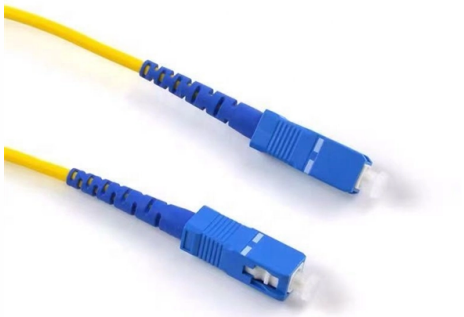
Selection Guide for Bestselling QSFP28 Optical Modules for Smart Buildings



Overview

A Complete Guide to Selecting 100G QSFP28 Optical Transceivers: This definitive guide cuts through the confusion, exploring all major 100G QSFP28 options –.

Key Takeaways

Choosing the right QSFP28 module for smart buildings requires matching fiber type, distance, switch compatibility, breakout needs, and budget to ensure reliable 100G connectivity. Understanding QSFP28 ModulesQSFP28 (Quad Small Form-factor Pluggable 28) is a hot-pluggable 100G Ethernet transceiver that uses four 25G lanes to achieve 100 Gbps throughput. It supports multiple optical technologies, including SR4 (short reach), LR4 (long reach), CWDM4, ER4, and ZR4, and can operate over multimode or single-mode fiber depending on the application.

The module is compatible with CAUI-4 electrical interfaces and can be broken out into four 25G connections if needed.

Step-by-

Step Selection Process

Define the Application Determine the type of connection: server-to-switch, switch-to-switch, data center interconnect (DCI), or metro/campus links. Short intra-building links typically use SR4, while inter-building or long-distance connections require LR4, CWDM4, ER4, or ZR4.

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Measure the Distance

Short reach (up to 100m): SR4 over OM3/OM4 multimode fiber. Medium reach (up to 10 km): LR4 or CWDM4 over single-mode fiber. Extended reach (40–80 km): ER4 or ZR4 for long-distance campus or metro connections.

Check Existing Cabling and Fiber Type

Multimode fiber (OM3/OM4) → SR4. Single-mode fiber → LR4, CWDM4, ER4, ZR4. No fiber or very short links → Direct Attach Copper (DAC) or Active Optical Cable (AOC) options.

Verify Switch Compatibility Ensure the switch or router supports QSFP28 ports. While QSFP28 modules may physically fit QSFP+ ports, signaling differences prevent full 100G operation. For future-proofing, QSFP-DD ports can also accept QSFP28 modules for 100G deployment.

Connector TypeSR4/PSM4: Multi-fiber ribbon cables with MPO/MTP connectors. LR4/ER4/CWDM4/ZR4: Single-mode fiber pairs with LC connectors. Budget and Cost SensitivityCost-effective: DAC or AOC for short distances.

Reliable mid-range: CWDM4. Premium long-range: LR4, ER4, ZR4, with higher cost for extended reach. Breakout Requirements If you need 100G → 4x25G breakout, select QSFP28 modules compatible with breakout cables to connect to multiple SFP28 ports.

Additional Considerations

Thermal and power constraints: Ensure the module's power consumption fits within the switch's thermal budget.

Vendor and MS

A compliance: Choose modules compliant with SFF-8665 or other MSA standards to ensure interoperability across different switch vendors. Future scalability: Consider QSFP-DD or PAM4 modules if planning for 400G or higher-speed upgrades. By following this framework, smart building network designers can select the optimal QSFP28 module that balances performance, cost, and compatibility, ensuring high-speed, reliable connectivity across servers, switches, and building-wide infrastructure.

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Article Content

A Complete Guide to Selecting 100G QSFP28 Optical Transceivers:

This definitive guide cuts through the confusion, exploring all major 100G QSFP28 options – from SR4 and LR4 to CWDM4, Single Lambda, and beyond – helping you make an

QSFP28 Module Types: Selection Guide for 100G Networks

Selecting the right QSFP28 module types comes down to three variables: distance, fiber infrastructure, and switch compatibility. Get any of these wrong, and you face costly returns,

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In this guide, we provide a comprehensive, practical overview of 100G QSFP28 modules, covering their working principles, module types, key specifications, typical applications, and a step-by-step

QSFP28 Transceiver: Complete 100G Connectivity

QSFP28 transceiver guide covering module types, pricing, compatibility, and deployment. Learn how to choose, deploy, and troubleshoot

Selecting the Right QSFP28 Module

With so many different QSFP28 optical transceiver modules available for 100G connections, it can sometimes be overwhelming to decide on which module is the right one. This

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Compare SFP, SFP+, SFP28, QSFP+ and QSFP28 in this 2026 selection guide. Learn where each form factor fits, decision rules, cost and risk

QSFP28 Module Types: Selection Guide for 100G Networks

QSFP28 module types explained: SR4, LR4, CWDM4, ER4, PSM4, and emerging single-lambda options. Learn how to choose the right 100G transceiver.

How to Choose QSFP28: Complete 100G Selection Guide

This guide provides a systematic selection process to help you choose the right QSFP28 module every time. You will learn how to verify form factor compatibility, match fiber and distance

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