

tSML - FO Module 19"/0.5U straight 4x MPO/MTP[®] Male/24x LC Duplex 50/125 μ OM4



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[®] 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.

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 (modules, trunk cables and patch cords) are coordinated for the reaching of the performance particularly. The module is marked with sequential serial number and article number. The modules are ROHS compliant.



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Technical Data

Entry	4 x MPO/MTP [®] Male Adapter (magenta) back
Exit	24 x LC Duplex Adapter (magenta) front
Tests	Interferometer, Insertion Loss, Return Loss and Visual Final Inspection; all measured values are electronically archived
	QS-Managementssystem ISO 9001, ISO 14001 and TL 9000

tSML - FO Modules 19" 0.5U

Box	stainless steel
Front plate	stainless steel
Dimensions	19", 0.5U, depth 11 cm

FO Adapters

Type	LC Duplex
Application	Multimode OM4
Design	One-Piece without flange
Connector style	SC simplex
Color	Magenta
Material	Plastic
Sleeve	Zirkonia Straight Split
Shutter	--
Manufacturer	tde

FO Adapters

Type	MPO/MTP [®]
Application	Multimode OM4
Design	without Flange
Connector style	SC Simplex
Key Orientation	Type A, Key up/down
Color	Magenta
Material	Plastic
Sleeve	--
Shutter	--
Standards	IEC 61754-7 TIA 604-5
Manufacturer	US Conec

FO Connectors

The end faces of the connectors are optimized by means of Lasercleaving and machine polish. The MPO/MTP[®] plug has a

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defined fiber height of 1 - 3.5 μ m. The max. adjacent fiber height difference is 0.2 μ m and for all fibers 0.3 μ m.

Connector

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.
50/125 μ OM4	MPO/MTP [®]	850 / 1300 nm	≤ 0.12 dB	0.25 dB	35 dB

FO Connectors

Connector Type	LC Unibody Simplex
Housing	Plastic, Magenta
Ferrule	Zirkonia Staight Split, Spring-loaded Axially
Ferrule Hole	126 μ
Mating Cycles	1.000
Operating Temperature	-40°C up to +75°C
Strain Relief to	100 N
Manufacturer	tde

Optical performance

Fiber	Type	Wavelength	Insertion loss typ.	Insertion loss max.	Return loss min.
50/125 μ OM4	LC	850 / 1300 nm	≤ 0.07 dB	0.15 dB	35 dB

FO Fiber

Type	Draka OM4 50/125 μ m 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

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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 μ m
Cladding diameter	IEC/EN 60793-1-20	125.0 ± 1.0 μ m
Cladding non-circularity	IEC/EN 60793-1-20	$\leq 0.7\%$
Core non-circularity	IEC/EN 60793-1-20	$\leq 5\%$
Core -cladding concentricity error	IEC/EN 60793-1-20	≤ 1 μ m
Primary coating diameter - uncoloured	IEC/EN 60793-1-21	242 ± 5 μ m
Primary coating diameter - coloured	IEC/EN 60793-1-21	250 ± 15 μ m
Primary coating non-circularity	IEC/EN 60793-1-21	$\leq 5\%$
Primary coating-cladding concentricity error	IEC/EN 60793-1-21	≤ 6 μ m
Proof stress level	IEC/EN 60793-1-30	≥ 0.7 ($\approx 1\%$) GPa
Typical average strip force	IEC/EN 60793-1-32	1.7 N
Strip force (peak)	IEC/EN 60793-1-32	1.3 N $\leq F_{\text{peak,strip}} \leq 8.9$ N
Numerical aperture	IEC/EN 60793-1-43	0.200 ± 0.015

Product variants & accessories

Art.-No.	Description
TSML-M24LCADK/MPP09E	tSML - FO Module 19"/0.5U straight 4x MPO/MTP [®] Male/24x LC APC Duplex 9/125 μ OS2
TSML-M24LCDK/MPP09E	tSML - FO Module 19"/0.5U straight 4x MPO/MTP [®] Male/24x LC Duplex 9/125 μ OS2
TSML-M24LCDK/MPP50G3	tSML - FO Module 19"/0.5U straight 4x MPO/MTP [®] Male/24x LC Duplex 50/125 μ OM3
TSML-M24LCDK/MPP50G4	tSML - FO Module 19"/0.5U straight 4x MPO/MTP [®] Male/24x LC Duplex 50/125 μ OM4