

By combining standard RJ-45 connection technology with the industrially-proven mini form factor, the RJ-Lnxx® Line of Industrial Ethernet Connectivity products provide a lineup designed to safeguard the integrity of your data even in the harshest manufacturing, processing or commercial settings ▲

Physical Media

Ethernet—Sealed RJ-45

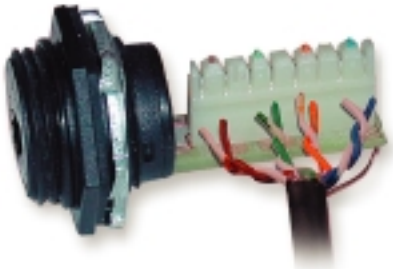
Features

- **Environmental Sealing**
- **Vibration Resistance**
- **Secure Robust Connections**
- **Performance in Electrically Noisy Conditions**

Receptacles

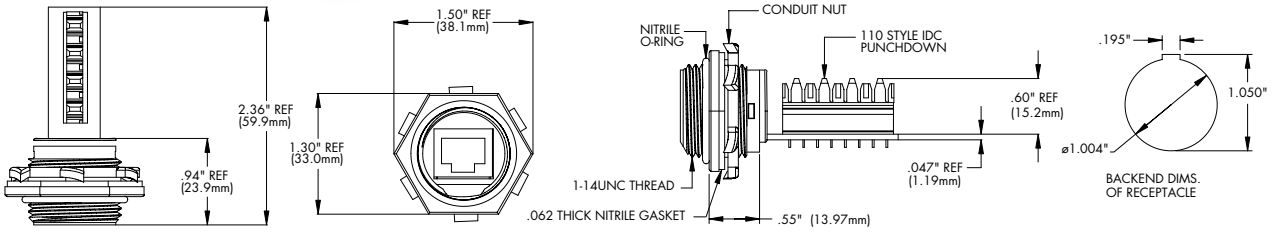
The RJ-Lnxx line of receptacles offers solutions for Ethernet field device connectivity, regardless of the operating environment. All RJ-Lnxx receptacles are compatible with commercial RJ-45 connectors, enabling one solution for both harsh and benign environments ▲

110 Punchdown Block



Simple termination via Insulation Displacement Connections (IDC) with use of commonly available punchdown tools. Ideal for premise wiring applications ▲

Part Number	Description
ENDR2FB5	110 receptacle, 568A and 568B wiring, back side locking nut

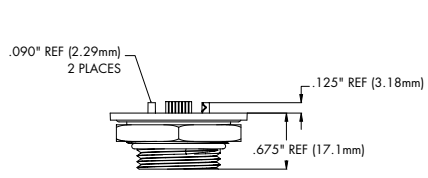


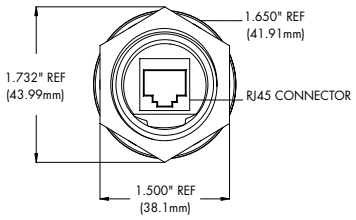
Direct PCB Mount Receptacle

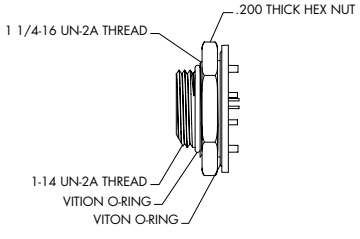


Short depth receptacle that solders directly to a Printed Circuit Board (PCB)—intended for OEMs who wish to incorporate a robust, sealed connection into their field equipment ▲

Part Number	Description
ENPR1FF5	Direct PCB mount 8 pin through hole receptacle, front coupling nut







Closure Cap



Maintains sealing integrity when a connector is not mated with the receptacle ▲

Model Number	Description
67-0300	IP67 rated closure cap with lanyard
65-0300	IP65 rated closure cap
67-0301	IP67 rated closure cap for cordset

Woodhead Connectivity

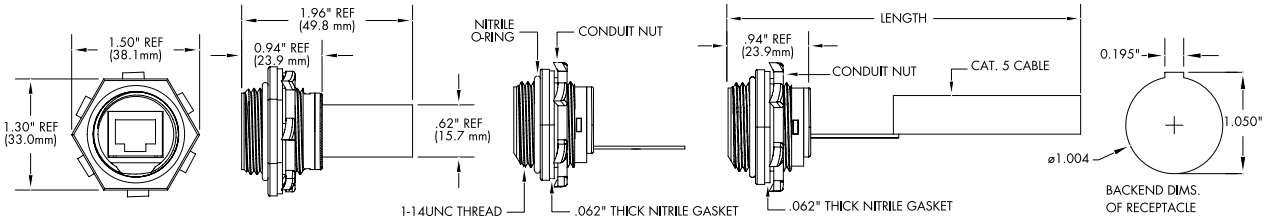
Receptacles (continued)

Standard PCB Board Receptacle



Highly flexible solution that enables an OEM or end-user to solder a cable lead to an internal Ethernet connection ▲

Part Number	Description
ENSR1FB5	Receptacle with PC Board
ENSR1FB5C305	Receptacle with PCB & 12" of cable (10 Base-T)
ENSR2FB5C305	Receptacle with PCB & 12" of cable (568A)
ENSR3FB5C305	Receptacle with PCB & 12" of cable (568B)

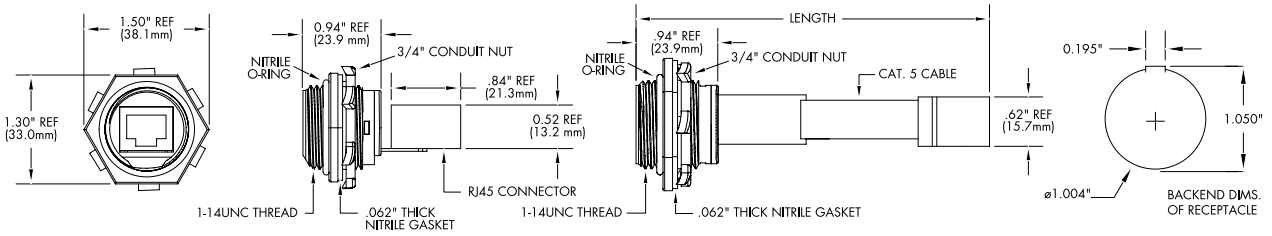


Bulkhead Passthrough



To bring Ethernet into a cabinet or control box, simply create the sealed connection on the outside of the enclosure, and run a commercial patch cord from the backside RJ-45 jack to your PLC, I/O, or Ethernet Control Board. No conduit entry is required. UV stabilized versions for outdoor use can be ordered by adding a "V" to the end of a part number ▲

Part Number	Description
ENSP1F5	RJ-45 Bulkhead passthrough with backside jack
ENSP1F5C305	RJ-45 Bulkhead passthrough with 12" of patch cord
ENSP6F5	RJ11 Bulkhead passthrough with backside jack



Receptacle Specifications

O-Ring Material Nitrile Rubber
Receptacle Shell Material Acrylonitrile-Butadiene-Styrene (ABS)—standard version, Acrylonitrile-Styrene-Acrylate (Luran™ S778 T/TE)—UV stabilized version
Knockout Hole for Receptacle 1.031
Mating Thread UNC 1" - 14
Operating Temperature -20 to 80 C
Return Loss 5 dB @ 100 MHZ
Shock/Vibration Per IEC 60068-2-6
Environmental Rating IEC IP67

TIA/EIA Rating

110 Punchdown Category 5e compliant
Bulkhead Passthrough Category 5e compliant
Direct PCB Mount Category 5 compliant
Standard PC Board Not Rated—additional customer termination is required

RJ-45 Jack

Base Material Copper alloy w/30 µ-inches gold alloy
Underplating 2.54 microns of nickel
Mating Cycles 250, minimum
Current Rating 1.5 Amp
Voltage Rating 125 VDC

RJ◉Lnxx®

Physical Media

Cordsets

RJ-Lnxx cordsets utilize a standard RJ-45 plug, but add strain relief and a locking mechanism that creates a seal when mated with an RJ-Lnxx receptacle. Cordsets can be ordered to length as an overmolded cordset, or as an attachable device that can be assembled in the field ▲



Over-Molded Cordsets

Overmolded Cordsets are available in two configurations. When both cord ends are in a harsh environment, order with two industrial sealed connectors: for a cable with one end in a harsh environment, and the other in a sealed or office area, order with one industrial connector and one commercial grade plug for a better fit into a standard patch panel. Various cable types are available to best match the requirements of the applications. Solid core shielded PUR cable is used for longer "horizontal cross connection runs", while stranded PVC, is more appropriate for shorter "patch cord" applications where greater cable flexibility is desired. For extreme environmental conditions, Proplex™ cable provides a Kevlar inner wrap and an unmatched temperature range (–70 C to 105 C). Plugs are available in both RJ-45 and RJ-11 formats ▲

Cordset Options

Example: ENS2135M020 = Cordset with 568A wiring, sealed industrial RJ-45 on one end, commercial RJ-45 on the other end, 2.0 meters in length.

E N S 1 1 1 5 M X X X

Network

Ethernet	EN

Cable Type

Shielded PUR	S
Stranded PVC	Q
Proplex™ Kevlar Wrapped	P

Wiring

10Base-T	1
568A	2
568B	3
6 wire RJ-11	6

First Connector

Male Industrial RJ45	1
Male Standard RJ45	3
Male Industrial RJ-11	6

Second Connector

Not Present	0
Male Industrial RJ45	1
Male Standard RJ45	3
Male Industrial RJ-11	6

Coupling Nut Material

Plastic	5

Unit of Measure

Meters	M

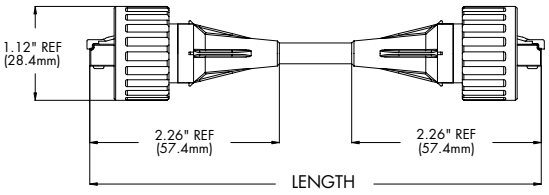
Cable Length

1 Meter	010
2 Meter	020
3 Meter	030
4 Meter	040
5 Meter	050

Available in lengths other than those listed.

Connector Specifications

Insert Material (ABS) Acrylonitrile-Butadiene-Styrene
Overmold Material Polyurethane (Solid Core & Proplex), PVC (Stranded)
Coupling Nut Material Acrylonitrile-Butadiene-Styrene (ABS)—standard version, Acrylonitrile-Styrene-Acrylate (Luran™ S778 T/TE)—UV stabilized version
Recommended Mating Torque 12 inch-lbs.

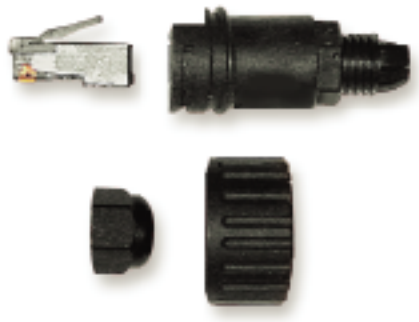


Part Number	Description
RJBG16821	Adaptor, attaches to male plug of cordset to provide a female connection

RJ45Lnxx®

Woodhead Connectivity

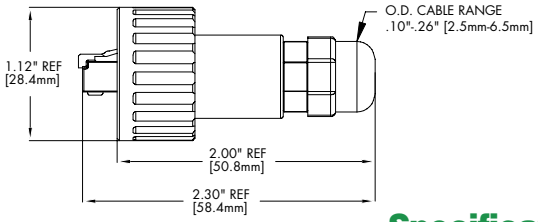
Physical Media



Field Attachable Connector

Assemble the connection in the field using a standard crimping tool, and still enjoy the same IP67 sealed connection as the overmolded cordset. One thousand foot bulk cable put-ups are available for both Solid Core PUR and Proplex cable. UV stabilized versions for outdoor use can be ordered by adding a "V" to the end of a part number ▲

Part Number	Description
ENSAM315	Field attachable RJ-45 connector, 2.5 - 6.5mm acceptable cable diameter
EN84-2480-3040M	304 meters (1000 feet) of solid core cable
EN84-2481-3040M	304 meters (1000 feet) of Proplex cable



Specifications- Solid Core Cable

Physical

Conductors #24 AWG Solid Bare Copper, 0.020" (0.510 mm)
Insulation 0.009" (0.229mm) of Cellular Polyethylene
0.04" (1.0mm) nominal diameter
Pair 2 insulated conductors twisted together, lay lengths varied between pairs to minimize cross talk
Core 4 pairs cabled together
Binder Polyester tape, minimum 20% overlay minimum
Shield Aluminum/Polyester tape, 20% overlay minimum
Drain Wire #24 AWG stranded (7/32) tin plated copper
Jacket Black Polyurethane 0.025" (0.635 mm) nominal thickness
Operating Temperature -20 to 80 C
Diameter 0.245" (6.223mm) nominal
Wiring Sequence Choice of TIA/EIA 568A or 10 Base-T

Electrical @ 20 C

Capacitance 5.6 nF/100 meter, maximum
Velocity of Propagation 72% nominal
Conductor DC Resistance 9.38Ω /100 meter, maximum
Impedance 100Ω ± 15Ω
Delay Skew 45 nS/100 meter, maximum
TIA/EIA Rating Category 5e

Frequency (MHz)	Attenuation (db/100 M nominal)	NEXT (db nominal)
1	2.0	65.3
4	4.1	56.3
10	6.5	50.3
16	8.2	47.3
20	9.3	45.8
31.25	11.7	42.9
62.5	17.0	38.4
100	22.0	35.3

Specifications- Stranded Cable

Physical

Conductors #24 AWG Stranded Tinned Copper
Insulation Polyolefin 0.037" (0.94 mm) nominal diameter
Pair 2 insulated conductors twisted together, lay lengths varied between pairs to minimize cross talk
Core 4 pairs cabled together
Binder Polyester tape, minimum 20% overlay minimum
Jacket Black PVC 0.025" (0.635 mm) nominal thickness
Operating Temperature -20 to 80 C
Diameter 0.220" (5.588 mm) nominal
Wiring Sequence Choice of TIA/EIA 568A or 10 Base-T

Electrical @ 20 C

Capacitance 15 pF/FT
Velocity of Propagation 70% nominal
Conductor DC Resistance 9.0Ω /100 meter, maximum
Impedance 100Ω ± 15Ω
Delay Skew 10 nS/100 meter typical, 25 nS/100 meter max
TIA/EIA Rating Category 5e

Frequency (MHz)	Attenuation (db/100 M nominal)	NEXT (db nominal)
1	1.9	76
4	3.9	72
16	7.9	61
20	9.0	60
31.25	11.0	55
62.5	15.9	53
100	20.7	50

Specifications- Kelvar Wrapped Cable

Physical

Conductors #26 AWG Stranded Bare Copper
Insulation Color coded HFFR, halogen free, 0.035" (0.90 mm) nominal diameter
Pair Cabled w/Kevlar strength member and tape wrapped
Core 4 pairs cabled together
Shield Inner - Aluminum mylar, 100% coverage
Outer - Tinned copper braid, 80% coverage
Jacket Black Urethane 0.059" (1.5 mm) nominal thickness
Operating Temperature -70 C to 105 C
Diameter 0.287" (7.3 mm) nominal
Wiring Sequence Choice of TIA/EIA 568A or 10 Base-T

Electrical @ 20 C

Capacitance 4.6 nF/100 meters
Propagation Delay 5.2 ns/m maximum
Conductor DC Resistance 15Ω /100 meter, maximum
Impedance 100Ω ± 15Ω
Delay Skew 20 nS/100 meter typical, 25 nS/100 meter, maximum
TIA/EIA Rating Category 5

Frequency (MHz)	Attenuation (db/100 M nominal)	NEXT (db nominal)
1	3.15	62
4	6.45	53
16	12.3	44
20	13.8	42
31.25	17.7	40
62.5	25.6	35
100	33.0	32



Specifications-

Copper Ports Shielded RJ-45, 10/100BaseT(x) autonegotiate
Fiber Port Multi-Mode SC, 100BaseFX, 1300 nm center
Supply Voltage 10 – 30 VDC
Operating Temp -40 C to 85 C
Vibration IEC 68-2-6
Hazardous Locations UL 1604, CSA C22.2/213 (Class 1, Div. 2)
Electrical Safety UL 508, CSA 22/14, CE
EMI Emissions FCC part 15, Class B, CE
EMI Immunity EN613216-1, CE
Dimensions 4.75" (120.7 mm) x 3.17" (80.5 mm) x 1.10" (27.9 mm)

Media Converters

While fiber optic cable is an attractive option in many "non-office" networks, due to its immunity to electrical noise and ability to traverse longer distances (2Km) than copper cable, it may not be cost effective to have all devices on the network support fiber. The RJ-Lnxx Media Converter enables a fiber backbone to be run to the industrial enclosure, providing a link to your copper network. This DIN rail mount unit provides 1 Fiber (SC) and two copper (RJ-45) ports, and is designed to withstand temperature and vibration extremes ▲

Part Number	Description
ENMC2R1S	Media Converter, 2 copper (RJ-45) ports, 1 multi-mode fiber (SC) port

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