

Description

tML® is a patented, modular cabling system consisting of the three key components module, trunk cable and rack mount enclosure. The system components are 100 percent manufactured, pre-assembled and tested in Germany. They enable plug-and-play installation on site – especially in data centres, but also in industrial environments – within the shortest possible time. Heart of the system are the rear MPO/MTP® and Telco connectors, which can be used to connect at least six or twelve ports at a time. Depending on the module configuration, transfer rates of up to 400G are currently possible with SR4. The fibre optic and TP modules can be used together in a module carrier with a very high port density. The tde offers its tML® cabling system as a proven tML® standard system and in the highly innovative variants tML® 12, tML® 24, tML® 32 and now tML® 24+ System for extreme scalability and very easy migration to higher transmission rates such as 40G, 100G, 200G, 400G and 800G and more.

The tML® - FO Module MPO/MTP® is intended for the installation in the tML® Rack Mount Enclosure 1U (for 8 x Modules).



Technical Data

The end faces of the connectors are optimized by means of Lasercleaving and machine polish. The MPO/MTP® plug has a defined fiber height of 1 - 3.5µ. The max. adjacent fiber height difference is 0.2µm and for all fibers 0.3µm. All system components (modules, trunk cables and patch cords) are co-ordinated for the reaching of the performance particularly. The module is marked with sequential serial number and article number. The modules are ROHS compliant.

Entry	1 x MPO/MTP®(72 Fibers) Male Adapter (black) back
Exit	6 x MPO/MTP®(12 Fibers) Male Adapter (black) front
Tests	Interferometer, Insertion Loss, Return Loss and Visual Final Inspection; all measured values are electronically archived
	QS-Managementsystem ISO 9001, ISO 14001 and TL 9000

tML® - FO Module MPO/M72 fibers with Pins/6x MPO 12 fibers with Pins 50/125µ OM4

Box	Galvanized steel sheet
Front Panel	Stainless steel
Dimensions	110 x 108 x 20 mm

FO Adapters

Type	MPO/MTP®
Application	Multimode OM4
Design	with Flange
Connector style	MPO/MTP®
Key Orientation	Type A, Key up/down
Color	Magenta
Material	Plastic
Sleeve	--
Shutter	--
Standards	IEC 61754-7 TIA 604-5
Manufacturer	US Conec

FO Adapters

Type	MPO/MTP®
Application	Multimode
Design	without Flange
Connector style	SC Simplex
Key Orientation	Type A, Key up/down
Color	Black
Material	Plastic
Sleeve	--
Shutter	--
Standards	IEC 61754-7 TIA 604-5
Manufacturer	US Conec

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tML® - FO Module MPO/M72 fibers with Pins/6x MPO 12 fibers with Pins 50/125µ OM4

FO Connectors

Type	MPO/MTP® Male Push Pull Locking with Elite Pins (magenta)
Ferrule	12 Fiber MM Elite® ferrule, PPS
Boot colour	Black
Manufacturer	tde/US Conec

Optical Performance

Fiber	Type	Wavelength	Insertion loss typ.	Insertion loss max.	Return loss min.
50/125µ OM4	MPO/MTP®	850 /1300 nm	≤ 0.12 dB	0.25 dB	35 dB

FO Fiber

Type	Draka OM4 50/125µm bend-insensitive multimode fiber (C32)
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Standards and Norms	IEC 60793-2-10: type A1a.3	ITU G.651.1	TIA/EIA-492 AAAD
	ISO/IEC 11801 category OM4	EN 60793-2-10: type A1a.3	ANSI/TIA/EIA-568.C
	ISO/IEC 24764	EN 50173-1 category OM4	IEEE 802.3

Optical properties

Maximum attenuation value of cable at 850 nm	IEC 60793-1-40	≤ 3.0 dB/km
Maximum attenuation value of cable at 1300 nm	IEC 60793-1-40	≤ 1.0 dB/km
Attenuation limit according to IEC 60793-2-10, 850 nm	IEC 60793-1-40	≤ 2.5 dB/km
Attenuation limit according to IEC 60793-2-10, 1300 nm	IEC 60793-1-40	≤ 0.8 dB/km
Inhomogeneity of OTDR trace for any two 1000 metre fiber lengths	IEC 60793-1-40	Max. 0.1 dB/km
Fiber bending loss R=7.5 mm 850/1300 nm	IEC 60793-1-40	≤ 0.2 dB / ≤ 0.5 dB
Fiber bending loss R=15 mm 850/1300 nm	IEC 60793-1-40	≤ 0.1 dB / ≤ 0.3 dB

Bandwidth

Overfilled (OFL) modal bandwidth at 850 nm	IEC 60793-1-41	≥ 3500 MHz*km
Overfilled (OFL) modal bandwidth at 1300 nm	IEC 60793-1-41	≥ 500 MHz*km
Effective Modal Bandwidth (EMB) at 850 nm	IEC 60793-1-49	≥ 4700 MHz*km
Group index of refraction at 850 nm	IEC 60793-1-22	1.482
Group index of refraction at 1300 nm	IEC 60793-1-22	1.477

Geometrical / mechanical properties

Core diameter	IEC/EN 60793-1-20	50 ± 2 µm
Cladding diameter	IEC/EN 60793-1-20	125.0 ± 1.0 µm
Cladding non-circularity	IEC/EN 60793-1-20	≤ 0.7%
Core non-circularity	IEC/EN 60793-1-20	≤ 5%
Core -cladding concentricity error	IEC/EN 60793-1-20	≤ 1 µm
Primary coating diameter - uncoloured	IEC/EN 60793-1-21	242 ± 5 µm
Primary coating diameter - coloured	IEC/EN 60793-1-21	250 ± 15 µm
Primary coating non-circularity	IEC/EN 60793-1-21	≤ 5%
Primary coating-cladding concentricity error	IEC/EN 60793-1-21	≤ 6 µm
Proof stress level	IEC/EN 60793-1-30	≥ 0.7 (≈ 1 %) GPa
Typical average strip force	IEC/EN 60793-1-32	1.7 N
Strip force (peak)	IEC/EN 60793-1-32	1.3 N ≤ F _{peak.strip} ≤ 8.9 N
Numerical aperture	IEC/EN 60793-1-43	0.200 ± 0.015

Art.-No.	Description
TML-M06MPP/MP72P50G4	tML® - FO Module MPO/M72 fibers with Pins/6x MPO 12 fibers with Pins 50/125µ OM4