

tSML - FO Trunk Cable 4x MPO Female/4x MPO Female 48E9/125µ OS2 LSHF, Type C, Length: xxx in m



## tSML - tde Semi Modular Link

tSML is a modular developed cabling system, which consists of two core components: module and trunk cable. The system components, preterminated with connectors and tested ex works, facilitate very fast installation of both twisted pair and fiber-optic cables. Ready-made trunk cables, providing a high number of pairs or fibers, can simply be plugged together using patch panels. Up to 96x LC duplex and/or 48 x RJ45 of haven can be accommodated in such a way on 1U. At the heart of the System are MPO/MTP<sup>®</sup> and Telco connectors, with which 12 optical fibers or 24 copper pairs can be connected simultaneously. Fiber-optic and twisted pair modules can be combined on 1U within a panel without difficulty.



**tde<sup>®</sup> 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

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## 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.

Cable	Universal Cable
Connectors	MPO/MTP <sup>®</sup> Push Pull (green)
Pin out	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

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### Connector

Type	MPO/MTP <sup>®</sup> Female Push Pull Locking (Green)
Ferrule	12 Fiber SM Elite <sup>®</sup> ferrule, PPS
Boot colour	Black
Temperature range	-40°C bis +75°C
Manufacturer	tde/US Conec

## Optical Performance

Fiber	Type	Wavelength	Insertion loss typ.	Insertion loss max.	Return loss min.
9/125µ OS2	MPO/MTP <sup>®</sup> APC	1310 / 1550 nm	≤ 0.10 dB	0.20 dB	75 dB

## FO Fan-Out

Fan-out length	50 mm
Ø Fan-out	approx 16 - 19 mm
Ø Single unit	3.0 mm
Single unit length	78 ± 5 cm (not stepped)

## FO Cables

### Mechanical characteristics

Temperature range	Storage -25 to +70°C, IEC 60794-1-22 F1
	Pulling in -10 to +50°C
	Operation -25 to +60°C

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Tensile performance	IEC 60794-1-21 E1
Crush resistance	IEC 60794-1-21 E3
Impact	IEC 60794-1-21 E4
Repeated bending	IEC 60794-1-21 E6
Torsion	IEC 60794-1-21 E7
Bend	IEC 60794-1-21 E11
Water penetration	IEC 60794-1-22 F5

## General characteristics

Sheath colour	green, similar to RAL 6016
Zero halogen, no corrosive gases	IEC 60754-1/-2, EN 60754-1/-2, VDE 0482-754-1/-2
Flame propagation	IEC 60332-1-2, EN 60332-1-2, VDE 0482-332-1-2
Flame spread	IEC 60332-3-24, EN 50266-2-4, VDE 0482-266-2-4
Smoke density	IEC 61034-1/-2, EN 61034-1/-2, VDE 0482-1034-1/-2
Reaction to fire (Euroclasses)	EN 13501-6: E <sub>ca</sub>

Cabletype	Universal U-DQ(ZN)BH for indoor and outdoor use
	non metallic, dry interstices, rodent protection, flame retardant, in accordance with IEC 60332.1 and IEC 60332.3 C
Fibertype	Corning E9/125 G.652.D
No. of fibers	48
Loose tube	4
Sheath $\varnothing$	11.4 mm
Weight	148 kg/km
Bending radius	175 mm
Tensile load	6000 N
Crush resistance	3000 N continuous 5000 N short term
Fire load	616 kWh/km 2218 MJ/km

## Length tolerances (prefabricated with plugs)

Tolerances for lengths up to 40m	$\pm 100$ cm
Tolerances for lengths up to 100m	$\pm 100$ cm
Tolerances for lengths from 100m	$\pm 2\%$

## FO Fiber

### Optical properties

Maximum attenuation (cabled)	1310 nm: 0.34 / 1383 nm: 0.34* dB/km (*post hydrogen aging performance)
Maximum Chromatic Dispersion	3.5 ps/(nm x km)
Zero Dispersion Wavelength $\lambda_0$	1304 $\leq \lambda_0 \leq$ 1324 nm

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Maximum Zero Dispersion Slope $S_0$	0.092 ps/(nm <sup>2</sup> x km)
Mode-Field Diameter	9.2 +/- 0,4 µm
Maximum Cable Cut-off Wavelength $\lambda_{CC}$	1260 nm
PDM Link Design Value	≤ 0.04 ps/√km
Max. individual fibre PMD	≤ 0.1 ps/√km
Max. individual cable PMD	≤ 0.2 ps/√km
Refractive Index	1.4676

## Mechanical properties

Cladding diameter	125.0 +/- 1.0 µm
Maximum Core/Cladding Concentricity Error	0.5 µm
Maximum Cladding Non-Circularity	0.7 %
Coating diameter	245 +/-5 µm
Maximum Cladding/Coating Concentricity Error	12 µm
Operating temperature range	-60 to +85°C
Test load	100 kpsi

## Product variants & accessories

Art.-No.	Description
TSML-MP/MP09B48Exxx	tSML - FO Trunk Cable 4x MPO Female/4x MPO Female 48E9/125µ OS2 LSHF, Type C, Length: xxx in m
TSMLMP/MP50B48G3-xxx	tSML - FO Trunk Cable 4x MPO Female/4x MPO Female 48G50/125µ OM3 LSHF, Type C, Length xxx in m
TSMLMP/MP50B48G4-xxx	tSML - FO Trunk Cable 4x MPO Female/4x MPO Female 48G50/125µ OM4 LSHF, Type C, Length xxx in m