

AskF5 Home / Knowledge Center / F5 Platforms: Accessories / Transceiver Modules

Manual Chapter : Transceiver Modules

Applies To:
Show Versions 



Transceiver Modules

Copper SFP modules

These copper GbE SFP transceiver modules are supported in F5[®] products.

1000BASE-T network segments have a maximum length of 328 feet (100 meters) and must use Category 5 cable minimum. F5[®] recommends Category 5e or Category 6.

F5 only provides support for F5-branded or F5-provided optical modules.

All photos shown are examples. The appearance of your components or accessories might vary slightly.

SKU: F5-UPG-SFPC-R (OPT-0051-xx/OPT-0015-xx)

These are specifications for the 1000BASE-T Copper Ethernet transceiver module.

**Module**

1000BASE-T Copper Ethernet transceiver module

Connector type

RJ45

Maximum operating distance

328 feet (100 meters)

Cable specifications

Minimum Category 5 (Cat5) with Category 5 UTP; Cat5e or Cat6 recommended

Standards compliance

IEEE 802.3ab (1000BASE-T)

DDM

No

Supported platforms

2000, 4000, 5000, 7000, 10000, 12000, i2000, i4000, i5000, i7000, i10000, i11000

Specifications are subject to change without notification.

Fiber SFP modules

These fiber GbE SFP (or Mini-GBIC) transceiver modules are supported in F5[®] products.

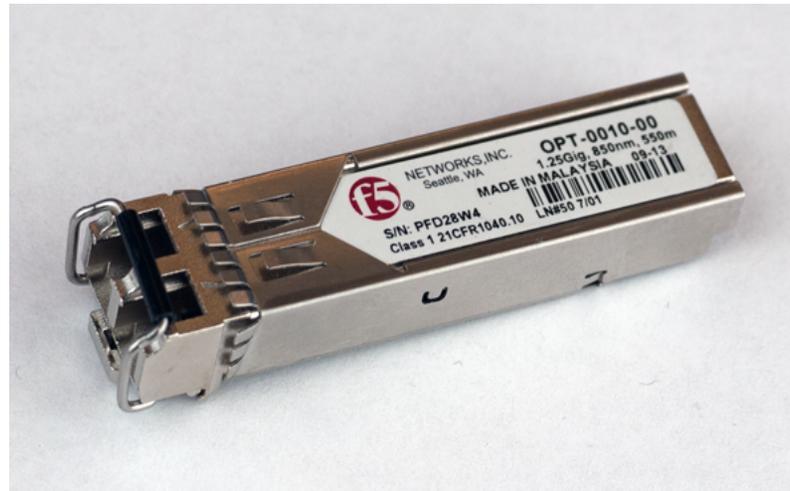
F5 only provides support for F5-branded or F5-provided optical modules.

All photos shown are examples. The appearance of your components or accessories might vary slightly.

SKU: F5-UPG-SFP-R (OPT-0010-xx)

These are specifications for the 1000BASE-SX (Short Range) Ethernet transceiver module.

You must ensure suitability of both the optical fiber and the laser transceiver on the other end.



Module

1000BASE-SX (Short Range) Ethernet transceiver module

Laser emitter

850 nm (multi-mode)

Connector type

Duplex LC

Operating distance/cable specifications

- 275 meters maximum of 62.5 μ m MMF that meets type A1a defined in IEC 60793-2:1992
- 550 meters maximum of 50.0 μ m MMF that meets type A1b defined in IEC 60793-2:1992

Standards compliance

IEEE 802.3z (1000BASE-SX)

DDM

No

Supported platforms

1600, 2000, 3600, 3900, 4000, 5000, 6900, 7000, 8900, 8950, 10000, 11000, 11050, 12000, i2000, i4000, i5000, i7000, i10000, i11000, VIPRION® (B2100, B2150, B4100, B4200, and B4300 blades)

Specifications are subject to change without notification.

SKU: F5-UPG-SFPLX-R (OPT-0050-xx/OPT-0011-xx)

These are specifications for the 1000BASE-LX (Long Range) Ethernet transceiver module.

You must ensure suitability of both the optical fiber and the laser transceiver on the other end.



Module

1000BASE-LX (Long Range) Ethernet transceiver module

Laser emitter

1310 nm (single-mode)

Connector type

Duplex LC

Operating distance/cable specifications

- Up to 10 kilometers maximum on 9/125µm SMF using 10µm SMF that meets type B1 in IEC 60793-2:1992

When using MMF, single-mode, fiber offset-launch mode-conditioning patch cords are required in both ends of the link, as specified in IEEE 802.3-2005 section 38.11.4.

Standards compliance

IEEE 802.3z (1000BASE-LX)

DDM

No

Supported platforms

1600, 2000, 3600, 3900, 4000, 5000, 6900, 7000, 8900, 8950, 10000, 11000, 11050, 12000, i2000, i4000, i5000, i7000, i10000, i11000, VIPRION[®] (B2100, B2150, B4100, B4200, and B4300 blades)

Specifications are subject to change without notification.

Fiber SFP+ modules

These fiber 10GbE SFP+ transceiver modules are supported in F5[®] products.

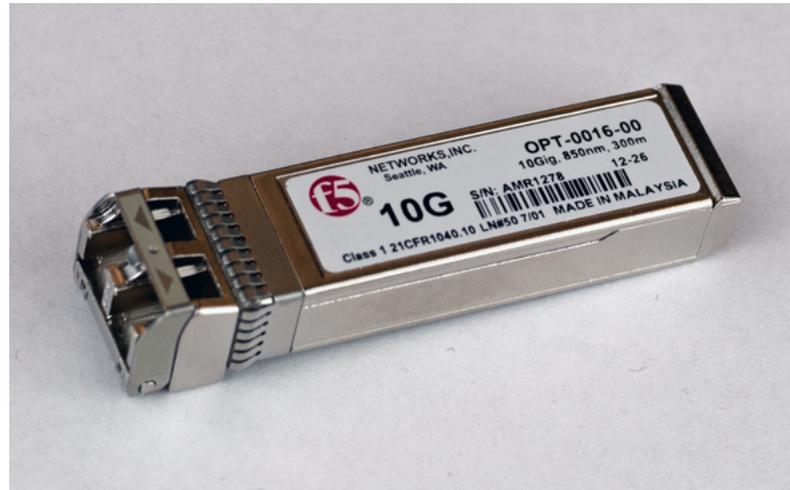
F5 only provides support for F5-branded or F5-provided optical modules.

All photos shown are examples. The appearance of your components or accessories might vary slightly.

SKU: F5-UPG-SFP+-R (OPT-0016-xx)

These are specifications for the 10GBASE-SR (Short Range) Ethernet transceiver module.

You must ensure suitability of both the optical fiber and the laser transceiver on the other end.



Module

10GBASE-SR (Short Range) 10G Ethernet Transceiver Module

Laser emitter

850 nm (multi-mode)

Connector type

Duplex LC

Operating distance/cable specifications

- 26 meters maximum for type 160MHz-km 62.5µm MMF
- 33 meters maximum for type OM1 200MHz-km 62.5µm MMF
- 66 meters maximum for type 400MHz-km 50.0 µm MMF
- 82 meters maximum for type OM2 500MHz-km 50.0µm MMF
- 300 meters maximum for type OM3 2000MHz-km 50.0µm MMF

Standards compliance

IEEE 802.3ae (10GBASE-SR)

DDM

Yes

Supported platforms

2000, 4000, 5000, 7000, 8900, 8950, 10000, 11000, 11050, 12000, i2000, i4000, i5000, i7000, i10000, i11000, VIPRION (B2100, B2150, B4100, B4200, and B4300 blades)

Specifications are subject to change without notification.

SKU: F5-UPG-SFP+LR-R (OPT-0017-xx)

These are specifications for the 10GBASE-LR (Long Range) 10G Ethernet transceiver module.

You must ensure suitability of both the optical fiber and the laser transceiver on the other end.



Module

10GBASE-LR (Long Range) 10G Ethernet transceiver module

Laser emitter

1310 nm (single-mode)

Connector type

Duplex LC

Operating distance/cable specifications

10 kilometers maximum on 8-10µm SMF (ITU-T G.652)

Standards compliance

IEEE 802.3ae (10GBASE-LR)

DDM

No

Supported platforms

2000, 4000, 5000, 7000, 8900, 8950, 10000, 11000, 11050, 12000, i2000, i4000, i5000, i7000, i10000, i11000, VIPRION (B2100, B2150, B4100, B4200, and B4300 blades)

Specifications are subject to change without notification.

Fiber QSFP+ modules

These fiber 40GbE QSFP+ transceiver modules are supported in F5[®] products.

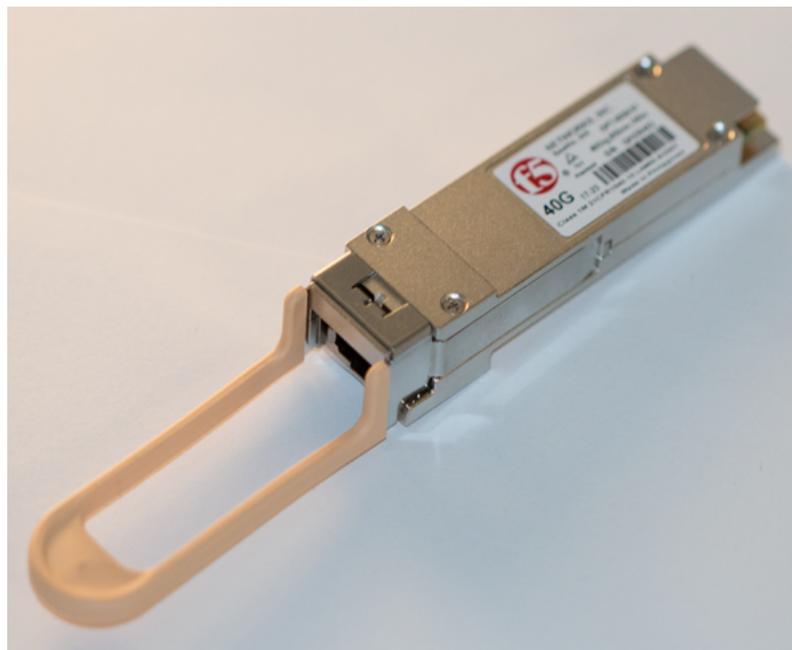
F5 only provides support for F5-branded or F5-provided optical modules.

All photos shown are examples. The appearance of your components or accessories might vary slightly.

SKU: F5-UPG-QSFP+SR4 (OPT-0036-xx)

These are specifications for the 40GBASE-SR4 100m QSFP+ Optical transceiver module.

You must ensure suitability of both the optical fiber and the laser transceiver on the other end.

**Module**

40GBASE-SR4 100m QSFP+ optical transceiver module

Laser emitter

850 nm (multi-mode)

Connector type

MPO/MTP

Operating distance/cable specifications

- 100 meters on OM3 MMF
- 150 meters on OM4 MMF

Standards compliance

IEEE 802.3ba (40GBASE-SR4)

DDM

Yes

Supported platforms

10000, 12000, i5000, i7000, i10000, i11000, i15000, VIPRION (B2250, B4300, and B4450 blades), VELOS (BX110 blade)

Specifications are subject to change without notification.

SKU: F5-UPG-QSFP+ (OPT-0025-xx) (no longer available)

These are specifications for the 40GBASE-SR4 100m QSFP+ optical transceiver module.

You must ensure suitability of both the optical fiber and the laser transceiver on the other end.



Module

40GBASE-SR4 100m QSFP+ optical transceiver module

Laser emitter

850 nm (multi-mode)

Connector type

MPO/MTP

Operating distance/cable specifications

- 100 meters on OM3 MMF
- 150 meters on OM4 MMF

Standards compliance

IEEE 802.3ba (40GBASE-SR4)

DDM

No

Supported platforms

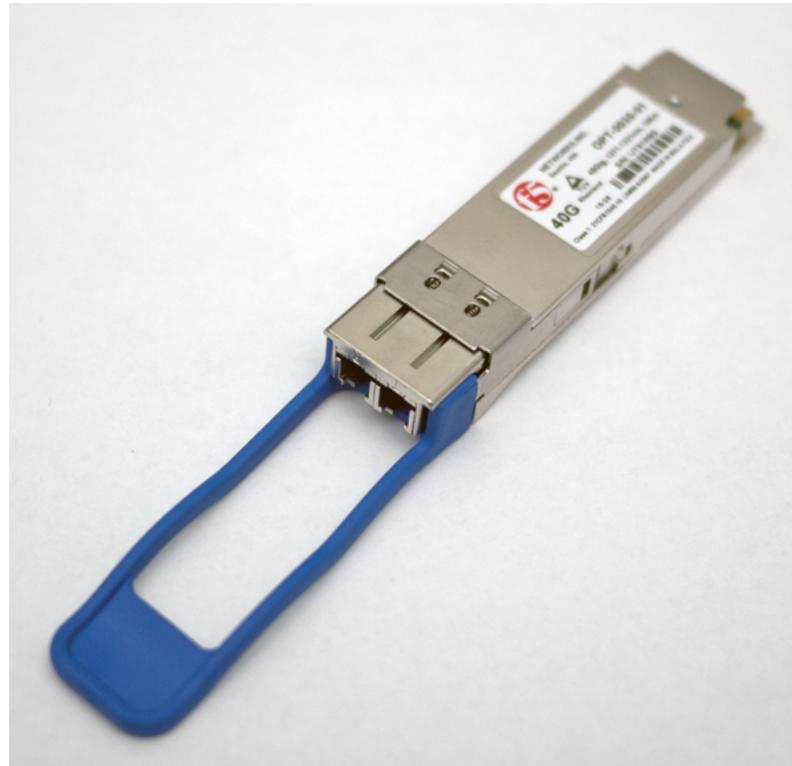
10000, 12000, i5000, i7000, i10000, i11000, i15000, VIPRION[®] (B2250, B4300, and B4450 blades)

Specifications are subject to change without notification.

SKU: F5-UPG-QSFP+LR4 (OPT-0030-xx)

These are specifications for the 40GBASE-LR4 10km QSFP+ optical transceiver module.

You must ensure suitability of both the optical fiber and the laser transceiver on the other end.



Module

40GBASE-LR4 10km QSFP+ optical transceiver module

Laser emitter

1271-1331 nm (single mode)

Connector type

Duplex LC

Operating distance/cable specifications

10 kilometers maximum on SMF (ITU-T G.652)

Standards compliance

IEEE 802.3ba (40GBASE-LR4)

DDM

Yes

Supported platforms

10000, 12000, i5000, i7000, i10000, i11000, i15000, VIPRION[®] (B2250, B4300, and B4450 blades), VELOS (BX110 blade)

Specifications are subject to change without notification.

SKU: F5-UPG-QSFP+BD (OPT-0043-xx)

These are specifications for the Bi-Directional (BiDi) 40G QSFP+ optical transceiver module.

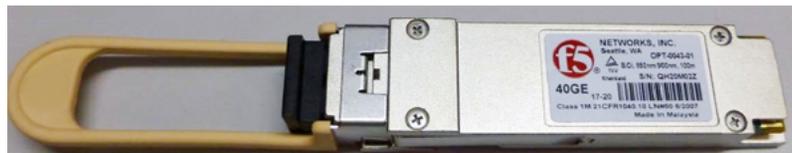
Standard 10G infrastructure uses one fiber for transmission and another fiber for reception. **BiDi** transceiver modules support two wavelengths per fiber, supporting 20Gbps per fiber, with a total of 40Gbps.

BiDi is supported only in BIG-IP software version 12.1.3 and later.

F5 only provides support for F5-branded or F5-provided optical modules.

You must ensure suitability of both the optical fiber and the laser transceiver on the other end.

All photos shown are examples. The appearance of your components or accessories might vary slightly.



Module

Bi-Directional 40G QSFP+ optical transceiver module

Laser emitter

850-900 nm

Connector type

Duplex LC

Operating distance/cable specifications

100 meters maximum on OM3 MMF and 150 meters maximum on OM4 MMF

DDM

Yes

Supported platforms

10000, 12000, i5000, i7000, i10000, i11000, i15000, VIPRION (B2250 blade), VELOS (BX110 blade)

VIPRION 4300 and 4400 Series blades do not support BiDi transceiver modules.

The operating temperature for this transceiver module is +10C to +70C. In case of a cold start (below +10C), you should hot swap the module when the system reads +11C from the module. If you insert a BiDi module, the operating range of the entire unit starts from +11C.

Specifications are subject to change without notification.

SKU: F5-UPG-QSFP+PSM4 (OPT-0045-xx)

These are specifications for the 40GBASE QSFP+ PSM4 optical transceiver module.

The QSFP+ PSM4 module has four identical and independent lanes, which provide either a point-to-point 40Gbps link over eight single mode fibers up to 10km or four independent 10Gbps links each over two single mode fibers up to 10km (interoperable with 10GBASE-LR).

This module is supported only in BIG-IP software version 12.1.4 and later.

F5 only provides support for F5-branded or F5-provided optical modules.

You must ensure suitability of both the optical fiber and the laser transceiver on the other end.

All photos shown are examples. The appearance of your components or accessories might vary slightly.

**Module**

40GBASE-PSM4 QSFP+ optical transceiver module

Laser emitter

1310 nm

Connector type

MPO/MTP

Operating distance/cable specifications

10 kilometers maximum

DDM

Yes

Supported platforms

10000, 12000, i5000, i7000, i10000, i11000, i15000, VIPRION (B2250 and B4400 blades), VELOS (BX110 blade)

VIPRION 4300 Series blades do not support these transceiver modules.

Specifications are subject to change without notification.

Fiber QSFP28 modules

These fiber 100GbE QSFP28 transceiver modules are supported in F5[®] products.

F5 only provides support for F5-branded or F5-provided optical modules.

All photos shown are examples. The appearance of your components or accessories might vary slightly.

SKU: F5-UPG-QSFP28-SR4 (OPT-0031-xx)

These are specifications for the 100GBASE-SR4 100m QSFP28 optical transceiver module.

You must ensure suitability of both the optical fiber and the laser transceiver on the other end.



Module

100GBASE-SR4 100m QSFP28 optical transceiver module

Laser emitter

850 nm (multi-mode)

Connector type

MPO/MTP

Operating distance/cable specifications

- 70 meters on OM3 MMF
- 100 meters on OM4 MMF

Standards compliance

IEEE 802.3bm (100GBASE-SR4)

DDM

Yes

Supported platforms

i15000, VIPRION[®] (B4450 blades), VELOS (BX110 blade)

Specifications are subject to change without notification.

SKU: F5-UPG-QSFP28-LR4 (OPT-0039-xx)

These are specifications for the 100GBASE-LR4 10 km QSFP28 optical transceiver module.

You must ensure suitability of both the optical fiber and the laser transceiver on the other end.



Module

100GBASE-LR4 QSFP28 10km optical transceiver module

Laser emitter

1295-1310 nm (single mode)

Connector type

Duplex LC

Operating distance/cable specifications

10 kilometers maximum on SMF (ITU-T G.652)

Standards compliance

IEEE 802.3ba (100GBASE-LR4)

DDM

Yes

Supported platforms

i15000, VIPRION (B4450 blade), VELOS (BX110 blade)

Specifications are subject to change without notification.

SKU: F5-UPGVELQSFP28LR4 (OPT-0052-xx)

These are specifications for the 100GBASE-LR4 10 km QSFP28 optical transceiver module.

You must ensure suitability of both the optical fiber and the laser transceiver on the other end.

Module

100GBASE-LR4 QSFP28 10km optical transceiver module

Laser emitter

1295-1310 nm (single mode)

Connector type

Duplex LC

Operating distance/cable specifications

10 kilometers maximum on SMF (ITU-T G.652)

Standards compliance

IEEE 802.3ba (100GBASE-LR4)

DDM

Yes

Supported platforms

VELOS (BX110 blade)

Specifications are subject to change without notification.

SKU: F5-UPGVELQSFP28PSM4 (OPT-0055-xx)

These are specifications for the 100G PSM4 QSFP28 optical transceiver module.

The 100G PSM4 QSFP28 module has four identical and independent lanes, which provide either a point-to-point 100Gbps link over eight single mode fibers up to 500m or four independent 25Gbps links each over two single mode fibers up to 500m (interoperable with 25GBASE-LR).

F5 only provides support for F5-branded or F5-provided optical modules.

You must ensure suitability of both the optical fiber and the laser transceiver on the other end.

All photos shown are examples. The appearance of your components or accessories might vary slightly.



Module

100G PSM4 QSFP28 optical transceiver module

Laser emitter

1310 nm

Connector type

MPO/MTP

Operating distance/cable specifications

500 meters maximum

DDM

Yes

Supported platforms

VELOS (BX110 blade)

Specifications are subject to change without notification.

SKU: SHP-0284-xx (OPT-0047-xx) (limited availability)

These are specifications for the Bi-Directional (BiDi) 100G QSFP28 optical transceiver module.

Standard infrastructure uses one fiber for transmission and another fiber for reception. **BiDi** transceiver modules support two wavelengths per fiber, supporting 50Gbps per fiber, with a total of 100Gbps.

There is limited availability of this transceiver module. For more information, contact your F5 representative.

F5 only provides support for F5-branded or F5-provided optical modules.

You must ensure suitability of both the optical fiber and the laser transceiver on the other end.

All photos shown are examples. The appearance of your components or accessories might vary slightly.



Module

Bi-Directional 100G QSFP28 optical transceiver module

Laser emitter

850-910 nm

Connector type

Duplex LC

Operating distance/cable specifications

70 meters maximum on OM3 MMF, 100 meters maximum on OM4 MMF, and 150 meters maximum on OM5 MMF.

DDM

Yes

Supported platforms

VELOS (BX110 blade)

VIPRION 4300 and 4400 Series blades do not support 100G BiDi transceiver modules.

The operating temperature for this transceiver module is +10C to +70C. In case of a cold start (below +10C), you should hot swap the module when the system reads +11C from the module. If you insert a BiDi module, the operating range of the entire unit starts from +11C.

Specifications are subject to change without notification.

Transceiver Module Updates

F5 provides a package (f5optics) that you can download and install to your system to get the latest updates for F5-branded transceiver modules.

For more information, see *Installation Guide: f5optics Package for Optical Transceiver Modules* at techdocs.f5.com/en-us/hw-platforms/installation-guide-f5optics-package.html.

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