

MPO/MTP® Patch Cables Datasheet

MPO/MTP® Trunk Cables Applications

MTP®/MPO fiber patch cord is a high-density, multi-core connection solution widely used in modern data centers, cloud computing platforms, high-performance computing (HPC) and large-capacity fiber communication networks. The patch cord uses pre-terminated MTP® (registered by US Conec) or universal MPO connectors, which can achieve 8, 12, 16, 24, 32 or even 48 cores of high-speed parallel fiber transmission in a single connection, greatly improving wiring efficiency and reducing space occupancy.

MTP®/MPO patch cord supports single-mode (OS2) and multi-mode (OM3/OM4/OM5) optical fibers, suitable for high-speed interconnection standards such as 40G/100G/200G/400G/800G, and is commonly used for trunk interconnection between switches, servers, and optical modules and rapid deployment of patch panels. The product has low insertion loss, high return loss, excellent mechanical durability and optional polarity (A, B, C), fully meeting the high-density, high-bandwidth and scalable network requirements of the next generation of data centers.

Features

- US Conec MTP® connector, MPO premium connector
- Available in OS2, OM3, OM4, and OM5 Fiber
- Available in Plenum (OFNP), Riser (OFNR), and LSZH Cable Jacket
- Available in Type A, Type B, and Type C Standard Polarity
- Optional standard(0.35dB) or low-loss(0.20dB) MTP® / MPO connector
- Fully compatible with MTP/MPO adapter panels, module boxes, and patch panel systems
- Support Key Up/Key Down, UPC or APC polished end faces, adapt to different optical module requirements

Standards Compliance

Fiber Optic Connectors and Structure Specifications

- IEC 61754-7
- TIA/EIA-604-5 (FOCIS-5)
- IEC 61300
- GR-1435-CORE

Fiber Types and Performance Standards

- TIA-568.3-D
- ISO/IEC 11801-1
- IEC 60793 / 60794
- ITU-T G.651.1 / G.652.D / G.657.A
- ANSI/TIA-942-A

Environmental protection and flame retardant certification

- RoHS / REACH
- UL 94 V-0
- IEC 60332-1 / -3
- UL 1666 / NFPA 262

12 Fibers Connector Polarity

Near /Far End		12 Fiber sequence (viewing the array connector plug end-face with key up)											
Type A	Near	1	2	3	4	5	6	7	8	9	10	11	12
	Far	1	2	3	4	5	6	7	8	9	10	11	12
Type B	Near	1	2	3	4	5	6	7	8	9	10	11	12
	Far	12	11	10	9	8	7	6	5	4	3	2	1
Type C	Near	1	2	3	4	5	6	7	8	9	10	11	12
	Far	2	1	4	3	6	5	8	7	10	9	12	11

16 Fibers Connector Polarity

Near /Far End		16 Fiber sequence (viewing the array connector plug end-face with key up)															
Type B	Near	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
	Far	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1

24 Fibers Connector Polarity

End, Row		24 Fiber sequence (viewing the array connector plug end-face with key up)											
Type A	Near end, Top row	1	2	3	4	5	6	7	8	9	10	11	12
	Near end, Bottom row	13	14	15	16	17	18	19	20	21	22	23	24
	Far end, Top row	13	14	15	16	17	18	19	20	21	22	23	24
	Far end, Bottom row	1	2	3	4	5	6	7	8	9	10	11	12
Type B	Near end, Top row	1	2	3	4	5	6	7	8	9	10	11	12
	Near end, Bottom row	13	14	15	16	17	18	19	20	21	22	23	24
	Far end, Top row	24	23	22	21	20	19	18	17	16	15	14	13
	Far end, Bottom row	12	11	10	9	8	7	6	5	4	3	2	1
Type C	Near end, Top row	1	2	3	4	5	6	7	8	9	10	11	12
	Near end, Bottom row	13	14	15	16	17	18	19	20	21	22	23	24

	Far end, Top row	14	13	16	15	18	17	20	19	22	21	24	23
	Far end, Bottom row	2	1	4	3	6	5	8	7	10	9	12	11

Optical Properties

Type	Single-mode (APC polish)	Single-mode (UPC polish)	Multi-mode (APC polish)	Multi-mode (UPC polish)
Fiber count	8,12,16,24, etc.	8,12,16,24, etc.	8,12,16,24, etc.	8,12,16,24, etc.
Fiber type	G.652.D/G.657.A1	G.652.D/G.657.A1	50/125 μm	50/125 μm
Maximum Insertion Loss	MTP: ≤0.35 dB(standard); ≤0.2 dB(Low Loss) MPO:≤0.35 dB(Low Loss)			
Return Loss	≥60 dB	≥50 dB	≥35 dB	≥30 dB
Durability	≥500-1000 times			
Test Wavelength	1310nm / 1550nm		850nm / 1300nm	
Attenuation	≤0.35dB/km; ≤0.21dB/km		≤2.3dB/km; ≤1.0dB/km	
Tensile Strength (Long Term/Short Term)	150/80N			

3D Geometry Performance

Type			Grade A		Grade B	
Item			Min	Max	Min	Max
Radius of Curvature(mm)	X		-10000 < or > 2000		-10000 < or > 2000	
	Y		-500 < or > 50		-500 < or > 50	
Angle(°)	X		-0.15	0.15	-0.2	0.2
	Y	APC	7.85	8.15	7.8	8.2
		UPC	-0.15	0.15	-0.2	0.2
Minus Coplanarity(nm)			0	300	0	300
Fiber Height(nm)			1200	3000	1000	3500
Max All Diff(nm)			0	300	0	500
Max Adj Diff(nm)			0	150	0	300
Core Dip(nm)						
Only MM			-100	100	-100	100

Environmental Performance

No.	Item	Testing Conditions	Requirements	
			Before test	After test
1	Thermal Age Test	85°C 168hrs	IL ≤ 0.80dB, RL ≥ 60dB(APC)/30dB(UPC)	IL ≤ 0.80dB, ΔIL ≤ 0.3dB RL ≥ 60dB(APC)/30dB(UPC)
2	Thermal Cycle Test	-40°C~75°C 21cycles 168hrs	IL ≤ 0.80dB, RL ≥ 60dB(APC)/30dB(UPC)	IL ≤ 0.80dB, ΔIL ≤ 0.3dB RL ≥ 60dB(APC)/30dB(UPC)
3	Humidity Age Test	75°C / 95%RH 168hrs	IL ≤ 0.80dB, RL ≥ 60dB(APC)/30dB(UPC)	IL ≤ 0.80dB, ΔIL ≤ 0.3dB RL ≥ 60dB(APC)/30dB(UPC)
4	Humidity / Condensation Cycling Test	-10°C~65°C, 90-100%RH 21cycles 168hrs	IL ≤ 0.80dB, RL ≥ 60dB(APC)/30dB(UPC)	IL ≤ 0.80dB, ΔIL ≤ 0.3dB RL ≥ 60dB(APC)/30dB(UPC)

Mechanical Behavior

No.	Item	Testing Conditions	Requirements	
			Before test	After test
1	Vibration Test	1.5mm p-p 10~55Hz 2hrs for each axis	IL ≤ 0.80dB, RL ≥ 60dB(APC)/30dB(UPC)	IL ≤ 0.80dB, ΔIL ≤ 0.3dB RL ≥ 60dB(APC)/30dB(UPC)
2	Flex Test	0.9kgf for Type I, 0.9kgf for small form 0°, 90°, 0°, -90°, 0°, and repeat for 100 cycles	IL ≤ 0.80dB, RL ≥ 60dB(APC)/30dB(UPC)	IL ≤ 0.80dB, ΔIL ≤ 0.3dB RL ≥ 60dB(APC)/30dB(UPC)
3	Twist Test	Load 1.33kgf 1 revolution, 9 times	IL ≤ 0.80dB, RL ≥ 60dB(APC)/30dB(UPC)	IL ≤ 0.80dB, ΔIL ≤ 0.3dB RL ≥ 60dB(APC)/30dB(UPC)
4	Proof test – Side Pull	Load 3.37kgf for 5 sec Load 4.5kgf for 5 sec	IL ≤ 0.80dB, RL ≥ 60dB(APC)/30dB(UPC)	IL ≤ 0.80dB, ΔIL ≤ 0.3dB RL ≥ 60dB(APC)/30dB(UPC)
5	Proof test – Straight Pull	Load 4.5kgf for 5 sec Load 6.8kgf for 5 sec	IL ≤ 0.80dB, RL ≥ 60dB(APC)/30dB(UPC)	IL ≤ 0.80dB, ΔIL ≤ 0.3dB RL ≥ 60dB(APC)/30dB(UPC)
6	Transmission with Applied Load Test	Apply load: 4.95lbf @ 0° Apply load: 0.49lbf @ 90°	IL ≤ 0.80dB, RL ≥ 60dB(APC)/30dB(UPC)	IL ≤ 0.80dB, ΔIL ≤ 0.3dB RL ≥ 60dB(APC)/30dB(UPC)
7	Impact Test	1.5m 10 cycles	IL ≤ 0.80dB, RL ≥ 60dB(APC)/30dB(UPC)	IL ≤ 0.80dB, ΔIL ≤ 0.3dB RL ≥ 60dB(APC)/30dB(UPC)

Color Requirements

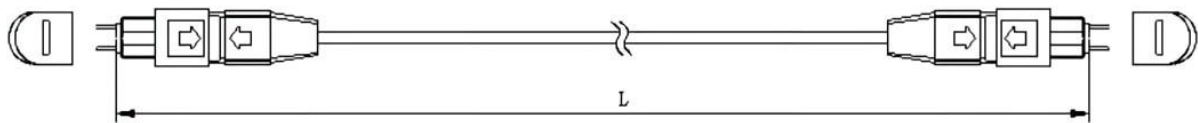
Color Codes	OS2	OM5	OM4	OM3
Cable Jackets	Yellow	Lime Green	Magenta	Aqua
Connectors	Green	Lime Green	Aqua (UPC) Green (APC)	Aqua

Environmental Characteristics

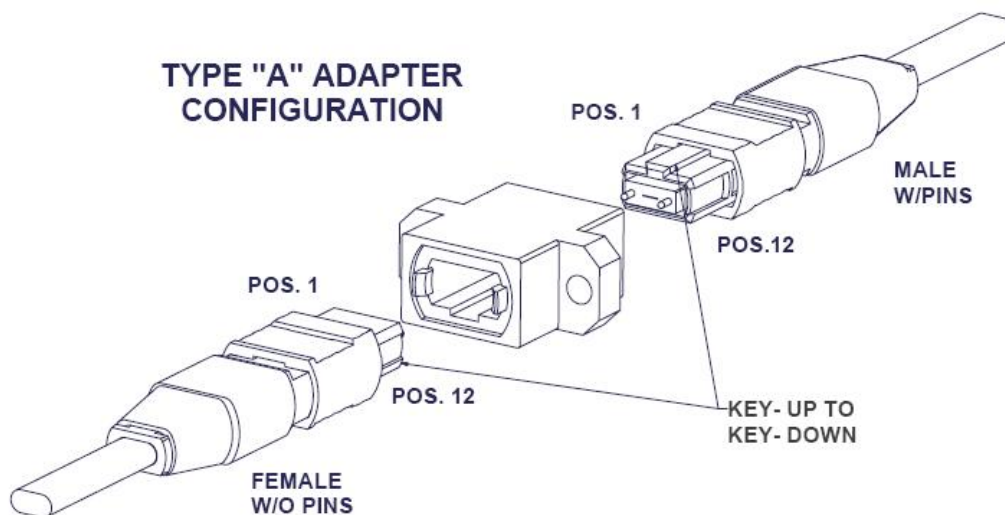
Environmental Characteristics	Description
Operating Temperature	-20°C to 70°C (14 to 158°F)
Storage Temperature	-40°C to 85°C (-40 to 185°F)

Technical Drawing

MTP®/MPO Trunk Cable



Plug Connection



Cable Length Tolerances

Cable Length	Length Tolerance(ΔL)
$L \leq 10\text{m}$	+100/0mm
$L > 10\text{m}$	+1%*L/0

Ordering Information

Product number	Description
S2MPOA12FB	MPO-12 APC(Female) to MPO-12 APC(Female) 12 Fibers Single-mode (OS2) Patch Cable, Type B, LSZH, 3.0mm, Yellow
S2MTPA12FB	MTP®-12 APC(Female) to MTP®-12 APC(Female) 12 Fibers Single-mode (OS2) Patch Cable, Type B, LSZH, 3.0mm, Type B, Yellow
S2MPOA16F	MPO-16 APC(Female) to MPO-16 APC(Female) 16 Fibers Single-mode (OS2) Patch Cable, Type B, LSZH, 3.0mm, Yellow
S2MTPA16F	MTP®-16 APC(Female) to MTP®-16 APC(Female) 16 Fibers Single-mode (OS2) Patch Cable, Type B, LSZH, 3.0mm, Yellow
S2MPOA12FA	MPO-12 APC(Female) to MPO-12 APC(Female) 12 Fibers Single-mode (OS2) Patch Cable, Type A, LSZH, 3.0mm, Yellow
S2MTPA12FA	MTP®-12 APC(Female) to MTP®-12 APC(Female) 12 Fibers Single-mode (OS2) Patch Cable, Type A, LSZH, 3.0mm, Yellow
S2MPOA24FA	MPO-24 APC(Female) to MPO-24 APC(Female) 24 Fibers Single-mode (OS2) Patch Cable, Type A, LSZH, 3.0mm, Yellow
S2MTPA24FA	MTP®-24 APC(Female) to MTP®-24 APC(Female) 24 Fibers Single-mode (OS2) Patch Cable, Type A, LSZH, 3.0mm, Yellow
M4MPOA12FB	MPO-12 APC(Female) to MPO-12 APC(Female) 12 Fibers Multimode (OM4) Patch Cable, Type B, LSZH, 3.0mm, Magenta
M4MPOU12FB	MPO-12 UPC(Female) to MPO-12 UPC(Female) 12 Fibers Multimode (OM4) Patch Cable, Type B, LSZH, 3.0mm, Magenta
M4MTPU12FB	MTP®-12 UPC(Female) to MTP®-12 UPC(Female) 12 Fibers Multimode (OM4) Patch Cable, Type B, LSZH, 3.0mm, Magenta
M4MPOA16F	MPO-16 APC(Female) to MPO-16 APC(Female) 16 Fibers Multimode (OM4) Patch Cable, Type B, LSZH, 3.0mm, Magenta
M4MTPA16F	MTP®-16 APC(Female) to MTP®-16 APC(Female) 16 Fibers Multimode (OM4) Patch Cable, Type B, LSZH, 3.0mm, Magenta
M5MPOU12FB	MPO-12 UPC(Female) to MPO-12 UPC(Female) 12 Fibers Multimode (OM5) Patch Cable, Type B, LSZH, 3.0mm, Lime Green
M5MTPU12FB	MTP®-12 UPC(Female) to MTP®-12 UPC(Female) 12 Fibers Multimode (OM5) Patch Cable, Type B, LSZH, 3.0mm, Lime Green
M4MPOU12M12FB	MPO-12 UPC(Male) to MPO-12 UPC(Female) 12 Fibers Multimode (OM4) Patch Cable, Type B, LSZH, 3.0mm, Magenta
M4MTPU12M12FB	MTP®-12 UPC(Male) to MTP®-12 UPC(Female) 12 Fibers Multimode (OM4) Patch Cable, Type B, LSZH, 3.0mm, Magenta
M4MPOU12FA	MPO-12 UPC(Female) to MPO-12 UPC(Female) 12 Fibers Multimode (OM4) Patch Cable, Type A, LSZH, 3.0mm, Magenta
M4MTPU12FA	MTP®-12 UPC(Female) to MTP®-12 UPC(Female) 12 Fibers Multimode (OM4) Patch Cable, Type A, LSZH,

	3.0mm, Magenta
M4MPOU24FA	MPO-24 UPC(Female) to MPO-24 UPC(Female) 24 Fibers Multimode (OM4) Patch Cable, Type A, LSZH, 3.0mm, Magenta
M4MTPU24FA	MTP®-24 UPC(Female) to MTP®-24 UPC(Female) 24 Fibers Multimode (OM4) Patch Cable, Type A, LSZH, 3.0mm, Magenta

Further Information:

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Disclaimer

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