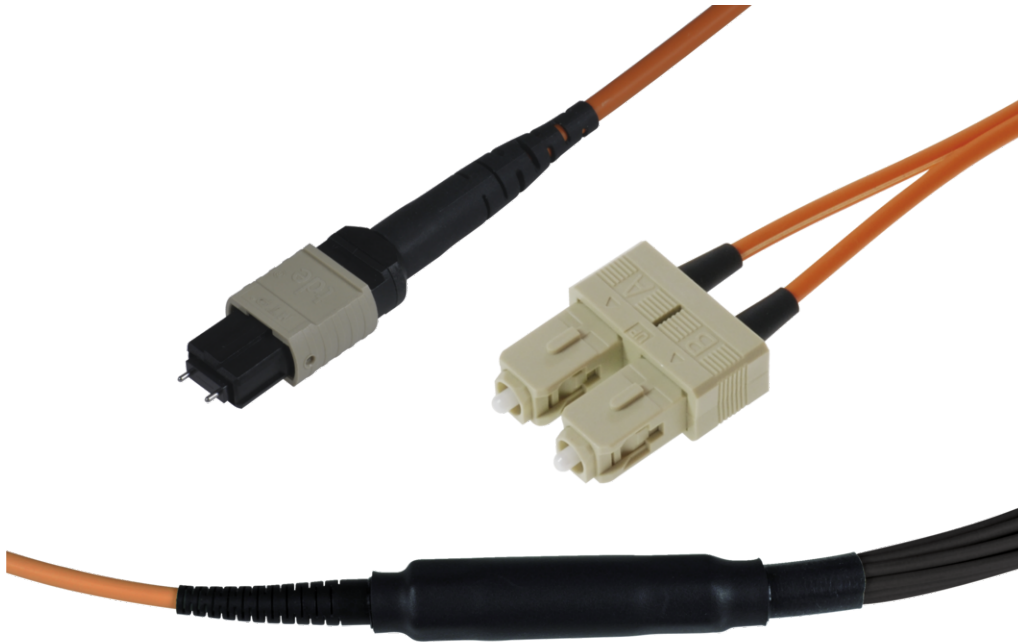


tML<sup>®</sup> - FO Fan-out Cable MPO/MTP<sup>®</sup> with Pins/6x SC Duplex 12G62,5/125µ OM1 LSOH, Length: xx



## tML<sup>®</sup> - tde Modular Link

tML<sup>®</sup> 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<sup>®</sup> 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 200G 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<sup>®</sup> cabling system as a proven tML<sup>®</sup> standard system and in the highly innovative variants tML<sup>®</sup> Xtended, tML<sup>®</sup> 24 System and now tML<sup>®</sup> 32 System for extreme scalability and very easy migration to higher transmission rates such as 40G, 100G, 200G and 400G.

The tML<sup>®</sup> - FO Fan-out Cable MPO/MTP<sup>®</sup> is for the use with tML<sup>®</sup>- FO Trunk Cables.



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tML<sup>®</sup> - FO Fan-out Cable MPO/MTP<sup>®</sup> with Pins/6x SC Duplex 12G62,5/125µ OM1 LSOH, Length: xx

## Technical Data

The end faces of the connectors are optimized by means of Lasercleaving and machine polish. The MPO/MTP<sup>®</sup> 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 (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, orange
Fan-out unit	Metal
Entry	1 x MPO/MTP <sup>®</sup> Male Push Pull (beige)
Exit	6 x SC Duplex (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

The end faces of the connectors are optimized by means of Lasercleaving and machine polish. The MPO/MTP<sup>®</sup> 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.

### Connector

Type	MPO/MTP <sup>®</sup> Male Push Pull Locking with Elite Pins (beige)
Ferrule	12 Fiber MM Elite <sup>®</sup> ferrule, PPS
Boot colour	Black
Temperature range	-40°C to +75°C
Manufacturer	tde/US Conec

### Optical Performance

Fiber	Type	Wavelength	Insertion loss typ.	Insertion loss max.	Return loss min.
50/125µ OM2	MPO/MTP <sup>®</sup>	850 nm	≤ 0.25 dB	0.45 dB	20 dB
62.5/125µ OM1	MPO/MTP <sup>®</sup>	850 nm	≤ 0.25 dB	0.45 dB	

## FO Connectors

Connector Type	SC Duplex
Housing	Plastic, Beige
Ferrule	Zirconia Straight Split, Spring-loaded Axially
Ferrule Hole	126 µ
Mating Cycles	1.000
Operating Temperature	-40°C up to +75°C
Strain Relief to	150 N

tML<sup>®</sup> - FO Fan-out Cable MPO/MTP<sup>®</sup> with Pins/6x SC Duplex 12G62,5/125 $\mu$  OM1 LSZH, Length: xx

Manufacturer	tde
Simplex / Duplex Clip	with Duplex Clip

## Optical performance

Fiber	Type	Wavelength	Insertion loss typ.	Insertion loss max.	Return loss min.
50/125 $\mu$ OM2	SC	850 nm	$\leq 0.25$ dB	0.45 dB	30 dB
62.5/125 $\mu$ OM1	SC	850 nm	$\leq 0.25$ dB	0.45 dB	

## 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	IVH12G62.5-OM1
Loose tube	12 coated fibers within PVC-core tube
Fiber type	MM-OM2, 62.5/125 $\mu$ , Corning
Strength members	Aramid yarn
Outer jacket	LSZH (Halogen free, low smoke, flame retardant thermoplastic compound)
Jacket color	Orange, RAL 2003
Identification	"t d e – IVH12G62-MPO 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

tML<sup>®</sup> - FO Fan-out Cable MPO/MTP<sup>®</sup> with Pins/6x SC Duplex 12G62,5/125 $\mu$  OM1 LSOH, Length: xx

## FO Fiber

Type	Corning 62.5/125 $\mu$ OM1 multimode fiber
Manufacturer	Corning

## Optical Specifications

Bandwidth	160/200 at 850 nm / 500 at 1300 nm
Attenuation	At 850 nm max. $\leq$ 3.0 dB/km At 1300 nm max. $\leq$ 0.7 dB/km
Numerical Aperture	0.275 $\pm$ 0.015

## Dimensional Specifications

Core Diameter	62.5 $\pm$ 3.0 $\mu$ m
Cladding Diameter	125.0 $\pm$ 2.0 $\mu$ m
Core-Clad Concentricity	$\leq$ 3.0 $\mu$ m
Cladding Non-Circularity	$<$ 2.0%
Core Non-Circularity	$\leq$ 5.0%
Coating Diameter	245 $\pm$ 5 $\mu$ m
Coating-Cladding Concentricity	$<$ 12 $\mu$ m

## Environmental Specifications

Environmental Test	Test Condition	Induced Attenuation 850 nm and 1300 nm (dB/km)
Temperature Dependence	-60°C to +85°C	$\leq$ 0.20
Temperature Humidity Cycling	-10°C to +85°C and 4% to 98% RH	$\leq$ 0.20
Operating Temperature Range	-60°C to +85°C	

## Mechanical Specifications

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

## Performance Characterizations

Refractive Index Difference	2%
Effective Group Index of Refraction	850 nm: 1.496 1300 nm: 1.491
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 ( $\lambda_0$ ): 1332 nm $\leq \lambda_0 \leq$ 1354 nm Zero Dispersion Slope (S0): $\leq$ 0.097 ps/(nm <sup>2</sup> *km)

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## Product variants & accessories

Art.-No.	Description
TML-MPP/SC09112Exx	tML <sup>®</sup> - FO Fan-out Cable MPO/MTP <sup>®</sup> with Pins/6x SC Duplex 12E9/125 $\mu$ LSOH, Length: xx
TML-MPP/SC50112G3-xx	tML <sup>®</sup> - FO Fan-out Cable MPO/MTP <sup>®</sup> with Pins/6x SC Duplex 12G50/125 $\mu$ OM3 LSOH, Length: xx
TML-MPP/SC50112G4-xx	tML <sup>®</sup> - FO Fan-out Cable MPO/MTP <sup>®</sup> with Pins/6x SC Duplex 12G50/125 $\mu$ OM4 LSOH, Length: xx
TML-MPP/SC50112Gxx	tML <sup>®</sup> - FO Fan-out Cable MPO/MTP <sup>®</sup> with Pins/6x SC Duplex 12G50/125 $\mu$ OM2 LSOH, Length: xx
TML-MPP/SC62112Gxx	tML <sup>®</sup> - FO Fan-out Cable MPO/MTP <sup>®</sup> with Pins/6x SC Duplex 12G62,5/125 $\mu$ OM1 LSOH, Length: xx