

Optical: Transceiver Types

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Summary

This page was created to describe and list interface types.

The name transceiver is often used interchangeably with the name optic.

Related Pages:

- [Optical: Jumpers and Connectors](#)
- [Optical INTERNAL: Moduletek Optics](#)

Transceiver Form Factors

Transceiver Types			
Interface	Speed	Description	Connector
SFP	1G	small form-factor pluggable	LC
SFP+	10G	enhanced small form-factor pluggable	LC
SFP28	25G		LC
GBIC	1G	gigabit interface converter	SC
QSFP+	40G/4x10G	Quad Small Form-factor Pluggable	LC/MPO
QSFP28	100G		LC
QSFP56	200G		LC
QSFP56-DD	400G		LC
CFP	100G	C form-factor pluggable	SC
CFP2	100G		LC
CFP4	100G		LC
XENPAK	10G		SC
X2	10G		SC
XFP	10G		LC

Transceiver Model Naming Conventions

Transceiver Model Designations							
Designation	Also Compatible With	Cable Type	Description	Wavelength	Distance	Speed	Notes
PLR4	LR	Singlemode	40G breakout to 4x10G LR	1310nm	10km	10G	See LR. QSFP+

CWDM		Singlemode	Coarse Wavelength Division Multiplexing	1270nm to 1610nm			See ER, EX, ZR
DWDM		Singlemode	Dense Wavelength Division Multiplexing	1520.25nm to 1577.03nm			See ER, EX, ZR
AOC		Multimode	Active Optical Cable			1G/10G /25G/40G /100G	Direct attach > 5 meters
DAC		Twinaxial	Direct Attach Cable		<5m passive, >5m active	1G/10G /25G/40G /100G	This is not optical.
T		Copper			100m or less, depending on type	107/100M /1G/2.5G /5G/10G*	*Depending on model. This is not optical. Will often have speed in model#, such as 10BASE, 100BASE, 1000base, 10/100/1000BASE. 10G has a limited distance depending on cable type.
LX	LH	Singlemode		1310nm	10km	1G	
LH	LX	Singlemode	Long haul	1310nm	10km	1G	
ZX		Singlemode		1310nm	80km	1G	
LR		Singlemode	Long Reach	1310nm	10km	10G	
LR4		Singlemode		Multiple	10km	100G	4x25Gbps channels. There are some extended reach versions that can go 20 or even 30km.
ER	EX, ZR (Match channel if you can - mismatch will work without a mux in an emergency, mismatched distance with ZR)	Singlemode	Extended Reach	1550nm	40km	1G/10G	They can be baseband, CWDM, or DWDM. "Baseband" is typically a lower tolerance ~1550nm optic that is cheaper and not compatible with DWDM/CWDM channel plans.
EX	ER, ZR (Match channel if you can - mismatch will work without a mux in an emergency, mismatched distance with ZR)	Singlemode	Extended Reach	1550nm	40km	1G/10G	They can be baseband, CWDM, or DWDM. "Baseband" is typically a lower tolerance ~1550nm optic that is cheaper and not compatible with DWDM/CWDM channel plans.
ZR	ER, EX (Match channel if you can - mismatch will work without a mux in an emergency, mismatched distance)	Singlemode		1550nm	80km	1G/10G /100G	They can be baseband, CWDM, or DWDM. "Baseband" is typically a lower tolerance ~1550nm optic that is cheaper and not compatible with DWDM/CWDM channel plans.
BX		Singlemode	Bi-Directional Singlemode	Multiple	10, 20, 40, 60 or 80km	100m/1G /10G	Sends and receives on the same strand of fiber. Note that optics will come in a pairing, and may be designated upstream and downstream. Difficult to troubleshoot, muxing is preferred.
LRM		Multimode	Long Reach Multimode	1310nm	220m		
SX		Multimode		850nm	550m	1G	
USR	SR (Distance permitting)	Multimode	Ultra Short Range	850nm	100m	10G	
SR	USR (Distance permitting)	Multimode	Short Reach	850nm	300m	10G	
SR4		Multimode	Short Reach	850nm	100m	100G	4x25Gbps channels.
PR/PON		Singlemode	Passive optical networks, point to multipoint	Multiple			Residential FTTH services