

**tML**<sup>®</sup>

**tde Modular Link  
cabling system**



# Accounts

## All operators of data center

- Industry
- Insurances
- Banks
- Universities
- Provider
- Government
- FTTH
- ISP's

# Advantages of the tML<sup>®</sup> – Systemplattform

- **Quick and simple**
  - Installation of complete FO and TP cabling simply by connecting preterminated system components
- **High packing density**
- **Investment protection**
  - Revisions or expansion are everytime possible at any
- **Economics**
  - Easy installation
  - Reduced installation-time = reduced installation-costs
  - No system validation necessary
  - Components can be reused in case changes
  - minimal space requirements in cabletrays and cabinets



## Advantages of the tML<sup>®</sup> – Systemplattform

- **Modularity**
  - Only 3 system-components: Module-bearers 19", FO and/or TP modules, FO and/or TP trunk-cables
- **High quality**
  - All system-components are factory manufactured and tested under optimal production and laboratory-conditions
- **Environmental friendly**
  - Due to possibility to reuse system-components after changes, raw material and energy-resources are saved

## Advantages of the tML<sup>®</sup> – Systemplattform

- **Low fire-load**
  - Due to the small cable-diameter and the resulting minimal influence on the air-circulation
- **Lowest space requirements in the cable-trays due to cable sizes**



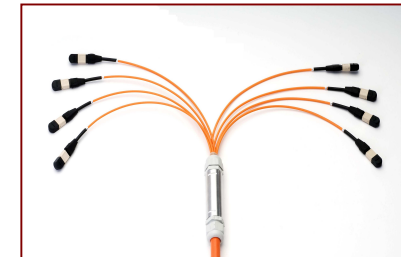
## Unique tML<sup>®</sup> features

- TP and FO Modules can be combined on 1 U without problems
- Up to 48 x RJ45 Ports GbE modular on 1 U
- Up to 48 x E2000 Compact modular on 1U
- Up to 48 x LC Duplex modular on 1U
- The TP system is completely shielded
- The Telco connector used on the TP cables is a standard and not proprietary  
→ Independency of a single source
- All cables, are shielded halogen-free, that are TP-cable high-flexible



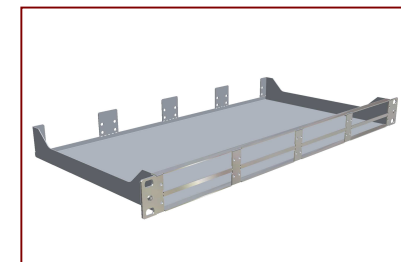
## Unique tML<sup>®</sup> features

- All MPO cables use round-cables  
(Outside diameter app. 3mm)
- 48 fibers MPO Breakout-cable can be manufactured without fanout unit!
- Round-cables (very flexible) instead of flat ribbon-cable
- Through Laser Cleaving optimized FO end faces
- Use of standard bundle-core-cables
- Pre terminated trunk-cables with up to 144 fibers
- Excellent price performance ratio
- „Made in Germany“



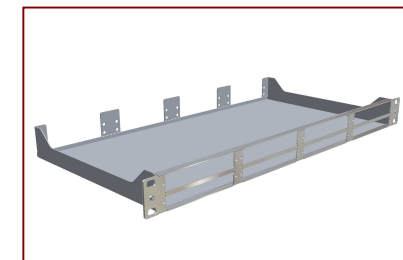
## tML<sup>®</sup> – System Components (FO)

- **FO Trunkcable MPO/MPO**
  - All Fibertypes
  - All lengths
  - Cruised in pairs
- **FO module MPO/ E2000, LC, MU, SC, ST**
  - Straight pin out (other pin out possible)
  - All Fibertypes
- **Modulebearers 19“**
  - 1U for the reception of 8 x modules
  - 3U for the reception of 17 x modules (5TE)



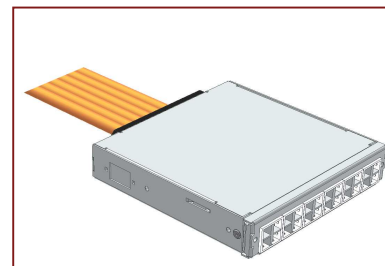
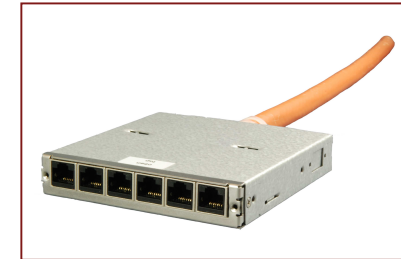
## tML<sup>®</sup> – System Components (TP)

- **TP Trunkcable Telco Female/Female**
  - All lengths until 60 meters
- **Modules Telco Male/6 x RJ45 GbE**
- **Modulebearers 19“**
  - 1U for the reception of 8 x modules
  - 3U for the reception of 17 x modules (5TE)



## New tML<sup>®</sup> products

- 10GbE modules directly terminated onto the 6 channel trunk
- Modules for DIN rail mounting
- Telco Panel 19" / ½ U stainless steel 4 x Telco/24 x RJ45
- TP Trunk Cable on both ends preterminated EC7 Modules Cat.7
- Up to 576 x fibers per 1U by usage of MPO (72 fibers) technology



## Planned tML<sup>®</sup> products

- Modules with integrated LWL splitters for monitoring
- Modules with integrated CWDM's
- Modules with integrated Converter (6 x 1000BaseT on 1x MPO)
- Cross Connects with integrated Flex Circuits

# Cost comparison

**Purchase costs**

+

**Minimal installation costs**

+

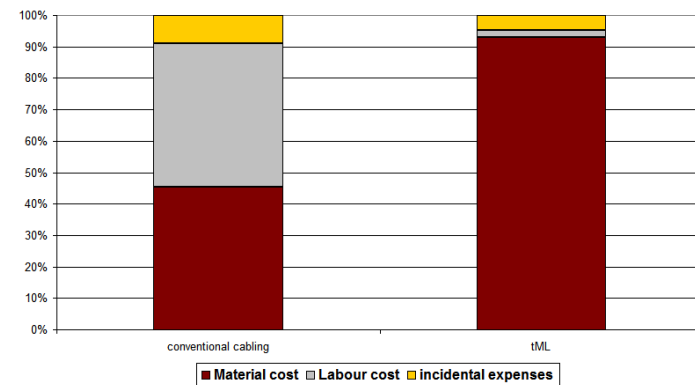
**Low extra expenses**

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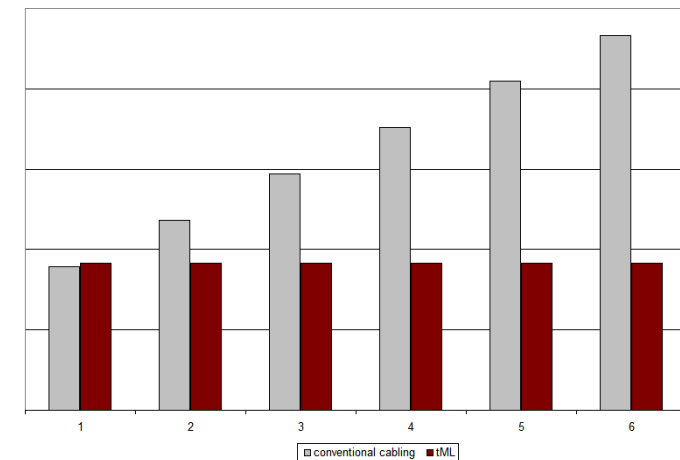
**Savings from the beginning**

„Although hugely advantageous,  
cost are competitive low.  
Further cost advantages will  
show up after system changes.“

Cost allocation



Comparing tML with conventional cabling (incl. Spleissarbeiten)



## References for MPO cabling:

- CERN
- S.Oliver
- Barmenia Wuppertal
- City Line
- Universityclinic Bonn
- Airport Köln-Bonn
- IT NRW



## Certificates

- ISO 9001:2000
- ISO 14001
- TL 9000



**t d e – your reliable partner**

**Thank you for your attention!**

**Any questions?**