



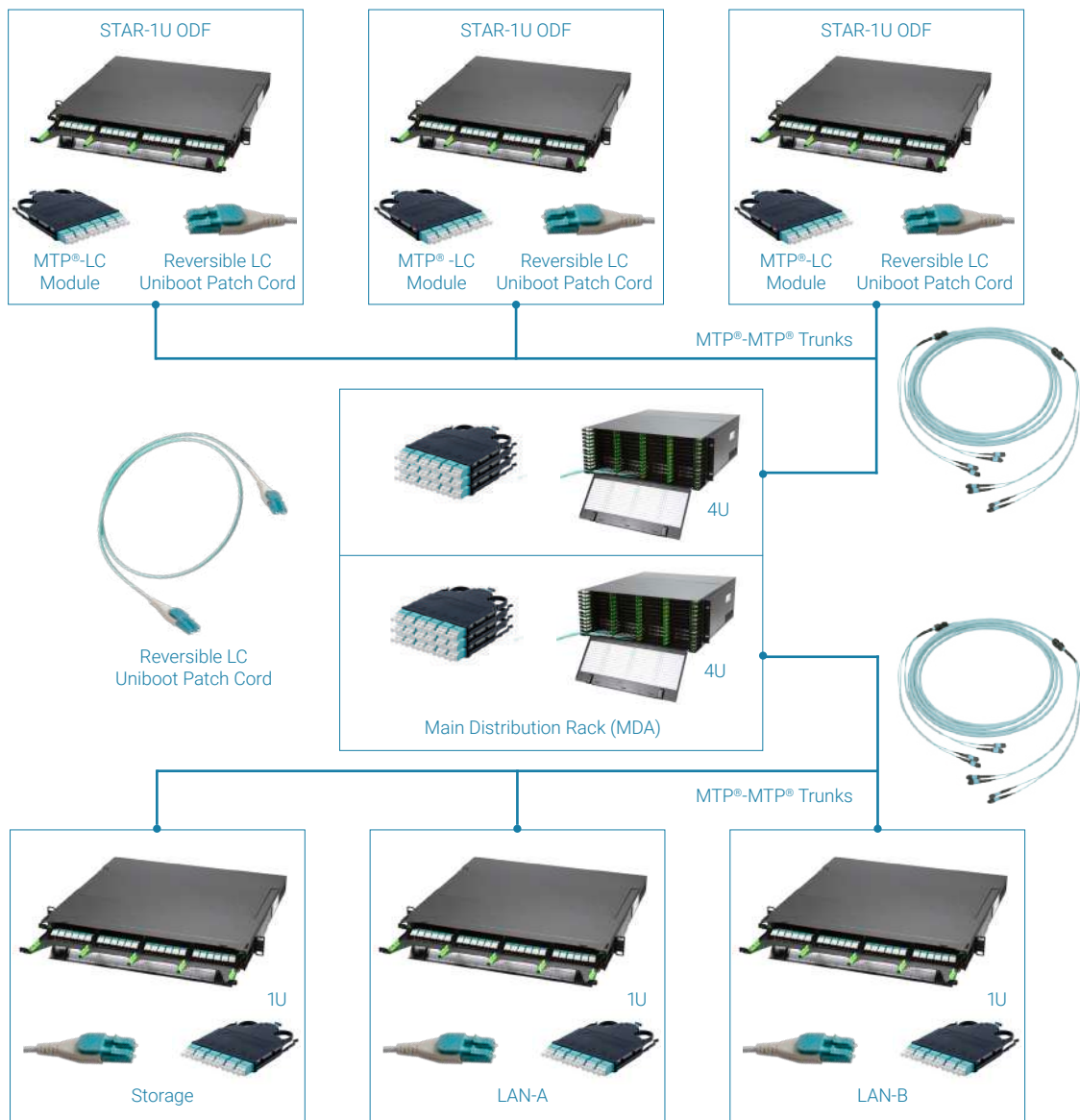
Data Center High Density Connectivity Solution

STAR High Density Connectivity Solution

STAR is a cost-effective modular solution that harnesses ultra-high density pre-terminated fiber-optic cabling to answer key data center operability challenges. STAR delivers high density connection in modules that allow faster handling of Moves, Adds and Changes

(MACs), effortless access to adapter / connector, built-in cabling management, and smaller space requirements compared to other advanced fiber-optic cabling systems. STAR series meets international standards for data center cabling and operation.

STAR Solution Illustration



* MTP® is a registered trademark of US Conec Ltd

STAR Frames

The STAR fiber-optic distribution frame is a high-performance, compact housing assembly, built in stacked trays of 4 modules each. This solution applies a simple sliding-tray system that makes the modules as quick and easy to handle as intuitive plug-in components.

Features:

- STAR series 1U , 2U & 4U Modular ODF Chassis up to 576 Fibers in 4U
- Selection of modules for various solutions up to 400Gb/s
- Meets the current data rates requirement for 10G/40G 100G up to 400Gb/s
- STAR series solution allows more than 30 percent faster MACs
- Compliant with TIA 942 and TELCORDIA GR-449-CORE
- Modules can be inserted from both side, rear and front
- Sliding numbered trays allowing easy and convenient installation
- RoHS Compliant

Benefits:

- Individual tray pull-out/handling - High density yet easy access to each port
- Removable top cover providing easy access to the interior of the ODF
- Built-in cabling management
- Versatile high-density solution (either MTP®- MTP® or MTP®-LC modules)
- Low insertion loss enabling maximum connections per channel enabling structured cabling architecture as required in TIA-942.
- Combined with Bend Insensitive cables and Uniboot Patch Cords for maximum density and reliability

Specifications:

STAR 1U ODF

- Handles up to 8 MTP®-LC modules and 96 fibers or 8 MTP® modules with 48 MTP® connections, arranged in 2 trays
- Depth: 491.4 mm

STAR 1U-144 ODF

- Handles up to 12 MTP®-LC modules and 144 fibers or 12 MTP® modules with 72 MTP® connections, arranged in 3 trays
- Depth: 543.4 mm

STAR 2U ODF

- Handles up to 24 MTP®-LC modules and 288 fibers or 24 MTP® modules with 144 MTP® connections, arranged in 6 trays
- Depth: 543.4 mm

STAR 4U ODF

- Handles up to 48 MTP®-LC modules and 576 fibers or 48 MTP® modules with 288 MTP® connections, arranged in 12 trays
- Depth: 543.4 mm



STAR 1U ODF



STAR 2U ODF



STAR 4U ODF

STAR Modules

STAR Modules are designed to consistently deliver the connectivity required in the most demanding environments. The modules fit into the sliding-tray system, with easy plug-in installation and easy pull-out access for MAC servicing. STAR modules can accommodate either MTP® to 6 LC Duplex adapters (MTP®-LC Module) or MTP® adapters in various combinations.

Features:

- TELCORDIA GR-449-CORE, IEC 61754-7, 568-C.3, IEC 11801 and TIA 942 compliant
- Verified for up to 400G Ethernet
- 100% Testing of Insertion & Return Loss (IL&RL)
- RoHS compliant
- Available with SM/OM4/OM3 cable types
- All Ferrules are interformeter tested

Benefits:

- Quick insertion and extraction in a compact, high density, space-saving design
- Individual tray pull-out - easy access/operation to each port
- Low Insertion Loss performance exceeding TIA 942-A connection requirements
- Built in Shuttered LC Duplex adapters ensures user safety for invisible laser beams

Specifications:

MTP®-LC Module

- Available with one rear MTP® adapter to 6 LC Duplex numbered front LC connections

MTP®-MTP® Module

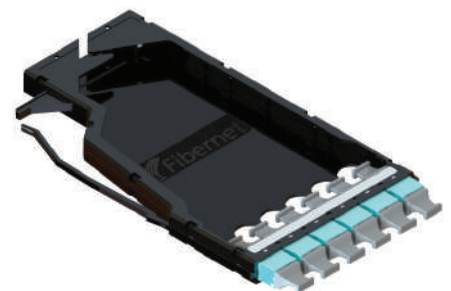
- Up to 6 built-in MTP®-MTP® adapters providing MTP® connection points between trunks and harnesses
- 10G / 40G / 100G migration utilizing the same backbone trunk cables for the upgrade

MTP® Up to 400G Conversion Module

- Available configurations:
- 2x3 - Two 12-fiber MTP® adapters at the rear and three 8-fiber MTP® adapters at the front
- 4x6 - Four 12-fiber MTP® adapters at the rear and six 8-fiber MTP® adapters at the front
- Utilizing all fibers in Data Center 40G trunk cables



MTP®-LC Module



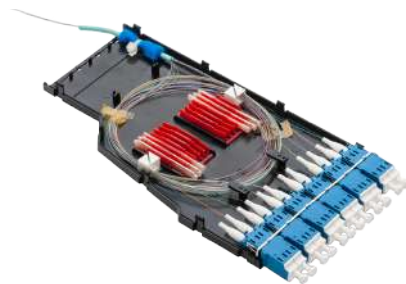
MTP®-MTP® Module



MTP® Conversion Module

Fusion Splice Module

- Enables easy termination of splice cables with high-density LC connectors in Data Centers
- Holds up to 12 LC Splice connections - with 12 color coded pigtailed and 6 LC adapters
- Removable top for easy access and designated fiber management system ensuring fiber slack and bend radius



Fusion Splice Module

TAP Module

- MTP® to LC, or MTP® to MTP® with front TAP connection, or MTP® to MTP® with rear TAP connection
- Contains fiber optic splitters which divide each optical signal into two outputs - live link traffic and monitoring without interruption to the live network traffic
- Different splice ratios and different performance splitters available



TAP Module



MTP® Cables

These pre-terminated bend-insensitive MTP® cables based on MTP® Elite connectors with connection Insertion Loss of 0.25 dB (0.1 dB typical max 0.35 dB Max)

For any type of High-Density and High performance required application be needed

Features:

- Supports International standards IEEE & TIA/EIA 604-5 MPO FOCIS 5
- Compliance with IEEE 802.3ba for 40 and 100 Gb/s
- Bend-Insensitive fibers MM OM3 as per IEC 60793-2-10 type A1a.2, MM OM4 as per IEC 60793-2-10 type A1a.3 and SM OS2 as per ITU-T G.657.A2.
- Complies with Telcordia GR-1435-CORE, IEC 61754-7, TIA 568-C.3, IEC 60793-1, IEEE 802.3ba, IEC 11801 (OS2, OM3 and OM4), TIA-492-AAAC, TIA-492.AAAD and TIA-942-A.
- Environmentally safe – complies with UL94-V-0, IEC 60332-3, IEC 60754-2, and IEC 61034 and RoHS.
- Jacket is LSZH-FR and HFFR with custom labeling or sleeve marking available
- 100% tested Insertion Loss & Return Loss (IL&RL) for each fiber.
- Custom configuration is available

Benefits:

- Enable easy, cost effective migration from 10G to 40G and 100G using the same backbone cables.
- Fast deployment – including pulling sleeves and tool-less strain relief clips
- Field-proven - Installed successfully at high-density, high-availability facilities, including Disaster Recovery Plan (DRP), Business Continuity Planning (BCP) and central Data-Center sites

Specifications:

MTP® Trunk Cable

- 12-144 fibers in a single, high capacity MTP® cable

MTP®-LC Fan-Out Cable

- 1 MTP® connector to 6 reversible LC Uniboot, LC Duplex or LC Simplex connectors

MTP® 40G Conversion Harness (8F-12F)

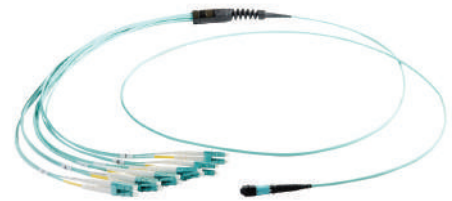
- 2x12F MTP® connectors to 3x8F MTP® connectors

MTP® 100G Y Harness Cables (12F-24F)

- 1x24F MTP® connector to 2x12F MTP® connectors



MTP® Trunk Cable



MTP® to LC Fan-Out Cable



MTP® 40G Conversion Harness (8F-12F)



MTP® 100G Y Harness Cables (12F-24F)

STAR Patch Cords

STAR Patch Cords are designed to deliver maximum connectivity performance in a minimal space.

Features:

- Bend-Insensitive fibers MM OM3 as per IEC 60793-2-10 type A1a.2, MM OM4 as per IEC 60793-2-10 type A1a.3 and SM as per ITU-T G.657.A2.
- Complies with the following standards: TIA-604-10 (LC FOCIS 10), IEC 61754-20, TIA 568-C.3, IEC 60793-1, IEC 61755-3, IEC 11801 (OS2, OM3 and OM4), TIA 492 AAAC, TIA 492.AAAD, TIA 942-A and IEEE 802.3ae 10 Gb/sec Ethernet
- Environmentally safe – complies with UL94-V-0, IEC 60332-3, IEC 60754-2, IEC 61034 and RoHS.

Specifications:

Reversible LC Uniboot Patch Cord

- Pre-terminated connectors, Enabling high performance according to TIA/EIA 604-10 (LC FOCIS 10)
- Using a single, unified jacket for both fibers, with diameter of only 2mm, enabling up to 50% saving in cabling volume, as well as tool-less polarity reversibility

MTP® 40G Patch Cord

- Pre-terminated with MTP® Elite connectors, enabling high performance which exceeds TIA/EIA 604-5 (MPO FOCIS 5)
- Contains 12 fibers in a 2 mm thin, flexible LSZHFR jacket
- Available in either direct or crossed polarity

MTP® PRO Patch Cord

- Quick and effective method for pin configuration without the need to remove the housing or handle loose pins
- Field Polarity Change- Simple one-step polarity change feature without removing connector housing
- Contains 12 fibers in a 2 mm thin, flexible LSZHFR jacket

Benefits:

- Allows quick Moves Adds & Changes (MACs) and easy maintenance of structured cabling
- High quality solution for seamless connectivity, providing excellent performance
- Field-proven - Installed successfully at highdensity, high-availability facilities such as Disaster Recovery Plan (DRP), Business Continuity Planning (BCP) and central Data-Center sites



Reversible LC Uniboot Patch Cord



MTP® Patch Cord

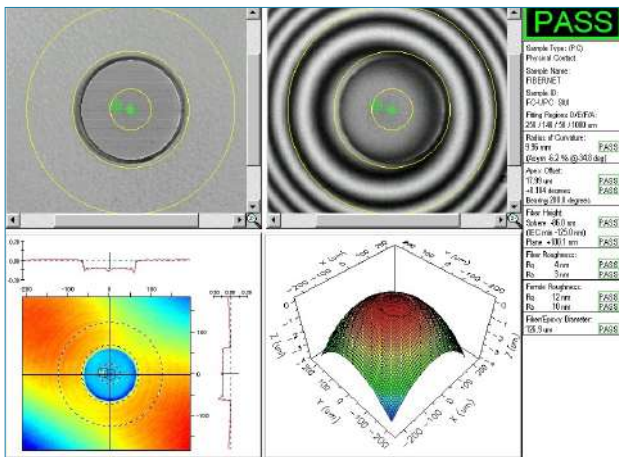


MTP® Pro Tool

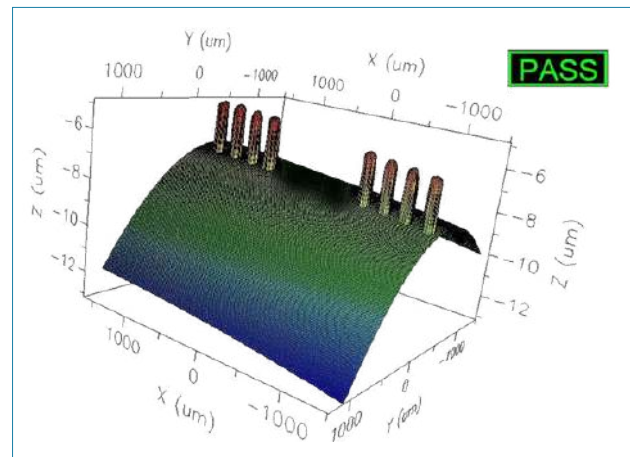
MTP® Pro Patch Cord

Product Verification Tests:

- Apex offset
- Radius of curvature
- Fiber Height
- Roughness
- Tilt



Reversible LC Uniboot Connectors



MTP® Connectors

Data Center Cabling Architecture

International International standards require that Data Center cabling architecture supports both current and future bit rates. Operational and cost considerations require that cabling is structured and practical, allowing easy migration from LC based, up to 400 G systems, based on Low Loss MPO connectivity (MTP®).

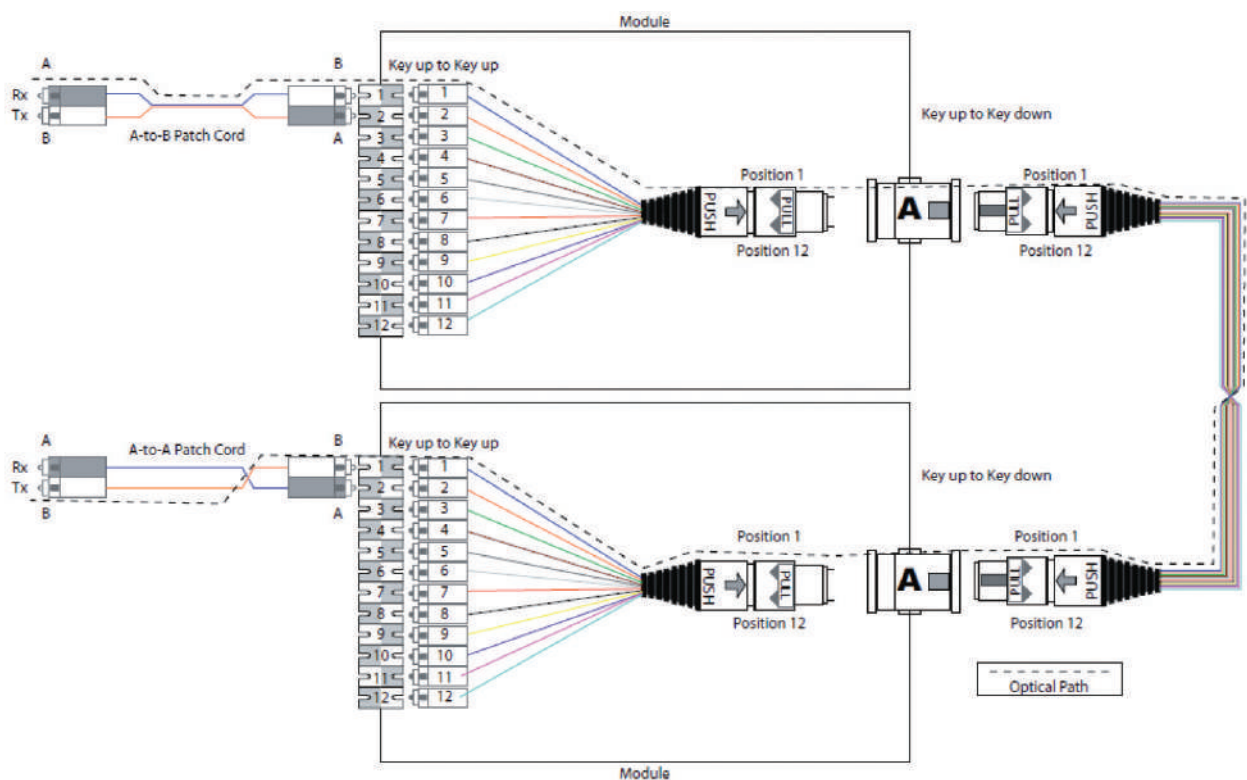
IEEE Standard	Data Rate	Connector Type	OM3	OM4	SMF
IEEE 802.3ae	10 Gb/s	LC	300 M	550 M	10km, 40km
IEEE 802.3by	25 Gb/s	LC / MTP®	70 M	100 M	—
IEEE 802.3bm	40 Gb/s	MTP®	100 M	150 M	10km
IEEE P802.3bm	100 Gb/s	MTP®	100 M	150 M	10 km, 40km
* IEEE P802.3bs	400 Gb/s	MTP®	—	100 M	500m, 2Km, 10Km

* 400 Gbit/s Ethernet over optical fiber using multiple 25G lanes

* MTP® is a registered trademark of US Conec Ltd

Polarity Management - Method A:

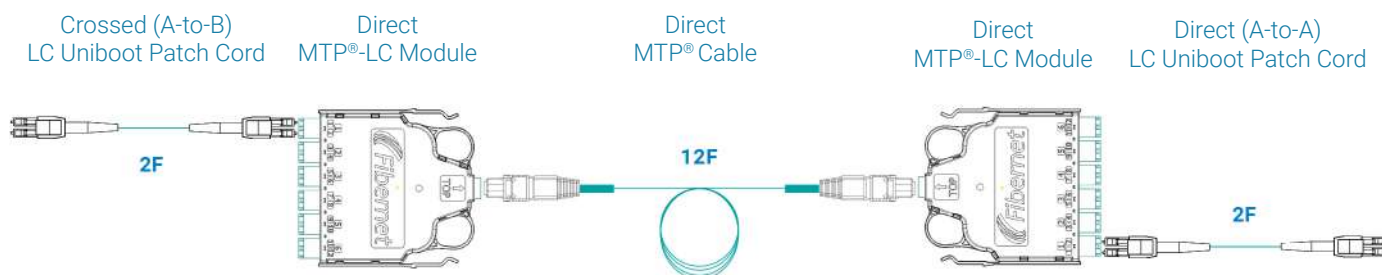
STAR Module is assembled according to Method A as described in the ANSI/TIA 568-C.3 standard. The polarity is managed at Patch Cord level, meaning that all the modules and MTP® backbone cables maintain direct polarity. The polarity is switched using a crossed Patch Cord at only one side of the link. The Patch Cords on the other side are direct and so are any others (if exist) along the link.



STAR Cabling Architecture

10G / 25G Implementation

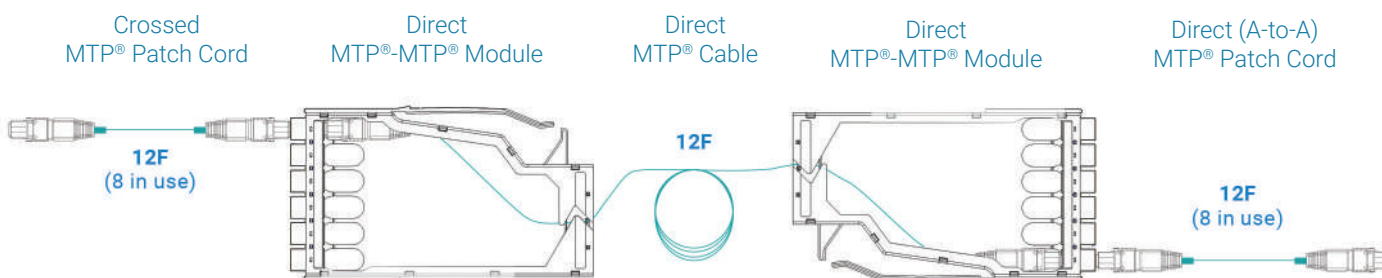
MTP®-LC modules are being used for connecting pre-terminated 12-fiber MTP® backbone cables to high density LC duplex uniboot Patch Cords.



The polarity is managed according to Method A using direct polarity components along the channel - except for one crossed (A-to-B) Patch Cord at one end. Direct polarity cables (both MTP® and LC) are easily identified by a purple mark on each side.

Migration from 10G to 40G / 100G

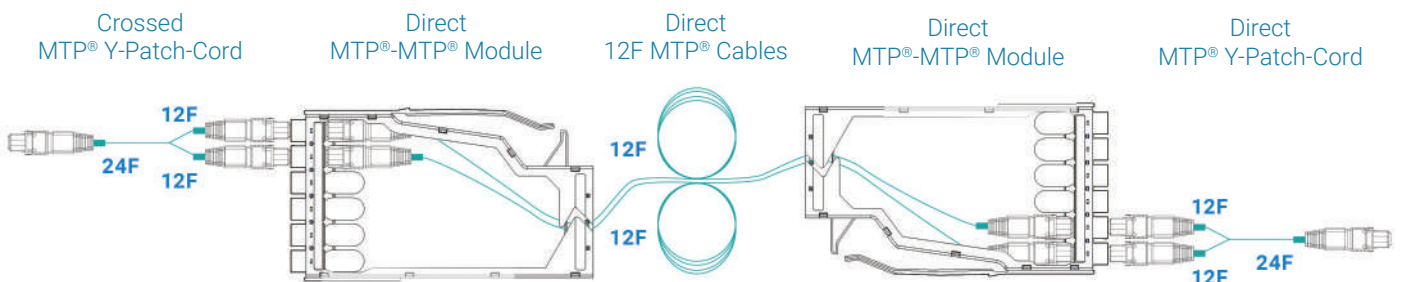
The MTP®-LC modules are replaced with MTP®-MTP® modules in order to connect the same pre-terminated 12-fiber MTP® backbone cables to MTP® Patch Cords.



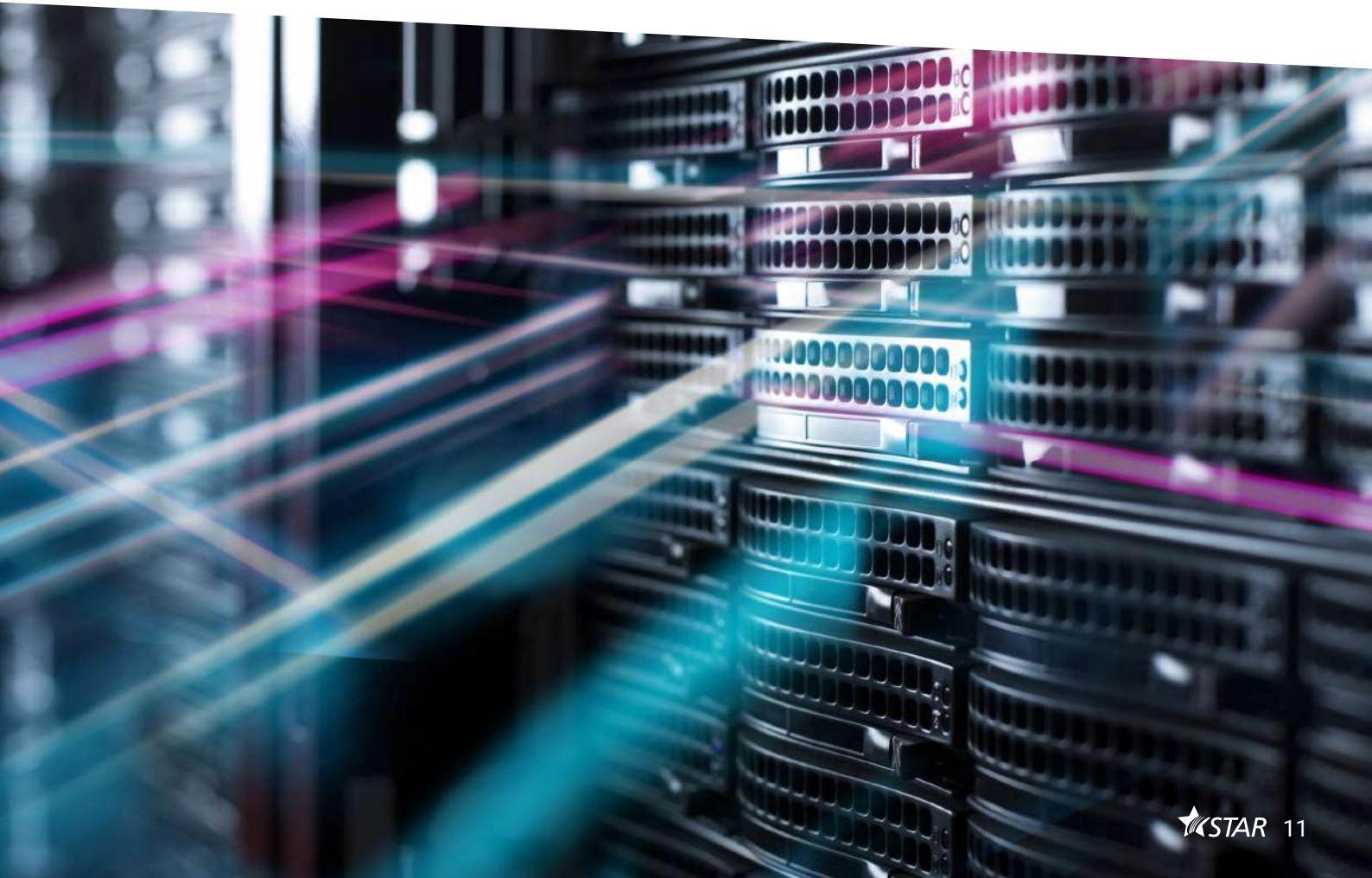
Method A polarity management is maintained by using one crossed MTP® Patch Cord as the only crossed component along the link.

Migration from 40G to 100G (SR10)

The MTP® Patch Cords are replaced with MTP® Y Patch Cords, containing one 24 fibers MTP® connector to two 12 fiber MTP® connectors. The same MTP® -MTP® modules and the same pre-terminated 12-fiber MTP® backbone cables are being used. Additional 24 fiber backbone cables and Patch Cords can be added for expansion.



Method A polarity management is maintained by using one crossed MTP® Y Patch Cord as the only crossed component along the link.



DEVELOPMENT

Fibernet's team is at the forefront of fiber optics and electronics technologies with a series of in-house products in addition to working with market leaders to design and develop sophisticated devices from conception to mass-production.

PRODUCTS

Fibernet provides high-quality fiber optics and electronic solutions to diverse industries, enabling them to keep pace with technological innovations, offer faster networks, meet customer expectations and increase profitability.

MANUFACTURING

Fibernet leverages its two decades of fiber-optics and electronics expertise as well as state of the art facilities and equipment to manufacture top quality turn-key solutions in compliance with the strictest international standards.



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