

# OPTICAL CONNECTIVITY SOLUTIONS

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*creating connections for life*

**molex**

# Fiber Solution System Overview

Molex is a global electronics leader committed to making the world a better, more-connected place. Molex enables transformative technology innovation with high-performance products in the industrial automation, telecom, military and healthcare industries.

## Enclosure

Molex offers 1RU to 4RU cassette storage enclosure and fiber enclosure for different market demands. The 1RU can support 3 MPO cassettes storage or 72 LC ports fiber management capacity with clean and simple design.

The 2RU enclosure supports 6 cassettes storage or 144 LC ports fiber management. The 3RU/4RU enclosure supports up to 288 LC ports with 12 MPO cassette storage.

These enclosures are user friendly and providing highest level protection for valuable cable management.



## HD Enclosure

Molex high density enclosure series are specifically designed to meet high density fiber and cable management system requirements. It's an ideal choice for data center, storage area network (SAN), local area network (LAN) and central office / headend application.

High density shelf racks are used for MPO-LC harness installation. The compact size cassette support 12/24 ports LC output option. HD Enclosure supports 144/192 LC ports with 1RU height.



## Distribution Box

Molex fiber distribution box can manage fibers from 24 to 192 ports terminations in 1U to 6U rack space. The termination operations include outdoor main cable cutting, cable position fixing, cable jacket stripping, sub-cable extraction, glass fiber fusion protection, fiber routing management and protection. The extra cable storage can be all treated and well managed in this distribution boxes.



## Terminal Box

In order to develop the complete network and faster, efficient optical system, Molex has the diversified box solutions available to meet the fiber connectivity requests. Widely applied in FTTx access network, outdoor application, optical fiber communication system, telecommunication networks and CATV networks.

All outdoor boxes follow IP65 rated and good for UV/rainfall resistance. The modular, scalable design provides flexibility for network partitioning and future growth.



## Accessories

In order to assist fiber network formation on cable management, Molex provides many accessories options for a convenient installation. For example, bulkhead adapter plate, splice tray(s), bend radius bracket, cable management spool, fusion protection sleeve and more. Molex also provides various pigtails and attenuators for fiber network infrastructure.



# Pre-terminated Overview

An extensive lineup of advanced Molex solutions brings the benefits of optical technology to customers in telecommunications, datacom and other demanding industries.

## Harnesses Cables

Molex MPO multi-fiber cabling system is ideally suited for a high density environment that demands space saving and innovative cable management solutions. MPO fan-out supports various connections from multi-fiber to single-fiber out. With highly integrated design and manufacturing capability, Molex can also provide customized products to help customers reduce network installation or reconfiguration time and cost.



## LGX Cassette

Molex presents high density MPO cassette system solution dedicated for emerging data center and cloud applications. Targeting at customer's storage space saving, and fiber management efficiency demand, we embed modular and scalability characteristics into the core of product design. Molex LGX cassettes are designed to be compatible with the industry standard LGX format. No field termination or testing required. Modular design can be expanded as needed.



## High Density Cassette

Molex high density cassettes are specifically designed to meet high density enclosure and cable management system requirements. The maximum connector capacity allows 24 LC fiber port and each series of HD cassette has special pluggable pins for easy installation. The MPO interconnect system platform can also be integrated with other Molex products, such as SFP+, QSFP, CFP modules, CWDM, DWDM Mux/DEMUX, optical switch arrays, EDFA, WSS, Circulator and more.



## Cable Assembly

The optical jumper Cable is designed for interconnection in all optical systems or components. Molex offers a wide range of industrial standard jumper cables with various fiber and fiber jacket types, connectors, and lengths. With highly integrated design and manufacturing capability, Molex provides customized products to help customers succeed better opportunities.



# Standard Fiber Enclosure

Network growth and management is a key consideration when selecting a physical hardware solution. Molex enclosure approach takes the long view of LAN, SAN and data center design with cable management features that ensure maximum density and growth without disrupting service and saving space. Managed density allows network managers to efficiently pay for their network investment as it grows.

Molex offers various cassette / fiber storage enclosures for different demands. The rack and wall-mount, from 1RU to 4RU are available. The plug-and-play solutions are designed to address the reliability, scalability, and thermal needs of critical networks. It's applied to the main distribution area (MDA), backbone, and horizontal and equipment distribution areas. With excellent cable protection and cable guiding, as well as fixing functions, these enclosures are user friendly and providing highest level of protection for your fiber management.

## Feature / Benefit

- 1RU 19" rack mountable
  - Compatible with standard LGX cassette and adapter panels
  - 3 standard cassettes, 72 LC ports capacity
  - Adapter panel options for cable management fiber distribution
  - Cable spool or splice tray accessory options to support various application
- 
- 2RU 19" rack mountable
  - Compatible with standard LGX cassette and adapter panels
  - 6 standard cassettes, 144 LC ports capacity
  - Adapter panel options for cable management or fiber distribution
  - Cable spool or splice tray accessory options to support various application
- 
- 3RU 19" rack mountable
  - Compatible with standard LGX cassette and adapter panels
  - 12 standard cassettes, 288 LC ports capacity
  - Adapter panel options for cable management or fiber distribution
  - Cable storage at rear side
- 
- 4RU 19" rack mountable
  - Compatible with standard LGX cassette and adapter panels
  - 12 standard cassettes, 288 LC ports capacity
  - Adapter panel options for cable management or fiber distribution
  - Cable storage at rear side



PN: 1064800100



PN: 1064800101



PN: 1064800102



PN: 1064800103

## Mechanical

PN	Description	Maximum Capacity				Dimension (mm)
		Fiber Port	Adap. Panel	LGX Module	Adapter	
1064800100	1RU	72 (LC)	3	3	LC/SC/MPO	482 x 275 x 44
1064800101	2RU	144 (LC)	6	6	LC/SC	482 x 312 x 86
1064800102	3RU	288 (LC)	12	12	LC/SC	482 x 312 x 132
1064800103	4RU	288 (LC)	12	12	LC/SC	482 x 312 x 175

# Pre-terminated Standard Cassette

Molex offers a family of pre-terminated MPO modules for high density data centers. The MPO/MTP cassette modules provide secure transition between MPO/MTP and LC or SC discrete connectors. Used to interconnect MPO/MTP backbones with LC or SC patching pre-terminated and tested, these MPO modules provide instant field connections with guaranteed quality and performance.

MPO cassette are available for 8/12/24 MPO-LC/SC with SM and OM3/OM4 options. For standard LGX MPO cassette, Molex offers plastic and metal box.

It suits to Molex 1864800 enclosure series. The modular system allows for rapid deployment of high density data center infrastructure as well as improved troubleshooting and reconfiguration during moves, additions and changes. (Refer attached 1 for specification of optical performance)

## Feature / Benefit

### 1064810101 Series

- Pre-terminated and pre-tested module
- Plastic LGX Box with 12F MPO to LC/SC
- Compatible with Molex 1064800 series & LGX bracket
- Designed for 40G/100G system migration
- TIA-568 Polarity A (Default), B or C



### 1064810110 Series

- Pre-terminated and pre-tested module
- Plastic LGX Box with 2\*12F MPO to LC
- Compatible with Molex 1064800 series & LGX bracket
- Designed for 40G/100G system migration
- TIA-568 Polarity A (Default), B or C



### 1064810111 Series

- Pre-terminated and pre-tested module
- Plastic LGX Box with 1\*24F MPO to LC
- Compatible with Molex 1064800 series & LGX bracket
- Designed for 40G/100G system migration
- TIA-568 Polarity A (Default), B or C

## Mechanical

PN	Description	SC Adapter	MPO Adapter	Quad LC Adapter	Dimension (mm)
1064810101	12 Port Box	12 Port	1	12 Port	130 x 125 x 28.8
1064810111	24 Port Box	---	1	24 Port	130 x 125 x 28.8
1064810110	24 Port Box	---	2	24 Port	130 x 125 x 28.8

# Blindmate Fiber Enclosure

The Molex High Density Fiber Enclosures are designed for high density applications such as Data Centers, Central Offices or any other situation where high performing, high density and quick installation is required. The enclosures are available in two models, the 144 Fiber Enclosure and the class leading 192 Fiber Enclosure.

This innovative, robust, easy assemble and maintenance 1RU fiber enclosure has been designed for a MTP/MPO LC interface. This excellent space saving solution is ideal for network consolidation as its modular, scalable design provides flexibility for network partitioning and future growth. The rack mounted enclosure has been manufactured using durable powder/liquid coated steel construction ensuring years of reliable service. The 19-inch chassis fits industry-standard EIA, ETSI and is WECO rack mountable. The 1RU height conserves valuable rack space maximizing "real estate". Quick release pins on the enclosure front allow easy access as well as patch cord protection. Molex recommends our bend insensitive uniboot long reach patch cords to ensure correct fiber bend radius, lower cable weight and enhanced cable management. These leads feature a long reach tab that allows for easy moves, additions and changes.

## Feature / Benefit

- 192 LC Ports, 8 cassettes and supply 1 MTP/MPO and 24 LC Ports breakout in each cassette
- 144 LC Ports, 12 cassettes and supply 1 MTP/MPO and 12 LC Ports breakout in each cassette
- Designed for 10G/40G/100G/200G/400G system migration
- Applied quad LC adapter or MTP/MPO adapter on adapter panel or cassette
- Combined with bend insensitive uniboot patch cords for maximum density and reliability
- Special guide PIN design made cassette easily plug and pull out
- Removable top cover providing easy access to the interior
- RoHS compliant



## Mechanical

Adapter Type: LC/MPO/MPT

LC Port Capacity :

Super High Density (1064800011) : 192 ports

High Density (1064800010) : 144 ports

Cassette Capacity :

Super High Density (1064800011) : 8 cassettes

High Density (1064800010) : 12 cassettes

Operating Temperature : -40 to +75 °C

PN	Description	Maximum Capacity				Dimension (mm)
		Fiber Ports	LC Module	MPO Module	CS Module	
10648000010	1RU HD	144 (LC)	12	---	---	430 x 215 x 44.3
10648000011	1RU SHD	192 (LC)	8	8	4	430 x 215 x 44.3

# Pre-terminated High Density Cassette

Molex high density cassettes are specifically designed to meet high density enclosure and cable management system requirements. The maximum connector capacity allows 24 LC fiber ports and each series of HD cassette has special pluggable pins for easy installation. The MPO/MTP cassette modules provide secure transition between MPO/MTP and LC discrete connectors. They are used to interconnect MPO/MTP backbones with LC patching pre-terminated and tested, these MPO modules provide instant field connections with guaranteed quality and performance. MPO cassettes are available for 12/24 MPO-LC with SM and OM3/OM4 options. Modular system allows for rapid deployment of high density data center infrastructure as well as improved troubleshooting and reconfiguration during moves, additions and changes.

## Feature / Benefit

- Pre-terminated and pre-tested module
- Metal box with quad LC adapter support 12 LC output
- Apply to Molex 106480001 High-Density enclosure
- Designed for 40G/100G system migration
- TIA-568 Polarity A (Default), B or C



PN : 106481000x

- Pre-terminated and pre-tested module
- Metal box with simplify LC adapter support 24 LC output
- Apply to Molex 106480006 Super High-Density enclosure
- Designed for 40G/100G system migration
- TIA-568 Polarity A (Default), B or C



PN : 106481001x

- Pre-terminated and pre-tested module
- Metal box with MPO adapter support 8 MPO output
- Apply to Molex 106480006 Super High-Density enclosure
- Designed for 100G/200G/400G system migration



PN : 106481002x

- Pre-terminated and pre-tested module
- Metal box with CS adapter support 64 fiber output
- Apply to Molex 106480006 Super High-Density enclosure
- Designed for 100G/200G/400G system migration



PN : 106481005x

## Mechanical

PN	Description	Front Type			Rear Type	Dimension (mm)
		LC port	MPO port	CS port	MPO Port	
106481000x	HD 12F LC	12	---	---	1	149 x 85 x 11.5
106481001x	SHD 24F LC	24	---	---	2	137 x 80.5 x 18
106481002x	MPO Module	---	8	---	---	137 x 80.5 x 18
106481003x	LC Module	24	---	---	---	137 x 80.5 x 18
106481004x	LC-MPO Module	24	---	---	4	137 x 80.5 x 18
106481005x	CS Module	---	---	64	---	137 x 80.5 x 36

# Indoor Distribution Fiber Enclosure

Molex provides high bandwidth and physical infrastructure in data center, enterprise, and campus networks with comprehensive fiber optic systems that deliver high performance, reliability and scalability. By leveraging its technology leadership, innovative design and cable management expertise, Molex provides a migration path of future requirement. Fiber distribution boxes come in different configurations such as rack mount, wall mount, indoor or outdoor. The rack mount enclosures come in two variants. One is with slide-out and the other incorporates a removable lid.

Optic adapters are precisely installed into the cut outs in the adapter panel to accept the various fiber optic connectors. Fiber optic pigtails mate with the adapters and the fusion-spliced tails are stored on the splice trays.

## Feature / Benefit

- 1U 19" rack mountable and 1RU height
  - Aluminum housing, powder coating, beige color
  - Front and rear access.
  - 12 fusions per splice tray and fiber routing spool
- 
- Design for 19" standard rack and 1.5RU height
  - Adaptor panel and splice trays are mounted on slidable drawer
  - Front and rear access.
  - Cable routing spools for storing excess cable
- 
- Design for 4RU 19" standard rack
  - Fixed adaptor panel mounted on slidable drawer
  - Independent compartment for splice trays
  - Cable routing spools for storing excess cable
  - Top, bottom, side cable entries
- 
- Six adaptors per panel FC, SC, ST adaptors
  - 30/70 split door design. Ease to install for limited environment
  - Cable routing spools provided to take up excess cable length
  - Modular splice holder of six splice



PN : 106480020x



PN : 106480021x



PN : 106480022x



PN : 106480030x

## Mechanical

PN	Description	Maximum Capacity				Dimension (mm)
		SC Adapter	FC Adapter	LC Duplex	LC Quad	
106480020x	1RU Patch Panel	24	24	24	12	430 x 320 x 44.5
106480021x	Slidable 1.5RU Rack	24	24	24	12	430 x 320 x 66.8
106480022x	4RU Patch Panel	96	96	96	48	430 x 320 x 178
106480023x	6RU Patch Panel	48	32	48	24	430 x 320 x 267
106480030x	Wall Mount	24	24	24	12	430 x 75 x 350



# Outside Plant Terminated Box

Molex optical terminal box allows easy and safe conditions of installation. All outdoor boxes are IP65 rated and UV/rainfall resistant. The modular, scalable design provides flexibility for network partitioning and future growth. Outdoor plant distribution boxes are applied for installing pigtail and protecting fiber optical splices and are used as a termination point for the feeder cable to connect with drop cable in FTTx communication network system.

## Feature / Benefit

- Suitable for all network applications in butt configuration on cut and uncut FO cable
- Supports standard loose tube or ribbon fiber cables in either armored or dielectric configuration
- Versatile mounting brackets support strand, pole, pedestal, wall and hand hole environments
- Fully sealed to protect fiber and splices ensuring longevity
- Fast and easy insertion of branching cables on demand without special tools

- Plastic box
- The maximum capacity allows 2-4 fibers (SC simplex/LC duplex)
- Support pigtail and splices pre-assembly
- Indoor/outdoor terminal application



- Plastic box with IP65 rated
- The maximum capacity allows 16-32 fibers (SC simplex/LC duplex)
- Support pigtail, splices, WDM and switch pre-assembly
- Indoor/outdoor terminal application



- Plastic box with IP65 rated
- The maximum capacity allows 2-4 fibers (SC simplex/LC duplex)
- Tray to ensure the regularity of the fiber within the connection tray
- Indoor/outdoor terminal application



- Plastic box with IP65 rated
- The maximum capacity allows 4-8 fibers (SC simplex/LC duplex)
- Tray to ensure the regularity of the fiber within the connection tray
- Suitable for basement, room and building's outer walls application



## Mechanical

PN	Maximum Capacity		Dimension (mm)
	SC Ports	LC Ports	
106482000x Series	16	32	320 x 260 x 90
106482002x Series	2	4	165 x 100 x 30
106482004x Series	4	8	191 x 120 x 44
106482008x Series	2	4	84x130x24

# 0RU Fiber Enclosure

The Zero RU Panel adds an additional patch panel location to free up extra space in the cabinet. The zero RU panel is installed vertically in the cabinet rail and creates a convenient point for distribution of patch cables within the vertical racking system. The Zero RU bracket accepts up to 2 SHD cassettes. The bracket is supplied unloaded and the modules are supplied separately.

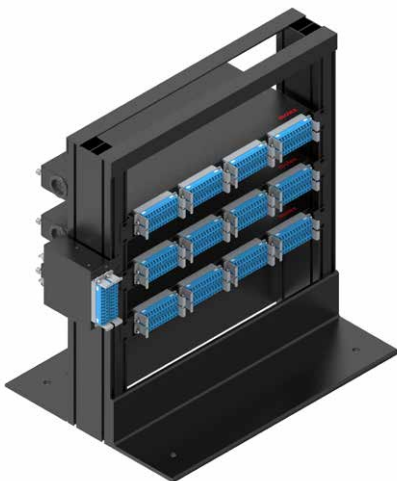
## Feature / Benefit

- Zero RU Mounting
- 2 slots support SHD cassettes (106481001x) up to 48 LC port
- Data Centre & Enterprise network installation
- Fiber capacity expanded in existing cabinet
- Indoor application for patching, transition
- Front access and rear access
- Vertical up and down cable managers

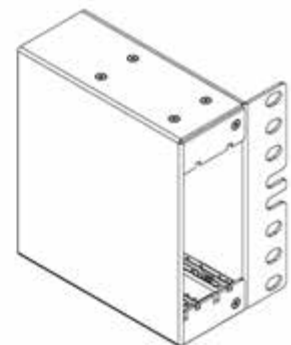
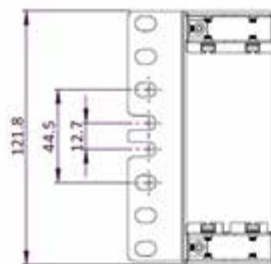


PN : 1064840012

## Installation



## Mechanical



# DIN Rail Mountable Enclosure

DIN rail mounted enclosure provides an effective solution for industrial networks inside control panels and distribution cabinets where DIN mounted equipment is used. The DIN rail mount enclosure mounts to standard 35mm DIN rails and accepts any 6-PAK plate. It is available in black and includes a label cover. The enclosure is designed to accommodate copper, fiber and multi-media modules to support most applications. It is designed to protect the fiber bend radius in flat enclosures where space is a premium and can be side stackable to grow with your networking changes. It includes fiber splicing protector holders with clips to provide the capability of up to 24 fiber splicing

## Feature / Benefit

- Enclosure holds up to two LGX fiber adapter panels up to 24F with LC Quad adapter
- Economical for applications with the need of a smaller enclosure
- 35mm standard DIN rail mountable to support standard 35mm DIN rail application
- Knock-out features to provide multi cable entrance to allow cable to enter from different directions
- Splicing protector holder included to provide better splicing point and fiber protection
- Rugged steel construction in powder coating black finish spiral binding tuber protects fiber pigtails
- DIN Rail mounting bracket is removable

## Mechanical

Cable Grommet Range	4.0 - 8.0 mm
Construction	18-gauge (1.0 mm) steel
Mounting Type	Wallmount, DIN-Rail
Dimensions	3.93" H x 5.31" W x 5.51" D (100 x 135 x 140 mm)
Weight	2 lb. (0.9 kg)



# 1RU Patch Panel

Molex 1RU fiber patch panel is used to house fiber terminations and accommodate patching of fiber cable breakouts while minimizing the space required in a rack.

The 1RU patch panel can be installed into EIA 19" or 23" (optional) equipment racks and occupy the minimum amount of rack space while offering a generous capacity up to 144 fibers. Patch panels come pre-loaded with your choice of LC/SC/CS adapters.

Molex 1RU fiber patch panel support cable management at front side and is constructed with removable front adapter panel and cover for easy access to fiber optic cables.

## Feature / Benefit

- 1RU Mounting
- 4x36 LC port support total 144 fiber capacity
- Data Centre & Enterprise network installation
- Fiber capacity expanded in existing cabinet
- Indoor application for patching, transition
- Front access and rear access
- Vertical up and down cable managers



PN : 1064820013

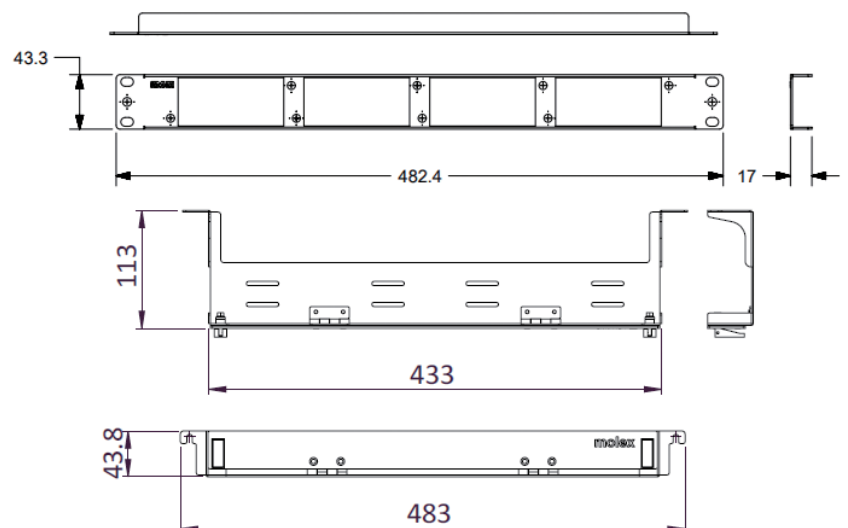


PN : 1064840001

## Installation Example



## Mechanical



# Molex SC / LC / CS Connectivity

Molex presents innovative secure lock SC / LC adapters for advanced data center and FTTX applications. The unique adapter lock mechanism is designed for preventing accidental fiber disconnection of important channel links. The latest SC, LC adapter housing is molded into one piece, with enhanced precision, structure, and reliable performance. SC lockable adapter also provides inner shutter option, to provide eye safety. All Molex LC adapters are fully compliant with IEC 61754-20 standards and meet Telcordia GR-326-CORE and TIA/EIA requirements.

## SC Series

- Meets EIA/TIA, IEC standards
- Variety of colors and boot styles
- Excellent repeat IL variation built in by mechanical design
- The shutters of internal type adapters automatically open/close



Color	Type	Boot Type
Blue	SM	3.0mm
Green	MM	2.0mm
Red		900um
Specific		



Color	Ports	Type
Blue	Simplex	General
Green	Duplex	Lockable
Red	Flange	Inner shutter
Specific	Flangeless	

## LC Series

- Accepts eight simplex connectors, four duplex connectors or a combination of the two for design flexibility
- Excellent repeat IL variation built in by mechanical design
- Tested to Telcordia GR-326 and Compliant to TIA/ EIA-604-10A (FOCIS-10)



Color	Type	Boot Type
Blue	SM	3.0mm
Aqua	MM	2.0mm
Green		Short 2.0mm
Beige		900um
Specific		Mini 900um



Color	Ports	Boot Type
Blue	Simplex	General
Green	Duplex	Lockable
Red	Flange	Inner shutter
Specific	Flangeless	

## CS Series

- IEC random mating Grade B
- Designed for OSFP/QSFP-DD Break out application
- The push-pull tab for superior manageability in high density applications
- 40% size reduction compared to LC Duplex
- Compliant with RoHS/REACH



Color	Type	Pull Tab Type
Blue	SM	48mm
Aqua	MM	55mm
Specific		62mm
		69mm



Color	Ports	Type
Blue	1 channel	General
Aqua	2 channels	
Specific	8 channels	
	Flange	
	Flangeless	

# Fiber Optical Connector

A wide variety of connectors is available in the market which meet a wide range of precision, and robust requirements. Connectors are important components of optical communications. Molex's latest SC, LC adapter housing is molded as one piece, with enhanced precision, structure, and reliable performance meeting Telcordia GR-326-CORE and TIA/EIA requirements. The optical connectors are adapted to the specific requirements for the telecom, industrial, aerospace and defense markets.

## SC Series

- Meets EIA/TIA, IEC and NTT-SC\* standards
- Variety of colors and boot styles
- Excellent repeat IL variation built in by mechanical design
- The shutters of internal type adapters automatically open/close



## LC Series

- SM/MM, Simplex/Duplex are available. Support 0.9mm/2mm/3mm cable jacket
- Uni-boot and duplex boot available
- Excellent repeat IL variation built in by mechanical design
- Tested to Telcordia GR-326 and Compliant to TIA/ EIA-604-10A (FOCIS-10)



## CS Series

- A Very Small Form Factor (VSFF) connector and is ideal for space-saving solutions
- Allows to double the density in patch panels compared to an LC duplex
- The connector has been adopted by QSFP-DD, OSFP, and COBO, Standardized by TIA



## SN Series

- Uses proven LC ferrule technology, Optimized for 400G data rates with QSFP-DD, OSFP and SFP-DD transceivers
- Very Small Form Factor (VSFF) connector, 3 x fiber cabling density over duplex LC
- Exceeds GR-326-CORE requirements



# Fiber Optical Adapter

Molex offers a wide range of adapters which allow terminated cable to be coupled together either in line or panel mounted. Plastic adapters are molded in one piece for robustness and reliability. Besides conventional fiber optical adapter, Molex designs unique high density application adapters as well.

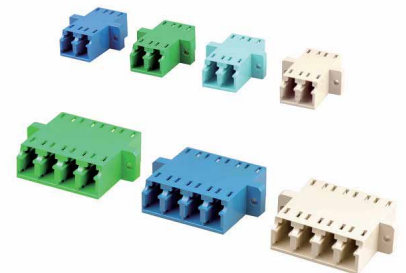
## SC Series

- Two pieces and one piece structure are available
- Provide lockable clip for robust connection
- High precision ceramic sleeve to ensure the connection between fiber jumpers
- Simplex, duplex, inner/outer options are available



## LC Series

- Duplex, quad, flange and flangeless option and one-piece design
- Low profile simplex, duplex adapter and SC footprint duplex, quad adapter are available
- High precision ceramic sleeve to ensure the connection between fiber jumpers
- Telcordia GR-326 qualified
- Color-coded, allowing for easy fiber mode identification



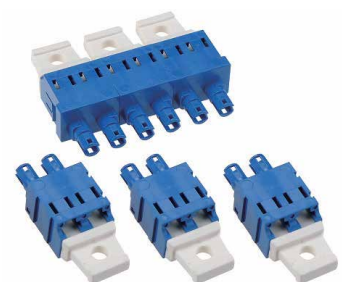
## Simplify LC Series

- Unique design supports 1RU chassis up to 192 LC port
- Suite to module assembly for space or cost saving
- Telcordia GR-326 qualified
- High precision ceramic sleeve to ensure the connection between fiber



## Stackable LC Series

- Standard LC form factor and expand LC port capacity randomly.
- Suite to module assembly for space or cost saving
- Telcordia GR-326 qualified
- High precision ceramic sleeve to ensure the connection between fiber
- Stackable groove design to ensure robust structure

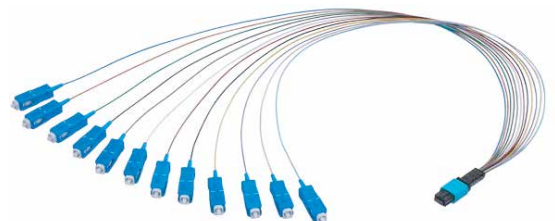
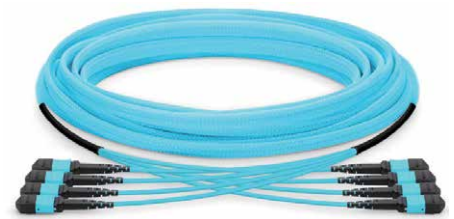


# MPO/MTP Harness and Trunk Cable Assemblies

Molex's MPO/MTP product family utilizes push-pull connector housings for quick and reliable connections. There are three jacket types available, round cable, flat cable and bare fiber ribbon. The primary benefit of the round ribbon cable is realized when used with multiple ribbons within a single jacket. Using round cables allows installers greater flexibility when routing multiple jacketed cables in dense system networks. MPO/MTP cables are offered for various applications for all networking and device connections.

## Feature / Benefit

- Reliable high-density, high-performance interconnections
  - Data communications networks, high bandwidth equipment
  - Support MPO/MTP/MXC/VersaBeam termination
  - Telcordia GR-1435-CORE qualification
  - IEC 60794, TIA/EIA-568 compliant
- 
- 12/24 fiber counts terminations each MPO/MTP connector
  - Support total 144/288 fiber counts trunk cable termination
  - MPO/MTP to MPO/MTP termination on indoor/outdoor cable
  - Standard and specific trunk cable MPO/MTP termination
  - Telcordia GR-1435-CORE qualification
  - IEC 60794, TIA/EIA-568 compliant
- 
- TIA-568 Type A, B, or C fiber polarity option
  - Uni-boot LC/Flexible boot LC options
  - Standard/Flexible/Angle MPO/MTP boot options
  - Support MPO/MTP/LC push-pull tab for high density application
  - Transition from trunk backbone assemblies to fiber rack system
  - Telcordia GR-1435-CORE qualification
- 
- 900um Tubing exposed from MPO/MTP connector directly
  - Without fan-out kits easy to installation
  - Convenient to MPO cassette fiber routing
  - Compact size and save space
  - 8 /12 fiber connector terminations and assemblies
  - IEC 60794, TIA/EIA-568 compliant



## Structure and Performance

12/24 Fiber Counts MPO/MTP Assembly				
Fiber	Jacket	OD	Cable Type	Performance
G652/G657 OM3/OM4/Specify	LSZH / PVC / PE	3mm/3.5mm Specify	Ribbon/Round	≤ 0.35dB (Low Loss) ≤ 0.75dB (Regular)
24 counts fiber MPO-MPO assembly				
Fiber	Jacket	Standard OD	Cable Type	Performance
G657/OM4/Specify	LSZH / PVC / PE	≤ 15.5mm (144F) ≤ 17.5mm (144F)	Round	≤ 0.5dB (Low Loss) ≤ 0.75dB (Regular)



# EBO Cable Assembly

Conventional multi-fiber connectors make use of physical contact between fibers. The 3M™ Expanded Beam Optical Ferrule expands the beam between connectors, reducing the connector's sensitivity to dust and the need for frequent cleaning. Critical mating alignment is controlled by the expanded beam ferrule without the use of guide pins protruding from the end of the connector. No fiber/ferrule polishing allows for faster termination.

3M™ EBO connector uses a new mirror reflex collimation lens to expand light path. This technology patented by 3M™ is used for multi mode application and single mode applications. The system utilizes a hermaphroditic connector geometry with an LC-connector style latch to engage bulkhead adapters.

## Feature / Benefit

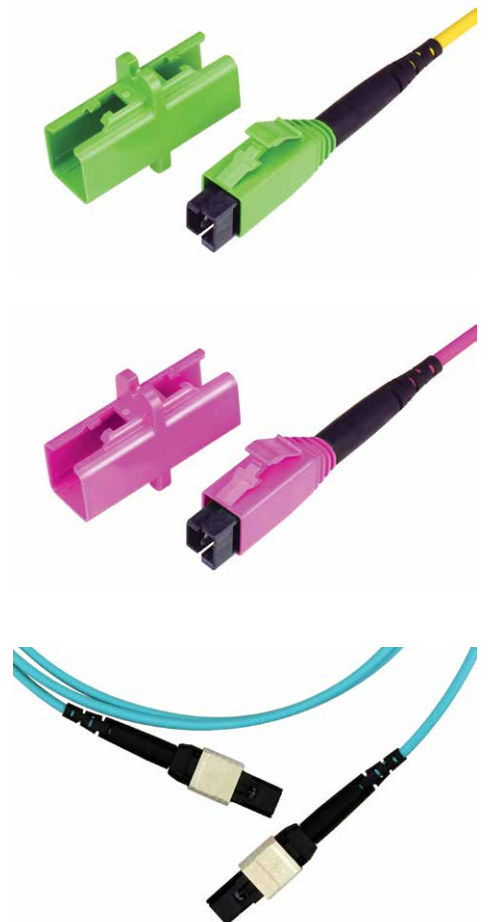
- Expanded beam technology provides reduced sensitivity to dust
- Design minimizes human contamination
- No fiber/ferrule polishing, allows for faster, more scalable terminations
- Provides freedom for optimal alignment, mating retention force and low mating/de-mating force
- Design uses precision-molded fiber grooves
- Low insertion loss and reflectivity in both single mode and multimode fiber

## Application

- Multi-fiber trunks, patch cord and fanout assemblies
- Data center multi-fiber optical interconnect
- Multi-fiber interconnect for test and measurement
- Industry 4.0 application

## Optical Performance

Performance	Single Mode (1310nm)	Multi Mode (850nm)
Fiber Type	G652/G657	OM2/OM3/OM4
Fiber Counts	12	12
Insertion Loss (dB)	≤0.7	≤0.3
Return Loss (dB)	> 55	> 25
Anti-Reflection Coating	1310nm	850nm
Matting test IL Changed (dB)	< 0.3	< 0.15
Operating Temperature	-10 °C ~ +60 °C	
Qualification	Telcordia GR-1435	



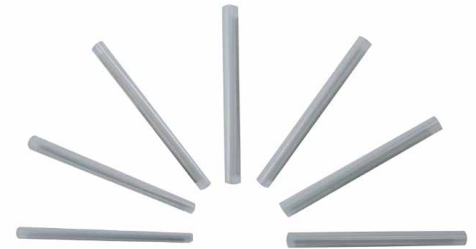
# Accessories for Cable Management

Elevate your productivity with the right selection of cable management accessories available from Molex.

## Protection Sleeve

Molex provides full series of fiber protection sleeves for optical fiber splice protection in field fiber splicing assembly, manufacturing, and optical fiber closure applications. The protection sleeves are categorized as single fiber and ribbon fiber type, and they are using different reinforcement rods

- Inner sleeve ethylene vinyl acetate provide moisture
- Barrier after shrinkage
- Tension Member Stainless Steel Rod
- Min. shrink temperature 90 °C (194 °F)
- Working temperature: -55 °C ~ +100 °C

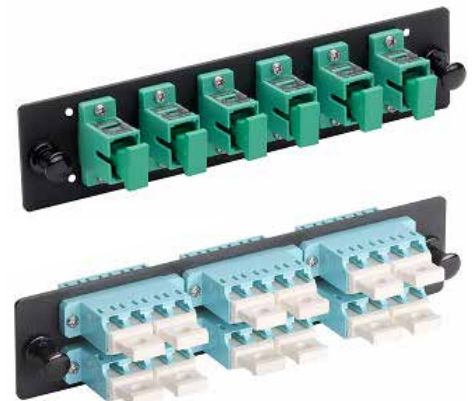


Product	Outer Tube		Inner Tube		Steel Rod		Unit
	Outer Diameter	Length	Inner Diameter	Length	Outer Diameter	Length	
Singer Fiber	2.30±0.10	40±1	1.50±0.10	40±1	1.00±0.10	36±0.50	mm
	2.40±0.10	45±1	1.50±0.10	45±1	1.20±0.10	41±0.50	
	2.60±0.10	60±1	1.50±0.10	60±1	1.50±0.10	56±0.50	

## Adapter Panel

Molex offers two layout for adaptor panels for fiber termination enclosures. They can be provided by various types of adaptor footprints with required quantity. Silk screen number printing service is available for customization products with minimum order quantity

- Available for SC, LC, FC, ST, CS, SN, MPO and dummy panels
- Nylatch Attachment, easy installation
- Aluminum sheet panel



## Splice Tray

Molex offers cable routing spool for fiber enclosure, the spool can be installed into all Molex standard fiber enclosures for extra cable length storage

- Modular fiber splice holder
- Minimum fiber bending radius maintained
- Easy installation
- Aluminum sheet panel or plastic options
- 6/12/24 fiber port capacity are available



# TIA-568 Fiber Polarity Overview

ANSI/TIA-568 is a set of telecommunications standards from the Telecommunications Industry Association (TIA). The standards address commercial building cabling for telecommunications products and services. Molex MPO fiber polarity fully comply with ANSI/TIA-568 standards.

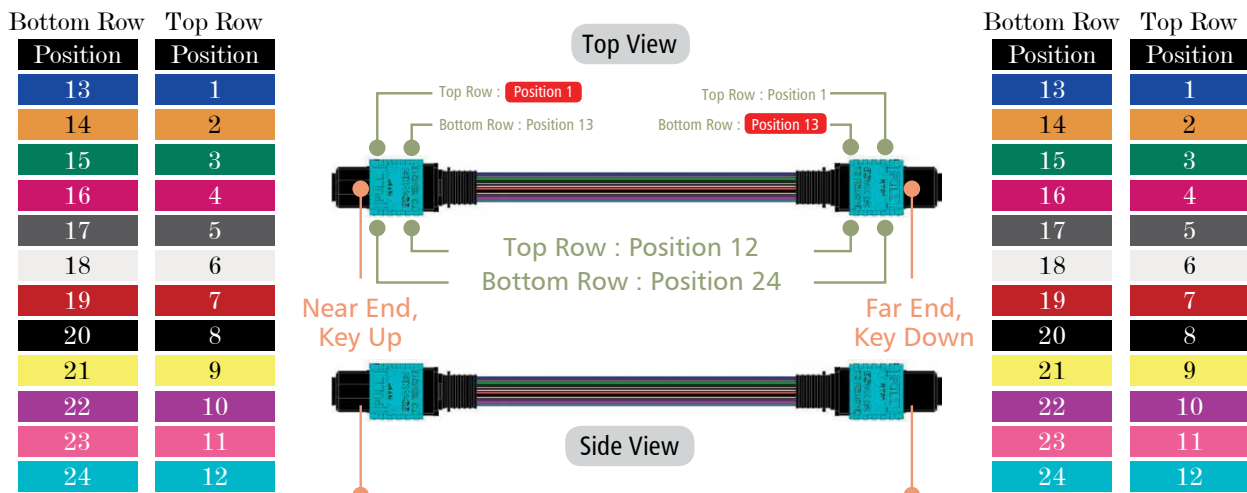
## 12 Fiber Counts Type A (Key-up to Key Down)



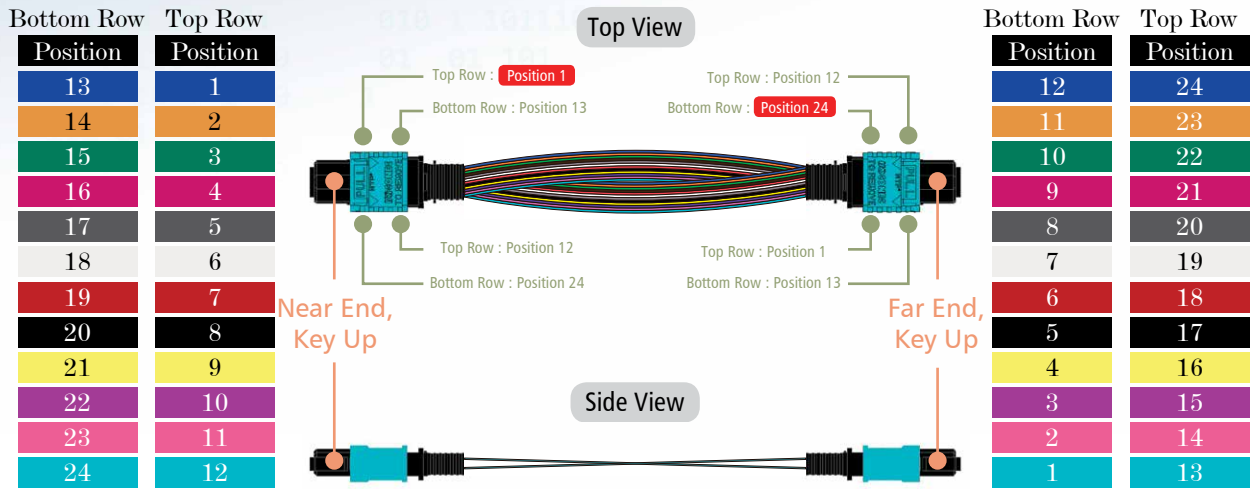
## 12 Fiber Counts Type B (Key-up to Key up)



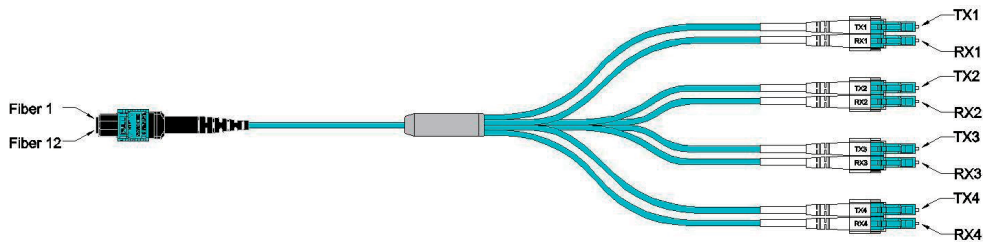
## 24 Fiber Counts Type A (Key-up to Key Down)



## 24 Fiber Counts Type B (Key-up to Key up)

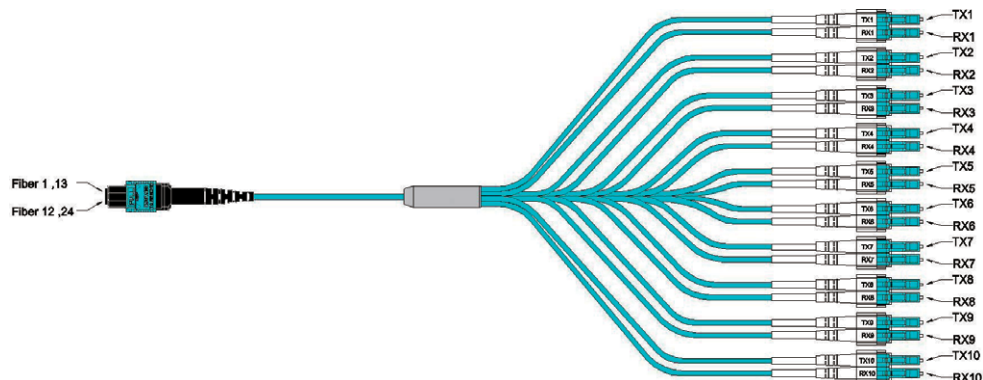


## MPO-LC Breakout SR4 Sketch



MPO	P1	P2	P3	P4	P5	P6	P7	P8	P9	P10	P11	P12
Fiber	Blue	Orange	Green	Brown	Slate	White	Red	Black	Yellow	Violet	Rose	Aqua
LC	RX1	RX2	RX3	RX4	---	---	---	---	TX4	TX3	TX2	TX1

## MPO-LC Breakout SR10 Sketch



MPO	P1	P2	P3	P4	P5	P6	P7	P8	P9	P10	P11	P12
Fiber	Blue	Orange	Green	Brown	Slate	White	Red	Black	Yellow	Violet	Rose	Aqua
LC	---	RX1	RX2	RX3	TX4	TX5	TX6	TX7	TX8	TX9	TX10	---



MPO	P13	P14	P15	P16	P17	P18	P19	P20	P21	P22	P23	P24
Fiber	Blue	Orange	Green	Brown	Slate	White	Red	Black	Yellow	Violet	Rose	Aqua
LC	---	RX1	RX2	RX3	RX4	RX5	RX6	RX7	RX8	RX9	RX10	---

# Appendix – PN Information








## Standard LGX Fiber Enclosure Series

PN	TYPE	DESCRIPTION	IMAGE
1064800100	Enclosure	1U Rack Mount for 3 LGX Cassette (w/o cassette)	
1064800101	Enclosure	2U Rack Mount for 6 LGX Cassette (w/o cassette)	
1064800102	Enclosure	3U Rack Mount for 12 LGX Cassette (w/o cassette)	
1064800103	Enclosure	4U Rack Mount for 12 LGX Cassette (w/o cassette)	
1064810100	Cassette	Plastic cassette, SM G657A1 1*12F MTP (Male, Elite) - SC/PC fanout	
1064810101	Cassette	Plastic cassette, SM G657A1 1*12F MTP	
1064810102	Cassette	Plastic cassette, OM3 1*12F MTP	
1064810103	Cassette	Plastic cassette, OM4 1*12F MTP	
1064810110	Cassette	Plastic cassette, SM G657A1 2*12F MTP	
1064810112	Cassette	Plastic cassette, OM3 2*12F MTP	
1064810114	Cassette	Plastic cassette, OM4 2*12F MTP	
1064810111	Cassette	Plastic cassette, SM G657A1 1*24F MTP	
1064810113	Cassette	Plastic cassette, OM3 1*24F MTP	
1064810115	Cassette	Plastic cassette, OM4 1*24F MTP	



## High Density Enclosure Series

PN	TYPE	DESCRIPTION	IMAGE
1064800010	Enclosure	1RU 144C High-density fiber enclosure (w/o cassette)	
1064810000	Cassette	Metal Slim cassette, SM G657A1 1*12F MTP (Male, Elite) - LC/PC fanout	
1064810001	Cassette	Metal Slim cassette, OM3 G657A1 1*12F MTP (Male, Elite) - LC/PC fanout	
1064810002	Cassette	Metal Slim cassette, OM4 G657A1 1*12F MTP (Male, Elite) - LC/PC fanout	

## Super High Density Enclosure Series

PN	TYPE	DESCRIPTION	IMAGE
1064800011	Enclosure	1RU Super high density enclosure	
1064810005	Cassette	Metal cassette, SM G657A1 2*12F MTP (Male, Elite) - LC/PC fanout	
1064810007	Cassette	Metal cassette, OM4 2*12F MTP (Male, Elite) - LC/PC fanout	
1064810020	Cassette	Metal cassette, 8 *MTP/MPO adapter empty cassette	
1064810030	Cassette	Metal cassette, SM 24*LC adapter empty cassette	
1064810031	Cassette	Metal cassette, MM 24*LC adapter empty cassette	
1064810040	Cassette	Metal cassette, SM 4*MTP/MPO to 24 *LC adapter empty cassette	
1064810041	Cassette	Metal cassette, MM 4*MTP/MPO to 24 *LC adapter empty cassette	
1064810022	Cassette	Metal 2W cassette, 16 *MTP/MPO adapter empty cassette	
1064810050	Cassette	Metal 2W cassette, 64 *CS adapter empty cassette	

## CS Adapter Series

PN	TYPE	DESCRIPTION	IMAGE
1060291001	Flange/Blue	CS 2F SINGLE CHANNEL W/FLG BLUE ADAPTER	
1060291002	Flangeless/Blue	CS 2F SINGLE CHANNEL O/FLG BLUE ADAPTER	
1060291004	Flange/Aqua	CS 2F SINGLE CHANNEL W/FLG AQUA ADAPTER	
1060291003	Flangeless/Aqua	CS 2F SINGLE CHANNEL O/FLG AQUA ADAPTER	
1060291011	Flange/Blue	CS 4F DUAL CHANNEL W/FLG BLUE ADAPTER	
1060291012	Flangeless/Blue	CS 4F DUAL CHANNEL O/FLG BLUE ADAPTER	
1060291013	Flange/Aqua	CS 4F DUAL CHANNEL W/FLG AQUA ADAPTER	
1060291014	Flangeless/Aqua	CS 4F DUAL CHANNEL O/FLG AQUA ADAPTER	

## CS Jumper Series

PN	TYPE	DESCRIPTION
1060292001	SM, G657A1	CS-CS UPC 2.0mm SM JUMPER, 1M
1060292002	SM, G657A1	CS-CS UPC 2.0mm SM JUMPER, 2M
1060292003	SM, G657A1	CS-CS UPC 2.0mm SM JUMPER, 3M
1060292004	SM, G657A1	CS-CS UPC 2.0mm SM JUMPER, 4M
1060292005	SM, G657A1	CS-CS UPC 2.0mm SM JUMPER, 5M
1060292006	SM, G657A1	CS-CS UPC 2.0mm SM JUMPER, 6M
1060292007	SM, G657A1	CS-CS UPC 2.0mm SM JUMPER, 7M
1060292008	SM, G657A1	CS-CS UPC 2.0mm SM JUMPER, 8M
1060292009	SM, G657A1	CS-CS UPC 2.0mm SM JUMPER, 9M
1060292010	SM, G657A1	CS-CS UPC 2.0mm SM JUMPER, 10M

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