

# Cisco S-Class 40GBASE QSFP Modules

## Product Overview

The Cisco® 40GBASE QSFP (Quad Small Form-Factor Pluggable) portfolio (shown in Figure 1; more details in Table 1) offers customers high-density and low-power 40 Gigabit Ethernet connectivity options for data center, high-performance computing networks, enterprise core, and distribution layers applications.

**Figure 1.** Cisco 40GBASE QSFP Modules



## Features and Benefits

- Hot-swappable input/output device that plugs in to a 40 Gigabit Ethernet Cisco QSFP port
- Commercial Temperature (0 to 70°C) only
- Interoperable with other IEEE-compliant 40GBASE interfaces where applicable
- Cisco quality identification (ID) feature that enables a Cisco platform to identify - optics supported by Cisco technology
- High-speed electrical interface compliant to the IEEE 802.3ba standard only
- 1-year limited warranty

**Table 1.** Cisco S-Class QSFP40G Portfolio

Product	Type	Connector Type
Cisco QSFP-40G-SR4-S	40GBASE-SR4, 4 lanes, 850 nm MMF	MPO-12
Cisco QSFP-40G-LR4-S	40GBASE-LR4, 1310 nm, SMF	LC

## Cisco QSFP-40G-SR4-S

The Cisco 40GBASE-SR4 QSFP module supports link lengths of 100 and 150 meters, respectively, on laser-optimized OM3 and OM4 multimode fibers. It primarily enables high-bandwidth 40G optical links over 12-fiber parallel fiber terminated with MPO/MTP multifiber connectors. Cisco QSFP-40G-SR4-S is optimized to guarantee interoperability with any IEEE-compliant 40GBase-SR4 module.

## Cisco QSFP-40G-LR4-S

The Cisco 40GBASE-LR4 QSFP module supports link lengths of up to 10 kilometer over a standard pair of G.652 single-mode fiber with duplex LC connectors. The QSFP-40G-LR4-S module supports 40GBase Ethernet rate only. The 40 Gigabit Ethernet signal is carried over four wavelengths. Multiplexing and demultiplexing of the four wavelengths are managed in the device.

## Technical Specifications

Following are the technical specifications for platform support, and connectors and cabling.

### Platform Support

Cisco QSFP modules are supported on Cisco switches. For more details, refer to the document "[Cisco 40 Gigabit Ethernet Transceiver Modules Compatibility Matrix.](#)"

### Connectors and Cabling

See Table 2 for connector type information and cabling specifications for each QSFP product.

**Note:** Only connections with patch cords with PC or ultra-physical contact (UPC) connectors are supported. Patch cords with angled physical contact (APC) connectors are not supported. All cables and cable assemblies used must be compliant with the standards specified in the standards section of this data sheet.

**Table 2.** QSFP Port Cabling Specifications

Cisco QSFP	Wavelength (nm)	Cable Type	Core Size (Microns)	Modal Bandwidth (MHz·km) <sup>3</sup>	Cable Distance <sup>1</sup>	Power Consumption (W)	Pull Tab Color
Cisco QSFP-40G-SR4-S	850	MMF	50.0 50.0	2000 (OM3) 4700 (OM4)	100m 150m <sup>2</sup>	1.5	Beige
Cisco QSFP-40G-LR4-S	1310	SMF	G.652	-	10km	3.5	Blue

<sup>1</sup> Minimum cabling distance is 0.5 meters for -SR4 and -CSR4 modules and 2 meters for -LR4 according to the IEEE 802.3 standard.

<sup>2</sup> Considered an engineered link with maximum 1 decibel loss budget.

<sup>3</sup> Specified at transmission wavelength.

Table 3 shows the key optical characteristics for the Cisco QSFP modules.

**Table 3.** Optical Characteristics

Product	Type	Transmit Power (dBm) <sup>5</sup>		Receive Power (dBm) <sup>5</sup>		Transmit and Receive Wavelength (nm)
		Maximum	Minimum	Maximum	Minimum	
Cisco QSFP-40G-SR4-S	40GBASE-SR4, 4 lanes, 850 nm MMF	2.4, per lane	-7.6, per lane	2.4, per lane	-9.5, per lane	840 to 860
Cisco QSFP-40G-LR4-S	40GBASE-LR4, 1310 nm, SMF	2.3, per lane	-7, per lane	2.3, per lane	-13.7, per lane	Four lanes: 1271, 1291, 1311, 1331

<sup>5</sup> Transmitter and receiver power is average, unless specified.

## Dimensions

Maximum outer dimensions for the Cisco QSFP connector module are (H x W x D) 13.5 x 18.4 x 72.4 millimeters.

Cisco QSFP connector module typically weigh 100 grams or less.

## Environmental Conditions

Operating temperature range:

- Commercial temperature range: 0 to 70°C (32 to 158°F).
- Storage temperature range: -40 to 85°C (-40 to 185°F).

## Warranty

- Standard warranty: 1 year.
- Extended warranty (optional): Cisco QSFP modules can be covered in a Cisco SMARTnet® Service support contract for the Cisco platform chassis.

## Ordering Information

Table 4 provides the ordering information for Cisco SFP+ modules and related cables.

**Table 4.** Ordering Information

Description	Product Number
<b>QSFP Optics Modules</b>	
Cisco 40GBASE-SR4 QSFP Module for MMF	QSFP-40G-SR4-S
Cisco 40GBASE-LR4 QSFP Module for SMF	QSFP-40G-LR4-S

## Regulatory and Standards Compliance

Following is information about complying with standards and safety regulations.

### Standards:

- GR-20-CORE: Generic requirements for optical fiber and optical fiber cable
- GR-326-CORE: Generic requirements for single-mode optical connectors and jumper assemblies
- GR-1435-CORE: Generic requirements for multifiber optical connectors
- IEEE 802.3ba (-SR4, -LR4)
- QSFP+ MSA SFF-8436
- SFP+ MSA SFF-8431 and -8461
- RoHS 6

### Safety:

- Laser Class 1M per IEC60825-1 and CFR 21 Section 1040

For other QSFP 40 gigabit modules and cables, refer to the following link:

<http://www.cisco.com/c/en/us/products/collateral/switches/nexus-9000-series-switches/datasheet-c78-730160.html>.

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## Additional Information

For more information about Cisco 40GBASE QSFP optics and copper modules, contact your sales representative or visit [http://www.cisco.com/en/US/products/hw/modules/ps5455/prod\\_module\\_series\\_home.html](http://www.cisco.com/en/US/products/hw/modules/ps5455/prod_module_series_home.html).




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