Active Optical Cable SFP

Article Overview

SFP Active Optical Cables (AOCs) provide high-speed, low-latency, and flexible optical connectivity for data centers and telecom applications, outperforming traditional copper cables in reach, weight, and signal integrity.

Overview

Active Optical Cables (AOCs) are plug-and-play fiber assemblies that integrate optical transceivers directly into the cable ends, eliminating the need for separate SFP transceivers. They are designed for short- to medium-range high-speed links between switches, servers, and storage systems, offering secure, low-latency connections in high-density environments (Pivotal Optics) .

Key Features

o High Data Rates: SFP+ AOCs support 10 Gbps to 56 Gbps aggregate bandwidth, with some solutions reaching up to 100 Gbps or higher for QSFP-DD interfaces (Liverage, TE Connectivity) .
o Extended Reach: Cable lengths can extend up to 100 meters, significantly longer than copper direct attach cables (DACs) .
o Low Power Consumption: Typical power usage is around 1.5 W per cable, making them energy-efficient for dense deployments .
o Hot-Pluggable: SFP+ ends are mechanically compatible with SFF-8432 and support hot-swapping for easy maintenance .
o Lightweight and Flexible: AOCs are lighter and more flexible than copper DACs, simplifying cable management in high-density racks .
o Standards Compliance: Compliant with SFF-8431, SFF-8432, SFF-8472, and RoHS directives, ensuring interoperability and environmental compliance .

Applications

o Data Centers: Inter-rack and intra-rack connections for high-speed Ethernet, InfiniBand, and Fiber Channel networks .
o Telecom and Wireless: 10GBASE-SR Ethernet links, CPRI, and other telecom backhaul connections .
o High-Performance Computing (HPC): Low-latency interconnects for compute clusters and storage arrays .
o Client-Side 10G Connections: Short-range optical links for enterprise and telecom clients .

Advantages Over Copper Cables

o Longer Reach: Optical transmission allows distances up to 100 meters, compared to 10-15 meters for copper

DACs.
o Better Signal Integrity: Reduced electromagnetic interference and higher bandwidth stability.
o Energy Efficiency: Lower power consumption per link.
o Simplified Cabling: Lighter, thinner cables reduce congestion in high-density racks.

Vendor Options

o Liverage: Offers 4-channel bi-directional SFP+ AOCs with 56 Gbps aggregate bandwidth and 100 m reach .
o Pivotal Optics: Provides validated AOCs compatible with Cisco, Juniper, Arista, Dell, Intel, Mellanox, and Broadcom .
o Coherent: Features next-generation VCSEL-based SFP+ AOCs with flexible, high-density installation support .
o Amphenol: 10G SFP+ AOCs for telecom, wireless, InfiniBand, and Fiber Channel applications .
o TE Connectivity: Comprehensive portfolio for 4G to 112G+ applications, including QSFP and QSFP-DD interconnects . Active Optical Cables for SFP/SFP+ interfaces are therefore a high-performance, energy-efficient, and flexible solution for modern networking and data center environments, providing superior reach, bandwidth, and manageability compared to traditional copper solutions.

L-com provides a variety of active optical cables (AOCs) for your most challenging and demanding applications. We offer optical

L-com stocks a wide range of Active Optical Cables or AOC including SFP+, SFP28, QSFP+, Breakout QSFP+, QSFP28 and

About this item 10GbE Active Optical Cable (AOC), Fiber Optic Cable OM3 Multimode with 10G SFP+ Module Transceiver to 10G

The SFP-10G-AOC1M is a 10Gbps active optical cable (AOC) that integrates SFP+ transceivers on both ends with a

Regional Availability - Global Siemon 10G SFP+ Active Optical Cable (AOC) assemblies offer a highly reliable and cost-effective

Cisco SFP-10G-AOC5M Compatible 5m/16.4ft 10G SFP+ to SFP+ AOC Cable - 10GbE SFP+ Active Optical Fiber - 10Gbps SFP

Active SFP+ cables incorporate active components, such as integrated circuits, within the cable assembly. These

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Description FS SFP+ Active Optical Cable (AOC) assemblies use active circuits to support longer distances than standard

This 10G SFP+ to SFP+ AOC (Active Optical Cable) consists of two SFP+ modules and a fiber cable

SFP+ 10G Siemon 10G SFP+ Active Optical Cable (AOC) assemblies ofer a highly reliable and cost-efective alternative to

Networking SFPwire® Ethernet SFP+ Active Optical Cables Use our next-generation AOCs to connect between SFP+ ports, where

ENVIRONMENTAL § Case Operating Temperature Range: 0°C to 70°C / -40°C to 85°C

SFP, QSFP, QSFP-DD, OSFP ACTIVE OPTICAL CABLE ASSEMBLIES Our active optical cable assembly portfolio provides

Amphenol"s 25G SFP28 optical modules include AOC series, which are compatible with IEEE802.3by and

Pivotal Optics" Active Optical Cables (AOCs) are fully integrated, plug-and-play fiber assemblies designed for short- to medium-range

JPT offers high-performance active optical cables and direct attach cables with high bandwidth, low latency, and strong compatibility.

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