



HIGH DENSITY FIBER OPTIC CABLING SYSTEM

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DATA CENTER INTRODUCTION

Data center is particular global collaboration network unit for the Internet infrastructure transmission, acceleration, display, computing, data storage. Currently the data center room cabling system consists of two parts, SAN network cabling systems and high density network cabling system.

MAXWLLON high-density data center cabling products have the following features: Plug and play, high-density, scalable, pre-terminated fiber optic system solutions, modular systems management and pre-terminated components that can reduce installation time, data center easy for deploy, migration and upgrade.

Features

- Respond quickly to any network migration and upgrade. centralized or star cabling structure, the patch panel is flexible for routing
- Space-saving wiring and installation time: high-density, small-diameter cable, pre-terminated, save 50% space, 80% installation time
- Support future network applications: 40G, 100G access capability, easy upgrade late

MPO OR MTP

MTP (Mechanical Transfer Push-on) connector structure is an improved version of MPO (Multi-fiber push-on) connector. The MTP connector has elliptical guide pins of noncorrosive steel for accurate location of fibers of the two communicating connectors and reduction of wear. Also the MTP-ferrule has a floating structure that provides integrity of physical contact of the connectors under load.

Difference between MPO Connector and MTP Connector

From the outside there is very little noticeable difference between MPO and MTP connectors. In fact, they are completely compatible and inter-mateable. For example, an MTP trunk cable can plug into an MPO outlet and vice versa.

The main difference is in relation to its optical and mechanical performance. MTP is a registered trademark and design of US Conneq, and provides some advantages over a generic MPO connector. Since MPO / MTP optic fiber alignment is critical to ensure a precise connection there are some benefits in utilizing the MTP connector. The MTP connector is a high performance MPO connector with multiple engineered product enhancements to improve optical and mechanical performance when compared to generic MPO connectors.

The MTP optic fiber connector has floating internal ferrule which allows two mated ferrules to maintain contact while under load. In addition, The MTP connector spring design maximizes ribbon clearance for twelve fiber and multifiber ribbon applications to prevent fiber damage.

Overall it provides a more reliable and precise connection. In addition, it is also important when specifying an MPO/MTP system to ensure the correct polarity options and which cables and outlets have female or male pins.

OM3 OR OM4

Compared with OM3, the OM4 fiber with longer transmission distance, for example, for 40/100 Gbit Ethernet, maximum channel length using OM3 is 100m, and using OM4 is 150 meters.

Fiber Type		OM3	OM4
Wavelengths (nm)		850	850
Core Diameter (um)		50/125	50/125
Attenuation (dB/km)		3.5	3.5
Min. OFL Bandwidth (MHz·km)		1500	3500
Min. Effective Modal Bandwidth (MHz·km)		2000	4700
Max. Transmission Distance (m)	1G	1000	1000
	10G	300	550
	40/100G	100	150

OM5

OM5, also named as wideband multimode fiber (WBMMF). It is a 50/125-micron laser-optimized fiber that is optimized for enhanced performance for single-wavelength or multi-wavelength transmission systems with wavelengths in the vicinity of 850nm to 950nm. The actual operating band is from 850 to 953nm. The effective modal bandwidth for this new fiber is specified at the lower and upper wavelengths: 4700 MHz.km at 850nm and 2470 MHz.km at 953nm.”

Fiber Type		OM5
Core Diameter (um)		50/125
Attenuation (dB/km)		2.3
Min. OFL Bandwidth (MHz·km)	850nm	3500
	983nm	1850
	1300nm	500
Min. Effective Modal Bandwidth (MHz·km)	850nm	4700
	983nm	2470
Max. Transmission Distance (m)	1G	1100
	10G	600
	40/100G	200

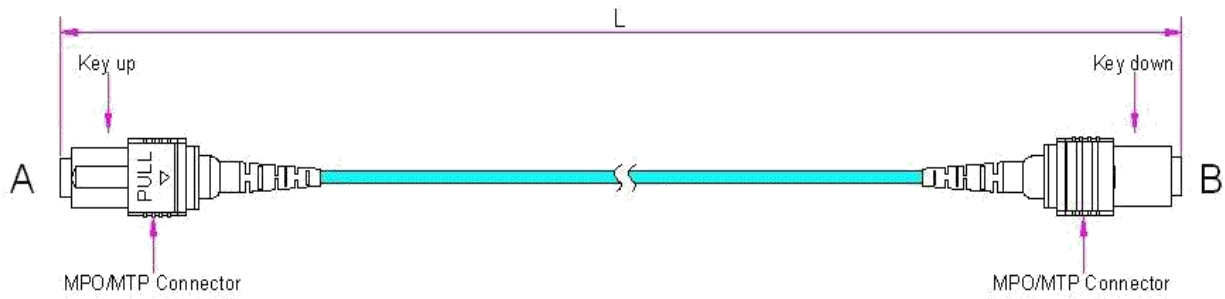
Lime green is the official OM5 jacket color

POLARITY INTRODUCTION

Polarity ensures the MPO or MTP connectors and adaptors that are able to plug correctly, based on TIA-568-C, there are three types of polarity method, Type A, type B and Type C, the following explanation and figure help operators understanding polarity better.

- **Straight (Type A):** Method A uses straight through-connected Type A backbones (pin1 to pin1) and MPO adapters of Type A (key-up to key-down). An uncrossed patch cord (A-to-B) is used at one end of the link, while a crossed patch cord (A-to-A) is used at the other end. The pairwise polarity inversion therefore occurs on the patch side. Note that only one A-to-A patch cord per link may be used.

MPO/MTP to MPO/MTP Patch Cord



A		B
Pin No.	Fiber colour	Pin No.
1	BLUE	1
2	ORANGE	2
3	GREEN	3
4	BROWN	4
5	GREY	5
6	WHITE	6
7	RED	7
8	BLACK	8
9	YELLOW	9
10	PURPLE	10
11	PINK	11
12	AQUA	12

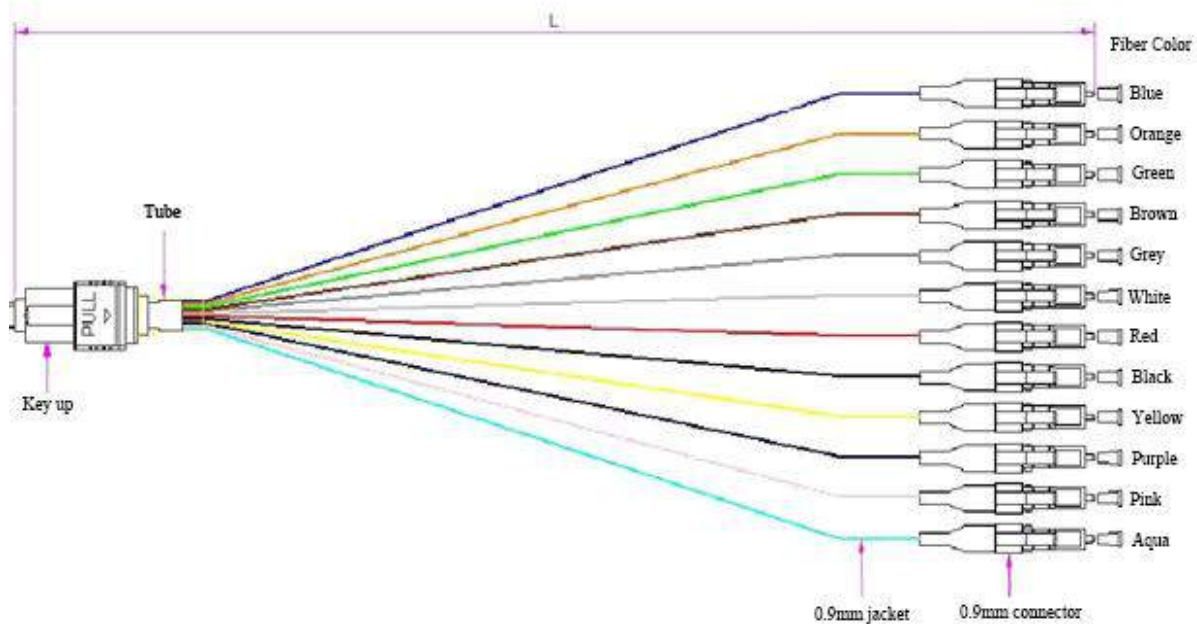
12-core

A		B
Pin No.	Fiber colour	Pin No.
1	BLUE	13
2	ORANGE	14
3	GREEN	15
4	BROWN	16
5	GREY	17
6	WHITE	18
7	RED	19
8	BLACK	20
9	YELLOW	21
10	PURPLE	22
11	PINK	23
12	AQUA	24

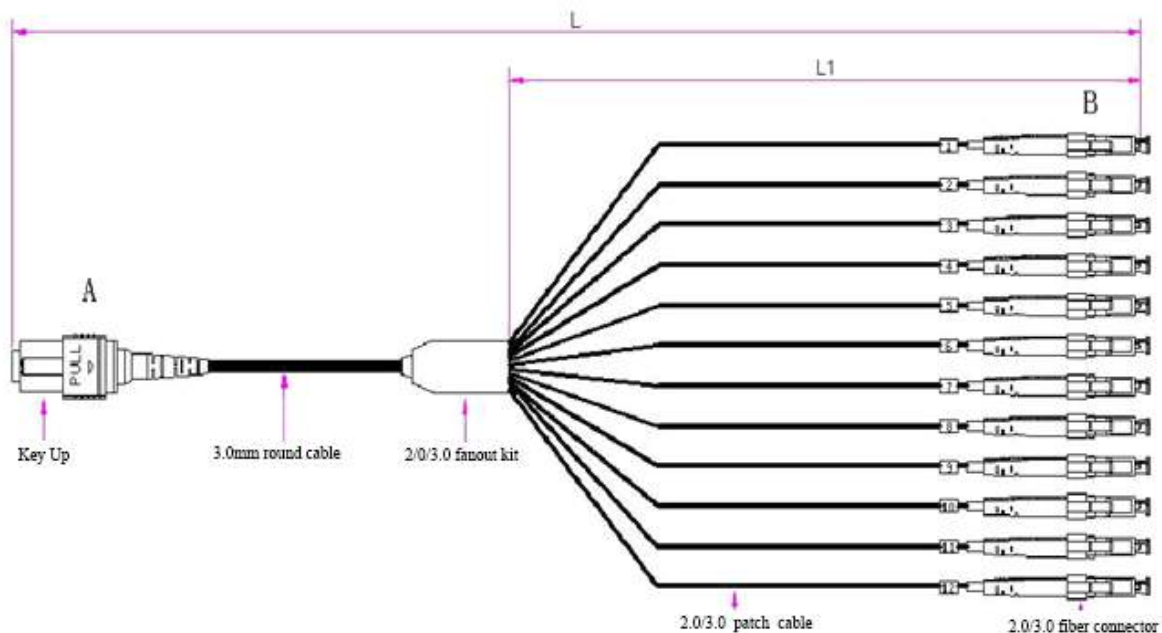
24-core

A		B
Pin No.	Fiber colour	Pin No.
13	BLUE	1
14	ORANGE	2
15	GREEN	3
16	BROWN	4
17	GREY	5
18	WHITE	6
19	RED	7
20	BLACK	8
21	YELLOW	9
22	PURPLE	10
23	PINK	11
24	AQUA	12

MPO/MTP-LC 12-core, MPO/MTP Hydra cable, 0.9mm cable (standard: type A)

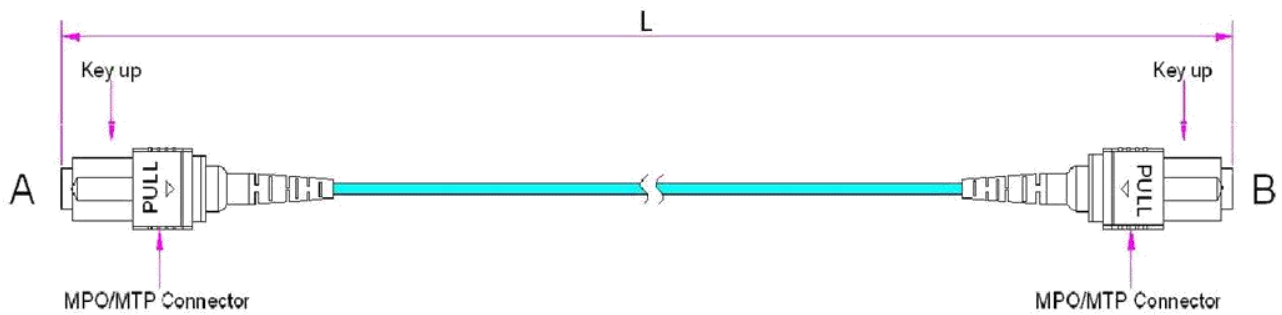


MPO/MTP-LC 12 core Harness cable, branch 2.0/3.0mm cable, straight (Standard: type A)



➤ **Full Crossed (Type B):** Method B uses crossed Type B backbones (pin1 to pin12) and MPO adapters of Type B (key-up to key-up). However, as the Type B adapters are used differently on both sides (key-up to key-up, key-down to key-down), a higher level of planning is required. An uncrossed patch cord (A-to-B) is used at both ends of the link.

Method B is not widespread, due to the higher amount of planning required and also because the method does not allow for use of single-mode MPO connectors. In addition, R&M does not support this method (or rather, only upon specific customer request).



A		B
Pin No.	Fiber colour	Pin No.
1	BLUE	12
2	ORANGE	11
3	GREEN	10
4	BROWN	9
5	GREY	8
6	WHITE	7
7	RED	6
8	BLACK	5
9	YELLOW	4
10	PURPLE	3
11	PINK	2
12	AQUA	1

12-core

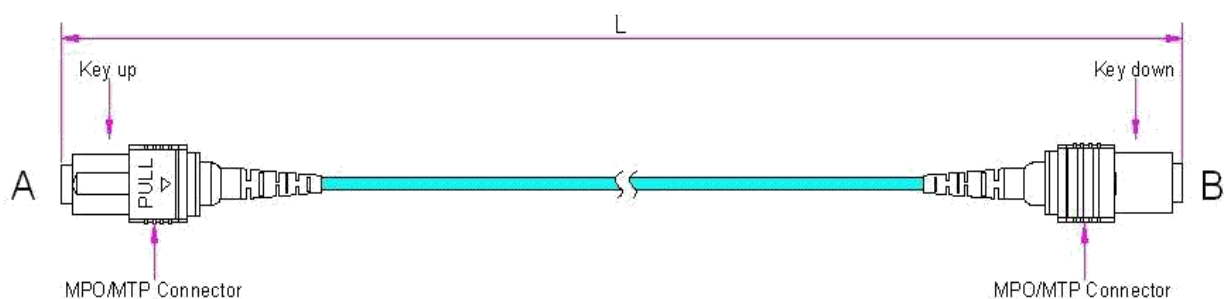
A		B
Pin No.	Fiber colour	Pin No.
1	BLUE	12
2	ORANGE	11
3	GREEN	10
4	BROWN	9
5	GREY	8
6	WHITE	7
7	RED	6
8	BLACK	5
9	YELLOW	4
10	PURPLE	3
11	PINK	2
12	AQUA	1

24-core

A		B
Pin No.	Fiber colour	Pin No.
13	BLUE	24
14	ORANGE	23
15	GREEN	22
16	BROWN	21
17	GREY	20
18	WHITE	19
19	RED	18
20	BLACK	17
21	YELLOW	16
22	PURPLE	15
23	PINK	14
24	AQUA	13

- **Pairwise Crossed (Type C):** Method C uses pairwise crossed Type C backbones and MPO adapters of Type A (key-up to key-down). An uncrossed patch cord (A-to-B) is used at both ends of the link. The pairwise polarity inversion therefore occurs in the backbone, which involves an increased level of planning in the case of linked backbones. An A-to-A patch cord is required when the number of linked backbones is even.

Method C is not very widespread, due to the increased planning effort required and also because the method does not provide for a migration path to 40/100GBE. R&M does not support method C (or rather, only upon specific customer request).



A		B
Pin No.	Fiber colour	Pin No.
1	BLUE	2
2	ORANGE	1
3	GREEN	4
4	BROWN	3
5	GREY	6
6	WHITE	5
7	RED	8
8	BLACK	7
9	YELLOW	10
10	PURPLE	9
11	PINK	12
12	AQUA	11

12-core

A		B
Pin No.	Fiber colour	Pin No.
1	BLUE	14
2	ORANGE	13
3	GREEN	16
4	BROWN	15
5	GREY	18
6	WHITE	17
7	RED	20
8	BLACK	19
9	YELLOW	22
10	PURPLE	21
11	PINK	24
12	AQUA	23

24-core

A		B
Pin No.	Fiber colour	Pin No.
13	BLUE	2
14	ORANGE	1
15	GREEN	4
16	BROWN	3
17	GREY	6
18	WHITE	5
19	RED	8
20	BLACK	7
21	YELLOW	10
22	PURPLE	9
23	PINK	12
24	AQUA	11

MTP/MPO TRUNK CABLE ASSEMBLIES

MTP/MPO Trunk cable is good for fast data center or fiber infrastructure implementation. It is used to bridging among MTP/MPO cassette or fan out fiber patch cable among MDA, HAD and EDA. The high efficient plug and play patch cable structure remarkably reduced the initial installation and daily maintenance cost. Tarluz MTP/MPO trunk cable adopts selected fiber cable and MTP/MPO components, with low insertion loss, high return loss, fully meet the requirement of high speed data network.



Features

- Choice of either both ends with pins (Male) or both ends without pins (female)
- Round & mini-core cable structure to eliminate bend sensitivity and save space
- PVC, LSZH, OFNR, OFNP cable jacket available
- Fiber counts available in 12, 24, 36, 48, 72, 96, 144 fibers
- Available in single mode G 652D and G 657, or multimode OM2, OM3, OM4
- Optional pulling hook design to fit for different installation environment
- All patch cable are 100% tested, test report supplied with each cable assembly
- Tests including Interferometer, Insertion Loss, Return Loss and Visual Final Inspection; all measured values are electronically archived

Standards Compliance

- TIA/EIA-568-C
- IEC-61754-7
- NFPA 262 (OFNP) or IEC 60332 (LSZH)
- IEC-60793
- GR-1435-CORE

Applications:

- Backbone installation
- Optical switching interface connections
- High fiber density card edge access
- Array trunk cables
- Datacenter cabling

Connector Specifications

MTP/MPO Connector		
Fiber Mode	Single Mode	Multimode
Insertion Loss (dB)	≤0.70 (Standard) ≤0.35 (Elite)	≤0.70 (Standard) ≤0.35 (Elite)
Return Loss (dB)	≥60	≥20
Durability (dB)	≤0.2 (500 times mating)	
Tensile Strength (kgf)	10	
Working Temperature (°C)	-20 ~ +70	

MTP/MPO Connector Geometry Parameters

Item	X-axis		Y-axis	
	Min	Max	Min	Max
Radius of Curvature (mm)	500	-	50	-
Polishing Angle	0-0.2	0+0.2	8-0.2	8+0.2
Fiber Height (nm)	1000 ~ 3000			
Max Fiber Height Error (nm)	600			
Adjacent Fiber Height Error (nm)	-300 ~ +300			
Avg. Fiber Height Error (nm)	-300 ~ +300			
Central Concave (nm)	300			
Interferometer view of MTP Connector	<p>The image shows an interferometer view of an MTP connector. It includes a top-down view of the fiber array, a 3D surface plot, and a data table. The data table shows parameters such as Fiber Height, Core Dia, and Roughness, with values ranging from 1000 to 3000 nm for fiber height and 0.00 to 0.20 for core diameter. A 'PASS' status is indicated.</p>			

Fiber Specification

Fiber Type	Multimode				Single Mode	
	OM1	OM2	OM3	OM4	G.652	G.657
Core Diameter (um)	62.5/125	50/125	50/125	50/125	9/125	9/125
Wavelengths (nm)	850/1300	850/1300	850/1300	850/1300	1310/1550	1310/1550
Max. Attenuation (dB/km)	3.5/1.5	3.5/1.5	3.5/1.5	3.5/1.5	0.36/0.25	0.36/0.25
Min. OFL Bandwidth (MHz·km)	200/500	500/500	1500/500	3500/500	-	-
Min. Effective Modal Bandwidth (MHz·km)	-	500	2000	4700	-	-

The effective modal Bandwidth for multimode is for 850nm.

Trunk Cable Structure



Fiber Core: 12, 24, 48, 72, 96, 144

Cable Sheath Color:

- Yellow** – SM Fiber Cable (OS1\OS2)
- Orange** – MM Fiber Cable 62.5/125 (OM1), 50/125 (OM2)
- Aqua** –MM Fiber Cable 50/125 (OM3)
- Violet** –MM Fiber Cable 50/125 (OM4)

144 core trunk cable structure

Standard Cable Specifications

Fiber Count	Outer Diameter (mm)	Weight (kg/km)	Max. Tensile Force (N)		Min. Bending Radius (mm)	
			Short term	Long term	Short term	Long term
12	3.0 ± 0.15	8.0	150	80	20D	10D
24	4.2 ± 0.3	31	300	160	20D	10D
48	9.0 ± 0.5	79	600	200	20D	10D
72	11.2 ± 0.5	126	1000	300	20D	10D
96	13.5 ± 0.5	178	1000	300	20D	10D
144	17.5 ± 0.5	285	1000	300	20D	10D

Ordering Information

TL-AB-C-DE-F-G-H-I-J

A	B	C	D	E	F	G	H	I	J
Connector A	Guide Pin	IL Loss	Connector B	Guide Pin	Fiber Length	Fiber Type	Fiber Count	Jacket Type	Polarity
MPO/PC MPO/APC MTP/PC MTP/APC	M: with guide pin F: without guide pin	S: Standard Loss E: Low loss	MPO/PC MPO/APC MTP/PC MTP/APC	M: with guide pin F: without guide pin	001-999m	S2: G 652D S7: G 657A2 OM1: OM1 OM2: OM2 OM3: OM3 OM4: OM4 OM5: OM5	12 24 48 72 96 144	LSZH OFNR OFNP	A: TYPE A, 1-1, 2-2, 3-3, ... B: TYPE B, 1-12, 2-11, 3-10, ... C: TYPE C, 1-2, 2-1, 3-4, 4-3, ...

Example Part Number: TL-MTP/PCM-S-MTP/PCF-010-OM3-48-LSZH-B

Product description: MTP Trunk Cable, 4 x Standard MTP male connector to 4 x standard MTP female connector, 48 cores, OM3 fiber, LSZH jacket, cable length 10m, type B polarity.

MTP/MPO FIBER OPTIC PATCH CORD

MTP/MPO Fiber Optic Patch Cable consists of multi core fiber optic cable and corresponding 4/8/12/24 core high density MPO/MTP connector. The connector might be female or male with guide pin. The fiber support single mode and multimode, the single mode fiber including G652D / G657A1 / G657A2, the multimode fiber including OM1 / OM2 / OM3 / OM4 / OM5, or bending insensitive multimode cable.

MAXWELLON with strong MPO/MTP product design and manufacturing ability, we could provide products with tailed to customer requirement. All products we delivered with excellent performance and reliability.



Features

- Customized, high adaptability
- Optional different fiber cores and cable structure for different installation requirement
- PVC, LSZH, OFNR, OFNP cable jacket available
- Improved and simplified cabling, reduce cabling spacing
- All patch cable are 100% tested, test report supplied with each cable assembly
- Tests Interferometer, Insertion Loss, Return Loss and Visual Final Inspection; all measured values are electronically archived

Applications

- Data Center
- Fiber to the home
- High density fiber optic cable management
- 40Gb/s or 100Gb/s Applications

Standards Compliance

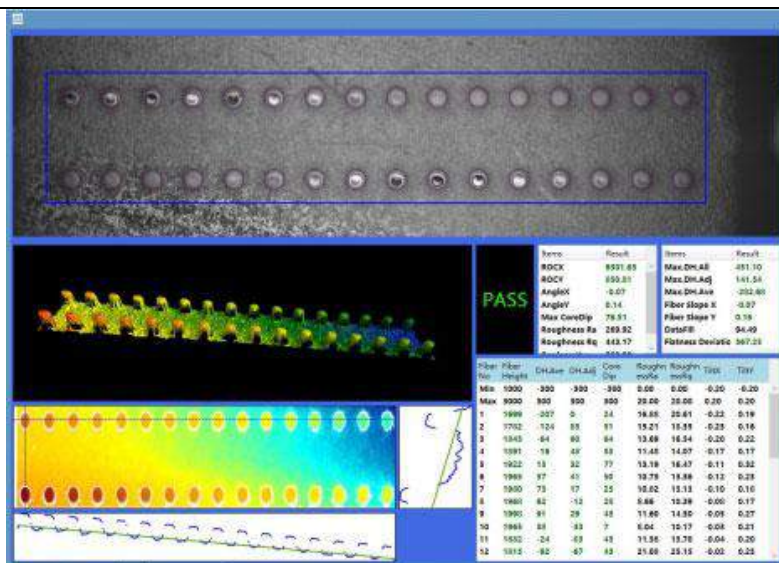
- TIA/EIA-568-C
- IEC-61754-7
- NFPA 262 (OFNP) or IEC 60332 (LSZH)
- IEC-60793
- GR-1435-CORE

Connector Specifications

MTP/MPO Connector		
Fiber Mode	Single Mode	Multimode
Insertion Loss (dB)	≤0.70 (Standard) ≤0.35 (Elite)	≤0.70 (Standard) ≤0.35 (Elite)
Return Loss (dB)	≥60	≥20
Durability (dB)	≤0.2 (500 times mating)	
Tensile Strength (kgf)	10	
Working Temperature (°C)	-20 ~ +70	

MTP/MPO Connector Geometry Parameters

Item	X-axis		Y-axis	
	Min	Max	Min	Max
Radius of Curvature (mm)	500	-	50	-
Polishing Angle	0-0.2	0+0.2	8-0.2	8+0.2
Fiber Height (nm)	1000 ~ 3000			
Max Fiber Height Error (nm)	600			

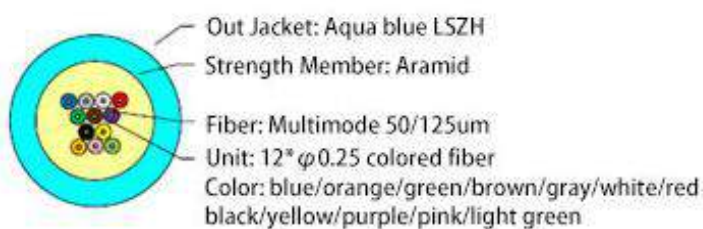
Adjacent Fiber Height Error (nm)	-300 ~ +300
Avg. Fiber Height Error (nm)	-300 ~ +300
Central Concave (nm)	300
Interferometer view of MTP Connector	 <p>The image shows an interferometer view of an MTP connector. It features a grid of fiber cores. A color-coded height map is overlaid on the cores, with a 'PASS' label indicating successful inspection. A data table on the right provides detailed measurements for each core, including parameters like Fiber No., Fiber Height, DH.Ave, DH.Std, Core Dia, Roughness, Roughness TMS, and TMS.</p>

Fiber Specification

Fiber Type	Multimode				Single Mode	
	OM1	OM2	OM3	OM4	G.652	G.657
Core Diameter (um)	62.5/125	50/125	50/125	50/125	9/125	9/125
Wavelengths (nm)	850/1300	850/1300	850/1300	850/1300	1310/1550	1310/1550
Max. Attenuation (dB/km)	3.5/1.5	3.5/1.5	3.5/1.5	3.5/1.5	0.36/0.25	0.36/0.25
Min. OFL Bandwidth (MHz·km)	200/500	500/500	1500/500	3500/500	-	-
Min. Effective Modal Bandwidth (MHz·km)	-	500	2000	4700	-	-

The effective modal Bandwidth for multimode is for 850nm.

Cable Structure



12-core trunk cable structure

Fiber Core: 12

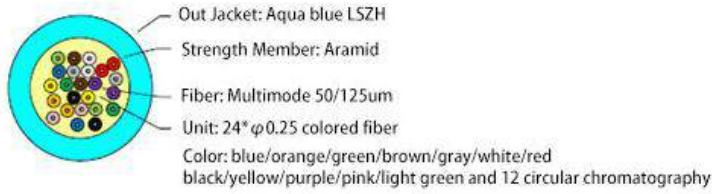
Cable Sheath Color:

Yellow – SM Fiber Cable (OS1\OS2)

Orange – MM Fiber Cable 62.5/125 (OM1), 50/125 (OM2)

Aqua –MM Fiber Cable 50/125 (OM3)

Violet –MM Fiber Cable 50/125 (OM4)



24-core trunk cable structure

Fiber Core: 24

Cable Sheath Color:

Yellow – SM Fiber Cable (OS1\OS2)

Orange – MM Fiber Cable 62.5/125 (OM1), 50/125 (OM2)

Aqua –MM Fiber Cable 50/125 (OM3)

Aqua –MM Cable 50/125 (OM4)

Standard Cable Specifications

Fiber Count	Outer Diameter (mm)	Weight (kg/km)	Max. Tensile Force (N)		Min. Bending Radius (mm)	
			Short term	Long term	Short term	Long term
12	3.0 ± 0.15	8.0	150	80	20D	10D
24	4.2 ± 0.3	31	300	160	20D	10D

Technical Drawing



Ordering Information

TL-AB-C-DE-F-G-H-I-J

A	B	C	D	E	F	G	H	I	J
Connector A	Guide Pin	IL Loss	Connector B	Guide Pin	Fiber Length	Fiber Type	Fiber Count	Jacket Type	Polarity
MPO/PC MPO/APC MTP/PC MTP/APC	M: with guide pin F: without guide pin	S: Standard Loss E: Low loss	MPO/PC MPO/APC MTP/PC MTP/APC	M: with guide pin F: without guide pin	001-999m	S2: G 652D S7: G 657A2 OM1: OM1 OM2: OM2 OM3: OM3 OM4: OM4 OM5: OM5	4 8 12 24	LSZH OFNR OFNP	A: TYPE A, 1-1, 2-2, 3-3, ... B: TYPE B, 1-12, 2-11, 3-10, ... C: TYPE C, 1-2, 2-1, 3-4, 4-3, ...

Example Part Number: TL-MTP/PCM-S-MTP/PCF-010-OM2-8-LSZH-A

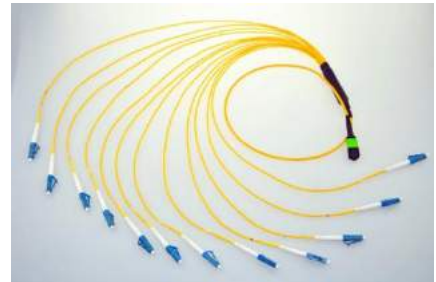
Product description: MTP patch cord, Standard MTP male connector to standard MTP female connector, 8 cores, OM2 fiber, LSZH jacket, cable length 10m, type A polarity.

MTP/MPO HARNESS CABLE

MAXWELLON MPO Fanout cable assemblies are with a single 12/24 core MPO connector in one end and LC/SC connectors for another end. Directly connecting the backbone cable with the equipment without MPO cassette, beside it, the cable is also used for cable expanding in the data center.

Features

- 12 to 144 core cable connection
- Adopts 4, 8, 12 or 24 core MPO connector. Reduce fault failure rate and save space
- Smoothly upgrade 10G network to 40G, 100G network, support 100G transmission latency requirement
- Optional multimode OM3, OM4, single mode G 652D, G 657A2 fiber requirement
- Adopts mini round type cable, small diameter, with smaller trunk cable and smaller bending radius, easy for storage and cable install
- Use dustproof, compressive strength, tensile strength protective sleeve at both ends, can effectively protect cables and fiber optic connectors in the transportation and installation process from damage

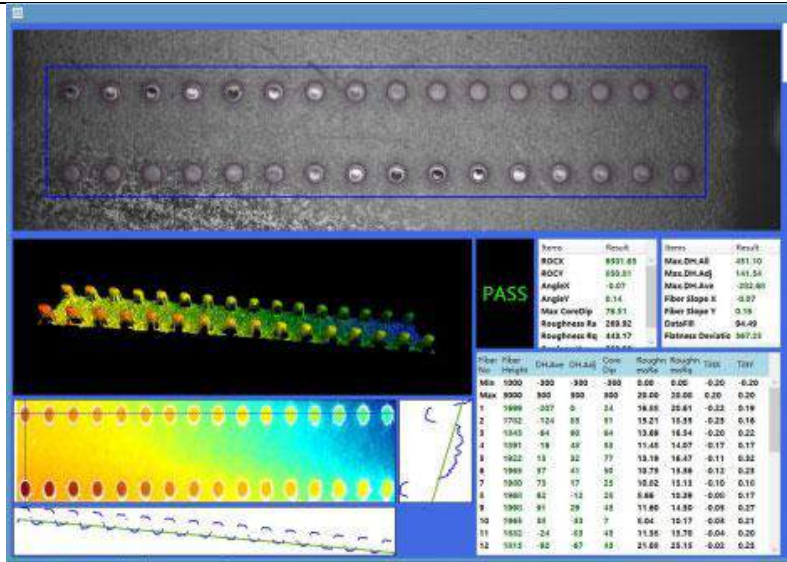


Specifications

MTP/MPO Connector		
Fiber Mode	Single Mode	Multimode
Insertion Loss (dB)	≤0.70 (Standard) ≤0.35 (Elite)	≤0.70 (Standard) ≤0.35 (Elite)
Return Loss (dB)	≥60	≥20
Durability (dB)	≤0.2 (500 times mating)	
Tensile Strength (kgf)	10	
Working Temperature (°C)	-20 ~ +70	
LC/SC/FC/ST/E2000 Connector		
Fiber Mode	Single Mode	Multimode
Insertion Loss (dB)	≤0.30	≤0.30
Return Loss (dB)	≥60	≥20
Durability (dB)	≤0.2 500 times mating	
Tensile Strength (kgf)	10	
Working Temperature (°C)	-20 ~ +70	

MTP/MPO Connector Geometry Parameters

Item	X-axis		Y-axis	
	Min	Max	Min	Max
Radius of Curvature (mm)	500	-	50	-

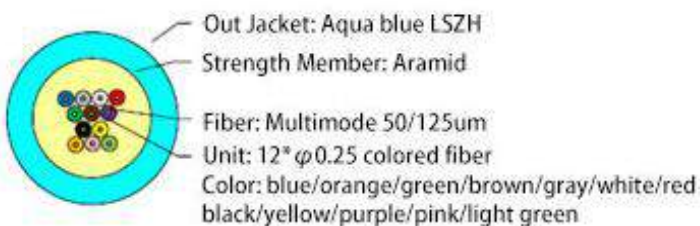
Polishing Angle	0-0.2	0+0.2	8-0.2	8+0.2
Fiber Height (nm)	1000 ~ 3000			
Max Fiber Height Error (nm)	600			
Adjacent Fiber Height Error (nm)	-300 ~ +300			
Avg. Fiber Height Error (nm)	-300 ~ +300			
Central Concave (nm)	300			
Interferometer view of MTP Connector				

Fiber Specification

Fiber Type	Multimode				Single Mode	
	OM1	OM2	OM3	OM4	G.652	G.657
Core Diameter (um)	62.5/125	50/125	50/125	50/125	9/125	9/125
Wavelengths (nm)	850/1300	850/1300	850/1300	850/1300	1310/1550	1310/1550
Max. Attenuation (dB/km)	3.5/1.5	3.5/1.5	3.5/1.5	3.5/1.5	0.36/0.25	0.36/0.25
Min. OFL Bandwidth (MHz·km)	200/500	500/500	1500/500	3500/500	-	-
Min. Effective Modal Bandwidth (MHz·km)	-	500	2000	4700	-	-

The effective modal Bandwidth for multimode is for 850nm.

Cable Structure



12-core trunk cable structure

Fiber Core: 12

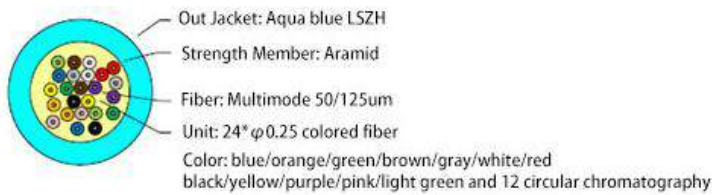
Cable Sheath Color:

Yellow – SM Fiber Cable (OS1\OS2)

Orange – MM Fiber Cable 62.5/125 (OM1), 50/125 (OM2)

Aqua –MM Fiber Cable 50/125 (OM3)

Violet –MM Fiber Cable 50/125 (OM4)



24-core trunk cable structure

Fiber Core: 24

Cable Sheath Color:

- Yellow** – SM Fiber Cable (OS1\OS2)
- Orange** – MM Fiber Cable 62.5/125 (OM1), 50/125 (OM2)
- Aqua** –MM Fiber Cable 50/125 (OM3)
- Mauve** –MM Cable 50/125 (OM4)

Standard Cable Specifications

Fiber Count	Outer Diameter (mm)	Weight (kg/km)	Max. Tensile Force (N)		Min. Bending Radius (mm)	
			Short term	Long term	Short term	Long term
12	3.0 ± 0.15	8.0	150	80	20D	10D
24	4.2 ± 0.3	31	300	160	20D	10D

Ordering Information
TL-AB-C-DE-F-G-H-I-J

A	B	C	D	E	F	G	H	I	J
Connector A	Guide Pin	IL Loss	Connector B	Fiber Length	Fanout Length	Fiber Type	Fiber Count	Jacket Type	Polarity
MPO/PC MPO/APC MTP/PC MTP/APC	M: with guide pin F: without guide pin	S: Standard Loss E: Low loss	LC SC FC LC/APC SC/APC FC/APC X: Customized	001-999m	2: 0.2m 5: 0.5m	S2: G 652D S7: G 657A2 OM1: OM1 OM2: OM2 OM3: OM3 OM4: OM4 OM5: OM5	8 12 24	LSZH OFNR OFNP	A: TYPE A, 1-1, 2-2, 3-3, ... B: TYPE B, 1-12, 2-11, 3-10, ... C: TYPE C, 1-2, 2-1, 3-4, 4-3, ...

Example Part Number: TL-MTP/PC-M-S-LC-010-5-OM3-12-LSZH-B

Product description: MTP patch cord, Standard MTP male connector to LC connector, cable length 10m, fanout lengths 0.5m, OM3 fiber, 12 cores, LSZH jacket, type B polarity.

MTP/MPO STAGGERED HARENESS CABLE

MAXWELLON MPO Staggered Fanout cable assemblies are with a single 12/24 core MPO connector in one end and LC/SC connectors for another end. The cable adopts mini round type cable, the fanout cable with every 2-fiber legs to enable connectivity to the switch ports which are staggered to replicate the specific switch ports to save on excess cable length.

Features

- 8, 12 or 24 core cable connection
- Smoothly upgrade 10G network to 40G, 100G network, support 100G transmission latency requirement
- Optional multimode OM3, OM4, OM5, single mode G 652D, G 657A2 fiber requirement
- Use dustproof, compressive strength, tensile strength protective sleeve at both ends, can effectively protect cables and fiber optic connectors in the transportation and installation process from damage

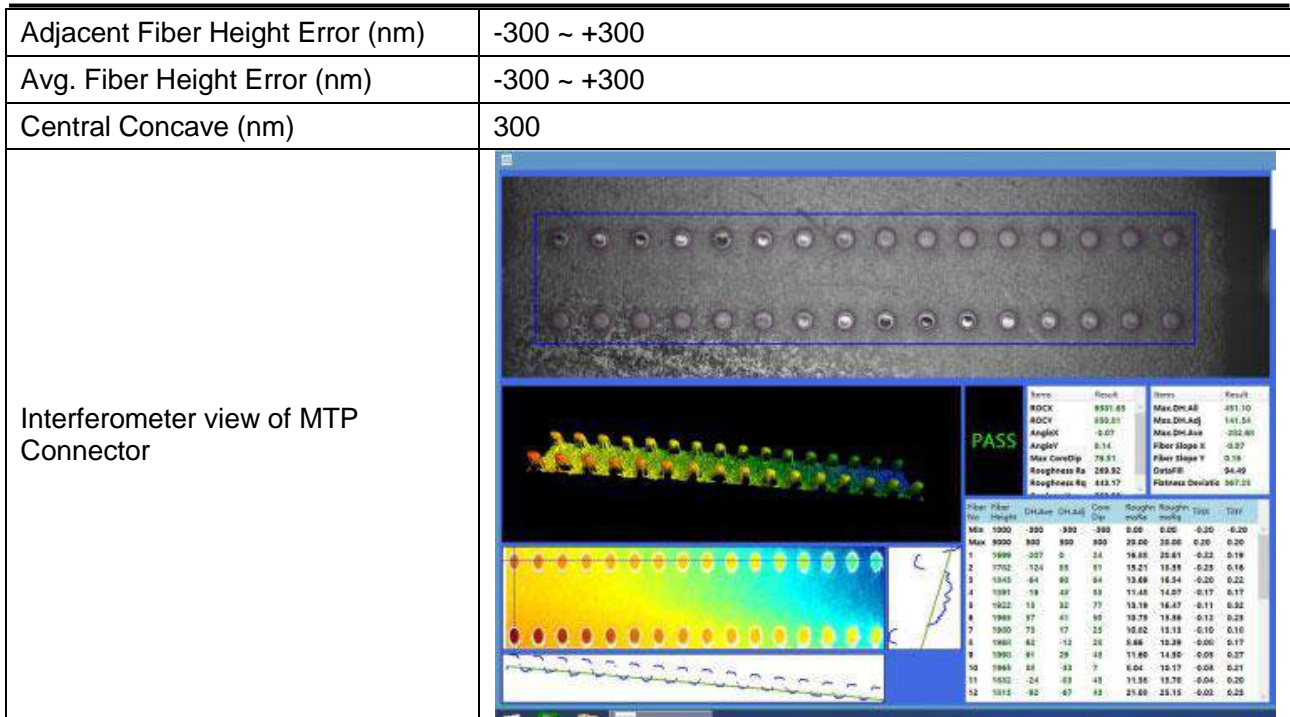


Specifications

MTP/MPO Connector		
Fiber Mode	Single Mode	Multimode
Insertion Loss (dB)	≤0.70 (Standard) ≤0.35 (Elite)	≤0.70 (Standard) ≤0.35 (Elite)
Return Loss (dB)	≥60	≥20
Durability (dB)	≤0.2 (500 times mating)	
Tensile Strength (kgf)	10	
Working Temperature (°C)	-20 ~ +70	
LC/SC/FC/ST/E2000 Connector		
Fiber Mode	Single Mode	Multimode
Insertion Loss (dB)	≤0.30	≤0.30
Return Loss (dB)	≥60	≥20
Durability (dB)	≤0.2 500 times mating	
Tensile Strength (kgf)	10	
Working Temperature (°C)	-20 ~ +70	

MTP/MPO Connector Geometry Parameters

Item	X-axis		Y-axis	
	Min	Max	Min	Max
Radius of Curvature (mm)	500	-	50	-
Polishing Angle	0-0.2	0+0.2	8-0.2	8+0.2
Fiber Height (nm)	1000 ~ 3000			
Max Fiber Height Error (nm)	600			

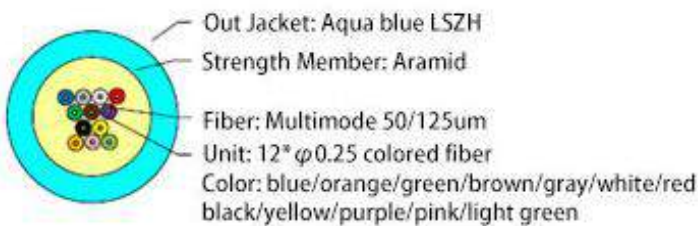


Fiber Specification

Fiber Type	Multimode				Single Mode	
	OM1	OM2	OM3	OM4	G.652	G.657
Core Diameter (um)	62.5/125	50/125	50/125	50/125	9/125	9/125
Wavelengths (nm)	850/1300	850/1300	850/1300	850/1300	1310/1550	1310/1550
Max. Attenuation (dB/km)	3.5/1.5	3.5/1.5	3.5/1.5	3.5/1.5	0.36/0.25	0.36/0.25
Min. OFL Bandwidth (MHz·km)	200/500	500/500	1500/500	3500/500	-	-
Min. Effective Modal Bandwidth (MHz·km)	-	500	2000	4700	-	-

The effective modal Bandwidth for multimode is for 850nm.

Cable Structure



12-core trunk cable structure

Fiber Core: 12

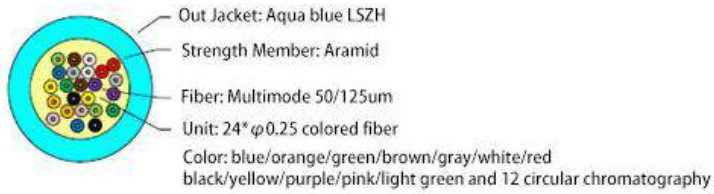
Cable Sheath Color:

Yellow – SM Fiber Cable (OS1\OS2)

Orange – MM Fiber Cable 62.5/125 (OM1), 50/125 (OM2)

Aqua –MM Fiber Cable 50/125 (OM3)

Violet –MM Fiber Cable 50/125 (OM4)



24-core trunk cable structure

Fiber Core: 24

Cable Sheath Color:

- Yellow** – SM Fiber Cable (OS1\OS2)
- Orange** – MM Fiber Cable 62.5/125 (OM1), 50/125 (OM2)
- Aqua** –MM Fiber Cable 50/125 (OM3)
- Mauve** –MM Cable 50/125 (OM4)

Standard Cable Specifications

Fiber Count	Outer Diameter (mm)	Weight (kg/km)	Max. Tensile Force (N)		Min. Bending Radius (mm)	
			Short term	Long term	Short term	Long term
12	3.0 ± 0.15	8.0	150	80	20D	10D
24	4.2 ± 0.3	31	300	160	20D	10D

Ordering Information
TL-AB-C-DE-F-G-H-I-J

A	B	C	D	E	F	G	H	I	J
Connector A	Guide Pin	IL Loss	Connector B	Fiber Length	Fanout Length	Fiber Type	Fiber Count	Jacket Type	Polarity
MPO/PC MPO/APC MTP/PC MTP/APC	M: with guide pin F: without guide pin	S: Standard Loss E: Low loss	LC SC FC LC/APC SC/APC FC/APC X: Customized	001-999m	2/3/4/5	S2: G 652D S7: G 657A2 OM1: OM1 OM2: OM2 OM3: OM3 OM4: OM4 OM5: OM5	8 12 24	LSZH OFNR OFNP	A: TYPE A, 1-1, 2-2, 3-3, ... B: TYPE B, 1-12, 2-11, 3-10, ... C: TYPE C, 1-2, 2-1, 3-4, 4-3, ...

Example Part Number: TL-MTP/PC-M-S-LC-010-5-OM3-12-LSZH-B

Product description: MTP patch cord, Standard MTP male connector to LC connector, cable length 10m, fanout lengths 0.2/0.3/0.4/0.5m, OM3 fiber, 12 cores, LSZH jacket, type B polarity.

40G - 10G HARNESS PATCH CORD

MPO - LC 8-core distribution patch cable is especially used for 40G QSFP+ optical transceiver and 10G SFP+ optical transceiver connection, the 8-core cable with 4 cores for Tx, and another 4 cores for Rx, the LC connectors are in pair for Tx and Rx, operators easily plug the connector sequentially to the cable system.

Features

- Fiber pre-assembled (AB/BA)
- Compact size, easy to manage
- Fixed LC Duplex, easy for Tx and Rx identification and installation
- Optional MPO or MTP

Applications

- High Density Fiber Optic Cabling System
- High Integrated device and components
- High precision communication equipment
- QSFP Component

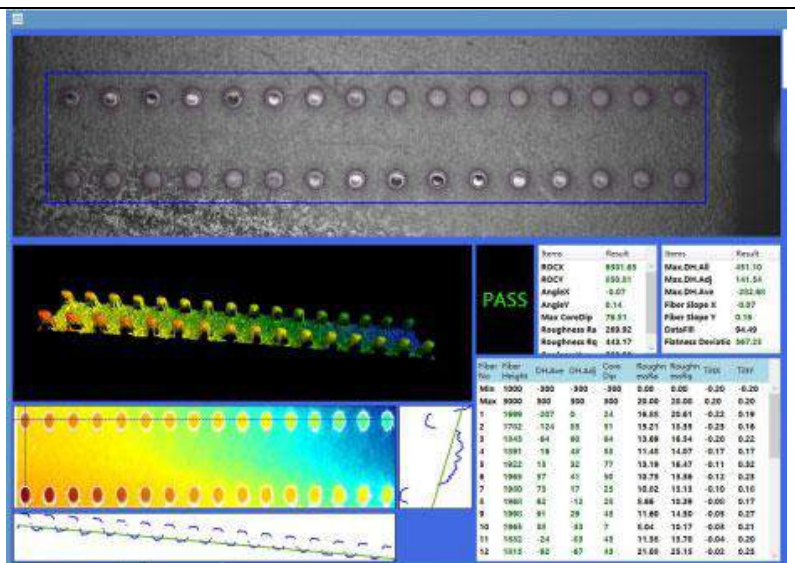


Specifications

MTP/MPO Connector		
Fiber Mode	Single Mode	Multimode
Insertion Loss (dB)	≤0.70 (Standard) ≤0.35 (Elite)	≤0.70 (Standard) ≤0.35 (Elite)
Return Loss (dB)	≥60	≥20
Durability (dB)	≤0.2 (500 times mating)	
Tensile Strength (kgf)	10	
Working Temperature (°C)	-20 ~ +70	
LC/SC/FC/ST/E2000 Connector		
Fiber Mode	Single Mode	Multimode
Insertion Loss (dB)	≤0.30	≤0.30
Return Loss (dB)	≥60	≥20
Durability (dB)	≤0.2 500 times mating	
Tensile Strength (kgf)	10	
Working Temperature (°C)	-20 ~ +70	

MTP/MPO Connector Geometry Parameters

Item	X-axis		Y-axis	
	Min	Max	Min	Max
Radius of Curvature (mm)	500	-	50	-
Polishing Angle	0-0.2	0+0.2	8-0.2	8+0.2
Fiber Height (nm)	1000 ~ 3000			
Max Fiber Height Error (nm)	600			

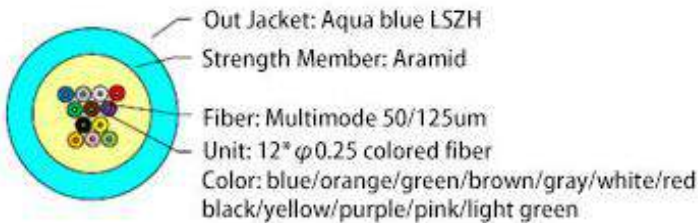
Adjacent Fiber Height Error (nm)	-300 ~ +300
Avg. Fiber Height Error (nm)	-300 ~ +300
Central Concave (nm)	300
Interferometer view of MTP Connector	 <p>The image shows an interferometer view of an MTP connector. It includes a top-down view of the fiber array, a 3D surface plot, and a data table. The data table shows 'PASS' for the overall test and various parameters like Max.DH.Avg, Max.DH.Avg, Fiber Slope X, Fiber Slope Y, and Flatness Deviation.</p>

Fiber Specification

Fiber Type	Multimode				Single Mode	
	OM1	OM2	OM3	OM4	G.652	G.657
Core Diameter (um)	62.5/125	50/125	50/125	50/125	9/125	9/125
Wavelengths (nm)	850/1300	850/1300	850/1300	850/1300	1310/1550	1310/1550
Max. Attenuation (dB/km)	3.5/1.5	3.5/1.5	3.5/1.5	3.5/1.5	0.36/0.25	0.36/0.25
Min. OFL Bandwidth (MHz·km)	200/500	500/500	1500/500	3500/500	-	-
Min. Effective Modal Bandwidth (MHz·km)	-	500	2000	4700	-	-

The effective modal Bandwidth for multimode is for 850nm.

Cable Structure



12-core trunk cable structure

Fiber Core: 12

Cable Sheath Color:

Yellow – SM Fiber Cable (OS1\OS2)

Orange – MM Fiber Cable 62.5/125 (OM1), 50/125 (OM2)

Aqua –MM Fiber Cable 50/125 (OM3)

Magenta –MM Fiber Cable 50/125 (OM4)

Standard Cable Specifications

Fiber Count	Outer Diameter (mm)	Weight (kg/km)	Max. Tensile Force (N)		Min. Bending Radius (mm)	
			Short term	Long term	Short term	Long term
12	3.0 ± 0.15	8.0	150	80	20D	10D

100G - 10G HARNESS PATCH CORD

The 24 fiber MPO to 20-LC Fan out cable assembly is mainly used for 100G CFP+ SR10 100G Module to 10G SFP+ Module connection, the MPO-LC patch cord with 10-Tx and 10-Rx channels, LC side could adopts single boot Duplex LC or dual boot duplex LC connector, LC side Rx and Tx assembled in pair.

Features

- Fiber pre-assembled (AB/BA)
- Compact size, easy to manage
- Fixed LC Duplex, easy for Tx and Rx identification and installation
- Optional MPO or MTP



Applications

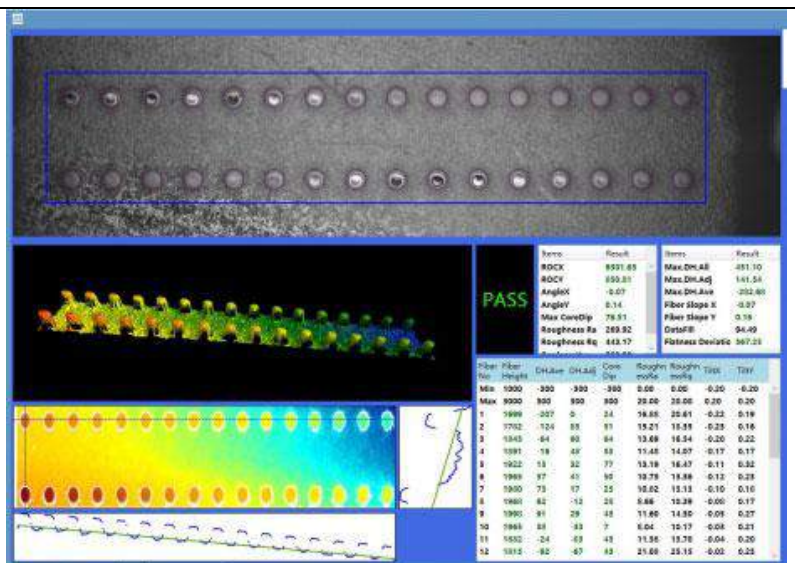
- High Density Fiber Optic Cabling System
- High Integrated device and components
- High precision communication equipment
- QSFP Component

Specifications

MTP/MPO Connector		
Fiber Mode	Single Mode	Multimode
Insertion Loss (dB)	≤0.70 (Standard) ≤0.35 (Elite)	≤0.70 (Standard) ≤0.35 (Elite)
Return Loss (dB)	≥60	≥20
Durability (dB)	≤0.2 (500 times mating)	
Tensile Strength (kgf)	10	
Working Temperature (°C)	-20 ~ +70	
LC/SC/FC/ST/E2000 Connector		
Fiber Mode	Single Mode	Multimode
Insertion Loss (dB)	≤0.30	≤0.30
Return Loss (dB)	≥60	≥20
Durability (dB)	≤0.2 500 times mating	
Tensile Strength (kgf)	10	
Working Temperature (°C)	-20 ~ +70	

MTP/MPO Connector Geometry Parameters

Item	X-axis		Y-axis	
	Min	Max	Min	Max
Radius of Curvature (mm)	500	-	50	-
Polishing Angle	0-0.2	0+0.2	8-0.2	8+0.2
Fiber Height (nm)	1000 ~ 3000			
Max Fiber Height Error (nm)	600			

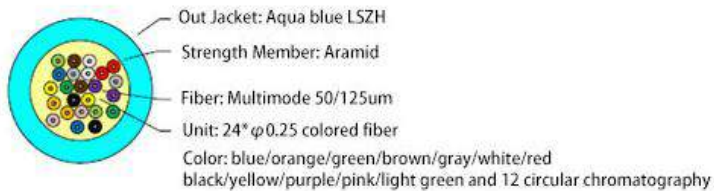
Adjacent Fiber Height Error (nm)	-300 ~ +300
Avg. Fiber Height Error (nm)	-300 ~ +300
Central Concave (nm)	300
Interferometer view of MTP Connector	

Fiber Specification

Fiber Type	Multimode				Single Mode	
	OM1	OM2	OM3	OM4	G.652	G.657
Core Diameter (um)	62.5/125	50/125	50/125	50/125	9/125	9/125
Wavelengths (nm)	850/1300	850/1300	850/1300	850/1300	1310/1550	1310/1550
Max. Attenuation (dB/km)	3.5/1.5	3.5/1.5	3.5/1.5	3.5/1.5	0.36/0.25	0.36/0.25
Min. OFL Bandwidth (MHz·km)	200/500	500/500	1500/500	3500/500	-	-
Min. Effective Modal Bandwidth (MHz·km)	-	500	2000	4700	-	-

The effective modal Bandwidth for multimode is for 850nm.

Cable Structure



24-core trunk cable structure

Fiber Core: 24

Cable Sheath Color:

- Yellow** – SM Fiber Cable (OS1\OS2)
- Orange** – MM Fiber Cable 62.5/125 (OM1), 50/125 (OM2)
- Aqua** –MM Fiber Cable 50/125 (OM3)
- Mauve** –MM Fiber Cable 50/125 (OM4)

Standard Cable Specifications

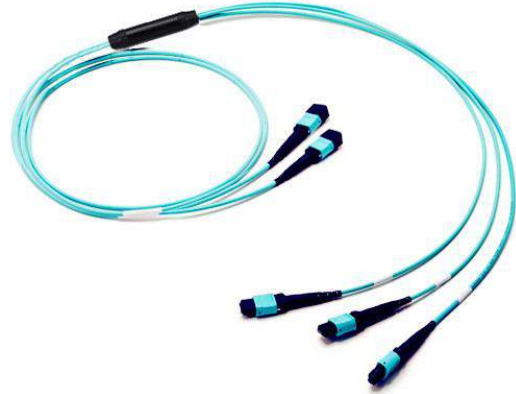
Fiber Count	Outer Diameter (mm)	Weight (kg/km)	Max. Tensile Force (N)		Min. Bending Radius (mm)	
			Short term	Long term	Short term	Long term
24	4.2 ± 0.3	31	300	160	20D	10D

MTP/MPO CONVERSION CABLE

The 1:2 conversion cables allow customers to convert 100G network to 40G network, the conversion cable with one 24-core MTP Fiber connector, another end with 2 pieces of 12-core MTP connectors.

Features

- 100% tested for low insertion loss and back reflection
- Optional MPO or MTP Connector
- Support 40G and 100G parallel optics networks
- Support OM3, OM4, SM optic fiber
- Special specification available upon custom request



Standards

- TIA/EIA-568-C
- IEC-61754-7
- NFPA 262 (OFNP) or IEC 60332 (LSZH)
- IEC-60793
- GR-1435-CORE

Applications

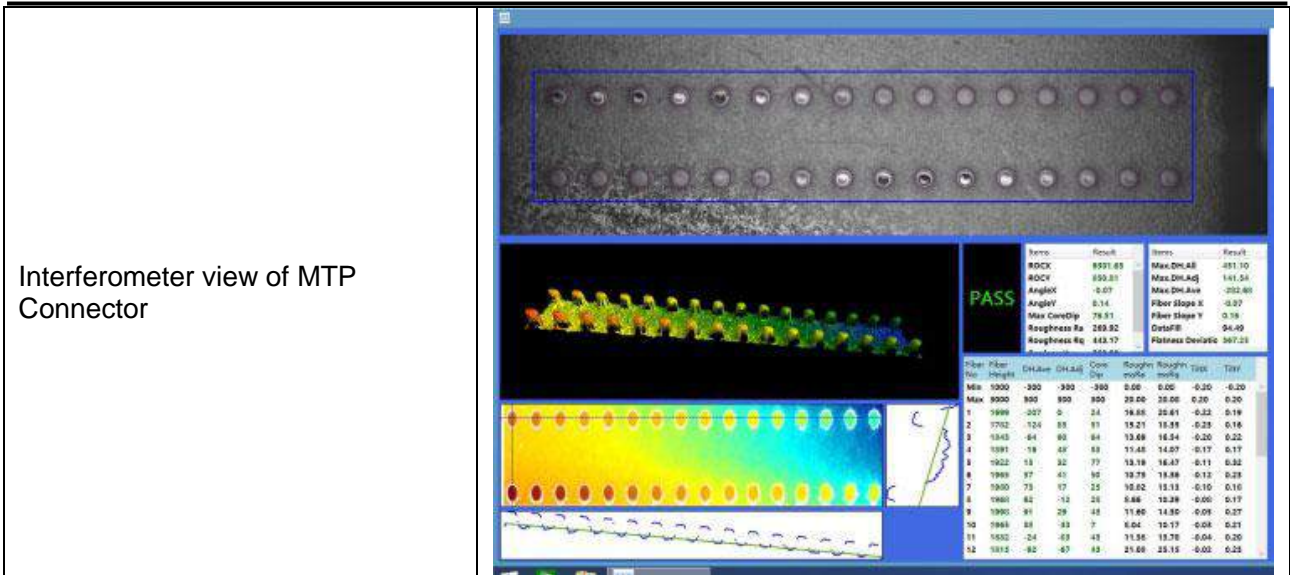
- Data Centre Infrastructure
- Storage Area Network- Fibre Channel
- 40G and 100Gbps Fiber Network
- Infiniband

Connector Specifications

MTP/MPO Connector		
Fiber Mode	Single Mode	Multimode
Insertion Loss (dB)	≤0.70 (Standard) ≤0.35 (Elite)	≤0.70 (Standard) ≤0.35 (Elite)
Return Loss (dB)	≥60	≥20
Durability (dB)	≤0.2 (500 times mating)	
Tensile Strength (kgf)	10	
Working Temperature (°C)	-20 ~ +70	

MTP/MPO Connector Geometry Parameters

Item	X-axis		Y-axis	
	Min	Max	Min	Max
Radius of Curvature (mm)	500	-	50	-
Polishing Angle	0-0.2	0+0.2	8-0.2	8+0.2
Fiber Height (nm)	1000 ~ 3000			
Max Fiber Height Error (nm)	600			
Adjacent Fiber Height Error (nm)	-300 ~ +300			
Avg. Fiber Height Error (nm)	-300 ~ +300			
Central Concave (nm)	300			

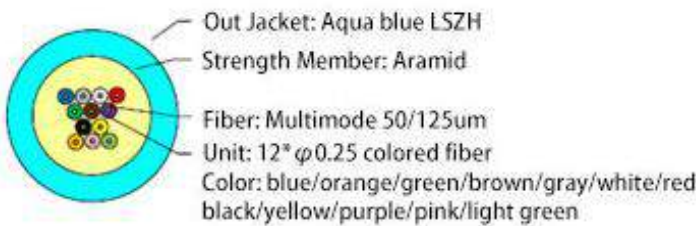


Fiber Specification

Fiber Type	Multimode				Single Mode	
	OM1	OM2	OM3	OM4	G.652	G.657
Core Diameter (um)	62.5/125	50/125	50/125	50/125	9/125	9/125
Wavelengths (nm)	850/1300	850/1300	850/1300	850/1300	1310/1550	1310/1550
Max. Attenuation (dB/km)	3.5/1.5	3.5/1.5	3.5/1.5	3.5/1.5	0.36/0.25	0.36/0.25
Min. OFL Bandwidth (MHz·km)	200/500	500/500	1500/500	3500/500	-	-
Min. Effective Modal Bandwidth (MHz·km)	-	500	2000	4700	-	-

The effective modal Bandwidth for multimode is for 850nm.

Cable Structure

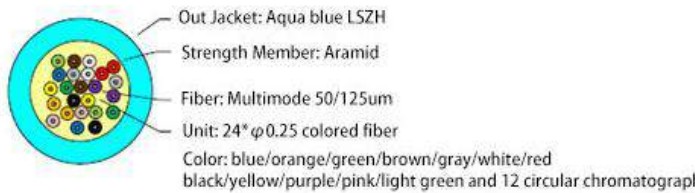


12-core trunk cable structure

Fiber Core: 12

Cable Sheath Color:

- Yellow** – SM Fiber Cable (OS1\OS2)
- Orange** – MM Fiber Cable 62.5/125 (OM1), 50/125 (OM2)
- Aqua** –MM Fiber Cable 50/125 (OM3)
- Violet** –MM Fiber Cable 50/125 (OM4)



24-core trunk cable structure

Fiber Core: 24

Cable Sheath Color:

Yellow – SM Fiber Cable (OS1\OS2)

Orange – MM Fiber Cable 62.5/125 (OM1), 50/125 (OM2)

Aqua –MM Fiber Cable 50/125 (OM3)

Aqua –MM Cable 50/125 (OM4)

Standard Cable Specifications

Fiber Count	Outer Diameter (mm)	Weight (kg/km)	Max. Tensile Force (N)		Min. Bending Radius (mm)	
			Short term	Long term	Short term	Long term
12	3.0 ± 0.15	8.0	150	80	20D	10D
24	4.2 ± 0.3	31	300	160	20D	10D

Ordering Information

TL-A-B-C-D-E

A	B	C	D	E
Cable Conversion	IL Loss	Fiber Length	Fiber Type	Jacket Type
1MTP-2MTP 1MTP-3MTP 2MTP-3MTP 1MPO-2MPO 1MPO-3MPO 2MPO-3MPO	S: Standard Loss E: Low loss	001-999m	S2: G 652D S7: G 657A2 OM1: OM1 OM2: OM2 OM3: OM3 OM4: OM4 OM5: OM5	LSZH OFNR OFNP

Example Part Number: TL-1MTP-3MTP-S-010-OM4-LSZH

Product description: 1 x 24 fiber MTP female connector to 3 12 fiber MTP female connector (each connect, 8 strand fiber active), standard loss, 10 meter, OM4 LSZH fiber.

RUGGEDIZED MPO/MTP FIBER ASSEMBLIES

The MPO/MTP to LC/SC/ST/FC Waterproof type fiber optic patch cables are specially designed to fit for outdoor harsh environment applications. The patch cable with TPU or PE outer sheath, with inner armor structure, which could stand for different environment, it can provide 1 Gigabit data transfer rate in high bandwidth application and up to 5 times faster than standard 9/125um fiber patch cable. What's more, its IP68 MPO cable connectors have an extremely rugged, protective rubber coating with integral anti-kink strain-relief boot and a rubber-coated, metal, latching cap, attached by a steel lanyard. When mated or capped, the connection is environmentally sealed up to IP65. It is ideal for using in a variety of applications, including fiber to the antenna (FTTA) and fiber to the home (FTTH).

Features

- High temperature stability, low insertion loss
- Water proof, dust proof and corrosion resistant
- Easy operation, reliable and cost-effective installation
- IP 68

Applications

- FTTA
- Base station
- Electricity
- Surveillance
- Transport and rail systems



Connector Specifications

MTP/MPO Connector		
Fiber Mode	Single Mode	Multimode
Insertion Loss (dB)	≤0.70 (Standard) ≤0.35 (Elite)	≤0.70 (Standard) ≤0.35 (Elite)
Return Loss (dB)	≥60	≥20
Durability (dB)	≤0.2 (500 times mating)	
Tensile Strength (kgf)	10	
Working Temperature (°C)	-20 ~ +70	
LC/SC/FC/ST/E2000 Connector		
Fiber Mode	Single Mode	Multimode
Insertion Loss (dB)	≤0.30	≤0.30
Return Loss (dB)	≥60	≥20
Durability (dB)	≤0.2 500 times mating	
Tensile Strength (kgf)	10	
Working Temperature (°C)	-20 ~ +70	

MTP/MPO Connector Geometry Parameters

Item	X-axis		Y-axis																																	
	Min	Max	Min	Max																																
Radius of Curvature (mm)	500	-	50	-																																
Polishing Angle	0-0.2	0+0.2	8-0.2	8+0.2																																
Fiber Height (nm)	1000 ~ 3000																																			
Max Fiber Height Error (nm)	600																																			
Adjacent Fiber Height Error (nm)	-300 ~ +300																																			
Avg. Fiber Height Error (nm)	-300 ~ +300																																			
Central Concave (nm)	300																																			
Interferometer view of MTP Connector	<table border="1"> <thead> <tr> <th>Item</th> <th>Result</th> <th>Units</th> <th>Result</th> </tr> </thead> <tbody> <tr> <td>ROCV</td> <td>8931.83</td> <td>Max.DH.Avg</td> <td>281.10</td> </tr> <tr> <td>ROCV</td> <td>895.81</td> <td>Max.DH.Adj</td> <td>141.54</td> </tr> <tr> <td>AngleX</td> <td>-0.07</td> <td>Max.DH.Ave</td> <td>-252.80</td> </tr> <tr> <td>AngleY</td> <td>0.14</td> <td>Fiber Slope X</td> <td>-0.07</td> </tr> <tr> <td>Max CoreDip</td> <td>78.51</td> <td>Fiber Slope Y</td> <td>0.19</td> </tr> <tr> <td>Roughness Ra</td> <td>269.92</td> <td>CircleR</td> <td>84.49</td> </tr> <tr> <td>Roughness Rq</td> <td>443.57</td> <td>Flatness Deviate</td> <td>567.23</td> </tr> </tbody> </table>				Item	Result	Units	Result	ROCV	8931.83	Max.DH.Avg	281.10	ROCV	895.81	Max.DH.Adj	141.54	AngleX	-0.07	Max.DH.Ave	-252.80	AngleY	0.14	Fiber Slope X	-0.07	Max CoreDip	78.51	Fiber Slope Y	0.19	Roughness Ra	269.92	CircleR	84.49	Roughness Rq	443.57	Flatness Deviate	567.23
Item	Result	Units	Result																																	
ROCV	8931.83	Max.DH.Avg	281.10																																	
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Fiber Specification

Fiber Type	Multimode				Single Mode	
	OM1	OM2	OM3	OM4	G.652	G.657
Core Diameter (um)	62.5/125	50/125	50/125	50/125	9/125	9/125
Wavelengths (nm)	850/1300	850/1300	850/1300	850/1300	1310/1550	1310/1550
Max. Attenuation (dB/km)	3.5/1.5	3.5/1.5	3.5/1.5	3.5/1.5	0.36/0.25	0.36/0.25
Min. OFL Bandwidth (MHz·km)	200/500	500/500	1500/500	3500/500	-	-
Min. Effective Modal Bandwidth (MHz·km)	-	500	2000	4700	-	-

The effective modal Bandwidth for multimode is for 850nm.

Patch Cable Specifications

Fiber Cores	12-core or 24-core
Cable Jacket	Outdoor TPU or PE
Connector Type	Standard MPO (Male or Female)
	Low loss MPO (Male or Female)
Boot	Standard boot, (Total lengths is 117mm including connector plug)
Fiber Type	OS1/2
	Multimode (OM1, OM2, OM3 or OM4)

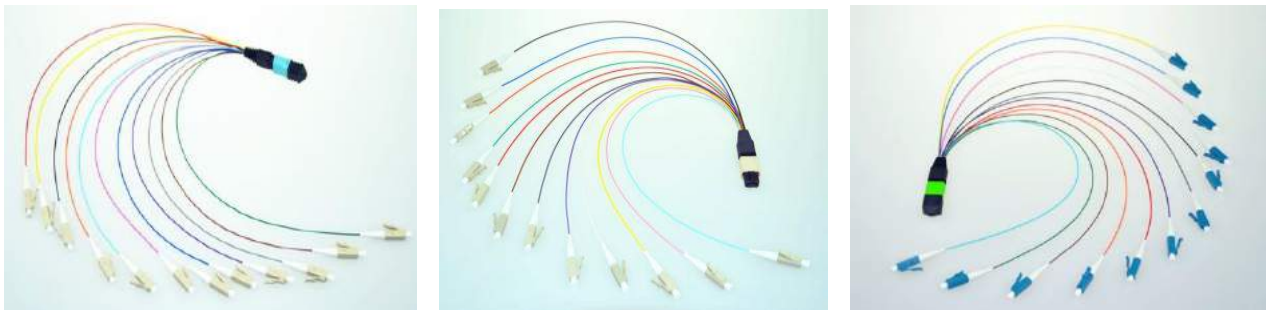
IP Rate	IP68
Mechanical Performance	25Kg
Matings	500 times
Operation Temperature	-40°C ~ +70°C
Standard	RoHS TIA/EIA Standard

MTP/MPO HYDRA CABLE ASSEMBLIES

MAXWELLON MPO hydra cable assemblies are with a single 12/24 core MPO connector in one end and 12/24 LC/SC connectors for another end. This patch cord needs to be installed inside of the module cassette, connecting the backbone cable with the equipment, which can be modularized and plug play. Compared with traditional splicing, it's dramatically improved the work efficiency and brings convenience.

Features

- A male MPO connector (with guide pin) access to the trunk cable by connecting with MPO adaptors in the cassette, the fanout end connect with LC or SC Connector connect with the patch panel in the modules to connect with the equipment
- Customized cable length to compatible with the module, easy for cable coiling

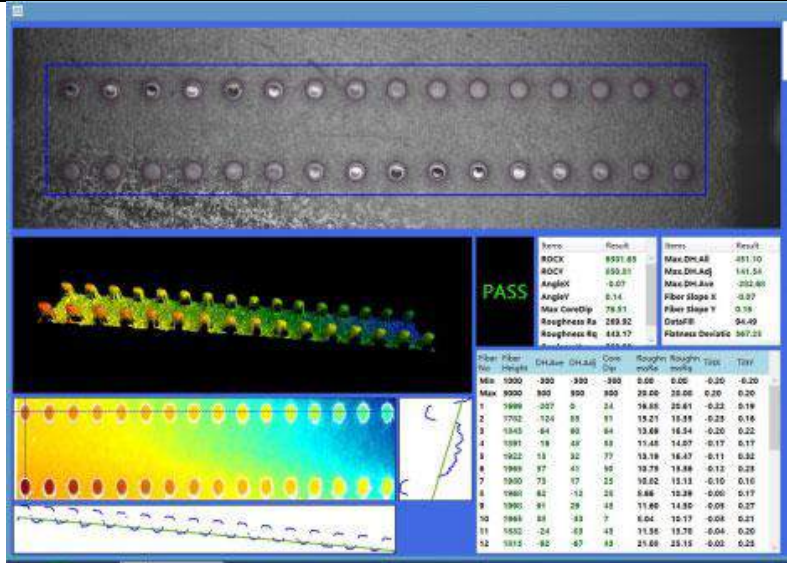


Connector Specifications

MTP/MPO Connector		
Fiber Mode	Single Mode	Multimode
Insertion Loss (dB)	≤0.70 (Standard) ≤0.35 (Elite)	≤0.70 (Standard) ≤0.35 (Elite)
Return Loss (dB)	≥60	≥20
Durability (dB)	≤0.2 (500 times mating)	
Tensile Strength (kgf)	10	
Working Temperature (°C)	-20 ~ +70	
LC/SC/FC/ST/E2000 Connector		
Fiber Mode	Single Mode	Multimode
Insertion Loss (dB)	≤0.30	≤0.30
Return Loss (dB)	≥60	≥20
Durability (dB)	≤0.2 500 times mating	
Tensile Strength (kgf)	10	
Working Temperature (°C)	-20 ~ +70	

MTP/MPO Connector Geometry Parameters

Item	X-axis		Y-axis	
	Min	Max	Min	Max
Radius of Curvature (mm)	500	-	50	-
Polishing Angle	0-0.2	0+0.2	8-0.2	8+0.2

Fiber Height (nm)	1000 ~ 3000																																
Max Fiber Height Error (nm)	600																																
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Interferometer view of MTP Connector	 <p>The image displays an interferometer view of an MTP connector. It includes a top-down view of the fiber array, a 3D height map showing the fiber profiles, and a data table with the following parameters:</p> <table border="1"> <thead> <tr> <th>Item</th> <th>Result</th> <th>Item</th> <th>Result</th> </tr> </thead> <tbody> <tr> <td>ROCK</td> <td>8521.85</td> <td>Max.DH.AB</td> <td>-851.50</td> </tr> <tr> <td>ROCV</td> <td>650.81</td> <td>Max.DH.Adj</td> <td>141.54</td> </tr> <tr> <td>AngleX</td> <td>0.07</td> <td>Max.DH.Ave</td> <td>-252.80</td> </tr> <tr> <td>AngleY</td> <td>0.14</td> <td>Fiber Slope X</td> <td>-0.07</td> </tr> <tr> <td>Max.CorrDip</td> <td>76.51</td> <td>Fiber Slope Y</td> <td>0.15</td> </tr> <tr> <td>Roughness Ra</td> <td>269.92</td> <td>OutSID</td> <td>94.49</td> </tr> <tr> <td>Roughness Rq</td> <td>443.17</td> <td>Flatness Deviate</td> <td>367.25</td> </tr> </tbody> </table> <p>Below the data table is a detailed table with columns: Fiber Dia, Fiber Height, DH.Ave, DH.Lat, Cor. Dia, Roughn. m0.0, Roughn. m0.1, Tilt, and TiltY.</p>	Item	Result	Item	Result	ROCK	8521.85	Max.DH.AB	-851.50	ROCV	650.81	Max.DH.Adj	141.54	AngleX	0.07	Max.DH.Ave	-252.80	AngleY	0.14	Fiber Slope X	-0.07	Max.CorrDip	76.51	Fiber Slope Y	0.15	Roughness Ra	269.92	OutSID	94.49	Roughness Rq	443.17	Flatness Deviate	367.25
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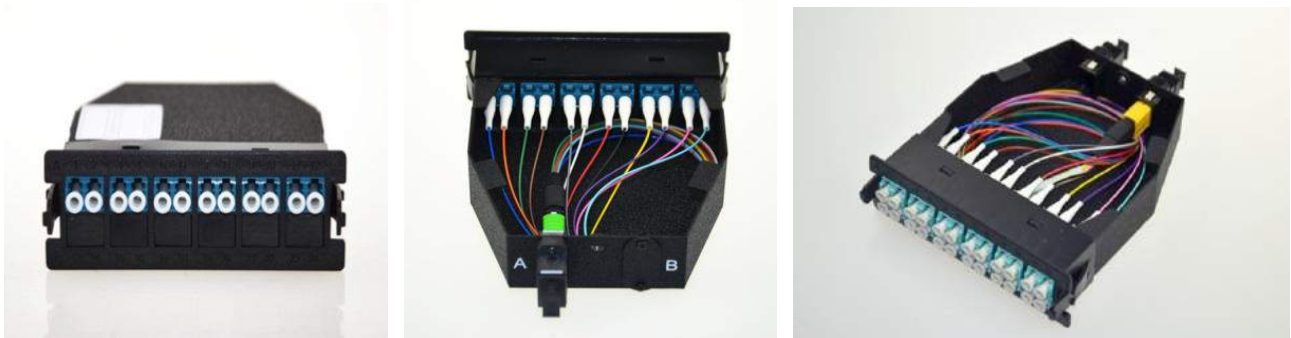
Fiber Specification

Fiber Type	Multimode				Single Mode	
	OM1	OM2	OM3	OM4	G.652	G.657
Core Diameter (um)	62.5/125	50/125	50/125	50/125	9/125	9/125
Wavelengths (nm)	850/1300	850/1300	850/1300	850/1300	1310/1550	1310/1550
Max. Attenuation (dB/km)	3.5/1.5	3.5/1.5	3.5/1.5	3.5/1.5	0.36/0.25	0.36/0.25
Min. OFL Bandwidth (MHz·km)	200/500	500/500	1500/500	3500/500	-	-
Min. Effective Modal Bandwidth (MHz·km)	-	500	2000	4700	-	-

The effective modal Bandwidth for multimode is for 850nm.

12F/24F MPO/MTP CASSETTE

The MPO/MTP module Cassettes are mainly used to divide the 12 or 24 fibers MPO/MTP connector of the pre-assembled terminal end to the simplex or duplex standard connector. By using the simplex or duplex patch cords, the output of the modules can be directly connected with the equipment, frame or the client end.



Features

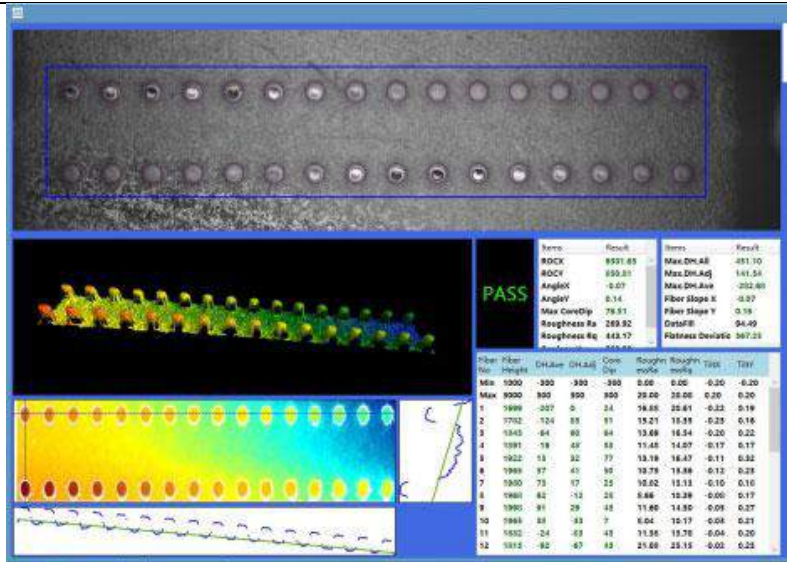
- Adopts high quality engineering plastics and Aluminum alloy material, with electrostatic plating surface, outstanding in appearance and users friendly.
- MPO faceplate can be upgraded easily.
- All the front ports are with mark no. , easy to identify.
- Quick and easy installed, flexible in configuration and easy to management

Connector Specifications

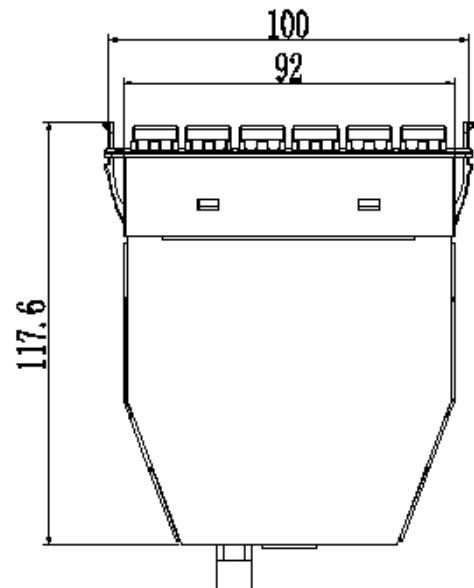
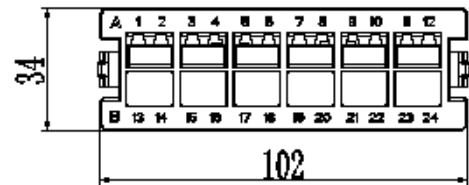
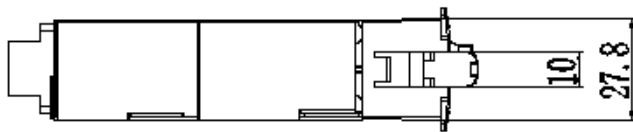
MTP/MPO Connector		
Fiber Mode	Single Mode	Multimode
Insertion Loss (dB)	≤0.70 (Standard) ≤0.35 (Elite)	≤0.70 (Standard) ≤0.35 (Elite)
Return Loss (dB)	≥60	≥20
Durability (dB)	≤0.2 (500 times mating)	
Tensile Strength (kgf)	10	
Working Temperature (°C)	-20 ~ +70	
LC/SC/FC/ST/E2000 Connector		
Fiber Mode	Single Mode	Multimode
Insertion Loss (dB)	≤0.30	≤0.30
Return Loss (dB)	≥60	≥20
Durability (dB)	≤0.2 500 times mating	
Tensile Strength (kgf)	10	
Working Temperature (°C)	-20 ~ +70	

MTP/MPO Connector Geometry Parameters

Item	X-axis		Y-axis	
	Min	Max	Min	Max
Radius of Curvature (mm)	500	-	50	-

Polishing Angle	0-0.2	0+0.2	8-0.2	8+0.2																																
Fiber Height (nm)	1000 ~ 3000																																			
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Product Dimensions



Ordering Information

Part No,	Name	Color	Packing
TL-MPO-12-CM	12F MPO Cassette, with 1 piece of 12-core MPO male connector to 12 LC connector Hydra Cable, 6 pieces of duplex LC adaptors, 1 piece of MPO Adaptor	Black	1PCS
TL-MPO-24-CM1	24FMPO Cassette A, with 2 pieces of 12-core MPO male Connector to 12 LC connector Hydra Cable, 12 pieces of duplex LC adaptors, 2 pieces of MPO Adaptor	Black	1PCS
TL-MPO-24-CM2	24F MPO Cassette B, with 1 piece of 24-core MPO male connector to 24 LC connector Hydra Cable, 12 pieces of duplex LC adaptor, 1 piece of 24 fiber MPO Adaptor	Black	1PCS
TL-MTP-12-CM	12F MTP Cassette, with 1 piece of 12-core MTP male connector to 12 LC connector Hydra Cable, 6 pieces of duplex LC adaptors, 1 piece of MTP Adaptor	Black	1PCS
TL-MTP-24-CM1	24FMTP Cassette A, with 2 pieces of 12-core MTP male Connector to 12 LC connector Hydra Cable, 12 pieces of duplex LC adaptors, 2 pieces of MTP Adaptor	Black	1PCS
TL-MTP-24-CM2	24F MTP Cassette B, with 1 piece of 24-core MTP male connector to 24 LC connector Hydra Cable, 12 pieces of duplex LC adaptor, 1 piece of 24 fiber MTP Adaptor	Black	1PCS

MPO/MTP HIGH DENSITY PATCH PANEL

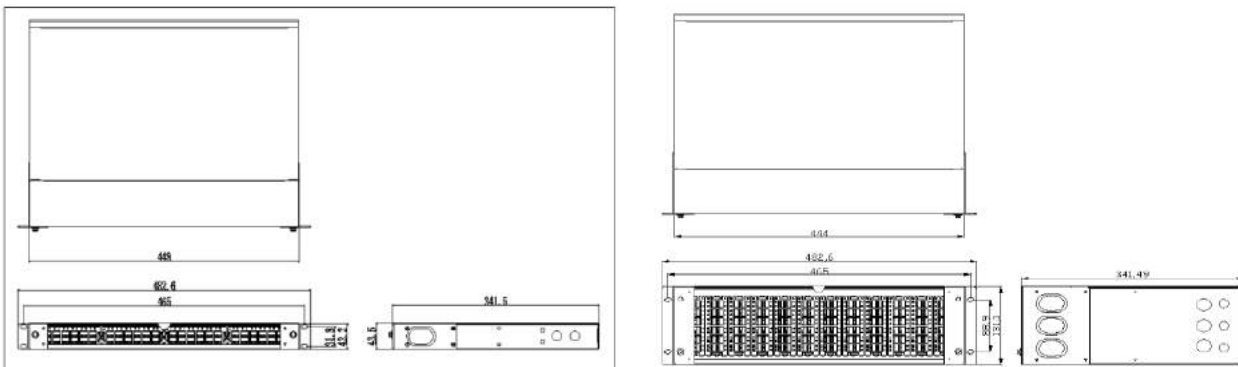
MPO/MTP high density patch panel is applied in MDA, IDA or HAD in data center for trunk cable connection and cable distribution, the patch panel installed inside a 19-inch cabinet, and could be pre-assembled with MPO/MTP adaptor panel, or MPO/MTP Cassette.

Application

Data Center, Enterprise Central Office



Product Dimensions



Features

- Mounted on 19-inch cabinet, for centralized management
- Increase cable ports by additional module, capable of provide high density cable connection
- Produced by High Grade Cold Roll Steel, The sheet passed strict degreasing, pickling, rust phosphating and water cleaning, and then finishing with electrostatic spray, the spray thickness is 80µm-100µm
- The Patch Panel contains cable management and label tag
- Easy installation, and facilitate for management
- Density is four times of the conventional splice distribution frame, greatly save the cabinet space
- Module design, easy for structure upgrade and convenient maintenance

Ordering Information

Part No.	Name / Description	Standard Color	Small CTN	Big CTN
MPO-1U-96	MPO 1U Fiber Patch Panel, 4 MPO Cassette	Black	1PCS	5PCS
MPO-2U-192	MPO 2U Fiber Patch Panel, 8 MPO Cassettes	Black	1PCS	2PCS
MPO-3U-288	MPO 3U Fiber Patch Panel, 12 MPO Cassettes	Black	1PCS	1PCS

MPO/MTP ADAPTOR

Features

- Low Insertion Loss
- Support 4 ~ 72 single mode or multimode MPO fiber connection
- Comply with IEC61757-7



Application

- High density multi-channel data transmission network
- 40G,100G fiber transmission, QSFP, CXP optical module

Specifications

Parameter	Specifications
Insertion Loss (dB)	<0.75
Repeatability (dB)	<0.2 500 times
Working Temperature (°C)	-40 ~ +85
Storage Temperature (°C)	-40 ~ +85

Ordering Information

Part No.	Specifications	Color
MPO-AD-W01	Key up to key down, with ear, with locking bolts	Black
MPO-AD-W02	Key up to key UP, with ear, with locking bolts	Gray

Connection Rules

- Always create an MPO plug connection using one male plug and one female plug, as well as an MPO adapter.
- Never create a male-to-male or female-to-female connection. The fiber cores of the two connectors in a female-to female connection will not be exactly at the same height, since guide pins are missing. This will result in performance losses. A male-to-male connection experiences even a greater loss in performance, since in this case guide pins bump up against guide pins. Not only does this prevent contacting, but plugs may also be damaged
- Do not disassemble MPO connectors. The pins in an MPO plug can be removed only with great difficulty, and fibers can become broken in the process. Not only that, the warranty becomes invalid when the connector housing is opened!

MTP/MPO LOOPBACKS

MTP/MPO Fiber Loopback is used for test the transmitting ability and receiving sensitivity of network device, beside it, it is also a reliable product to test the system loop.

Features

- 4-core, 8-core, 12-core optional
- Standard loss, low loss optional
- Single Mode APC or Multimode PC Optional
- Standard fiber array or customized
- Reliable PIN positing testing for Male/Female PIN



Specifications

MTP/MPO Connector		
Fiber Mode	Single Mode	Multimode
Insertion Loss (dB)	≤0.70 (Standard) ≤0.35 (Elite)	≤0.70 (Standard) ≤0.35 (Elite)
Return Loss (dB)	≥60	≥20
Durability (dB)	≤0.2 (500 times mating)	
Tensile Strength (kgf)	10	
Working Temperature (°C)	-20 ~ +70	

MTP/MPO Connector Geometry Parameters

Item	X-axis		Y-axis																																	
	Min	Max	Min	Max																																
Radius of Curvature (mm)	500	-	50	-																																
Polishing Angle	0-0.2	0+0.2	8-0.2	8+0.2																																
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MTP/MPO One Click Cleaner

The MTP Cleaner or MPO Cleaner is a high-performance tool specially designed for cleaning MPO and MTP ferrule in data center, manufacturing process, etc. It is cost effective for cleaning fiber end-faces without using alcohol. It saves time by effectively cleaning all 12 fibers at once. The MTP/MPO connector cleaner is designed for both in adaptor MTP/MPO interface and MPO/MTP Connectors.

Features

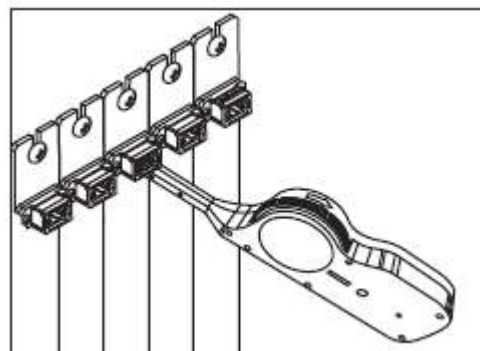
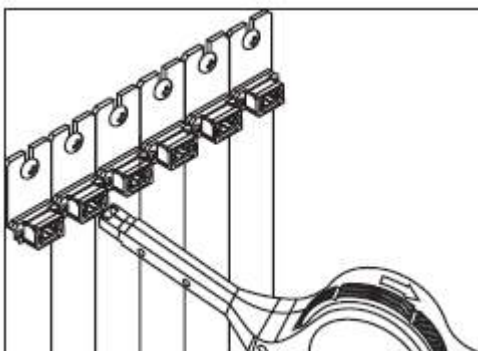
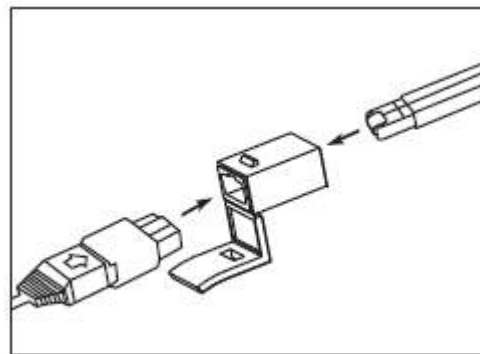
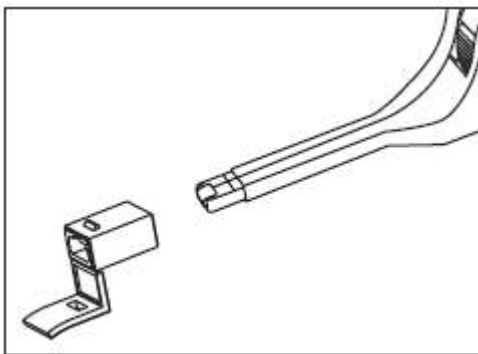
- 700+ cleanings per unit
- Ergonomics design, easy one hand operation
- Support both male and female MPO/MTP connector cleaning
- Support Connector and in-adaptor MPO/MTP Cleaning
- Narrow design reaches tightly spaced MPO adapters

Application

- Data Centers
- Fiber network patch panel
- Field or Lab application
- MPO MTP cable assembly manufacturing

Specifications

- Fiber Interface: MPO/MTP (Male/Female)
- Dimensions: 22.5 x 6.5 x 3cm
- Cleaning times: 700+times
- MTP/MPO application process



This document was prepared with greatest possible care, however, statistics, figures and description might be changed and corrected if needed.

Maxwellon Electronic Instruments Co.,LTD.

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Email: sales@maxwellon.com