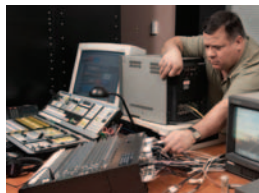
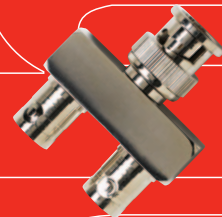


Broadcast/Audio Full Line Catalog



Pomona[®]
ELECTRONICS

Video Broadcast
Audio
Home Entertainment
Plugs and Jacks
Custom Cable Assemblies



敏盛企業有限公司

<http://www.mavin.com.tw>

免責聲明

資料僅供參考，若有與原廠不合之處，請以原廠規格為準，且不供任何證明文件之用

TEL:03-5970828 FAX:03-5972622 新竹湖口工業區工業四路3號2F

The quality broadcast and audio experts demand

From a wide selection of 75 Ω connectors and our famous banana plugs, to rugged and economical XLR connectors and assemblies, Pomona delivers quality at an outstanding value. Our broad new line of connectivity products for audio, video, and multimedia was designed specifically for the rigorous demands of your world.

Electronics test engineers and technicians around the world have trusted Pomona's connectivity solutions for more than 50 years. Now that same innovative design and high-quality manufacturing is available for broadcast, studio and home entertainment applications.

Discover why Pomona is the choice of professionals worldwide.

Why do so many experts depend on Pomona?



World-class design

Pomona's team of electronics and mechanical designers focus on the details and that pays off in performance.

Fast, custom orders

Need a custom cable assembly? Ask Pomona. We deliver high-quality, custom orders, fast. We'll gladly add logos or other special marks, too. Find out more at www.pomonaelectronics.com.



Fast and easy to install

You don't have to gear up with special crimp tools to install Pomona parts. In fact, our F connectors require no crimping at all.

NEW!

XLR with triple binding posts to RJ11 Choose from four models

Take back the extra time you took building custom connectors to adapt to all the different configurations you find at remote locations. This new adapter serves as an all-round connector from XLR to RJ11 to banana plugs or line split outs and gives you the flexibility to address any remote location configuration with a durable solution right out of the box.

The new Pomona XLR with Triple Binding Post to RJ11 allows the connection of a phone line from a broadcast truck to a stadium patch panel for testing or communication from the truck to the telecast booth!

- Split out signal from the three XLR audio conductors for access via 5-way binding posts
- RJ11 jack simplifies connection to phone line for ring down tests
- Access to phone communications across audio cables

Video Broadcast 4

75 Ω BNC Straight Coaxial Plugs 4

Hi-Def BNC for Digital Video 5

75 Ω BNC Bulkhead Connectors 5

75 Ω BNC Panel Mount Connectors 5

75 Ω BNC Adapters 6

75 Ω BNC PCB Mount Connectors 6

Audio/Video Adapters 7

Commercial 1/4 in Jack and Plug Adapters 7

75 Ω BNC/F Adapters 7

Crimp Tools 8

BNC Caps 8

BNC Feed-Throughs, Terminators, and Attenuators 9

WECO/Mini-WECO Video Patch Cords 9

Test Lead Holders 9

75 Ω BNC to WECO/Mini-WECO Video Cable Assemblies 9

Rugged 75 Ω BNC Cable Assemblies 9

Audio 10

New Products 10

XLR Straight Cable Connectors – Rugged 11

XLR Straight Cable Connectors – General Duty 12

Square Flanged Panel Receptacles 12

Rectangular Flanged Panel Receptacles 13

XLR/RCA Adapters 14

XLR to 1/4 in Adapters 14

XLR Adapters 14

Commercial 1/4 in Jack and Plug Adapters 15

Right Angle and Straight 1/4 in Standard Phone Plugs 15

1/4 in Phone Jack Panel Mount 15

1/4 in Phone Jacks 16

Bantam Cable Assemblies 17

XLR to 1/4 in Cable Assemblies 17

XLR Cable Assemblies 17

Home Entertainment 18

75 Ω F Connectors 18

F PCB Mount Connectors 18

F Adapters 18

F Bulkhead Adapter 18

RCA (Phono) Adapter 18

RCA Jacks and Plugs 19

RCA (Phono plug) Cable Assemblies 19

Phono Plug Cable Assemblies 19

Phono Plug to BNC Cable Assemblies 19

Plugs and Jacks 20

Banana Plugs 20

Binding Post/Phone Plug Adapter 20

Banana Plugs – DIY 20

Binding Post/Bantam Plug 20

Binding Posts 21

Banana Plug/Phone Jack Adapter 21

Custom Cable Assemblies 22

Index 23



Broad selection

You'll find accessories for virtually any broadcast equipment application.

Outstanding value

Why pay more? Pomona products deliver the superior design and construction your applications demand at an outstanding value.

Save time. Stay flexible.



Four models available, see page 10 for details.



Video Broadcast

The widest selection of true 75 Ω connectors and adapters for video broadcast

Whether you're working at an event, in a mobile truck, or in the studio, professionals like you need the clearest signals for broadcast and production. Transmitting today's video signals demands gighertz bandwidth and greater signal purity than analog signals. Pomona Electronic's new line of true 75 Ω digital video connectors and adapters help meet these demands.

Higher bandwidth to support digital broadcasting

Pomona not only supports the SMPTE 292M serial digital interface standard of 1.485 Gbps, we exceed it. With a frequency range of up to 3 GHz, our high-bandwidth connectors give you plenty of headroom.

- A VSWR lower than 1.2 ensures signal clarity across the entire 3 GHz bandwidth.
- The 6702, 6703, 6704 and 7405 deliver true 75 Ω impedance throughout the length of the connector, with very low return loss.

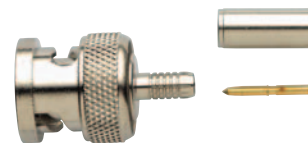
75 Ω BNC Straight Coaxial Plugs

Designed to 3 GHz performance with true 75 Ω impedance for broadcast applications. Precision machined brass with tarnish resistant nickel plating. Male center pin contacts are gold plated brass. Female center contacts are gold plated heat treated beryllium copper. Insulation material is high density PTFE.

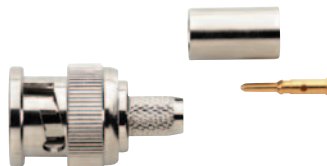
6746A BNC (M) Compression Style, Field Inst, RG59, 59A, 59B, 62, 210, Belden 8241, 8263, 75 Ω



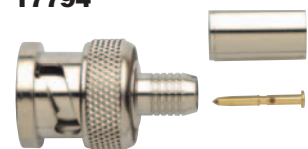
7233 BNC (M), 75 Ω, Comm / Scope 0222, Belden 8218, Belden YR23023



6752A BNC (M) Crimp RG59, 59A, 59B, 62, 210, Belden 8241, 8263, 75 Ω



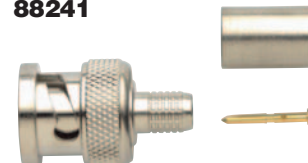
7234 BNC (M), 75 Ω, RG-59, RG-62, Belden 9240, 9100, 1505, 1426, 8212, 9145, 9265, 9275, 1809, 9052, 9054, 9104, 9110, and 17794



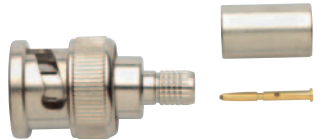
7042 BNC (M) Coaxial Belden 1407B, 1417B, 1164B, 1167B, 1418B, 11467B, 11865A 75 Ω



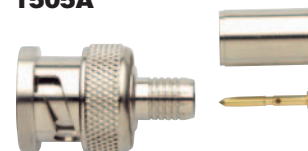
7235 BNC (M), 75 Ω, AT&T 730 and 731, Belden 8241, 88241



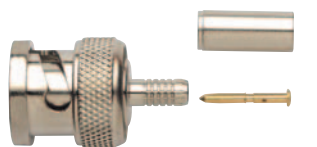
7043 BNC (M) Coaxial Belden 8241, 88241 75 Ω



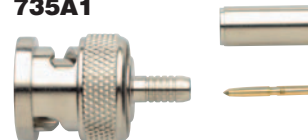
7236 BNC (M), 75 Ω, AT&T 734, Comm / Scope 734###, Judd S95103101, Belden 1505A



7232 BNC (M), 75 Ω, RG-179, Belden 1520A and 1522A



7237 BNC (M), 75 Ω AT&T 735, Comm / Scope 735###, Judd S95103101, Belden 735A1



BELDENCable™

Hi-Def BNC for Digital Video

6702, 6703 and 6704 BNGs are designed to 3 GHz performance with VSWR of 1.15 and true 75 Ω impedance for broadcast applications. Precision matched to Belden cable for digital and analog SDI/HDTV signals. Precision machined brass with tarnish resistant nickel plating. Male center pin contacts are gold plated brass (20 micro inches). Female center contacts are gold plated heat treated beryllium copper. Insulation material is high density PTFE.

6702 Hi Def BNC (M) for Digital Video, RG59/U, (Belden 1505A), 20 AWG, 75 Ω



6703 Hi Def BNC (M) for Digital Video, RG6/U, (Belden 1694A), 18 AWG, 75 Ω



6704 Hi Def BNC (M) for video broadcast, RG59/U, (Belden 1855A), 23 AWG, 75 Ω



75 Ω BNC Bulkhead Connectors

6741, 6745 and 6749 BNCs have u-shaped solder cups to ease solder installation. Designed to 3 GHz performance with true 75 Ω impedance for broadcast applications. Precision machined brass with tarnish resistant nickel plating. Male center pin contacts are gold plated brass. Female center contacts are gold plated heat treated beryllium copper. Insulation material is high density PTFE.

6741 BNC (F) Bulkhead Receptacle, isolated ground, teflon, 75 Ω



6745 BNC (F) Bulkhead Receptacle, 75 Ω



6749 BNC (M) Bulkhead Receptacle 75 Ω



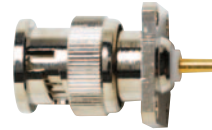
75 Ω BNC Panel Mount Connectors

6744 BNC (F/F) Panel Mount, hermetically sealed, 75 Ω



Designed to 3 GHz performance with true 75 Ω impedance for broadcast applications. Precision machined brass with tarnish resistant nickel plating. Male center pin contacts are gold plated brass. Female center contacts are gold plated heat treated beryllium copper. Insulation material is high density PTFE.

6735 BNC (M) Panel Mount, 75 Ω



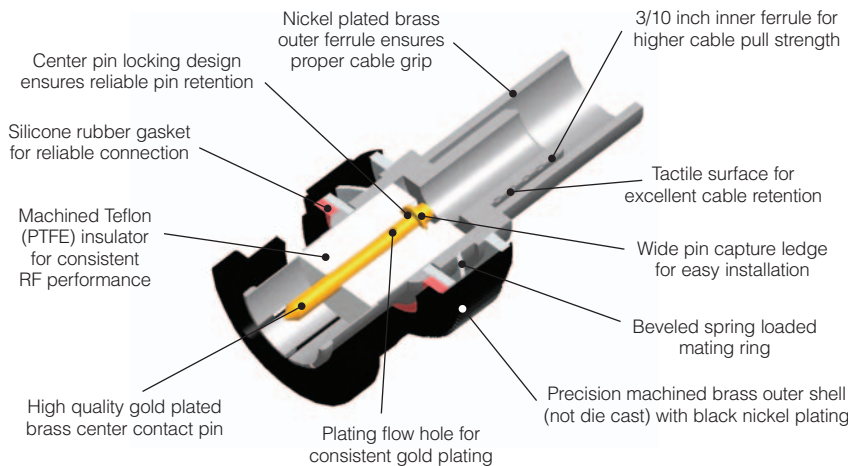
U-shaped solder cup eases solder installation. Body is machined brass with tarnish resistant nickel plating (not die cast). Male center pin contacts are gold plated brass. Female center contacts: Gold plated heat treated beryllium copper. High quality machined PTFE dielectric.

6736 BNC (F) Panel Receptacle, 75 Ω



U-shaped solder cup eases solder installation. Body is machined brass with tarnish resistant nickel plating (not die cast). Male center pin contacts are gold plated brass. Female center contacts: Gold plated heat treated beryllium copper. High quality machined PTFE dielectric.

Precision engineered to minimize signal loss





75 Ω BNC Adapters

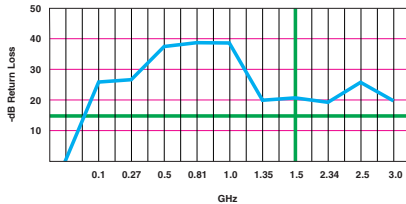
Return Loss exceeds the SMPTE standards for exceptional performance

Return loss (RL) has great impact on the quality of signals transmitted. Any impedance variations in the structure of cables or connections cause the signal to reflect or return back to the source, decreasing the signal over the distance. This changes the amplitude reaching the receiver, and the ultimate quality of the image or audio.

For high frequency, high data rate performance, Pomona takes digital broadcast connections to a new level. In the critical 0.5 – 1.0 GHz range, we've reduced return loss to -35 dB, exceeding the -15 SMPTE standard and better than most of the 75 Ω connectors in the industry



75 Ω Digital BNC Panel Adapter # 6705



This 75 Ω panel adapter (model 6705) delivers excellent performance throughout its 3 GHz bandwidth, far broader than the 1.5 GHz SMPTE standard (represented by the green axis). In the key performance range, Return Loss never falls below -20 dB, and in the critical 0.5 - 1.0 GHz range, return loss drops to -35 dB.

Designed to 3 GHz performance with true 75 Ω impedance for broadcast applications. Precision machined brass with tarnish resistant nickel plating. Male center pin contacts are gold plated brass. Female center contacts are gold plated heat treated beryllium copper. Insulation material is high density PTFE.

6737 BNC (F/F) Adapter, 75 Ω



6738 BNC (F/F/F) Adapter, 75 Ω



6739 BNC (F/M/F) Adapter, 75 Ω



6740 BNC (M/M) Adapter, 75 Ω



6705 BNC (F/F) Isolated Panel Connector for digital video



Designed to fit the stringent standards for HDTV. True 75 Ω impedance. Black nickel plated for easy identification as an HDTV connector. Precision machined (not die cast) from brass. Gold plated contact pin for maximum high definition signal conduction.

6754 BNC (F/M/F) Adapter, In-line, 75 Ω

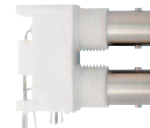


In-line design improves cable routing. Designed to 3 GHz performance with true 75 Ω impedance for broadcast applications. Precision machined brass with tarnish resistant nickel plating. Male center pin contacts are gold plated brass. Female center contacts are gold plated heat treated beryllium copper. Insulation material is high density PTFE.

75 Ω BNC PCB Mount Connectors

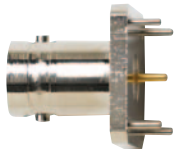
Designed to 3 GHz performance with true 75 Ω impedance for broadcast applications. Precision machined brass with tarnish resistant nickel plating. Male center pin contacts are gold plated brass. Female center contacts are gold plated heat treated beryllium copper. Insulation material is high density PTFE.

6718 BNC (F) PCB Mount, dual right angle, white valox



Allows dual BNC input to PCB. True 75 Ω. Bandwidth to 4 GHz. Gold plated pin and socket for maximum signal conduction.

6747 BNC (F) PCB Mount, vertical, 75 Ω



6748 BNC (F) PCB Mount, right angle, 75 Ω



Audio/Video Adapters

4054 BNC (M) to RCA (Phono Jack)



Converts BNC female to phono (RCA) plug. Nickel plated brass body with gold contacts.

3837 BNC (F) to Two Conductor, 3.5 mm (0.14 in) Dia. Mini Plug



Convert 2 conductor audio mini jacks to BNC. All metal construction for proper shielding.

4267 BNC (F) to Two Conductor Micro Plug



Permits BNC male to be used with equipment having micro jacks. Center contact Beryllium copper with gold plating.

4719 BNC (F) to Bantam Plug Adapter



Convert Bantam style jacks to BNC. BNC materials include gold plated Beryllium copper for superior performance.

5008 BNC (F) to Standard WECO Video Plug Adapter



Permits BNC male to be used with equipment having standard WECO jacks. Video plug equivalent to WE-090.

5319 BNC (F) to RCA (Phono Plug)



Permits BNC cables (male ends) to be used with equipment having phono jacks. Gold plated center contact for minimum contact resistance and superior signal transfer. Machined (not die cast) components for long life.

6519 BNC (F) to Mini-WECO Video Plug Adapter



Permits BNC male to be used with equipment having mini-WECO jacks. Video plug equivalent to WE-090.

Commercial 1/4 in Jack and Plug Adapters

1297 BNC (F) to 1/4 in Phone Plug



Convert 2 conductor audio jacks to BNC. BNC female contact is gold-plated Beryllium copper for noise free connection. Adapter is tarnish resistant.

4043 BNC (M) to 1/4 in Two Conductor Phone Jack



Converts 2 conductor phone plugs to BNC. Nickel plated brass body with gold contacts.

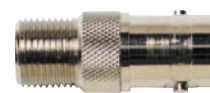
75 Ω BNC/F Adapters

Designed to 3 GHz performance with true 75 Ω impedance for broadcast applications. Precision machined brass with tarnish resistant nickel plating. Male center pin contacts are gold plated brass. Female center contacts are gold plated heat treated beryllium copper. Insulation material is high density PTFE.

6779 BNC (M)/F (F), 75 Ω



6780 BNC (F)/F (F), 75 Ω



6781 BNC (F)/F (M), 75 Ω

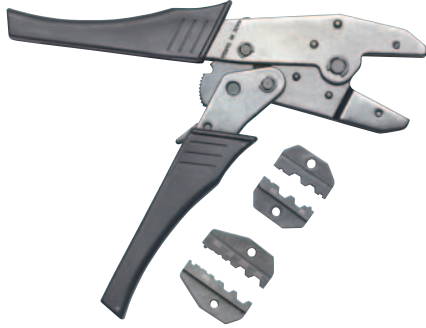


6782 BNC (M)/F (M), 75 Ω





Crimp Tools



7277 Crimp Tool (handle only)

Professional grade crimp tool handle for consistent crimping. Accommodates multiple cable sizes. Ratchet style locking with cushioned grips for easy handling. Body is high carbon steel tool; steel is powder coated.

7278 Crimp, Die Set RG 55/58/59/62/141/142/223/303/400

Professional grade precision die set. Cavity dimensions are 0.255 in, 0.213 in and 0.068 in. Easily interchangeable. Use with Pomona Crimp Tool 7277.

7279 Crimp, Die Set RG 174/178/179/180/187/188/195/196/316

Professional grade precision die set. Cavity dimensions are 0.178 in, 0.128 in and 0.068 in. Easily interchangeable. Use with Pomona Crimp Tool 7277.

7280 Crimp, Die Set RG 6/59/Belden 8281

Professional grade precision die set. Cavity dimensions are 0.324 in, 0.255 in, 0.068 in and 0.042 in. Easily interchangeable. Use with Pomona Crimp Tool 7277.

7281 Crimp, Die Set 5 Cavity RG 58/59 N, BNC, TNC, SMA

Professional grade precision die set. Cavity dimensions are 0.255 in, 0.213 in, 0.100 in, 0.068 in and 0.052 in. Easily interchangeable. Use with Pomona Crimp Tool 7277.

7282 Crimp, Die Set for sizes 7.11 mm, 6.60 mm, 1.78 mm, 1.02 mm (0.28 in, 0.26 in, 0.07 in, 0.04 in)

Professional grade precision die set. Cavity dimensions are 0.278 in, 0.255 in, 0.068 in and 0.022 in. Easily interchangeable. Use with Pomona Crimp Tool 7277.

Pomona BNC connector crimp and cable matrix

Pomona BNC	6702	6703	6704	7232	7043	7037	7041
Belden Cable	1505A/1506A, 9259	1694A, 1695A	1855A, 1865A	1520A, 1522A	8241	8240, 9310, 9311	1807A, 1808A, 7700A, 9212, 9258
Gepco Cable	VPM2000, VJ59U	VSD2001, VSD2001TS,	RGB250, RGBHVC RGBSC250		VJ59U		
West Penn Cable	819/25819/816	6350/256350	HD825				
Liberty Cable	20-CMR-VIDEO-color 20-CMP-VIDEO-COAX RG59-STR-BLK	18-CMR-SD-color,	23-YCLL-SIAM, 23-MINI-SD-color		23-CCS-ANALOG		
Zack/SCP Cable	RG59/U-95						
Canare Cable	L-4CFB	L-5CFB	V3-3C / V4-3C	V5-3C / L-3C2VS	LV-61S		
Pomona Crimp Tool	7277	7277	7277	7277	7277	7277	7277
Pomona Crimp die	7282	7280	7285	7285	7281	7278	7279
Kings Crimp Tool	KTH-1000	KTH-1000	KTH-1000	KTH-1000	KTH-1000	KTH-1000	KTH-1000
Kings Crimp Die	KTH-2261	KTH-2255	KTH-2025	KTH-2025	KTH-2261	KTH-2001	KTH-2007
Paladin Stripper	PAL-1247	PAL-1247	PAL-1258		PAL-1257	PAL-1240	
Canare Stripper	TS100E	TS100E	TS100E	TS100E	TS100E	TS-100E	TS-100E
Paladin Crimper	1366/1611	1368/1612	1366/1612			1317/1617	1317/1617

BNC Caps



3839 BNC Dust Cap

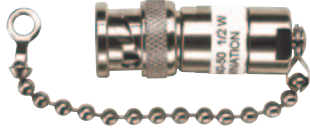
Dust cap protects sensitive instrument or cable inputs and is non-shorting. Tarnish resistant plating. 76.2 mm (3 in) long chain.

5085 BNC Shorting Cap

Shorting cap provides protection to equipment or cables and supplies a short across the input. Tarnish resistant plating. 76.2 mm (3 in) long chain.

BNC Feed-Throughs, Terminators, and Attenuators

3840-75 BNC Male Terminator Plug



Use to terminate coaxial lines with 75 Ω impedance. Body is nickel-plated brass. Gold plated center conductor. Outer contact is gold plated beryllium copper.

4119-75 BNC Feed-Thru Termination



75 Ω termination to a coaxial conductor while feeding the signal through the termination. Body is nickel-plated brass. Gold plated center conductor. Outer contact is gold plated beryllium copper. 2%, 2 W carbon-film resistor.

4391-75 BNC 75 Ω Attenuator



Use to add 75 Ω series resistance to coaxial lines with BNC connectors. 1%, 2 W, non-inductive film resistor. Body is nickel-plated brass. Gold plated center conductor. Female is beryllium copper.

WECO/Mini-WECO Video Patch Cords

6502-96 Mini-WECO Plug/Plug Patch Cord, 2.4 m (8 ft)



Test, monitor, patch, and cross connect broadcast circuits. Patch cable includes 440 type Mini-WECO plug. Cable type RG59. Length 2.4 m (96 in). Body is nickel-plated brass. Gold plated center conductor.

6507-96 WECO Plug/Plug Patch Cord, 2.4 m (8 ft)



Test, monitor, patch, and cross connect broadcast circuits. Cable includes WE090 standard WECO plugs. Cable type RG59. Length 2.4 m (96 in). Body is nickel-plated brass. Gold plated center conductor.

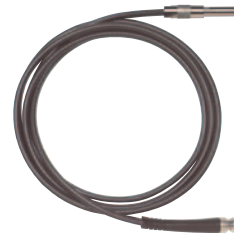
75 Ω BNC to WECO/Mini-WECO Video Cable Assemblies

6515-96 75 Ω BNC (M) to Mini-WECO Video Cable



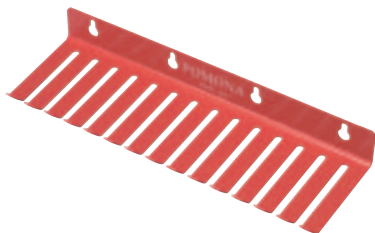
Test, monitor, patch, and cross connect broadcast circuits. Conversion cable includes 440 type Mini-WECO plug. Cable type RG59. Length 2.4 m (96 in). Body is nickel-plated brass. Gold plated center conductor.

6516-96 75 Ω BNC (M) to Standard WECO Cable



Test, monitor, patch, and cross connect broadcast circuits. Conversion cable includes WE090 standard WECO plug. Body is nickel-plated brass. Gold plated center conductor. Cable type RG59. Length 2.4 m (96 in).

Test Lead Holders



1508 Test Lead Holder for wires up to 5.33 mm (0.21 in) dia.

Convenient, rugged rack for test leads and cables, sizes RG58 and RG142. Orange.

2708 Test Lead Holder for wires up to 11.43 mm (0.45 in) dia.

Convenient, rugged rack for test leads and cables, sizes RG213 and RG214. Blue.

4408 Test Lead Holder for wires up to 8.13 mm (0.32 in) dia.

Convenient, rugged rack for test leads and cables, sizes RG59 and RG108. Black.

Rugged 75 Ω BNC Cable Assemblies

2249-E Rugged 75 Ω BNC Plug/Plug, RG59 cable



True 75 Ω coaxial cable assemblies with 75 Ω BNC plugs on each end for video broadcast applications. BNC plugs include gold-plated pins for excellent signal conductance.

Model	Length
2249-E-36	0.9 m (3 ft)
2249-E-72	1.8 m (6 ft)
2249-E-120	3.0 m (10 ft)
2249-E-180	4.6 m (15 ft)
2249-E-240	6.1 m (20 ft)
2249-E-300	7.6 m (25 ft)



Audio

Rugged audio connectors perform without fail

For concerts and broadcast, in the studio or on stage, audio experts like you can't afford a connection to fail mid-stream. Prevent sound emergencies by using the most rugged cable assemblies and connectors.

XLR Connectors

Pomona's rugged XLR connectors deliver dependable cable retention. The 6852 and 6853, along with their IDC counterparts, the 7275 and 7276, are designed for strenuous use where cable separation cannot be tolerated.

New Products

New adapter makes it easy to split out the signals from the three XLR audio conductors for access via 5-way binding posts. RJ11 jack also simplifies connection to phone for ring down tests of audio lines for phone communications across audio cables. Includes three color-coded 5-way binding posts for high, low, and ground terminals. Cables can be connected to rugged binding posts via banana plug, spade lug, alligator clip, or simply fed into the through-hole or wrapped around the post.

7288 XLR (M) Triple Binding Post to RJ11

7286 XLR (M) Triple Binding Post

7289 XLR (F) Triple Binding Post to RJ11

7287 XLR (F) Triple Binding Post





XLR Straight Cable Connectors – Rugged

Passes the 100 pound stress test

When connection failure is simply not an option, depend on Pomona XLR connectors. The patented XLR cable retention system can withstand up to 100 pounds (45.35 kg) of pull and up to 50,000 bends under stress. By securely capturing the cable, our system relieves strain from the solder joints between the cable and the connector, protecting your connections from workplace abuse.

Why the rugged XLR can withstand 100 pounds of pull

The Pomona XLR connector design includes a patented mechanism that grabs and holds the cable securely. This construction creates a bond that withstands 100 pounds (45.35 kg) of direct pull giving rugged, dependable connections that you can count on for crystal clear signal quality.

5109 Rugged 3 Pole (F) In-Line XLR, silver contacts, nickel shell, thermoplastic boot



Three pin female XLR. Rugged. Includes cable clamp designed to withstand up to 45.35 kg (100 lbs) of pull. Nickel plated streamlined profile with compact shell. No set screws. Solderable. Silver plated contacts.

7274 Rugged 3 Pole (F) XLR, IDC, silver contacts, nickel shell, thermoplastic back shell



Three pin female IDC type XLR. Insulation displacement technology eliminates stripping and soldering conductors. Rugged. Includes cable clamp designed to withstand up to 45.35 kg (100 lbs) of pull. Nickel plated streamlined profile with compact shell. Time saving assembly (3 parts). No set screws. Silver plated contacts.

5110 Rugged 3 Pole (M) In-Line XLR, silver contacts, nickel shell, thermoplastic boot



Three pin male XLR. Rugged. Includes cable clamp designed to withstand up to 45.35 kg (100 lbs) of pull. Nickel plated streamlined profile with compact shell. No set screws. Solderable. Silver plated contacts.

7275 3 Pole (M) XLR, IDC, silver contacts, black shell, thermoplastic boot



Three pin male IDC type XLR. Insulation displacement technology eliminates stripping and soldering conductors. Rugged. Includes cable clamp designed to withstand up to 45.35 kg (100 lbs) of pull. Black nickel plated shell. Time saving assembly (3 parts). No set screws. Silver plated contacts.

6852 Extra Rugged XLR (F) Connector, black nickel plated shell, 3 gold-plated contacts



Three pin female XLR. Rugged. Includes cable clamp designed to withstand up to 45.35 kg (100 lbs) of pull. Black nickel streamlined case with gold plated contacts. No set screws. Solderable.

7273 Rugged 3 Pole (M) XLR, IDC, silver contacts, nickel shell, thermoplastic back shell



Three pin male IDC type XLR. Insulation displacement technology eliminates stripping and soldering conductors. Rugged. Includes cable clamp designed to withstand up to 45.35 kg (100 lbs) of pull. Nickel plated streamlined profile with compact shell. Time saving assembly (3 parts). No set screws. Silver plated contacts.

7276 3 Pole (F) XLR, IDC, silver contacts, black shell, thermoplastic boot



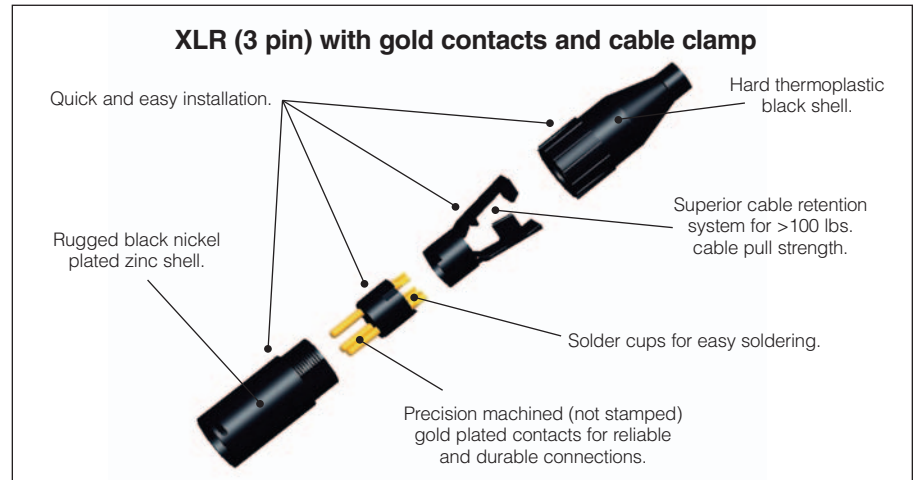
Three pin female IDC type XLR. Insulation displacement technology eliminates stripping and soldering conductors. Rugged. Includes cable clamp designed to withstand up to 45.35 kg (100 lbs) of pull. Black nickel plated shell. Time saving assembly (3 parts). No set screws. Silver plated contacts.

6853 Extra Rugged XLR (M) Connector, black nickel plated shell, 3 gold-plated contacts



Three pin male XLR. Rugged. Includes cable clamp designed to withstand up to 45.35 kg (100 lbs) of pull. Black nickel streamlined case with gold plated contacts. No set screws. Solderable.

XLR (3 pin) with gold contacts and cable clamp





XLR Straight Cable Connectors – General Duty

6850 XLR (F) Connector, black nickel-plated shell, 3 gold-plated



Three pin female XLR. Black nickel streamlined profile with compact shell. Time saving assembly (3 parts). No set screws. Solderable. Gold plated contacts.

6851 XLR (M) Connector, black nickel-plated shell, 3 gold-plated contacts (standard)



Three pin male XLR. Black nickel streamlined profile with compact shell. Time saving assembly (3 parts). No set screws. Solderable. Gold plated pins.

7283 3 Pole (F) In-Line XLR, silver contacts, nickel, thermoplastic boot



Three pin female XLR. Nickel plated streamlined profile with compact shell. Time saving assembly (3 parts). No set screws. Solderable. Silver plated contacts.

7284 7284 - 3 Pole (M) In-Line XLR, silver contacts, nickel, thermoplastic boot



Three pin male XLR. Nickel plated streamlined profile with compact shell. Time saving assembly (3 parts). No set screws. Solderable. Silver plated pins.

7093 XLR (M), 4 Pin, Screwless Connector



Four pin male XLR. Nickel plated streamlined profile with compact shell. Time saving assembly (3 parts). No set screws. Solderable. Silver plated pins.

7094 XLR (F), 4 Pin, Screwless Connector



Four pin female XLR. Nickel plated streamlined profile with compact shell. Time saving assembly (3 parts). No set screws. Solderable. Silver plated pins.

5125A XLR (F) Connector, nickel-plated shell, 5 silver-plated contacts



Five pin female XLR. Black and silver streamlined profile with compact shell. Time saving assembly (3 parts). No set screws. Solderable. Nickel with black boot. Silver plated contacts.

5126A XLR (M) Connector, nickel-plated shell, 5 silver-plated contacts



Five pin male XLR. Black and silver streamlined profile with compact shell. Time saving assembly (3 parts). No set screws. Solderable. Nickel with black boot. Silver plated pins.

Square Flanged Panel Receptacles

7111 XLR (F) 3 Pin Square Flanged Panel Receptacle, horizontal PC board



3-pin XLR square panel mount receptacle for horizontal PC board mounting. Sturdy all metal one piece design. Housing is die-cast zinc alloy with tarnish resistant black nickel plating. Solder cup terminations. Front mountable.

7113 XLR (M) 3 Pin Square Flanged Panel Receptacle, solder cups, black



3-pin XLR square panel mount male receptacle with sturdy all metal one piece design. Housing is die-cast zinc alloy with tarnish resistant black nickel plating and gold plated pins. Solder cup terminations. Front mountable.

7114 XLR (F) 3 Pin Square Flanged Panel Receptacle, solder cups, nickel



3-pin XLR square panel mount female receptacle with sturdy all metal one piece design. Housing is die-cast zinc alloy with tarnish resistant nickel plating and gold plated contacts. Solder cup terminations. Front mountable.

7115 XLR (F) 3 Pin Square Flanged Panel Receptacle, solder cups, black



3-pin XLR square panel mount female receptacle with sturdy all metal one piece design. Housing is die-cast zinc alloy with tarnish resistant black nickel plating and gold plated contacts. Solder cup terminations. Front mountable.



Rectangular Flanged Panel Receptacles

5113A XLR (F) Panel Receptacle, 3 contacts (nickel-plated zinc)



3-pin XLR rectangular panel mount receptacle with sturdy all metal one piece design. Housing is die-cast zinc alloy with tarnish resistant nickel plating. Solder cup terminations. Front mountable.

6855 XLR (M) Panel Receptacle, 5 contacts



5-pin XLR rectangular panel mount male receptacle with sturdy all metal one piece design. Housing is die-cast zinc alloy with tarnish resistant nickel plating. Solder cup terminations. Front mountable.

7108 XLR (F), 3 Pin, Rectangular Flanged Panel Mount, black



3-pin XLR rectangular panel mount receptacle with sturdy all metal one piece design. Housing is die-cast zinc alloy with tarnish resistant black nickel plating. Solder cup terminations. Front mountable.

5117A XLR (M) Panel Receptacle, 3 contacts (nickel-plated zinc)



3-pin XLR rectangular panel mount male receptacle with sturdy all metal one piece design. Housing is die-cast zinc alloy with tarnish resistant nickel plating. Solder cup terminations. Front mountable.

7106 XLR (M), 4 Pin, Rectangular Flanged Panel Mount, nickel



4-pin XLR rectangular panel mount male receptacle with sturdy all metal one piece design. Housing is die-cast zinc alloy with tarnish resistant nickel plating. Solder cup terminations. Front mountable.

7109 XLR (M), 4 Pin, Rectangular Flanged Panel Mount, black



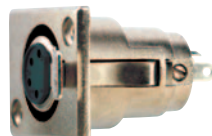
4-pin XLR rectangular panel mount male receptacle with sturdy all metal one piece design. Housing is die-cast zinc alloy with tarnish resistant black nickel plating. Solder cup terminations. Front mountable.

6854 XLR (F) Panel Receptacle, 5 contacts



5-pin XLR rectangular panel mount receptacle with sturdy all metal one piece design. Housing is die-cast zinc alloy with tarnish resistant nickel plating. Solder cup terminations. Front mountable.

7107 XLR (F), 4 Pin, Rectangular Flanged Panel Mount, nickel



4-pin XLR rectangular panel mount receptacle with sturdy all metal one piece design. Housing is die-cast zinc alloy with tarnish resistant nickel plating. Solder cup terminations. Front mountable.

7110 XLR (F), 4 Pin, Rectangular Flanged Panel Mount, black



4-pin XLR rectangular panel mount female receptacle with sturdy all metal one piece design. Housing is die-cast zinc alloy with tarnish resistant black nickel plating. Solder cup terminations. Front mountable.



Audio

Adapters

Pomona also offers a variety of audio adapters designed for fast and easy connections. Whether you are transitioning from one connection format to another, or increasing an audio cable length, you can rely on these adapters to deliver noise-free signals. Combinations include an array of XLR to XLR, XLR to 1/4 inch, and RCA to 1/4 inch adapters to suit your specific connection needs.

XLR/RCA Adapters

Audio adapters offer 3 contact XLR to RCA (phono) conversion. Body is die cast zinc alloy with tarnish resistant nickel plating. Contacts are nickel-plated brass.

7269 XLR (F)/RCA (M)



7270 XLR (M)/RCA (M)



7271 XLR (F)/RCA (F)



7272 XLR (M)/RCA (F)



XLR to 1/4 in Adapters

Adapters offers 3 contact XLR to 1/4 inch conversion. Sleek light weight design. XLR body is die cast zinc alloy with tarnish resistant nickel-plating. 1/4 inch plugs are nickel-plated machined brass. XLR contacts are nickel-plated brass.

6859 XLR (F)/1/4 in Jack (stereo or mono)



6860 XLR (M)/1/4 in Jack (stereo or mono)



6863 XLR (F)/1/4 in Plug (stereo)



6864 XLR (M)/1/4 in Plug (stereo)



XLR Adapters

Body is die cast zinc alloy with tarnish resistant nickel plating. Male pin contacts are nickel-plated brass. Female contacts are nickel-plated beryllium copper.

6856 XLR (F)/XLR (F)



6858 XLR (F)/XLR (M) Polarity Reverser



6857 XLR (M)/XLR (M)





Commercial 1/4 in Jack and Plug Adapters

4044 Phone Jack/Double Banana Plug



Converts 2 conductor phone plugs to dual banana. Allows easy access to audio signals carried through 1/4 in plugs. Nickel plated brass body with gold contacts.

7164 2-Conductor 1/4 in Phone Plug Adapter



Low contact resistance for excellent signal continuity. Body is gold-plated diecast zinc alloy. Contacts are gold-plated brass.

6878 1/4 in Plug/RCA Jack



Two pole mono-to-mono adapters in easy-to-use configurations. Contacts are nickel-plated brass.

6879 1/4 in Jack/RCA Plug



Two pole mono-to-mono adapters in easy-to-use configurations. Contacts are nickel-plated brass.

7162 Mono 2-Conductor 1/4 in Phone Jack Adapter



Low contact resistance for excellent signal continuity. Body is nickel-plated diecast zinc alloy. Contacts are nickel-plated brass.

7163 Stereo (Balanced) 3-Conductor 1/4 in Phone Jack Adapter



Low contact resistance for excellent signal continuity. Body is nickel-plated diecast zinc alloy. Contacts are nickel-plated brass.

Right Angle and Straight 1/4 in Standard Phone Plugs

Gold plated plug for low contact resistance. Strain relief clamp designed for durability. Body is made of die cast zinc alloy with tarnish resistant black-nickel plating. Solderable.

6873 1/4 in Phone Plug, 2 pole



6874 1/4 in Phone Plug, 3 pole



Use for optimal audio signal transfer and solid connection. Quick to assemble. Rugged all metal housing. Body is diecast zinc alloy with tarnish resistant nickel-plating. Plugs are nickel-plated brass.

7140 Straight 1/4 Std. Phone Plug 2 Conductor (Mono)



7151 Right Angle 2-Conductor 1/4 in Plug (Mono)



7142 Straight 1/4 Std. Phone Plug 3 Conductor Balanced (Stereo)



7152 Shielded 3-Conductor Balanced 1/4 in Phone Plug (Stereo)



7148 Locking 1/4 in Phone Jack Cable Mount



7153 2-Conductor 1/4 in Speaker Plug for large diameter cable

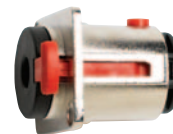


7150 Shielded 2-Conductor 1/4 in Phone Plug, long handle



1/4 in Phone Jack Panel Mount

6877 Panel Mount 1/4 in Phone Jack, locking



Mates with both stereo and mono plugs. Handles 18 AWG (1 mm²) audio cable. Includes lock-in feature.



Audio

Cable Assemblies

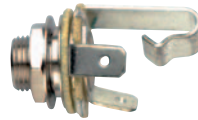
The Pomona 6902 Series Audio Cables provide reliable, durable audio connections with cable assemblies tested to over 100 pounds pull and to 50,000 bends under stress. Pomona assemblies are constructed for durability, using our best XLR connectors and Belden 1172A Starquad Audio Cable for low-noise service.

1/4 in Phone Jacks

Designed for insulated panel mount with low internal contact resistance. Body is diecast zinc alloy with tarnish resistant nickel plating. Hardware includes one copper alloy nickel-plated hex nut, and one steel nickel-plated washer.

PC board mounts for connection with standard commercial phone plugs. Solderable with nickel silver contacts.

7156 **2-Conductor 1/4 in Panel Mount Phone Jack with insulated washer and solder lugs**



7157 **3-Conductor 1/4 in Panel Mount Phone Jack with insulated washer and solder lugs**



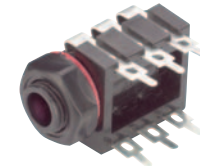
7158 **Horizontal 3-Conductor 1/4 in Jack, PC board mount**



7159 **Horizontal 2-Conductor 1/4 in Jack, PC board mount**



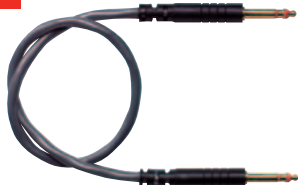
7160 **Horizontal 3-Conductor 1/4 in Jack, solder tabs, PC board mount**





Bantam Cable Assemblies

4279 Bantam Plug Patch Cord



Bantam plugs are molded directly to the cable for optimum durability. Bantam Plug: 4279: Unplated brass, 4279N: Nickel plated brass. Rating: Hands free testing in controlled environment: 300 Vrms*, +122 °F (+50 °C) max. Cable Type: 2 Conductor Shielded Twisted Pair, 4.57 mm (0.18 in) O.D.

Model	Length
4279-12	0.3 m (1 ft)
4279-24	0.6 m (2 ft)
4279-36	0.9 m (3 ft)
4279-48	1.2 m (4 ft)
4279-60	1.5 m (5 ft)
4279-72	1.8 m (6 ft)

Model	Length
4279N-12	0.3 m (1 ft)
4279N-24	0.6 m (2 ft)
4279N-36	0.9 m (3 ft)
4279N-48	1.2 m (4 ft)
4279N-60	1.5 m (5 ft)

XLR to 1/4 in Cable Assemblies

6888 XLR Jack/1/4 in) Stereo Plug Cable Assembly



Low noise audio cable includes a 3-pin XLR female connector on one end and a 1/4 in balanced stereo plug on the other. XLR connector bodies are die-cast zinc alloy with tarnish resistant black-nickel finish. Contacts are gold plated brass.

Model	Length
6888-180	4.6 m (15 ft)
6888-300	7.6 m (25 ft)

XLR Cable Assemblies

6902 Rugged XLR Plug to XLR Jack Audio Cable



Rugged audio cables constructed with Belden 1172A Starquad cable includes a 3-pin rugged XLR male connector and a 3 contact rugged XLR female connector. Constructed to withstand 45.35 kg (100 lbs) of pull and up to 50,000 bends under stress. XLR connector bodies are die-cast zinc alloy with tarnish resistant black-nickel finish. Contacts are gold plated brass.

Model	Length
6902-120	3.0 m (10 ft)
6902-180	4.6 m (15 ft)
6902-240	6.1 m (20 ft)
6902-300	7.6 m (25 ft)

6869 XLR Plug/Jack low noise cable assembly



Low noise audio cable includes a 3-pin XLR male connector and a 3 contact XLR female connector. XLR connector bodies are die-cast zinc alloy with tarnish resistant black-nickel finish. Contacts are gold plated brass.

Model	Length
6869-180	4.6 m (15 ft)
6869-300	7.6 m (25 ft)





Home Entertainment

Connecting today's CATV systems calls for high performance parts. The connectors you once installed for analog cable TV won't stand up to the high bandwidth requirements of HDTV, broadband cable, and sophisticated home entertainment systems. For professional performance with extremely easy connections, choose Pomona F connectors. You can quickly install the new push-on style Fs without a crimp tool. You'll save time, yet your connections will still withstand 18.14 kg (40 lbs) of pull.

75 Ω F Connectors

6707 F (M) Connector for RG6

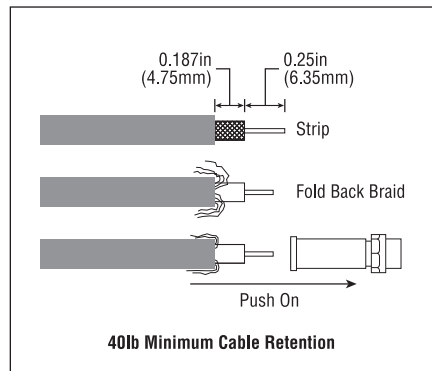


Designed for fast installation with no crimping. Simply strip cable and push connector on. Precision machined brass with gold plating.

6708 F (M) Connector for RG59

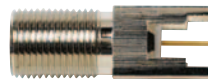


Designed for fast installation with no crimping. Simply strip cable and push connector on. Precision machined brass with gold plating.



F PCB Mount Connectors

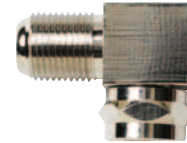
6803 F (F) PCB Edge Mount



Designed for fast installation with no crimping. Simply strip cable and push connector on. Precision machined brass with gold plating.

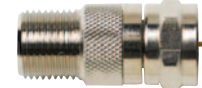
F Adapters

6800 F (M/F) right angle



Designed to 3 GHz performance with true 75 Ω impedance for broadcast applications. Precision machined brass with tarnish resistant nickel plating. Male center pin contacts are gold plated brass. Female center contacts are gold plated heat treated beryllium copper. Insulation material is high density PTFE.

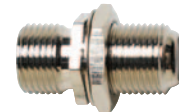
6801 F (M/F) In-line



Designed for fast installation with no crimping. Simply strip cable and push connector on. Precision machined brass with gold plating.

F Bulkhead Adapter

6802 F (F/F) Bulkhead Receptacle



Designed for fast installation with no crimping. Simply strip cable and push connector on. Precision machined brass with gold plating.

RCA (phono) Adapter

6882 RCA (phono) Adapter (F/M/F)

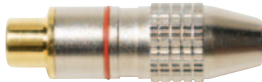


One plug and two jack configuration with compact design.



RCA Jacks and Plugs

6880 RCA (phono) Jack



Sleek silver and gold compact design. Handles up to 6.0 mm (0.24 in) O.D. cable. Body is made of die cast zinc alloy with tarnish resistant nickel-plating. Contacts are gold-plated brass.

6881 RCA (phono) Plug

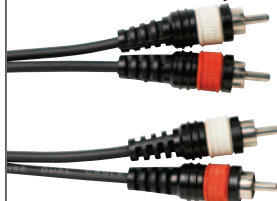


Sleek silver and gold compact design. Handles up to 6.0 mm (0.24 in) O.D. cable. Body is made of die cast zinc alloy with tarnish resistant nickel-plating. Contacts are gold-plated brass.

RCA (phono plug) Cable Assemblies

RCA-to-RCA cable assemblies in multiple variations for high quality RCA connections. Sleek profile enables easy installation. Cables are color marked for easy identification. Contacts are gold-plated brass. All cables are 4.6 m (15 ft).

6896 2 RCA Plugs/2 RCA Plugs Cable Assembly, Gold Contacts, 4.6 m (15 ft)



6900 3 RCA Plugs/3 RCA Plugs Cable Assembly, Gold Contacts; 4.6 m (15 ft)



6898 RCA Plug/RCA Plug Cable Assembly, 4.6 m (15 ft)



6901 RCA Plug/RCA Plug Cable Assembly, 4.6 m (15 ft), yellow



Model	Plugs	Plug Color at each end
6896-180	2 RCA / 2 RCA	White / Red
6898-180	1 RCA / 1 RCA	Black
6900-180	3 RCA / 3 RCA	Red / Green / Blue
6901-180	1 RCA / 1 RCA	Yellow

Phono Plug Cable Assemblies

5092-K Phono Plug Cable with molded strain relieved RG174



RCA (phono plug) cable assemblies with an RCA plug at each end of an RG174 cable. Plugs constructed of nickel plated brass. PVC strain relief boot molded to plug and cable offers superior ruggedness and durability.

Model	Length
5092-K-36	0.9 m (3 ft)
5092-K-48	1.2 m (4 ft)

Phono Plug to BNC Cable Assemblies

4963-E Phono Plug to BNC Male with strain relieved RG59



RCA (phono plug) / BNC cable assemblies with an RCA plug at one end and a BNC plug at the other end of an RG59 cable. Plugs constructed of nickel plated brass with gold plated center contact on the BNC. PVC strain relief boot molded to plug and cable offers superior ruggedness and durability.

Model	Length
4963-E-24	0.6 m (2 ft)
4963-E-36	0.9 m (3 ft)
4963-E-48	1.2 m (4 ft)
4963-E-60	1.5 m (5 ft)



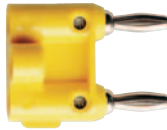
Plugs and Jacks

Creating a new studio?
Outfitting a mobile
broadcast truck?
Or maybe you're creating a
new audio/video system.
For all the gear you design
and install, Pomona has the
plugs, jacks, and binding
posts you need.

Our world famous MDP
banana plugs have set the
industry standard for 40
years. From the rugged,
hard-molded plug bodies to
the beryllium copper plug
springs, Pomona banana
plugs are constructed to
last many times longer
than competitive parts.

Banana Plugs

MDP-* Double Banana Plug with Wire Guide



Simplified attachment using set screws to secure wire. Eases cable construction or component mounting. For test versatility banana plugs can be vertically stacked. Accepts cables to 5.59 mm (0.22 in) dia. max., (18-22 AWG wire). Material: Banana Plug/Jack: brass; Spring: heat treated beryllium copper; finish: nickel plating. (10 colors).

2970- Triple Banana Plug



Use for balanced line 2 conductor shielded cable assemblies. Accepts cables to 6.35 mm (0.250 in) dia. max., Setscrews secure wires. Material: Banana Plug/Jack: brass; Spring: heat treated beryllium copper; Finish: nickel plating; Insulation: ABS.

Color Code: -0 Black, -2 Red

*Color Code: -0 Black, -1 Brown, -2 Red, -3 Orange, -4 Yellow, -5 Green, -6 Blue, -7 Violet, -8 Gray, -9 White

Banana Plugs - DIY

1325-* Do-It-Yourself Solderless Stackup Banana Plug



Designed to fit on the end of any 18 to 22 AWG wire. Cross hole entry fits wires up to 3 mm (0.12 in) diameter. Internal set screw holds wire firmly. Accepts standard banana plug, fits standard 4.22 mm (0.166 in) dia. banana jack. Material: Banana Plug/Jack: brass; Spring: heat treated beryllium copper. (10 colors).

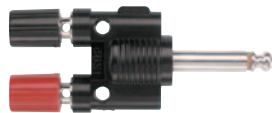
1825-* Do-It-Yourself Solderless Stackup Banana Plug with Safety Shield



Internal set screw holds wire firmly. Safety collar insulates exposed wire leads. Cross hole entry fits wires up to 3 mm (0.12 in) diameter. Accepts standard banana plug and fits 4.22 mm (0.166 in) dia. banana jack. Material: Banana Plug/Jack: brass; Spring: heat treated beryllium copper. Accepts 18-22 AWG wire. (10 colors).

Binding Post/Phone Plug Adapter

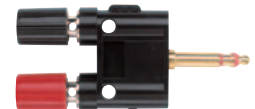
1285 1/4 in Phone Plug Adapter with Binding Posts



Converts standard 2 conductor phone jacks to double binding posts. Cross holes fit double banana plug. Banana plugs can be stacked vertically or horizontally. Wires, spade lugs, and pin tip plugs can be attached by means of the insulated knurl thumb knob.

Binding Post/Bantam Plug

5001/POM Stackable Binding Posts to Bantam Phone Plug

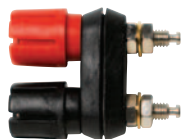


Adapts Bantam style equipment to binding posts and double banana plugs.



Binding Posts

6883 Dual Binding Posts



5-way binding post with 3.91 mm (0.154 in) cross-hole that accepts up to 12 AWG wire and standard banana plugs. Posts are spaced at the standard 3/4 inch spacing to mate to dual banana plugs. 30 A current rating. Posts are made of nickel-plated brass. Insulators and base are made of nylon.

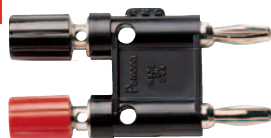
6884 Dual Binding Posts, raised base



5-way binding post with 3.91 mm (0.154 in) cross-hole that accepts up to 12 AWG wire and standard banana plugs. Posts are spaced at the standard 3/4 inch spacing to mate to dual banana plugs. 30 A current rating. Posts are made of nickel-plated brass. Insulators and base are made of nylon.

1286 Double Banana Plug with Binding Posts

5405



Features insulated binding posts on 19.05 mm (0.750 in) centers for rapid mounting and interchangeability of components. Center cross hole 4.22 mm (0.166 in) dia. provides side stackup connection.

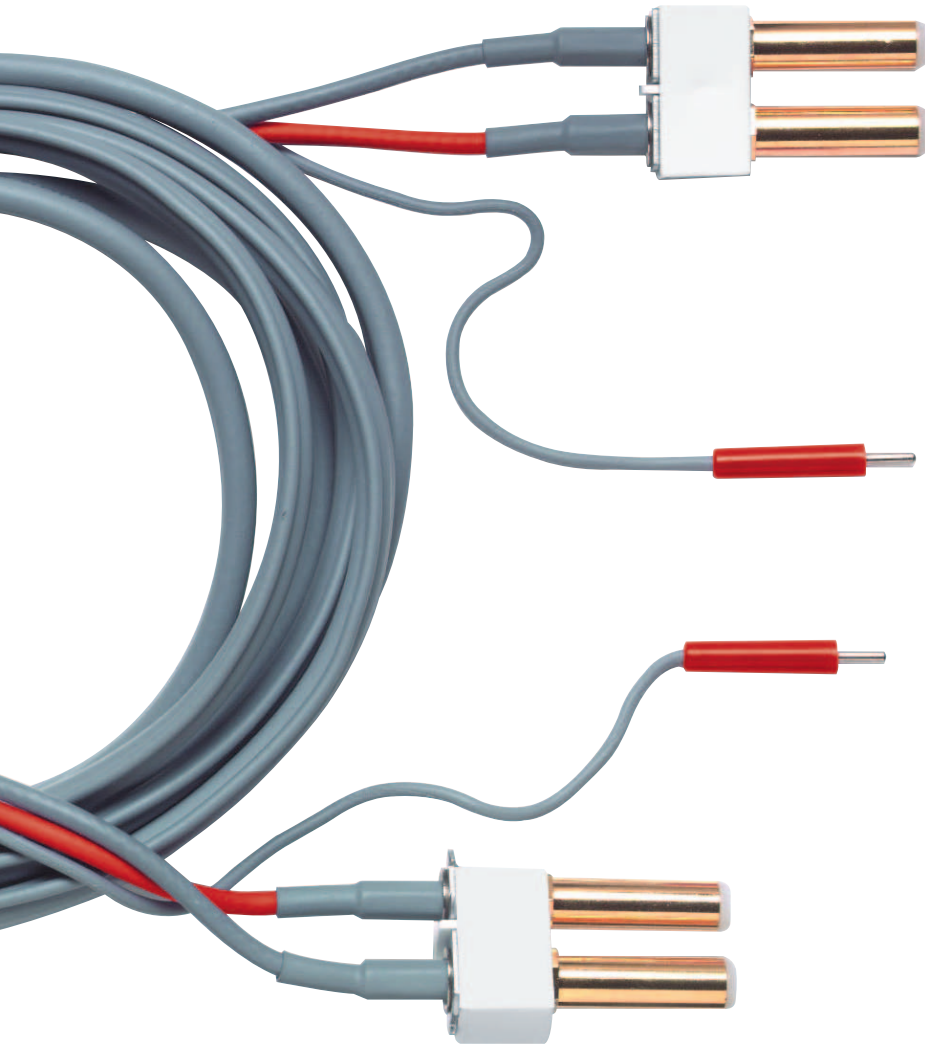
Model	Plating
1286	Nickel
5405	Gold

Banana Plug/Phone Jack Adapter

1442 Phono Jack to Double Stacking Banana Plug



Permits phono plug to be used with equipment having standard banana jacks or binding posts.



Your factory source for custom cables.

Do you need a unique product built for your studio or mobile truck? Or maybe you'd like us to modify an existing catalog product? Pomona is your factory source for top-quality, custom cable assemblies.

Define your own custom broadcast product with any combination of cables, wires, or connectors. Choose the length or color. For coaxial connector adapter assemblies, you can request any combination of strain relief sheathing and color-coding. Choose special wire, markings, or lengths. We can also customize your products with your logo or other special markings.

To obtain a custom cable assembly quotation go to www.pomonaelectronics.com/quote or call:

1-800-490-2361 in the US
+31 (0) 40 2675 150 in Europe or
1-425-446-5844 in all other areas.





Model#	Page#
MDP-*	20
1285	20
1286	21
1297	7
1325-*	20
1442	21
1508	9
1825-*	20
2249-E	9
2708	9
2970-	20
3837	7
3839	8
3840-75	9
4043	7
4044	15
4054	7
4119-75	9
4267	7
4279	17
4279N	17
4391-75	9
4408	9
4719	7
4963-E-24	19
5001/POM	20
5008	7
5085	8
5092-K	19
5109	11
5110	11
5113A	13
5117A	13
5125A	12
5126A	12
5319	7
5405	21
6502-96	9
6507-96	9
6515-96	9
6516-96	9
6519	7
6702	5
6703	5
6704	5
6705	6
6707	18
6708	18
6718	6
6735	5
6736	5
6737	6

Model#	Page#
6738	6
6739	6
6740	6
6741	5
6744	5
6745	5
6746A	4
6747	6
6748	6
6749	5
6752A	4
6754	6
6779	7
6780	7
6781	7
6782	7
6800	18
6801	18
6802	18
6803	18
6850	12
6851	12
6852	11
6853	11
6854	13
6855	13
6856	14
6857	14
6858	14
6859	14
6860	14
6863	14
6864	14
6869	17
6873	15
6874	15
6877	15
6878	15
6879	15
6880	19
6881	19
6882	18
6883	21
6884	21
6888	17
6896-180	19
6898-180	19
6900-180	19
6901-180	19
6902	17
7042	4
7043	4

Model#	Page#
7093	12
7094	12
7106	13
7107	13
7108	13
7109	13
7110	13
7111	12
7113	12
7114	12
7115	12
7140	15
7142	15
7148	15
7150	15
7151	15
7152	15
7153	15
7156	16
7157	16
7158	16
7159	16
7160	16
7162	15
7163	15
7164	15
7232	4
7233	4
7234	4
7235	4
7236	4
7237	4
7269	14
7270	14
7271	14
7272	14
7273	11
7274	11
7275	11
7276	11
7277	8
7278	8
7279	8
7280	8
7281	8
7282	8
7283	12
7284	12
7286	10
7287	10
7288	10
7289	10