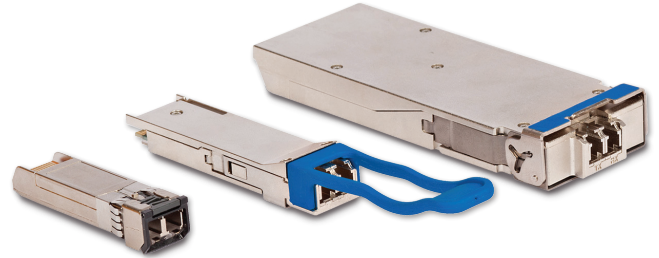# Fortinet Transceivers

Transceiver Modules for Fortinet Products

Fortinet's range of pluggable copper and optical transceiver modules are designed to complement Fortinet appliances that support transceiver module slots, including the FortiGate®, FortiSwitch™ and other appliance platforms.

Take the guesswork out of selecting transceivers

Common connectivity problems in enterprise and data center networks are often traced back to low-quality and incompatible transceiver modules, rather than a fault in the network appliances themselves. Fortinet's transceivers have been purpose-built and tested to work with Fortinet equipment, ensuring that your network is as stable and robust as possible, and taking the guesswork out of selecting compatible transceivers.

Wide range for maximum flexibility

Supporting various form factors, media types and throughput, Fortinet transceivers provide connectivity options to meet many different network architectures and deployment scenarios. Whether your network demands high-speed 100 GE inside the data center, or long-range 1 GE to connect data centers in different cities, Fortinet has a transceiver to meet your needs.

Highlights

- Copper and optical options
- Supports SFP, SFP+, QSFP+, DAC, CFP2 and QSFP28 slots
- Performance from 1 Gbps to 100 Gbps
- Tested for compatibility with Fortinet appliances

Key Features and Benefits

	Various Interface Options	Fortinet transceivers support various interfaces, including: SFP, SFP+, DAC and newer high-speed standards including QSFP+, CFP2 and QSFP28.
	Tested for Compatibility	You can rest assured that your Fortinet transceivers have been tested for compatibility on Fortinet products, taking the guesswork out of selecting transceivers for your environment.
	Maximize Network Uptime	Eliminate connectivity problems to maximize network uptime by using quality transceivers, designed to work with Fortinet products.
	Cost Effective	Transceiver modules can be expensive, especially those with sensitive high-speed optics. Fortinet delivers high-quality transceivers, while keeping cost to a minimum.

DATA SHEET | Fortinet Transceivers

Specifications

Quick Reference Matrix

	SFP (GE)	XFP (10 GE)	SFP+ (10 GE)	QSFP+ (40 GE)	CFP2 (100 GE)	QSFP28 (100 GE)
Maximum Transmission Distance						
10 Meter			SP-CABLE-ADASFP+			
30 Meter			FS-TRAN-SFP+GC			
100 Meter	FG-TRAN-GC FS-TRAN-GC			FG-TRAN-QSFP+SR & FG-TRAN-QSFP+SR-BIDI (on OM3 MMF)	FG-TRAN-CFP2-SR10	FG-TRAN-QSFP28-SR4
150 Meter				FG-TRAN-QSFP+SR & FG-TRAN-QSFP+SR-BIDI (on OM4 MMF)		
220 Meter	FG-TRAN-SX (62.5/125 µm) FR-TRAN-SX (62.5/125 µm)		FS-TRAN-SFP+LRM			
300 Meter		FG-TRAN-XFPSR (on OM3 MMF)	FG-TRAN-SFP+SR FS-TRAN-SFP+SR			
500 Meter	FG-TRAN-SX (50/125 µm) FR-TRAN-SX (50/125 µm)					
10 Kilometer	FG-TRAN-LX FR-TRAN-LX	FG-TRAN-XFPLR	FG-TRAN-SFP+LR		FG-TRAN-CFP2-LR4	FG-TRAN-QSFP28-LR4
40 Kilometer			FS-TRAN-SFP+ER			
90 Kilometer	FR-TRAN-ZX					

Transceivers

	FG-TRAN-GC	FS-TRAN-GC	FG-TRAN-SX	FG-TRAN-LX	FS-TRAN-SFP+GC	FG-TRAN-SFP+SR	FS-TRAN-SFP+SR
Protocol Standard	1000Base-T	1000Base-T	1000Base-SX	1000Base-LX	10GBASE-T	10GBase-SR	10GBase-SR
IEEE Standard	802.3ab	802.3ab	802.3z	802.3z	802.3az	802.3ae	802.3ae
Module Type	SFP	SFP	SFP	SFP	SFP+	SFP+	SFP+
Data Link Rate for Ethernet	1.25 Gbps	1.25 Gbps	1.25 Gbps	1.25 Gbps	10 Gbps	10 Gbps	10.3125 Gbps
Transmission Range	100 m	100 m	220 m / 500 m	10 km	30 m	300 m	300 m
Media	copper interface	Copper Interface	MM	SM	Copper Interface	MM	MM
Wavelength (nm)		—	850	1310	—	850	850
Connector Type	RJ-45	RJ-45	Duplex LC	Duplex LC	RJ-45	Duplex LC	Duplex LC
Power Dissipation	1.05 W	1.05 W	< 800 mw	< 830 mw	2.5W	600 mw	600 mW
Operating Temperature Range	0–85°C	0–85°C	0–70°C	0–70°C	-5 to +85°C	0–70°C	0–70°C
Hot Plug	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Serial ID PROM	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Digital Monitoring	No	No	No	Yes	No	Yes	Yes
Auto Negotiation	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Link Status	Yes	Yes	Yes	Yes	Yes	Yes	Yes

	FG-TRAN-SFP+LR	FS-TRAN-SFP+LRM	FS-TRAN-SFP+ER	SP-CABLE-ADASFP+	FG-TRAN-SFP28-SR	FG-TRAN-SFP28-LR
Protocol Standard	10GBase-LR	10GBASE-LRM	10GBASE-ER	DAC	25GBase-SR, 10GBase-SR	25GBase-LR
IEEE Standard	802.3ae	IEEE 802.3aq	IEEE 802.3ae	N/A	802.3by, 802.3ae	802.3cc
Module Type	SFP+	SFP+	SFP+	N/A	SFP	SFP
Data Link Rate for Ethernet	10 Gbps	10.3 Gbps	11.3 Gbps	1 G–10 Gbps	25.78 / 10.3 Gbps	25.78 Gbps
Transmission Range	10 km	220 m	40 km	.5 m–15 m	100m	10 km
Media	SM	MM	SM	N/A	MM	SM
Wavelength (nm)	1310	1310	1550	N/A	850	1310
Connector Type	Duplex LC	Duplex LC	Duplex LC	SFP+ card edge connector	Duplex LC	Duplex LC
Power Dissipation	850 mw	< 1W	1.5 W	N/A	1.2 W	1.5 W
Operating Temperature Range	0–85°C	-5–70°C	-5–70°C	N/A	0–70°C	0–70°C
Hot Plug	Yes	Yes	Yes	N/A	Yes	Yes
Serial ID PROM	Yes	Yes	Yes	Yes	Yes	Yes
Digital Monitoring	Yes	Yes	Yes	Yes	Yes	Yes
Auto Negotiation	Yes	Yes	Yes	Yes	No	No
Link Status	Yes	Yes	Yes	N/A	Yes	Yes

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Specifications

Transceivers

	FG-TRAN-QSFP+SR	FG-TRAN-QSFP+SR BIDI	FG-TRAN-QSFP+LR	FG-TRAN-CFP2-SR10	FG-TRAN-CFP2-LR4	FG-TRAN-QSFP28-SR4	FG-TRAN-QSFP28-LR4
Protocol Standard	40GBase-SR4	40GBase-SR-BiDi	40GBase-LR4	100GBase-SR10	100GBase-LR4	100GBase-SR4	100GBase-LR4
IEEE Standard	802.3ba	802.3ba	802.3ba	802.3ba	802.3ba	802.3bm	802.3ba
Module Type	QSFP+	QSFP+	QSFP+	CFP2	CFP2	QSFP28	QSFP28
Data Link Rate for Ethernet	1.06 Gbps–41.2 Gbps	41.2 Gbps	41.2 Gbps	103.12 Gbps	103.1 Gbps	103.1 Gbps	103.1 Gbps
Transmission Range	100 m (OM3)–150 m (OM4)	100 m (OM3)–150 m (OM4)	10 km	100 m (OM3)–150 m (OM4)	10 km	100 m (OM4)	10 km (SMF)
Media	MM	MM	SM	MM	SM	MM	SM
Wavelength (nm)	750–980	850–900		850	1310	850	1310
Connector Type	Single 1x12 MPO	Duplex LC	Duplex LC	24 fiber MPO	Duplex LC	MPO12	LC
Power Dissipation	< 1.5 W	< 3.5 W	< 3.5 W		< 8 W	< 3.5 W	< 3.5 W
Operating Temperature Range	0–70°C	0–70°C	0–70°C	0–70°C	0–70°C	0–70°C	0–70°C
Hot Plug	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Serial ID PROM	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Digital Monitoring	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Auto Negotiation	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Link Status	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Ruggedized Transceivers

	FR-TRAN-SX	FR-TRAN-LX	FR-TRAN-ZX	
Hardware Specifications				
Protocol Standard	1000Base-SX	1000Base-LX	1000Base-LX	
IEEE Standard	802.3z	802.3z	802.3z	
Module Type	SFP	SFP	SFP	
Data Link Rate for Ethernet	1.25 Gbps	1.25 Gbps	1.25 Gbps	
Transmission Range	500 m	10 km	90 km	
Media	MM	SM	SM	
Wavelength (nm)	850	1310	1550	
Connector Type	Duplex LC	Duplex LC	Duplex LC	
Power Dissipation	<500 mw	<600 mW	<700 mW	
Operating Temperature Range	-40–85°C	-40–85°C	-40–85°C	
Hot Plug	Yes	Yes	Yes	
Serial ID PROM	Yes	Yes	Yes	
Digital Monitoring	Yes	Yes	Yes	
Auto Negotiation	Yes	Yes	Yes	
Link Status	Yes	Yes	Yes	

FR-Series Transceivers — Transceivers with wider thermal range for use with Fortinet ruggedized products

Breakout Cables

	FG-TRAN-QSFP-4XSFP	FG-TRAN-QSFP-4XSFP-5	FG-CABLE-SR10-SFP+	FG-CABLE-SR10-SFP+5
Hardware Specifications				
Connector A	1x 40 GE QSFP+	1x 40 GE QSFP+	1x 100 GE SR10 CFP2	1x 100 GE SR10 CFP2
Connector A Type	MPO	MPO	MPO	MPO
Connector B	4x 10 GE SFP+	4x 10 GE SFP+	10x 10 GE SFP+	10x 10 GE SFP+
Connector B Type	LC duplex	LC duplex	LC duplex	LC duplex
Cable Length	1 m	5 m	1 m	5 m
Cable Type	OM3 MMF	OM3 MMF	OM3 MMF	OM3 MMF
Transceiver	Not included	Not included	Not included	Not included

Fortinet Breakout Cables — Qualified on Fortinet Products (on applicable interfaces)

Order Information

Product	SKU	Description
1 GE SFP LX transceiver module	FG-TRAN-LX	1 GE SFP LX transceiver module for all systems with SFP and SFP/SFP+ slots
1 GE SFP RJ45 transceiver module	FG-TRAN-GC	1 GE SFP RJ45 transceiver module for all systems with SFP and SFP/SFP+ slots
1 GE SFP SX transceiver module	FG-TRAN-SX	1 GE SFP SX transceiver module for all systems with SFP and SFP/SFP+ slots
10 GE SFP+ transceiver module, short range	FG-TRAN-SFP+SR	10 GE SFP+ transceiver module, short range for all systems with SFP+ and SFP/SFP+ slots
10 GE XFP transceiver module, short range	FG-TRAN-XFPSR	10 GE XFP transceiver module, short range for all systems with XFP slots
10 GE SFP+ transceiver module, long range	FG-TRAN-SFP+LR	10 GE SFP+ transceiver module, long range for all systems with SFP+ and SFP/SFP+ slots
10 GE XFP transceiver module, long range	FG-TRAN-XFPLR	10 GE XFP transceiver module, long range for all systems with XFP slots
25 GE SFP28 transceiver module, long range	FG-TRAN-SFP28-LR	25 GE SFP28 transceiver module, long range for all systems with SFP28 slots
25 GE/10 GE dual rate SFP28 transceiver module, short range	FG-TRAN-SFP28-SR	25 GE/10 GE dual rate SFP28 transceiver module, short range for all systems with SFP28/SFP+ slots
40 GE QSFP+ transceivers, short range	FG-TRAN-QSFP+SR	40 GE QSFP+ transceivers, short range for all systems with QSFP+ slots
40 GE QSFP+ transceivers, short range, BiDi	FG-TRAN-QSFP+SR-BIDI	40 GE QSFP+ transceivers, short range BiDi for systems with QSFP+ slots
40 GE QSFP+ transceivers, long range	FG-TRAN-QSFP+LR	40 GE QSFP+ transceivers, long range for all systems with QSFP+ slots
10 GE SFP+ active direct attach cable, 10m / 32.8 ft	SP-CABLE-ADASFP+	10 GE SFP+ active direct attach cable, 10m / 32.8 ft for all systems with SFP+ and SFP/SFP+ slots
100 GE CFP2 transceivers, long range	FG-TRAN-CFP2-LR4	100 GE CFP2 transceivers, long range, over single mode fiber, for all systems with CFP2 slots
100 GE CFP2 transceivers, short range	FG-TRAN-CFP2-SR10	100 GE CFP2 transceivers, 10 channel parallel fiber, short range for all systems with CFP2 slots
100 GE QSFP28 transceivers, short range	FG-TRAN-QSFP28-SR4	100 GE QSFP28 transceivers, 4 channel parallel fiber, short range for all systems with QSFP28 slots
100 GE QSFP28 transceivers, long range	FG-TRAN-QSFP28-LR4	100 GE QSFP28 transceivers, 4 channel parallel fiber, long range for all systems with QSFP28 slots
1 GE SFP RJ45 transceiver module	FS-TRAN-GC	1 GE SFP RJ45 transceiver module for systems with SFP/SFP+ slots
10 GE copper SFP+ transceiver module, up to 30m	FS-TRAN-SFP+GC	10 GE copper SFP+ RJ45 transceiver, up to 30m
10 GE SFP+ transceiver module, short range	FS-TRAN-SFP+SR	10 GE SFP+ transceiver module, short range for SFP/SFP+ slots
10 GE SFP+ transceivers, extended range	FS-TRAN-SFP+ER	10 GE SFP+ transceiver module, extended range for Fortinet systems with SFP+ slots
10 GE SFP+ transceivers, long range multimode	FS-TRAN-SFP+LRM	10 GE SFP+ transceiver module, long range multimode for Fortinet systems with SFP+ slots
1 GE SFP SX transceivers, MMF, -40–85°C operation	FR-TRAN-SX	1 GE SFP SX transceiver module, -40–85°C, over MMF, for all systems with SFP and SFP/SFP+ slots
1 GE SFP LX transceivers, SMF, -40–85°C operation	FR-TRAN-LX	1 GE SFP LX transceiver module, -40–85°C, over SMF, for all systems with SFP and SFP/SFP+ slots
1 GE SFP transceivers, 90 km range, -40–85°C operation	FR-TRAN-ZX	1 GE SFP transceivers, -40–85°C operation, 90 km range for all systems with SFP slots
40 GE QSFP+ to 4x 10 GE SFP+ optical breakout, 1 meter	FG-TRAN-QSFP-4XSFP	40 GE QSFP+ parallel breakout MPO to 4x LC connectors, 1 m reach, transceivers not included
40 GE QSFP+ to 4x 10 GE SFP+ optical breakout, 5 meter	FG-TRAN-QSFP-4SFP-5	40 GE QSFP+ parallel breakout MPO to 4x LC connectors, 5 m reach, transceivers not included
100 GE SR10 to 10x 10 GE fan out cable, 1 meter	FG-CABLE-SR10-SFP+	100 GE CFP2/QSFP28 parallel breakout MPO to 10x LC connectors, 1 m reach, transceivers not included
100 GE SR10 to 10x 10 GE fan out cable, 5 meter	FG-CABLE-SR10-SFP+5	100 GE CFP2/QSFP28 parallel breakout MPO to 10x LC connectors, 5 m reach, transceivers not included
10 GE SFP+ passive direct attach cable	SP-CABLE-FS-SFP+1	10 GE SFP+ passive direct attach cable, 1 m for systems with SFP+ and SFP/SFP+ slots
10 GE SFP+ passive direct attach Cable	SP-CABLE-FS-SFP+3	10 GE SFP+ passive direct attach cable, 3 m for systems with SFP+ and SFP/SFP+ slots
10 GE SFP+ passive direct attach cable	SP-CABLE-FS-SFP+5	10 GE SFP+ passive direct attach cable, 5 m for systems with SFP+ and SFP/SFP+ slots
10 GE SFP+ passive direct attach cable	SP-CABLE-FS-SFP+7	10 GE SFP+ passive direct attach cable, 7 m for systems with SFP+ and SFP/SFP+ slots
40 GE QSFP+ passive direct attach cable	SP-CABLE-FS-QSFP+1	40 GE QSFP+ passive direct attach cable, 1 m for systems with QSFP+ slots
40 GE QSFP+ passive direct attach cable	SP-CABLE-FS-QSFP+3	40 GE QSFP+ passive direct attach cable, 3 m for systems with QSFP+ slots
40 GE QSFP+ passive direct attach cable	SP-CABLE-FS-QSFP+5	40 GE QSFP+ passive direct attach cable, 5 m for systems with QSFP+ slots

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