C-110 Media and Rate Converter Module

10/100Base-TX to 100Base-X Conversion

- 10/100Base-TX to 100Base-X Fiber Media Converters
- Extend network distances up to 120km
- Advanced features - Link Pass-Through, Far-End Fault, Auto-MDIX and Loopback
- High density applications with Perle Media Converter Chassis

Installed in a high density Perle Media Converter Chassis, Perle's line of feature rich 10/100 Rate Converting to Fiber Media Converters transparently connect 10/100 Ethernet to fiber. Our 10/100 converters provide an economical path to extend the distance of an existing network, the life of non-fiber based equipment, or the distance between two 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. These cost and time saving features, along with a lifetime warranty and free worldwide technical support, make Perle's **10/100 Ethernet media converter modules** the smart choice for IT professionals.

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 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.
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.

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: On-Board

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 (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

Cables

100Base-TX	RJ45 connector, 2 pair CAT 5, EIA/TIA 568A/B or better cable
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

Environmental Specifications

Operating Temperature	0 C to 50 C (32 F to 122 F)
Storage Temperature	minimum range of -25 C to 70 C (-13 F to 158 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

Maximum Power Consumption (Watts)	2.1
MTBF (Hours)*	598,000

Mechanical - Hot Swapping Card

Edge Connecter	32 pin DIN 41612 / IEC 60603-2 Type B/2 Male. Fist make, last break for ground and power
Card insertion and removal	Captive thumb screws enable fast insertion and removal. Can be further tighten with a screwdriver.

Product Weight

Weight	0.15 kg, 0.33 lbs

Packaging

Shipping Weight	0.33 kg, .73 lbs
Shipping Dimensions	203 x 38 x 152 mm, 8 x 1.5 x 6 inches

Regulatory Approvals

Emissions	FCC Part 15 Class A, EN55022 Class A
	CISPR 22 Class A CISPR 32:2015/EN 55032:2015 (Class A) CISPR 24:2010/EN 55024:2010
	EN61000-3-2
Immunity	EN55024
Electrical Safety	UL 60950-1
	IEC 60950-1(ed 2); am1, am2 EN 60950-1:2006+A11:2009+A1:2010+A12:2011+A2:2013
	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: 8517.62.0020
	Perle Limited Lifetime Warranty

*Calculation model based on MIL-HDBK-217-FN2 @ 30 °C

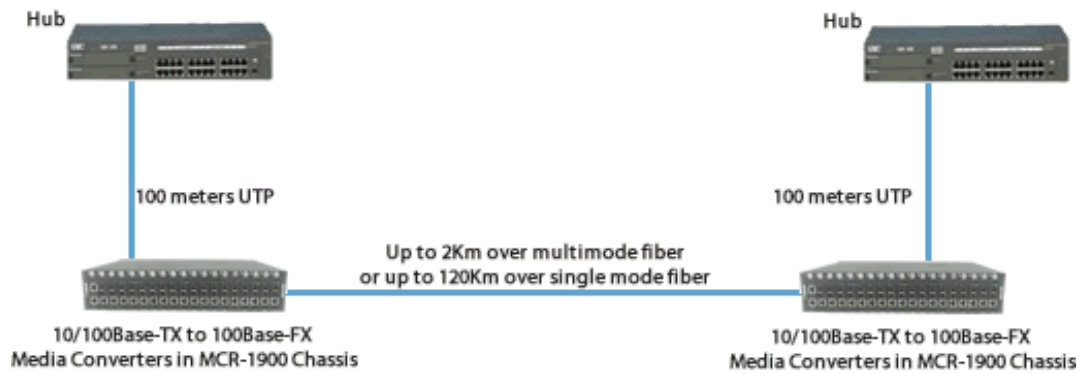**High Density Fiber Distribution from UTP Switch Equipment at Corporate Headquarters**

In this enterprise campus application, up to 19 Perle C-110 10/100 Media Converters are installed in the MCR1900 Media Converter Chassis. A remote fiber enabled Ethernet switch is connected directly to the central MCR1900 Chassis. A standalone S-110 Media Converter converts the fiber to Ethernet in a fiber-to-desktop application. Another S-110 Fiber Media Converter is connected to a remote office Ethernet switch. In all cases, multimode or single-mode fiber can be used. Fiber links can be extended up to 120km using single-mode fiber.
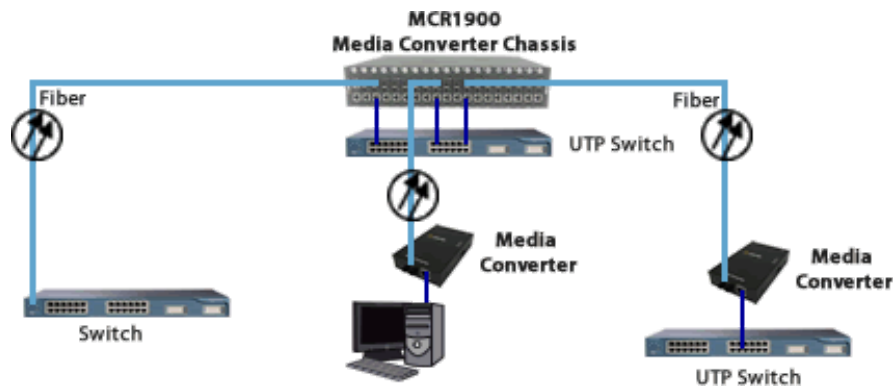
10/100 – Extend Network between Ethernet Hubs

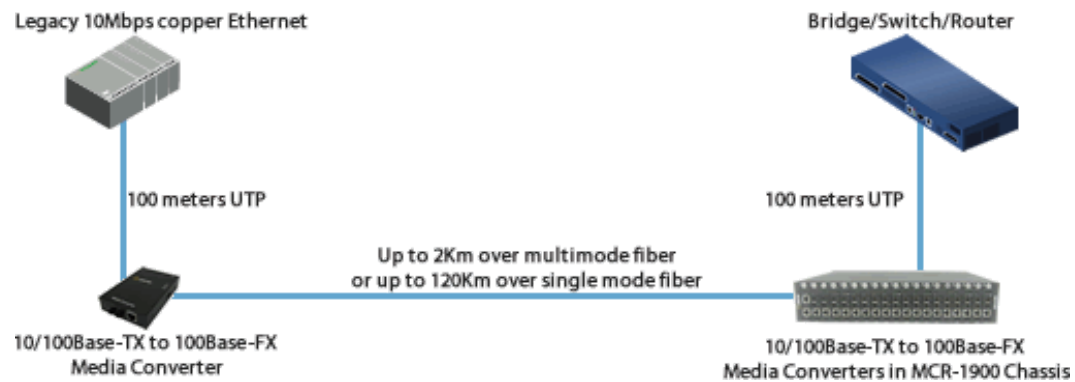## Extend the network distance between two Ethernet Hubs

A pair of 10/100 media converters can extend the distance between hubs across a fiber link up to 120km in length.

Hub

Hub

100 meters UTP

100 meters UTP

Up to 2Km over multimode fiber
or up to 120Km over single mode fiber

10/100Base-TX to 100Base-FX
Media Converters in MCR-1900 Chassis

10/100Base-TX to 100Base-FX
Media Converters in MCR-1900 Chassis

10/100 – Extend Network between 10Mbps and Fast Ethernet

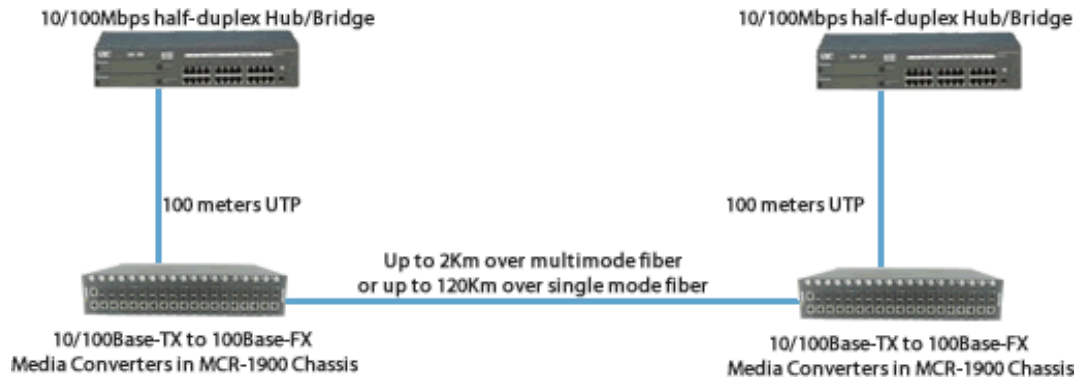## Extend the network distance between legacy 10Mbps copper Ethernet to Fast Ethernet infrastructure

A pair of 10/100 media converters can extend the distance between a legacy 10Mbps device to a Fast Ethernet switch across a fiber link up to 120km in length.

Legacy 10Mbps copper Ethernet

Bridge/Switch/Router

100 meters UTP

100 meters UTP

Up to 2Km over multimode fiber
or up to 120Km over single mode fiber

10/100Base-TX to 100Base-FX
Media Converter

10/100Base-TX to 100Base-FX
Media Converters in MCR-1900 Chassis

10/100 – Extend Network between Half-Duplex Hubs

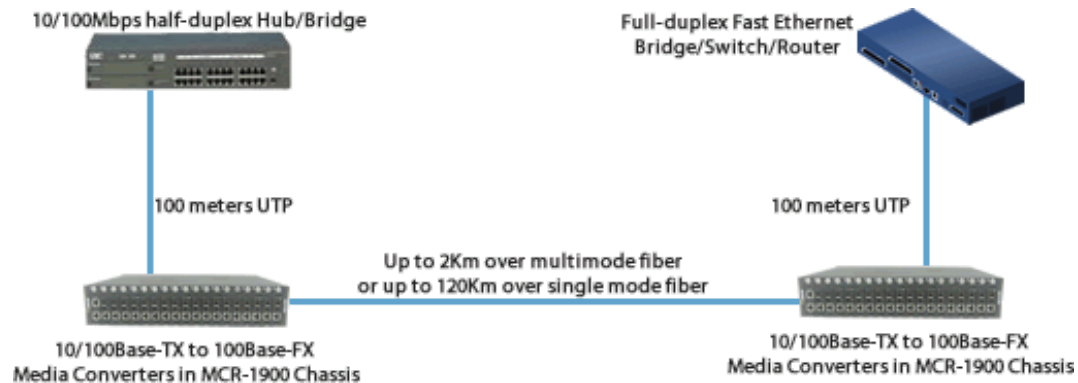**Extend the network distance between two Ethernet half-duplex hubs**

A pair of 10/100 media converters can extend the distance between hubs across a fiber link up to 120km in length. They also isolate the collision domains, associated with half-duplex, from crossing the fiber link.

10/100Mbps half-duplex Hub/Bridge   10/100Mbps half-duplex Hub/Bridge

100 meters UTP   100 meters UTP

Up to 2Km over multimode fiber
or up to 120Km over single mode fiber

10/100Base-TX to 100Base-FX   10/100Base-TX to 100Base-FX
Media Converters in MCR-1900 Chassis   Media Converters in MCR-1900 Chassis

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10/100 – Extend Network between Half-Duplex Hub and Switch

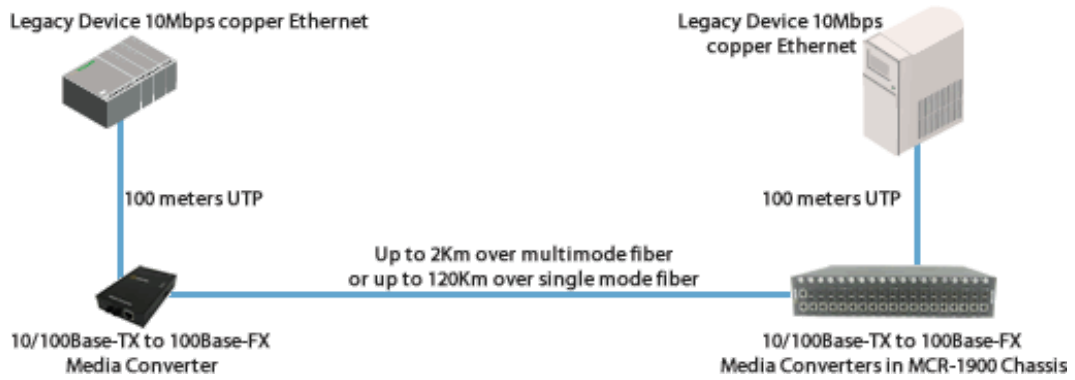**Extend the network distance between an Ethernet half-duplex hub and a full-duplex switch**

A pair of 10/100 media converters can extend the distance between a half-duplex hub and a full-duplex switch across a fiber link up to 120km in length. They also isolate the collision domains, associated with half-duplex, from crossing the fiber link. In this scenario, the media converter connected to the switch must be forced to half-duplex.

10/100Mbps half-duplex Hub/Bridge   Full-duplex Fast Ethernet
Bridge/Switch/Router

100 meters UTP   100 meters UTP

Up to 2Km over multimode fiber
or up to 120Km over single mode fiber

10/100Base-TX to 100Base-FX   10/100Base-TX to 100Base-FX
Media Converters in MCR-1900 Chassis   Media Converters in MCR-1900 Chassis

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10/100 – Extend Network between two legacy 10Mbps Devices

Extend the network distance between legacy 10Mbps copper Ethernet devices

A pair of 10/100 media converters can extend the distance between two legacy 10Mbps devices across a fiber link up to 120km in length.

Legacy Device 10Mbps copper Ethernet

Legacy Device 10Mbps copper Ethernet

100 meters UTP

100 meters UTP

Up to 2Km over multimode fiber
or up to 120Km over single mode fiber

10/100Base-TX to 100Base-FX
Media Converter

10/100Base-TX to 100Base-FX
Media Converters in MCR-1900 Chassis

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 C-110-S1SC20**U** ("Up") and C-110-S1SC20**D** ("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.
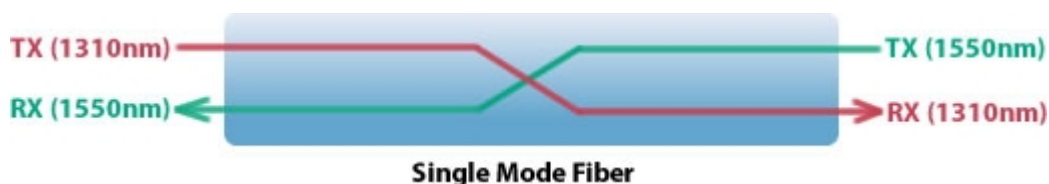
Single Mode Fiber

C-110-S1SC20UC-110-S1SC20D

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 ("**U**p/**D**own") 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.

Select a Model to obtain a Part Number - Unmanaged Media Converter Chassis Modules - Fast Ethernet to Fiber

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

Model	Connector	Type	Min	Max	Min	Max	Power Budget (dBm)	Wavelength (nm)	Fiber Type	Operating Distance
C-110-S2SC20	Dual SC	100Base-LX	-18.0	-7.0	-32.0	-3.0	14.0	1310	SMF	20 km (12.4 mi)
C-110-S2LC20	Dual LC	100Base-LX	-15.0	0.0	-34.0	-5.0	19.0	1310	SMF	20 km (12.4 mi)
C-110-S2ST40	Dual ST	100Base-EX	-5.0	0.0	-34.0	-3.0	29.0	1310	SMF	40 km (25 mi)
C-110-S2SC40	Dual SC	100Base-EX	-5.0	0.0	-34.0	-3.0	29.0	1310	SMF	40 km (25 mi)
C-110-S2LC40	Dual LC	100Base-EX	-5.0	0.0	-34.0	-3.0	29.0	1310	SMF	40 km (25 mi)
C-110-S2ST80	Dual ST	100Base-ZX	-5.0	0.0	-34.0	-3.0	29.0	1550	SMF	80 km (50 mi)
C-110-S2SC80	Dual SC	100Base-ZX	-5.0	0.0	-34.0	-3.0	29.0	1550	SMF	80 km (50 mi)
C-110-S2LC80	Dual LC	100Base-ZX	-5.0	0.0	-34.0	-3.0	29.0	1550	SMF	80 km (50 mi)
C-110-S2ST120	Dual ST	100Base-ZX	0.0	5.0	-35.0	-3.0	35.0	1550	SMF	120 km (75 mi)
C-110-S2SC120	Dual SC	100Base-ZX	0.0	5.0	-35.0	-3.0	35.0	1550	SMF	120 km (75 mi)
C-110-S2LC120	Dual LC	100Base-ZX	0.0	5.0	-34.0	-3.0	34.0	1550	SMF	120 km (75 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				
C-110-M1ST2U	Single ST	100Base-BX-U	-15.0	0.0	-28.0	-8.0	13.0	1310 / 1550	MMF	2 km (1.2 mi)
C-110-M1ST2D	Single ST	100Base-BX-D	-15.0	0.0	-28.0	-8.0	13.0	1550 / 1310	MMF	2 km (1.2 mi)
C-110-M1SC2U	Single SC	100Base-BX-U	-15.0	0.0	-28.0	-8.0	13.0	1310 / 1550	MMF	2 km (1.2 mi)
C-110-M1SC2D	Single SC	100Base-BX-D	-15.0	0.0	-28.0	-8.0	13.0	1550 / 1310	MMF	2 km (1.2 mi)
C-110-S1ST20U	Single ST	100Base-BX-U	-14.0	-8.0	-32.0	-3.0	18.0	1310 / 1550	SMF	20 km (12.4 mi)
C-110-S1ST20D	Single ST	100Base-BX-D	-14.0	-8.0	-32.0	-3.0	18.0	1550 / 1310	SMF	20 km (12.4 mi)
C-110-S1SC20U	Single SC	100Base-BX-U	-14.0	-8.0	-32.0	-3.0	18.0	1310 / 1550	SMF	20 km (12.4 mi)
C-110-S1SC20D	Single SC	100Base-BX-D	-14.0	-8.0	-32.0	-3.0	18.0	1550 / 1310	SMF	20 km (12.4 mi)
C-110-S1SC40U	Single SC	100Base-BX-U	-8.0	-3.0	-33.0	-3.0	25.0	1310 / 1550	SMF	40 km (25 mi)
C-110-S1SC40D	Single SC	100Base-BX-D	-8.0	-3.0	-33.0	-3.0	25.0	1550 / 1310	SMF	40 km (25 mi)

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

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

Product Image	Description	Power Cord	Product Number
	C-110-M2ST2 - 10/100 Fast Ethernet Media and Rate Converter Module for MCR Chassis. 10/100Base-TX (RJ-45) [100 m/328 ft.] to 100Base-FX 1310nm multimode (ST) [2 km/1.2 miles]	None	05051400
	C-110-M2SC2 - 10/100 Fast Ethernet Media and Rate Converter Module for MCR Chassis. 10/100Base-TX (RJ-45) [100 m/328 ft.] to 100Base-FX 1310nm multimode (SC) [2 km/1.2 miles]	None	05051410
	C-110-M2LC2 - 10/100 Fast Ethernet Media and Rate Converter Module for MCR Chassis. 10/100Base-TX (RJ-45) [100 m/328 ft.] to 100Base-FX 1310nm multimode (LC) [2 km/1.2 miles]	None	05051420
	C-110-S2ST20 - 10/100 Fast Ethernet Media and Rate Converter Module for MCR Chassis. 10/100Base-TX (RJ-45) [100 m/328 ft.] to 100Base-LX 1310nm single mode (ST) [20 km/12.4 miles]	None	05051520
	C-110-S2SC20 - 10/100 Fast Ethernet Media and Rate Converter Module for MCR Chassis. 10/100Base-TX (RJ-45) [100 m/328 ft.] to 100Base-LX 1310nm single mode (SC) [20 km/12.4 miles]	None	05051430

Product Image	Description	Power Cord	Product Number
	C-110-S2LC20 - 10/100 Fast Ethernet Media and Rate Converter Module for MCR Chassis. 10/100Base-TX (RJ-45) [100 m/328 ft.] to 100Base-LX 1310nm single mode (LC) [20 km/12.4 miles]	None	05051440
	C-110-S2ST40 - 10/100 Fast Ethernet Media and Rate Converter Module for MCR Chassis. 10/100Base-TX (RJ-45) [100 m/328 ft.] to 100Base-EX 1310nm single mode (ST) [40 km/24.9 miles]	None	05051530
	C-110-S2SC40 - 10/100 Fast Ethernet Media and Rate Converter Module for MCR Chassis. 10/100Base-TX (RJ-45) [100 m/328 ft.] to 100Base-EX 1310nm single mode (SC) [40 km/24.9 miles]	None	05051450
	C-110-S2LC40 - 10/100 Fast Ethernet Media and Rate Converter Module for MCR Chassis. 10/100Base-TX (RJ-45) [100 m/328 ft.] to 100Base-EX 1310nm single mode (LC) [40 km/24.9 miles]	None	05051560
	C-110-S2ST80 - 10/100 Fast Ethernet Media and Rate Converter Module for MCR Chassis. 10/100Base-TX (RJ-45) [100 m/328 ft.] to 100Base-ZX 1550nm single mode (ST) [80 km/49.7 miles]	None	05051540

Product Image	Description	Power Cord	Product Number
	C-110-S2SC80 - 10/100 Fast Ethernet Media and Rate Converter Module for MCR Chassis. 10/100Base-TX (RJ-45) [100 m/328 ft.] to 100Base-ZX 1550nm single mode (SC) [80 km/49.7 miles]	None	05051460
	C-110-S2LC80 - 10/100 Fast Ethernet Media and Rate Converter Module for MCR Chassis. 10/100Base-TX (RJ-45) [100 m/328 ft.] to 100Base-ZX 1550nm single mode (LC) [80 km/49.7 miles]	None	05051570
	C-110-S2ST120 - 10/100 Fast Ethernet Media and Rate Converter Module for MCR Chassis. 10/100Base-TX (RJ-45) [100 m/328 ft.] to 100Base-ZX 1550nm single mode (ST) [120 km/74.6 miles]	None	05051550
	C-110-S2SC120 - 10/100 Fast Ethernet Media and Rate Converter Module for MCR Chassis. 10/100Base-TX (RJ-45) [100 m/328 ft.] to 100Base-ZX 1550nm single mode (SC) [120 km/74.6 miles]	None	05051510
	C-110-S2LC120 - 10/100 Fast Ethernet Media and Rate Converter Module for MCR Chassis. 10/100Base-TX (RJ-45) [100 m/328 ft.] to 100Base-ZX 1550nm single mode (LC) [120 km/74.6 miles]	None	05051580

Product Image	Description	Power Cord	Product Number
	C-110-M1ST2U - 10/100 Fast Ethernet Media and Rate Converter. Module 10/100Base-TX (RJ-45) [100 m/328 ft.] to 100Base-BX 1310nm TX / 1550nm RX single strand fiber, multimode (ST) [2 km/1.2 miles]	None	05041850
	C-110-M1ST2D - 10/100 Fast Ethernet Media and Rate Converter. Module 10/100Base-TX (RJ-45) [100 m/328 ft.] to 100Base-BX 1550nm TX / 1310nm RX single strand fiber, multimode (ST) [2 km/1.2 miles]	None	05041840
	C-110-M1SC2U - 10/100 Fast Ethernet Media and Rate Converter Module. 10/100Base-TX (RJ-45) [100 m/328 ft.] to 100Base-BX 1310nm TX / 1550nm RX single strand fiber, multimode (SC) [2 km/1.2 miles]	None	05041910
	C-110-M1SC2D - 10/100 Fast Ethernet Media and Rate Converter Module. 10/100Base-TX (RJ-45) [100 m/328 ft.] to 100Base-BX 1550nm TX / 1310nm RX single strand fiber, multimode (SC) [2 km/1.2 miles]	None	05041900
	C-110-S1ST20U - 10/100 Fast Ethernet Media and Rate Converter. Module 10/100Base-TX (RJ-45) [100 m/328 ft.] to 100Base-BX 1310nm TX / 1550nm RX single strand fiber, single mode (ST) [20 km/12.4 miles]	None	05041820

Product Image	Description	Power Cord	Product Number
	C-110-S1ST20D - 10/100 Fast Ethernet Media and Rate Converter. Module 10/100Base-TX (RJ-45) [100 m/328 ft.] to 100Base-BX 1550nm TX / 1310nm RX single strand fiber, single mode (ST) [20 km/12.4 miles]	None	05041830
	C-110-S1SC20U - 10/100 Fast Ethernet Media and Rate Converter Module for MCR Chassis. 10/100Base-TX (RJ-45) [100 m/328 ft.] to 100Base-FX 1310nm TX / 1550nm RX single fiber single mode (SC) [20 km/12.4 miles]	None	05051470
	C-110-S1SC20D - 10/100 Fast Ethernet Media and Rate Converter Module for MCR Chassis. 10/100Base-TX (RJ-45) [100 m/328 ft.] to 100Base-FX 1550nm TX / 1310nm RX single fiber single mode (SC) [20 km/12.4 miles]	None	05051480
	C-110-S1SC40U - 10/100 Fast Ethernet Media and Rate Converter Module for MCR Chassis. 10/100Base-TX (RJ-45) [100 m/328 ft.] to 100Base-FX 1310nm TX / 1550nm RX single fiber single mode (SC) [40 km/24.9 miles]	None	05051490
	C-110-S1SC40D - 10/100 Fast Ethernet Media and Rate Converter Module for MCR Chassis. 10/100Base-TX (RJ-45) [100 m/328 ft.] to 100Base-FX 1550nm TX / 1310nm RX single fiber single mode (SC) [40 km/24.9 miles]	None	05051500