

400G Optical Switch for Campus Network Specifications



Article Overview

400G optical switches for campus networks leverage QSFP-DD or OSFP transceivers, PAM4 modulation, multi-lane architectures, and IEEE 802.3bs compliance to deliver ultra-high-speed, energy-efficient connectivity.

Key Specifications

Form Factor and Transceivers: Modern 400G switches use QSFP-DD, OSFP, or CFP8 form factors, supporting pluggable 400G optical modules. QSFP-DD modules, for example, feature a 76-contact card-edge interface and support duplex LC or MPO fiber connections for coherent or parallel optics transmission . **Modulation and Lane Architecture:** 400G transceivers employ PAM4 (Pulse Amplitude Modulation 4-level) signaling, which doubles the data rate per lane compared to NRZ. Typical configurations include 8 lanes at 50 Gbps each or 4 lanes at 100 Gbps, enabling breakout modes such as 4x100G or 8x50G . **Standards Compliance:** IEEE 802.3bs defines 400G Ethernet, including 400GBASE-SR16, DR4, FR8, and LR8 interfaces. Compliance ensures interoperability across vendors and supports low-power, high-density deployments . **Distance and Reach:** Depending on the module type, 400G optics can support:

- DR4: ~500 meters over single-mode fiber
 - FR4: CWDM-based 4-wavelength multiplexing for metro links
 - LR8: Long-reach up to 10 km or more for campus backbone interconnects .
- Power and Thermal:** Typical 400G modules consume

Article Content

OSFP 400G DR4 Explained: Standards, Cabling, MPO-12, and Breakout

As data center networks race toward higher bandwidth and lower latency, 400G Ethernet has become the mainstream choice for

Embracing 400G and 800G

400G. As data centers evolve, the growth of high speed hosts at the network edge inevitably dictates the strategic direction of the

Arista 400G Transceivers and Cables: Q& A

What 400G Transceivers and Cables are available from Arista? Arista supports a full range of 400G optical transceivers, Active

Primer: A Guide to 400G Optical Networks

Primer: A Guide to 400G Optical Networks This guide covers all you need to know about 400G, the technology that supports it, and

Cisco 400G Digital Coherent Optics QSFP-DD Optical Modules

Some network operators chose to take a different approach at 400G upon recognizing the lessons learned from the efforts at 100G.

Cisco 400G QSFP-DD High-Power (Bright) Optical Module

Cisco 400G QSFP-DD High-Power (Bright) Optical module's small size and low power make it an optimal choice for a wide range of

Improve Your Network Efficiency with 400G Optics

Routed Optical Networking Solution Pillars Converges Services: L1, L2 and L3 services with rich SLAs over IP/MPLS Private Line

Know Your 400G Transceiver | Juniper Networks

400 Gigabit Ethernet (400G) transceivers are optical modules capable of handling data rates of 400 Gbps. With a transmission rate

400G Optical Transceivers Guide: Key Models, Applications ...

1.How is the compatibility of 400G optical transceivers? Compatibility is one of the top concerns for customers using 400G optical

100G/400G Optical Transceiver

EXECUTIVE SUMMARYThis document serves as the definitive technical reference and product datasheet for the next-generation

Cisco 400G Data Center Networking

Transform your data center networking infrastructure with high-density 400G Cisco switches scalable to 800G. Optimized for

Arista Optics Modules and Cables

Arista's Optical Modules and Cable portfolio offer a wide variety of high-density and low-power 800G (dual 400G), 400G, 200G,

Contact Us

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