Optec

MULTI-FIBER
ENGINEERING EXCELLENCE

MPO / MTP® Fiber Cabling Solutions

Special Fiber Termination

Harsh Environment Fiber Cabling Solutions

Cable Management & Fiber Components

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ABOUT US

Optec manufactures customized fiber cable assemblies and structured cabling solutions that serve extensive optical network applications throughout the public and private sectors. Our comprehensive range of fiber assembly products are delivered to meet the needs of network connectivity in data centers, enterprises, industrial & transportation networks, and telecom networks.

EMPHASIS ON CUSTOMER COLLABORATION

With a strong emphasis on customer collaboration, we offer the best multi-fiber cabling solutions to meet the specific needs of our customers from over 30 countries across the globe.

By leveraging our extensive experience and engineering expertise, we strive to exceed the expectations of each OEMs and ODMs projects for our valued customers, ultimately expanding their core competencies and helping them excel in the increasingly competitive landscape.

OPTEC AT A GLANCE

DRIVING RESULTS THROUGH ENGINEERING EXCELLENCE

Optec is the leader of OEMs (original equipment manufacturers) and ODMs (original design manufacturers) for fiber termination solutions. Through our engineering excellence, we provide next generation fiber assembly products, combining superior performance in a cost effective manner.

A VALUABLE PARTNER IN FIBER TERMINATION SOLUTIONS

As an experienced partner in the fiber assemblies business, Optec has a long-standing commitment to deliver superior products and professional services to our customers. Our Multi-fiber engineering excellence helps customers meet the cabling needs for high-density, high-bandwidth, and high-scalability in this communication and data-driven era.

WHY CHOOSE OPTEC

GOOD QUALITY

We strongly believe that product quality and performance are the key success factors of a company. This mindset has been rooted throughout the whole organization, from shop floor members to top management, to uphold reliable standards that cement our reputation.

INNOVATIVE TECHNOLOGY

We stay ahead of the curve to internalize new technology and knowhow by investing in production facilities, engineering process control systems, and talent development to maintain our status as a leading fiber termination solution house.

HIGH STANDARD

We believe a high standard of professionalism towards our product and service offerings combined with our superior engineering solutions serve to satisfy the unique needs of our customers.

DATA CENTER

Data centers have increasingly become an indispensable element in any organization. Spanning across every industry & modern day infrastructure, energy, lighting, telecommunications, Internet, transport, urban traffic, banks, security systems, public health and even entertainment - all involve data & information.

Likewise, network reliability and flexibility in data centers are crucial to the success of a vast majority of enterprises. A reliable, scalable and high-performance cabling system is the cornerstone of all data center infrastructures.

MPO / MTP®CABLING SYSTEM

MPO / MTP® Trunk Cable Assemblies:

Highly customizable and cost-effective solutions for MPO / MTP® connectors on both end, deployed in data centers which need to reduce the troubles of cable management.

P16-19

16F / 32F MPO/MTP® Fiber Assemblies:

Industrial leading density that are offered in single row 16-fiber and 32-fiber (2x16) configurations, for directly coupling into 16x25G active devices.

P22-23

MPO / MTP® Harness Solutions:

Custom terminated solutions for MPO / MTP® connectors on one end with the availability of MPO/ LC/FC/SC/ST/MTRJ/MTP® connectors on the other end, used to connect patch panels and data distribution routing

P24-26

MPO / MTP® FIBER CASSETTE

Fiber Cassette with Pre-installed MPO / MTP® Assembly

Pre-installed MPO / MTP® assembly in customized fiber cassette provides a convenient plug and play cable management solution

P28-29

FIBER ENCLOSURE

Rackmount Panel

Professional OEM service for 1U, 2U and 4U panels: configurations of mixed connector types based on design and requirements for cable management

P66-67

FIBER PATCHCORDS AND PIGTAILS

LC Uniboot Patchcords

Dramatically save space and reduce the required cable with an installation-friendly push-pull tab.

P76-77

Fiber Patchcords & Pigtails

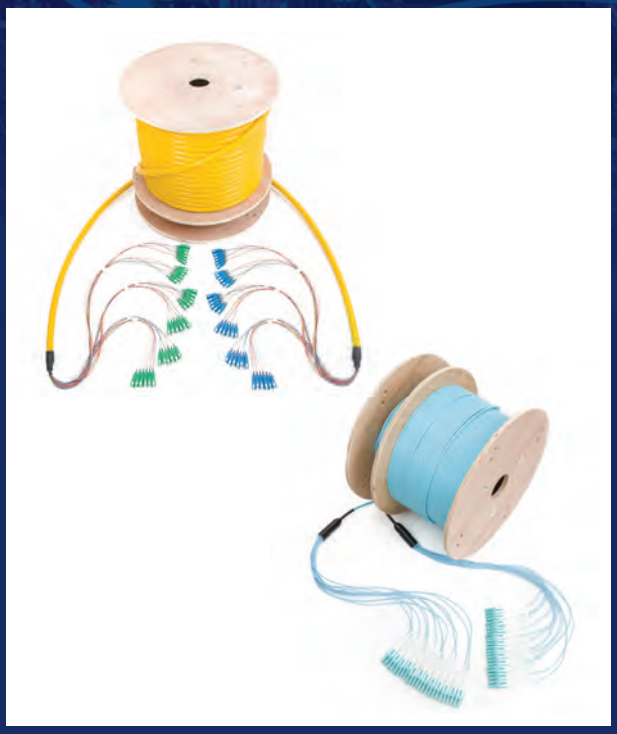
Available in a wide range of connectors and cable types, seamlessly connect your end-to-end equipment.

P68-71

ENTERPRISE NETWORK

Fiber is transforming the way we connect. Most organizations realize that upgrading networking equipment and devices is critical for meeting its intensive communication needs. However, it is just a start, alignment with high-performance fiber cabling infrastructure should be the panacea to achieve optimization of network performance.

PRE-TERMINATED MULTI-FIBER SOLUTIONS



Highly customizable pre-terminated multi-fiber solutions eliminate field terminations, provides an easily installed, cost-effective, and a highly reliable option for all installations.

P44-49

FIBER ENCLOSURES

User friendly and economical cable management solutions maximize performance and protection of network cabling.

P66-67

Network deployment for industrial and transportation sectors require extremely stable transmission and thus require highly reliable equipment and components.

Our premier quality interconnects and fiber optic cabling products optimize network efficiency in a cost-effective manner, as well as provide reliable engineering design and application flexibility.

INDUSTRIAL & TRANSPORTATION NETWORKS

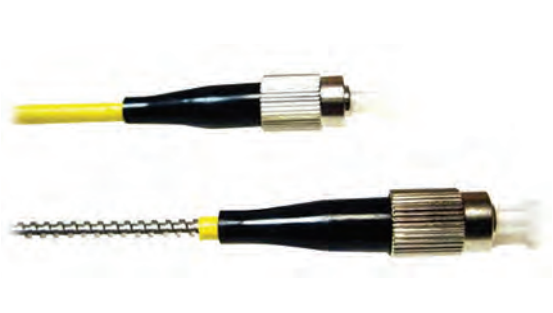
HARSH ENVIRONMENT CONNECTIVITIES

IP68 LC and MTP® Assemblies

Designed with rugged and robust housing IP68, is suited to support extreme environments; FTTA, base stations, transportation, railway systems, and industrial networks.

P50-57

ARMORED PATCHCORDS



Stainless steel armored. Option of fiber optic cable provides enhance protection of the fiber.

P58-59

PRE-TERMINATED OUTDOOR CABLING SOLUTIONS

Customizable pre-terminated multi-fiber solutions eliminate field terminations, provides an easily installed, cost-effective, and highly reliable option for all outdoor installations.

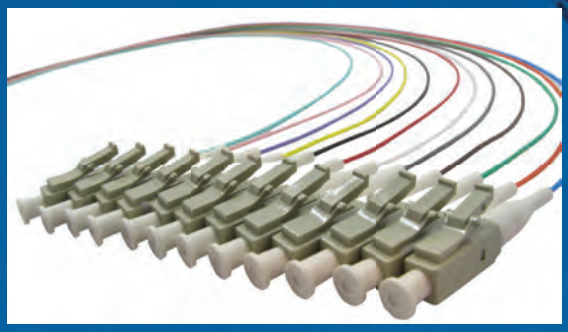
P44-47

Today, the demands placed on our networks are evolving. The increasing demand for high-speed broadband internet access, Voice over IP (VoIP), Over-the-Top (OTT) video is more pressing than ever before.

With over a decade of industrial expertise, Optec provides comprehensive fiber optic cabling solutions to serve all the needs of telecom networks. We deliver reliable and cost-efficient fiber assemblies and interconnect components for service providers, which mediates the transition to fiber-networks.

TELECOM NETWORKS

FIBER PATCHCORDS AND PIGTAILS



Color-coded Pigtail Set

Traditional pre-connectorized pigtails provide factory-polished performance with field-termination convenience for any installation environment.

P70-71

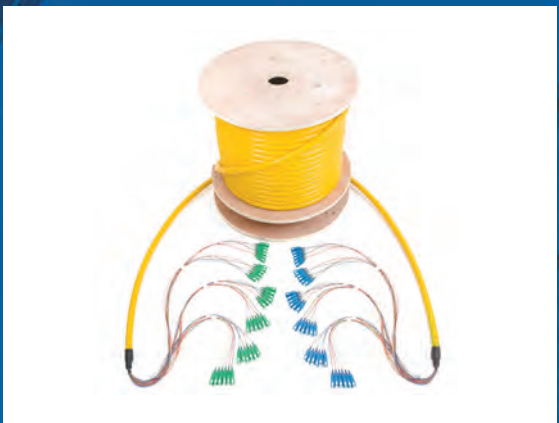
COMPONENTS

Attenuators

Adjusts optical signal level to increase network flexibility and achieve desired optical power.

P80-81

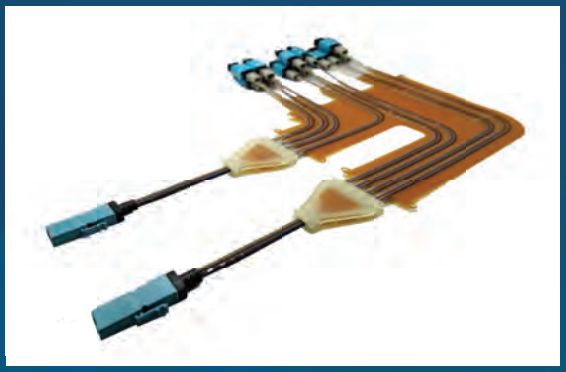
PRE-TERMINATED MULTI-FIBER SOLUTIONS



Customizable pre-terminated multi-fiber solutions eliminate field terminations, provide an easily installed, cost-effective, and reliable option for all installations.

P44-49

SPECIAL FIBER TERMINATIONS



Optical Shuffle Assemblies

Supports complex fiber routing for equipment and on-board applications

P40-41

MID-BOARD & ON-BOARD OPTICS

With the advent of 'Big Data', including the development of large data centers, each comprising thousands of servers, the need for faster circuitry has grown more than ever. As circuit speeds exceed 40/100G, fiber optics has begun to be employed to connect server racks, switches and routers in both public and private data centers.

Optec's industry leading experience and engineering excellence have been applied to each and every customized fiber assemblies; ultimately, to provide unprecedented support for high-performance on-board optics system.

Custom Ferrule Assemblies

Provide manufacturing support and engineering consultation service for optimizing performance in custom ferrule assembly products

P38-39

Prizm Lighturn Fiber Assemblies

Supports simple mating to board-mounted modules and other high density transceivers that deploy parallel optic technology

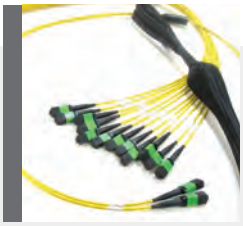
P34-37

SOLUTIONS OVERVIEW

Optec provides next generation fiber assemblies and structured cabling solutions to serve our customers. Our comprehensive range of high-performance fiber assemblies and cabling products serve multiple applications across four major markets: data centers & enterprise, industrial & transportation, public networks, and telecom networks.

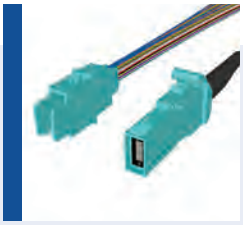
Our product breadth extends from generic fiber cable assemblies that link equipment together, to highly specialized fiber assemblies and lens-type connector interconnect assemblies.

In addition to the products offered in our catalogue, we can provide a variety of customized fiber cable assemblies for our customers, you may contact our technical support or sales team to discuss your needs.



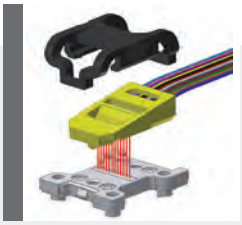
MPO / MTP® CABLING SYSTEM 16-29

Our comprehensive range of MPO/MTP® solutions include backbone trunking, harnesses, plug-&-play cassettes, from 12-fiber to the newest 16-fiber solutions, suitable for high density data center application.



MXC® MULTI-FIBER CABLE ASSEMBLIES 30-33

We are certified by USConec as an approved manufacturer to provide fully-customized fiber assemblies using the newest MXC® connector. The "expanded-beam MT" technology provides high density interconnection, used in embedded optical engines for a wider range of high transmission equipment interface applications.



PRIZM® LightTurn® ASSEMBLIES 34-37

Our PRIZM® LightTurn® assemblies are used to mate between Parallel Optical Devices (POD), it supports simple mating to board-mounted modules and other high density transceivers that deploy parallel optic technology. We provide the fiber assembly service that connects PRIZM® LightTurn® connectors with MTP® Connectors with customized configuration for multiple applications.

SPECIAL FIBER TERMINATIONS 38-43

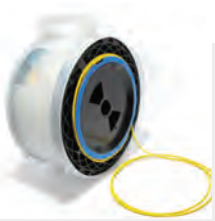
We offer manufacturing support and engineering consultation for special fiber terminations to meet custom specifications and applications. We work closely with our customers, to deliver superior products that are designed to their needs.

PRE-TERMINATED MULTI-FIBER SOLUTIONS 44-49

We provides customizable pre-terminated multi-fiber solutions for different installation environments. Our solutions eliminate field terminations and provide an easily installed, cost-effective, and highly reliable option for all installations.

HARSH ENVIRONMENT CONNECTIVITIES 50-59

Our harsh environment fiber optic connector and cabling solutions offer high protective quality in many extreme environments. The rugged housing offers high ingress protection of IP68, which provides reliable performance in harsh environments. The cabling solutions are widely leverage in FTTX applications, base stations, transportation, railway systems, and industrial networks.



TEST REFERENCE CABLES 60-65

Optec offers test cables with end-face geometry optimized to enhance performance and ensure exceptional alignment of fiber connectors during the testing phase.

FIBER ENCLOSURES 66-67

We deliver customizable design and manufacturing services for patch panels to meet the highest level of performance requirements in high density cable management solutions in a cost effective manner.

FIBER PATCHCORDS AND PIGTAILS 68-77

We offer top-of-the-line patchcords and pigtails which ensure network reliability and effective fiber cabling systems. Our cable assemblies are monitored under stringent quality control and tested to assure performance with traceable data. All patchcords and pigtails are fully customizable.

FIBER OPTIC COMPONENTS 78-90

Our range of fiber optic components deliver stable performance, adaptable to many premises, FTTD, FTTP applications for indoor or outdoor environments, as well as CATV backbone networks.

PRECISION METAL PARTS 91

Our value-added precision metal parts can be used in a variety of fiber optics devices and specialized equipment. All tailor-made precision metal parts are made to macron level tolerance, pushing the ever evolving precision engineering frontier.

MPO / MTP® CABLING SYSTEM

MPO / MTP® Trunk Cable Assemblies

Optec's MPO / MTP® series of trunk cable solutions provide a time-efficient method to install a large amount of cables, while not compromisings on the flexibility to unplug and re-use. It is especially suitable for areas that require high density, rapid deployment and high performance.

The high performances factory tested assemblies are pre-terminated with 12-fiber MPO / MTP® connectors and offered in customer-specified length configurations. Options include 12-, 16-, 24-, 32-, 36-, 48-, 72-, 96-and 144-fiber, terminated with round Mini-core cable to fit installation needs.

Features And Applications

Distribute some or all of the fibers in a trunk cable to other areas
Applicable in backbone installation

Fiber counts available in 12 / 16 / 24 / 32 / 36 / 48 / 72 / 96 / 144-fibers
Supports different applications and field requirements

Round & mini-core cable structure
Eliminates bend sensitivity

Pulling eye design
Fits for different installation environments

Options for pinned (Male type) non pinned (Female type) on connector ends
High flexibility for different equipment

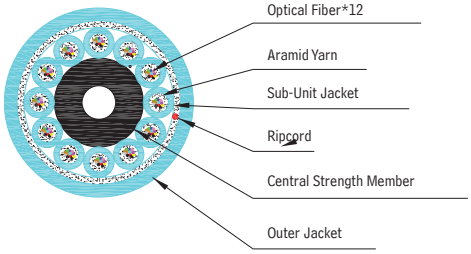
Available in singlemode (9/125μm), multimode (50 or 62.5/125μm) up to 100Gig
Satisfies client's needs in different industries

Cable Structure Illustration

EXAMPLE

144-Fiber Mini-Core Cable (Reference only)

96 Fiber Mini-Core Cable



Primary Coded Fiber (250μm)	Fiber Count	Cable Jacket
Blue	12-Fiber	SM-OS2 -Yellow
Orange	16-Fiber	MM-OM1 & OM2 -Orange
Green	24-Fiber	OM3-Aqua
Brown	32-Fiber	OM4-Violet
Grey	36-Fiber	
Red	48-Fiber	
White	72-Fiber	
Black	96-Fiber	
Yellow	144-Fiber	
Purple		
Pink		
Aqua		

Cable Mechanical Specifications

	MINI-CORE			FIBER	IN/OUTDOOR	
	OFNP	OFNR	LSZH		OFNP	OFNR
Minimum Bend Radius (Installation)	6.0cm	6.0cm	6.0cm	12	9.9cm	9.7cm
	12.0cm	12.0cm	12.0cm	24 Round	n/a	n/a
	15.2cm	15.2cm	15.2cm	24 Zip	18.9cm	18.9cm
	18.0cm	18.0cm	18.0cm	36	14.1cm	15.1cm
	18.0cm	18.0cm	18.0cm	48	14.1cm	15.1cm
	22.4cm	22.4cm	22.4cm	72	17.5cm	17.8cm
	27.0cm	27.0cm	27.0cm	96	20.0cm	20.6cm
	35.0cm	35.0cm	35.0cm	144	26.4cm	27.2cm
Minimum Bend Radius (Long Term)	3.0cm	3.0cm	3.0cm	12	6.6cm	6.5cm
	6.0cm	6.0cm	6.0cm	24 Round	n/a	n/a
	7.6cm	7.6cm	7.6cm	24 Zip	12.6cm	12.6cm
	9.0cm	9.0cm	9.0cm	36	9.4cm	10.1cm
	9.0cm	9.0cm	9.0cm	48	9.4cm	10.1cm
	11.2cm	11.2cm	11.2cm	72	11.7cm	11.9cm
	13.5cm	13.5cm	13.5cm	96	13.4cm	13.7cm
	17.5cm	17.5cm	17.5cm	144	17.6cm	18.1cm
Maximum Tensile (Installation)	150N	150N	150N	12	1335N	1335N
	160N	160N	160N	24 Round	n/a	n/a
	300N	300N	300N	24 Zip	1335N	1335N
	1000N	1000N	1000N	36	2670N	2670N
	1000N	1000N	1000N	48	2670N	2670N
	1000N	1000N	1000N	72	2670N	2670N
	1000N	1000N	1000N	96	2670N	2670N
	1000N	1000N	1000N	144	2670N	2670N
Maximum Tensile (Long Term)	80N	80N	80N	12	400N	400N
	80N	80N	80N	24 Round	n/a	n/a
	160N	160N	160N	24 Zip	400N	400N
	300N	300N	300N	36	890N	890N
	300N	300N	300N	48	890N	890N
	300N	300N	300N	72	890N	890N
	300N	300N	300N	96	890N	890N
	300N	300N	300N	144	890N	890N

Cable Physical Specifications

	MINI-CORE			FIBER	IN/OUTDOOR	
	OFNP	OFNR	LSZH		OFNP	OFNR
Cable Outer Diameter	3.0mm	3.0mm	3.0mm	12	6.6cm	6.5mm
	6.0mm	6.0mm	6.0mm	24 Round	n/a	n/a
	4.2mm x 7.6mm	4.2mm x 7.6mm	4.2mm x 7.6mm	24 Zip	6.2mm x 12.6mm	6.2mm x 12.6mm
	9.0mm	9.0mm	9.0mm	36	9.4mm	10.1mm
	9.0mm	9.0mm	9.0mm	48	9.4mm	10.1mm
	11.2mm	11.2mm	11.2mm	72	11.7mm	11.9mm
	13.5mm	13.5mm	13.5mm	96	13.4mm	13.7mm
	17.5mm	17.5mm	17.5mm	144	17.6mm	18.1mm
Weight	14.0kg/km	14.0kg/km	14.0kg/km	12	48.0kg/km	45.0kg/km
	30.0kg/km	30.0kg/km	30.0kg/km	24 Round	n/a	n/a
	31.0kg/km	31.0kg/km	31.0kg/km	24 Zip	80.0kg/km	80.0kg/km
	70.0kg/km	70.0kg/km	70.0kg/km	36	82.0kg/km	82.0kg/km
	70.0kg/km	70.0kg/km	70.0kg/km	48	82.0kg/km	82.0kg/km
	98.0kg/km	98.0kg/km	98.0kg/km	72	101.0kg/km	132.0kg/km
	130.0kg/km	130.0kg/km	130.0kg/km	96	229.0kg/km	205.0kg/km
	190.0kg/km	190.0kg/km	190.0kg/km	144	315.0kg/km	336.0kg/km
Operating Temperature	-20°C to +70°C	-20°C to +70°C	-20°C to +70°C	12~144	-40°C to +75°C	-40°C to +75°C

Fiber Performance Specifications**

Characteristics \ Fiber Type	OS2 Singlemode		OM1 Multimode		OM2 Multimode		OM3 Multimode*		OM4 Multimode*		OM5 Multimode*		
Core size/Cladding	9/125μm		62.5/125μm		50/125μm		50/125μm		50/125μm		50/125μm		
Wavelength (nm)	1310	1550	850	1300	850	1300	850	1300	850	1300	850	953	1300
Attenuation (dB/km)	≦0.32	≦0.18	≦2.7	≦0.6	≦2.3	≦0.6	≦2.3	≦0.6	≦2.3	≦0.6	≦2.4	≦1.7	≦0.6
OFL Bandwidth (MH • Km)	N/A		≧200	≧500	≧500	≧500	≧1500	≧500	≧3500	≧500	≧3500	≧1850	≧500

** Specification for OM3/OM4/OM5 as stated above are Bend Insensitive fibers.*
*** Specification may vary depending on model, cable type and latest situations.*

MPO / MTP® CABLING SYSTEM

MPO / MTP® Trunk Cable Assemblies

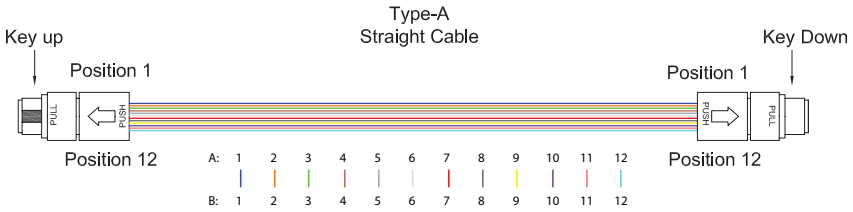
Cable Assemblies Technical Information

POLARITY

To ensure fiber systems functionality, each fiber port must have a transmitter at one end, and a receiver at the other end. The proper match of the transmiting signal (Tx) to the receiving end (Rx) at both ends of the fiber optic link is referred to as POLARITY. TIA-568 standard provides three different polarity methods for MPO/MTP® Trunk Cable Method A, B and C.

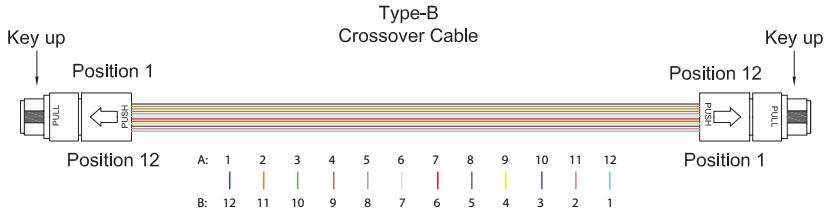
Type A:

The MPO/MTP® connector key are pointing down at one end of cable and up at other end. The fibers are aligned in same position at both end of the cable. It allows the fiber located in Position 1 at one end arrives at Position 1 at the other end.



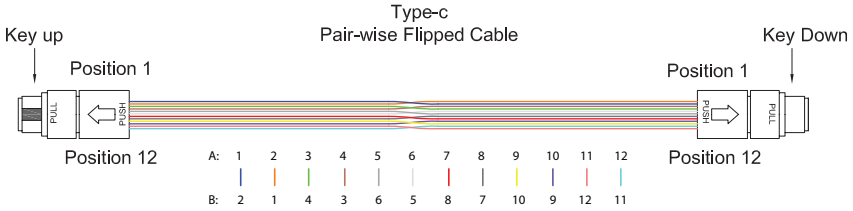
Type B:

The MPO/MTP® connector key are pointing up on both ends of cable. The fiber positions are reversed at each end, which allows the fiber located in Position 1 at one end arrives to Position 12 at the opposing end and so on.



Type C:

The MPO/MTP® connector key are pointing up at one end and down at the other end similar to Type A. However, the fibers are flipped in a pair so the fiber in Position 1 arrives to Position 2 at the other end and so on.



PERFORMANCE OF ASSEMBLIES

MPO/MTP® Connector Termination

Optical Performance **					
Performance \ Type		Singlemode (APC polish)		Multimode (PC / Flat Polish)	
		Standard	Elite Low Loss	Standard	Elite Low Loss
Insertion Loss	Maximum	≤ 0.6 dB	≤ 0.25 dB	≤ 0.45 dB	≤ 0.25 dB
	Typical	0.45 dB	0.2 dB	0.4 dB	0.2 dB
Return Loss		≥ 50dB		≥ 30dB	
Test Wavelength		1310nm & 1550nm		850nm & 1300nm	
Geometric performance					
Manufactured to Telcordia standard GR-1435					

Generic Connector Termination

Optical Performance **				
Performance \ Type		Singlemode		Multimode
		UPC	APC	PC
Insertion Loss	Maximum	≤ 0.3 dB	≤ 0.3 dB	≤ 0.3 dB
	Typical	0.1 dB	0.1 dB	0.1 dB
Return Loss		≥ 55 dB	≥ 65 dB	≥ 25 dB
Test Wavelength		1310nm & 1550nm		850nm & 1300nm
Geometric performance				
Manufactured to Telcordia standard GR-326-CORE				

Note: The above table refers to Optec standard grade performance. Due to material optimization and manufacturing techniques, we can provide different performance grade products in a cost-effective way to meet customer expectations and requirements. Please contact our professional sales team for details.

MPO / MTP® Trunk Cable Assemblies

Ordering Information

	1	2	3	4	5	6	7	8	9	10
NT	☐☐	☐	☐☐	☐☐	☐☐☐☐	☐☐☐☐	☐☐☐	☐	☐	☐

1 — Fiber Count
12 = 12-Fiber
16 = 16-Fiber
24 = 24-Fiber
32 = 32-Fiber
36 = 36-Fiber
48 = 48-Fiber
72 = 72-Fiber
96 = 96-Fiber
H4 = 144-Fiber

2 — A-End & B-End Connector
A = 1x12F MTP Male (with pins)
B = 1x12F MTP Female (no pins)
C = 1x12F MPO Male (with pins)
D = 1x12F MPO Female (no pins)
E = 1x16F MTP Male (with pins)
F = 1x16F MTP Female (no pins)
G = 1x16F MPO Male (with pins)
H = 1x16F MPO Female (no pins)
I = 1x24F MTP Male (with pins)
J = 1x24F MTP Female (no pins)
K = 1x24F MPO Male (with pins)
L = 1x24F MPO Female (no pins)

3 — Fiber Type
SM = OS2 (SM 9/125)
M1 = OM1 (MM 62.5/125)
M2 = OM2 (MM 50/125)
M3 = OM3 (MM 50/125)
M4 = OM4 (MM 50/125)
M5 = OM5 (WBMM 50/125)
See notes (1) & (2)

4 — Cable Type
MP = Mini-Core Plenum (OFNP)
MR = Mini-Core Riser(OFNR)
ML = Mini-Core Low Smoke Zero Halogen (LSZH)
See note (3)

5 — Furcation Length on A-End
0600 = 600 (standard)
1000 = 1000mm
xxxx = Customized
See notes (4)

6 — Furcation Length on B-End
0600 = 600 (standard)
1000 = 1000mm
xxxx = Customized Length
See notes (4)

7 — Overall Cable Length
xxx = 001~999
(please specify)

8 — Unit of Measure
F = Feet
M = Meter

9 — Pulling Eye
1 = On A-End
2 = On B-End
3 = On Both Ends
4 = None

10 — Polarity
A = Type-A Straight
B = Type-B Crossover
C = Type-C Pair-wise Flipped
See notes (5)

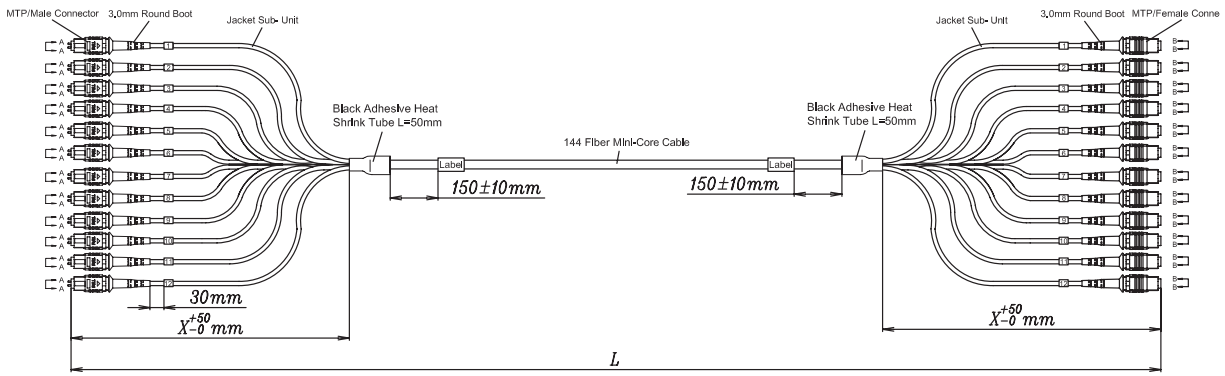
NOTES
(1) If Singlemode is chosen, MTP endface polishing will be APC
(2) If Multimode is chosen, MTP endface polishing will be PC
(3) Other cables structures are available, please contact our sales team for more information
(4) Furcation length tolerance: +50/-0mm
(5) Please refer to page 18 for polarity

Product Illustration & Example

EXAMPLE

Ordering Code: **NT**-H4-B-SM-MR-0600-0600-005-M-4-A

Item Description: Trunk Assembly, 144-Fiber, MTP® Female (no pin) , Singlemode, Mini-Core Riser (OFNR), A-End Furcation Length 600mm, B-End Furcation Length 600mm, Overall Length 5 Meters, No Pulling Eye, Polarity A

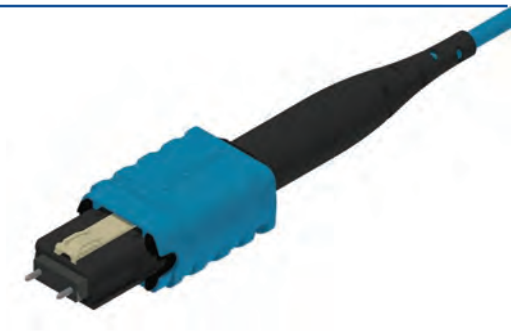


MPO / MTP® CABLING SYSTEM

MTP® PRO Cable Assemblies

Optec offers MTP® PRO Fiber Assemblies, leveraging the newest MTP® PRO connector, to provide optimal flexibility in the field by bringing simple and robust field configurability, and enhanced performance to the existing MTP® multi-fiber cabling.

The MTP® PRO fiber assemblies can be easily reconfigured to change polarity, thus eliminates the need for a skilled technician to remove the connector housing, and minimizing the handling risk.



Features And Applications

Integrated Push-Pull Sleeve
Robust push-pull insertion and extraction housing design for ease of use and access

Robust field configurability for polarity change
Simple one-step color coded polarity change feature without removing connector housing

Field pin changeable for optimal flexibility
Field friendly configuration while maintaining product integrity with safe handling of pins and easy color identification

Superior optical performance
Telcordia compliant for end face geometry ensuring low loss budget

MTP®PRO Cable Assemblies

MTP®PRO Extraction Tool & Pin Holder

Cable Assemblies Technical Information

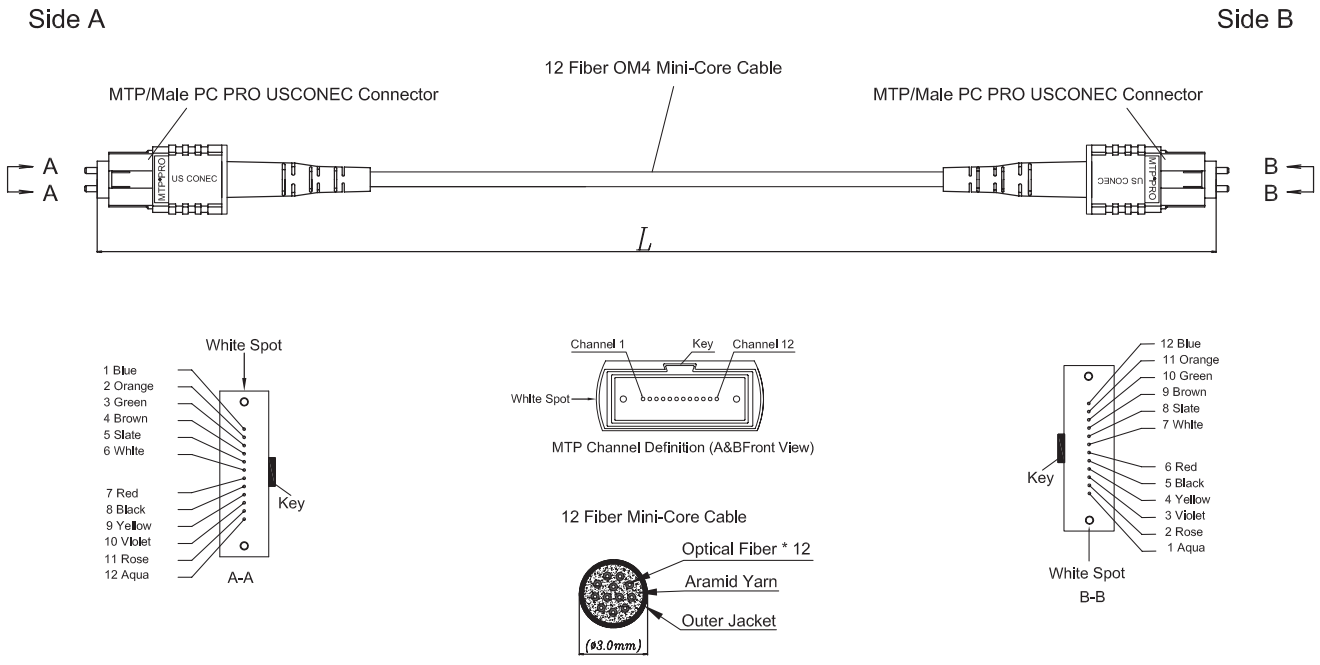
MTP®PRO Termination

Optical Performance **					
Performance \ Type		Singlemode (APC polish)		Multimode (PC / Flat Polish)	
		Standard	Elite Low Loss	Standard	Elite Low Loss
Insertion Loss	Maximum	≤ 0.6 dB	≤ 0.25 dB	≤ 0.45 dB	≤ 0.25 dB
	Typical	0.45 dB	0.2 dB	0.4 dB	0.2 dB
Return Loss		≥ 50dB		≥ 30dB	
Test Wavelength		1310nm & 1550nm		850nm & 1300nm	
Geometric performance					
Manufactured to Telcordia standard GR-1435					

Note: The above table refers to Optec standard grade performance. Due to material optimization and manufacturing techniques, we can provide different performance grade products in a cost-effective way to meet customer expectations and requirements. Please contact our professional sales team for details.

Product Illustration & Examples

EXAMPLE **Item Description:** MTP® PRO Patchcord, 12-Fiber, MTP® PRO (with pin) to MTP® PRO (with pin) , OM4, Mini-Core, Riser (OFNR), Length: 5 Meters



MTP® is the trademark of USConec, MTP® PRO connector is manufactured by USConec.

For ordering, please contact technical support or sales team for more details.

MPO / MTP® CABLING SYSTEM

MPO / MTP® 16F & 32F Solutions

Optec provides industry-leading density 16-core MPO/MTP® fiber assemblies to support 400G transmission. The assemblies are offered in single row 16-fiber and 32-fiber (2x16) configurations to achieve the highest density physical contact for multifiber connectors in the market.

This high density trunk cable can directly pair into 16x25G active devices, the connector interface is compliant to Telcordia 1435 Core, TIA 604-18 (FOCIS 18) and IEC (61754-7-3) standards.

Features And Applications

100% factory tested with traceable test data
Complies Telcordia GR-326 Core, TIA 604-18 and IEC 61754-3 standards

16-Fiber or 32-Fiber (2x16 Configurations)
Highest density physical contact for multi-fiber connectors

Ultra high fiber count cabling solution
Supports 400G transmission for Data Center

Stringent manufacturing process
Superior optical performance to satisfy customers' requirements

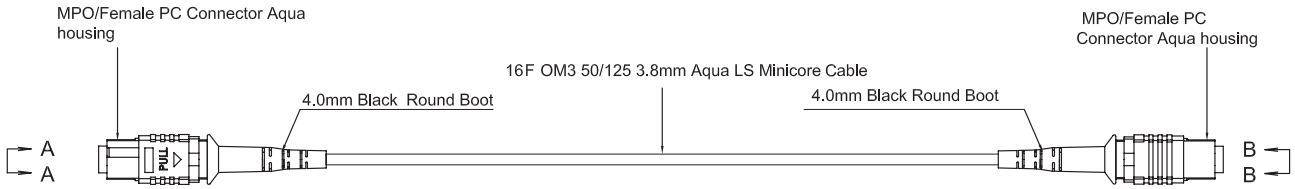
16-core MTP® connector used in high density trunk solutions
Deploys directly into 16x25G active devices

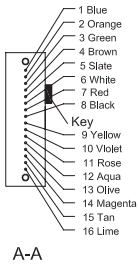
MTP® 16 Fiber Connector Cable Assemblies

MPO / MTP® 16F & 32F Solutions

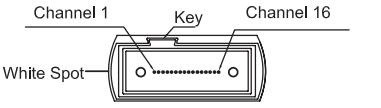
Product Illustration & Examples

EXAMPLE **Item Description:** MTP/MPO(1x16) to MTP/MPO(1x16), 16-fiber, OM3, Minicore

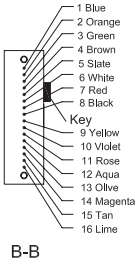




A-A

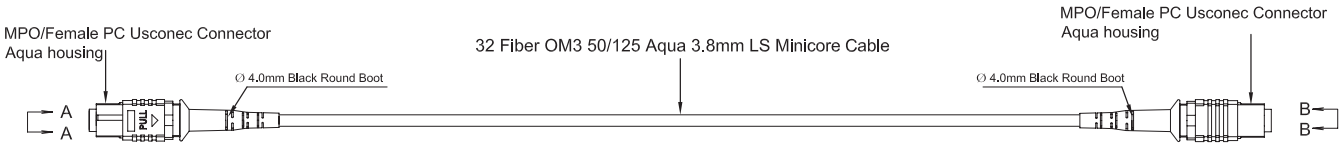


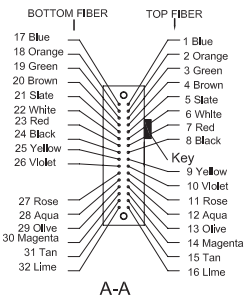
MPO 16F Channel Definition (Front View)



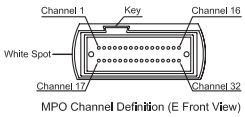
B-B

EXAMPLE **Item Description:** MTP/MPO(2x16) to MTP/MPO(2x16), 32-fiber, OM3, Minicore



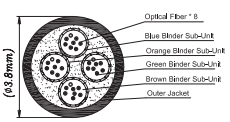


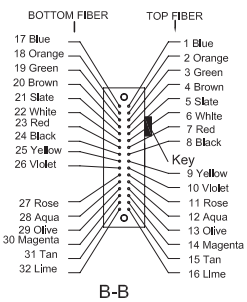
A-A



MPO Channel Definition (E Front View)

32 Fiber Mini-Core Cable





B-B

For ordering, please contact technical support or sales team for more details.

MPO / MTP® CABLING SYSTEM

MPO / MTP® Harness Solutions

Optec's MPO/MTP® harness assemblies are used to fanout 8-, 12- or 24-fiber MTP® connectors terminated on trunk cables into LC connectors. It is used to transition from trunk backbone assemblies to fiber rack systems. The ruggedized 2mm or 3mm furcation legs provide a more protective solution than products with 900um legs, and also provide excellent installation convenience and a longer lifespan.

Features And Applications

Deployed into the transition between trunk backbone assemblies and fiber rack system
Wide employment of high density infrastructure

MPO/MTP® connector on one end in 8-, 12- or 24-fiber interface, with LC single-fiber connectors on another end
Provides an efficient pathway space in operation

LC Single-fiber connector available in forms of Simplex or Duplex channeling
High Flexibility with reducing installation time and cost

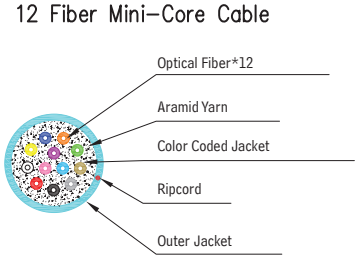
Customized furcation length to cater for different installation situations
Ease of installation

Ruggedized furcation legs: Round fanout kit with 2.0 mm or 3.0 mm legs to single-fiber connectors
Saving installation space with longer lifespan

Cable Structure Illustration

EXAMPLE

12-Fiber Mini-Core Cable (Reference only)



Primary Coded Fiber (250μm)	Fiber Count	Cable Jacket
Blue	8-Fiber	SM-OS2 -Yellow
Orange	12-Fiber	MM-OM1 & OM2 -Orange
Green	24-Fiber	OM3-Aqua
Brown		OM4-Violet
Grey		
Red		
White		
Black		
Yellow		
Purple		
Pink		
Aqua		

Cable Assemblies Technical Information

POLARITY

According to TIA-568 standard, different polarity methods are adopted in different types of MPO / MTP® patch cords. To support different installations, Optec offers three different cables: Type A, B and C for three different polarity methods corresponding to Methods A, B and C. You may refer to Page 18 for further details

PERFORMANCE OF ASSEMBLIES

MPO/MTP® Termination

Optical Performance **					
Performance \ Type		Singlemode (APC polish)		Multimode (PC / Flat Polish)	
		Standard	Elite Low Loss	Standard	Elite Low Loss
Insertion Loss	Maximum	≤ 0.6 dB	≤ 0.25 dB	≤ 0.45 dB	≤ 0.25 dB
	Typical	0.45 dB	0.2 dB	0.4 dB	0.2 dB
Return Loss		≥ 50dB		≥ 30dB	
Test Wavelength		1310nm & 1550nm		850nm & 1300nm	
Geometric performance					

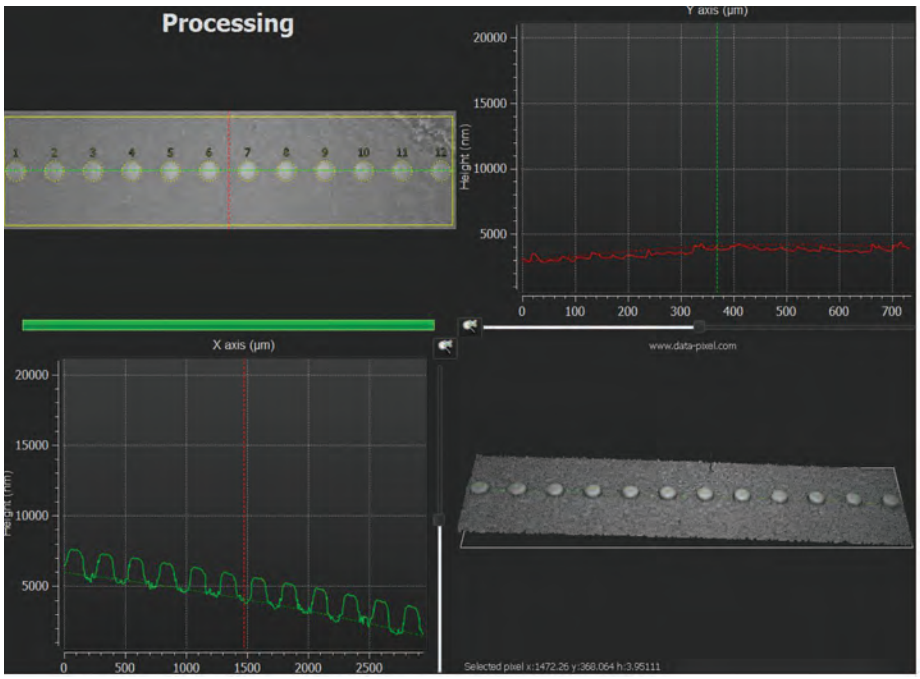
Manufactured to Telcordia standard GR-1435

Generic Connector Termination

Optical Performance **				
Performance \ Type		Singlemode		Multimode
		UPC	APC	PC
Insertion Loss	Maximum	≤ 0.3 dB	≤ 0.3 dB	≤ 0.3 dB
	Typical	0.1 dB	0.1 dB	0.1 dB
Return Loss		≥ 55 dB	≥ 65 dB	≥ 25 dB
Test Wavelength		1310nm & 1550nm		850nm & 1300nm
Geometric performance				

Manufactured to Telcordia standard GR-326-CORE

Note: The above table refers to Optec standard grade performance. Due to material optimization and manufacturing techniques, we can provide different performance grade products in a cost-effective way to meet customer expectations and requirements. Please contact our professional sales team for details.



Fiber #	Fiber Height (nm)	Diff. Height (nm)	Adj. Height (nm)	Core Dip (nm)	Tip radius (mm)
1	1308	-41	n/a	19	5.65
2	1355	6	-47	13	5.28
3	1384	35	-3-	27	5.01
4	1376	28	7	43	4.72
5	1356	7	20	57	5.3
6	1410	62	-55	58	5.32
7	1407	59	3	58	4.59
8	1323	-25	84	61	2.55
9	1337	-11	-15	84	3.25
10	1337	-11	-1	83	3.57
11	1324	-25	13	71	3.76
12	1259	-90	65	76	3.7

PASS	
X Endface Angle (°)	-0.004
Y Endface Angle (°)	-0.087
X Fibers Slope (°)	-0.005
Y Fibers Slope (°)	-0.047
X ROC (mm)	25707
Y ROC (mm)	130
Max. Diff. Height All Fib. (nm)	151
Max. Diff. Height Adj. Fib. (nm)	84
Flatness Deviation (nm)	00
Max. Core Dip (nm)	84
Co-planarity (nm)	66
Valid Pixels Ration (%)	85.6
Geometry Limit (N)	n/a

MPO / MTP® Harness Solutions

Ordering Information

HR | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |

1 Fiber Count
08 = 8-Fiber
12 = 12-Fiber
16 = 16-Fiber
24 = 24-Fiber
32 = 32-Fiber

2 A-End Connector
A = 1x12F MTP Male (with pins)
B = 1x12F MTP Female (no pins)
C = 1x12F MPO Male (with pins)
D = 1x12F MPO Female (no pins)
E = 1x16F MTP Male (with pins)
F = 1x16F MTP Female (no pins)
G = 1x16F MPO Male (with pins)
H = 1x16F MPO Female (no pins)
I = 1x24F MTP Male (with pins)
J = 1x24F MTP Female (no pins)
K = 1x24F MPO Male (with pins)
L = 1x24F MPO Female (no pins)
See notes (1), (2)

3 B-End Connector
D = Duplex LC (clipped per pair)
S = Simplex LC
See notes (3), (4), (5)

4 Fiber Type
SM = OS2 (SM 9/125)
M1 = OM1 (MM 62.5/125)
M2 = OM2 (MM 50/125)
M3 = OM3 (MM 50/125)
M4 = OM4 (MM 50/125)
M5 = OM5 (WBMM 50/125)
See notes (1) & (2)

5 Cable Type
MP = Mini-Core Plenum (OFNP)
MR = Mini-Core Riser(OFNR)
ML = Mini-Core Low Smoke Zero Halogen (LSZH)
AP = AdventumPlenum (OFNP)
AR = AdventumRiser (OFNR)
AL = AdventumLow Smoke Zero Halogen (LSZH)

6 Furcation Length on LC-End
0300 = 300 mm (standard)
0500 = 500mm
xxxx = Customized Length
See notes (6) & (7)

7 Overall Cable Length
xxx = 001~999
(please specify)

8 Unit of Measure
F = Feet
M = Meter

9 Pulling Eye
1 = On A-End
2 = On B-End
3 = On Both Ends
4 = None

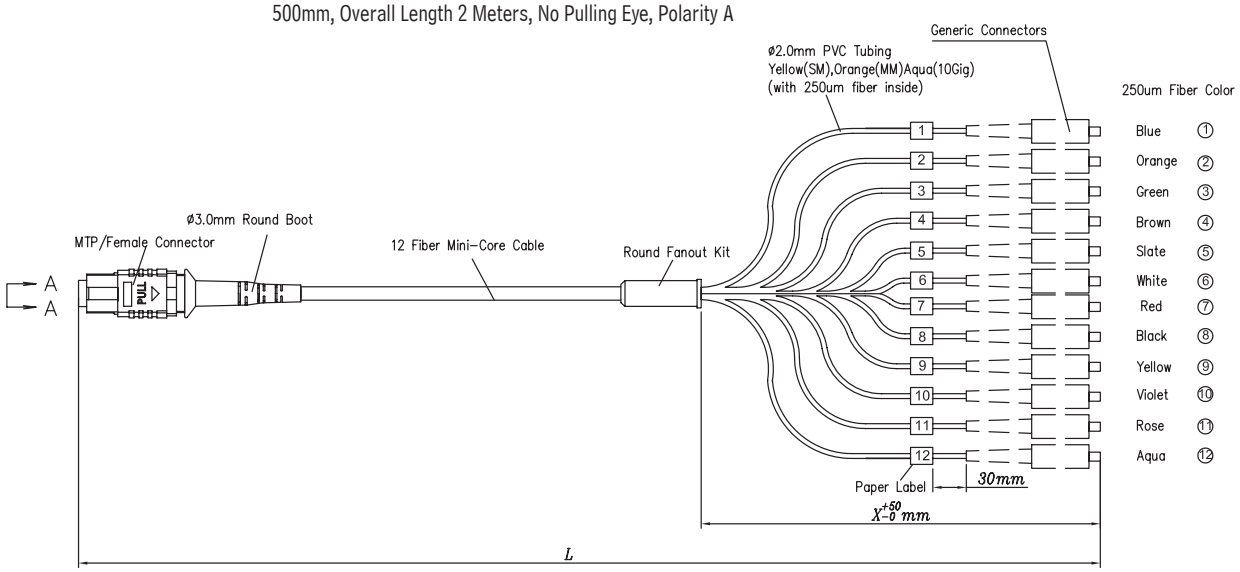
10 MTP® connector endface
A = Type-A Straight
B = Type-B Crossover
C = Type-C Pair-wise Flipped
See notes (8)

NOTES
(1) If singlemode is chosen, MTP endface polishing will be APC
(2) If multimode is chosen, MTP endface polishing will be PC
(3) If singlemode is chosen, LC connector polishing will be UPC. Please contact our sales team if you require special polishing type
(4) If multimode is chosen, LC connector polishing will be PC. Please contact our sales team if you require special polishing type
(5) Connectors other than the above are available, please specify and contact our sales team
(6) Maximum furcation length on B-end is 1000mm
(7) Furcation length tolerance: +50/-0 mm
(8) Please refer to page 18 for polarity

Product Illustration & Example

EXAMPLE **Ordering Code:** **HR**-12-B-S-SM-MR-0500-002-M-4-A

Item Description: Harness Assembly, 12-Fiber, MTP Female (no pin) to Simplex LC, Singlemode, Mini-Core Riser (OFNR), Furcation Length 500mm, Overall Length 2 Meters, No Pulling Eye, Polarity A



MPO / MTP® Loopback

Optec's MPO/MTP® Loopback offered in female design with an economical solution provides a stable and convenient means for network testing and diagnostics.

The loopback structure supports the direct mating with MPO/MTP® adapter and parallel optical devices such as a "Quad Small Form Factor" Pluggable (QSFP). It can also simulate network distances within the device.

Features And Applications

Ruggedized plastic housing design
High durability with stable performance

Bend Insensitive fiber with low loss connector
High precision alignment with superior optical loss

Options for OM3 and OM4 fiber mode
Simulates network distances within the device

Options for 12-or 24-Fibers MTP/MPO interface
Applicable in any MPO/MTP® adaptor and other device ports

Customized optical routing needs
Caters for different applications such as testing devices, CATV, sensor, etc.

Specifications

Optical Performance		
Type	Standard MPO Multimode	Low Loss MPO Multimode
Fiber Mode	850nm	1310nm
Insertion Loss	≤1 dB	≤0.6 dB
Return Loss	≥20 dB	≥20 dB

Product Specifications	
Fiber Channeling Options	• For use with 40G on 12-Fiber MPO interface Channel #5~8 unused • For use with 100G on 12-Fiber MPO interface Channel #1 & #12 unused • For use with 100G on 24-Fiber MPO interface Channel #1,12,13,24 unused
Fiber Type	Bend Insensitive Fiber
Connector Options	• 12-Fiber Standard MPO Non-pinned (Female) • 24-Fiber Standard MPO Non-pinned (Female) • 12-Fiber Low Loss MPO Non-pinned (Female) • 24-Fiber Low Loss MPO Non-pinned (Female)
Fuber Count Options	12-Fiber/24-Fiber
Available Fiber Mode	Multimode(OM3, OM4)
Jacket Material	Low Smoke Zero Halogen (LSZH)

For ordering, please refer to page 64-65 for details.

MPO / MTP® CABLING SYSTEM

MPO / MTP® CASSETTE MODULES

Optec provides customizable design and manufacturing services in MPO/MTP® cassette modules with SC, LC, MPO and MTP® adapters on the front side and MPO/MTP® adapters at the rear end for 40G and 100G migration Ethernet and fiber channel applications.

Our customizable service meets the highest demands of mechanical and optical performance, as well as unique requirements to fit in high density fiber enclosures by reducing costs, installation and maintenance time.

Features And Applications

Supports high desity cabling applications
Suits for data centers, cloud storage networks and telecommunication

Customizable design and manufacturing for unique specifications
Ease of installation and maintainence

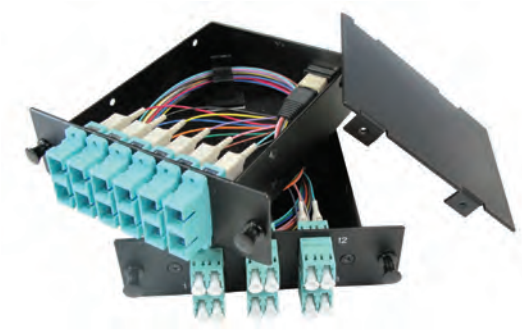
Good Traceability
Channel label and data label printed with insertion loss value for each port

Reliability 100% tested with stingment manufacturing quality control
Meets the highest level of performance and unique customer requirements

Qualified performance beyond TIA/EIA and IEC standards
Pre-installed with factory-terminated and factory tested MPO/MTP® hydra assembly

Specifications

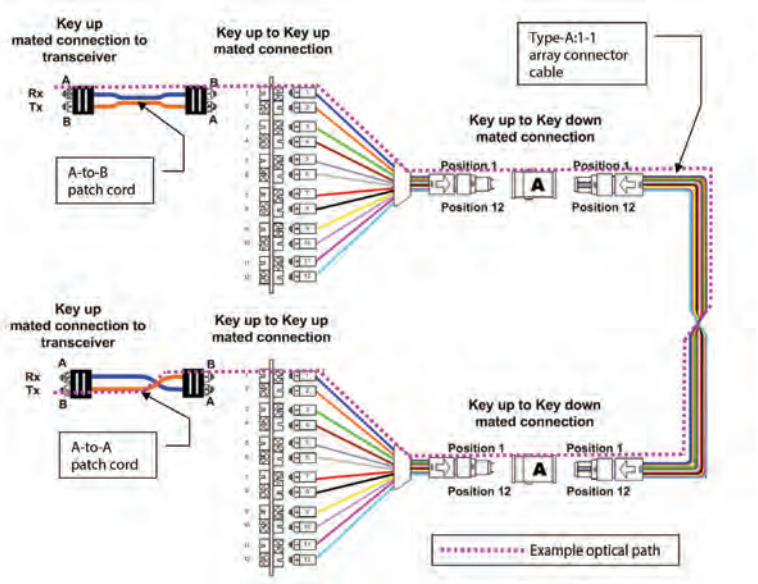
Size Type	Dimensions Width x Height (mm)	Application
Size-A	120 (W) x 32 (H) x116 (D) mm	For housing into 3-slot rackmount panel
Size-B	102 (W) x 32 (H) x 116 (D)mm	For housing into 4-slot rackmount panel



Connectivity Methods

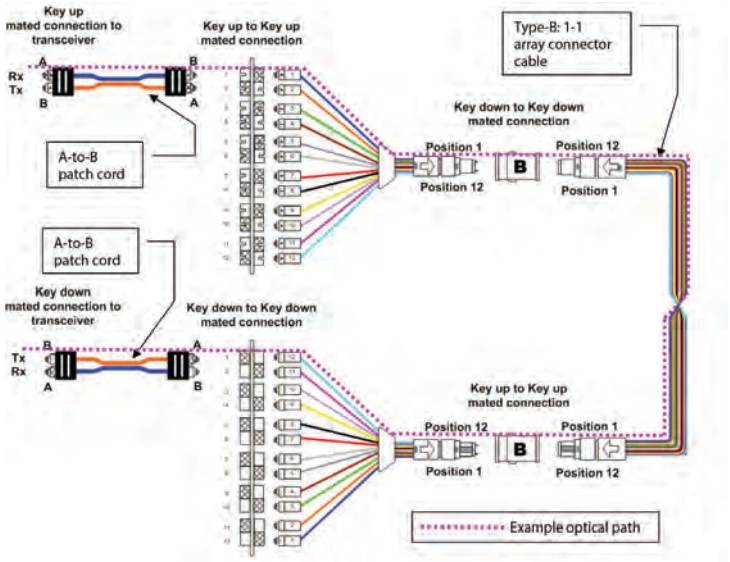
Method A

Method A adopted "Key up to Key down" adapters mated with connectors. According Diagram A, the purple dotted line represented the optical path in fiber 1 pass through the links between cassettes and trunk cable assembly. This configuration requires a flipped patchcord at the beginning or end of the link to ensure the proper operation of transceiver. It is the simplest method for singlemode and multimode channels to extend network in the field of deployment.



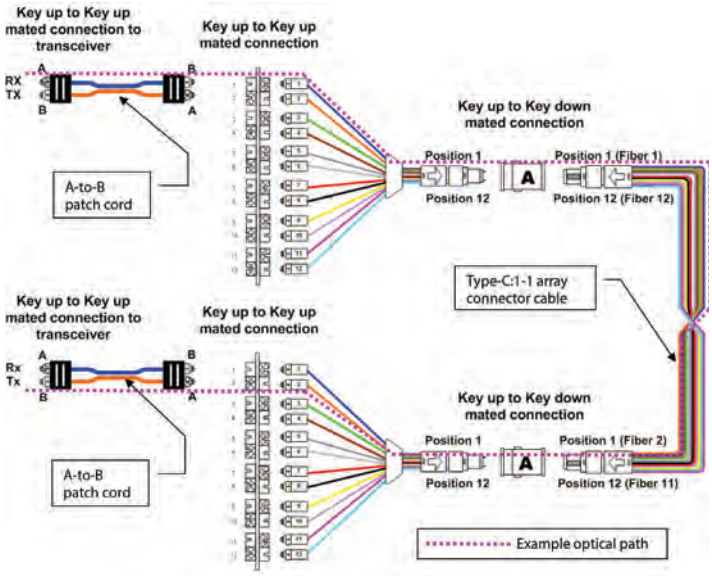
Method B

Method B adopt straight patch cords at the beginning and end of circuit with mating "Key up and Key up" adapters between cassettes and trunk cable assembly. The fiber in Position 1 arrives to Position 12 and so on. One of the cassettes requires to reverse configuration to allow fiber in Position 1 arrives to Position 12 at the end of link for operating transceiver properly. It only supports multimode channels with standards compliant connector endfaces, and requires advanced planning and preparation to manage the polarity of the links by labelling two different cassettes before deployment.



Method C

Method C utilizes "Key up to Key down" adapters with same configurations of cassettes for Method A and two straight patch cords at the beginning and end of the link. The difference between Method C and Method A is the patch cords do not require to flip for proper orientation of transceiver but the fibers in trunk cable assembly flipped in a pair so the fiber in Position 1 arrives to Position 2 at the other end and so on.

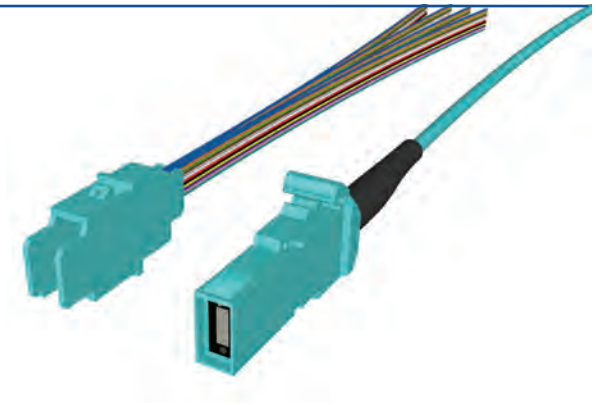


MXC® MULTI-FIBERS CABLE ASSEMBLIES

MXC® CABLE ASSEMBLIES

The newest MXC® optical interconnect solutions utilize the expanded-beam MT technology to provide cutting-edge high-density interconnection. It provides a direct card edge interface to embedded optical engines for a wide variety of equipment interface applications.

Optec is certified by US Conec as an approved manufacturer to provide fully-customized fiber assemblies using the newest MXC® connector. Customers can specify MXC® plug or MXC® receptacle on either ends, with choices of round cable or bare ribbon cable in specific lengths as required.



Features And Applications

Cutting-edge high-density
132 MXC® receptacle fit into a 19" 1U panel, increase 40% faceplate space and 59% PCB area

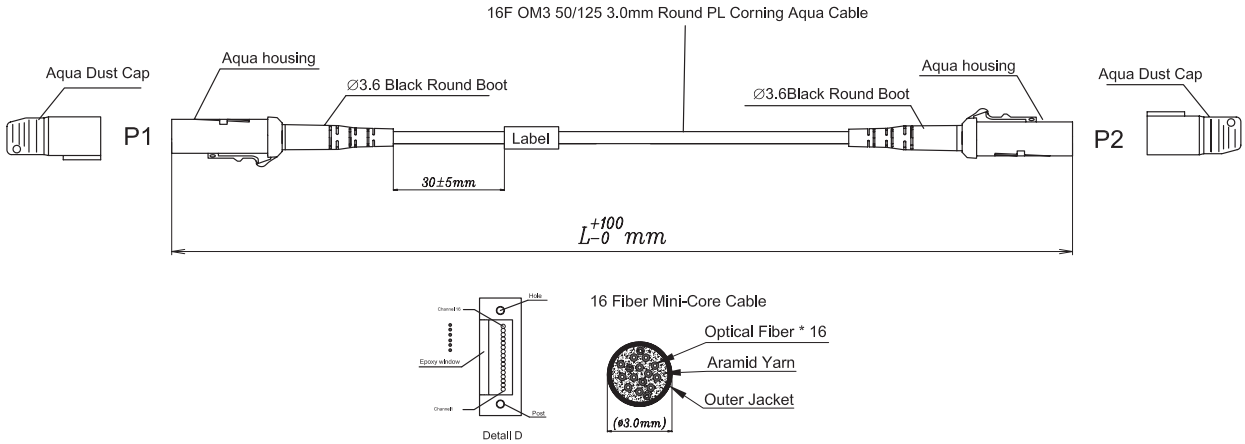
Less sensitive to debris and contamination
Recessed ferrule with expanded-beam MT technology

Reduces cost, complexity and footprint
Eliminated the traditional adapter and reduced component count, to increase 40% faceplate space & 59% PCB area

High flexibility in operation and installation
Convenient conversion from MXC® interface to MPO / MTP® interface for connecting CXP or other active optical modules

Product Illustration & Examples

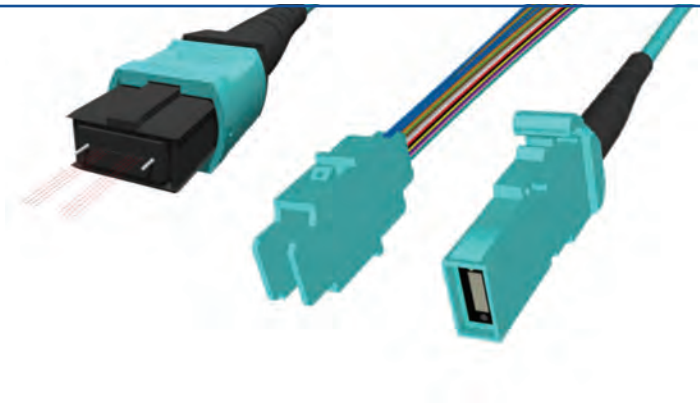
EXAMPLE **Item Description:** **MXC**-Plug to MXC-Plug, 16-fiber, OM3, 3.0mm cable



It is a fully customizable item, please contact technical support or sales team to discuss your needs.

MXC® to MPO / MTP® ASSEMBLIES

Optec is certified by US Conec as an approved manufacturer to provide fully-customized fiber assemblies using the newest MXC® connector. Our cable assemblies are a convenient solution which allows conversion from the MXC® interface to individual MPO/MTP® connectors for connections to active optical modules.



Features And Applications

Cutting-edge high-density
132 MXC® receptacles fit into a 19" 1U panel, increase 40% faceplate space and 59% PCB area

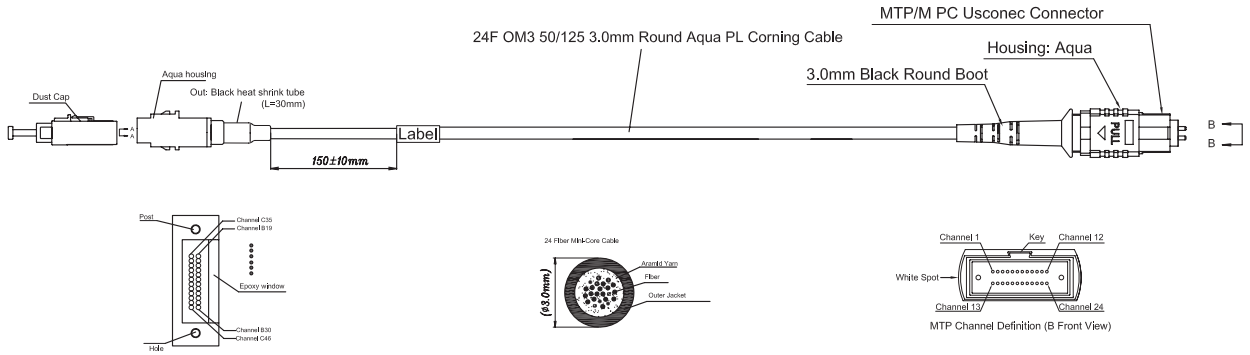
Less sensitive to debris and contamination
Recessed ferrule with expanded-beam MT technology

Reduces cost, complexity and footprint
Eliminated the traditional adapter and reduced component count, increase 40% faceplate space & 59% PCB area

High speed connection solution for blackplane
Convenient connection from PCB to card edge by using MXC® receptacle and MPO/MTP® connector

Product Illustration & Examples

EXAMPLE **Item Description:** **MXC**-Receptacle to MTP-Male, 24-fiber, OM3, Mini-core Cable

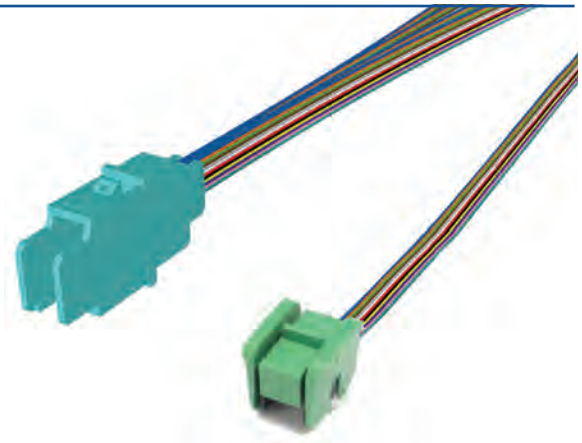


It is a fully customizable item, please contact technical support or sales team to discuss your needs.

MXC® MULTI-FIBERS CABLE ASSEMBLIES

MXC® TO PRIZM® LightTurn® ASSEMBLIES

Optec is certified by US Conec as an approved manufacturer to provide fully-customized fiber assemblies using the newest MXC® connector. Our MXC® to Prizm® LightTurn® cable assemblies are convenient backplane solutions for high-speed connections from PCB to card edge. The Prizm® LightTurn® interface can connect with US Conec Mechanical Optical Interfaces for direct PCB connection.



Features And Applications

Cutting-edge high-density
132 MXC® receptacle fit into a 19" 1U panel, increase 40% faceplate space and 59% PCB area

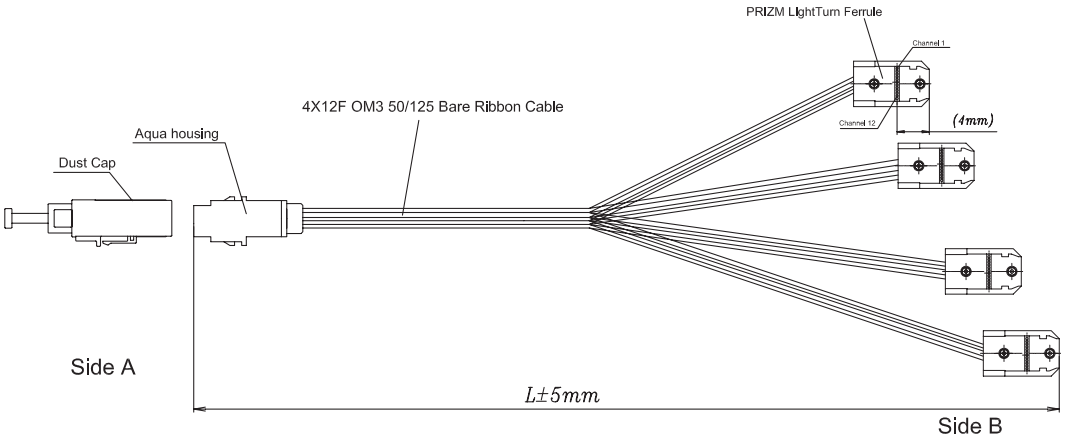
Less sensitive to debris and contamination
Recessed ferrule with expanded-beam MT technology

Reduces cost, complexity and footprint
Eliminated the traditional adapter and reduced component count to increase 40% faceplate space & 59% PCB area

High speed connection solution for blackplane
Convenient connection from PCB to card edge by using one-end MXC® receptacle, another end Prizm-LT

Product Illustration & Examples

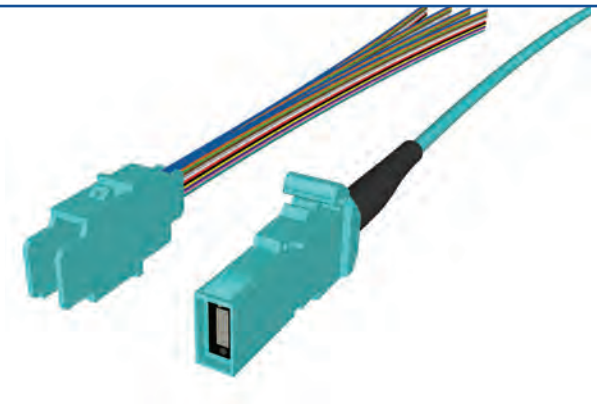
EXAMPLE **Item Description:** **MXC**-Receptacle to 4xPrizm-LT, 48-fiber, OM3, Bare Ribbon Cable



It is a fully customizable item, please contact technical support or sales team to discuss your needs.

MXC® TO LC ASSEMBLIES

Optec is certified by US Conec as an approved manufacturer to provide fully-customized fiber assemblies using the newest MXC® connector. Our MXC® to LC fanout assemblies are convenient solutions which allow conversion from the MXC® interface to individual LC for connections to QSFP or other active optical modules.



Features And Applications

Cutting-edge high-density
132 MXC® receptacles fit into a 19" 1U panel, increase 40% faceplate space and 59% PCB area

Less sensitive to debris and contamination
Recessed ferrule with expanded-beam MT technology

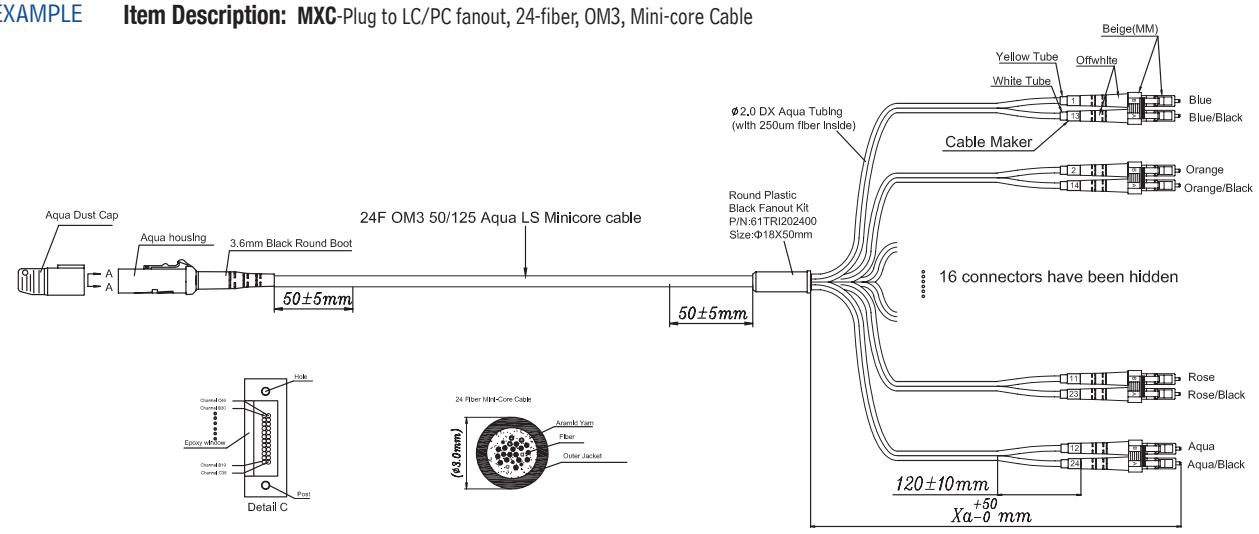
Reduces cost, complexity and footprint
Eliminated the traditional adapter and reduced component count to increase 40% faceplate space & 59% PCB area

High flexibility in operation and installation
Convenient conversion from MXC®interface to LC/PC for connecting QSFP or other active optical modules

Terabit per second bandwidth capability

Product Illustration & Examples

EXAMPLE **Item Description:** **MXC**-Plug to LC/PC fanout, 24-fiber, OM3, Mini-core Cable

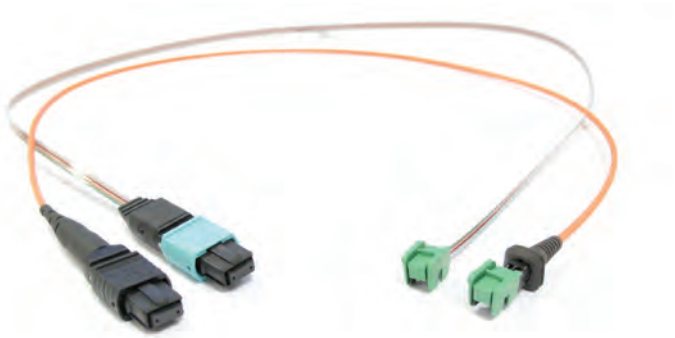


It is a fully customizable item, please contact technical support or sales team to discuss your needs.

PRIZM® LightTurn® ASSEMBLIES

PRIZM® LightTurn® to MPO / MTP® Assemblies

PRIZM® LightTurn® fiber assemblies are used to mate with Parallel Optical Devices (POD). It supports simple mating to board-mounted modules and other high density transceivers that deploy parallel optic technology.



The alignment of the PRIZM® fiber assembly and POD supports a significant increase in optical T/R module density on circuit boards, improving fiber routing by direct connection to the card edge, optimizing airflow and port density for migration to the next-generation high speed, high density networks.

Optec's value-added service connects PRIZM® connector to the MTP® connector with customized configurations; available in 1.6mm round jacketed and bare ribbon cables, with the choice of different fiber modes for use across multiple applications.

Features And Applications

Optimizes PCB space with improvement of air flow and fiber routing
Connects with 1.6mm round jacketed & bare ribbon cables

Customized fiber assemblies for POD by using PRIZM® LightTurn® connector
Increases in optical T/R module density on circuit boards with high flexibility.

Options for different fiber modes and cable types
Satisfies the needs from the customers for various engineering designs and applications

Rapid deployment in high density and speed computing application
Caters for deployment in data centers, electronic devices and telecom sections

LightTurn®Ferrule

Bare Ribbon Housing

Jacketed Cable Housing

PRIZM® LightTurn® To MPO / MTP® Assemblies

Ordering Information

PRZ 1 2 3 4 5 6 7 8 9

1 Fiber Count
12 = 12 Fiber
24 = 24 Fiber
48 = 48 Fiber
72 = 72 Fiber

2 Cable Jacket
LS = Low-Smoke Zero Halogen
PL = Plenum
BR = Bare Ribbon

3 A-End Connector
PRM = PRIZM®LightTurn®
MTF = MTP Female
MTM = MTP Male
TTM = MT Male
TTF = MT Female
See note (1)

4 A-End Pollish
P = PC
O = No Polish (PRIZM®)

5 B-End Connector
PRM = PRIZM®LightTurn®
MTF = MTP Female
MTM = MTP Male
TTM = MT Male
TTF = MT Female
See note (1)

6 B-End Polish
P = PC
O = No Polish (PRIZM®)
N = Pigtail

7 Fiber Type
SM = OS2 (SM 9/125)
M1 = OM1 (MM 62.5/125)
M2 = OM2 (MM 50/125)
M3 = OM3 (MM 50/125)
M4 = OM4 (MM 50/125)
M5 = OM5 (WBMM 50/125)

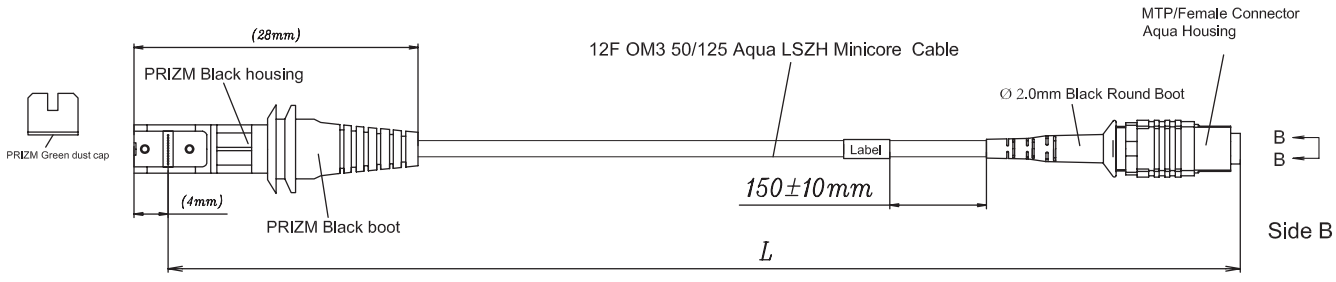
8 Cable Length
xxx = 001~999
(please specify)
See note (2)

9 Unit of Measure
N = Inch
C = Centimeter

NOTES
(1) Connectors other than the above mentioned may be available, please contact our sales team for details
(2) Cable length is measured from connector ferrule tip

Product Illustration & Examples

EXAMPLE **Ordering Code:** **PRZ**-12-LS-PRM-0-MTM-P-M3-050-C
Item Description: Prizm-LT to MTP-Male 12-fiber, OM3, Mini-core Cable, Length: 50cm



PRIZM® LightTurn® ASSEMBLIES

PRIZM® LightTurn® to MT Assemblies

PRIZM® LightTurn® fiber assemblies are used to mate with Parallel Optical Devices (POD). It supports simple mating to board-mounted modules and other high density transceivers that deploy parallel optic technology.

The alignment of the PRIZM® fiber assembly and POD supports a significant increase in optical T/R module density on circuit boards. It improves fiber routing by direct connection to the card edge, optimizing airflow and port density for migration to next-generation high-speed, high-density networks.

Optec's value-added service connects PRIZM® connectors to MT connectors with customized configurations; available in 1.6mm round jacketed and bare ribbon cables, with the choices of OM3 or OM4 for use across multiple applications.

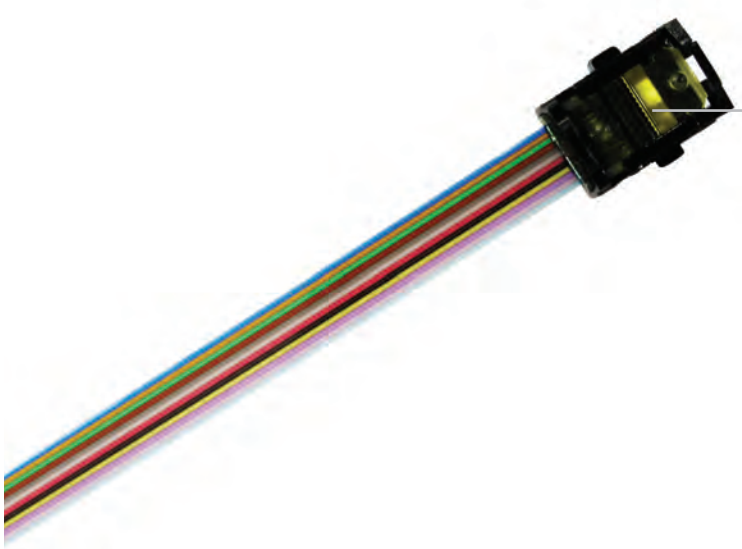
Features And Applications

Optimizes PCB space with improvement of air flow and fiber routing
Connects with 1.6mm round jacketed & bare ribbon cables

Customized fiber assemblies for POD by using PRIZM® LightTurn® connector
Increases in optical T/R module density on circuit boards with high flexibility.

Options for different fiber modes and cable types
Satisfies the needs from the customers for various engineering designs and applications

Rapid deployment in high density and speed computing application
Caters for deployment in data centers, electronic devices and telecom sections



LightTurn®Ferrule

PRIZM® LightTurn® To MT Assemblies

Ordering Information

PRZ [1][2][3][4][5][6][7][8][9]

1 Fiber Count
12 = 12 Fiber
24 = 24 Fiber
48 = 48 Fiber
72 = 72 Fiber

2 Cable Jacket
LS = Low-Smoke Zero Halogen
PL = Plenum
BR = Bare Ribbon

3 A-End Connector
PRM = PRIZM®LightTurn®
MTF = MTP Female
MTM = MTP Male
TTM = MT Male
TTF = MT Female
See note (1)

4 A-End Pollish
P = PC
O = No Polish (PRIZM®)

5 B-End Connector
PRM = PRIZM®LightTurn®
MTF = MTP Female
MTM = MTP Male
TTM = MT Male
TTF = MT Female
See note (1)

6 B-End Polish
P = PC
O = No Polish (PRIZM®)
N = Pigtail

7 Fiber Type
SM = OS2 (SM 9/125)
M1 = OM1 (MM 62.5/125)
M2 = OM2 (MM 50/125)
M3 = OM3 (MM 50/125)
M4 = OM4 (MM 50/125)
M5 = OM5 (WBMM 50/125)

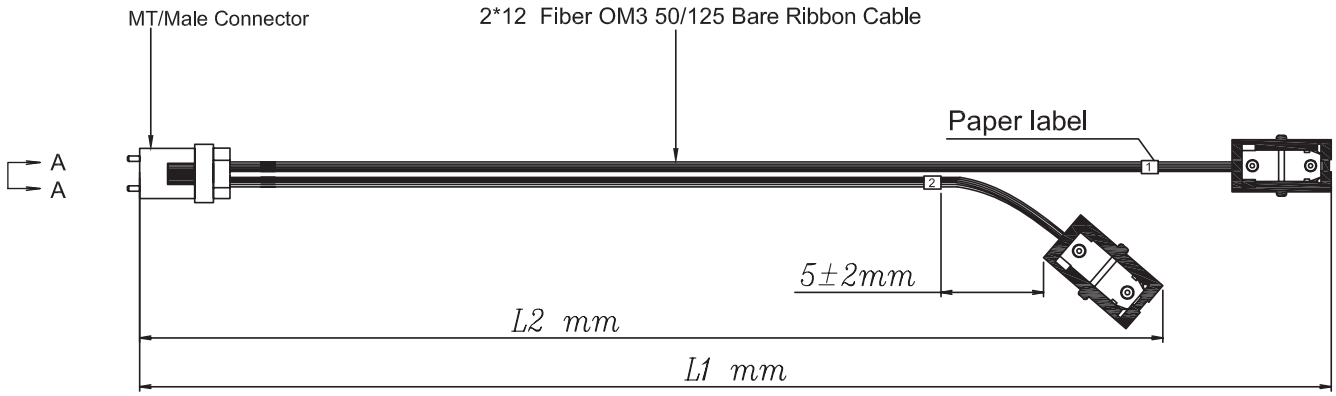
8 Cable Length
xxx = 001~999
(please specify)
See note (2)

9 Unit of Measure
N = Inch
C = Centimeter

NOTES
(1) Connectors other than the above mentioned may be available, please contact our sales team for details
(2) Cable length is measured from connector ferrule tip

Product Illustration & Examples

EXAMPLE **Ordering Code:** **PRZ**-24-BR-TTM-P-PRM-0-M3-20-C
Item Description: MT-Male to 2x12F Prizm® LT, 24-fiber, OM3, Bare Ribbon Cable, Length: 20cm



SPECIAL FIBER TERMINATIONS

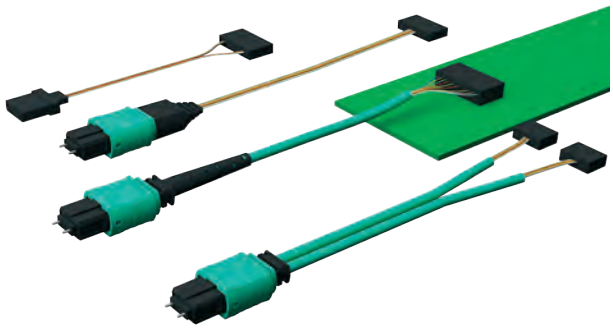
CUSTOM FERRULE ASSEMBLIES

Optec provides comprehensive assembly solutions to meet custom specifications for various applications such as AOC components, transceiver and shuffle in crossconnect systems.

Our manufacturing service accomodate various fiber types, lengths, and connectors to fit custom specifications.

Working in close collaboration with our customer, Optec acts as a joint design manufacturer to provide consultation services to OEM customers for optimizing performance of custom ferrule assemblies products- from development phase to manufaturing the products.

In order to provide high reliable assembly solutions, our expertise can co-develop the testing guideline and manufacturing controls with customers to lower the scrap rate and improve performance for products.



Features And Applications

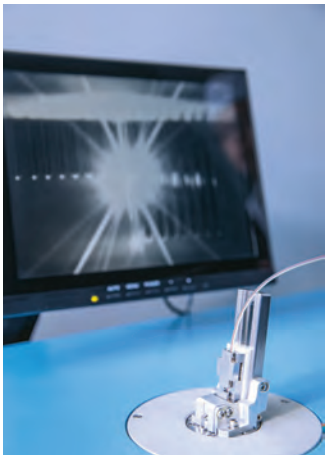
Joint design manufacturer for customized cable assembly solutions
Meets specific applications in space limitation and extreme operation temperate

Trusted manufacturing support services
Delivers a cost-effective solution for OEM customers to meet specific specifications

Well trained and skillful technicians with state-of-theart facilities
Provides superior optical performance with high reliability and flexibility

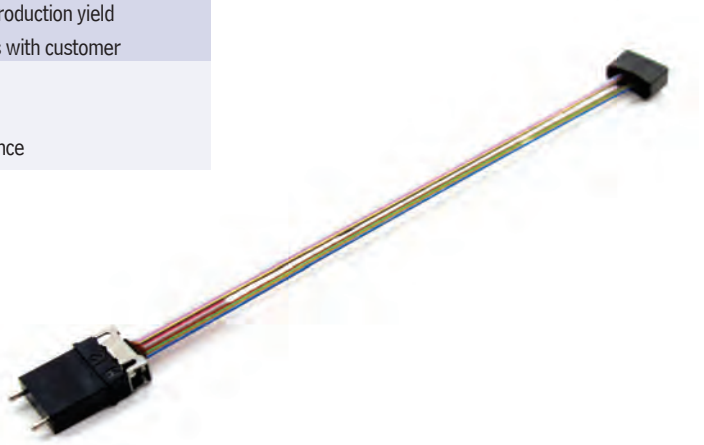
Optimize performance from design and manufacturing process
Provides engineering consultation service from development phase to manufaturing the products

Co-develop the testing guideline, manufacturing controls and material selection
Lower tha scrap rate and optimize the product performance from raw materials to manufacturing process



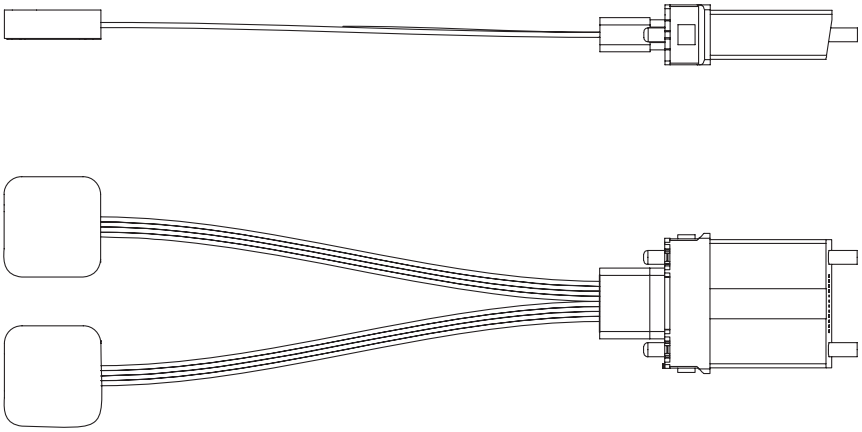
CUSTOM FERRULE ASSEMBLIES

Capabilities of Customization	
Vertical Integration	• Connectors for contact-type and non-contact type • Components • Cable Types for indoor/ outdoor usages • Fiber mode for singlemode and multimode • Fiber Routing for limited operation space
Expertise	• Design for structure and materials • Manufacturing controls for high production yield • Testing procedures and guidelines with customer
Reliability	• Extreme operation temperature • Humidity • Mechanical and Optical Performance



Product Illustration & Examples

EXAMPLE **Item Description:** MT-Male to Fiber Array & Custom



It is a fully customizable item, please contact technical support or sales team to discuss your needs.

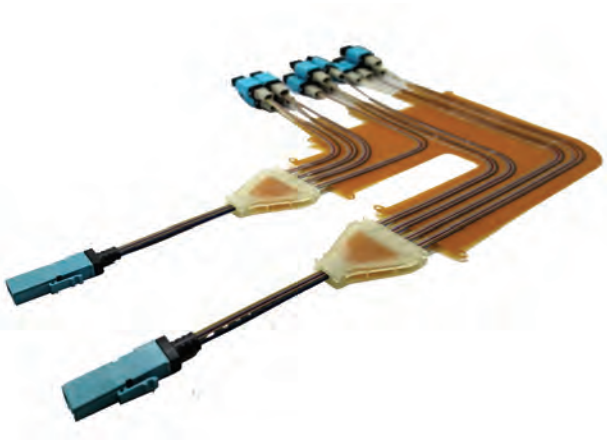
SPECIAL FIBER TERMINATIONS

OPTICAL SHUFFLE ASSEMBLIES

Optec provides shuffle solutions in compact sizes and complex fiber management with high flexibility and customized configurations for optical transmission and switching equipment, equipment rack and circuit card architecture.

Our manufacturing experience and technology, allows us to provide manufacturing support and consultation services to optimize shuffle solutions from the design phase to the manufacturing process. These solutions are highly flexible to allow the high density of fiber to optimize airflow and enhance cooling efficiency.

Optec can also develop solutions to meet the custom requirements in I/O connectors, card edge connectors, compact module size, and fiber routing, with no effect on optical parameters.



Features And Applications

Full assistance and support from design and manufacturing process
Optimizes the customized shuffle solutions from fiber routing precision to mass production

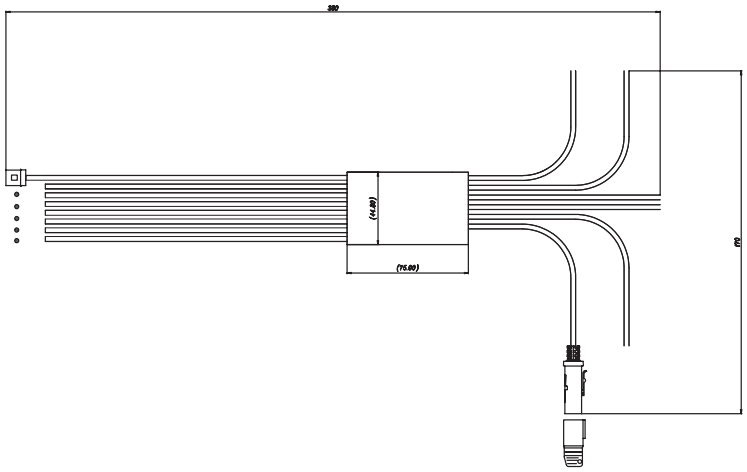
High design flexibility in ports, substrate and module size, and routing system
Satisfies the customized requirements in equipment and on board applications

Reduced installation and assembly time
Ease plug and play design for pre-configured channels, ports and routing

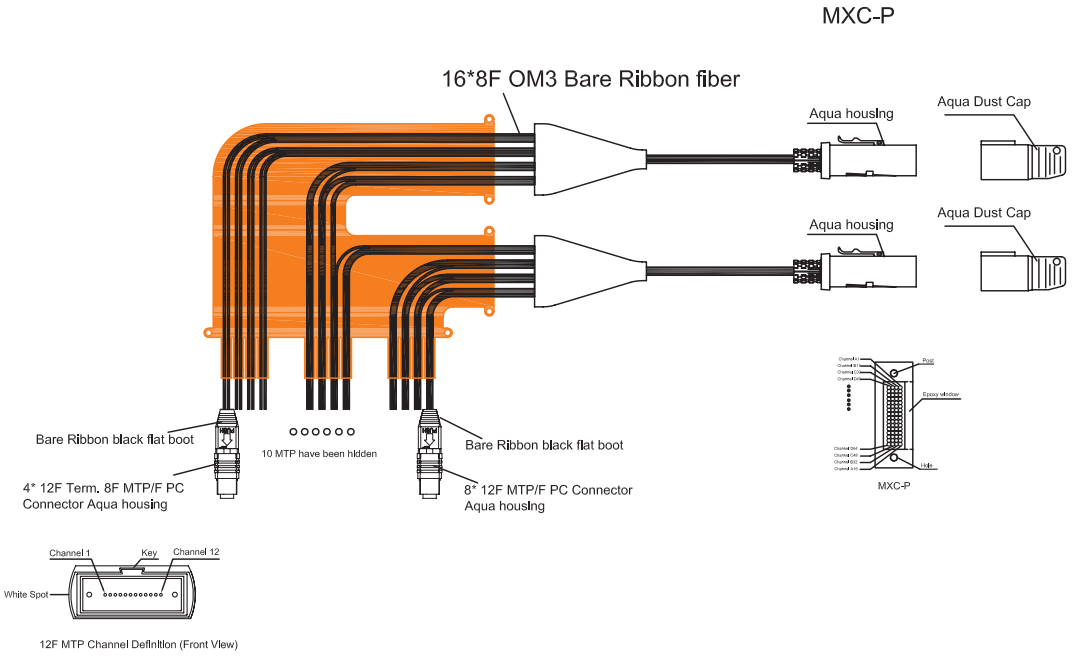
Minimizes the substrate and module size in design and manufacturing
Optimizes airflow and enhance cooling efficiency

Product Illustration & Examples

EXAMPLE **Item Description:** Shuffle 96-fiber MT to MXC



EXAMPLE **Item Description:** Shuffle 128-Fiber MTP to MXC



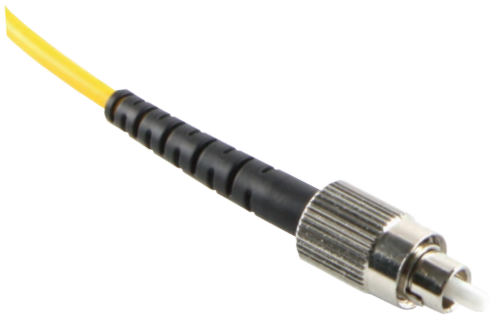
It is a fully customizable item, please contact technical support or sales team to discuss your needs.

SPECIAL FIBER TERMINATIONS

POLARIZATION MAINTAINING (PM) FIBER TERMINATIONS

Optec's Polarization Maintaining (PM) fiber cable assemblies deliver reliable and distinct performance. Our state of the art production facility and control processes allow us to achieve low Insertion Loss (IL) and high Extinction Ratio (ER).

Our PM fiber cable assemblies are offered as PANDA style fiber with slow axis key orientation. Available as FC terminations in either UPC or APC polishing with customized length options. These customized assemblies are built for the most demanding OEM production and medical applications.



Features And Applications

High flexibility for system design and compatibility
Available in in FC/UPC and FC/APC or other custom requirement

Conforms and exceeds industry standards
100% Factory tested with stringent controls processes to comply Telcordia GR-326-CORE with low insertion loss and high extinction ratio (ER)

High performance in polarization maintaining properties
High reliability and distinct performance in high-data-rate communications systems and PM couplers (Fabricating HiBi fused couplers)

Cable Specifications

Parameters		Specifications
Wavelength (nm)		1510 | 1310
Fiber Type		Polarization Maintaining PANDA Fiber
Insertion Loss (dB)		Typical 0.2dB ≤ 0.3dB
Return Loss (dB)		UPC ≥ 50dB APC ≥ 60dB
Extinction Ratio (dB)	PM Connector	ER ≥ 23 Typical ER ≥ 25
	PM Component with Connector	Based on the component's ER -2dB
Operating temperature		-20 ~ +70°C
Compliant Standard		Telcordia GR-326-CORE

Polarization Maintaining (PM) Fiber Terminations

Ordering Information

ASM PM | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |

1 **Assembly Type**
PC = Patchcord
PG = Pigtails

2 **Wavelength**
13 = 1310nm
15 = 1510nm
See note (1)

3 **Cable Type**
1 = 3.0mm Jacketed Cable
2 = 900μm Buffered Cable

4 **A-End Connector**
FC = FC
See note (2)

5 **A-End Polish**
A = APC
U = UPC

6 **B-End Connector**
0600 = 600 (standard)
FC = FC
PG = Pigtail without connector

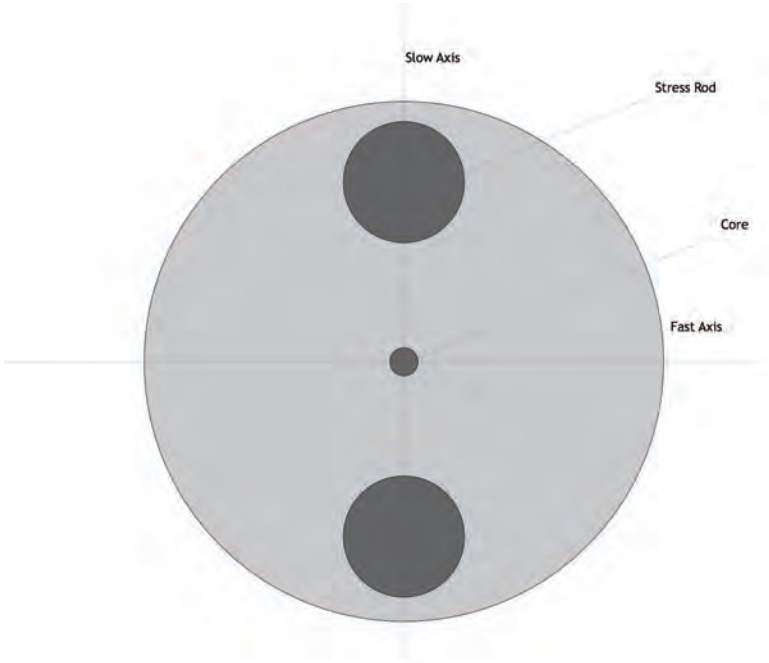
7 **B-End Polish**
A = APC 8-degree
U = UPC
N = Pigtail

8 **Cable Length (Meter)**
xxx = 001~999
(please specify)
See note (3)

9 **Unit Of Measure**
F = Feet
N = Inch
M = Meter
C = Centimeter

NOTES
(1) Other wavelength options are available upon request, please contact our sales team for details
(2) Connector other than SC may be available upon request, please contact our sales team for details
(3) Cable length is measured from connector ferrule tip

PM PANDA Fiber Illustration



PRE-TERMINATED MULTI-FIBER SOLUTIONS

RUGGEDIZED BREAKOUT ASSEMBLIES

Optec provides highly flexible customized pre-terminated fiber trunking solutions that are suitable for use with different installation environments. These 100% factory-terminated and factory-tested assemblies eliminate field terminations, provide an easily installed, cost effective, and reliable option for all fiber network installations.

Our ruggedized breakout assemblies are made of fanout tubing with 2.0mm or 3.0mm sheath. It branches out using a round fanout kit with solid pulling force, while light in weight. All assemblies are highly customizable with customer specified lengths and fiber modes. Available for all connector choices including FC, SC, ST, LC, and E2000.

Features And Benefits

Ruggedized furcation legs: Round fanout kit with 2.0 or 3.0mm legs to single-fiber connectors
Space-saving installation and longer lifespan

Highly customizable fiber trunking solution
Customized specified length, fiber mode, and different connector options

Stringent factory control in production processes and testing
High durability with superior optical performance

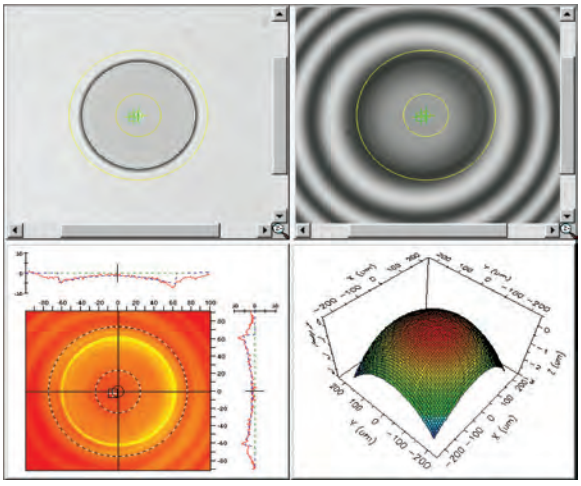
Straight or stagger breakout legs for option
Fits for various installation environments and equipment

Superior optical performance
Telcordia compliant for end face geometry ensuring low loss budget

Optical Performance

Optical Performance **				
Performance	Type	Singlemode		Multimode
		UPC	APC	PC
Insertion Loss	Maximum	≤ 0.3 dB	≤ 0.3 dB	≤ 0.3 dB
	Typical	0.1 dB	0.1 dB	0.1 dB
Return Loss		≥ 55 dB	≥ 65 dB	≥ 25 dB
Test Wavelength		1310nm & 1550nm		850nm & 1300nm
Geometric performance				
Manufactured to Telcordia standard GR-326-CORE				

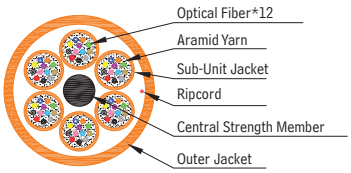
Note: The above table refers to Optec standard grade performance. Due to material optimization and manufacturing techniques, we can provide different performance grade products in a cost-effective way to meet customer expectations and requirements. Please contact our professional sales team for details.



Cable Structures of Different Options

Mini-core Cable (Indoor)

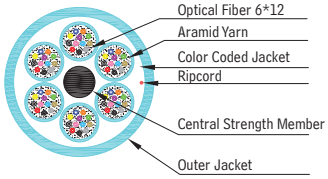
EXAMPLE OF 72-FIBER



- Indoor use
- Choices of Plenum, Riser and LSZH outer jacket
- Suitable for installation locations require high flexibility and small bend radius
- All dry loose tube 250um primary coating fiber especially suitable for MPO / MTP application
- Compact in size and light in weight

Distribution Cable (Indoor)

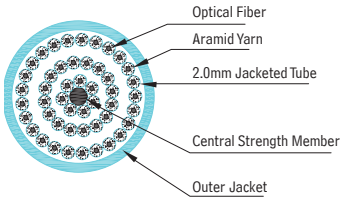
EXAMPLE OF 72-FIBER



- Indoor use
- Choices of Plenum, Riser and LSZH outer jacket
- Suitable for in-building backbone and horizontal cabling
- 900um tight buffered coating fiber with subunits
- Flexible subunit design to provide appropriate fiber protection while maintaining good cable bending flexibility

Breakout Cable (Indoor)

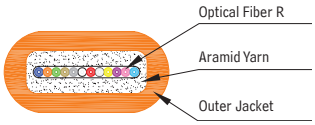
EXAMPLE OF 48-FIBER



- Indoor use
- Choices of Riser and LSZH outer jacket
- Consists of individual sub-cables within a primary outer cable sheath to provide extra protection on fiber
- Enables individual routing of fibers for termination and maintenance

Jacketed Ribbon Cable (Indoor)

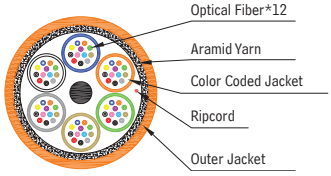
EXAMPLE OF 12-FIBER



- Indoor use
- Choices of Riser and LSZH outer jacket
- Suitable for equipment and closet areas
- Ribbonized 250um primary coated fiber in 4 / 8 / 12-channels
- High fiber density and light in weight

In/Outdoor Cable

EXAMPLE OF 72-FIBER



- Indoor or outdoor use
- Choices of Plenum and Riser outer jacket
- Suitable for all backbone and horizontal cabling
- Engineered to withstand harsh environment
- Ruggedized design featuring dielectric strength members
- Water blocking technology

PRE-TERMINATED MULTI-FIBER SOLUTIONS

RUGGEDIZED BREAKOUT ASSEMBLIES

Fiber Performance Specifications**

Characteristics \ Fiber Type	OS2 Singlemode		OM1 Multimode		OM2 Multimode		OM3 Multimode*		OM4 Multimode*		OM5 Multimode*		
Core size/Cladding	9/125μm		62.5/125μm		50/125μm		50/125μm		50/125μm		50/125μm		
Wavelength (nm)	1310	1550	850	1300	850	1300	850	1300	850	1300	850	953	1300
Attenuation (dB/km)	≤0.32	≤0.18	≤2.7	≤0.6	≤2.3	≤0.6	≤2.3	≤0.6	≤2.3	≤0.6	≤2.4	≤1.7	≤0.6
OFL Bandwidth (MH • Km)	N/A		≥200	≥500	≥500	≥500	≥1500	≥500	≥3500	≥500	≥3500	≥1850	≥500

** Specification for OM3/OM4/OM5 as stated above are Bend Insensitive fibers.*
*** Specification may vary depending on model, cable type and latest situations.*

Ruggedized Breakout Assemblies

Ordering Information

RB □□ □ □ □□ □ □ □□□□ □□□ □ □□

1 Fiber Count
04 = 4-Fiber
08 = 8-Fiber
12 = 12-Fiber
16 = 16-Fiber
24 = 24-Fiber
36 = 36-Fiber
48 = 48-Fiber
64 = 64-Fiber
72 = 72-Fiber
96 = 96-Fiber
H4 = 144-Fiber
H8 = 288-Fiber

2 A-& B-End Connector
A = FC
B = SC
C = ST
D = LC
E = MU
F = E2000
See note (1)

3 Polishing Type
1 = PC
2 = UPC
3 = APC 8-degree
See note (2)

4 Fiber Type
SM = OS2 (SM 9/125)
M1 = OM1 (MM 62.5/125)
M2 = OM2 (MM 50/125)
M3 = OM3 (MM 50/125)
M4 = OM4 (MM 50/125)
M5 = OM5 (WBMM 50/125)
See note (3)

5 Cable Structure
A = Minicore Cable
B = Distribution Cable
C = Breakout Cable
D = Jacketed Ribbon Cable
E = In/Outdoor Cable
See note (4)

6 Jacket Material
P = Plenum (OFNP)
R = Riser (OFNR)
L = Low Smoke Zero Halogen (LSZH)

7 Furcation Length on Both Ends
0300 = 300 mm (standard)
0500 = 500mm
xxxx = Customized Length
See notes (5) & (6)

8 Overall Cable Length
xxx = 001~999
(please specify)

9 Unit of Measure
F = Feet
M = Meter

10 Pulling Eye
1 = On A-End
2 = On B-End
3 = On Both Ends
4 = None

NOTES
(1) Connectors other than the above are available, please specify and contact our sales team for more details
(2) We provide APC with cone ferrule 8 degree angled polishing, if stepped ferrule or other angled polishing is needed, please specify and check with our sales team for more details
(3) Fiber types other than the above are available (e.g. Singlemode G657A/B series), please contact our sales team for details
(4) Cable structure other than the above are available, please contact our sales team for more details
(5) Maximum furcation length is 1000mm
(6 Furcation length tolerance: +50/-0 mm

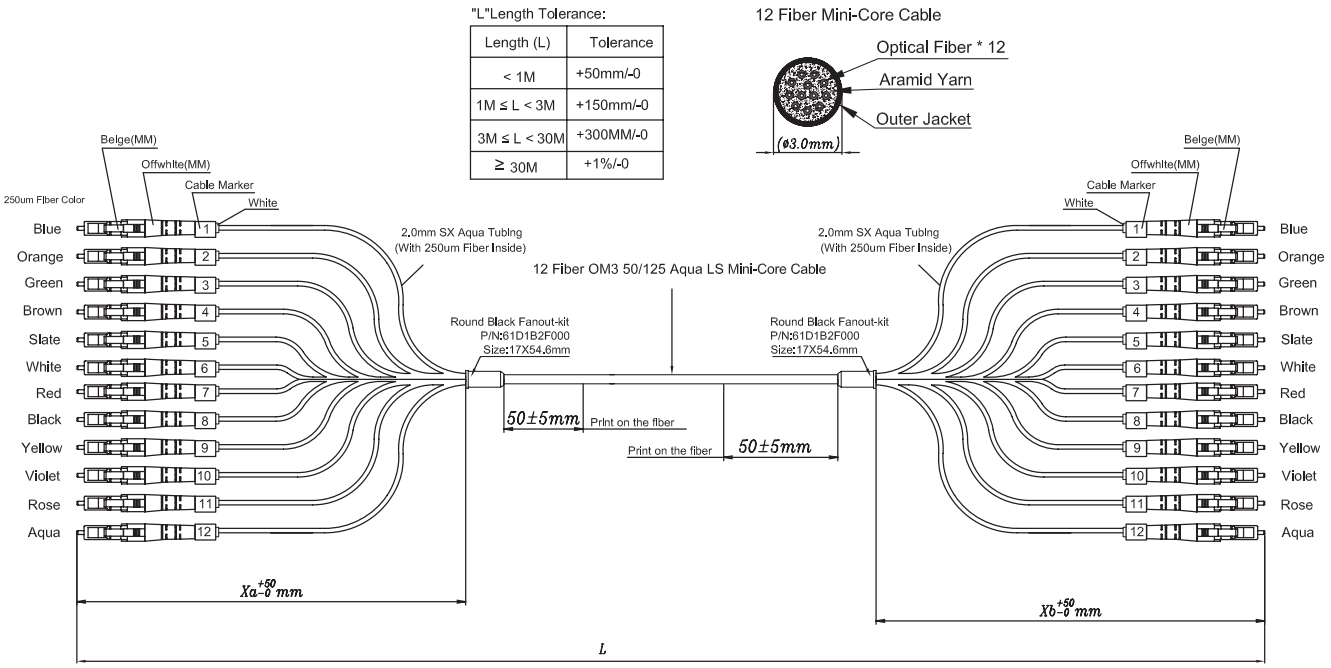
Product Illustration & Example

EXAMPLE **Ordering Code:** **RB**-12-D-D-2-SM-A-L-0500-005-M-4

Item Description: Ruggedized Breakout Assembly, 12-Fiber, LC/UPC, Singlemode, Minicore Cable, Low Smoke Zero Halogen (LSZH), Furcation Length 500mm, Overall Length 5 Meters, No Pulling Eye

"L"Length Tolerance:

Length (L)	Tolerance
< 1M	+50mm/-0
1M ≤ L < 3M	+150mm/-0
3M ≤ L < 30M	+300MM/-0
≥ 30M	+1%/-0

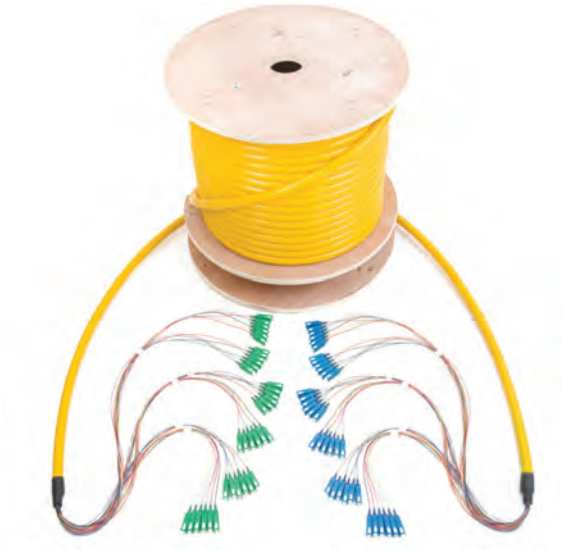


PRE-TERMINATED MULTI-FIBER SOLUTIONS

LIGHT DUTY BREAKOUT ASSEMBLIES

Optec provides customizable pre-terminated fiber trunking solutions that are suitable for use with different installation environments.These 100% factory-terminated and factory-tested assemblies eliminate field terminations, provide an easily installed, cost effective, and reliable option for all fiber network installations.

Our light-duty breakout assembly is a space saving interconnect solution for closet areas. It is made of a compact fanout unit with 0.9mm fanout legs to single-fiber connectors on both ends. All assemblies are highly customizable with customer specified lengths and fiber modes. Available for all connector choices including FC, SC, ST, LC, and E2000.



Features And Benefits

Compact fanout with 0.9mm legs to single-fiber connectors
Especially suitable for installation in closet areas

Highly customizable fiber trunking solution
Made according to customer specified length & fiber mode, with different connector options

Stringent factory control in processes
High durability with superior optical performance

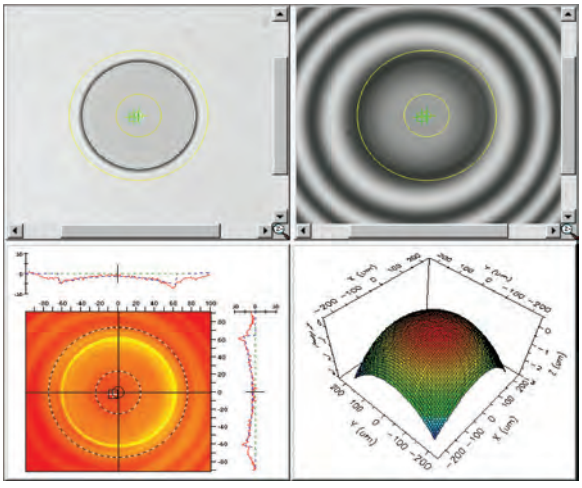
Straight or stagger breakout legs for optionn
Fits for various installation environments and equipment

Superior optical performance
Telcordia compliant for end face geometry ensuring low loss budget

Optical Performance

Optical Performance **				
Performance \ Type		Singlemode		Multimode
		UPC	APC	PC
Insertion Loss	Maximum	≤ 0.3 dB	≤ 0.3 dB	≤ 0.3 dB
	Typical	0.1 dB	0.1 dB	0.1 dB
Return Loss		≥ 55 dB	≥ 65 dB	≥ 25 dB
Test Wavelength		1310nm & 1550nm		850nm & 1300nm
Geometric performance				
Manufactured to Telcordia standard GR-326-CORE				

Note: The above table refers to Optec standard grade performance. Due to material optimization and manufacturing techniques, we can provide different performance grade products in a cost-effective way to meet customer expectations and requirements. Please contact our professional sales team for details.



Light Duty Breakout Assemblies

Ordering Information

1	2	3	4	5	6	7	8	9	10
LB									

1 Fiber Count
04 = 4-Fiber
08 = 8-Fiber
12 = 12-Fiber
16 = 16-Fiber
24 = 24-Fiber
36 = 36-Fiber
48 = 48-Fiber
64 = 64-Fiber
72 = 72-Fiber
96 = 96-Fiber
H4 = 144-Fiber
H8 = 288-Fiber

2 A-& B-End Connector
A = FC
B = SC
C = ST
D = LC
E = MU
F = E2000
See note (1)

3 Polishing Type
1 = PC
2 = UPC
3 = APC 8-degree
See note (2)

4 Fiber Type
SM = OS2 (SM 9/125)
M1 = OM1 (MM 62.5/125)
M2 = OM2 (MM 50/125)
M3 = OM3 (MM 50/125)
M4 = OM4 (MM 50/125)
M5 = OM5 (WBMM 50/125)
See note (3)

5 Cable Structure
A = MinicoreCable
B = Distribution Cable
See note (4)

6 Jacket Material
P = Plenum (OFNP)
R = Riser (OFNR)
L = Low Smoke Zero Halogen (LSZH)

7 Furcation Length on Both Ends
0300 = 300 mm (standard)
0500 = 500mm
xxx = Customized Length
See notes (5) & (6)

8 Overall Cable Length
xxx = 001~999
(please specify)

9 Unit of Measure
F = Feet
M = Meter

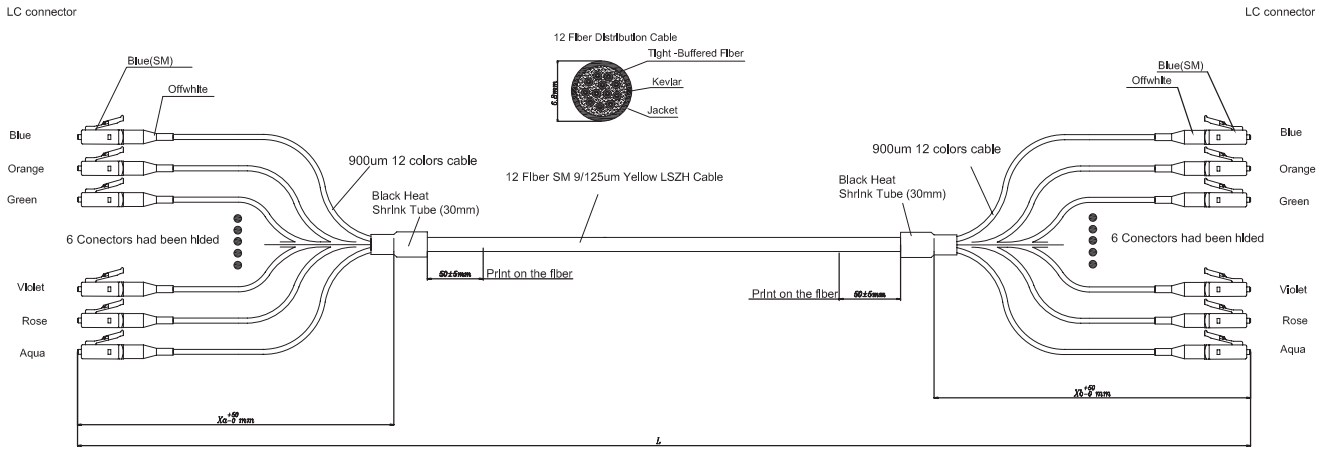
10 Pulling Eye
1 = On A-End
2 = On B-End
3 = On Both Ends
4 = None

NOTES
(1) Connectors other than the above are available, please specify and contact our sales team for more details
(2) We provide APC with cone ferrule 8 degree angled polishing, if stepped ferrule or other angled polishing is needed, please specify and check with our sales team for more details
(3) Fiber types other than the above are available (e.g. Singlemode G657A/B series), please contact our sales team for details
(4 Cable structure other than the above are available, please contact our sales team for more details
(5 Maximum furcation length is 1000mm
(6 Furcation length tolerance: +50/-0 mm

Product Illustration & Example

EXAMPLE **Ordering code:** **LB**-12-D-D-2-SM-A-L-0300-005-M-4

Item Description: Light Duty Breakout Assembly, 12-Fiber, LC/UPC, Singlemode, Distribution Cable, Low Smoke Zero Halogen (LSZH), Furcation 0.9mm with Length 300mm, Overall Length 5 Meters, No Pulling Eye



HARSH ENVIRONMENT CONNECTIVITIES

IP68 MTP® Assemblies

Optec's harsh environment fiber optic connector is designed with protective housing, which fulfills IP68 environmental sealing requirements. This robust IP68 MTP® Cabling is suitable for deployment in FTTA, base stations, transportation, railway systems, and industrial networks.

Sealed to IP68 rating, the highest ingress protection level rating of its kind, our ruggedized IP connector delivers reliable performance for the typical elemental challenges like extreme temperature, humidity, vibration, and chemical corrosive gases.

Features And Applications

Available for standard or low loss MTP® interface
Remarkable optical performance for harsh environment applications

Different flange styles for receptacle
High flexibility to satisfy installation needs

Stringent production and quality controls processes
Conforms and exceeds industry standards (Telcordia GR-326-CORE) and TIA/EIA standard

Bayonet locking design with IP68 sealing
Ease of installation in extreme environments with high protection

Highly customizable configurations
Options of different cable types, specified length and fiber mode

Specifications

Specifications of Connector

Mating Mechanism	Bayonet
Ingress Protection	IP-68
Operating Temperature	-40°C ~ +70°C
Mechanical Performance	Straight pulling force 25 Kgs*
Mating Durability	500 mating cycles

Specifications of Assemblies

Connector \ Performance	Insertion Loss (IL) **	Return Loss (RL) **
MTP®	SM ≦ 0.75dB (Typical 0.25dB) MM ≦ 0.60dB (Typical 0.20dB)	SM ≦ 60dB MM ≦ 20dB
MTP Elite®	≦ 0.35 dB (Typical 0.1dB)	SM ≦ 60dB MM ≦ 20dB

* *Pulling strength may varies depending on choice of cable, guarantee straight pulling force of 25kgs if using Optec's pre-terminated solution*

** *Optec's assemblies are provided in multi-tier performance to cater for different needs, please contact our sales team for more details*

IP68 MTP® Assemblies

Ordering Information

IP68-ASM | 1 | 2 | 3 | 4 | 5 | 6 |

1

A-End Connector
M2M = 12-Fiber MTP Male
M2F = 12-Fiber MTP Female
E2M = 12-Fiber Elite MTP Male
E2F = 12-Fiber Elite MTP Female
M4M = 24-Fiber MTP Male
M4F = 24-Fiber MTP Female
E4M = 24-Fiber Elite MTP Male
E4F = 24-Fiber Elite MTP Female

2

B-End Connector
DLC = Duplex LC
M2M = 12-Fiber MTP Male
M2F = 12-Fiber MTP Female
E2M = 12-Fiber Elite MTP Male
E2F = 12-Fiber Elite MTP Female
M4M = 24-Fiber MTP Male
M4F = 24-Fiber MTP Female
E4M = 24-Fiber Elite MTP Male
E4F = 24-Fiber Elite MTP Female

3

Fiber Type
SM = OS2 (SM 9/125)
M1 = OM1 (MM 62.5/125)
M2 = OM2 (MM 50/125)
M3 = OM3 (MM 50/125)
M4 = OM4 (MM 50/125)
M5 = OM5 (WBMM 50/125)

4

Fiber Count / Boot Type
1 = 2-Fiber / Standard Boot
2 = 2-Fiber / Short Boot
3 = 12-Fiber / Standard Boot
4 = 12-Fiber / Short Boot
5 = 24-Fiber / Standard Boot
6 = 24-Fiber / Short Boot

5

Cable Length
XXX = 001 to 999
•
•
1p5 = 1.5 ("p" refer to decimal place)

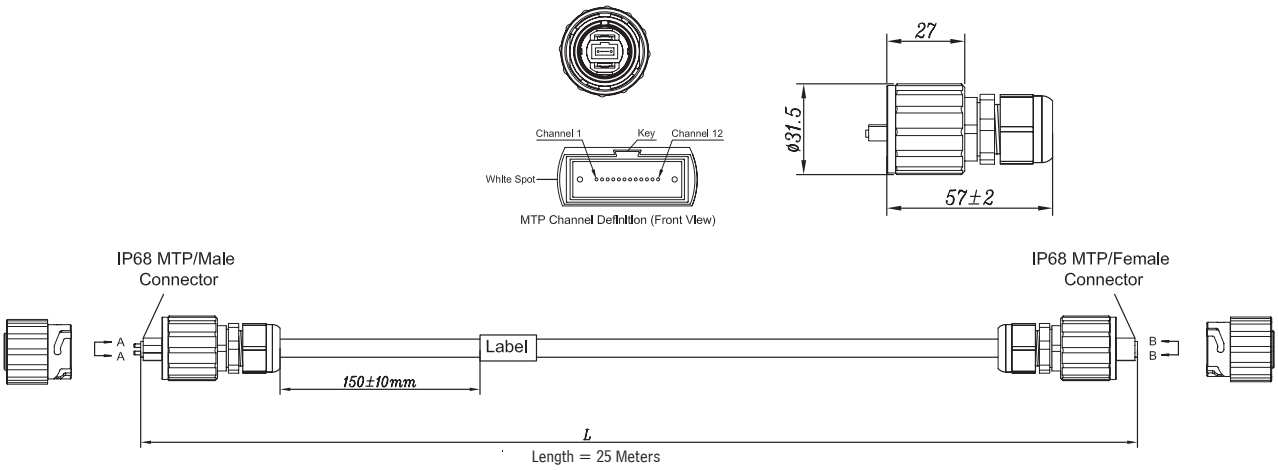
6

Unit of Measure
F = Feet
N = Inch
M = Meter
C = Centimeter

Product Illustration & Example

EXAMPLE **Ordering Code:** **IP68**-ASM-E2M-E2F-M4-4-025-M

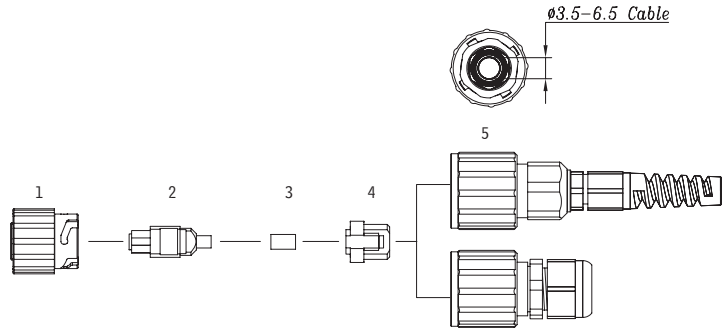
Item Description: IP68 Assemblies, MTP-Male Elite to MTP-Female Elite, OM4 Multimode, 12-Fiber, Short Boot, 25 meters



HARSH ENVIRONMENT CONNECTIVITIES

IP68 MTP® Assemblies

IP68 - MTP® Connector



IP Connector for LC	
1	IP Dust Cap
2	MTP® Connector Body
3	MTP®Crimp Ring
4	MTP® Holder
5	IP Plug Body with Regular Boot
6	IP Plug Body with Short Boot

(Options of Regular Boot & Short Boot, see remark for details)

REMARK:

Regular Boot
1. Overall length after assembled of connector plug is 108mm
2. Strain-relief boot design provides extra protection on cable bending
3. Suitable for installation where no space constrains

Short Boot
1. Overall length after assembled of connector plug is 57mm
2. Suitable for installation where limited space applied

Ordering Information

IP68-CN 1 2 3

1

Connector Interface
M2M = 12-Fiber MTP Male
M2F = 12-Fiber MTP Female
E2M = 12-Fiber Elite MTP Male
E2F = 12-Fiber Elite MTP Female

M4M = 24-Fiber MTP Male
M4F = 24-Fiber MTP Female
E4M = 24-Fiber Elite MTP Male
E4F = 24-Fiber Elite MTP Female

2

MTP Housing Color / Ferrule
For MTP
4 = Green / Standard SM (for OS2)
5 = Beige / Standard MM (for OM1/2)
6 = Aqua / Standard MM (for OM3)
7 = Magenta / Standard MM (for OM4)
8 = Lime Green / Standard MM (for OM5)

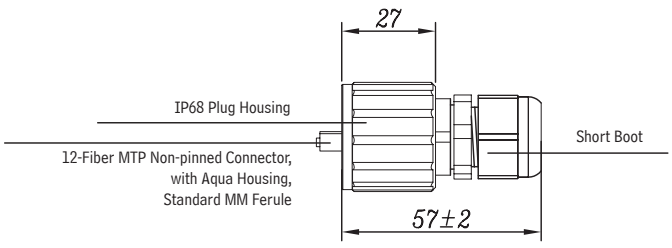
For Elite-MTP
7 = Yellow / Low Loss SM (for OS2)
8 = Aqua / Low Loss MM (for OM3)
9 = Magenta / Low Loss MM (for OM4)

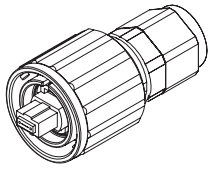
3

Boot Type
1 = Regular Boot
2 = Short Boot

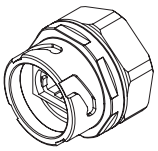
Product Illustration & Example

EXAMPLE **Ordering Code:** **IP68-CN**-M2F-6-2
Item Description: IP68 12-Fiber MTP-Female, Aqua MTP Housing with Standard MM Ferrule, Short Boot

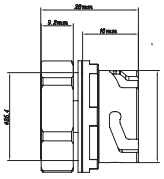




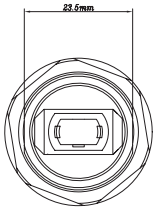
IP68 – MPO / MTP® Receptacles



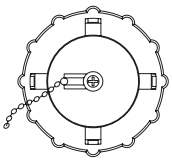
Features / Installation Method
- Insert from panel's rear, then fit the hexagon flange from panel's front
- No extra tools required during installation
- Delivers excellent waterproof performance as no screw holes exist

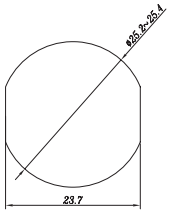


Side View

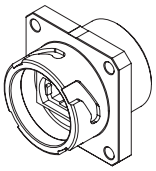


Front View (MTP)

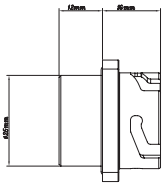

Overall Diameter



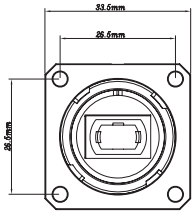
Mounting Hole



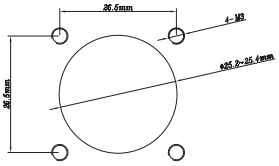
Features / Installation Method
- 4-point screws fixedtype
- Mount from panel's front by fixing 4x screws
- Easily installable or dismantle from front end of the panel
- Screwdriver is required during installation



Side View



Front View (MTP)



Mounting Hole

Ordering Information

IP68-RC 1 2

1

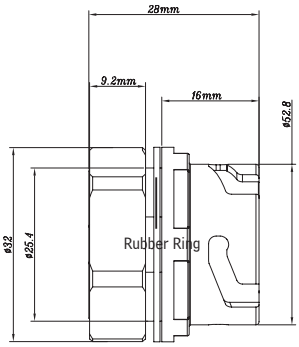
Receptacle Type
1 = MTP

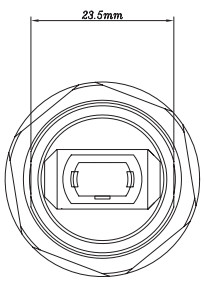
2

Connector Housing / Ferrule
H = Hexagon Flange
S = Square Shape

Product Illustration & Example

EXAMPLE **Ordering Code:** **IP68-RC**-1-H
Item Description: IP68 Receptacle for MTP, Hexagon Flange





HARSH ENVIRONMENT CONNECTIVITIES

IP68 LC ASSEMBLIES

Optec's harsh environment fiber optic connector is designed with protective housing, which fulfills IP68 environmental sealing requirements. This robust IP68 MTP® Cabling is suitable for deployment in FTTA, base stations, transportation, railway systems, and industrial networks.

Sealed to IP68 rating, the highest ingress protection level rating of its kind, our ruggedized IP connector delivers reliable performance for the typical elemental Challeages typical challenges like extreme temperature, humidity, vibration, and chemical corrosive gases.

Features And Applications

Bayonet lock design with built-in global standard LC type connector
Fulfills waterproof property (IP68) for extreme environment applications

Push & pull connector with external housing holding
Provides water and dust protection in Railway system, outdoor environment, Medical equipment and Industrial equipment

LC plug latch function
Avoids in ferrule end faces scratch for maintaining high optical performance

No special tool used in installation
Ease of installation

High corrosion resistance (Salt spray: 1000h) and Straight Pull: typical 200N or more (7mm diameter, cable with strength member)
High performance in harsh environments such as wet, high vibration or corrosive environment

Specifications

Specifications of Connector	
Mating Mechanism	Bayonet
Ingress Protection	IP-68
Operating Temperature	-40℃ ~ +70℃
Mechanical Performance	Straight pulling force 25 Kgs*
Mating Durability	500 mating cycles

Specifications of Assemblies		
Connector \ Performance	Insertion Loss (IL) **	Return Loss (RL) **
Standard LC	≦0.35 dB (Typical 0.1dB)	SM/UPC ≦ 55dB MM/PC ≦ 25dB

* *Pulling strength may varies depending on choice of cable, guarantee straight pulling force of 25kgs if using Optec's pre-terminated solution*
** *Optec's assemblies are provided in multi-tier performance to cater for different needs, please contact our sales team for more details*

LC Assemblies

Ordering Information

IP68-ASM 1 2 3 4 5 6

1

1st Connector
IDL = IP68 Duplex LC

2

2nd Connector
IDL = IP68 Duplex LC
DLC = Duplex LC (normal LC)

3

Fiber Type
SM = OS2 (SM 9/125)
M1 = OM1 (MM 62.5/125)
M2 = OM2 (MM 50/125)
M3 = OM3 (MM 50/125)
M4 = OM4 (MM 50/125)
M5 = OM5 (WBMM 50/125)

4

Fiber Count / Boot Type
1 = 2-Fiber / Standard Boot
2 = 2-Fiber / Short Boot

5

Cable Length
XXX = 001 to 999
•
•
1p5 = 1.5 ("p" refer to decimal place)

6

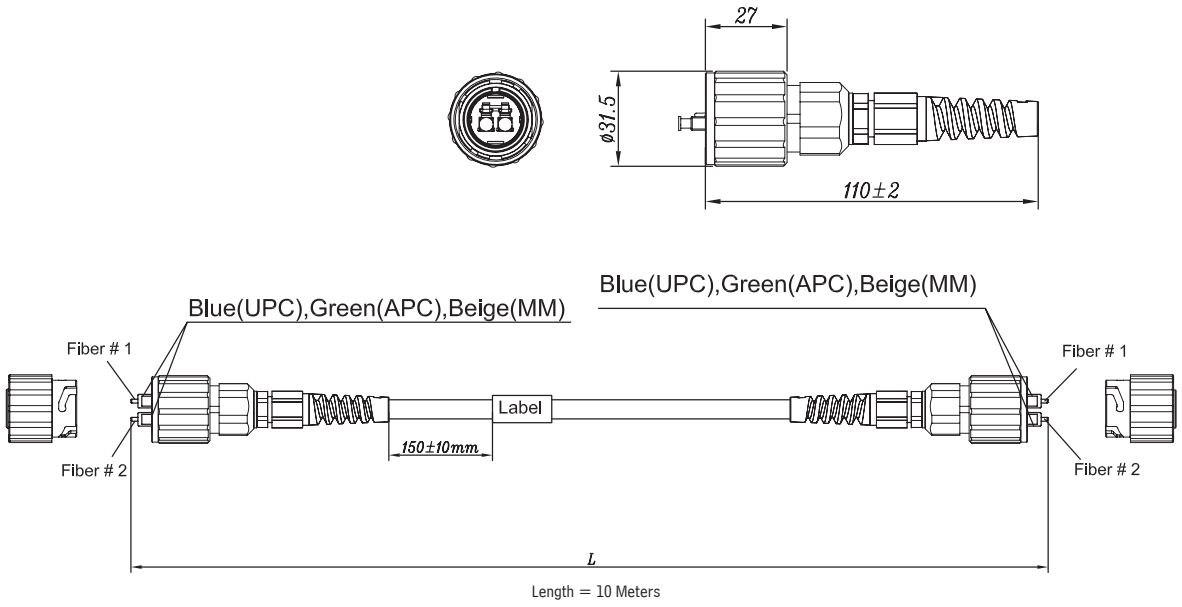
Unit of Measure
F = Feet
N = Inch
M = Meter
C = Centimeter

Product Illustration & Example

EXAMPLE

Ordering Code: **IP68-ASM**-IDL-IDL-SM-1-010-M

Item Description: IP68 Connector Assemblies, IP68-Duplex LC to IP68-Duplex LC, Singlemode, 2-Fiber, Standard Boot, 10 meters

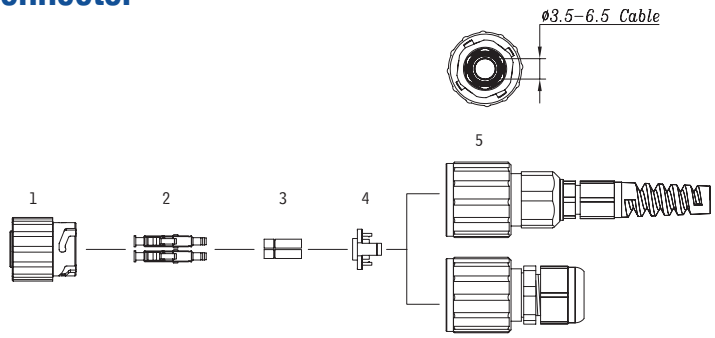


HARSH ENVIRONMENT CONNECTIVITIES

IP68 LC ASSEMBLIES

LC Connector

LC



IP Connector for LC	
1	IP Dust Cap
2	LC Connector Body
3	LC Crimp Ring
4	LC Holder
5	IP Plug Body with Regular Boot
6	IP Plug Body with Short Boot

(Options of Regular Boot & Short Boot, see remark for details)

REMARK:

Regular Boot
1. Overall length after assembled of connector plug is 108mm
2. Strain-relief boot design provides extra protection on cable bending
3. Suitable for installation where no space constrains

Short Boot
1. Overall length after assembled of connector plug is 57mm
2. Suitable for installation where limited space applied

Ordering Information

IP68-CN 1 2 3

1 **Connector Interface**
IDC = IP68 Duplex LC

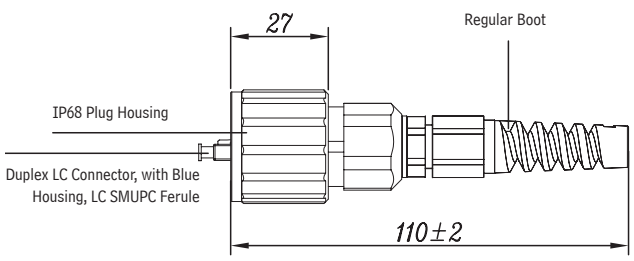
2 **Connector Housing / Ferrule**
For Duplex LC
1 = Blue / SMUPC (for OS2)
2 = Green / SMAPC (for OS2)
3 = Beige / MMPC (for OM1/2/3/4/5)

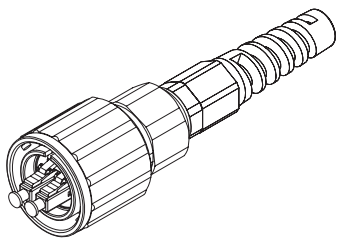
3 **Boot Type**
1 = Regular Boot
2 = Short Boot

Product Illustration & Example

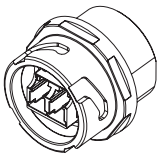
EXAMPLE **Ordering Code:** **IP68-CN**-IDC-1-1

Item Description: IP68 Connector for Duplex LC, Blue Housing with SMUPC Ferrule, Regular Boot

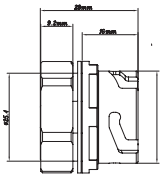




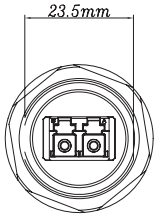
LC Receptacles



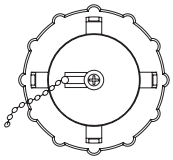
Features / Installation Method
- Insert from panel's rear, then fit the hexagon flange from panel's front
- No extra tools required during installation
- Delivers excellent waterproof performance as no screw holes exist



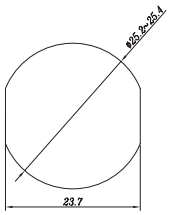
Side View



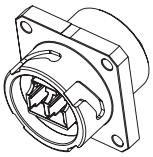
Front View
(LC Duplex)



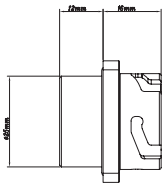
Overall Diameter



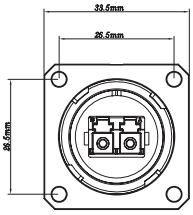
Mounting Hole



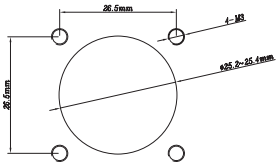
Features / Installation Method
- 4-point screws fixedtype
- Mount from panel's front by fixing 4x screws
- Easily installable or dismantle from front end of the panel
- Screwdriver is required during installation



Side View



Front View
(LC Duplex)



Mounting Hole

Ordering Information

IP68-RC 1 2

1

Receptacle Type
2 = Duplex LC –Blue Adapter Housing (For Singlemode OS2)
3 = Duplex LC –Beige Adapter Housing (For Multimode OM1/OM2)
4 = Duplex LC –Aqua Adapter Housing (For Multimode OM3/OM4)
5 = Duplex LC –Lime Green Housing (For Multimode OM5)

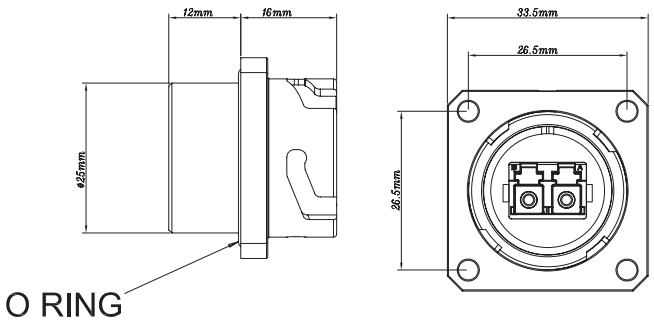
2

Connector Housing / Ferrule
H = Hexagon Flange
S = Square Shape

Product Illustration & Example

EXAMPLE **Ordering Code:** **IP68-RC**-4-S

Item Description: IP68 Receptacle for Duplex LC, MM OM3/OM4 Aqua Adapter Housing, Square Flange

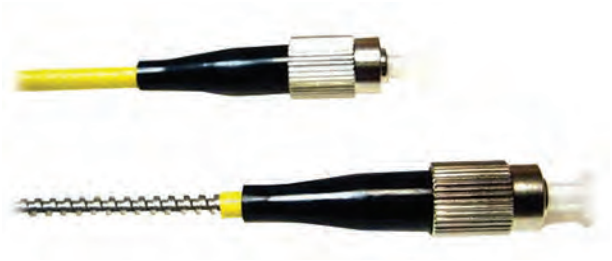


HARSH ENVIRONMENT CONNECTIVITIES

ARMORED PATCHCORDS

Armored patchcords comprise of an outer cable jacket covering a stainless steel tube to enhance fiber protection. The enhanced structure retains all the features of standard patchcords, but are stronger and more durable, suitable for use in customer premises, central offices, and indoor harsh environments.

Optec provides customized armored fiber optic patchcords with precision factory-termination in a cost effective package. Available in different choices of connectors including FC, SC, ST, LC, MU and E2000, and specified fiber modes and lengths to fit every installation need.



Features And Applications

Stainless steel tube inside the outer cable jacket
Enhances fiber protection from rodents with the strong cable structure and reduces maintenance costs in outer plant

Supports different applications and field requirements
Available in Simplex and Duplex with options of all connectors including LC, FC, SC, ST, MU and E2000

Satisfies client's needs in different usage
Cables of armored structure with outer jacket available in Riser (OFNR) and Low Smoke Zero Halogen (LSZH)

High flexibility for different installation needs
Available in singlemode(OS2), multimode (OM1/2/3/4/5), as well as G657A1/2/3 fibers

Strong pressure resistance
Higher durability and longer service life

Specifications

Cable Specifications	
Cable Diameter	Simplex: 3.0 mm (+/-0.15mm) Duplex: 3.0 x 6.0 mm (+/-0.15mm)
Operating Temperature	-20°C～+60°C
Max. Tension (short-term)	300N
Max. Tension (long-term)	150N
Attenuation	SM 1310/1550nm: 0.4/0.25 db/km MM 850/1300nm: 3.0/1.0 db/km
Min. Bending Radius	≥30D

Optical Performance **				
Performance \ Type		Singlemode		Multimode
		UPC	APC	PC
Insertion Loss	Maximum	≤ 0.3 dB	≤ 0.3 dB	≤ 0.3 dB
	Typical	0.1 dB	0.1 dB	0.1 dB
Return Loss		≥ 55 dB	≥ 65 dB	≥ 25 dB
Test Wavelength		1310nm & 1550nm		850nm & 1300nm
Geometric performance				
Manufactured to Telcordia standard GR-326-CORE				

Note: The above table refers to Optec standard grade performance. Due to material optimization and manufacturing techniques, we can provide different performance grade products in a cost-effective way to meet customer expectations and requirements. Please contact our professional sales team for details.

Armored Patchcords

Ordering Information

ARM 1 2 3 4 5 6 7 8

1
Assembly Type
SM = Simplex
DX = Duplex

2
Fiber Type
SM = OS2 (SM 9/125)
M1 = OM1 (MM 62.5/125)
M2 = OM2 (MM 50/125)
M3 = OM3 (MM 50/125)
M4 = OM4 (MM 50/125)
M5 = OM5 (WBMM 50/125)

3
Cable Jacket
OR = Riser
LS = Low-Smoke Zero Halogen

4
A-End Connector
FC = FC
SC = SC
ST = ST
LC = LC
E2 = E2000
See note (1)

5
A-End Polish
U = UPC
P = PC
A = APC 8-degree
See note (2)

6
B-End Connector
FC = FC
SC = SC
ST = ST
LC = LC
E2 = E2000
See note (1)

7
B-End Polish
1 = UPC
2 = PC
3 = APC 8-degree
See note (2)

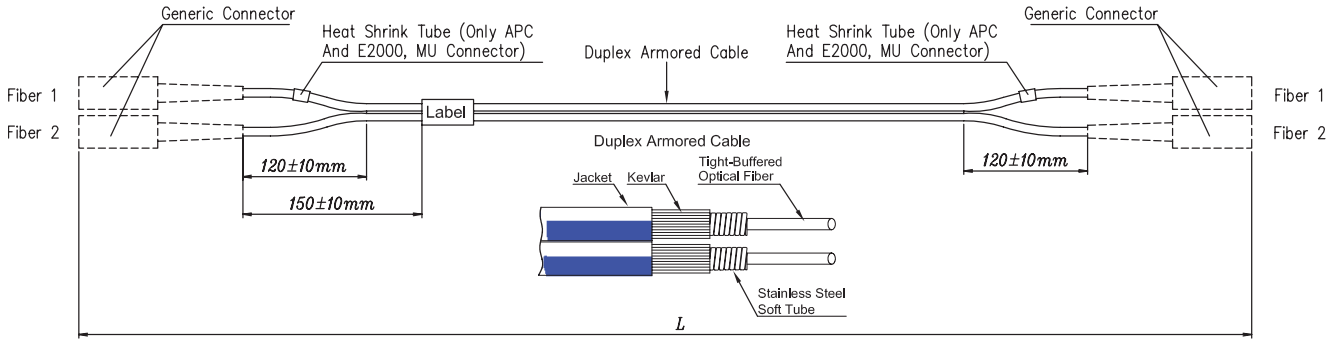
8
Cable Length (Meters)
xxx = 001~999
(please specify)
See note (3)

NOTES
(1) Connectors other than the above are available, please contact our sales team for details
(2) UPC & APC for Singlemode, PC for Multimode
(3) Cable length is measured in meters, from one connector end to the other connector end

Product Illustration & Example

EXAMPLE **Ordering Code:** **ARM**-DX-SM-LS-SC-U-SC-U-10M

Item Description: Armored Patchcord, Duplex, Singlemode, LSZH, SC/UPC-SC/UPC, Length: 10 Meters



TEST REFERENCE CABLES

TEST REFERENCE LEADS

Optec offers test cables with end-face geometry optimiced to enhance performance and ensure exceptional alignment of fiber connectors during the testing phase. The excellent mating characteristics and repeatablility are suitable for various testing applications with the avalibility of different connector choices.

All our test reference leads meet IEC, EIA/TIA or Telcordia performance requirements. Available with different connector choices including MPO/MTP®, FC, SC, LC, & ST, to suit the majority of testing applications.

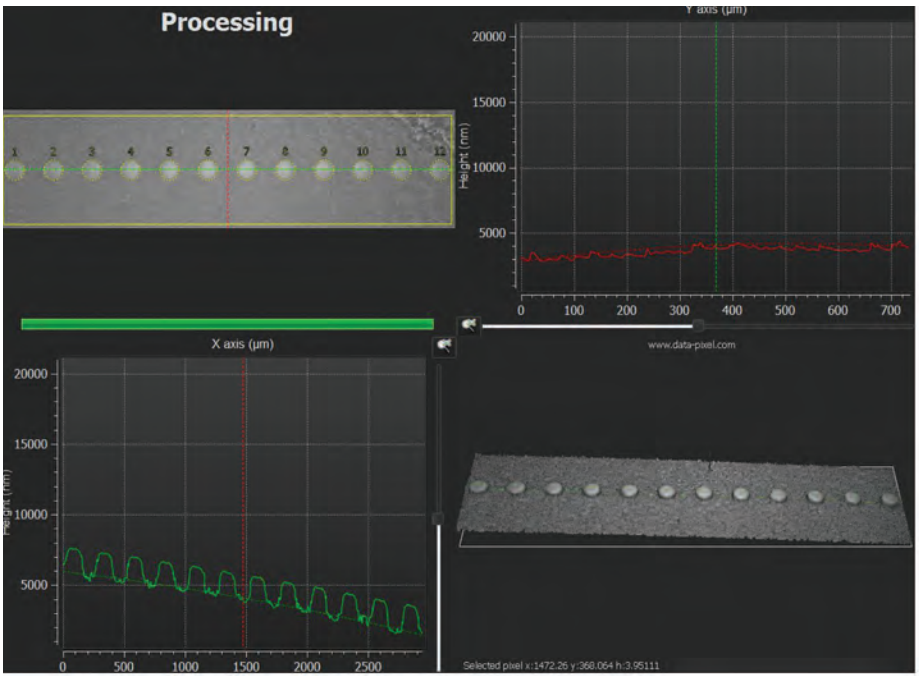
Features And Applications

Manufactured with Optimized geometry and enhanced optical performance
Enhances testing efficiency by improved accuracy and reliability of measurement

Conforms and exceeds industry standards
100% Factory tested with stringent controls processes to comply Telcordia GR-326-CORE with market lowest insertion loss

Suitable for use with majority of testing applications
Adopt in optical network testing, data center applications and instrumentation

Available in singlemode & multimode with choices of different structures
Satisfies client's needs in different testing requirements



Fiber #	Fiber Height (nm)	Diff. Height (nm)	Adj. Height (nm)	Core Dip (nm)	Tip radius (mm)
1	1308	-41	n/a	19	5.65
2	1355	6	-47	13	5.28
3	1384	35	-3-	27	5.01
4	1376	28	7	43	4.72
5	1356	7	20	57	5.3
6	1410	62	-55	58	5.32
7	1407	59	3	58	4.59
8	1323	-25	84	61	2.55
9	1337	-11	-15	84	3.25
10	1337	-11	-1	83	3.57
11	1324	-25	13	71	3.76
12	1259	-90	65	76	3.7

PASS

X Endface Angle (°)	-0.004
Y Endface Angle (°)	-0.087
X Fibers Slope (°)	-0.005
Y Fibers Slope (°)	-0.047
X ROC (mm)	25707
Y ROC (mm)	130
Max. Diff. Height All Fib. (nm)	151
Max. Diff. Height Adj. Fib. (nm)	84
Flatness Deviation (nm)	00
Max. Core Dip (nm)	84
Co-planarity (nm)	66
Valid Pixels Ration (%)	85.6
Geometry Limit (N)	n/a

** *Optec works with customer to provide customized products with different specifications, please contact our technical support or professional sales team for more details.*

Test Reference Leads

Ordering Information

1	2	3	4	5	6	7	8
TL							

1 — Reference End
F = FC
S = SC
L = LC
ST = ST
M = MTP-Male
P = MPO-Male
See notes (1)

2 — Equipment End
F = FC
S = SC
L = LC
ST = ST
M = MTP-Male
F = MTP-Female
P = MPO-Male
E = MPO-Female
See notes (1)

3 — Fiber Type
SM = OS2 (SM 9/125)
M1 = OM1 (MM 62.5/125)
M2 = OM2 (MM 50/125)
M3 = OM3 (MM 50/125)
M4 = OM4 (MM 50/125)
M5 = OM5 (WBMM 50/125)
See notes (1)

4 — Cable Type
SX = Simplex
12 = 12-Fiber (for MTP or MPO)
24 = 24-Fiber (for MTP or MPO)

5 — Jacket Material
OR = Riser OFNR
LZ = Low Smoke Zero Halogen

6 — Cable Color
Y = Yellow (for Singlemode)
O = Orange (for OM1, OM2)
A = Aqua (for OM3)
V = Violet (for OM4)
See notes (2)

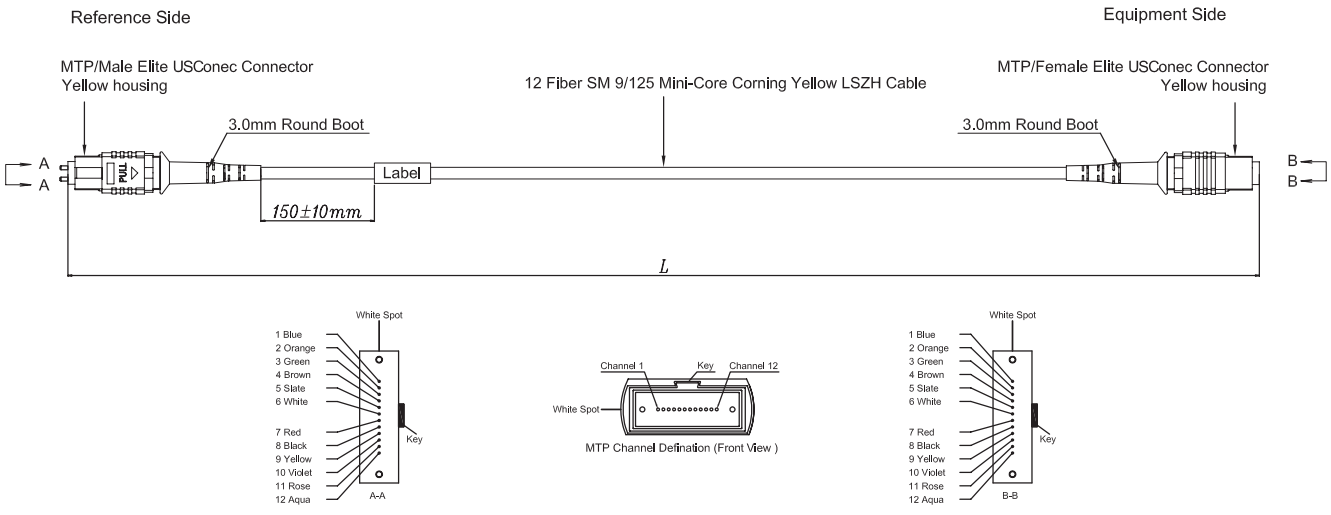
7 — Overall Cable Length
xxx = 001~999
(please specify)

8 — Unit of Measure
F = Feet
M = Meter

NOTES
(1) If Singlemode is chosen, MPO/MTP® endface polishing will be APC. If Multimode is chosen, MPO/MTP® endface polishing will be Flat
(2) Fiber types other than the above are available (e.g. Singlemode G657A/B series), please contact our sales team for details

Product Illustration & Example

EXAMPLE **Ordering Code:** **TL**-M-F-SM-12-LZ-Y-05-M
Item Description: Test Reference Lead MTP-Male to MTP-Female, Singlemode, 12-Fiber, LSZH, Yellow, 5 Meters

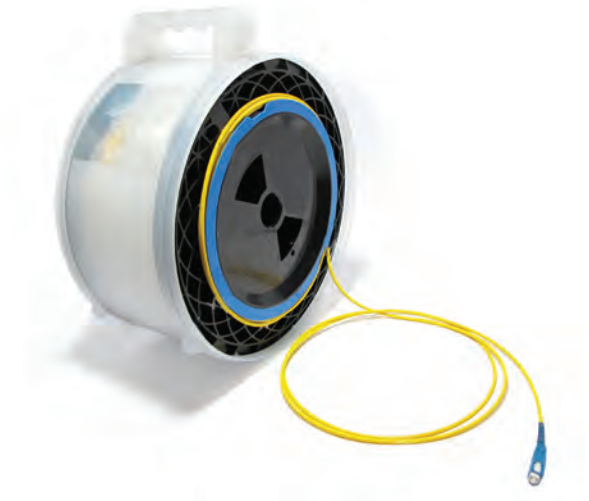


TEST REFERENCE CABLES

FIBER LAUNCH LEADS

Optec's fiber launch leads are used to measure insertion loss and far-end connection of a fiber optic link under OTDR. Available in a range of fiber types, lengths and connector configurations for testing in telecommunications and local area networks.

All our fiber launched leads meet IEC, EIA/TIA and Telcordia performance requirements. They are made with extremely low loss connector, optimized end-face geometry, and enhanced optical performance. Terminated with 250μm bare fiber and packed into a compact and lightweight plastic spool, this launch lead can easily fit into an OTDR case to conduct convenient launch testing.



Features And Applications

Optimized to provide the lowest insertion loss
Customizable insertion loss performance achieves typical IL 0.1dB

Conforms and exceeds industry standards
100% Factory tested with stringent controls processes to comply Telcordia GR-326-CORE with low insertion loss

Available in different connector choices
Available in FC, SC, LC, & ST high performance connector to suit majority of testing needs

Suitable for use with OTDR testing
Extremely low loss connector terminated with 250μm bare fiber in a compact and lightweight plastic spool

Specifications

Optical Performance **			
Type / Performance	Singlemode		Multimode
	UPC	APC	PC
Insertion Loss	≤ 0.3 dB (Typical 0.1dB)	≤ 0.3 dB (Typical 0.1dB)	≤ 0.3 dB (Typical 0.1dB)
Return Loss	≥ 55 dB	≥ 65 dB	≥ 25 dB
Operating Temperature	-40°C to 80°C		-40°C to 80°C
Test Wavelength	1310nm		850nm
Geometric performance			
Manufactured to comply Telcordia standard GR-326-CORE			

** *Optec works with customer to provide customized products with different specifications, please contact our technical support or professional sales team for more details.*

Fiber Launch Leads

Ordering Information

	1	2	3	4	5	6	7	8
LD								

1
A-End Connector
F = FC
S = SC
L = LC
T = ST
E = E2000

2
A-End Polishing
1 = PC
2 = UPC
3 = APC 8-degree

3
B-End Connector
F = FC
S = SC
L = LC
T = ST
E = E2000

4
B-End Polishing
P = PC
U = UPC
A = APC 8-degree

5
Fiber Type
SM = OS2 (SM 9/125)
M1 = OM1 (MM 62.5/125)
M2 = OM2 (MM 50/125)
M3 = OM3 (MM 50/125)
M4 = OM4 (MM 50/125)
M5 = OM5 (WBMM 50/125)

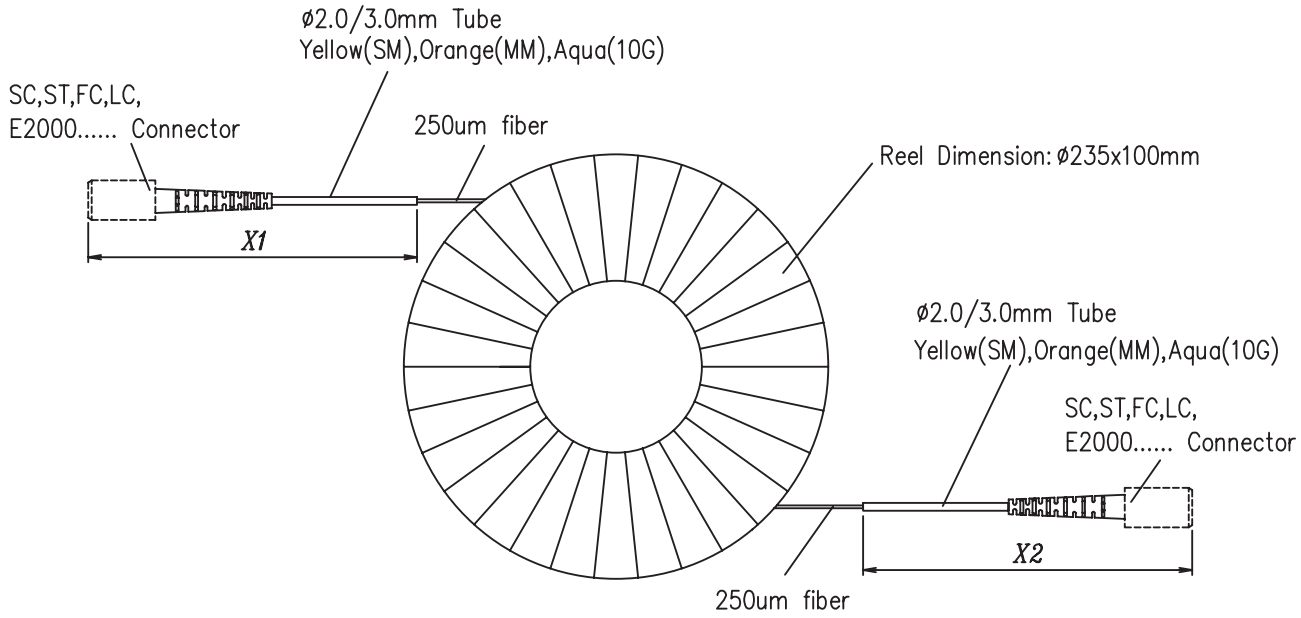
6
Cable Type
BF = 250um Bare Fiber
OT = Others *(please specify)*

7
Overall Cable Length
xxxx = 001~9999
(please specify)

8
Unit of Measure
F = Feet
M = Meter

Product Illustration & Example

EXAMPLE **Ordering code:** **FB**-F-U-F-U-SM-BF-1000M
Item Description: Fiber Launch Lead, FC/UPC to FC/UPC, Singlemode, 250μm Bare Fiber, 1000 meters



TEST REFERENCE CABLES

LOOPBACK ASSEMBLIES

Optec's loopback assemblies provide a cost-effective solution for fiber optic testing applications. They provide a stable and convenient pathway for testing the transmission capability and receiver sensitivity of network equipment.

The loopback structure offers a generous, yet manageable fiber loop which virtually eliminates bend loss. Available in singlemode, multimode OM1～OM5 with customized connector configuration.

Features And Applications

Customized loop length by request
Caters different applications such as fiber channel testing, Gigabit Ethernet testing, Telecommunication hardware, etc.

Available in various connector options with singlemode and multimode fiber type
Applicable in different fiber optic testing applications FO test applications.

Manageable fiber loop to reduce the bend loss in an economical solution
High precision alignment with superior optical loss

Specifications

SC, LC Loopbacks

Optical Performance			
Parameter \ Type	Multi-Mode	Singlemode	
		UPC	APC
Insertion Loss	≤ 0.8 dB	≤ 0.8 dB	
Return Loss	≥25 dB	≥55 dB	≥65 dB
Test Wavelength	850mm	1310mm	

Cable Loop Length Tolerence	
Length (L)	Tolerance
120mm < L ≤ 240mm	+25mm/-0
> 240mm	+50mm/-0

MTP® Loopback

Optical Performance				
Parameter \ Type	Multi-Mode		Single-Mode	
	Low Loss	Standard	Low Loss	Standard
Insertion Loss	≤ 0.6 dB	≤ 1 dB	≤ 0.6 dB	≤ 1.2 dB
Return Loss	≥20 dB	≥20 dB	≥60 dB	≥60 dB
Test Wavelength	850mm		1310mm	

Back Cover Enclosure Dimension	
Overall Length	79mm
Width of the Housing	13.9mm

Loopback Assembiles

Ordering Information

LA [1] [2] [3] [4]

1 Connector Interface
LCD = LC
SCD = SC
MTM = MTP-Male
MTF = MTP-Female
E = E2000
See notes (1)

2 Fiber Type
SM = OS2 (SM 9/125)
M1 = OM1 (MM 62.5/125)
M2 = OM2 (MM 50/125)
M3 = OM3 (MM 50/125)
M4 = OM4 (MM 50/125)
M5 = OM5 (WBMM 50/125)
See notes (2)

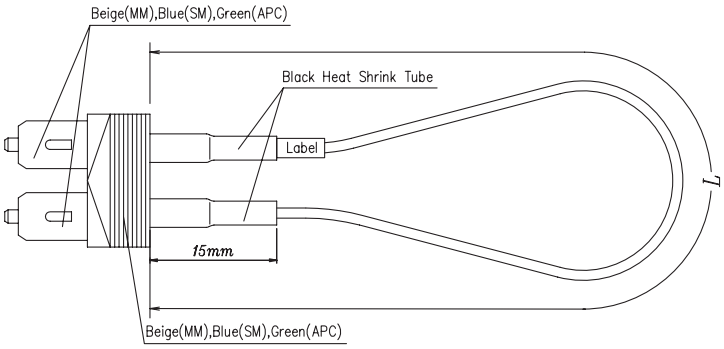
3 Fiber Count
01 = 1-fiber (for LC, SC)
08 = 8-fiber (for MTP)
12 = 12-fiber (for MTP)
24 = 24-fiber (for MTP)
32 = 32-fiber (for MTP)

4 Cable Loop Length
01 = 120mm
02 = 180mm
03 = 240mm
04 = Back Cover Enclosure (for MTP)
See notes (3)

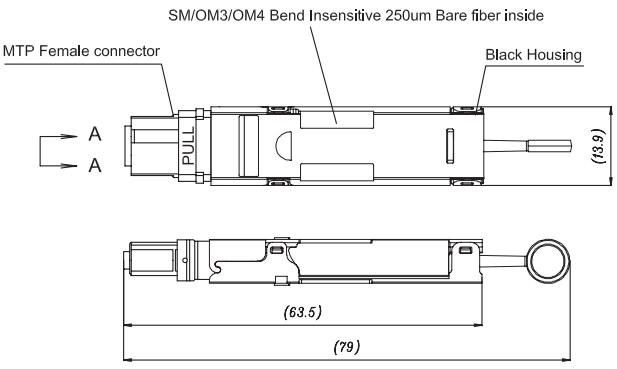
NOTES
(1) LC/SC loopback assemblies have cable loop at the back
MTP® loopback has back cover enclosure at the back
(2) Fiber types other than the above are available (e.g. Singlemode G657A/B series), please contact our sales team for details
(3) Specific cable loop length can be provided, please contact our technical support or sales team for details

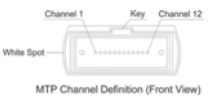
Product Illustration & Examples

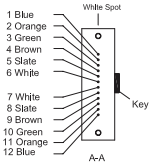
EXAMPLE **Ordering code:** **LA**-SCD-SM-01-01
Item Description: Loopback Assembly, SC, Singlemode, 1-fiber, Cable Loop Length = 120mm



EXAMPLE **Ordering code:** **LA**-MTF-M3-12
Item Description: Loopback Assembly, MTP-Female, OM3, 12-fiber, with Back Cover Enclosure







Fiber Chart:

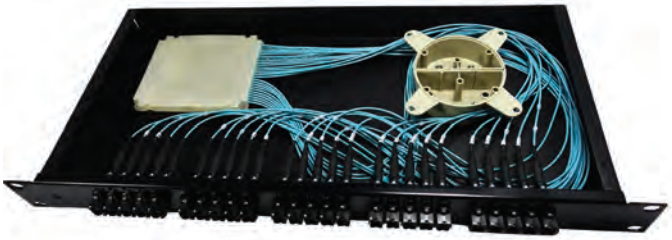
250um Fiber Color	MTP Channel	
Blue	Channel 1	Channel 12
Orange	Channel 2	Channel 11
Green	Channel 3	Channel 10
Brown	Channel 4	Channel 9
Slate	Channel 5	Channel 8
White	Channel 6	Channel 7

FIBER ENCLOSURE

RACKMOUNT PATCH PANELS

Optec is able to deliver customized design and manufacturing services for patch, panels to meet the highest level of performance requirements in high density cable management solutions.

The designed panels can also be your part of cabling management solutions with different connector ports, fiber modes, and fiber types. In addition, Drawer Type and Fixed Type fits in a wide variety of applications. Our custom patch panel can ease the installation and maintenance by following your design to save time and money.



Features And Applications

Custom configurations possible for OEM applications
Fulfills the highest level of performance and unique requirements

Options for connectors ports, fiber modes and fiber types
Fits in wide variety of applications

High density for fiber cassette modules
Depoly to 384 fibers in 4U panel

Available for manufacturing 1U, 2U, 4U 19” rackmount panel
Suits data centers, cloud storage networks and telecommunication

Specifications

Main Material	Steel Option of Aluminium on request
Dimension Height (U) x Width (W) x Depth (D)	1U x 435mm x 380mm 2U x 435mm x 380mm 4U x 435mm x 380mm
Color & Coating	Black Powder Coatin
Compliance	RoHS, EIA-310

Panels For Splicing

- Supports direct splicing cable management for up to 144F (LC)
- Pre-loaded with splice tray and semi-circular fiber spools & mounting braces
- Available in 1U / 2U / 4U with options of fixed type and drawer type

Patch Panel for Splicing

Panels for Patching

- Used for excess fiber storage, make possible the neat storage of excessive patch cable lengths
- Pre-loaded with 2pcs of round fiber management spools & mounting braces
- Available in 1U / 2U / 4U with options of fixed type and drawer type

Patch Panels for Patching

Panels for Intergrating MPO/MTP® Fiber Cassette

- Used for integrating with Optec's MTP®MPO- Type cassette modules for plug-&-play fiber deployment
- Accepts up to 4pcs of MTP/MPO fiber cassetes per 1U
- Available in 1U / 2U / 4U with options of fixed type and drawer type

Patch Panels for Intergrating MPO/MTP® Fiber Cassette

FIBER PATCHCORDS & PIGTAILS

FIBER PATCHCORDS

Optec's top-of-the-line fiber patchcords provide reliable and flexible interconnect cabling solutions for use in different optical fiber networks, from data centers & enterprises, industrial & transporation, to telecom networks. Every assembly produced under stringent quality control and tested to ensure exceptional optical performance with traceable data.

All patchcords are customized in length with specified fiber modes and connecter types. Customers may even request highly customized specifications with specific optical performance at competitive prices.

Features And Applications

Superior optical performance
100% factory tested assemblies with traceable test data

Customized fiber optic assemblies
Suits for different installation environments and be applicable for all kinds of fiber optic networks

Available in singlemode (OS2), multimode (OM1～5) with customized length and structures
Satisfies client's needs in different industries

Top-of-the-line quality with stringent manufacturing process
High performance factory-tested assemblies made to comply Telcordia GR-326-CORE

Comprehensive range of offering
Full spectrum of connector interface options applicable for all kinds of optical networks

Simplex Patchcord

Duplex Patchcord

Specifications

Generic Connector Termination

Optical Performance **				
Performance \ Type		Singlemode		Multimode
		UPC	APC	PC
Insertion Loss	Maximum	≤ 0.3 dB	≤ 0.3 dB	≤ 0.3 dB
	Typical	0.1 dB	0.1 dB	0.1 dB
Return Loss		≥ 55 dB	≥ 65 dB	≥ 25 dB
Test Wavelength		1310nm & 1550nm		850nm & 1300nm
Geometric performance				

Manufactured to Telcordia standard GR-326-CORE

Note: The above table refers to Optec standard grade performance. Due to material optimization and manufacturing techniques, we can provide different performance grade products in a cost-effective way to meet customer expectations and requirements. Please contact our professional sales team for details.

Fiber Patchcords

Ordering Information

ASM 1 2 3 4 5 6 7 8 9 10

1 Fiber Count
SX = Simplex (1-Fiber)
DX = Duplex (2-Fiber)

2 A-End Connector
A = FC
B = SC
C = ST
D = LC
E = MU
F = E2000
G = Mini-LC
H = Uniboot LC
See notes (1) & (2)

3 A-End Polish
1 = PC
2 = UPC
3 = APC 8-degree

4 B-End Connector
A = FC
B = SC
C = ST
D = LC
E = MU
F = E2000
G = Mini-LC
H = Uniboot LC
See notes (1) & (2)

5 B-End Polish
1 = PC
2 = UPC
3 = APC 8-degree

6 Fiber Type
SM = OS2 (SM 9/125)
M1 = OM1 (MM 62.5/125)
M2 = OM2 (MM 50/125)
M3 = OM3 (MM 50/125)
M4 = OM4 (MM 50/125)
M5 = OM5 (WBMM 50/125)
See notes (3)

7 Cable Strcuture
0 = 900um Simplex
1 = 2mm Simplex
2 = 3mm Simplex
3 = 1.6mm DX Zipcord
4 = 2.0mm DX Zipcord
5 = 3.0mm DX Zipcord
6 = Round Duplex Cable
7 = Flat Twin Double Jacketed
8 = Others, please specfiy Cable
See notes (4)

8 Jacket Material
P = Plenum (OFNP)
R = Riser (OFNR)
L = Low Smoke Zero Halogen (LSZH)

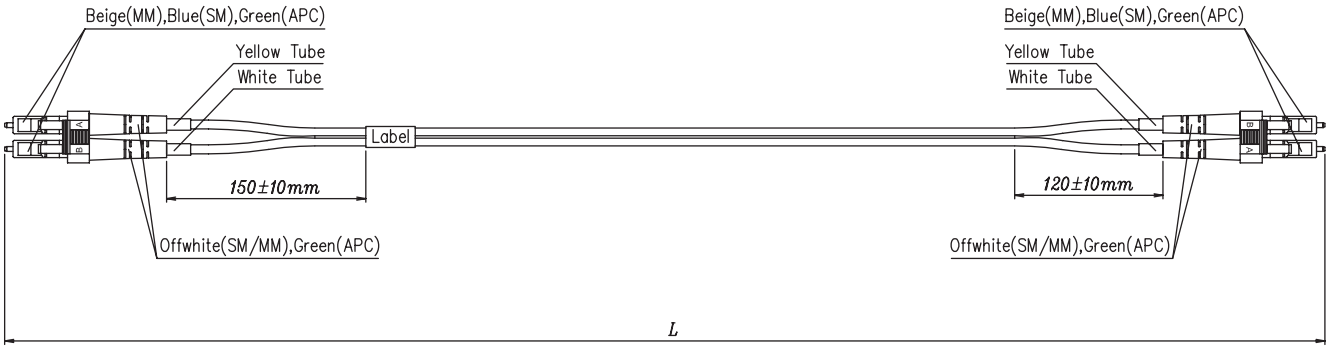
9 Length
xxx = 001 ~ 999
(please specify)

10 Unit of Measurement
F = Feet
N = Inch
M = Meters
C = Centimeter

NOTES
(1) Connectors other than the above are available, please specified and contact our sales team for more details
(2) For ordering MPO/MTP® patchcords, please refer to page 16-17 for details
(3) Fiber types other than the above are available (e.g. Singlemode G657A/B series), please contact our sales team for details
(4) Other cable structures are available, please specified and contact our sales team for more details

Product Illustration & Example

EXAMPLE **Ordering Code:** **ASM**-DX-D-2-D-2-SM-4-R-005-M
Item Description: Fiber Patchcord, Duplex, LC/UPC to LC/UPC, Singlemode, 2.0mm DX Zipcord, Riser, 5 Meters



Length Tolerance:

Length (L)	Tolerance
≤ 3m	+150mm/−0
> 3m	+300mm/−0

FIBER PATCHCORDS & PIGTAILS

FIBER PIGTAILS

Optec offers top-of-the-line fiber optic pigtails in a variety of configurations for end-to-end fiber connections. All pigtails are customizable with connector options including: FC, SC, ST, LC, MU and E2000. All connectors are terminated with 900μm buffered cable or the customer specified cable type (i.e. simplex, duplex, as well as multi-core jacketed ribbon distribution cables.)

Available in individual / 6 / 8 / 12pcs per pack, Optec's pigtail sets are one of the most convenient solutions for on-site fusion splice terminations. We offer high flexibility to satisfy customers' needs for customized lengths and fiber modes of different configurations.

Features And Applications

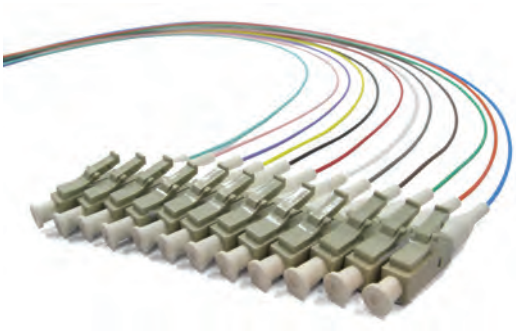
Fully customizable fiber optic assemblies
Suitable for different installation requirements and be applicable for all kinds of fiber optical networks

100% factory tested assemblies with traceable test data
Made to comply Telcordia GR-326-CORE

Superior optical performance
Low insertion loss and return loss to improve link loss budget during on-site installation

Offer high flexibility to satisfy different customer needs
Available in FC, SC, ST, LC, MU & E2000 terminating with different fiber mode and cable structures

Variety of cable options
Options of simplex buffered cable, duplex zipcord, as well as multi-core jacketed ribbon or distribution cables



12-color pigtails set

Specifications

Generic Connector Termination

Optical Performance **				
Performance	Type	Singlemode		Multimode
		UPC	APC	PC
Insertion Loss	Maximum	≤ 0.3 dB	≤ 0.3 dB	≤ 0.3 dB
	Typical	0.1 dB	0.1 dB	0.1 dB
Return Loss		≥ 55 dB	≥ 65 dB	≥ 25 dB
Test Wavelength		1310nm & 1550nm		850nm & 1300nm
Geometric performance				

Manufactured to Telcordia standard GR-326-CORE

Note: The above table refers to Optec standard grade performance. Due to material optimization and manufacturing techniques, we can provide different performance grade products in a cost-effective way to meet customer expectations and requirements. Please contact our professional sales team for details.

Fiber Pigtails

Ordering Information

ASM P T | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8

1
Fiber Count
01 = 1-Fiber (Simplex)
02 = 2-Fiber (Duplex)
OT = Other Fiber Count (please specify)

2
A-End Connector
A = FC
B = SC
C = ST
D = LC
E = MU
F = E2000
G = Mini-LC
See notes (1)

3
A-End Polish
1 = PC
2 = UPC
3 = APC 8-degree

4
Fiber Type
SM = OS2 (SM 9/125)
M1 = OM1 (MM 62.5/125)
M2 = OM2 (MM 50/125)
M3 = OM3 (MM 50/125)
M4 = OM4 (MM 50/125)
M5 = OM5 (WBMM 50/125)
See notes (2)

5
Cable Strcuture
0 = 900um Simplex
1 = 2mm Simplex
2 = 3mm Simplex
3 = 1.6mm DX Zipcord
4 = 2.0mm DX Zipcord
5 = 3.0mm DX Zipcord
6 = Round Duplex Cable
7 = Flat Twin Double Jacketed Cable
8 = Others, please specfiy
See notes (3)

6
Jacket Material
P = Plenum (OFNP)
R = Riser (OFNR)
L = Low Smoke Zero Halogen (LSZH)

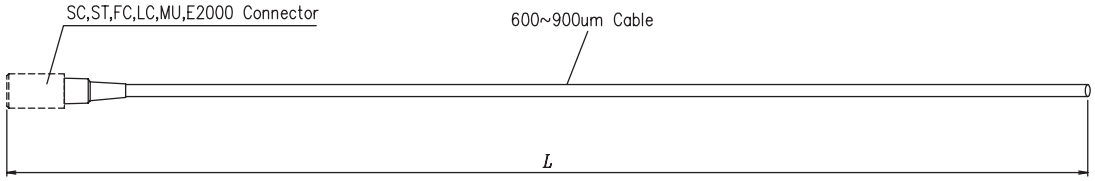
7
Length
xxx = 001 ~ 999
(please specify)

8
Unit of Measurement
F = Feet
N = Inch
M = Meters
C = Centimeter

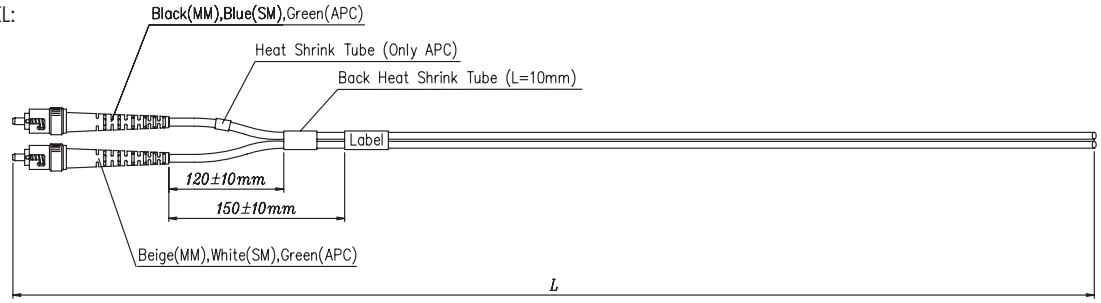
NOTES
(1) Connectors other than the above are available, please specified and contact our sales team for more details
(2) Fiber types other than the above are available (e.g. Singlemode G657A/B series), please contact our

Product Illustration & Examples

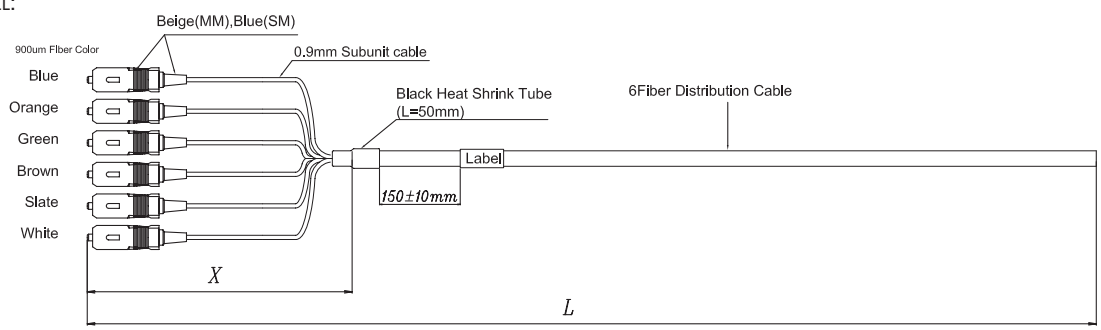
EXAMPLE SIMPLEX PIGTAIL:



EXAMPLE DUPLEX PIGTAIL:



EXAMPLE DUPLEX PIGTAIL:



FIBER PATCHCORDS & PIGTAILS

MINI-LC PATCHCORDS

Optec offers Mini LC Patchcords with a reduced center ferrule pitch from 6.25mm to 5.25mm for optimizing space efficiency. They can work with mini SFP transceivers, a small form factor optical transceiver, to increase the port density without changing the overall enclosure for data center equipment.

Our Mini LC Patchcords increase network utilization with higher speeds, and is available for singlemode or multimode fiber at customized lengths to meet different installation needs.

Features And Applications

Reduced center ferrule pitch from 6.25mm to 5.25mm
Provides higher port density compared to traditional LC patchcord

HD cable management that improve energy efficiency
Compacted in size for improving heat dissipation and energy efficiency in workstations

Available in singlemode(OS2) and multimode (OM1～OM5) with bend-insensitive fiber as an option
Satisfies client's needs in different installation environments

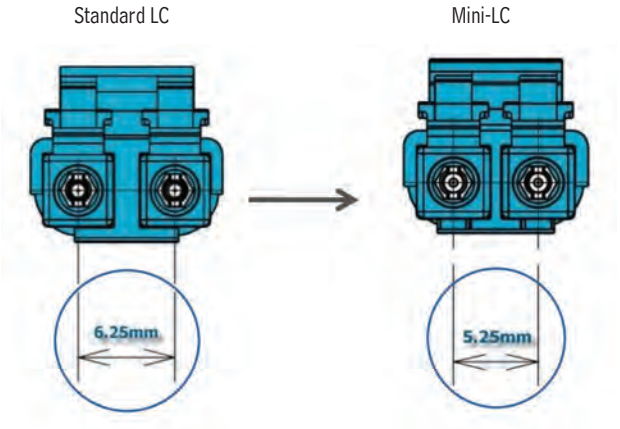
Customized length and assembly configurations
Fits for each installation needs

Available in Mini LC to MPO/MTP® interfacewith staggered lengths for HD data center application
Removes slack at each port

Specifications

Optical Performance **				
Performance \ Type		Singlemode		Multimode
		UPC	APC	PC
Insertion Loss	Maximum	≤ 0.3 dB	≤ 0.3 dB	≤ 0.3 dB
	Typical	0.1 dB	0.1 dB	0.1 dB
Return Loss		≥ 55 dB	≥ 65 dB	≥ 25 dB
Test Wavelength		1310nm & 1550nm		850nm & 1300nm
Geometric performance				
Manufactured to Telcordia standard GR-326-CORE				

Note: The above table refers to Optec standard grade performance. Due to material optimization and manufacturing techniques, we can provide different performance grade products in a cost-effective way to meet customer expectations and requirements. Please contact our professional sales team for details.



Mini-LC Patchcords

Ordering Information

ASM M L [1] [2] [3] [4] [5] [6] [7] [8] [9]

1
A-End Connector
G = Mini-LC (Duplex)
See notes (1)

2
A-End Polish
1 = PC
2 = UPC
3 = APC 8-degree

3
B-End Connector
A = FC
B = SC
C = ST
D = LC
E = MU
F = E2000
G = Mini-LC (Duplex)
See notes (1)

4
B-End Polish
1 = PC
2 = UPC
3 = APC 8-degree

5
Fiber Type
SM = OS2 (SM 9/125)
M1 = OM1 (MM 62.5/125)
M2 = OM2 (MM 50/125)
M3 = OM3 (MM 50/125)
M4 = OM4 (MM 50/125)
M5 = OM5 (WBMM 50/125)
See notes (2)

6
Cable Strcuture
1 = 1.6mm DX Zipcord P
2 = 2.0mm DX Zipcord
3 = Round Duplex Cable
4 = Others, please specfiy
See notes (3)

7
Jacket Material
P = Plenum (OFNP)
R = Riser (OFNR)
L = Low Smoke Zero Halogen (LSZH)

8
Length
xxx = 001 ~ 999
(please specify)

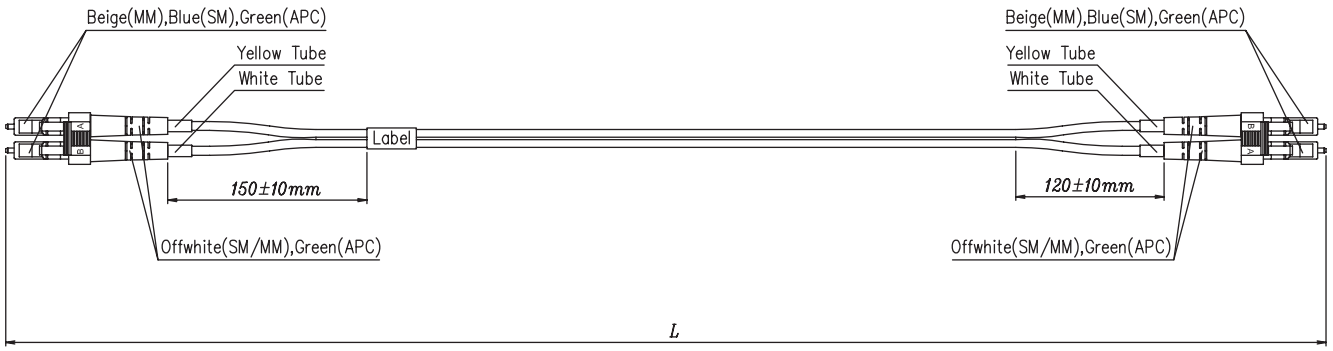
9
Unit of Measurement
F = Feet
N = Inch
M = Meters
C = Centimeter

NOTES
(1) Connectors other than the above are available, please specified and contact our sales team for more details
(2) Fiber types other than the above are available (e.g. Singlemode G657A/B series), please contact our sales team for details
(3) Other cable structures are available, please specified and contact our sales team for more details

Product Illustration & Example

EXAMPLE **Ordering Code:** **ASM**-ML-G-1-G-1-M3-3-R-003-M

Item Description: Fiber Patchcord, Mini-LC, Mini-LC/PC to Mini-LC/PC, OM3, 1.6mm DX Zipcord, Riser, 3 Meters



Length Tolerance:

Length (L)	Tolerance
≤ 3m	+150mm/−0
> 3m	+300mm/−0

FIBER PATCHCORDS & PIGTAILS

1.2MM PATCHCORDS

Optec offers 1.2mm fiber patchcords as an effective solution to resolve cabling congestion problems. Particularly suitable for high-density patching environments, the ultra-small 1.2mm jacketed cable suited on the patchcord saves over 60% of space, compared to the more common 2.0mm cable patchcord, without compromising pulling force.

We offer a wide range of connector options including LC, FC and SC, with different polishing types and fiber modes for custom configurations. All solutions offer superior optical performance with traceable data.

Features And Applications

Satisfies client's needs in high density applications
Available in LC, SC, ST and FC configuration (both SM and MM versions)

Conforms and exceeds industry standards
Compliant with GR-409 and GR-326 mechanical and performance requirements

Relieves cabling congestion & provides better air-flow
Appreciable size for 1.2mm in both Simplex & Duplex structures

Ensures high operation performance
100% factory-tested with traceable data

Increases network utilization
Reduces cost in installation and maintenance.

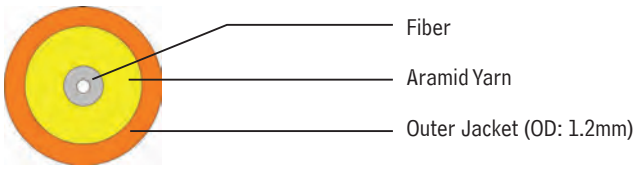
Common LC Patchcord

1.2mm Mini-LC Patchcord

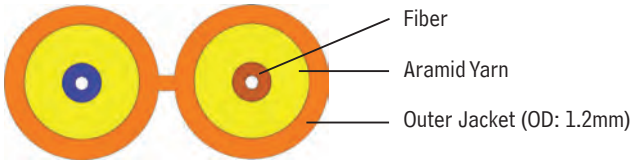
Cable Structure with 1.2mm diameter :

- ✔ Ultra small 1.2mm jacket cable
- ✔ save more than 60% of space
- ✔ uncompromising pulling face

Simplex Cable (OD: 1.2mm)



Duplex Zipcord Cable (OD: 1.2mm x 2)



Specifications

Generic Connector Termination

Optical Performance **				
Performance	Type	Singlemode UPC	Singlemode APC	Multimode PC
Insertion Loss	Maximum	≤ 0.3 dB	≤ 0.3 dB	≤ 0.3 dB
	Typical	0.1 dB	0.1 dB	0.1 dB
Return Loss		≥ 55 dB	≥ 65 dB	≥ 25 dB
Test Wavelength		1310nm & 1550nm		850nm & 1300nm
Geometric performance				
Manufactured to Telcordia standard GR-326-CORE				

Note: The above table refers to Optec standard grade performance. Due to material optimization and manufacturing techniques, we can provide different performance grade products in a cost-effective way to meet customer expectations and requirements. Please contact our professional sales team for details.

1.2mm Patchcord

Ordering Information

ASM EM [1][2][3][4][5][6][7][8][9]

1 Assembly Type
SX = Simplex
DX = Duplex Zipcord

2 Fiber Type
SM = OS2 (SM 9/125)
M1 = OM1 (MM 62.5/125)
M2 = OM2 (MM 50/125)
M3 = OM3 (MM 50/125)
M4 = OM4 (MM 50/125)
M5 = OM5 (WBMM 50/125)
See note (1)

3 Cable Jacket
OR = Riser
LS = Low-Smoke Zero Halogen

4 A-End Connector Type
A = FC
B = SC
C = LC
See note (2)

5 A-End Polishing Type
1 = PC
2 = UPC
3 = APC 8-degree
See notes (3)

6 B-End Connector Type
A = FC
B = SC
C = LC
See notes (2)

7 B-End Polishing Type
1 = PC
2 = UPC
3 = APC 8-degree
See notes (3)

8 Cable Length (Meters)
xxx = 001~999
(please specify)
See notes (4)

9 Unit of Measurement
F = Feet
N = Inch
M = Meter
C = Centimeter

NOTES
(1) Fiber types other than the above are available (e.g. Singlemode G657A/B series), please contact our sales team for details
(2) Connectors other than the above are available, please contact our sales team for details
(3) APC & UPC for Singlemode, PC for Multimode
(4) Cable length is measured from connector ferrule tip to connector ferrule tip

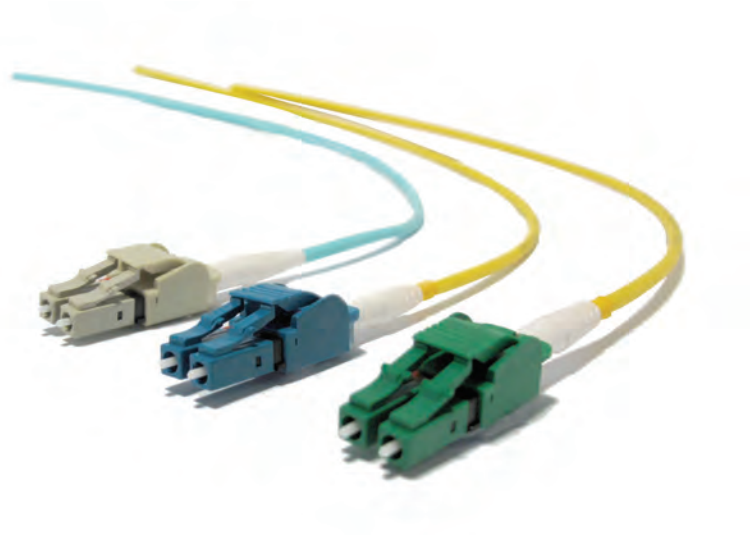
FIBER PATCHCORDS & PIGTAILS

LC UNIBOOT PATCHCORDS

Optec provides a high performance Dual LC Uniboot Patchcords, which save half of the operation spaces required.

The Uniboot LC patchcord uses unified connector housing and single-jacketed 3.0mm duplex cable, which dramatically reduces the cable required. Ultimately, it facilitates improved airflow within high density environments, such as data centers and 10G/40G optical networks.

Our manufacturing standards and 100% factory-tested products guarantee excellent optical cable performance.



Features And Applications

Unified connectors housing and single boot
Saves the operation space and enhance air flow

Utilizes single-jacketed round duplex cable
Reduces 50% of the cable management space comparing to standard LC patchcords

Ideal for high density installation environment
Ideal for connecting 10GBase transceivers, SFP+ & QSFP+ transceivers for 10 gigabit network connections

Variety of fiber options and enface polishing
Available in G652D OS2, G657A2, OM1~OM5 in different endface polishing include APC, UPC & PC.

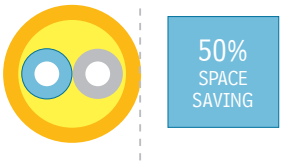
Conforms and exceeds industry standards
Compliant with IEC and TIA performance requirements

- ✔ Utilizes single-jacketed round duplex cable
- ✔ Save 50% of cable management space
- ✔ Enhance air flow over high density environment

Cable Structure with Single-jacketed Round Duplex Cable

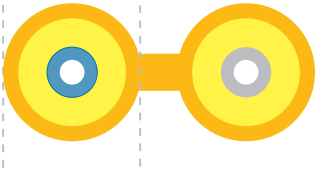
Single-jacketed Round Duplex Cable

- ✔ Cable Size = Ø 3mm
- ✔ Space required for 2-fiber installation = 3mm



Traditional Duplex Zipcord Cable

- ✔ Cable Size = Ø 3mm x 2
- ✔ Space required for 2-fiber installation = 6mm



Specifications

Generic Connector Termination

Optical Performance **				
Performance \ Type		Singlemode		Multimode
		UPC	APC	PC
Insertion Loss	Maximum	≤ 0.3 dB	≤ 0.3 dB	≤ 0.3 dB
	Typical	0.1 dB	0.1 dB	0.1 dB
Return Loss		≥ 55 dB	≥ 65 dB	≥ 25 dB
Test Wavelength		1310nm & 1550nm		850nm & 1300nm
Geometric performance				
Manufactured to Telcordia standard GR-326-CORE				

Note: The above table refers to Optec standard grade performance. Due to material optimization and manufacturing techniques, we can provide different performance grade products in a cost-effective way to meet customer expectations and requirements. Please contact our professional sales team for details.

LC Uniboot Patchcords

Ordering Information

ASM UB 1 2 3 4 5 6 7 8

1

Fiber Type
SM = OS2 (SM 9/125)
M1 = OM1 (MM 62.5/125)
M2 = OM2 (MM 50/125)
M3 = OM3 (MM 50/125)
M4 = OM4 (MM 50/125)
M5 = OM5 (WBMM 50/125)
See note (1)

2

Jacket Material
OR = Riser
LS = Low-Smoke Zero Halogen

3

A-End Connector Type
GL = LC Uniboot
See note (2)

4

A-End Polishing Type
1 = PC
2 = UPC
3 = APC 8-degree
See notes (3)

5

B-End Connector Type
GL = LC Uniboot
See note (2)

6

B-End Polishing Type
1 = PC
2 = UPC
3 = APC 8-degree
See notes (3)

7

Cable Length (Meters)
xxx = 001~999
(please specify)
See notes (4)

8

Unit of Measurement
F = Feet
N = Inch
M = Meter
C = Centimeter

NOTES
(1) Fiber types other than the above are available (e.g. Singlemode G657A/B series), please contact our sales team for details
(2) Connectors other than the above are available, please contact our sales team for details
(3) APC & UPC for Singlemode, PC for Multimode
(4) Cable length is measured from connector ferrule tip to connector ferrule tip

FIBER OPTIC COMPONENTS

OPTIC FIBER SPLITTER SOLUTIONS

Optec provides customizable splitter solutions to serve a variety of applications in different environments. The low insertion loss and reflectance fully supports high bandwidth data transmission and longer link lengths deployed in PON architecture, FTTx Network and other optical signal distribution systems.

With our expertise fiber assembly, we provide customized splitter solutions in different packages, such as tray, fan-out, cassette, rack-mount, etc.

Besides PLC splitters, Optec also offers FBT splitters for customized split ratio and attenuation for various applications.

Features And Applications

Superior performance with high stability and flexibility
Deployed in FTTx network, PON network and other optical signal distribution

Low insertion loss, reflectance and PDL(Polarization Dependent Loss) with good Uniformity
Supports high bandwidth data transmission and longer link lengths in operations

Customized splitter solutions in different packages
Offers the SFF tray, fan-out, cassette and rack-mount with tailormade fiber modes and types by PLC and FBT splitters

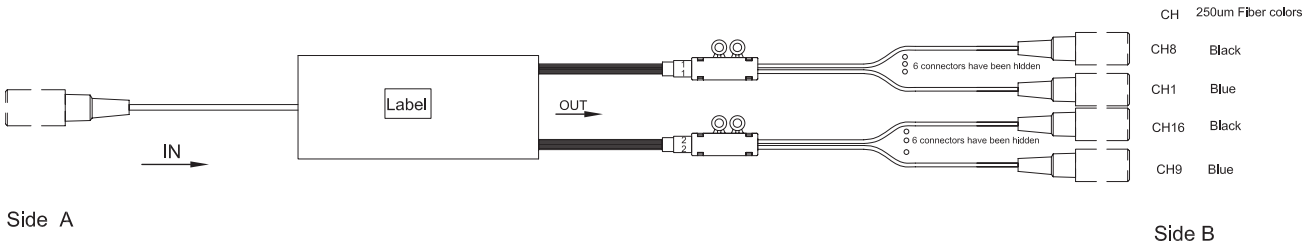
Stringent manufacturing and testing process
Compliant with GR-1209 and GR-1221 requirements

Differences between PLC and FBT Splitter

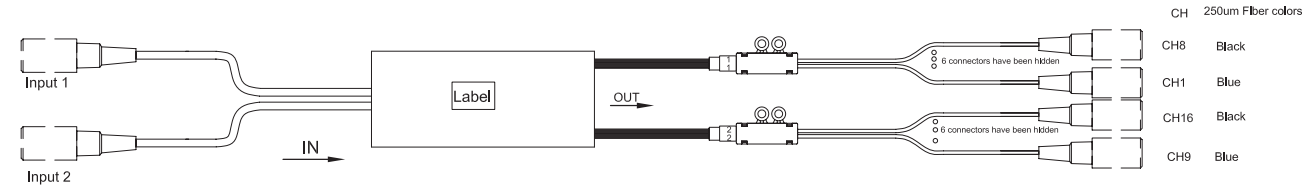
Parameters	Low Loss MPO Multimode	Standard MPO Multimode
Manufacturing	Optical fibers are weld together and aligned for a specific position and length	Optical chip is used to split out incoming signal to mufltiple outputs with optical arrays
Operation Wavelength	850nm, 1310nm & 1550nm	1260nm – 1650nm
Input / Output	Input: 1 or 2 Output: 32 (max)	Input: 1 or 2 Output: 64 (max)
Splitter Ratio	Up to 1: 32 (Special split ratio provided, e.g. 1:3,1:5, 1:7,etc.)	Up to 1: 64 (Standard split ration provided, e.g. 1:2,1:4, 1:8, etc.)
Size of Splitter	Larger	Smaller
Attenuation	Customizable Attenuation Split	Even Attenuation Split
Cost	Low	High

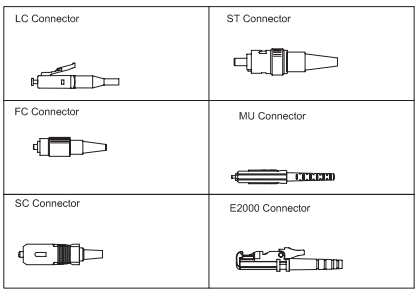
Product Illustration & Example

EXAMPLE Splitter Assembly, 1x 16 PLC Splitter



EXAMPLE Splitter Assembly, 2x 16 PLC Splitter





For FBT order and other special requirements, please contact our professional sales team for details.

FIBER OPTIC COMPONENT

PLUG TYPE ATTENUATORS

Optec's attenuators offer precise reduction desired for optical signals from point-to-point, with a fixed attenuation value ranging from 1dB to 30 dB singlemode.

The plug-type attenuators adjust optical signal levels to increase network flexibility and adjust optical power. They are commonly used Telecommunication, CATV, FTTx network, and Test Measurement applications.

Features And Applications

Low back reflection and return loss with fixed attenuation
Available in UPC or APC polishing for attenuators

Stringent factory control in processes
Precise attenuation & tight tolerance with high power application which can be used in testing and measurement

Manufacturing in reliable technique
Polarization insensitive with wide wavelength compliant to Telcordia GR-910-CORE

High Flexibility for using in different industries
Suitable for use in CATV, telecommunication networks, testing devices with options of in FC, SC, ST, MU, LC connector interfaces

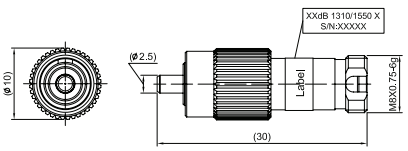
Specifications

	Plug Type Specifications	
	Premium	Standard
Attenuation Range	1~30dB * in 1.0dB increment	1~20dB * in 1.0dB increment
Attenuation Accuracy	1 ~ 9dB +/-0.5dB 10~15dB +/-1.0dB 16~20dB +/-1.5dB 21~30dB +/-2.0dB	1~ 5dB +/-0.5dB 6~20dB +/-10%
Operating Wavelength	1310 & 1550nm (stable attenuation within 1250~1650nm)	
Return Loss	50dB (UPC), 60dB (APC)	
Operating Temperature	-40 to +75 oC	

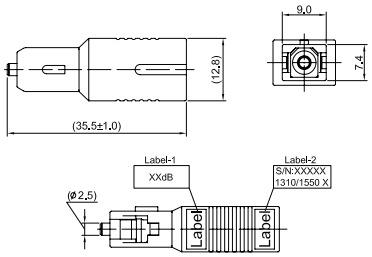
Physical dimensions

Plug Type Attenuators

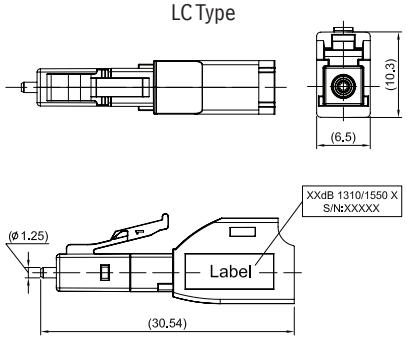
FC Type



SC Type



LC Type



Plug Type Attenuators

Ordering Information

1 2 3

ANP ☐ ☐☐ ☐

1

Connector Type
1 = FC/UPC
2 = SC/UPC
3 = ST/UPC
4 = LC/UPC
5 = MU/UPC
6 = FC/APC
7 = SC/APC
8 = LC/APC

2

Attenuation
01 = 1dB
03 = 3dB
05 = 5dB
•
10 = 10dB
•
•
20 = 20dB
See notes (1)

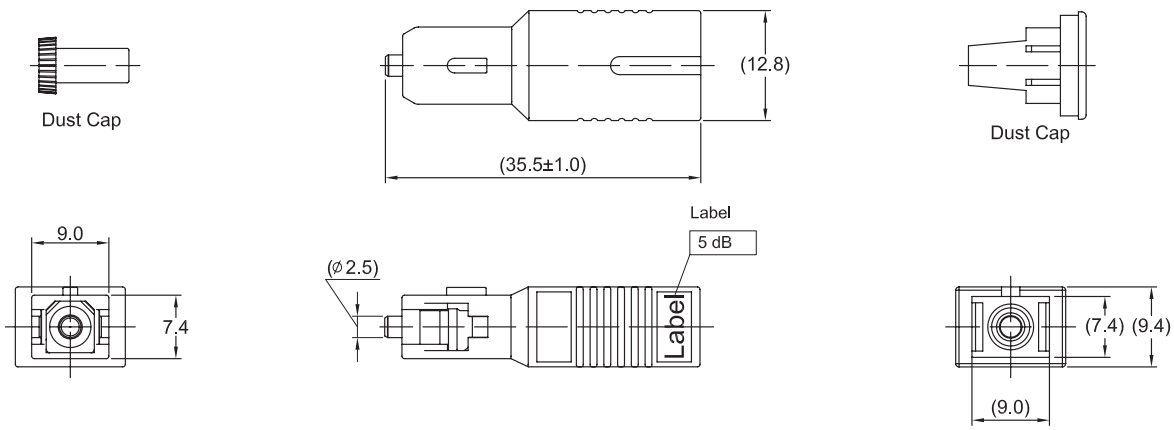
3

Size
P = Premium
S = Standard

NOTES
(1) The Optec's standard stock items are 1/5/10/15/20dB. Please contact our sales team for MOQ if other dB types are required

Product Illustration & Example

EXAMPLE **Ordering Code:** **ANP**-2-05-S
Item Description: Plug Type Attenuator SC/UPC 5dB, Standard Grade



FIBER OPTIC COMPONENT

TERMINATORS

Optec's terminators are high performance optical devices for covering unused connector ports in fiber optic systems. It prevents back reflection along the transmission path in optical networks by allowing light to pass in only one direction.

We offer a plug type proprietary design with different connectors interfaces including FC, SC, LC in singlemode UPC or APC polishing. It can be used in fiber optic amplifiers, high speed data networks, DWDM upgrade, and network system receiver open ports.

Features And Applications

Available in UPC or APC polishing for terminators
High optical performance with ceramic ferrules available in singlemode UPC or APC polishing

Stringent factory control in production processes
High durability with stable optical performance

Compatible to most connector types
Available in FC, SC, LC connector interfaces in plug type proprietary design

Manufacturing in high reliable technique
Telcordia compliant for end face geometry with customized optical performance

Specifications

Size Type	Standard Grade	Premium Grade
Return Loss	≥ 50dB (UPC) ≥ 55dB (APC)	≥ 55dB (UPC) ≥ 60dB (APC)
Operating Temperature	-40°C to 75°C	

Terminators

Ordering Information

TRM 1 2 3

1

Connector Type
1 = FC
2 = SC
3 = ST
4 = LC
5 = MU

2

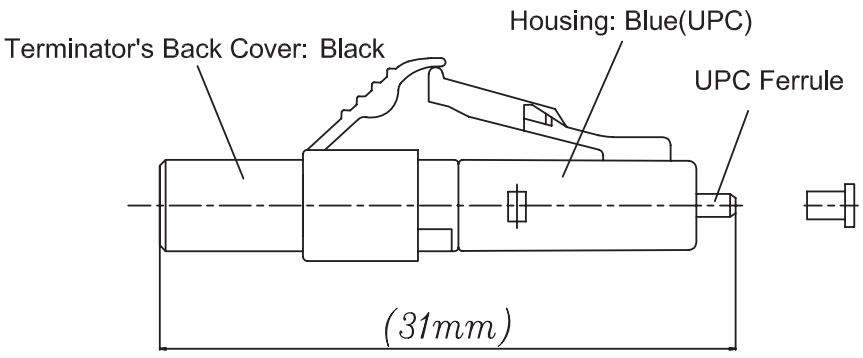
Polish
A = APC 8-degree
U = UPC (for SM)

3

Quality Grade
P = Premium
S = Standard

Product Illustration & Example

EXAMPLE **Ordering Code:** **TRM**-4-U-P
Item Description: LC/UPC Terminator, Premium Grade



FIBER OPTIC COMPONENT

ADAPTERS

The high precision sleeve in adapters enable reliable ferrule mating to maintain plug retention strength. It ensures low insertion and return loss for best alignment performance.

Optec's adapters are available in a variety of different connector interfaces including FC, SC, ST, LC, MU, E2000, MTRJ, MPO, MTP, etc. Options are offered with a choice of zirconia or phosphor bronze sleeves, for both singlemode and multimode applications.

Features And Applications

Suitable for use with different applications
Ideal for use in CATV, Telecommunication Networks, Active Device Termination & Data Processing network

Manufacturing in reliable technique
Compact design and high performance compliant to Telcordia

High Flexibility for using in different industries
Provides for design flexibility in style, materials, simplex & duplex forms

Precision alignment ensure superior performance
High precision alignment for low insertion and return loss

FC Adapters

Ordering Information

APT FC 1 2

1

Style
1 = Square Flange Split Body
2 = Square Flange Solid Body
3 = Round D-Ring
4 = Round DD-Ring

2

Sleeve (for Fiber Mode)
Z = Zirconia (for SM/APC, SM/UPC)
P = Phosphor Bronze (for MM)

Product Illustration & Example

EXAMPLE **Ordering Code:** **APT-FC**-3-Z
Item Description: FC Round D-Ring Adapter with Zirconia Sleeve (for Singlemode application)

FC Square Flange Solid Body Adapter

FC Round D-Ring Adapter

FC Square Flange Split Body Adapter

SC Adapters

Ordering Information

APT SC [1] [2]

1

Style
1 = Simplex
2 = Simplex Flangeless
3 = Simplex with Shutter
4 = Duplex
5 = Duplex Flangeless

2

Color (for Fiber Mode)
1 = Green (for SM/APC)
2 = Blue (for SM/UPC)
3 = Beige (for MM)
4 = Aqua (for MM 10Gig)

Product Illustration & Example

EXAMPLE **Ordering Code:** **APT-SC**-4-3
Item Description: SC Duplex Adapter, Beige housing (for Multimode application)


SC Simplex Adapter


SC Simplex Flangeless Adapter


SC Simplex Adapter with Shutter


SC Duplex Adapter

ST Adapters

Ordering Information

APT ST [1] [2]

1

Style
1 = Simplex Metal Body
2 = Duplex Metal Body

2

Color (for Fiber Mode)
Zirconia (for all modes)

Product Illustration & Examples

EXAMPLE **Ordering Code:** **APT-ST-**1-Z
Item Description: ST Simplex Adapter, Metal body with Zirconia sleeve (suitable for any modes)


ST Simplex Adapter


ST Duplex Adapter

FIBER OPTIC COMPONENT

ADAPTERS

LC Adapters

Ordering Information

APT LC [1] [2]

1

Style
1 = Simplex
2 = Duplex Standard Footprint
3 = Duplex SC Footprint
4 = Quad (4-Fiber)

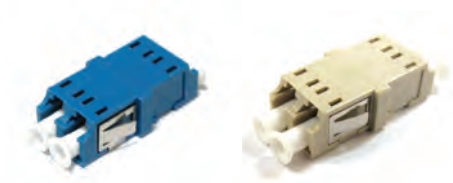
2

Color (for Fiber Mode)
1 = Green (for SM/APC)
2 = Blue (for SM/UPC)
3 = Beige (for MM)
4 = Aqua (for MM 10Gig)

Product Illustration & Example

EXAMPLE **Ordering Code:** **APT-LC**-3-3
Item Description: LC Duplex Adapter with SC Footprint, Beige housing (for Multimode application)

LC Simplex Adapter



LC Duplex SC Footprint Adapter

LC Quad Adapter

MU Adapters

Ordering Information

APT MU [1] [2]

1

Style
1 = Simplex
2 = Duplex

2

Sleeve (Mode)
Zirconia (for all modes)

Product Illustration & Example

EXAMPLE **Ordering Code:** **APT-MU**-1-Z
Item Description: MU Simplex Adapter, with Zirconia Sleeve (suitable for any modes)

MU Simplex Adapter

MU Duplex Adapter

E2000 Adapters

Ordering Information

1

APT E2 ☐☐

1

Style

Simplex with Flange
01 = Green/Green (for SM/APC)
02 = Blue/Blue (for SM/UPC)
03 = Black/Black with PB sleeve (for MM)
04 = Beige/Turquoise (for MM 10Gig)

Duplex Snap-in Type
05 = Green/White (for SM/APC)
06 = Blue/Blue (for SM/UPC)
07 = Black/Black with PB sleeve (for MM)
08 = Beige/Turquoise (for MM 10Gig)

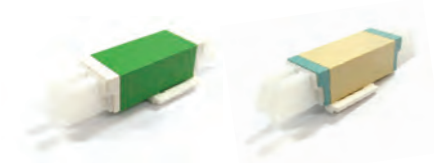
Duplex with Support Plate
09 = Green/White (for SM/APC)
10 = Blue/Blue (for SM/UPC)
11 = Black/Black with PB sleeve (for MM)
12 = Beige/Turquoise (for MM 10Gig)

Product Illustration & Example

EXAMPLE **Ordering Code:** **APT-E2**-01
Item Description: E2000/APC Simplex Adapter, Green housing with Flange (for Singlemode APC application)

E2000 Simplex with Flange Type

E2000 Duplex Snap-in Type



E2000 Duplex Support Plate Type

HYBRID Adapters

Ordering Information

APT HY 1 2

1

Style

Metal body
1 = FC to SC
2 = FC to ST
3 = SC to ST
4 = LC to SC

Plastic body
5 = FC to SC
6 = FC to ST
7 = SC to ST

see remark-1 for colors of plastic hybrid adapters

2

Mode

1 = SM/APC
2 = SM/UPC
3 = MM

Product Illustration & Example

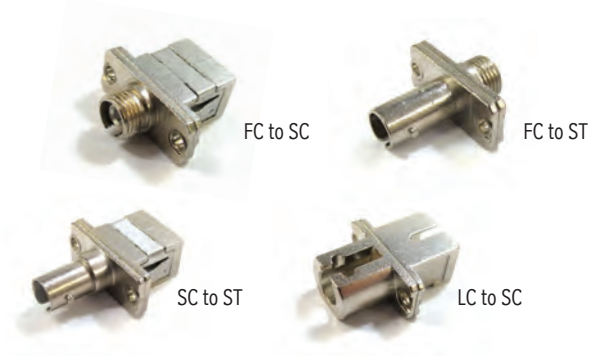
EXAMPLE **Ordering Code:** **APT-HY**-4-2

Item Description: Hybrid Adapter LC to SC (Metal body), for Singlemode UPC application

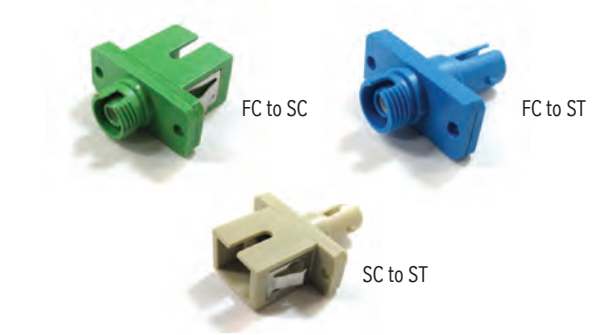
REMARK 1:

Regardless of interface, all plastic body hybrid adapters are having housing colors as below:

Fiber Mode	Plastic Body
Singlemode APC	Green
Singlemode	Blue
Multimode	Beige



Hybrid Adapter Metal Body



Hybrid Adapter Plastic Body

MPO/MTP® Adapters

Ordering Information

APT MA 1 2 3 4 5 6

1
Adapter Type
P = MPO
T = MTP

2
Footprint
1 = Standard Footprint
2 = SC Footprint

3
Flange Type
F = Full Flange
R = Reduced Flange (Without Flange)

4
Key Position
A = Key-up to Key-up (Aligned)
B = Key-up to Key-down (Opposed)
See Illustration below

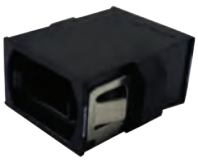
5
Color
1 = Black
2 = Gray
3 = Aqua
4 = Violet
5 = Others (please specified)

6
Dust Cap
1 = One End (1pc)
2 = Both Ends (total 2pcs)

Product Illustration & Example

EXAMPLE **Ordering Code:** **APT**-MA-P-1-F-A-1-1
Item Description: MTP® Adapter, Standard Footprint, Full Flange, Key-up to Key-up (Aligned), Black, One Dust Cap

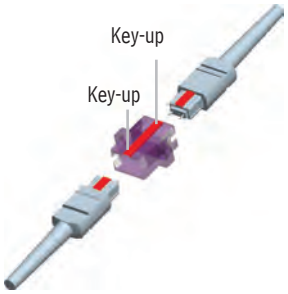
MPO/MTP® Adapter with Flange



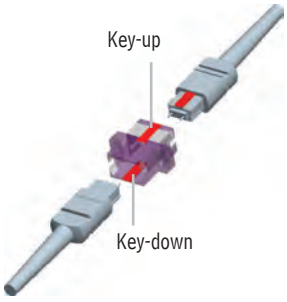
MPO/MTP® Adapter without Flange

Illustration of Key Position

Key-up to Key-up
(Aligned)



Key-up to Key-down
(Opposed)



FIBER OPTIC COMPONENTS

IBC™ BRAND CLEANERS

Optec offers easy-to-use fiber optic cleaning tools, IBC™ Brand Cleaners, to remove any particles found on the ferrules end-face.

The IBC™ Brand Cleaners from Usconec consists of MT and standard series, it removes particles by a simple push-motion on adapters (plugs and ports) and unmated cable assemblies.

Optec also provides refillable cassette type cleaners, OPTIPOP, NEOCLEAN and CLETOP from Usconec, for special connectors in different applications

Features And Applications

Simple pushing motion for cleaning debris and other contaminations
Base of cleaning process for installers, optical fiber technicians and troubleshooters

Easy to use in hard to reach areas
Adopts in Telecommunication, Data Center, CATV

Dry cleaning strand
Eliminates the need of solvents and support over 525 engagements for each unit.

Available for different types of cleaner corresponding to MT and standard series
Suitable for cleaning all fibers in APC and UPC with different genders

Available for refillable cassette type cleaners
Cost effective solutions with eliminating electrostatic charge

CUSTOMIZED PRECISION METAL PARTS

Our Parent Group, who has over 50 years of manufacturing excellence in providing precision metal components for the watch industry, strategically positions Optec to provide value-added precision metal parts for our customers in fiber optic industry.

Our high-precision metal parts can be used in a variety of fiber optic devices, to support specialized equipment. All tailor-made metal parts are made of macron level tolerance, pushing the ever evolving precision engineering frontier.

Features And Applications

High precision parts with tight tolerance in macron level
Overcomes the precision challenges in this ever evolving new precision engineering frontier

Advanced facility with world class equipment and set-up
State of art machine shop with multiple types and sizes of CNC turning and millings

Stringent quality control for high precision assurance
Includes roundness measuring, hardness testing, sub-micron dimension assurance, visual inspection, etc.

Customized parts and components for using with variety of optical devices that require high precision
All metal parts and components are tailor-made with macron level stringent tolerance

GLOSSARY

Term	Definition
Absorption	The absorbing of light energy and conversion to heat, caused by impurities in the glass
Acceptance Angle	The largest angle where the fiber core can accept incoming light, and usually measured from the fiber axis
Access Network	A component within a wider telecommunication network that connects individuals and business users
Adapter	A mechanical device used to align and join fiber optic connectors
Adapter Sleeve	A mechanical fixture contained in an adapter that aligns and holds the terminated fiber connectors; also known as a split sleeve
Aerial Plant	Cables that is suspended in the air on telephone and utility poles
Angled Physical Contact	A style of fiber optic ferrule polishing with a 5˚-15˚ angle on the ferrule tip for the purpose of minimizing backreflection
Angular Misalignment	The angle misalignment of fiber optic connectors, and causes attenuation
Aramid Yarn	A type of yarn inside a fiber optic cable that provides support, protection and tensile strength
Armor	A metallic protective layer inside a fiber optic cable that provides extra protection of the fiber
Armored Cable	A type of fiber optic cable that includes armor
Attenuation	The reduction of optical power between two points and normally expressed in decibels (dB)
Attenuation Coefficient	The attenuation with respect to a specific unit length, usually decibels per kilometer (db/km)
Attenuation Meter	A device used to measure attenuation in fiber optic cables, connectors, and systems
Attenuator	A passive device that reduces the amplitude of a light signal
Average Power	The average power signal over a period of time
Axis	The center of an optical fiber
Backbone	A main portion of a telecommunication network that connects relatively distant points or regions
Backbone Cabling	The cabling in inter- and intra-buildings that connects entrance facilities, equipment rooms and telecommunication closets
Backreflection	Light that is reflected and travels back to the origin source; also known as return loss
Backscattering	Scattering of light and heads in the direction of the original source
Bandwidth	The capacity of an optical fiber in terms of its ability to carry information, and measured in megahertz per kilometer (MHz-km) or gigahertz per kilometer (GHz-km)
Bend Radius	The maximum radius from bending a fiber without significant attenuation or breakage of the fiber
Bending Loss	The attenuation or loss in an optical fiber caused by bending
Bragg Scattering	Scattering of light that is caused by changes in the refractive index of a material
Breakout	Separation of individual fibers or buffer tubes in a fiber optic cable for the purpose of splicing or installing fiber optic connectors
Breakout Cable	A type of fiber optic cable that contains fibers with individual jackets and then all individual jackets surrounded by one common cable jacket
Buffer	The protective layer inside a fiber optic cable that surrounds the fiber cladding that provides protection and mechanical isolation; also known as buffer tubes, buffer coating or coating
Bundle	A group of individual fibers assembled in an unit
Cable	An assembly of optical fibers along with other materials for protecting the fiber, enclosed for protective covering

Term	Definition
Cable Assembly	The assembling of fiber optic connectors into fiber optic cables, either in the form of patch cords (connectors on both ends) or pigtails (connector on one end)
Central Member	The center component of a fiber optic cable that can serve as a strength member and therefore also known as central strength member
Channel	A communications path
Channel Spacing	The allocation of bandwidth to channels
Chromatic Dispersion	Dispersion caused by different wavelengths in the light signal travelling at different speeds, expressed in picoseconds per kilometer per nanometer, and the sum of material and waveguide dispersion
Cladding	A layer of glass surround the fiber core in a fiber optic cable, and together with the fiber core make up an optical waveguide
Cleave	A process in fiber optic cable assembly that separating an optical fiber by a controlled fracture of the glass, for the purpose of obtaining a fiber end that is flat, smooth, and perpendicular to the fiber axis
Cleaver	A precision tool that breaks the fiber to produce a flat end for polishing or splicing
Composite Cable	A cable consisting of both fiber and copper; also known as hybrid cable
Concentricity	The measurement of how centered the core is within the cladding
Conduit	Pipes or tubes where fiber optic cables can be pulled or housed
Connector	A mechanical device mounted on an end of a fiber optic cable for the purpose of attaching and decoupling the fiber to another source
Connectorization	The preparation of an end of a fiber and connector assembling; also referred as termination
Containerized Data Center	Data center that is housed in a shipping container, opposed to a building
Core	The center of the optical fiber that transmit light
Coupler	A device that combines light into one fiber or splits light into more than one fiber
Coupling	The transfer of light into or out of an optical fiber
Crimper	A tool that crimps a fiber optic connector to the fibers in the cable to provide additional mechanical strength
Critical Angle	The smallest angle of light ray with respect to the normal that can guide light path
Cross-connect	A facility enabling the termination of cables as well as their interconnection or cross-connection with other cabling or equipment. Also known as a distributor
Customer Premises	Telecommunications equipment located inside customer's premises
Cutoff Wavelength	The wavelength beyond which singlemode fiber only supports one mode of propagation
Decibel (dB)	A measuring unit used to measure optical power
Dielectric	A material such as fiber that is non-metallic and non-conductive
Dispersion	The spreading of light pulses as it travels along the fiber
Dispersion Compensation	The reduction of dispersion in a fiber
Ducting	A conduit for placing and protecting fiber optic cables

Term	Definition
Duplex Cable	A type of cable construction where two cables are attached to form one cable
Eccentricity	A measurement of the amount by which the core is not placed centrally in the cladding
Electromagnetic	The interference of signal transmission because of radiation; optical fibers are not susceptible to electromagnetic interferences
Enclosure	A cabinet for enclosing cable terminations and splices
End Finish	The quality of the end surface of a fiber that is needed for splicing or terminating a connector
Entrance Facility	The part in a building which serves as an entrance for network cables
Epoxy	A thermosetting resin used in fiber optic cable assemblies to secure the fiber with the connector ferrule
Equipment Room	The centralized room that houses telecommunications equipment in a building
ESCON	An IBM standard for connecting peripherals to a computer over fiber optics
Extrinsic Loss	Attenuation caused by an external source extrinsic to an optical transmission system
Fanout	A breakout style multifiber cable designed for ease of connectorization for intra or interbuilding requirements
Ferrule	The alignment tube that is attached to the ends of a fiber optic connector, and are generally made of zirconia, alumina, or plastic
Fiber	A thin filament of glass or plastic that consists of a core and a cladding
Fiber Optics	The use of fiber to guide light transmission for communications or lighting
Fiber Stripper	A tool that is used to remove the buffer coating of a fiber optic cable
Fiber Tracer	An instrument that traces fiber connections and allows for visual checking of continuity
Frequency	The number of cycles per a unit of time, where 1 hertz equals I cycle per second
Fresnel Reflection	Light reflection that occurs from the surface when there is a sudden change in the refractive index as at the end of a fiber
Fusion Splice	A splicing technique that permanently joins the fiber ends by applying heat to fuse or melt the ends together, forming a continuous single fiber
Fusion Splicer	An instrument that performs fusion splice
Gigahertz (GHz)	A unit of frequency that equals one billion cycles per second
Graded Index Fiber	A fiber where the characteristics of the center of the fiber core has the highest refractive index, and decreases towards the cladding
Hertz (Hz)	A unit of frequency that equals one cycle per second
Horizontal Cabling	The portion of cabling that connect the floor distributor to the work area telecommunications outlets
Index Matching Fluid	A fluid with a refractive index close to glass for reducing reflections caused by refractive-index differences of materials
Index of Refraction	A measure of the speed of light and is a ratio of the speed of light in a material compared to its speed in free space; also referred as the refractive index
Injection Loss	Attenuation caused by the insertion of a component such as a fiber optic connector or splice; also known as insertion loss
Insertion Loss	Attenuation caused by the insertion of a component such as a fiber optic connector or splice; also known as injection loss

Term	Definition
Interbuilding Backbone	The backbone cabling between buildings
Intrabuilding Backbone	The backbone cabling within a building
Intrinsic Loss	Attenuation caused within the fiber
Jacket	The outer layer protective coating of a fiber optic cable
Jacket Stripper	A cutter for stripping cable jackets
Jumper	A fiber optic cable that is connectorized at both ends of the cables; also known as a patch cord
Kevlar	A trademark of aramid yarn used inside fiber optic cables for support, protection, and tensile strength
Keying	The mechanical feature of a connector system which guarantees correct orientation of a connection or prevents the connection to a jack or optical fiber adapter of the same type intended for another purpose
Lapping Film	Film that is used to polish the end of the connector ferrules; also referred as polishing paper or polishing film
Laser	An acronym for light amplification by stimulated emission of radiation, which is a device that products high-intensity, directional, monochromatic beam of light
Laser Diode	A laser made of semiconductor materials used to transmit light into optical fibers
Light Emitting Diode (LED)	A semiconductor device that produces light with a wide range of wavelengths in response to an electrical signal
Local Area Network (LAN)	A communications network in small physical areas, such as a building or a group of buildings
Loose Tube Cable	A fiber optic cable design where protective tubes surrounds optical fibers within the outer cable jacket
Loss Budget	A budget of the total losses (attenuation) acceptable in a fiber optic system
Low Smoke Zero	A cable jacket rating that has features of limited smoke and no halogens when exposed to heat
Macrobend	The bending of a fiber optic cable that could be visually seen by the human eye
Main Cross-connect (MC)	A cross-connect for fist level backbone cables, entrance cables, and equipment cables
Mechanical Splice	The joining of optical fibers via mechanical methods, rather than via fusion splicing
Megahertz (MHz)	A unit of frequency that equals one million cycles per second
Metropolitan Area	A communications network, larger than a LAN, may consists of several LANs and extend to the size of a metropolitan area
Micro	A prefix for a millionth
Microbend	The small, microscopic bend of a fiber optic cable caused during the manufacturing process
Micrometer (µm)	A unit of distance that equals one millionth of a meter; also referred as a micron
Micron (µm)	A unit of distance that equals one millionth of a meter; also referred as a micrometer
Microscope	A device used to inspect the end surface of a connector
Modal Dispersion	A type of dispersion in multimode fibers where light pulses spread along the length of a fiber
Mode	Light transmission paths in a fiber where the number of modes is determined by the numerical aperture and the core diameter; two broad types are singlemode and multimode
Mode Field Diameter (MFD)	The diameter of one mode of light in singlemode fiber
Monomode Fiber	A type of fiber that transmit light in one single mode, and has a smaller fiber core than multimode fiber; also referred as singlemode fiber

GLOSSARY

Term	Definition
Multi-Fiber Cable	A fiber optic cable that contains more than one fiber
Multimode Fiber (MMF)	A type of fiber that transmit lights with more than one mode, and has a bigger fiber core than singlemode fiber
Multiplexing	The transmission of different signals in a single fiber
Nanometer (nm)	A unit of one billionth of a meter
National Electrical Code (NEC)	A US standard for flammability of cable and wiring in buildings
Node	A connection point, either a redistribution point or an end point for data transmissions. In general, a node has programmed or engineered capability to recognize, process, and forward transmissions to other nodes.
Numerical Aperture (NA)	A measure that expresses the light gathering ability of a fiber
Optical Fiber	A thin filament of glass or plastic that consists of a core and a cladding
Optical Fiber Non-conductive	A cable jacket rating that is non-conductive and used in plenum applications; they have the highest fire retardant rating compared to OFNR and LSZH
Optical Fiber Non-conductive	A cable jacket rating that is suitable for use in riser applications and they are engineered to prevent fire from spreading from floor to floor within buildings
Optical Time Domain	An instrument that measures the transmission characteristics of optical fiber by sending a series of short pulses of light down the fiber and providing a graphic representation of the backscattered light
Outlets	The sockets provided in the work location of a structured cabling system
Overfilled Launch	A condition for launching light into the fiber where the incoming light has a spot size and numerical aperture larger than accepted by the fiber, filling all modes in the fiber
Passive Optical Network (PON)	A point-to-multipoint optical communications network
Patch Cord	A fiber optic cable that is connectorized at both ends of the cables; also known as a jumper
Patch Panel	A hardware that connects backbone cabling to an arrangement of connectors to form cross-connections and interconnections
Physical Contact (PC)	A style of fiber optic ferrule polishing where the fiber is polished to a smooth curve and the adjoining fibers comes into physical contact with no air gaps
Pigtail	A fiber optic cable that is connectorized at one end only
Plenum	The air handling space of a building, such as in raised floors or drop-ceiling tiles
Point-to-Point (P2P)	A direct communications connection between two specific locations
Polarization	The alignment of the perpendicular electrical and magnetic fields that make up a lightwave
Polyethylene (PE)	A plastic material found in the jackets of outside plant fiber optic cables
Polyvinyl-Chloride (PVC)	A plastic material found in the jackets of flame retardant fiber optic cables, ideally deployed in indoor applications
Polyvinyldifluoride (PVDF)	A material found in the jacket of optical fiber non-conductive plenum (OFNP) cables
Preform	A large diameter glass rod where the fiber is constructed
Raceway	Any distribution method designed for holding cables (i.e. conduit, metal or plastic trunking, cable trays, etc.)
Rayleigh Scatter	The scattering of light by particles smaller than the wavelength of the light

Term	Definition
Refractive Index	A measure of the speed of light and is a ratio of the speed of light in a material compared to its speed in free space; also referred as the index of refraction
Repeater	A device used to regenerate an optical signal to prevent attenuation and used in long-distance fiber optic links
Return Loss	Light that is reflected and travels back to the origin source; also known as backreflection
Riser	The cable paths between floors in a building
Scattering	A glass property that causes light to deflect from the fiber and contribute to intrinsic attenuation
Server	A computer in a network that provides different services to client computers in the same network
Simplex cable	A type of cable construction that consists of a single fiber core
Signal to Noise Ratio	The ratio of signal level to background noise, measured in decibels
Singlemode Fiber (SMF)	A type of fiber that transmit light in one single mode, and has a smaller fiber core than multimode fiber; also referred as monomode fiber
Splice	A method of joining two optical fiber ends
Splice Closure	A closure container used to hold and protect splice trays
Splice Trays	A hardware container used to manage, hold and protect spliced fibers
Split Sleeve	A mechanical fixture contained in an adapter that aligns and holds the terminated fiber connectors; also known as an adapter sleeve
Splitter	A device that takes signal from one fiber and splits it into several other fibers
Step Index Fiber	A fiber with a refractive index that changes abruptly between the core and the cladding
Strength Member	Part of a fiber optic cable that provides extra protection and tensile strength, and may consist of steel strands and aramid yarn
Storage Area Network (SAN)	A high speed network or subnetwork of shared storage devices
Telecommunications Closet	A closet for housing telecommunications equipment, cables and cross-connects
Termination	The preparation of an end of a fiber and connector assembling; also referred as connectorization
Tight Buffered Cable	A type of fiber optic cable where each fiber is tightly buffered by a 900-micron coating for easy handling and connectorization
Topology	The layout of a communications network
Total Internal Reflection (TIR)	Reflection of light as it travels and approaches materials of different refractive indices at an angle greater than the critical angle
Transmitter	A device that acts as both a receiver and transceiver
Trunk cable	Any fiber optic cable that is capable of supporting multiple users or devices from one point to another
Tunable Laser	A laser that can change its frequency over a given range
Waveguide Dispersion	Dispersion caused by light travelling at different speeds in singlemode fibers
Wavelength	The distance an electromagnetic wave travels during the time it takes to oscillate through one complete cycle, and measured in nanometers (nm)
Wide Area Network (WAN)	A large communications network similar to a smaller local area network (LAN)
Zero-Dispersion Wavelength	Wavelength with minimum chromatic dispersion of a singlemode optical fiber

In addition to the products offered in this catalogue, we also provide customized fiber cable assemblies for our customers, please contact our technical support or sales team for further details

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