MDC/MMC Solutions

MDC/MMC Cabling Solutions	MDC/MMC Patch Panel
	MDC Connector Solutions
	MMC Connector Solutions
	MDC/MMC Cleaner

MDC/MMC Patch Panel

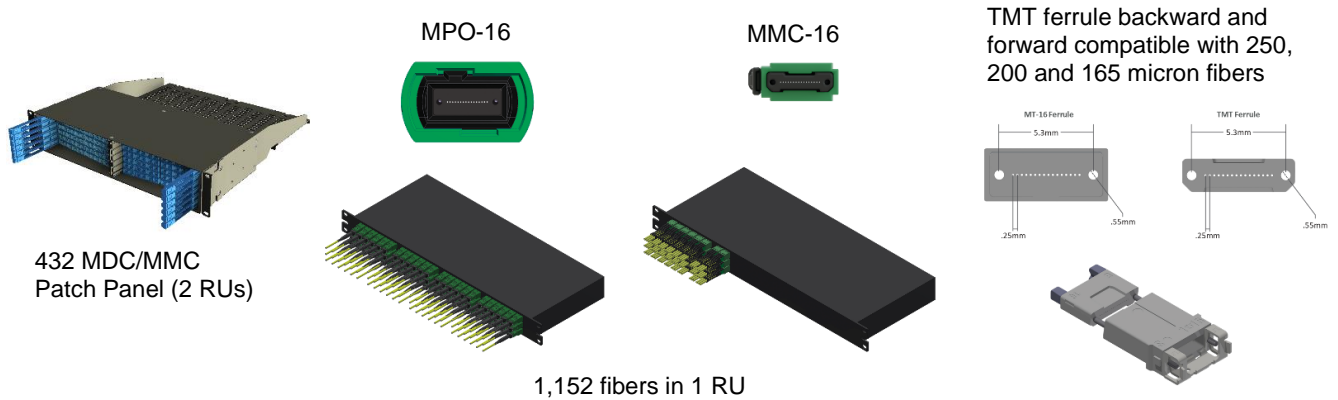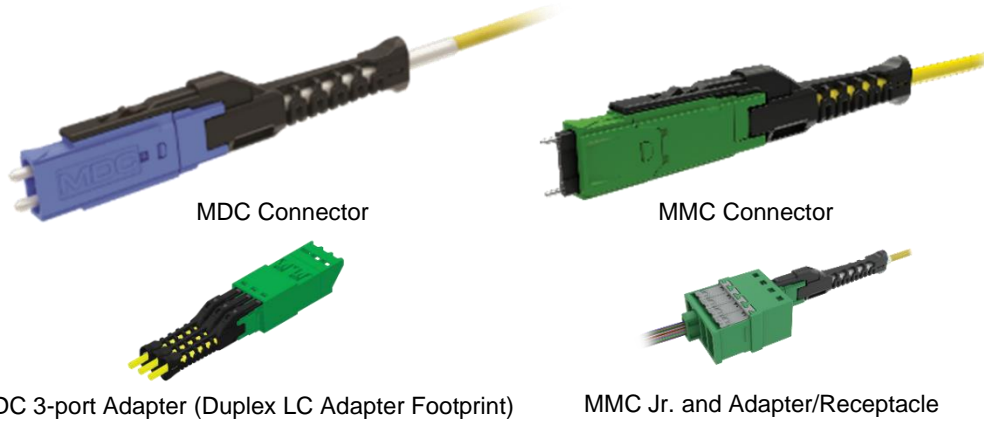High density platform employing VSFF MDC/MMC adapters for 3x port density over duplex LC/MPO connectors.

MDC/MMC Cabling Solutions

Features
- MDC duplex optical connector with proven 1.25 mm ferrule technology.
- MMC multi-fiber optical connector with proven MT or MT-16 mechanical and fiber alignment structure.
- 3x cabling port density over Fujikura's SWR™/WTC™ solutions with duplex LC and MPO connectors.
- 432 MDC/MMC connectors (864/6,912 fibers) within 2 RUs.
- TMT ferrule backward and forward compatible with 250, 200 and 165 micron fibers.
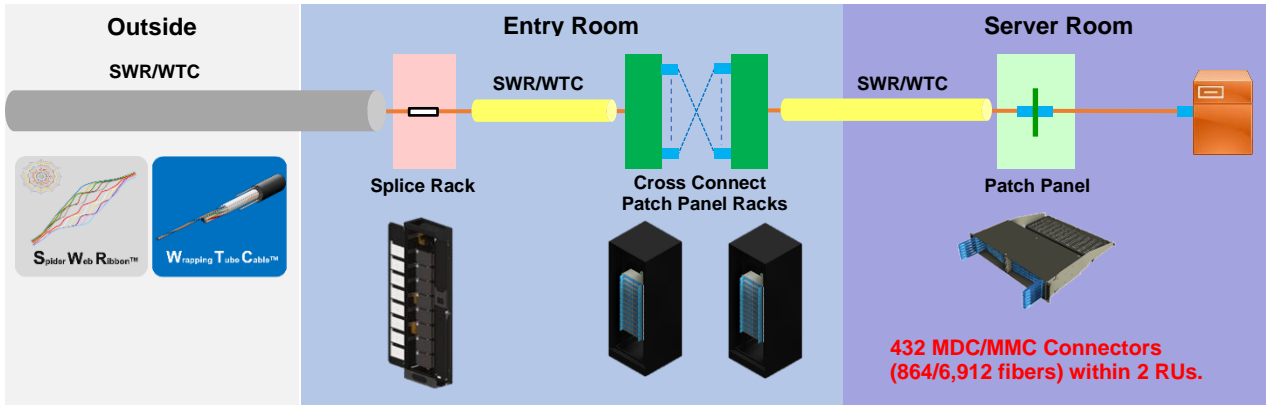
Applications
- Minimizes required hardware and cabling space, leading to reduced capital and operational expense in telecom and datacom applications.
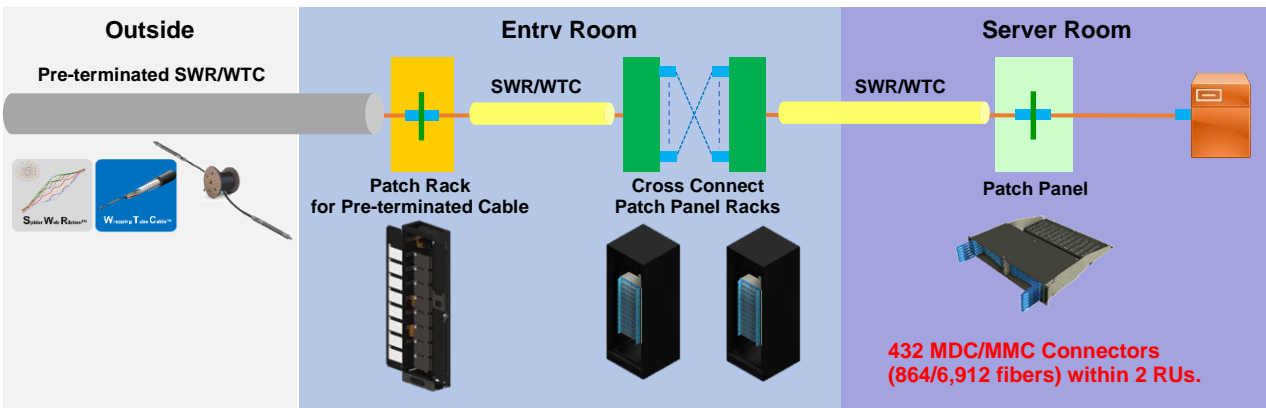
MDC Connector

MMC Connector

MDC 3-port Adapter (Duplex LC Adapter Footprint)

MMC Jr. and Adapter/Receptacle

MPO-16

MMC-16

TMT ferrule backward and forward compatible with 250, 200 and 165 micron fibers

MT-16 Ferrule

TMT Ferrule

432 MDC/MMC Patch Panel (2 RUs)

1,152 fibers in 1 RU

MDC/MMC Cabling Solution (Fusion Splice)

Outside — SWR/WTC

Entry Room — SWR/WTC

Server Room — SWR/WTC

Splice Rack

Cross Connect Patch Panel Racks

Patch Panel

Spider Web Ribbon™ | Wrapping Tube Cable™

432 MDC/MMC Connectors (864/6,912 fibers) within 2 RUs.

MDC/MMC Cabling Solution (Pre-terminated Cable)

Outside — Pre-terminated SWR/WTC

Entry Room — SWR/WTC

Server Room — SWR/WTC

Patch Rack for Pre-terminated Cable

Cross Connect Patch Panel Racks

Patch Panel

Spider Web Ribbon™ | Wrapping Tube Cable™

432 MDC/MMC Connectors (864/6,912 fibers) within 2 RUs.

MDC/MMC Future Evolution in Fujikura's Cabling Solutions – 3x Cabling Port Density

- One-Click™ Connector Cleaners
- WTC™ with SWR™ & Fiber Optic Cable
- FAST™ and FuseConnect™ Field Installable Connectors
- Fiber Optic Closures
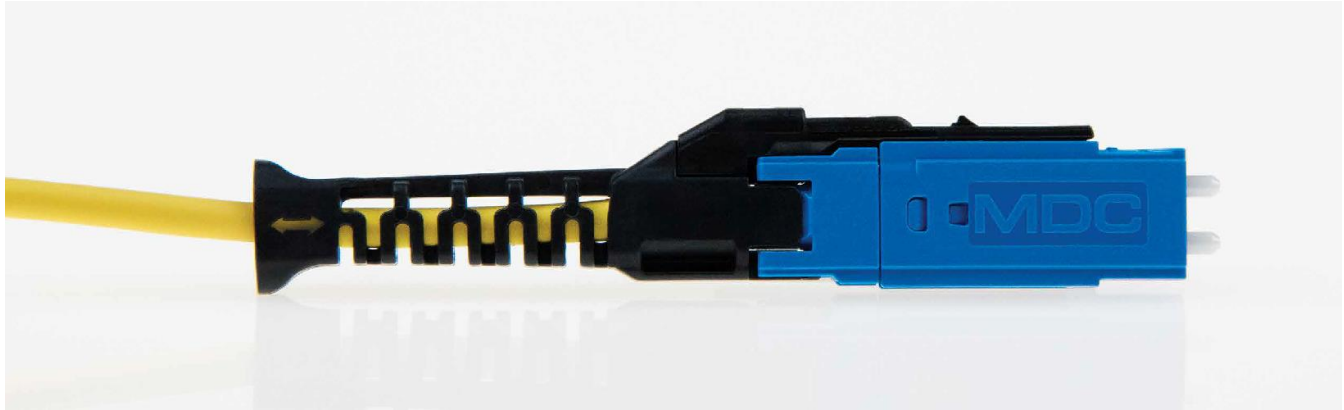- Fiber-optic Cable Assemblies
- Patch Panels & Enclosures
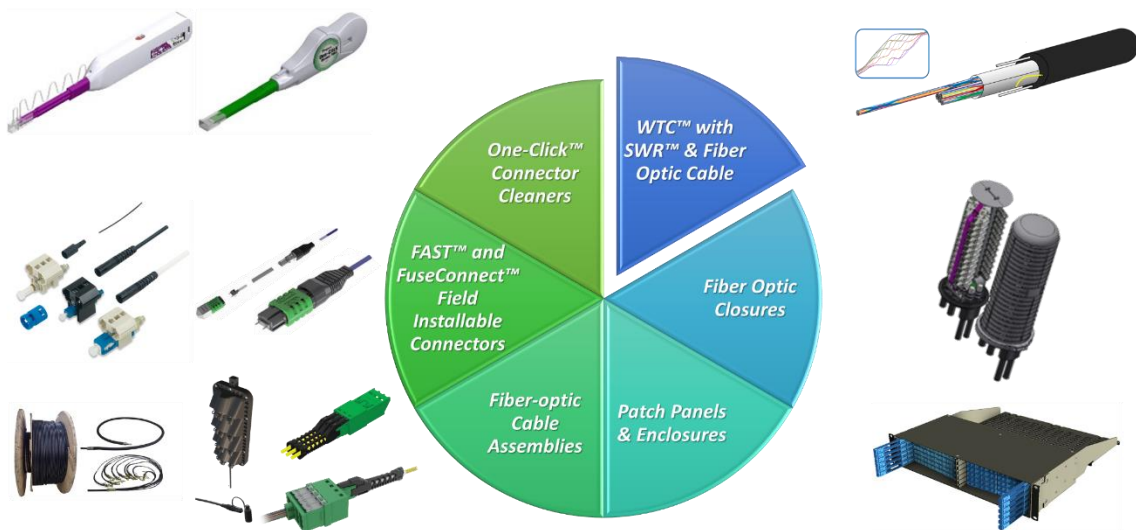
SWR™, WTC™, FAST™, FuseConnect™ and One-Click™ are trademarks of Fujikura Ltd.

Contact us

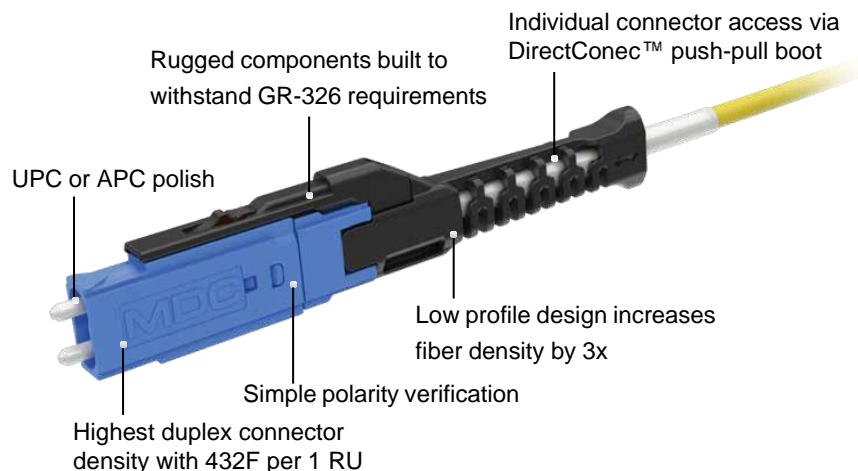# MDC CONNECTOR SOLUTIONS

ELiMENT™ MDC Connector

Fujikura's ELiMENT™ MDC connector is a Very Small Form Factor (VSFF) duplex optical connector designed for termination of single-mode and multimode fiber cables up to 2.0 mm in diameter. The MDC connector is manufactured with proven 1.25 mm ferrule technology used in industry standard LC optical connectors. Individual connector access in the most extremely dense connector environments is easily accomplished using the revolutionary DirectConec™ push-pull boot technology.

Features

- 3x fiber cabling density over LC connectors, providing 216 duplex connectors (432 fibers) within 1 RU.
- DirectConec™ push-pull boot for effortless connector insertion and extraction.
- Simple polarity reversal with no exposed fibers.
- Meets IEC Attenuation Grade B random mating requirements (0.12 dB mean, 0.25 dB maximum for ≥ 97% of the connectors).
- Telcordia GR-326 and TIA-568 compliant.
- Designed for cables up to 2.0 mm OD.
- Single-mode, Multimode and Single-mode APC available.

Applications

- Minimizes required hardware, leading to reduced capital and operational expense in telecom and datacom applications.
- Supports four individual MDC cables in a QSFP footprint and two individual MDC cables in an SFP footprint.

Individual connector access via DirectConec™ push-pull boot

Rugged components built to withstand GR-326 requirements

UPC or APC polish

Low profile design increases fiber density by 3x

Simple polarity verification

Highest duplex connector density with 432F per 1 RU

Contact us

New Applications Require a Reduced Format Connector

Increasing connector density at the module/panel minimizes required hardware, leading to reduced capital and operational expense. Currently, a one Rack Unit (RU) housing is limited to 144 fibers using LC Duplex connectors and adapters. The smaller MDC connector increases the connector density by 3x, providing up to 432 fibers in the same 1 RU space.

Multiple emerging transceiver Multi-Source Agreements (MSAs) have defined port breakout architectures that require a duplex optical connector with a smaller footprint than the LC connector. The reduced size of the MDC connector will allow a single array transceiver to accept multiple MDC patch cables which are individually accessible directly at the transceiver interface. The new format will support four individual MDC cables in a QSFP footprint and two individual MDC cables in an SFP footprint.

Carrier Grade Performance

Although the MDC connector is almost half the size of an LC connector with twice the number of ferrules, it's rugged housing, high-precision molding and engagement length allow it to exceed the same Telcordia GR-326 requirements as the LC connector, including the extremely demanding Proof and TWAL tests.
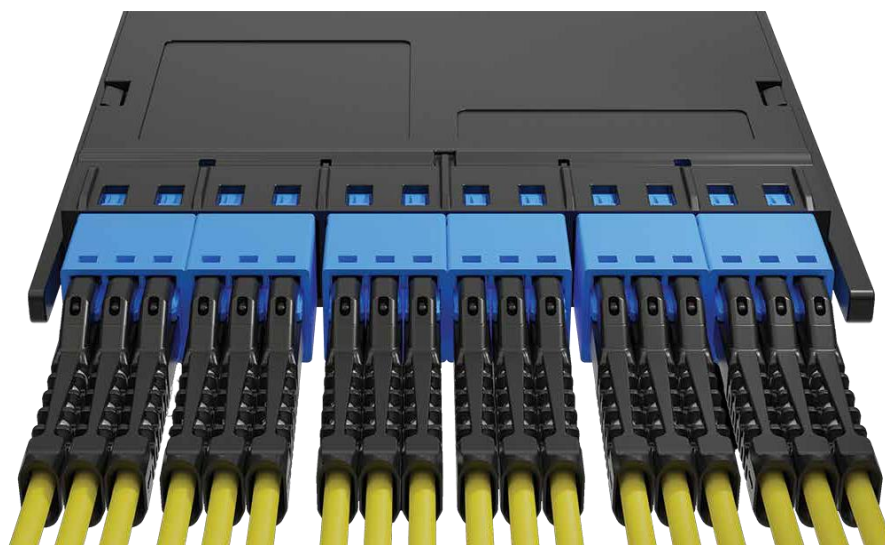
MDC APC Connectors

MDC APC connectors are available for high density duplex connector applications requiring a very low reflectance. The unique opposing angled ferrule connector design allows for simple and effortless polarity reversal in the event the system polarity is not as expected.

8°
-8°
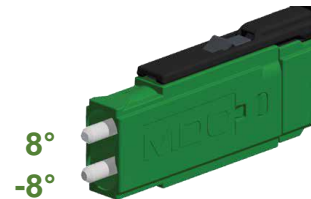
Maintaining Duplex Connector Accessibility with DirectConec™ Push-Pull Technology

MDC connectors with DirectConec™ push-pull boot technology allows installation experts to easily insert and extract the connector in tighter, more confined spaces without affecting neighboring connectors. The flexible boot maintains proper bend radius for cable routing and will not buckle during connector insertion and extraction.

Capacity Increased by 3x Using MDC Connectors and Adapters

Contact us

Quick and Simple Polarity Reversal

The polarity reversal of the MDC connector is effortless and does not expose or twist delicate fibers during the process. To change polarity, pull the boot from the connector housing, rotate the boot 180 degrees, and re- assemble the boot assembly back onto the connector housing. Polarity marks on the top and side of the connector and the MDC logo provide notification of reversed connector polarity.

Polarity Reversal Process:

Separate connector housing from boot
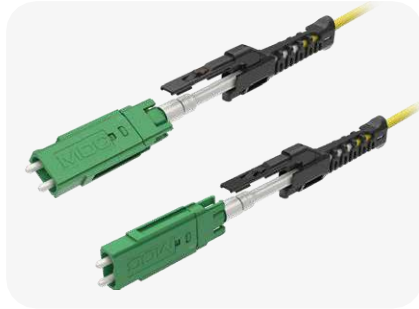
Rotate 180°

Re-attach boot to connector housing

Ever-Increasing MDC Ecosystem

US Conec, the licensor of the MDC connector, partners with industry leading vendors to develop components and equipment necessary to enhance the installer and end user experience with the following solutions:

- Multiple adapter variants
- Polishing equipment
- Test equipment
- Inspection scopes
- Interferometry

Aggregation Solutions

Combining multiple connectors together as one unit reduces the number of connections and helps provide immediate identification of cable groupings. Fujikura offers several aggregation solutions including clips and consolidated connectors.


Variety of Adapters

Fujikura offers 2-port, 3-port and 4-port adapters connecting MDC connectors to MDC connectors or MDC Jr. connectors. The 2-port and 3-port adapters are designed to fit through the same panel cutout defined for duplex LC adapters, allowing an instant 2x or 3x of the current module/panel connector density by simply removing the LC duplex adapters and installing the MDC adapters.
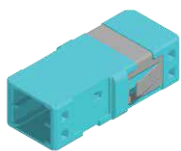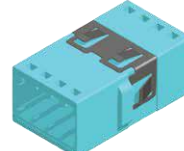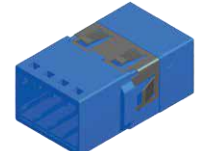

MDC 2-Port Adapter
Aligned Key - MDC/MDC

MDC 3-Port Adapter
MDC/MDC Jr.
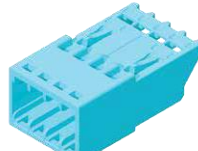
MDC 4-Port Adapter
MDC/MDC Jr.

MDC 4-Port Adapter
Aligned Key - MDC/MDC

MDC 4-Port Adapter
Opposed Key - MDC/MDC

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MDC Connector Cleaner

The new MDC cleaning tool uses the proven and reliable push technology pioneered by One-Click™ brand cleaners to allow swift and efficient cleaning of MDC dual ferrules with one actuation. The MDC cleaning tool features dual precision cleaning nozzles for pre-installed connectors in a panel or module adapter and a tethered adapter for accessible connectors.

MDC Jr.

Optimized for breakouts and On Board Optic architectures, the MDC Jr. connector brings all the functionality and testability of a connector while minimizing valuable space consumption behind the panel.

DirectConec™ and ELiMENT™ are trademarks of US Conec Ltd.

One-Click™ is a trademark of Fujikura Ltd.

MMC Connector Solutions

MMC Connector

Fujikura's MMC connector is a Very Small Form Factor (VSFF) multi-fiber optical connector designed for termination of single-mode and multimode fiber cables up to 2.5 mm in diameter. The MMC connector employs novel TMT ferrule technology harmonized with the MT or MT-16 alignment structure. Individual connector access in the most extremely dense connector environments is easily accomplished using revolutionary DirectConec™ push-pull boot technology.

Features

- 3x cabling port density over the MPO format
- DirectConec™ push-pull boot for effortless connector insertion and extraction
- Utilizes proven MT or MT-16 mechanical and fiber alignment structures
- Compatible with standard 250 micron OD and pitch optical fibers
- TMT Elite™ low-loss, IEC Grade B insertion loss performance (0.25 dB 97% random intermate)
- APC for both SM and MM applications
- Available in 1x12, 1x16 and 2x12 variants
- Tested to Telcordia GR-1435
- Cables up to 2.5 mm OD
- Standard cabling industry infrastructure support including One-Click™ cleaners, polishers, interferometers, and optical testing equipment
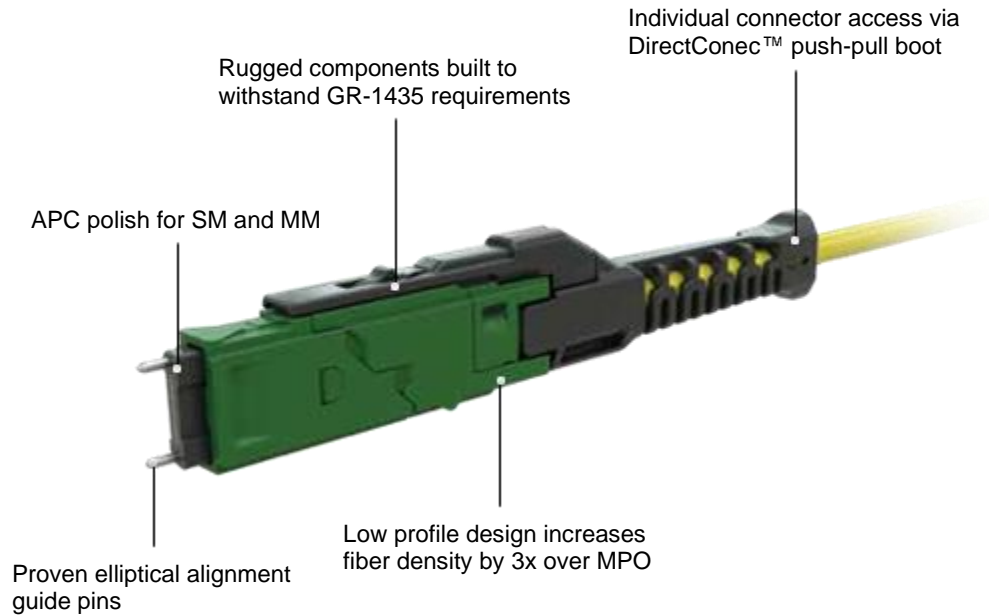
Applications

- Co-packaged optics and on-board connectivity
- High bandwidth transceivers
- Maximum density, low-loss, pre-terminated cabling infrastructure

Rugged components built to
withstand GR-1435 requirements

Individual connector access via
DirectConec™ push-pull boot

APC polish for SM and MM

Proven elliptical alignment
guide pins

Low profile design increases
fiber density by 3x over MPO

MMC Adapter Options

Fujikura offers 2-port and 4-port adapters connecting MMC connectors to MMC connectors or MMC Jr. connectors. The 2-port adapters are designed to fit through the same panel cutout as MPO (SC cutout) adapters, creating an instant doubling of fiber density by simply removing the simplex MPO adapters and installing the MMC 2-port adapters. The 4-port MMC adapters will fit into the same panel cutout as 4-port MDC adapters.

All adapters can be ordered with or without dust plugs pre-installed in the adapters. For applications where certain adapter ports are not needed, Fujikura offers optional port covers that can be installed into those ports.
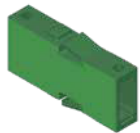
MMC 1-Port Adapter
MMC/MMC

MMC 2-Port Adapter
MMC/MMC

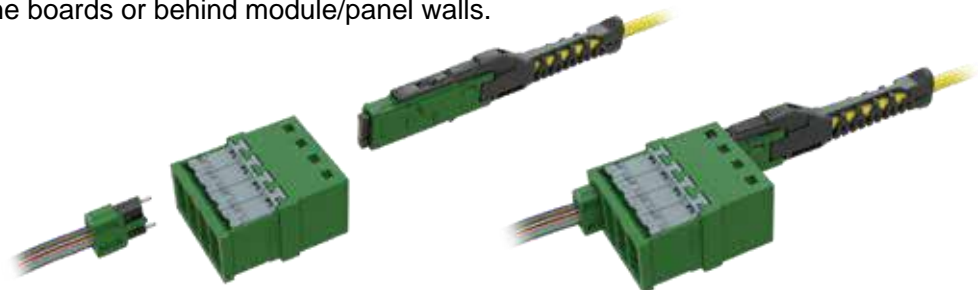MMC 4-Port Adapter
MMC/MMC

MMC 4-Port Adapter
MMC/MMC Jr.

MMC 6-Port Adapter
MMC/MMC Jr.

MMC Jr. and Adapter/Receptacle

The smaller footprint of the MMC Jr. connector maintains a robust connection while minimizing valuable space consumption on the boards or behind module/panel walls.

Optimized for:
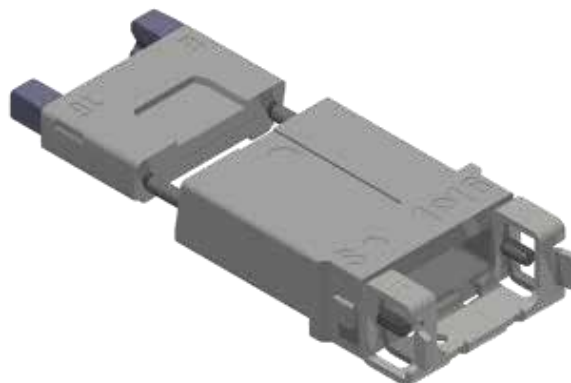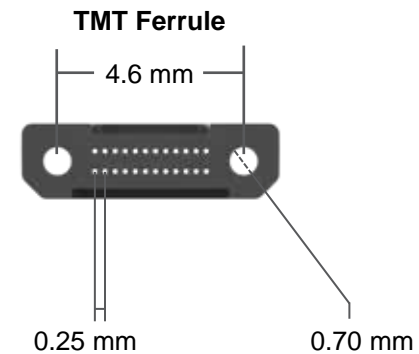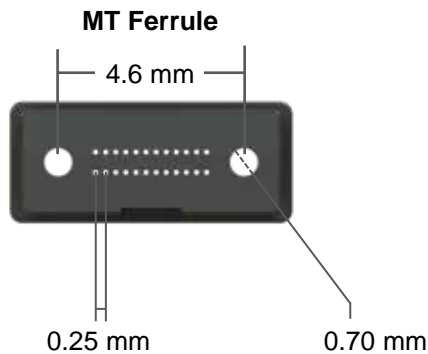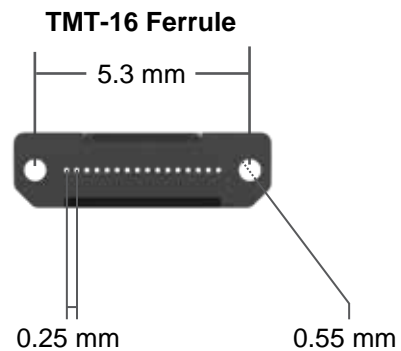- Transceivers
- On-board optics
- Module applications
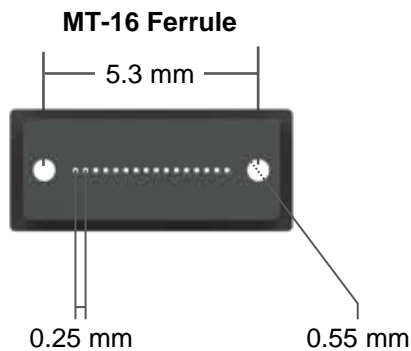
TMT Ferrule Technology

The TMT ferrule format is based on the proven alignment structure of MT and MT-16 ferrules used in MPO and MPO-16 applications. Engineered for durability, the novel shoulder features ensure precision polishing combined with the mechanical integrity needed for repeated insertion and extraction cycles. In addition to MMC applications, TMT ferrules are ideal for on-board fiber management, as well as incorporation into transceivers and hardened connector embodiments.

- 250 micron pitch
- Compatible with 250, 200, and 165 micron fibers
- Intermateable with corresponding MT and MT-16 formats
- Low insertion loss for SM APC and MM APC applications

MT-16 Ferrule

5.3 mm

0.25 mm   0.55 mm

TMT-16 Ferrule

5.3 mm

0.25 mm   0.55 mm

MT Ferrule

4.6 mm

0.25 mm   0.70 mm

TMT Ferrule

4.6 mm

0.25 mm   0.70 mm

Contact us

Ever-Increasing MMC Ecosystem

US Conec, the licensor of the MMC connector, partners with industry leading vendors to develop components and equipment necessary to enhance the installer and end user experience, and Fujikura, its collaborator, offers One-Click™ Brand cleaning tools.

● One-Click™ Brand cleaning tools
● Polishing equipment
● Test and inspection equipment
● Interferometry
● Aggregation solutions
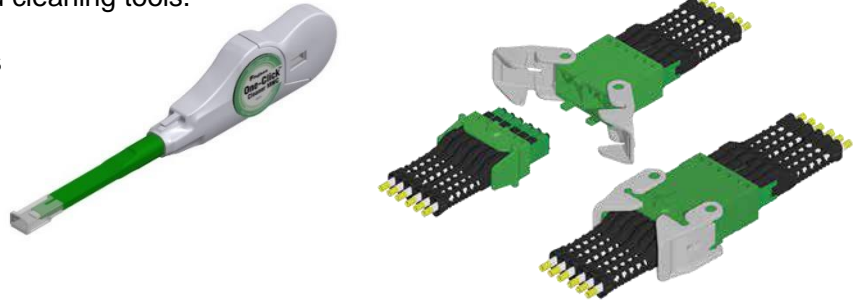
New Applications Require a Reduced Format Connector

Next generation architectures are driving the need for optical connectivity solutions which cannot be met with the status quo. 51.2T switching for 500 m reaches now requires fiber counts exceeding density capacities of the MPO format. MMC applications include:

● Co-packaged optics and on-board connectivity
● High bandwidth transceivers
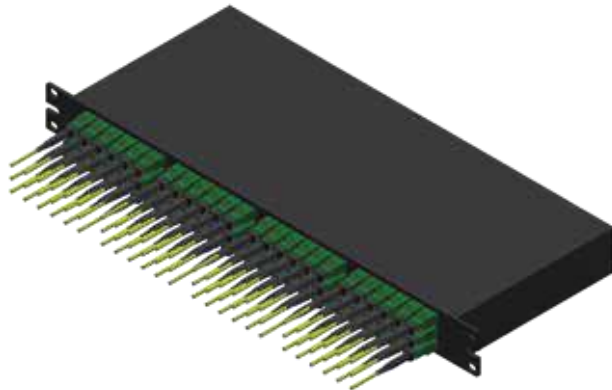● Maximum density, low-loss, pre-terminated cabling infrastructure

MPO			MMC		
1x16	1x12	2x12	1x16	1x12	2x12

864 fibers in 1 RU using 12F MPO connectors
1,152 fibers in 1 RU using 16F MPO connectors
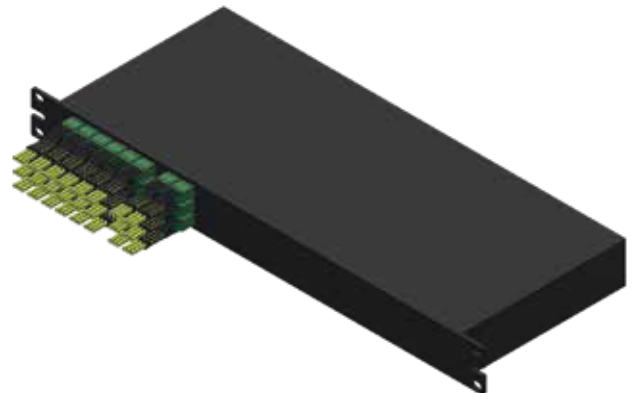1,728 fibers in 1 RU using 24F MPO connectors

864 fibers in 1 RU using 12F MMC connectors
1,152 fibers in 1 RU using 16F MMC connectors
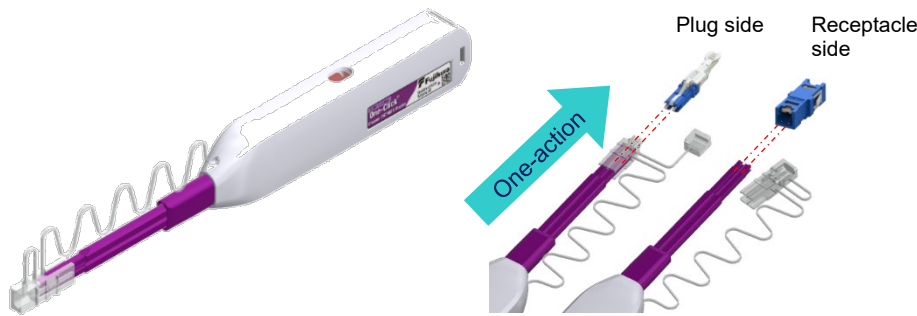1,728 fibers in 1 RU using 24F MMC connectors

DirectConec™ and TMT Elite™ are trademarks of US Conec Ltd.

One-Click™ is a trademark of Fujikura Ltd.

One-Click™ Cleaner CS™/MDC Duplex

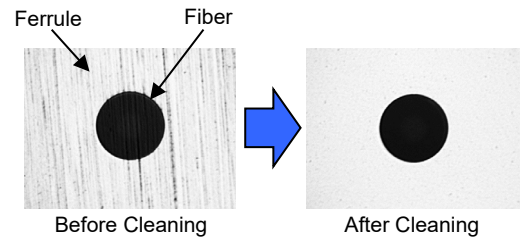Plug side   Receptacle side

One-action

One-Click™ Cleaner CS™/MDC Duplex
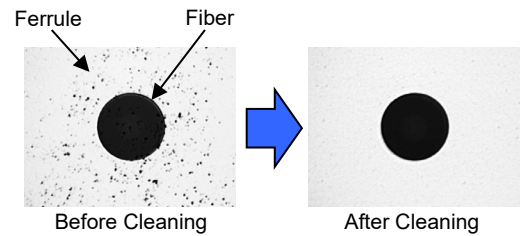
CS™ Connector

MDC Connector

Cleaning Target Connector

Features

- One-action cleaning system
- Effective for various contaminants
- Over 500 times of cleanings per unit
- One-Click™ Cleaner CS™/MDC Duplex can be used to clean Plug/Receptacle CS™ connector, and MDC connector.
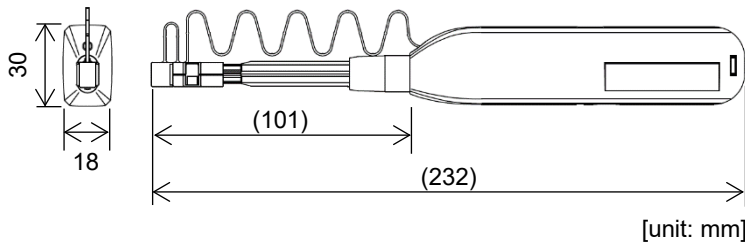- Compliant with the EU Directive 2011/65/EU, (EU)2015/863 (RoHS2).

Dimensions

30
18
(101)
(232)

[unit: mm]

Ferrule   Fiber

Before Cleaning   After Cleaning

Cleaning of Oil (*1)

Ferrule   Fiber

Before Cleaning   After Cleaning

Cleaning of Dust (*1)

（Sample: Single Mode 10/125 Fiber）

*1: This is an example of cleaning and does not guarantee performance.

Order Information

Product Name	Part No	Application
One-Click™ Cleaner CS™/MDC Duplex	CS/MDC-CLK-A	CS™ Connector, MDC Connector

・Patent Pending in US, EU and JP
・One-Click™ is a registered trademark of Fujikura Ltd.
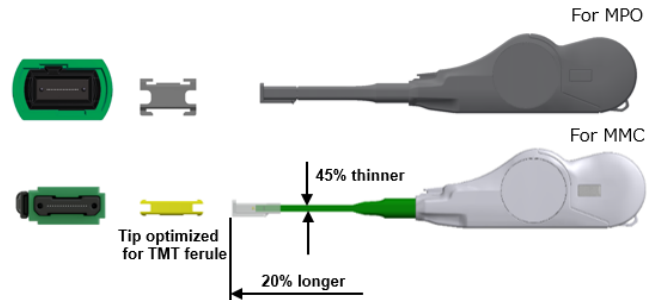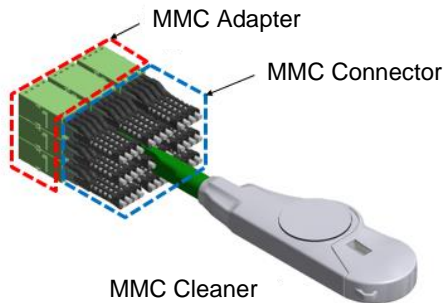・CS™ is a registered trademark of Senko Advanced Components, Inc. 2018©

One-Click™ Cleaner MMC
One-Click™ Cleaner MMC-16

MMC multi-fiber optical connectors offer three times the high-density mounting compared to conventional MPO multi-fiber optical connectors. To ensure their optimal performance, we have provided dedicated cleaners with specially designed nozzles and cleaning head shapes. These features enable quick and effective cleaning of connector end-faces on jumpers or through adapters with a simple one-push action. Our cleaners efficiently remove oil, dust, and dirt, preventing potential damage and maintaining the high performance of fiber optic networks.

Features

● Conventional cleaning is possible even under high-density mounting.

MMC Adapter
MMC Connector
MMC Cleaner

● Optimization of nozzle and cleaning head shape

For MPO
For MMC
45% thinner
Tip optimized for TMT ferule
20% longer

Specifications

	One-Click™ Cleaner MMC	One-Click™ Cleaner MMC-16
Size (mm)	W 19 x H 43.5 x L 223	
Number of cleaning	500 times or more	
Applicable connector	12fiber and 24fiber MMC	16fiber MMC

・Patent Pending in US, EU and JP
・One-Click™ is a Registered Trademark of Fujikura Ltd.

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