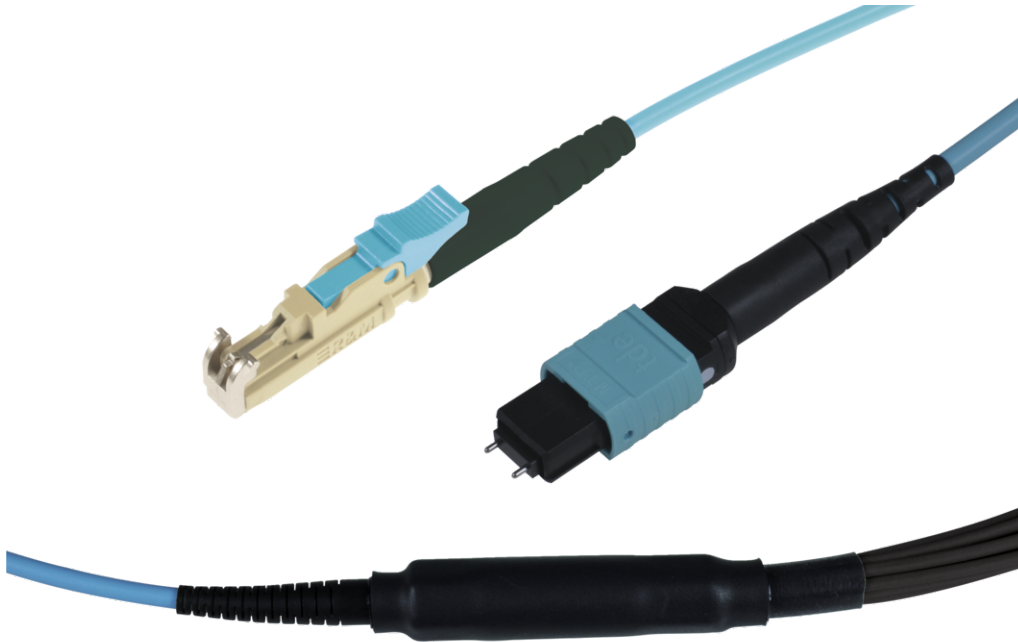


tML[®] - FO Fan-out Cable MPO/MTP[®] w. Pins/12x E2000 12G50/125 μ OM3 LSOH, Length: xx



tML[®] - tde Modular Link

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. The system is characterized by highest packing density and highest flexibility during migration to higher transmission rates. Fibre optic and TP modules can be combined in one rack mount enclosure. 96x fibre optics LC Duplex or 96x MPO connectors can be used modularly on a 19-inch height unit. Thanks to its patented polarity and dark fibre modules, the tML system offers the simplest migration options to 100G and more.

The tML[®] - FO Fan-out Cable MPO/MTP[®] is for the use with tML[®]- FO Trunk Cables.



tde[®] trans data elektronik GmbH

Headquarter address:

Lingener Str. 2
D-49626 Bippen/Ohrte
Tel.: +49 5435 9511 0
Fax.: +49 5435 9511 32

Sales office address:

Prinz-Friedrich-Karl-Str. 46
D-44135 Dortmund
Tel.: +49 231 914 36 99
Fax.: +49 231 914 31 29

info@tde.de | www.tde.de

tML[®] - FO Fan-out Cable MPO/MTP[®] w. Pins/12x E2000 12G50/125 μ OM3 LSOH, Length: xx

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 - 3.5 μ . The max. adjacent fiber height difference is 0.2 μ m and for all fibers 0.3 μ m. All system components (fan-out cables or modules, trunk cables and patch cords) are co-ordinated for the reaching of the performance particularly. The fanout cable is marked with sequential serial number and article number.

Cable	Round cable, loose tube, LSOH, aqua
Fan-out unit	Metal
Entry	1 x MPO/MTP [®] Male Push Pull (aqua)
Exit	12 x E2000 (beige)
Pin-out	Crossover (TIA/EIA-568-B.1 Methode C)
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

FO Connectors

Type	E2000
Ferrule	Ceramic
Ferrule Hole	126 μ
Connector colour	Beige
Lever colour	Aqua
Boot colour	Black
Manufacturer	RDM

Optical performance

Fiber	Type	Wavelength	Insertion loss typ.	Insertion loss max.	Return loss min.
50/125 μ OM3	E2000	850 nm	\leq 0.20 dB	0.35 dB	30 dB

FO Connectors

Connector

Type	MPO/MTP [®] Male Push Pull Locking (aqua)
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.
50/125 μ OM3	MPO/MTP [®]	850 nm	\leq 0.14 dB	0.25 dB	35 dB

tML[®] - FO Fan-out Cable MPO/MTP[®] w. Pins/12x E2000 12G50/125 μ OM3 LSOH, Length: xx

FO Fan-Out

Length Fan-Out	40 mm
Max. \varnothing Fan-Out	10 mm
Parallel connectors	12

FO Cables

Standards	EN 50173-5
	IEC 60794-2-20
	ISO/IEC 24764
Flame resistance	IEC 60332-1-2
	IEC 60332-2-2
	IEC 60754-1
	IEC 60754-2
	IEC 61034

Cable construction

Type	IVH12G50-OM3
Loose tube	12 coated fibers within PVC-core tube
Wall thickness PVC-tube	0.20 mm – 0.25 mm
Fiber type	MM-OM3, 50/125 μ , Corning ClearCurve OM3
Strength members	Aramid yarn
Outer jacket	LSZH (Halogen free, low smoke, flame retardant thermoplastic compound)
Jacket color	Aqua, RAL 6027
Identification	"t d e – IVH12G50-MPO-OM3 LSZH" and sequential meter marking + Lot number

Physical properties

Outer diameter cable	3.0 \pm 0.1 mm
Diameter PVC-core tube	1.8 \pm 0.1 mm
Max. tensile load	300 N
Min. bending radius	30 mm
Temperature range (storage, installation, operation)	-20°C to +70°C

FO Fiber

Type	Corning ClearCurve [®] 50/125 μ OM3 multimode fiber
Optimized Data Rate over Distance	40/100 Gb/s über 140 m* 10 Gb/s over 300 m 1 Gb/s over 1000 m

tML[®] - FO Fan-out Cable MPO/MTP[®] w. Pins/12x E2000 12G50/125 μ OM3 LSOH, Length: xx

Standard Compliance	ISO/IEC 11801: type OM3 fiber IEC 60793-2-10: type A1a.2 fiber TIA/EIA: 492AAAC-B ITU: ITU G651.1
*	Distances specified in the 40G/100G per IEEE 802.3ba standard are 150m on OM4 and 100m on OM3; Corning fibers are manufactured to tighter dispersion specifications and thereby support the extended distances shown in the table (assuming cable attenuation ≤ 3.0 dB/km and same 1.0 dB of connector loss for OM3 that the standard requires for OM4).

Optical Specifications

Bandwidth	High Performance EMB* (MHz.km): 2000 at 850 nm only Legacy Performance EMB* (MHz.km): 1500 at 850 nm / 500 at 1300 nm
Attenuation	At 850 nm max. ≤ 2.3 dB/km At 1300 nm max. ≤ 0.6 dB/km
Macrobend Loss	Mandrel Radius (mm): 37.5 / 15 / 7.5 Number of Turns: 100 / 2 / 2 Induced Attenuation (dB) at 850 nm: ≤ 0.05 / ≤ 0.1 / ≤ 0.2 Induced Attenuation (dB) at 1300 nm: ≤ 0.15 / ≤ 0.3 / ≤ 0.5
Numerical Aperture	0.200 \pm 0.015
*	Ensured via miniEMBc, per TIA/EIA 455-220A and IEC 60793-1-49, for high performance laser-based systems (up to 10 Gb/s).
**	OFL BW, per TIA/EIA 455-204 and IEC 60793-1-41, for legacy and LED-based systems (typically up to 100 Mb/s).

Dimensional Specifications

Core Diameter	50.0 \pm 2.5 μ m
Cladding Diameter	125.0 \pm 1.0 μ m
Core-Clad Concentricity	≤ 1.5 μ m
Cladding Non-Circularity	$\leq 1.0\%$
Core Non-Circularity	$\leq 5.0\%$
Coating Diameter	242 \pm 5 μ m
Coating-Cladding Concentricity	< 12 μ m

Environmental

Environmental Test	Test Condition	Induced Attenuation 850 nm & 1300 nm (dB/km)
Temperature Dependence	-60°C to +85°C	≤ 0.10
Temperature Humidity Cycling	-10°C to +85°C and 4% to 98% RH	≤ 0.10
Water Immersion	23°C \pm 2°C	≤ 0.20
Heat Aging	85°C \pm 2°C	≤ 0.20
Damp Heat	85°C at 85% RH	≤ 0.20
Operating Temperature Range	-60°C to +85°C	

tML[®] - FO Fan-out Cable MPO/MTP[®] w. Pins/12x E2000 12G50/125 μ OM3 LSOH, Length: xx

Mechanical Specifications

Proof Test	The entire fiber length is subjected to a tensile stress ≥ 100 kpsi (0.7 GN/m ²).
Length	Fiber lengths available up to 17.6 km/spool.

Performance Characterizations

Refractive Index Difference	1%
Effective Group Index of Refraction	850 nm: 1.480 1300 nm: 1.479
Fatigue Resistance Parameter (nd)	20
Coating Strip Force	Dry: 0.6 lbs (2.7N) Wet: 14 days in 23°C water soak: 0.6 lbs (2.7N)
Chromatic Dispersion	Zero Dispersion Wavelength (λ_0): 1295 nm $\leq \lambda_0 \leq 1315$ nm Zero Dispersion Slope (SO): ≤ 0.101 ps/(nm ² *km)

Product variants & accessories

Art.-No.	Description
TML-E2A/MPP09I12Exx	tML [®] - FO Fan-out Cable MPO/MTP [®] w. Pins/12x E2000 APC 12E9/125 μ LSOH, Length: xx
TML-E2/MPP09I12Exx	tML [®] - FO Fan-out Cable MPO/MTP [®] w. Pins/12x E2000 UPC 12E9/125 μ LSOH, Length: xx
TML-E2/MPP50I12G3-xx	tML [®] - FO Fan-out Cable MPO/MTP [®] w. Pins/12x E2000 12G50/125 μ OM3 LSOH, Length: xx
TML-E2/MPP50I12G4-xx	tML [®] - FO Fan-out Cable MPO/MTP [®] w. Pins/12x E2000 12G50/125 μ OM4 LSOH, Length: xx
TML-E2/MPP50I12Gxx	tML [®] - FO Fan-out Cable MPO/MTP [®] w. Pins/12x E2000 12G50/125 μ OM2 LSOH, Length: xx
TML-E2/MPP62I12Gxx	tML [®] - FO Fan-out Cable MPO/MTP [®] w. Pins/12x E2000 12G62,5/125 μ OM1 LSOH, Length: xx