TRANSITION NETWORKS®

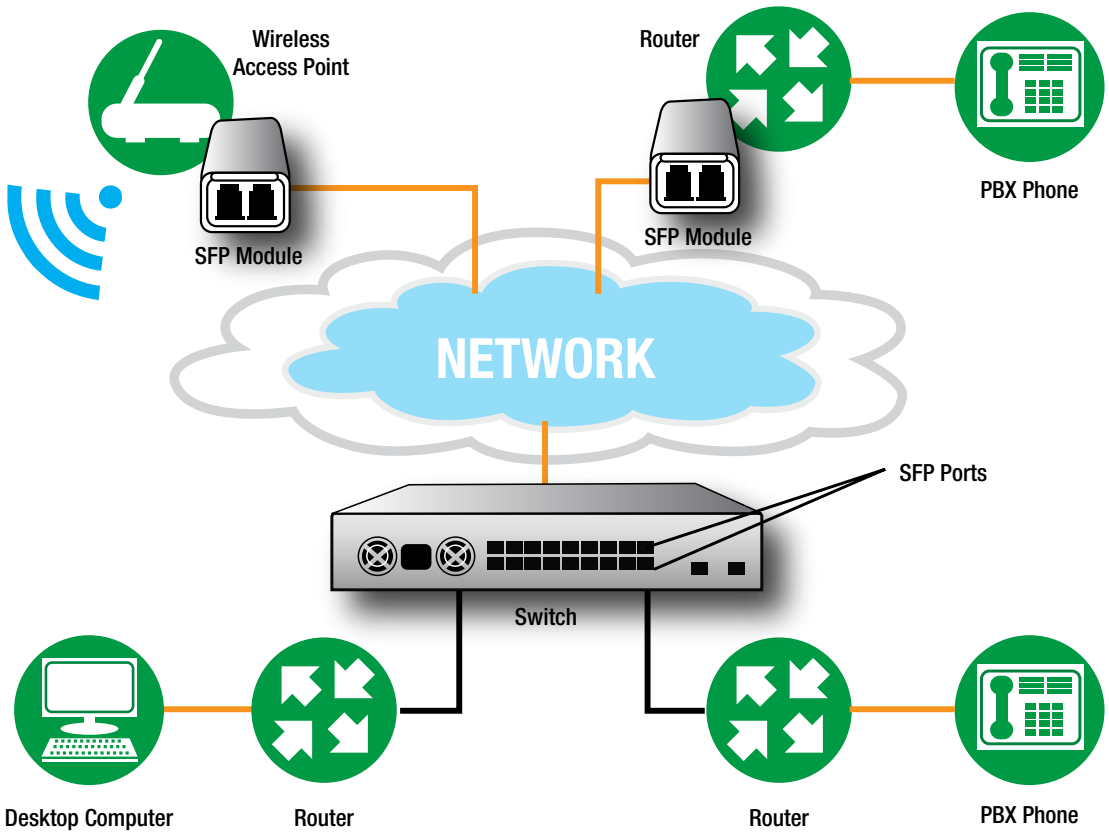
SFP Products

Agile Network Technology for Evolving Business Infrastructure

Flexible Network Solutions for Big Data and Enterprise Applications

- Data Centers
- Business & Enterprise Operations
- Campus Environments
- Network Service Providers

Various SFP/XFP Module Deployments & Applications



Features:

- Hot-Pluggable SFP Footprint LC Optical Transceiver
- Class 1 Laser International Safety Standard IEC-60825 Compliant
- Compatibe with Small Form Factor Pluggable Multi-Sourcing Agreement (MSA)
- Compliant with IEEE 802.3z Gigabit Ethernet
- Compliant with Fiber Channel 1X SM LC-L FC-PI

Applications:

- Gigabit Ethernet Switches and Routers
- Fiber Channel Switch Infrastructure
- XDSL Applications
- Metro Edge Switching

Small Form Factor Pluggables offer Agile and Flexible Solutions to Existing Networks

Transition Networks SFPs and XFPs are small form factor, hot-pluggable transceivers which allow for a single piece of network equipment to be connected to a multitude of interfaces, protocols, and transmission media via the SFP/XFP port. Our Small Form Pluggables offer a cost effective and flexible means to accommodate for network modifications and growth, while still using existing network devices.

All of Transition's SFPs and XFPs are compliant with the Multi-Sourcing Agreement (MSA) ensuring interoperability with all other MSA compliant networking devices. Additionally, they are also Cisco, HP and Juniper compatible and support a variety of data speeds and distance requirements.

MSA Compatible 100Base/OC3/OC12 SFP Modules

Applications

- Fast Ethernet / OC3 Switches and Routers
- xDSL Applications
- Metro Edge Switching

Features

- Hot-Pluggable SFP Footprint Optical Transceiver
- Digital Diagnostic Function
- Class 1 Laser International Safety Standard IEC-60825 Compliant
- Compatible with SFP Multi-Sourcing Agreement (MSA)

Specifications

Standards	IEEE 802.3
Dimensions	Width: 0.52" [13 mm] Depth: 2.18" [55 mm] Height: 0.33" [8 mm]
Power	3.3V
Power Consumption	0.66 Watts
Environment	0°C to 70°C
	TN-SFP-OC3MT -40°C to 85°C TN-SFP-OC3ST -40°C to 85°C
Compliance	IEC-60825; FDA 21; CFR 1040.10 and 1040.11
Warranty	Lifetime

Note: Per Cisco Systems' literature, the Cisco switches with SFP slots do not accept modules other than Cisco's own SFPs. The Cisco switch identifies the manufacturer ID along with the part number and blocks operations to this port for non-Cisco interfaces.

Transition Networks' SFP units fully comply with Multi-Sourcing Agreement (MSA). This compliance allows Transition Networks' SFP modules to be used on other MSA-compliant SFP platforms without any problems.

Ordering Information

Duplex

TN-SFP-TX
100BASE-TX (RJ-45)
[100 m/328 ft.]

TN-SFP-OC3M
100BASE-FX/OC-3
1310nm multimode (LC)
[2 km/1.2 mi.] Link Budget: 11.0 dB

TN-SFP-OC3S
100BASE-FX/OC-3
1310nm single mode (LC)
[20 km/12.4 mi.] Link Budget: 17.0 dB

TN-SFP-OC3S3
100BASE-FX/OC-3 1310nm SM (LC)
[30 km/18.6 mi.] Link Budget: 20.0 dB

TN-SFP-OC3S8
100BASE-FX/OC-3 1550nm SM (LC)
[80 km/49.7 mi.] Link Budget: 29.0 dB

TN-SFP-OC3S10
100BASE-FX/OC-3 1550nm SM (LC)
[100 km/62.1 mi.] Link Budget: 31.0 dB

TN-SFP-OC3S12
100BASE-FX/OC-3 1550nm SM (LC)
[120 km/74.6 mi.] Link Budget: 34.0 dB

TN-SFP-OC3S20
100BASE-FX/OC-3 1550nm SM (LC)
[200km/124.3 mi.] Link Budget: 46.0 dB

TN-SFP-OC12M
OC-12/STM-4 SFP 1300nm MM (LC)
[1 km/0.6 mi.] Link Budget: 7.0 dB

TN-SFP-OC12S
OC-12/STM-4 SFP 1310nm SM (LC)
[20 km/12.4 mi.] Link Budget: 14.0 dB

TN-SFP-OC12S4
OC-12/STM-4 SFP 1310nm SM (LC)
[40 km/24.9 mi.] Link Budget: 28.0 dB

TN-SFP-OC12S8
OC-12/STM-4 SFP 1310nm SM (LC)
[80 km/49.7 mi.] Link Budget: 29.0 dB

Extended Operating Temperature -40°C to +85°C

TN-SFP-OC3MT
100BASE-FX/OC-3 1300nm MM (LC)
[2 km/1.2 mi.] Link Budget: 11.0 dB

TN-SFP-OC3ST
100BASE-FX/OC-3 1310nm SM (LC)
[20 km/12.4 mi.] Link Budget: 17.0 dB

Simplex

TN-SFP-LXMB11
100Base-BX/1000Base-BX 1310nm TX/1550nm RX SM (LC)
[10 km/6.2 mi.] Link Budget: 11.0 dB

TN-SFP-LXMB12
100Base-BX/1000Base-BX 1550nm TX/1310nm RX SM (LC)
[10 km/6.2 mi.] Link Budget: 11.0 dB

TN-SFP-OC3MB1
100BASE-FX 1310nm TX/1550nm RX MM (SC)
[2 km/1.2 mi.] Link Budget: 15.0 dB

TN-SFP-OC3MB2
100BASE-FX 1550nm TX/1310nm RX MM (SC)
[2 km/1.2 mi.] Link Budget: 15.0 dB

TN-SFP-OC3SB21
100BASE-FX 1310nm TX/1550nm RX SM (LC)
[20 km/12.4 mi.] Link Budget: 19.0 dB

TN-SFP-OC3SB22
100BASE-FX 1550nm TX/1310nm RX SM (LC)
[20 km/12.4 mi.] Link Budget: 19.0 dB

TN-SFP-OC3SB41
100BASE-FX 1310nm TX/1550nm RX SM (LC)
[40 km/24.9 mi.] Link Budget: 25.0 dB

TN-SFP-OC3SB42
100BASE-FX 1550nm TX/1310nm RX SM (LC)
[40 km/24.9 mi.] Link Budget: 25.0 dB

TN-SFP-OC3SB61
100BASE-FX 1310nm TX/1550nm RX SM (LC)
[60 km/37.3 mi.] Link Budget: 29.0 dB

TN-SFP-OC3SB62
100BASE-FX 1550nm TX/1310nm RX SM (LC)
[60 km/37.3 mi.] Link Budget: 29.0 dB

TN-SFP-OC3SB81
100BASE-FX 1310nm TX/1550nm RX SM (LC)
[80 km/49.7 mi.] Link Budget: 31.0 dB

TN-SFP-OC3SB82
100BASE-FX 1550nm TX/1310nm RX SM (LC)
[80 km/49.7 mi.] Link Budget: 31.0 dB TN

TN-SFP-OC3SB121
100BASE-FX 1510nm TX/1590nm RX SM (LC)
[120 km/74.6 mi.] Link Budget: 32.0 dB

TN-SFP-OC3SB122
100BASE-FX 1590nm TX/1510nm RX SM (LC)
[120 km/74.6 mi.] Link Budget: 32.0 dB

TN-SFP-OC3SB161
100BASE-FX 1510nm TX/1590nm RX SM (LC)
[160 km/99.4 mi.] Link Budget: 36.0 dB

TN-SFP-OC3SB162
100BASE-FX 1590nm TX/1510nm RX SM (LC)
160 km/99.4 mi.] Link Budget: 36.0 dB

TN-SFP-OC3SB201
100BASE-FX 1510nm TX/1590nm RX SM (LC)
[200 km/124.3 mi.] Link Budget: 46.0 dB

TN-SFP-OC3SB202
100BASE-FX 1590nm TX/1510nm RX SM [200 km/124.3 mi.] Link Budget: 46.0 dB

MSA Compatible 1000Base Fiber Channel SFP Modules

Applications

- Gigabit Ethernet Switches and Routers
- Fiber Channel Switch Infrastructure
- xDSL Applications
- Metro Edge Switching

Features

- Hot-Pluggable SFP Footprint Optical Transceiver
- Digital Diagnostic Function
- Class 1 Laser International Safety Standard IEC-60825 Compliant
- Compatible with SFP Multi-Sourcing Agreement (MSA)

Specifications

Standards	IEEE 802.3
Dimensions	Width: 0.52" [13 mm] Depth: 2.18" [55 mm] Height: 0.33" [8 mm]
Power	3.3V
Power Consumption	0.66 Watts
Environment	0°C to 70°C
	TN-SFP-LX1T: -40°C to 85°C TN-SFP-LXB11T: -40°C to 85°C TN-SFP-LXB12T: -40°C to 85°C TN-SFP-LXB21T: -40°C to 85°C TN-SFP-LXB22T: -40°C to 85°C
Compliance	IEC-60825; FDA 21; CFR 1040.10 and 1040.11
Warranty	Lifetime

Note: Per Cisco Systems' literature, the Cisco switches with SFP slots do not accept modules other than Cisco's own SFPs. The Cisco switch identifies the manufacturer ID along with the part number and blocks operations to this port for non-Cisco interfaces.

Transition Networks' SFP units fully comply with Multi-Sourcing Agreement (MSA). This compliance allows Transition Networks' SFP modules to be used on other MSA-compliant SFP platforms without any problems.

Ordering Information

Duplex

TN-SFP-T-MG
10/100/1000BASE-T (RJ-45)
[100 m/328 ft.]

TN-SFP-SX (model without DMI)
TN-SFP-SXD (model with DMI)
1000BASE-SX 850nm multimode (LC)
[62.5/125 µm: 220 m/722 ft.]
Link Budget: 8.0 dB
[50/125 µm: 550 m/1804 ft.]
Link Budget: 8.0 dB

TN-SFP-ESX5
1000BASE-SX 1300nm Ext. MM (LC)
[50/125 µm fiber only:
up to 2 km/1.2 mi.] Link Budget: 8.0 dB

TN-SFP-ESX6
1000BASE-SX 1300nm Ext. MM (LC)
[62.5/125 µm fiber only:
up to 2 km/1.2 mi.] Link Budget: 8.0 dB

TN-SFP-LX1 (model with DMI)
TN-SFP-ELX1 (model without DMI)
1000BASE-LX 1310nm single mode (LC)
[10 km/6.2 mi.] Link Budget: 11.5 dB

TN-SFP-LX3
1000BASE-LX 1310nm single mode (LC)
[30 km/18.6 mi.] Link Budget: 19.0 dB

TN-SFP-LX5
1000BASE-LX 1550nm single mode (LC)
[50 km/31.1 mi.] Link Budget: 19.0 dB

TN-SFP-LX8
1000BASE-LX 1550nm single mode (LC)
[80 km/49.7 mi.] Link Budget: 24.0 dB

TN-SFP-LX12
1000BASE-LX 1550nm single mode (LC)
[120 km/74.6 mi.] Link Budget: 32.0 dB

TN-SFP-LX16
1000BASE-LX 1550nm single mode (LC)
[160 km/99.4 mi.] Link Budget: 37.0 dB

TN-SFP-LX20
1000BASE-LX 1550 nm (LC) SM
[200 km/124.3 mi.] Link Budget: 41.0 d

TN-SFP-FC2XM
OC-48/STM-16/Fiber Channel 1x/2x
/1000BASE-SX 850nm (LC) MM
[62.5/125 µm: 150 m/492 ft.]*
Link Budget: 6.0 dB
[50/125 µm: 300 m/984 ft.]*
Link Budget: 6.0 dB

TN-SFP-FC2XS2
Fiber Channel 2x/1x/OC-48/STM-16/
1000BASE-LX 1310nm single mode (LC)
[2 km/1.2 mi.] Link Budget: 8.5 dB

TN-SFP-FC2XS15
Fiber Channel 2x/1x/OC-48/STM-
16/1000BASE-LX 1310nm single mode (LC)
[15 km/9.3 mi.] Link Budget: 13.0 dB

TN-SFP-FC2XS40
Fiber Channel 2x/1x/OC-48/STM-16/
1000BASE-LX 1310nm single mode (LC)
[40 km/24.9 mi.] Link Budget: 26.0 dB

Extended Operating Temperature
-40°C to +85°C

TN-SFP-LX1T
1000BASE-LX 1310nm single mode (LC)
[10 km/6.2 mi.] Link Budget: 11.5 dB

Simplex

TN-SFP-SXB1
1000BASE-SX 1310nm TX/1550nm RX MM (LC)
[500 m/1640 ft.] Link Budget: 7.0 dB

TN-SFP-SXB2
1000BASE-SX 1550nm TX/1310nm RX MM (LC)
[500 m/1640 ft.] Link Budget: 7.0 dB

TN-SFP-BXU2
1000BASE-BX 1310nm TX/1490nm RX SM (LC)
[20 km/12.4 mi.] Link Budget: 14.0 dB

TN-SFP-BXD2
1000BASE-BX 1490nm TX/1310nm RX SM (LC)
[20 km/12.4 mi.] Link Budget: 14.0 dB

TN-SFP-LXB11
1000BASE-LX 1310nm TX/1550nm RX SM (LC)
[10 km/6.2 mi.] Link Budget: 11.0 dB

TN-SFP-LXB12
1000BASE-LX 1550nm TX/1310nm RX SM (LC)
[10 km/6.2 mi.] Link Budget: 11.0 dB

TN-SFP-LXB21
1000BASE-LX 1310nm TX/1550nm RX SM (LC)
[20 km/12.4 mi.] Link Budget: 14.0 dB

TN-SFP-LXB22
1000BASE-LX 1550nm TX/1310nm RX SM (LC)
[20 km/12.4 mi.] Link Budget: 14.0 dB

TN-SFP-LXB41
1000BASE-LX 1310nm TX/1550nm RX SM (LC)
[40 km/24.9 mi.] Link Budget: 20.0 dB

TN-SFP-LXB42
1000BASE-LX 1550nm TX/1310nm RX SM (LC)
[40 km/24.9 mi.] Link Budget: 20.0 dB

TN-SFP-LXB61
1000BASE-LX 1310nm TX/1550nm RX SM (LC)
[60 km/37.3 mi.] Link Budget: 23.0 dB

TN-SFP-LXB62
1000BASE-LX 1550nm TX/1310nm RX SM (LC)
[60 km/37.3 mi.] Link Budget: 23.0 dB

TN-SFP-LXB81
1000BASE-LX 1510nm TX/1590nm RX SM (LC)
[80 km/49.7 mi.] Link Budget: 24.0 dB

TN-SFP-LXB82
1000BASE-LX 1590nm TX/1510nm RX SM (LC)
[80 km/49.7 mi.] Link Budget: 24.0 dB

TN-SFP-LXB161
1000BASE-LX 1510nm TX/1590nm RX SM (LC)
[160 km/99.4 mi.] Link Budget: 37.0 dB

TN-SFP-LXB162
1000BASE-LX 1590nm TX/1510nm RX SM (LC)
[160 km/99.4 mi.] Link Budget: 37.0 dB

Extended Operating Temperature
-40°C to +85°C

TN-SFP-LXB11T
1000BASE-LX 1310nm TX/1550nm RX SM (LC)
[10 km/6.2 mi.] Link Budget: 11.0 dB

TN-SFP-LXB12T
1000BASE-LX 1550nm TX/1310nm RX SM (LC)
[10 km/6.2 mi.] Link Budget: 11.0 dB

TN-SFP-LXB21T
1000BASE-LX 1310nm TX/1550nm RX SM (LC)
[20 km/12.4 mi.] Link Budget: 14.0 dB

TN-SFP-LXB22T
1000BASE-LX 1550nm TX/1310nm RX SM (LC)
[20 km/12.4 mi.] Link Budget: 14.0 dB

TN-10GSFP-xR(x)

MSA Compatible 10GBase SFP+ Modules

Features

- SFP+ Optical Transceiver
- 10G small Form-Factor Pluggable (SFP+) MSA compatible
- SFF-8472 Digital Diagnostic Function (DMI)
- Single +3.3 V Power Supply,
- Up to 10.5 Gbps bidirectional data links
- RoHS Compliant (all models)
- Operating Temperature Range 0°C to 70°C
- Storage Temperature Range -40°C to 85°C
- Class 1 Laser International Safety Standard IEC 60825 Compliant

Additional Features

TN-10GSFP-SR Module

- Compliant with IEEE 802.3ae 10GBASE-SR/SW
- Link Length up to 300 m with OM3 multi-mode fiber; 82 m with OM2 multi-mode fiber; 33 m with OM1 multimode fiber

TN-10GSFP-LRx Module

- Compliant with IEEE 802.3ae 10GBASE-LR/LW
- Maximum Link Length of 70 KM

Specifications

Standards	IEEE 802.3ae
Data Rates	10.3 Gbps
Dimensions	Width: 0.52" [13 mm] Depth: 2.2" [56 mm] Height: 0.33" [8 mm]
Power Supply	+3.3V
Environment	Operating: 0°C to 70°C Storage: -40°C to 85°C
Compliance	IEC-60825; FAD 21; CFR 1040.10 and 1040.11
Warranty	Lifetime

Distance up to 300m on 50/125 OM3 multi-mode fiber, up to 82 m for 50/125 um multi-mode fiber with model.

Bandwidth 500 MHz-km at 850nm, and up to 33 m for 62.5/125 um multi-mode fiber with model bandwidth 200 MHzkm at 850nm.

Ordering Information

Duplex

***TN-10GSFP-SR**
10GBase-SR/SW, SFP+
w/ Digital Diagnostics (DMI) 850nm (LC)
[300/82/33 m; 985/269/108 ft.]
Link Budget: 2.6 dB

TN-10GSFP-LR1
10GBase-LR/LW, SFP+
w/ Digital Diagnostics (DMI) 1310nm (LC)
[10 km/6.2 mi.] Link Budget: 6.4 dB

TN-10GSFP-LR2
10GBase-LR/LW, SFP+
w/ Digital Diagnostics (DMI) 1310nm (LC)
[20 km/12.4 mi.] Link Budget: 11.4 dB

TN-10GSFP-LR4
10GBase-LR/LW, SFP+
w/ Digital Diagnostics (DMI) 1310nm (LC)
[40 km/24.9 mi.] Link Budget: 16.5 dB

TN-10GSFP-LR7
10GBase-LR/LW, SFP+
w/ Digital Diagnostics (DMI) 1310nm (LC)
[70 km/43.4 mi.] Link Budget: 25 dB

Simplex

TN-10GSFP-LRB11
10GBase-BX, SFP+ w/ Digital Diagnostics (DMI)
1270nm TX/1330nm RX SM (LC)
[10 km/6.2 mi.] Link Budget: 9.0 dB

TN-10GSFP-LRB12
10GBase-BX, SFP+ w/ Digital Diagnostics (DMI)
1330nm TX/1270nm RX SM (LC)
[10 km/6.2 mi.] Link Budget: 9.0 dB

TN-10GSFP-LRB21
10GBase-BX, SFP+ w/ Digital Diagnostics (DMI)
1270nm TX/1330nm RX SM (LC)
[20 km/12.4 mi.] Link Budget: 12.0 dB

TN-10GSFP-LRB22
10GBase-BX, SFP+ w/ Digital Diagnostics (DMI)
1330nm TX/1270nm RX SM (LC)
[20 km/12.4 mi.] Link Budget: 12.0 dB

TN-10GSFP-LRB41
10GBase-BX, SFP+ w/ Digital Diagnostics (DMI)
1270nm TX/1330nm RX SM (LC)
[40 km/24.9 mi.] Link Budget: 16.0 dB

TN-10GSFP-LRB42
10GBase-BX, SFP+ w/ Digital Diagnostics (DMI)
1330nm TX/1270nm RX SM (LC)
[40 km/24.9 mi.] Link Budget: 16.0 dB

TN-10GSFP-LRB61
10GBase-BX, SFP+ w/ Digital Diagnostics (DMI)
1270nm TX/1330nm RX SM (LC
[60 km/37.3 mi.] Link Budget: 23.0 dB

TN-10GSFP-LRB62
10GBase-BX, SFP+ w/ Digital Diagnostics (DMI)
1330nm TX/1270nm RX SM (LC))
[60 km/37.3 mi.] Link Budget: 23.0 dB

TN-XFP-xxx & TN-XFP-LRx-Cxx

MSA Compatible XFP Modules:10G XFP Duplex LC

Applications

- 10G Ethernet Switches and Routers
- 10G Fiber Channel Switch Infrastructure
- Metro Edge Switching

Features

- Hot-Pluggable XFP Footprint LC Optical Transceiver
- Digital Diagnostic Function
- Class 1 Laser International Safety Standard IEC-60825 Compliant
- Compatible with XFP Multi-Sourcing Agreement (MSA)
- XFP Optical Transceiver with duplex LC connector
- 10G small Form-Factor Pluggable (XFP) MSA compatible
- INF-8077i Digital Diagnostic Function (DMI)
- Maximum Link Length of 80 km
- Single +3.3V Power Supply
- Low Power Dissipation < 2W
- RoHS Compliant (all models)

Specifications

Standards	IEEE 802.3ae	
Output Wavelength	-5.5nm < λ_c < +7.5nm	
Dimensions	Width: 0.71" [18 mm] Depth: 3.07" [78 mm] Height: 0.33" [8 mm]	
Power	3.3V	
Power Consumption	0.66 Watts	
Environment	TN-XFP-SR:	0°C to 70°C
	TN-XFP-ZR:	0°C to 70°C
	TN-XFP-LRx-Cxx:	0°C to 70°C
	TN-XFP-LR1:	-5°C to 70°C
	TN-XFP-LR2:	-5°C to 70°C
	TN-XFP-ER:	-5°C to 70°C
	TN-XFP-LR1-T:	-45°C to 80°C
	Humidity: 10% to 90% (non-condensing)	
Compliance	IEC-60825; FDA 21; CFR 1040.10 and 1040.11	
Warranty	Lifetime	

Ordering Information

TN-XFP-SR
10GBase-SR/SW/10G Fiber Channel, XFP w/Digital Diagnostics (DMI) 850nm (LC)
[62.5/125 uM (OM1): 33 m/108 ft.]
[50/125 uM (OM2): 82 m/269 ft.]
[50/125 uM (OM3): 300 m/985 ft.]
Modal dispersion: 3.9 dB

TN-XFP-LR1
10GBase-LR/LW/10G Fiber Channel, XFP w/ Digital Diagnostics (DMI)1310nm (LC)
[10 km/6.2 mi.] Link Budget: 6.2 dB

TN-XFP-ER
10GBase-LR/ER/10G Fiber Channel, XFP w/ Digital Diagnostics (DMI)1310nm (LC)
[40 km/24.9 mi.] Link Budget: 16.5 dB

TN-XFP-ZR
10GBase-ZR/10G Fiber Channel, XFP w/Digital Diagnostics (DMI)1550nm (LC)
[80 km/49.7 mi.] Link Budget: 23.0 dB

TN-XFP-LR10
10GBase-LR/10G Fiber Channel, XFP w/Digital Diagnostics (DMI)1550nm (LC)
[100 km/62.1 mi.] Link Budget: 25.0 dB

TN-XFP-LRM
10GBase-LRM, XFP w/Digital Diagnostics (DMI) 1310nm (LC)
[300m/985 ft.] Link Budget: 4.5 dB

Extended Operating Temperature
-40°C to +85°C

TN-XFP-LR1-T
10GBase-LR/LW/10G Fiber Channel, XFP w/ Digital Diagnostics (DMI)1310nm (LC)
[10 km/6.2 mi.] Link Budget: 6.2 dB

Additional Features

TN-XFP-SR Module

- Compliant with IEEE 802.3ae 10GBASE-SR/SW
- Compliant with 10G Fiber Channel 1200-MX-SN-I
- Low power Dissipation < 1.2W

TN-XFP-LRx & TN-XFP-ER & TN-XFP-ZR

- Compliant with IEEE 802.3ae 10GBASE-LR/LW//ER/ZR
- Compliant with 10G Fiber Channel 1200-SM-LL-L
- Compliant with XFI 10G Serial Electrical Interface
- Low power Dissipation < 2W

Note: Per Cisco Systems' literature, the Cisco switches with XFP slots do not accept modules other than Cisco's own XFPs. The Cisco switch identifies the manufacturer ID along with the part number and blocks operations to this port for non-Cisco interfaces. Other major XFP switch manufacturers do not indicate in their literature that such restrictions are imposed.

Transition Networks' XFP units fully comply with Multi-Sourcing Agreement (MSA). This compliance allows Transition Networks' XFP modules to be used on other MSA-compliant XFP platforms without any problems.

TN-GLC-xxx & TN-SFP-GE-x

Cisco Compatible SFP Modules

Applications

- Gigabit Ethernet Switches & Routers
- Fiber Channel Switch Infrastructure
- xDSL Applications
- Metro Edge Switching

Features

- Hot-Pluggable SFP Footprint Duplex LC Optical Transceiver - both simplex and duplex
- Class 1 Laser International Safety Standard IEC-60825 Compliant
- Compatible with SFP Multi-Sourcing Agreement (MSA)

Specifications

Standards	IEEE 802.3
Dimensions (fiber)	Width: 0.52" [13 mm] Depth: 2.18" [55 mm] Height: 0.33" [8 mm]
Dimensions (copper)	Width: 0.95" [24 mm] Depth: 2.8" [71 mm] Height: 0.54" [14 mm]
Power	3.3V
Power Consumption	0.66 Watts (fiber) 1.0 Watts (copper)
Environment	
	TN-GLC-xxx Operating: 0°C to 70°C Storage: -40°C to 85°C TN-SFP-GE-x Operating:-40°C to 85°C TN-GLC-xxx-RGD Storage: -40°C to 100°C TN-SFP-GE-T Operating: -10°C to 80°C
Compliance	IEC-60825; FDA 21; CFR 1040.10 and 1040.11
Warranty	Lifetime

Ordering Information

TN-GLC-T
1000BASE-T (RJ-45) [100 m/328 ft.]

TN-GLC-T-MG
10/100/1000BASE-T (RJ-45) [100 m/328 ft.]

TN-GLC-SX-MM
1000BASE-SX 850nm multimode (LC)
[62.5/125 µm: 220 m/722 ft.]
Link Budget: 8.5 dB
[50/125 µm: 550 m/1804 ft.]
Link Budget: 8.5 dB

TN-GLC-SX-MM-2K
1000BASE-SX 1300nm Ext. MM (LC)
[2 km/1.2 mi.] Link Budget: 10.0 dB

TN-GLC-LH-SM
1000BASE-LX 1310nm single mode (LC)
[10 km/6.2 mi.] Link Budget: 10.5 dB

TN-GLC-LHX-SM
1000BASE-LX 1310nm single mode (LC)
[40 km/24.9 mi.]Link Budget: 22.0 dB

TN-GLC-ZX-SM
1000BASE-LX 1550nm single mode (LC)
[80 km/49.7 mi.]Link Budget: 24.0 dB

TN-GLC-ZX-SM-12
1000BASE-LX 1550nm single mode (LC)
[120 km/74.6 mi.]Link Budget: 31.0 dB

TN-GLC-ZX-SM-15
1000BASE-LX 1550nm single mode (LC)
[150 km/93.2 mi.]Link Budget: 37.0 dB

TN-GLC-BX-U
1000BASE-BX 1310nm TX/1490nm RX
single fiber single mode (LC)
[10 km/6.2 mi.] Link Budget: 12.0 dB

TN-GLC-BX-D
1000BASE-BX 1490nm TX/1310nm RX
single fiber single mode (LC)
[10 km/6.2 mi.] Link Budget: 12.0 dB

TN-GLC-BX-U-20
1000BASE-BX 1310nm TX/1310nm RX
single fiber single mode (LC)
[20 km/12.4 mi.] Link Budget: 11.0 dB

TN-GLC-BX-D-20
1000BASE-BX 1490nm TX/1490nm RX
single fiber single mode (LC)
[20 km/12.4 mi.] Link Budget: 11.0 dB

TN-GLC-BX-U-40
1000BASE-BX 1310nm TX/1490nm RX
single fiber single mode (LC)
[40 km/24.9 mi.]Link Budget: 20.0 dB

TN-GLC-BX-D-40
1000BASE-BX 1490nm TX/1310nm RX
single fiber single mode (LC)
[40 km/24.9 mi.]Link Budget: 20.0 dB

TN-GLC-BX-U-80
1000BASE-BX 1490nm TX/1550nm RX
single fiber single mode (LC)
[80 km/49.7 mi.]Link Budget: 26.0 dB

TN-GLC-BX-U-120
1000BASE-BX 1490nm TX/1550nm RX
single fiber single mode (LC)
[120 km/74.6 mi.]Link Budget: 31.0 dB

TN-GLC-BX-D-80
1000BASE-BX 1550nm TX/1490nm RX
single fiber single mode (LC)
[80 km/49.7 mi.]Link Budget: 26.0 dB

TN-GLC-BX-D-120
1000BASE-BX 1550nm TX/1490nm RX
single fiber single mode (LC)
[120 km/74.6 mi.]Link Budget: 31.0 dB

TN-GLC-FE-100BX-U
100BASE-BX 1310nm TX/1550nm RX
single fiber single mode (LC)
[10 km/6.2 mi.] Link Budget: 18.0 dB

TN-GLC-FE-100BX-U-20
100BASE-BX 1310nm TX/1550nm RX
single fiber single mode (LC)
[20 km/12.4 mi.]Link Budget: 20.0 dB

TN-GLC-FE-100BX-U-40
100BASE-BX 1310nm TX/1550nm RX
single fiber single mode (LC)
[40 km/24.9 mi.]Link Budget: 26.0 dB

TN-GLC-FE-100BX-U-80
100BASE-BX 1310nm TX/1550nm RX
single fiber single mode (LC)
[80 km/49.7 mi.] Link Budget: 32.0 dB

TN-GLC-FE-100BX-U-12
100BASE-BX 1490nm TX/1550nm RX
single fiber single mode (LC)
[120 km/74.6 mi.]Link Budget: 32.0 dB

TN-GLC-FE-100BX-D
100BASE-BX 1550nm TX/1310nm RX
single fiber single mode (LC)
[10 km/6.2 mi.] Link Budget: 18.0 dB

TN-GLC-FE-100BX-D-20
100BASE-BX 1550nm TX/1310nm RX
single fiber single mode (LC)
[20 km/12.4 mi.] Link Budget: 20.0 dB

TN-GLC-FE-100BX-D-40
100BASE-BX 1550nm TX/1310nm RX
single fiber single mode (LC)
[40 km/24.9 mi.] Link Budget: 26.0 dB

TN-GLC-FE-100BX-D-80
100BASE-BX 1310nm TX/1550nm RX
single fiber single mode (LC)
[80 km/49.7 mi.] Link Budget: 32.0 dB

TN-GLC-FE-100BX-D-12
100BASE-BX 1550nm TX/1490nm RX
single fiber single mode (LC)
[120 km/74.6 mi.]Link Budget: 32.0 dB

***TN-GLC-FE-100FX**
100BASE-FX 1300nm multimode (LC)
[2 km/1.2 mi.] Link Budget: 8.5 dB

TN-GLC-FE-100LX
100BASE-FX 1310nm single mode (LC)
[10 km/6.2 mi.] Link Budget: 19.0 dB

***TN-GLC-GE-100FX**
100BASE-FX 1300nm multimode (LC)
[2 km/1.2 mi.] Link Budget: 8.5 dB

Cisco Compatible SFP Modules- Extended Temperatures

Additional Features

TN-GLC-FE-xxx Modules

- Compliant with IEEE 802.3100BASE-FX
- Compliant with IEEE 802.3ah100BASE-FX
- Compliant with Intermediate-Reach SONET OC-3/SDH STM-1 (S-1.1)
- Can be used on Optical Line Converter xFMFF4040-100

TN-SFP-GE-x Module

- Compliant with IEEE 802.3z Gigabit Ethernet
- Digital Diagnostic Function
- Extended operating temperature -40°C to +85°C

Ordering Information

TN-GLC-FE-100FX-RGD
100BASE-FX 1300nm multimode (LC)
[2 km/1.2 mi.] Link Budget: 8.5 dB

TN-GLC-FE-100LX-RGD
100BASE-FX 1310nm single mode (LC)
[10 km/6.2 mi.] Link Budget: 19.0 dB

TN-GLC-FE-100EX-RGD
100BASE-FX 1310nm single mode (LC)
[40 km/24.9 mi.] Link Budget: 25.0 dB

TN-GLC-FE-100BX-URGD
100BASE-BX 1310nm TX/1550nm RX
single fiber single mode (LC)
[20 km/12.4 mi.] Link Budget: 20.0 dB

TN-GLC-FE-100BX-DRGD
100BASE-BX 1550nm TX/1310nm RX
single fiber single mode (LC)
20 km/12.4 mi.] Link Budget: 20.0 dB

TN-GLC-SX-MM-RGD
1000BASE-SX 850nm multimode (LC)
[62.5/125 µm: 220 m/722 ft.]
Link Budget: 8.5 dB
[50/125 µm: 550 m/1804 ft.]
Link Budget: 8.5 dB

TN-GLC-SX-MM-2K-RGD
1000BASE-SX 1300nm Ext. MM (LC)
[2 km/1.2 mi.] Link Budget: 10.0 dB

TN-SFP-GE-S
1000BASE-SX 850nm multimode (LC)
[62.5/125 µm: 220 m/722 ft.]
Link Budget: 8.5 dB
[50/125 µm: 550 m/1804 ft.]
Link Budget: 8.5 dB

TN-GLC-LX-SM-RGD
1000BASE-LX 1310nm single mode (LC)
[10 km/6.2 mi.] Link Budget: 10.5 dB

TN-GLC-ZX-SM-RGD
1000BASE-LX 1550nm single mode (LC)
[80 km/49.7 mi.]Link Budget: 24.0 dB

TN-SFP-GE-L
1000BASE-LX 1310nm single mode (LC)
[10 km/6.2 mi.] Link Budget: 10.5 dB

TN-SFP-GE-Z
1000BASE-LX 1550nm single mode (LC)
[80 km/49.7 mi.] Link Budget: 24.0 dB

TN-SFP-GE-T
1000BASE-T (RJ-45) [100 m/328 ft.]

Note: The Transition Networks TN-GLC-xxx series small form factor pluggable (SFP) tranceiver modules are designed to install in any SFP port allowing for 1000Base-T, 1000Base-SX or 1000Base-LX interfaces to the network through the SFP connector. The TN-GLC-xxx tranceivers are Cisco compatible* and are designed for bi-directional serial-optical data communication such as Gigabit Ethernet or fiber channel at speeds up to 1.25 Gbps.

Transition Networks' SFP modules fully comply with the Multi-Sourcing Agreement (MSA). This compliance allows our SFP modules to be used in all other MSA compliant SFP platforms. In addition, TN SFP modules are also compatible with all Cisco SFP-based routers and switches, as well as Cisco's IOS software. TN SFP modules ARE NOT Cisco OEM brand modules.

TN-SFP-10G-xR

Cisco Compatible 10GBase SFP+ Modules

Applications

- 10G Ethernet Switches and Routers
- Metro Edge Switching

Features

- SFP+ Optical Transceiver with LC connector
- 10G small Form-Factor Pluggable (SFP+) MSA compatible
- Compliant with IEEE 802.3ae 10GBASE-SR/LR/LW
- SFF-8472 Digital Diagnostic Function (DMI)
- Maximum Link Length of 80KM
- Single +3.3 V Power Supply
- RoHS Compliant (all models)
- Class 1 Laser International Safety Standard IEC 60825 Compliant

Specifications

Standards	IEEE 802.3z IEEE 802.3
Output Wavelength	-5.5nm < λ_c < +7.5nm
Dimensions	Width: 0.52" [13 mm] Depth: 2.18" [55 mm] Height: 0.33" [8 mm]
Power	3.3V
Environment	Operating: 0°C to 70°C Storage: -40°C to 85°C
Compliance	IEC-60825; FDA 21; CFR 1040.10 and 1040.11
Warranty	Lifetime

Note: The Transition Networks TN-SFP-10G-xx series 10G SFP+ transceiver modules are designed to install in any SFP+ port allowing for 10GBase-X interfaces to the network through the SFP+ connector. The TN-SFP-10G-xx transceivers are Cisco compatible* and are designed for bi-directional serial-optical data communication such as 10G Ethernet at speeds up to 10.3 Gbps.

Transition Networks' SFP+ modules fully comply with the Multi-Sourcing Agreement (MSA). This compliance allows our SFP+ modules to be used in all other MSA compliant SFP+ platforms. In addition, TN SFP modules are also compatible with all Cisco SFP+ based routers and switches, as well as Cisco's IOS software. TN SFP+ modules ARE NOT Cisco OEM brand module

Ordering Information

***TN-SFP-10G-SR**
10GBase-SR, SFP+
w/ Digital Diagnostics (DMI) 850nm (LC)
[300/82/33 m; 985/269/108 ft.]
Link Budget: 4.0 dB

TN-SFP-10G-LRM
10GBase-LRM, SFP+
w/ Digital Diagnostics (DMI) 1310nm (LC)
[220m; 722 ft.] Link Budget: 1.5 dB

TN-SFP-10G-LR
10GBase-LR, SFP+
w/ Digital Diagnostics (DMI) 1310nm (LC)
[10 km/6.2 mi.] Link Budget: 9.0 dB

TN-SFP-10G-ER
10GBase-ER, SFP+
w/ Digital Diagnostics (DMI) 1550nm (LC)
[40 km/24.9 mi.] Link Budget: 15.8 dB

TN-SFP-10G-ZR
10GBase-ZR, SFP+
w/ Digital Diagnostics (DMI) 1550nm (LC)
[80 km/49.7 mi.] Link Budget: 24.0 dB

TN-SFP-10G-U-10
10GBase-BX, SFP+ w/ Digital Diagnostics (DMI)
1270 TX/1330 RXnm (LC)
[10 km/6.2 mi.] Link Budget: 5.9 dB

TN-SFP-10G-D-10
10GBase-BX, SFP+ w/ Digital Diagnostics (DMI)
1330 TX/1270 RXnm (LC)
[10 km/6.2 mi.] Link Budget: 5.9 dB

TN-SFP-10G-U-20
10GBase-BX, SFP+ w/ Digital Diagnostics (DMI)
1270 TX/1330 RXnm (LC)
[20 km/12.4 mi.] Link Budget: 12.1 dB

TN-SFP-10G-D-20
10GBase-BX, SFP+ w/ Digital Diagnostics (DMI)
1330 TX/1270 RXnm (LC)
[20 km/12.4 mi.] Link Budget: 12.1 dB

TN-SFP-10G-U-40
10GBase-BX, SFP+ w/ Digital Diagnostics (DMI)
1270 TX/1330 RXnm (LC)
[40 km/24.9 mi.] Link Budget: 16.0 dB

TN-SFP-10G-D-40
10GBase-BX, SFP+ w/ Digital Diagnostics (DMI)
1330 TX/1270 RXnm (LC)
[40 km/24.9 mi.] Link Budget: 16.0 dB

TN-SFP-10G-U-60
10GBase-BX, SFP+ w/ Digital Diagnostics
(DMI) 1270 TX/1330 RXnm (LC)
[60 km/37.3 mi.] Link Budget: 20.0 dB

TN-SFP-10G-D-60
10GBase-BX, SFP+ w/ Digital Diagnostics
(DMI) 1330 TX/1270 RXnm (LC)
[60 km/27.3 mi.] Link Budget: 20.0 dB

**Distance up to 300m on 50/125 OM3 multi-mode fiber, up to 82 m for 50/125 um multi-mode fiber with model.*

Bandwidth 500 MHz-km at 850nm, and up to 33 m for 62.5/125 um multi-mode fiber with model bandwidth 200 MHzkm at 850nm.

TN-XFP-xxx-xxx

Cisco Compatible 10G XFP Modules

Applications

- 10G Ethernet Switches and Routers
- 10G Fiber Channel Switch Infrastructure
- SONET / SDH Application
- Metro Edge Switching

Features

- Hot-Pluggable XFP Optical Transceiver with LC connector
- 10G small Form-Factor Pluggable (XFP) MSA compatible
- Compliant with XFP Multi-Sourcing Agreement (MSA)
- INF-8077i Digital Diagnostic Function (DMI)
- Maximum Link Length of 80KM
- Support both +3.3 V and +5 V Power Supply
- Low Power Dissipation < 3W
- RoHS Compliant (all models)
- Class 1 Laser International Safety Standard IEC 60825 Compliant

Specifications

Standards	IEEE 802.3ae
Output Wavelength	-5.5nm < λ_c < +7.5nm
Dimensions	Width: 0.52" [13 mm] Depth: 2.18" [55 mm] Height: 0.33" [8 mm]
Power	3.3V, 5V
Environment	Operating: -5°C to 70°C Storage: -40°C to 85°C
Compliance	IEC-60825; FDA 21; CFR 1040.10 and 1040.11
Warranty	Lifetime

Additional Features

TN-XFP-10G-MM-SR Module

- Compliant with IEEE 802.3ae
- 10GBase-SR/SW
- Compliant with 10G Fiber Channel 1200-MX-SN-I

TN-XFP-10Gxx-OC192xx Module

- Compliant with IEEE 802.3ae
- 10Base-LR/LW/ER/EW/ZR/ZW
- Compliant with 10G Fiber Channel
- 1200-SM-LL-L Compliant with SONET
- OC-192 / SDH STM-64

Note: The Transition Networks TN-XFP-xxx-xxx 10G small form factor pluggables (XFPs) are Cisco Compatible* and are designed for bi-directional serial optical data communications such as 10G Ethernet, or 10G Fiber Channel.

Transition Networks' XFP modules fully comply with the Multi-Sourcing Agreement (MSA). This compliance allows our XFP modules to be used in all other MSA compliant XFP platforms. In addition, TN-XFP-xxx-xxx modules are also compatible with all Cisco XFP-based equipment, as well as Cisco's IOS software. TN XFP modules ARE NOT Cisco OEM brand modules.

Ordering Information

TN-XFP-10G-MM-SR
10GBase-SR/SW / 10G Fiber Channel
/ OC-192 850nm MM (LC)
[62.5/125 uM (OM1): 33 m/108 ft.]
[50/125 uM (OM2): 82 m/269 ft.]
[50/125 uM (OM3): 300 m/985 ft.]
Link Budget: 4.5 dB

TN-XFP-10GLR-OC192SR
10GBase-LR/LW 10G Fiber Channel
OC-192 1310nm single mode (LC)
[10 km/6.2 mi.] Link Budget: 9.4 dB

TN-XFP-10GER-OC192IR
10GBase-ER/EW 10G Fiber Channel
OC-192 1550nm single mode (LC)
[40 km/24.9 mi.] Link Budget: 15.5 dB

TN-XFP-10GZR-OC192LR
10GBase-ZR/ZW / 10G Fiber Channel
OC-192 1550nm single mode (LC)
[80 km/49.7 mi.] Link Budget: 24.0 dB

TN-XFP-10GLR2-OC192S
10GBase-LR/LW / 10G Fiber Channel
OC-192 1310nm single mode (LC)
[20 km/12.4 mi.] Link Budget: 9.0 dB

TN-XFP-10G-U
10GBase-LR/LW / 10G Fiber Channel
1270 TX/1330 RX single fiber
single mode (LC)
[10 km/6.2 mi.] Link Budget: 9.0 dB

TN-XFP-10G-D
10GBase-LR/LW / 10G Fiber Channel
1330TX/1270 RX single fiber
single mode (LC)
[10 km/6.2 mi.] Link Budget: 9.0 dB

TN-XFP-10G-U-40
10GBase-BX / 10G Fiber Channel
1270 TX/1330 RX single fiber
single mode (LC)
[40 km/24.9 mi.] Link Budget: 15.0 dB

TN-XFP-10G-D-40
10GBase-BX / 10G Fiber Channel
1330TX/1270 RX single fiber
single mode (LC)
[40 km/24.9 mi.] Link Budget: 15.0 dB

TN-X2-10GB-xx

Cisco Compatible 10G X2 Modules

Features

- X2 Optical Transceiver with duplex SC connector
- 10G X2 MSA Release10.b compatible
- SFF8472 Digital Diagnostic Function (DMI)
- XAUI Electrical Interface: 4 Lanes at 3.125 Gbps
- Support +5V, +3.3V Power Supply
- RoHS Compliant (all models)
- Class 1 Laser International Safety Standard IEC 60825 Compliant

Additional Features

TN-X2-10GB-SR Module

- Compliant with IEEE 802.3ae 10GBASE-SR

TN-X2-10GB-LRM Module

- Compliant with IEEE 802.3aq 10GBASE-LRM

TN-X2-10GB-LR Module

- Compliant with IEEE 802.3ae 10GBASE-LR

TN-X2-10GB-ER Module

- Compliant with IEEE 802.3ae 10GBASE-ER

TN-X2-10GB-ZR Module

- Compliant with IEEE 802.3ae 10GBASE-ZR

Specifications

Standards	IEEE 802.3ae
Dimensions	Width: 1.42" [36 mm] Depth: 3.58" [91 mm] Height: 0.53" [13.46 mm]
Power	+5 V, +3.3 V
Power Consumption	4.0 Watts
Environment	Operating:0°C to 70°C Storage: -40 to 80°C
Compliance	IEC-60825; FDA21; CFR 1040.10 & 1040.11
Warranty	Lifetime

Note: The Transition Networks' TN-X2-10GB-xx series X2 modules are designed to install in any X2 port allowing for 10GBASE-SR, 10GBASE-LR or 10GBASE-ER interfaces to the network through X2 connector. The TN-X2-10GB-xx modules are Cisco compatible* and are designed for bi-directional serial-optical data communication such as 10G Ethernet at speeds up to 10.3 Gbps.

Transition Networks' X2 modules fully comply with the Multi-Sourcing Agreement (MSA). This compliance allows our X2 modules to be used in all other MSA compliant X2 platforms. In addition, TN X2 modules are also compatible with all Cisco X2-based routes and switches, as well as Cisco's IOS software. TN X2 modules ARE NOT Cisco OEM brand Modules.

Ordering Information

TN-X2-10GB-SR
10GBase-SR
X2 w/Digital Diagnostics (DMI)
850nm MM (SC)
[62.5/125 uM (OM1): 33 m/108 ft.]
[50/125 uM (OM2): 82 m/269 ft.]
[50/125 uM (OM3): 300 m/985 ft.]
Link Budget: 4.1dB

TN-X2-10GB-LRM
10GBase-LRM
X2 w/Digital Diagnostics (DMI)
1310nm MM (SC)
[220 m/722 ft.] Link Budget: 2.0dB

TN-X2-10GB-LR
10GBase-LR
X2 w/Digital Diagnostics (DMI)
1310nm SM (SC)
[10 km/6.2 mi.] Link Budget: 9.4dB

TN-X2-10GB-ER
10GBase-ER
X2 w/Digital Diagnostics (DMI)
1550nm SM (SC)
[40 km/24.9 mi.] Link Budget: 15.5dB

TN-X2-10GB-ZR
10GBase-ZR
X2 w/Digital Diagnostics (DMI)
1550nm SM (SC)
[80 km/49.7 mi.] Link Budget: 24.0dB

TN-J48xxx

HP CompatibleSFP Modules

Applications

- Gigabit Ethernet Switches and Routers
- Fiber Channel Switch Infrastructure
- xDSL Applications
- Metro Edge Switching

Ordering Information

TN-J4858C
1000Base-SX 850nm (LC) multimode
[62.5/125 µm fiber: 220 m/722 ft.]
[50/125 µm fiber: 550 m/1804 ft.]
Link Budget: 9.0 dB

TN-J4859C
1000Base-LX 1310nm (LC) single mode
[20 km/12.4 mi.] Link Budget: 16.0 dB

TN-J4860C
1000Base-LX/ZX 1550nm (LC) single mode
[80 km/49.7 mi.] Link Budget: 24.0 dB

Features

- Hot-Pluggable SFP Optical Transceiver with Duplex LC Connector
- Class 1 Laser International Safety Standard IEC-60825 Compliant
- Compatible with SFP Multi-Sourcing Agreement (MSA)

Specifications

Standards	IEEE 802.3z
Dimensions	Width: 0.52" [13 mm] Depth: 2.2" [56 mm] Height: 0.33" [8 mm]
Power	3.3V
Environment	Operating: 0°C to 70°C Storage: -40°C to 85°C
Compliance	IEC-60825; FDA 21; CFR 1040.10 and 1040.11
Warranty	Lifetime

Additional Features

TN-J4858C Module

- Compliant with IEEE 802.3z 1000BASE-SX

TN-J4859C Module

- Compliant with IEEE 802.3 1000BASE-LX

TN-J4860C Module

- Compliant with IEEE 802.3z 1000BASE-ZX

Note: Per HP literature, the HP switches with SFP slots do not accept modules other than HP's own SFPs. The HP switch identifies the manufacturer ID along with the part number and blocks operations to this port for non-HP interfaces.

Transition Networks' SFP units fully comply with Multi-Sourcing Agreement (MSA). This compliance allows Transition Networks 'SFP modules to be used on other MSA-compliant SFP platforms without any problems.

TN-J91xx & TN-JD09xB

HP Compatible10GBase SFP+ Modules

Applications

- 10G Ethernet Switches and Routers
- Metro Edge Switching

Features

- SFP+ Optical Transceiver with LC connector
- 10G small Form-Factor Pluggable (SFP+) MSA compatible
- Compliant with IEEE 802.3ae 10GBASE-SR/LR/LW
- SFF-8472 Digital Diagnostic Function (DMI)
- Maximum Link Length of 80KM
- Single +3.3 V Power Supply
- RoHS Compliant (all models)
- Class 1 Laser International Safety Standard IEC 60825 Compliant

Specifications

Standards	IEEE 802.3z IEEE 802.3
Output Wavelength	-5.5nm < λ_c < +7.5nm
Dimensions	Width: 0.52" [13 mm] Depth: 2.18" [55 mm] Height: 0.33" [8 mm]
Power	3.3V
Environment	Operating: 0°C to 70°C Storage: -40°C to 85°C
Compliance	IEC-60825; FDA 21; CFR 1040.10 and 1040.11
Warranty	Lifetime

Ordering Information

***TN-J9150A**
10GBase-SR, SFP+
w/ Digital Diagnostics (DMI) 850nm (LC)
[300/82/33 m; 985/269/108 ft.]
Link Budget: 4.0 dB

TN-J9151A
10Gbase-LR, SFP+ w/Digital Diagnostics (DMI)
1310nm (LC)[10 km/6.2 mi.]
Link Budget: 9.0 dB

TN-J9152A
10Gbase-LRM, SFP+ w/Digital Diagnostics
(DMI) 1310nm (LC) [220m; 722 ft.]
Link Budget: 1.5 dB

TN-J9153A
10Gbase-ER, SFP+ w/Digital Diagnostics (DMI)
1550nm (LC)[40 km/24.9 mi.]
Link Budget: 14.1dB

TN-JD092B
10Gbase-SR, SFP+ w/Digital Diagnostics (DMI)
850nm (LC) [300/82/33 m; 985/269/108 ft.]
Link Budget: 4.0 dB

TN-JD093B
10Gbase-LRM, SFP+ w/Digital Diagnostics
(DMI) 1310nm (LC) [220m; 722 ft.]
Link Budget: 1.5 dB

TN-JD094B
10Gbase-LR, SFP+ w/Digital Diagnostics (DMI)
1310nm (LC) [10 km/6.2 mi.]
Link Budget: 9.0 dB

**Distance up to 300m on 50/125 OM3 multi-mode fiber, up to 82 m for 50/125 um multi-mode fiber with model.*

Bandwidth 500 MHz-km at 850nm, and up to 33 m for 62.5/125 um multi-mode fiber with model bandwidth 200 MHzkm at 850nm.

Transition Networks' SFP+ modules fully comply with the Multi-Sourcing Agreement (MSA). This compliance allows our SFP+ modules to be used in all other MSA compliant SFP+ platforms. In addition, TN SFP modules are also compatible with all Cisco SFP+ based routers and switches, as well as Cisco's IOS software. TN SFP+ modules ARE NOT Cisco OEM brand module.

TN-EX-SFP-xx-xx & TN-JX-xx-xx

Juniper Compatible SFP Modules

Features

- Small Form-Factor Pluggable (SFP) MSA compatible
- Compliant with IEEE 802.3z 1000BASE-SX/LX
- Compliant witt IEEE 802.3 100Base-FX
- Single +3.3 V Power Supply
- RoHS Compliant (all models)
- 0°C to 70°C Operating Temperature Range
- Class 1 Laser International Safety Standard EC 60825 Compliant

Specifications

Standards	IEEE 802.3
Dimensions	Width: 0.52" [13 mm] Depth: 2.2" [56 mm] Height: 0.33" [8 mm]
Power	3.3V
Environment	0°C to 70°C operating -40°C to 85°C storage
Compliance	IEC-60825; FDA 21; CFR 1040.10 and 1040.11
Warranty	Lifetime

Applications

- Gigabit Ethernet Switches and Routers
- Fiber Channel Switch Infrastructure
- xDSL Applications
- Metro Edge Switching

Transition Networks' SFP units fully comply with Multi-Sourcing Agreement (MSA). This compliance allows Transition Networks 'SFP modules to be used on other MSA-compliant SFP platforms without any problems.

Ordering Information

TN-EX-SFP-1GE-SX
1000Base-SX 850nm (LC) Multimode
[62.5/125 um: 220 m/722 ft.]
[50/125 um: 550 m/1804 ft.]
Link Budget: 9.0 dB

TN-EX-SFP-1GE-LX
1000Base-LX 1310nm (LC) single mode
[10 km/6.2 mi.] Link Budget: 9.0 dB

***TN-JX-GE-100FX**
100Base-FX 1310nm(LC) Multimode
[2 km/1.24 mi.] Link Budget: 8.0 dB

TN-EX-SFP-1GE-LX40K
1000Base-LX 1310nm (LC) single mode
[40 km/24.9 mi.] Link Budget: 20.0 dB

TN-EX-SFP-1GE-LH
1000Base-LX 1550nm(LC) single mode
[80 km/49.7 mi.] Link Budget: 27.0 dB

TN-EX-SFP-1GE-LH12
1000Base-LX 1550nm (LC) single mode
[120 km/74.6 mi.] Link Budget: 32.0 dB

TN-EX-SFP-1GE-LH16
1000Base-LX 1550nm (LC) single mode
[160 km/99.4 mi.] Link Budget: 37 dB

* Provides 100Base-FX interface when plugged into a Gigabit SFP slot in Juniper switches

MSA Compatible CWDM SFP/XFP Modules

Applications

- 10G Ethernet Switches and Routers
- Gigabit Ethernet Switches and Routers
- Fiber Channel Switch Infrastructure
- xDSL Applications
- Metro Edge Switching

Features

- Coarse Wavelength Division Multiplexing (CWDM) ITU Grid Compliant Wavelengths
- Hot-Pluggable SFP Footprint Duplex LC Optical Transceiver
- Digital Diagnostic Function
- Class 1 Laser International Safety Standard IEC-60825 Compliant
- Compatible with SFP Multi-Sourcing Agreement (MSA)

Additional Features

TN-SFP-LX8-Cxx/TN-SFP-LX16-Cxx SFP Modules

- Compliant with IEEE 802.3z Gigabit Ethernet
- Compliant with Fiber Channel 1X SM-LC-L FC-PI (Can be used on Optical Line Converter xFMFF4040-100)

TN-SFP-OC3S8-Cxx SFP Module

- Compliant with 100BASE-FX
- Compliant with Intermediate-Reach SONET OC-3/SDH STM-1 (S-1.1)

TN-SFP-OC48S-Cxx SFP Module

- Compliant with IEEE 802.3z Gigabit Ethernet
- Compliant with Fiber Channel 1X SM-LC-L FC-PI
- Compliant with Short-Reach SONET OC-48/SDH STM-16 (S-16.1)

Specifications

Standards	IEEE 802.3 2003 ANSI X3.297-1997 (see additional standards by part number to the left)
Output Wavelength	-5.5nm < λ_c < +7.5nm
Dimensions	Width: 0.52" [13 mm] Depth: 2.18" [55 mm] Height: 0.33" [8 mm]
Power	3.3V
Power Consumption	0.66 Watts

SKU	Min	Typical	Max
TN-SFP-OC3S8-Cxx	--	155	200
TN-SFP-LX8-Cxx	100	1250	--
TN-SFP-OC48S-Cxx	622	2488	2670

Environment	0°C to 70°C
Compliance	IEC-60825; FDA 21; CFR 1040.10 and 1040.11
Warranty	Lifetime

Transition Networks' SFP units fully comply with Multi-Sourcing Agreement (MSA). This compliance allows Transition Networks' SFP modules to be used on other MSA-compliant SFP platforms without any problems.

Ordering Information

TN-SFP-OC3S8-Cxx
SFP 100BASE-FX/OC-3 single mode (LC)
[80 km/49.7 mi.] Link Budget: 29.0 dB

TN-SFP-LX8-Cxx
1000BASE-LX/Fiber Channel 1x
single mode (LC)
[80 km/49.7 mi.] Link Budget: 24.0 dB

TN-SFP-LX16-Cxx
1000BASE-LX/Fiber Channel 1x
single mode (LC)
[160 km/99.4 mi.] Link Budget: 37.0 dB

TN-SFP-LX20-Cxx
1000BASE-LX/Fiber Channel 1x
single mode (LC)
[200 km/24.9 mi.] Link Budget: 37.0 dB

TN-SFP-OC48S-Cxx
OC-48/STM-16/Fiber Channel
2x/1x/1000Base-LX single mode (LC)
[40km/124.2 mi.] Link Budget: 18.0 dB

TN-XFP-LR1-Cxx
XFP 10GBASE-LR/10G Fiber Channel
single mode (LC)
[10 km/6.2 mi.] Link Budget: 11.4 dB

TN-XFP-LR4-Cxx
XFP 10GBASE-ER/10G Fiber Channel
single mode (LC)
[40 km/24.9 mi.] Link Budget: 15.0 dB

****TN-XFP-LR7-Cxx**
XFP 10GBASE-ZR single mode (LC)
[70 km/43.6 mi.] Link Budget: 23.0 dB

xx = center wavelength (λ_c)

47 = 1470nm
49 = 1490nm
51 = 1510nm
53 = 1530nm
55 = 1550nm
57 = 1570nm
59 = 1590nm
61 = 1610nm

**Note: TN-XFP-LR7-Cxx
xx = 47, 49, 51, 53, 55, 57, 59, 61

TN-CWDM-xxx-1xx0

Cisco Compatible CWDM SFP Modules

Applications

- Gigabit Ethernet Switches and Routers
- Fiber Channel Switch Infrastructure
- xDSL Applications
- Metro Edge Switching

Features

- Coarse Wavelength Division Multiplexing (CWDM) ITU Grid Compliant Wavelengths
- Hot-Pluggable SFP Optical Transceiver With Duplex LC Connector
- Digital Diagnostic Function (DMI)
- Class 1 Laser International Safety Standard IEC-60825 Compliant
- Compatible with SFP Multi-Sourcing Agreement (MSA)
- Single +3.3 V Power Supply
- RoHS Compliant

Additional Features

- Compliant with IEEE 802.3z 1000BASE-LX/ZX
- Compliant with Fiber Channel 1x SM-LC-L FC-PI

TN-CWDM-SFP-1xx0 SFP Module

- Compliant with IEEE 802.3z 1000Base-LX/ZX
- Compliant with Fiber Channel
- 1x SM-LC-L FC-PI

TN-CWDM-100LX-1xx0 SFP Module

- Compliant with IEEE 802.3 100Base-FX

Specifications

Standards	IEEE 802.3z IEEE 802.3
Output Wavelength	-5.5nm < λ_c < +7.5nm
Dimensions	Width: 0.52" [13 mm] Depth: 2.18" [55 mm] Height: 0.33" [8 mm]
Power	3.3V
Environment	Operating: 0°C to 70°C Storage: -40°C to 85°C
Compliance	IEC-60825; FDA 21; CFR 1040.10 and 1040.11
Warranty	Lifetime

Note: The Transition Networks TN-CWDM-SFP-1xx0 and TN-CWDM-100LX-1xx0 small form factor pluggables (SFPs) are Cisco Compatible* and are designed for bi-directional serial optical data communications such as Gigabit Ethernet, or Fiber Channel 1x. Each SFP operates at a nominal CWDM wavelength. There are 18 wavelengths available in 20nm steps from 1270nm to 1610nm.

Transition Networks' SFP modules fully comply with the Multi-Sourcing Agreement (MSA). This compliance allows our SFP modules to be used in all other MSA compliant SFP platforms. In addition, TN-CWDM-SFP-1xx0 modules are also compatible with all Cisco SFP-based equipment, as well as Cisco's IOS software. TN SFP modules ARE NOT Cisco OEM brand modules.

Ordering Information

TN-CWDM-SFP-1xx0
1000Base-LX/ZX Fiber Channel
single mode (LC)
[80 km/49.7 mi.] Link Budget: 24.0 dB

TN-CWDM-100LX-1xx0
100Base-LX/SONET OC-3/SDH STM-1
single mode (LC)
[80 km/49.7 mi.] Link Budget: 29.0 dB

TN-CWDM-SFP-1xx0-40
1000Base-LX/ZX Fiber Channel
single mode (LC)
[40 km/24.9 mi.] Link Budget: 19.0 dB

****TN-CWDM-SFP-1xx0-16**
1000Base-LX/ZX Fiber Channel
single mode (LC)
[160 km/99.4 mi.] Link Budget: 36.0 dB

xx = center wavelength (λ_c)

47 = 1470nm
49 = 1490nm
51 = 1510nm
53 = 1530nm
55 = 1550nm
57 = 1570nm
59 = 1590nm
61 = 1610nm

**Note: TN-CWDM-SFP-1xx0-16
xx = 47, 49, 51, 53, 55, 57, 59, 61

TN-CWDM-10G-1xx0-x0

Cisco Compatible CWDM SFP+ Modules

Applications

- 10G Ethernet Switches and Routers
- xDSL Applications
- Metro Edge Switching

Features

- Compliant with IEEE 802.3ae 10GBASE-ER/EW
- SFF-8472 Digital Diagnostic Function (DMI)
- Maximum Link Length of 80KM
- RoHS Compliant (all models)
- Operating Temperature range 0°C to 70°C
- Storage Temperature range -40°C to 85°C
- Class 1 Laser International Safety Standard IEC 60825 Compliant

Additional Features

TN-CWDM-10G-1xx0-x0 SFP+ Module

- SFP+ Optical Transceiver with duplex LC connector
- Single +3.3 V Power Supply

Specifications

Standards	IEEE 802.3ae
Output Wavelength	-5.5nm < λ_c < +7.5nm
Dimensions	Width: 0.52" [13mm] Depth: 2.18" [55mm] Height: 0.33" [8 mm]
Power	+5v, 3.3v
Environment	Operating: 0°C to 70°C Storage: -40°C to 85°C
Compliance	IEC-60825; FDA 21; CFR 1040.10 and 1040.11
Warranty	Lifetime

Ordering Information

TN-CWDM-10G-1xx0-40
10GBase-LR/LW/10G Fiber Channel, SFP+ w/Digital Diagnostics (DMI) single mode (LC) [40 km/24.9 mi.] Link Budget: 14.1 dB

TN-CWDM-10G-1xx0-80
10GBase-LR/LW/10G Fiber Channel, SFP+ w/Digital Diagnostics (DMI) single mode (LC) [80 km/49.8 mi.] Link Budget: 24.0 dB

xx = center wavelength (λ_c)

47 = 1470nm
49 = 1490nm
51 = 1510nm
53 = 1530nm
55 = 1550nm
57 = 1570nm
59 = 1590nm
61 = 1610nm

Note: The Transition Networks TN-CWDM-xxx-1xx0-x0 10G modules are Cisco Compatible* and are designed for bi-directional serial optical data communications such as 10G Ethernet. Each X2/XFP/SFP+ operates at a nominal CWDM wavelength. There are 8 wavelengths available in 20nm steps from 1470nm to 1610nm.

Transition Networks' X2/XFP/SFP+ modules fully comply with the Multi-Sourcing Agreement (MSA). This compliance allows our X2/XFP/SFP+ modules to be used in all other MSA compliant XFP platforms. In addition, TN-CWDM-xxx-1xx0-x0 modules are also compatible with all Cisco X2/XFP/SFP+-based equipment, as well as Cisco's IOS software. TN SFP modules ARE NOT Cisco OEM brand modules.

DAC-10G-SFP-0xM

Direct Attached Copper Cable Assemblies for 10Gig Networks

The SFP+ copper cable assemblies were developed specifically as a cost-effective and low power alternative to optical cables and optical SFP+ modules for short reach links in high-speed interconnect applications.

Features

- Supports data transfer rates from 1Gbps up to 10+ Gbps
- Ideal for high speed interconnects in enterprise networking, storage area networks, and at service provider customer hand-off points
- Combines twin-axial shielded cable configurations with robust die cast housings for enhanced support of high frequency data rates
- Impedances matched to ensure interoperability and minimize EMI leakage through their fully-shielded design
- Standard SFP+ latch interoperable with all compliant interfaces

Applications

- InfiniBand SDR, DDR, and QDR
- Ethernet 1G and 10G
- Fiber Channel 8G and 10G
- FCoE 10G
- Networking
- Storage
- Hubs, switches, routers, servers, NICs

Specifications

Standards	Electrical: SFF-8431, SFF-8083 Mechanical: SFF-8432 EEPROM: SFF-8472 IEEE: 10GBase-CR
Electrical	Min. Dielectric Withstand Voltage: 300VDC Insulation Resistance: 1000Mohms Current Rating: 0.5 Amp Min/Signal Contact
Environment	Operating: -10°C to 70°C
Flammability Rating	UL 94 V-0
Green Features	RoHS, Lead Free
Shield	Braid/Foil
Plug	Backshell Material: Nickel-Plated Zinc Diecast Contact material: PCB with Gold-Plated Pads Plastic Material: LCP Latch: Positive Latching w/ Lanyard Pull
Cable	Conductor: Solid Wire Gauge: 30 AWG to 24 AWG Impedance: 100+/- 5 ohms Construction: Twin axial Cable ODCable 30 AWG = 4.45mm (0.175 in) 28 AWG = 4.7mm (0.185 in) 24 AWG = 5.7mm (0.255 in) Jacket Type: PVC Bend Radius: 5x Cable OD
Compatibility	MSA Compliant: Cables are compliant with Multi Sourcing Agreement compliant SFP ports Cisco Compatible: Starting with Cisco NX-OS Software release 4.1(3)N2.1, these cables are compatible with the Nexus 2000 and 5000 series switches
Shipping Weight	1 lb. [0.45 kg]
Warranty	Lifetime

Ordering Information

DAC-10G-SFP-01M
10Gig Direct Attached SFP+ copper cable, 30 AWG, 1 meter

DAC-10G-SFP-03M
10Gig Direct Attached SFP+ copper cable, 30 AWG, 3 meter

DAC-10G-SFP-05M
10Gig Direct Attached SFP+ copper cable, 28 AWG, 5 meter

DAC-10G-SFP-07M
10Gig Direct Attached SFP+ copper cable, 24 AWG, 7 meter

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