

tSML - FO Breakout Module 19"/0.5U straight 4x MPO/MTP[®] with Pins/16x LC Duplex 50/125μ OM4
40GbE



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.



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

Entry	4 x MPO/MTP [®] Male Adapter (magenta) front
Exit	16 x LC Duplex Adapter (magenta) front
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

tSML - FO Modules 19"/ 0.5U

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

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 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 [®] Male Push Pull Locking with Elite Pins (magenta)
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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.
50/125μ OM4	MPO/MTP [®]	850 /1300 nm	≤ 0.12 dB	0.25 dB	35 dB

FO Adapters

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

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

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
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 µm
Cladding diameter	IEC/EN 60793-1-20	125.0 ± 1.0 µm
Cladding non-circularity	IEC/EN 60793-1-20	≤ 0.7%
Core non-circularity	IEC/EN 60793-1-20	≤ 5%
Core -cladding concentricity error	IEC/EN 60793-1-20	≤ 1 µm
Primary coating diameter - uncoloured	IEC/EN 60793-1-21	242 ± 5 µm
Primary coating diameter - coloured	IEC/EN 60793-1-21	250 ± 15 µm
Primary coating non-circularity	IEC/EN 60793-1-21	≤ 5%
Primary coating-cladding concentricity error	IEC/EN 60793-1-21	≤ 6 µm
Proof stress level	IEC/EN 60793-1-30	≥ 0.7 (≈ 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 ≤ F _{peak.strip} ≤ 8.9 N
Numerical aperture	IEC/EN 60793-1-43	0.200 ± 0.015

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Product variants & accessories

Art.-No.	Description
TSML-M16LCAD/MPP09E	tSML - FO Breakout Module 19"/0.5U straight 4x MPO/MTP [®] with Pins/16x LC APC Duplex 9/125μ OS2 40GbE
TSML-M16LCD/MPP50G3	tSML - FO Breakout Module 19"/0.5U straight 4x MPO/MTP [®] with Pins/16x LC Duplex 50/125μ OM3 40GbE
TSML-M16LCD/MPP50G4	tSML - FO Breakout Module 19"/0.5U straight 4x MPO/MTP [®] with Pins/16x LC Duplex 50/125μ OM4 40GbE