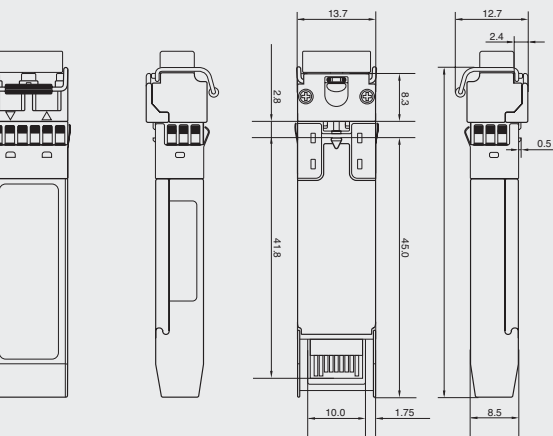




# SFP+ 10G

## Overview

Integra Optics' SFP+ transceivers are designed in accordance to industry standards and are available in a variety of power budgets and data rate options. Integra SFP+ transceivers are coded to be 100% OEM compatible and are more than capable of significantly growing network capacity to levels far beyond that of previous generation optical transceivers



## Features

- Operating Data Rate up to 11.3Gbps
- Distance Ranging up to 120km
- MMF and SMF with Duplex LC Connector Interface
- Commercial and Industrial Temperature Rated Available
- Digital Diagnostics Monitoring
- SFP+ MSA Compliant

## Applications

- SFP+ 10GBase-SR, SFP+ 10GBase-LRM, SFP+ 10GBase-IR, SFP+ 10GBase-LR, SFP+ 10GBase-eLR, SFP+ 10GBase-ER, SFP+ 10GBase-ER (1550nm), SFP+ 10GBase-ZR, SFP+ 10GBase-eZR (100km), SFP+ 10GBase-eZR 120km
- Metro-Ethernet, Data Center, and Enterprise Networks
- Sonet/SDH
- Multirate Fibre Channel and CPRI
- OTN and Other Optical Links

## Product Specifications

Integra Part Number	Wavelength (nm)	Distance (km)	Budget (dB)	TX Min/Max	RX Min/Max	Fiber Type
SFP+ 10GBase-SR	850	0.3	5.1	-6/-1	-11.1/-1	MMF/LC
SFP+ 10GBase-LRM	1310	0.22	3.5	-6.6/0.5	-10/1.5	MMF/LC
SFP+ 10GBase-IR	1310	2	8.4	-6/-1	-14.4/0.5	SMF/LC
SFP+ 10GBase-LR <sup>1</sup>	1310	10	6.2	-8.2/0.5	-14.4/0.5	SMF/LC
SFP+ 10GBase-eLR	1310	20	11.4	-3/1	-14.4/0.5	SMF/LC
SFP+ 10GBase-ER	1310	40	16	1/5	-15/0.5	SMF/LC
SFP+ 10GBase-ER <sup>2</sup>	1550	40	11.1	-4.7/4	-15.8/-1	SMF/LC
SFP+ 10GBase-ZR	1550	80	23	0/5	-23/-8	SMF/LC
SFP+ 10GBase-EZR	1550	100	26	1/5	-25/-8	SMF/LC
SFP+ 10GBase-EZR+	1550	120	27	2/6	-25/-7	SMF/LC

Note1: Typical output power is -1dBm, giving an average power budget of 13.4dB or greater

Note2: Typical output power is -1dBm, giving an average power budget of 14dB or greater

## Detailed Specifications

Parameter	Minimum	Typical	Maximum	Unit
Storage Temperature	-40	-	85	°C
Operating Case Temperature - C-Temp	0	-	75	°C
Power Dissipation	-	-	1	W
Power Supply Voltage	3.15	-	3.46	V
Distance 50/125um MMF	-	-	300	m

## Transmitter

Parameter	Minimum	Typical	Maximum	Unit
Center Wavelength	840	850	860	nm
RMS Spectral Width	-	-	0.45	nm
Data Rate	0.6	-	11.3	Gbps
Average Output Power Per Lane	-6	-	-1	dBm
Extinction Ratio	3	-	-	dB

## Receiver

Parameter	Minimum	Typical	Maximum	Unit
Center Wavelength	840	850	860	nm
Average Power Per Lane	-11.1	-	-1	dBm
Optical Return Loss	-	-	-12	dB

## Detailed Specifications

Parameter	Minimum	Typical	Maximum	Unit
Storage Temperature	-40	-	85	°C
Operating Case Temperature - C-Temp	0	-	70	°C
Operating Case Temperature - I-Temp	-40	-	85	°C
Power Dissipation (I-Temp)	-	-	1	W
Power Supply Voltage	3.135	3.3	3.465	V
Distance 50/125um MMF	-	-	220	m

## Transmitter

Parameter	Minimum	Typical	Maximum	Unit
Center Wavelength	1270	1310	1355	nm
Spectral Width	-	-	3	nm
Data rate	0.6	-	11.3	Gbs
Average Output Power Per Lane	-6	-	-1	dBm

## Receiver

Parameter	Minimum	Typical	Maximum	Unit
Center Wavelength	1260	-	1565	nm
Average Power Per Lane	-14.4	-	0.5	dBm

## Detailed Specifications

Parameter	Minimum	Typical	Maximum	Unit
Storage Temperature	-40	-	85	°C
Operating Case Temperature - C-Temp	0	-	70	°C
Operating Case Temperature - E-Temp	-10	-	70	°C
Power Dissipation	-	-	1	W
Power Supply Voltage	3.15	-	3.45	V
Distance Over SMF	-	-	2	km

## Transmitter

Parameter	Minimum	Typical	Maximum	Unit
Center Wavelength	1295	1310	1325	nm
Spectral Width	-	-	3	nm
Data Rate	0.6	-	11.3	Gbps
Average Output Power Per Lane	-6	-	-1	dBm
Extinction Ratio	3.5	-	-	dB
Total Dispersion Penalty	-	-	3.2	dB

## Receiver

Parameter	Minimum	Typical	Maximum	Unit
Center Wavelength	1260	-	1365	nm
Average Power Per Lane	-14.4	-	0.5	dBm

## Detailed Specifications

Parameter	Minimum	Typical	Maximum	Unit
Storage Temperature	-40	-	85	°C
Operating Case Temperature - C-Temp	0	-	70	°C
Operating Case Temperature - E-Temp	-40	-	85	°C
Power Dissipation	-	-	1	W
Power Supply Voltage	3.15	-	3.45	V
Distance Over SMF	-	-	10	km

## Transmitter

Parameter	Minimum	Typical	Maximum	Unit
Center Wavelength	1270	1310	1355	nm
Spectral Width	-	-	1	nm
Data Rate	0.6	-	11.3	Gbps
Average Output Power Per Lane	-8.2	-	0.5	dBm
Extinction Ratio	3.5	-	-	dB
Total Dispersion Penalty	-	-	3.2	dB

## Receiver

Parameter	Minimum	Typical	Maximum	Unit
Center Wavelength	1260	-	1565	nm
Average Power Per Lane	-14.4	-	0.5	dBm

## Detailed Specifications

Parameter	Minimum	Typical	Maximum	Unit
Storage Temperature	-40	-	85	°C
Operating Case Temperature - C-Temp	0	-	70	°C
Operating Case Temperature - I-Temp	-40	-	85	°C
Power Dissipation	-	-	1	W
Power Supply Voltage	3.15	-	3.45	V
Distance Over SMF	-	-	20	km

## Transmitter

Parameter	Minimum	Typical	Maximum	Unit
Center Wavelength	1270	1310	1355	nm
Spectral Width	-	-	1	nm
Data Rate	0.6	-	11.3	Gbps
Average Output Power Per Lane	-3	-	1	dBm
Extinction Ratio	3.5	-	-	dB
Transmitter Dispersion Penalty	-	-	3.2	dB

## Receiver

Parameter	Minimum	Typical	Maximum	Unit
Center Wavelength	1260	-	1565	nm
Average Power Per Lane	-14.4	-	0.5	dBm

## Detailed Specifications

Parameter	Minimum	Typical	Maximum	Unit
Storage Temperature	-40	-	85	°C
Operating Case Temperature - C-Temp	0	-	70	°C
Operating Case Temperature - E-Temp	-40	-	85	°C
Power Dissipation	-	-	1.5	W
Power Supply Voltage	3.15	-	3.45	V
Distance Over SMF	-	40	-	km

## Transmitter

Parameter	Minimum	Typical	Maximum	Unit
Center Wavelength	1270	1310	1325	nm
Spectral Width	-	-	1	nm
Data Rate	0.6	-	11.3	Gbps
Average Output Power Per Lane	1	-	5	dBm
Extinction Ratio	3.5	-	-	dB
Side Mode Suppression Ratio	30	-	-	dB

## Receiver

Parameter	Minimum	Typical	Maximum	Unit
Center Wavelength	1260	-	1565	nm
Average Power Per Lane	-15	-	0.5	dBm

## SFP+ 10GBase-ER (1550nm)

### Detailed Specifications

Parameter	Minimum	Typical	Maximum	Unit
Storage Temperature	-40	-	85	°C
Operating Case Temperature - C-Temp	0	-	70	°C
Operating Case Temperature - I-Temp	-40	-	85	°C
Power Dissipation (I-Temp)	-	1	1.5	W
Power Supply Voltage	3.15	-	3.45	V
Distance Over SMF	-	40	-	km

### Transmitter

Parameter	Minimum	Typical	Maximum	Unit
Center Wavelength	1530	1550	1565	nm
Spectral Width	-	-	1	nm
Data Rate	.6	-	11.3	Gbps
Average Output Power Per Lane	-4.7	-1	4	dBm
Extinction Ratio	3.5	-	-	dB
Side Mode Supression Ratio	30	-	-	dB

### Receiver

Parameter	Minimum	Typical	Maximum	Unit
Center Wavelength	1530	-	1565	nm
Average Power Per Lane	-15.8	-	-1	dBm



## Detailed Specifications

Parameter	Minimum	Typical	Maximum	Unit
Storage Temperature	-40	-	85	°C
Operating Case Temperature - C-Temp	0	-	70	°C
Operating Case Temperature - I-Temp	-40	-	85	°C
Power Dissipation	-	-	1.5	W
Power Supply Voltage	3.15	-	3.45	V
Distance Over SMF	-	-	80	km

## Transmitter

Parameter	Minimum	Typical	Maximum	Unit
Center Wavelength	1528	1550	1565	nm
Spectral Width	-	-	1	nm
Data Rate	0,6	-	11.3	Gbps
Average Output Power Per Lane	0	-	5	dBm
Extinction Ratio	8	-	-	dB
Side Mode Supression Ratio	30	-	-	dB
Total Dispersion Penalty	-	-	3	dB

## Receiver

Parameter	Minimum	Typical	Maximum	Unit
Center Wavelength	1260	-	1600	nm
Average Power Per Lane	-23	-	-8	dBm

## Detailed Specifications

Parameter	Minimum	Typical	Maximum	Unit
Storage Temperature	-40	-	85	°C
Operating Case Temperature - C-Temp	0	-	70	°C
Operating Case Temperature - I-Temp	-40	-	85	°C
Power Dissipation	-	-	2	W
Power Supply Voltage	3.15	-	3.45	V
Distance Over SMF	-	-	100	km

## Transmitter

Parameter	Minimum	Typical	Maximum	Unit
Center Wavelength	1520	1550	1580	nm
Spectral Width	-	-	1	nm
Data Rate	0.6	-	10.31	Gbps
Average Output Power Per Lane	1.5	-	5	dBm
Extinction Ratio	8.2	-	-	dB
Side Mode Suppression Ratio	30	-	-	dB

## Receiver

Parameter	Minimum	Typical	Maximum	Unit
Center Wavelength	1260	-	1600	nm
Average Power Per Lane	-24.5	-	-8	dBm

## Detailed Specifications

Parameter	Minimum	Typical	Maximum	Unit
Storage Temperature	-40	-	85	°C
Operating Case Temperature - C-Temp	0	-	70	°C
Power Dissipation	-	-	2	W
Power Supply Voltage	3.15	-	3.45	V
Distance Over SMF	-	-	80	km

## Transmitter

Parameter	Minimum	Typical	Maximum	Unit
Center Wavelength	1530	1550	1565	nm
Data Rate	1	10.3	10.7	Gbps
Average Output Power Per Lane	2	-	6	dBm
Extinction Ratio	6	-	-	dB
Side Mode Suppression Ratio	30	-	-	dB
Side Mode Suppression Ratio	30	-	-	dB

## Receiver

Parameter	Minimum	Typical	Maximum	Unit
Center Wavelength	1260	-	1600	nm
Average Power Per Lane	-25	-	-7	dBm

## Did You Know?

You can ensure coding accuracy and eliminate time spent finding replacement optics when you choose Integra transceivers. Our Smart Coder allows technicians to reconfigure our transceivers for specific hardware right in the field.

## Additional Information

For more information about Integra Optics' SFP+ transceivers please contact a sales representative at [sales@integraoptics.com](mailto:sales@integraoptics.com) or visit [integraoptics.com](http://integraoptics.com)