What series of optical modules are available



Overview

ADI''s optical networking solutions power efficient, compact optical modules for data center, enterprise, and telecom markets.

Key Takeaways

Optical modules are available in multiple series and form factors, including SFP, SFP+, SFP28, XFP, QSFP+, QSFP28, CFP, OSFP, and coherent ZR modules, supporting transmission rates from 1G to 800G and beyond.Common Optical Module Series



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SFP (Small Form-Factor Pluggable): Supports 1G to 4G transmission rates, typically with LC fiber connectors. Hot-swappable and widely used in enterprise and campus networks . eSFP (Enhanced SFP): Similar to SFP but includes monitoring capabilities for voltage, temperature, bias current, and optical power, providing enhanced diagnostics . SFP+ and SFP28: SFP+ supports 10G, while SFP28 supports 25G transmission rates. Both maintain the same small form factor but SFP28 is optimized for higher-speed data center applications . XFP: A 10G module with a larger form factor than SFP+, supporting LC fiber connectors and designed for high-speed network links . QSFP+ and QSFP28: Quad Small Form-Factor Pluggable modules supporting 40G (QSFP+) and 100G (QSFP28) transmission rates. QSFP28 is backward-compatible with QSFP+ ports and widely used in data centers . CFP and OSFP: Larger form-factor modules supporting 100G, 200G, and 400G rates. OSFP modules are designed for high-density AI and HPC data center applications, with integrated heat sinks for thermal management . Coherent ZR and OpenZR+: Modules designed for long-haul and metro DWDM applications, supporting 400G and 800G wavelengths over distances up to 1000 km. These modules integrate coherent optics and digital signal processing for high-capacity transmission .

Specialized Modules

• CWDM and DWDM Modules: Support coarse and dense wavelength division multiplexing for multi-channel optical transmission .

• Tunable Lasers and Coherent Modules: Used in long-reach and high-capacity networks, often with in-module forward error correction (FEC) for signal integrity .

• High-Density AI/ML Modules: QSFP112 and OSFP 1.6T modules designed for AI data centers, providing high throughput and low latency for compute-intensive workloads .

Summary

Optical modules vary by form factor, transmission rate, and application. From small, hot-swappable SFP modules for enterprise networks to high-speed QSFP, OSFP, and coherent ZR modules for AI and long-haul networks, the series of optical modules available today covers a wide range of networking needs, ensuring compatibility, scalability, and high performance across modern data center and service provider environments .

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Optical modules are available in various types to meet diversified requirements. Depending on transmission rates, optical modules

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Fiber-optic communication

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An optical fiber patching cabinet. The yellow cables are single-mode fibers; the orange and blue cables are multi-mode fibers:

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