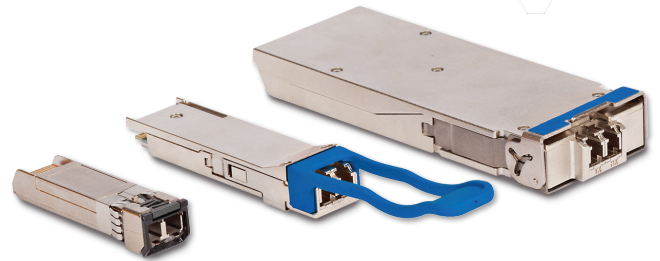# Fortinet Transceivers

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 and CFP2 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+ and CFP2.
	Tested for Compatibility	You can rest assured that your Fortinet transceivers have been tested for compatibility on Fortinet products, taking the guess-work 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.

SPECIFICATIONS

Quick Reference Matrix

	SFP (GE)	XFP (10 GE)	SFP+ (10 GE)	QSFP+ (40 GE)	CFP2 (100 GE)
Maximum Transmission Distance					
10 meter			SP-CABLE-ADASFP+		
100 meter	FG-TRAN-GC FS-TRAN-GC			FG-TRAN-QSFP+SR (on OM3 MMF)	FG-TRAN-CFP2-SR10
150 meter				FG-TRAN-QSFP+SR (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
40 kilometer			FS-TRAN-SFP+ER		
90 kilometer	FR-TRAN-ZX				
				1 QSFP TO 4 SFP, OM3, MMF	**1 CFP2 TO 10 SFP+, OM3, MMF**
Cable Length					
1 meter				FG-TRAN-QSFP-4XSFP	FG-CABLE-SR10-SFP+
5 meter				FG-TRAN-QSFP-4SFP-5	FG-CABLE-SR10-SFP+5

FG-Series Transceivers

	FG-TRAN-GC	FG-TRAN-SX	FG-TRAN-LX	FG-TRAN-SFP+SR	FG-TRAN-SFP+LR	FG-TRAN-QSFP+SR
Hardware Specifications						
Protocol Standard	1000Base-T	1000Base-SX	1000Base-LX	10GBase-SR	10GBase-LR	40GBase-SR4
IEEE Standard	802.3ab	802.3z	802.3z	802.3ae	802.3ae	802.3ba
Module Type	SFP	SFP	SFP	SFP+	SFP+	QSFP+
Data Link Rate for Ethernet	1.25 Gbps	1.25 Gbps	1.25 Gbps	10 Gbps	10 Gbps	1.06 Gb/s–41.2 Gbps
Transmission Range	100 m	220 m / 500 m	10 km	300 m	10 km	100 m (OM3)–150 m (OM4)
Media	copper interface	MM	SM	MM	SM	MM
Wavelength (nm)		850	1310	850	1310	750–980
Connector Type	RJ-45	Duplex LC	Duplex LC	Duplex LC	Duplex LC	Single 1x12 MPO
Power Dissipation	1.05 W	<800 mw	< 830 mw	600 mw	850 mw	<1.5 W
Operating Temperature Range	0–85°C	0–70°C	0–70°C	0–70°C	0–85°C	0–70°C
Hot Plug	Yes	Yes	Yes	Yes	Yes	Yes
Serial ID PROM	Yes	Yes	Yes	Yes	Yes	Yes
Digital Monitoring	No	No	Yes	Yes	Yes	Yes
Auto Negotiation	Yes	Yes	Yes	Yes	Yes	Yes
Link Status	Yes	Yes	Yes	Yes	Yes	Yes
****	**FG-TRAN-QSFP+LR**	**SP-CABLE-ADASFP+**	**FG-TRAN-CFP2-SR10**	**FG-TRAN-CFP2-LR4**	**FG-TRAN-QSFP28-SR4**	
Hardware Specifications						
Protocol Standard	40Gbase-LR4	DAC	100GBase-SR10	100GBase-LR4	100GBASE-SR4	
IEEE Standard	802.3ba		802.3ba	802.3ba	802.3bm	
Module Type	QSFP+		CFP2	CFP2	QSFP28	
Data Link Rate for Ethernet	41.2 Gbps	1 G–10 Gbps	103.12 Gbps	103.1 Gbps	103.1	
Transmission Range	10 km	.5 m–15 m	100 m (OM3)–150 m (OM4)	10 km	100m (OM4)	
Media	SM		MM	SM	MM	
Wavelength (nm)		NA	850	1310	850	
Connector Type	Duplex LC	SFP+ card edge connector	24 fiber MPO	Duplex LC	MPO12	
Power Dissipation	<3.5 W			<8 W	< 3.5W	
Operating Temperature Range	0–70°C		0–70°C	0–70°C	0–70°C	
Hot Plug	Yes		Yes	Yes	Yes	
Serial ID PROM	Yes	Yes	Yes	Yes	Yes	
Digital Monitoring	Yes	Yes	Yes	Yes	Yes	
Auto Negotiation	Yes	Yes	Yes	Yes	Yes	
Link Status	Yes	Yes	Yes	Yes	Yes	

FG-Series Transceivers — Qualified for Fortinet products except FG-TRAN-GC is not meant for FortiSwitches

SPECIFICATIONS

FS-Series Transceivers

	FS-TRAN-GC	FS-TRAN-SFP+SR	FS-TRAN-SFP+LRM	FS-TRAN-SFP+ER
Hardware Specifications				
Protocol Standard	1000 Base-T	10GBase-SR	10GBASE-LRM	10GBASE-ER
IEEE Standard	802.3ab	802.3ae	IEEE 802.3aq	IEEE 802.3ae
Module Type	SFP	SFP+	SFP+	SFP+
Data Link Rate for Ethernet	1.25 Gbps	10.3125 Gbps	10.3 Gbps	11.3 Gbps
Transmission Range	100 m	300 m	220 m	40 km
Media	copper interface	MM	MM	SM
Wavelength (nm)		850	1310	1550
Connector Type	RJ-45	Duplex LC	Duplex LC	Duplex LC
Power Dissipation	1.05 W	600 mW	< 1W	1.5 W
Operating Temperature Range	0–85°C	0–70°C	-5–70°C	-5–70°C
Hot Plug	Yes	Yes	Yes	Yes
Serial ID PROM	Yes	Yes	Yes	Yes
Digital Monitoring	No	Yes	Yes	Yes
Auto Negotiation	Yes	Yes	Yes	Yes
Link Status	Yes	Yes	Yes	Yes

FS-Series Transceivers — Qualified for Fortinet products including FortiSwitches

FR-Series 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

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
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, 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
1 GE SFP RJ45 transceiver module	FS-TRAN-GC	1 GE SFP RJ45 transceiver module for FortiSwitch with SFP and SFP/SFP+ slots
10 GE SFP+ transceiver module, short range	FS-TRAN-SFP+SR	10 GE SFP+ transceiver module, short range for FortiSwitch with SFP+ and SFP/SFP+ slots
10 GE SFP+ transceivers, extended range	FS-TRAN-SFP+EX	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 active optical cable with 1m length
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 connector cable, 5m reach
100 GE SR10 to 10x 10 GE fan out cable, 1 meter	FG-CABLE-SR10-SFP+	100 GE SR10 to 10x 10 GE SFP+ 1M/0.5M fan out cable, transceivers not included
100 GE SR10 to 10x 10 GE fan out cable, 5 meter	FG-CABLE-SR10-SFP+5	100 GE SR10 to 10x 10 GE SFP+ 5M fan out cable, transceivers not included

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