SABRITEC

Your Connection to the Future

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Your Connection the the Future

Sabritec is a highly integrated engineering and manufacturing company providing special interconnect solutions for military, aerospace, telecom, space, medical, test and measurement, and commercial applications. Sabritec designs and manufactures a full spectrum of connectors that include Filter connectors, High Speed Interconnects (Fibre Channel, Ethernet, IEEE 1394 Firewire), Fiber Optic, Coax, and Triax connectors, contacts and cable assemblies. Sabritec also manufactures custom multipin circular, rack and panel, and umbilical launch connectors as well as extreme environmental water immersion proof connectors for sea and military land based equipment applications. Our products span the broad spectrum of interconnects from highly integrated assemblies on military missile systems to microminiature connectors on printed circuit boards. Our connectors provide protection to sensitive avionics electronic systems yet can endure harsh environments that are found in military operations.

Sabritec is known for solving complex problems within tight time constraints. Our in-house capabilities encompass design, development, manufacturing, and testing. As an engineering driven company, our staff has in-depth experience in electrical and mechanical design, EMI/RFI/EMP suppression techniques, microwave transmission, high voltage applications, severe environments, and material and plating selection. We manufacture mulitlayer thick film ceramic capacitors in house.

Recipient of the Boeing 2001 Exceptional Company Performance Award

Sabritec's modern 53,000 sq. ft. facility is conveniently located in Irvine, California. Major emphasis is placed on sophisticated computer-controlled precision fabrication equipment. We employ a number of CNC lathes, screw machines, milling machines, and turret machines. Additional capabilities include soldering and brazing, heat-treating, plating and fabrication.

A Smiths Group company

Sabritec is a Smiths Group, plc. company. Smiths Group is an international engineering company with market leading positions worldwide. Sabritec operates under the Smiths Interconnect division which offers a broad range of electrical and electronic connectors, low loss coaxial cable and connector assemblies, microwave components, antennas, lightning strike protectors, electrical surge suppressors, high frequency connectors, and Passive Intermodulation Analyzers.

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Entire Sabritec Team

Our Vision

Partnering with our customers to design and manufacture superior and reliable interconnect solutions that enable optimal system performance.

Our Mission

Sabritec's mission is to be the preferred source of innovative solutions for interconnect systems. Out objective is to design and manufacture high performance, precision interconnect solutions for global military and commercial applications. Through teamwork with our employees and suppliers, we will achieve profitability and business growth by providing excellent service to customers in our niche markets.

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Table of Contents

Special Applications and Custom Connector Requirements
This catalog is a guide to Sabritec's connector manufacturing capabilities. For the most up to date product offering please visit our website. If you cannot find a product for your application, please contact our applications engineering department. If you have an application which requires a new product or modification of an existing product, please use the connector application worksheet on page 225 to help specify your custom application interconnect needs. All specifications listed in this catalog are subject to change without notice.

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VERTICAL INTEGRATION

Sabritec's facility is completely vertically integrated, creating high quality precision interconnect products from initial concept, design and development, through production and acceptance testing.

3D CAD Modeling

Highly Trained Assembly Personnel

Engineering

- Design and support engineers (manufacturing, industrial, quality)
- Autocad drafting
- Solid modeling capabilities
- Finite element analysis (mechanical & electrical)

Assembly Capabilities

- Soldering IPC-A-610 & J-STD-001 Certified
- Solder trained personnel
- Reflow ovens, static pots, & hand solder stations
- Marking, offset printing, electro & plasma etching
- Semi-automatic equipment
- Wire strippers
- Crimpers
- Automatic installation of clips, hoods, and mil-max

Other Capabilities

- Plastic injection molding
- Rubber compression molding
- Heat treating
- Plating –gold and electroless nickel
- X-Ray fluorescents

Fibre Channel Copper Solder Assembly

Quality

Our goal is to provide a superior interconnect product to our customers through innovative design and continuous improvement of manufacturing processes and operational performance.

We will accomplish this through:

- Anticipating the needs of our market
- Listening to and understanding our customer's expectations
- Investing in tools and equipment to expand our technology
- Investing in our people through training and education
- Evaluating/improving our internal capabilities
- Partnering with a knowledgeable and capable supply base

In-Process Soldering Inspection

Certifications

- MIL – I – 45208A
- ISO 9001 Certified
- ISO 14001 Certified
- AS 9100 Compliant
- Six Sigma Focus

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VERTICAL INTEGRATION

CNC Mill Machining Centers

Rack & Panel Connector Machining

CNC Lathes

Circular Connector Machining

Ceramic Capacitor Manufacturing

Multi-Layer Capacitor Array Manufacturing

Testing

Sabritec's testing capabilities support wide bandwidth (DC to 50 GHz with up to 12.5 GHz Trigger). We utilize the Tektronix CSA8000 to measure the differential pair TDR impedance between twinax connectors, cable assemblies, and quad cable fibre channel interconnect systems. CSA8000 testing features 20 GHz bandwidth with 80E04 sampling module, 35 ps TDR reflected rise time, differential TDR, and crosstalk.

Sabritec's Wiltron 360B Vector Network Analyzer measures VSWR & insertion loss up to 20 GHz. All four parameters can be measured simultaneously & efficiently measuring precision RF transmission and reflection coefficients. Rapid data storage and retrieval functions are quickly obtained for complex TDR analysis, stub tubing, and precise phase matching of RF cable assemblies, high frequency probes and waveguide tuners. Assembly line personnel also perform complex RF measurements. Rapid high production testing is performed with the use of pass/fail limit line set-ups and calibrations ensuring complete reliability of high quality 100% tested precision RF connectors and cable assemblies.

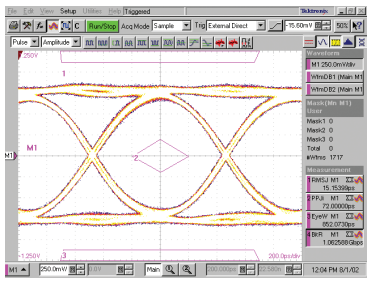
Sabritec's Production Automation Model 4720 Automatic Filter/Diode Array Test System is a battery of peripheral and OEM instruments. The system is capable of 100% rapid testing of modules, connectors and cable assemblies for capacitance, dissipation factor, IR and DWV (pin to shell and pin to pin), inductance, resistance, stand off voltage, break down voltage, and reverse bias leakage current. For connectors with EMI and EMP protection, the filter module is tested at the higher voltages before attachment to the diode module.

Testing Capabilities Include:

Capabilities Electrical
– DWV, IR, & Continuity
– EMI, Crosstalk & Impedance
– Capacitance & Diode Verification
– VSWR to 40 GHz
– Jitter & Eye Pattern (Digital)
– Fiber Optic Insertion Loss Testing

Capabilities Mechanical
– Thermal Cycling & Thermal Shock
– Temperature Humidity & Salt Spray
– Durability
– Mechanical Loading

Tektronix CSA 8000



Eye-Patten, Jitter & Skew Measurements

Machine Shop

- Full model machine shop
- Plastic and rubber molding
- Prototyping & assembly tooling
- Full turning equipment
- CNC Milling machines
- CNC Lathes
- CNC Screw machines

Production Automation Testing

Automatic Electrical Testing

CNC Swiss Machining Centers

Precision Contact Machining

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Products	Military/Aerospace	Land Based Military	Space/Satellite	Commercial Aviation	Telecom	Medical	Test & Measurement
FILTER CONNECTORS							
ESD Connectors	X	X					
MIL-DTL-38999	X	X	X	X		X	X
MIL-DTL-83723	X	X	X	X			
MIL-C-26482	X	X	X	X		X	X
ARINC 404 & 600	X	X		X			X
MIL-DTL-83527	X	X					
MIL-DTL-24308	X	X	X	X	X	X	X
MIL-DTL-83513	X	X	X				
3W3 D-SUB Connectors	X				X		
FIBRE CHANNEL/ETHERNET							
Quadsplitter	X	X	X	X			X
Quad Connectors	X	X	X	X			X
MIL-DTL-38999 Twinax	X	X	X	X			X
Cable Mount Connectors	X	X	X	X			X
Micro Twinax	X	X	X	X			X
Modular Block	X	X	X	X			X
ARINC 404/600/664	X	X	X	X			X
MIL-DTL-83527	X	X					
Fibre Channel Backplane	X	X	X	X	X	X	X
Quad Ethernet D-Sub	X	X	X	X	X	X	X
COAX CONNECTORS/CONTACTS							
SCX	X		X	X	X		X
MDCX	X	X	X	X	X		X
Micro-D MDCX	X	X	X				
SMP/SMPM	X	X	X	X		X	X
PCB Connectors	X	X	X	X	X	X	X
38999, ARINC Contacts	X	X		X			
Torque Assist Connectors	X	X	X	X	X		X
TRIAX CONNECTORS/CONTACTS							
NDL-Q			X	X		X	X
NDL-T	X	X	X	X			
Triax Contacts	X	X		X		X	X
High Impedance	X	X	X	X			X
Rugged D-Sub	X	X	X	X			
FIBER OPTIC CONNECTORS							
38999 Connectors	X	X	X	X			X
RSC/SC/FC/ST	X	X	X	X	X	X	X
Size 16 Butt-Joijnt	X	X	X	X			X
Size 5 Expanded Beam	X	X	X	X			X
DIN Contacts	X	X	X	X			X
MT-RJ Connectors	X	X		X	X	X	X
MTP Connectors	X	X		X	X	X	X
LC (Simplex & Duplex)	X	X		X	X	X	X
Special Interconnects	X	X	X	X	X	X	X

The following icons are shown throughout this catalog to demonstrate the most common applications the products are used in. Our products may be used in several types of applications and are not limited to the icons shown.

= Military/Aerospace

= Land Based Military

= Commercial Aviation

= Space Applications

= Telecommunications

= Test & Measurement

= Medical Applications

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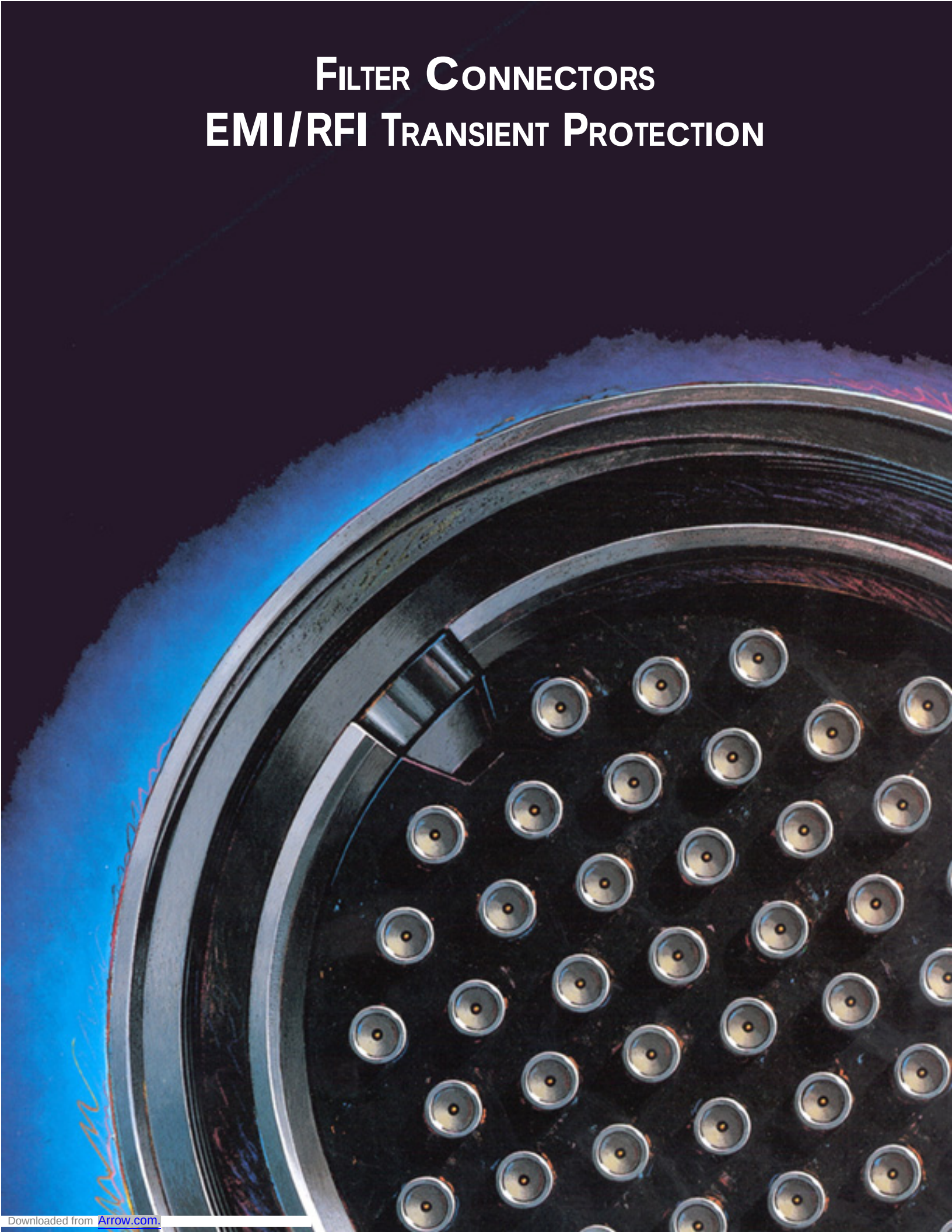
Filter Connectors
EMI/RFI Transient Protection



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Your Filter Connection to the Future

Our Products

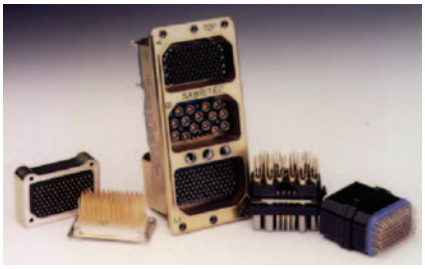
Sabritec designs and manufactures a full spectrum of sophisticated filter connector products. Our specialty is in the design of interconnect solutions addressing EMI/RFI filtering, and transient protection to meet demanding HIRF and Lightning requirements.

In addition to MIL-Spec interface type products, many of our designs are unique, built to conform to customer specifications requiring a high level of integration, special packaging, and critical electrical performance. Innovation is our distinction and our products address a wide variety of applications. Our achievements lead the industry in the design and manufacture of special filter connector products.

Our Design Strategy

Sabritec's design strategy for filter connectors is based on extensive experience with filter capacitor arrays and diodes. Our engineers understand the extreme environmental conditions that can cause a filter or diode to fail or, worse yet, cause a system dysfunction. This design strategy is built on the foundation of system reliability and the efficient use of available space. The capacitor array is protected from thermally induced mechanical stresses by a barrier located between the capacitor array surface and the epoxy filled region. This barrier isolates the epoxy and the ceramic array and prevents damage to the array from the expansion influence of the epoxy.

Modularization



A disciplined design approach that employs methods of grouping multiple components into subassemblies wherever feasible. Such subassemblies may include a filter module, diode module, circuit assembly module, and a transition interface assembly. Modularization results in cleaner, more standardized designs that provide flexibility in maintaining and upgrading the connector. An important advantage of modularization is that individual modules may be removed or replaced in the field without disturbing other subassemblies and components.

Integration

There is considerable unused space available in a standard non-filtered connector. Sabritec takes advantage of this space by removing components from elsewhere in the system and integrating them within the connector making available valuable board space. Isolating components electrically eliminates external wire connections and decreases crosstalk. The connector shell protects critical components from environmental or mechanical damage.

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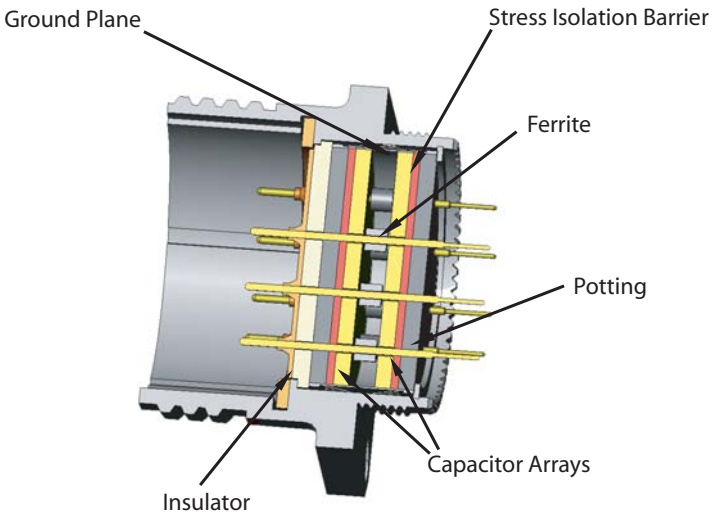
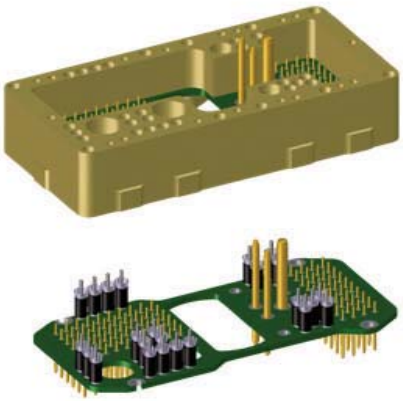
Advantages of Sabritec Filter Connectors

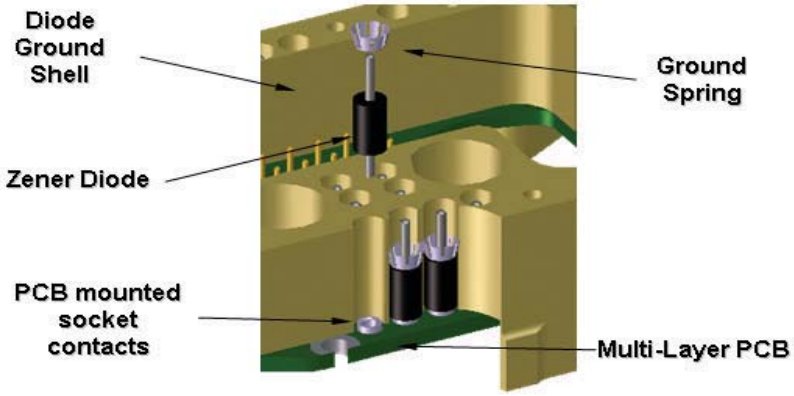
- √ Sabritec's filters connectors use monolithic capacitor arrays, the most reliable method of EMI/RFI filtering
- √ A single capacitor array can provide multiple capacitance values
- √ Most space efficient method of packaging EMI/RFI and EMP transient protection
- √ Connector shell protects the capacitor array and diodes from environmental, mechanical and thermal damage
- √ Transient voltage suppressors (transorbs) integrated into the connector offer EMP transient protection to sensitive circuitry. JANTX level or equivalent diode reliability screening is available
- √ System weight is reduced by integrating the filters and diodes into the connector
- √ Modular design techniques reduce the overall package size and improve connector maintainability
- √ Tested and documented using automatic test equipment

EMI Filter Cross Section



EMP Filter Construction





Advantages of Sabritec Filtered EMP Connectors with Transient Protection and EMI Suppression

- √ Transient protection can be combined with EMI filtering if required
- √ Standard "catalog" diodes are used instead of custom downsized low wattage chip diodes susceptible to failure
- √ Mixture of diode parameters varying power, voltage and polarity within the same connector is available
- √ Diodes can be removed and replaced without disassembly of the connector
- √ Transient protection is located at the interface of the system
- √ Separable diode and filter modules are more easily repaired
- √ Diodes and filters are protected by the shell reducing environmental and mechanical damage
- √ System retrofit to EMP/EMI is compatible with unprotected connectors

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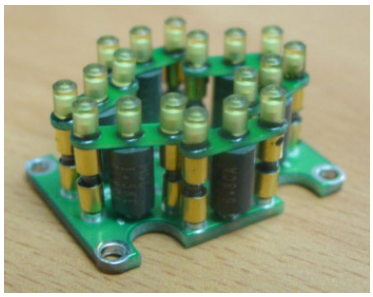
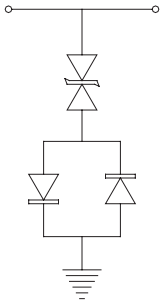
TRANSIENT PROTECTION

The increased sensitivity of electronic systems and mandated performance requirements such as RTCA DO-160 make transient protection paramount in system design today. Transient suppression built into the connector provides the most space efficient and effective method of protection against Electromagnetic Protection (EMP), Lightning, Nuclear EMP and voltage transients. The excess energy is shunted to ground at the connector interface before it can even enter the system.

With the advent of today's high signal transmission speeds coupled with low-level operating voltages, a need for high speed EMP protection circuitry has arisen. Sabritec has developed a complete series of EMP products ideally suited for this need. Densely packaged and protected within the connector shell, Sabritec employs the use of low voltage transient voltage suppressor (TVS) bipolar diodes connected in series to a parallel network of back-back rectifiers as shown in the schematic diagram.

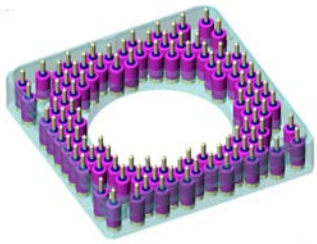


EMP Diode Module



Schematic High Speed EMP Protection

TVS diodes are mounted inside the connector around the periphery of the insert arrangement. Standard "catalog" diodes are utilized as opposed to custom or downsized diodes in order to increase reliability and minimize cost. JANTX diodes can be supplied; additionally, Sabritec has the capability to pre-screen diodes at component level testing and burn-in which eliminates infant mortality.



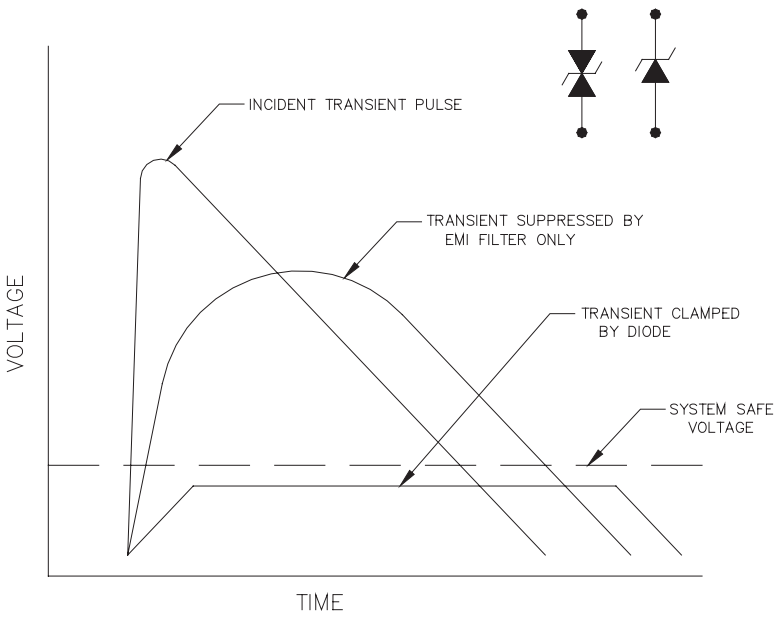
Diode Layout

The connector shell dimensions vary with the quantity and type of diodes chosen, but generally fit within the outline defined by the mounting flange. Sabritec's method of mounting the diodes can be incorporated into any connector type including, but not limited to MIL-DTL-38999, ARINC 600 and ARINC 404.

EMI Connector with Diodes

Where required, transient protection can be combined with EMI/RFI filtering to provide maximum protection. The diodes as well as the EMI filter are packaged separately so that the construction of the connector remains modular. Therefore, individual diodes as well as the EMI filter can be removed or replaced without disassembling the connector. Individual diodes are also field replaceable/removable.

Transient Curves



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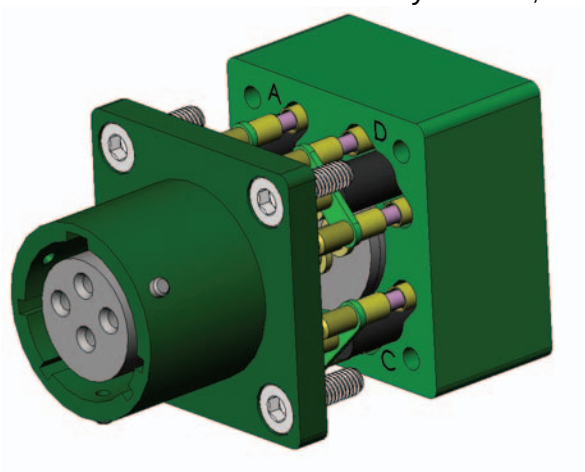
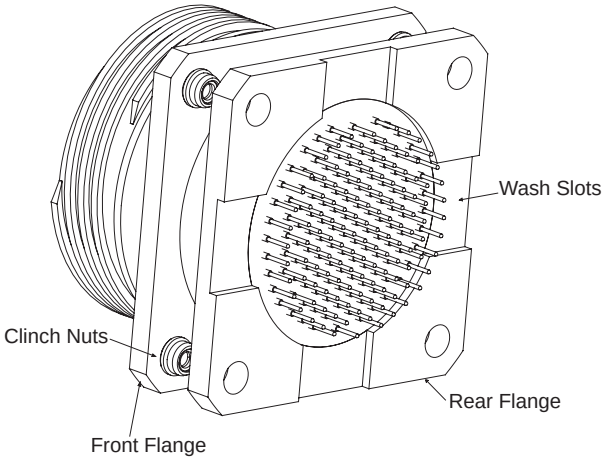
TRANSIENT PROTECTION

In order to meet the ever increasing EMC system requirements mandated in today's world, Sabritec offers solutions for both EMC and EMP protection on high speed data lines. For Coax, Triax, and Twinax contact types, Sabritec has a unique design solution that offers tailored protection without degradation of the data signals being transmitted. This is accomplished by maintaining extremely low capacitance and leakage current levels on uniquely designed and packaged diode stacks, in combination with in-house manufactured high frequency EMC filters.



High Speed Data Connector w/ Integrated EMI/EMP

Manufactured in a robust modular manner, the connectors can be quickly disassembled from the front/ rear providing access to the diode stacks for removal/ replacement if they become damaged as a result of excess transients experienced in service. Operating frequencies in excess of 100 MHz can be successfully used with full EMC/EMP protection, fully safeguarding the equipment and offering a low risk / high performance solution.



Standard EMI Filter Connector w/Integrated Dual Flange and Wash Slots

Another useful feature that can be incorporated into the connector design in order to ease final assembly and reduce system build costs is that of a dual flange. This enables the PCB or Flex Circuit to be soldered or fixed directly to the PC Tails protruding from the rear of the connector, after having been quickly and reliably 'mechanically fixed' by the use of self locking helicoils incorporated into the flange itself. Wash slots machined in the flange enable superior soldered joints to be achieved as a result of the void created, which allows even heat transfer during soldering. Subsequent cleaning processes being undertaken are also improved as a result of the same void, ensuring that no damaging flux residue remains in place.

Incorporation of this feature further acts as a rigid and mechanically strong standoff for the PCB, providing a solid datum point internally thus reducing any force experienced by the rear PC tails. Location of heavy PCB's can be easily tolerated with no damage to the connector experienced throughout its service life.

The final assembly stage can also be taken a step further with self-locking clinch nuts fixed to the front flange, resulting in faster assembly to the bulkhead and removing the need to purchase additional assembly components. These features can be accommodated in virtually all filter connector variants and enable the true system cost to be reduced for the user.

Pb

Sabritec is able to offer lead free filter connector solutions upon request. Consult factory for more details.

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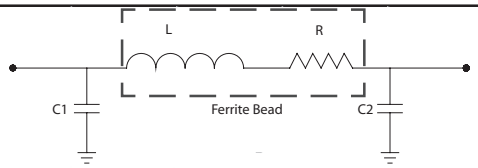
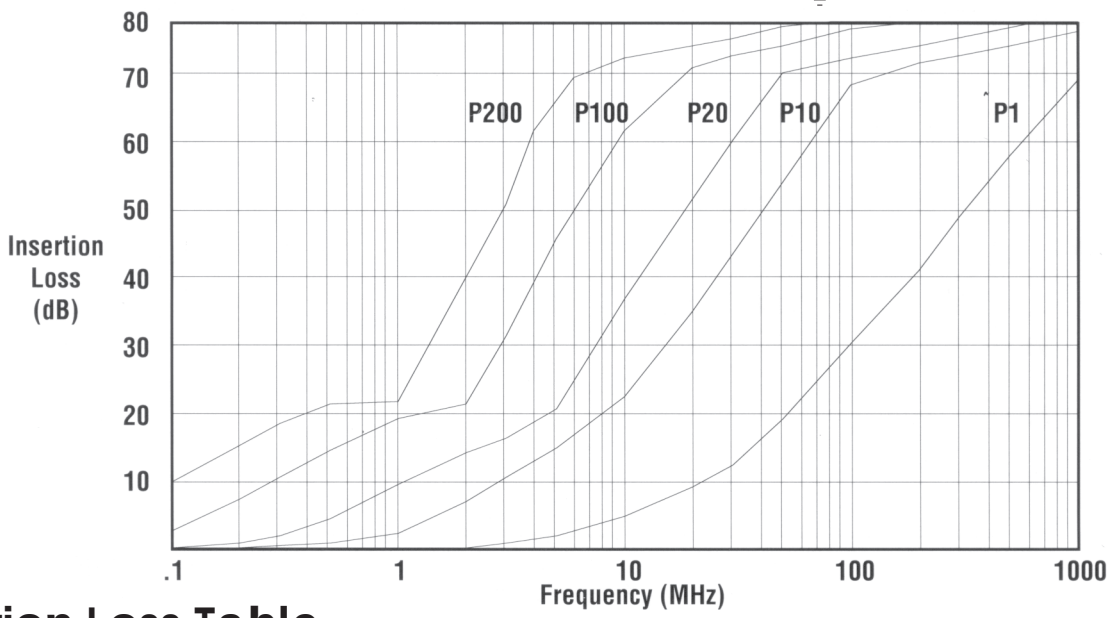
Electrical Characteristics - 'Pi' Section

Filter Description	P200	P100	P76	P38	P20	P10	P8	P4	P2	P1
Operating Temp Range	-55 to + 125°C									
Voltage Rating	100 VDC			200 VDC-120Vrms 400 Hz						
Current Rating DC				15 amps size 16 / 7.5 amps size 20 / 5 amps size 22						
Insulation Resistance				5000 megohms minimum @ 100 VDC						
Current Rating R.F.				3.0 amps max						
DWV sea level with 50 microamps max charge/discharge	250 VDC			500 VDC						

'Pi' Section Curves





Insertion Loss Table

Filter Description	See Notes	P200	P100	P76	P38	P20	P10	P8	P4	P2	P1
Capacitance in Nanofarads at 1Khz, .1VRMS		160 240	80 120	60 91	30 46	16 24	8 12	6.4 9.2	3.2 4.8	1.6 2.4	.8 1.2
Minimum No Load Insertion loss at 25°	Freq Mhz										
	.1	8	4.1	3	1	.3	.1	-	-	-	-
	1.0	22.2	19.6	18.2	13.3	8.2	3.9	2.9	.9	.2	-
	2	32.8	21.7	19.7	16.8	12.7	8	6.6	2.9	1	.3
	10	73.5	61	57	44.4	31.5	20.6	18.3	12.8	8.1	4.0
	100	85+	85+	85+	85+	78.0	65.8	61.9	49.6	37.3	25.6
	500-1k	85+	85+	85+	85+	85+	85+	80	75	64	52

Notes:

1. P200 & P100 Capacitance Values for Size 20 Contact Arrangement & Larger
2. No Load Minimum Attenuation Values per MIL-STD-220
3. Capacitance in Nanofarads (Nominal Value)
4. Consult Factory for Higher Voltages & Capacitance Values

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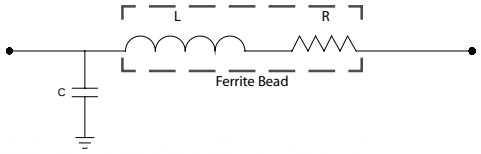
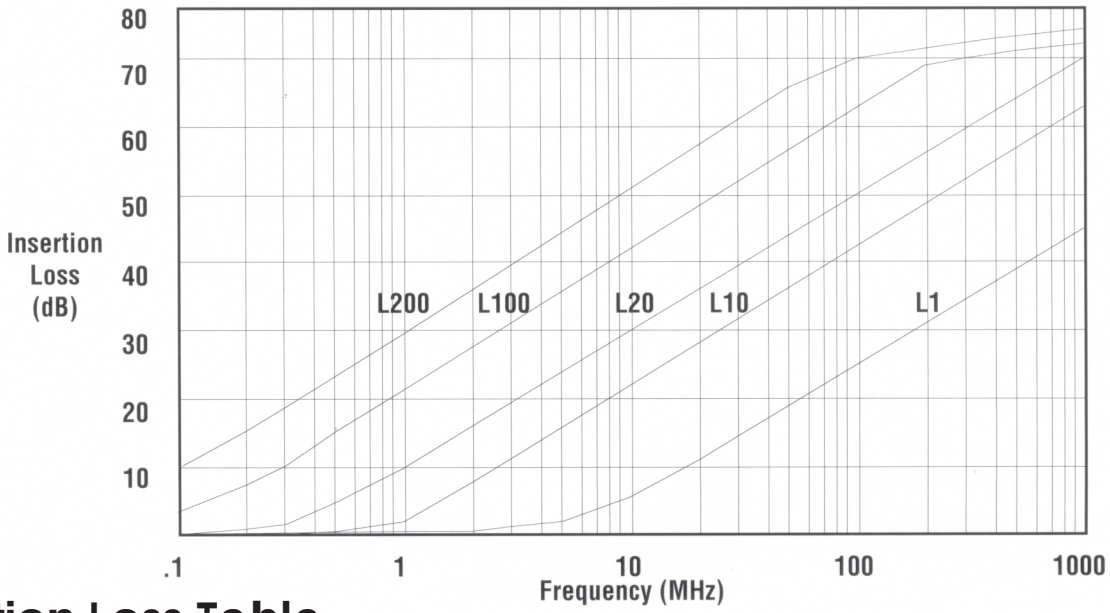
Electrical Characteristics - 'L' Section

Filter Description	L200	L100	L76	L38	L20	L10	L8	L4	L2	L1
Operating Temp Range				-55 to + 125°C						
Voltage Rating	100 VDC			200 VDC-120Vrms 400 Hz						
Current Rating DC				15 amps size 16 / 7.5 amps size 20 / 5 amps size 22						
Insulation Resistance				5000 megohms minimum @ 100 VDC						
Current Rating R.F.				3.0 amps max						
DWV sea level with 50 microamps max charge/discharge	250 VDC			500 VDC						



'L' Section Curves



Insertion Loss Table

Filter Description	See Notes	L200	L100	L76	L38	L20	L10	L8	L4	L2	L1
Capacitance in Nanofarads at 1Khz, .1VRMS		160 240	80 120	60 91	30 46	16 24	8 12	6.4 9.2	3.2 4.8	1.6 2.4	.8 1.2
Minimum No Load Insertion loss at 25°	Freq Mhz										
	.1	8.6	4.1	3	1	.3	.1	-	-	-	-
	1.0	28	22	20.1	14.2	8.6	4	3	.9	.2	-
	2	34.3	28.3	26.3	20.3	14.4	8.8	7.2	3.1	1	-
	10	49	43	41.1	35	29	23	21.1	15.1	9.5	4.8
	100	69.9	63.9	62	55.9	49.9	43.9	42	35.9	29.9	23.9
	500-1k	83.7	77.7	75.8	69.7	63.7	57.7	55.8	49.7	43.7	37.7

Notes:

1. P200 & P100 Capacitance Values for Size 20 Contact Arrangement & Larger
2. No Load Minimum Attenuation Values per MIL-STD-220
3. Capacitance in Nanofarads (Nominal Value)
4. Consult Factory for Higher Voltages & Capacitance Values

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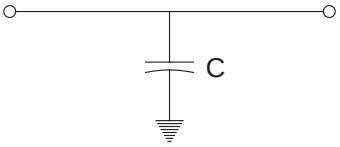
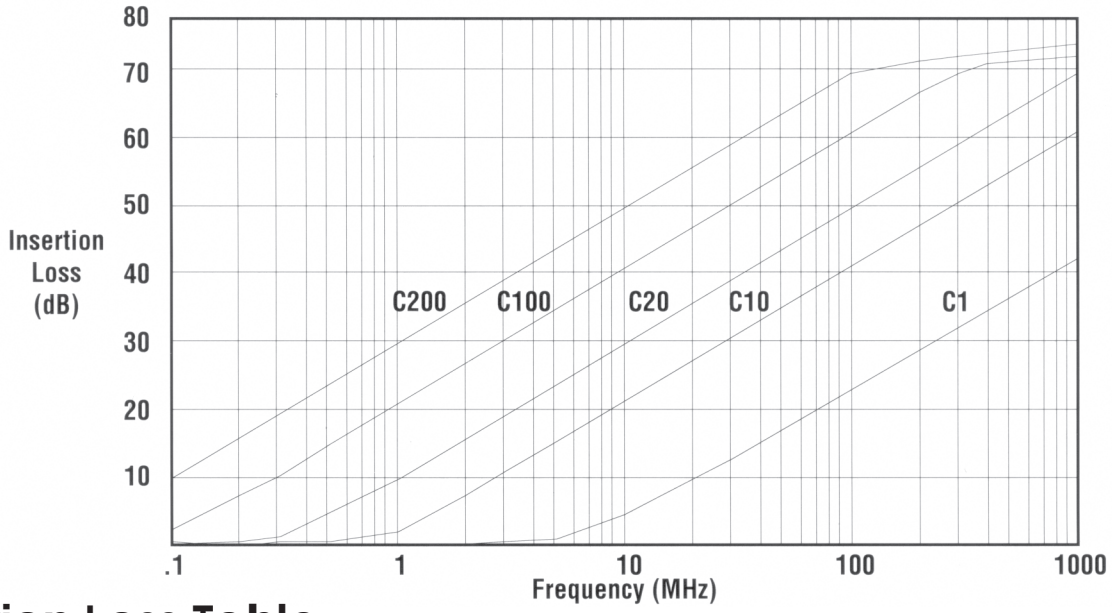
Electrical Characteristics - 'C' Section

Filter Description	C200	C100	C76	C38	C20	C10	C8	C4	C2	C1
Operating Temp Range				-55 to + 125°C						
Voltage Rating	100 VDC			200 VDC-120Vrms 400 Hz						
Current Rating DC				15 amps size 16 / 7.5 amps size 20 / 5 amps size 22						
Insulation Resistance				5000 megohms minimum @ 100 VDC						
Current Rating R.F.				3.0 amps max						
DWV sea level with 50 microamps max charge/discharge	250 VDC			500 VDC						



'C' Section Curves



Insertion Loss Table

Filter Description	See Notes	C200	C100	C76	C38	C20	C10	C8	C4	C2	C1
Capacitance in Nanofarads		160	80	60	30	16	8	6.4	3.2	1.6	.8
at 1Khz, .1VRMS		240	120	91	46	24	12	9.2	4.8	2.4	1.2
Minimum No Load Insertion loss at 25°	Freq Mhz										
	.1	8.6	4.1	3	1	.3	.1	-	-	-	-
	1.0	28	22	20.1	14.2	8.6	4.1	3	1	.3	.1
	2	34	28	26.1	20.1	14.2	8.6	7	3	1	.3
	10	48	42	40	34	28	22	20.1	14.2	8.6	4.1
	100	68	62	60	54	48	42	40	34	28	22
	500-1k	82	76	74	68	62	56	54	48	42	36

Notes:

1. P200 & P100 Capacitance Values for Size 20 Contact Arrangement & Larger
2. No Load Minimum Attenuation Values per MIL-STD-220
3. Capacitance in Nanofarads (Nominal Value)
4. Consult Factory for Higher Voltages & Capacitance Values

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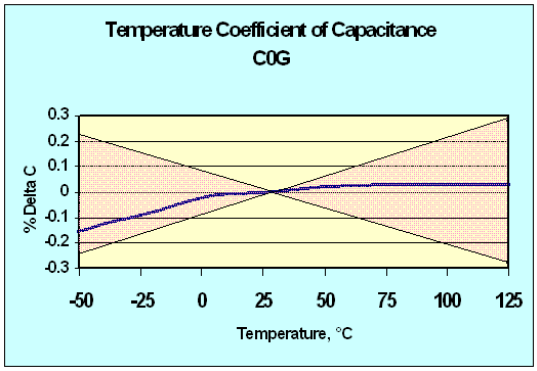
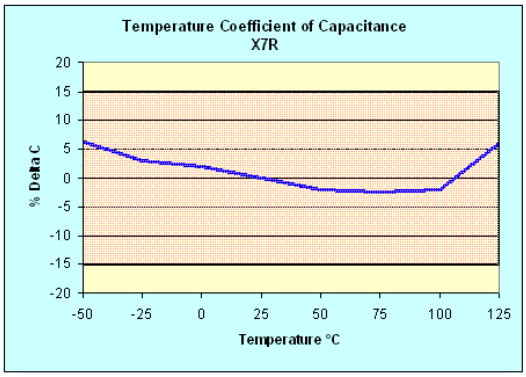
The heart of the filter connector is the capacitor array. The capacitor consists of multiple layers of ceramic insulators and precious metal conductors. The ceramic component has the unique ability to store a charge. The amount of charge that a capacitor can store depends on its capacitance and the applied voltage. The capacitance depends upon the composition of the insulator (better known as the dielectric). Every dielectric has an inherent ability to store charge when compared to a vacuum. This ratio is called a *dielectric constant* (K). Air, for example, has a dielectric constant of about 1.0. In comparison, mica has a dielectric constant of 6.0. In other words, mica has the ability to hold 6 times more of a charge than air. The dielectric materials used at Sabritec have dielectric constants of 95 (C0G) and 3000 (X7R). The capacitance also is influenced by the geometry of the capacitor. For a simple single layer capacitor, the capacitance increases with an increase in cross-sectional area. The capacitance can also increase with decreasing thickness.



C0G is an EIA designation for a low dielectric constant temperature, voltage, and frequency stable dielectric ceramic material. The above graph shows the stability of capacitance over the temperature range from -55°C to +125°C.

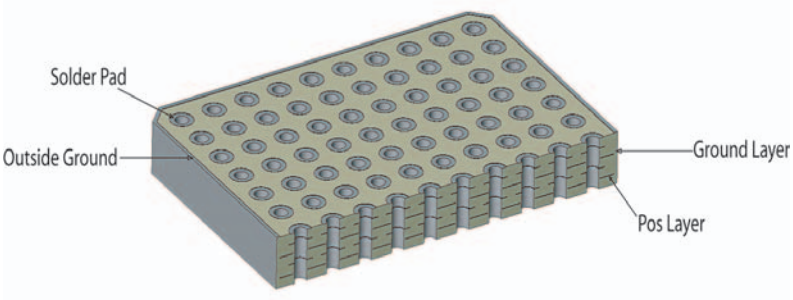


X7R is an EIA designation for a class II mid K dielectric material that has a maximum temperature coefficient of ±15% over the temperature range from -55°C to 125°C.

There are four major guidelines when designing a particular capacitor array:

1. The design must be large enough to compensate for shrinkage.
2. Multi-capacitance arrays require several multi screen designs.
3. A high capacitance design should not exceed a certain number of layers.
4. A high voltage design must meet a minimum fired thickness.

The capacitance is influenced by the number of active printed layers, the overlap area, and the thickness of each layer. There must be a balance between all three parameters to ensure a reliable and economical component. With each printed layer, precious metal is used which is costly. The amount of overlapping area between the ground plane and positive pattern must be small enough to minimize alignment variations, which can lead to failure, yet large enough to minimize the number of printed layers required to obtain a particular capacitance target. Large overlapping areas can increase the distribution of capacitance between the population of holes within a part. Finally, the layer thickness must be large enough to safely exceed the specified voltage requirements. If the layer thickness design is too large, then more printed layers are needed, increasing the overall thickness, making the capacitor too thick to fit into the connector design. If the capacitor is too thin, it may be prone to cracking during ceramic processing. There will always be at least two screens used for any one ceramic design; the ground plane and positive pad. The ground plane provides the ground connection to the connector shell. The positive pad provides connection to the contact pins.



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Ceramic Multilayer Capacitors

Tubular Capacitors/Chip Capacitors

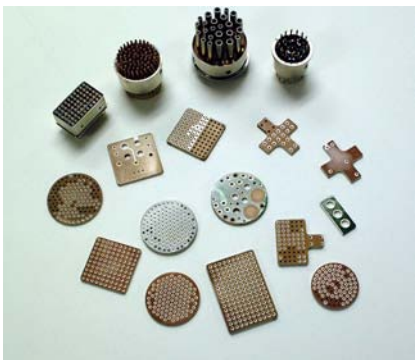
Tubular Capacitor Technology

In the early 1980's the filter connector (still in its infancy) used exclusively tubular type capacitors. These capacitors served the needs of the industry well at that time. However, low yields and an array of quality problems suggested that the tubular capacitor was no longer sufficient for the systems it was designed into. Therefore, in the late 1980's the monolithic planar array was born into existence.

This new technology incorporated the monolithic chip capacitor technology and adapted it to a multi line configuration. This gave both the ability to achieve higher capacitance per line as well as higher dielectric withstanding voltages. The two technologies are vastly different in their design and capabilities. The tubular capacitor is, as it suggests, a tube running the length of the contact with electrodes buried inside. The wall thickness of the tube is dictated by the pin to pin spacing of the connector, the metal ground plate used to ground the capacitor, and the size of the ferrite in a Pi section filter. In a 150 line ARINC 600 module, the pin to pin spacing is .100". Therefore the wall thickness of the tube is .050" minus the web dimension of the ground plane minus the wall thickness of the ferrite. Typically it ends up being around .015" thick. This limited thickness has to be designed to withstand the voltage rating of the system, achieve the desired capacitance and be strong enough for system vibration.

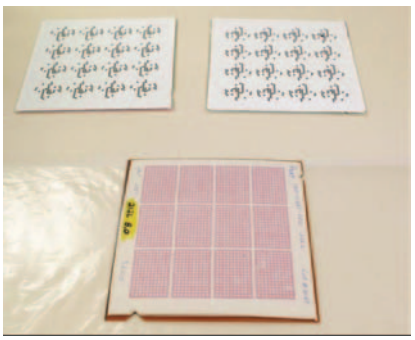
The systems of today typically require much higher capacitance values and/or require higher voltage ratings. The Eurofighter Typhoon has several requirements that exceed 2000 VDC and the vibration requirements are the highest in the industry. The .015" tubular capacitor is not designed to handle these high vibration requirements and there is no space to increase either the capacitance or the voltage rating.

Today's systems mandate harsh environmental constraints to be subjected to component hardware. The dielectric material in the capacitor typically is X7R type material to achieve the highest capacitance with the least change in capacitance over the temperature range. The tube has the electrodes (which when stacked together increase capacitance) running parallel to the contact. This in combination with the pin to pin spacing limits the capacitance to about 7000 pF at 200 VDC working voltage.



Chip Capacitors

The use of chip capacitors in military applications is typically not allowed in connectors. The reason is two fold; First, chip capacitors tend to resonate at frequencies above 120 MHz and during a swept EMC test tend to fail at those frequencies. Secondly, they also take up too much space and tend to lower the MTBF rating of the connector as a whole. The planar array is much more rugged of an assembly and not subject to the thermal shock and vibration that the chip capacitors surface mounted to the PCB would face. Lastly, the planar array ensures a 360 degree attachment to ground to maximize insertion loss up to 1 GHz. The chip capacitor does not have a circumferential ground and radiated emissions may not be captured by this solution.



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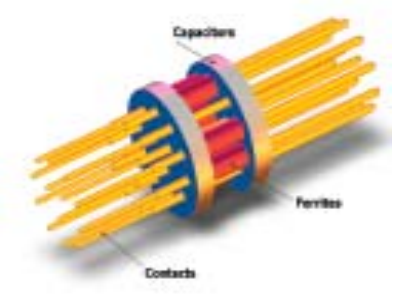
Planar Array Technology

The heart of the filter connector is the capacitor array. Sabritec internally manufacturers the monolithic ceramic capacitor array on both thick and thin film technology. Using a dry process to laminate the layers of X7R ceramic tape, Sabritec is capable of achieving capacitance values from 100pF to 100nF on the same array.

Parameter	Planar Array	Tubular	Chip
Capacitance	>60,000 PF	>10,000 PF	>50,000 PF
DWV	750 VDC	500 VDC	500 VDC
Resonance	none	none	120 MHz
Vibration	Very Good	Very Poor	Poor
MTBF	High	Low	Moderate

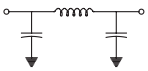
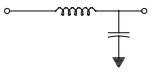
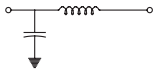
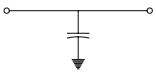
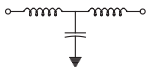
Our extensive in house capability allows for unique applications and arrangements not engineered elsewhere in the connector world. This may include mixed contact sizes, new insert arrangements, or high voltage applications up to 2000 VDC Dielectric Withstand Voltages (DWV).

The planar array is much more complex and versatile in its design. The planar uses the same X7R material as the tubular capacitor, however the electrodes run perpendicular to the contact. This allows higher capacitance and higher voltage ratings, as the pin to pin spacing is not effected by this design approach. With the electrodes running perpendicular to the contact, we can stack more electrodes thus increasing capacitance and at the same time, thicken the dielectric between electrodes to increase the withstanding voltages within the medium.



The planar array also has the advantage of strength. As the layers of ceramics are stacked perpendicular to the contact, we can increase the planar thickness to about .100" to withstand high vibration scenarios. This far outweighs the .015" thickness found in the tubular capacitor.

Because the capacitor is ceramic, it is relatively brittle in comparison to the other components of a connector (metal, rubber, and plastic). Therefore, the internal construction of the filter connector must isolate the capacitors from mechanical stress. Sabritec uses a thin wall ground plane to house the filter elements. The ground plane is captured between halves of the connector shell to provide mechanical retention as well as electrical contact. Thermal stress from the connector shell is not transferred to the capacitor arrays due to a gap between the outside diameter of the ground plane and the inside of the shell. Stress from the contacts is eliminated through the use of a block of epoxy on either side of the capacitors. Sabritec further isolates the capacitors with a proprietary stress isolation barrier between the epoxy and the capacitors.

Filter Type	Filter Circuit	Best Application
Pi		Unknown or medium source and load impedance
LC		Low source and high load impedance
CL		High source and low load impedance
C		High source and high load impedance
T		Low source and low load impedance

High source or load impedance >100 Ohms
Low source or load impedance < 10 Ohms

Note: *All Filters are passive low pass filters. Please consult factory for other types of filters such as band-pass, notch, or high pass filters.*

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Filter Connector Terminology

Working or Operational Voltage is the maximum voltage that can be continuously sustained. The dielectric utilized to manufacture the capacitor sets this value, which is directly proportional to the distance between ground planes and electrodes, whether a tubular capacitor or a planar array.

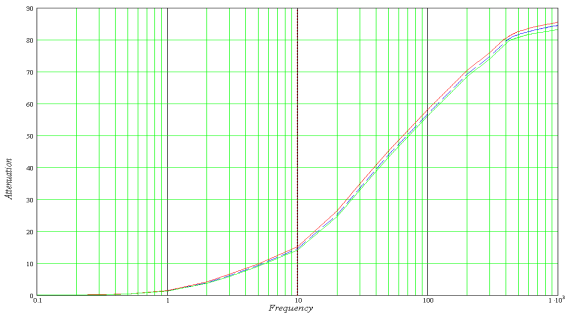
Insulation resistance (IR) is generally measured at the capacitor or connectors working voltage. This ensures that when utilized at these voltages, there is sufficient resistance between contacts and from a contact to ground, so as not to cause electrical shorts. Typical values are approximately 5000 mega-ohms. Lower values may be required for high capacitance values.

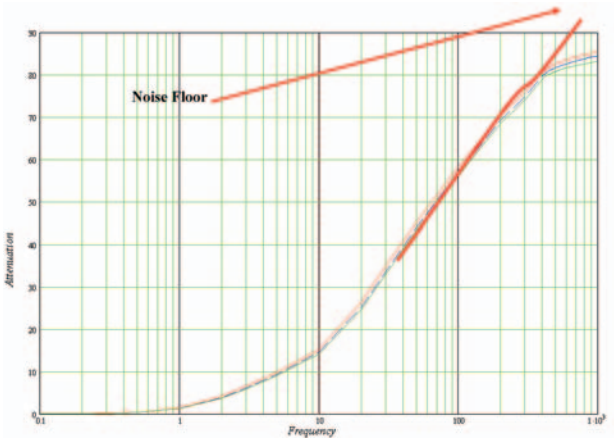
Capacitance is a product of the overlap between ground planes and electrodes, and the dielectric utilized (The dielectric constant of the ceramic k). Capacitance plays a key role in the filter performance. Capacitors impedance lowers as frequency increases. The greater the frequency, the greater the effect of filtering or attenuation for a low-pass filter.

Noise Floor is the value at which the connector will not exceed. Typically 75-85dB. This is limited by capacitor performance, source and load impedance and ground resistance. The graph on the right shows attenuation still increasing at 80db.

Cross talk is a disturbance, caused by electromagnetic interference, along a circuit or a cable pair. A telecommunication signal disrupts a signal in an adjacent circuit and can cause the signals to become confused and cross over each other.

Attenuation Curve for Low Pass Filters





Dielectric Withstanding Voltage (DWV) is the connectors upper voltage capability, for short non sustainable periods only. This can be specified as duration. The capacitor array will be weakened by multiple and sustained applied voltages at DWV levels.

Planar Array is the most common form of filter components utilized in connectors within our market areas. They provide high performance filters, are rugged enough to withstand high environmental vibration levels and can be manufactured with working voltages up to 1000 VDC with relative ease.

Dissipation Factor (DF) is the ratio of the energy dissipated to the energy stored in a dielectric per hertz, also equal to the tangent of the loss angle. It is also defined as the reciprocal of the ratio between the insulating materials capacitive reactance to its resistance at a specified frequency. It measures the inefficiency of an insulating material. If a material were to be used for strictly insulating purposes, it would be better to have a lower dielectric constant.

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Mechanical & Qualification Data

Sabritec connectors conform to the applicable military specifications and standards for materials, finishes and mechanical form, fit, and function. Filter connectors are fully intermateable and interchangeable in most instances with standard non-filtered QPL MIL-SPEC connectors.

Materials and Finishes

Shell & Jam Nut:	Aluminum Alloy Electroless Nickel per MIL-C-26074
Pin Contacts:	Brass per ASTM B16, Gold Plate Per MIL-G-45204
Socket Contacts:	Copper Alloy Gold Plate Per MIL-G-45204
Insulators:	High Grade Plastic/Epoxy
Seals and Grommets:	Silicon Base Elastomer

Production Automation Test System Measurements

	Range	Accuracy	Notes
Capacitance	1 pF-1µf	0.2% + 0.1 pf	1
DF	0.00001-10	1%	2
Inductance	100 nH-10KH	0.2%+10 nH	1
IR	1 K Ohm - 5 T Ohm	1%	3,4,5
DWV	10 pA-100 mA	1%+10 pA	3,4,6
VR	10 mV-100V	0.2% + 10 mV	7
Ground & Contact Resistance	0.1 mV-1V	0.1%+0.1 mV	7

Notes:

1. Frequency = 20 Hz to 1 MHz
2. Dissipation factor
3. With 5-500 volts applied
4. Measures each pin to all other pins grounded to shell
5. Insulation resistance
6. Dielectric withstanding voltage
7. Isource = 1nA-1A

Qualification Data

Sabritec's Fitler Connectors meet or exceed the applicable requirements of the following specifications:

MIL-DTL-38999	MIL-C-26482
MIL-DTL-83723	MIL-DTL-26500
MIL-DTL-24308	MIL-DTL-83733
MIL-DTL-83513	MIL-C-81511
MIL-DTL-83527	ARINC 600

ARINC 404 (MIL-C-81659)

Sabritec connectors have successfully completed qualification to the applicable requirements of MIL-DTL-38999, MIL-C-26482, ARINC 404 (MIL-C-81659), and ARINC 600. Because of our extensive array of test equipment, we are able to complete most qualification requirements in house including all S-level space grade qualification and acceptance lot testing.

Sabritec does not offer standard QPL slash sheet part #'s for multipin circular and rack & panel connectors. Our connectors are fully intermateable with all slash sheet part #'s.

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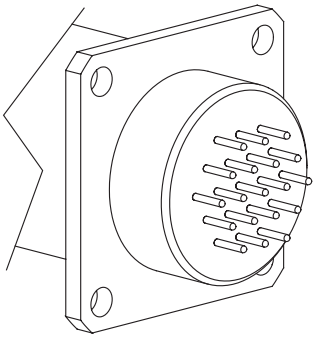
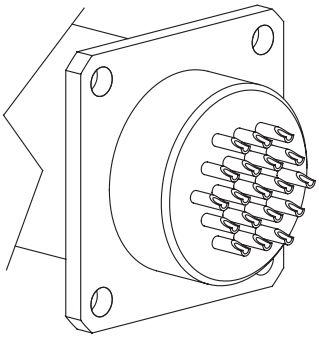
Contact Termination

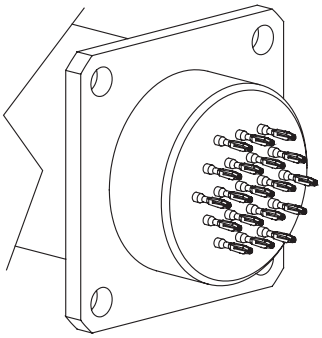
PC TAIL

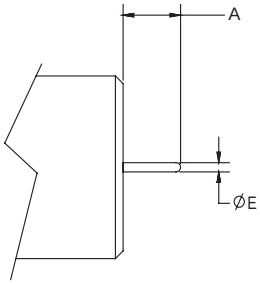


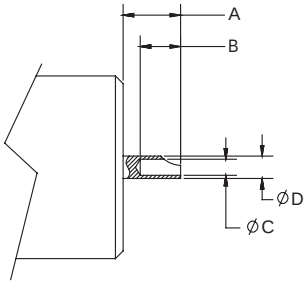
SOLDER CUP

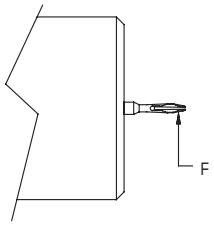


COMPLIANT PRESS-FIT
(SOLDERLESS)



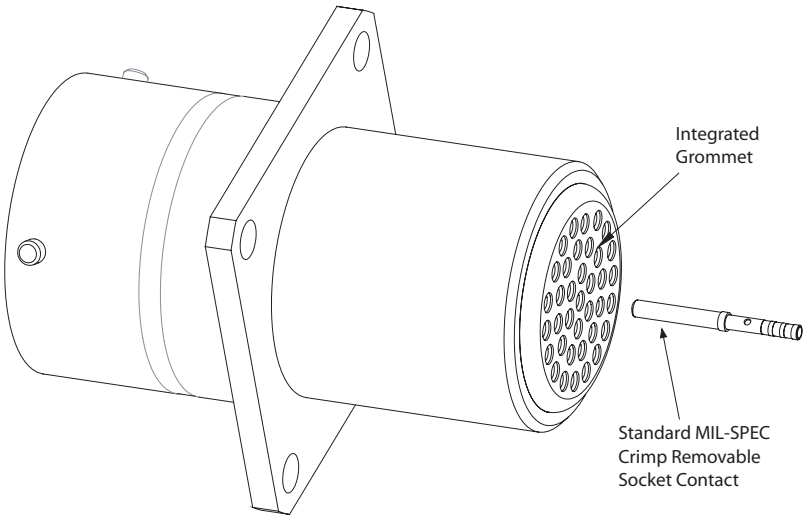






DIMENSIONS						
Contact Size	**A** ± .025	**B**	**C**	**D**	**E** ± **.003**	**F**
22	0.175	.125 .094	.040 .035	.055 .051	.020	PCB Finished Hole Ø.026 ± .002
20		.156 .125	.048 .042	.088 .061	.030	Consult Factory for Alternate Sizes
16		.172 .141	.082 .069	.103 .097	.050	
12			.120 .112	.142 .136	.065	

Crimp / Removable*



*** Add 0.700" to overall length for crimp removable connector with integrated grommet.**

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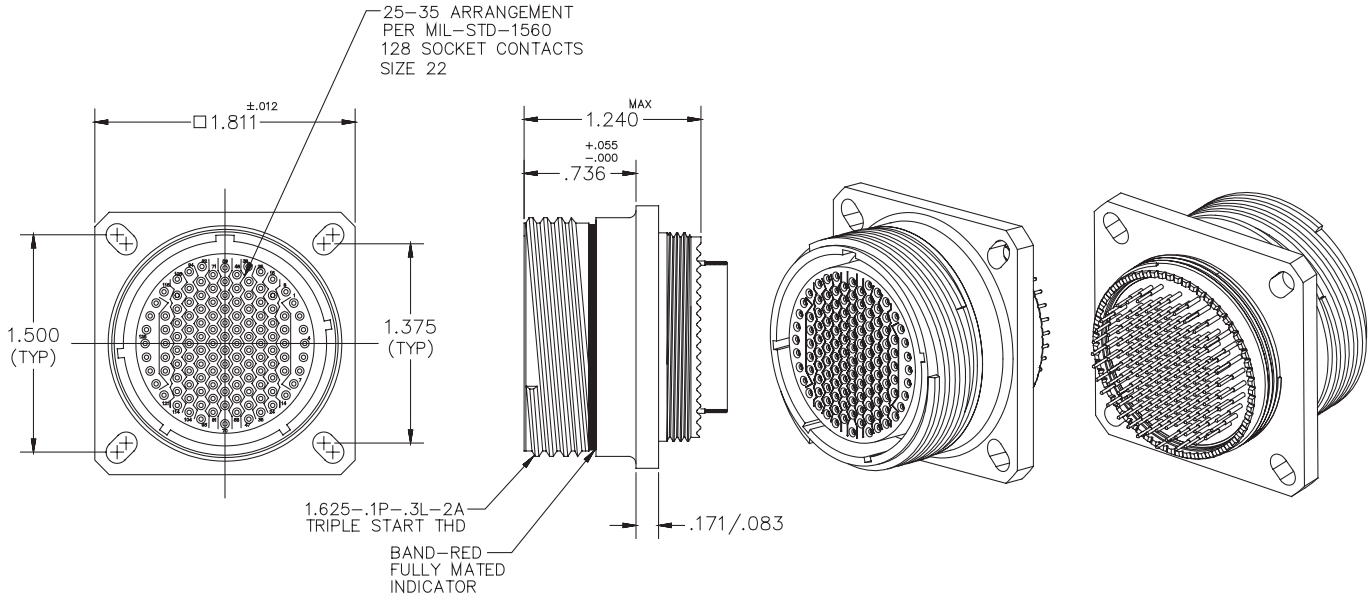
Sabritec's ESD Connector line is available for circular, rack and panel (ARINC), and d-sub receptacles. These connectors offer the utmost protection against EMI and ESD environments. ESD connectors have a faraday cage which protects the components inside the connector from electrostatic discharges. The composite material shell is able to resist severe corrosion up to 2000 hours of salt spray and helps increase durability (up to 1500 cycles). ESD connectors meet protection requirements of IEC 801-2 and MIL-STD-1686.

Materials and Finishes

Shell	Composite Material
Insulator	High grade plastic/epoxy
Contacts	Copper alloy, gold plate
Grommet and Seal	Silicon base elastomer
Ground Plane	Aluminum Nickel
Capacitor	Barium titanate
Inductor	Ferrite bead



MIL-DTL-38999 Series III Receptacle (ESD)

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Composite Connectors

Sabritec's filter composite connectors are available for the MIL-DTL-38999 circular connector series. The filter composite materials can resist severe corrosion of up to 2000 hrs of salt spray. Using composite filter connectors can help increase durability up to 1500 cycles. Filter composite connectors have magnetic permeability that meet all MIL-DTL-38999 requirements. These connectors are ideal for power management systems, video processing equipment, and military fighter jets. Available in nickel and cadmium plated versions. Filter connectors are also available with transient and EMI suppression. These connectors conform to the applicable military specifications and standards for materials and mechanical form, fit, and function. All Sabritec filter connectors can mate with non-filter connectors and in most cases are interchangeable.

- All shell sizes and contact layouts for MIL-DTL-38999 series
- Composite materials resist severe corrosion up to 2000 hrs of salt spray
- Nickel, electroless nickel and cadmium plated versions
- Increased durability (up to 1500 cycles) with composite materials
- Magnetic permeability meets all MIL-DTL-38999 requirements

Crimp Removable Composite Filter Connector

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MIL-DTL-38999

MIL-DTL-38999 filter connectors are designed to meet or exceed all applicable requirements of Series I, II, III, and IV. Filter connectors are intermateable and interchangeable with the standard non-filtered connectors.

Materials and Finishes

Shell	Aluminum alloy/Steel/Composite
Insulator	High grade plastic/epoxy
Contacts	Copper alloy, gold plate
Grommet & Seal	Silicon base elastomer
Jam Nut	Aluminum alloy
Ground Plane	Brass, silver plate
Capacitor	Barium titanate
Inductor	Ferrite bead

Part Number Assignment

P200 – 38999 – A – B – R – C – 25 – 61 – P – C – N

Filter Type
Pi, L, C

Prefix

Series
A – I
B – II
C – III
D- IV

Shell Style
J – Jam Nut
B – Box Mount
W- Wall Mount

Mounting
F- Front
R - Rear

Material/Plating
C- Aluminum Alloy/Cadmium Over Nickel
N- Aluminum Alloy/Electroless Nickel
S- Stainless Steel CRES 303/Electroless Nickel
CC-Composite/Cadmium Over Nickel (Olive Drab)
CN-Composite/Electroless Nickel
SP-Stainless Steel CRES 303/Passivated
**Consult Factory for alternate plating options*

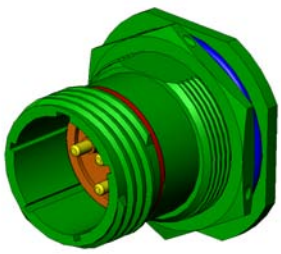
Shell Size
9 thru 25: Series I, III, IV
8 thru 24: Series II
11 thru 25: Series V

Insert Arrangment

Contact Type
P – Pin
S- Socket

Contact Termination
S- Solder Cup
P- PC Tail
C- Crimp

Polarization
N, A, B, C, D, E



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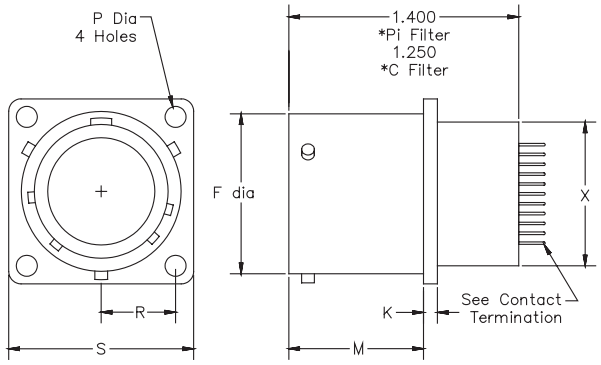
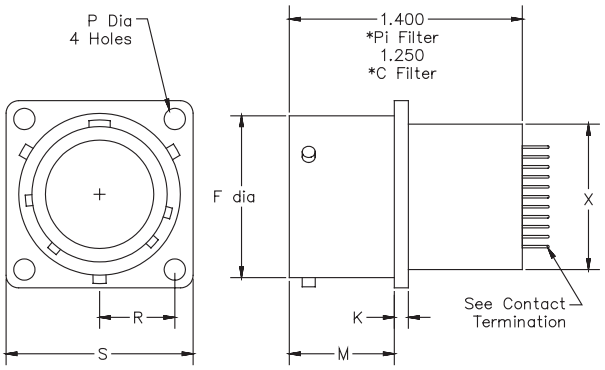
MS27505 Square Flange Receptacle
Rear Mount



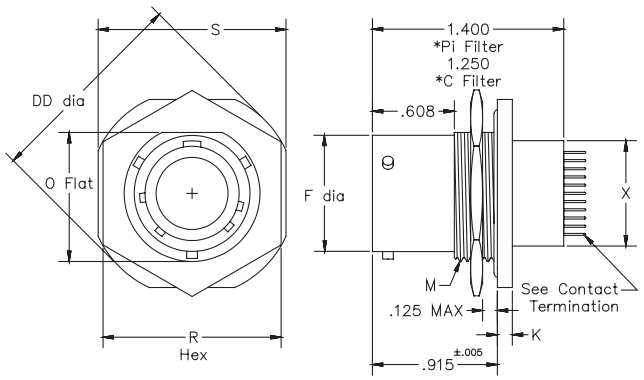
DIMENSIONS							
Shell Size	**F** +.001 -.005	**K** +.015 -.000	**M** +.000 -.005	**P Dia** +.010 -.005	**R** BSC	**S** + .020	**X** Max Dia
9	0.572	0.085	0.820	0.128	0.3595	0.938	.500
11	.700				0.406	1.031	.620
13	.850				0.453	1.125	.740
15	.975				0.4845	1.219	.890
17	1.100				0.531	1.312	1.000
19	1.207	0.115	0.790	0.147	0.578	1.438	1.120
21	1.332				0.625	1.562	1.250
23	1.457				0.6875	1.688	1.390
25	1.582				.750	1.812	1.500

MS27466 Square Flange Receptacle
Front Mount



DIMENSIONS							
Shell Size	**F** +.001 -.005	**K** +.015 -.000	**M** +.000 -.005	**P Dia** +.010 -.005	**R** BSC	**S** + .020	**X** Max Dia
9	0.572	0.085	.632	0.128	0.3595	0.938	.500
11	.700				0.406	1.031	.620
13	0.85				0.453	1.125	.740
15	0.975				0.4845	1.219	.890
17	1.100				0.531	1.312	1.000
19	1.207	0.115	.602	0.147	0.578	1.438	1.120
21	1.332				0.625	1.562	1.250
23	1.457				0.6875	1.688	1.390
25	1.582				.750	1.812	1.500

MS27468 Jam Nut Receptacle



DIMENSIONS								
Shell Size	**F** +.001 -.005	**K** +.015 -.000	**M** Thread	**O Flat** +.000 -.010	**R Hex** +.017 -.016	**S** ± .016	**X** Max Dia	**DD** ± .016
9	.572	0.085	.6875-24	.655	.875	1.062	.500	1.188
11	.700		.8125-20	.755	1.000	1.250	.620	1.375
13	0.85		1.000-20	.942	1.188	1.375	.740	1.5
15	0.975		1.125-18	1.066	1.312	1.500	.890	1.625
17	1.100		1.250-18	1.191	1.438	1.625	1.000	1.75
19	1.207	0.115	1.375-18	1.316	1.562	1.812	1.120	1.938
21	1.332		1.500-18	1.441	1.688	1.938	1.250	2.062
23	1.457		1.625-18	1.566	1.812	2.062	1.390	2.188
25	1.582		1.750-18	1.691	2.000	2.188	1.500	2.312

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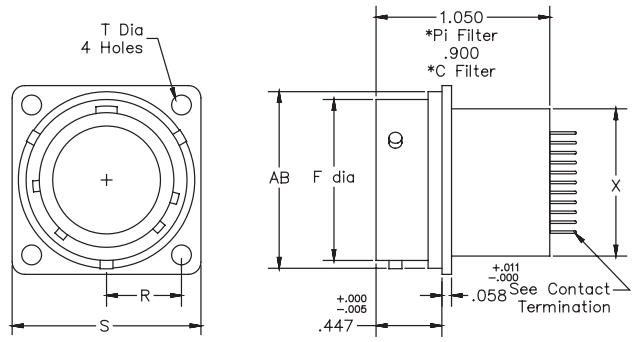
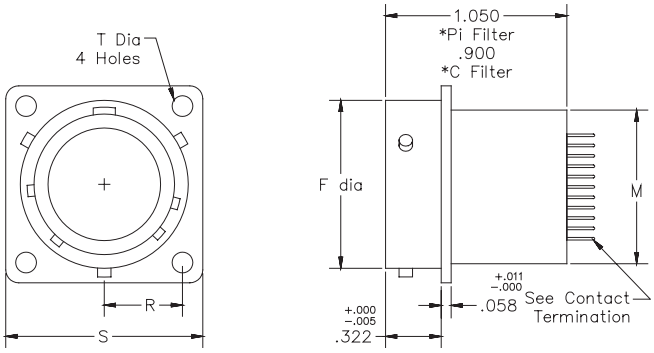
MS27508 Square Flange Receptacle
Rear Mount



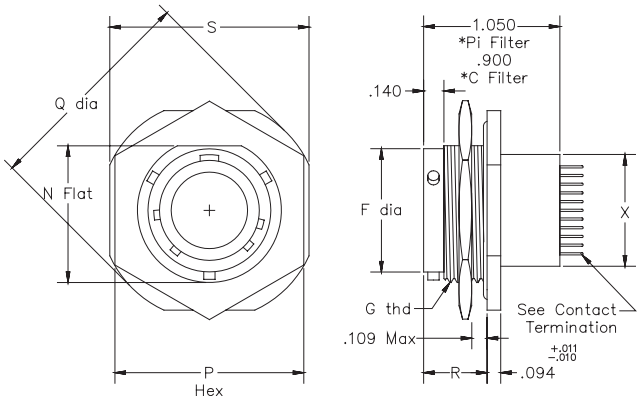
Dimensions					
Shell Size	**F** + .001 - .005	**T** +.010 -.005	**R** BSC	**S** Max	**M** Max
8	0.473	0.12	0.297	0.828	0.5
10	0.59		0.3595	0.954	0.62
12	0.75		0.406	1.047	0.74
14	0.875		0.453	1.141	0.89
16	1.000		0.4845	1.234	1
18	1.125		0.531	1.328	1.12
20	1.25		0.578	1.453	1.25
22	1.375		0.625	1.578	1.39
24	1.5	0.147	0.6875	1.703	1.5

MS27499 Square Flange Receptacle
Front Mount



Dimensions						
Shell Size	**F** + .001 - .005	**T** +.010 -.005	**R** BSC	**S** Max	**X** Max	**AB** Max
8	0.473	0.120	0.297	0.828	0.500	0.547
10	0.590		0.360	0.954	0.620	0.672
12	0.750		0.406	1.047	0.740	0.844
14	0.875		0.453	1.141	0.890	0.969
16	1.000		0.485	1.234	1.000	1.094
18	1.125		0.531	1.328	1.120	1.219
20	1.250		0.578	1.453	1.250	1.344
22	1.375		0.625	1.578	1.390	1.469
24	1.500	0.147	0.688	1.703	1.500	1.594

MS27474 Jam Nut Receptacle



DIMENSIONS								
Shell Size	**F** +.001 -.005	**N** +.001 -.006	**G** Thread	**P Hex** +.017 -.016	**Q** + .016	**S** + .016	**X** Max Dia	**R** ±.005
8	.473	.817	.875-20	1.062	1.375	1.250	.500	0.438
10	.590	.941	1.000-20	1.188	1.5	1.375	.620	
12	.750	1.065	1.125-18	1.312	1.625	1.500	.740	
14	.875	1.190	1.250-18	1.438	1.75	1.625	.890	
16	1.000	1.320	1.375-18	1.562	1.938	1.781	1.000	
18	1.125	1.440	1.500-18	1.688	2.016	1.890	1.120	
20	1.250	1.565	1.625-18	1.812	2.141	2.016	1.250	0.464
22	1.375	1.690	1.750-18	2.000	2.265	2.140	1.390	
24	1.500	1.815	1.875-16	2.125	2.39	2.265	1.500	

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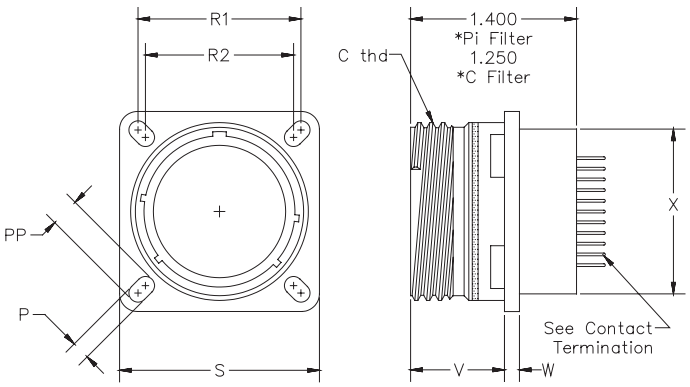
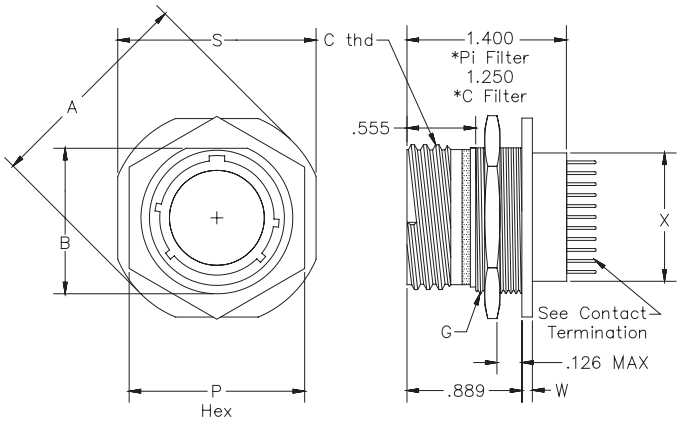
D38999/20 Box Mount Receptacle



DIMENSIONS									
Shell Size	**C** Thread .1 Pitch .3 Lead	**P** ±.008	**R1** BSC	**R2** BSC	**V** Max	**W** Max	**X** Max	**PP** Max ±.008	**S** + .012
9	0.625	0.128	.719	.564	.820	.098	.500	.194	.937
11	0.750		.812	.719			.620		1.031
13	0.875		.906	.812			.740		1.126
15	1.000		.969	.906			.890		1.220
17	1.188		1.062	.969			1.000		1.311
19	1.250		1.156	1.062			1.120		1.437
21	1.375	0.154	1.250	1.156	.790	.126	1.250	.242	1.563
23	1.500		1.375	1.250			1.390		1.689
25	1.625		1.500	1.375			1.500		1.811

D38999/24 Jam Nut Receptacle



Dimensions								
Shell Size	**A** ±.012	**B** +.004 -.006	**C** Thread .1 Pitch .3 Lead	**G** Thread 6g .10R	**P** Hex	**S** ± .015	**W** +.028 - .004	**X** Max
9	1.189	.651	.625	M17x1	.945 .912	1.063	.087	.500
11	1.374	.751	.750	M20x1	1.062 .0983	1.252		.620
13	1.500	.938	.875	M25x1	1.260 1.234	1.374		.740
15	1.625	1.062	1.000	M28x1	1.456 1.424	1.500		.890
17	1.812	1.187	1.1875	M32x1	1.614 1.581	1.626		1.000
19	1.938	1.312	1.250	M35x1	1.811 1.781	1.811	.118	1.120
21	2.062	1.437	1.375	M38x1	1.968 1.938	1.937		1.250
23	2.188	1.562	1.500	M41x1		2.063		1.390
25	2.312	1.687	1.625	M44x1		2.189		1.500

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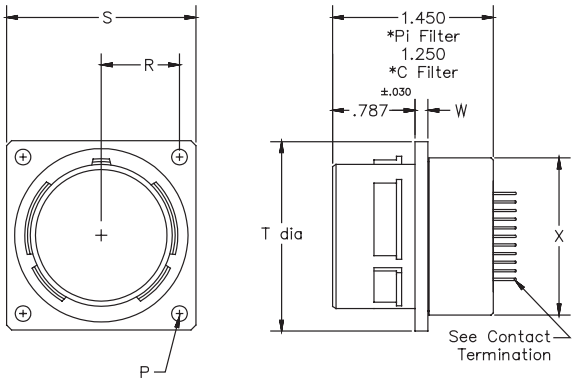
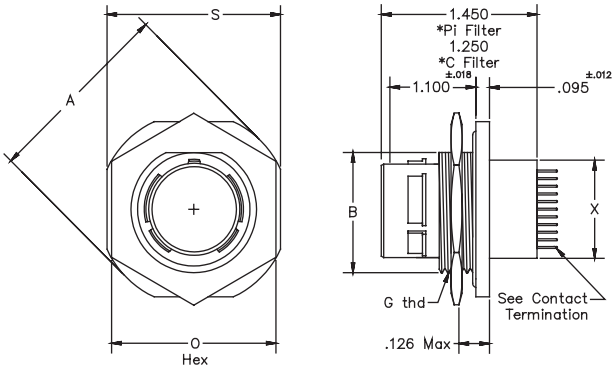
D38999/40 Box Mount Receptacle



DIMENSIONS						
Shell Size	**T** ± .008	**W** ± .010	**P** ± .008	**R** BSC	**S** ± .021	**X** Max
11	0.786	0.093	0.139	0.406	1.029	0.620
13	0.912			0.453	1.124	0.740
15	1.036			0.485	1.218	0.890
17	1.162			0.531	1.312	1.000
19	1.286			0.578	1.439	1.120
21	1.412	0.124		0.625	1.561	1.250
23	1.536		0.150	0.688	1.706	1.390
25	1.662			0.750	1.813	1.500

D38999/44 Jam Nut Receptacle



DIMENSIONS						
Shell Size	**B** Flat ± .004	**G** THD 6g 0.1R	**A** Dia. ± .020	**O** Hex ± .013	**S** ± .020	**X**
11	0.938	M25x1	1.500	1.250	1.374	0.620
13	1.062	M28x1	1.622	1.405	1.5	0.740
15	1.1875	M31x1	1.749	1.600	1.622	0.890
17	1.318	M34x1	1.937		1.78	1.000
19	1.4375	M38x1	2.015	1.796	1.89	1.120
21	1.562	M41x1	2.138	1.954	2.016	1.250
23	1.6875	M44x1	2.268		2.138	1.390
25	1.812	M47x1	2.390	2.141	2.264	1.500

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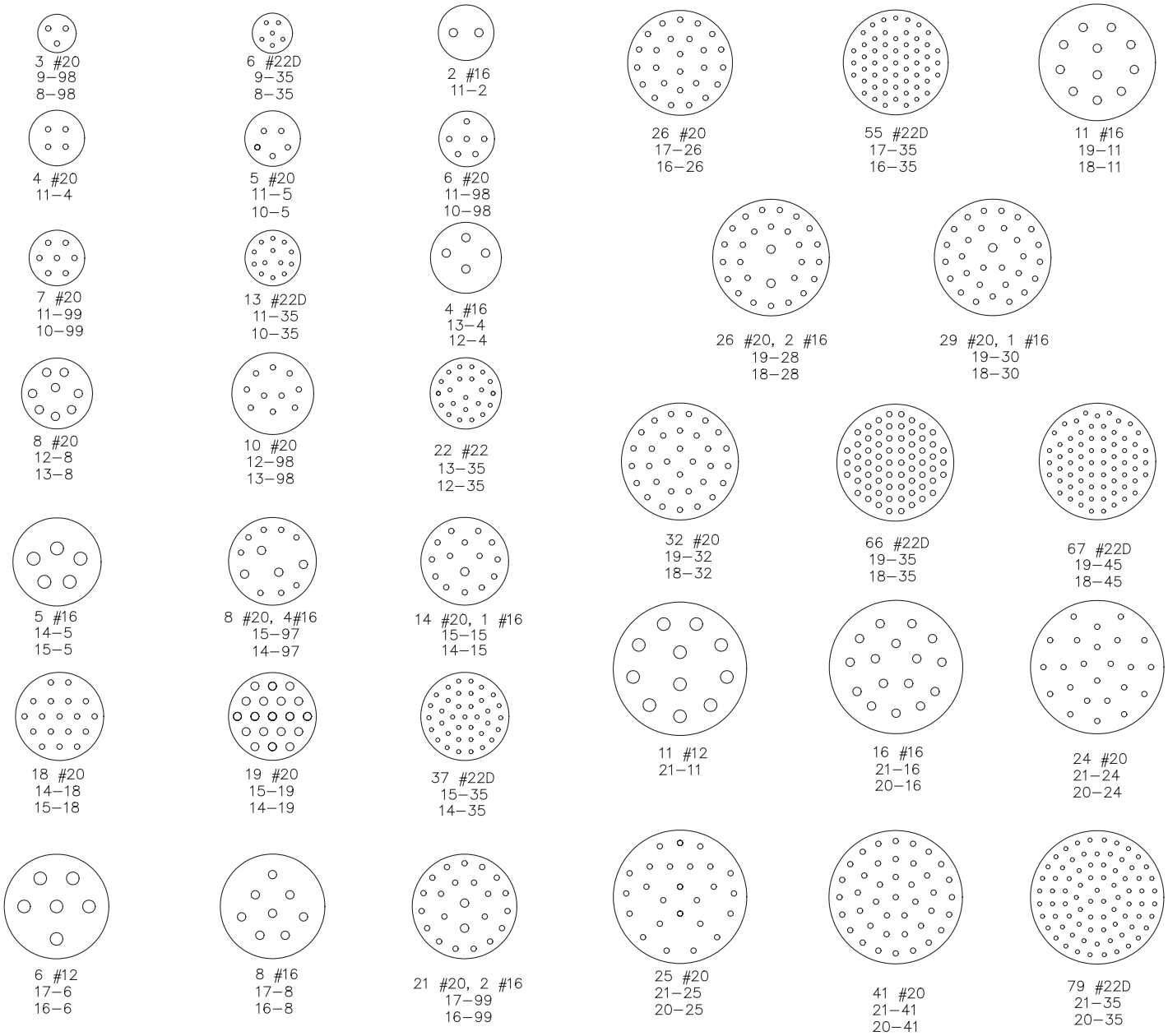
MIL-DTL-38999 Insert Arrangements



* Odd Numbered Shell Sizes Series I, III & IV, Even Numbered Shell Sizes Series II

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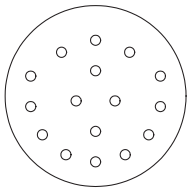
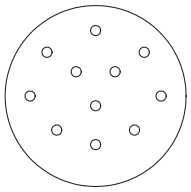
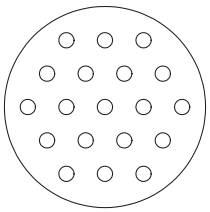
MIL-DTL-38999 Insert Arrangements



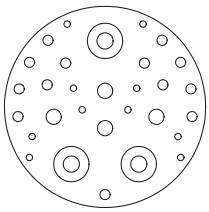
16 #16
23–97
22–97



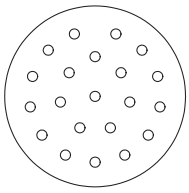
11 #16
23–99
22–99



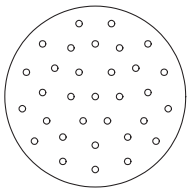
19 #12
25–19



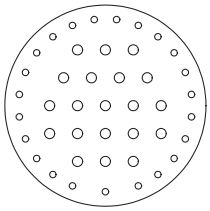
10 #20, 13 #16, 4 #12
3 #8 TWINAX
25–20



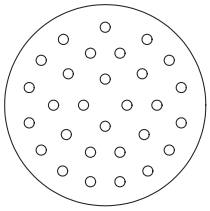
21 #16
23–21
22–21



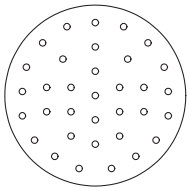
32 #20
23–32
22–32



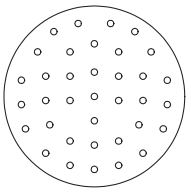
23 #20, 20 #16
25–43



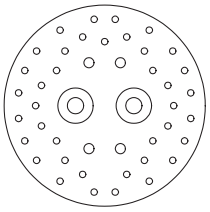
29 #16
25–29
24–29



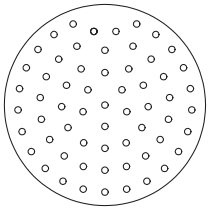
34 #20
23–34
22–34



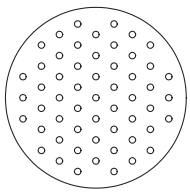
36 #20
23–36
22–36



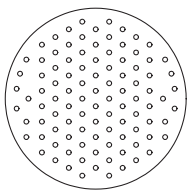
40 #20, 4 #16
2 #8 COAX
25–46



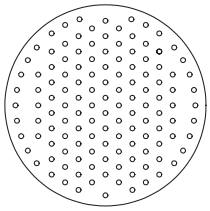
61 #20
25–61
24–61



55 #20
23–55
22–55



100 #22D
23–35
22–35



128 #22D
25–35
24–35

Custom Layout*
XX–XX

* Consult Factory For Additional or Custom Layouts

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Type B

Type T

MIL-DTL-83723 III

MIL-DTL-83723 Series III / MIL-DTL-26500 filter connectors are designed to meet or exceed all applicable requirements of the military specifications. The filter connectors are intermateable and interchangeable with the standard non-filtered connectors.

Materials and Finishes

Shell	Aluminum alloy
Insulator	High grade plastic/epoxy
Contacts	Copper alloy, gold plate
Grommet and Seal	Silicon base elastomer
Jam Nut	Aluminum alloy
Ground Plane	Brass, silver plate
Capacitor	Barium titanate
Inductor	Ferrite bead

Part Number Assignment

P200 - 83723 J – 20 – 41 – P – S – N – N

- Filter Type: Pi, L, C
- Prefix
- Shell Style: J – Jam Nut; F- 4 Hole Flange
- Shell Size: 8 thru 24
- Insert Arrangements
- Contact Type: P – Pin; S- Socket
- Contact Termination: S- Solder Cup; P- PC Tail; C- Crimp
- Plating: C- Olive Drab Cadmium Over Nickel; N- Electroless Nickel
- Polarization: N,6, 7, 8, 9

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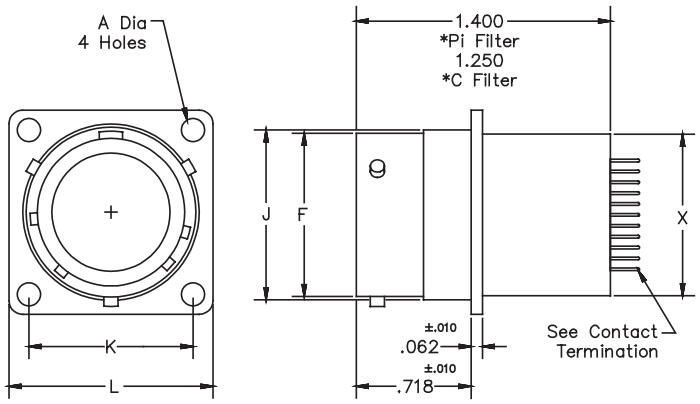
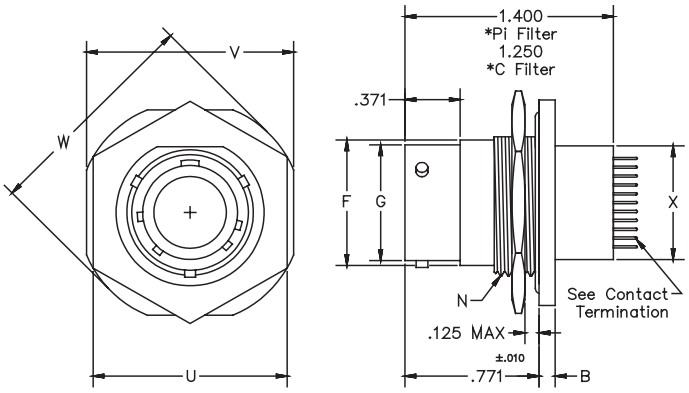
Square Flange Receptacle
Type B



DIMENSIONS						
Shell Size	**A** Max	**K** BSC	**L**	**J** Dia	**F** Dia	**X** Max Dia
8	.120	.594	.812	.561	.536 .531	.500
10	.120	.719	.937	.696	.659 .654	.620
12	.120	.812	1.031	.875	.829 .824	.740
14	.120	.906	1.125	.925	.898 .893	.890
16	.120	.969	1.250	1.062	1.025 1.020	1.000
18	.120	1.062	1.343	1.187	1.131 1.126	1.120
20	.120	1.156	1.437	1.312	1.256 1.251	1.250
22	.120	1.250	1.562	1.437	1.381 1.376	1.390
24	.149	1.375	1.703	1.562	1.506 1.501	1.500

Jam Nut Receptacle
Type B



DIMENSIONS								
Shell Size	**B**	**F** Dia	**G** Dia	**N** Thrd	**U**	**V**	**W**	**X**
8	.137 .097	.561	.536 .531	.625-20	.670	.979	1.068	.500
10	.137 .097	.696	.659 .654	.750-20	.796	1.104	1.192	.620
12	.113 .097	.875	.829 .824	.9375-20	.984	1.291	1.380	.740
14	.137 .097	.935	.898 .893	1.000-20	1.046	1.391	1.505	.890
16	.137 .097	1.062	1.025 1.020	1.125-20	1.171	1.516	1.630	1.00
18	.137 .097	1.187	1.131 1.126	1.250-18	1.296	1.641	1.756	1.120
20	.137 .097	1.312	1.256 1.251	1.375-18	1.484	1.766	1.860	1.250
22	.168 .128	1.437	1.381 1.376	1.500-18	1.609	1.954	2.068	1.390
24	.168 .128	1.562	1.506 1.501	1.625-18	1.734	2.079	2.160	1.500

Note: Type B (Bayonet Coupling) Shown. Type T (Threaded) Available. Consult factory for more information.

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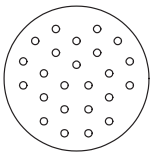
MIL-DTL-83723 Series III / MIL-DTL-26500

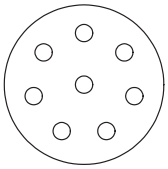
Insert Arrangements


2 #20
8–2


3 #20
8–3


3 #20
8–98

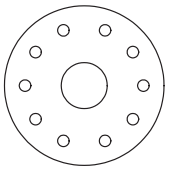

24 #20
16–24


8 #12
18–8


2 #20
10–2


5 #20
10–5


6 #20
10–6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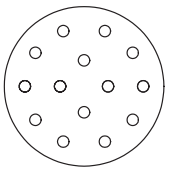
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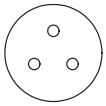
18–14


2 #16
10–20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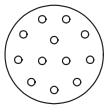
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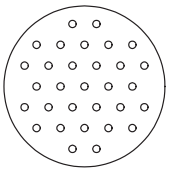
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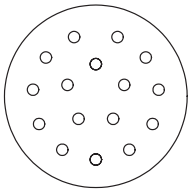
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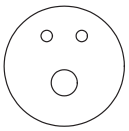
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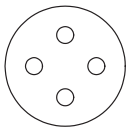
14–3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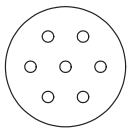
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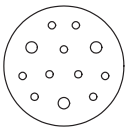
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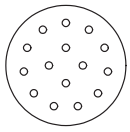
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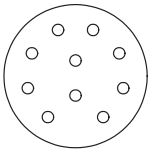
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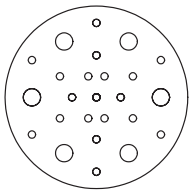
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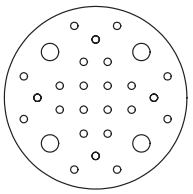
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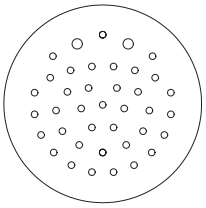
MIL-DTL-83723 Series III/ MIL-DTL-26500

Insert Arrangements



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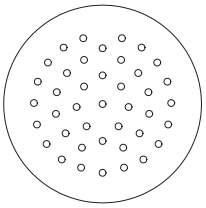

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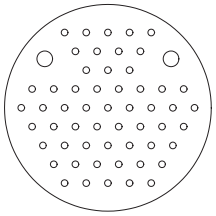

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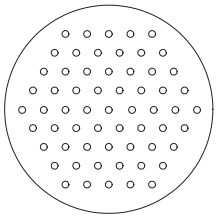

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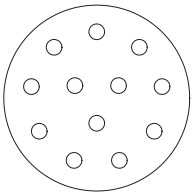

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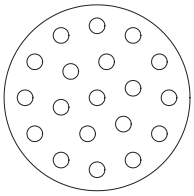

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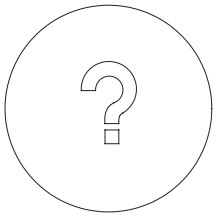

Custom Layout*
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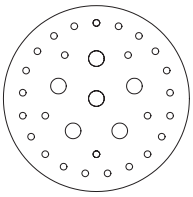

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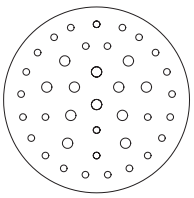

27 #20, 12 #16
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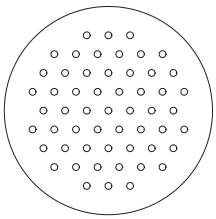

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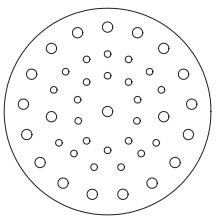

23 #20, 20 #16
24–43

* Consult Factory For Additional or Custom Layouts

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MIL-C-26482 II

MIL-C-26482 Series II / MIL-DTL-83723 Series I filter connectors are designed to meet or exceed all applicable requirements of the military specifications. The filter connectors are intermateable and interchangeable with the standard non-filtered connectors.

Materials and Finishes

Shell	Aluminum alloy
Insulator	High grade plastic/epoxy
Contacts	Copper alloy, gold plate
Grommet and Seal	Silicon base elastomer
Jam Nut	Aluminum alloy
Ground Plane	Brass, silver plate
Capacitor	Barium titanate
Inductor	Ferrite bead

Part Number Assignment

P200 - 26482 B – 20 – 41 – P – S – N – N

Filter Type
Pi, L, C

Prefix

Shell Style
J - Jam Nut
B - Box Mount
W - Wall Mount

Shell Size
8 thru 24

Insert Arrangements

Contact Type
P – Pin
S- Socket

Contact Termination
S- Solder Cup
P- PC Tail
C- Crimp

Plating
C- Olive Drab Cadmium Over Nickel
N- Electroless Nickel

Polarization
N,W, X, Y, Z

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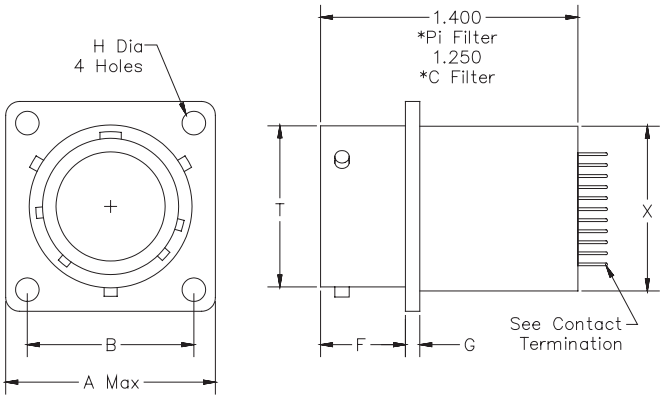
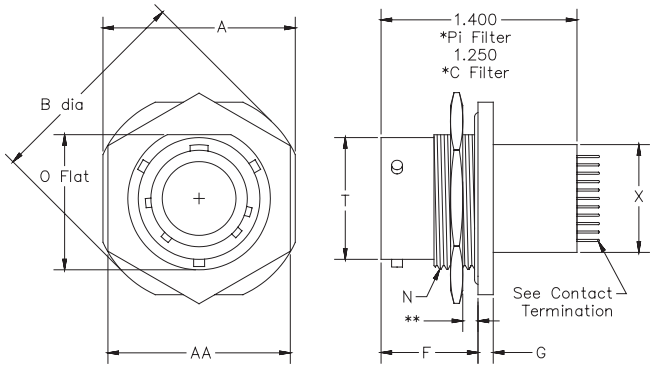
MS3470 Square Flange Receptacle



DIMENSIONS							
Shell Size	**A** Max	**B** BSC	**F**	**G** Dia	**H** Dia	**T** Max	**X** Max Dia
8	.828	.594	.462 .431	.078 .046	.120	.474 .468	.500
10	.954	.719				.591 .585	.620
12	1.047	.812				.751 .745	.740
14	1.141	.906				.876 .870	.890
16	1.231	.969				1.001 .995	1.000
18	1.328	1.062				1.126 1.120	1.120
20	1.458	1.156	.587	.110		1.251 1.245	1.250
22	1.578	1.250	.556			1.376 1.370	1.390
24	1.703	1.375	.620 .589	.078	.147	1.501 1.495	1.500

MS3474 Jam Nut Receptacle



**.187 Max Shell Size 8–18
.250 Max Shell Size 20–24

DIMENSIONS									
Shell Size	**A** Max	**B** Dia.	**F**	**G** Dia	**N**	**O** 1.005 Flat	**T** Dia.	**X** Max Dia	**AA** Hex Dia
8	.954 .923	1.078 1.047	.707 .658	.113 .086	.5625-24	.525	4.74 4.68	.500	0.767
10	1.078 1.047	1.203 1.172			.6875-24	.650	.591 .585	.620	0.892
12	1.266 1.235	1.391 1.360			.875-20	.813	.751 .745	.740	1.079
14	1.391 1.360	1.516 1.485			1.000-20	.937	.876 .870	.890	1.205
16	1.516 1.485	1.641 1.610			1.125-18	1.061	1.001 .995	1.000	1.329
18	1.641 1.610	1.766 1.735			1.120-18	1.166	1.126 1.120	1.120	1.455
20	1.828 .797	1.954 1.923	.772 .721	.148 .096	1.375-18	1.311	1.251 1.245	1.250	1.579
22	1.954 1.923	2.078 2.047			1.500-18	1.436	1.376 1.370	1.390	1.705
24	2.078 2.047	2.203 2.172			1.625-18	1.561	1.501 1.495	1.500	1.829

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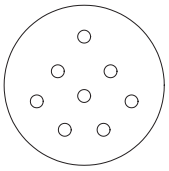
MIL-C-26482 / MIL-DTL-83723

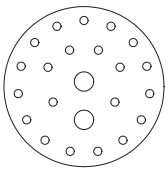
INSERT ARRANGEMENTS


2 #20
8–2


3 #20
8–3


3 #20
8–33

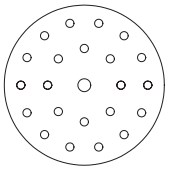

8 #16
16–8


21 #20, 2 #16
16–99


3 #20
8–98


4 #20
8–4


6 #20
10–98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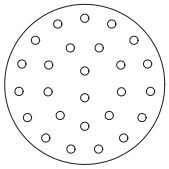
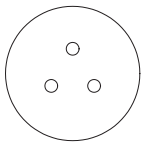

26 #20
16–26


6 #20
10–6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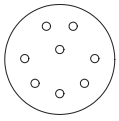
12–3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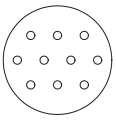
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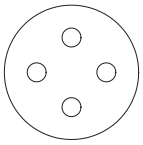
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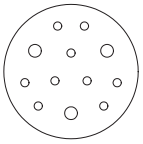
14–4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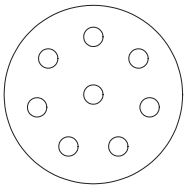
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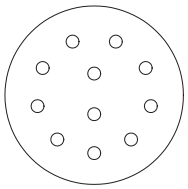
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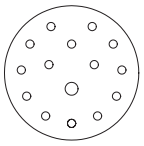
18–11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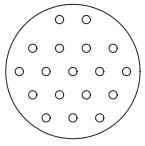
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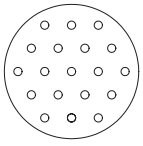
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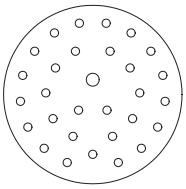
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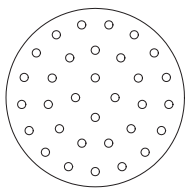
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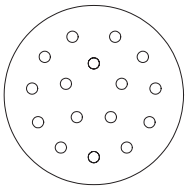

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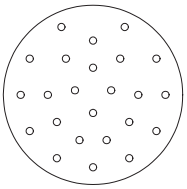

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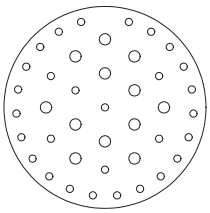

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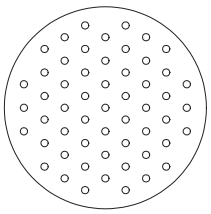

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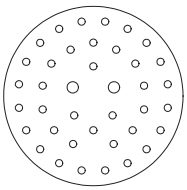
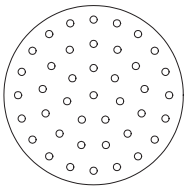
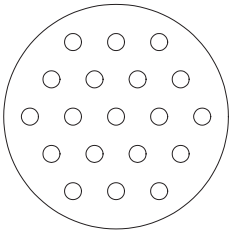


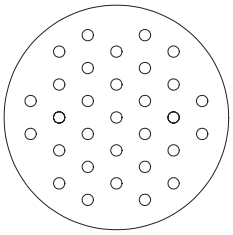
37 #20, 2 #16
20–39



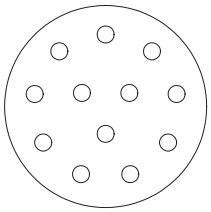
41 #20
20–41



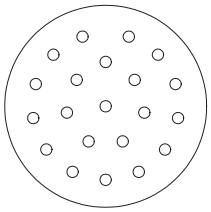
19 #12
24–19



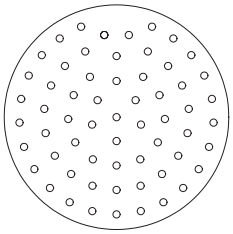
31 #16
24–31



12 #12
22–12

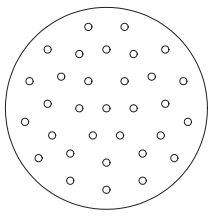


21 #16
22–21

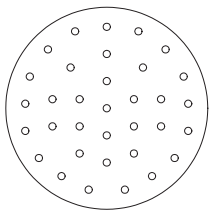


61 #20
24–61

Custom Layout*
XX–XX



32 #20
22–32



34 #20
22–34

* Consult Factory For Additional or Custom Layouts

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ARINC 404

ARINC 404 filter connectors are designed to meet or exceed all applicable requirements of the military specification. The filter connectors are intermateable and interchangeable with the standard non-filtered connectors.

Materials and Finishes

Shell	Aluminum alloy
Insulator	High grade plastic/epoxy
Contacts	Copper alloy, gold plate
Grommet and Seal	Silicon base elastomer
Ground Plane	Beryllium copper, silver plate
Capacitor	Barium titanate
Inductor	Ferrite bead

Part Number Assignment

P200 - 404 - 2 - N - A106 - P - B57 - P - P

Filter Type
Pi, L, C

Prefix

Shell Size
1, 2, 3, 4

Plating
C- Cadmium (Yellow Chromate)
N- Electroless Nickel

Contact Termination
S- Solder Cup
P- PC Tail
C- Crimp

Insert Arrangements
Cavity A , B, C, D

Contact Type
P – Pin
S- Socket

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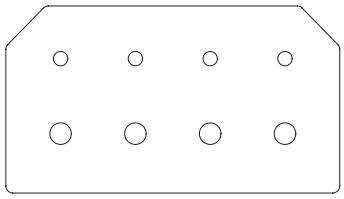
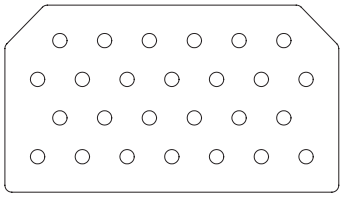
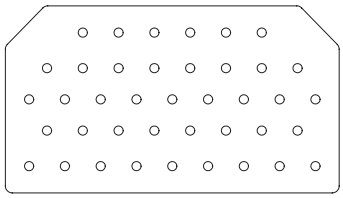


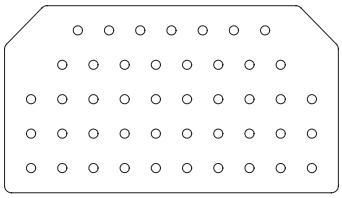
4 #16, 4 #12
D8



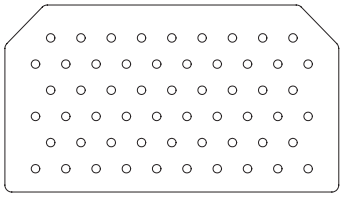
26 #16
26



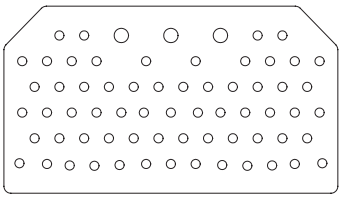
40 #20
40



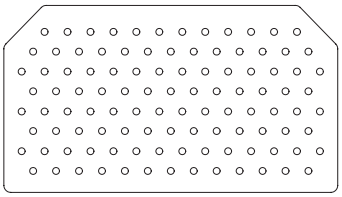
45 #20
45



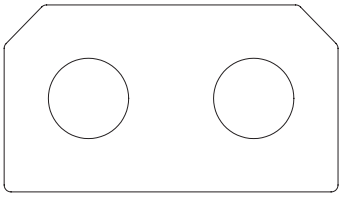
57 #20
57



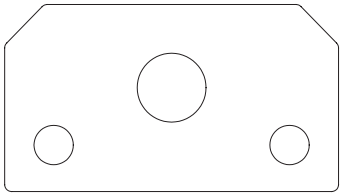
64 #20, 3 #16
67



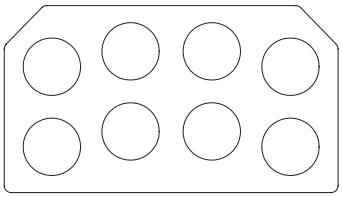
106 #22
106



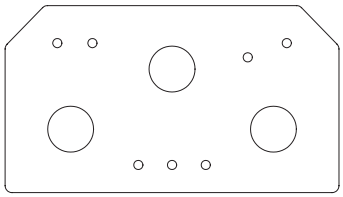
2 #1 Coax
C2



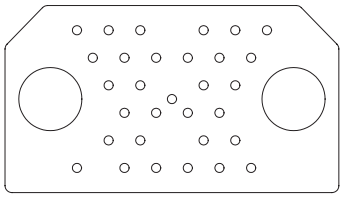
2 #7 Coax, 1 #3 Coax
C3



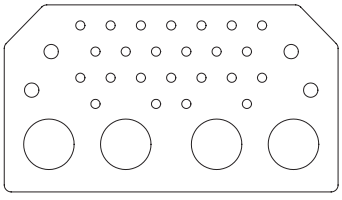
8 #9 Coax
C8



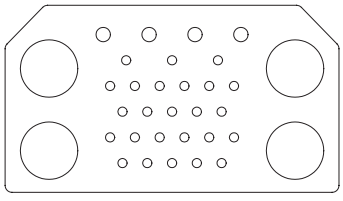
7 #20, 3 #11 Coax
10C3



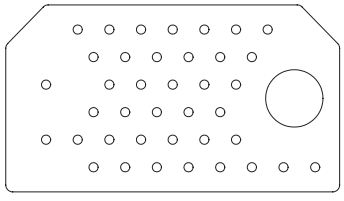
30 #20, 2 #5 Coax
32C2



24 #20, 4 #16,
4 #9 Coax
32C4



25 #20, 4 #16,
4 #5 Coax
33C4



39 #20, 1 #5 Coax
40C1

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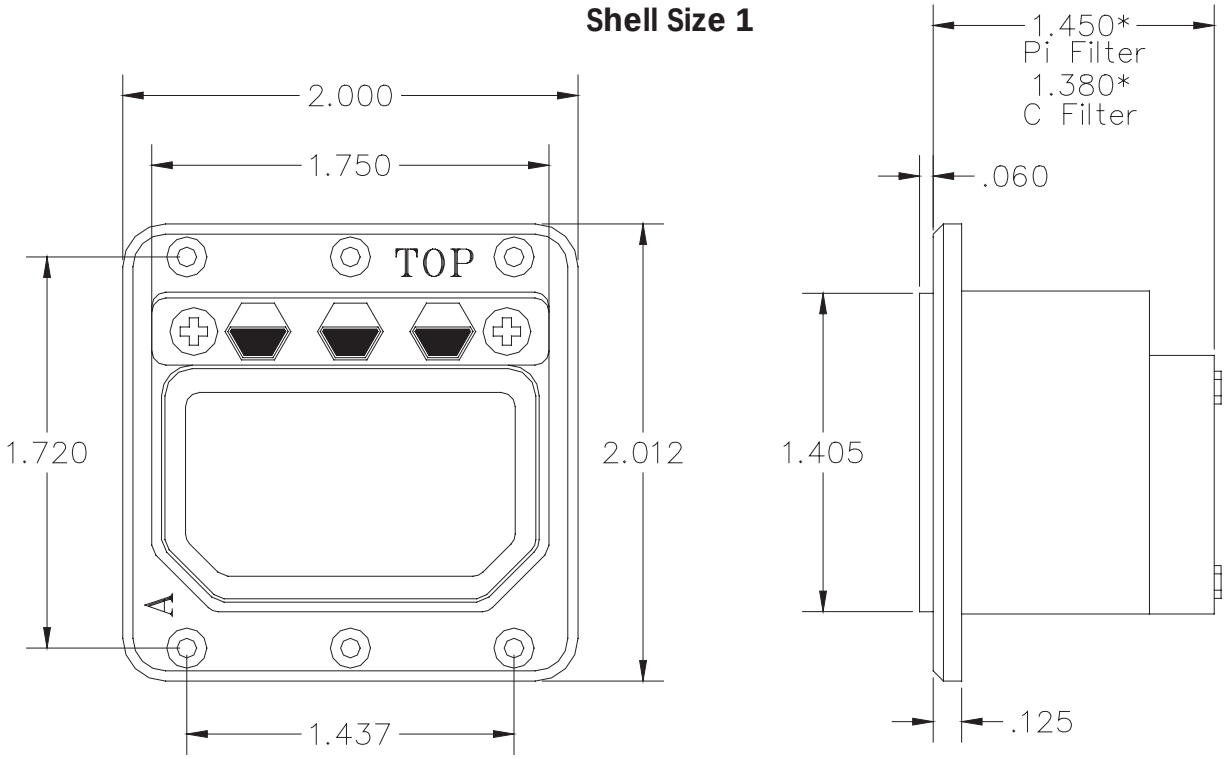
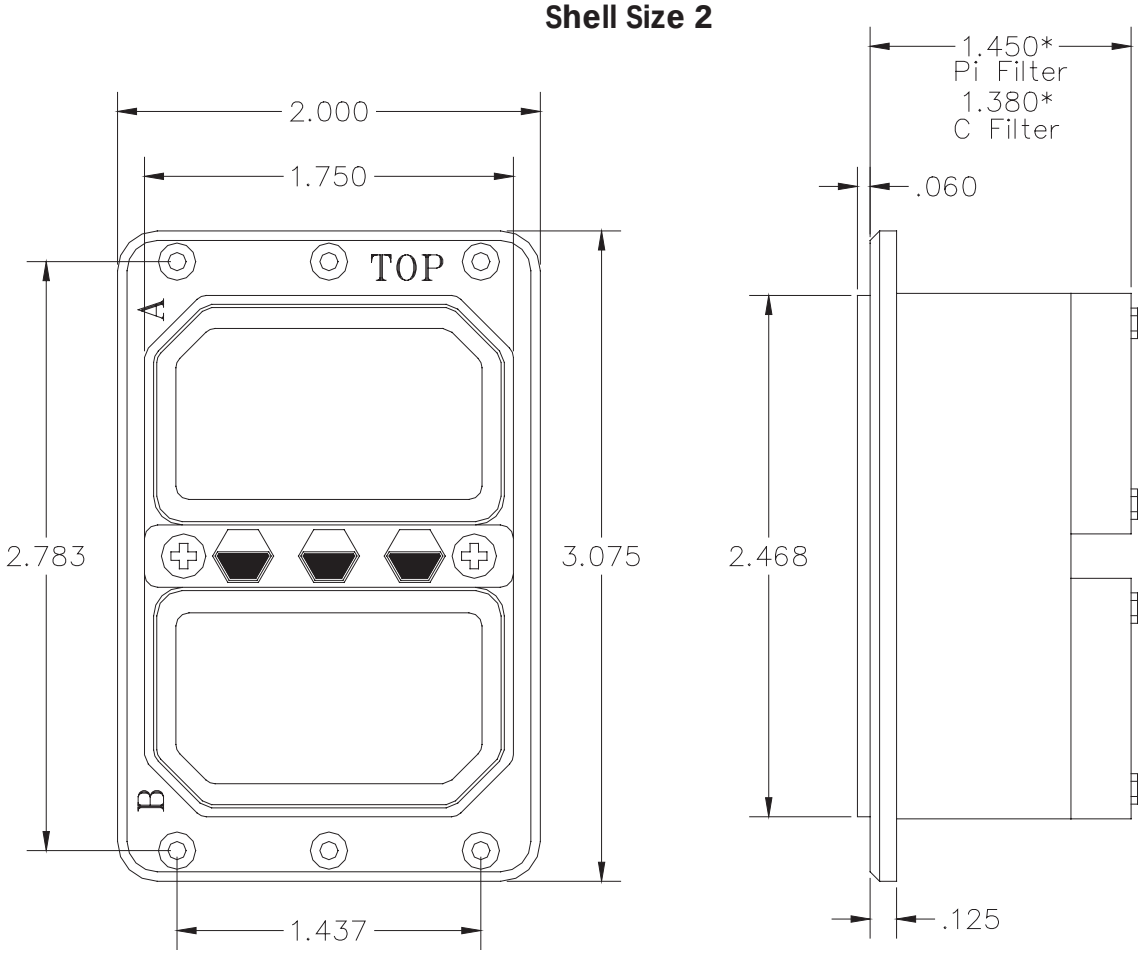
Shell Size 1

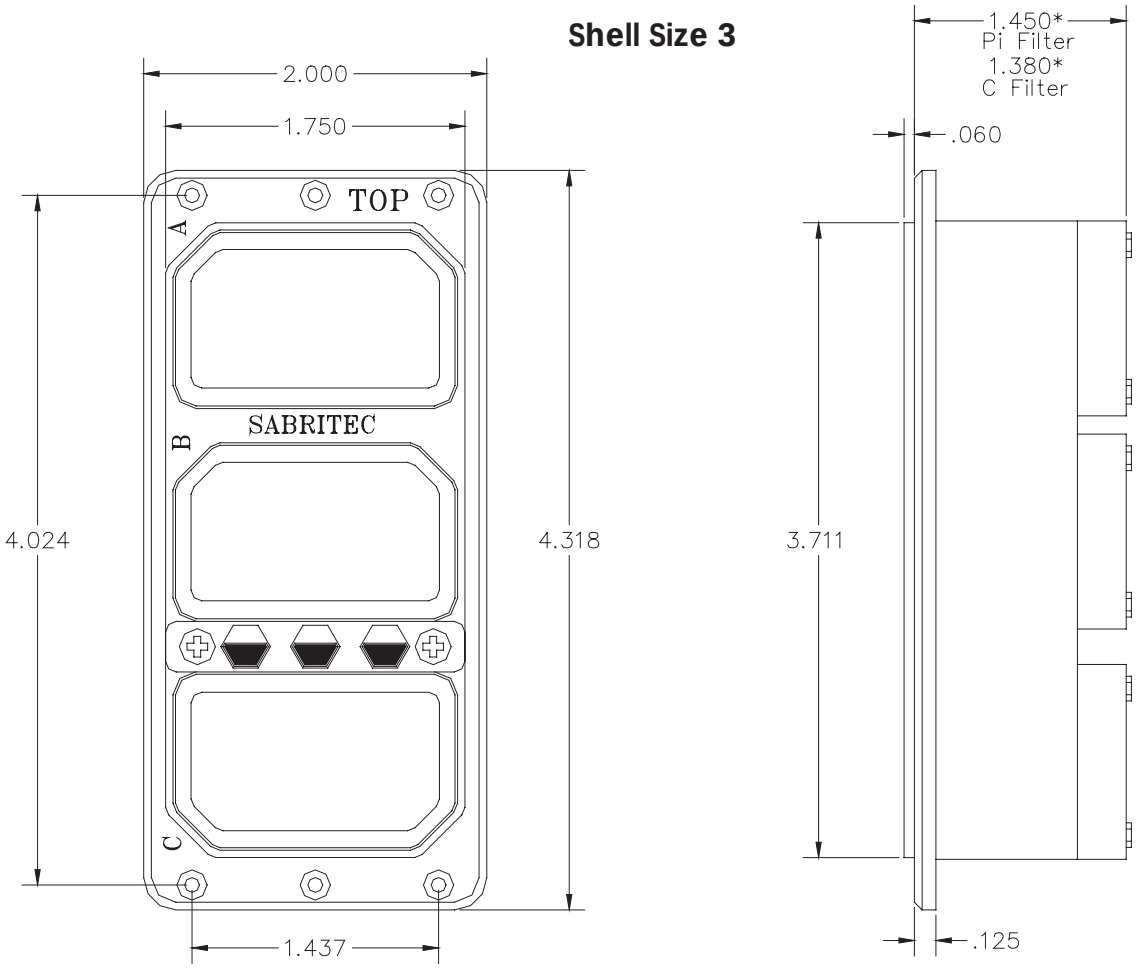


Shell Size 2

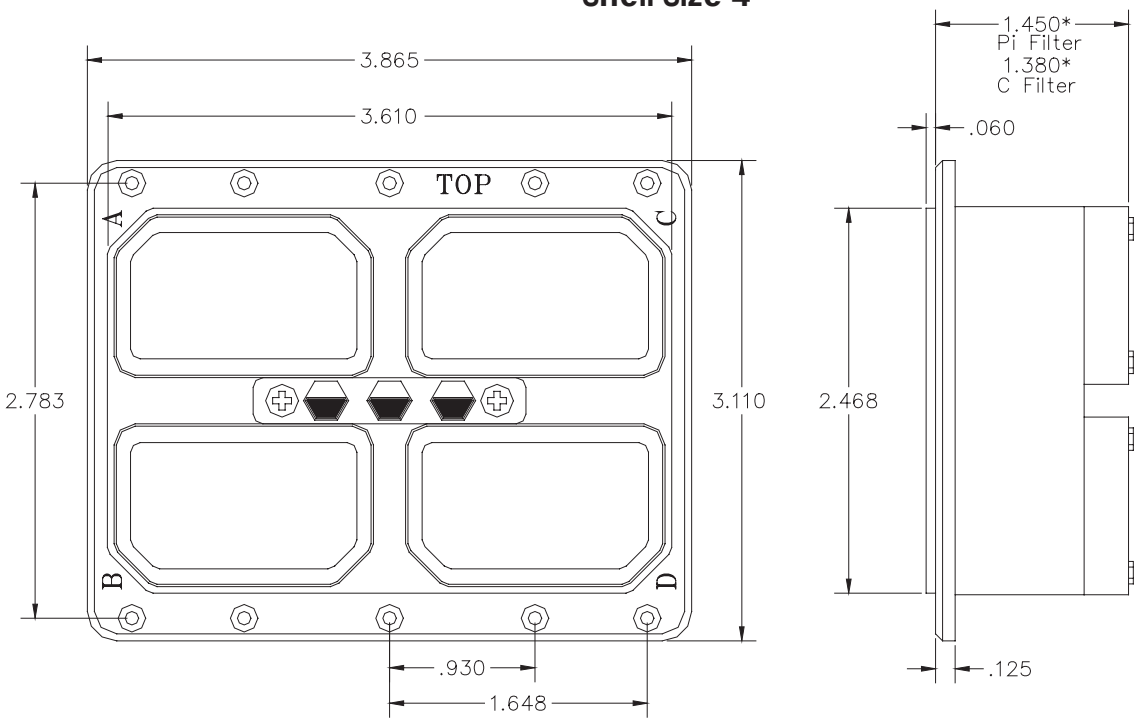


Downloaded from Arrow.com.

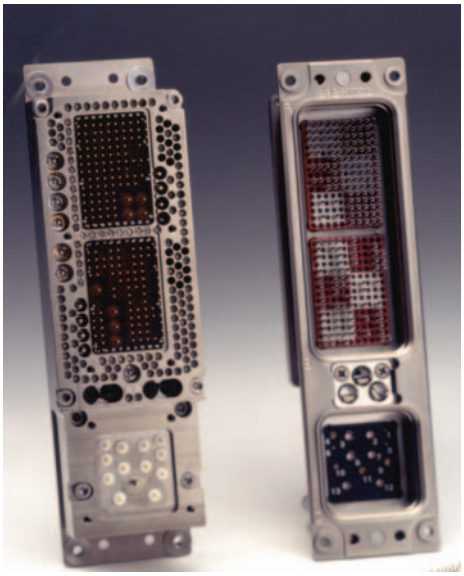
Shell Size 3



Shell Size 4



Downloaded from Arrow.com.



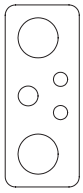
ARINC 600

ARINC 600 filter connectors are designed to meet or exceed all applicable requirements of the specification. The filter connectors are intermateable and interchangeable with the standard non-filtered connectors.

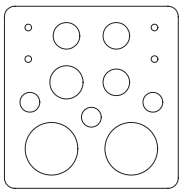
Materials and Finishes

Shell	Aluminum alloy
Insulator	High grade plastic/epoxy
Contacts	Copper alloy, gold plate
Grommet and Seal	Silicon base elastomer
Ground Plane	Brass, silver plate
Capacitor	Barium titanate
Inductor	Ferrite bead

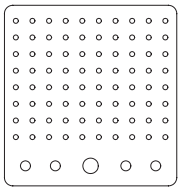
Insert Arrangements



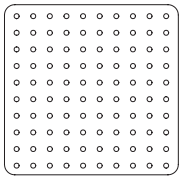
1 #12, 2 #16,
2 #5 Coax
5C2



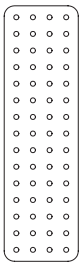
4 #20, 4 #12, 3 #16,
2 #5 Coax
13C2



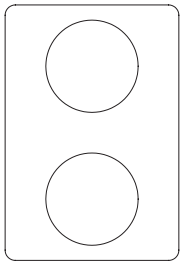
85 #22, 4 #20, 1 #16
85



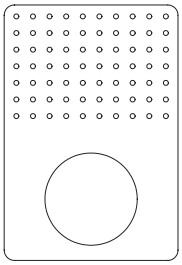
100 #22
100



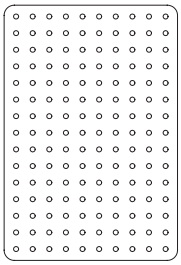
60 #22
60



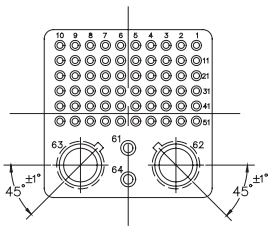
2 #1 Coax
C2



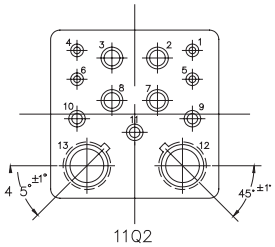
70 #22, 1 #1 Coax
71C1



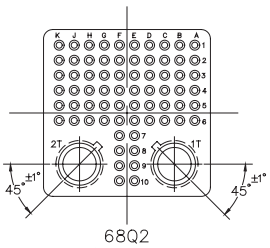
150 #22
150



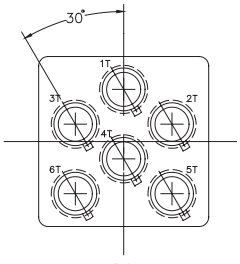
62Q2
60 SIZE 22
2 SIZE 16
2 SIZE 8



11Q2
4 SIZE 20
3 SIZE 16
4 SIZE 12
2 SIZE 8



68Q2
68 SIZE 22
2 SIZE 8



Q6
6 SIZE 8
METALLIC INSERT

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Part Number Assignment

P200 - 600 – 2 – N – 150 – P – 150 – P – 13C2 – P – S

Filter Type
Pi, L, C

Prefix

Shell Size
1,2, 3

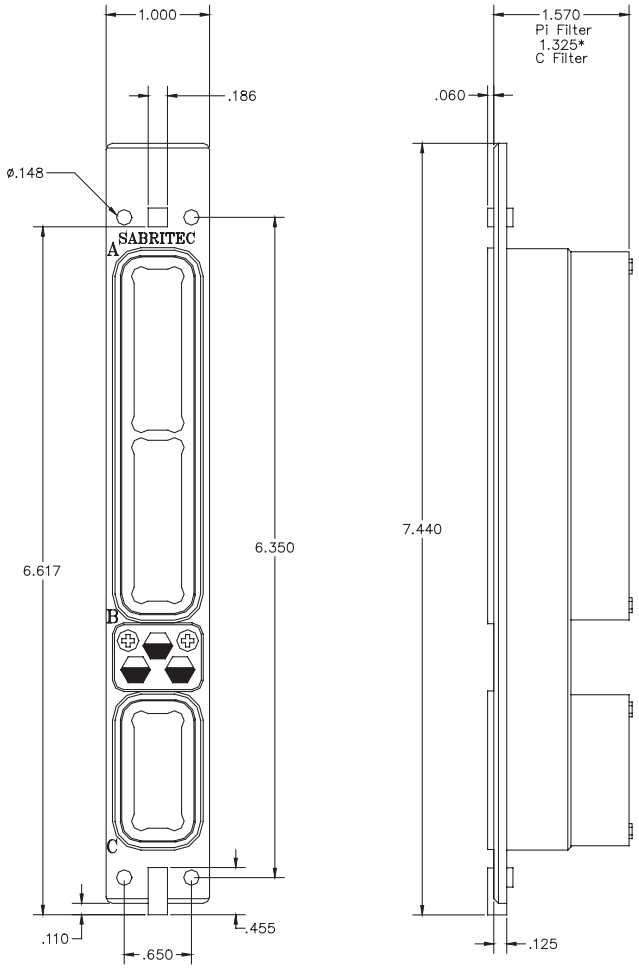
Plating
C- Cadmium (Clear Chromate)
N- Electroless Nickel

Contact Termination
S- Solder Cup
P- PC Tail
C- Crimp

Insert Arrangements
Cavity A, B, C, D, E, F

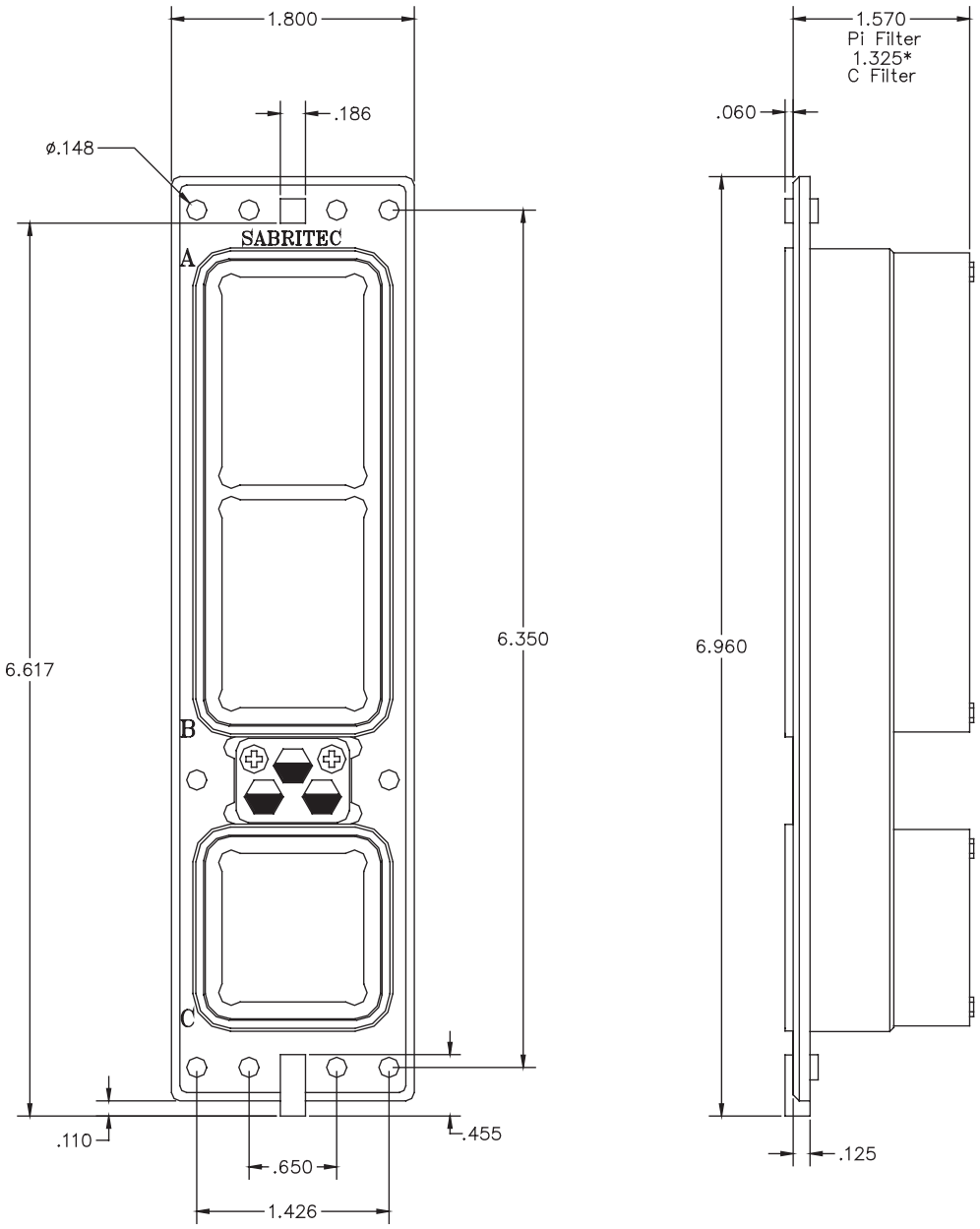
Contact Type
P – Pin
S- Socket

Shell Size 1



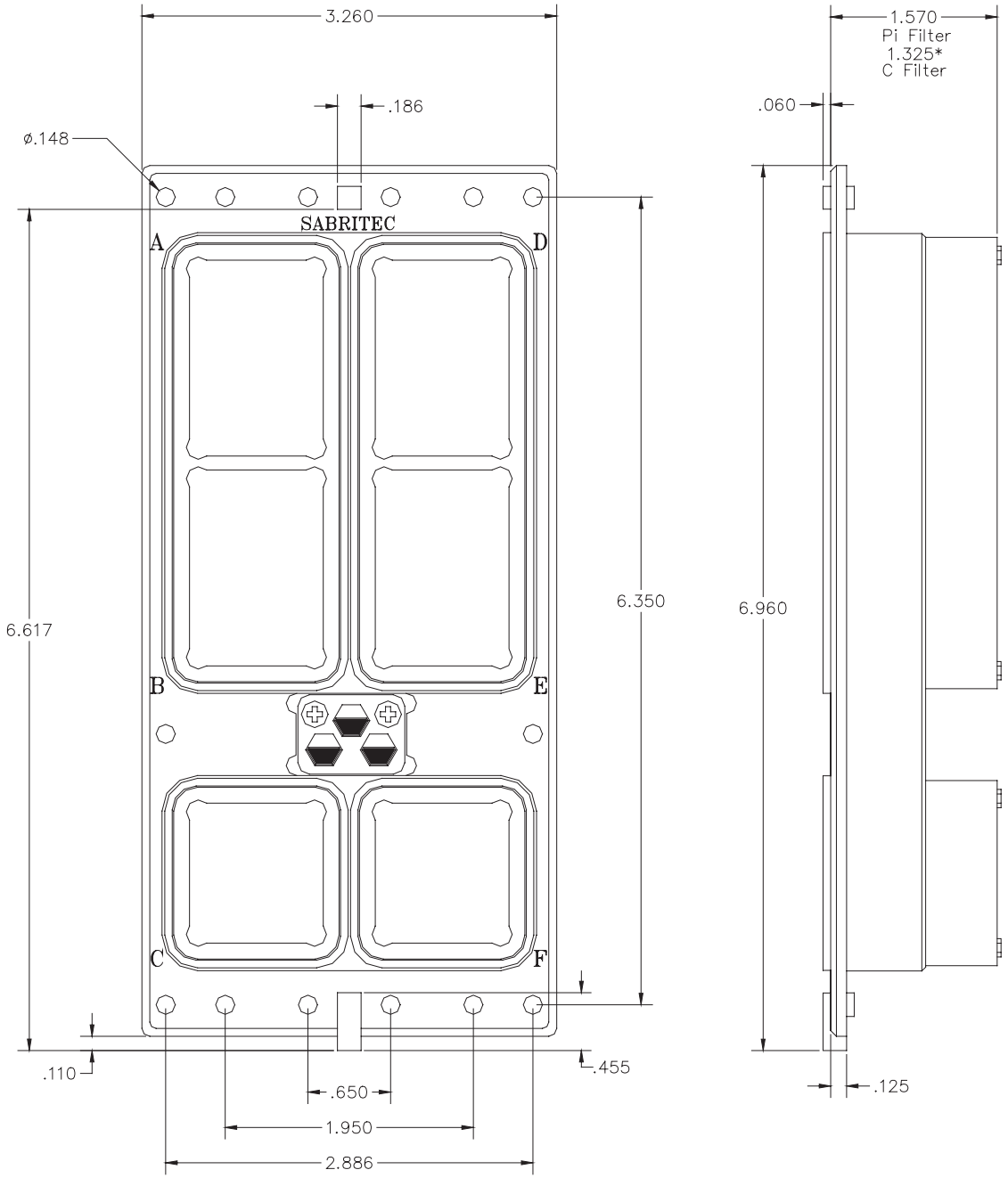
Downloaded from Arrow.com.

Shell Size 2



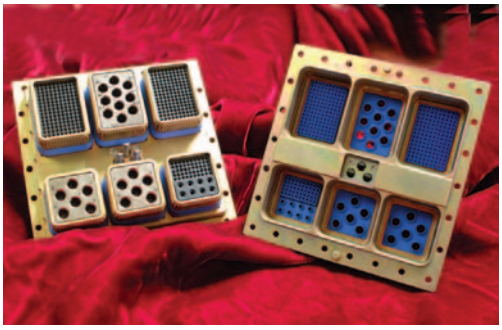
Downloaded from Arrow.com.

Shell Size 3



Downloaded from Arrow.com.

MIL-DTL-83527



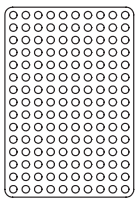
MIL-DTL-83527 connectors are designed to meet or exceed all applicable requirements of the military specification. These connectors come standard with anti-rotational keyed insert assemblies for filter, high-speed fibre channel or Ethernet twinax and quadrax contacts. Offered in a number of different contact arrangements and shell sizes. The filter connectors are intermateable and interchangeable with the standard non-filtered MIL-DTL-83527 connectors.

Part Number Assignment

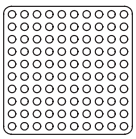
P200 - 83527 – 4A N – 150 – P – 150 – P – 13C2 – P – S

- Filter Type: Pi, L, C
- Prefix
- Shell Size: 2A, 3A, 4A
- Plating: C- Cadmium (Yellow Chromate); N- Electroless Nickel
- Insert Arrangements: Cavity A, B, C, D, E, F
- Contact Termination: S- Solder Cup; P- PC Tail; C- Crimp
- Contact Type: P – Pin; S- Socket

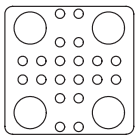
MIL-DTL-83527 INSERT ARRANGEMENTS



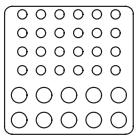
Insert 1
150 Size #22 Contacts



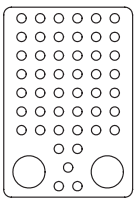
Insert 2
100 Size #22 Contacts



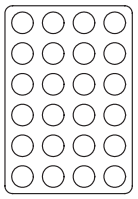
Insert 3
20 Size #22 Contacts
4 Size #8 T/C



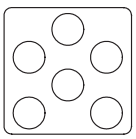
Insert 4
24 Size #20 Contacts
10 Size #16 Contacts



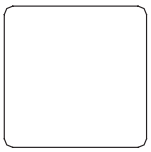
Insert 5
47 Size #20 Contacts
2 Size #8 T/C



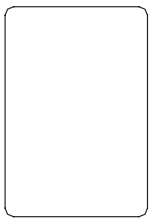
Insert 6
24 Size #12 Contacts



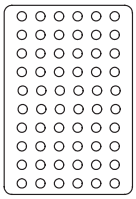
Insert 7
6 Size #8 T/C



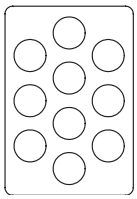
Insert 8
Blank



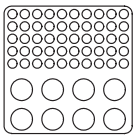
Insert9
Blank



Insert 10
60 Size #20 Contacts



Insert 11
10 Size #8 T/C

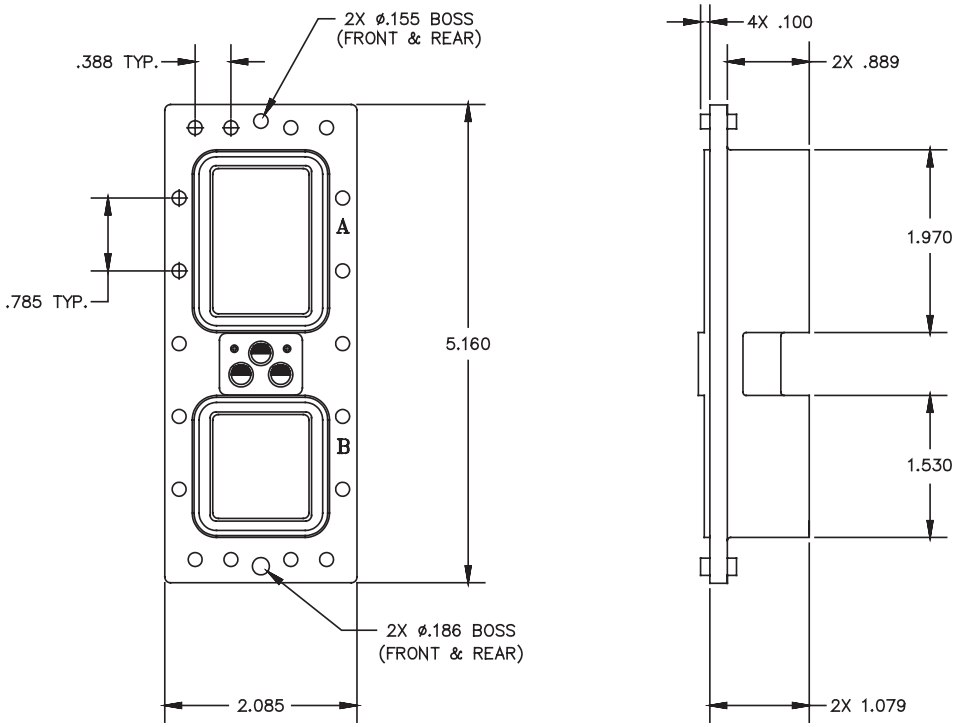


Insert 12
50 Size #22 Contacts
8 Size #12 Contacts

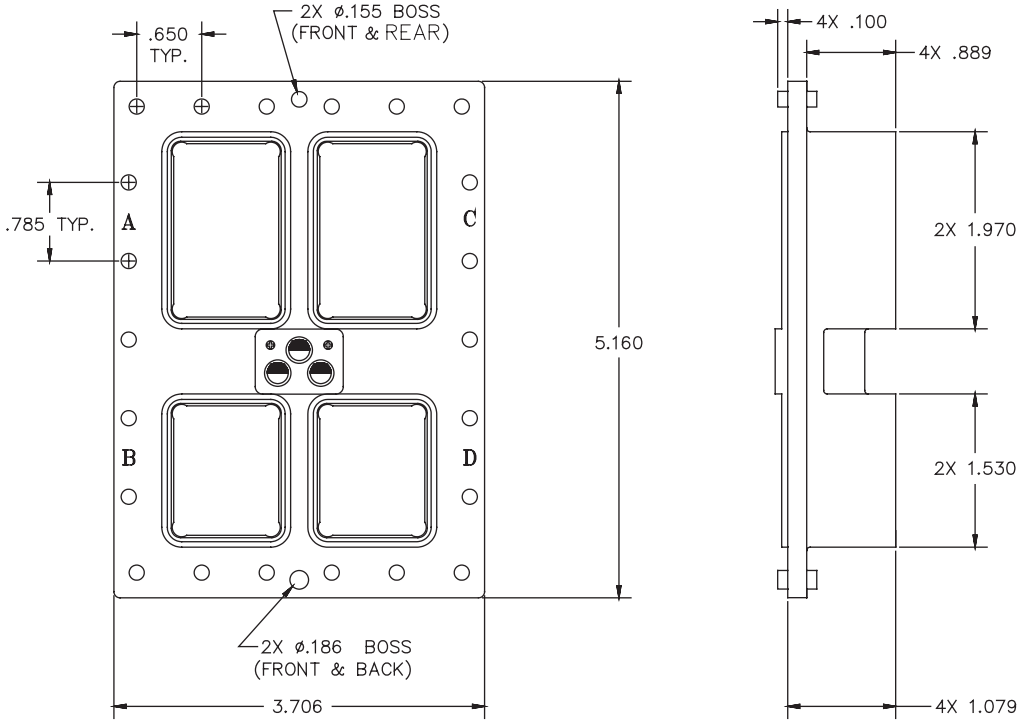
Specify
T = Twinaxial Cavity (Anti-Rotational)
C= Coaxial/Triaxial Cavity
For Inserts 3, 5, 7, 11 Size 8 Cavity Only, as suffix to Insert Identification Part Number

Downloaded from Arrow.com.

Shell Size 2

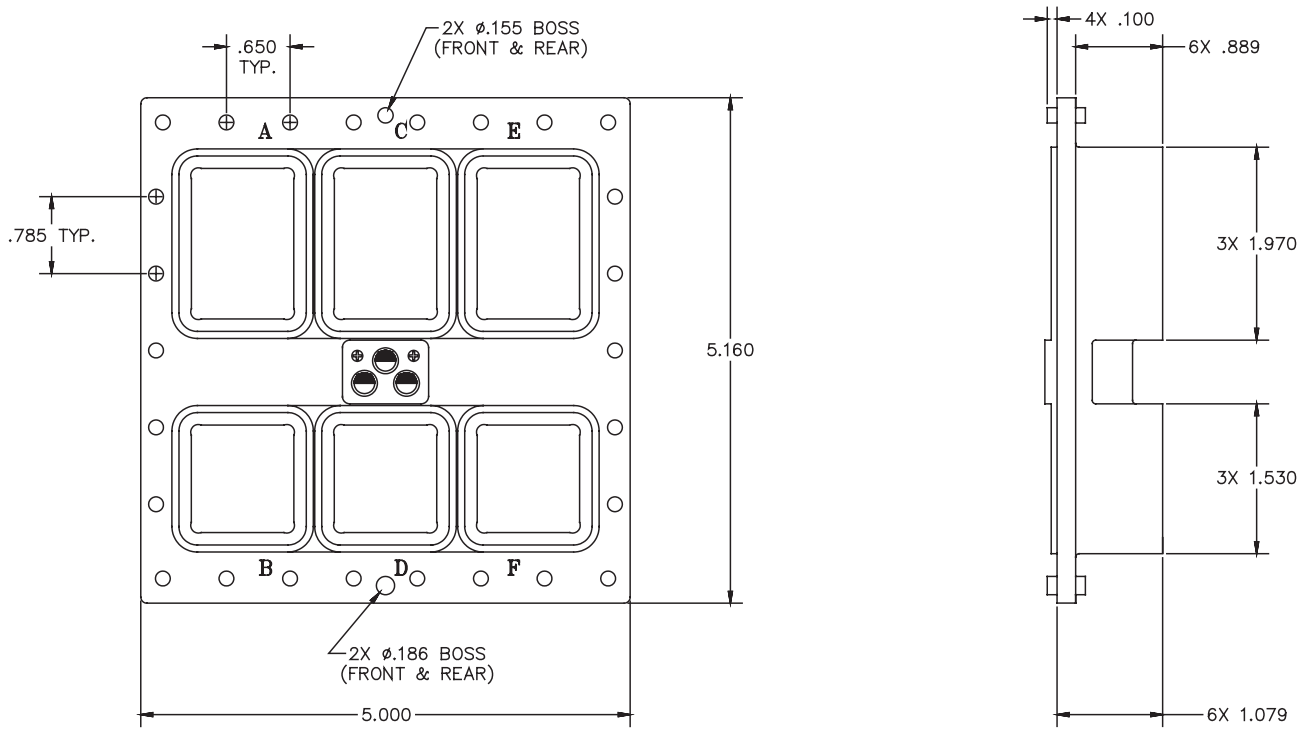


Shell Size 3



Downloaded from Arrow.com.

Shell Size 4



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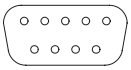
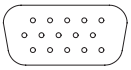
MIL-DTL-24308

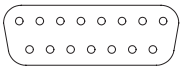
MIL-DTL-24308 D-Subminiature filter connectors are designed to meet or exceed all applicable requirements of the military specification. The filter connectors are intermateable and interchangeable with the standard non-filtered connectors. Sabritec also offers combo d-sub arrangements for power coaxial and signal contacts mixed arrangements. These layouts include 5W5, 8W8, 17W2, 9W1, and 24W7.

Materials and Finishes	
Shell	Aluminum alloy
Insulator	High grade plastic/epoxy
Contacts	Copper alloy, gold plate
Grommet and Seal	Silicon base elastomer
Capacitor	Barium titanate
Inductor	Ferrite bead

Insert Arrangements


9 #20


15 #22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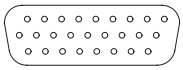
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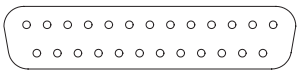
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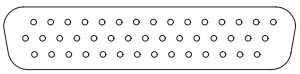
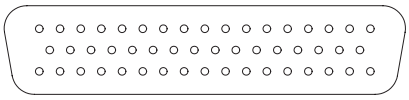
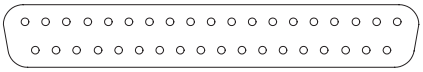

44 #22


50 #20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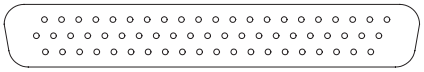
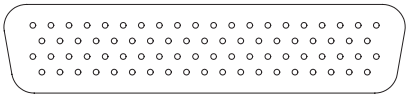

62 #22


78 #22

Consult Factory for Combo D-Sub Arrangements.

Part Number Assignment

P200 – 24308 – 25 – S – P – N

Filter Type
Pi, L, C

Prefix

Contact Arrangement
Low Density
9, 15, 25, 37, 50
High Density
15HD, 26HD, 44HD, 62HD, 78HD

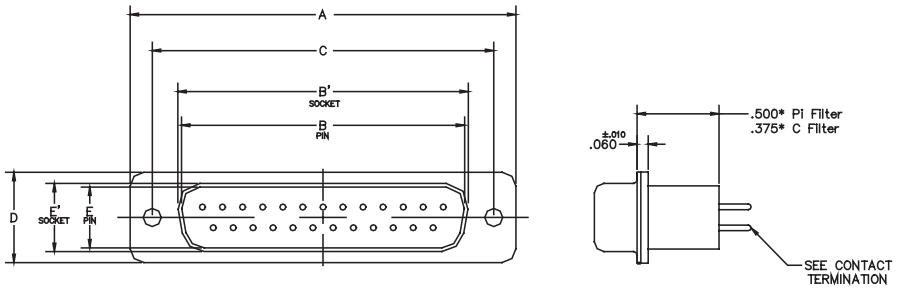
Plating
C- Cadmium (Yellow Chromate)
N- Electroless Nickel

Contact Termination
S - Solder Cup
P – PC Tail
C - Crimp

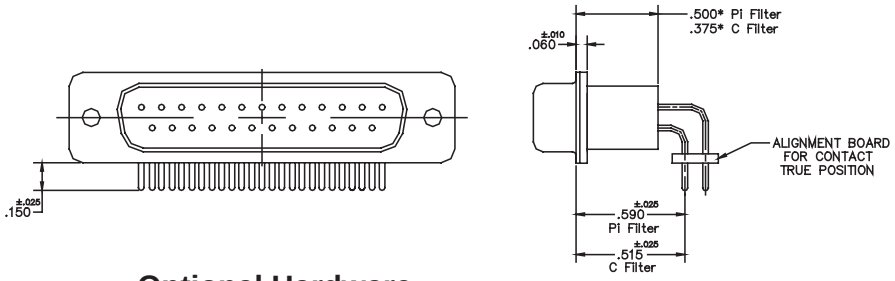
Contact Type
P – Pin
S- Socket

Downloaded from Arrow.com.

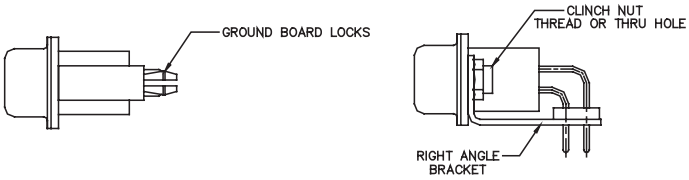
Straight D-Subminiature



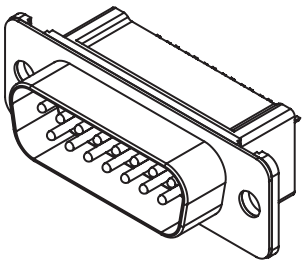
Right Angle D-Subminiature

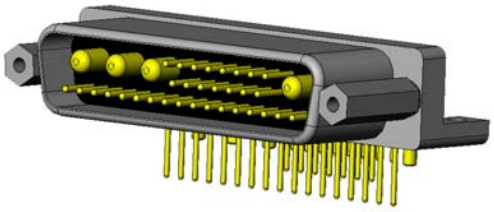


Optional Hardware



Straight Right Angle





Dimensions									
SHELL SIZE	STANDARD LAYOUT SIZE 20	HIGH DENSITY LAYOUT SIZE 22	A ±.015	B (PIN) ±.005	B' (SOCKET) ±.005	C BASIC	D ±.010	E (PIN) ±.005	E' (SOCKET) ±.005
E	9 CONTACT	15 CONTACT	1.213	.667	.642	.984	.494	.330	.310
A	15 CONTACT	26 CONTACT	1.541	.995	.970	1.312	.494	.330	.310
B	25 CONTACT	44 CONTACT	2.088	1.535	1.510	1.852	.494	.330	.310
C	37 CONTACT	62 CONTACT	2.729	2.183	2.158	2.500	.494	.330	.310
D	50 CONTACT	78 CONTACT	2.635	2.081	2.063	2.406	.605	.437	.422

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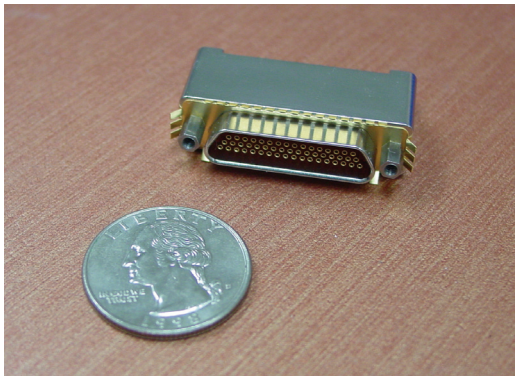


MIL-DTL-83513

MIL-DTL-83513 Micro-D filter connectors are designed to meet or exceed all applicable requirements of the military specification. The filter connectors are intermateable and interchangeable with the standard non-filtered connectors. Unique configurations are also available with customized shells and EMI ground spings.

Materials and Finishes

Shell	Aluminum alloy
Insulator	High grade plastic/epoxy
Contacts	Copper alloy, gold plate
Grommet and Seal	Silicon base elastomer
Capacitor	Barium titanate
Inductor	Ferrite bead

Part Number Assignment

P200 – 83513 – 25 – S – P – N

Filter Type
Pi, L, C

Prefix

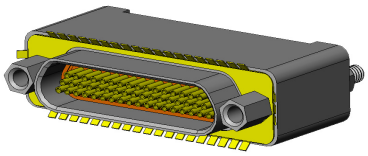
Contact Arrangement
9, 15, 21, 25, 31, 37, 51,100

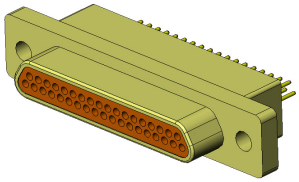
Plating
C- Cadmium (Yellow Chromate)
N- Electroless Nickel

Contact Termination
S - Solder Cup
P – PC Tail
F - Flying Leads
R - Right Angle*

Contact Type
P – Pin
S- Socket

* Consult factory for footprint dimensions





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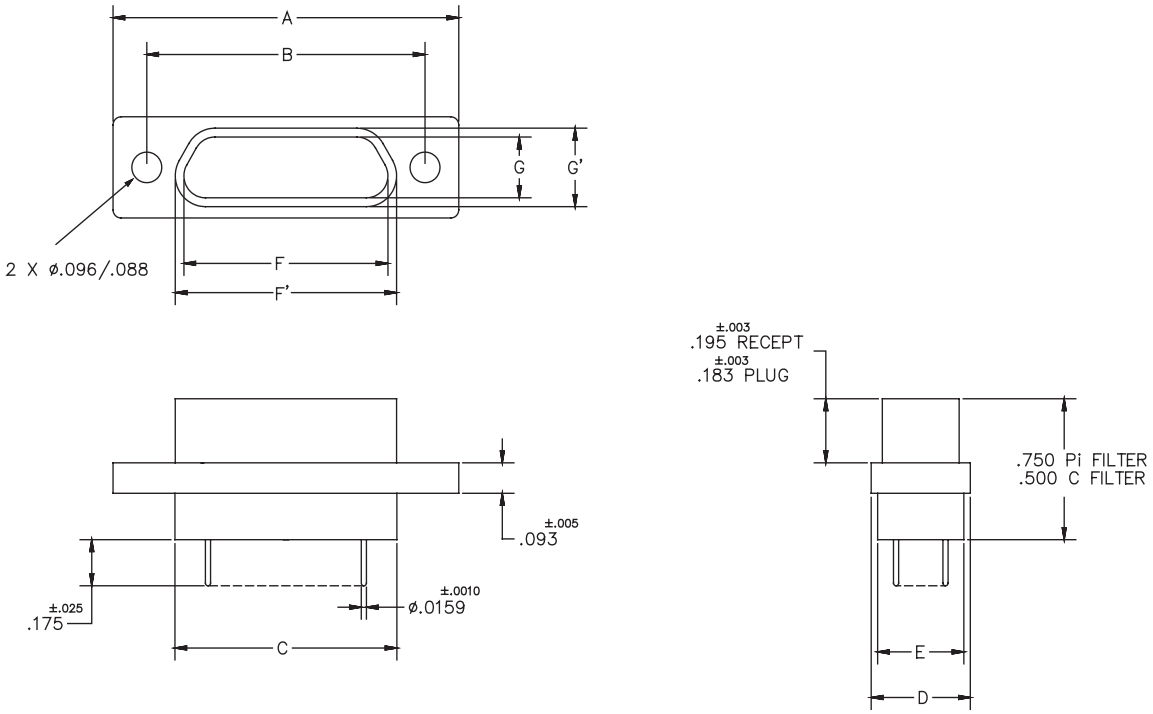
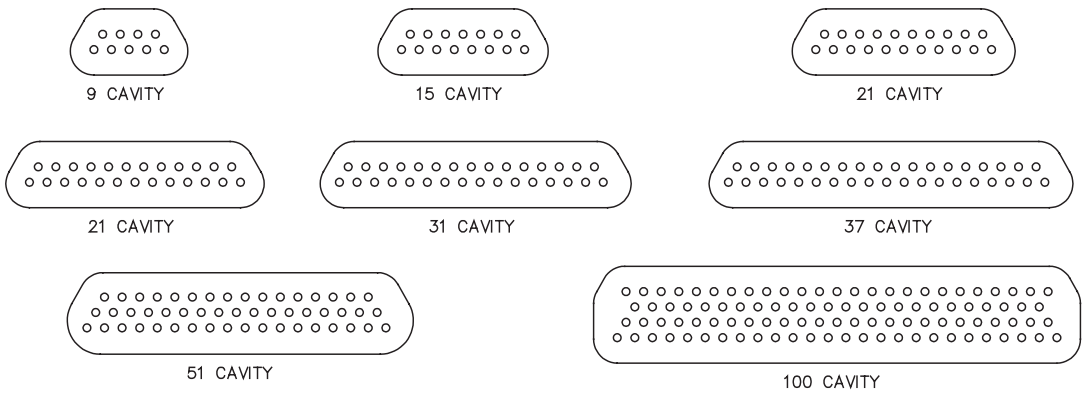
MIL-DTL-83513 MICROMINIATURE D



CAVITY	A ±.010	B BASIC	C +.010 −.018	D ±.010	E MAX	F BASIC RECEPT	F' BASIC PLUG	G BASIC RECEPT	G' BASIC PLUG
9	.775	.565	.390	.298	.270	.3342	.3338	.1852	.1848
15	.925	.715	.540	.298	.270	.4842	.4838	.1852	.1848
21	1.075	.865	.690	.298	.270	.6342	.6338	.1852	.1848
25	1.175	.965	.790	.298	.270	.7342	.7338	.1852	.1848
31	1.325	1.115	.940	.298	.270	.8842	.8838	.1852	.1848
37	1.475	1.265	1.090	.298	.270	1.0342	1.0338	.1852	.1848
51	.1425	1.215	1.040	.341	.310	.9842	.9838	.2282	.2278
100	2.160	1.800	1.432	.384	.360	1.3842	1.3838	.2712	.2708

Insert Arrangements



* Consult Factory For Additional or Custom Layouts

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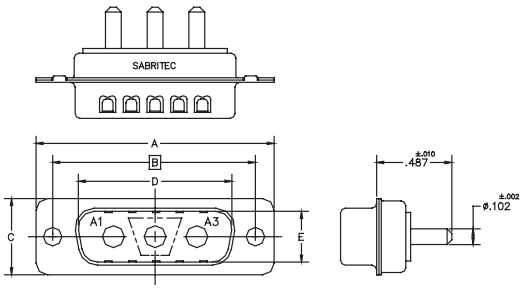
Combo D-Sub 3W3/3WK3 Filtered Power Connectors

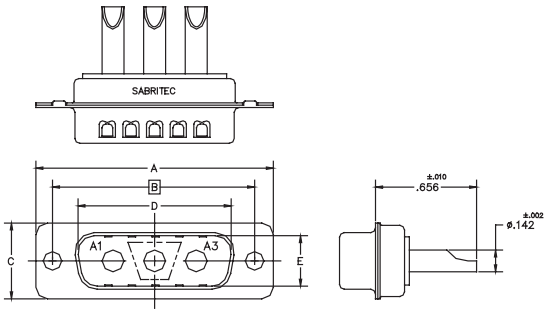
High Power Filter Combo D-Subminiature Connectors

Sabritec offers a complete line of high powered EMI filtered D-Sub connectors including the single row size #8 power contacts (3W3, 3WK3, etc.). With the addition of Sabritec's in-house production of ceramic planar capacitors, we can easily achieve up to 47 nF per line on this series. The planar capacitor provides excellent attenuation as well as meeting the Bellcore requirements for 1000 VDC Dielectric Withstanding Voltage. The materials used in the construction meet the UL flammability requirements of 94V-0. Sabritec's filtered D-Subminiature connectors are intermateable with standard non-filter D-Sub connectors. This series is available in PC tail, solder cup and solderless press-fit terminations into standard plated-thru holes. Sabritec also offers combo d-sub arrangements for power coaxial and signal contacts mixed arrangements including layouts 5W5, 8W8, 17W2, 9W1, and 24W7.

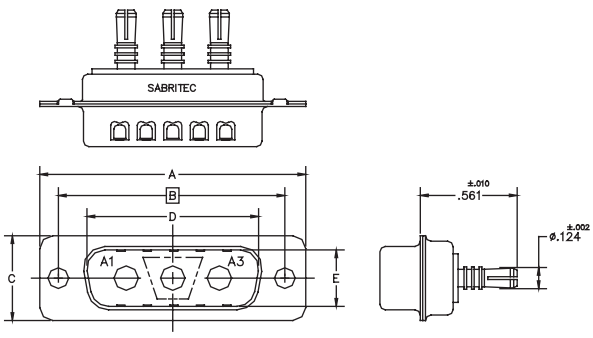
PC Tail



Solder Cup



Press-Fit



D-Sub High Power Plugs

Sabritec Part Number	EMI Filter		Voltage Rating
	Cap Value	Layout	
310031-1000	1 nF	3W3	400 VDC
310032-1001	1 nF	3WK3	400 VDC
310031-1002	5 nF	3W3	400 VDC
310032-1003	5 nF	3WK3	400 VDC
310031-1004	47 nF	3W3	400 VDC
310032-1005	47 nF	3WK3	400 VDC

Sabritec Part Number	EMI Filter		Voltage Rating
	Cap Value	Layout	
310031-2000	1 nF	3W3	400 VDC
310032-2001	1 nF	3WK3	400 VDC
310031-2002	5 nF	3W3	400 VDC
310032-2003	5 nF	3WK3	400 VDC
310031-2004	47 nF	3W3	400 VDC
310032-2005	47 nF	3WK3	400 VDC

Sabritec Part Number	EMI Filter		Voltage Rating
	Cap Value	Layout	
310031-4000	1 nF	3W3	400 VDC
310032-4001	1 nF	3WK3	400 VDC
310031-4002	5 nF	3W3	400 VDC
310032-4003	5 nF	3WK3	400 VDC
310031-4004	47 nF	3W3	400 VDC
310032-4005	47 nF	3WK3	400 VDC

DIMENSIONS	A +.010	B Basic	C +.010	D +.004	E +.004	F +.004	G +.004
	1.541	1.312	0.494	0.995	0.329	0.970	0.310

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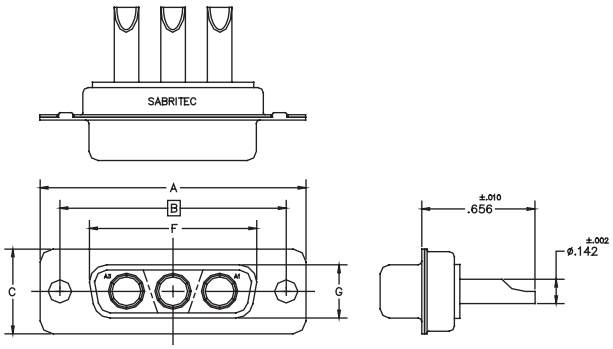
Filter D-Sub Connectors

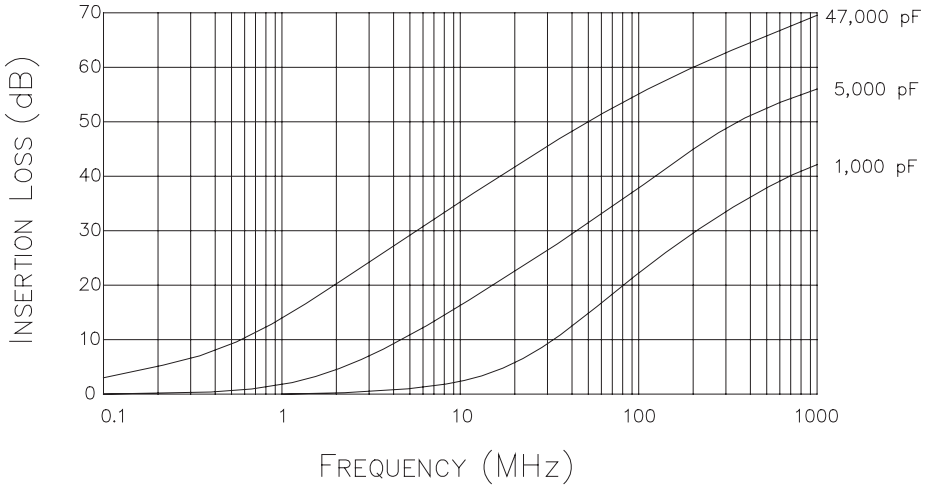
Solder Cup



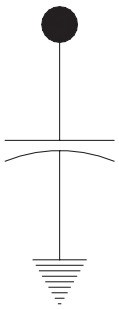
D-Sub High Power Receptacles

Sabritec Part Number	EMI Filter		Voltage Rating
	Cap Value	Layout	
310031-3000	1 nF	3W3	400 VDC
310032-3001	1 nF	3WK3	400 VDC
310031-3002	5 nF	3W3	400 VDC
310032-3003	5 nF	3WK3	400 VDC
310031-3004	47 nF	3W3	400 VDC
310032-3005	47 nF	3WK3	400 VDC

Insertion Loss Curves



"C" Filter Schematic



Insertion Loss Table

Frequency (MHz)	C1 (1 nF)	C5 (5 nF)	C47 (47 nF)
1	0.1	1.4	15
10	4	16	34
100	22	36	52
1000	42	56	68

Electrical Characteristics

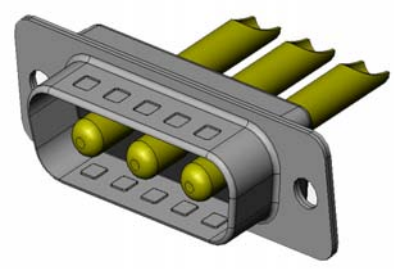
Operating Temperature Range	-55°C to +125°C
Voltage	1,000 VDC DWV 400 VDC Working
DC Current Rating	30 Amps max per contact
Surge Voltage	1,000 Volts, 1.2 X 50µ's Waveform (12 ohms) 1,000 Volts, 8 x 20µ's Waveform (2 ohms)
Insulation Resistance	5,000 M ohms @ 400 VDC
Capacitance	1 nF, 5 nF, 47 nF, (± 20%)
International Standard for EMC	Meets or exceeds EN 61000-4-5 IEC 1000-4-5

Materials and Finishes

Shell	Tin plated steel
Insulator	Thermoplastic (UL 94V-Ø rated)
Contacts	Copper Alloy, Gold plate per ASTM-B488 over nickel plate per QQ-N-290
Filter Array	Monolithic Capacitor, X7R Material

Terminations

PC Tail
Solder Cup
Press Fit



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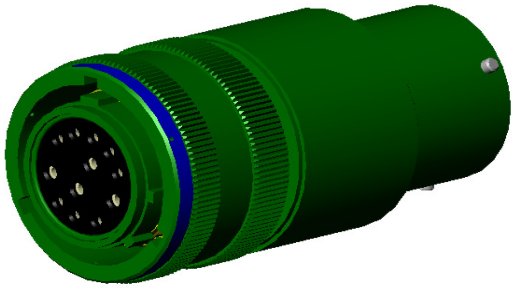
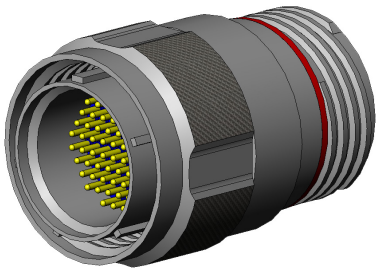
Filtered Adapters

Non–filter applications can easily be upgraded to EMI/Transient protection without modification to the system through Sabritec In–Line Filter Adapters. Adapters also provide the system designer great flexibility in situations where the filtering or system requirements are subject to change. The adapters are designed to be installed between the existing plug and receptacle without having to re–wire or disassemble the system. Both in–line cable and bulkhead/panel mount versions are available. Adapters can be built for any connector series including MIL-DTL-38999, MIL–C–26482, MIL–DTL–83723, MIL–DTL–24308, MIL–DTL–83513, ARINC 404, and ARINC 600. Consult the factory for more information.

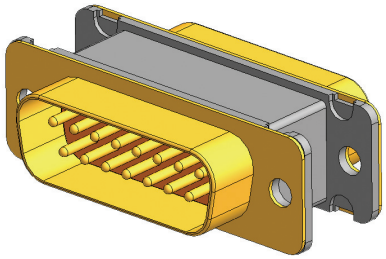
MIL-DTL-38999 Series I Adapter



MIL-DTL-38999 Series III Adapter



MIL-DTL-24308 D-Subminiature Adapter



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Soldering Procedure Guidelines

RECOMMENDED GUIDELINES FOR CUSTOMER SOLDERING AND CLEANING OF SABRITEC EMI/ EMP FILTERED CONNECTORS HAVING PC-TAIL OR SOLDER CUP TERMINATIONS

Sabritec filter connectors have been built to be rugged and able to withstand the environments they will be exposed to during their service life. However, since there are filter components inside the connectors, care should be taken during the processing of these types of products. The following is a brief overview of some general guidelines on how to handle the connectors during the soldering process.

Soldering Precautions

Preheating: It is always a good idea to preheat the connector prior to soldering to minimize subjecting the filter components to any thermal shock related to the soldering operation. We recommend preheating to 120°C-132°C (250°F-270°F) for five (5) minutes prior to soldering. This preheat is recommended for all soldering methods.

Heat Sinks: Where permissible/applicable, the use of a suitable heat sink attached directly to the contact being soldered is recommended in order to reduce the amount of heat being applied to the filter assembly. In some cases there will be certain configurations and/or high-density arrays that may preclude the use of a heat sink.

Hand Soldering: For solder cup arrays it is strongly recommended that the contacts be soldered in a "criss-cross" pattern, alternating between central and peripheral locations as much as possible. The goal is to avoid a sustained buildup of heat in any one area of the filter assembly.

Cleaning/Handling

Cleaning: Sabritec recommends that cleaning after soldering not be done by immersion in a cleaning solution. After soldering, solder joints may be brush cleaned with Isopropyl Alcohol, preferably while holding the connector with its soldered contact array facing downward at approximately a 45° angle. Allow the Isopropyl Alcohol to air dry at room temperature, followed by a 70°C (158°F) oven cure for approximately two (2) hours.

Exceptions: If immersion or "auto-wash" cleaning using an aqueous pressure jet system is required, please contact Sabritec for further information on what precautions need to be taken.

Handling: Avoid severe bending or flexing of the contact terminals at the point of exit from the connector backshell or epoxy/RTV seal.

Please contact us If you have any further questions regarding how to handle or process Sabritec EMI/EMP filter connectors.

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High Speed Interconnects
Fibre Channel / Ethernet / Firewire

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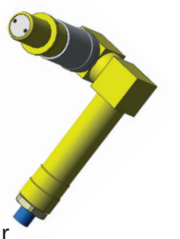
High Speed Interconnect Solutions

Introduction

Sabritec offers a complete line of differential Twinax and Quadrax connectors, contacts, and cable assemblies for high speed Ethernet, Firewire, and Fibre Channel applications. Differential pair twinaxial connectors and cable assemblies offer the utmost in high speed matched impedance data-on-demand applications. The differential pair and signal to shield characteristic impedance is maintained throughout the connector pair. A true twinaxial connector interface ensures signal integrity, minimizing jitter and data rate errors.

Sabritec manufactures connectors for the following protocols:

- Fibre Channel
- Ethernet: 10 Base-T, 100 Base-T, 1000 Base-T
- Firewire: IEEE 1394a and 1394b
- USB, DVI, and Infiniband

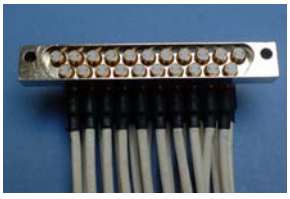


Quadsplitter

Sabritec features a newly developed concept called a quadsplitter. Quadrax is a system where four conductors are located within a single conducting enclosure. The connection to two separate twinax cables is accomplished without disturbing the differential or signal-to-shield impedances values. A complete series of connectors are available utilizing the Quadsplitter technology with MIL-DTL-38999 Series III connector types available in shell size 11 and shell size 25 housings.

Fibre Channel Backplane Connectors

In standard VME cards for low data rate signaling, connectors are widely available to carry non-shielded signaling for the VME bus from the interface via motherboard to daughter card assembly designated as I/O plug-in modules. The industry standard defines these connectors typically as P1 and P3 connectors. Sabritec has taken the standard housing configuration of the P1 & P3 mounting dimensions while incorporating true differential pair contacts within the P1 & P3 dimensional constraints. Data sampling rates exceeding 2 Gbits/second can be driven via matched impedance differential pair interconnections for board-to-board high speed data transfer as well as blind mate I/O plug in modular applications. Sabritec's P1 connector housing contains 21 position true differential pair blind mate contacts allowing board designers to carry high density differential pair signals from the LRU via motherboard to daughter-card plug in module with a single connector P1 type housing. This allows for the use of standard VME bus architecture cages for high speed fibre channel connection.



Fibre Channel Connector Series

For single stand-alone interconnect applications for a differential pair signal to the PCB, Sabritec offers a complete series of true differential pair connectors for board-board jumper applications. These are available in quick disconnect and threaded versions including straight and right angle cable mount and PCB mount connectors. The cable mount connectors are designed for 100 and 150 Ohm differential pair impedance cable types which maintain the differential pair impedance and signal to shield impedance throughout the mated connector pair.

Differential Twinax Contacts

Differential twinax contacts are designed for use in MIL-DTL-38999, MIL-DTL-83527, ARINC 404, ARINC 600 and D-Sub connectors series. Twinax contacts consist of two inner contacts to form 100 or 150 ohm differential impedance.

Micro Twinax

The Micro Twinax line features matched impedance miniaturized connectors that provide the user with controlled impedance and tightly spaced PCB footprint spacing. These connectors are available in true differential twinax packages with NDL, SMA, and Micro D size constraints.

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ARINC 404 and Arinc 600 Connectors

The ARINC 600 and 404 series connectors can be routed with either high speed differential pair matched impedance contacts (150 Ohm and 100 Ohm) or with Ethernet based quad contacts 100 Ohm impedance assemblies. The ARINC 600 series can also include ruggedized expanded beam or butt-joint fiber optic contacts.

MIL-DTL-83527

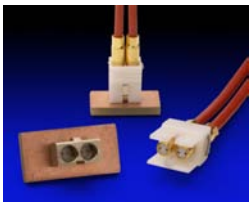
The MIL-DTL-83527 series connectors come standard with anti-rotational keyed insert assemblies for High-Speed Fibre Channel or Ethernet Twinax and Quadrax Contacts. Designed for extreme environmental concerns with very high levels of shock, vibration, and humidity.

Quadrax Contacts

Designed to meet ARINC 600 Quad based Ethernet specifications, Sabritec's Quadrax contacts consist of four center contacts (Quad configuration applications exceeding 1 Gbit/sec) forming two 100 or 150 ohm matched impedance differential pairs. These contacts have a low impedance grounding shield and are ideal for Ethernet 100 Base-T (100 Ohm), Fibre Channel (150 ohm) and IEEE 1394b Firewire (110 ohm) applications.

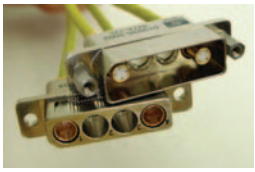
Modular Block (MBC) Connectors

Sabritec's MBC connectors consist of dual twinax blindmate assemblies permitting the transmit and receive signaling of high speed Ethernet data rates in one connector. This series allows for modularity in PCB routing of high speed signaling. Capable of 100 Ohm differential pair matched impedance, these connectors allow for maximum space utilization modularity and true signal integrity.



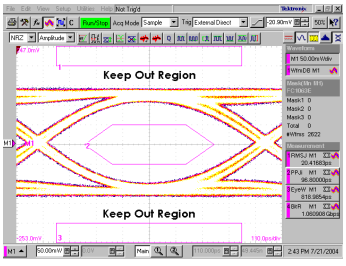
Ruggedized D-Sub Quad/Twinax Ethernet Connectors

Designed to ground the outer shield of a twinax or quadrax contact directly to the shell of the connector. A multi-finger ground spring, fixed around the shell provides a multi-point contact engagement for superior EMI shielding. The result is an extremely low contact resistance when measured from the contact outer body to the connector flange. These connectors provide low RF noise and high durability of up to 1,000 mating cycles. Offered with 100 ohm quadrax and/or 100 and 150 ohm fibre channel twinax contacts.



Testing Capabilities

Sabritec can test eye pattern, jitter, skew, and insertion loss on differential pair 100 ohm and 150 ohm fibre channel and high speed Gigabit Ethernet applications. Our testing capabilities support wide bandwidth (DC to 50 GHz with up to 12.5 GHz Trigger). We utilize the Tektronix CSA8000 to measure the differential pair TDR impedance between twinax connectors, cable assemblies, and quad cable fibre channel interconnect systems. Using the CSA8000 ensures the most accurate acquired signal for high speed communications testing. CSA8000 testing features 20 GHz Bandwidth with 80E04 sampling module, 35 ps TDR Reflected Rise Time, Differential TDR, and Crosstalk.



Electrical Specifications

Temperature Rating	-65ºC to + 125ºC
Corrosion	MIL-STD-202 Method 101, Test Condition B
Shock	MIL-STD-202 Method 213, Test Condition B
Vibration	MIL-STD-202 Method 204, Test Condition B
Thermal Shock	MIL-STD-202 Method 107, Test Condition B
Durability	500 Mate/Unmate cycles min.

Mechanical & Environmental Specifications

Dielectric Withstanding Voltage	250 VDC max
Insulation Resistance	5.000 Megaohms min
Contact Current Rating	3.0 Amps D.C. max
Data Rates	1 Gbits/sec min.
Differential Pair Cable Impedance	150-ohm ± 15-ohm 100-ohm ± 10-ohm
Signal to Shield Cable Impedance	75-ohm ± 10-ohm 50-ohm ± 7-ohm

Materials & Finishes

Shells	Brass per ASTM-B16 Nickel per SAE-AMS-QQ Gold per ASTM-B488 Aluminum per ASTM-B211 Electroless Nickel per MIL-C-26074 Cadmium per SAE-AMS-QQ-P-416
Insulators	PTFE per ASTM-D1710 Ultem per ASTM-D5205
Contacts	Brass per ASTM-B16 Be Cu per ASTM B196 Gold per ASTM-B488

Sabritec does not offer standard QPL slash sheet part #'s for multipin circular and rack & panel connectors. Our connectors are fully intermateable with all slash sheet part #'s.

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QUADSPLITTER TECHNOLOGY

HIGH SPEED QUAD TO TWINAX CONVERSION

Currently high-speed data transference requires transmission systems that minimize reflections. This is achieved through controlled characteristic impedance from source to load. In microwave systems, this is accomplished with waveguide or coaxial transmission lines. In both cases, the line geometry is the determining factor along with dielectric and conductor materials. Steps, bends, protrusions etc. will invariably cause reflections with consequent loss of transmission efficiency. In 2-wire differential- mode transmissions this is acceptable at lower data rates, however, when data rates become higher, such as fibre channel (into microwave frequencies), the line characteristic impedances become much more critical.

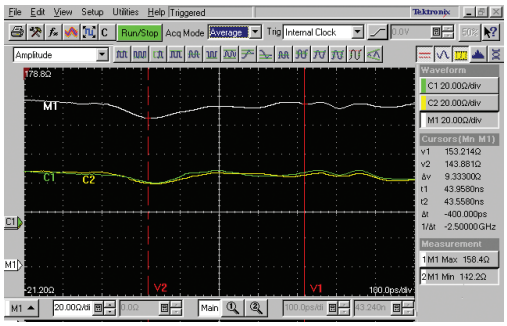
In fibre channel systems the source and load differential impedances are usually high (100 -150 ohm). Achieving these high impedances in coaxial transmission lines and connectors is size prohibitive. As a result, a line configuration such as twinax where the signals carried between a pair of conductors (usually round) critically spaced from each other and surrounded by a conductive enclosure is used. In this "differential line" high impedances are easily obtained since the mutual capacitance between the conductors is minimized.

A more efficient development for fibre channel transmission is the "Quadrax", a single enclosure with four wires where a diagonal pair of conductors forms a twinax differential pair.

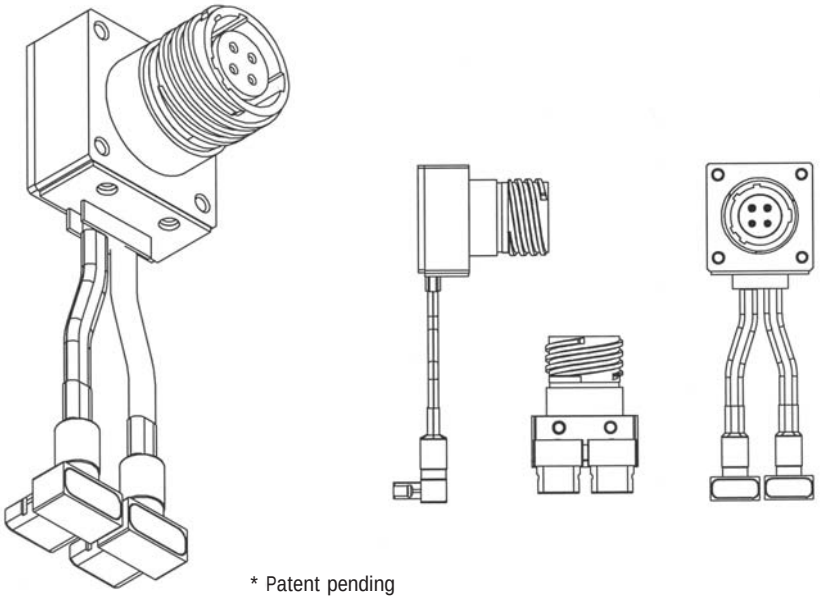
A problem arises when the Quadrax to Twinax conversion takes place and the channels must be physically separated. The diagonal pairs will cross over resulting in impedance disturbance and reflections with some cross talk. At low frequencies or data rates, this is somewhat manageable, however when data rates approach microwave frequencies the resulting system degradation becomes unacceptable. This problem is effectively overcome by employment of stripline or microstrip transmissions.

The unique feature of this method is the placement of the traces and ground planes within a stack of circuit boards where the lines from the quadrax input contact pins couple strait onto the stripline traces without crossing over or disturbing the relative positions of the selected diagonal pairs. This means the impedance is relatively consistent and therefore not frequency sensitive.

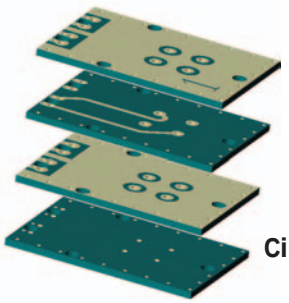
Referring to the assembly and circuit boards below, it can be seen that by locating a common ground plane between two trace layers, the signal pairs will be isolated and in the controlled impedance of effectively 2 separate transmission systems. In the above case, the separated pairs run to surface pads that, thru selected plated-thru holes, connect to the assigned embedded traces. Note the diagonal pairs from the Quadrax interface are attached to the pads on their assigned traces, while merely passing through the board with traces and pads belonging to the other diagonal pair. The paired traces are routed to the board edge case, and will be soldered to the separated twinax cables. The chart below is a differential TDR showing the impedance in the transition region.



TDR Traces



* Patent pending



Circuit Boards

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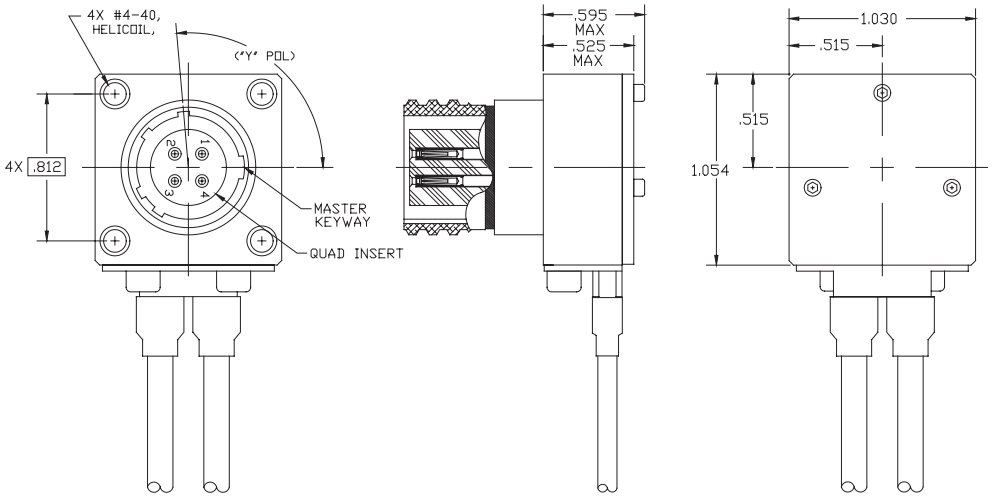
Size 11 Quad Receptacle to 2 Socket Insert Right Angle Twinax Cables to Open Lead



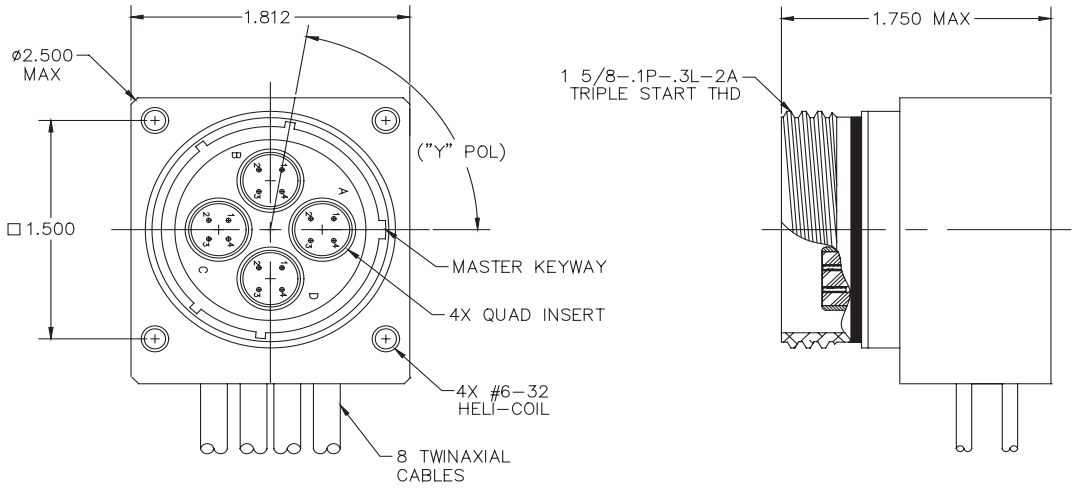
Y	Polarization
1	N
2	A
3	B
4	C
5	D
6	E

Y = Connector Polarization

Part Number	Cable Type	Cable
02990Y-0100	Differential Twinax	540-1099-000

Please specify cable length when ordering or use the RFQ worksheet in the back of this catalog.

Size 25 Four Way Quad Pin Insert Receptacle to 8 Right Angle Twinax Cables to Open Lead



Y	Polarization
1	N
2	A
3	B
4	C
5	D
6	E

Y = Connector Polarization

Part Number	Cable Type	Cable
01370Y-3000	Differential Twinax	540-1099-000

Please specify cable length when ordering or use the RFQ worksheet in the back of this catalog.

See Page 108 for Cable Assembly Ordering Information

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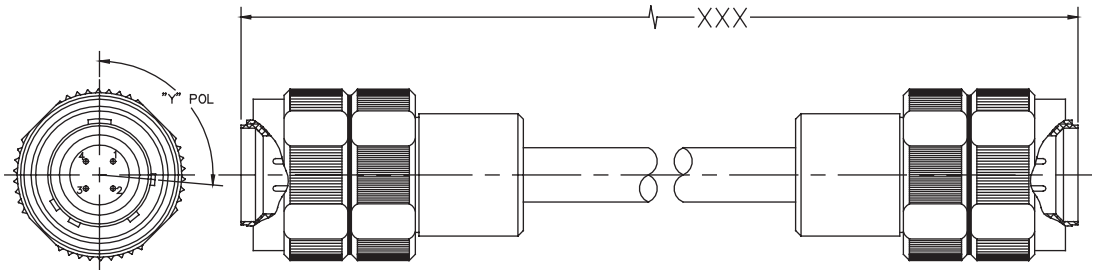
MIL-DTL-38999 Size 11 Pin Insert Quad Plug to Plug Cable Assembly



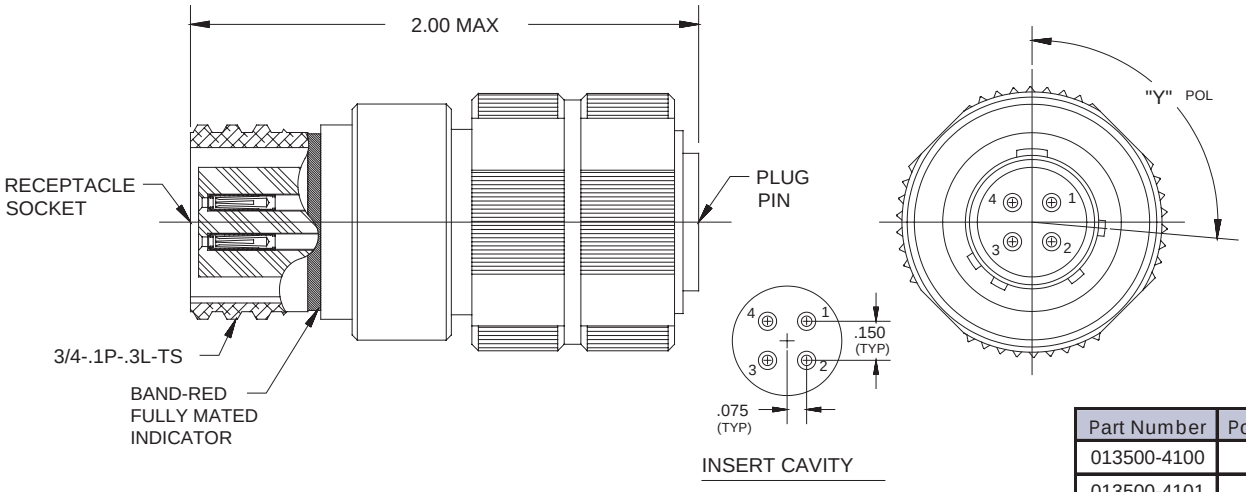
XXX = Cable Length in Inches

Y = Connector Polarization

Part Number	Cable Type	Cable
02990Y-2XXX	Differential Quad	540-1138-000
02990Y-3XXX	Differential Quad	540-1143-000

Y	Polarization
1	N
2	A
3	B
4	C
5	D
6	E

MIL-DTL-38999 Size 11-4 Connector Saver Quad Configuration



Part Number	Polarizatoin
013500-4100	N
013500-4101	A
013500-4102	B
013500-4103	C
013500-4104	D
013500-4105	E

See Page 108 for Cable Assembly Ordering Information

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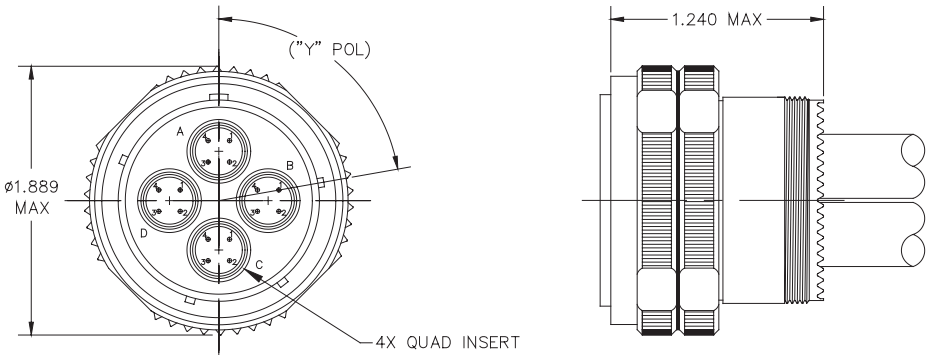
MIL-DTL-38999 Size 25 Four Way Socket Insert Quad Plug

Y = Connector Polarization

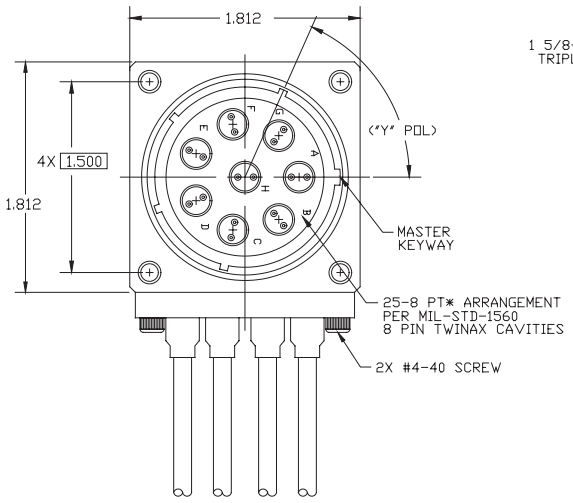


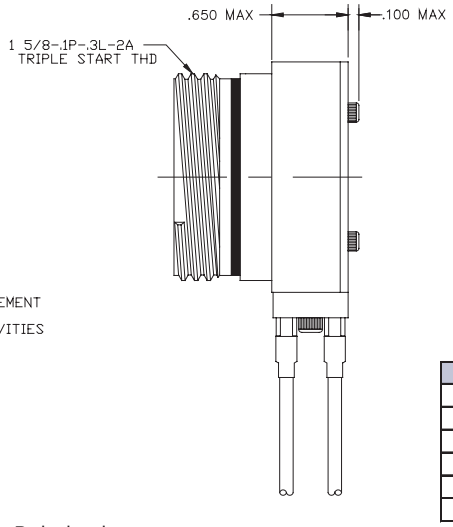
Part Number	Cable Type	Cable
01340Y-2000	Differential Quad	540-1138-000
01340Y-2001	Differential Quad	540-1143-000

Y	Polarization
1	N
2	A
3	B
4	C
5	D
6	E

Please specify cable length when ordering or use the RFQ worksheet in the back of this catalog.

Box Mount Receptacle Pin Insert 25-8 PT* to 8 R/A Twinax Cables to Open Lead





Y	Polarization
1	N
2	A
3	B
4	C
5	D
6	E

Y = Connector Polarization

Part Number	Cable Type	Cable
02370Y-100X	Differential Twinax	540-1099-000

Please specify cable length when ordering or use the RFQ worksheet in the back of this catalog.

* *Connector Receptacle is supplied fully loaded with twinax pin contacts terminated to differential pair twinax cable to open lead (all cavities included).*

See Page 108 for Cable Assembly Ordering Information

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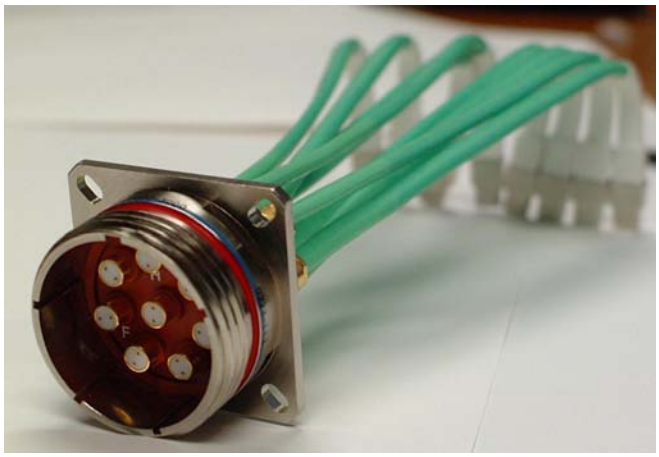
MIL-DTL-38999 High Speed Series

MIL-DTL-38999 Ordering Information



Differential twinax contacts are designed for use in MIL-DTL-38999, MIL-DTL-83527, ARINC 404, ARINC 600 and D-Sub connectors series. Twinax contacts consist of two inner contacts to form 100 or 150 ohm differential impedance. Designed to meet ARINC 600 Quad Ethernet specifications, Sabritec's Quadrax contacts consist of four center contacts (Quad configuration applications exceeding 1 Gbit/sec) forming two 100 or 150 ohm matched impedance differential pairs. These contacts have a low impedance grounding shield and are ideal for Ethernet 100 Base-T (100 Ohm), Fibre Channel (150 ohm) and IEEE 1394B Firewire (110 ohm) applications.

PART NUMBER ASSIGNMENT

38999 – III – B – R – C – 21 – 75 – P – C – N

Prefix

Series
I, III, IV

Shell Style
J – Jam Nut
B – Box Mount
W- Wall Mount

Mounting
F- Front
R - Rear

Material/Plating
C- Aluminum Alloy/Cadmium Over Nickel
N- Aluminum Alloy/Electroless Nickel
S- Stainless Steel/Electroless Nickel
CC-Composite/Cadmium Over Nickel
CN-Composite/Electroless Nickel
**Consult factory for alternate plating options*

Shell Size

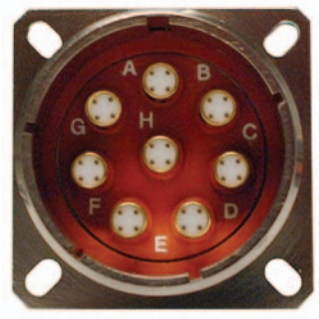
Insert Arrangment

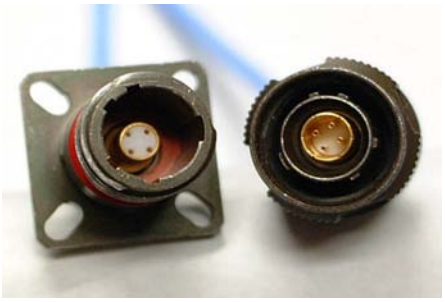
Contact Type
P – Pin
S- Socket

Contact Termination
S- Solder Cup
P- PC Tail
C- Crimp

Polarization
N, A, B, C, D, E

Note: Twinax/Quadrax Contacts are sold seperately





MIL-DTL-38999 with Single Way Quad

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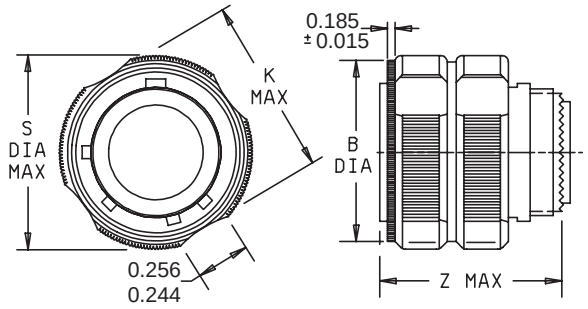
MIL-DTL-38999 Twinax/Quadrax

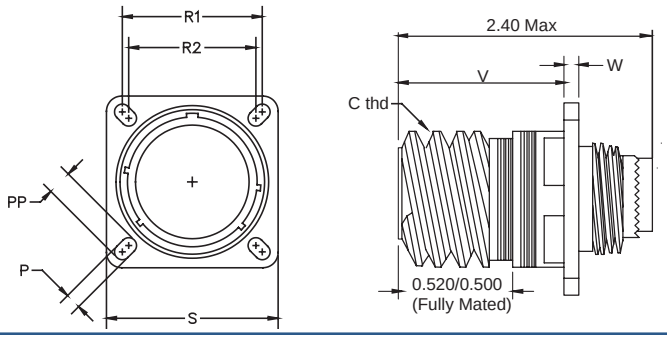
MIL-DTL-38999 Series III Connector Shells/Size 8 Twinax Contacts

MIL-DTL-38999 Twinax/Quadrax Plug



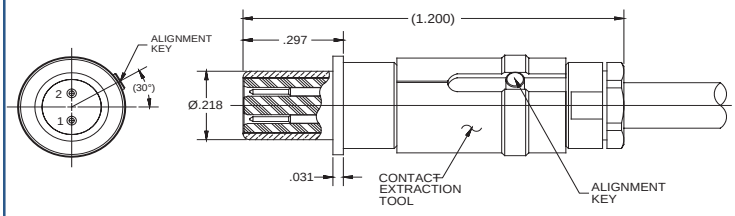
Shell Size	B Dia + .008 -.0	K Max	S Dia Max	Z Max
9	0.724	0.748	0.858	1.220
11	0.831	0.862	0.984	
13	1.000	1.028	1.157	
15	1.130	1.154	1.280	
17	1.268	1.291	1.406	
19	1.374	1.398	1.516	
21	1.500	1.524	1.642	
23	1.618	1.642	1.768	
25	1.744	1.768	1.890	

MIL-DTL-38999 Twinax/Quadrax Receptacle



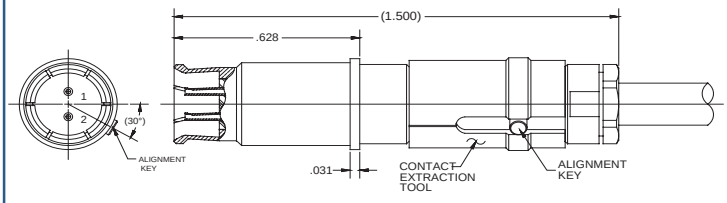
Shell Size	C Thread .1 Pitch .3 Lead	P ±.008	R1 BSC	R2 BSC	V Max + 0.00 -.005	W Max	X Max	PP Max ±.008	S ± .012
9	0.625	0.128	0.719	0.594	0.820	.098/.083	0.500	0.216	0.937
11	0.750		0.812	0.719			0.620	0.194	1.031
13	0.875		0.906	0.812			0.740		1.026
15	1.000		0.969	0.906			0.890		1.220
17	1.188		1.062	0.969			1.000		1.311
19	1.25		1.156	1.062			1.120		1.437
21	1.375	0.154	1.250	1.156	0.790	.126/.083	1.250	0.242	1.563
23	1.500		1.375	1.250			1.390		1.689
25	1.625		1.500	1.375			1.500		1.811

Size 8 Twinax Pin Contact 100 and 150 Ohm



Part Number	Impedance	Cable Type	Cable
019634-8001	150 Ohm	Differential Twinax	540-1099-000
019634-8002	150 Ohm	Differential Twinax	540-1114-000
019634-8003	100 Ohm	Differential Twinax	540-1153-000
019634-8004	100 Ohm	Flexible Twinax	540-1161-000
019634-8005	100 Ohm	Flexible Twinax	540-1086-000

Size 8 Twinax Socket Contact 100 and 150 Ohm



Part Number	Impedance	Cable Type	Cable
019534-8001	150 Ohm	Differential Twinax	540-1099-000
019534-8002	150 Ohm	Differential Twinax	540-1114-000
019534-8003	100 Ohm	Differential Twinax	540-1153-000
019534-8004	100 Ohm	Flexible Twinax	540-1161-000
019534-8005	100 Ohm	Flexible Twinax	540-1086-000

See Page 108 for Cable Assembly Ordering Information

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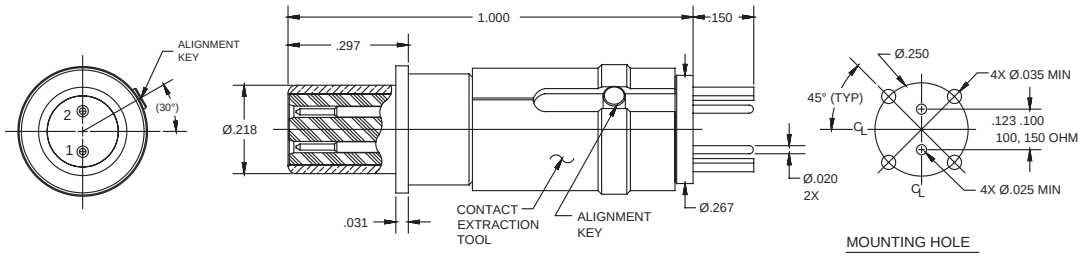
Size 8 Twinax/Quadrax Contacts

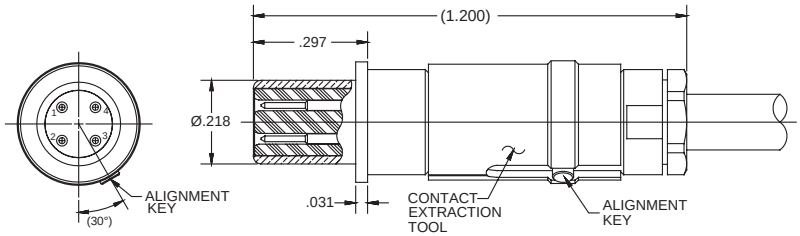
For MIL-DTL-38999 Series III Connectors

Size 8 Twinax Pin 100 and 150 Ohm PCB Mount



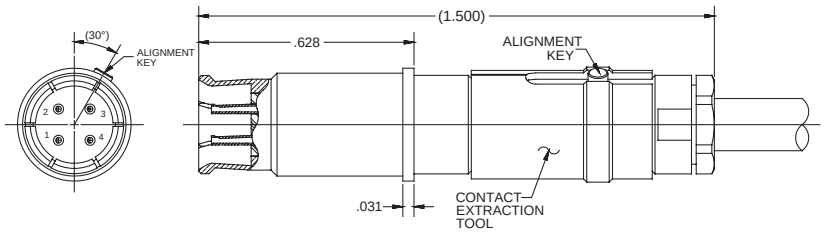
Part Number	Impedance
019617-0002	100 Ohm
019617-0003	150 Ohm

Size 8 Quadrax Pin 100 Ohm



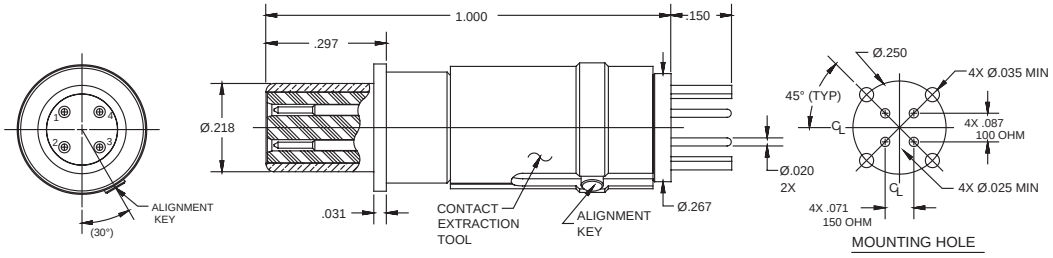
Part Number	Cable Type	Cable
019635-8000	Differential Quad	540-1165-000

Size 8 Quadrax Socket 100 Ohm



Part Number	Cable Type	Cable
019535-8000	Differential Quad	540-1165-000

Size 8 Quadrax Pin 100 and 150 Ohm PCB Mount

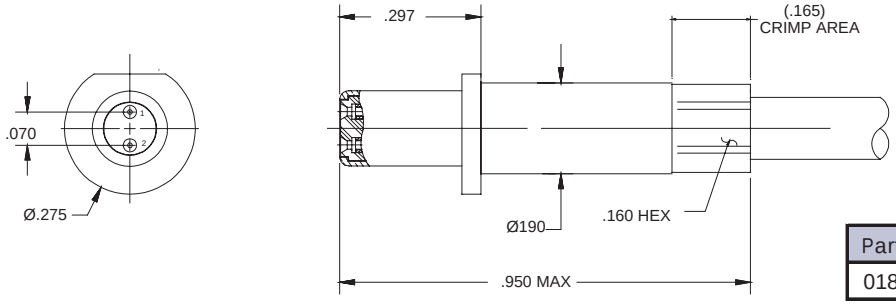


Part Number	Impedance
019617-0004	100 Ohm
019617-0005	150 Ohm

See Page 108 for Cable Assembly Ordering Information

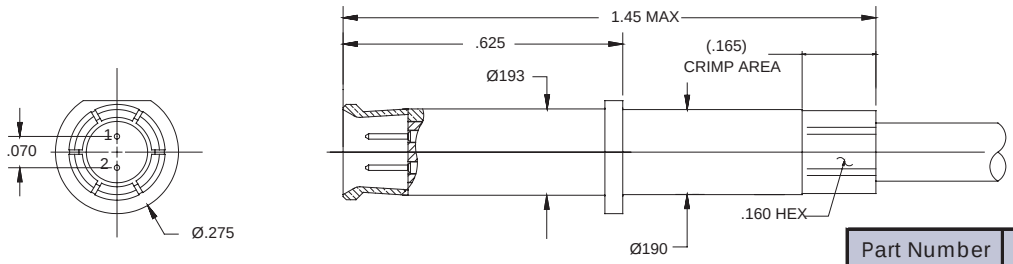
Downloaded from Arrow.com.

Size 10 Twinax Pin Crimp Contact 100 Ohm



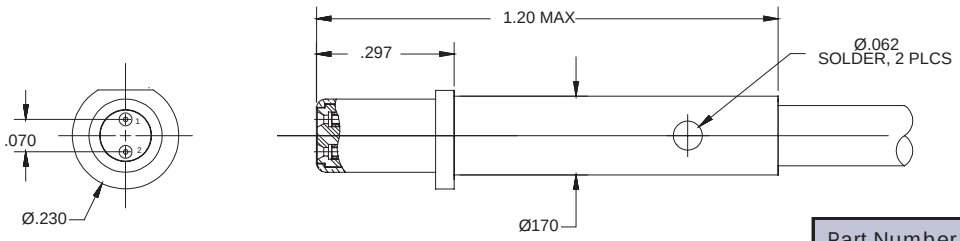
Part Number	Cable Type	Cable
018834-8000	Differential Twinax	540-1153-000

Size 10 Twinax Socket Crimp Contact 100 Ohm



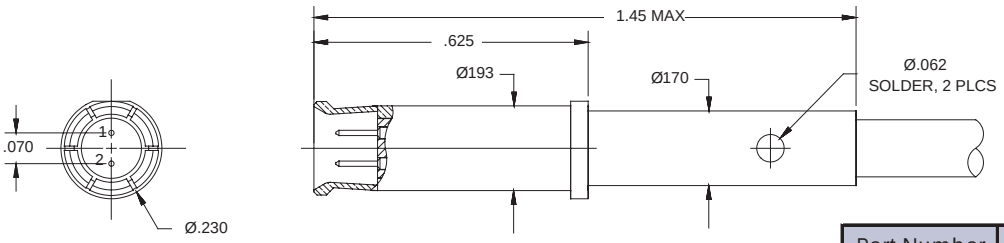
Part Number	Cable Type	Cable
018934-8000	Differential Twinax	540-1153-000

Size 10 Twinax Pin Solder Contact 100 Ohm



Part Number	Cable Type	Cable
018834-8001	Differential Twinax	540-1153-000

Size 10 Twinax Socket Solder Contact 100 Ohm



Part Number	Cable Type	Cable
018934-8001	Differential Twinax	540-1153-000

See Page 108 for Cable Assembly Ordering Information

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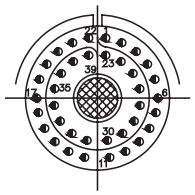
INSERT ARRANGEMENTS

MIL-DTL-38999 TWINAX/QUADRAX INSERT ARRANGEMENTS

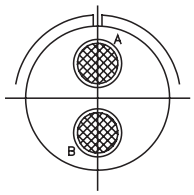
CONTACT LEGEND 8 12 16 20 22D

Size #8 Twinax /Quadrax (T/Q) Cavities are Anti-Rotational

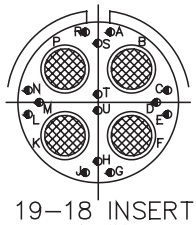
9–5 INSERT
1 #8 T/Q



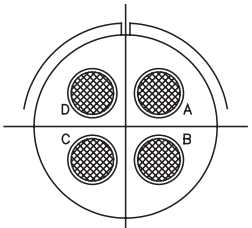
17–2 INSERT
1 #8 T/Q
38 #22D



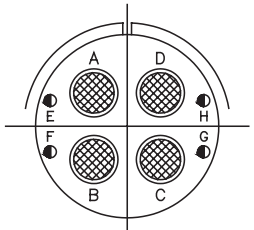
17–82 INSERT
2 #8 T/Q



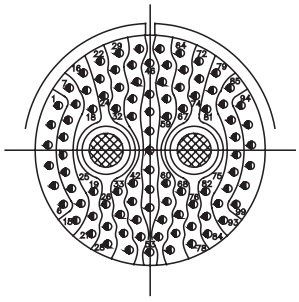
19–18 INSERT
4 #8 T/Q
14 #22D



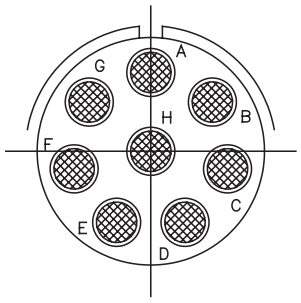
21–75 INSERT
4 #8 T/Q



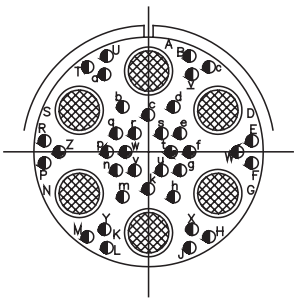
21–4T4 INSERT
4 #8 T/Q
4 #22D



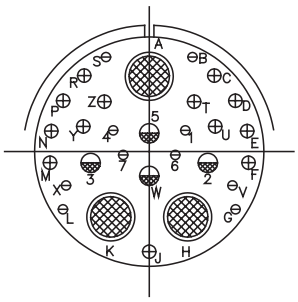
25–7 INSERT
2 #8 T/Q
97 #22D



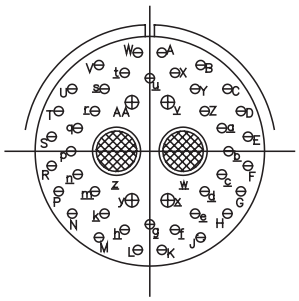
25–8 INSERT
8 #8 T/Q



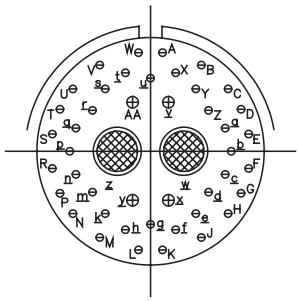
25–17 INSERT
6 #8 T/Q
36 #22D



25–20 INSERT
3 #8T/Q/13 #16
4 #12 / 20 #20



25–46 INSERT
2 #8 T/Q
4 #16
40 #20



25–90 INSERT
2 #8 T/Q
4 #16
40 #20

Note:
Size #8 Twinax/Quadrax contact cavities are common ground to the connector shell with a ground resistance of 10 milli-ohms maximum or insulated from common ground. Consult factory for details.

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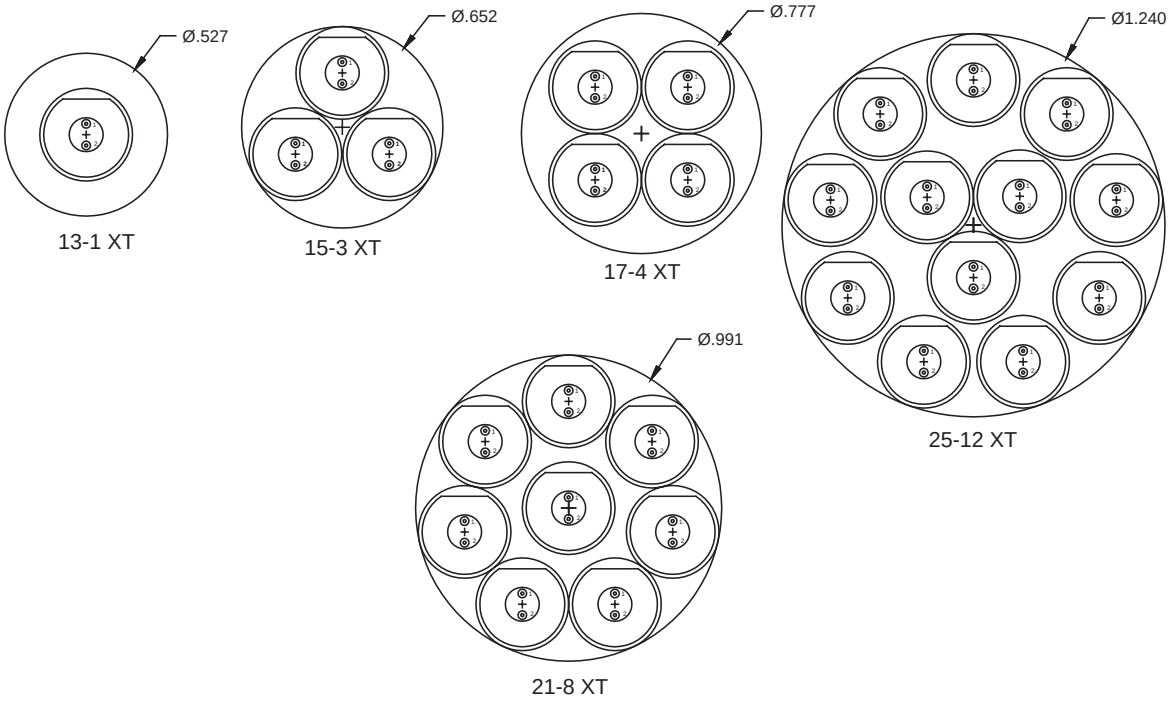
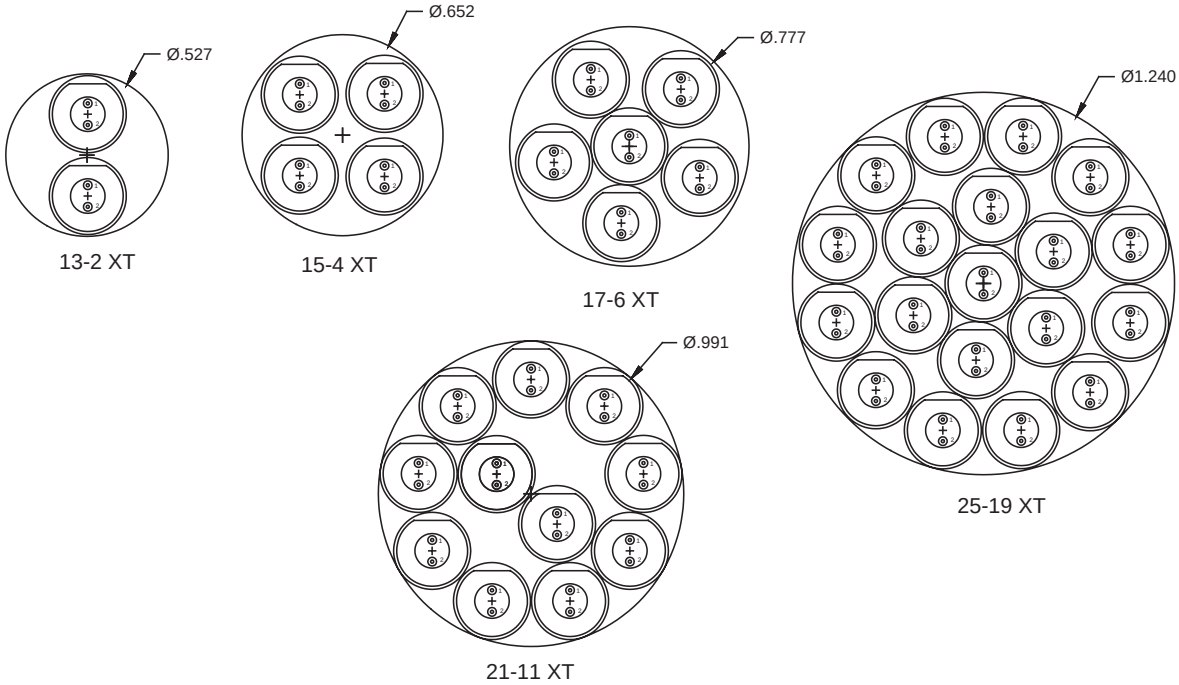
Sabritec Size 10XT Twinax Contact Layouts Crimp Version

Contact cavities are anti-rotational to fit Size 10 Twinax 100 Ohm differential pair impedance Contacts



Suitable for Sabritec P/N: 018834-8000 and 018934-8000

Sabritec Size 10XT Twinax Contact Layouts Solder Version



Suitable for Sabritec P/N: 018834-8001 and 018934-8001

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ARINC 404 Series Connectors

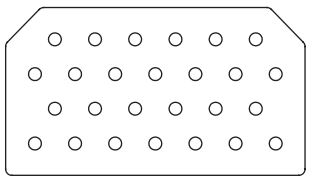
MIL-C-81659 Anti-Rotational Twinax Insert Arrangements

Sabritec's ARINC 404 connector series comes available with high speed Fibre Channel and/or Ethernet Twinax and Quadrax contacts. These connectors come standard with anti-rotational keyed insert assemblies and high speed differential pair signaling.

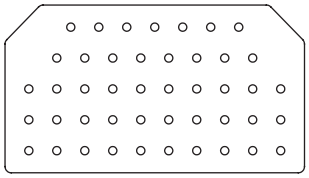
Designed for 1394 Firewire, Gigabit Ethernet, 100 Base-T Ethernet, high speed video Hot-Link, and Fibre Channel data links. Quadrax high speed Ethernet and matched impedance 150-Ohm differential pair insert assemblies are available.

ARINC 404 Insert Arrangements

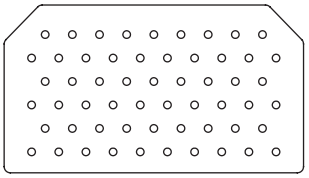
Note: Size 5 Twinax and Quadrax Contact Cavities are anti-rotational



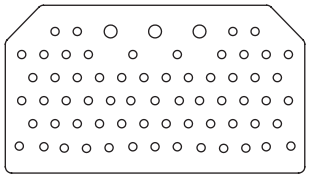
26 #16 CONTACTS
Insert Arrangement: 26



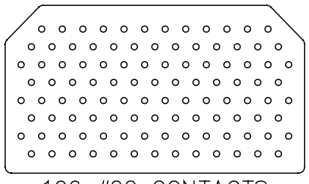
45 #20 CONTACTS
Insert Arrangement: 45



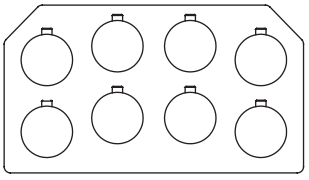
57 #20 CONTACTS
Insert Arrangement: 57



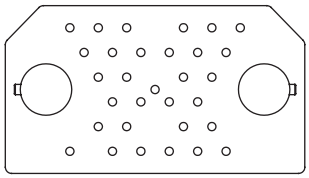
64 #20, 3 #16 CONTACTS
Insert Arrangement: 67



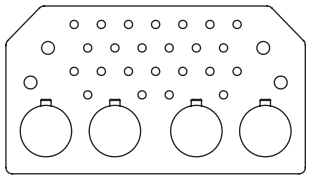
106 #22 CONTACTS
Insert Arrangement: 106



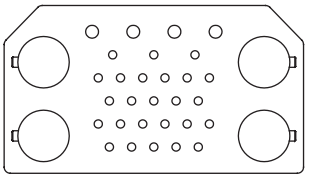
8 # 5 TWINAX/QUADRAX
Insert Arrangement: 8T8



30 #20
2 #5 TWINAX/QUADRAX
Insert Arrangement: 32T2

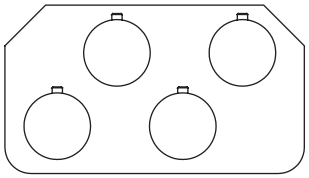


24 #20, 4 #16,
4 # 5 TWINAX/QUADRAX
Insert Arrangement: 32T4



25 #20, 4 #16,
4 #5 TWINAX/QUADRAX
Insert Arrangement: 33T4

For ARINC Size 1 Quad Contact Only



4 #1 QUAD CONTACT
Insert Arrangement: 4Q1

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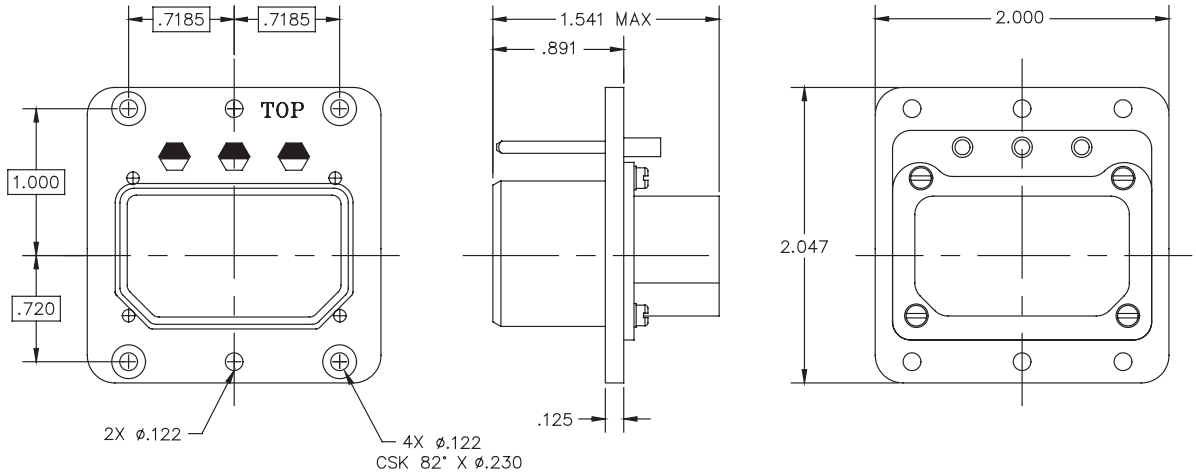
Part Number Assignment

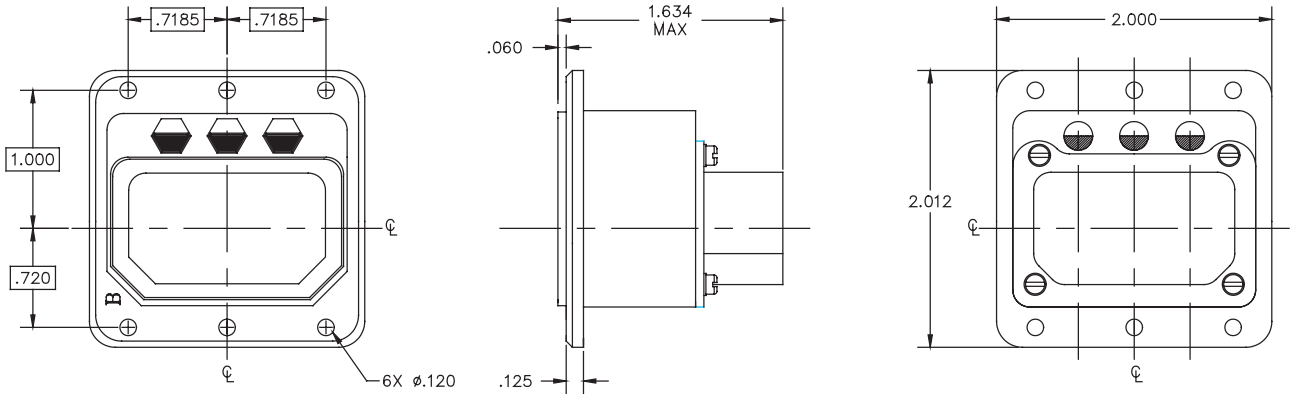
404 – 2 – C – A106 – P – B57 – P – P

- Prefix: 404
- Shell Size: 2
  1,2, 3, 4
- Plating: C
  C- Cadmium (Yellow Chromate
  N- Electroless Nickel
- Insert Arrangements: A106, B57
  Cavity A, B, C, D
- Contact Type: P
  P – Pin
  S- Socket
- Contact Termination: P
  S- Solder Cup
  P- PC Tail
  C- Crimp

ARINC 404 Shell Size 1 Plug

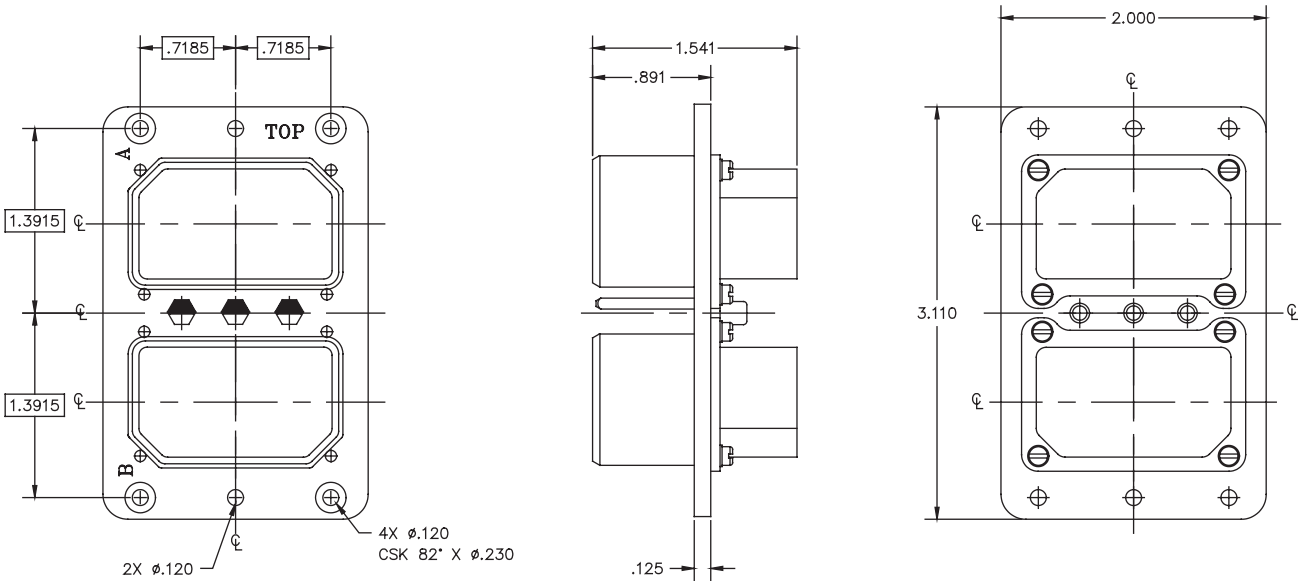


Arinc 404 Shell Size 1 Receptacle

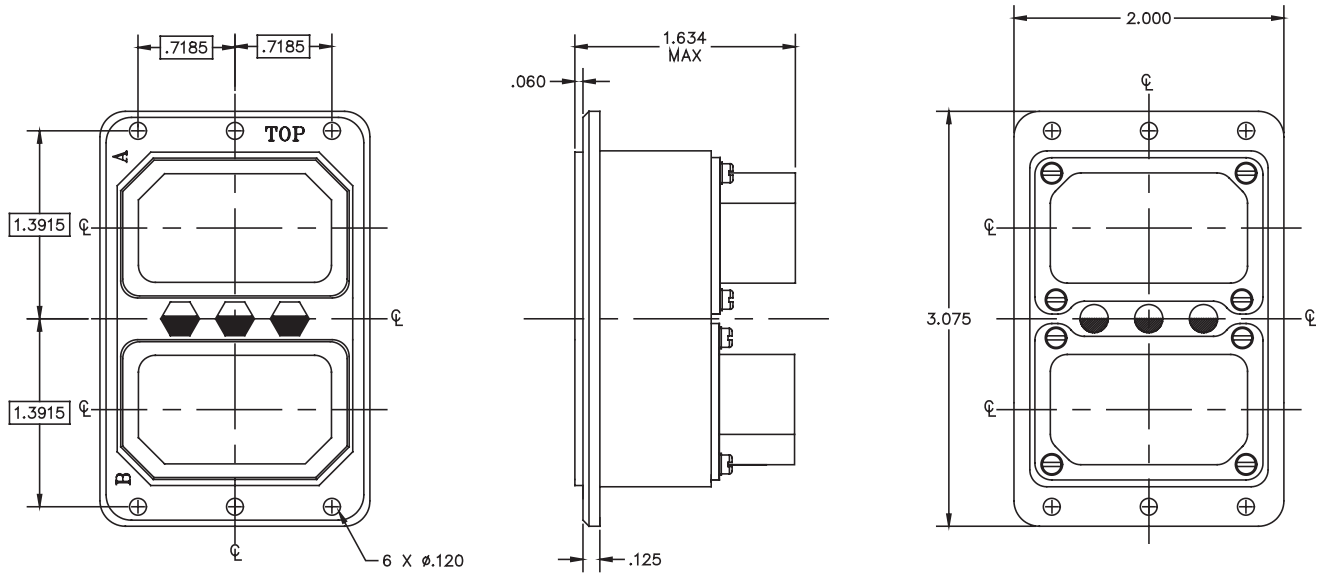


Downloaded from Arrow.com.

ARINC 404 Shell Size 2 Plug

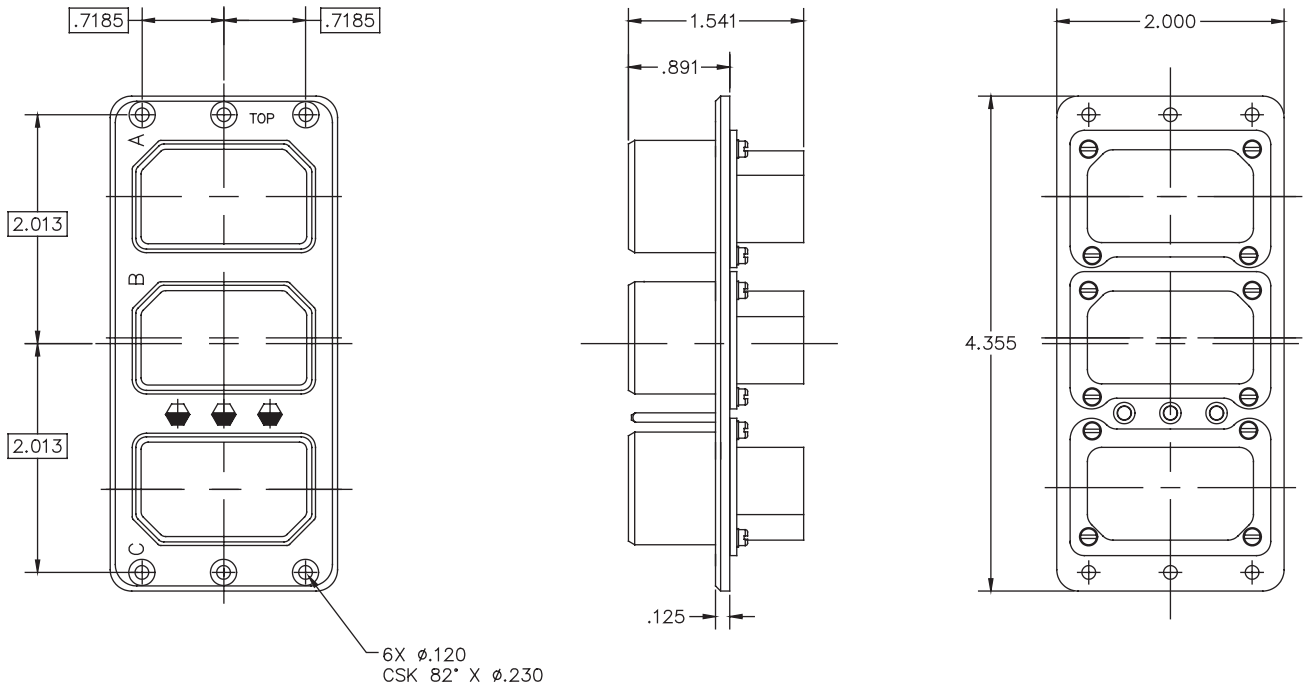


ARINC 404 Shell Size 2 Receptacle

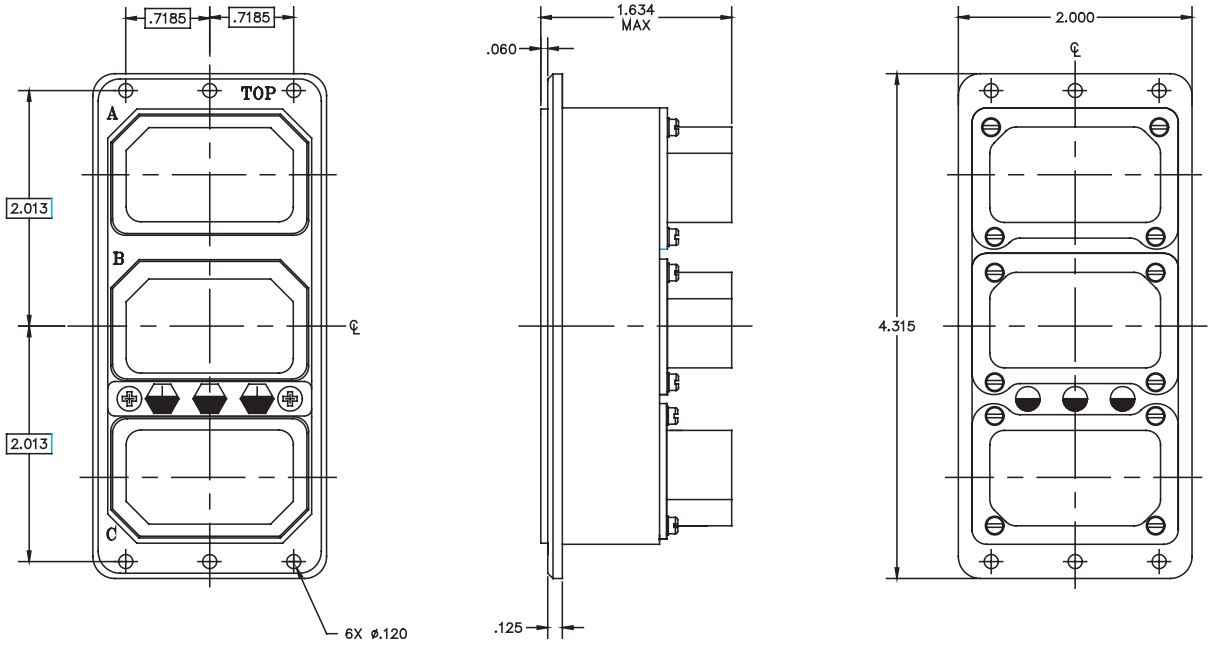


Downloaded from Arrow.com.

ARINC 404 Shell Size 3 Plug

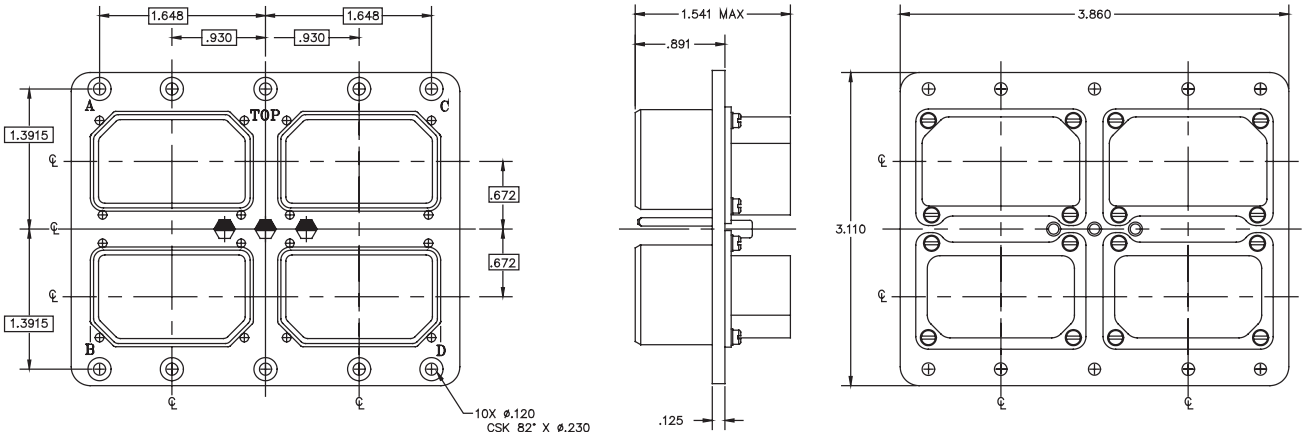


ARINC 404 Shell Size 3 Receptacle

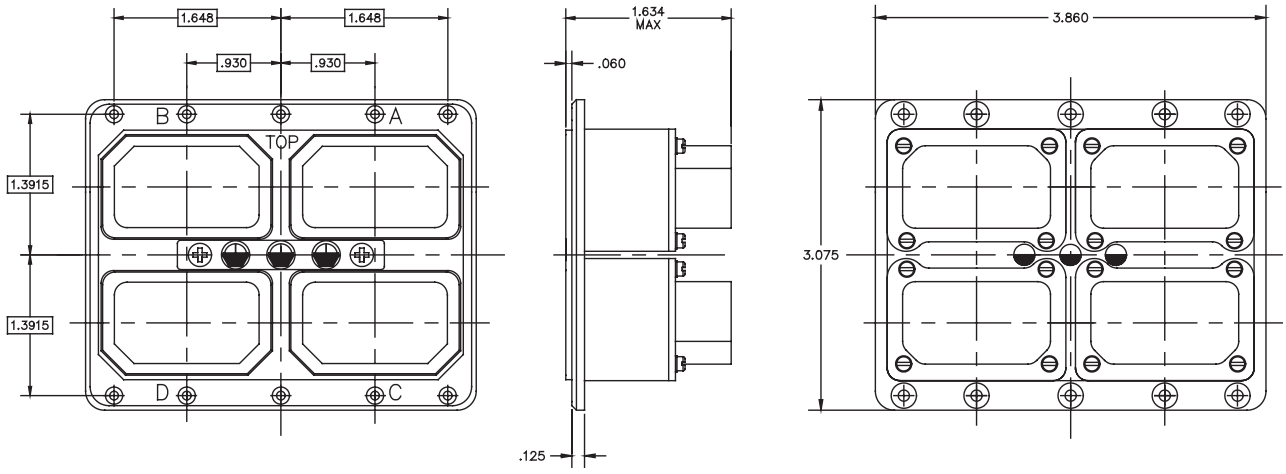


Downloaded from Arrow.com.

ARINC 404 Shell Size 4 Plug

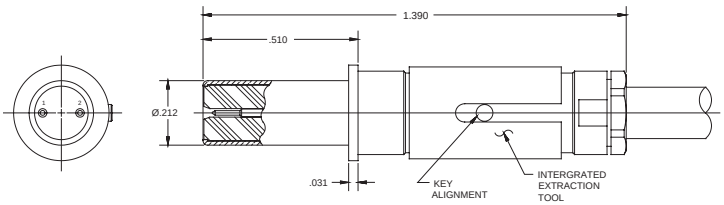


ARINC 404 Shell Size 4 Receptacle



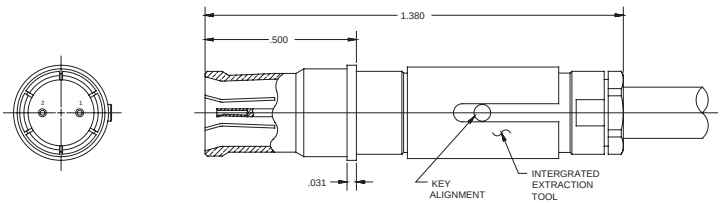
Downloaded from Arrow.com.

ARINC 404 Size 5 Twinax Pin Contact 100 and 150 Ohm



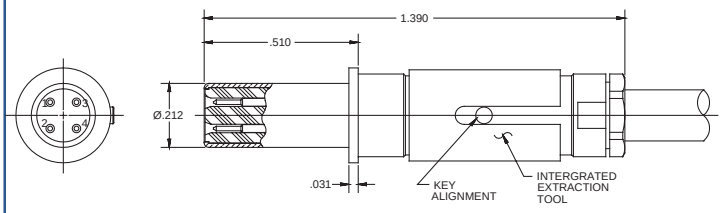
Part Number	Impedance	Cable Type	Cable
019434-8000	150 Ohm	Differential Twinax	540-1099-000
019434-8001	150 Ohm	Differential Twinax	540-1114-000
019434-8003	100 Ohm	Flexible Twinax	540-1086-000
019434-8004	100 Ohm	Differential Twinax	540-1153-000
019434-8005	100 Ohm	Flexible Twinax	540-1161-000

ARINC 404 Size 5 Twinax Socket Contact 100 and 150 Ohm



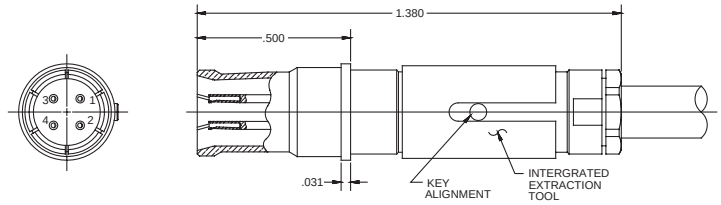
Part Number	Impedance	Cable Type	Cable
019334-8000	150 Ohm	Differential Twinax	540-1099-000
019334-8001	150 Ohm	Differential Twinax	540-1114-000
019334-8003	100 Ohm	Flexible Twinax	540-1086-000
019334-8004	100 Ohm	Differential Twinax	540-1153-000
019334-8005	100 Ohm	Flexible Twinax	540-1161-000

ARINC 404 Size 5 Quadrax Pin Contact 100 Ohm



Part Number	Cable Type	Cable
019435-8000	Differential Quad	540-1165-000

ARINC 404 Size 5 Quadrax Socket Contact 100 Ohm

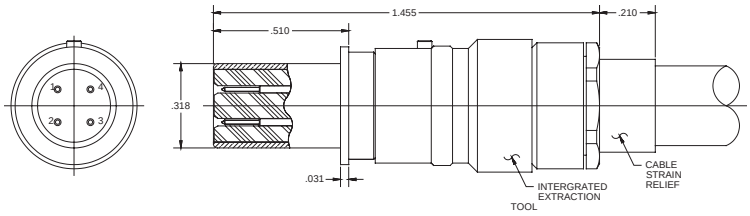


Part Number	Cable Type	Cable
019335-8000	Differential Quad	540-1165-000

See Page 108 for Cable Assembly Ordering Information

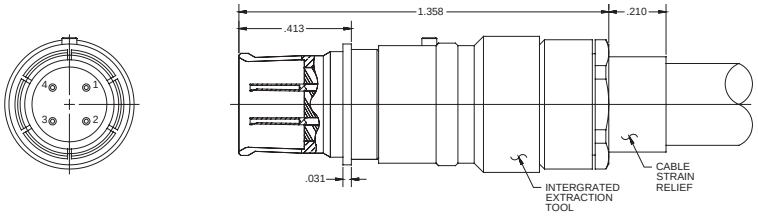
Downloaded from Arrow.com.

ARINC 404 Size 1 Quadrax Pin Contact 100 and 150 Ohm



Part Number	Cable Type	Cable
012735-0000	Differential Quad	540-1138-000

ARINC 404 Size 1 Quadrax Socket Contact 100 and 150 Ohm



Part Number	Cable Type	Cable
012835-0000	Differential Quad	540-1138-000

See Page 108 for Cable Assembly Ordering Information

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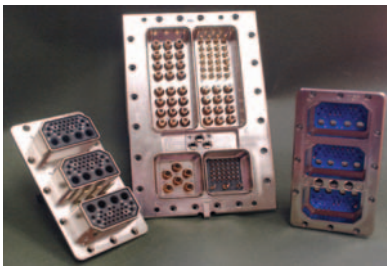
ARINC 600 ETHERNET INSERTS

ETHERNET 100 OHM INSERT ARRANGEMENTS



Sabritec's ARINC 600 connector series is available with High Speed Ethernet insert assemblies. Designed for interconnect systems including 100 Base-T, Ethernet, and high speed video Hot-Link. These connectors can be fitted with Ethernet based Quad 100-Ohm contacts or differential pair 100 Ohm or 150 Ohm matched impedance contacts.

The ARINC 600 Series can also be routed with ruggedized expaned beam fiber optic contacts or concentric triaxial contacts designed for numerous low-loss twinaxial and concentric triax cables in a variety of impedance values.

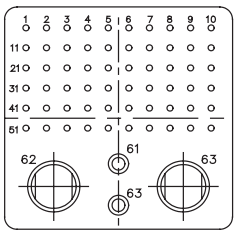
Part Number Assignment

600 – 2 – N – 150 – P – 150 – P – 13C2 – P – S

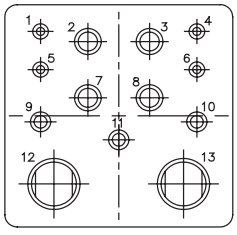
- Prefix
- Shell Size 1,2, 3
- Plating
  - C- Cadmium (Yellow Chromate)
  - N- Electroless Nickel
- Insert Arrangements Cavity A, B, C, D, E, F
- Contact Type
  - P – Pin Front Release/Rear Removable PC Tail Version
  - S- Socket Rear Release/Rear Removable Cable Mount Type
- Contact Termination
  - S- Solder Cup
  - P- PC Tail
  - C- Crimp

Insert Arrangements

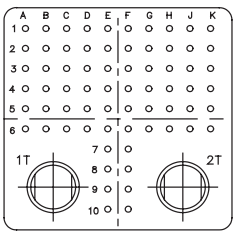
ARINC 600 Front Release/Front Removable Insert Layouts



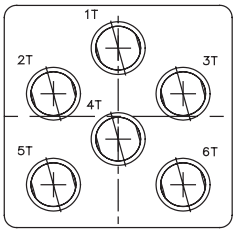
II –62Q2
6 SIZE 22
2 SIZE 16
2 SIZE 8



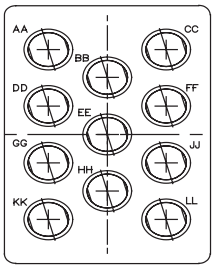
II –11Q2
4 SIZE 20
3 SIZE 16
4 SIZE 12
2 SIZE 8



II –68Q2
6 SIZE 22
2 SIZE 8

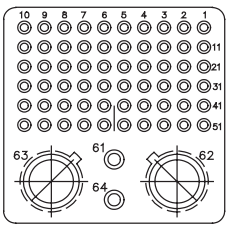


II –Q6
8 SIZE 8
METALLIC INSERT

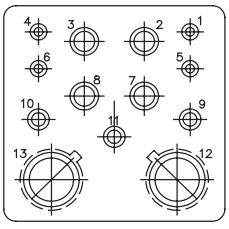


I –Q11
1 SIZE 8
METALLIC INSERT

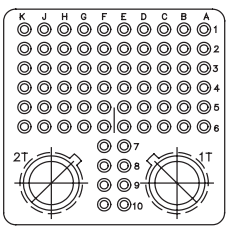
ARINC 600 Rear Release/Rear Removable Insert Layouts



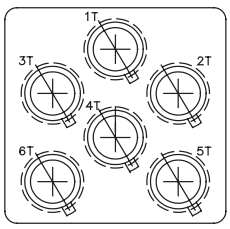
II –62Q2
6 SIZE 22
2 SIZE 16
2 SIZE 8



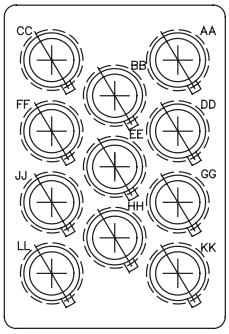
II –11Q2
4 SIZE 20
3 SIZE 16
4 SIZE 12
2 SIZE 8



II –68Q2
6 SIZE 22
2 SIZE 8



II –Q6
8 SIZE 8
METALLIC INSERT



I –Q11
1 SIZE 8
METALLIC INSERT

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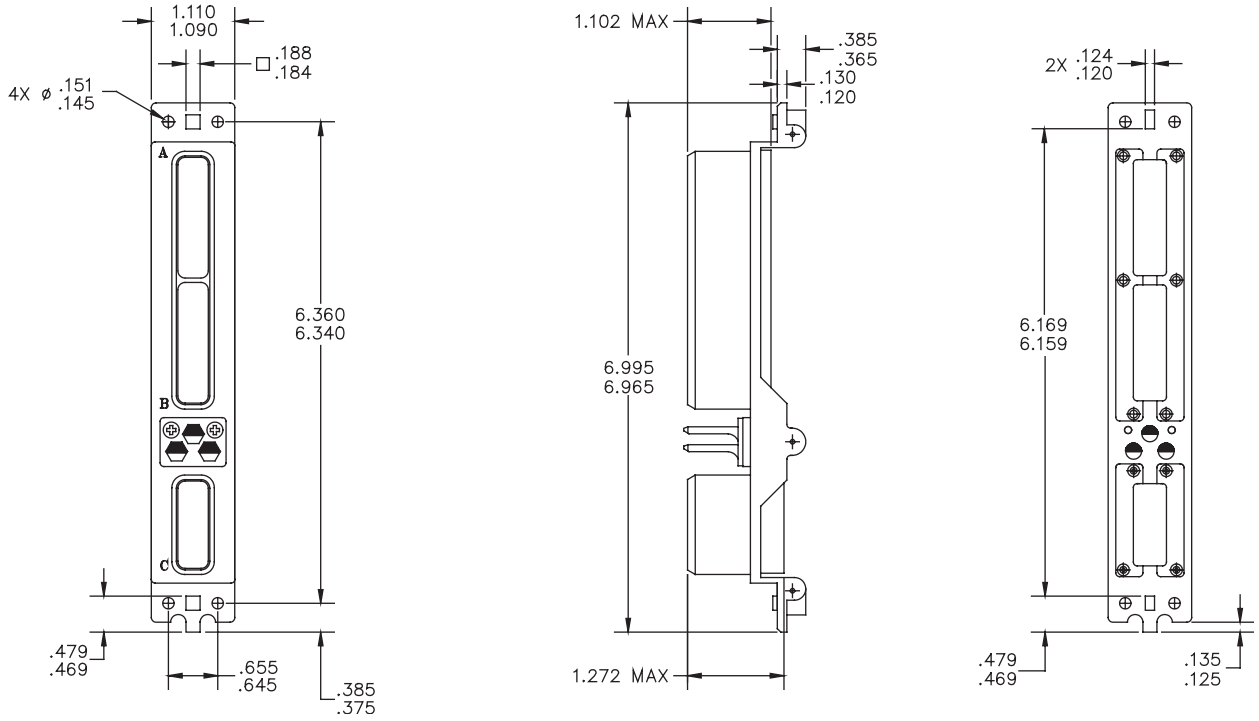
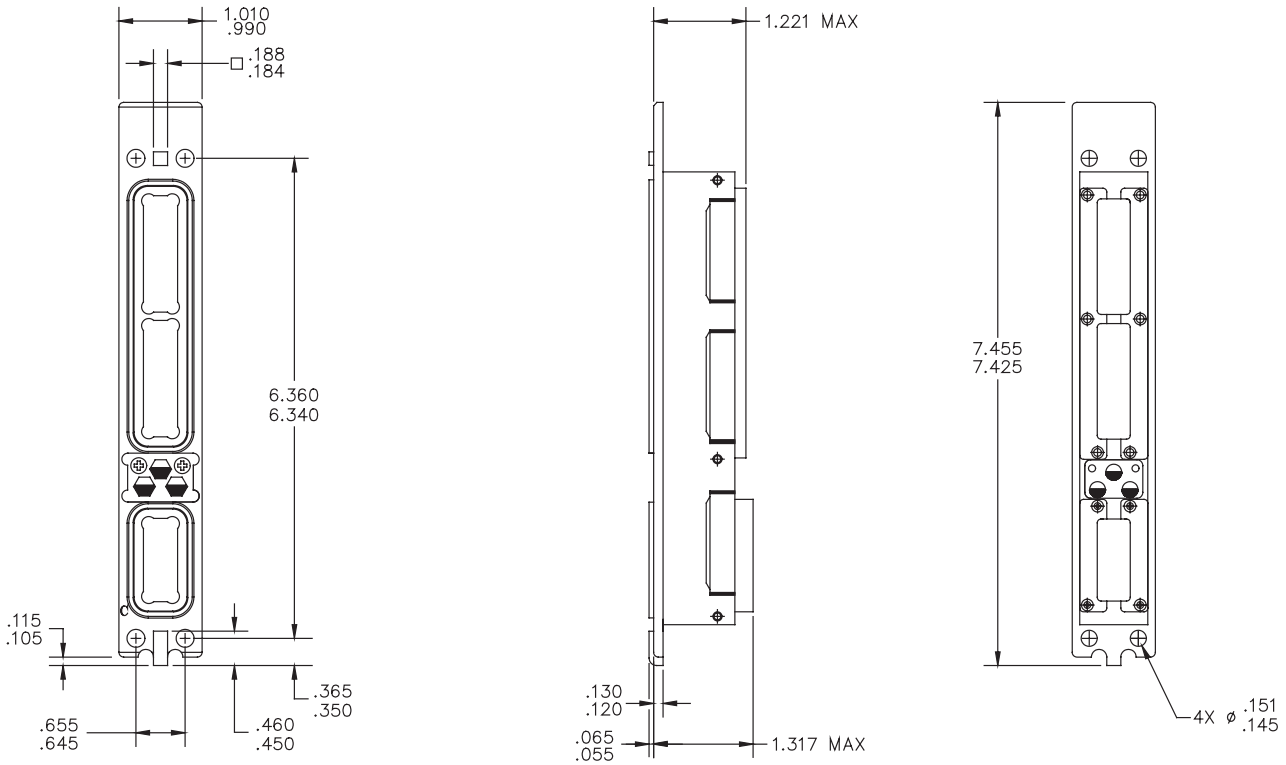
ARINC 600 Shell Housing

Shell Size 1 Rack and Panel Series

ARINC 600 Shell Size 1 Plug



ARINC 600 Shell Size 1 Receptacle



17550 Gillette Avenue, Irvine, California 92614 • www.sabritec.com • Telephone (949) 250-1244 • Fax (949) 250-1009

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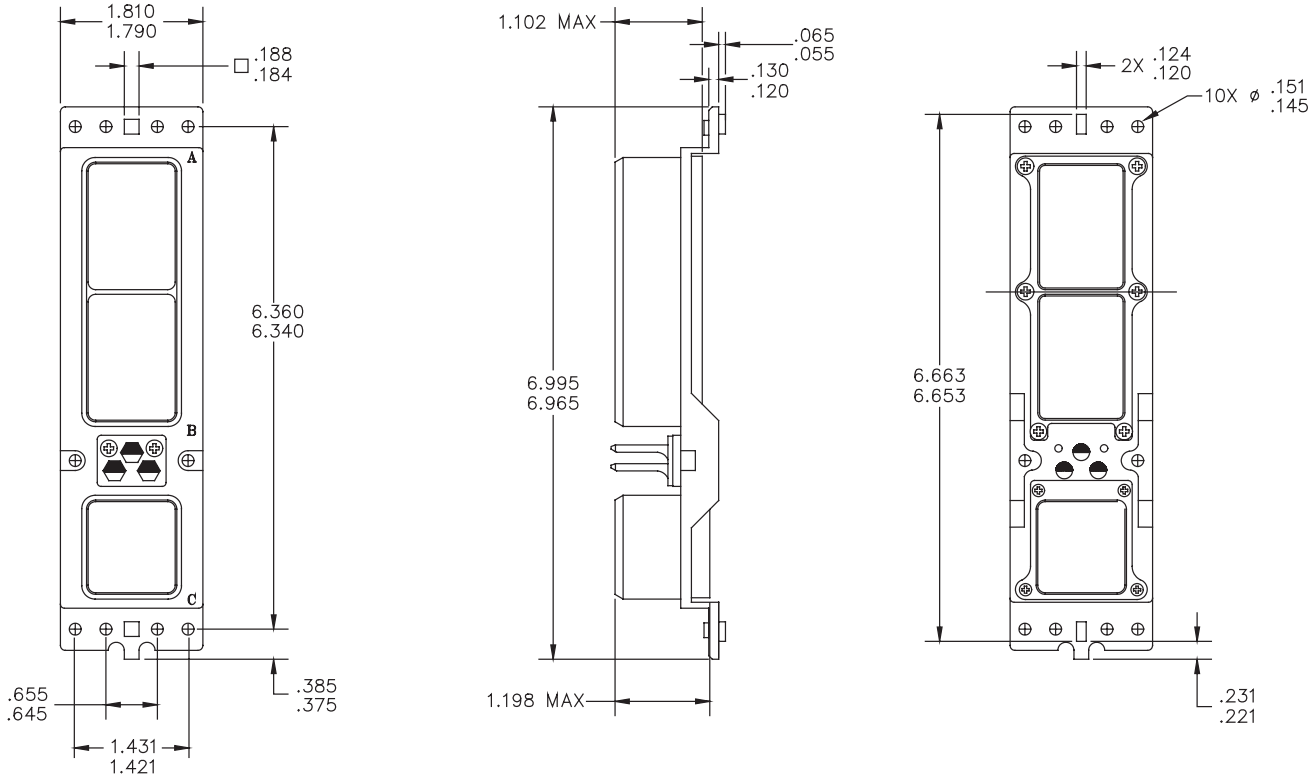
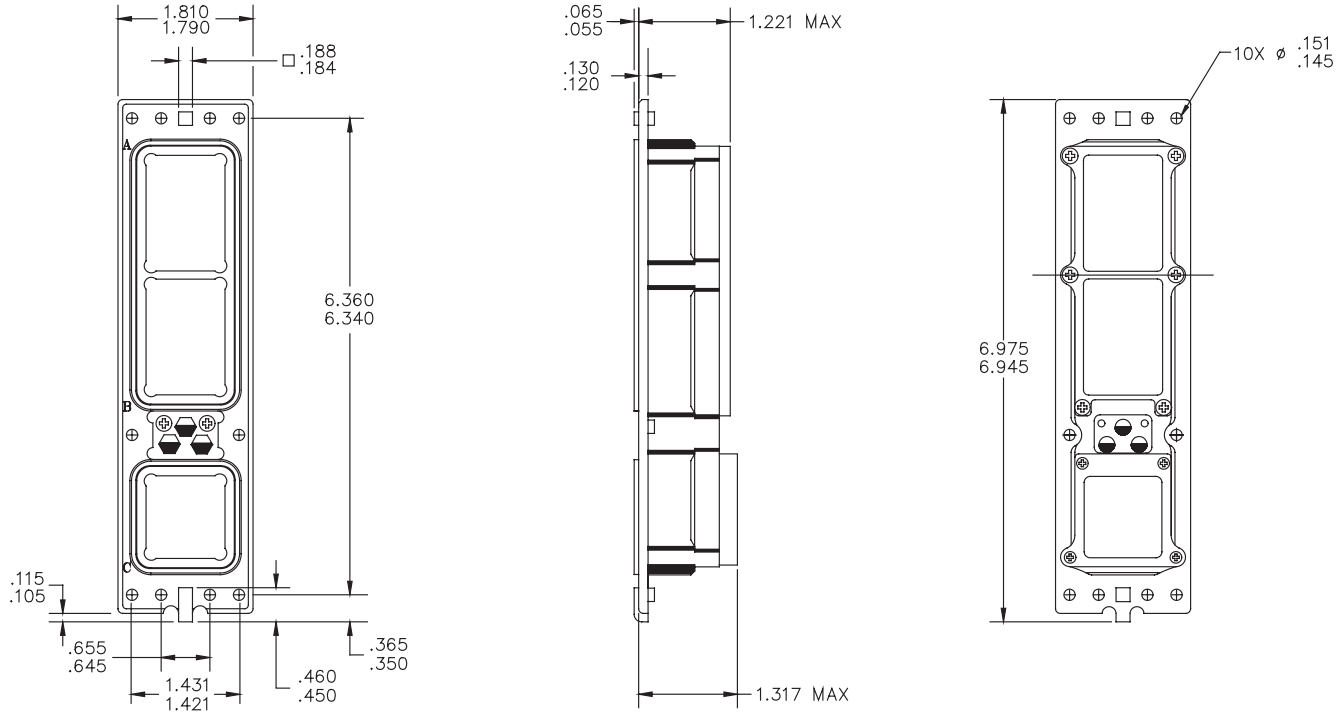
ARINC 600 Shell Size 2 Plug

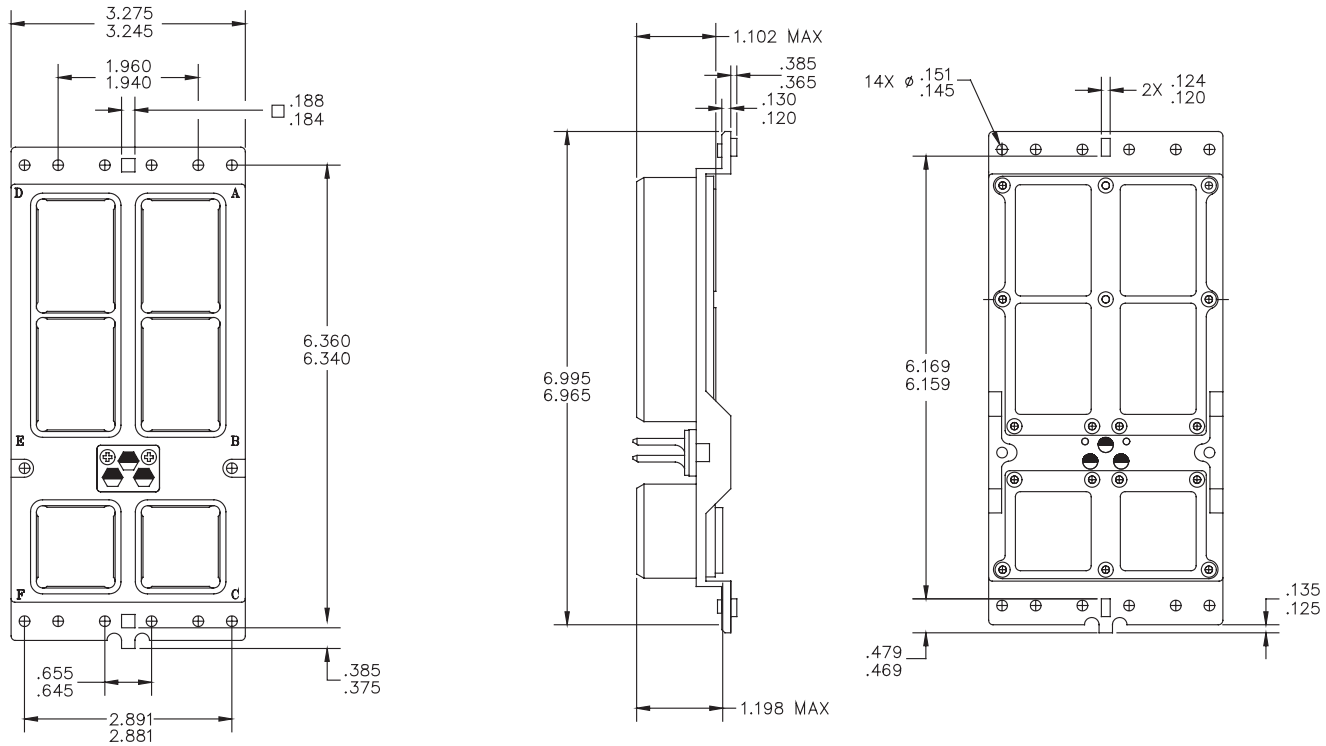


ARINC 600 Shell Size 2 Receptacle

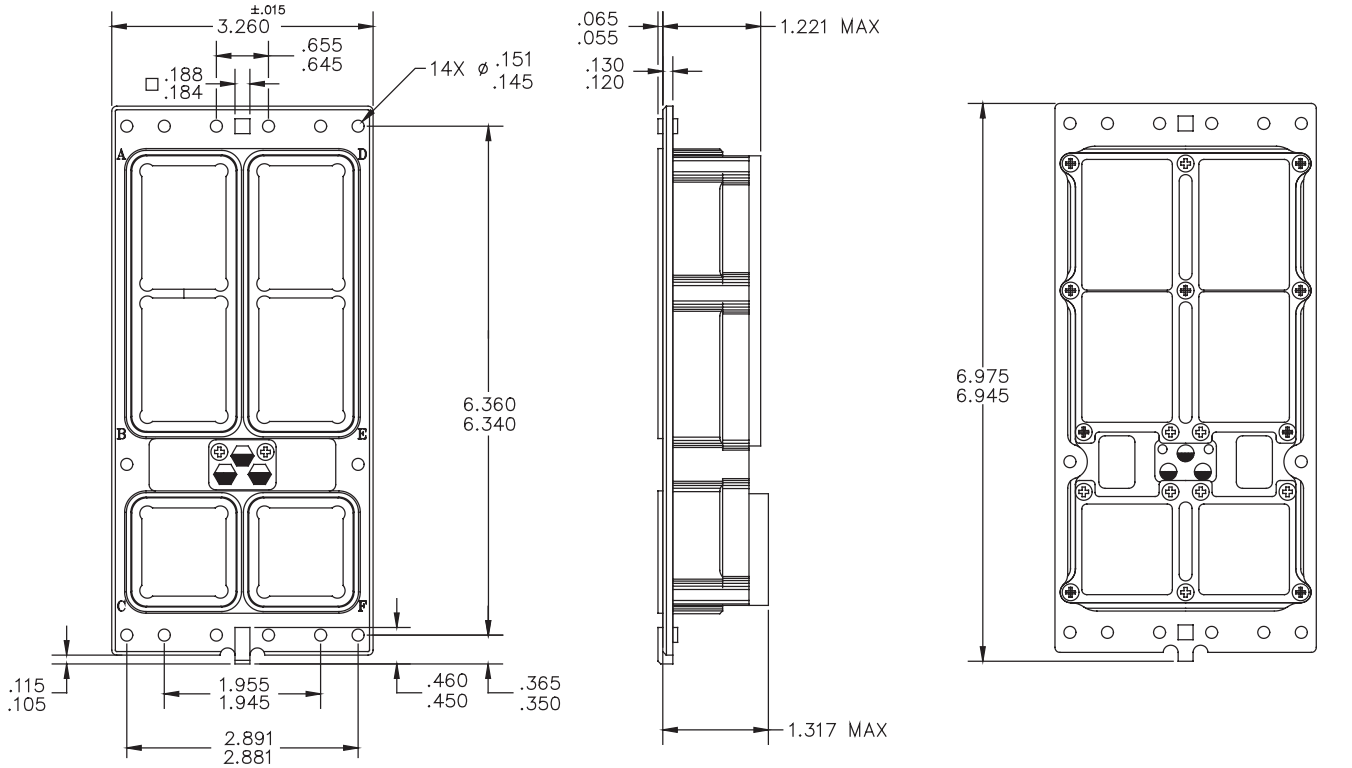


Downloaded from Arrow.com.

ARINC 600 Shell Size 3 Plug



ARINC 600 Shell Size 3 Receptacle



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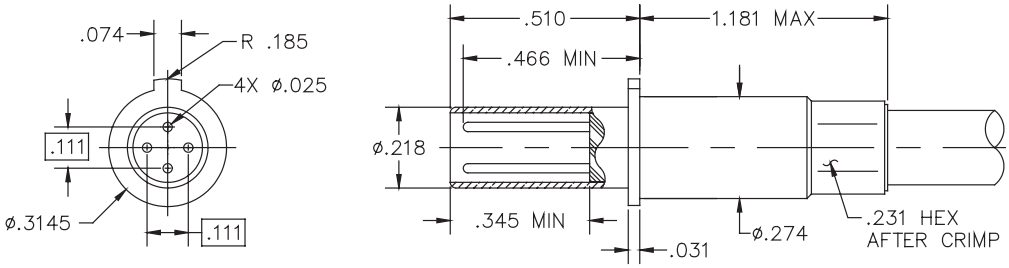
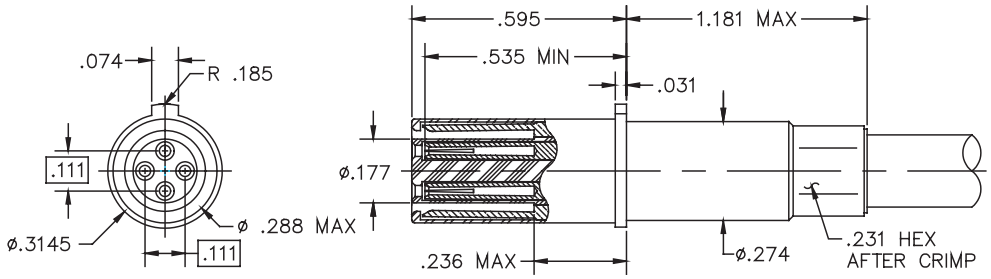
ARINC 600 Removable Size 8 Pin Quadrax Contact 100 Ohm



Rear Release/Rear Removable

Part Number	Cable Type	Cable
019635-2001	Differential Quad	540-1165-000

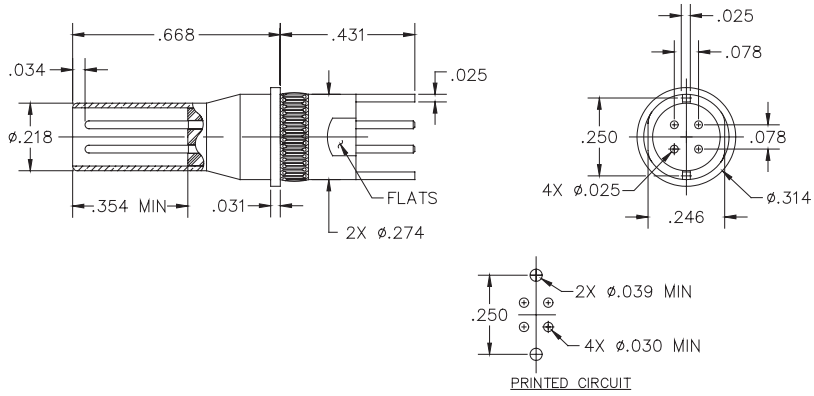
ARINC 600 Removable Size 8 Socket Quadrax Contact 100 Ohm



Rear Release/Rear Removable

Part Number	Cable Type	Cable
019535-2003	Differential Quad	540-1165-000

ARINC 600 Removable Size 8 Pin Quadrax Contact PCB Mount 100 Ohm



Front Release/Rear Removable

P/N 019617-2107

See Page 108 for Cable Assembly Ordering Information

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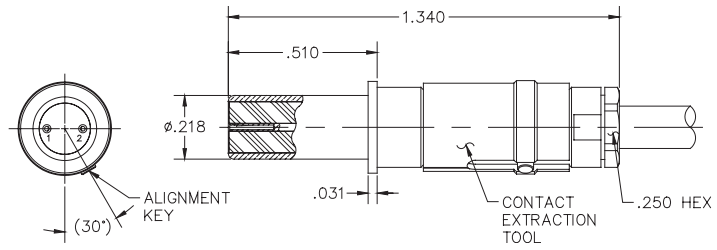
Size 8 Twinax Contacts

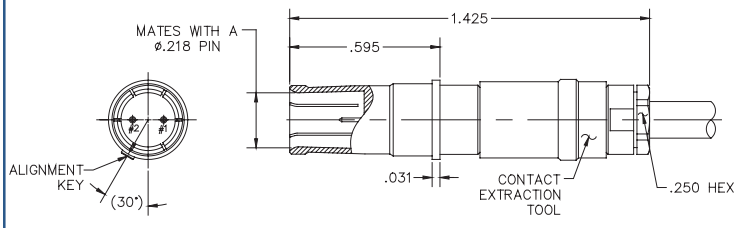
ARINC 600 Size 8 Twinax Contacts

ARINC 600 Size 8 Twinax Pin Contact 100 and 150 Ohm Matched Impedance

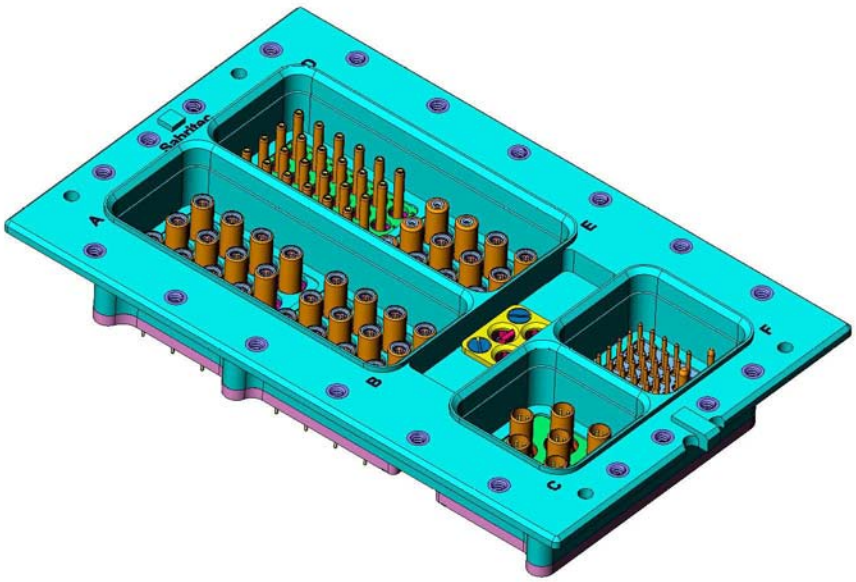


Part Number	Impedance	Cable Type	Cable
019411-2110	150 Ohm	Differential Twinax	540-1099-000
019411-2111	150 Ohm	Differential Twinax	540-1114-000
019411-2115	100 Ohm	Differential Twinax	540-1153-000
019411-2116	100 Ohm	Flexible Twinax	540-1161-000
019411-2117	100 Ohm	Flexible Twinax	540-1086-000

ARINC 600 Size 8 Twinax Socket Contact 100 and 150 Ohm Matched Impedance



Part Number	Impedance	Cable Type	Cable
019311-2110	150 Ohm	Differential Twinax	540-1099-000
019311-2111	150 Ohm	Differential Twinax	540-1114-000
019311-2115	100 Ohm	Differential Twinax	540-1153-000
019311-2116	100 Ohm	Flexible Twinax	540-1161-000
019311-2117	100 Ohm	Flexible Twinax	540-1086-000



See Page 108 for Cable Assembly Ordering Information

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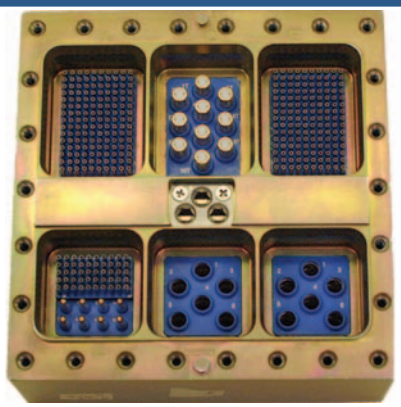
MIL-DTL-83527 Series Connectors

Part Number Assignment and Insert Arrangements

MIL-DTL-83527 connectors come standard with anti-rotational keyed insert assemblies for High-Speed Fibre Channel or Ethernet Twinax and Quadrax contacts. MIL-DTL-83527 connectors are designed for extreme environmental concerns including shock, vibration and humidity. Filtered EMI/EMP connectors are also available. Offered in a number of different contact arrangements and shell sizes, these connectors meet all applicable requirements of MIL-DTL-83527.



MIL-DTL-83527 PART NUMBER ASSIGNMENT

83527 – 4A N – 150 – P – 150 – P – 13C2 – P – S

Prefix

Shell Size
2A, 3A, 4A

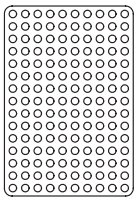
Plating
C- Cadmium (Yellow Chromate
N- Electroless Nickel

Contact Termination
S- Solder Cup
P- PC Tail
C- Crimp

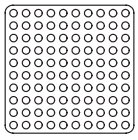
Insert Arrangements
Cavity A, B, C, D, E, F

Contact Type
P – Pin
S- Socket

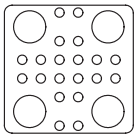
MIL-DTL-83527 INSERT ARRANGEMENTS



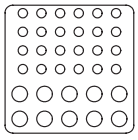
Insert 1
150 Size #22 Contacts



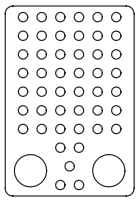
Insert 2
100 Size #22 Contacts



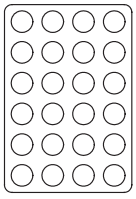
Insert 3
20 Size #22 Contacts
4 Size #8 T/C



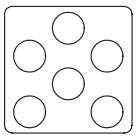
Insert 4
24 Size #20 Contacts
10 Size #16 Contacts



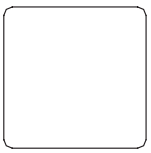
Insert 5
47 Size #20 Contacts
2 Size #8 T/C



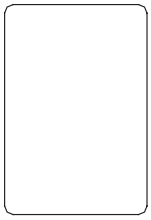
Insert 6
24 Size #12 Contacts



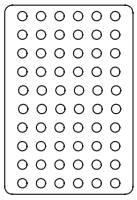
Insert 7
6 Size #8 T/C



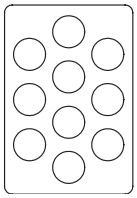
Insert 8
Blank



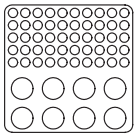
Insert9
Blank



Insert 10
60 Size #20 Contacts



Insert 11
10 Size #8 T/C



Insert 12
50 Size #22 Contacts
8 Size #12 Contacts

Specify
T = Twinaxial Cavity (Anti-Rotational)
C= Coaxial/Triaxial Cavity
For Inserts 3, 5, 7, 11 Size 8 Cavity
Only, as suffix to Insert Identification
Part Number

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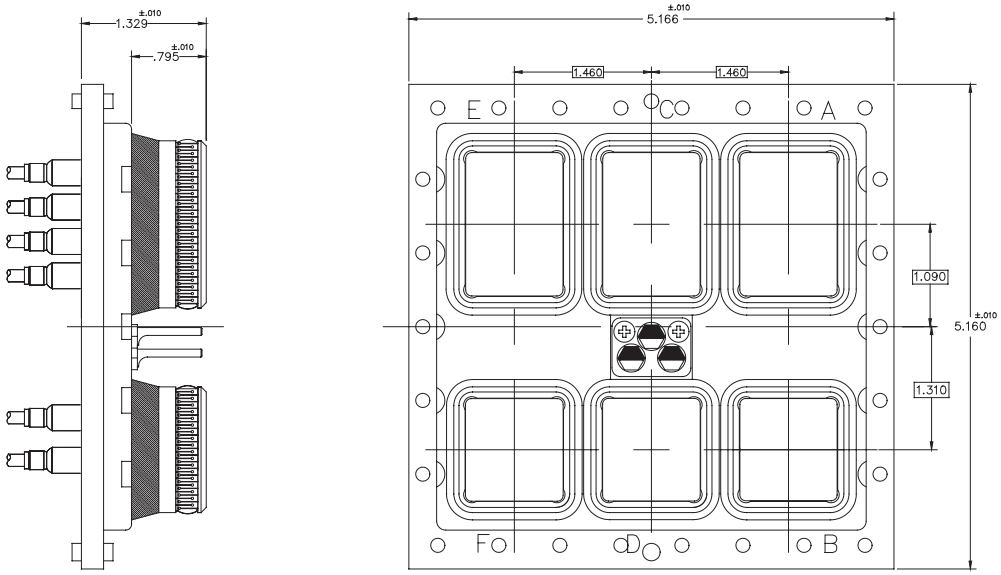
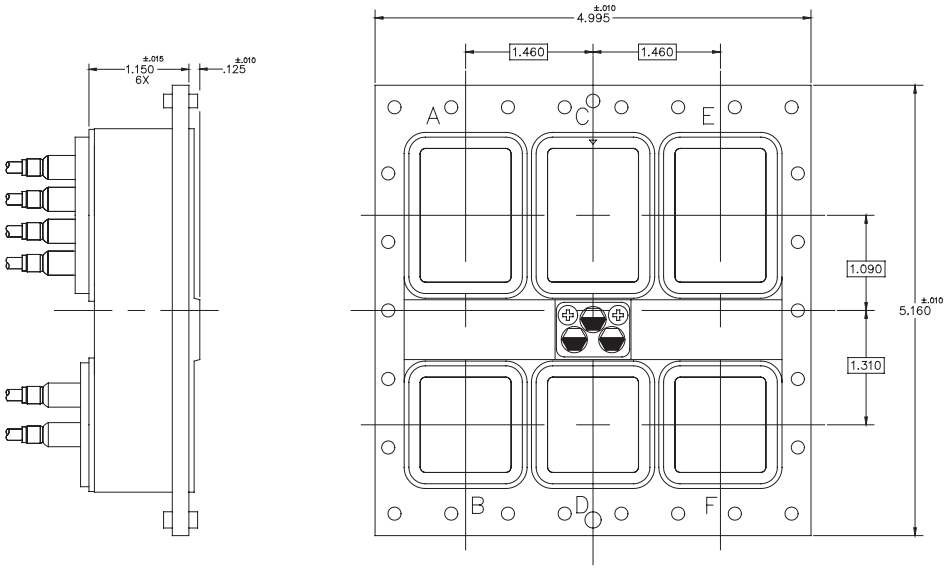
MIL-DTL-83527 Shell Size 4A Plug



MIL-DTL-83527 Shell Size 4A Receptacle



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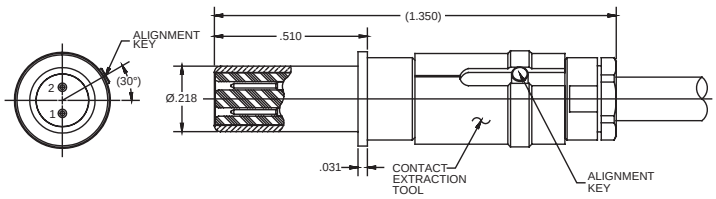
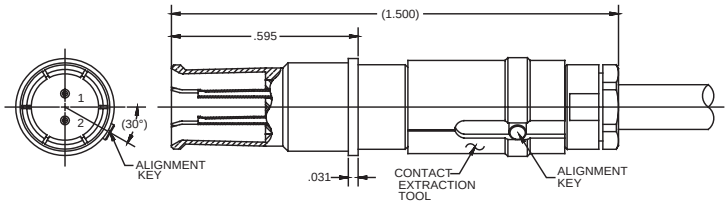
MIL-DTL-83527 Size 8 Twinax Pin Contact 100 and 150 Ohm



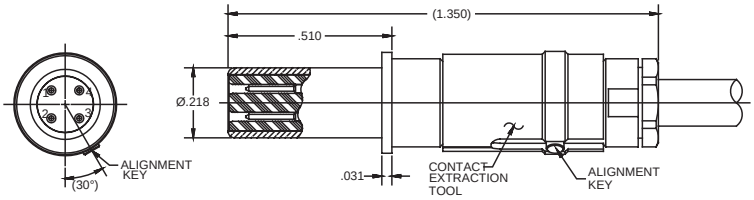
Part Number	Impedance	Cable Type	Cable
019634-0005	150 Ohm	Differential Twinax	540-1099-000
019634-0006	150 Ohm	Differential Twinax	540-1114-000
019634-0007	100 Ohm	Flexible Twinax	540-1086-000
019634-0008	100 Ohm	Differential Twinax	540-1153-000
019634-0009	100 Ohm	Flexible Twinax	540-1161-000

MIL-DTL-83527 Size 8 Twinax Socket Contact 100 and 150 Ohm



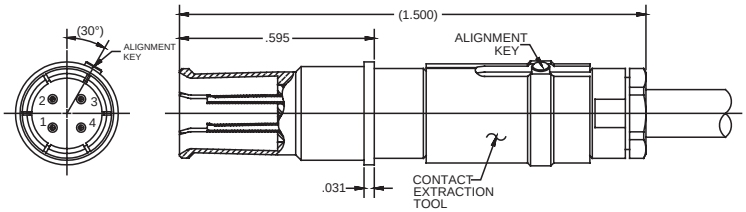
Part Number	Impedance	Cable Type	Cable
019534-0005	150 Ohm	Differential Twinax	540-1099-000
019534-0006	150 Ohm	Differential Twinax	540-1114-000
019534-0007	100 Ohm	Flexible Twinax	540-1086-000
019534-0008	100 Ohm	Differential Twinax	540-1153-000
019534-0009	100 Ohm	Flexible Twinax	540-1161-000

MIL-DTL-83527 Size 8 Quadrax Pin Contact 100 Ohm



Part Number	Cable Type	Cable
019635-0000	Differential Quad	540-1165-000

MIL-DTL-83527 Size 8 Quadrax Socket Contact 100 Ohm



Part Number	Cable Type	Cable
019535-0000	Differential Quad	540-1165-000

See Page 108 for Cable Assembly Ordering Information

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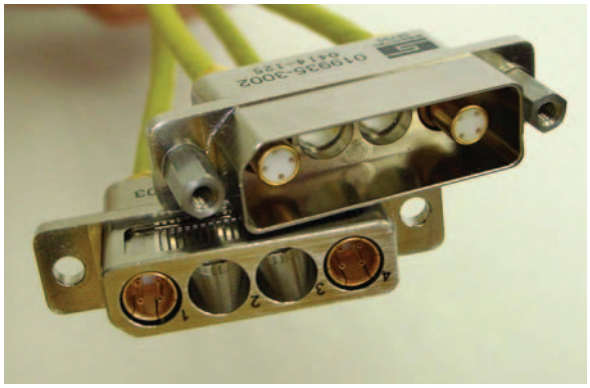
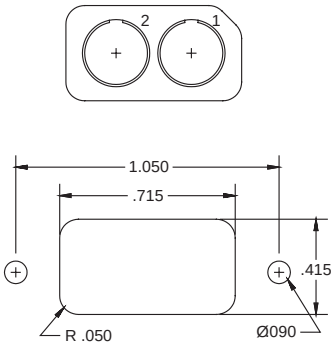
High Speed Rugged D-Subminiature Connectors

Quad/Twinax Panel Mount D-Subminiature Connectors

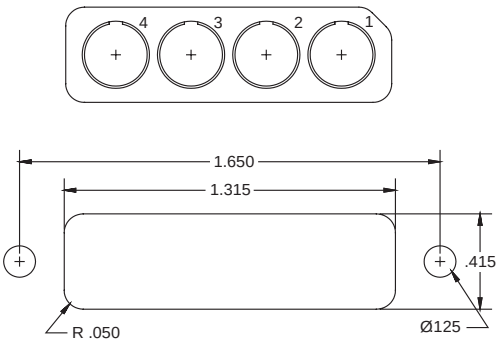


High impedance D-Sub connectors are designed to ground the outer shield of a twinax or quadrax contact directly to the shell of the connector. A multi-finger ground spring, fixed around the shell provides a multi-point contact engagement for superior EMI shielding. The result is an extremely low contact resistance when measured from the contact outer body to the connector flange. These connectors provide low RF noise and high durability of up to 1,000 mating cycles. Meets or exceeds all requirements of MIL-STD-202 of shock and vibration. Offered with 100 ohm quadrax and/or 100/150 ohm differential pair twinax contacts. Quadrax contacts consist of four center contacts with a low impedance grounding shield. Twinax contacts offer true differential pair signaling with 100/150 Ohm impedance between conductors. Rugged D-Sub Quad / Twinax connectors are ideal for Rib Ethernet, Firewire and all fibre channel system requirements.

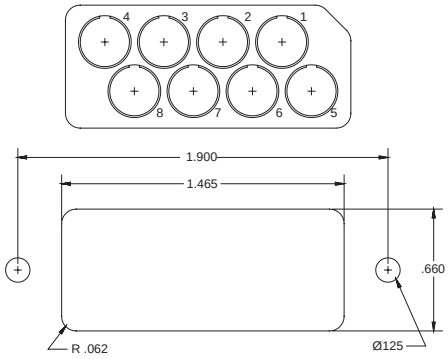
Shell Size 1
Arrangement 1-2
2 # 9 Quad/Twinax Contacts



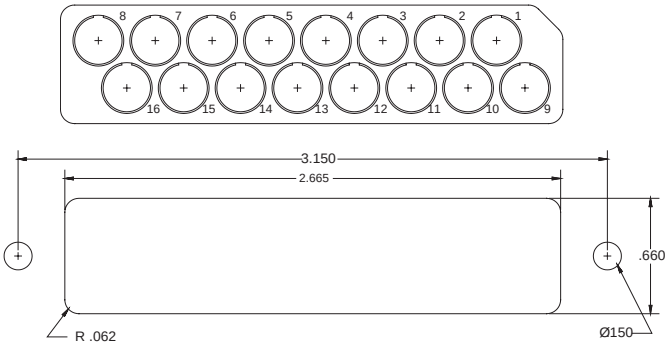
Shell Size 2
Arrangement 2-4
4 # 9 Quad/Twinax Contacts



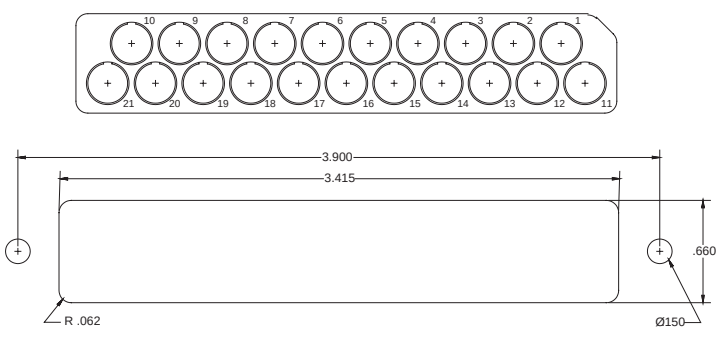
Shell Size 3
Arrangement 3-8
8 # 9 Quad/Twinax Contacts



Shell Size 4
Arrangement 4-16
16 # 9 Quad/Twinax Contacts



Shell Size 5
Arrangement 5-21
21 # 9 Quad/Twinax Contacts

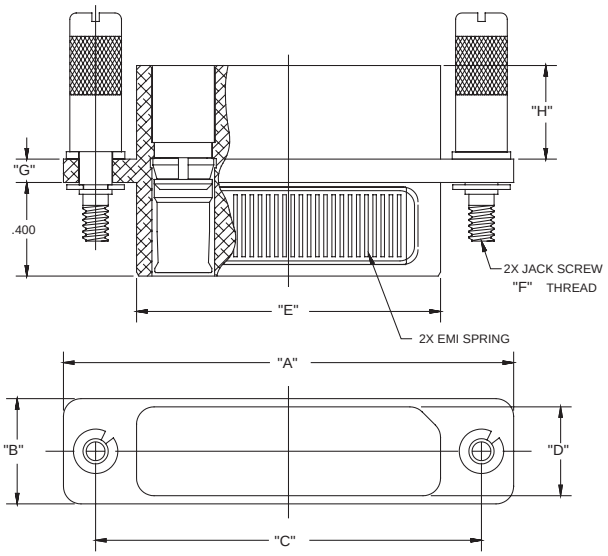


Please consult factory for environmentally sealed and backshell connectors.

Downloaded from Arrow.com.

Quad/Twinax D-Sub Plug

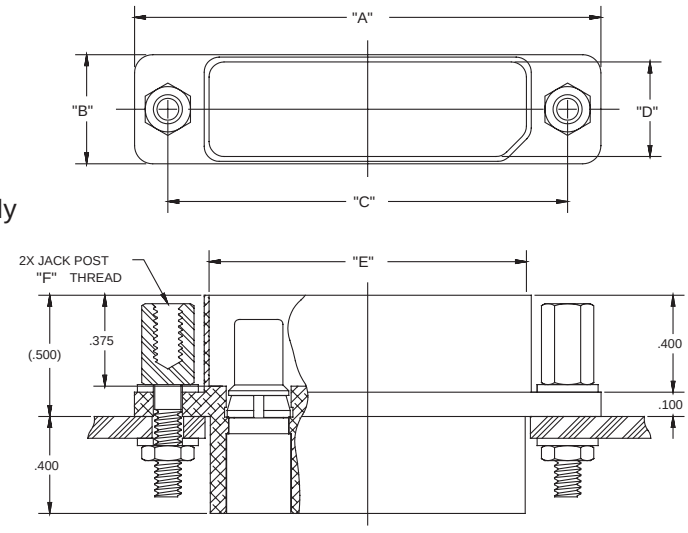
Contacts are sold separately



Part Number	Contacts	A	B	C	D	E	F	G	D
012700-2002	2	1.325	.450	1.050	.380	.700	#2-56	.100	.400
012700-2003	4	1.925	.450	1.650	.380	1.300	#4-40	.100	.400
012700-2004	8	2.300	.750	1.900	.625	1.450	#4-40	.100	.400
012700-2005	16	3.600	.750	3.150	.625	2.650	#6-32	.150	.350
012700-2006	21	4.350	.750	3.900	.625	3.400	#6-32	.150	.350

Quad/Twinax D-Sub Receptacle

Contacts are sold separately

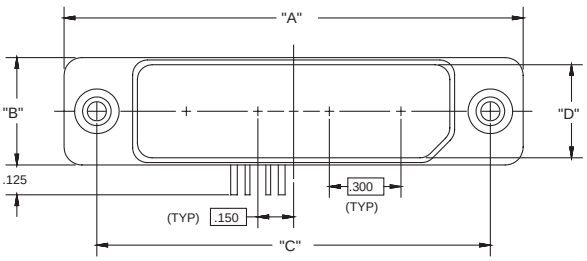


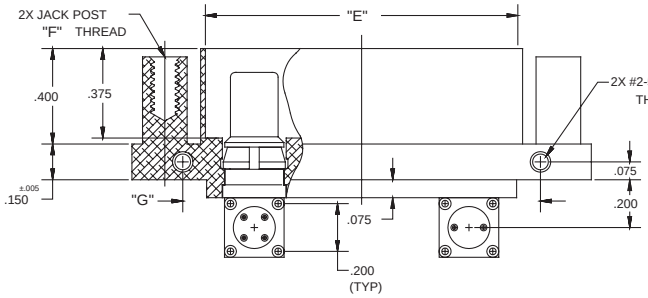
Part Number	Contacts	A	B	C	D	E	F
012800-3002	2	1.325	.450	1.050	.390	.710	#2-56
012800-3003	4	1.925	.450	1.650	.390	1.310	#4-40
012800-3004	8	2.300	.750	1.900	.635	1.460	#4-40
012800-3005	16	3.600	.750	3.150	.635	2.660	#6-32
012800-3006	21	4.350	.750	3.900	.635	3.410	#6-32

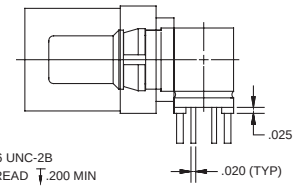
Downloaded from Arrow.com.

Quad/Twinax D-Sub PC Tail

Contacts are sold separately







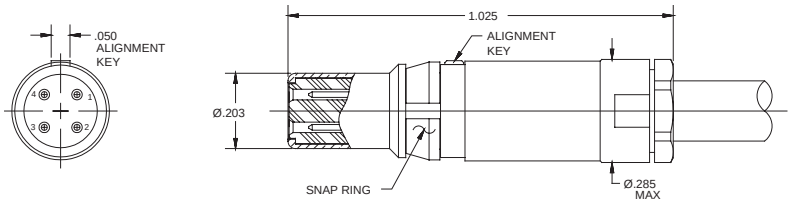
Part Number	Contacts	A	B	C	D	E	F	G
012800-1000	2	1.325	.450	1.050	.390	.710	#2-56	.900
012800-1001	4	1.925	.450	1.650	.390	1.310	#4-40	1.500

Downloaded from Arrow.com.

Size 9 Quadrax Contacts

High Speed Rugged D-Subminiature Contacts 100 Ohm

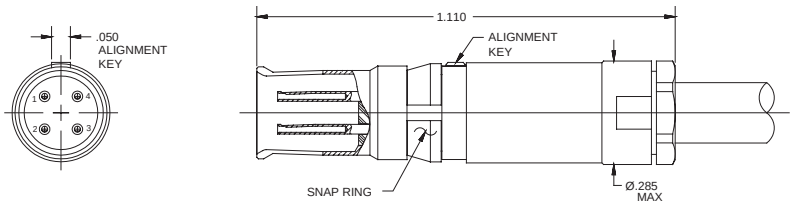
Size 9 Quadrax Pin Contact 100 Ohm



Part Number	Cable Type	Cable
019235-8000	Differential Quad	540-1165-000

For use in P/N: 012800-3002 thru 3006

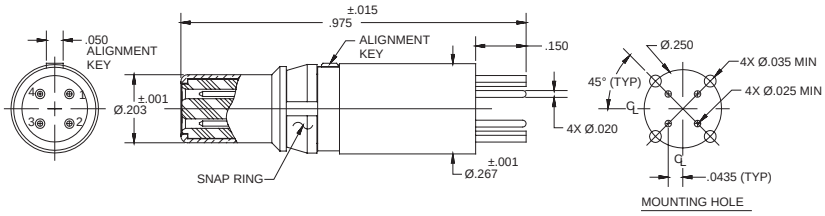
Size 9 Quadrax Socket Contact 100 Ohm



Part Number	Cable Type	Cable
019135-8000	Differential Quad	540-1165-000

For use in P/N: 012700-2002 thru 2006

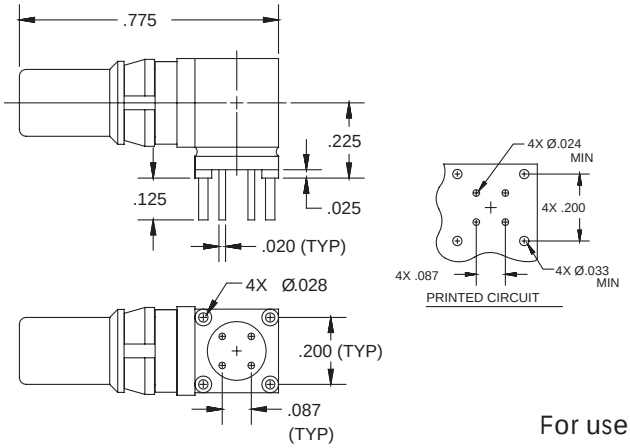
Size 9 Quadrax Pin Contact PCB Mount 100 Ohm



P/N: 019217-2000

For use in P/N: 012800-3002 thru 3006

Size 9 PC Tail Quadrax Contact 100 Ohm



P/N: 019217-1001

For use in P/N: 012800-1000 thru 1001

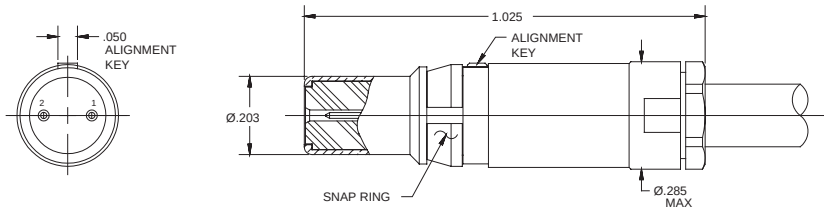
See Page 108 for Cable Assembly Ordering Information

Downloaded from Arrow.com.

Size 9 Twinax Contacts

High Speed Rugged D-Subminiature Contacts 100 Ohm

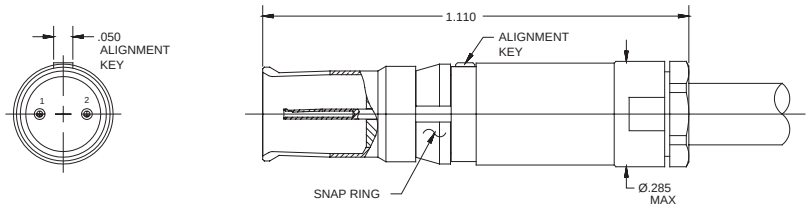
Size 9 Twinax Pin Contact 100 Ohm



Part Number	Cable Type	Cable
019235-0000	Differential Twinax	540-1153-000
019235-0001	Flexible Twinax	540-1086-000
019235-0002	Flexible Twinax	540-1161-000

For use in P/N: 012800-3002 thru 3006

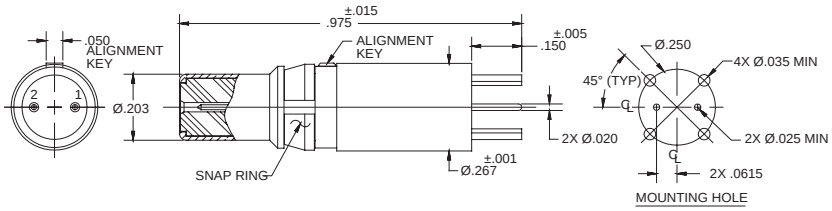
Size 9 Twinax Socket Contact 100 Ohm



Part Number	Cable Type	Cable
019135-0000	Differential Twinax	540-1153-000
019135-0001	Flexible Twinax	540-1086-000
019135-0002	Flexible Twinax	540-1161-000

For use in P/N: 012700-2002 thru 2006

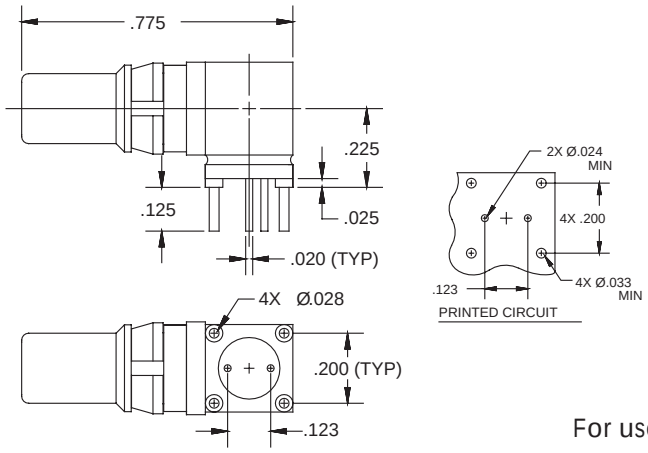
Size 9 Twinax Pin Contact PCB Mount 100 Ohm



P/N 019217-0000

For use in P/N: 012800-3002 thru 3006

Size 9 PC Tail Twinax Contact 100 Ohm



P/N 019217-1000

For use in P/N: 012800-1000 thru 1001

See Page 108 for Cable Assembly Ordering Information

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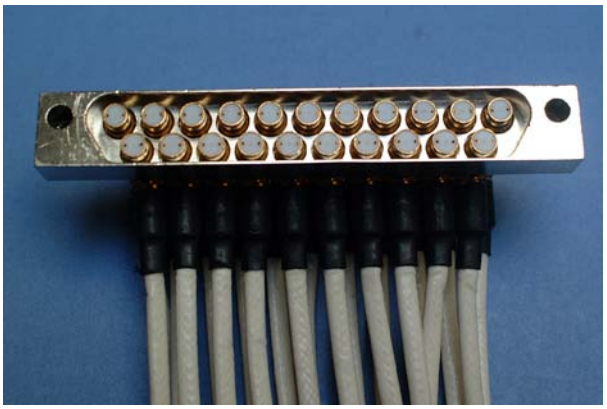
High Speed Back Plane Connectors

Twinax 21 Position Connectors 150 Ohm Fibre Channel and 100 Ohm Ethernet

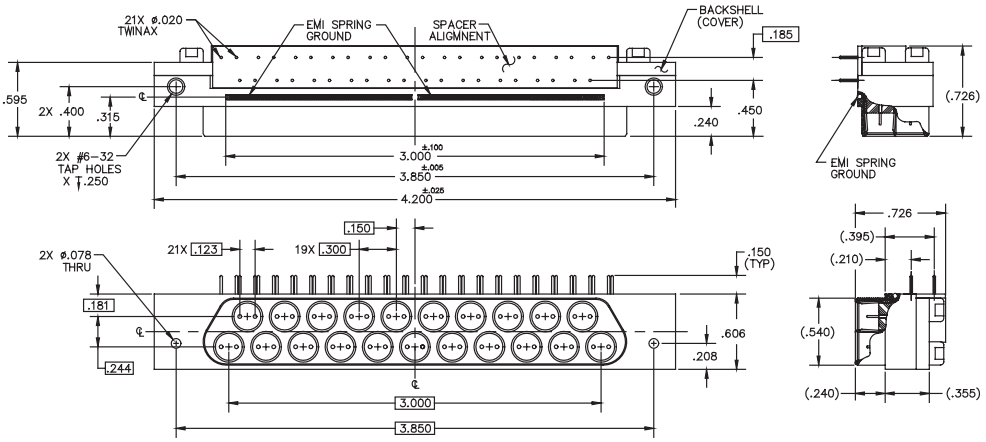
In standard VME cards for low data rate signaling, connectors are widely available to carry non-shielded signaling for the VME bus from the interface via motherboard to daughter card assembly designated as I/O plug-in modules. The industry standard defines these connectors typically as P1 and P3 connectors.



Sabritec has taken the standard housing configuration of the P1 & P3 mounting dimensions while incorporating true differential pair contacts within the P1 & P3 dimensional constraints. Data sampling rates exceeding 2 Gbits/second can be driven via matched impedance differential pair interconnections for board-to-board high speed data transfer as well as blind mate I/O plug in modular applications.

Sabritec's P1 connector housing contains 21 position true differential pair blind mate contacts allowing board designers to carry high density differential pair signals from the LRU via motherboard to daughter-card plug in modules with a single connector P1 type housing. This allows for the use of standard VME bus architecture cages for high speed fibre channel connection.

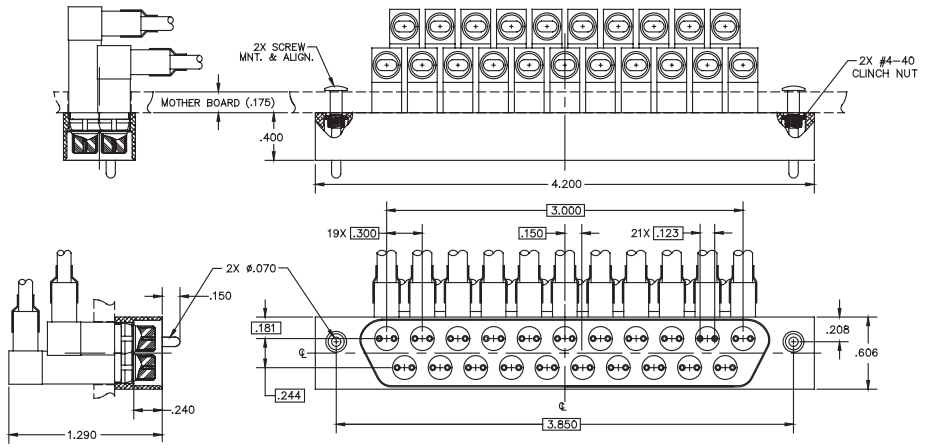
Right Angle Twinax Receptacle 21 Position (Blind Mate PCB Interconnects) 150 Ohm



P/N 029917-1015 Mates with P/N: 029912-1015

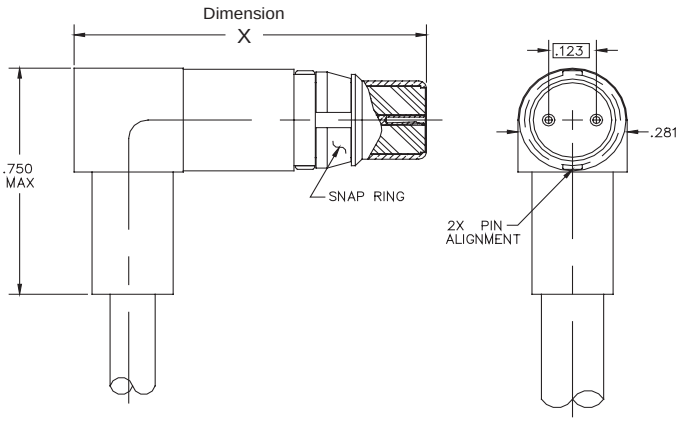
Downloaded from Arrow.com.

Right Angle Twinax Plug Housing 21 Position (Blind Mate PCB Interconnects) 150 Ohm



P/N 029912-1015

Size 5 Right Angle Twinax Cable Pin Contact 150 Ohm



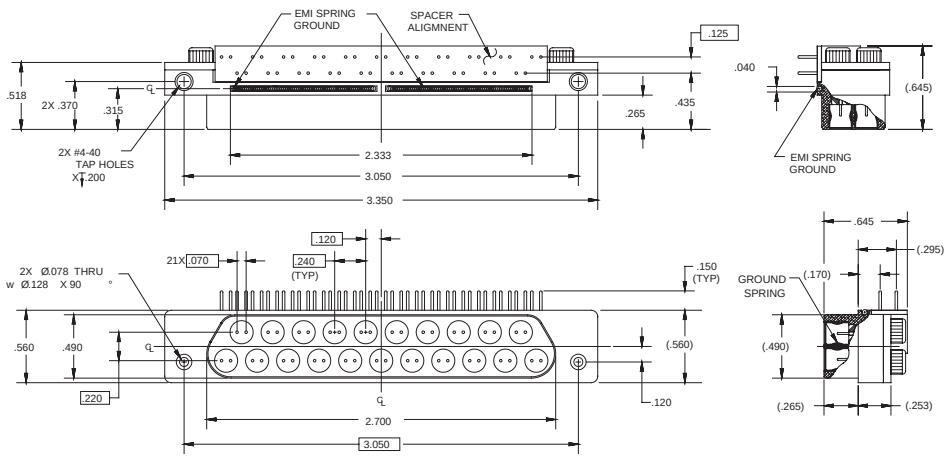
Part Number	Cable Type	Cable	Contacts	Dim X
019912-1103	Differential Twinax	540-1099-000	Near Row	0.905
019912-1305	Differential Twinax	540-1114-000	Near Row	0.905
019912-1102	Differential Twinax	540-1099-000	Far Row	1.230
019912-1304	Differential Twinax	540-1114-000	Far Row	1.230

For use in 029912-1015

See Page 108 for Cable Assembly Ordering Information

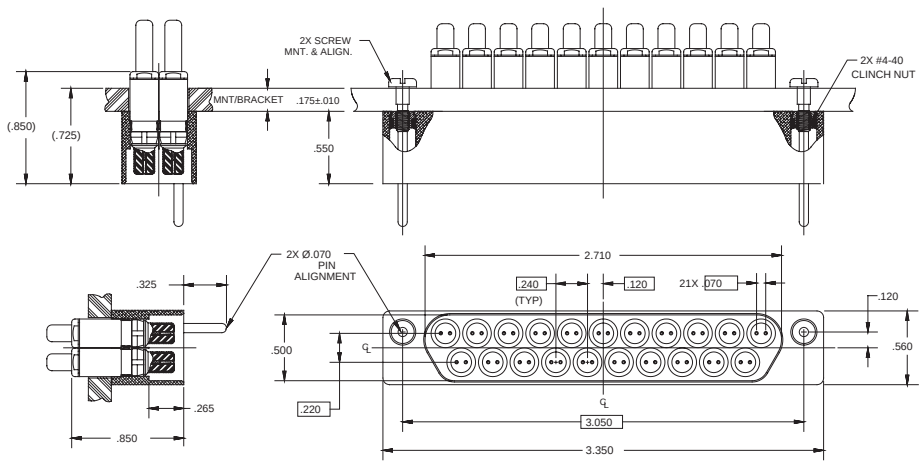
Downloaded from Arrow.com.

Straight Twinax Plug Housing 21 Position (Blind Mate PCB Interconnects) 100 Ohm



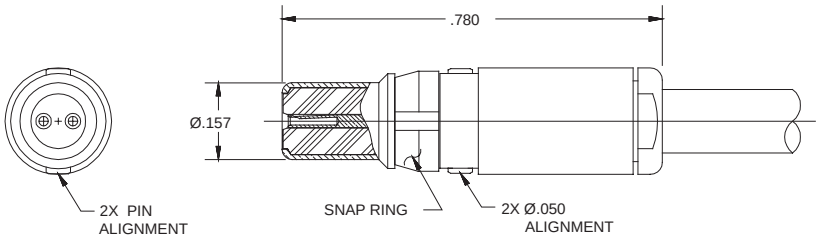
P/N 010034-0000

Right Angle Twinax Receptacle 21 Position (Blind Mate PCB Interconnects) 100 Ohm



P/N 010017-1000

Size 10 Twinax Pin Contact 100 Ohm



For use in 010034-0000

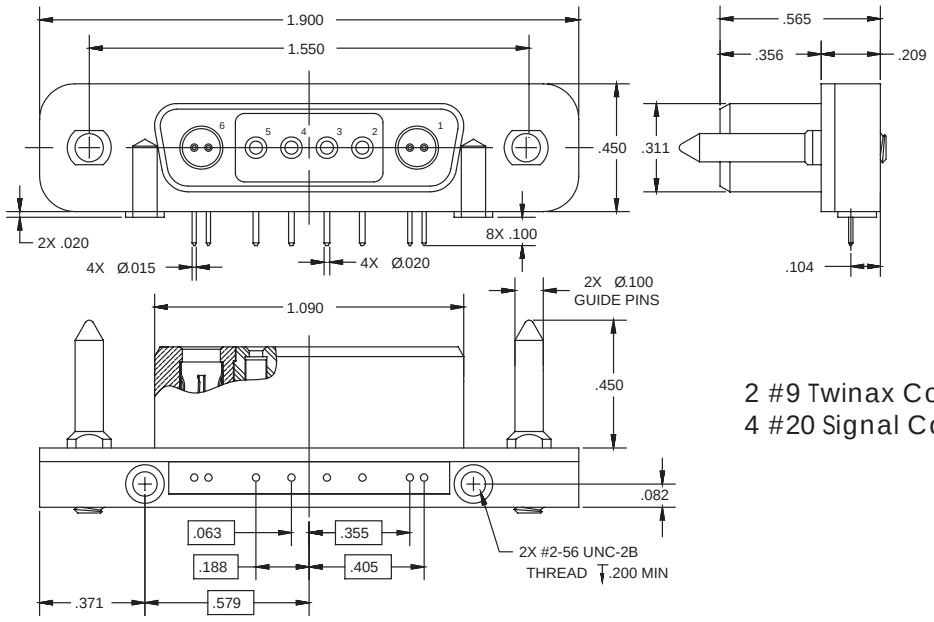
Part Number	Cable Type	Cable
018834-0000	Differential Twinax	540-1153-000
018834-0001	Flexible Twinax	540-1161-000

Downloaded from Arrow.com.

High Speed Blind-Mate Back Plane Connectors

Firwire 1394b Plug and Receptacle

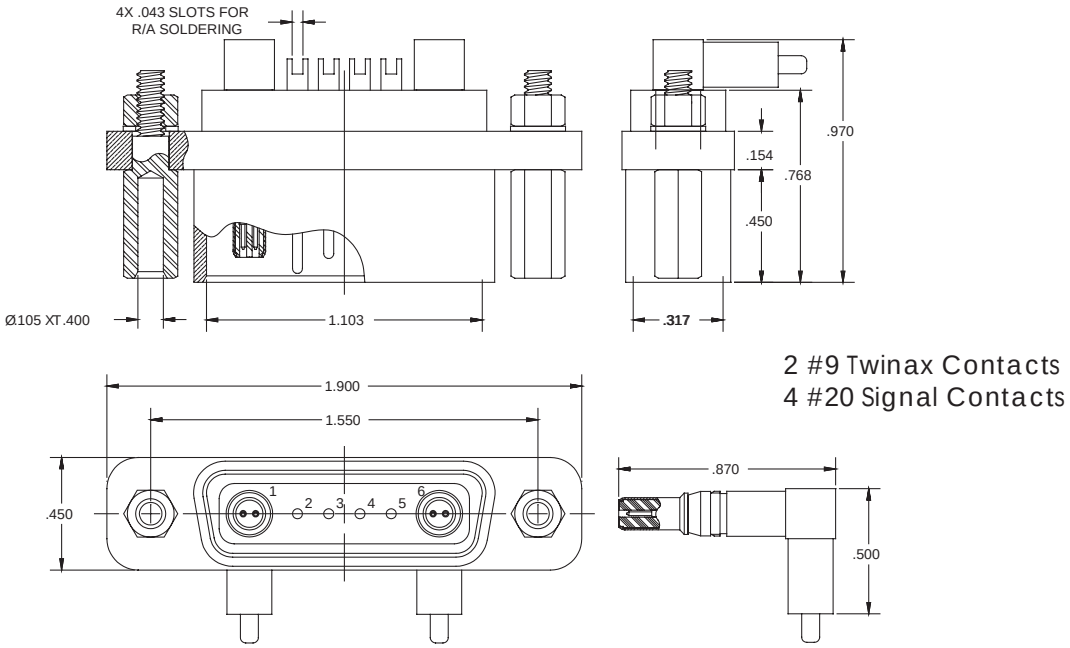
Firewire 1394b Right Angle Twinax Plug Blindmate Version



2 #9 Twinax Contacts
4 #20 Signal Contacts

P/N 012800-1003

Firewire 1394b Twinax Receptacle Blindmate Version



2 #9 Twinax Contacts
4 #20 Signal Contacts

P/N 012700-2008

17550 Gillette Avenue, Irvine, California 92614 • www.sabritec.com • Telephone (949) 250-1244 • Fax (949) 250-1009

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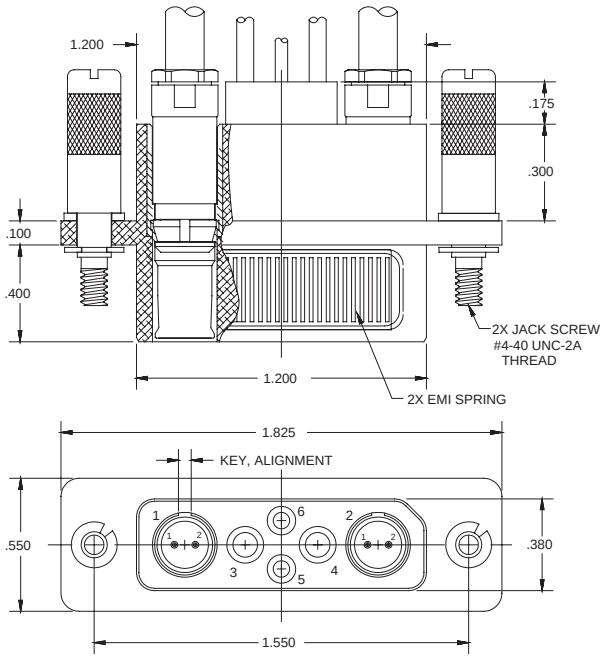
Firewire 1394b Straight Twinax Plug With Jackposts

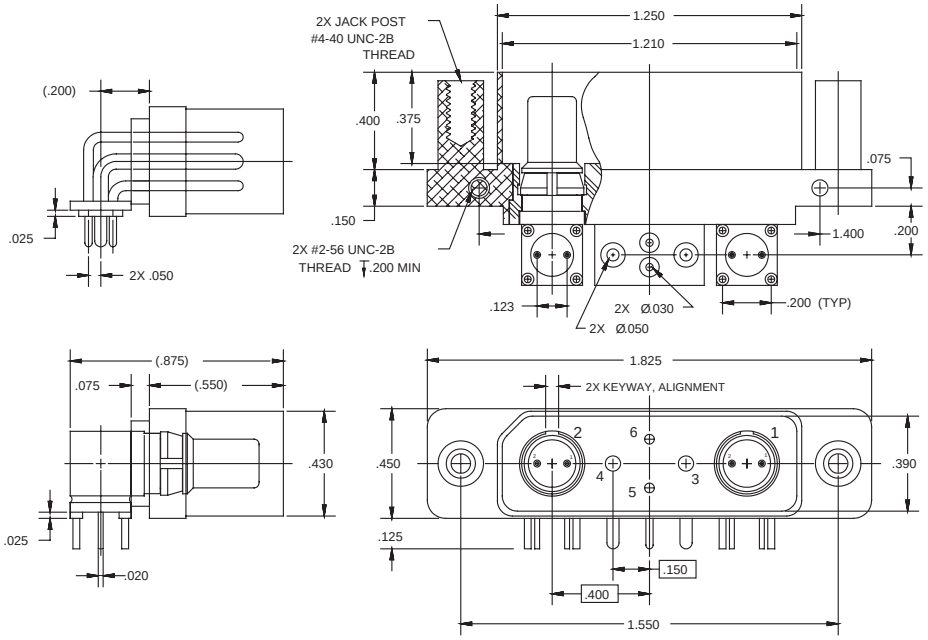


2 #9 Twinax Contacts
2 #16 Power Contacts
2 #20 Signal Contacts

P/N 012700-2007

Please consult factory for environmentally sealed connectors and associated backshell accessories.

Firewire 1394b Right Angle Twinax Receptacle With Jackposts

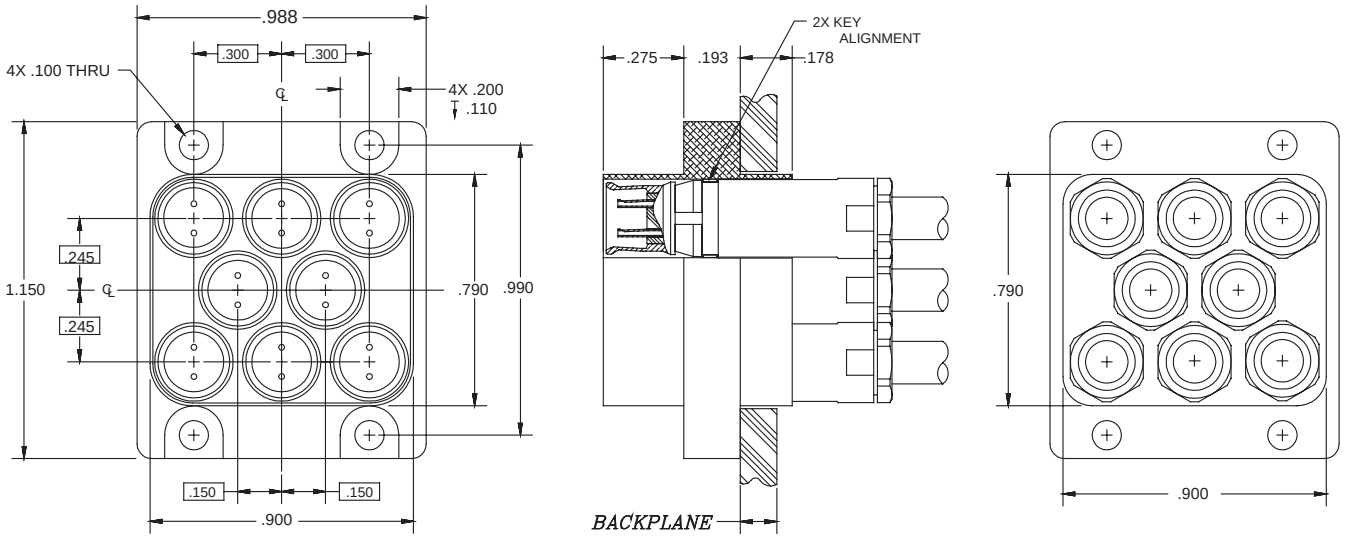


2 #9 Twinax Contacts
2 #16 Power Contacts
2 #20 Signal Contacts

P/N 012800-1002

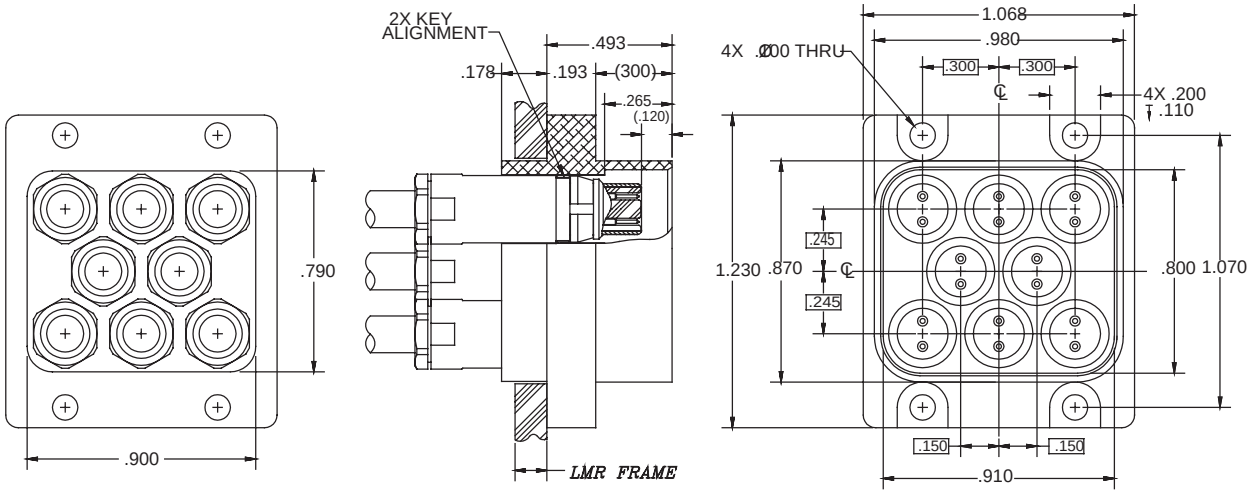
Downloaded from Arrow.com.

Straight 8 Way Twinax Plug with Removable Twinax Contacts



P/N 010034-2000

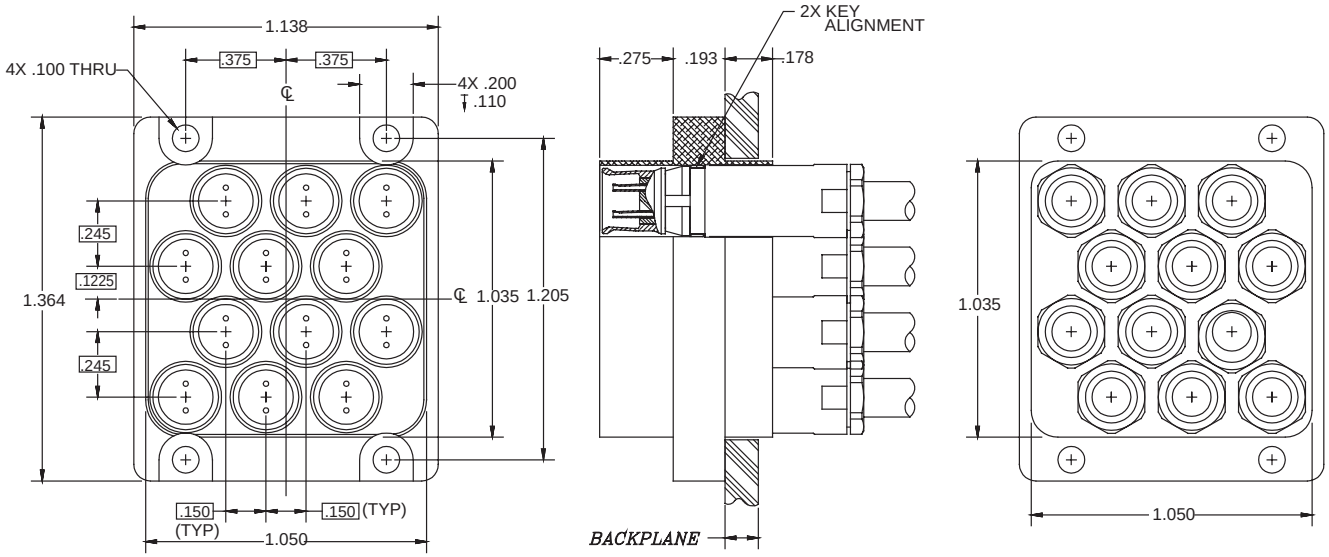
Straight 8 Way Twinax Receptacle with Removable Twinax Contacts



P/N 010034-3000

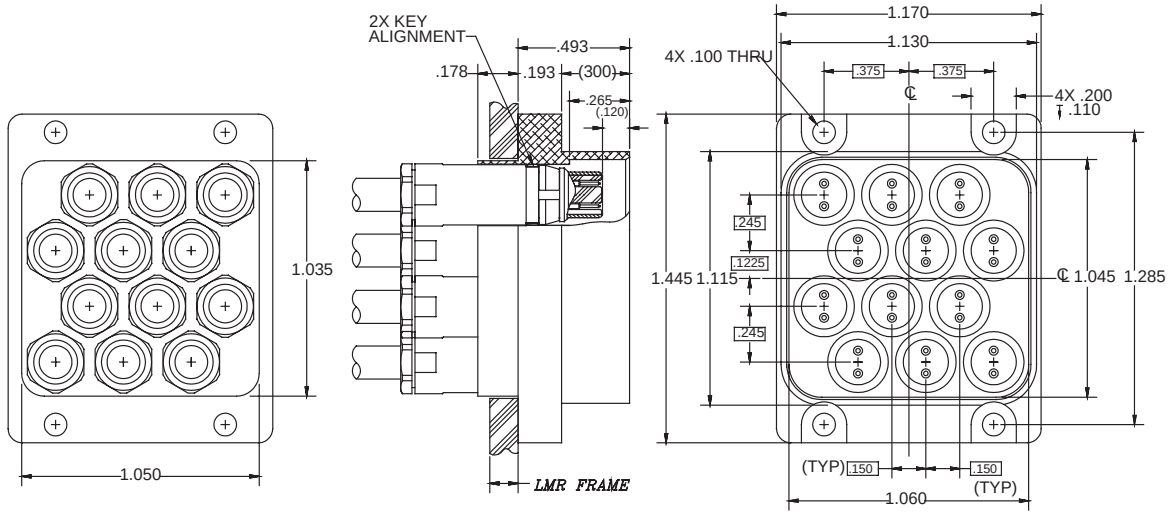
Downloaded from Arrow.com.

Straight 12 Way Twinax Plug with Removable Twinax Contacts



P/N 010034-2001

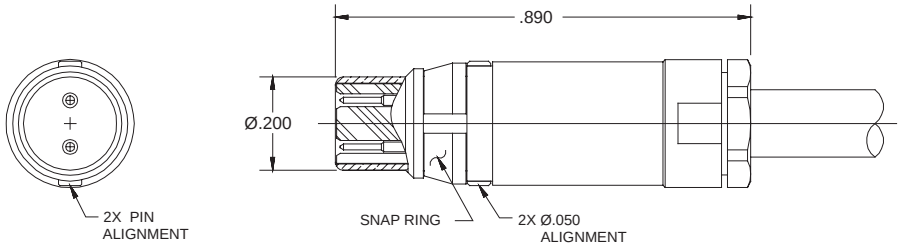
Straight 12 Way Twinax Receptacle with Removable Twinax Contacts



P/N 010034-3001

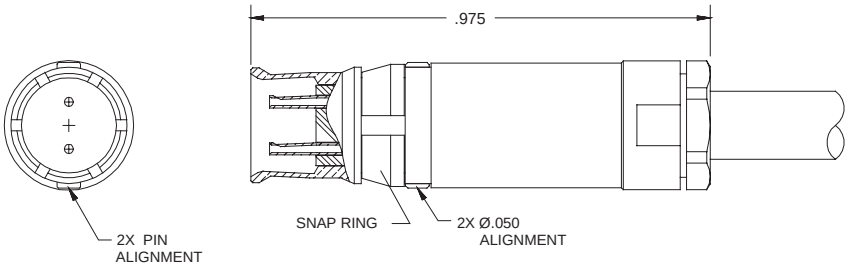
Downloaded from Arrow.com.

Size 8 Twinax Pin Contact 100 and 150 Ohm



Part Number	Impedance	Cable Type	Cable
019634-0001	100 Ohm	Differential Twinax	540-1153-000
019634-0002	100 Ohm	Flexible Twinax	540-1161-000
019634-0003	100 Ohm	Flexible Twinax	540-1086-000
019634-0004	150 Ohm	Differential Twinax	540-1099-000

Size 8 Twinax Socket Contact 100 and 150 Ohm

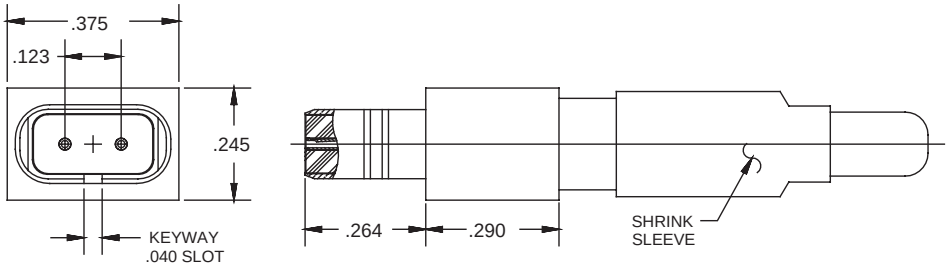


Part Number	Impedance	Cable Type	Cable
019534-0001	100 Ohm	Differential Twinax	540-1153-000
019534-0002	100 Ohm	Flexible Twinax	540-1161-000
019534-0003	100 Ohm	Flexible Twinax	540-1086-000
019534-0004	150 Ohm	Differential Twinax	540-1099-000

See Page 108 for Cable Assembly Ordering Information

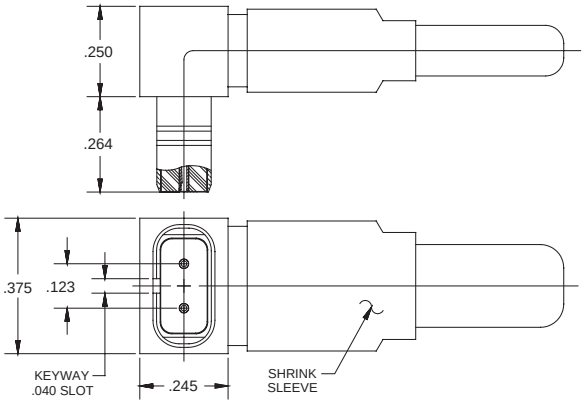
Downloaded from Arrow.com.

Straight Fibre Channel Twinax Cable Connector 150 Ohm



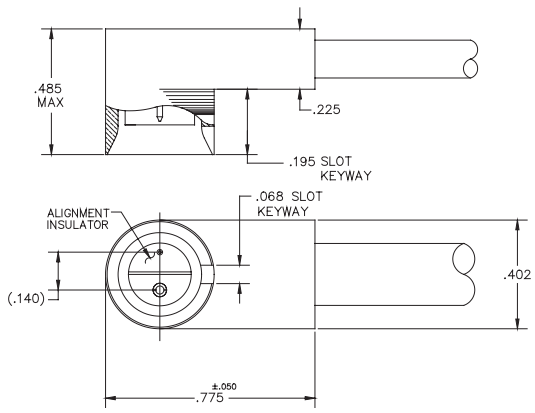
Part Number	Cable Type	Cable
014034-8000	Differential Twinax	540-1099-000
014034-8001	Differential Twinax	540-1114-000

Right Angle Micro-Miniature D-Sub Twinax Cable Connector 150 Ohm



Part Number	Cable Type	Cable
014034-1009	Differential Twinax	540-1099-000
014034-1010	Differential Twinax	540-1114-000

Quick Disconnect Twinax Receptacle Right Angle Cable Mount Connector 150 Ohm

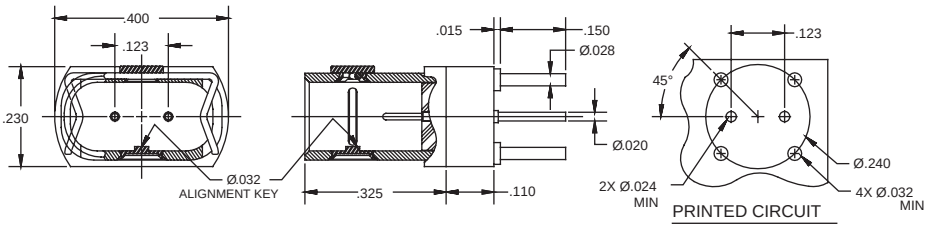


Part Number	Cable Type	Cable
019912-1306	Differential Twinax	540-1099-000
019912-1017	Differential Twinax	540-1114-000

See Page 108 for Cable Assembly Ordering Information

Downloaded from Arrow.com.

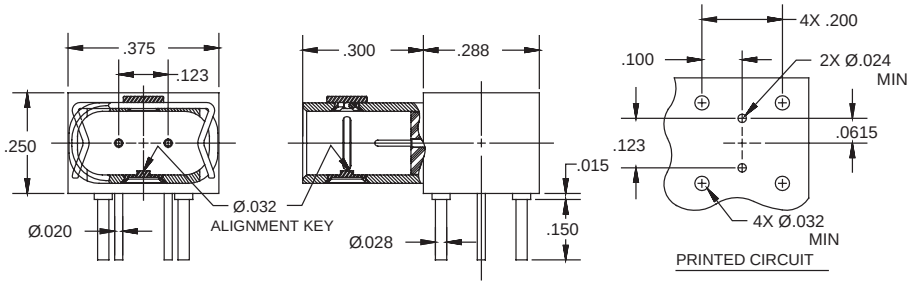
Straight Fibre Channel Twinax PCB Mount Connector 150 Ohm



Recommended PCB Hole Pattern

P/N 014117-2008

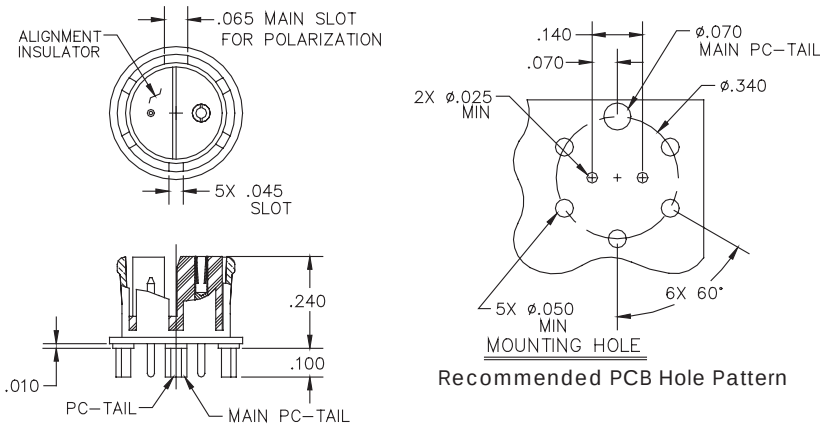
Right Angle Micro-Miniature D-Sub Twinax PCB Mount Connector 150 Ohm



Recommended PCB Hole Pattern

P/N 014117-1012

Quick Disconnect Twinax PCB Mount Connector 150 Ohm

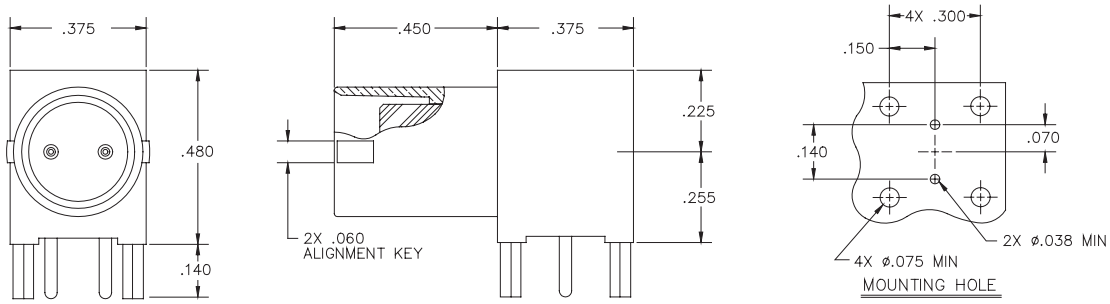


Recommended PCB Hole Pattern

P/N 019917-2040

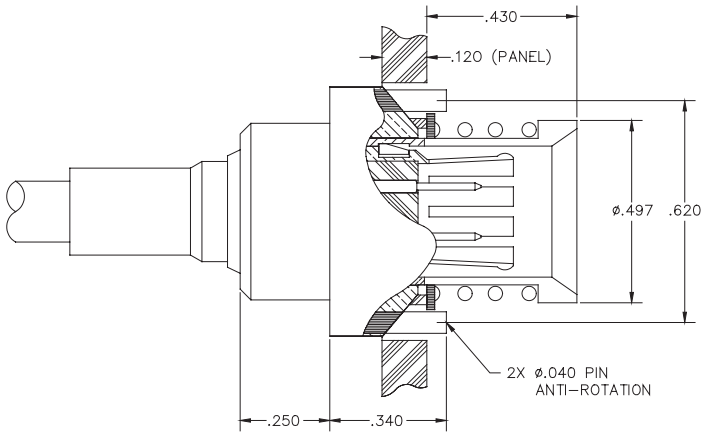
Downloaded from Arrow.com.

Blind Mate Fibre Channel Right Angle PCB Mount Receptacle 150 Ohm



P/N 019917-1100

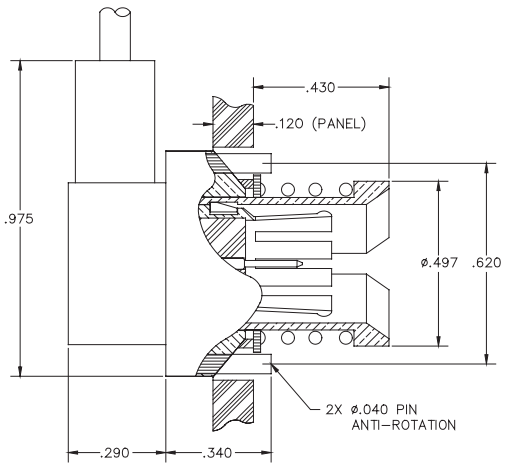
Blind Mate Fibre Channel Twinaxial Plug 150 Ohm



Mates with 019917-1100 Receptacle Only

Part Number	Cable Type	Cable
019911-2100	Differential Twinax	540-1099-000
019911-2101	Differential Twinax	540-1114-000

Blind Mate Fibre Channel Right Angle Twinaxial Plug 150 Ohm



Mates with 019917-1100 Receptacle Only

Part Number	Cable Type	Cable
019911-1100	Differential Twinax	540-1099-000
019911-1101	Differential Twinax	540-1114-000

See Page 108 for Cable Assembly Ordering Information

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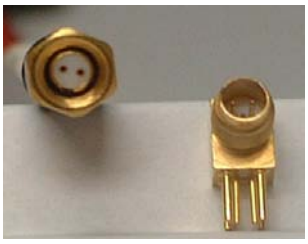
Micro Twinax Connectors

NDL/SMA / Micro-D Size Packages

Micro Twinax connectors feature matched impedance miniaturized connectors that provide the user with controlled impedance and tightly spaced PCB footprint spacing. These connectors are available in straight or right angle versions.

Micro Twinax NDL Size:

- Replaces standard NDL Triax connector series for higher speed balanced twinax applications
- Identical NDL footprint PCB pattern for outer conductor spacing (.100" spacing)
- Applicable for High-Speed Ethernet (100 Base-T) and Fibre Channel (2 GBit/sec min.) applications
- Z_0= 100 Ohm or 150 Ohm Differential Pair Impedance



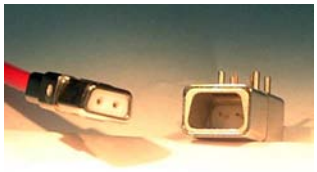
NDL Size

Micro Twinax SMA Size Package:

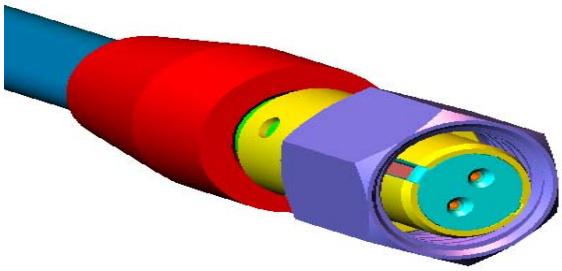
- Package size of a standard SMA series connector housing
- Differential pair matched impedance of Z_0 = 100 or 150 ohm balanced impedance between conductors
- Applicable for High-Speed Ethernet (100 Base-T) and Fibre Channel (2 GBit/sec min.) applications
- Z_0=100 Ohm or 150 Ohm Differential Pair Impedance

Micro Twinax Micro-D Size Package:

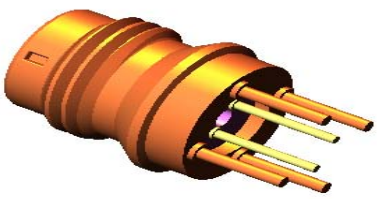
- Package size mimics Micro-D packaging constraints throughout connector pair
- Matched impedance 100 or 150 ohm balanced impedance throughout connector pair
- Applicable for High-Speed Ethernet (100 Base-T) and Fibre Channel (1 GBit/sec min.) applications
- Z_0=100 Ohm or 150 Ohm Differential Pair Impedance



Micro-D Size



Micro Twinax NDL Plug



Micro Twinax NDL Straight Jack PCB Mount

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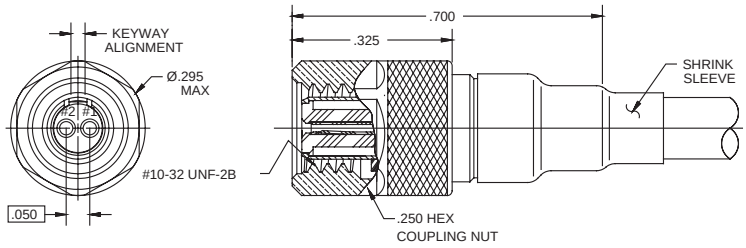
Micro Twinax Connectors

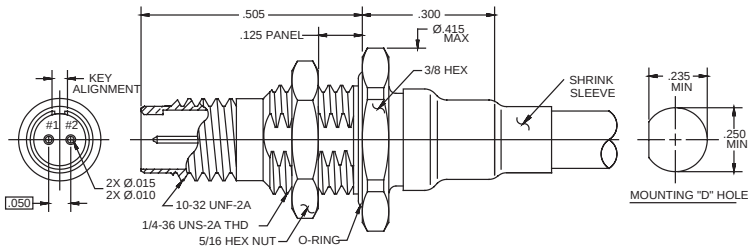
NDL Size Package Matched Impedance 100 and 150 Ohm Micro Twinax Series

Micro Twinax NDL Straight Cable Plug 100 and 150 Ohm



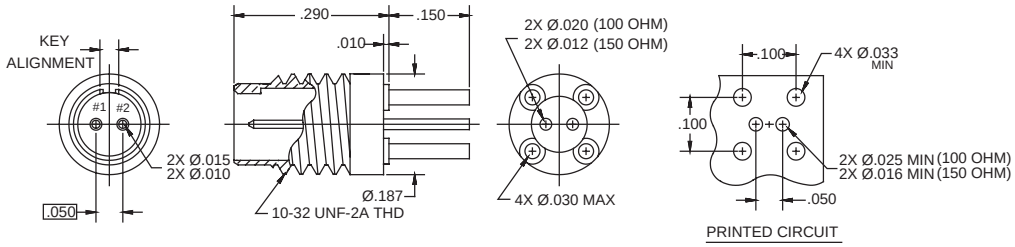
Part Number	Impedance	Cable Type	Cable
014034-2002	100 Ohm	Differential Twinax	540-1153-000
014034-2008	100 Ohm	Flexible Twinax	540-1161-000
014034-2016	100 Ohm	Flexible Twinax	540-1086-000
014034-2013	150 Ohm	Differential Twinax	540-1099-000

Micro Twinax NDL Bulkhead Mount Jack 100 and 150 Ohm



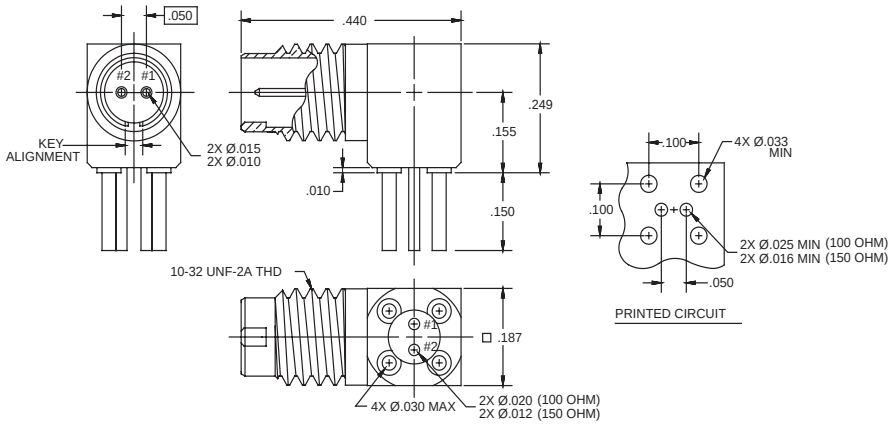
Part Number	Impedance	Cable Type	Cable
014134-5002	100 Ohm	Differential Twinax	540-1153-000
014134-5003	100 Ohm	Flexible Twinax	540-1161-000
014134-5004	100 Ohm	Flexible Twinax	540-1086-000
014134-5005	150 Ohm	Differential Twinax	540-1099-000

Micro Twinax NDL Straight Jack 100 and 150 Ohm PCB Mount



Part Number	Impedance
014117-2001	100 Ohm
014117-2006	150 Ohm

Micro Twinax NDL Right Angle Jack 100 and 150 Ohm PCB Mount



Part Number	Impedance
014117-1001	100 Ohm
014117-1006	150 Ohm

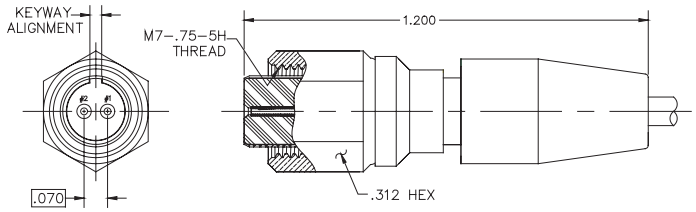
See Page 108 for Cable Assembly Ordering Information

Downloaded from Arrow.com.

Micro Twinax Connectors

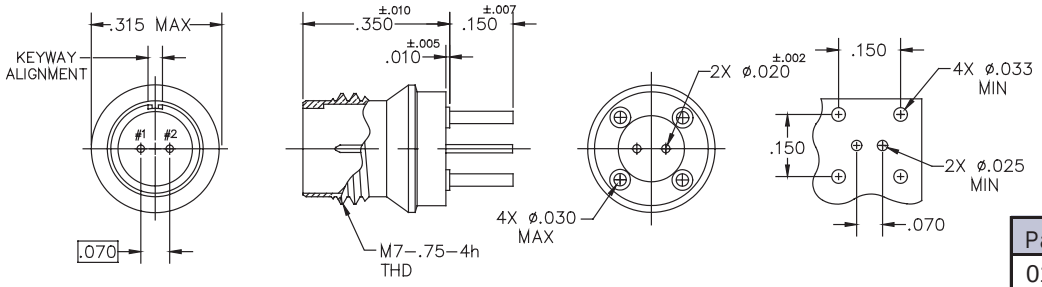
SMA Size Twinax Connectors 100 and 150 Ohm Matched Impedance

Micro Twinax SMA Size Plug 100 or 150 Ohm Matched Impedance



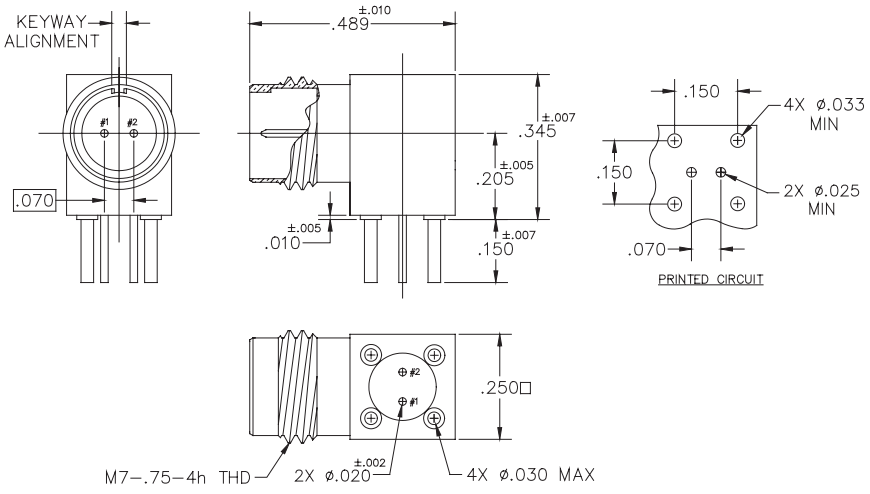
Part Number	Differential Impedance	Cable Type	Cable
014034-2004	100 Ohm	Differential Twinax	540-1153-000
014034-2010	100 Ohm	Flexible Twinax	540-1161-000
014034-2015	100 Ohm	Flexible Twinax	540-1086-000
014034-2003	150 Ohm	Differential Twinax	540-1099-000
014034-2009	150 Ohm	Differential Twinax	540-1114-000

Micro Twinax SMA Size Straight Jack 100 or 150 Ohm Matched Impedance



Part Number	Impedance
014117-2003	100 Ohm
014117-2002	150 Ohm

Micro Twinax SMA Right Angle Jack Straight PCB Mount 100 or 150 Ohm Matched Impedance



Part Number	Impedance
014117-1001	100 Ohm
014117-1006	150 Ohm

See Page 108 for Cable Assembly Ordering Information

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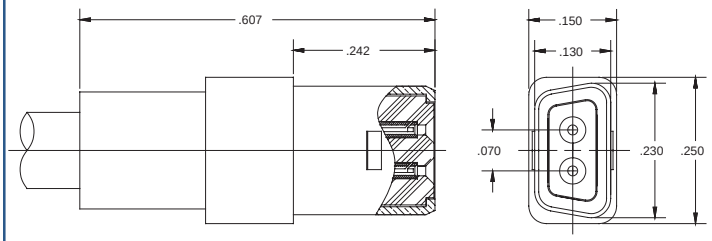
Micro Twinax Connectors

Micro-D Size Twinax Connectors 100 and 150 Ohm Matched Impedance

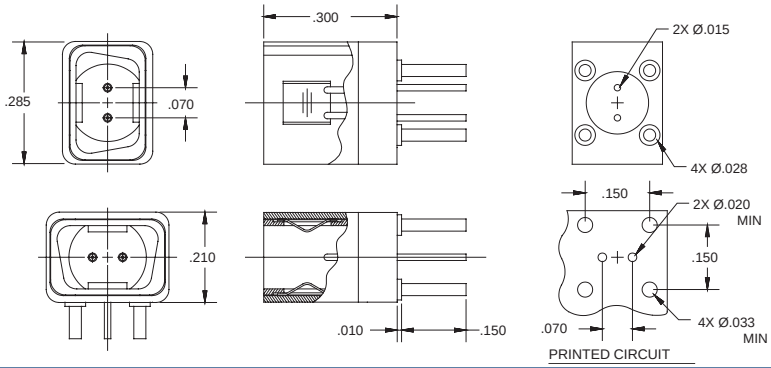
Micro-D Twinax Straight Plug 100 or 150 Ohm Matched Impedance



Part Number	Impedance	Cable Type	Cable
014034-2006	100 Ohm	Differential Twinax	540-1153-000
014034-2005	150 Ohm	Differential Twinax	540-1099-000

Mates with 014117-2005 and 2004 ONLY

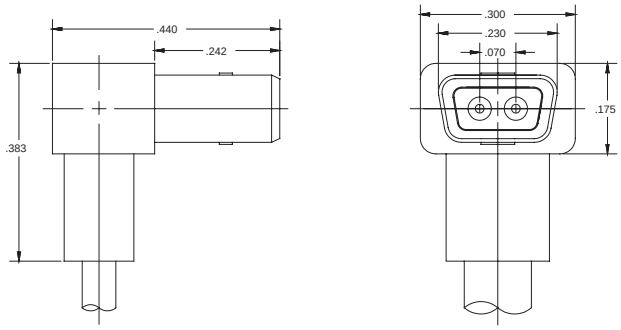
Micro-D Twinax Straight Jack PCB 100 or 150 Ohm Matched Impedance



Part Number	Impedance
014117-2005	100 Ohm
014117-2004	150 Ohm

Mates with P/N: 014034-2005 and 2006 ONLY

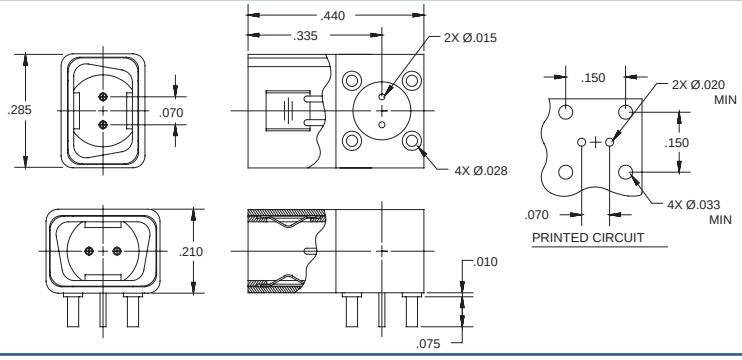
Micro-D Twinax Right Angle Plug 100 or 150 Ohm Matched Impedance



Part Number	Impedance	Cable Type	Cable
014034-1002	100 Ohm	Differential Twinax	540-1153-000
014034-1001	150 Ohm	Differential Twinax	540-1099-000

Mates with P/N: 014117-1002 and 1003 ONLY

Micro-D Twinax Right Angle Jack PCB Mount 100 or 150 Ohm Matched Impedance

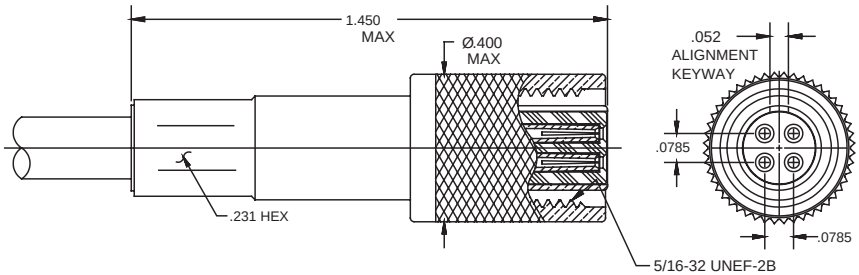


Part Number	Impedance
014117-1003	100 Ohm
014117-1002	150 Ohm

See Page 108 for Cable Assembly Ordering Information

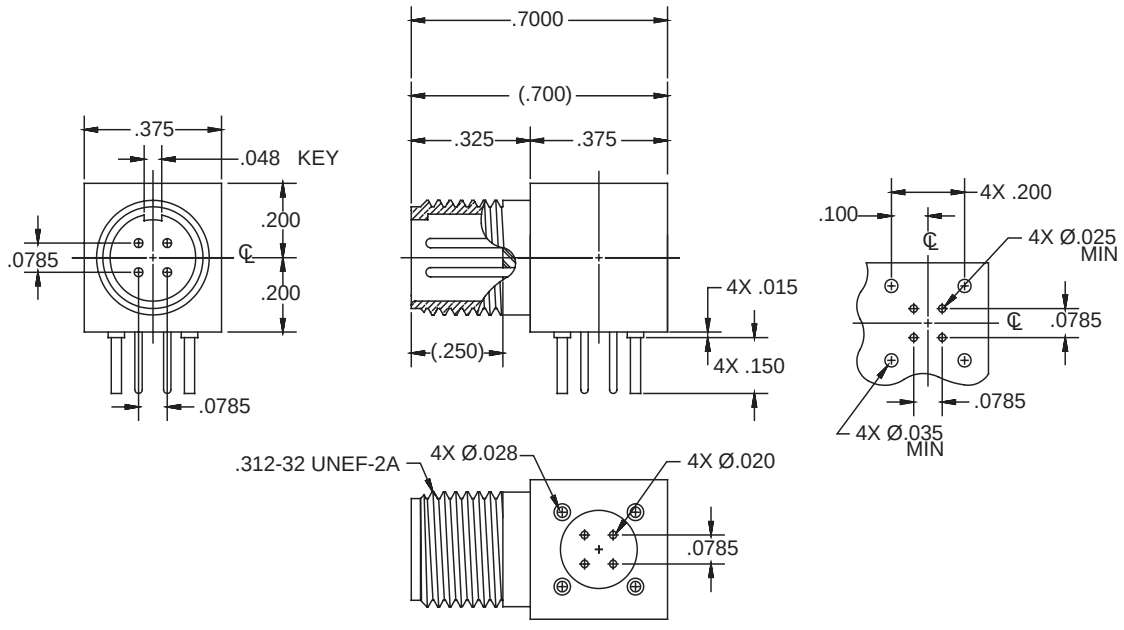
Downloaded from Arrow.com.

Micro Quadrax Plug 100 Ohm



Part Number	Cable Type	Cable
012735-2000	Differential Quad	540-1165-000

Micro Quadrax Right Angle PCB Mount Receptacle 100 Ohm



P/N 012817-1000

See Page 108 for Cable Assembly Ordering Information

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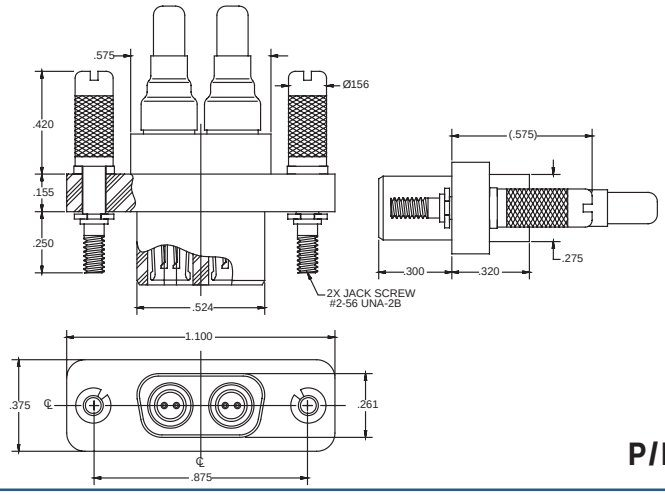
Modular Block Connector (MBC) Series

Modular Block Connectors 100 Ohm Twinax Plug and Receptacle

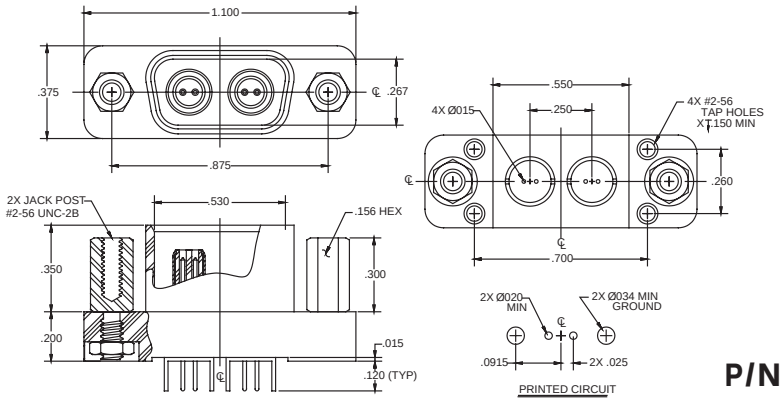
Sabritec's Modular Block connectors feature dual twinax blindmate assemblies that permit the transmit and receive of high speed Ethernet data rate signals in one connector. This series allows for modularity in PCB routing of high speed signaling. Modular Block Connectors are true 100 ohm differential pair matched impedance and are optimized for maximum space utilization, modularity and true signal integrity.

Modular Block Straight Twinax Plug



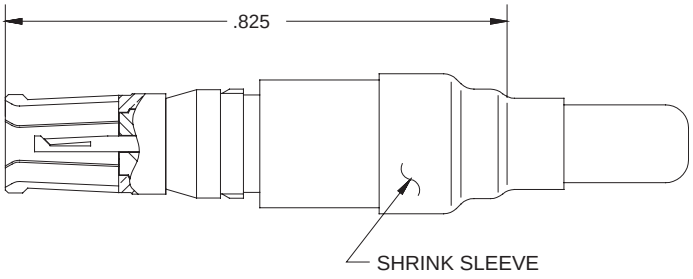
P/N 014034-0001

Modular Block Straight Twinax Receptacle PCB Mount



P/N 014117-0001

Size 10 Twinax Socket Contact Crimp Termination



Part Number	Cable Type	Cable
018934-0001	Differential Twinax	540-1153-000

See Page 108 for Cable Assembly Ordering Information

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Cable Assembly Ordering Info

Part Number Table

019634-8001 - 6 - 019534-8001 - 24

- 24 — Cable Length in Inches (XXX)
- 019534-8001 — Connector #2 (OL - For Open Lead)
- 6 — Cable Group #

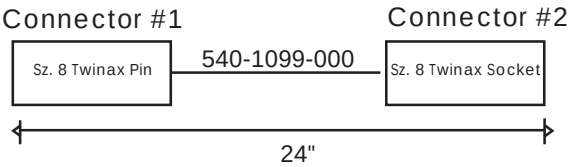
Flexible Twinax
1 = M17/176-00002
2 = 540-1086-000
3 = 540-1161-000
4 = 540-1171-000
5 = 540-1172-000

Differenital Pair
6 = 540-1099-000
7 = 540-1114-000
8 = 540-1153-000

Differential Quad
9 = 540-1138-000
10 = 540-1143-000
11 = 540-1165-000

- 019634-8001 — Connector #1

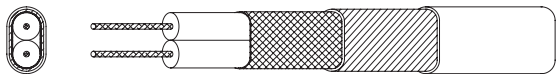
Sample P/N: 019912-1306/3/019917-2040/18



Please use the request for quote worksheet on page 225 to specify your custom application needs.

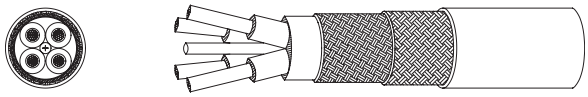
Flexible Twinax Cables

Cable Group No	Cable Designation	Manufacturer	Impedance (OHMS)	Jacket	Conductor (DIA)
1	M17/176-00002	Mil-Spec	77	0.129"	0.024"
2	540-1086-000	Sabritec	98	0.143"	0.019"
3	540-1161-000	Sabritec	100	0.130"	0.024"
4	540-1171-000	W.L. Gore	100	0.087"	0.010"
5	540-1172-000	W.L. Gore	100	0.122"	0.016"



Differential Pair Fibre Channel Twinax Cables

Cable Group No.	Cable Designation	Impedance (OHMS)	Jacket	Conductor (DIA)
6	540-1099-000	Differential: 150 Sig. To Shield: 75	0.097" x 0.160"	0.014" Stranded
7	540-1114-000	Differential: 150 Sig. To Shield: 75	0.138" x 0.224"	0.020" Solid
8	540-1153-000	Differential: 100 Sig. To Shield: 50	0.085" x 0.130"	0.019" Stranded



Differential Quad Fibre Channel Cables

Cable Group No.	Cable Designation	Impedance (OHMS)	Jacket	Conductor (DIA)
9	540-1138-000	Differential: 150 Sig. To Shield: 75	0.290"	0.032"
10	540-1143-000	Differential: 150 Sig. To Shield: 75	0.190"	0.020"
11	540-1165-000	Differential: 100 Sig. To Shield: 50	0.175"	0.025"

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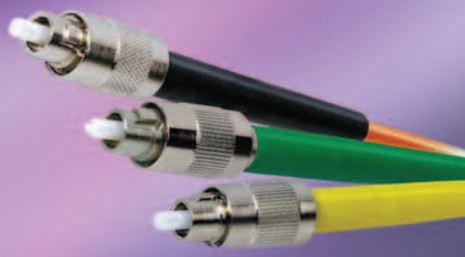
Fiber Optic Connectors & Contacts



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Fiber Optic Connectors/Contacts

Overview

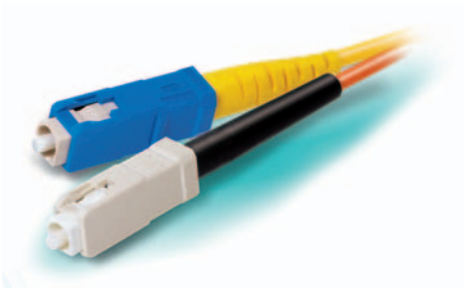
Sabritec's fiber optic connectors offer a highly secure data transmission method with excellent signal quality. Available contacts include size 5 expanded beam, size 16 butt-joint, and DIN style technologies capable of supporting wide bandwidth applications. All fiber optic connectors and contacts are offered fully terminated and tested, ensuring signal integrity for ruggedized environments.

Ruggedized Single Channel Connectors

- Ruggedized construction
- Multimode applications 62.5/125
- Anti-vibration coupling mechanism on plug
- Jam nut receptacle
- 4 Keyway orientation options
- Precision ceramic ferrule
- Fiber end faces accessible for cleaning
- Low insertion loss: -0. 4 dB (typical)

SC

- Ruggedized design
- Multimode applications 62.5/125
- Precision ceramic ferrule
- Simple push-pull mating mechanism
- Simple cleaning
- Low insertion loss: - 0.4 dB (typical)



FC Connectors

- Threaded metal coupling ring
- Designed to the NTT-FC standards
- Precision ceramic ferrule; also available in metal ferrule
- Connector mating using bulkhead feed-through adapters
- Low insertion loss: -0.4dB (typical)
- Low cost

ST Connectors

- Rugged metal bayonet coupling ring
- Keyed for repeatable performance
- Precision ceramic ferrule
- Low insertion loss: < 0.5 dB max, < 0.3 dB typical
- Connector mating using bulkhead feed-through adapters
- Low cost

DIN Contacts

- Twist protection pin
- Multimode applications (62.5/125)
- Screw lock mechanism
- Low insertion loss: -0.20 dB (typical)

Sabritec does not offer standard QPL slash sheet part #'s for multipin circular and rack & panel connectors. Our connectors are fully intermateable and interchangeable with all slash sheet part #'s.

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LC-Simplex/Duplex

- Single mode 6/125, 9/125
- Multimode 50/125, 62.5/125
- Pull-proof design
- RJ-45 style latching mechanism
- LC Duplex includes (2) connector bodies + Duplex clip
- Low insertion loss: - 0. 10 dB (typical)
- Low return loss(Singlemode): min. -45 dB

MTP Connector

- High density connection replaces 12 single-fiber connections (SFF)
- Push-pull latch
- Terminates ribbon fibers or ribbonized single fibers
- Keyed to ensure proper orientation
- Multimode applications 50/125 um, 62.5/125 um
- Singlemode applications 9/125 um
- Simple cleaning
- Ideal for high density cabling systems and data center connectivity
- Low insertion loss: - 0.20 dB (typical)
- Low return loss (Singlemode): > -55 dB

MT-RJ Connector

- Small 2 fiber design (conforms to SFF)
- Multimode applications 50/125um, 62.5/125 um
- Singlemode applications 6/125, 9/125um
- Reduces required space by 50% through the network
- RJ-45 latching mechanism
- Low insertion loss:
  - 0.35dB typical MultiMode
  - 0.25dB typical Singlemode
- Low return loss (Singlemode): > -35 dB

Size 16 Butt-Joint Contacts

- Robust pin and socket design
- Multimode applications 62.5/125
- Readily available for ARINC or MIL-DTL-38999 applications (M29504)
- Excellent optical performance
- Fewer parts, easy termination process
- Concave polish provides for excellent mechanical performance
- Physical contact polish provides low insertion loss and low back reflection

Size 5 Expanded Beam Contacts

- Robust pin & socket versions
- Multimode applications 62.5/125
- Available for ARINC or MIL-DTL-38999 applications
- Reduced influence from alignment errors
- Increased protection for fiber
- Reduced influence from dirt and debris
- Simple cleaning
- Insertion loss: -0.8 dB (typical)

Sabritec does not offer standard QPL slash sheet part #'s for multipin circular and rack & panel connectors. Our connectors are fully intermateable with all slash sheet part #'s.

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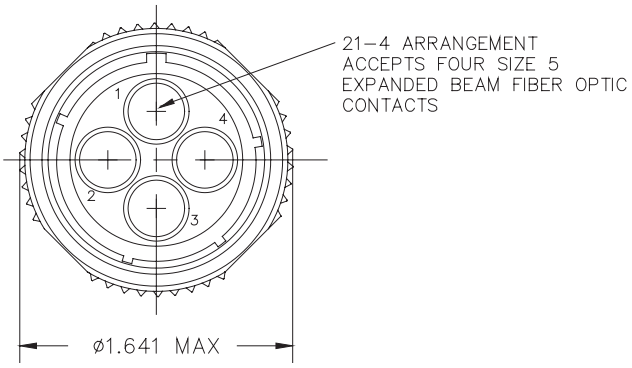
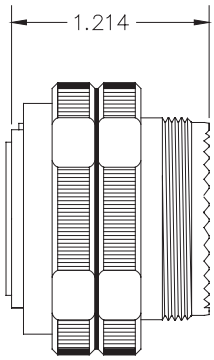
MIL-DTL-38999 Fiber Optic Connectors

Size 5 Expanded Beam Fiber Optic Insert Cavities

MIL-DTL-38999 Size 21-4 Fiber Optic Plug

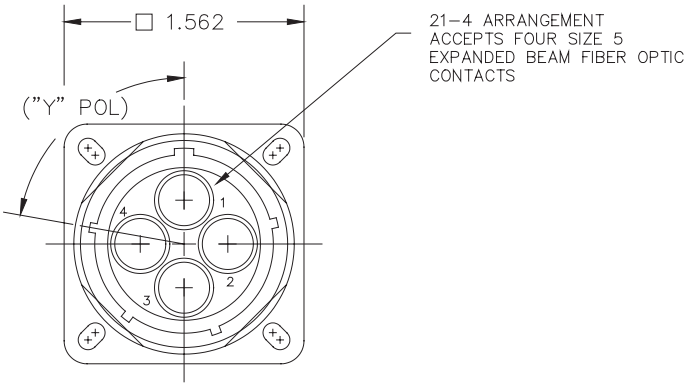


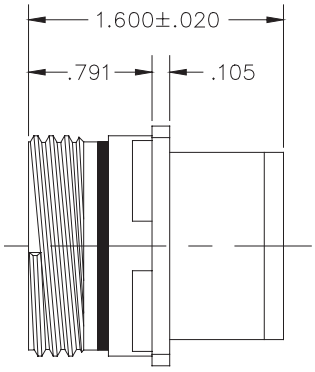


P/N 23640Y-2000

Y	Polarization
1	N
2	A
3	B
4	C
5	D
6	E

MIL-DTL-38999 Size 21-4 Fiber Optic Receptacle

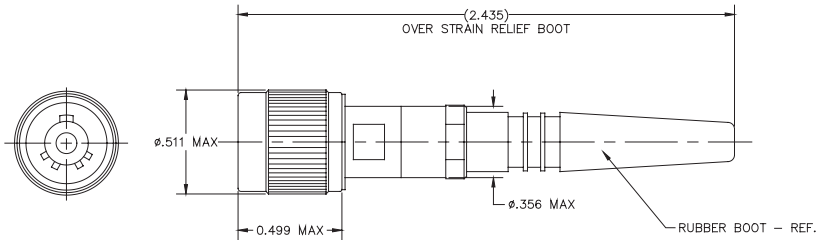




P/N 23640Y-3000

Y	Polarization
1	N
2	A
3	B
4	C
5	D
6	E

Fiber Optic Ruggedized Single Channel Plug



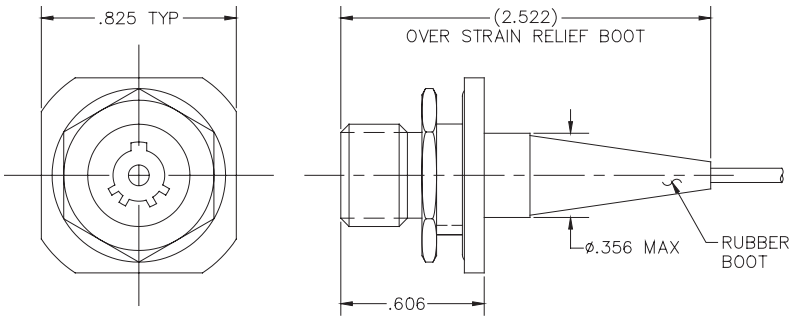
P/N 230533-200Y

Y	Polarization
2	A
3	B
4	C
5	D

See Page 120 for Cable Ordering Information

Downloaded from Arrow.com.

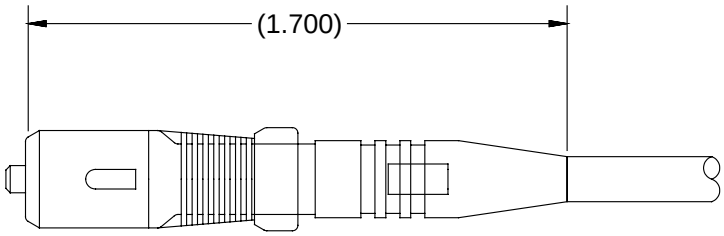
Fiber Optic Ruggedized Single Channel Jam Nut Receptacle



Y	Polarization
2	A
3	B
4	C
5	D

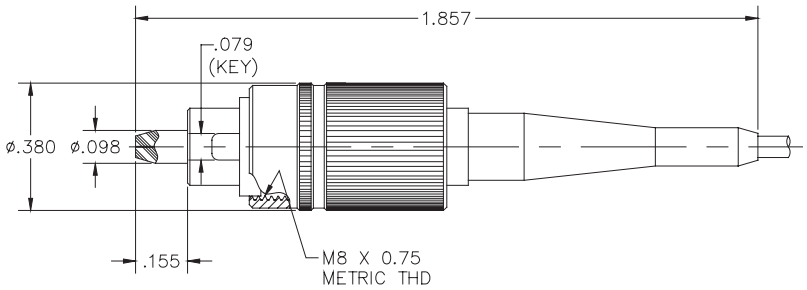
P/N 230633-300Y

Fiber Optic Ruggedized SC Plug



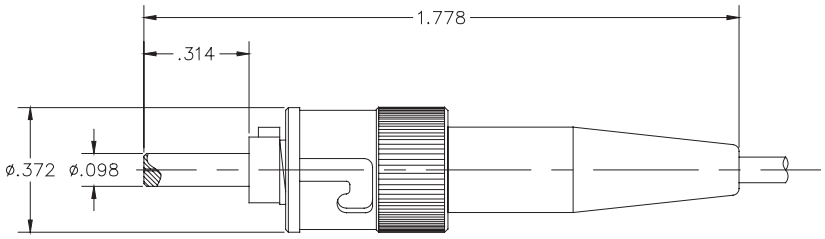
P/N 230533-2036

Fiber Optic FC Plug



P/N 230033-2040

Fiber Optic ST Plug



P/N 230033-2044

See Page 120 for Cable Ordering Information

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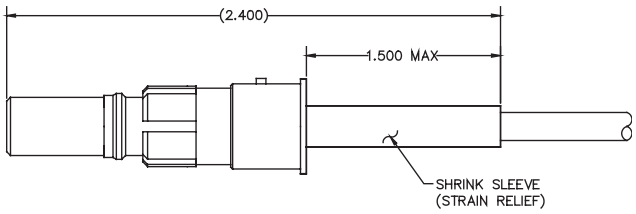
Fiber Optic Expanded Beam & DIN Contacts

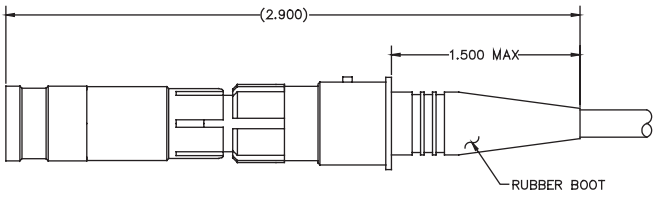
Size 5 Expanded Beam/DIN Contacts Per 41626-3

Size 5 Expanded Beam Lens Pin Contact



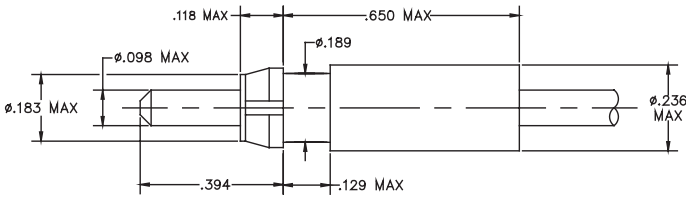
P/N 239433-8000

Size 5 Expanded Beam Lens Socket Contact



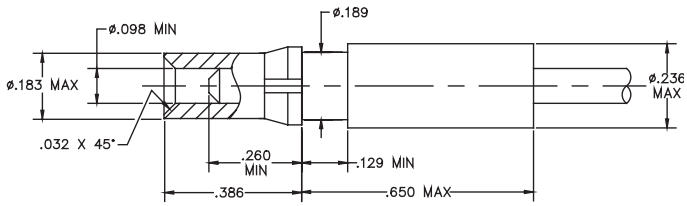
P/N 239333-8000

Fiber Optic Pin Contact Per DIN 41626-3



P/N 239933-8000

Fiber Optic Socket Contact Per DIN 41626-3

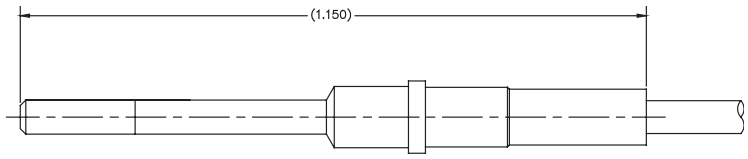


P/N 239433-8004

See Page 120 for Cable Ordering Information

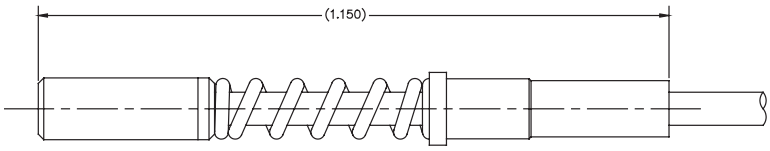
Downloaded from Arrow.com.

Arinc 404 Size 16 Butt-Joint Pin Contact



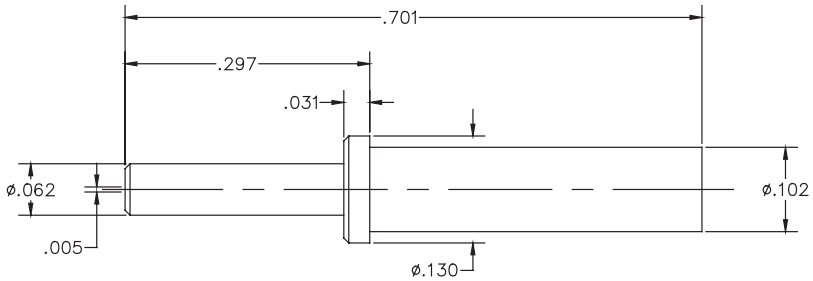
P/N 238533-8000

Arinc 404 Size 16 Butt-Joint Socket Contact



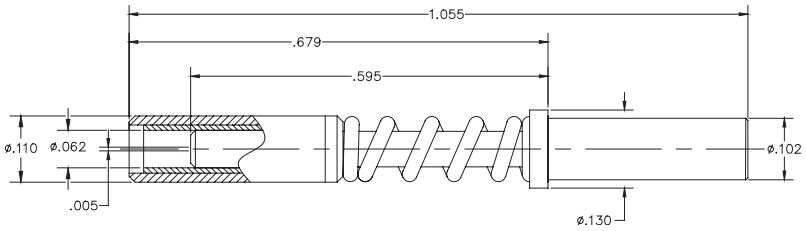
P/N 238433-8000

MIL-DTL-38999 Size 16 Butt-Joint Pin Contact Conforming to M29504/4



P/N 238533-8004

MIL-DTL-38999 Size 16 Butt-Joint Socket Contact Conforming to M29504/5



P/N 238433-8004

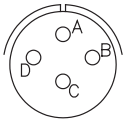
See Page 120 for Cable Ordering Information

Downloaded from Arrow.com.

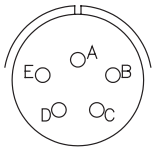
Fiber Optic Size 16 Insert Arrangments

MIL-DTL-38999 Connectors for Butt-Joint Contacts

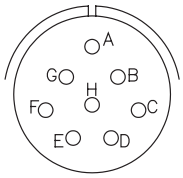
2 #16
Shell Size 11



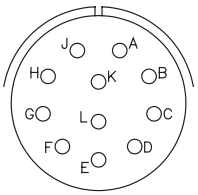
4 #16
Shell Size 13



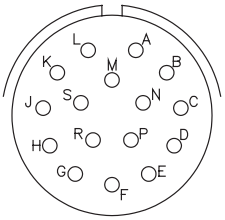
5 #16
Shell Size 15



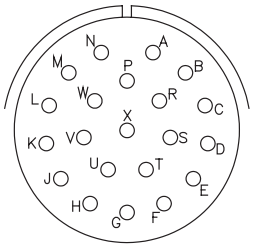
8 #16
Shell Size 17



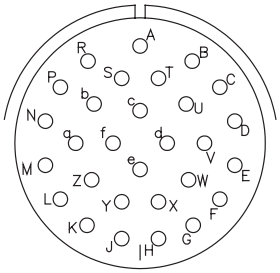
11 #16
Shell Size 19



16 #16
Shell Size 21



21 #16
Shell Size 23



29 #16
Shell Size 25

Note: High tolerance insert arrangements are available with alignment pins. Please consult factory for more information.

Size 16 Butt-Joint Part Number Table

38999 – B – R – C – 25 – P – N

- **Prefix**
- **Shell Style**
  - J – Jam Nut
  - B – Box Mount
  - W – Wall Mount
  - P – Plug
- **Mounting**
  - F- Front
  - R - Rear
- **Material/Plating**
  - C- Aluminum Alloy/Cadmium Over Nickel
  - N- Aluminum Alloy/Electroless Nickel
  - S- Stainless Steel/Electroless Nickel
  - CC-Composite/Cadmium Over Nickel
  - CN-Composite/Electroless Nickel

**Consult factory for alternate plating options*

- **Insert Arrangment/Shell Size**
  - 11, 13, 15, 17, 19, 21, 23, 25
- **Contact Type**
  - P – Pin
  - S- Socket
- **Polarization**
  - N, A, B, C, D, E

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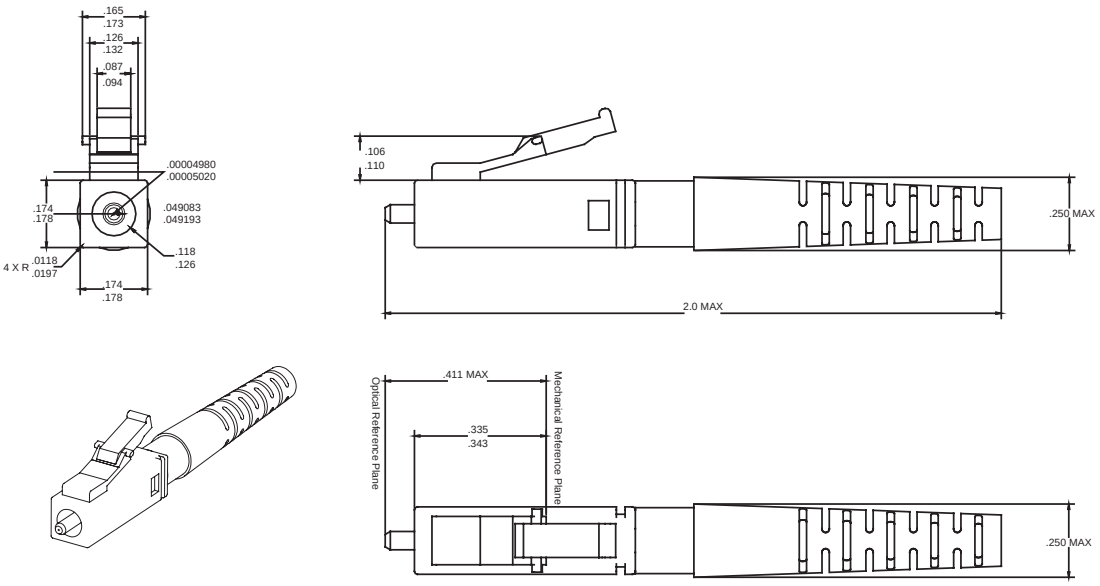
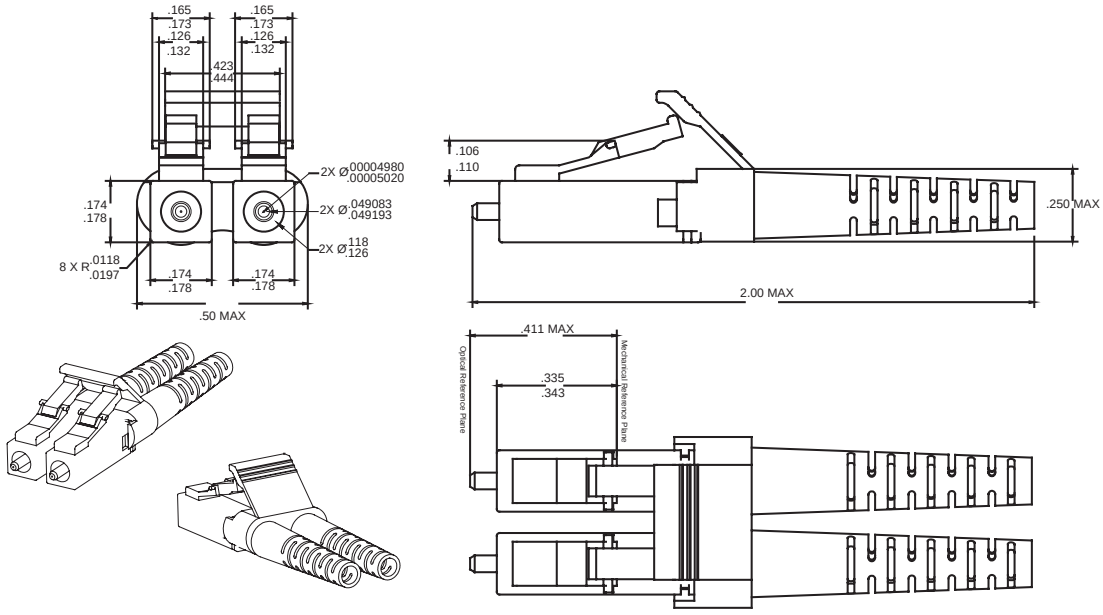
LC Simplex



Connector P/N: 239033-2000
Adapter P/N: 239033-4000

LC Duplex



Connector P/N: 239033-2001
Adapter P/N: 239033-4001

See Page 120 for Cable Ordering Information

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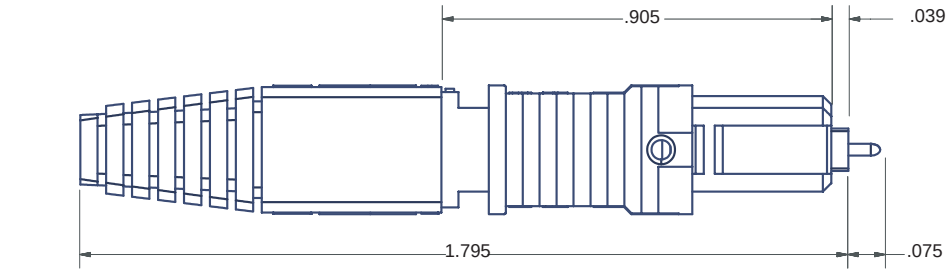
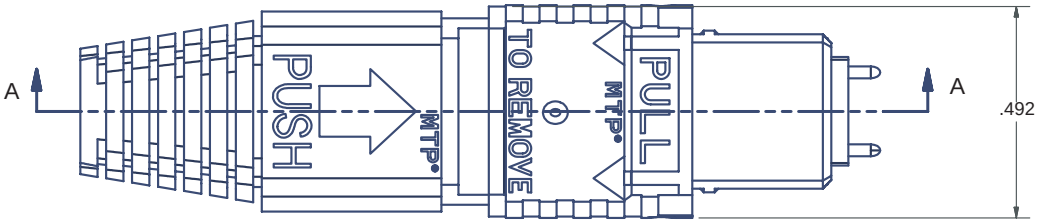
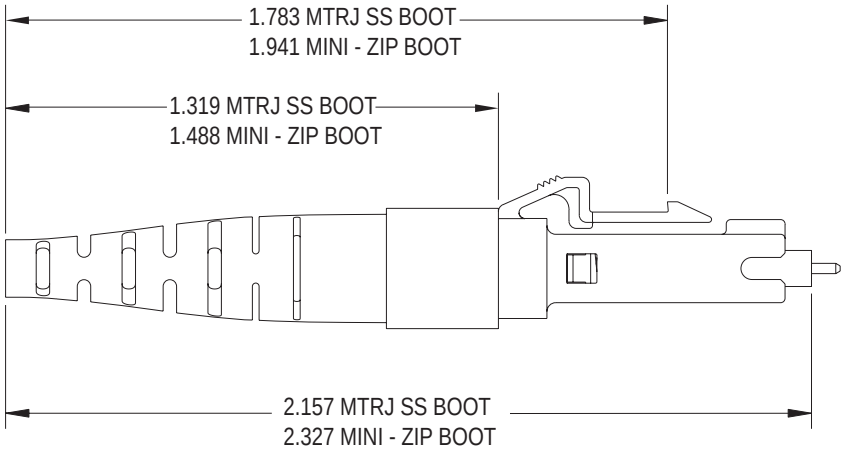
MTP Connector

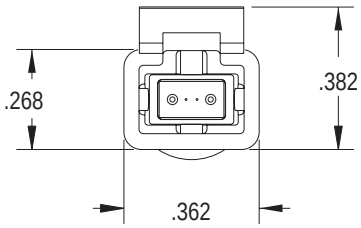




Plug P/N: 239033-2002 (Shown)
Recepatcle P/N: 239033-3000
Adapter P/N: 239033-4002

MT-RJ Connector





Plug P/N: 239033-2003 (Shown)
Recepatcle P/N: 239033-3001
Adapter P/N: 239033-4003

See Page 120 for Cable Ordering Information

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ARINC 801 Fiber Optic Interconnect

Overview

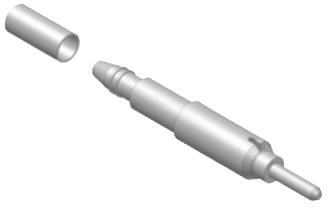
The ARINC 801 fiber optic terminus is the next generation of high density, butt joint interconnect technology. With its standard 1.25 mm ferrule and sleeve, the ARINC 801 terminus is designed for both multimode and single-mode applications and is compatible with standard LC termination processes. The terminus is available both as a pull-proof design and as an optical disconnect style. For the pull-proof design, the cable jacket is crimped on the external body and a floating mechanism avoids any loss of performance when pulling on the cable. This feature, only available with a loose tube style cable jacket, allows for the use of the connector without a backshell. Standard connector formats include MIL-DTL-38999, ARINC 600, and EPXA and B.

Sabritec's ARINC 801-style fiber optic terminus complies with and exceeds optical insertion loss and back reflection requirements as defined within the specification.

The ARINC 801 interconnect offers the following features to help satisfy your design requirements:

- Single terminus design for all connector formats
- Pull-proof design (no strain relief backshell needed)
- Optical disconnect style available
- Hermaphroditic design (same contact on both sides of connector)
- PC or APC ferrule end face
- Compatible with multi-mode and single-mode fiber
- Standard 1.25 mm ferrule and sleeve
- Cable termination identical to LC connector process
- Easy cleaning access to the contact though a removable alignment sleeve holder
- Standard MIL-DTL-38999, size 16 insertion/removal tool

Please contact the factory for more detailed information.



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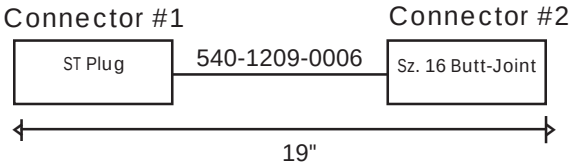
Fiber Optic Cable Part Number Table

Cable Ordering Information

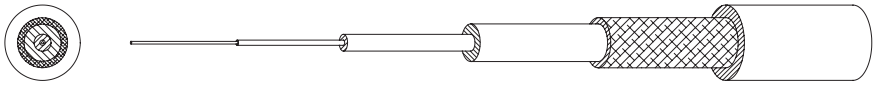
230033-2044 – 12 – 006 – 19 – 238433-8004

- 230033-2044 – Connector/Contact Part Number
- 12 – Cable Group # See Cable Chart Below
- 006 – Fiber Group # See Note 4 Below
- 19 – Cable Length In Inches
- 238433-8004 – Connector/Contact Part Number

Sample P/N: 230033-2044/12/238433-8004/19



Please use the request for quote worksheet on page 225 to specify your custom application needs.



Fiber Optic Cables

Cable Group No.	Part Number	Jacket OD	Buffer OD	Jacket Material	Strength Member Material	Buffer Material	Temp Range	Fiber count
12	540-1209-00X[4]	1.2		ETFE	Kevlar	Expanded PTFE	-55°C to +150°C	1
13	540-1210-00X[1, 2 & 4]	2	900	FEP	Teflon coated fiber glass	FEP	-65°C to +200°C	1
14	540-1211-00X[4]	2	900	LSZH[3]	Kevlar	LSZH[3]		1
15	540-1212-00X[4]	2.1	900	ETFE or FEP	Teflon coated fiber glass	ETFE or FEP	-55°C to +125°C	1
16	540-1213-00X[4]	2.5	1200	ETFE	Teflon coated fiber glass	ETFE	-55°C to +150°C	1
17	540-1123-000	2.8	900	ETFE or equiv.	Kevlar	Optional	-40°C to +75°C	1
18	540-1188-000	2.8	900	LSZH[3]	Kevlar	LSZH[3]	-40°C to +75°C	1
19	540-1215-00X[4]	2.3X2.6 (2 fibers) 2.3X4.6 (12 fibers)	250	FEP	Kevlar	Expanded PTFE	-55°C to +150°C	2, 4, 8, 12
20	540-1215-00X[4]	2.3X2.6 (2 fibers) 2.3X4.6 (12 fibers	250	PVC, flame retardant	Kevlar	Expanded PTFE	-30°C to +85°C	2, 4, 8, 12

**** Please consult factory on cable ordering options for Cable Groups 19 and 20.***

Notes:

1. This cable is designed for high temperature aircraft and spacecraft applications
2. This cable requires a polyimide coating on the fiber and special connector accommodations
3. LSZH – Low Smoke, Zero Halogen
4. OOX to designate fiber type as follows:
   - -000 designates Corning SMF-28 or equivalent SM fiber
   - -006 designates MIL-PRF-49291/6 fiber, 62.5/126, Graded Index, rad hard, 0.275NA 100KPSI fiber
   - -009 designates OFS 100/140, Graded Index, 0.275NA, 200 KPSI fiber

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Concentric Twinax/Triax Connectors and Contacts

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Triaxial Connectors and Contacts

Triax Solutions

Sabritec offers a full line of triaxial interconnect products including concentric twinax/triax connectors, contacts, and cable assemblies.

NDL Connectors

The triax connector line features our ultraminiature NDL connector in both the NDL-T, threaded version, and the NDL-Q, quick disconnect version. The series includes straight and right angle cable mount and PCB mount connectors, in-series and between series adapters, as well as coax/triax transitional adapters, bulkhead receptacles and cable-bus terminators. The cable mount connectors are designed for numerous Sabritec low-loss twinaxial cables and concentric triaxial cables available in a variety of impedance values. These cables are designed for all types of data-bus and video interconnect systems including MIL-STD-1553B, ARINC 429, 100 Base-T Ethernet, high speed video hot-link and Fibre Channel data links.

NDL Triaxial Connectors

Concentric Twinax/Triax Contacts

Sabritec's extensive triax contact series fit standard MIL-DTL-38999 series size 8, 10, & 12 contact cavities, d-sub size 8, and ARINC size 1, 5, 8, 9 & 12 standard rack & panel connector cavities and MIL-DTL-83527 size 8 cavities. Sabritec offers Qualified Product List (QPL) triax contacts under specifications MIL-C-39029/90-529 and MIL-C-39029/91-530. These rugged, blind mate triaxial contacts have the same outline dimensions as standard coax and power contacts and fit in the same cavities of standard connector types and insert arrangements. Sabritec's triaxial contact line also includes a high speed differential impedance size 8 concentric triax contact for MIL-DTL-38999 and ARINC 600 connectors.

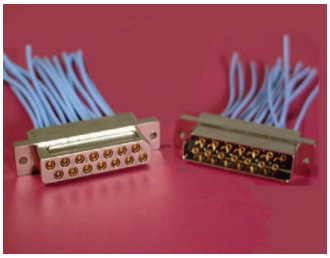
Triaxial Contacts

High Differential Pair Impedance Contacts

Sabritec's high differential impedance triax contacts are designed for ARINC 600 and MIL-DTL-38999 connectors. These contacts are available in 60, 75 and 85 ohm differential pair characteristic impedance for ARINC 600 and 60 ohm differential pair characteristic impedance for MIL-DTL-38999 connectors.

Rugged Multiway D-Sub Connectors

Sabritec's rugged d-subminiature connectors are designed to ground the outer shield of a triax contact directly to the shell of the connector. A multi-finger ground spring, fixed around the triax shell, provides a multi-point contact engagement for superior EMI shielding resulting in extremely low contact resistance when measured from the triax contact outer body to the connector flange.



Rugged D-Sub Connectors

Triaxial Cable Assemblies

Sabritec manufactures complete triaxial cable assemblies and data-bus harness networks. Cables, connectors and contacts can be combined into a variety of configurations for today's data-bus networking or high-speed video interconnect requirements.

Sabritec does not offer standard QPL slash sheet part #'s for multipin circular and rack & panel connectors. Our connectors are fully intermateable with all slash sheet part #'s.

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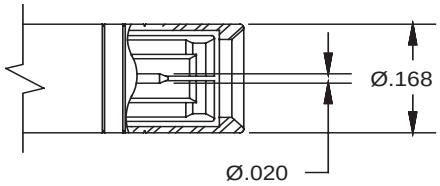
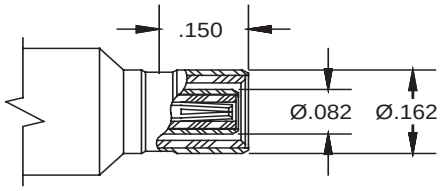
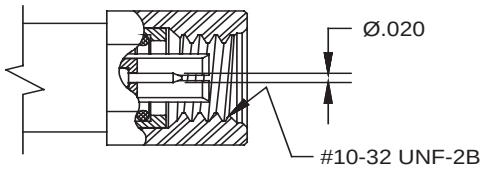
NDL Ultraminiature Triaxial Connectors

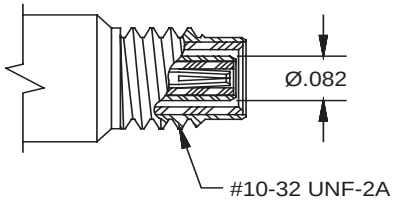
Connector Specifications

Interface Dimensions









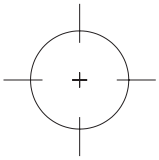
Connector Types

Actual O.D. Size

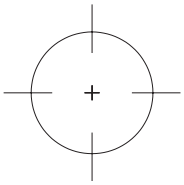
NDL

TTM/TRS

TRT/TRB



TRC/TTC



Electrical Specifications

Dielectric Withstanding Voltage	Center contact to intermediate contact: 1000 Vrms min Intermediate contact to outer contact: 400 Vrms min.
Insulation Resistance	5000 Megohms min Center contact to intermediate contact: 250 VDC Intermediate contact to outer contact: 125 Vrms
Contact Current Rating	1.5 Amps D.C., max
RF Hi Potential Withstanding Voltage	Center contact to intermediate contact: 500 Vrms @ 5 MHz Intermediate contact to outer contact: 125 Vrms @ 5 MHz
Corona Level @ 70,000 Ft.	Center contact to intermediate contact: 125 VAC
Permeability	2.0 max.
Risetime Degradation (Mated Pair)	800 ps @ 1 MHz

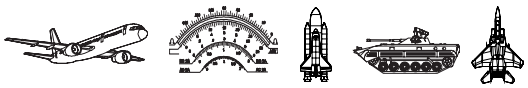
Mechanical & Environmental Specifications

Temperature Rating	-65º to +165ºC
Corrosion	MIL-STD-202 Method 101, Test Condition B
Shock	MIL-STD-202 Method 213, Test Condition B
Vibration	MIL-STD-202 Method 204, Test Condition B
Thermal Shock	MIL-STD-202 Method 107, Test Condition B
Durability	1000 Mate/Unmate cycles per min
Coupling Nut Torque (NDL-T) Recommended: Proof Torque	2.3 in-lbs min. 7.0 in-lbs
Mating Torque (NDL-T)	2.5 in-lbs
Engagement Disengagement Force (NDL-Q)	3.0 lbs min.

Materials & Finishes

Contacts	Beryllium copper per ASTM-B196, alloy UNS C17200 or leaded nickel copper, alloy UNS C19150, Condition H Gold plated per ASTM-B488, Type III, Class 1.25
Insulators	PTFE per ASTM -D 1710
Shells	Brass per ASTM-B16, alloy UNS C36000 or Beryllium copper per ASTM-B196 Gold plated per ASTM-B488, Type III, Class 1.25
O-Ring (NDL-T)	Silicone rubber per A-A-59588

All specifications subject to change without notice.



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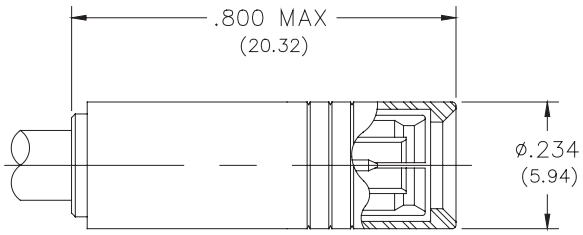
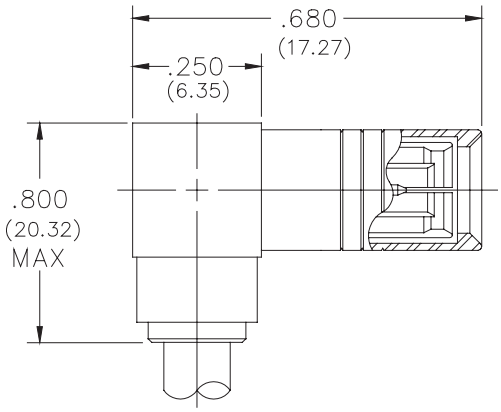
NDL-Q Cable Plug



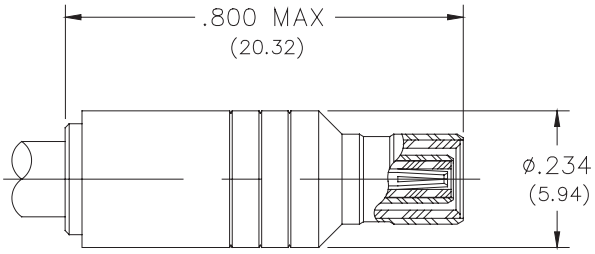
Part Number	Cable Type	Cable
016028-2000	Flexible Twinax	M17/176-00002
016028-2012	Flexible Twinax	540-1086-000
016028-2013	Flexible Triax	RG-403
016028-2014	Flexible Triax	540-1050-000
016028-2015	Semi-Rigid Triax	UT 141-50-50
016028-2030	Semi-Rigid Triax	UT 141-50-22
016028-2031	Flexible Triax	540-1081-000
016028-2032	Flexible Triax	540-1091-000

NDL-Q Right Angle Cable Plug



Part Number	Cable Type	Cable
016028-1001	Flexible Twinax	M17/176-00002
016028-1012	Flexible Twinax	540-1086-000
016028-1013	Flexible Triax	RG-403
016028-1014	Flexible Triax	540-1050-000
016028-1015	Semi-Rigid Triax	UT 141-50-50
016028-1030	Semi-Rigid Triax	UT 141-50-22
016028-1031	Flexible Triax	540-1081-000
016028-1032	Flexible Triax	540-1091-000

NDL-Q Cable Jack



Part Number	Cable Type	Cable
016128-2001	Flexible Twinax	M17/176-00002
016128-2012	Flexible Twinax	540-1086-000
016128-2013	Flexible Triax	RG-403
016128-2014	Flexible Triax	540-1050-000
016128-2015	Semi-Rigid Triax	UT 141-50-50
016128-2030	Semi-Rigid Triax	UT 141-50-22
016128-2031	Flexible Triax	540-1081-000
016128-2032	Flexible Triax	540-1091-000

See Page 156 for Cable Ordering Information

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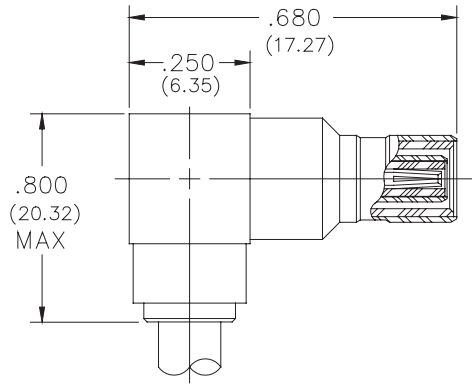
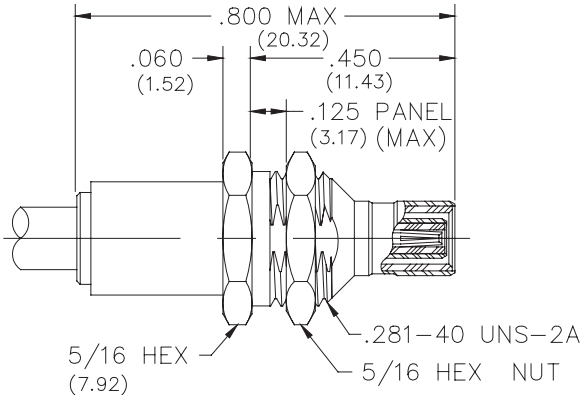
NDL-Q Right Angle Cable Jack



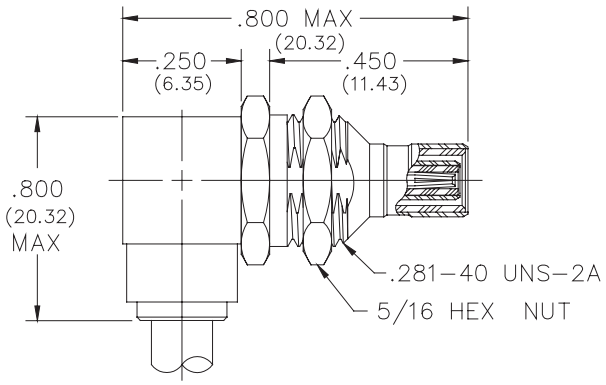
Part Number	Cable Type	Cable
016128-1001	Flexible Twinax	M17/176-00002
016128-1002	Flexible Twinax	540-1086-000
016128-1003	Flexible Triax	RG-403
016128-1004	Flexible Triax	540-1050-000
016128-1005	Semi-Rigid Triax	UT 141-50-50
016128-1030	Semi-Rigid Triax	UT 141-50-22
016128-1031	Flexible Triax	540-1081-000
016128-1032	Flexible Triax	540-1091-000

NDL-Q Bulkhead Cable Jack



Part Number	Cable Type	Cable
016128-5000	Flexible Twinax	M17/176-00002
016128-5012	Flexible Twinax	540-1086-000
016128-5013	Flexible Triax	RG-403
016128-5014	Flexible Triax	540-1050-000
016128-5015	Semi-Rigid Triax	UT 141-50-50
016128-5030	Semi-Rigid Triax	UT 141-50-22
016128-5031	Flexible Triax	540-1081-000
016128-5032	Flexible Triax	540-1091-000

NDL-Q Right Angle Bulkhead Cable Jack



Part Number	Cable Type	Cable
016128-1101	Flexible Twinax	M17/176-00002
016128-1102	Flexible Twinax	540-1086-000
016128-1103	Flexible Triax	RG-403
016128-1104	Flexible Triax	540-1050-000
016128-1105	Semi-Rigid Triax	UT 141-50-50
016128-1130	Semi-Rigid Triax	UT 141-50-22
016128-1131	Flexible Triax	540-1081-000
016128-1132	Flexible Triax	540-1091-000

See Page 156 for Cable Ordering Information

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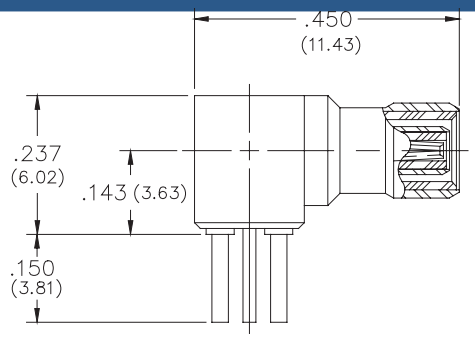
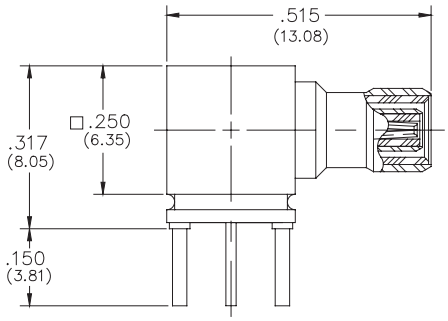
NDL-Q Right Angle PCB Jack



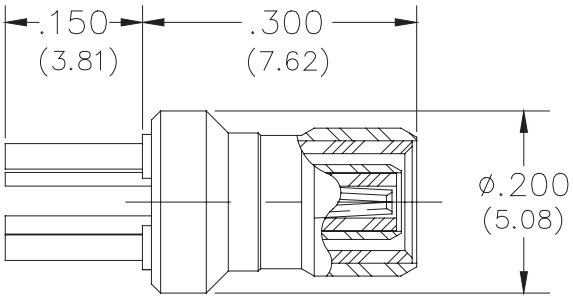
P/N 016100-1001
Mounting for .100 Centers

NDL-Q Right Angle PCB Jack



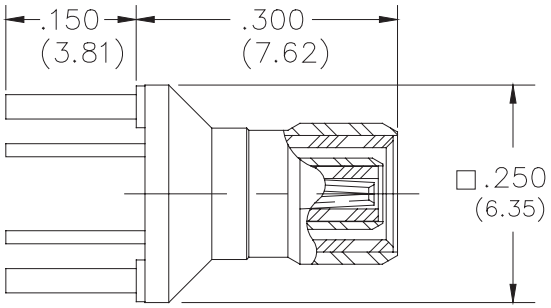
P/N 016100-1002
Mounting for .200 Centers

NDL-Q Straight PCB Jack



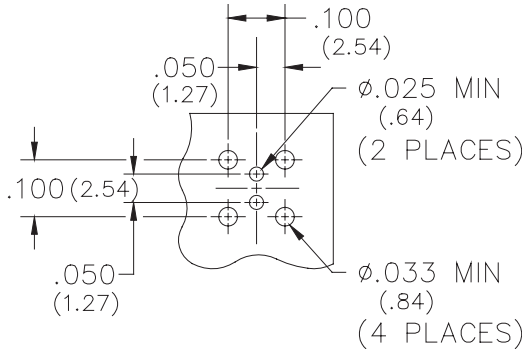
P/N 016100-3000
Mounting for .100 Centers

NDL-Q Straight PCB Jack



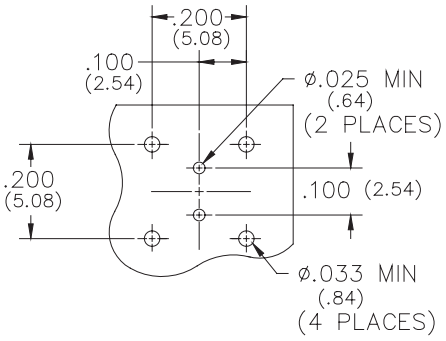
P/N 016100-3002
Mounting for .200 Centers

Mounting for PCB Connectors



PCB Pattern for .100 Centers

Mounting for PCB Connectors



PCB Pattern for .200 Centers

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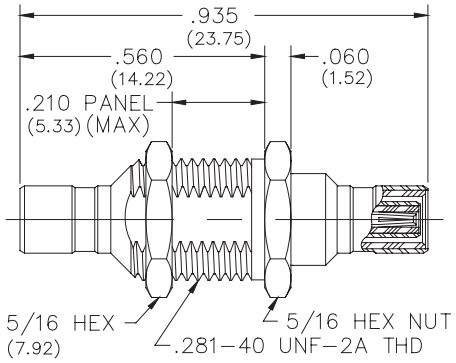
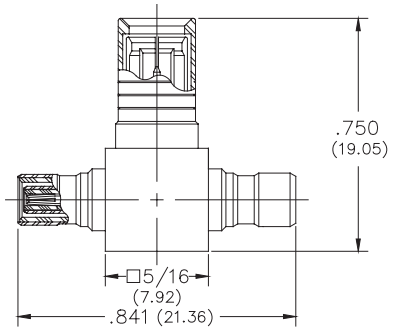
NDL-Q Feed-Thru Jack Adapter



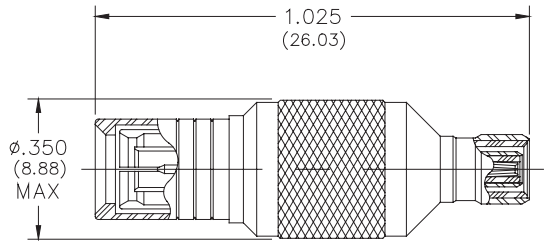
P/N 016100-5004

NDL-Q "Tee" Adapter



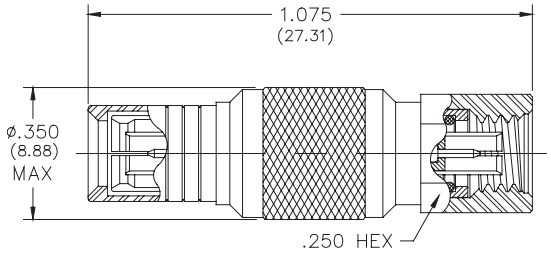
P/N 016000-4000

NDL-Q Plug to NDL-Q Jack



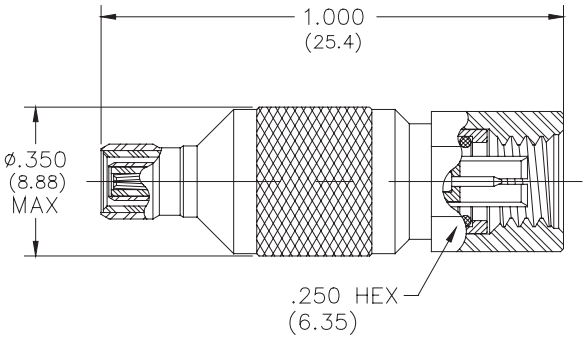
P/N 016000-4001

NDL-Q Plug to NDL-T Plug



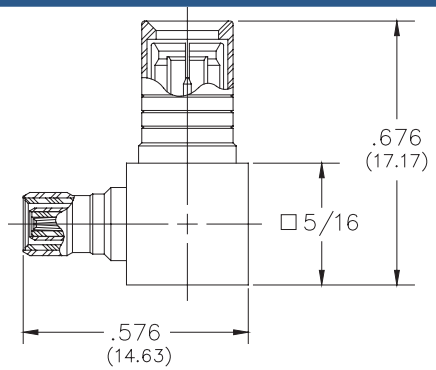
P/N 016000-4007

NDL-Q Jack to NDL-T Plug



P/N 016100-4001

NDL-Q Right Angle Plug to NDL-Q Jack



P/N 016000-1000

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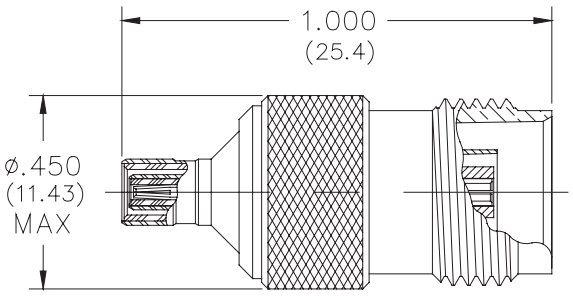
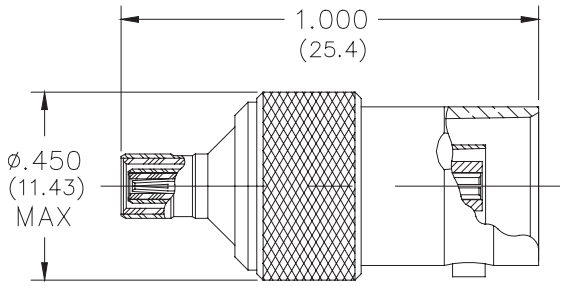
NDL-Q Jack to TRT Jack



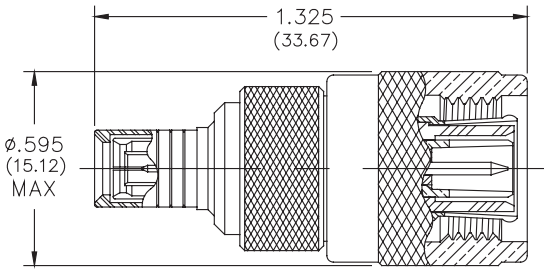
P/N 016100-4002

NDL-Q Jack to TRB Jack



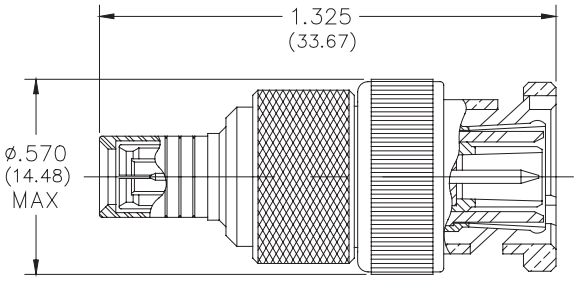
P/N 016100-4003

NDL-Q Plug to TRT Plug



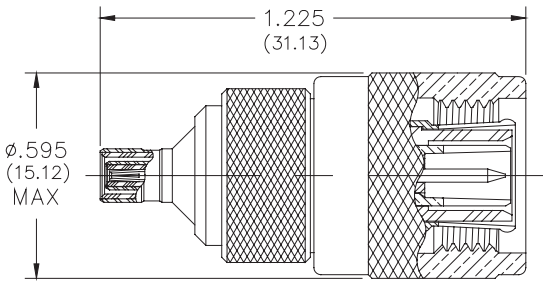
P/N 016000-4003

NDL-Q Plug to TRB Plug



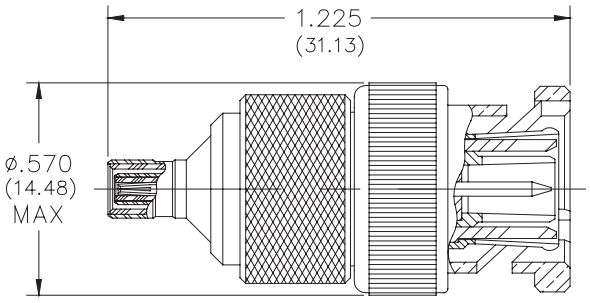
P/N 016000-4004

NDL-Q Jack to TRT Plug



P/N 016100-4004

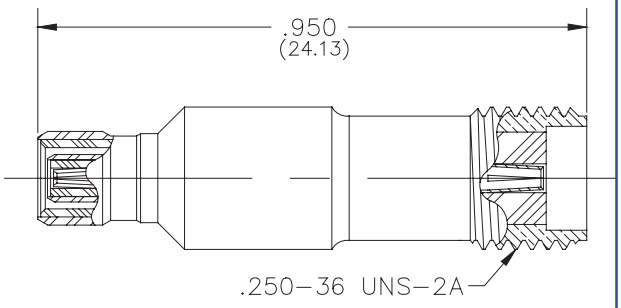
NDL-Q Jack to TRB Plug



P/N 016100-4005

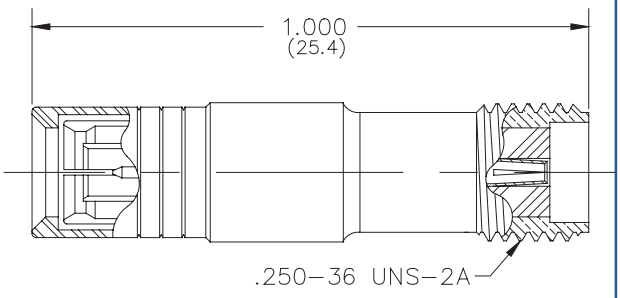
Downloaded from Arrow.com.

NDL-Q Jack to SMA Jack



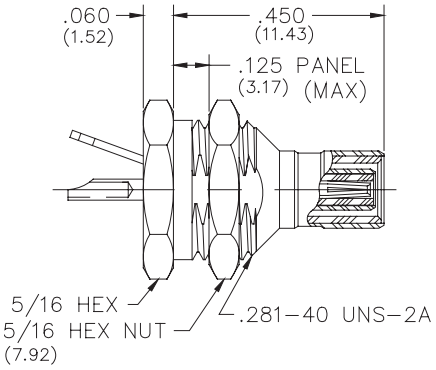
P/N 016100-4010

NDL-Q Plug to SMA Jack



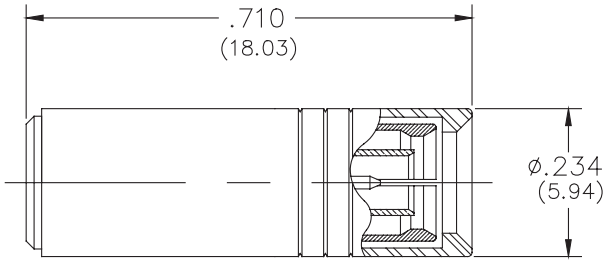
P/N 016000-4010

NDL-Q Bulkhead Jack



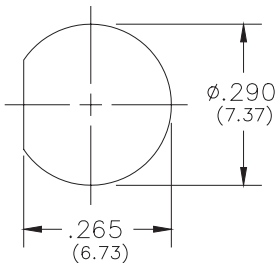
P/N 016100-5001

NDL-Q 75 Ohm Terminator



P/N 016000-0000

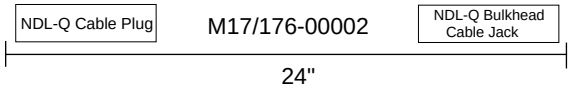
MOUNTING D-HOLE CONFIGURATION



NDL-Q CABLE ASSEMBLY ORDERING INFORMATION

016028-2000 / 1 / 016128-5000 / 24

- 016028-2000: Connector #1
- 1: Cable Group #
- 016128-5000: Connector #2
- 24: Cable Length



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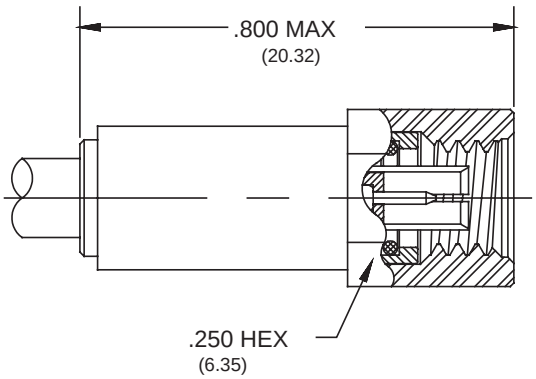
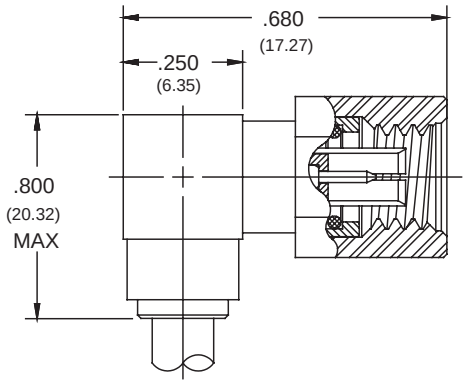
NDL-T Cable Plug



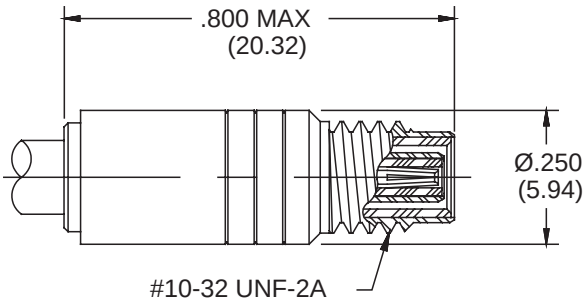
Part Number	Cable Type	Cable
015028-2000	Flexible Twinax	M17/176-00002
015028-2012	Flexible Twinax	540-1086-000
015028-2013	Flexible Triax	RG-403
015028-2014	Flexible Triax	540-1050-000
015028-2015	Semi-Rigid Triax	UT 141-50-50
015028-2030	Semi-Rigid Triax	UT 141-50-22
015028-2031	Flexible Triax	540-1081-000
015028-2032	Flexible Triax	540-1091-000

NDL-T Right Angle Cable Plug



Part Number	Cable Type	Cable
015028-1001	Flexible Twinax	M17/176-00002
015028-1012	Flexible Twinax	540-1086-000
015028-1013	Flexible Triax	RG-403
015028-1014	Flexible Triax	540-1050-000
015028-1015	Semi-Rigid Triax	UT 141-50-50
015028-1030	Semi-Rigid Triax	UT 141-50-22
015028-1031	Flexible Triax	540-1081-000
015028-1032	Flexible Triax	540-1091-000

NDL-T Cable Jack



Part Number	Cable Type	Cable
015112-2001	Flexible Twinax	M17/176-00002
015112-2012	Flexible Twinax	540-1086-000
015112-2013	Flexible Triax	RG-403
015112-2014	Flexible Triax	540-1050-000
015112-2015	Semi-Rigid Triax	UT 141-50-50
015112-2030	Semi-Rigid Triax	UT 141-50-22
015112-2031	Flexible Triax	540-1081-000
015112-2032	Flexible Triax	540-1091-000

See Page 156 for Cable Ordering Information

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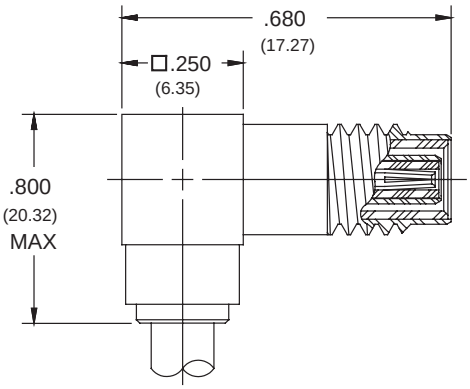
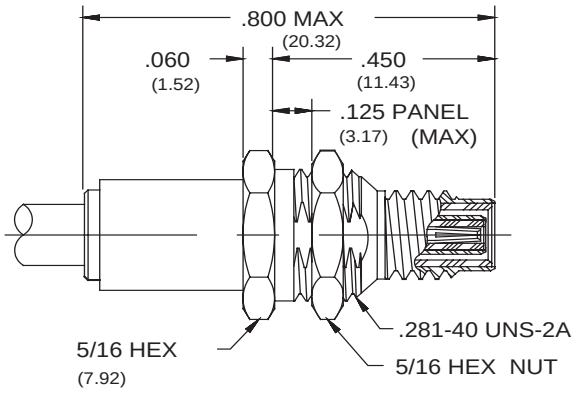
NDL-T Right Angle Cable Jack



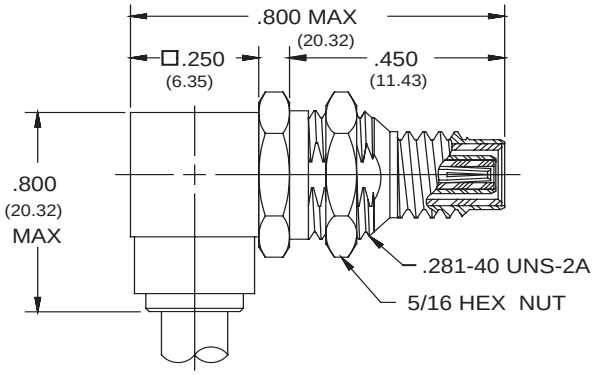
Part Number	Cable Type	Cable
015112-1001	Flexible Twinax	M17/176-00002
015112-1012	Flexible Twinax	540-1086-000
015112-1013	Flexible Triax	RG-403
015112-1014	Flexible Triax	540-1050-000
015112-1015	Semi-Rigid Triax	UT 141-50-50
015112-1030	Semi-Rigid Triax	UT 141-50-22
015112-1031	Flexible Triax	540-1081-000
015112-1032	Flexible Triax	540-1091-000

NDL-T Bulkhead Cable Jack



Part Number	Cable Type	Cable
015112-5000	Flexible Twinax	M17/176-00002
015112-5012	Flexible Twinax	540-1086-000
015112-5013	Flexible Triax	RG-403
015112-5014	Flexible Triax	540-1050-000
015112-5015	Semi-Rigid Triax	UT 141-50-50
015112-5030	Semi-Rigid Triax	UT 141-50-22
015112-5031	Flexible Triax	540-1081-000
015112-5032	Flexible Triax	540-1091-000

NDL-T Right Angle Bulkhead Cable Jack



Part Number	Cable Type	Cable
015112-1101	Flexible Twinax	M17/176-00002
015112-1102	Flexible Twinax	540-1086-000
015112-1103	Flexible Triax	RG-403
015112-1104	Flexible Triax	540-1050-000
015112-1105	Semi-Rigid Triax	UT 141-50-50
015112-1130	Semi-Rigid Triax	UT 141-50-22
015112-1131	Flexible Triax	540-1081-000
015112-1132	Flexible Triax	540-1091-000

See Page 156 for Cable Ordering Information

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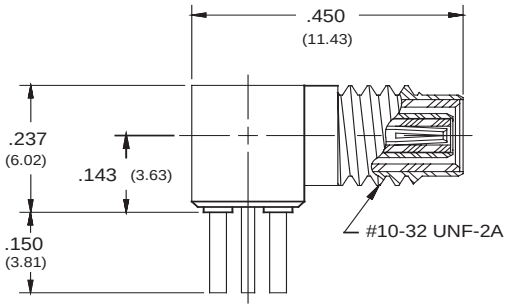
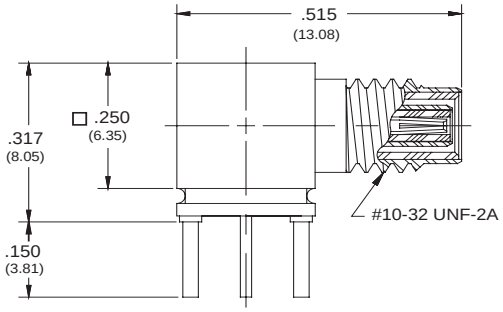
NDL-T Right Angle PCB Jack



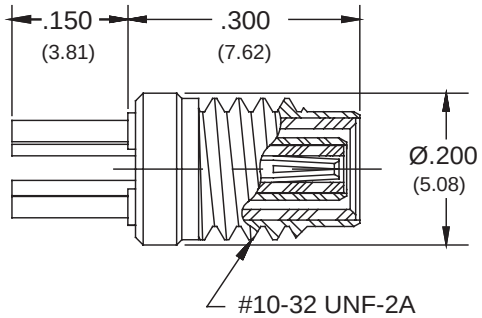
P/N 015100-1011
Mounting for .100 Centers

NDL-T Right Angle PCB Jack



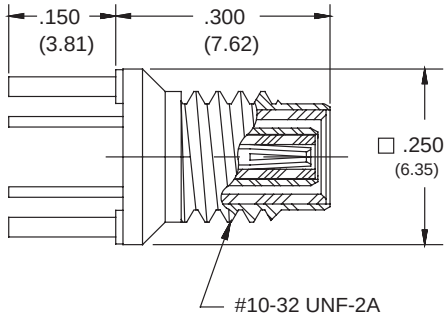
P/N 015100-1012
Mounting for .200 Centers

NDL-T Straight PCB Jack



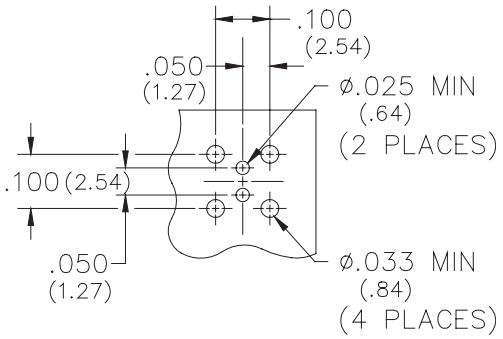
P/N 015100-3010
Mounting for .100 Centers

NDL-T Straight PCB Jack



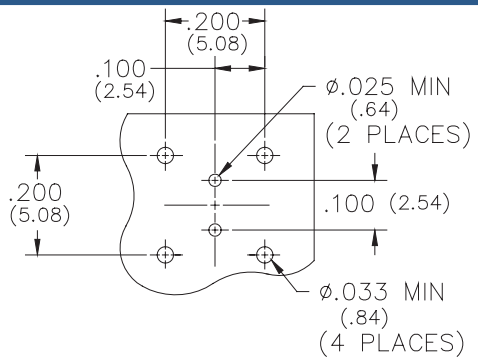
P/N 015100-3012
Mounting for .200 Centers

Mounting for PCB Connectors

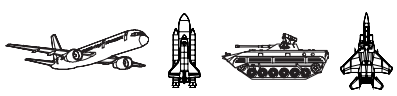


PCB Pattern for .100 Centers

Mounting for PCB Connectors



PCB Pattern for .200 Centers



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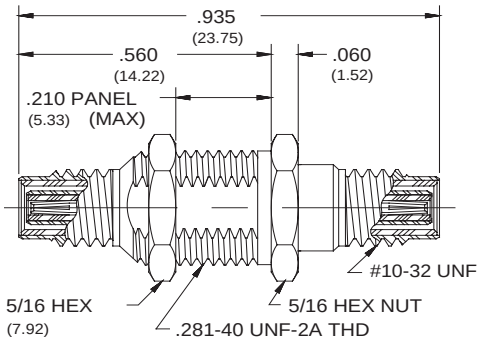
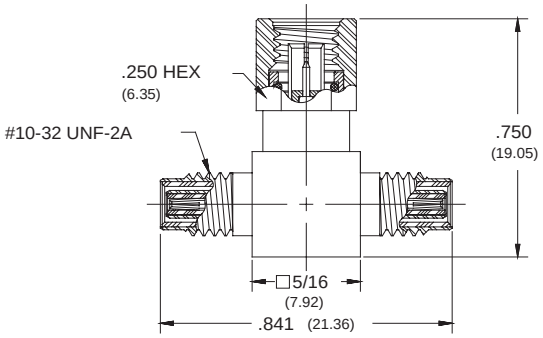
NDL-T Feed-Thru Jack Adapter



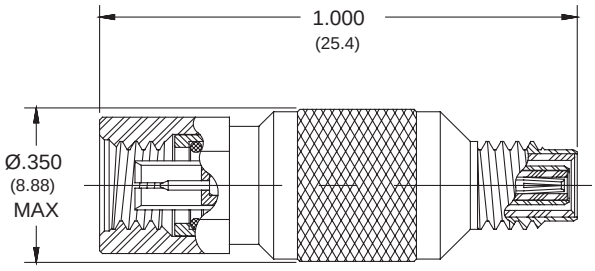
P/N 015100-5024

NDL-T "Tee" Adapter



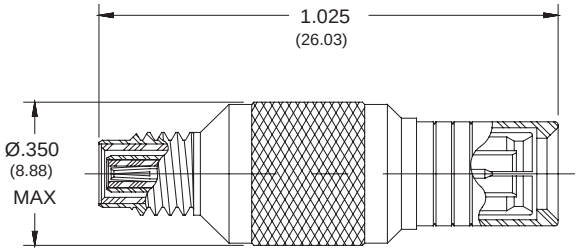
P/N 015000-4020

NDL-T Plug to NDL-T Jack



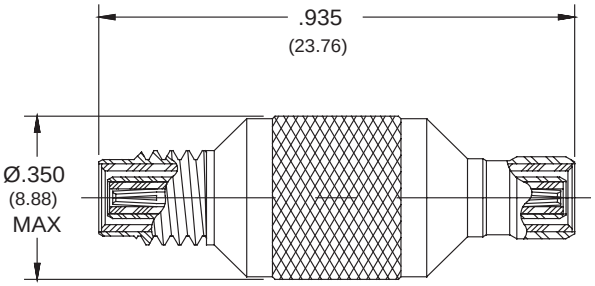
P/N 015000-4023

NDL-T Jack to NDL-Q Plug



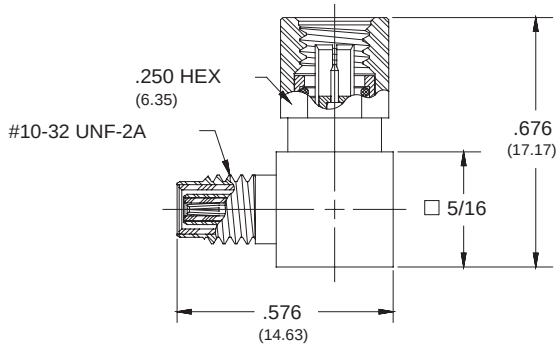
P/N 015100-4015

NDL-T Jack to NDL-Q Jack



P/N 015100-4016

NDL-T Right Angle Plug to NDL-T Jack



P/N 015000-1001

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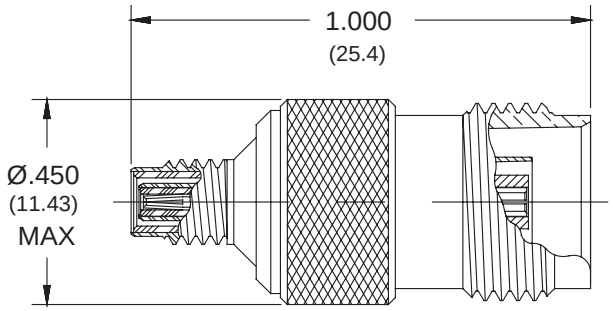
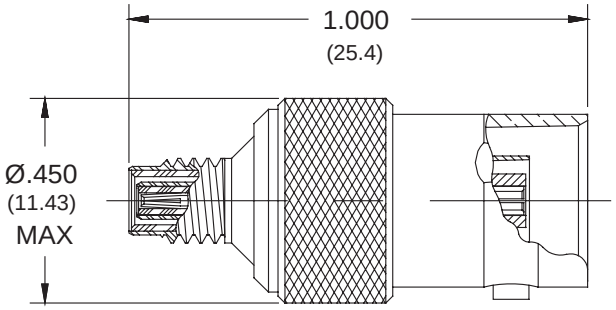
NDL-T Jack to TRT Jack



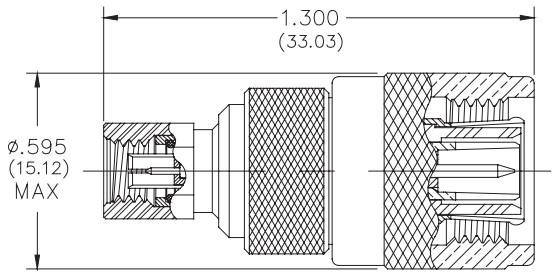
P/N 015100-4011

NDL-T Jack to TRB Jack



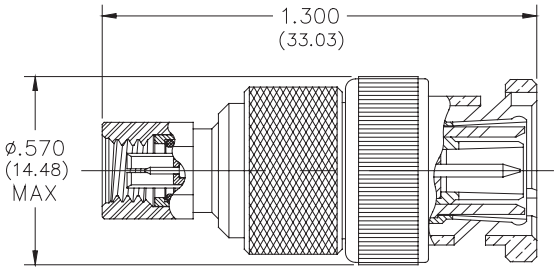
P/N 015100-4012

NDL-T Plug to TRT Plug



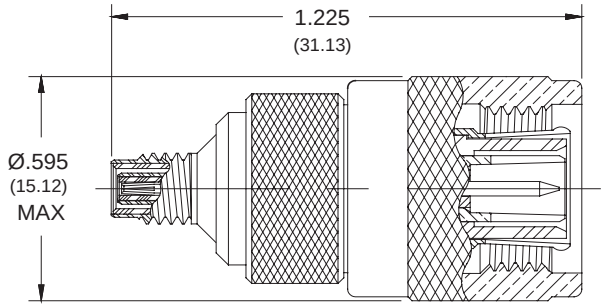
P/N 015000-4004

NDL-T Plug to TRB Plug



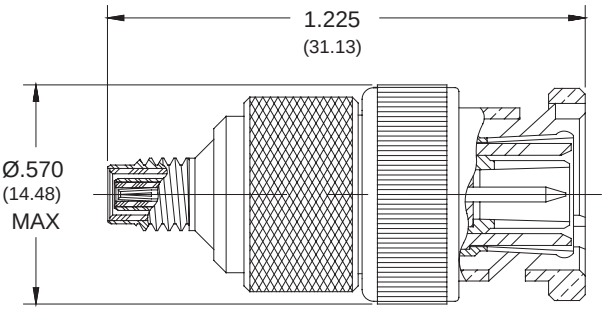
P/N 015000-4005

NDL-T Jack to TRT Plug



P/N 015100-4013

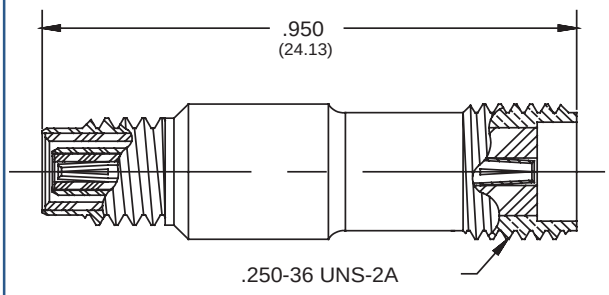
NDL-T Jack to TRB Plug



P/N 015100-4014

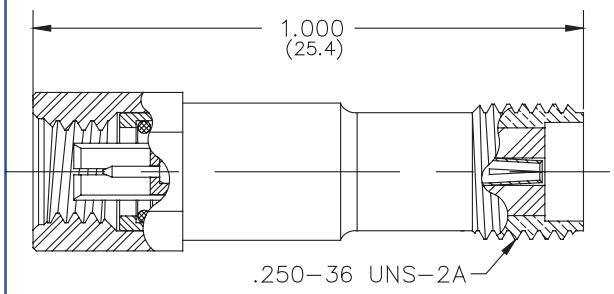
Downloaded from Arrow.com.

NDL-T Jack to SMA Jack



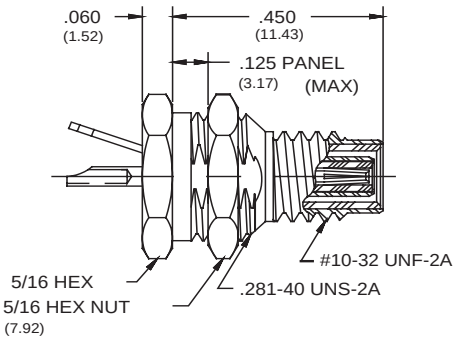
P/N 015100-4017

NDL-T Plug to SMA Jack



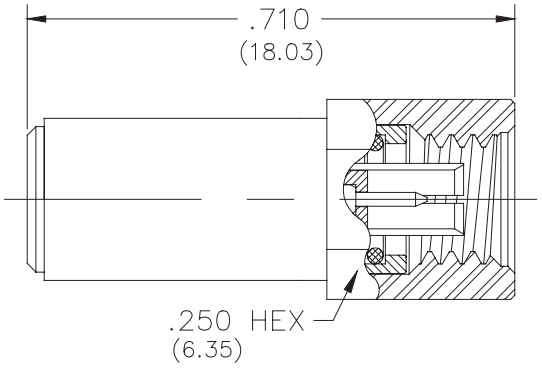
P/N 015000-4010

NDL-T Bulkhead Jack



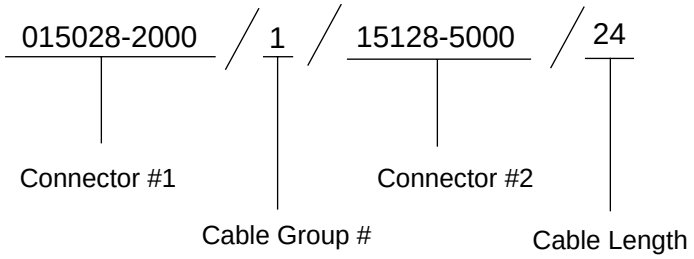
P/N 015100-5025

NDL-T 75-Ohm Terminator

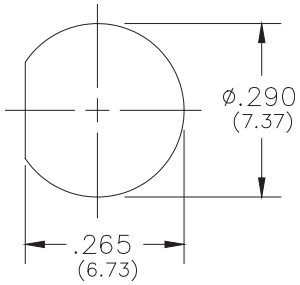


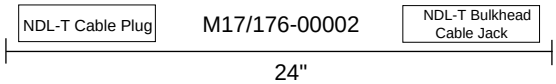
P/N 015000-0000

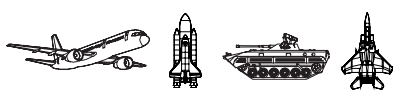
NDL-T Cable Assembly Ordering Information



Mounting D-Hole Configuration







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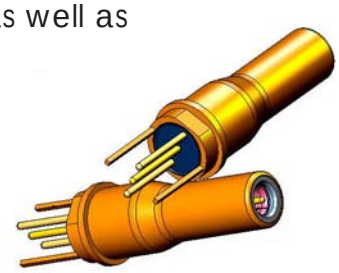
Triaxial Contact Series

Sabritec's concentric twinax/triax contacts provide flexibility in the design of high speed data systems. The contacts, including the unique sizes 10 and 12, have the same outline dimensions as traditional coax and power contacts and fit various insert arrangements for d-sub, circular, and rack and panel connectors. The triaxial cable type connectors and contacts are designed for low-loss concentric 50, 75 and 95 ohm cable types.

An innovative design of triax/twinax contacts opens a whole new world of design options. These small, rugged contacts fit standard connector contact cavities for MIL-DTL-38999, MIL-DTL-83527, ARINC, and d-sub connector types.

Sabritec also manufactures a complete line of stand-alone triax connectors including the ultraminiature NDL connector series as well as other specific application configurations.



FEATURES

- Fits standard MIL-DTL-38999 size 8, 10 & 12 contact cavities, MIL-DTL-83527 size 8, d-sub size 8, and ARINC size 1, 5, 8, 9 & 12 standard rack & panel connector cavities
- Designed for MIL-C-17/176 Data Bus networks and high speed Ethernet and Fibre Channel systems
- Suitable for high speed video applications, 50, 75 & 95 ohm impedances
- Upgrade coax harnesses to triax capability
- Small size for high density packaging
- Includes high speed Fibre Channel hot-link product line series

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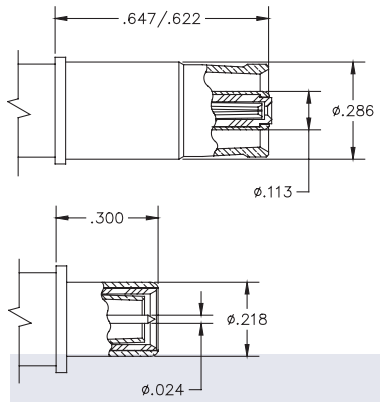
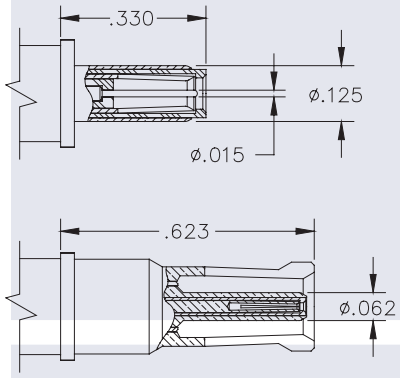
INTERFACE DIMENSIONS



SIZE 8, MIL-C-39029/90 & /91



SIZE 10, MIL-DTL-38999

ELECTRICAL SPECIFICATIONS

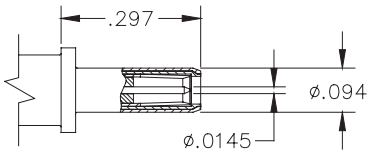
Dielectric Withstanding Voltage	Center contact to intermediate contact: 1000 Vrms min; Size 12: 500 Vrms min. Intermediate Contact to outer contact: 400 Vrms min.; Size 12: 200 Vrms min
Insulation Resistance	5000 Megohms min
Contact Current Rating	3.0 Amps D.C. max.; Size 12: 1.5 Amps D.C. max.
Voltage Rating	500 Vrms @ sea level; Size 12: 200 Vrms @ sea level

MECHANICAL & ENVIRONMENTAL SPECIFICATIONS

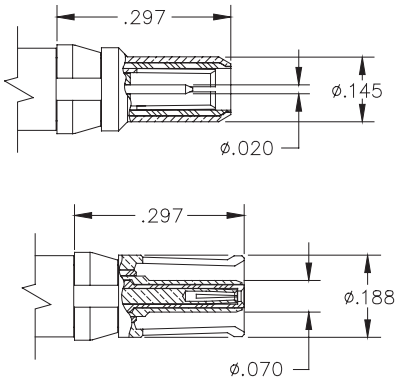
Temperature Rating	-65º to +165ºC
Corrosion	MIL-STD-202 Method 101, Test Condition B
Shock	MIL-STD-202 Method 213, Test Condition B
Vibration	MIL-STD-202 Method 204, Test Condition B
Thermal Shock	MIL-STD-202 Method 107, Test Condition B
Durability	1000 Mate/Unmate cycles per min

MATERIALS & FINISHES

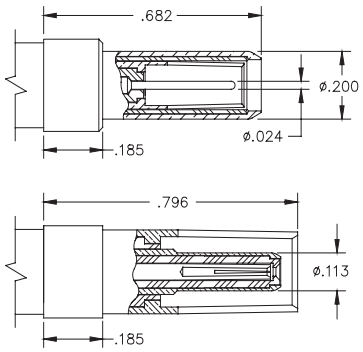
Insulators:	PTFE per ASTM -D 1710
Spring Contacts	Beryllium Copper per ASTM-B196, Alloy UNS C17300 or leaded nickel copper, Alloy UNS C19150, Condition H Gold plated per ASTM-B488, Type III, Class 1.25
Shells	Brass per ASTM-B16, Alloy UNS C36000 Gold plated per ASTM-B488, Type III, Class 1.25



SIZE 12, MIL-DTL-38999



SIZE 8, MIL-PRF-24308



SIZE 9, MIL-C-81659 (ARINC 404)

All specifications subject to change without notice.

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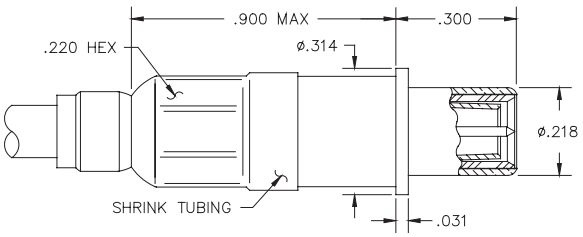
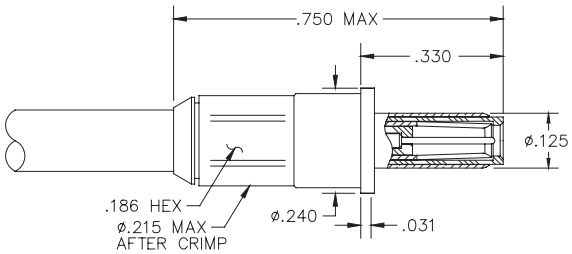
Size 8 MIL-C-39029/90 Twinax/Triax Pin Contact



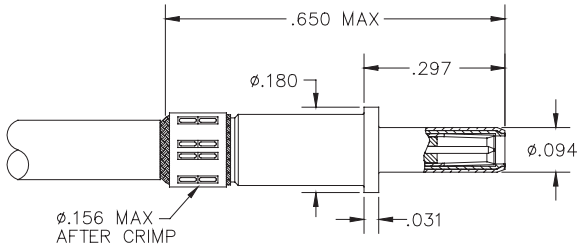
Part Number	Cable Type	Cable
019612-2001	Flexible Twinax	M17/176-00002
019612-2002	Flexible Twinax	540-1086-000
019612-2003	Flexible Triax	RG-403
019612-2004	Flexible Triax	540-1050-000
019612-2005	Semi-Rigid Triax	UT 141-50-50
019612-2030	Semi-Rigid Triax	UT 141-50-22
019612-2031	Flexible Triax	540-1081-000
019612-2032	Flexible Triax	540-1091-000

Size 10 MIL-DTL-38999 Twinax/Triax Pin Contact



Part Number	Cable Type	Cable
018812-2001	Flexible Twinax	M17/176-00002
018812-2002	Flexible Twinax	540-1086-000
018812-2003	Flexible Triax	RG-403
018812-2004	Flexible Triax	540-1050-000
018812-2005	Semi-Rigid Triax	UT 141-50-50
018812-2030	Semi-Rigid Triax	UT 141-50-22
018812-2031	Flexible Triax	540-1081-000
018812-2032	Flexible Triax	540-1091-000

Size 12 MIL-DTL-38999 Twinax/Triax Pin Contact



Part Number	Cable Type	Cable
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018612-2002	Flexible Twinax	540-1086-000
018612-2003	Flexible Triax	RG-403
018612-2004	Flexible Triax	540-1050-000
018612-2005	Semi-Rigid Triax	UT 141-50-50
018612-2040	Semi-Rigid Triax	UT 141-50-22
018612-2041	Flexible Triax	540-1081-000
018612-2042	Flexible Triax	540-1091-000

See Page 156 for Cable Ordering Information

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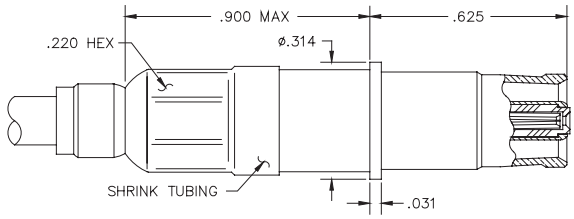
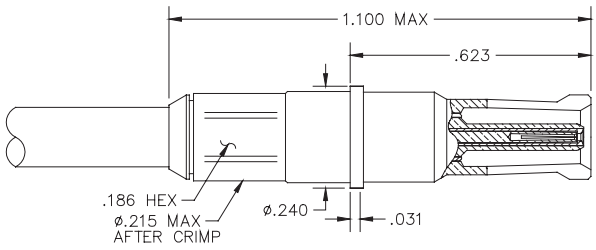
Size 8 MIL-C-39029/91 Twinax/Triax Socket Contact



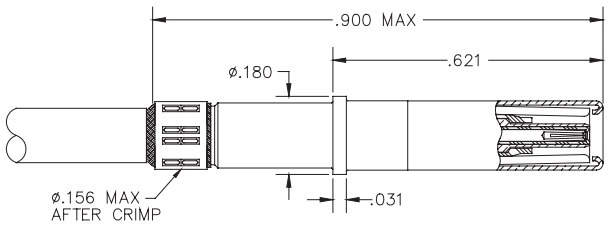
Part Number	Cable Type	Cable
019512-2001	Flexible Twinax	M17/176-00002
019512-2002	Flexible Twinax	540-1086-000
019512-2003	Flexible Triax	RG-403
019512-2004	Flexible Triax	540-1050-000
019512-2005	Semi-Rigid Triax	UT 141-50-50
019512-2030	Semi-Rigid Triax	UT 141-50-22
019512-2031	Flexible Triax	540-1081-000
019512-2032	Flexible Triax	540-1091-000

Size 10 MIL-DTL-38999 Twinax/Triax Socket Contact



Part Number	Cable Type	Cable
018912-2001	Flexible Twinax	M17/176-00002
018912-2002	Flexible Twinax	540-1086-000
018912-2003	Flexible Triax	RG-403
018912-2004	Flexible Triax	540-1050-000
018912-2005	Semi-Rigid Triax	UT 141-50-50
018912-2030	Semi-Rigid Triax	UT 141-50-22
018912-2031	Flexible Triax	540-1081-000
018912-2032	Flexible Triax	540-1091-000

Size 12 MIL-DTL-38999 Twinax/Triax Socket Contact



Part Number	Cable Type	Cable
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018712-2002	Flexible Twinax	540-1086-000
018712-2003	Flexible Triax	RG-403
018712-2004	Flexible Triax	540-1050-000
018712-2005	Semi-Rigid Triax	UT 141-50-50
018712-2040	Semi-Rigid Triax	UT 141-50-22
018712-2041	Flexible Triax	540-1081-000
018712-2042	Flexible Triax	540-1091-000

See Page 156 for Cable Ordering Information

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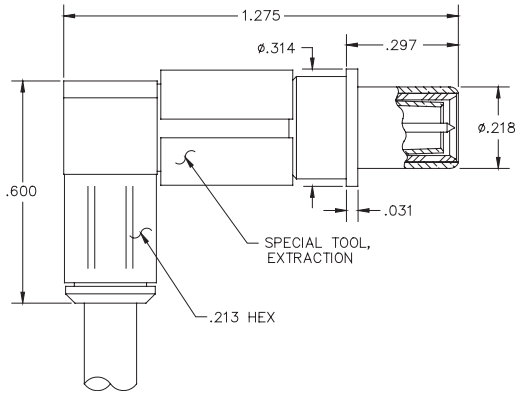
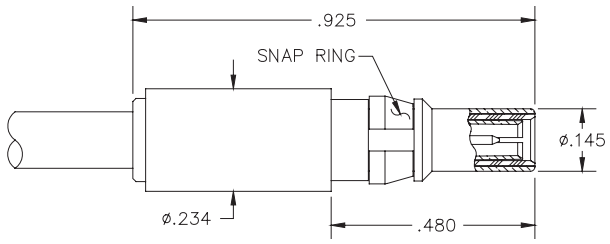
Size 8 MIL-C-39029/90 Twinax/Triax Right Angle Pin Contact



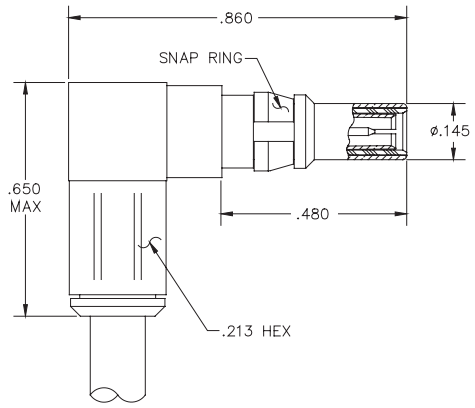
Part Number	Cable Type	Cable
019612-1010	Flexible Twinax	M17/176-00002
019612-1011	Flexible Twinax	540-1086-000
019612-1012	Flexible Triax	RG-403
019612-1013	Flexible Triax	540-1050-000
019612-1014	Semi-Rigid Triax	UT 141-50-50
019612-1015	Semi-Rigid Triax	UT 141-50-22
019612-1016	Flexible Triax	540-1081-000
019612-1017	Flexible Triax	540-1091-000

Size 8 MIL-PRF-24308 Twinax/Triax Pin Contact



Part Number	Cable Type	Cable
019812-2001	Flexible Twinax	M17/176-00002
019812-2002	Flexible Twinax	540-1086-000
019812-2003	Flexible Triax	RG-403
019812-2004	Flexible Triax	540-1050-000
019812-2005	Semi-Rigid Triax	UT 141-50-50
019812-2030	Semi-Rigid Triax	UT 141-50-22
019812-2031	Flexible Triax	540-1081-000
019812-2032	Flexible Triax	540-1091-000

Size 8 MIL-PRF-24308 Twinax/Triax Right Angle Pin Contact



Part Number	Cable Type	Cable
019812-1010	Flexible Twinax	M17/176-00002
019812-1011	Flexible Twinax	540-1086-000
019812-1012	Flexible Triax	RG-403
019812-1013	Flexible Triax	540-1050-000
019812-1014	Semi-Rigid Triax	UT 141-50-50
019812-1015	Semi-Rigid Triax	UT 141-50-22
019812-1016	Flexible Triax	540-1081-000
019812-1017	Flexible Triax	540-1091-000

See Page 156 for Cable Ordering Information

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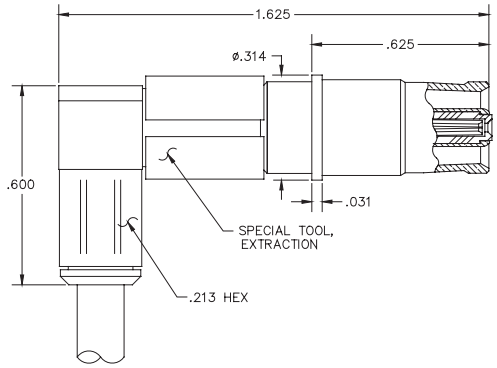
Concentric Twinax/Triax Contacts

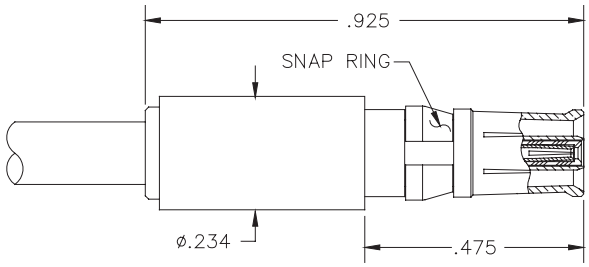
MIL-DTL-38999/MIL-PRF-24308 Twinax/Triax Socket Contacts

Size 8 MIL-C-39029/91 Twinax/Triax Right Angle Socket Contact



Part Number	Cable Type	Cable
019512-1010	Flexible Twinax	M17/176-00002
019512-1011	Flexible Twinax	540-1086-000
019512-1012	Flexible Triax	RG-403
019512-1013	Flexible Triax	540-1050-000
019512-1014	Semi-Rigid Triax	UT 141-50-50
019512-1015	Semi-Rigid Triax	UT 141-50-22
019512-1016	Flexible Triax	540-1081-000
019512-1017	Flexible Triax	540-1091-000

Size 8 MIL-PRF-24308 Twinax/Triax Socket Contact



Part Number	Cable Type	Cable
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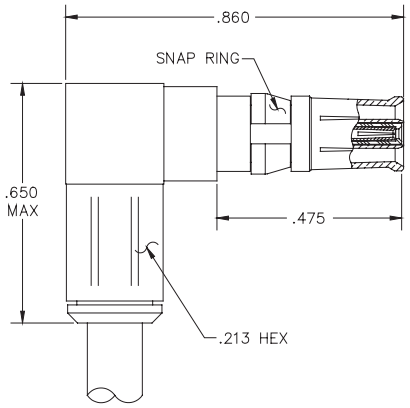
019712-2002	Flexible Twinax	540-1086-000
019712-2003	Flexible Triax	RG-403
019712-2004	Flexible Triax	540-1050-000
019712-2005	Semi-Rigid Triax	UT 141-50-50
019712-2030	Semi-Rigid Triax	UT 141-50-22
019712-2031	Flexible Triax	540-1081-000
019712-2032	Flexible Triax	540-1091-000

Size 8 MIL-PRF-24308 Twinax/Triax Right Angle Socket Contact



Part Number	Cable Type	Cable
019712-1010	Flexible Twinax	M17/176-00002
019712-1011	Flexible Twinax	540-1086-000
019712-1012	Flexible Triax	RG-403
019712-1013	Flexible Triax	540-1050-000
019712-1014	Semi-Rigid Triax	UT 141-50-50
019712-1015	Semi-Rigid Triax	UT 141-50-22
019712-1016	Flexible Triax	540-1081-000
019712-1017	Flexible Triax	540-1091-000

See Page 156 for Cable Ordering Information

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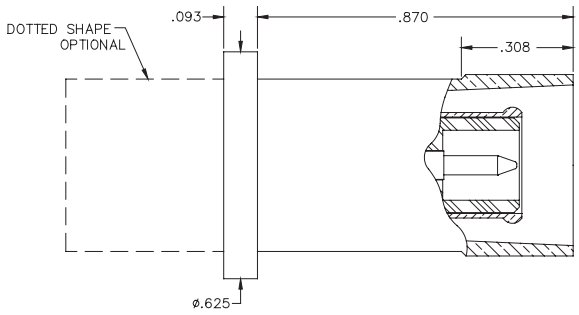
Concentric Twinax/Triax Contacts

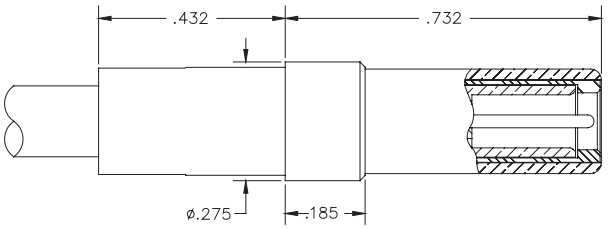
ARINC 600 Pin Contacts

Size 1 ARINC 600 Twinax/Triax Pin Contact



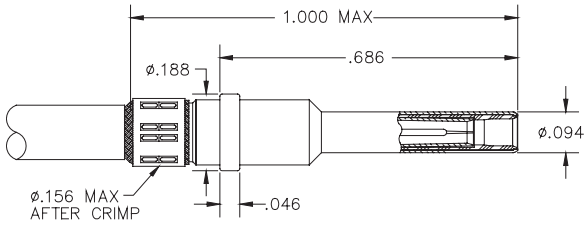
Part Number	Cable Type	Cable
018012-2110	Flexible Twinax	M17/176-00002
018012-2111	Flexible Twinax	540-1086-000
018012-2112	Flexible Triax	RG-403
018012-2113	Flexible Triax	540-1050-000
018012-2114	Flexible Triax	540-1081-000
018012-2115	Flexible Triax	540-1091-000

Size 5 ARINC 600 Twinax/Triax Pin Contact



Part Number	Cable Type	Cable
019412-2110	Flexible Twinax	M17/176-00002
019412-2111	Flexible Twinax	540-1086-000
019412-2112	Flexible Triax	RG-403
019412-2113	Flexible Triax	540-1050-000
019412-2114	Semi-Rigid Triax	UT 141-50-50
019412-2115	Semi-Rigid Triax	UT 141-50-22
019412-2116	Flexible Triax	540-1081-000
019412-2117	Flexible Triax	540-1091-000

Size 12 ARINC 600 Twinax/Triax Pin Contact



Part Number	Cable Type	Cable
018612-2110	Flexible Twinax	M17/176-00002
018612-2111	Flexible Twinax	540-1086-000
018612-2112	Flexible Triax	RG-403
018612-2113	Flexible Triax	540-1050-000
018612-2114	Semi-Rigid Triax	UT 141-50-50
018612-2115	Semi-Rigid Triax	UT 141-50-22
018612-2116	Flexible Triax	540-1081-000
018612-2117	Flexible Triax	540-1091-000

See Page 156 for Cable Ordering Information

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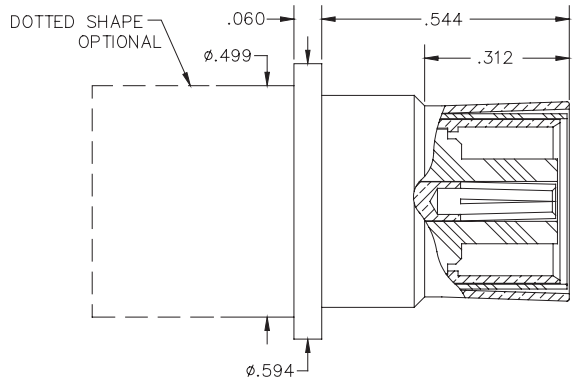
Concentric Twinax/Triax Contacts

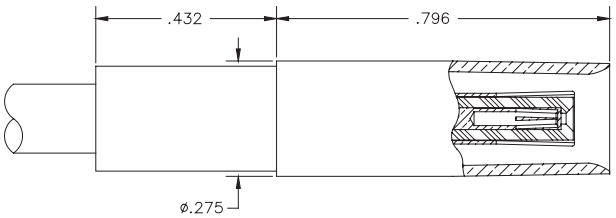
ARINC 600 Socket Contacts

Size 1 ARINC 600 Twinax/Triax Socket Contact



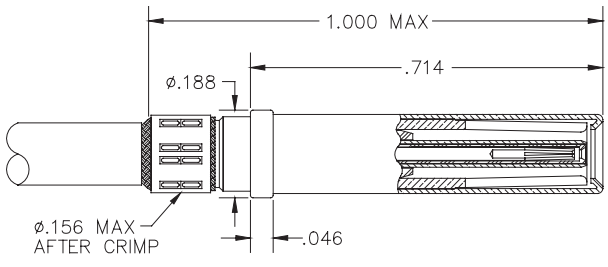
Part Number	Cable Type	Cable
018112-2110	Flexible Twinax	M17/176-00002
018112-2111	Flexible Twinax	540-1086-000
018112-2112	Flexible Triax	RG-403
018112-2113	Flexible Triax	540-1050-000
018112-2114	Flexible Triax	540-1081-000
018112-2115	Flexible Triax	540-1091-000

Size 5 ARINC 600 Twinax/Triax Socket Contact



Part Number	Cable Type	Cable
019312-2110	Flexible Twinax	M17/176-00002
019312-2111	Flexible Twinax	540-1086-000
019312-2112	Flexible Triax	RG-403
019312-2113	Flexible Triax	540-1050-000
019312-2114	Semi-Rigid Triax	UT 141-50-50
019312-2115	Semi-Rigid Triax	UT 141-50-22
019312-2116	Flexible Triax	540-1081-000
019312-2117	Flexible Triax	540-1091-000

Size 12 ARINC 600 Twinax/Triax Socket Contact



Part Number	Cable Type	Cable
018712-2110	Flexible Twinax	M17/176-00002
018712-2111	Flexible Twinax	540-1086-000
018712-2112	Flexible Triax	RG-403
018712-2113	Flexible Triax	540-1050-000
018712-2114	Semi-Rigid Triax	UT 141-50-50
018712-2115	Semi-Rigid Triax	UT 141-50-22
018712-2116	Flexible Triax	540-1081-000
018712-2117	Flexible Triax	540-1091-000

See Page 156 for Cable Ordering Information

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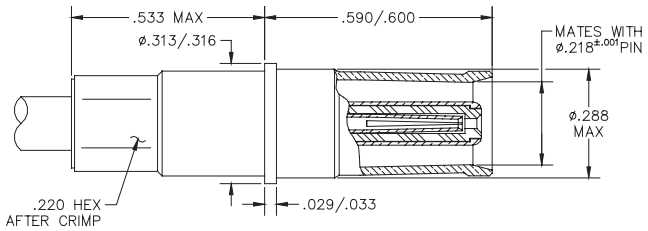
Concentric Twinax/Triax Contacts

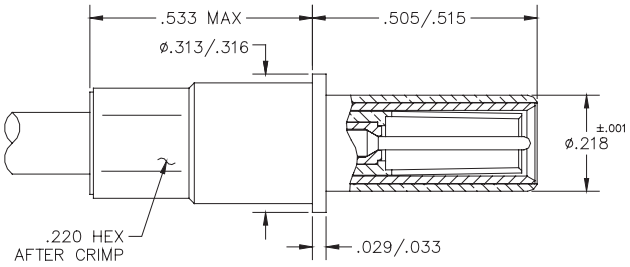
MIL-DTL-83527/ARINC 404 Contacts

Size 8 MIL-DTL-83527 Twinax/Triax Socket Contact



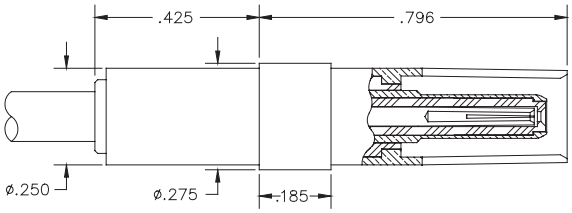
Part Number	Cable Type	Cable
019512-2123	Flexible Twinax	M17/176-00002
019512-2124	Flexible Twinax	540-1161-000
019512-2125	Flexible Twinax	540-1086-000

Size 8 MIL-DTL-83527 Twinax/Triax Pin Contact



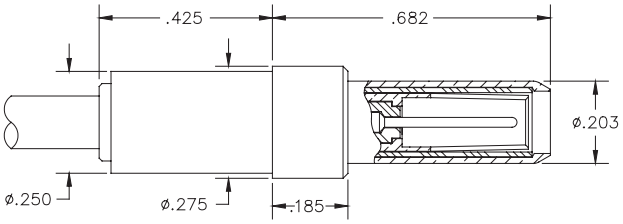
Part Number	Cable Type	Cable
019612-2125	Flexible Twinax	M17/176-00002
019612-2126	Flexible Twinax	540-1161-000
019612-2127	Flexible Twinax	540-1086-000

Size 9 ARINC 404 Twinax/Triax Socket Contact



Part Number	Cable Type	Cable
019112-2001	Flexible Twinax	M17/176-00002
019112-2002	Flexible Twinax	540-1086-000
019112-2003	Flexible Triax	RG-403
019112-2004	Flexible Triax	540-1050-000
019112-2005	Semi-Rigid Triax	UT 141-50-50
019112-2030	Semi-Rigid Triax	UT 141-50-22
019112-2031	Flexible Triax	540-1081-000
019112-2032	Flexible Triax	540-1091-000

Size 9 ARINC 404 Twinax/Triax Pin Contact



Part Number	Cable Type	Cable
019212-2001	Flexible Twinax	M17/176-00002
019212-2002	Flexible Twinax	540-1086-000
019212-2003	Flexible Triax	RG-403
019212-2004	Flexible Triax	540-1050-000
019212-2005	Semi-Rigid Triax	UT 141-50-50
019212-2030	Semi-Rigid Triax	UT 141-50-22
019212-2031	Flexible Triax	540-1081-000
019212-2032	Flexible Triax	540-1091-000

See Page 156 for Cable Ordering Information

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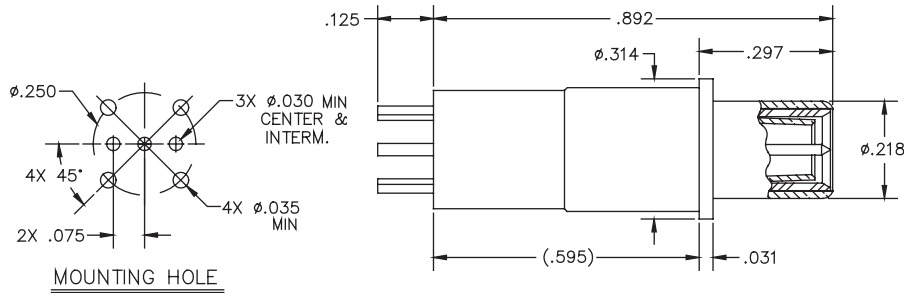
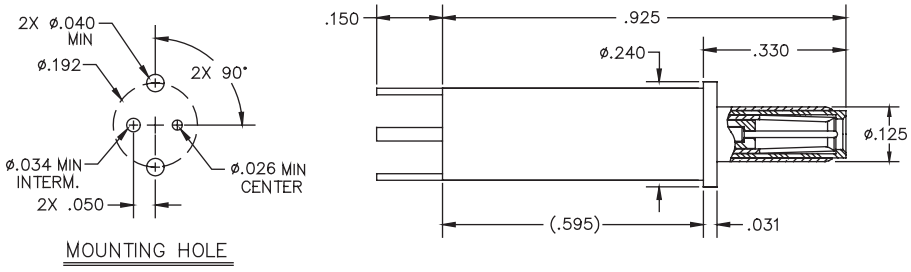
Size 8 MIL-C-39029/90 PC Tail Twinax/Triax Pin Contact



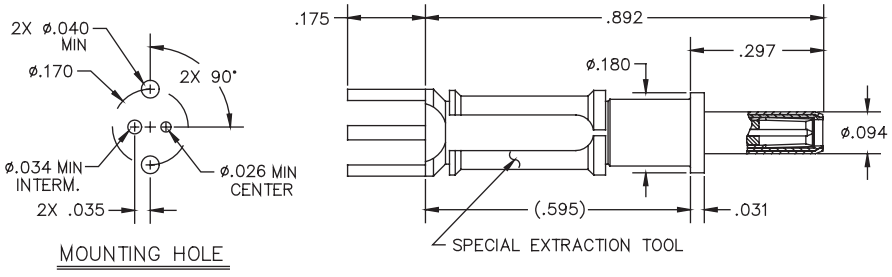
P/N 019617-2100

Size 10 MIL-DTL-38999 PC Tail Twinax/Triax Pin Contact



P/N 018817-2100

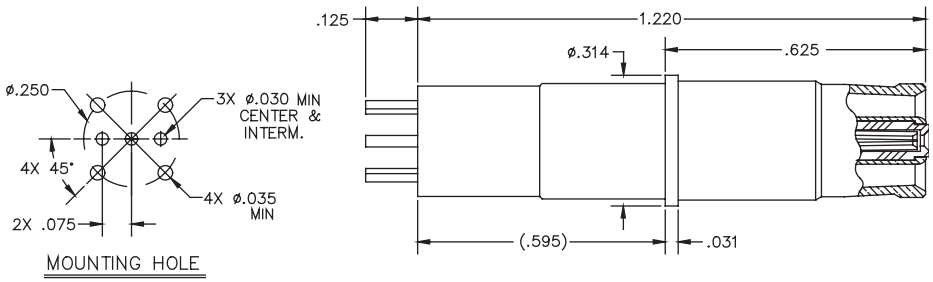
Size 12 MIL-DTL-38999 PC Tail Twinax/Triax Pin Contact



P/N 018617-2100

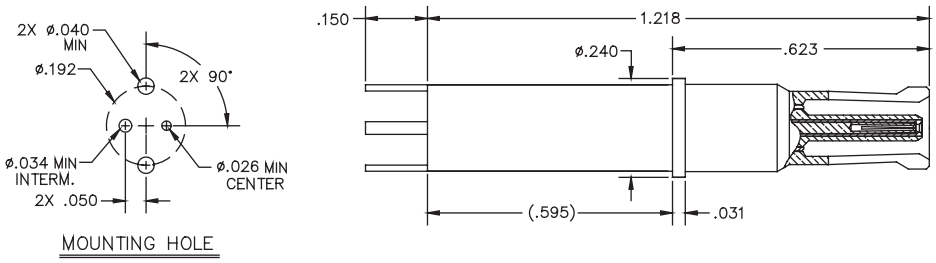
Downloaded from Arrow.com.

Size 8 MIL-C-39029/91 PC Tail Twinax/Triax Socket Contact



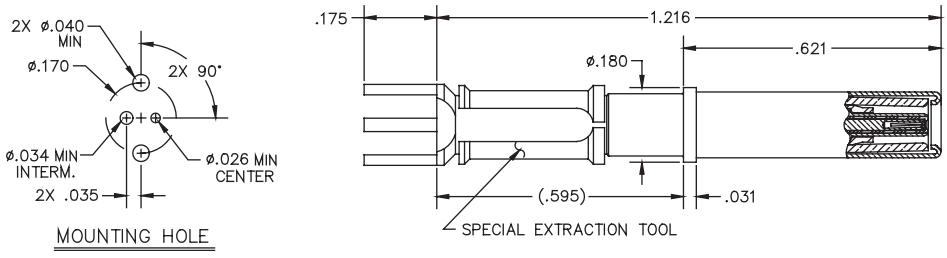
P/N 019517-2100

Size 10 MIL-DTL-38999 PC Tail Twinax/Triax Socket Contact



P/N 018917-2100

Size 12 MIL-DTL-38999 PC Tail Twinax/Triax Socket Contact



P/N 018717-2100

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High Differential Impedance Triax Contacts

Connector Specifications

Sabritec's high differential impedance triax contacts are designed for ARINC 600 and MIL-DTL-38999 connectors. These contacts are available in 60, 75, and 85 ohm differential pair characteristic impedance for ARINC 600 and 60 ohm differential pair characteristic impedance for MIL-DTL-38999 connectors.

Size 8 concentric twinax/triax contacts have the same outline dimensions as standard coax and power contacts for both MIL-DTL-38999 and ARINC 600 connectors with 60 ohm differential pair impedance. For high data rate applications such as 1000 Base Tx, Sabritec offers a special ARINC 600 size 8 triax pin and socket contact that is designed to fit into a special insulator cavity for ARINC 600.

These special high differential pair impedance contacts are also available in 75 ohm and 85 ohm impedance values.

Features and Benefits:

High differential pair impedance contacts have special interfaces that are radically optimized for a balanced characteristic impedance to the outer shell while providing maximum differential impedance between middle and center conductors. Polarization is not required since the triax interface has concentric conductors. This also allows free rotation of cable entry for multi-directional routing of cable.

High speed Ethernet data signals can be routed through triaxial interface interconnects, thus eliminating the need for anti-rotational quad and twinax connector and contact types. Triaxial contacts are ideal for blindmate rack and panel and circular interconnect requirements.

Electrical Specifications

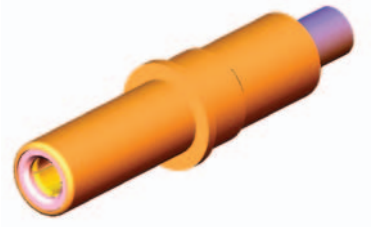
Dielectric Withstanding Voltage	500 VRMS @ sea level with 70% relative humidity
Insulation Resistance	1000 megaohms min. @ 250 VDC
Contact Current Rating	1.5 Amps, D.C. max.
Characteristic Impedance	60 Ohms, 75 Ohms or 85 Ohms

Mechanical & Environmental Specifications

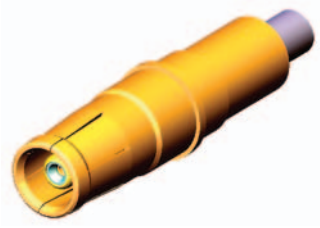
Temperature Rating	-65º to +165ºC
Corrosion	MIL-STD-202 Method 101, Test Condition B
Shock	MIL-STD-202 Method 213, Test Condition B
Vibration	MIL-STD-202 Method 204, Test Condition B
Thermal Shock	MIL-STD-202 Method 107, Test Condition B
Durability	1000 Mate/Unmate cycles per min
Mating/Unmating Force	1 lb. Min
Float Mount Constraints	0.15" full radiall & axial misalignment max.

Materials & Finishes

Contacts	BeCu per ASTM-B196, UNS C17300 or Brass per ASTM-B16, UNS C36000 Gold plate per ASTM-B488, Type III, Class 1.25
Insulators	PTFE per ASTM-D1710 or ULTEM 1000 Resin
Shells	Leaded nickel copper, UNS C19150 or Brass per ASTM-B16, UNS C36000 Gold plate per ASTM-B488, Type III, Class 1.25



#8 Triaxial Socket Contact



#8 Triaxial Pin Contact

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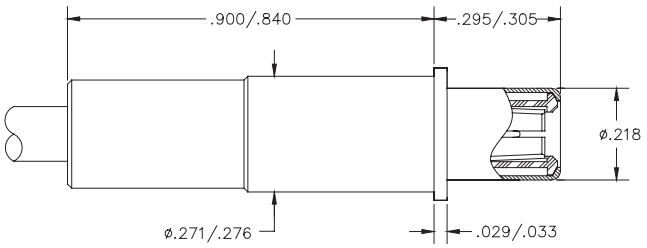
High Differential Impedance Triax Contacts

MIL-DTL-38999/ARINC 600 Contacts

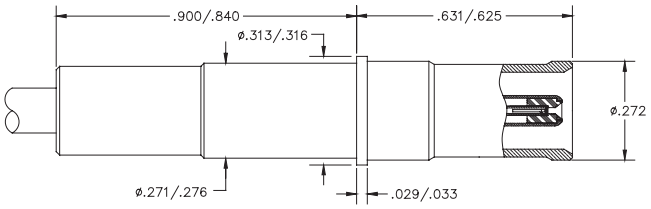
Size 8 MIL-DTL-38999 Twinax/Triax Pin Contact 60 Ohms



Part Number	Cable Type	Cable
019612-2117	Flexible Twinax	540-1161-000
019612-2118	Flexible Twinax	540-1086-000

Intermountable In Standard Size 8 MIL-DTL-38999 Cavities

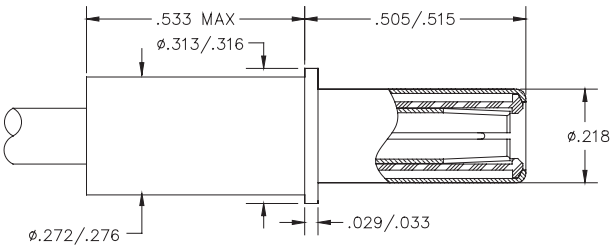
Size 8 MIL-DTL-38999 Twinax/Triax Socket Contact 60 Ohms



Part Number	Cable Type	Cable
019512-2115	Flexible Twinax	540-1161-000
019512-2116	Flexible Twinax	540-1086-000

Intermountable In Standard Size 8 MIL-DTL-38999 Cavities

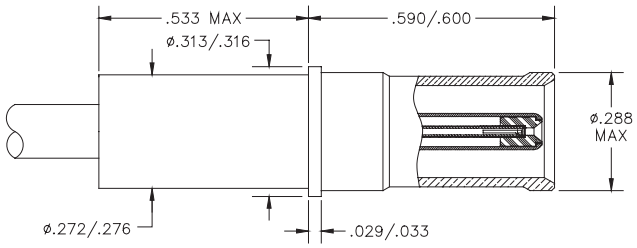
Size 8 ARINC 600 Twinax/Triax Pin Contact 60 Ohms



Part Number	Cable Type	Cable
019612-2121	Flexible Twinax	540-1161-000
019612-2122	Flexible Twinax	540-1086-000

Intermountable In Standard Size 8 ARINC 600 Cavities

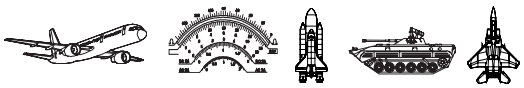
Size 8 ARINC 600 Twinax/Triax Socket Contact 60 Ohms



Part Number	Cable Type	Cable
019512-2119	Flexible Twinax	540-1161-000
019512-2120	Flexible Twinax	540-1086-000

Intermountable In Standard Size 8 ARINC 600 Cavities

See Page 156 for Cable Ordering Information



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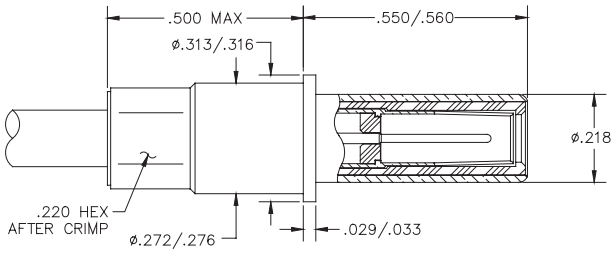
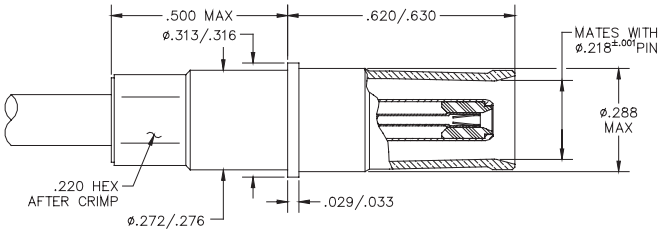
Size 8 ARINC 600 Twinax/Triax Pin Contact 75 Ohms



Part Number	Cable Type	Cable
019612-2119	Flexible Triax	540-1050-000
019612-2120	Flexible Triax	540-1091-000

Intermountable In Standard Size 8 ARINC 600 Cavities

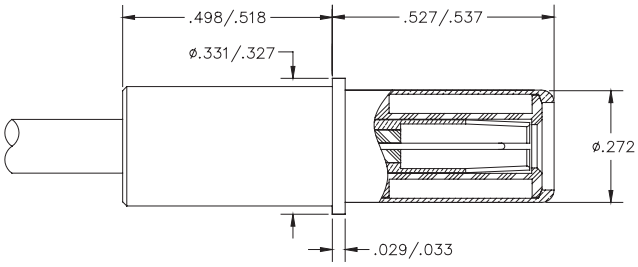
Size 8 ARINC 600 Twinax/Triax Socket Contact 75 Ohms



Part Number	Cable Type	Cable
019512-2117	Flexible Triax	540-1050-000
019512-2118	Flexible Triax	540-1091-000

Intermountable In Standard Size 8 ARINC 600 Cavities

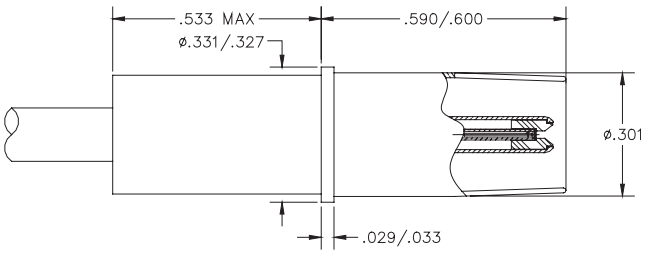
Size 8 ARINC 600 Twinax/Triax Pin Contact Special 85 Ohms



Part Number	Cable Type	Cable
019612-2123	Flexible Twinax	540-1161-000
019612-2124	Flexible Twinax	540-1086-000

Contacts Fit Into Special Size 8 ARINC 600 Cavities

Size 8 ARINC 600 Twinax/Triax Socket Contact Special 85 Ohms



Part Number	Cable Type	Cable
019512-2121	Flexible Twinax	540-1161-000
019512-2122	Flexible Twinax	540-1086-000

Intermountable In Standard Size 8 ARINC 600 Cavities

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Size 10 D-Subminiature Connectors

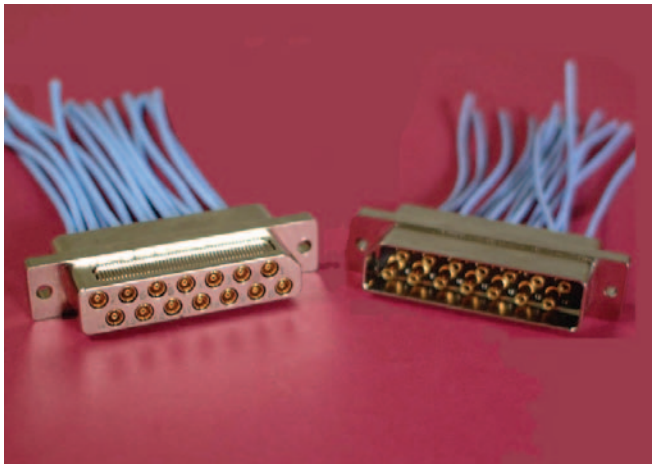
Size 10 Triax Connectors and Contacts

Sabritec's rugged d-subminiature multiway connectors are designed to ground the outer shield of a triax contact directly to the shell of the connector. A multi-finger ground spring, fixed around the triax shell, provides a multi-point contact engagement for superior EMI shielding. The result is an extremely low contact resistance when measured from the triax contact outer body to the connector flange.

Up to the present day, the transmission of data in satellite applications has sufficed with the use of 50 ohm coax cable and connector interfaces. However, digital signal processors now used in commercial and military satellite installations require data to be transmitted for 100 Base-T and higher data rate formats. This makes the use of standard 50 ohm coax incompatible.

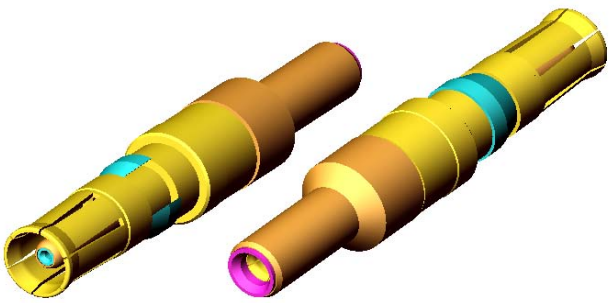
Sabritec's solution to this problem is a size 10 triax interface to transmit data at 100 ohms differential pair impedance packaged in a compact rugged connector. We took the design for the triax and manufactured a suitable package to be able to mate up to fourteen (14) of these contacts in a single connector interface. We added features such as a polarizing shell to prevent any mismating and a scoop proof concentric triax interface that allows the repeatability and durability of mating the fourteen (14) Triax contacts.

Space grade solutions for data transmission is one of the fastest growing segments in Sabritec's expanding product series.



Materials & Finishes

Contacts	BeCu per ASTM-B196, UNS C173 or Leaded nickel copper, UNS C19150 Gold plate per ASTM-B488, Type III, Class 1.25
Insulators	PTFE per ASTM-D1710 or ULTEM 1000 resin
Shells	Leaded nickel copper, UNS C19150 Gold plate per ASTM-B488, Type III, Class 1.25
Snap Ring	BeCu per ASTM-B196, UNS C17300 Nickel plate per SAE-AMS-QQ-N-290
Ground Spring	BeCu per ASTM-B196, Alloy UNS C17300 Gold plate per ASTM-B488, Type III, Class 1.25
Data Rate	Up to 500 Mbits/second



Size 10 Triaxial Pin to Socket Adapter
and Triaxial Socket Contact

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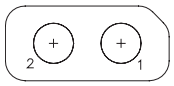
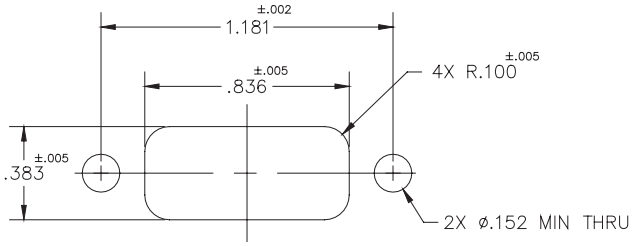
Insert Arrangements

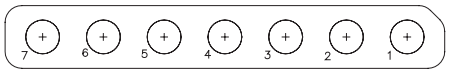
Panel Cut-Out
For Mulitway Connector Assemblies

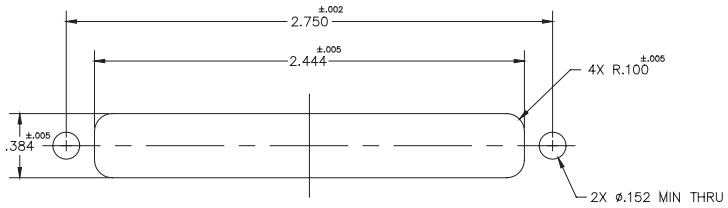
Shell Size 1
Arrangement 1-2
2 # 10 Triax/Twinax Contacts



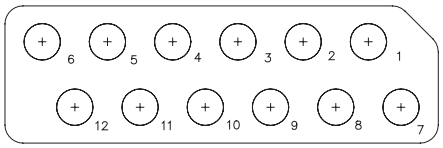


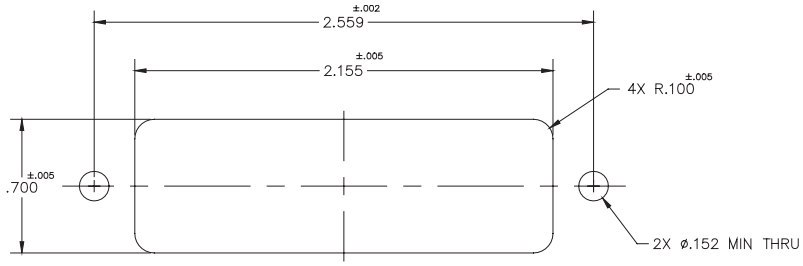
Shell Size 2
Arrangement 2-7
7 # 10 Triax/Twinax Contacts



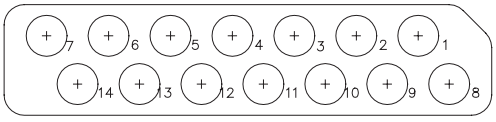


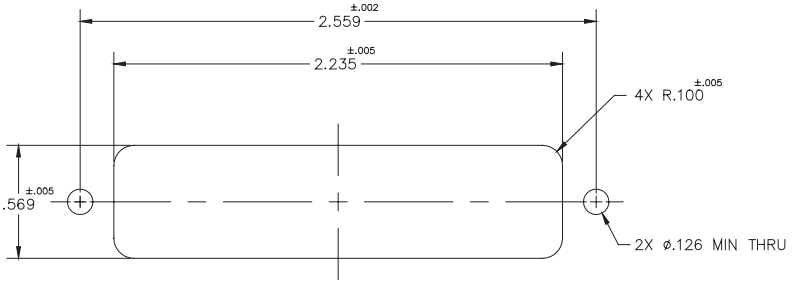
Shell Size 3
Arrangement 3-12
12 # 10 Triax/Twinax Contacts

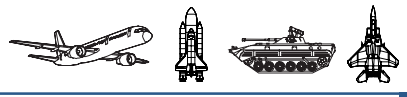




Shell Size 4
Arrangement 4-14
14 #10 Triax/Twinax Contacts







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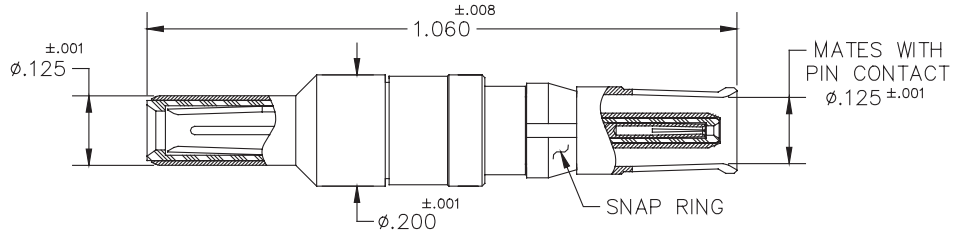
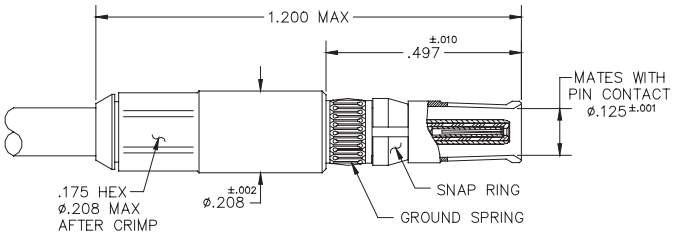
Size 10 Triaxial Pin to Socket Contact



P/N: 018800-4003

Contact Fits Sabritec Rugged D-Subminiature Adapter P/N: 012900-4005 Thru 012900-4008

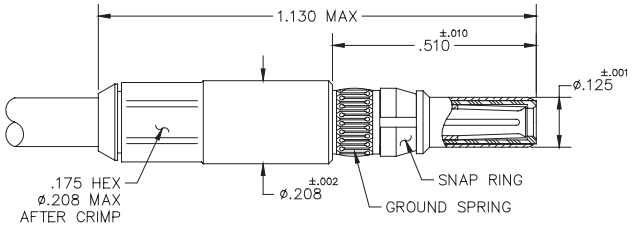
Size 10 Triaxial Socket Contact



Part Number	Cable Type	Cable
018912-2033	Flexible Twinax	540-1172-000
018912-2034	Flexible Twinax	540-1171-000
018912-2035	Flexible Twinax	540-1161-000

Contact Fits Sabritec Rugged D-Subminiature Plug P/N: 012900-2027 Thru 012900-2030

Size 10 Triaxial Pin Contact



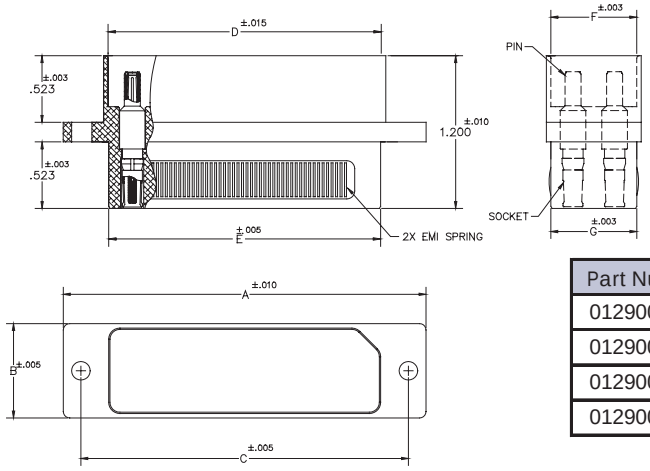
Part Number	Cable Type	Cable
018812-2034	Flexible Twinax	540-1172-000
018812-2035	Flexible Twinax	540-1171-000
018812-2036	Flexible Twinax	540-1161-000

Contact Fits Sabritec Rugged D-Subminiature Receptacle P/N: 012900-3002 Thru 012900-3005

See Page 156 for Cable Ordering Information

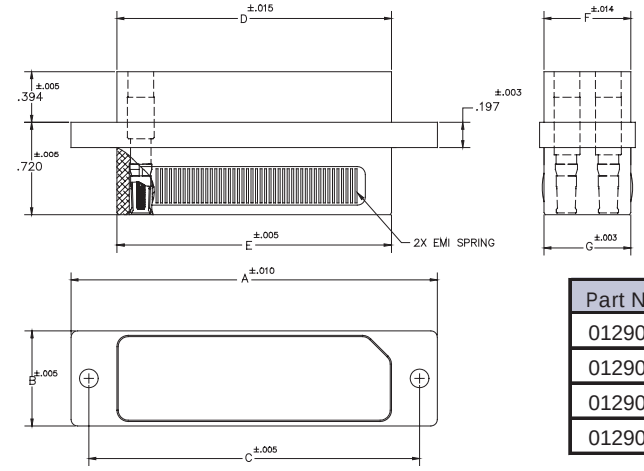
Downloaded from Arrow.com.

Rugged Multi-Way Triax/Twinax Adapter



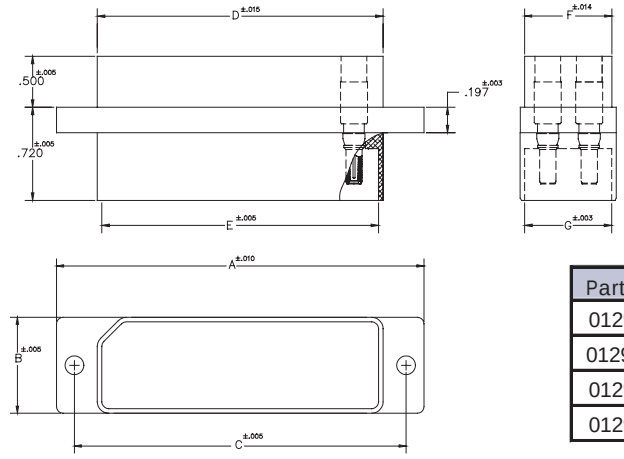
Part Number	Contacts	A	B	C	D	E	F	G
012900-4008	2	1.575	0.472	1.181	0.738	0.728	0.341	0.331
012900-4007	7	3.050	0.400	2.750	2.325	2.315	0.341	0.331
012900-4006	12	2.834	0.741	2.559	2.165	2.125	0.681	0.671
012900-4005	14	2.834	0.551	2.559	2.135	2.125	0.491	0.481

Rugged Multi-Way Triax/Twinax Plug



Part Number	Contacts	A	B	C	D	E	F	G
012900-2030	2	1.575	0.472	1.181	0.807	0.728	0.354	0.331
012900-2029	7	3.050	0.400	2.750	2.415	2.315	0.355	0.331
012900-2028	12	2.834	0.741	2.559	2.125	2.125	0.671	0.671
012900-2027	14	2.834	0.551	2.559	2.205	2.125	0.540	0.481

Rugged Multi-Way Triax/Twinax Receptacle

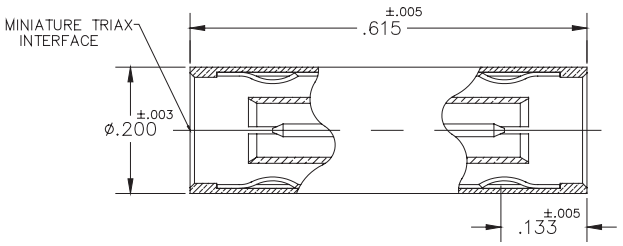


Part Number	Contacts	A	B	C	D	E	F	G
012900-3005	2	1.575	0.472	1.181	0.807	0.738	0.354	0.341
012900-3004	7	3.050	0.400	2.750	2.415	2.325	0.355	0.341
012900-3003	12	2.834	0.741	2.559	2.125	2.135	0.671	0.681
012900-3002	14	2.834	0.551	2.559	2.205	2.135	0.540	0.491

See Page 156 for Cable Ordering Information

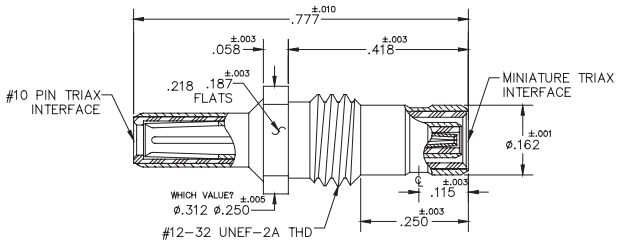
Downloaded from Arrow.com.

Miniature Triax Blind Mate Plug



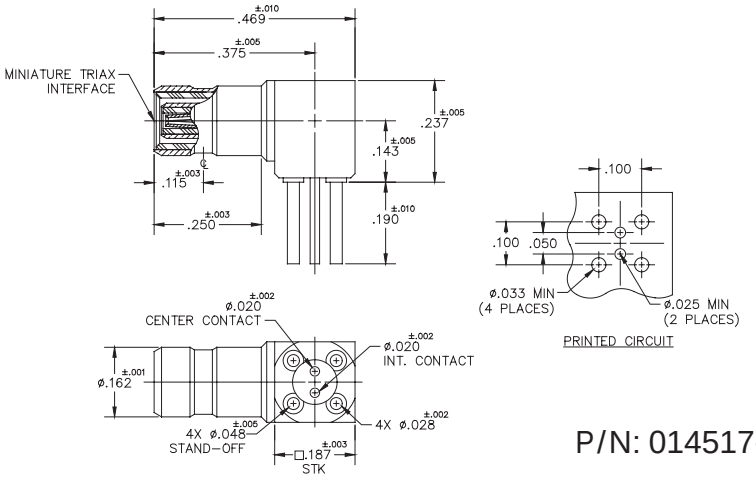
P/N: 014500-4001

Miniature Triax Receptacle to #10 Triax Pin



P/N: 014500-4002

Miniature Triaxial Right Angle Receptacle PCB Mount



P/N: 014517-1001

Triax Connectors

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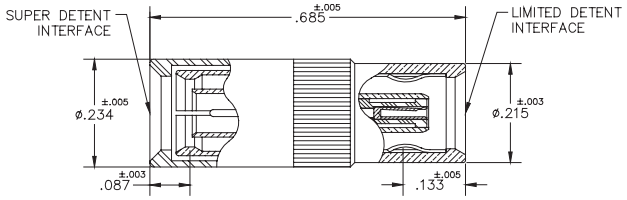
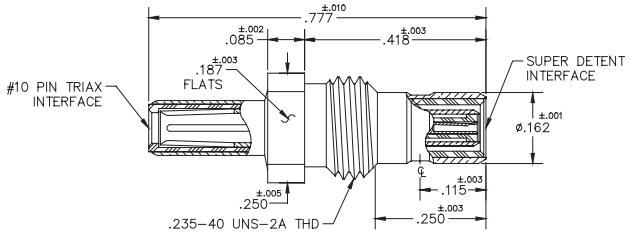
Triax Blindmate Plug Full to Limited Detent



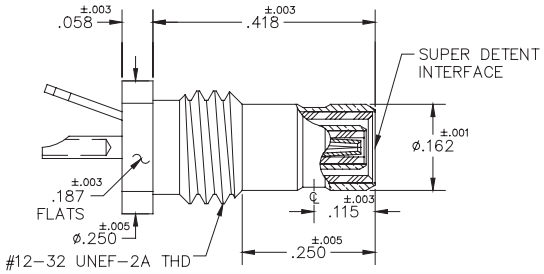
P/N: 014500-4003

Triax Receptacle Full Detent to #10 Triax Pin



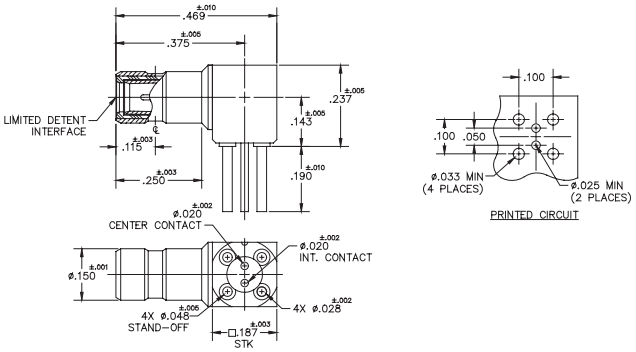
P/N: 014500-4004

Triax Bulkhead Mount Solder Tab Detent

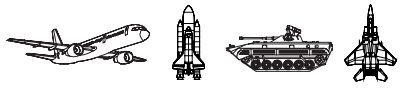


P/N: 014500-5002

Limited Detent R/A Receptacle PCB Mount



P/N: 014517-1002



Downloaded from Arrow.com.

Cable Assembly Ordering Info

Part Number Table

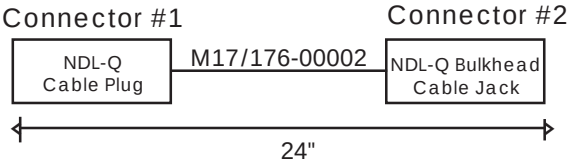
016028-2000 - 1 - 016128-5000 - 24

- 24 — Cable Length in Inches (XXX)
- 016128-5000 — Connector #2 — OL - For Open Ended
- 1 — Cable Group #

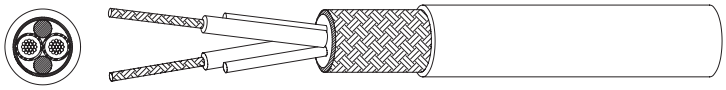
Flexible Twinax	Flexible Triax	Semi-Rigid Triax
1 = M17/176-00002	21 = RG-403	25 = UT 141-50-50
2 = 540-1086-000	22 = 540-1050-000	26 = UT 141-50-22
3 = 540-1161-000	23= 540-1081-000	
4 = 540-1171-000	24 = 540-1091-000	
5 = 540-1172-000		

- 016028-2000 — Connector #1

Sample P/N: 016028-2000/1/016128-5000/24

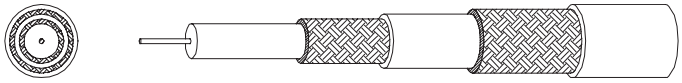


Please use the request for quote worksheet on page 225 to specify your custom application needs.



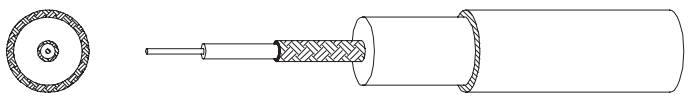
Flexible Twinax Cables

Cable Group No	Cable Designation	Manufacturer	Impedance (OHMS)	Jacket	Conductor (DIA)
1	M17/176-00002	Mil-Spec	77	0.129"	0.024"
2	540-1086-000	Sabritec	98	0.143"	0.019"
3	540-1161-000	Sabritec	100	0.130"	0.024"
4	540-1171-000	W.L. Gore	100	0.087"	0.010"
5	540-1172-000	W.L. Gore	100	0.122"	0.016"



Flexible Triax Cables

Cable Group No	Cable Designation	Manufacturer	Impedance (OHMS)	Jacket	Conductor (DIA)
21	RG-403	Mil-Spec	50	0.116"	0.012"
22	540-1050-000	Sabritec	75	0.125"	0.012"
23	540-1081-000	Sabritec	95	0.125"	0.008"
24	540-1091-000	Sabritec	75	0.175"	0.025"



Semi-Rigid Triax Cables

Cable Group No	Cable Designation	Manufacturer	Impedance (OHMS)	Jacket	Conductor (DIA)
25	UT 141-50-50	Micro-Coax	50-50	0.141"	0.008"
26	UT 141-50-22	Micro-Coax	50-22	0.141"	0.012"

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RF Coaxial Connectors

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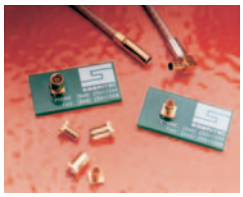
Coaxial Connectors

Introduction

Sabritec offers a complete line of RF coaxial connectors, contacts and cable assemblies. The product line features our SCX, MDCX, SMP, SMPM, PCB Mount, MIL-DTL-38999, ARINC 404 and 600 and grounded circular connectors and contacts.

SCX Coaxial Connectors

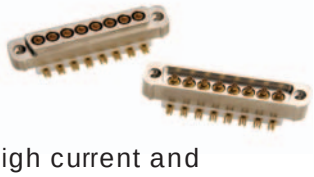
The SCX connector series is the optimal ultraminiature RF solution for the designer.



SCX Coaxial

The product series offers the utmost savings in space utilization without compromising rugged mechanical performance and superior RF high frequency electrical performance. The SCX series features a .145" maximum overall diameter with a .375" overall length for the mated connector pair.

A revolutionary designed air dielectric interface is integrated into the SCX series resulting in exceptional RF performance with a 50-ohm characteristic impedance maintained throughout the mated connector pair. The result is an extremely small and rugged high frequency RF connector series with exceptionally low VSWR (1.25:1) from DC to 20 GHz. This connector series is ideal for low profile board to board stacking arrangements.



MDCX Coaxial Connectors

Available with MDCX, multi-pin standard size 22 signal and Hypertac's ® Hyperboloid coaxial contacts. Featuring low insertion/extraction forces, shock and vibration immunity, high current and voltage ratings, low electrical contact resistance, long life, and low rate of wear. These connectors are ideal for test, burn-in, and high power applications. The MDCX coaxial contacts have a constant 50 ohm airline impedance interface and are 30% smaller than Sabritec's standard SCX coax connectors.

SMP and SMPM Coaxial Connectors

Sabritec's SMP coax connectors feature a snap-in vibration proof connection. Frequency range is DC-40 GHz with low VSWR and insertion loss (dB) parameters of 0.10 dB max. Sabritec's SMPM line is 30% smaller than the SMP with frequency ranges capable of 60 GHz.

SMP Connectors

Precision PCB Terminators

Cable terminators are available for direct terminations of the cable to the PCB eliminating the need for pigtail configurations. Available for RG-178 and RG-316 cable type configurations.

Coaxial Contacts: MIL-DTL-38999, ARINC 404, ARINC 600

Complete line of coaxial contacts for MIL-DTL-38999, ARINC 404 and 600 connectors are available. These include size 5, 9, 12 and 16 contacts for various cable types and PC tail configurations.

Torque Isolation Connectors

The rear body of the coaxial connector is extended to alleviate stress against the cable to connector solder joint. The slotted extension straddles the semi-rigid cable confining it to its initial direction while increasing the mutual solder surfaces between the cable and connector body.

Torque Isolation Connector

Grounded Circular Connectors

Designed to ground the outer shield of the coax contact directly to the shell of the connector. Available connector types include MIL-DTL-38999 Series I, II, and III, MIL-C-26482 Series II/MIL-DTL-83723 Series I square flange mount receptacles and plug connector assemblies.

Sabritec does not offer standard QPL slash sheet part #'s for multipin circular and rack & panel connectors. Our connectors are fully intermateable with all slash sheet part #'s.

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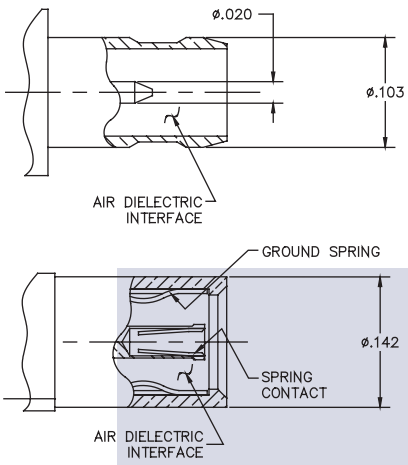
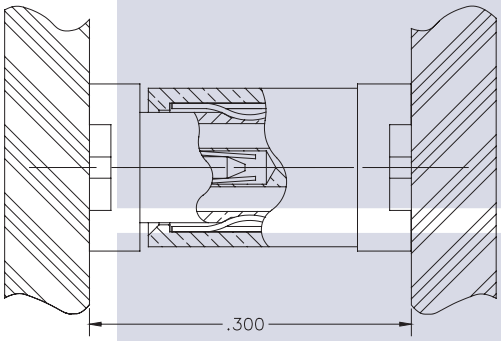
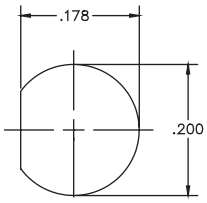
SCX INTERFACE DIMENSIONS



Mated Pair Length



Mounting D-Hole Bulkhead Connectors



ELECTRICAL SPECIFICATIONS:

Dielectric Withstanding Voltage	500 VRMS @ sea level with 70% relative humidity
Insulation Resistance	1000 megaohms min. @ 250 VDC
Contact Current Rating	1.5 Amps, D.C. max
Characteristic Impedance	50 Ohm constant airline impedance
RF HI Potential Withstanding Voltage	125 VRMS @ 5 MHz
Corona Level @ 70,000 FT	Center contact to intermediate contact: 125 VAC
Permeability	2.0 max
Frequency Range	DC to 20 GHz
VSWR	1.25:1 max. (mated pair)

MECHANICAL & ENVIRONMENTAL SPECIFICATIONS:

Temperature Rating	-65º to +165ºC
Corrosion	MIL-STD-202 Method 101, Test Condition B
Shock	MIL-STD-202 Method 213, Test Condition B
Vibration	MIL-STD-202 Method 204, Test Condition B
Thermal Shock	MIL-STD-202 Method 107, Test Condition B
Durability	1000 mate/unmate cycles min
Mating/Unmate Force	1 lb. min
Float Mount Constraints	.010" full radial & .015 axial misalignment max

MATERIALS & FINISHES:

Center Contacts	Brass per ASTM B16, gold plated per ASTM B488, Type 3 Class 1.25
Spring Fingers	Beryllium copper per ASTM B196, gold plated per ASTM B488, Type 3 Class 1.25
Plug Body & Receptacle	Brass per ASTM B16, gold plated per ASTM B488, Type 3 Class 1.25
Insulators	PTFE per ASTM D-1710

All specifications subject to change without notice.

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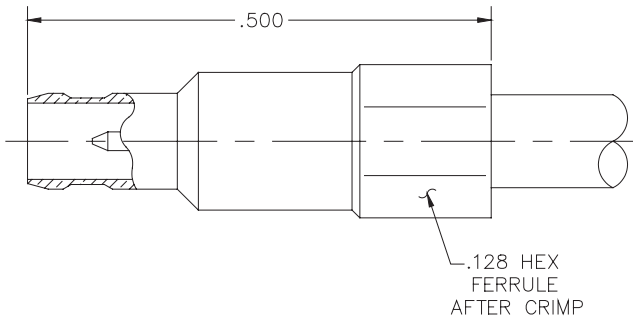
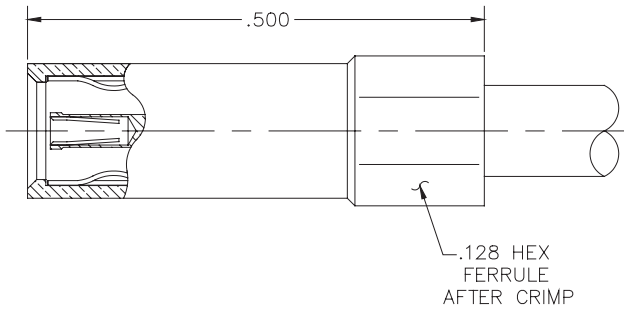
SCX Cable Plug



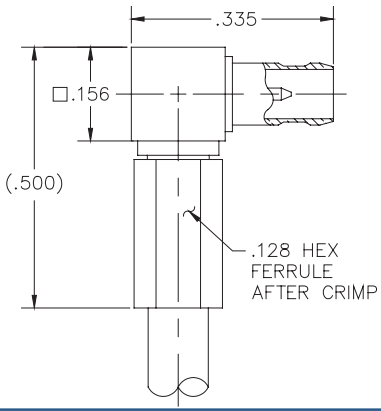
Part Number	Cable Type	Cable
013220-2000	Flexible Coax	RG-316
013220-2001	Flexible Coax	RG-178
013220-2002	Semi-Rigid Coax	RG-405

SCX Cable Receptacle



Part Number	Cable Type	Cable
013120-2000	Flexible Coax	RG-316
013120-2001	Flexible Coax	RG-178
013120-2002	Semi-Rigid Coax	RG-405

SCX Right Angle Plug



Part Number	Cable Type	Cable
013220-1008	Flexible Coax	RG-316
013220-1009	Flexible Coax	RG-178
013220-1010	Semi-Rigid Coax	RG-405

See Page 197 for Cable Ordering Information

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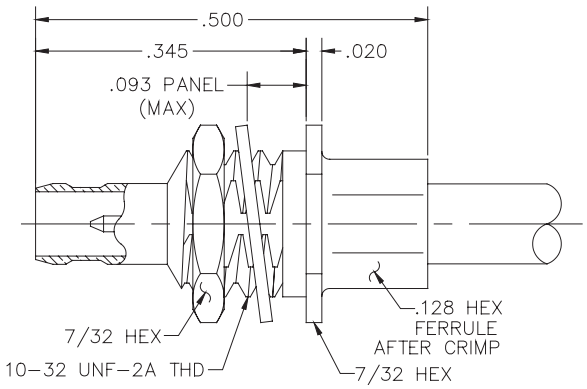
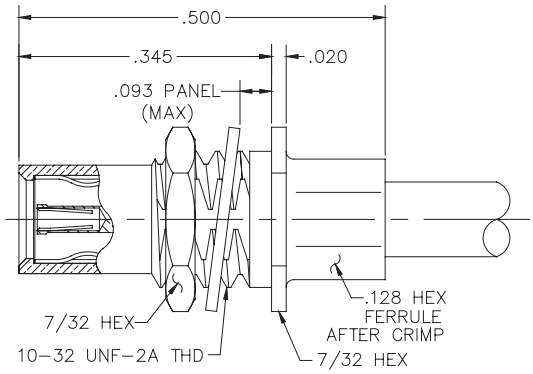
SCX Bulkhead Mount Cable Plug



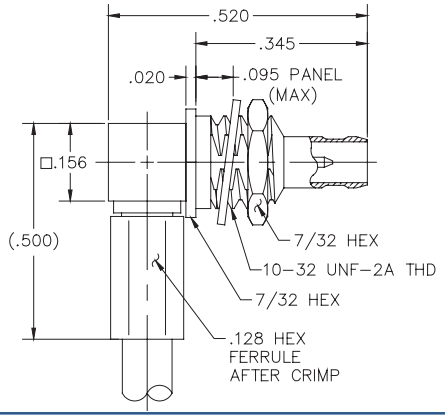
Part Number	Cable Type	Cable
013220-5011	Flexible Coax	RG-316
013220-5012	Flexibly Coax	RG-178
013220-5013	Semi-Rigid Coax	RG-405

SCX Bulkhead Mount Cable Receptacle



Part Number	Cable Type	Cable
013120-5011	Flexible Coax	RG-316
013120-5012	Flexible Coax	RG-178
013120-5013	Semi-Rigid Coax	RG-405

SCX Right Angle Bulkhead Mount Cable Plug

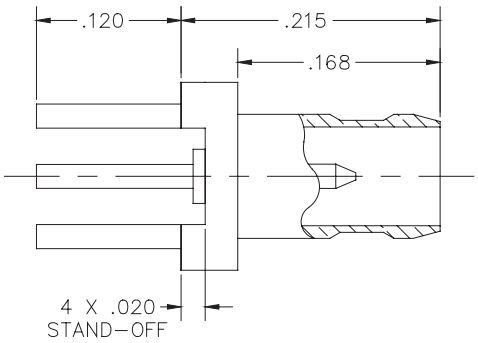


Part Number	Cable Type	Cable
013212-1011	Flexible Coax	RG-316
013212-1012	Flexible Coax	RG-178
013212-1013	Semi-Rigid Coax	RG-405

See Page 197 for Cable Ordering Information

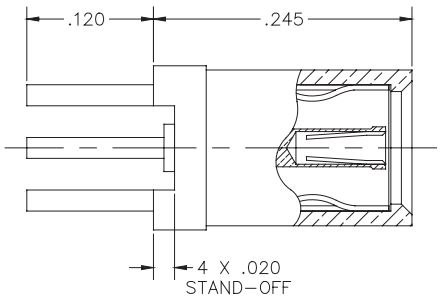
Downloaded from Arrow.com.

Straight PCB Plug



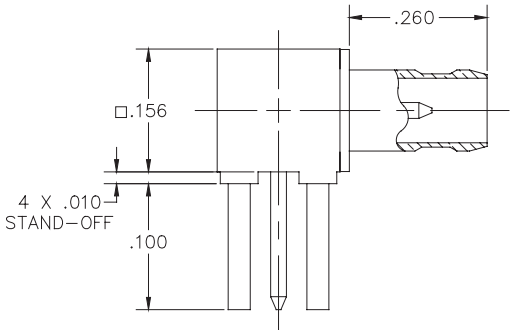
P/N 013200-2024

Straight PCB Receptacle



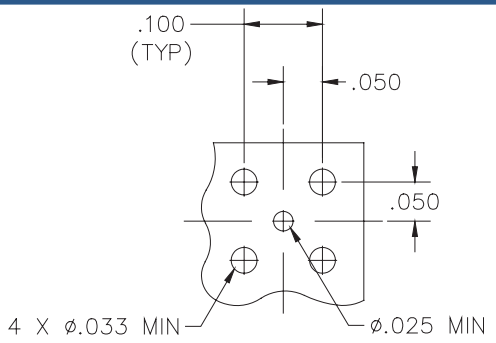
P/N 013100-2024

Right Angle PCB Plug



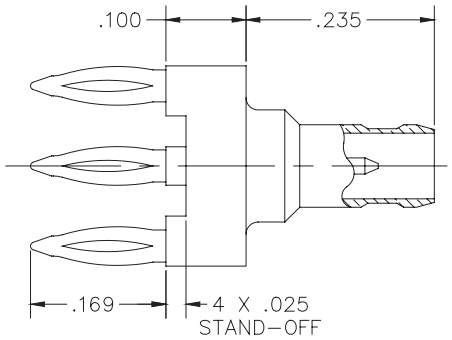
P/N 013200-1002

PCB Mounting Dimension



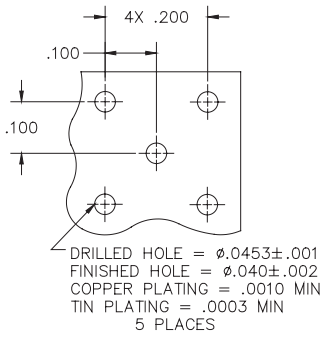
PCB Pattern for .100 Centers

Compliant Pin PCB Plug



P/N 013200-2029

Compliant Pin PCB Mounting Dimension



PCB Pattern for .200 Centers

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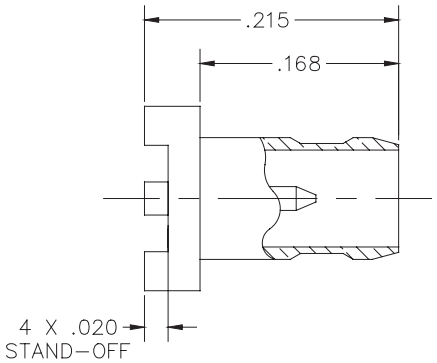
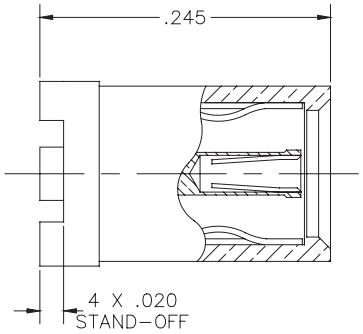
Surface Mount Plug



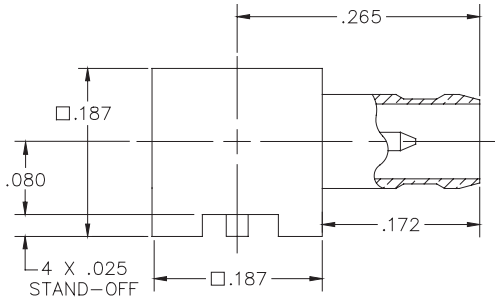
P/N 013200-2023

Surface Mount Receptacle



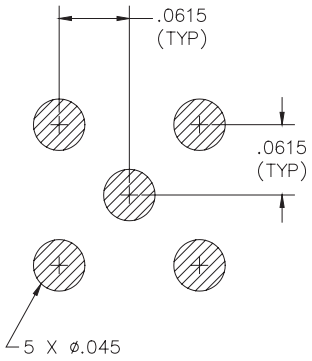
P/N 013100-2023

Right Angle Surface Mount Plug

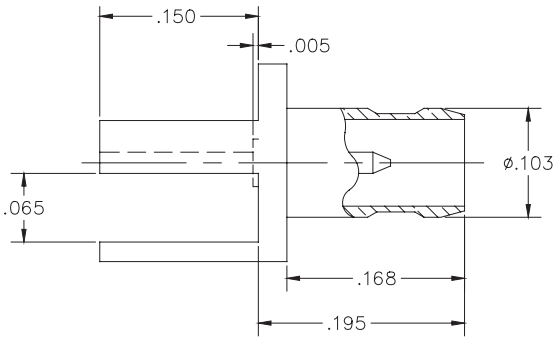


P/N 013200-1003

Surface Mount PCB Layout

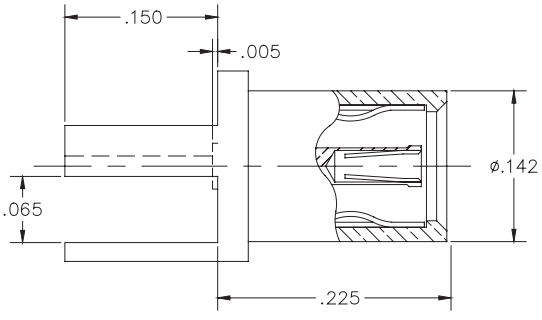


End Launch Surface Mount Plug



P/N 013200-2030

End Launch Surface Mount Receptacle



P/N 013100-2030

RF Coaxial

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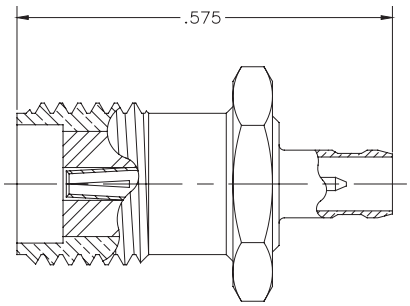
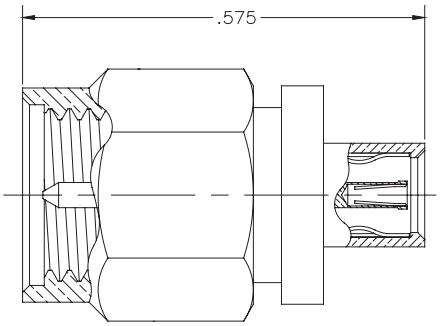
Coax Plug to SMA Jack Adapter



P/N 013200-4010

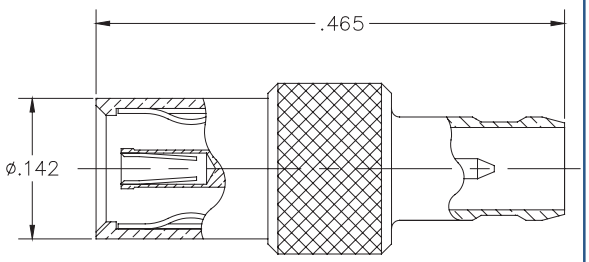
Coax Receptacle to SMA Plug Adapter



P/N 013100-4010

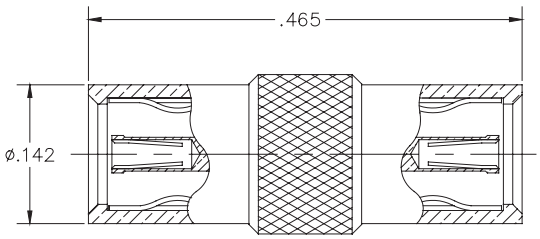
In-Series SCX Adapters

Plug to Receptacle Adapter



P/N 013100-4011

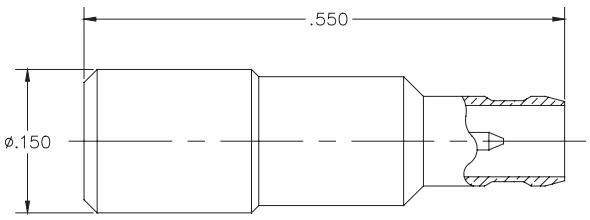
Receptacle to Receptacle Adapter



P/N 013200-4011

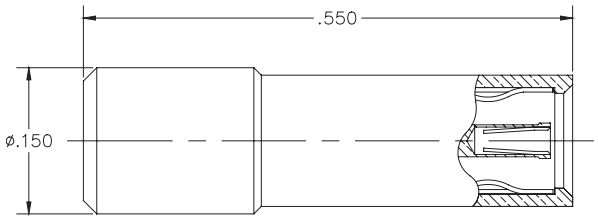
50-Ohm Load Terminators

50-Ohm Load Termination Plug



P/N 013200-2028

50-Ohm Load Termination Receptacle

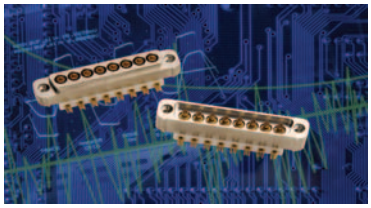


P/N 013100-2028

Downloaded from Arrow.com.

MDCX Coaxial Connectors

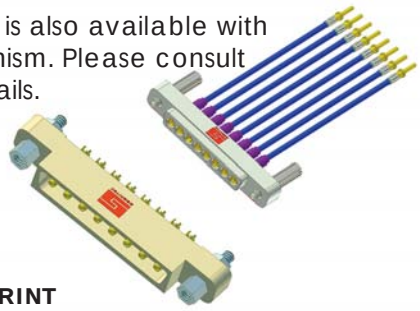
Connector Specifications



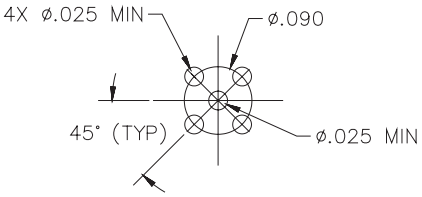
Sabritec's MDCX multipin coax connectors have a low VSWR of 1.25:1 up to 20 GHz (max mated pair). Each coax contact has a maximum overall diameter of 0.125" fitted into a low-profile metallized housing. Insert arrangements are available in 4, 6, 8, 10 and 12 way coaxial assemblies with mixed signal and power contacts available in hybrid layouts.

Signal contacts are available in standard mil-spec type size 22 signal contacts and Hyperboloid® coaxial contacts. Hyperboloid® contacts have low insertion/extraction forces, shock and vibration immunity, high current and voltage ratings, low electrical contact resistance, long life, and low rate of wear. These signal contacts offer contact resistance from .04 to 8 milliohm. These connectors are ideal for test, burn-in, and high power applications.

Sabritec's MDCX line is also available with locking post mechanism. Please consult factory for more details.



MDCX PCB Footprint



MOUNTING HOLE

Electrical Specifications:

Dielectric Withstanding Voltage	500 VRMS @ sea level with 70% relative humidity
Insulation Resistance	1000 megaohms min. @ 250 VDC
Contact Current Rating	5 Amps max. for 0.30 Signal Pins 2.5 Amps max. for .018 Signal Contacts
Characteristic Impedance	50 Ohm constant airline impedance
RF HI Potential Withstanding Voltage	125 VRMS @ 5 MHz
Corona Level @ 70,000 FT	Center contact to intermediate contact: 125 VAC
Permeability	2.0 max
Frequency Range	DC to 20 GHz
VSWR	1.25:1 max. (mated pair)

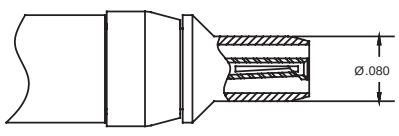
Mechanical & Environmental Specifications:

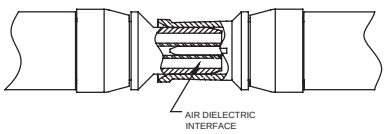
Temperature Rating	-65º to +165ºC
Corrosion	MIL-STD-202 Method 101, Test Condition B
Shock	MIL-STD-202 Method 213, Test Condition B
Vibration	MIL-STD-202 Method 204, Test Condition B
Thermal Shock	MIL-STD-202 Method 107, Test Condition B
Durability	5,000 Cycles min. MDCX 500 Cycles min. Size 22 Standard Signal 100,000 Cyles min. Hyperboloid® Contacts

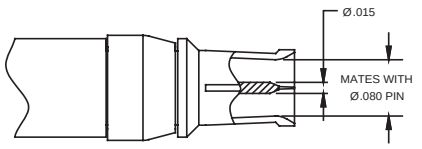
Materials & Finishes:

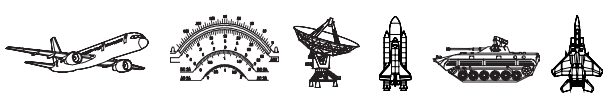
Center MDCX Contacts	Brass per ASTM B16, Au plated per ASTM B488, Type 3, Class 1.25
Female MDCX Outer Contacts	UNS 17300 be Cu per ASTM 196 or 197, Au per ASTM B488 Type 3, Class 1.25
Male MDCX Outer Contacts	Brass per ASTM B16, Au plated per ASTM B488, Type 3 Class 1.25
Insulators	PTFE per ASTM D-170 and ultem 1000 resin
Plug and Receptacle Outer Shell	Brass per ASTM-B16/B16M, C36000 Electroless nickel plate per SAE-MAS-C-26074, Class 1

MDCX Coaxial Contact Interface









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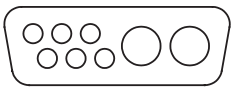
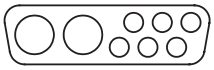
MDCX Coaxial Connectors

Insert Arrangements

RECEPTACLE ARRANGEMENTS		
SHELL SIZE 1	SHELL SIZE 2	SHELL SIZE 3
 ARRANGEMENT 4-0 4 MDCX	 ARRANGEMENT 6-0 6 MDCX	 ARRANGEMENT 8-0 8 MDCX
 ARRANGEMENT 2-6 2 MDCX, 6 SIGNAL	 ARRANGEMENT 4-6 4 MDCX, 6 SIGNAL	 ARRANGEMENT 6-6 6 MDCX, 6 SIGNAL
SHELL SIZE 4		
 ARRANGEMENT 10-0 10 MDCX	 CUSTOM LAYOUTS CONSULT FACTORY	

PLUG ARRANGEMENTS		
SHELL SIZE 1	SHELL SIZE 2	SHELL SIZE 3
 ARRANGEMENT 4-0 4 MDCX	 ARRANGEMENT 6-0 6 MDCX	 ARRANGEMENT 8-0 8 MDCX
 ARRANGEMENT 2-6 2 MDCX, 6 SIGNAL	 ARRANGEMENT 4-6 4 MDCX, 6 SIGNAL	 ARRANGEMENT 6-6 6 MDCX, 6 SIGNAL
SHELL SIZE 4		
 ARRANGEMENT 10-0 10 MDCX	 CUSTOM LAYOUTS CONSULT FACTORY	

ALL MDCX CONTACTS ARE FRONT RELEASE/REAR REMOVABLE
ALL SIGNAL CONTACTS ARE REAR REMOVABLE EXCEPT FOR PC-TAIL HYPERTAC CONTACTS (YSK0076-068AH)

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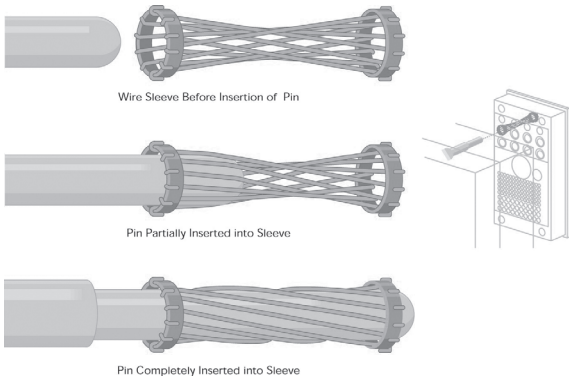
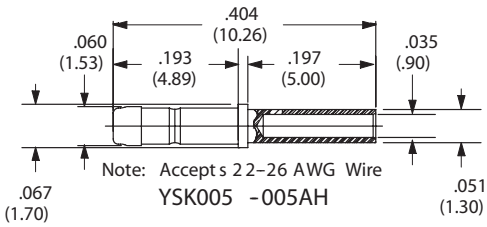
MDCX Part Number Assignment

Arrangement	Shell Size	A dim.	B dim.	Signal Contact Engagement Dia.
2-6	1	1.005	1.255	.030 .018*
4-0	1	1.005	1.255	N/A
4-6	2	1.355	1.605	.030 .018*
6-0	2	1.355	1.605	N/A
6-6	3	1.705	1.955	.030 .018*
8-0	3	1.705	1.955	N/A
10-0	4	2.057	2.307	N/A

*** For use with Hypertac Crimp Lugs Using YSK005-005AH Contacts**
Contact factory for details





Coax Multi-Pin Connector Part Description

019917-2109 – 1 – 4-0 – R – 18 – 019917-3129 – 1 – 4-0 – P

- Connector #1
- Shell Size 1, 2, 3, 4
- Arrangement
- Type P – Plug R - Receptacle
- Cable Length If Applicable
- Connector #2
- Shell Size 1, 2, 3, 4
- Insert Arrangement
- Type P – Plug R - Receptacle

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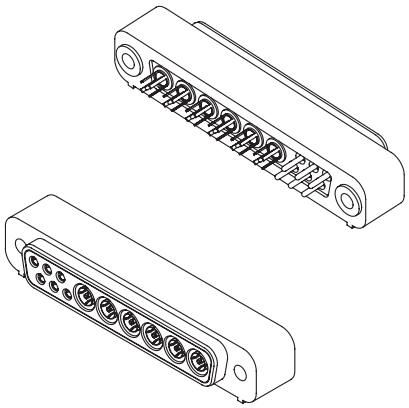
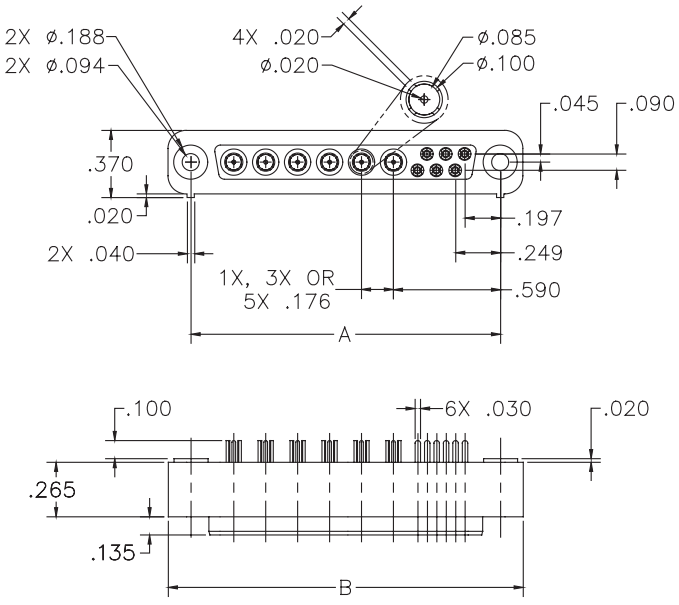
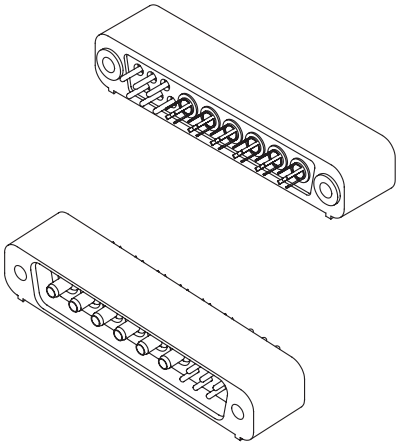
Straight PC-Tail Plug with MDCX and Size 22 Signal Contacts

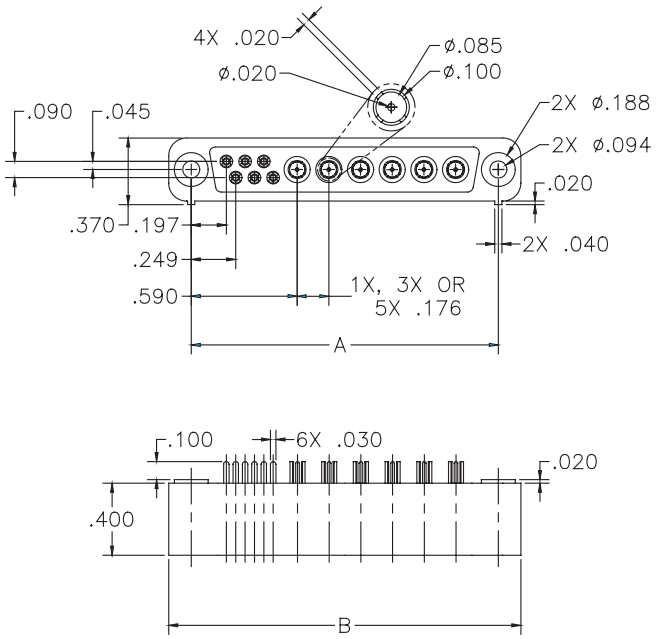




P/N: 019917-2109

Straight PC-Tail Receptacle with MDCX and Size 22 Signal Contacts





P/N: 019917-3129

RF Coaxial

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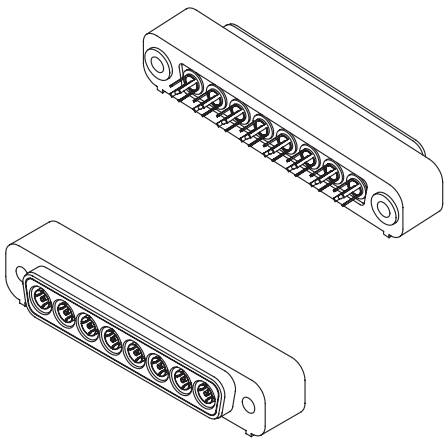
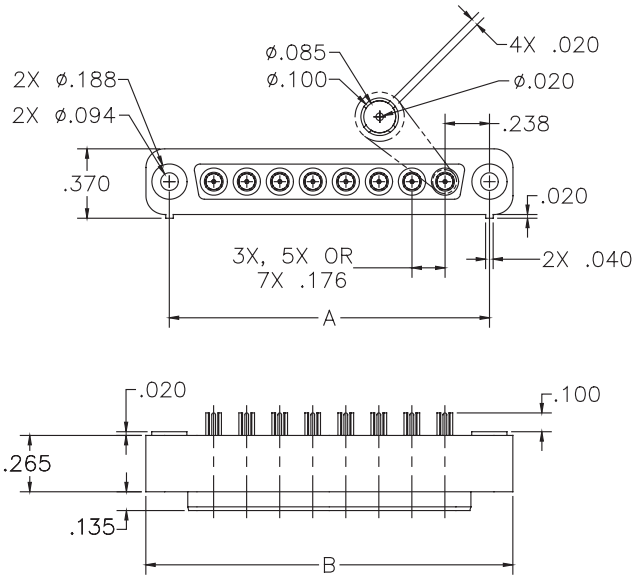
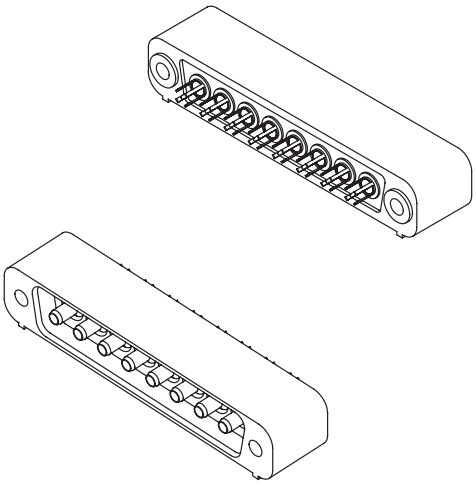
Straight PC-Tail Plug with MDCX Contacts Only

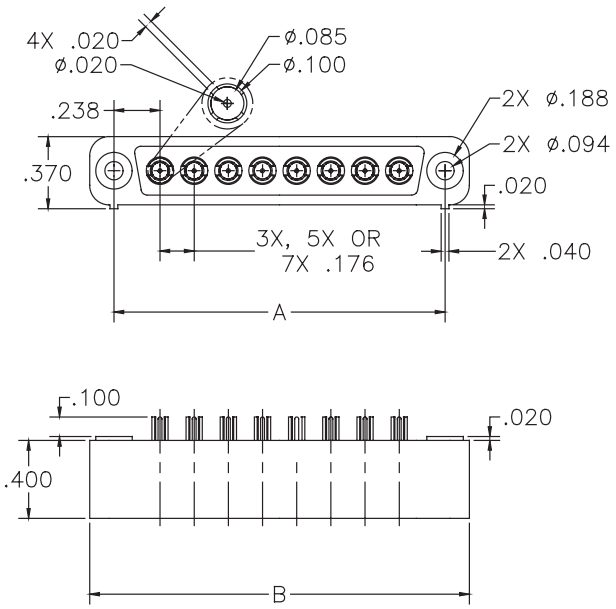




P/N: 019917-2110

Straight PC-Tail Receptacle with MDCX Contacts Only





P/N: 019917-3130

RF Coaxial

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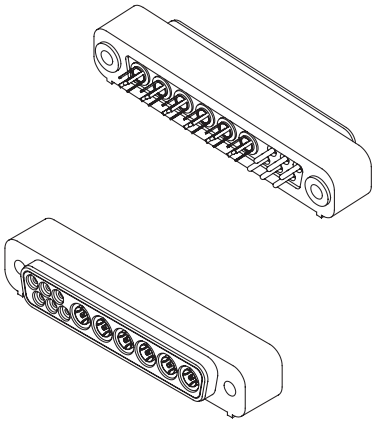
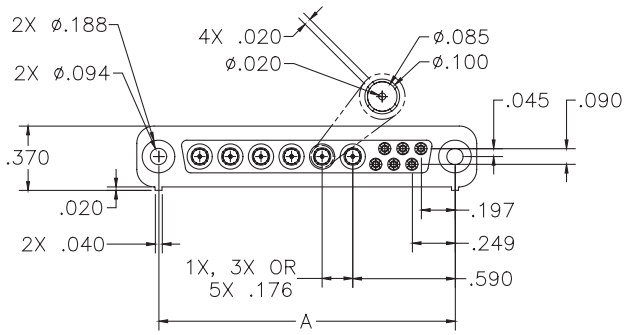
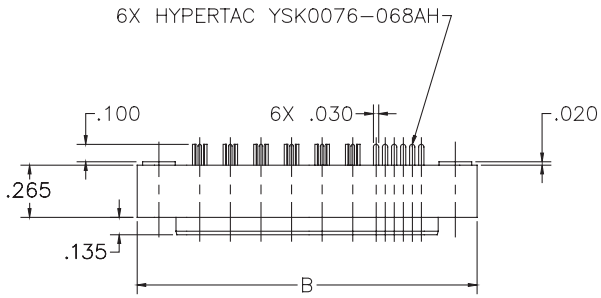
Straight PC-Tail Plug with MDCX and Hyperboloid Signal Contacts

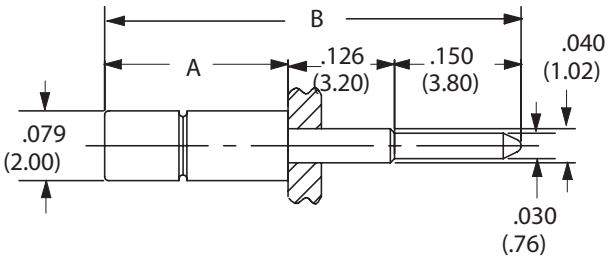




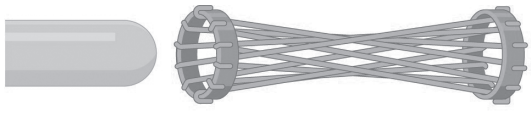


P/N: 019917-2111

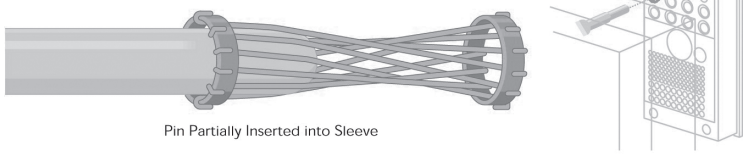
Hypertac YSK0076-068AH



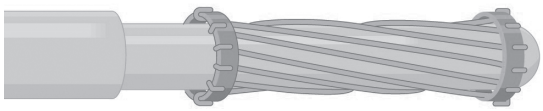
The shape of the Hyperboloid contact sleeve is formed by wires strung at an angle to the socket's axis. When the pin is inserted into this sleeve, the wires stretch around it, providing a number of linear contact paths.



Wire Sleeve Before Insertion of Pin



Pin Partially Inserted into Sleeve



Pin Completely Inserted into Sleeve

RF Coaxial

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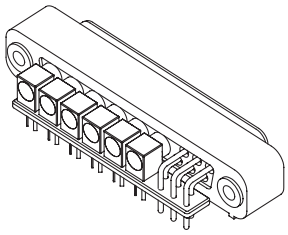
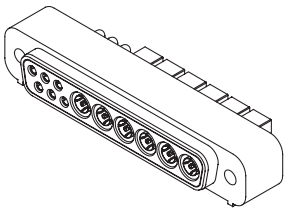
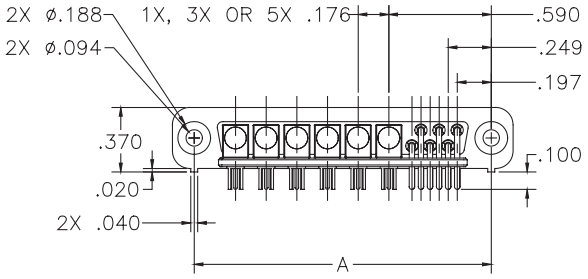
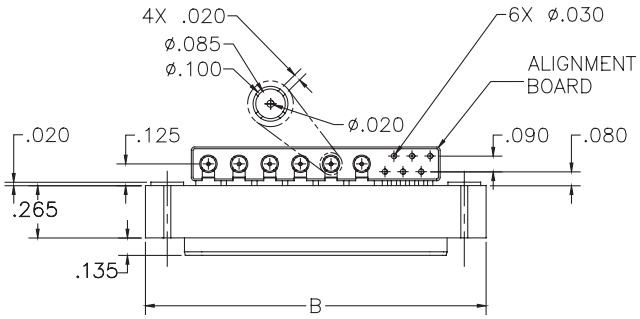
Right Angle PC-Tail Plug with MDCX and Size 22 Signal Contacts



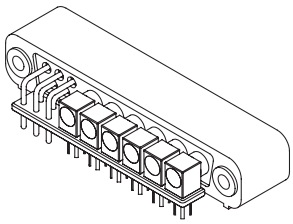


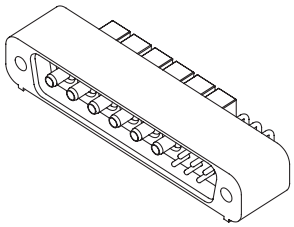


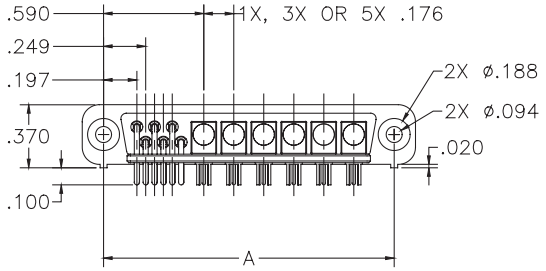


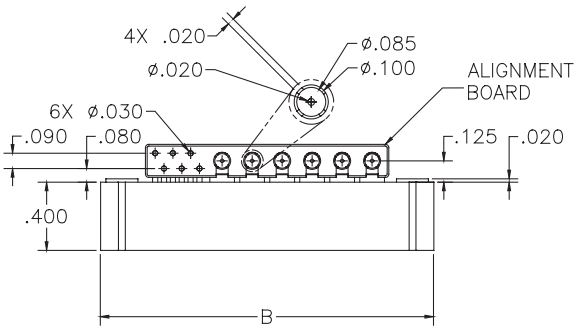
P/N: 019917-2112

Right Angle PC-Tail Receptacle with MDCX and Size 22 Signal Contacts









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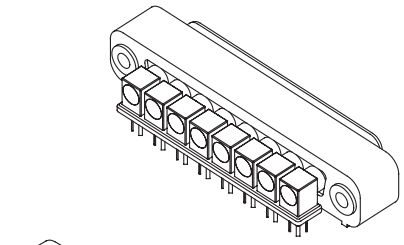
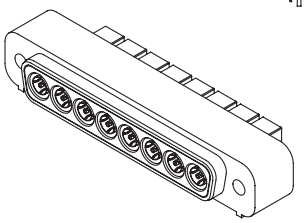
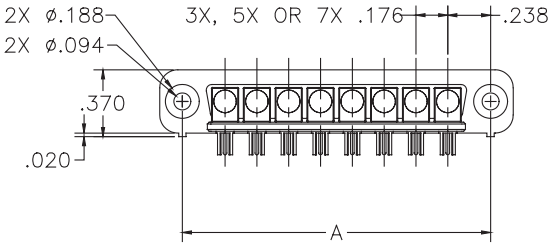
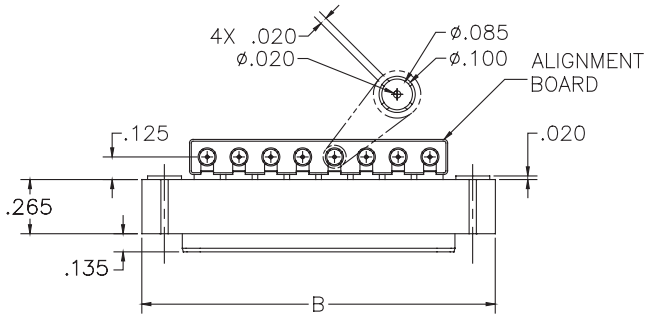
Right Angle PC-Tail Plug with MDCX Contacts Only



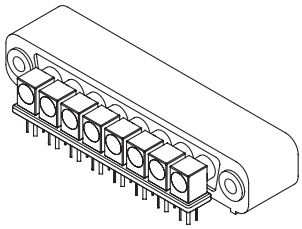


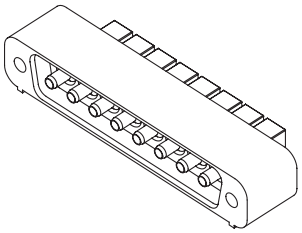


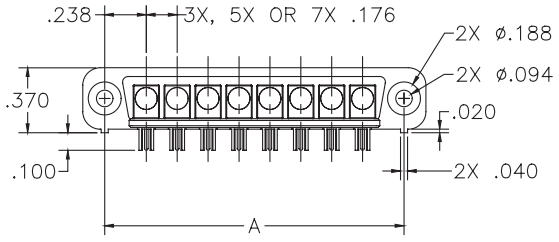


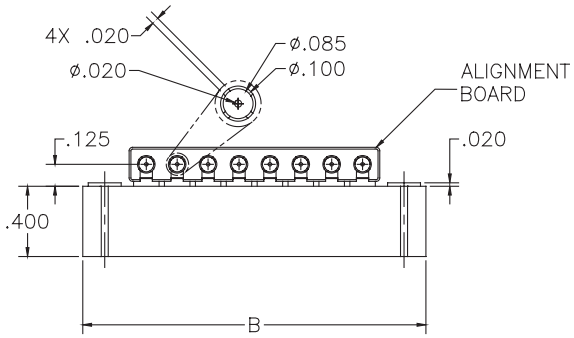
P/N: 019917-2113

Right Angle PC-Tail Receptacle with MDCX Contacts Only









P/N: 019917-3132

RF Coaxial

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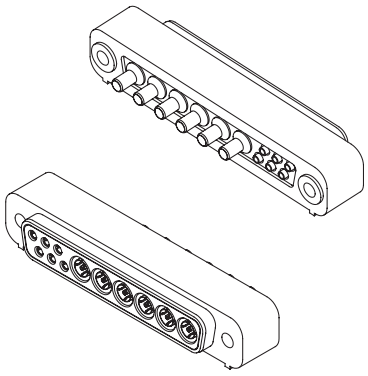
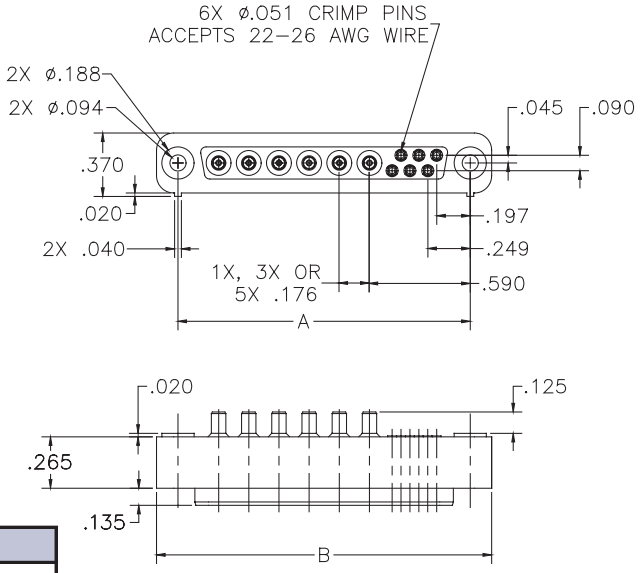
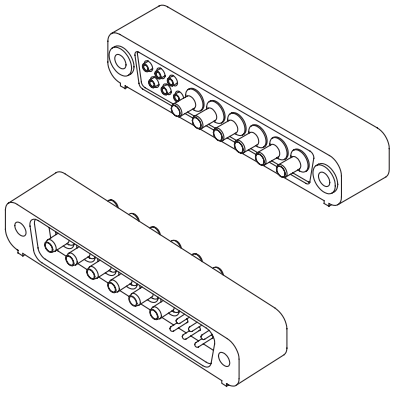
Straight Crimp Plug with MDCX and Size 22 Signal Contacts

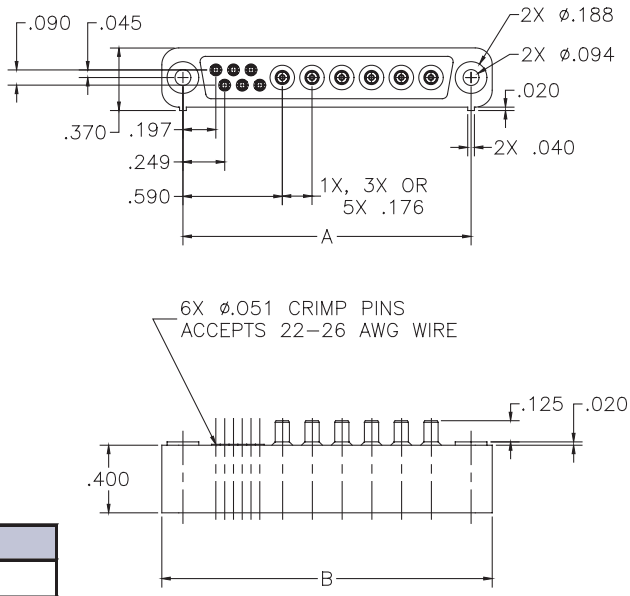




Part Number	Cable Type	Cable
019914-2001	Flexible Coax	RG-178
019914-2002	Flexible Coax	RG-316

Straight Crimp Receptacle with MDCX and Size 22 Signal Contacts





Part Number	Cable Type	Cable
019914-3001	Flexible Coax	RG-178
019914-3002	Flexible Coax	RG-316

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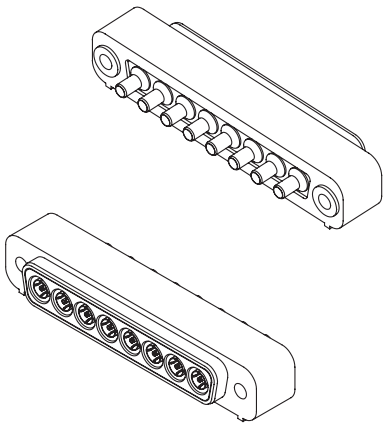
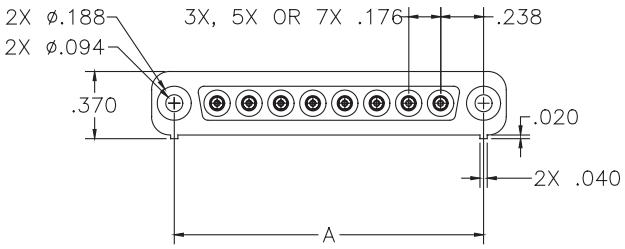
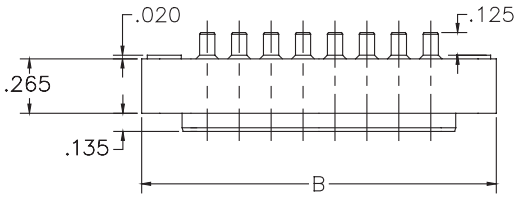
Straight Crimp Plug with MDCX Contacts Only

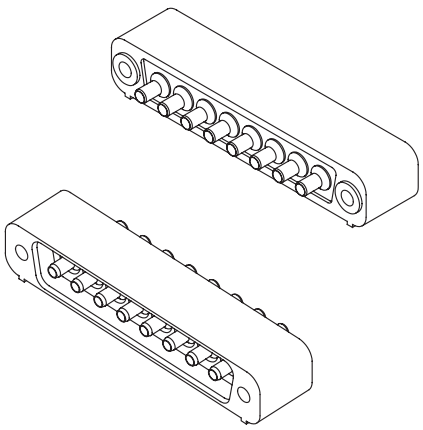


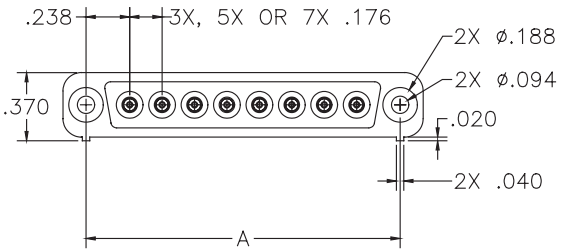


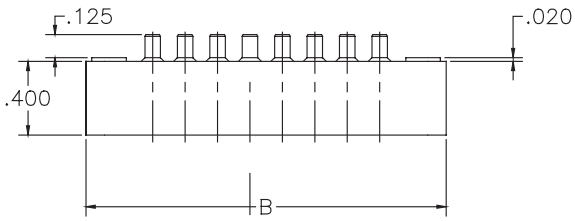


Part Number	Cable Type	Cable
019914-2003	Flexible Coax	RG-178
019914-2004	Flexible Coax	RG-316

Straight Crimp Receptacle with MDCX Contacts Only







Part Number	Cable Type	Cable
019914-3003	Flexible Coax	RG-178
019914-3004	Flexible Coax	RG-316

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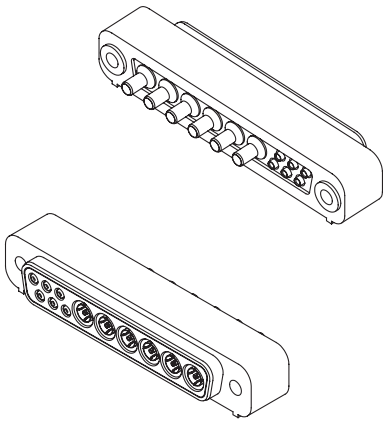
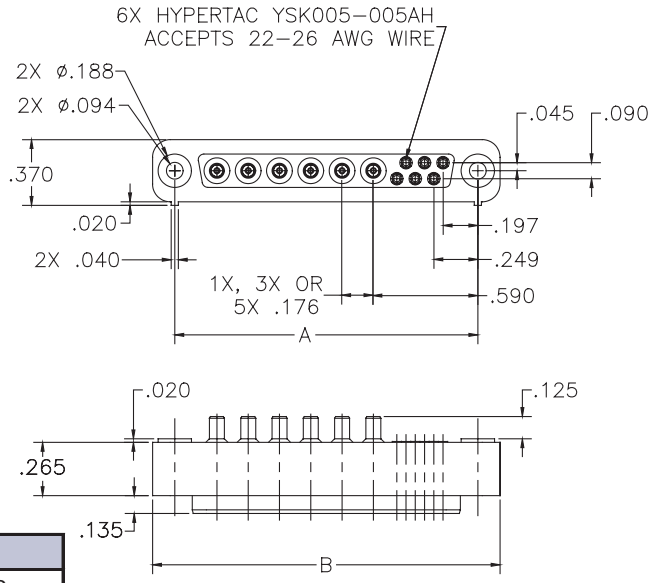
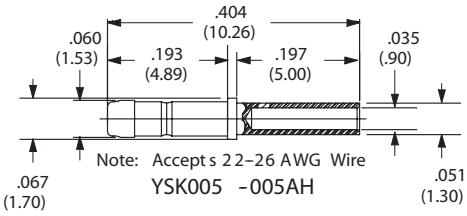
Straight Crimp Plug with MDCX and Hyperboloid Signal Contacts

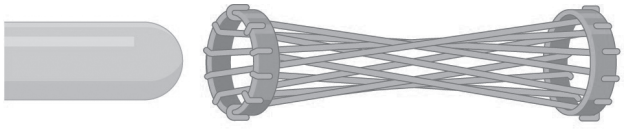




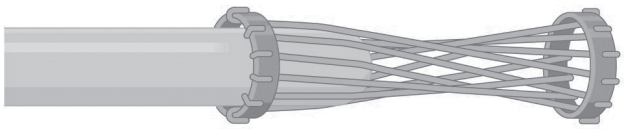
Part Number	Cable Type	Cable
019914-2009	Flexible Coax	RG-178
019914-2010	Flexible Coax	RG-316



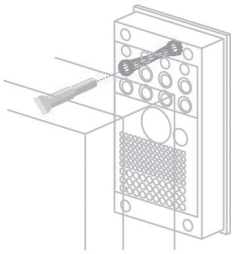
The shape of the Hyperboloid contact sleeve is formed by wires strung at an angle to the socket's axis. When the pin is inserted into this sleeve, the wires stretch around it, providing a number of linear contact paths.

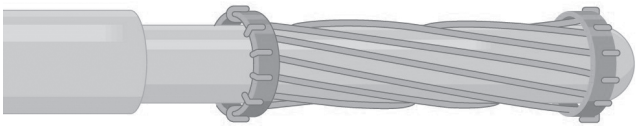


Wire Sleeve Before Insertion of Pin



Pin Partially Inserted into Sleeve





Pin Completely Inserted into Sleeve

RF Coaxial

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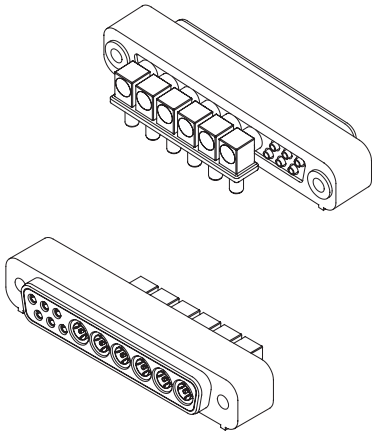
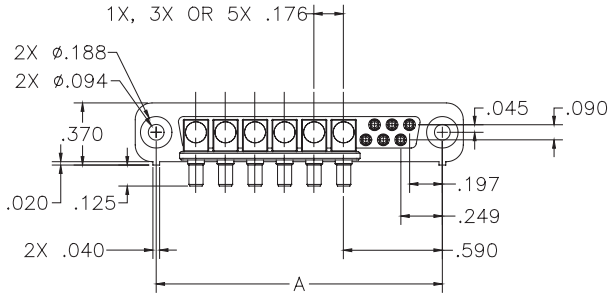
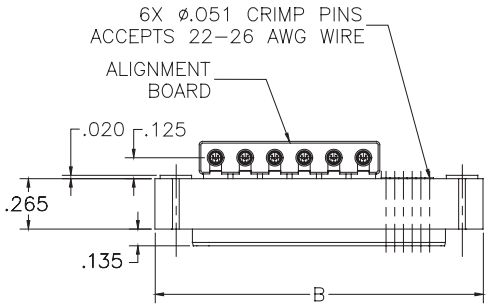
Right Angle Crimp Plug with MDCX and Size 22 Signal Contacts

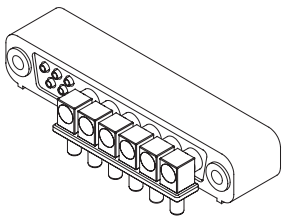


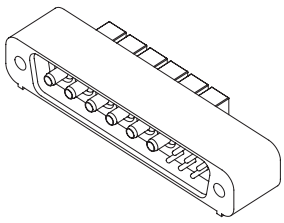


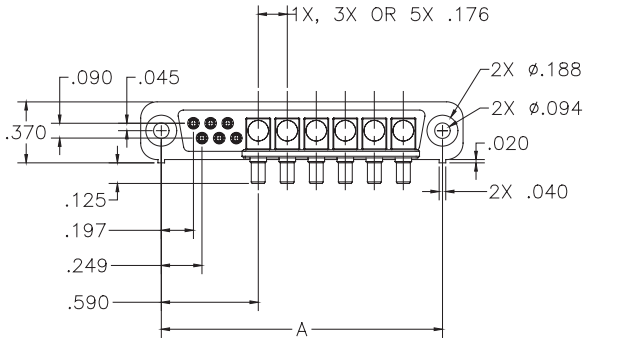


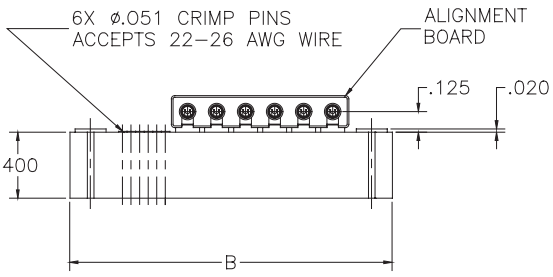
Part Number	Cable Type	Cable
019914-2005	Flexible Coax	RG-178
019914-2006	Flexible Coax	RG-316

Right Angle Crimp Receptacle with MDCX and Size 22 Signal Contacts









Part Number	Cable Type	Cable
019914-3005	Flexible Coax	RG-178
019914-3006	Flexible Coax	RG-316

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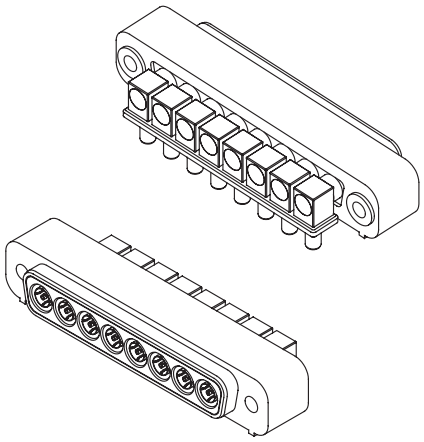
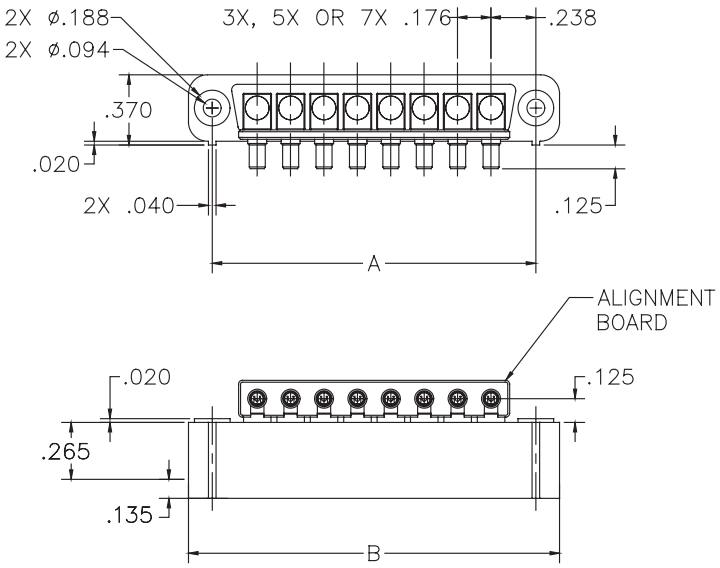
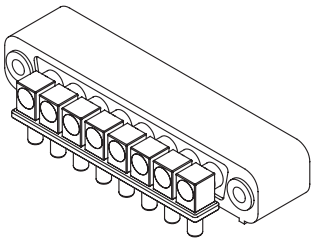
Right Angle Crimp Plug with MDCX Contacts Only

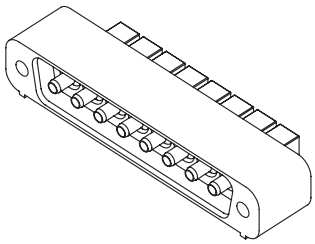


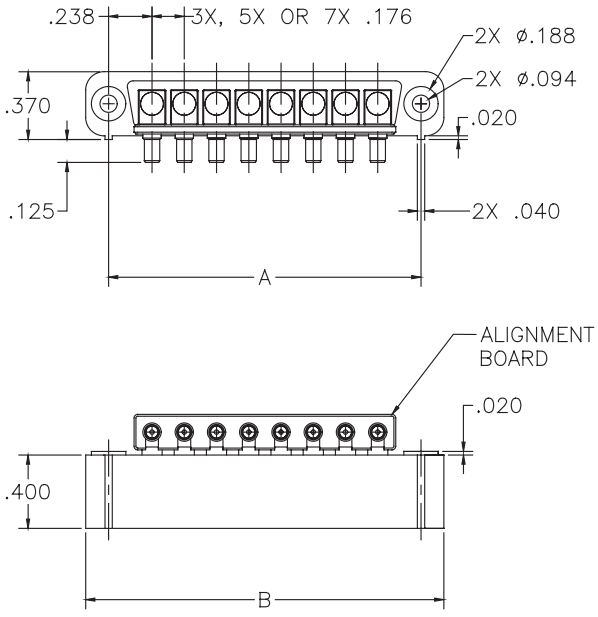


Part Number	Cable Type	Cable
019914-2007	Flexible Coax	RG-178
019914-2008	Flexible Coax	RG-316

Right Angle Crimp Receptacle with MDCX Contacts Only







Part Number	Cable Type	Cable
019914-3007	Flexible Coax	RG-178
019914-3008	Flexible Coax	RG-316

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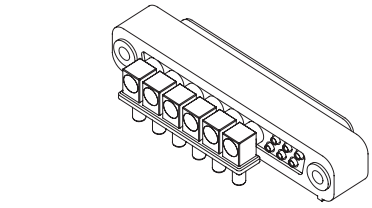
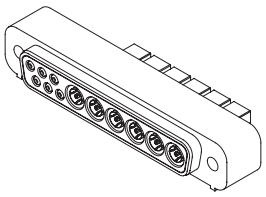
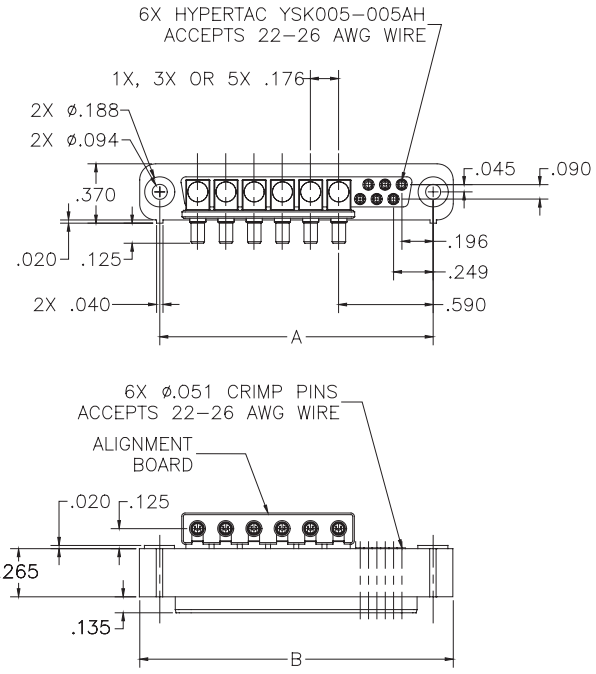
Right Angle Crimp Plug with MDCX and Hyperboloid Signal Contacts







Part Number	Cable Type	Cable
019914-2011	Flexible Coax	RG-178
019914-2012	Flexible Coax	RG-316

RF Coaxial

See Page 197 for Cable Ordering Information

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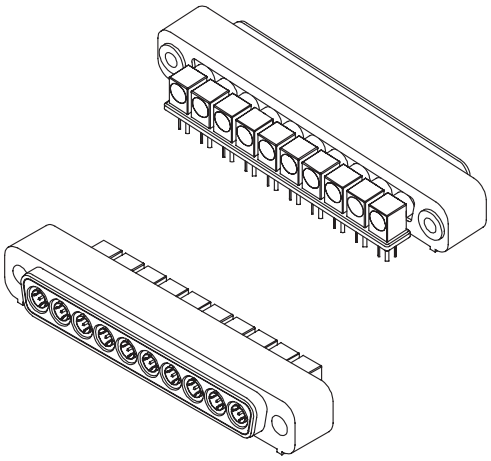
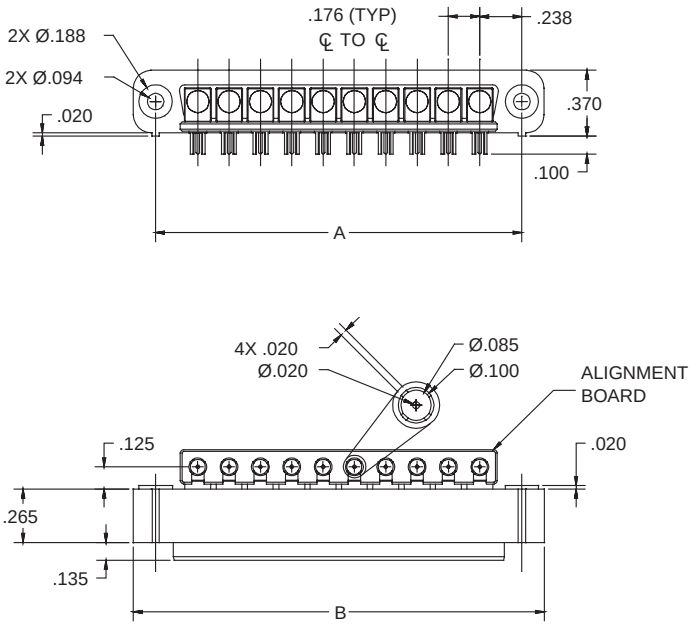
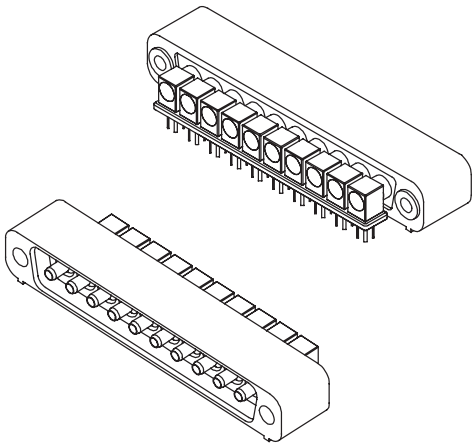
10 Way Right Angle PC Tail Plug with MDCX Contacts Only

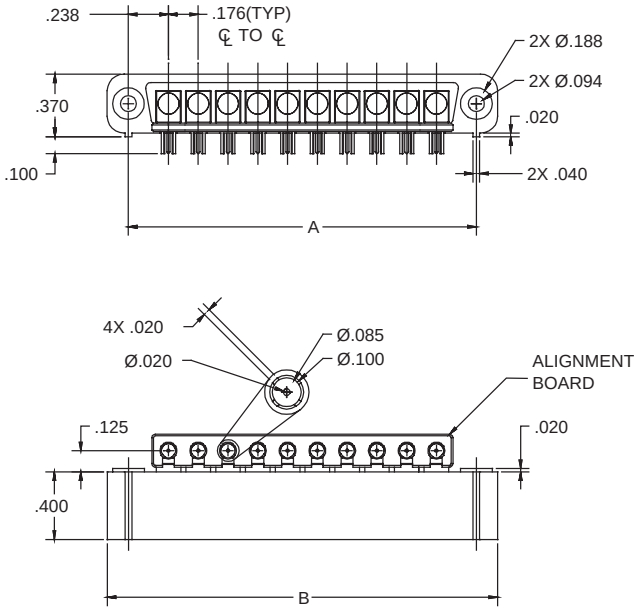




P/N: 019917-2121

10 Way Right Angle PC Tail Receptacle with MDCX Contacts Only





P/N: 019917-3139

RF Coaxial

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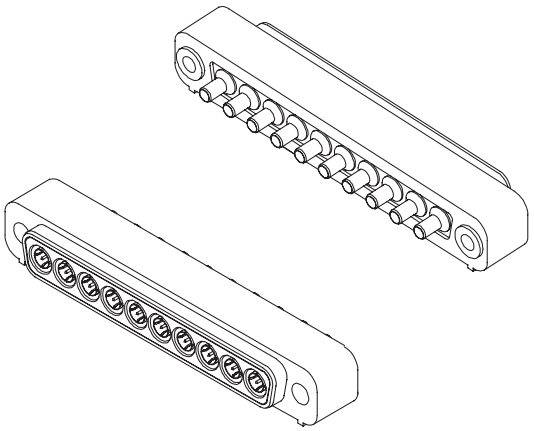
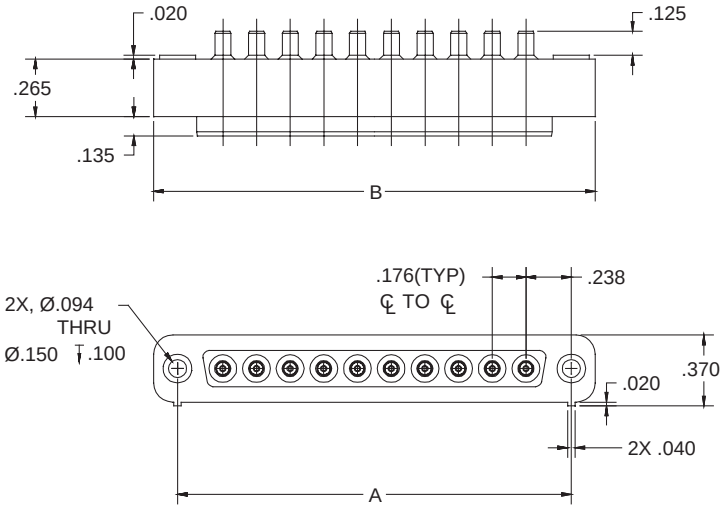
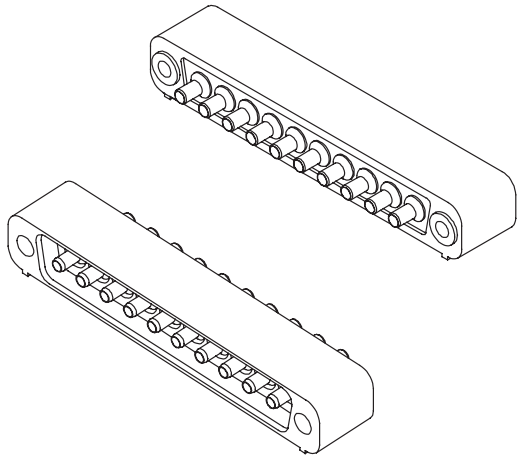
10 Way Crimp Plug with MDCX Contacts Only

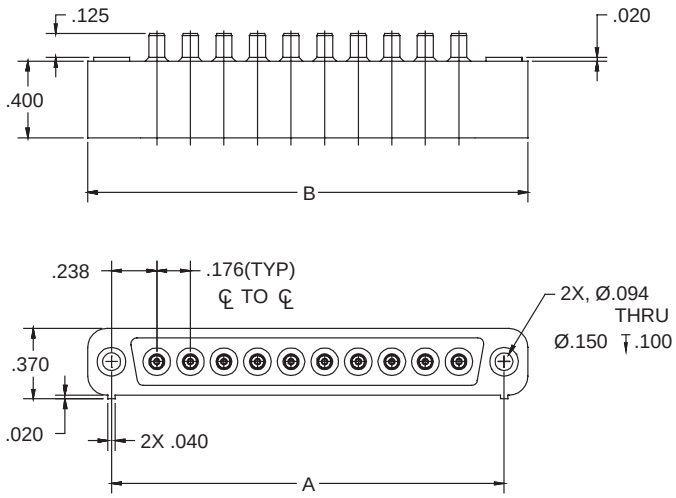




Part Number	Cable Type	Cable
019920-2014	Flexible Coax	RG-178
019911-2213	Flexible Coax	RG-316

10 Way Crimp Receptacle with MDCX Contacts Only





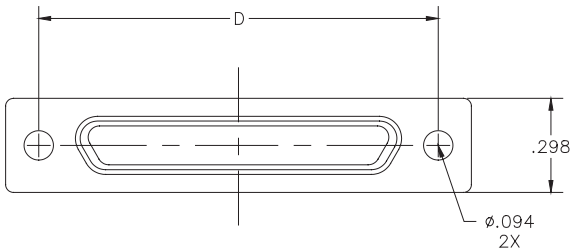
Part Number	Cable Type	Cable
019920-3000	Flexible Coax	RG-178
019911-3007	Flexible Coax	RG-316

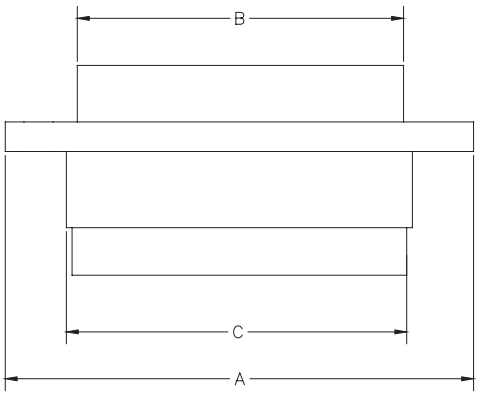
RF Coaxial

See Page 197 for Cable Ordering Information

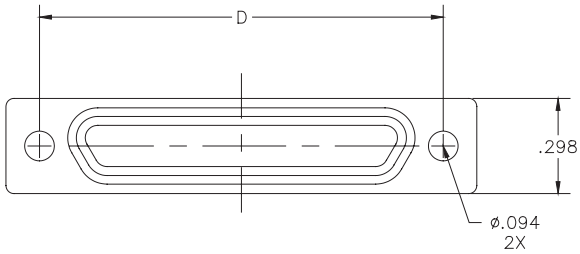
Downloaded from Arrow.com.

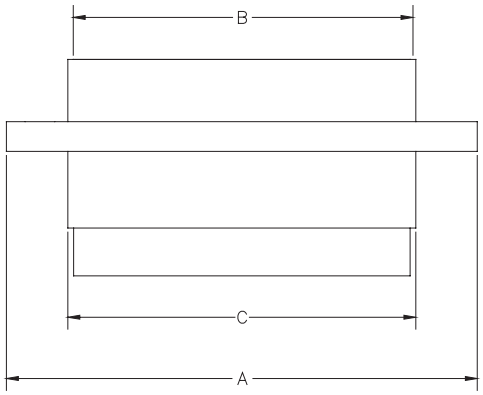
Micro-D Plug





Micro-D Receptacle

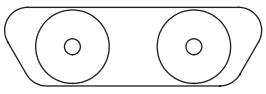




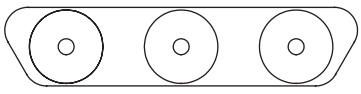
MICRO-D PLUG					
Size	Sabritec P/N	A	B	C	D
15	017200-2000	0.925	0.4838	0.540	0.715
21	017200-2001	1.075	0.6338	0.690	0.865
31	017200-2002	1.325	0.8838	0.940	1.115
37	017200-2003	1.475	1.0338	1.090	1.265

MICRO-D RECEPTACLE					
Size	Sabritec P/N	A	B	C	D
15	017200-3000	0.925	0.4842	0.540	0.715
21	017200-3001	1.075	0.6342	0.690	0.865
31	017200-3002	1.325	0.8842	0.940	1.115
37	017200-3003	1.475	1.0342	1.090	1.265

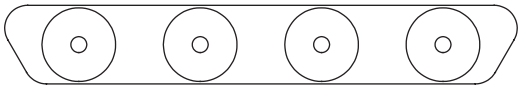
Standard Pin Layouts



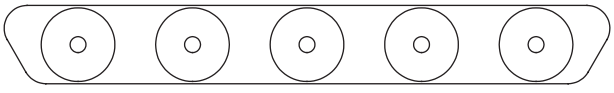
SIZE 15



SIZE 21



SIZE 31



SIZE 37

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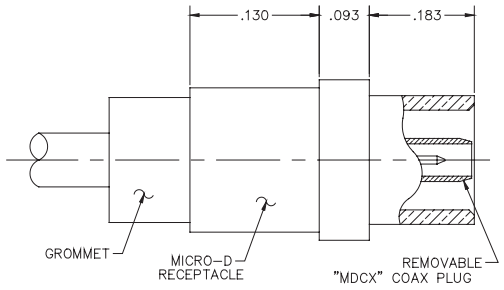
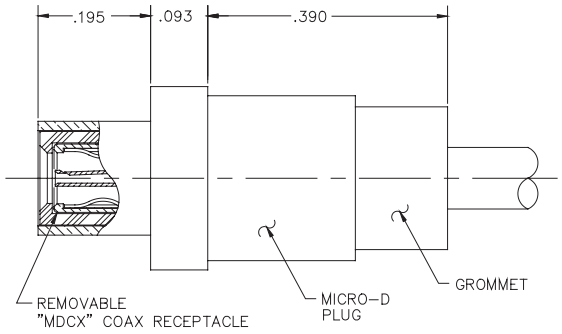
Micro-D MDCX Connectors

Low Profile Multipin Micro-D Coaxial Connectors

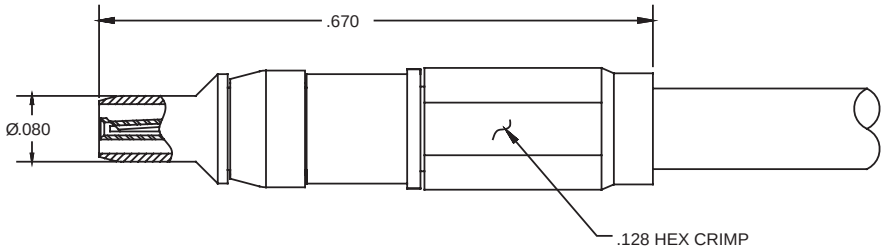
Special Micro-D Plug



Special Micro-D Receptacle

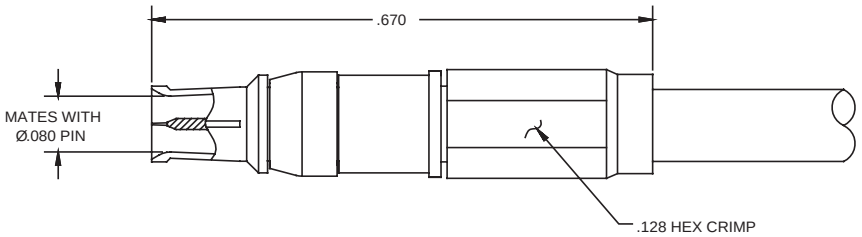


Removable MDCX Coax Plug



Part Number	Cable Type	Cable
019920-2015	Flexible Coax	RG-178
019911-2212	Flexible Coax	RG-316

Removable MDCX Coax Receptacle



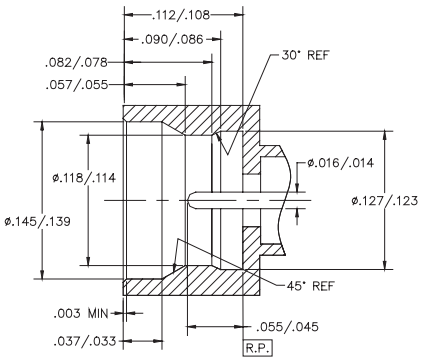
Part Number	Cable Type	Cable
019920-3001	Flexible Coax	RG-178
019911-3006	Flexible Coax	RG-316

See Page 197 for Cable Ordering Information

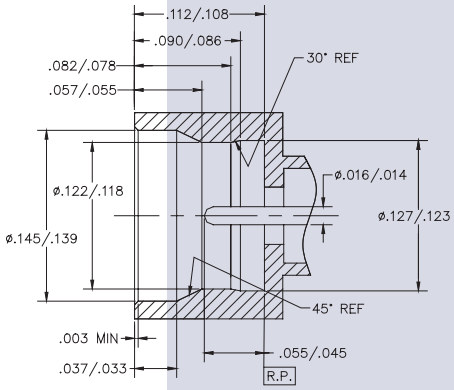
Downloaded from Arrow.com.

Interface Dimensions

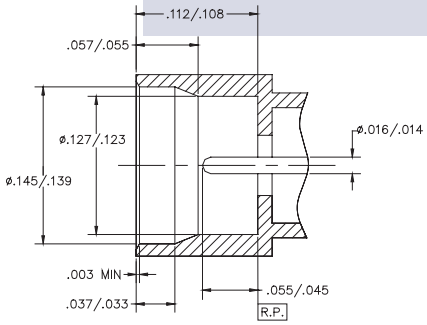
SMP Male Full Detent



SMP Male Limited Detent



SMP Male Smooth Bore



Electrical Specifications:

Impedance	50-ohm constant airline
Frequency Range	DC to 40 GHz impedance
VSWR	DC to 26.5 GHz 1.15 max. 26.5 to 40GHz 1.5:1 max.
DWV	500 VRMS @ sea level
Insulation Resistance	1000 megaohms min.
Voltage Rating	500 VRMS @ sea level

Mechanical & Environmental Specifications:

Temperature Rating	-65º to +165ºC
Corrosion	MIL-STD-202 Method 101, Test Condition B
Shock	MIL-STD-202 Method 213, Test Condition I
Vibration	MIL-STD-202 Method 204, Test Condition D
Thermal Shock	MIL-STD-202 Method 107, Test Condition B
Durability	100 cycles min.
Force to Engage	Full Detent: 15 pounds max.
	Limited Detent: 10 pounds max.
	Smooth Bore, Catcher's Mitt: 2 pounds max.
Force to Disengage	5 pounds min. (full detent)
	2 pounds min. (limited detent)
	0.5 pound min (smooth bore, catcher's mitt)

Materials & Finishes:

Center Contacts	Brass per ASTM B16, gold plated per ASTM B488, Type 3 Class 1.25
Spring Fingers	Beryllium Copper per ASTM B196, gold plated per ASTM B488, Type 3 Class 1.25
SMP Male Body	Stainless Steel per ASTM A582, passivated per ASTM A967
Insulators	PTFE per ASTM D-1710

Interconnect Configurations
Flange Mount
Right Angle Flange Mount
Thread-In Box Mount
Press-In Flange Mount
PCB Mount, Right Angle & Straight
Cable Connectors, Semi-Rigid & Flexible RG Cables

All specifications subject to change without notice.

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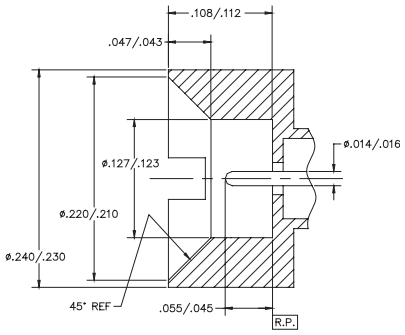
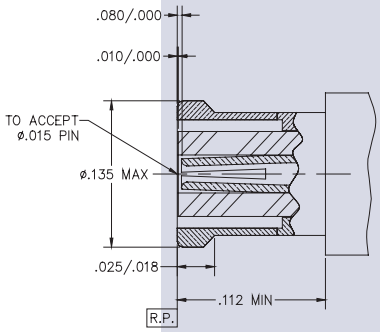
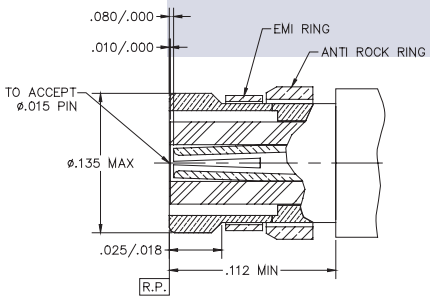
SMP Male Catchers Mitt



SMP Female Socket (Adapter)



SMP Female Socket (Cable)



Sabritec's SMP coax connector line features a snap-in vibration-proof connection, suitable for high shock mobile applications and space level connector requirements of extreme random vibration, thermal shock, and outgassing environments. Frequency range is DC-40 GHz with low VSWR and insertion loss (dB) parameters of 0.10 $\sqrt{F(GHz)}$ dB max. The extremely small package size allows for high density board-to-board applications. Blind mate SMP connectors are available in smooth bore for maximum float of mating (0.015" radial and axial misalignment between mating planes). The full and limited detent SMP connections are suitable for mobile applications with extreme shock and vibration requirements. These connectors meet or exceed the applicable requirements of DESC drawing numbers 94007 and 94008.

In addition to the SMP coaxial connector line, Sabritec offers a smaller SMPM series. The SMPM series is available with detent and nondetent mating levels with blindmate capabilities. The SMPM coaxial connector is 30% smaller than the SMP and has the advantage of a higher frequency range capable of 60 GHz.

Features and Benefits:

- Meets extreme shock and high vibration requirements
- Snap in connection
- Durable light weight construction
- Ideal for high density packaging
- Full and limited detent locking
- Blind-mate smooth bore series available
- Space approved SMP connectors available
- Permits high density board-to-board connections
- Gold plated contact members

RF Coaxial

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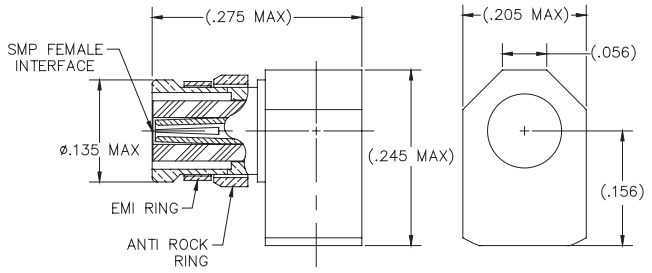
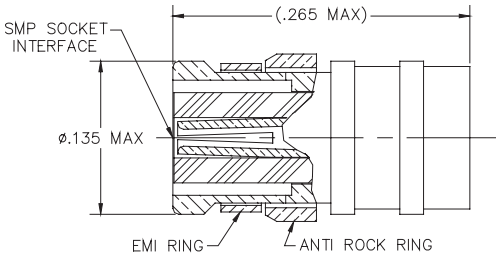
SMP Right Angle Female to S/R Cable



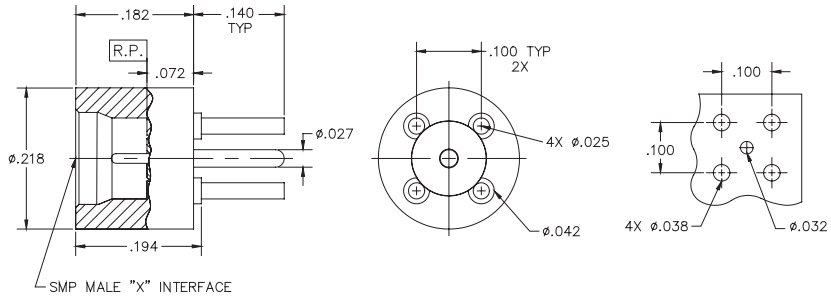
Part Number	Cable Type	Cable
219936-1000	Semi-Rigid	SR.047
219909-1001	Semi-Rigid	RG-405

SMP Straight Female to S/R Cable



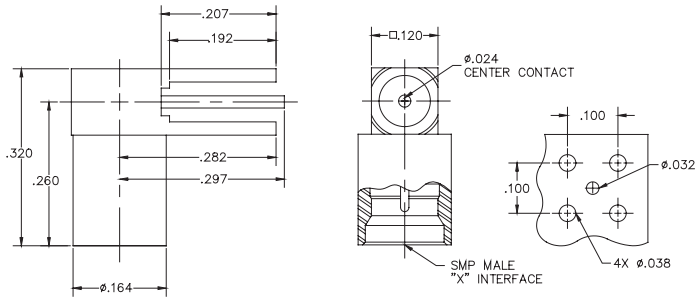
Part Number	Cable Type	Cable
219936-3000	Semi-Rigid	SR.047
219909-3001	Semi-Rigid	RG-405

SMP Male Straight PCB Mount



Part Number	Detent Level
219900-2000	FD
219900-2001	LD
219900-2002	SB

SMP Male Right Angle PCB Mount



Part Number	Detent Level
219900-1000	FD
219900-1001	LD
219900-1002	SB

See Page 197 for Cable Ordering Information

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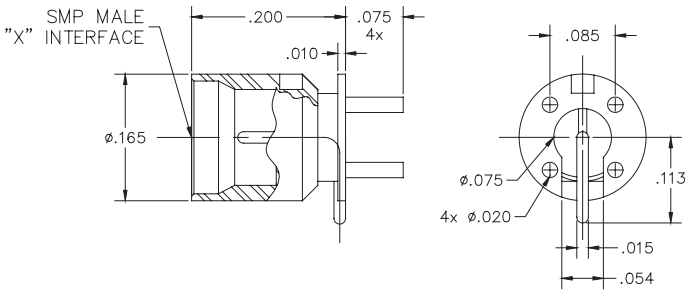
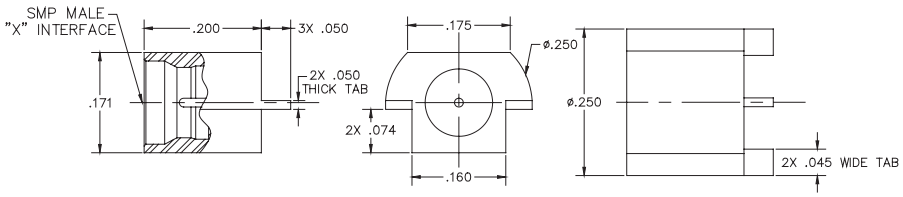
SMP Male Straight PCB Mount



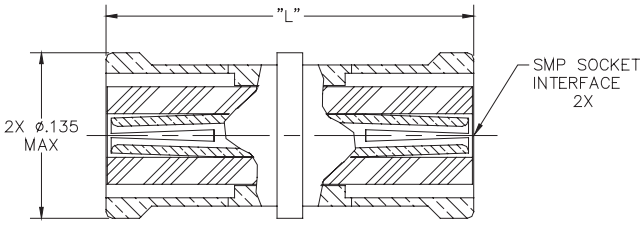
Part Number	Detent Level
219900-2003	FD
219900-2004	LD
219900-2005	SB

SMP Male PCB Edge Launch to Straight Termination



Part Number	Detent Level
219900-2006	FD
219900-2007	LD
219900-2008	SB

SMP Female to Female Adapter

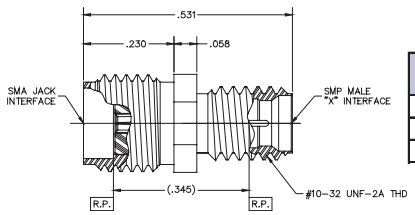


L=Length

Part Number	Length
219900-4000	0.254
219900-4001	0.395
219900-4002	0.484
219900-4003	0.569

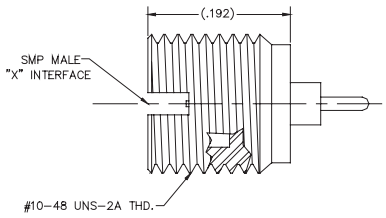
Feed-Thru Adapters/Terminators

SMA Female to SMP Male Thread-In Adapter



Part Number	Detent Level
219900-4008	FD
219900-4009	LD
219900-4010	SB

SMP Male Straight Termination



Part Number	Detent Level
219900-2009	FD
219900-2010	LD
219900-2011	SB

RF Coaxial

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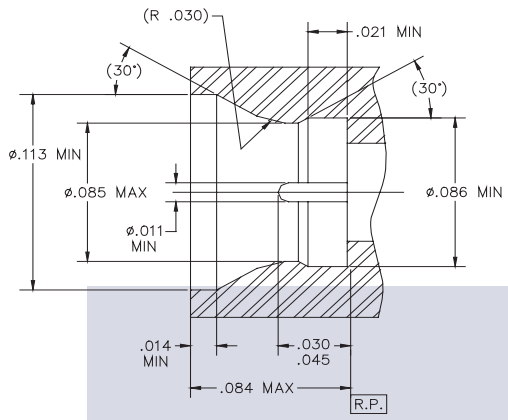
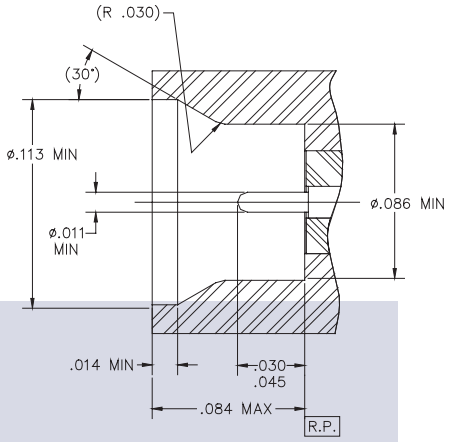
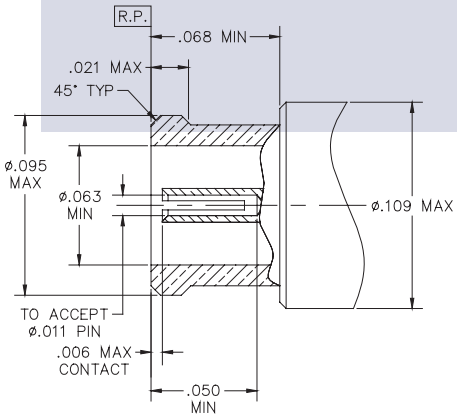
SMPM Male Detent



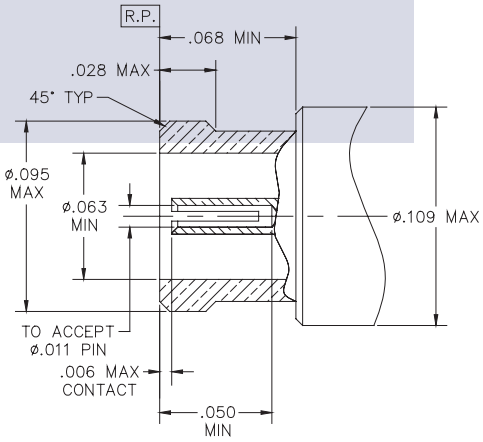
SMPM Male Non-Detent



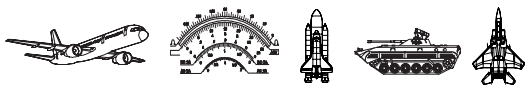
SMPM Female (Adapter)



SMPM Female (Cable)



RF Coaxial



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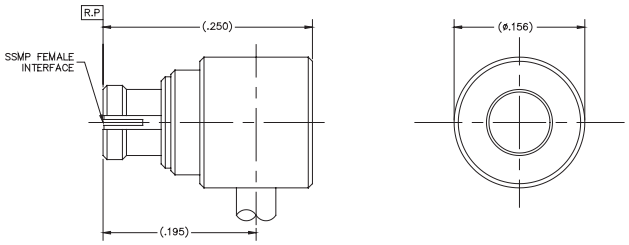
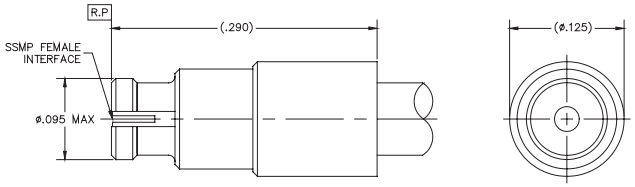
SMPM Right Angle Female to S/R Cable



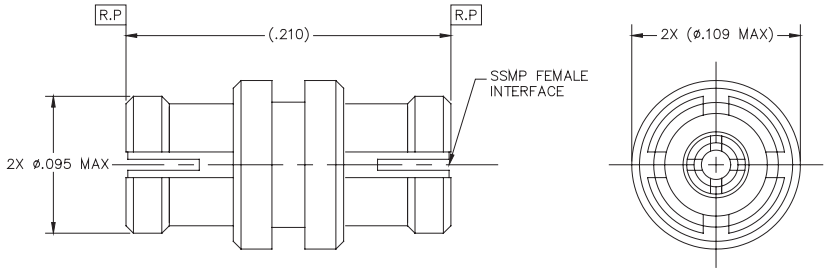
Part Number	Cable Type	Cable
229936-1000	Semi-Rigid	SR .047
229909-1001	Semi-Rigid	RG-405

SMPM Straight Female to S/R Cable



Part Number	Cable Type	Cable
229936-3000	Semi-Rigid	SR .047
229909-3001	Semi-Rigid	RG-405

SMPM Female to Female Adapter



P/N 229900-4000

RF Coaxial

See Page 197 for Cable Ordering Information

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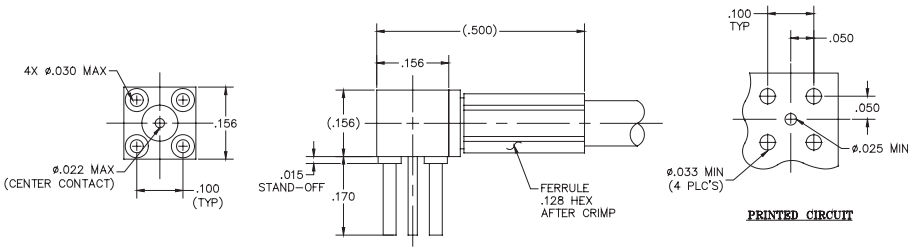
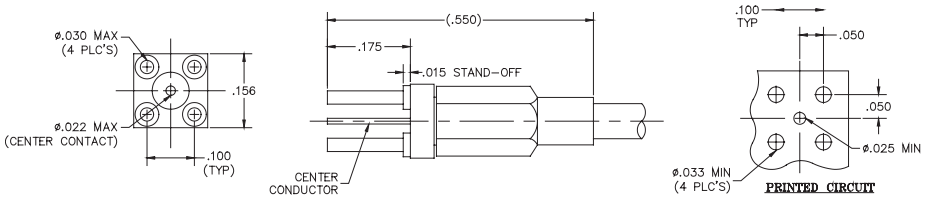
PRECISION PCB TERMINATORS

Right Angle PCB Mount to Cable



Part Number	Cable Type	Cable
010012-1011	Flexible Coax	RG-178
010012-1012	Flexible Coax	RG-316

Straight PCB Mount to Cable



Part Number	Cable Type	Cable
010012-2010	Flexible Coax	RG-178
010012-2011	Flexible Coax	RG-316

RF Coaxial

See Page 197 for Cable Ordering Information

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Coaxial Contacts

Specifications/Overview

Sabritec's coaxial contacts provide flexibility in the design of high frequency RF and microwave applications. The contacts, including sizes 5, 8, 9, 12, and 16, have the same outline dimensions as traditional power contacts and fit various insert arrangements for d-sub, circular, and rack and panel connectors. The coaxial cable type contacts are designed for low-loss concentric 50 and 75 Ohm cable types. These contacts are available in 50 Ohm for flexible RG-178 and RG-316 and semi rigid of SR.047 and SR. 080 cables. Flexible cables such as RG-179 for 75 Ohm applications are also available.

An innovative design of coax contacts opens a whole new world of design options. These small, rugged contacts have a VSWR rating of 1.3:1 max with a frequency range from DC to 5 GHz and fit standard connector contact cavities for MIL-DTL-38999, ARINC 404, and ARINC 600.

Sabritec also manufactures a complete line of stand-alone coax connectors including SCX, SMP, SMPM and MDCX series as well as other specific application configurations.

Features

- Fits standard MIL-DTL-38999 sizes 8, 12 & 16 contact cavities, ARINC 600 sizes 5, 12 and 16, and ARINC 404 size 9 standard rack & panel connector cavities
- Small size for high density packaging
- Ideal for RF and microwave applications for instruments, radar, communications, and RF shielding.

Electrical Specifications:

Dielectric Withstanding Voltage	500 VRMS @ sea level with 70% relative humidity
Insulation Resistance	1000 megaohms min. @ 250 VDC
Contact Current Rating	1.5 Amps, D.C. max
Characteristic Impedance	50 Ohm constant airline impedance
RF HI Potential Withstanding Voltage	125 VRMS @ 5 MHz
Corona Level @ 70,000 FT	Center contact to intermediate contact: 125 VAC
Permeability	2.0 max
Frequency Range	DC to 5GHz
VSWR	1.3:1 max. (mated pair)

Mechanical & Environmental Specifications:

Temperature Rating	-65º to +165ºC
Corrosion	MIL-STD-202 Method 101, Test Condition B
Shock	MIL-STD-202 Method 213, Test Condition B
Vibration	MIL-STD-202 Method 204, Test Condition B
Thermal Shock	MIL-STD-202 Method 107, Test Condition B
Durability	1000 mate/unmate cycles min

Materials & Finishes:

Center Contacts	Brass per ASTM B16, gold plated per ASTM B488, Type 3 Class 1.25
Spring Fingers	Beryllium copper per ASTM B196, gold plated per ASTM B488, Type 3 Class 1.25
Plug Body & Receptacle	Brass per ASTM B16, gold plated per ASTM B488, Type 3 Class 1.25
Insulators	PTFE per ASTM D-1710

Size 8 Coax Pin and Socket Contacts

RF Coaxial

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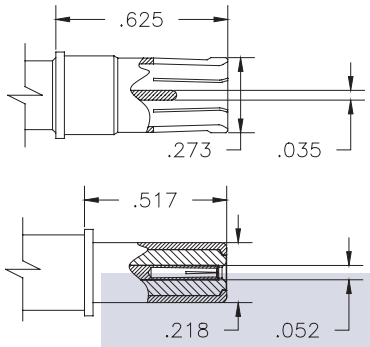
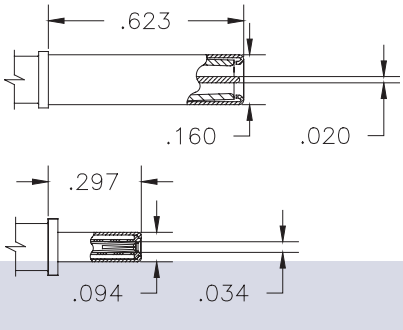
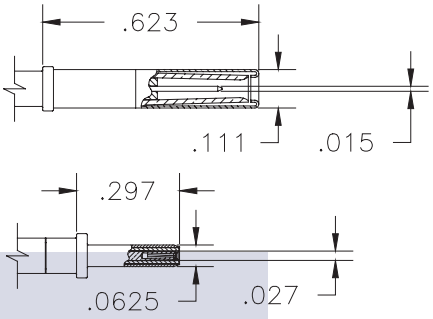


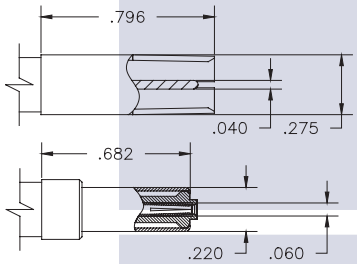
MIL-DTL-38999 Size 8



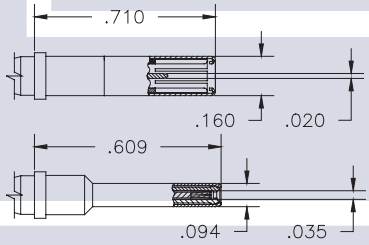
MIL-DTL-38999 Size 12



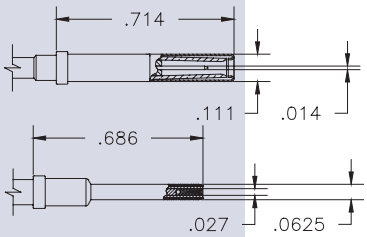
MIL-DTL-38999 Size 16



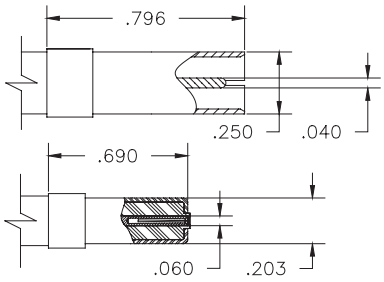
ARINC 600 Size 5



ARINC 600 Size 12



ARINC 600 Size 16



ARINC 404 Size 9

RF Coaxial

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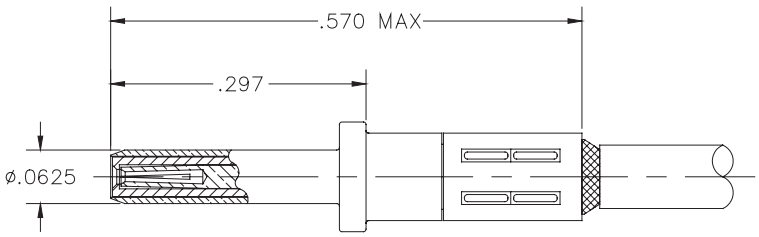
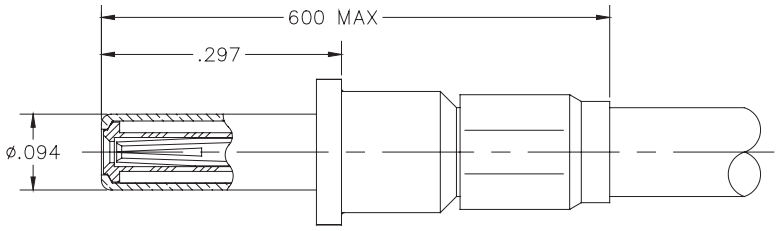
MIL-DTL-38999 Size 16 Coax Pin



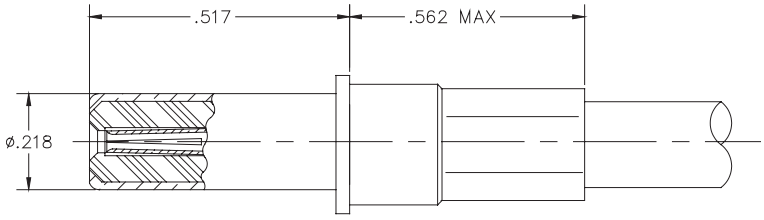
Part Number	Cable Type	Cable
018512-2100	Flexible Coax	RG-178
018512-2101	Flexible Coax	RG-316

MIL-DTL-38999 Size 12 Coax Pin



Part Number	Cable Type	Cable
018612-2118	Flexible Coax	RG-178
018612-2119	Flexible Coax	RG-316

MIL-DTL-38999 Size 8 Coax Pin



Part Number	Cable Type	Cable
019612-2100	Flexible Coax	RG-58
019612-2101	Flexible Coax	RG-316

See Page 197 for Cable Ordering Information

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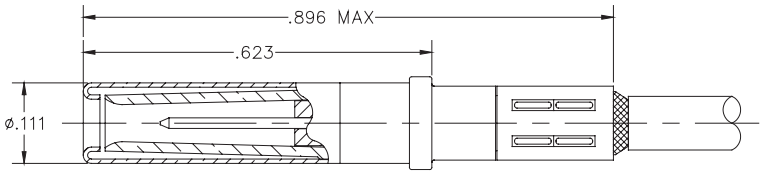
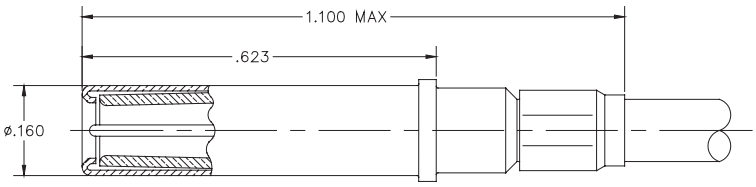
MIL-DTL-38999 Size 16 Coax Socket



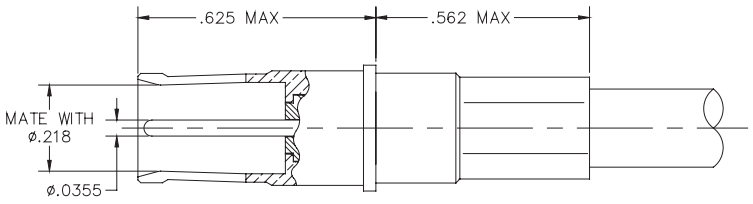
Part Number	Cable Type	Cable
018412-2100	Flexible Coax	RG-178
018412-2101	Flexible Coax	RG-316

MIL-DTL-38999 Size 12 Coax Socket



Part Number	Cable Type	Cable
018712-2118	Flexible Coax	RG-178
018712-2119	Flexible Coax	RG-316

MIL-DTL-38999 Size 8 Coax Socket

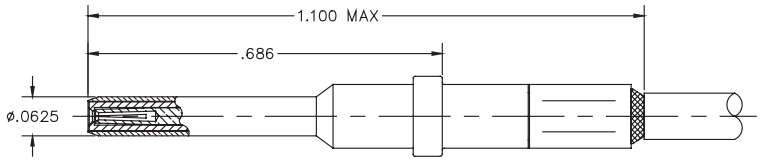


Part Number	Cable Type	Cable
019512-2100	Flexible Coax	RG-58
019512-2101	Flexible Coax	RG-316

See Page 197 for Cable Ordering Information

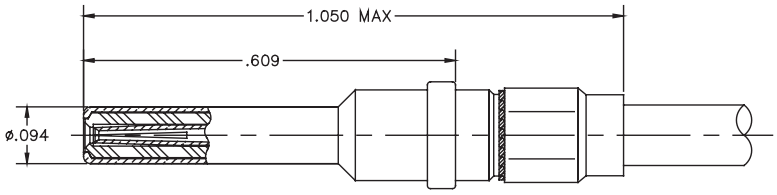
Downloaded from Arrow.com.

ARINC 600 Size 16 Coax Pin



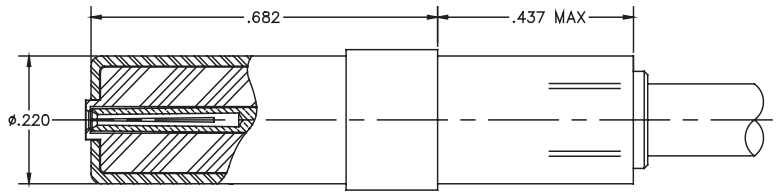
Part Number	Cable Type	Cable
018512-2200	Flexible Coax	RG-178
018512-2201	Flexible Coax	RG-316

ARINC 600 Size 12 Coax Pin



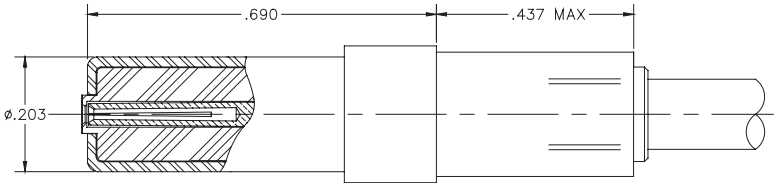
Part Number	Cable Type	Cable
018612-2200	Flexible Coax	RG-178
018612-2201	Flexible Coax	RG-316

ARINC 600 Size 5 Coax Pin



Part Number	Cable Type	Cable
019412-2200	Flexible Coax	RG-58
019412-2201	Flexible Coax	RG-316

ARINC 404 Size 9 Coax Pin



Part Number	Cable Type	Cable
019212-2016	Flexible Coax	RG-58
019212-2017	Flexible Coax	RG-316

See Page 197 for Cable Ordering Information

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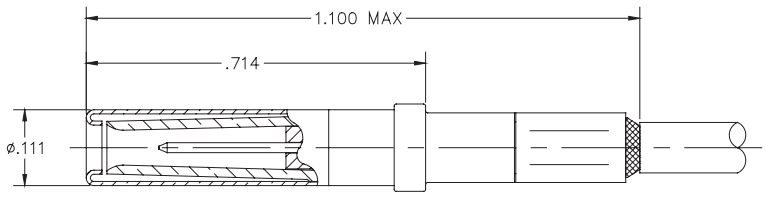
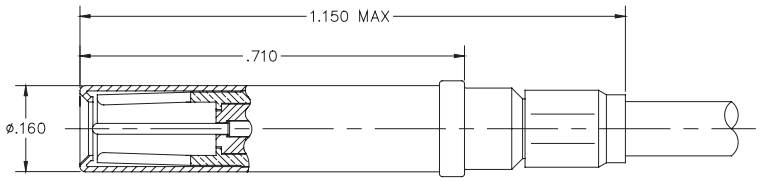
ARINC 600 Size 16 Coax Socket



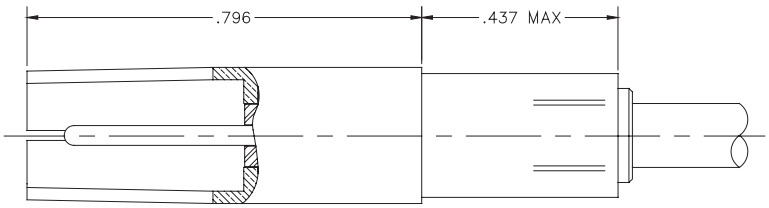
Part Number	Cable Type	Cable
018412-2200	Flexible Coax	RG-178
018412-2201	Flexible Coax	RG-316

ARINC 600 Size 12 Coax Socket



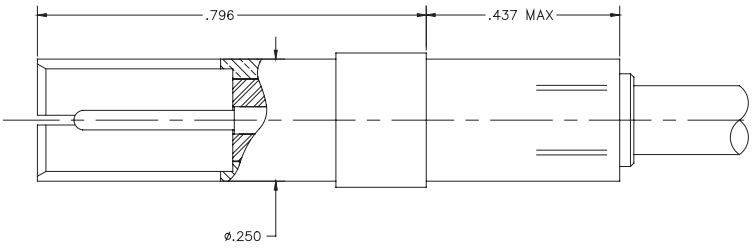
Part Number	Cable Type	Cable
018712-2200	Flexible Coax	RG-178
018712-2201	Flexible Coax	RG-316

ARINC 600 Size 5 Coax Socket



Part Number	Cable Type	Cable
019312-2200	Flexible Coax	RG-58
019312-2201	Flexible Coax	RG-316

ARINC 404 Size 9 Coax Socket



Part Number	Cable Type	Cable
019112-2016	Flexible Coax	RG-58
019112-2017	Flexible Coax	RG-316

See Page 197 for Cable Ordering Information

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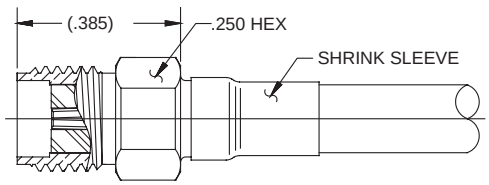
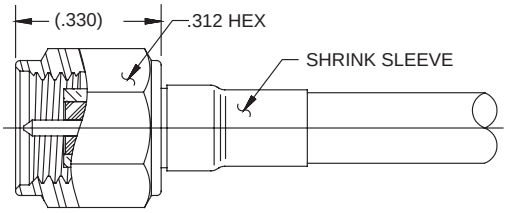
Straight SMA Jack



Part Number	Cable Type	Cable
011609-8000	Semi-Rigid	T-Flex®402
011609-8001	Semi-Rigid	T-Flex®405

T-Flex Cable is a registered trademark of Times Microwave Systems

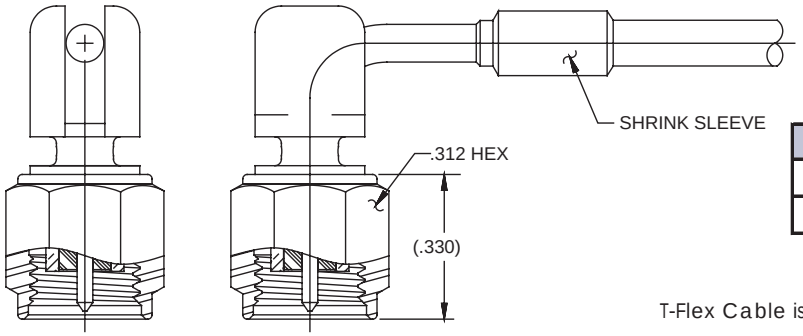
Straight SMA Plug



Part Number	Cable Type	Cable
011509-8000	Semi-Rigid	T-Flex®402
011509-8001	Semi-Rigid	T-Flex®405

T-Flex Cable is a registered trademark of Times Microwave Systems

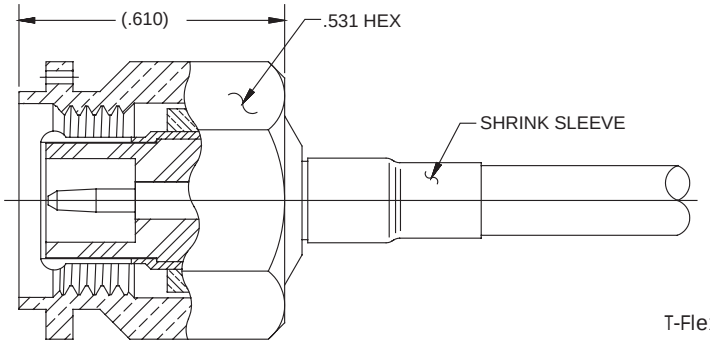
Right Angle SMA Plug (Torque Isolation Connector)



Part Number	Cable Type	Cable
011509-1002	Semi-Rigid	T-Flex®402
011509-1003	Semi-Rigid	T-Flex®405

T-Flex Cable is a registered trademark of Times Microwave Systems

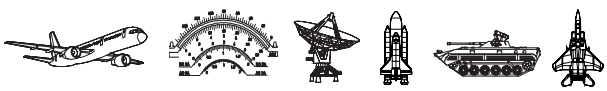
Straight TNC Plug



Part Number	Cable Type	Cable
011109-8000	Semi-Rigid	T-Flex®402
011109-8001	Semi-Rigid	T-Flex®405

T-Flex Cable is a registered trademark of Times Microwave Systems

Note: T-Flex® cables can be terminated with Flexible alternatives to Semi-Rigid Coax Cables



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Cable Assembly Ordering Information

Part Number Assignnment

013220-2000 - 32 - 013120-2000 - 24

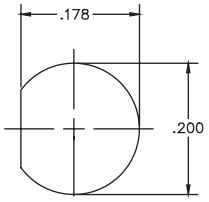
- 24 — Cable Length (in inches)
- 013120-2000 — Connector #2
- 32 — Cable Group #
- 013220-2000 — Connector #1

Semi-Rigid Coax
27 = SR.047
28 = RG-405
29 = T-Flex 402*
30 = T-Flex 405*

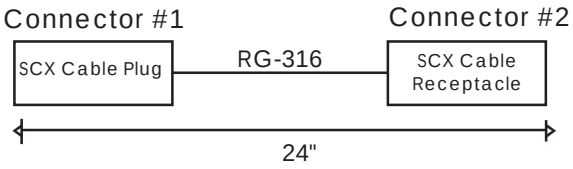
Flexible Coax
31 = RG-178
32 = RG-316
33 = RG-58

*T-Flex Cable is a registered trademark of Times Microwave Systems

Mounting D-Hole
(Bulkhead Connectors)



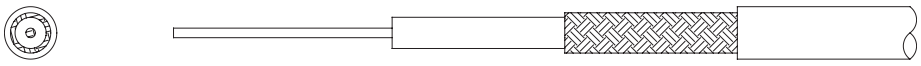
Sample P/N: 013220-2000/32/013120-2000/24



Please use the request for quote worksheet on page 225 to specify your custom application needs.

Semi-Rigid Coax Cables

Cable Group No.	Cable Designation	Impedance (OHMS)	Jacket	Inner Conductor
27	SR.047	50	0.047"	0.0362"
28	RG-405	50	0.0865"	0.0201"
29	T-Flex®402	50	0.160"	0.036"
30	T-Flex®405	50	0.104"	0.020"



Flexible Coax Cables

Cable Group No.	Cable Designation	Impedance (OHMS)	Jacket	Conductor
31	RG-178	50	0.071"	0.012"
32	RG-316	50	0.098"	0.0201"
33	RG-58	50	0.195"	0.0355"

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Grounded Circular Connector Series

Sabritec's grounded circular connector series are designed to ground the outer shield of a triax or coaxial contact directly to the shell of the connector. An innovatively designed multi-finger contact spring mechanism fixed within each metalized grounded connector cavity serves a dual purpose. It acts as a mechanically sound and well proven contact retention clip mechanism as well as a multi-finger contact engagement point for superior EMI shielding resulting in extremely low contact resistance values when measured from the coax or triax contact outer body to the connector flange. Contact resistance is 5 milliohms maximum.

All connector types are available including MIL-DTL-38999 Series I, II, and III, MIL-C-26482 Series II/MIL-DTL-83723 Series I square flange mount receptacles and plug connector assemblies. All Sabritec grounded circular connectors are intermateable and interchangeable with standard non-grounded connectors.

Features:

- Grounded multi-finger contact spring mechanism within each connector cavity
- Contact resistance: 5 milliohms max
- Intermateable and interchangeable with standard non-filtered connectors
- Superior EMI shielding
- Suitable for MIL-STD-1760 applications

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Ground Plane Circular Connectors

Multipin Circular Grounded Connectors

MIL-DTL-38999 Grounded Circular Connectors

Sabritec's grounded circular connectors are designed for mixed signal, coax and triax circular connector insert arrangements. Metalized inserts containing multi-finger EMI ground spring fingers offer very low contact resistance while grounding coaxial and triaxial contacts without the need for labor intensive pig-tailing and outer PC tail grounding schemes. All ground plane connectors meet or exceed all applicable requirements of standard QPL Mil-Spec circular connectors.

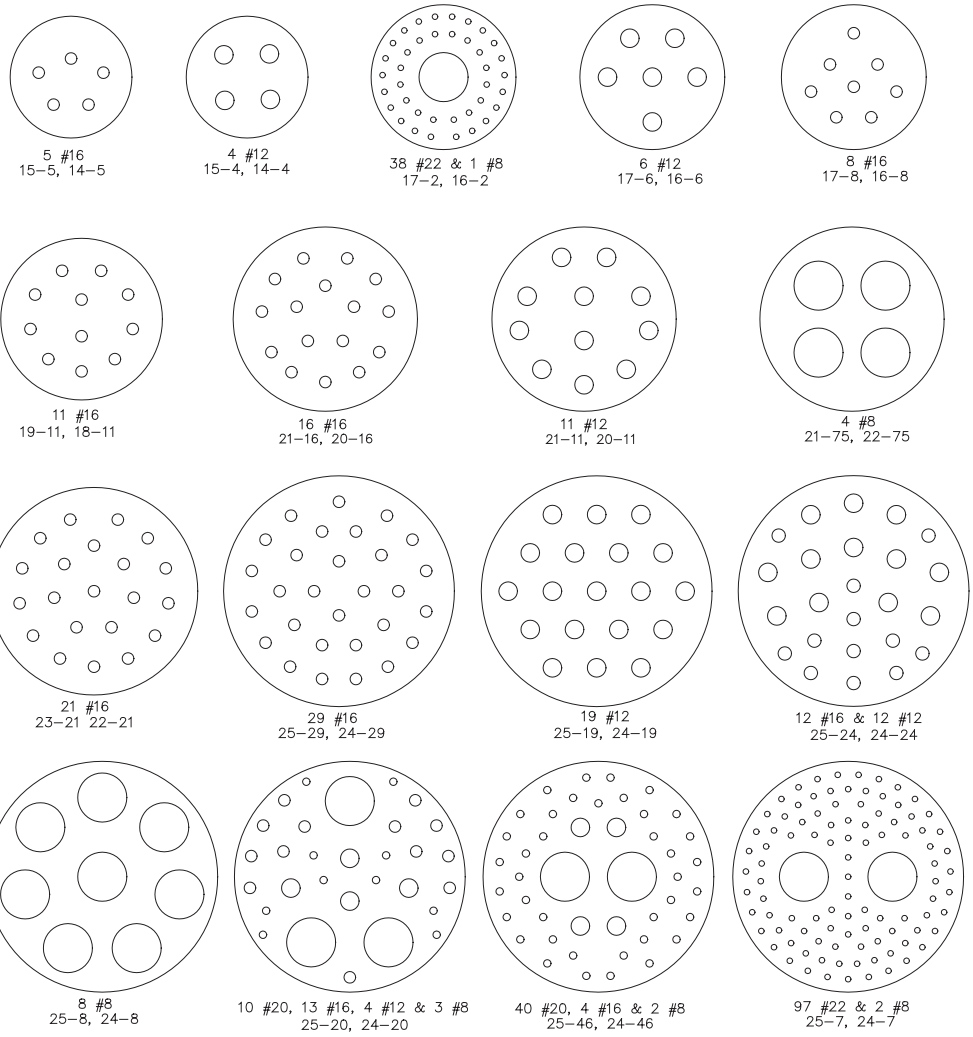
Materials & Finishes

Contacts	Brass per ASTM B16, gold plated per ASTM-B488, Type III, Class 1.25
Insert	Aluminum alloy, silver plated per ASTM B700
Shells	Aluminum alloy, consult factory for plating options
Grounded EMI Fingers	Beryllium copper per ASTM-B196, Alloy UNS C17300 Gold plated per ASTM-B488, Type III, Class 1.25

Connector Types

- MIL-DTL-38999 Series I
  MS27505 Square Flange Receptacle
- MIL-DTL-38999 Series II
  MS27499 Square Flange Receptacle
- MIL-DTL-38999 Series III
  D38999/20 Box Mount Receptacle
- MIL-DTL-38999 Series IV
  D38999/40 Box Mount Receptacle
- MIL-C-26482 Series II
  MS3470 Square Flange Receptacle

Insert Arrangements



RF Coaxial

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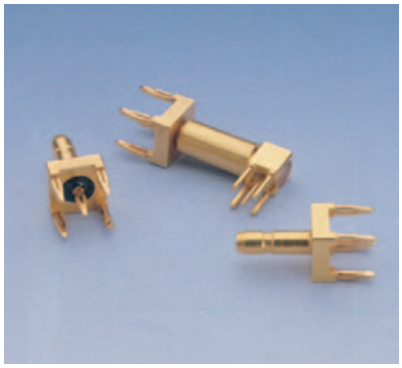
Compliant Pin Coaxial Connectors

Sabritec's SCX Compliant Pin coaxial connectors allow for a solderless press-fit termination into standard plated-thru holes. A 50-ohm characteristic impedance is maintained throughout the connector body offering the utmost in RF performance in compliant pin termination. With a solderless termination, PCB connectors can be easily stacked on both sides of the circuit board.



Compliant Pin RF Connectors

The compliant pin coaxial connector line offers supreme RF performance in a press-fit termination package. These connectors press-fit into a standard 1mm plated-thru hole. The compliant pin utilizes an eye of the needle concept with heat-treated beryllium copper spring fingers finished with gold plating and shear forces. The connector assembly can be removed from the PCB up to three (3) times without lowering the insertion/extraction force of the attachment to the PCB.

Features:

- Complete repairability
- Ease of rework to the PCB without damaging solder pad connection
- Eliminates flux and hazardous flux removal systems
- Available in .200" standard footprint spacing
- Press-fit into .040"dia.+/-.003" plated-thru holes
- Stack PCB connectors on both sides of the circuit board

Coaxial End Launch Connectors

Coaxial End Launch Connectors/Blind-Mate Applications

Sabritec's RF End-Launch SCX connectors offer ease of mounting to the PCB with exceptional board retention far exceeding excessive mating and shear forces without the need for plated through hole mounting. The connector is mounted or launched directly off the end of the PCB without the use of costly right angle, through hole termination methods. The SCX series offers plug and receptacle end-launch configurations as well as a unique blind mate/float mount SCX receptacle for multiple gang mating board to board interconnect applications.

Features

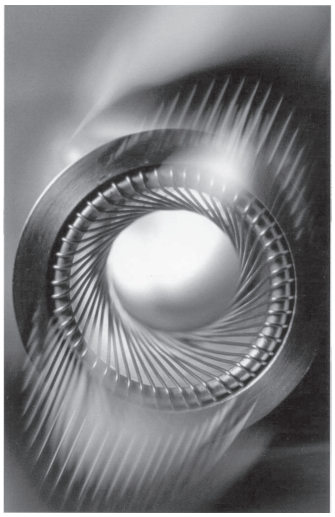
- Designed for standard .062" thick circuit boards
- .015" full radial float mount design
- Multiple blind-mate gang mating possibilities
- Ideal for low profile circuit card to mother board interconnect schemes

Downloaded from Arrow.com.

Sabritec has teamed with Hypertronics to offer turnkey RF solutions. Sabritec and Hypertronics are Smiths Group companies that focus on the design and manufacture of interconnect products. Hypertronics products are built upon the patented Hypertac® contact design, which outperforms other interconnect options in terms of performance, reliability, number of mating cycles, contact resistance forces and value. For a complete catalog call (978) 568-0451 or visit www.hypertronics.com

Hypertronics. When failure is not an option.

Hypertronics has been the leader in the design, manufacture and distribution of high reliability connectors for the electronics industry since 1970. As part of Smiths Group, a multinational company headquartered in the UK, Hypertronics specializes in providing highly engineered connector solutions to global niche markets and applications requiring unfailing performance and reliability.



High Reliability Connectors - Hypertac® Technology

All of Hypertronics products are built upon the patented Hypertac Contact design, which outperforms other interconnect options in terms of performance reliability, number of mating cycles, contact forces, contact resistance, and value. Hypertac contacts feature a hyperboloid-shaped basket of individual spring wires that provide up to 100,000 mating cycles, nearly half the resistance of conventional contact designs, immunity to shock and vibration, extremely low insertion/extraction forces, and 360-degree wiping action.

To Meet or Exceed Our Customer Expectations

Hypertronics provides customers with the highest degree of engineering, manufacturing and customer service in order to meet the industry's most demanding application requirements. Hypertronics is ISO 9001 certified.

Custom Connector Designs

The company's expertise is precision design and manufacturing of electronic interconnect systems. Hypertronics engineers work directly with customers to develop unique solutions that address specific customer needs and industry requirements. The combination of engineering talent and in-house manufacturing capabilities, such as 3D solid modelling, rapid prototyping, high precision assembly and injection molding, provide customers with quick turnaround on custom designs.

Custom Cable Assemblies

Hypertronics provides end-to-end solutions for OEMs who require unsurpassed reliability from both the connectors and the cabling. This also eliminates the need for customers to procure from multiple sources, resulting in a shorter supply chain and cost effective system designs.

Environmental Policy

Hypertronics is a world class manufacturer and provider of interconnect solutions and is committed to comply with all applicable environmental legislation and regulations. Hypertronics is dedicated to continuous improvement in our interaction with the environment including the prevention of pollution. Hypertronics is ISO 14001 certified.

Contact Us

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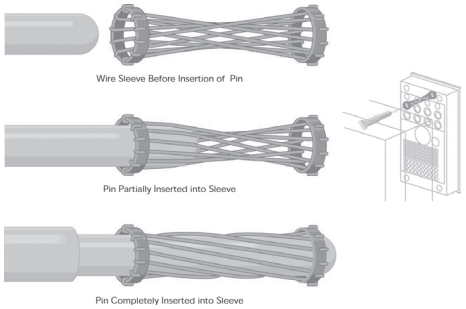
Hudson, MA 01749
Telephone: 978-568-0451
Toll Free: 800-225-9228
Facsimile: 978-568-0680
www.hypertronics.com



The shape of the Hyperboloid contact sleeve is formed by wires strung at an angle to the socket's axis. When the pin is inserted into this sleeve, the wires stretch around it, providing a number of linear contact paths.

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Florida RF Labs

Coaxial Cable Assemblies

Sabritec has teamed with Florida RF Labs to offer turnkey RF solutions. Sabritec and Florida RF Labs are Smiths Group companies that focus on the design and manufacture of interconnect products. Florida RF Labs manufactures high quality, thin film microwave resistor products and high reliability RF coaxial cable assemblies for military and commercial applications. For a complete catalog call (772) 286-9300 or visit www.rflabs.com.

Florida RF Labs, Inc.
has long been recognized as a leader in high quality, high performance cable assemblies with testing to 65 GHz.

- **Lab-Flex®** High Performance, Low Loss Cable Assemblies
- **Conformable®** Cable Assemblies
- **Semi-Rigid** Cable Assemblies
- **Standard Flexible** RG Cable Assemblies
- **LMR®** Cable Assemblies

SMP Cable Assemblies
Sabritec's SMP Connectors are available on:

- .047 Semi-Rigid and Conformable®
- .086 Semi-Rigid and Conformable®
- .141 Semi-Rigid and Conformable®
- T-Flex® 405
- RG 316
- RG 178

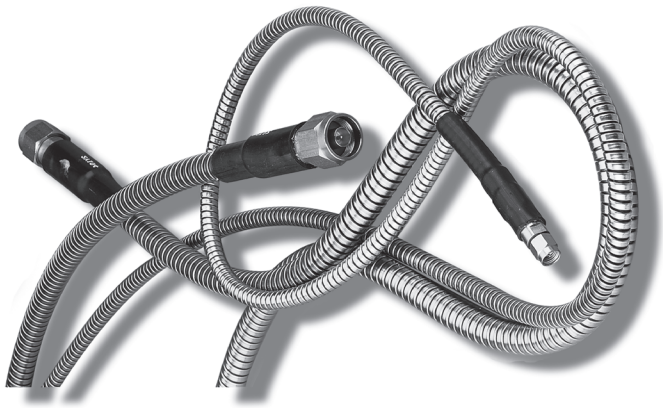
Armorized Assemblies

Florida RF Labs offers high performance Lab-Flex® assemblies with the protection of a stainless steel armored jacket.

- Connector types: 2.4 mm, 2.9mm, 3.5mm, SMA, TNC, Type N
- Lab Flex® Cables Sizes: 160, 200, 290, 335
- Available with: Polyolefin or Neoprene Jacket for outdoor use (weatherized over armor)

46 GHz Lab-Flex® Assemblies
Florida RF Labs offers the highest performance, most cost effective 46 GHz cable assembly in the industry.

- Connector types: 2.4mm, 2.9mm, Plugs, Jacks, Bulkhead Mount
- Testing capabilities to 65 GHz
- Ruggedized connector end available
- 2.4mm plugs on .086 Semi-Rigid to 60 GHz
- Assorted cable types
- Any length 6" and up



* T-Flex and LMR are registered trademarks of Times Microwave Systems.
Times Microwave Systems is a Smiths Group company.
Conformable is a registered trademark of Belden Corp.
Lab-Flex is a registered trademark of Florida RF Labs, Inc.

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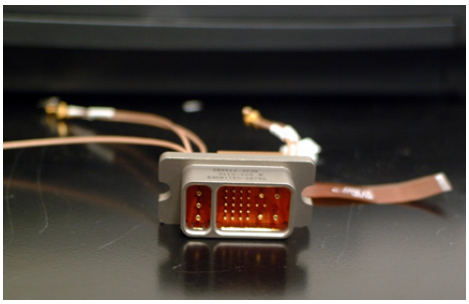
Watertight Connectors

Electronic equipment that is used in harsh environments requires connectors that can withstand exposure to moisture, dust and other elements. Also many applications require components to meet the Ingress Protection (IP) rating of IP67. Sabritec has developed water resistant connectors that can be successfully used in systems where moisture, humidity, water, and dust are present. The Sabritec design method is capable of sealing up to 35 psi in the unmated, open faced condition. These connectors are ideal for high-pressure/low leakage applications in land, air, sea, and space environments. The water resistant connector features can be added to both filtered and non-filtered multipin connectors, coaxial, triaxial, and high speed copper connector types.

MIL-DTL-38999 Compliant Watertight Connector

Circular, Rack and Panel and D-subminiature Types

Sabritec has incorporated this watertight technology in connector types that meet the requirements of most connector standards including MIL-DTL-38999, MIL-DTL-26482, MIL-DTL-24308, MIL-DTL-83527, MIL-DTL-81659, and ARINC 600. These connectors can be designed to fit the envelope of the specification standard or can incorporate any special features desired including different mounting types, unique shell or flange configurations, or EMI/EMP filtering.



Hybrid Connector with Coax, Power and Signal Contacts

Customer Defined Connector Types

Sabritec also provides water resistant capabilities to connectors that do not conform to any connector standard but are application specific designs as defined by unique interface requirements. Along with being sealed in the unmated condition, these connectors can also incorporate threaded inserts, hybrid contact configurations (power, signal, coaxial, triaxial, and high speed), custom housing configurations, EMI/EMP filtering, and value added cable assemblies.

Please consult the factory for more information.

GPS Connector

Filtered Coaxial Switching Connector

Sabritec does not offer standard QPL slash sheet part #'s for multipin circular and rack & panel connectors. Our connectors are fully intermateable and interchangeable with all slash sheet part #'s.

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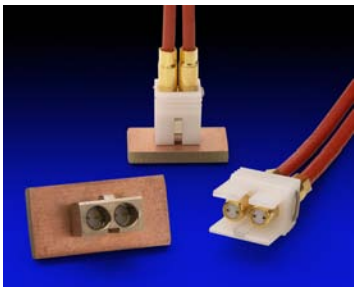
Special Application Connectors

Medical and Test and Measurement Applications

At Sabritec, our engineering expertise and complete in-house manufacturing capability allows us to easily modify standard products and/or create completely unique designs from start to finish. If you have the need for a custom product, please contact us with any questions or specifications. We look forward to assisting you in every way possible. Below are just some of the special application connectors and contacts that Sabritec offers. Call Sabritec's Applications Engineering Department for help with your custom interconnect needs.

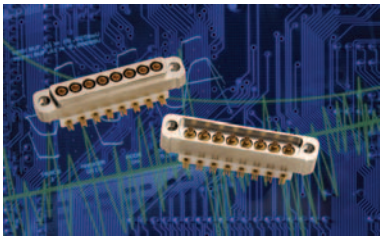
Test and Measurement Connectors

Sabritec manufactures products that are suitable for the test and measurement industry. These connectors are used in test equipment for applications that require high durability under extreme mating cycles and low insertion force. The complete product series includes modular block, micro-d coax, high impedance triax contacts, and concentric triax, twinax and quadrax contacts.



Modular Block Connectors

- Modular connectors for variety of combinations in single connector
- Low insertion- extraction forces
- Low contact resistance
- Mini-modular connectors for off the shelf components
- Mixed power, signal, coaxial, triaxial and fiber optic modules
- High current ratings
- Immunity to shock and vibration
- Up to 100,000 mating cycles

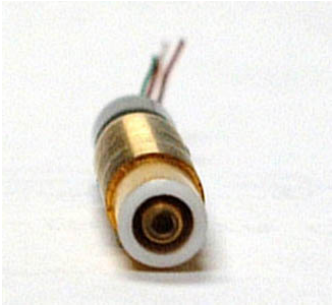


MDCX Connectors

Medical Market Applications

Sabritec supplies the medical market with standard and custom Interconnect solutions where thousands of mating cycles are required. Connectors for this industry include the MDCX coax connectors, Size 8 triax connectors, SCX ultraminiature coax connectors, and nonmagnetic filtered and non-filtered d-subminiature connectors.

Applications include but are not limited to electronic catheters to map the electrical impulses of a beating heart; patient monitors to keep an "eye" on a patient's blood pressure or oxygen levels; MRI systems to provide doctors with a better view of various internal organs; defibrillators to bring a heart attack victim "back to life"; and medical lab equipment to study the effects of various drugs on the causes of disease.



Special Size 12 Triax Contact

Umbilical Launch Connectors

Sabritec offers a wide range of blind mate umbilical launch connectors and lanyard release type connectors. Currently, Sabritec offers Stores Management Type II Rail Launch Connectors for use on various military platforms. These hybrid configuration connectors are in accordance with MIL-STD-1760 for use on aircraft that carry missiles such as AMRAAM. The MIL-STD-1760 Stores Management Connector System uses a Type II launcher plug for use on the railway system which is connected to an intermediary buffer plug. The buffer plug and missile stores receptacle are designed for blindmating on railway launch applications. The three tiered mating sequence can be adapted with various connector interfaces for numerous missile applications with transitional buffers to adapt one missile interface to the MIL-STD-1760 Stores Management Connector System.

Umbilical Railway Launch Connectors

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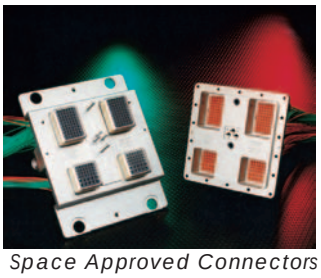
Space Approved Connectors

Overview

Sabritec offers a full range of space level products designed to meet the rigorous environmental requirements for use in space applications. Our space connector line includes filtered and non-filtered D-subminiature and MIL-DTL-38999 Series III connectors. We offer a complete line of fibre channel connectors and contacts including micro twinax, quadrax, quadsplitter, MIL-DTL-38999 twinax, and blindmate twinax connectors.



Space Approved Connectors

Our space level triax connectors feature Sabritec's multiway connector (MTC) with size 10 triax/twinax contacts for numerous insert arrangements. Also featured in our triax line is the NDL-T threaded triax connectors. Our coaxial connector line includes Micro-D connectors with multi-coax assemblies, and SMP and SMPM (miniature SMP) coaxial connectors, and cable assemblies.

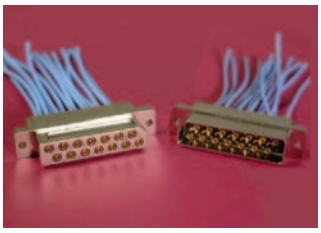
MIL-DTL-38999 Connectors

Sabritec's space connectors provide low insertion force with high durability power, signal, coax, and triax contacts. Our MTC series is available with 2, 7, 12 or 14 contacts in a single housing and provides a polarizing shell to prevent mismating.

SMP Coaxial Connectors

Sabritec's space level connectors meet requirements for outgassing, toxicity, flammability and environmental concerns, such as vibration and high/low temperature, suitable for use in space and military/aerospace applications

- Continuous operation in low-Earth orbit space environments
- Meets requirements of NHB 8060.1 for outgassing, toxicity, flammability and other environmental concerns
- High pressure sealing for air leakage requirements
- EMI shielding capability
- Inserts include low insertion force, high durability, power, signal and triax contacts
- Accessories include backshells (EMI), protective covers and sealing plugs



Twinax Multiway Connectors

D-Subminiature Connector

Recipient of the Boeing 2001 Exceptional Company Performance Award

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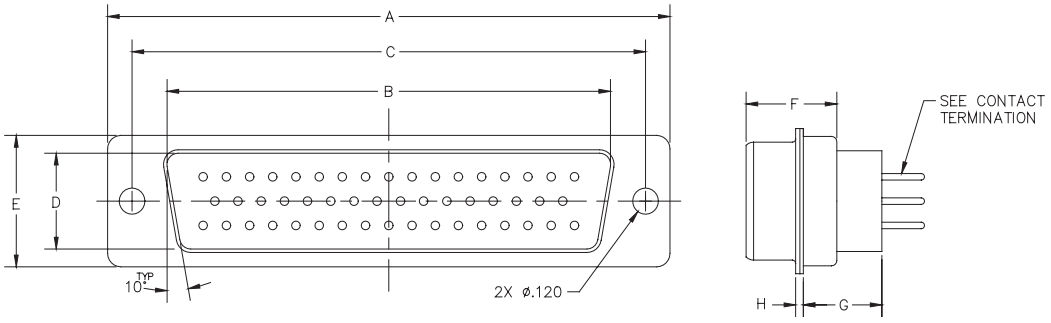
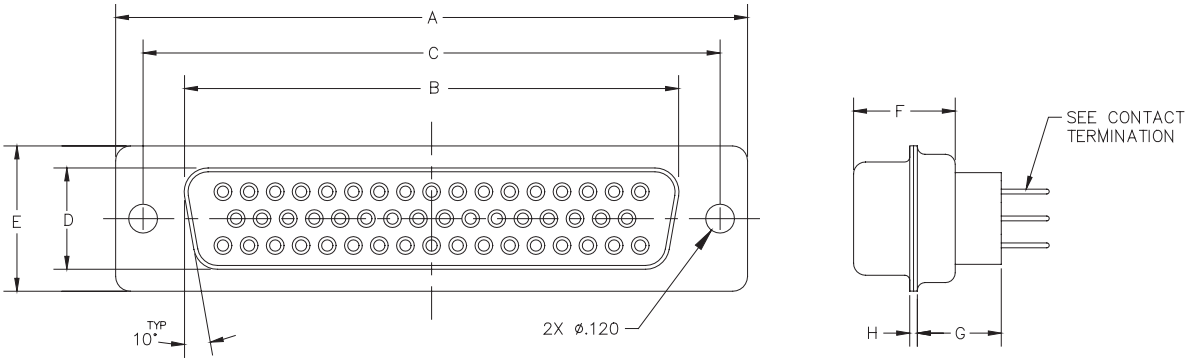
Non Filtered Straight D-Sub Plug



SHELL SIZE	STANDARD DENSITY LAYOUT #20 PIN	HIGH DENSITY LAYOUT #22 PIN	A ±.015	B ±.005	C BASIC	D ±.005	E ±.015	F ±.010	G MAX			H ±.010
									STANDARD DENSITY		HIGH DENSITY	
									PC TAIL & SOLDER CUP	CRIMP	ALL	
1	9	15	1.213	.666	.984	.329	.494	.422	.251	.365	.375	.039
2	15	26	1.541	.994	1.312							
3	25	44	2.088	1.534	1.852			.426				
4	37	62	2.729	2.182	2.500							
5	50	78	2.635	2.079	2.406	.441	.605					
6	–	104	2.729	2.212	2.500	.503	.668		–	–		

Non Filtered Straight D-Sub Receptacle



SHELL SIZE	STANDARD DENSITY LAYOUT #20 PIN	HIGH DENSITY LAYOUT #22 PIN	A ±.015	B ±.005	C BASIC	D ±.005	E ±.015	F ±.010	G MAX			H ±.010
									STANDARD DENSITY		HIGH DENSITY	
									PC TAIL & SOLDER CUP	CRIMP	ALL	
1	9	15	1.213	.643	.984	.310	.494	.429	.251	.365	.375	.039
2	15	26	1.541	.971	1.312							
3	25	44	2.088	1.511	1.852							
4	37	62	2.729	2.158	2.500							
5	50	78	2.635	2.064	2.406	.423	.605					
6	–	104	2.729	2.189	2.500	.485	.668		–	–		

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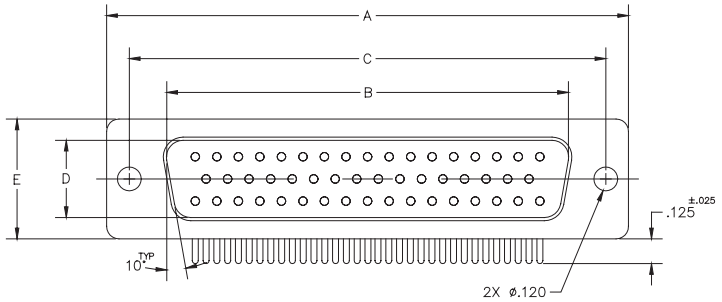
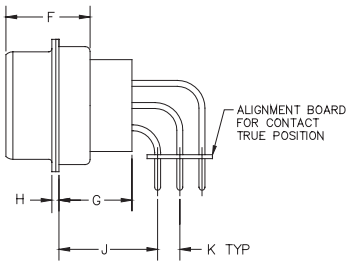
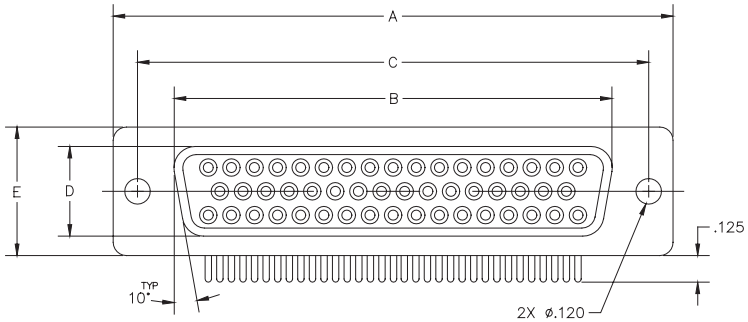
Non Filtered Right Angle D-Sub Plug

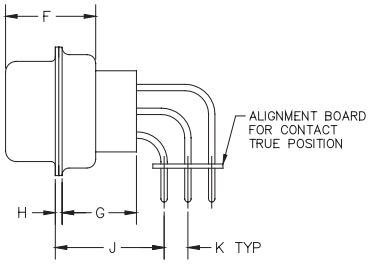




SHELL SIZE	STANDARD DENSITY LAYOUT #20 SKT	HIGH DENSITY LAYOUT #22 SKT	A ±.015	B ±.005	C BASIC	D ±.005	E ±.015	F ±.010	G MAX		H ±.010	J ±.010		K ±.015	
									STANDARD DENSITY	HIGH DENSITY		STANDARD DENSITY	HIGH DENSITY	STANDARD DENSITY	HIGH DENSITY
1	9	15	1.213	.666	.984	.329	.494	.426	.251	.375	.030	.283	.450	.112	.082
2	15	26	1.541	.994	1.312										
3	25	44	2.088	1.534	1.852						.039				
4	37	62	2.729	2.182	2.500										
5	50	78	2.635	2.079	2.406	.442	.605								
6	–	104	2.729	2.212	2.500	.503	.668					–		–	

Non-Filtered Right Angle D-Sub Receptacle





SHELL SIZE	STANDARD DENSITY LAYOUT #20 SKT	HIGH DENSITY LAYOUT #22 SKT	A ±.015	B ±.005	C BASIC	D ±.005	E ±.015	F ±.010	G MAX		H ±.010	J ±.010		K ±.015	
									STANDARD DENSITY	HIGH DENSITY		STANDARD DENSITY	HIGH DENSITY	STANDARD DENSITY	HIGH DENSITY
1	9	15	1.213	.643	.984	.310	.494	.429	.251	.375	.030	.283	.450	.112	.082
2	15	26	1.541	.971	1.312										
3	25	44	2.088	1.511	1.852										
4	37	62	2.729	2.158	2.500										
5	50	78	2.635	2.064	2.406	.423	.605								
6	–	104	2.729	2.189	2.500	.485	.668		–		.039	–		–	

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PAN6433		
PAN6433-6A1706PN	013712-2000	MIL-DTL-38999/III Receptacle Shell Size 17-6P for 6# 12 Triax/Coax
PAN6433-6B1706PN	013512-2000	MIL-DTL-38999/III Plug Shell Size 17-6P for 6# 12 Triax/Coax
PAN6433-6A1706SN	013612-2000	MIL-DTL-38999/III Receptacle Shell Size 17-6S for 6# 12 Triax/Coax
PAN6433-6B1706SN	013412-2000	MIL-DTL-38999/III Plug Shell Size 17-6S for 6# 12 Triax/Coax
PAN6433-8A1706PN	013712-2010	MIL-DTL-38999/III Receptacle Shell Size 17-6P for 6# 12 Triax/Coax
PAN6433-8A1706SN	013612-2010	MIL-DTL-38999/III Receptacle Shell Size 17-6S for 6# 12 Triax/Coax
PAN6433-8A2519PN	013712-2009	MIL-DTL-38999/III 20WJ19PN Receptacle Shell for 12 Triax/Coax
PAN6433-8A2519PA	013712-2008	MIL-DTL-38999/III 20WJ19PA Receptacle Shell for 12 Triax/Coax
PAN6433-8B1706PN	013512-2010	MIL-DTL-38999/III Plug Shell Size 17-6P for 6# 12 Triax/Coax
PAN6433-8B1706SN	013412-2010	MIL-DTL-38999/III Plug Shell Size 17-6S for 6# 12 Triax/Coax
PAN6433-8B2519SN	013412-2009	MIL-DTL-38999/III 26WJ19SN Plug Shell for 12 Triax/Coax
PAN6433B2519SA	013412-2008	MIL-DTL-38999/III 26WJ19SA Plug Shell for 12 Triax/Coax

PAN6841		
PAN6841P75C01	018612-2023	MIL-DTL-38999 #12 Pin Triax/Coax for JN1088WU 75 Ohm Cable
PAN6841S75C01	018712-2023	MIL-DTL-38999 #12 Socket Triax/Coax for JN1088WU 75 Ohm Cable
PAN6841P75T/JN1104P75T	018612-2016	MIL-DTL-38999 #12 Pin Triax for JN1088WU 75 Ohm Cable
PAN6841S75T/ JN1104S75T	018712-2016	MIL-DTL-38999 #12 Socket Triax for JN1088WU 75 Ohm Cable
PAN6841P75C02	018612-2024	MIL-DTL-38999 #12 Pin Triax/Coax for PAN 6422XYCoax/6595XM Triax Cable
PAN6841S75C02	018712-2024	MIL-DTL-38999 #12 Socket Triax/Coax for PAN 6422XYCoax/6595XM Triax Cable
PAN6841P50C	018612-2025	MIL-DTL-38999 #12 Pin Coax for PAN 6422XQ 50 Ohm Coax Cable
PAN 6841S50C	018712-2025	MIL-DTL-38999 #12 Socket Coax for PAN 6422XQ 50 Ohm Coax Cable
PAN6841P50T/JN1104P50T	018612-2015	MIL-DTL-38999 #12 Pin Triax/Coax forJN1088WT 50 Ohm
PAN6841S50T/JN1104S50T	018712-2015	MIL-DTL-38999 #12 Socket Triax/Coax forJN1088WT 50 Ohm

PAN6842		
PAN6842S05T	019312-2014	ARINC 404 #5 Socket Triax per PAN6595 XM Concentric Triax Cable
PAN6842P05T	019412-2014	ARINC 404 #5 Pin Triax per PAN6595 XM Concentric Triax Cable
PAN6842S05TW	019311-2007	ARINC 404 #5 Socket Twinax Per PAN6421 Twinax Cable 77 ohm
PAN6842P05TW	019411-2007	ARINC 404 #5 Pin Twinax for PAN6421 Twinax Cable 77 ohm
PAN6842S05TW75	019311-2008	ARINC 404 #5 Socket Twinax per PAN6595 XM Cable 75 ohm
PAN6842P05TW75	019411-2008	ARINC 404 #5 Pin Twinax per PAN6595 XM Cable 75 ohm
PAN6842S09T	019112-2014	ARINC 404 #9 Socket Twinax per PAN6421 ZA Twinax Cable
PAN6842P09T	019212-2014	ARINC 404 #9 Pin Twinax per PAN6421 ZA Twinax Cable
PAN6842S09TB	019112-2024	ARINC 404 #9 Socket Triax per PAN6421 ZA002 77 Ohm triax Cable
PAN6842P09TB	019212-2024	ARINC 404 #9 Pin Triax per PAN6421 ZA002 77 Ohm triax Cable
PAN6842S09T75	019112-2015	ARINC 404 #9 Socket Triax per PAN6595 XM Concentric Triax Cable
PAN6842P09T75	019212-2015	ARINC 404 #9 Pin Triax per PAN6595 XM Concentric Triax Cable
PAN6842P09T75	019212-2034	ARINC 404 #9 Pin Triax per PAN6595 XM Concentric Triax Cable
PAN6842S09T75B	019112-2025	ARINC 404 #9 Socket Triax PAN6595 XM 75 Ohm Cable
PAN6842P09T75B	019212-2025	ARINC 404 #9 Pin Triax PAN6595 XM 75 Ohm Cable
PAN6842S09T50	019112-2033	ARINC 404 #9 Socket Triax per PAN6596XN Triax Cable
PAN6842P09T50	019212-2033	ARINC 404 #9 Pin Triax per PAN6596XN Triax Cable
PAN6842S09C	019112-2034	ARINC 404 #9 Socket Coax for PAN6422 XZ Coax Cable 95 ohm
PAN6842P09C	019217-2004	ARINC 404 #9 Pin Coax PC Tail
PAN6842S09C75	019112-2035	ARINC 404 #9 Socket for PAN6422 XY M17/94-RG179/U Concentric Triax Cable
PAN6842P09C75	019212-2035	ARINC 404 #9 Pin for PAN6422 XY Coax Cable 75 ohm
PAN6842P12	018612-2052	MIL-DTL-38999 #12 Pin Triax per PAN6421 Twinax Cable 77 Ohm
PAN6842S12	018712-2052	MIL-DTL-38999 #12 Socket Triax per PAN6421 Twinax Cable 77 Ohm
PAN6842P12T	018612-2055	MIL-DTL-38999 #12 Pin Triax per PAN6595 XM Triax Cable 75 ohm
PAN6842S12T	018712-2055	MIL-DTL-38999 #12 Socket Triax per PAN6595 XM Triax Cable 75 ohm
PAN6842P12T50	018612-2059	MIL-DTL-38999 #12 Pin Triax per PAN6595 XM Triax Cable 50 ohm
PAN6842S12T50	018712-2059	MIL-DTL-38999 #12 Socket Triax per PAN6595 XM Triax Cable 50 ohm
PAN6842S05D	130-0025-000	Arinc 404 #5 Contact Dummy Socket
PAN6842S05DS	130-0055-000	Arinc 404 '5 Contact Dummy Socket Special
PAN6842P05D	130-0024-000	Arinc 404 #5 Contact Dummy Pin
PAN6842S09D	130-0023-000	Arinc 404 #9 Contcat Dummy Socket
PAN6842P09D	130-0029-000	Arinc 404 #9 Contcat Dummy Pin
PAN6842P08/JN1057P	019612-2014	MIL-DTL-38999 #8 Pin Triax per PAN6421 Twinax Cable 77 ohm
PAN6842S08/JN1057S	019512-2014	MIL-DTL-38999 #8 Socket Triax per PAN6421 Twinax Cable 77 ohm

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JN1033/PAN6486		
JN1033B14-3PN/PAN6486B14-3PN	013700-3057	JN1033 Receptacle #14-3 w/#10 Triax
JN1033B14-3PN2/PAN6486B14-3PN2	013700-3057L	JN1033 Receptacle #14-3
JN1033B16-4PN/PAN6486B16-4PN	013700-3058	JN1033 Receptacle #16-4 w/#10 Triax
JN1033B16-4PN2/PAN6486B16-4PN2	013700-3058L	JN1033 Receptacle #16-4
JN1033B18-6PN/PAN6486B18-6PN	013700-3059	JN1033 Receptacle #18-6 w/#10 Triax
JN1033B18-6PN2/PAN6486B18-6PN2	013700-3059L	JN1033 Receptacle #18-6
JN1033B24-12PN/PAN6486B24-12PN	013700-3060	JN1033 Receptacle #24-12 w/#10 Triax
JN1033B24-12PN2/PAN6486B24-12PN2	013700-3060L	JN1033 Receptacle #24-12
JN1033FA14-3SN/PAN6486F14-3SN	013400-2027	JN1033 Plug #14-3 w/#10 Triax
JN1033F14-3SN2/PAN6486F14-3SN2	013400-2027L	JN1033 Plug #14-3
JN1033F16-4SN/PAN6486F16-4SN	013400-2028	JN1033 Plug #16-4 w/#10 Triax
JN1033F16-4SN2/PAN6486F16-4SN2	013400-2028L	JN1033 Plug #16-4
JN1033F18-6SN/PAN6486F18-6SN	013400-2029	JN1033 Plug #18-6 w/#10 Triax
JN1033F1806SN2/PAN6486F18-6SN2	013400-2029L	JN1033 Plug #18-6
JN1033F24-12SN/PAN6486F24-12SN	013400-2040	JN1033 Plug #24-12 w/#10 Triax
JN1033F24-12SN2/PAN6486F24-12SN2	013400-2040L	JN1033 Plug #24-12
PAN6499A	018812-2008	Size # 10 Triax Pin Contact per PAN6421 Cable (77 Ohm)
PAN6499B	018912-2008	Size # 10 Triax Socket Contact per PAN6421 Cable (77 Ohm)

JN1050		
JN1050S08	019512-2012	MIL-DTL-38999 #8 Socket Coax For PAN6422 XY Cable
JN1050P08	019612-2012	MIL-DTL-38999 #8 Pin Coax For PAN6422 XY Cable

JN1057		
JN1057P	019612-2014	MIL-DTL-38999 #8 Pin Triax for PAN6421 Twinax Cable 77 Ohm
JN1057S	019512-2014	MIL-DTL-38999 #8 Socket Triax For PAN6421Twinax Cable 77 Ohm

JN1062		
JN1062	018512-2011	MIL-DTL-38999 #16 Pin Coax per JN1088WT Triax Cable
JN1062	018412-2011	MIL-DTL-38999 #16 Socket Coax per JN1088WT Triax Cable

JN1104		
JN1104P50C	018612-2020	MII-DTL-38999 #12 Pin Triax/Coax forJN1088WT/WU 50 Ohm Cable
JN1104S50C	018712-2020	MII-DTL-38999 #12 Socket Triax/Coax for JN1088WT/WU 50 Ohm Cable
JN1104P50T	018612-2015	MII-DTL-38999 #12 Pin Triax/Coax for JN1088WT 50 Ohm
JN1104S50T	018712-2015	MII-DTL-38999 #12 Socket Triax/Coax for JN1088WT 50 Ohm
JN1104P75T	018612-2016	MII-DTL-38999 #12 Pin Triax for JN1088WU 75 Ohm Cable
JN1104S75T	018712-2016	MIL-DTL-38999 #12 Socket Triax for JN1088WU 75 Ohm Cable

JN1122		
JN1122-01	017732-2000	MIL-C-83733 #131 Receptacle Size 22 Socket Contacts
JN1122-02	017732-2001	MIL-C-83733 #21 Receptacle Size 20 Socket Contacts

JN1124		
JN1124 Style A	013600-2004	Circular Umbilical Receptacle Launcher # 25-20S
JN1124 Style B	013600-2005	Circular Umbilical Receptacle Launcher # 25-20S
MIL-DTL-83538/1A	013600-2003	MIL-STD-1760 Circular Umbilical Receptacle Store # 25-20S
MIL-DTL-83538/3A	013500-4000	MIL-STD-1760 Circular Umbilical Adapter Buffer Plug # 25-20P
JN1124C (MIL-DTL-83538/9A)	070000-0006	MIL-C-83538/9 Circular umbilical Adapter Accessory Launcher Receptacle
JN1124D (MIL-DTL-83538/8A)	080000-0004	JN1124 Style D MIL-STD-1760 Circular Umbilical Cover Protective Launcher Receptacle for
JN1124E (MIL-DTL-83538/8A)	080000-0005	JN1124 Style E MIL-STD-1760 Circular Umbilical Cover Protective Launcher Receptacle
MIL-DTL-83538/11A	013500-4001	MIL-STD-1760 Circular Umbilical Hybrid Adapter Buffer Plug #25-20 to 28P
MIL-DTL-83538/5A	013600-2010	MIL-C-83538/1 Type 2Circular Umbilical Bracket Store Receptacle Adapter
MIL-DTL-83538/6A	013600-2011	Circular Umbilical Nut Exagon Store receptacle Connector Mounting
MIL-DTL-83538/7A	080000-0002	MIL-C-83528/7Circular Umbilical Cover Protective Store Receptacle

JN1141		
JN1141A25-20PSN	013700-4000	MIL-DTL-38999/III Adapter, Receptacle #25-20 Pin to Socket w/Common ground #8 Triax

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European Style Connectors

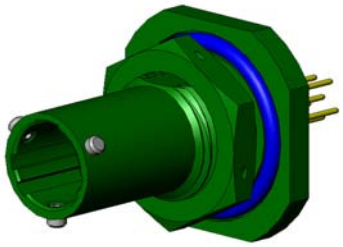
Cross Reference Guide

ECS MIL-DTL-38999 & 83527 Connector Series		
ECS 0704 P12	018612-2036	MIL-DTL-38999 #12 Pin Triax for ECS 0700 Twinax Cable
ECS 0703 A S12	018712-2036	MIL-DTL-38999 #12 Socket Triax For ECS 0700 Twinax Cable
ECS 0704 B P12	018612-2050	MIL-DTL-38999 #12 Pin Triax for ECS 700 Twinax Cable
ECS 0703 D S12	018712-2050	MIL-DTL-38999 #12 Socket Triax for ECS 0700 Twinax Cable
ECS 0703 B S12	018712-2009	MIL-DTL-38999 #12 Socket Triax For ECS 0700 Twinax Cable
ECS 0703 C S12	018712-2051	MIL-DTL-38999 #12 Socket Triax for ECS 0700 Twinax Cable
ECS 0709A	019312-2000	MIL-C-83527 #5 Socket Coax for ASN-E0691 Coax Cable
ECS 0709B	019312-2001	MIL-C-83527 #5 Socket Coax for ASN-E0691 Coax Cable
ECS-0703	018712-2060	MIL-C-83527 #12 Socket Triax for PAN6421 Twinax Cable
ECS 0711	019312-2002	MILC-83627 #5 Socket Coax for ASN-E0293 Coax Cable
ECS 0707 S 8	019512-2011	MIL-C-83527 #8 Socket Triax for ECS 0700 Twinax Cable
ECS 0708 S 8	019512-2018	MIL-DTL-38999 #8 Socket Triax For ECS 0700 Twinax Cable

EN3682 / 83527		
EN3682 / 83527	018612-2073	MIL-C-83527 # 12 Pin Triax per PAN6421 Twinax Cable (77 Ohm)
EN3682 / 83527	018712-2060	MIL-C-83527 # 12 Socket triax per PAN6421 Twinax Cable (77 Ohm)
EN3682 / 83527	018612-2074	MIL-C-83527 # 12 Pin triax per JN1111 Twinax Cable
EN3682 / 83527	018712-2074	MIL-C-83527 # 12 Socket triax per JN1111 Twinax Cable
EN3682 / 83527	018617-2005	MIL-C-83527 # 12 Pin Triax PCB Mount
EN3682 / 83527	018617-2004	MIL-C-83527 # 12 Pin Coax PCB Mount
EN3682 / 83527	018517-2004	MIL-C-83527 # 16 Pin Coax PCB Mount
EN3682 / 83527	018612-2046	MIL-C-83527 # 12 Pin Triax per ECS0700 Twinax Cable
EN3682 / 83527	018712-2046	MIL-C-83527 # 12 Socket Triax per ECS0700 Twinax cable
EN3682 / 83527	018612-2049	MIL-C-83527 # 12 Pin Coax per RG-179 Coax Cable 75 ohm
EN3682 / 83527	018712-2049	MIL-C-83527 # 12 Socket Coax per RG-179 Coax Cable 75 ohm
EN3682 / 83527	018512-2004	MIL-C-83527 # 16 Pin Coax per RG-179 Coax Cable 75 ohm
EN3682 / 83527	018412-2004	MIL-C-83527 # 16 Socket Coax per RG-179 Coax Cable 75 ohm

Sabritec offers VG Series Connectors to the following standards:

VG 95234
VG 96912
VG 95328
VG 95319
VG 96918



Consult Factory for VG Series Part Numbers

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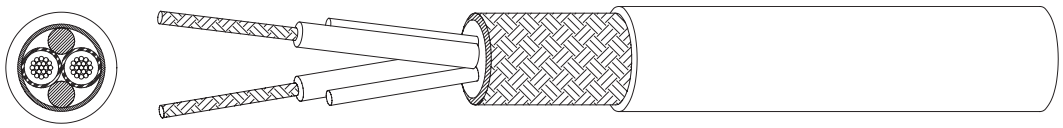
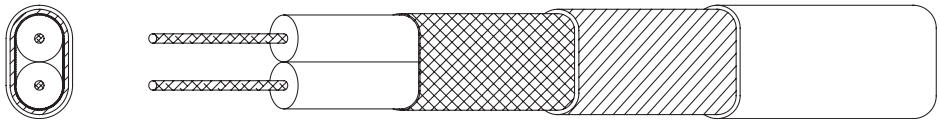


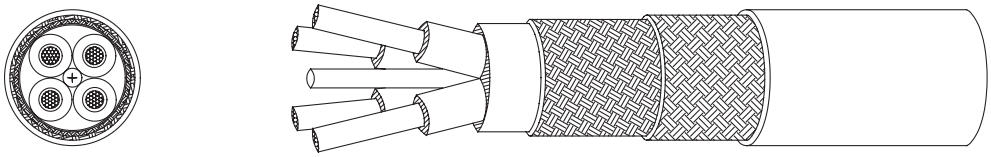
Flexible Twinax Cables

Cable Group No	Cable Designation	Manufacturer	Impedance (OHMS)	Jacket	Conductor (DIA)
1	M17/176-00002	Mil-Spec	77	0.129"	0.024"
2	540-1086-000	Sabritec	98	0.143"	0.019"
3	540-1161-000	Sabritec	100	0.130"	0.024"
4	540-1171-000	W.L. Gore	100	0.087"	0.010"
5	540-1172-000	W.L. Gore	100	0.122"	0.016"



Differential Pair Fibre Channel Twinax Cables

Cable Group No.	Cable Designation	Impedance (OHMS)	Jacket	Conductor (DIA)
6	540-1099-000	Differential: 150 Sig. To Shield: 75	0.097" x 0.160"	0.014" Stranded
7	540-1114-000	Differential: 150 Sig. To Shield: 75	0.138" x 0.224"	0.020" Solid
8	540-1153-000	Differential: 100 Sig. To Shield: 50	0.085" x 0.130"	0.019" Stranded



Differential Quad Fibre Channel Cables

Cable Group No.	Cable Designation	Impedance (OHMS)	Jacket	Conductor (DIA)
9	540-1138-000	Differential: 150 Sig. To Shield: 75	0.290"	0.032"
10	540-1143-000	Differential: 150 Sig. To Shield: 75	0.190"	0.020"
11	540-1165-000	Differential: 100 Sig. To Shield: 50	0.175"	0.025"

Please consult factory for alternate cabling options

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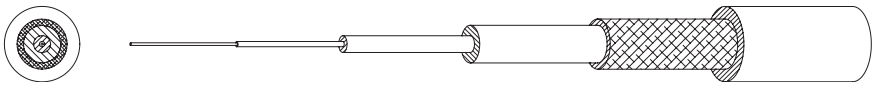
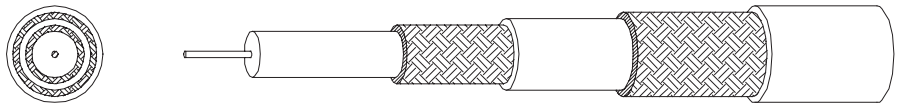


Fiber Optic Cables

Cable Group No.	Part Number	Jacket OD	Buffer OD	Jacket Material	Strength Member Material	Buffer Material	Temp Range	Fiber count
12	540-1209-00X[4]	1.2		ETFE	Kevlar	Expanded PTFE	-55°C to +150°C	1
13	540-1210-00X[1, 2 & 4]	2	900	FEP	Teflon coated fiber glass	FEP	-65°C to +200°C	1
14	540-1211-00X[4]	2	900	LSZH[3]	Kevlar	LSZH[3]		1
15	540-1212-00X[4]	2.1	900	ETFE or FEP	Teflon coated fiber glass	ETFE or FEP	-55°C to +125°C	1
16	540-1213-00X[4]	2.5	1200	ETFE	Teflon coated fiber glass	ETFE	-55°C to +150°C	1
17	540-1123-000	2.8	900	ETFE or equiv.	Kevlar	Optional	-40°C to +75°C	1
18	540-1188-000	2.8	900	LSZH[3]	Kevlar	LSZH[3]	-40°C to +75°C	1
19	540-1215-00X[4]	2.3X2.6 (2 fibers) 2.3X4.6 (12 fibers)	250	FEP	Kevlar	Expanded PTFE	-55°C to +150°C	2, 4, 8, 12
20	540-1215-00X[4]	2.3X2.6 (2 fibers) 2.3X4.6 (12 fibers	250	PVC, flame retardant	Kevlar	Expanded PTFE	-30°C to +85°C	2, 4, 8, 12

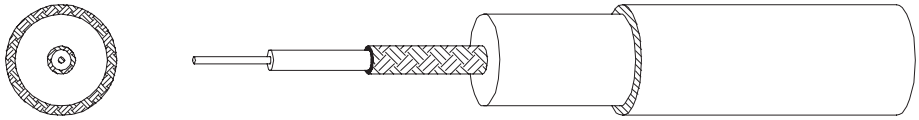
Notes:

1. This cable is designed for high temperature aircraft and spacecraft applications
2. This cable requires a polyimide coating on the fiber and special connector accommodations
3. LSZH – Low Smoke, Zero Halogen
4. OOX to designate fiber type as follows:
   a. 000 designates Corning SMF-28 or equivalent SM fiber
   b. 006 designates MIL-PRF-49291/6 fiber, 62.5/126, Graded Index, rad hard, 0.275NA 100KPSI fiber
   c. 009 designates OFS 100/140, Graded Index, 0.275NA, 200 KPSI fiber



Flexible Triax Cables

Cable Group No	Cable Designation	Manufacturer	Impedance (OHMS)	Jacket	Conductor (DIA)
21	RG-403	Mil-Spec	50	0.116"	0.012"
22	540-1050-000	Sabritec	75	0.125"	0.012"
23	540-1081-000	Sabritec	95	0.125"	0.008"
24	540-1091-000	Sabritec	75	0.175"	0.025"



Semi-Rigid Triax Cables

Cable Group No	Cable Designation	Manufacturer	Impedance (OHMS)	Jacket	Conductor (DIA)
25	UT 141-50-50	Micro-Coax	50-50	0.141"	0.008"
26	UT 141-50-22	Micro-Coax	50-22	0.141"	0.012"

Please consult factory for alternate cabling options

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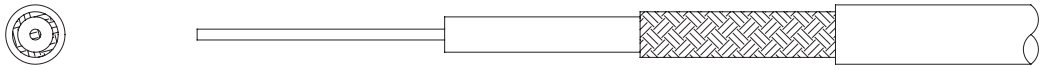
Semi-Rigid Coax Cables

Cable Group No.	Cable Designation	Impedance (OHMS)	Jacket	Inner Conductor
27	SR.047	50	0.047"	0.0362"
28	RG-405	50	0.0865"	0.0201"
29	T-Flex® 402	50	0.160"	0.036"
30	T-Flex® 405	50	0.104"	0.020"



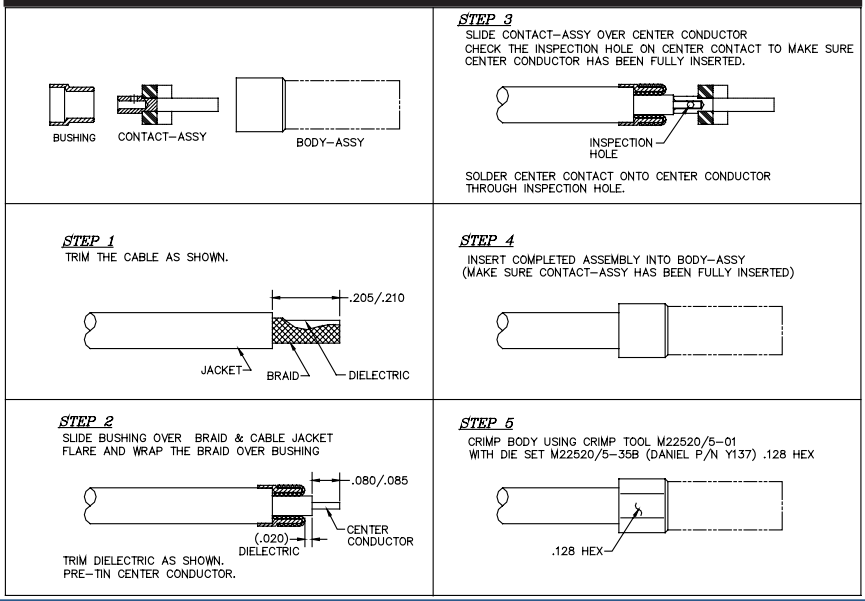
Flexible Coax Cables

Cable Group No.	Cable Designation	Impedance (OHMS)	Jacket	Conductor
31	RG-178	50	0.071"	0.012"
32	RG-316	50	0.098"	0.0201"
33	RG-58	50	0.195"	0.0355"

T-Flex Cable is a registered trademark of Times Microwave Systems

Please consult factory for alternate cabling options

Assembly Instructions: Flexible Coax



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-A-

Alloy: A combination of two or more metal elements.

Assembly: Consisting of detailed parts and subassemblies performing functions necessary to the operation of the device.

Attenuation: The decrease of a signal with the distance in the direction of propagation. Attenuation may be expressed as the scalar ratio of the input power to the output power, or as the ratio of the input signal voltage to the output signal voltage. (1) the ratio of the input to output power levels in a network (transmission line) when it is excited by a matched source and terminated in a matched load. (2) Power loss in an electrical system.

-B-

Back Mounted: A connector designed used in panel or box applications in which the mounting flange is located inside the equipment enclosure.

Backplane Connector: An interconnection assembly configuration having terminals on one side and usually having connector receptacles on the other side that will accept wither a mating connectors or PCB.

Back plane Panel: An interconnection panel into which PC cards or other panels can be plugged. These panels come in a variety of designs ranging from a PC motherboard to individual connectors mounted in a metal frame. Panels lend themselves to automated wiring.

Backshell: Housing on a connector that covers the area where the cable conductors connect to the connector contacts. It can be a metal housing providing continuity of the shield through IDC connectors.

Bandwidth: The range of frequencies for which performance falls within specified limits. Distance between two frequencies.

Bending Radius: Minimum static: The minimum permissible radius for fixed installation of the cable. This radius is mainly conductor. A weatherproof plastic covering is placed on top of the braid. Used for high-speed data communication and video signals used in climatic tests. Minimum dynamic: The minimum permissible radius for flexible applications of the cable.

Beryllium Copper (BeCu): Contact materials recommended for contact applications requiring repeated extraction/reinsertion and mating/unmating cycles due to its resistance to fatigue at high operating temperatures.

Between Series Adapter: An adaptor used to connect two different generic types of connectors.

Blindmate: Connectors which may be mated when out of view owing to their float mount facility.

Body: Main, or largest, portion of a connector to which other portions are attached.

Bulkhead: A term used to define a mounting style of connectors. Bulkhead connectors are designed to be inserted into a panel cutout from the rear (component side) or front side of the panel.

-C-

Cable: A stranded conductor with or without insulation or other coverings (single-conductor cable) or a combination of conductors insulated from one another (multiple-conductor cable). Usually has an outer covering or jacket over other components such as braided shield, grounding tape, strengthening members, and extruded insulating jacket.

Cable Assembly: A completed cable and its associated hardware (e.g. connector).

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Capacitance: The property of a system of conductors and dielectrics that permit the storage of electricity when potential difference exists between the conductors. Value is expressed as the ratio of quantity of electricity to a potential difference. A capacitance value is always positive. Capacitance plays a key role in the filter performance

Capacitor: A device consisting of two conducting surfaces separated by an insulating material such as air, paper, mica, ceramic, glass, metal, or plastic film. A capacitor stores electric energy and blocks flow of alternating current to a degree dependant on its capacitance and the frequency.

Captivation: A method of holding a center contact in place preventing in some cases both axial and radial movement. Different methods accommodate different tolerances on axial and radial movement.

Cladding: Material that surrounds the core of an optical fiber. It's lower index of refraction, compared to that of the core, causes the transmitted light to travel down the core.

Coaxial Cable: A transmission line consisting of two concentric conductors with a common axis insulated from each other. In its flexible form it consists of either a solid or stranded center conductor surrounded by a dielectric. A braid is then woven over the dielectric to form an outer conductor. A weatherproof plastic covering is placed on top of the braid . Used for high speed data communication and video signals.

Coaxial Connector: An electric connector between a coaxial cable and the circuit of an electric or electronic component. Coaxial Contact: a contact having two conductors with a common axis, separated by a dielectric.

Conductivity: A measure of the ability of a material to conduct electric current under a given electric field. Resistivity is the reciprocal of conductivity.

Conductor: A material that is capable of carrying electric current, especially one that is highly suitable for this, such as copper wire, Beryllium Copper, and Gold.

Conformable Cable: (Handiform): A formable version of Semi-Rigid. This cable is designed so you may bend it more than once without damaging dielectric and center conductor.

Connector: Used generally to describe all devices used to provide rapid connect/disconnect service for electrical cable and wire terminations or pc boards.

Connector Body: The metal or plastic shell of a connector. It's main purpose is to house the contacts, maintain their position and shield them from dust, dirt, moisture, and electrical interference.

Contact: The conducting part of an interconnect at the interface between the connector and the lead on the device being connected.

Contact Resistance: The measure of electrical resistance across a pair of fully mated contacts. Measured in ohms or millivolt drop at a specified current, contact resistance is affected by normal force, plating quality and the physical geometry of the contact.

Contact Retention: The pressure a contact can withstand in either direction without being dislodged from the retaining clip which holds it within the connector.

Coupler: An optical device that combines or splits power from optical fibers.

Coupling Nut: Outer threaded or grooved ring which holds mated pair together.

Coupling Ring: A device used on cylindrical connectors to lock plug and receptacle together. It may or may not give mechanical advantage to the operator during the mating operation.

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Core: The light conducting central portion of an optical fiber, composed of material with a higher index of refraction than the cladding. The portion of the fiber that transmits light.

Corona: Minimum voltage requirement for the connector at frequencies greater than 1 MHz. This requirement insures that the connector will not exhibit excessive leakage current or dielectric failure due to high RF voltages.

Crimp: Act of compressing (deforming) a connector ferrule around a cable in order to make an electrical connection.

Crimp Contact: A contact to which wire is joined by mechanical squeeze. A connector pin or socket that is shipped loose with the connector body, and designed to be crimped onto the end of the wire conductor with a special crimping tool.

Crosstalk: (1) Undesired electrical currents in conductors caused by electromagnetic or electrostatic coupling from other conductors of from external sources. (2) Leakage of optical power form one optical conductor to another.

-D-

D-Subminiature Connector: Rectangular with a d-shaped polarized shroud on the engaging ends of metal shells. Contact types include crimp, solder tails, solder cups, removable.

Daughter Board: A printed wiring board on which components are assembled. Usually plugs into a backplane called a motherboard.

Decibel, dB: A relative, dimensionless unit calculated as ten times the logarithm to the base 10 of a power ration or as twenty times the logarithm to the base 10 of a voltage ratio.

Detent: In the connector world this identifies the amount of force needed to make contact with the mating connector. Typical detents are Full, Limited, and Smooth Bore. Full detent requires the maximum amount of force needed to mate. Smooth Bore requires the least.

Dielectric: Refers to a material that is a poor conductor of electricity. Dielectric materials can be made to hold an electrostatic charge while dissipating minimal energy in the form of heat. Glass, porcelain, mica, rubber, plastics dry air, vacuums and some liquids and gases are dielectric.

Dielectric Withstanding Voltage (DWV): The maximum voltage that a dielectric material can withstand without failure. Parameter generally defined as 75% of the specified breakdown voltage for connectors or coaxial contacts. DWV testing proves the device can operate safely at its rated voltage and withstand momentary over potentials.

Differential Pair Twinax Contacts: Consist of an outer shield with two inner contacts spaced to form a 100 ohm or 150 ohm matched impedance differential pair.

Dimpling: A method of captivation in which dimples are embossed in order to hold internal components from moving.

Diode: A simple two-electrode semiconductor having a much greater resistance in one direction.

Dissipation Factor: (DF) is the ratio of the energy dissipated to the energy stored in a dielectric per hertz, also equal to the tangent of the loss angle. It is also defined as the reciprocal of the ratio between the insulating materials capacitive reactance to its resistance at a specified frequency. It measures the inefficiency of an insulating material. If a material were to be used for strictly insulating purposes, it would be better to have a lower dielectric constant.

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DSCC: Defense Supply Center Columbus, an agency of the department of defense that oversees the specifications, qualification testing and QPL's for military connectors.

Durability: The ability of a connector or contact to withstand repeated mating and unmating while remaining within its specified performance levels.

DVI: Short for **D**igital **V**isual **I**nterface, a digital interface standard created by the Digital Display Working Group (DDWG) to convert analog signals into digital signals to accommodate both analog and digital monitors. Data is transmitted using the transition minimized differential signaling (TMDS) protocol, providing a digital signal from the PC's graphics subsystem to the display. DVI handles bandwidths in excess of 160 MHz.

-E-

Electrical Connector: A separable device which provides mechanical and electrical contact between two elements of an electronic system without unacceptable signal distortion or power loss.

Electromagnetic Interference (EMI): Unwanted electrical or electromagnetic energy that causes undesirable responses, degrading performance or complete malfunctions in electronic equipment.

Electromagnetic Compatibility (EMC): The ability of systems, equipment and devices that utilize the electromagnetic spectrum to operate in their intended operational environments without suffering unacceptable degradation or causing unintentional degradation because of electromagnetic radiation or response.

Electroplating: A method of electrically depositing metals of very precise compositions and thickness onto a base metal.

Electroless plating: Plating from an aqueous solution on any surface, caused by an autocatalytic chemical reduction.

Environmentally Sealed: Connectors and backshells designed to prevent fluids, moisture, air or dust from degrading the performance of electrical contacts and conductors. "Environmental" components typically use gaskets, grommets, potting materials or interfacial O-ring seals to prevent the penetration of foreign substances into the body of the part.

ESD: Short for ***e****lectro****s****tatic* ***d****ischarge,* the rapid discharge of static electricity from one conductor to another of a different potential. An electrostatic discharge can damage integrated circuits found in computer and communications equipment.

Ethernet: A standard protocol (IEE 802.3) for a 10-MB/s baseband local area network (LAN) bus using carrier sense multiple access with collision detection (CSMA/CD) as the access method. Ethernet is a standard for using various transmission media, such as coaxial cables, unshielded twisted pairs, and optical fibers.

Eye Pattern: An oscilloscope display in which a pseudorandom digital data signal from a receiver is repetitively sampled and applied to the vertical input, while the data rate is used to trigger the horizontal sweep. An open eye pattern corresponds to minimal signal distortion. Distortion of the signal waveform due to interference and noise appears as closure of the eye pattern.

-F-

Faraday Cage: A conductive enclosure. May be solid in form such as a sheet-metal enclosure, or may be full of apertures such as a wire cloth box. Faraday cage is used to protect neutral objects in the cage from ESD external to the faraday cage.

Faraday Effect: A phenomenon that causes some materials to rotate the polarization of light in the presence of a magnetic field parallel to the direction of propagation. Also called magneto-optic effect.

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Feed-through: A conductor that connects patterns on both sides of a printed circuit board.

Female Connector: The half of a connector set that accepts the male connector, usually by the engaging end shroud surrounding the male shroud when mated.

Ferrule: A short tube used to make solderless connections to shielded or coaxial cable (e.g. as in crimping).

Fiber Optic Cable: A cable containing one or more optical fibers.

Fibre Channel: An industry standard which details computer channel communications over fiber optics at transmission speeds from 132 Mb/s to 1062.5 Mb/s at distances of up to 10 kilometers. Fibre Channel transceivers can either be driven with fiber optic signaling or true differential pair twinaxial signaling with 150 ohm impedance between conductors.

Filter: Electrical networks that transmit signals with frequencies within certain designated ranges and suppress signals of other frequencies.

Filter Connector: Connector that houses contacts that provide EMI suppression in addition to its normal function or transmitting electrical energy. Filtered connectors are typically specified for high speed signal paths. Filtering is accomplished through the integration of capacitors into the contact to separate high frequency noise from low frequency signals.

Firewall Connector: A class of high reliability, feed-through connectors designed to prevent fire or sparks from penetration through a sealed bulkhead. Firewall connectors must continue to function for a specific period of time when exposed to fire, and are typically specified in military applications such as fighter jets and Navy ships.

Firewire: A very fast external bus standard that supports data transfer rates of up to 400Mbps (in 1394a) and 800Mbps (in 1394b). Products supporting the 1394 standard go under different names, depending on the company.

Flange: A projection extending from, or around the periphery of, a connector and provided with holes to permit mounting the connector to a panel, or to another mating connector half.

Float Mount: A mounting mechanism that allows the connector to move enabling compensation for axial and radial misalignment.

Footprint: The pattern on the printed circuit board to which the leads on a surface mount component are mated; also called a land or a pad.

Frequency: The number of cycles or events per unit of time, commonly having units of seconds (Hertz). An RF or microwave signal is an alternating current (AC) wave form, meaning it swings from a positive to negative value. Each positive to negative swing is called a cycle. Frequency is then the number of cycles occurring per second.

-G-

Gigahertz (GHz): A measure of frequency representing 1 billion Hertz (cycles per sec).

Grommet: Resilient part at back of insert; gives wire moisture seal the power received at the load before insertion of the apparatus, to the power received at the load after insertion.

Ground Plane: A conductor layer or portion of conductor layers used as a common reference point for circuit returns, shielding, or heat sinking.

Guide Pin: Metal posts with a rounded or pointed tip which projects beyond the contact interface, used to assist in the correct alignment and mating of connector shells and contacts. They also prevent contact damage due to the mismating of connectors.

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-H-

Heat Treating: A process that uses precise heating and tooling of metals after stamping and forming in order to optimize internal stresses and spring properties.

Hermetic Connector: A class of connectors equipped with a pressure seal for use in maintaining pressurized application environments.

Hertz (Hz): International standard term for cycles per second. Named after the German physicist Heinrich R. Hertz (e.g. 60 cycles per second is equal to 60 hertz or 60 Hz).

-I-

IEEE 1394: An IEEE designation for a high performance serial bus. This serial bus defines both a backplane physical layer and a point-to-point cable-connected virtual bus. The backplane version operates at 12.5, 25 or 50 Mbits/sec, whereas the cable version supports data rates of 100, 200 and 400 Mbits/sec across the cable medium supported in the current standard. Both versions are totally compatible at the link layer and above. The interface standard defines transmission method, media and protocol.

Impedance: The AC resistance of a circuit expressed in ohms. Determined by the connector geometry and insulating material parameters. Impedance varies with frequency. For optimum performance connector impedance must be the same as the system impedance.

Infiniband: A specification to connect I/O among many servers in a data center. It is positioned as a way to link storage, server clusters and networks. The specification, spearheaded by the InfiniBand Trade Association. Inspired by the channel-based I/O that has long been used in the mainframe world. Each device is connected to the InfiniBand fabric with host channel adapters or target channel adapters, depending on whether they are servers or devices used by servers. The devices can be interconnected through an InfiniBand switch at rates of 2.5 Gbit/sec up to 30 Gbit/sec typically.

Insert: The dielectric or insulating inner core holds contacts.

Insertion Loss: The loss in load power due to the insertion of a component, connector or device at some point in a transmissions system. Generally expressed in decibels as the ratio of the power received at the load before insertion of the apparatus, to the power received at the load after insertion.

Insulation Resistance: The electrical resistance between two conductors separated by an insulating medium.

ISO: Abbreviation for International Organization for Standardization. Founded in 1946, ISO is an international organization composed of national standards bodies from over 75 countries.

-J-

Jacket: An outer non-metallic protective cover applied over an insulated wire or cable. Also called a sheath.

Jitter: deviation from the ideal timing of an event. The reference event is the differential zero crossing for electrical signals. Jitter is composed of both deterministic and Gaussian (random) content.

-K-

Kilohertz: One thousand cycles per second.

-L-

Life Cycle: A controlled test that indicates the time span before failure.

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Lightwave: The path of a point on a wavefront. The direction of the lightwave is generally normal (perpendicular) to the wavefront.

-M-

Male Connector: The half of a connector set that goes into the female connector, usually by the engaging end shroud being inserted into the female shroud when mated.

Mating/Unmating Forces: Torque required to couple/uncouple a mating pair of connectors or contacts.

Mating Pair: Two connectors that couple together. Shell size insert arrangement and rotation must be compatible.

Megahertz (MHz): One MHz represents one million cycles per second. The speed of microprocessors, called the clock speed, is measured in megahertz. For example, a microprocessor that runs at 200 MHz executes 200 million cycles per second.

Micro Twinax: Connectors with matched impedance that provide the user with controlled impedance and tightly spaced footprint spacing in a miniaturized connector. Applicable for High Speed Ethernet (100 Base-T) and Fibre Channel (2 GBit/sec min) applications.

Microwave: That portion of the electromagnetic spectrum lying between the far infrared and conventional radio frequency range. The microwaves are usually used in point to point communications because they are easily concentrated into a beam.

Microporosity: The porosity occurring on a microscopic scale

Microwave Frequency: The frequency of a microwave, usually above 1 gigahertz.

Microwave Transmission: Communication systems using very high-frequency RF to carry the signal information.

Microminiature Connector: Rectangular with a D shaped polarized shroud on the engaging end of metal shells and all plastic body designs. Contacts are all non removable.

MIL-SPEC: Abbreviation for military specification. Performance specifications issued by the Department of Defense that must be met in order to pass MIL-STD.

MIL-STD: Abbreviation for military standard. Standards issued by Department of Defense.

Minimum Bend Radius: The smallest radius an optical fiber or fiber cable can bend before increased attenuation or breakage occurs.

Modular Block Connectors: Dual twinax blindmate assemblies permitting the transmit and receive signaling of high speed Ethernet data rates in one connector. Capable of 100 ohm differential pair matched impedance.

Monolithic Capacitor Array: Single flat piece of ceramic with multiple capacitors or lines that have a hole pattern of match the connector interface.

Multimode Fiber: An optical fiber that has a core large enough to propagate more than one mode of light.

-N-

Noise Floor: Value at which the connector will not exceed. Typically 75-85dB. This is limited by capacitor performance, source and load impedance and ground resistance.

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-O-

OEM: Original equipment manufacturer. The manufacturer of any device that is designed and built to be distributed under the label of another company.

Ohm: A measure of DC resistance or RF impedance represented by O. The unit of measurement used to measure resistance to electrical current.

Optical Fiber: A glass of plastic fiber that has the ability to guide light along its axis. The three parts of an optical fiber are the core, the cladding, and the coating or buffer.

Operational Voltage: (Also know as Working Voltage) is the maximum voltage that can be continuously sustained. The dielectric utilized to manufacture the capacitor sets this value, which is directly proportional to the distance between ground planes and electrodes, whether a tubular capacitor or a planar array.

OTDR: Optical Time Domain Reflectometer. An instrument that locates faults in optical fibers or infers attenuation by backscattered light measurements.

-P-

Panel Mount: A method used to attach a connector to a panel, board or frame.

Passband: The region of usable frequency in electronics or wavelength in optics.

Passivation: The practice of growing a thin oxide film on the surface of a semiconductor to protect exposed elements from environmental contaminates, thus ensuring the electrical stability of the device.

Passive Device: Any device that does not require a source of energy for its operation. Examples include electrical resistors or capacitors, diodes, optical fiber, cable, wires, glass, lenses, and filters.

Permittivity: That property of dielectric that determines the electrostatic energy stored per unit volume for a unit potential gradient braided, or taped (longitudinally or spirally). (2) In cables, a metallic layer placed around a conductor or group of conductors to prevent electrostatic or electromagnetic interference between the enclosed wires and external fields.

Phase: The relative angular displacement of one sinusoidal quantity with respect to a reference angle or to another sinusoidal varying quantity of the same frequency. The relative angular displacement of one sinusoidal quantity with respect to a reference angle or to another sinusoidally varying quantity of the same frequency.

Pin Contact: Male half of a mated pair of contacts

Planar Array: Most common form of Filter components utilized in Connectors within our Market Areas. They provide high performance Filters, are rugged enough to withstand High environmental Vibration Levels and can be manufactured with Working Voltages up to 1000VDC with relative ease.

Plated Through-Hole: A hole through a Printed Circuit Board that has been electroplated and into which a lead is placed and soldered for electrical and mechanical connection.

Polarization: The arrangement of connector inserts, jackscrews, polarizing pins/socket, keys/keyways or housing configurations to prevent the mismating or crossmating of connectors.

PPM: Abbreviation for pulse-position modulation. A method of encoding data.

Precision PCB Terminators: Cable terminators available for direct terminations of the cable to the PCB eliminating the need for Pigtail configurations.

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Propagation delay: Time required for an electronic digital device, or transmission network to transfer information from its input to its output.

-Q-

Quadrax: System where four conductors are located within a single conducting enclosure. The connection to two separate twinax cables is accomplished without disturbing the differential or signal to shield impedances.

Quadrax Contact: Consist of an outer contact with four strategically spaced inner contacts forming two 100 ohm or 150 ohm matched impedance differential pairs.

Quick disconnect: A type of connector shell that permits rapid locking and unlocking of two mating connectors.

-R-

Rack and Panel Connectors: Connects the inside back end of the cabinet (rack) with the drawer containing the equipment when it is fully inserted. The drawer permits convenient removal of portions of the equipment for repair or examination.

Radio Frequency: The range in which radio waves are transmitted from about 10 kilocycles/second to about 300,000 megacycles/second

Rated Voltage: The maximum temperature at which an electric component can operate for extended periods without undue degradation of safety hazard.

Refraction: The changing of direction of a lightwave in passing through a boundary between two dissimilar media, or in a graded-index medium where refractive index is a continuous function of position.

RF High Potential: Minimum voltage requirement for the connector at frequencies greater than 1 MHz. This requirement insures that the connector will not exhibit excessive leakage current or dielectric failure due to high RF voltages.

RF Leakage: Amount of signal which radiates from the connector with respect to frequency. Sources for signal leakage can come from slots or holes in a connector body, from poorly mated connectors or through the braid in a coaxial cable.

RF Shielding: The process of shielding radio-frequency energy by means of conductive enclosures that isolate a particular component.

RFI: (Radio Frequency Interference)

RG/U: Symbol used to designate coaxial cables that are made to Government Specification (e.g., RG-58U; in this designation the “R” means radio frequency, the “G” means government, the ‘58" is the number assigned to the government approval, and the “U” means it is a universal specification.

RJ-45: Short for *Registered Jack-45,* an eight-wire connector used commonly to connect computers onto a local-area networks (LAN), especially Ethernet. RJ-45 connectors look similar to the ubiquitous RJ-11 connectors used for connecting telephone equipment, but they are somewhat wider. Although used for a variety of purposes, the RJ-45 connector is probably most commonly used for 10Base-T and 100Base-TX Ethernet connections.

- S-

SC Connector: A push-pull type of optical connector that features high packaging density, low loss, low back reflection, and low cost.

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SCX – Features a .145" maximum overall diameter with a .375" overall length for mated connector pair. Air dielectric interface for exceptional performance

Semi-Rigid: A cable containing a flexible inner core and a relatively inflexible sheathing.

Shell: Houses insert and contacts.

Shield: (1) A conducting housing or screen that substantially reduces the effect of electric or magnetic fields on one side thereof, upon devices or circuits on the other side. Cable shields may be solid, braided or taped (longitudinally or spirally). (2) In cables, a metallic layer placed around a conductor or group of conductors to prevent electrostatic or electromagnetic interference between the enclosed wires and external fields.

Shielding: The metal surrounding one or more of the conductors, in a wire circuit to prevent interference, interaction or current leakage.

Shroud: A mechanical feature of a connector shell or body that surrounds and protects a particular part of the device made of metal or plastic.

Simplex: Single element (e.g. a simplex connector is a single fiber connector)

Single-Mode Fiber: A small core optical fiber through which only one mode will propagate.

Sleeve: Covering over the terminal barrel can be insulated or metallic.

SMP: Coaxial connectors/contacts that feature snap in vibration proof connection, suitable for high shock mobile applications and space level connector requirements of vibration, thermal shock and outgassing. Frequency range is DC-40 GHz with low VSWR and insertion loss (dB) parameters of 0.10 dB max.

SMPM: Miniature SMP connectors/contacts that are 30% smaller than SMP. Frequency ranges capabilities of 60 GHz.

SMT: Abbreviation for surface mount technology.

Snap On: Used to describe the easy removal or assembly of one part to another.

Socket Contact: Female half of a mated pair of Contacts.

Solder: To join metal objects without melting them by fusing a metal alloy that has been applied to the joint between them. To join metal objects without melting them by fusing a metal alloy that has been applied to the joint between them. Any of several alloys used in this process.

Solder Contact: A contact or terminal having a cup, hollow cylinder, eyelet or hook to accept a wire for a conventional soldered termination.

Solder Cup: Cup shaped end of terminal or contact in which a conductor is inserted before being soldered in place.

Splice: A permanent connection of two optical fibers through fusion or mechanical means.

ST Connector: Single tip connector.

Strike Plating: The process of applying a thin electro deposit prior to final coating.

Stripline: A type of transmission line configuration, which consists of a single narrow conductor parallel and equidistant to two parallel ground planes.

Surface Mount Connector: A connector designed to be soldered to pads instead of through holes on a PCB.

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-T-

Teflon: A trade name for a polymer of polytetrafluoroethylene, characterized by extreme chemical inertness, withstanding the attack of all reagents except molten alkali metals; a tough, heat-resistant fluorocarbon resin used in packing, bearings, filters, electrical insulation, cooking utensils, and plumbing sealants.

Termination: The physical act of attaching a wire conductor to a contact. Effective termination contributes to electrical performance and to the durability and reliability of the interconnect system. Common termination methods include crimp, insulation displacement, surface mount, and soldering.

Thermal Shock: The effect of heat or cold applied at such a rate that nonuniform thermal expansion or contraction occurs within a given material or combination materials. The effect can cause inserts and other insulation materials to pull away from metal parts.

Triax connectors: Two isolated concentric contacts that protect signals from noise.

Torque: The tendency of a force applied to an object to cause the object to rotate about a given point. The tendency of a force applied to an object to cause the object to rotate about a given point.

Transceiver: A device that performs, within one chassis, both telecommunication transmitting and receiving functions.

Transient: A voltage or current surge that occurs in an electrical system following a sudden change in the dynamic conditions of the system and is usually short lived. A transient may be caused by the application of an input voltage or current to the system or by the application or removal of a driving force.

Transmission Line: A signal carrying composed of conductors and dielectric material with controlled electrical characteristics used for the transmission of high frequency or narrow-pulse type signals.

Twisted Pair: A cable made up of one or more separately insulated twisted wire pairs, none of which is arranged with another to form quads.

-U-

Umbilical Connector: A connector used to connect cables to a rocket or missile prior to launching, and which is removed from the missile at the time of launching.

Unmate: The disengagement, disconnecting or uncoupling of mated connectors.

USB: Short for ***U****niversal* ***S****erial* ***B****us,* an external bus standard that supports data transfer rates of 12 Mbps. A single USB port can be used to connect up to 127 peripheral devices, such as mice, modems, and keyboards.

-V-

Voltage Rating: The highest voltage that may be continually applied to a conductor in conformance with standards or specifications.

VSWR: Abbreviation for Voltage Standing Wave Ratio. The ratio of the maximum to minimum voltage set up along a transmission line by reflections.

-W-

Wavelength: In a periodic wave, the distance between points of corresponding phase of two consecutive cycles.

Working Voltage: The working or 'operational' Voltage is the maximum voltage that can be continuously sustained.

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Connector Specification Worksheet

Non-Filter Connectors

Fax Completed Form to: Customer Service (949) 250-1009

Date

Contact Information

Company | Contact

Address | Telephone | Fax

Email

Marketing Information

Program | Qty for Quote

Application | ROM/BAFO/Target Price

Initial Order Qty | Initial Order Date | Program Usage | Program Length

For Sabritec Use

Quotation #

Customer RFQ#

RFQ Due Date

Regional Manager

Sales Region

Customer Use Drawings

Yes ☐ No ☐

Connector Shell Information

Series/Type | Part# (if known) | Shell Size | Plug/Receptacle | Polarization | Plating

Contact Information

Pin/Socket | Part# (if known) | Termination | Contact Size

Cable Type Information

Cable Designator | Cable Length | Cable Temperature (Fiber Optics Only)

-40°C/+ 85°C
-40°C/+125°C
-65°C/+200°C

Layout Information

Insert Arrangement	Cavity	Coax Contacts	Triax Contacts	Fibre Channel Contacts	Fiber Optic Contacts

Modified Shell (Flange Moved, Clinch Nuts, Helicoils, Standoffs, Etc.)

Special Requirements (AC Voltage, Special Testing, Environmental)

Doc# FP700-03

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Connector Specification Worksheet

Filter Connectors

Fax Completed Form to: Customer Service (949) 250-1009

Date	Quantity	Target Delivery Date	ROM/BAFO/Target Price

Contact Information

Company	Contact

Address	Telephone	Fax
	Email	

For Sabritec Use

Quotation #
Customer RFQ#
RFQ Due Date
Regional Manager

Connector Shell Information

Series	Shell Style	Shell Size	Polarization	Plating	Material Type

Filter Characteristics

Filter (Pi, L, C)	Capacitance	DWV	Working Voltage

Frequency (MHz)	1	2	10	100	>500
Insertion Loss (dB)					

EMP Characteristics

Pulse Shape (Nuclear, EMP, SIGEMP or Lightning)?	
What is the stand-off voltage?	
What device does customer need (diode or MOV)?	
What is the max and min breakdown voltage?	
What is the power rating in watts?	

Layout Information

Insert Arrangement	Cavity	Filter Contacts	EMP Protected Contacts	Ground Contacts	Feed-Thru Contacts

Contact Information

Pin/Socket	Termination (PCB, Solder Cup, Crimp)	Solder Tail Length	Pre-Tin Contacts

Modified Shell (Flange Moved, Clinch Nuts, Helicoils, Standoffs, Etc.)

Special Requirements (AC Voltage, Special Testing, Environmental)

Program
Application

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Company Profile

We Welcome Your Challenges!

In today's high technology environment, success comes to those with the agility to move in new directions very quickly. Organizations must be adept in rapid response, creativity and flexibility balanced with a commitment to the highest quality and price performance. Sabritec is such a company.

Many of our customers first come to us with a difficult interconnect problem. Often, they are using a connector or cabled system that must be upgraded to handle new size and weight constraints, and/or harsher environments. They are pleased with our solutions, and you will be, too.

Drawing on solid experience, Sabritec's professional technical team wastes no time on the route to a successful solution. In fact, we may have already solved a problem similar to yours.

Sabritec's operations are completely consolidated into our fully equipped facility in Irvine. This facility is vertically integrated from initial concept, design and development, through production and acceptance testing, guaranteeing the customer the best product quality available anywhere. Further comprehensive in-house manufacturing and assembly capabilities assure total control over both quality and lead time, providing flexibility to meet your tight schedules and to react to midstream specification changes with a minimal schedule impact.

Working with Sabritec can ensure the smooth progress of your projects to save time and money and contribute greatly to the program's overall success. We will work closely with your procurement and engineering staffs to define requirements clearly and to respond quickly as well as in a cost effective manner.

Sabritec's proven ability to perform can be a major advantage in your next program. Call or e-mail us for details on how quickly we can become an important part of your team. Sabritec is an ISO 9001:2000 Certified company.

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smiths

Smiths Interconnect

SABRITEC

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