

SR-100 DIN Rail Media Converters

 [perle.com/products/media-converters/sr-100-din-rail-copper-fiber-converters.shtml](https://www.perle.com/products/media-converters/sr-100-din-rail-copper-fiber-converters.shtml)

Fast Ethernet Copper to Fiber Converters

- 100Base-TX to 100Base-X Fiber Media Converters
- Link copper to multimode or single mode fiber
- Dual or Single fiber ST/SC connectors
- Extend network distances up to 120km
- Advanced Features: Link Pass-Through, Far-End Fault, Auto-MDIX
- Triple Power Input: Dual Terminal block power connector & T-Bus



Perle **SR-100 DIN Rail Media Converters** transparently connect UTP copper to fiber. These Fast Ethernet Media Converters provide an economical path to:

- extend the distance of an existing network by linking CAT5/6/7 cabling to multimode or single mode fiber
- extend the life of non-fiber based equipment by enabling data transmission from 100Base-TX devices over fiber
- extend the distance between two copper-based devices or networks
- protect Ethernet data from EMI noise and interference by inter-connecting your copper-Ethernet devices over fiber in industrial plants.

Some SR-100 Media Converters are also available with an SFP slot or support for -40C to +75C (-40F to +167F) extended operating temperatures.

Network Administrators can rest assured with Perle's advanced features such as Auto-Negotiation, Auto-MDIX, Link Pass-Through, Far End Fault, and Pause which make the end to end link completely transparent. This allows for more efficient troubleshooting and less on-site maintenance. These cost and time saving features, along with a lifetime warranty and free worldwide technical support, make **SR-100 Fast Ethernet Media Converters** the smart choice for IT professionals.

SR-100 Fiber Media Converter Features: 100Base-TX to 100Base-X

DIN Rail Enclosure	Easily mount on a DIN rail or inside distribution boxes using native DIN Rail enclosure with grounding clip. No need for add-on brackets.
Auto-Negotiation	The media converter supports auto negotiation on the fast ethernet 100Base-TX interface.
Auto-MDIX	Auto-MDIX (automatic medium-dependant interface crossover) detects the signaling on the 100Base-TX interface to determine the type of cable connected (straight-through or crossover) and automatically configures the connection when enabled. With Auto-MDIX enabled, either a straight-through or crossover type cable can be used to connect the media converter to the device on the other end of the cable.

Link Pass-Through With Link Pass-Through the state of the 100Base-TX receiver is passed to the 100Base-X transmitter to make the media converter appear transparent to the end devices that are connected. In addition, if Far-End Fault is enabled the media converter can turn off the 100Base-TX transmitter when a FAR-End Fault is received.

Using Link Pass-Through with Far-End Fault minimizes data loss when a fault occurs. Should a fault occur, the end devices have the indication of a failure available to them making trouble shooting easier.

Far-End Fault (FEF) The media converter implements the 802.3 standard for Far-End Fault for the indication and detection of remote fault conditions on the 100Base-X fiber connection. With Far-End Fault enabled the media converter transmits the Far-End Fault Indication over the 100Base-X fiber connection whenever a receive failure is detected on the 100Base-X fiber connection. The media converter continuously monitors the 100Base-X fiber connection for a valid signal.

The action the media converter takes on receiving a Far-End Fault Indication is dependent on the Link Pass Through switch setting.

Duplex Full and half duplex operation supported.

Pause (IEEE 802.3xy) Pause signaling is an IEEE feature that temporarily suspends data transmission between two devices in the event that one of the devices becomes overwhelmed. The fast ethernet media converter supports pause negotiation on the 100Base-TX copper connection.

VLAN The media converter is transparent to VLAN tagged packets.

Remote LoopBack The media converter is capable of performing a loopback on the fiber port.

Power

Input Supply Voltage Triple voltage 12 / 24 / 48 VDC (9.6 – 60 VDC) input supporting:

- a) 2 x Terminal Block power input and
- b) 1 x T-Bus power input

Current 0.09 A (@ 24VDC)

Power Consumption 2.16 watts (@ 24VDC)

Power Connector Dual input Terminal Block and/or T-Bus

Indicators

Power / TST This green LED is turned on when power is applied to the media converter. Otherwise it is off. The LED will blink fast/slow when in Loopback test mode or hardware error.

Fiber link on / Receive activity (LKF)	On: Fiber link present. Blinking slowly: Fiber link disabled because of copper link loss. Blinking quickly: Fiber link present and receiving data. Off: No fiber link present
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Copper link on / Receive activity (LKC)	On: Copper link is present. Blinking quickly: Copper link present and receiving data. Blinking slowly: Copper link disabled because of fiber link loss. Off: No copper link present
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Switches - accessible by sliding the chassis open



Auto-Negotiation	Auto (Default - Up): In this mode of operation the media converter will negotiate Ethernet parameters on the copper connection. This will ensure the most optimal connection parameters will be in effect. If the copper link partner does not support Auto negotiation, the media converter will default to 100 Mbps and Half Duplex mode.
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Off: Auto Negotiation should only be turned off, if the copper link partner does not support Auto Negotiation. When the Auto Negotiation switch is set to the OFF position, the media converter will operate at 100 Mbps and Full Duplex mode.

Smart Link Pass-Through	Smart Link Pass-Through (Default - Up): In this mode, the link state on one connection is directly reflected through the media converter to the other connection. If link is lost on one of the connections, then the other link will be brought down by the media converter. If the installation has a media converter on both ends of the fiber link and both are setup for Link Pass-Through, then a loss of copper link on the far end device will propagate through both media converters and will result in a loss of copper link at the near end device. This would, therefore, resemble a direct copper connection.
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Standard Mode (Down): In this mode, the links on the fiber and copper sides can be brought up and down independently of each other. A loss of link on either the fiber ports or copper ports can take place without affecting the other connection

Pause	Auto (Default-Up): When Auto Negotiation has been set to Auto, the media converter will use this setting for its Ethernet parameter negotiation on the copper connection.
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Half: The media converter will not negotiate support for the Pause feature.

Loopback	Disabled (Default-Up): The loopback feature is disabled. This is the normal position for regular operation. The switch must be set to this position for data to pass through the media converter.
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Enabled: This is a test mode. All data received on the receive (RX) fiber connection is looped back to the transmit (TX) fiber connection. The state of the copper is not relevant and no data or link status is passed through to the copper side.

Far-End Fault (FEF) Enabled (Default-Up): If the media converter detects a loss of fiber signal on the fiber receiver, it will immediately send a FEF on the fiber link. This notifies the fiber link partner that an error condition exists on the fiber connection. If the remote media converter is set up for FEF, and the local media converter is set up with Link Pass-Through, a loss of fiber link on either the transmit or receive line will be passed through to the local copper connection to notify the connected device. If the media converter has been set to Link Pass-Through mode, the effect will be the same as FEF since the link loss on the fiber receiver will bring down the copper link, which will in turn cause the transmit fiber link to be brought down.

Disabled: The media converter will not monitor for or generate Far End Fault.

Cables and Connectors

100Base-TX RJ45 connector, 2 pair CAT 5 (UTP or STP) or better cable

Fixed Fiber Dual multimode or single mode (Duplex) fiber - SC, ST

Single strand fiber (Simplex) – SC, ST

Magnetic Isolation 1.5kv

Fiber Optic Cable Multimode: 62.5 / 125, 50/125, 85/125, 100/140 micron

Single Mode: 9/125 micron (ITU-T 625)

Filtering

Filtering 1024 MAC Addresses

Frame Specifications

Buffer 512 Kbits frame buffer memory

Size Maximum frame size of 2048 bytes

Packet Transmission Characteristics

Bit Error Rate (BER) $<10^{-12}$

Environmental Specifications

Operating Temperature -10 C to 60 C (14 F to 140 F)

Storage Temperature -25 C to 70 C (-13 F to 158 F)

Operating Humidity 5% to 90% non-condensing

Storage Humidity	5% to 95% non-condensing
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Operating Altitude	Up to 3,048 meters (10,000 feet)
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Heat Output	7.37
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(BTU/HR)

MTBF (Hours)	694,621 (Calculation model based on MIL-HDBK-217-FN2 @ 30 °C)
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Chassis	Molded plastic DIN Rail case with an IP20 ingress protection rating
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Mounting

Din Rail Kit	Native
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Product Weight and Dimensions

Weight	0.12 kg, 0.26 lbs
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Dimensions	114 x 100 x 22.5mm, 4.5 x 3.9 x 0.88 inches
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Packaging

Shipping Weight	0.17 kg, 0.37 lbs
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Shipping Dimensions	145 x 105 x 30 mm, 5.7 x 4.1 x 1.2 inches
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Regulatory Approvals

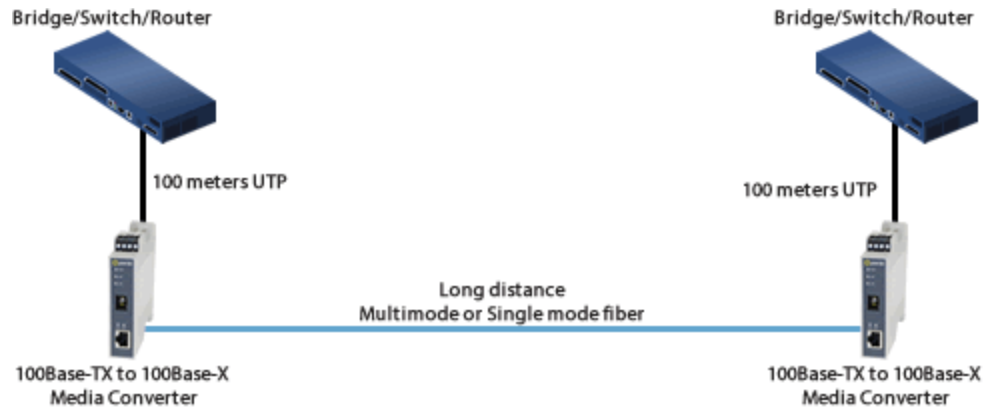
Emissions	FCC 47 Part 15 Class A, EN55032 (CISPR32) Class A
	ICES-003
	EN61000-6-4 (Emissions for industrial environments)
	CISPR 32:2015/EN 55032:2015 (Class A)
	CISPR 24:2010/EN 55024:2010
	EN61000-3-2

Immunity	EN55024
	EN 61000-4-2 (ESD)
	EN 61000-4-3 (RS)
	EN 61000-4-4 (EFT)
	EN 61000-4-5 (Surge)
	EN 61000-4-6 (CS)
	EN 61000-4-8 (PFMF)
	EN 61000-4-11
	IEC/EN 61000-6-2 (General Immunity for Industrial Environments)
Electrical Safety	UL 61010-1 and UL 61010-2-201 (including CB)
	UL/ULC/EN 62368-1 (including CB)
	CAN/CSA C22.2 No. 62368-1-14
	CE
Laser Safety	EN 60825-1:2007
	Fiber optic transmitters on this device meet Class 1 Laser safety requirements per IEC-60825 FDA/CDRH standards and comply with 21CFR1040.10 and 21CFR1040.11.
Environmental	Reach, RoHS and WEEE Compliant
Other	ECCN: 5A991
	HTSUS Number: 8517.62.0050
	Perle Limited Lifetime Warranty

Fast Ethernet UTP Switch to UTP Switch

Extend the network distance between two twisted pair switches

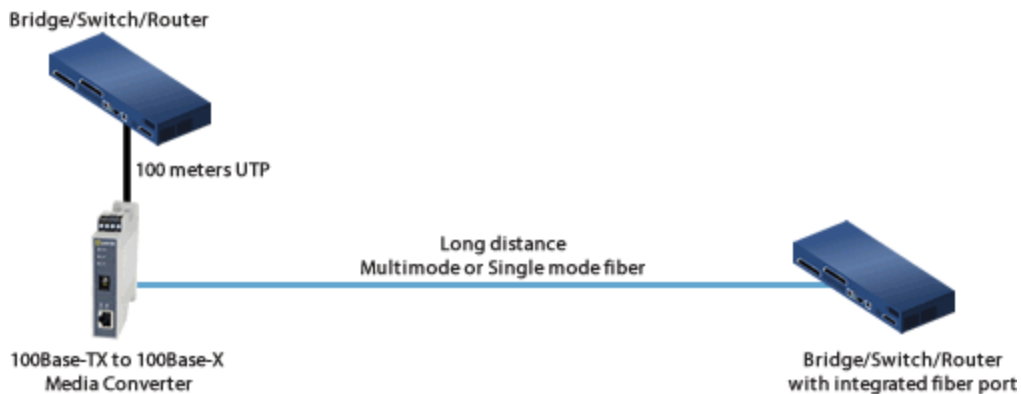
Two Fast Ethernet Media Converters can extend the distance between UTP Switches across a fiber link up to 120km in length.



Fast Ethernet UTP Switch to Fiber Switch

Interconnect a UTP Switch with a Fiber Switch

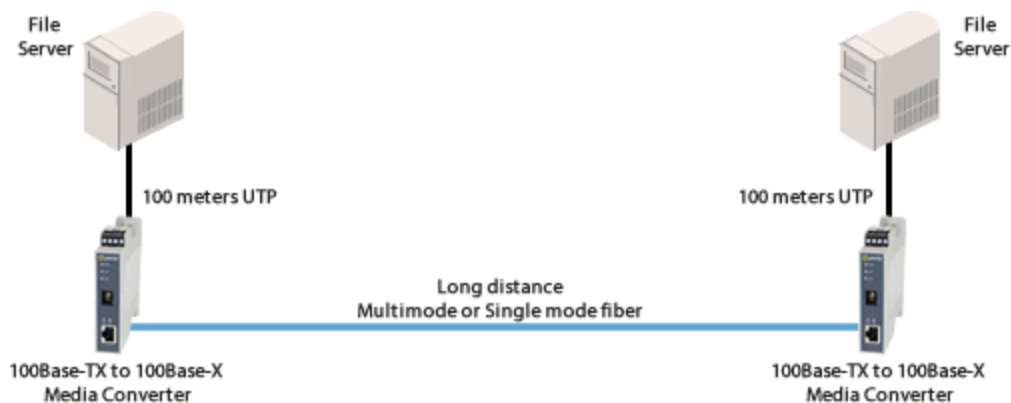
A media converter can interconnect a UTP copper based Switch port to a remote switch that has integrated fiber.



Direct Connect - Long Distance

Direct Connection between two remote devices

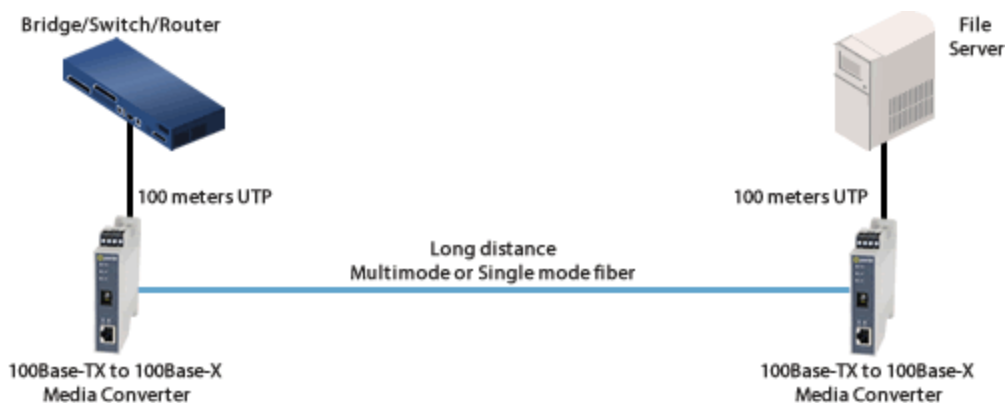
With a pair of Fast Ethernet Media Converters two devices, such as file servers, can be connected up to 120km away across a fiber link.



Switch to File Server

Extend the network distance between a Switch and a File Server

Two Ethernet Media Converters can extend the distance between a 100Base-TX Switch and a File Server across a fiber link up to 120Km in length.

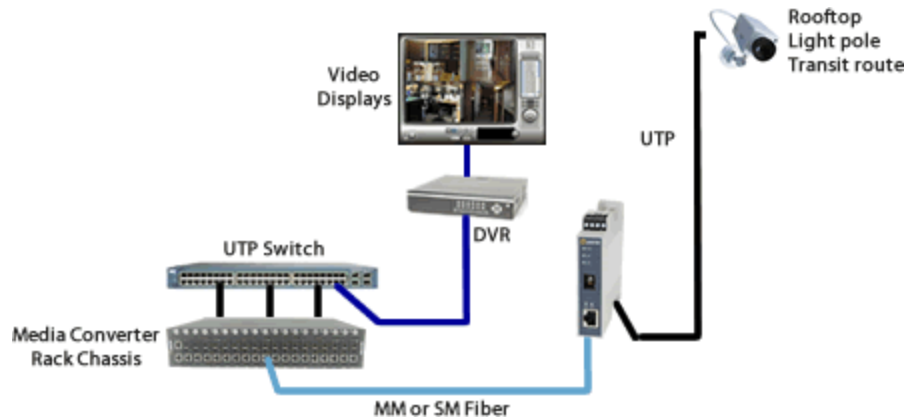


Fast Ethernet to IP Cameras

Connect IP Cameras to Fast Ethernet Backbone

Extend the reach to IP cameras using industrial fiber media converters.

Stand-alone Extended Temperature Media Converters are placed at the remote end connecting cameras with copper interfaces to fiber optic cabling. The fiber can extend the distance up to 40 kilometers using single mode or multimode fiber back to a control center. A media converter chassis located in the data closet at the control center accepts the fiber signal, converts it, and connects to the copper equipment at the main site.

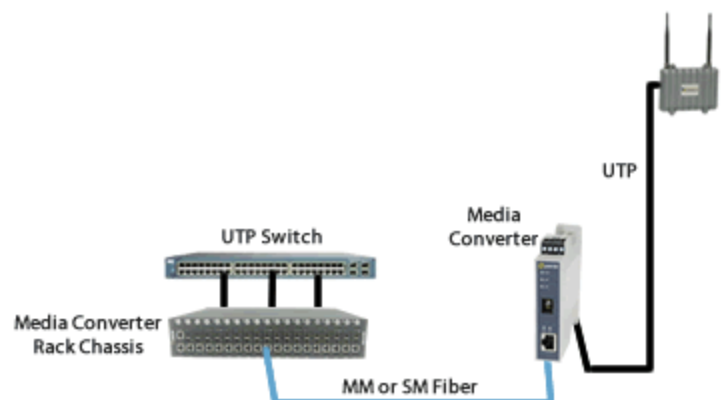


Fast Ethernet Fiber to Wireless Access Points

Connect Wireless Access Points to Fast Ethernet Backbone

Extend the reach to wireless access points (AP) using fiber media converters. When a company deploys a wireless network in their office or large warehouse, APs need to be set up throughout the facility to ensure complete coverage for reliability. The network manager will likely need to extend further than the 100 meters allowed by copper cable to reach many of the APs.

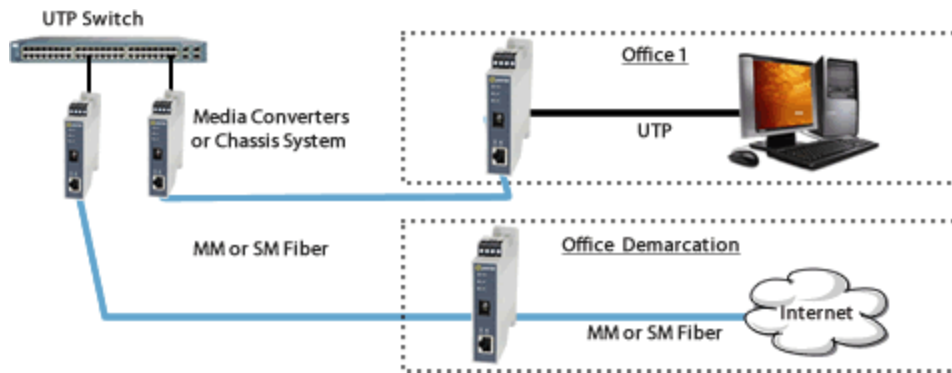
When APs are used in industrial environments where extremely high or low temperatures are a concern, Stand-alone Extended Temperature Media Converters are placed at the remote end connecting APs with copper interfaces to fiber optic cabling. The fiber can extend the distance up to 120 kilometers using single mode or multimode fiber back to a control center. A media converter chassis located in the data closet at the control center accepts the fiber signal, converts it, and connects to the copper equipment at the main site.

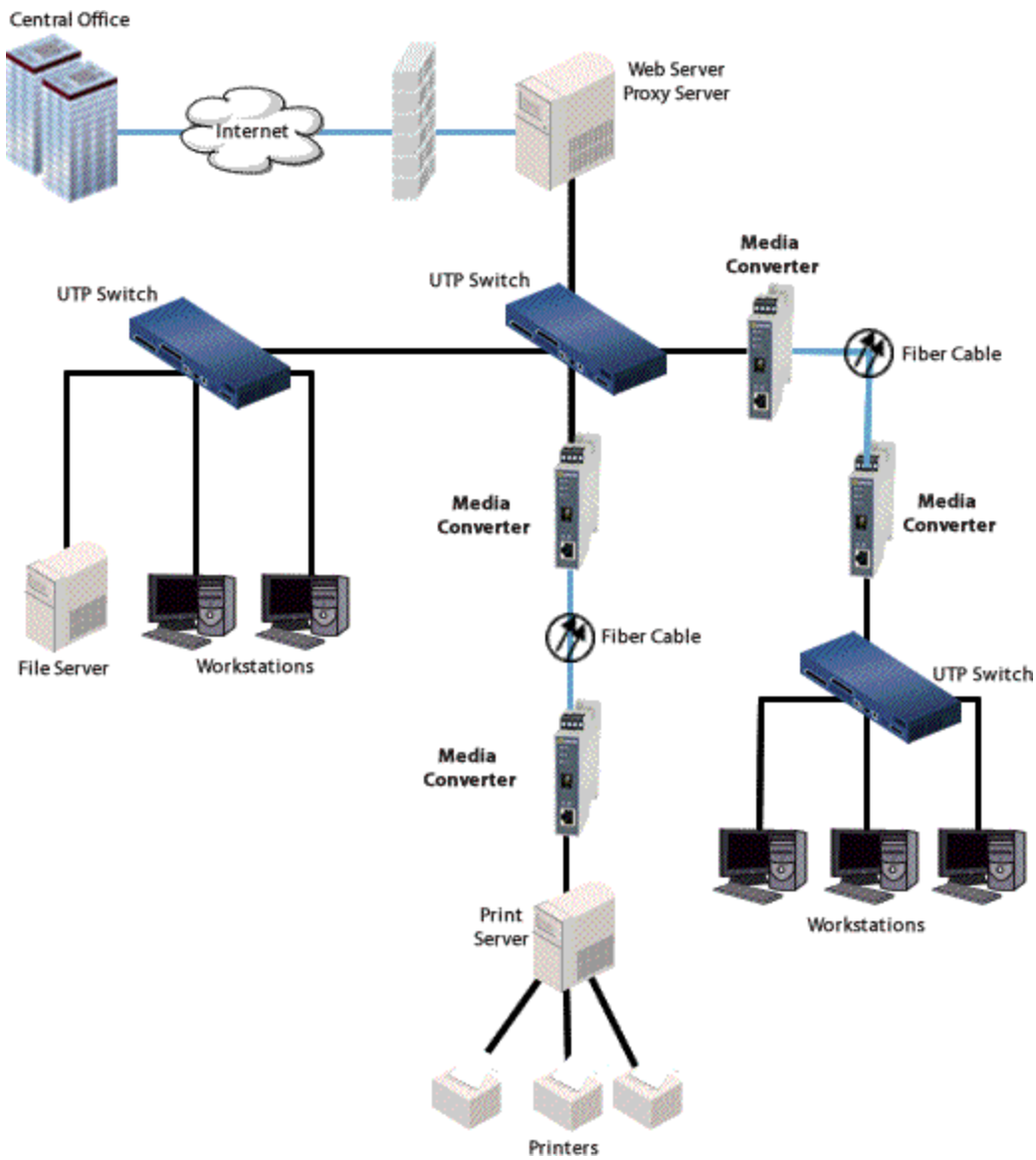


Enterprise Infrastructure

Enterprise Infrastructure using Fiber Optics

Create a fiber infrastructure for your enterprise network without any wholesale replacement of existing copper-based equipment.

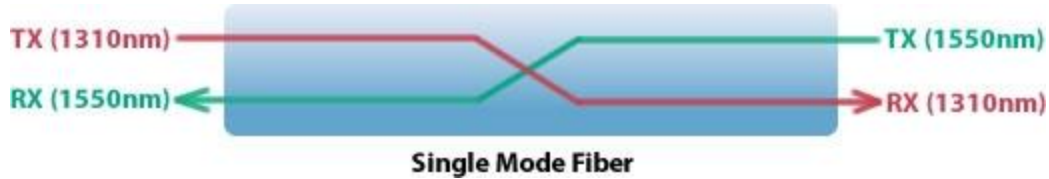




Single Mode / Single Fiber

Connect copper ports over a single fiber strand (also referred to as “Bi-Directional” BiDi)

When Single Strand fiber is used, a pair of Single Fiber Media Converters is needed for the copper to fiber conversion. Perle Single Fiber Media Converters are also referred to as “Up/Down” models. For example the SR-100-SC2U (“Up”) and SR-100-SC2D (“Down”), shown below, must be used in pairs. An “Up” must be matched with a “Down” peer to deal with transmit and receive frequencies separately.



SR-100-SC2U/SR-100-SC2D

The majority of installations for single mode fiber media converters are of the “dual connector” or “dual fiber” type where one fiber connection is used for transmit, the other for receive. These are physically “crossed” to match up the Transmit/Receive links.

However, to reduce costs, or where there are limits on available fiber, WDM technology may be utilized. WDM uses separate transmit and receive frequencies to communicate on a single fiber strand. WDM technology relies on the fact that optical fibers can carry many wavelengths of light simultaneously without interaction between each wavelength. Thus, a single fiber can carry many separate wavelength signals or channels simultaneously.

So remember, if Single Strand fiber is used, you will need an “Up” Media Converter on one side and a “Down” Media Converter on the other for copper to fiber conversion.

Perle offers a wide variety of Single Fiber (“Up/Down”) Media Converters to connect 10BaseT, Fast Ethernet and Gigabit to single fiber. Whether you need Managed or Unmanaged, Standalone or Modular Chassis Based, 20km or 120km, Perle has the right model to meet your fiber conversion requirement.

Dual Fiber Models

Model	Connector	Type	Transmit		Receive		Power		Wavelength	Fiber Type	Operating Distance
			(dBm)	(dBm)	(dBm)	(dBm)	Budget	(nm)			
			Min	Max	Min	Max	(dBm)				
SR-100-SC2	Dual SC	100Base-FX	-20.0	-12.0	-31.0	-14.0	11.0	1310	MMF	2 km (1.2 mi)	
SR-100-ST2	Dual ST	100Base-FX	-20.0	-12.0	-31.0	-14.0	11.0	1310	MMF	2 km (1.2 mi)	

SR-100-SC20	Dual SC	100Base-LX	-18.0	-7.0	-32.0	-3.0	14.0	1310	SMF	20 km (12.4 mi)
SR-100-ST20	Dual ST	100Base-LX	-18.0	-7.0	-32.0	-3.0	14.0	1310	SMF	20 km (12.4 mi)
SR-100-SC40	Dual SC	100Base-EX	-5.0	0.0	-34.0	-3.0	29.0	1310	SMF	40 km (25 mi)
SR-100-ST40	Dual ST	100Base-EX	-5.0	0.0	-34.0	-3.0	29.0	1310	SMF	40 km (25 mi)
SR-100-SC80	Dual SC	100Base-ZX	-5.0	0.0	-34.0	-3.0	29.0	1550	SMF	80 km (50 mi)
SR-100-ST80	Dual ST	100Base-ZX	-5.0	0.0	-34.0	-3.0	29.0	1550	SMF	80 km (50 mi)
SR-100-SC120	Dual SC	100Base-ZX	0.0	5.0	-35.0	-3.0	35.0	1550	SMF	120 km (75 mi)
SR-100-ST120	Dual ST	100Base-ZX	0.0	5.0	-35.0	-3.0	35.0	1550	SMF	120 km (75 mi)

Single Fiber Models Recommended use in pairs

Model	Connector	Type	Transmit		Receive		Power	Wavelength	Fiber	Operating
			(dBm)	(dBm)	(dBm)	Budget				
			Min	Max	Min	Max	(dBm)	(nm)	Type	Distance
SR-100-SC2D	Single SC	100Base-BX-D	-15.0	0.0	-28.0	-8.0	13.0	1550 / 1310	MMF	2 km (1.2 mi)
SR-100-SC2U	Single SC	100Base-BX-U	-15.0	0.0	-28.0	-8.0	13.0	1310 / 1550	MMF	2 km (1.2 mi)

SR-100-ST2D	Single ST	100Base-BX-D	-15.0	0.0	-28.0	-8.0	13.0	1550 / 1310	MMF	2 km (1.2 mi)
SR-100-ST2U	Single ST	100Base-BX-U	-15.0	0.0	-28.0	-8.0	13.0	1310 / 1550	MMF	2 km (1.2 mi)
SR-100-SC20U	Single SC	100Base-BX-U	-14.0	-8.0	-32.0	-3.0	18.0	1310 / 1550	SMF	20 km (12.4 mi)
SR-100-SC20D	Single SC	100Base-BX-D	-14.0	-8.0	-32.0	-3.0	18.0	1550 / 1310	SMF	20 km (12.4 mi)
SR-100-ST20U	Single ST	100Base-BX-U	-14.0	-8.0	-32.0	-3.0	18.0	1310 / 1550	SMF	20 km (12.4 mi)
SR-100-ST20D	Single ST	100Base-BX-D	-14.0	-8.0	-32.0	-3.0	18.0	1550 / 1310	SMF	20 km (12.4 mi)
SR-100-SC40U	Single SC	100Base-BX-U	-8.0	-3.0	-33.0	-3.0	25.0	1310 / 1550	SMF	40 km (25 mi)
SR-100-SC40D	Single SC	100Base-BX-D	-8.0	-3.0	-33.0	-3.0	25.0	1550 / 1310	SMF	40 km (25 mi)

**Part
Number Media Converter Accessories**

29029928	UNO-PS/1AC/24DC/60W DIN-Rail Power Supply: 24 VDC, 60 Watt with universal 85 to 264 VAC, -25 to 70°C extended operating temperature.
29043768	UNO-P/1AC/24DC/150W Power Supply - DIN-Rail 24 VDC , 150 Watt power supply with universal 85 to 264 VAC, -25 to 70°C extended operating temperature
07012040	IDPS-48-240-XT - DIN-Rail 48 VDC, 240Watt power supply with universal 85 to 264 VAC or 120-370 VDC input , -10 to 70°C extended operating temperature.
28664918	TRIO-PS/1AC/48DC/5 DIN-Rail Power Supply: 48 VDC, 240 Watt with universal 85 to 264 VAC, 30 to 56V DC output range adjustable, -25 to 70°C extended operating temperature.
28665018	TRIO-PS/1AC/48DC/10 Power Supply - DIN-Rail 48 VDC , 480 Watt power supply with universal 85 to 264 VAC, 30 to 56V DC output range adjustable, -25 to 70°C extended operating temperature

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- 28669838 MINI-SYS-PS-100-240AC/24DC/1.5 Power Supply - For use with modular TBUS DIN rail connector system. 24VDC / 1.5 A, 36 Watts with universal 85 to 264 VAC, -25 °C to 70 °C extended operating temperature
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- 22038528 ME225TBUS15/4P1SBK - TBUS DIN Rail Connector - Transmit power voltage and data across the bus. 4 parallel positions and 1 serial position. UL 8A / cUL 6A, 150 V. Width 22.5cm. Carton of 5. For use with SR and SRS DIN Rail Media Converters.