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(See Fiber Management, Packages Solutions, Sub Systems, and Laser Process Section 3, pages 155, 156)

Active Optical Cable Assemblies



InfiniBand 4x DDR Active Optical Cable Assemblies

Product Facts

- 4 transmit and 4 receive channels at up to 5 Gb/s per channel)
- Industry standard (SFF-8470) electrical connector (aka InfiniBand 4x, CX-4)
- Internally terminated optics — no optical connector to clean
- Differential data I/O per InfiniBand version 1.2.1
- Asynchronous, internally AC coupled inputs and outputs
- Passively cooled design — low thermal resistance heat path from chip to connector shell
- <1 Watt power consumption
- Small diameter cable (2 mm)
- Light weight
- Tight bend radius



Tyco Electronics' active optical cables use state-of-the-art technology to provide cost effective high data throughput interconnects. The cables incorporate E/O and O/E conversion built into the connector shell to yield a dramatic improvement in PCB real estate utilization.

Using 850nm VCSELS, it can be operated from 2.5 Gb/s to 5 Gb/s per channel. At 5 Gb/s this provides aggregate full duplex throughput of 20 Gb/s. They are available in lengths up to 100 meters using 50 micron MM fiber¹. The OEO circuitry is designed for use with 8B/10B encoded data streams, such as InfiniBand, Fibre Channel, and XAUI.

3.3 Volt power is supplied through a pin (G8) dedicated for this purpose as described in InfiniBand Specification Version 1.2.1. Pin G7 is the voltage sense pin and is tied internally to ground through a 5K ohm resistor

¹ Short lengths use standard multi-mode fiber, longer lengths use laser optimized (OM3) fiber

Applications

- High Performance Computing Clusters
- Supercomputers
- High end servers
- Mass storage
- Metro network switch/cross connect
- High end carrier class routers
- DDR InfiniBand
- Other 2.5–5.0 Gb/s Applications (e.g. 10 Gb Fibre Channel or 10 Gig Ethernet XAUI on ports providing InfiniBand pinout 3.3 V power

Electrical/Optical

- 20 Gb/s bidirectional — 40 Gb/s offered in future
- Compatible with InfiniBand SDR and DDR
- Power consumption per end 1 watt

Mechanical/Environmental

- Up to 200 meters
- 25 mm bend radius
- Operating temperature 0°C to 60°C
- Storage Temperature -25°C to 70°C
- 4 channels each direction
- FCC Class B

Materials

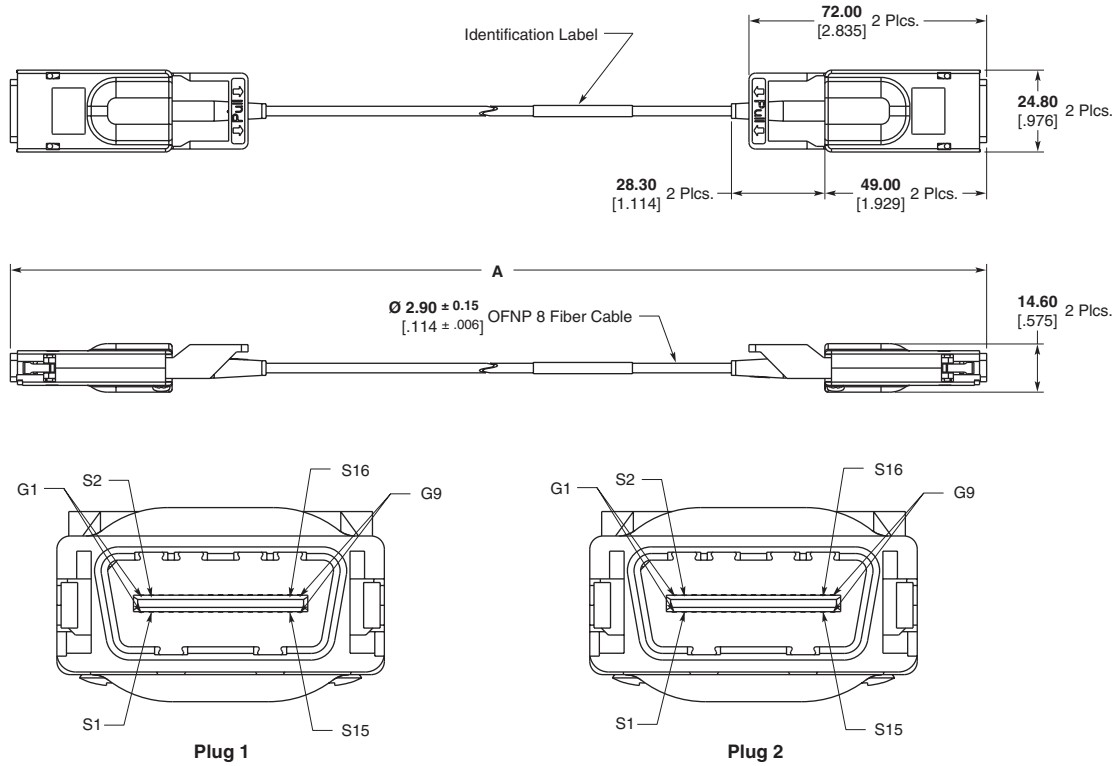
- OFNR/CSA-FT-6 (plenum) cable
- OFN-LS (LSZH rated) cable

Standards

- InfiniBand SDR and DDR

INFINIBAND is a trademark of the InfiniBand Trade Association.

Active Optical Cable Assemblies (Continued)



Part Number	Length (meters)	Style
1985427-1	3	Standard
1985427-2	5	
1985427-3	10	
1985427-4	20	
1985427-5	30	
1985427-6	40	
1985427-7	50	
1985427-8	100	
1984462-1	3	Low Smoke Zero Halogen (LSZH)
1984462-2	5	
1984462-3	10	
1984462-4	20	
1984462-5	30	
1984462-6	40	
1984462-7	50	
1984462-8	100	

Note: Longer lengths available upon request.

LC Cable Assemblies

Product Facts

- For high performance applications/high density
- 125 μm Ceramic Ferrule Technology
- Small size — 1/2 size of standard SC and FC products
- Singlemode and multimode
- Tuned singlemode assemblies
- High performance small size cable
 - 900 μm buffered fiber assemblies
 - 2.0 mm cable assemblies
- Hybrid assemblies available with all standard connectors
- Hybrid SC's and FC's terminated to 2.0 mm cable and 900 μm buffered fiber
- Factory terminated/factory tested



LC Cable Assembly

Performance Characteristics

Insertion Loss —

Singlemode — .25 dB max.; < .1 dB typ.

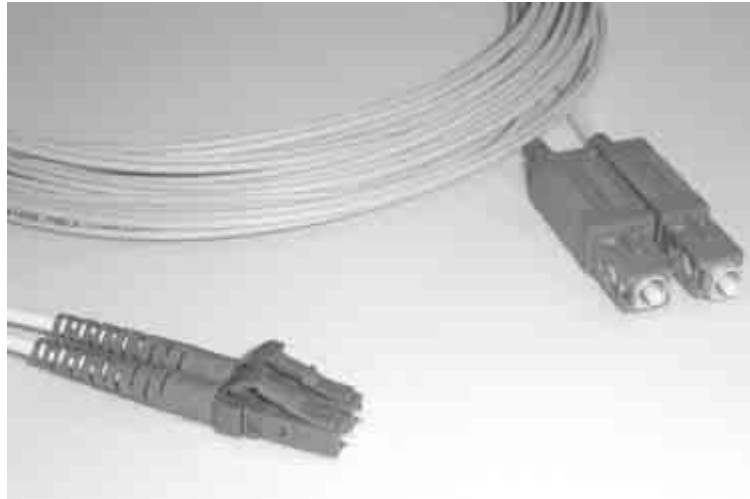
Multimode — .1 dB typ.;

.1 dB typ. σ

Return Loss —

Singlemode — 55 dB; PC endface

Multimode — 20 dB

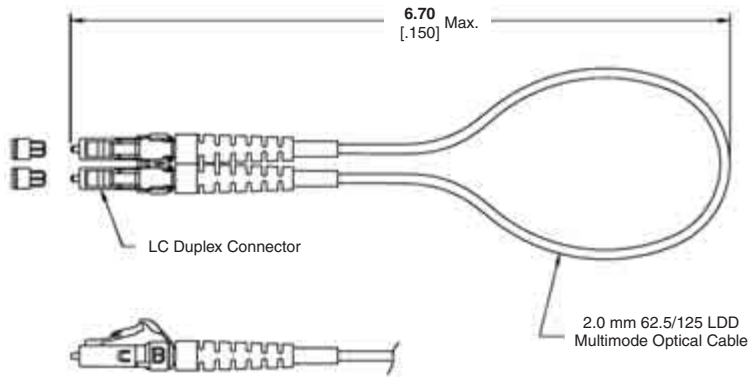


Hybrid LC-SC Cable Assembly

LC Cable Assemblies (Continued)

Description	Cable Type	Part Numbers/Lengths (m)						
		1	2	3	4	5	10	
Simplex								
Singlemode	LC to LC	900 micron	6374518-1	6374518-2	6374518-3	6374518-4	6374518-5	1-6374518-0
		2.0 mm Jacketed Riser	6374110-1	6374110-2	6374110-3	6374110-4	6374110-5	1-6374110-0
	LC to SC	900 micron	6374610-1	6374610-2	6374610-3	6374610-4	6374610-5	1-6374610-0
		2.0 mm Jacketed Riser	6374611-1	6374611-2	6374611-3	6374611-4	6374611-5	1-6374611-0
50/125 µm Multimode	LC to LC	2.0 mm Jacketed Riser	6374656-1	6374656-2	6374656-3	6374656-4	6374656-5	1-6374656-0
	LC to SC	2.0 mm Jacketed Riser	6374612-1	6374612-2	6374612-3	6374612-4	6374612-5	1-6374612-0
62.5/125 µm Multimode	LC to LC	900 micron	6374108-1	6374108-2	6374108-3	6374108-4	6374108-5	1-6374108-0
	LC to SC	2.0 mm Jacketed Riser	6374109-1	6374109-2	6374109-3	6374109-4	6374109-5	1-6374109-0
62.5/125 µm Multimode	LC to SC	2.0 mm Jacketed Riser	6374614-1	6374614-2	6374614-3	6374614-4	6374614-5	1-6374614-0
	LC to MT-RJ	1.8 mm Jacketed Riser	6374647-1	6374647-2	6374647-3	6374647-4	6374647-5	1-6374647-0
Duplex								
Singlemode	LC to LC	2.0 mm Jacketed Riser	6374657-1	6374657-2	6374657-3	6374657-4	6374657-5	6374657-6
	LC Duplex to SC Duplex	2.0 mm Jacketed Riser	6457072-1	6457072-2	6457072-3	6457072-4	6457072-5	1-6457072-0
	2 LC Simplex to 2 SC Simplex	2.0 mm Jacketed Riser	6374515-1	6374515-2	6374515-3	6374515-4	6374515-5	1-6374515-0
	LC to ST	2.0 mm Jacketed Riser	6457207-1	6457207-2	6457207-3	—	6457207-5	1-6457207-0
50/125 µm Multimode	LC to MT-RJ	1.8 mm Jacketed Riser	6374645-1	6374645-2	6374645-3	6374645-4	6374645-5	1-6374645-0
	LC to LC	2.0 mm Jacketed Riser	6374658-1	6374658-2	6374658-3	6374658-4	6374658-5	1-6374658-0
	LC to SC	2.0 mm Jacketed Riser	6374613-1	6374613-2	6374613-3	6374613-4	6374613-5	1-6374613-0
	LC to ST	2.0 mm Jacketed Riser	1906822-1	1906822-2	1906822-3	1906822-4	1906822-5	1-1906822-0
Laser Optimized (10 Gig) (850 nm) 50/125 µm Multimode	LC to MT-RJ	1.8 mm Jacketed Riser	6374647-1	6374647-2	6374647-3	6374647-4	6374647-5	1-6374647-0
	LC to LC	2.0 mm Aqua Jacketed Riser	6828317-1	6828317-2	6828317-3	6828317-4	6828317-5	1-6828317-0
		2.0 mm Aqua Jacketed Riser	6828318-1	6828318-2	6828318-3	—	6828318-5	1-6828318-0
	LC to SC	2.0 mm Orange Jacketed Riser	6754384-1	6754384-2	6754384-3	6754384-4	6754384-5	1-6754384-0
62.5/125 µm Multimode	LC to LC	2.0 mm Jacketed Riser	6374659-1	6374659-2	6374659-3	6374659-4	6374659-5	1-6374659-0
	LC to SC	2.0 mm Jacketed Riser	6374615-1	6374615-2	6374615-3	6374615-4	6374615-5	1-6374615-0
	LC to ST	2.0 mm Jacketed Riser	6457104-1	6457104-2	6457104-3	—	6457104-5	1-6457104-0
	LC to MT-RJ	1.8 mm Jacketed Riser	6374646-1	6374646-2	6374646-3	6374646-4	6374646-5	1-6374646-0

LC Loopbacks

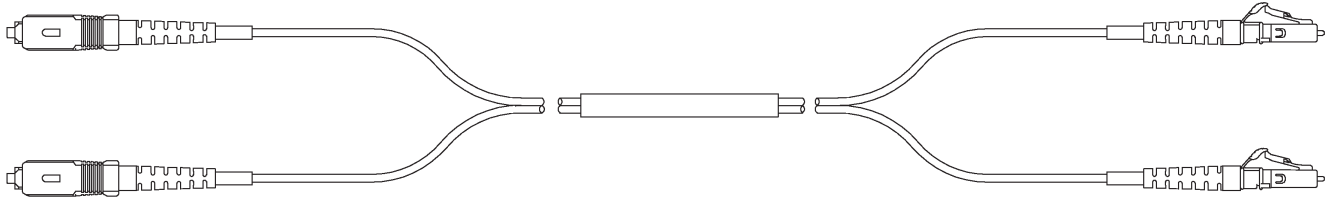


Description	Part Number	
LC Loopback	Singlemode	6457047-1
	Multimode 62.5/125 µm	6457048-1
	Multimode 50/125 µm	6457049-1

Note: All part numbers are RoHS compliant.

LC Cable Assemblies (Continued)

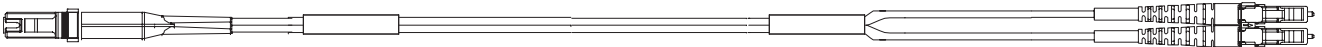
**2.0 mm ZIPCORD, Singlemode
LC Simplex to SC Simplex**



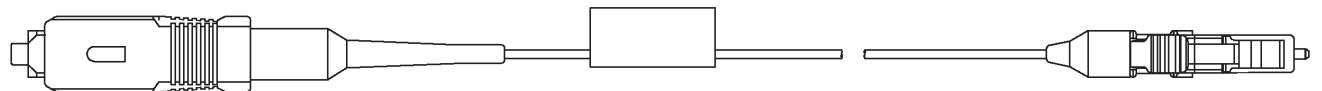
**LC to Simplex SC
2.0 mm cable**



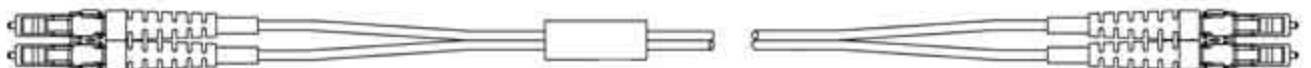
LC Duplex to MT-RJ



**LC Simplex to SC
on 900 µm buffered fiber**



LC Duplex to LC Duplex



LC SECURE Cable Assemblies

Product Facts

- LC SECURE Plugs mate with like-colored LC SECURE adapters only (see page 10)
- Ten exclusive connector variants
- Color coded assemblies match MT-RJ and MPO SECURE offerings (see pages 107 and 108)
- Distinct keyway geometry on plug nose and color coding assures identifiable key-type
- Black boots for 50/125 standard, beige for 62.5/125 multimode, blue for singlemode, and aqua for 50/125 Laser Optimized (10 Gig)
- Standard cable is 2 mm zipcord
- Standard jacket color is yellow for singlemode, orange for multimode, and aqua for Laser Optimized (10 Gig) multimode (850 nm 50/125 μm)
- Other configurations are available



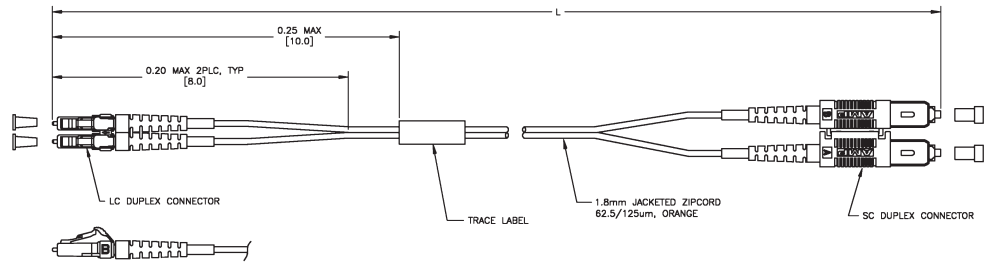
LC SECURE Color	Fiber Type	Part Numbers			
		MT-RJ	SC	LC	ST
Red	50/125 μm Multimode	1907114-X	1905992-X	1906012-X	1906002-X
	Laser Optimized (10 Gig) (850 nm 50/125 μm) Multimode	1907134-X	1906070-X	1906090-X	1905079-X
	62.5/125 μm Multimode	1907124-X	1828872-X	1906051-X	1906080-X
Yellow	Singlemode	1906904-X	1905089-X	1905109-X	1905099-X
	50/125 μm Multimode	1907116-X	1905994-X	1906014-X	1906004-X
	Laser Optimized (10 Gig) (850 nm 50/125 μm) Multimode	1907136-X	1906072-X	1906092-X	1906082-X
Green	62.5/125 μm Multimode	1907126-X	1828871-X	1906053-X	1906043-X
	Singlemode	1906906-X	1905091-X	1905111-X	1905101-X
	50/125 μm Multimode	1907117-X	1905995-X	1906015-X	1906005-X
Blue	Laser Optimized (10 Gig) (850 nm 50/125 μm) Multimode	1907137-X	1906073-X	1906093-X	1906083-X
	62.5/125 μm Multimode	1907127-X	1828870-X	1906054-X	1906044-X
	Singlemode	1906907-X	1905092-X	1905112-X	1905102-X
Orange	50/125 μm Multimode	1907115-X	1905993-X	1906013-X	1906003-X
	Laser Optimized (10 Gig) (850 nm 50/125 μm) Multimode	1907135-X	1906071-X	1906091-X	1906081-X
	62.5/125 μm Multimode	1907125-X	1828875-X	1906052-X	1906042-X
Brown	Singlemode	1906905-X	1905090-X	1905110-X	1905100-X
	50/125 μm Multimode	1907118-X	1906996-X	1906016-X	1906006-X
	Laser Optimized (10 Gig) (850 nm 50/125 μm) Multimode	1907138-X	1906074-X	1906094-X	1906084-X
Slate	62.5/125 μm Multimode	1907128-X	1906035-X	1906055-X	1906045-X
	Singlemode	1906908-X	1905093-X	1905113-X	1905103-X
	50/125 μm Multimode	1907121-X	1906999-X	1906019-X	1906009-X
Violet	Laser Optimized (10 Gig) (850 nm 50/125 μm) Multimode	1907141-X	1906077-X	1906097-X	1906087-X
	62.5/125 μm Multimode	1907131-X	1906038-X	1906058-X	1906048-X
	Singlemode	1906911-X	1905096-X	1905116-X	1905106-X
Rose	50/125 μm Multimode	1907123-X	1906001-X	1906021-X	1906011-X
	Laser Optimized (10 Gig) (850 nm 50/125 μm) Multimode	1907143-X	1906079-X	1906099-X	1906089-X
	62.5/125 μm Multimode	1907133-X	1828283-X	1906060-X	1906050-X
Aqua	Singlemode	1906913-X	1906040-X	1905118-X	1905108-X
	50/125 μm Multimode	1907120-X	1905998-X	1906018-X	1906008-X
	Laser Optimized (10 Gig) (850 nm 50/125 μm) Multimode	1907140-X	1906076-X	1906096-X	1906086-X
Black	62.5/125 μm Multimode	1907130-X	1906037-X	1906057-X	1906047-X
	Singlemode	1906910-X	1905095-X	1905115-X	1905105-X
	50/125 μm Multimode	1907119-X	1905997-X	1906017-X	1906007-X
Beige	Laser Optimized (10 Gig) (850 nm 50/125 μm) Multimode	1907139-X	1906075-X	1906095-X	1906085-X
	62.5/125 μm Multimode	1907129-X	1906036-X	1906056-X	1906046-X
	Singlemode	1906909-X	1905094-X	1905114-X	1905104-X
Aqua	50/125 μm Multimode	1907122-X	1906000-X	1906020-X	1906010-X
	Laser Optimized (10 Gig) (850 nm 50/125 μm) Multimode	1907142-X	1906078-X	1906098-X	1906088-X
	62.5/125 μm Multimode	1907132-X	1906039-X	1906059-X	1906049-X
Black	Singlemode	1906912-X	1905097-X	1905117-X	1905107-X

Note: All part numbers are RoHS compliant.

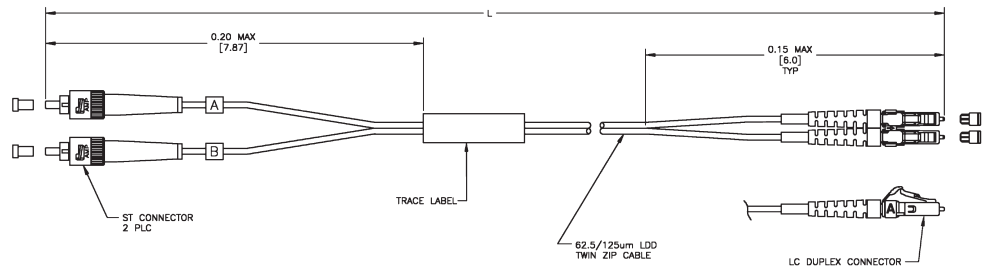
Note: X denotes length in meters: -1 = 1, -2 = 2, -3 = 3, -5 = 5, 1 -0 = 10

LC SECURE Cable Assemblies (Continued)

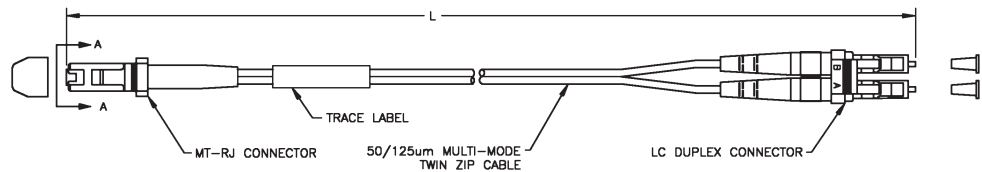
LC SECURE Duplex to SC Duplex



LC SECURE Duplex to Dual ST



LC SECURE Duplex to MT-RJ



MT-RJ SECURE Cable Assemblies



MT-RJ SECURE Cable Assemblies and Patch Cord Part Numbers

MT-RJ SECURE Color	Fiber Type	Part Numbers			
		MT-RJ	SC	LC	ST
Red	50/125 μm Multimode	6278873-X	6278126-X	1907396-X	6278881-X
	Laser Optimized (10 Gig) (850 nm LO 50/125 μm) Multimode	6754406-X	6754410-X	1918667-X	1918701-X
	62.5/125 μm Multimode	6278890-X	6278894-X	6828104-X	6278898-X
Yellow	Singlemode	6918733-X	6918734-X	1918668-X	1918702-X
	50/125 μm Multimode	6278874-X	6278878-X	1918669-X	6278882-X
	Laser Optimized (10 Gig) (850 nm LO 50/125 μm) Multimode	6754407-X	6754411-X	1918670-X	1918703-X
Green	62.5/125 μm Multimode	6278891-X	6278895-X	6828923-X	6278899-X
	Singlemode	6918735-X	6918736-X	1918671-X	1918704-X
	50/125 μm Multimode	6278875-X	6278879-X	1907398-X	6278883-X
Blue	Laser Optimized (10 Gig) (850 nm LO 50/125 μm) Multimode	6754408-X	6754412-X	1918672-X	1918705-X
	62.5/125 μm Multimode	6278892-X	6278896-X	1918673-X	6278900-X
	Singlemode	6918737-X	6918738-X	1918674-X	1918706-X
Orange	50/125 μm Multimode	6278876-X	6278880-X	1907394-X	6278884-X
	Laser Optimized (10 Gig) (850 nm LO 50/125 μm) Multimode	6754409-X	6754413-X	1918675-X	1918707-X
	62.5/125 μm Multimode	6278893-X	6278897-X	1907395-X	6278901-X
Brown	Singlemode	6918739-X	6918740-X	1918676-X	1918708-X
	50/125 μm Multimode	6828263-X	6828269-X	1918677-X	1918709-X
	Laser Optimized (10 Gig) (850 nm LO 50/125 μm) Multimode	6828251-X	6828257-X	1918678-X	1918710-X
Slate	62.5/125 μm Multimode	6828275-X	6828281-X	1918679-X	1918711-X
	Singlemode	6828239-X	6828245-X	1918680-X	1918712-X
	50/125 μm Multimode	6828264-X	6828270-X	1918681-X	1918713-X
Violet	Laser Optimized (10 Gig) (850 nm LO 50/125 μm) Multimode	6828252-X	6828258-X	1918682-X	1918714-X
	62.5/125 μm Multimode	6828276-X	6828282-X	1918683-X	1918715-X
	Singlemode	6828240-X	6828246-X	1918684-X	1918716-X
Rose	50/125 μm Multimode	6828265-X	6828271-X	1918685-X	1918717-X
	Laser Optimized (10 Gig) (850 nm LO 50/125 μm) Multimode	6828253-X	6828259-X	1918686-X	1918718-X
	62.5/125 μm Multimode	6828277-X	6828283-X	1918687-X	1918719-X
Aqua	Singlemode	6828241-X	6828247-X	1918688-X	1918720-X
	50/125 μm Multimode	6828266-X	6828272-X	1918689-X	1918721-X
	Laser Optimized (10 Gig) (850 nm LO 50/125 μm) Multimode	6828254-X	6828260-X	1918690-X	1918722-X
Aqua	62.5/125 μm Multimode	6828278-X	6828284-X	1918691-X	1918723-X
	Singlemode	6828242-X	6828248-X	1918692-X	1918724-X
	50/125 μm Multimode	6828267-X	6828273-X	1918693-X	1918725-X
Aqua	Laser Optimized (10 Gig) (850 nm LO 50/125 μm) Multimode	6828255-X	6828261-X	1918694-X	1918726-X
	62.5/125 μm Multimode	6828279-X	6828285-X	1918695-X	1918727-X
	Singlemode	6828243-X	6828249-X	1918696-X	1918728-X
Aqua	50/125 μm Multimode	6828268-X	6828274-X	1918697-X	1918729-X
	Laser Optimized (10 Gig) (850 nm LO 50/125 μm) Multimode	6828256-X	6828262-X	1918698-X	1918730-X
	62.5/125 μm Multimode	6828280-X	6828286-X	1918699-X	1918731-X
Aqua	Singlemode	6828244-X	6828250-X	1918700-X	1918732-X

Note: X denotes length in meters: -1 = 1, -2 = 2, -3 = 3, -5 = 5, 1 - -0 = 10

Note: All part numbers are RoHS compliant.

MPO SECURE Cable Assemblies



Product Facts

- For use with MT-RJ SECURE System MPO Cassettes on page 12 only
- Feature colored/keyed MPO connectors which only mate with like colored MPO couplers to limit access to secure networks
- 12-Fibers per MPO connector
- Pulling socks protect connectors during installation
- Available in 50 μ m, Laser Optimized (10 Gig), and 62.5 μ m Multimode as listed

MPO SECURE Trunk Cable Assemblies

MPO SECURE Color	Fiber Type	Part Numbers	
		12 Fiber	24 Fiber
Red	50/125 μ m Multimode	6754273-X	6754281-X
	Laser Optimized (10 Gig) (850 nm LO 50/125 μ m) Multimode	6754420-X	6754424-X
	62.5/125 μ m Multimode	6754269-X	6754277-X
Yellow	50/125 μ m Multimode	6754276-X	6754284-X
	Laser Optimized (10 Gig) (850 nm LO 50/125 μ m) Multimode	6754421-X	6754425-X
	62.5/125 μ m Multimode	6754272-X	6754280-X
Green	50/125 μ m Multimode	6754274-X	6754282-X
	Laser Optimized (10 Gig) (850 nm LO 50/125 μ m) Multimode	6754422-X	6754426-X
	62.5/125 μ m Multimode	6754270-X	6754278-X
Blue	50/125 μ m Multimode	6754275-X	6754283-X
	Laser Optimized (10 Gig) (850 nm LO 50/125 μ m) Multimode	6754423-X	6754427-X
	62.5/125 μ m Multimode	6754271-X	6754279-X
Rose	50/125 μ m Multimode	1918741-X	1918759-X
	Laser Optimized (10 Gig) (850 nm LO 50/125 μ m) Multimode	1918753-X	1918771-X
	62.5/125 μ m Multimode	1918747-X	1918765-X
Aqua	50/125 μ m Multimode	1918742-X	1918760-X
	Laser Optimized (10 Gig) (850 nm LO 50/125 μ m) Multimode	1918754-X	1918772-X
	62.5/125 μ m Multimode	1918748-X	1918766-X
Brown	50/125 μ m Multimode	1918743-X	1918761-X
	Laser Optimized (10 Gig) (850 nm LO 50/125 μ m) Multimode	1918755-X	1918773-X
	62.5/125 μ m Multimode	1918749-X	1918767-X
Violet	50/125 μ m Multimode	1918744-X	1918762-X
	Laser Optimized (10 Gig) (850 nm LO 50/125 μ m) Multimode	1918756-X	1918774-X
	62.5/125 μ m Multimode	1918750-X	1918768-X
Orange	50/125 μ m Multimode	1918745-X	1918763-X
	Laser Optimized (10 Gig) (850 nm LO 50/125 μ m) Multimode	1918758-X	1918775-X
	62.5/125 μ m Multimode	1918751-X	1918769-X
Slate	50/125 μ m Multimode	1918746-X	1918764-X
	Laser Optimized (10 Gig) (850 nm LO 50/125 μ m) Multimode	1918759-X	1918776-X
	62.5/125 μ m Multimode	1918752-X	1918770-X

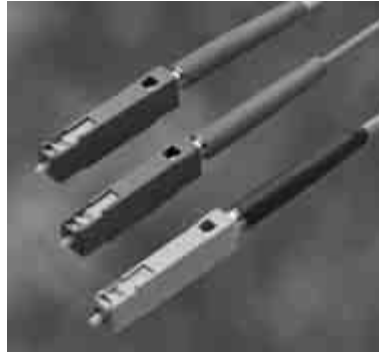
Note: X denotes length in feet: -1 = 10, -2 = 20, -3 = 30, -4 = 40, -5 = 50, -6 = 60, -7 = 70, -8 = 80, -9 = 90, 1- -0 = 100, 1- -1 = 110, 1- -2 = 120, 1- -3 = 130, 1- -4 = 140, 1- -5 = 150, 1- -6 = 160, 1- -7 = 170, 1- -8 = 180, 1- -9 = 190, 2- -0 = 200, 2- -1 = 210, 2- -2 = 220, 2- -3 = 230, 2- -4 = 240, 2- -5 = 250, 2- -6 = 260, 2- -7 = 270, 2- -8 = 280, 2- -9 = 290, 3- -0 = 300.

Note: All part numbers are RoHS compliant.

MU High Density Cable Assemblies

Product Facts

- Can be used with MU backplane connectors (Z-PACK 2 mm HM type L connector housings) for complete backplane or board to board solution
- 1.25 mm ferrule design
- Polarized to ensure precise insertion
- High density (up to 8 lines per module)
- “Push Pull” (SC style) latching mechanism
- Fully compliant with:
 - 1.25 mm ferrule design IEC60917 and IEC 61076-4-101
 - IEC 60874-1
 - CECC 86 305 801 (MU-APC)
 - JIS C-5970
 - I-ETS 300 671
 - IEC 61300



MU Cable Assemblies

Description	Part Numbers		
	1 Meter	2 Meters	3 Meters
LC to MU Board Plug Singlemode 900 μm	6457327-1	6457327-2	6457327-3
LC to MU 62.5/125 900 μm	6457328-1	—	—
MU to SC Singlemode 900 μm	6457329-1	6457329-2	6457329-3
MU to SC 62.5/125 900 μm	6457330-1	6457330-2	6457330-3
MU to MU Singlemode Buffered	6457482-1	6457482-2	6457482-3
MU to MU Singlemode 2 mm	6457523-1	6457523-2	6457523-3
MU to SC Singlemode 2.0 mm	6588145-1	6588145-2	—

Other lengths available upon request.

Performance Characteristics

Insertion Loss —

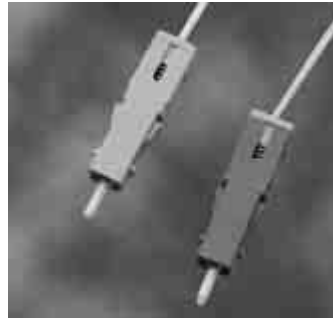
Singlemode: 0.3 dB Max
<0.1 dB Typical
Multimode: 0.1 dB Typical

Return Loss —

Singlemode: 55 dB - PC endface
Typical
>65 dB - APC endface
Multimode: 20 dB

MU Boardplug Pigtails with Riser Cable

MU boardplug pigtails are designed for use with female Z-PACK 2 mm HM housings on the daughter-card. Available with 900 μm buffered fiber and in lengths of 1 meter as standard, custom lengths are available upon request.



Fiber Size (μm)	Endface	Cable Type	Length (meter)	Part Number
9/125	PC	900 μm pigtail	1	5106751-1

Note: All part numbers are RoHS compliant.

SC & FC Singlemode Cable Assemblies

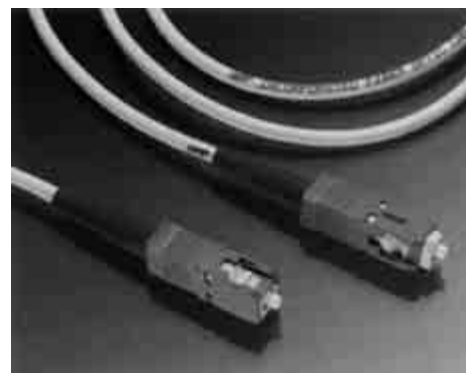
SC-SC Style Cable Assemblies

Product Facts

- Compliant with:
 - JIS C-5973
 - ANSI X3T11 Fibre Channel
 - TIA 568
- Insertion Loss:
 - 0.2 dB typical
 - 0.5 dB maximum



SC/APC Connectors



SC/UPC to SC/UPC Cable Assembly

Description	Min. Return Loss	Cable Diameter	Part Numbers				
			Length (m)				
			1	3	5	10	15
Single-Fiber Jumpers							
Simplex SC/APC to SC/APC	65 dB	3.0 mm	5492188-1	5492188-3	5492188-5	1-5492188-0	1-5492188-5
	65 dB	2.0 mm	6828410-1	6828410-3	6828410-5	1-6828410-0	1-6828410-5
Simplex SC/UPC to SC/UPC	65 dB	900 µm	5504678-1	5504678-3	5504678-4	5504678-5	—
	55 dB	3.0 mm	5492015-1	5492015-3	5492015-4	5492015-5	5492015-6
	55 dB	2.0 mm	6828887-2	6828887-3	6828887-5	1-6828887-0	1-6828887-5
Simplex SC/UPC to SC/APC	55 dB	900 µm	5492276-1	5492276-3	5492276-5	1-5492276-0	—
	55/65 dB	3.0 mm	5492191-1	5492191-3	5492191-5	1-5492191-0	1-5492191-5
Single-Fiber Pigtailed							
Simplex SC/APC	65 dB	3.0 mm	5492193-1	5492193-3	5492193-5	1-5492193-0	1-5492193-5
	65 dB	900 µm	1695588-1	1695588-3	1695588-5	1-1695588-0	1-1695588-5
Simplex SC/UPC	55 dB	3.0 mm	5492081-1	5492081-3	5492081-5	1-5492081-0	1-5492081-5
	55 dB	900 µm	5492065-1	5492065-3	5492065-5	1-5492065-0	1-5492065-5
Two-Fiber Jumpers — Zipcord							
Duplex SC/APC to Duplex SC/APC	55 dB	3.0 mm	1754490-1	1754490-3	1754490-5	1-1754490-0	1-1754490-5
Duplex SC/UPC to Duplex SC/UPC	55 dB	3.0 mm	5492019-1	5492019-3	5492019-4	5492019-5	5492019-6
(2) Simplex SC/UPC to (2) Simplex SC/UPC	55 dB	3.0 mm	1907362-1	1907362-3	1907362-5	1-1907362-0	1-1907362-5

All cable OFNR (Riser).

Note: All part numbers are RoHS compliant.

SC & FC Singlemode Cable Assemblies (Continued)

FC-FC Style Cable Assemblies

Product Facts

- **Compliant with:**
 - JIS C-5970
 - IEC 1754-13-1
 - TIA 504.4 (FOCIS-4)
- **Insertion Loss:**
 - 0.2 dB typical
 - 0.5 dB maximum



FC/APC Connectors



FC/UPC to FC/UPC Cable Assembly

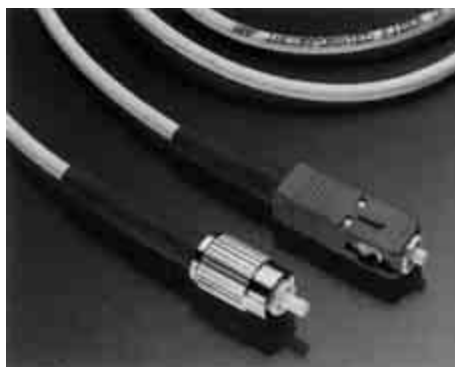
Description	Min. Return Loss	Cable Diameter	Part Numbers				
			Length (m)				
			1	3	5	10	15
Single-Fiber Jumpers							
Simplex FC/APC to FC/APC	65 dB	3.0 mm	5492187-1	5492187-3	5492187-5	1-5492187-0	1-5492187-5
	65 dB	1.6 mm	6754068-1	6754068-3	6754068-5	—	—
	65 dB	900 µm	5503868-1	5503868-3	5503868-5	1-5503868-0	1-5503868-5
Simplex FC/UPC to FC/UPC	55 dB	3.0 mm	5492014-1	5492014-3	5492014-4	5492014-5	5492014-6
	55 dB	900 µm	5492230-1	5492230-3	5492230-5	1-5492230-0	1-5492230-5
Simplex FC/UPC to FC/APC	55/65 dB	3.0 mm	5492190-1	5492190-3	5492190-5	1-5492190-0	1-5492190-5
Single-Fiber Pigtails							
Simplex FC/APC	65 dB	3.0 mm	5492192-1	5492192-3	5492192-5	1-5492192-0	1-5492192-5
Simplex FC/UPC	55 dB	3.0 mm	5492194-1	5492194-3	5492194-5	1-5492194-0	1-5492194-5
	55 dB	2.0 mm	6278244-1	6278244-3	6278244-5	1-6278244-0	1-6278244-5
Two-Fiber Jumpers — Zipcord							
(2) Simplex FC/UPC to (2) Simplex FC/UPC	55 dB	3.0 mm	5492022-1	5492022-3	5492022-4	5492022-5	5492022-6

All cable OFNR (Riser).

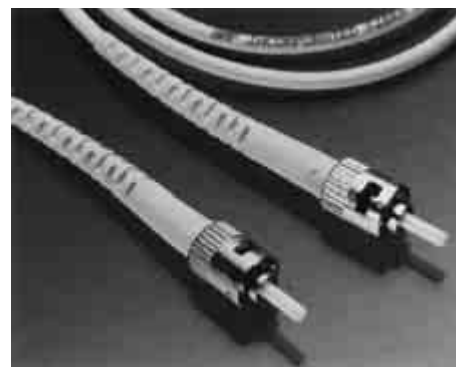
Note: All part numbers are RoHS compliant.

SC & FC Singlemode Cable Assemblies (Continued)

Hybrid FC/SC and Other Cable Assemblies



FC/UPC to SC/UPC Cable Assembly



ST/UPC Cable Assembly

Description	Min. Return Loss	Part Numbers				
		Length (m)				
		1	3	5	10	15
Stocked Assemblies (FC/SC Hybrid)						
Simplex FC/APC to SC/APC	65 dB	5492189-1	5492189-3	5492189-5	1-5492189-0	1-5492189-5
Simplex FC/APC to SC/UPC	65/55 dB	6457165-1	6457165-3	6457165-5	1-6457165-0	1-6457165-5
Simplex FC/UPC to SC/UPC	55 dB	5492017-1	5492017-3	5492017-4	5492017-5	5492017-6
Other Simplex Assemblies						
Simplex SC/ST	55 dB	5492016-1	5492016-3	5492016-4	5492016-5	5492016-6
Simplex FC/ST	55 dB	5492018-1	5492018-3	5492018-4	5492018-5	5492018-6
Simplex ST/ST	55 dB	5502796-1	5502796-3	5502796-5	1-5502796-0	1-5502796-1
Other Duplex Assemblies						
SC Duplex/FC	55 dB	5492021-1	5492021-3	5492021-4	5492021-5	5492021-6
SC Duplex/ST Style	55 dB	5492020-1	5492020-3	5492020-4	5492020-5	5492020-6
ST/ST Style	55 dB	5503162-1	5503162-3	5503162-5	1-5503162-0	1-5503162-1

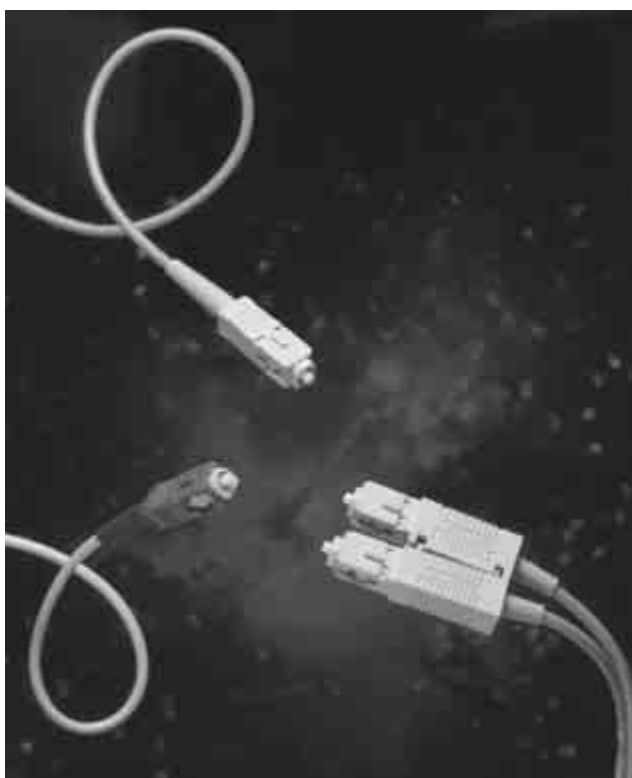
Insertion Loss: 0.5 dB Max., 0.2 dB Typical, when measured against a Reference Lead.
All cable 3 mm OFNR (Riser).

Note: All part numbers are RoHS compliant.

ST & SC Multimode Cable Assemblies

ST-Style

Description	Ferrule Type	Part Numbers				
		Length (m)				
		1	2	3	5	10
ST-ST, Simplex, 62.5/125, Riser	Ceramic	6278789-1	6278789-2	6278789-3	6278789-4	6278789-7
ST-ST, Zipcord, 62.5/125, Riser	Ceramic	5503995-1	5503995-2	5503995-3	5503995-4	5503995-5
ST-ST, Zipcord, 62.5/125, Riser	Polymer	5503994-1	5503994-2	5503994-3	5503994-4	5503994-5
ST/ST, Zipcord, 50/125, Riser	Ceramic	6278207-1	6278207-2	6278207-3	6278207-5	1-6278207-0
ST/ST, Dual, 62.5/125, Plenum	Ceramic	5503959-1	5503959-2	5503959-3	5503959-5	1-5503959-0



SC-Style

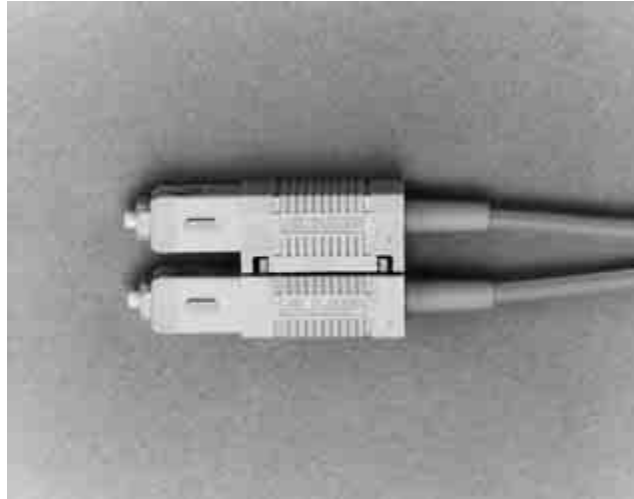
Description	Ferrule Type	Part Numbers				
		Length (m)				
		1	2	3	5	10
SC-SC, Simplex, 62.5/125, Riser	Ceramic	5504970-1	5504970-2	5504970-3	5504970-4	5504970-5
SC-SC, Simplex, 50/125, Riser	Ceramic	5504968-1	5504968-2	5504968-3	5504968-5	1-5504968-0
SC-SC, Simplex, Laser Optimized (10 Gig), Riser	Ceramic	1907499-1	1907499-2	1907499-3	1907499-5	1-1907499-0
SC-SC, Zipcord, 62.5/125, Riser	Ceramic	5492050-1	5492050-2	5492050-3	5492050-4	5492050-5
SC Dup-SC Dup, Zipcord, 62.5/125, Riser	Ceramic	5504971-1	5504971-2	5504971-3	5504971-4	5504971-5
SC Dup-SC Dup, Zipcord, 62.5/125, Riser	Polymer	5492249-1	5492249-2	5492249-3	5492249-5	1-5492249-0
SC-ST, Simplex, 62.5/125, Riser	Ceramic	5504972-1	5504972-2	5504972-3	5504972-4	5504972-5
SC Dup-ST, Zipcord, 62.5/125, Riser	Ceramic	5504958-1	5504958-2	5504958-3	5504958-4	5504958-5
SC Dup-ST, Zipcord, 62.5/125, Riser	Polymer	5492250-1	5492250-2	5492250-3	5492250-5	1-5492250-0

Note: All part numbers are RoHS compliant.

Fibre Channel Fiber Optic Assemblies

Product Facts

- Specified connector float assures intermateability with all Fibre Channel compliant devices
- Connector's minimal metal contact helps contain RFI/EMI
- Assemblies available with riser & plenum grade cable
- Custom cable assembly lengths available
- 50/125 μm multimode fiber
- 62.5/125 μm multimode fiber



Multimode	Ferrule Material	Fiber Size	Riser or Plenum	Part Numbers				
				Length (m)				
				1	2	3	5	10
SC Dup/SC Dup Zipcord	Ceramic	50/125	Plenum	6278016-1	6278016-2	6278016-3	6278016-5	1-6278016-0
SC Dup/SC Dup, Zipcord	Ceramic	62.5/125	Riser	6374040-1	6374040-2	6374040-3	6374040-5	1-6374040-0
SC Dup/SC Dup, Zipcord	Ceramic	62.5/125	Plenum	6374039-1	6374039-2	6374039-3	6374039-5	1-6374039-0
SC Dup-SC Dup, Zipcord	Ceramic	50/125	Riser	5504969-1	5504969-2	5504969-3	5504969-4	5504969-5
SC Dup-ST, Zipcord	Ceramic	62.5/125	Riser	6374038-1	6374038-2	6374038-3	6374038-5	1-6374038-0
SC Dup-ST, Zipcord	Ceramic	50/125	Riser	5492591-1	5492591-2	5492591-3	5492591-5	1-5492591-0

Note: All part numbers are RoHS compliant.

Low Loss SC & FC Singlemode Cable Assemblies

Product Facts

- Full physical contact for all connected fibers
- Low back reflection
- One touch connection / disconnection (push-pull type connector)
- Compliant to IEC 61754-4
- Exceeds GR 326 requirements
- Available for all cable types: LSZH, Riser, & Plenum
- Suitable for all wavelengths: 1310, 1550 & 1625 nm



Applications

- Storage area equipment
- Original Equipment
- Premise installations — Local Area Networks
- Telecommunication Networks
- Multimedia Networks
- SECURE Networks

Tyco Electronics' Low Loss Connectors have an excellent performance of random attenuation <0.1 dB for both PC and APC connectors (GR326 has an objective of <0.2 dB random IL). This allows the system designer to have more interconnections without the need for additional investments in active devices. Line balancing is easier and line stability is easier to achieve.

These Ultra Low Loss Connectors are applicable in Long Haul, Metro and Fiber-to-the-Home applications, as well as DWDM,

CDWM, and Analog Video Transmission.

In Long Haul Networks, more interconnections are possible without necessity for amplification. In Metro Ring applications, the connector allows Telecom vendors to remove the necessity for gain blocks or in-line amplifiers.

Use of the connector in Fiber-to-the-Home environments helps reduce cost, since patching instead of splicing will become more profitable and easier for installers to add subscribers.

Tyco Electronics' Low Loss product range is unique, as it is produced with proprietary processes. It eliminates concerns of attenuation measured against reference or random attenuation.

The connectors produced are of reference quality, since they are made with a standard Zirconia ferrule, which allows them to be used in Outside Plant and Operator Buildings specified in IEC Categories C (controlled), U (uncontrolled), and E (extreme).

Performance Characteristics

Typical IL in random connection (dB)* — < 0.08

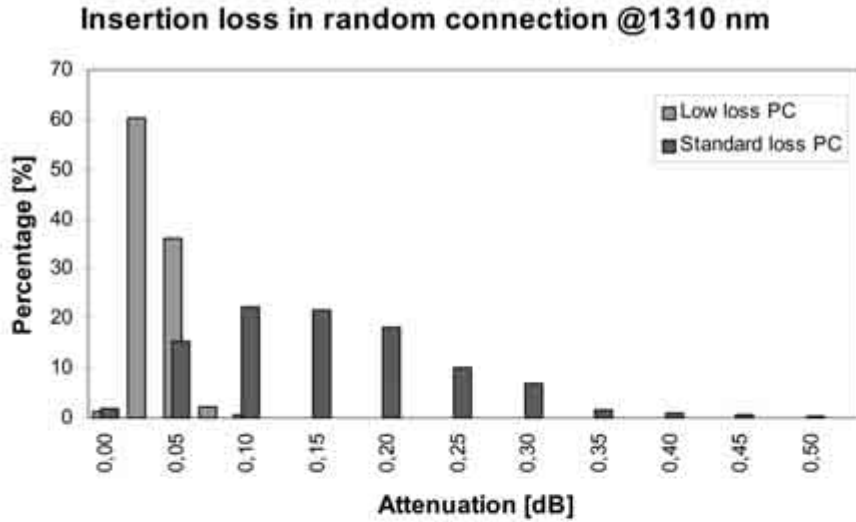
Max IL in random connection (dB)
97% — 0.10

Max IL in random connection (dB)
100% — 0.15

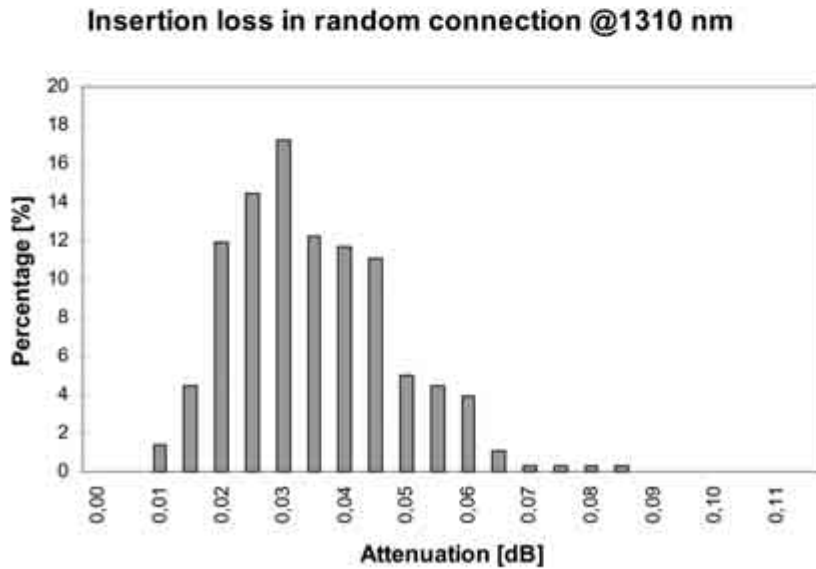
* **Note:** The above values can only be achieved when low loss connectors are being used at both ends, in combination with a low loss adapter.

Low Loss SC & FC Singlemode Cable Assemblies (Continued)

Performance comparison of standard versus low loss connectors



Graph 1: Insertion loss spreading of standard and low loss connectors (macro scale).



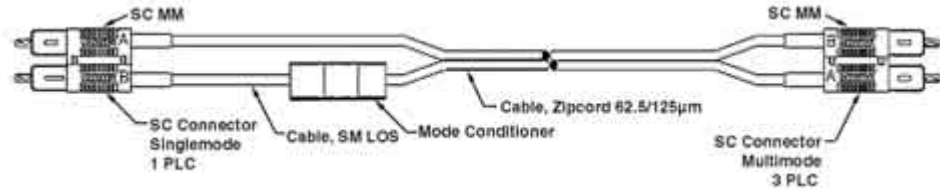
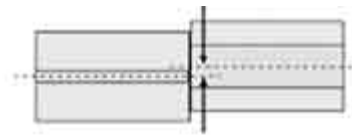
Graph 2: Insertion loss in random connection @ 1310 nm of low loss connectors (micro scale).

Mode Conditioning Cable Assemblies

Mode Conditioning Patch Cords

Product Facts

- Allows use of singlemode gigabit ethernet equipment with multimode installed fiber
- Designed for Longwave (-LX) multimode applications for Gigabit Ethernet Compliant with IEEE-802.3z
- Masks Differential Mode Delay (DMD) signal degradation
- Functions the same as a standard patchcord



Description	Part Number		
	2 Meters	3 Meters	5 Meters
LC - SC Mode Conditioning Patch Cords			
LC Duplex/SC Duplex, SM 62.5/125 µm	6536811-2	6536811-3	6536811-5
LC Duplex/ST Dual, SM 62.5/125 µm	1920476-2	1920476-3	1920476-5

Mode Conditioning Launch Leads with LSZH Cable

Note: See pages 118 & 119 for other LSZH Cable Assemblies

Description	Part Numbers	
	Length (m)	
	3	5.5
ST - ST Mode Conditioning Launch Lead with LSZH Cable		
ST/PC-ST/PC 50/125 µm	6348750-3	
ST/PC - ST/PC 62.5/125 µm	6348749-3	
ST Mode Conditioning Launch Lead Basic with LSZH Cable		
ST/PC Basic 50/125 µm	9-6536401-5	
ST/PC Basic 62.5/125 µm	9-6536440-5	

Description	Part Numbers							
	Length (m)							
	2	3	4	5	7	8	9	10
SC - SC Mode Conditioning Launch Lead with LSZH Cable								
SC - SC Duplex 50/125 µm	6206820-2	6206820-3	—	6208620-5	—	6206820-8	—	1-6206820-0
SC - SC Duplex 62.5/125 µm	6206821-2	6206821-3	6206821-4	6206821-5	6206821-7	6206821-8	6206821-9	1-6206821-0

Description	Part Numbers					
	Length (m)					
	2	3	5	7	8	10
SC - ST Mode Conditioning Launch Lead with LSZH Cable						
SC Duplex - ST 50/125 µm	6348269-2	6348269-3	6348269-5	6348269-7		
SC Duplex - ST 62.5/125 µm	6348271-2	6348271-3	6348271-5		6348271-8	1-6348271-0
SC - MT-RJ Mode Conditioning Launch Lead with LSZH Cable						
SC/PC - MT-RJ 50/125 µm	6536769-3					
SC/PC - MT-RJ 62.5/125 µm	6536770-3					
MT-RJ - ST Mode Conditioning Launch Lead with LSZH Cable						
MT-RJ - ST Duplex 50/125 µm		6536445-3	6536445-5			
MT-RJ - ST Duplex 62.5/125 µm		6536444-3	6536444-5			
MT-RJ - SC Mode Conditioning Launch Lead with LSZH Cable						
MT-RJ - SC Duplex 50/125 µm		6536447-3	6536447-5			
MT-RJ - SC Duplex 62.5/125 µm		6536446-3	6536446-5			

Note: All part numbers are RoHS compliant.

Low Smoke, Zero Halogen (LSZH) Cable Assemblies

LC Cable Assemblies with LSZH Cable

Product Facts

- For high performance applications/high density
- 125 μ m Ceramic Ferrule Technology
- Small size — half the size of standard SC & FC product
- Singlemode & multimode

- Tuned singlemode assemblies
- Hybrid assemblies available with all standard connectors
- Fully compliant with all relevant IEC, CENELEC and ETSI specifications

Performance Characteristics

Insertion Loss —
 Singlemode: < 0.3 dB Against Reference
 Multimode: < 0.1 dB Typical

Return Loss —
 Singlemode: 55 dB - PC endface
 Multimode: 20 dB

Note: See page 117 for Mode Conditioning LSZH Cable Assemblies

Description	Part Numbers				
	Length (m)				
	1	2	3	5	10
LC - LC Lead Assembly with LSZH Cable					
LC/PC - LC/PC Simplex Singlemode 0.9 mm tuned	6536330-1	6536330-2	6536330-3	6536330-5	1-6536330-0
LC/PC - LC/PC Simplex Singlemode 1.8 mm tuned	6536489-1	6536489-2	6536489-3	6536489-5	1-6536489-0
LC/PC - LC/PC Simplex Multimode 2.0 mm 50/125 μ m	6536490-1	6536490-2	6536490-3	6536490-5	1-6536490-0
LC/PC - LC/PC Simplex Multimode 2.0 mm 62.5/125 μ m	6536500-1	6536500-2	6536500-3	6536500-5	1-6536500-0
LC/PC - LC/PC Duplex Singlemode 1.8 mm tuned	6536501-1	6536501-2	6536501-3	6536501-5	1-6536501-0
LC/PC - LC/PC Duplex Multimode 1.8 mm 50/125 μ m	6536502-1	6536502-2	6536502-3	6536502-5	1-6536502-0
LC/PC - LC/PC Duplex Multimode 1.8 mm 62.5/125 μ m	6536503-1	6536503-2	6536503-3	6536503-5	1-6536503-0

Note: Custom lengths are available. Please contact your local Tyco Electronics Sales Representative.

SC Cable Assemblies with LSZH Cable

Product Facts

- 125 μ m Ceramic Ferrule Technology
- Small size — half the size of standard SC & FC product
- Singlemode & multimode
- Tuned singlemode assemblies

- Hybrid assemblies available with all standard connectors
- Fully compliant with all relevant IEC, CENELEC and ETSI specifications

Performance Characteristics

Insertion Loss —
 Singlemode: < 0.3 dB Against Reference
 Multimode: < 0.1 dB Typical

Return Loss —
 Singlemode: 55 dB - PC endface
 Multimode: 20 dB

Note: See page 117 for Mode Conditioning LSZH Cable Assemblies

Description	Part Numbers				
	Length (m)				
	1	2	3	5	10
SC - SC Lead Assembly with LSZH Cable					
SC Duplex/SC Duplex (Ceramic Ferrule) 62.5/125 μ m	5349578-1	5349578-2	5349578-3	5349578-5	1-5349578-0
SC/SC Simplex (Ceramic Ferrule) 62.5/125 μ m	5349577-1	5349577-2	5349577-3	5349577-5	
SC Duplex/SC Duplex (Ceramic Ferrule) 50/125 μ m	5349565-1	5349565-2	5349565-3	5349565-5	1-5349565-0
SC/SC Simplex (Ceramic Ferrule) 50/125 μ m	5349564-1	5349564-2	5349564-3	5349564-5	1-5349564-0
SC Duplex/SC Duplex (Ceramic Ferrule) 50/125 μ m OM3	6536464-1	6536464-2	6536464-3	6536464-5	1-6536464-0
SC Pigtail with LSZH Cable					
SC/PC Pigtail OM3 0.9 mm 50/125 μ m DES		6536555-2			
SC/PC Pigtail OM3 0.9 mm 50/125 μ m PP		6536561-2			

Note: Custom lengths are available. Please contact your local Tyco Electronics Sales Representative.

Note: All part numbers are RoHS compliant.

Low Smoke, Zero Halogen (LSZH) Cable Assemblies (Continued)

ST Cable Assemblies with LSZH Cable

Description	Part Numbers				
	Length (m)				
	1	2	3	5	10
ST - ST Lead Assembly with LSZH Cable					
ST-ST Simplex (Ceramic Ferrule) 62.5/125 µm	5349573-1	5349573-2	5349573-3	5349573-5	1-5349573-0
ST-ST Duplex (Ceramic Ferrule) 62.5/125 µm	5349574-1	5349574-2	5349574-3	5349573-5	1-5349574-0
ST-ST Simplex (Ceramic Ferrule) 50/125 µm	5349560-1	5349560-2	5349560-3	5349560-5	1-5349560-0
ST-ST Duplex (Ceramic Ferrule) 50/125 µm	5349561-1	5349561-2	5349561-3	5349561-5	1-5349561-0

Note: Custom lengths are available. Please contact your local Tyco Electronics Sales Representative.

Note: See page 117 for Mode Conditioning LSZH Cable Assemblies

MT-RJ Cable Assemblies with LSZH Cable

Description	Part Numbers				
	Length (m)				
	1	2	3	5	10
MT-RJ to MT-RJ Lead Assembly with LSZH Cable					
MT-RJ to MT-RJ Singlemode	6206621-1	6206621-2	6206621-3	6206621-5	1-6206621-0
MT-RJ to MT-RJ Multimode 50/125 µm	6206617-1	6206617-2	6206617-3	6206617-5	1-6206617-0
MT-RJ to MT-RJ Multimode 62.5/125 µm	6206613-1	6206613-2	6206613-3	6206613-5	1-6206613-0
MT-RJ to MT-RJ Multimode 50/125 µm OM3	6536462-1	6536462-2	6536462-3	6536462-5	1-6536462-0
MT-RJ Pigtail with LSZH Cable					
MT-RJ Jack male Pigtail bare OM3			6536556-1		
MT-RJ Jack male Pigtail 50/125 µm			6348942-1		
MT-RJ Jack male Pigtail 62.5/125 µm			6348941-1		
MT-RJ Jack male Pigtail 9/125 µm Singlemode			6391366-1		

Note: Custom lengths are available. Please contact your local Tyco Electronics Sales Representative.

Hybrid Cable Assemblies with LSZH Cable

Description	Part Numbers					
	Length (m)					
	1	2	3	5	10	15
LC - SC Lead Assembly with LSZH Cable						
LC/PC - SC/PC Simplex 0.9 mm tuned	6536504-1	6536504-2	6536504-3	6536504-5	1-6536504-0	
LC/PC - SC/PC Simplex 1.8 mm tuned	6536505-1	6536505-2	6536505-3	6536505-5	1-6536505-0	
LC/PC - SC/PC Simplex Multimode 2.0 mm 50/125 µm	6536506-1	6536506-2	6536506-3	6536506-5	1-6536506-0	
LC/PC - SC/PC Simplex Multimode 2.0 mm 62.5/125 µm	6536507-1	6536507-2	6536507-3	6536507-5	1-6536507-0	
LC/PC - SC/PC Duplex Singlemode 1.8 mm tuned	6536508-1	6536508-2	6536508-3	6536508-5	1-6536508-0	
LC/PC - SC/PC Duplex Multimode 1.8 mm 50/125 µm	6536509-1	6536509-2	6536509-3	6536509-5	1-6536509-0	
LC/PC - SC/PC Duplex Multimode 1.8 mm 62.5/125 µm	6536510-1	6536510-2	6536510-3	6536510-5	1-6536510-0	
LC - MT-RJ Lead Assembly with LSZH Cable						
LC/PC - MT-RJ Duplex Singlemode 1.8 mm tuned	6536511-1	6536511-2	6536511-3	6536511-5	1-6536511-0	
LC/PC - MT-RJ Duplex Multimode 1.8 mm 50/125 µm	6536512-1	6536512-2	6536512-3	6536512-5	1-6536512-0	
LC/PC - MT-RJ Duplex Multimode 1.8 mm 62.5/125 µm	6536513-1	6536513-2	6536513-3	6536513-5	1-6536513-0	
MT-RJ to SC Lead Assembly with LSZH Cable						
MT-RJ - SC Duplex Singlemode	6391153-1	6391153-2	6391153-3	6391153-5		
MT-RJ - SC Duplex Ceramic Ferrule Multimode 50/125 µm	6206619-1	6206619-2	6206619-3	6206619-5	1-6206619-0	
MT-RJ - SC Duplex Ceramic Ferrule Multimode 62.5/125 µm	6206615-1	6206615-2	6206615-3	6206615-5	1-6206615-0	
MT-RJ - SC Simplex Ceramic Ferrule Multimode 50/125 µm	6206618-1	6206618-2	6206618-3	6206618-5	1-6206618-0	
MT-RJ - SC Simplex Ceramic Ferrule Multimode 62.5/125 µm	6206614-1		6206614-3	6206614-5	1-6206614-0	
MT-RJ - SC Multimode 50/125 µm OM3	6536463-1	6536463-2	6536463-3	6536463-5	1-6536463-0	
MT-RJ to ST Lead Assembly with LSZH Cable						
MT-RJ - ST Singlemode 9/125 µm		6348093-2				1-6348093-5
MT-RJ - ST Ceramic Ferrule Multimode 50/125 µm	6206620-1	6206620-2	6206620-3	6206620-5	1-6206620-0	
MT-RJ - ST Ceramic Ferrule Multimode 62.5/125 µm	6206616-1	6206616-2	6206616-3	6206616-5	1-6206616-0	

Note: Custom lengths are available. Please contact your local Tyco Electronics Sales Representative.

Note: All part numbers are RoHS compliant.

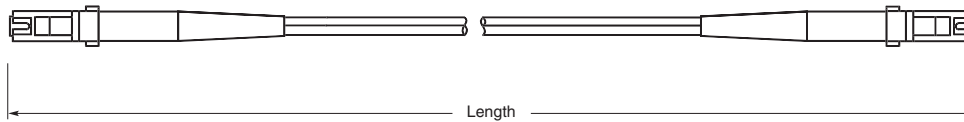
Optical Fiber Cable Assembly Information

Optical Fiber Cable Assembly Performance Details

Test Description	FOTP*	Requirement
Visual and Mechanical Inspection:	MT-RJ –	TIA/EIA-604-12
	SC –	TIA/EIA-604-3
	ST –	TIA/EIA-604-2
	LC –	TIA/EIA-604-10
Attenuation	34	≤ 0.75 dB
Return Loss	107	≤ -20 dB
Low Temperature (0° C for 4 days)	188	≤ 0.3 dB change
Temperature Life (55° C for 14 days)	7	≤ 0.3 dB change
Humidity (90 to 95% @ 40° C for 4 days)	5	≤ 0.3 dB change
Impact (8 drops from 1.8 m)	2	≤ 0.75 dB IL, < -20 dB RL
Durability (500 cycles)	21	≤ 0.75 dB IL, < -20 dB RL
Cable Retention (0° and 90°)	6	≤ 0.75 dB IL, < -20 dB RL
Flex (100 cycles)	1	≤ 0.75 dB IL, < -20 dB RL
Twist (10 cycles)	36	≤ 0.75 dB IL, < -20 dB RL

*FOTP = Fiber Optic Test Procedure

Optical Fiber Cable Assembly Length Reference



Meter to Foot and Inch Reference

Length in Meters	Length in Feet	Length in Inches
1	3.28	39.37
2	6.56	78.74
3	9.84	118.11
4	13.12	157.48
5	16.40	196.85
6	19.68	236.21
7	22.96	275.59
8	26.25	314.96
9	29.52	354.33
10	32.80	393.70
20	65.62	787.40
30	98.42	1181.10
40	131.23	1574.80
50	164.04	1968.50
60	196.85	2362.20
70	229.66	2755.90
80	262.47	3149.60
90	295.27	3543.30
100	328.08	3937.00
110	360.89	4330.69
120	393.70	4724.39
130	426.51	5118.09
140	459.32	5511.79
150	492.12	5905.49
160	524.93	6299.19
170	557.74	6692.89
180	590.55	7086.59
190	623.36	7480.29
200	656.17	7873.99

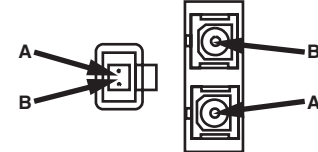
Fiber Polarity

Fiber Color	Left Connector	Right Connector
White	A	B
Blue	B	A

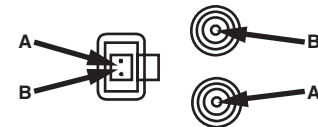
MT-RJ



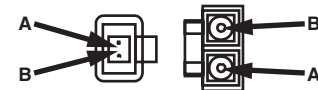
MT-RJ to Duplex SC



MT-RJ to Dual ST



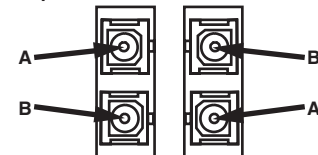
MT-RJ to Duplex LC



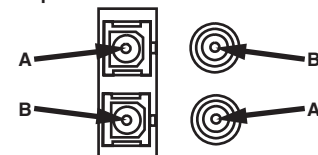
Duplex LC



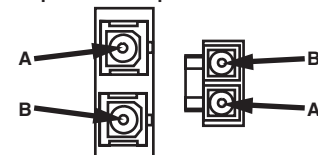
Duplex SC



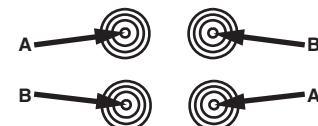
Duplex SC to Dual ST



Duplex SC to Duplex LC



Dual ST



MT-RJ Cable Assemblies

Product Facts

- Each MT-RJ connector houses two fibers
- Cable assemblies are riser-rated



Connector End 1	Connector End 2	Fiber Type	UL/NEC Rating	Part Number
MT-RJ	MT-RJ	50/125 μ m Multimode	OFNR	6278128-X
		Laser Optimized (10 Gig) (850 nm 50/125 μ m) Multimode	OFNR	6588572-X
		62.5/125 μ m Multimode	OFNR	6278032-X
		Singlemode	OFNR	6278033-X

X denotes length in meters: -1 = 1, -2 = 2, -3 = 3, -5 = 5, 1- -0 = 10

MT-RJ to SC Cable Assemblies

Product Facts

- Connects between equipment with different interfaces
- SC connectors feature ceramic ferrules
- Each MT-RJ Connector houses two fibers
- Cable assemblies are riser-rated



Connector End 1	Connector End 2	Fiber Type	UL/NEC Rating	Part Number
MT-RJ	Duplex SC	50/125 μ m Multimode	OFNR	6278126-X
		Laser Optimized (10 Gig) (850 nm 50/125 μ m) Multimode	OFNR	6693414-X
		62.5/125 μ m Multimode	OFNR	6278028-X
	Simplex SC	Singlemode	OFNR	6278031-X
		50/125 μ m Multimode	OFNR	6278127-X
		Laser Optimized (10 Gig) (850 nm 50/125 μ m) Multimode	OFNR	6588573-X
		62.5/125 μ m Multimode	OFNR	6278030-X

X denotes length in meters: -1 = 1, -2 = 2, -3 = 3, -5 = 5, 1- -0 = 10

Note: All part numbers are RoHS compliant.

MT-RJ to ST Cable Assemblies

Product Facts

- Connects between equipment with different interfaces
- ST Connectors feature ceramic ferrules
- Each MT-RJ Connector houses two fibers
- Cable assemblies are riser-rated



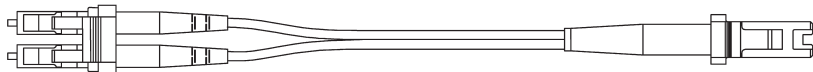
Connector End 1	Connector End 2	Fiber Type	UL/NEC Rating	Part Number
MT-RJ	Dual ST	50/125 μm Multimode	OFNR	6278199-X
		62.5/125 μm Multimode	OFNR	6278027-X
		Singlemode	OFNR	6278298-X

X denotes length in meters: -1 = 1, -2 = 2, -3 = 3, -5 = 5, 1- -0 = 10

MT-RJ to LC Cable Assemblies

Product Facts

- Connects between equipment with different interfaces
- One Duplex LC Connector and one MT-RJ Plug
- LC Connectors feature ceramic ferrules
- Cable Assemblies are riser-rated
- Each MT-RJ Connector houses two fibers



Connector End 1	Connector End 2	Fiber Type	UL/NEC Rating	Part Number
MT-RJ	LC Duplex	50/125 μm Multimode	OFNR	6374647-X
		Laser Optimized (10 Gig) (850 nm LO 50/125 μm) Multimode	OFNR	6588719-X
		62.5/125 μm Multimode	OFNR	6374646-X
		Singlemode	OFNR	6374645-X

X denotes length in meters: -1 = 1, -2 = 2, -3 = 3, -5 = 5, 1- -0 = 10

Note: All part numbers are RoHS compliant.

MT-RJ Pigtail Jack (Single-Ended) Cable Assemblies

Product Facts

- Compatible with MT-RJ Jack Snap-in Adapter Plates
- Two 250 µm coated fiber in protective 900 µm tubing
- MT-RJ Jack Assemblies are compatible with fusion or mechanical splices
- Each MT-RJ Connector houses two fibers

Description	Fiber Type	Color	Part Number
MT-RJ Jack	50/125 µm Multimode	Black	6374018-X
	62.5/125 µm Multimode	Beige	6374019-X
	Singlemode	Blue	6374020-X
	Laser Optimized (10 Gig)	Aqua	1938008-X
MT-RJ SECURE Jack	Singlemode	Red	6588568-X
		Yellow	6588569-X
		Green	6588571-X
		Blue	6588570-X
		Orange	6828233-X
		Brown	6828234-X
		Slate	6828235-X
		Violet	6828236-X
		Rose	6828237-X
		Aqua	6828238-X

X denotes length in meters: -1 = 1, -2 = 2, -3 = 3

MT-RJ Pigtail Plug (Single-Ended) Cable Assemblies

Product Facts

- Compatible with MT-RJ Plug Snap-in Adapter Plates
- Two 250 µm coated fiber in protective 900 µm tubing
- MT-RJ Plug Assemblies are compatible with fusion or mechanical splices
- MT-RJ Plugs are pinned
- Each MT-RJ Connector houses two fibers

Description	Fiber Type	Part Number
MT-RJ Plug	50/125 µm Multimode	6588849-X
	62.5/125 µm Multimode	6693532-X
	Singlemode	6693533-X

X denotes length in meters: -1 = 1, -2 = 2, -3 = 3

Note: All part numbers are RoHS compliant.

MT-RJ Cable Assembly Test Kits

MT-RJ Test Kit Components

Kit A

- 2 - MT-RJ (no pins) to SC/ST cable assemblies
- 1 - MT-RJ (pins) to SC/ST cable assembly
- 1 - MT-RJ to MT-RJ cable assembly
- 2 - Mandrels
- 1 - MT-RJ Adapter

Kit B

- 2 - MT-RJ to MT-RJ cable assemblies
- 2 - Mandrels

Kit C

- 2 - MT-RJ (no pins) to SC/ST cable assembly
- 1 - MT-RJ (pins) to SC/ST cable assembly
- 1 - MT-RJ to MT-RJ cable assembly
- 1 - MT-RJ Adapter

Kit D

- 2 - MT-RJ to MT-RJ cable assemblies

MT-RJ Test Kits



Description	Part Number	Components (see list)	
MT-RJ to ST-Style Kit	Multimode 50/125 μm	1278861-2	Kit A
	Multimode 62.5/125 μm	1278862-2	Kit A
	Singlemode	1278863-2	Kit B
MT-RJ to ST-Style SECURE Kit	Multimode 50/125 μm	1278861-5	Kit A
	Multimode 62.5/125 μm	1278862-5	Kit A
	Singlemode	1278863-5	Kit B
MT-RJ to SC Kit	Multimode 50/125 μm	1278861-1	Kit A
	Multimode 62.5/125 μm	1278862-1	Kit A
	Singlemode	1278863-1	Kit B
MT-RJ to SC SECURE Kit	Multimode 50/125 μm	1278861-4	Kit A
	Multimode 62.5/125 μm	1278862-4	Kit A
	Singlemode	1278863-4	Kit B
MT-RJ to MT-RJ Kit	Multimode 50/125 μm	1278861-3	Kit C
	Multimode 62.5/125 μm	1278862-3	Kit C
	Singlemode	1278863-3	Kit D
MT-RJ to MT-RJ SECURE Kit	Multimode 50/125 μm	1278861-6	Kit C
	Multimode 62.5/125 μm	1278862-6	Kit C
	Singlemode	1278863-6	Kit D

MT-RJ Test Leads

MT-RJ Test Leads are divided into two primary categories:

- **Launch Leads** — made for use with standard test equipment
- **OTDR Launch Leads** — long lengths (100 meters) to deal with “dead zone” of OTDR equipment

Standard MT-RJ Launch Leads

Fiber Description	Part Number		
	MT-RJ — SC Simplex	MT-RJ — ST	MT-RJ — MT-RJ
No Pins, 62.5 Fiber	6435092-1	6435094-1	6435096-1
No Pins, 50/125 Fiber	6435092-2	6435094-2	6435096-2
No Pins, Singlemode	6435092-3	6435094-3	6435096-3
Pins, 62.5 Fiber	6435092-4	6435094-4	6435096-4
Pins, 50/125 Fiber	6435092-5	6435094-5	6435096-5
Pins, Singlemode	6435092-6	6435094-6	6435096-6

OTDR MT-RJ Launch Leads (100 meter length)

Part Number	Fiber Description
6588079-1	MT-RJ (No Pins) SC Simplex, 62.5/125 Fiber, 100 meters
6588080-1	MT-RJ (No Pins) SC Simplex, 50/125 Fiber, 100 meters

MT-RJ Loopbacks

Description	Part Number	
MT-RJ Loopback	Multimode 50/125 μm	6278357-1
	Multimode 62.5/125 μm	6278153-1
	Singlemode	6278358-1

Note: All part numbers are RoHS compliant.

MPO Cable Assemblies

MPO to MPO Trunk Cable Assemblies

Product Facts

- Quick connection of 12 fibers
- Pulling socks protect connectors during installation
- Available in
 - 62.5/125 μ m
 - 50/125 μ m
 - 50/125 μ m laser optimized
 - Singlemode



Description	UL/NEC Ratings	Part Number	
12 Fiber, Pair-Flipped (AB/BA)	50/125 μ m Multimode	Riser (OFNR)/ Plenum (OFNP)	6435028-X
	Laser Optimized (10 Gig) (850 nm 50/125 μ m) Multimode	Riser (OFNR)/ Plenum (OFNP)	6693087-X
	62.5/125 μ m Multimode	Riser (OFNR)/ Plenum (OFNP)	6435024-X
	Singlemode	Riser (OFNR)/ Plenum (OFNP)	6435070-X
24 Fiber, Pair-Flipped (AB/BA)	50/125 μ m Multimode	Riser (OFNR)/ Plenum (OFNP)	6435029-X
	Laser Optimized (10 Gig) (850 nm 50/125 μ m) Multimode	Riser (OFNR)/ Plenum (OFNP)	6754687-X
	62.5/125 μ m Multimode	Riser (OFNR)/ Plenum (OFNP)	6435025-X
	Singlemode	Riser (OFNR)/ Plenum (OFNP)	6754882-X
72-Fiber, Pair-Flipped (AB/BA)	50/125 μ m Multimode	Plenum (OFNP)	6435031-X
		Riser (OFNR)	6435039-X
	62.5/125 μ m Multimode	Plenum (OFNP)	6435027-X
		Riser (OFNR)	6435035-X

Note: X denotes length in feet: -1 = 10, -2 = 20, -3 = 30, -4 = 40, -5 = 50, -6 = 60, -7 = 70, -8 = 80, -9 = 90, 1- -0 = 100, 1- -1 = 110, 1- -2 = 120, 1- -3 = 130, 1- -4 = 140, 1- -5 = 150, 1- -6 = 160, 1- -7 = 170, 1- -8 = 180, 1- -9 = 190, 2- -0 = 200, 2- -1 = 210, 2- -2 = 220, 2- -3 = 230, 2- -4 = 240, 2- -5 = 250, 2- -6 = 260, 2- -7 = 270, 2- -8 = 280, 2- -9 = 290, 3- -0 = 300.

Other Standard MPO Cable Assemblies

Other Standard MPO Cable Assemblies

Part Number	Description
6588930-X	12-f MPO (f) - MPO (f), 50/125, jacketed ribbon, straight fiber path
6588688-X	12-f MPO (f) - MPO (f), 50/125, jacketed ribbon, reversed fiber path
6693182-X	12-f MPO (f) - MPO (f), 50/125, jacketed ribbon, reversed fiber path (For POP4 TxRx applications. Center 4 fibers not tested.)
6693088-X	12-f MPO (f) - MPO (f), SM, jacketed ribbon, straight fiber path
1588388-X	12-f MPO (f) - MPO (f), 62.5/125, jacketed ribbon, reversed fiber path
6457988-X	12-f MPO (f) - MPO (f), 62.5/125, jacketed ribbon, straight fiber path
6828375-X	12-f MPO (m) - MPO (m), 50/125, jacketed ribbon, straight fiber path
6828420-X	12-f MPO (m) - MPO (m), 50/125, jacketed ribbon, reversed fiber path

Note: X denotes length in feet: -1 = 10, -2 = 20, -3 = 30, -4 = 40, -5 = 50, -6 = 60, -7 = 70, -8 = 80, -9 = 90, 1- -0 = 100, 1- -1 = 110, 1- -2 = 120, 1- -3 = 130, 1- -4 = 140, 1- -5 = 150, 1- -6 = 160, 1- -7 = 170, 1- -8 = 180, 1- -9 = 190, 2- -0 = 200, 2- -1 = 210, 2- -2 = 220, 2- -3 = 230, 2- -4 = 240, 2- -5 = 250, 2- -6 = 260, 2- -7 = 270, 2- -8 = 280, 2- -9 = 290, 3- -0 = 300.

All part numbers are RoHS compliant.

MPO Cable Assemblies (Continued)

MPO Cable Assemblies for Premise Networks

Description

- A modular “plug-and-go” optical cabling system

Applications

- A high-performance option for AMP NETCONNECT zone cabling and cabling systems

Product Facts

- Uses proven NTT MT linear array technology in the MPO connector
- MPO packs up to 12 optical fibers into a single miniaturized connector about the same size as one SC type
- Cables are pre-terminated and tested
- Distribution hardware is pre-loaded
- Cable rating options:
 - Riser rated, UL-OFNR
 - Plenum rated, UL-OFNP (std.)
 - Low Smoke, Zero Halogen rated, LSZH
- Singlemode or Multimode

Other Applications

- Cabling System for Mainframes Catalog 889414

Performance Characteristics

Insertion Loss —

Singlemode — 0.35 dB typical
Multimode — 0.50 dB typical

Return Loss —

Angled Singlemode — -50 dB typical
Flat Multimode — -40 dB typical

Durability —

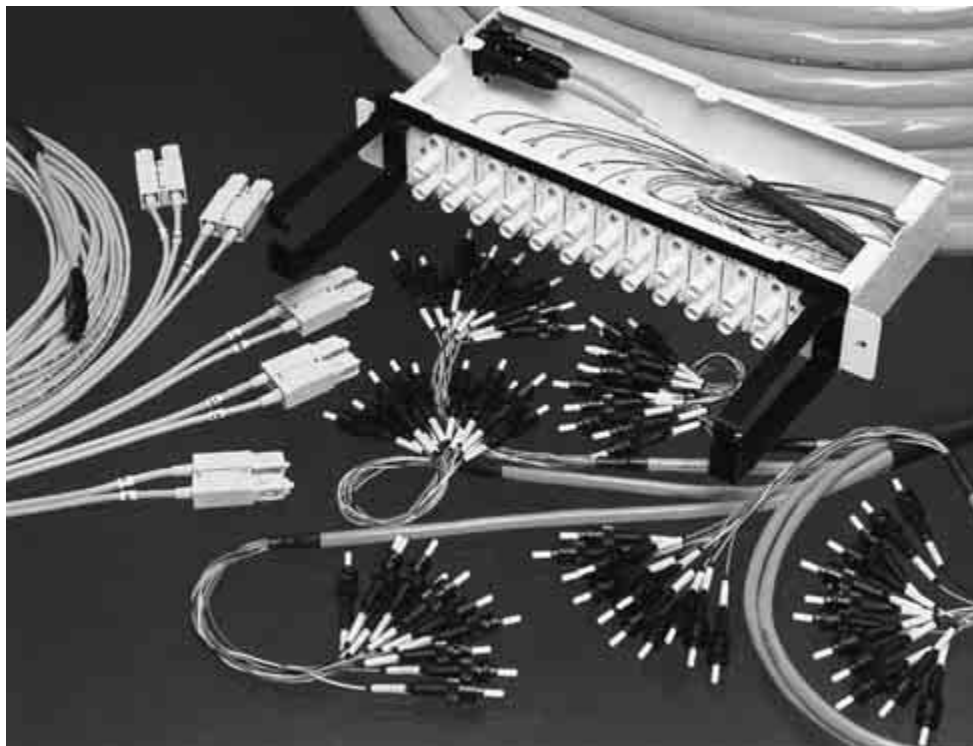
After 500 matings ≤0.1 dB change

Temperature Range —

-40°C to +80°C

- Produced under a Quality Management System certified to ISO 9001

A copy of the certificate is available upon request



Initially designed to replace thick copper parallel cables used under floors of computer rooms in large mainframe centers, Tyco Electronics' MPO Cabling System also makes perfect sense for campus and premise type Local Area Networks. It provides unparalleled ease and flexibility in cabling applications such as backbone and horizontal distribution to the desktop.

The MPO System uses the same simple concepts found in most structured networks following TIA/EIA 568A guidelines. The difference is that with MPO Systems the cables come pre-terminated and tested, with a pulling sock over each end. Just pull through the conduit, remove the netting, and plug it in — that's it.

MPO trunk cables run through the building vertically between floors, and

horizontally through walls, ceilings, and under floors to distribution enclosures and consolidation points strategically located within the building. Mini-trunks and fanout assemblies connect the consolidation point to the workstation outlets. Jumper cables connect the outlet to the workstation, and are also used for cross-connecting in the telecommunications closet. Installation is easier and faster with cables selected specifically for each site.

MPO cabling is a high performance option for AMP NETCONNECT zone cabling, and complements the system as a furniture cabling solution. MPO cables can reside parallel to existing UTP without fear of crosstalk.

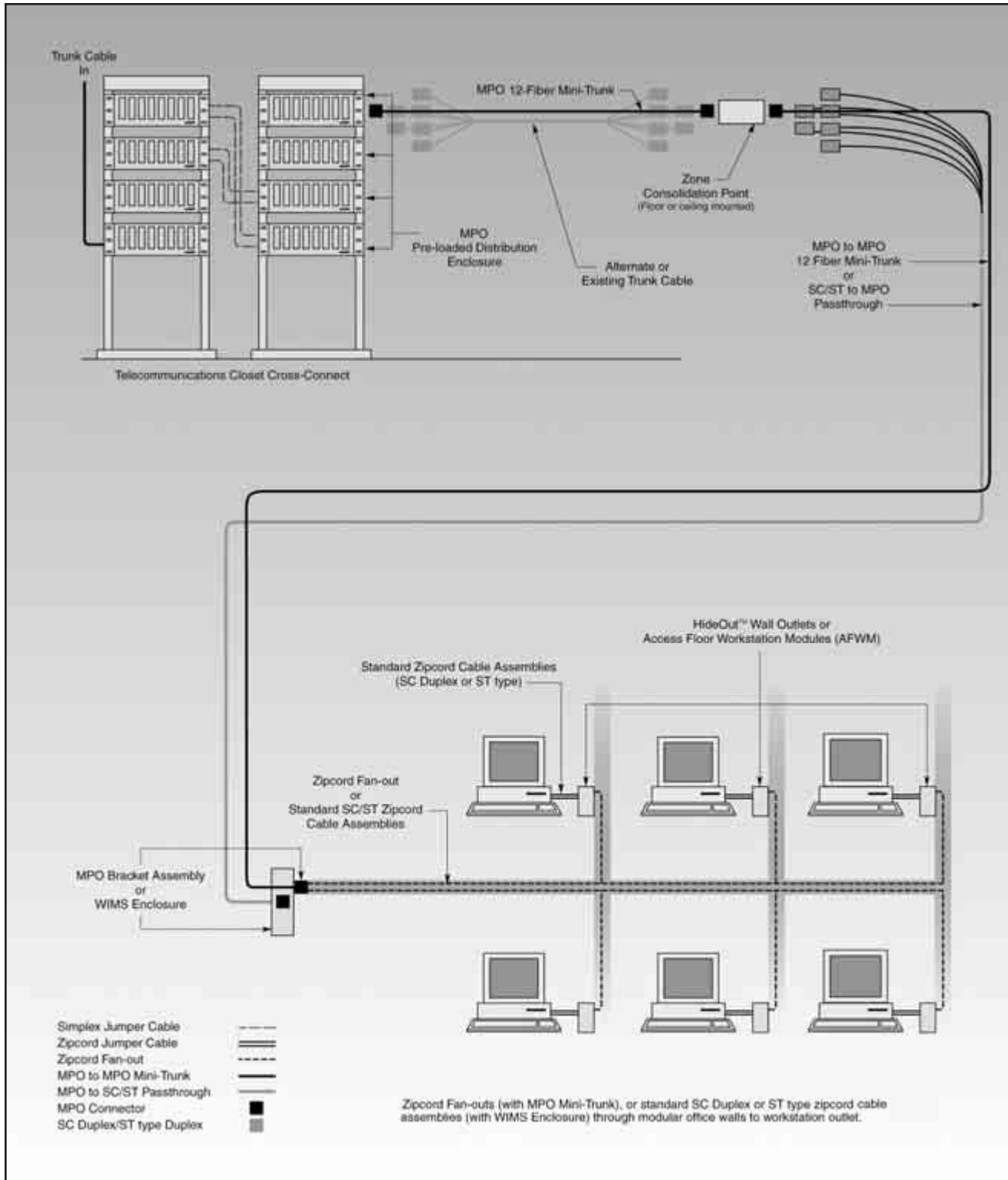
Mini-trunk feeder cables and fan-out cable assemblies are an ideal solution for the open office environment. Their small size

allows easy storage in modular office panels and raceways. When it's time to move add or change the zone, the mini-trunks are simply unplugged from nearby zone enclosures and moved with the furniture. Data outage is contained to the zone under construction. After the zone is reconfigured, just plug the MPO connectors back in to the network, and your workstations are up and running.

There's no longer a need to bring in a network staff to shut down the entire system to re-terminate and test the cabling for moves, adds, and changes. Moves can usually be done by the end-user's facilities crew or someone with minimal network experience. At last, “modular” is living up to its promise. You can take an office apart, move it, and put it back together — quick and simple!

MPO Cable Assemblies (Continued)

MPO Cable Assemblies for Premise Networks (Continued)



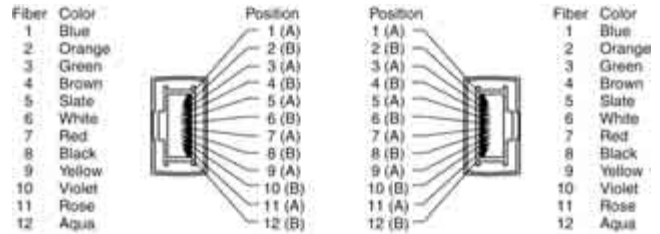
MPO Cable Assemblies (Continued)

MPO Cable Assemblies for Premise Networks (Continued)

Pairs Flipped Versus Straight Through Fiber Path Configuration

Unlike the mainframe application counterparts, Tyco Electronics' MPO trunks for Premise applications typically do not require "pair flipping". Pair Flipping, or "AB/BA" transmit/receive configuration is a sequential channel cross-over scheme used for

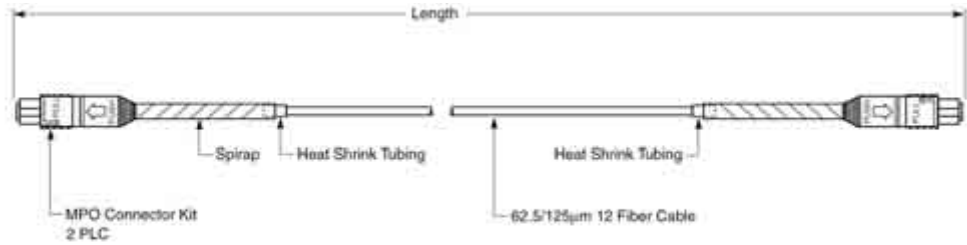
IBM Enterprise Systems Connectivity (ESCON) architecture. MPO premise trunk fiber pairs are configured as "AB/AB". For example — blue fiber (1) travels straight through the cable and exits on the opposite end in the same position (1), as illustrated (right). This fiber path configuration is known as "straight through".



Straight Through Fiber Path Configuration

MPO to MPO Mini-Trunk Cable Assembly

4 pair (8 fiber), straight through 62.5/125 multimode



Pulling Sock (included on each end)

MPO to MPO Mini-Trunks

Trunk Length	Part Number (OFNP)
6 meter [19.7 feet]	1-5492105-9
8 meter [26.3 feet]	2-5492105-0
10 meter [32.8 feet]	5492105-2
15 meter [49.2 feet]	5492105-7
20 meter [65.6 feet]	5492105-3
23 meter [75.5 feet]	2-5492105-1
27 meter [88.6 feet]	2-5492105-2
30 meter [98.4 feet]	5492105-4
33 meter [108.3 feet]	2-5492105-3
38 meter [124.7 feet]	1-5492105-5
43 meter [141.1 feet]	2-5492105-4
46 meter [150.9 feet]	1-5492105-6
50 meter [164.1 feet]	5492105-8
53 meter [173.9 feet]	1-5492105-7
61 meter [200.1 feet]	1-5492105-3

Additional lengths available. Custom lengths can be built to customer's specifications.

Note: All part numbers are RoHS compliant.

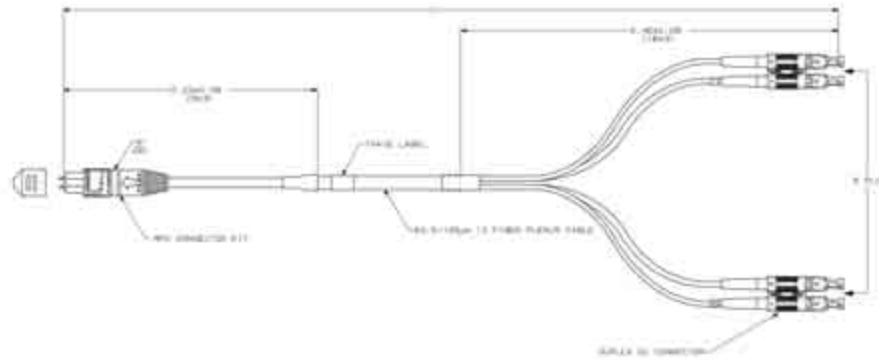
ESCON is a trademark of IBM Corporation.

MPO Cable Assemblies (Continued)

MPO Cable Assemblies for Premise Networks (Continued)

MPO to SC Duplex
PASS-THROUGH Fan-out

6 pair (12 fiber),
straight through
62.5/125 multimode



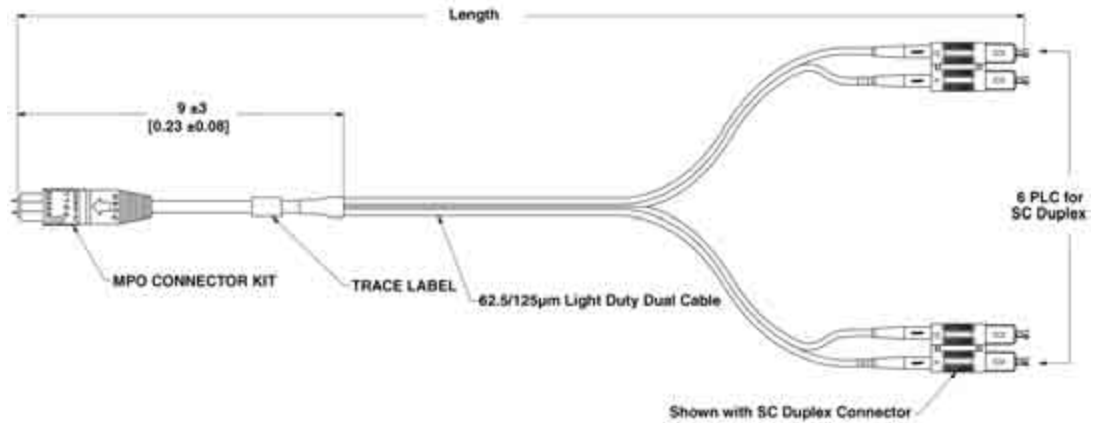
MPO to SC Duplex

Overall Length [L]	Part Number (OFNP)
6 meter [19.7 feet]	5492362-6
8 meter [26.3 feet]	5492362-8
10 meter [32.8 feet]	1-5492362-0
15 meter [49.2 feet]	1-5492362-5
20 meter [65.6 feet]	2-5492362-0

Additional lengths available.
Custom lengths can be built to customer's specifications.

MPO to SC Duplex
Zipcord Fan-out

6 pair (12 fiber),
straight through
62.5/125 multimode



MPO to SC Duplex

Overall Length [L]	Part Number
6 meter [19.7 feet]	5492363-6
8 meter [26.3 feet]	5492363-8
15 meter [49.2 feet]	1-5492363-5

Additional lengths available.
Custom lengths can be built to customer's specifications.

Note: All part numbers are RoHS compliant.

MPO Cable Assemblies (Continued)

MPO Cable Assemblies for Mainframes

Description

- A modular “plug-and-go” optical cabling system for mainframe information centers

Application

- Replaces copper bus-and-tag cables in parallel architecture, or streamlines IBM ESCON serial fiber optic technology

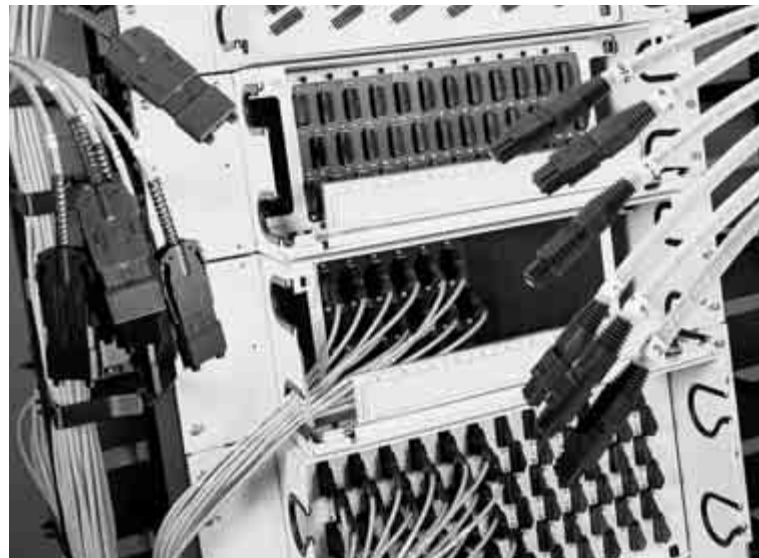
Product Facts

- Proven NTT MT linear array technology in the MPO connector
- MPO packs up to 12 optical fibers into a single miniaturized connector about the same size as one SC type
- ESCON Connectors are IBM Approved and 100% compatible
 - Direct attach harnesses
 - Jumper cables
- Cables are pre-terminated and tested
- Distribution hardware is pre-loaded
- Cable rating options:
 - Riser rated, UL-OFNR (std.)
 - Plenum rated, UL-OFNP
 - Low smoke, Zero Halogen rated, LSZH
- Singlemode or Multimode

Other Applications

- Cabling System for Premise Networks
- Produced under a Quality Management System certified to ISO 9001

A copy of the certificate is available upon request



Tyco Electronics' MPO modular cabling system is structured to provide unparalleled ease and flexibility in the cabling of IBM Enterprise Systems Connection architecture (ESCON).

MPO provides every thing you need to cable your data center:

- assorted lengths of MPO connectorized 36 and 72-fiber trunks
- 8 or 12-fiber mini-trunks
- MPO to ESCON direct attach harnesses
- pre-loaded distribution enclosures
- MPO coupler bushing mounting brackets
- cable clamps
- ESCON jumper cables

Select what you need to connect your system and plug it in. Installation is faster and easier with cables selected specifically for the hardware layout in your data center.

MPO trunk cables deployed around the periphery or down the center of the computer room through under-floor conveyance systems provide plug-and-go connectivity to pre-loaded MPO distribution enclosures mounted in main and zone cabinets throughout the data center.

Multiple layers of MPO trunks and distribution hardware allow the data center to be divided into zones. Zoning further increases simplicity and flexibility of connections between equipment.

MPO mini-trunks, ESCON jumper cables and harnesses plugged into the distribution panels provide final connections to IBM Enterprise Systems processors, ESCON directors, and I/O devices.

Tyco Electronics' MPO System eliminates thick, inflexible point-to-point copper cables, or tangled bundles of ESCON jumpers

running under computer room floors.

Once installed, the MPO System simplifies the hassles associated with migration. Because fiber transmissions are electrically silent, systems can be upgraded without planned outages. Re-configuring and rearranging equipment is six times faster, since only one connector is plugged in. It is also as simple as unplugging the trunk from the ESCON harness, leaving the harness to be removed with the equipment. Each MPO cable is removable and reusable.

The MPO System takes the superior performance of ESCON fiber optic technology one step further — by simplifying installation and migration, while opening up crowded space under computer room floors, improving air flow and breathing new life into data centers.

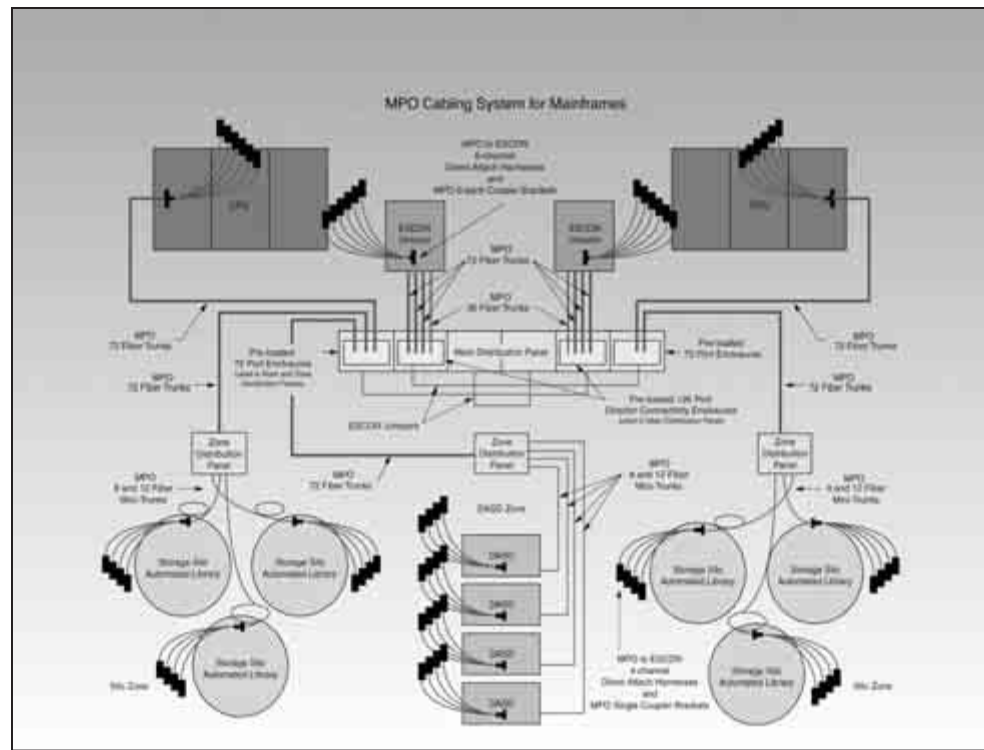
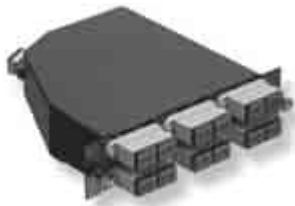
ESCON is a trademark of IBM Corporation.

MPO Cable Assemblies (Continued)

MPO Cable Assemblies for Mainframes (Continued)

Product Facts

- Fiber wiring pattern is pair-flipped (AB/BA)
- Also available in straight-through (AB/AB) configuration
- Simple and flexible premise fiber cabling
- All cassettes have MPO trunk connections at rear
- Fits all AMP NETCONNECT Enclosures listed in this catalog that accept snap-in adapter plates
- Easy installation, moves, adds and changes



MPO Cassettes

Part Number	Description	Color	Fiber Count	Fiber Type	Config.
6435067-2	MPO-ST mod.assy.	Black	12	50	Crossed
6278418-2	MPO-ST mod.assy.	Black	12	62.5	Crossed
6754286-1	MPO-MT-RJ mod. assy.	Black	12	50	Crossed
6754288-1	MPO-MT-RJ mod. assy.	Black	24	50	Crossed
6754285-2	MPO-MT-RJ mod. assy.	Black	12	62.5	Crossed
6754287-1	MPO-MT-RJ mod. assy.	Black	24	62.5	Crossed
1938996-1	MPO-MT-RJ mod. assy.	Black	12	SM	Crossed
6828819-1	MPO-MT-RJ mod. assy.	Black	24	SM	Crossed
1918777-1	MPO-MT-RJ mod. assy.	Black	12	Laser Optimized (10 Gig)	Crossed
1918778-1	MPO-MT-RJ mod. assy.	Black	24	Laser Optimized (10 Gig)	Crossed
6435181-2	MPO-SC mod. assy.	Black	12	50	Crossed
6435180-2	MPO-SC mod. assy.	Black	12	62.5	Crossed

Part Number	Description	Color	Fiber Count	Fiber Type	Config.
6435069-2	MPO-SC mod. assy.	Black	12	SM	Crossed
6754333-2	MPO-SC mod. assy.	Black	12	Laser Optimized (10 Gig)	Crossed
1918779-1	MPO-LC mod. assy.	Black	12	50	Crossed
1918780-1	MPO-LC mod. assy.	Black	24	50	Flipped
1918781-1	MPO-LC mod. assy.	Black	12	62.5	Crossed
1918782-1	MPO-LC mod. assy.	Black	24	62.5	Flipped
1938056-1	MPO-LC mod. assy.	Black	12	SM	Crossed
1918786-1	MPO-LC mod. assy.	Black	24	SM	Flipped
1918783-1	MPO-LC mod. assy.	Black	12	Laser Optimized (10 Gig)	Crossed
1918784-1	MPO-LC mod. assy.	Black	24	Laser Optimized (10 Gig)	Flipped

Note: All part numbers are RoHS compliant.

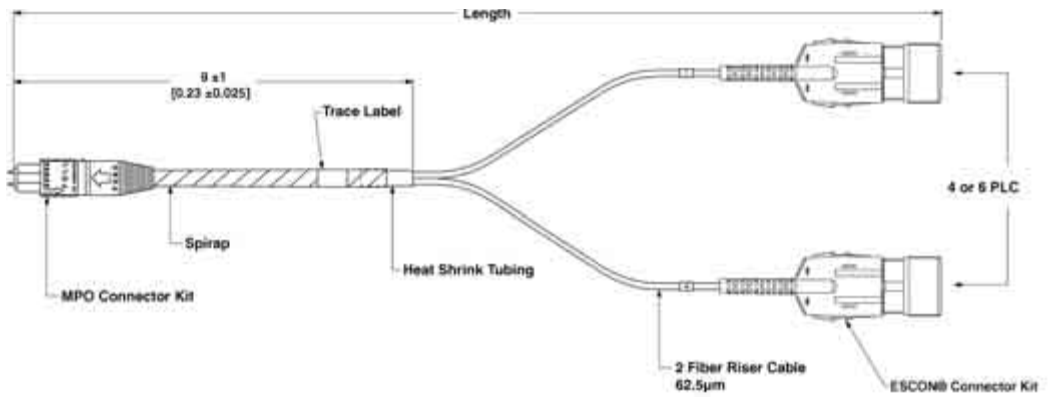
ESCON is a trademark of IBM Corporation.

MPO Cable Assemblies (Continued)

MPO Cable Assemblies for Mainframes (Continued)

MPO to ESCON Direct Attach Harness

- 4 channel (8 fiber), AB/AB straight through
- 6 channel (12 fiber), AB/AB straight through
- 62.5/125 multimode



Harness Length	6 Channel (12 fiber)
	Part Number
3 feet [0.9 meters]	6754335-1

Custom lengths can be built to customer's specifications.
Cable is Riser rated.

**ESCON Cable Assemblies
62.5/125 µm Multimode**

Cable Type	Length (meters)											
	1	2	3	4	5	7	13	22	31	46	61	122
Riser	5492231-1	5492231-2	5492231-3	5492231-4	5492231-5	5492231-7	1-5492231-3	2-5492231-2	3-5492231-1	4-5492231-6	6-5492231-1	9-5492231-9
Plenum	5492251-1	5492251-2	5492251-3	5492251-4	5492251-5	5492251-7	1-5492251-3	2-5492251-2	3-5492251-1	4-5492251-6	6-5492251-1	9-5492251-9
Low Smoke Zero Halogen	5492275-1	5492275-2	5492275-3	5492275-4	5492275-5	5492275-7	1-5492275-3	2-5492275-2	3-5492275-1	4-5492275-6	6-5492275-1	9-5492275-9

Connectors are black, cable is orange.
Cable construction is two fiber round.
Custom lengths are available.

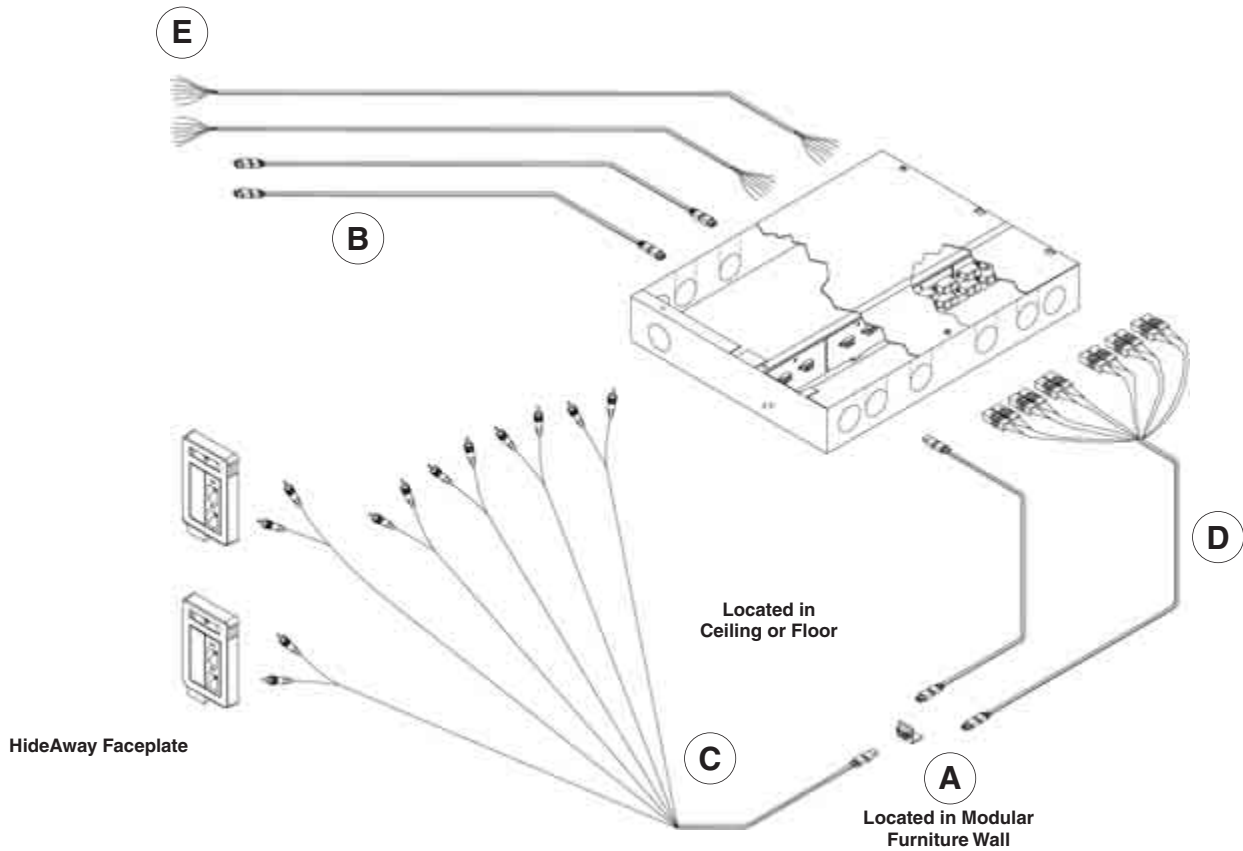
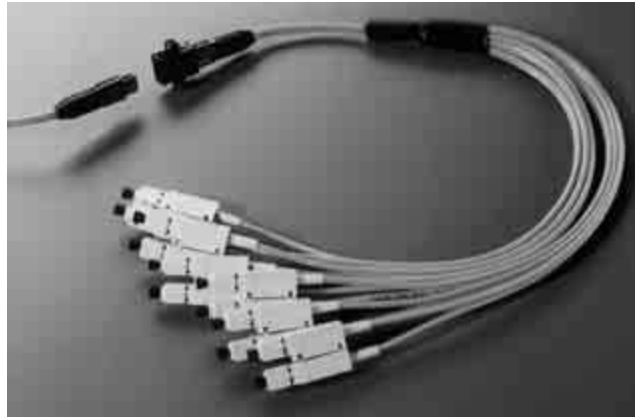
Note: All part numbers are RoHS compliant.

ESCON is a trademark of IBM Corporation.

MPO Cable Assemblies (Continued)

MPO Cable Assemblies for Mainframes (Continued)

Tyco Electronics' MPO System delivers the full bandwidth of optical fiber while maintaining the flexibility for the open office with reusable assemblies.



Ordering Information:

	Part Number	Description
A	5504954-1	MPO Receptacle Mounting Bracket
B	5492105-X	MPO Cable Assembly, MPO/MPO straight through, 12 fiber, 62.5/125 mm
C	5492363-Y	MPO Cable Assembly, MPO/SC Duplex long fan-out, 12 fiber, 62.5/125 mm
D	5492362-Z	MPO Cable Assembly, MPO/SC Duplex short fan-out, 12 fiber, 62.5/125 mm

X denotes length in meters: -7 = 15, 1- -4 = 30, 1- -5 = 38, 1- -6 = 45, 2- -0 = 8, 2- -1 = 23

Y denotes length in meters: -6 = 6, -8 = 8, 1- -5 = 15

Z denotes length in meters: -6 = 6, -8 = 8, 1- -0 = 10, 1- -5 = 15, 2- -0 = 20

Note: All part numbers are RoHS compliant.

High Density PARA-OPTIX Cable Assemblies

Product Facts

- Uses the latest generation MT-style ferrules
- Available in up to 72 fibers through a single MPO style connector
- Available in 12, 24, 32, 48, and 72 fiber
- Other fiber counts and lengths available
- Save time during installation — requires less connectors
- Reduced space requirements
- Can provide cost benefit on a per-fiber basis

Potential Applications

- Jumpers and trunk cables for Data Centers
- Optical backplanes
- SAN Very Short Reach applications

Please contact your local Sales Representative or Tyco Electronics for detailed performance characteristics and specifications.

Specifications are preliminary and subject to change.



Tyco Electronics' high density PARA-OPTIX cable assemblies use the latest in MT-ferrule technology to provide the maximum fiber density for parallel optical applications.

By terminating these ferrules in MPO style connectors, Tyco Electronics is able to take advantage of the industry standards and acceptance of the MPO connector family.

Tyco Electronics' PARA-OPTIX Cable Assemblies can support up to 72 fibers through a single connector, saving space on the board and time during installation.



Part Number	Description
6588930-X	12-fiber MPO-MPO, 50/125 Multimode
6588967-X	24-fiber MPO-MPO, 50/125 Multimode
6693070-X	32-fiber MPO-MPO, 50/125 Multimode
6693069-X	48-fiber MPO-MPO, 50-125 Multimode
1919166-X	72-fiber MPO-MPO, 50/125 Multimode
6693068-X	48-fiber MPO — (4), 12-fiber MPO, 50/125 bare ribbon
6693067-X	72-fiber MPO — (6), 12-fiber MPO, 50/125 bare ribbon

Note: "X" above denotes length. Check latest version of Tyco Electronics' customer drawing or contact your local sales representative for specific lengths available.

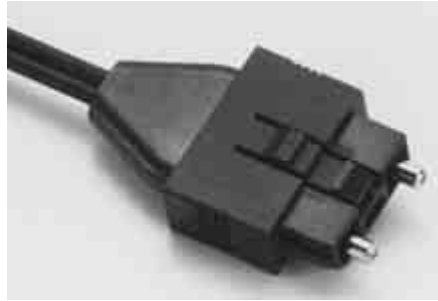
Note: All part numbers are RoHS compliant.

Plastic Fiber Cable Assemblies

F07 Duplex Plastic Fiber Cable Assemblies

Product Facts

- Standard and custom lengths
- Conforms to JISC-5976



Fiber Type	Length	Part Number
980/1000 μm Plastic Optical Fiber	1	5492155-1
	2	5492155-2
	3	5492155-3
	5	5492155-4
	10	5492155-5
	15	5492155-6
	20	5492155-7

Audio-DNP Plastic Fiber Cable Assemblies

Product Facts

- Complies with EIAJ RC-5720 for digital audio equipment and Japan Industry STD F05
- Compatible with TDSLlink
- Mates with receptacle configuration CNF50SR3 Type per EIAJ RC-5720
- Economical and highly reliable based on Tyco Electronics' high speed automatic assembly technologies
- Cable assemblies available with or without logo
- 980/100 μm POF cable with UL VW-1 rating



Length (mm)	Cable Assembly Part Number	
	Without Logo	With Logo
300	178671-3	173317-3
400	178671-4	173317-4
500	178671-5	173317-5
600	178671-6	173317-6
700	178671-7	173317-7
800	178671-8	173317-8
900	178671-9	173317-9
1000	1-178671-0	1-173317-0
1100	1-178671-1	1-173317-1
1200	1-178671-2	1-173317-2
1300	1-178671-3	1-173317-3
1400	1-178671-4	1-173317-4
1500	1-178671-5	1-173317-5
1600	1-178671-6	1-173317-6
1700	1-178671-7	1-173317-7
1800	1-178671-8	1-173317-8
1900	1-178671-9	1-173317-9
2000	2-178671-0	2-173317-0
2500	2-178671-1	—
3000	2-178671-2	—
3500	2-178671-3	—
4000	2-178671-4	—
4500	2-178671-5	—
5000	2-178671-6	—
5500	2-178671-7	—
6000	2-178671-8	—
10000	3-178671-6	—

Applications

- I/O and internal cabling of AV, OA, and FA equipment plus automotive internal networking

Performance Characteristics

- Operating Temperature** — -30 C to +80 C
- Max. Insertion Loss** — 3.5 dB
- Connector Mating Force** — 4 Kg max.
- Connector Unmating Force** — 0.4 to 4 Kg
- Cable Retaining Strength** — 5 Kg min.

Note: All part numbers are RoHS compliant.

LIGHTPLANE Connector System

Product Facts

- Optical interconnection of daughter cards to motherboard
- Bellcore compliant SC interface from motherboard
- 2 to 8 positions
- Centerline spacing 12.5 mm (0.492 in.)
- Singlemode and multimode versions
- Daughtercard floats and alignment pins on motherboard assure mating

Performance Characteristics

Insertion Loss — 0.5 dB typ.

Return Loss — 40 dB min.

Temperature Range —
-40°C to +85°C

Durability — <0.5 dB after 200 cycles



The Tyco Electronics' LIGHTPLANE Connector is a multi-position fiber optic backplane connector that permits blind mating of singlemode or multimode optical fibers from a daughtercard to a system backplane or motherboard. Now you can simultaneously make both the optical and electronic interconnections when installing the daughtercard. The LIGHTPLANE connector contains up to 8 fiber positions utilizing the standard SC interface.

Use of off the shelf SC components minimizes per line costs. It also eliminates the need for separate optical jumpers from the daughtercards to the front or back of the cabinet, minimizing labor costs and possible fiber damage.

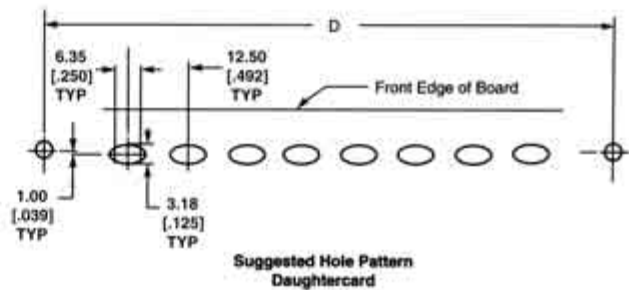
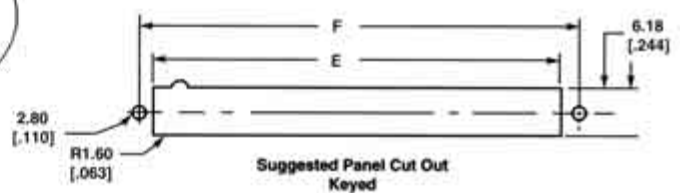
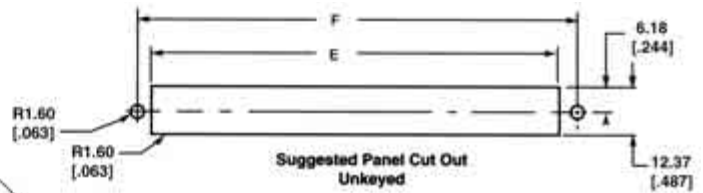
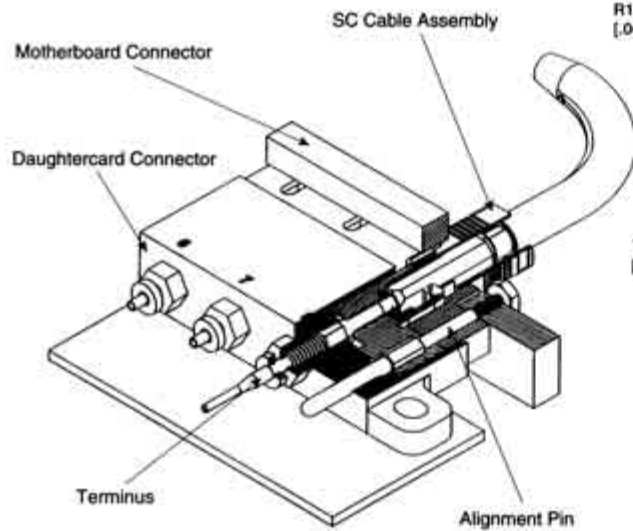
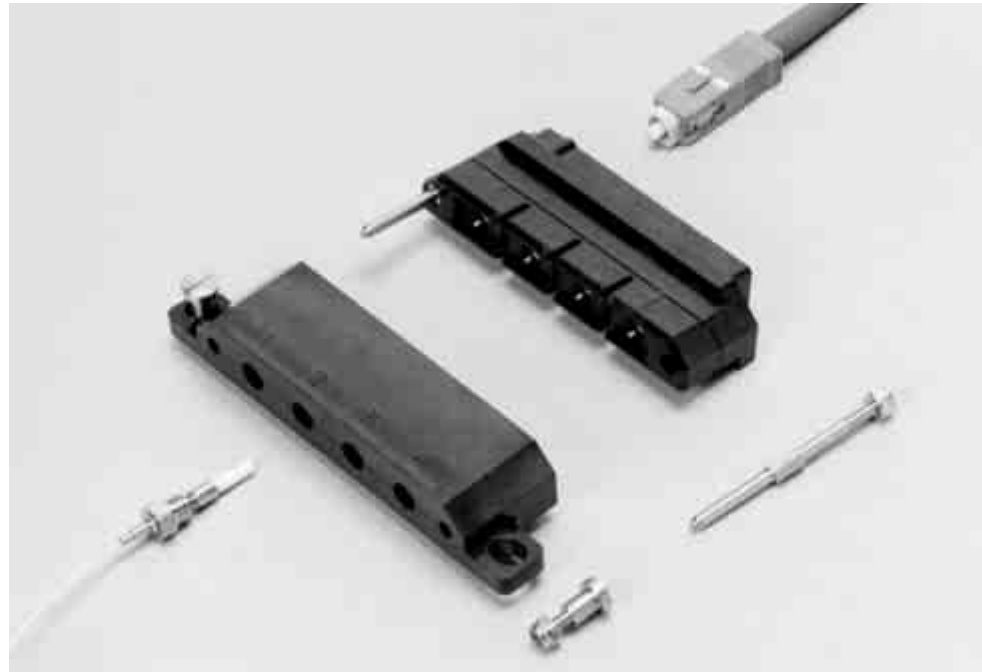
Designed for telecommunications and networking equipment, the LIGHTPLANE connector provides performance comparable to conventional SC interconnections: 0.5 dB typical insertion loss and 40 dB return loss. Shoulder screws on the daughtercard

module provide the necessary float for precise alignment. Daughtercard termini are spring loaded to ensure optical contact between the backplane and daughtercard. The daughtercard connector acts like multiple SC connectors, providing fiber density and minimizing packaging all in one protective shell. The shell protects the optical contacts on all sides from accidental damage if the board is dropped or knocked against a hard surface.

Description	Size/No. of Positions	Part Number
Daughtercard Connector	8	503185-1
Motherboard Connector Ceramic Alignment Sleeves with Polarization Key	8	5503682-1
Description	Type/Fiber Hole Dia. (µm)	Part Number
Daughtercard Terminus for 900 µm buffered fiber	Singlemode/125	5503186-1
	Singlemode/126	5503186-2
	Singlemode/127	5503186-3
	Multimode/125	5503412-1
Pre-Assembled Cable Assembly Daughtercard Terminus on both ends-2 meters — Singlemode		5503683-1

Note: All part numbers are RoHS compliant.

LIGHTPLANE Connector System (Continued)



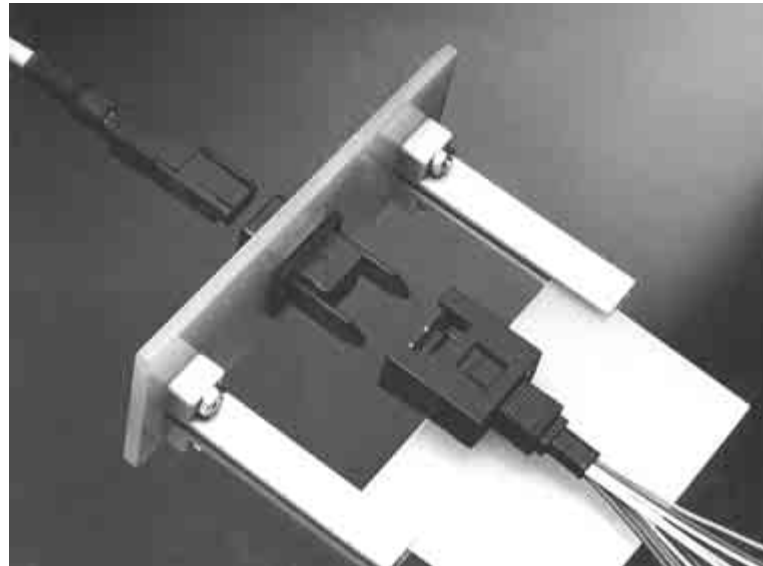
LIGHTPLANE Connector System

No. of Positions	Dimension		
	D	E	F
1	38.00 [1.496]	12.88 [.507]	20.00 [.787]
2	50.50 [1.988]	25.38 [.999]	32.50 [1.280]
4	75.50 [2.972]	50.38 [1.984]	57.50 [2.264]
8	125.50 [4.941]	100.38 [3.952]	107.50 [4.232]

LIGHTRAY MPX System Interconnects

Product Facts

- **LIGHTRAY MPX Interconnects offer a blindmate backplane solution**
- **A complete fiber optic system which is ideal for applications requiring customized solutions**
- **Features very small, high density LIGHTRAY MPX connectors**
- **Based on industry proven MT interconnection technology**
- **Can use both multimode (62.5/125 μ m or 50/125 μ m) and singlemode (9 μ m) fiber, and is designed to meet Bellcore GR 1435**
- **Saves valuable board space on the PCB, backplane and I/O**
- **Suitable for blind mate (free floating) and bulkhead applications. Offers flexible fiber routing and management**
- **2.5 mm of daughter card axial travel is provided**
- **Misalignment pick-up tolerance are:
± 2.0 mm horizontal
± 2.5 mm vertical
± 2 degree angular**



Tyco Electronics' LIGHTRAY MPX Interconnection System is designed for blind mate backplane and bulkhead dense fiber-to-fiber interconnect applications, including stand alone interconnections when used with bulkhead adapters.

The LIGHTRAY MPX Interconnection System

offers maximum flexibility, making them ideal for customized requirements and solutions.

Based on the field-proven MT ferrule technology, the LIGHTRAY MPX Interconnection System features a miniature multi-fiber connector, which holds up to 24 fibers on 250 μ m centers.

Tyco Electronics' LIGHTRAY MPX Interconnection System is multi-sourced and features fanout assemblies, mini trunk and trunk cable assemblies, pre-loaded enclosures, cable management systems, PC card connector housings and tooling, bulkhead adapters and transceiver modules and datalinks.

LIGHTRAY MPX Connector



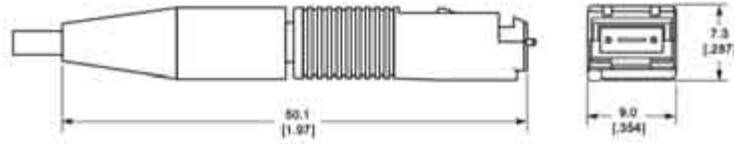
Design Objectives

Parameter	Value		
	Multimode	Singlemode	Singlemode Low Loss
Insertion Loss, Mean (typical)	0.20 dB	0.25 dB	0.20 dB
Insertion Loss, Max.	0.50 dB	0.75 dB	0.30 dB / 0.5 dB*
Return Loss, Min.	20 dB	45 dB	45 dB
Durability,	0.3 dB CIT - 200 cycles		
Straight Pull 2.2N	0.3 dB change		
Vibration, 10 to 55 Hz	0.3 dB change		
Temperature, Storage	-40°C to +85°C		
Temperature Operating	-40°C to +85°C		
Thermal Aging, 14 Days @ +85°C	0.3 dB change		
Humidity, 14 days 95% Rh @ +60°C	0.3 dB change		

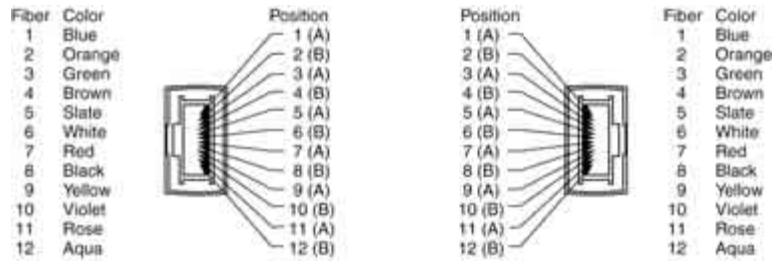
* Low loss tested in-house to a maximum of 0.3 dB against a reference. 0.5 dB is maximum random mate loss.

LIGHTRAY MPX System Interconnects (Continued)

LIGHTRAY MPX Connector



Straight Through Fiber Path Configuration



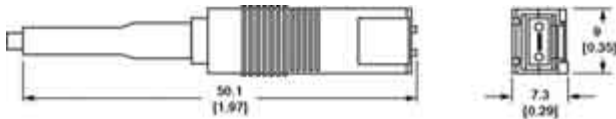
Straight Through Fiber Path Configuration

Unlike their mainframe application counterparts, LIGHTRAY MPX trunks for Premise applications typically do not require “pair flipping”. Pair Flipping, or “AB/BA” transmit/receive configuration is a sequential

channel cross-over scheme used for IBM Enterprise Systems Connectivity (ESCON) architecture. LIGHTRAY MPX premise-trunk fiber pairs are configured as “AB/AB”. For example — blue fiber

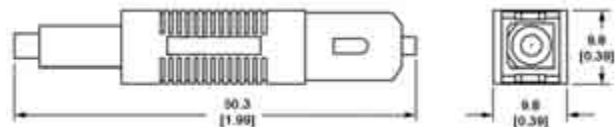
(1) travels straight the cable and exits on the opposite end in the same position (1), as illustrated below. This fiber path configuration is known as “straight through”.

LIGHTRAY MPX Connector



LIGHTRAY MPX Connector accommodates up to 12 fibers in a form factor smaller than typical single-fiber connectors

SC Connector

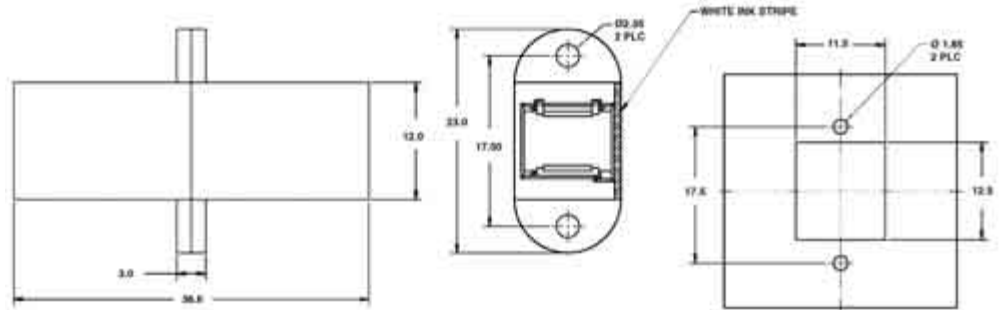


ESCON is a trademark of IBM Corporation.

LIGHTRAY MPX System Interconnects (Continued)

Bulkhead Coupling Adapter

Part Number 492305-1



Panel Cutout

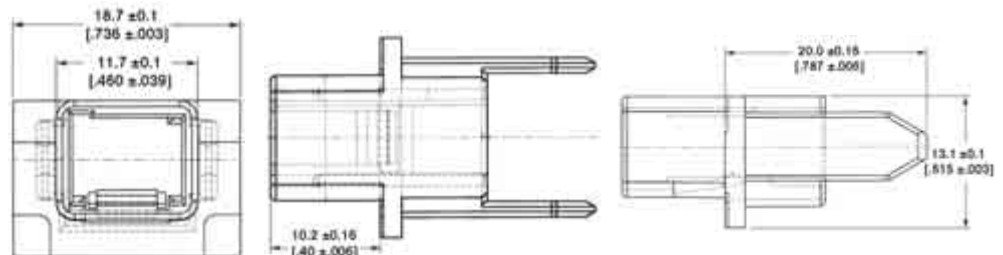
Product Facts

- Use two #2 screws for panel mounting
- LIGHTRAY MPX coupling adapter uses the same dust cover as the SC coupling adapter
- Can be mounted side-by-side for maximum port density

Backplane Housings and Adapters

Part Number 492739-1

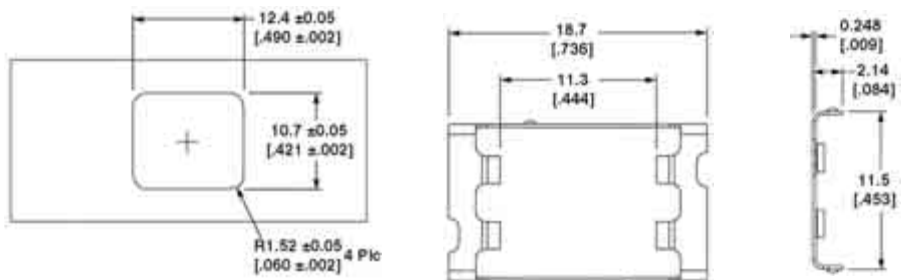
Backplane Housing — Simplex



Product Facts

- All backplane mounting holes must be within 0.1 mm diameter true position of nominal from backplane datums to assure proper mating
- Used to mate any LIGHTRAY MPX Connector from the backplane side
- Mates to 492234-1

Clip Part Number 492740-2



Backplane Cutout

Note: All part numbers are RoHS compliant.

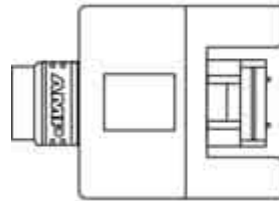
LIGHTRAY MPX System Interconnects (Continued)

Backplane Housings and Adapters (Continued)

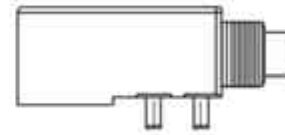
System Card Housing — Simplex



Part Number 492234-1



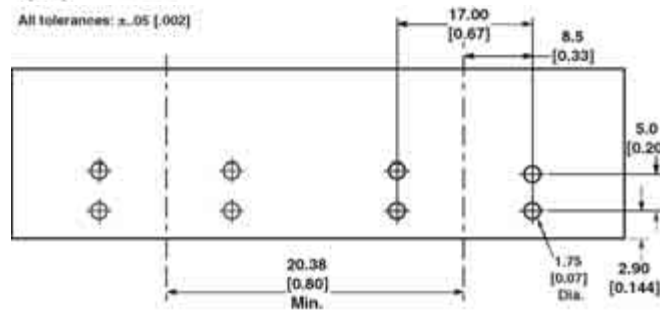
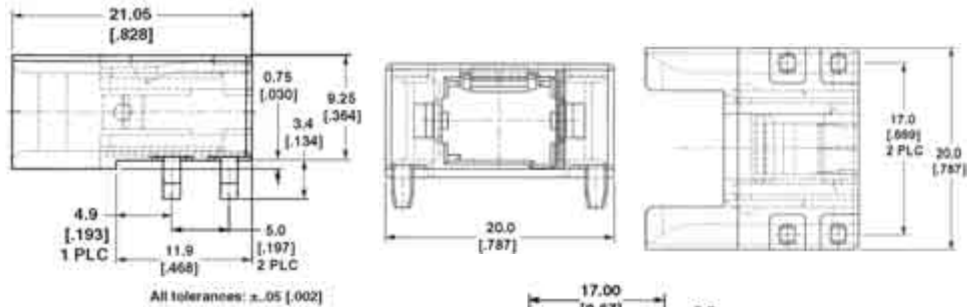
Top View



Side View

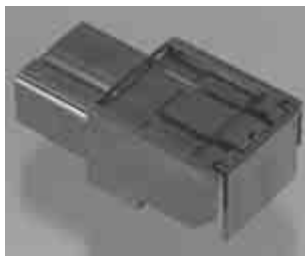
Product Facts

- Holds one standard or low loss LIGHTRAY MPX connector
- Simple press-fit mounting — no hardware needed
- Unique latching provides positive retention when card is unmated
- Space daughtercard mounting hole patterns no closer than 20.38 mm
- All daughtercard mounting holes must be within 0.1 mm diameter true position of nominal from daughtercard daturn to assure proper mating
- Mates to 492739-1

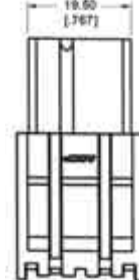
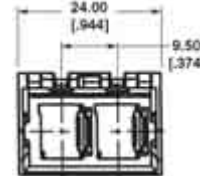
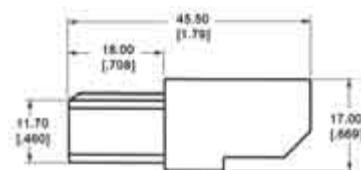


Daughtercard Housing Spacing

Backplane Housing — Duplex

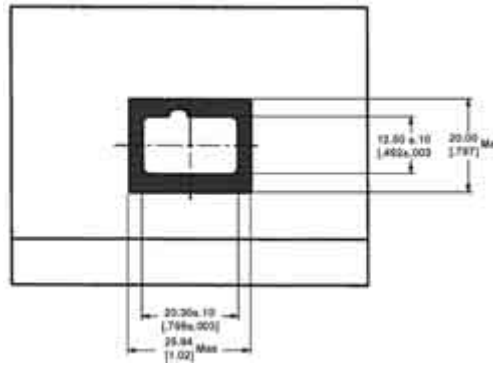


Part Number 1374490-1 and 6374493-1 (with safety shutter)



Product Facts

- Holds two standard or low loss LIGHTRAY MPX connectors
- Optional self actuated laser safety shutter
- Up to 48 fibers simultaneously mated and managed
- Mates to part number 1374491-1
- Used with clip part number 1278530-2 (next page)



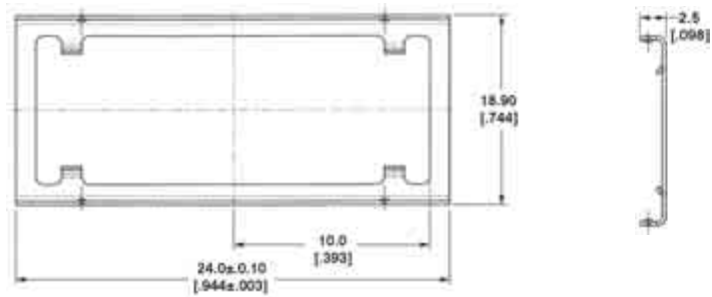
Panel Cutout

Note: All part numbers are RoHS compliant.

LIGHTRAY MPX System Interconnects (Continued)

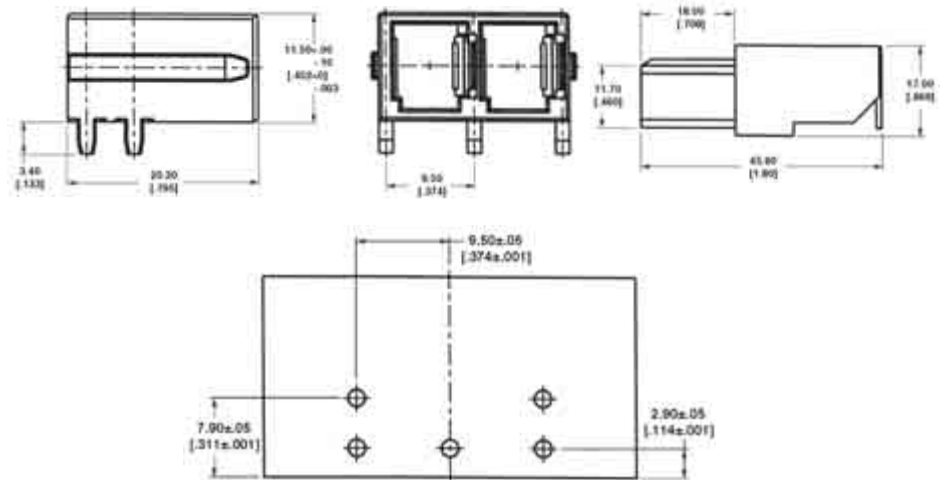
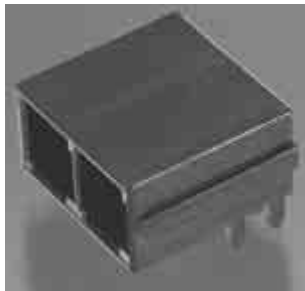
Backplane Housings and Adapters (Continued)

Clip Part Number 1278530-2, 1 x 2 Duplex



System Card Housing — Duplex

Part Number 1374491-1



Product Facts

- Holds two standard or low loss LIGHTRAY MPX connectors
- Up to 48 fibers simultaneously mated and managed
- Simple press-fit mounting, no hardware needed
- Unique latching provides positive retention when card is unmated
- Mates to part number 1374490-1

Note: All part numbers are RoHS compliant.

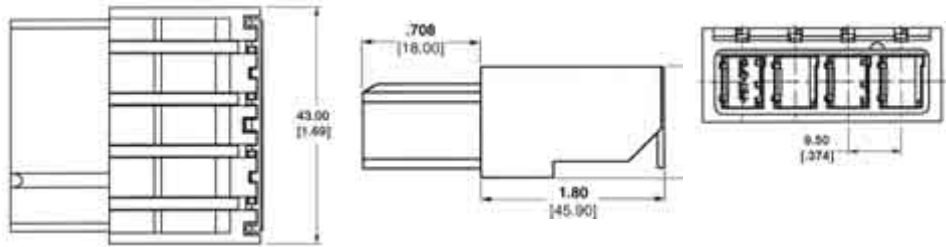
LIGHTRAY MPX System Interconnects (Continued)

Backplane Housings and Adapters (Continued)

Backplane Housing — Quad

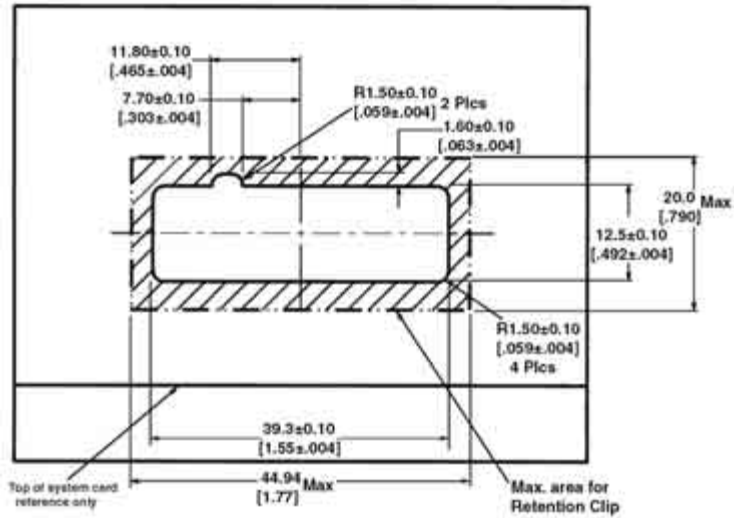


Part Number 6278529-1



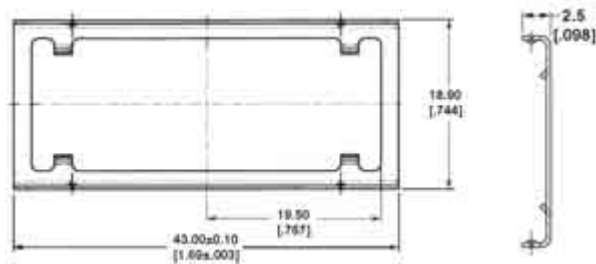
Product Facts

- Holds up to 4 standard or low loss LIGHTRAY MPX connectors
- Self actuated laser-safe shutter
- Up to 96 fibers simultaneously mated and managed
- Integral “tool safe” cable latching
- Mates to 1278391-1
- Used with clip 1278530-1



Suggested Panel Cutout Looking from System Card Side

Clip Part Number 1278530-1, 1 x 4 Quad



Note: All part numbers are RoHS compliant.

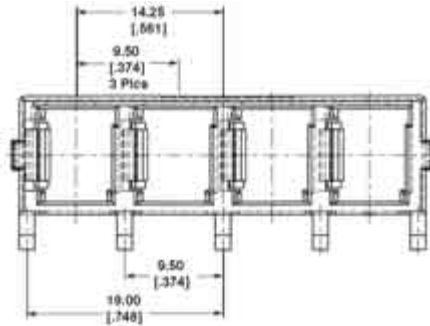
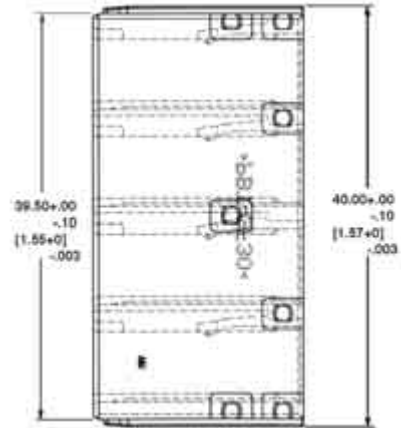
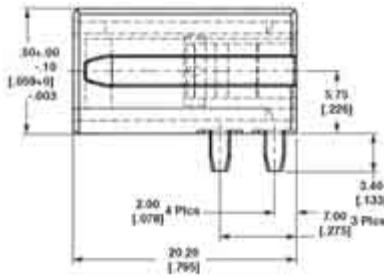
LIGHTRAY MPX System Interconnects (Continued)

Backplane Housings and Adapters (Continued)

System Card Housing — Quad

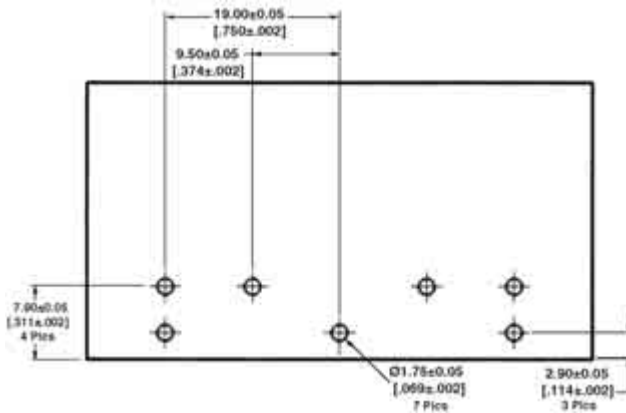


Part Number 1278391-1



Product Facts

- Holds 4 standard or low loss LIGHTRAY MPX connectors
- Up to 96 fibers simultaneously mated and managed
- Simple press-fit mounting — no hardware needed
- Unique latching provides positive retention when card is unmated
- Mates to 6278529-1



Recommended Hole Pattern

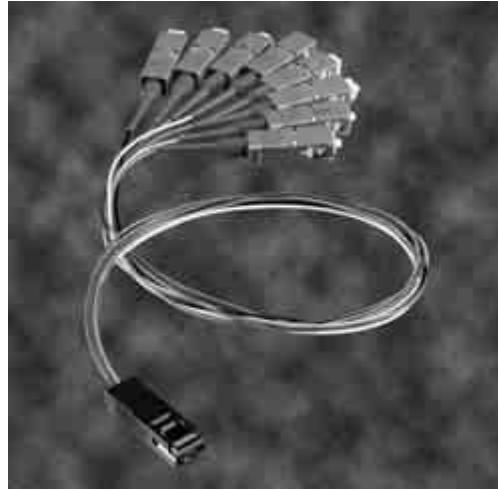
Note: All part numbers are RoHS compliant.

LIGHTRAY MPX System Interconnects (Continued)

Fanout Assemblies

Product Facts

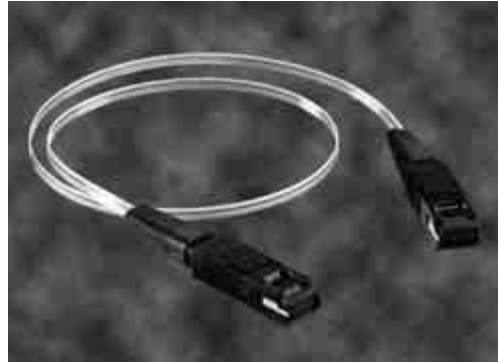
- Multimode 62.5/125 μm and 50/125 μm
- Singlemode 9 μm , 8° angle interface
- Color coded buffered fiber or LSZH (Low Smoke Zero Halogen) sheathed cable with breakout kit
- Male LIGHTRAY MPX connectors (with guide pins)
- 4, 8, 12, 16 and 24 fibers
- Custom lengths available
- Connector labeling to guide insertion
- SC, ST, FC or MT-RJ terminations available



Mini Trunk Assemblies

Product Facts

- Multimode 62.5/125 μm and 50/125 μm
- Singlemode 9 μm , 8° angle interface
- 250 μm bare ribbon and LSZH (Low Smoke Zero Halogen) sheathed ribbon cable available
- Female LIGHTRAY MPX connectors (without guide pins)
- 4, 8, 12, 16 and 24 fibers
- Custom lengths available
- Connector labeling to guide insertion



Trunk Assemblies

Product Facts

- Multimode 62.5/125 μm and 50/125 μm
- Singlemode 9 μm , 8° angle interface
- Available with female LIGHTRAY MPX connectors (without guide pins) and/or male LIGHTRAY MPX connectors (with guide pins)
- SC, ST, FC or MT-RJ terminations available for hybrid configurations
- 4, 8 and 12 position ribbon fiber sub-units
- LSZH (Low Smoke Zero Halogen) sheathed cable (round construction)



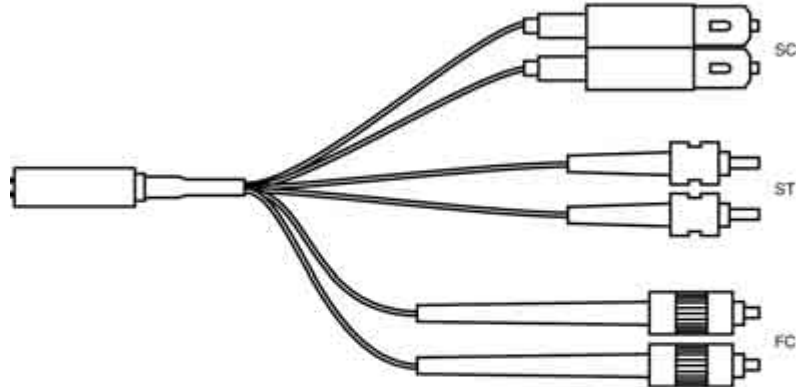
- Internal/external cable
- Custom lengths available

LIGHTRAY MPX System Interconnects (Continued)

System Card Assemblies



LIGHTRAY MPX to LIGHTRAY MPX Connector



LIGHTRAY MPX Connectors to Industry-Standard Connectors



LIGHTRAY MPX Connector Pigtail

Fanout Assembly Options

Product Facts

- Multimode and singlemode
- Available with 900 µm buffered fiber, jacketed cable and ruggedized cable
- SC, ST, FC, MT-RJ, LC or other industry-standard connector terminations available
- Up to 24 fibers
- Custom lengths available

Factory terminated assemblies are supplied custom built for each application. Assemblies are fully tested and can be offered with standard (multimode) or 8° angled (singlemode) end finishes to meet return loss needs.

The connectors accommodate various cable types, including ribbon and easy strip cable. The variety of configurations in cable assemblies makes it easy to transition from industry standard transceiver interfaces at one end and patch panels at the other. Factory terminated cables also speed system assembly, since the cables quickly and simply snap into place.

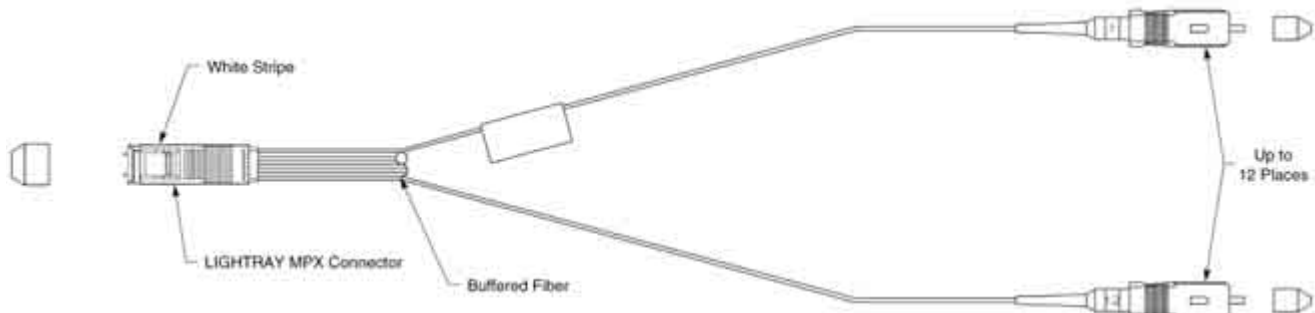
LIGHTRAY MPX System Interconnects (Continued)

System Card Assemblies
(Continued)

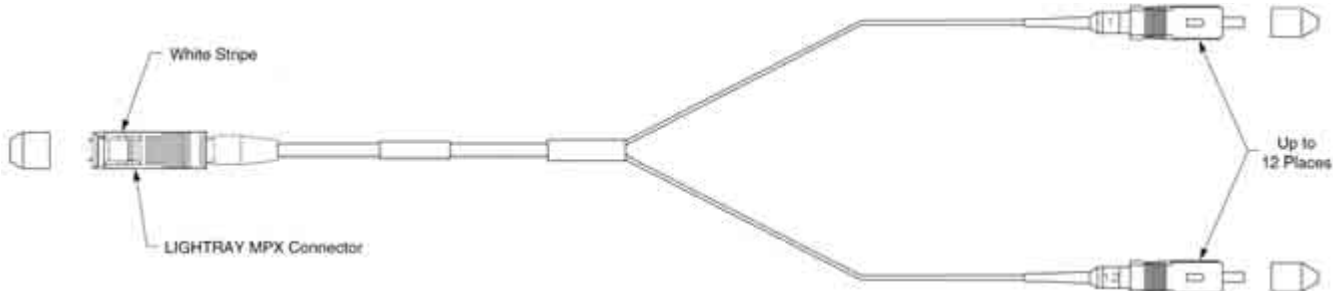
Optical Performance Characteristics

- Mean insertion loss of 0.35 dB, with a maximum of 1.0 dB for both multimode and singlemode
- Minimum return loss 45 dB (8° APC interface for singlemode)

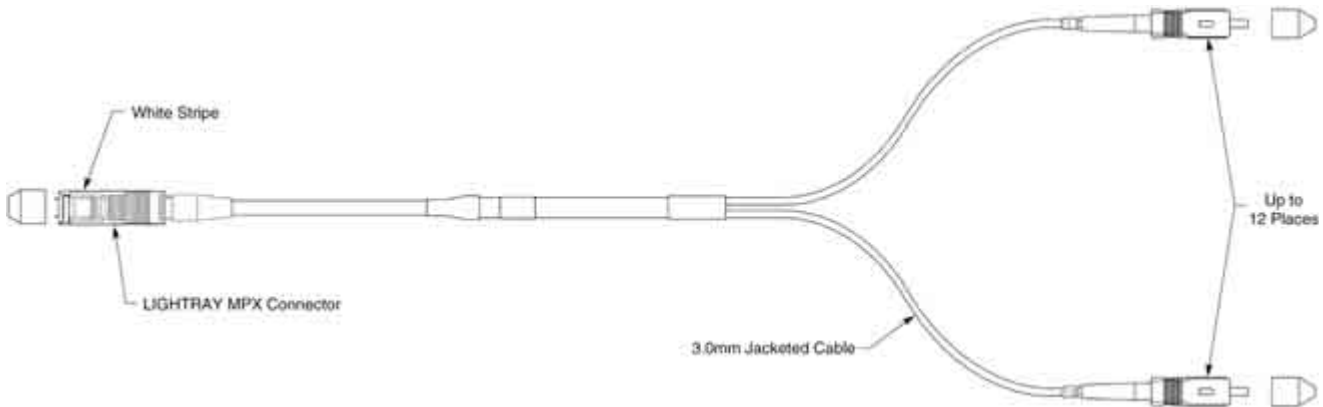
LIGHTRAY MPX Fanout Assembly — 900 μm Buffered Fiber



LIGHTRAY MPX Fanout Assembly — Jacketed Cable



LIGHTRAY MPX Fanout Assembly — Ruggedized Cable



LIGHTRAY MPX System Interconnects (Continued)

Patch Cords

Cable Assembly Options

Product Facts

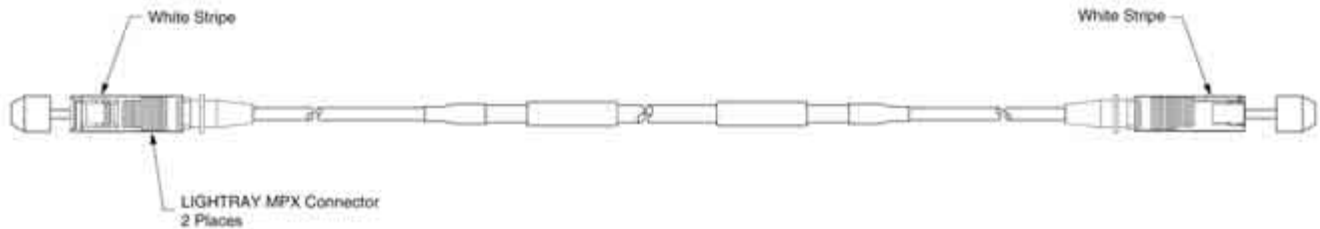
- Multimode and singlemode
- Up to 24 fibers
- Ribbon cable, ruggedized or unruggedized cable construction
- Custom lengths available

The LIGHTRAY MPX connector is pre-terminated onto fiber optic cable and pre-tested at the factory before being shipped. It can be used with either multimode or singlemode fiber and accepts a wide range of cable constructions, including ribbon fiber or “easy strip” fiber.

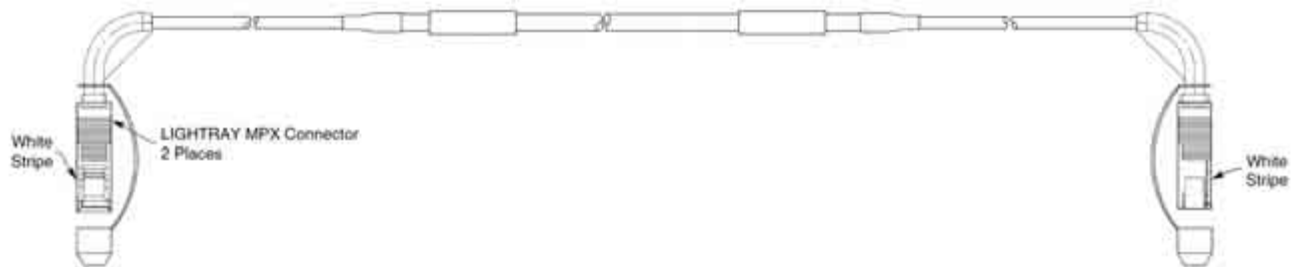
LIGHTRAY MPX to LIGHTRAY MPX Cable Assembly — Ribbon Fiber



LIGHTRAY MPX to LIGHTRAY MPX Cable Assembly — Jacketed Cable — Straight



LIGHTRAY MPX to LIGHTRAY MPX Cable Assembly — Jacketed Cable — Right Angle



LIGHTRAY MPX System Interconnects (Continued)

LIGHTRAY MPX Cable Assemblies

Description	Part Number
Singlemode	
Standard Loss LIGHTRAY MPX Cable Assemblies	
4-fiber LIGHTRAY MPX (m) pigtail assy., 900 μm buffered fibers	6457078-X
8-fiber LIGHTRAY MPX (m) pigtail assy., bare ribbon	6374392-X
8-fiber LIGHTRAY MPX (f) pigtail assy., bare ribbon	6374539-X
8-fiber LIGHTRAY MPX (f) pigtail assy., 900 μm buffered fibers	6374537-X
8-fiber LIGHTRAY MPX (m) pigtail assy., 900 μm buffered fibers	6374538-X
8-fiber LIGHTRAY MPX (m) to LIGHTRAY MPX (m) assy., bare ribbon	6457394-X
8-fiber LIGHTRAY MPX (f) to LIGHTRAY MPX (f) assy., bare ribbon	6374600-X
8-fiber LIGHTRAY MPX (f) to LIGHTRAY MPX (f) assy., jacketed ribbon	6374887-X
12-fiber LIGHTRAY MPX (m) to LIGHTRAY MPX (m) assy., bare ribbon	6374743-X
12-fiber LIGHTRAY MPX (m) assy. to (12) SC, ruggedized	5492515-X
Low Loss LIGHTRAY MPX Cable Assemblies	
4-fiber LIGHTRAY MPX (m) to LIGHTRAY MPX (m) assy., bare ribbon	6457398-X
8-fiber LIGHTRAY MPX (m) pigtail assy., bare ribbon	6374448-X
8-fiber LIGHTRAY MPX (f) pigtail assy., bare ribbon	6374639-X
8-fiber LIGHTRAY MPX (m) pigtail assy., 900 μm buffered fibers	6457173-X
8-fiber LIGHTRAY MPX (f) pigtail assy., 900 μm buffered fibers	6457174-X
8-fiber LIGHTRAY MPX (m) to LIGHTRAY MPX (m) assy., bare ribbon	6374738-X

Note: All assemblies are custom built to customer's length specifications. Dash number indicates length. Please contact Tyco Electronics for proper dash number.

Note: All part numbers are RoHS compliant.

LIGHTRAY MPX System Interconnects (Continued)

Dust Covers

Description		Part Number
Simplex		
System Card	Board Side	1278201-1
	Backplane Side	492578-1
Backplane	Inside Cage	492575-1 (no insert)
		5492576-1 (with insert)
	Back of Cage	503967-5 (removal tool)
		5502871-1
Duplex		
System Card	Board Side	5502871-1
	Backplane Side	1374674-1
Backplane	Inside Cage	6374671-1
	Back of Rack	5502871-1
Quad		
System Card	Board Side	5502871-1
	Backplane Side	1374547-1
Backplane	Inside Cage	6374548-1
	Back of Rack	5502871-1
Bulkhead		5502871-1
Cable		492577-1 (without strap)
		492577-2 (with strap)

Cleaning Kit

Product Facts

- 2 re-useable cleaning kit assemblies
- 2 LIGHTRAY MPX bulkhead adapters
- 2 LIGHTRAY MPX backplane housings
- 1 pack of 24 cleaning tool inserts (can be ordered separately)



Description	Part Number
LIGHTRAY MPX Cleaning Kit	1278498-1
Cleaning Inserts (24/pack)	1457019-3

Connector Microscope Adapters

Product Facts

- Designed specifically for the LIGHTRAY MPX Connector
- Fits in standard Tyco Electronics' microscope Part Number 1754767-1
- 200 x power

Description	Part Number*
Microscope Adapter	1828834-1
Microscope Adapter (angled)	1828835-1

* Coupling adapter Part Number 1985041-1 required.

Note: All part numbers are RoHS compliant.

LIGHTRAY MPX System Interconnects (Continued)

Tooling and Accessories



Simplex Backplane Housing Tooling

Part Number	Description
492356-3	System Card Mounting (Kit)
492356-2	Backplane Mounting (Kit)
492356-1	System Card & Backplane Mounting (Kits)
492493-1	Backplane Connector Side — Connector Support
1278315-1	Retention Clip Tool (Molded Plastic)
492578-1	Dust Cover — System Card Connector
5492576-1	Dust Cover — Backplane Connector Mating Connector Side (System Card Side)
503967-5	Dust Cover Removal Tool — Backplane (System Card Side)
5502871-1	Dust Cover — Backplane Connector Cable Side ¹
492740-2	Retention Clip

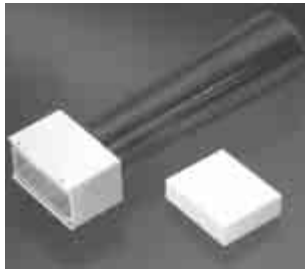
¹ Dust cover shown is flush mount. Same part with finger tabs is 1374678-1.

Duplex Backplane Housing Tooling

Part Number	Description
(Customer Supplied) ²	System Card Seating Tool (Flat Rock on Housing)
(Customer Supplied) ²	System Card Support Tool (Clearance for Attachment Posts)
1278944-2	Backplane Connector Side — Connector Support
1278945-4	Retention Clip Tool (with Handle)
1374674-1	Dust Cover — System Card Connector
6374671-1	Dust Cover — Backplane Connector Mating Connector Side (System Card Side)
503967-5	Dust Cover Removal Tool — Backplane (System Card Side)
5502871-1	Dust Cover — Backplane Connector Cable Side ¹
1278530-2	Retention Clip

¹ Dust cover shown is flush mount. Same part with finger tabs is 1374678-1.

² System card tooling is “customer supplied” — suggested detail is defined in application specifications (contact Tyco Electronics for availability).



Quad Backplane Housing Tooling

Part Number	Description
(Customer Supplied) ²	System Card Seating Tool (Flat Rock on Housing)
(Customer Supplied) ²	System Card Support Tool (Clearance for Attachment Posts)
1278944-1	Backplane Connector Side — Connector Support
1278945-2	Retention Clip Tool (with Handle)
1374547-1	Dust Cover — System Card Connector
6374548-1	Dust Cover — Backplane Connector Mating Connector Side (System Card Side)
503967-5	Dust Cover Removal Tool — Backplane (System Card Side)
5502871-1	Dust Cover — Backplane Connector Cable Side ¹
1278530-1	Retention Clip

¹ Dust cover shown is flush mount. Same part with finger tabs is 1374678-1.

² System card tooling is “customer supplied” — suggested detail is defined in application specifications (contact Tyco Electronics for availability).

Note: All part numbers are RoHS compliant.