

**Product Facts**

- Threaded outer connection contributes to:
  - Environmental sealing (IP67 rated)
  - Vibration resistance
  - Secure, robust connections
- Provide for reliable performance in electrically noisy conditions found on most factory floors
- Compatible with Category 5e cable
- Fully intermateable with unshielded product



The Tyco Electronics family of Industrial Ethernet connectors and cable assemblies is designed to meet the many demanding manufacturing, processing, and commercial application requirements. Combining existing RJ-45 connector technology with the Industry's proven mini-circular format connectors, offers a series of products that greater protect the integrity of your data transmission — in many challenging operating environments.

The Tyco Electronics line of Receptacles offers a variety of packaging solutions: from widely accepted 110 Punchdown Block, Printed Circuit Board (PCB) Mount configurations, and Bulkhead Passthrough. Plug Assemblies are offered in complete overmolded cordsets in various lengths and configurations. A Field-Attachable Plug connector, that utilizes standard termination tooling, is available to produce custom cable lengths.

**Need more information?**

Call Technical Support.

Technical Support is staffed with specialists well versed in Tyco Electronics products. They can provide you with:

- Technical support
- Catalogs
- Technical Documents
- Product Samples
- Tyco Electronics Authorized Distributor Locations

**Related Catalogs**

82066 — Modular Jacks  
1307282 — Modular Plugs

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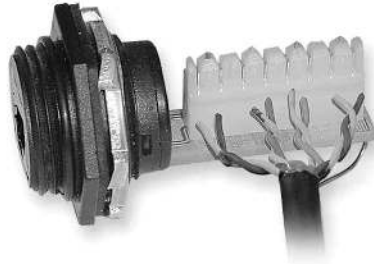
**Receptacles**

The Tyco Electronics line of receptacles offers solutions for Ethernet field device connectivity, in many challenging operating environments. All

receptacles are compatible with standard commercial RJ-45 connectors, enabling a better solution for both harsh and benign environments.

**110 Punchdown Block**

Simple termination via Insulation Displacement Connections (IDC) with the use of commonly available 110 punchdown tool. Ideal for premises wiring applications.

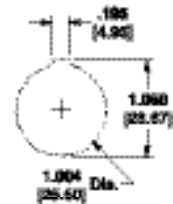
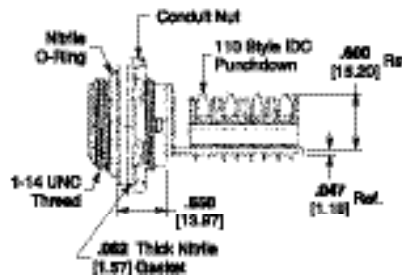
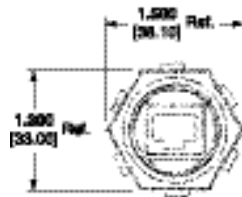
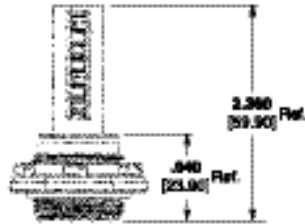


Description	Part Number
110 receptacle, 568A and 568B wiring, backside locking conduit nut	1546404-1

**Material and Finish**

**Receptacle Shell** — Acrylonitrile-Butadiene-Styrene (ABS) in standard version; Acrylonitrile-Styrene-Acrylate in UV stabilized version

**O-Ring** — Nitrile Rubber



Backend of Receptacle

**Related Product Data**

**Mating Connectors**

Overmolded Cordsets — pg. 7

Field-Attachable Plug — pg. 8

Closure Cap — pg. 3

**Tooling**

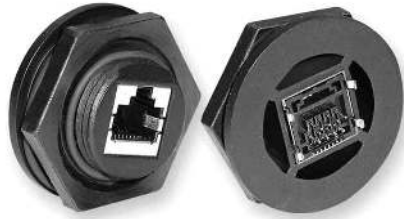
110 Punchdown Tool

Part Number 558418-1

**Receptacles** (Continued)

**Direct PCB Mount Receptacle**

Low profile 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. Ideal for OEMs who wish to incorporate a sealed RJ-45 in the smallest possible package.

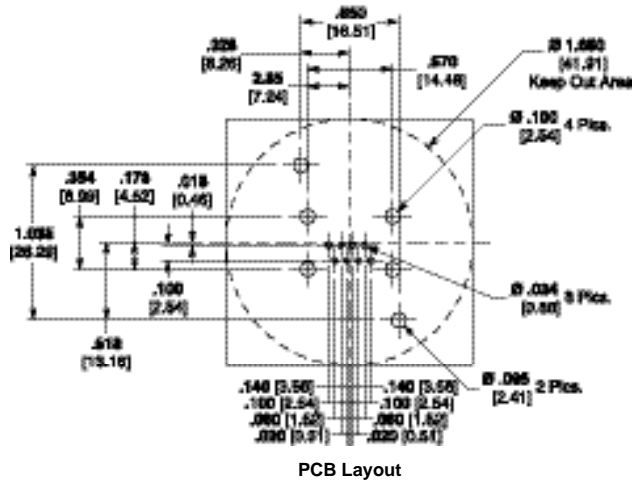
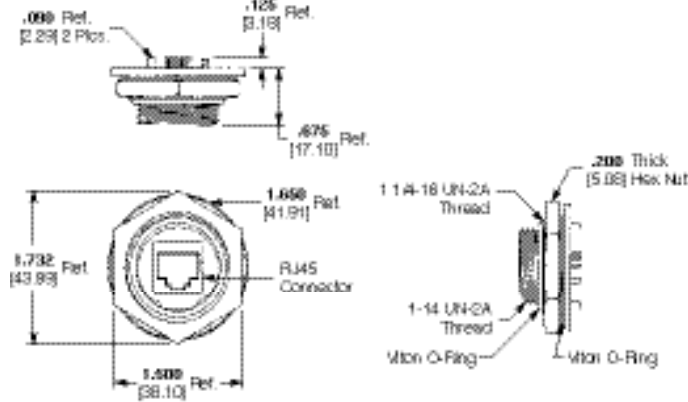


Description	Part Number
Direct PCB mount 8 pin through-hole receptacle, front coupling hex nut	1546405-1

**Material and Finish**

**Receptacle Shell** — Acrylonitrile-Butadiene-Styrene (ABS) in standard version; Acrylonitrile-Styrene-Acrylate in UV stabilized version

**O-Ring** — Viton Rubber



**Closure Cap**

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



Description	Part Number
Closure Cap for Receptacles, IP67 rated (with 3.63 [92.2] lanyard)	1546406-1
Closure Cap for Receptacles, IP65 rated	1546407-1
Closure Cap for Plug cordset, IP67 rated (with 3.63 [92.2] lanyard)	1546408-1

**Material**

**Closure Cap** — Delrin (black)

**Related Product Data**

- Receptacles — pg. 2-5
- Adapters — pg. 6
- Overmolded Cordsets — pg. 7
- Field-Attachable Plug — pg. 8

**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.

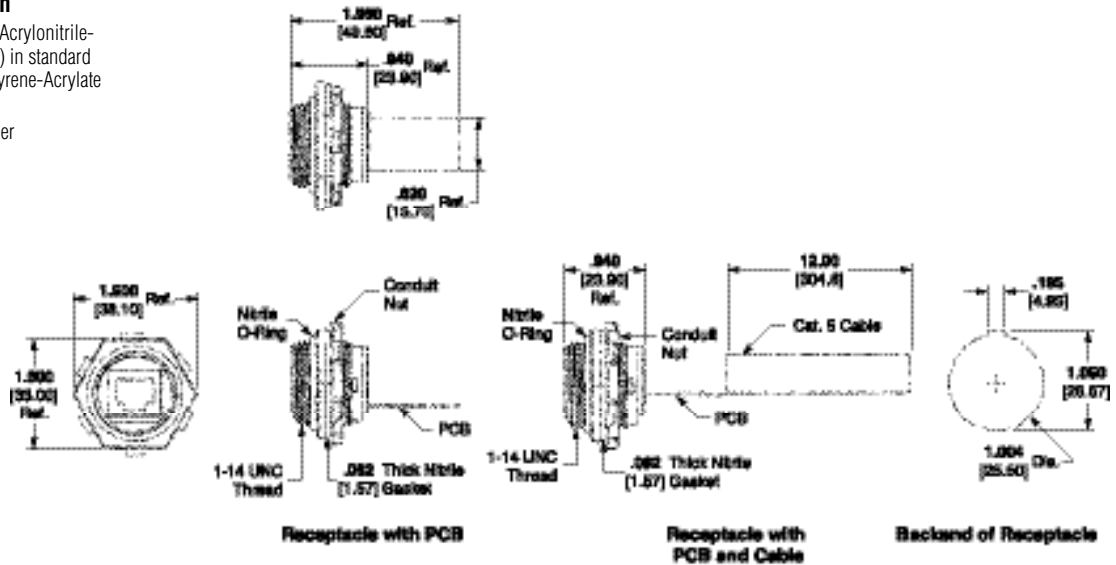


Description	Part Number
Receptacle with PC Board	1546409-1
Receptacle with PCB & 12" of cable (10 Base-T)	1546410-1
Receptacle with PCB & 12" of cable (568A)	1546411-1
Receptacle with PCB & 12" of cable (568B)	1546412-1

**Material and Finish**

**Receptacle Shell** — Acrylonitrile-Butadiene-Styrene (ABS) in standard version; Acrylonitrile-Styrene-Acrylate in UV stabilized version

**O-Ring** — Nitrile Rubber



**Related Product Data**

**Mating Connectors**

- Overmolded Cordsets — pg. 7
- Field-Attachable Plug — pg. 8
- Closure Cap — pg. 3

**Receptacles** (Continued)

**Bulkhead Passthrough**

The perfect solution to bring Ethernet into a cabinet or control box. Simply mount bulkhead product in a panel cutout, mate a sealed connector 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.

Contact Tyco Electronics for UV stabilized versions for outdoor use.



Description	Part Number
RJ-45 Bulkhead passthrough with backside RJ-45 jack	1546413-1
RJ-45 Bulkhead passthrough with 12" of patch cord	1546414-1
RJ-11 Bulkhead passthrough with backside RJ-45 jack	1546415-1

**Material and Finish**

**Receptacle Shell** — Acrylonitrile-Butadiene-Styrene (ABS) in standard version; Acrylonitrile-Styrene-Acrylate in UV stabilized version

**O-Ring** — Nitrile Rubber

**Performance Characteristics**

**Operating Temperature** — -4° to 176°F [-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 and Bulkhead Passthrough are Category 5e compliant; Direct PCB Mount is Category 5 compliant; Standard PC Board is not rated — additional customer termination is required

**Knockout Hole for Receptacle** — 1.031 [26.19]

**Mating Thread** — UNC 1" - 14

**Related Product Data**

**Mating Connectors**

- Overmolded Cordsets — pg. 7
- Field-Attachable Plug — pg. 8
- Closure Cap — pg. 3

**Backside RJ-45 Jack Specifications**

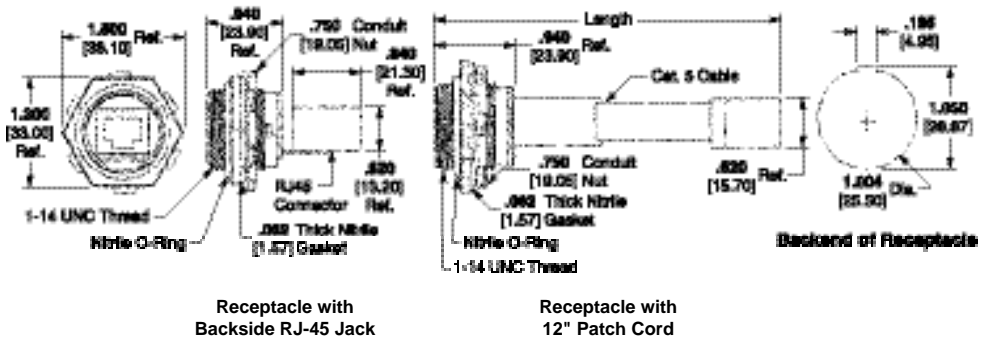
**Base Material** — Copper alloy w/30 μ-inches gold alloy

**Underplating** — 2.54 microns of nickel

**Mating Cycles** — 250 min.

**Current Rating** — 1.5 Amp

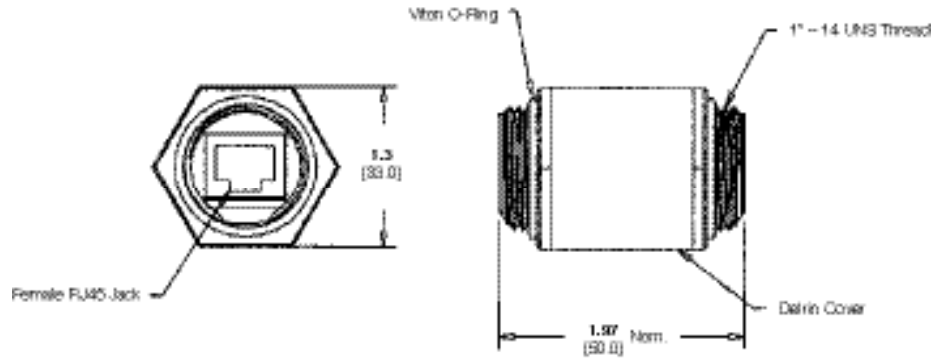
**Voltage Rating** — 125 V DC



**Female-to-Female Adapters**

**Female-to-Female Adapter**

Description	Part Number
Female-to-Female Adapter	1546574-1



**Material and Finish**

**Receptacle Shell** — Acrylonitrile-Butadiene-Styrene (ABS) in standard version; Acrylonitrile-Styrene-Acrylate in UL stabilized version

**O-Ring** — Nitrile Rubber

**Performance Characteristics**

**Operating Temperature** — -4° to 176°F [-20° to 80°C]

**Shock/Vibration** — Per IEC 60068-2-6

**Environmental Rating** — IEC IP67

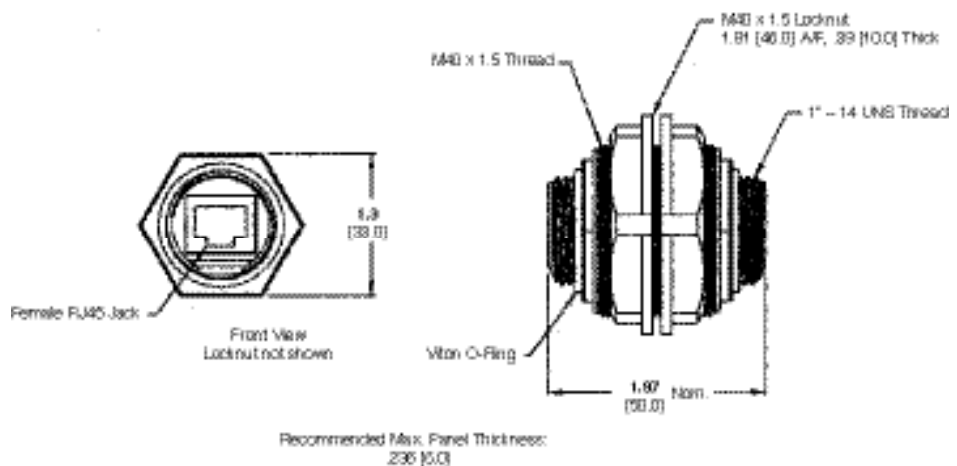
**Mating Thread** — UNC 1" - 14

**Related Product Data**

Closure Cap — pg. 3

**Threaded-through Panel Interconnect (M40)**

Description	Part Number
Threaded-through Panel Interconnect M40 thread size	1546641-1



**Material and Finish**

**Receptacle Shell** — Acrylonitrile-Butadiene-Styrene (ABS) in standard version; Acrylonitrile-Styrene-Acrylate in UL stabilized version

**O-Ring** — Nitrile Rubber

**Performance Characteristics**

**Operating Temperature** — -4° to 176°F [-20° to 80°C]

**Shock/Vibration** — Per IEC 60068-2-6

**Environmental Rating** — IEC IP67

**Mating Thread** — UNC 1" - 14

**Related Product Data**

Closure Cap — pg. 3

**Cordsets**

Tyco Electronics cordsets utilize a standard RJ-45 plug, but add strain relief and a locking mechanism that creates a seal when

mated with a receptacle. Cordsets can be ordered in standard or custom lengths as an overmolded cordset (see chart below), or Plug.

**Overmolded Cordsets, Double-ended**



Overmolded Cordsets are available in two configurations. When both

cord ends are in a harsh environment, order the double-ended configuration with two industrial sealed plug connectors; for a cable with one end in a harsh environment, and the other in a sealed or office area, order with one industrial plug 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

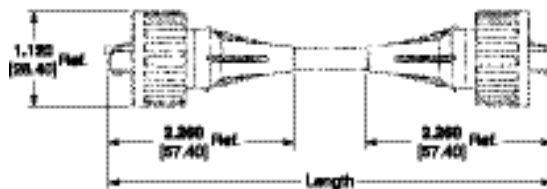
shielded PUR cable is used for longer “horizontal cross connection runs”, while stranded PVC is more appropriate for shorter “patch cord” applications where greater cable flexibility is desired. For extreme environmental conditions, Proplex™ cable provides a Kevlar inner wrap and an unmatched temperature range -94°F to +221°F [-70°C to +105°C]. Plugs are available in both RJ-45 and RJ-11 formats.

**Material and Finish**

**Insert** — Acrylonitrile-Butadiene-Styrene (ABS)

**Overmold** — Polyurethane (Solid Core & Proplex), PVC (Stranded)

**Coupling Nut** — Acrylonitrile-Butadiene-Styrene (ABS) in standard version; Acrylonitrile-Styrene-Acrylate in UV stabilized version



**Connector Specifications**

**Recommended Mating Torque** — 12 inch-lbs. [1.36 N-m]

**Double-ended Cordsets**

Cable	RJ-45 Plug Ends	Length		Part Number
		m	ft	
Solid core	Industrial (both ends)	1	[3.3]	1546451-1
Solid core	Industrial (both ends)	5	[16.4]	1546451-2
Solid core	Industrial (both ends)	10	[32.8]	1546451-3
Solid core	Industrial/Commercial	2	[6.6]	1546451-4
Proplex	Industrial (both ends)	2	[6.6]	1546452-1
Proplex	Industrial (both ends)	5	[16.4]	1546452-2
Stranded	Industrial (both ends)	2	[6.6]	1546453-1
Stranded	Industrial (both ends)	5	[16.4]	1546453-2

**Related Product Data**

**Mating Connectors**

Receptacles — pg. 2-5

Adapters — pg. 6

Closure Cap — pg. 3

**Field-Attachable Plug**

Assemble the connection in the field using a standard crimping tool, and still enjoy the same IP67 sealed connection as the overmolded cordset. Bulk cable (1,000 ft [304.8 m]) put-ups are available for both Solid Core PUR and Proplex cable.

Contact Tyco Electronics for UV stabilized versions for outdoor use.

**Material and Finish**

**Receptacle Shell** — Acrylonitrile-Butadiene-Styrene (ABS) in standard version; Acrylonitrile-Styrene-Acrylate in UV stabilized version

**O-Ring** — Nitrile Rubber

**Related Product Data**

**Mating Connectors**

Receptacles — pg. 2-5

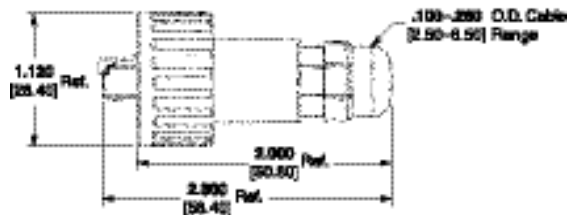
Adapters — pg. 6

Closure Cap — pg. 3

**Bulk Cable Specifications**



Description	Part Number
Field-attachable RJ-45 Plug connector, 0.1-0.26 [2.5-6.5] acceptable cable dia.	1546440-1



**Solid Core Cable**

**Conductors** — 24 AWG solid bare copper, .020 [0.51]

**Insulation** — .009 [0.23] of cellular polyethylene; .040 [1.00] nominal dia.

**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 min.

**Shield** — Aluminum/polyester tape, 20% overlay min.

**Drain Wire** — 24 AWG stranded (7/32) tin plated copper

**Jacket** — Black polyurethane .025 [0.64] nom. thickness

**Operating Temperature** — -4° to 176°F [-20° to 80°C]

**Diameter** — .245 [6.22] nom.

**Wiring Sequence** — Choice of TIA/EIA 568A or 10 Base-T

**Electrical @ 20°C**

**Capacitance** — 5.6 nF/100 meter, max.

**Velocity of Propagation** — 72% nom.

**Conductor DC Resistance** — 9.38 Ω/100 meter, max.

**Impedance** — 100 Ω ± 15 Ω

**Delay Skew** — 45 nS/100 meter, max.

**TIA/EIA Rating** — Category 5e

Frequency (MHz)	Attenuation (dB/100 M nom.)	NEXT (dB nom.)
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

**Stranded Cable**

**Conductors** — 24 AWG stranded tinned copper

**Insulation** — Polyolefin .037 [0.94] nominal dia.

**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 min.

**Jacket** — Black PVC .025 [0.64] nom. thickness

**Operating Temperature** — -4° to 176°F [-20° to 80°C]

**Diameter** — .220 [5.59] nom.

**Wiring Sequence** — Choice of TIA/EIA 568A or 10 Base-T

**Electrical @ 20°C**

**Capacitance** — 15 pF/FT

**Velocity of Propagation** — 70% nom.

**Conductor DC Resistance** — 9.0 Ω/100 meter, max.

**Impedance** — 100 Ω ± 15 Ω

**Delay Skew** — 10 nS/100 meter, typ.; 25 nS/100 meter max.

**TIA/EIA Rating** — Category 5e

Frequency (MHz)	Attenuation (dB/100 M nom.)	NEXT (dB nom.)
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

**Kevlar Wrapped Cable**

**Conductors** — 26 AWG stranded bare copper

**Insulation** — Color coded HFFR, halogen free, .035 [0.90] nominal dia.

**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 .059 [1.50] nom. thickness

**Operating Temperature** — -94° to 221°F [-70° to 105°C]

**Diameter** — .287 [7.30] nom.

**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 max.

**Conductor DC Resistance** — 15.0 Ω/100 meter, max.

**Impedance** — 100 Ω ± 15 Ω

**Delay Skew** — 20 nS/100 meter, typ.; 25 nS/100 meter max.

**TIA/EIA Rating** — Category 5

Frequency (MHz)	Attenuation (dB/100 M nom.)	NEXT (dB nom.)
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