

Article Overview

A Dual Fiber Gigabit Panel uses two fiber strands--one for transmitting (TX) and one for receiving (RX)--to support high-speed Gigabit Ethernet connections over short or long distances.

Overview

Dual-fiber panels and SFP transceivers operate using two separate fiber strands, with one dedicated to sending data and the other to receiving it, ensuring full-duplex communication . This setup is common in both multi-mode (MMF) and single-mode (SMF) fiber networks, supporting standard Gigabit Ethernet rates (1000Base-SX/LX) and extending distances from hundreds of meters to tens of kilometers depending on the fiber type and wavelength .

Key Specifications

- o Fiber Type: Multi-mode (50/125 um or 62.5/125 um) for short-range, single-mode (9/125 um) for long-range connections .
- o Wavelengths: Common values include 850 nm for MMF (SX), 1310 nm for SMF (LX/LHX), and 1550 nm for long-haul SMF (ZX/ZHX), .
- o Distance: Multi-mode typically covers 155 m to 550 m, while single-mode can reach 20 km, 40 km, 50 km, or 80 km depending on the SFP standard .
- o Connector Type: Duplex LC connectors are standard for dual-fiber panels .
- o Transmission Rate: Supports 1 Gbps for standard Gigabit Ethernet, with some models supporting 10 Gbps for higher-end applications .

Applications

Dual-fiber Gigabit panels are widely used in:

- o Data centers for connecting switches and servers over fiber backbones.
- o Enterprise networks to extend network coverage between buildings.
- o Surveillance systems where reliable, high-speed connections are required.
- o Industrial environments with EMI concerns, as fiber is immune to electromagnetic interference .

Deployment Considerations

- o Cross-connection: TX on one end connects to RX on the other and vice versa using duplex patch cords .
- o Environmental factors: Check for industrial temperature ranges, DIN-rail mounting, and power requirements. Some media converters support PoE passthrough .



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- o Maintenance: Clean connectors to prevent signal loss; even small dust particles can increase attenuation .
- o Plug-and-play: Many dual-fiber media converters support auto-negotiation and jumbo frames up to 9K bytes for seamless integration .

Example Products

- o SFP-7000-85: 1000Base-SX multi-mode, 850 nm, up to 550 m.
- o SFP-7020-31: 1000Base-LX single-mode, 1310 nm, up to 20 km.
- o SFP-7040-31: 1000Base-LHX single-mode, 1310 nm, up to 40 km.
- o SFP-7050-55: 1000Base-ZX single-mode, 1550 nm, up to 50 km . Dual-fiber Gigabit panels provide a reliable, high-speed, and scalable solution for extending Ethernet networks over fiber, making them ideal for both short-range and long-haul deployments.

AFL's XFM-28 Dual Access Module Panel is designed to maximize module capacity via both front and rear

Leviton Fiber Optic Patch Panels come in UHDX, HDX, e2XHD, and SDX varieties: a solution for every application.

10/40GbE top-of-rack open networking switch The Dell EMC Networking S4048-ON switch empowers organizations to deploy

The MC420L is a media converter designed to convert between 10GBASE-SR/LR fiber, 10GBASE-LRM

10 Gigabit Ethernet PCIe card with dual-ports and two SFP28 transceivers for adding 10GbE Fibre Optic connectivity. Compatible

Complete Package: Includes 2 Gigabit Multi-Mode Fiber Ethernet SFP Slot media converters equipped

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The Cisco CWDM SFP solution is a convenient and cost-effective solution for the adoption of

The Catalyst 8000 Gigabit Ethernet WAN Modules bring high-density SFP+, SFP, and RJ-45 connectivity to the

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The Catalyst 2960 switches (other than those listed) use Gigabit Ethernet SFP modules for Gigabit uplink connections

The single-fiber optical module is an optical module product with only one optical fiber port. It

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