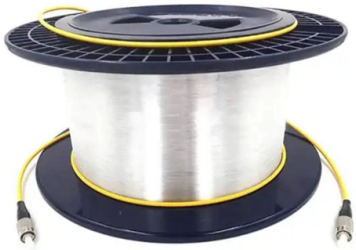
Certified Active Optical Devices SFP



Overview

SFP stands for “small form-factor pluggable” and transceiver means a device that can both transmit and receive data.

Key Takeaways

Certified SFP Active Optical Devices (AOCs) are high-speed, plug-and-play optical modules designed for reliable 10GbE and higher connections, fully compliant with SFP+ standards and vendor-certified for interoperability.Overview

Active Optical Cables (AOCs) in SFP form factor are factory-terminated optical modules that integrate optical transceivers and fiber into a single cable assembly. Unlike passive DACs, AOCs use signal conversion and amplification to extend reach beyond copper limitations, typically supporting distances from 7 meters up to 100 meters or more, depending on the module and fiber type ( ). Key characteristics include:

• Plug-and-play operation: No additional transceivers or modules are required.

• High-speed support: Designed for 10GbE, 25GbE, and higher data rates.

• Low latency: Optical transmission reduces signal degradation over longer distances.

• Flexibility: Lightweight and bendable compared to copper twinax cables.

• Standards compliance: SFP+ MSA, SFF-8431, SFF-8472, and RoHS compliant ( ).
Certification and Compatibility

Certified AOCs are tested for interoperability with specific vendor platforms, ensuring reliable operation and full support for features such as:

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• Service assurance and monitoring: Some modules, like Cisco Assurance SFPs, include FPGA-based active measurement for Layer 2–4 traffic, performance monitoring, and service activation testing ( ).

• Environmental compliance: Industrial temperature range operation and RoHS compliance.

• Firmware upgradeability: Certain certified modules allow firmware updates to maintain compatibility with evolving network standards ( ). Certification ensures that the AOC will function correctly with the host device, avoiding issues related to reach, power, coding, and platform-specific limitations ( ).

Use Cases

• Data centers: High-density server-to-switch interconnects.

• Telecom and wireless networks: 10G Ethernet, CPRI, and Fiber Channel links.

• High-performance computing: Low-latency, high-bandwidth connections between compute nodes ( ).

Advantages Over Passive DACs

• Longer reach: Active optical modules can exceed the 7–10 m limit of active DACs.

• Reduced EMI sensitivity: Optical transmission is immune to electromagnetic interference.

• Better scalability: Suitable for complex cabling pathways and high-density racks ( ).

Procurement Considerations

When selecting certified SFP AOCs, verify:

• Exact part numbers (PIDs) and host compatibility.

• Supported data rates and fiber type.

• Certifications and compliance with industry standards.

• Warranty, stock availability, and acceptance testing documentation ( ). Certified active optical SFP devices provide a reliable, standards-compliant solution for high-speed networking, ensuring interoperability, performance, and operational efficiency across modern data center and telecom environments.

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Frequently Asked Questions

Cisco SFP and SFP+ Transceiver Module Installation Notes

This installation note provides the installation instructions for the Cisco small form-factor pluggable (SFP) and SFP+ transceiver modules. These t...

Installing SFP and SFP+ Transceiver Modules

SFP transceiver modules can have three types of latching devices to secure an SFP transceiver module in a port socket: •Figure 4 shows an SFP trans...

Removing SFP and SFP+ Transceiver Modules

If you are removing an SFP or SFP+ transceiver module, follow these steps: Step 1 Attach an ESD-preventive wrist strap to your wrist and to the ESD...

Obtaining Documentation and Submitting A Service Request

For information on obtaining documentation, submitting a service request, and gathering additional information, see the monthly What's New in Cisco...

Article Content

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Each SFP transceiver module supports the Cisco Quality Identification (ID) feature which allows a Cisco switch or

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Cisco Assurance SFP Data Sheet

Certified and tested on Cisco SFP+ platform ports for superior performance, quality, and reliability. Tested

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A Cisco compatible SFP list 2026 represents a validated inventory of optical transceivers that utilize Multi-Source

How to Select Active Optical Cable AOC cable with SFP

Choosing the right Active Optical Cable (AOC) with a Small Form-factor Pluggable (SFP) connector is

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SFP Transceivers Explained

SFP stands for “small form-factor pluggable” and transceiver means a device that can both transmit and receive data.

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SFP Compatibility Guide and How to Use a Compatible SFP Module?

All our optical transceivers are compliant with the RoHS Directive 2011/65/EU, furthering our promise of quality and environmental

SFP Optical Module Specifications: Standards

A practical guide to SFP Optical Module Specifications, covering data rates, optical budget, Tx/Rx power,

Cisco 25GBASE SFP28 Modules Data Sheet

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Cisco SFP28 to SFP28 Active Optical Cables are direct-attach fiber assemblies with SFP connectors. They are suitable for very short

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Cisco 10GBASE SFP+ Modules Data Sheet

Cisco SFP-10G-ER-I module Cisco SFP-10G-ZR-S module (S-Class) Cisco SFP-10G-ZR module Cisco SFP-10G-ZR-I

Fortinet Transceivers Data Sheet

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Take the Guesswork Out of Selecting Transceivers Common connectivity problems in enterprise and data center networks are often

Arista Transceiver and Cable Guide

Overview Arista optical transceivers and cables offer deployment flexibility and cost optimized network connectivity. Arista

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Active Optics Cable Assemblies | TE Connectivity

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Our active optical cable assembly portfolio provides greater cable flexibility and longer reach, as compared to both traditional passive

10G/1G Optics | HPE Juniper Networking US

Juniper''s portfolio of qualified 10G and 1G optical transceivers are low-cost multipurpose modules available in footprint-optimized

SFP, QSFP, QSFP-DD, OSFP ACTIVE OPTICAL CABLE

Small form-factor pluggable (SFP), quad small form-factor pluggable (QSFP), quad small form-factor pluggable double-density

SFPwire® Ethernet SFP+ Active Optical Cables | Coherent

Based on our vertically integrated VCSEL array technology, these AOCs feature hot-pluggable SFP+ cable

SFP, QSFP, QSFP-DD, OSFP Active Optical Cable Assemblies

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