

EXTEND ETHERNET FROM THE OFFICE TO THE INDUSTRIAL PLANT FLOOR AND COMMERCIAL ENVIRONMENTS



W Woodhead Connectivity

SST[®] • Brad Harrison[®] • mPm[®] • RJ·Lnxx[™]

THE GLOBAL LEADER IN INDUSTRIAL COMMUNICATIONS AND CONNECTIVITY

RJ Lnxx[™]
IP67 Industrial Ethernet Connectivity

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APPLICATIONS

In addition to industrial factory applications, the RJ-Lnxx connector is ideal for any computer – automated implementation where environment is a factor, such as outdoor stage lighting, fireworks displays and construction sites.

The patent-pending connector is the first product available in the RJ-Lnxx family. The connector is suitable for a wide variety of process and discrete manufacturing where the following conditions preclude use of a commercial RJ-45 connection:

Vibration While commercial RJ-45 connections can expect a long life when mounted in a communication closet, they are not designed to withstand any level of vibration. On industrial machinery, vibration will cause the gold contacts of the RJ-45 connector to wear quickly. The additional mini connection on the RJ-Lnxx connector eliminates the effect of vibration on the gold contacts.

Secure, Robust Connection In the industrial world it is common for maintenance personnel and even operators to come in physical contact with the cabling system. The threaded mini connector makes it nearly impossible for the connection to be broken due to force being applied on the cable.

Harsh Environments The RJ-Lnxx Industrial Ethernet connector provides indoor and outdoor protection from ingress of hazards such as water oil and dust. The polyurethane-coated Category 5e cable stands up to tough chemical environments that are often found in oil and gas applications.

Electrically Noisy Conditions Motors, invertors, transmitters are all elements found on the factory floor, and all generate EMI (electro-magnetic interference). The RJ-Lnxx Industrial Ethernet shielded cable enhances data transmission integrity by protecting against the effects of EMI.

Features

Compatible with 10Base-T or 100Base-TX systems

Male connector threads directly into female connector providing very secure connection

Shielded and un-shielded cables are supported

Allows Ethernet device manufacturers to supply products compatible with both commercial RJ-45 and Industrial Ethernet cable components

Supports standard category 5e cable

Uses the industrially-proven mini form factor



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MALE CONNECTORS

Achieves an IP67 rating by using a rugged outer shell that fully seals the RJ-45 connector from environmental factors like water, dirt, and oil. The field-attachable version provides maximum flexibility by allowing the machine/system builder to affix the necessary cable length themselves, while the molded version offers pre-wired connectors in various lengths of Category 5e cable.



Hardware Attributes for Male Connector

Available Configurations male molded, field attachable.

Threaded Collet Die-Cast, 7/8-16UNC.

RJ-45 Connector Standard off-the-shelf item.

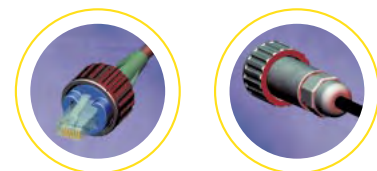
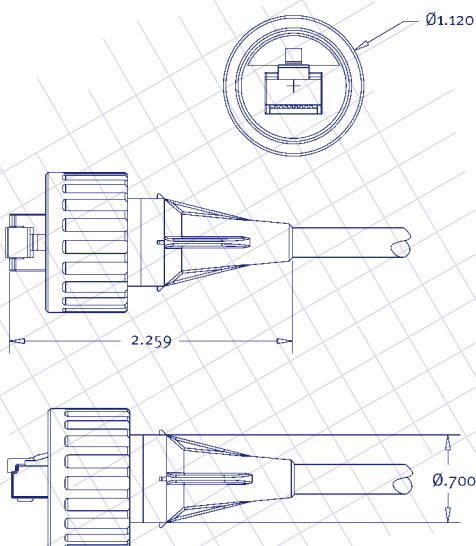
Partial Sub-Mold Injected around cable / RJ-45 assembly. Provides mechanical stability to connector geometry. Creates flanged area for O-ring nest and threaded collet.

Overmold Injected T.P.E. or similar material to form an intimate bond with both cable jacket and sub-mold during injection process. Will assist in providing mechanical support/flex relieving. Will form barrier against dust and liquid ingress.

Lock Relief Contoured mold to allow easy access to RJ-45 lock release.

Category 5e Cable Standard internal construction with special modified jacket for oil and gas resistance.

All measurements in inches

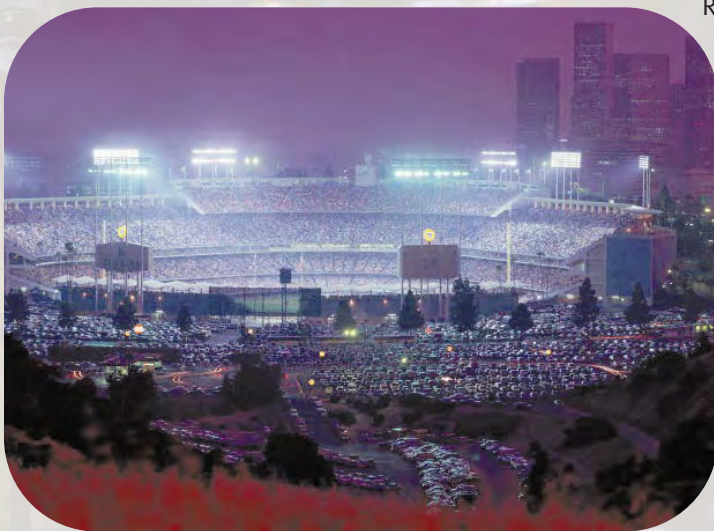




FEMALE RECEPTACLES

Designed so it can be easily incorporated into industrial devices (I/O, process transmitters, HMIs, Control and Supervisory Hardware, etc.) while providing the device manufacturer the flexibility to use a commercial RJ-45 connection, for equipment that is located in a “sterile” environment, or the Woodhead Connectivity RJ-Lnxx Industrial Ethernet connector when increased environmental protection or connection security is required. The bulkhead passthrough offers an easy method to bring Ethernet into the cabinet by providing two receptacles: the Industrial IP67 sealed connector for the outside of the cabinet, and a standard

RJ-45 jack which can be used with a commercial grade patch cord for use inside the enclosure.



Hardware Attributes for Female Connector

Available Configurations

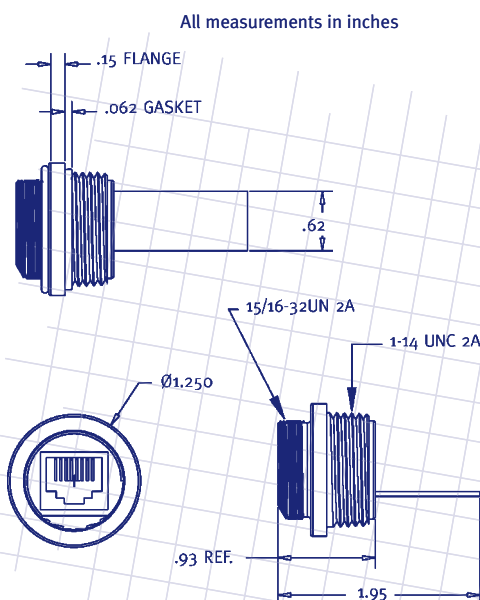
- PCB mount with through hole attachment
- PCB mount with 24 gauge twisted leads
- Bulkhead passthrough with back to back female receptacles

RJ-45 Connector Female panel mount.

Molded Housing Provides medium for attaching connector to customer panel. O-rings provide seal to panel and to collet on mating assembly. Molded in engineering grade resin.

Printed Circuit Board Made from FR-4 circuit material. Can be customized to fit customer demands.

Fitting 15/16 NPT, lock nut included.



WOODHEAD CONNECTIVITY

A dynamic new entity has emerged...Woodhead Connectivity. The leading industrial communications and connectivity brands, Brad Harrison®, mPm™, and SST™ are now united with a single vision – to be the preferred global resource for industrial automation, communications and connectivity.

Delivering innovative solutions for complete connectivity, Woodhead Connectivity combines the products, expertise, and service to address the unique and evolving demands of industry. Our worldwide distribution and support infrastructure is committed to your success. And we provide custom-designed applications to satisfy the more uncommon situations that arise.

Tap into the worldwide resource to deliver your Ethernet solutions for those familiar harsh, industrial environments.

History of Ethernet

Over the past 15 years Ethernet has become the overwhelming standard for office and enterprise-wide connectivity, and has recently gained popularity for exchanging information between supervisory control systems on the factory floor. Continued enhancements now make it possible for Ethernet to be applied directly to the industrial field device level in both the discrete and continuous process industries. This is a very significant improvement in technology, as automation devices in harsh environments can now communicate on existing Intranet/Internet communication mediums. The advantages of such a system range from enhanced access of plant floor data for use in enterprise applications to the ability to make equipment “web enabled” for use in data collection or remote diagnostics.

Up until now, the weak link in this transformation has been the connection and cabling system. The standard product used in your office environment just isn't designed to stand up to the much more demanding environmental conditions found on the factory floor. Woodhead Connectivity has developed a unique solution to overcome this hurdle: The world's only IP67 rated Industrial Ethernet connector solution which combines existing commercial RJ-45 technology with the industrially proven mini connector form factor.

Award-Winning Products

WOODHEAD CONNECTIVITY WINS CONTROL ENGINEERING 1999 EDITORS' CHOICE AWARD

Selected on three criteria: service to the industry, technological advancement, and market impact, the award was granted to the Woodhead Connectivity RJ-Lnxx™ Family of Industrial Ethernet Products, the world's first industrial Ethernet cable, connector and Multi-port connectivity solution to extend Ethernet from the office to the factory floor and commercial environments.



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SPECIFICATIONS

Physical

- Conductors** #24 AWG Solid Bare Copper, 0.0201" (0.510 mm)
- Insulation** 0.010" (0.254 mm) of Foam Polypropylene, 0.040" (1.02 mm) Diameter
- Pair 2** Insulated Conductor Twisted Together, Lay Lengths Varied Between Pairs to Minimize Cross Talk
- Core** 4 Pairs Cabled Together
- Binder** Polyester Tape, 25% Overlap
- Shield** Aluminum/Polyester Tape, Aluminum Side Facing Out, 25% Overlap
- Drain Wire** #24 AWG Solid Tin Plated Cooper, 0.0201" (0.510 mm)
- Operating Temperature** -20^o to 80^o C (standard cable), -40^o to 70^o C (outdoor rated cable)
- Jacket** 0.022" (0.558 mm) of Black Polyurethane
- Diameter** 0.230" (5.842 mm) + 0.010" (0.254 mm)
- RJ-45 Connector Wiring Sequence** Choice of TIA/EIA 568A or 10Base-T

Electrical

- Capacitance** 47 pF/m Nominal
- Velocity of Propagation** 70% Nominal
- Conductor DC Resistance Unbalance** 5% Maximum
- Conductor DC Resistance** 28.6 Ω/100 ft, maximum @ 20C
- Impedance** 100 Ω ± 15 Ω
- TIA/EIA Rating** Category 5e (For cordset lengths of 10M or less)

Frequency (MHz)	Attenuation (db/100 M nominal)	NEXT (db nominal)
1	2.1	62
4	4.3	53
10	6.6	47
16	8.2	44
20	9.2	42
31.25	11.8	40
62.5	17.1	35
100	22.0	32

RJ-Lnxx Industrial Ethernet Attachable Part Number Matrix

E	N	S	A	M	-	3	1	5
Network Protocol EN = Ethernet		Connector Type S = Shielded		Gender M = Male		Cable Fitting 31 = PG7 (2.5 - 6.5 mm dia.)		Coupling Nut Material 5 = Delrin
Product Type A = Attachable								

RJ-Lnxx Industrial Ethernet Cordsets Part Number Matrix

E	N	S	1	1	1	5	M	X	X	X
Network Protocol EN = Ethernet		Cable Type S = Standard	First Connector 1 = Male Industrial RJ45 3 = Male Standard			Coupling Nut Material 5 = Delrin		Unit of Measure M = Meters		
Wiring Sequence 1 = 10Base-T 2 = TIA 568A			Second Connector 0 = Not Present 1 = Male Industrial RJ45 3 = Male Standard			Cable Length' 010 = 1M 020 = 2M 040 = 4M 050 = 5M				
Unit of Measure M = Meters										

RJ-Lnxx Industrial Ethernet Receptacle Part Number Matrix

E	N	S	R	1	F	B	5	C	X	X	X
Network Protocol EN = Ethernet		Connector Type S = Shielded		Wiring Sequence 1 = 10Base-T 2 = TIA 568A		Coupling Nut Material 5 = Delrin		Cable Length 305 = 30.5cm Blank = No cable			
Product Type R = Receptacle			Gender F = Female		Mounting Type B = Back Mounting			Unit of Measure C = Centimeters Blank = No cable			

RJ-Lnxx Industrial Ethernet Bulkhead Passthrough Part Number Matrix

E	N	S	P	1	F	5	C	X	X	X	
Network Protocol EN = Ethernet		Connector Type S = Shielded		Wiring Sequence 1 = 10Base-T or 568A		Coupling Nut Material 5 = Delrin		Unit of Measure C = Centimeters Blank = No cable			
Product Type P = Passthrough			Gender F = Female		Cable Length 305 = 30.5cm Blank = No cable						

RJ-Lnxx Industrial Ethernet Closure Cap: Model # 65-0300

1 = Cable lengths are available other than those listed



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