S-110-XT 10/100 Industrial Temperature Media Converters Standalone, Unmanaged

- 10/100Base-TX to 100Base-X Fiber Media Converters
- Extend network distances up to 20km for industrial Ethernet equipment
- Advanced features - Link Pass-Through, Far-End Fault, Auto-MDIX and Loopback
- -40F to +167F (-40C to +75C) extended temperature support
- Terminal block power connector

The **S-110-XT Industrial Temperature Media Converters** address the need for transparently connecting 10/100 Ethernet equipment that operate in extreme temperatures to fiber optic cable. The S-110-XT Media Converters will operate in industrial grade temperatures of **-40F to +167F (-40C to +75C)**. Equipment found in **traffic management, oil and gas pipelines, weather tracking, industrial and outdoor applications** must function in temperatures that cannot be supported by a commercial based media converter. Boasting this extended temperature feature along with a rugged steel casing, the S-110-XT Media Converter provides an economical path to extend the distance between two industrial devices subjected to harsh environments and severe temperatures such as security cameras, wireless access points, alarms, traffic controllers, sensors and tracking devices.

Network Administrators can "see-everything" with Perle's advanced features such as Auto-Negotiation, Auto-MDIX, Link Pass-Through, Far End Fault, and Remote Loopback. 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 Perle's **S-110-XT Industrial Temperature 10/100 Media Converters** the smart choice for IT professionals.

S-110-XT Industrial Temperature Media Converter 10/100 to Fiber Features

Auto-Negotiation (802.3u)	The media converter supports auto negotiation on the 10/100Base-TX interface.
Auto-MDIX	Auto-MDIX (automatic medium-dependant interface crossover) detects the signaling on the UTP 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 UTP receiver is passed to the fiber 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 10/100Base-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 the100Base-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.
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 media converter supports pause negotiation on the 10/100Base-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.

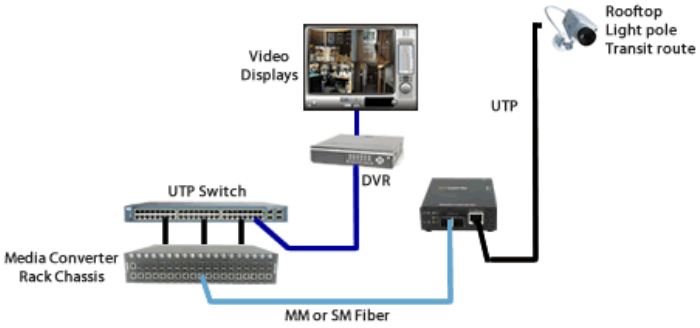
Power	
Input Supply Voltage	6 - 30 vDC, unregulated (12 vDC Nominal)
Current	175 mA
Power Consumption	2.1 watts
Power Connector	2-pin fixed terminal block
Indicators	
Power / TST	This green LED is turned on when power is applied to the media converter. Otherwise it is off. The LED will blink when in Loopback test mode.
Fiber link on / Receive activity (LKF)	This green LED is operational only when power is applied. The LED is on when the 100Base-FX link is on and flashes with a 50% duty cycle when data is received.
Copper link on / Receive activity (LKC)	This green LED is operational only when power is applied. The LED is on when the 100Base-TX link is on and flashes with a 50% duty cycle when data is received.
Fiber Duplex (FDF)	This green LED is operational only when power is applied. The LED is on when the 100Base-FX link is operatinal in full duplex mode. The LED is off when in half duplex.
Copper Duplex (FDC)	This green LED is operational only when power is applied. The LED is on when the 10/100Base-TX link is operatinal in full duplex mode. The LED is off when in half duplex.
10/100 Speed	This green LED is operational only when power is applied. The LED is on when the speed of the copper Ethernet port is running at 100 MBPS. The LED is off when in 10 MBPS
Switches - accessible through a side opening in the chassis	
Auto-Negotiation (802.3u)	*Enabled (Default)* - The media converter uses 802.3u Auto-negotiation on the 100Base-TX interface. It is set to advertise full duplex. *Disabled* - The media converter sets the port according to the position of the speed and duplex switches.
Link Pass Through	*Enabled (Default)* - When the state of the receiver is changed on the 100Base-TX interface it is reflected on the 100Base-FX fiber transmitter. When the state of the receiver on the 100Base-FX interface is changed it is reflected on the 100Base-TX transmitter. When a Far-End Fault Indication is received on the fiber interface the 100Base-TX transmitter is turned off. When the Far-End Fault Indication is cleared the transmitter is turned back on. *Disabled* - The 100Base-TX and the 100Base-FX fiber interface operate independently. Far-End Fault indication on the 100Base-FX fiber interface has no effect on the 100Base-TX interface.
Far-End Fault (FEF)	*Enabled (Default)* - 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 the100Base-X fiber connection and clears the Far-End Fault Indication condition when a valid signal is received. *Disabled* - Far-End Fault Indications are not transmitted regardless of the condition of the receive signal on the 100Base-FX fiber connection.
Remote Loopback	The media converter can perform a loopback on the 100Base-X fiber interface. *Disabled (Default - Up)* *Enabled* - The 100Base-X receiver is looped to the 100Base-X transmitter. The 100Base-TX transmitter is taken off the interface.
Auto-MDIX (Internal Strap)	If Auto-Negotiation (802.3u) is enabled, the media converter uses the HP Auto-MDIX method for the 100Base-TX interface. If Auto-Negotiation (802.3u) is disabled the Media converter will use the RX Energy method on the 100Base-TX interface to set the port MDI or MDIX whichever is appropriate. *Enabled (Default)* - 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. *Disabled* - If the partner device on the other end of the cable does not have the Auto-MDIX feature a specific cable, either a straight-through or crossover will be required to ensure that the media converter's transmitter and the partner devices transmitter are connected to the others receiver. The Media converter's 100Base-TX port is configured as MDI-X with this switch setting.

Speed Copper	100 (Default) 10
Duplex Copper	Full (Default) Half
Duplex Fiber	Full (Default) Half
Connectors	
100Base-TX	RJ45 connector, 2 pair CAT 5, EIA/TIA 568A/B or better cable
Magnetic Isolation	1.5kv
Filtering	
Filtering	1024 MAC Addresses
Frame Specifications	
Buffer	512 Kbits frame buffer memory
Size	Maximum frame size of 2048 bytes
Environmental Specifications	
Operating Temperature	-40 C to 75 C (-40 F to 167 F)
Storage Temperature	-40 C to 85 C (-40 F to 185 F)
Operating Humidity	5% to 90% non-condensing
Storage Humidity	5% to 95% non-condensing
Operating Altitude	Up to 3,048 meters (10,000 feet)
Heat Output (BTU/HR)	7.2
MTBF (Hours)	607,001
Mounting	
Din Rail Kit	Optional
Rack Mount Kit	Optional
Product Weight and Dimensions	
Weight	0.3 kg, 0.66 lbs
Dimentions	120 x 80 x 26 mm, 4.7 x 3.1 x 1.0 inches
Packaging	
Shipping Weight	0.425 kg, .9 lbs
Shipping Dimentions	150 x 210 x 40 mm, 5.9 x 11 x 2.8 inches
Regulatory Approvals	
Emissions	FCC Part 15 Class B, EN55022 Class B
	CISPR 22 Class B
	EN61000-3-2
Immunity	EN55024
Electrical Safety	UL 60950-1
	EN60950
	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: 5A991A
	HTSUS Number: 8517.62.0050
	Perle Lifetime warranty

Fast Ethernet to IP Cameras

Connect 10/100 IP Cameras to Fast Ethernet Backbone
Extend the reach to IP cameras using industrial fiber media converters. Security cameras are typically installed in remote locations where extremely high or low temperatures are a concern -- ceilings, rooftops, light poles, along fences, pipelines and transit routes.

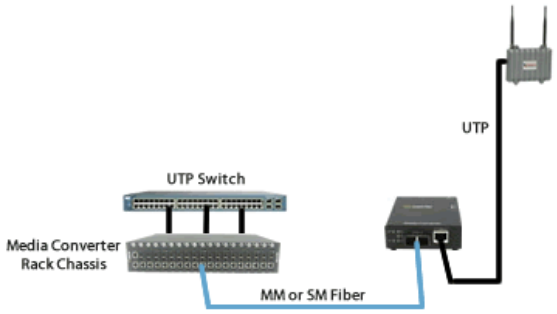
Stand-alone Extended Temperature Media Converters are placed at the remote end connecting cameras with copper interfaces to fiber optic cabling. The fiber can extend the distance up to 20 kilometers using single mode or multimode fiber back to a control center. A media converter chassis located in the 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 10/100 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.

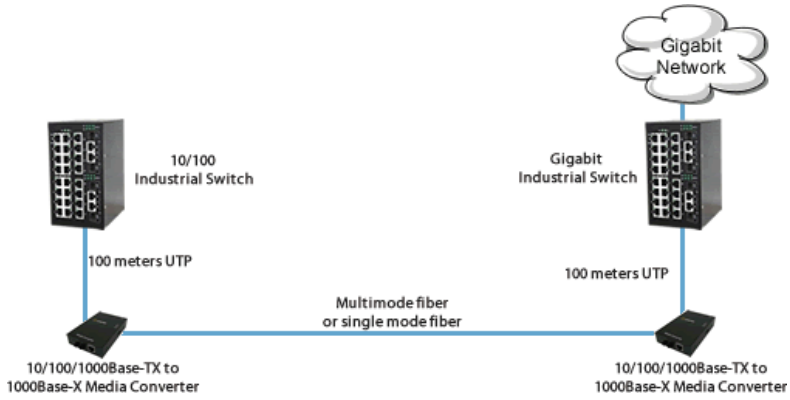
When AP's are used in industrial environments where extremely high or low temperatures are a concern, Stand-alone Extended Temperature Media Converters are placed at the remote end connecting APs with copper interfaces to fiber optic cabling. The fiber can extend the distance up to 20 kilometers using 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.



Bridge 10/100 Devices to gigabit Backbone

Connect 10/100 devices to Gigabit Backbone

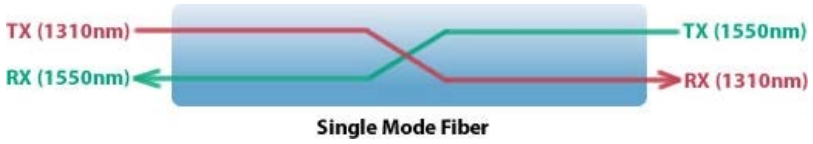
Industrial switches are often used in environments where extremely high or low temperatures are a concern. Devices in an industrial environment can be connected to a Gigabit backbone through the use of rate converting Industrial Temperature Media Converters.



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 S-110-S1SC20**U**-XT ("Up") and S-110-S1SC20**D**-XT ("Down"), shown below, must be used in pairs. An "**U**p" must be matched with a "**D**own" peer to deal with transmit and receive frequencies separately.



S-110-S1SC20U-XT **S-110-S1SC20D-XT**

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.

Select a Model to obtain a Part Number - S-110-XT Industrial Temperature Media Converter 10/100 to Fiber

Model	Connector	Type	Transmit (dBm)		Receive (dBm)		Power Budget (dBm)	Wavelength (nm)	Fiber Type	Operating Distance
			Min	Max	Min	Max				
S-110-M2ST2-XT	Dual ST	100Base-FX	-20.0	-12.0	-31.0	-14.0	11.0*	1310	MMF	2 km (1.2 mi)
S-110-M2SC2-XT	Dual SC	100Base-FX	-20.0	-12.0	-31.0	-14.0	11.0*	1310	MMF	2 km (1.2 mi)
S-110-M2LC2-XT	Dual LC	100Base-FX	-20.0	-12.0	-30.0	-14.0	10.0*	1310	MMF	2 km (1.2 mi)
S-110-S2ST20-XT	Dual ST	100Base-LX	-18.0	-7.0	-32.0	-3.0	14.0	1310	SMF	20 km (12.4 mi)
S-110-S2SC20-XT	Dual SC	100Base-LX	-18.0	-7.0	-32.0	-3.0	14.0	1310	SMF	20 km (12.4 mi)
S-110-S2LC20-XT	Dual LC	100Base-LX	-15.0	0.0	-34.0	-5.0	19.0	1310	SMF	20 km (12.4 mi)

Single Fiber Models (Recommended use in pairs)

Model	Connector	Type	Transmit (dBm)		Receive (dBm)		Power Budget (dBm)	Wavelength (nm)	Fiber Type	Operating Distance
			Min	Max	Min	Max				
S-110-S1SC20U-XT	Single SC	100Base-BX	-14.0	-8.0	-32.0	-3.0	18.0	1310 / 1550	SMF	20 km (12.4 mi)
S-110-S1SC20D-XT	Single SC	100Base-BX	-14.0	-8.0	-32.0	-3.0	18.0	1550 / 1310	SMF	20 km (12.4 mi)

The minimum fiber cable distance for all converters listed is 2 meters.

*Based on use with 62.5/125 micron multimode fiber.

Media Converter Accessories	
4 DIN Rail Mount Bkt	DIN Rail Mounting Kit
MCSM	Standalone media converter wall mount bracket
04030674	Extended Temperature USA power adapter for 12 Volt Industrial Temperature Media Converter
04030671	Extended Temperature UK power adapter for 12 Volt Industrial Temperature Media Converter
04030672	Extended Temperature EU power adapter for 12 Volt Industrial Temperature Media Converter
04030675	Extended Temperature SA power adapter for 12 Volt Industrial Temperature Media Converter
04030676	Extended Temperature AUS power adapter for 12 Volt Industrial Temperature Media Converter