

Article Overview

QSFP28 modules enable 100Gbps optical connectivity for core routers, supporting distances from 30km to 300km with coherent and non-coherent options suitable for ASEAN network deployments.

Overview of QSFP28 Modules

QSFP28 (Quad Small Form-factor Pluggable 28) transceivers are hot-pluggable modules designed for 100Gbps Ethernet links. They are widely used in core routers, data centers, and metro networks to provide high-speed connectivity with minimal infrastructure changes. QSFP28 modules support both coherent and non-coherent optics, allowing operators to choose based on distance, cost, and network architecture .

Coherent QSFP28 Modules

Coherent QSFP28 modules, such as Cisco 100G ZR and Ciena 100ZR, use digital coherent optics (DCO) to extend 100Gbps links over long distances:

- o Cisco QSFP28 100G ZR: Supports up to 80km over dark fiber and 300km over amplified DWDM links, tunable across the C-band, and compatible with standard QSFP28 ports. It supports ITU-T G.709.2 staircase FEC, low-latency applications, and Precision Timing Protocol (PTP) Class C for synchronization .
- o Ciena 100ZR QSFP28: Uses coherent technology to deliver 100Gbps over long distances, supporting DWDM scaling up to 9.6Tb/s on a single fiber pair. It allows operators to upgrade existing QSFP28 router ports without replacing infrastructure, providing cost-effective capacity expansion . Coherent modules are ideal for intercity, metro, and data center interconnects where long reach and high spectral efficiency are required.

Non-Coherent QSFP28 Modules

Non-coherent QSFP28 modules, such as 100GBASE-ER4 and EZR4, are suitable for shorter distances:

- o FS 100GBASE-ER4: Supports up to 40km over single-mode fiber with FEC, using 4-lane optical multiplexing for 100Gbps transmission .
- o AscentComtec EZR4: Supports 100km over single-mode fiber, with 4-lane transmitters and receivers, compliant with QSFP28 MSA standards, suitable for metropolitan and inter-city networks . These modules are cost-effective for regional deployments where ultra-long reach is not required.

Key Considerations for ASEAN Deployments

- o Distance Requirements: Coherent QSFP28 modules are preferred for long-haul links between cities or across

ASEAN 10 Countries Enterprise-Grade Optical Router QSFP28

countries, while non-coherent modules suffice for intra-city or campus networks.

- o DWDM Compatibility: Coherent modules support dense wavelength division multiplexing, enabling multiple 100Gbps channels on a single fiber pair, maximizing fiber utilization.
- o Router Compatibility: Ensure the core router supports QSFP28 ports and the chosen module type (coherent vs non-coherent).
- o Power and Thermal Management: Coherent modules typically consume 5.5-6W, requiring proper thermal design in router chassis .
- o Cost and Scalability: Coherent QSFP28 modules allow network scaling without replacing existing router ports, reducing CAPEX for ASEAN operators .

Conclusion

For ASEAN core router networks, QSFP28 optical transceivers provide flexible, high-speed connectivity. Coherent QSFP28 modules are optimal for long-distance, DWDM-enabled links, while non-coherent modules are suitable for shorter metro or campus connections. Selecting the right module depends on distance, network architecture, and cost considerations, ensuring efficient and scalable 100Gbps optical deployment across the region .

Fiber expansion in APAC is gaining momentum, with national policies boosting broadband infrastructure to enhance

Product overview The FS® 100GBASE Quad Small Form-Factor Pluggable (QSFP28) portfolio offers customers a wide variety of

Scale smarter with the 100ZR QSFP28 coherent transceiver to extend 100G reach, boost fiber to 9.6Tb/s,

100G QSFP28 ZR4 Optical Transceiver - Made in Taiwan | TAA Compliant Optech's 100G QSFP28 ZR4 transceiver is engineered

Optical Transceiver Market Size & Share Analysis - Growth Trends and Forecast (2026 - 2031) The Optical

The Cisco QSFP28 100G ZR module expands the portfolio of digital coherent optics (DCO) modules to connect QSFP28 ports.

of Small Form-Factor Pluggable (SFP), SFP+, SFP28, QSFP+, and QSFP28 transceivers. Designed to deliver seamless

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100G QSFP28 Transceivers Hot-pluggable 100 Gigabit high-performance QSFP28 transceivers for long-distance serial optical

100G data rate without optical complexity Over the past several years, pluggable optics have progressed not only in speed, but also

As data centers, cloud computing, and enterprise networks demand higher bandwidth and faster data transmission,

Comprehensive guide to SFP, SFP+, SFP28, QSFP, and QSFP28 optical transceivers. Learn differences, compatibility, deployment

Discover everything about MikroTik QSFP28 modules and routers, including transceivers, Ethernet solutions, and the

Amphenol's 100G QSFP28 optical modules include SR4, AOC, AOC break out, CWDM4,

100Gbps QSFP28 Optical Modules QSFP-100G-CWDM4 QSFP28-100G-LR4 QSFP28-100G-SR4 QSFP-100G-4WDM-40 QSFP

The 100GBASE-LR Single Lambda QSFP28 Optical Transceiver Module is designed for use in 100GBASE Ethernet throughput upto

Amphenol 100G QSFP28 to QSFP28 Active Optical Cable assemblies are a reliable, cost and power efficient,

Web: <https://www.kremgroup.co.za>

