While fiber optic (SFP) ports are becoming increasingly common on networking electronics, the majority of devices still rely on a twisted pair (RJ45) connection. Media converters are often used to bridge the connection divide and expand device functionality.

For example, media converters integrate twisted pair electronics with fiber optic cable to extend transmission distance and create immunity from surges, static, lightning and signal interference. They can be used in pairs, with one media converter on each end of the cable run, or in conjunction with other network-based devices, such as a fiber-enabled network switch.
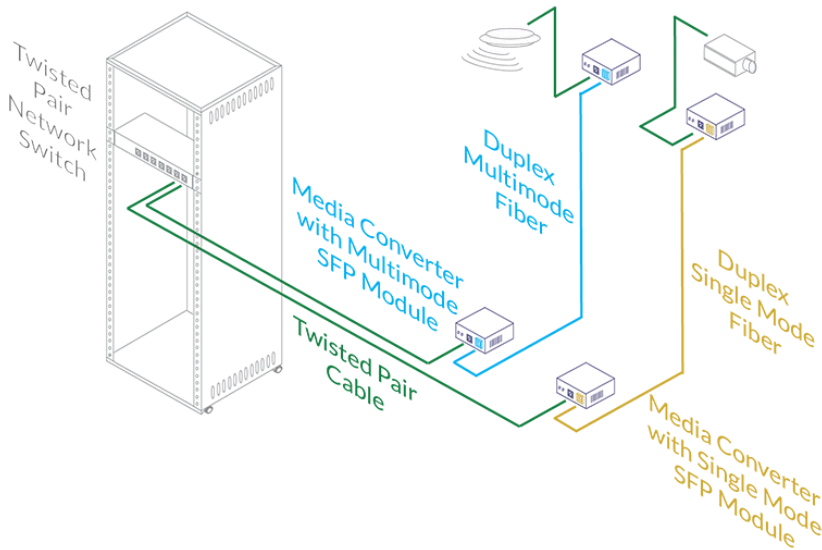
Application Design Notes

- Media converters typically require an SFP transceiver module to complete the fiber optic connection. These modules are specific to the type of fiber being connected (either single mode or multimode). *Choose an SFP module based on the fiber optic cabling that will be connected to the network switches.*

- SFP transceiver modules almost always require two fiber optic cable strands. *Always integrate duplex (two strand) fiber optic cabling or higher strand counts.*

- Most modern SFP transceiver modules feature duplex LC connections. *Terminate your fiber optic cabling with two LC-style connectors or purchase a pre-terminated fiber optic cable with two LC-style connectors.*

- When connecting terminated duplex fiber optic cable between media converters and/or network equipment, ensure the connections are reversed between the SFP transceiver ports (connection A to B and B to A). SFP transceiver modules rely on the transmission of separate send and receive signals.

- Select an SFP module that matches the bandwidth of your media converter and/or network equipment. 1G modules are technically classified as SFP transceivers, 10G modules are classified as SFP+ transceivers, and QSFP transceivers support even higher bandwidths.

- When integrating two media converters or one media converter with one fiber-enabled network device, it is important to verify both devices feature matching SFP modules to ensure compatibility and proper communication.

Commonly Integrated Products

Media converters convert a twisted pair connection to a fiber optic connection, effectively adapting a device with an RJ45 port to a fiber-ready device. Media converters require an SFP

SFP modules provide the fiber optic connection for network switchers and media converters with fiber optic (SFP) ports. The modules are swappable and are specific to either duplex multimode fiber or duplex

Premade fiber optic cables arrive pre-terminated with connectors and are available in stock and custom

Bulk fiber cable requires termination in the field and is available in stock and custom configurations. Both riser and plenum formats are commonly used to connect networking equipment and media

Fiber optic connectors terminate on bulk fiber cable.

module.   single mode fiber.   converters.

Media Converters

Media converters adapt fiber signals to a variety of different formats and/or cable types. The most common application is converting a fiber connection to a twisted pair connection, effectively adapting twisted pair-based devices to fiber for longer, interference-free transmission distances.

Part Number	Signal Conversion	Port A	Port B	Data Rate	Compatible SFP Modules (sold separately)
TL-MC-1S1R	Fiber to RJ45	1 SFP (fiber)	1 RJ45	10/100/1000M	TL-1GSFP-MM550 | multimode fiber
TL-MC-1S2R	Fiber to RJ45	1 SFP (fiber)	2 RJ45	10/100/1000M	TL-1GSFP-SM20K | single mode fiber
TL-MC-1S1S	Fiber to Fiber	1 SFP (fiber)	1 SFP (fiber)	10/100/1000/1250M	

SFP Transceiver Modules

SFP modules feature industry-standard firmware and are compatible with most major brands of networking hardware.

Part Number	Product Type	Fiber Type	Bandwidth	Transmission Distance	Connectors
TL-1GSFP-MM550	SFP Fiber Module	Multimode	1G	550m / 1,805ft.	Duplex LC
TL-1GSFP-SM20K	SFP Fiber Module	Single Mode	1G	20km / 12.4 miles	Duplex LC
TL-10GSFPP-MM300	SFP+ Fiber Module	Multimode	10G	300m / 1,000ft.	Duplex LC
TL-10GSFPP-SM10K	SFP+ Fiber Module	Single Mode	10G	10km / 6.2 miles	Duplex LC

Fiber Optic Patch Cords & Pre-Terminated Cable

Pre-terminated cables feature a flexible riser-rated jacket and internal aramid yarn for strength.

Part Number	Construction	Length	Fiber Type	Strand Count	Side A	Side B	Jacket Rating	Color
M4D-ECO-LCLC-01	Standard	1m / 3ft.	Multimode OM4	Duplex	LC	LC	Riser	Aqua
M4D-ECO-LCLC-02	Standard	2m / 6.5ft.	Multimode OM4	Duplex	LC	LC	Riser	Aqua
M4D-ECO-LCLC-03	Standard	3m / 10ft.	Multimode OM4	Duplex	LC	LC	Riser	Aqua
M4D-ECO-LCLC-05	Standard	5m / 16.5ft.	Multimode OM4	Duplex	LC	LC	Riser	Aqua
M4D-ECO-LCLC-07	Standard	7m / 23ft.	Multimode OM4	Duplex	LC	LC	Riser	Aqua
M4D-ECO-LCLC-10	Standard	10m / 33ft.	Multimode OM4	Duplex	LC	LC	Riser	Aqua
S2D-ECO-LCLC-01	Standard	1m / 3ft.	Single Mode OS2	Duplex	LC	LC	Riser	Yellow
S2D-ECO-LCLC-02	Standard	2m / 6.5ft.	Single Mode OS2	Duplex	LC	LC	Riser	Yellow
S2D-ECO-LCLC-03	Standard	3m / 10ft.	Single Mode OS2	Duplex	LC	LC	Riser	Yellow
S2D-ECO-LCLC-05	Standard	5m / 16.5ft.	Single Mode OS2	Duplex	LC	LC	Riser	Yellow
S2D-ECO-LCLC-07	Standard	7m / 23ft.	Single Mode OS2	Duplex	LC	LC	Riser	Yellow
S2D-ECO-LCLC-10	Standard	10m / 33ft.	Single Mode OS2	Duplex	LC	LC	Riser	Yellow
M4D-ARM-LCLC-15	Micro Armor	15m / 50ft.	Multimode OM4	Duplex	LC	LC	Riser	Aqua
M4D-ARM-LCLC-20	Micro Armor	20m / 66ft.	Multimode OM4	Duplex	LC	LC	Riser	Aqua
M4D-ARM-LCLC-30	Micro Armor	30m / 100ft.	Multimode OM4	Duplex	LC	LC	Riser	Aqua
M4D-ARM-LCLC-40	Micro Armor	40m / 130ft.	Multimode OM4	Duplex	LC	LC	Riser	Aqua
M4D-ARM-LCLC-50	Micro Armor	50m / 165ft.	Multimode OM4	Duplex	LC	LC	Riser	Aqua

ECO Series™ Bulk Cable with Corning SMF-28 Ultra® & ClearCurve® Fiber

ECO Series bulk fiber delivers an ultra-bendable, laser-optimized cable that performs even through tight bends and challenging cable routes.

Part Number	Fiber Type	Strand Count	Jacket Rating	Color	Spool Length	Diameter	Bend Radius
S2I-2M-P-BK-1000	Single Mode OS2	Duplex (2)	Indoor/Outdoor Plenum	Black	300m / 1000ft.	4.4mm	7.5mm
S2I-6M-P-BK-1000	Single Mode OS2	6	Indoor/Outdoor Plenum	Black	300m / 1000ft.	4.8mm	7.5mm
S2I-12M-P-BK-1000	Single Mode OS2	12	Indoor/Outdoor Plenum	Black	300m / 1000ft.	5.8mm	7.5mm
M3I-2Z-R-AQ-1000	Multimode OM3	Duplex (2)	Indoor Riser	Aqua	300m / 1000ft.	3mm	7.5mm
M3I-2M-R-BK-1000	Multimode OM3	Duplex (2)	Indoor Riser	Black	300m / 1000ft.	4.4mm	7.5mm
M3I-2M-P-BK-1000	Multimode OM3	Duplex (2)	Indoor/Outdoor Plenum	Black	300m / 1000ft.	4.4mm	7.5mm
M3I-6M-R-BK-1000	Multimode OM3	6	Indoor Riser	Black	300m / 1000ft.	4.8mm	7.5mm
M3I-6M-P-BK-1000	Multimode OM3	6	Indoor/Outdoor Plenum	Black	300m / 1000ft.	4.8mm	7.5mm
M3I-12M-P-BK-1000	Multimode OM3	12	Indoor/Outdoor Plenum	Black	300m / 1000ft.	5.8mm	7.5mm

Fiber Optic Connectors

Mechanical connectors eliminate the need to hand polish, epoxy or crimp in the field. They are reliable to install, terminate in as little as one minute, and allow re-termination up to 12 times before calculable loss. Plus, no proprietary and expensive tools are required for termination.

Part Number	Connector Type	Fiber Type	Qnty per Pack
M3-50125-LC10	LC	Multimode	10
S2-9125-LC10	LC	Single Mode	10

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