# 100Mbps and 1Gbps Fiber Optic Switches

## Overview

These modules allow switches or routers designed for optical transceivers to connect directly to twisted-pair copper networks while maintaining support for 10Mbps, 100Mbps, and 1Gbps Ethernet speeds.

## Key Takeaways

Fiber optic switches supporting 100Mbps and 1Gbps provide flexible, high-speed connectivity for both small and mid-sized networks, with options for SFP modules, managed features, and multimode or singlemode fiber.

### Overview

Fiber optic switches are network devices that connect multiple devices over fiber optic cabling, offering high-speed data transmission and long-distance connectivity. Switches supporting 100Mbps (Fast Ethernet) and 1Gbps (Gigabit Ethernet) allow networks to accommodate both legacy and modern devices, ensuring backward compatibility and scalability.

### Key Features

Port Types: Many switches include SFP slots for fiber modules, allowing connection to multimode or singlemode fiber, and RJ45 ports for copper Ethernet connections (10/100/1000Base-T),. Managed vs Unmanaged: Managed switches provide advanced features like VLANs, port isolation, storm control, ARP inspection, and security controls, while unmanaged switches offer plug-and-play simplicity. Speed Flexibility: Switches like the CLR-SWG-1212F support both 100Mbps and 1Gbps SFP modules, enabling mixed-speed networks and smooth integration of older devices.

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Applications: Ideal for IP camera systems, enterprise LANs, and fiber backbone networks, these switches can serve as core or edge devices, aggregating multiple fiber connections.

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P Module Compatibility: Users can select modules for single-fiber or dual-fiber connections, with distances ranging from 100 meters to 40 kilometers depending on the module type.

## Advantages

High Bandwidth: 1Gbps fiber ports provide fast data transfer for bandwidth-intensive applications. Scalability: Modular SFP slots allow network expansion without replacing the switch. Network Security: Managed switches offer features like IP/MAC binding, VLAN segmentation, and storm control to protect against unauthorized access and network attacks.

Flexibility: Supports both multimode and singlemode fiber, enabling deployment across different building layouts or campus networks.

## Considerations

Network Size: For small networks, a 100Mbps switch may suffice, but 1Gbps switches are recommended for mid-sized or high-traffic networks. Distance Requirements: Singlemode fiber is suitable for long-distance connections, while multimode fiber is cost-effective for shorter distances. Power over Ethernet (PoE): Some switches provide PoE to power devices like IP cameras or access points directly through the Ethernet cable.

## Conclusion

Choosing between 100Mbps and 1Gbps fiber optic switches depends on network speed requirements, distance, device compatibility, and management needs. For modern networks with high data demands, 1Gbps managed fiber switches with SFP flexibility offer the best combination of performance, security, and scalability, while 100Mbps switches remain suitable for smaller or legacy networks.

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