62) | 37.79 (1.33) | 29.77 (1.05) | 24.53 (0.87) |
| 120T2 | 41.21 (1.45) | 34.12 (1.20) | 26.89 (0.95) | 23.83 (0.84) |
| 71C1/1C71 | 31.4 (1.11) | 27.7 (0.98) | 19.73 (0.70) | 18.68 (0.66) |
| 60 | 58.87 (2.08) | 48.97 (1.73) | 35.69 (1.26) | 25.79 (0.91) |
| 10T10 | 51.80 (1.83) | 45.45 (1.60) | 32.76 (1.16) | 26.41 (0.93) |
| C4 | - | 31.56 (1.11) | - | 20.96 (0.74) |
| C2 | - | 25.94 (0.91) | - | 12.48 (0.44) |
| 100 | 30.63 (1.08) | 25.31 (0.89) | 20.56 (0.73) | 17.8 (0.63) |
| 85 | 33.01 (1.16) | 27.15 (0.96) | 21.67 (0.76) | 18.67 (0.66) |
| 34 | 41.56 (1.47) | 34.57 (1.22) | 25.06 (0.88) | 18.06 (0.64) |
| 13C2 | 39.96 (1.41) | 33.36 (1.18) | 24.48 (0.86) | 17.89 (0.63) |
| 6T6 | 41.48 (1.46) | 36.52 (1.29) | 25.53 (0.90) | 31.24 (1.10) |
| Q11 | 36.86 (1.30) | 31.26 (1.10) | 25.07 (0.88) | 19.47 (0.69) |
| 62Q2 | 31.85 (1.12) | 26.24 (0.93) | - | 13.2 (0.47) |
| 68Q2 | 31.14 (1.10) | 25.64 (0.90) | 19.12 (0.67) | 16.32 (0.58) |
| 11Q2 | 37.39 (1.32) | 30.88 (1.09) | 24.38 (0.86) | 17.87 (0.63) |

### CONTACTS

| CONTACT SIZE | PIN | SOCKET |
|---|---|---|
| 22 | 0.12 (4 $10^{-3}$) | 0.15 (5.3 $10^{-3}$) |
| 20 | 0.22 (7.8 $10^{-3}$) | 0.40 (14.1 $10^{-3}$) |
| 16 | 0.72 (25.4 $10^{-3}$) | 0.75 (26.5 $10^{-3}$) |
| 12 | 1.50 (53.0 $10^{-3}$) | 1.50 (53.0 $10^{-3}$) |
| 8 | 619270: 5 (0.18)<br>619271: 6.5 (0.23) | - |

*EMI/RFI Performances*

EMI/RFI acts directly on electronics systems whether by conduction through the input or input cables or by induction (coupling).

Electronics equipment are particularly vulnerable to interferences and can be disturbed or damaged by them. The serious consequences which may result, make it essential to protect such installations.

The first stage in protection is to install the equipment in a metal surrounding (FARADAY cage) which protects it from some of the interferences; particularly those occurring by induction.

As to meet these requirements RADIALL offers plug connectors for racks which are fitted with ground spring fingers.

Sizes 1, 2 and 3 plugs connectors fitted with ground spring fingers are available. These connectors can be mated with ARINC 600 receptacle connectors. Their technical characteristics are the same than those shown on page 5-5 except the following.

## MATERIAL

| DESCRIPTION | MATERIAL | PLATING |
|---|---|---|
| Shell | Aluminum Alloy | Electroless Nickel |
| Ground Spring Fingers | Copper Alloy | Electroless Nickel |

## ELECTRICAL CHARACTERISTICS

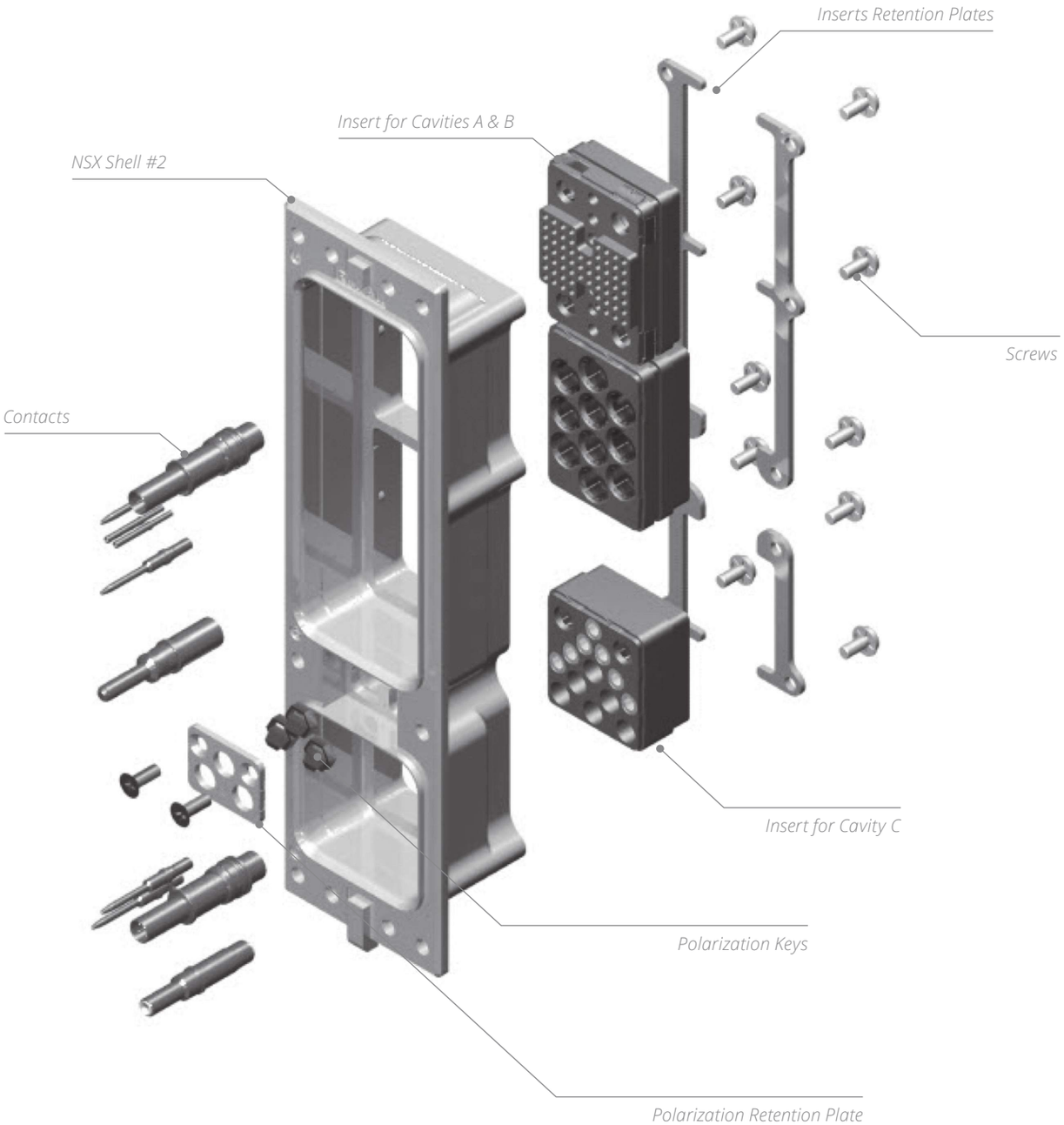
- **Shell-to-Shell Conductivity:**
  - (measured according to method 3007 of MIL-STD-1344A), max warranty: 2.5 mΩ
- **Size 8 Cavity Grounding:**
  - (measured according to method 3007 of MIL-STD-1344A), max warranty: 10.0 mΩ
- **EMI Shielding Effectiveness:**
  - (measured according to S280W552) The minimum values warranty are as follows: Typical values

| FREQUENCY (MHz) | LEAKAGE ATTENUATION (dB) |
|---|---|
| 100 | 65 |
| 200 | 63 |
| 300 | 63 |
| 400 | 62 |
| 800 | 60 |
| 1,000 | 60 |

*EMI/RFI Performances*

## PRODUCT OVERVIEW

Detailed view of the various parts of the NSX connector series.



*How to Order*

## NSX E/N/H/C – CONNECTORS FOR REAR REMOVABLE CONTACTS

NSX

**SERIES PREFIX**

**CLASS**
**N:** Non-environmental
**E:** Environmental, with grommets and compound, plug with O-ring
**H:** Environmental, plug without O-ring (plug only)
**C:** Non-environmental, with grommets

**SHELL SIZE**
**1:** Size 1
**2:** Size 2
**3:** Size 3

**SHELL STYLE**
**S:** RoHS plated receptacle
**T:** RoHS plated plug
**F:** Nickel-plated receptacle
**B:** Nickel-plated plug
**M:** Nickel-plated plug EMI version (see pages 5-70)

**INSERT COMBINATION CODE**
See combination code (pages 5-21 to 5-27) and contacts arrangements (pages 5-11 to 5-20)
T-cas application combination code: 310 (see page 5-24)

**CONTACT TERMINATION** [1]
**X:** Without contacts
**S:** Crimp contacts

**MODIFICATION CODE**
See pages 5-28 to 5-29

**POLARIZATION CODE** [2]
See pages 5-30 to 5-32

**DELIVERY CODE FOR T-CAS APPLICATION**
See page 5-41

*Notes*

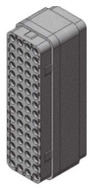
*REMARK: dust caps conductive on receptacle and non conductive on plug are included in the delivery.*

1. *If you need to use reduced crimp barrel contacts, use code X and order signal and power contacts separately. Coax, twinax or power size 5 or 8, coax size 1 must always be ordered separately.*
2. *Without polarization code, the connector is delivered with polarization hardware unassembled. Polarization code 00, the connector is delivered without polarizing hardware. Polarization code from 01 to 216, the connector is delivered with the polarization hardware assembled as defined by code.*

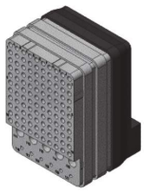
*How to Order*

## NSX SHELL CONTACT ARRANGEMENT

All insert names including letter Q can be equipped with quadrax contacts for each insert arrangement the quantity and type of contacts is shown with insert view. RR/RR means contacts are rear release and rear removable. FR/FR means contacts are front release and front removable. The letter G means that the contact will be used in grounded cavity. LuxCis® contacts are always rear release and rear removable. N/A means not available, please contact Radiall for further details.

| INSERT NAME | SHELL SIZE CAVITY | EQUIPMENT SIDE RECEPTACLE SHELL | | | | AVIONIC SIDE PLUG SHELL | |
|---|---|---|---|---|---|---|---|
| | | VERSION N | VERSION E | VERSION F | VERSION G | VERSION N | VERSION E |
| 60 | 1-A/B |  60 × #22 RR/RR |  60 × #22 RR/RR |  60 × #22 FR/FR | N/A |  60 × #22 RR/RR |  60x#22 RR/RR |
| 30T2 | 1-A/B |  28 × #22 RR/RR 2 × #8G RR/RR |  28 × #22 RR/RR 2 × #8G RR/RR |  28 × #22 FR/FR 2 × #8G RR/RR |  28 × #22 FR/FR 2 × #8G FR/FR |  28 × #22 RR/RR 2 × #8G RR/RR |  28x#22 RR/RR 2x#8G RR/RR |
| 4C | 1-A/B |  4 × #5G RR/RR | N/A | N/A |  4 × #5G FR/FR |  4 × #5G RR/RR | N/A |
| 40 | 1-C |  40 × #22 RR/RR |  40 × #22 RR/RR |  40 × #22 FR/FR | N/A |  40 × #22 RR/RR |  40 × #22 RR/RR |
| 12F12 | 1-C |  h12 × #16 RR/RR LuxCis® |  12 × #16 RR/RR LuxCis® | N/A | N/A |  12 × #16 RR/RR LuxCis® |  12 × #16 RR/RR LuxCis® |

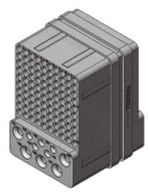
*How to Order*

| INSERT NAME | SHELL SIZE CAVITY | EQUIPMENT SIDE RECEPTACLE SHELL | | | | AVIONIC SIDE PLUG SHELL | |
|---|---|---|---|---|---|---|---|
| | | VERSION N | VERSION E | VERSION F | VERSION G | VERSION N | VERSION E |
| 4 | 1-C |  4 × #12 RR/RR [1] | Available [1] | N/A | N/A |  4 × #12 RR/RR |  4 × #12 RR/RR |
| 5C2 | 1-C |  2 × #5 RR/RR 1 × #12 RR/RR 2 × #16 RR/RR |  2 × #5 RR/RR 1 × #12 RR/RR 2 × #16 RR/RR | N/A |  2 × #5 FR/FR 1 ×#12 FR/FR 2 × #16 FR/FR |  2 × #5 RR/RR 1 × #12 RR/RR 2 × #16 RR/RR |  2 × #5 RR/RR 1 × #12 RR/RR 2 × #16 RR/RR |
| 150 | 2/3-A/B |  150 × #22 RR/RR |  150 × #22 RR/RR |  150 × #22 FR/FR | N/A |  150 × #22 RR/RR |  150 × #22 RR/RR |
| 121 | 2/3-A/B |  110 × #22 RR/RR 6 × #20 RR/RR 5 × #16 RR/RR |  110 × #22 RR/RR 6 × #20 RR/RR 5 × #16 RR/RR |  110 × #22 FR/FR 6 × #20 RR/RR 5 × #16 RR/RR |  110 × #22 FR/FR 6 × #20 FR/FR 5 × #16 FR/FR |  110 × #22 RR/RR 6 × #20 RR/RR 5 × #16 RR/RR |  110 × #22 RR/RR 6 × #20 RR/RR 5 × #16 RR/RR |
| 120T2 | 2/3-A/B |  118 × #22 RR/RR 2 × #8G RR/RR |  118 × #22 RR/RR 2 × #8G RR/RR |  118 × #22 FR/FR 2 × #8G RR/RR |  118 × #22 FR/FR 2 × #8G FR/FR |  118 × #22 RR/RR 2 × #8G RR/RR |  118 × #22 RR/RR 2 × #8G RR/RR |

***Notes***

*1. For BPX series, 4 insert will be supplied with FR/RR contacts.*

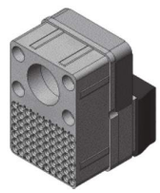
*How to Order*

| INSERT NAME | SHELL SIZE CAVITY | EQUIPMENT SIDE RECEPTACLE SHELL | | | | AVIONIC SIDE PLUG SHELL | |
|---|---|---|---|---|---|---|---|
| | | VERSION N | VERSION E | VERSION F | VERSION G | VERSION N | VERSION E |
| 110 | 2/3-A/B | <br>100 × #22 RR/RR<br>5 × #20 RR/RR<br>5 × #12 RR/RR | N/A | N/A | <br>100 × #22 FR/FR<br>5 × #20 FR/FR<br>5 × #12 FR/FR | <br>100 × #22 RR/RR<br>5 × #20 RR/RR<br>5 × #12 RR/RR | <br>100 × #22 RR/RR<br>5 × #20 RR/RR<br>5 × #12 RR/RR |
| 60A | 2/3-A/B | <br>60 × #20 RR/RR | <br>60 × #20 RR/RR | N/A | <br>60 × #20 FR/FR | <br>60 × #20 RR/RR | <br>60 × #20 RR/RR |
| 35 | 2/3-A/B | <br>35 × #16 RR/RR | <br>35 × #16 RR/RR | N/A | <br>35 × #16 FR/FR | <br>35 × #16 RR/RR | <br>35 × #16 RR/RR |
| 24 | 2/3-A/B | <br>24 × #12 RR/RR | <br>24 × #12 RR/RR | N/A | <br>24 × #12 FR/FR | <br>24 × #12 RR/RR | <br>24 × #12 RR/RR |
| 10T10 | 2/3-A/B | <br>10 × #8G RR/RR [1] | Available [1] | N/A | <br>10 × #8G FR/FR | <br>10 × #8G RR/RR | <br>10 × #8G RR/RR |

*Notes*

*1. For BPX series, 10T10 insert will be supplied with FR/RR contacts.*

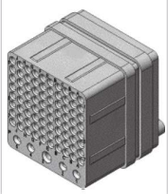
*How to Order*

| INSERT NAME | SHELL SIZE CAVITY | EQUIPMENT SIDE RECEPTACLE SHELL | | | | AVIONIC SIDE PLUG SHELL | |
|---|---|---|---|---|---|---|---|
| | | VERSION N | VERSION E | VERSION F | VERSION G | VERSION N | VERSION E |
| C4 | 2/3-A/B |  4 × #1G FR/RR | N/A | N/A |  4 × #1G FR/FR |  4 × #1G FR/RR | N/A |
| C2 | 2/3-A/B |  2 × #1G FR/RR | N/A | N/A | N/A |  2 × #1G FR/RR | N/A |
| 71C1 | 2/3-A/B |  70 × #22 RR/RR 1 × #1 FR/RR |  70 ×#22 RR/RR 1 × #1 FR/RR |  70 × #22 RR/RR 1 × #1 FR/RR | N/A |  70 × #22 RR/RR 1 × #1 FR/RR |  70 × #22 RR/RR 1 × #1 FR/RR |
| 1C71 | 2/3-A/B |  70 × #22 RR/RR 1 × #1 FR/RR |  70 × #22 RR/RR 1 × #1 FR/RR |  70 × #22 FR/FR 1 × #1 FR/RR | N/A |  70 × #22 RR/RR 1 × #1 FR/RR |  70 × #22 RR/RR 1 × #1 FR/RR |

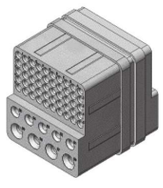
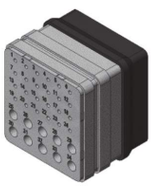
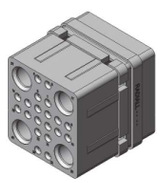
*How to Order*

| INSERT NAME | SHELL SIZE CAVITY | EQUIPMENT SIDE RECEPTACLE SHELL | | | | AVIONIC SIDE PLUG SHELL | |
|---|---|---|---|---|---|---|---|
| | | VERSION N | VERSION E | VERSION F | VERSION G | VERSION N | VERSION E |
| 36F36 | 2/3-A/B |  36 × #16 RR/RR LuxCis® |  36 × #16 RR/RR LuxCis® | N/A | N/A |  36 × #16 RR/RR LuxCis® |  36 × #16 RR/RR LuxCis® |
| 20F12Q8 | 2/3-A/B |  12 × #16 RR/RR LuxCis® 8 × #8G RR/RR |  12 × #16 RR/RR LuxCis® 8 × #8G RR/RR | N/A |  12 × #16 RR/RR LuxCis® 8 × #8G FR/FR |  12 × #16 RR/RR LuxCis® 8 × #8G RR/RR |  12 × #16 RR/RR LuxCis® 8 × #8G RR/RR |
| 110R | 2/3-A/B |  100 × #22 RR/RR 5#20 RR/RR 5#12 RR/RR |  100 × #22 RR/RR 5#20 RR/RR 5#12 RR/RR | N/A |  100 × #22 FR/FR 5#20 FR/FR 5#12 FR/FR |  100 × #22 RR/RR 5#20 RR/RR 5#12 RR/RR |  100 × #22 RR/RR 5#20 RR/RR 5#12 RR/RR |
| Q11 | 2/3-A/B |  11 × #8G RR/RR |  11 × #8G RR/RR | N/A |  11 × #8G FR/FR |  11 × #8G RR/RR |  11 × #8G RR/RR |

*How to Order*

| INSERT NAME | SHELL SIZE CAVITY | EQUIPMENT SIDE RECEPTACLE SHELL | | | | AVIONIC SIDE PLUG SHELL | |
|---|---|---|---|---|---|---|---|
| | | VERSION N | VERSION E | VERSION F | VERSION G | VERSION N | VERSION E |
| 68Q4 | 2/3-A/B | <br>62 × #22 RR/RR<br>6 × #16 RR/RR<br>4 × #8G RR/RR | <br>62 × #22 RR/RR<br>6 × #16 RR/RR<br>4 × #8G RR/RR | N/A | N/A | <br>62 × #22 RR/RR<br>6 × #16 RR/RR<br>4 × #8G RR/RR | <br>62 × #22 RR/RR<br>6 × #16 RR/RR<br>4 × #8G RR/RR |
| 118Q2 | 2/3-A/B | <br>118 × #22 RR/RR<br>2 × #8G RR/RR | <br>118 × #22 RR/RR<br>2 × #8G RR/RR | <br>118 × #22 FR/FR<br>2 × #8G RR/RR | <br>118 × #22 FR/FR<br>2 × #8G FR/FR | <br>118 × #22 RR/RR<br>2 × #8G RR/RR | <br>118 × #22 RR/RR<br>2 × #8G RR/RR |
| 100 | 2/3-C | <br>100 × #22 RR/RR | <br>100 × #22 RR/RR | <br>100 × #22 FR/FR | N/A | <br>100 × #22 RR/RR | <br>100 × #22 RR/RR |
| 85 | 2/3-C | <br>80 × #22 RR/RR<br>4 × #20 RR/RR<br>1 × #16 RR/RR | <br>80 × #22 RR/RR<br>4 × #20 RR/RR<br>1 × #16 RR/RR | <br>80 × #22 FR/FR<br>4 × #20 RR/RR<br>1 × #16 RR/RR | <br>80 × #22 FR/FR<br>4 × #20 FR/FR<br>1 × #16 FR/FR | <br>80 × #22 RR/RR<br>4 × #20 RR/RR<br>1 × #16 RR/RR | <br>80 × #22 RR/RR<br>4 × #20 RR/RR<br>1 × #16 RR/RR |
| 84 | 2/3-C | N/A | N/A | N/A | N/A | <br>80 × #22 RR/RR<br>4 × #20 RR/RR | <br>80 × #22 RR/RR<br>4 × #20 RR/RR |

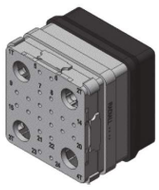
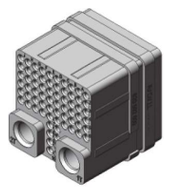
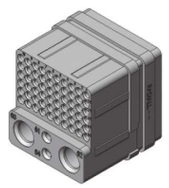
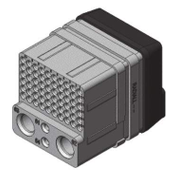
*How to Order*

| INSERT NAME | SHELL SIZE CAVITY | EQUIPMENT SIDE RECEPTACLE SHELL | | | | AVIONIC SIDE PLUG SHELL | |
|---|---|---|---|---|---|---|---|
| | | VERSION N | VERSION E | VERSION F | VERSION G | VERSION N | VERSION E |
| 59 | 2/3-C | <br>50 × #22 RR/RR<br>5 × #16 RR/RR<br>4 × #12 RR/RR | <br>50 × #22 RR/RR<br>5 × #16 RR/RR<br>4 × #12 RR/RR | <br>50 × #22 FR/FR<br>5 × #16 RR/RR<br>4 × #12 RR/RR | <br>50 × #22 FR/FR<br>5 × #16 FR/FR<br>4 × #12 FR/FR | <br>50 × #22 RR/RR<br>5 × #16 RR/RR<br>4 × #12 RR/RR | <br>50 × #22 RR/RR<br>5 × #16 RR/RR<br>4 × #12 RR/RR |
| 34 | 2/3-C | <br>24 × #20 RR/RR<br>10 × #16 RR/RR | <br>24 × #20 RR/RR<br>10 × #16 RR/RR | N/A | <br>24 × #20 FR/FR<br>10 × #16 FR/FR | <br>24 × #20 RR/RR<br>10 × #16 RR/RR | <br>24 × #20 RR/RR<br>10 × #16 RR/RR |
| 6T6 | 2/3-C | <br>6 × #8G RR/RR [1] | Available [1] | N/A | <br>6 × #8G FR/FR | <br>6 × #8G RR/RR | <br>6 × #8G RR/RR |
| 24T4 | 2/3-C | <br>20 × #20 RR/RR<br>4 × #8G RR/RR | <br>20 × #20 RR/RR<br>4 × #8G RR/RR | N/A | N/A | <br>20 × #20 RR/RR<br>4 × #8G RR/RR | <br>20 × #20 RR/RR<br>4 × #8G RR/RR |

*Notes*

*1. For BPX serie, 6T6 insert will be supplied with FR/RR contacts.*

*How to Order*

| INSERT NAME | SHELL SIZE CAVITY | EQUIPMENT SIDE RECEPTACLE SHELL | | | | AVIONIC SIDE PLUG SHELL | |
|---|---|---|---|---|---|---|---|
| | | VERSION N | VERSION E | VERSION F | VERSION G | VERSION N | VERSION E |
| Q6 | 2/3-C |  6 × #8G RR/RR |  6 × #8G RR/RR | N/A |  6 × #8G FR/FR |  6 × #8G RR/RR |  6 × #8G RR/RR |
| 20Q4 | 2/3-C |  20 × #20 RR/RR 4 × #8G RR/RR |  20 × #20 RR/RR 4 × #8G RR/RR | N/A |  20 × #20 FR/FR 4 × #8G FR/FR |  20 × #20 RR/RR 4 × #8G RR/RR |  20 × #20 RR/RR 4 × #8G RR/RR |
| 68Q2 | 2/3-C |  68 × #22 RR/RR 2 × #8G RR/RR |  68 × #22 RR/RR 2 × #8G RR/RR | N/A |  68 × #22 FR/FR 2 × #8G FR/FR |  68 × #22 RR/RR 2 × #8G RR/RR |  68 × #22 RR/RR 2 × #8G RR/RR |
| 62Q2 | 2/3-C |  60 × #22 RR/RR 2 × #16 RR/RR 2 × #8G RR/RR |  60 × #22 RR/RR 2 × #16 RR/RR 2 × #8G RR/RR | N/A |  60 × #22 FR/FR 2 × #16 FR/FR 2 × #8G FR/FR |  60 × #22 RR/RR 2 × #16 RR/RR 2 × #8G RR/RR |  60 × #22 RR/RR 2 × #16 RR/RR 2 × #8G RR/RR |
| 17F12Q2 | 2/3-C |  12 × #16 RR/RR LuxCis® 3 × #16 RR/RR 2 × #8G RR/RR |  12 × #16 RR/RR LuxCis® 3 × #16 RR/RR 2 × #8G RR/RR | N/A |  12 × #16 RR/RR LuxCis® 3 × #16 FR/FR 2 × #8G FR/FR |  12 × #16 RR/RR LuxCis® 3 × #16 RR/RR 2 × #8G RR/RR |  12 × #16 RR/RR LuxCis® 3 × #16 RR/RR 2 × #8G RR/RR |

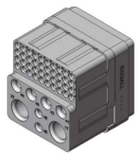
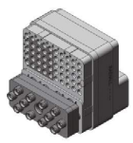
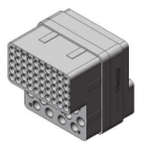
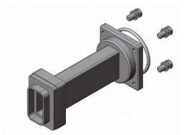
*How to Order*

| INSERT NAME | SHELL SIZE CAVITY | EQUIPMENT SIDE RECEPTACLE SHELL | | | | AVIONIC SIDE PLUG SHELL | |
|---|---|---|---|---|---|---|---|
| | | VERSION N | VERSION E | VERSION F | VERSION G | VERSION N | VERSION E |
| 11Q2 | 2/3-C | <br>4 × #20 RR/RR<br>3 × #16 RR/RR<br>4 × #12 RR/RR<br>2 × #8G RR/RR | <br>4 × #20 RR/RR<br>3 × #16 RR/RR<br>4 × #12 RR/RR<br>2 × #8G RR/RR | N/A | <br>4 × #20 FR/FR<br>3 × #16 FR/FR<br>4 × #12 FR/FR<br>2 × #8G FR/FR | <br>4 × #20 RR/RR<br>3 × #16 RR/RR<br>4 × #12 RR/RR<br>2 × #8G RR/RR | <br>4 × #20 RR/RR<br>3 × #16 RR/RR<br>4 × #12 RR/RR<br>2 × #8G RR/RR |
| 11WQ2 | 2/3-C | <br>4 × #20 RR/RR<br>3 × #16 RR/RR<br>4 × #12 RR/RR<br>2 × #8G RR/RR | <br>4 × #20 RR/RR<br>3 × #16 RR/RR<br>4 × #12 RR/RR<br>2 × #8G RR/RR | N/A | <br>4 × #20 FR/FR<br>3 × #16 FR/FR<br>4 × #12 FR/FR<br>2 × #8G FR/FR | <br>4 × #20 RR/RR<br>3 × #16 RR/RR<br>4 × #12 RR/RR<br>2 × #8G RR/RR | <br>4 × #20 RR/RR<br>3 × #16 RR/RR<br>4 × #12 RR/RR<br>2 × #8G RR/RR |
| 13C2 | 2/3-C | <br>4 × #20 RR/RR<br>3 × #16 RR/RR<br>4 × #12 RR/RR<br>2 × #5 RR/RR | <br>4 × #20 RR/RR<br>3 × #16 RR/RR<br>4 × #12 RR/RR<br>2 × #5 RR/RR | N/A | <br>4 × #20 FR/FR<br>3 × #16 FR/FR<br>4 × #12 FR/FR<br>2 × #5 FR/FR | <br>4 × #20 RR/RR<br>3 × #16 RR/RR<br>4 × #12 RR/RR<br>2 × #5 RR/RR | <br>4 × #20 RR/RR<br>3 × #16 RR/RR<br>4 × #12 RR/RR<br>2 × #5 RR/RR |
| 12F5C2 | 2/3-C | <br>1 × #16 RR/RR<br>5 × #16 RR/RR<br>LuxCis®<br>4 × #12 RR/RR<br>2 × #5 RR/RR | <br>1 × #16 RR/RR<br>5 × #16 RR/RR<br>LuxCis®<br>4 × #12 RR/RR<br>2 × #5 RR/RR | N/A | N/A | <br>1 × #16 RR/RR<br>5 × #16 RR/RR<br>LuxCis®<br>4 × #12 RR/RR<br>2 × #5 RR/RR | <br>1 × #16 RR/RR<br>5 × #16 RR/RR<br>LuxCis®<br>4 × #12 RR/RR<br>2 × #5 RR/RR |
| 6P6 | 2/3-C | <br>6 × #8 RR/RR [1] | Available [1] | N/A | N/A | <br>6 × #8 RR/RR | <br>6 × #8 RR/RR |

***Notes:***

*1. For BPX series, 6P6 insert will be supplied with FR/RR contacts.*

*How to Order*

| INSERT NAME | SHELL SIZE CAVITY | EQUIPMENT SIDE RECEPTACLE SHELL | | | | AVIONIC SIDE PLUG SHELL | |
|---|---|---|---|---|---|---|---|
| | | VERSION N | VERSION E | VERSION F | VERSION G | VERSION N | VERSION E |
| 15T6Q2 | 2/3-C |  7 × #16 RR/RR<br>6 × #10 RR/RR<br>2 × #8G RR/RR | N/A | N/A |  7 × #16 FR/FR<br>6 × #10 FR/FR<br>2 × #8G FR/FR |  7 × #16 RR/RR<br>6 × #10 RR/RR<br>2 × #8G RR/RR | N/A |
| 46Q2 | 2/3-C |  40 × #22 RR/RR<br>2 × #16 RR/RR<br>4 × #12 RR/RR<br>2 × #8G RR/RR | N/A | N/A |  40 × #22 FR/FR<br>2 × #16 FR/FR<br>4 × #12 FR/FR<br>2 × #8G FR/FR |  40 × #22 RR/RR<br>2 × #16 RR/RR<br>4 × #12 RR/RR<br>2 × #8G RR/RR | N/A |
| 62F12 | 2/3-C | N/A | N/A |  50 × #22 FR/FR<br>12 × #16 RR/RR<br>LuxCis® | N/A |  50 × #22 RR/RR<br>12 × #16 RR/RR<br>LuxCis® |  50 × #22 RR/RR<br>12 × #16 RR/RR<br>LuxCis® |
| WAVE GUIDE | 2 - A&B |  Wave Guide<br>Equipment Side | | | |  Wave Guide<br>Avionic Side | |

*How to Order*

## INSERT COMBINATION CODE

### FOR SHELL SIZE 1

| CODE | INSERT COMBINATION ON SHELL | | |
|---|---|---|---|
| | CAVITY A | CAVITY B | CAVITY C |
| 101 | 60 | 60 | 5C2 |
| 102 | 60 | 60 | BLANK |
| 103 | BLANK | 60 | 5C2 |
| 104 | 60 | BLANK | 5C2 |
| 105 | BLANK | BLANK | 5C2 |
| 106 | 60 | BLANK | BLANK |
| 107 | 30T2 | 30T2 | 40 |
| 108 | 60 | 60 | 40 |
| 109 | BLANK | 60 | BLANK |

| CODE | INSERT COMBINATION ON SHELL | | |
|---|---|---|---|
| | CAVITY A | CAVITY B | CAVITY C |
| 111 | BLANK | 30T2 | 40 |
| 112 | 60 | 4C | 5C2 |
| 113 | 60 | 4C | 40 |
| 114 | 60 | BLANK | 40 |
| 115 | BLANK | BLANK | BLANK |
| 116 | 4C | 60 | 40 |
| 117 | BLANK | BLANK | 40 |
| 118 | 60 | 30T2 | 5C2 |
| 119 | 30T2 | BLANK | 5C2 |

| CODE | INSERT COMBINATION ON SHELL | | |
|---|---|---|---|
| | CAVITY A | CAVITY B | CAVITY C |
| 120 | 60 | 30T2 | 40 |
| 121 | 4C | 4C | 40 |
| 122 | 30T2 | 60 | 5C2 |
| 123 | 60 | 60 | 12F12 |
| 124 | 4C | BLANK | 12F12 |
| 125 | BLANK | BLANK | 12F12 |

### FOR SHELL SIZE 2

| CODE | INSERT COMBINATION ON SHELL | | |
|---|---|---|---|
| | CAVITY A | CAVITY B | CAVITY C |
| 201 | 150 | 150 | 13C2 |
| 202 | 71C1 | 150 | 13C2 |
| 203 | 71C1 | 71C1 | 13C2 |
| 204 | Wave Guide | 150 | 13C2 |
| 205 | 150 | 71C1 | 13C2 |
| 206 | 150 | 150 | 100 |
| 207 | 71C1 | 150 | 100 |
| 208 | 150 | 71C1 | 100 |
| 209 | 71C1 | 71C1 | 100 |
| 210 | Wave Guide | 71C1 | 100 |
| 211 | 150 | 150 | BLANK |
| 212 | 71C1 | 71C1 | BLANK |
| 213 | 71C1 | Wave Guide | 13C2 |
| 214 | Wave Guide | 71C1 | 13C2 |
| 215 | 150 | 73C3 | 13C2 |
| 216 | C2 | 1C71 | 85 |
| 217 | 150 | C5 | 13C2 |
| 218 | 150 | Wave Guide | 13C2 |
| 219 | 150 | 2C | 13C2 |
| 220 | 71C1 | C2 | 85 |
| 221 | 1C71 | 71C1 | 13C2 |
| 222 | BLANK | 150 | 13C2 |
| 223 | BLANK | BLANK | 13C2 |
| 224 | 150 | BLANK | 13C2 |
| 225 | 150 | 71C1 | BLANK |
| 226 | 150 | 150 | 85 |
| 227 | 150 | 150 | 34 |
| 228 | C4 | 150 | 13C2 |
| 229 | 120T2 | 120T2 | 100 |

| CODE | INSERT COMBINATION ON SHELL | | |
|---|---|---|---|
| | CAVITY A | CAVITY B | CAVITY C |
| 230 | 121 | 121 | 6T6 |
| 233 | 120T2 | 150 | 100 |
| 234 | 60A | 60A | 13C2 |
| 235 | 150 | C4 | 34 |
| 236 | C4 | C4 | 34 |
| 237 | 150 | 120T2 | 100 |
| 243 | 150 | BLANK | 100 |
| 244 | 150 | BLANK | BLANK |
| 245 | 71C1 | 71C1 | 85 |
| 246 | 71C1 | BLANK | BLANK |
| 247 | BLANK | 150 | 85 |
| 248 | BLANK | 150 | 100 |
| 249 | BLANK | 150 | BLANK |
| 250 | BLANK | 71C1 | BLANK |
| 251 | BLANK | BLANK | 100 |
| 252 | BLANK | Wave Guide | 100 |
| 253 | C2 | 150 | 13C2 |
| 254 | C2 | 1C71 | 100 |
| 255 | C2 | 1C71 | 13C2 |
| 256 | C2 | 71C1 | 13C2 |
| 257 | C2 | C2 | 13C2 |
| 258 | - | - | - |
| 259 | C4 | C4 | 85 |
| 260 | Wave Guide | 150 | 85 |
| 261 | Wave Guide | 150 | 100 |
| 262 | 150 | 60A | 34 |
| 264 | BLANK | 24 | 100 |
| 265 | 24 | 150 | 13C2 |
| 266 | 121 | 121 | 85 |

| CODE | INSERT COMBINATION ON SHELL | | |
|---|---|---|---|
| | CAVITY A | CAVITY B | CAVITY C |
| 268 | 60A | 121 | 59 |
| 270 | 150 | 150 | 59 |
| 271 | C4 | 120T2 | 13C2 |
| 272 | 150 | 150 | 24T4 |
| 273 | 150 | C2 | 13C2 |
| 274 | C2 | 71C1 | 85 |
| 275 | 121 | 60A | 34 |
| 276 | 121 | BLANK | 100 |
| 277 | 1C71 | 150 | 13C2 |
| 278 | 71C1 | 1C71 | 13C2 |
| 279 | 150 | 121 | 13C2 |
| 280 | 120T2 | 121 | 34 |
| 281 | 150 | 121 | 34 |
| 282 | C4 | BLANK | 13C2 |
| 283 | 150 | 60A | 13C2 |
| 284 | 120T2 | 120T2 | 13C2 |
| 285 | 24 | 60A | 100 |
| 286 | 60A | 60A | 34 |
| 287 | BLANK | 60A | 100 |

*How to Order*

## FOR SHELL SIZE 2

| CODE | INSERT COMBINATION ON SHELL | | |
|---|---|---|---|
| | CAVITY A | CAVITY B | CAVITY C |
| 288 | BLANK | 121 | BLANK |
| 289 | BLANK | BLANK | 85 |
| 290 | 150 | 121 | 100 |
| 291 | 121 | 150 | 100 |
| 292 | 121 | 121 | BLANK |
| 294 | 121 | 121 | 13C2 |
| 295 | Q11 | Q11 | 85 |
| 297 | 120T2 | 60A | BLANK |
| 298 | 121 | 60A | BLANK |
| 299 | BLANK | BLANK | 59 |
| 501 | 24 | 60A | 59 |
| 502 | 121 | Q11 | Q6 |
| 503 | 150 | BLANK | 11Q2 |
| 504 | 150 | BLANK | 34 |
| 505 | Q11 | BLANK | 34 |
| 506 | 150 | 150 | 11Q2 |
| 507 | 150 | 150 | 68Q2 |
| 508 | 24 | 24 | 100 |
| 509 | 150 | Q11 | 13C2 |
| 510 | 121 | 121 | 100 |
| 511 | 24 | 150 | 100 |
| 512 | Q11 | Q11 | 62Q2 |
| 513 | Q11 | Q11 | 34 |
| 514 | BLANK | 60A | 34 |
| 515 | BLANK | BLANK | BLANK |
| 516 | 121 | 121 | 34 |
| 517 | BLANK | 120T2 | 13C2 |
| 518 | Q11 | BLANK | 62Q2 |
| 519 | Q11 | Q11 | 68Q2 |
| 520 | 150 | 121 | 24T4 |
| 521 | Q11 | 150 | 62Q2 |
| 522 | 20F12T8 | 120T2 | 13C2 |
| 524 | 120T2 | 120T2 | 11Q2 |
| 527 | 120T2 | 120T2 | 85 |

| CODE | INSERT COMBINATION ON SHELL | | |
|---|---|---|---|
| | CAVITY A | CAVITY B | CAVITY C |
| 528 | 150 | 150 | 11WQ2 |
| 529 | 35 | 35 | 62Q2 |
| 530 | 24 | BLANK | 85 |
| 532 | 20F12T8 | 121 | 34 |
| 533 | 120T2 | C4 | 24T4 |
| 534 | BLANK | Q11 | 85 |
| 535 | 150 | 35 | 24T4 |
| 536 | BLANK | 150 | 24T4 |
| 537 | 118Q2 | 118Q2 | 24T4 |
| 538 | 150 | 120T2 | 13C2 |
| 539 | Q11 | Q11 | BLANK |
| 540 | 120T2 | C4 | 13C2 |
| 541 | 1C71 | Q11 | 13C2 |
| 542 | 121 | C4 | Q6 |
| 543 | 120T2 | Q11 | 13C2 |
| 544 | 120T2 | 120T2 | 24T4 |
| 545 | C4 | Q11 | 85 |
| 546 | 121 | 60A | 100 |
| 547 | BLANK | 150 | 20Q4 |
| 548 | 150 | 35 | 20Q4 |
| 551 | 121 | 118Q2 | 24T4 |
| 552 | 150 | Q11 | 11Q2 |
| 554 | BLANK | 118Q2 | 13C2 |
| 555 | BLANK | 71C1 | 13C2 |
| 556 | BLANK | BLANK | 62Q2 |
| 557 | BLANK | Q11 | 62Q2 |
| 558 | BLANK | Q11 | BLANK |
| 559 | 150 | 150 | 20Q4 |
| 560 | 150 | Q11 | 85 |
| 561 | 150 | 120T2 | 85 |
| 562 | 121 | BLANK | BLANK |
| 563 | 24 | 24 | 34 |
| 564 | BLANK | BLANK | 34 |
| 565 | 150 | 24 | 34 |

| CODE | INSERT COMBINATION ON SHELL | | |
|---|---|---|---|
| | CAVITY A | CAVITY B | CAVITY C |
| 566 | 150 | 121 | BLANK |
| 567 | 150 | 118Q2 | BLANK |
| 569 | 118Q2 | 118Q2 | BLANK |
| 570 | Q11 | 150 | 11Q2 |
| 571 | 150 | 118Q2 | 13C2 |
| 572 | 150 | C4 | 13C2 |
| 573 | 150 | 24 | 13C2 |
| 574 | 150 | 121 | 59 |
| 575 | 60A | 150 | 34 |
| 576 | 150 | 150 | Q6 |
| 577 | 1C71 | 118Q2 | 12F5C2 |
| 578 | 150 | 121 | 20Q4 |
| 579 | C4 | 118Q2 | 85 |
| 580 | 150 | BLANK | 59 |
| 581 | 118Q2 | 118Q2 | 20Q4 |
| 582 | BLANK | 71C1 | 11Q2 |
| 584 | 121 | 121 | 59 |
| 585 | 20F12Q8 | BLANK | 11Q2 |
| 586 | 150 | Q11 | 34 |
| 587 | 150 | 118Q2 | 85 |
| 588 | Q11 | Q11 | 11Q2 |
| 590 | BLANK | Q11 | Q6 |
| 591 | 20F12T8 | 150 | 100 |
| 592 | BLANK | BLANK | 11Q2 |
| 593 | 20F12Q8 | 121 | BLANK |
| 594 | C | 118Q2 | 85 |
| 596 | BLANK | 118Q2 | 11WQ2 |
| 597 | 150 | 121 | Q6 |
| 598 | 20F12Q8 | 118Q2 | 13C2 |
| 599 | C4 | 24 | 100 |
| 801 | C4 | Q11 | 59 |
| 802 | BLANK | 120T2 | 24T4 |
| 803 | Q11 | 20F12Q8 | 11Q2 |
| 804 | Q11 | 20F12Q8 | 17F12Q2 |
| 806 | C4 | 60A | 59 |
| 807 | Q11 | 150 | 85 |
| 809 | C4 | C4 | 59 |

*How to Order*

## FOR SHELL SIZE 2

| CODE | INSERT COMBINATION ON SHELL | | |
|---|---|---|---|
| | CAVITY A | CAVITY B | CAVITY C |
| 810 | Q11 | Q11 | 13C2 |
| 811 | 150 | 150 | 12F5C2 |
| 812 | 60A | C2 | 13C2 |
| 813 | BLANK | Q11 | 13C2 |
| 814 | 120T2 | 150 | 13C2 |
| 815 | 60A | 35 | 24T4 |
| 817 | 20F12Q8 | Q11 | 62Q2 |
| 818 | 60A | C2 | 24T4 |
| 819 | 60A | 24 | 34 |
| 820 | Q11 | 121 | BLANK |
| 822 | Q11 | 35 | 100 |
| 823 | 20F12T8 | 118Q2 | 13C2 |
| 824 | 20F12Q8 | BLANK | BLANK |
| 825 | 20F12T8 | BLANK | BLANK |
| 826 | 150 | 20F12Q8 | 34 |
| 827 | Q11 | 150 | 59 |
| 828 | 150 | BLANK | 85 |
| 829 | 120T2 | BLANK | 85 |
| 830 | 118Q2 | 120T2 | BLANK |

| CODE | INSERT COMBINATION ON SHELL | | |
|---|---|---|---|
| | CAVITY A | CAVITY B | CAVITY C |
| 831 | 120T2 | 120T2 | BLANK |
| 832 | Q11 | 121 | 100 |
| 833 | 150 | 150 | 17F12Q2 |
| 834 | 110R | 150 | 17F12Q2 |
| 835 | 121 | 121 | 11Q2 |
| 838 | Q11 | BLANK | 68Q2 |
| 839 | 60A | BLANK | 34 |
| 840 | 150 | 110 | 11Q2 |
| 841 | 150 | 110 | 34 |
| 842 | 71C1 | 118Q2 | 12F5C2 |
| 843 | 110 | 110 | BLANK |
| 844 | 150 | 121 | 62F12 |
| 845 | 150 | 20F12Q8 | 13C2 |
| 846 | C4 | 150 | 62F12 |
| 847 | C4 | 150 | 11Q2 |
| 848 | 24 | 150 | 6Q6 |
| 849 | 150 | 150 | 10 |
| 850 | 150 | 110 | 13C2 |
| 851 | 36F36 | 150 | 85 |

| CODE | INSERT COMBINATION ON SHELL | | |
|---|---|---|---|
| | CAVITY A | CAVITY B | CAVITY C |
| 852 | 150 | 121 | 11Q2 |
| 853 | 118Q2 | 150 | 11Q2 |
| 854 | 20F12Q8 | 118Q2 | 59 |
| 855 | 20F12Q8 | Q11 | 100 |
| 856 | BLANK | 110 | 13C2 |
| 857 | BLANK | 36F36 | BLANK |
| 858 | 118Q2 | 118Q2 | 11Q2 |
| 859 | 150 | 36F36 | 13C2 |
| 860 | 150 | 118Q2 | 11Q2 |
| 861 | 118Q2 | 118Q2 | 59 |
| 862 | 150 | 118Q2 | 62Q2 |
| 863 | Q11 | Q11 | 17F12Q2 |
| 864 | 150 | Q11 | 46Q2 |
| 865 | 118Q2 | 150 | 13C2 |
| 866 | 121 | 110 | 13C2 |
| 867 | C4 | C2 | BLANK |
| 868 | 150 | 118Q2 | 24T4 |

*How to Order*

## FOR SHELL SIZE 3

| CODE | INSERT COMBINATION ON SHELL | | | | | |
|---|---|---|---|---|---|---|
| | CAVITY A | CAVITY B | CAVITY C | CAVITY D | CAVITY E | CAVITY F |
| 301 | 150 | 150 | 13C2 | 150 | 150 | 13C2 |
| 302 | 150 | 150 | 100 | 150 | 150 | 13C2 |
| 303 | 150 | 150 | 13C2 | 150 | 150 | 100 |
| 304 | 150 | 150 | 100 | 150 | 150 | 100 |
| 305 | 150 | 150 | BLANK | 150 | 150 | BLANK |
| 306 | 150 | 71C1 | 13C2 | 150 | 71C1 | 13C2 |
| 307 | 71C1 | 71C1 | 13C2 | 71C1 | 71C1 | 13C2 |
| 308 | C2 | C2 | 13C2 | C2 | 150 | 100 |
| 309 | 150 | 150 | 13C2 | 150 | 71C1 | 100 |
| 310 | C4 | C4 | 13C2 | BLANK | 150 | 100 |
| 311 | 150 | 150 | 85 | 150 | 150 | 85 |
| 312 | BLANK | BLANK | 13C2 | BLANK | BLANK | 13C2 |
| 313 | BLANK | BLANK | 13C2 | BLANK | BLANK | 100 |
| 314 | BLANK | BLANK | 13C2 | BLANK | 150 | 100 |
| 315 | 150 | 150 | 13C2 | 150 | 150 | BLANK |
| 316 | 24 | BLANK | 13C2 | 150 | 150 | BLANK |
| 317 | 120T2 | 150 | 34 | 120T2 | 150 | 34 |
| 320 | 150 | 60A | 100 | 150 | 60A | 100 |
| 321 | 150 | 150 | 100 | 150 | BLANK | BLANK |
| 322 | 150 | 150 | 100 | 150 | 150 | 34 |
| 323 | 150 | 150 | 100 | 71C1 | 71C1 | 100 |
| 324 | 150 | 150 | 100 | C2 | BLANK | BLANK |
| 325 | 150 | 150 | 13C2 | C2 | C2 | 13C2 |
| 326 | 150 | 71C1 | 100 | 150 | 150 | 100 |
| 327 | 150 | 71C1 | 100 | 150 | 150 | 13C2 |
| 328 | C2 | C2 | 13C2 | 150 | 150 | 13C2 |
| 329 | C2 | C2 | 13C2 | C4 | 150 | 100 |
| 330 | C4 | C4 | 13C2 | BLANK | BLANK | BLANK |
| 331 | 71C1 | 150 | 100 | 150 | 150 | 100 |
| 332 | C4 | C4 | 13C2 | C4 | C4 | 85 |
| 333 | 71C1 | 71C1 | 100 | 71C1 | 71C1 | 100 |
| 334 | 71C1 | 71C1 | BLANK | 71C1 | 71C1 | BLANK |
| 335 | 71C1 | C4 | 100 | 71C1 | C4 | 100 |
| 336 | BLANK | 150 | 13C2 | BLANK | 150 | 13C2 |
| 337 | BLANK | BLANK | 100 | BLANK | BLANK | 13C2 |
| 338 | C2 | 150 | 100 | 150 | 150 | 100 |
| 339 | C2 | C2 | 100 | C2 | C2 | 100 |
| 340 | C2 | C2 | 13C2 | C2 | C2 | 13C2 |
| 341 | C4 | C4 | 100 | C4 | C4 | 100 |
| 342 | C4 | C4 | 13C2 | C4 | C4 | 13C2 |

***Notes***

*NSX T CAS connectors (insert code combination 310) are installed on equipment for use on T CAS (Traffic Collision Avoidance Systems)*
*C4 insert uses size 1 RF coaxial contacts (See page 5-42)*

*How to Order*

## FOR SHELL SIZE 3

| CODE | INSERT COMBINATION ON SHELL | | | | | |
|---|---|---|---|---|---|---|
| | CAVITY A | CAVITY B | CAVITY C | CAVITY D | CAVITY E | CAVITY F |
| 343 | BLANK | 150 | 100 | 150 | 150 | 13C2 |
| 344 | 24 | 150 | 13C2 | 24 | 150 | 13C2 |
| 345 | 60A | 24 | BLANK | 60A | 24 | BLANK |
| 346 | 150 | 24 | 100 | 150 | 150 | 34 |
| 348 | C4 | 120T2 | 100 | 150 | 150 | 13C2 |
| 350 | 150 | 120T2 | 100 | 150 | 120T2 | 59 |
| 351 | 150 | 150 | 34 | 150 | 150 | 34 |
| 352 | 24 | 24 | 100 | 24 | 24 | 34 |
| 353 | 150 | 150 | 59 | 150 | 150 | 59 |
| 354 | 150 | 150 | 34 | 150 | 24 | 100 |
| 355 | C4 | 150 | 13C2 | BLANK | 150 | 13C2 |
| 356 | 150 | 150 | 100 | 60A | 60A | 100 |
| 357 | C4 | C4 | 13C2 | 150 | 150 | 100 |
| 358 | C4 | C4 | 13C2 | 121 | 150 | 100 |
| 359 | 121 | 121 | 13C2 | 121 | 121 | 13C2 |
| 360 | 150 | 150 | 6T6 | 24 | 24 | 13C2 |
| 361 | 150 | BLANK | 13C2 | 150 | 150 | BLANK |
| 362 | 24 | 24 | 34 | 150 | 121 | 34 |
| 363 | 150 | 150 | 59 | 24 | 60A | 59 |
| 364 | 60A | 24 | 59 | 150 | 150 | 59 |
| 365 | 24 | 60A | 100 | 24 | 60A | 100 |
| 366 | 150 | 150 | 84 | 150 | 150 | 100 |
| 367 | 150 | 150 | 59 | 120T2 | 120T2 | 100 |
| 368 | 150 | 150 | 59 | 150 | 150 | 34 |
| 369 | 150 | 150 | 59 | 150 | 150 | 100 |
| 370 | 60A | 60A | 100 | 60A | 60A | 100 |
| 371 | C4 | C4 | 13C2 | C2 | 150 | 100 |
| 372 | 150 | 150 | BLANK | 121 | BLANK | 13C2 |
| 373 | 150 | 150 | 13C2 | 120T2 | 120T2 | 100 |
| 374 | 150 | 150 | 68Q2 | 150 | 150 | 68Q2 |
| 375 | 150 | 150 | 100 | 150 | 150 | 68Q2 |
| 376 | 150 | 150 | 68Q2 | 150 | 150 | BLANK |
| 377 | 120T2 | 150 | 13C2 | 120T2 | 150 | 100 |
| 378 | Q11 | 150 | 13C2 | 150 | 150 | 13C2 |
| 379 | 60A | 150 | 34 | 150 | 150 | 34 |
| 380 | C4 | 120T2 | 11Q2 | C4 | 120T2 | 13C2 |
| 381 | C4 | 120T2 | 11Q2 | C4 | 120T2 | 11Q2 |
| 382 | 150 | 150 | 11Q2 | 150 | 150 | 11Q2 |
| 383 | 150 | 150 | BLANK | Q11 | 150 | 85 |
| 384 | Q11 | 150 | 85 | 150 | 150 | BLANK |

*How to Order*

## FOR SHELL SIZE 3

| CODE | INSERT COMBINATION ON SHELL | | | | | |
|---|---|---|---|---|---|---|
| | CAVITY A | CAVITY B | CAVITY C | CAVITY D | CAVITY E | CAVITY F |
| 387 | Q11 | Q11 | 62Q2 | Q11 | Q11 | 62Q2 |
| 388 | Q11 | Q11 | Q6 | Q11 | Q11 | 62Q2 |
| 389 | Q11 | 150 | 11Q2 | 150 | 150 | 68Q2 |
| 390 | 150 | 150 | 11Q2 | BLANK | BLANK | BLANK |
| 393 | BLANK | BLANK | 13C2 | 150 | BLANK | BLANK |
| 394 | BLANK | BLANK | 13C2 | 150 | BLANK | 13C2 |
| 395 | Q11 | Q11 | 100 | Q11 | Q11 | 100 |
| 396 | BLANK | BLANK | BLANK | BLANK | BLANK | BLANK |
| 397 | Q11 | Q11 | 11Q2 | Q11 | 150 | 11Q2 |
| 398 | 150 | 120T2 | 85 | 150 | 120T2 | 85 |
| 399 | 121 | BLANK | 6T6 | 60A | BLANK | 13C2 |
| 601 | 60A | 60A | 13C2 | 60A | 60A | 13C2 |
| 602 | Q11 | 150 | 11Q2 | 150 | 150 | 11Q2 |
| 603 | 24 | BLANK | 13C2 | BLANK | BLANK | 13C2 |
| 604 | 150 | 150 | BLANK | 150 | 150 | 100 |
| 605 | 150 | Q11 | 11Q2 | 150 | Q11 | 68Q2 |
| 607 | 24 | 24 | 13C2 | 24 | 24 | 100 |
| 608 | 24 | 24 | 13C2 | 24 | 24 | 68Q2 |
| 609 | 150 | 150 | 34 | 150 | 120T2 | 13C2 |
| 610 | 150 | 150 | 34 | 150 | Q11 | 13C2 |
| 611 | BLANK | 150 | 13C2 | BLANK | 150 | 100 |
| 613 | Q11 | 150 | 68Q2 | 150 | 150 | 13C2 |
| 614 | 150 | 150 | 100 | BLANK | BLANK | BLANK |
| 615 | 150 | 150 | 100 | 150 | 150 | 59 |
| 616 | 150 | 150 | 13C2 | 60A | 120T2 | 34 |
| 617 | 60A | 120T2 | 13C2 | 60A | 120T2 | 13C2 |
| 618 | 150 | 150 | Q6 | 150 | 150 | Q6 |
| 619 | Q11 | Q11 | 11Q2 | 150 | 150 | 100 |
| 620 | 24 | 24 | 34 | 24 | BLANK | 34 |
| 621 | 150 | 150 | 34 | 150 | 60A | 34 |
| 622 | 120T2 | 150 | 100 | 120T2 | 150 | 100 |
| 623 | C4 | C4 | 34 | C4 | C4 | BLANK |
| 624 | 150 | 150 | 13C2 | 60A | 60A | 34 |
| 626 | C4 | C4 | 13C2 | 120T2 | 150 | 100 |
| 627 | C4 | 120T2 | BLANK | C4 | 120T2 | 11Q2 |

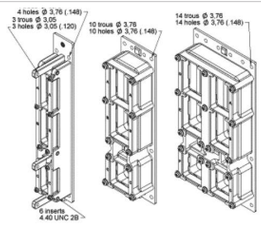
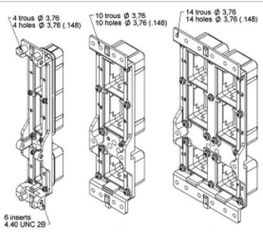
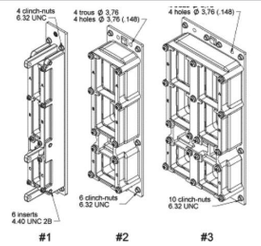
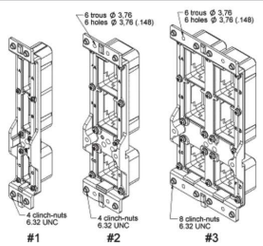
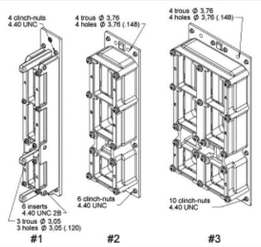
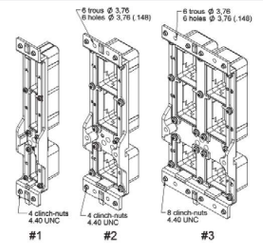
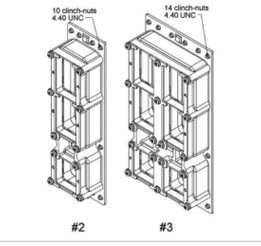
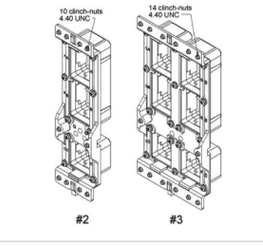
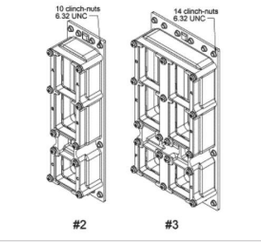
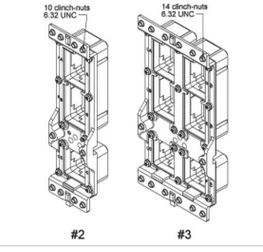
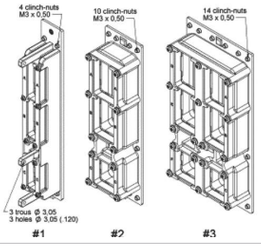
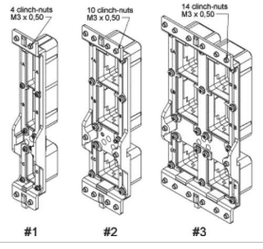
*How to Order*

## FOR SHELL SIZE 3

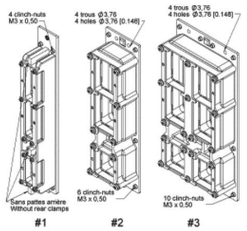
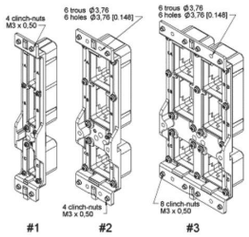
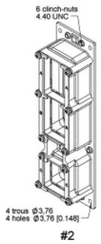
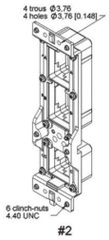
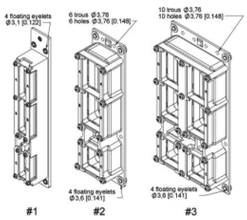
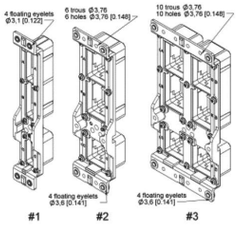
| CODE | INSERT COMBINATION ON SHELL | | | | | |
|---|---|---|---|---|---|---|
| | CAVITY A | CAVITY B | CAVITY C | CAVITY D | CAVITY E | CAVITY F |
| 629 | C4 | 120T2 | 17F12Q2 | C4 | 120T2 | 11Q2 |
| 630 | C4 | C4 | BLANK | C4 | C4 | 34 |
| 631 | BLANK | 150 | 13C2 | BLANK | Q11 | BLANK |
| 632 | BLANK | 150 | 13C2 | 150 | 150 | 68Q2 |
| 633 | 150 | 150 | 100 | Q11 | Q11 | 11Q2 |
| 634 | 150 | 120T2 | 34 | 150 | 120T2 | 34 |
| 635 | Q11 | 121 | 11Q2 | Q11 | 121 | 11Q2 |
| 636 | 150 | 150 | 11Q2 | 150 | 150 | 100 |
| 637 | BLANK | 150 | 11Q2 | 150 | 150 | 68Q2 |
| 638 | Q11 | 150 | 62Q2 | Q11 | 150 | 62Q2 |
| 639 | Q11 | 121 | 13C2 | Q11 | 121 | 13C2 |
| 641 | 150 | 150 | BLANK | 150 | 150 | 13C2 |
| 642 | 121 | 60A | 59 | 121 | 60A | 13C2 |
| 643 | Q11 | Q11 | Q6 | Q11 | Q11 | Q6 |
| 644 | 150 | Q11 | 34 | Q11 | Q11 | 34 |
| 645 | 150 | 150 | 11Q2 | 150 | 150 | BLANK |
| 646 | 150 | BLANK | 13C2 | 150 | BLANK | BLANK |
| 647 | C4 | 120T2 | 17F12Q2 | C4 | 120T2 | 13C2 |
| 648 | BLANK | BLANK | 17F12Q2 | BLANK | BLANK | BLANK |
| 649 | 150 | 150 | 15T6Q2 | 150 | 150 | 15T6Q2 |
| 651 | Q11 | 118Q2 | 59 | Q11 | 118Q2 | 59 |
| 652 | 121 | 121 | 34 | 121 | 121 | 34 |
| 653 | C4 | C4 | 13C2 | C4 | 150 | 100 |
| 654 | C4 | 150 | 62F12 | C4 | 150 | 11Q2 |
| 655 | 36F36 | 150 | 11Q2 | 150 | 150 | 68Q2 |
| 656 | 71C1 | 71C1 | 85 | 71C1 | 71C1 | 85 |
| 657 | Q11 | Q11 | 34 | 120T2 | 150 | 13C2 |
| 660 | C4 | BLANK | BLANK | 150 | BLANK | 13C2 |
| 661 | Q11 | Q11 | 85 | Q11 | Q11 | 85 |
| 662 | BLANK | BLANK | 13C2 | 150 | 150 | 100 |
| 664 | Q11 | Q11 | 100 | 118Q2 | Q11 | 34 |

*How to Order*

## MODIFICATION CODE

| CODE | RECEPTACLE SHELL | | PLUG SHELL | |
|---|---|---|---|---|
| 00 |  | Ø 3.76<br>Ø (0.148)<br>All Holes |  | Ø 3.76<br>Ø (0.148)<br>All Holes |
| 01 |  | Shell Size 1: Qty = 4<br>6-32 UNC &<br>Qty = 6 4-40 UNC<br><br>Shell Size 2: Qty = 6<br>6-32 UNC<br><br>Shell Size 3: Qty = 10<br>6-32 UNC |  | 6-32 UNC<br><br>Shell Size 1: Qty = 4<br>Shell Size 2: Qty = 4<br>Shell Size 3: Qty = 8<br><br>Size 1 Plug is Without<br>Threaded Inserts |
| 03 |  | Shell Size 1: Qty = 6<br>4-40 UNC 2B &<br>Qty = 3 Holes Ø 3.05 (0.120)<br><br>Shell Size 2: Qty = 6 &<br>Qty = 4 Holes Ø 3.76 (0.148)<br><br>Shell Size 3: Qty = 10 & Qty = 4<br>Holes Ø 3.76 (0.148) |  | Shell Size 1 Plug is Without<br>Threaded Inserts<br><br>Shell Size 1: Qty = 4<br>4-40 UNC<br><br>Shell Size 2: Qty= 4 4-40 UNC &<br>Qty= 6 Soles Ø 3.76 (0.148)<br><br>Shell Size 3: Qty = 8 &<br>Qty= 6 Holes Ø 3.76 (0.148) |
| 08 |  | 4-40 UNC<br>All Holes<br><br>Shell Sizes 2 and 3 Only |  | 4-40 UNC<br>All Holes<br><br>Shell Sizes 2 and 3 Only |
| 09 |  | 6-32 UNC<br>All Holes<br><br>Shell Sizes 2 and 3 Only |  | 6-32 UNC<br>All Holes<br><br>Shell Sizes 2 and 3 Only |
| 10 |  | M3 x 0.50<br>All Holes<br><br>Shell Size 1 Receptacle is<br>Without Threaded Inserts |  | M3 x 0.50<br>All Holes<br><br>Shell Size 1 Plug is Without<br>Threaded Inserts |

*How to Order*

| CODE | RECEPTACLE SHELL | | PLUG SHELL | |
|---|---|---|---|---|
| 11 |  | M3 x 0.50<br><br>Shell Size 1: Qty = 4<br>Shell Size 2: Qty = 6<br>Shell Size 3: Qty = 10<br><br>Size 1 Receptacle is Without Threaded Inserts |  | M3 x 0.50<br><br>Shell Size 1: Qty = 4<br>Shell Size 2: Qty = 4<br>Shell Size 3: Qty = 8<br><br>Shell Size 1 Plug is Without Threaded Inserts |
| 12 |  | 4-40 UNC<br>6 Holes (4 Close to the Bosses and 2 at the Polarization System Level)<br><br>Available for Shell Size 2 Only |  | 4-40 UNC<br>6 Holes (4 in to the Corner and 2 at the Polarization System Level)<br><br>Available for Shell Size 2 Only |
| 23 |  | Shell Size 1: Qty = 4 Floating Eyelets Ø 3.1 (0.122)<br><br>Shell Size 2: Qty = 6 Ø 3.76 (0.148) + 4 Floating Eyelets<br><br>Shell Size 3: Qty = 10 Ø 3.76 (0.148) + 4 Floating Eyelets |  | Shell Size 1: Ø 3.1 Ø (0.122)<br><br>Shell Size 2 and 3: Ø 3.6 Ø (0.141)<br><br>4 Floating Eyelets |

*How to Order*

## POLARIZATION CODE

### POSITION OF POLARIZATION KEYS AND POSTS

Connectors are shown front side, with “RADIALL” upward.



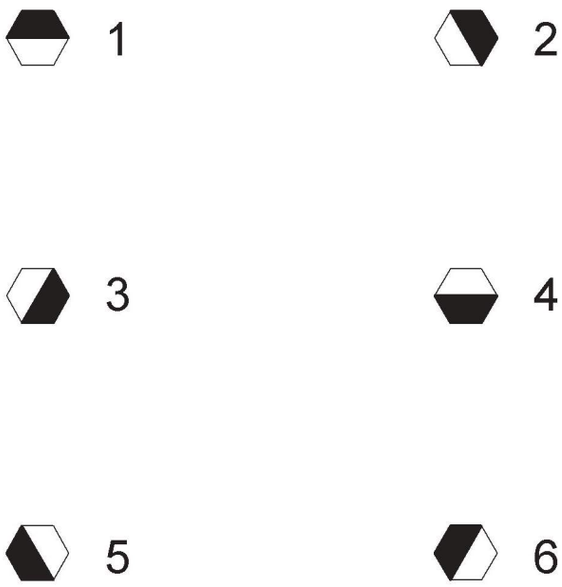
**POSTS**



**KEYS**

### POSITION CODING

- Dark area represents the polarizing post
- Clear portion represents the key hole



*How to Order*

## POLARIZATION CODE TABLE

| CODE NUMBER | RECEPTACLE SHELL | | | PLUG SHELL | | |
|---|---|---|---|---|---|---|
| | LEFT KEY | CENTER KEY | RIGHT KEY | LEFT POST | CENTER POST | RIGHT POST |
| 00 | - | - | - | - | - | - |
| 01 | 4 | 4 | 4 | 1 | 1 | 1 |
| 02 | 4 | 4 | 3 | 2 | 1 | 1 |
| 03 | 4 | 4 | 2 | 3 | 1 | 1 |
| 04 | 4 | 4 | 1 | 4 | 1 | 1 |
| 05 | 4 | 4 | 6 | 5 | 1 | 1 |
| 06 | 4 | 4 | 5 | 6 | 1 | 1 |
| 07 | 5 | 4 | 4 | 1 | 1 | 6 |
| 08 | 5 | 4 | 3 | 2 | 1 | 6 |
| 09 | 5 | 4 | 2 | 3 | 1 | 6 |
| 10 | 5 | 4 | 1 | 4 | 1 | 6 |
| 11 | 5 | 4 | 6 | 5 | 1 | 6 |
| 12 | 5 | 4 | 5 | 6 | 1 | 6 |
| 13 | 6 | 4 | 4 | 1 | 1 | 5 |
| 14 | 6 | 4 | 3 | 2 | 1 | 5 |
| 15 | 6 | 4 | 2 | 3 | 1 | 5 |
| 16 | 6 | 4 | 1 | 4 | 1 | 5 |
| 17 | 6 | 4 | 6 | 5 | 1 | 5 |
| 18 | 6 | 4 | 5 | 6 | 1 | 5 |
| 19 | 1 | 4 | 4 | 1 | 1 | 4 |
| 20 | 1 | 4 | 3 | 2 | 1 | 4 |
| 21 | 1 | 4 | 2 | 3 | 1 | 4 |
| 22 | 1 | 4 | 1 | 4 | 1 | 4 |
| 23 | 1 | 4 | 6 | 5 | 1 | 4 |
| 24 | 1 | 4 | 5 | 6 | 1 | 4 |
| 25 | 2 | 4 | 4 | 1 | 1 | 3 |
| 26 | 2 | 4 | 3 | 2 | 1 | 3 |
| 27 | 2 | 4 | 2 | 3 | 1 | 3 |
| 28 | 2 | 4 | 1 | 4 | 1 | 3 |
| 29 | 2 | 4 | 6 | 5 | 1 | 3 |
| 30 | 2 | 4 | 5 | 6 | 1 | 3 |
| 31 | 3 | 4 | 4 | 1 | 1 | 2 |
| 32 | 3 | 4 | 3 | 2 | 1 | 2 |
| 33 | 3 | 4 | 2 | 3 | 1 | 2 |
| 34 | 3 | 4 | 1 | 4 | 1 | 2 |
| 35 | 3 | 4 | 6 | 6 | 1 | 2 |
| 36 | 3 | 4 | 5 | 5 | 1 | 2 |
| 37 | 4 | 3 | 4 | 1 | 2 | 1 |
| 38 | 4 | 3 | 3 | 2 | 2 | 1 |
| 39 | 4 | 3 | 2 | 3 | 2 | 1 |
| 40 | 4 | 3 | 1 | 4 | 2 | 1 |
| 41 | 4 | 3 | 6 | 5 | 2 | 1 |
| 42 | 4 | 3 | 5 | 6 | 2 | 1 |
| 43 | 5 | 3 | 4 | 1 | 2 | 6 |
| 44 | 5 | 3 | 3 | 2 | 2 | 6 |
| 45 | 5 | 3 | 2 | 3 | 2 | 6 |
| 46 | 5 | 3 | 1 | 4 | 2 | 6 |
| 47 | 5 | 3 | 6 | 5 | 2 | 6 |
| 48 | 5 | 3 | 5 | 6 | 2 | 6 |
| 49 | 6 | 3 | 4 | 1 | 2 | 5 |

| CODE NUMBER | RECEPTACLE SHELL | | | PLUG SHELL | | |
|---|---|---|---|---|---|---|
| | LEFT KEY | CENTER KEY | RIGHT KEY | LEFT POST | CENTER POST | RIGHT POST |
| 50 | 6 | 3 | 3 | 2 | 2 | 5 |
| 51 | 6 | 3 | 2 | 3 | 2 | 5 |
| 52 | 6 | 3 | 1 | 4 | 2 | 5 |
| 53 | 6 | 3 | 6 | 5 | 2 | 5 |
| 54 | 6 | 3 | 5 | 6 | 2 | 5 |
| 55 | 1 | 3 | 4 | 1 | 2 | 4 |
| 56 | 1 | 3 | 3 | 2 | 2 | 4 |
| 57 | 1 | 3 | 2 | 3 | 2 | 4 |
| 58 | 1 | 3 | 1 | 4 | 2 | 4 |
| 59 | 1 | 3 | 6 | 5 | 2 | 4 |
| 60 | 1 | 3 | 5 | 6 | 2 | 4 |
| 61 | 2 | 3 | 4 | 1 | 2 | 3 |
| 62 | 2 | 3 | 3 | 2 | 2 | 3 |
| 63 | 2 | 3 | 2 | 3 | 2 | 3 |
| 64 | 2 | 3 | 1 | 4 | 2 | 3 |
| 65 | 2 | 3 | 6 | 5 | 2 | 3 |
| 66 | 2 | 3 | 5 | 6 | 2 | 3 |
| 67 | 3 | 3 | 4 | 1 | 2 | 2 |
| 68 | 3 | 3 | 3 | 2 | 2 | 2 |
| 69 | 3 | 3 | 2 | 3 | 2 | 2 |
| 70 | 3 | 3 | 1 | 4 | 2 | 2 |
| 71 | 3 | 3 | 6 | 5 | 2 | 2 |
| 72 | 3 | 3 | 5 | 6 | 2 | 2 |
| 73 | 4 | 2 | 4 | 1 | 3 | 1 |
| 74 | 4 | 2 | 3 | 2 | 3 | 1 |
| 75 | 4 | 2 | 2 | 3 | 3 | 1 |
| 76 | 4 | 2 | 1 | 4 | 3 | 1 |
| 77 | 4 | 2 | 6 | 5 | 3 | 1 |
| 78 | 4 | 2 | 5 | 6 | 3 | 1 |
| 79 | 5 | 2 | 4 | 1 | 3 | 6 |
| 80 | 5 | 2 | 3 | 2 | 3 | 6 |
| 81 | 5 | 2 | 2 | 3 | 3 | 6 |
| 82 | 5 | 2 | 1 | 4 | 3 | 6 |
| 83 | 5 | 2 | 6 | 5 | 3 | 6 |
| 84 | 5 | 2 | 5 | 6 | 3 | 6 |
| 85 | 6 | 2 | 4 | 1 | 3 | 5 |
| 86 | 6 | 2 | 3 | 2 | 3 | 5 |
| 87 | 6 | 2 | 2 | 3 | 3 | 5 |
| 88 | 6 | 2 | 1 | 4 | 3 | 5 |
| 89 | 6 | 2 | 6 | 5 | 3 | 5 |
| 90 | 6 | 2 | 5 | 6 | 3 | 5 |
| 91 | 1 | 2 | 4 | 1 | 3 | 4 |
| 92 | 1 | 2 | 3 | 2 | 3 | 4 |
| 93 | 1 | 2 | 2 | 3 | 3 | 4 |
| 94 | 1 | 2 | 1 | 4 | 3 | 4 |
| 95 | 1 | 2 | 6 | 5 | 3 | 4 |
| 96 | 1 | 2 | 5 | 6 | 3 | 4 |
| 97 | 2 | 2 | 4 | 1 | 3 | 3 |
| 98 | 2 | 2 | 3 | 2 | 3 | 3 |
| 99 | 2 | 2 | 2 | 3 | 3 | 3 |

*How to Order*

| CODE NUMBER | RECEPTACLE SHELL | | | PLUG SHELL | | |
|---|---|---|---|---|---|---|
| | LEFT KEY | CENTER KEY | RIGHT KEY | LEFT POST | CENTER POST | RIGHT POST |
| 100 | 2 | 2 | 1 | 4 | 3 | 3 |
| 101 | 2 | 2 | 6 | 5 | 3 | 3 |
| 102 | 2 | 2 | 5 | 6 | 3 | 3 |
| 103 | 3 | 2 | 4 | 1 | 3 | 2 |
| 104 | 3 | 2 | 3 | 2 | 3 | 2 |
| 105 | 3 | 2 | 2 | 3 | 3 | 2 |
| 106 | 3 | 2 | 1 | 4 | 3 | 2 |
| 107 | 3 | 2 | 6 | 5 | 3 | 2 |
| 108 | 3 | 2 | 5 | 6 | 3 | 2 |
| 109 | 4 | 1 | 4 | 1 | 4 | 1 |
| 110 | 4 | 1 | 3 | 2 | 4 | 1 |
| 111 | 4 | 1 | 2 | 3 | 4 | 1 |
| 112 | 4 | 1 | 1 | 4 | 4 | 1 |
| 113 | 4 | 1 | 6 | 5 | 4 | 1 |
| 114 | 4 | 1 | 5 | 6 | 4 | 1 |
| 115 | 5 | 1 | 4 | 1 | 4 | 6 |
| 116 | 5 | 1 | 3 | 2 | 4 | 6 |
| 117 | 5 | 1 | 2 | 3 | 4 | 6 |
| 118 | 5 | 1 | 1 | 4 | 4 | 6 |
| 119 | 5 | 1 | 6 | 5 | 4 | 6 |
| 120 | 5 | 1 | 5 | 6 | 4 | 6 |
| 121 | 6 | 1 | 4 | 1 | 4 | 5 |
| 122 | 6 | 1 | 3 | 2 | 4 | 5 |
| 123 | 6 | 1 | 2 | 3 | 4 | 5 |
| 124 | 6 | 1 | 1 | 4 | 4 | 5 |
| 125 | 6 | 1 | 6 | 5 | 4 | 5 |
| 126 | 6 | 1 | 5 | 6 | 4 | 5 |
| 127 | 1 | 1 | 4 | 1 | 4 | 4 |
| 128 | 1 | 1 | 3 | 2 | 4 | 4 |
| 129 | 1 | 1 | 2 | 3 | 4 | 4 |
| 130 | 1 | 1 | 1 | 4 | 4 | 4 |
| 131 | 1 | 1 | 6 | 5 | 4 | 4 |
| 132 | 1 | 1 | 5 | 6 | 4 | 4 |
| 133 | 2 | 1 | 4 | 1 | 4 | 3 |
| 134 | 2 | 1 | 3 | 2 | 4 | 3 |
| 135 | 2 | 1 | 2 | 3 | 4 | 3 |
| 136 | 2 | 1 | 1 | 4 | 4 | 3 |
| 137 | 2 | 1 | 6 | 5 | 4 | 3 |
| 138 | 2 | 1 | 5 | 6 | 4 | 3 |
| 139 | 3 | 1 | 4 | 1 | 4 | 2 |
| 140 | 3 | 1 | 3 | 2 | 4 | 2 |
| 141 | 3 | 1 | 2 | 3 | 4 | 2 |
| 142 | 3 | 1 | 1 | 4 | 4 | 2 |
| 143 | 3 | 1 | 6 | 5 | 4 | 2 |
| 144 | 3 | 1 | 5 | 6 | 4 | 2 |
| 145 | 4 | 6 | 4 | 1 | 5 | 1 |
| 146 | 4 | 6 | 3 | 2 | 5 | 1 |
| 147 | 4 | 6 | 2 | 3 | 5 | 1 |
| 148 | 4 | 6 | 1 | 4 | 5 | 1 |
| 149 | 4 | 6 | 6 | 5 | 5 | 1 |

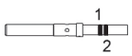
| CODE NUMBER | RECEPTACLE SHELL | | | PLUG SHELL | | |
|---|---|---|---|---|---|---|
| | LEFT KEY | CENTER KEY | RIGHT KEY | LEFT POST | CENTER POST | RIGHT POST |
| 150 | 4 | 6 | 5 | 6 | 5 | 1 |
| 151 | 5 | 6 | 4 | 1 | 5 | 6 |
| 152 | 5 | 6 | 3 | 2 | 5 | 6 |
| 153 | 5 | 6 | 2 | 3 | 5 | 6 |
| 154 | 5 | 6 | 1 | 4 | 5 | 6 |
| 155 | 5 | 6 | 6 | 5 | 5 | 6 |
| 156 | 5 | 6 | 5 | 6 | 5 | 6 |
| 157 | 6 | 6 | 4 | 1 | 5 | 5 |
| 158 | 6 | 6 | 3 | 2 | 5 | 5 |
| 159 | 6 | 6 | 2 | 3 | 5 | 5 |
| 160 | 6 | 6 | 1 | 4 | 5 | 5 |
| 161 | 6 | 6 | 6 | 5 | 5 | 5 |
| 162 | 6 | 6 | 5 | 6 | 5 | 5 |
| 163 | 1 | 6 | 4 | 1 | 5 | 4 |
| 164 | 1 | 6 | 3 | 2 | 5 | 4 |
| 165 | 1 | 6 | 2 | 3 | 5 | 4 |
| 166 | 1 | 6 | 1 | 4 | 5 | 4 |
| 167 | 1 | 6 | 6 | 5 | 5 | 4 |
| 168 | 1 | 6 | 5 | 6 | 5 | 4 |
| 169 | 2 | 6 | 4 | 1 | 5 | 3 |
| 170 | 2 | 6 | 3 | 2 | 5 | 3 |
| 171 | 2 | 6 | 2 | 3 | 5 | 3 |
| 172 | 2 | 6 | 1 | 4 | 5 | 3 |
| 173 | 2 | 6 | 6 | 5 | 5 | 3 |
| 174 | 2 | 6 | 5 | 6 | 5 | 3 |
| 175 | 3 | 6 | 4 | 1 | 5 | 2 |
| 176 | 3 | 6 | 3 | 2 | 5 | 2 |
| 177 | 3 | 6 | 2 | 3 | 5 | 2 |
| 178 | 3 | 6 | 1 | 4 | 5 | 2 |
| 179 | 3 | 6 | 6 | 5 | 5 | 2 |
| 180 | 3 | 6 | 5 | 6 | 5 | 2 |
| 181 | 4 | 5 | 4 | 1 | 6 | 1 |
| 182 | 4 | 5 | 3 | 2 | 6 | 1 |
| 183 | 4 | 5 | 2 | 3 | 6 | 1 |
| 184 | 4 | 5 | 1 | 4 | 6 | 1 |
| 185 | 4 | 5 | 6 | 5 | 6 | 1 |
| 186 | 4 | 5 | 5 | 6 | 6 | 1 |
| 187 | 5 | 5 | 4 | 1 | 6 | 6 |
| 188 | 5 | 5 | 3 | 2 | 6 | 6 |
| 189 | 5 | 5 | 2 | 3 | 6 | 6 |
| 190 | 5 | 5 | 1 | 4 | 6 | 6 |
| 191 | 5 | 5 | 6 | 5 | 6 | 6 |
| 192 | 5 | 5 | 5 | 6 | 6 | 6 |
| 193 | 6 | 5 | 4 | 1 | 6 | 5 |
| 194 | 6 | 5 | 3 | 2 | 6 | 5 |
| 195 | 6 | 5 | 2 | 3 | 6 | 5 |
| 196 | 6 | 5 | 1 | 4 | 6 | 5 |
| 197 | 6 | 5 | 6 | 5 | 6 | 5 |
| 198 | 6 | 5 | 5 | 6 | 6 | 5 |
| 199 | 1 | 5 | 4 | 1 | 6 | 4 |

*How to Order*

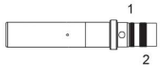
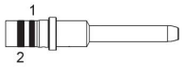
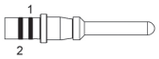
| CODE NUMBER | RECEPTACLE SHELL | | | PLUG SHELL | | |
|---|---|---|---|---|---|---|
| | LEFT KEY | CENTER KEY | RIGHT KEY | LEFT POST | CENTER POST | RIGHT POST |
| 200 | 1 | 5 | 3 | 2 | 6 | 4 |
| 201 | 1 | 5 | 2 | 3 | 6 | 4 |
| 202 | 1 | 5 | 1 | 4 | 6 | 4 |
| 203 | 1 | 5 | 6 | 5 | 6 | 4 |
| 203 | 1 | 5 | 6 | 5 | 6 | 4 |
| 204 | 1 | 5 | 5 | 6 | 6 | 4 |
| 205 | 2 | 5 | 4 | 1 | 6 | 3 |
| 206 | 2 | 5 | 3 | 2 | 6 | 3 |
| 207 | 2 | 5 | 2 | 3 | 6 | 3 |
| 208 | 2 | 5 | 1 | 4 | 6 | 3 |
| 209 | 2 | 5 | 6 | 5 | 6 | 3 |
| 210 | 2 | 5 | 5 | 6 | 6 | 3 |
| 211 | 3 | 5 | 4 | 1 | 6 | 2 |
| 212 | 3 | 5 | 3 | 2 | 6 | 2 |
| 213 | 3 | 5 | 2 | 3 | 6 | 2 |
| 214 | 3 | 5 | 1 | 4 | 6 | 2 |
| 215 | 3 | 5 | 6 | 5 | 6 | 2 |
| 216 | 3 | 5 | 5 | 6 | 6 | 2 |

*Contacts*

## SIGNAL, POWER & GROUND CONTACTS CRIMP TERMINATION

| CONTACT SIZE | | 22 | 22 REDUCED CRIMP BARREL | 20 | 16 | 16 REDUCED CRIMP BARREL |
|---|---|---|---|---|---|---|
| *Ins. Ext Tool (Metallic)* | Radiall P/N | 282885 | | 282886 | 282546 | |
| | Mil Spec P/N | M81969/1.01 | | M81969/1.02 | M81969/1.03 | |
| *Ins. Ext Tool (Plastic)* | Radiall P/N | 282522 | | 282549029 | 282515 | - |
| | Mil Spec P/N | M81969/14.01 | | M81969/14.02 | M81969/14.03 | - |
| *Positioner* | Radiall P/N | 282970 | | 282971 | 282972 | |
| | Mil Spec P/N | M22520/2.23 | | M22520/2.08 | M22520/1.02 | |
| *Crimping Tool* | Radiall P/N | 282281 | | 282281 | 282291 | |
| | Mil Spec P/N | M22520/2.01 | | M22520/2.01 | M22520/1.01 | |
| *Contact* | Socket | 620300<br><br>(1) Orange<br>(2) Yellow | 620301<br> | 620310<br><br>(1) Orange<br>(2) Red | 620330<br><br>(1) Orange<br>(2) Blue | 620331<br> |
| | Pin | 620200<br><br>(1) Orange<br>(2) Green | 620201<br> | 620210<br><br>(1) Orange<br>(2) Red | 620230<br><br>(1) Orange<br>(2) Blue | 620231<br> |
| *Wire* | Selector | 4-3-3 | 5-4 | 5-6-7 | 6-5-4 | 5-4-3-2 |
| | Striping Length ± .020 mm (in.) | 3.5 (0.138) | | 4 (0.157) | 6 (0.236) | |
| | Wire Outside Diameter mm (in.) | 1.4 (0.055) | 1.2 (0.047) | 1.8 (0.071) | 2.6 (0.102) | 1.97 (0.077) |
| | Cross Section ($mm^2$) | 0.38-0.21-0.14 | 0.093-0.055 | 0.21-0.38-0.60 | 1.34-0.93-0.60 | 0.93-0.60-0.38-0.21 |
| | Wire Size (AWG) | 22-24-26 | 28-30 | 20-22-24 | 16-18-20 | 18-20-22-24 |
| *Contact Arrangement* | | *See Contact Arrangement page 5-11 to 5-20* | | | | |

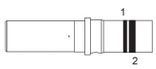
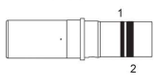
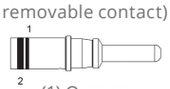
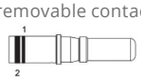
*Contacts*

| CONTACT SIZE | | 12 | 12 REDUCED CRIMP BARREL | 12 |
|---|---|---|---|---|
| *Ins. Ext Tool (Metallic)* | Radiall P/N | 282549004 | | - |
| | Mil Spec P/N | M81969/28.02 | | M81/969/19.02 |
| *Ins. Ext Tool (Plastic)* | Radiall P/N | 282549004 | | - |
| | Mil Spec P/N | M81969/14.04 | | - |
| *Positioner* | Radiall P/N | 282972 | | 282579 |
| | Mil Spec P/N | M22520/1.02 | | M22520/1.11 |
| *Crimping Tool* | Radiall P/N | 282291 | | |
| | Mil Spec P/N | M22520/1.01 | | |
| *Contact* | Socket | 620340  (1) Orange (2) Yellow | 620341  (1) Orange | - |
| | Pin | 620240  (1) Orange (2) Yellow | 620241  (1) Orange | 619240 (front release rear removable contact)  (1) Orange (2) Yellow |
| *Wire* | Selector | 8-7-6 | 2-3-4-5 | 8-7-6 |
| | Striping Length ± .020 mm (in.) | 6 (0.236) | | |
| | Wire Outside Diameter mm (in.) | 3.4 (0.0134) | 2.4 (0.094) | 3.4 (0.134) |
| | Cross Section ($mm^2$) | 3.18-1.91-1.34 | 0.93-0.60-0.38-0.21 | 3.18-1.91-1.34 |
| | Wire Size (AWG) | 12-14-16 | 18-20-22-24 | 12-14-16 |
| *Contact Arrangement* | | *See Contact Arrangement page 5-11 to 5-20* | | |

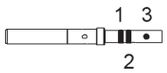
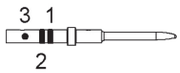
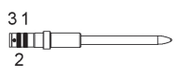
***Notes***

*Radiall recommends plastic extraction tools for environmental cavities 22-20-16 and 12 (the metallic extraction tool leads to damage risk of triple silicon web).*

*Contacts*

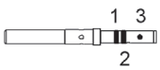
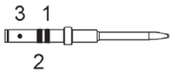
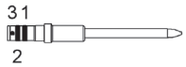
| CONTACT SIZE | | 8 | 8 GROUNDED | | 5 | |
|---|---|---|---|---|---|---|
| *Ext Tool (Metallic)* | Radiall P/N | Socket: 282549001<br>Pin: 282549012 | 282549012 | 282540001 | 282548 | |
| | Mil Spec P/N | Socket: M81969/28.03<br>Pin: M81969/19.03 | M81969/19.03 | M81969/28.03 | M81969/28.01 | |
| *Positioner* | Radiall P/N | - | - | 282588 | 282557 | |
| | Mil Spec P/N | M22520/23.09 | M22520/23.09 | - | - | |
| *Die* | Radiall P/N | - | - | - | - | |
| | Mil Spec P/N | M22520/23.02 | M22520/23.02 | M22520/23.02 | - | |
| *Crimping Tool* | Radiall P/N | - | - | - | 282296 | |
| | Mil Spec P/N | M22520/23.01 | M22520/23.01 | M22520/23.01 | | |
| *Contact* | Socket | 619370<br><br>(1) Orange<br>(2) Brown | - | 619371<br><br>(1) Orange<br>(2) Black | 616361 | 616366 |
| | Pin | 619270<br>(front release rear removable contact)<br><br>(1) Orange<br>(2) Brown | 619271<br>(front release rear removable contact)<br><br>(1) Orange<br>(2) Black | - | 616261 | 616266 |
| *Wire* | Selector | - | - | - | 1-1 | 8-5 |
| | Striping Length ± .020 mm (in.) | 11.5 (0.453) | 11.5 (0.453) | - | 8.0 (0.315) | |
| | Wire Outside Diameter mm (in.) | 5.7 (0.224) | 5.7 (0.224) | - | 3.4 (0.134) | 5.7 (0.234) |
| | Cross Section ($mm^2$) | 9-5 | 9-5 | - | 3.18-1.91 | 9-5 |
| | Wire Size (AWG) | 8-10 | 8-10 | - | 12-14 | 8-10 |
| *Contact Arrangement* | | *6P6* | *See Contact Arrangement page 5-11 to 5-20* | | | |

## CHROMEL CONTACTS–CRIMP TERMINATION

| CONTACT SIZE | | 22 | 20 |
|---|---|---|---|
| *Ins. Ext Tool* | Radiall P/N | 282885 | 282886 |
| | Mil Spec P/N | M81969/1.01 | M81969/1.02 |
| *Positioner* | Radiall P/N | 282970 | 282971 |
| | Mil Spec P/N | M22520/2.23 | M22520/2.08 |
| *Crimping Tool* | Radiall P/N | 282281 | |
| | Mil Spec P/N | M22520/2.01 | |
| *Contact* | Socket | 620380<br><br><br>(1) Orange<br>(2) Green<br>(3) Yellow | 620390<br><br><br>(1) Orange<br>(2) Red<br>(3) Yellow |
| | Pin | 620280<br><br><br>(1) Orange<br>(2) Green<br>(3) Yellow | 620290<br><br><br>(1) Orange<br>(2) Red<br>(3) Yellow |
| *Wire* | Selector | 4-3-3 | 7-6-5 |
| | Striping Length ± .020 mm (in.) | 3.5 (0.138) | 4 (0.157) |
| | Wire Outside Diameter mm (in.) | 1.4 (0.055) | 1.8 (0.071) |
| | Cross Section ($mm^2$) | 0.38-0.21-0.14 | 0.60-0.38-0.21 |
| | Wire Size (AWG) | 22-24-26 | 20-22-24 |
| *Contact Arrangement* | | *See Contact Arrangement page 5-11 to 5-20* | |

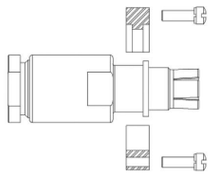
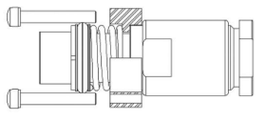
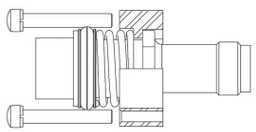
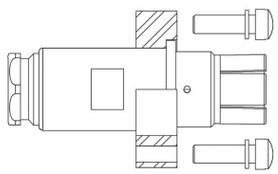
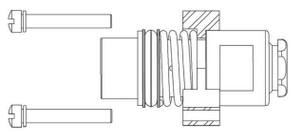
*Contacts*

## ALUMEL CONTACTS–CRIMP TERMINATION

| CONTACT SIZE | | 22 | 20 |
|---|---|---|---|
| *Ins. Ext Tool* | Radiall P/N | 282885 | 282886 |
| | Mil Spec P/N | M81969/1.01 | M81969/1.02 |
| *Positioner* | Radiall P/N | 282970 | 282971 |
| | Mil Spec P/N | M22520/2.23 | M22520/2.08 |
| *Crimping Tool* | Radiall P/N | 282281 | |
| | Mil Spec P/N | M22520/2.01 | |
| *Contact* | Socket | 620381<br><br><br>(1) Orange<br>(2) Green<br>(3) Black | 620391<br><br><br>(1) Orange<br>(2) Red<br>(3) Black |
| | Pin | 620281<br><br><br>(1) Orange<br>(2) Green<br>(3) Black | 620291<br><br><br>(1) Orange<br>(2) Red<br>(3) Black |
| *Wire* | Selector | 4-3-3 | 7-6-5 |
| | Striping Length ± .020 mm (in.) | 3.5 (0.138) | 4 (0.157) |
| | Wire Outside Diameter mm (in.) | 1.4 (0.055) | 1.8 (0.071) |
| | Cross Section ($mm^2$) | 0.38-0.21-0.14 | 0.60-0.38-0.21 |
| | Wire Size (AWG) | 22-24-26 | 20-22-24 |
| *Contact Arrangement* | | *See Contact Arrangement page 5-11 to 5-20* | |

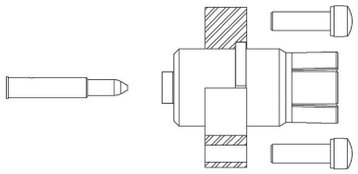
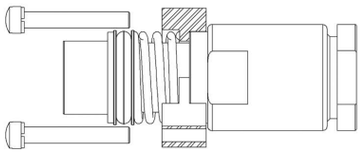
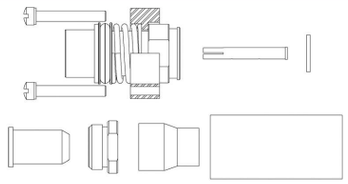
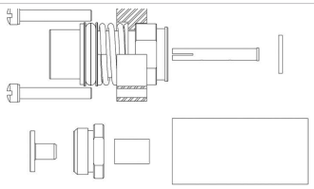
## COAXIAL CONTACTS

### SIZE 1

| WIRE | TYPE | PART NUMBER | CONTACT | CONTACT ARRANGEMENTS |
|---|---|---|---|---|
| RG 214<br>RG 393 | Pin | 620001 |  | 71C1-1C71-C2 |
| | Socket | 620101 |  | |
| | | 620101001 | Identical to 620101<br>Without O-Ring | |
| Not Applicable<br>TNC Termination | Socket | 620101003 |  | 71C1-1C71-C2 |
| | | 620101004 | Identical to 620101003<br>Without O-Ring | |
| RG 223<br>RG 142 | Pin | 620003 |  | 71C1-1C71-C2 |
| | Socket | 620103 |  | |

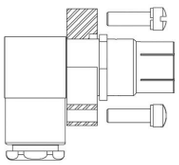
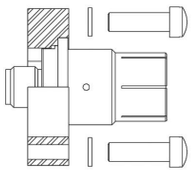
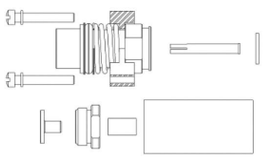
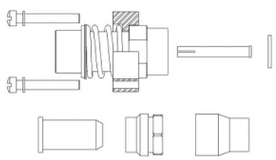
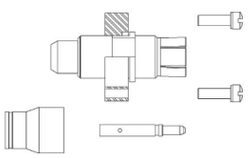
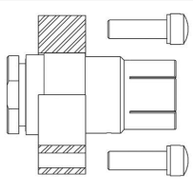
*Contacts*

## SIZE 1

| WIRE | TYPE | PART NUMBER | CONTACT | CONTACT ARRANGEMENTS |
|---|---|---|---|---|
| RG 402<br>UT .141 | Pin | 620005 |  | 71C1-1C71-C2 |
| NSA 935 358 | Socket | 620107 |  | 71C1-1C71-C2 |
| | | 620107001 | Identical to 620107<br>Without O-Ring | |
| ASNE 0406 WD<br>and<br>FILECA<br>1 703/94 | Socket | 620108 |  | 71C1-1C71-C2 |
| | | 620108002 | Identical to 620108<br>Without O-Ring | |
| RG 400<br>RG 142 | Socket | 620109 |  | 71C1-1C71-C2 |
| | | 620109001 | Identical to 620109<br>Without O-Ring | |

*Contacts*

## SIZE 1

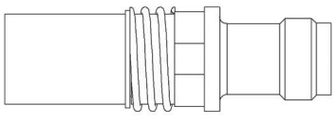
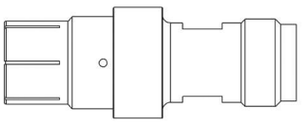
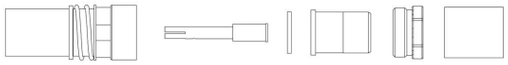
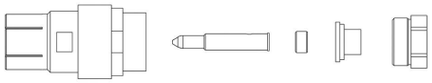
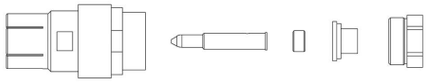
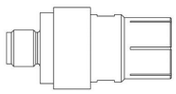
| WIRE | TYPE | PART NUMBER | CONTACT | CONTACT ARRANGEMENTS |
|---|---|---|---|---|
| RG 142 | Pin | 620011 |  | 71C1-1C71-C2 |
| Not Applicable SMA Termination | Pin | 620044 |  | 71C1-1C71-C2 |
| ASNE0691WM | Socket | 620101011 |  | 71C1-1C71-C2 |
| ASNE0692WN | Socket | 620101012 |  | 71C1-1C71-C2 |
| ASNE0692WN | Pin | 620001012 |  | 71C1-1C71-C2 |
| RD316 | Pin | 620043001 |  | 71C1-1C71-C2 |

## DELIVERY CODE FOR T-CAS APPLICATION

| CODE | CONNECTOR DETAILS | | SOCKET CONTACTS FOR PLUG | PIN CONTACTS FOR RECEPTACLE |
|---|---|---|---|---|
| No Code | Contacts | Size 1 RF Coaxial Contacts to be Ordered Separately | 620117<br>620146 | 620049 |
| | Inserts (For Plug) | Mating Side Insert: Thermoplastic | | |
| | | Size 1 RF Coax Retention Plate: Stainless Steel | | |
| | Inserts (For Receptacle) | Aluminum Alloy Nickel-Plated | | |
| N | Connector Delivered with Coaxial Contacts | | 620116 | 620049 |

*Contacts*

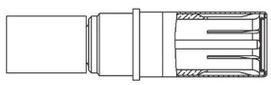
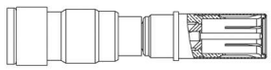
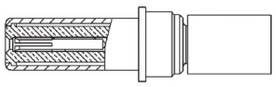
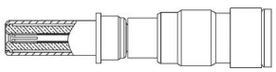
## SIZE 1 RF COAXIAL CONTACTS FOR NSX T-CAS CONNECTOR

| CABLE | CONTACT TYPE | PART NUMBER | CONTACT |
|---|---|---|---|
| TNC TERMINATION | Socket | 620116 |  |
| TNC TERMINATION | Pin | 620017 |  |
| ASNE 0406WD<br>ECS 311 201 | Socket | 620117 |  |
| RG 225<br>RG 393 | Socket | 620119100 |  |
| ECS 310801 | Socket | 620119102 |  |
| RG 142<br>RG 400<br>TIMES AA6343<br>ECS 3C142B<br>ASNE 0293XF | Socket | 620146 |  |
| RG 142 | Pin | 620046 |  |
| UT 141 | Pin | 620047 |  |
| UT .085 | Pin | 620047010 |  |
| SMA TERMINATION | Pin | 620049 |  |
| ASNE0692WN-<br>ASNE0406WD | Pin | 620019105 |  |
| ASNE0692WN | Socket | 620119105 |  |

*Contacts*

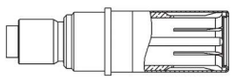
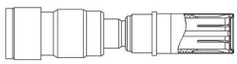
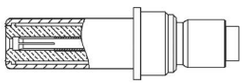
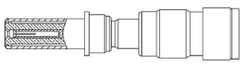
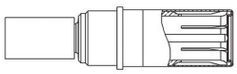
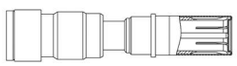
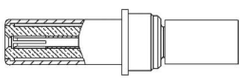
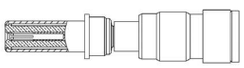
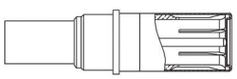
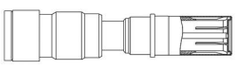
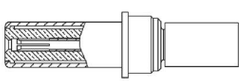
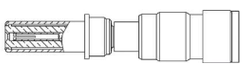
## SIZE 8



| WIRE | TYPE | PART NUMBER | CONTACT | FOR INSERT | INS/EXT TOOL |
|---|---|---|---|---|---|
| RG142<br>RG400<br>RG412<br>RG223<br>RG55U<br>ASNE0293XF | Socket | 619051 |  | For All Size 8 Cavities | 282549001<br>(M81969/28.03) |
| | Socket | 619051001<br>Environmental |  | | |
| | Pin | 619151 |  | | |
| | Pin | 619151001<br>Environmental |  | | |

*Contacts*

## SIZE 8

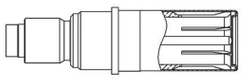
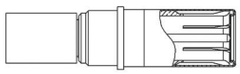
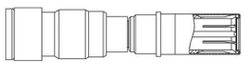
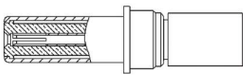
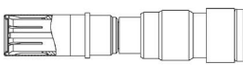
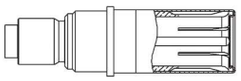
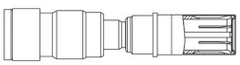
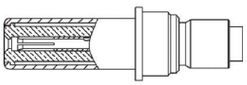
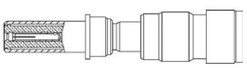
| WIRE | TYPE | PART NUMBER | CONTACT | FOR INSERT [1] | INS/EXT TOOL |
|---|---|---|---|---|---|
| RG316-KX22<br>-RG179<br>ASNE0639XY | Socket | 619054 |  | For All Size 8 Cavities | 282549001<br>(M81969/28.03) |
| | | 619054001<br>Environmental |  | | |
| | Pin | 619154 |  | | - |
| | | 619154001<br>Environmental |  | | |
| Gore<br>GSC-03-8174<br>8-00 | Socket | 619053 |  | | 282549001<br>(M81969/28.03) |
| | | 619053001<br>Environmental |  | | |
| | Pin | 619153 |  | | - |
| | | 619153001<br>Environmental |  | | |
| RG180<br>RG195 | Socket | 619052 |  | | 282549001<br>(M81969/28.03) |
| | | 619052001<br>Environmental |  | | |
| | Pin | 619152 |  | | - |
| | | 619152001<br>Environmental |  | | |

***Notes***

*1. Except for inserts 6T6 and 10T10.*

*Contacts*

## SIZE 8

| WIRE | TYPE | PART NUMBER | CONTACT | FOR INSERT [1] | INS/EXT TOOL |
|---|---|---|---|---|---|
| ASNE0690WL | Socket | 619054002 |  | For All Size 8 Cavities | 282549001 (M81969/28.03) |
| | Socket | 619050 |  | | - |
| | | 619050001 Environmental |  | | - |
| RG58 RG141 | Pin | 619150 |  | | - |
| | | 619150001 Environmental |  | | - |
| | Socket | 619055 |  | | - |
| | | 619055001 Environmental |  | | - |
| RG178 KX21 ASNE0633WG | Pin | 619155 |  | | - |
| | | 619155001 Environmental |  | | - |

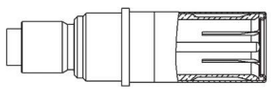
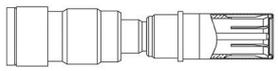
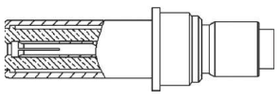
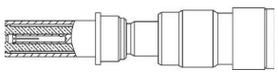
***Notes***

*1. Except for inserts 6T6 and 10T10.*

*Contacts*

## SIZE 8



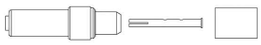
| WIRE | TYPE | PART NUMBER | CONTACT | FOR INSERT [1] | INS/EXT TOOL |
|---|---|---|---|---|---|
| RG316 | Socket | 619056 |  | For All Size 8 Cavities | - |
| | | 619056001 Environmental |  | | - |
| | Pin | 619156 |  | | - |
| | | 619156001 Environmental |  | | - |

***Notes***

*1. Except for inserts 6T6 and 10T10*

*Contacts*

## SIZE 5

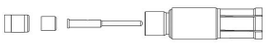
| WIRE | TYPE | PART NUMBER | CONTACT | FOR INSERT | INS/EXT TOOL |
|---|---|---|---|---|---|
| RG 58<br>RG 141 | Pin | 620120 [1] |  | For All Size 5 Cavities | 282946<br>(M81969/28.01) |
| | Socket | 620020 [1] |  | | |
| RG 142<br>RG 223<br>RG 400 | Pin | 620121 [1] |  | | 282946<br>(M81969/28.01) |
| | Socket | 620021 [1] |  | | |
| ASNE0639XY<br>RG 179<br>RG 316<br>KX 22 | Pin | 620122 [1] |  | | 282946<br>(M81969/28.01) |
| | Socket | 620022 [1] |  | | |

***Notes***

*1. Add 001 to these P/N to order for environmental contacts.*

*Contacts*

## SIZE 5

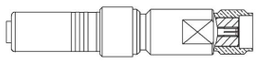
| WIRE | TYPE | PART NUMBER | CONTACT | FOR INSERT | INS/EXT TOOL |
|---|---|---|---|---|---|
| ASNE 0633WG<br>RG 178<br>KX 21 | Pin | 620123 [1] |  | For All Size 5 Cavities | 282946<br>(M81969/28.01) |
| | Socket | 620023 [1] |  | | |
| RG 180<br>RG 195 | Pin | 620124 [1] |  | | 282946<br>(M81969/28.01) |
| | Socket | 620024 [1] |  | | |
| RD 316 | Pin | 620129 [1] |  | | 282946<br>(M81969/28.01) |
| | Socket | 620029 [1] |  | | |

***Notes***

*1. Add 001 to these P/N to order for environmental contacts.*

*Contacts*

## SIZE 5

| WIRE | TYPE | PART NUMBER | CONTACT | FOR INSERT | INS/EXT TOOL |
|---|---|---|---|---|---|
| ADAMS-RUSSEL FC 11Z (per S280W503-1) | Pin | 620182001 |  | For All Size 5 Cavities | 282946 (M81969/28.01) |
| | Socket | 620082001 |  | | |
| ADAMS-RUSSEL FC 14Z (per S280W503-2) | Pin | 620183001 |  | | 282946 (M81969/28.01) |
| | Socket | 620083001 |  | | |
| SMA Termination | Pin | 620134 |  | | 282946 (M81969/28.01) |
| ASNE0690WL | Pin | 620184 |  | | 282946 (M81969/28.01) |
| ASNE0690WL | Socket | 620084 |  | | 282946 (M81969/28.01) |

*Contacts*

### SIZE 16

| WIRE | TYPE | PART NUMBER | CONTACT | FOR INSERT | INS/EXT TOOL |
|---|---|---|---|---|---|
| KX22<br>RG 316<br>RG 179<br>ASNE0639XY<br>ASNE0632WK<br>ASNE0752WS | Pin | 618150 |  | For All Size 16 Cavities | 282892 |
| | Socket | 618050 |  | | |
| RG 178<br>KX 21<br>ASNE0633WG | Pin | 618154 |  | | 282892 |
| | Socket | 618054 |  | | |

## CONCENTRIC TWINAX CONTACTS

### SIZE 5

| WIRE | TYPE | PART NUMBER | FOR INSERT | INS/EXT TOOL |
|---|---|---|---|---|
| MIL C<br>17/17600002 | Pin | 616195001 [1] | For All Size 5 Cavities | 282946<br>(M81969/28.01) |
| | Socket | 616095001 [2] | | |

### SIZE 10

| WIRE | TYPE | PART NUMBER | FOR INSERT | INS/EXT TOOL |
|---|---|---|---|---|
| EN 3375-006<br>ASNE 0290XM | Pin | 620167001 | 15T6Q2 | (M81969/14-05) |
| | Socket | 620067001 | | |

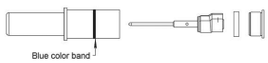
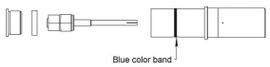
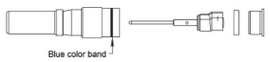
*Notes*

*1. 616195001 contact environmental version is 616195009*

*2. 616095001 contact environmental version is 616095009*

*Contacts*

## SIZE 8

| WIRE | TYPE | PART NUMBER | CONTACT | FOR INSERT | INS/EXT TOOL |
|---|---|---|---|---|---|
| Tensolite (S280W502-1) | Pin | 619165 |  | For All Size 8 Cavities | 282549001 (M81969/28.03) |
| | Socket | 619065 |  | | |
| | Pin | 619166 [1] FR/RR |  | | 282549001 (M81969/28.03) for Ins.<br>282549012 (M81969/28.03) for Ext. |
| MIL C 17/17600002 | Pin | 619169001 |  | | 282549001 (M81969/28.03) |
| | Socket | 619069001 |  | | |
| | | 619069002 Environmental |  | | |

*Notes*

*1. FR/RR contacts are compatible with 6T6 and 10T10 inserts.*

## QUADRAX CONTACTS

### SIZE 8

| WIRE | TYPE | PART NUMBER (NON-ENVIRONMENTAL) | PART NUMBER (ENVIRONMENTAL) | INS/EXT TOOL |
|---|---|---|---|---|
| ABS1503KD24 (110 Ω) | Pin | 620175010 | 620175011 | 282549001 (M81969/28.03 or M81969/14.06) |
| | Socket | 620075010 | 620075011 | |
| THERMAX 956S-4T200 GORE RCN8422 (110 Ω) | Pin | 620179002 | 620179001 | |
| | Socket | 620079002 | 620079001 | |
| TENSOLITE NF24Q100 (100 Ω) | Pin | 620175050 | 620175051 | |
| | Socket | 620075050 | 620075051 | |
| TENSOLITE NF26Q100 JSFY 18 | Pin | 620175021 | 620175020 | |
| | Socket | 620075021 | 620075020 | |

*Contacts*

## LUXCIS® CONTACTS

The LuxCis® product range is a proven, flexible and always expending fiber optic interconnect solution offering high speed communication in aerospace and other harsh environments.

### OPTICAL PERFORMANCES

| | MULTI-MODE (PC)<br>850 / 1300 NM | SINGLE-MODE (UPC)<br>1310 / 1550 NM |
|---|---|---|
| Insertion Loss (IL) Mean<br>(IEC 61300-3-4 Method B) | 0.1 dB | 0.15 dB |
| Return Loss (RL)<br>(IEC 61300-3-6) | > 20 dB | > 50 dB |

### MECHANICAL & ENVIRONMENTAL CHARACTERISTICS

| | STANDARD | PERFORMANCES |
|---|---|---|
| Thermal Cycling | SAE AS 13441 Method 1003.1 | -55 °C/+125 °C (Cable Dependant) |
| Temperature<br>Endurance | TIA/EIA 455-4 | 1,000 h at 125 °C (Cable Dependant) |
| Vibration | TIA/EIA 455-11 | 16.4 Grms |
| Shocks | TIA/EIA 455-14 | 50 G, 11 ms |
| Durability | TIA / EIA 364-09 | 500 Cycles |
| Maintenance Ageing | SAE AS 13441 Method 2002.1 | 10 Cycles |
| Cable Retention<br>Cable Retention<br>1.8 mm Diameter<br>900 µm Diameter | SAE AS 13441 Method 2009.1 | 68 N<br>7 N |
| Humidity | TIA EIA 455-5 | 10 Cycles / 24 h<br>90% RH<br>-25 °C / +65 °C |

### LUXCIS® CONTACTS PART NUMBERING SYSTEM

F725

**LUXCIS® SERIES**

**FERRULE TYPE**
**00:** PC ferrule for single-mode fiber
**03:** PC ferrule for 50/125 or 62,5/125 um multi-mode fiber
**04:** PC ferrule for 100/40 um multi-mode fiber
**05:** PC ferrule for 200/230 um multi-mode fiber
**50:** APC ferrule for single-mode fiber

**CABLE TYPE AND DIAMETER**
**118:** 900 µm cable
**318:** 1.2 mm cable with strengthening members, tight structure
**419:** 1.6 to 2.2 mm cable, loose structure
**519:** 1.6 to 2.2 mm cable, tight structure

*Notes*
*Radiall can support you with your cable and harness assemblies. Please contact your sales representative.*

## MIL-PRF-29504 CONTACTS

MIL-PRF-29504 fiber optic termini were developed several decades ago and are described several MIL standard documents. They fit into standard electrical cavities and do not require specific inserts. However, standard electrical connectors are not optimized for optical connections with small core fibers and MIL-PRF-29504 fiber optic termini show lower optical performances than more recent designs, such as the LuxCis®.

MIL-PRF-29504 fiber optic termini can replace MIL-PRF-29504/6 pin and MIL-PRF-29504/7 socket termini.

## PERFORMANCES

| | |
|---|---|
| Insertion Loss (IL) | 0.8 dB Typical |
| Durability | Up to 500 Mating Cycles |
| Thermal Cycling | -65 °C / +125 °C (Cable Dependent) |

## MIL-PRF-29504 TYPE CONTACTS PART NUMBERING SYSTEM

| CONTACT SIZE | PIN CONTACT PART NUMBER | SOCKET CONTACT PART NUMBER | FIBER DIAMETER (MM) | CABLE DIAMETER (MM) | FERULE MATERIAL | INSERTION / EXTRACTION TOOL |
|---|---|---|---|---|---|---|
| 16 | F724 004 000 | F724 104 000 | 125 | 1.5 | Ceramic | 282515 |
| 16 | F724 012 000 | F724 111 000 | 125 | 1.8 | Ceramic | |
| 16 | F724 010 000 | F724 109 000 | 125 | 2 | Ceramic | |
| 16 | F724 001 000 | F724 101 000 | 140 | 1.5 | Ceramic | |
| 16 | F724 040 000 | F724 140 000 | 230 | 2 | Metallic | |
| 12 | F724 204 000 | F724 304 000 | 125 | 1.5 | Ceramic | 282549004 |
| 12 | F724 242 000 | F724 342 000 | 125 | 1.8 | Ceramic | |
| 12 | F724 203 000 | F724 303 000 | 140 | 1.5 | Ceramic | |



***Notes***

*Radiall can support you with your cable and harness assemblies. Please contact your sales representative.*

## ACCESSORIES

### QUADRAX - LUXCIS® ADAPTER

Adapters for NSX connectors' cavities allow evolution of your existing connectors. Now, you can get high speed connection with a connector that used to be equipped with Quadrax contacts. Quadrax-LuxCis® adapters will turn a size 8 Quadrax cavity into a LuxCis® cavity.

This solution offers the following characteristics:

- Compliant with any ARINC 600 Quadrax cavity
- Compatible with ML and MT LuxCis® designs
- Available for multi-mode application
- Compatible with Quadrax insertion and extraction tool

| | PART NUMBER | DESCRIPTION |
|---|---|---|
|  | 620946001 | Pin Quadrax Adapter for LuxCis® Contact in Quadrax FR Type Cavity with Sleeveholder |
|  | 620946002 | Pin Quadrax Adapter for LuxCis® Contact in Quadrax RR Type Cavity with Sleeveholder |
|  | 620946003 | Socket Quadrax Adapter for LuxCis® Contact in Quadrax RR Type Cavity |
|  | 620946004 | Sleeve Holder for Pin Quadrax Adapter |

### EN 4531-101 (ABS 1379) ADAPTER FOR QUADRAX SIZE 8 CAVITY

Quadrax-EN4531 adapter will help you turning a size 8 Quadrax cavity into a EN4531 fiber optic link with the following characteristics:

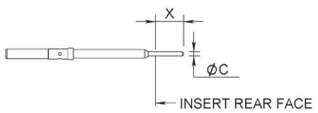
- Arinc 600 compliant
- EN4626 compliant
- Compatible with all EN4531 contacts

| | PART NUMBER | DESCRIPTION |
|---|---|---|
|  | 620946005 | Pin Quadrax Adapter for EN4531 Contact |
|  | 620946006 | Socket Quadrax Adapter for EN4531 Contact |

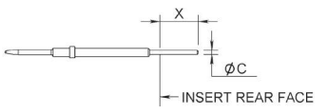
# NSX E/N/H/C–REAR REMOVABLE CONTACTS

## REAR REMOVABLE PC TAIL CONTACTS

### SIZE 22 SOCKET CONTACTS

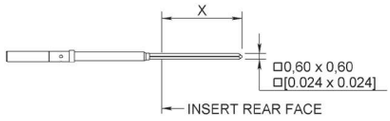
| PART NUMBER | CONTACT TERMINATION | DIMENSION X MM (INCH) | C DIA. MM (INCH) | INS/EXT TOOL | FIGURE |
|---|---|---|---|---|---|
| 620 305 | YA | 5.20 (0.205)<br>4.20 (0.165) | 0.635 (0.025) | 282890 |  |
| 620305005 | ZA | | | | |

### SIZE 22 PIN CONTACTS

| PART NUMBER | CONTACT TERMINATION | DIMENSION X MM (INCH) | C DIA. MM (INCH) | INS/EXT TOOL | FIGURE |
|---|---|---|---|---|---|
| 620 202 | Y | 7.30 (.288)<br>6.30 (.250) | 0.635 (0.025) | 282890 |  |
| 620202005 | Z | | | | |

## REAR REMOVABLE WIRE WRAP CONTACTS

### SIZE 22 SOCKET CONTACTS

| PART NUMBER | CONTACT TERMINATION | DIMENSION X MM (INCH) | INS/EXT TOOL | FIGURE |
|---|---|---|---|---|
| 620302 | K | 7.70 (0.303)<br>6.30 (0.248) | 282890 |  |
| 620303 | V | 10.70 (0.421)<br>9.30 (0.366) | | |
| 620308 | W | 12.30 (0.484)<br>13.70 (0.540) | | |

## HOW TO ORDER NSX F/G/K CONNECTORS

### FOR FRONT REMOVABLE CONTACTS

Signal PC Tail contacts defined by termination code are delivered installed. Coaxial twinax and quadrax contacts are ordered separately.

NSX

**SERIES PREFIX**

**CLASS**

**F:** - Receptacle connectors, non-environmental
- Only size 22 insert cavities can be delivered in FR/FR PC tails or wire wrap contacts.
- Other insert cavities, if equipped with signal and power contacts in sizes 20, 16 and 12, will be delivered in RR/RR crimp version
- Coaxial, twinax and quadrax contacts shall be ordered separately as RR/RR crimp contacts

**G:** - Receptacle connectors, non-environmental
- Every insert cavities will be delivered in FR/FR PC tail contacts only.
- Size 1 contact will be delivered in RR/RR crimp version.
- Coaxial, twinax and quadrax contacts shall be ordered separately as FR/FR PC tail contacts.

**K:** - Receptacle connectors, non-environmental
- Only combinations including inserts 100 and 150 are available in class K. Inserts 100 and 150 will be fully populated with size 22 harpooned contacts.
- With class K, use PC tail contacts termination Y.
- Other inserts will be populated as per class G.

**SHELL SIZE**

**1:** 3 small cavities
**2:** 3 large cavities
**3:** 6 large cavities

**SHELL STYLE**

**F:** Nickel-plated receptacle
**S:** RoHS chromatation plated receptacle

**INSERT COMBINATION CODE**

See combination code pages 5-21 to 5-27 and contacts arrangement pages 5-11 to 5-20
T-cas application combination code: 310 (see page 5-24)

**CONTACT TERMINATION**

WITHOUT CONTACTS
**X:** Without contacts

WIRE WRAP
**K:** Wire wrap contact, 1 level (1 = 0.272)
**V:** Wire wrap contact, 2 levels (1 = 0.390)
**W:** Wire wrap contact, 3 levels (1 = 0.524)
**L:** Wire wrap contact, 4 levels (1 = 0.660)

**PC TAIL CONTACTS**

| ROHS | GOLD | PRE-TINNED | LENGTH (IN.) |
|---|---|---|---|
| RA | YA | ZA | 0.150 |
| R | Y | Z | 0.250 |
| RB | YB | ZB | 0.375 |
| RC | YC | ZC | 0.500 |

**MODIFICATION CODE** [1]

See pages 5-28 to 5-29

**POLARIZATION CODE**

See pages 5-30 to 5-32
**Without code:** polarization hardware is delivered unassembled

**DELIVERY CODE FOR T-CAS APPLICATION**

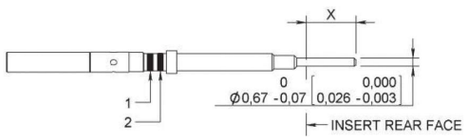
See page 5-41

*Notes*

1. *Polarization code 00, the connector is delivered without polarizing hardware.*
   *Polarization code from 01 to 216, the connector is delivered with the polarization hardware assembled as defined by the code see page 5-31.*

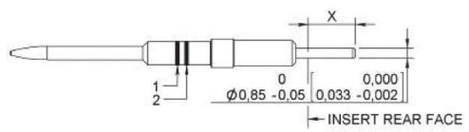
## NSX F/G/K–FRONT REMOVABLE PC TAIL

### SIZE 22 SOCKET CONTACTS

| PART NUMBER | CONTACT TERMINATION | DIMENSION X MM (INCH) | INS/EXT TOOL | COLOR BAND 1 | COLOR BAND 2 | FIGURE |
|---|---|---|---|---|---|---|
| 620360 | YA | 4.60/3.80 (0.181/0.150) | 282500 | Orange | Green |  |
| 620360005 | ZA | | | | | |
| 620360500 | RA | | | | | |
| 620361 | Y | 7.20/6.40 (0.283/0.252) | | | | |
| 620361005 | Z | | | | | |
| 620361500 | R | | | | | |
| 620362 | YB | 10.30/9.50 (0.406/0.374) | | | | |
| 620362005 | ZB | | | | | |
| 620362500 | RB | | | | | |
| 620363 | YC | 13.60/12.80 (0.535/0.504) | | | | |
| 620363005 | ZC | | | | | |
| 620363500 | RC | | | | | |

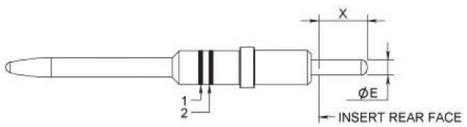


### SIZE 20 PIN CONTACTS

| PART NUMBER | CONTACT TERMINATION | DIMENSION X MM (INCH) | INS/EXT TOOL | COLOR BAND 1 | COLOR BAND 2 | E DIA MM (INCH) | FIGURE |
|---|---|---|---|---|---|---|---|
| 620214018 | YA | 4.60/3.80 (0.181/0.150) | 282503 | Orange | Red | 0.85/0.80 (0.033/0.031) |  |
| 620214019 | ZA | | | | | | |
| 620214518 | RA | | | | | | |
| 620214010 | Y | 7.20/6.40 (0.283/0.252) | 282503 | Orange | Red | | |
| 620214013 | Z | | | | | | |
| 620214510 | R | | | | | | |
| 620214003 | YB | 10.30/9.50 (0.406/0.374) | 282503 | Orange | Red | | |
| 620214008 | ZB | | | | | | |
| 620214503 | RB | | | | | | |
| 620214021 | YC | 13.60/12.80 (0.535/0.504) | | | | | |
| 620214022 | ZC | | | | | | |
| 620214521 | RC | | | | | | |

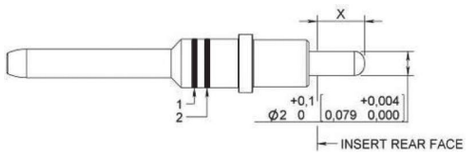


### SIZE 16 PIN CONTACTS

| PART NUMBER | CONTACT TERMINATION | DIMENSION X MM (INCH) | INS/EXT TOOL | COLOR BAND 1 | COLOR BAND 2 | E DIA MM (INCH) | FIGURE |
|---|---|---|---|---|---|---|---|
| 620234018 | YA | 4.60/3.80 (0.181/0.150) | 282504 | Orange | Blue | 1.32/1.22 (.052/.048) |  |
| 620234019 | ZA | | | | | | |
| 620234518 | RA | | | | | | |
| 620234004 | Y | 7.20/6.40 (0.283/0.252) | 282504 | Orange | Blue | | |
| 620234017 | Z | | | | | | |
| 620234504 | R | | | | | | |
| 620234003 | YB | 10.30/9.50 (0.406/0.374) | 282504 | Orange | Blue | | |
| 620234008 | ZB | | | | | | |
| 620234503 | RB | | | | | | |
| 620234021 | YC | 13.60/12.80 (0.535/0.504) | | | | | |
| 620234022 | ZC | | | | | | |
| 620234521 | RC | | | | | | |

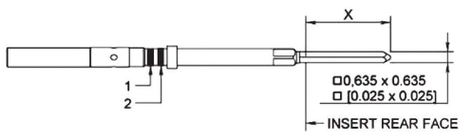
*Contacts*

## SIZE 12 PIN CONTACTS

| PART NUMBER | CONTACT TERMINATION | DIMENSION X MM (INCH) | INS/EXT TOOL | COLOR BAND 1 | COLOR BAND 2 | FIGURE |
|---|---|---|---|---|---|---|
| 620244018 | YA | 4.60/3.80 (0.181/0.150) | 282549005 | Orange | Yellow |  |
| 620244019 | ZA | | | | | |
| 620244518 | RA | | | | | |
| 620244005 | Y | 7.20/6.40 (0.283/0.252) | 282549005 | Orange | Yellow | |
| 620244016 | Z | | | | | |
| 620244505 | R | | | | | |
| 620244003 | YB | 10.30/9.50 (0.406/0.374) | 282549005 | Orange | Yellow | |
| 620244008 | ZB | | | | | |
| 620244503 | RB | | | | | |
| 620244021 | YC | 13.60/12.80 (0.535/0.504) | | | | |
| 620244022 | ZC | | | | | |
| 620244521 | RC | | | | | |



## SIZE 22 SOCKET FRONT REMOVABLE WIRE WRAP CONTACTS

| PART NUMBER | CONTACT TERMINATION | DIMENSION X MM (INCH) | INS/EXT TOOL | COLOR BAND 1 | COLOR BAND 2 | FIGURE |
|---|---|---|---|---|---|---|
| 620350 | K | 6.9/0.4 (0.256/0.287) | 282500 | Orange | Green |  |
| 620351 | V | 9.9/0.4 (0.374/0.405) | | | | |
| 620352 | W | 13.3/0.4 (0.508/0.540) | | | | |
| 620353 | L | 16.8/0.4 (0.645/0.677) | | | | |



## SIZE 16 PIN COAX CONTACTS

| PART NUMBER | CONTACT TERMINATION | DIMENSION X MM (INCH) | INS/EXT TOOL |
|---|---|---|---|
| 618155001 | YA | 3.8/4.6 (0.150/0.181) | 282504 |
| 618155002 | Y | 6.4/7.2 (0.252/0.283) | |
| 618155011 | YB | 9.5/10.3 (0.374/0.405) | |

*Contacts*

## SIZE 12 PIN COAX CONTACTS

| PART NUMBER | CONTACT TERMINATION | DIMENSION X MM (INCH) | INS/EXT TOOL |
|---|---|---|---|
| 618149017 | YA | 3.8/4.6 (0.150/0.181) | 282549005 |
| 618149016 | Y | 6.4/7.2 (0.252/0.283) | |
| 618149018 | YB | 9.5/10.3 (0.374/0.405) | |
| 618149012 | YC | 12.8/13.6 (0.503/0.535) | |
| 618149013 | ZC | 12.8/14.1 (0.503/0.558) | |

## SIZE 8 PIN COAX CONTACTS

| PART NUMBER | CONTACT TERMINATION | DIMENSION X MM (INCH) | INS/EXT TOOL |
|---|---|---|---|
| 619140009 | YA | 12.40/12.20 (0.488/0.480) | 282549009 |
| 619140014 | ZA | | |
| 619140509 | RA | | |
| 619140010 | Y | 15.05/14.85 (0.592/0.584) | |
| 619140013 | Z | | |
| 619140510 | R | | |
| 619140007 | YB | 18.15/17.95 (0.715/0.706) | |
| 619140008 | ZB | | |
| 619140507 | RB | | |
| 619140011 | YC | 21.45/21.25 (0.844/0.836) | |
| 619140012 | ZC | | |
| 619140511 | RC | | |

## SIZE 5 PIN COAX CONTACTS

| PART NUMBER | CONTACT TERMINATION | DIMENSION X MM (INCH) | INS/EXT TOOL |
|---|---|---|---|
| 620133009 | YA | 4.60/3.80 (0.181/0.150) | 282549006 |
| 620133509 | RA | | |
| 620133006 | Y | 7.20/6.40 (0.283/0.252) | |
| 620133007 | Z | | |
| 620133506 | R | | |
| 620133003 | YB | 10.30/9.50 (0.406/0.374) | |
| 620133001 | ZB | | |
| 620133503 | RB | | |
| 620133010 | YC | 13.60/12.80 (0.535/0.504) | |
| 620133510 | RC | | |

*Contacts*

## SIZE 8 PIN TRIAX PC TAIL FRONT RELEASE VERSION

| PART NUMBER | CONTACT TERMINATION | DIMENSION X MM (INCH) | INS/EXT TOOL |
|---|---|---|---|
| 619162014 | YA | 4.60/3.80 (0.181/0.150) | 282549009 |
| 619162015 | ZA | | |
| 619162514 | RA | | |
| 619162011 | Y | 7.20/6.40 (0.283/0.252) | |
| 619162012 | Z | | |
| 619162511 | R | | |
| 619162016 | YB | 10.30/9.50 (0.406/0.374) | |
| 619162017 | ZB | | |
| 619162516 | RB | | |
| 619162009 | YC | 13.60/12.80 (0.535/0.504) | |
| 619162010 | ZC | | |
| 619162509 | RC | | |

## SIZE 8 PIN QUADRAX CONTACTS

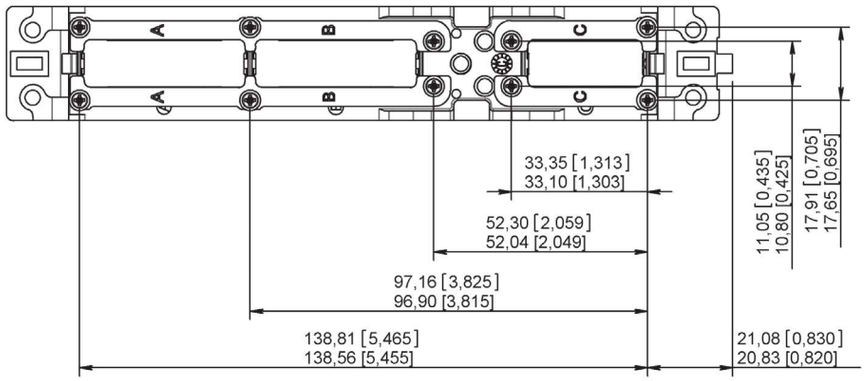
| PART NUMBER | CONTACT TERMINATION | DIMENSION X MM (INCH) | INS/EXT TOOL |
|---|---|---|---|
| 620176009 | YA | 4.60/3.80 (0.181/0.150) | 282549009 |
| 620176016 | ZA | | |
| 620176509 | RA | | |
| 620176008 | Y | 7.20/6.40 (0.283/0.252) | |
| 620176010 | Z | | |
| 620176508 | R | | |
| 620176011 | YB | 10.30/9.50 (0.406/0.374) | |
| 620176012 | ZB | | |
| 620176511 | RB | | |
| 620176013 | YC | 13.60/12.80 (0.535/0.504) | |
| 620176014 | ZC | | |
| 620176513 | RC | | |

*Contacts*

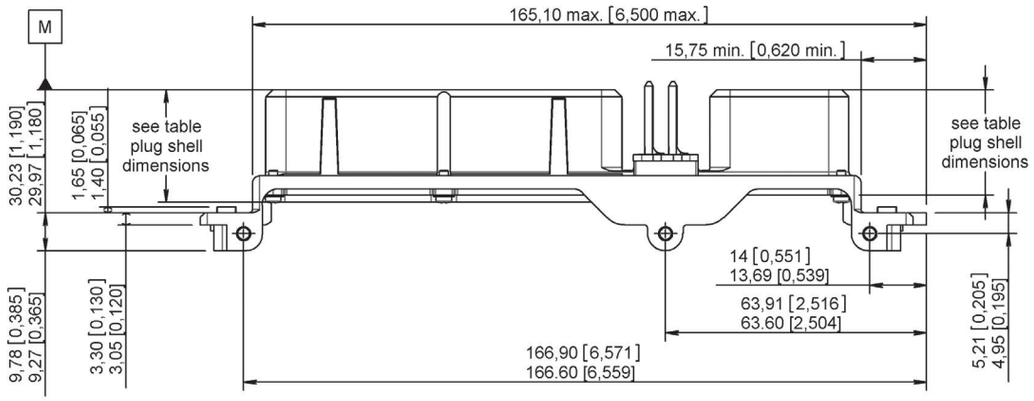
## DIMENSIONS

### NON-ENVIRONMENTAL SIZE 1 PLUG SHELL

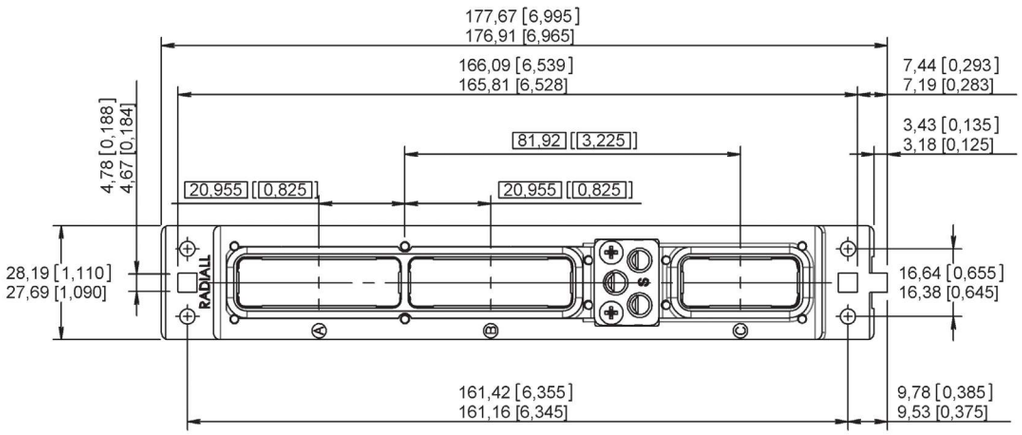
**FRONT VIEW**




**SIDE VIEW**



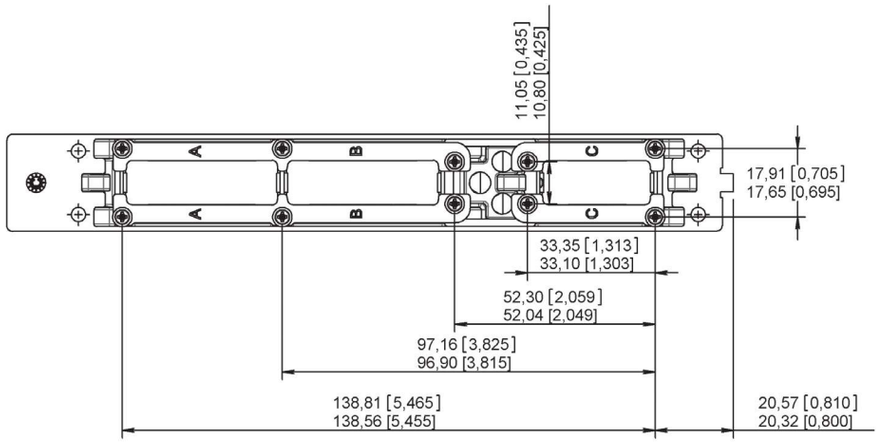

**REAR VIEW**



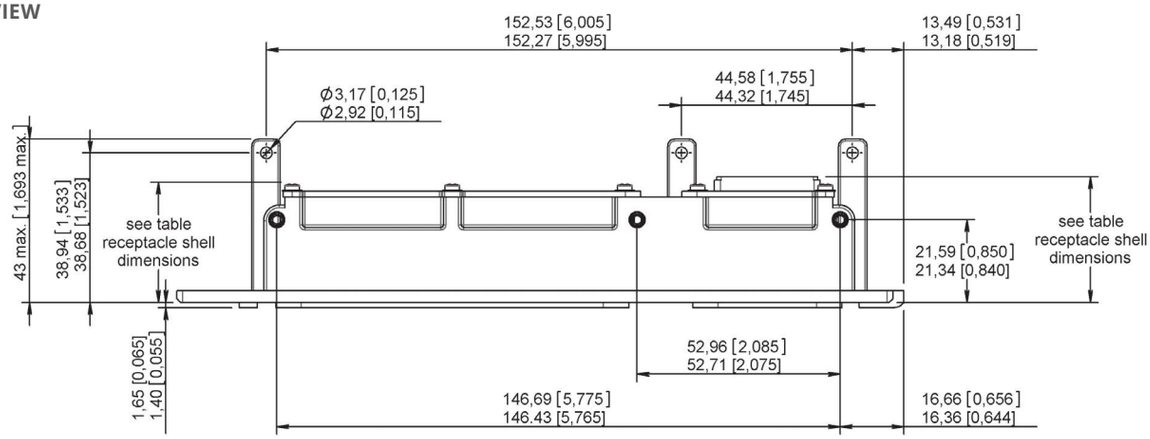
*Contacts*

## NON-ENVIRONMENTAL SIZE 1 RECEPTACLE SHELL

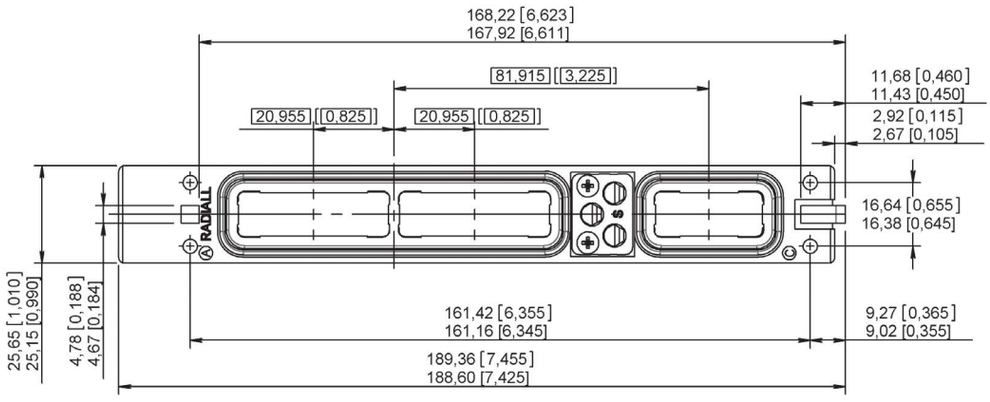
### FRONT VIEW




### SIDE VIEW



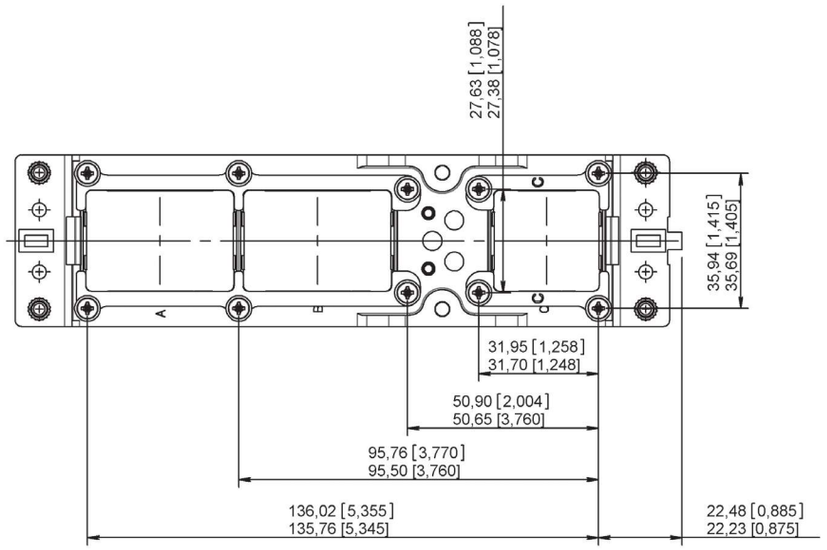

### REAR VIEW



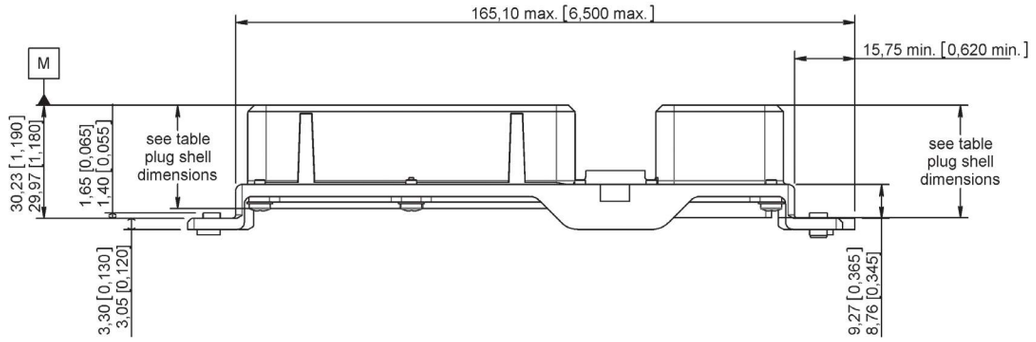
*Contacts*

## NON-ENVIRONMENTAL SIZE 2 PLUG SHELL

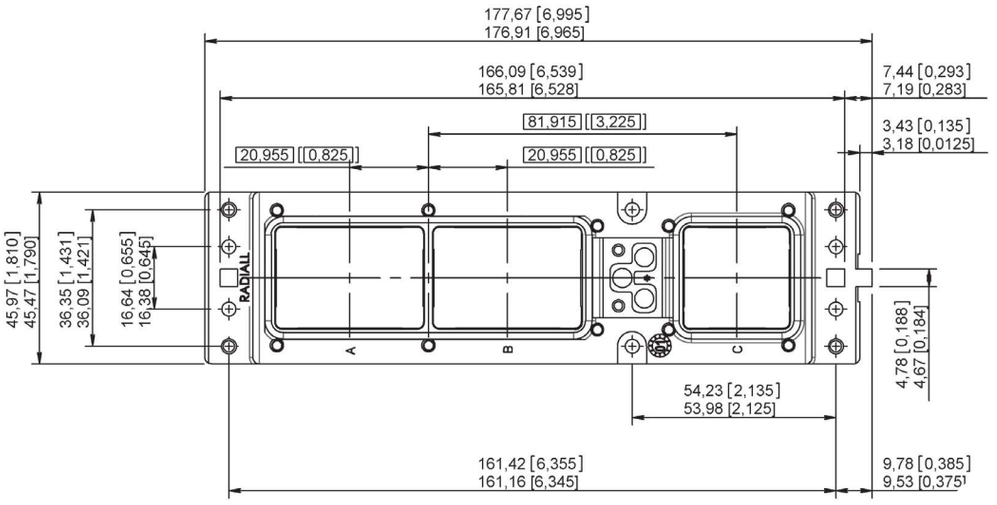
### FRONT VIEW




### SIDE VIEW



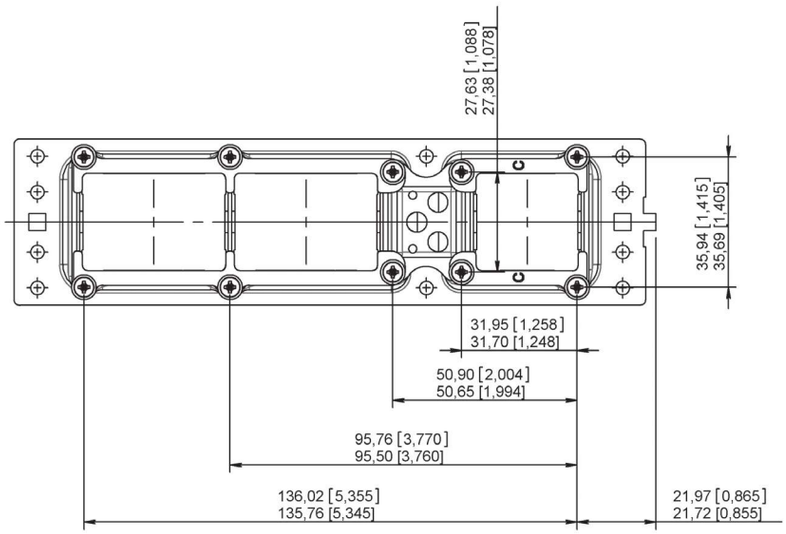

### REAR VIEW



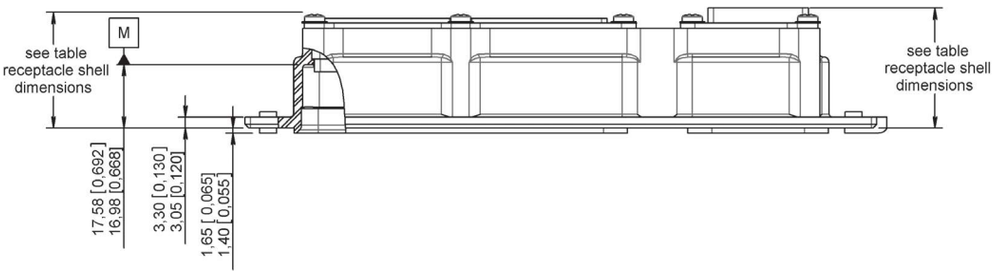
*Contacts*

## NON-ENVIRONMENTAL SIZE 2 RECEPTACLE SHELL

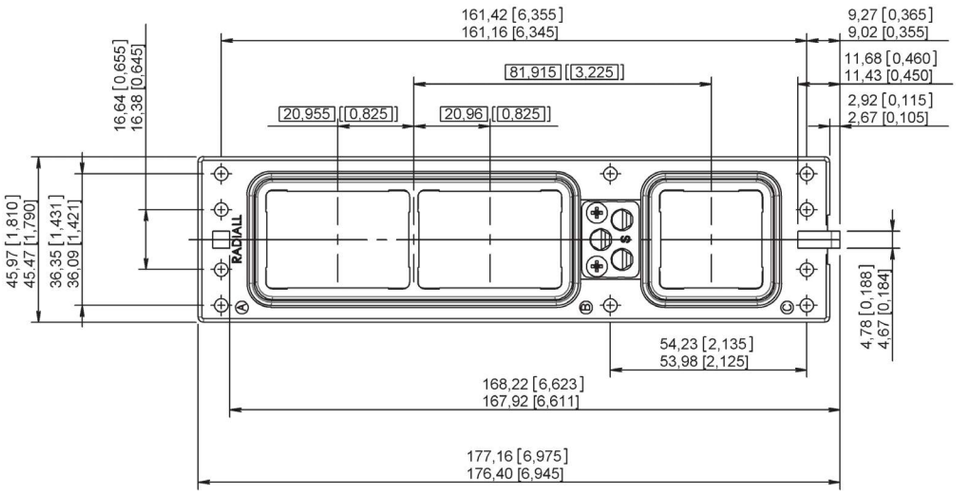
### FRONT VIEW




### SIDE VIEW



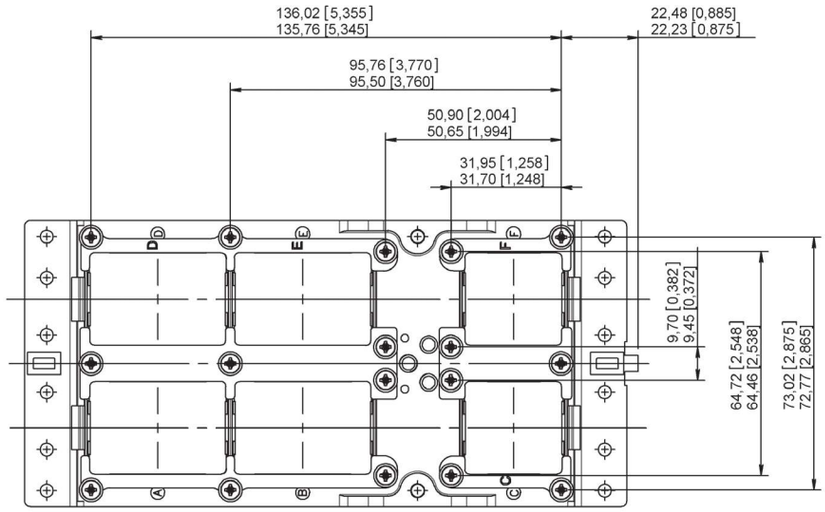

### REAR VIEW



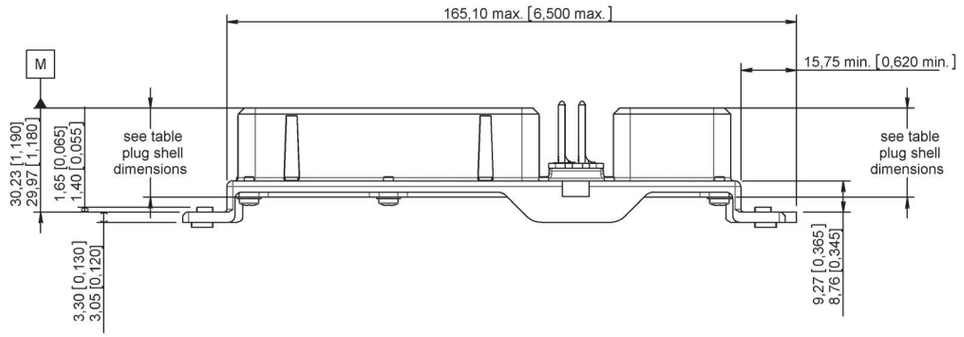
*Contacts*

## NON-ENVIRONMENTAL SIZE 3 PLUG SHELL

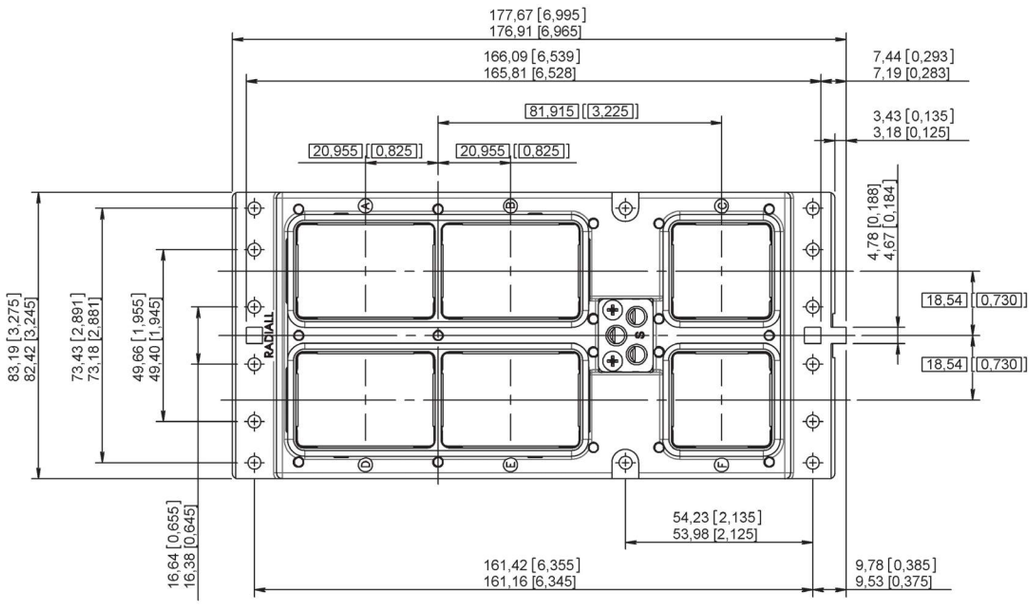
### FRONT VIEW




### SIDE VIEW



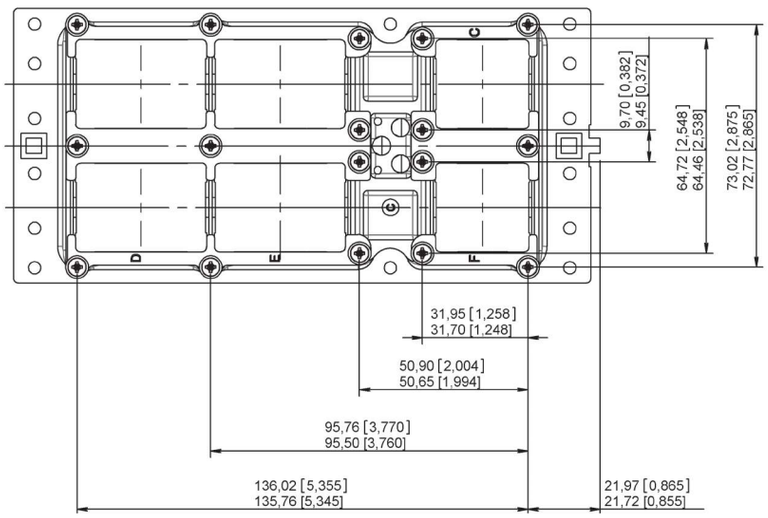

### REAR VIEW



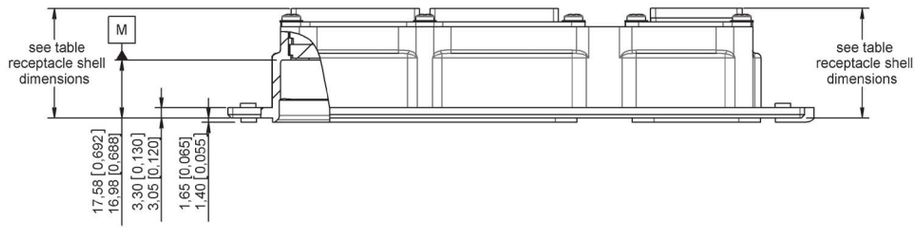
*Contacts*

## NON-ENVIRONMENTAL SIZE 3 RECEPTACLE SHELL

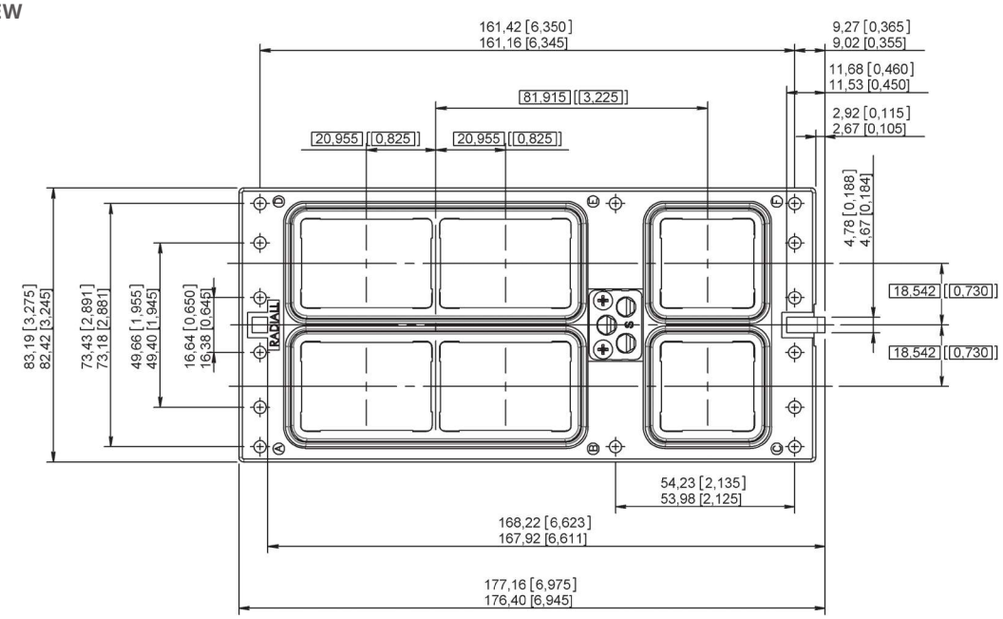
### FRONT VIEW




### SIDE VIEW



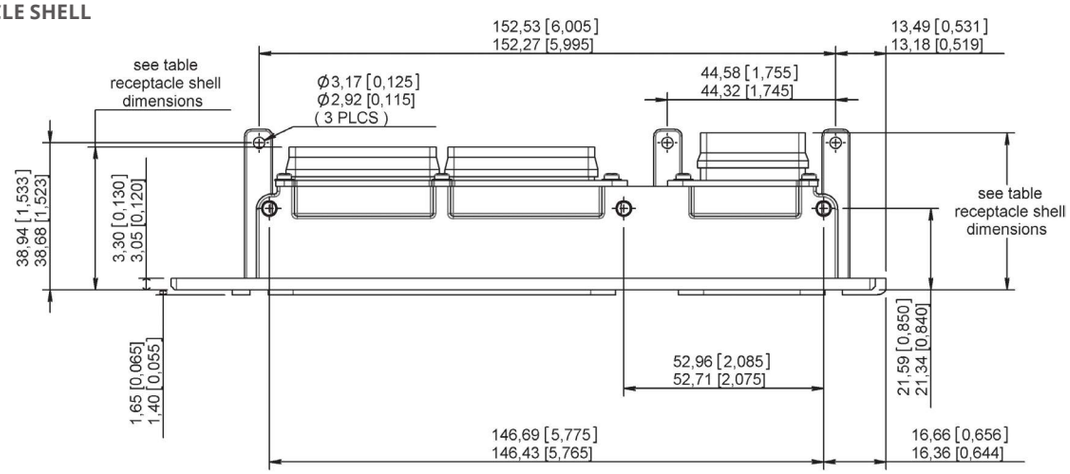

### REAR VIEW



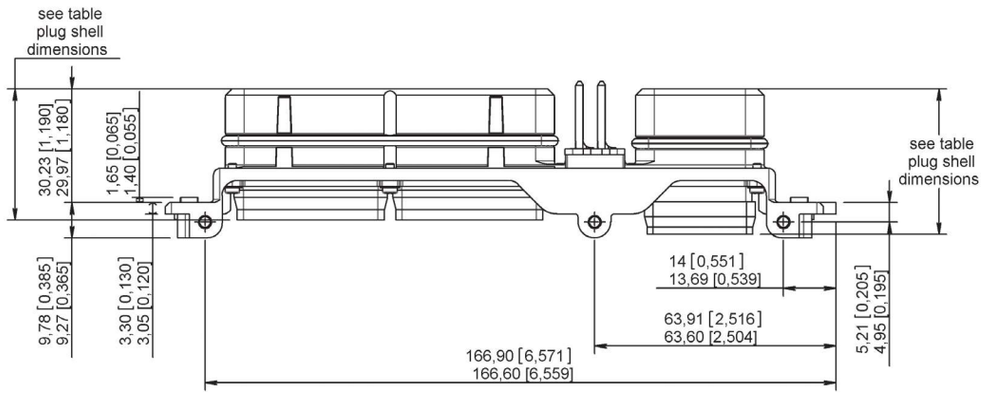
*Contacts*

## ENVIRONMENTAL SIZE 1 - PLUG & RECEPTACLE

### RECEPTACLE SHELL



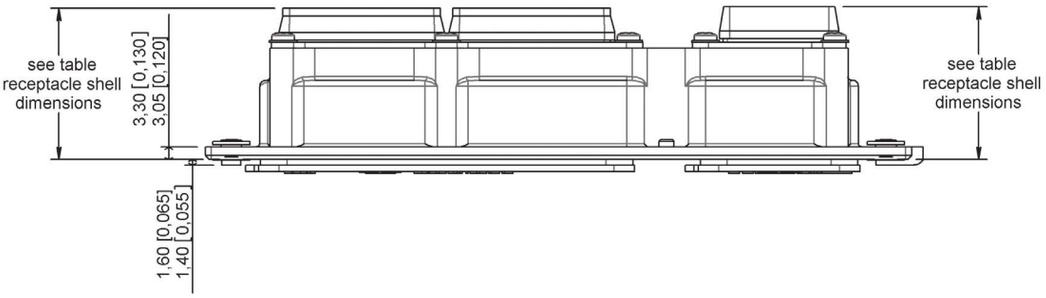

### PLUG SHELL



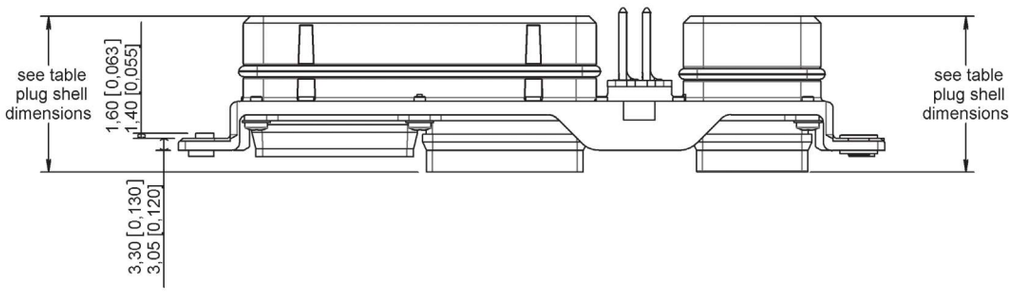
*Contacts*

## ENVIRONMENTAL SIZE 2 & 3–PLUG & RECEPTACLE

### RECEPTACLE SHELL

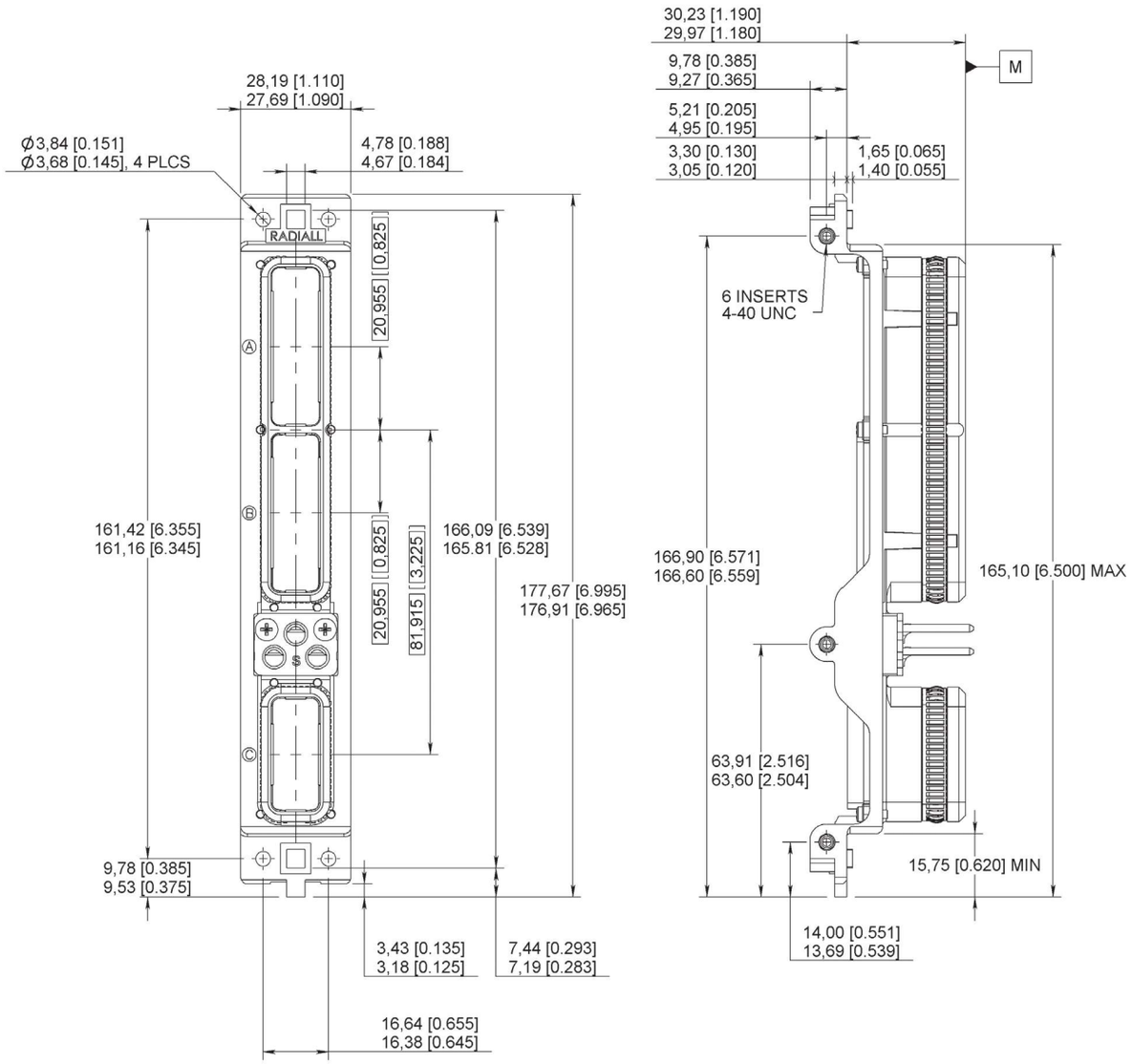



### PLUG SHELL



## EMI/RFI NSX SIZE 1 PLUG

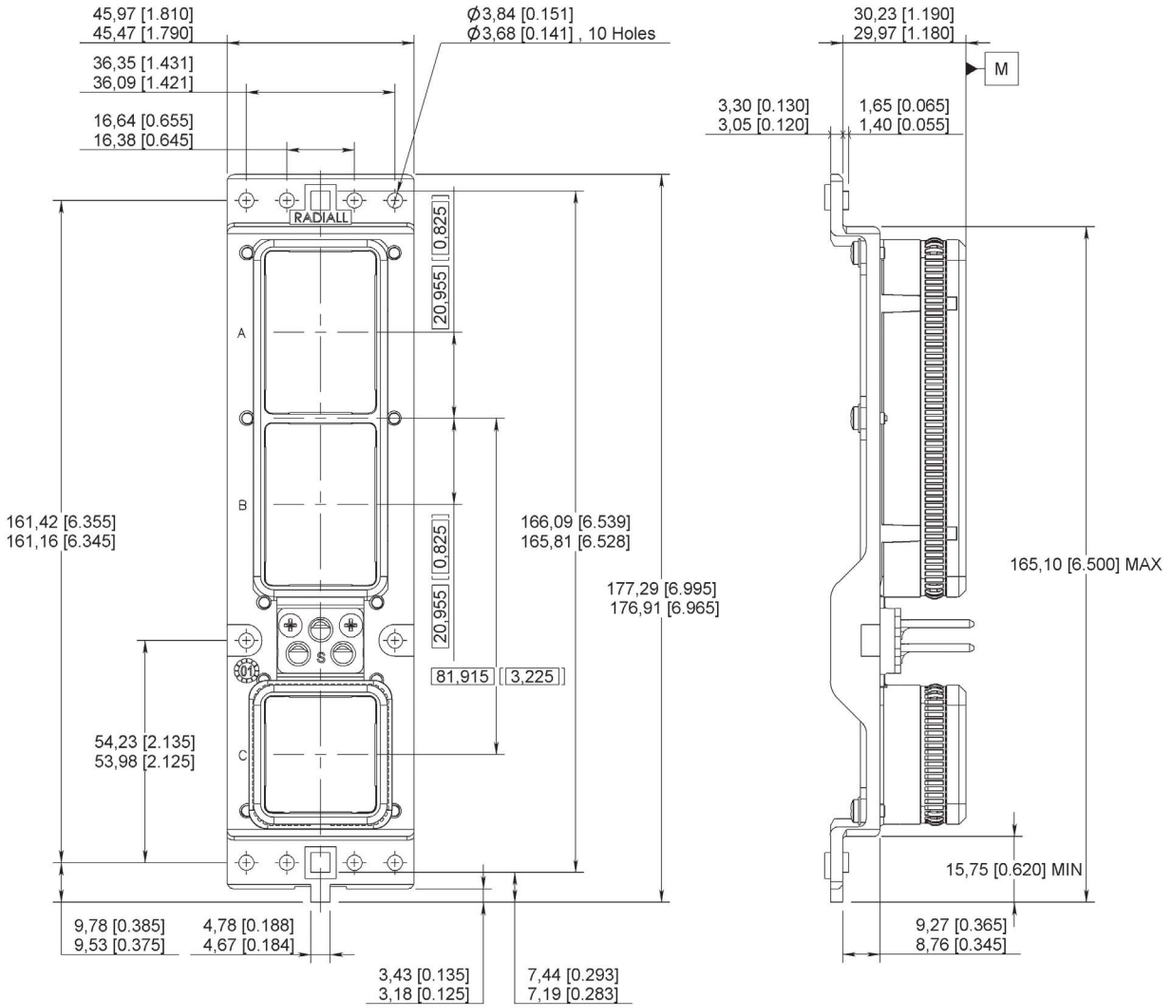
*How To Order - See Page 5-10*



*Contacts*

## EMI/RFI NSX SIZE 2 PLUG

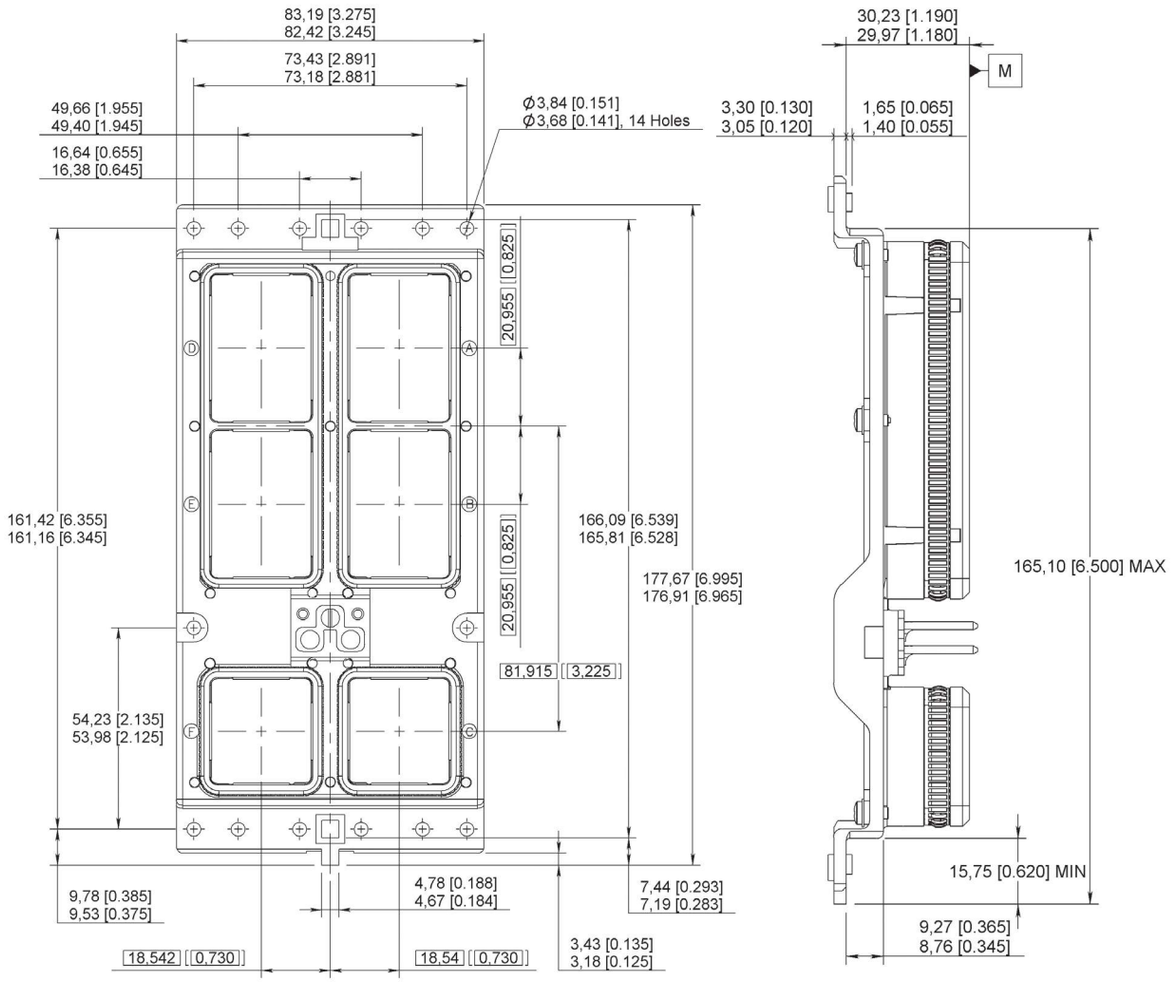
*How To Order - See Page 5-10*



*Contacts*

## EMI/RFI NSX SIZE 3 PLUG

*How To Order - See Page 5-10*



*Contacts*

## PLUG SHELL DIMENSIONS

| SHELL SIZE | CAVITY | CONTACT ARRANGEMENT | CONTACT SIZE | CLASS N MM (INCH) MAX | CLASSE E,H,C MM (INCH) MAX |
|---|---|---|---|---|---|
| 1 | A, B | 60 | 22 | 28 (1.102) | 35.5 (1.398) |
| | | 30T2 | 22 | 28 (1.102) | 35.5 (1.398) |
| | | | 8 | | 36.8 (1.449) |
| | | 4C | 5 | 30.5 (1.200) | - |
| | C | 5C2 | 16 | 30.5 (1.200) | 39.3 (1.547) |
| | | | 12 | | |
| | | | 5 | | |
| | | 40 | 22 | 28 (1.102) | 35.5 (1.398) |
| 2, 3 | A, B, D, E | 150 | 22 | 28 (1.102) | 35.5 (1.398) |
| | | 121 | 22 | 28 (1.102) | 35.5 (1.398) |
| | | | 20 | 30.5 (1.200) | 39.3 (1.547) |
| | | | 16 | | |
| | | 120T2 | 22 | 28 (1.102) | 35.5 (1.398) |
| | | | 8 | | 36.8 (1.449) |
| | | 118Q2 | 22 | 28 (1.102) | 35.5 (1.398) |
| | | | 8 | 28 (1.102) | 36.8 (1.449) |
| | | 71C1 | 22 | 28 (1.102) | 35.5 (1.398) |
| | | | 1 | | - |
| | | 1C71 | 22 | 28 (1.102) | 35.5 (1.398) |
| | | | 1 | | - |
| | | 60 | 20 | 30.5 (1.200) | 39.3 (1.547) |
| | | 24 | 12 | 30.5 (1.200) | 39.3 (1.547) |
| | | 10T10 | 8 | 30.5 (1.200) | 39.3 (1.547) |
| | | Q11 | 8 | 30.5 (1.200) | 39.3 (1.547) |
| | | C2 | 1 | 28 (1.102) | - |
| | | C4 | 1 | 28 (1.102) | - |
| | | 35 | 16 | 30.5 (1.200) | 39.3 (1.547) |
| | | 110 | 22 | 28 (1.102) | - |
| | | | 20 | 30.5 (1.200) | |
| | | | 12 | | |
| | | 36F36 | 16 LuxCis® | 30.5 (1.200) | 39 (1.535) |
| | | 20F12Q8 | 8 | 30.5 (1.200) | 39 (1.535) |
| | | | 16 LuxCis® | | |

## PLUG SHELL DIMENSIONS

| SHELL SIZE | CAVITY | CONTACT ARRANGEMENT | CONTACT SIZE | CLASS N MM (INCH) MAX | CLASSE E,H,C MM (INCH) MAX |
|---|---|---|---|---|---|
| 2, 3 | C, F | 100 | 22 | 28 (1.102) | 35.5 (1.398) |
| | | 85 | 22 | 28 (1.102) | 35.5 (1.398) |
| | | | 20 | | 39.3 (1.547) |
| | | | 16 | | |
| | | 34 | 20 | 30.5 (1.200) | 39.3 (1.547) |
| | | | 16 | | |
| | | 20T4 | 20 | 30.5 (1.200) | 39.3 (1.547) |
| | | | 8 | | |
| | | 20Q4 | 20 | 30.5 (1.200) | 39.3 (1.547) |
| | | | 8 | | |
| | | 13C2 | 20 | 30.5 (1.200) | 39.3 (1.547) |
| | | | 16 | | |
| | | | 12 | | |
| | | | 5 | | |
| | | 6T6 | 8 | 30.5 (1.200) | 39.3 (1.547) |
| | | Q6 | 8 | 30.5 (1.200) | 39.3 (1.547) |
| | | 62Q2 | 22 | 28 (1.102) | 36.8 (1.449) |
| | | | 16 | | |
| | | | 8 | | |
| | | 68Q2 | 22 | 28 (1.102) | 35.5 (1.398) |
| | | | 8 | | 36.8 (1.449) |
| | | 11Q2 | 20 | 30.5 (1.200) | 39.3 (1.547) |
| | | | 16 | | |
| | | | 12 | | |
| | | | 8 | | |
| | | 11WQ2 | 20 | 30.5 (1.200) | 39.3 (1.547) |
| | | | 16 | | |
| | | | 12 | | |
| | | | 8 | | |
| | | 59 | 22 | 28 (1.102) | 35.5 (1.398) |
| | | | 16 | 30.5 (1.200) | 39.3 (1.547) |
| | | | 12 | | |
| | | 12F5C2 | 16 LuxCis® | 30.5 (1.200) | 39 (1.535) |
| | | | 16 | | |
| | | | 5 | | |
| | | 17F12Q2 | 16 LuxCis® | 30.5 (1.200) | 39 (1.535) |
| | | | 16 | | |
| | | | 12 | | |
| | | | 5 | | |

*Contacts*

## RECEPTACLE SHELL DIMENSIONS

| SHELL SIZE | CAVITY | CONTACT ARRANGEMENT | CONTACT SIZE | CLASS N MM (INCH) MAX | CLASS E, C MM (INCH) MAX | CLASS F MM (INCH) MAX | CLASSE G MM (INCH) MAX |
|---|---|---|---|---|---|---|---|
| 1 | A, B | 60 | 22 | 31 (1.220) | 38.9 (1.531) | 30.93/29.84 (1.218/1.175) | - |
| | | 30T2 | 22 | 31 (1.220) | 38.9 (1.531) | 30.93/29.84 (1.218/1.175) | 30.93/29.84 (1.218/1.175) |
| | | | 8 | | 40.5 (1.594) | | |
| | | 4C | 5 | 33.45 (1.317) | - | - | 30.93/29.84 (1.218/1.175) |
| | C | 5C2 | 16 | 33.45 (1.317 | 43 (1.693) | - | 30.93/29.84 (1.218/1.175) |
| | | | 12 | | | | |
| | | | 5 | | | | |
| | | 40 | 22 | 31 (1.220) | 38.9 (1.531) | 30.93/29.84 (1.218/1.175) | - |
| | | 4 | 12 | 33.45 (1.317) | 43 (1.693) | - | - |
| 2, 3 | A, B, D, E | 150 | 22 | 31 (1.220) | 38.9 (1.531) | 30.93/29.84 (1.218/1.175) | - |
| | | 121 | 22 | 31 (1.220) | 38.9 (1.531) | 30.93/29.84 (1.218/1.175) | 30.93/29.84 (1.218/1.175) |
| | | | 20 | 33.45 (1.317) | 43 (1.693) | 33.45 (1.317) | |
| | | | 16 | | | | |
| | | 120T2 | 22 | 31 (1.220) | 38.9 (1.531) | 30.93/29.84 (1.218/1.175) | - |
| | | | 8 | 31 (1.220) | 40.5 (1.594) | 30.93/29.84 (1.218/1.175) | - |
| | | 118Q2 | 22 | 31 (1.220) | 38.9 (1.531) | 30.93/29.84 (1.218/1.175) | - |
| | | | 8 | 31 (1.220) | 40.5 (1.594) | 30.93/29.84 (1.218/1.175) | - |
| | | 71C1 | 22 | 31 (1.220) | 38.9 (1.531) | 30.93/29.84 (1.218/1.175) | - |
| | | | 1 | | - | | |
| | | 1C71 | 22 | 31 (1.220) | 38.9 (1.531) | 30.93/29.84 (1.218/1.175) | - |
| | | | 1 | | - | | |
| | | 60 | 20 | 33.45 (1.317) | 43 (1.693) | - | 30.93/29.84 (1.218/1.175) |
| | | 24 | 12 | 33.45 (1.317) | 43 (1.693) | - | 30.93/29.84 (1.218/1.175) |
| | | 10T10 | 8 | 33.45 (1.317) | 43 (1.693) | - | 30.93/29.84 (1.218/1.175) |
| | | Q11 | 8 | 33.45 (1.317) | 43 (1.693) | - | 30.93/29.84 (1.218/1.175) |
| | | C2 | 1 | 31 (1.220) | - | - | - |
| | | C4 | 1 | 31 (1.220) | - | - | - |
| | | 35 | 16 | 33.45 (1.317) | 43 (1.693) | - | 30.93/29.84 (1.218/1.175) |
| | | 110 | 22 | 31 (1.220) | 38.9 (1.531) | 30.93/29.84 (1.218/1.175) | 30.93/29.84 (1.218/1.175) |
| | | | 20 | 33.45 (1.317) | 43 (1.693) | 33.45 (1.317) | |
| | | | 12 | | | | |

## RECEPTACLE SHELL DIMENSIONS

| SHELL SIZE | CAVITY | CONTACT ARRANGEMENT | CONTACT SIZE | CLASS N MM (INCH) MAX | CLASS E, C MM (INCH) MAX | CLASS F MM (INCH) MAX | CLASSE G MM (INCH) MAX |
|---|---|---|---|---|---|---|---|
| 2, 3 | A, B, D, E | 36F36 | 16 LuxCis® | 35.5 (1.398) | 44 (1.732) | - | - |
| | | 20F12Q8 | 16 LuxCis® | 35.5 (1.398) | 44 (1.732) | - | 30.93/29.84 (1.218/1.175) |
| | | | 8 | | | | |
| | C, F | 100 | 22 | 31 (1.220) | 38.9 (1.531) | 30.93/29.84 (1.218/1.175) | - |
| | | 85 | 22 | 31 (1.220) | 38.9 (1.531) | 30.93/29.84 (1.218/1.175) | 30.93/29.84 (1.218/1.175) |
| | | | 20 | | 40.5 (1.595) | | |
| | | | 16 | | | | |
| | | 34 | 20 | 33.45 (1.317) | 43 (1.693) | - | 30.93/29.84 (1.218/1.175) |
| | | | 16 | | | | |
| | | 20T4 | 20 | 33.45 (1.317) | 43 (1.693) | - | 30.93/29.84 (1.218/1.175) |
| | | | 8 | | | | |
| | | 20Q4 | 20 | 33.45 (1.317) | 43 (1.693) | - | 30.93/29.84 (1.218/1.175) |
| | | | 8 | | | | |
| | | 13C2 | 20 | 33.45 (1.317) | 43 (1.693) | - | 30.93/29.84 (1.218/1.175) |
| | | | 16 | | | | |
| | | | 12 | | | | |
| | | | 5 | | | | |
| | | 6T6 | 8 | 33.45 (1.317) | 43 (1.693) | - | 30.93/29.84 (1.218/1.175) |
| | | Q6 | 8 | 33.45 (1.317) | 43 (1.693) | - | 30.93/29.84 (1.218/1.175) |
| | | 62Q2 | 22 | 31 (1.220) | 38.9 (1.531) | 30.93/29.84 (1.218/1.175) | 30.93/29.84 (1.218/1.175) |
| | | | 16 | | 40.5 (1.595) | | |
| | | | 8 | | | | |
| | | 68Q2 | 22 | 31 (1.220) | 38.9 (1.531) | 30.93/29.84 (1.218/1.175) | 30.93/29.84 (1.218/1.175) |
| | | | 8 | | 40.5 (1.595) | | |
| | | 11Q2 | 20 | 33.45 (1.317) | 43 (1.693) | - | 30.93/29.84 (1.218/1.175) |
| | | | 16 | | | | |
| | | | 12 | | | | |
| | | | 8 | | | | |
| | | 11WQ2 | 20 | 33.45 (1.317) | 43 (1.693) | - | 30.93/29.84 (1.218/1.175) |
| | | | 16 | | | | |
| | | | 12 | | | | |
| | | | 8 | | | | |
| | | 59 | 22 | 31 (1.220) | 38.9 (1.531) | 30.93/29.84 (1.218/1.175) | 30.93/29.84 (1.218/1.175) |
| | | | 16 | 33.45 (1.317) | 43 (1.693) | 33.45 (1.317) | |
| | | | 12 | | | | |
| | | 12F5C2 | 16 LuxCis® | 35.5 (1.398) | 44 (1.732) | - | - |
| | | | 16 | | | | |
| | | | 5 | | | | |
| | | 17F12Q2 | 16 LuxCis® | 35.5 (1.398) | 44 (1.732) | - | 30.93/29.84 (1.218/1.175) |
| | | | 16 | | | | |
| | | | 12 | | | | |
| | | | 5 | | | | |

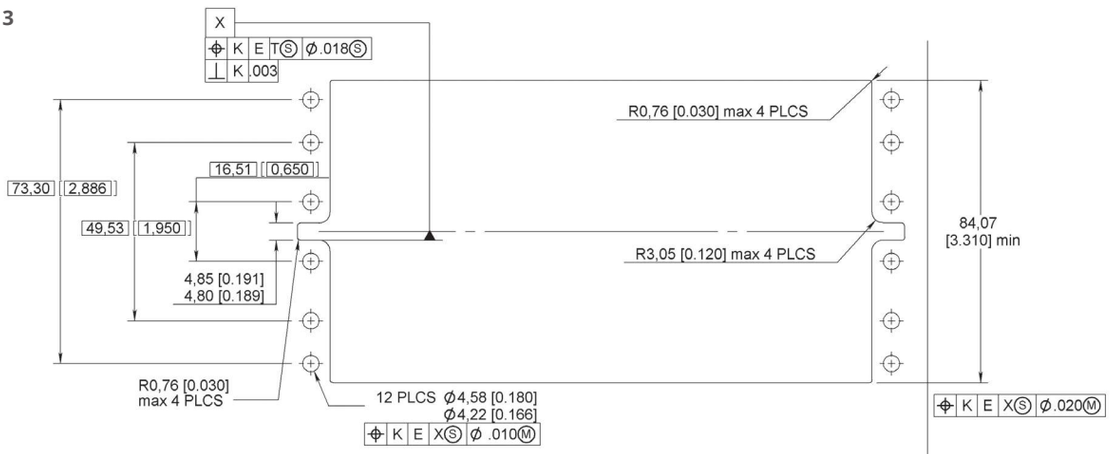
***Notes***

*CLASS F: size 22 contacts are front release and front removable. Other sizes are rear release and rear removable.*
*CLASS G: all contacts are front release and front removable.*

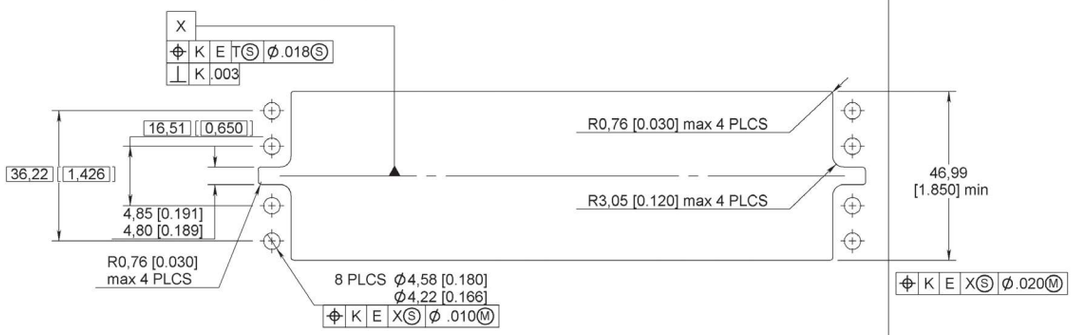
## PANEL CUT-OUT

### PANEL CUT OUT FOR PLUG SIZE 1, 2 & 3

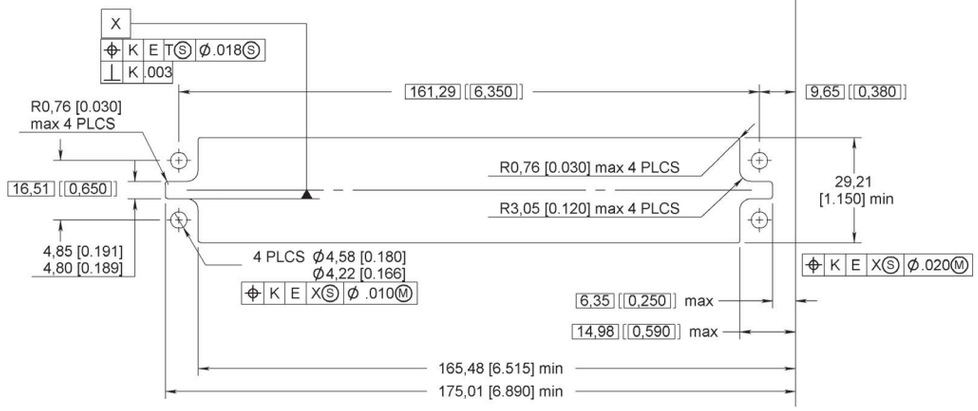
**SIZE 3**




**SIZE 2**

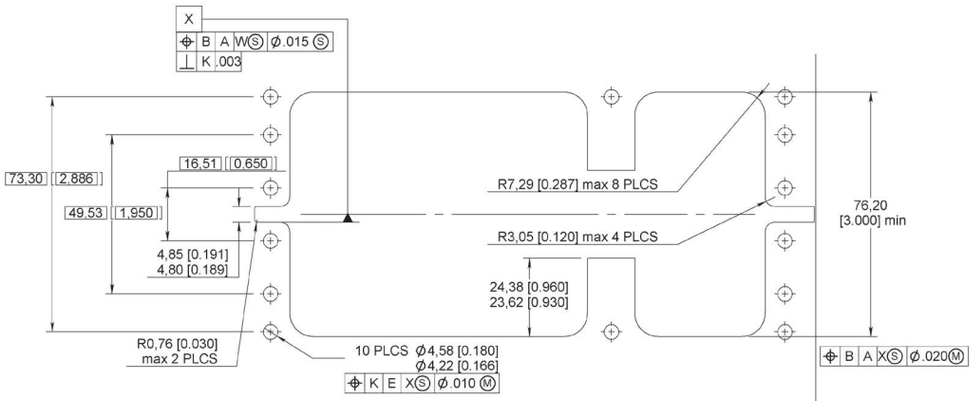



**SIZE 1**

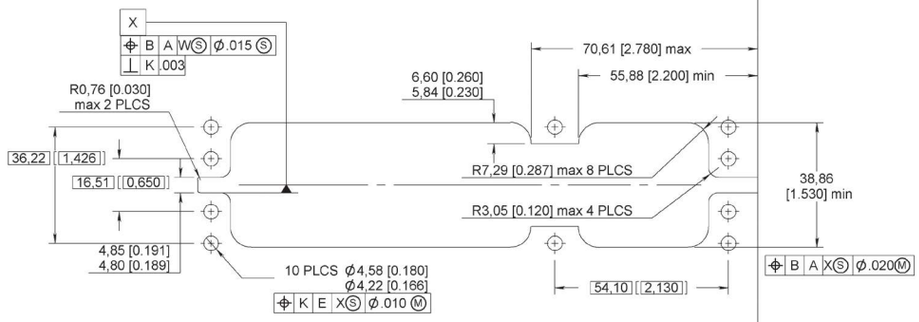


## PANEL CUT OUT FOR RECEPTACLE SIZE 1, 2 & 3

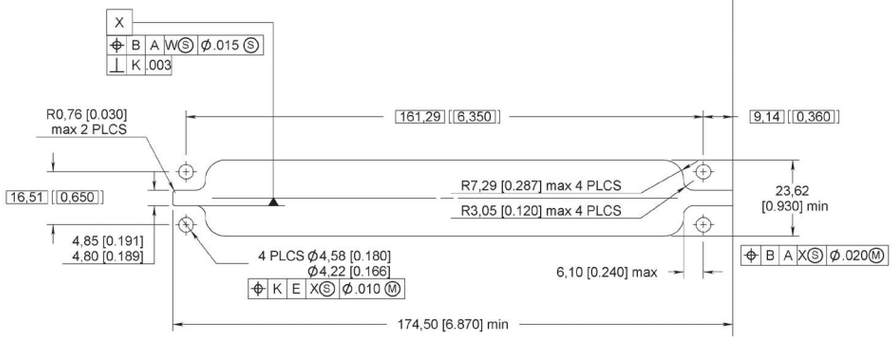
**SIZE 3**




**SIZE 2**



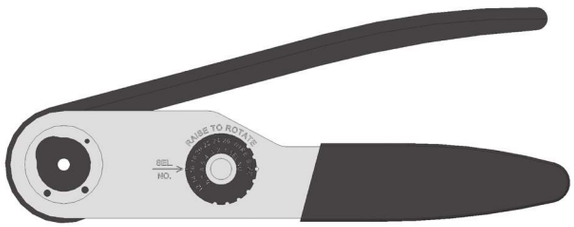

**SIZE 1**



# TOOLS

## CRIMPING TOOLS

| PART NUMBER | CRIMPING TOOLS |
|---|---|
| 282291 | M22520/1.01 |
| 282281 | M22520/2.01 |
| 282292 | M22520/4.01 |
| 282293 | M22520/5.01 |
| - | M22520/23.01 |
| - | M22520/31.01 |



## POSITIONERS

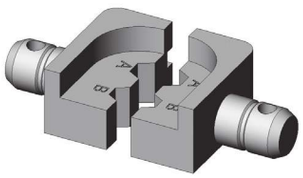
| PART NUMBER | MIL SPEC P/N |
|---|---|
| 282972 | M22520/1.02 |
| 282579 | M22520/1.11 |
| 282997 | M22520/1.13 |
| 282971 | M22520/2.08 |
| 282970 | M22520/2.23 |
| - | M22520/23.09 |
| 282550 (DANIELS K345) | - |
| 282555 (DANIELS K370) | - |
| 282556 | - |
| 282587 | - |
| 282588 | - |





## DIES

| PART NUMBER | MIL SPEC P/N |
|---|---|
| 282246 | M22520/5.05 |
| - | M22520/5.13 |
| - | M22520/5.29 |
| 282236 | M22520/5.45 |
| 282247 | M22520/5.61 |
| - | M22520/23.02 |
| - | M22520/5.104 |



*Contacts*

## INSERTION/EXTRACTION TOOLS

| PART NUMBER | MIL SPEC P/N | DESCRIPTION |
|---|---|---|
| 282885 | M81969/1.01 | Ins/Ext Tool for Rear Release Rear Removable Size 22 Contacts (Crimp Version) |
| 282886 | M81969/1.02 | Ins/Ext Tool for Rear Release Rear Removable Size 20 Contacts (Crimp Version) |
| 282546 | M81969/1.03 | Ins/Ext Tool for Rear Release Rear Removable Size 16 Contacts (Crimp Version) |
| 282946 | M81969/28.01 | Ins/Ext Tool for Rear Release Rear Removable Size 5 Coaxial Contacts (Metallic) |
| 282500 | - | Ins/Ext Tool for Front Release Front Removable Size 22 Contacts |
| 282503 | - | Ins/Ext Tool for Front Release Front Removable Size 20 Contacts |
| 282504 | - | Ins/Ext Tool for Front Release Front Removable Size 16 Contacts |
| 282549005 | - | Ins/Ext Tool for Front Release Front Removable Size 12 Contacts |
| 282890 | - | Ins/Ext Tool for Rear Release Size 22 Contacts Solder Tail and Wire Wrap Terminations |
| 282549011 | - | Insertion Tool for Front Release Front Removable Size 8 Triaxial Contacts, Solder Tail Version |
| 282549004 | M81969/14.04 | Extraction Tool for Rear Release Rear Removable Size 12 Contacts |
| - | M81969/19.02 | Extraction Tool for Front Release Rear Removable Size 12 Power Contacts |
| - | M81969/19.03 | Extraction Tool for Front Release Rear Removable Size 8 Contacts |
| 282549001 | M81969/28.03 | Extraction Tool for Rear Release Rear Removable Size 8 Contacts |
| 282549004 | - | Extraction Tool for Rear Release Rear Removable Size 12 Contacts (Crimp Version) |
| 282548 | - | Extraction Tool for Rear Release Rear Removable Size 5 Coaxial Contacts |
| 282549009 | - | Extraction Tool for Front Release Front Removable Size 8 Triaxial Contacts |
| 282549012 | - | Extraction Tool for Front Release Rear Removable Size 8 Triaxial Contacts |
| 282892 | - | Extraction Tool for Rear Release Rear Removable Size 16 Coaxial Contacts |
| 282945 | - | Extraction Tool for Rear Release Rear Removable Size 12 Coaxial Contacts |
| 282548 | - | Extraction Tool for Rear Release Rear Removable Size 5 Coaxial Contacts (Plastic) |

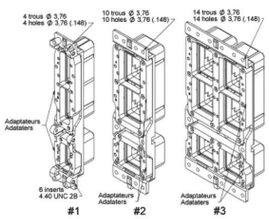
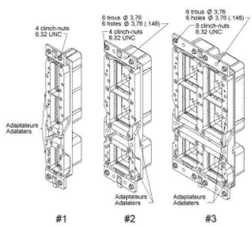
## ACCESSORIES

### EMI BACKSHELLS

Radiall is proud to introduce two ways to integrate EMI backshells on Arinc 600 connectors:

- Backshell adapters plates
- Radiall backshell solution

Backshell adapters plates:
Backshell adapters plates can be delivered with NSX connectors when choosing modification code 60 and 61.

| COMBINATION CODE | RECEPTACLE SHELL | | PLUG SHELL | |
|---|---|---|---|---|
| 60 [1] | - | - |  | Shell Size 1: Qty = 4 Holes Ø 3.76 (0.148) & Qty = 6 4-40 UNC 2B<br><br>Shell Size 2: Qty = 10 Holes Ø 3.76 (0.148)<br><br>Shell Size 3: Qty = 14 Holes Ø 3.76 (0.148) Delivered with Backshell Adapters Plates |
| 61 [1] | - | - |  | Shell Size 1: Qty = 4 6-32 UNC<br><br>Shell Size 2: Qty = 6 Holes Ø 3.76 (0.148) & Qty = 4 6-32 UNC<br><br>Shell Size 3: Qty = 6 Holes Ø 3.76 (0.148) & Qty = 8 6-32 UNC Delivered with Backshell Adapters Plates |

### RADIALL BACKSHELL SOLUTION

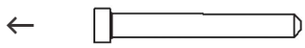
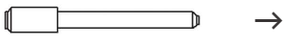
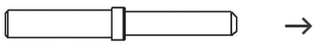
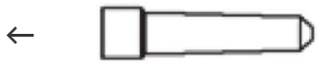
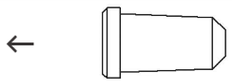
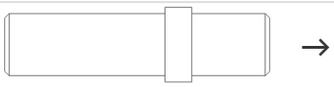
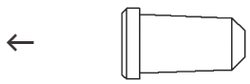
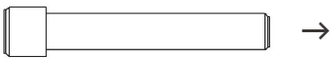
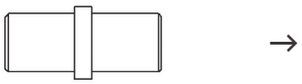
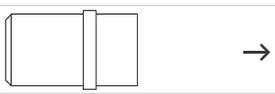
- High EMI performances
- Easy installation and maintenance with:
  - Modular backshells (1 or 2 pieces backshells)
  - Captive screws
- Available on size 1, 2 and 3 Arinc 600 connectors
- Round or oblong chimneys

Please, contact Radiall for more information about NSX backshells



*Contacts*

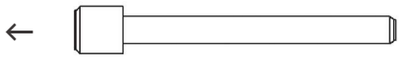
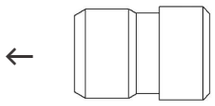
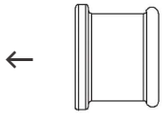
## FILLER PLUGS (NON-ENVIRONMENTAL)

| SIZE | CONTACT CAVITY VERSION | INS | EXT | COLOR/TYPE | PART NUMBER | DRAWING |
|---|---|---|---|---|---|---|
| 22 | For Pin & Socket | Rear | Rear | Black | 620920 |  |
| | For Socket | Front | Front | Aluminium | 620919 |  |
| | For Socket | Front | Front | White | 620926 |  |
| 20 | For Pin & Socket | Rear | Rear | Eed | 620921 |  |
| | For Pin & Socket | Front | Front | White | 620934001 |  |
| 16 | For Pin & Socket | Rear | Rear | Blue | 620922 |  |
| | For Pin & Socket | Front | Front | White | 620935001 |  |
| 12 | For Pin & Socket | Rear | Rear | Yellow | 620923 |  |
| | For Pin | Front | Front | White | 620936001 |  |
| | For Pin | Front | Front | Nickel | 620936002 |  |
| 8 | For Pin | Rear | Rear | Nickel | 619953 |  |
| | For Pin | Front | Front | Nickel | 619552 |  |
| | For Socket | Rear | Rear | Nickel | 619950 |  |
| 5 | For Pin | Rear | Rear | White | 620924 |  |
| | For Socket | Rear | Rear | White | 620925 |  |
| | For Pin & Socket | Front | Front | White | 620937001 |  |

*Contacts*

## SEALING PLUGS (ENVIRONMENTAL)

Sealing plugs are dedicated to environmental inserts.

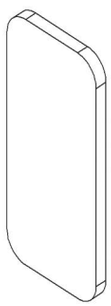
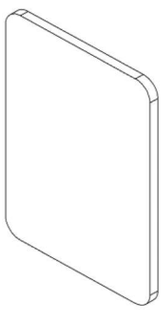
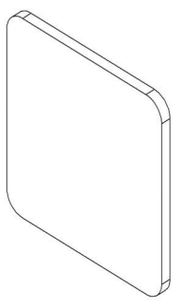
| SIZE | CONTACT CAVITY VERSION | INS | EXT | COLOR/TYPE | PART NUMBER | DRAWING |
|---|---|---|---|---|---|---|
| 22 | For Pin & Socket | Rear | Rear | Black | 616910 |  |
| 20 | For Pin & Socket | Rear | Rear | Red | 616911 |  |
| 16 | For Pin & Socket | Rear | Rear | Green | 616912 |  |
| 12 | For Pin & Socket | Rear | Rear | Orange | 616913 |  |
| 8 | For Pin & Socket | Rear | Rear | Red | 618915 |  |
| 5 | For Pin & Socket | Rear | Rear | Red | 616914014 |  |

***Notes***

*The arrows show the direction which you have to insert the plug.*

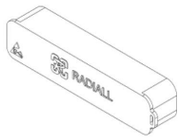
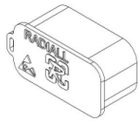
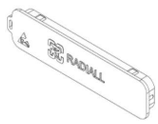
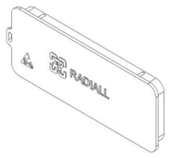
## DUMMY INSERTS

When a cavity shell is not fitted with one of the inserts shown on pages 5-11 to 5-20, the cavity shell is fitted with a dummy insert. Dummy inserts are made of aluminium alloy and are available for each cavity shell nickel or RoHS plating.

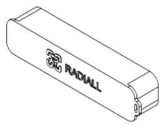
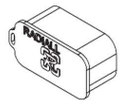
| SHELL SIZE | CAVITY | DUMMY INSERT P/N | FIGURE |
|---|---|---|---|
| 1 | A or B | 620913001 (Nickel)<br>620913005 (RoHS) |  |
| | C | 620913002 (Nickel)<br>620913006 (RoHS) |  |
| 2 & 3 | A or B or D or E | 620913003 (Nickel)<br>620913007 (RoHS) |  |
| | C or F | 620913004 (Nickel)<br>620913008 (RoHS) |  |

## DUST CAPS

Dust caps are made of thermoplastic. They are available either conductive (black color) or not (red color).

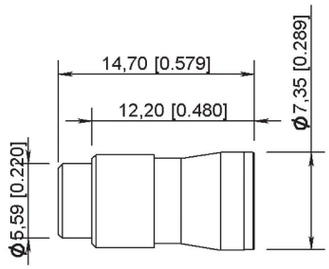
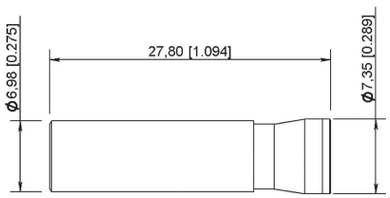
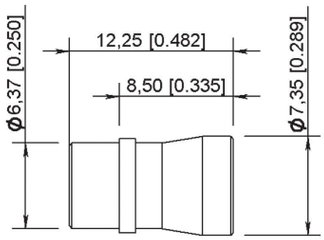
| ELECTRICAL CHARACTERISTICS | SHELL TYPE | SHELL SIZE | SHELL CAVITY | PART NUMBER | FIGURE |
|---|---|---|---|---|---|
| Conductive | Plug | 1 | A/B | 620995003 |  |
| | | | C | 620995004 |  |
| | | 2 & 3 | A/B & D/E | 620995007 |  |
| | | | C & F | 620995008 |  |
| | Receptacle | 1 | A/B | 620995011 |  |
| | | | C | 620995012 |  |
| | | For Single Shell Connector | - | 620995018 |  |
| | | 2 & 3 | A/B & D/E | 620995015 |  |
| | | | C & F | 620995016 |  |

## DUST CAPS

| ELECTRICAL CHARACTERISTICS | SHELL TYPE | SHELL SIZE | SHELL CAVITY | PART NUMBER | FIGURE |
|---|---|---|---|---|---|
| Non Conductive | Plug | 1 | A/B | 620995001 |  |
| | | | C | 620995002 |  |
| | | For Single Shell Connector | - | 620995017 |  |
| | | 2 & 3 | A/B & D/E | 620995005 |  |
| | | | C & F | 620995006 |  |
| | Receptacle | 1 | A/B | 620995009 |  |
| | | | C | 620995010 |  |
| | | 2 & 3 | A/B & D/E | 620995013 |  |
| | | | C & F | 620995014 |  |

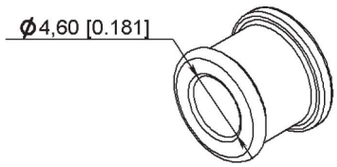
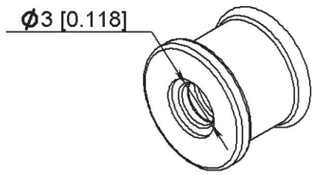
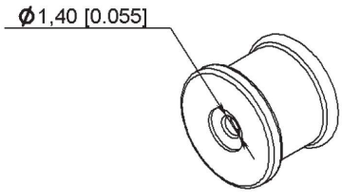
## CAVITY REDUCERS

The following parts are cavity reducers which allows the use of a size 12 contact in a size 5 cavity. These parts are made of copper alloy and are plated with gold over nickel. Once installed, they cannot be removed.

| ELECTRICAL CHARACTERISTICS | PART NUMBER | FIGURE |
|---|---|---|
| For Pin Contact | 620940 |  |
| For Socket Contact | 620941 |  |
| For Pin Contact Front Release / Front Removable (FR/FR) Connector in Version G | 620942 |  |

## SEALING BOOTS

The sealing boots are designed to slide down over the back of the crimped contacts after they have been installed in the connector. The assembly provides bend support and moisture sealing to the contact / cable assembly. Sealing boots are made of fluorosilicon rubber.

| ELECTRICAL CHARACTERISTICS | CABLE OUTSIDE DIA. MM (INCH) | CABLE | PART NUMBER | FIGURE |
|---|---|---|---|---|
| 5 | 5 (0.197) | RG 58<br>RG 141<br>RG 142<br>RG 223<br>RG 400 | 620939201 |  |
| | 3.81 (0.150) | RG 180<br>RG 195 | 620939200 |  |
| | 2.59 (0.102)<br>& 2.01 (0.079) | RG 179<br>RG 316<br>KX 21 | 620914001 |  |

## GROUNDING BLOCK (PART NUMBER 620981002)

Radiall provides a unique feature by integrating a ground block directly on the plug shell for sizes #2 & #3.

This option allows very short ground terminations.

Pin crimp ground contacts are available with grounding block, part number is 620260 (up to 26 contacts per grounding block).



## ALIGNMENT BOOTS (PART NUMBER 619960)

Alignment boots are designed to reduce the play at the top of the size 8 pin contacts. They are used with non-environmental rear release/rear removable size 8 pin contacts.



*NSX–Single Shell Connector*

## INTRODUCTION

NSX single shell connectors are designed to accommodate all large cavity inserts. Their characteristics are shown on page 5-5 except for the following.




## MATERIALS

| DESCRIPTION | MATERIAL | PLATING |
|---|---|---|
| Shell | Aluminum Alloy | Cadmium Clear Chromate or Nickel |
| Insert Retention Plate | Aluminum Alloy | Cadmium Clear Chromate or Nickel |
| Polarization Posts and Keys Retention Plate | Aluminum Alloy | Cadmium Clear Chromate or Nickel |
| Screws Washers and Clinch-Nuts | Stainless Steel | - |
| | Steel | Cadmium Clear Chromate |
| Polarization Posts and Keys | Zinc Alloy | Cadmium Yellow Chromate or Nickel |

*NSX–Single Shell Connector*

## HOW TO ORDER NSX–SINGLE SHELL CONNECTOR

NSX

**SERIES PREFIX**

**CLASS**

**N:** Non-environmental (rear removable version only)
**E:** Environmental, with grommets and compound; plug with O-ring (rear removable version only).
**H:** Environmental plug without O-ring
**C:** Non-environmental with grommets — *Front Removeable*
**F:** Non-environmental receptacle shell
**G:** Non-environmental receptacle shell — *Rear Removeable*

**SHELL STYLE**

**R:** Cadmium clear chromate plated receptacle
**P:** Cadmium clear chromate plated plug
**F:** Nickel plated receptacle
**B:** Nickel plated plug
**M:** Nickel plated plug EMI/RF1 solution (see page 5-95)

**CONTACT ARRANGEMENT**

See contact arrangements on pages 5-11 to 5-20.
Only use insert for A & B cavities.

**CONTACT TERMINATION** [1]

WITHOUT CONTACTS

**X:** Without contacts
**S:** Crimp contacts

WIRE WRAP

**K:** Wire wrap contact, 1 level (1 = 0.272)
**V:** Wire wrap contact, 2 levels (1 = 0.390)
**W:** Wire wrap contact, 3 levels (1 = 0.524)

**PC TAIL CONTACTS**

| ROHS | GOLD | PRE-TINNED | LENGTH (IN.) |
|---|---|---|---|
| RA | YA | ZA | 0.150 |
| R | Y | Z | 0.250 |
| RB | YB | ZB | 0.375 |
| RC | YC | ZC | 0.500 |

**MODIFICATION CODE**

**00:** 4 mounting holes 0.146/0.156 dia
**01:** 4 clinch nuts 4.40 UNC
**03:** 4 each 0.122 dia mounting holes c'sunk 0.230 dia × 100°
**04:** 4 each 0.122 dia mounting holes c'sunk 0.230 dia × 82°
**05:** 4 each 0.137 dia mounting holes c'sunk 0.230 dia × 82°
**23:** 4 floating eyelets 0.122 - 0.126 dia

**POLARIZATION CODE** [2]

See pages 5-91 to 5-92.
**Without code:** polarization hardware is delivered unassembled.

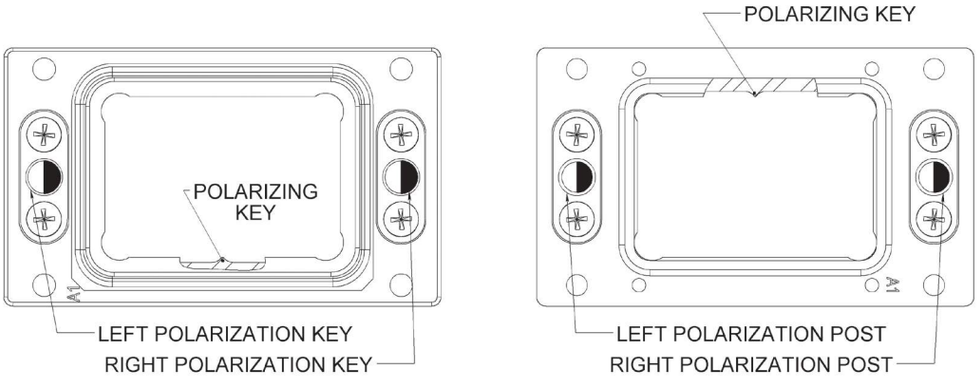
*Notes*

1. *For F class receptacle, only size 22 contacts can be delivered in PC Tail version, others contacts (size 20, 16, 12) will be delivered in crimp version. Coaxial, twinax and quadrax contacts are ordered separately.*
   *For G class receptacle, every contacts can be delivered in PC Tail or crimp version except size 1 that will be delivered in crimp version only. Coax twinax and power contacts size are ordered separately.*
2. *Without polarization code, the connector is delivered polarization hardware unassembled.*
   *Polarization code 00, the connector is delivered without polarization hardware.*
   *Polarization code 01 to 36, the connector is delivered with the polarization hardware assembled as defined by the code.*

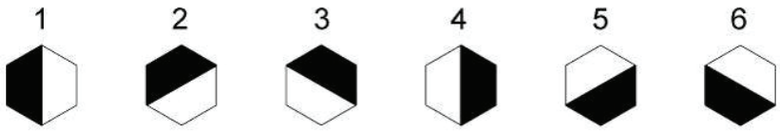
*NSX–Single Shell Connector*

## INSTALLATION

### HORIZONTAL




### MATING FACE

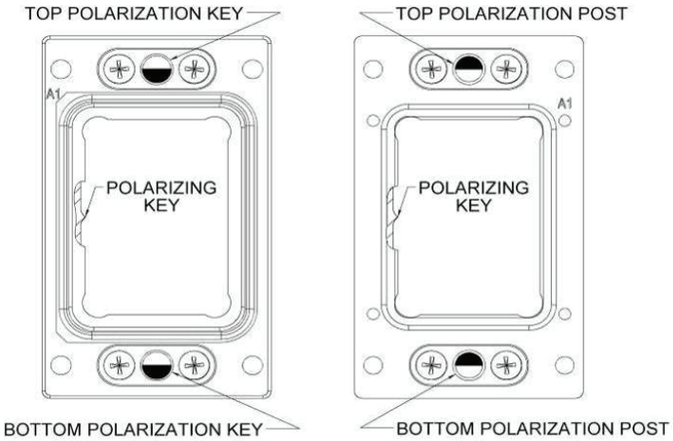



### POSITION OF POST (DARK) AND KEYHOLE (LIGHT)

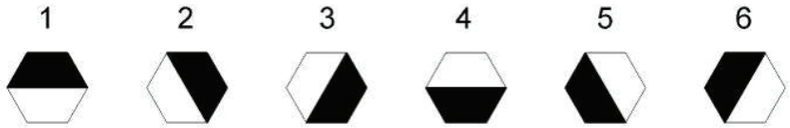
| POSITION | EQUIPMENT RECEPTACLE | | RACK PLUG | |
|---|---|---|---|---|
| | LEFT. KEY | RIGHT. KEY | LEFT. POST | RIGHT. POST |
| 01<br>02 | 1<br>3 | 1<br>4 | 1<br>4 | 1<br>5 |
| 03<br>04 | 2<br>1 | 4<br>4 | 4<br>4 | 6<br>1 |
| 05<br>06 | 6<br>5 | 4<br>4 | 4<br>4 | 2<br>3 |
| 07<br>08 | 4<br>3 | 5<br>5 | 3<br>3 | 4<br>5 |
| 09<br>10 | 2<br>1 | 5<br>5 | 3<br>3 | 6<br>1 |
| 11<br>12 | 6<br>5 | 5<br>5 | 3<br>3 | 2<br>3 |
| 13<br>14 | 4<br>3 | 6<br>6 | 2<br>2 | 4<br>5 |
| 15<br>16 | 2<br>1 | 6<br>6 | 2<br>2 | 6<br>1 |
| 17<br>18 | 6<br>5 | 6<br>6 | 2<br>2 | 2<br>3 |
| 19<br>20 | 4<br>3 | 1<br>1 | 1<br>1 | 4<br>5 |
| 21<br>22 | 2<br>4 | 1<br>4 | 1<br>4 | 6<br>4 |
| 23<br>24 | 6<br>5 | 1<br>1 | 1<br>1 | 2<br>3 |
| 25<br>26 | 4<br>3 | 2<br>2 | 6<br>6 | 4<br>5 |
| 27<br>28 | 2<br>1 | 2<br>2 | 6<br>6 | 6<br>1 |
| 29<br>30 | 6<br>5 | 2<br>2 | 6<br>6 | 2<br>3 |
| 31<br>32 | 4<br>3 | 3<br>3 | 5<br>5 | 4<br>5 |
| 33<br>34 | 2<br>1 | 3<br>3 | 5<br>5 | 6<br>1 |
| 35<br>36 | 6<br>5 | 3<br>3 | 5<br>5 | 2<br>3 |

*NSX–Single Shell Connector*

## VERTICAL




## MATING FACE

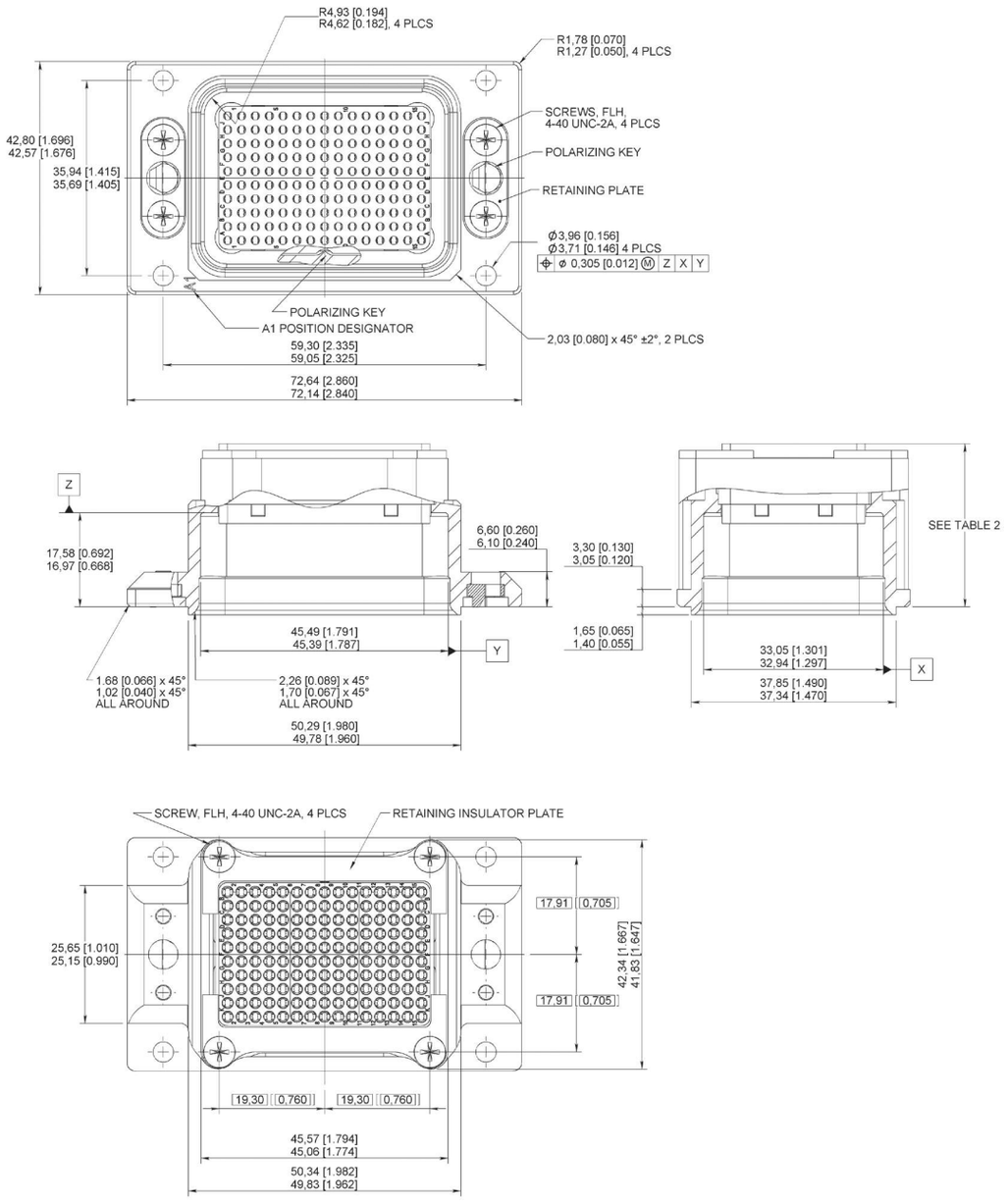



## POSITION OF POST (DARK) AND KEYHOLE (LIGHT)

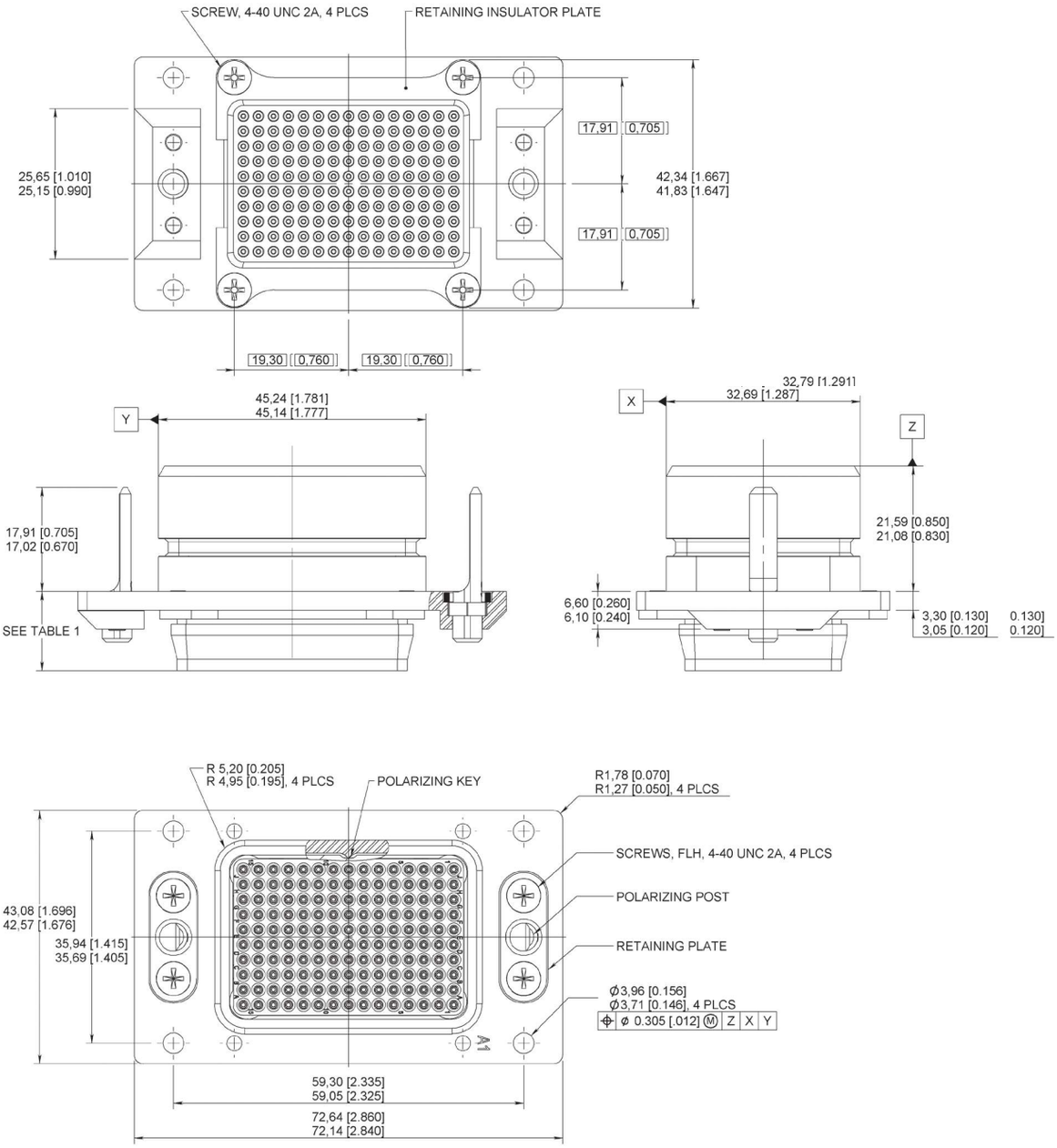
| POSITION | EQUIPMENT RECEPTACLE | | RACK PLUG | |
|---|---|---|---|---|
| | LEFT. KEY | RIGHT. KEY | LEFT. POST | RIGHT. POST |
| 01<br>02 | 1<br>3 | 1<br>4 | 4<br>2 | 4<br>1 |
| 03<br>04 | 2<br>1 | 4<br>4 | 3<br>4 | 1<br>1 |
| 05<br>06 | 6<br>5 | 4<br>4 | 5<br>6 | 1<br>1 |
| 07<br>08 | 4<br>3 | 5<br>5 | 1<br>2 | 6<br>6 |
| 09<br>10 | 2<br>1 | 5<br>5 | 3<br>4 | 6<br>6 |
| 11<br>12 | 6<br>5 | 5<br>5 | 5<br>6 | 6<br>6 |
| 13<br>14 | 4<br>3 | 6<br>6 | 1<br>2 | 5<br>5 |
| 15<br>16 | 2<br>1 | 6<br>6 | 3<br>4 | 5<br>5 |
| 17<br>18 | 6<br>5 | 6<br>6 | 5<br>6 | 5<br>5 |
| 19<br>20 | 4<br>3 | 1<br>1 | 1<br>2 | 4<br>4 |
| 21<br>22 | 2<br>4 | 1<br>4 | 3<br>1 | 4<br>1 |
| 23<br>24 | 6<br>5 | 1<br>1 | 5<br>6 | 4<br>4 |
| 25<br>26 | 4<br>3 | 2<br>2 | 1<br>2 | 3<br>3 |
| 27<br>28 | 2<br>1 | 2<br>2 | 3<br>4 | 3<br>3 |
| 29<br>30 | 6<br>5 | 2<br>2 | 5<br>6 | 3<br>3 |
| 31<br>32 | 4<br>3 | 3<br>3 | 1<br>2 | 2<br>2 |
| 33<br>34 | 2<br>1 | 3<br>3 | 3<br>4 | 2<br>2 |
| 35<br>36 | 6<br>5 | 3<br>3 | 5<br>6 | 2<br>2 |

# DIMENSIONS

## NSX SINGLE SHELL RECEPTACLE DIMENSIONS



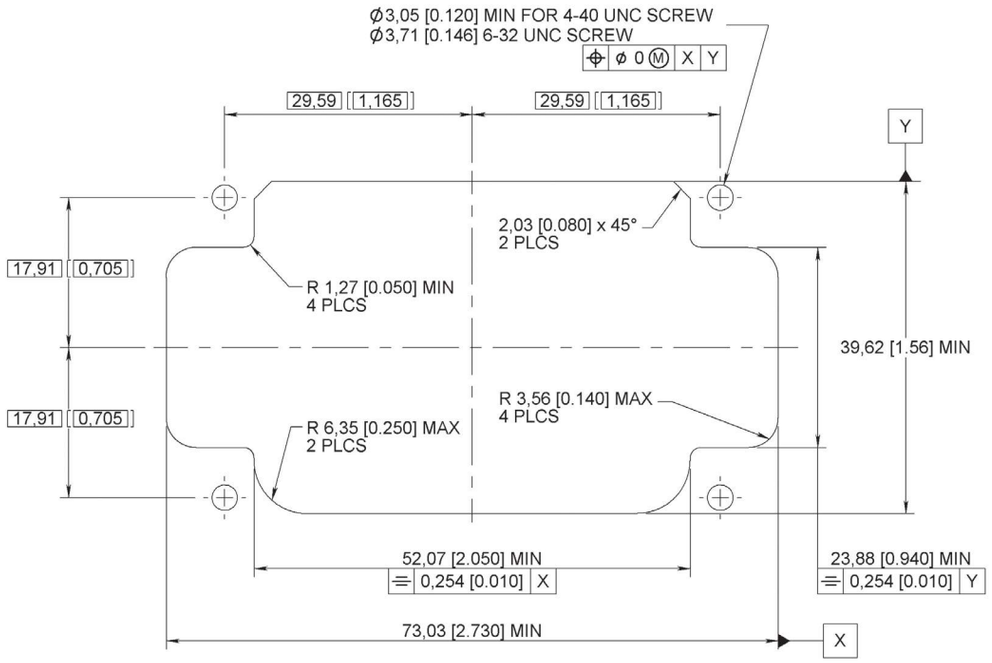
## NSX SINGLE SHELL PLUG DIMENSIONS



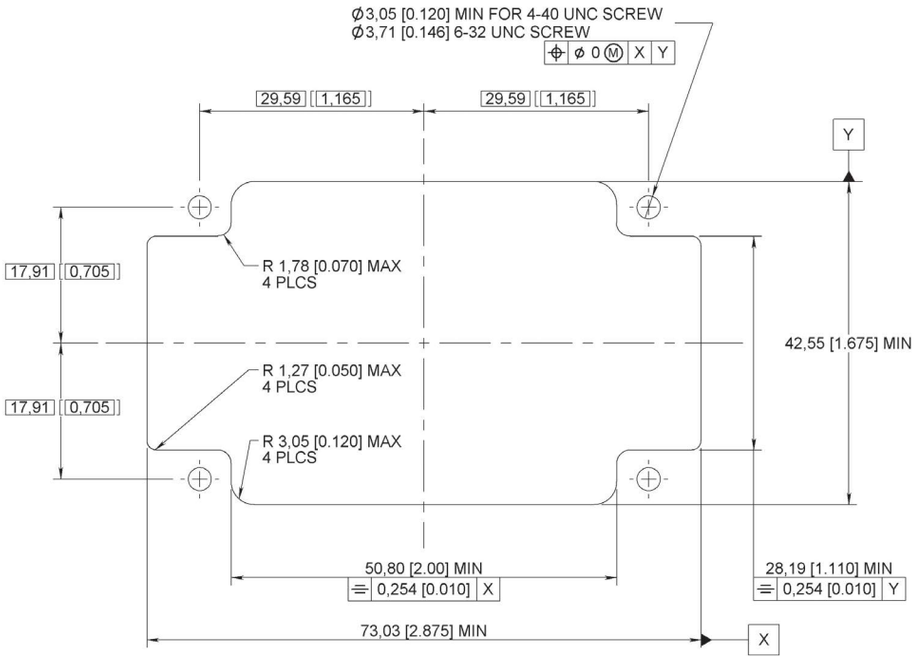
*NSX–Single Shell Connector*

## NSX SINGLE SHELL PANEL CUT-OUT

### RECEPTACLE



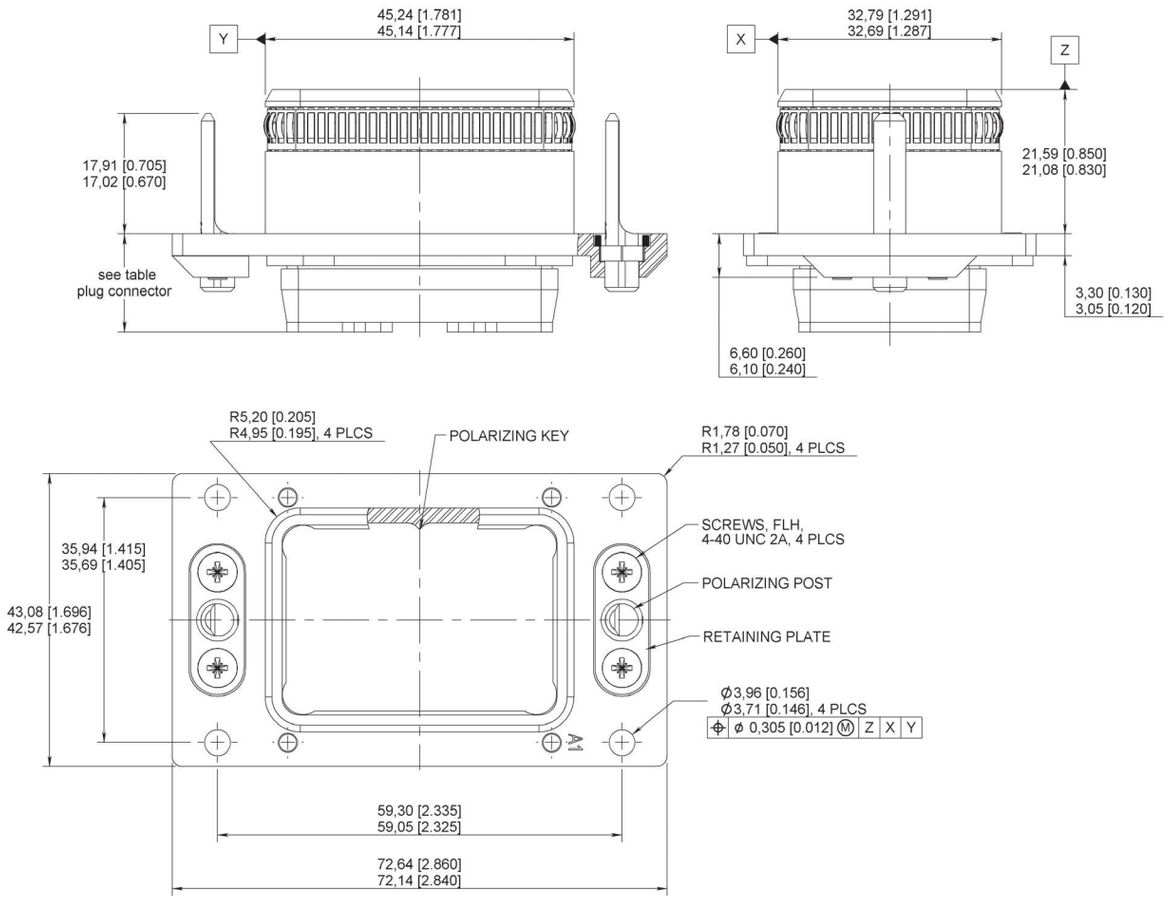

### PLUG



*NSX–Single Shell Connector*

## EMI/RFI NSX SINGLE SHELL PLUG DIMENSIONS

*How to Order - See Page 5-90*



*BPX*

## INTRODUCTION

BPX series connectors are EMI shielded and modular insert concept rectangular multipin connectors fitted with NSX inserts and contacts.

BPX connectors are differentiated from NSX connectors by their shell sizes available: 1, 2 and 3.

The BPX characteristics are compliant to BOEING S280W551 specification. Their specific characteristics (those which are different from NSX connectors) are as follows:



## CHARACTERISTICS

### ELECTRICAL

BPX electrical characteristics are the same as NSX connectors (see pages 5-5 to 5-7) except the following:

- **Magnetic Permeability:** 2.0 Ohms max

*BPX*

## MECHANICAL & ENVIRONMENTAL CHARACTERISTICS

Identical to NSX connectors except the following:

- **Mating and Unmating Forces:**
  - Shell size 1: 70 lb (311 N) max
  - Shell size 2: 140 lb (623 N) max
  - Shell size 3: 130 lb (578 N) max
- **Humidity:** Type II (measured according to method 1002 of MIL-STD-1344A)
- **Fluid Resistance:** Resistance to MIL-STD-1344A method 1016 (fluids a, e, i, j).
- **Contact Stability:** Conforming to S280W551 requirements.

## MATERIALS

| DESCRIPTION | MATERIAL | PLATING |
|---|---|---|
| Shell | Aluminum Alloy | Electrically Conductive Finish Over Nickel |
| Grounding Spring Fingers | Copper Alloy | Nickel |
| Insert Retention Plate | Aluminum Alloy | Nickel |
| Polarization Posts and Keys Retention Plate | Aluminum Alloy | Nickel |
| Screws, Washers and Clinch Nuts | Stainless Steel | - |
| Polarization Posts and Keys | Zinc Alloy | Nickel |

*BPX*

## HOW TO ORDER CONNECTOR

BPX N/E/F/G CONNECTORS FOR REAR REMOVABLE CONTACTS

BPX

**SERIES PREFIX**

**CLASS**
**N:** Non environmenta
**E:** Environmental
**F:** Non-environmental receptacle connectors only for F class receptacle, only size 22 contacts can be delivered in PC Tail version, others contacts (size 20, 16, 12) will be delivered in crimp version. Coaxial, twinax and quadrax contacts shall to be ordered separately.
**G:** Non-environmental receptacle connectors only for G class receptacle, every contacts can be delivered in PC Tail or crim version except size 1 that will be delivered in crimp version only. Coax, twinax and power contacts size shall be ordered separately.

**SHELL SIZE**
**1:** 2 cavities
**2:** 4 cavities
**3:** 5 cavities

**SHELL STYLE**
**R:** Receptacle
**P:** Plug

**INSERT COMBINATION CODE**
See insert combination codes on page 5-100

**CONTACT TERMINATION** [1]

WITHOUT CONTACTS
**X:** Without contacts
**S:** Crimp contacts

WIRE WRAP
**K:** Wire wrap contact, 1 level (1 = 0.272)
**V:** Wire wrap contact, 2 levels (1 = 0.390)

**PC TAIL CONTACTS**

| ROHS | GOLD | PRE-TINNED | LENGTH (IN.) |
|---|---|---|---|
| RA | YA | ZA | 0.150 |
| R | Y | Z | 0.250 |

**MODIFICATION CODE**
**00:** 4 mounting holes 0.146/0.156 dia

**POLARIZATION CODE** [1]
See pages 5-31 to 5-33.
**Without code:** polarization hardware is delivered unassembled.

*Notes*
*1. Polarization code 00, the connector is delivered without polarization hardware. Polarization code 01 to 216, the connector is delivered with the polarization hardware as defined by the code.*

*BPX*

## INSERT COMBINATION CODE IN THE SHELL

| CODE | INSERT COMBINATION ON SHELL | | | | |
|---|---|---|---|---|---|
| | A | B | C | D | E |
| 101 | 10T10 | 34 | - | - | - |
| 102 | 10T10 | 59 | - | - | - |
| 103 | 150 | 13C2 | - | - | - |
| 201 | 150 | 100 | 150 | 6T6 | - |
| 202 | 121 | 6T6 | 150 | 6T6 | - |
| 203 | 10T10 | 100 | 10T10 | 100 | - |
| 204 | 121 | 6T6 | 121 | 6T6 | - |
| 205 | 110 | 6T6 | 150 | 6T6 | - |
| 301 | 10T10 | 4 | 6P6 | 60A | 4 |
| 302 | 10T10 | 30T2 | 6P6 | 60A | 30T2 |
| 303 | 120T2 | 4 | 6P6 | 60A | 4 |

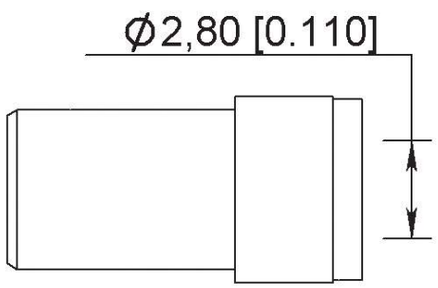
## CONTACT

BPX connectors use NSX signal, power coaxial and concentric twinax contacts (see pages 5-34 to 5-57).

## ACCESSORIES

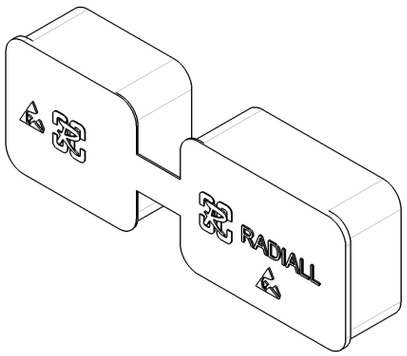
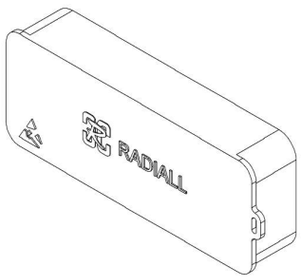
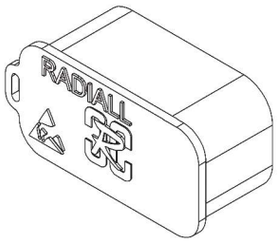
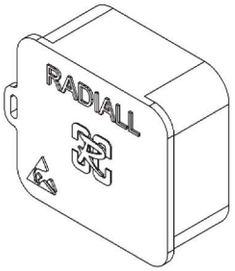
### SEALING BOOT

The sealing boots are designed to slide down over the back of crimped contacts after they have been installed in the connector. The assembly provides bend support and moisture sealing to the contact/cable assembly. For BPX connectors size, 8 coaxial and concentric twinax contacts must be fitted with the sealing boot required by S280W552 specification.

| | WIRE DIA MM (INCH) | WIRE TYPE | PART NUMBER | FIGURE |
|---|---|---|---|---|
| SEALING BOOT FOR CAVITY INSERT SIZE 8 | 3.68 (0.145) | Tensolite (S280W502-1) | 619960005 |  |

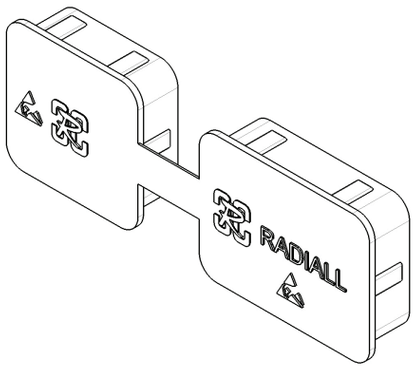
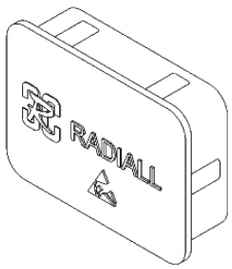
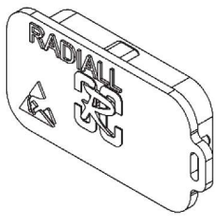
## DUST CAPS

Dust caps are made of thermoplastic material, they are either conductive (black color) or non-conductive (red color).

| TYPE | SHELL TYPE | SHELL SIZE | CAVITY | PART NUMBER | FIGURE |
|---|---|---|---|---|---|
| Conductive | Plug | 1 | A and B | 618953002 |   |
| | | 2 | A and B<br>C and D | | |
| | | 3 | A, D | 620995007 |   |
| | | | B, E | 620995004 |   |
| | | | C | 620995008 |   |

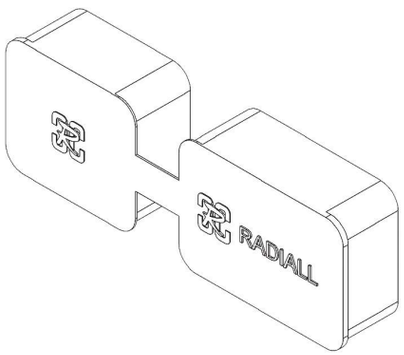
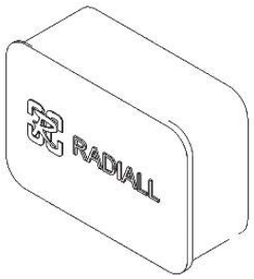
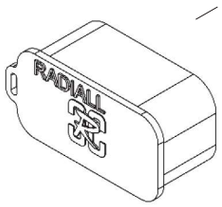
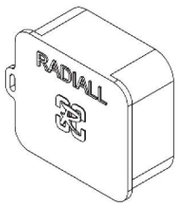
*BPX*

## DUST CAPS

| TYPE | SHELL TYPE | SHELL SIZE | CAVITY | PART NUMBER | FIGURE |
|---|---|---|---|---|---|
| Conductive | Receptacle | 1 | A and B | 618953001 |  |
| | | 2 | A and B<br>C and D | | |
| | | 3 | A, D | 620995018 |  |
| | | | B, E | 620995012 |  |
| | | | C | 620995016 |  |

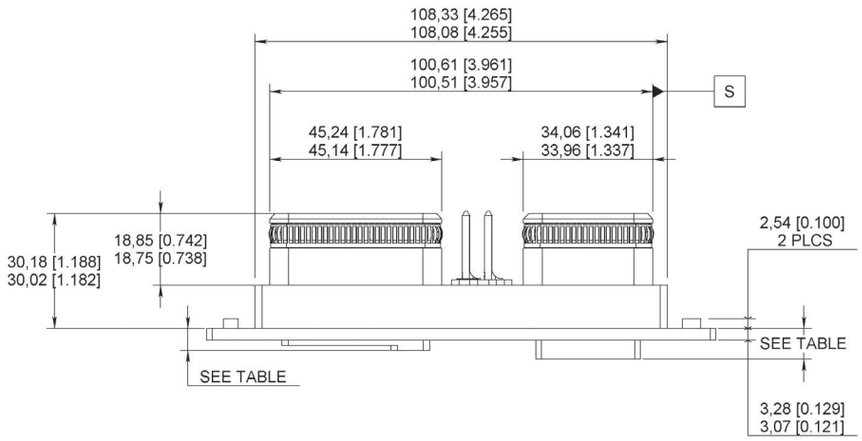
*BPX*

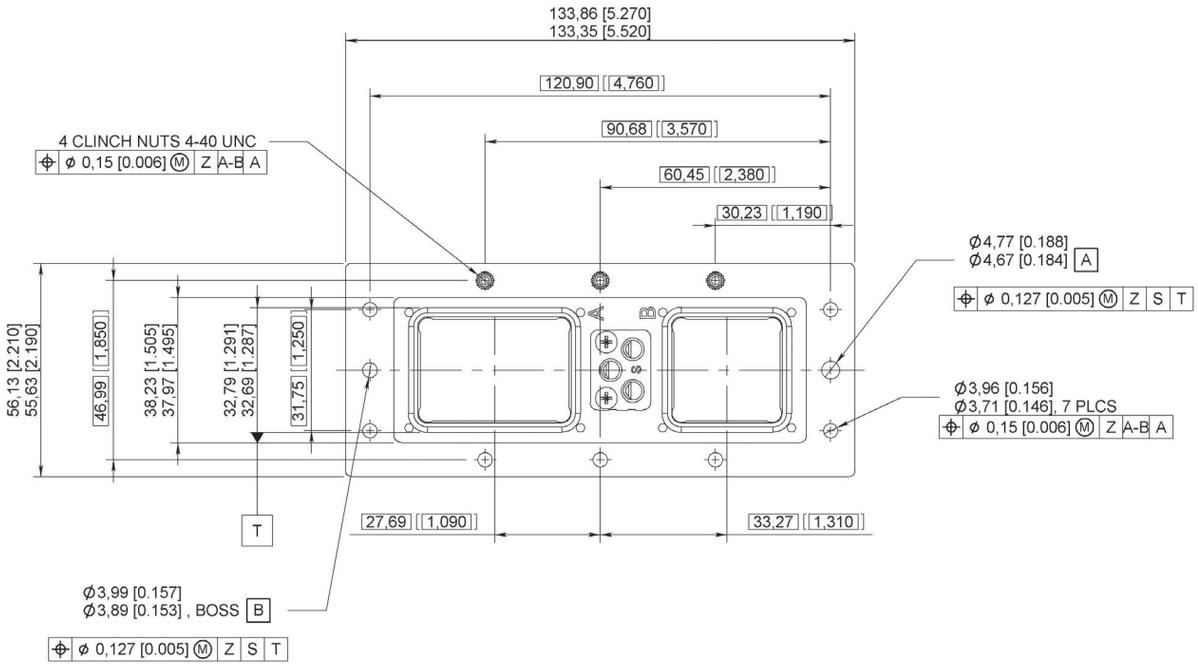
## DUST CAPS

| TYPE | SHELL TYPE | SHELL SIZE | CAVITY | PART NUMBER | FIGURE |
|---|---|---|---|---|---|
| Non Conductive | Plug | 1 | A and B | 618953 |  |
| | | 2 | A and B<br>C and D | | |
| | | 3 | A, D | 620995017 |  |
| | | | B, E | 620995002 |  |
| | | | C | 620995006 |  |

## DIMENSIONS

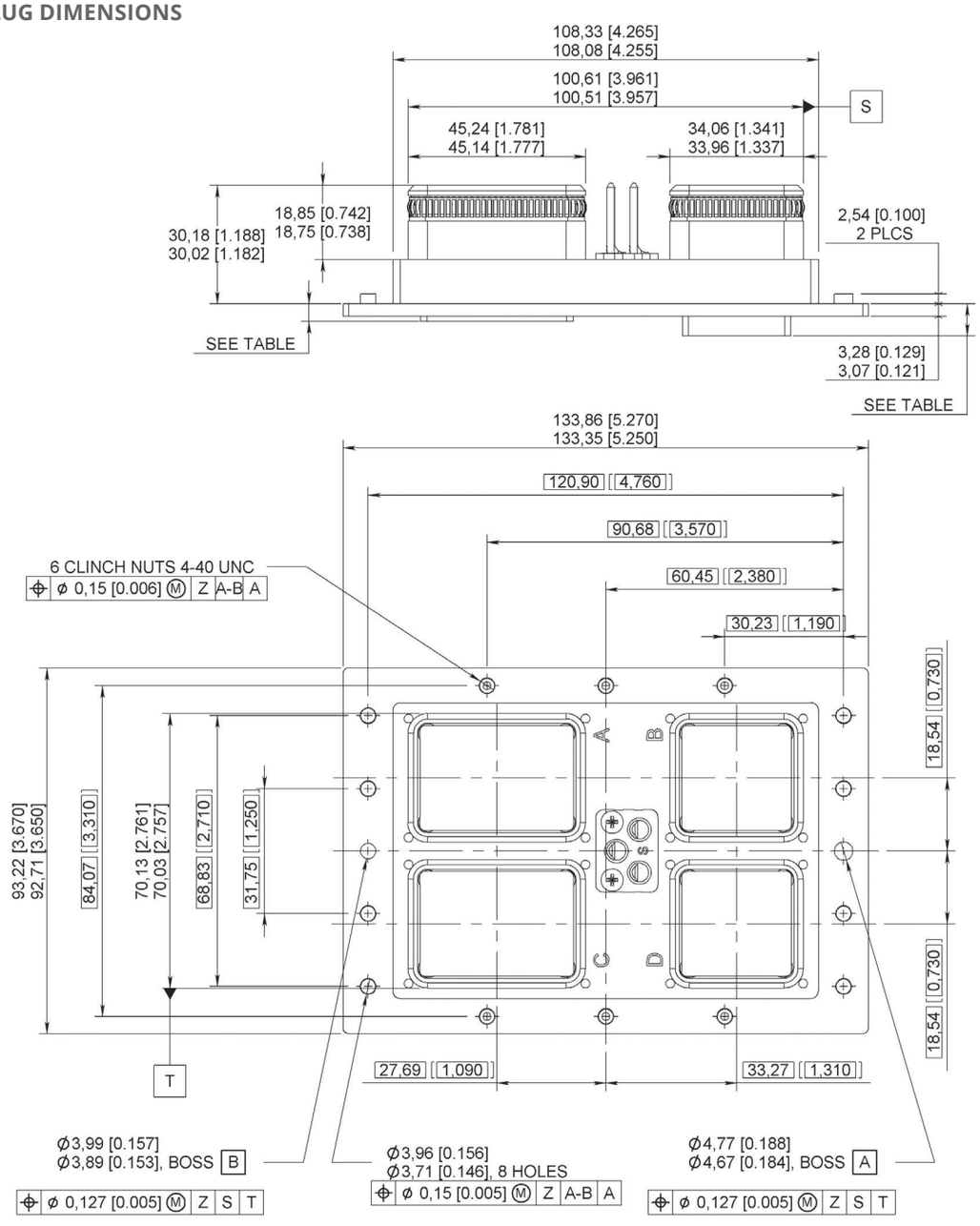
### SIZE 1 PLUG DIMENSIONS



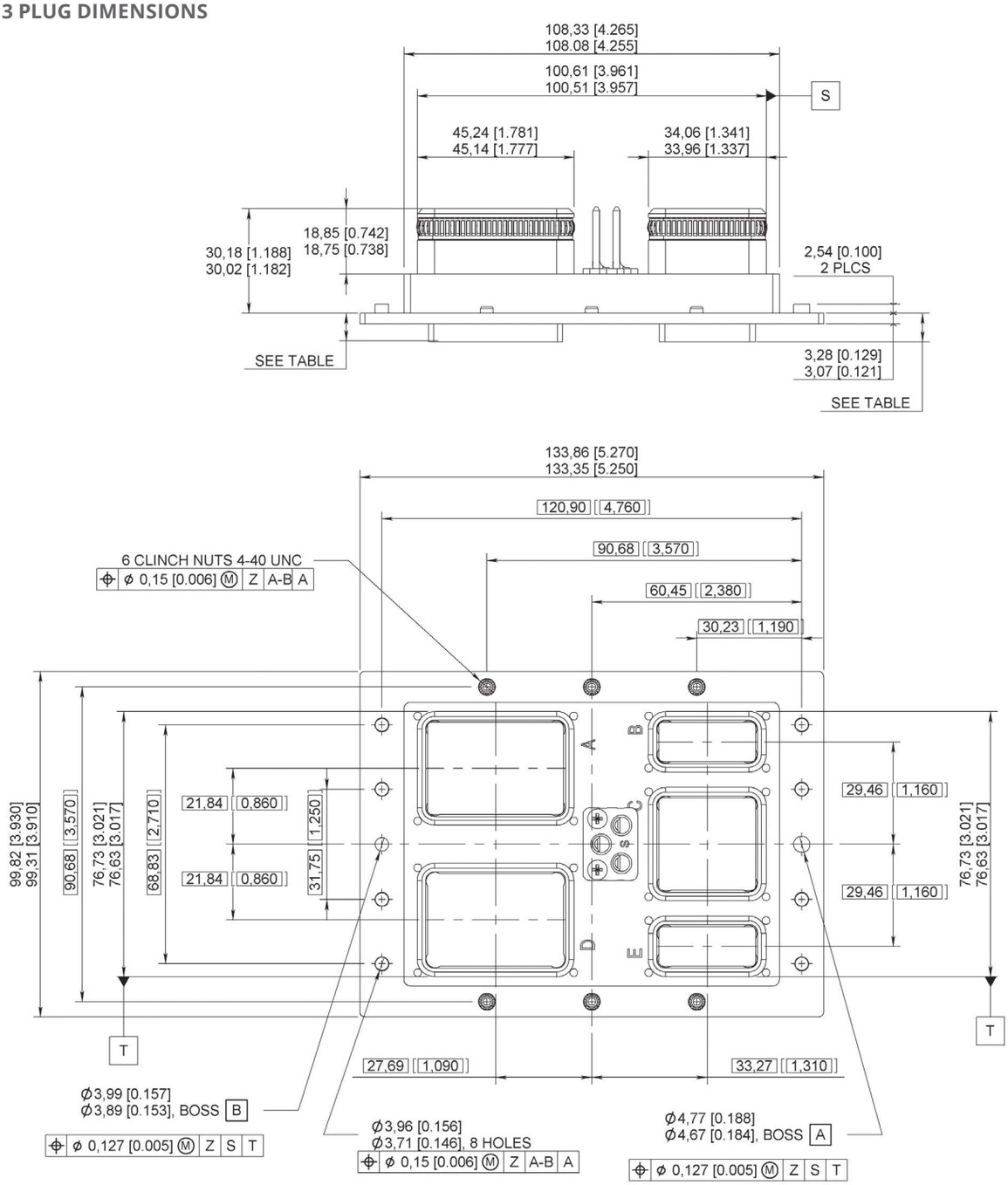



*BPX*

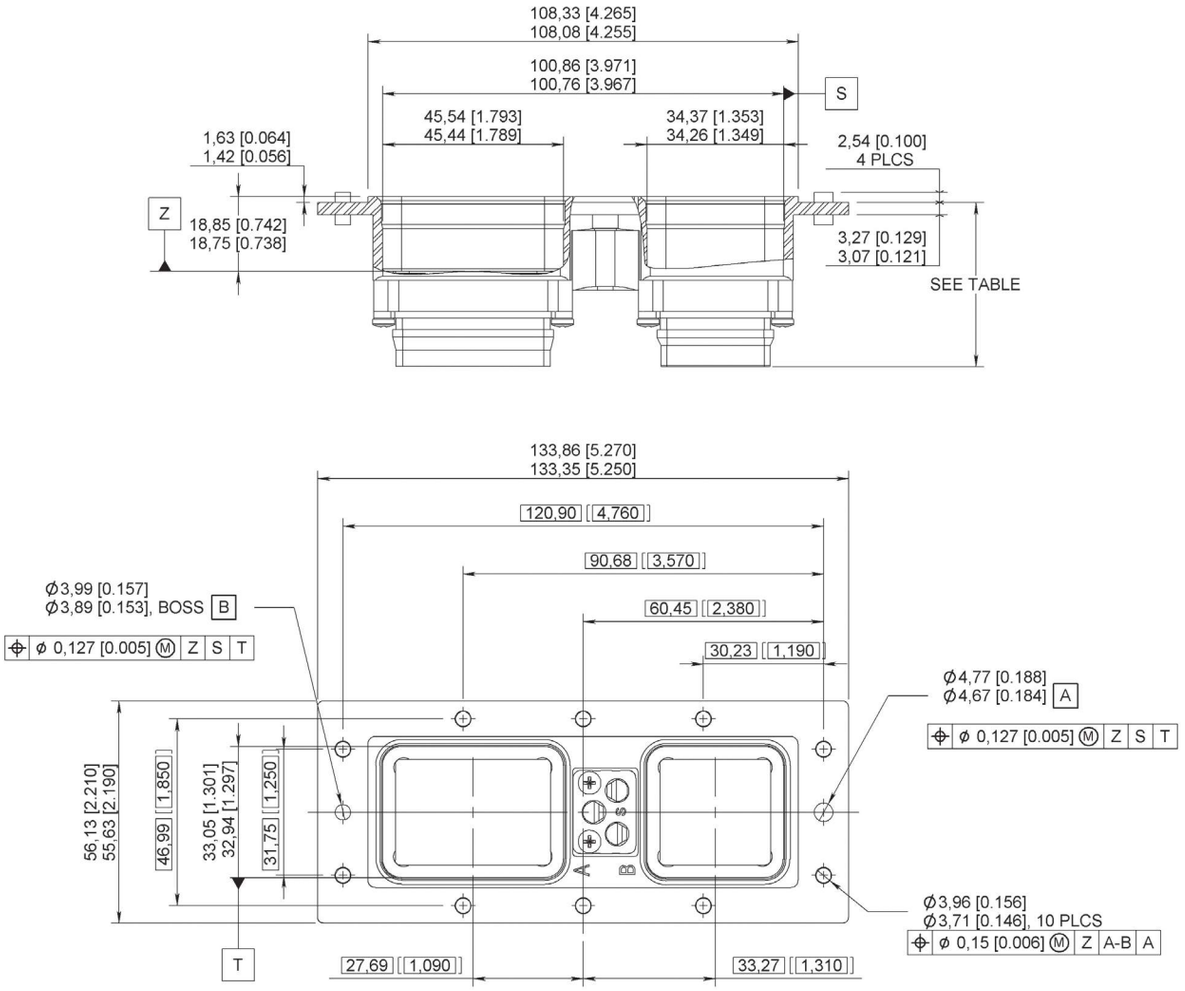
## SIZE 2 PLUG DIMENSIONS



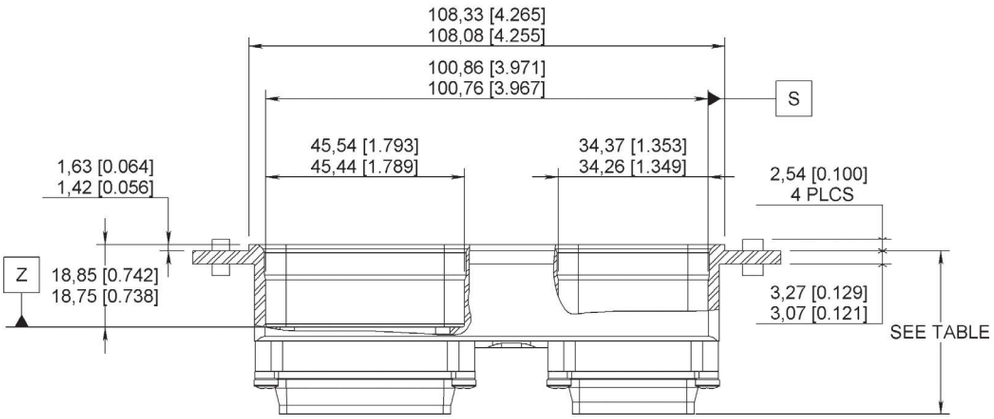
## SIZE 3 PLUG DIMENSIONS

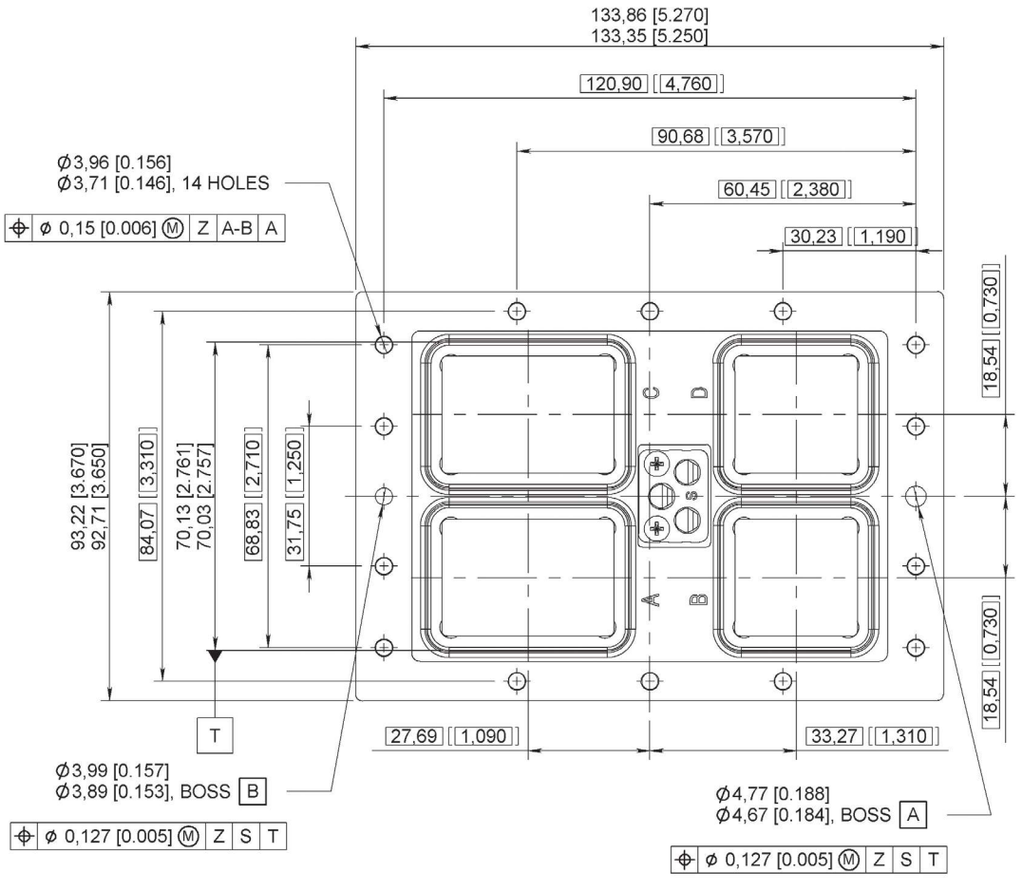


## SIZE 1 RECEPTACLE DIMENSIONS

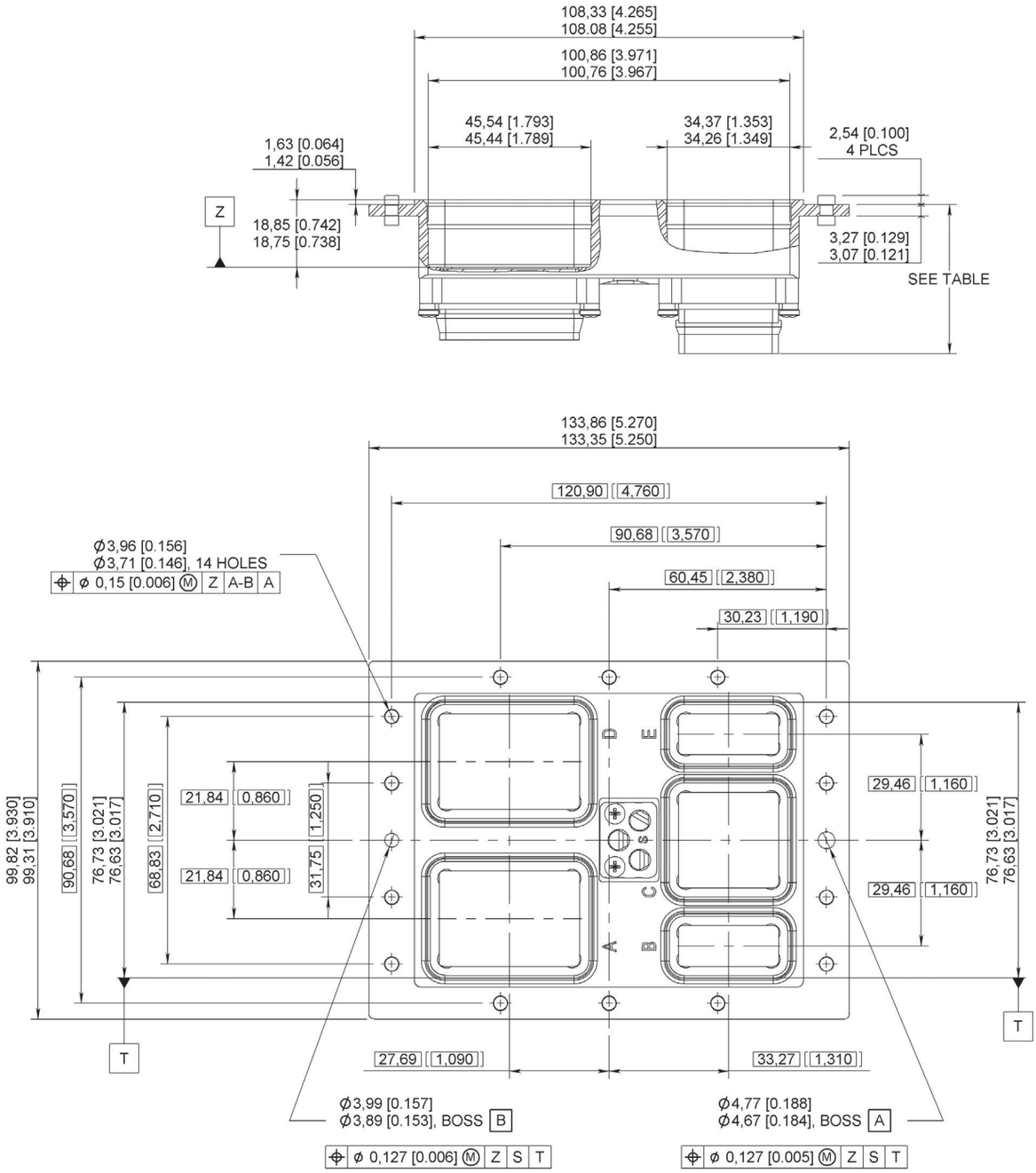


## SIZE 2 RECEPTACLE DIMENSIONS



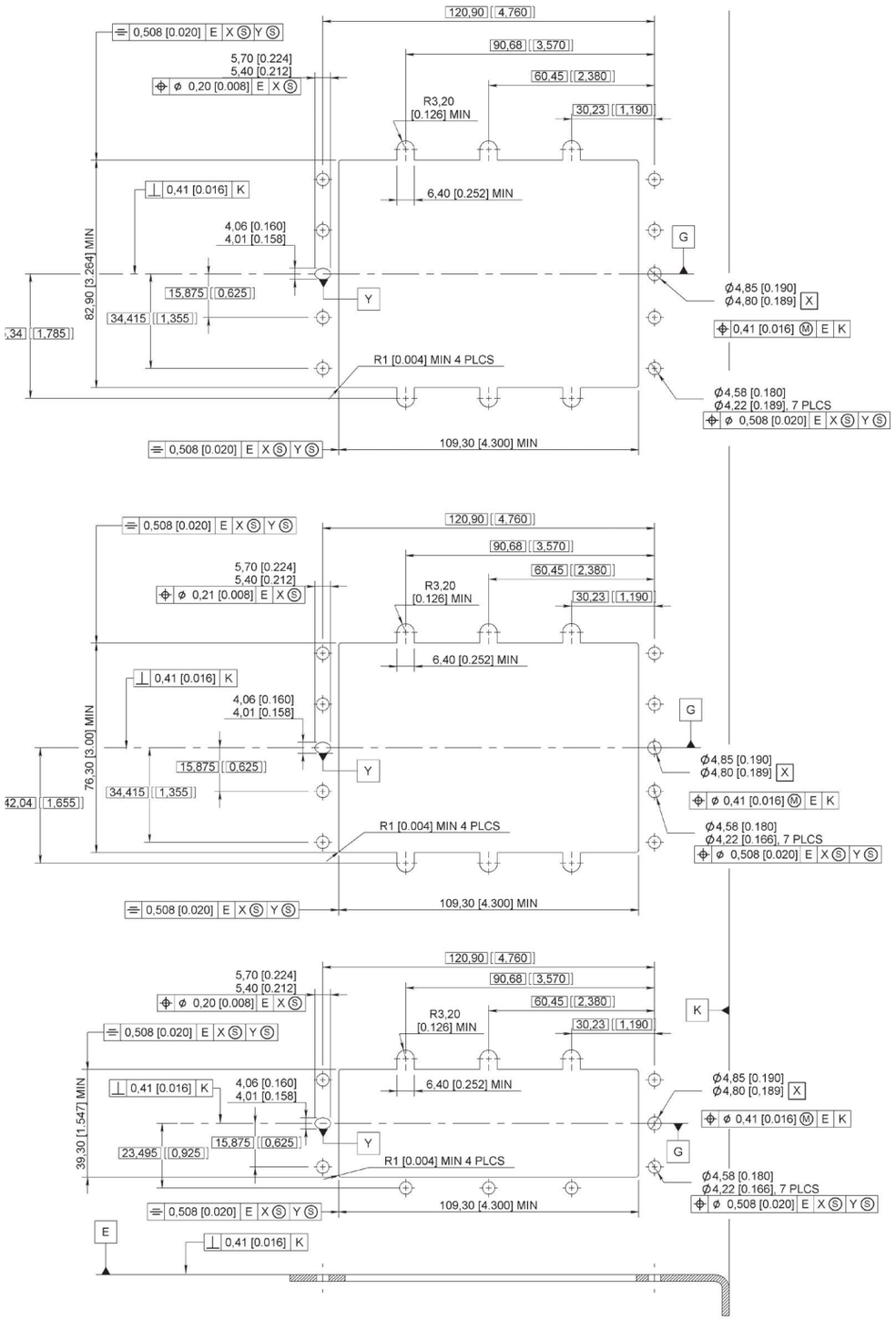



## SIZE 3 RECEPTACLE DIMENSIONS

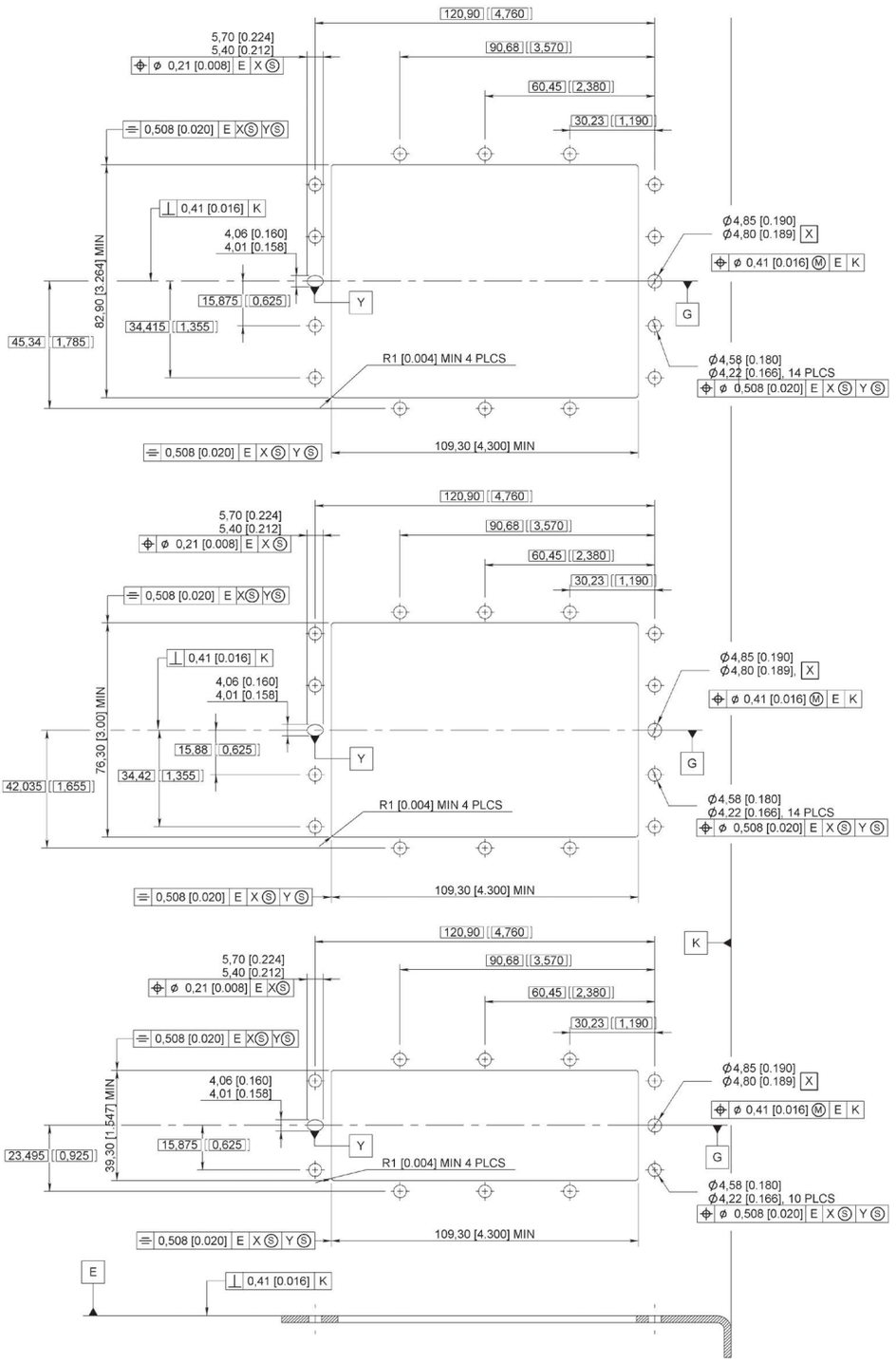


# PANEL CUT-OUT

## FOR PLUG



## FOR RECEPTACLE



*Notes*



# MPX SERIES

*MIL-DTL-83527B, AECMA EN3682*

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## INTRODUCTION

The Radiall MPX series is a robust rectangular connector designed to meet all the requirements of the MIL-DTL-83527B specification. The design conforms to the EN 3682 European Standard as well. This series is well suited for military and commercial aircraft applications where harsh environmental issues are a concern. Connectors, shells, inserts termination modules and contacts are sold separately or fully assembled.

## APPLICATIONS

These connectors are used to form the mechanical and electrical interface between the avionics equipment box and the rack.




*© Eurocopter–Jérome Deulin*



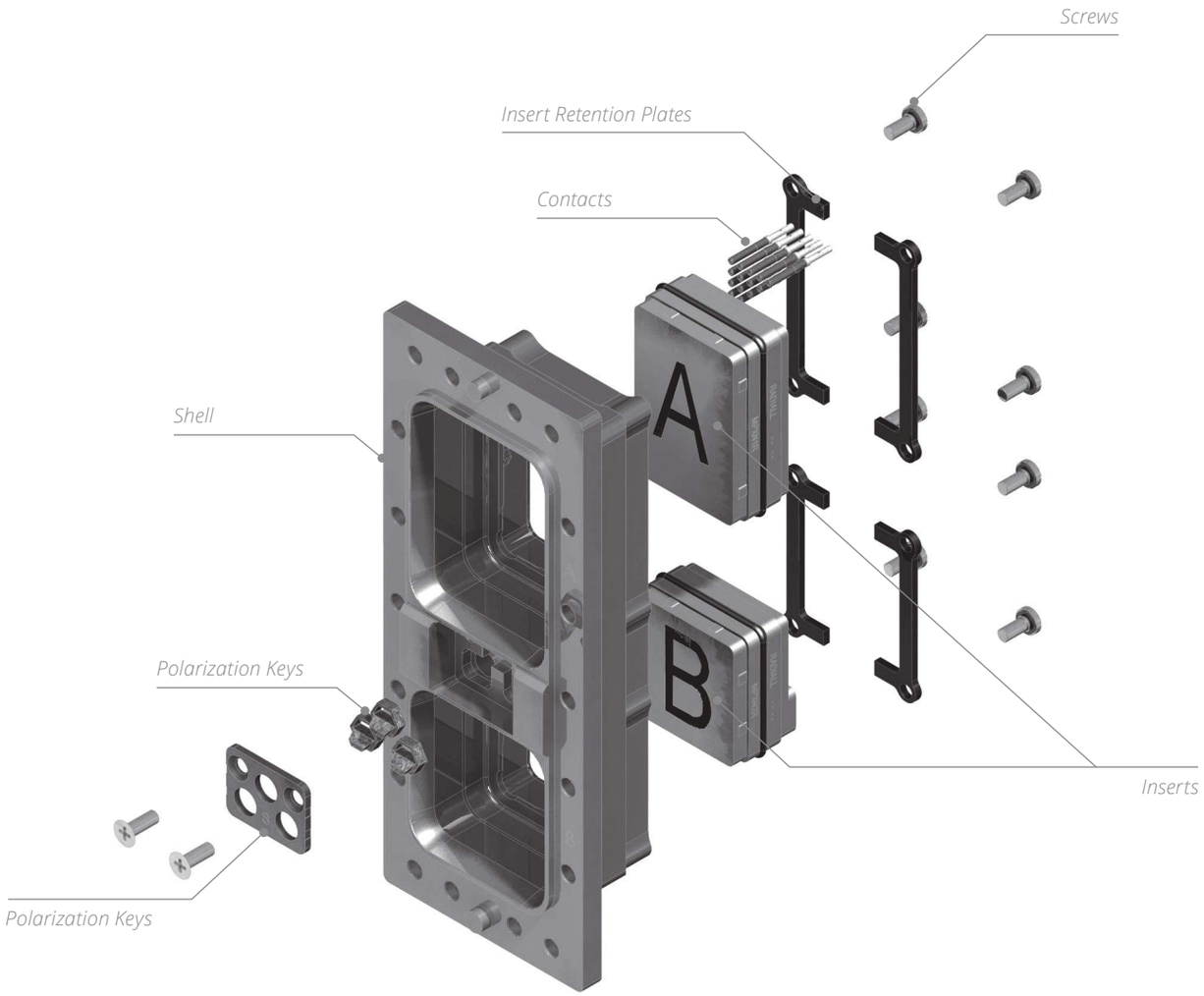
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*© Eurocopter-Remy Michelin*

## PRODUCT OVERVIEW

Detailed view of the various parts of an MPX connector:



*Introduction*

## TECHNICAL CHARACTERISTICS

### ELECTRICAL

- **Insulation Resistance (Test Procedure 21 of EIA364):** ≥ 1,000 MΩ-500 Vdc
- **Shell-to-Shell Conductivity (Test Procedure 83 of EIA364):** ≤ 2.5 m Ohms
- **Size 8 Grounding (Test Procedure 83 of EIA364):** ≤ 10 m Ohms

### DIELECTRIC WITHSTANDING VOLTAGE

(Test Procedure 20 of EIA364): Vrms

| CONTACT SIZES | AT SEA LEVEL | ALTITUDE (1.1 K PA) |
|---|---|---|
| # 22 | 1,300 | 800 |
| Other Contacts | 1,500 | 800 |

### EMI SHIELDING EFFECTIVENESS

(MIL-DTL-83527B)

| FREQUENCY (Mhz) | ATTENUATION (dB) |
|---|---|
| 100 | 65 |
| 200 | 65 |
| 300 | 63 |
| 400 | 62 |
| 800 | 60 |
| 1,000 | 60 |

### CONTACTS RESISTANCE

(Test Procedure 23 and 06 of EIA364)

| CONTACT SIZE | WIRE | | | | MAX CURRENT (A) | CONTACT RESISTANCE (MΩ) |
|---|---|---|---|---|---|---|
| | AWG | CROSS SECTION (MM2) | MIN DIAMETER INCH (MM) | MAX DIAMETER INCH (MM) | | |
| 22 | 22 | 0.38 | 0.030 (0.76) | 0.052 (1.32) | 5 | 17 |
| | 24 | 0.21 | | | 3 | 23 |
| | 26 | 0.14 | | | 2 | 38 |
| 20 | 20 | 0.60 | 0.035 (0.89) | 0.060 (1.52) | 7.5 | 11 |
| | 22 | 0.38 | | | 5 | 17 |
| | 24 | 0.21 | | | 3 | 23 |
| 16 | 16 | 1.34 | 0.048 (1.21) | 0.080 (2.03) | 13 | 6 |
| | 18 | 0.91 | | | 10 | 8 |
| | 20 | 0.60 | | | 7.5 | 10 |
| 12 | 12 | 3.18 | 0.091 (4.85) | 0.216 (5.49) | 23 | 3.35 |
| | 14 | 1.91 | | | 17 | 4.24 |

### MECHANICAL & ENVIRONMENTAL

- **Altitude Immersion Test:** 75k Feet / 33 HPa EIA364-03 & EN2491-314
- **Temperature Range:** -65 °C (-85 °F) to +150 °C (+302 °F)
- **Temperature Life (see MIL-DTL-83527B):** 1,000 Hours at 150 °C (+302 °F)
- **Salt Spray (Test Procedure 26 of EIA364):** 500 Hours
- **Humidity (Test Procedure 31 of EIA364):** 10 Days
- **Shock (Test Procedure 27 of EIA364):** 30g/11 ms/Half Sine
- **Vibration:** See MIL-DTL-83527B
- **Mating and Unmating (Test Procedure 9 of EIA364):** 500 Cycles
- **Mating and Unmating Forces:** Shell Size 2 1446 N/325 lbf max
  - Shell Size 3: 1780 N/400 lbf max
  - Shell Size 4: 2113 N/475 lbf max

*Introduction*

## MATERIALS

| DESCRIPTION | MATERIAL | FINISH |
|---|---|---|
| Shell & Backshell | Aluminium Alloy | Cadmium Yellow Chromate Over Electroless Nickel |
| Contacts | Copper Alloy | Gold Over Electroless Nickel |
| Inserts | Thermosetting Resin | - |
| | High Grade Thermoplatic | - |
| | Aluminium | Cadmium Yellow Chromate Over Electroless Nickel |
| Retention Clip | Copper Alloy | - |
| Seals & O-Ring | Fluorinated Silicon Rubber | - |
| Insert Retention Plate | Aluminium Alloy | Blue Anodized |
| Polarization Key | Zinc Alloy | Cadmium Olive Drab |
| Polarization Post | Aluminium Alloy | Cadmium Yellow Chromate |
| Screws | Brass | Cadmium Yellow Chromate |
| Washers | Copper Alloy | Cadmium Yellow Chromate |
| EMI Spring | Copper Alloy & Fluorinated Silicon Rubber | Tin-Lead Alloy Over Electroless Nickel |

## MASSES

### Receptacle Shells

| RECEPTACLE G (OZ) | | |
|---|---|---|
| Shell Size 2 | Shell Size 3 | Shell Size 4 |
| 160 (5.64) | 240 (8.47) | 335 (11.82) |

## PLUG SHELLS

| PLUG G (OZ) | | |
|---|---|---|
| Shell Size 2 | Shell Size 3 | Shell Size 4 |
| 165 (5.82) | 245 (8.64) | 342 (12.06) |

## INSERTS

| DESCRIPTION | INSERT FOR PLUG SHELL G (OZ) | INSERT FOR RECEPTACLE SHELL G (OZ) |
|---|---|---|
| MPXE2*T6 | 44 (1.55) | 26 (0.92) |
| MPXE2*11T2 | 41 (1.45) | 25 (0.88) |
| MPXE2*11C2 | 41 (1.45) | 25 (0.88) |
| MPXE2*20T4 | 37 (1.31) | 22 (0.78) |
| MPXE2*34 | 44 (1.55) | 27 (0.95) |
| MPXE2*62T2 | 34 (1.20) | 22 (0.78) |
| MPXE2*100 | 25 (0.88) | 21 (0.74) |
| MPXE1*24 | 51 (1.80) | 31 (1.10) |
| MPXE1*C12T6 | 55 (1.94) | 33 (1.17) |
| MPXE1*47T2 | 57 (2.01) | 35 (1.24) |
| MPXE1*60 | 63 (2.23) | 39 (1.38) |
| MPXE1*126 | 47 (1.66) | 31 (1.10) |
| MPXE1*150 | 41 (1.45) | 27 (0.95) |

*Introduction*

### CONTACTS

| CONTACT SIZE | PIN G (OZ) | SOCKET G (OZ) |
|---|---|---|
| 22 | 0.12 (0.0043) | 0.15 (0.0053) |
| 20 | 0.22 (0.0078) | 0.37 (0.0130) |
| 16 | 0.73 (0.0258) | 0.75 (0.0265) |
| 12 | 1.50 (0.0530) | 1.45 (0.0512) |
| 8 | 1.10 (0.036) | 3.80 (0.124) |

## SHELL ORDERING INFORMATION

The MPX shells are machined from solid aluminium alloy and have a good conductive and high resistance to corrosion thanks to cadmium yellow chromate plating.

There are 3 shell sizes which can respectively receive 2,4 and 6 inserts.

The plug shell is designed to be fitted with inserts for size 22 pin contacts and inserts for socket contacts for all other contact sizes. The plug shell has a field replaceable EMI spring and a coupling seal on each shell cavity and 3 polarization posts.

The receptacle shell is designed to be fitted with inserts for size 22 socket contacts and inserts for pin contacts for the other contact sizes. The receptacle shell has 3 polarization keys.

Plug and receptacle can be either front or rear mounted.



### HOW TO ORDER SHELLS

MPX

**SERIES PREFIX**

**SHELL SIZE**
**2:** 2 cavities
**3:** 4 cavities
**4:** 6 cavities

**SHELL TYPE**
**R:** Receptacle shell
**A:** Plug shell

**MODIFICATION CODE**
Refer to page 6-19

**POLARIZATION CODE**
**BLANK:** Polarization device delivered unassembled
**00:** Polarizing keys or posts are not delivered
**OTHER:** Please refer to page 6-20

*Introduction*

## INSERT ORDERING INFORMATION

Inserts are made of the thermosetting resin, high grade thermoplastic or of aluminium alloy. They have metallic retention clips to retain the contacts. Each insert has one polarization slot which has its corresponding pin in each shell cavity.

Environmental inserts have:

- A) a silicon rubber ring that ensures sealing between the insert and the shell.
- B) a rear grommet which ensures sealing around each wire crimped on a contact.
- C) an interfacial seal which ensures sealing around each protruding contact once the connector is matted.

Non-environmental inserts do not include options "b" or "c."

All standardized inserts are for rear release, rear removable contacts, please refer to page 5-13 for front release, front removable version.

### HOW TO ORDER INSERTS

MPX

**SERIES PREFIX**

**CLASS** [1]
**E:** Insert with interfacial seal, rear grommet and o-ring
**N:** Insert with o-ring, without interfacial seal and rear grommet
**T:** Insert with o-ring and interfacial seal without rear grommet

**INSERT SIZE**
**1:** Insert for A, C and E shell cavities
**2:** Insert for B, D and F shell cavities

**INSERT TYPE**
**P:** Insert for plug shell
**R:** Insert for receptacle shell

**CONTACT ARRANGEMENT** [2]
Refer to pages 6-12 to 6-18

**TRIAX CONTACT GROUNDING** [3]
Letter omitted-triax and quadrax contacts are grounded
**A**-Triax contacts not grounded

**CONTACT DELIVERY**
Letter omitted-insert is delivered without contacts
**S**-Insert is delivered with crimp signal and power contacts (no coax, triax, twinax or quadrax contacts)



*Notes*

*1. E, N and T classes apply to inserts for rear release rear removable contacts.*
*2. Inserts 100 and 150 for front release front removable contacts are available, see page 6-11 for part numbers.*
*3. When A is omitted triax and quadrax contacts cavities are grounded to the shell.*

*Introduction*

## HOW TO ORDER MPX ASSEMBLY KIT
## How To Order Assemblied Connectors

MPX

**SERIES PREFIX**

**CLASS** [1]
**E:** Insert with interfacial seal, rear grommet and o-ring
**N:** Insert with o-ring, without interfacial seal and rear grommet
**T:** Insert with o-ring and interfacial seal without rear grommet

**SHELL SIZE**
**2:** 2 cavities
**3:** 4 cavities
**4:** 6 cavities

**SHELL TYPE**
**R:** Receptacle shell
**A:** Plug shell

**INSERT COMBINATION CODE**
Refer to page 6-9 to 6-11

**TRIAX CONTACT GROUNDING**
Letter omitted-triax and quadrax contacts are grounded
**A**-Triax contacts not grounded

**CONTACT TYPE** [2]
**X:** Without contacts
**S:** Crimp contacts
Rear release PC-Tail: see page 6-22 to 6-31 and consult us for the PCB foot print.

**MODIFICATION CODE**
Refer to page 6-19

**POLARIZATION CODE**
**BLANK:** Polarization device delivered unassembled
**00:** Polarizing keys or posts are not delivered
**OTHER:** Please refer to page 6-20



*Notes*
*1. E, N and T classes apply to inserts for rear release rear removable contacts.*
*2. Coaxial, triaxial, twinax and quadrax contacts must be ordered separately.*

## INSERT COMBINATION CODE

### DOD-STD-1842 CODES (USA)

| CODE | SHELL SIZE | INSERT COMBINATION ON SHELL | | | | | |
|---|---|---|---|---|---|---|---|
| | | CAVITY A | CAVITY B | CAVITY C | CAVITY D | CAVITY E | CAVITY F |
| 001 | 2 | 47T2 | 100 | - | - | - | - |
| 002 | 2 | 47T2 | 20T4 | - | - | - | - |
| 003 | 2 | 47T2 | 34 | - | - | - | - |
| 004 | 3 | 150 | 34 | 150 | 20T4 | - | - |
| 005 | 3 | 150 | 100 | 47T2 | 100 | - | - |
| 006 | 3 | 60 | 100 | 60 | 100 | - | - |
| 007 | 3 | 150 | 100 | 150 | 100 | - | - |
| 008 | 3 | 60 | 34 | 60 | 34 | - | - |
| 009 | 4 | 150 | 34 | 150 | 20T4 | 150 | 20T4 |
| 010 | 4 | 24 | 34 | 150 | 100 | 150 | 20T4 |
| 011 | 4 | 150 | 34 | 150 | 20T4 | 150 | T6 |
| 012 | 4 | 24 | 34 | 150 | BLANK | 150 | 20T4 |

### STTEA CODES (EUROPE)

| CODE | SHELL SIZE | INSERT COMBINATION ON SHELL | | | | | |
|---|---|---|---|---|---|---|---|
| | | CAVITY A | CAVITY B | CAVITY C | CAVITY D | CAVITY E | CAVITY F |
| 201 | 2 | 150 | 34 | - | / | - | - |
| 202 | 3 | 150 | 20T4 | BLANK | 100 | - | - |
| 203 | 2 | 126 | 100 | - | / | - | - |
| 204 | 2 | 150 | 11C2 | - | / | - | - |
| 205 | 3 | 150 | T6 | 150 | T6 | - | - |
| 206 | 3 | 150 | 34 | 150 | 20T4 | - | - |
| 207 | 2 | 150 | 20T4 | - | / | - | - |
| 208 | 3 | 150 | 20T4 | 150 | BLANK | - | - |
| 209 | 2 | 47T2 | 11C2 | - | / | - | - |
| 210 | 3 | 150 | 11C2 | 24 | 100 | - | - |
| 211 | 2 | 150 | 11T2 | - | / | - | - |
| 212 | 2 | 60 | 11T2 | - | - | - | - |
| 213 | 3 | 24 | 34 | 24 | 20T4 | - | - |
| 214 | 3 | 24 | 34 | BLANK | 20T4 | - | - |
| 215 | 3 | 150 | 100 | C12T6 | 11C2 | - | - |
| 216 | 2 | 150 | 100 | - | - | - | - |
| 217 | 2 | 24 | 11C2 | - | - | - | - |
| 218 | 3 | 24 | 11C2 | 24 | T6 | - | - |
| 219 | 4 | 24 | 11C2 | 47T2 | 34 | 24 | 20T4 |
| 220 | 4 | 150 | 100 | 150 | 100 | 150 | 100 |
| 221 | 4 | 24 | 34 | 150 | 20T4 | 150 | T6 |
| 222 | 3 | 150 | 11T2 | 24 | 100 | - | - |
| 223 | 3 | 150 | 11C2 | 150 | 11C2 | - | - |
| 224 | 2 | 150 | 62T2 | - | - | - | - |
| 225 | 2 | 60 | 20T4 | - | - | - | - |

## STTEA CODES (EUROPE)

| CODE | SHELL SIZE | INSERT COMBINATION ON SHELL | | | | | |
|---|---|---|---|---|---|---|---|
| | | CAVITY A | CAVITY B | CAVITY C | CAVITY D | CAVITY E | CAVITY F |
| 226 | 3 | 150 | 34 | 150 | 100 | - | - |
| 227 | 3 | 150 | 20T4 | 24 | BLANK | - | - |
| 228 | 3 | 150 | 100 | 150 | 20T4 | - | - |
| 229 | 3 | 150 | 20T4 | 24 | 11C2 | - | - |
| 230 | 2 | 47T2 | BLANK | - | - | - | - |
| 231 | 2 | 24 | BLANK | - | - | - | - |
| 232 | 2 | 24 | 34 | - | - | - | - |
| 233 | 3 | 150 | 34 | 150 | 34 | - | - |
| 234 | 3 | 24 | 11C2 | 150 | 100 | - | - |
| 235 | 3 | 150 | BLANK | 150 | 20T4 | - | - |
| 236 | 4 | 24 | 34 | 24 | BLANK | 150 | 20T4 |
| 237 | 2 | 24 | 100 | - | - | - | - |
| 238 | 3 | BLANK | 11C2 | BLANK | 20T4 | - | - |
| 239 | 3 | 24 | 34 | 24 | 34 | - | - |
| 240 | 3 | 47T2 | 34 | 24 | 34 | - | - |
| 241 | 4 | 24 | 34 | 24 | 34 | 24 | 34 |
| 242 | 3 | BLANK | 11C2 | BLANK | 34 | - | - |
| 243 | 3 | 60 | 34 | 24 | 34 | - | - |
| 244 | 4 | 60 | 34 | 60 | 34 | 24 | 34 |
| 245 | 3 | 150 | 11C2 | 24 | 11C2 | - | - |
| 246 | 4 | 24 | 34 | 60 | 100 | 150 | 20T4 |
| 247 | 4 | 24 | 34 | 24 | 100 | 150 | 20T4 |
| 248 | 4 | 60 | T6 | 60 | T6 | 24 | T6 |
| 249 | 4 | 60 | T6 | BLANK | T6 | 150 | T6 |
| 250 | 3 | 24 | BLANK | 150 | 20T4 | - | - |
| 251 | 3 | 126 | 34 | 126 | 20T4 | - | - |
| 252 | 3 | 150 | 34 | BLANK | 11C2 | - | - |
| 253 | 3 | 24 | 100 | 150 | 20T4 | - | - |
| 254 | 3 | 150 | 62T2 | 150 | 62T2 | - | - |
| 255 | 3 | 150 | 11C2 | BLANK | 34 | - | - |
| 256 | 2 | 60 | 11C2 | - | - | - | - |
| 257 | 3 | 150 | 100 | C12T6 | 34 | - | - |
| 258 | 3 | 150 | 11C2 | 150 | 34 | - | - |
| 259 | 4 | 150 | 20T4 | 24 | T6 | 150 | 11T2 |
| 260 | 3 | 150 | T6 | 150 | 34 | - | - |
| 261 | 3 | 150 | 11C2 | 126 | 34 | - | - |
| 262 | 3 | 150 | 100 | 150 | 62T2 | - | - |
| 263 | 2 | 60 | 34 | - | - | - | - |
| 264 | 3 | 150 | T6 | 150 | 100 | - | - |
| 265 | 3 | C12T6 | 11C2 | 150 | 100 | - | - |

*Introduction*

## STTEA CODES (EUROPE)

| CODE | SHELL SIZE | INSERT COMBINATION ON SHELL | | | | | |
|---|---|---|---|---|---|---|---|
| | | CAVITY A | CAVITY B | CAVITY C | CAVITY D | CAVITY E | CAVITY F |
| 266 | 2 | 47T2 | 11T2 | - | - | - | - |
| 267 | 4 | 150 | 34 | 150 | 100 | 150 | 34 |
| 269 | 2 | 126 | 11T2 | - | - | - | - |
| 270 | 3 | 150 | 11T2 | 150 | 20T4 | - | - |
| 271 | 3 | 150 | 11T2 | 150 | 11T2 | - | - |
| 272 | 4 | 150 | 34 | 150 | 100 | 150 | 20T4 |
| 273 | 4 | 126 | 100 | 150 | 100 | 126 | 100 |
| 274 | 3 | C12T6 | 11C2 | BLANK | 100 | - | - |
| 275 | 3 | 150 | T6 | 150 | BLANK | - | - |
| 276 | 2 | 150 | T6 | / | / | - | - |
| 277 | 3 | C12T6 | 34 | 60 | 34 | - | - |
| 278 | 3 | 150 | 20T4 | 150 | 20T4 | - | - |
| 279 | 3 | 60 | 20T4 | 60 | 20T4 | - | - |
| 280 | 4 | 150 | 100 | 150 | 100 | 150 | 62T2 |
| 281 | 3 | 150 | 11C2 | 150 | 100 | - | - |
| 282 | 3 | 150 | 11T2 | 150 | 100 | - | - |
| 283 | 3 | BLANK | 20T4 | 150 | 20T4 | - | - |
| 284 | 3 | 150 | 20T4 | 150 | 100 | - | - |
| 285 | 3 | 150 | 20T4 | 150 | 11C2 | - | - |
| 286 | 3 | 126 | T6 | 150 | 20T4 | - | - |
| 287 | 3 | 150 | 11C2 | 150 | 20T4 | - | - |

## INSERTS LAYOUTS FRONT RELEASE FRONT REMOVABLE

## CONTACT ARRANGEMENTS FOR FRONT RELEASE FRONT REMOVABLE CONTACTS

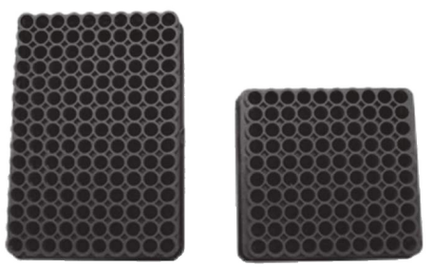
These inserts are available for receptacle shell only and are designed to be fitted with front release front removable size 22 pc tail contacts and thus do not have rear grommets. Socket insert mating side shown. These inserts are not normalized.

### 618500061

| NUMBER OF CONTACTS | CONTACT SIZE | LOCATION |
|---|---|---|
| 150 | 22 | 1 to 150 |

### 618500081

| NUMBER OF CONTACTS | CONTACT SIZE | LOCATION |
|---|---|---|
| 100 | 22 | 1 to 100 |



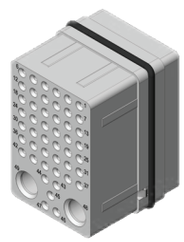
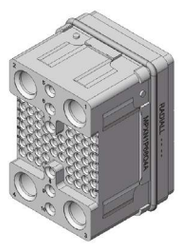
## INSERT LAYOUT FOR CAVITIES A, C OR E

The symbol A represents that the insert is available in a non-grounded version (see page 6-7 for triax contact grounding)

| INSERT NAME | EQUIPMENT SIDE RECEPTACLE SHELL | | | AVIONIC SIDE PLUG SHELL | |
|---|---|---|---|---|---|
| | VERSION N | VERSION E | VERSION T | VERSION N | VERSION E |
| 24 (A) |  |  |  |  |  |
| | 24 × #12 RR/RR | 24 × #12 RR/RR | 24 × #12 RR/RR | 24 × #12 RR/RR | 24 × #12 RR/RR |
| 35 (A) |  |  |  |  |  |
| | 35 × #16 RR/RR | 35 × #16 RR/RR | 35 × #16 RR/RR | 35 × #16 RR/RR | 35 × #16 RR/RR |
| 60 (A) |  |  |  |  |  |
| | 60 × #20 RR/RR | 60 × #20 RR/RR | 60 × #20 RR/RR | 60 × #20 RR/RR | 60 × #20 RR/RR |
| 126 (A) |  |  |  |  |  |
| | 120 × #22 RR/RR<br>6 × #16 RR/RR | 120 × #22 RR/RR<br>6 × #16 RR/RR | 120 × #22 RR/RR<br>6 × #16 RR/RR | 120 × #22 RR/RR<br>6 × #16 RR/RR | 120 × #22 RR/RR<br>6 × #16 RR/RR |

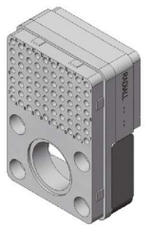
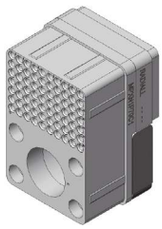
*Introduction*

The symbol A represents that the insert is available in a non-grounded version (see page 6-7 for triax contact grounding)

| INSERT NAME | EQUIPMENT SIDE RECEPTACLE SHELL | | | AVIONIC SIDE PLUG SHELL | |
|---|---|---|---|---|---|
| | VERSION N | VERSION E | VERSION T | VERSION N | VERSION E |
| 150 (A) |  |  |  |  |  |
| | 150 × #22 RR/RR | 150 × #22 RR/RR | 150 × #22 RR/RR | 150 × #22 RR/RR | 150 × #22 RR/RR |
| 47T2 (A) |  |  |  |  |  |
| | 47 × #20 RR/RR<br>2 × #8 RR/RR | 47 × #20 RR/RR<br>2 × #8 RR/RR | 47 × #20 RR/RR<br>2 × #8 RR/RR | 47 × #20 RR/RR<br>2 × #8 RR/RR | 47 × #20 RR/RR<br>2 × #8 RR/RR |
| 68Q4 (A) |  |  |  |  |  |
| | 62 × #22 RR/RR<br>6 × #16 RR/RR<br>4 × #8 RR/RR | 62 × #22 RR/RR<br>6 × #16 RR/RR<br>4 × #8 RR/RR | 62 × #22 RR/RR<br>6 × #16 RR/RR<br>4 × #8 RR/RR | 62 × #22 RR/RR<br>6 × #16 RR/RR<br>4 × #8 RR/RR | 62 × #22 RR/RR<br>6 × #16 RR/RR<br>4 × #8 RR/RR |

*Introduction*

The symbol A represents that the insert is available in a non-grounded version (see page 6-7 for triax contact grounding)

| INSERT NAME | EQUIPMENT SIDE RECEPTACLE SHELL | | | AVIONIC SIDE PLUG SHELL | |
|---|---|---|---|---|---|
| | VERSION N | VERSION E | VERSION T | VERSION N | VERSION E |
| 70C1 (A) |  | Not Available | Not Available |  | Not Available |
| | 70 × #22 RR/RR<br>1 × #1 FR/RR | | | 70 × #22 RR/RR<br>1 × #1 FR/RR | |
| C12T6 (Metallic Insert) |  |  |  |  |  |
| | 12 × #12 RR/RR<br>6 × #8 RR/RR | 12 × #12 RR/RR<br>6 × #8 RR/RR | 12 × #12 RR/RR<br>6 × #8 RR/RR | 12 × #12 RR/RR<br>6 × #8 RR/RR | 12 × #12 RR/RR<br>6 × #8 RR/RR |

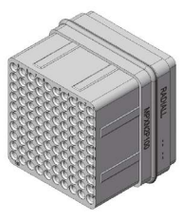
*Introduction*

The symbol A represents that the insert is available in a non-grounded version (see page 6-7 for triax contact grounding)

| INSERT NAME | EQUIPMENT SIDE RECEPTACLE SHELL | | | AVIONIC SIDE PLUG SHELL | |
|---|---|---|---|---|---|
| | VERSION N | VERSION E | VERSION T | VERSION N | VERSION E |
| Q11 (Metallic Insert) |  |  |  |  |  |
| | 11 × #8 RR/RR | 11 × #8 RR/RR | 11 × #8 RR/RR | 11 × #8 RR/RR | 11 × #8 RR/RR |
| T10 (Metallic Insert) |  |  |  |  |  |
| | 10 × #8 RR/RR | 10 × #8 RR/RR | 10 × #8 RR/RR | 10 × #8 RR/RR | 10 × #8 RR/RR |

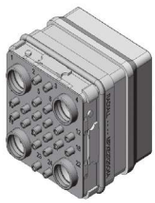
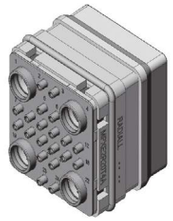
## INSERT LAYOUT FOR CAVITIES B, D OR F

The symbol A represents that the insert is available in a non-grounded version (see page 6-7 for triax contact grounding)

| INSERT NAME | EQUIPMENT SIDE RECEPTACLE SHELL | | | AVIONIC SIDE PLUG SHELL | |
|---|---|---|---|---|---|
| | VERSION N | VERSION E | VERSION T | VERSION N | VERSION E |
| 25 (A) |  |  |  |  |  |
| | 25 × #16 RR/RR | 25 × #16 RR/RR | 25 × #16 RR/RR | 25 × #16 RR/RR | 25 × #16 RR/RR |
| 34 (A) |  |  |  |  |  |
| | 24 × #20 RR/RR<br>10 × #16 RR/RR | 24 × #20 RR/RR<br>10 × #16 RR/RR | 24 × #20 RR/RR<br>10 × #16 RR/RR | 24 × #20 RR/RR<br>10 × #16 RR/RR | 24 × #20 RR/RR<br>10 × #16 RR/RR |
| 100 (A) |  |  |  |  |  |
| | 100 × #22 RR/RR | 100 × #22 RR/RR | 100 × #22 RR/RR | 100 × #22 RR/RR | 100 × #22 RR/RR |
| 11C2 (A) |  |  |  |  |  |
| | 4 × #20 RR/RR<br>3 × #16 RR/RR<br>4 × #12 RR/RR<br>2 × #5 RR/RR | 4 × #20 RR/RR<br>3 × #16 RR/RR<br>4 × #12 RR/RR<br>2 × #5 RR/RR | 4 × #20 RR/RR<br>3 × #16 RR/RR<br>4 × #12 RR/RR<br>2 × #5 RR/RR | 4 × #20 RR/RR<br>3 × #16 RR/RR<br>4 × #12 RR/RR<br>2 × #5 RR/RR | 4 × #20 RR/RR<br>3 × #16 RR/RR<br>4 × #12 RR/RR<br>2 × #5 RR/RR |

*Introduction*

The symbol A represents that the insert is available in a non-grounded version (see page 6-7 for triax contact grounding)

| INSERT NAME | EQUIPMENT SIDE RECEPTACLE SHELL | | | AVIONIC SIDE PLUG SHELL | |
|---|---|---|---|---|---|
| | VERSION N | VERSION E | VERSION T | VERSION N | VERSION E |
| 11T2 (A) |  |  |  |  |  |
| | 4 × #20 RR/RR<br>3 × #16 RR/RR<br>2 × #8 RR/RR<br>4 × #12 RR/RR | 4 × #20 RR/RR<br>3 × #16 RR/RR<br>2 × #8 RR/RR<br>4 × #12 RR/RR | 4 × #20 RR/RR<br>3 × #16 RR/RR<br>2 × #8 RR/RR<br>4 × #12 RR/RR | 4 × #20 RR/RR<br>3 × #16 RR/RR<br>2 × #8 RR/RR<br>4 × #12 RR/RR | 4 × #20 RR/RR<br>3 × #16 RR/RR<br>2 × #8 RR/RR<br>4 × #12 RR/RR |
| 20Q4 (A) |  |  |  |  |  |
| | 20 × #20 RR/RR 4 × #8 Quadrax RR/RR | 20 × #20 RR/RR 4 × #8 Quadrax RR/RR | 20 × #20 RR/RR 4 × #8 Quadrax RR/RR | 20 × #20 RR/RR 4 × #8 Quadrax RR/RR | 20 × #20 RR/RR 4 × #8 Quadrax RR/RR |
| 20T4 (A) |  |  |  |  |  |
| | 20 × #20 RR/RR<br>4 × #8 RR/RR | 20 × #20 RR/RR<br>4 × #8 RR/RR | 20 × #20 RR/RR<br>4 × #8 RR/RR | 20 × #20 RR/RR<br>4 × #8 RR/RR | 20 × #20 RR/RR<br>4 × #8 RR/RR |

*Introduction*

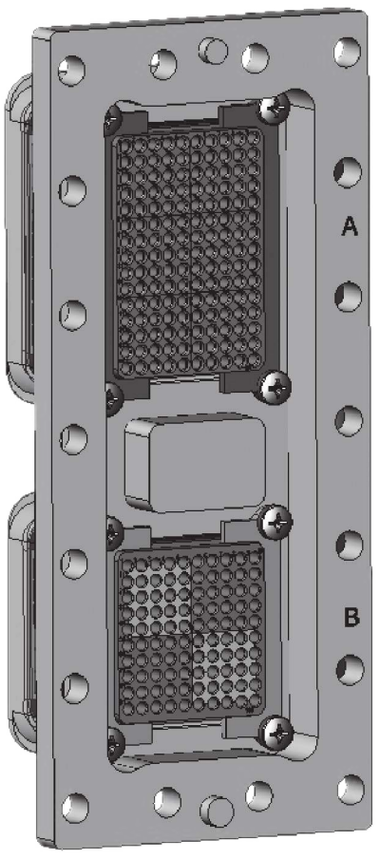
The symbol A represents that the insert is available in a non-grounded version (see page 6-7 for triax contact grounding)

| INSERT NAME | EQUIPMENT SIDE RECEPTACLE SHELL | | | AVIONIC SIDE PLUG SHELL | |
|---|---|---|---|---|---|
| | VERSION N | VERSION E | VERSION T | VERSION N | VERSION E |
| 62T2 (A) |  |  |  |  |  |
| | 60 × #22 RR/RR<br>2 × #16 RR/RR<br>2 × #8 RR/RR | 60 × #22 RR/RR<br>2 × #16 RR/RR<br>2 × #8 RR/RR | 60 × #22 RR/RR<br>2 × #16 RR/RR<br>2 × #8 RR/RR | 60 × #22 RR/RR<br>2 × #16 RR/RR<br>2 × #8 RR/RR | 60 × #22 RR/RR<br>2 × #16 RR/RR<br>2 × #8 RR/RR |
| Q6 (Metallic Insert) |  |  |  |  |  |
| | 6 × #8 RR/RR | 6 × #8 RR/RR | 6 × #8 RR/RR | 6 × #8 RR/RR | 6 × #8 RR/RR |
| T6 (Metallic Insert) |  |  |  |  |  |
| | 6 × #8 RR/RR | 6 × #8 RR/RR | 6 × #8 RR/RR | 6 × #8 RR/RR | 6 × #8 RR/RR |

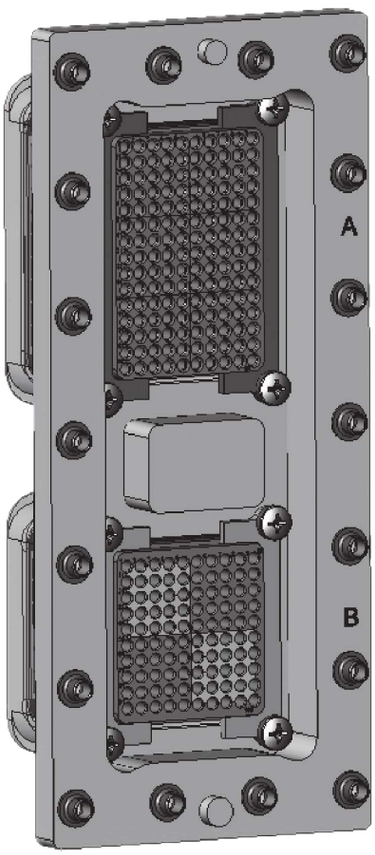
*Introduction*

## MODIFICATION CODE

| CODE | RECEPTACLE SHELL | PLUG SHELL |
|---|---|---|
| 00 | Sizes 2,3 and 4 :<br>All Holes Ø .150 inch (3.80 mm) | Sizes 2,3 and 4 :<br>All Holes Ø .150 inch (3.80 mm) |
| 10 | Sizes 2,3 and 4:<br>All Holes Fitted with M3 × 0.02 inch<br>(0.50 mm) clinch-nuts | Sizes 2,3 and 4:<br>All Holes Fitted with M3 × 0.02 inch<br>(0.50 mm) clinch-nuts |




CODE 00




CODE 10

*Introduction*

## POLARIZATION CODE

### POSITION OF POLARIZATION KEYS & POSTS

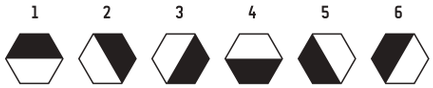
Connectors are shown front side and with cavity A upwards.

### POSITION CODINGS





*Dark area represents the polarizing post*




*Clear portion represents the key hole*

| CODE NUMBER | RECEPTACLE SHELL | | | PLUG SHELL | | |
|---|---|---|---|---|---|---|
| | LEFT KEY | CENTER KEY | RIGHT KEY | LEFT POST | CENTER POST | RIGHT POST |
| 00 | - | - | - | - | - | - |
| 01 | 4 | 4 | 4 | 1 | 1 | 1 |
| 02 | 4 | 4 | 3 | 2 | 1 | 1 |
| 03 | 4 | 4 | 2 | 3 | 1 | 1 |
| 04 | 4 | 4 | 1 | 4 | 1 | 1 |
| 05 | 4 | 4 | 6 | 5 | 1 | 1 |
| 06 | 4 | 4 | 5 | 6 | 1 | 1 |
| 07 | 5 | 4 | 4 | 1 | 1 | 6 |
| 08 | 5 | 4 | 3 | 2 | 1 | 6 |
| 09 | 5 | 4 | 2 | 3 | 1 | 6 |
| 10 | 5 | 4 | 1 | 4 | 1 | 6 |
| 11 | 5 | 4 | 6 | 5 | 1 | 6 |
| 12 | 5 | 4 | 5 | 6 | 1 | 6 |
| 13 | 6 | 4 | 4 | 1 | 1 | 5 |
| 14 | 6 | 4 | 3 | 2 | 1 | 5 |
| 15 | 6 | 4 | 2 | 3 | 1 | 5 |
| 16 | 6 | 4 | 1 | 4 | 1 | 5 |
| 17 | 6 | 4 | 6 | 5 | 1 | 5 |
| 18 | 6 | 4 | 5 | 6 | 1 | 5 |
| 19 | 1 | 4 | 4 | 1 | 1 | 4 |
| 20 | 1 | 4 | 2 | 2 | 1 | 4 |
| 21 | 1 | 4 | 2 | 3 | 1 | 4 |
| 22 | 1 | 4 | 1 | 4 | 1 | 4 |
| 23 | 1 | 4 | 6 | 5 | 1 | 4 |
| 24 | 1 | 4 | 5 | 6 | 1 | 4 |
| 25 | 2 | 4 | 4 | 1 | 1 | 3 |
| 26 | 2 | 4 | 3 | 2 | 1 | 3 |
| 27 | 2 | 4 | 2 | 3 | 1 | 3 |
| 28 | 2 | 4 | 1 | 4 | 1 | 3 |
| 29 | 2 | 4 | 6 | 5 | 1 | 3 |

| CODE NUMBER | RECEPTACLE SHELL | | | PLUG SHELL | | |
|---|---|---|---|---|---|---|
| | LEFT KEY | CENTER KEY | RIGHT KEY | LEFT POST | CENTER POST | RIGHT POST |
| 30 | 2 | 4 | 5 | 6 | 1 | 3 |
| 31 | 3 | 4 | 4 | 1 | 1 | 2 |
| 32 | 3 | 4 | 3 | 2 | 1 | 2 |
| 33 | 3 | 4 | 2 | 3 | 1 | 2 |
| 34 | 3 | 4 | 1 | 4 | 1 | 2 |
| 35 | 3 | 4 | 6 | 5 | 1 | 2 |
| 36 | 3 | 4 | 5 | 6 | 1 | 2 |
| 37 | 4 | 3 | 4 | 1 | 2 | 1 |
| 38 | 4 | 3 | 3 | 2 | 2 | 1 |
| 39 | 4 | 3 | 2 | 3 | 2 | 1 |
| 40 | 4 | 3 | 1 | 4 | 2 | 1 |
| 41 | 4 | 3 | 6 | 5 | 2 | 1 |
| 42 | 4 | 3 | 5 | 6 | 2 | 1 |
| 43 | 5 | 3 | 4 | 1 | 2 | 6 |
| 44 | 5 | 3 | 3 | 2 | 2 | 6 |
| 45 | 5 | 3 | 2 | 3 | 2 | 6 |
| 46 | 5 | 3 | 1 | 4 | 2 | 6 |
| 47 | 5 | 3 | 6 | 5 | 2 | 6 |
| 48 | 5 | 3 | 5 | 6 | 2 | 6 |
| 49 | 6 | 3 | 4 | 1 | 2 | 5 |
| 50 | 6 | 3 | 3 | 2 | 2 | 5 |
| 51 | 6 | 3 | 2 | 3 | 2 | 5 |
| 52 | 6 | 3 | 1 | 4 | 2 | 5 |
| 53 | 6 | 3 | 6 | 5 | 2 | 5 |
| 54 | 6 | 3 | 5 | 6 | 2 | 5 |
| 55 | 1 | 3 | 4 | 1 | 2 | 4 |
| 56 | 1 | 3 | 3 | 2 | 2 | 4 |
| 57 | 1 | 3 | 2 | 3 | 2 | 4 |
| 58 | 1 | 3 | 1 | 4 | 2 | 4 |
| 59 | 1 | 3 | 6 | 5 | 2 | 4 |

*Introduction*

## POSITION CODINGS

| CODE NUMBER | RECEPTACLE SHELL | | | PLUG SHELL | | |
|---|---|---|---|---|---|---|
| | LEFT KEY | CENTER KEY | RIGHT KEY | LEFT POST | CENTER POST | RIGHT POST |
| 60 | 1 | 3 | 5 | 6 | 2 | 4 |
| 61 | 2 | 3 | 4 | 1 | 2 | 3 |
| 62 | 2 | 3 | 3 | 2 | 2 | 3 |
| 63 | 2 | 3 | 2 | 3 | 2 | 3 |
| 64 | 2 | 3 | 1 | 4 | 2 | 3 |
| 65 | 2 | 3 | 6 | 5 | 2 | 3 |
| 66 | 2 | 3 | 5 | 6 | 2 | 3 |
| 67 | 3 | 3 | 4 | 1 | 2 | 2 |
| 68 | 3 | 3 | 3 | 2 | 2 | 2 |
| 69 | 3 | 3 | 2 | 3 | 2 | 2 |
| 70 | 3 | 3 | 1 | 4 | 2 | 2 |
| 71 | 3 | 3 | 6 | 5 | 2 | 2 |
| 72 | 3 | 3 | 5 | 6 | 2 | 2 |
| 73 | 4 | 2 | 4 | 1 | 3 | 1 |
| 74 | 4 | 2 | 3 | 2 | 3 | 1 |
| 75 | 4 | 2 | 2 | 3 | 3 | 1 |
| 76 | 4 | 2 | 1 | 4 | 3 | 1 |
| 77 | 4 | 2 | 6 | 5 | 3 | 1 |
| 78 | 4 | 2 | 5 | 6 | 3 | 1 |
| 79 | 5 | 2 | 4 | 1 | 3 | 6 |
| 80 | 5 | 2 | 3 | 2 | 3 | 6 |
| 81 | 5 | 2 | 2 | 3 | 3 | 6 |
| 82 | 5 | 2 | 1 | 4 | 3 | 6 |
| 83 | 5 | 2 | 6 | 5 | 3 | 6 |
| 84 | 5 | 2 | 5 | 6 | 3 | 6 |
| 85 | 6 | 2 | 4 | 1 | 3 | 5 |
| 86 | 6 | 2 | 3 | 2 | 3 | 5 |
| 87 | 6 | 2 | 2 | 3 | 3 | 5 |
| 88 | 6 | 2 | 1 | 4 | 3 | 5 |
| 89 | 6 | 2 | 6 | 5 | 3 | 5 |

| CODE NUMBER | RECEPTACLE SHELL | | | PLUG SHELL | | |
|---|---|---|---|---|---|---|
| | LEFT KEY | CENTER KEY | RIGHT KEY | LEFT POST | CENTER POST | RIGHT POST |
| 94 | 1 | 2 | 1 | 4 | 3 | 4 |
| 95 | 1 | 2 | 6 | 5 | 3 | 4 |
| 96 | 1 | 2 | 5 | 6 | 3 | 4 |
| 97 | 2 | 2 | 4 | 1 | 3 | 3 |
| 98 | 2 | 2 | 3 | 2 | 3 | 3 |
| 99 | 2 | 2 | 2 | 3 | 3 | 3 |

*Introduction*

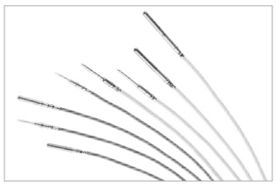
## CONTACTS

The MPX series contacts are offered in crimp and pc tail termination. Pin contacts are installed in the receptacle shell and socket contacts in the plug shell except size 22 contacts for which pin contacts are installed in the plug shell and socket contacts in the receptacle shell.

Size 22 contacts in pc tail termination are offered in both rear release rear removable and front release front removable style. All the other sizes of contacts are offered in the rear release rear removable style only. The contacts are installed and removed using normalized MILI81969 tooling. They also have low insertion and extraction force.

Following is the contacts range available in types and sizes.

- Size 22 signal contacts
- Sizes 20, 16 and 12 power contacts
- Sizes 12, 16, 5 and 8 coaxial contacts
- Size 8 twinax contacts for shielded twisted pairs
- Size 8 quadrax contacts



### SIGNAL & POWER CRIMP CONTACTS

**Release Rear Removable**

| CONTACT SIZE [2] | WIRE | | | | PIN P/N | SOCKET P/N | CRIMPING TOOL RADIALL P/N (MIL P/N) | POSITIONER P/N | SELECTOR P/N | INS/EXT TOOL P/N |
|---|---|---|---|---|---|---|---|---|---|---|
| | AWG | CROSS SECTION ($MM^2$) | WIRE OUTSIDE DIA. INCH (MM) | STRIPPING LENGTH INCH (MM) | | | | | | |
| - | 26 | 0.14 | 0.030 (0.76) to 0.052 (1.32) | 0.137 (3.5) | 618200 | 618300 | 282281 (M22520/ 2-01) | 282970 (M22520/ 2-23) | 3 | 282885 (M81969/ 1-01) |
| | 24 | 0.21 | | | | | | | 3 | |
| | 22 | 0.38 | | | | | | | 4 | |
| 20 Reduced Crimp Barrel | 26 | 0.14 | 0.030 (0.76) to 0.052 (1.32) | 0.157 (4.0) | - | 618311 | | 282971 (M22520/ 2-08) | 3 | 282549029 (M81969/ 14-10) |
| | 24 | 0.21 | | | | | | | 3 | |
| | 22 | 0.38 | | | | | | | 4 | |
| 20 | 24 | 0.21 | 0.035 (0.89) to 0.060 (1.52) | | 618210 | 618310 | | | 5 | |
| | 22 | 0.38 | | | | | | | 6 | |
| | 20 | 0.60 | | | | | | | 7 | |
| 16 | 20 | 0.60 | 0.048 (1.21) to 0.080 (2.03) | 0.236 (6.0) | 618230 | 618330 | 282291 (M22520/ 1-01) | 282972 (M22520/ 1-02) | 4 | 282515 (M81969/ 14-03) |
| | 18 | 0.93 | | | | | | | 5 | |
| | 16 | 1.34 | | | | | | | 6 | |
| 12 | 14 | 3.18 | 0.091 (2.31) to 0.114 (2.90) | | 618240 | 618340 | | 282579 (M22520/ 1-11) | 7 | 282549004 (M81969/ 14-04) |
| | 12 | 1.91 | | | | | | | 8 | |
| 12 Reduced Crimp Barrel | 20 | 0.60 | 0.048 (1.21) to 080 (2.03) | | - | 618341 | | | 4 | |
| | 18 | 0.93 | | | | | | | 5 | |
| | 16 | 1.34 | | | | | | | 6 | |
| 12 Enlarged Crimp Barrel | 10 | 5.0 | 0.234 (5.70) | 0.354 (9.0) | - | 618342 | 282296 (DANIELS M300 BT) [1] | | 1 | |
| 8 Non-Environmental | 10 | 5.0 | 0.234 (5.70) | 0.354 (9.0) | 618270 | 618370 | | 282586 | 6 | 282549001 (M81969/ 28-03) |
| 8 Environmental | | | | | 618270001 | 618370001 | | | | |

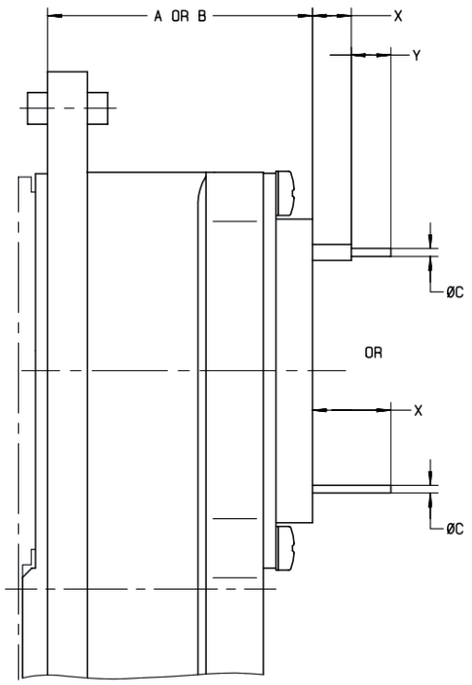
***Notes***

*1. DANIELS WA27-309-EP air pressure tool with crimp setting 5 can also be used*
*Crimp setting 5 is not adjustable and must be set by the factory*
*2. Contacts size 22, 20, 16 and 12 are M39029/94 & M39029/93 or EN3155/026 & EN3155/027 design*

*Introduction*

## SIGNAL & POWER PC TAIL CONTACTS
### Front Release Front Removable

For details on A & B dimensions, refer to page 6-34.




### GOLD PC TAIL CONTACTS

| CONTACT SIZE | CONTACT ARRANGEMENT | PIN | SOCKET | EXT. TOOL | X INCH (MM) | Y INCH (MM) | C INCH (MM) |
|---|---|---|---|---|---|---|---|
| 22 | 618500061 and 618500081 | - | 618304001 | 282500 | 0.163/0.191 (4.15/4.85) | 0.173/0.181 (4.40/4.60) | 0.024/0.027 (0.60/0.70) |
| | | - | 618304002 | | 0.085/0.112 (2.15/2.85) | 0.232/0.240 (5.90/6.10) | |
| | | - | 618360 | | 0.150/0.180 (3.80/4.60) | N/A | |
| | | - | 618361 | | 0.252/0.283 (6.40/7.20) | N/A | |
| | | - | 618362 | | 0.374/0.405 (9.50/10.3) | N/A | |

### PRE-TINNED PC TAIL CONTACTS

| CONTACT SIZE | CONTACT ARRANGEMENT | PIN | SOCKET | EXT. TOOL | X INCH (MM) | Y INCH (MM) | C INCH (MM) |
|---|---|---|---|---|---|---|---|
| 22 | 618500061 and 618500081 | - | 618304003 | 282500 | 0.163/0.191 (4.15/4.85) | 0.173/0.201 (4.40/5.10) | 0.031 (0.80) max |
| | | - | 618304004 | | 0.085/0.112 (2.15/2.85) | 0.232/0.260 (5.90/6.60) | |
| | | - | 618360001 | | 0.150/0.201 (3.80/5.10) | N/A | |
| | | - | 618361001 | | 0.252/0.303 (6.40/7.70) | N/A | |
| | | - | 618362001 | | 0.374/0.425 (9.50/10.80) | N/A | |

*Introduction*

## SIGNAL & POWER PC TAIL CONTACTS
## Rear Release Rear Removable

### GOLD PC TAIL CONTACTS

| CONTACT SIZE | CONTACT ARRANGEMENT | PIN | SOCKET | EXT. TOOL | X INCH (MM) | Y INCH (MM) | C INCH (MM) |
|---|---|---|---|---|---|---|---|
| 22 | 150<br>126<br>70C12<br>100<br>62T2 | - | 618302 | 282885 (M81969/1-01)<br>or<br>282522 (M81969/14-01) | 0.059/0.087 (1.50/2.20) | 0.145/0.154 (3.70/3.90) | 0.024/0.027 (0.60/0.70) |
| | | - | 618303001 | | 0.209/0.248 (5.30/6.30) | N/A | |
| | | - | 618303002 | | 0.391/0.431 (9.95/10.95) | N/A | |
| | | - | 618303003 | | 0.138/0.177 (3.50/4.50) | N/A | |
| | | - | 618303004 | | 0.150/0.169 (3.80/4.30) | 0.145/0.154 (3.70/3.90) | |
| | | - | 618303005 | | 0.303/0.343 (7.70/8.70) | N/A | |

### PRE-TINNED PC TAIL CONTACTS

| CONTACT SIZE | CONTACT ARRANGEMENT | PIN | SOCKET | EXT. TOOL | X INCH (MM) | Y INCH (MM) | C INCH (MM) |
|---|---|---|---|---|---|---|---|
| 22 | 150<br>126<br>70C12<br>100<br>62T2 | - | 618302001 | 282885 (M81969/1-01)<br>or<br>282522 (M81969/14-01) | 0.059/0.107 (1.50/2.70) | 0.145/0.174 (3.70/4.40) | 0.031 (0.80) max |
| | | - | 618303007 | | 0.209/0.268 (5.30/6.80) | N/A | |
| | | - | 618303008 | | 0.391/0.451 (9.95/14.45) | N/A | |
| | | - | 618303009 | | 0.138/0.197 (3.50/5.00) | N/A | |
| | | - | 618303010 | | 0.150/0.189 (3.80/4.80) | 0.145/0.174 (3.70/4.40) | |
| | | - | 618303011 | | 0.303/0.363 (7.70/9.20) | N/A | |



### GOLD PC TAIL CONTACTS

| CONTACT SIZE | CONTACT ARRANGEMENT | PIN | SOCKET | EXT. TOOL | X INCH (MM) | Y INCH (MM) | C INCH (MM) |
|---|---|---|---|---|---|---|---|
| 20 | 11T2<br>11C2<br>34, 60<br>47T2<br>20T4 | 618213001 | - | 282886 (M81969/1-02) or 282549029 (M81969/14-02) | 0.281/0.321 (7.15/8.15) | N/A | 0.037/0.040 (0.95/1.01) |
| | | 618213002 | - | | 0.137/0.177 (3.50/4.50) | N/A | |
| | | 618213005 | - | | 0.517/0.557 (13.15/14.15) | N/A | 0.032/0.034 (0.81/0.86) |
| | | - | 618316001 | | 0.391/0.431 (9.95/10.95) | N/A | 0.024/0.027 (0.60/0.70) |

### PRE-TINNED PC TAIL CONTACTS

| CONTACT SIZE | CONTACT ARRANGEMENT | PIN | SOCKET | EXT. TOOL | X INCH (MM) | Y INCH (MM) | C INCH (MM) |
|---|---|---|---|---|---|---|---|
| 20 | 11T2<br>11C2<br>34, 60<br>47T2<br>20T4 | 618213006 | - | 282886 (M81969/1-02) or 282549029 (M81969/14-02) | 0.281/0.341 (7.15/8.65) | N/A | 0.045 (1.15) max |
| | | 618213007 | - | | 0.137/0.197 (3.50/5.00) | N/A | |
| | | 618213008 | - | | 0.517/0.577 (13.15/14.65) | N/A | 0.037 (0.95) max |

*Introduction*

## SIGNAL & POWER PC TAIL CONTACTS
## Rear Release Rear Removable

### GOLD PC TAIL CONTACTS

| CONTACT SIZE | CONTACT ARRANGEMENT | PIN | SOCKET | EXT. TOOL | X INCH (MM) | Y INCH (MM) | C INCH (MM) |
|---|---|---|---|---|---|---|---|
| 16 | 62T2<br>11C2<br>11T2<br>25, 34<br>35, 126 | 618233001 | - | 282546<br>(M81969/1-03)<br>or<br>282515<br>(M81969/14-03) | 0.281/0.321<br>(7.15/8.15) | N/A | 0.057/0.061<br>(1.45/1.55) |
| | | 618233002 | - | | 0.370/0.409<br>(9.40/10.40) | N/A | |
| | | 618233003 | - | | 0.137/0.177<br>(3.50/4.50) | N/A | |



### PRE-TINNED PC TAIL CONTACTS

| CONTACT SIZE | CONTACT ARRANGEMENT | PIN | SOCKET | EXT. TOOL | X INCH (MM) | Y INCH (MM) | C INCH (MM) |
|---|---|---|---|---|---|---|---|
| 16 | 62T2<br>11C2<br>11T2<br>25, 34<br>35, 126 | 618233001 | - | 282546<br>(M81969/1-03)<br>or<br>282515<br>(M81969/14-03) | 0.281/0.321<br>(7.15/8.15) | N/A | 0.057/0.061<br>(1.45/1.55) |
| | | 618233002 | - | | 0.370/0.409<br>(9.40/10.40) | N/A | |
| | | 618233003 | - | | 0.137/0.177<br>(3.50/4.50) | N/A | |

### GOLD PC TAIL CONTACTS

| CONTACT SIZE | CONTACT ARRANGEMENT | PIN | SOCKET | EXT. TOOL | X INCH (MM) | Y INCH (MM) | C INCH (MM) |
|---|---|---|---|---|---|---|---|
| 12 | 11C2<br>11T2, 6T4<br>24, C12T6<br>70C12 | 618243001 | - | 282547<br>(M81969/28-02)<br>or<br>282549004<br>(M81969/14-04) | 0.281/0.321<br>(7.15/8.15) | N/A | 0.076/0.080<br>(1.95/2.05) |
| | | 618243002 | - | | 0.137/0.177<br>(3.50/4.50) | N/A | |
| | | 618243003 | - | | 0.076/0.120<br>(1.95/3.05) | N/A | |



### PRE-TINNED PC TAIL CONTACTS

| CONTACT SIZE | CONTACT ARRANGEMENT | PIN | SOCKET | EXT. TOOL | X INCH (MM) | Y INCH (MM) | C INCH (MM) |
|---|---|---|---|---|---|---|---|
| 12 | 11C2<br>11T2, 6T4<br>24, C12T6<br>70C12 | 618243001 | - | 282547<br>(M81969/28-02)<br>or<br>282549004<br>(M81969/14-04) | 0.281/0.321<br>(7.15/8.15) | N/A | 0.076/0.080<br>(1.95/2.05) |
| | | 618243002 | - | | 0.137/0.177<br>(3.50/4.50) | N/A | |
| | | 618243003 | - | | 0.076/0.120<br>(1.95/3.05) | N/A | |

*Introduction*

## COAXIAL CRIMP CONTACTS
## Rear Release Rear Removable
## DESIGN AS PER EN3155-028 & 029 [1]

| CONTACT SIZE | CONTACT ARRANGEMENT | CABLE | PIN | SOCKET | CENTER CONTACT | | | OUTER BODY | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | CRIMPING TOOL | POSITIONER TOOL | SEL | CRIMPING TOOL | POSITIONER TOOL | SEL |
| 16 | 126<br>62T2<br>11C2<br>11T2<br>34<br>25<br>35 | RG179<br>RG316<br>KX22DS<br>ASNE0752WS<br>ASNE0632WK | 618150 | 618050 | 282281 (M22520/2-01) | 282555 | 4 | 282292 (M22520/4-01) | 282556 | - |
| | | ASNE0639XY | | | | | 1 | | | |
| | | F1703-134<br>AXON<br>P813859 & P822817<br>ASNE0690WL | 618151 | 618051 | | | 2 | | | |
| | | KX21DS | - | 618053 | | | | | | |
| | | RG178<br>KX21 | 618154 | 618054 | | | | | | |
| | | ASNE0633WG | | | | | 1 | | | |

## DESIGN AS PER EN3155-030 & 031/M39029/73 & 74

| CONTACT SIZE [2] | CONTACT ARRANGEMENT | CABLE | PIN | SOCKET | CENTER CONTACT | | | OUTER BODY | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | CRIMPING TOOL | POSITIONER TOOL | SEL | CRIMPING TOOL | POSITIONER TOOL | SEL |
| 12 | 11C2<br>11T2<br>24<br>6T4<br>C12T6<br>70C12 | RG179<br>RG316<br>ASNE0639XY | 618140 | 618040 | 282281 (M22520/2-01) | 282580 | 4 | 282297 (M22520/31-01) | 282581 | - |
| | | ASNE0690WL | 618140003 | 618040003 | | | 3 | | | |
| | | BUS 3910<br>AXON<br>P503031 | 618141 | 618041 | | | 5 | | | |
| | | ASNE0633WG<br>RG178<br>KX21 | 618142 | 618042 | | | 4 | | | |

## DESIGN AS PER EN3155-032 & 033 M39029/99 & 100

| CONTACT SIZE | CONTACT ARRANGEMENT | CABLE | PIN | SOCKET | CENTER CONTACT | | | OUTER BODY | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | CRIMPING TOOL | POSITIONER TOOL | SEL | CRIMPING TOOL | POSITIONER TOOL |
| 5 | 11C2 | RG58<br>KX15 | 618120 [3] | 618020 [3] | 282281 (M22520/2-01) | 282550 | 6 | 282293 (M22520/5-01) | 282246 (M22520/5-05 hex A) |
| | | RG141<br>ASNE0293XF | | | | | 8 | | 282246 (M22520/5-05 hex B) |
| | | RG142<br>RG223 | - | 618021001 | | | 8 | | |
| | | RG400 | | | | | 6 | | |
| | | ASNE0691WM | 618124001 | 618024001 | | | 8 | | |
| | | ASNE0639XY<br>RG179<br>RG187 | 618123 [3] | 618023 [3] | | | 7 | | |

*Notes*

*1. Ins/ext tool: 282546 (M81696/1-03)*
*2. Ins/ext tool: 282547 (M81696/28-02)*
*3. Ins/Ext tool: 282946 (M81969/28-01)*

*Introduction*

## A RADIALL DESIGN

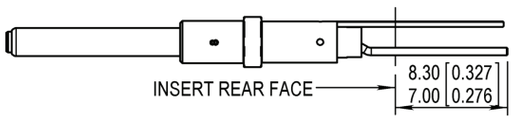
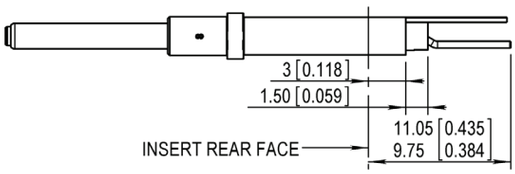
Non-environmental size 8 pin contacts are delivered with an alignment boot (p/n: 618920) to reduce the play at the contact extremity.

| CONTACT SIZE | CONTACT ARRANGEMENT | CABLE | PIN | SOCKET | CENTER CONTACT | | | OUTER BODY | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | CRIMPING TOOL | POSITIONER TOOL | SEL | CRIMPING TOOL | POSITIONER TOOL |
| 8 | 62T220T4<br>11T2<br>T6<br>47T2<br>C12T6<br>6T4 | RG58<br>KX15<br>RG316<br>RG141 | - | 618030 [1] | 282281 (M22520/2-01) | 282572 | 6 | 282293 (M22520/5-01) | 282236 (M22520/5-45 hex A) |
| | | | | | | | 7 | | |
| | | | | | | | 8 | | |
| | | KX22<br>RG316<br>RG174 | - | 618032 [1] | | | 7 | | |
| | | RG400 | - | 618033 [1] | | | 8 | | |
| | | ASNE0691WM | 618135 | 618035 [1] | Solder | | | | |

## PC TAIL COAX CONTACTS

### Rear Release Rear Removable

### SIZE 16 PC TAIL MATING INTERFACE AS PER EN3155-028 & 029

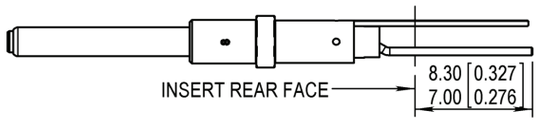
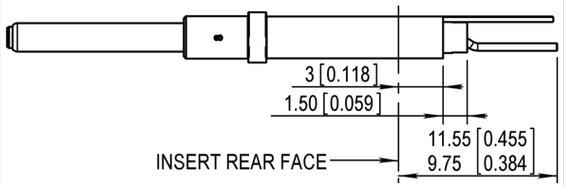
| CONTACT TYPE | PART NUMBER [2] | CONTACT DRAWING [3] | REAR EXTENSION FROM ALL INSERT INCH (MM) | REAR EXTENSION FROM 126 & 62T2 INSERTS ONLY INCH (MM) |
|---|---|---|---|---|
| Pin | 618153 |  | 0.275/0.327 (7.00/8.30) | 0.297/0.349 (7.55/8.85). |
| Pin | 618153001 |  | 0.383/0.435 (9.75/11.05) | 0.405/0.457 (10.30/11.60). |

*Notes*

*1. Ins/Ext tool: 282549001 (M81969/28-03)*
*2. Contacts Ins/ext tool: 282546 (M81969/1-03).*
*3. For PC drill patern please contact Radiall.*

*Introduction*

## SIZE 16 PRE-TINNED PC TAIL

| CONTACT TYPE | PART NUMBER [1] | CONTACT DRAWING [2] | REAR EXTENSION FROM ALL INSERT INCH (MM) | REAR EXTENSION FROM 126 & 62T2 INSERTS ONLY INCH (MM) |
|---|---|---|---|---|
| Pin | 618153002 |  | 0.275/0.346<br>(7.00/8.80) | 0.297/0.368<br>(7.55/9.35) |
| Pin | 618153003 |  | 0.383/0.455<br>(9.75/11.55) | 0.405/0.476<br>(10.30/12.10) |

***Notes***

*1. Contacts Ins/ext tool: 282546 (M81969/1-03).*
*2. For PC drill patern please contact Radiall.*

*Introduction*

## QUADRAX CONTACTS
### Rear Release Rear Removable
### SIZE 8 QUADRAX CONTACTS DESIGN AS PER EN3155-072 & 073

| CABLE | CONTACT TYPE | PART NUMBER [1] NON-ENVIRONMENTAL | PART NUMBER [1] ENVIRONMENTAL | INS/EXT TOOL |
|---|---|---|---|---|
| ABS972<br>ABS1503KD24 | Pin | 620175010 | 620175011 | 282549001<br>M81969/14.06 |
| | Socket | 620075010 | 620075011 | |
| TENSOLITE<br>NF24Q100 (100Ω) | Pin | 620175050 | 620175051 | |
| | Socket | 620075050 | 620075051 | |
| GORE RCN8487-1<br>(110Ω) | Pin | 620175021 | 620175020 | |
| | Socket | 620075021 | 620075020 | |
| THERMAX<br>956S-4T200<br>GORE RCN8422<br>(110Ω) | Pin | 620179002 | 620179001 | |
| | Socket | 620079002 | 620079001 | |



## CONCENTRIC TWINAX CONTACTS
### Rear Release Rear Removable
### SIZE 8 CRIMP CONTACTS

Design as per EN3155-034 & 035 interchangeable with 042 & 043 interface in accordance with M39029/95.

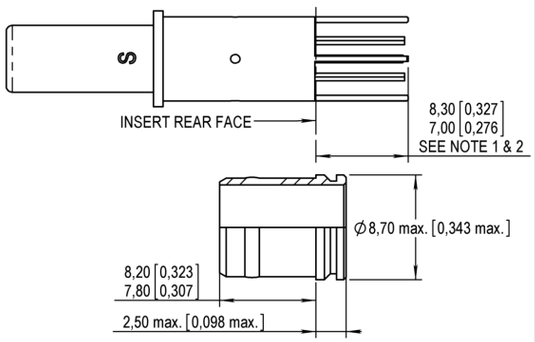
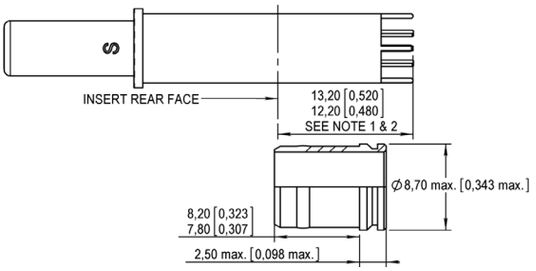
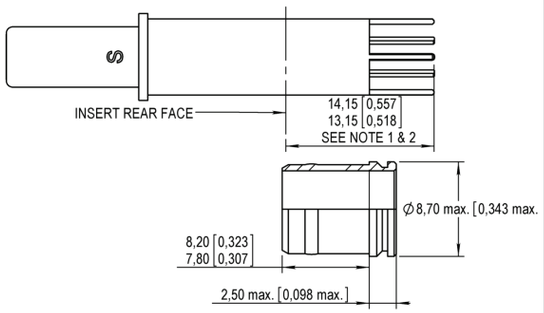
| CONTACT SIZE [1 & 3] | CONTACT ARRANGEMENT | CABLE | PIN CONTACT [2] | SOCKET CONTACT [2] |
|---|---|---|---|---|
| 8 | 6T4<br>62T2<br>20T4<br>11T2<br>T6<br>47T2<br>C12T6 | EN 3375-004<br>EN 3375-005 | 618160 | 618060 |
| | | EN 3375-003<br>M17/176-00002 | 618161 | 618061 |
| | | EN 3375-003<br>EN 3375-004<br>EN 3375-005<br>M17/176-00002 | 618162 | 618062 |
| | | ECS 700 | 618166 | 618066 |
| | | M17/176-00002 | 618180 | - |

*Notes*

*1. Ins/Ext tool: 282549001 (M81969/28-03).*
*2. Add 001 at the end of the contact part number to be provided with a sealing boot with the contact.*
*3. Non-environmental size 8 pin contacts are delivered with an alignment boot (p/n: 618920) to reduce the play at the contact extremity.*

*Introduction*

## CONCENTRIC TWINAX CONTACTS
## Rear Release Rear Removable
## SIZE 8 PC TAIL CONTACTS MATING INTERFACE DESIGN AS PER EN3155-034 & 035

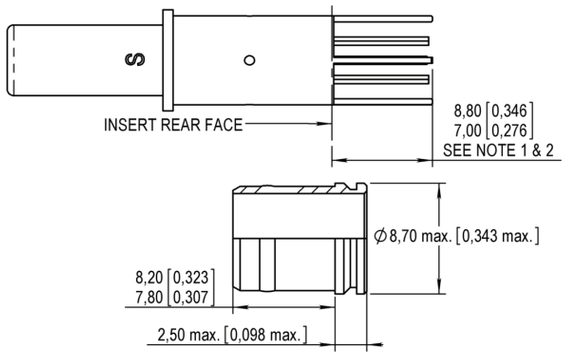
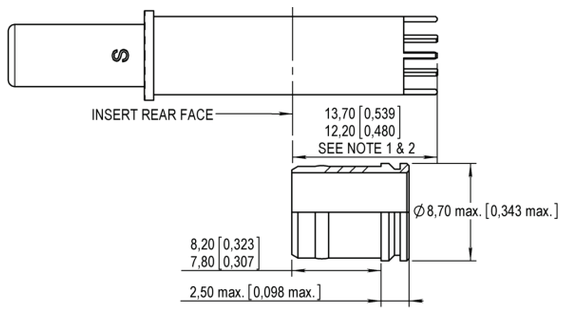
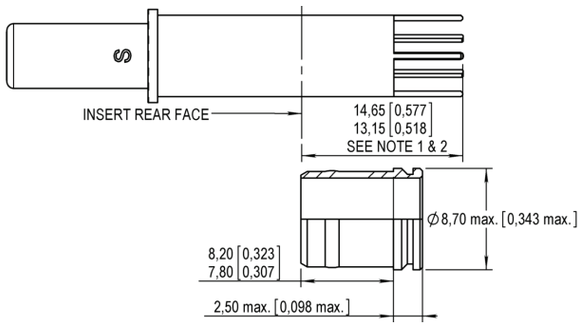
| CONTACT TYPE | PART NUMBER [1] | CONTACT DRAWING | REAR EXTENSION FROM ALL INSERT INCH (MM) | PC TAIL LENGTH INCH (MM) | REAR EXTENSION FROM 62T2 INSERT ONLY INCH (MM) |
|---|---|---|---|---|---|
| Pin | 618 163 |  | 0.275/0.327 (7.00/8.30) | 0.275/0.327 (7.00/8.30) | 0.199/0.250 (5.05/6.35) |
| Pin | 618 164 |  | 0.480/0.520 (12.20/13.20) | 0.098/0.138 (2.50/3.50) | 0.403/0.443 (10.25/11.25) |
| Pin | 618164001 |  | 0.518/0.557 (13.15/14.15) | 0.234/0.238 (5.95/6.05) | 0.441/0.480 (11.20/12.20) |

*Notes*

*1. Non-environmental size 8 pin contacts are delivered with an alignment boot (p/n: 618920) to reduce the play at the contact extremity.*
*2. This alignment boot protrudes 2.5 mm max from the rear face of the insert; these 2.5 mm are taken into account in the dimensions listed above.*

*Introduction*

## CONCENTRIC TWINAX CONTACTS
## Rear Release Rear Removable
## SIZE 8 PRE-TINNED PC TAIL CONTACTS

| CONTACT TYPE | PART NUMBER [1] | CONTACT DRAWING | REAR EXTENSION FROM ALL INSERT INCH (MM) | PC TAIL LENGTH INCH (MM) | REAR EXTENSION FROM 62T2 INSERT ONLY INCH (MM) |
|---|---|---|---|---|---|
| Pin | 618163005 |  | 0.275/0.347 (7.00/8.80) | 0.297/0.347 (7.55/8.80) | 0.199/0.270 (5.05/6.85) |
| Pin | 618164002 |  | 0.480/0.540 (12.20/13.70) | 0.098/0.157 (2.50/4.00) | 0.403/0.463 (10.25/11.75) |
| Pin | 618164003 |  | 0.518/0.577 (13.15/14.65) | 0.234/0.258 (5.95/6.55) | 0.441/0.500 (11.20/12.70) |

*Notes*

*1. Non-environmental size 8 pin contacts are delivered with an alignment boot (p/n: 618920) to reduce the play at the contact extremity.*
*2. This alignment boot protrudes 2.5 mm max from the rear face of the insert; these 2.5 mm are taken into account in the dimensions listed above.*

*Introduction*

## ACCESSORIES



### FILLER PLUGS

| CAVITY SIZE | FILLER PLUG P/N | COLOR |
|---|---|---|
| 22 | 620920 + 620926 | Black |
| 20 | 620921 | Red |
| 16 | 620922 | Blue |
| 12 | 620923 | Yellow |
| 5 | 618910 for Pin<br>618912 for Socket | White |
| 8 | 618911 for Pin<br>618913 for Socket | Red |

### SEALING PLUGS

| CAVITY SIZE | SEALING PLUG P/N | COLOR |
|---|---|---|
| 22 | 616910 | Black |
| 20 | 616911 | Red |
| 16 | 616912 | Blue |
| 12 | 616913 | Yellow |
| 5 | 618915 | White |
| 8 | 618911 + 618913 + 618915 | Red |

### CAVITY REDUCERS

The cavity reducers are not removable from the insert once installed. They are made of copper alloy and are nickel plated to allow contact cavity grounding.

| CAVITY REDUCER TYPE | PART NUMBER |
|---|---|
| From Pin Size 8 to Size 12 | Environmental: 618940001<br>Non-Environmental: 618940 |
| From Socket Size 8 to Size 12 | Environmental: 618941001<br>Non-Environmental: 618941 |

### OUTER DIAMETER BACKSHELLS

Backshells are made of aluminium alloy and are cadmium yellow chromate plated. To order one complete backshell you must order separately an EMI backshell plus a combination of backshell terminations (i.e. one complete backshell for cavity A = 4x 618802011 + 1x 618802010 + 1x 618801002)

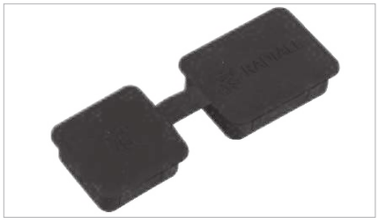
| DESCRIPTION | PART NUMBER |
|---|---|
| EMI Backshell for Cavities A, C and E | 618801002 |
| EMI Backshell for Cavities B, D and F | 618800002 |
| Backshell Termination | 618802010 |
| Backshell Blank Termination | 618802011 |



*Introduction*

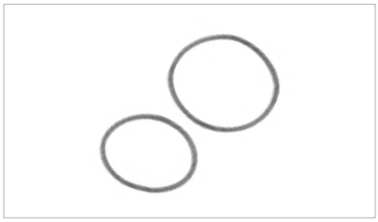
## DUST CAPS

| DESCRIPTION | PART NUMBER |
|---|---|
| Conductive Dust Cap for Receptacle Shell | 618953001 |
| Conductive Dust Cap for Plug Shell | 618953002 |
| Non Conductive Dust Cap for Plug Shell | 618953 |



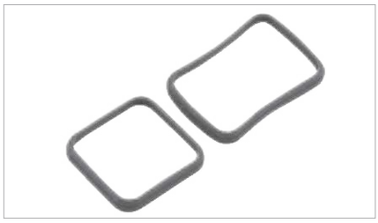
## O-RING FOR INSERTS

| DESCRIPTION | PART NUMBER |
|---|---|
| O-Ring for Inserts for A,C and E Cavities | 618953020 |
| O-Ring for Inserts for B,D and F Cavities | 618953021 |



## COUPLING SEALS

| DESCRIPTION | PART NUMBER |
|---|---|
| Coupling Seals for A,C and E Shell Cavities | 618953010 |
| Coupling Seals for B,D and F Shell Cavities | 618953011 |



## EMI SPRING

| DESCRIPTION | PART NUMBER |
|---|---|
| Kit Made of One EMI Spring for A,C and E Shell Cavities and of One EMI Spring for B, D and F | 618810 |
| EMI Spring for A,C and E Shell Cavities | 618810001 |
| EMI Spring for B,D and F Shell Cavities | 618810002 |



## DUMMY INSERTS

- **MPXE10:** dummy insert for A, C and E shell cavities
- **MPXE20:** dummy insert for B, D and F shell cavities

## POLARIZATION KIT & SCREWS

A kit of 2 screws that are used to fix the polarization posts or keys retention plate is available under P/N: 618985

A polarization kit for receptacle is P/N 618811002 and for plug it is P/N 618811001. Torque is 0.7 N.m

*Dimensions*

## PLUG & RECEPTACLE OVERVIEW

The table below gives A and B dimension values (A and B = distance between the front flange of the connector and the rear face of the insert.

See drawings pages 6-35 to 6-40 for A and B description.

### PLUG

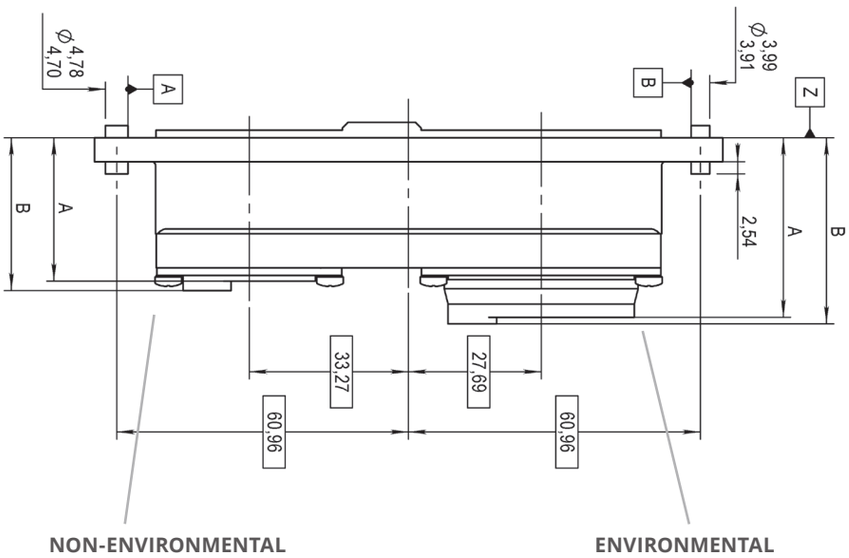
| INSERT DESCRIPTION | A AND/OR B DIMENSION<br><br>FOR ENVIRONMENTAL PLUG<br>INCH (MM) | A AND/OR B DIMENSION<br><br>FOR NON-ENVIRONMENTAL PLUG<br>INCH (MM) |
|---|---|---|
| 60, T6, 11C2, 34<br>C12T6, 24, 35, 47T2,13T4<br>6T4, 11T2, 25, 20T4, 20Q4, Q6, Q11 | 0.386/0.449 (9.80/11.40) | No Rear Extension<br>of Inserts from Shell |
| 150, 100 | 0.228/0.295 (5.80/7.50) | |
| 62T2, 68Q4 | A: Signal Contacts<br>0.228/0.295 (5.80/7.50)<br><br>B: Power Contacts<br>0.468/0.512 (11.90/13.00) | |
| 70C12, 126, 118Q2 | A: Signal Contacts<br>0.228/0.295 (5.80/7.50)<br><br>B: Power Contacts<br>0.386/0.449 (9.80/11.40) | |

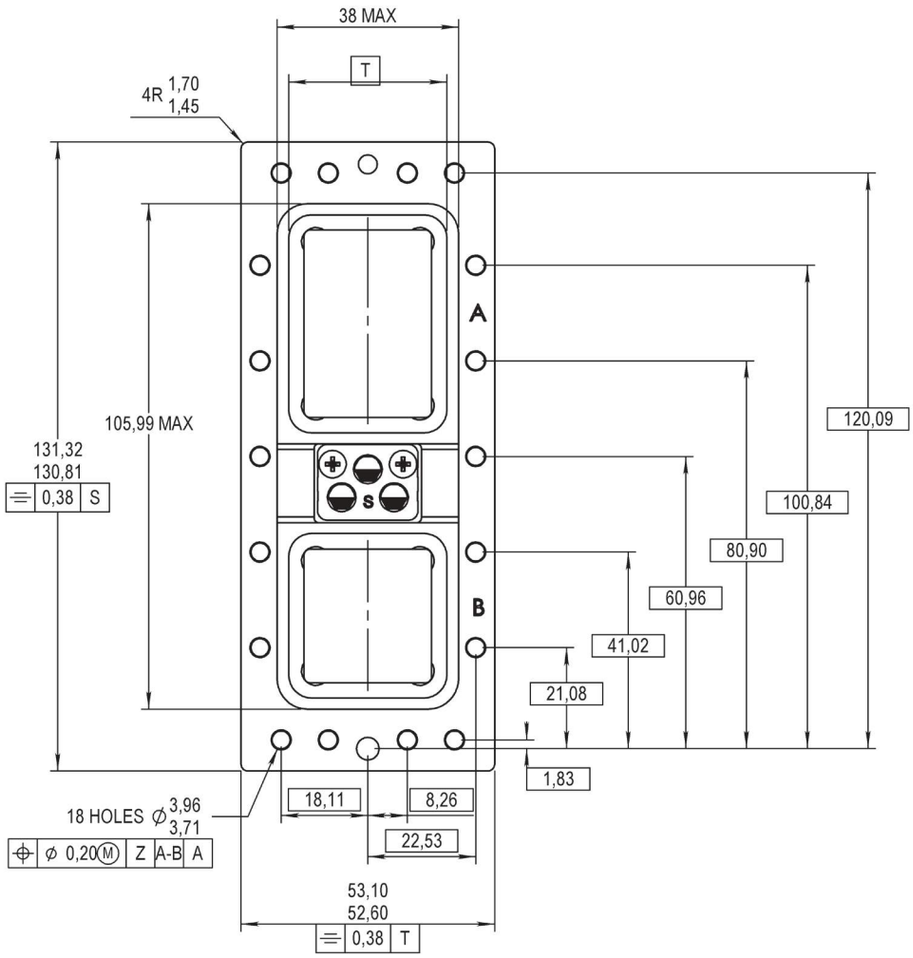
### RECEPTACLE

| INSERT DESCRIPTION | A AND/OR B DIMENSION FOR<br>ENVIRONMENTAL RECEPTACLE<br>INCH (MM) | A AND/OR B DIMENSION FOR<br>NON-ENVIRONMENTAL RECEPTACLE<br>INCH (MM) |
|---|---|---|
| 60, T6, 11C2, 34<br>C12T6, 24, 35, 47T2, 13T4<br>6T4, 11T2, 25, 20T4, 20Q4, Q6, Q11 | 1.610/1.657 (40.90/42.10) | 1.275/1.313 (32.40/33.35) |
| 150, 100, 126 | 1.441/1.492 (36.60/37.90) | 1.171/1.215 (29.75/30.85) |
| 62T2, 68Q4, 118Q2 | A: Signal Contacts<br>1.441/1.492 (36.60/37.90)<br><br>B: Power Contacts<br>1.512/1.557 (38.40/39.55) | 1.171/1.215 (29.75/30.85) |
| 70C12 | 1.457/1.518 (37/38.55) | |

*Dimensions*

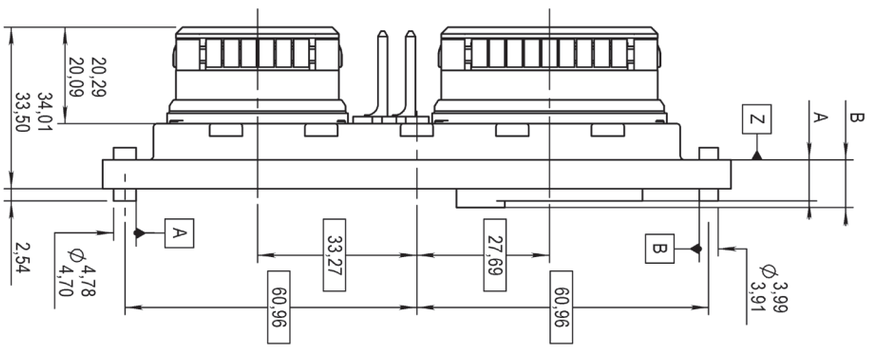
## SHELL 2 DIMENSIONS – RECEPTACLE



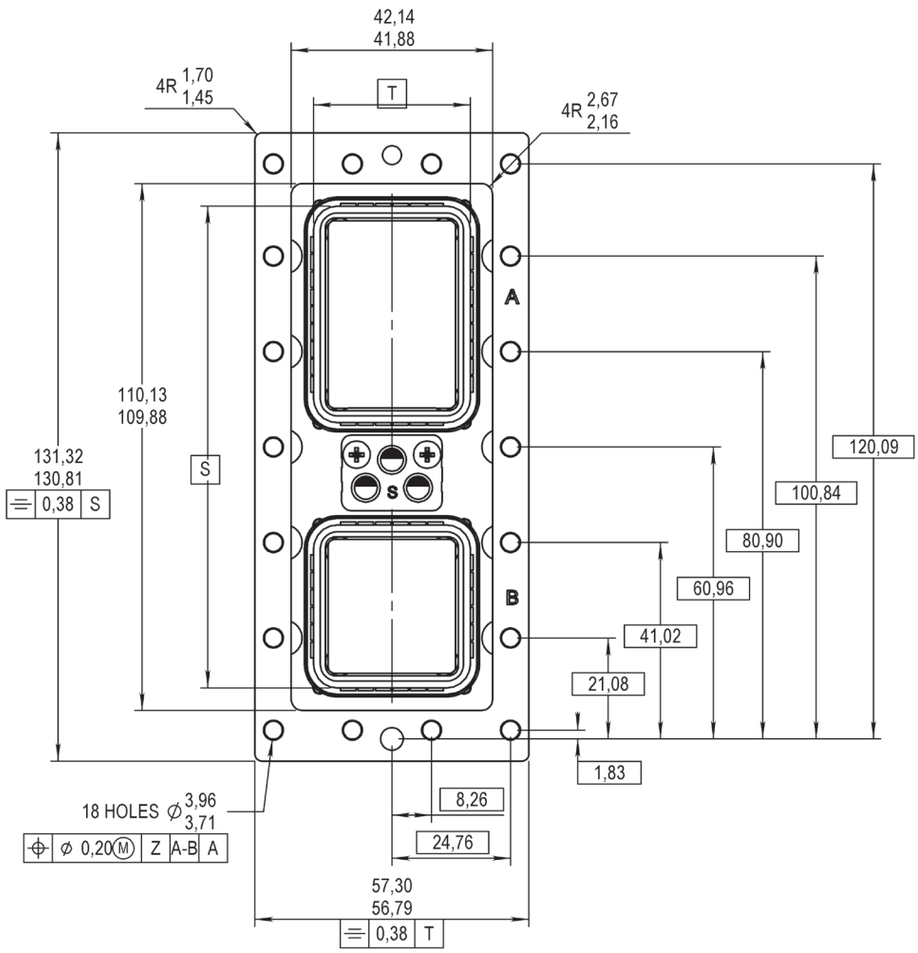



*Dimensions*

## SHELL 2 DIMENSIONS – PLUG

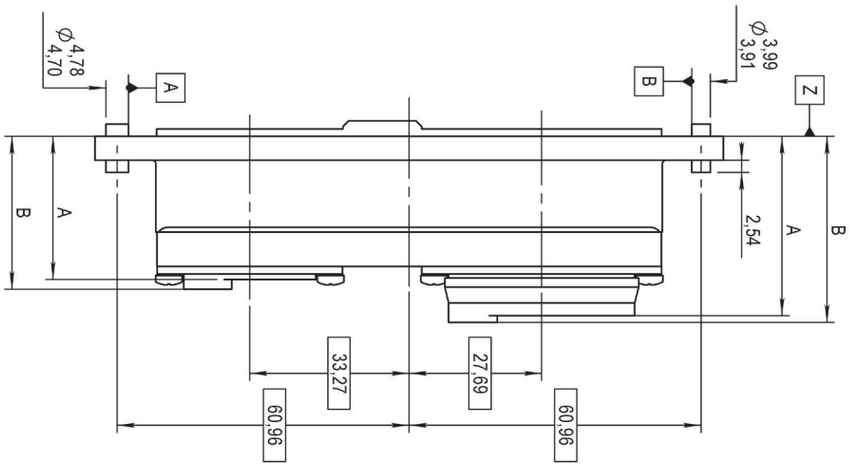



**NON-ENVIRONMENTAL** **ENVIRONMENTAL**

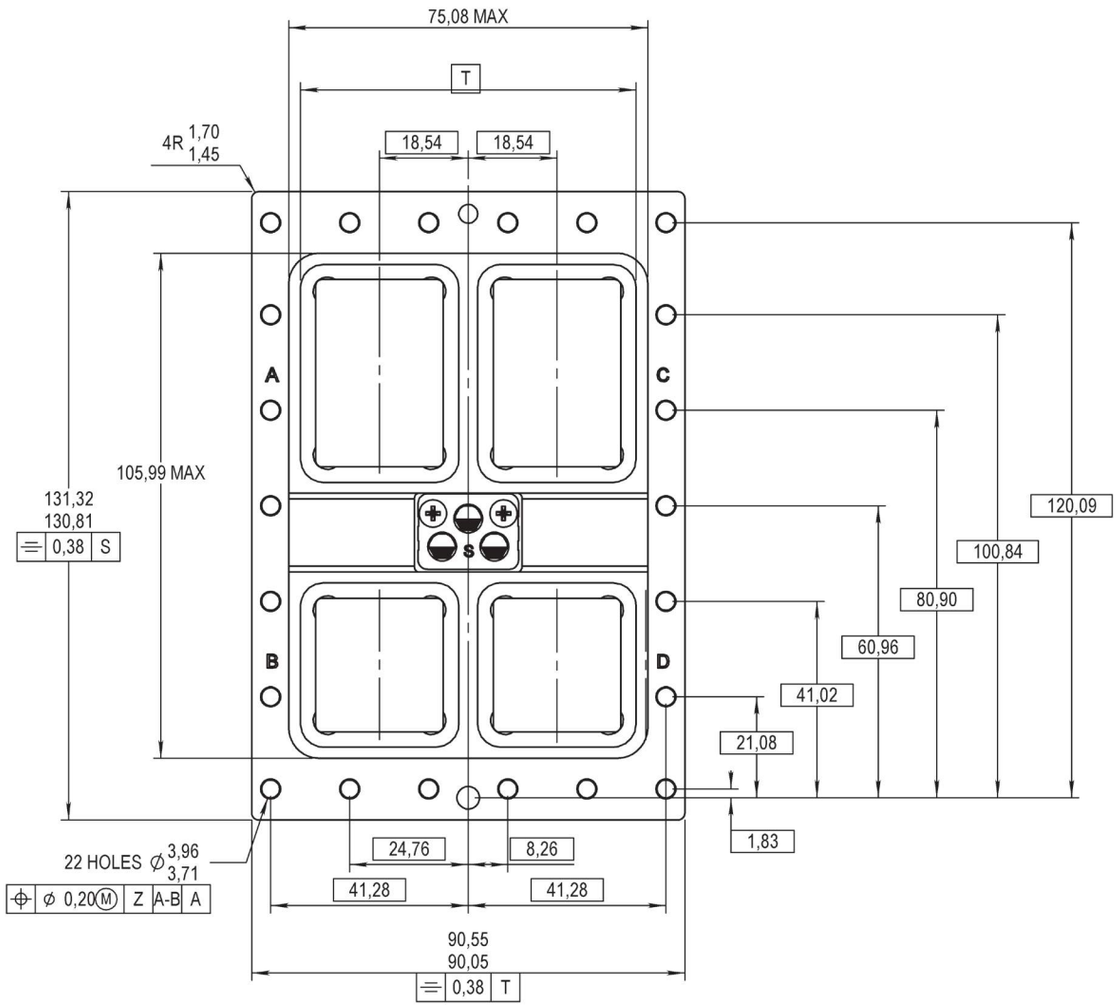


*Dimensions*

## SHELL 3 DIMENSIONS – RECEPTACLE

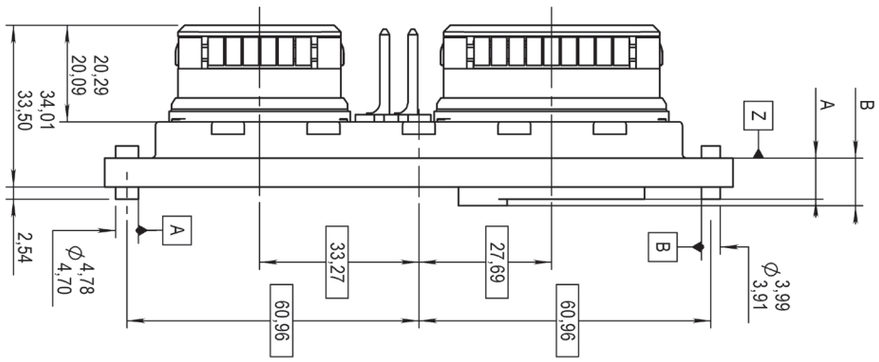



NON-ENVIRONMENTAL ENVIRONMENTAL

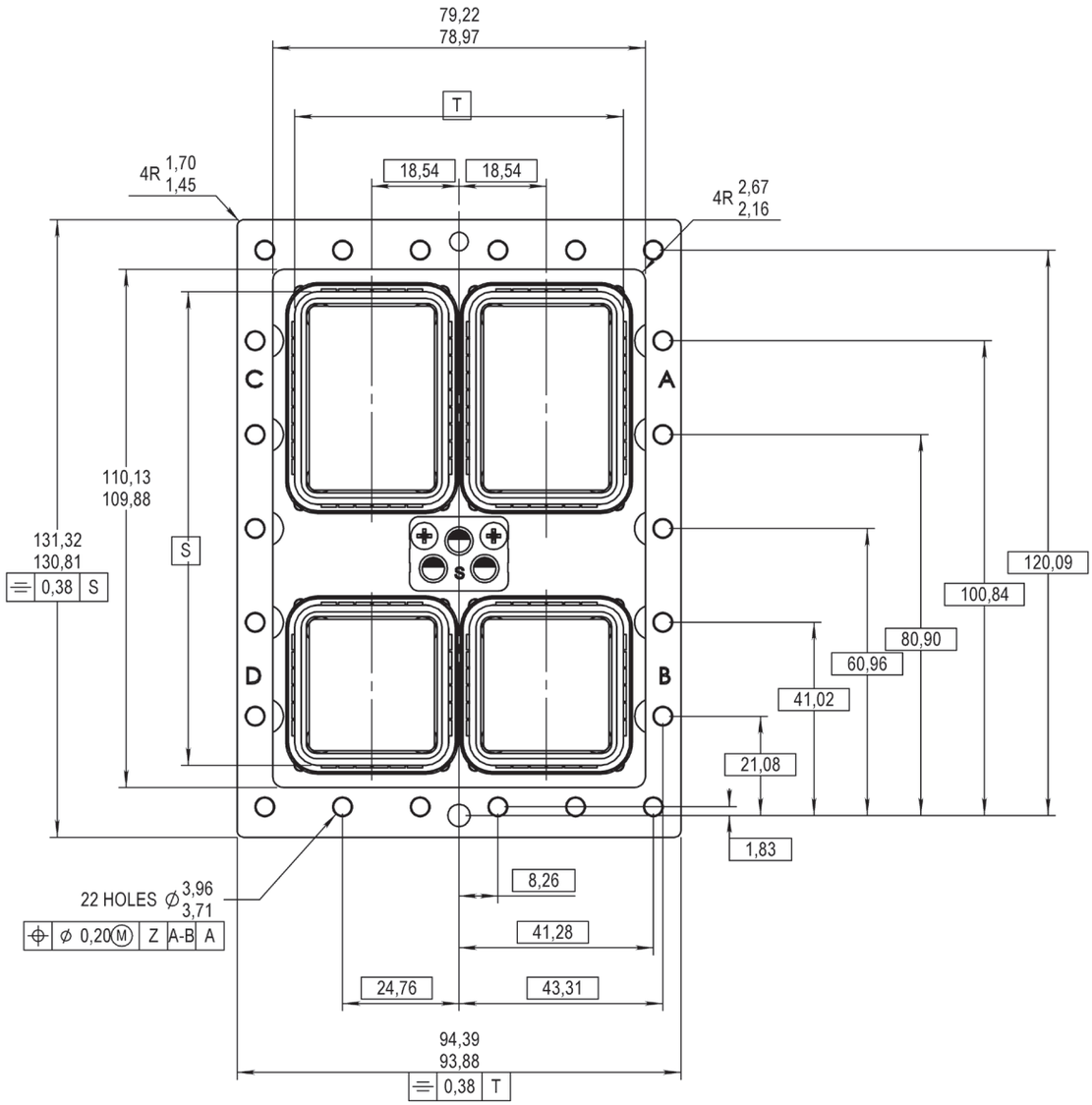


*Dimensions*

## SHELL 3 DIMENSION – PLUG

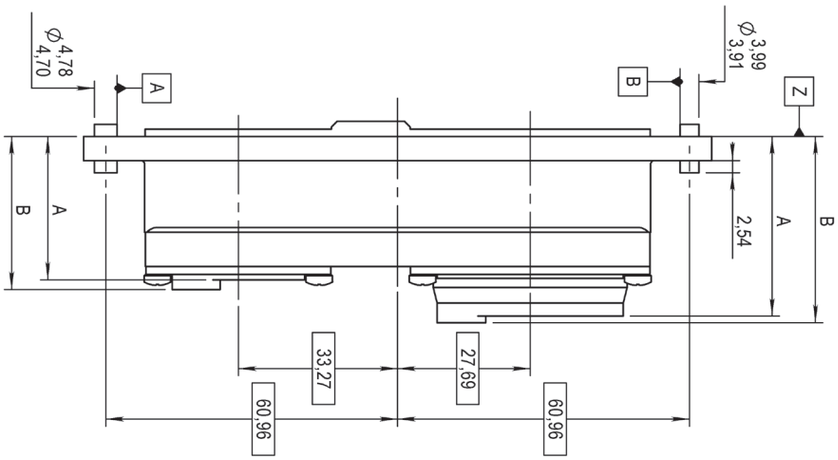



**NON-ENVIRONMENTAL** **ENVIRONMENTAL**

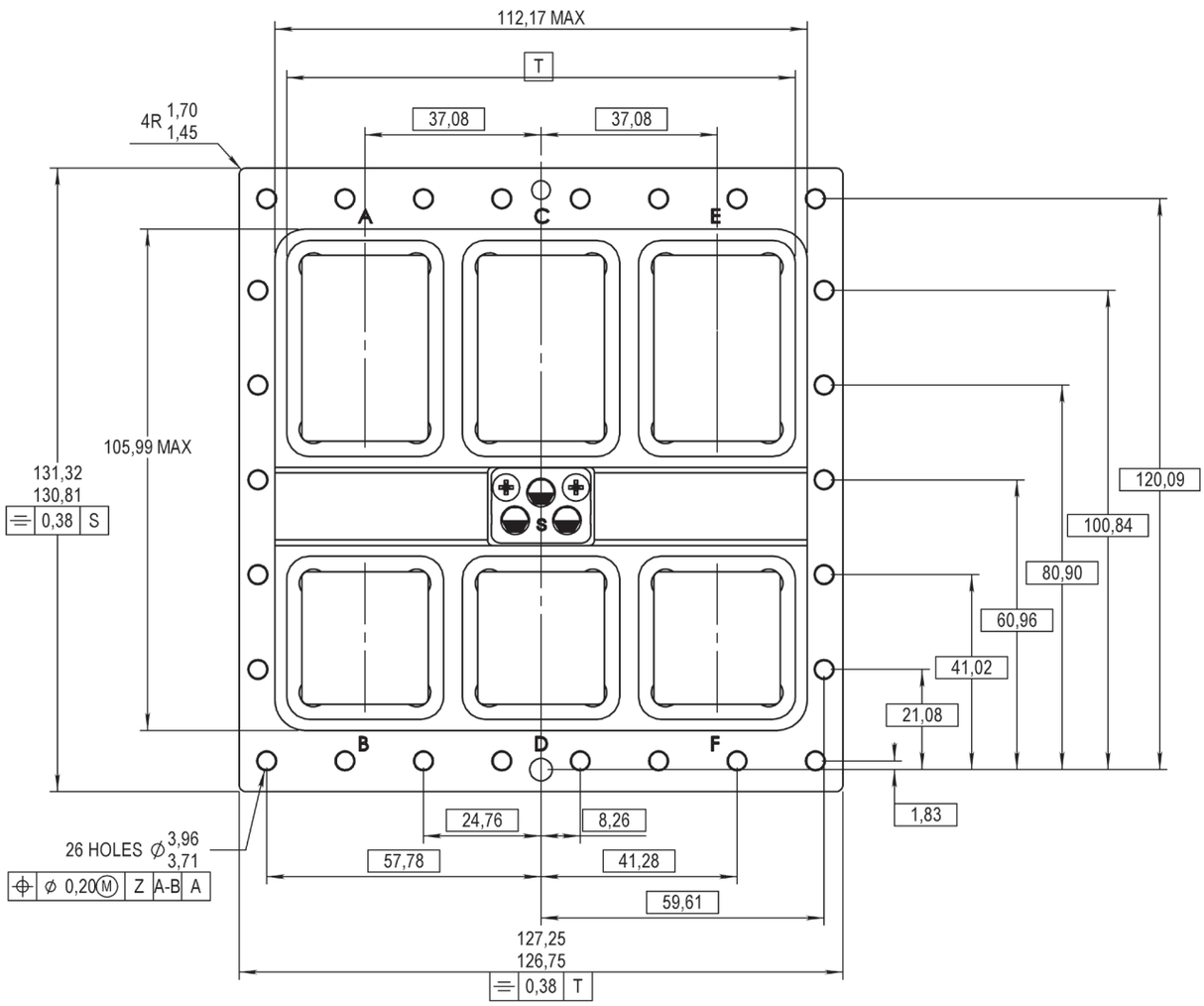


*Dimensions*

## SHELL 4 DIMENSIONS – RECEPTACLE

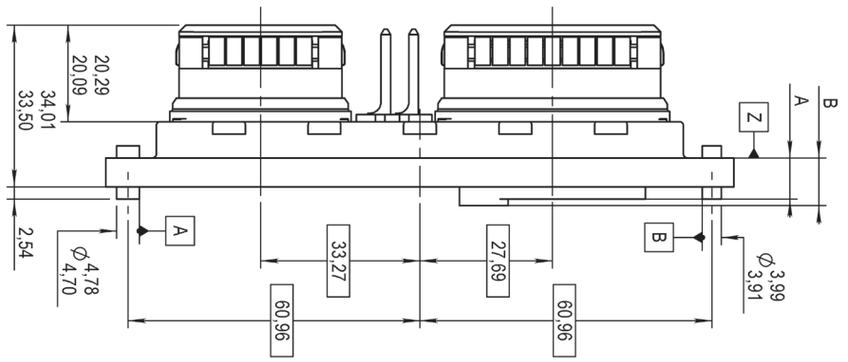



**NON-ENVIRONMENTAL** **ENVIRONMENTAL**

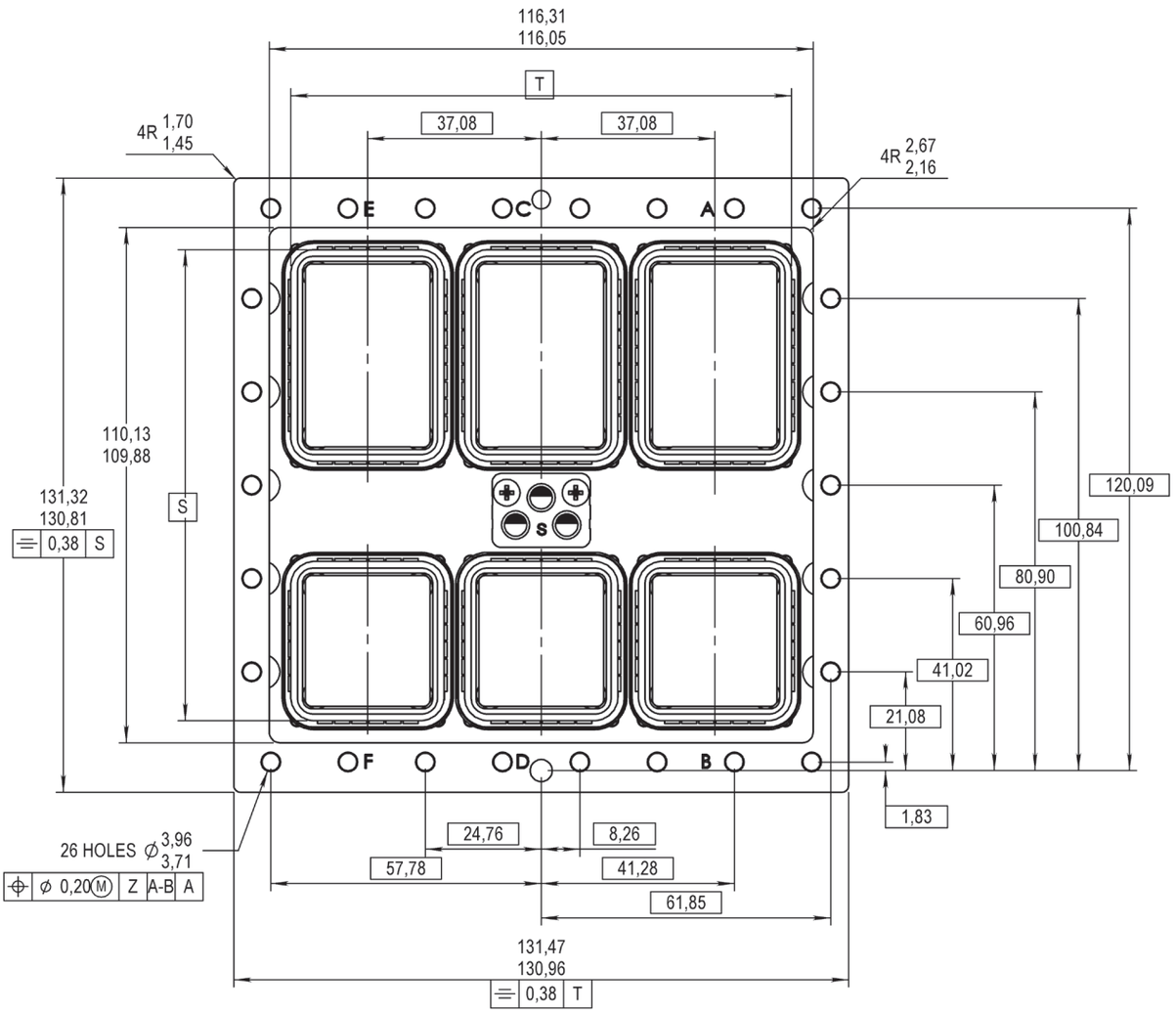


*Dimensions*

## SHELL 4 DIMENSIONS – PLUG

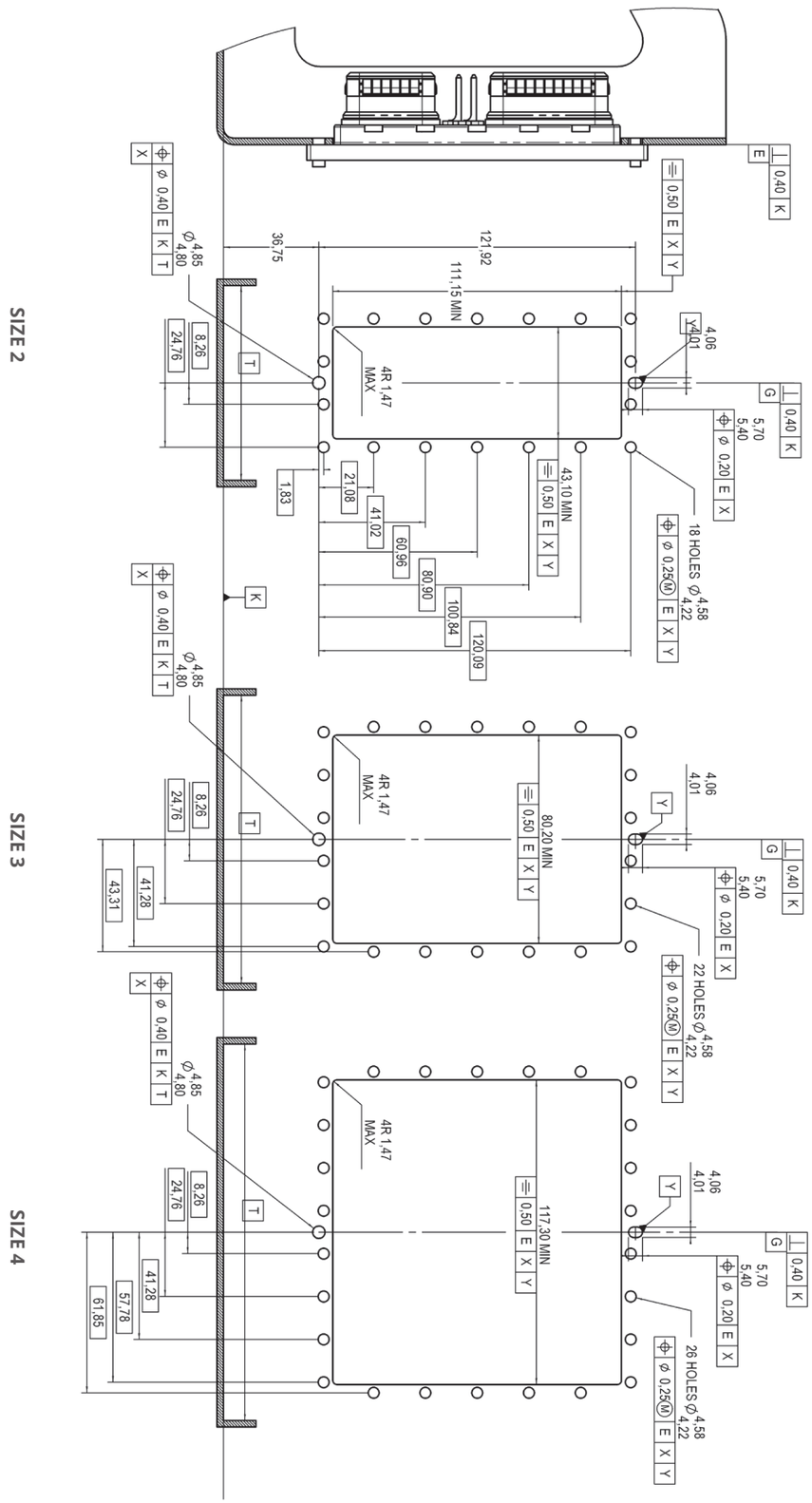



**NON-ENVIRONMENTAL** **ENVIRONMENTAL**



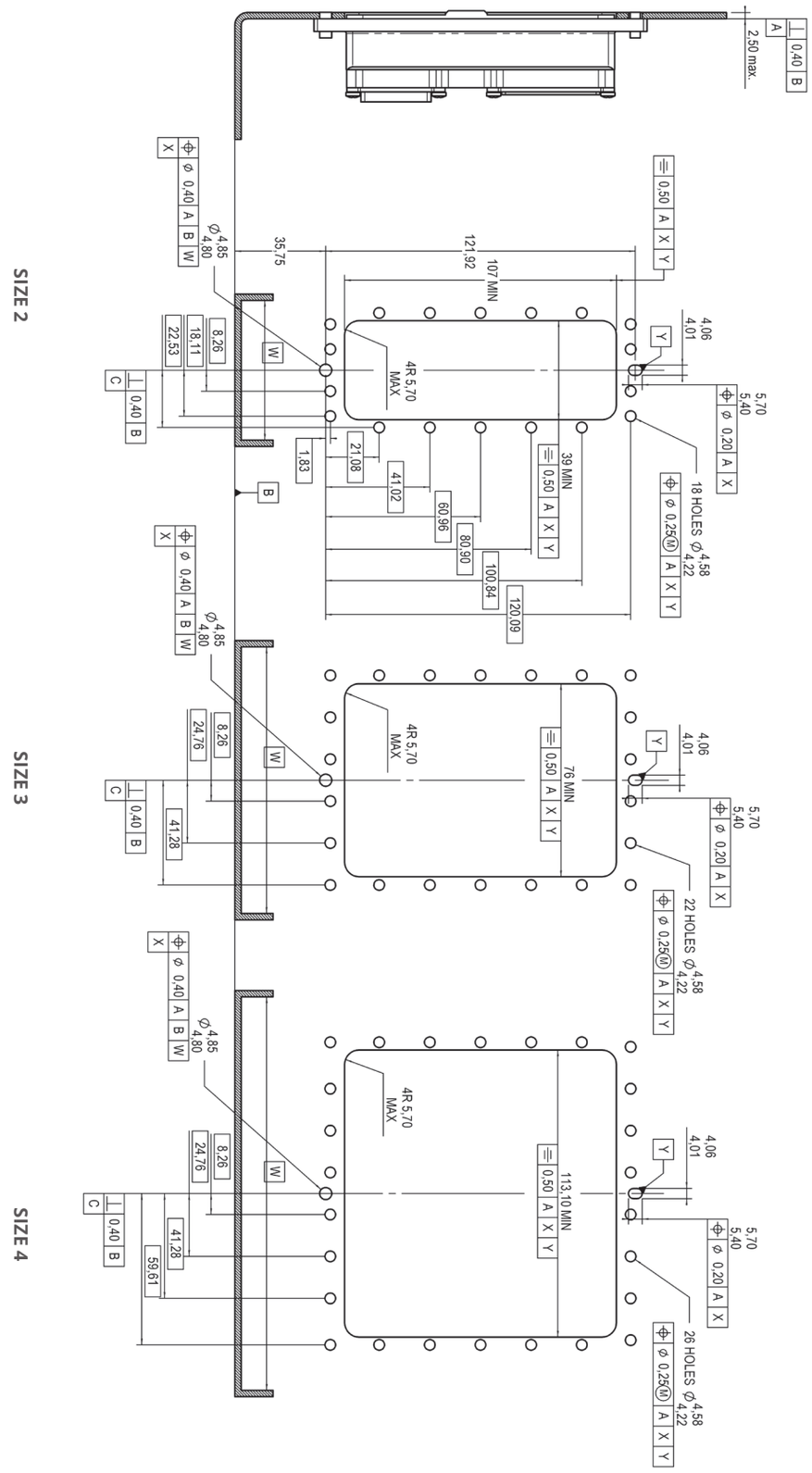
*Dimensions*

## RACK PLUG PANEL CUT-OUT



*Dimensions*

## EQUIPMENT RECEPTACLE PANEL CUT-OUT





# DSX SERIES

*SAE AS81659, Arinc 404*

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## INTRODUCTION

The Radiall DSX rack and panel series are multipin rectangular connectors used to electrically interface avionics equipment to equipment rack. Usually the plug is installed on the avionics rack and the receptacle on the equipment box. The mated locking mechanism is provided for the equipment and cabinet and is not a part of the connector pair.

These connectors are widely used in applications such as:

- Commercial/military aircraft and helicopters
- Radar systems
- Power circuits
- In-flight electronic instrumentation
- Flight simulators, etc.

The following versions are offered:

- **DSX-SAE AS81659:** connectors conforming to SAE AS81659 including connectors listed on the QPL81659
- **DSX-ARINC 404 Shell Type B:** connectors conforming to ARINC 404 shell type B-polarized shells
- **DSX-ARINC 404 Shell Type A:** connectors conforming to ARINC 404 shell type A-single shell (without polarization)
- **DSX-F:** connectors for front release front removable contacts (receptacle only)
- **DSX-DATA BUS:** connectors for interconnection of multiplexed digital links
- **DSX-EMI/RFI:** shielded connectors

### DSX-SAE AS81659

These connectors fully conform to SAE AS81659 specifications and are listed on the associated Qualified Product List. They are available in four shell sizes (1, 2, 3 and 4) which can respectively accept 1, 2, 3 and 4 inserts. Inserts are offered in various contact arrangements accommodating rear release rear removable signal (size 22 ), power (sizes 5, 12, 16 and 20HD), coaxial (sizes 1, 3, 5, 7, 9 and 15), concentric twinax (sizes 5 and 9), triax (sizes 5 and 9) contacts in crimp, wire wrap or PC tail termination. Radiall's 29504 fiber optic termini are also available. Both environmental and non-environmental connectors are offered.

Mismating is prevented by a polarizing system which provides 216 polarizing positions. For military part numbers, applicable polarizing positions range goes from 00 through 99 only.

### DSX-ARINC 404 SHELL TYPE B

Arinc 404 shell type B are the commercial version. Here are the commercial features compared to the military version:

- They use both size 20HD and size 20 contacts.
- They are non-environmental. Inserts are fitted with a rubber separator on the back of their wiring which does not provide sealing but provides wire protection.
- Removable size 5 and 9 coaxial contacts are not interchangeable with those of the military type.
- Insert retention plate is yellow anodized instead of blue anodized on the military version.

### DSX-ARINC 404 SHELL TYPE A

DSX-ARINC 404 shell type A connectors are only available in shell size 1. They use ARINC 404 shell type B inserts; only one insert can be installed in the connector shell. Shell type A has no polarization system, mismating is prevented by keystone shaped shells. DSX-ARINC 404 shell type A connectors cannot be fitted with any backshell.

*Introduction*

### DSX-F

DSX-F receptacle connectors are available in four shell sizes (1, 2, 3 and 4) and are designed to be fitted with front release front removable contacts offered in pc tail and wire wrap termination. Inserts are offered with or without an interfacial seal (in both cases they are not and are fitted with a separator) and are available in the following contact arrangements: 106, 67, 57, 45, 40, 33C4, 26.

DSX-F connectors are fully intermateable with connectors of the ARINC 404 shell type B and SAE AS81659 versions.

### DSX-DATA BUS

These connectors have been designed to ensure the interconnection of multiplexed digital links used in military equipment.

### DSX-EMI/RFI

In response to the continuing development of electronic systems used in ever harsher environments, these connectors have been designed to improve the shielding effectiveness against electromagnetic and radio frequency interferences (EMI/RFI) as well as electromagnetic pulses (EMP).

## APPLICATIONS

These connectors are used to form the electrical interface between avionics equipment to rack equipment.



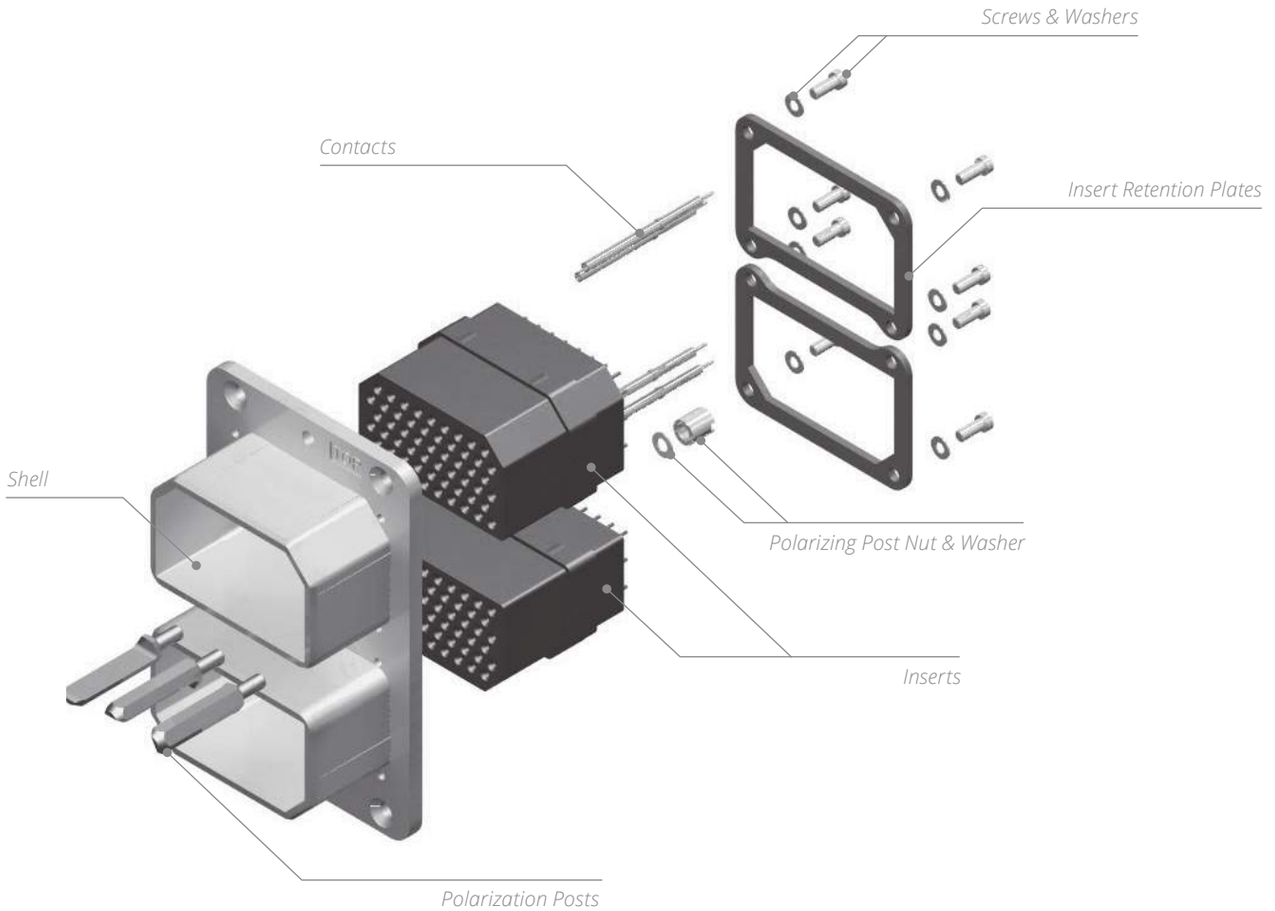
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*DSX-SAE AS81659*

## PRODUCT OVERVIEW

Detailed view of the various parts of this series connector.



*DSX-SAE AS81659*

## TECHNICAL CHARACTERISTICS

### ELECTRICAL

- **Magnetic Permeability:** <2 µ
- **Insulation Resistance:** >5,000 MΩ
- **Dielectric Withstanding Voltage:** See Contact Arrangement on pages 7-8 to 7-10
- **Contact Resistance:** According to Requirements of SAE AS39029

### COAX CONTACTS ELECTRICAL CHARACTERISTICS

- **Nominal Impedance:** 50 Ω VSWR
  - Sizes 5, 7 and 9: 1.3 from DC to 1,500 MHz
  - Sizes 1 and 3: 1.3 from DC to 5,000 MHz

| CONTACT SIZE | AWG | CROSS SECTION MM2 (SQ.IN) | MIN. OUTSIDE DIA. MM (INCH) | MAX. OUTSIDE DIA. MM (INCH) | MAX CURRENT (A) |
|---|---|---|---|---|---|
| 22 | 22 | 0.38 (0.015) | 0.76 (0.030) | 1.4 (0.055) | 5 |
| | 24 | 0.21 (0.008) | | | 3 |
| | 26 | 0.14 (0.006) | | | 2 |
| 20HD | 20 | 0.60 (0.024) | 1 (0.039) | 1.8 (0.071) | 7.5 |
| | 22 | 0.38 (0.015) | | | 5 |
| | 24 | 0.21 (0.008) | | | 3 |
| 16 | 16 | 1.34 (0.053) | 1.70 (0.067) | 2.6 (0.102) | 13 |
| | 18 | 0.93 (0.037) | | | 10 |
| | 20 | 0.60 (0.024) | | | 7.5 |
| 12 | 12 | 3.18 (0.125) | 2.4 (0.094) | 3.4 (0.134) | 23 |
| | 14 | 1.91 (0.075) | | | 17 |
| | 16 | 1.34 (0.052) | | | 13 |
| For Cavity 5 | 8 | 9.00 (0.354) | 3.4 (0.134) | 6.48 (0.255) | 46 |
| | 10 | 5.00 (0.197) | | | 33 |
| | 12 | 3.18 (0.125) | | | 23 |
| | 14 | 1.91 (0.075) | | | 17 |

### MECHANICAL & ENVIRONMENTAL

- **Temperature Range:** -65 °C (-85 °F)/+125 °C (+257 °F)
- **Temperature Life:** 1,000 hours at +125 °C (+257 °F)
- **Salt Spray:** EIA 364-26 (MIL-STD-1344A Method 1001.1 Test Condition B (48 hours))
- **Altitude Moisture Injection:** Insulation Resistance > 100 M Ω altitude 50,000 ft
- **Fluid Resistance:** Resistance to 20 hours Immersion in Fluids MIL PRF 5606 & MIL PRF 23699
- **Durability:** 500 Matings and Unmating Cycles
- **Vibration:** EIA 364-28 (MIL-STD-1344A Method 2005 Test Condition IV (20 g–10-2,000 Hz))
- **Shock:** EIA 364-27 (MIL-STD-1344A Method 2004 Test Condition A (50 g -11 ms–half sine))
- **Mating Force:** < 200 N (45 lbs) per Insert
- **Insert Retention Force:** > 534 N (120 lbs) in each Direction
- **Contact Retention Force:** Max Axial Displacement = 0.3 mm (0.012 in.)

| CONTACT SIZE | 22 | 20HD | 16 | 12 |
|---|---|---|---|---|
| Axial Load N (lbs) | 66 N (15) | 89 N (20) | 111 N (25) | 133.5 N (30) |

*DSX-SAE AS81659*

# TECHNICAL CHARACTERISTICS

## MATERIALS

| DESCRIPTION | MATERIAL | PLATING |
|---|---|---|
| Shell | Aluminium Alloy | Cadmium Yellow Chromate [1] |
| Insert | Thermosetting Resin | - |
| Metallic Insert | Aluminium Alloy | Cadmium Clear Chromate [1] |
| Interfacial Seal & Grommet | Silicone Rubber | - |
| Retention Clip | Copper Alloy | - |
| Contact | Copper Alloy | Gold Over Nickel Under Plate |
| Insert Retention Plate | Aluminium Alloy | Blue Snodised [1] |
| Polarizing Posts | Stainless Steel | - |
| Polarizing Keys | Zinc Alloy | Cadmium Yellow Chromate |
| Polarizing Keys Retention Plate | Aluminium Alloy | Cadmium Yellow Chromate [1] |
| Screws, Washers, Clinch-Nuts | Corrosion Resistant Steel | - |
| Sealing Plugs & Filler Plugs | PTFE | - |
| Sealing Boots & Sleeves | Fluorinated Silicon Rubber | - |
| Sealing Bushing | PEI | - |
| Junction Shells | Aluminium Alloy | Yellow Anodized or Nickel-Plated |

## MASSES (ESTIMATES)

| DESCRIPTION | WEIGHT G (OZ) |
|---|---|
| Plug Shell Size 1 | 30 (1.05) |
| Plug Shell Size 2 | 45 (1.60) |
| Plug Shell Size 3 | 60 (2.15) |
| Plug Shell Size 4 | 85 (3) |
| Receptacle Shell 1 | 30 (1.05) |
| Receptacle Shell 2 | 50 (1.75) |
| Receptacle Shell 3 | 85 (3) |
| Receptacle Shell 4 | 115 (4.05) |
| Plastic Insert | 20 (0.70) |
| Metallic Insert | 35 (1.25) |
| Junction Shells | 25 (0.88) |

*Notes*

*1. More platings are available, see descriptions in modification codes*

*DSX-SAE AS81659*

## HOW TO ORDER CONNECTORS

DSX

**SERIES PREFIX**

**CLASS**
**N:** Non-environmental (without grommet and interfacial seal)
**E:** Environmental (with grommet and interfacial seal)
**T:** Connector with interfacial seal on insert with protruding contacts only

**SHELL SIZE**
**1:** One gang shell
**2:** Two gang shell
**3:** Three gang shell
**4:** Four gang shell

**SHELL TYPE**
**R:** Receptacle shell
**P:** Plug shell

**GROUNDING EMI/RFI**
**G:** With grounding spring (only for plug connector)

**TERMINATION STYLE** [5]
**X:** Without contacts (for crimp contacts only)
**S:** Crimp [1]
**V:** Wire wrap two levels [4]
**W:** Wire wrap three levels [4]
**Y:** PC tail contact [4]

**CONTACT ARRANGEMENT** [2 & 5]
See available contact arrangements on pages 7-8 to 7-10

**CONTACT TYPE** [5]
**S:** Socket
**P:** Pin

**GANG B**

**GANG C**

**GANG D**

**MODIFICATION CODE**
See pages 7-11 to 7-16 for selection.
Modification code will help in choosing the appropriate plating for your application.

**POLARIZATION CODE** [3]
See pages 7-17 to 7-20 for selection.

*Notes*

*Important Note: If you want to get connectors marked with the military part number (i.e. M81659/66A2-0083) you must order by using the military part number. Radiall part numbers qualified to SAE AS81659 versus military part numbers are listed from pages 7-36 to 7-40.*

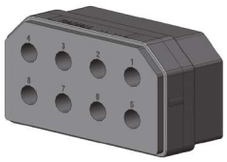
*1. For reduced crimp barrel, thermocouple or fiber optic contacts, use code X and order contact separately.*
*2. For contact arrangements which include coax or quadrax contacts, use termination code X. Quadrax and coax contacts must be ordered separately.*
*3. Without polarization code the connector is delivered with the polarizing system unassembled. With polarization code 00: the connector is delivered without polarizing system. With polarization code from 01 to 216: the connector is delivered with polarization hardware assembled as defined by code. Polarization codes for connector qualified to SAE AS81659 are ranging from 00 to 99 only.*
*4. PC tail and wire wrap contacts must be used only with non-environmental version. PC tail and wire wrap contacts are delivered installed. For 67, 32C4 and 33C4 contact arrangements, size 16 contacts are delivered not installed and in crimp termination.*
*5. Gang A*

*DSX-SAE AS81659*

## CONTACT ARRANGEMENTS

*Pin insert mating side shown*

Class N for non-environmental insert
Class E for environmental insert
Class T for insert with interfacial seal only

| INSERT NAME | NUMBER OF CONTACTS | DIELECTRIC WITHSTANDING VOLTAGE (DWV) | CLASS | | | INSERT NAME | NUMBER OF CONTACTS | DWV | CLASS | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | N | E | T | | | | N | E | T |
| C5 [1] |  5 × #5 (Power) | 2,500 V–60 Hz This Insert is Available in Class N Only | ✓ | - | - | 57 [1] |  57 × #20 HD | 1,500 V–60 Hz | ✓ | ✓ | ✓ |
| 8 |  8 × #12 | 1,500 V–60 Hz | ✓ | ✓ | ✓ | 67 |  64 × #20 HD 3 × #16 | 1,000 V-60 Hz | ✓ | ✓ | ✓ |
| D8 |  4 × #16 4 × #12 | 1,500 V–60 Hz | ✓ | ✓ | ✓ | 106 |  106 × #22 | 1,000 V-60 Hz | ✓ | ✓ | ✓ [2] |
| 26 |  26 × #16 | 1,500 V–60 Hz | ✓ | ✓ | ✓ | 40C1 |  1 × #5 (Coax) 39 × #20 HD | 1,500 V–60 Hz | ✓ | ✓ | - |
| 40 |  40 × #20 HD | 1500V–60Hz | ✓ | ✓ | ✓ | 40T1 [1] |  1 × #5 (Coax) 39 × #20 HD | 1,500 V–60 Hz Size 5 Contact Cavity Grounded to the Shell | ✓ | ✓ | - |
| 45 |  45 × #20 HD | 1,500 V–60 Hz | ✓ | ✓ | ✓ | 32C2 |  2 × #5 (Coax) 30 × #20 HD | 1,000 V-60 Hz | ✓ | ✓ | - |

***Notes***

*1. Contact arrangements are not referenced in the MS3157 and SAE AS81659 standards.*
*2. Class T insert are for pin contacts only except insert arrangement 106; 36C7 and 36T7 which are for socket contacts only.*

*DSX-SAE AS81659*

*Pin insert mating side shown*

| INSERT NAME | NUMBER OF CONTACTS | DWV | CLASS | | | INSERT NAME | NUMBER OF CONTACTS | DWV | CLASS | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | N | E | T | | | | N | E | T |
| 32T2 [1] |  2 × #5 (Coax) 30 × #20 HD | 1,000 V – 60 Hz Size 5 Contact Cavities Grounded to the Shell | ✓ | ✓ | - | 36C7 [1] |  7 × #5 (Coax) 29 × #22 | 1,000 V – 60 Hz | ✓ | ✓ | ✓ [2] |
| 32C4 |  4 × #9 (Coax) 4 × #16 24 × #20 HD | 1,500 V – 60 Hz | ✓ | ✓ | ✓ | 36T7 [1] |  7 x #5 (Coax) 29 x #22 | 1,000 V – 60Hz Size 5 Contact Cavities Grounded to the Shell | ✓ | ✓ | ✓ [2] |
| 32T4 [1] |  4 × #9 (Coax) 4 × #16 24 × #20 HD | 1,500 V – 60 Hz Size 9 Contact Cavities Grounded to the Shell | ✓ | ✓ | - | MC2 |  2 × #1 (Coax) | This Insert is Metallic | ✓ | - | - |
| 33C4 |  4 × #5 (Coax) 4 × #1625 × #20 HD | 1,000 V – 60 Hz | ✓ | ✓ | ✓ | MC3 |  2 × #7 (Coax) 1 × #3 (Coax) | This Insert is Metallic | ✓ | - | - |
| 33T4 [1] |  4 × #5 (Coax) 4 × #16 25 × #20 HD | 1,000 V – 60 Hz Size 5 Contact Cavities Grounded to the Shell | ✓ | ✓ | ✓ | C8 |  8 × #9 (Coax) | 1,000 V – 60 Hz | ✓ | ✓ | ✓ |

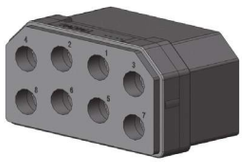
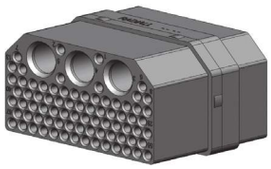
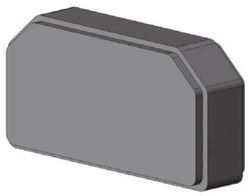
***Notes***

*1. Contact arrangements are not referenced in the MS3157 and SAE AS81659 standards.*

*2. Class T insert are for pin contacts only except insert arrangement 106; 36C7 and 36T7 which are for socket contacts only.*

*DSX-SAE AS81659*

*Pin insert mating side shown*

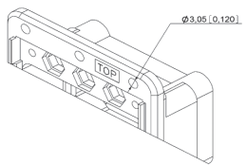
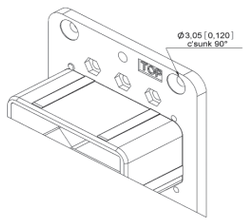
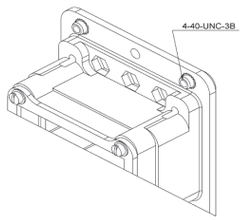
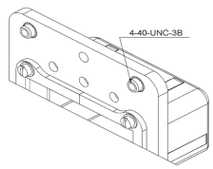
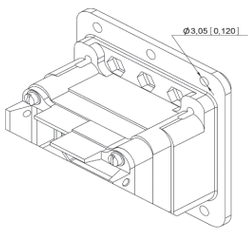
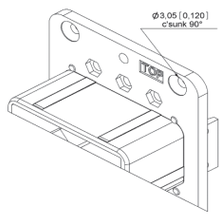
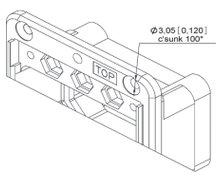
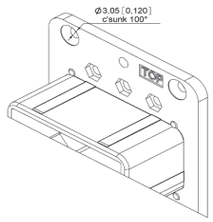
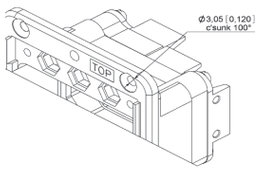
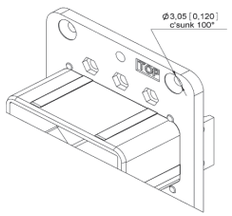
| INSERT NAME | NUMBER OF CONTACTS | DWV | CLASS | | |
|---|---|---|---|---|---|
| | | | N | E | T |
| T8* |  8 × #9 (Coax) | Size 9 Contact Cavities Grounded to the Shell.<br><br>Pin Contact Available Only | ✓ | ✓ | ✓ |
| 6CU |   6 × #8 Quadrax | Size 8 Contact Cavities Grounded to the Shell.<br><br>Non-Environmental Only | ✓ | ✓ | - |
| 81C3 |  78 × # 22<br>3 × #5 (Coax) | 1,000 V-60 Hz | ✓<br>For Pin Contact Only | - | - |
| 00* |  | Dummy Insert | - | - | - |

*DSX-SAE AS81659*

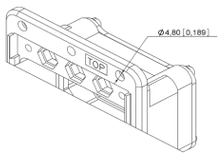
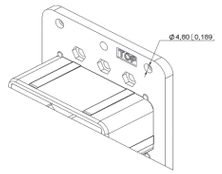
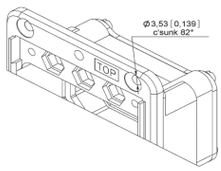
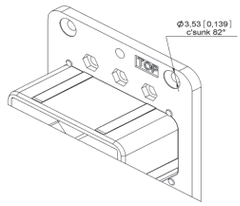
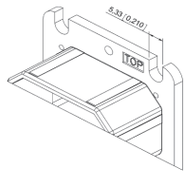
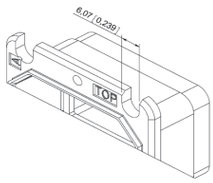
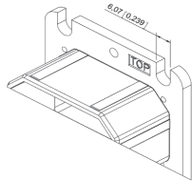
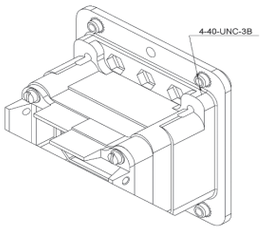
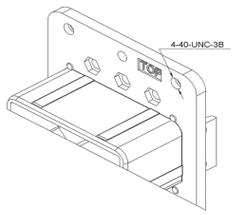
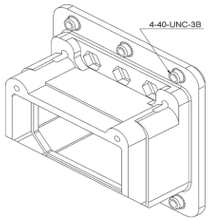
## MODIFICATION CODE

Connectors can be front or rear mount. It should be noted that:

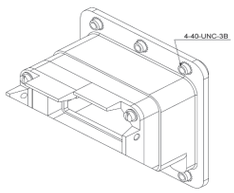
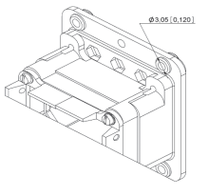
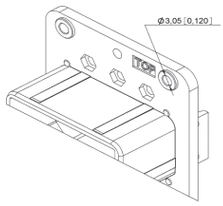
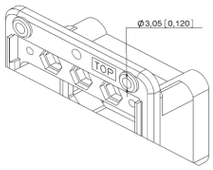
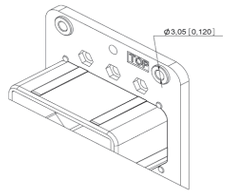
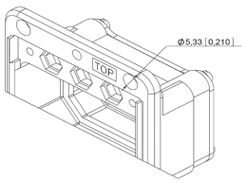
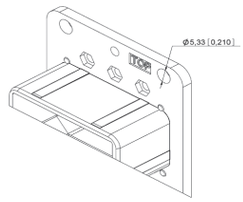
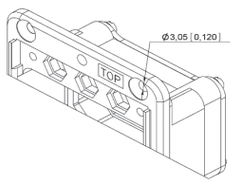
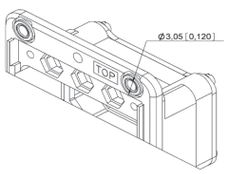
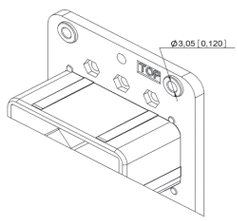
- There is only 4 mm between the connector flange when fully mated. Please note that the modification code and screw type should be selected accordingly.
- The modification code with floating eyelets can be mated with the fixed modification.

| CODE | RECEPTACLE SHELL | | PLUG SHELL | |
|---|---|---|---|---|
| 00 |  | Sizes 1,2 and 3:<br>6 Holes Ø3,05 (0.120)<br>Size 4:<br>10 Holes Ø3,05 (0.120) |  | Sizes 1 and 2:<br>4 Holes Ø3,05 (0.120)<br>c'sunk 90°<br><br>Size 3:<br>6 Holes Ø3,05 (0.120)<br>c'sunk 90°<br><br>Size 4:<br>10 Holes Ø3,05 (0.120)<br>c'sunk 90° |
| 01 |  | Sizes 1 and 2:<br>4 Clinch Nuts 4.40<br>UNC 3B<br><br>Size 3: 6 Clinch Nuts<br>4.40 UNC 3B<br>Size 4: 10 Clinch Nuts<br>4.40 UNC 3B |  | Sizes 1 and 2: 4 Clinch Nuts 4.40<br>UNC 3B<br><br>Size 3: 6 Clinch Nuts<br>4.40 UNC 3B<br><br>Size 4: 10 Clinch Nuts<br>4.40 UNC 3B |
| 02 |  | Sizes 1, 2 and 3:<br>6 Holes Ø3,05 (0.120) with<br>Attaching Tabs for Radiall<br>Backshell<br><br>Not Available<br>in Size 4 |  | Sizes 1 and 2:<br>4 Holes Ø3,05 (0.120) c'sunk 90°<br>with Attaching Tabs for Radiall<br>Backshell<br><br>Size 3:<br>6 Holes Ø3,05 (0.120) c'sunk 90°<br>with Attaching Tabs for Radiall<br>backshell<br><br>Not Available<br>in Size 4 |
| 03 |  | Sizes 1 and 2:<br>4 Holes Ø3,05(0.120)<br>c'sunk 100°<br><br>Size 3:<br>6 Holes Ø3,05(0.120)<br>c'sunk 100°<br><br>Size 4:<br>10 Holes Ø3,05(0.120)<br>c'sunk 100° |  | Sizes 1 and 2:<br>4 Holes Ø3,05(0.120)<br>c'sunk 100°<br><br>Size 3:<br>6 Holes Ø3,05(0.120)<br>c'sunk 100°<br><br>Size 4:<br>10 Holes Ø3,05(0.120)<br>c'sunk 100° |
| 04 |  | Sizes 1 and 2:<br>4 Holes Ø3,05(0.120)<br>c'sunk 100° with Attaching Tabs<br>for Radiall Backshell<br><br>Size 3:<br>6 Holes Ø3,05(0.120) c'sunk 100°<br>with Attaching Tabs for Radiall<br>Backshell<br><br>Not Available<br>in Size 4 |  | Sizes 1 and 2:<br>4 Holes Ø3,05(0.120) c'sunk 100°<br>with Attaching Tabs for Radiall<br>Backshell<br><br>Size 3:<br>6 Holes Ø3,05(0.120) c'sunk 100°<br>with Attaching Tabs for Radiall<br>Backshell<br><br>Not Available<br>in Size 4 |

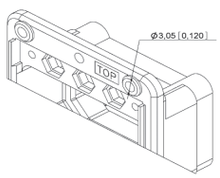
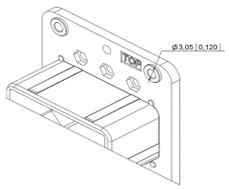
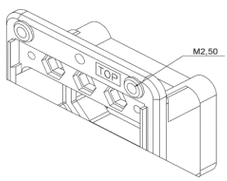
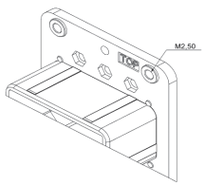
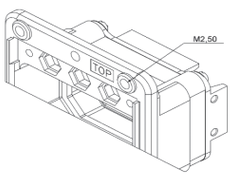
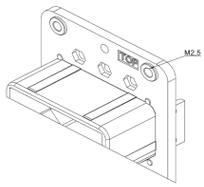
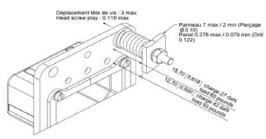
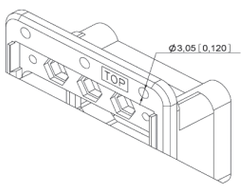
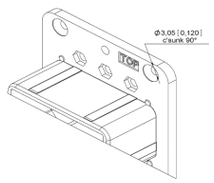
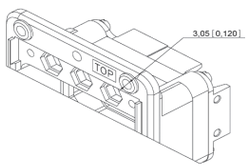
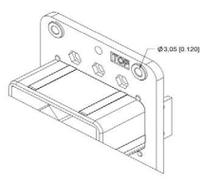
*DSX-SAE AS81659*

| CODE | RECEPTACLE SHELL | | PLUG SHELL | |
|---|---|---|---|---|
| 05 |  | Sizes 1,2 and 3:<br>4 Holes Ø4,80 (0.189)<br><br>Size 4:<br>10 Holes Ø4,80 (0.189) |  | Sizes 1,2 and 3:<br>4 Holes Ø4,80 (0.189)<br><br>Size 4:<br>10 Holes Ø 4,80 (0.189) |
| 08 |  | Sizes 1 and 2:<br>4 Holes Ø3,53 (0.139)<br>c'sunk 82°<br><br>Size 3:<br>6 Holes Ø3,53 (0.139)<br>c'sunk 82° |  | Sizes 1 and 2:<br>4 Holes Ø3,53 (0.139) c'sunk 82°<br><br>Size 3:<br>6 Holes Ø3,53 (0.139)<br>c'sunk 82° |
| 12 | - | - |  | Sizes 1, 2 and 3:<br>4 Mounting Slots 5,33<br>(0.210) Wide |
| 13 |  | Sizes 1, 2 and 3:<br>4 Mounting Slots 6,07<br>(0.239) Wide |  | Sizes 1, 2 and 3:<br>4 Mounting Slots 6,07<br>(0.239) Wide |
| 17 |  | Sizes 1 and 2:<br>4 Clinch Nuts<br>4.40 UNC 3B with Attaching<br>Tabs for Radiall Backshell<br><br>Size 3:<br>6 Clinch Nuts<br>4.40 UNC 3B with Attaching<br>Tabs for Radiall Backshell<br><br>Not Available<br>in Size 4 |  | Sizes 1 and 2:<br>4 Clinch Nuts 4.40 UNC 3B<br>with Attaching Tabs for Radiall<br>Backshell<br><br>Size 3:<br>6 Clinch Nuts 4.40 UNC 3B<br>with Attaching Tabs for Radiall<br>Backshell<br><br>Not Available in Size 4 |
| 18 |  | Sizes 1, 2 and 3:<br>6 Clinch Nuts<br>4.40 UNC 3B<br><br>Not Available<br>in Size 4 | - | - |

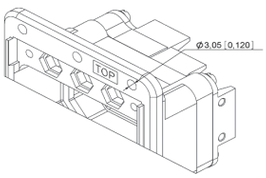
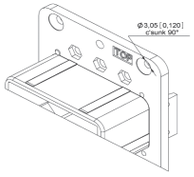
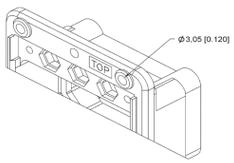
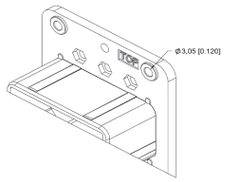
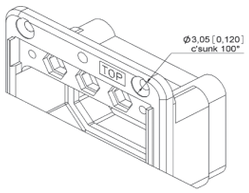
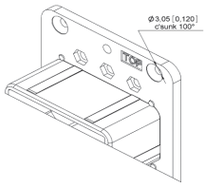
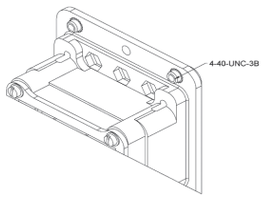
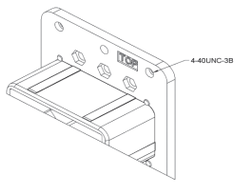
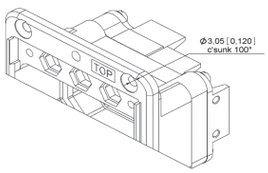
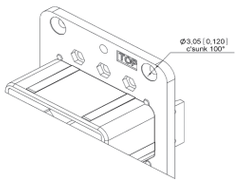
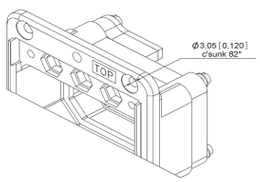
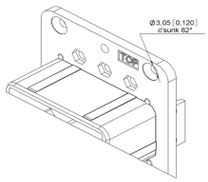
*DSX-SAE AS81659*

| CODE | RECEPTACLE SHELL | | PLUG SHELL | |
|---|---|---|---|---|
| 19 |  | Sizes 1, 2 and 3:<br>6 Clinch Nuts<br>4.40 UNC 3B with<br>Attaching Tabs for<br>Radiall Backshell<br><br>Not Available<br>in Size 4 | - | - |
| 22 |  | Sizes 1 and 2:<br>4 Floating Eyelets Ø3,05<br>(0.120) with Attaching Tabs<br>for Radiall Backshell<br><br>Size 3:<br>6 Floating Eyelets Ø3,05 (0.120)<br>with Attaching Tabs for<br>Radiall Backshell<br><br>Not Available<br>in Size 4 |  | Sizes 1 and 2:<br>4 Floating Eyelets Ø3,05<br>(0.120) with Attaching Tabs<br>for Radiall Backshell<br><br>Size 3:<br>6 Floating Eyelets Ø3,05 (0.120)<br>with Attaching Tabs for<br>Radiall Backshell<br><br>Not Available<br>in Size 4 |
| 23 |  | Sizes 1 and 2:<br>4 Floating Eyelets Ø3,05(0.120<br><br>Size 3:<br>6 Floating Eyelets Ø3,05 (0.120)<br><br>Size 4:<br>10 Floating Eyelets Ø3,05 (0.120) |  | Sizes 1 and 2:<br>4 Floating Eyelets Ø3,05 (0.120)<br><br>Size 3:<br>6 Floating Eyelets Ø3,05 (0.120)<br><br>Size 4:<br>10 Floating Eyelets Ø3,05 (0.120) |
| 24 |  | Sizes 1, 2 and 3:<br>6 Holes Ø5,33 (0.210) |  | Sizes 1, 2 and 3:<br>6 Holes Ø5,33 (0.210) |
| 26 |  | Sizes 1 and 2:<br>4 Holes Ø3,05(0.120) c'sunk 90°<br><br>Size 3:<br>6 Holes Ø3,05(0.120) c'sunk 90°<br><br>Size 4:<br>10 Holes Ø3,05(0.120) c'sunk 90° | - | - |
| 33 |  | Sizes 1 and 2:<br>4 Flush Front Embedded<br>Floating Eyelets Ø3,05 (0.120)<br><br>Size 3:<br>6 Flush Front Embedded<br>Floating Eyelets Ø3,05 (0.120)<br><br>Size 4:<br>10 Flush Front Embedded<br>Floating Eyelets Ø3,05 (0.120) |  | Sizes 1 and 2:<br>4 Flush Rear Embedded<br>Floating Eyelets Ø3,05 (0.120)<br><br>Size 3:<br>6 Flush Rear Embedded<br>Floating Eyelets Ø3,05 (0.120)<br><br>Size 4:<br>10 Flush Rear Embedded<br>Floating Eyelets Ø3,05 (0.120) |

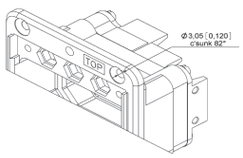
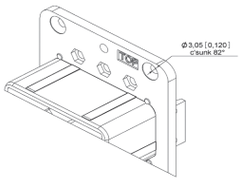
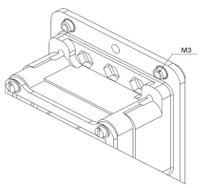
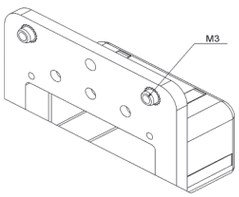
*DSX-SAE AS81659*

| CODE | RECEPTACLE SHELL | | PLUG SHELL | |
|---|---|---|---|---|
| 34 |  | Sizes 1 and 2:<br>4 Flush Rear Embedded<br>Floating Eyelets Ø3,05 (0.120)<br><br>Size 3:<br>6 Flush Rear Embedded<br>Floating Eyelets Ø3,05 (0.120)<br><br>Size 4:<br>10 Flush Rear Embedded<br>Floating Eyelets Ø3,05 (0.120) |  | Sizes 1 and 2:<br>4 Flush Front Embedded<br>Floating Eyelets Ø3,05 (0.120)<br><br>Size 3:<br>6 Flush Front Embedded<br>Floating Eyelets Ø3,05 (0.120)<br><br>Size 4:<br>10 Flush Front Embedded<br>Floating Eyelets Ø3,05 (0.120) |
| 35 |  | Sizes 1 and 2:<br>4 Flush Front Embedded<br>Floating Eyelets M2.5 Threaded<br><br>Size 3:<br>6 Flush Rear Embedded<br>Floating Eyelets M2.5 Threaded |  | Sizes 1 and 2:<br>4 Flush Rear Embedded<br>Floating Eyelets M2.5 Threaded<br><br>Size 3:<br>6 Flush Rear Embedded<br>Floating Eyelets M2.5 Threaded |
| 36 |  | Sizes 1 and 2:<br>4 Flush Front Embedded<br>Floating Eyelets M2.5 Threaded<br>with Attaching Tabs for<br>Radiall Backshell<br><br>Size 3:<br>6 Flush Front Embedded<br>Floating Eyelets M2.5 Threaded<br>with Attaching Tabs for<br>Radiall Backshell<br><br>Not Available<br>in Size 4 |  | Sizes 1 and 2:<br>4 Flush Front Embedded<br>Floating Eyelets M2.5 Threaded<br>with Attaching Tabs for<br>Radiall Backshell<br><br>Size 3:<br>6 Flush Front Embedded<br>Floating Eyelets M2.5 Threaded<br>with Attaching Tabs for<br>Radiall Backshell<br><br>Not Available<br>in Size 4 |
| 55 | - | - |  | Sizes 1, 2 and 3:<br>Spring Loaded Shell 6 Places |
| 60 |  | Similar to Modification<br>Code 00 except that the Shell,<br>Keys and Keys Retention Plate<br>are Nickel-Plated. |  | Similar to Modification<br>Code 00 except that the Shell,<br>Keys and Keys Retention Plate<br>are Nickel-Plated. |
| 61 |  | Similar to Modification<br>Code 22 except that the Shell,<br>Keys and Keys Retention Plate<br>are Nickel-Plated.<br><br>Not Available in Size 4 |  | Similar to Modification<br>Code 22 except that the Shell,<br>Keys and Keys Retention Plate<br>are Nickel-Plated.<br><br>Not Available in Size 4 |

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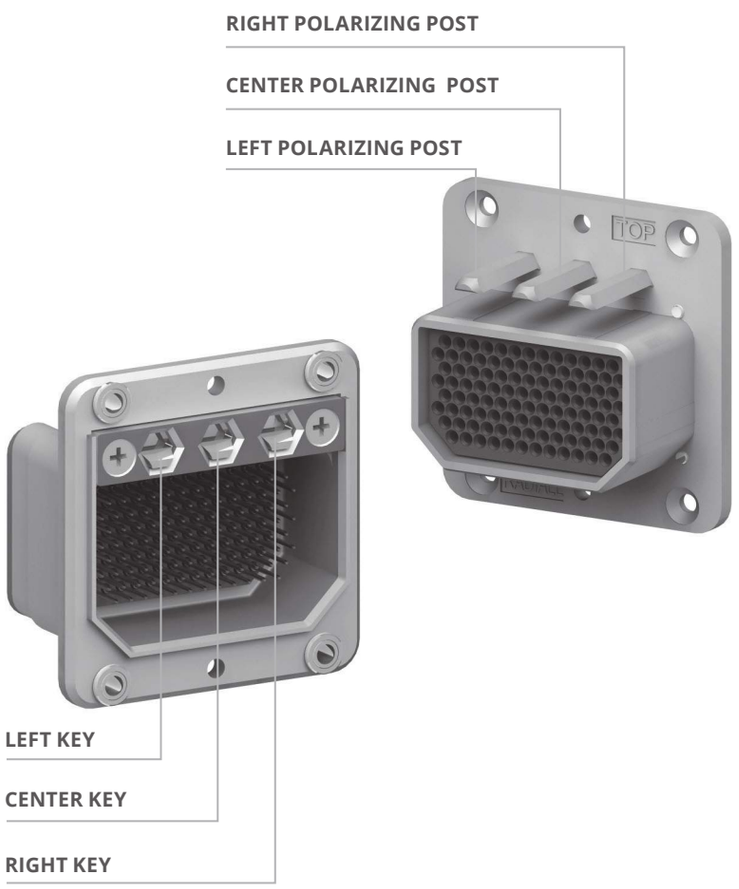
| CODE | RECEPTACLE SHELL | | PLUG SHELL | |
|---|---|---|---|---|
| 62 |  | Similar to Modification Code 02 except that the Shell, Keys and Keys Retention Plate are Nickel-Plated.<br><br>Not Available in Size 4 |  | Similar to Modification Code 02 except that the Shell, Keys and Keys Retention Plate are Nickel-Plated.<br><br>Not Available in Size 4 |
| 63 |  | Similar to Modification Code 23 except that the Shell, Keys and Keys Retention Plate are Nickel-Plated. |  | Similar to Modification Code 23 except that the Shell, Keys and Keys Retention Plate are Nickel-Plated. |
| 64 |  | Similar to Modification Code 03 except that the Shell, Keys and Keys Retention Plate are Nickel-Plated. |  | Similar to Modification Code 03 except that the Shell, Keys and Keys Retention Plate are Nickel-Plated. |
| 66 |  | Similar to Modification Code 01 except that the Shell, Keys and Keys Retention Plate are Nickel-Plated. |  | Similar to Modification Code 01 except that the Shell, Keys and Keys Retention Plate are Nickel-Plated. |
| 67 |  | Sizes 1 and 2:<br>4 Holes Ø3,05 (0.120) c'sunk 100° with Attaching Tabs for Radiall Backshell<br><br>Size 3:<br>6 Holes Ø3,05 (0.120) c'sunk 100° with Attaching Tabs for Radiall Backshell Shells are Nickel-Plated.<br><br>Not Available in Size 4 |  | Sizes 1 and 2:<br>4 Holes Ø3,05 (0.120) c'sunk 100° with Attaching Tabs for Radiall Backshell<br><br>Size 3:<br>6 Holes Ø3,05 (0.120) c'sunk 100° with Attaching Tabs for Radiall Backshell. Shells are Nickel-Plated<br><br>Not Available for Size 4 |
| 73 |  | Sizes 1 and 2:<br>4 Holes Ø3,05 (0.120) c'sunk 82°<br><br>Size 3:<br>6 Holes Ø3,05 (0.120) c'sunk 82°<br><br>Size 4:<br>10 Holes Ø3,05 (0.120) c'sunk 82° |  | Sizes 1 and 2:<br>4 Holes Ø3,05 (0.120) c'sunk 82°<br><br>Size 3:<br>6 Holes Ø3,05 (0.120) c'sunk 82°<br><br>Size 4:<br>10 Holes Ø3,05 (0.120) c'sunk 82° |

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| CODE | RECEPTACLE SHELL | | PLUG SHELL | |
|---|---|---|---|---|
| 77 |  | Sizes 1 and 2:<br>4 Holes Ø3,05 (0.120) c'sunk 82° with Attaching Tabs for Radiall Backshell<br><br>Size 3:<br>6 Holes Ø3,05 (0.120) c'sunk 82° with Attaching Tabs for Radiall Backshell<br><br>Not Available for Size 4 |  | Sizes 1 and 2:<br>4 Holes Ø3,05 (0.120) c'sunk 82° with Attaching Tabs for Radiall Backshell<br><br>Size 3:<br>6 Holes Ø3,05 (0.120) c'sunk 82° with Attaching Tabs for Radiall Backshell<br><br>Not Available for Size 4 |
| 79 |  | Sizes 1 and 2:<br>4 M3 Clinch Nuts<br><br>Size 3:<br>6 M3 Clinch Nuts<br><br>Size 4:<br>10 M3 Clinch Nuts |  | Sizes 1 and 2:<br>4 M3 Clinch Nuts<br><br>Size 3:<br>6 M3 Clinch Nuts<br><br>Size 4:<br>10 M3 Clinch Nuts |

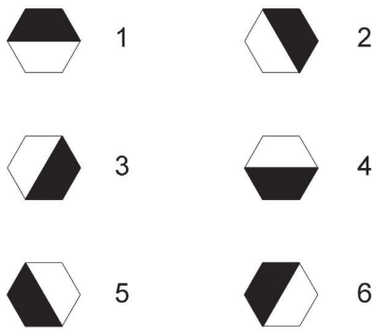
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## POLARIZATION CODE




**POSITION OF POLARIZATION KEYS AND POSTS.**

Connectors are shown front side, with "TOP" upwards.




### POSITION CODING

Dark area represents the polarizing post.
Clear position represents the key hole.

| POLARIZATION CODE | RECEPTACLE SHELL | | | PLUG SHELL | | |
|---|---|---|---|---|---|---|
| | LEFT KEY | CENTER KEY | RIGHT KEY | LEFT POST | CENTER POST | RIGHT POST |
| 00 | - | - | - | - | - | - |
| 01 | 4 | 4 | 4 | 1 | 1 | 1 |
| 02 | 4 | 4 | 3 | 2 | 1 | 1 |
| 03 | 4 | 4 | 2 | 3 | 1 | 1 |
| 04 | 4 | 4 | 1 | 4 | 1 | 1 |
| 05 | 4 | 4 | 6 | 5 | 1 | 1 |
| 06 | 4 | 4 | 5 | 6 | 1 | 1 |
| 07 | 5 | 4 | 4 | 1 | 1 | 6 |
| 08 | 5 | 4 | 3 | 2 | 1 | 6 |
| 09 | 5 | 4 | 2 | 3 | 1 | 6 |
| 10 | 5 | 4 | 1 | 4 | 1 | 6 |
| 11 | 5 | 4 | 6 | 5 | 1 | 6 |

### POLARIZATION CODE TABLE

| POLARIZATION CODE | RECEPTACLE SHELL | | | PLUG SHELL | | |
|---|---|---|---|---|---|---|
| | LEFT KEY | CENTER KEY | RIGHT KEY | LEFT POST | CENTER POST | RIGHT POST |
| 12 | 5 | 4 | 5 | 6 | 1 | 6 |
| 13 | 6 | 4 | 4 | 1 | 1 | 5 |
| 14 | 6 | 4 | 3 | 2 | 1 | 5 |
| 15 | 6 | 4 | 2 | 3 | 1 | 5 |
| 16 | 6 | 4 | 1 | 4 | 1 | 5 |
| 17 | 6 | 4 | 6 | 5 | 1 | 5 |
| 18 | 6 | 4 | 5 | 6 | 1 | 5 |
| 19 | 1 | 4 | 4 | 1 | 1 | 4 |
| 20 | 1 | 4 | 3 | 2 | 1 | 4 |
| 21 | 1 | 4 | 2 | 3 | 1 | 4 |
| 22 | 1 | 4 | 1 | 4 | 1 | 4 |
| 23 | 1 | 4 | 6 | 5 | 1 | 4 |
| 24 | 1 | 4 | 5 | 6 | 1 | 4 |
| 25 | 2 | 4 | 4 | 1 | 1 | 3 |

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| POLARIZATION CODE | RECEPTACLE SHELL | | | PLUG SHELL | | |
|---|---|---|---|---|---|---|
| | LEFT KEY | CENTER KEY | RIGHT KEY | LEFT POST | CENTER POST | RIGHT POST |
| 26 | 2 | 4 | 3 | 2 | 1 | 3 |
| 27 | 2 | 4 | 2 | 3 | 1 | 3 |
| 28 | 2 | 4 | 1 | 4 | 1 | 3 |
| 29 | 2 | 4 | 6 | 5 | 1 | 3 |
| 30 | 2 | 4 | 5 | 6 | 1 | 3 |
| 31 | 3 | 4 | 4 | 1 | 1 | 2 |
| 32 | 3 | 4 | 3 | 2 | 1 | 2 |
| 33 | 3 | 4 | 2 | 3 | 1 | 2 |
| 34 | 3 | 4 | 1 | 4 | 1 | 2 |
| 35 | 3 | 4 | 6 | 5 | 1 | 2 |
| 36 | 3 | 4 | 5 | 6 | 1 | 2 |
| 37 | 4 | 3 | 4 | 1 | 2 | 1 |
| 38 | 4 | 3 | 3 | 2 | 2 | 1 |
| 39 | 4 | 3 | 2 | 3 | 2 | 1 |
| 40 | 4 | 3 | 1 | 4 | 2 | 1 |
| 41 | 4 | 3 | 6 | 5 | 2 | 1 |
| 42 | 4 | 3 | 5 | 6 | 2 | 1 |
| 43 | 5 | 3 | 4 | 1 | 2 | 6 |
| 44 | 5 | 3 | 3 | 2 | 2 | 6 |
| 45 | 5 | 3 | 2 | 3 | 2 | 6 |
| 46 | 5 | 3 | 1 | 4 | 2 | 6 |
| 47 | 5 | 3 | 6 | 5 | 2 | 6 |
| 48 | 5 | 3 | 5 | 6 | 2 | 6 |
| 49 | 6 | 3 | 4 | 1 | 2 | 5 |
| 50 | 6 | 3 | 3 | 2 | 2 | 5 |
| 51 | 6 | 3 | 2 | 3 | 2 | 5 |
| 52 | 6 | 3 | 1 | 4 | 2 | 5 |
| 53 | 6 | 3 | 6 | 5 | 2 | 5 |
| 54 | 6 | 3 | 5 | 6 | 2 | 5 |
| 55 | 1 | 3 | 4 | 1 | 2 | 4 |
| 56 | 1 | 3 | 3 | 2 | 2 | 4 |
| 57 | 1 | 3 | 2 | 3 | 2 | 4 |
| 58 | 1 | 3 | 1 | 4 | 2 | 4 |
| 59 | 1 | 3 | 6 | 5 | 2 | 4 |
| 60 | 1 | 3 | 5 | 6 | 2 | 4 |
| 61 | 2 | 3 | 4 | 1 | 2 | 3 |
| 62 | 2 | 3 | 3 | 2 | 2 | 3 |
| 63 | 2 | 3 | 2 | 3 | 2 | 3 |
| 64 | 2 | 3 | 1 | 4 | 2 | 3 |
| 65 | 2 | 3 | 6 | 5 | 2 | 3 |
| 66 | 2 | 3 | 5 | 6 | 2 | 3 |

| POLARIZATION CODE | RECEPTACLE SHELL | | | PLUG SHELL | | |
|---|---|---|---|---|---|---|
| | LEFT KEY | CENTER KEY | RIGHT KEY | LEFT POST | CENTER POST | RIGHT POST |
| 67 | 3 | 3 | 4 | 1 | 2 | 2 |
| 68 | 3 | 3 | 3 | 2 | 2 | 2 |
| 69 | 3 | 3 | 2 | 3 | 2 | 2 |
| 70 | 3 | 3 | 1 | 4 | 2 | 2 |
| 71 | 3 | 3 | 6 | 5 | 2 | 2 |
| 72 | 3 | 3 | 5 | 6 | 2 | 2 |
| 73 | 4 | 2 | 4 | 1 | 3 | 1 |
| 74 | 4 | 2 | 3 | 2 | 3 | 1 |
| 75 | 4 | 2 | 2 | 3 | 3 | 1 |
| 76 | 4 | 2 | 1 | 4 | 3 | 1 |
| 77 | 4 | 2 | 6 | 5 | 3 | 1 |
| 78 | 4 | 2 | 5 | 6 | 3 | 1 |
| 79 | 5 | 2 | 4 | 1 | 3 | 6 |
| 80 | 5 | 2 | 3 | 2 | 3 | 6 |
| 81 | 5 | 2 | 2 | 3 | 3 | 6 |
| 82 | 5 | 2 | 1 | 4 | 3 | 6 |
| 83 | 5 | 2 | 6 | 5 | 3 | 6 |
| 84 | 5 | 2 | 5 | 6 | 3 | 6 |
| 85 | 6 | 2 | 4 | 1 | 3 | 5 |
| 86 | 6 | 2 | 3 | 2 | 3 | 5 |
| 87 | 6 | 2 | 2 | 3 | 3 | 5 |
| 88 | 6 | 2 | 1 | 4 | 3 | 5 |
| 89 | 6 | 2 | 6 | 5 | 3 | 5 |
| 90 | 6 | 2 | 5 | 6 | 3 | 5 |
| 91 | 1 | 2 | 4 | 1 | 3 | 4 |
| 92 | 1 | 2 | 3 | 2 | 3 | 4 |
| 93 | 1 | 2 | 2 | 3 | 3 | 4 |
| 94 | 1 | 2 | 1 | 4 | 3 | 4 |
| 95 | 1 | 2 | 6 | 5 | 3 | 4 |
| 96 | 1 | 2 | 5 | 6 | 3 | 4 |
| 97 | 2 | 2 | 4 | 1 | 3 | 3 |
| 98 | 2 | 2 | 3 | 2 | 3 | 3 |
| 99 | 2 | 2 | 2 | 3 | 3 | 3 |
| 100 | 2 | 2 | 1 | 4 | 3 | 3 |
| 101 | 2 | 2 | 6 | 5 | 3 | 3 |
| 102 | 2 | 2 | 5 | 6 | 3 | 3 |
| 103 | 3 | 2 | 4 | 1 | 3 | 2 |
| 104 | 3 | 2 | 3 | 2 | 3 | 2 |
| 105 | 3 | 2 | 2 | 3 | 3 | 2 |
| 106 | 3 | 2 | 1 | 4 | 3 | 2 |
| 107 | 3 | 2 | 6 | 5 | 3 | 2 |

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| POLARIZATION CODE | RECEPTACLE SHELL | | | PLUG SHELL | | |
|---|---|---|---|---|---|---|
| | LEFT KEY | CENTER KEY | RIGHT KEY | LEFT POST | CENTER POST | RIGHT POST |
| 108 | 3 | 2 | 5 | 6 | 3 | 2 |
| 109 | 4 | 1 | 4 | 1 | 4 | 1 |
| 110 | 4 | 1 | 3 | 2 | 4 | 1 |
| 111 | 4 | 1 | 2 | 3 | 4 | 1 |
| 112 | 4 | 1 | 1 | 4 | 4 | 1 |
| 113 | 4 | 1 | 6 | 5 | 4 | 1 |
| 114 | 4 | 1 | 5 | 6 | 4 | 1 |
| 115 | 5 | 1 | 4 | 1 | 4 | 6 |
| 116 | 5 | 1 | 3 | 2 | 4 | 6 |
| 117 | 5 | 1 | 2 | 3 | 4 | 6 |
| 118 | 5 | 1 | 1 | 4 | 4 | 6 |
| 119 | 5 | 1 | 6 | 5 | 4 | 6 |
| 120 | 5 | 1 | 5 | 6 | 4 | 6 |
| 121 | 6 | 1 | 4 | 1 | 4 | 5 |
| 122 | 6 | 1 | 3 | 2 | 4 | 5 |
| 123 | 6 | 1 | 2 | 3 | 4 | 5 |
| 124 | 6 | 1 | 1 | 4 | 4 | 5 |
| 125 | 6 | 1 | 6 | 5 | 4 | 5 |
| 126 | 6 | 1 | 5 | 6 | 4 | 5 |
| 127 | 1 | 1 | 4 | 1 | 4 | 4 |
| 128 | 1 | 1 | 3 | 2 | 4 | 4 |
| 129 | 1 | 1 | 2 | 3 | 4 | 4 |
| 130 | 1 | 1 | 1 | 4 | 4 | 4 |
| 131 | 1 | 1 | 6 | 5 | 4 | 4 |
| 132 | 1 | 1 | 5 | 6 | 4 | 4 |
| 133 | 2 | 1 | 4 | 1 | 4 | 3 |
| 134 | 2 | 1 | 3 | 2 | 4 | 3 |
| 135 | 2 | 1 | 2 | 3 | 4 | 3 |
| 136 | 2 | 1 | 1 | 4 | 4 | 3 |
| 137 | 2 | 1 | 6 | 5 | 4 | 3 |
| 138 | 2 | 1 | 5 | 6 | 4 | 3 |
| 139 | 3 | 1 | 4 | 1 | 4 | 2 |
| 140 | 3 | 1 | 3 | 2 | 4 | 2 |
| 141 | 3 | 1 | 2 | 3 | 4 | 2 |
| 142 | 3 | 1 | 1 | 4 | 4 | 2 |
| 143 | 3 | 1 | 6 | 5 | 4 | 2 |
| 144 | 3 | 1 | 5 | 5 | 4 | 2 |
| 145 | 4 | 6 | 4 | 1 | 5 | 1 |
| 146 | 4 | 6 | 3 | 2 | 5 | 1 |
| 147 | 4 | 6 | 2 | 3 | 5 | 1 |
| 148 | 4 | 6 | 1 | 4 | 5 | 1 |

| POLARIZATION CODE | RECEPTACLE SHELL | | | PLUG SHELL | | |
|---|---|---|---|---|---|---|
| | LEFT KEY | CENTER KEY | RIGHT KEY | LEFT POST | CENTER POST | RIGHT POST |
| 149 | 4 | 6 | 6 | 5 | 5 | 1 |
| 150 | 4 | 6 | 5 | 6 | 5 | 1 |
| 151 | 5 | 6 | 4 | 1 | 5 | 6 |
| 152 | 5 | 6 | 3 | 2 | 5 | 6 |
| 153 | 5 | 6 | 2 | 3 | 5 | 6 |
| 154 | 5 | 6 | 1 | 4 | 5 | 6 |
| 155 | 5 | 6 | 6 | 5 | 5 | 6 |
| 156 | 5 | 6 | 5 | 6 | 5 | 6 |
| 157 | 6 | 6 | 4 | 1 | 5 | 5 |
| 158 | 6 | 6 | 3 | 2 | 5 | 5 |
| 159 | 6 | 6 | 2 | 3 | 5 | 5 |
| 160 | 6 | 6 | 1 | 4 | 5 | 5 |
| 161 | 6 | 6 | 6 | 5 | 5 | 5 |
| 162 | 6 | 6 | 5 | 6 | 5 | 5 |
| 163 | 1 | 6 | 4 | 1 | 5 | 4 |
| 164 | 1 | 6 | 3 | 2 | 5 | 4 |
| 165 | 1 | 6 | 2 | 3 | 5 | 4 |
| 166 | 1 | 6 | 1 | 4 | 5 | 4 |
| 167 | 1 | 6 | 6 | 5 | 5 | 4 |
| 168 | 1 | 6 | 5 | 6 | 5 | 4 |
| 169 | 2 | 6 | 4 | 1 | 5 | 3 |
| 170 | 2 | 6 | 3 | 2 | 5 | 3 |
| 171 | 2 | 6 | 2 | 3 | 5 | 3 |
| 172 | 2 | 6 | 1 | 4 | 5 | 3 |
| 173 | 2 | 6 | 6 | 5 | 5 | 3 |
| 174 | 2 | 6 | 5 | 6 | 5 | 3 |
| 175 | 3 | 6 | 4 | 1 | 5 | 2 |
| 176 | 3 | 6 | 3 | 2 | 5 | 2 |
| 177 | 3 | 6 | 2 | 3 | 5 | 2 |
| 178 | 3 | 6 | 1 | 4 | 5 | 2 |
| 179 | 3 | 6 | 6 | 5 | 5 | 2 |
| 180 | 3 | 6 | 5 | 6 | 5 | 2 |
| 181 | 4 | 5 | 4 | 1 | 6 | 1 |
| 182 | 4 | 5 | 3 | 2 | 6 | 1 |
| 183 | 4 | 5 | 2 | 3 | 6 | 1 |
| 184 | 4 | 5 | 1 | 4 | 6 | 1 |
| 185 | 4 | 5 | 6 | 5 | 6 | 1 |
| 186 | 4 | 5 | 5 | 6 | 6 | 1 |
| 187 | 5 | 5 | 4 | 1 | 6 | 6 |
| 188 | 5 | 5 | 3 | 2 | 6 | 6 |
| 189 | 5 | 5 | 2 | 3 | 6 | 6 |

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| POLARIZATION CODE | RECEPTACLE SHELL | | | PLUG SHELL | | |
|---|---|---|---|---|---|---|
| | LEFT KEY | CENTER KEY | RIGHT KEY | LEFT POST | CENTER POST | RIGHT POST |
| 190 | 5 | 5 | 1 | 4 | 6 | 6 |
| 191 | 5 | 5 | 6 | 5 | 6 | 6 |
| 192 | 5 | 5 | 5 | 6 | 6 | 6 |
| 193 | 6 | 5 | 4 | 1 | 6 | 5 |
| 194 | 6 | 5 | 3 | 2 | 6 | 5 |
| 195 | 6 | 5 | 2 | 3 | 6 | 5 |
| 196 | 6 | 5 | 1 | 4 | 6 | 5 |
| 197 | 6 | 5 | 6 | 5 | 6 | 5 |
| 198 | 6 | 5 | 5 | 6 | 6 | 5 |
| 199 | 1 | 5 | 4 | 1 | 6 | 4 |
| 200 | 1 | 5 | 3 | 2 | 6 | 4 |
| 201 | 1 | 5 | 2 | 3 | 6 | 4 |
| 202 | 1 | 5 | 1 | 4 | 6 | 4 |
| 203 | 1 | 5 | 6 | 5 | 6 | 4 |
| 204 | 1 | 5 | 5 | 6 | 6 | 4 |
| 205 | 2 | 5 | 4 | 1 | 6 | 3 |
| 206 | 2 | 5 | 3 | 2 | 6 | 3 |
| 207 | 2 | 5 | 2 | 3 | 6 | 3 |
| 208 | 2 | 5 | 1 | 4 | 6 | 3 |
| 209 | 2 | 5 | 6 | 5 | 6 | 3 |
| 210 | 2 | 5 | 5 | 6 | 6 | 3 |
| 211 | 3 | 5 | 4 | 1 | 6 | 2 |
| 212 | 3 | 5 | 3 | 2 | 6 | 2 |
| 213 | 3 | 5 | 2 | 3 | 6 | 2 |
| 214 | 3 | 5 | 1 | 4 | 6 | 2 |
| 215 | 3 | 5 | 6 | 5 | 6 | 2 |
| 216 | 3 | 5 | 5 | 6 | 6 | 2 |

## CONTACTS

### SIGNAL & POWER CRIMP CONTACTS SIZES 22, 20 HD, 16, 12 & 5

| CONTACT SIZE | AWG | CROSS SECTION ($MM^2$) | WIRE OUTSIDE DIA MM (INCH) | STRIPING LENGTH MM (INCH) | PIN | SOCKET | CRIMPING TOOL | POSITIONNER | SEL. | INS/EXT TOOL |
|---|---|---|---|---|---|---|---|---|---|---|
| 22 | 22<br>24<br>26 | 0.38<br>0.21<br>0.14 | 1.4 (0.055) | 3.5 (0.138) | 616200 (M39029/ 11-144) | 616300 (M39029/ 12-148) | 282281 (M22520/ 2-01) | 282970 (M22520/ 2-23) | 4<br>3<br>3 | 282885 (M81969/ 1-01) |
| 22 Reduced Crimp Barrel | 28<br>30 | 0.093<br>0.055 | 1.2 (0.047) | 3.5 | 616201 | 616301 | | | 5<br>4 | |
| 20 HD | 20<br>22<br>24 | 0.60<br>0.38<br>0.21 | 1.8 (0.071) | 4.0 (0.157) | 616210 (M39029/ 11-145) | 616310 (M39029/ 12-149) | | 282971 (M22520/ 2-08) | 7<br>6<br>5 | 282886 (M81969/ 1-02) |
| 20 HD Reduced Crimp Barrel | 26<br>28<br>30 | 0.14<br>0.093<br>0.055 | 1.25 (0.049) | 4.0 (0.157) | 616211 | 616311 | | | 6<br>5<br>4 | |
| 16 | 16<br>18<br>20 | 1.34<br>0.93<br>0.60 | 2.6 (0.236) | 6.0 (0.236) | 616230 (M39029/ 11-146) | 616330 (M39029/ 12-150) | 282291 (M22520/ 1-01) | 282972 (M22520/ 1-02) | 6<br>5<br>4 | 282546 (M81969/ 1-03) |
| 16 Reduced Crimp Barrel | 20<br>22<br>24 | 0.60<br>0.38<br>0.21 | 1.80 (0.071) | 6.0 (0.236) | 616231 | 616331 | | | 5<br>4 | |
| 12 | 12<br>14<br>16 | 3.18<br>1.91<br>1.34 | 3.4 (0.134) | 6.0 (0.236) | 616240 (M39029/ 11-147) | 616340 (M39029/ 11-151) | | 282579 (M22520/ 1-11) | 8<br>7<br>6 | 282547 (M81969/ 28-02) |
| For Cavity 5 | 12<br>14 | 3.18<br>1.91 | 3.4 (0.134) | 8.0 (0.315) | 616261 | 616361 | 282296 (DANIELS M300BT) [1] | | 1<br>1 | 282946 (M81969/ 28-01) |
| | 10<br>8 | 5.0<br>9.0 | 5.7 (0.234) | | 616266 | 616366 | | 282557 | 5<br>8 | |

### THERMOCOUPLE CONTACTS SIZES 22 & 20 HD-MADE OF CHROMEL

| CONTACT SIZE | AWG | CROSS SECTION ($MM^2$) | WIRE OUTSIDE DIA MM (INCH) | STRIPING LENGTH MM (INCH) | PIN | SOCKET | CRIMPING TOOL | POSITIONNER | SEL. | INS/EXT TOOL |
|---|---|---|---|---|---|---|---|---|---|---|
| 22 | 22<br>24<br>26 | 0.38<br>0.21<br>0.14 | 1.4 (0.055) | 3.5 (0.138) | 620280 | 620380 | 282281 (M22520/ 2-01) | 282970 (M22520/ 2-23) | 4<br>3<br>3 | 282885 (M81969/ 1-01) |
| 20 HD | 20<br>22<br>24 | 0.60<br>0.38<br>0.21 | 1.8 (0.071) | 4.0 (0.157) | 620290 | 620390 | | 282971 (M22520/ 2-08) | 7<br>6<br>5 | 282886 (M81969/ 1-02) |

### THERMOCOUPLE CONTACTS SIZES 22 & 20 HD-MADE OF ALUMEL

| CONTACT SIZE | AWG | CROSS SECTION ($MM^2$) | WIRE OUTSIDE DIA MM (INCH) | STRIPING LENGTH MM (INCH) | PIN | SOCKET | CRIMPING TOOL | POSITIONNER | SEL. | INS/EXT TOOL |
|---|---|---|---|---|---|---|---|---|---|---|
| 22 | 22<br>24<br>26 | 0.38<br>0.21<br>0.14 | 1.4 (0.055) | 3.5 (0.138) | 620281 | 620381 | 282281 (M22520/ 2-01) | 282970 (M22520/ 2-23) | 4<br>3<br>3 | 282885 (M81969/ 1-01) |
| 20 HD | 20<br>22<br>24 | 0.60<br>0.38<br>0.21 | 1.8 (0.071) | 4.0 (0.157) | 620291 | 620391 | | 282971 (M22520/ 2-08) | 7<br>6<br>5 | 282886 (M81969/ 1-02) |

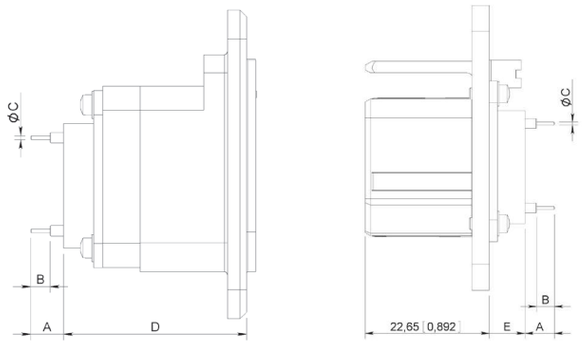
*Notes*

*1. Daniels WA27-309-EP air pressure tool with crimp setting 5 can also be used. Crimp setting 5 is not adjustable and must be set by the factory.*

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## SIZES 22 & 20 HD-PC TAIL CONTACTS

| CONTACT SIZE | CONTACT ARRANGEMENT | PIN | SOCKET | EXT. TOOL | DIMENSIONS MM (INCH) | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | A | B | C | D | E |
| 22 | 106 | - | 616379 | 282890 | 6.1/5.3 (0.240/0.209) | 6.5 (0.256) | 0.6 (0.023) | 25.25/25.75 (0.994/1.013) | 1.55/1.75 (0.061/0.069) |
| | | | 616303 | | 14.4/13.6 (0.567/0.535) | 9.4 (0.370) | | | |
| | | 616206 [1] | 616306 [1] | | 5.9/6.7 (0.232/0.263) | 3.8 (0.149) | | | |
| | 36C7 for Pin Contacts | | - | | 0.82/0.10 (0.032/0.004) | | | - | 7.85/7.44 (0.293/0.309) |
| | 36C7 for Socket Contacts | - | 616306 | | 4/3.3 (0.157/0.130) | | | | - |
| | | - | 616303 | | 11.72/11 (0.461/0.433) | 9.4 (0.370) | | | |
| 20 HD | 40-45-57-32C2-32C4-40C1 | 616216 [1] | - | 282891 | 6.6/7.6 (0.259/0.299) | - | 0.8 (0.031) | 31.25/31.75 (1.23/1.25) | 7.45/7.75 (0.293/0.305) |
| | 67-33C4 | | | | 6.3/7.3 (0.248/0.287) | | | | |
| | 40-45-57-32C2-32C4-40C1 | 616223 | 616323 [1] | | 3.5/4.3 (0.138/0.169) | 3.2 (0.126) | 0.6 (0.023) | | |
| | 67-33C4 | | | | 3.2/4 (0.126/0.157) | | | | |



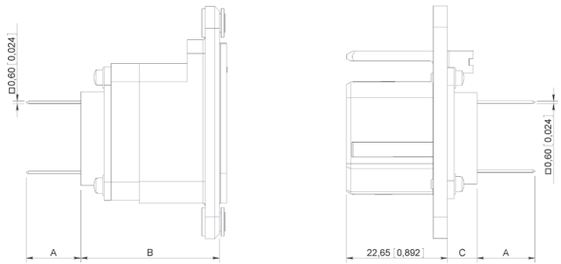

***Notes***

*1. Connectors delivered in the "Y" termination style will be fitted with contacts marked by "[1]" (see above table). If another style of pc tail contact is desired, use termination style "x" when ordering the connector and order contacts separately.*

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## SIZES 22 & 20 HD-WIRE WRAP CONTACTS

| CONTACT SIZE | AWG | CONTACT ARRANGEMENT | PIN | SOCKET | EXT. TOOL | DIMENSIONS MM (INCH) | | |
|---|---|---|---|---|---|---|---|---|
| | | | | | | A | B | C |
| 22 | 26<br>28<br>30 | 106 | 610203<br>(2 Wrap Levels) | 610303<br>(2 Wrap Levels) | 282527 | 10/11 (0.393/0.433) | 25.25/25.75<br>(0.994/1.013) | 1.55/1.75<br>(0.061/0.069) |
| | | | 610204<br>(3 Wrap Levels) | 610304<br>(3 Wrap Levels) | | 12.5/13.5<br>(0.492/0.531) | | |
| 20 | 26<br>28<br>30 | 40-45-57-32C2-<br>32C4-40C1-67-<br>33C4 | 610214<br>(2 Wrap Levels) | 610314<br>(2 Wrap Levels) | | 10.3/11.3<br>(0.405/0.445) | 31.25/31.75<br>(1.203/1.250) | 7.45/7.75<br>(0.293/0.305) |
| | | | | | | 9.85/10.95<br>(0.387/0.431) | | |




## COAXIAL CRIMP CONTACTS SIZE 1

**(DESIGN AS PER MS3168-3169 SPECIFICATIONS)**

| CONTACT SIZE | CONTACT ARRANGEMENT | CABLE [1] | PIN | SOCKET | CENTER CONTACT | | | OUTER BODY | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | CRIMPING TOOL | POSITIONER | SEL. | CRIMPING TOOL | DIE | HEX |
| 1 | MC2 | UT 141<br>RG 402 | 616005 | - | Solder Contact | | | | | |
| | | RG 58<br>RG 141<br>KX 15 | 616006<br>Right<br>Angle | - | Solder Contact | | | 282293<br>(M22520/5-<br>01) | 282246<br>(M22520/5-05) | A |
| | | RG 213<br>KX 4 | - | 616102001 | 282291<br>(M22520/1-01) | 282997<br>(M22520/1-13) | 8 | | 282247<br>(M22520/5-61) | A |
| | | RG 214<br>RG 225 | -<br>616003 | 616103001<br>- | | | | | | |
| | | RG 142 | 616007<br>Right<br>Angle | - | Solder Contact | | | | 282246<br>(M22520/5-05) | A |
| | | RG 142<br>RG 223 | - | 616107001 | 282291<br>(22520/1-01) | 282997<br>(M22520/1-13) | 7 | | | |
| | | RG 174<br>KX 22 | - | 616100 | Solder Contact | | | | | |
| | | RD 316 | 616004<br>Right<br>Angle | - | Solder Contact | | | | | B |
| | | - | 616009 | - | SMA Termination | | | | | |

| PART NUMBER | 616004–616006-616007 | 616009–616100–616103001<br>616106-616102001 | 616003–616005<br>616107001 |
|---|---|---|---|
| Dielectric Withstanding Voltage at Sea Level (Vrms) | 1,000 | 1,500 | 2,500 |

*Notes*

*1. For other cable, please contact Radiall.*

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## COAXIAL CRIMP CONTACTS SIZE 3

| CONTACT SIZE | CONTACT ARRANGEMENT | CABLE [1] | PIN | SOCKET | CENTER CONTACT | | | OUTER BODY | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | CRIMPING TOOL | POSITIONER | SEL. | CRIMPING TOOL | DIE | HEX |
| 3 | MC3 | RG 142<br>RG 223 | 616013 | - | Solder | | | 282293 (M22520/5-01) | 282246 (M22520/5-05) | A |
| | | | - | 616113 | 282291 (M22520/1-01) | 282997 (M22520/5-05) | 7 | | | |
| | | RG 316 | 616015 Right Angle [1] | - | Solder | | | | | B |
| | | UT 141<br>RG 402 | 616014 | - | Solder | | | | | |
| | | RG 214<br>RG 225 | - | 616111 | 282291 (M22520/1-01) | 282997 (M22520/5-05) | 8 | 282293 (M22520/5-01) | 282247 (M22520/5-61) | A |
| | | RG 213<br>KX 4 | - | 616112 | | | | | | |

## COAXIAL CRIMP CONTACTS SIZE 5

**(DESIGN AS PER MS3172 SPECIFICATIONS)**

The following contacts have to be fitted with a sealing boot when used in DSX E connectors (see page 7-29). Coaxial cavities without any contact can be fitted with sealing plugs when used in DSX E connectors.

| CONTACT SIZE | CONTACT ARRANGEMENT | CABLE [1] | PIN [3 & 4] | SOCKET [3 & 4] | CENTER CONTACT | | | OUTER BODY | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | CRIMPING TOOL | POSITIONER | SEL. | CRIMPING TOOL | DIE | HEX |
| 5 | 32C2<br>32T2<br>33C4<br>33T4<br>36C7<br>36T7<br>40C1<br>40T1 | RG 58<br>KX 15 | 616120 | 616020 | 282281 (M22520/2-01) | 282974 | 6 | 282293 (M22520/5-01) | 282246 (M22520/5-05) | A |
| | | RG 141 | 616120 | 616020 | | | 8 | | | |
| | | RG 142<br>RG 223<br>KX 23 | 616121 | 616021 | | | 8 | | | |
| | | RG 179<br>RG 188<br>RG 174<br>RG316<br>KX 22 | 616122 | 616022 | | | 7 | | | B |
| | | RG 179<br>RG 187 | - | 616022002 | | 282550 DANIELS K345 | | | | |
| | | RG 196<br>RG 178<br>KX 21 | 616123 | 616023 | | 282974 | 6 | | | |
| | | RG 195<br>RG 180 | 616124 | 616024 | | | | | | |
| | | RG 316<br>DS | 616163 | 616026 | | | 7 | | | |
| | | UT .085 | 616125 | - | Solder | | | | | |
| | | UT .141 | 616128 | 616028 | | | | | | |



*Notes*

*1. For other cable, please contact Radiall*
*2. Dielectric withstanding voltage at sea level: 1,500 Vrms. Except 1,000 Vrms for 616015*
*3. Dielectric withstanding voltage at sea level: 750 Vrms*
*4. Extraction tool: 282946 (M81969/28-01)*

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## COAXIAL CRIMP CONTACTS SIZE 7

| CONTACT SIZE | CONTACT ARRANGEMENT | CABLE [1] | PIN [2&3] | SOCKET [2&3] | CENTER CONTACT | | | OUTER BODY | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | CRIMPING TOOL | POSITIONER | SEL. | CRIMPING TOOL | DIE | HEX |
| 7 | MC3 | RG 58<br>RG 141<br>KX 15 | 610120 | - | Solder | | | 282293 (M22520/5-01) | 282246 (M22520/5-05) | A |
| | | RG 174<br>RG 316<br>KX 22<br>RG 188 | 610126 | - | | | | | | B |
| | | RG 58<br>KX 15 | - | 616030 | 282281 (M22520/2-01 | 282550 (DANIELS K345) | 6 | | | A |
| | | RG 141 | - | 616030 | | | 8 | | | A |
| | | RG 142<br>RG 223<br>KX 23 | - | 616031 | | | 8 | | | A |
| | | RG 174<br>RG 316<br>KX 22 | - | 616032 | | | 7 | | | B |

## COAXIAL CRIMP CONTACTS SIZE 9

Add 001 at the end of each part number pin or socket to order environmental size 9 coax contacts. Coaxial cavities without any contact can be fitted with sealing plugs when used in DSX E connectors.

| CONTACT SIZE | CONTACT ARRANGEMENT | CABLE [1] | PIN [2&3] | SOCKET [2&3] | CENTER CONTACT | | | OUTER BODY | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | CRIMPING TOOL | POSITIONER | SEL. | CRIMPING TOOL | DIE | HEX |
| 9 | C8<br>T8<br>32C4<br>32T4 | RG 58<br>KX 15 | 616140 | 616040 | 282281 (M22520/2-01) | 282974 | 6 | 282293 (M22520/5-01) | 282246 (M22520/5-05) | A |
| | | RG 141 | - | - | | | 8 | | | |
| | | RG 142<br>RG 223<br>KX 23 | 616141 | 616041 | | | 8 | | | |
| | | RG 174<br>RG 179<br>RG 188<br>RG 316<br>KX 22 | 616142 | 616042 | | | 7 | | | B |
| | | RG 178<br>RG196<br>KX 21 | 616143 | 616043 | | | 6 | | | |
| | | RG 180<br>RG 195 | 616144 | 616044 | | | 6 | | | |

## COAXIAL CRIMP CONTACTS SIZE 15

| CONTACT SIZE | CONTACT ARRANGEMENT | CABLE [1] | PIN [2&3] | SOCKET [2&3] | CENTER CONTACT | | | OUTER BODY | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | CRIMPING TOOL | POSITIONER | SEL. | CRIMPING TOOL | DIE | HEX |
| 15 | D8<br>26<br>67<br>32C4<br>32T4<br>33C4<br>33T4 | RG 316<br>RG 179 | 616154 | 618050 | 282281 (M22520/2-01) | 282555 | 2 | 282292 (M22520/4-01) | 282556 | - |
| | | KX 22<br>DS | 616150 | | | | | | | |
| | | KX 21<br>DS | 616151 | 618053 | | | | | | |
| | | RG 178<br>KX 21 | 616153 | 618054 | | | | | | |

*Notes*

*1. For other cable, please contact Radiall*
*2. Dielectric withstanding voltage at sea level: 750 Vrms*
*3. Extraction tool: 282946 (M81969/28-01)*
*4. Dielectric withstanding voltage at sea level: 350 Vrms*



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## CONCENTRIC TWINAX CRIMP CONTACTS SIZE 5

**(DESIGN AS PER 17B9E4005 SPECIFICATIONS)**

| CONTACT SIZE | CONTACT ARRANGEMENT | CABLE | PIN | SOCKET |
|---|---|---|---|---|
| The Following Contacts have to be Installed in the Non-Environmental Inserts | | | | |
| 5 | 32C3<br>32T2<br>40C1<br>40T1<br>36C7<br>36T7<br>33C4<br>33T4 | MIL-C-17/176-00002 | 616195001 | 616095001 |
| | | PAN 6421 | 616195005 | 616095005 |
| The Following Contacts have to be Installed in the Environmental Inserts | | | | |
| 5 | 32C3<br>32T2<br>40C1<br>40T1<br>33C4<br>33T4 | MIL-C-17/176-00002 | 616195009 | 616095009 |
| | 36C7<br>36T7 | | 616195012 | - |



## CONCENTRIC TWINAX CRIMP CONTACTS SIZE 9

**(DESIGN AS PER 17B9E4005 SPECIFICATIONS)**

| CONTACT SIZE | CONTACT ARRANGEMENT | CABLE | PIN | SOCKET |
|---|---|---|---|---|
| The Following Contacts have to be Installed in the Non-Environmental Inserts | | | | |
| 9 | C8<br>T8<br>32C4<br>32T4 | MIL-C-17/176-00002 | 616196003 | 616096003 |
| The Following Contacts have to be Installed in the Environmental Inserts | | | | |
| 9 | C8<br>T8 | MIL-C-17/176-00002 | - | 616096006 |
| | 32C4<br>32T4 | | 616196004 | 616096004 |

## TRIAX CRIMP CONTACTS SIZE 5

| CONTACT SIZE | CONTACT ARRANGEMENT | CABLE | PIN | SOCKET |
|---|---|---|---|---|
| The Following Contacts have to be Installed in the Non-Environmental Inserts | | | | |
| 5 | 33C4<br>33T4<br>32C2<br>32T2<br>40C1<br>40T1<br>36C7<br>36T7 | RGX 179 | 616195004 | 616095004 |
| | | ST5M 1323-1 | 616195007 | 616095007 |
| | | HS4863-1<br>HS4863-2 | 616195000 | 616095000 |
| The Following Contacts have to be Installed in the Environmental Inserts | | | | |
| 5 | 36C7<br>36T7 | RGX 179 | - | 616095010 |

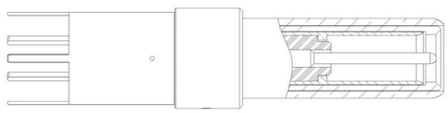
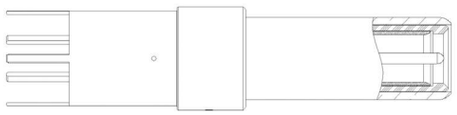
## TRIAX CRIMP CONTACTS SIZE 9

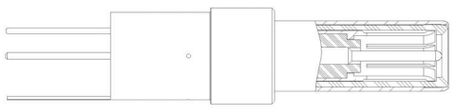
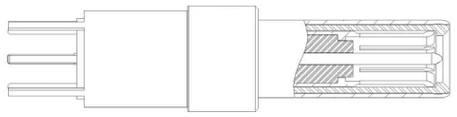
| CONTACT SIZE | CONTACT ARRANGEMENT | CABLE | PIN | SOCKET |
|---|---|---|---|---|
| The Following Contacts have to be Installed in the Non-Environmental Inserts | | | | |
| 9 | C8<br>T8<br>32C4<br>32T4 | RGX 179 | 616196001 | 616096001 |
| The Following Contacts have to be Installed in the Environmental Inserts | | | | |
| 9 | 32C4<br>32T4 | RGX 179 | / | 616096002 |

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## TRIAX CONTACTS WITH PC TAIL SIZE 5

The contacts shown in the table below are rear release rear removable contacts

| CONTACT TYPE | PART NUMBER | CONTACT DRAWING | REAR EXTENSION FROM THE INSERT MM (INCH) |
|---|---|---|---|
| Pin | 616195003 |  | 32C2, 32T2, 33C4,33T4 40C1 and 40T1 = 3.2/4.0 (0.125/0.158)<br><br>36C7 and 36T7 = 5.40/6.10 (0.212/0.240) |
| | 616195008 |  | |

| CONTACT TYPE | PART NUMBER | CONTACT DRAWING | REAR EXTENSION FROM THE INSERT MM (INCH) |
|---|---|---|---|
| Pin | 616196005 |  | C8 and T8 = 1.30/2.15 (0.051/0.085)<br><br>32C4 and 32T4 = 6.45/7.30 (0.253/0.288) |
| | 616196007 |  | C8 & T8 = 0<br><br>32C4 & 32T4 = 3.70/4.35 (0.145/0.172) |

## SIZE 8 QUADRAX CONTACTS

| WIRE | TYPE | PART NUMBER (NON-ENVIRONMENTAL) | PART NUMBER (ENVIRONMENTAL) | INS/EXT TOOL |
|---|---|---|---|---|
| ABS1503KD24 (110 Ω) | Pin | 620175010 | 620175011 | 282549001 (M81969/28.03 or M81969/14.06) |
| | Socket | 620075010 | 620075011 | |
| THERMAX 956S-4T200 GORE RCN8422 (110 Ω) | Pin | 620179002 | 620179001 | |
| | Socket | 620079002 | 620079001 | |
| TENSOLITE NF24Q100 (100 Ω) | Pin | 620175050 | 620175051 | |
| | Socket | 620075050 | 620075051 | |
| TENSOLITE NF26Q100 JSFY 18 | Pin | 620175021 | 620175020 | |
| | Socket | 620075021 | 620075020 | |

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### FIBER OPTIC CONTACTS & ACCESSORIES

MIL-PRF-29504 fiber optic termini were developed several decades ago and are described into several MIL standard documents. They fit into standard electrical cavities and do not require specific inserts. They can replace MIL-PRF-29504/10 pin and MIL-PRF-29504/11 socket termini.

### MIL-PRF-29504 CONTACTS

| PIN CONTACT PART NUMBER | SOCKET CONTACT PART NUMBER | CONTACT SIZE | FIBER DIAMETER (MM) | CABLE DIAMETER (MM) | FERRULE MATERIAL |
|---|---|---|---|---|---|
| F724 005 000 | F724 104 000 | 16 | 125 | 1.5 | Ceramic |
| F724 011 000 | F724 111 000 | 16 | 125 | 1.8 | Ceramic |
| F724 009 000 | F724 109 000 | 16 | 125 | 2 | Ceramic |
| F724 002 000 | F724 101 000 | 16 | 140 | 1.5 | Ceramic |
| F724 041 000 | F724 140 000 | 16 | 230 | 2 | Metallic |
| F724 007 000 | F724 107 000 | 16 | 280 | 1.6 | Ceramic |

*Size 12 MIL-T-29504 contacts can be available upon request, please contact your Radiall sales representative.*
*Note that Radiall can support you with your cable and harness assemblies. Please contact your sales representative.*

## ACCESSORIES

Radiall offers you a unique solution to equip your DSX connectors with EN4531 fiber optic contacts.

This solution offers the following characteristics and advantages:

- It turns a ARINC 404 size 5 or size 8 cavity into a fiber optic link
- It accepts any EN4531-101 fiber optic contacts

### EN4531-101 (ABS 1379) ADAPTER FOR QUADRAX SIZE 8 CAVITY

| | PART NUMBER | DESCRIPTION |
|---|---|---|
|  | 620946005 | Pin Quadrax Adapter for EN4531 Contact |
|  | 620946006 | Socket Quadrax Adapter for EN4531 Contact |

### EN4531-101 (ABS 1379) ADAPTER FOR SIZE 5 CAVITY

EN4531-101 adapter for size 5 cavity is available for DSX F connectors with inserts 33C4 and 81C3 only, see DSX F connectors page 7-42.

| | PART NUMBER | DESCRIPTION |
|---|---|---|
|  | 616925001 | Pin Adapter for #5 Cavity |
|  | 616925002 | Socket Adapter for #5 Cavity |

## SEALING PLUGS & FILLER PLUGS

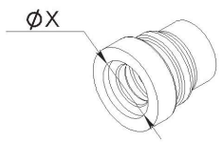
Filler plugs are used in non-environmental connectors and sealing plugs are used in environmental connectors and conform to MS27488

| CONTACT SIZE | SEALING PLUGS | FILLER PLUGS |
|---|---|---|
| Size 22 | 616910 | 620920 |
| Size 20 HD | 616911 | 610941 |
| Size 16 | 616912 | 620922 |
| Size 12 | 616913 | 616923 |
| Size 5 | See Notes | 620924, 616923 [1] or 616917 [2] for Pin Contact Cavity 620925 for Socket Contact Cavity |
| Size 9 | See Notes | 616915 [2] |

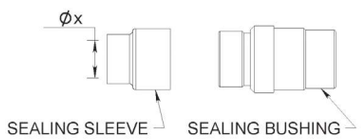
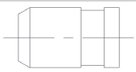
## SEALING BOOTS

The sealing boots in table 1 are to be used in all inserts with size 5 contact cavities except 36C7 and 36T7 inserts which use the sealing bushing plus one in the sealing sleeves in table 2.

### TABLE 1

| CABLE | X DIA. MM (INCH) | PART NUMBER | DRAWING |
|---|---|---|---|
| RG58, RG142 | 4.3 (0.169) | 92505490 |   |
| RG 174 | 2 (0.079) | 92505470 | |
| RG 178 | 1.4 (0.055) | 92505460 | |
| RG180 | 3.1 (0.122) | 92505480 | |
| - | 0 | 92505450 | |

### TABLE 2

| CABLE | X DIA. MM (INCH) | SEALING BUSHING | SEALING SLEEVE | PART NUMBER |
|---|---|---|---|---|
| RG58, RG141, RG142, RG223, KX15, KX23 | 4.7 (0.185) | 92505590 | 92505591 |   |
| RG174, RG179, RG187, RG188, RG316, KX22, UT.085 | 2.15 (0.085) | | 92505593 | |
| RG178, RG196 | 1.5 (0.059) | | 92505594 | |
| RG180, RG195, UT.141 | 3.05 (0.120) | | 92505592 | |
| - | 0 | 616914010 [3] | |  |

## DUST CAPS

Conductive dust caps are made of thermoplastic and non conductive dust caps are made of polyethylene.

| | CONDUCTIVE (BLACK) | NON CONDUCTIVE (RED) | DRAWING |
|---|---|---|---|
| Plug | 610804 | 610803 |   |
| Receptacle | 610806 | 610805 |   |

*Notes*

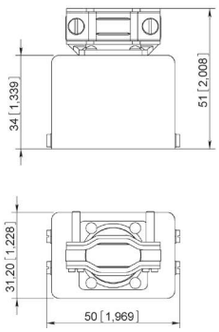
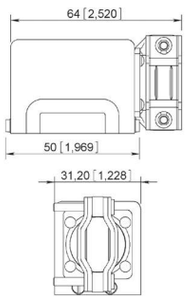
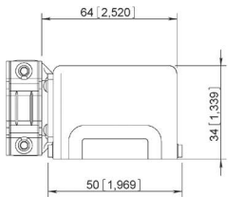
*1. 616923 is made of aluminium and is nickel-plated*
*2. 616917 and 616915 provide interfacial sealing on class T connectors*
*3. 616914010 is made of PTFE*

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## BACKSHELLS

The following backshells are only for use with SAE AS81659 and ARINC 404 shell type B connectors for the following modification codes 02-04-17-19-22-36-61-67 and 77.

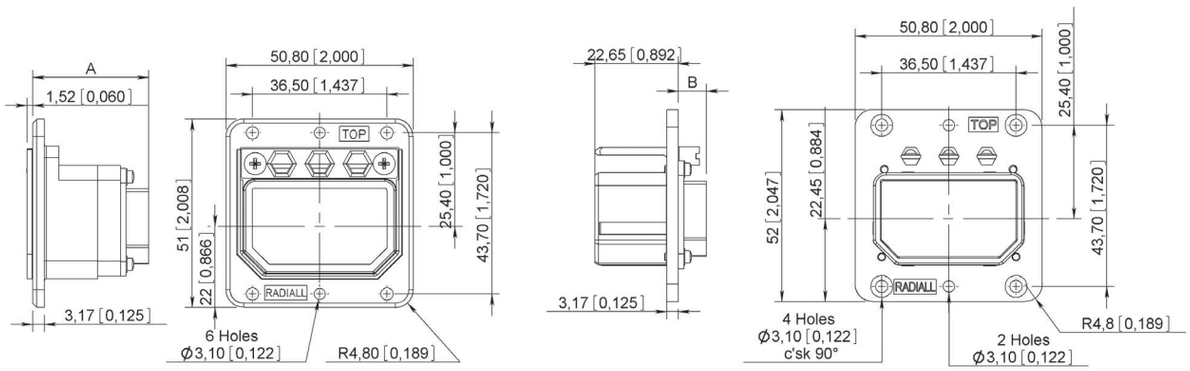
Backshells do not ensure EMI functions and cannot be installed on size 4 connectors as there is limited access to screws.

| ENTRY TYPE | PLATING | PART NUMBER | DRAWING |
|---|---|---|---|
| Top Entry | Yellow Anodized | 610902 |  |
| | Nickel | 610906 | |
| Right Entry | Yellow Anodized | 610900 |  |
| | Nickel | 610910 | |
| Left Entry | Yellow Anodized | 610901 |  |
| | Nickel | 610911 | |

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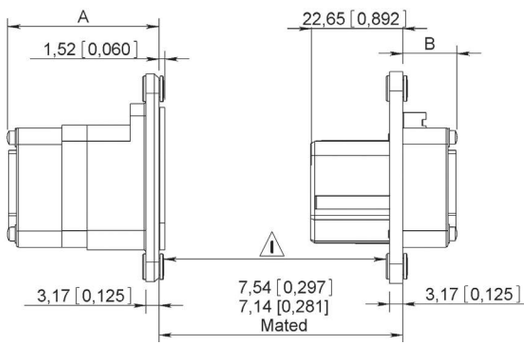
## DIMENSIONS

### SHELL SIZE 1 NON-ENVIRONMENTAL (WITHOUT GROMMET SEAL)




| MAX DIMENSION MM (INCH) | ALL CRIMP CONTACT ARRANGEMENTS EXCEPT 106 | CONTACT ARRANGEMENT 106 | ARRANGEMENTS WITH COAX CONTACTS SIZE 1 & 3 | CONTACT ARRANGEMENT 36C7 & 36T7 | ARRANGEMENTS WITH COAX CONTACTS SIZE 5 & 9 EXCEPT 36C7 |
|---|---|---|---|---|---|
| A | 32 (1.260) | 25.8 (1.016) | 26.85 (1.057) | 28.5 (1.122) | 37.42 (1.473) |
| B | 7.9 (0.311) | 1.9 (0.075) | 3 (0.118) | 7.85 (0.309) | 13.5 (0.531) |

### SHELL SIZE 1 ENVIRONMENTAL (WITH GROMMET SEAL)

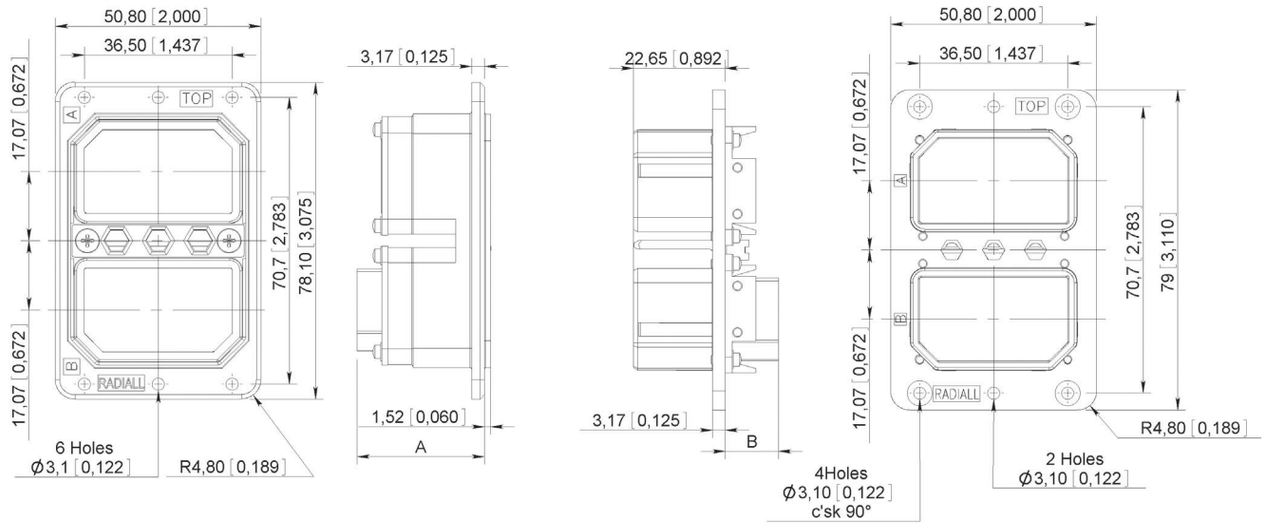



| MAX DIMENSION MM (INCH) | ALL CRIMP CONTACT ARRANGEMENTS EXCEPT MC2–MC3-106 | CONTACT ARRANGEMENT 106 | CONTACT ARRANGEMENT 36C7 & 36T7 |
|---|---|---|---|
| A | 38.5 (1.516) | 33.5 (1.319) | 39.05 (1.537) |
| B | 14.2 (0.559) | 9.5 (0.374) | 18.55 (0.730) |

⚠ *Important Note: Only 4 mm of space is available on the modification code selection.*

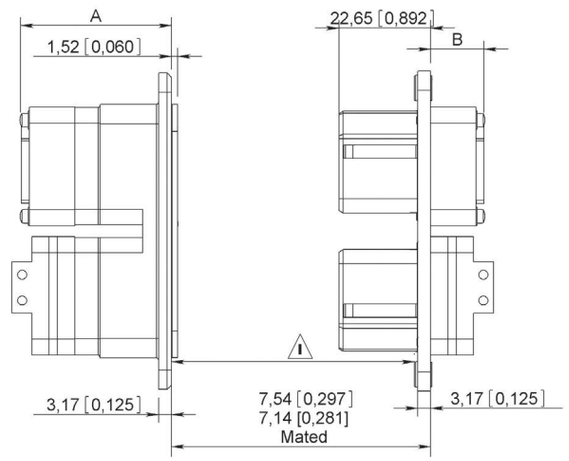
*DSX-SAE AS81659*

## SHELL SIZE 2 NON-ENVIRONMENTAL (WITHOUT GROMMET SEAL)




| MAX DIMENSION MM (INCH) | ALL CRIMP CONTACT ARRANGEMENTS EXCEPT 106 | CONTACT ARRANGEMENT 106 | ARRANGEMENTS WITH COAX CONTACTS SIZE 1 & 3 | CONTACT ARRANGEMENT 36C7 & 36T7 | ARRANGEMENTS WITH COAX CONTACTS SIZE 5 & 9 EXCEPT 36C7 |
|---|---|---|---|---|---|
| A | 32 (1.260) | 25.8 (1.016) | 26.85 (1.057) | 28.5 (1.122) | 37.42 (1.473) |
| B | 7.9 (0.311) | 1.9 (0.075) | 3 (0.118) | 7.85 (0.309) | 13.5 (0.531) |

## SHELL SIZE 2 ENVIRONMENTAL (WITH GROMMET SEAL)

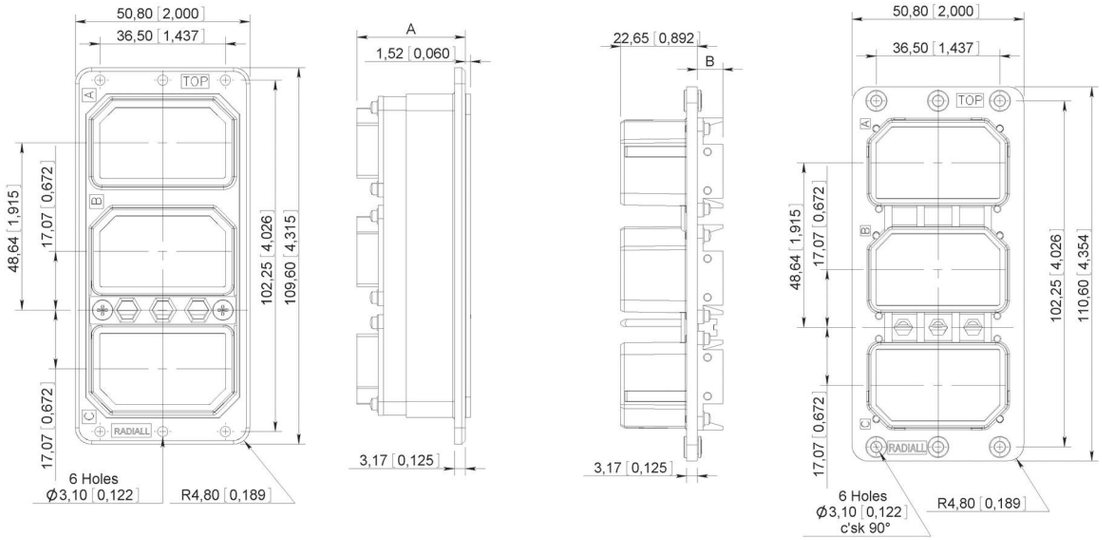



| MAX DIMENSION MM (INCH) | ALL CRIMP CONTACT ARRANGEMENTS EXCEPT MC2–MC3-106 | CONTACT ARRANGEMENT 106 | CONTACT ARRANGEMENT 36C7 & 36T7 |
|---|---|---|---|
| A | 38.5 (1.516) | 33.5 (1.319) | 39.05(1.537) |
| B | 14.2 (0.559) | 9.5 (0.374) | 18.55 (0.730) |

⚠ *Important Note: Only 4 mm of space is available on the modification code selection.*

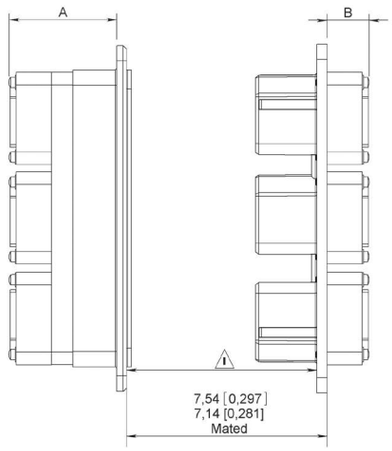
*DSX-SAE AS81659*

## SHELL SIZE 3 NON-ENVIRONMENTAL (WITHOUT GROMMET SEAL)




| MAX DIMENSION MM (INCH) | ALL CRIMP CONTACT ARRANGEMENTS EXCEPT 106 | CONTACT ARRANGEMENT 106 | ARRANGEMENTS WITH COAX CONTACTS SIZE 1 & 3 | CONTACT ARRANGEMENT 36C7 & 36T7 | ARRANGEMENTS WITH COAX CONTACTS SIZE 5 & 9 EXCEPT 36C7 |
|---|---|---|---|---|---|
| A | 32 (1.260) | 25.8 (1.016) | 26.85 (1.057) | 28.5 (1.122) | 37.42 (1.473) |
| B | 7.9 (0.311) | 1.9 (0.075) | 3 (0.118) | 7.85 (0.309) | 13.5 (0.531) |

## SHELL SIZE 3 ENVIRONMENTAL (WITH GROMMET SEAL)

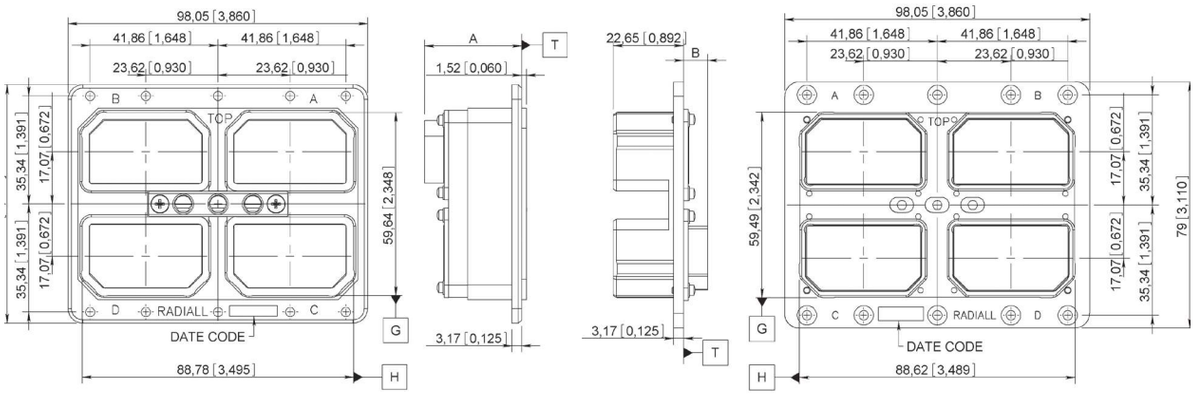



| MAX DIMENSION MM (INCH) | ALL CRIMP CONTACT ARRANGEMENTS EXCEPT MC2–MC3-106 | CONTACT ARRANGEMENT 106 | CONTACT ARRANGEMENT 36C7 & 36T7 |
|---|---|---|---|
| A | 38.5 (1.516) | 33.5 (1.319) | 39.05(1.537) |
| B | 14.2 (0.559) | 9.5 (0.374) | 18.55 (0.730) |

⚠ *Important Note: Only 4 mm of space is available on the modification code selection.*

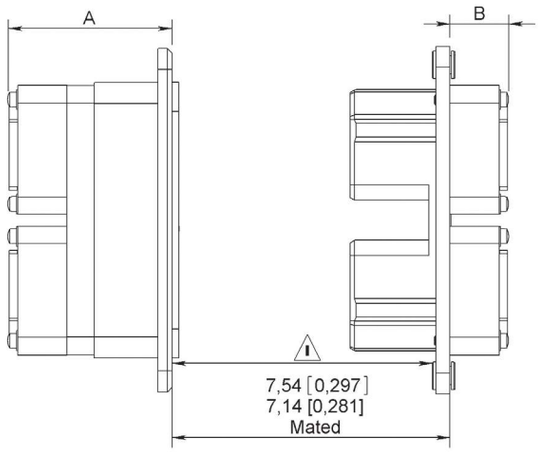
*DSX-SAE AS81659*

## SHELL SIZE 4 NON-ENVIRONMENTAL (WITHOUT GROMMET SEAL)




| MAX DIMENSION MM (INCH) | ALL CRIMP CONTACT ARRANGEMENTS EXCEPT 106 | CONTACT ARRANGEMENT 106 | ARRANGEMENTS WITH COAX CONTACTS SIZE 1 & 3 | CONTACT ARRANGEMENT 36C7 & 36T7 | ARRANGEMENTS WITH COAX CONTACTS SIZE 5 & 9 EXCEPT 36C7 |
|---|---|---|---|---|---|
| A | 32 (1.260) | 25.8 (1.016) | 26.85 (1.057) | 28.5 (1.122) | 37.42 (1.473) |
| B | 7.9 (0.311) | 1.9 (0.075) | 3 (0.118) | 7.85 (0.309) | 13.5 (0.531) |

## SHELL SIZE 4 ENVIRONMENTAL (WITH GROMMET SEAL)



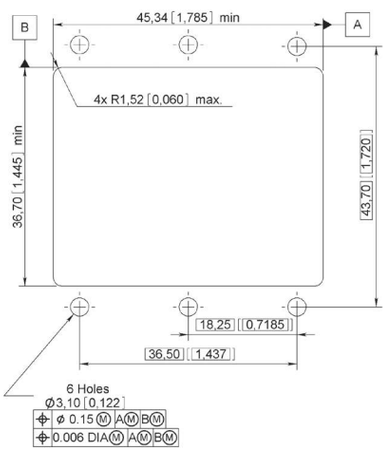

| MAX DIMENSION MM (INCH) | ALL CRIMP CONTACT ARRANGEMENTS EXCEPT MC2–MC3-106 | CONTACT ARRANGEMENT 106 | CONTACT ARRANGEMENT 36C7 & 36T7 |
|---|---|---|---|
| A | 38.5 (1.516) | 33.5 (1.319) | 39.05(1.537) |
| B | 14.2 (0.559) | 9.5 (0.374) | 18.55 (0.730) |

⚠ *Important Note: Only 4 mm of space is available on the modification code selection.*

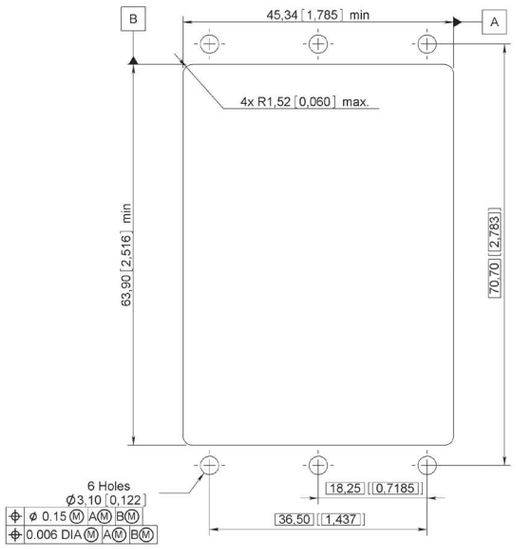
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## PANEL CUT-OUTS

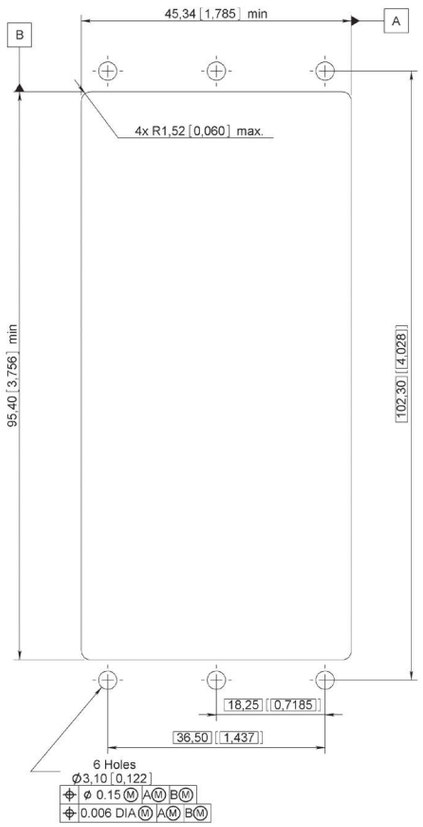
### SHELL SIZE 1



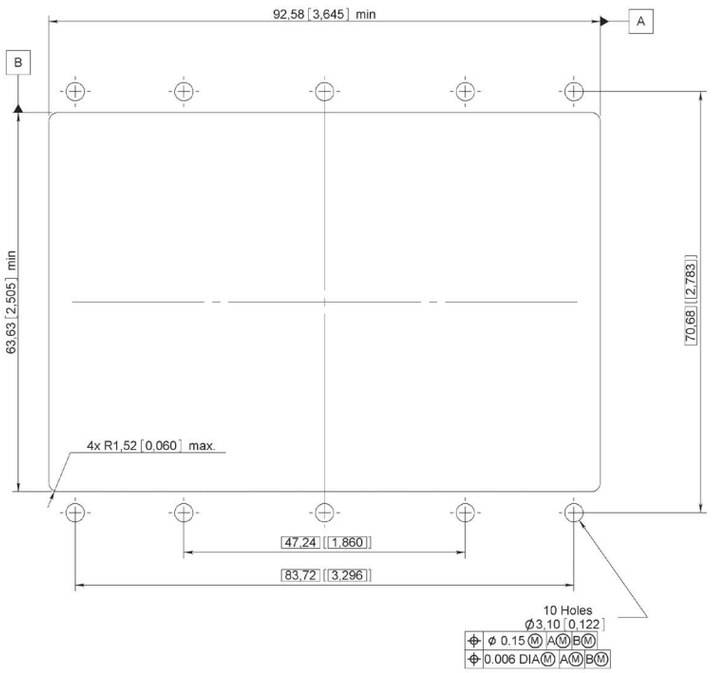

### SHELL SIZE 2




### SHELL SIZE 3




### SHELL SIZE 4



## CROSS REFERENCE

### FROM RADIALL TO MILITARY P/N

| RADIALL PART NUMBER | MIL PART NUMBER |
|---|---|
| 616200 | M3902911144 |
| 616210 | M3902911145 |
| 616230 | M3902911146 |
| 616240 | M3902911147 |
| 616300 | M3902912148 |
| 616310 | M3902912149 |
| 616330 | M3902912150 |
| 616340 | M3902912151 |
| 616910 | MS2748822 |
| 616911 | MS2748820 |
| 616912 | MS2748816 |
| 616913 | MS2748812 |
| DSXE1PS106P73 | M8165929A20041 |
| DSXE1PS26S73 | M8165929A20002 |
| DSXE1PS32C2S73 | M8165929A20140 |
| DSXE1PS32C4S73 | M8165929A20150 |
| DSXE1PS33C4S73 | M8165929A20104 |
| DSXE1PS40C1S73 | M8165929A20142 |
| DSXE1PS40S73 | M8165929A20010 |
| DSXE1PS45S73 | M8165929A20018 |
| DSXE1PS57P73 | M8165929A20025 |
| DSXE1PS57S73 | M8165929A20026 |
| DSXE1PS67S73 | M8165929A20034 |
| DSXE1PSD8S73 | M8165929A20084 |
| DSXE1PXC8S73 | M8165929A20136 |
| DSXE1R32C4P00 | M8165931A20149 |
| DSXE1R33C4P00 | M8165931A20103 |
| DSXE1RS106S00 | M8165931A20042 |
| DSXE1RS26P00 | M8165931A20001 |
| DSXE1RS32C2P00 | M8165931A20139 |
| DSXE1RS40C1P00 | M8165931A20141 |
| DSXE1RS40P00 | M8165931A20009 |
| DSXE1RS45P00 | M8165931A20017 |
| DSXE1RS57P00 | M8165931A20025 |
| DSXE1RS57S00 | M8165931A20026 |
| DSXE1RS67P00 | M8165931A20035 |
| DSXE1RSD8P00 | M8165931A20083 |
| DSXE2PS106PS106P73 | M8165933A20043 |
| DSXE2PS106PS26S73 | M8165933A20058 |
| DSXE2PS106PS67S73 | M8165933A20090 |
| DSXE2PS106PXC8S73 | M8165933A20088 |

| RADIALL PART NUMBER | MIL PART NUMBER |
|---|---|
| DSXE2PS26SS106P73 | M8165933A20060 |
| DSXE2PS26SS26S73 | M8165933A20004 |
| DSXE2PS32C2SS106P73 | M8165933A20130 |
| DSXE2PS32C2SS40C1S73 | M8165933A20122 |
| DSXE2PS32C2SS45S73 | M8165933A20124 |
| DSXE2PS32C2SS57S73 | M8165933A20126 |
| DSXE2PS32C2SS67S73 | M8165933A20128 |
| DSXE2PS32C4SS106P73 | M8165933A20152 |
| DSXE2PS32C4SXC8S73 | M8165933A20160 |
| DSXE2PS33C4SS106P73 | M8165933A20106 |
| DSXE2PS33C4SXC8S73 | M8165933A20108 |
| DSXE2PS40C1SS40C1S73 | M8165933A20132 |
| DSXE2PS40SS40S73 | M8165933A20012 |
| DSXE2PS45SS45S73 | M8165933A20020 |
| DSXE2PS57SS106P73 | M8165933A20134 |
| DSXE2PS57SS26S73 | M8165933A20148 |
| DSXE2PS57SS57S73 | M8165933A20028 |
| DSXE2PS67SS106P73 | M8165933A20072 |
| DSXE2PS67SS67S73 | M8165933A20036 |
| DSXE2PXC8SS106P73 | M8165933A20118 |
| DSXE2PXC8SS32C4S73 | M8165933A20156 |
| DSXE2PXC8SS57S73 | M8165933A20146 |
| DSXE2PXMC2SS40C1S73 | M8165933A20110 |
| DSXE2PXMC2SS57S73 | M8165933A20112 |
| DSXE2PXMC3SS106P73 | M8165933A20116 |
| DSXE2PXMC3SS67S73 | M8165933A20114 |
| DSXE2RS106SS106S00 | M8165935A20044 |
| DSXE2RS106SS26P00 | M8165935A20057 |
| DSXE2RS106SS67P00 | M8165935A20089 |
| DSXE2RS106SXC8P00 | M8165935A20087 |
| DSXE2RS26PS106S00 | M8165935A20059 |
| DSXE2RS26PS26P00 | M8165935A20003 |
| DSXE2RS32C2PS106S00 | M8165935A20129 |
| DSXE2RS32C2PS40C1P00 | M8165935A20121 |
| DSXE2RS32C2PS45P00 | M8165935A20123 |
| DSXE2RS32C2PS57P00 | M8165935A20125 |
| DSXE2RS32C2PS67P00 | M8165935A20127 |
| DSXE2RS32C4PS106S00 | M8165935A20151 |
| DSXE2RS32C4PXC8P00 | M8165935A20159 |
| DSXE2RS33C4PS106S00** | M8165935A20105 |
| DSXE2RS33C4PXC8P00** | M8165935A20107 |

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| RADIALL PART NUMBER | MIL PART NUMBER |
|---|---|
| DSXE2RS40C1PS40C1P00 | M8165935A20131 |
| DSXE2RS40PS40P00 | M8165935A20011 |
| DSXE2RS45PS45P00 | M8165935A20019 |
| DSXE2RS57PS106S00 | M8165935A20133 |
| DSXE2RS57PS26P00 | M8165935A20147 |
| DSXE2RS57PS57P00 | M8165935A20027 |
| DSXE2RS67PS106S00 | M8165935A20071 |
| DSXE2RS67PS67P00 | M8165935A20035 |
| DSXE2RXC8PS106S00 | M8165935A20117 |
| DSXE2RXC8PS32C4P00 | M8165935A20155 |
| DSXE2RXC8PS57P00 | M8165935A20145 |
| DSXE2RXMC2PS40C1P00 | M8165935A20109 |
| DSXE2RXMC2PS57P00 | M8165935A20111 |
| DSXE2RXMC3PS106S00 | M8165935A20115 |
| DSXE2RXMC3PS67P00 | M8165935A20113 |
| DSXE3PS106PS106PS106P73 | M8165937A20045 |
| DSXE3PS106PS106PS32C4S73 | M8165937A20158 |
| DSXE3PS106PS106PS67S73 | M8165937A20092 |
| DSXE3PS26SS26SS26S73 | M8165937A20006 |
| DSXE3PS40SS40SS40S73 | M8165937A20014 |
| DSXE3PS45SS45SS45S73 | M8165937A20022 |
| DSXE3PS57SS57SS57S73 | M8165937A20030 |
| DSXE3PS67SS106PS67S73 | M8165937A20080 |
| DSXE3PS67SS67SS106P73 | M8165937A20076 |
| DSXE3PS67SS67SS67S73 | M8165937A20038 |
| DSXE3PS67SS67SXC8S73 | M8165937A20074 |
| DSXE3PXC8SXC8SS106P73 | M8165937A20068 |
| DSXE3PXC8SXC8SXC8S73 | M8165937A20066 |
| DSXE3RS106SS106SS106S00 | M8165939A20046 |
| DSXE3RS106SS106SS32C4P00 | M8165939A20157 |
| DSXE3RS106SS106SS67P00 | M8165939A20091 |
| DSXE3RS26PS26PS26P00 | M8165939A20005 |
| DSXE3RS40PS40PS40P00 | M8165939A20013 |
| DSXE3RS45PS45PS45P00 | M8165939A20021 |
| DSXE3RS57PS57PS57P00 | M8165939A20029 |
| DSXE3RS67PS106SS67P00 | M8165939A20079 |
| DSXE3RS67PS67PS106S00 | M8165939A20075 |
| DSXE3RS67PS67PS67P00 | M8165939A20037 |
| DSXE3RS67PS67PXC8P00 | M8165939A20073 |
| DSXE3RXC8PXC8PS106S00 | M8165939A20067 |
| DSXE3RXC8PXC8PXC8P00 | M8165939A20065 |
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| DSXE4PS106PS106PS67SS67S73 | M8165941A20102 |

| RADIALL PART NUMBER | MIL PART NUMBER |
|---|---|
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| DSXE4PS106PS67SSC8SSC8S73 | M8165941A20100 |
| DSXE4PS26SS26SS26SS26S73 | M8165941A20008 |
| DSXE4PS40SS40SS40SS40S73 | M8165941A20016 |
| DSXE4PS45SS45SS45SS45S73 | M8165941A20024 |
| DSXE4PS57SS57SS57SS57S73 | M8165941A20032 |
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| DSXE4RS106SS67PSC8PSC8P00 | M8165943A20099 |
| DSXE4RS106SSC8PS106SS106S00 | M8165943A20095 |
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| DSXE4RS40PS40PS40PS40P00 | M8165943A20015 |
| DSXE4RS45PS45PS45PS45P00 | M8165943A20023 |
| DSXE4RS57PS57PS57PS57P00 | M8165943A20031 |
| DSXE4RS67PS67PS67PS67P00 | M8165943A20039 |
| DSXE4RSC8PSC8PSC8PSC8P00 | M8165943A20085 |
| DSXN1PS106P73** | M8165965A20041 |
| DSXN1PS26S73 | M8165965A20002 |
| DSXN1PS32C2S73 | M8165965A20140 |
| DSXN1PS32C4P73 | M8165965A20149 |
| DSXN1PS32C4S73 | M8165965A20150 |
| DSXN1PS33C4S73 | M8165965A20104 |
| DSXN1PS40C1S73 | M8165965A20142 |
| DSXN1PS40S73 | M8165965A20010 |
| DSXN1PS45P73 | M8165965A20017 |
| DSXN1PS45S73 | M8165965A20018 |
| DSXN1PS57P73 | M8165965A20025 |
| DSXN1PS57S73 | M8165965A20026 |
| DSXN1PS67S73 | M8165965A20034 |
| DSXN1PSD8S73 | M8165965A20084 |
| DSXN1PXC8S73 | M8165965A20136 |
| DSXN1RS106S00 | M8165966A20042 |
| DSXN1RS106S01 | M8165967A20042 |
| DSXN1RS106S23 | M8165968A20042 |
| DSXN1RS26P00 | M8165966A20001 |
| DSXN1RS26P01 | M8165967A20001 |
| DSXN1RS26P23 | M8165968A20001 |
| DSXN1RS32C2P00 | M8165966A20139 |

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| RADIALL PART NUMBER | MIL PART NUMBER |
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| DSXN1RS32C2P01 | M8165967A20139 |
| DSXN1RS32C2P23 | M8165968A20139 |
| DSXN1RS32C4P00 | M8165966A20149 |
| DSXN1RS32C4P01 | M8165967A20149 |
| DSXN1RS32C4P23 | M8165968A20149 |
| DSXN1RS33C4P00** | M8165966A20103 |
| DSXN1RS33C4P01 | M8165967A20103 |
| DSXN1RS33C4P23 | M8165968A20103 |
| DSXN1RS40C1P00 | M8165966A20141 |
| DSXN1RS40C1P01 | M8165967A20141 |
| DSXN1RS40C1P23 | M8165968A20141 |
| DSXN1RS40P00 | M8165966A20009 |
| DSXN1RS40P01 | M8165967A20009 |
| DSXN1RS40P23 | M8165968A20009 |
| DSXN1RS45P00 | M8165966A20017 |
| DSXN1RS45P01 | M8165967A20017 |
| DSXN1RS45P23 | M8165968A20017 |
| DSXN1RS57P00 | M8165966A20025 |
| DSXN1RS57P01 | M8165967A20025 |
| DSXN1RS57P23 | M8165968A20025 |
| DSXN1RS57S00 | M8165966A20026 |
| DSXN1RS67P00 | M8165966A20033 |
| DSXN1RS67P01 | M8165967A20033 |
| DSXN1RS67P23 | M8165968A20033 |
| DSXN1RSD8P00 | M8165966A20083 |
| DSXN1RSD8P01 | M8165967A20083 |
| DSXN1RSD8P23 | M8165968A20083 |
| DSXN1RXC8P00 | M8165966A20135 |
| DSXN1RXC8P01 | M8165967A20135 |
| DSXN1RXC8P23 | M8165968A20135 |
| DSXN2PS106PS106P73 | M8165969A20043 |
| DSXN2PS106PS26S73 | M8165969A20058 |
| DSXN2PS106PS67S73 | M8165969A20090 |
| DSXN2PS106PXC8S73 | M8165969A20088 |
| DSXN2PS26SS106P73 | M8165969A20060 |
| DSXN2PS26SS26S73 | M8165969A20004 |
| DSXN2PS32C2SS106P73 | M8165969A20130 |
| DSXN2PS32C2SS40C1S73 | M8165969A20122 |
| DSXN2PS32C2SS45S73 | M8165969A20124 |
| DSXN2PS32C2SS57S73 | M8165969A20126 |
| DSXN2PS32C2SS67S73 | M8165969A20128 |
| DSXN2PS32C4SS106P73 | M8165969A20152 |
| DSXN2PS32C4SXC8S73 | M8165969A20160 |

| RADIALL PART NUMBER | MIL PART NUMBER |
|---|---|
| DSXN2PS33C4SS106P73** | M8165969A20106 |
| DSXN2PS33C4SXC8S73** | M8165969A20108 |
| DSXN2PS40C1SS40C1S73 | M8165969A20132 |
| DSXN2PS40SS40S73 | M8165969A20012 |
| DSXN2PS45SS45S73 | M8165969A20020 |
| DSXN2PS57SS106P73 | M8165969A20134 |
| DSXN2PS57SS26S73 | M8165969A20148 |
| DSXN2PS57SS57S73 | M8165969A20028 |
| DSXN2PS67SS106P73 | M8165969A20072 |
| DSXN2PS67SS67S73 | M8165969A20036 |
| DSXN2PXC8SS106P73 | M8165969A20118 |
| DSXN2PXC8SS32C4S73 | M8165969A20156 |
| DSXN2PXC8SS57S73 | M8165969A20146 |
| DSXN2PXMC2SS40C1S73 | M8165969A20110 |
| DSXN2PXMC2SS57S73 | M8165969A20112 |
| DSXN2PXMC3SS106P73 | M8165969A20116 |
| DSXN2PXMC3SS67S73 | M8165969A20114 |
| DSXN2RS106SS106S00 | M8165970A20044 |
| DSXN2RS106SS106S01 | M8165971A20044 |
| DSXN2RS106SS106S23 | M8165972A20044 |
| DSXN2RS106SS26P00 | M8165970A20057 |
| DSXN2RS106SS26P01 | M8165971A20057 |
| DSXN2RS106SS26P23 | M8165972A20057 |
| DSXN2RS106SS67P00 | M8165970A20089 |
| DSXN2RS106SS67P01 | M8165971A20089 |
| DSXN2RS106SS67P23 | M8165972A20089 |
| DSXN2RS106SXC8P00 | M8165970A20087 |
| DSXN2RS106SXC8P01 | M8165971A20087 |
| DSXN2RS106SXC8P23 | M8165972A20087 |
| DSXN2RS26PS106S00 | M8165970A20059 |
| DSXN2RS26PS106S01 | M8165971A20059 |
| DSXN2RS26PS106S23 | M8165972A20059 |
| DSXN2RS26PS26P00 | M8165970A20003 |
| DSXN2RS26PS26P01 | M8165971A20003 |
| DSXN2RS26PS26P23 | M8165972A20003 |
| DSXN2RS32C2PS106S00 | M8165970A20129 |
| DSXN2RS32C2PS106S01 | M8165971A20129 |
| DSXN2RS32C2PS106S23 | M8165972A20129 |
| DSXN2RS32C2PS40C1P00 | M8165970A20121 |
| DSXN2RS32C2PS40C1P01 | M8165971A20121 |
| DSXN2RS32C2PS40C1P23 | M8165972A20121 |
| DSXN2RS32C2PS45P00 | M8165970A20123 |
| DSXN2RS32C2PS45P01 | M8165971A20123 |

*DSX-SAE AS81659*

| RADIALL PART NUMBER | MIL PART NUMBER |
|---|---|
| DSXN2RS32C2PS45P23 | M8165972A20123 |
| DSXN2RS32C2PS57P00 | M8165970A20125 |
| DSXN2RS32C2PS57P01 | M8165971A20125 |
| DSXN2RS32C2PS57P23 | M8165972A20125 |
| DSXN2RS32C2PS67P00 | M8165970A20127 |
| DSXN2RS32C2PS67P01 | M8165971A20127 |
| DSXN2RS32C2PS67P23 | M8165972A20127 |
| DSXN2RS32C4PS106S00 | M8165970A20151 |
| DSXN2RS32C4PS106S01 | M8165971A20151 |
| DSXN2RS32C4PS106S23 | M8165972A20151 |
| DSXN2RS32C4PXC8P00 | M8165970A20159 |
| DSXN2RS32C4PXC8P01 | M8165971A20159 |
| DSXN2RS32C4PXC8P23 | M8165972A20159 |
| DSXN2RS33C4PS106S00 | M8165970A20105 |
| DSXN2RS33C4PS106S01 | M8165971A20105 |
| DSXN2RS33C4PS106S23 | M8165972A20105 |
| DSXN2RS33C4PXC8P00 | M8165970A20107 |
| DSXN2RS33C4PXC8P01 | M8165971A20107 |
| DSXN2RS33C4PXC8P23 | M8165972A20107 |
| DSXN2RS40C1PS40C1P00 | M8165970A20131 |
| DSXN2RS40C1PS40C1P01 | M8165971A20131 |
| DSXN2RS40C1PS40C1P23 | M8165972A20131 |
| DSXN2RS40PS40P00 | M8165970A20011 |
| DSXN2RS40PS40P01 | M8165971A20011 |
| DSXN2RS40PS40P23 | M8165972A20011 |
| DSXN2RS45PS45P00 | M8165970A20019 |
| DSXN2RS45PS45P01 | M8165971A20019 |
| DSXN2RS45PS45P23 | M8165972A20019 |
| DSXN2RS57PS106S00 | M8165970A20133 |
| DSXN2RS57PS106S01 | M8165971A20133 |
| DSXN2RS57PS106S23 | M8165972A20133 |
| DSXN2RS57PS26P00 | M8165970A20147 |
| DSXN2RS57PS26P01 | M8165971A20147 |
| DSXN2RS57PS26P23 | M8165972A20147 |
| DSXN2RS57PS57P00 | M8165970A20027 |
| DSXN2RS57PS57P01 | M8165971A20027 |
| DSXN2RS57PS57P23 | M8165972A20027 |
| DSXN2RS67PS106S00 | M8165970A20071 |
| DSXN2RS67PS106S01 | M8165971A20071 |
| DSXN2RS67PS106S23 | M8165972A20071 |
| DSXN2RS67PS67P00 | M8165970A20035 |
| DSXN2RS67PS67P01 | M8165971A20035 |
| DSXN2RS67PS67P23 | M8165972A20035 |

| RADIALL PART NUMBER | MIL PART NUMBER |
|---|---|
| DSXN2RXC8PS106S00 | M8165970A20117 |
| DSXN2RXC8PS106S01 | M8165971A20117 |
| DSXN2RXC8PS106S23 | M8165972A20117 |
| DSXN2RXC8PS32C4P00 | M8165970A2-0155 |
| DSXN2RXC8PS32C4P01 | M8165971A20155 |
| DSXN2RXC8PS32C4P23 | M8165972A20155 |
| DSXN2RXC8PS57P00 | M8165970A20145 |
| DSXN2RXC8PS57P01 | M8165971A20145 |
| DSXN2RXC8PS57P23 | M8165972A20145 |
| DSXN2RXMC2PS40C1P01 | M8165971A20109 |
| DSXN2RXMC2PS40C1P23 | M8165972A20109 |
| DSXN2RXMC2PS57P00 | M8165970A20111 |
| DSXN2RXMC2PS57P01 | M8165971A20111 |
| DSXN2RXMC2PS57P23 | M8165972A20111 |
| DSXN2RXMC2S40C1P00 | M8165970A20109 |
| DSXN2RXMC3PS106S00 | M8165970A20115 |
| DSXN2RXMC3PS106S01 | M8165971A20115 |
| DSXN2RXMC3PS106S23 | M8165972A20115 |
| DSXN2RXMC3PS67P00 | M8165970A20113 |
| DSXN2RXMC3PS67P01 | M8165971A20113 |
| DSXN2RXMC3PS67P23 | M8165972A20113 |
| DSXT1RS106S00 | M8165961A20042 |
| DSXT1RS26P00 | M8165961A20001 |
| DSXT1RS32C2P00 | M8165961A20139 |
| DSXT1RS32C4P00 | M8165961A20149 |
| DSXT1RS33C4P00 | M8165961A20103 |
| DSXT1RS40C1P00 | M8165961A20141 |
| DSXT1RS40P00 | M8165961A20009 |
| DSXT1RS45P00 | M8165961A20017 |
| DSXT1RS57P00 | M8165961A20025 |
| DSXT1RS67P00 | M8165961A20033 |
| DSXT1RSD8P00 | M8165961A20083 |
| DSXT1RXC8P00 | M8165961A20135 |
| DSXT2RS106SS106S00 | M8165962A20044 |
| DSXT2RS106SS26P00 | M8165962A20057 |
| DSXT2RS106SS67P00 | M8165962A20089 |
| DSXT2RS106SXC8P00 | M8165962A20087 |
| DSXT2RS26PS106S00 | M8165962A20059 |
| DSXT2RS26PS26P00 | M8165962A20003 |
| DSXT2RS32C2PS106S00 | M8165962A20129 |
| DSXT2RS32C2PS40C1P00 | M8165962A20121 |
| DSXT2RS32C2PS45P00 | M8165962A20123 |
| DSXT2RS32C2PS57P00 | M8165962A20125 |

*DSX-SAE AS81659*

| RADIALL PART NUMBER | MIL PART NUMBER |
|---|---|
| DSXT2RS32C2PS67P00 | M8165962A20127 |
| DSXT2RS32C4PS106S00 | M8165962A20151 |
| DSXT2RS32C4PXC8P00 | M8165962A20159 |
| DSXT2RS33C4PS106S | M8165962A20105 |
| DSXT2RS33C4PXC8P00 | M8165962A20107 |
| DSXT2RS40C1PS40C1P00 | M8165962A20131 |
| DSXT2RS40PS40P00 | M8165962A20011 |
| DSXT2RS45PS45P00 | M8165962A20019 |
| DSXT2RS57PS106S00 | M8165962A20133 |
| DSXT2RS57PS26P00 | M8165962A20147 |
| DSXT2RS57PS57P00 | M8165962A20027 |
| DSXT2RS67PS106S00 | M8165962A20071 |
| DSXT2RS67PS67P00 | M8165962A20035 |
| DSXT3RS106SS106SS67P00 | M8165963A20091 |
| DSXT3RS26PS26PS26P00 | M8165963A20005 |
| DSXT3RS40PS40PS40P00 | M8165963A20013 |
| DSXT3RS45PS45PS45P00 | M8165963A20021 |
| DSXT3RS57PS57PS57P00 | M8165963A20029 |

| RADIALL PART NUMBER | MIL PART NUMBER |
|---|---|
| DSXT3RS67PS106SS67P00 | M8165963A20079 |
| DSXT3RS67PS67PS106S00 | M8165963A20075 |
| DSXT3RS67PS67PS67P00 | M8165963A20037 |
| DSXT3RS67PS67PXC8P00 | M8165963A20073 |
| DSXT3RXC8PXC8PS106S00 | M8165963A20067 |
| DSXT3RXC8PXC8PXC8P00 | M8165963A20065 |
| DSXT4RS106SS106SS106SS106S00 | M8165964A20048 |
| DSXT4RS106SS106SS67PS67P00 | M8165964A20101 |
| DSXT4RS106SS67PS106SSC8P00 | M8165964A20097 |
| DSXT4RS106SS67PSC8PSC8P00 | M8165964A20099 |
| DSXT4RS106SSC8PS106SS106S00 | M8165964A20095 |
| DSXT4RS26PS26PS26PS26P00 | M8165964A20007 |
| DSXT4RS40PS40PS40PS40P00 | M8165964A20015 |
| DSXT4RS45PS45PS45PS45P00 | M8165964A20023 |
| DSXT4RS57PS57PS57PS57P00 | M8165964A20031 |
| DSXT4RS67PS67PS33C4PS33C4P00 | M8165964A20081 |
| DSXT4RSC8PSC8PS67PS67P00 | M8165964A20085 |



*DSX-F*

## HOW TO ORDER DSX-F CONNECTORS

DSX

**SERIES PREFIX**

**CLASS**
**F:** Front release front removable contacts, inserts without interfacial seal
**K:** Front release front removable contacts, inserts with interfacial seal

**SHELL SIZE**
**1:** One gang shell
**2:** Two gang shell
**3:** Three gang shell
**4:** Four gang shell

**SHELL TYPE**
**R:** Receptacle
**A:** Plug

**TERMINATION STYLE** [5]
**X:** Without contacts
**V:** Wire wrap two levels
**W:** Wire wrap three levels
**Y:** PC tail contact

**CONTACT ARRAGEMENT** [1, 2 & 5]
To be chosen among the following: [4]
26-40-45-57-67-33C4-106-81C3

**CONTACT TYPE**
**S:** Socket
**P:** Pin

**GANG B**

**GANG C**

**GANG D**

**MODIFICATION CODE**
See pages 7-11 to 7-16 for selection.

**POLARIZATION CODE** [3]
See pages 7-17 to 7-20 for selection.

*For technical characteristics please see page 7-5.*

*Notes*

*1. For mixed contact arrangements, order coax contacts separately see contacts available on pages 7-24 to 7-26. Coax contacts are rear release rear removable.*
*2. For 33C4 and 67 contact arrangements, size 16 contacts cavities are for front release front removable contacts. Size 16 contacts are to be ordered separately.*
*3. Without polarization code the connector is delivered with the polarizing system unassembled.*
*Polarization code 00: the connector is delivered without polarizing system.*
*Polarization code from 01 to 216: the connector is delivered with polarization hardware assembled as defined by code.*
*4. Contact arrangement 26 and 40 available only in class F connector version.*
*5. Gang A*

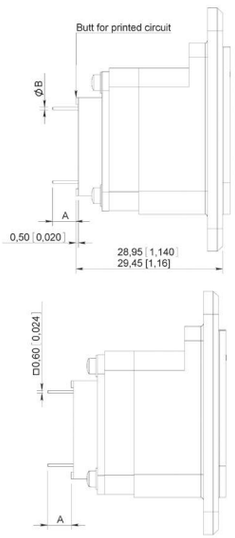
*DSX-F*

# CONTACTS

## CONTACTS WITH PC TAIL SIZES 22, 20 HD & 16

*Contacts are delivered installed in the connector.*

| CONTACT SIZE | CONTACT ARRANGEMENT | PIN | SOCKET | INS/EXT TOOL | DIMENSIONS MM (INCH) | |
|---|---|---|---|---|---|---|
| | | | | | A | B |
| 22 | 81C3 -106 | - | 620361 | 282500 | 5.95/6.75 (0.234/0.265) | 0.6 +/-0.03 (0.023) |
| 20HD | 40-45-67-33C4-57 | 616220 | - | 282503 | 4.3/5.1 (0.169/0.200) | |
| 16 [1] | 26-67-33C4 | 616235 | - | 282504 | | Max. 1 (0.039) |
| | | 616235010 | - | | 3.55/4.32 (0.140/0.170) | |
| | | 616234 | - | | 10.20/11 (0.400/0.433) | |




## SIZE 8 PIN QUADRAX CONTACTS

| PART NUMBER | CONTACT TERMINATION | DIMENSION X (MM INCH) | INS/EXT TOOL |
|---|---|---|---|
| 620176008 | Y | 7.20/6.40 90.283/0.2520 | 282549009 |

## CONTACTS WITH WIRE WRAP POST SIZES 22 & 20 HD

Contacts are delivered installed in the connector. For 67 and 33C4 contact arrangements, front release front removable size 12 and 16 contacts are not delivered with the connector. They must be ordered separately and chosen among size 16 PC tail contacts and 616326 size 16 solder cup contact (rear extension from insert: 4.4/5.2 (0.173/0.204).

| CONTACT SIZE | AWG | CONTACT ARRANGEMENT | PIN | SOCKET | INS/EXT TOOL | DIMENSIONS A MM (INCH) |
|---|---|---|---|---|---|---|
| 22 | 26<br>28<br>30 | 106 | - | 620351 (2 Wraps Levels) | 282500 | 9.45/10.45 (0.372/0.412) |
| | | | | 620352 (3 Wrap Levels) | | 12.75/13.75 (0.502/0.541) |
| 20 HD | 26<br>28<br>30 | 40-45-67-33C4-57 | 616222 (2 Wraps Levels) | - | 282503 | 10/11 (0.394/0.433) |
| | | | 616224 (3 Wrap Levels) | | | 13.3/14.3 (0.523/0.563 |

## COAXIAL CRIMP CONTACTS FOR 33C4 CONTACT ARRANGEMENTS SIZE 5

These coaxial contacts are rear release rear removable and designed to be installed in 33C4 and 81C3 contact arrangement class F or K. They must be ordered separately.

| CONTACT SIZE | CONTACT ARRANGEMENT | CABLE | PIN | SOCKET | CENTER CONTACT | | | OUTER BODY | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | CRIMPING TOOL | POSITIONER | SEL. | CRIMPING TOOL | DIE | HEX |
| 5 | 33C4<br>81C3 | Microdot 250.39.37 | 616126 | - | 282281 (M22550/ 2-01) | 282974 | 6 | 282293 (M22520/ 5-01) | 282246 (M22520/ 5-05) | B |
| | | RG 178<br>KX 21 | 616127 | - | | | | | | |

## EN4531-101 (ABS 1379) ADAPTER FOR SIZE 5 CAVITY

Radiall offers a unique solution to equip your DSX connectors with EN4531 fiber optic contacts. The adapter will turn a ARINC 404 size 5 cavity into a fiber optic link, using EN4531-101 fiber optic contacts.

EN4531-101 adapter for size 5 cavity is available for DSX F connectors with inserts 33C4 and 81C3 only, see page 7-28.

***Notes***

*1. Front release front removable size 16 contacts PC tail termination are installed only for 26 contact arrangement (which is fitted with 616235 contacts). For 67 and 33C4, contact arrangements front release front removable size 16 contacts must be ordered separately*

*DSX-DATA Bus*

## HOW TO ORDER DSX-DATA BUS CONNECTORS

DSX

**SERIES PREFIX**

**CLASS**
**N:** Non-environmental (without grommet and interfacial seal)
**E:** Environmental (with grommet and interfacial seal)
**T:** Connector with interfacial seal on insert with protruding contacts only

**SHELL SIZE**
**1:** One gang shell
**2:** Two gang shell
**3:** Three gang shell
**4:** Four gang shell

**SHELL TYPE**
**R:** Receptacle
**A:** Plug

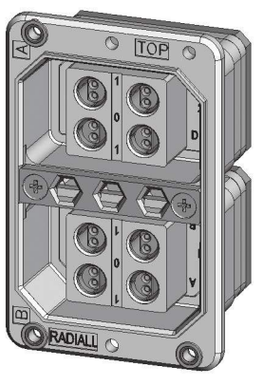
**GANG A BUS CONTRACT ARRANGEMENT** [1]

**GANG B CONTRACT ARRANGEMENT**

**MODIFICATION CODE**
See pages 7-11 to 7-16 for selection.

**POLARIZATION CODE**
See pages 7-17 to 7-20 for selection.

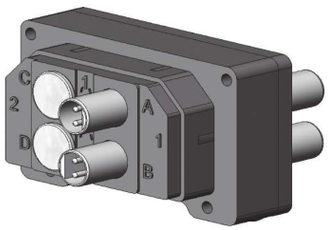
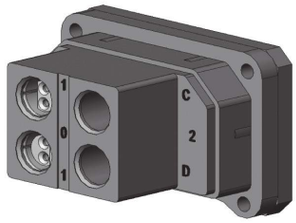
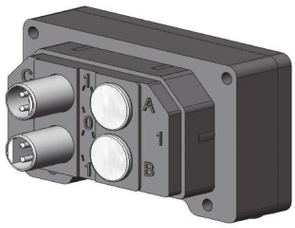
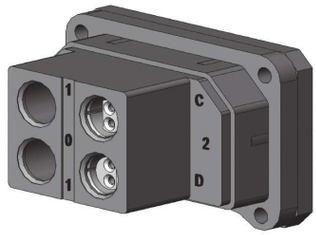
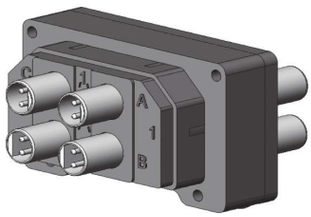
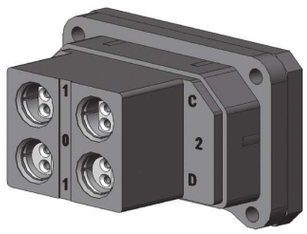
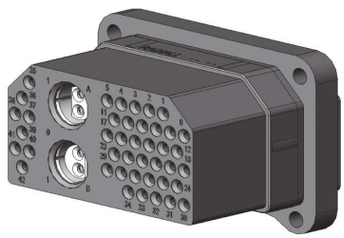
*For technical characteristics please see pages 7-5.*
*For any additional information ask for the RP2667 DSX Data Bus from Radiall.*




*Notes*
*1. Data bus contact arrangements have no interfacial seal and no rear grommet.*

## CONTACT ARRANGEMENTS

### PIN INSERT MATING SIDE SHOWN–ALL INSERTS DWV 1000 V AC

| INSERT NAME | NUMBER OF CONTACTS | INSERT NAME | NUMBER OF CONTACTS |
|---|---|---|---|
| B2TP1–<br>H2TP1 | <br>2 × Twinax<br>Location A, B | B2S1 | <br>2 × Twinax<br>Location A, B |
| B2TP2–<br>H2TP2 | <br>2 × Twinax<br>Location C, D | B2S2 | <br>2 × Twinax<br>Location C, D |
| B4TP–<br>H4TP | <br>4 × Twinax<br>Location A, B, C, D | B4S | <br>4 × Twinax<br>Location A, B, C, D |
| S42B2P | <br>2 × Twinax<br>42 × #20 HD<br>Location A, B | S42B2S | <br>2 × Twinax<br>42 × #20 HD<br>Location A, B |

## DIMENSIONS

### B2TP, H2TP, B4TP & H4TP AIRCRAFT CONNECTOR

The aircraft connector is comprised of two sub assemblies

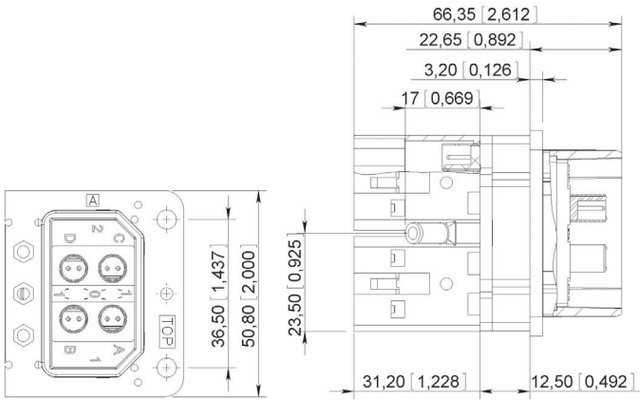
1. A plug shell fitted with an insert incorporating 2 (B2TP or H2TP) or 4 (B4TP or H4TP) twinax pin contacts.
2. One or two connection plugs depending on the number of BUS lines (B2 or B4). If there are two BUS lines (B2TP or H2TP) the two twinax contacts and the connection plug can be installed either in position 1 (B2TP1 or H2TP1) or in position 2 (B2TP2 or H2TP2).

The difference between B2TP1 and H2TP1, B2TP2 and H2TP2, B4TP and H4TP depends on the shielded twisted pairs cable that is used.

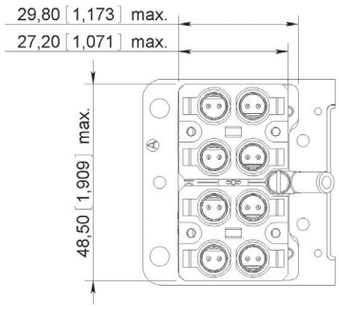
For Fileca F2709/12 cable the designation used are B2TP1, B2TP2, B4TP.
Description: differential impedance = 75 ± 5Ω
Shielded twisted pair (each conductor = AWG 20) Outer diameter = 5.35 mm (0.206 inch max)

For Fileca F2709/9 cable the designation used are H2TP1, H2TP2, H4TP.
Description: differential impedance = 75 ± 5Ω
Shielded twisted pair (each conductor = AWG 22) Outer diameter = 4.80 mm (0.189 inch max)

**MATING FACE**

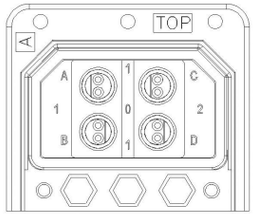


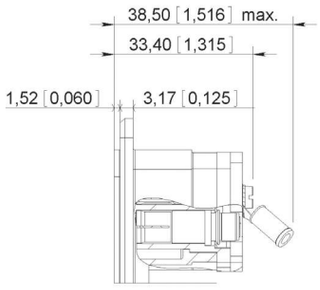

**WIRING REAR FACE**

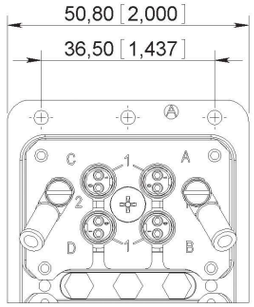



### B2TP, H2TP, B4TP & H4TP EQUIPMENT CONNECTOR

The equipment connector is comprised of one receptacle shell fitted with an insert incorporating 2 (B2S) or 4 (B4S) twinax socket contacts.

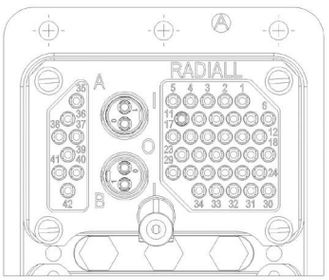


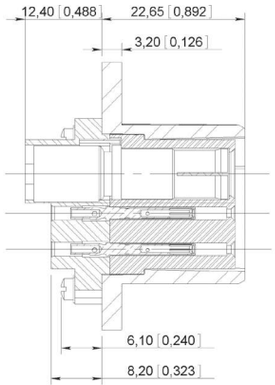



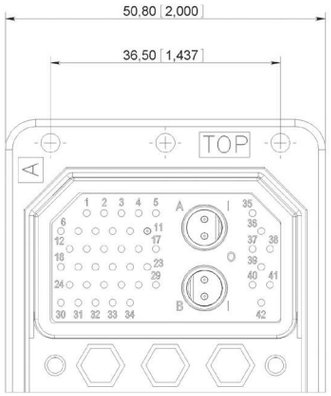



### S42B2P AIRCRAFT CONNECTOR

The aircraft connector is comprised of a plug shell fitted with a S42B2P insert.

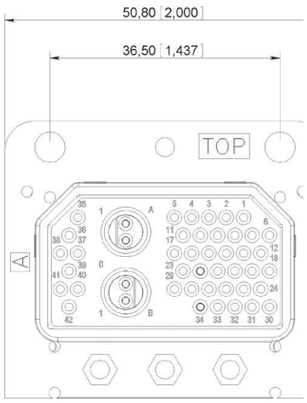


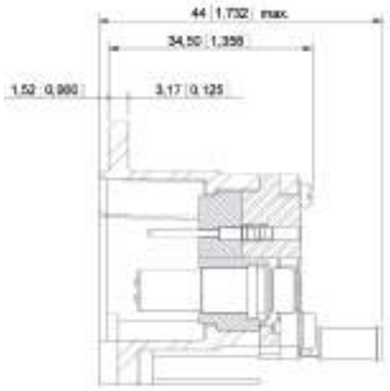



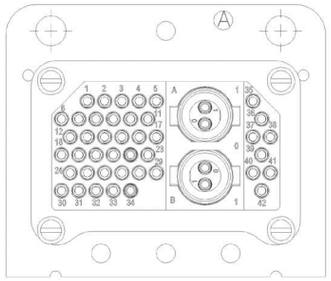




### S42B2P EQUIPMENT CONNECTOR

The equipment connector is comprised of a receptacle shell fitted with a S42B2P insert.




## CONTACTS

### TWINAX

| CONTACT SIZE | CABLE | PIN | SOCKET | CENTER CONTACT | | | OUTER BODY | |
|---|---|---|---|---|---|---|---|---|
| | | | | CRIMPING TOOL | POSITIONER | SEL. | CRIMPING TOOL | DIE |
| B2TP<br>B4TP | F2709/12 | - | 616090 | 282281<br>(M22520/2-01) | 282959 | 7 | 282293<br>(M22520/5-01) | 282248<br>OCETA<br>M1001 |
| H4TP<br>H2TP<br>42B2S | F2709/9 | - | 616091 | | | 8 | | |
| B4S<br>B2S | AWG 20<br>AWG 22<br>AWG 24 | - | 616092 | | | 7<br>6<br>5 | N/A | |
| 42B2P | AWG 20<br>AWG 22<br>AWG 24 | 616192 | - | | | 7<br>6<br>5 | | |

*DSX-ARINC 404 Shell Type B*

## HOW TO ORDER ARINC 404 SHELL TYPE B CONNECTORS

DSX

**SERIES PREFIX**

**SHELL SIZE**
**1:** One gang shell
**2:** Two gang shell
**3:** Three gang shell
**4:** Four gang shell

**SHELL TYPE**
**G:** Receptacle
**H:** Plug

**GANG A-CONTACT ARRANGEMENT**
See available contact arrangements on pages 7-49 and 7-50.

**TERMINATION STYLE** [2 & 3]
**X:** Without contacts
**S:** Crimp [1]
**Z:** Fixed solder cup
**K:** Wire wrap one level [5]
**V:** Wire wrap two levels [5]
**W:** Wire wrap three levels [5]
**Y:** PC tail contact [5]

**GANG B**

**GANG C**

**GANG D**

**MODIFICATION CODE**
See pages 7-11 to 7-16 for selection.

**POLARIZATION CODE** [4]
See pages 7-17 to 7-20 for selection.

### CONTACT ARRANGEMENT CODE TABLE

| | 00 | 8 | 13 | 26 | 40 | 45 | 57 | 67 | 106 | 32C2 | 32C4 | 40C1 | C2 | C3 | C8 | D8 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Insert for Pin Contacts | 10 | 12 | 44 | 14 | 16 | 18 | 20 | 22 | 24 | 26 | 40 | 28 | 34 | 36 | 30 | 38 |
| Insert for Socket Contacts | 11 | 13 | 45 | 15 | 17 | 19 | 21 | 23 | 25 | 27 | 41 | 29 | 35 | 37 | 31 | 39 |

*Notes*

*1. If you need to use reduced crimp barrel contacts, use code X and order contacts separately.*
*2. For C2, C3 and C8 contact arrangements which include coax contacts, use termination code X and order coax contacts separately.*
*3. For mixed layout 32C2, 32C4 and 40C1, the connector is delivered with signal and power contacts but without coax contacts. Order coaxial contacts separately.*
*4. Without polarization code: the connector is delivered with polarizing system unassembled.*
*Polarization code 00: the connector is delivered without polarizing system.*
*Polarization code from 01 to 216: the connector is delivered with the polarization hardware assembled as defined by code.*
*5. For contact arrangement 67 and 32C4 with K, V, W or Y termination styles, size 16 contacts are crimp contacts shipped loose with the connector.*

*DSX-ARINC 404 Shell Type B*

## TECHNICAL CHARACTERISTICS

### MATERIALS

| DESCRIPTION | MATERIAL | PLATING |
|---|---|---|
| Shell | Aluminium Alloy | Cadmium Yellow Chromate [1] |
| Insert | Thermosetting Resin | - |
| Metallic Insert | Aluminium Alloy | Cadmium Clear Chromate |
| Rear Spacer | Silicone Rubber | - |
| Retention Clip | Copper Alloy | - |
| Contact | Copper Alloy | Gold over Nickel Under Plate |
| Insert Retention Plate | Aluminium Alloy | Yellow Anodized |
| Insert Retention Plate with Attaching Tabs | Aluminium Alloy | Cadmium Yellow Chromate [1] |
| Polarizing Posts | Stainless Steel | - |
| Polarizing Keys | Zinc Alloy | Cadmium Yellow Chromate [1] |
| Polarizing Keys Retention Plate | Aluminium Alloy | Yellow Anodised [1] |
| Screws, Washers, Clinch-Nuts | Corrosion Resistant Steel | - |

### ELECTRICAL CHARACTERISTICS

They are the same as those described for SAE AS81659 connectors on page 7-5.

### MECHANICAL & ENVIRONMENTAL CHARACTERISTICS

These characteristics are the same as described in SAE AS81659, with the exception that the altitude moisture test is not performed. This test is replaced by a moisture resistance test performed according to method 1002.2 type II of MIL-STD-1344A.

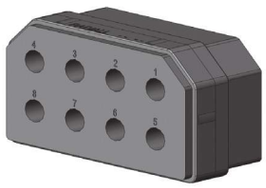
*Notes*

*1. More platings are available, see descriptions in modification codes*

*DSX-ARINC 404 Shell Type B*

## CONTACT ARRANGEMENTS

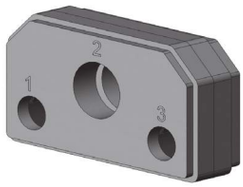
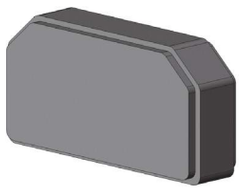
Pin insert mating side is shown below in the table.

| INSERT NAME | NUMBER OF CONTACTS | DWV | TERMINATION AVAILABILITY | INSERT NAME | NUMBER OF CONTACTS | DWV [1] | TERMINATION AVAILABILITY |
|---|---|---|---|---|---|---|---|
| 8 | <br>8 × #12 | 1,500 V–60 Hz | S- Z | 45 | <br>45 × #20 | 1,500 V–60 Hz | For Pin S-Z-Y-K-V-W For Socket S-Z-W |
| 13 | <br>13 × #16 | 1,800 V–60 Hz | S-Z For Pin | 57 | <br>57 × #20 | 1,500 V–60 Hz | For Pin S-Z-Y-K-V-W For Socket S-Z-W |
| D8 | <br>4 × #16<br>4 × #12 | 1,500 V–60 Hz | S–Z | 67 | <br>64 × #20 HD<br>3 × #16 | 1,000 V–60 Hz | For Pin S-Z-Y-K-V-W For Socket S-Z-W |
| 26 | <br>26 × #16 | 1,500 V–60 Hz | For Pin S-Z-K For Socket S-Z | 106 | <br>106 × #22 | 1,000 V–60 Hz | S-Y-V-W |
| 40 | <br>40 × #20 | 1,500 V–60 Hz | For Pin S-Z-Y-K-V-W For Socket S-Z-W | 40C1 | <br>1 × #5 (Coax)<br>39 × #20 | 1,500 V–60 Hz | For Pin S-Z-Y-K-V-W For Socket S-Z-W |

***Notes***

*1. Dieletric withstanding voltage*

*DSX-ARINC 404 Shell Type B*

| INSERT NAME | NUMBER OF CONTACTS | DWV | TERMINATION AVAILABILITY | INSERT NAME | NUMBER OF CONTACTS | DWV | TERMINATION AVAILABILITY |
|---|---|---|---|---|---|---|---|
| 32C2 | <br>2 × #5 (Coax)<br>30 × #20 | 1,500 V–60 Hz<br>1,000 V for Coax Cavity | For Pin S-Z-Y-K-V-W For Socket S-Z-W | C3 | <br>2 × #7 (Coax)<br>1 × #3 | Metallic | S |
| 32C4 | <br>4 × #9 (Coax)<br>4 × #16<br>24 × #20 | 1,500 V–60 Hz<br>1,000 V for Coax Cavity | For Pin S-Z-Y-K-V-W For Socket S-Z-W | C8 | <br>8 × #9 (Coax) | 1,000 V–60 Hz | S |
| C2 | <br>2 × #1 (Coax) | Metallic | S | 00 |  | - | Dummy Insert |

*DSX-ARINC 404 Shell Type B*

## CONTACTS

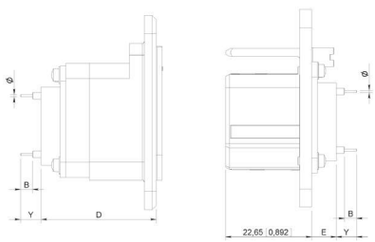
### SIGNAL AND POWER CRIMP CONTACTS SIZES 22, 20 HD,16 & 12

| CONTACT SIZE | WIRE | | | | PIN RADIALL P/N MIL P/N | SOCKET RADIALL P/N MIL P/N | CRIMPING TOOL | POSITIONER | SEL. | INS/EXT TOOL |
|---|---|---|---|---|---|---|---|---|---|---|
| | AWG | CROSS SECTION (MM) | WIRE OUTSIDE DIA. (INCH) | STRIPING LENGTH MM (INCH) | | | | | | |
| 22 | 22<br>24<br>26 | 0.38<br>0.21<br>0.14 | 1.4<br>(0.055) | 3.05<br>(0.138) | 616200<br>(MIL 39029/<br>11-144) | 616300<br>(MIL 39029/<br>12-148) | 282281<br>(M22520/2-23) | 282970<br>(M22520/2-23) | 4<br>3<br>3 | 282885<br>(M81969/1-01) |
| 22 Reduced Crimp Barrel | 28<br>30 | 0.093<br>0.055 | 1.4<br>(0.055) | 3.05<br>(0.138) | 616201 | 616301 | | | 5<br>4 | |
| 20 HD | 20<br>22<br>24 | 0.60<br>0.38<br>0.21 | 1.8<br>(0.071) | 4.0<br>(0.157) | 616210<br>(MIL 39029/<br>11-145) | 616310<br>(MIL 39029/<br>12-149) | | 282971<br>(M22520/2-08) | 7<br>6<br>5 | 282886<br>(M81969/1-02) |
| 20 HD Reduced Crimp Barrel | 26<br>28<br>30 | 0.14<br>0.093<br>0.055 | 1.8<br>(0.071) | 4.0<br>(0.157) | 616211 | 616311 | | | 6<br>5<br>4 | |
| 20 | 20<br>22<br>24 | 0.60<br>0.38<br>0.21 | 1.8<br>(0.071) | 4.0<br>(0.157) | 610220 | 610325 | 282971<br>(M22520/1-01) | 282972<br>(M22520/1-02) | 4<br>3<br>3 | 282943 |
| 20 Reduced Crimp Barrel | 26<br>28<br>30 | 0.14<br>0.093<br>0.055 | 1.8<br>(0.071) | 4.0<br>(0.157) | 610221 | 610321 | | | 3<br>3<br>2 | |
| 16 | 16<br>18<br>20 | 1.34<br>0.93<br>0.60 | 2.6<br>(0.102) | 6.0<br>(0.236) | 616230<br>(MIL 39029/<br>11-146) | 616330<br>(MIL 39029/<br>12-150) | | | 6<br>5<br>4 | 282546<br>(M81969/1-03) |
| 16 Reduced Crimp Barrel | 20<br>22<br>24 | 0.60<br>0.38<br>0.21 | 2.6<br>(0.102) | 6.0<br>(0.236) | 616231 | 616331 | | | 5<br>5<br>4 | |
| 12 | 12<br>14<br>16 | 3.18<br>1.91<br>1.34 | 3.4<br>(0.134) | 6.0<br>(0.236) | 616240<br>(MIL 39029/<br>11-174) | 616340<br>(MIL 39029/<br>12-151) | | 282579<br>(M22520/1-11) | 8<br>7<br>6 | 282547<br>(M81969/<br>28-02) |

### PC TAIL CONTACTS SIZES 22, 20HD & 20 PC TAIL CONTACTS

PC tail contacts are delivered installed in the connector. Connectors with PC tail contacts have no wire separator. For 32C4 and 67 contact arrangements, size 16 contacts are delivered in crimp termination and are shipped loose with the connector.

| CONTACT SIZE | CONTACT ARRANGEMENT | PIN | SOCKET | EXTRACTION TOOL | DIMENSIONS MM (INCH) | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | Y | B | DIA | D | E |
| 22 | 106 | 616206 [1] | 616379 | 282890 | 6.1/5.3<br>(0.240/0.209) | 6.5 (0.256) | 0.6<br>(0.023) | 25.25/25.75<br>(0.0994/1.013) | 1.55/1.75<br>(0.061/0.069) |
| | | - | 616303 | | 14.4/13.6<br>(0.567/0.535) | 9.4 (0.370) | | | |
| | | - | 616306 [1] | | 5.9/6.7<br>(0.232/0.263) | 3.8 (0.149) | | | |
| 20HD | 67 | 610216 [1] | / | 282891 | 5.75/6.65<br>(0.226/0.262) | / | 0.8<br>(0.031) | 29.20/29.80<br>(1.149/1.173) | 5.40/5.80<br>(0.212/0.228) |
| | 32C4 | - | - | | 6.35/7.55<br>(0.250/0.297) | | | 29.70/30.30<br>(1.169/1.192) | |
| | 67 | 610219 | - | | 3.35/4.25<br>(0.131/0.168) | | 0.75<br>(0.029) | 29.20/29.80<br>(1.149/1.173) | |
| | 32C4 | - | - | | 3.95/5.15<br>(0.155/0.203) | | | 29.70/30.30<br>(1.169/1.192) | |
| 20 | 40-45-57<br>32C2-40C1 | 610226 [1] | / | 282943 | 6.10/7.40<br>(0.240/0.291) | / | 0.8<br>(0.031) | 28.55/29.15<br>(1.124/1.147) | 5.40/5.80<br>(0.212/0.228) |




*Notes*

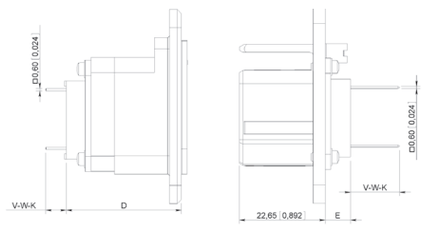
*1. Connectors delivered in the "Y" termination style will be fitted with contacts marked by "[1]". If you want to use another kind of PC tail contact use termination "x" when ordering the connector and order contacts separately.*

*DSX-ARINC 404 Shell Type B*

## CONTACTS WITH WIRE WRAP POST SIZES 22, 20 HD & 20

Wire wrap contacts are delivered installed in the connector. Connectors with wire wrap contacts have no wire separator. For 32C4 and 67 contact arrangements, size 16 contacts are delivered in crimp termination and are shipped loose with the connector.

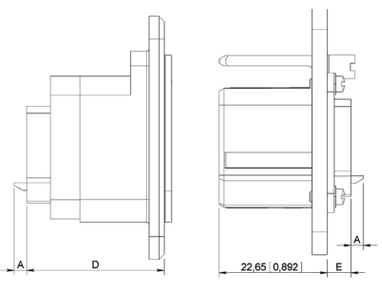
| CONTACT SIZE | AWG | CONTACT ARRANGEMENT | PIN | SOCKET | EXTRACTION TOOL | DIMENSIONS MM (INCH) | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | D | E | K (1 WRAP) | V (2 WRAP) | W (3 WRAP) |
| 22 | 26<br>28<br>30 | 106 | 610203 (2 Wrap Levels)<br>610204 (3 Wrap Levels) | 610303 (2 Wrap Levels)<br>610304 (3 Wrap Levels) | 282948 | 25.25/25.75 (0.0994/1.013) | 1.55/1.75 (0.061/0.069) | - | 10/11 (0.394/0.433) | 12.50/13.50 (0.492/0.531) |
| 20 HD | 26<br>28<br>30 | 67 | 610217 (1 Wrap Level)<br>610215 (2 Wrap Levels)<br>610214 (3 Wrap Levels) | - | | 28.8/29.2 (1.133/1.150) | 5.40/5.80 (0.212/0.228) | 6.35/7.35 (0.250/0.289) | 9.35/10.35 (0.368/0.407) | 11.85/12.85 (0.466/0.506) |
| | | 32C4 | | | | 29.70/30.30 (1.169/1.192) | 5.40/5.80 (0.212/0.228) | 6.95/8.25 (0.273/0.325) | 9.95/11.25 (0.391/0.443) | 12.45/13.75 (0.490/0.541) |
| 20 | 26<br>28<br>30 | 40-45-57<br>32C2-40C1 | 610228 (1 Wrap Level)<br>610225 (2 Wrap Levels)<br>610224 (3 Wrap Levels) | - | 282949 | 28.55/29.15 (1.147/1.124) | 5.40/5.80 (0.212/0.228) | 6.95/8.25 (0.273/0.325) | 9.95/11.25 (0.391/0.443) | 12.60/13.8 (0.496/0.543) |




## SOLDER CUP CONTACT SIZES 20HD, 20, 16 & 12

Solder cup contacts are fixed contacts delivered installed in the connector. Connectors with solder cup contacts have no wire separator.

| CONTACT SIZE | CONTACT ARRANGEMENT | STRIPPING LENGTH | DIMENSIONS MM (INCH) | | |
|---|---|---|---|---|---|
| | | | A | D | E |
| 20 HD | 67 | 2.5 (0.098) | 3 (0.118) | 29.20/29.80 (1.149/1.173) | 5.40/5.80 (0.212/0.228) |
| | 32C4 | | | 29.70/30.30 (1.169/1.192) | |
| 20 | 40-45-57- 32C2-40C1 | | | 28.55/29.15 (1.124/1.147) | |
| 16 | 26-67 | 5 (0.197) | 4.5 (0.177) | 29.20/29.80 (1.149/1.173) | |
| | 32C4 | | | 29.70/30.30 (1.169/1.192) | |
| 12 | 8-D8 | | | 28.55/29.15 (1.124/1.147) | |



*DSX-ARINC 404 Shell Type B*

### THERMOCOUPLE CONTACT SIZES 22 & 20HD

*Refer to page 7-22.*

### FIBER OPTIC TERMINI SIZES 16 & 12

*Refer to page 7-23.*

### COAXIAL CRIMP CONTACT SIZE 1

| CONTACT SIZE | CONTACT ARRANGEMENT | CABLE | PIN | SOCKET | CENTER CONTACT | | | OUTER BODY | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | CRIMPING TOOL | POSITIONER | SEL. | CRIMPING TOOL | DIE | HEX |
| 1 | C2 | UT 141 RG 402 | 616005 | - | Solder Contact | | | | | |
| | | RG 58 RG 141 KX 15 | 616005 Right Angle | - | Solder Contact | | | 282293 (M22520/5-01) | 282246 (M22520/5-05) | A |
| | | RG 214 RG 225 | - | 610108 | | | | - | 282247 (M22520/5-61) | A |
| | | SMA | 616009 | - | SMA Termination | | | | | |

### COAXIAL CRIMP CONTACT SIZE 3

| CONTACT SIZE | CONTACT ARRANGEMENT | CABLE | PIN | SOCKET | CENTER CONTACT | | | OUTER BODY | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | CRIMPING TOOL | POSITIONER | SEL. | CRIMPING TOOL | DIE | HEX |
| 3 | C3 | RG 214 RG 225 | - | 610118 | Solder | | | 282293 (M22520/5-01) | 282247 (M22520/5-61) | A |
| | | UT 141 RG 402 | 616014 | - | Solder Contact | | | | | |

**Dielectric Withstanding Voltage at Sea Level:** 1,500 Vrms

### COAXIAL CRIMP CONTACT SIZE 5

| CONTACT SIZE | CONTACT ARRANGEMENT | CABLE | PIN | SOCKET | CENTER CONTACT | | | OUTER BODY | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | CRIMPING TOOL | POSITIONER | SEL. | CRIMPING TOOL | DIE | HEX |
| 5 | 32C2 40C1 | RG 58 RG 141 KX 15 | 610120 | 610020001 | Solder | | | 282293 (M22520/5-01) | 282246 (M22520/5-05) | A |
| | | RG 142 RG 223 KX 23 | 610122 | 610022001 | | | | | | |
| | | RG 316 KX 22 | 610126 | 610026 | | | | | | B |
| | | KX 21 DT | 610127 | - | | | | | | |
| | | RG 178 | 610119 | - | | | | | | |
| | | UT 085 | 610123 | - | | | | | | |
| | | UT 141 | 616009 | - | Solder | | | | | |

**Extraction Tool:** 282946 (M81969/28-01)

***Notes***

*For other cables, please consult Radiall.*

*DSX-ARINC 404 Shell Type B*

### COAXIAL CRIMP CONTACT SIZE 7

| CONTACT SIZE | CONTACT ARRANGEMENT | CABLE | PIN | SOCKET | CENTER CONTACT | | | OUTER BODY | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | CRIMPING TOOL | POSITIONER | SEL. | CRIMPING TOOL | DIE | HEX |
| 7 | C3 | RG 58<br>RG 141<br>KX 15 | 610120 | 610020001 | Solder | | | 282293 (M22520/ 5-01) | 282246 (M22520/ 5-05) | A |
| | | RG 174<br>RG 316<br>RG 188 | 610126 | 610026 | | | | | | |

**Extraction Tool:** 282946 (M81969/28-01)
**Dielectric Withstanding Voltage at Sea Level:** 750 Vrms

### COAXIAL CRIMP CONTACT SIZE 9

| CONTACT SIZE | CONTACT ARRANGEMENT | CABLE | PIN | SOCKET | CENTER CONTACT | | | OUTER BODY | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | CRIMPING TOOL | POSITIONER | SEL. | CRIMPING TOOL | DIE | HEX |
| 9 | C8<br>32C4 | RG 316<br>KX 22 | 610146 | 610046 | Solder | | | 282293 (M22520/ 5-01) | 282246 (M22520/ 5-05) | B |
| | | RG 178<br>KX 21 | 610147 | 610047 | | | | | | |
| | | RG 58<br>RG 141<br>KX 15 | 610140 | 610040 | | | | | | A |
| | | RG 142 | 610149 | 610049 | | | | | | |
| | | S280W<br>503-2 | - | 610044 | 282281 (M22520/ 2-01) | DANIELS K345 | 6 | | 282236 (M22520/ 5-45) | B |
| | | UT 085 | 610148 | - | Solder | | | | | |

**Extraction Tool:** 282946 (M81969/28-01)

## ACCESSORIES

### FILLER PLUGS

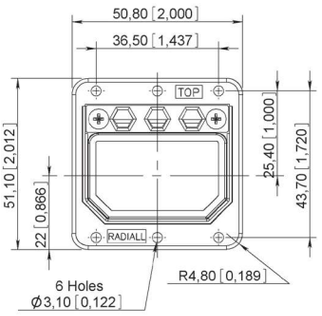
| DESIGNATION | FILLER PLUGS PART NUMBER |
|---|---|
| Size 22 (Black) | 620920 |
| Size 20 (White) | 610940 |
| Size 20HD (Red) | 610941 |
| Size 16 (Blue) | 620922 |
| Size 12 (Yellow) | 616923 |
| Size 5 (White) | 616802 |
| Size 9 (White) | 616802 |

***Notes***
*For other cables, please consult Radiall.*
*For dust caps and backshells, please refer to page 7-29 and 7-30.*

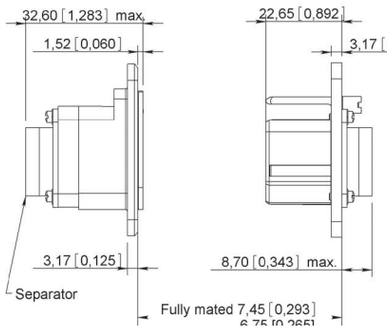
*DSX-ARINC 404 Shell Type B*

## DIMENSIONS

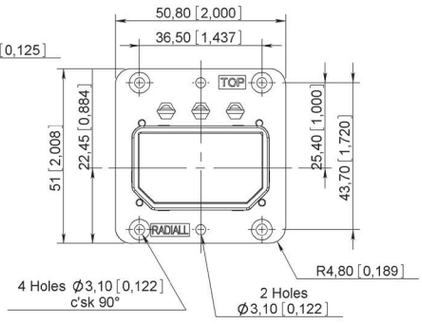
### SHELL SIZE 1



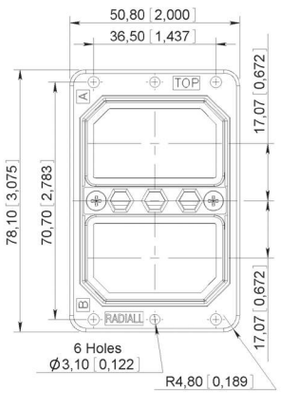

### RECEPTACLE



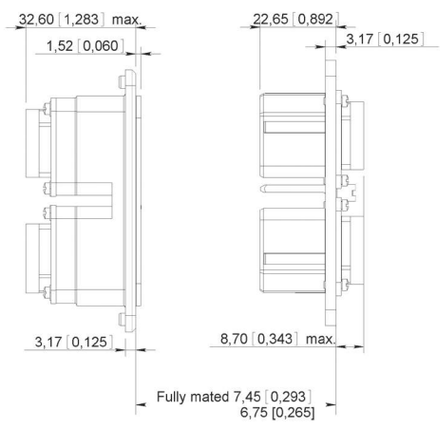

### PLUG



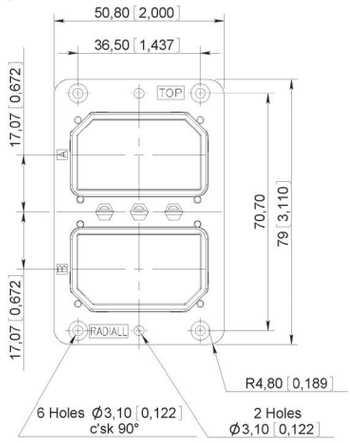

### SHELL SIZE 2



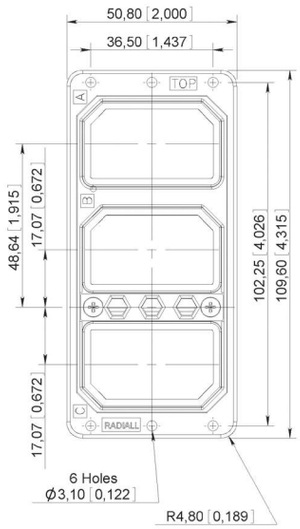

### RECEPTACLE



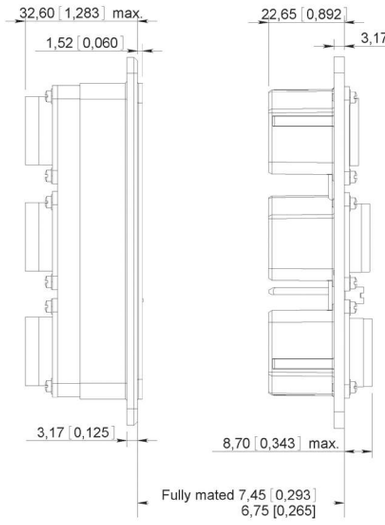

### PLUG



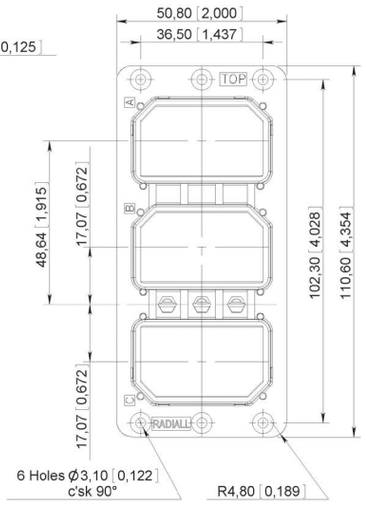

### SHELL SIZE 3




### RECEPTACLE



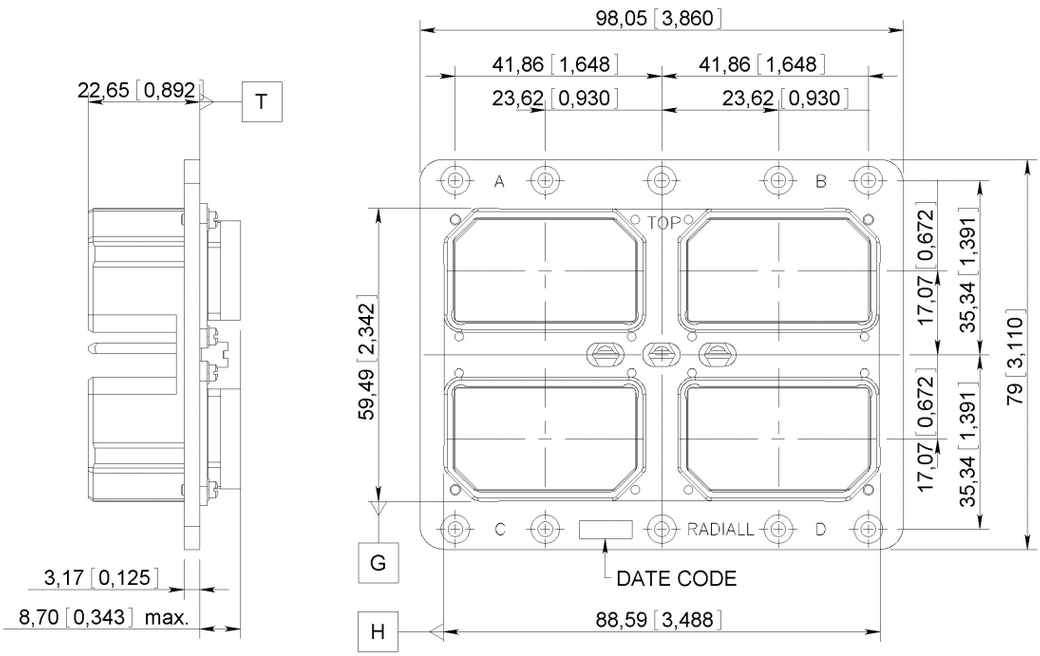

### PLUG



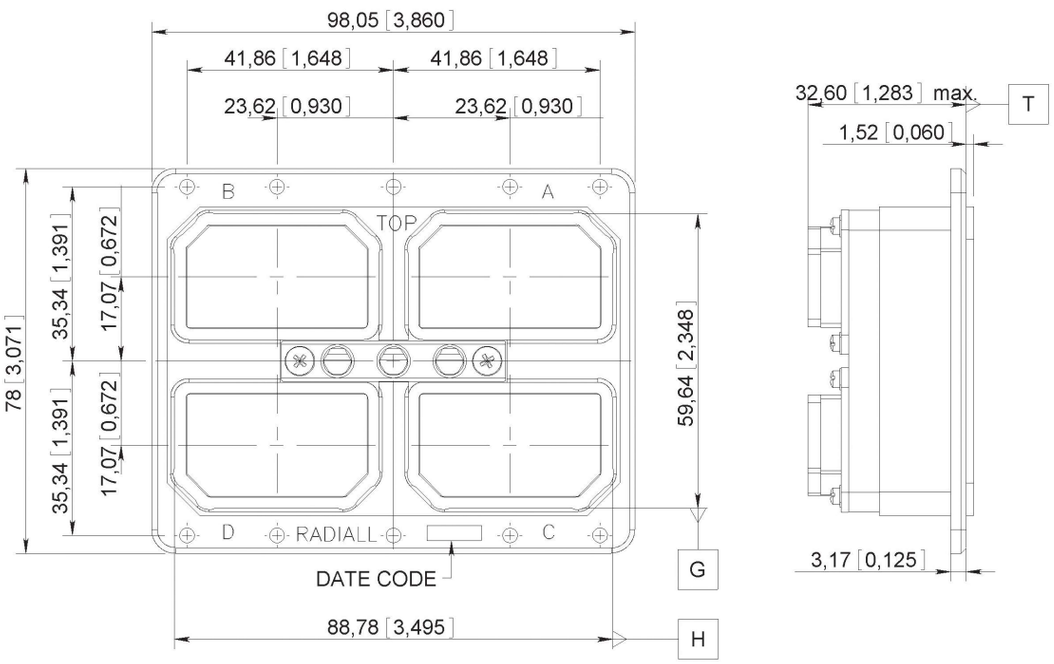
*DSX-ARINC 404 Shell Type B*

## SHELL SIZE 4

### PLUG

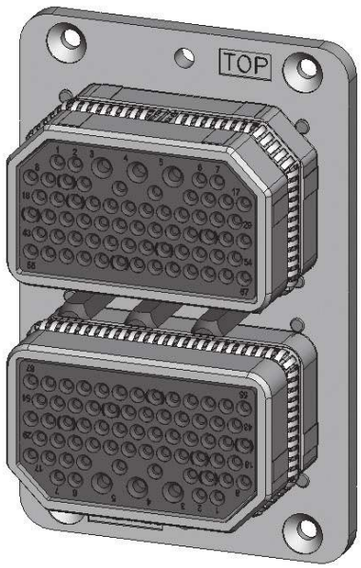



### RECEPTACLE



*DSX-EMI/RFI*

## INTRODUCTION




EMI/RFI acts directly on electronics systems whether by conduction mode through the input or output cables or by radiation (coupling).

Electronics equipment is particularly vulnerable to interference and can be disturbed or damaged by it. The serious consequences which may result, make it essential to protect such installations.

The first stage in protection is to install the equipment in a shielded cabinet which protects it from some interference; particularly those occurring by radiation. At the connector level that means to use metallic shells to have a good mass conduction between the equipment box and the rack.

To meet these requirements Radiall offers plug connectors for rack which are fitted with grounding spring fingers.

DSX SAE AS81659 and DSX-ARINC 404 shell type B in sizes 1,2,3, and 4, fitted with grounding fingers are available.

These connectors are interchangeable and intermatable with the standard ones.

## PART NUMBERING

The part numbering system applies to plug shells only.

To establish the part number of a DSX EMI/RFI connector, simply add the letter “G” after the letter which defines the shell type in the DSX SAE AS81659 or Arinc 404 shell type B standard part number.

Examples of part numbers:

- DSXN2PGS404SS45S0001
- DSX2HG41S19S0001

## TECHNICAL CHARACTERISTICS

The technical characteristics are the same as those of SAE AS81659 and Arinc 404 shell type B connectors except for the following.

- **Shell-to-Shell Conductivity:** 2.5 mΩ max. Measured according to method 3007 of MIL-STD-1344A.
- **Shielding Effectiveness:** >70 dB at 4 GHz. Measured according to method 3008 of MIL-STD-1344A.

## MATERIALS

| DESCRIPTION | MATERIAL | PLATING |
|---|---|---|
| Grounding Spring Fingers | Copper Alloy | Nickel |

*DSX-ARINC 404 Shell Type A*

## TECHNICAL CHARACTERISTICS

### ELECTRICAL, MECHANICAL & ENVIRONMENTAL CHARACTERISITCS

*Refer to SAE AS81659 standards page 7-5*

### MATERIALS

| DESCRIPTION | MATERIAL | PLATING |
|---|---|---|
| Shell | Aluminium Alloy | Cadmium Yellow Chromate |
| Insert | Thermosetting Resin | - |
| Metallic Insert | Aluminium Alloy | Cadmium Clear Chromate |
| Rear Spacer | Silicone Rubber | - |
| Retention Clip | Copper Alloy | - |
| Contact | Copper Alloy | Gold over Nickel Underplate |
| Insert Retention Plate | Aluminium Alloy | Gold Anodized |
| Screws, Washers, Clinch-Nuts | Corrosion Resistant Steel | - |

*DSX-ARINC 404 Shell Type A*

## HOW TO ORDER-ARINC 404 SHELL TYPE A CONNECTORS

DSX

**SERIES PREFIX**

**ONE SIZE**
**1:** One gang shell

**SHELL TYPE**
**E:** Receptacle
**F:** Plug

**CONTACT ARRANGEMENT**
See table below and page 7-49.

**TERMINATION STYLE** [2 & 3]
**X:** Without contacts
**S:** Crimp [1]
**Z:** Fixed solder cup
**K:** Wire wrap one level [4]
**V:** Wire wrap two levels [4]
**W:** Wire wrap three levels [4]
**Y:** PC tail contact [4]

**MODIFICATION CODE**
See page 7-60.

## CONTACT ARRANGEMENT CODE TABLE

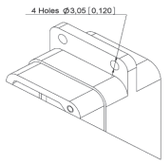
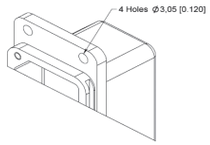
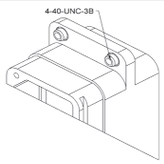
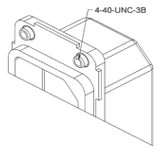
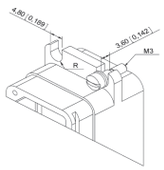
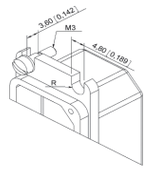
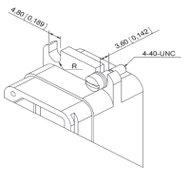
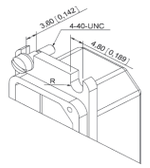
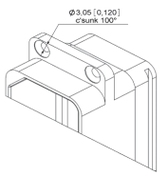
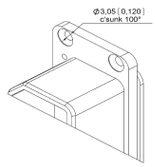
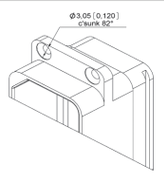
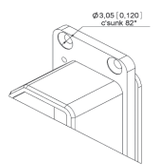
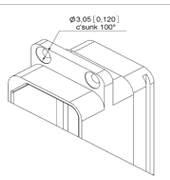
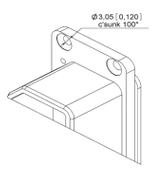
| | 00 | 8 | 13 | 26 | 40 | 45 | 57 | 67 | 106 | 32C2 | 32C4 | 40C1 | C2 | C3 | C8 | D8 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Insert for Pin Contacts | 10 | 12 | 44 | 14 | 16 | 18 | 20 | 22 | 24 | 26 | 40 | 28 | 34 | 36 | 30 | 38 |
| Insert for Socket Contacts | 11 | 13 | 45 | 15 | 17 | 19 | 21 | 23 | 25 | 27 | 41 | 29 | 35 | 37 | 31 | 39 |

*Notes*
*1. If you need to use reduced crimp barrel contacts, use code X and order contacts separately.*
*2. For C2, C3 and C8 contact arrangements which include coax contacts, use termination code X and order coax contacts separately.*
*3. For mixed layout 32C2, 32C4 and 40C1, the connector is delivered with signal and power contacts but without coax contacts. Order coaxial contacts separately.*
*4. For contact arrangement 67 and 32C4 with K, V, W or Y termination styles, size 16 contacts are crimp contacts shipped loose with the connector.*

*DSX-ARINC 404 Shell Type A*

## MODIFICATION CODE

Dimensions mm (inch)

| CODE | RECEPTACLE SHELL | | PLUG SHELL | |
|---|---|---|---|---|
| 00 |  | 4 Holes Ø3.05 (0.120) |  | 4 Holes Ø3.05 (0.120) |
| 01 |  | Four 4.40 UNC 3B Clinch Nuts |  | Four 4.40 UNC 3B Clinch Nuts |
| 03 |  | 4 Mounting Slots 4.80 (0.189) Wide + Four M3 Shouldered Screws + 4 Washers |  | 4 Mounting Slots 4.80 (0.189) Wide + Four M3 Shouldered Screws + 4 Washers |
| 04 |  | 4 Mounting Slots 4.80 (0.189) Wide + Four 4.40 UNC Shouldered Screws + 4 Washers |  | 4 Mounting Slots 4.80 (0.189) Wide + Four .40 UNC Shouldered Screws + 4 Washers |
| 05 |  | 4 Holes 3.05 (0.120) dia c'sunk 100° |  | 4 Holes 3.05 (0.120) dia c'sunk 100° |
| 06 |  | 4 Holes 3.05 (0.120) dia c'sunk 82° |  | 4 Holes 3.05 (0.120) dia c'sunk 82° |
| 07 |  | 4 Holes 3.05 (0.120) dia c'sunk 100° + a Dust Cap |  | 4 Holes 3.05 (0.120) dia c'sunk 100° + a Dust Cap |

*DSX-ARINC 404 Shell Type A*

## CONTACT ARRANGEMENTS

They are the same inserts as those used in Arinc 404 shell type B connectors (see page 7-49).

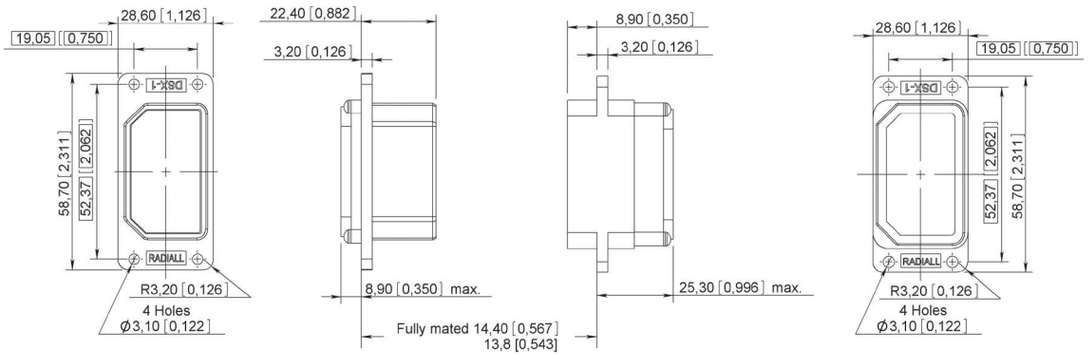
## CONTACTS

The contacts used are those shown on page 7-51 to 7-54.

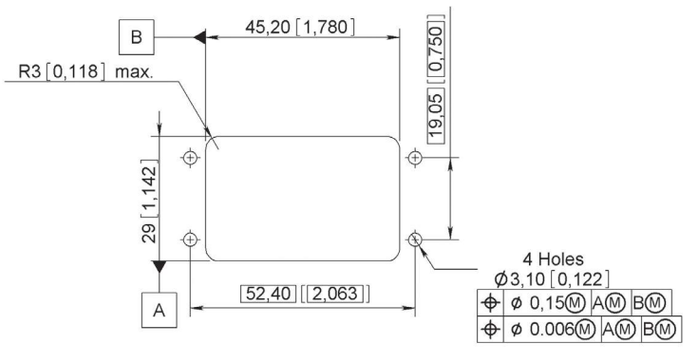
## ACCESSORIES

*Refer to page 7-54*

## DIMENSIONS




## PANEL CUT-OUT

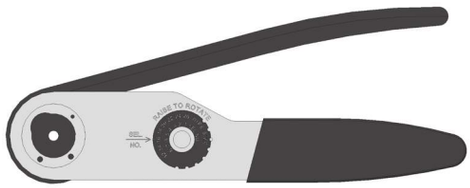


*DSX-ARINC 404 Shell Type A*

# TOOLS

## CRIMPING TOOLS

| PART NUMBER | MIL SPEC P/N |
|---|---|
| 282281 | M22520/2-01 |
| 282291 | M22520/1-01 |
| 282296 | DANIELS M300BT |
| 282293 | M22520/5-01 |



## POSITIONERS

| PART NUMBER | MIL SPEC P/N |
|---|---|
| 282970 | M22520/2-23 |
| 282971 | M22520/2-08 |
| 282974 | - |
| 282550 | Daniels K345 |
| - | - |
| 282972 | M22520/1-02 |
| 282579 | M22520/1-11 |
| 282557 | - |



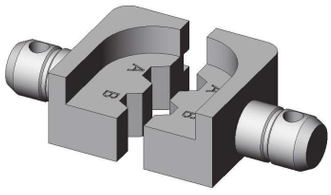
## INSERTION/EXTRACTION TOOLS

| PART NUMBER | MIL SPEC P/N |
|---|---|
| 282885 | M81969/1-01 |
| 282886 | M81969/1-02 |
| 282546 | M81969/1-03 |
| 282547 | M81969/28-02 |
| 282943 | - |
| 282946 | M81969/28-01 |
| 282890 | - |
| 282892 | - |
| 282891 | - |
| 282929 | - |
| 282945 | - |
| 282500 | - |
| 282503 | - |
| 282504 | - |
| 282948 | - |
| 282949 | - |



## DIE

| PART NUMBER | MIL SPEC P/N |
|---|---|
| 282246 | M22520/5-05 |
| 282247 | M22520/5-61 |
| 282248 | OCETA M1001 |
| 282236 | M22520/5-45 |





# MMC SERIES

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## INTRODUCTION

The Radiall MMC series was designed in response to the majority of connection problems of cabling installation, internal and external on electrical and electronic equipment.

The series conforms to the French specification NF-C-93 426 HE 621-622.

They are made up of a rectangular insulation block which accepts equally male or female contacts fitted with different types of wires and coaxial cables. A large number of accessories are available for the MMC series, including: backshell with cable clamp, contact protection shrouds, and locking. This makes it possible for the connector to be manufactured exactly to the corresponding needs of the user.

## APPLICATIONS

A simple, yet highly reliable construction makes the MMC offering enormously adaptable through use of the broad range of accessories. This has allowed the Radiall MMC series to be widely approved for the use in all civil and military fields such as computers, telecommunications, medical, aeronautical, naval and nuclear.



*© Eurocopter-Jérome DEULIN*



*© Courtesy of US Army*

## FEATURES

All of the contacts are removable in order to facilitate replacement, repairs or modification to circuits.

A range of robust manual and automatic tooling with easy to follow instructions provides straight-forward connector/cable assembly. Fully conforms to the French specification NF-C-93 426 HE 621-622.

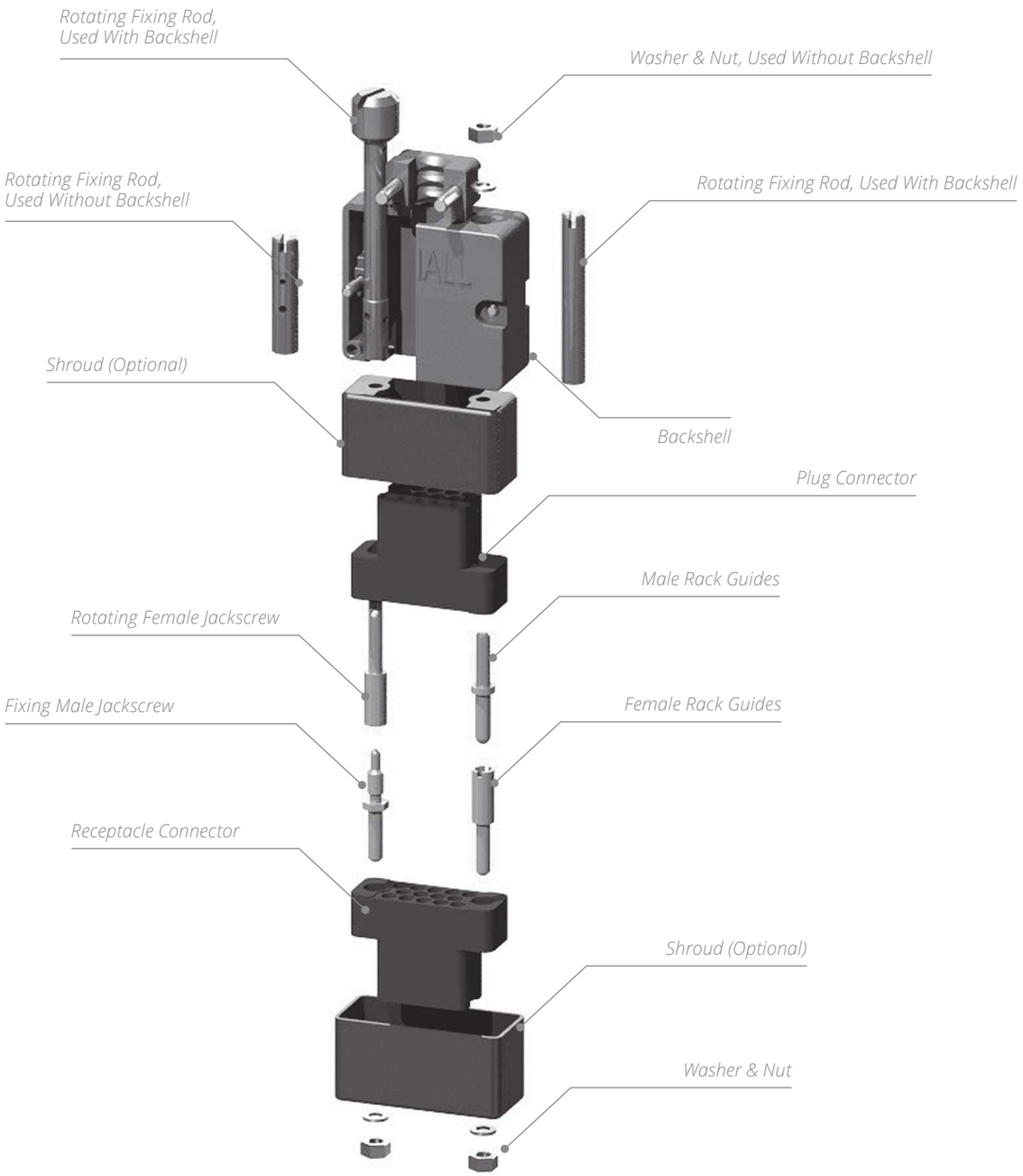
*Introduction*

## PRODUCT OVERVIEW

Detailed view of the various parts of this series connector.

**JACKSCREWS**

**RACK GUIDES**



## ELECTRICAL CHARACTERISTICS

### EQUIPMENT WIRE CONTACTS

| WIRE SECTION | AWG | 16 | 18 | 20 | 22 | 24 | 26 | 28 |
|---|---|---|---|---|---|---|---|---|
| | mm² | 1.34 | 0.93 | 0.60 | 0.38 | 0.22 | 0.14 | 0.093 |
| Current Rating (Amp) | | 13 | 10 | 7.5 | 5 | 3 | 2 | 1 |
| Maximum Ø on Insulation | | | | | 3.10 | | | |
| Contact Resistance | | | | | ≤ 5 m Ω | | | |

### COAXIAL CONTACTS

- **Nominal Impedance:** 50 Ω
- **Operating Frequency:** 0 to 1,000 MHz
- **Dielectric Withstanding Voltage:** 600 Vrms at 50 Hz (At Sea Level)
- **Insulation Resistance:** ≥ 5,000 MΩ
- **Contact Resistance:** ≤ 12 mΩ

| FREQUENCY | 0–200MHZ | 200–500 MHZ | 500–1000 MHZ |
|---|---|---|---|
| Voltage Standing Wave Ratio (VSWR) | 1.10 | 1.15 | 1.40 |
| Insertion Loss by Pair (dB) | < 0.015 | < 0.025 | < 0.025 |

### CONNECTORS

- **Insulation Resistance:** > 5,000 MΩ
- **Dielectric Withstanding Voltage:** 1,500 Vrms at 50 Hz (At Sea Level)

## MECHANICAL & ENVIRONMENTAL CHARACTERISTICS

- **Retention of the Contact in Moulding:** > 50 N (11.24 lbs)
- **Mating Force per Contact Pair:** < 3.4 N (0.76 lbs)
- **Durability:** 500 matings
- **Vibration:** 20 g (0.71 oz) from 80 to 2,000 Hz
- **Shock:** 50 g (1.76 oz)
- **Temperature Range:** -55 °C at +125 °C (-131 °F to 257 °F)
- **Humidity:** 21 days
- **Salt Spray:** 48H

*Introduction*

## PRODUCT MATERIALS

| DESCRIPTION | | MATERIAL | PLATING |
|---|---|---|---|
| Connector | | Glass Filled Phenolic | - |
| Equipment<br>Wire<br>Contacts | Body<br>Spring<br>Retention Clip | Copper Alloy | Gold Over Nickel<br>Gold Over Nickel<br>Nickel |
| Coaxial<br>Contacts | Body & Center<br>Contacts<br>Ferrule<br>Insulator | Copper Alloy<br>Copper Alloy<br>PTFE | Gold Over Nickel<br>Nickel |
| Rack Guide | | Brass | Nickel-Plated |
| Jackscrews | | Stainless Steel | - |
| Shroud | | Steel | Yellow Chromate Cadmium Plated |
| Backshell | | Zinc or Aluminium Alloy | Painted Black |
| Strain Relief Cable Clamp | | Stainless Steel | - |

## PRODUCT MASSES

| SIZE | MASSES g (oz) | TYPE |
|---|---|---|
| 14 | 7 (0.246) | Plug Connector |
| 20 | 8 (0.282) | |
| 26 | 11 (0.388) | |
| 34 | 19 (0.670) | |
| 42 | 22 (0.776) | |
| 690501 | 7 (0.246) | Receptacle Connector |
| 690511 | 8 (0.282) | |
| 690521 | 11 (0.388) | |
| 690531 | 19 (0.670) | |
| 690541 | 22 (0.776) | |
| 690962 | 2 (0.070) | Rack Guide |
| 690952 | | |
| 690963 | 8 (0.282) | |
| 690953 | | |
| 690965 | 6 (0.211) | Short Jackscrew |
| 690955 | | |
| 690966 | 15 (0.529) | Long Jackscrew |
| 690949 | 18 (0.634) | |
| 690956 | 16 (0.564) | |
| 690939 | 18 (0.634) | |

| REFERENCES | MASSES g (oz) | TYPE |
|---|---|---|
| 690940 | 15 (0.529) | Shroud Male |
| 690941 | 16 (0.564) | |
| 690942 | 18 (0.634) | |
| 690943 | 22 (0.776) | |
| 690930 | 14 (0.493) | Shroud Female |
| 690931 | 15 (0.529) | |
| 690932 | 17 (0.599) | |
| 690933 | 25 (0.881) | |
| 690905 | 57 (2.010) | Backshell Top Entry |
| 690908 | 65 (2.292) | |
| 690911 | 77 (2.716) | |
| 690914 | 101 (3.562) | |
| 690917 | 125 (4.409) | |
| 20521500 | 39 (1.375) | Backshell Side Entry |
| (14) 690848001 | 14 (0.493) | Strain Relief<br>Top Entry |
| (20) 690848002 | 16 (0.564) | |
| (26) 690848003 | 18 (0.634) | |
| (50) 690848006 | 28 (0.987) | |
| (75) 690848007 | 40 (1.410) | |

*Introduction*

## HOW TO ORDER CONNECTORS

A pair of MMC connectors is made up of the following:

- A block “P” (plug)
- A block “R” (receptacle)

Of identical dimensions but distinguished by:

- The engraved letters “P” and “R” on the mating faces
- The contact identification and position of the cavities is a mirror image of the mating half.

Each block “P” and “R” must be fitted with male and female guides or jackscrews.

- On the block P female guide beside hole 1 or A
- On the block R male guide beside hole 1 or A (in order to prevent mismatching and misalignment).

## PART NUMBERING

Connectors with guides (without other accessories)

690 600 690 600 O A O

**SERIES**
Basic code (see table below for selection)

**CONNECTORS WITH ACCESSORIES**

**SERIES**

**BASIC CODE** (see table below for selection)

**MANDATORY**

**ACCESSORIES** [2]
**O:** No accessories
**A:** Backshell top entry
**B:** Backshell side entry (only 75 way)
**C:** Top entry strain relief clamp (not available in 34 and 42 way)

**SHROUDS**
**O:** No shroud
**A:** Male shroud without polarizing [1]
Male shroud with polarizing [2]
**F:** Female shroud without polarizing [1]
Female shroud with polarizing [2]

| IN | 1 | 3 | 5 | 7 |
|---|---|---|---|---|
| CODE | B | C | D | E |

| IN | 1 | 3 | 5 | 7 |
|---|---|---|---|---|
| CODE | G | H | J | K |



| NUMBER OF CONTACTS | RACK GUIDES | | FIXED JACKSCREWS | | ROTATING JACKSCREWS | |
|---|---|---|---|---|---|---|
| | PLUG | RECEPTACLE | PLUG | RECEPTACLE | PLUG | RECEPTACLE |
| 14 | 400 | 500 | 701 | 700 | 600 | 602 |
| 20 | 410 | 510 | 711 | 710 | 610 | 612 |
| 26 | 420 | 520 | 721 | 720 | 620 | 622 |
| 34 | 430 | 530 | 731 | 730 | 630 | 632 |
| 42 | 440 | 540 | 741 | 740 | 640 | 642 |
| 50 | 450 | 550 | 751 | 750 | 650 | 652 |
| 75 | 460 | 560 | 761 | 760 | 660 | 662 |

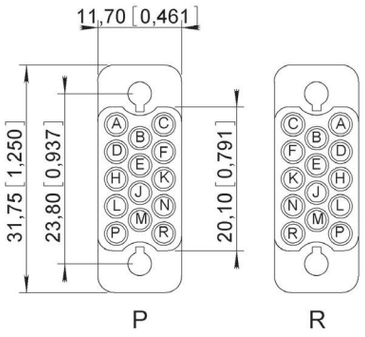
*Example: 701 goes with 602*

***Notes***

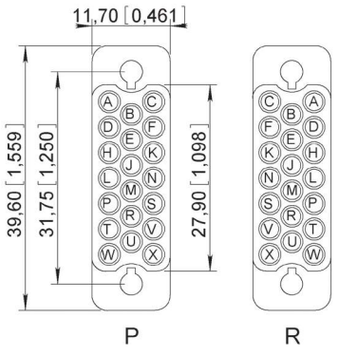
*1. Not available in 42 way*
*2. Not available in 14 way*
*When connector has a shroud with polarizing, polarization starts from the cavity A or 1 side of the connector (refer to page 8-28)*

## CONTACT ARRANGEMENTS

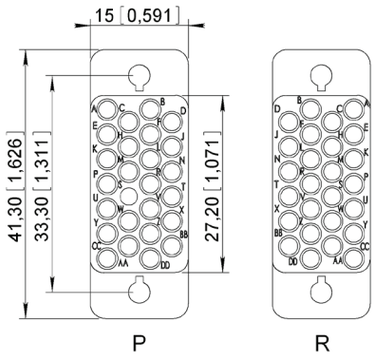
### VIEW WIRING SIDE mm (inch)



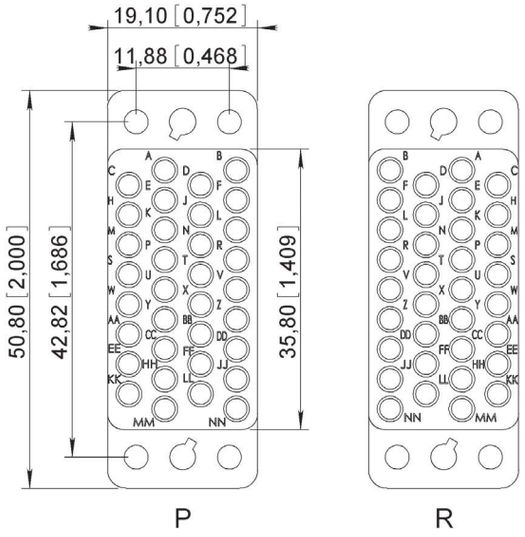

**14 CONTACTS**



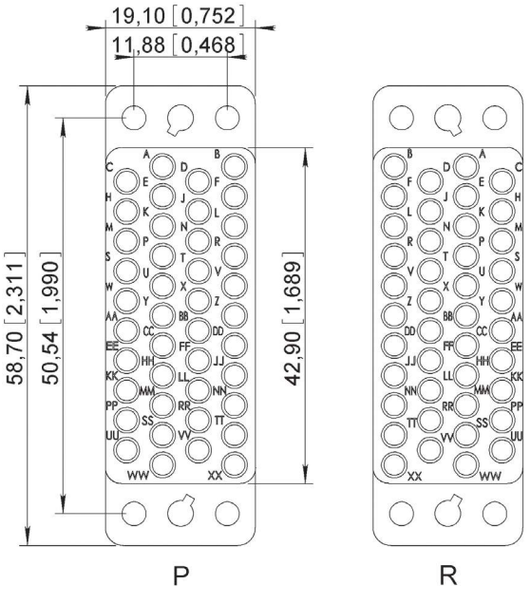

**20 CONTACTS**




**26 CONTACTS**



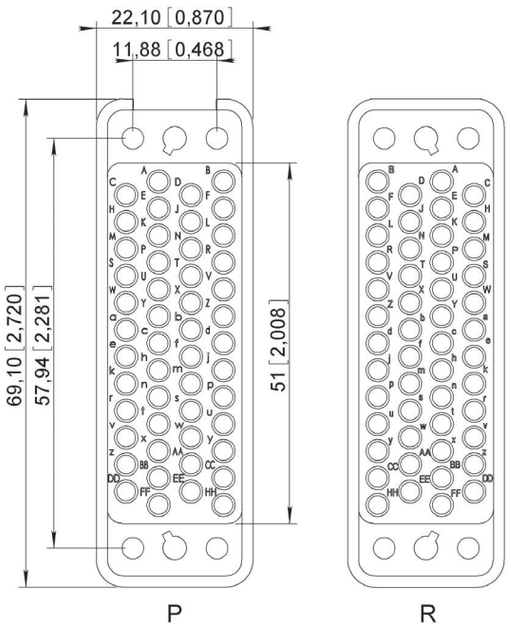

**34 CONTACTS**



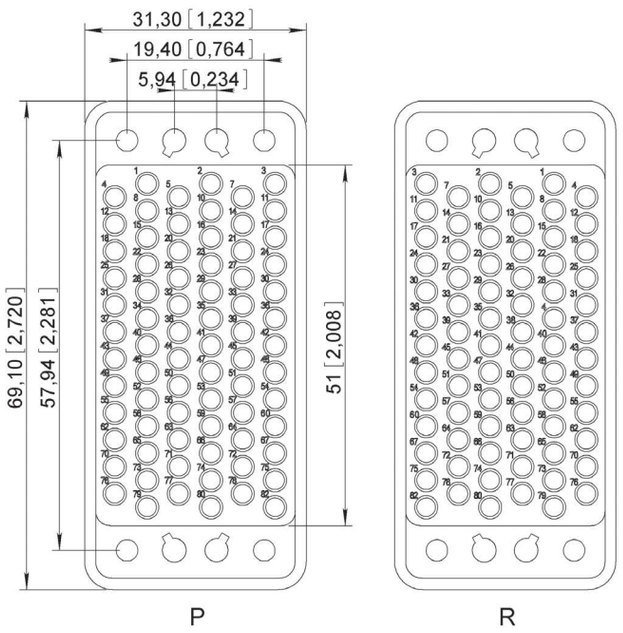

**42 CONTACTS**

## CONTACT ARRANGEMENTS

### VIEW WIRING BLOCK mm (inch)

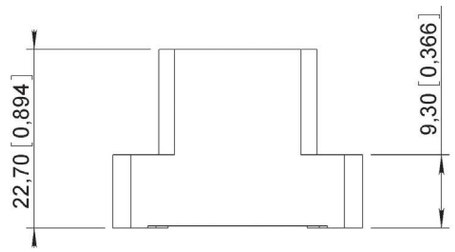



**50 CONTACTS**

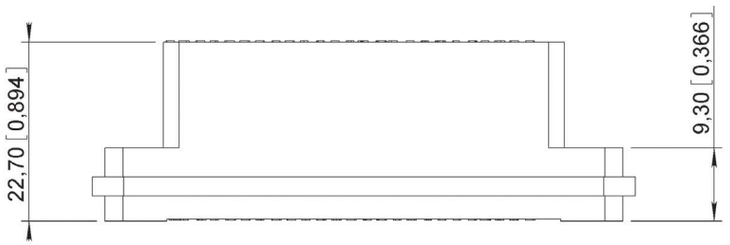



**75 CONTACTS**

### HEIGHT DIMENSIONS mm (inch)



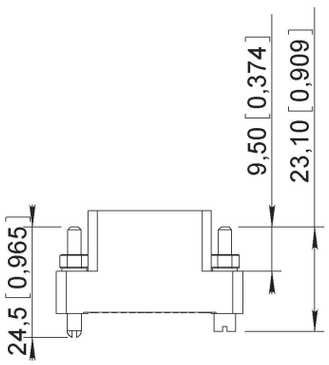

**14, 20, 26, 34, 42 CONTACTS**

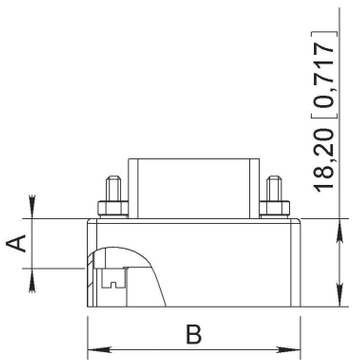


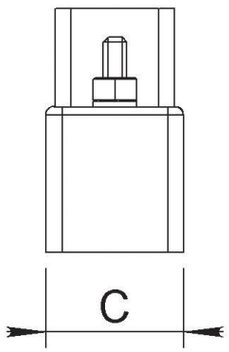

**50, 75 CONTACTS**

## RACK GUIDES DIMENSIONS

### CONNECTOR BLOCK mm (inch)

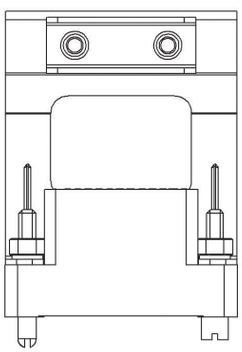


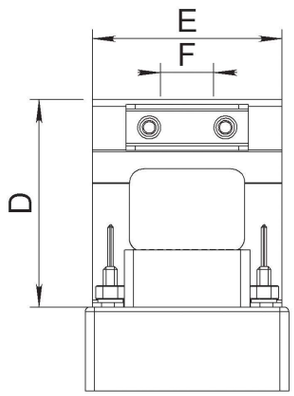



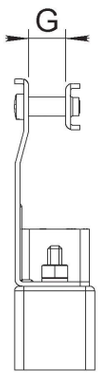




| NUMBER OF CONTACTS | A | B | | C | |
|---|---|---|---|---|---|
| | | MALE | FEMALE | MALE | FEMALE |
| 14 | 10.1 (.397) | 34.8 (1.370) | 37.2 (1.464) | 14.2 (.559) | 16.6 (.653) |
| 20 | | 42.2 (1.661) | 45.1 (1.775) | | |
| 26 | | 44.2 (1.740) | 46.1 (1.826) | 17.3 (.681) | 19.4 (.764) |
| 34 | 10.3 (.405) | 54 (2.126) | 56.4 (2.220) | 22.2 (.874) | 24.6 (.968) |
| 42 | Shroud Not Available | | | | |
| 50 | 10.3 (.405) | 72 (2.834) | 74.6 (2.937) | 25.3 (.996) | 27.8 (1.094) |
| 75 | | 72.4 (2.850) | 74.7 (2.940) | 34.4 (1.354) | 37 (1.456) |

### STRAIN RELIEF CABLE CLAMP (TOP ENTRY) mm (inch)



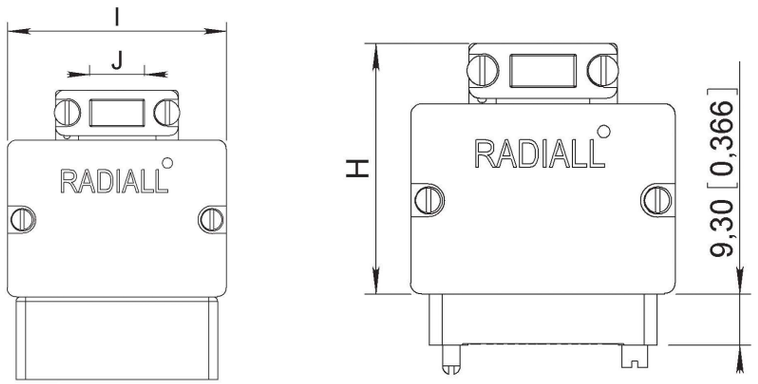



| NUMBER OF CONTACTS | D | E | CABLE ENTRY DIMENSIONS | |
|---|---|---|---|---|
| | | | F | G MAX |
| 14 | 44 (1.732) | 31.5 (1.240) | 5 (.0197) | 8 (0.315) |
| 20 | | 39.5 (1.555) | 12 (0.472) | |
| 26 | | 41.1 (1.618) | | 10 (0.394) |
| 34 | Cable Clamp Not Available | | | |
| 42 | | | | |
| 50 | 53 (2.086) | 65.6 (2.582) | 26 (1.023) | 14 (0.551) |
| 75 | | | | 18 (0.708) |

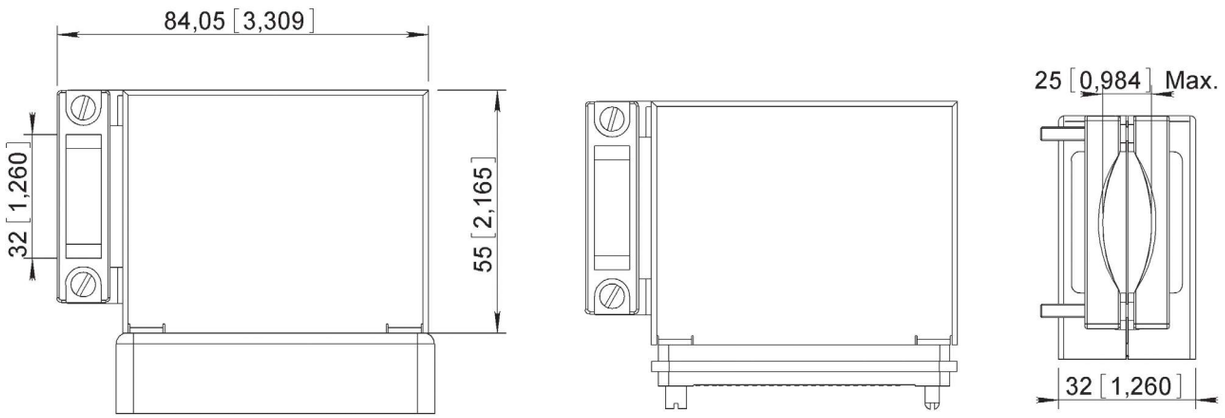
## RACK GUIDES DIMENSIONS

### BACKSHELL TOP ENTRY - mm (inch)



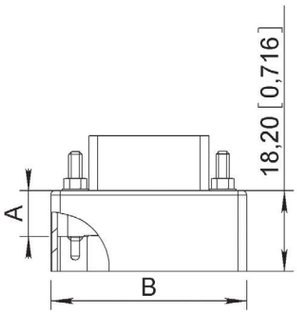

| NUMBER OF CONTACTS | H | I | CABLE ENTRY DIMENSIONS | | L |
|---|---|---|---|---|---|
| | | | J | K MAX | |
| 14 | 46 (1.811) | 39 (1.535) | 7.6 (0.299) | 13 (0.512) | 17 (0.670) |
| 20 | | 47 (1.850) | 15 (0.590) | | |
| 26 | | 48.5 (1.909) | 17 (0.670) | 17 (0.670) | 21 (0.827) |
| 34 | 52.5 (2.067) | 53.5 (2.106) | 22 (0.866) | 20 (0.787) | 24 (0.945) |
| 42 | 47 (1.850) | 61 (2.401) | 32 (1.260) | 12 (0.472) | 21.5 (0.846) |
| 50 | 66.5 (2.618) | 68.5 (2.697) | 26 (1.023) | 21 (0.827) | 25 (0.984) |
| 75 | 47 (1.850) | 68 (2.677) | 40 (1.575) | | 30.5 (1.200) |

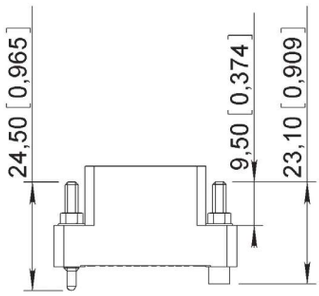
### BACKSHELL SIDE ENTRY - AVAILABLE ONLY FOR 75 WAY mm (inch)

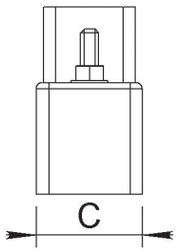


## FIXED JACKSCREWS DIMENSIONS

### CONNECTOR BLOCK mm (inch)

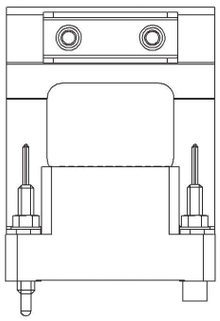


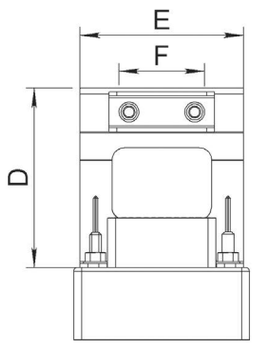




| NUMBER OF CONTACTS | A | B | | C | |
|---|---|---|---|---|---|
| | | MALE | FEMALE | MALE | FEMALE |
| 14 | 10.1 (0.397) | 34.8 (1.370) | 37.2 (1.464) | 14.2 (0.559) | 16.6 (0.653) |
| 20 | | 42.2 (1.661) | 45.1 (1.775) | | |
| 26 | | 44.2 (1.740) | 46.4 (1.827) | 17.3 (0.681) | 19.4 (0.764) |
| 34 | 10.3 (0.405) | 54 (2.126) | 56.4 (2.220) | 22.2 (0.874) | 24.6 (0.968) |
| 42 | Shroud Not Available | | | | |
| 50 | 10.3 (0.405) | 72 (2.834) | 74.6 (2.937) | 25.3 (0.996) | 27.8 (1.094) |
| 75 | | 72.4 (2.850) | 74.7 (2.940) | 34.4 (1.354) | 37 (1.456) |

### STRAIN RELIEF CABLE CLAMP (TOP ENTRY) mm (inch)





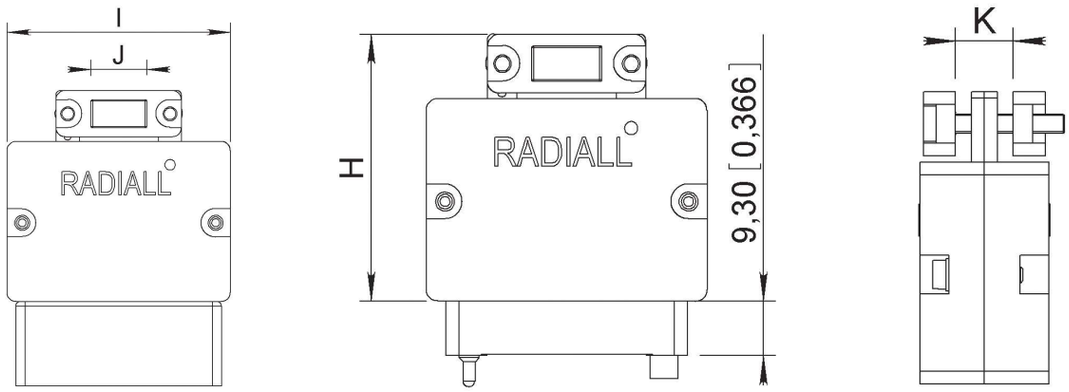




| NUMBER OF CONTACTS | D | E | CABLE ENTRY DIMENSIONS | |
|---|---|---|---|---|
| | | | F | G MAX |
| 14 | 44 (1.732) | 31.5 (1.240) | 5 (0.197) | 8 (0.315) |
| 20 | | 39.5 (1.555) | 12 (0.472) | |
| 26 | | 41.1 (1.618) | | 10 (0.394) |
| 34 | Cable Clamp Not Available | | | |
| 42 | | | | |
| 50 | 53 (2.086) | 65.6 (2.582) | 26 (1.023) | 14 (0.551) |
| 75 | | | | 18 (0.708) |

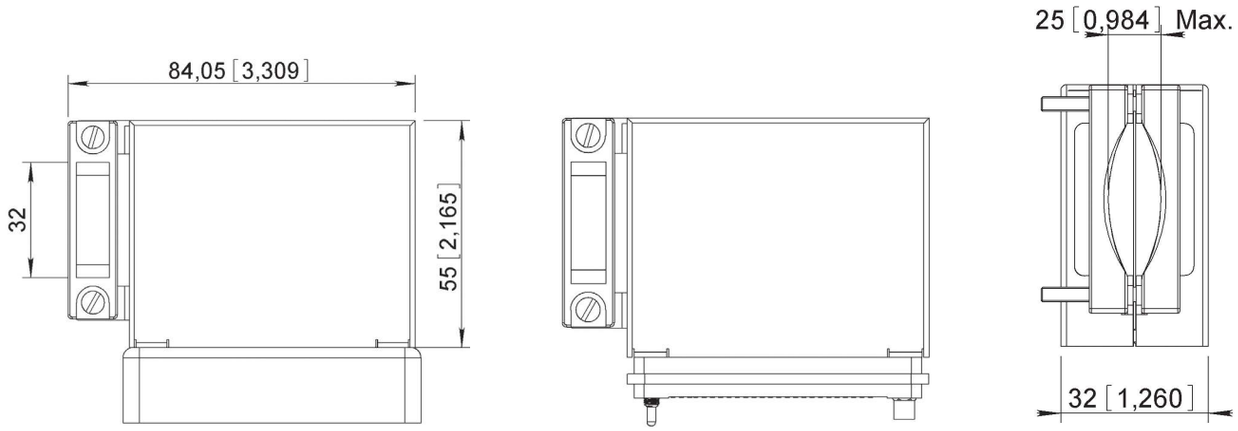
## FIXED JACKSCREWS DIMENSIONS

### BACKSHELL TOP ENTRY - mm (inch)



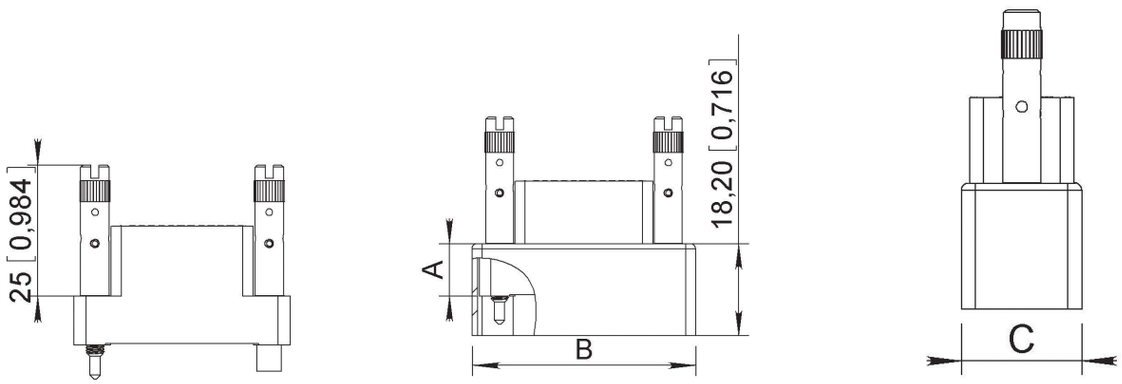

| NUMBER OF CONTACTS | H | I | CABLE ENTRY DIMENSIONS | | L |
|---|---|---|---|---|---|
| | | | J | K MAX | |
| 14 | 46 (1.811) | 39 (1.535) | 7.6 (0.299) | 13 (0.512) | 17 (0.670) |
| 20 | | 47 (1.850) | 15 (0.590) | | |
| 26 | | 48.5 (1.909) | 17 (0.670) | 17 (0.670) | 21 (0.827) |
| 34 | 52.5 (2.067) | 53.5 (2.106) | 22 (0.866) | 20 (0.787) | 24 (0.945) |
| 42 | 47 (1.850) | 61 (2.401) | 32 (1.260) | 12 (0.472) | 21.5 (0.846) |
| 50 | 66.5 (2.618) | 68.5 (2.697) | 26 (1.023) | 21 (0.827) | 25 (0.984) |
| 75 | 47 (1.850) | 68 (2.677) | 40 (1.575) | | 30.5 (1.200) |

### BACKSHELL SIDE ENTRY - AVAILABLE ONLY FOR 75 WAY mm (inch)



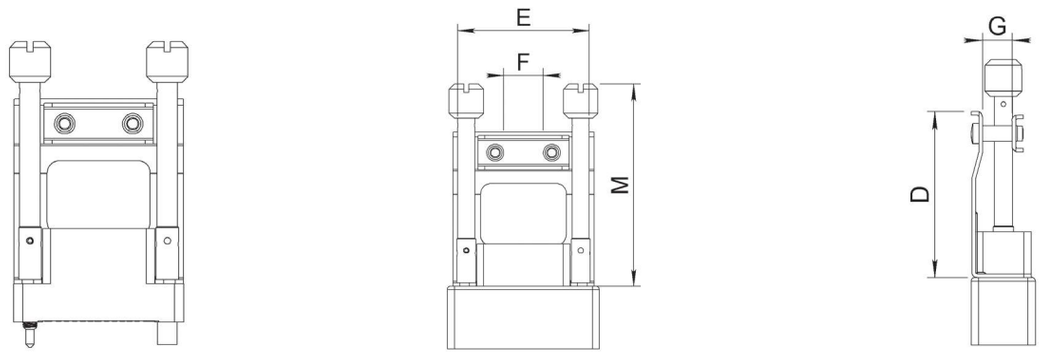
## ROTATING JACKSCREWS DIMENSIONS

### CONNECTOR BLOCK mm (inch)




| NUMBER OF CONTACTS | A | B | | C | |
|---|---|---|---|---|---|
| | | MALE | FEMALE | MALE | FEMALE |
| 14 | 10.1 (0.397) | 34.8 (1.370) | 37.2 (1.464) | 14.2 (0.559) | 16.6 (0.653) |
| 20 | | 42.2 (1.661) | 45.1 (1.775) | | |
| 26 | | 44.2 (1.740) | 46.4 (1.827) | 17.3 (0.681) | 19.4 (0.764) |
| 34 | 10.3 (0.405) | 54 (2.126) | 56.4 (2.220) | 22.2 (0.874) | 24.6 (0.968) |
| 42 | Shroud Not Available | | | | |
| 50 | 10.3 (0.405) | 72 (2.834) | 74.6 (2.937) | 25.3 (0.996) | 27.8 (1.094) |
| 75 | | 72.4 (2.850) | 74.7 (2.940) | 34.4 (1.354) | 37 (1.456) |

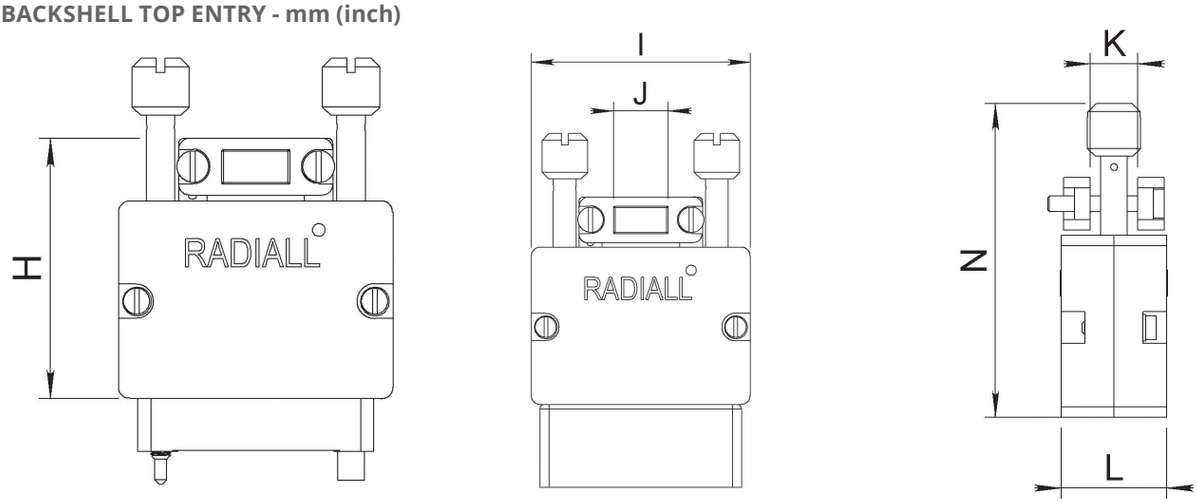
### STRAIN RELIEF CABLE CLAMP (TOP ENTRY) mm (inch)




| NUMBER OF CONTACTS | D | E | M | CABLE ENTRY DIMENSIONS | |
|---|---|---|---|---|---|
| | | | | F | G MAX |
| 14 | 44 (1.732) | 31.5 (1.240) | 60 (2.362) | 5 (0.197) | 8 (0.315) |
| 20 | | 39.5 (1.555) | | 12 (0.472) | |
| 26 | | 41.1 (1.618) | | | 10 (0.394) |
| 34 | Cable Clamp Not Available | | | | |
| 42 | | | | | |
| 50 | 53 (2.086) | 65.6 (2.582) | 64 (2.519) | 26 (1.023) | 14 (0.551) |
| 75 | | | | | 18 (0.708) |

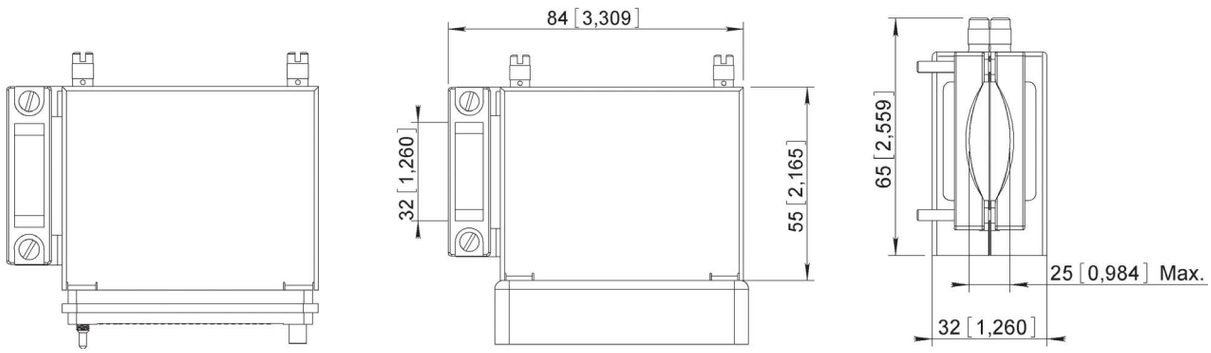
## ROTATING JACKSCREWS DIMENSIONS

### BACKSHELL TOP ENTRY - mm (inch)




| NUMBER OF CONTACTS | H | I | CABLE ENTRY DIMENSIONS | | L | N |
|---|---|---|---|---|---|---|
| | | | J | K MAX | | |
| 14 | 46 (1.811) | 39 (1.535) | 7.6 (.299) | 13 (.512) | 17 (.670) | 60 (2.362) |
| 20 | | 47 (1.850) | 15 (.590) | | | |
| 26 | | 48.5 (1.909) | 17 (.670) | 17 (.670) | 21 (.827) | |
| 34 | 52.5 (2.067) | 53.5 (2.106) | 22 (.866) | 20 (.787) | 24 (.945) | 64 (2.519) |
| 42 | 47 (1.850) | 61 (2.401) | 32 (1.260) | 12 (.472) | 21.5 (.846) | |
| 50 | 66.5 (2.618) | 68.5 (2.697) | 26 (1.023) | 21 (.827) | 25 (.984) | 78 (3.071) |
| 75 | 47 (1.850) | 68 (2.677) | 40 (1.575) | | 30.5 (1.200) | |

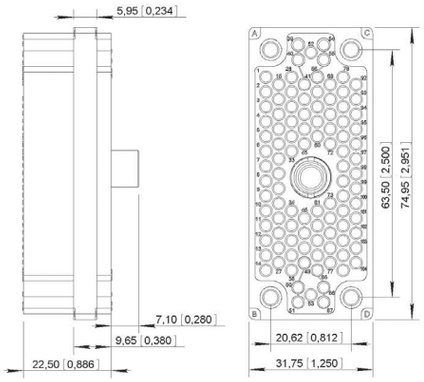
### BACKSHELL SIDE ENTRY - AVAILABLE ONLY FOR 75 WAY mm (inch)



*Contacts*

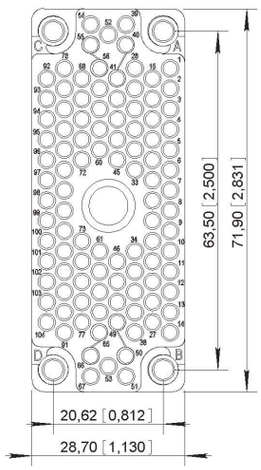
## BLOCK 104 CONTACTS

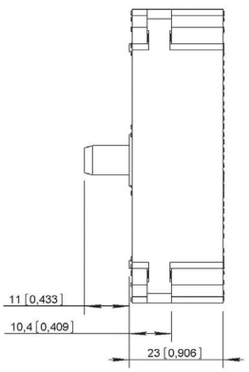
| CENTRAL GUIDE | R TYPE-RACK GUIDES | | | | PART NUMBER |
|---|---|---|---|---|---|
| | A | B | C | D | |
| Mates with All the Blocks P | No Guides | | | | 690571 |
| | Female | Male | Male | Female | 690570 |
| | Female | - | - | Female | 690572 |
| | Female | Female | Female | Female | 690573 |



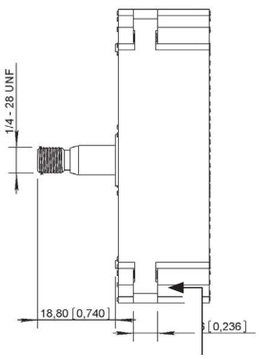

**VIEW WIRING SIDE MM (INCH)**

| CENTRAL GUIDE | P TYPE-RACK GUIDES | | | | PART NUMBER |
|---|---|---|---|---|---|
| | A | B | C | D | |
| Central Rack Guide | No Guides | | | | 690481 |
| | Male | Female | Female | Male | 690480 |
| | Male | - | - | Male | 690482 |
| | Male | Male | Male | Male | 690483 |
| Sunken Hex. Nut 4 A/F | No Guides | | | | 690471 |
| | Male | Female | Female | Male | 690470 |
| | Male | - | - | Male | 690472 |
| | Male | Male | Male | Male | 690473 |
| Central Jackscrew | No Guides | | | | 690476 |
| | Male | Female | Female | Male | 690475 |
| | Male | - | - | Male | 690477 |
| | Male | Male | Male | Male | 690478 |

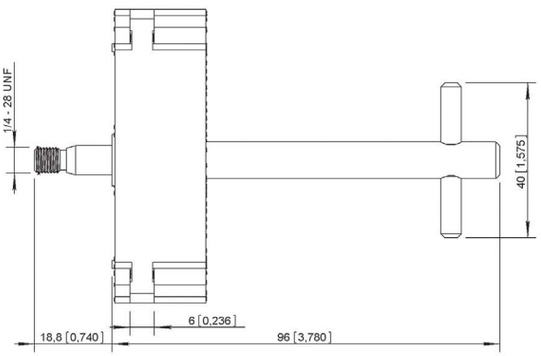



**RACK GUIDE**



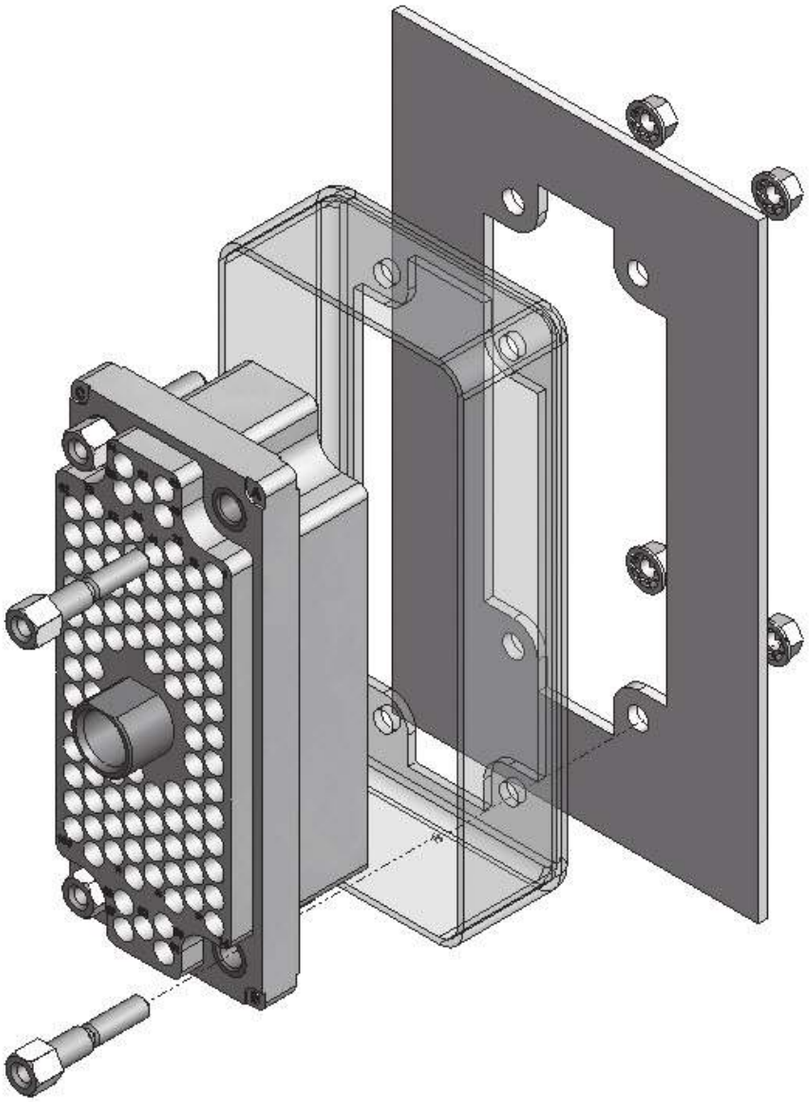

**SUNKEN HEX. NUT**

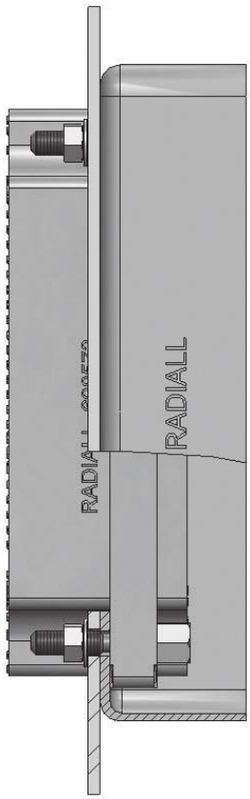



**CENTRAL JACKSCREW**

*Contacts*

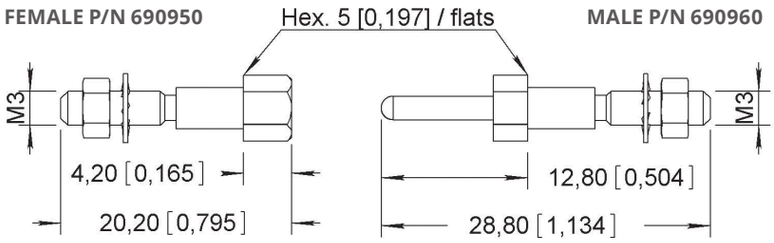
Detailed view of the connector with shroud mounted on a panel.






**VIEW ONCE ALL ASSEMBLED**

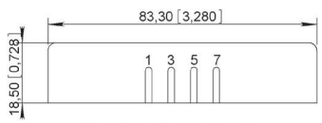
## GUIDES TO MOUNT IN POSITIONS A, B, C, D



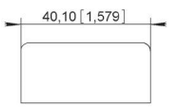

## SHROUDS

### FEMALE SHROUD-USE ONLY THIS REFERENCE TO ORDER WITHOUT POLARIZING CODE

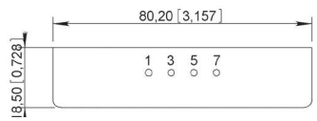
| POLARIZATION CODE | POSITION |
|---|---|
| 110 | 1 |
| 120 | 3 |
| 130 | 5 |
| 140 | 7 |
| 210 | 1 + 3 |
| 220 | 3 + 5 |
| 230 | 5 + 7 |
| 240 | 1 + 5 |
| 250 | 3 + 7 |
| 260 | 1 + 7 |



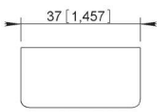

SHROUD FEMALE




REF: 690 992




SHROUD MALE



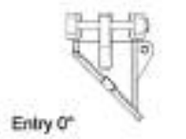

REF: 690 991

### MALE SHROUD-USE ONLY THIS REFERENCE TO ORDER WITHOUT POLARIZING CODE

To order with polarizing: add the polarization code at the end of the shroud part number, see example: 690991110.

## BACKSHELL–CAST ALUMINIUM PAINTED BLACK ASSEMBLY KIT

| ENTRY | CABLE CLAMP MAX cm (inch) | L | H | PART NUMBER |
|---|---|---|---|---|
| 1 entry 45° | 7.8 (3.1) | 70 (27.6) | 71 (28) | 690971 |
| 2 entries 45° | 15.6 (6.1) | | | 690972 |
| 1 entry 0° | 5.3 (2.1) | 55 (21.7) | 66 (26) | 690973 |
| 2 entries 0° | 10.6 (4.2) | | | 690974 |
| 1 entry 90° | 5.3 (2.1) | 65 (25.6) | 57 (22.4) | 690973 |
| 2 entries 90° | 10.6 (4.2) | | | 690974 |

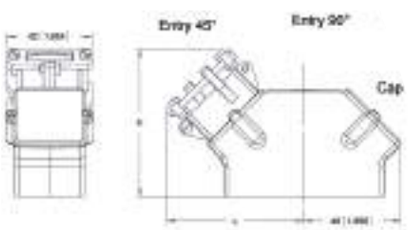






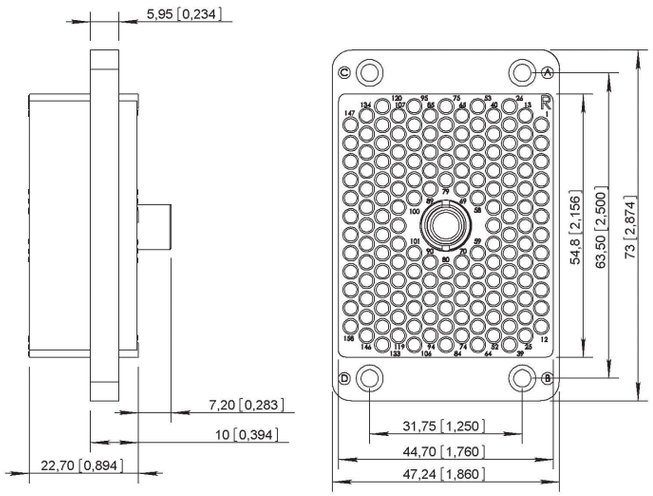
## SPARE PARTS (1 OR 2 ENTRY ROTATION)

| DESCRIPTION | PART NUMBER |
|---|---|
| Body (In 2 Parts) | 690977 |
| Entry 0–90° | 690980 |
| Entry 45° | 690979 |
| Cap | 690978 |



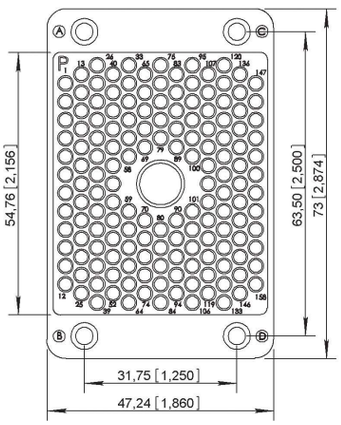
## BLOCK 158 CONTACTS

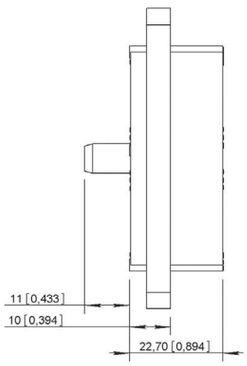
| R TYPE | | GUIDES SUPPLIED UNMOUNTED | |
|---|---|---|---|
| CENTRAL GUIDE | WITHOUT GUIDES | 4 FEMALE | 2 MALE/ 2 FEMALE |
| Mates with All Blocks P | 690686 | 690670 | 690680 |



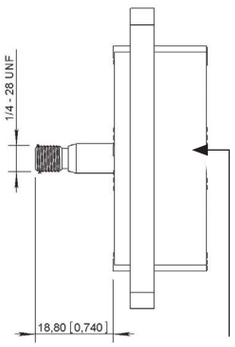

VIEW WIRING SIDE MM (INCH)

| P TYPE | | GUIDES SUPPLIED UNMOUNTED | |
|---|---|---|---|
| CENTRAL GUIDE | WITHOUT GUIDES | 4 FEMALE | 2 MALE/ 2 FEMALE |
| Central Rack Guide | 690681 | 690678 | 690683 |
| Sunken Hex. 4 A/F | 690671 | 690679 | 690684 |
| Central Jackscrew | 690676 | 690677 | 690682 |

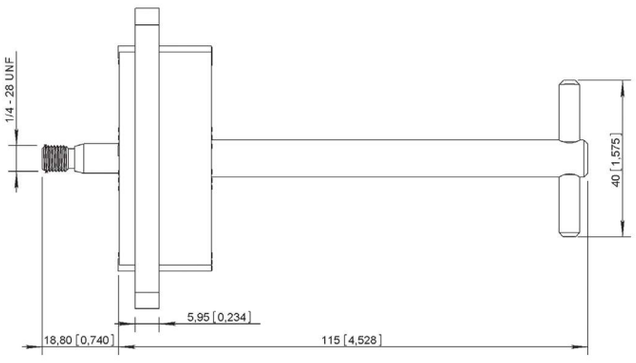



RACK GUIDE



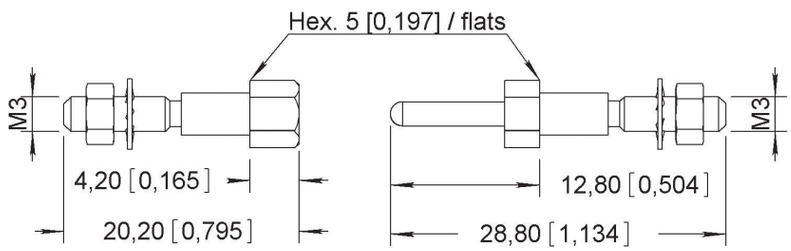

SUNKEN HEX. NUT



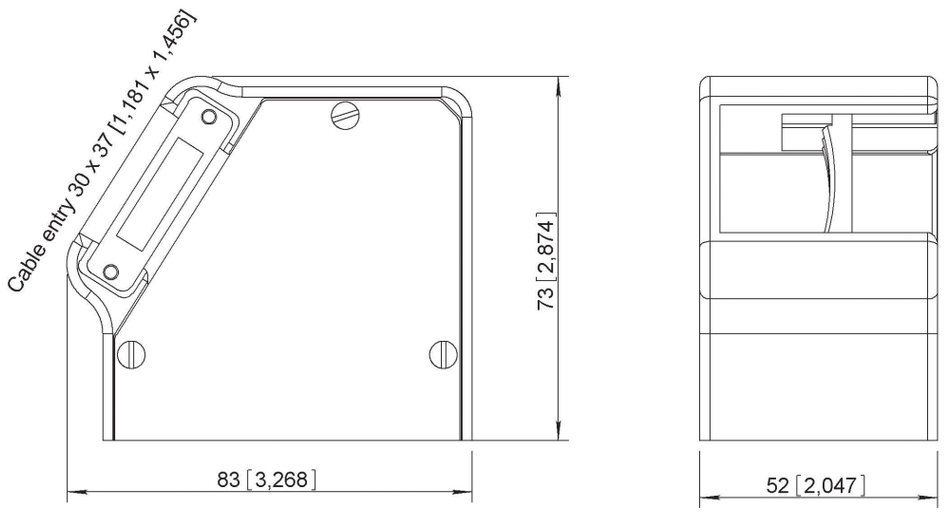

CENTRAL JACKSCREW

## GUIDES TO MOUNT IN POSITIONS A, B, C, D - mm (inch)

**FEMALE P/N 690950** **MALE P/N 690960**



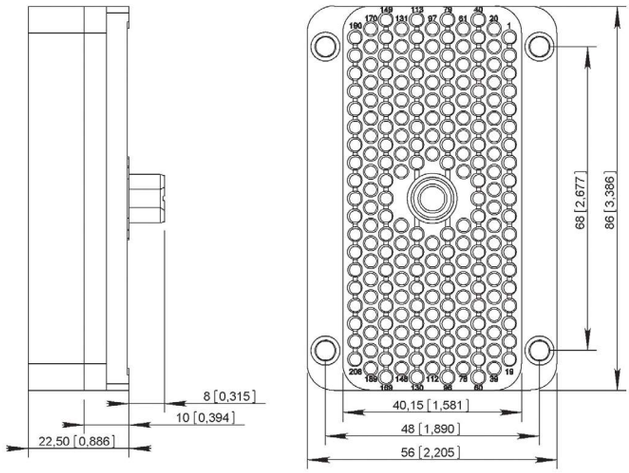

## BACKSHELL P/N 690985 - mm (inch)





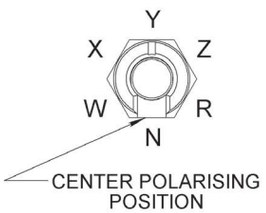

## BLOCK 208 CONTACTS

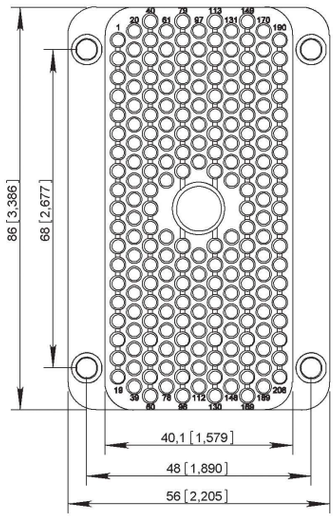
| POLARIZING POSITIONS | R TYPE | |
|---|---|---|
| | GUIDES SUPPLIED UNMOUNTED | |
| | 4 FEMALE | 2 MALE/2 FEMALE |
| N | 690768001 | 690778004 |
| R | 690768002 | 690778007 |
| Z | 690768003 | 690778002 |
| Y | 690768004 | 690778003 |
| X | 690768005 | 690778001 |
| W | 690768006 | 690778005 |

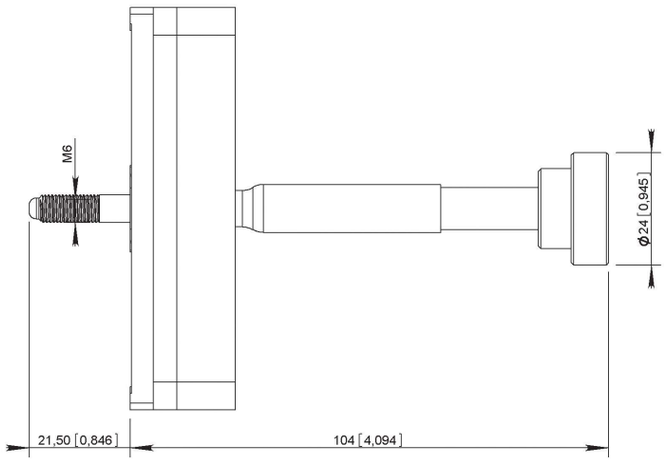



**VIEW WIRING SIDE mm (inch)**

| POLARIZING POSITIONS | P TYPE | |
|---|---|---|
| | GUIDES SUPPLIED UNMOUNTED | |
| | 4 MALE | 2 MALE/2 FEMALE |
| N | 690769001 | 690767001 |
| R | 690769002 | 690767002 |
| Z | 690769003 | 690767003 |
| Y | 690769004 | 690767004 |
| X | 690769005 | 690767005 |
| W | 690769006 | 690767006 |

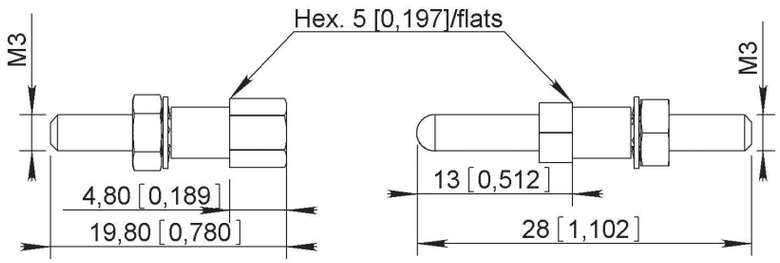


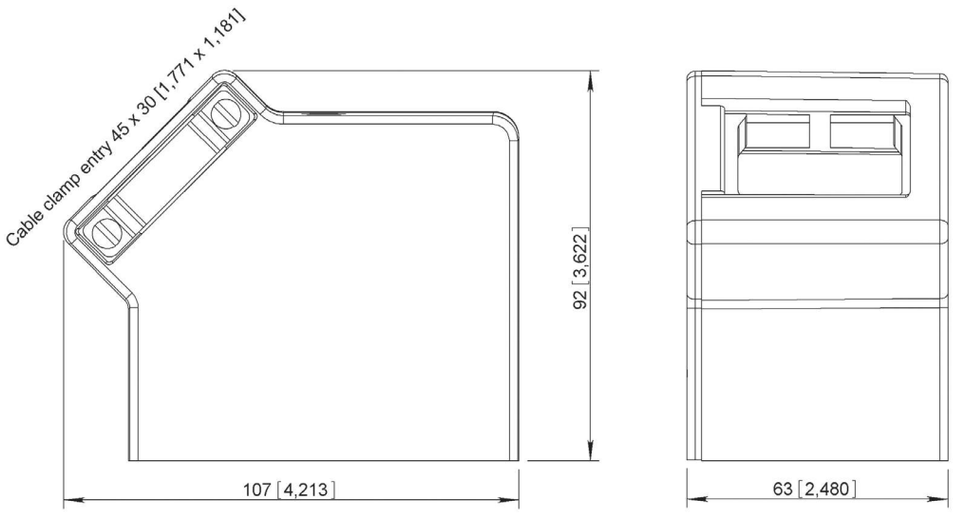



## GUIDES TO MOUNT IN POSITIONS A, B, C, D - mm (inch)

**FEMALE P/N 690958** **MALE P/N 690968**




## BACKSHELL P/N 690982 - mm (inch)



## CONTACTS

Pins and/or sockets for equipment wire, twisted pairs and coaxial cable can be housed in either plug or receptacle giving a multitude of connection possibilities.

Many contact arrangements available: 14 -20-26-34-42-50-75-104-158 and 208 ways.

The signal contacts size 16 (pin Ø 1.58mm) are for crimping to AWG 16 to 28.

Contacts for wire wrapping are available with tails 0.6 x 0.6 mm (0.024x0.024 inch) or 1.2 x 1.2mm (0.047 x 0.047 inch) square. The coaxial contacts are for crimping to 2 mm and 2.6 mm coaxial cables and AWG 24 to 30 twisted pairs.

For all other contact terminations: consult us

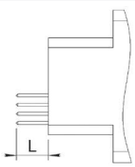
No tool is necessary for the insertion, the extraction is from the rear using an extraction tool introduced by the mating face of the connector.

## FRONT RELEASE & FRONT REMOVABLE CONTACTS

In order to facilitate the junction of MMC series connectors with a flexible or steady printed circuits, Radiall created a range of solder tail and wire wrap front release contacts.

This eases the replacement of a damaged contact without rewiring the set.

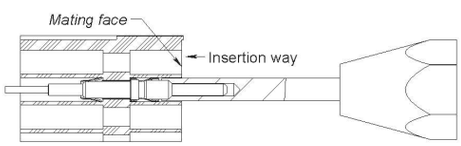
These size 16 contacts fit with all standard MMC connectors cavities from 14 to 208 which allow to mix them on a same connector with micro-coaxial contacts and crimping contacts.

| TYPE | CONTACTS ARRANGEMENTS | | CONTACT [1] | | REPLACEMENT CONTACT [2] | |
|---|---|---|---|---|---|---|
| | | | PIN | SOCKET | PIN | SOCKET |
| Mini-Wrapping ⌀ 0.6 (.024) Flats 2 Wraps |   | L=10.6 (.417) | 690220 | 690320 | 690220001 | 690320001 |
| Mini-Wrapping ⌀ 0.6 (.024) Flats 3 Wraps | | L=16 (.630) | 690221 | 690321 | 690221001 | 690321001 |
| PC Tail Ø 0.65mm (.026) | | L=6.2 (.244) | 690222 | 690322 | 690222001 | 690322001 |

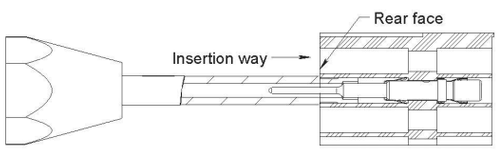
### INSTALLATION AND EXTRACTION OF FR/FR CONTACTS.

#### CONTACT INSTALLATION

1. Insert the contact fitted with the retention clip through the mating face and push insertion tool 282501.

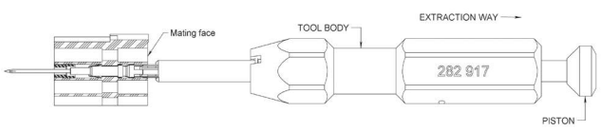



2. Introduce the sleeve by the rear face with tool 282502 and push it until it flushes with the insulator.




#### CONTACT REPLACEMENT

Extraction: insert the extraction tool 282917 by the mating face into the cavity of the contact to be replaced. Push it until it butts against the contact shoulder. Maintain the pressure on piston and pull on body tool to extract the contact. To free the contact release pressure on piston.




Installation of a new contact without retention clip: insert the contact through the mating face, push it with tool 282501 until contact snaps in place.

*Notes*

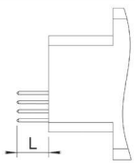
*1. Contact with retention clip and anti-rotation sleeve, must be used for the original or initial equipment of the connectors.*
*2. Contact without retention clip and anti-rotation sleeve for the replacement of damaged contacts.*

## EQUIPMENT SIGNAL CONTACTS

### FRONT RELEASE/REAR RELEASE CRIMP CONTACTS

| CABLES | | | CONTACTS | | POSITIONER | CRIMPING TOOL | POSITION ON CRIMP TOOL | EXTRACTION TOOL |
|---|---|---|---|---|---|---|---|---|
| AWG SIZE | SECTION IN mm² (sq.in) | Ø MAX. ON SLEEVE mm (inch) | PIN | SOCKET | | | | |
| 16<br>18<br>20 | 1.34 (0.053)<br>0.93 (0.037)<br>0.60 (0.024) | 3.10<br>(0.122) | 690200 | 690300 | 282975 | 282291<br>M22520/1.01 | 6<br>5<br>4 | 282920 |
| 16<br>18<br>20 | 1.34 (0.053)<br>0.93 (0.037)<br>0.60 (0.024) | 3.10<br>(0.122) | 690201 | 690301 | | | 6<br>5<br>4 | |
| 20<br>22<br>24 | 0.60(0.024)<br>0.38 (0.015)<br>0.22 (0.009) | 2.20<br>(0.086) | 690215 | 690315 | 282976 | | 4<br>3<br>2 | 282920 |
| 24<br>26<br>28 | 0.22 (0.009)<br>0.14 (0.006)<br>0.093 (0.004) | 1.60<br>(0.063) | 690235 | 690335 | | | 4<br>2<br>2 | |

### WIRE WRAP CONTACTS

| TYPE | CONTACTS ARRANGEMENTS | | CONTACTS | | TOOLS | |
|---|---|---|---|---|---|---|
| | | | PIN | SOCKET | INSERTION | EXTRACTION |
| Mini-Wrapping<br>Ø 0.6 (0.024) Flats<br>2 Wraps |  | L=10.6<br>(0.417) | 690241 | 690341 | 282921 | 282920 |
| Wrapping Standard<br>Ø 1.2 (0.047) Flats<br>3 Wraps | | L=19.5<br>(0.767) | 690240 | 690340 | | |

## TWISTED PAIR CRIMP CONTACTS

| CABLES | | | | TOOLS [3] | | | | CONTACTS & WIRING INSTRUCTIONS [4] | |
|---|---|---|---|---|---|---|---|---|---|
| AWG SIZE | | SECTION IN mm² (sq.in) | Ø MAX. ON INSULATOR | CENTER CONTACT | | OUTER CONTACT | | SOCKET [1] | PIN [2] |
| | | | | POSITION ON CRIMPING TOOL [5] | POSITIONER | CIMPING TOOL | POSITIONER | | |
| 24 | Stranded Wire Cable | 0.22 (0.009) | 0.96 (0.038) | 2 | 282981/M22520/2.04 | 282292 /M22520/4.01 | 282973/M22520/4.02 | 690070 B | 690170 B |
| 26 | Stranded Wire Cable | 0.14 (0.006) | 0.84 (0.033) | 2 | | | | 690060 A | 690160 A |
| 28 | | 0.093 (0.004) | 0.73 (0.029) | 1 | | | | | |
| 30 | | 0.055 (0.002) | 0.66 (0.026) | 1 | | | | | |
| 26 | Single Wire Cable | 0.12 (0.005) | 0.85 (0.033) | 3 | | | | | |
| 28 | | 0.08 (0.003) | 0.67 (0.026) | 2 | | | | | |
| 30 | | 0.05 (0.002) | 0.58 (0.023) | 1 | | | | | |
| 26 | Stranded Wire Cable | 0.14 (0.006) | 0.84 (0.033) | 2 | | | | 690061 A | 690161 A |
| 28 | | 0.093 (0.004) | 0.73 (0.029) | 1 | | | | | |
| 26 | Single Wire Cable | 0.12 (0.005) | 0.85 (0.033) | 3 | | | | | |
| 28 | | 0.08 (0.003) | 0.67 (0.026) | 2 | | | | | |
| 30 | Stranded Wire Cable | 0.055 (0.002) | 0.66 (0.026) | 1 | | | | 690062 A | 690162 A |
| 30 | Single Wire Cable | 0.05 (0.002) | 0.58 (0.023) | 1 | | | | | |

***Notes***

*1. Body female contact/center male contact*
*2. Body male contact/center female contact*
*3. Extraction tool for all twisted pair contacts P/N 282920*
*4. Wiring instructions on pages 8-29 to 8-32*
*5. Crimping tool for all 282281/M22520/2.01*

## COAXIAL CRIMP CONTACTS

| CABLES | | | TOOLS [3] | | | | CONTACTS & WIRING INSTRUCTIONS [4] | |
|---|---|---|---|---|---|---|---|---|
| CABLE REFERENCE | IMPEDANCE Ω | OUTER DIAMETER | CENTER CONTACT | | OUTER CONTACT | | SOCKET [1] | PIN [2] |
| | | | CRIMP TOOL | POSITIONER | CRIMP TOOL | POSITIONER | | |
| RG178/U<br>RG196/U<br>KX21 | 50 | 2 (0.079) | 282281<br>M22520/2.01 | 282981<br>M22520/2.04 | 282292<br>M22520/4.01 | 282973<br>M22520/4.02 | 690020<br>C | 690120<br>C |
| KX3A<br>RG316/U<br>KX22 | 50 | 2.54 (0.100)<br>± 0.13 (0.005) | | | | | 690040<br>D | 690140<br>D |
| RG179/U | 75 | | | | | | | |

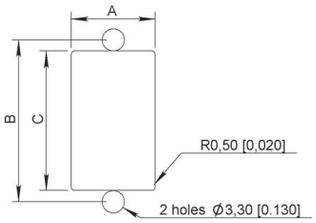


*Notes*

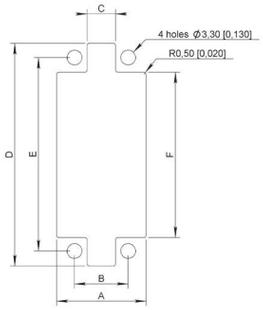
*1. Body female contact/center male contact*
*2. Body male contact/center female contact*
*3. Extraction tool for all twisted pair contacts P/N 282920*
*4. Wiring instructions on pages 8-29 to 8-32*

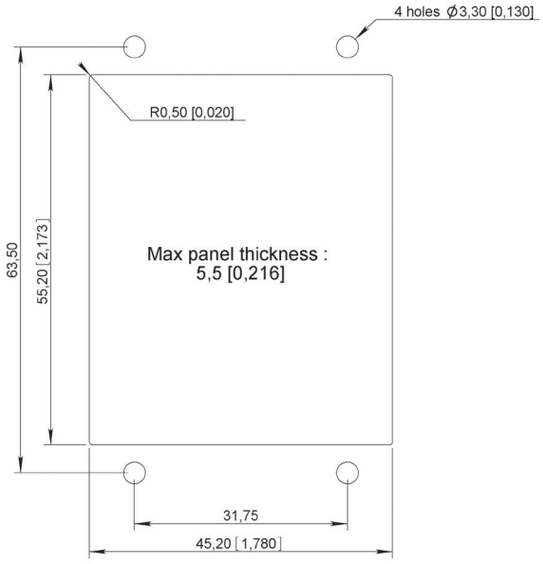
## PANEL CUT-OUT

| NUMBER OF CONTACTS | A | B | C | MAX. PANEL THICKNESS |
|---|---|---|---|---|
| 14 | 12.4 (0.488) | 23.8 (0.937) | 20.8 (0.819) | 6 (0.236) |
| 20 | 12.4 (0.488) | 31.7 (1.248) | 28.7 (1.130) | |
| 26 | 15.7 (0.618) | 33.3 (1.311) | 29.2 (1.150) | |

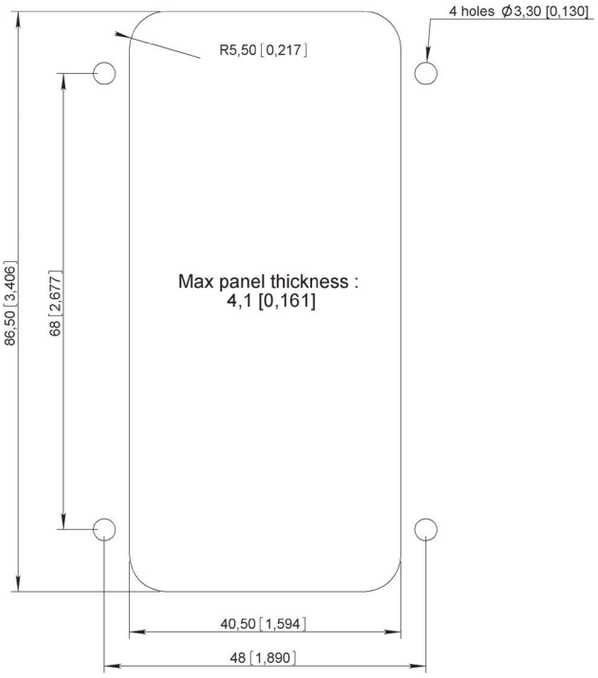



| NUMBER OF CONTACTS | A | B | C | D | E | F | MAX. PANEL THICKNESS |
|---|---|---|---|---|---|---|---|
| 34 | 19.8 (0.779) | 11.9 (.468) | 6.3 (0.248) | 49.3 (1.940) | 42.8 (1.685) | 36.6 (1.441) | 6 (0.236) |
| 42 | | | | 56.9 (2.240) | 50.5 (1.988) | 43.7 (1.720) | |
| 50 | | | | 64.3 (2.531) | 57.9 (2.279) | 51.6 (2.031) | |
| 75 | 29 (1.141) | 19.4 (0.764) | 14.2 (0.559) | | | | |
| 104 | 29.3 (1.153) | 20.6 (0.811) | 12.7 (0.500) | 72.5 (2.854) | 63.5 (2.500) | 55.6 (2.189) | 5.5 (0.216) |




**158 CONTACTS**

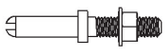
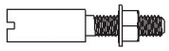
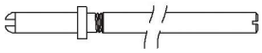
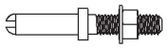
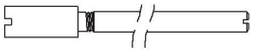
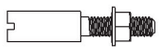
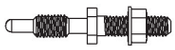
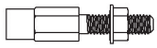
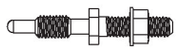
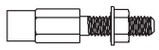



**208 CONTACTS**

*Contacts*

## SPARE PARTS

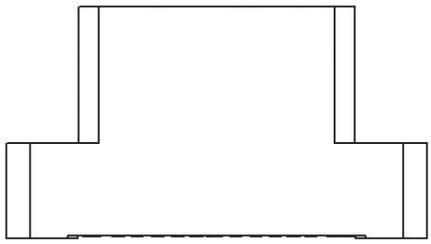
Jackscrew and rack guide selection table

| CABLES | | | NUMBER OF CONTACTS | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | 14 | 20 | 26 | 34 | 42 | 50 | 75 |
| Rack Guides | Without backshell | Male |  690962 | | | | | | |
| | | Female |  690952 | | | | | | |
| | With backshell | Male |  690963 | | | |  690963 | | |
| | | Female |  690963 | | | |  690963 | | |
| Fixed Guides | Without backshell | Male |  690961 | | | | | | |
| | | Female |  690951 | | | | | | |
| | With backshell | Male |  690964 | | | |  690961 | | |
| | | Female |  690954 | | | |  690951 | | |
| Rotating jackscrews | Without backshell | Male |  690965 | | | | | | |
| | | Female |  690955 | | | | | | |
| | With or without backshell | Male | 690966 | | | 690949 | | 690967 | |
| | | |  | | | | | | |
| | | | - | | | | |  For 75 Contacts 690967001 Side Entry | |
| | | Female | 690956 | | 690939 | | | | |
| | | |  | | | | | | |
| | | | - | | | | |  For 75 Contacts 690957001 Side Entry | |

## SPARE PARTS

### INSULATOR BLOCKS ONLY

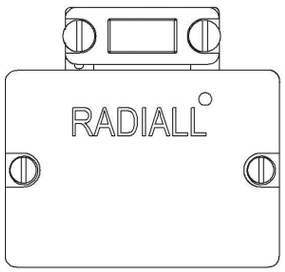
| NUMBER OF CONTACTS | BLOCK | |
|---|---|---|
| | TYPE P | TYPE R |
| 14 | 690401 | 690501 |
| 20 | 690411 | 690511 |
| 26 | 690421 | 690521 |
| 34 | 690431 | 690531 |
| 42 | 690441 | 690541 |
| 50 | 690451 | 690551 |
| 75 | 690461 | 690561 |



### BACKSHELLS

When ordering backshells separately, do not forget to order the appropriate guides or jackscrews (refer to previous page for part numbers.)

| NUMBER OF CONTACTS | BACKSHELL REFERENCE |
|---|---|
| 14 | 690905 |
| 20 | 690908 |
| 26 | 690911 |
| 34 | 690914 |
| 42 | 690917 |
| 50 | 690920 |
| 75 | Type P 690923 |
| | Type R 690924 |




| POLARIZATION CODE | POSITION |
|---|---|
| 110 | 1 |
| 120 | 3 |
| 130 | 5 |
| 140 | 7 |
| 210 | 1 + 3 |
| 220 | 3 + 5 |
| 230 | 5 + 7 |
| 240 | 1 + 5 |
| 250 | 3 + 7 |
| 260 | 1 + 7 |

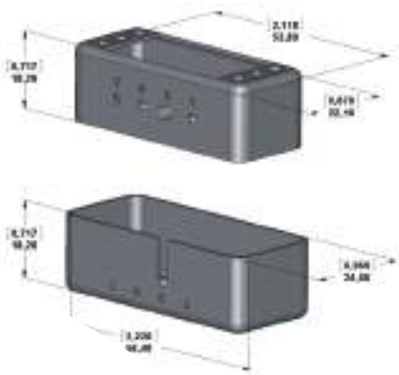
### SHROUDS

Male shroud is to be mounted on insulator block P and female shroud on insulator block R.

Polarizing is to be positioned next to cavity 1 or A of the insulator block.

To order without polarization just use the six digits in the following table. To include polarization add the 3 digits suffix following the 6 digits part number. E.G: 690943120 (position 3).

| NUMBER OF CONTACTS | SHROUDS | |
|---|---|---|
| | MALE | FEMALE |
| 14 | 690940 | 690930 |
| 20 | 690941 | 690931 |
| 26 | 690942 | 690932 |
| 34 | 690943 | 690933 |
| 42 | Not Available | |
| 50 | 690945 | 690935 |
| 75 | 690946 | 690936 |



# WIRING INSTRUCTIONS

## TWISTED PAIR CONTACT

### WIRING INSTRUCTIONS A

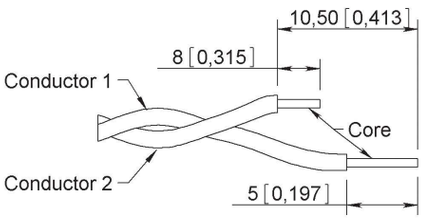
CONTACT REF: 690060
690160
690061
690161
690062
690162

WIRE SIZES: AWG 26
AWG 28
AWG 30

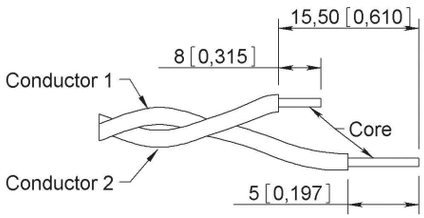


BODY | CENTER CONTACT | INSULATOR BUSH | ADAPTER | FERRULE

### 1-WIRE STRIPPING



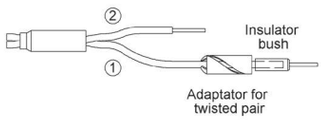

SOCKET CONTACT

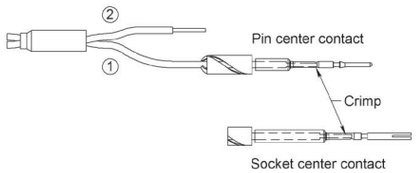


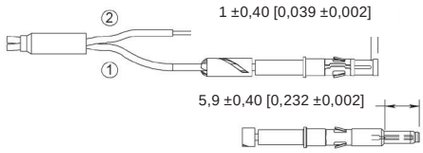

PIN CONTACT

### 2–WIRING INSTRUCTIONS

- Slide the ferrule over the twisted pair cable
- Following the type of contact, strip the 2 conductors to the shown dimensions here above
- Slide adaptor over conductor ①
- Slide insulator bush over conductor ①
- Put the core of the cable ① into the center contact (pin or socket) until it butts against the insulator bush
- Engage the assembly (cable + center contact) into the positioner of the crimping tool, and crimp center contact according to setting instructions page 8-24
- Engage the center contact into the body, with reasonable force push home. Check the dimensional position, following type of centre contact (pin/socket)
- Slide the adaptor on to the body up to the shoulder
- Place the core of conductor ② under the adaptor tab, and slide core into the helical slot
- Slide the ferrule over the adapter up to the shoulder of the body
- Engage the assembly into the positioner of the crimping tool, then crimp according to setting instructions, page 8-24








## TWISTED PAIR CONTACT

**CABLING INSTRUCTIONS B**

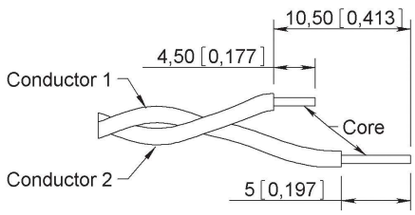
CONTACT REF: 690070
690170

WIRE SIZES: AWG 24

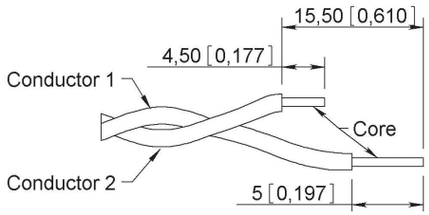


BODY | CENTER CONTACT | INSULATOR BUSH | ADAPTER | FERRULE

### 1-WIRE STRIPPING



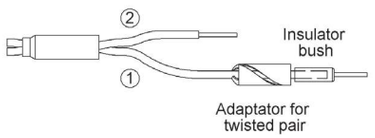

SOCKET CONTACT

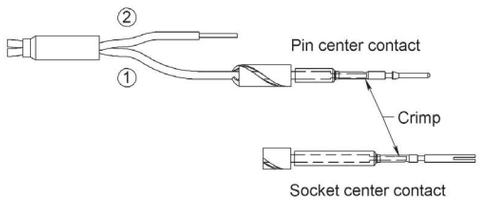


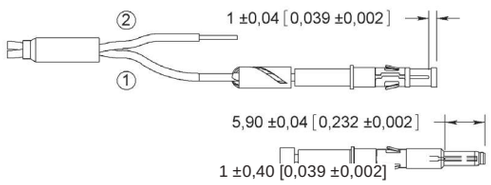

PIN CONTACT

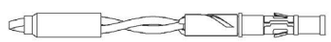
### 2–WIRING INSTRUCTIONS

- Slide the ferrule over the twisted pair cable
- Following the type of contact, strip the 2 conductors to the shown dimensions here above
- Slide adaptor over conductor ①
- Slide insulator bush over conductor ①
- Put the core of the cable ① into the center contact (pin or socket) until it butts against the insulator bush
- Engage the assembly (cable + center contact) into the positioner of the crimping tool, and crimp center contact according to setting instructions page 8-24
- Engage the center contact into the body, with reasonable force push home. Check the dimensional position, following type of centre contact (pin/socket)
- Slide the adaptor on to the body up to the shoulder
- Place the core of the conductor ② into the straight slot, on the outer face of the adaptor
- Slide the ferrule over the adapter up to the shoulder of the body
- Engage the assembly into the positioner of the crimping tool, then crimp according to setting instructions, page 8-24



5,9 ±0,40 [0,232 ±0,002]

## COAXIAL CONTACTS

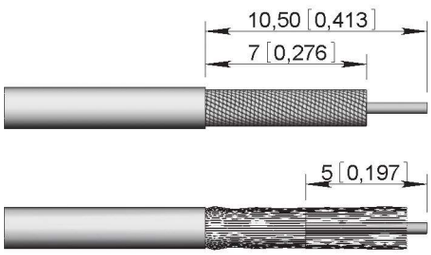
**CABLING INSTRUCTIONS C**

CONTACT REF: 690020
690120

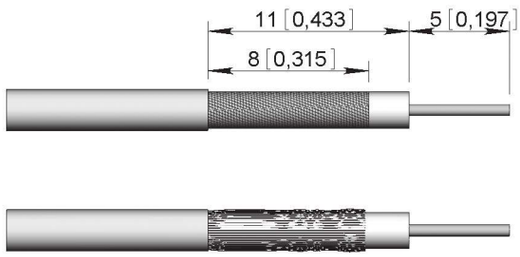


BODY CENTER CONTACT INSULATOR BUSH FERRULE

### 1-WIRE STRIPPING



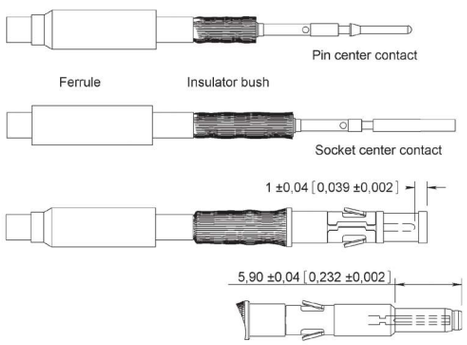

SOCKET CONTACT




PIN CONTACT

### 2–WIRING INSTRUCTIONS

- Slide the ferrule over the coaxial cable
- Following the type of contact, strip the 2 conductors to dimensions shown above
- Comb the braid and slide on the insulator bush until it butts against the dielectric of the cable
- Place the core of the cable into the center contact so as to butt against the dielectric
- Engage the assembly into the positioner of the crimping tool and crimp according to instructions indicated on page 8-25
- Engage the centre contact into the body and with reasonable force push home, check the dimensional position of the centre contact (pin or socket)
- Pull down the braid over the body and slide the ferrule on to the body up to the shoulder
- Engage the assembly into the positioner of the crimping tool, then crimp according to instructions indicated on page 8-25




1 ±0,40 [0,039 ±0,002]

5,9 ±0,40 [0,232 ±0,002]

## COAXIAL CONTACTS

### CABLING INSTRUCTIONS D

CONTACT REF: 690040 WIRE SIZES: AWG 24
690140



BODY

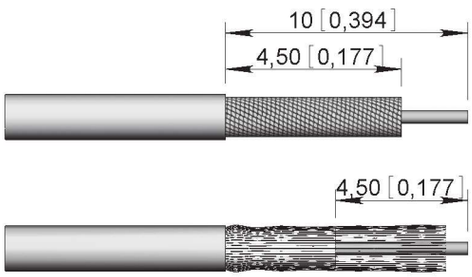


CENTER CONTACT

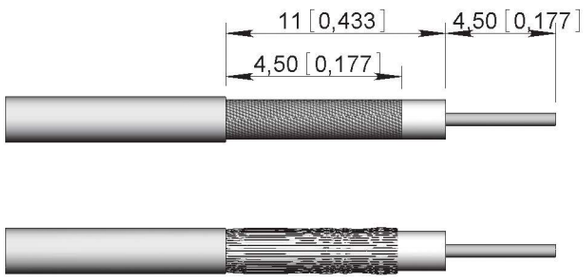


FERRULE

### 1-WIRE STRIPPING



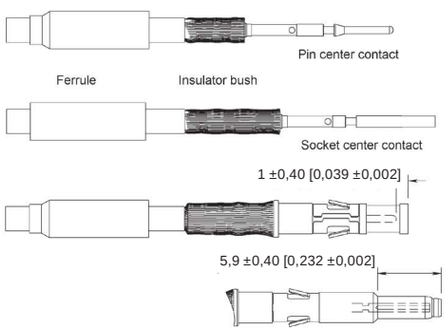

SOCKET CONTACT




PIN CONTACT

### 2–WIRING INSTRUCTIONS

- Slide the ferrule over the coaxial cable
- Following the type of contact, strip the 2 conductors to dimensions shown above
- Place the core of the cable into the center contact so as to butt against the dielectric
- Engage the assembly into the positioner of the crimping tool, then crimp according to instructions indicated on page 8-25
- Engage the center contact into the body and with reasonable force push home, check the dimensional position of the center contact (pin or socket)
- Pull down the braid over the body and slide ferrule over braid up to the body shoulder
- Engage the assembly into the positioner of the crimping tool, then crimp according to instructions given on page 8-25



# TOOLS

## CRIMP TOOLS

| PART NUMBER | MIL SPEC P/N |
|---|---|
| 282281 | M22520/2-01 |
| 282291 | M22520/1-01 |
| 282292 | M22520/4-01 |



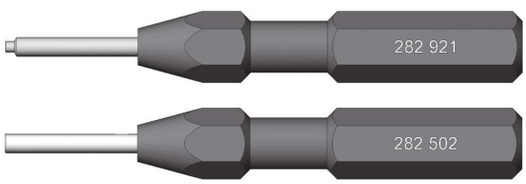
## POSITIONERS

| PART NUMBER | MIL SPEC P/N |
|---|---|
| 282973 | M22520/4-02 |
| 282976 | Daniels TP616 |
| 282975 | Daniles TP617 |
| 282981 | M22520/2-04 |



## INSERTION TOOL

| PART NUMBER | MIL SPEC P/N |
|---|---|
| 282502 | - |
| 282921 | Wire Wrap |




## EXTRACTION TOOL

| PART NUMBER |
|---|
| 282501 |
| 282917 |
| 282920 |



*Notes*



# B & MCS-R SERIES

*Section 9 Table of Contents*

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Panel Cut-Outs ..... 9-15
Contact References ..... 9-16
Locking System Code VP ..... 9-17
Connectors Mounting Plates ..... 9-18
Connectors Accessories ..... 9-19 to 9-20
Micro Coaxial Contacts Assembly Instructions ..... 9-21
Tools ..... 9-22

*B Series*

## INTRODUCTION

The B series connectors are of robust design with fixed solder pot contacts of 15 A current rating. They are available in four different contact arrangements.

By their ruggedness, they are particularly suitable for rack and panel and cable to panel applications.

## APPLICATIONS

The series B connectors ensures complete safety for the following applications:

Industries, transports, communications, power equipment and all specific civil and military electronic systems.

## FEATURES

Plug and receptacle connectors are made of a thermoset insulator moulded onto a stainless steel fixing plate. Four contact arrangements are available, 8, 14, 24 and 32 contacts.

The receptacle box type connectors are fitted with round pin contacts. The plug connectors are fitted with spring blade contacts and two stainless steel guide pins of different diameter providing polarization and mating before the contacts to ensure correct alignment.

The pin contacts are in silver plated brass, the spring blade contacts are in silver plated bronze. The cambered configuration and elasticity procures a self wiping condition at each mating, ensuring high reliability.

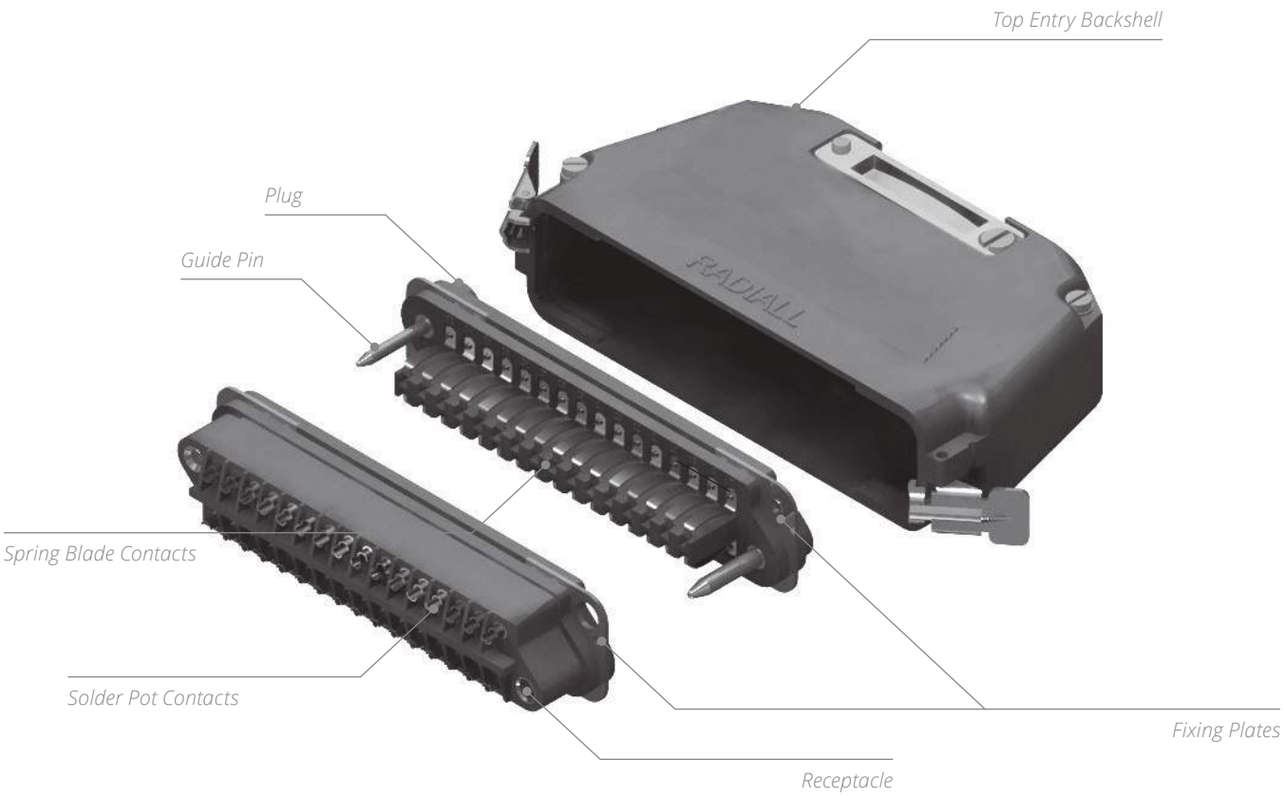
The B series connector is only available with solder pot termination for gauge 16 wires. Standard receptacle connectors are fitted with floating eyelets, which allows 0.75 mm radial float.



*B Series*

## PRODUCT OVERVIEW

Detailed view of the various parts of this series connector



*B Series*

## TECHNICAL CHARACTERISTICS

### ELECTRICAL

- **Current Rating by Contact:** 15 A
- **Test Voltage:**
  - **Between Contacts:** > 1,500 Vrms
  - **Between Contacts and Earth:** > 2,000 Vrms
- **Insulation Resistance:** > 5,000 MΩ
- **Contact Resistance:** < 10 mΩ

### MECHANICAL & ENVIRONMENTAL

- **Temperature Range:** -55 °C (-131 °F) to +125 °C (+257 °F)
- **Humidity:** 21 Days
- **Mating and Unmating:** 500 Cycles
- **Contact Retention:** > 50 N

### MATERIALS

| DESCRIPTION | MATERIAL/FINISH |
|---|---|
| Insulator Block | Glass Filled Phenolic |
| Pin Contacts (Male) | Brass-Silver Plated |
| Spring Blade Contacts (Female) | Bronze-Silver Plated |
| Guide Pins | Stainless Steel |
| Fixing Plate | Stainless Steel |

### MASSES G (OZ)

| PLUG | | | | |
|---|---|---|---|---|
| **CONTACT ARRANGEMENT** | 08 | 14 | 24 | 32 |
| **WEIGHT** | 35 (1.25) | 50 (1.80) | 70 (2.50) | 85 (3) |
| **RECEPTACLE** | | | | |
| **CONTACT ARRANGEMENT** | 08 | 14 | 24 | 32 |
| **WEIGHT** | 35 (1.25) | 50 (1.80) | 70 (2.50) | 85 (3) |
| **BACKSHELLS** | | | | |
| **SIDE ENTRY** | 170 (6) | 190 (6.70) | 265 (9.35) | 300 (10.60) |
| **TOP ENTRY** | 180 (6.35) | 200 (7.05) | 280 (9.90) | 320 (11.30) |

*B Series*

## HOW TO ORDER CONNECTORS

The following indications are to help you out when ordering B connectors.

When a receptacle connector is ordered with the locking system, in place of the floating eyelets, brackets are fitted whilst the locking clips are always fitted on the backshell.

For backshell and accessories please refer to pages 9-18 to 9-19 for ordering.

The plug connector is fitted with spring leaf contacts and the receptacle box type connector with pin contacts.

### CONNECTOR PART NUMBER

B

**SERIES PREFIX**

**CONTACT ARRANGEMENT**
08–14–24-32

**PRODUCT TYPE**
**M:** Plug connector
**F:** Receptacle connector [2]

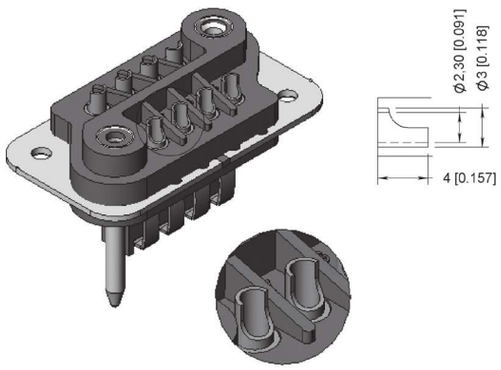
**TERMINATION STYLE** [1]
**71:** Ø 2.30 solder pot
**73:** Ø 3.20 solder pot
**74:** PC Tail
**75:** 5 mm terminal blade
**78:** NFC 20120 terminal blade
**80:** Screw cup termination

**MODIFICATION CODE**
**NV:** Without locking
**VP:** Brackets for locking system receptacle only (see page 9-17 for details)

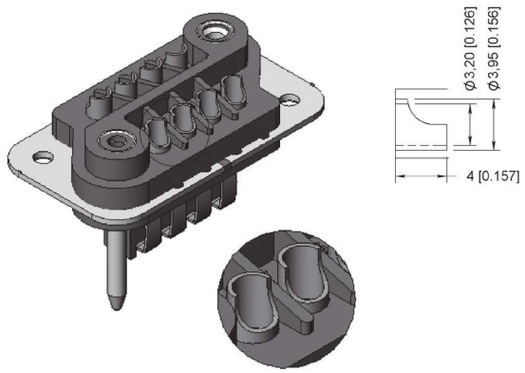
*Notes*
*1. Please refer to page 9-6 for views of termination styles.*
*2. Receptacle connector: only the 71 termination style is available.*

## TERMINATION STYLES

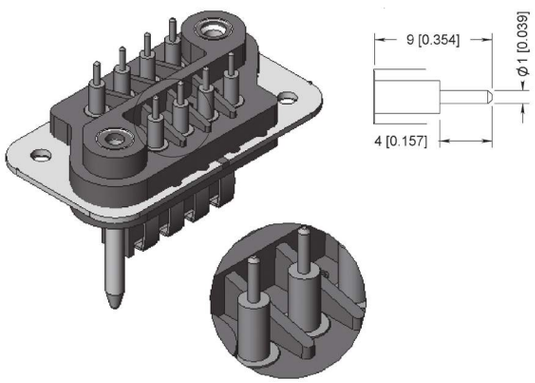
Following are the different termination styles available in details



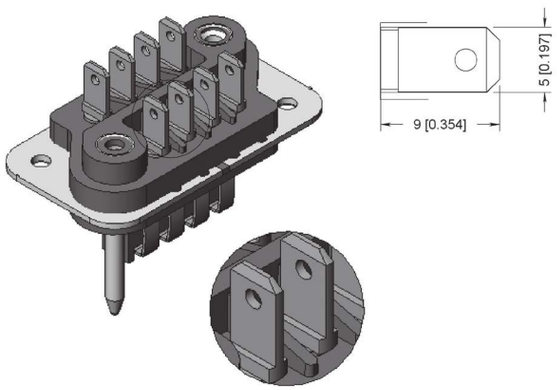

**STYLE 71**



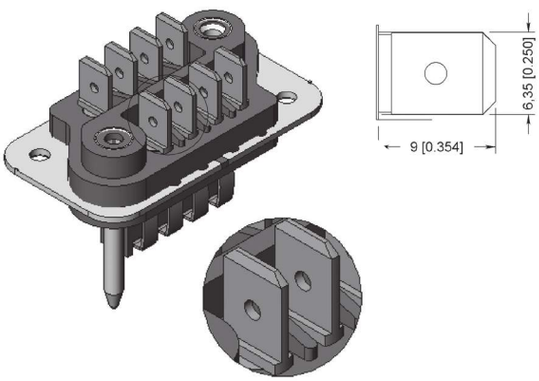

**STYLE 73**



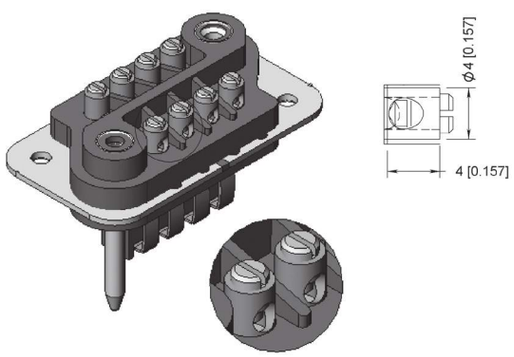

**STYLE 74**




**STYLE 75**



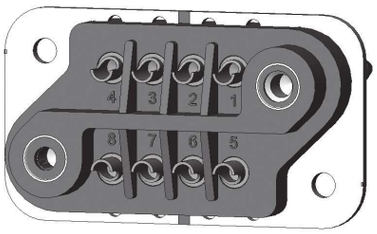

**STYLE 78**




**STYLE 80**

*B Series*

## CONTACT ARRANGEMENTS



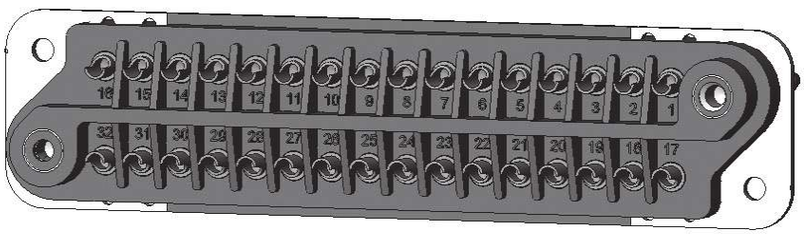

**8 CONTACTS**




**14 CONTACTS**




**24 CONTACTS**



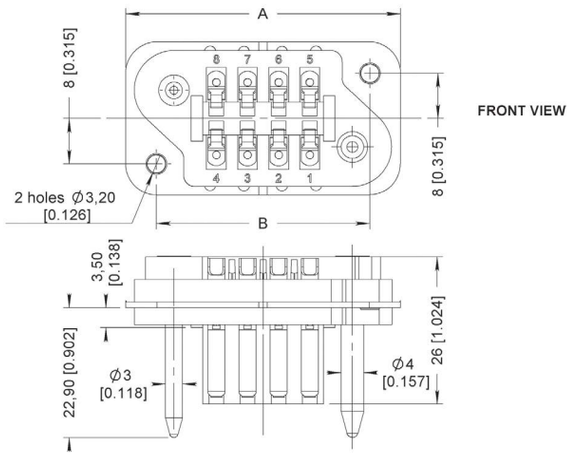

**32 CONTACTS**

*B Series*

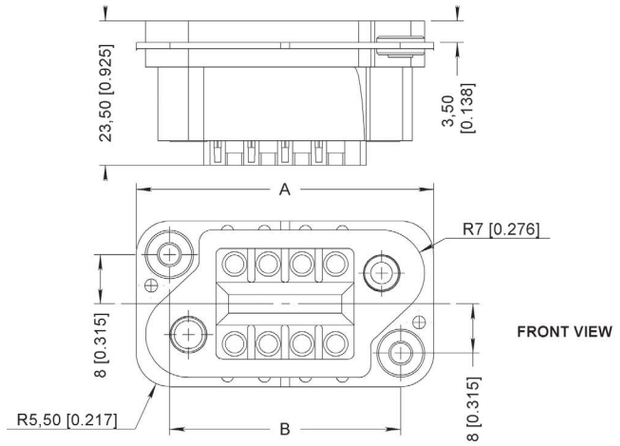
# DIMENSIONS

## SINGLE SHELL DIMENSIONS-MM(INCH)

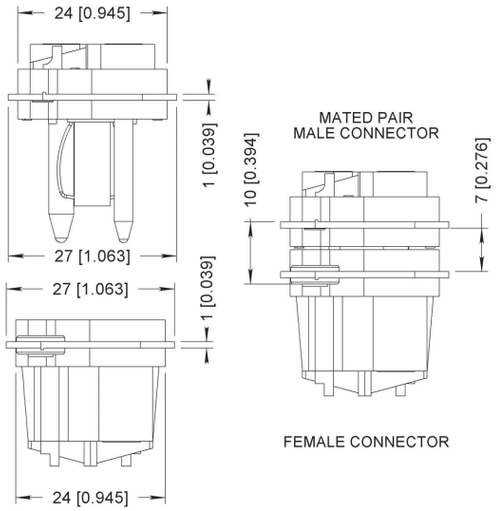
### MALE



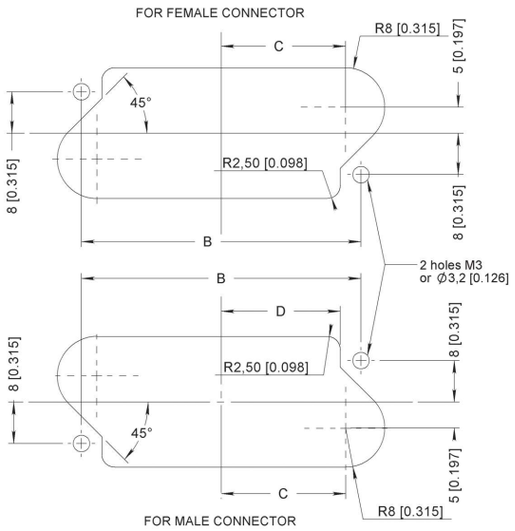

### FEMALE




### MATED SHELL DIMENSIONS




### PANEL CUT-OUTS




| CONTACT ARRANGEMENT | PLUG & RECEPTACLE CONNECTOR DIMENSIONS MM(INCH) | | | |
|---|---|---|---|---|
| | A | B | C | D |
| 08 | 48.5 (1.909) | 37.5 (1.476) | 15.75 (0.620) | 15.5 (0.610) |
| 14 | 65 (2.559) | 54 (2.125) | 24 (0.944) | 23.5 (0.925) |
| 24 | 92.5 (3.641) | 81.5 (3.208) | 37.75 (1.486) | 37.5 (1.476) |
| 32 | 114.5 (4.507) | 103.5 (4.074) | 48.75 (1.919) | 48.5 (1.909) |

*MCS-R Series*

## INTRODUCTION

The MCSR series connectors are of robust design and available in four contacts arrangements, respectively 28, 48, 83 and 113 wire contacts, size gauge 16.

The same number of micro coaxial contacts can be installed instead of the wired contacts. A unique feature of the MCSR connector is that it's interchangeable with the B series, however, it is not fully intermateable.

The connectors may be adapted with die cast aluminium hoods, with two types of cable entries, either from the top or from the side.

## APPLICATIONS

MCSR connectors are suitable for various applications in the following industrial fields: Communications and automation systems, electronic equipment, naval, aerospace, and defense applications.

## FEATURES

The MCS-R series, plug and receptacle connectors are made of a thermostat insulator moulded onto a stainless steel fixing plate. Four contact arrangements are available, 28, 48, 83 and 113 contacts.

The plug connector is fitted with two guide pins of different diameter, which provides polarization and mate before the contacts ensuring a perfect alignment and reliability. The plug connector accepts socket wire contacts or pin micro coaxial contacts.

The receptacle connector accepts pin wire contacts or socket micro coaxial contacts and is fitted with floating eyelets which allows 0.75 mm radial float.

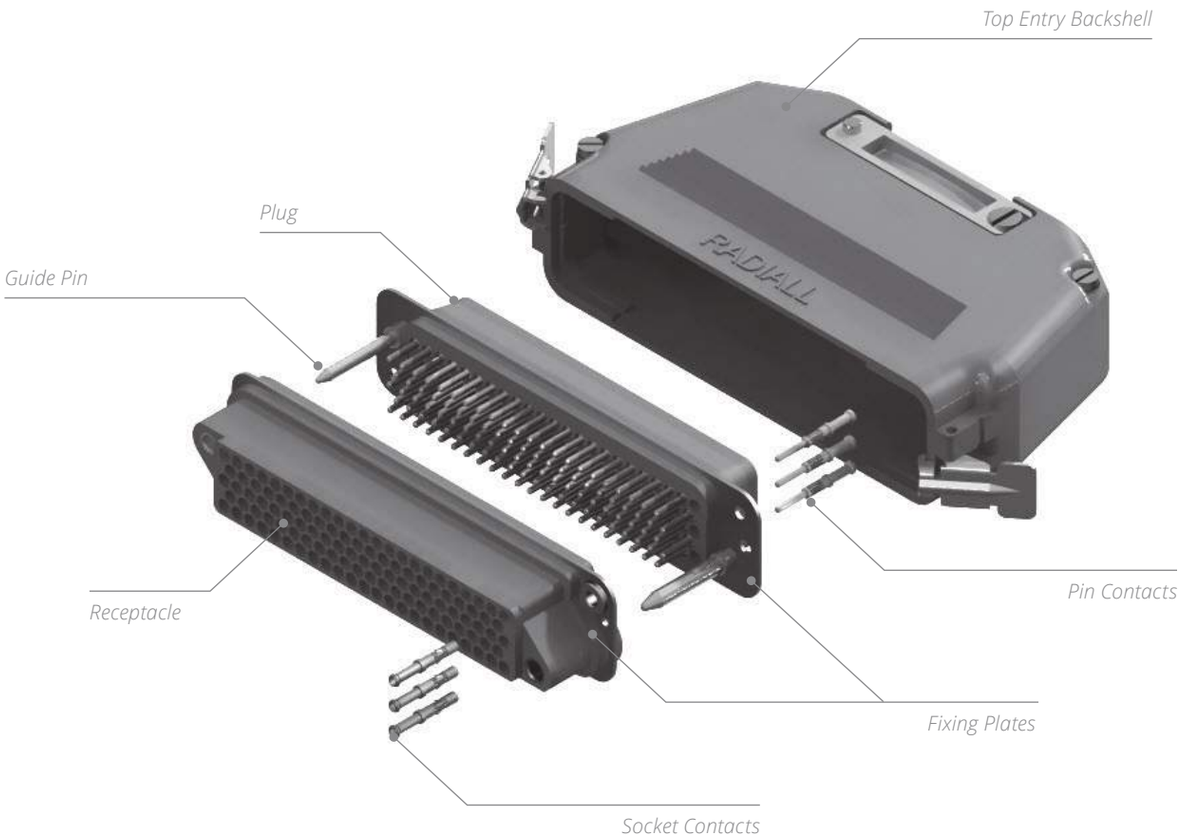
Three termination styles on the contacts are available, wire contacts with solder pot or crimp for wire size gauge 16 and micro coaxial contacts, crimp style.



*MCS-R Series*

## PRODUCT OVERVIEW

Detailed view of the various parts of this series connector



## TECHNICAL CHARACTERISTICS

### ELECTRICAL

- **Current Rating by Contact:** 13 A
- **Operating Voltage:** 350 Vrms at 50 Hz
- **Test Voltage:** 1,500 Vrms at 50 Hz
- **Insulation Resistance:** > 5,000 MΩ
- **Contact Resistance:** < 12 mΩ

### ELECTRICAL WITH MICRO COAXIAL CONTACTS

- **Impedance:** 50 Ω
- **Operating Frequency Range:** 0 to 1,000 MHz
- **VSWR of Pair of Contacts:** < 1.4 from 0 to 1,000 MHz
- **Insertion Loss of a Pair of Contacts at 1,000 MHz:** < 0.20 dB
- **Test Voltage at Sea Level (Mated Pair):** 600 Vrms at 50 Hz
- **Insulation Resistance:** > 5,000 MΩ
- **Contact Resistance:** < 12 mΩ

### MECHANICAL & ENVIRONMENTAL

- **Temperature Range:** -55 °C (-131 °F) to +125 °C (+257 °F)
- **Humidity:** 21 Days
- **Mating and Unmating:** 500 Cycles
- **Contact Retention:** > 50 N

*MCS-R Series*

## MATERIALS

| DESCRIPTION | MATERIAL/FINISH |
|---|---|
| Insulator Block | Glass Filled Phenolic |
| Guide Pins | Stainless Steel |
| Fixing Plate | Stainless Steel |
| Contacts | Copper Alloy–Gold over Nickel-Plated |

## MASSES G (OZ)

| PLUG | | | | |
|---|---|---|---|---|
| **CONTACT ARRANGEMENT** | 28 | 48 | 83 | 113 |
| **WEIGHT** | 40 (1.45) | 60 (2.15) | 90 (3.20) | 115 (4.05) |
| **RECEPTACLE** | | | | |
| **CONTACT ARRANGEMENT** | 28 | 48 | 83 | 113 |
| **WEIGHT** | 40 (1.45) | 55 (1.95) | 85 (3) | 110 (3.90) |
| **BACKSHELLS** | | | | |
| **SIDE ENTRY** | 170 (6) | 190 (6.70) | 265 (9.35) | 300 (10.60) |
| **TOP ENTRY** | 180 (6.35) | 200 (7.05) | 280 (9.90) | 320 (11.30) |



*MCS-R Series*

## HOW TO ORDER CONNECTORS

The following indications are useful when ordering MCS-R connectors.

When ordering a connector with its locking system VP, brackets fitted on the female connector replace the eyelets, whilst the locking clips are always fitted on the backshell.

Series MCS-R contacts are removable. Contacts shall be ordered separately following the termination style and quantities desired.

For backshells and accessories please refer to page 9-18 to 9-19 for ordering.

For contact references please refer to page 9-15.

MCSR

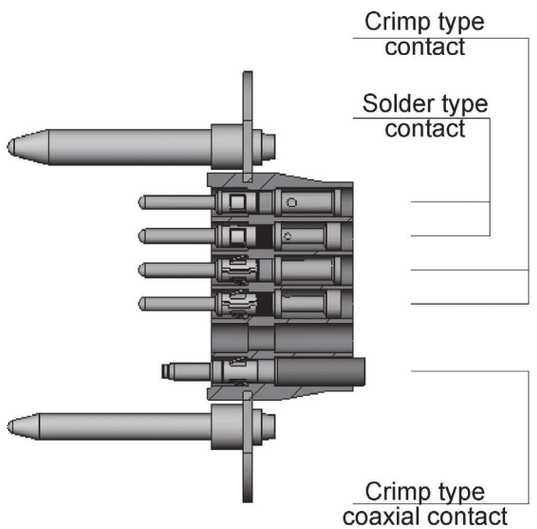
**SERIES PREFIX**

**CONTACT ARRANGEMENT**
028–048–083-113

**PRODUCT TYPE**
**M:** Plug connector
**F:** Receptacle connector

**MODIFICATION CODE**
**00:** Without locking
**VP:** Brackets for locking system receptacle only (see page 9-16 for detail)

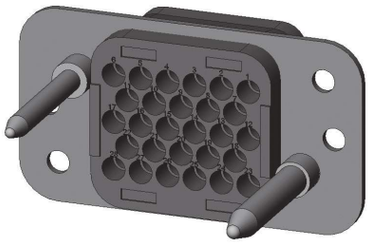
### TERMINATION STYLES



*MCS-R Series*

## CONTACT ARRANGEMENTS

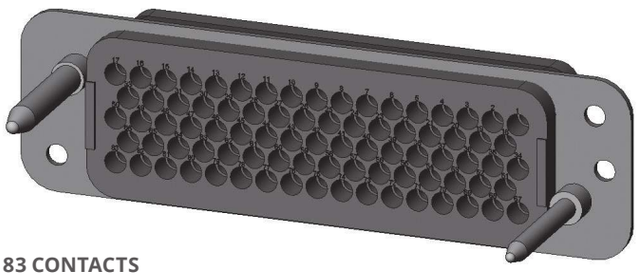
**PLUG VIEW SHOWN**



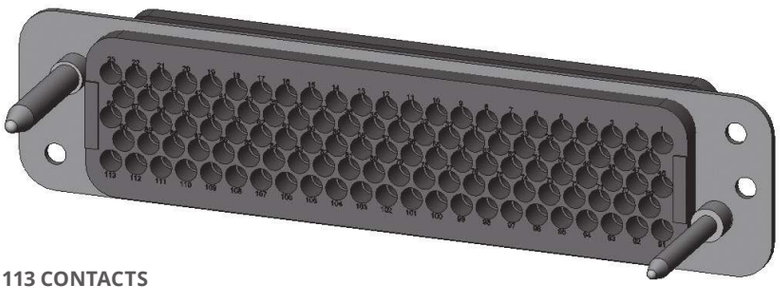
**28 CONTACTS**



**48 CONTACTS**



**83 CONTACTS**

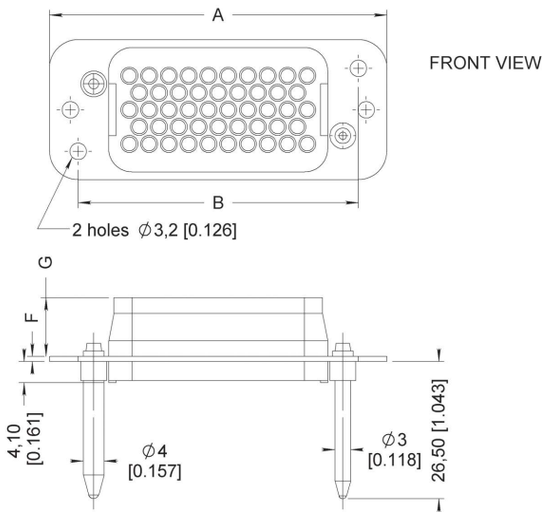


**113 CONTACTS**

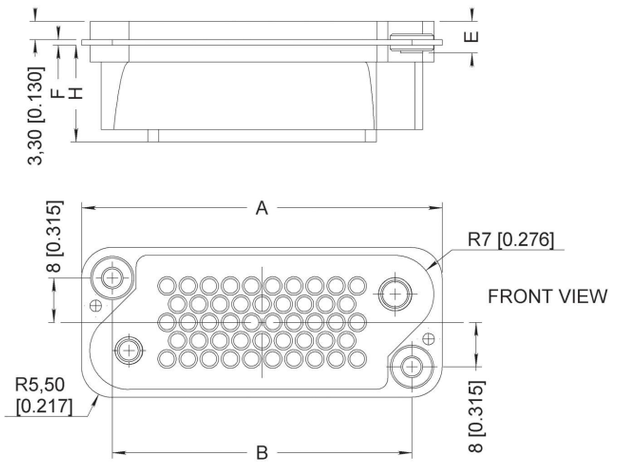
# DIMENSIONS

## SINGLE SHELL DIMENSIONS MM (INCH)

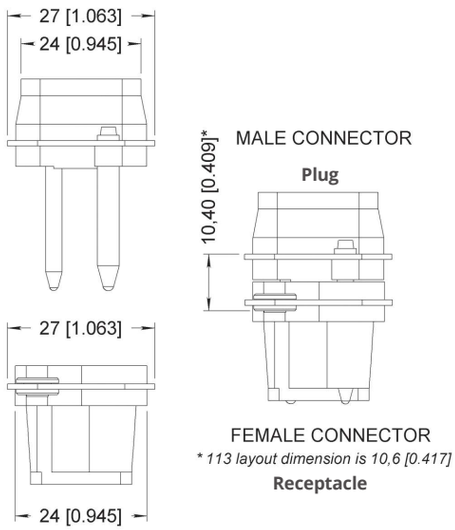
### PLUG



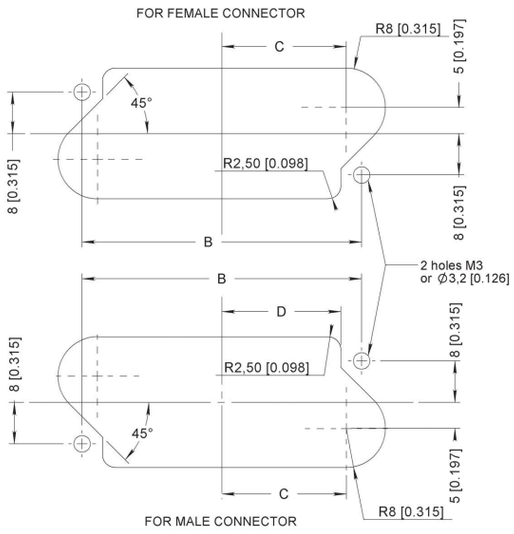

### RECEPTACLE




### MATED SHELL DIMENSIONS




### PANEL CUT-OUTS




| CONTACT ARRANGEMENT | PLUG & RECEPTACLE CONNECTOR DIMENSIONS MM (INCH) | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | A | B | C | D | E | F | G | H |
| 028 | 48.5 (1.909) | 37.5 (1.476) | 15.75 (0.620) | 15.5 (0.610) | 5.3 (0.209) | 1 (0.039) | 11.5 (0.452) | 17.7 (0.697) |
| 048 | 65 (2.559) | 54 (2.126) | 24 (0.945) | 23.5 (0.925) | 5.3 (0.209) | | | |
| 083 | 92.5 (3.642) | 81.5 (3.209) | 37.75 (1.486) | 37.5 (1.476) | 5.3 (0.209) | | | |
| 113 | 114.5 (4.508) | 103.5 (4.075) | 48.75 (1.919) | 48.5 (1.909) | 5.5 (0.217) | 1.2 (0.047) | 11.3 (0.445) | 17.5 (0.689) |

*MCS-R Series*

## CONTACT REFERENCES [1]

### MICRO COAXIAL CONTACTS

| | | | OUTER CONDUCTOR DESCRIPTION | | CENTER CONDUCTOR DESCRIPTION | |
|---|---|---|---|---|---|---|
| CABLE TYPE | TYPE | PART NUMBER | CRIMPING TOOL | SETTING | CRIMPING TOOL | POSITIONNER |
| RG178<br>RG196 KX21 | Pin | 614120 | 282281<br>M22520/2-01 | 1 | 282292<br>M22520/4-01 | 282973<br>M22520/4-02 |
| | Socket | 690020 | | | | |
| RG174<br>RG188<br>RG316<br>KX3–KX22 | Pin | 614140 | 282281<br>M22520/2-01 | 2 | 282292<br>M22520/4-01 | 282973<br>M22520/4-02 |
| | Socket | 690040 | | | | |
| AWG26<br>Twisted Pair Cable<br>Ø1.1 | Pin | 614160 | 282281<br>M22520/2-01 | 2 | 282292<br>M22520/4-01 | 282973<br>M22520/4-02 |
| | Socket | 690060 | | | | |
| AWG24<br>Twisted Pair Cable<br>Ø1.3 | Pin | 614170 | 282281<br>M22520/2-01 | 2 | 282292<br>M22520/4-01 | 282973<br>M22520/4-02 |
| | Socket | 690070 | | | | |

### CRIMP WIRE CONTACTS [2]

| CABLE TYPE | TYPE | PART NUMBER | CRIMPING TOOL | POSITIONER | EXTRACTION TOOL |
|---|---|---|---|---|---|
| AWG16<br>AWG18<br>AWG20 | Pin | 614200 | 282291<br>M22520/1-01 | 282975 | 282920 |
| | Socket | 690300 | | | |
| AWG20<br>AWG22<br>AWG24 | Pin | 614200 | 282291<br>M22520/1-01 | 282976 | 282920 |
| | Socket | 690300 | | | |

### SOLDER WIRE CONTACTS [2]

| CABLE TYPE | TYPE | PART NUMBER | EXTRACTION TOOL |
|---|---|---|---|
| AWG16<br>AWG18<br>AWG20 | Pin | 614230 | 282920 |
| | Socket | 614330 | |
| AWG20<br>AWG22<br>AWG24 | Pin | 614240 | 282920 |
| | Socket | 614340 | |



*Notes:*

*1. For other termination please consult us*

*2. Stripping length for cable types AWG16-18-20 is 6 and for types AWG20-22-24 it is 5*

*MCS-R Series*

## LOCKING SYSTEM CODE VP

The brackets can only be used on the receptacle connector and enables it to be fastened securely when its mating half is fitted with a hood

The brackets replace the floating eyelets on the receptacle connector

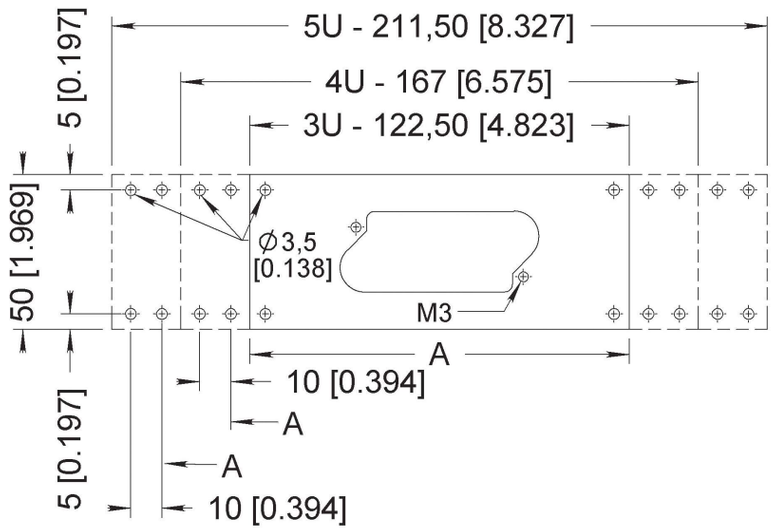
On both series B and MCSR when VP code is ordered, the corresponding hood must be ordered with the male connector



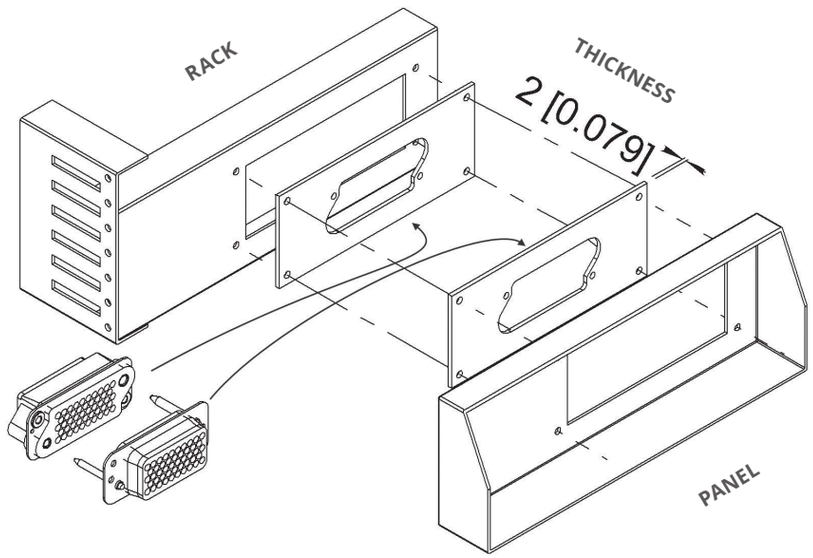
*MCS-R Series*

## CONNECTORS MOUNTING PLATES

The mounting plates already blanked out, simplify the wall cut out on the rack or panel as well as on any other item designed to support the connector. The latter is directly fitted to the mounting plate, which can then be easily secured with accuracy on the equipment due to the four oblong holes of the mounting plate.




| SERIES | | REFERENCE FOLLOWING NUMBER OF CUT OUTS | | |
|---|---|---|---|---|
| B | MCSR | 3 U | 4 U | 5 U |
| 14 | 48 | PP314 | PP414 | PP514 |
| 24 | 83 | PP324 | PP424 | PP524 |
| 32 | 113 | - | PP432 | - |
| Dimensions A mm (inch) | | 114.5 (4.508) | 139 (5.472) | 183.5 (7.224) |



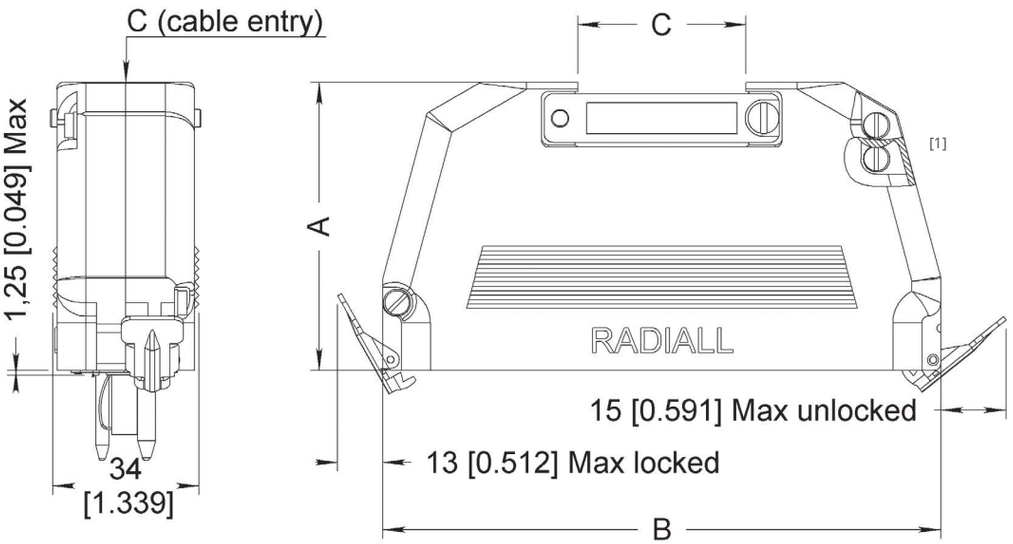
## CONNECTORS ACCESSORIES

The backshells for both series B and MCSR are available in four sizes and are supplied in two halves which enables them to be fitted after the wiring of the connectors.

They are available either with TOP or SIDE (45°) cable entry.

Each backshell is fitted with a pair of locking clips, one fixed on each end. This allows the connector backshell assembly to be fastened securely to the mating connector fitted with the VP brackets.

### TOP ENTRY



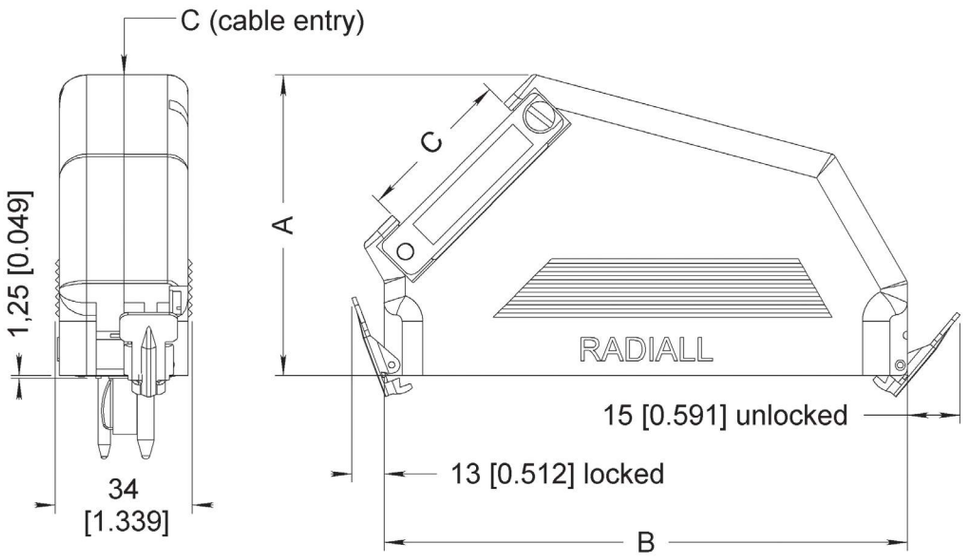

| PART NUMBER FOR TOP ENTRY | NUMBER OF CONTACTS | | B & MCSR DIMENSIONS MM (INCH) | | |
|---|---|---|---|---|---|
| | B SERIES | MCSR SERIES | A | B | C |
| 612813 | 8 | 28 | 52.5 (2.067) | 60.5 (2.382) | 26 × 10 (1.024 × 0.394) |
| 612823 | 14 | 48 | | 77 (3.031) | 26 × 15 (1.024 × 0.591) |
| 612837 | 24 | 83 | 65.5 (2.579) | 104.5 (4.114) | 38 × 20 (1.496 × 0.787) |
| 612845 | 32 | 113 | | 126.5 (4.980) | 38 × 20 (1.496 × 0.787) |

*Notes*

*1. This screw is for grounding purpose.*

*MCS-R Series*

## SIDE ENTRY




| PART NUMBER FOR SIDE ENTRY | NUMBER OF CONTACTS | | B & MCSR DIMENSIONS MM (INCH) | | |
|---|---|---|---|---|---|
| | B SERIES | MCSR SERIES | A | B | C |
| 612814 | 8 | 28 | 63 (2.480) | 60.5 (2.382) | 26 × 10 (1.024 × 0.394) |
| 612824 | 14 | 48 | | 77 (3.031) | 26 × 15 (1.024 × 0.591) |
| 612838 | 24 | 83 | 73 (2.874) | 104.5 (4.114) | 38 × 20 (1.496 × 0.787) |
| 612846 | 32 | 113 | | 126.5 (4.980) | 38 × 20 (1.496 × 0.787) |

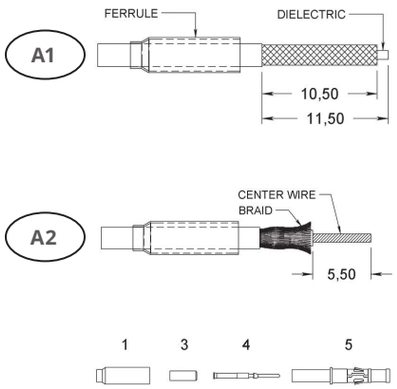
## MICRO COAXIAL CONTACTS ASSEMBLY INSTRUCTIONS

Three different modes of assembly are to be considered depending on the cable type used. The two first assemblies A and B are applicable for braid coaxial cables, whilst the third assembly C is applicable for twin conductor cable. The three mounting procedures are identical for both contact types, pin and socket.

### MOUNTING PROCEDURE COAXIAL CABLES

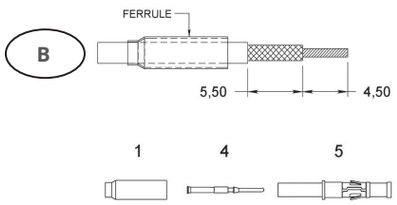
After sliding the ferrule over the cable and stripping the latter to the dimensions shown in A1.

- Comb the braid in opening it up, strip the center wire to the dimension shown in A2.
- Slide the insulator bushing [1] over the dielectric .
- Place the center contact [2] over the conductor, the contact must butt against the insulator bushing [1].
- Crimp the center contact with tool 282281.
- Slide the cable and contact into the body [3] ensuring that it's pushed home, then trim back the braid over the body [3].
- Slide the ferrule over the braid up to the body shoulder.
- Place the assembly into tool 282292 and crimp the ferrule.




After sliding the ferrule over the cable, strip the latter to dimensions shown in B (mounting of coaxial contacts without insulator bushing).

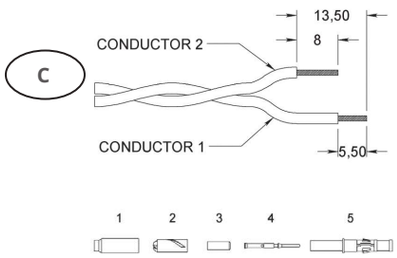
- Comb the braid and place the center contact over the conductor butting it against the dielectric.
- Place the sub assembly into tool 282281 and crimp the center contact.
- The following steps are identical to those indicated in A.




### MICRO COAXIAL CONTACTS WITH TWIN CONDUCTOR CABLE [4]

After sliding the ferrule over the twin conductors and stripping them to dimensions shown in C.

- Slide the adaptor 2 and the insulator bushing [1] over conductor 1.
- Place the center contact [2] over the conductor, butting it against the sheath.
- Place the sub assembly into tool 282281 and crimp the centre contact.
- Slide the cable and contact into the body [3], ensuring that its home.
- Slide the adaptor 2 onto the body [3] against the shoulder.
- Place conductor 2 into the helical slot.
- Slide the ferrule over the adaptor and conductor 2, up to the shoulder of the body [3].
- Place the assembly into tool 282292 and crimp the ferrule.




*Notes*

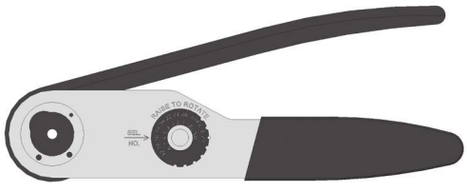
*1. Insulating bush*
*2. Socket or pin contact*
*3. Contact body*
*4. Conductor 1 is for the center contact, whilst conductor 2 is for earthing.*

*MCS-R Series*

# TOOLS

## CRIMP TOOLS

| PART NUMBER | MIL SPEC P/N |
|---|---|
| 282281 | M22520/2-01 |
| 282291 | M22520/1-01 |
| 282292 | M22520/4-01 |



## POSITIONERS

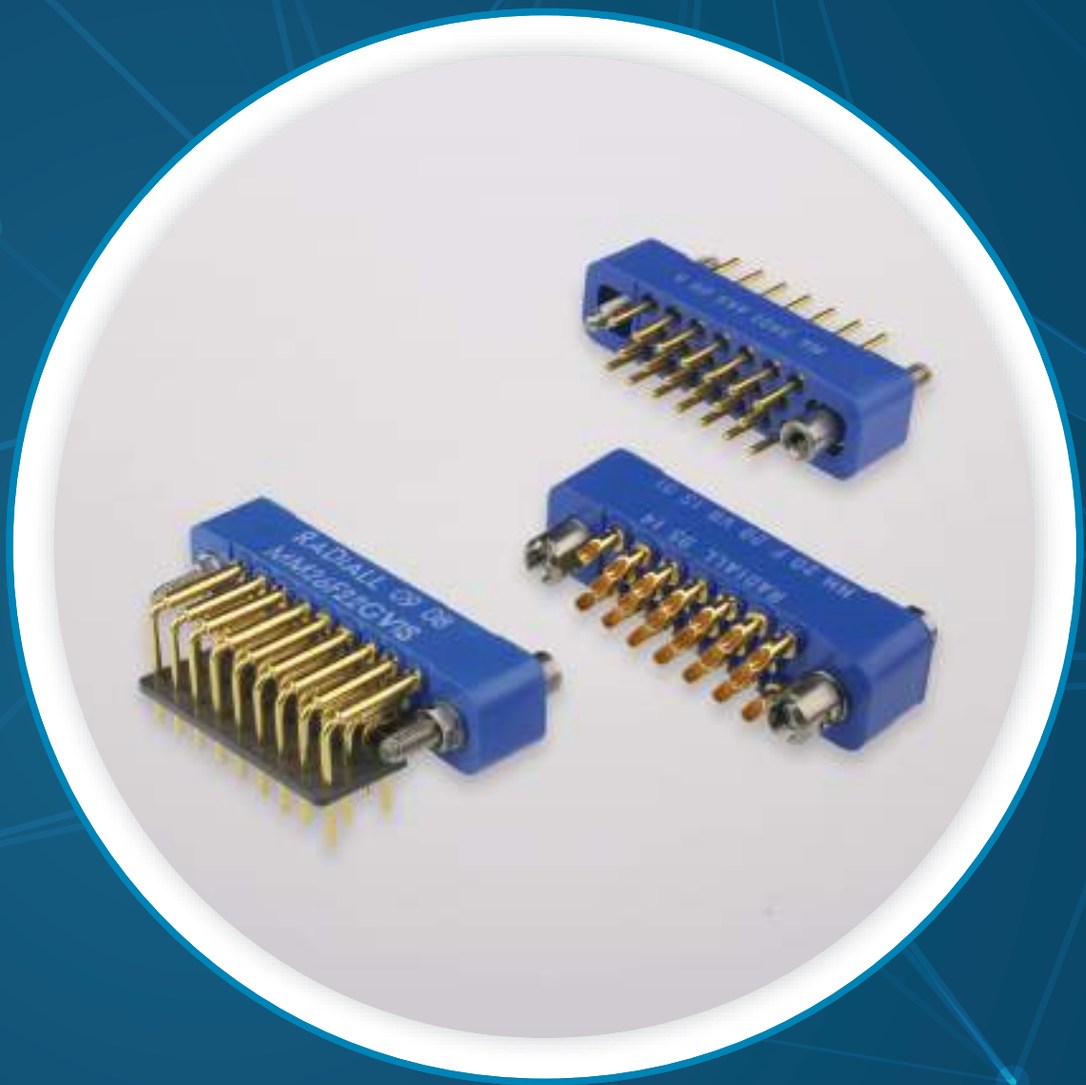
| PART NUMBER | MIL SPEC P/N |
|---|---|
| 282973 | M22520/4-02 |
| 282976 | Daniels TP616 |
| 282975 | Daniels TP617 |



## EXTRACTION TOOL

| PART NUMBER |
|---|
| 282920 |





# MM & MB SERIES

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Applications ..... 10-3

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## INTRODUCTION

The Radiall miniature and submaniature rectangular multicontact connectors meet the requirements of the standard MIL-C-28748 performance requirements. They are rugged connectors and offer high performance for high contact density.

The connectors in each series consist of an insulator with male and female contacts which include several pin sizes.

## FEATURES

Each connector features a male guide at one end and a female guide at the other. This arrangement ensures polarization of the connector when coupled. These guides can be smooth (rack guides) or screw closing (fixed or rotating jackscrews).

The contacts male or female are made of copper base alloy plated gold over nickel. The female contacts have 4 slots which ensures perfect mating, constant contact pressure and excellent mechanical and electrical performance. The contacts have a slight amount of float in order to allow self alignment during mating. Each series includes a different termination type; solder pot, straight or right angle solder pin for PCB, and wrapping.

### THE MM SERIES

This series consists of six sizes of connectors with contact arrangements for 7, 14, 20, 26, 34 and 50 size 22 contacts Ø 0.76 mm / 0.030 inch.

The series offers four types of terminations:

- Solder pot for wire (AWG 22 max)
- Straight solder pin for PBC
- Right angle solder pin for PBC
- Wire wrap

These connectors are fitted with rack guides or fixed or rotating jackscrews at each end. A protective covering for wire terminations can be installed on the connector.

### THE MB SERIES

This series consists of twelve sizes of connectors with contact arrangements for 2, 3, 5, 11, 14, 20, 25, 34, 42, 50 and 75 size 20 contacts Ø 1 mm / 0.039 inch.

The series offers three types of terminations:

- Solder pot for wire (AWG 20 max)
- Straight solder pin for PBC
- Right angle solder pin for PBC

These connectors are fitted with rack guides or fixed or rotating jackscrews at each end.

Wires and soldered terminations for wire can be protected by either top or side entry backshells or by potting covers for 2 to 14 contacts connectors.

A range of top and side entry backshells with cable clamps in yellow anodized aluminium alloy are available. They are designed to protect the soldered wire connections, provide strain relief to the cable and facilitate the disengagement of the mated connectors.

Fitted with threaded posts they are suitable for connectors fitted with rack guides or fixed jackscrews. When fitted with rotating jackscrew guides they are fixed to the connectors without guides and jackscrews.

For the MB series there are also thermoplastic covers for “potting” ensuring that the terminated wires at the back of the insulator are protected.

## APPLICATIONS

Their mass and volume make them particularly suitable for the following applications: civil and military, in-flight equipment, instrumentation, missile, etc.

Originally developed for rack and panel assemblies they can be adapted for cable to cable applications with cable clamp backshell.

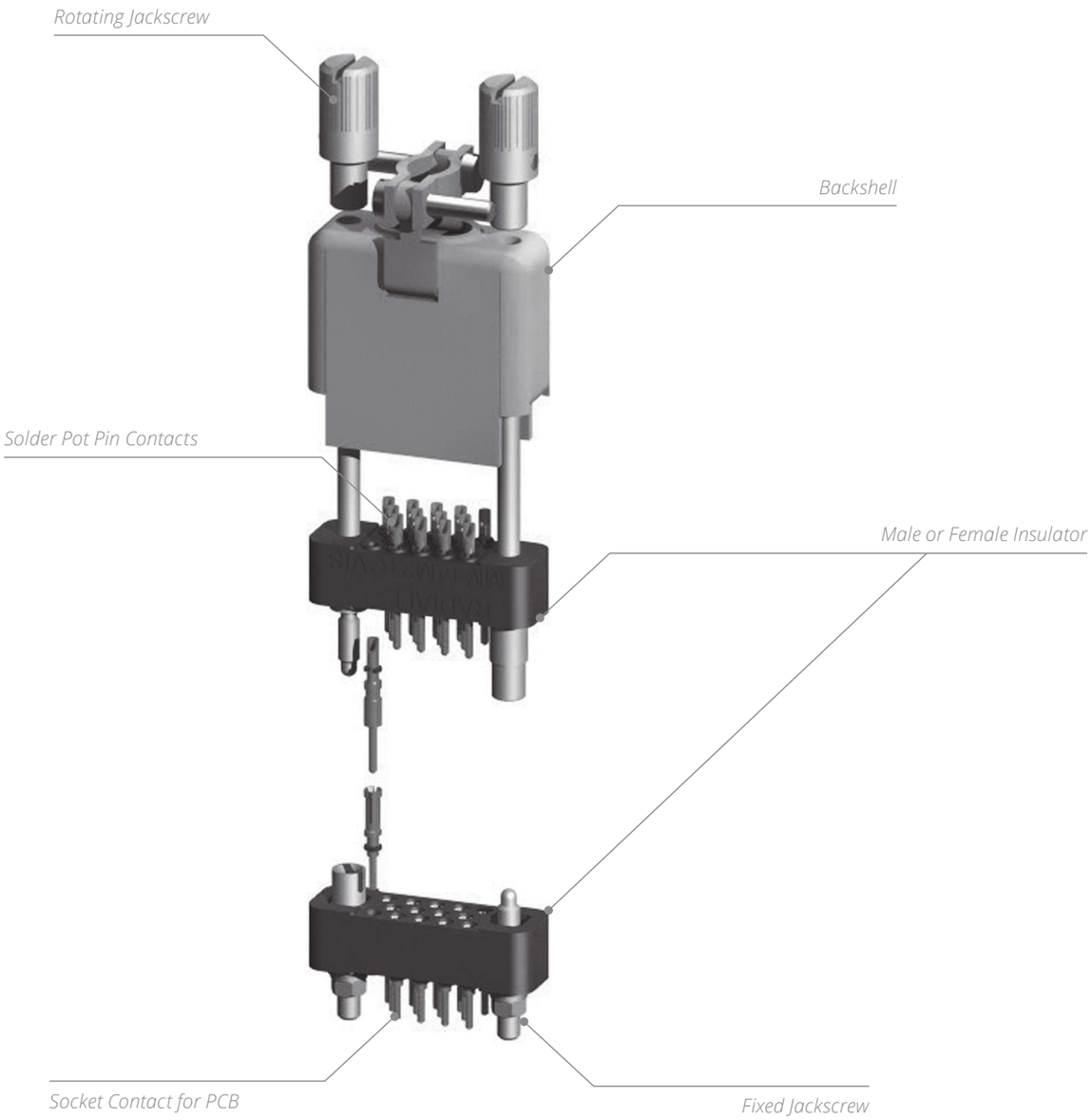



*© Dassault Aviation - K. Tokunaga*

*MM Series*

## PRODUCT OVERVIEW

Detailed view of the various parts of the MM series connector.



*MM Series*

## TECHNICAL CHARACTERISTICS

### ELECTRICAL

Conforms to MIL-C-28748 performance requirements and UTE-C-93426 HE611 standard.

- **Current Rating:** 5A
- **Test Voltage at Sea Level:** 1,000 Vrms/50 Hz
- **Operating Voltage at Sea Level:** 350 Vrms/50 Hz
- **Operating Voltage at 70,000 ft:** 90 Vrms/50 Hz
- **Insulation Resistance:** > 5,000 MΩ
- **Contact Resistance:** < 5 mΩ

### MECHANICAL & ENVIRONMENTAL

Conforms to MIL-C-28748 performance requirements and UTE-C-93426 HE611 standard.

- **Temperature Range:** -55 °C (-131 °F) to 125 °C (257 °F)
- **Durability:** 500 Mating Cycles
- **Shock:** 100g/6ms
- **Vibration:** 20g / 10-2000 Hz
- **Humidity:** 56 Days
- **Contact Insertion Force:** 3N
- **Salt Spray:** 48 Hours

### MATERIALS

| DESCRIPTION | MATERIAL | FINISH |
|---|---|---|
| Insulator | Glass Filled Diallylphthalate<br>Conform to MIL-M-14SDG-F | - |
| Pin Contact | Copper Alloy | Gold over Nickel |
| Socket Contact | Copper Alloy | Gold over Nickel |
| Guides & Jackscrews | Stainless Steel | - |
| Backshells | Aluminium Alloy | Yellow Anodized |

### MASSES g (oz)

**WEIGHT OF CONNECTORS MATED**

| CONTACT ARRANGEMENT | 07 | 14 | 20 | 26 | 34 | 50 |
|---|---|---|---|---|---|---|
| WITHOUT GUIDES | 2.8 (0.99) | 5 (0.18) | 6.6 (0.23) | 8.1 (0.29) | 12.1 (0.43) | 15 (0.53) |
| WITH GUIDES OR JACKSCREW | 4.7 (0.17) | 7 (0.25) | 8.4 (0.30) | 10 (0.35) | 13 (0.46) | 17.1 (0.60) |
| WITH BACKSHELLS AND GUIDES OR JACKSCREWS | 12 (0.42) | 15.5 (0.55) | 17 (0.60) | 19.4 (0.68) | 23.2 (0.81) | 32.8 (1.16) |

*MM Series*

## HOW TO ORDER CONNECTORS

MM

**SERIES**

**MM SERIES**
Contact arrangement (refer to page 10-7)
07 - 14 - 20 - 26: 34: 50

**CONTACT TYPE**
**M:** Pin
**F:** Socket

**TERMINATION STYLE (REFER TO PAGE 10-8)**
**20:** Solder pot
**21:** Straight solder pin for PBC
**22:** Right angle solder pin for PBC
**23:** Wraping contact 1 wrap
**24:** Wraping contact 2 wrap
**25:** Wraping contact 3 wrap

**GUIDES AND JACKSCREWS (REFER TO PAGE 10-11)**
**00:** Without guides and jackscrews [1]
**G3:** Rack guides [2]
**GV:** Fixed jackscrews [2]
**VR:** Short rotating jackscrews
**VL:** Long rotating jackscrews [3]

**THREAD, GUIDES OR JACKSCREWS**
**00:** Without guides and jackscrews
**IS:** ISO (M2 × 0.4)
**NC:** 2-56 UNC

## CONNECTOR IDENTIFICATION

The part number is printed on the insulator side

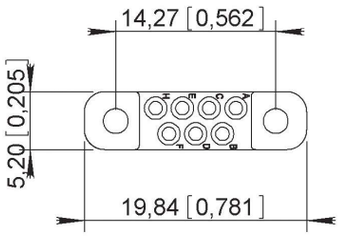
*Notes*
*1. Connectors to be used with backshell HC (see page 10-13) and rotating jackscrews*
*2. Connectors to be used with backshell HA (see page 10-13)*
*3. VL jackscrew assembly is not available for termination style type 22*

*MM Series*

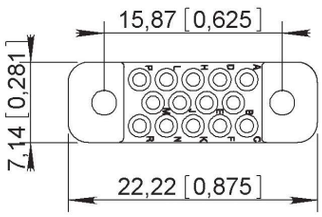
## CONTACT ARRANGEMENTS

### MALE CONNECTOR

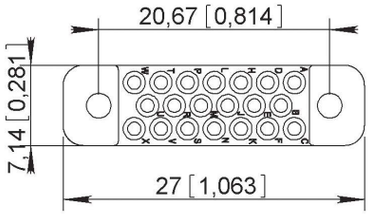
WIRING SIDE DIMENSIONS mm (in.)



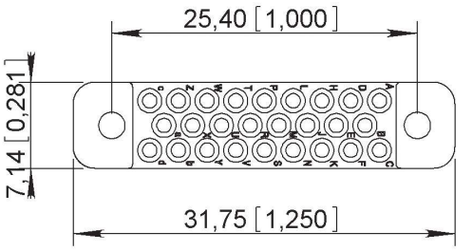

07



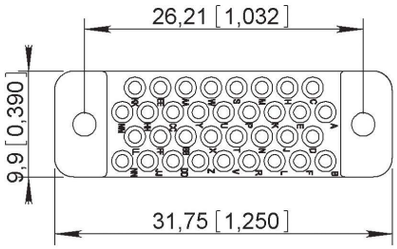

14



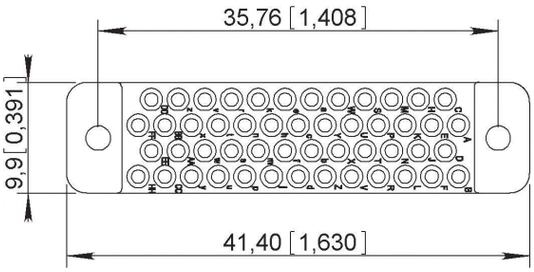

20



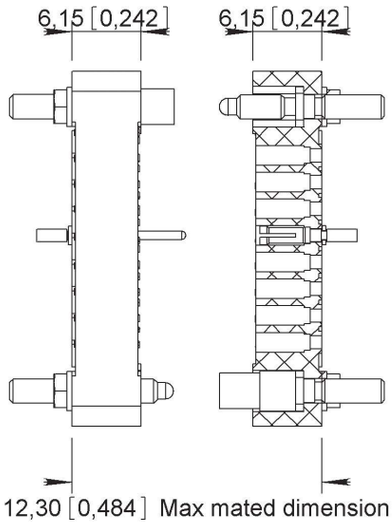

26




34




50

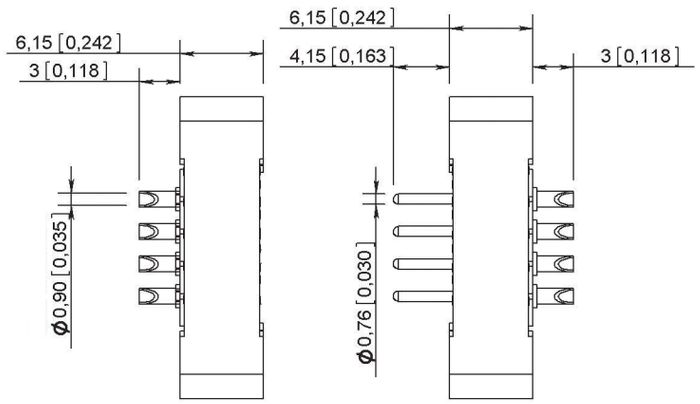



MATING DIMENSIONS

## TERMINATION STYLES

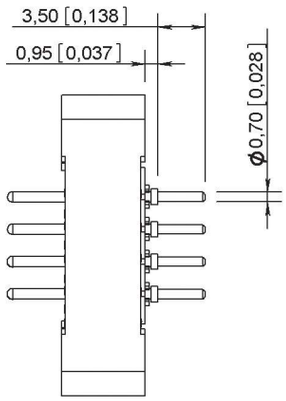
### TYPE 20

Solder pot



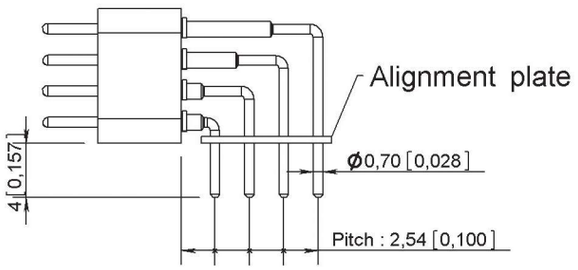

### TYPE 21 [1]

Straight solder pin for PCB



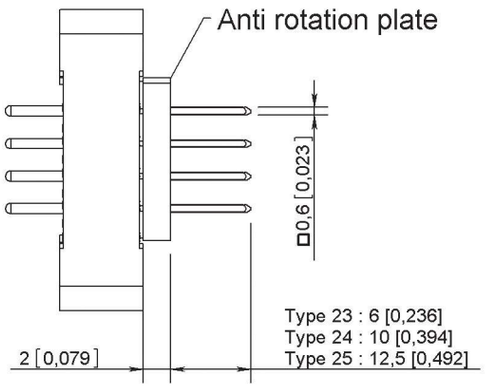

### TYPE 22

Right angle solder pin for PCB




### TYPE 23 - 24 - 25

**23:** Wire wrap termination (1 level)
**24:** Wire wrap termination (2 level)
**25:** Wire wrap termination (3 level)




***Notes***

*Dimensions mm (inch)*

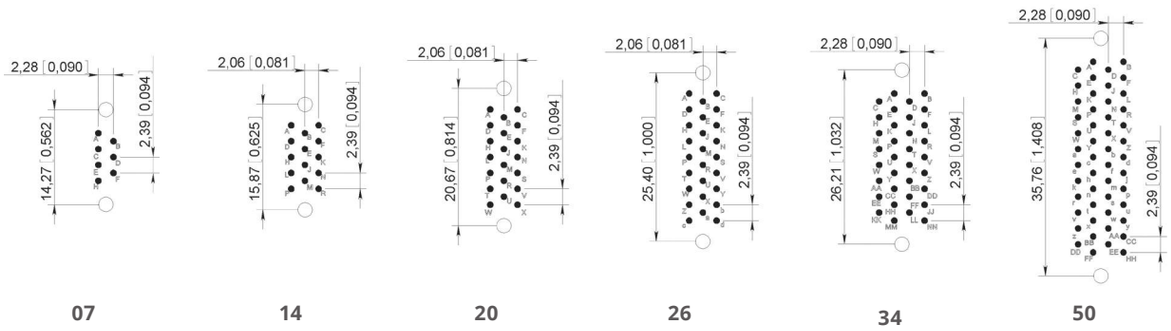
*1. For termination style type 21, the connectors are supplied with insulating washers in order to make space between the insulator and the PCB*

*MM Series*

## PRINTED CIRCUIT DRILL PATTERN

**TYPE 21 TERMINATION STYLE -** Connector with socket contacts

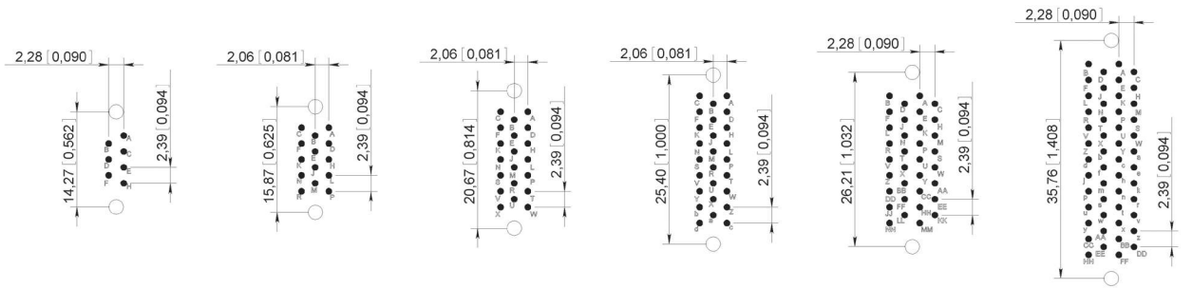
**PCB COMPONENT SIDE VIEW**




07 14 20 26 34 50

**TYPE 21 TERMINATION STYLE -** Connector with pin contacts

**PCB COMPONENT SIDE VIEW**




07 14 20 26 34 50

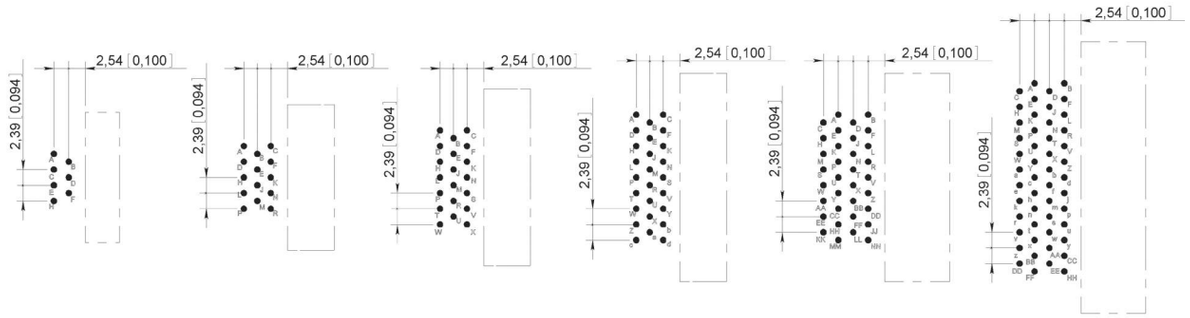
*Notes*

- *Printed circuit drilling 0.8 mm ±0.05 (0.031 ±0.002)*
- *Drilling to fix the connector. Required for guides G3 and GV fixing only 2.2 mm (0.087) for ISO guides and 2.4 mm (0.094) for UNC guides*

*MM Series*

## **TYPE 22 TERMINATION STYLE -** Connector with socket contacts

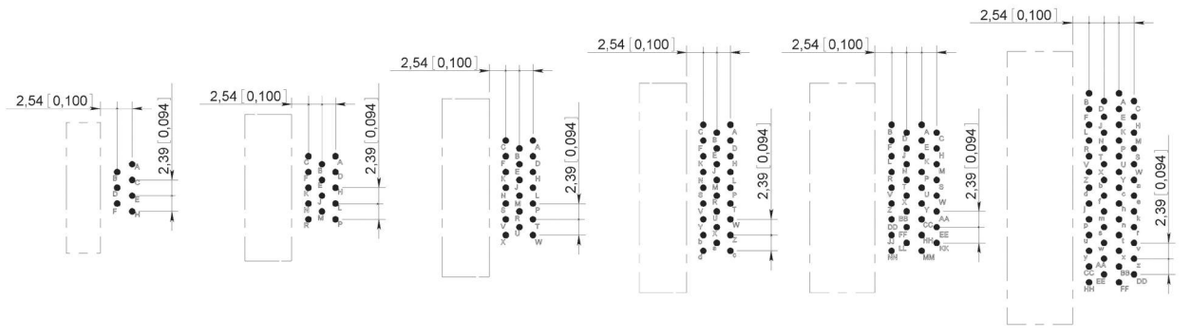
**PCB COMPONENT SIDE VIEW**




**07** **14** **20** **26** **34** **50**

## **TYPE 22 TERMINATION STYLE -** Connector with pin contacts

**PCB COMPONENT SIDE VIEW**




**07** **14** **20** **26** **34** **50**

***Notes:***

*• Printed circuit drilling 0.8 mm ±0.05 (0.031 ±0.002)*

*MM Series*

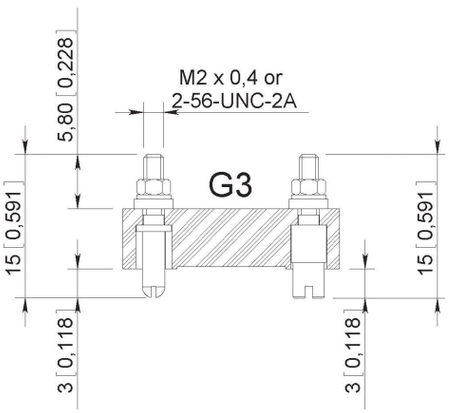
## GUIDES & JACKSCREWS

Stainless steel guides and jackscrews are supplied with either ISO (M2 x 0.4) or UNC (2-56 UNC) threads. The guides or jackscrews types (G3 – GV – VL – VR) and the type of thread (ISO or UNC) required are to be defined in the part number on page 10-6.

The standard configuration of guides and jackscrews is:

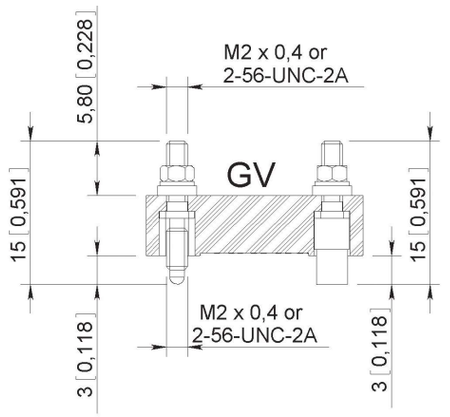
- Male guide (or jackscrew) at the end nearest contact A of the female connector.
- Female guide (or jackscrew) at the end nearest contact A of the male connector.

### RACK GUIDES TYPE G3



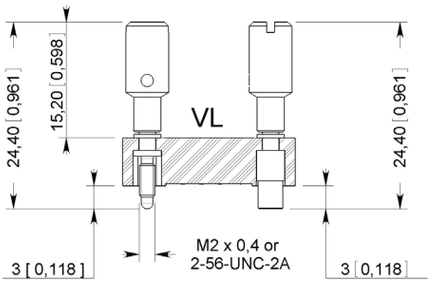

These guide and jackscrews can be used with backshell HA

### FIXED JACKSCREWS TYPE GV

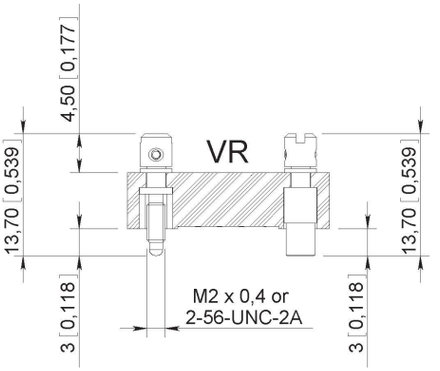



Mating torque: 0.2 Nm
Cannot be used with any backshell

### LONG AND SHORT ROTATING JACKSCREWS TYPE VL – VR



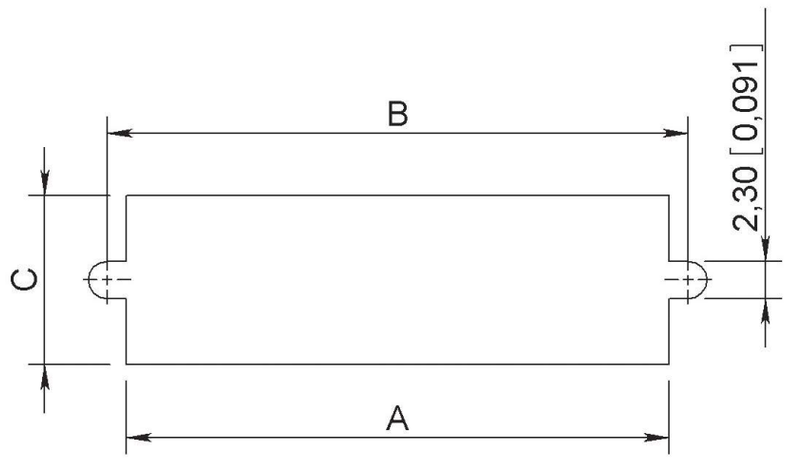

Mating torque: 0.2 Nm
Not available for termination style type 22
Cannot be used with any backshell



*MM Series*

## PANEL CUT-OUT

| CONTACT ARRANGEMENT | DIMENSIONS mm (inch) | | |
|---|---|---|---|
| | A | B | C |
| 07 | 11.9 (0.468) | 14.27 (0.562) | 5.8 (0.228) |
| 14 | 13.5 (0.531) | 15.87 (0.625) | 7.6 (0.299) |
| 20 | 18.3 (0.720) | 20.67 (0.814) | |
| 26 | 23 (0.905) | 25.4 (1) | |
| 34 | 23.9 (0.940) | 26.2 (1.031) | 10.4 (0.409) |
| 50 | 33.4 (1.315) | 35.76 (1.408) | |

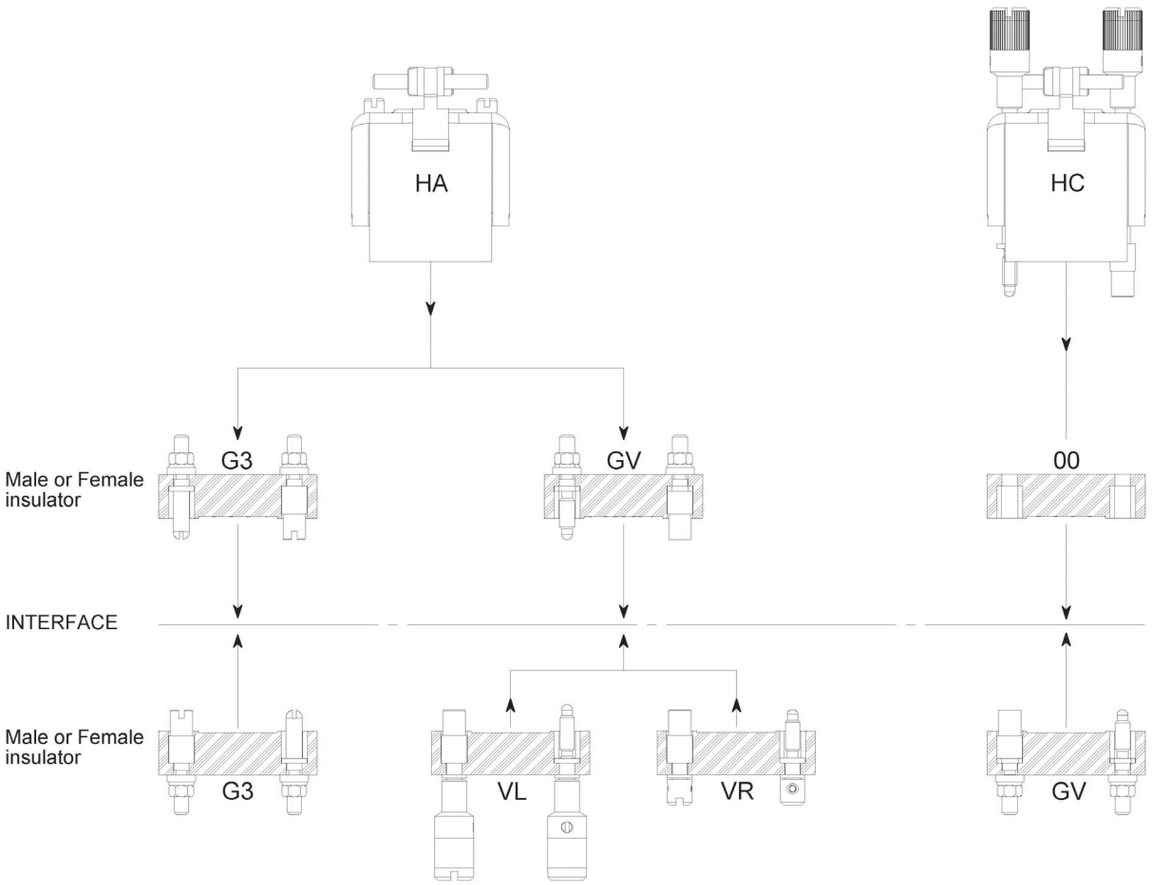


*MM Series*

## CONNECTOR MATING COMPATIBILITY

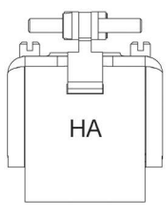
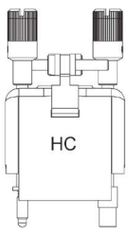
**TERMINATION STYLE TYPE 20 ONLY –** Use with backshell

**BACKSHELL TYPE**




Use without backshell – All termination style type

## BACKSHELL TYPE AVAILABILITY

| THREAD | | HOOD | | THREAD | |
|---|---|---|---|---|---|
| NC (2-56 UNC) | ISO (M2 X 0.4) | | | ISO (M2 X 0.4) | NC (2-56 UNC) |
| 07 | 07 |  |  | 07 | 07 |
| 14 | 14 | | | 14 | 14 |
| 20 | 20 | | | 20 | 20 |
| 26 | 26 | | | 26 | 26 |
| 34 | 34 | | | 34 | 34 |
| 50 | 50 | | | 50 | 50 |





Fixing of hoods only suitable for insulator with termination style type 20 (solder pot)

*MM Series*

## TOP ENTRY BACKSHELLS

### TYPE HA

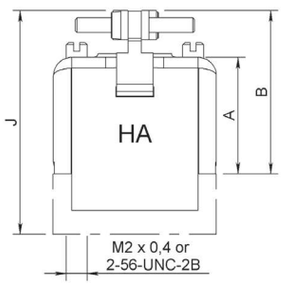
Backshells supplied with two internal threaded posts which are screwed into the guides G3 or jackscrews GV.

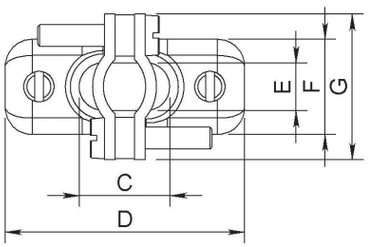
### TYPE HC

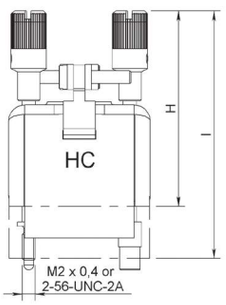
Backshells supplied with two long rotating jackscrews. These backshells are mounted on connectors without guides or jackscrews (code 00).

### PART NUMBERS

| CONTACTS ARRANGEMENTS | TYPE HA | | TYPE HC | |
|---|---|---|---|---|
| | WITH THREADS M2 X 0.4 | WITH THREADS 2-56 UNC | WITH SCREWS M2 X 0.4 | WITH SCREWS 2-56 UNC |
| 07 | MM07HAIS | MM07HANC | MM07HCIS | MM07HCNC |
| 14 | MM14HAIS | MM14HANC | MM14HCIS | MM14HCNC |
| 20 | MM20HAIS | MM20HANC | MM20HCIS | MM20HCNC |
| 26 | MM26HAIS | MM26HANC | MM26HCIS | MM26HCNC |
| 34 | MM34HAIS | MM34HANC | MM34HCIS | MM34HCNC |
| 50 | MM50HAIS | MM50HANC | MM50HCIS | MM50HCNC |




**MATING TORQUE: 0.15 Nm**

| CONTACT ARRANGEMENT | A | B | C | D | E | F | G | H | I | J |
|---|---|---|---|---|---|---|---|---|---|---|
| **07** | 15.9 (0,626) | 23.15 (0.911) | 5.5 (0.216) | 19.8 (0.779) | 4 (0.157) | 6.8 (0.268) | 13.5 (0.531) | 31.9 (1.256) | 38.2 (1.504) | 29.4 (1.157) |
| **14** | | | 10 (0.394) | 22.2 (0.874) | 6 (0.236) | 8.8 (0.346) | | | | |
| **20** | | | 14 (0.551) | 27 (1.063) | | | | | | |
| **26** | | | | 31.8 (1.252) | | | | | | |
| **34** | | | 19 (0.748) | | 9.5 (0.374) | 11.8 (0.464) | 15.7 (0.618) | | | 30.4 (1.197) |
| **50** | 30.5 (1.201) | 38.5 (1.516) | 29.7 (1.169) | 41.4 (1.630) | | | | 46.6 (1.835) | 52.9 (2.083) | 44.8 (1.764) |

***Notes:***

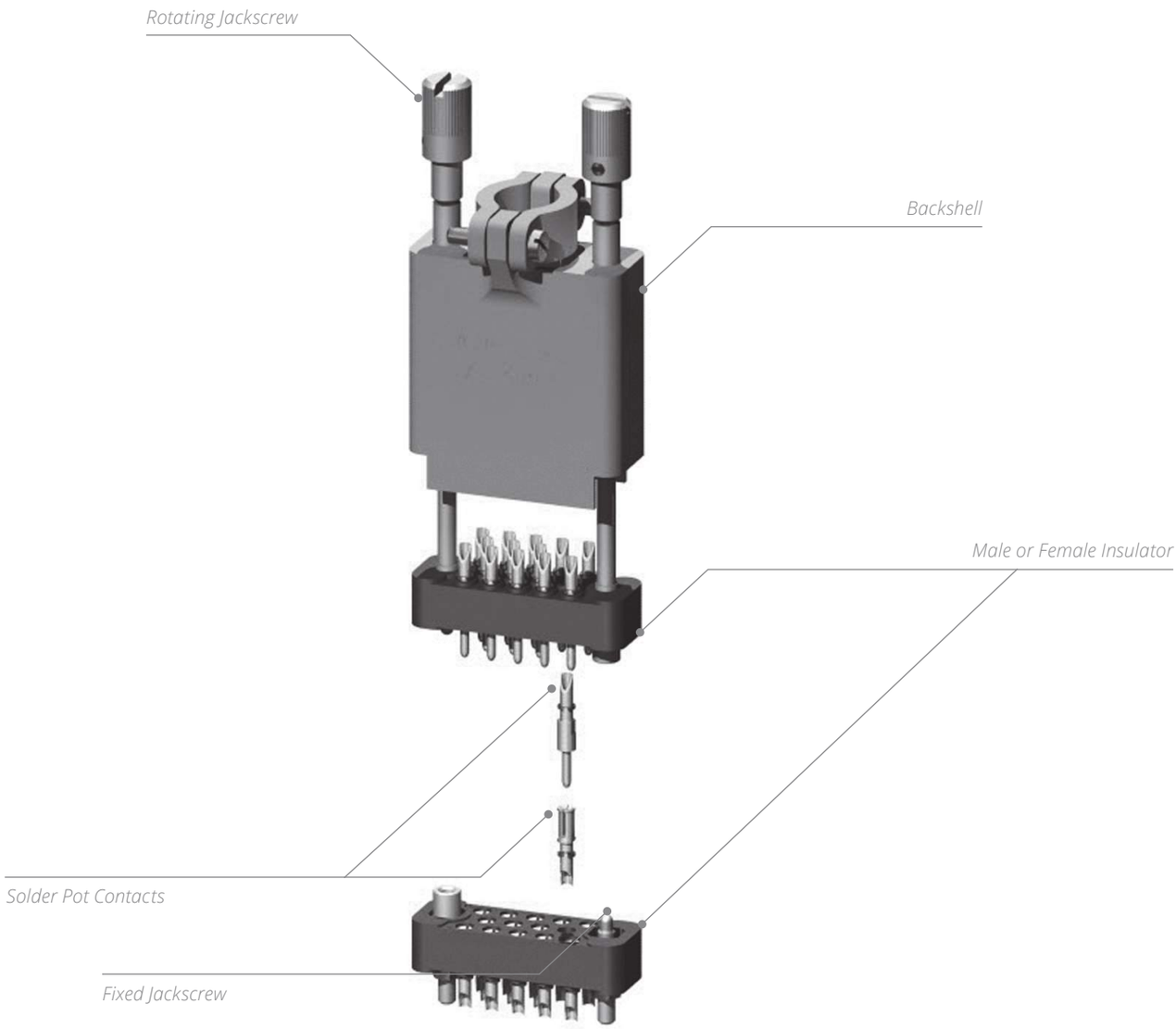
*Dimensions mm (inch)*

*Fixing of backshells only suitable for insulator with termination style type 20 (solder pot).*

*MB Series*

## PRODUCT OVERVIEW

Detailed view of the various parts of the MB series connector.



*MB Series*

## TECHNICAL CHARACTERISTICS

### ELECTRICAL

Conforms to MIL-C-28748 performance requirements standard.

- **Current Rating:** 7.5A
- **Test Voltage at Sea Level:** 1,500 Vrms/50 Hz
- **Operating Voltage at Sea Level:** 500 Vrms/50 Hz
- **Insulation Resistance:** > 5,000 MΩ
- **Contact Resistance:** < 5 mΩ

### MECHANICAL & ENVIRONMENTAL

- **Temperature Range:** -55 °C (-131 °F) to 125 °C (257 °F)
- **Durability:** 500 Mating Cycles
- **Shock:** 50g/11ms
- **Vibration:** 20 g/10-2,000 Hz
- **Humidity:** 21 Days
- **Contact Insertion Force:** 3 N
- **Salt Spray:** 48 Hours

### MATERIALS

| DESCRIPTION | MATERIAL | FINISH |
|---|---|---|
| Insulator | Glass Filled Diallylphthalate<br>Conform to MIL-M-14SDG-F | - |
| Pin Contact | Copper Alloy | Gold over Nickel |
| Socket Contact | Copper Alloy | Gold over Nickel |
| Guides & Jackscrews | Stainless Steel | - |
| Backshells | Aluminium Alloy | Yellow Anodized |
| Spring Lever Clamps | Stainless Steel | - |
| Potting Moulds | Nylon | - |

### MASSES g (oz)

**WEIGHT OF CONNECTORS MATED**

| CONTACT ARRANGEMENT | 02 | 03 | 05 | 07 | 11 | 14 | 20 | 26 | 34 | 42 | 50 | 75 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Without Guides | 2.2 (0.07) | 2.30 (0.81) | 4 (0.14) | 3.7 (0.13) | 5.6 (0.20) | 6.4 (0.23) | 8.6 (0.30) | 11 (0.39) | 15.2 (0.54) | 17.6 (0.62) | 20.5 (0.72) | 32.7 (1.15) |
| With Rack Guides | 3.9 (0.14) | 4 (0.14) | 4.7 (0.17) | 5.4 (0.19) | 7.3 (0.26) | 8.1 (0.29) | 10.3 (0.36) | 12.7 (0.45) | 16.9 (0.60) | 19.3 (0.68) | 22.2 (0.78) | 36.2 (1.28) |
| With Backshells & Jackscrew | - | - | - | 12.4 (0.44) | 17.5 (0.62) | 20.4 (0.72) | 28 (0.99) | 31.5 (1.11) | 37.2 (1.31) | - | 45.2 (1.59) | 62 (2.19) |

*MB Series*

## HOW TO ORDER CONNECTORS

MB

**SERIES**

**MB SERIES**
Contact arrangement (refer to page 10-18)
02: 03 : 05 : 07 - 11 - 14
20: 26 : 34 : 42 - 50 - 75

**CONTACT TYPE**
**M:** Pin
**F:** Socket

**TERMINATION STYLE (REFER TO PAGE 10-19)**
**85:** Solder pot
**86:** Straight solder pin for PCB
**87:** Right angle solder pin for PCB

**GUIDES AND JACKSCREWS (REFER TO PAGE 10-25)**
**00:** Without guides and jackscrews [1]
**G1:** Rack guides [2]
**GV:** Fixed jackscrews [2]
**VR:** Short rotating jackscrews
**VL:** Long rotating jackscrews [3]

**SHIPMENT WITHOUT BACKSHELL AND ACCESSORIES**

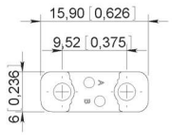
**THREAD, GUIDES OR JACKSCREWS**
**00:** Without guides and jackscrews
**IS:** ISO (M2 x 0.4)
**NC:** 2-56 UNC

*Notes:*
*1. Connectors to be used with backshell HC and HV (see page 10-26) or rack guides G1*
*2. Connectors to be used with backshell HA and HL (see page 10-26)*
*A spring clip locking system can be fitted (see page 10-30)*
*3. VL jackscrews assembly is only available for termination style type 85*

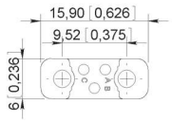
*MB Series*

## CONTACT ARRANGEMENTS

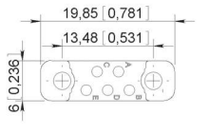
**02**



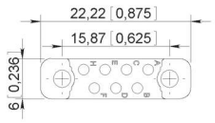

**03**



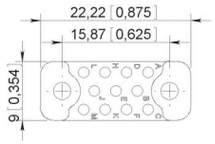

**05**



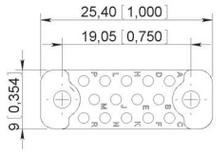

**07**



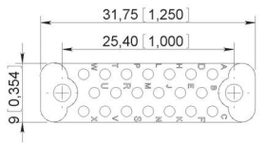

**11**



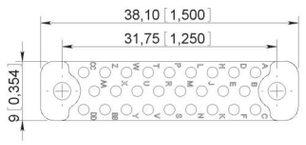

**14**



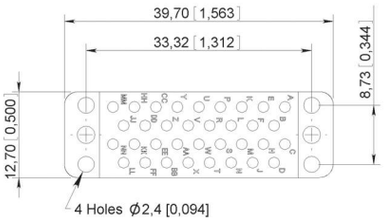

**20**



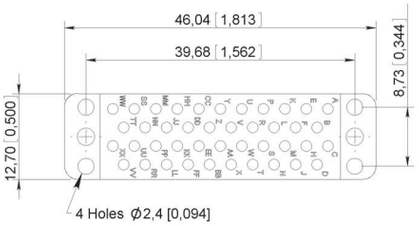

**26**



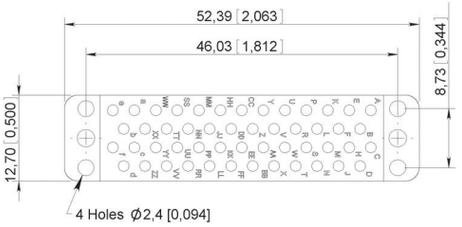

**34**



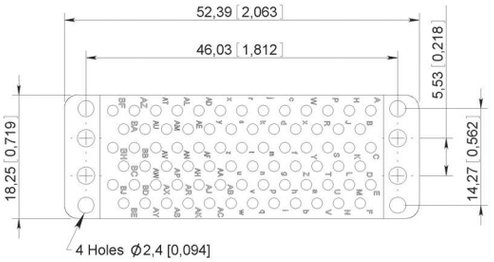

**42**

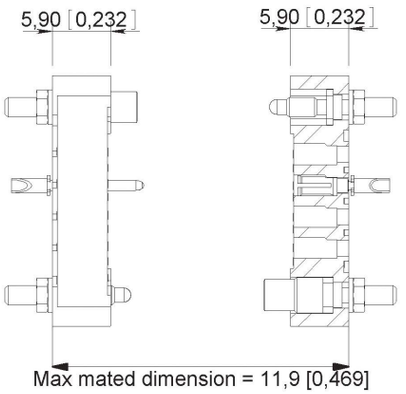



**50**




**75**




**MATING DIMENSIONS**

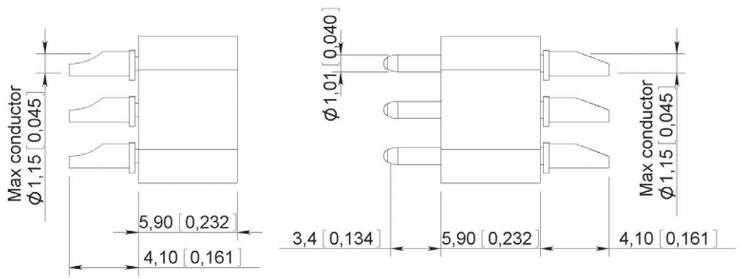
*MB Series*

## TERMINATION STYLES

All contacts arrangement and termination style have contacts stopped in rotation (except contact arrangements 42, 50 and 75 for these please contact us).

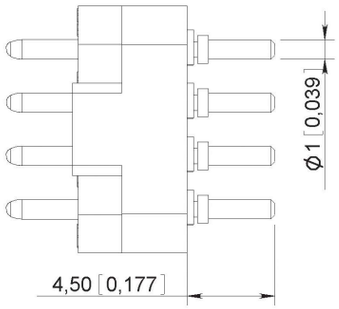
### TYPE 85

Solder pot



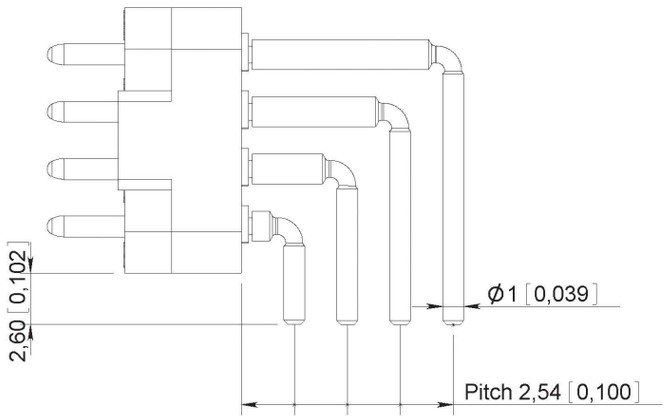

### TYPE 86 [1]

Straight solder pin for PCB




### TYPE 87

Right angle solder pin for PCB




***Notes***

*Dimensions mm (inch)*

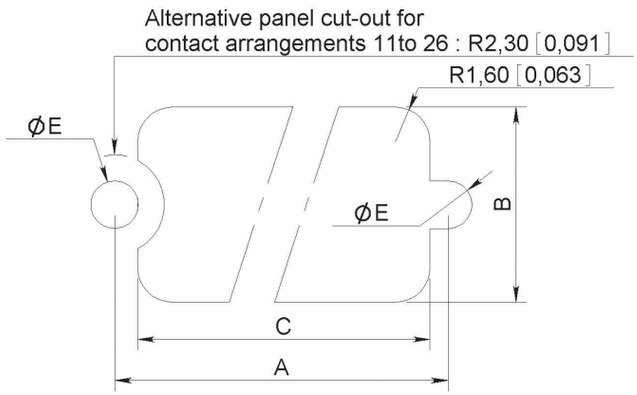
*1. The connectors are supplied with insulating washers wich act as spacers between the insulator and the PCB*

*MB Series*

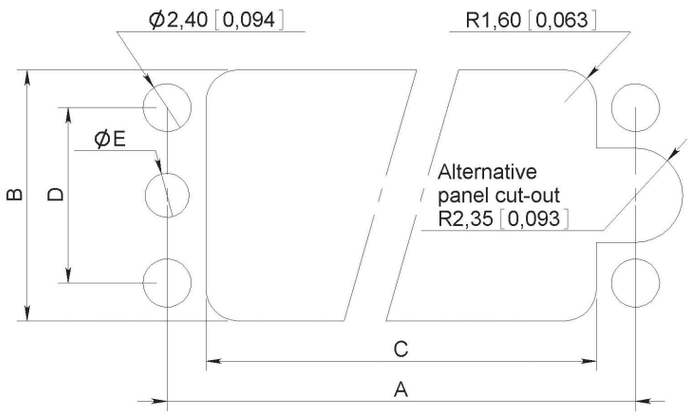
## PANEL CUT-OUT

| DIMENSIONS mm (inch) | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | **02** | **03** | **05** | **07** | **11** | **14** | **20** | **26** | **34** | **42** | **50** | **75** |
| **A** | 9.52 (0.375) | 9.52 (0.375) | 13.48 (0.531) | 15.87 (0.625) | 15.87 (0.625) | 19.05 (0.750) | 25.4 (1) | 31.75 (1.250) | 33.34 (1.313) | 39.68 (1.562) | 46.03 (1.812) | 46.03 (1.812) |
| **B** | 6 (0.236) | 6 (0.236) | 6 (0.236) | 6 (0.236) | 9 (0.354) | 9 (0.354) | 9 (0.354) | 9 (0.354) | 12.5 (0.500) | 12.5 (0.500) | 12.5 (0.500) | 18.28 (0.720) |
| **C** | 7.2 (0.283) | 7.2 (0.283) | 11 (0.433) | 13.5 (0.531) | 13.5 (0.531) | 17 (0.669) | 23.5 (0.925) | 29.5 (1.161) | 29.46 (1.160) | 35.81 (1.410) | 42.16 (1.660) | 42.16 (1.660) |
| **D** | - | - | - | - | - | - | - | - | 8.73 (0.344) | 8.73 (0.344) | 8.73 (0.344) | 14.27 (0.562) |
| **ØE (ISO)** | 2.2 (0.087) | 2.2 (0.087) | 2.2 (0.087) | 2.2 (0.087) | 2.2 (0.087) | 2.2 (0.087) | 2.2 (0.087) | 2.2 (0.087) | 2.2 (0.087) | 2.2 (0.087) | 2.2 (0.087) | 2.2 (0.087) |
| **ØE (NC)** | 2.4 (0.094) | 2.4 (0.094) | 2.4 (0.094) | 2.4 (0.094) | 2.4 (0.094) | 2.4 (0.094) | 2.4 (0.094) | 2.4 (0.094) | 2.4 (0.094) | 2.4 (0.094) | 2.4 (0.094) | 2.4 (0.094) |

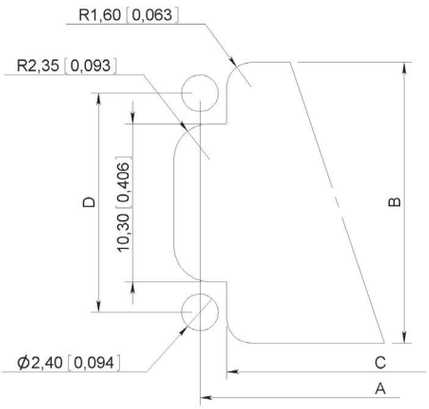
### CONTACT ARRANGEMENTS 02 - 03 - 05 - 07 - 11 - 14 - 20 - 26




### CONTACT ARRANGEMENTS 34 - 42 - 50




### CONTACT ARRANGEMENT 75



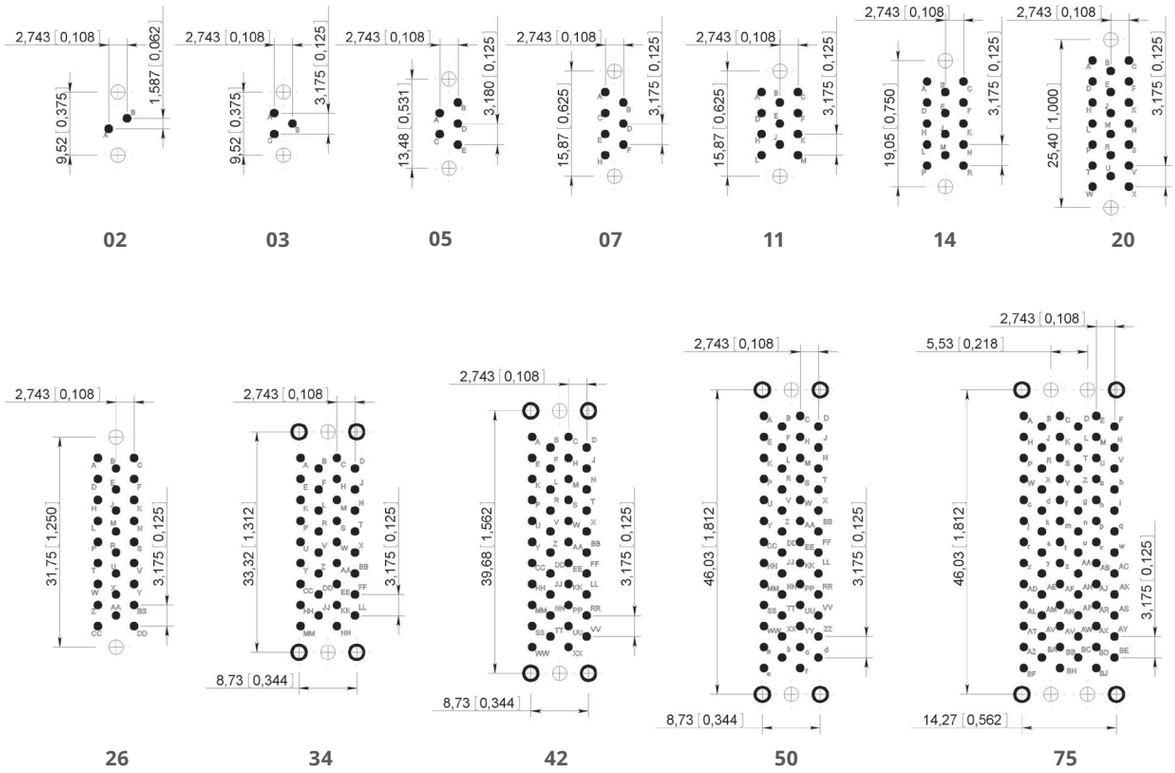

*Notes*

*Dimensions mm (inch)*

*MB Series*

## PRINTED CIRCUIT DRILL PATTERN

**TYPE 86 TERMINATION STYLE -** Connector with SOCKET contacts – PCB component side view in mm (inch)

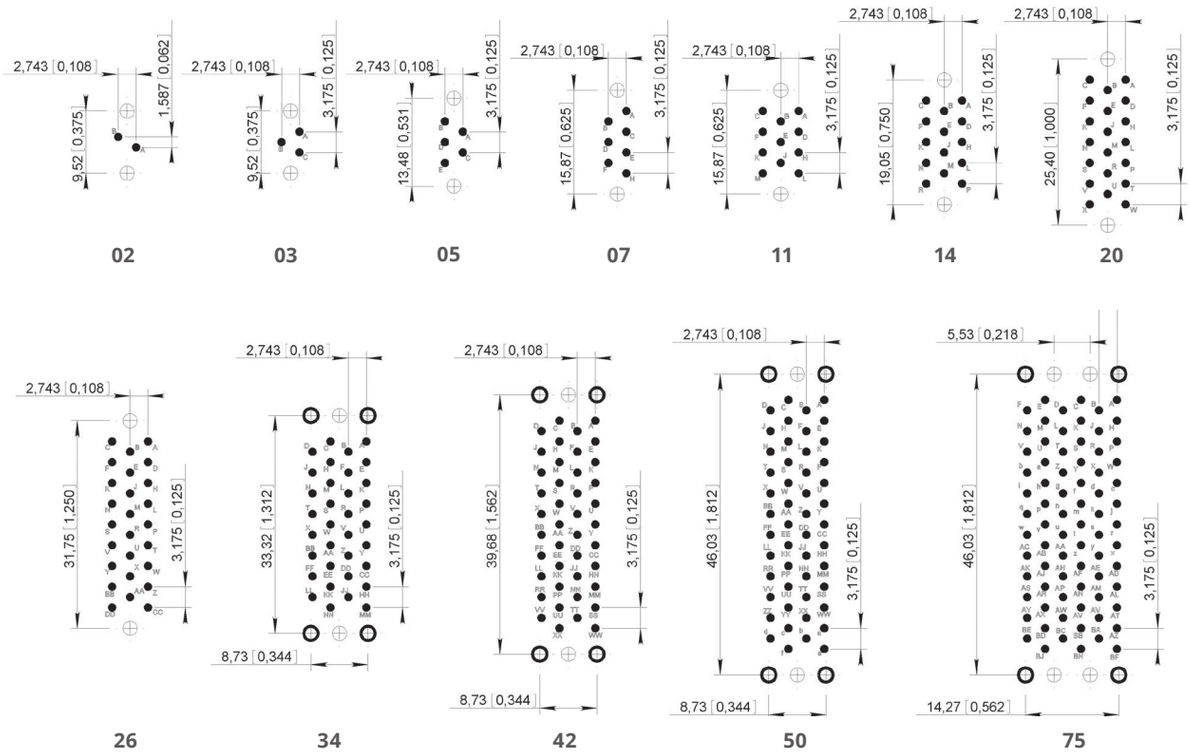



*Notes:*

- ● *Printed circuit drilling Ø 1.1 +0.1 (0.043 +0.003)*
- ○ *Drilling to fix the connector Ø 2.4 (0.094)*
- ⊕ *Drilling to fix the connector. Required for guides G1 and GV fixing only:*
  *2.2 (0.087) Ø for ISO guides*
  *2.4 (0.094) Ø for UNC guides*

*MB Series*

**TYPE 86 TERMINATION STYLE -** Connector with PIN contacts – PCB component side view in mm (inch)

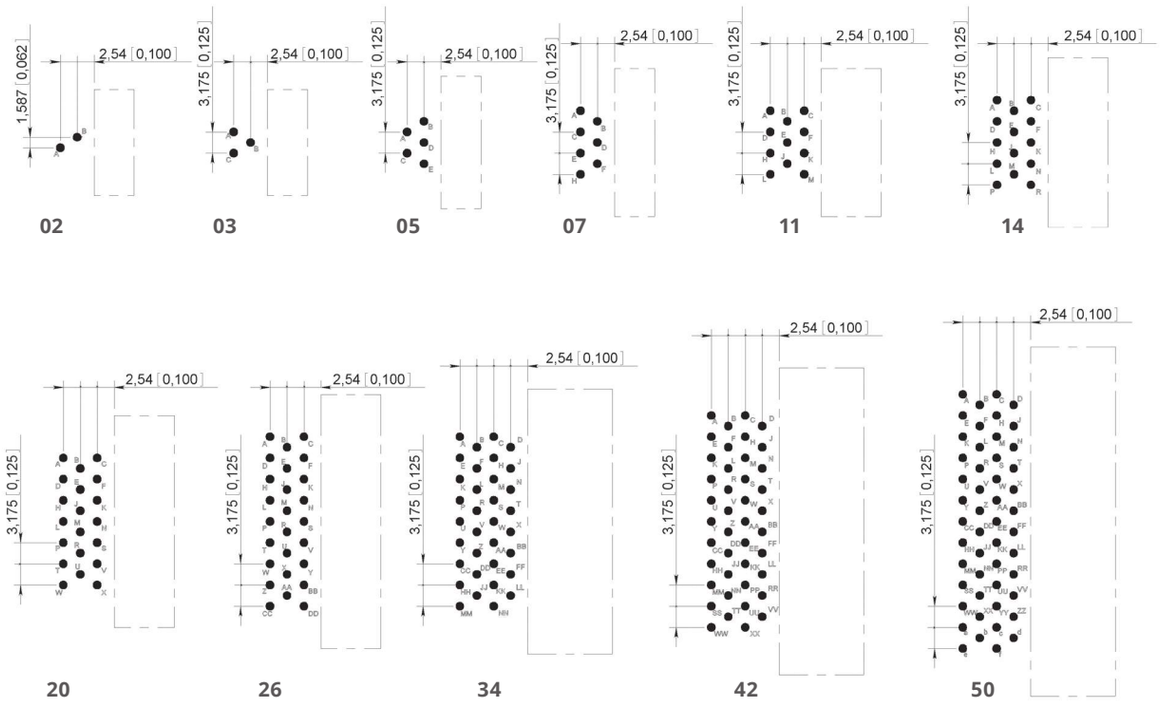



*Notes:*

- ● *Printed circuit drilling Ø 1.1 +0.1 (0.043 +0.003)*
- ○ *Drilling to fix the connector Ø 2.4 (0.094)*
- ⊕ *Drilling to fix the connector. Required for guides G1 and GV fixing only:*
  *2.2 (0.087) Ø for ISO guides*
  *2.4 (0.094) Ø for UNC guides*

*MB Series*

**TYPE 87 TERMINATION STYLE -** Connector with SOCKET contacts – PCB component side view in mm (inch)

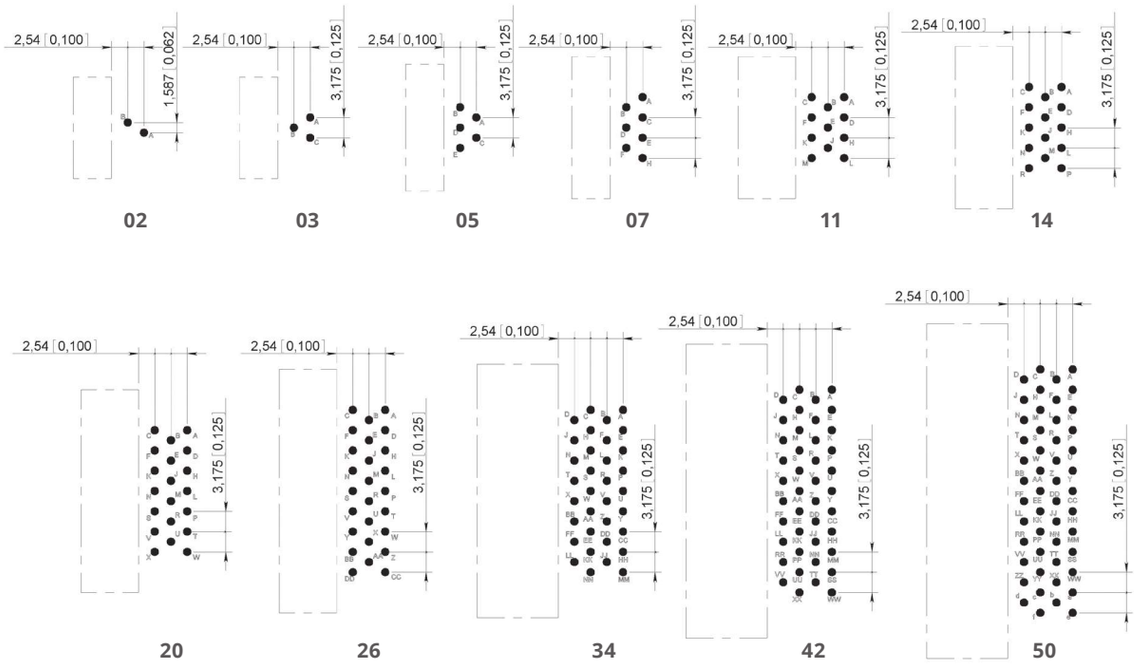



*Notes:*

- *Printed circuit drilling Ø 1.1 +0.1 (0.043 +0.003)*

*MB Series*

**TYPE 87 TERMINATION STYLE -** Connector with PIN contacts – PCB component side view in mm (inch)




***Notes:***

*• Printed circuit drilling Ø 1.1 +0.1 (0.043 +0.003)*

*MB Series*

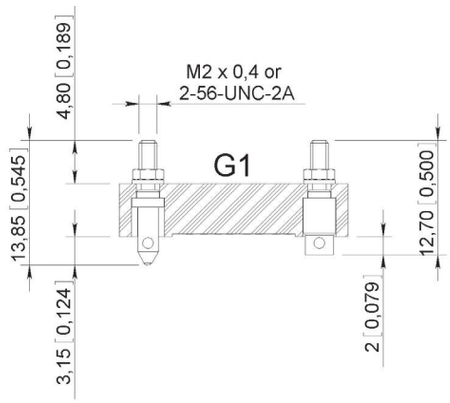
## GUIDES & JACKSCREWS

Stainless steel guides and jackscrews are supplied with either ISO (M2 x 0.4) or UNC (2-56 UNC) threads. The guides or jackscrews types G1 – GV – VL and VR and type of thread (ISO or UNC) required are to be defined in the part number on page 10-17.

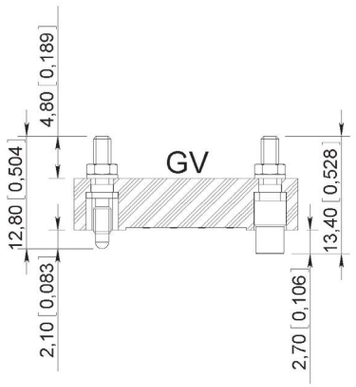
The standard configuration of guides and jackscrews is:

- Male guide (or jackscrew) at the end nearest contact A of the female connector.
- Female guide (or jackscrew) at the end nearest contact A of the male connector.

### RACK GUIDES TYPE G1



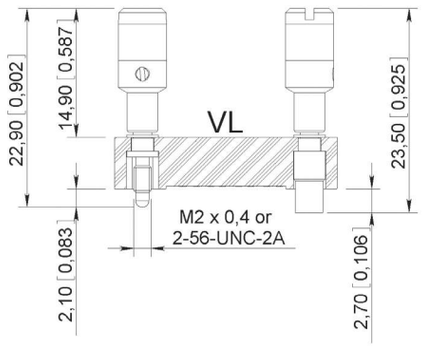

### FIXED JACKSCREWS TYPE GV



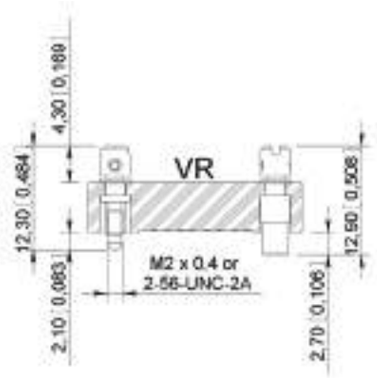

The 2,3, 5 and 7 way GV jackscrews are held securely in place by two flats on the jackscrews whereas the jackscrews for the other contact arrangements have a square section to avoid rotation.

These guide and jackscrews can be used with backshells HA and HL

### LONG AND SHORT ROTATING JACKSCREWS TYPE VL – VR




Mating torque: 0.2 Nm
Not available for termination style type 87
Cannot be used with backshell

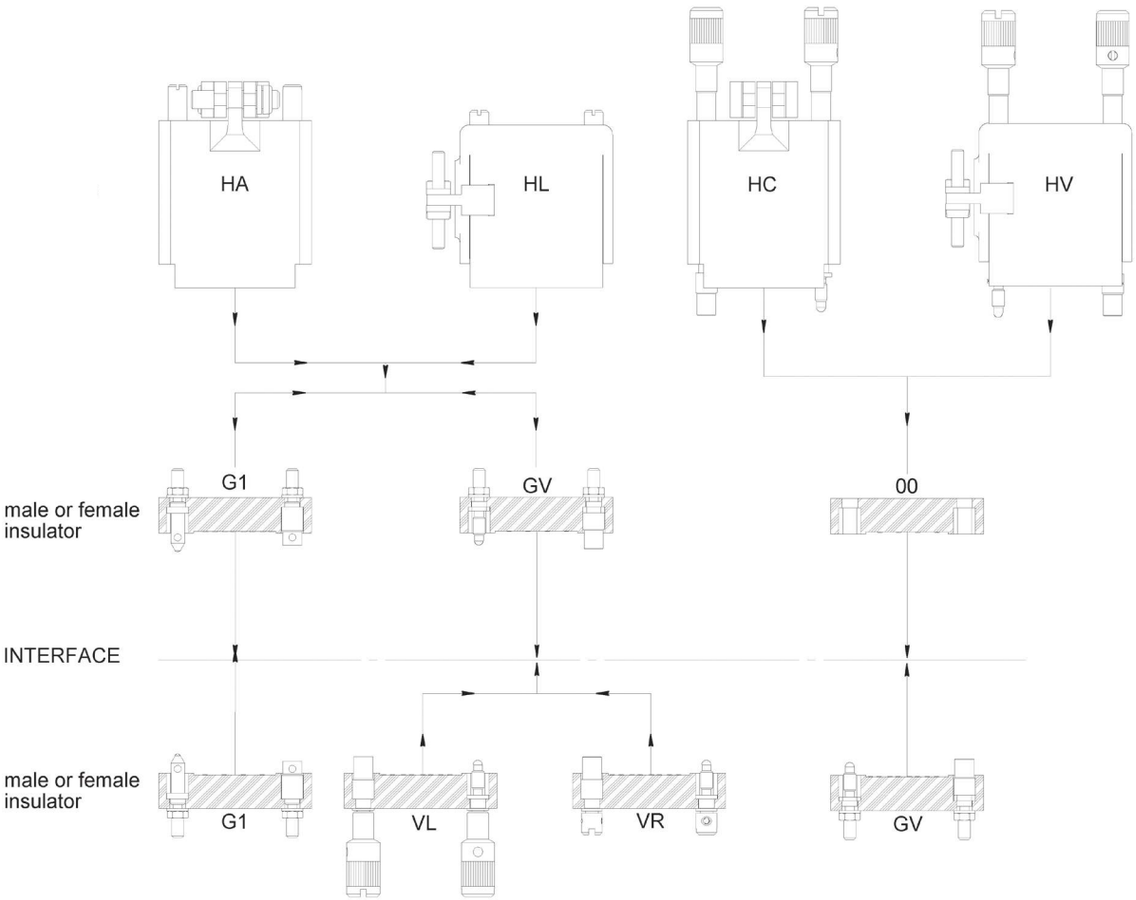



Mating torque: 0.2 Nm
Cannot be used with backshell

*MB Series*

## CONNECTOR MATING COMPATIBILITY

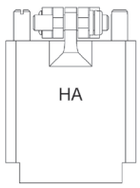
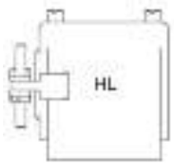
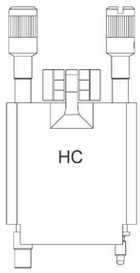
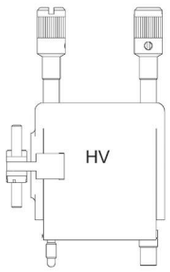
**TERMINATION STYLE TYPE 85 ONLY –** Use with backshell




Use without backshell – All termination style type

*MB Series*

## BACKSHELL TYPE AVAILABILITY

| THREAD | | BACKSHELL | | THREAD | |
|---|---|---|---|---|---|
| NC (2-56 UNC) | ISO (M2 x 0.4) | | | ISO (M2 x 0.4) | NC (2-56 UNC) |
| 07 | 07 |   |   | - | - |
| 11 | 11 | | | 11 | 11 |
| 14 | 14 | | | 14 | 14 |
| 20 | 20 | | | - | - |
| 26 | 26 | | | 26 | 26 |
| 34 | 34 | | | 34 | 34 |
| 50 | 50 | | | 50 | 50 |
| 75 | 75 | | | - | 75 (1) |
| 07 | 07 |   |   | - | - |
| 11 | 11 | | | 11 | 11 |
| 14 | 14 | | | 14 | 14 |
| 20 | 20 | | | - | - |
| 26 | 26 | | | 26 | 26 |
| 34 | 34 | | | 34 | 34 |
| 50 | 50 | | | 50 | 50 |
| 75 | 75 | | | - | 75 [1] |

Fixing of backshells only suitable for insulator with termination style type 85 (solder pot)

***Notes***

*1. Available for male contact arrangement only*

*MB Series*

## TOP ENTRY BACKSHELLS

### TYPE HA

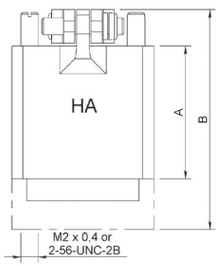
Backshells supplied with two internal threaded posts which are screwed into the guides G1 or jackscrews GV.

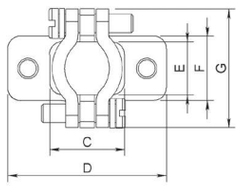
### TYPE HC

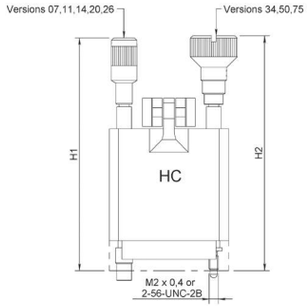
Backshells supplied with two long rotating jackscrews. These backshells are mounted on connectors without guides or jackscrews.

### PART NUMBERS

| CONTACTS ARRANGEMENTS | TYPE HA | | TYPE HC | |
|---|---|---|---|---|
| | WITH THREADS M2 X 0.4 | WITH THREADS 2-56 UNC | WITH SCREWS M2 X 0.4 | WITH SCREWS 2-56 UNC |
| 07 | MB07HAIS2 | MB07HANC | MB07HCIS | MB07HCNC |
| 11 | MB11HAIS2 | MB11HANC | MB11HCIS | MB11HCNC |
| 14 | MB14HAIS2 | MB14HANC | MB14HCIS | MB14HCNC |
| 20 | MB20HAIS2 | MB20HANC | MB20HCIS | MB20HCNC |
| 26 | MB26HAIS2 | MB26HANC | MB26HCIS | MB26HCNC |
| 34 | MB34HAIS2 | MB34HANC | MB34HCIS | MB34HCNC |
| 50 | MB50HAIS2 | MB50HANC | MB50HCIS | MB50HCNC |
| 75 | MB75HAIS2 | MB75HANC | MB75HCIS | MB75HCNC |




**MATING TORQUE: 0.15 Nm**

| CONTACTS ARRANGEMENTS [1] | A | B | C | D | E | F | G | H1 | H2 [2] |
|---|---|---|---|---|---|---|---|---|---|
| 07 | 9.52 (0.375) | 22.9 (0.902) | 9.13 (0.359) | 22.2 (0.874) | 5.95 (0.234) | 7.5 (0.295) | 13.5 (0.531) | 30.62 (1.205) | N/A |
| 11 | 23.8 (0.937) | 37.2 (1.465) | 11.9 (0.468) | | 8.7 (0.342) | 10.3 (0.405) | 15.87 (0.625) | 48.8 (1.921) | N/A |
| 14 | | | 12.7 (0.500) | 25.4 (1) | | | | | N/A |
| 20 | 30.16 (1.187) | 48.4 (1.905) | 18.26 (0.719) | 31.7 (1.248) | | | 23.8 (0.937) | 55.2 (2.173) | N/A |
| 26 | | | 23 (0.905) | 38.1 (1.500) | | | | | N/A |
| 34 | | | 20.6 (0.811) | 39.7 (1.563) | 12.7 (0.500) | 14.3 (0.563) | 26.98 (1.062) | N/A | 55.6 (2.189) |
| 50 | | | 22.2 (0.874) | 52.4 (2.063) | | | | N/A | |
| 75 | | | 23 (0.905) | | 18.2 (0.716) | 19.8 (0.779) | 34.52 (1.359) | N/A | |

***Notes***

*Dimensions mm (inch)*

*1. Fixing of backshells only suitable for insulator with termination style type 85 (solder pot)*

*2. Backshells 34, 50 and 75 are fitted with 4 screws to be fixed to the connector block*

*MB Series*

## SIDE ENTRY BACKSHELLS

### TYPE HA

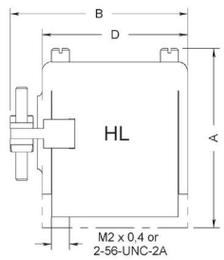
Backshells supplied with two internal threaded posts which are screwed into the guides G1 or jackscrews GV.

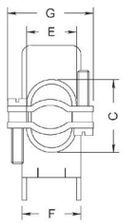
### TYPE HC

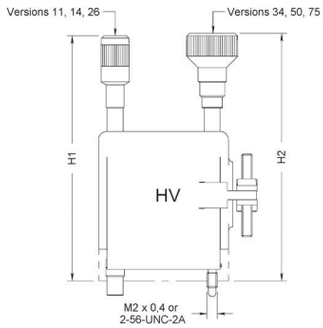
Backshells supplied with two long rotating jackscrews. These backshells are mounted on connectors without guides or jackscrews.

### PART NUMBERS

| CONTACTS ARRANGEMENTS | TYPE HA | | TYPE HC | |
|---|---|---|---|---|
| | WITH THREADS M2 X 0.4 | WITH THREADS 2-56 UNC | WITH SCREWS M2 X 0.4 | WITH SCREWS 2-56 UNC |
| 11 | MB11HLIS2 | MB11HLNC | MB11HVIS | MB11HVNC |
| 14 | MB14HLIS2 | MB14HLNC | MB14HVIS | MB14HVNC |
| 26 | MB26HLIS2 | MB26HLNC | MB26HVIS | MB26HVNC |
| 34 | MB34HLIS2 | MB34HLNC | MB34HVIS | MB34HVNC |
| 50 | MB50HLIS2 | MB50HLNC | MB50HVIS | MB50HVNC |
| 75 | - | MB75HLNC [1] | - | MB75HVNC [1] |




**MATING TORQUE: 0.15 Nm**

| CONTACTS ARRANGEMENTS [2] | A | B | C | D | E | F | G | H1 | H2 [3] |
|---|---|---|---|---|---|---|---|---|---|
| 11 | 31.7 (1.248) | 29.8 (1.173) | 11.9 (0.469) | 22.2 (0.874) | 8.7 (0.343) | 10.3 (0.406) | 15.87 (0.625) | 48.8 (1.921) | N/A |
| 14 | | 32.9 (1.295) | 12.7 (0.500) | 25.4 (1) | | | | | N/A |
| 26 | 37.7 (1.484) | 49.2 (1.937) | 23 (0.906) | 38.1 (1.500) | 8.72 (0.343) | | 23.8 (0.937) | | N/A |
| 34 | | 51.6 (2.031) | 20.6 (0.811) | 39.7 (1.563) | 12.7 (0.500) | 14.3 (0.563) | 26.98 (1.062) | N/A | 49.2 (1.937) |
| 50 | | 64.3 (2.531) | 22.2 (0.874) | 52.4 (2.063) | | | | N/A | |
| 75 | | 65.5 (2.579) | 23 (0.906) | 52.4 (2.063) | 18.2 (0.717) | 19.8 (0.780) | 34.52 (1.359) | N/A | |

*Notes*

*Dimensions mm (inch)*

*1. Available for male contact arrangement only*

*2. Fixing of backshells only suitable for insulator with termination style type 85 (solder pot)*

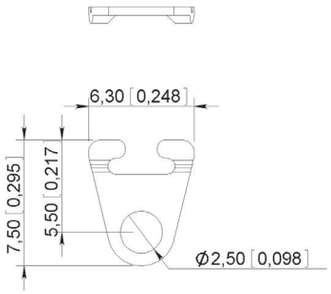
*3. Backshells 34, 50 and 75 are fitted with 4 screws to be fixed to the connector block*

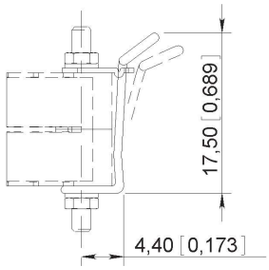
## ACCESSORIES

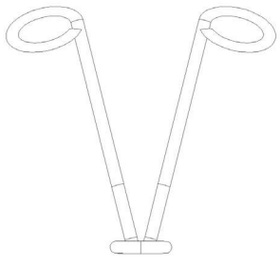
### SPRING LOCKING SYSTEM

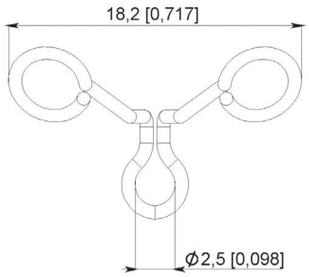
This simple locking system avoids accidental disconnection of connectors fitted to equipment which may be subjected to severe vibration. This system can be used where connector fitted with G1 guides are used with or without backshell.

Part number of a pair: 624895



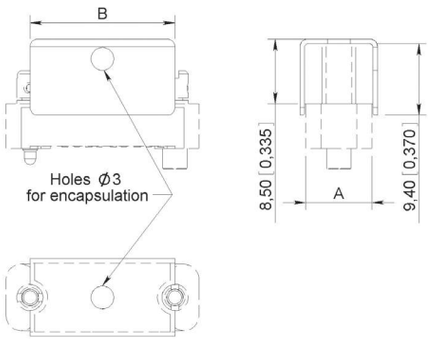






### POTTING MOULDS

The plastic potting moulds are designed to fit onto the wiring side of the connectors in order so that the wiring and back end can be encapsulated. They can be used with connectors fitted with G1 guides and GV and VR jackscrews.

| CONTACTS ARRANGEMENTS | PART NUMBERS | TYPE HA | |
|---|---|---|---|
| | | A | B |
| 02 -03 | 624994 | 5.9 (0.232) | 9.5 (0.374) |
| 05 | 624992 | 5.9 (0.232) | 13.5 (0.531) |
| 07 | 624991 | 5.9 (0.232) | 15.9 (0.626) |
| 11 | 624993 | 9 (0.354) | 15.9 (0.626) |
| 14 | 624995 | 9 (0.354) | 19 (0.748) |





# RTX SERIES

*EN3716*

*Section 11 Table of Contents*

## RTX SERIES

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## RTX TERMINATIONS SERIES

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Dimensions RTX Terminations ..... 11-10
Twinax Contacts ..... 11-11 to 11-12
Tools ..... 11-13

## INTRODUCTION

The digital data bus defined by MIL-STD-1553B is commonly considered as a worldwide standard regarding digital avionics equipment such as navigation by radar, communications, weapon control systems, etc.

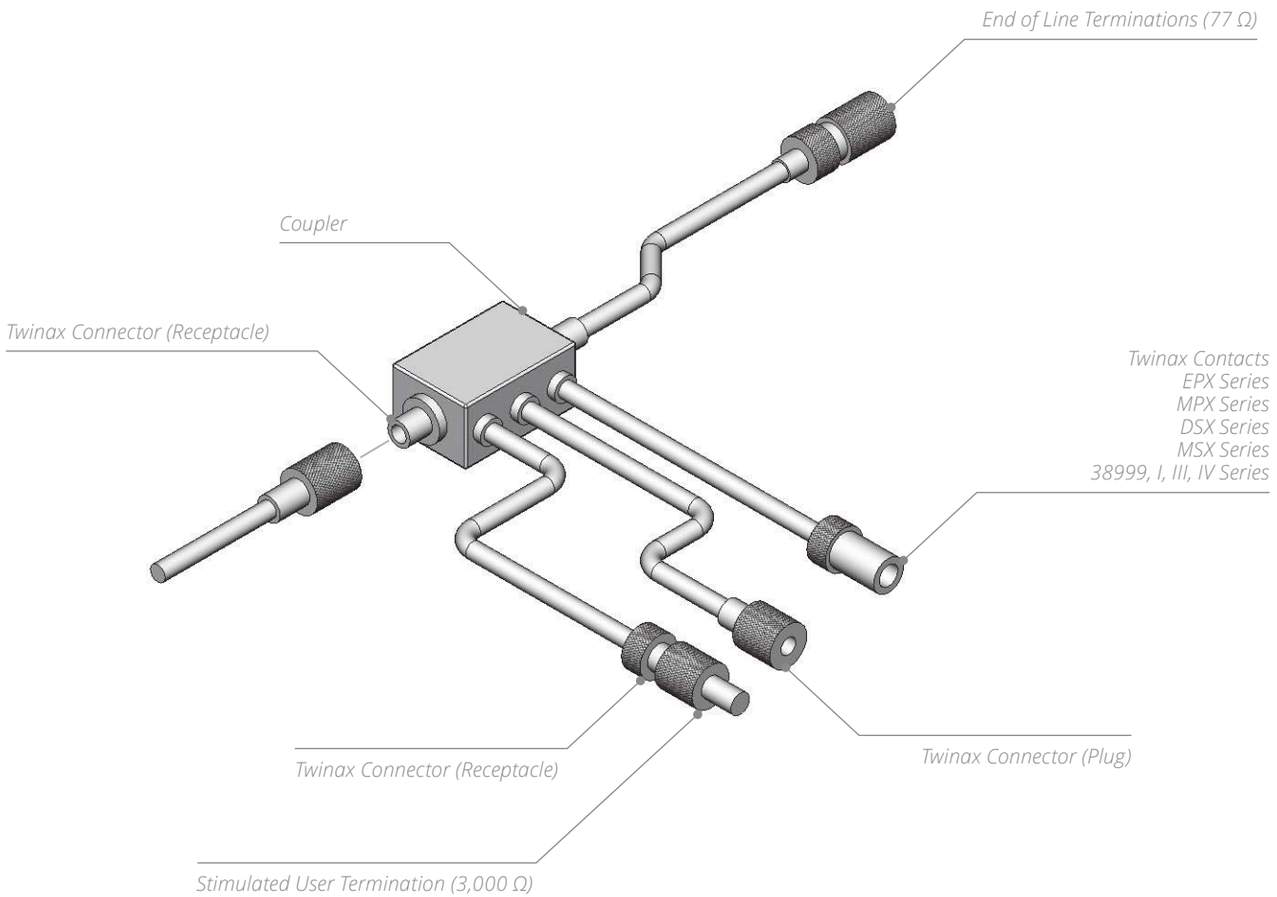
All these systems linked together exchange data through a network of “shielded twisted pairs,” transformer couplers and twinax connectors.

Radiall offers the RTX range of twinax connectors, contacts and terminations suitable for use on this digital data bus.

In addition, Radiall can supply twinax contacts for installation into multipin connectors to connect equipment to the data bus.

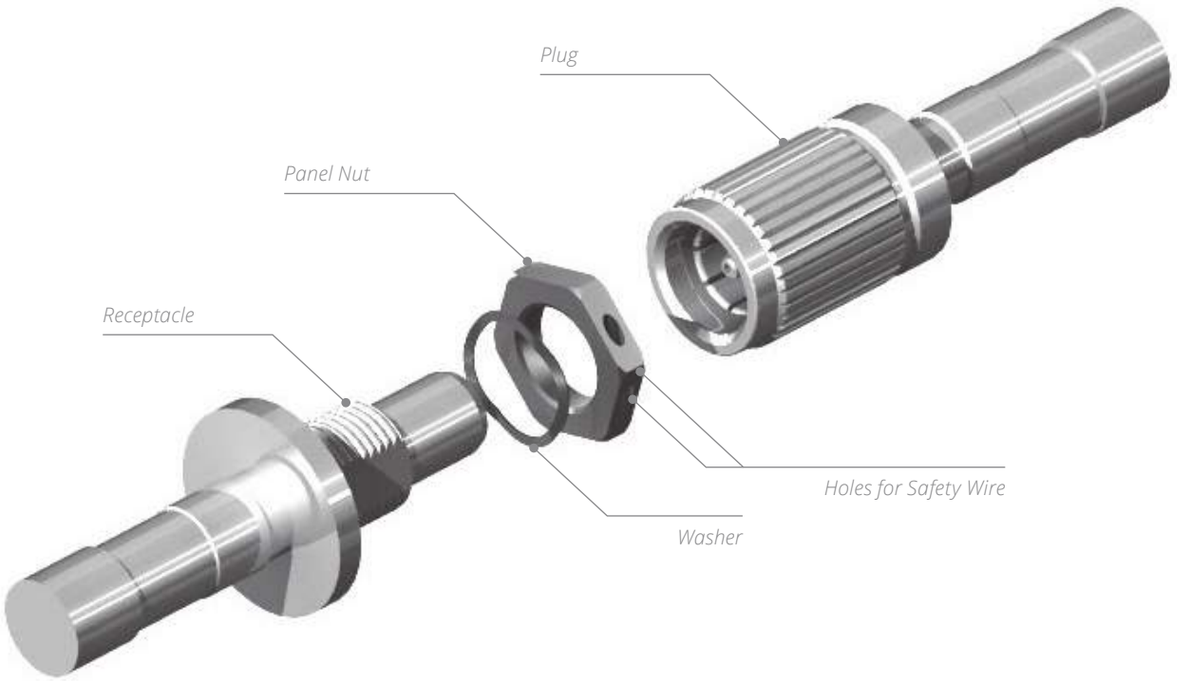
NSX  Arinc 600
EPX EN4644
MPX MIL DTL-83527B / EN3682
DSX SAE AS81659 / Arinc 404
MIL-DTL-38999

## APPLICATIONS



## PRODUCT OVERVIEW

Detailed view of the various parts of the RTX series connector.



*RTX Series*

## TECHNICAL CHARACTERISTICS

### ELECTRICAL

- **Frequency Range:** 5 MHz max
- **Insulation Resistance:** at 25 °C (77 °F) ≥ 5000 MΩ
  at 150 °C (302 °F) ≥ 1,000 MΩ
- **DWV (Sea Level):** 900 Vac RMS – 50 Hz
- **DWV (70,000 ft):** 200 Vac RMS – 50 Hz
- **Contact Resistance:**
  - **Center & Intermediate Contacts:** ≤35 mΩ
  - **Outer Body:** ≤8 mΩ

### MECHANICAL & ENVIRONMENTAL

- **Temperature Range:** -65 °C (-149 °F) to +150 °C (+302 °F)
- **Temperature Life:** 1,000 Hours at 150 °C (+302 °F)
- **Salt Spray:** 500 Hours
- **Altitude Immersion:** 47 kPa (0.68 psi)
- **Air Leakage:** 0.5 cm3/s
- **Sand & Dust:** 1 Cycle – Wind Speed 3.5±0.5m/s
- **Humidity:** 28 Days
- **Shock:** 100g – 6 ms
- **Vibration:** AECMA EN2591 Test D3 – Method B
- **Mating & Unmating:** 500 Cycles
- **Contact Retention:** > 45 N
- **Locking Torque (C)**
  - **Mating:** 1 ≤ C ≤ 1.25 Nm (8.85 ≤ C ≤ 11 lb in.)
  - **Unmating:** C ≤ 1.35 Nm (11.95 lb in.)
- **RoHs statue:** Not RoHs

*RTX Series*

## MATERIALS

| DESCRIPTION | MATERIAL/FINISH |
|---|---|
| Coupling Ring | Tin-Lead Plated Brass |
| Plug Outer Body | Copper Alloy Tin-Lead Plated |
| Receptacle Outer Body | Tin-Lead Plated Brass |
| Center Contact & Crimp Pot | Copper Alloy Gold over Nickel |
| Ferrule | Nickel-Plated Brass |
| Insulator & Sheath | PTFE |

## WEIGHT

| DESCRIPTION | WEIGHT G (OZ) |
|---|---|
| Plug | 12 (0.423) |
| Receptacle | 9 (0.317) |

*RTX Series*

## HOW TO ORDER RTX CONNECTORS

The RTX series consists of plugs, receptacles (crimp version) and terminations.

The plug has a knurled and threaded coupling ring which provides mating and locking. The jam nut style receptacle is provided with an o-ring for sealing to the bulkhead.

RTX

**SERIES PREFIX**

**CONNECTOR TYPE**
**003:** Receptacle
**004:** Plug

**INTERMEDIATE CONTACT TYPE**
**F:** Socket
**M:** Pin

**CABLE TYPE** [1]
**01:** Twisted pair single braid
**02:** Twisted pair double braid

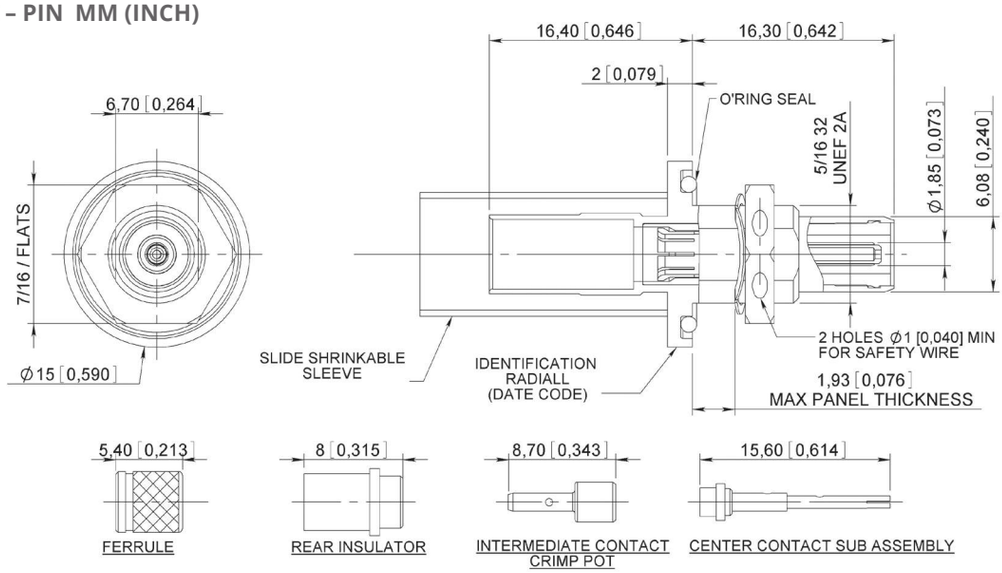


*Notes*
*1. A version for triaxial cable is also available, please consult Radiall.*

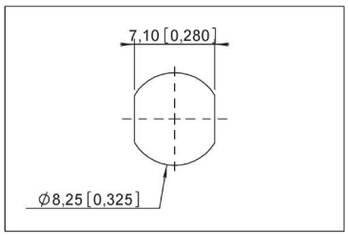
## DIMENSIONS & PANEL CUT-OUT

### RECEPTACLE – PIN MM (INCH)

**RTX003M –**

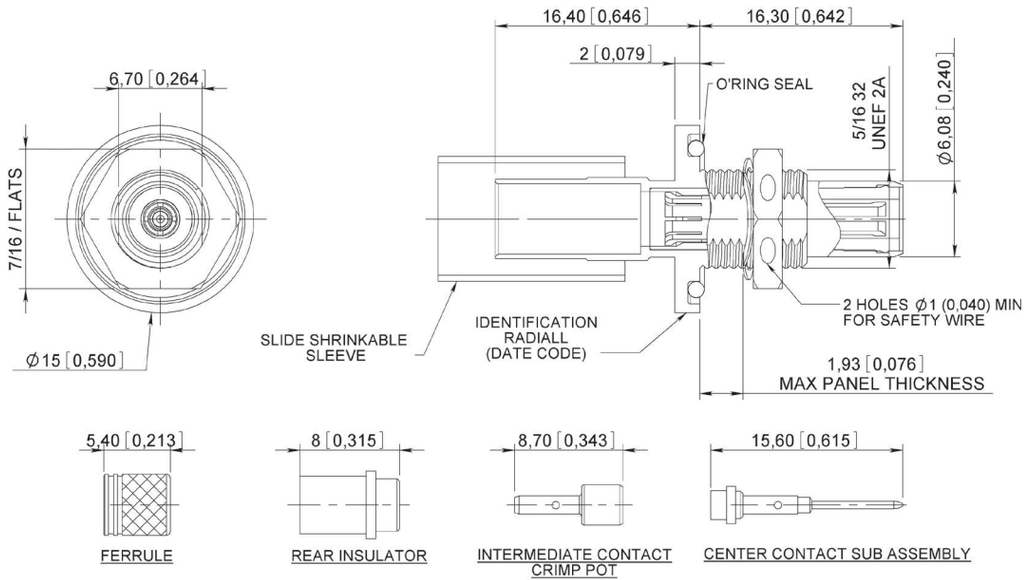



**PANEL CUT OUT**




### RECEPTACLE – SOCKET MM (INCH)

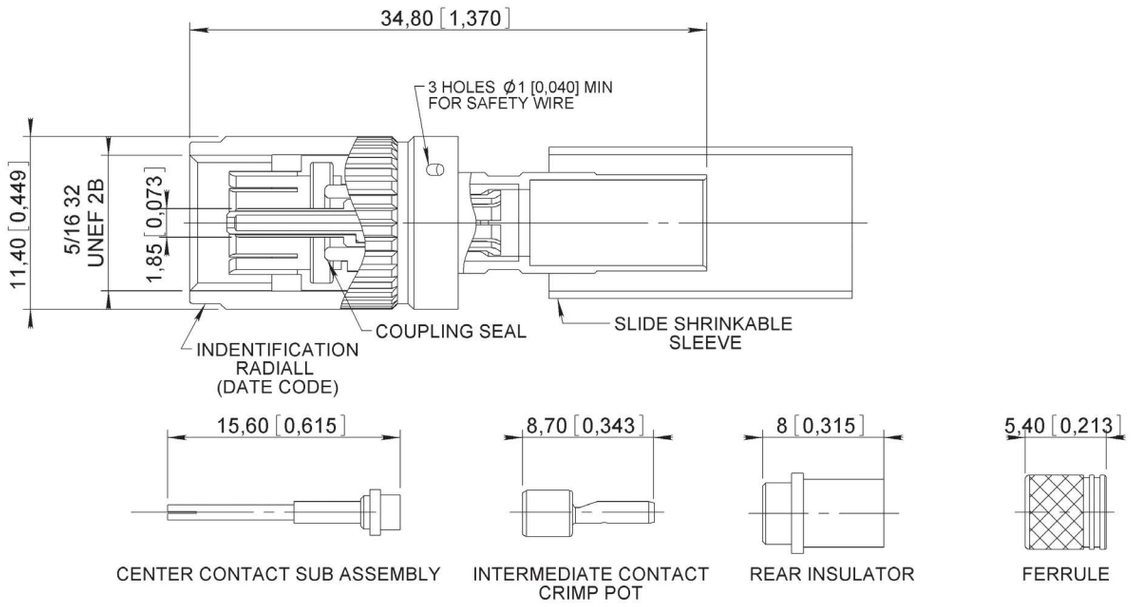
**RTX003F –**



## DIMENSIONS

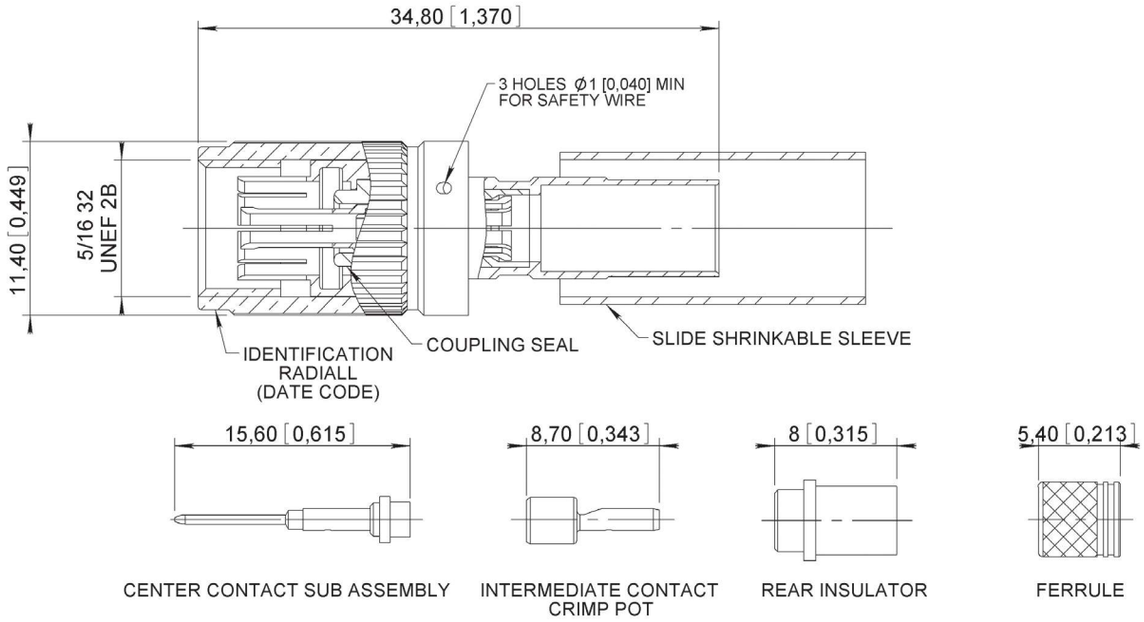
### PLUG – PIN MM (INCH)

RTX004M –




### PLUG – SOCKET MM (INCH)

RTX004F –



## HOW TO ORDER RTX TERMINATIONS

RTX series terminations are used to simulate a bus user or as end of line load.

RTX

**SERIES PREFIX**

**CONNECTOR TYPE**
**003:** Receptacle
**004:** Plug

**INTERMEDIATE CONTACT TYPE**
**F:** Socket
**M:** Pin

**TERMINATION VALUE** [1]
**770:** End of line terminations (77 Ω)
**302:** Simulated user terminations (3,000 Ω)

## TECHNICAL CHARACTERISTICS

RTX series terminations have the same technical characteristics as the RTX plug and receptacle except the following:

- **Termination Values:** 77 ± 5 Ω or 3,000 ± 60 Ω
- **DWV:** 700 Vac RMS – 60Hz
- **Working Voltage:** 120 Vac RMS – 60 Hz

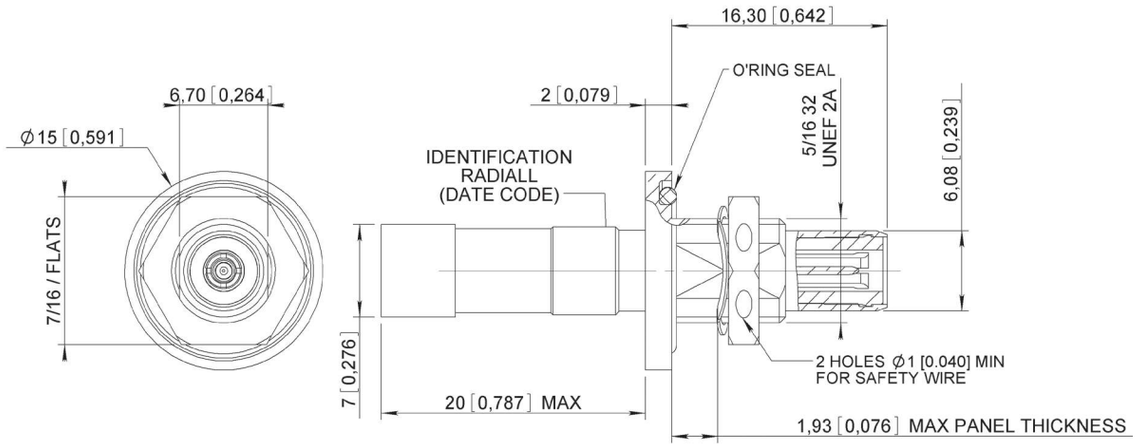
*Notes*

*1. Write the two first significant digits of the resistance value plus 1 digit giving the number of zeros of the resistance value (i.e. 5500 will be written 552)*

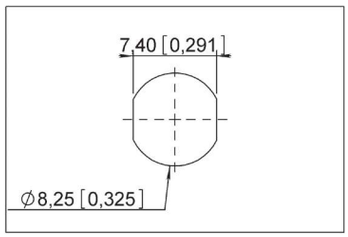
## DIMENSIONS RTX TERMINATIONS

### RECEPTACLE TERMINATION MM(INCH)

RTX003 –

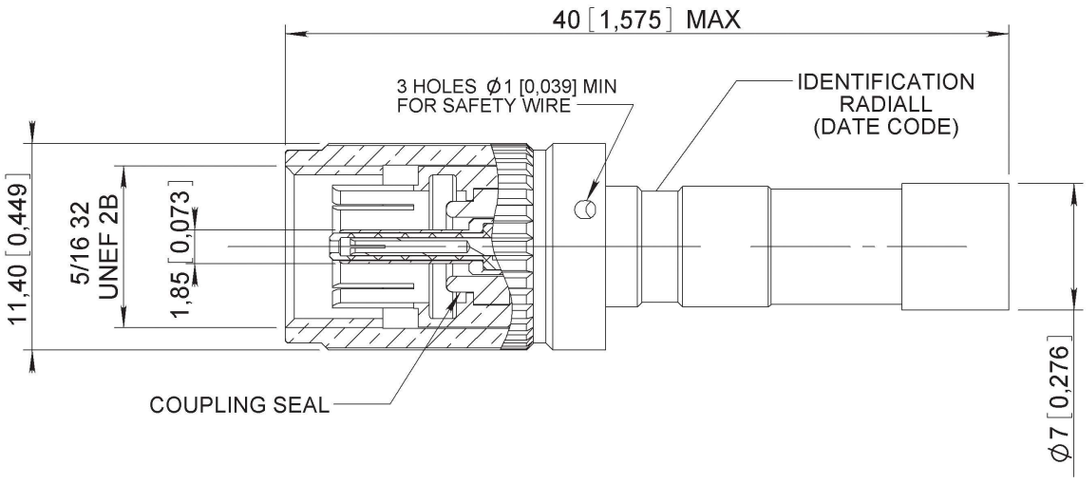



**PANEL CUT OUT**




### PLUG TERMINATION MM(INCH)

RTX004 –



## TWINAX CONTACTS

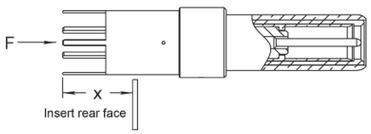
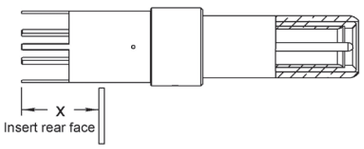
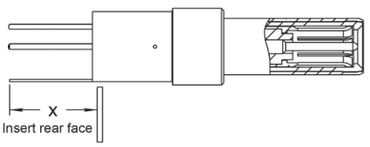
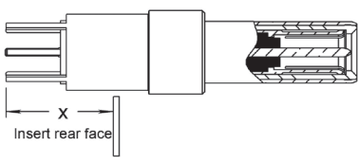
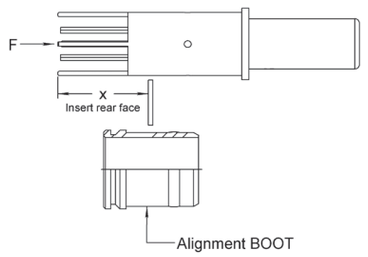
### CRIMP TERMINATION

| CONNECTOR SERIES | CONTACT | | | | INSERTION/EXTRACTION TOOL |
|---|---|---|---|---|---|
| | SIZE | CABLE | TYPE | PART NUMBER | |
| MIL DTL 38999 | 8 | MIL-C17/176000002 EN3375-003ST | Socket | 670050 [1] | 282549001 M81969/28-03 |
| | | | Pin | 670150 [1] | |
| | | EN3375-004DT Or EN3375-005DT | Socket | 670051 [1] | |
| | | | Pin | 670151 [1] | |
| EPX EN 4644 | 5 | MIL-C-17/17600002 or PAN 6421 | Socket | 617050 | 282946 M81969/28-01 |
| | | | Pin | 617150 | |
| DSX ARINC 404 SAE AS81659 | 5 | MIL-C-17/17600002 | Socket | 616095001 [3] | 282946 M81969/28-01 |
| | | | Pin | 616195001 [3] | |
| | | | Socket | 616095009 [2] | |
| | | | Pin | 616195009 [2] | |
| | | PAN 6421 | Socket | 616095005 [3] | |
| | | | Pin | 616195005 [3] | |
| | 9 | MIL-C-17/17600002 | Socket | 616096003 [3] | |
| | | | Pin | 616196003 [3] | |
| | | | Socket | 616096004 [2] | |
| | | | Pin | 616196004 [2] | |
| | | | Socket | 616096006 [2] | |
| MPX MIL DLT 83527B | 8 | EN3375-004DT EN3375-005DT | Socket | 618060 [1] | 282549001 M81969/28-03 |
| | | | Pin | 618160 [1] | |
| | | MIL-C-17/17600002 or EN3375-003ST | Socket | 618061 [1] | |
| | | | Pin | 618161 [1] | |
| ARINC | 8 | MIL-C-17/17600002 or EN3375-003ST | Socket | 619070001 / 002 (Env) | 282549001 M81969/28-03 |
| | | | Pin | 619170001/ 002 (Env) | |
| ARINC | 8 | PAN6421ZA002 | Socket | 619070011 / 012 (Env) | |
| | | | Pin | 619170011/ 012 (Env) | |
| ARINC | 8 | EN3375-004 Raychem 10613 ASNE0479WJ | Socket | 619070021 / 022 (Env) | |
| | | | Pin | 619170021/ 022 (Env) | |
| ARINC | 8 | 10614 Triple Shielded | Socket | 619070031 / 032 (Env) | |
| | | | Pin | 619170031/ 032 (Env) | |

***Notes***

*1. In order to have environmental versions add 001 to the part number except for 619x70xxx contacts.*
*2. These contacts are to be installed in environmental connectors only.*
*3. These contacts are to be installed in non environmental connectors only.*

## PC TAIL TERMINATIONS

| CONNECTOR SERIES | CONTACT | | | | INSERTION/EXTRACTION TOOL |
|---|---|---|---|---|---|
| | PIN SIZE | PART NUMBER | CONTACT DRAWING | REAR EXTENSION FROM INSERT = X MM (INCH) | |
| DSX<br>ARINC 404<br>SAE AS81659 | 5 | 616195003 |  | 32C2, 32T2, 33C4, 33T4, 40C1, 40T1 = 3.2/4.0 (0.125/0.158) 36C7, 36T7 = 5.40/6.10 (0.212/0.240) | 282946<br>M81969/28-01 |
| | | 616195008 |  | | |
| | 9 | 616196005 |  | C8, T8 = 1.30/2.15 (0.050/0.085) 32C4, 32T4 = 6.45/7.30 (0.253/0.288) | |
| | | 616196007 |  | C8, T8 = 0 32C4, 32T4 = 3.70/4.35 (0.145/0.170) | |
| MPX<br>MIL DLT 83527B | 8 | 618163 [1] |  | 7.65 ± 0.5 (0.282/0.321) | 282549001<br>M81969/28-03 |

*Notes*

*1. For 62T2 contact arrangement, the rear extension from the insert is 0.303/0.343 (8.2 ± 0.5). This contact is delivered with an alignment boot.*

# TOOLS

## INSERTION / EXTRACTION TOOL

**282549001 - M81969/28-03**



**282946 - M81969/28-01**



*Notes*



# MIL-DTL SERIES

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*MIL-DTX Series*

## INTRODUCTION

Radiall offers a wide range of MIL-DTL-38999 type connectors for applications in both military and civil aviation markets.

Whether your needs are for crimped coax or quadrax contacts, or for LuxCis® optical contacts, you will find products that suit your requirements.

Radiall proposes various sizes (from 11 to 25), types (plugs, wall-mount and jam-nut receptacles), and plating for 38999 type shells to withstand high performances:

- Aluminum Olive drab Cadmium (500 h salt spray)
- Nickel plated Aluminum (48h salt spray)
- Nickel plated Composite (2,000 h salt spray)
- Nickel Aluminum Bronze (500 h salt spray)

Radiall also provides an extensive range of inserts: nine optical arrangements including one that mixes electrical and optical contacts.

Apart from our LuxCis contacts range, you will also find Radiall's Quadrax & Coaxial contact offer, for environmental and non-environmental needs.

## APPLICATION

Interconnect solution for aerospace and military harsh environment applications.







*MIL-DTX Series*

## PRODUCT OVERVIEW



*MIL-DTX Series*

## HOW TO ORDER MIL-DTL-38999 TYPE CONNECTORS

### PART NUMBERS FOR LUXCIS® MIL-DTL-38999 TYPE CONNECTORS

R8

**R8:**
LuxCis® MIL-DTL-38999 series

**SHELL TYPE:**
**W:** Plug
**R:** Square flange receptacle
**N:** Jam nut receptacle

**SHELL SIZE:**
11-13-15-17-19-21-23-25

**SHELL MATERIAL AND FINISH:**
**O:** Aluminium olive drab cadmium
**N:** Nickel-plated Aluminium
**M:** Nickel-plated composite
**G:** Nickel aluminium bronze

**CONTACT LAYOUT:**
**2FO:** 2 LuxCis® contacts (shell size 11)
**2FO2E:** 2 LuxCis® + 2 electrical contacts (shell size 13)
**4FO:** 4 LuxCis® contacts (shell size 13)
**6FO:** 6 LuxCis® contacts (shell size 15)
**8FO:** 8 LuxCis® contacts (shell size 17)
**12FO:** 12 LuxCis® contacts (shell size 19)
**16FO:** 16 LuxCis® contacts (shell size 21)
**24FO:** 24 LuxCis® contacts (shell size 23)
**32FO:** 32 LuxCis® contacts (shell size 25)

**INSERT TYPE:**
**S:** Sealed insert for plug (R8W)
**P:** Sealed insert for receptacle (R8R or R8N)

**INSERT MATERIAL:**
**A:** Anodized aluminium
**C:** Non metalized composite

**POLARIZATION:**
N-A-B-C-D-E

*Notes*
*Electrical contacts are to be ordered separately*
*Anodized aluminum inserts are recommended when specific EMI protection is required*
*All connectors are supplied with a plastic cap*
*Accessories such as backshell or metalized caps are only available for harness assemblies manufactured by Radiall.*
*Please contact your sales representative for other plating alternatives or for specific requirements*

*MIL-DTX Series*

## INSERTS FOR LUXCIS® CONTACTS

### MIL-DTL-38999 TYPE CONNECTORS FOR LUXCIS® CONTACT

**THE LUXCIS® PRODUCT RANGE ALSO INCLUDES MIL-DTL-38999 TYPE CONNECTORS**



*Size 11 MIL-DTL-38999 Type Connectors*



*Size 25 MIL-DTL-38999 Type Connectors*



*Removable Sleeveholder for Easy Access to the Ferrules and Sleeves for Inspection and Cleaning*

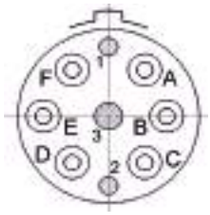
### SHELLS ARRANGEMENT



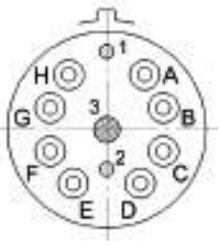
Size 11, 2 LuxCis®



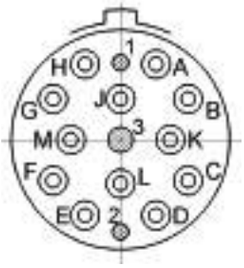
Size 13, 4 LuxCis®



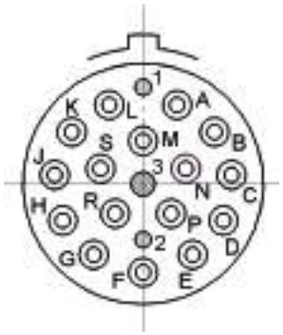
Size 15, 6 LuxCis®



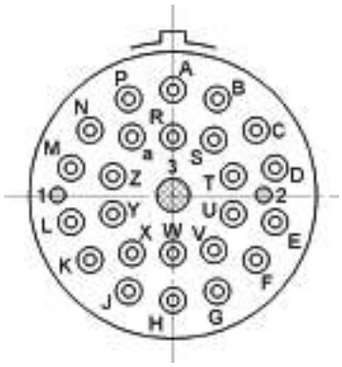
Size 17, 8 LuxCis®



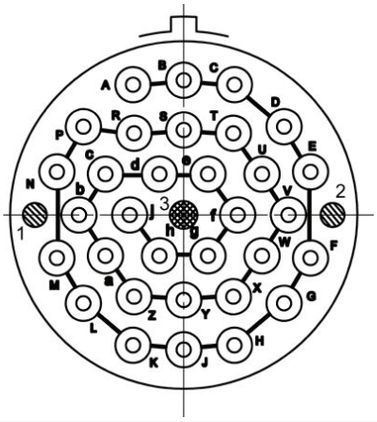
Size 19, 12 LuxCis®



Size 21, 16 LuxCis®



Size 23, 24 LuxCis®

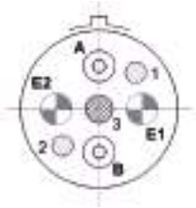


Size 25, 32 LuxCis®

1 & 2: Alignment pins  3: Sleeve-holder screw  A, B: Optical cavities

All views show the front face of a plug.

The LuxCis® product range also includes hybrid connectors, mixing electrical and LuxCis® cavities.



Size 13 connector with 2 electrical and 2 LuxCis® cavities
Hybrid connectors are available in all sizes; please see your local Radiall representative for more details.

## LUXCIS® FIBER OPTIC CONTACTS

The LuxCis® product range is a proven, flexible and always expending fiber optic interconnect solution offering high speed communication in aerospace and other harsh environments.

### OPTICAL PERFORMANCES

| | MULTIMODE (PC)<br>850/1,300 NM | SINGLEMODE (UPC)<br>1,310/1,550 NM |
|---|---|---|
| **INSERTION LOSS (IL) MEAN<br>(IEC 61300-3-4 METHOD B)** | 0.1 dB | 0.15 dB |
| **RETURN LOSS (RL)<br>(IEC 61300-3-6)** | > 20 dB | > 50 dB |

### MECHANICAL AND ENVIRONMENTAL CHARACTERISTICS

| | STANDARD | PERFORMANCES |
|---|---|---|
| **THERMAL CYCLING** | SAE AS 13441 Method 1003.1 | -55 °C/+125 °C (Cable Dependant) |
| **TEMPERATURE ENDURANCE** | TIA/EIA 455-20 | 1,000 h @ 125 °C (Cable Dependant) |
| **VIBRATION** | TIA/EIA 455-11 | 43 Grms |
| **SHOCKS** | TIA/EIA 455-14 | 330 G, 3 ms |
| **DURABILITY** | TIA / EIA 364-09 | 500 Cycles |
| **MAINTENANCE AGEING** | SAE AS 13441 Method 2002.1 | 10 Cycles |
| **CABLE RETENTION<br>1.8 MM DIAMETER<br>900 MM DIAMETER** | SAE AS 13441 Method 2009.1 | 68 N<br>7 N |
| **HUMIDITY** | TIA EIA 455-5 | 10 Cycles / 24 h<br>90% RH<br>-25 °C / +65 °C |

### LUXCIS® CONTACT PART NUMBERING SYSTEM

F725

**F725:**
LuxCis® series

**FERRULE TYPE**
**00:** PC ferrule for SingleMode fiber
**03:** PC ferrule for 50/125 or 62.5/125 um MultiMode fiber
**04:** PC ferrule for 100/40 um MultiMode fiber
**05:** PC ferrule for 200/230 um MultiMode fiber
**50:** APC ferrule for SingleMode fiber

**CABLE TYPE AND DIAMETER**
**118:** 900 µm cable
**318:** 1.2 mm cable with strengthening members, tight structure
**419:** 1.6 to 2.2 mm cable, loose structure
**519:** 1.6 to 2.2 mm cable, tight structure

***Notes***
*Radiall can support you with your cable and harness assemblies.*
*Please contact your sales representative*

## QUADRAX & COAXIAL CONTACTS

### SIZE 8 QUADRAX & COAXIAL CONTACTS

| TYPE | | | SOCKET CONTACT | PIN CONTACT | CABLE |
|---|---|---|---|---|---|
| Size 8 | Quadrax | Environmental | 670075023 | 670175023 | Draka F 4703-2 |
| | Quadrax | | 670175012 | 670175012 | Tensolite NF 24 Q 100 |
| | Quadrax | Non-Environmental | 670075028 | - | Tensolite NF 24 Q 100 |
| | Coax | | 670001007 | 670101007 | EN3645 EN4165 |



# SHELL DIMENSIONS

## SQUARE FLANGE AND JAM NUT RECEPTACLES

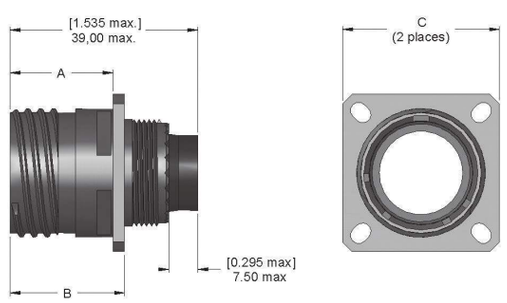



FIG. 1 SQUARE FLANGE RECEPTACLES

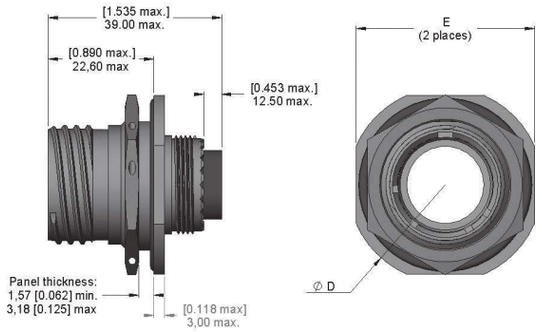
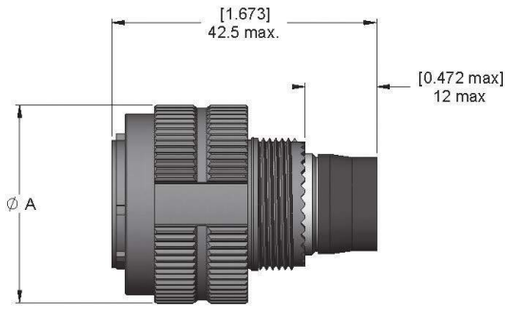



FIG. 2 JAM NUT RECEPTACLES

| SHELL SIZE | FIGURE 1 | | | | | FIGURE 2 | |
|---|---|---|---|---|---|---|---|
| | A MAX. MM (INCH) | | B MAX. MM (INCH) | | C MAX. MM (INCH) | DIA. D MAX. | E MAX. |
| | METALLIC SHELL | COMPOSITE SHELL | METALLIC SHELL | COMPOSITE SHELL | | MM (INCH) | MM (INCH) |
| 11 | 20.83 (0.820) | 19.69 (0.775) | 23.15 (0.911) | 23.19 (0.913) | 26.50 (1.043) | 35.20 (1.386) | 32.20 (1.268) |
| 13 | | | | | 28.90 (1.137) | 38.40 (1.512) | 35.30 (1.390) |
| 15 | | | | | 31.30 (1.232) | 41.60 (1.638) | 38.50 (1.516) |
| 17 | | | | | 33.70 (1.323) | 44.80 (1.764) | 41.70 (1.642) |
| 19 | | | | | 36.90 (1.449) | 49.50 (1.949) | 46.40 (1.827) |
| 21 | 20.07 (0.790) | 18.92 (0.745) | | 23.14 (0.911) | 40.10 (1.575) | 52.70 (2.075) | 49.60 (1.953) |
| 23 | | | | | 43.30 (1.701) | 55.90 (2.200) | 52.80 (2.079) |
| 25 | | | | | 46.40 (1.823) | 59.00 (2.323) | 56.00 (2.205) |

## PLUGS




| SHELL SIZE | DIA. A MAX. MM (INCH) |
|---|---|
| 11 | 25.00 (0.984) |
| 13 | 29.40 (1.157) |
| 15 | 32.50 (1.280) |
| 17 | 35.70 (1.405) |
| 19 | 38.50 (1.516) |
| 21 | 41.70 (1.642) |
| 23 | 44.90 (1.768) |
| 25 | 48.00 (1.890) |



# QUICK INSTALL (QR)

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*Introduction*

## INTRODUCTION

The development of the Quick Install range (QR connector series) highlights Radiall's ability to innovate for customer needs and design a reliable and competitive industrial solution in record time.

Radiall's Quick Install is a lightweight solution that reduces harness integration and maintenance time. It can also replace EN3545 due to the same panel cutout. This new connector provides high performances, weight reduction and tool-less panel mounting and locking.

Utilizing Radiall's ability to design innovative solutions, this interconnect system was designed with two tool-less mechanisms that save up to 80% of installation time compared to the legacy screwed connector:

- A unique locking device system to ensure a quick, tool-less install on the panel
- A slide lock, which has already been mastered and qualified on other product ranges, to ensure instant manual mating of the harness connector. The slide technology features visual and audible indicators to guarantee that the installation and mating is locked.

## APPLICATIONS

The innovative Quick Install has a positive impact on the total cost of ownership and provides customers with a proven and reliable high performance solution for cable-to-cable, optical and equipment versions onboard commercial aircraft.

## FEATURES & BENEFITS

### 15% LIGHTER THAN THE COMPETITION

It features a unique design made of composite material with a slim form factor that provides 15% weight savings compared to the legacy screwed connector. With an average weight of 45 g per mated pair, the weight reduction represents up to 20 kg for a typical aircraft.

### 80% INSTALLATION TIME SAVINGS

- A unique locking device system to ensure a quick, tool-less installation on the panel
- A slide lock, which has already been mastered and qualified on other product ranges, to ensure instant manual mating of the harness connector

### A TOOL-LESS AND FOD-PROOF DESIGN

The Quick Install provides customers with a proven and reliable high performance solution that can replace the cable-to-cable, optical and equipment versions of EN3545.

### SELF INSPECTION AT MATING

The slide technology features visual and audible indicators guarantee that the installation and mating tools are locked.

## ELECTRICAL CHARACTERISTICS

### DIELECTRIC WITHSTANDING VOLTAGE: EN2591-207 WITH CURRENT LEAKAGE <2 mΩ

| PRESSURE | CONTACT SIZES | CONNECTORS | |
|---|---|---|---|
| | | MATED (VRMS) | UNMATED (VRMS) |
| Initial Measurement and After Damp Heat Steady State Test | 22, 20, 16, 12 10, 08 | - | 1,300 (#22)<br>1,500 |
| After Interfacial Sealing Test | | 1,300 (#22)<br>1,500 | - |
| During Low Air Pressure Test (12,1 kPa) | | - | 600 |

### INSULATION RESISTANCE: EN2591-206

> 5,000 MΩ initial

> 1,000 MΩ after endurance at temperature, immersion at low air pressure, interfacial sealing and during fluid resistance test

### ELECTRICAL STRESS TESTS

- Power supply voltage spikes ABD0100.1.8 and ED14/DO160 section 17, 2,000 V
- Lightning functional link ED14/DO160 section 22.5.1 « pin injection test » - 5 A – 1,500 V/1,500 A

## MECHANICAL CHARACTERISTICS

### VIBRATION & SHOCK

| VIBRATION | SHOCK |
|---|---|
| 4 h/axis 0.017 g²/Hz from 7 to 50 Hz and 0.1 g²/Hz from 50 to 2,000 Hz (129 m/s²)<br><br>Discontinuities < 1 µs<br><br>Discontinuities < 2 ns for Quadrax Contacts<br><br>EN2591-403 Method B Condition D | EN2591-042 Method A 50 g/Duration 11 ms Half Sine<br><br>Method B 50 g/Duration 9 ms Saw Tooth |

### DURABILITY

| COMPONENT | MATING/UNMATING | MATING FORCE |
|---|---|---|
| **PANEL LOCKING** | 50 Cycles | 30 N max |
| **PLUG TO RECEPTACLE MATING AND UNMATING** | 100 Cycles | 90 N max for Arrangement 12<br>80 N max for All Other Arrangements |

### OTHER CHARACTERISTICS

- **Interfacial Sealing Test:** 12.1 kPa with sealing plug
- **Flammability/Density/Toxicity** ABD0031 (AITM)
  - **Flammability**
    - Burn length (average) must not exceed 152 mm (6 inches)
    - After flame time (average) must not exceed 15 seconds
    - After flame time of drips (average) must not exceed 3 seconds
  - **Density**
    - Dm (flaming) < 200
    - Dm (non flaming) < 200
- **Toxicity**
  - Hydrogen Fluoride: 100 ppm max
  - Hydrogen Chloride: 150 ppm max
  - Hydrogen Cyanide: 150 ppm max
  - Sulfur Dioxide: 100 ppm max
  - Nitrous Gases: 100 ppm max
  - Carbon Monoxide: 1,000 ppm max

## ENVIRONMENTAL CHARACTERISTICS

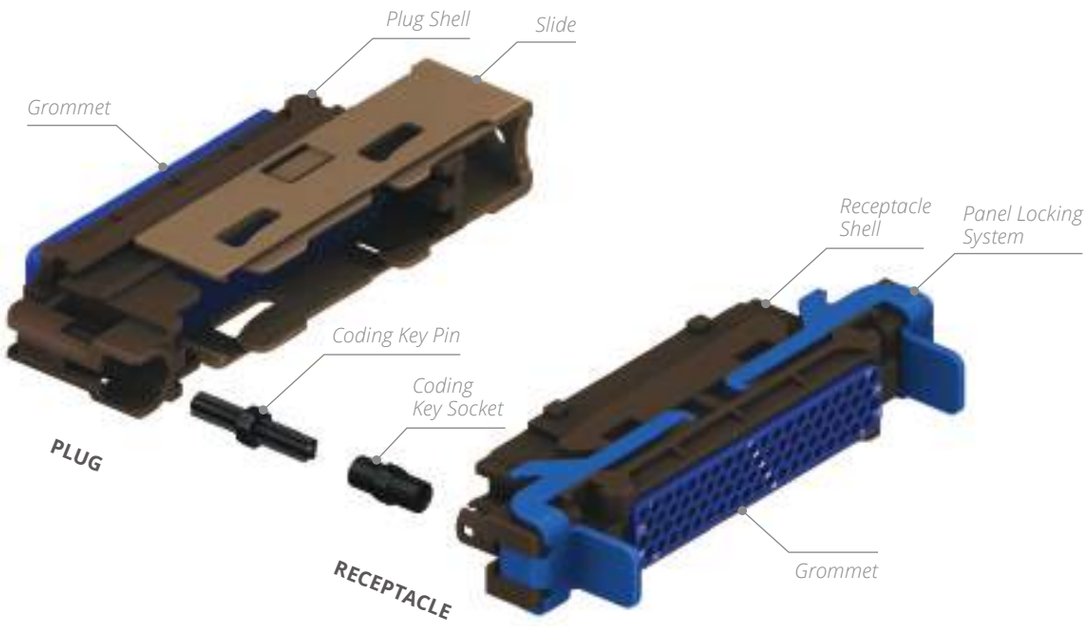
- **Temperature Range:** -55 °C/+175 °C
- **Temperature Life:** 1,000 hours at 175 °C
- **Salt Spray:** 96 hours
- **Humidity:** 56 days
- **Altitude Immersion:** (12.1 kPa) 3 cycles – 50,000 feet (15,000 m)

For more details, please refer to the QR qualification test reports.

## QR PRODUCT OVERVIEW

The QR connector is composed of two subassemblies:

- A receptacle connector
- A plug connector

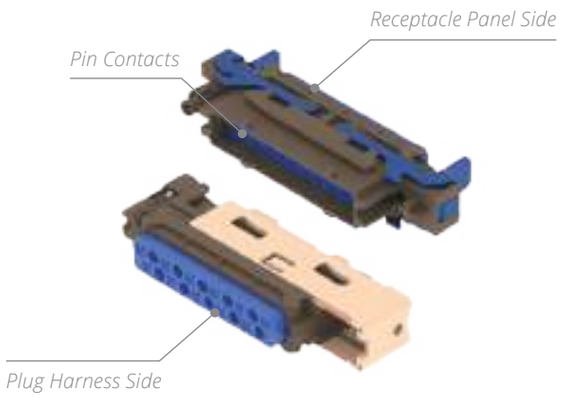



For each Receptacle/Plug, there is one version for male contacts and one for female contacts.

**STANDARD VERSION**




**REVERSED VERSION**




***Notes***

*Except for the cavity change, the interior design of the shell is slightly different between a housing (socket or plug) for male contacts and its counterpart for female contacts*

*QR Series*

## HOW TO ORDER QR CONNECTORS

- Both pin and socket contacts can be used in plugs or receptacles.
- Standard versions are receptacle equipped with socket contacts and plug equipped with pin contacts.
- Reversed versions are receptacle equipped with pin contacts and plug equipped with socket contacts.
- PC tail contacts are only compatible with receptacle for equipment.
- Cross reference between QR and EN3545 is not possible (not compatible).
- Connectors are delivered with a protective cover designed to protect the contact cavities from dust and FOD. Radiall recommends keeping the cap installed while the connector is not mated or while access to the active area is not necessary.

**QR**

**SERIES PREFIX**

**HOUSING TYPE**
**E:** Environmental
**D:** Non-environmental

**CONTACT ARRANGEMENT**
**01**
**12**
**13**
**04**
**05**
**16**
**07**
**08**
**19**

**CONTACT TYPE**
**M:** Pin contacts not delivered
**F:** Socket contacts not delivered
**P:** Pin contacts delivered (crimp) [2]
**S:** Socket contacts delivered (crimp) [2]
**YA:** Gold finish straight PC tail pin contacts [1]

**HOUSING SIDE**
**F:** Plug with dust cap
**E:** Receptacle with dust cap
**D:** Receptacle for equipment with dust cap

**CODING ORIENTATION** [3]
**1**
**2**
**3**
**4**
**5**
**6**
**7**
**8**

**CODING POSITION**
**A:** Position side A if installed
**B:** Position side B if installed
**C:** Position side C if installed
**D:** Position side D if installed
**E:** Key coding A / B not installed
**F:** Key coding C / D not installed

**DELIVERY CONDITION**
**1:** 1 key delivered not installed
**2:** Key delivered installed
**3:** Coding not delivered

***Notes***
*1. For other PC tail extension options, please contact us*
*2. Not applicable for arrangement 07. For arrangement 08 the contacts size 8 must be ordered separately. The contact sizes 22, 16 and 12 are from the 39029 standard.*
*3. Optional if installed*

*QR Series*

## POLARIZATION CODE

QR

**SERIES PREFIX**

**HOUSING TYPE**
**P:** Plug
**R:** Receptacle

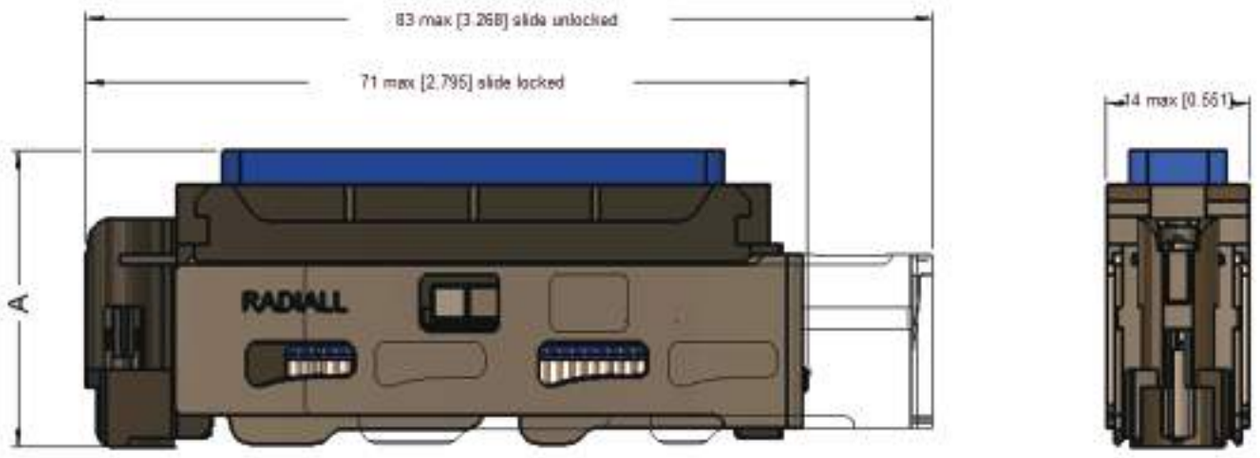
**CODING KEY**
**E:** Key coding A / B not installed
**F:** Key coding C / D not installed

The polarization is made with 2 pairs of modular keys to ensure a coding of each arrangement. There are 4 modular coding keys (2 for the receptacle and 2 for the plug). Every key has 2 sides (A and B or C and D). To ensure proper mating between them, the coding shall be the same on plug and receptacle connectors (for example, coding A2 for both keys).

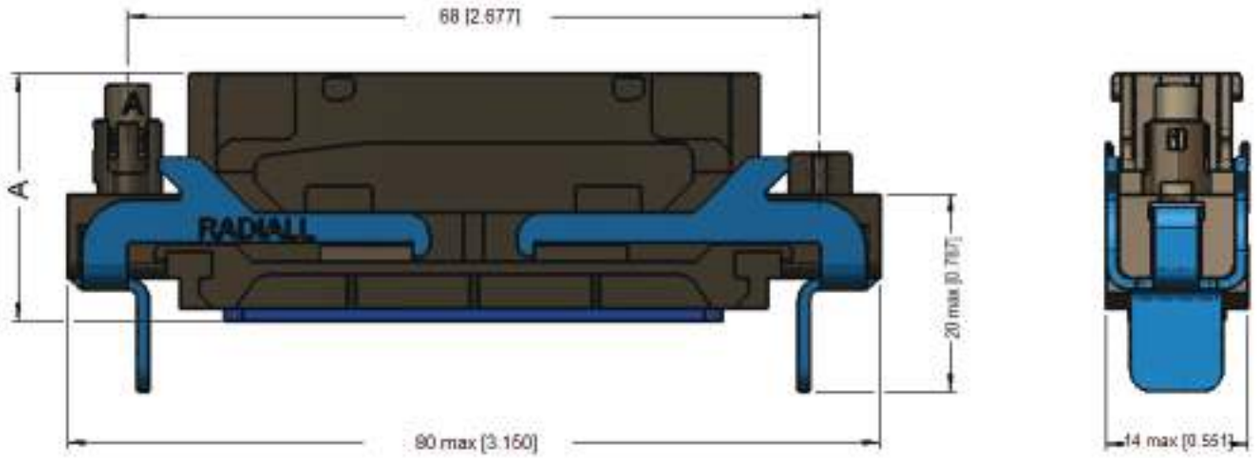
| | PLUG | RECEPTACLE |
|---|---|---|
| QR |  |  |
| CODING DEVICE |  View A View B View C View D |  View A View B View C View D |

## QR SHELL DIMENSIONS

### PLUG




### RECEPTACLE FOR CRIMP CONTACTS [1]



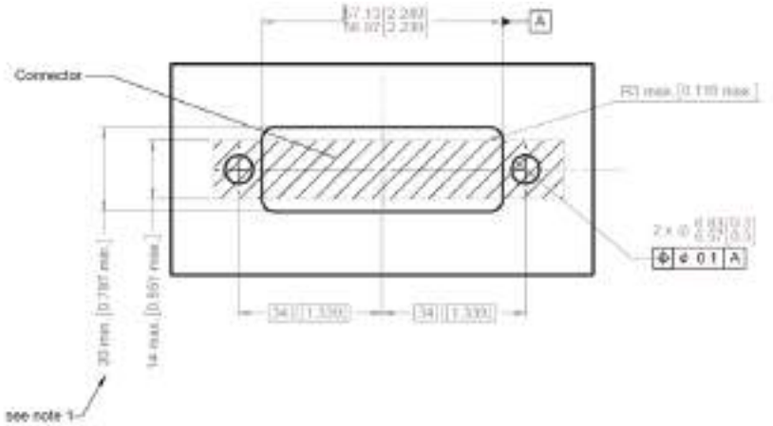

| CONTACT ARRANGEMENT | GROMMET PROTRUSION (A) MAX MM (INCH) FOR RECEPTACLE | GROMMET PROTRUSION (A) MAX MM (INCH) FOR PLUG |
|---|---|---|
| 01, 04, 05, 12, 13, 19 | 27 [1.06] | 31.50 [1.24] |
| 07, 08 | 32 [1.26] | 33.50 [1.32] |
| 16 | 37.50 [1.48] | 41.50 [1.63] |

*Notes*

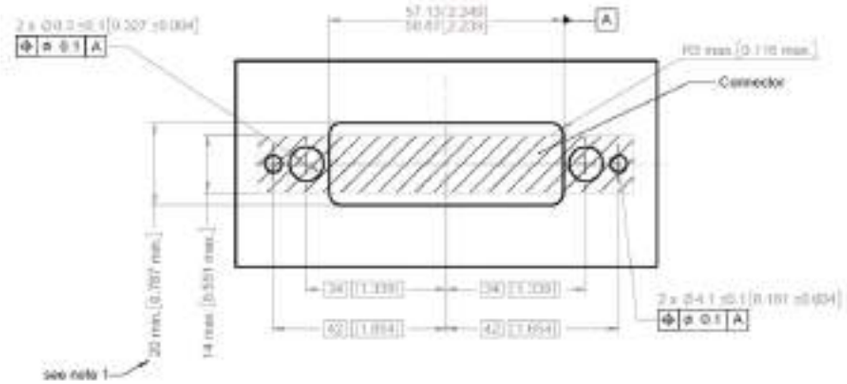
*1. Receptacles with PC Tail contacts have a different design. Please contact us for details.*

*QR Series*

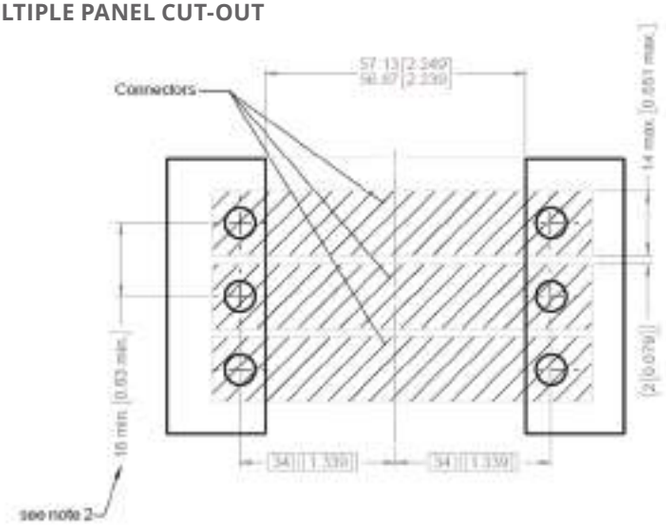
## PANEL CUT-OUT STANDARD QUICK INSTALL (PANEL THICKNESS 0.8 - 1.73 [0.0315 - 0.068])




## PANEL CUT-OUT QUICK INSTALL EQUIPMENT (PANEL THICKNESS 2 [0.079] MAX)




## MULTIPLE PANEL CUT-OUT




*Notes*

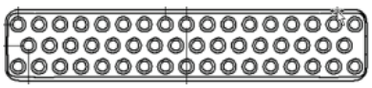
*1. The minimum cutout width is contingent on the radius cutout value. Therefore, to achieve a desired narrow/wide cutout width, the radius must change accordingly.*
*2. The pitch between connectors depends on the minimum gap desired. A commonly used gap of 2 mm is used to define the pitch advised here.*

## QR SHELL WEIGHTS

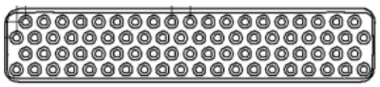
| HOUSING SIDE | CONTACT ARRANGEMENT | WEIGHT | |
|---|---|---|---|
| | | WITH CAVITIES FOR PIN CONTACTS (M) | WITH CAVITIES FOR SOCKET CONTACTS (F) |
| PLUG (P)<br>1 CODING KEY INCLUDED | 01 | 22g | 23g |
| | 12 | 22g | 23g |
| | 13 | 22g | 24g |
| | 04 | 22g | 23g |
| | 05 | 22g | 23g |
| | 16 | 25g | 26g |
| | 07 | 22g | 24g |
| | 08 | 22g | 24g |
| | 19 | 22g | 24g |
| RECEPTACLE (R)<br>1 CODING KEY INCLUDED | 01 | 23g | 25g |
| | 12 | 23g | 25g |
| | 13 | 23g | 25g |
| | 04 | 23g | 25g |
| | 05 | 23g | 24g |
| | 16 | 25g | 27g |
| | 07 | 23g | 25g |
| | 08 | 22g | 26g |
| | 19 | 22g | 25g |

## QR ARRANGEMENTS

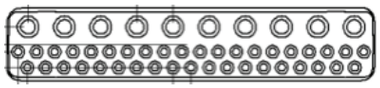
| CONTACT ARRANGEMENT NAME | CONTACT SIZE & TYPE | | | | | | TOTAL QUANTITY OF CONTACTS |
|---|---|---|---|---|---|---|---|
| | 22 | 20 | 16 | 12 | 10 | 8 | |
| | SIGNAL | POWER | POWER | POWER | POWER OR TRIAXIAL | POWER OR QUADRAX OR TWINAX OR TRIAX | |
| **07** | - | - | - | - | - | 5 | 5 |
| **16** | - | - | - | - | 7 | - | 7 |
| **05** | - | - | - | 13 | - | - | 13 |
| **04** | - | - | 21 | - | - | - | 21 |
| **08** | - | 18 | - | - | - | 3 | 21 |
| **19** | - | 25 | 12 | - | - | - | 37 |
| **13** | 39 | - | 10 | - | - | - | 49 |
| **01** | - | 50 | - | - | - | - | 50 |
| **12** | 78 | - | - | - | - | - | 78 |



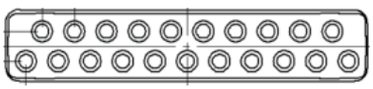
**Arrangement 01:**
50 Contacts #20



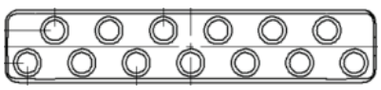
**Arrangement 12:**
78 Contacts #22



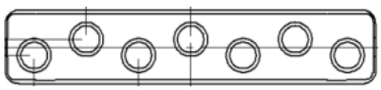
**Arrangement 13:**
39 Contacts #22
10 Contacts #16



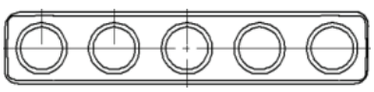
**Arrangement 04:**
21 Contacts #16



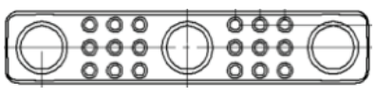
**Arrangement 05:**
13 Contacts #12



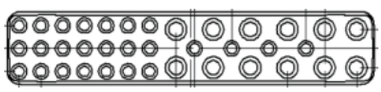
**Arrangement 16:**
7 Contacts #10



**Arrangement 07:**
5 Contacts #8



**Arrangement 08:**
18 Contacts #20
3 Contacts #8



**Arrangement 19:**
25 Contacts #20
12 Contacts #16

# SIGNAL & POWER CRIMP CONTACTS

## ELECTRICAL CHARACTERISTICS

*Signal & Power Crimp Contacts for Copper Cables*

| CONTACT SIZE | WIRE SIZE | TYPE | ENVIRONMENTAL PART NUMBER | NON-ENVIRONMENTAL PART NUMBER | CRIMPING TOOL | POSITIONER | SELECTOR OF JAWS | INS/EXT TOOL |
|---|---|---|---|---|---|---|---|---|
| 22 | AWG26<br>AWG24<br>AWG22 | Pin | 670200 (per M39029/58-360) or<br>628200 (per EN3155-008M2222) [1] | | 282281<br>(M22520/2-01) | 282562<br>(M22520/2-09) | 2<br>3<br>4 | 282522<br>(M81969/14-01) |
| | | Socket | 670350 (M39029/57-354) or<br>628300 (per EN3155-003F2222) [1] | | | (M22520/2-06) | | |
| 20 | AWG24<br>AWG22<br>AWG20 | Pin | 628220<br>(per EN3155-014M2020) | | 282281<br>(M22520/2-01) | (M22520/2-08) | 5<br>6<br>7 | 282522001<br>(M81969/39-01) |
| | | Socket | 628320<br>(per EN3155-015F2020) | | | | | |
| 16 | AWG20<br>AWG18<br>AWG16 | Pin | 670230 (per M39029/58-364) or<br>628240 (per EN3155-008M1616) [1] | | 282291<br>(M22520/1-01) | (M22520/1-04)<br>Blue | 4<br>5<br>6 | 282515<br>(M81969/14-03) |
| | | Socket | 670380 (per M39029/57-358) or<br>628340 (per EN3155-003F1616) [1] | | | | | |
| 12 | AWG14<br>AWG12 | Pin | 670240 (per M39029/58-365) or<br>628250 (per EN3155-008M1212) [1] | | 282291<br>(M22520/1-01) | (M22520/1-04)<br>Yellow | 7<br>8 | 282549004<br>(M81969/14-04) |
| | | Socket | 670390 (per M39029/57-359) or<br>628350 (per EN3155-003F1212) [1] | | | | | |
| 10 | AWG12<br>AWG10 | Pin | 628260<br>(per EN3155-008M1010) | | Manual tool:<br>282296<br>(M300BT)<br>Pneumatic tool:<br>(M22520/23-01) | Manual tool:<br>DMC TP1526<br>Pneumatic tool:<br>DMC WA23-102L | Manual tool:<br>2 (cable AWG12)<br>4 (cable AWG10)<br>Pneumatic tool:<br>DMC WA-168DA<br>(AWG12)<br>DMC WA-101DA<br>(AWG10) | 282549033<br>(M81969/14-05) |
| | | Socket | 628360<br>(per EN3155-003F1010) | | | | | |
| 8 | AWG08 | Pin | 628291001 | 628291 | M22520/23-01 | DMC WA23-296 L | DMC WA23-2 | 282549051<br>(M81969/14-12) |
| | | Socket | 628391001 | 628391 | | | | |

***Notes***

*1. The table shows the contact style and part number compatibility. When connectors are ordered with contacts included, the contact sizes 22, 16 and 12 come always with M39029 style.*

*Contacts*

## COAXIAL CRIMP CONTACTS

### SIZE 8 COAXIAL CRIMP CONTACTS

| CONTACT SIZE | CABLE TYPES | CONTACT GENDER | NON-ENVIRONMENTAL PART NUMBER [1] | EXTRACTION TOOL |
|---|---|---|---|---|
| 8 | RG400<br>ASNE0293XF | Pin | 691800021 | 282549051<br>(M81969/14-12) |
| | | Socket | 691810021 | |
| | Draka F1703-195<br>Gore GSC-03-81748-00<br>EN4604-003WZ | Pin | 691800020 | |
| | | Socket | 691810020 | |

## TWINAX & TRIAX CRIMP CONTACTS

### SIZE 8 TWINAX CRIMP CONTACTS

| CONTACT SIZE | CABLE TYPES | CONTACT GENDER | NON-ENVIRONMENTAL PART NUMBER | ENVIRONMENTAL PART NUMBER | EXTRACTION TOOL |
|---|---|---|---|---|---|
| 8 | ABS0386WF<br>Nexans ET96897<br>Draka F2703-37<br>TE-Raychem 1726A1424 | Pin | 617165014 | [1] | 282549051<br>(M81969/14-12) |
| | | Socket | 620065010 | [1] | |
| | EN3375-009WX26<br>ASNE0807WX26<br>Nexans ET133199 | Pin | 628165012 | [1] | |
| | | Socket | 620065012 | [1] | |
| | Cheminax 2524B0524 | Pin | 617165025 | 628165026 | |
| | | Socket | 617065025 | 628065026 | |

### TRIAX CRIMP CONTACTS

| CONTACT SIZE | CABLE TYPES | CONTACT GENDER | NON-ENVIRONMENTAL PART NUMBER [1] | EXTRACTION TOOL |
|---|---|---|---|---|
| 8 | EN3375-004<br>EN3375-005 | Pin | 691800071 | 282549051<br>(M81969/14-12) |
| | | Socket | 691800171 | |
| | EN3375-003 | Pin | 691800070 | |
| | | Socket | 691800170 | |
| | EN3375-004CWJ24 | Pin | ABS2231P02 | |
| | | Socket | ABS2231S02 | |
| 10 | EN3375-006XM24<br>(ASNE0290XM24) | Pin | 691800090 | 282549033<br>(M81969/14-05) |
| | | Socket | 691800190 | |

## QUADRAX CRIMP CONTACTS

| CONTACT SIZE | CABLE TYPES | CONTACT GENDER | NON-ENVIRONMENTAL PART NUMBER | ENVIRONMENTAL PART NUMBER | EXTRACTION TOOL |
|---|---|---|---|---|---|
| 8 | DRAKA F4704-4<br>(ABS0972KB24)<br>DRAKA F4704-5<br>(ABS1503KD24) | Pin | 628175070 | [1] | 282549051<br>(M81969/14-12) |
| | | Socket | 628075070 | [1] | |
| | NF26Q100 | Pin | 617175070 | 628175072 | |
| | | Socket | 617075070 | 628075072 | |
| | NF24Q100 | Pin | 617175070 | 628175071 | |
| | | Socket | 617075070 | 628075071 | |
| | NF22Q100 | Pin | 617175040 | [1] | |
| | | Socket | 620075040 | [1] | |
| | JSFY02 | Pin | 628179002 | [1] | |
| | | Socket | 620079002 | [1] | |

***Notes***

*1. Please contact Radiall for environmental applications*

*Discover the perfect fit for your needs! Visit our website and try our easy-to-use selection tool: https://www.radiall.com/multipin-connectors.html?selector=multipin--contacts*

*Contacts*

## FIBER OPTIC CONTACTS & Q-MTITAN

### QR COMPATIBILITY

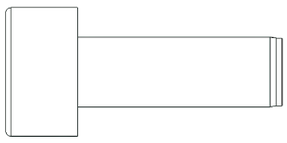
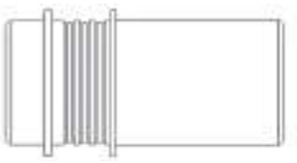
Fiber optic contacts EN4531 with adapters in size 8 cavities are available with arrangements 07 (up to 5 contacts) and 08 (mix of optical and electrical contacts) [1]

12-channel Q-MTitan ARINC 846 fiber optic contact fits size 8 Quadrax cavities without adapters (5 Q-MTitan = 60 fiber optic in a Quick Install connector) [1]

## SEALING PLUGS

Sealings plugs are dedicated to environmental insert cavities.

The sealing is guaranteed between each individual contact cavities. No filer plug or dummy contacts are necessary. Sealing plugs in unused cavities are optional, but recommended for future usage in order to avoid dust or FOD to enter the cavities.

| SIZE | CONTACT CAVITY VERSION | COLOR | PART NUMBER | DRAWING |
|---|---|---|---|---|
| 22 | For Pin & Socket | Black | 616910 (MS27488-22-2) or (E0616BC2200) |  |
| 20 | | Red | 616911 (MS27488-20-2) or (E0616BC2000) |  |
| 16 | | Green | 616912 (MS27488-16-2) |  |
| | | Blue | or (E0616BC1600) | |
| 12 & 10 | | Orange | 616913 (MS27488-12-2) |  |
| | | Yellow | or (E0616BC1200) | |
| 08 | | Red | 628950020 (E0616BC0803) |  |

*Notes*

*1. Please contact Radiall for performance information*

*Accessories*

## ACCESSORIES, SPARE PARTS & TOOLS

| | PART NUMBER | DESCRIPTION |
|---|---|---|
|  | 628954001 | Receptacle Dust Cap |
|  | 628954002 | Plug Dust Cap |
|  | 282654002 | Handle for test bench connector easier disconnection (Cable Clamps for any contact arrangement) |
|  | 282700500 | Set of Mounting Tools for Key A, B, C, D |
|  | 282700100 | Tool for Coding Key A – White [1] |
|  | 282700200 | Tool for Coding Key B – Green [1] |
|  | 282700300 | Tool for Coding Key C – Yellow [1] |
|  | 282700400 | Tool for Coding Key D – Blue [1] |

***Notes***

*1. Tools for coding key are compatible with receptacle and plug.*

*Accessories*

## ACCESSORIES FOR CABLE

The Quick Install series is compatible with a wide range of standard cable clamp accessories.

The Quick Install plug and receptacle are suitable for use with EN3545-007 straight and right angle cable clamps for standard contacts and size 8 contacts.

| | | | |
|---|---|---|---|
|  |  |  |  |
| EN 3545-007 SCD<br>Radiall 628922003 | EN 3545-007 SCG<br>Radiall 628922004 | EN3545-007 SCE<br>Radiall 628922001 | EN 3545-007 SCH<br>Radiall 628922002 |

## LOOKING FOR SOMETHING UNIQUE? WE CAN CREATE CUSTOM VERSIONS TAILORED TO YOUR SPECIFIC NEEDS.



*Optical Version*



*Receptacle Connectors Fitted with Straight or Right Angle Contacts are Available for Equipment Versions*

*Notes*

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*Notes*

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