S-1000MM Gigabit Media Converters

perle.com/products/gigabit-fiber-converters.shtml

1000Base-SX to 1000Base-X Fiber Mode Conversion

- 1000Base-SX to 1000Base-X Fiber to Fiber Media Converters
- Multimode to multimode or multimode to single mode
- Extend multimode fiber to 160km and beyond (through cascading)
- Choice in SC, LC and ST fiber connector models
- Signal regeneration prevents signal degradation
- Advanced Features: <u>Smart Link Pass-Through</u>, Fiber Fault Alert, loopback for each fiber connection



Perle's feature rich **S-1000MM Gigabit Fiber to Fiber Media Converters** enable transparent fiber extension of 1000Base-SX multimode fiber to 1000Base-SX multimode or 1000Base-LX/EX/ZX/BX single mode fiber.

Perle's advanced features make the end to end fiber link completely transparent. This allows for more efficient troubleshooting and less on-site maintenance. In addition, a lifetime warranty and free worldwide technical support make **Perle's S-1000MM Gigabit Fiber to Fiber Media Converters** the smart choice for IT professionals.

Whether you need to extend **multimode to multimode** or **multimode to single mode**, Perle has an extensive range of S-1000MM Gigabit Fiber to Fiber Media Converters to meet your fiber conversion requirement.

| Auto- Negotiation (802.3ab) | The 1000Base-X fiber interfaces negotiate according to 802.3 clause 37. |
|--|---|
| Smart <u>Link</u> <u>Pass-</u> Through | When the Link Mode switch is placed into Smart Link Pass-Through mode, the 1000BASE-X link on one port will reflect the state of the other 1000Base-X media converter port. This feature can be used whether fiber auto-negotiation is enabled or disabled. |
| Fiber Fault Alert | With Fiber Fault Alert the state of the 1000Base-X receiver is passed to the 1000Base-X transmitter. This provides fault notification to the partner device attached to the 1000Base-X interface of the media converter. If the 1000Base-X transmitter is off as a result of this fault it will be turned on periodically to allow the condition to clear should the partner device on the 1000Base-X be using a similar technique. This eliminates the possibility of lockouts that occur with some media converters. Applies only when fiber auto-negotiation is disabled. |

S-1000MM Fiber to Fiber Features: 1000Base-SX to 1000Base-X

| Switches - acc | cessible through a side opening in the chassis |
|--|--|
| Fiber link 2 on / Receive activity (LK2) | This green LED is operational only when power is applied. The LED is on when the 100Base-X link is on and flashes with a 50% duty cycle when data is received. |
| Fiber link 1 / Receive activity (LK1) | This green LED is operational only when power is applied. The LED is on when the 100Base-X link is on and flashes with a 50% duty cycle when data is received. |
| Power / TST | This green LED is turned on when power is applied to the media converter. Otherwise it is off. The LED will blink slowly when in Loopback test mode. |
| Indicators | |
| Universal AC/DC Adapter | 100-240v AC, regulated DC adapter included |
| Power Adapte | ۲ ۲ |
| Power Connector | 5.5mm x 9.5mm x 2.1mm barrel socket |
| Power Consumption | 2.5 watts |
| Current | 0.21 amps |
| Input Supply Voltage | 6 - 30 vDC, unregulated (12 vDC Nominal) |
| Power | |
| Remote Loopback | The media converter can perform a loopback on each 1000Base-X fiber interface. |
| Jumbo Packets | Transparent to jumbo packets up to 10KB. |
| Duplex | Full and half duplex operation supported. |
| VLAN | The media converter is transparent to 802.1Q VLAN tagged packets. |
| Pause (IEEE 802.3x) | 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 is transparent to Pause frames. |
| Cascading | Media converters can be cascaded. Two or more media converters can be chained in a link to achieve even greater distances. |
| Signal Regeneration | Signal regeneration maintains signal integrity and allows for maximum fiber to fiber connections without degradation. |
| | |

Switches - accessible through a side opening in the chassis

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| Auto- Negotiation | Auto (default up) - Fiber Negotiation is performed for both fiber ports. Full and half duplex will be advertised. Pause will advertise support for Symmetrical and Asymmetrical Pause. Pause frame will not be acted upon or generated but will be passed through. Off - Negotiation on both fiber ports will be disabled. Settings of Link mode and Fiber fault alert will be determined by those switch settings. Pause frames will not be acted upon or generated but will be passed through be passed through. |
|-----------------------|--|
| Link Mode | 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. Standard: - In this mode the links on both fiber ports can be brought up and down independently of each other. A loss of link on either link can take place without affecting the other connection |
| Fiber Fault Alert | <i>Enabled - (default up) -</i> If the media converter detects a loss of fiber signal on a fiber receiver, it will immediately disable its fiber transmitter signal. This, in effect, notifies the remote fiber link partner that an error condition exists on the fiber connection. The setting of this switch applies to both fiber ports <i>Disabled</i> : The media converter will not monitor for fiber fault or generate them. |
| Remote Loopback #1 | The media converter can perform a loopback on the link #1 fiber interface. <i>Disabled (Default - Up)</i> |
| | <i>Enabled</i> - The 1000Base-X receiver is looped to the 1000Base-X transmitter. Link #2's fiber transmitter is taken off the interface |
| Remote Loopback #2 | The media converter can perform a loopback on the link #2 fiber interface. Disabled (Default - Up) |
| | <i>Enabled</i> - The 1000Base-X receiver is looped to the 1000Base-X transmitter. Link #1's fiber transmitter is taken off the interface |
| Fiber Connec | tors |
| 1000Base-X | Available in SC, ST and LC connector models |
| Packet Transr | nission Characteristics |
| Dit Error Data | ~10 -12 |

Bit Error Rate <10 ⁻¹² (BER)

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) | 8.53 |
| MTBF (Hours)* | Without power adaptor: 432,138 With power adaptor: 274,804 |
| Chassis | Metal with an IP20 ingress protection rating |
| Mounting | |
| Din Rail Kit | Optional |
| Wall / Rack Mount Kit | Optional |
| Product Weigl | ht and Dimensions |
| Weight | 0.3 kg, 0.66 lbs |
| Dimensions | 120 x 80 x 26 mm, 4.7 x 3.1 x 1.0 inches |
| Packaging | |
| Shipping Weight | 0.55 kg, 1.2 lbs |
| Shipping Dimensions | 170 x 280 x 70 mm, 6.7 x 10.2 x 2.8 inches |
| Regulatory Ap | oprovals |
| 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 |
|----------------------|--|
| Salety | 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

Extend between two Fiber Switches

Extend the network distance between two Gigabit Fiber Switches

Two Gigabit Multimode to Single Mode Media Converters can extend the distance between Gigabit Multimode Switches across a fiber link up to 160km in length.



Single Mode / Single Fiber

Connect fiber 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 fiber to fiber conversion. Perle Single Fiber Media Converters are also referred to as "Up/Down" models. For example the S-1000MM-S1SC20U ("Up") and S-1000MM-S1SC20D ("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.



Single Mode Fiber

S-1000MM-S1SC20US-1000MM-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 fiber 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 Stand-alone Media Converters - Gigabit Fiber to Fiber

| | | | | Transr (dBm) | nit | Receive (dBm) | 9 | _ | | | | | |
|---------------------|--------|-----------|-------------|-----------------|------|------------------|------|---------------------------|--------------------|---------------|----------------------|---------------------------------|-----------------------|
| Model | Port | Connector | Туре | Min | Max | Min | Max | Budget Budget (dBm) | Wavelength (nm) | Fiber Type | Core Size (um) | Modal Bandwidth (MHz* Km) | Operating Distance |
| S-1000MM- M2ST05 | Port 1 | Dual ST | 1000BASE-SX | -9.5 | -4.0 | -17.0 | -3.0 | 7.5 | 850 | MMF | 62.5 | 160 | 220 m (722 ft) |
| | | | | | | | | | | | 62.5 | 200 | 275 m (902 ft) |
| | | | | | | | | | | | 50 | 400 | 500 m (1,640 ft) |
| | | | | | | | | | | | 50 | 500 | 550 m (1,804 ft) |
| | | | | | | | | | | | 50 | 2000 | 1000 m (3281 ft) |
| | Port 2 | Dual ST | 1000BASE-SX | -9.5 | -4.0 | -17.0 | -3.0 | 7.5 | 850 | MMF | 62.5 | 160 | 220 m (722 ft) |
| | | | | | | | | | | | 62.5 | 200 | 275 m (902 ft) |
| | | | | | | | | | | | 50 | 400 | 500 m (1,640 ft) |

| | | | | | | | | | | | 50 | 500 | 550 m (1,804 ft) |
|----------------------------|--------|---------|-------------|------|------|-------|-------|-----|------|-----|------|------|---------------------|
| | | | | | | | | | | | 50 | 2000 | 1000 m (3281 ft) |
| S-1000MM- M2SC05 | Port 1 | Dual SC | 1000BASE-SX | -9.5 | -4.0 | -17.0 | -3.0 | 7.5 | 850 | MMF | 62.5 | 160 | 220 m (722 ft) |
| | | | | | | | | | | | 62.5 | 200 | 275 m (902 ft) |
| | | | | | | | | | | | 50 | 400 | 500 m (1,640 ft) |
| | | | | | | | | | | | 50 | 500 | 550 m (1,804 ft) |
| | | | | | | | | | | | 50 | 2000 | 1000 m (3281 ft) |
| | Port 2 | Dual SC | 1000BASE-SX | -9.5 | -4.0 | -17.0 | -3.0 | 7.5 | 850 | MMF | 62.5 | 160 | 220 m (722 ft) |
| | | | | | | | | | | | 62.5 | 200 | 275 m (902 ft) |
| | | | | | | | | | | | 50 | 400 | 500 m (1,640 ft) |
| | | | | | | | | | | | 50 | 500 | 550 m (1,804 ft) |
| | | | | | | | | | | | 50 | 2000 | 1000 m (3281 ft) |
| S-1000MM- M2LC05 | Port 1 | Dual LC | 1000BASE-SX | -9.5 | -4.0 | -17.0 | -3.0 | 7.5 | 850 | MMF | 62.5 | 160 | 220 m (722 ft) |
| | | | | | | | | | | | 62.5 | 200 | 275 m (902 ft) |
| | | | | | | | | | | | 50 | 400 | 500 m (1,640 ft) |
| | | | | | | | | | | | 50 | 500 | 550 m (1,804 ft) |
| | | | | | | | | | | | 50 | 2000 | 1000 m (3281 ft) |
| | Port 2 | Dual LC | 1000BASE-SX | -9.5 | -4.0 | -17.0 | -3.0 | 7.5 | 850 | MMF | 62.5 | 160 | 220 m (722 ft) |
| | | | | | | | | | | | 62.5 | 200 | 275 m (902 ft) |
| | | | | | | | | | | | 50 | 400 | 500 m (1,640 ft) |
| | | | | | | | | | | | 50 | 500 | 550 m (1,804 ft) |
| | | | | | | | | | | | 50 | 2000 | 1000 m (3281 ft) |
| S-1000MM- M2ST2 | Port 1 | Dual ST | 1000BASE-SX | -9.5 | -4.0 | -17.0 | -3.0 | 7.5 | 850 | MMF | 62.5 | 160 | 220 m (722 ft) |
| | | | | | | | | | | | 62.5 | 200 | 275 m (902 ft) |
| | | | | | | | | | | | 50 | 400 | 500 m (1,640 ft) |
| | | | | | | | | | | | 50 | 500 | 550 m (1,804 ft) |
| | | | | | | | | | | | 50 | 2000 | 1000 m (3281 ft) |
| | Port 2 | Dual ST | 1000BASE-LX | -6.0 | 0.0 | -0.0 | -17.0 | 6.0 | 1310 | MMF | 62.5 | 160 | 2 km (1.2 mi) |
| | | | | | | | | | | | 50 | 500 | 1000 m (3281 ft) |
| <u>S-1000MM- M2SC2</u> | Port 1 | Dual SC | 1000BASE-SX | -9.5 | -4.0 | -17.0 | -3.0 | 7.5 | 850 | MMF | 62.5 | 160 | 220 m (722 ft) |
| | | | | | | | | | | | 62.5 | 200 | 275 m (902 ft) |
| | | | | | | | | | | | 50 | 400 | 500 m (1,640 ft) |

| | | | | | | | | | | | 50 | 500 | 550 m (1,804 ft) |
|--------------------------|--------|---------|----------------|------|------|-------|-------|------|------|-------|------|------|---------------------|
| | | | | | | | | | | | 50 | 2000 | 1000 m (3281 ft) |
| | Port 2 | Dual SC | 1000BASE-LX | -6.0 | 0.0 | -0.0 | -17.0 | 6.0 | 1310 | MMF | 62.5 | 160 | 2 km (1.2 mi) |
| | | | | | | | | | | | 50 | 500 | 1000 m (3281 ft) |
| 6-1000MM- M2LC2 | Port 1 | Dual LC | 1000BASE-SX | -9.5 | -4.0 | -17.0 | -3.0 | 7.5 | 850 | MMF | 62.5 | 160 | 220 m (722 ft) |
| | | | | | | | | | | | 62.5 | 200 | 275 m (902 ft) |
| | | | | | | | | | | | 50 | 400 | 500 m (1,640 ft) |
| | | | | | | | | | | | 50 | 500 | 550 m (1,804 ft) |
| | | | | | | | | | | | 50 | 2000 | 1000 m (3281 ft) |
| | Port 2 | Dual LC | 1000BASE-LX | -6.0 | 0.0 | -0.0 | -17.0 | 6.0 | 1310 | MMF | 62.5 | 160 | 2 km (1.2 mi) |
| | | | | | | | | | | | 50 | 500 | 1000 m (3281 ft) |
| <u>-1000MM-</u> 2ST10 | Port 1 | Dual ST | 1000BASE-SX | -9.5 | -4.0 | -17.0 | -3.0 | 7.5 | 850 | MMF | 62.5 | 160 | 220 m (722 ft) |
| | | | | | | | | | | | 62.5 | 200 | 275 m (902 ft) |
| | | | | | | | | | | | 50 | 400 | 500 m (1,640 ft) |
| | | | | | | | | | | | 50 | 500 | 550 m (1,804 ft) |
| | | | | | | | | | | | 50 | 2000 | 1000 m (3281 ft) |
| | Port 2 | Dual ST | 1000BASE-LX/LH | -9.5 | -3.0 | -20.0 | -3.0 | 10.5 | 1310 | MMF* | 62.5 | 500 | 550 m (1,804 ft) |
| | | | | | | | | | | | 50 | 400 | 550 m (1,804 ft) |
| | | | | | | | | | | | 50 | 500 | 550 m (1,804 ft) |
| | | | | | | | | | | SMF** | ** | - | 10 km (6.2 mi) |
| -1000MM- 2SC10 | Port 1 | Dual SC | 1000BASE-SX | -9.5 | -4.0 | -17.0 | -3.0 | 7.5 | 850 | MMF | 62.5 | 160 | 220 m (722 ft) |
| | | | | | | | | | | | 62.5 | 200 | 275 m (902 ft) |
| | | | | | | | | | | | 50 | 400 | 500 m (1,640 ft) |
| | | | | | | | | | | | 50 | 500 | 550 m (1,804 ft) |
| | | | | | | | | | | | 50 | 2000 | 1000 m (3281 ft) |
| | Port 2 | Dual SC | 1000BASE-LX/LH | -9.5 | -3.0 | -20.0 | -3.0 | 10.5 | 1310 | MMF* | 62.5 | 500 | 550 m (1,804 ft) |
| | | | | | | | | | | | 50 | 400 | 550 m (1,804 ft) |
| | | | | | | | | | | | 50 | 500 | 550 m (1,804 ft) |
| | | | | | | | | | | SMF** | ** | - | 10 km (6.2 mi) |
| -1000MM- 2LC10 | Port 1 | Dual LC | 1000BASE-SX | -9.5 | -4.0 | -17.0 | -3.0 | 7.5 | 850 | MMF | 62.5 | 160 | 220 m (722 ft) |
| | | | | | | | | | | | 62.5 | 200 | 275 m (902 ft) |
| | | | | | | | | | | | 50 | 400 | 500 m |

| S.1000MM- Port S2ST40 Port | t1 Dual ST | 1000BASE-LX/LH 1000BASE-SX | -9.5 | -3.0 | -20.0 | -3.0 | 7.5 | 1310 | MMF* SMF** | 50 50 62.5 50 50 62.5 | 500 2000 500 400 500 - 160 | 550 m (1.804 ft) 1000 m (3281 ft) 550 m (1.804 ft) 550 m (1.804 ft) 550 m (1.804 ft) 10 km (6.2 mi) 220 m (722 ft) |
|--|-------------|-------------------------------|------|------|-------|------|-----|------|---------------|--|--|--|
| <u>S-1000MM-</u> Port <u>S2ST40</u> | t1 Dual ST | | | | | | | | SMF** | 62.5 50 50 ** 62.5 | 500 400 500 - | (3281 ft) 550 m (1,804 ft) 550 m (1,804 ft) 550 m (1,804 ft) 10 km (6.2 mi) 220 m |
| <u>S-1000MM-</u> Port <u>S2ST40</u> | t1 Dual ST | | | | | | | | SMF** | 50 50 ** 62.5 | 400 500 | (1,804 ft) 550 m (1,804 ft) 550 m (1,804 ft) 10 km (6.2 mi) 220 m |
| <u>523140</u> | | 1000BASE-SX | -9.5 | -4.0 | -17.0 | -3.0 | 7.5 | 850 | | 50 ** 62.5 | - | (1,804 ft) 550 m (1,804 ft) 10 km (6.2 mi) 220 m |
| <u>SZST40</u> | | 1000BASE-SX | -9.5 | -4.0 | -17.0 | -3.0 | 7.5 | 850 | | ** 62.5 | - | (1,804 ft) 10 km (6.2 mi) 220 m |
| <u>SZST40</u> | | 1000BASE-SX | -9.5 | -4.0 | -17.0 | -3.0 | 7.5 | 850 | | 62.5 | | (6.2 mi) |
| <u>SZST40</u> | | 1000BASE-SX | -9.5 | -4.0 | -17.0 | -3.0 | 7.5 | 850 | MMF | | 160 | 220 m (722 ft) |
| Port | t 2 Dual ST | | | | | | | | | | | |
| Port | t2 Dual ST | | | | | | | | | 62.5 | 200 | 275 m (902 ft) |
| Port | t 2 Dual ST | | | | | | | | | 50 | 400 | 500 m (1,640 ft) |
| Port | t 2 Dual ST | | | | | | | | | 50 | 500 | 550 m (1,804 ft) |
| Port | t 2 Dual ST | | | | | | | | | 50 | 2000 | 1000 m (3281 ft) |
| | | 1000BASE-EX | -2 | 2.0 | -23.0 | -3.0 | 21 | 1310 | SMF** | ** | - | 40,000 m (131,234 ft) |
| <u>S-1000MM-</u> Port <u>S2SC40</u> | t 1 Dual SC | 1000BASE-SX | -9.5 | -4.0 | -17.0 | -3.0 | 7.5 | 850 | MMF | 62.5 | 160 | 220 m (722 ft) |
| | | | | | | | | | | 62.5 | 200 | 275 m (902 ft) |
| | | | | | | | | | | 50 | 400 | 500 m (1,640 ft) |
| | | | | | | | | | | 50 | 500 | 550 m (1,804 ft) |
| | | | | | | | | | | 50 | 2000 | 1000 m (3281 ft) |
| Port | t 2 Dual SC | 1000BASE-EX | -2 | 2.0 | -23.0 | -3.0 | 21 | 1310 | SMF** | ** | - | 40,000 m (131,234 ft) |
| <u>S-1000MM-</u> Port <u>S2LC40</u> | t 1 Dual LC | 1000BASE-SX | -9.5 | -4.0 | -17.0 | -3.0 | 7.5 | 850 | MMF | 62.5 | 160 | 220 m (722 ft) |
| | | | | | | | | | | 62.5 | 200 | 275 m (902 ft) |
| | | | | | | | | | | 50 | 400 | 500 m (1,640 ft) |
| | | | | | | | | | | 50 | 500 | 550 m (1,804 ft) |
| | | | | | | | | | | 50 | 2000 | 1000 m (3281 ft) |
| Port | t 2 Dual LC | 1000BASE-EX | -3 | 2.0 | -23.0 | -3.0 | 20 | 1310 | SMF** | ** | - | 40,000 m (131,234 ft) |
| <u>S-1000MM-</u> Port <u>S2ST70</u> | t 1 Dual ST | 1000BASE-SX | -9.5 | -4.0 | -17.0 | -3.0 | 7.5 | 850 | MMF | 62.5 | 160 | 220 m (722 ft) |
| <u></u> | | | | | | | | | | 62.5 | 200 | 275 m (902 ft) |
| | | | | | | | | | | 50 | 400 | 500 m (1,640 ft) |
| | | | | | | | | | | 50 | 500 | 550 m (1,804 ft) |
| | | | | | | | | | | 50 | 2000 | (1,804 π) 1000 m (3281 ft) |
| Port | t 2 Dual ST | 1000BASE-ZX | -2 | 5.0 | -23.0 | -3.0 | 21 | 1550 | SMF** | ** | - | 70 km |
| <u>S-1000MM-</u> Port <u>S2SC70</u> | t 1 Dual SC | 1000BASE-SX | -9.5 | -4.0 | -17.0 | -3.0 | 7.5 | 850 | MMF | 62.5 | 160 | (43,5 mi) 220 m (722 ft) |
| <u>525070</u> | | | | | | | | | | 62.5 | 200 | (722 ft) 275 m (902 ft) |

| | | | | | | | | | | 50 | 400 | 500 m (1,640 ft) |
|--------|--|----------------|---|--|---|--|---|---|---|--|---|--|
| | | | | | | | | | | 50 | 500 | 550 m (1,804 ft) |
| | | | | | | | | | | 50 | 2000 | 1000 m (3281 ft) |
| Port 2 | Dual SC | 1000BASE-ZX | -2 | 5.0 | -23.0 | -3.0 | 21 | 1550 | SMF** | ** | - | 70 km (43,5 mi) |
| Port 1 | Dual LC | 1000BASE-SX | -9.5 | -4.0 | -17.0 | -3.0 | 7.5 | 850 | MMF | 62.5 | 160 | 220 m (722 ft) |
| | | | | | | | | | | 62.5 | 200 | 275 m (902 ft) |
| | | | | | | | | | | 50 | 400 | 500 m (1,640 ft) |
| | | | | | | | | | | 50 | 500 | 550 m (1,804 ft) |
| | | | | | | | | | | 50 | 2000 | 1000 m (3281 ft) |
| Port 2 | Dual LC | 1000BASE-ZX | 0 | 5.0 | -23.0 | -3.0 | 23 | 1550 | SMF** | ** | - | 70 km (43,5 mi) |
| Port 1 | Dual ST | 1000BASE-SX | -9.5 | -4.0 | -17.0 | -3.0 | 7.5 | 850 | MMF | 62.5 | 160 | 220 m (722 ft) |
| | | | | | | | | | | 62.5 | 200 | 275 m (902 ft) |
| | | | | | | | | | | 50 | 400 | 500 m (1,640 ft) |
| | | | | | | | | | | 50 | 500 | 550 m (1,804 ft) |
| | | | | | | | | | | 50 | 2000 | 1000 m (3281 ft) |
| Port 2 | Dual ST | 1000BASE-ZX | 0 | 5.0 | -32.0 | -9.0 | 32.0 | 1550 | SMF** | ** | - | 120 km (75 mi) |
| Port 1 | Dual SC | 1000BASE-SX | -9.5 | -4.0 | -17.0 | -3.0 | 7.5 | 850 | MMF | 62.5 | 160 | 220 m (722 ft) |
| | | | | | | | | | | 62.5 | 200 | 275 m (902 ft) |
| | | | | | | | | | | 50 | 400 | 500 m (1,640 ft) |
| | | | | | | | | | | 50 | 500 | 550 m (1,804 ft) |
| | | | | | | | | | | 50 | 2000 | 1000 m (3281 ft) |
| Port 2 | Dual SC | 1000BASE-ZX | 0 | 5.0 | -32.0 | -9.0 | 32.0 | 1550 | SMF** | ** | - | 120 km (75 mi) |
| Port 1 | Dual LC | 1000BASE-SX | -9.5 | -4.0 | -17.0 | -3.0 | 7.5 | 850 | MMF | 62.5 | 160 | 220 m (722 ft) |
| | | | | | | | | | | 62.5 | 200 | 275 m (902 ft) |
| | | | | | | | | | | 50 | 400 | 500 m (1,640 ft) |
| | | | | | | | | | | 50 | 500 | 550 m (1,804 ft) |
| | | | | | | | | | | 50 | 2000 | 1000 m (3281 ft) |
| Port 2 | Dual LC | 1000BASE-ZX | 0 | 5.0 | -32.0 | -9.0 | 32.0 | 1550 | SMF** | ** | - | 120 km (75 mi) |
| | | | | -4.0 | -17.0 | -3.0 | 7.5 | 850 | MMF | 62.5 | 160 | 220 m |
| Port 1 | Dual SC | 1000BASE-SX | -9.5 | -4.0 | | 0.0 | 1.0 | | | | | (722 ft) |
| Port 1 | Dual SC | 1000BASE-SX | -9.5 | -4.0 | | -0.0 | 1.0 | | | 62.5 | 200 | (722 ft) 275 m (902 ft) |
| Port 1 | Dual SC | 1000BASE-SX | -9.5 | -4.0 | | 0.0 | | | | 62.5 | 200 | |
| | Port 1 Port 2 Port 2 Port 1 | Port 1 Dual LC | Port 1 Dual LC 1000BASE-SX Port 2 Dual LC 1000BASE-ZX Port 1 Dual ST 1000BASE-SX Port 2 Dual ST 1000BASE-ZX Port 2 Dual ST 1000BASE-SX Port 2 Dual ST 1000BASE-SX Port 1 Dual SC 1000BASE-SX Port 2 Dual SC 1000BASE-SX Port 3 Dual SC 1000BASE-SX Port 4 Dual SC 1000BASE-SX Port 5 Dual SC 1000BASE-SX Port 2 Dual SC 1000BASE-SX Port 3 Dual SC 1000BASE-SX Port 4 Dual SC 1000BASE-SX | Port 1 Dual LC 1000BASE-SX -9.5 Port 2 Dual LC 1000BASE-ZX 0 Port 1 Dual ST 1000BASE-SX -9.5 Port 2 Dual ST 1000BASE-SX -9.5 Port 2 Dual SC 1000BASE-SX -9.5 Port 1 Dual SC 1000BASE-SX -9.5 Port 2 Dual SC 1000BASE-SX -9.5 Port 3 Dual SC 1000BASE-SX -9.5 Port 4 Dual SC 1000BASE-SX -9.5 | Port 1 Dual LC 1000BASE-SX -9.5 -4.0 Port 2 Dual LC 1000BASE-ZX 0 5.0 Port 1 Dual ST 1000BASE-SX -9.5 -4.0 Port 2 Dual ST 1000BASE-SX -9.5 -4.0 Port 2 Dual ST 1000BASE-SX -9.5 -4.0 Port 2 Dual ST 1000BASE-SX -9.5 -4.0 Port 1 Dual SC 1000BASE-SX 0 5.0 Port 2 Dual SC 1000BASE-SX -9.5 -4.0 Port 3 Dual SC 1000BASE-SX -9.5 -4.0 Port 4 Dual SC 1000BASE-SX -9.5 -4.0 Port 5 Dual SC 1000BASE-SX -9.5 -4.0 | Port 1Dual LC1000BASE-SX-9.5-4.0-17.0Port 2Dual LC1000BASE-ZX05.0-23.0Port 1Dual ST1000BASE-SX-9.5-4.0-17.0Port 2Dual ST1000BASE-ZX05.0-32.0Port 1Dual SC1000BASE-SX-9.5-4.0-17.0Port 2Dual SC1000BASE-SX-9.5-4.0-17.0Port 2Dual SC1000BASE-SX-9.5-4.0-17.0Port 2Dual SC1000BASE-SX-9.5-4.0-17.0Port 2Dual SC1000BASE-SX-9.5-4.0-17.0Port 2Dual SC1000BASE-SX-9.5-4.0-17.0Port 2Dual SC1000BASE-SX-9.5-4.0-17.0Port 1Dual LC1000BASE-SX-9.5-4.0-17.0 | Port 1 Dual LC 1000BASE-SX -9.5 -4.0 -17.0 -3.0 Port 2 Dual LC 1000BASE-ZX 0 5.0 -23.0 -3.0 Port 1 Dual ST 1000BASE-SX -9.5 -4.0 -17.0 -3.0 Port 2 Dual ST 1000BASE-SX -9.5 -4.0 -17.0 -3.0 Port 2 Dual ST 1000BASE-SX -9.5 -4.0 -17.0 -3.0 Port 2 Dual SC 1000BASE-SX -9.5 -4.0 -17.0 -3.0 Port 2 Dual SC 1000BASE-SX -9.5 -4.0 -17.0 -3.0 Port 2 Dual SC 1000BASE-SX -9.5 -4.0 -17.0 -3.0 Port 2 Dual SC 1000BASE-SX -9.5 -4.0 -17.0 -3.0 Port 3 Dual SC 1000BASE-SX -9.5 -4.0 -17.0 -3.0 Port 4 Dual SC 1000BASE-SX -9.5 -4.0 -17.0 -3.0 | Port1 Dual LC 1000BASE-SX -9.5 -4.0 -17.0 -3.0 7.5 Port2 Dual LC 1000BASE-ZX 0 5.0 -23.0 -3.0 23 Port1 Dual ST 1000BASE-SX -9.5 4.0 -17.0 -3.0 7.5 Port2 Dual ST 1000BASE-SX -9.5 4.0 -17.0 -3.0 7.5 Port2 Dual ST 1000BASE-ZX 0 5.0 -32.0 -9.0 32.0 Port2 Dual SC 1000BASE-SX -0.5 4.0 -17.0 -3.0 7.5 Port2 Dual SC 1000BASE-SX -0.5 4.0 -17.0 -3.0 7.5 Port2 Dual SC 1000BASE-SX -0.5 4.0 -17.0 -3.0 7.5 Port3 Dual SC 1000BASE-SX -0.5 4.0 -17.0 -3.0 7.5 Port4 Dual LC 1000BASE-SX -0.5 4.0 -17.0 -3.0 7.5 Port5 Dual LC 1000BASE-SX -0.5 -0.5 -17.0 <t< td=""><td>Port1 Dual LC 1000BASE-SX 9.5 4.0 17.0 3.0 7.5 850 Port2 Dual LC 1000BASE-XX 0 5.0 -23.0 -3.0 23 150 Port1 Dual ST 1000BASE-XX 0 5.0 -17.0 -3.0 7.5 850 Port2 Dual ST 1000BASE-XX 0.5 4.0 -17.0 -3.0 7.5 850 Port2 Dual ST 1000BASE-XX 0.5 5.0 -32.0 9.0 1500 Port2 Dual SC 1000BASE-XX 0.5 5.0 -17.0 3.0 7.5 850 Port3 Dual SC 1000BASE-XX 0.5 4.0 -17.0 3.0 7.5 850 Port4 Dual SC 1000BASE-XX 0.5 4.0 -17.0 3.0 7.5 850 Port1 Dual SC 1000BASE-XX 0.5 4.0 -17.0 3.0 7.5 850 Port4 Dual SC 1000BASE-XX 0.5 4.0 -17.0 3.0 7.5 850</td><td>Port 1 Dual LC 1008BASE-SX -9.5 -4.0 -17.0 -3.0 7.5 850 MMF Port 2 Dual LC 1008BASE-SX 0 5.0 -23.0 -3.0 23 1550 SMF** Port 1 Dual ST 1008BASE-SX 0.5 4.0 -17.0 -3.0 7.5 850 MMF Port 2 Dual ST 1008BASE-SX 0.5 4.0 -17.0 -3.0 7.5 850 MMF Port 2 Dual ST 1008BASE-SX 0.5 4.0 -17.0 -3.0 7.5 850 MMF Port 2 Dual SC 1008BASE-SX 0.5 4.0 -17.0 -3.0 7.5 850 MMF Port 2 Dual SC 1008BASE-SX 0.5 4.0 -17.0 -3.0 7.5 850 MMF Port 2 Dual SC 1008BASE-SX 0.5 -17.0 -3.0 7.5 850 MMF Port 2 Dual SC 1008BASE-SX 0.5 -17.0 -17.0 -17.0 -17.0 -17.0 -17.0 <th< td=""><td>Finite Solution <</td><td>Pirel Data C 100848E-2C -2 0 -0 0 10 900 -</td></th<></td></t<> | Port1 Dual LC 1000BASE-SX 9.5 4.0 17.0 3.0 7.5 850 Port2 Dual LC 1000BASE-XX 0 5.0 -23.0 -3.0 23 150 Port1 Dual ST 1000BASE-XX 0 5.0 -17.0 -3.0 7.5 850 Port2 Dual ST 1000BASE-XX 0.5 4.0 -17.0 -3.0 7.5 850 Port2 Dual ST 1000BASE-XX 0.5 5.0 -32.0 9.0 1500 Port2 Dual SC 1000BASE-XX 0.5 5.0 -17.0 3.0 7.5 850 Port3 Dual SC 1000BASE-XX 0.5 4.0 -17.0 3.0 7.5 850 Port4 Dual SC 1000BASE-XX 0.5 4.0 -17.0 3.0 7.5 850 Port1 Dual SC 1000BASE-XX 0.5 4.0 -17.0 3.0 7.5 850 Port4 Dual SC 1000BASE-XX 0.5 4.0 -17.0 3.0 7.5 850 | Port 1 Dual LC 1008BASE-SX -9.5 -4.0 -17.0 -3.0 7.5 850 MMF Port 2 Dual LC 1008BASE-SX 0 5.0 -23.0 -3.0 23 1550 SMF** Port 1 Dual ST 1008BASE-SX 0.5 4.0 -17.0 -3.0 7.5 850 MMF Port 2 Dual ST 1008BASE-SX 0.5 4.0 -17.0 -3.0 7.5 850 MMF Port 2 Dual ST 1008BASE-SX 0.5 4.0 -17.0 -3.0 7.5 850 MMF Port 2 Dual SC 1008BASE-SX 0.5 4.0 -17.0 -3.0 7.5 850 MMF Port 2 Dual SC 1008BASE-SX 0.5 4.0 -17.0 -3.0 7.5 850 MMF Port 2 Dual SC 1008BASE-SX 0.5 -17.0 -3.0 7.5 850 MMF Port 2 Dual SC 1008BASE-SX 0.5 -17.0 -17.0 -17.0 -17.0 -17.0 -17.0 <th< td=""><td>Finite Solution <</td><td>Pirel Data C 100848E-2C -2 0 -0 0 10 900 -</td></th<> | Finite Solution < | Pirel Data C 100848E-2C -2 0 -0 0 10 900 - |

| $ \frac{50}{500} + \frac{500}{1000} + 500$ | | | | | | | | | | | | | | |
|--|-----------------------------|--------|---------|-------------|------|------|-------|------|------|------|-------|------|------|---------------------|
| Number Port 1 Dual LC 1000BASE-SX -9.5 -4.0 -17.0 -3.0 7.5 850 MMF 62.5 180 220 m (72.2 ft) S-1000MM- SUCTION Port 1 Dual LC 1000BASE-SX -9.5 -4.0 -17.0 -3.0 7.5 850 MMF 62.5 180 220 m (72.2 ft) 50 400 500 500 650 m (1.604 ft) 50 2000 1000 ft) 50 2000 1000BASE-ZX 2 5.0 -32.0 -9.0 34.0 1550 SMF** ** - 160 km S-1000MM- SUBLIN Port 1 Dual ST 1000BASE-ZX 2 5.0 -32.0 -9.0 34.0 1550 SMF** ** - 160 km S-1000MM- SUBLIN Port 1 Dual ST 1000BASE-SX -9.5 -4.0 -17.0 -3.0 7.5 850 MMF 62.5 160 220 m (1.694 ft) SUBLIN Port 1 Dual ST 1000BASE-SX < | | | | | | | | | | | | 50 | 2000 | 1000 m (3281 ft) |
| STICTED (722 ft) 62.5 200 275 m (802 ft) 50 400 500 m (1.840 ft) 50 2000 1000 m (1.840 ft) 50 2000 220 m (1.840 ft) 50 2000 2000 50 200 275 m (802 ft) 50 200 275 m (802 ft) 50 200 275 m (802 ft) 50 4.0 -17.0 -3.0 7.5 850 50 4.0 -17.0 -3.0 7.5 850 MMF 62.5 160 220 m (1.840 ft) 50 500 500 m (1.840 ft) -17.0 -3.0 7.5 850 | | Port 2 | Dual SC | 1000BASE-ZX | 2 | 5.0 | -32.0 | -9.0 | 34.0 | 1550 | SMF** | ** | - | 160 km (100 mi) |
| S-1000MM: Port 2 Dual LC 1000BASE-ZX 2 5.0 -32.0 -9.0 34.0 1550 SMF** ** - 160 km (1.640 ft) S-1000MM: Port 2 Dual LC 1000BASE-ZX 2 5.0 -32.0 -9.0 34.0 1550 SMF** ** - 160 km (100 mi) S-1000MM: Port 1 Dual ST 1000BASE-SX -9.5 -4.0 -17.0 -3.0 7.5 850 MMF 62.5 160 2200 m (102 rt) 50 400 500 m (1,804 ft) - - 160 km (160 mi) - - 160 km (100 mi) SXSTIEN Port 1 Dual ST 1000BASE-SX -9.5 -4.0 -17.0 -3.0 7.5 850 MMF 62.5 160 220 m (1.604 ft) 50 400 500 m (1.604 ft) - - - - - - - 160 km 60 500 500 m (1.624 ft) - - - - </td <th>S-1000MM- S2LC160</th> <td>Port 1</td> <td>Dual LC</td> <td>1000BASE-SX</td> <td>-9.5</td> <td>-4.0</td> <td>-17.0</td> <td>-3.0</td> <td>7.5</td> <td>850</td> <td>MMF</td> <td>62.5</td> <td>160</td> <td>220 m (722 ft)</td> | S-1000MM- S2LC160 | Port 1 | Dual LC | 1000BASE-SX | -9.5 | -4.0 | -17.0 | -3.0 | 7.5 | 850 | MMF | 62.5 | 160 | 220 m (722 ft) |
| Fort 2 Dual ST 1000BASE-SX 2 5.0 -17.0 -3.0 7.5 850 MMF 4.0 -17.0 -3.0 7.5 850 MMF 62.5 160 220 m (1.804 ft) 50 2000 1000BASE-SX 2 5.0 -32.0 -9.0 34.0 1550 SMF** 4* - 160 km (100 m) S-1000MML Port 1 Dual ST 1000BASE-SX -9.5 4.0 -17.0 -3.0 7.5 850 MMF 62.5 160 220 m (722 ft) 50 500 550 m (1.804 ft) - - 160 km (1.804 ft) - - - 160 km (1.804 ft) - - - 160 km (1.804 ft) - - - - - - - - - - - - </td <th></th> <td></td> <td>62.5</td> <td>200</td> <td>275 m (902 ft)</td> | | | | | | | | | | | | 62.5 | 200 | 275 m (902 ft) |
| $ \begin{array}{ c c c c c c c c c c c c c c c c c c c$ | | | | | | | | | | | | 50 | 400 | 500 m (1,640 ft) |
| Port 2 Dual LC 1000BASE-ZX 2 5.0 -32.0 -9.0 34.0 1550 SMF** ** - 160 km (100 m) S-1000MM. S2ST160 Port 1 Dual ST 1000BASE-SX -9.5 -4.0 -17.0 -3.0 7.5 850 MMF 62.5 160 220 m (722 ft) 52ST160 Port 1 Dual ST 1000BASE-SX -9.5 -4.0 -17.0 -3.0 7.5 850 MMF 62.5 160 220 m (722 ft) 60 400 500 m (1,640 ft) - - - 160 km (1,640 ft) - - - 160 km 90 t 2 Dual ST 1000BASE-ZX 2 5.0 -32.0 -9.0 34.0 1550 SMF** ** - 160 km | | | | | | | | | | | | 50 | 500 | 550 m (1,804 ft) |
| Same Fort 2 Dual ST 1000BASE-SX -9.5 -4.0 -17.0 -3.0 7.5 850 MMF 62.5 160 220 m (722 ft) S2ST160 Port 1 Dual ST 1000BASE-SX -9.5 -4.0 -17.0 -3.0 7.5 850 MMF 62.5 160 220 m (722 ft) 62.5 200 275 m (902 ft) 50 400 500 m (1,640 ft) 50 500 m (1,640 ft) 50 2000 1000 m (3281 ft) 50 2000 1000 m (3281 ft) Port 2 Dual ST 1000BASE-ZX 2 5.0 -32.0 -9.0 34.0 1550 SMF** ** - 160 km | | | | | | | | | | | | 50 | 2000 | 1000 m (3281 ft) |
| 62.5 200 275 m (902 ft) 50 400 500 m (1,640 ft) 50 500 550 m (1,804 ft) 50 2000 1000 m (3281 ft) 50 2000 1000 m (3281 ft) | | Port 2 | Dual LC | 1000BASE-ZX | 2 | 5.0 | -32.0 | -9.0 | 34.0 | 1550 | SMF** | ** | - | 160 km (100 mi) |
| (902 ft) 50 400 500 m (1,640 ft) 50 500 550 m (1,804 ft) 50 2000 1000 m (3281 ft) 50 2000 1000 m (3281 ft) 50 2000 1000 m (3281 ft) | <u>S-1000MM-</u> S2ST160 | Port 1 | Dual ST | 1000BASE-SX | -9.5 | -4.0 | -17.0 | -3.0 | 7.5 | 850 | MMF | 62.5 | 160 | 220 m (722 ft) |
| (1,640 ft) 50 500 550 m (1,804 ft) 50 2000 1000 m (3281 ft) Port 2 Dual ST 1000BASE-ZX 2 5.0 -32.0 -9.0 34.0 1550 SMF** ** - 160 km | | | | | | | | | | | | 62.5 | 200 | 275 m (902 ft) |
| (1,804 ft) 50 2000 1000 m (3281 ft) Port 2 Dual ST 1000BASE-ZX 2 5.0 -32.0 -9.0 34.0 1550 SMF** ** - 160 km | | | | | | | | | | | | 50 | 400 | |
| (3281 ft) Port 2 Dual ST 1000BASE-ZX 2 5.0 -32.0 -9.0 34.0 1550 SMF** ** - 160 km | | | | | | | | | | | | 50 | 500 | 550 m (1,804 ft) |
| Port 2 Dual ST 1000BASE-ZX 2 5.0 -32.0 -9.0 34.0 1550 SMF** ** - 160 km (100 mi) | | | | | | | | | | | | 50 | 2000 | 1000 m (3281 ft) |
| | | Port 2 | Dual ST | 1000BASE-ZX | 2 | 5.0 | -32.0 | -9.0 | 34.0 | 1550 | SMF** | ** | - | 160 km (100 mi) |

Single Fiber Models Recommended use in pairs

| | | | Туре | Transı (dBm) | nit | Receive (dBm) | 9 | | | Co | Core Modal | | |
|------------------------------|--------|-----------|-----------------|-----------------|------|------------------|------|--------------------------|--------------------|---------------|----------------------|---------------------------------|-----------------------|
| Model | Port | Connector | | Min | Max | Min | Max | Power Budget (dBm) | Wavelength (nm) | Fiber Type | Core Size (um) | Modal Bandwidth (MHz* Km) | Operating Distance |
| <u>S-1000MM-</u> S1SC10U | Port 1 | Dual SC | 1000BASE-SX | -9.5 | -4.0 | -17.0 | -3.0 | 7.5 | 850 | MMF | 62.5 | 160 | 220 m (722 ft) |
| | | | | | | | | | | | 62.5 | 200 | 275 m (902 ft) |
| | | | | | | | | | | | 50 | 400 | 500 m (1,640 ft) |
| | | | | | | | | | | | 50 | 500 | 550 m (1,804 ft) |
| | | | | | | | | | | | 50 | 2000 | 1000 m (3281 ft) |
| | Port 2 | Single SC | 1000BASE-BX10-U | -9 | -3.0 | -20.0 | -3.0 | 11 | 1310/1490 | SMF** | ** | - | 10 km (6.2 mi) |
| <u>S-1000MM- S1SC10D</u> | Port 1 | Dual SC | 1000BASE-SX | -9.5 | -4.0 | -17.0 | -3.0 | 7.5 | 850 | MMF | 62.5 | 160 | 220 m (722 ft) |
| | | | | | | | | | | | 62.5 | 200 | 275 m (902 ft) |
| | | | | | | | | | | | 50 | 400 | 500 m (1,640 ft) |
| | | | | | | | | | | | 50 | 500 | 550 m (1,804 ft) |
| | | | | | | | | | | | 50 | 2000 | 1000 m (3281 ft) |
| | Port 2 | Single SC | 1000BASE-BX10-D | -9 | -3.0 | -20.0 | -3.0 | 11 | 1490/1310 | SMF** | ** | - | 10 km (6.2 mi) |
| <u>S-1000MM-</u> S1SC20U | Port 1 | Dual SC | 1000BASE-SX | -9.5 | -4.0 | -17.0 | -3.0 | 7.5 | 850 | MMF | 62.5 | 160 | 220 m (722 ft) |
| | | | | | | | | | | | 62.5 | 200 | 275 m (902 ft) |
| | | | | | | | | | | | 50 | 400 | 500 m (1,640 ft) |
| | | | | | | | | | | | | | |

| | | | | | | | | | | | 50 | 500 | 550 m (1,804 ft) |
|------------------------------|--------|-----------|---------------|------|------|-------|------|------|-----------|-------|------|------|---------------------|
| | | | | | | | | | | | 50 | 2000 | 1000 m (3281 ft) |
| | Port 2 | Single SC | 1000BASE-BX-U | -8 | -3.0 | -22.0 | -3.0 | 14.0 | 1310/1490 | SMF** | ** | - | 20 km (12.4 mi) |
| S-1000MM- S1SC20D | Port 1 | Dual SC | 1000BASE-SX | -9.5 | -4.0 | -17.0 | -3.0 | 7.5 | 850 | MMF | 62.5 | 160 | 220 m (722 ft) |
| | | | | | | | | | | | 62.5 | 200 | 275 m (902 ft) |
| | | | | | | | | | | | 50 | 400 | 500 m (1,640 ft) |
| | | | | | | | | | | | 50 | 500 | 550 m (1,804 ft) |
| | | | | | | | | | | | 50 | 2000 | 1000 m (3281 ft) |
| | Port 2 | Single SC | 1000BASE-BX-D | -8 | -3.0 | -22.0 | -3.0 | 14.0 | 1490/1310 | SMF** | ** | - | 20 km (12.4 mi) |
| <u>S-1000MM- S1SC40U</u> | Port 1 | Dual SC | 1000BASE-SX | -9.5 | -4.0 | -17.0 | -3.0 | 7.5 | 850 | MMF | 62.5 | 160 | 220 m (722 ft) |
| | | | | | | | | | | | 62.5 | 200 | 275 m (902 ft) |
| | | | | | | | | | | | 50 | 400 | 500 m (1,640 ft) |
| | | | | | | | | | | | 50 | 500 | 550 m (1,804 ft) |
| | | | | | | | | | | | 50 | 2000 | 1000 m (3281 ft) |
| | Port 2 | Single SC | 1000BASE-BX-U | -3 | 2.0 | -23.0 | -3.0 | 20.0 | 1310/1490 | SMF** | ** | - | 40 km (25 mi) |
| <u>S-1000MM- S1SC40D</u> | Port 1 | Dual SC | 1000BASE-SX | -9.5 | -4.0 | -17.0 | -3.0 | 7.5 | 850 | MMF | 62.5 | 160 | 220 m (722 ft) |
| | | | | | | | | | | | 62.5 | 200 | 275 m (902 ft) |
| | | | | | | | | | | | 50 | 400 | 500 m (1,640 ft) |
| | | | | | | | | | | | 50 | 500 | 550 m (1,804 ft) |
| | | | | | | | | | | | 50 | 2000 | 1000 m (3281 ft) |
| | Port 2 | Dual SC | 1000BASE-BX-D | -3 | 2.0 | -23.0 | -3.0 | 20.0 | 1490/1310 | SMF** | ** | - | 40 km (25 mi) |
| <u>S-1000MM- S1SC80U</u> | Port 1 | Dual SC | 1000BASE-SX | -9.5 | -4.0 | -17.0 | -3.0 | 7.5 | 850 | MMF | 62.5 | 160 | 220 m (722 ft) |
| | | | | | | | | | | | 62.5 | 200 | 275 m (902 ft) |
| | | | | | | | | | | | 50 | 400 | 500 m (1,640 ft) |
| | | | | | | | | | | | 50 | 500 | 550 m (1,804 ft) |
| | | | | | | | | | | | 50 | 2000 | 1000 m (3281 ft) |
| | Port 2 | Single SC | 1000BASE-BX-U | -2 | 3.0 | -26.0 | -3.0 | 24.0 | 1510/1590 | SMF** | ** | - | 80 km (50 mi) |
| <u>S-1000MM- S1SC80D</u> | Port 1 | Dual SC | 1000BASE-SX | -9.5 | -4.0 | -17.0 | -3.0 | 7.5 | 850 | MMF | 62.5 | 160 | 220 m (722 ft) |
| | | | | | | | | | | | 62.5 | 200 | 275 m (902 ft) |
| | | | | | | | | | | | 50 | 400 | 500 m (1,640 ft) |
| | | | | | | | | | | | 50 | 500 | 550 m (1,804 ft) |
| | | | | | | | | | | | 50 | 2000 | 1000 m (3281 ft) |

| | Port 2 | Single SC | 1000BASE-BX-D | -2 | 3.0 | -26.0 | -3.0 | 24.0 | 1590/1510 | SMF** | ** | - | 80 km (50 mi) |
|-----------------------|--------|-----------|---------------|------|------|-------|------|------|-----------|-------|------|------|---------------------|
| S-1000MM- S1SC120U | Port 1 | Dual SC | 1000BASE-SX | -9.5 | -4.0 | -17.0 | -3.0 | 7.5 | 850 | MMF | 62.5 | 160 | 220 m (722 ft) |
| | | | | | | | | | | | 62.5 | 200 | 275 m (902 ft) |
| | | | | | | | | | | | 50 | 400 | 500 m (1,640 ft) |
| | | | | | | | | | | | 50 | 500 | 550 m (1,804 ft) |
| | | | | | | | | | | | 50 | 2000 | 1000 m (3281 ft) |
| | Port 2 | Single SC | 1000BASE-BX-U | -3.0 | 2.0 | -34.0 | -9.0 | 31.0 | 1510/1590 | SMF** | ** | - | 120 km (75 mi) |
| S-1000MM- S1SC120D | Port 1 | Dual SC | 1000BASE-SX | -9.5 | -4.0 | -17.0 | -3.0 | 7.5 | 850 | MMF | 62.5 | 160 | 220 m (722 ft) |
| | | | | | | | | | | | 62.5 | 200 | 275 m (902 ft) |
| | | | | | | | | | | | 50 | 400 | 500 m (1,640 ft) |
| | | | | | | | | | | | 50 | 500 | 550 m (1,804 ft) |
| | | | | | | | | | | | 50 | 2000 | 1000 m (3281 ft) |
| | Port 2 | Single SC | 1000BASE-BX-D | -3.0 | 2.0 | -34.0 | -9.0 | 31.0 | 1590/1510 | SMF** | ** | - | 120 km (75 mi) |

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

*A mode-conditioning adapter as specified by the IEEE standard, is required regardless of the span length. Note how the mode conditioning adapter for 62.5-um fibers has a different specification from the mode-conditioning adapter for 50-um fibers.

**ITU-T G.652 SMF as specified by the IEEE 802.3z standard

| Media | Converter | Accessories |
|-------|-----------|-------------|
|-------|-----------|-------------|

| <u>4 DIN Rail Mount Bkt</u> | DIN Rail Mounting Kit | | | | | | |
|-----------------------------|---|--|--|--|--|--|--|
| MCSM | Standalone media converter wall mount bracket | | | | | | |

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