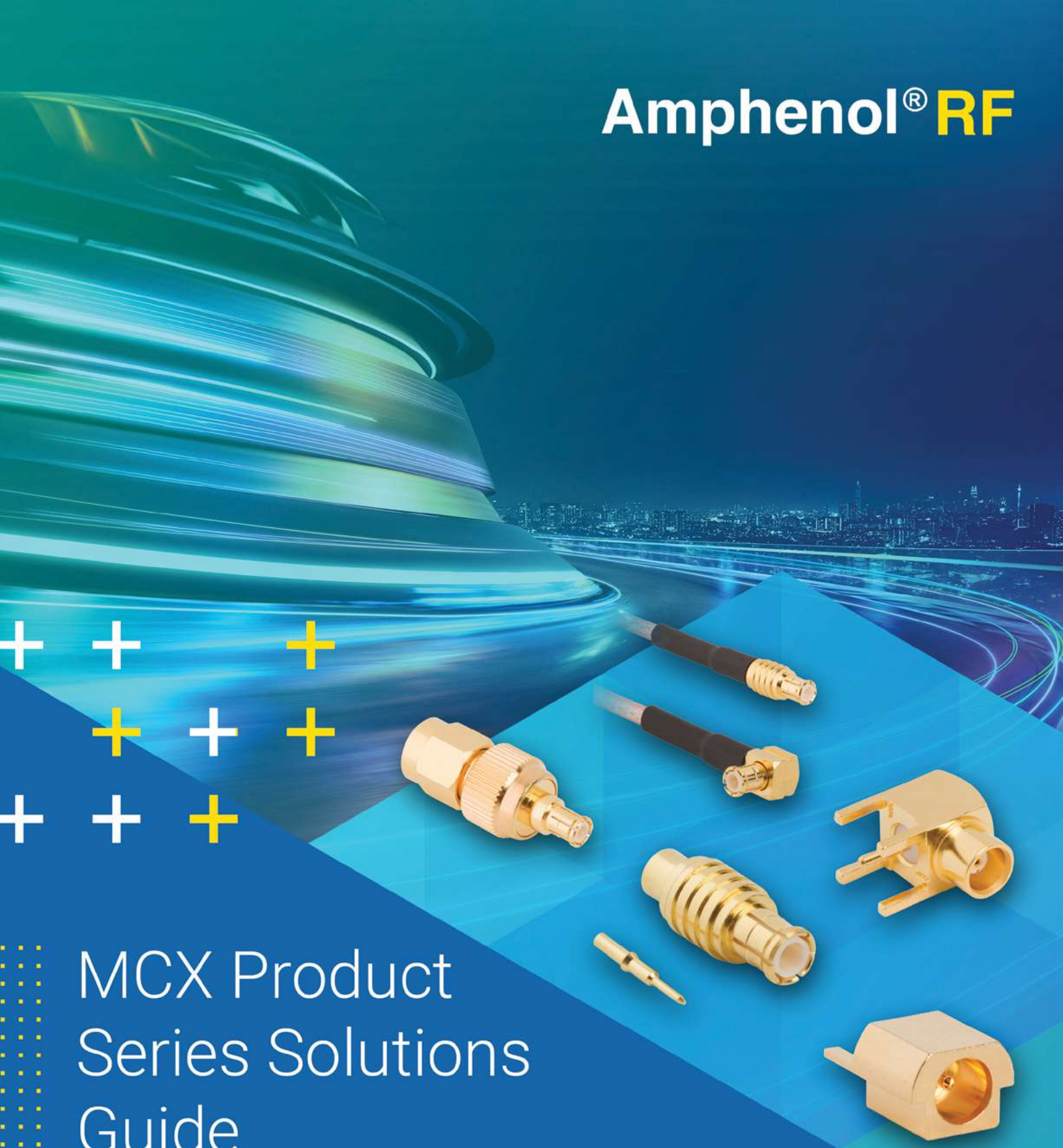
Amphenol® RF



MCX Product Series Solutions Guide

50 and 75 Ohm Solutions

ABOUT AMPHENOL RF

Amphenol RF, a division of Amphenol Corporation, is the largest manufacturer of radio frequency connectors, coaxial adapters and RF cable assemblies in the world.

With a global team of experienced engineers, Amphenol RF is able to offer the broadest portfolio of standard RF products on the market today.

As a leader in design and manufacturing of RF interconnect products, our dedicated team of engineers specialize in custom product development to meet the challenges of design-specific constraints.

GLOBAL PRESENCE

With a global presence, Amphenol RF has experienced engineers and production capabilities in multiple regions across the globe. Our experienced cross-functional teams oversee the entire process from the initial design through delivery, and beyond.

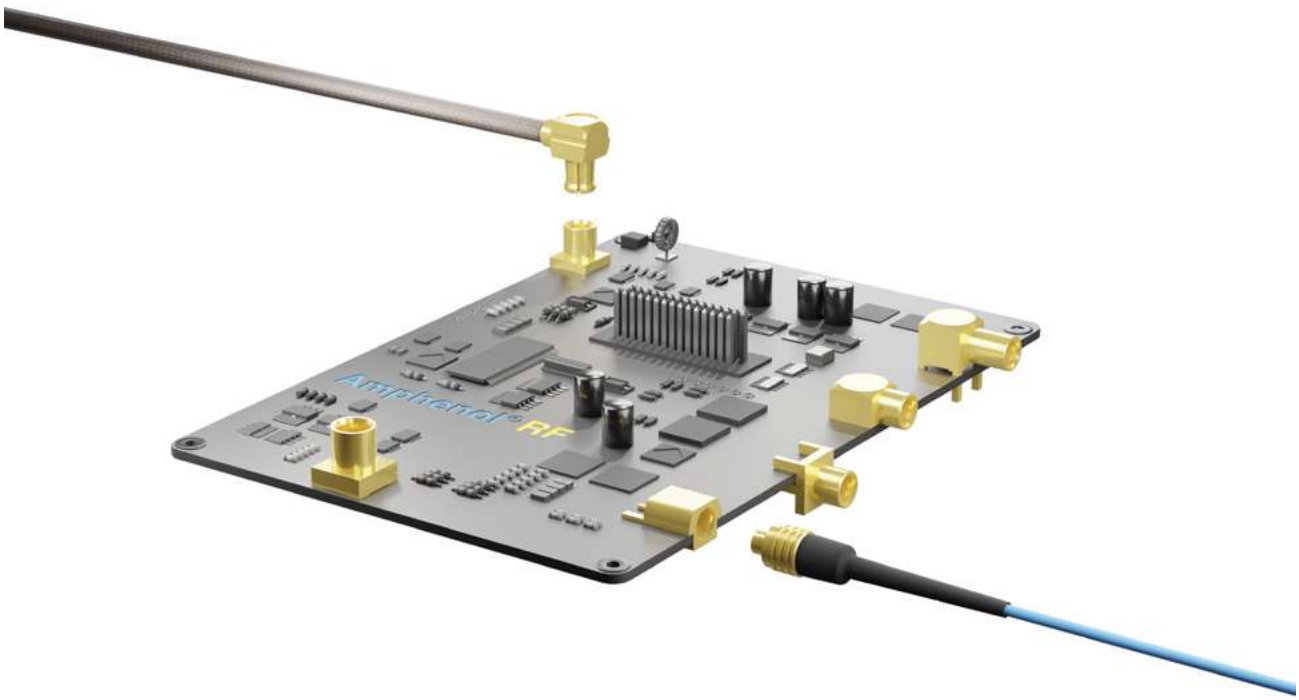
Amphenol RF has a global footprint of operations in North America, Europe and Asia.

MCX PRODUCT SERIES

The MCX connector series is engineered to deliver high-performance RF connectivity in compact, space-constrained environments. Designed with both 50 and 75 ohm impedance options, these connectors support a broad range of frequency requirements — from DC to 6 GHz for 50 ohm configurations and up to 18 GHz for 75 ohm variants — making them suitable for applications ranging from high-speed data and signal transmission to instrumentation and video systems.

MCX connectors features a snap-on coupling mechanism that allows for quick, secure mating without the need for tools, simplifying assembly in the field or during production. These connectors are approximately 30% smaller than the SMB interface, making them ideal for designs with limited PCB real estate or densely packed enclosures. All MCX connectors are manufactured to meet CECC 22220 standards and are rated for a minimum of 500 mating cycles, ensuring long-term mechanical reliability and electrical consistency across repeated connections.

Available in a wide range of configurations, the MCX product line includes straight and right-angle plugs and jacks, surface mount, through-hole and end launch PCB connectors, and a variety of cable and panel-mount options. Cable terminations support flexible, semi-rigid and micro coax types, offering engineers maximum flexibility when designing for signal integrity, routing constraints and system integration. High-quality materials such as gold-plated brass and precision-machined contacts ensure durability, corrosion resistance and stable electrical performance over time. The MCX portfolio also includes a broad offering of in-series and between-series adapters and pre-configured cable assemblies on industry-standard cable types.



The MCX product series is available in a variety of PCB and cable-mount configurations for versatile design capabilities.

FEATURES AND BENEFITS

- Broadband performance with low reflection
- Quick connect/disconnect snap-on mating reduces installation time
- Accommodates a wide range of miniature RG flexible coaxial cables, including semi-rigid cable providing customers flexibility in their design and manufacturing
- Available for 50 or 75 ohm (12G) applications
- Ideal for compact spaces or densely packed enclosures

APPLICATIONS

50 Ohm

- WLAN (Wireless Local Area Network)
- Global Positioning System (GPS)
- PC/LAN (Personal Computer/Local Area Network)
- Automotive systems (infotainment, telematics, ADAS)
- Base stations (cellular and wireless infrastructure)
- Radios (two-way, amateur, and commercial)
- Wireless/network antennas
- Test and measurement instrumentation
- Telecommunications equipment

75 Ohm

- 4K/Ultra-HD (UHD) cameras and monitors
- Video routers and switchers
- Signal distribution and processing equipment
- Modular or portable video systems
- Head-end equipment (broadcast and cable systems)

12G MCX CONNECTORS

Amphenol RF's line of 12G MCX products are optimized for 4K Ultra HD broadcast video, providing fully intact signal transmission on a single channel. These connectors are designed for 12G-SDI video applications, and come in a variety of PCB mounting and cable terminations. Peak performance can be reached when Amphenol RF 12G connectors are used as a mated pair.

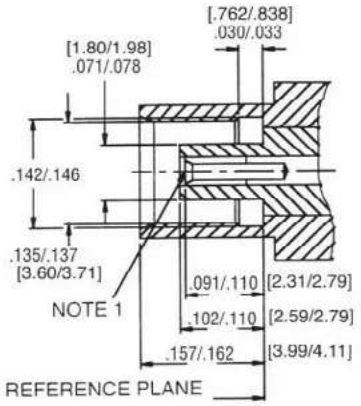
NON-MAGNETIC SOLUTIONS

Manufactured using non-ferrous materials and plating, non-magnetic MCX connectors provide design options for sensitive applications. These products can be found in medical applications like MRIs and patient tracking systems, or in quantum computing components.

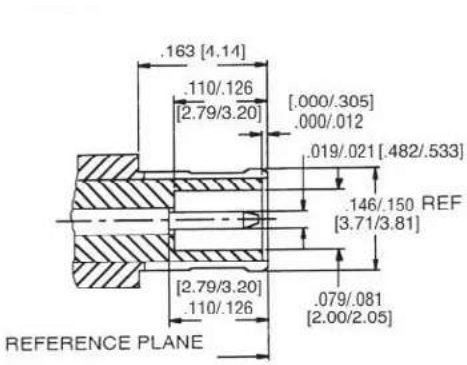
MCX PRODUCT SERIES

INTERFACE DIMENSIONS

JACK



PLUG



PCB MOUNT CONNECTORS

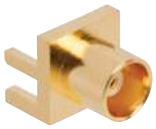
MCX PCB mount connectors deliver dependable RF signal transmission directly from printed circuit boards to external devices. Their compact form factor and secure mating design make them an excellent choice for space-limited applications where consistent signal integrity is critical, including custom assemblies, embedded systems and precision electronic designs.

50 Ohm

Surface Mount PCB

Part Number	Gender	Orientation	Body Finish	Body Material	Features
252117	Jack	Straight	Gold	Brass	
252117TR	Jack	Straight	Gold	Brass	Tape & Reel Packaging
252175	Jack	Straight	Gold	Brass	
919-118J-51PT	Jack	Straight	Gold	Brass	Tape & Reel Packaging
919-384J-51P	Jack	Straight	Gold	Brass	
919-384J-51PT	Jack	Straight	Gold	Brass	Tape & Reel Packaging

End Launch PCB



Part Number	Gender	Orientation	Body Finish	Body Material	Features
252151	Jack	Straight	Gold	Brass	PCB Cutout Design
919-246J-51S	Jack	Straight	Gold	Brass	
919-385J-51S	Jack	Straight	Gold	Brass	
919-431J-51S	Jack	Straight	Gold	Brass	PCB Cutout Design

Through Hole PCB

Part Number	Gender	Orientation	Body Finish	Body Material	Features
252105	Jack	Straight	Gold	Brass	
252129	Jack	Right-Angle	Gold	Brass	
252141	Jack	Right-Angle	Gold	Brass	
252153	Jack	Straight	Gold	Brass	
252155	Plug	Right-Angle	Gold	Brass	
919-109J-51PX	Jack	Straight	Gold	Brass	
919-119J-51AX	Jack	Right-Angle	Gold	Brass	
919-176J-51A	Jack	Right-Angle	Gold	Brass	
919-382J-51P	Jack	Straight	Gold	Brass	
919-383J-51A	Jack	Right-Angle	Nickel/Matte Tin	Brass	Alternate Finish
919-399J-51P	Jack	Straight	Gold	Brass	
919-432J-51S	Jack	Straight	Gold	Brass	

Round Post PCB

Part Number	Gender	Orientation	Body Finish	Body Material	Features
252124	Jack	Straight	Gold	Brass	Press-Fit

75 Ohm

End Launch PCB

Part Number	Gender	Orientation	Body Finish	Body Material	Features
252151-75	Jack	Straight	Nickel	Brass	

Surface Mount PCB

Part Number	Gender	Orientation	Body Finish	Body Material	Features
252117-75TR	Jack	Straight	Gold	Brass	Tape & Reel Packaging
919-132J-71P	Jack	Straight	Gold	Brass	
919-226J-71P	Jack	Straight	Gold	Brass	

Through Hole PCB

Part Number	Gender	Orientation	Body Finish	Body Material	Features
252105-75	Jack	Straight	Gold	Brass	
252129-75-10	Jack	Right-Angle	Gold	Brass	
252153-10-75	Plug	Straight	Gold	Beryllium Copper	
919-124J-71P	Jack	Straight	White Bronze	Brass	
919-236J-71A	Jack	Right-Angle	Gold	Brass	

CABLE MOUNT CONNECTORS

MCX cable mount connectors are designed to securely terminate coaxial cables for reliable RF signal transmission to compatible devices and equipment. Their compact size and robust performance make them ideal for applications where space is limited and maintaining signal clarity is essential, including wireless systems, GPS modules, and other high-frequency communications equipment.

50 Ohm

Cable Mount Crimp Jacks – Straight

Part Number	Body Finish	Body Material	Cable Type	Features
252145	Gold	Brass	RG-174	
919-107J-51SX	Gold	Brass	RG-174	
919-128J-51SX	Gold	Brass	RG-174	Bulkhead - Rear Mount
919-129J-51SX	Gold	Brass	RG-316 Double Shield	Bulkhead - Rear Mount
919-131J-51SX	Gold	Brass	RG-178	

Cable Mount Solder Jacks – Straight

Part Number	Body Finish	Body Material	Cable Type	Features
252163	Gold	Brass	0.085-inch Semi-Rigid	Bulkhead - Rear Mount

Cable Mount Crimp Plugs – Straight

Part Number	Body Finish	Body Material	Cable Type	Features
252103	Gold	Brass	RG-174	
252120	Nickel	Brass	RG-316 Double Shield	
252121	Gold	Brass	RG-316 Double Shield	
252127	Gold	Brass	RG-178	
252180	Gold	Brass	RG-58	
252204	Gold	Brass	1.13 mm Micro-cable	
919-101P-51S1X	Nickel	Brass	RG-174	
919-386P-51S	Gold/Nickel	Brass	RG-174	
919-388P-51S	Gold/Nickel	Brass	RG-178, RG-196, Belden 83265	

Cable Mount Crimp Plugs - Right-Angle

Part Number	Body Finish	Body Material	Cable Type	Features
252102	Gold	Brass	RG-174, RG-316	
252109	Gold	Brass	0.085-inch Semi-Rigid	
252119	Gold	Brass	RG-316 Double Shield	
252135	Gold	Brass	RG-178	
252135-10	Gold	Brass	RG-178	
252158	Gold	Brass	0.047-inch Semi-Rigid	
919-387P-51A	Gold/Nickel	Brass	RG-174, RG-316	
919-389P-51A	Gold/Nickel	Brass	RG-178	
919-102P-51AX	Gold	Brass	0.085-inch Semi-Rigid	

Cable Mount Solder Plugs – Straight

Part Number	Body Finish	Body Material	Cable Type	Features
252107	Gold	Brass	0.085-inch Semi-Rigid	

75 Ohm

Cable Mount Crimp Plugs – Right-Angle

Part Number	Body Finish	Body Material	Cable Type	Features
252102-75	Gold	Brass	RG-179	

Cable Mount Solder Plugs – Right-Angle

Part Number	Body Finish	Body Material	Cable Type	Features
252109-75	Gold	Brass	0.085-inch Semi-Rigid	

Cable Mount Crimp Plugs – Straight

Part Number	Body Finish	Body Material	Cable Type	Features
252103-75	Gold	Brass	RG-179	
919-137P-71S2X	Gold	Brass	RG-179	
252207	Gold	Brass	PIC V73263	

Cable Mount Solder Plugs – Straight

Part Number	Body Finish	Body Material	Cable Type	Features
252107-75	Gold	Brass	0.085-inch Semi-Rigid	

ADAPTERS

IN-SERIES ADAPTERS

In-series MCX adapters connect two coaxial cables with MCX interfaces, ensuring reliable RF signal transmission between components. They are ideal for applications requiring compact, secure connections and consistent signal integrity, including wireless communications, GPS systems, and other high-frequency electronic equipment.

MCX to MCX (50 Ohm)

Part Number	Orientation	Adapter Side 1	Adapter Side 2	Features
252186	Straight	MCX Jack	MCX Plug	
252169	Straight	MCX Jack	MCX Jack	
252171	Straight	MCX Bulkhead Jack	MCX Jack	Panel Mount

BETWEEN-SERIES ADAPTERS

Between-series MCX adapters are designed to connect MCX interfaces to other RF connector types, enabling seamless integration between equipment with differing connector specifications. These adapters ensure proper signal transmission and maintain reliable performance across a wide range of high-frequency applications, from wireless communications to navigation systems.

Please note: All adapters are 50 ohm unless otherwise noted.

MCX to N-Type

Part Number	Orientation	Adapter Side 1	Adapter Side 2	Features
242170	Straight	MCX Jack	N-Type Plug	
APH-NJ-MCXJ	Straight	MCX Jack	N-Type Jack	ARC, IP67
AD-NJMCXJ-2	Straight	MCX Jack	N-Type Bulkhead Jack	IP67, Panel Mount
AD-NPMCXJ-2	Straight	MCX Jack	N-Type Plug	75 Ohm, Max Frequency 12 GHz

MCX to SMA

Part Number	Orientation	Adapter Side 1	Adapter Side 2	Features
242126	Straight	MCX Jack	SMA Plug	
242127	Straight	MCX Plug	SMA Jack	IP68
242129	Straight	MCX Jack	SMA Jack	
AD-SMAJMCXJ-1	Straight	MCX Jack	SMA Bulkhead Jack	IP67, Panel Mount

MCX to TNC

Part Number	Orientation	Adapter Side 1	Adapter Side 2	Features
031-6769	Straight	MCX Jack	TNC Bulkhead Jack	IP67, Panel Mount

CABLE ASSEMBLIES

Pre-configured MCX cable assemblies are available in a variety of configurations and lengths to meet diverse application requirements. Engineered for dependable RF performance, these assemblies deliver low-loss, low-interference signal transmission, making them ideal for high-frequency applications where signal quality, precision, and reliability are critical.

Please note: All cable assembly configurations are 50 ohm unless otherwise noted.

MCX to MCX

Part Number	Impedance	Connector 1	Connector 2	Cable Type
095-900-545-XXX	50 Ohm	MCX Straight Plug	MCX Straight Plug	RG-174
095-900-546-XXX	50 Ohm	MCX Right-Angle Plug	MCX Straight Plug	RG-174
095-900-547-XXX	50 Ohm	MCX Right-Angle Plug	MCX Right-Angle Plug	RG-174
255101-08-XXX	50 Ohm	MCX Straight Plug	MCX Straight Plug	RG-178
255103-01-XXX	50 Ohm	MCX Right-Angle Plug	MCX Straight Plug	RG-316
255104-01-XXX	50 Ohm	MCX Right-Angle Plug	MCX Right-Angle Plug	RG-316
919-101P-51S1X	50 Ohm	MCX Straight Bulkhead Jack	MCX Straight Plug	RG-316
255110-01-XXX	75 Ohm	MCX Right-Angle Plug	MCX Right-Angle Plug	Belden 4855R

MCX to AMC

Part Number	Connector 1	Connector 2	Cable Type
095-900-559-XXX	MCX Right-Angle Plug	AMC Right-Angle Plug	1.13 mm Micro-cable
095-900-560-XXX	MCX Straight Bulkhead Jack	AMC Right-Angle Plug	RG-178
336503-08-XX.XX	MCX Straight Bulkhead Jack	AMC Right-Angle Plug	1.13 mm Micro-cable
336503-12-XX.XX	MCX Straight Bulkhead Jack	AMC Right-Angle Plug	1.37 mm Micro-cable
336503-13-XX.XX	MCX Right-Angle Plug	AMC Right-Angle Plug	1.13 mm Micro-cable
336503-14-XXXX	MCX Straight Plug	AMC Right-Angle Plug	1.13 mm Micro-cable

MCX to AMC4

Part Number	Connector 1	Connector 2	Cable Type
095-900-561-XXX	MCX Right-Angle Plug	AMC4 Right-Angle Plug	1.13 mm Micro-cable

MCX to BNC

Part Number	Connector 1	Connector 2	Cable Type
095-850-184-XXX	MCX Right-Angle Plug	BNC Straight Plug	RG-316
095-850-303-XXX	MCX Right-Angle Plug	BNC Straight Bulkhead Jack IP67	RG-316
095-850-304-XXX	MCX Straight Plug	BNC Straight Bulkhead Jack IP67	RG-316

NON-MAGNETIC MCX

Non-magnetic MCX connectors provide a compact, dependable solution for high-frequency signal transmission while eliminating magnetic materials from their construction. They are ideal for applications where preventing magnetic interference is essential, including medical imaging equipment, aerospace systems, and military technologies, ensuring optimal performance and safety.

50 Ohm

Non-Magnetic MCX Connectors

Part Number	Gender	Orientation	Contact Termination	Body Finish	Body Material	Cable Type
919-NM109J-51P	Jack	Straight	PCB - Through Hole	Gold	Beryllium Copper	N/A
919-NM119J-51A	Jack	Right-Angle	PCB - Through Hole	Gold	Beryllium Copper	N/A
919-NM122P-51A	Plug	Right-Angle	Cable - Crimp	White Bronze	Beryllium Copper	RG-178

12G SDI MCX

MCX 12G connectors and cable assemblies are designed to support the high data rates required for 12G-SDI applications, enabling uncompressed, high-definition video transmission over a single coaxial interface. Their compact size, robust construction, and superior electrical performance make them ideal for space-constrained broadcast, video production, and professional AV environments where signal integrity is critical.

75 Ohm

12G SDI Connectors

Part Number	Gender	Orientation	Termination Style	Body Finish	Body Material	Cable Type
919-416P-71A12G	Plug	Right-Angle	Cable - Crimp	Gold	Brass/Beryllium Copper	Belden 4855R
919-421P-71S12G	Plug	Straight	Cable - Crimp	Gold	Beryllium Copper	Belden 4855R
919-418J-71P12G	Jack	Straight	PCB - End Launch	Gold	Brass	N/A
919-426J-71P12G	Jack	Straight	PCB - End Launch	Gold	Brass	N/A
919-415J-71P12G	Jack	Straight	PCB - Though Hole	Gold	Brass	N/A
919-422J-71P12G	Jack	Straight	PCB - Though Hole	Gold	Brass	N/A
919-423J-71P12G	Jack	Straight	PCB - Though Hole	Gold	Brass	N/A
919-417J-71P12G	Jack	Right-Angle	PCB - Though Hole	Gold	Brass	N/A

12G SDI Cable Assemblies

Part Number	Connector 1	Connector 2	Cable Type	Features
095-850-242-XXX	MCX Right-Angle Plug	BNC Straight Bulkhead Jack	Belden 4855R	
095-850-243-XXX	MCX Straight Plug	Str Blkhd Jack	Belden 4855R	IP67

TECHNICAL SPECIFICATIONS

Electrical

Impedance	50 Ohm	75 Ohm
Frequency Range	DC - 6 GHz	DC - 6 GHz (0 - 18 GHz on 12G Products)
Voltage Rating	225 Volts RMS Max Continuous	170 Volts RMS Max Continuous
Dielectric Withstanding Voltage	1000 VRMS Max	500 VRMS Max
VSWR (Return Loss)		12G Products
DC - 6 GHz	1.3 (-18 dB) Max	1.22 (-20 dB) Max
6 - 12 GHz		6 - 12 GHz: 1.43 (-15 dB) Max
Insulation Resistance	10000 MΩ Min	
Center Contact Resistance	5 mΩ Min	
Outer Contact Resistance	1 mΩ Min	2.5 mΩ Min
RF Leakage (Interface)	-60 dB Max @ 1 GHz	-60 dB Max @ 3 GHz
Insertion Loss	0.10 db Max @ 1 GHz	
Power Handling	95 W Max @ 1 GHz @ 25 °C	95 W Max @ 1 GHz @ 25 °C

Environmental

Temperature Range	−65°C to +165°C
Thermal Shock	MIL-STD-202, Method 107 (Test Condition B), Except high temperatures @ +200°C
Corrosion	MIL-STD-202, Method 101 (Test Condition B) - 5% Salt Solution
Vibration	MIL-STD-202, Method 204, Snap-On (Test Condition B)
Mechanical Shock	MIL-STD-202, Method 213, Snap-On (Test Condition B)
Moisture Resistance	MIL-STD-202, Method 106

Mechanical

Mating Cycles	500 Min
Coupling Mechanism	Push-on
Interface Specification	CECC 22220
Engagement Force	20 N Max
Disengagement Force	10 N Min

Note: Technical specifications are typical and may vary by specific par number and design. See component drawing for additional details.

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