

tSML - HD FO Module 19"/0.5U straight 8x MPO/MTP<sup>®</sup> Male/48x LC duplex 50/125 $\mu$  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<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.

The tSML HD module can be used only in conjunction with the tSML HD patch cord.



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## tSML - HD FO Module 19"/0.5U straight 8x MPO/MTP<sup>®</sup> Male/48x LC duplex 50/125 $\mu$ OM4

### Technical Data

Box	stainless steel
Front plate	stainless steel
Entry	8 x MPO/MTP <sup>®</sup> Male adapter (magenta) back
Exit	48 x LC duplex adapter (magenta) front
Dimensions	19", 0.5 U, depth: 11 cm
Identification	silkscreen at the front
	19" mounting set enclosed
	QS-Managementsystem 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 Quad
Application	Multimode OM4
Design	with flange
Footprint	SC Duplex
Color	Magenta
Material	Plastic
Sleeve	Zirkonia Straight Split
Shutter	--
Manufacturer	tde

### FO Adapters

Type	MPO/MTP <sup>®</sup>
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

## tSML - HD FO Module 19"/0.5U straight 8x MPO/MTP<sup>®</sup> Male/48x LC duplex 50/125μ OM4

### 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 (magenta)
Ferrule	12 Fiber MM Elite <sup>®</sup> 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 <sup>®</sup>	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.
50/125μ OM4	LC	850 / 1300 nm	≤ 0.07 dB	0.15 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

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### Optical properties

Maximum attenuation value of cable at 850 nm	IEC 60793-1-40	$\leq 3.0$ dB/km
Maximum attenuation value of cable at 1300 nm	IEC 60793-1-40	$\leq 1.0$ dB/km
Attenuation limit according to IEC 60793-2-10, 850 nm	IEC 60793-1-40	$\leq 2.5$ dB/km
Attenuation limit according to IEC 60793-2-10, 1300 nm	IEC 60793-1-40	$\leq 0.8$ 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	$\leq 0.2$ dB / $\leq 0.5$ dB
Fiber bending loss R=15 mm 850/1300 nm	IEC 60793-1-40	$\leq 0.1$ dB / $\leq 0.3$ dB

### Bandwidth

Overfilled (OFL) modal bandwidth at 850 nm	IEC 60793-1-41	$\geq 3500$ MHz*km
Overfilled (OFL) modal bandwidth at 1300 nm	IEC 60793-1-41	$\geq 500$ MHz*km
Effective Modal Bandwidth (EMB) at 850 nm	IEC 60793-1-49	$\geq 4700$ 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	$50 \pm 2$ $\mu$ m
Cladding diameter	IEC/EN 60793-1-20	$125.0 \pm 1.0$ $\mu$ 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	$\leq 1$ $\mu$ m
Primary coating diameter - uncoloured	IEC/EN 60793-1-21	$242 \pm 5$ $\mu$ m
Primary coating diameter - coloured	IEC/EN 60793-1-21	$250 \pm 15$ $\mu$ m
Primary coating non-circularity	IEC/EN 60793-1-21	$\leq 5\%$
Primary coating-cladding concentricity error	IEC/EN 60793-1-21	$\leq 6$ $\mu$ m
Proof stress level	IEC/EN 60793-1-30	$\geq 0.7$ ( $\approx 1\%$ ) 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	$0.200 \pm 0.015$

### Product variants & accessories

Art.-No.	Description
TSML-M48LCAD/MPP09E	tSML - HD FO Module 19"/0.5U straight 8x MPO/MTP <sup>®</sup> Male/48x LC APC duplex 9/125 $\mu$ OS2
TSML-M48LCD/MPP09E	tSML - HD FO Module 19"/0.5U straight 8x MPO/MTP <sup>®</sup> Male/48x LC duplex 9/125 $\mu$ OS2
TSML-M48LCD/MPP50G3	tSML - HD FO Module 19"/0.5U straight 8x MPO/MTP <sup>®</sup> Male/48x LC duplex 50/125 $\mu$ OM3
TSML-M48LCD/MPP50G4	tSML - HD FO Module 19"/0.5U straight 8x MPO/MTP <sup>®</sup> Male/48x LC duplex 50/125 $\mu$ OM4