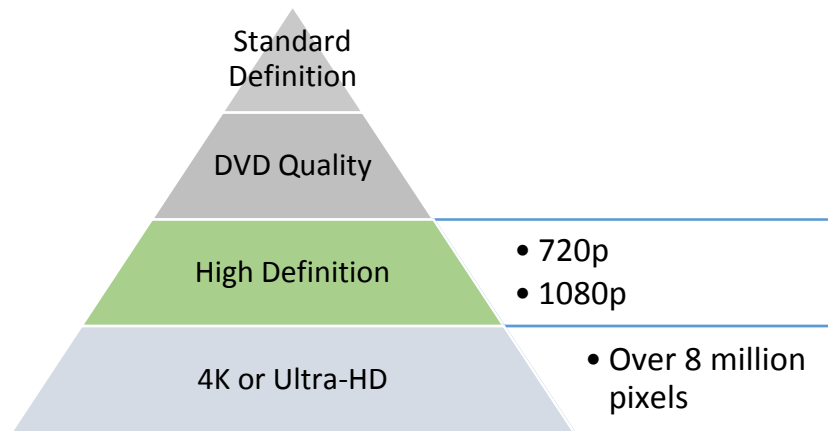


# 12G SDI Capable BNC and HD-BNC Connectors for Broadcast Video Applications

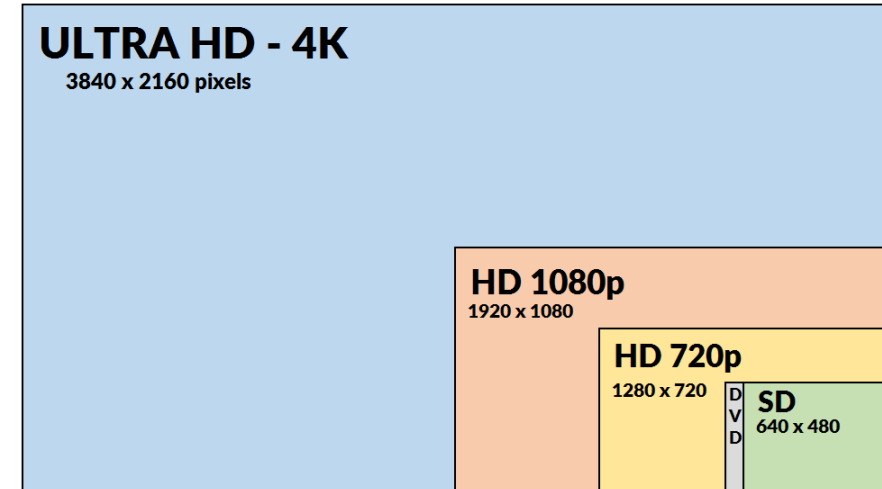
Ron Orban - Product Manager

# Why Use 12G BNC Connectors?

The quality of broadcast video is constantly evolving and improving:



As image resolution increases, so does the need for higher bandwidth connections.



Television pixel count comparison

- Uncompressed 4K video would require multiple legacy BNC connectors
- Amphenol 12G-SDI capable BNC and HD-BNC connectors support 12Gb/s data transfer rates
  - A single connection does the job of four

# 12G Applications

**Encoders** – A video encoder is capable of capturing, compressing and converting audio/video

**Mobile Broadcast** – From covering breaking news to major sporting events, the need for mobile broadcast of content continues to grow.

**Multiviewers** - Devices that facilitate the monitoring of several signals. They are able to receive a series of video signals and send them simultaneously to one or more outputs.

**Converters** – Used to scale SDI-to-HDMI input signals back and forth for optimum output.

**Digital A/V Capture Cards** - generate a feed of output images and displays.

**Video Storage Chassis** – Backplane and daughter card systems for high-definition video editing and playback.

**Digital Signage** - Digital signs in outdoor advertising, public installations and internal corporate communications, using technology such as LCD and LED to display images, videos, and media streams.

**Remote Viewing** – Traffic cameras and security systems rely on our solutions for consistent, dependable performance.

# 12G Connectors – BNC & HD-BNC

- 12 Gb/s performance per SMPTE standard
- One channel for 4K or Ultra-HD quality
- Variety of PCB and cable products
- Familiar BNC bayonet coupling mechanism



031-70526-11



034-1030-12G



034-1025-12G



112951-11

[Amphenol RF 12G Products](#)

# 12G PCB Connectors



034-1028-12G



031-70535-12G



034-1030-12G



031-70530

PCB Configuration	BNC	HDBNC
Straight	031-70536-12G	034-1065-12G
	031-70530	034-1028-12G (Bulkhead)
Right-Angle	031-70535-12G	034-1030-12G
	031-70535S-12G	
Edge Mount	031-70526-XX 6 versions	034-1018-12G

- Common Configurations
- Drop-in replacements
  - RF designs
  - Competitors
- 12G PCB connectors work best when paired with 12G cable parts

# 12G Cable Mount Connectors



031-70538-12G



034-1118-12G



031-70537-12G

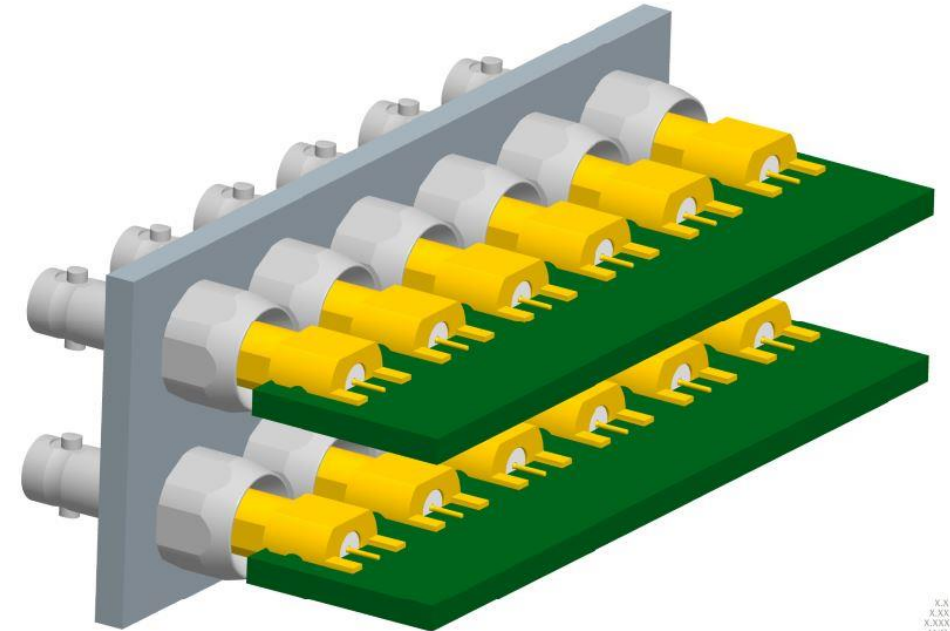
Belden Cable	BNC Plug	BNC Jack	HD-BNC Plug
4855R	031-70537-12G	031-70538-12G	034-1107-12G
	031-70544-12G (R/A)		034-1118-12G (R/A)
	031-70549-12G (R/A, IP-67)		034-1122-12G (R/A, IP-67)
4505R	031-70546-12G	031-70543-12G	034-1120-12G
4694R	031-70548-12G	031-70547-12G	034-1121-12G
4794R	031-70534	031-70539-12G	034-1104-12G
	031-70545-12G (R/A)		034-1119-12G (R/A)
1855A	112955-11		034-1026-12G
1694A	112957-11		034-1017-12G
1505A	112951-11		034-1025-12G

- NPI focus is on 12G cable
  - Designs available for all Belden 12G cable
  - Developing connectors for Canare 12G cable
- Crimp-style assembly
- Right-angle plugs
- Legacy products available
  - 1.0/2.3
  - Mini-BNC



# 12G Solutions

- PCB to panel mount designs
  - HD-BNC to HD-AFI panel mount adapt
  - HD-AFI specialized bullet adapter
  - HD-AFI PCB edge mount jack
- Maximizes panel density
- Ensures 12G performance
- Applications:
  - 12G OpenGear Routers



12G+  
12G+  
12G+  
12G+  
12G+

# Standard Broadcast Connectors

- Full line of True 75 Ohm RF interconnects ideal for broadcast applications
  - High-Definition Transmission
  - Surveillance Systems
  - Video Routing and Distribution
  - Mobile Broadcast Equipment
  - Audio/Video Switching Devices
  - Digital Signage
  - Ultra HD and 4K TV

## Standard Broadcast Video

- BNC
  - 75 Ohm
  - Industry standard
- HD-BNC
  - High-Density
  - Familiar bayonet mating
- 1.0/2.3
  - European DIN standard
  - Push/Pull mating





# Product Specifications



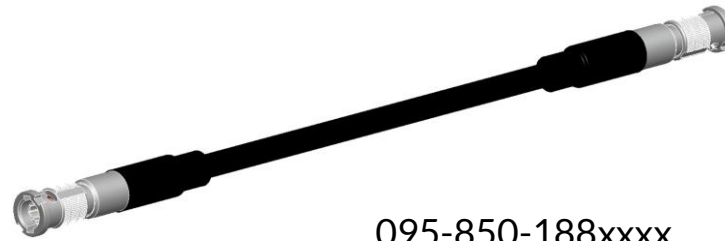
		BNC	HD-BNC	1.0/2.3 DIN
Impedance		True 75 Ohm	True 75 Ohm	75 Ohm
Frequency Range		DC - 4 GHz	DC-6 GHz	DC - 4 GHz
	12G Products:	DC - 12 GHz	DC - 18 GHz	
Insulation Resistance		5000 MΩ	10000 MΩ	10000 MΩ
Contact Resistance	Center:	≤1.5 mΩ	≤5 mΩ	≤6 mΩ
	Outer:	≤0.2 mΩ	≤2.5 mΩ	≤3 mΩ
Typical VSWR	3 GHz:	1:1.15	1:1.08	1:1.2
	12G Products, 6 GHz:	1:1.06	1:1.06	
	12G Products, 12 GHz:	1:1.43	1:1.43	

# 12G Cable Assemblies

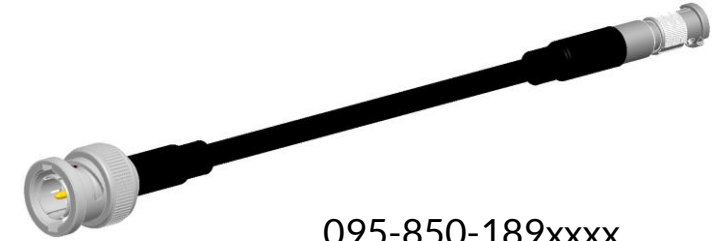
Fixed Length Products and Common Broadcast Cable Types Available



095-850-186xxxx  
095-850-187xxxx



095-850-188xxxx



095-850-189xxxx

Part Number	Configuration	Cable Type
095-850-186xxxx	BNC Plug to BNC Plug	Belden 4794R
095-850-187xxxx	BNC Plug to BNC Plug	Belden 4855R
095-850-188xxxx	HD-BNC Plug to HD-BNC Plug	Belden 4855R
095-850-189xxxx	HD-BNC Plug to BNC Plug	Belden 4855R
095-850-192xxxx	HD-BNC Jack to BNC Jack	Belden 4794R
095-850-193xxxx	HD-BNC Jack to BNC Jack	Belden 4855R

# 12G Adapters

Available in Common Configurations, and In-Series & Between-Series



031-220N-75-12G



112444-12G



034-1110-12G



031-9-75-12G



031-9-75-12G

Part Number	Configuration
031-218-12G	BNC Plug to BNC Plug
031-220N-75-12G	BNC Jack to BNC Jack, Bulkhead
031-9-75-12G	BNC Jack to BNC Plug, Right Angle
112444-12G	BNC Jack to BNC Jack, Bulkhead, Isolated
112446-12G	BNC Jack to BNC Jack
031-70540-12G	BNC Jack to HD-BNC Plug
031-70541-12G	BNC Plug to HD-BNC Jack
034-1109-12G	HD-BNC Jack to HD-BNC Jack, Bulkhead
034-1110-12G	HD-BNC Jack to HD-BNC Jack, Bulkhead, Isolated
034-1111-12G	HD-BNC Jack to HD-BNC Plug, Right Angle
034-1112-12G	HD-BNC Jack to HD-BNC Jack
034-1113-12G	HD-BNC Plug to HD-BNC Plug

- 12G Adapters, new for 2018
- Available in common configurations
  - Based on customer requests
- Allows for 12G continuity in customer applications and equipment

# Broadcast Product Density Comparison



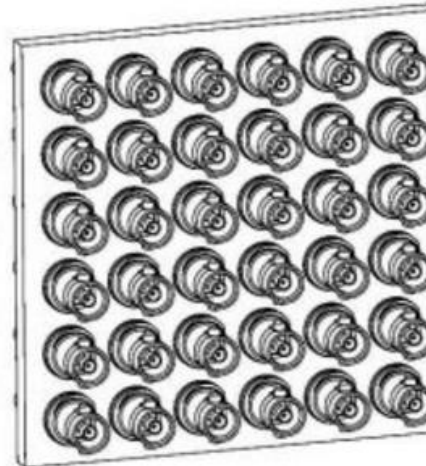
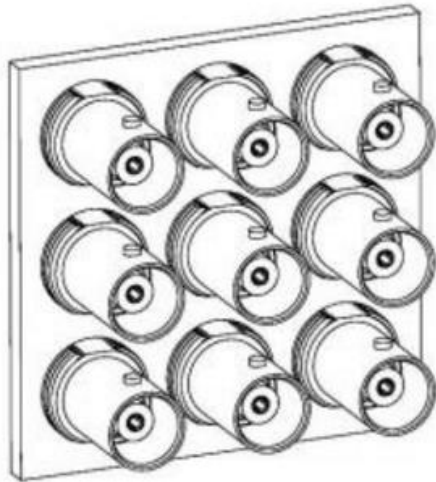
BNC - 15.5mm Spacing



1.0/2.3 - 10mm Spacing



HD-BNC - 8mm Spacing



BNC (15.5mm), 1.0/2.3 (10mm) and HD-BNC (8mm)

# Other Broadcast Products

- Ganged and Custom Solutions
  - Maximize PCB and panel density
  - Decrease assembly time
  - Integrate solutions faster

