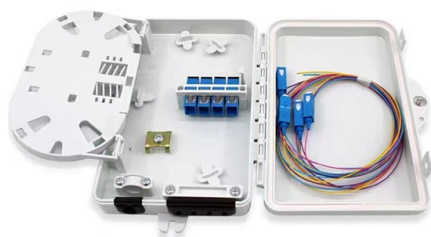


Optical Module Specifications and Models Comparison Table



AI Overview

Optical modules vary by form factor, data rate, modulation, and reach, with SFP, QSFP, and 400G modules being the most widely used in modern networks.

Overview of Optical Module Types

Module Type	Data Rate	Modulation	Typical Reach	Form Factor	Key Use		
Cases	SFP1G	NRZ	550 m (multimode), 10 km (single-mode)	Small Form-Factor			
Pluggable	Access networks, edge devices, legacy systems	SFP+10G	NRZ300 m-10 km	SFP	Data center uplinks, enterprise backbone		
SFP	High-speed server connections, 25G Ethernet	SFP56	50GPAM4100 m-10 km	SFP	AI inference servers, high-throughput NICs		
SFP-DD	Server ports, high-density deployments	QSFP28	100GPAM4100 m-10 km	Quad SFP	Data center aggregation, spine-leaf networks		
QSFP	Hyperscale data centers, AI clusters	CFP/CFP2/CFP4	100G-400GPAM42 km-10 km	Large form factor	Metro and long-haul networks		
400G DR4	400GPAM4, 4 lanes	500 m	QSFP-DD	AI clusters, hyperscale data centers	400G FR4	400GPAM4, CWDM 4 wavelengths	
2 km	QSFP-DD	Metro networks, enterprise backbone	400G LR8	400GPAM4, 8 wavelengths	10 km	QSFP-DD	Long-haul and inter-data center links

Key Technical Considerations

- Transmitter Optical Sub-Assembly (TOSA): Converts electrical signals to optical signals using laser diodes (LD) or LEDs. LDs are preferred for higher output power and efficiency, while LEDs are cost-effective for short distances ...

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datasheet is intended to guide the user through the various options available when choosing an optic module for a given platform

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