

Which 800G optical module is more reliable



Article Overview

For reliability, 800G 2×DR4 modules are generally more robust for short-reach, high-performance data center applications, while 800G 2×FR4 modules offer reliable long-reach connectivity with easier maintenance.

800G 2×DR4 Modules

The 800G 2×DR4 optical module uses Parallel Single Mode (PSM) technology, distributing the 800G signal across eight independent 100G channels. This architecture minimizes internal complexity, reducing the number of components and power consumption, which enhances reliability in high-density, short-reach environments such as intra-rack or adjacent rack connections. The use of MPO-12/APC connectors lowers back-reflection and bit error rates, further improving signal integrity and operational stability. These modules are ideal for ultra-low latency applications like GPU clusters and high-performance computing networks, where consistent performance is critical .

800G 2×FR4 Modules

The 800G 2×FR4 module leverages Coarse Wavelength Division Multiplexing (CWDM4) to transmit four wavelengths over a single fiber pair, reducing fiber count by 75% compared to DR4. It supports distances up to 2 kilometers, making it suitable for cross-hall or inter-room connections. While the internal design is more complex due to optical filters and DSP for dispersion management, it provides simpler maint...

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