

Now you're connected!

About Amphenol Commercial Products

Amphenol's commercial connector products are used in a variety of end user applications including networking, telecom, server & computer, storage & HDD, consumer electronics and entertainment, professional audio & Industrial & Military/Aerospace.

Related Products

MSPE Series for Single Pair Ethernet



MSPE-J2L0-B00
Jack, IP20, Latch-Locking,
R/A PCB Termination



MSPE-P2L0-XX0
Plug, IP20, Latch-Locking,
Termination Options

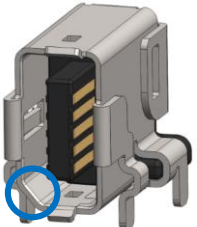


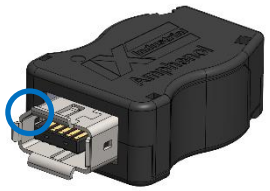






MSPE-J6S8-E00
Jack, IP67, Snap-Locking,
Vertical PCB Termination



MSPE-P6S8-XX0
Plug, IP67, Snap-Locking,
Termination Options

Product Overview

<p>Right Angle Receptacle, Flag-Style, Type-A Key Shown</p> 	<p>Right Angle Receptacle, Horizontal-Style, Type-A Key Shown</p> 	<p>Vertical Receptacle, Type-B Key Shown</p> 	<p>Cable End Receptacle, Type-A Key Shown</p> 
<p>Plug, Type-A Key Shown, Supplied in Field-Terminable Kits, Termination Options Available</p> 	<p>Plug-to-Plug Cable, Various Lengths, Colours, & Configurations Available</p> 	<p>Hand-Crimp Tool for Terminating Plug Connectors</p> 	

Availability

This product specification defines the general use and performance parameters for Amphenol's ND9 Series of ix Industrial Ethernet Connectors.

- Type-A key (CAT6A Ethernet) & *Type-B key (signal & bus communication) for both plugs & receptacles
- Right angle & vertical SMT / PIP termination for receptacle connectors enables reflow soldering
- Field terminable kits for plug connectors with solder pad & IDC terminations for various wire gauges
- Plug-to-plug & Plug-to-receptacle cable assemblies of various lengths
- Gold flash, 0.20µm (8µ") Gold, 0.76µm (30µ") Gold, 1.27µm (50µ") Gold, or 0.76µm (30µ") Palladium Nickel with Gold flash plating options for the mating area

Please contact an Amphenol representative with any questions about availability.

*Type-B key is also CAT6A Ethernet Capable

Usage

The ND9 Series provides a robust, miniaturized Ethernet interface (according to IEC 61076-3-124) with up to 75% space savings on the PCB compared to standard RJ45 jacks. ND9 Series connectors are future proof offering CAT6A performance for up to 10 Gb/s Ethernet communication, Support for PoE++ and 360° shielding for excellent EMC immunity. ND9 Series connectors are robust, featuring an audible snap-in locking system and robust PCB anchors on the jack to endure shock and vibration (according to EN 50155) while maintaining a reliable connection. ND9 Series connectors are IP20 rated (according to IEC 60529) and can withstand up to 5000 mating cycles. ND9 Series connectors are compatible with 100BaseT, 1000BaseT, & 10GBaseT.

Application

Intended for use in a broad range of applications such as:

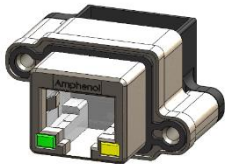
- Internet of Things (IoT)
- Machine to Machine (M2M)
- Building Automation
- Robotics
- Transportation
- Healthcare / Medical Equipment
- Sensors, Actuators, & Network Nodes
- Test Equipment
- Mobile Communication Systems
- Traffic Control & Monitoring Systems

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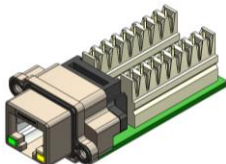
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Related Products

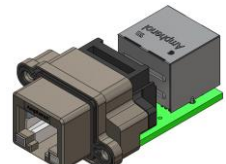
MRJR Series



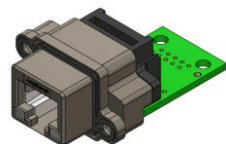
MRJR-9381-0C
CAT6A RJ45, Right Angle PCB Tail, 8 Position, LED's



MRJR-8F81-01
CAT5e RJ45 on PCB with Krone-Style IDC Contacts



MRJR-8780-01
CAT5e RJ45 on PCB with Matching RJ45



MRJR-5C80-01
Standard RJ45 on PCB For Discrete Wiring

Connector Electrical Characteristics

- Current Rating: 1.5A (all pins) (1.25A if terminated to 28 AWG wire)
- Voltage Rating: 50VAC max, 60VDC max
- Contact Resistance: 80mΩ max, per IEC 60512-2-1, Test 2a
- Shielding Resistance: 100mΩ max, per IEC 60512-2-1, Test 2a
- Insulation Resistance: 500MΩ min @ 500VDC test voltage, per IEC 60512-3-1, Test 3a
- Dielectric Withstanding Voltage: 500VDC, per IEC 60512-4-1, Test 4a, Method A

Connector Mechanical Characteristics

- Insertion / Withdrawal Force: 25N max, per IEC 60512-13-2, Test 13b
- Latch Retention Force: 80N min, per IEC 60512-13-2, Test 15f
- Thermal Shock: 10 cycles between -55° & +85°C, per IEC 60512-11-4, Test 11d
- Humidity: 10 cycles, 24hrs / cycle @ 93% humidity, low temperature +25°C, high temperature +65°C, cold sub-cycle -10°C, per IEC 60068-2-38, Test Z/AD
- Mechanical Shock: 300m/s² half-sine shock pulses, 11ms, per IEC 60512-6-3, Test 6c
50G max, per TP9240888
Half sine shock 5g, 30ms, per DIN EN 61373 Class 1, Cat b
- Vibration, Sinusoidal: 10Hz – 500Hz, 0.35mm, 50m/s², per IEC 60512-6-4, Test 6d
Automotive Std per TP240862
- Vibration, Random: 5.72m/s²; No contact disturbances ≥ 1μs per DIN EN 61373 Class 1, Cat b
- Mating Cycles¹: 5000 cycles, per IEC 60512-9-1, Test 9a
- Operating Temperature²: -55°C to +105°C

¹The number of mating cycles is influenced by the plating option. Please consult Amphenol with any questions.

²The maximum operating temperature for cable assemblies is +85°C, operating temperatures can vary. Please consult Amphenol with any questions.

Signal Characteristics

- Transmission Rate: Up to 10 Gb/s
- Bandwidth: Up to 500 MHz

Material Characteristics

ND9 Series connectors and cables are RoHS compliant per EU directive 2011/65/EU and amendments. Unless otherwise specified, the materials for each component shall be:

- Contacts: Copper alloy plated with Gold or Palladium Nickel with Gold Flash over 1.27μm (50μ") min Nickel on the mating area
- Housings / Inserts: High temperature resistant thermoplastic, UL94V-0 flammability rating
- EMI Shields: Stainless steel, Matte Tin or Nickel plated
- Wire: 26 AWG copper, metal braid / shield, PVC insulation¹

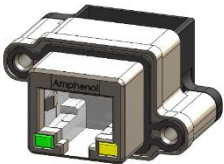
¹Low smoke Zero Halogen options available. Please consult Amphenol with any questions.

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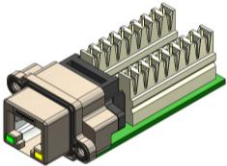
Related Products

MRJR Series



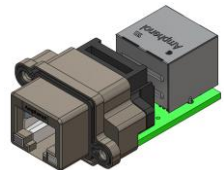
MRJR-9381-0C

CAT6A RJ45, Right Angle PCB Tail, 8 Position, LED's



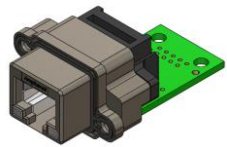
MRJR-8F81-01

CAT5e RJ45 on PCB with Krone-Style IDC Contacts



MRJR-8780-01

CAT5e RJ45 on PCB with Matching RJ45

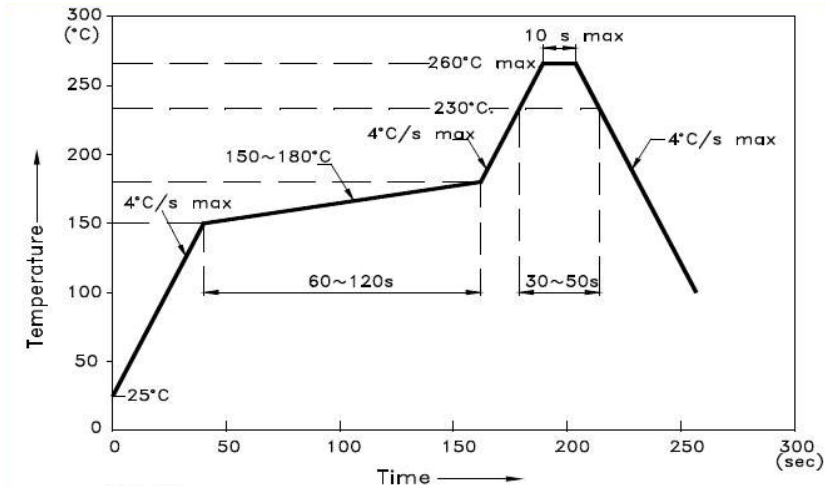


MRJR-5C80-01

Standard RJ45 on PCB For Discrete Wiring

Process Characteristics

Recommended soldering process: Pin-in-paste IR reflow soldering up to 260C for 10 seconds. Recommended reflow profile below.



Specifications

- UL Certification: E64911.
- RoHS Compliance: Per EU Directive 2011/65/EU and Amendments.
- IEC 60529: Ingress Protection (IP) Rating.
- IEC 61076-3-124: Connectors for electrical and electronic equipment – Detail specification for 10-way, shielded, free and fixed connectors For I/O and data transmission with frequencies upto 500 MHz.
- IEC 60512: Connectors for electrical and electronic equipment - Tests and Measurements.
- EIA-364: Electrical Connector Performance Test Standards.

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Related Products

MRD Series



MRD-BN03-M17-000
Male Plug, 3-Socket



MRD-BG03-M17-000
Female Plug, 3-Pin



MRD-BG03-L13-000
Female Receptacle, 3-Pin

Reference Documents

Receptacle Connectors

- **P-ND9-AS1X-00:** IX INDUSTRIAL RECEPTACLE, TYPE-A RIGHT ANGLE FLAG-STYLE
- **P-ND9-AS2X-00:** IX INDUSTRIAL RECEPTACLE, TYPE-A VERTICAL
- **P-ND9-AS3X-00:** IX INDUSTRIAL RECEPTACLE, TYPE-A RIGHT ANGLE HORIZONTAL-STYLE
- **P-ND9-AS4X-0X:** IX INDUSTRIAL RECEPTACLE, TYPE-A CABLE END STYLE, MULTIPLE OPTIONS
- **P-ND9-BS1X-00:** IX INDUSTRIAL RECEPTACLE, TYPE-B RIGHT ANGLE FLAG-STYLE
- **P-ND9-BS2X-00:** IX INDUSTRIAL RECEPTACLE, TYPE-B VERTICAL
- **P-ND9-BS3X-00:** IX INDUSTRIAL RECEPTACLE, TYPE-B RIGHT ANGLE HORIZONTAL-STYLE
- **P-ND9-BS4X-0X:** IX INDUSTRIAL RECEPTACLE, TYPE-B CABLE END STYLE, MULTIPLE OPTIONS

Plug Connectors

- **P-ND9-APXX-00XX:** IX INDUSTRIAL PLUG, TYPE-A KEY FOR ETHERNET, TERMINATION OPTIONS
- **P-ND9-BPXX-00XX:** IX INDUSTRIAL PLUG, TYPE-B KEY, TERMINATION OPTIONS

Cable Assemblies

- **P-ND9-ACAX-XXA:** IX INDUSTRIAL ETHERNET CABLE, TYPE-A PLUG ON ONE END
- **P-ND9-ACBX-XXA:** IX INDUSTRIAL ETHERNET CABLE, TYPE-A PLUG TO PLUG
- **P-ND9-ACCX-XXA:** IX INDUSTRIAL ETHERNET CABLE, TYPE-A PLUG TO RJ45 PLUG
- **P-ND9-ACHX-XXA:** IX INDUSTRIAL ETHERNET CABLE, TYPE-A PLUG TO RIGHT ANGLE RJ45 PLUG,
- **P-ND9-ACKX-XXA:** IX INDUSTRIAL ETHERNET CABLE, TYPE-A CABLE END RECEPTACLE, ON ONE END
- **P-ND9-ACLX-XXA:** IX INDUSTRIAL ETHERNET CABLE, TYPE-A CABLE END RECEPTACLE TO RECEPTACLE
- **P-ND9-ACLX-XXA:** IX INDUSTRIAL ETHERNET CABLE, TYPE-A PLUG TO TYPE-A CABLE END RECEPTACLE
- **P-ND9-ACLX-XXA:** IX INDUSTRIAL ETHERNET CABLE, RJ45 PLUG TO TYPE-A CABLE END RECEPTACLE
- **P-ND9-BCAX-XXB:** IX INDUSTRIAL CABLE, TYPE-B PLUG ON ONE END
- **P-ND9-BCBX-XXA:** IX INDUSTRIAL CABLE, TYPE-B PLUG TO PLUG
- **P-ND9-BCBX-XXB:** IX INDUSTRIAL CABLE, TYPE-B PLUG TO PLUG
- **P-ND9-BCCX-XXA:** IX INDUSTRIAL CABLE, TYPE-B PLUG TO RJ45 PLUG
- **P-ND9-BCHX-XXA:** IX INDUSTRIAL CABLE, TYPE-B PLUG TO RIGHT ANGLE RJ45 PLUG
- **P-ND9-BCKX-XXA:** IX INDUSTRIAL CABLE, TYPE-B CABLE END RECEPTACLE, ON ONE END
- **P-ND9-BCLX-XXA:** IX INDUSTRIAL CABLE, TYPE-B CABLE END RECEPTACLE TO RECEPTACLE
- **P-ND9-BCMx-XXA:** IX INDUSTRIAL CABLE, TYPE-B PLUG TO TYPE-B CABLE END RECEPTACLE
- **P-ND9-BCNX-XXA:** IX INDUSTRIAL CABLE, RJ45 PLUG TO TYPE-B CABLE END RECEPTACLE

Tools

- **P-ND9-AHT1-01:** IX INDUSTRIAL HAND CRIMP TOOL FOR PLUG CONNECTORS

Test Reports

- QTP9300760, QTR9300760
- QTP9300790, QTR9300790
- QTP9300871, QTR9300871