

SFP/XFP/SFP+ Transceivers

Small Form-Factor Pluggable Transceivers



- Fiber optic or electrical transceiver units, providing pluggable interfaces according to known standards and specifications
- MSA (Multi-Source Agreement) compliance

SFP (Small Form-factor Pluggable) transceivers (SFPs) are hot-swappable input/output optical and electrical transceiver units, each providing a different interface according to known compliance standards and pre-determined specifications. The units are plugged into other products to provide the required interface, thus enabling optimal combination of Capex reduction, ease of network planning and stock flexibility.

RAD's SFP transceivers are fully compliant with the Multisource Agreement (MSA) specifications, and are fully interoperable with third-party standards-based devices.

On account of their small size, SFPs allow higher port densities than with other transceivers, resulting in more efficient host device design.

The intuitive squeeze-and-pull mechanism makes it easy to install SFP transceivers and remove them. Rather than replacing an entire circuit board containing several soldered-in modules, individual SFPs are unplugged and replaced for repair or upgrade, with cost savings both in maintenance and in upgrading efforts.

Built-in digital diagnostic monitoring (DDM) functionality is available for designated SFP types, allowing users to monitor the unit's transmitter optical output power, receiver input optical power, internal temperature, supply voltage and transmitter bias current levels in real-time.

The XFP (10 Gigabit Small Form-factor Pluggable) and SFP+ (Enhanced Small Form-factor Pluggable) are transceivers designed for 10G network applications. XFP/SFP+ modules are hot-swappable providing different interfaces according to known compliance standards and pre-determined specifications.

RAD's XFP/SFP+ transceivers are fully compliant with the Multisource Agreement (MSA) specifications, and are fully interoperable with third-party standards-based devices.

The intuitive squeeze-and-pull mechanism makes it easy to install XFP/SFP+ transceivers and remove them. Rather than replacing an entire circuit board containing several soldered-in modules, individual XFPs/SFP+s are unplugged and replaced for repair or upgrade, with cost savings both in maintenance and in upgrading efforts.

XFP/SFP+ support built-in digital diagnostic monitoring (DDM) functionality allowing users to monitor the unit's transmitter optical output power, receiver input optical power, internal temperature, supply voltage and transmitter bias current levels in real-time.

SFP/XFP/SFP+ Transceivers

Small Form-Factor Pluggable Transceivers

Specifications

FIBER OPTIC INTERFACES

Notes:

- Commercial SFP/XFP/SFP+ Transceivers are designed to withstand temperatures between 0–70°C (32–158°F).
- Some of RAD's SFP/XFP/SFP+ Transceivers are available with extended temperature range between -20–85°C (-4–185°F) or in industrially hardened versions, designed to withstand temperatures between -40–85°C (-40–185°F).
- The specified typical range may vary according to the specific product in which the SFP/XFP/SFP+ is used. For more information, refer to the data sheet of the specific product.

Table 1. Fiber Optic Fast Ethernet/STM-1/STM-4 SFPs

Ordering Name, Interface, Connector	Wavelength, Fiber Type [nm], [μm]	Standards	Transmitter Type	Input Power [dBm]		Output Power [dBm]		Typical Max. Range	
				[min]	[max]	[min]	[max]	[km]	[miles]
SFP-1, SFP-1D* Fast Ethernet/STM-1, LC	1310, 62.5/125 multimode	100BaseFX, IEEE 802.3 (FE) ANSI T1 646-1995 (STM-1)	LED	-30	-14	-20	-14	2	1.2
SFP-2, SFP-2D*, SFP-2DH*, SFP-2H* Fast Ethernet/STM-1, LC	1310, 9/125 single mode	100BaseLX10, IEEE 802.3 (FE), G.957 S1.1 (STM-1)	Laser	-28	-8	-15	-8	15	9.3
SFP-3, SFP-3D*, SFP-3H* Fast Ethernet/STM-1, LC	1310, 9/125 single mode	G.957 L1.1 (STM-1)	Laser	-34	-10	-5	0	40	24.8
SFP-4, SFP-4D* Fast Ethernet/STM-1, LC	1550, 9/125 single mode	G.957 L1.2 (STM-1)	Laser	-34	-10	-5	0	80	49.7
SFP-10A, SFP-10AD*, SFP-10ADH* Fast Ethernet/STM-1, LC	Tx – 1310/Rx – 1550, 9/125 single mode (single fiber)	100BaseBX10, IEEE 802.3 (FE) G.957 (STM-1)	Laser (WDM)	-28	-8	-14	-8	20	12.4
SFP-10B, SFP-10BD*, SFP-10BDH* Fast Ethernet/STM-1, LC	Tx – 1550/Rx – 1310, 9/125 single mode (single fiber)	100BaseBX10, IEEE 802.3 (FE) G.957 (STM-1)	Laser (WDM)	-28	-8	-14	-8	20	12.4
SFP-14D* STM-4, LC, DDM, internal calibration	1310, 62.5/125 multimode	–	Laser	-28	-14	-20	-14	0.5	0.3
SFP-15, SFP-15DH* STM-4, LC	1310, 9/125 single mode	G.957 S4.1	Laser	-28	-8	-15	-8	15	9.3

* Legend: **D** – internal DDM calibration; **H** – industrially hardened SFP -40–85°C (-40–185°F); **ED** – external DDM calibration

Table 1. Fiber Optic Fast Ethernet/STM-1/STM-4 SFPs (cont.)

Ordering Name, Interface, Connector	Wavelength, Fiber Type [nm], [μm]	Standards	Transmitter Type	Input Power [dBm]		Output Power [dBm]		Typical Max. Range	
				[min]	[max]	[min]	[max]	[km]	[miles]
SFP-16 STM-4, LC	1550, 9/125 single mode	G.957 L4.2	Laser	-28	-8	-3	+2	80	49.7
SFP-18A, SFP-18AED* Fast Ethernet/STM-1, LC	Tx - 1310/Rx - 1550, 9/125 single mode (single fiber)	-	Laser (WDM)	-28	-8	-5	0	40	24.8
SFP-18B, SFP-18BED* Fast Ethernet/STM-1, LC	Tx - 1550/Rx - 1310, 9/125 single mode (single fiber)	-	Laser (WDM)	-28	-8	-5	0	40	24.8
SFP-24 Fast Ethernet/STM-1, LC	850, 50/125 multimode	-	VCSEL	-25	-2	-10	-4	2	1.2
	850, 62.5/125 multimode	-	VCSEL	-25	-2	-10	-4	1	0.6
SFP-75D STM-4, LC	1550, 9/125 single mode		Laser	-34	-8	0	+5	120	74.5

* **Legend:** *D* – internal DDM calibration; *H* – industrially hardened SFP -40–85°C (-40–185°F); *ED* – external DDM calibration

SFP/XFP/SFP+ Transceivers

Small Form-Factor Pluggable Transceivers

Table 2. Fiber Optic Gigabit Ethernet SFPs

Ordering Name, Interface, Connector	Wavelength, Fiber Type [nm], [μm]	Standards	Transmitter Type	Input Power [dBm]		Output Power [dBm]		Typical Max. Range	
				[min]	[max]	[min]	[max]	[km]	[miles]
SFP-5, SFP-5D*, SFP-5DH*, SFP-5H* Gigabit Ethernet, LC	850, 50/125 multimode	1000BaseSX, IEEE 802.3 (GbE)	VCSEL	-17	0	-9.5	0	0.55	0.3
SFP-6, SFP-6D*, SFP-6DH*, SFP-6H* Gigabit Ethernet, LC	1310, 9/125 single mode	1000BaseLX10, IEEE 802.3 (GbE)	Laser	-20	-3	-9.5	-3	10	6.2
SFP-7, SFP-7D*, SFP-7DH* Gigabit Ethernet, LC	1550, 9/125 single mode	-	Laser	-22	-3	0	+5	80	49.7
SFP-8, SFP-8D*, SFP-8DH*, SFP-8H* Gigabit Ethernet, LC	1310, 9/125 single mode	-	Laser	-21	-3	-4	+4	40	24.8
SFP-17A, SFP-17AD*, SFP-17AH* Gigabit Ethernet, LC	Tx - 1310/Rx - 1490, 9/125 single mode (single fiber)	1000BaseBX10, IEEE 802.3 (GbE)	Laser (WDM)	-20	-3	-9	-3	10	6.2
SFP-17B, SFP-17BD*, SFP-17BH* Gigabit Ethernet, LC	Tx - 1490/Rx - 1310, 9/125 single mode (single fiber)	1000BaseBX10, IEEE 802.3 (GbE)	Laser (WDM)	-20	-3	-9	-3	10	6.2
SFP-20, SFP-20EDH* Gigabit Ethernet, LC	1550, 9/125 single mode	-	Laser	-32	-8	+1	+5	120	74.5
SFP-21A, SFP-21AED*, SFP-21AH* Gigabit Ethernet, LC	Tx - 1310/Rx - 1490, 9/125 single mode (single fiber)	-	Laser (WDM)	-24	-3	-5	0	40	24.8
SFP-21B, SFP-21BED*, SFP-21BH* Gigabit Ethernet, LC	Tx - 1490/Rx - 1310, 9/125 single mode (single fiber)	-	Laser (WDM)	-24	-3	-5	0	40	24.8
SFP-22A, SFP-22AH* Gigabit Ethernet, LC	Tx - 1490/Rx - 1570, 9/125 single mode (single fiber)	-	Laser (WDM)	-24	-3	0	+5	80	49.7
SFP-22B, SFP-22BH* Gigabit Ethernet, LC	Tx - 1570/Rx - 1490, 9/125 single mode (single fiber)	-	Laser (WDM)	-24	-3	0	+5	80	49.7
SFP-23A, SFP-23AED* Gigabit Ethernet, LC	Tx - 1310/Rx - 1550, 9/125 single mode (single fiber)	-	Laser (WDM)	-24	-3	-5	0	40	24.8
SFP-23B, SFP-23BED* Gigabit Ethernet, LC	Tx - 1550/Rx - 1310, 9/125 single mode (single fiber)	-	Laser (WDM)	-24	-3	-5	0	40	24.8
SFP-28A, SFP-28AD* Gigabit Ethernet, LC	Tx - 1310/Rx - 1550 9/125 single mode (single fiber)	-	Laser (WDM)	-20	-3	-9	-3	10	6.2
SFP-28B, SFP-28BD* Gigabit Ethernet, LC	Tx - 1550/Rx - 1310, 9/125 single mode (single fiber)	-	Laser (WDM)	-20	-3	-9	-3	10	6.2

* **Legend:** *D* - internal DDM calibration; *H* - industrially hardened SFP -40-85°C (-40-185°F); **ED** - external DDM calibration

Table 2. Fiber Optic Gigabit Ethernet SFPs (cont.)

Ordering Name, Interface, Connector	Wavelength, Fiber Type [nm], [μm]	Standards	Transmitter Type	Input Power [dBm]		Output Power [dBm]		Typical Max. Range	
				[min]	[max]	[min]	[max]	[km]	[miles]
SFP-27D* , SFP-27DH* Gigabit Ethernet, LC	1270, 9/125 single mode	G.694.2, CWDM grid compliant	Laser (CWDM)	-28	-3	0	+5	60	37.3
SFP-29D* , SFP-29DH* Gigabit Ethernet, LC	1290, 9/125 single mode	G.694.2, CWDM grid compliant	Laser (CWDM)	-28	-3	0	+5	60	37.3
SFP-31D* , SFP-31DH* Gigabit Ethernet, LC	1310, 9/125 single mode	G.694.2, CWDM grid compliant	Laser (CWDM)	-28	-3	0	+5	60	37.3
SFP-33D* , SFP-33DH* Gigabit Ethernet, LC	1330, 9/125 single mode	G.694.2, CWDM grid compliant	Laser (CWDM)	-28	-3	0	+5	60	37.3
SFP-35D* , SFP-35DH* Gigabit Ethernet, LC	1350, 9/125 single mode	G.694.2, CWDM grid compliant	Laser (CWDM)	-28	-3	0	+5	60	37.3
SFP-37D* , SFP-37DH* Gigabit Ethernet, LC	1370, 9/125 single mode	G.694.2, CWDM grid compliant	Laser (CWDM)	-28	-3	0	+5	60	37.3
SFP-39D* , SFP-39DH* Gigabit Ethernet, LC	1390, 9/125 single mode	G.694.2, CWDM grid compliant	Laser (CWDM)	-28	-3	0	+5	60	37.3
SFP-41D* , SFP-41DH* Gigabit Ethernet, LC	1410, 9/125 single mode	G.694.2, CWDM grid compliant	Laser (CWDM)	-28	-3	0	+5	60	37.3
SFP-43D* , SFP-43DH* Gigabit Ethernet, LC	1430, 9/125 single mode	G.694.2, CWDM grid compliant	Laser (CWDM)	-28	-3	0	+5	60	37.3
SFP-45D* , SFP-45DH* Gigabit Ethernet, LC	1450, 9/125 single mode	G.694.2, CWDM grid compliant	Laser (CWDM)	-28	-3	0	+5	60	37.3
SFP-47D* , SFP-47DH* Gigabit Ethernet, LC	1470, 9/125 single mode	G.694.2, CWDM grid compliant	Laser (CWDM)	-24	-3	0	+5	80	49.7
SFP-49D* , SFP-49DH* Gigabit Ethernet, LC	1490, 9/125 single mode	G.694.2, CWDM grid compliant	Laser (CWDM)	-24	-3	0	+5	80	49.7
SFP-51D* , SFP-51DH* Gigabit Ethernet, LC	1510, 9/125 single mode	G.694.2, CWDM grid compliant	Laser (CWDM)	-24	-3	0	+5	80	49.7
SFP-53D* , SFP-53DH* Gigabit Ethernet, LC	1530, 9/125 single mode	G.694.2, CWDM grid compliant	Laser (CWDM)	-24	-3	0	+5	80	49.7
SFP-55D* , SFP-55DH* Gigabit Ethernet, LC	1550, 9/125 single mode	G.694.2, CWDM grid compliant	Laser (CWDM)	-24	-3	0	+5	80	49.7
SFP-57D* , SFP-57DH* Gigabit Ethernet, LC	1570, 9/125 single mode	G.694.2, CWDM grid compliant	Laser (CWDM)	-24	-3	0	+5	80	49.7
SFP-59D* , SFP-59DH* Gigabit Ethernet, LC	1590, 9/125 single mode	G.694.2, CWDM grid compliant	Laser (CWDM)	-24	-3	0	+5	80	49.7
SFP-61D* , SFP-61DH* Gigabit Ethernet, LC	1610, 9/125 single mode	G.694.2, CWDM grid compliant	Laser (CWDM)	-24	-3	0	+5	80	49.7

* Legend: *D* – internal DDM calibration; *H* – extended temperature range -20–85°C (-4–185°F)

SFP/XFP/SFP+ Transceivers

Small Form-Factor Pluggable Transceivers

Table 2. Fiber Optic Gigabit Ethernet SFPs (cont.)

Ordering Name, Interface, Connector	Wavelength, Fiber Type [nm], [μm]	Standards	Transmitter Type	Input Power [dBm]		Output Power [dBm]		Typical Max. Range	
				[min]	[max]	[min]	[max]	[km]	[miles]
SFP-70DH-27* Gigabit Ethernet, LC	1270, 9/125 single mode	G.694.2, CWDM grid compliant	Laser (CWDM)	-32	-8	0	+5	80	49.7
SFP-70DH-29* Gigabit Ethernet, LC	1290, 9/125 single mode	G.694.2, CWDM grid compliant	Laser (CWDM)	-32	-8	0	+5	80	49.7
SFP-70DH-31* Gigabit Ethernet, LC	1310, 9/125 single mode	G.694.2, CWDM grid compliant	Laser (CWDM)	-32	-8	0	+5	80	49.7
SFP-70DH-33* Gigabit Ethernet, LC	1330, 9/125 single mode	G.694.2, CWDM grid compliant	Laser (CWDM)	-32	-8	0	+5	80	49.7
SFP-70DH-35* Gigabit Ethernet, LC	1350, 9/125 single mode	G.694.2, CWDM grid compliant	Laser (CWDM)	-32	-8	0	+5	80	49.7
SFP-70DH-37* Gigabit Ethernet, LC	1370, 9/125 single mode	G.694.2, CWDM grid compliant	Laser (CWDM)	-32	-8	0	+5	80	49.7
SFP-70DH-39* Gigabit Ethernet, LC	1390, 9/125 single mode	G.694.2, CWDM grid compliant	Laser (CWDM)	-32	-8	0	+5	80	49.7
SFP-70DH-41* Gigabit Ethernet, LC	1410, 9/125 single mode	G.694.2, CWDM grid compliant	Laser (CWDM)	-32	-8	0	+5	80	49.7
SFP-70DH-43* Gigabit Ethernet, LC	1430, 9/125 single mode	G.694.2, CWDM grid compliant	Laser (CWDM)	-32	-8	0	+5	80	49.7
SFP-70DH-45* Gigabit Ethernet, LC	1450, 9/125 single mode	G.694.2, CWDM grid compliant	Laser (CWDM)	-32	-8	0	+5	80	49.7
SFP-70DH-47* Gigabit Ethernet, LC	1470, 9/125 single mode	G.694.2, CWDM grid compliant	Laser (CWDM)	-32	-8	0	+5	120	74.5
SFP-70DH-49* Gigabit Ethernet, LC	1490, 9/125 single mode	G.694.2, CWDM grid compliant	Laser (CWDM)	-32	-8	0	+5	120	74.5
SFP-70DH-51* Gigabit Ethernet, LC	1510, 9/125 single mode	G.694.2, CWDM grid compliant	Laser (CWDM)	-32	-8	0	+5	120	74.5
SFP-70DH-53* Gigabit Ethernet, LC	1530, 9/125 single mode	G.694.2, CWDM grid compliant	Laser (CWDM)	-32	-8	0	+5	120	74.5
SFP-70DH-55* Gigabit Ethernet, LC	1550, 9/125 single mode	G.694.2, CWDM grid compliant	Laser (CWDM)	-32	-8	0	+5	120	74.5
SFP-70DH-57* Gigabit Ethernet, LC	1570, 9/125 single mode	G.694.2, CWDM grid compliant	Laser (CWDM)	-32	-8	0	+5	120	74.5
SFP-70DH-59* Gigabit Ethernet, LC	1590, 9/125 single mode	G.694.2, CWDM grid compliant	Laser (CWDM)	-32	-8	0	+5	120	74.5
SFP-70DH-61* Gigabit Ethernet, LC	1610, 9/125 single mode	G.694.2, CWDM grid compliant	Laser (CWDM)	-32	-8	0	+5	120	74.5
SFP-GPON-1DH* Gigabit Ethernet, GPON ONT Class B+, SC, industrially hardened	Tx - 1310/Rx - 1490 9/125 single mode (single fiber) (Tx:1244.16Mb/s Rx:2488.32Mb/s)	G.984.2	Laser (WDM)	-28	-8	0.5	5	20	12.4

* Legend: **D** - internal DDM calibration; **H** - industrially hardened SFP -40-85°C (-40-185°F)

Table 2. Copper STM-1/Fast Ethernet/Gigabit Ethernet/10 Gigabit Ethernet SFP/XFP

Ordering Name, Interface, Connector	Standards	Cable Type	Impedance	Typical Max. Range (Attenuation)	
			[Ω]	[m]	[ft]
SFP-9G, SFP-9-GH* Gigabit Ethernet, RJ-45, SerDes interface	1000BaseT, IEEE 802.3	UTP, CAT.5	100	100	
SFP-11 STM-1E, mini BNC, DIN 1.0/2.3	G.703, supports CMI encoder/decoder	Coaxial	75	135 (12.7 dB)**	
SFP-11PP STM-1E, Push-Pull mini BNC, DIN 1.0/2.3	G.703, supports CMI encoder/decoder	Coaxial	75	135 (12.7 dB)**	
SFP-30, SFP-30H* Gigabit Ethernet, RJ-45, SGMII Interface	10/100/1000BaseT, IEEE 802.3	UTP, cat. 5	100	100	
XFP-14 10 Gigabit Ethernet, Copper, 3 meter length DAC (Direct attached copper)		Twinax AWG24	100	3	

Table 4. Fiber Optic Multirate SFPs

Ordering Name, Interface, Connector	Wavelength, Fiber Type [nm], [μ m]	Standards	Transmitter Type	Input Power [dBm]		Output Power [dBm]		Typical Max. Range	
				[min]	[max]	[min]	[max]	[km]	[miles]
SFP-26D* multirate 100 Mbps – 2.67 Gbps, Gigabit Ethernet/Fiber Channel/ Fast Ethernet/STM-16/STM-4/ STM-1, LC	1310, 9/125 single mode	-	Laser	-18 (2.67 Gbps/ OC-48/FE)	0	-5	0	15	9.3
SFP-74ED-17 to SFP-74ED-61* multirate 155Mbps – 2.67 Gbps Gigabit Ethernet/Fiber Channel/ STM-16/ STM-4/ STM-1, LC	C-Band, Channels 17 to 61, 9/125 single mode	ITU Grid, 100 Ghz spacing, C-Band Channels	Laser [DWDM]	-30	-8	0	+4	120	74.5

Notes:

* **Legend:** **D** – internal DDM calibration; **H** – industrially hardened SFP -40–85°C (-40 –185°F); **ED** – external DDM calibration

** With SFP-11/SFP-11PP, a 135m range is attainable when using RG59 B/U (at 78 MHz, in accordance with the square root of frequency law).

SFP/XFP/SFP+ Transceivers

Small Form-Factor Pluggable Transceivers

Table 5. Fiber Optic 10 Gigabit Ethernet XFPs

Ordering Name, Interface, Connector	Wavelength, Fiber Type [nm], [μm]	Standards	Transmitter Type	Input Power [dBm]		Output Power [dBm]		Typical Max. Range	
				[min]	[max]	[min]	[max]	[km]	[miles]
XFP-1D*, XFP-1DH* 10 Gigabit Ethernet, LC	1310, 9/125 single mode	10GBASE-LR/LW IEEE 802.3	Laser	-14.4	+0.5	-8.2	+0.5	10	6.2
XFP-2D*, XFP-2DH* 10 Gigabit Ethernet, LC	1550, 9/125 single mode	10GBASE-ZR/ZW IEEE 802.3	Laser	-24	-7	0	+4	80	49.7
XFP-3D*, XFP-3DH* 10 Gigabit Ethernet, LC	1550, 9/125 single mode	10GBASE-ER/EW IEEE 802.3	Laser	-15.8	-1	-4.7	+4	40	24.8
XFP-4D* 10 Gigabit Ethernet, LC	850, 50/125 multimode	10GBASE-SR/SW IEEE 802.3	VCSEL	-9.9	-1	-7.3	-1	0.3	0.186
XFP-5D-17 to XFP-5D-61* 10 Gigabit Ethernet, LC	C-Band, Channels 17 to 61, 9/125 single mode	10GBase-ER/EW IEEE 802.3 ITU grid, 100 Ghz spacing, C-Band channels	Laser [DWDM]	-15.8	-1	-4.7	+4	40	24.8
XFP-7D-17 to XFP-7D-61* 10 Gigabit Ethernet, LC	C-Band, Channels 17 to 61, 9/125 single mode	10GBase-ZR/ZW ITU grid, 100 Ghz spacing, C-Band channels	Laser [DWDM]	-24	-7	-1	+4	80	49.7

Table 6. Fiber Optic 10 Gigabit Ethernet SFP+

Ordering Name, Interface, Connector	Wavelength, Fiber Type [nm], [μm]	Standards	Transmitter Type	Input Power [dBm]		Output Power [dBm]		Typical Max. Range	
				[min]	[max]	[min]	[max]	[km]	[miles]
SFP-P-1DH* 10 Gigabit Ethernet, LC	1310nm, 9/125 single mode	10GBase-LR/LW IEEE 802.3	Laser	-14.4	+0.5	-8.2	+0.5	10	6.2
SFP-P-2DH* 10 Gigabit Ethernet, LC	1550nm, 9/125 single mode	10GBase-ZR/ZW	Laser	-24	-7	0	+4	80	49.7
SFP-P-3DH* 10 Gigabit Ethernet, LC	1550nm, 9/125 single mode	10GBase-ER/EW IEEE 802.3	Laser	-15.8	-1	-4.7	+4	40	24.8
SFP-P-4DH* 10 Gigabit Ethernet, LC	850nm, 50/125 multimode	10GBase-SR/SW IEEE 802.3	VCSEL	-9.9	-1	-7.3	-1	0.3	0.186
SFP-P-5ADH* 10 Gigabit Ethernet, LC	Tx – 1330 Rx – 1270 9/125 single mode (single fiber)	10GBase-LR/LW IEEE 802.3	Laser (WDM)	-14	+0.5	-8.2	+0.5	10	6.2
SFP-P-5BDH* 10 Gigabit Ethernet, LC	Tx – 1270/ Rx – 1330 9/125 single mode (single fiber)	10GBase-LR/LW IEEE 802.3	Laser (WDM)	-14	+0.5	-8.2	+0.5	10	6.2

* Legend: **D** – internal DDM calibration; **H** – industrially hardened SFP -40–85°C (-40–185°F)

SFP/XFP/SFP+ Transceivers

Small Form-Factor Pluggable Transceivers

Ordering

To order an SFP/XFP/SFP+ unit, use its ordering name as listed in *Tables 1-6*.

Note: *It is strongly recommended to order RAD products with original RAD SFPs/XFPs/SFP+s installed. This will ensure that prior to shipping; RAD has performed comprehensive functional quality tests on the entire assembled unit, including the SFP/XFP/SFP+ devices.*

RAD cannot guarantee full compliance to product specifications for products using non-RAD SFPs/XFPs/SFP+s.

SUPPLIED ACCESSORIES

CBL-MINIBNC-BNC

Two adapter cables for converting mini BNC connectors to regular BNC coaxial connectors (for SFP-11)

CBL-MINIBNC/PP-BNC

Two adapter cables for converting mini BNC Push-Pull connectors to regular BNC coaxial connectors (for SFP-11/PP)

127-100-08/17 | Specifications are subject to change without prior notice. © 1988-2017 RAD Data Communications Ltd. RAD products/technologies are protected by registered patents. To review specifically which product is covered by which patent, please see [ip.rad.com](http://rad.com). The RAD name, logo, logo type, and the product names MINID, Optimum, Airmax, Iphix, and MICK are registered trademarks of RAD Data Communications Ltd. All other trademarks are the property of their respective holders.

International Headquarters

24 Raoul Wallenberg Street
Tel Aviv 69719, Israel
Tel. 972-3-6458181
Fax 972-3-6498250, 6474436
E-mail market@rad.com

North American Headquarters

900 Corporate Drive
Mahwah, NJ 07430, USA
Tel. 201-5291100
Toll free 1-800-4447234
Fax 201-5295777
E-mail market@radusa.com

www.rad.com Order this publication by Catalog No. 803703



Your Network's Edge®