Cambridge Connectors

A division of Cambridge Electronic Industries Ltd

Precision 75 ohm coaxial connectors for 3GHz digital broadcast and video applications including PCI Express® and CoaXPress™

BNC Connectors
1.0 / 2.3 Connectors
Mini BNC Connectors
Edgecard Connectors
Contacts for Mixed Layout Connectors
Adaptors
Patch Cables

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13-06-2016

CoaXPress

3G SDI

The Operation of Electrical Transmission Lines at High Frequency.

It is important to understand that precision 75 ohm connectors form only one component of a transmission line; other components to be considered include: wires, connectors, coaxial cables, dielectric slabs, PCB striplines and waveguides. **At high frequency, such as in 3G SDI or CoaXPress™ applications, it is critical that all of the components employed in the transmission line are impedance matched.** Use of precision 75 ohm connectors will not "convert" existing non impedance matched systems.
The following guide gives an insight into parameters that must be considered when designing systems to operate at high frequency in an HD/SDI environment.

Characteristics of transmission lines.
Impedance is the resistance to the propagation of an alternating signal and is defined as the ratio of the complex voltage of a given wave to the complex current of the same wave at any point on the transmission line. Typical values for TV broadcast are 75 ohms. In HDTV/SDI applications, the approximations useful for calculations at lower frequencies are no longer accurate.
Return Loss, is measured at the junction of a transmission line and a terminating impedance or other discontinuity, and is the ratio of the amplitude of the reflected wave to the amplitude of the incident wave. The return loss value describes the reduction in the amplitude of the reflected energy, as compared to the forward energy and is normally expressed -db. For all devices that are not perfect transmission lines, the return loss value varies with frequency.
Insertion Loss is the decrease in transmitted signal power resulting from the insertion of a device in a transmission line. It is usually expressed relative to the signal power delivered to that same part before insertion. Insertion loss is usually expressed in decibels (dB). The insertion loss of a device may also be referred to as attenuation.
Voltage standing wave ratio (VSWR) is the ratio of the voltage amplitude of a partial standing wave at an anti-node (max) to the voltage amplitude at an adjacent node (min) in an electrical transmission line. For example, the VSWR value 1.2:1 (often quoted as just 1.2) denotes maximum standing wave amplitude that is 1.2 times greater than the minimum standing wave value.

Every discontinuity in the transmission line can have a **negative effect** on the integrity and final energy of the transmitted signal. It is therefore essential to ensure changes in impedance and geometry are reduced to a minimum.
Connectors must be selected with consideration to a) the real connector impedance and b) the PCB termination method to avoid significant discontinuities. Connectors should have the same characteristic impedance as the system transmission line and have a VSWR as near to 1 as possible (or a return loss better than -20db) across the required frequency of operation. They should provide the necessary physical interface to the real world and should terminate to the PCB in a way that least disrupts the transmission path, (for instance PCB edge mounting connectors ensure the connector signal path is in the same plane as the PCB stripline).
Cambridge Connectors Precision 75 ohm Coaxial connectors are designed to provide the physical and electrical characteristics that are essential for successful operation in applications such as **3G SDI** and **CoaXPress™** .

For a copy of our White Paper on selecting suitable components and optimising track layout and board geometry in HD/SDI applications please contact our application engineers on:

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Precision 75 ohm Coaxial Connectors for HDTV Serial Video Applications
Introduction

High definition broadcast applications are pushing the operating parameters of interconnection products to the limit. To help meet these demands, Cambridge Connectors has designed a new range of Precision 75 ohm coaxial connectors which operate at the increased bandwidth and frequencies now required for HD Serial Digital Video environments.
All are **RoHS** compliant.

These Precision 75 ohm coaxial connectors, which incorporate advanced geometry designs and specialised materials, include the following styles: edge card mounting; 2 part range for rapid board swap; low profile right angle version for high board densities; hybrid press fit for reduced production costs; top entry solder PCB mounting style.

As a specialist supplier to the broadcast industry, Cambridge Connectors works in close partnership with its customers to produce interconnection solutions. In addition to standard product, Cambridge Connectors can also provide custom products to meet the specialised needs of its customers.

Custom Designs
Cambridge Connectors specialises in custom designed connectors. If you cannot find the ideal Precision 75 ohm coaxial connector for your project please contact our design engineers who will discuss your application with you and arrive at the optimum solution. With the use of advanced CAD techniques, design cycles can be very fast and the final product very competitive.

CoaXPress™
These connectors are also suitable for CoaXPress applications– for more information contact our applications engineers on.

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Precision 75 Ohm coaxial connectors for HDTV Broadcast Applications

Two part design for rapid board swap

Features

- Precision 75 Ohm BNC Connector
- Designed for HD SDV applications
- Two part construction for rapid board swap
- PCB or front and rear bulkhead mounting
- Circlip or threaded versions
- RoHS Compliant

General Description

Two piece BNC female bulkhead, Precision 75 ohm connectors, available in the following parts: -

Inner for 1.6 mm PCBs.	XBT-1058-NGAY	Outer for Circlip Bulkhead Mount	71X-0037-33
Inner for 2.4 mm PCBs	XBT-1059-NGAY	Outer for Threaded Rear Bulkhead Mount	71X-0038-33
Inner for 3.2 mm PCBs	XBT-1060-NGAY	Outer for Threaded Front Bulkhead Mount	71X-0039-33
Inner for top entry	XBT-1061-NGAY	Outer for PCB Mount	71X-0040-33
12 mm Circlip	71X-0036-00	2 part BNC outer with screw fastening	71X-0044-33

Applications

This two part 75 ohm BNC female connector range is specifically designed for the broadcast industry. It allows daughter boards in switching and routing equipment to be swapped out without the necessity of removing attached patch cables; this greatly reduces downtime. The range includes: - PCB mounting; Rear and Front mounting bulkhead versions, secured by threaded nuts; and also a circlip bulkhead version. The PCB mounting "inner" is edge mounting to ensure Precision 75 ohm performance.

Specification

Electrical

Impedance	75 Ohm
Frequency Range	0 – 3.0 GHz
Working Voltage	500 V_{rms}
Dielectric Withstanding Voltage	1500 V_{rms}
Reflection Factor (VSWR)	1.08 (Max) DC-1.5GHz 1.16 (Max) 1.5GHz-3.0GHz
Contact Resistance	Centre contact 1.5 m ohm Outer contact 1.0 m ohm
Insulation Resistance	> 5000 Meg Ohm

*Materials

Centre Pin	Phosphor Bronze / 10µ " Au
Metal Parts	Brass / Nickel
Insulators	Teflon®

*** Other materials such as Gold Plating are available to customer requirement.**

High definition broadcast applications - this Precision 75 ohm BNC connector range, incorporates an innovative PCB edge mounting style. This provides a straight signal path along the connector, through the point of interface and onto the PCB track with minimal loss of transmission characteristics.

For more details contact our applications engineers on.
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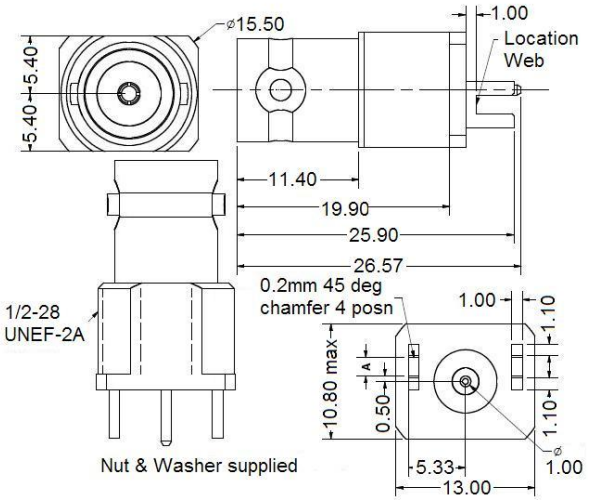
Precision 75 Ohm BNC connectors for HDTV Broadcast Applications
PCB Edge mounting with unique location webs

Features

- Precision 75 Ohm BNC Connector
- Designed for HD SDV applications
- PCB edge mounting style minimises signal path discontinuities
- Unique location webs secure connector in place during production
- 75 ohm optimised PCB layout guide available
- RoHS Compliant
- Low profile feature gives high wiring densities
- A 75 ohm optimised PCB layout guide is available on request.



General Description

BNC, female bulkhead 75 ohm PCB edge mount connector.

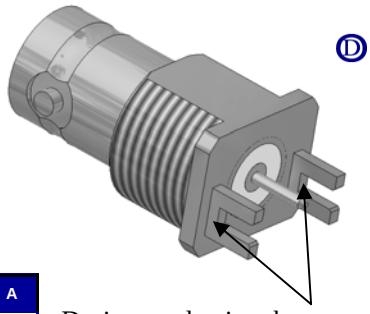
Applications

It is specifically designed for the broadcast industry for use in HDTV, Serial Video applications where accurate 75 ohm connectivity is necessary.

Specification

Electrical

Impedance	75 Ohm
Frequency Range	0 – 3.0 GHz
Working Voltage	500 Vrms
Dielectric Withstanding Voltage	1500 V_{rms}
Reflection Factor (VSWR)	1.08 (Max) DC-1.5GHz 1.16 (Max) 1.5GHz-3.0GHz
Contact Resistance	Centre contact 1.5 m ohm Outer contact 1.0 m ohm
Insulation Resistance	> 5000 Meg Ohm
*Materials	
Centre Pin - female	Phosphor Bronze/10µ " Au
- male	Brass
Metal Parts	Brass / Nickel
Insulators	Teflon®



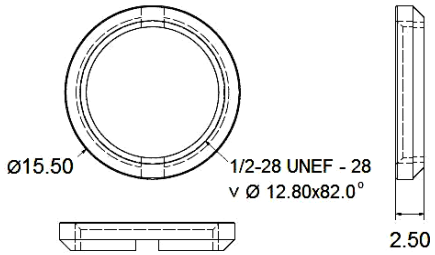
Part Number	PCB thickness	A
C-SX-058	1.6mm	1.70
C-SX-072	2.4mm	2.50
C-SX-073	3.2mm	3.30
C-SX-074	3.6mm	3.70

During production these unique location webs secure the connector into position on the card edge prior to the soldering phase.

***Other materials such as Gold Plating are available to customer requirement.**

Slotted circular nuts for bulkhead mounted BNC connectors

To meet the requirement for increased wiring densities, Cambridge Connectors offers the choice of slim line slotted circular nuts for use with its bulkhead mounted precision 75 ohm BNC connectors. Available as an optional extra, these enable the connectors to be mounted on a 16 mm pitch. A special matching tool, TLG 106, is available.

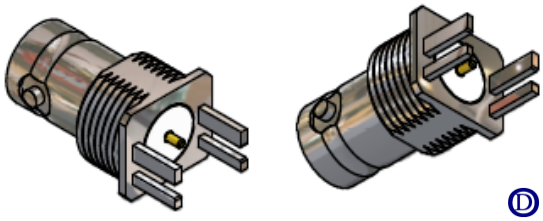


71X-0041-33

TLG 106

All Connectors Design Right Protected

Precision 75 Ohm BNC connectors for HDTV Broadcast Applications
PCB Edge mounting



Features

- Precision 75 Ohm BNC Connector
- Designed for HD SDV applications
- PCB edge mounting style meets existing industry standard footprint
- 75 ohm optimised PCB layout guide available
- RoHS Compliant
- Low profile feature gives high wiring densities
- Precision 75 ohm BNC patch leads also available

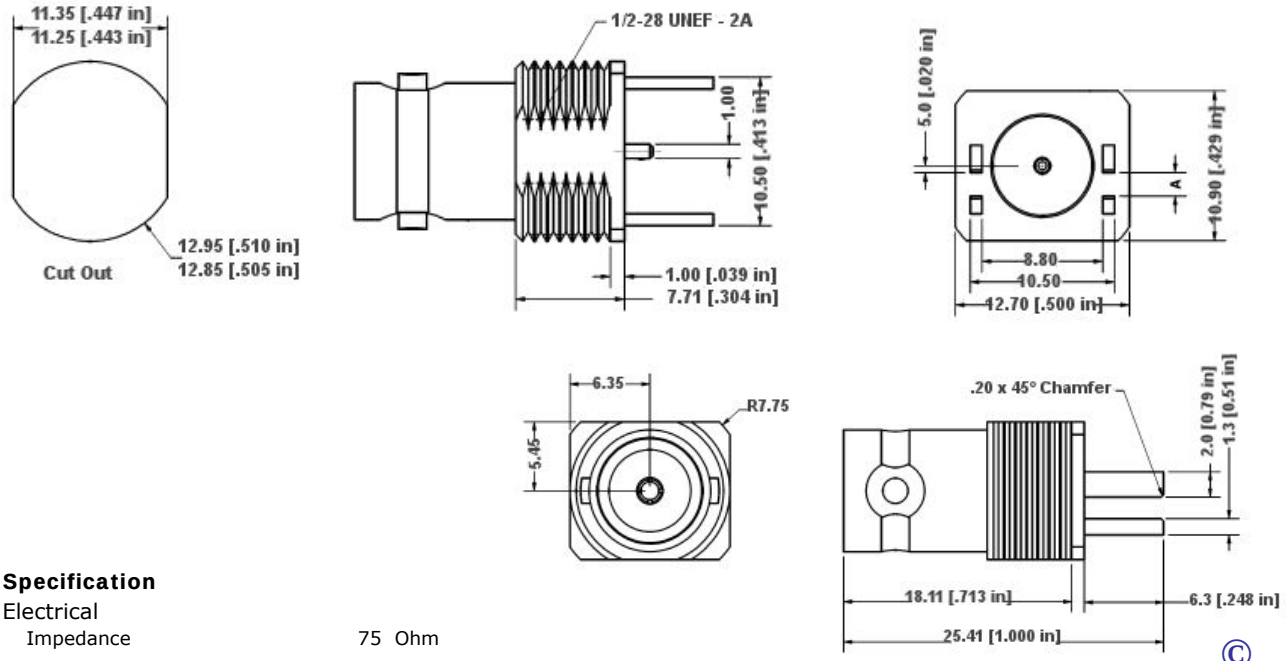
A 75 ohm optimised PCB layout guide is available on request.

General Description

BNC, female bulkhead 75 ohm PCB edge mount connector meeting existing industry standard layout.

Applications

It is specifically designed for the broadcast industry for use in HDTV, Serial Video applications where accurate 75 ohm **connectivity is necessary.**



Specification

Electrical

Impedance	75 Ohm
Frequency Range	0 – 3.0 GHz
Working Voltage	500 V_{rms}
Dielectric Withstanding Voltage	1500 V_{rms}
Reflection Factor (VSWR)	1.08 (Max) DC-1.5GHz 1.16 (Max) 1.5GHz-3.0GHz
Contact Resistance	Centre contact 1.5 m ohm Outer contact 1.0 m ohm
Insulation Resistance	> 5000 Meg Ohm

*Materials

Centre Pin - female	Phosphor Bronze/10µ " Au
- male	Brass
Metal Parts	Brass / Nickel
Insulators	Teflon®

Part Number	Gold plate Part Number	PCB thickness	A
C-SX-077	C-SX-077G	1.6mm	1.70
C-SX-080	C-SX-080G	2.4mm	2.50
C-SX-081	C-SX-081G	3.2mm	3.30
C-SX-082	C-SX-082G	3.6mm	3.70

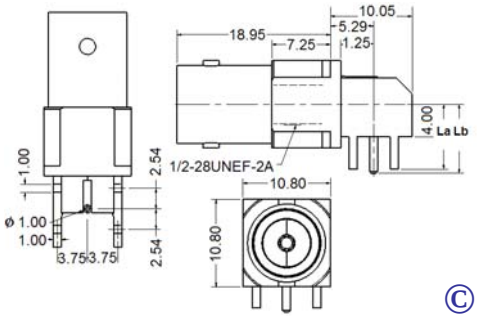
***Other materials such as Gold Plating (as illustrated) are available to customer requirement.**

Precision 75 Ohm BNC connectors for HDTV Broadcast Applications

Low profile (4mm) right angle PCB mounting with Pathfinder™ Light Pipe Feature

Features

- Precision 75 Ohm BNC Connector
- Designed for HD SDV applications
- Low profile allows higher wiring densities
- RoHS Compliant
- Pathfinder™ Light Pipe Feature aids port identification.



General Description

BNC, female, low profile, right angle PCB mounting 75 ohm connector. Unique geometry design and specialist materials ensure Precision 75 ohm 3G SDI performance.

Applications

It is particularly suitable for the broadcast industry for use in HDTV, Serial Video applications where Precision 75 ohm connectivity is essential. With a centre line of 4mm above the board, its low profile permits closer packing densities of daughter boards, which allows reduction in the bulk of routing and switching equipment.

P/N	La (mm)	Lb (mm)
C-SX-069	8.0	8.5
C-SX-101	6.8	6.8
C-SX-107	5.7	5.8

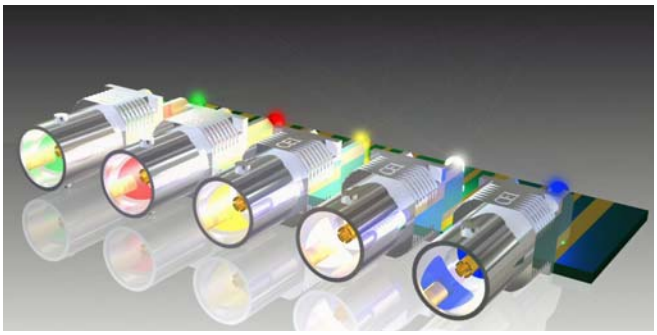
Specification

Electrical

Impedance	75 Ohm
Frequency Range	0 – 3.0 GHz
Working Voltage	500 V_{rms}
Dielectric Withstanding Voltage	1500 V_{rms}
Reflection Factor (VSWR)	1.06 (Max) DC-1.5GHz 1.33 (Max) 1.5 GHz—3.0 GHz
Contact Resistance	Centre contact 1.5 m ohm Outer contact 1.0 m ohm
Insulation Resistance	> 5000 Meg Ohm

***Materials**

Centre Pin	Phosphor Bronze / 10µ " Au
Metal Parts	Zinc Alloy/ Nickel
Insulators	TPX



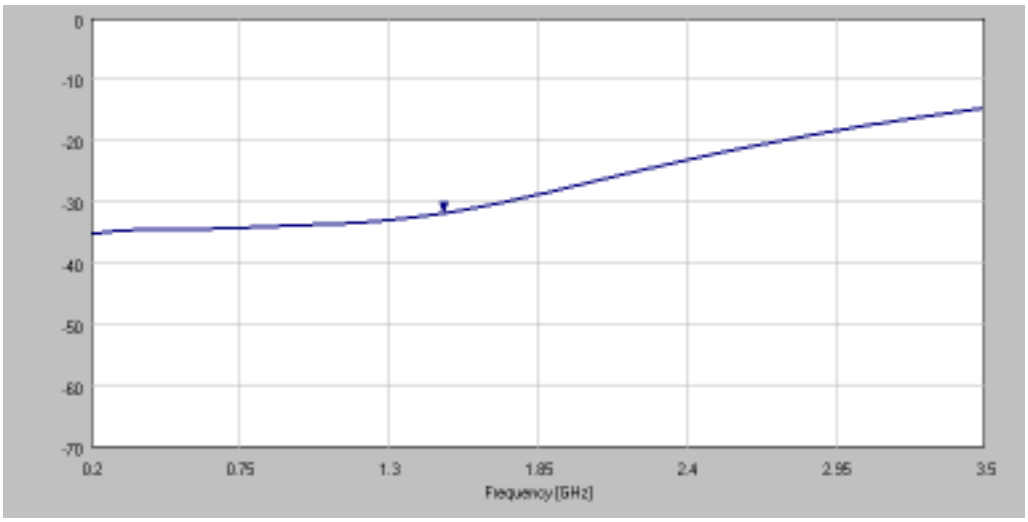
Innovative construction and insulator materials, create a “light pipe” to transmit light from the back of the connector to the front. By using different colours the function and status of each port can be clearly indicated. With the use of self monitoring circuitry it is even possible to indicate failures to the operator.

C-SX-069

*** Other materials such as Gold Plating are available**

Return Loss Graph (measurements include PCB mounting)

Return loss @ 3.0 GHz -17.0 db max Return loss @ 1.5 GHz -31.0 db max



For more details contact our applications engineers on:
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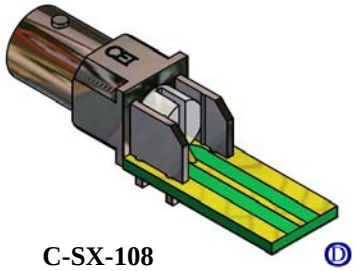
Precision 75 Ohm BNC connectors for HDTV Broadcast Applications with Surface Mount centre contact minimising the requirement for PCB Vias

Low profile (4mm) right angle PCB with Pathfinder™ Light Pipe Feature

NEW



C-SX-108 Ⓓ

Surface Mount Version

- Precision 75 Ohm BNC Connector
- Designed for HD SDV applications
- Low profile allows higher wiring densities
- RoHS Compliant .

Applications

It is particularly suitable for the broadcast industry for use in HDTV, Serial Video applications where precision 75 ohm connectivity is essential. With a centre line of 4mm above the board, its low profile permits closer packing densities of daughter boards, which allows reduction in the bulk of routing and switching equipment.

Specification Surface Mount C-SX-108

Electrical

Impedance	75 Ohm
Frequency Range	0 – 3.2 GHz
Working Voltage	500 V_{rms}
Dielectric Withstanding Voltage	1500 V_{rms}
Reflection Factor (VSWR)	1.10 (Max) DC-1.5GHz 1.39 (Max) 1.5GHz-3.0GHz
Contact Resistance (m ohm)	Centre contact 1.5 Outer contact 1.0
Insulation Resistance	> 5000 Meg Ohm

***Materials**

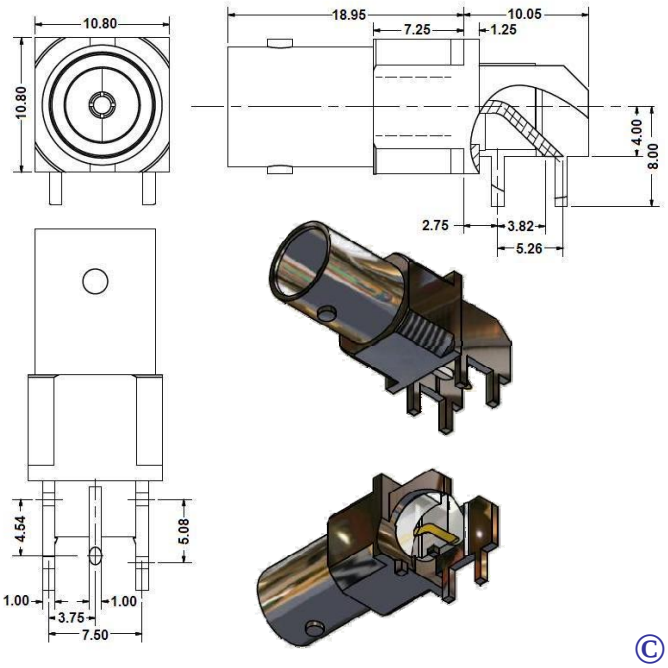
Centre Pin	Phosphor Bronze/10µ " Au
Insulators	UL94 HB TPX
Metal Parts	Die Cast Zinc/Ni
Body Finish	Standard - Nickel Plating

Environmental

Temperature Range	-65 to +85 ° C
Mating Cycles	250

Vibration: MIL-STD 202 Method 204 test condition B

Salt Spray: MIL STD 202 Method 101 test condition B



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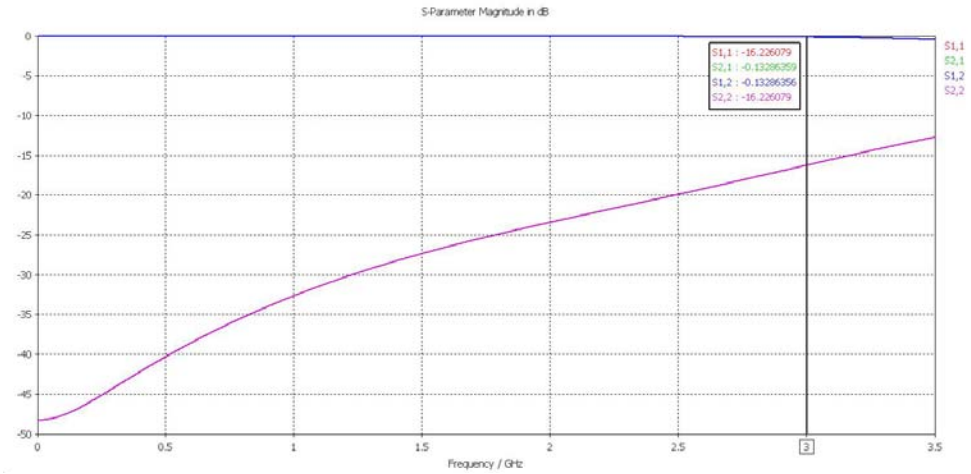

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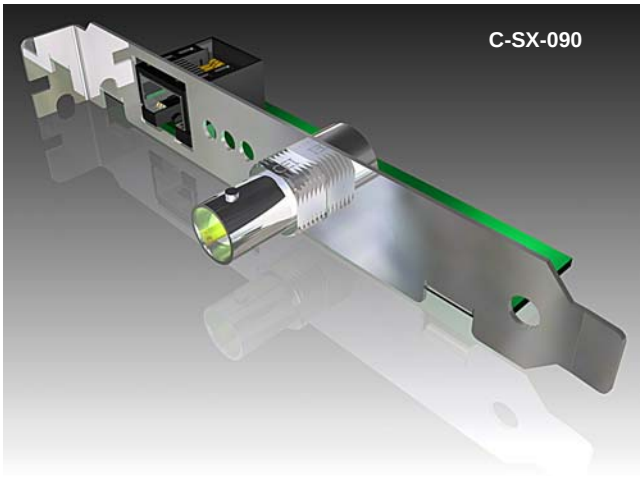
Web site www.cambridgeconnectors.com

Precision 75 Ohm BNC connectors for PCI Express® Applications Incorporating Pathfinder™ Light Pipe Features

- For use in PCI Express® applications
- Designed to meet the requirements of SMPTE 424M 3G-SDI over single link coax.
- Unique Pathfinder™ Light Pipe Feature aids port identification and status
- Built in flange provides EMI shielding
- Bulkhead mounting for non PCI Express® applications



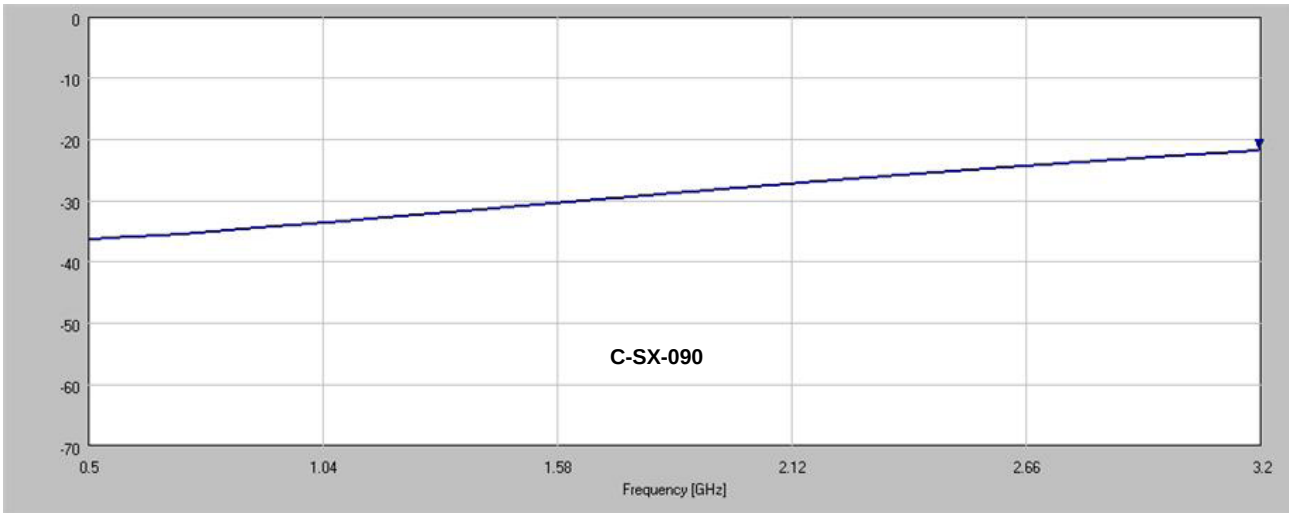
Specification C-SX-090

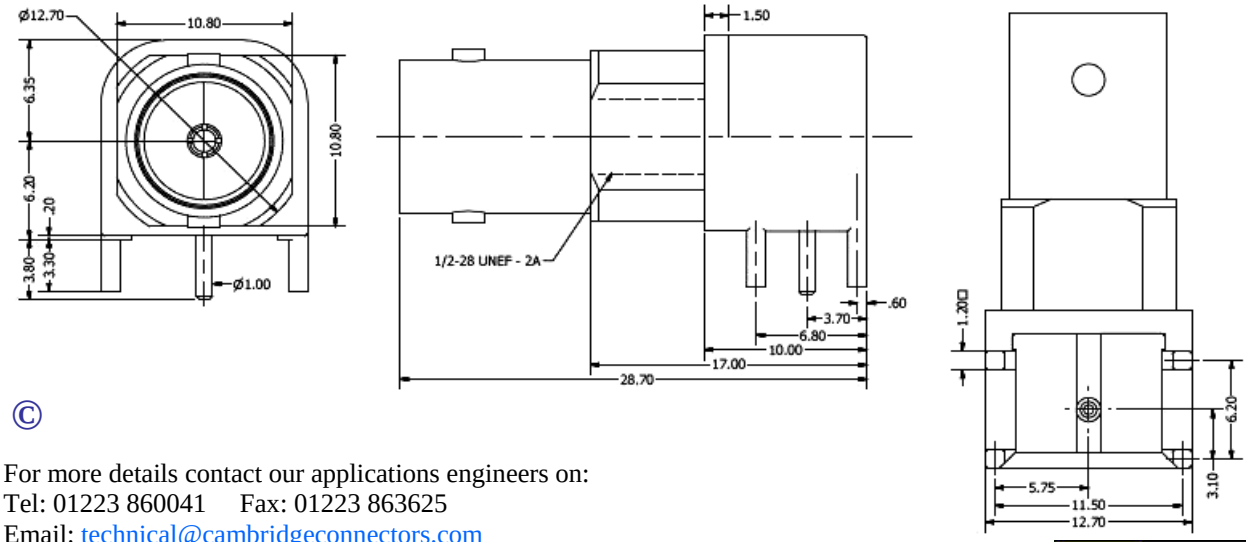
Electrical

Impedance	75 Ohm
Frequency Range	0 – 3.2 GHz
Working Voltage	500 V_{rms}
Dielectric Withstanding Voltage	1500 V_{rms}
Reflection Factor (VSWR)	1.10 (Max) DC-1.5GHz 1.20 (Max) 1.5GHz-3.2GHz
Contact Resistance	Centre contact 1.5 m ohm Outer contact 1.0 m ohm
Insulation Resistance	> 5000 Meg Ohm

*Materials

Centre Pin	Phosphor Bronze/10µ " Au
Insulators	UL94 HB TPX
Body Finish	Standard - Nickel Plating





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Web site www.cambridgeconnectors.com

3G SDI

75 Ohm BNC connectors for PCI Express® Applications with Surface Mount centre contact minimising the requirement for PCB Vias

- For use in PCI Express® applications
- Meet the requirements of SMPTE 424M 3G-SDI over single link coax.
- Unique Pathfinder™ Light Pipe Feature aids port identification and status
- Built in flange provides EMI shielding
- Bulkhead mounting for non PCI Express® applications

Specification Surface Mount C-SX-104

Electrical

Impedance	75 Ohm
Frequency Range	0 – 3.2 GHz
Working Voltage	500 V_{rms}
Dielectric Withstanding Voltage	1500 V_{rms}
Reflection Factor (VSWR)	1.10 (Max) DC-1.5GHz 1.19 (Max) 1.5GHz-3.0GHz
Contact Resistance (m ohm)	Centre contact 1.5 Outer contact 1.0
Insulation Resistance	> 5000 Meg Ohm

***Materials**

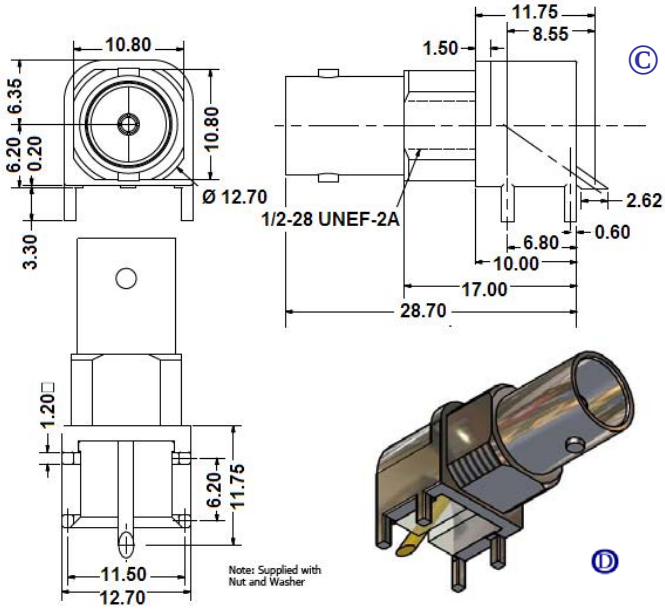
Centre Pin	Phosphor Bronze/10µ " Au
Insulators	UL94 HB TPX
Metal Parts	Die Cast Zinc/Ni
Body Finish	Standard - Nickel Plating

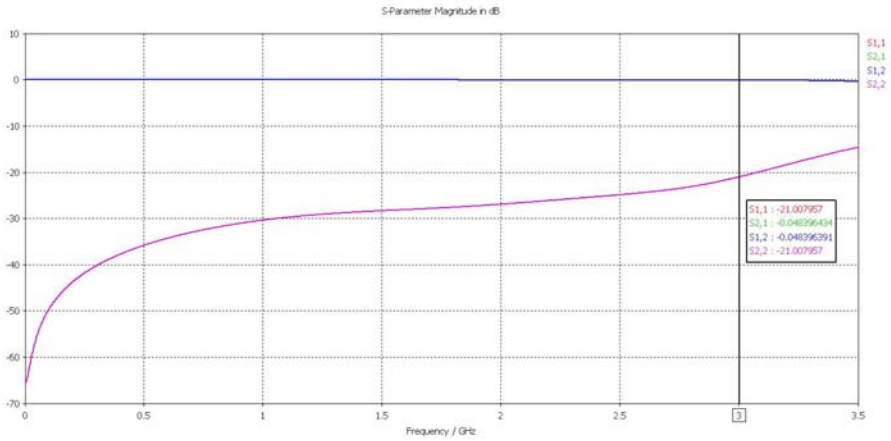
Environmental

Temperature Range	-65 to +85 ° C
Mating Cycles	250

Vibration: MIL-STD 202 Method 204 test condition B

Salt Spray: MIL STD 202 Method 101 test condition B





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Web site www.cambridgeconnectors.com

Precision Edgecard Connectors for use in PCI Express® Applications.

To complement its range of Precision Coaxial Connectors suitable for PCI Express® applications Cambridge Connectors also offers this range of Edgecard Connectors which conforms to PCI-SIG specifications.
PCI Express® is used to link motherboard-mounted peripherals and to provide an expansion interface for add-in boards. PCI Express® is used in Desktop computers, Servers, Workstations, Storage systems, Fibre Channel host-bus adapters, RAID controllers, Routers and Switches.

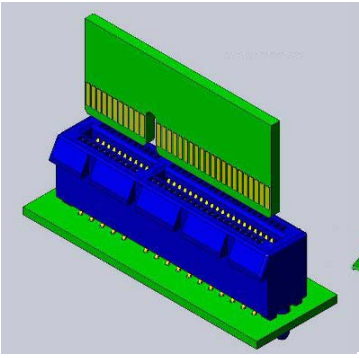
Features

- 1.0mm contact centre
- Conform to PCI-SIG specification
- Clock speed: 2.5 GHz
- Bit rate: 5 Gigatransfers per second
- Data transfer rate: 500 MB/s in each direction, per lane

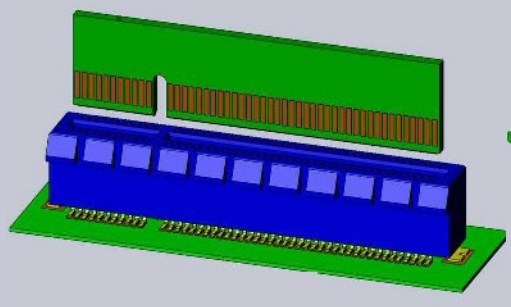
Typical sizes

x1 - 1-lane slot - 18 positions / 36 signal pins
x4 - 4-lane slot - 32 positions / 64 signal pins
x8 - 8-lane slot - 49 positions / 98 signal pins
x16 - 16-lane slot - 82 positions / 164 signal pins
x24 - 24-lane slot - 115 positions / 230 signal pins
x32 - 32-lane slot - 140 positions / 280 signal pins

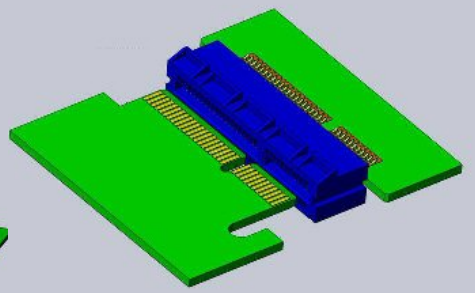
Available in gold flash, 10u", and 30u" selective gold plating, termination types include dip solder, right angle, SMT & card extender. Various mounting styles and locking mechanism, such as straddle mount, extended pegs, clips, clamps, and handles are also included in the range.



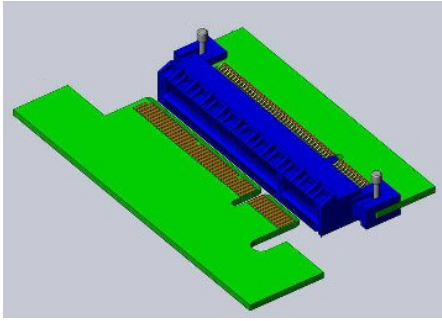
Staggered DIP Solder



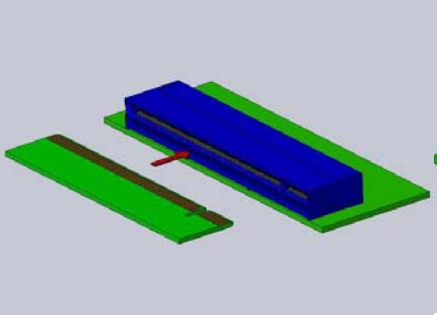
Surface Mount



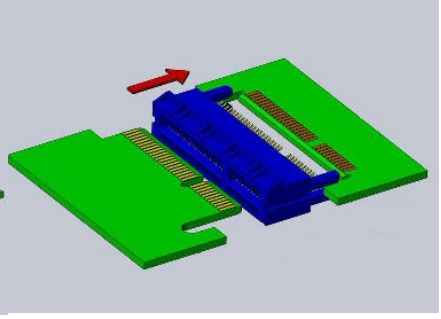
Card Extender - Straddle Mount



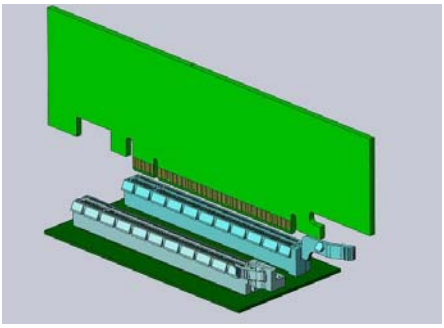
Card Extender
Straddle Mount with Cups



Right Angle Bend - Staggered DIP Solder



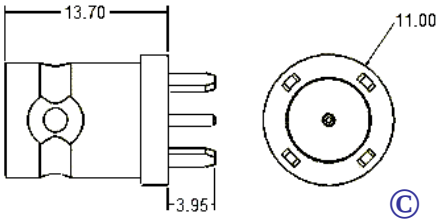
Card Extender
Straddle Mount with Pegs



W/Left Clamp, W/Right Handle
Staggered DIP Solder

For more details contact our applications engineers on.
Tel: 01223 860041
Fax: 01223 863625
Email: technical@cambridgeconnectors.com
Web site www.cambridgeconnectors.com

Precision 75 Ohm BNC connectors for HDTV Broadcast Applications
Top Entry PCB Mounting Press Fit Hybrid



Features

- Precision 75 Ohm BNC Connector
- Designed for HD SDV applications
- Hybrid design combines advantages of press fit and solder
- Press fit techniques offer unequalled manufacturing economies
- Solder centre contact ensures Precision 75 ohm performance
- RoHS Compliant

Press fit manufacturing techniques allow large numbers of connectors to be pressed simultaneously into a PCB to form a secure electrical and physical bond. This offers considerable economies over traditional solder methods. To exploit the advantages of press fit production methods in HD SDV applications Cambridge Connectors has, using radical internal geometry and specialised materials, developed a hybrid BNC product. This unique Precision 75 ohm BNC connector can be pressed into the PCB in one operation to secure the outer contacts; a further solder operation then provides the Precision 75 ohm bond with the centre contact.

General Description
Straight PCB mounting Precision 75 ohm female press fit BNC connector.

Applications

It is specifically designed for the broadcast industry for use in HDTV, Serial Video applications where accurate 75 ohm connectivity is necessary and where press fit manufacturing processes are adopted.

Specification

Electrical

Impedance	75 Ohm
Frequency Range	0 – 3.0 GHz
Working Voltage	500 V_{rms}
Dielectric Withstanding Voltage	1500 V_{rms}
Reflection Factor (VSWR)	1.08 (Max) DC-1.5GHz 1.16 (Max) 1.5GHz-3.0GHz
Contact Resistance	Centre contact 1.5 m ohm Outer contact 1.0 m ohm
Insulation Resistance	> 5000 Meg Ohm
*Materials	
Centre Pin - female	Phosphor Bronze/10µ " Au
Centre Pin - male	Brass
Metal Parts	Brass / Nickel
Insulators	Teflon®

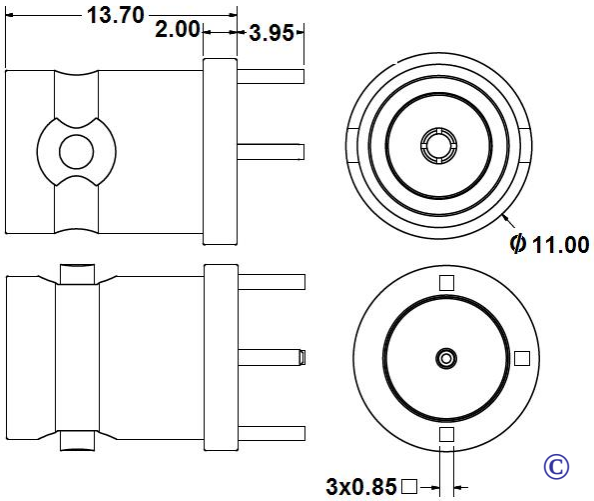
C-SX-061

*** Other materials such as Gold Plating are available to customer requirement.**

Cable terminated Precision 75 ohm BNC connectors and patch leads
To complement these products Cambridge Connectors also produces Precision 75 ohm BNC connectors for a variety of cable types and patch leads in either standard length or built to customer specification.

For more details contact our applications engineers on.
Tel: 01223 860041 Fax: 01223 863625
Email: technical@cambridgeconnectors.com
Web site www.cambridgeconnectors.com

Precision 75 Ohm BNC connectors for HDTV Broadcast Applications
Top Entry 3 Pin PCB Mounting



Features

- Precision 75 Ohm BNC Connector
- Designed for HD SDV applications
- RoHS Compliant
- Precision 75 ohm BNC patch leads also available

General Description

Straight PCB mounting Precision 75 ohm female BNC connector. Although superficially similar to standard 75 ohm BNC products, enhanced internal geometry and the use of specialised materials produces a product with Precision 75 ohm performance.

Applications

It is specifically designed for the broadcast industry for use in HDTV, Serial Video applications where accurate 75 ohm connectivity is necessary.

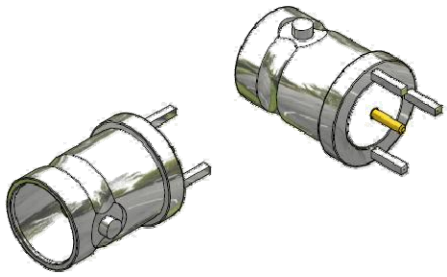
Specification

Electrical

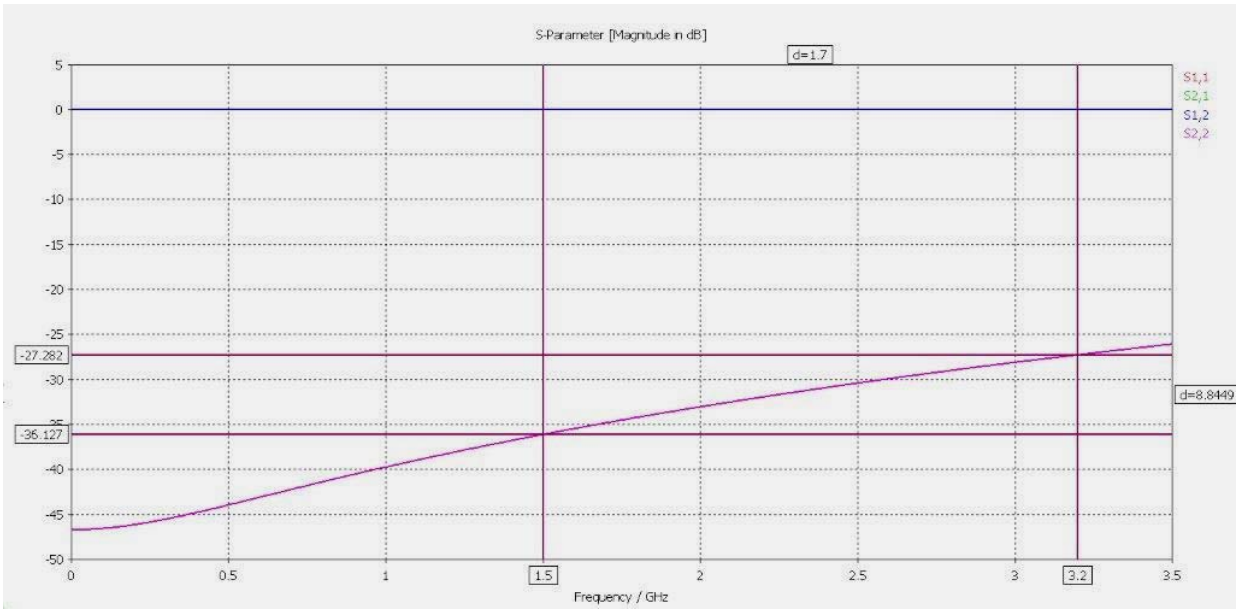
Impedance	75 Ohm
Frequency Range	0 – 3.0 GHz
Working Voltage	500 V_{rms}
Dielectric Withstanding Voltage	1500 V_{rms}
Reflection Factor (VSWR)	1.02 (Max) DC-1.5GHz 1.10 (Max) 1.5GHz-3.0GHz
Contact Resistance	Centre contact 1.5 m ohm Outer contact 1.0 m ohm
Insulation Resistance	> 5000 Meg Ohm

*Materials

Centre Pin - female	Phosphor Bronze/10µ " Au
Centre Pin - male	Brass
Metal Parts	Brass / Nickel
Insulators	PTFE



*** Other materials are available to customer requirement..**



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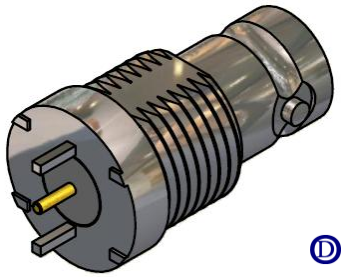
Precision 75 Ohm BNC connectors for HDTV Broadcast Applications



Top Entry Bulkhead Mounting

Features

- Precision 75 Ohm BNC Connector
- Designed for HD SDV applications
- RoHS Compliant
- Precision 75 ohm BNC patch leads also available

General Description

Straight Bulkhead Mounting Precision 75 ohm female BNC connector.
Although superficially similar to standard 75 ohm BNC products, enhanced internal geometry and the use of specialised materials produces a product with Precision 75 ohm performance.

Applications

It is specifically designed for the broadcast industry for use in HDTV, Serial Video applications where accurate 75 ohm connectivity is necessary.

Specification

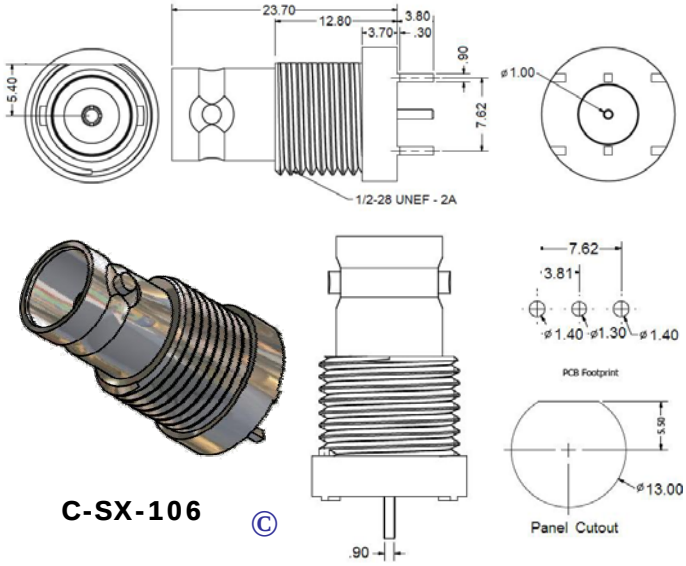
Electrical

Impedance	75 Ohm
Frequency Range	0 – 3.0 GHz
Working Voltage	500 V_{rms}
Dielectric Withstanding Voltage	1500 V_{rms}
Reflection Factor (VSWR)	1.02 (Max) DC-1.5GHz 1.04 (Max) 1.5GHz-3.0GHz
Contact Resistance	Centre contact 1.5 m ohm Outer contact 1.0 m ohm
Insulation Resistance	> 5000 Meg Ohm

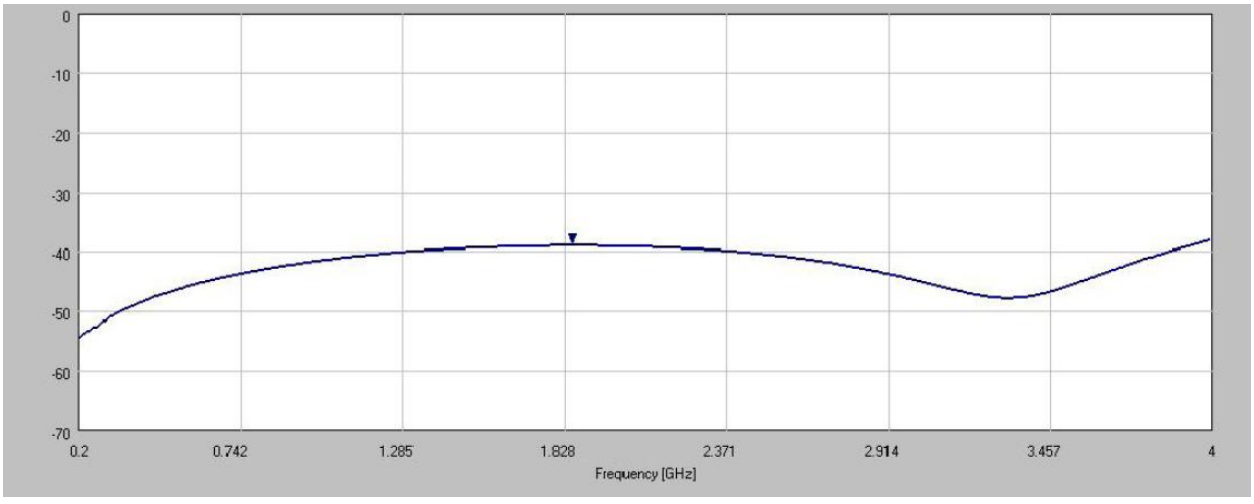
Materials

Centre Pin - female	Phosphor Bronze/10µ " Au
Centre Pin - male	Brass
Metal Parts	Brass / Nickel
Insulators	PTFE

Other materials are available to customer requirement..



C-SX-106 ©



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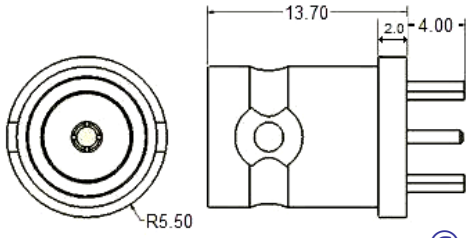
Web site www.cambridgeconnectors.com

Precision 75 Ohm BNC connectors for HDTV Broadcast Applications

Top Entry PCB Mounting
Features

- Precision 75 Ohm BNC Connector
- Designed for HD SDV applications
- RoHS Compliant
- Precision 75 ohm BNC patch leads also available



©

General Description

Straight PCB mounting Precision 75 ohm female BNC connector. Although superficially similar to standard 75 ohm BNC products, enhanced internal geometry and the use of specialised materials produces a product with Precision 75 ohm performance.

Applications

It is specifically designed for the broadcast industry for use in HDTV, Serial Video applications where accurate 75 ohm connectivity is necessary.

Specification

Electrical

Impedance	75 Ohm
Frequency Range	0 – 3.0 GHz
Working Voltage	500 V_{rms}
Dielectric Withstanding Voltage	1500 V_{rms}
Reflection Factor (VSWR)	1.08 (Max) DC-1.5GHz 1.16 (Max) 1.5GHz-3.0GHz
Contact Resistance	Centre contact 1.5 m ohm Outer contact 1.0 m ohm
Insulation Resistance	> 5000 Meg Ohm

*Materials

Centre Pin - female	Phosphor Bronze/10µ " Au
Centre Pin - male	Brass
Metal Parts	Brass / Nickel
Insulators	Teflon®

Ⓓ

C-SX-063

*** Other materials such as Gold Plating are available to customer requirement..**

Cable terminated Precision 75 ohm BNC connectors and patch leads

To complement these products Cambridge Connectors also produces Precision 75 ohm BNC connectors for a variety of cable types and patch leads in either standard length or built to customer specification.

For more details contact our applications engineers on.
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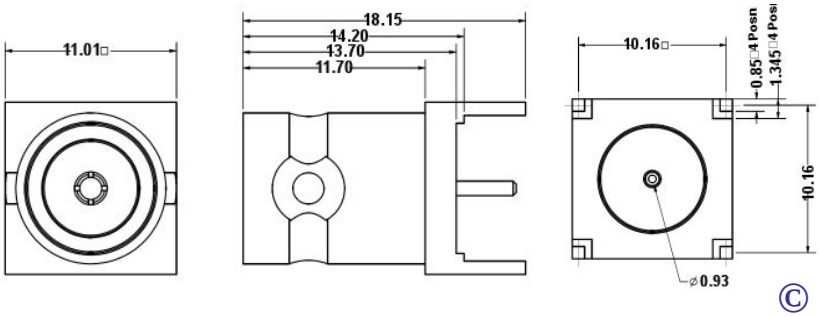
Fax: 01223 863625
Email: technical@cambridgeconnectors.com
Web site www.cambridgeconnectors.com

Precision 75 Ohm BNC connectors for HDTV Broadcast Applications

Top Entry PCB Mounting Square Base Features

- Precision 75 Ohm BNC Connector
- Designed for HD SDV applications
- RoHS Compliant
- Precision 75 ohm BNC patch leads also available



General Description

Straight PCB mounting Precision 75 ohm female BNC connector with square base. Although superficially similar to standard 75 ohm BNC products, enhanced internal geometry and the use of specialised materials produces a product with Precision 75 ohm performance.

Applications

It is specifically designed for the broadcast industry for use in HDTV, Serial Video applications where accurate 75 ohm connectivity is necessary.

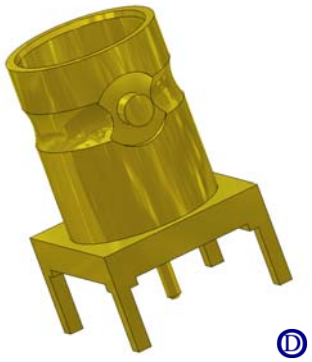
Specification

Electrical

Impedance	75 Ohm
Frequency Range	0 – 3.0 GHz
Working Voltage	500 V_{rms}
Dielectric Withstanding Voltage	1500 V_{rms}
Reflection Factor (VSWR)	1.08 (Max) DC-1.5GHz 1.16 (Max) 1.5GHz-3.0GHz
Contact Resistance	Centre contact 1.5 m ohm Outer contact 1.0 m ohm
Insulation Resistance	> 5000 Meg Ohm

*Materials

Centre Pin - female	Phosphor Bronze/10µ " Au
Centre Pin - male	Brass
Metal Parts	Brass / Nickel
Insulators	Teflon®



C-SX-068

*** Other materials such as Gold Plating (as illustrated) are available to customer requirement..**

Cable terminated Precision 75 ohm BNC connectors and patch leads

To complement these products Cambridge Connectors also produces Precision 75 ohm BNC connectors for a variety of cable types and patch leads in either standard length or built to customer specification.

For more details contact our applications engineers on.
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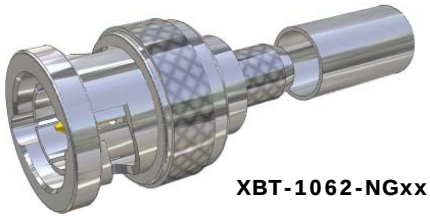
Web site www.cambridgeconnectors.com

Precision 75 ohm BNC Connectors for HDTV Serial Video Applications
Crimp Cable Terminating Connectors and Patch Cables

Features

- Precision 75 Ohm BNC Connector
- Designed for HD SDV applications
- Suitable for wide range of cable styles
- RoHS Compliant
- Fully assembled precision 75 ohm BNC patch cables available in standard and custom lengths



XBT-1062-NGxx*

General Description

Straight crimp cable terminating Precision 75 ohm BNC connector. Although superficially similar to standard 75 ohm BNC products, enhanced geometry and the use of specialised materials produces a product with Precision 75 ohm performance.

Applications

It is specifically designed for the broadcast industry for use in HDTV, Serial Video applications.

Specification

Electrical

Impedance	75 Ohm
Frequency Range	0 – 3.0 GHz
Working Voltage	500 V_{rms}
Dielectric Withstanding Voltage	1500 V_{rms}
Reflection Factor (VSWR)	1.08 (Max) DC-1.5GHz 1.16 (Max) 1.5GHz-3.0GHz
Contact Resistance	Centre contact 1.5 m ohm Outer contact 0.2 m ohm
Insulation Resistance	> 5000 Meg Ohm

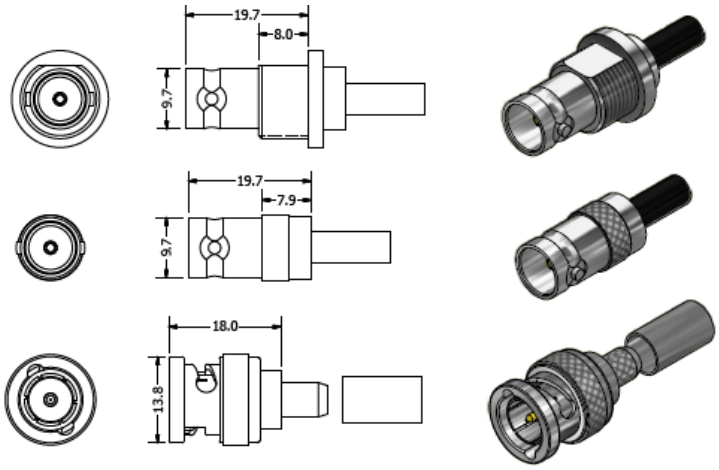
***Materials**

Centre Pin - male	Brass
Metal Parts	Brass / Nickel
Insulators	Teflon®
Gasket	Silicone Rubber
Crimp Sleeve	Annealed Copper

*A wide range of 75 ohm cable types can be used including the following:

Cable type	*xx Cable Group
Belden 1505A	AB
Belden 1694A	AS
RG179	AF
Belden 1855A	BA

Cable Connector Guide - styles illustrated are for use with Belden 1855A cable - other cable types available



75 Ohm BNC Bulkhead Socket (Female)
Part No: XBT-1064-NGBA

75 Ohm BNC Free Cable Socket (Female)
Part No: XBT-1066-NGBA

75 Ohm BNC Free Cable Plug (Male)
Part No: XBT-1062-NGBA

Cable terminated Precision75 ohm BNC connectors and patch leads

To complement these products Cambridge Connectors also produces: -

- Precision 75 ohm cable terminated connectors for a variety of cable types
- BNC to 1.0/2.3 adaptors
- BNC to 1.0/2.3 adaptor leads
- BNC to MCX adaptor leads
- Fully assembled Patch Cables in standard and custom lengths

3G SDI

Tel: +44 (0)1223 860041 Fax: +44 (0)1223 863625 Email: sales@cambridgeconnectors.com

Precision 75 ohm BNC Connectors for HDTV Serial Video Applications
Return loss measurements.

The following graphs demonstrate return losses throughout a 0.2 GHz to 4GHz frequency sweep.

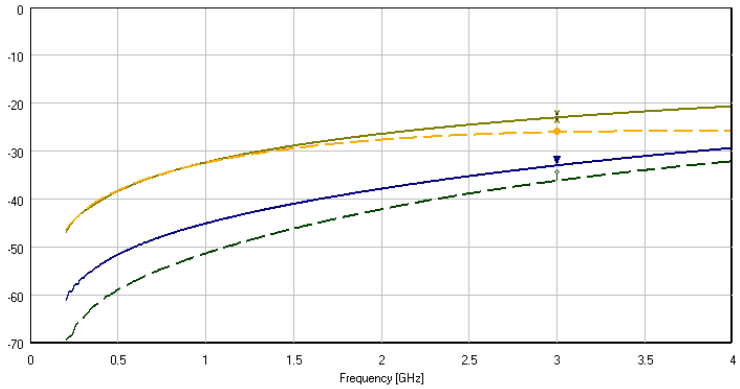
PCB mounting Precision 75 ohm BNC connectors

Edge card mounting BNC

Two part BNC

Top entry PCB mounting

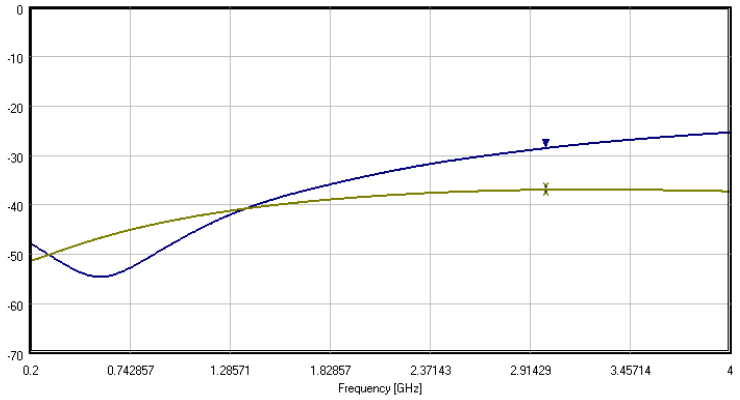
Press fit / solder hybrid PCB mounting BNC connector



Straight cable terminated Precision 75 ohm BNC connector

Unattached

Terminated to cable and mating BNC connector



Test Method

The connector was reverse engineered using a 3D parametric modelling system. Reverse engineering the finished connectors ensured that the CAD models closely represented the manufactured product, (original design models assume perfect manufacturing techniques and processors).The models were then analysed within a state of the art high frequency electromagnetic field simulation system.

In Real world applications both the PCB interface and the quality of the mating connector / cable can have a significant effect on the overall performance of the system. In order to provide meaningful engineering data, the simulation was set up with the source and load ports (near perfect 75 Ohm coaxial transmission lines) orientated longitudinally along the centre axis of the connector body, ensuring that the data generated was relevant to the DUT (Device under test) only.

For more details contact our applications engineers on.
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Web site www.cambridgeconnectors.com

Precision 3G 1.0/2.3 co-axial connectors double wiring densities in 3G-SDI Serial Digital applications. Meet SMPTE 424M Standard.

Cambridge Connectors has completely re-engineered the 1.0/2.3 connector to operate in high speed 3G-SDI broadcast environments (SMPTE 424M). With a pitch of 8mm, up to twice as many of these compact connectors can be installed compared to traditional BNC connectors.
The secure latching mechanism combines high connection integrity with a simple push/pull operation. Styles include PCB edge mounting, right angle mounting and straight end launch types – with bulkhead mounting option.
Typical reflection factor performance (VSWR) for straight versions is between 1.02 (DC - 1.5GHZ) and 1.06 (1.5 – 3.0GHZ) ; the right angle version is between 1.22 (DC – 1.5GHz) and 1.28 (1.5 – 3.00GHZ).
The connector comes with gold plating finish as standard and is RoHS compliant. In addition to SDI, HDI and 3G-SDI digital broadcast use, this low profile 1.0/2.3 connector is ideal for industrial process control, data acquisition and high speed communication applications especially where high wiring densities and secure connections are crucial.
To complete the range compatible cable connectors; 1.0/2.3 to BNC adaptors; 1.0/2.3 to BNC adaptor leads and fully assembled BNC to BNC, 1.0/2.3 to BNC Patch Leads are also available.

Features

- **Meet SMPTE 424M Standard**
- **8mm pitch can double wiring densities**
- **Latching style provides added connection reliability**

Specification -

Electrical

Nominal Impedance	75 Ohm
Frequency Range	0 - 3.0 GHz
Working Voltage	250Vrms
Dielectric Withstanding Voltage	750Vrms

Reflection Factor	**DC-1.5GHz (VSWR)**	**1.5 - 3.0 GHz (VSWR)**
Right Angle 1.0/2.3	1.22	1.28
PCB Edge Mount 1.0/2.3	1.02	1.05
Top Entry B'head 1.0/2.3	1.03	1.06
Top Entry 1.0/2.3	1.03	1.06

Contact Resistance	Centre Contact 4.0 m ohm
Insulation Resistance	> 1000 meg ohm

Materials

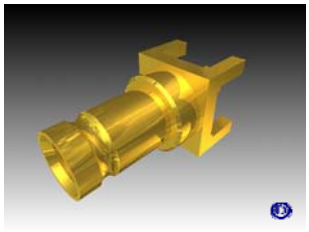
Centre Pin	BeCu / 10u" Au
Body finish	Standard — Brass/Au
Insulators	PTFE

Environmental

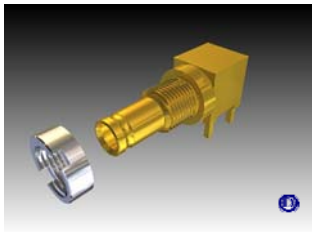
Temperature Range	- 65 to +85^0 C
Mating Cycles	500

PCB Edge Mount 1.0/2.3

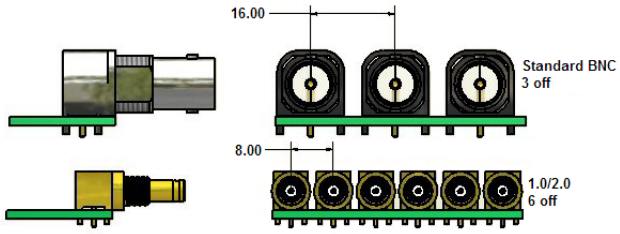
Top Entry Bulk Head 1.0/2.3



Top Entry 1.0/2.3



Right Angle PCB Mount 1.0/2.3



Comparison between BNC and 1.0/2.3 connectors

Cable terminated Precision 3G 1.0/2.3 connectors and patch leads to meet SMPTE 424M Standard

To complement these products Cambridge Connectors also produces: -

- Precision 75 ohm cable terminated connectors for a variety of cable types
- 1.0/2.3 to BNC adaptors
- 1.0/2.3 to BNC adaptor leads
- Fully assembled Patch Cables in standard and custom lengths

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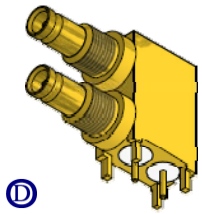
Precision 1.0/2.3 connectors for 3G SDI Broadcast Applications
Dual Port R/A PCB mounting



Features

- **Meets SMPTE 424M Standard**
- **Reduces board count**
- **Enables increased wiring densities**

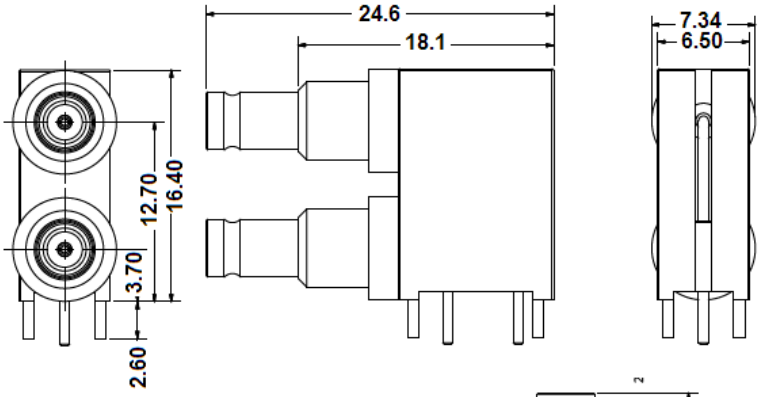
General Description
Dual Port 1.0/2.3 female R/A PCB mounting connector for use in High Definition, High Speed Video / Broadcast applications.

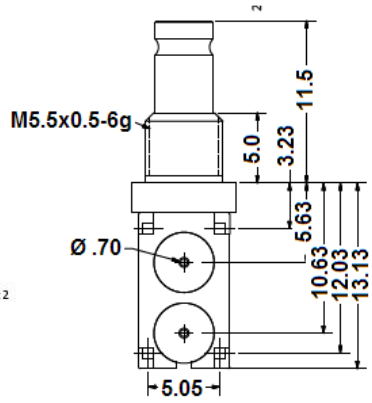
Applications
In addition to SDI, HDI and 3G-SDI digital broadcast use, this dual port 1.0/2.3 connector is ideal for industrial process control, data acquisition and high speed communication applications where high wiring densities are crucial.

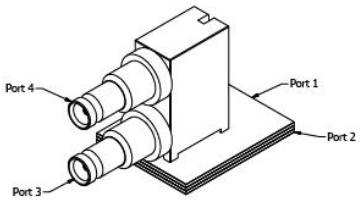
Specification -

Electrical

Nominal Impedance	75 Ohm
Frequency Range	0 - 3.2 GHz
Working Voltage	250Vrms
Dielectric Withstanding Voltage	750Vrms
Reflection Factor (VSWR)	
DC—1.5GHz	1.17 (Max)
1.5—3.0GHZ	1.23 (Max)
Contact Resistance	Centre Contact 4.0 m ohm Outer Contact 2.5 m ohm
Insulation Resistance	> 1000 meg ohm





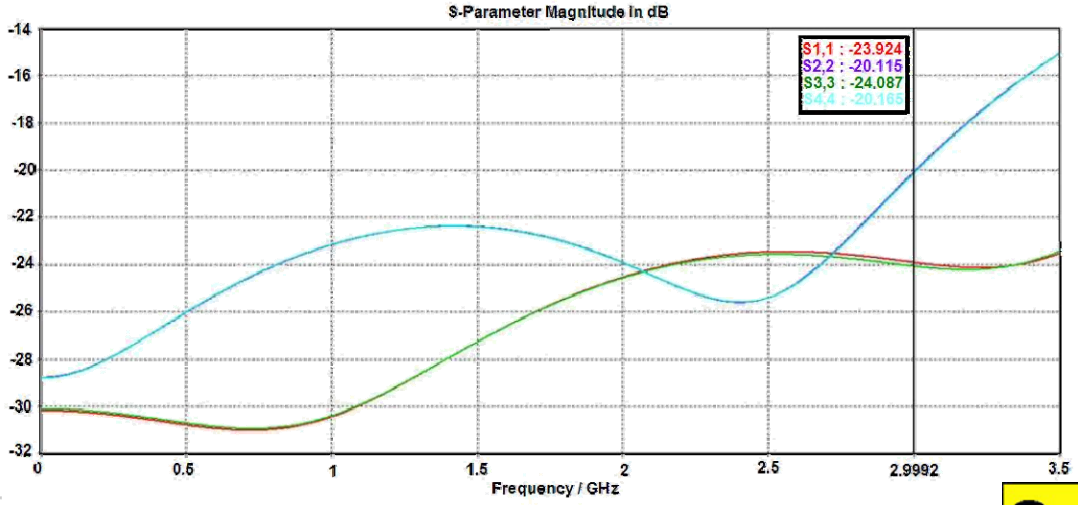


Materials

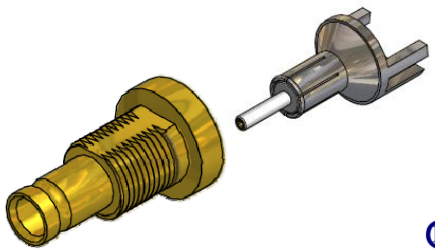
Centre Pin	BeCu / 10u" Au
Body finish	Standard — Brass/Au
Insulators	PTFE

Environmental

Temperature Range	- 65 to +85^0 C
Mating Cycles	500



Precision 1.0/2.3 connectors for 3G SDI Broadcast Applications
Two Part Design for Rapid Board Swapping



Features

- **Meets SMPTE 424M Standard**
- **2 Part Design enables rapid swapping of boards without disconnecting patch cables**
- **8mm pitch for increased wiring densities**

General Description

2 Part Precision 3G 1.0/2.3female connector. Its 2 part design allows daughter boards in switching and routing equipment to be swapped out without the necessity for disconnecting attached patch cables; this greatly reduces downtime.

Applications

It is specifically designed for SDI, HDI, 3G-SDI digital broadcast applications. Its 8mm pitch makes it ideal for use in routing and switching equipments operating in confined areas such as in Outside Broadcast Units.

Style shown is PCB edge mounting inner with front bulkhead mounting outer. Other styles are available on request.

Specification -

Electrical

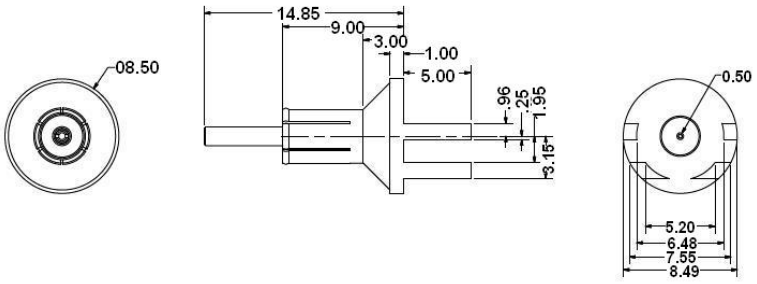
Nominal Impedance	75 Ohm
Frequency Range	0 - 3.2 GHz
Working Voltage	250Vrms
Dielectric Withstanding Voltage	750Vrms
Reflection Factor (VSWR)	
DC—1.5GHz	1.07 (Max)
1.5—3.0GHZ	1.16 (Max)
Contact Resistance	Centre Contact 4.0 m ohm Outer Contact 2.5 m ohm
Insulation Resistance	> 1000 meg ohm

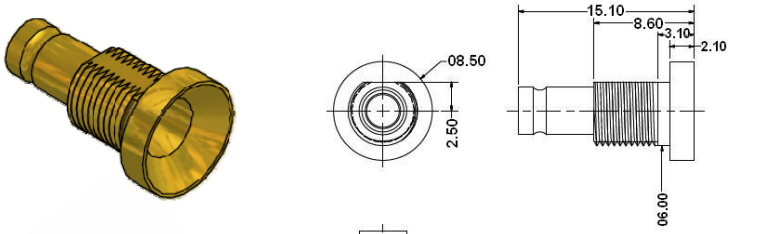
Materials

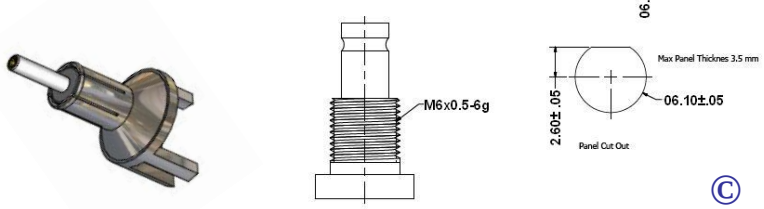
Centre Pin	BeCu / 10u" Au
Body finish	Standard — Brass/Au
Insulators	PTFE

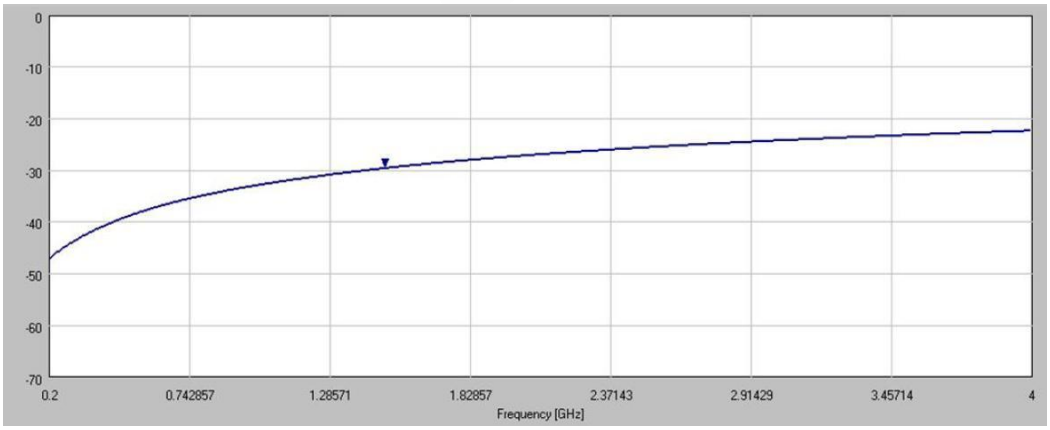
Environmental

Temperature Range	- 65 to +85^0 C
Mating Cycles	500

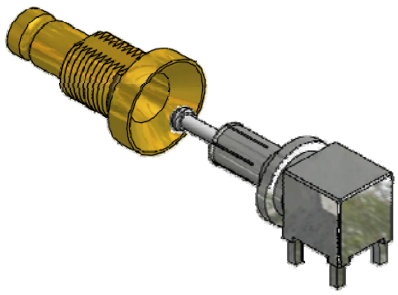








Precision 1.0/2.3 connectors for 3G SDI Broadcast Applications
Two Part R/A PCB mounting design



Features

- **Optimised for 3G environments**
- **Meets SMPTE 424M Standard**
- **2 Part Design enables rapid swapping of boards without disconnecting patch cables**
- **8mm pitch for increased wiring densities**

General Description

2 Part Precision 3G 1.0/2.3 female connector. The 2 part design allows daughter boards in switching and routing equipment to be swapped out without the necessity for disconnecting attached patch cables thus greatly reducing downtime.

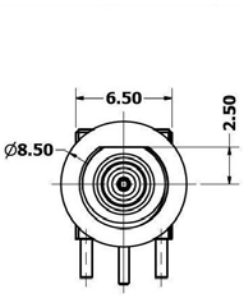
Applications

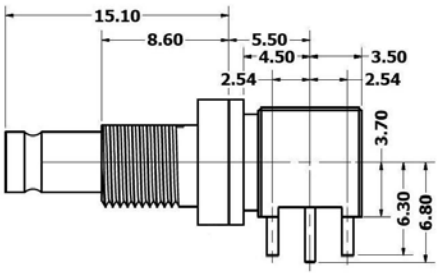
It is specifically designed for SDI, HDI, 3G-SDI digital broadcast applications. Its 8mm pitch makes it ideal for use in routing and switching equipments operating in confined areas such as in Outside Broadcast Units. The style shown is PCB mounting inner with front bulkhead mounting outer. (Other styles are available on request.)

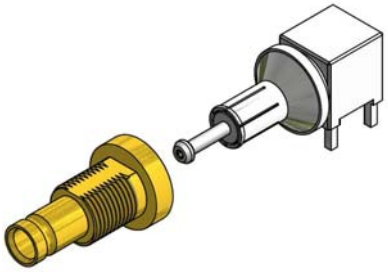
Specification -

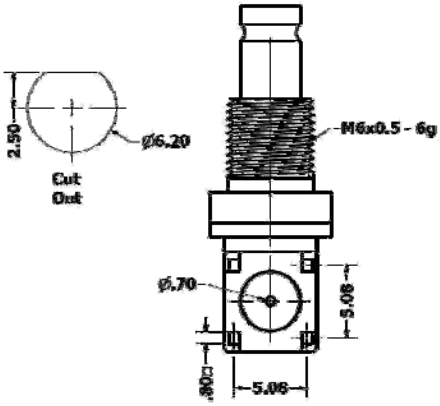
Electrical

Nominal Impedance	75 Ohm
Frequency Range	0 - 3.2 GHz
Working Voltage	250Vrms
Dielectric Withstanding Voltage	750Vrms
Reflection Factor (VSWR)	
DC - 3.5 GHz	1.22 (Max)
Contact Resistance	Centre Contact 4.0 m ohm Outer Contact 2.5 m ohm
Insulation Resistance	> 1000 meg ohm







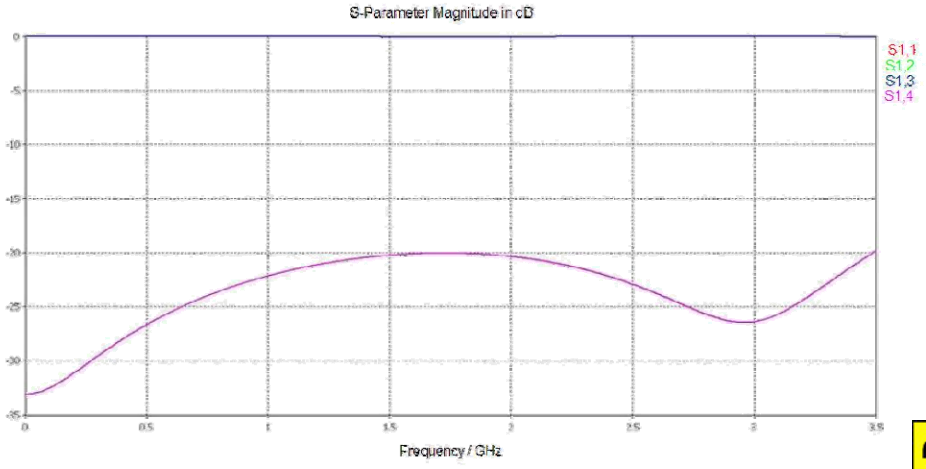


Materials

Centre Pin	BeCu / 10u" Au
Body finish	Standard — Brass/Au
Insulators	PTFE

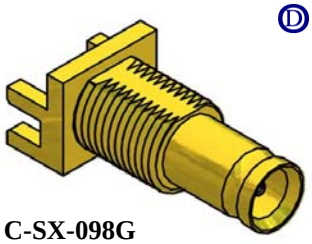
Environmental

Temperature Range	- 65 to +85^0 C
Mating Cycles	500



Connectors

Precision 1.0/2.3 connectors for 3G SDI Broadcast Applications
PCB Edge mounting



C-SX-098G

Features

- **Meets SMPTE 424M Standard**
- **8mm pitch can double wiring densities**
- **PCB edge mounting style minimises signal path discontinuities**

General Description

1.0/2.3 female bulkhead precision 3G PCB edge mounting low profile connector.

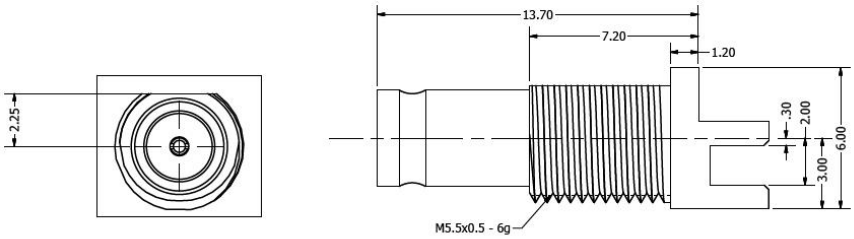
Applications

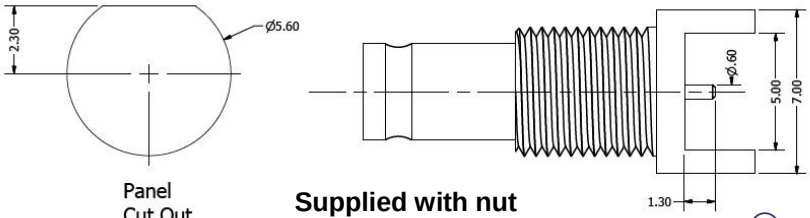
In addition to SDI, HDI and 3G-SDI digital broadcast use, this low profile 1.0/2.3 connector is ideal for industrial process control, data acquisition and high speed communication applications where high wiring densities are crucial.

Specification -

Electrical

Nominal Impedance	75 Ohm
Frequency Range	0 - 3.0 GHz
Working Voltage	250Vrms
Dielectric Withstanding Voltage	750Vrms
Reflection Factor (VSWR)	
DC—1.5GHz	1.02 (Max)
1.5—3.0GHZ	1.05 (Max)
Contact Resistance	Centre Contact 4.0 m ohm
Insulation Resistance	> 1000 meg ohm





Panel Cut Out

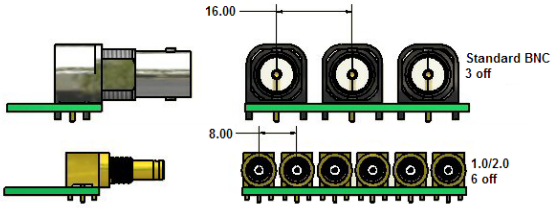
Supplied with nut

Materials

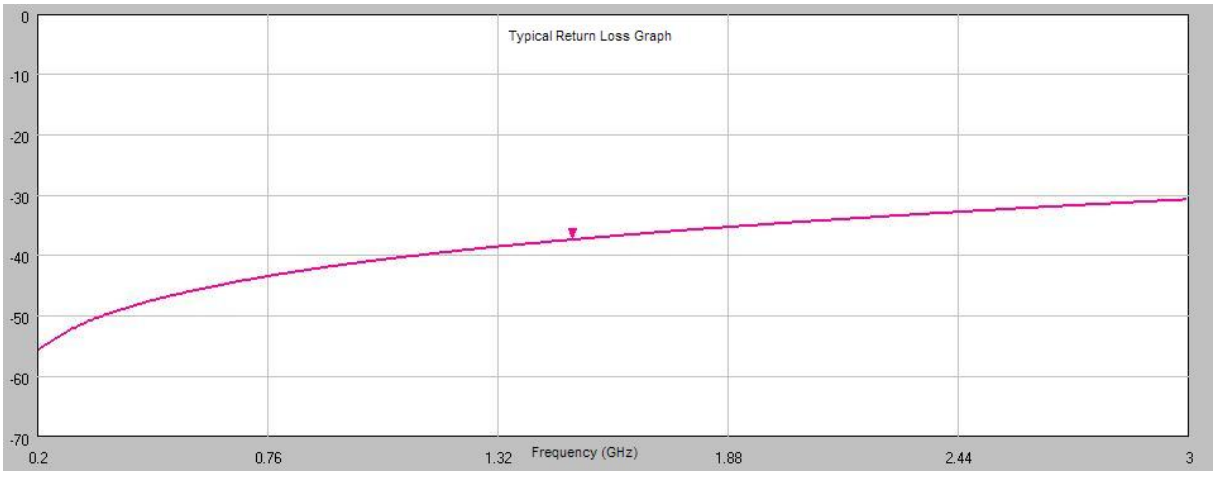
Centre Pin	BeCu / 10u" Au
Body finish	Standard — Brass/Au
Insulators	PTFE

Environmental

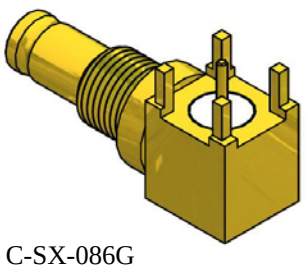
Temperature Range	- 65 to +85^0 C
Mating Cycles	500



Comparison between BNC and 1.0/2.3 connectors



Precision 1.0/2.3 connectors for 3G SDI Broadcast Applications
Right Angle PCB mounting



C-SX-086G

Features

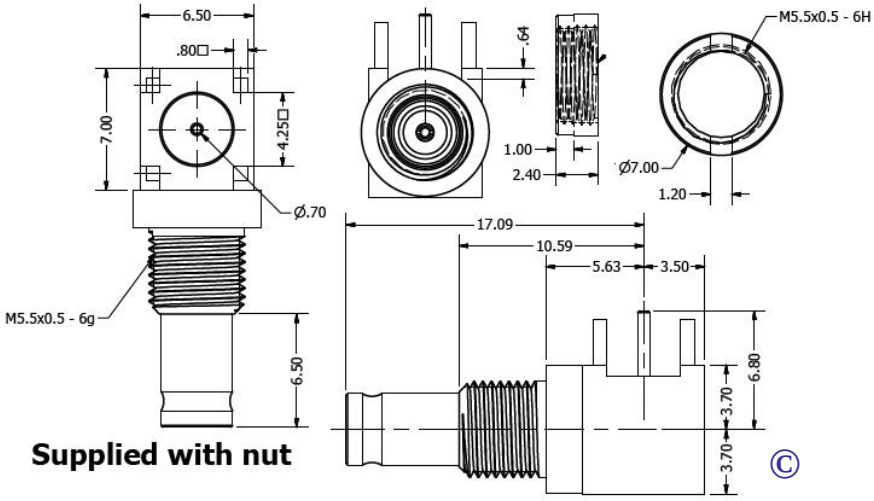
- **Meets SMPTE 424M Standard**
- **8mm pitch can double wiring densities**
- **Latching style provides added connection reliability**

General Description

1.0/2.3 female bulkhead precision 3G Right Angle PCB connector.

Applications

In addition to SDI, HDI and 3G-SDI digital broadcast use, this right angle 1.0/2.3 connector is ideal for industrial process control, data acquisition and high speed communication applications where high wiring densities are crucial.



Specification -

Electrical

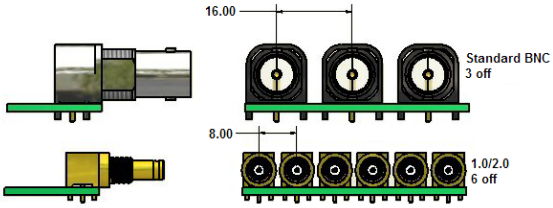
Nominal Impedance	75 Ohm
Frequency Range	0 - 3.0 GHz
Working Voltage	250Vrms
Dielectric Withstanding Voltage	750Vrms
Reflection Factor (VSWR)	
DC—1.5GHz	1.22 (Max)
1.5—3.0GHZ	1.28 (Max)
Contact Resistance	Centre Contact 4.0 m ohm
Insulation Resistance	> 1000 meg ohm

Materials

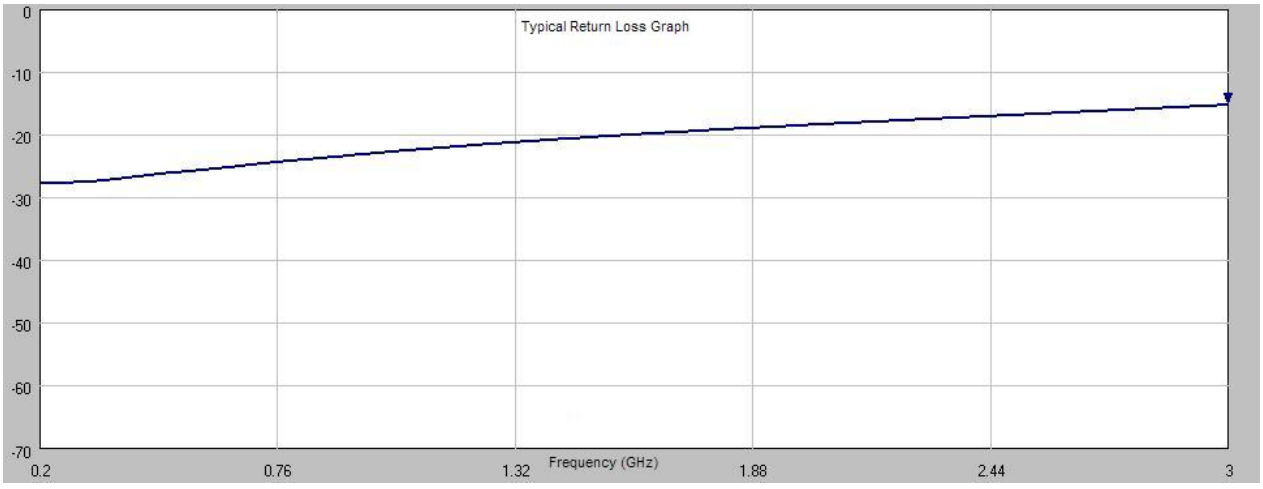
Centre Pin	BeCu / 10u" Au
Body finish	Standard — Brass/Au
Insulators	PTFE

Environmental

Temperature Range	- 65 to +85^0 C
Mating Cycles	500

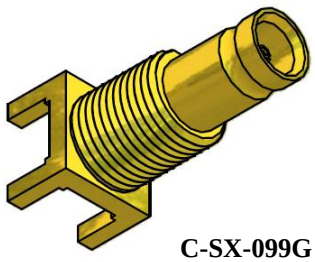


Comparison between BNC and 1.0/2.3 connectors



Tel: +44 (0)1223 860041 Fax: +44 (0)1223 863625 Email: sales@cambridgeconnectors.com

Precision 1.0/2.3 connectors for 3G SDI Broadcast Applications
Top Entry Bulk Head PCB mounting



C-SX-099G

Features

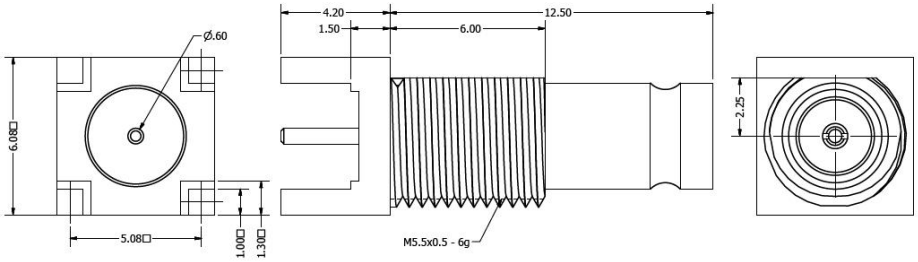
- **Meets SMPTE 424M Standard**
- **8mm pitch can double wiring densities**
- **Latching style provides added connection reliability**

General Description

1.0/2.3 female top entry bulk head precision 3G PCB edge mounting connector.

Applications

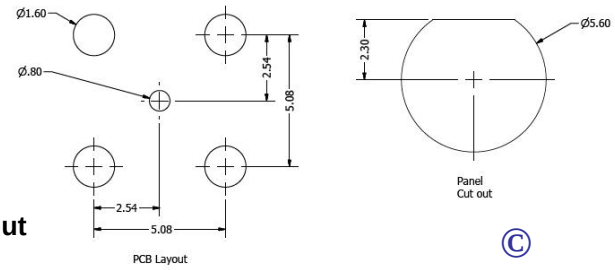
In addition to SDI, HDI and 3G-SDI digital broadcast use, this low profile 1.0/2.3 connector is ideal for industrial process control, data acquisition and high speed communication applications where high wiring densities are crucial.



Specification -

Electrical

Nominal Impedance	75 Ohm
Frequency Range	0 - 3.0 GHz
Working Voltage	250Vrms
Dielectric Withstanding Voltage	750Vrms
Reflection Factor (VSWR)	
DC—1.5GHz	1.03 (Max)
1.5—3.0GHZ	1.06 (Max)
Contact Resistance	Centre Contact 4.0 m ohm
Insulation Resistance	> 1000 meg ohm



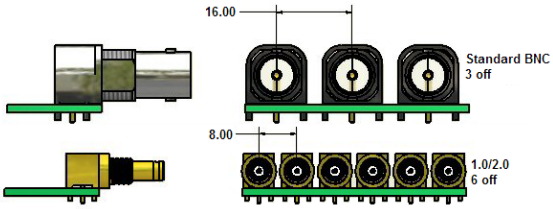
Supplied with nut

Materials

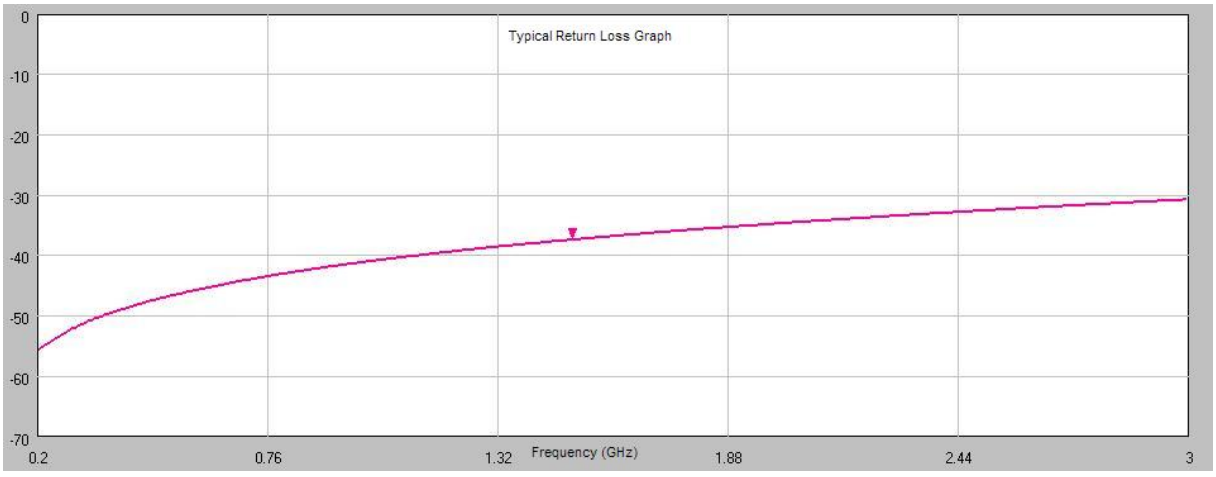
Centre Pin	BeCu / 10u" Au
Body finish	Standard — Brass/Au
Insulators	PTFE

Environmental

Temperature Range	- 65 to +85^0 C
Mating Cycles	500



Comparison between BNC and 1.0/2.3 connectors



Tel: +44 (0)1223 860041 Fax: +44 (0)1223 863625 Email: sales@cambridgeconnectors.com

Precision 1.0/2.3 connectors for 3G SDI Broadcast Applications
Top Entry PCB mounting

C-SX-097G

Features

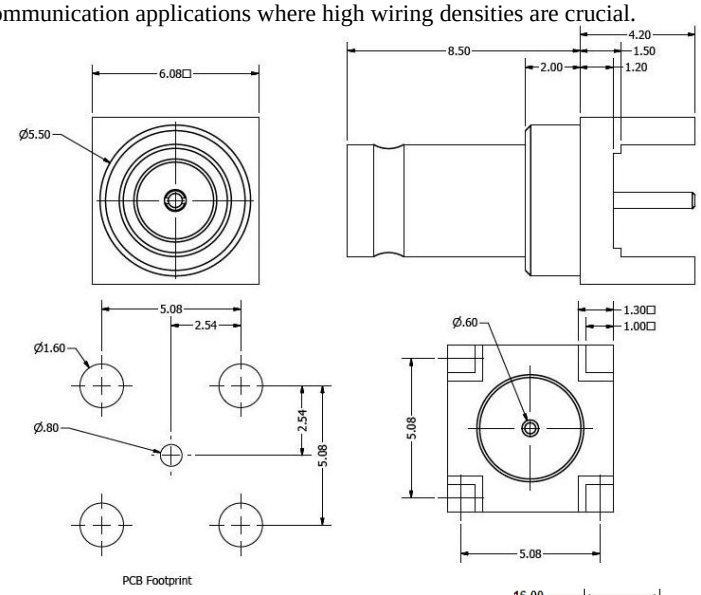
- **Meets SMPTE 424M Standard**
- **8mm pitch can double wiring densities**
- **Latching style provides added connection reliability**

General Description

1.0/2.3 female straight top entry precision 3G PCB edge mounting low profile connector.

Applications

In addition to SDI, HDI and 3G-SDI digital broadcast use, this straight top entry 1.0/2.3 connector is ideal for industrial process control, data acquisition and high speed communication applications where high wiring densities are crucial.



Specification -

Electrical

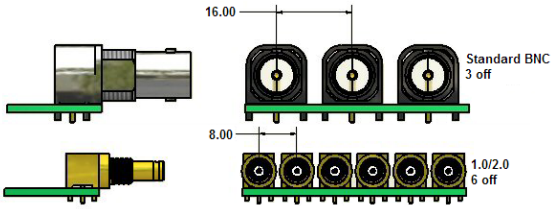
Nominal Impedance	75 Ohm
Frequency Range	0 - 3.0 GHz
Working Voltage	250Vrms
Dielectric Withstanding Voltage	750Vrms
Reflection Factor (VSWR)	
DC—1.5GHz	1.03 (Max)
1.5—3.0GHZ	1.06 (Max)
Contact Resistance	Centre Contact 4.0 m ohm
Insulation Resistance	> 1000 meg ohm

Materials

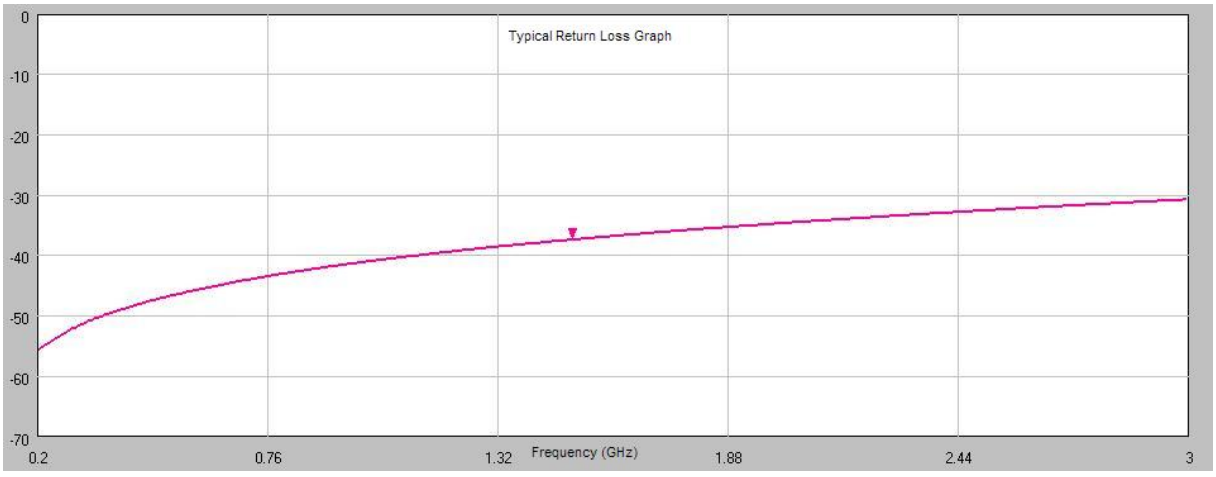
Centre Pin	BeCu / 10u" Au
Body finish	Standard — Brass/Au
Insulators	PTFE

Environmental

Temperature Range	- 65 to +85^0 C
Mating Cycles	500



Comparison between BNC and 1.0/2.3 connectors

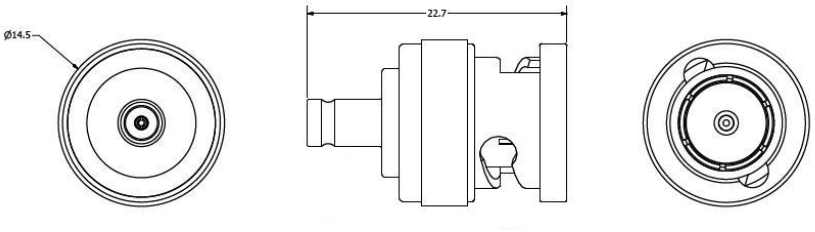


Adaptors and Patch Cables for Precision 1.0/2.3 and BNC connectors for 3G SDI Broadcast Applications

With the rising popularity of smaller styles of connectors such as the 1.0/2.3 (mini Siemens) connector in broadcast and video equipment, the requirement to interface different connector styles within the same network infrastructure is becoming more and more common. To assist in these situations Cambridge Connectors has introduced a new range of accessories all designed for use in 3G SDI high speed digital networks.

1.0/2.3(f) to BNC(m) Adaptors

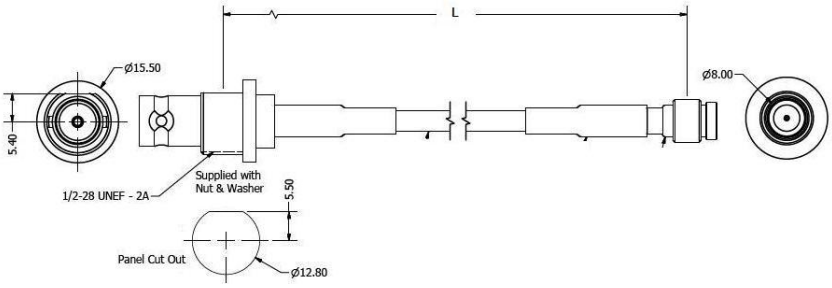
This 1.0/2.3 (f) to BNC (m) 75 Ohm adaptor is designed to provide the interface between equipment fitted with 75 ohm BNC (f) ports and patch cables with 1.0/2.3 (m) terminations. It has been engineered to operate in 3G SDI high speed digital networks



1.0/2.3(f) to BNC(m) adaptor

1.0/2.3(m) to BNC(f) Adaptor leads

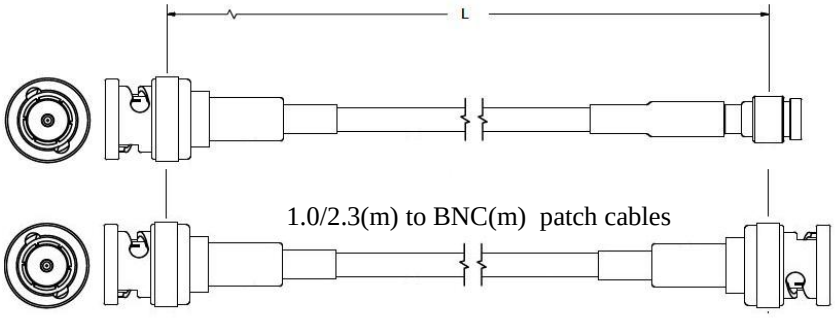
These cable adaptors enable equipment fitted with 1.0/2.3 (f) ports to interface with standard BNC patch cables. The materials, connectors, cables and construction methods utilised ensure that these patch leads meet the high speed demands of 3G SDI digital networks.



1.0/2.3(m) to BNC(f) adaptor leads

1.0/2.3(m) to BNC(m) Patch Cables
BNC (m) to BNC (m) Patch Cables

These patch cables are designed to fit directly onto equipment with 1.0/2.3 (f) or BNC (f) ports and provide the connection to the rest of the network. The materials, connectors, cables and construction methods utilised ensure that these patch leads meet the high speed demands of 3G SDI digital networks.



1.0/2.3(m) to BNC(m) patch cables

BNC(m) to BNC(m) patch cables

Description	Part Number
1.0/2.3(m) to BNC(f) Adaptor Leads	CA-BCBTTP-*O-00200
1.0/2.3(m) to BNC(m) Patch Cables	CA-BCPTTP-*O-xxxxx
BNC (m) to BNC (m) Patch Cables	CA-BCPBCP-*O-xxxxx

Cable type	Cable Group
RG179	*G
Belden 1855A	*M

Cable Length (xxxxx) is the required cable length in mm. e.g. 1 metre = 01000 .
Standard lengths are: 1M, 2M, 3M, 4M, 5M, 6M, 7M, 8M, 9M and 10M.
Other length are available on request.

Precision 1.0/2.3 connectors meet SMPTE Standard

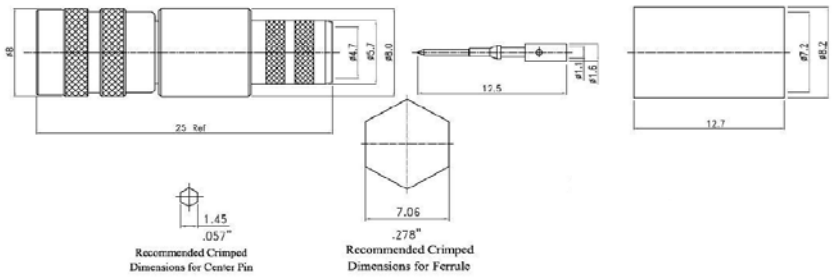
Crimp Cable Plug

Features

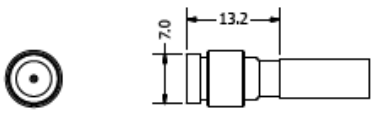
- Precision 1.0/2.3 Connector
- Designed for HD SDV applications
- Suitable for HD cable types

General Description

Straight crimp cable Precision 3G 1.0/2.3 Plug.



Part Number XGT-8000-NG*xx Type illustrated below is for Belden 1855A - See table for other cable types



75 Ohm 1.0/2.3 Free Cable Plug (Male)

Part No: XGT-8000-NGBA

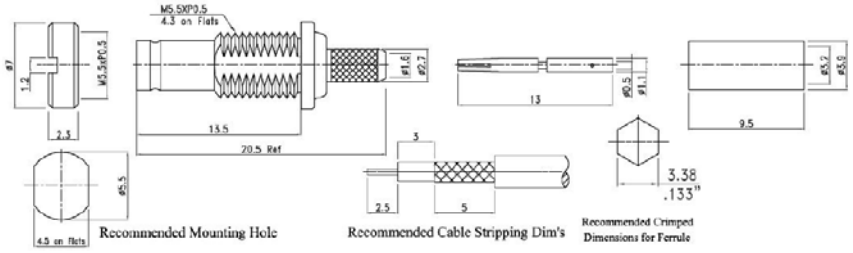
Crimp Cable Socket

Features

- Precision 3G 1.0/2.3 Connector
- Designed for HD SDV applications
- Suitable for HD cable types

General Description

Straight crimp cable Precision 3G 1.0/2.3 Socket.



Part Number XGT-8012-NG*xx See table for cable types

***Specification* -**

Electrical

Nominal Impedance	75 Ohm
Frequency Range	0 - 3.0 GHz
Working Voltage	250Vrms
Dielectric Withstanding Voltage	750Vrms
Contact Resistance	Centre Contact 4.0 m ohm
Insulation Resistance	> 1000 M ohm

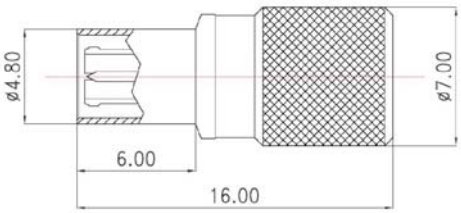
Materials

Centre Pin	BeCu / 10u" Au
Body finish	Standard — Brass/Au
Insulators	PTFE

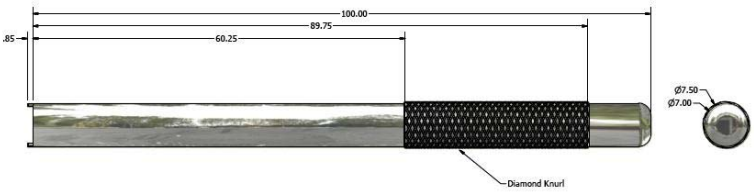
Environmental

Temperature Range	- 65 to +85^0 C
Mating Cycles	500

	***xx**
Cable type	**Cable Group**
Belden 1505A	AB
RG179	AF
Belden 1855A	BA



1.0/2.3 75 Ohm Terminator (M)



1.0/2.3 Terminator (m)
Part Number XGT-8011-NGAY
Terminator plug designed for use with precision 3G 1.0/2.3(f) connectors.

1.0/2.3 Nut Driver Part Number TLG 108
This tool is designed for use with 1.0/2.3 connectors which are fitted with M5.5 circular nut.

Crimp Tools for Cambridge Connectors Precision 75 ohm Coaxial Connectors

- **Precision design for consistent crimp - every time**
- **25% less handle force reduces hand stress**
- **Hardened alloy steel for guaranteed 50,000 cycles**
- **Optimised handle materials for greater comfort**

Cambridge Connectors Precision 75 ohm Coaxial Connectors are manufactured to meet SMPTE 424M and are used extensively in Broadcast and Machine Video applications. These Crimp Tools are specifically designed to allow a wide range of cable styles to be easily terminated to the following Cambridge Connectors parts.

Crimp Tool	Connector Part Number	Description	Cable Group
TLG109	XGT-8013-NGAB	1.0/2.3 cable plug - solder centre cont./crimp ferrule	RG59 B/u
(Red Handle)	XGT-8013-NGBA	1.0/2.3 cable plug - solder centre cont./crimp ferrule	Belden 1855
TLG110	XBT-1062-NGAB	BNC cable plug - crimp centre cont./crimp ferrule	Belden 1505A
(Green Handle)	XBT-1062-NGBA	BNC cable plug – crimp centre cont./crimp ferrule	Belden 1855
	XBT-1062-NGAS	BNC cable plug - crimp centre cont./crimp ferrule	Belden 1694A
	XBT-1068-NGAS	BNC cable plug - solder centre/crimp ferrule	Belden 1694A
TLG111	XBT-1066-NGBA	BNC cable jack - crimp centre cont./crimp ferrule	Belden 1855
(Yellow Handle)	XBT-1064-NGBA	BNC cable bulkhead jack – crimp centre cont./crimp ferrule	Belden 1855
	XGT-8000-NGAS	1.0/2.3 cable plug - crimp centre cont./crimp ferrule	Belden 1694

Precision 75 ohm Coaxial Connectors for SMPTE 424M applications from Cambridge Connectors

To meet the demands of High Definition broadcast applications, Cambridge Connectors has designed a wide range of Precision 75 ohm coaxial connectors which operate at the increased bandwidth and frequencies required for HD SDI Serial Digital Video (SMPTE 424M) environments. In addition to BNC connectors which are widely used in broadcast applications, Cambridge Connectors has also developed precision 75 ohm 1.0/2.3 and mini BNC connectors which, with their reduced size, offer increased wiring densities. All are RoHS compliant.

For advice on the most suitable crimp tooling to use with our connectors please contact our technical support department.

Cambridge Connectors MCX connector saves space in 3G SDI Video Applications.

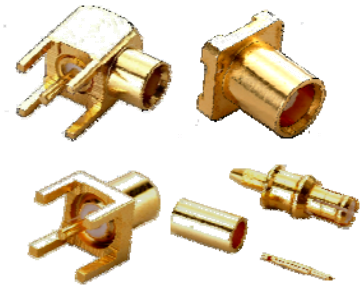
Features

- **For use in SDI, HDI, 3G-SDI digital broadcast and video applications**
- **Ideal where multiple cable options are required**
- **Already used in video industry**

General Description

This range of miniature coaxial connectors is ideal for use in confined spaces or in small portable products such as video cameras. A choice of straight, right angle and surface mount PCB styles is available. Cable ended mating halves suitable for a variety of cable types complement this range.

With an operating temperature range of -65 to +85°C and contact mating cycle of 500, the range is fully RoHS compliant and comes with a standard finish of Brass / Nickel.



Specification -

Electrical	
Impedance	75 Ohm
Frequency Range	0 - 6.0GHz
Working Voltage	300Vrms
Dielectric Withstanding Voltage	500Vrms
Contact Resistance	Centre Contact 5.0 m ohm
Insulation Resistance	> 1000 meg ohm

Materials	
Centre Pin	Male: Brass Female: Be/Cu
Body	Brass
Insulators (R/A version)	PTFE

Environmental	
Temperature Range	-65 to +85^{0} C
Mating Cycles	500

Custom cable assemblies:

Our cable assembly manufacturing facilities enable us to offer custom cable assemblies made to order.
For more information contact our contract manufacturing division, System Connections: -

T +44 1223 863377
F +44 1223 863625
sales@systemconnections.co.uk
www.systemconnections.co.uk

Cambridge Connectors new Precision 75 ohm Mini-BNC saves space in 3G SDI Video Networks.

Features

- **For use in SDI, HDI, 3G-SDI digital broadcast applications**
- **12mm pitch offers compact dimensions**
- **Already used in broadcast industry**

This new range of precision 75 ohm Mini-BNC connectors, engineered by Cambridge Connectors to meet 3G SDI Video requirements, can increase wiring densities by up to a third. With a pitch of 12 mm compared to the standard BNC pitch of 16mm the range is ideal for routing and switching equipment used extensively in video transmission networks. The smaller size and weight make it the logical option for outside broadcast and similar confined or portable environments. A choice of straight, right angle and PCB edge mounting styles is available with the additional option of a 2 part version offering the opportunity for PCB hot-swapping. Reflection Factors (VSWR) range between 1.04 at 1.5GHz and 1.16 at 3GHz (depending on configuration) With an operating temperature range of -65 to +85°C and contact mating cycle of 500, the range is fully RoHS compliant and comes with a standard finish of Brass / Nickel.

Specification -

Electrical

Impedance	75 Ohm
Frequency Range	0 - 3.0 GHz
Working Voltage	300Vrms
Dielectric Withstanding Voltage	1500Vrms

Reflection Factor	**DC-1.5GHz (VSWR)**	**1.5 - 3.0 GHz (VSWR)**
Top Entry Mini BNC	1.08	1.13
Right Angle Mini BNC	1.04	1.16
2 Part Mini BNC	1.05	1.07
Edge Mount Mini BNC	1.05	1.06

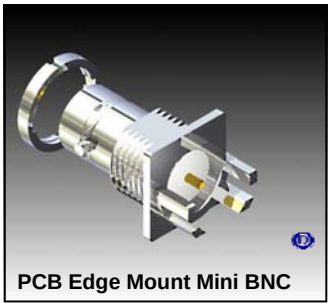
Contact Resistance	Centre Contact 12.0 m ohm
Insulation Resistance	> 1000 meg ohm

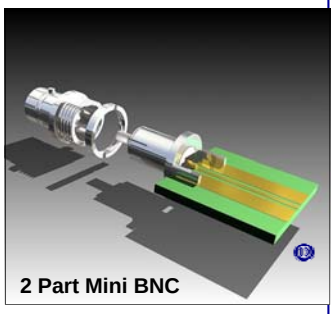
Materials

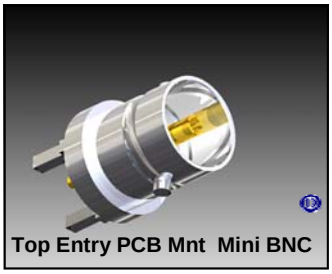
Centre Pin	Phosphor Bronze / 10u" Au
Body finish	Standard — Brass/Ni
Insulators (R/A version)	TPX
Insulators (All others)	PTFE

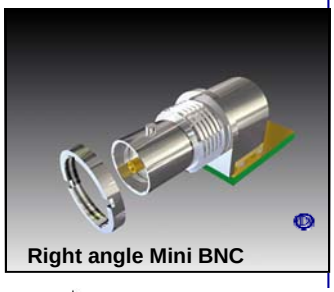
Environmental

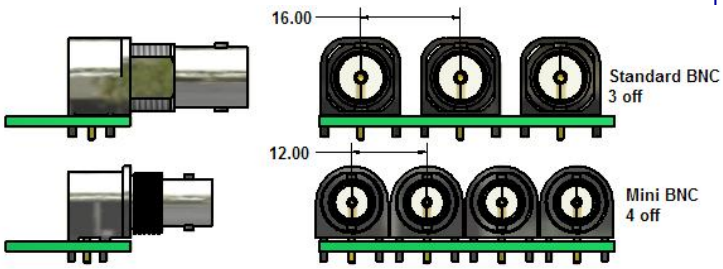
Temperature Range	-65 to +85^0 C
Mating Cycles	500


PCB Edge Mount Mini BNC


2 Part Mini BNC


Top Entry PCB Mnt Mini BNC


Right angle Mini BNC



Comparison between BNC and Min BNC connectors

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Denny Industrial Centre, Waterbeach, Cambridge, England, CB25 9QR
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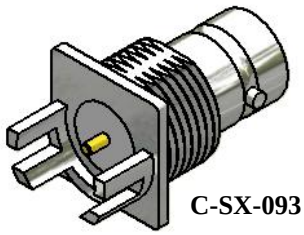
Email: sales@cambridgeconnectors.com
Web: www.cambridgeconnectors.com

Precision 75 Ohm Mini BNC connectors for 3G SDI Broadcast Applications PCB Edge mounting



C-SX-093

Features

- **For use in SDI, HDI, 3G-SDI digital broadcast applications**
- **12mm pitch for increased wiring densities**
- **PCB edge mounting style minimises signal path discontinuities**

General Description

Mini BNC female bulkhead precision 75 ohm PCB edge mounting low profile connector.

Applications

Designed for SDI, HDI and 3G-SDI digital broadcast use, the 12 mm pitch and low profile edge mounting style makes this Mini BNC invaluable in high density wiring applications such as Outside Broadcast routing and switching equipment

Specification -

Electrical

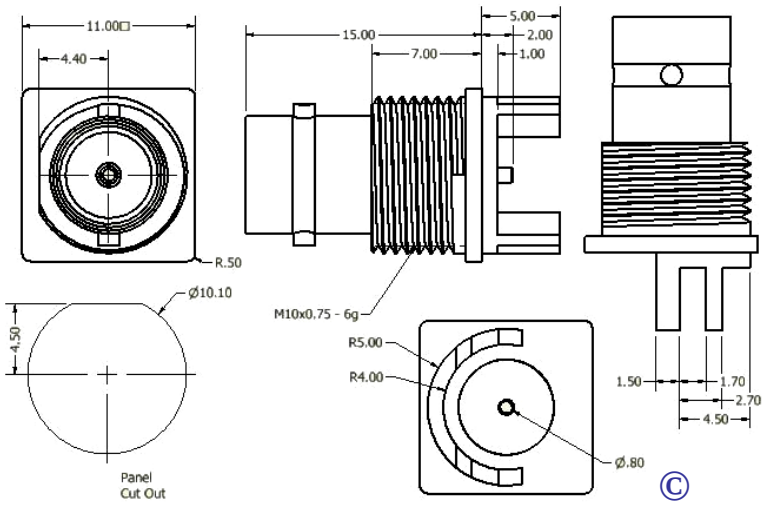
Impedance	75 Ohm
Frequency Range	0 - 3.0 GHz
Working Voltage	300Vrms
Dielectric Withstanding Voltage	1500Vrms
Reflection Factor (VSWR)	
DC—1.5GHz	1.05 (Max)
1.5—3.0GHZ	1.06(Max)
Contact Resistance	Centre Contact 12.0 m ohm
Insulation Resistance	> 1000 meg ohm

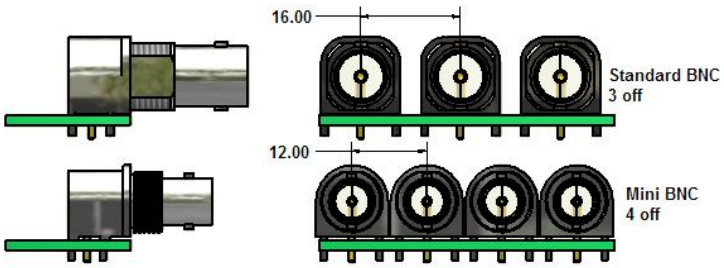
Materials

Centre Pin	Phosphor Bronze / 10u" Au
Body finish	Standard — Brass/Ni
Insulators	PTFE

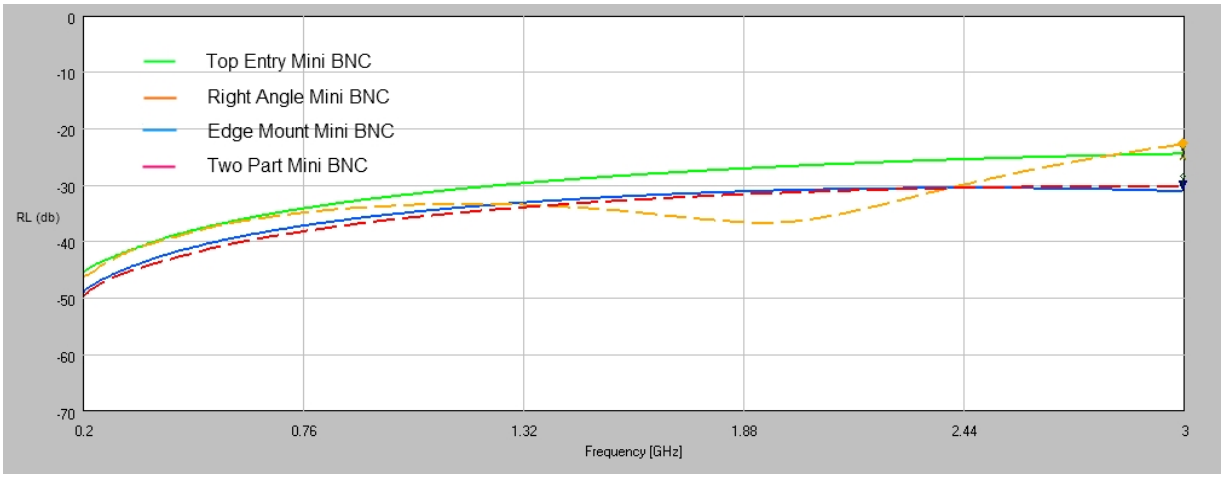
Environmental

Temperature Range	- 65 to +85^0 C
Mating Cycles	500





Comparison between BNC and Min BNC connectors



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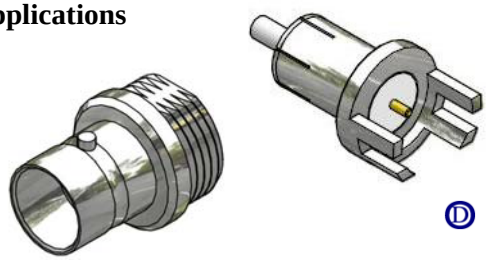
Precision 75 Ohm Mini BNC connector for 3G SDI Broadcast Applications
2 Part Design for Rapid Board Swap



Features

- **For use in SDI, HDI, 3G-SDI digital broadcast applications**
- **2 Part Design enables rapid swapping of boards without disconnecting patch cables**
- **12mm pitch for increased wiring densities**

General Description

2 Part Precision 75 ohm female Mini BNC connector. Its 2 part design allows daughter boards in switching and routing equipment to be swapped out without the necessity of removing attached patch cables; this greatly reduces downtime.

Applications

It is specifically designed for SDI, HDI, 3G-SDI digital broadcast applications. Its 12mm pitch makes it ideal for use in routing and switching equipments operating in confined areas such as in Outside Broadcast Units.

Style shown is PCB edge mounting inner and front bulkhead mounting outer. Other styles are available on request.

***Specification* -**

Electrical

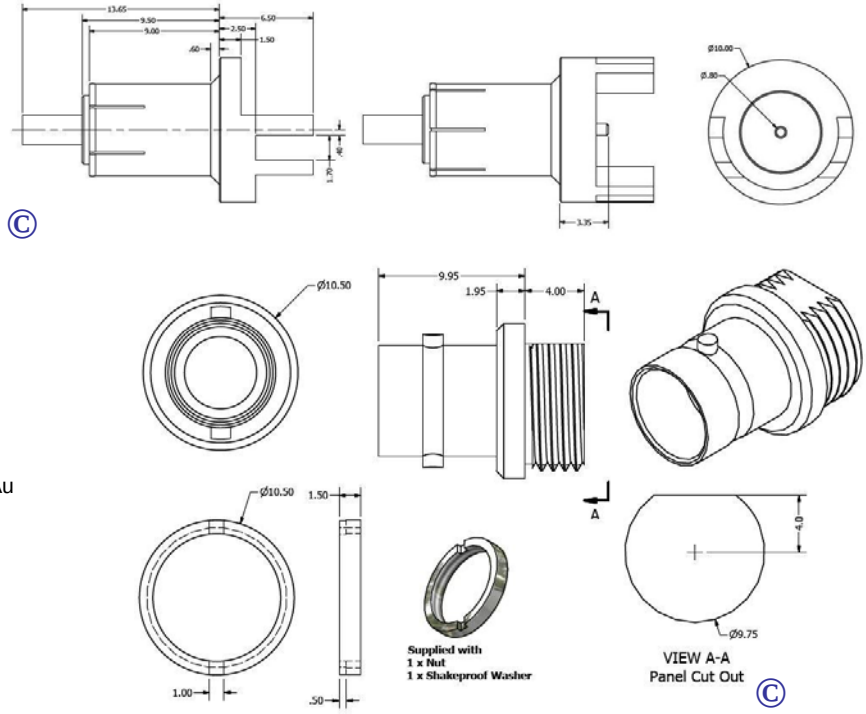
Impedance	75 Ohm
Frequency Range	0 - 3.0 GHz
Working Voltage	300Vrms
Dielectric Withstanding Voltage	1500Vrms
Reflection Factor (VSWR)	
DC—1.5GHz	1.05 (Max)
1.5—3.0GHZ	1.07 (Max)
Contact Resistance	Centre Contact 12.0 m ohm
Insulation Resistance	> 1000 meg ohm

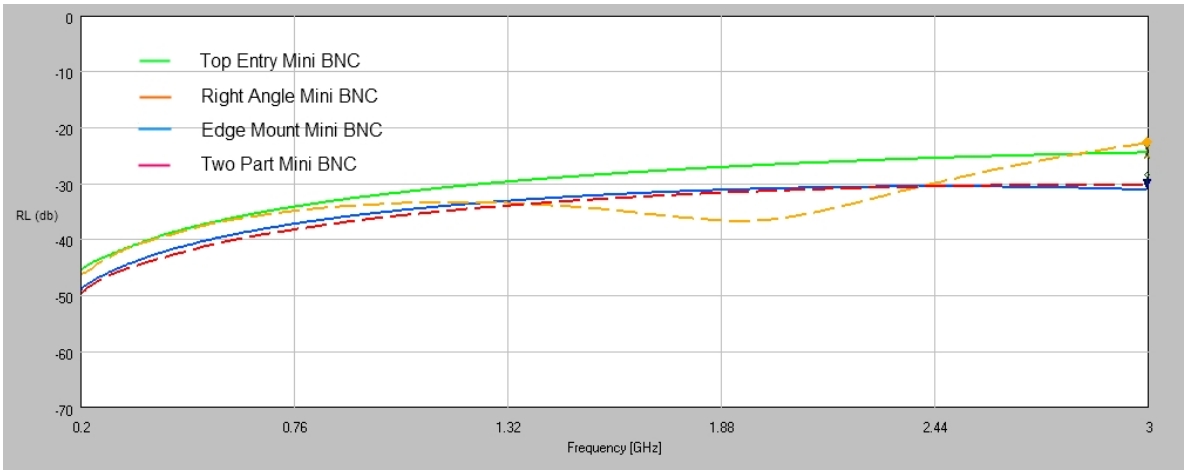
Materials

Centre Pin	Phosphor Bronze / 10u" Au
Body finish	Standard — Brass/Ni
Insulators	PTFE

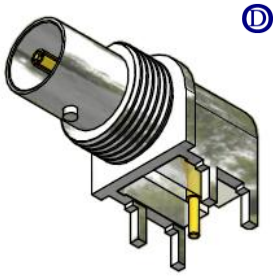
Environmental

Temperature Range	- 65 to +85^0 C
Mating Cycles	500





Precision 75 Ohm Mini BNC connector for 3G SDI Broadcast Applications Right Angle PCB mounting



Features

- **For use in SDI, HDI, 3G-SDI digital broadcast applications**
- **12mm pitch for increased wiring densities**
- **Style regularly used in broadcast applications where higher wiring densities are required.**

General Description

Right angle PCB mounting Precision 75 ohm female Mini BNC connector. Although superficially similar to standard 75 ohm Mini BNC products, enhanced internal geometry and the use of specialised materials produces a product with Precision 75 ohm performance.

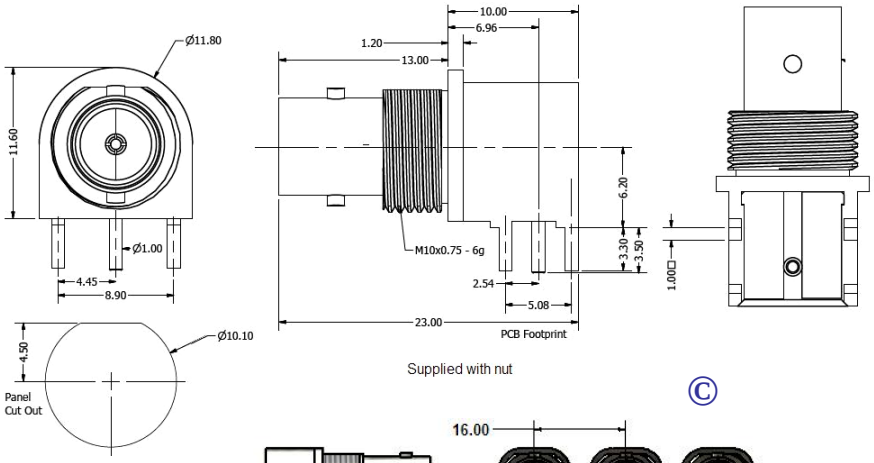
Applications

It is specifically designed for the broadcast industry for use in confined areas such as in Outside Broadcast Units.

Specification -

Electrical

Impedance	75 Ohm
Frequency Range	0 - 3.0 GHz
Working Voltage	300Vrms
Dielectric Withstanding Voltage	1500Vrms
Reflection Factor (VSWR)	
DC—1.5GHz	1.04 (Max)
1.5—3.0GHZ	1.16 (Max)
Contact Resistance	Centre Contact 12.0 m ohm
Insulation Resistance	> 1000 meg ohm

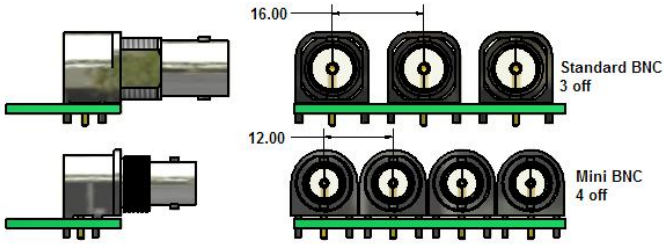


Materials

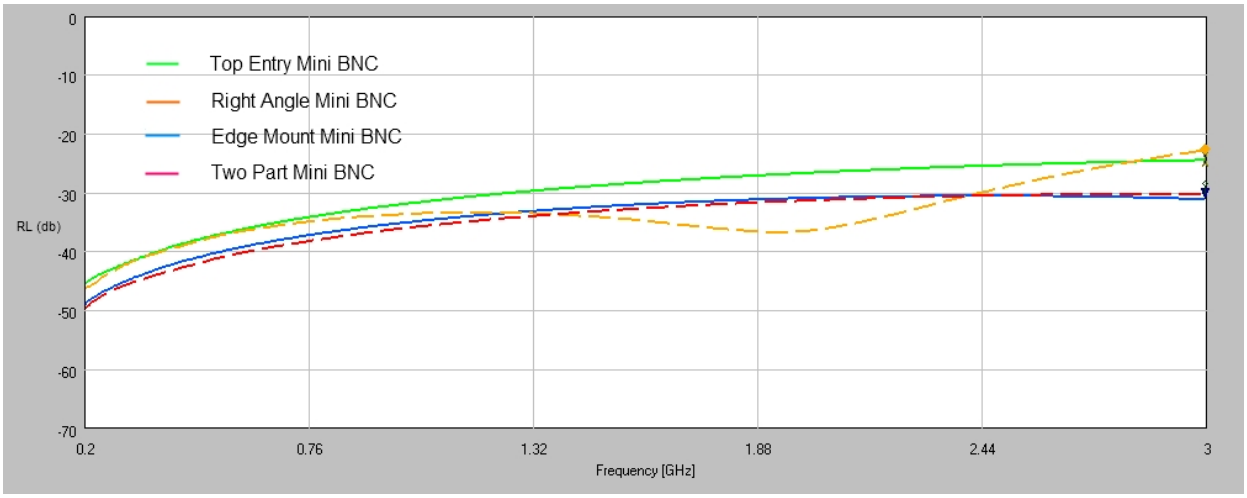
Centre Pin	Phosphor Bronze/ 10u" Au
Body finish	Standard — Brass/Ni
Insulators	TPX

Environmental

Temperature Range	- 65 to +85^0 C
Mating Cycles	500



Comparison between BNC and 1.0/2.3 connectors



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Precision 75 Ohm Min BNC connectors for 3G SDI Broadcast Applications
Top Entry PCB mounting

C-SX-094

Features

- **For use in SDI, HDI, 3G-SDI digital broadcast applications**
- **12mm pitch for increased wiring densities**
- **Regularly used in the Broadcast Industry**

General Description

Straight PCB mounting Precision 75 ohm female Mini BNC connector. Although superficially similar to standard 75 ohm Mini BNC products, enhanced internal geometry and the use of specialised materials produces a product with Precision 75 ohm performance.

Applications

It is specifically designed for the broadcast industry for use in confined areas such as Outside Broadcast applications.

Specification -

Electrical

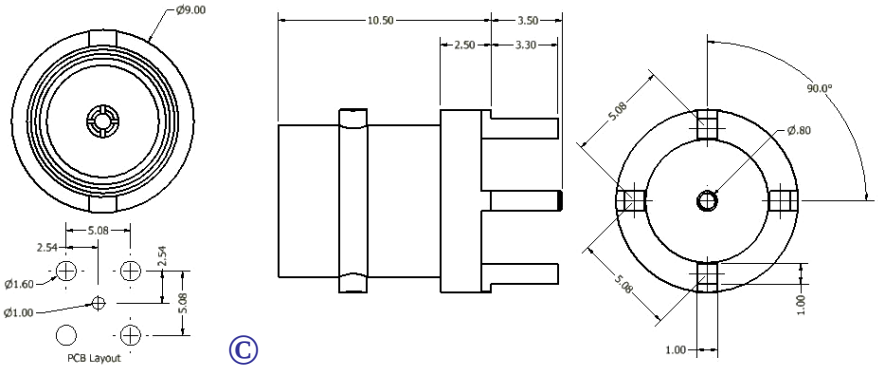
Impedance	75 Ohm
Frequency Range	0 - 3.0 GHz
Working Voltage	300Vrms
Dielectric Withstanding Voltage	1500Vrms
Reflection Factor (VSWR)	
DC—1.5GHz	1.08 (Max)
1.5—3.0GHZ	1.13 (Max)
Contact Resistance	Centre Contact 12.0 m ohm
Insulation Resistance	> 1000 meg ohm

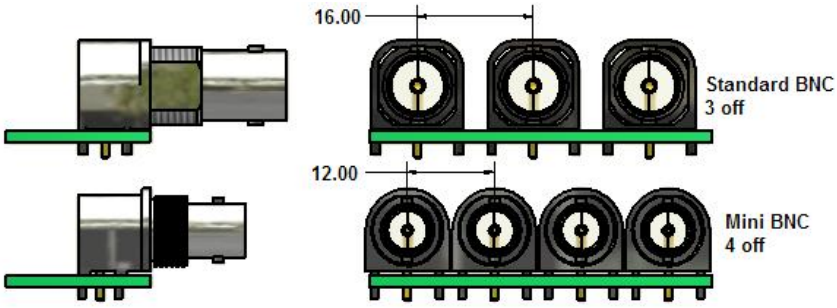
Materials

Centre Pin	Phos Bronze / 10u" Au
Body finish	Standard — Brass/Ni
Insulators	PTFE

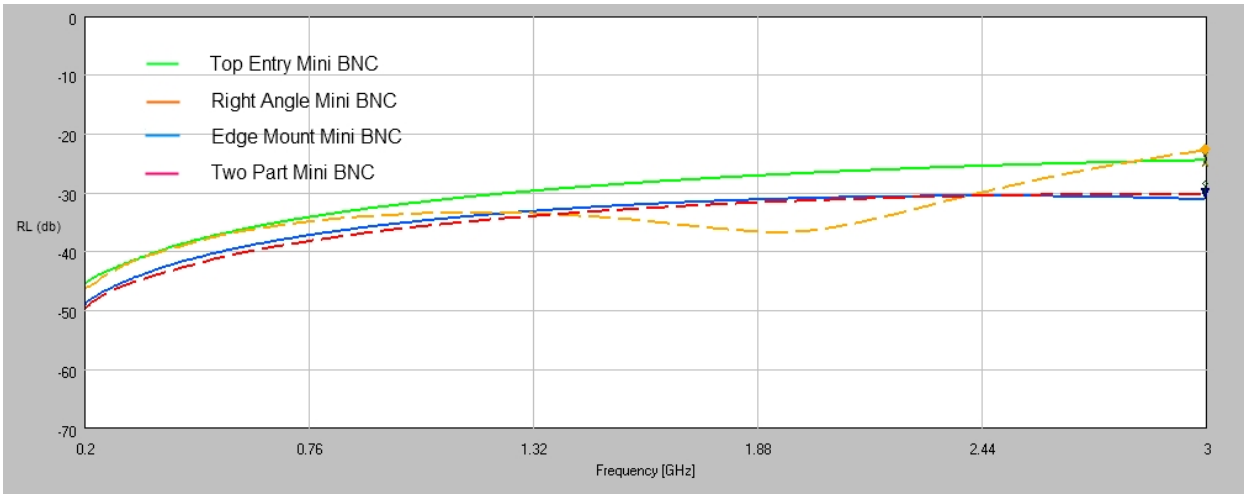
Environmental

Temperature Range	- 65 to +85^0 C
Mating Cycles	500





Comparison between BNC and 1.0/2.3 connectors



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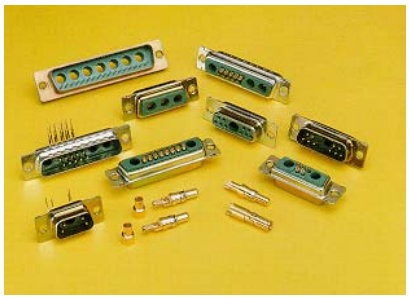
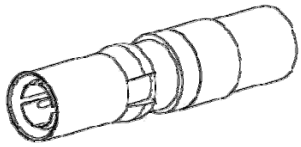
Precision 75 ohm coaxial inserts for use in Mixed Layout ("Combo") Connectors Systems
Compatible with D Sub-miniature and DIN 41612 Mixed Layout Connectors.



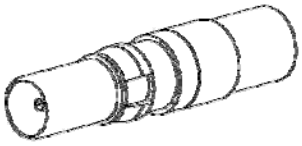
Features

- **For use in SDI, HDI, 3G-SDI digital broadcast applications**
- **True 75 ohm, signal and power contacts in one connector**
- **Reduced connector count provides space saving and reduces production and installation costs**

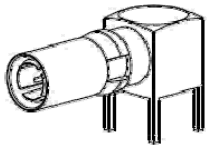
Designed for use in Mixed Layout ("Combo") connectors, these true 75 ohm coaxial contacts are engineered to meet 3G SDI Video requirements and allow signal contacts, true 75 ohm coaxial contacts and power contacts all to be enclosed together in the same connector shell. They are compatible with D-Sub-miniature and DIN 41612 connector systems and can greatly reduce the number of connectors necessary on equipments thus simplifying production methods and permitting higher connection densities to be achieved.
Styles include right angle PCB mounting and straight cable terminated versions.



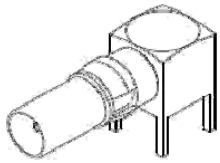
Real 75 ohm coaxial socket cable terminating



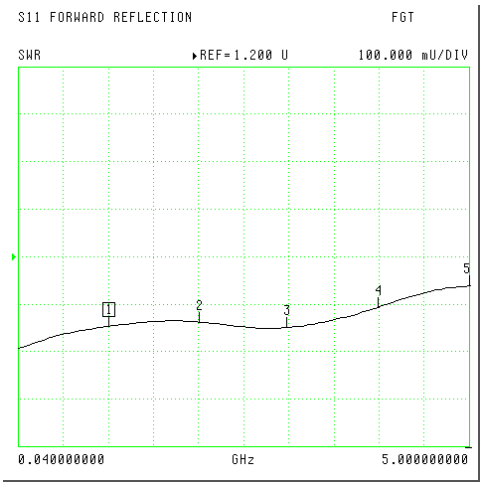
Real 75 ohm coaxial plug cable terminating

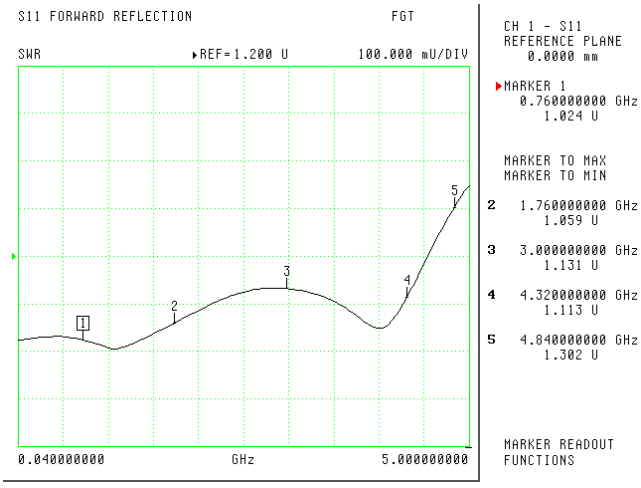


Real 75 ohm R/A coaxial socket PCB mounting



Real 75 ohm R/A coaxial plug PCB mounting





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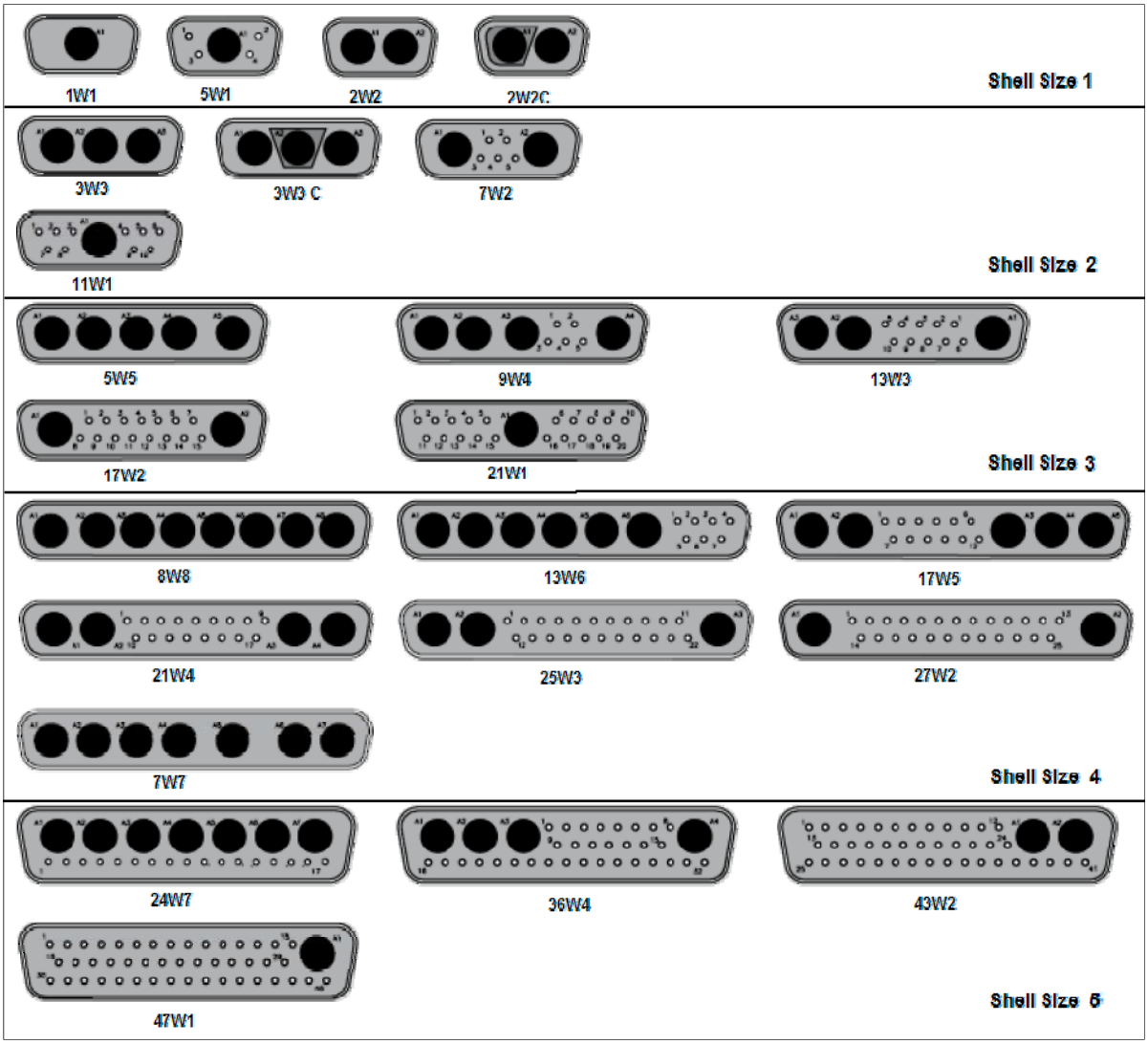
Precision 75 ohm coaxial inserts for use in Mixed Layout ("Combo") Connectors Systems

Mixed Layout D Connector Series

The mixed layout series is available in the same shell sizes as the D Subminiature series and enables true 75 ohm co-axial contacts to be combined with signal, high voltage and high power contacts in the same connector. Utilising mixed layout D connectors in broadcast networking systems reduces connector count and can provide considerable cost benefits in manufacturing and installation.
Shell sizes and configuration options are illustrated below.



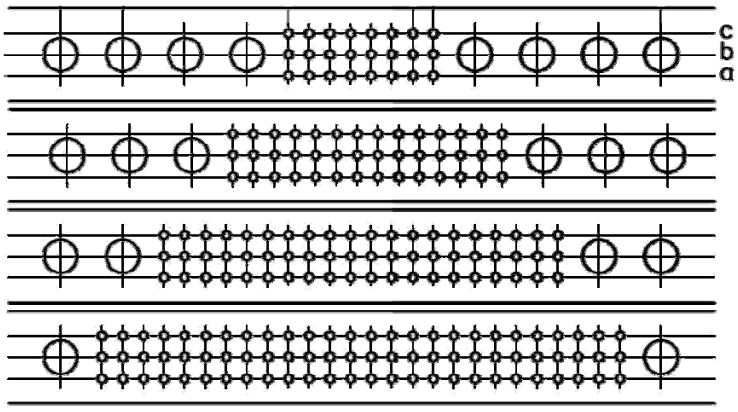
Detailed information and specifications on the mixed layout D series of connectors can be found in our Mixed Layout Connector catalogue which can be downloaded from our website at: -
http://www.cambridgeconnectors.com/CEI/Catalogues.html
If additional information is required, please contact our technical engineering department at : -
technical@cambridgeelectronics.com

Precision 75 ohm coaxial inserts for use in Mixed Layout ("Combo") Connectors Systems

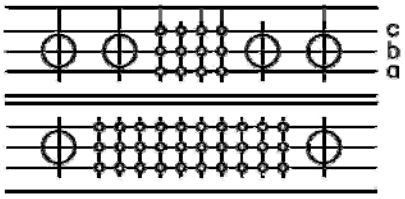
Mixed Layout DIN 41612 Connector Series

The mixed layout DIN 41612 series is available in 3 shell sizes; Standard size (M), 1/2 size (M/2) and 1/3 size (M/3) and enables true 75 ohm co-axial contacts to be combined with signal, high voltage and high power contacts in the same connector. Utilising mixed layout DIN 41612 connectors in broadcast networking systems reduces connector count and can provide considerable cost benefits in manufacturing and installation.

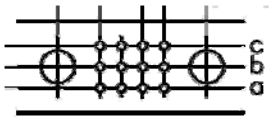
Shell sizes and configuration options are illustrated below.



Shell Size M



Shell Size M/2



Shell Size M/3

Typical Ordering Code

T P M - 3 7 8 2 - E 0 3 A

- **Series:** T = DIN 41612
- **Gender:** P = Plug, S = Socket
- **Body Type:** M = Mixed Layout - 3 row
- **Body Size:** 3 = M/3
- **Number of contacts loaded:** See loading configurations, but note that 78 + 2, 12 + 2 and so on, are entered in the ordering code as 782, 122 etc.
- **Contact Termination Style:** C = dip solder - straight, D = dip solder - right angle, E = wire wrap, see termination styles
- **Contact Plating:** 01 - Class 1
- **Loading Configurations:** A = Signal contact positions fully loaded
- **Mounting Style:** O = Standard through-hole

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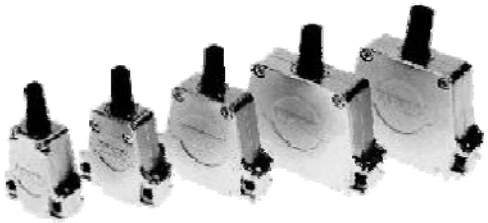
Mixed Layout D Hoods

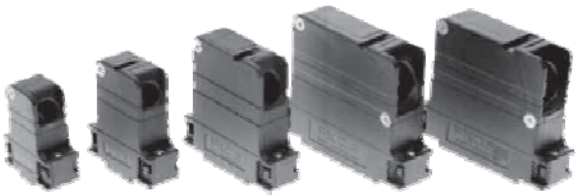
Solid Metal Hoods - Straight Cable Outlet



Solid Metal Hoods - 45º Angled Cable Outlet

Plastic/Metalised Plastic Hoods
- Straight Cable Outlet

Plastic/Metalised Plastic Hoods
- 70º & 80ºAngled Cable Outlet



	Straight Metal	45° Metal	Straight Plastic	70° Plastic	80° Plastic
Shell Size	Part No.	Part No.	Part No.	Part No.	Part No.
1	DAC 275	DAC 163	DAC 280*	DAC 145*	DAC 146*
2	DAC 276	DAC 165	DAC 281*	DAC 147*	DAC 148*
3	DAC 277	DAC 164	DAC 282*	DAC 149*	
4	DAC 278	DAC 166	DAC 283*	DAC 285*	
5	DAC 279	DAC 266	DAC 284*	DAC 286*	

For metalised plastic version append “Z” to Part No.

System Connections Division.

True 75 ohm Mixed Layout Cable Assemblies for Broadcast and Video Applications.

With its wealth of interconnection experience and knowledge of Video/Broadcast Applications, Cambridge Electronic Industries is ideally placed through its subcontract manufacturing division, System Connections, to design and manufacture mixed layout custom cable assemblies.

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