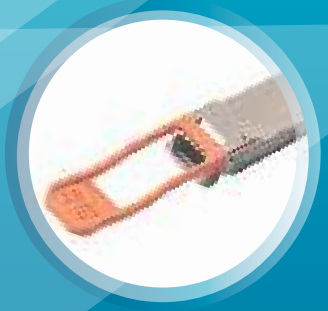
Guide
Public

PANDUIT™

CISCO
Partner

100G Fiber Optic Transceiver

Cable Ordering Guide: Cisco Nexus



Step 1:

Choose the correct Cisco transceiver for your application

Cisco 40/100G Optics: QSFP

Cisco Part Number	Reach	Media	Connector
QSFP-100G-SR4-S	100m	Parallel MMF	MPO
QSFP-40/100G-SRBD	100m	Duplex MMF	LC (40G or 100G)
QSFP-100G-PSM4-S	500m	Parallel SMF	MPO
QSFP-100G-SM-SR	2km	Duplex SMF	LC
QSFP-100G-CWDM4-S	2km	Duplex SMF	LC
QSFP-100G-FR-S	2km	Duplex SMF	LC
QSFP-100G-DR-S	500m	Duplex SMF	LC
QSFP-100G-LR-S	10km	Duplex SMF	LC
QSFP-100G-SL4	30m	Parallel MMF	MPO
QSFP-100G-SR1.2	100m	Duplex MMF	LC
QSFP-100G-ZR4-S	80km	Duplex SMF	LC

Did you know?

- As you increase data rates, reach decreases
- Only 10% of data centers exceed 100m
- Every connection introduces dB loss which further reduces the distance

Description

QSFP-100G-SR4-S

The **QSFP-100G-SR4-S** module supports 100GBASE-SR4 Ethernet over link lengths of up to 100m over parallel multimode fiber. The maximum reach over OM4 is 100m and 70m over OM3 MMF (Multi-Mode Fiber). The SR4-S module accepts MPO12 connectors and can interoperate with 4 individual 25G SR-S modules via a fiber breakout cable. It is primarily used in data center and enterprise applications.

QSFP-40/100G-SRBD

The **QSFP-40/100G-SRBD** dual-rate BiDi (Bi-Directional) transceiver is a pluggable optical transceiver with a duplex LC connector interface for short-reach data communication and interconnect applications using MMF. It offers customers a solution that enables reuse of their existing 10 Gb duplex MMF infrastructure for migration to either 40 or 100 Gigabit Ethernet connectivity.

In 40G mode, the Cisco QSFP 40/100G BiDi transceiver supports link lengths of 100m and 150m on OM3 and OM4 MMF, respectively. In 100G mode, it supports 70 and 100 meters on OM3 and OM4, respectively.

Each 40/100G BiDi transceiver consists of two transmit and receive channels in the 832-918 nm wavelength range, enabling an aggregated 40G or 100G link over a two-strand multimode fiber connection.

In 100G mode, the operating temperature range is +10 to +60°C and in 40G mode it is +10°C to +70°C. The QSFP28 40/100G BiDi module is primarily used in data center and enterprise applications.

QSFP-100G-PSM4-S

The **QSFP-100G-PSM4-S** module supports 100G link lengths of up to 500m over parallel G.652 SMF (Single-Mode Fiber). It accepts angle-polished MPO12 connectors and can interoperate with 4 individual 25G LR-S modules via a fiber breakout cable. PSM4-S complies with the PSM4 MSA and is primarily used in data center applications.

QSFP-100G-CWDM4-S and QSFP-100G-SM-SR

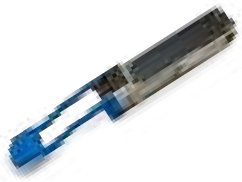
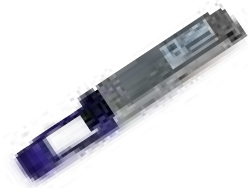
The **QSFP-100G-CWDM4-S** module supports 100G link lengths of up to 2km over duplex G.652 SMF. It accepts duplex LC connectors. The 100G Ethernet signal is carried over four wavelengths on the CWDM (Coarse Wavelength Division Multiplexing) grid. Multiplexing and demultiplexing of the four wavelengths are managed within the device. CWDM4-S complies with the CWDM4 MSA and is primarily used in data center and enterprise applications.

The QSFP28 SM-SR is for “Single-Mode Fiber Short Reach” applications and is also known as “CWDM4-Lite”. A variant of CWMD4-S, its operating temperature range is +10°C to +60°C instead of the standardcommercial temperature range of 0°C to 70°C.

Like CWDM4-S, SM-SR supports 100G link lengths of up to 2km over duplex G.651 SMF and accepts duplex LC connectors. However, its optical link loss budget is 4.2dB instead of 5.0dB as specified by the CWDM4 MSA. At 4.2dB, the link budget offers the ability to support the optical loss from patch panels in a data center environment. SM-SR is interoperable with CWDM4-S.

Step 1: Continued

Choose the correct Cisco transceiver for your application

	Description
 QSFP-100G-FR-S	The **QSFP-100G-FR-S** module supports 100G link lengths of up to 2km over duplex G.652 SMF. It accepts duplex LC connectors. FR-S is a single-lambda 100G optic and contains an internal processor chip that performs PAM4 (Pulse Amplitude Modulation), KP4 FEC (Forward Error Correction), and a gearbox to convert the 4x25G electrical signals from the host port to a single channel 100G optical signal. FR-S interoperates with 400G optical interfaces such as IEEE 400GBASE-DR4, and Cisco's 4x100G FR QSFP-DD module via fiber breakout cable. FR-S complies with the 100G-FR specification issued by the 100G Lambda MSA. It is primarily used in the data center, enterprise, and service provider applications.
 QSFP-100G-DR-S	The **QSFP-100G-DR-S** module supports 100G link lengths of up to 500m over duplex G.652 SMF. It accepts duplex LC connectors. The 100GbE signal is carried over a single wavelength using onboard PAM4 modulation and FEC. QS-FP-100GDR-S interoperates with 400G transceivers that comply with IEEE 400GBASE-DR4, such as Cisco's QSFP-400G-DR4-S, via fiber breakout cables.
 QSFP-100G-LR-S	The **QSFP-100G-LR-S** module supports 100G link lengths of up to 510km over duplex G.652 SMF. It accepts duplex LC connectors. The 100GbE signal is carried over a single wavelength using onboard PAM4 modulation and FEC.
 QSFP-100G-SL4	The **QSFP-100G-SL4** module supports link lengths up to 30m over OM4 MMF with MPO-12 connectors. It primarily enabled high-bandwidth optical links over 12-fiber parallel fiber terminated with MPO connectors. This transceiver supports 100GBase Ethernet rate. It is interoperable with QSFP-100G-SR4-S and SFP-25G-SL or SFP-25G-SR-S in breakout mode where in all cases the reach is limited to 30 m
 QSFP-100G-SR1.2	The **QSFP-100G-SR1.2** module supports link lengths of up to 100m over OM4 2-fiber cable with duplex LC connectors. The transceiver is compliant with IEEE802.3bm 100GBASE-SR4 standards, and operates 50Gb PAM4 channels bidirectionally, for an aggregate bandwidth of 100GbE. The QSFP-100G-SR1.2 BiDi will not operate with the Cisco QSFP-40/100-SRBD. It is single rate, 100G only and it is interoperable with the future QDD-400G-SR4.2-BD in a 4x100G mode.
 QSFP-100G-ZR4-S	The **QSFP-100G-ZR4-S** module supports 100G link lengths of up to 80km over duplex G.652 SMF. The 100GbE signal is carried over four wavelengths on the LAN WDM grid. Multiplexing and demultiplexing of the four wavelengths are managed within the device and requires RS-FEC forward error correction. The ZR4-S module accepts duplex LC connectors in a standard QSFP28 form factor. It is primarily used in wireless aggregation, service provider, data center and enterprise applications.

Step 2:

Identify the enclosure system(s) that meet your application needs. Universal wired fiber cassettes provide optimal interoperability across fiber cabling systems.

For more information about universal wired fiber cassettes, see our video.

HD Flex™ Fiber Enclosures

The HD Flex™ Fiber Cabling System is the highest density solution designed to set you free by removing the barriers of architecture, deployment, scalability and maintenance challenges.

- Provides up to 144 fibers (72 duplex ports) per RU of density
- Enclosures and panels are adaptable between 4, 6, and 12-port configurations
- Split tray feature allows each half of the tray to be pulled out independently

For more information about the HD Flex™ Fiber Cabling System, reference the system brochure or visit panduit.com/hdflex

QuickNet™ Patch Panels

Panduit QuickNet™ Patch Panels provide the flexibility to deployment both copper and fiber connectivity in the same RU.

- High-density patch panels conserve valuable rack space with 96 fibers (48 duplex ports) per RU
- Available in flat or angled patch panels to facilitate proper bend radius control and minimize the need for horizontal cable managers

For more information about the QuickNet™ Fiber Cabling System, reference the QuickNet™ Data Center Application Guide

Opticom® Fiber Enclosures

Opticom® Fiber Enclosures accept pre-terminated, splice-on, and field terminated fiber connectivity.

- Slide-out, tilt-down drawer provides up to 96 LC fibers per RU
- Integral bend radius control and cable management for fiber optic patch cords

For more information about the Opticom® Fiber Enclosures, reference the spec sheet

PanMPO™ Fiber Connector

The PanMPO™ Fiber Connector is a unique, patented MPO design that specifically addresses today's needs for fast and efficient Ethernet and Fiber Channel migration to help maximize return on cabling infrastructure investment and minimize downtime. Protect your investments today; minimizing installed cost of high-speed data center engineered links securing your position as a next-generation data center prepared to face future demands.

- Innovative push-pull boot to allow for easy installation and removal
- Alignment pins and tool are permanently housed and protected inside the connector allowing for a tool-less change of gender and polarity
- Easy migration from serial duplex (SR/SR/BiDi) to parallel (SR4.x) while maintaining compliance with cabling standards (TIA and ISO/IEC)
- Connector cleaning – the pin retraction feature allows for complete cleaning of the MPO surface
- Link certification – the gender changing ability of PanMPO™ on test leads allows for multiple test scenarios without the need for multiple test lead styles (which increase test variability)
- Mistake proofing – PanMPO™ Patch Cords can be reconfigured for gender and polarity in the field

For more information on the PanMPO™ Fiber Connector, visit panduit.com/panmpo.

Signature Core™ Fiber Optic Cabling System

Signature Core™ OM4+ and OM5+ Fiber Optic Cabling Systems extend the reach of standards-based Ethernet, BiDi, and Shortwave Wavelength Division Multiplexing (SWDM). Both are fully compliant and interoperable with standards based OM3, OM4 and OM5 solutions.

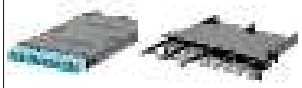
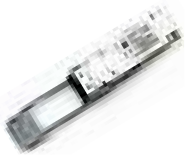
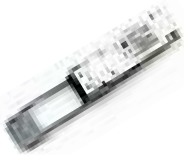
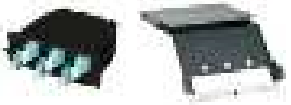
- Signature Core™ OM4+ Cabling extends reach on average by 20% compared to standard OM4
- Signature Core™ OM5+ Cabling outperforms the standard OM5 fiber for any SWDM applications, providing on average 15% extended reach while maintaining Bit Error Rate performance
- Signature Core™ Fiber Media solutions allow for design flexibility (more connectors in the channel)

For more information on the Signature Core™ Fiber Optic Cabling System, visit here.

Step 3:

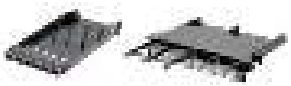
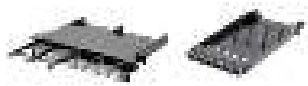
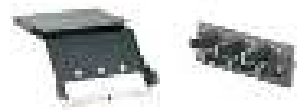
Select the components to build out your end-to-end fiber connectivity channel.

100G Multimode Fiber Options for Multimode: QSFP-40/100-SRBD, 100G-SR1.2

Patch Cords	Cassettes	Enclosures	Trunk Cable	Enclosures	Cassettes	Patch Cords
LC	HD Flex		MPO12 OM4 Method B (Female to Female)	HD Flex		LC
						
	FHCZO-12-10U	FLEX1U06		FLEX1U06	FHCZO-12-10U	
	QuickNet			QuickNet		
						
QSFP-100G-SR1.2	FZ2E^LNLNSNM*	FQZO-12-10U	FYZT^^77Y001F*	QAPP24BL	FQZO-12-10U	FZ2E^LNLNSNM*	QSFP-100G-SR1.2
		QAPP24BL				
	Opticom			Opticom		
						
	FC2ZO-12-10U	FCE1U		FCE1U	FC2ZO-12-10U	

*Patch cords and trunk cables are available in a variety of lengths, feet or meters; select the part numbers for additional information.
^Patch cords are available in R = ONFR (Riser) or L = LSZH.
^^Trunk cables are available in P = OFNP (Plenum), L = LSZH or B = Euroclass B2ca.

100G Multimode Fiber Options for Multimode: QSFP-100G-SR4-S, 100G-SL4

Interconnect	Fiber Adapter Panels	Enclosures	Trunk Cable	Enclosures	Fiber Adapter Panels	Interconnect
MPO12	HD Flex		MPO12 OM4 Method B (Male to Male)	HD Flex		MPO12
						
	FHMP-6-BCG	FLEX1U06		FLEX1U06	FHMP-6-BCG	
	QuickNet			QuickNet		
						
QSFP-100G-SL4	FRZT^77Y001F*	FQMAP66CG	FYZT^^88Y001F*	QAPP24BL	FQMAP66CG	FRZT^77Y001F*	QSFP-100G-SL4
		QAPP24BL				
	Opticom			Opticom		
						
	FAPH0612CG-MPO	FCE1U		FCE1U	FAPH0612CGMPO	

*Interconnects and trunk cables are available in a variety of lengths, feet or meters; select the part numbers for additional information.
^Interconnects are available in P = ONFP (Plenum), L = LSZH or C = Euroclass Cca.
^^Trunk cables are available in P = OFNP (Plenum), L = LSZH or B = Euroclass B2ca.

VISIT OUR PART CONFIGURATORS AT
www.panduit.com/partconfigurators

(continued on next page)

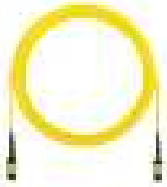
Step 3: Continued

Select the components to build out your end-to-end fiber connectivity channel.

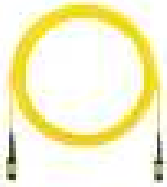
100G Singlemode Options for: QSFP-100G-PSM4-S

Interconnect	Fiber Adapter Panels	Enclosures	Trunk Cable	Enclosures	Fiber Adapter Panels	Interconnect
MPO12	HD Flex		MPO12 OS2 Method B (Male to Male)		HD Flex	MPO12
	FHMP-6-ABL	FLEX1U06		FLEX1U06	FHMP-6-ABL	
	QuickNet				QuickNet	
	FQMAP65BL	QAPP24BL		QAPP24BL	FQMAP65BL	
	Opticom				Opticom	
	FAPH0612BLMPO	FCE1U		FCE1U	FAPH0612BLMPO	


QSFP-100G-PSM4-S


FR9T^77B001F*


FY9T^^88B001F*


FR9T^77B001F*


QSFP-100G-PSM4-S

*Interconnects and trunk cables are available in a variety of lengths, feet or meters; select the part numbers for additional information.
^Interconnects are available in P = OFNP (Plenum), L = LSZH or C = Euroclass Cca.
^^Trunk cables are available in P = OFNP (Plenum), L = LSZH or B = Euroclass B2ca.

100G Singlemode Options for: QSFP-100G-SM-SR, QSFP-100G-CWDM4-S, QSFP-100G-FR-S, QSFP-100G-DR-S QSFP-100G-LR-S and QSFP-100G-ZR

Patch Cords	Cassettes	Enclosures	Trunk Cable	Enclosures	Cassettes	Patch Cords
LC	HD Flex		MPO12 OS2 Method B (Female to Female)		HD Flex	LC
	FHC9N-12-10U	FLEX1U06		FLEX1U06	FHC9N-12-10U	
	QuickNet				QuickNet	
	FQ9N-12-10U	QAPP24BL		QAPP24BL	FQ9N-12-10U	
	Opticom				Opticom	
	FC29N-12-10U	FCE1U		FCE1U	FC29N-12-10U	


QSFP-100G-SM-SR


QSFP-100G-CWDM4-S


QSFP-100G-FR-S


QSFP-100G-DR-S


QSFP-100G-LR-S


QSFP-100G-ZR4-S


F92E^LNLNSNM*


FY9T^^77B001F*


F92E^LNLNSNM*


QSFP-100G-SM-SR


QSFP-100G-CWDM4-S


QSFP-100G-FR-S


QSFP-100G-DR-S


QSFP-100G-LR-S


QSFP-100G-ZR4-S

*Patch cords and trunk cables are available in a variety of lengths, feet or meters; select the part numbers for additional information.
^Patch cords are available in R = ONFR (Riser) or L = LSZH.
^^Trunk cables are available in P = OFNP (Plenum), L = LSZH or B = Euroclass B2ca.

VISIT OUR PART CONFIGURATORS AT
www.panduit.com/partconfigurators

For more information on the complete Panduit Fiber Solution, reference the Fiber Solutions Quick Reference Guide

Guide
Public

For other Panduit, Cisco related resources, visit www.panduit.com/panduitciscoalliance.

PANDUIT™

Panduit Corp.
World Headquarters
Tinley Park, IL 60487

800.777.3300

www.panduit.com

 FBSG02-WW-ENG 5/2023