



Transceiver Selection Guide

To be able to select a matching transceiver for a given application and hardware, all below stated parameters A-F have to be determined. Only with a complete set of answers a quick & successful selection is possible!

A) Transceiver type "form-factor" / MSA type

The transceiver has to mechanically & electrically fit into a given switch, router etc. Transceiver MSAs define mechanical form factors including electric interface as well as power consumption and cable connector types. Following form factors are available, underlined types are most common:

| | |
|--|--------|
| <input type="checkbox"/> SFP / <u>SFP+</u> / <u>XFP</u> / CFP / Xenpak / X2 / GBIC | Other: |
|--|--------|

B) Protocol and Data rate

Different switch/router support different protocol and data rate. Underlined types are most common:

| | |
|---|--------|
| <input type="checkbox"/> Gigabit Ethernet 1GE / <u>10GE</u> / 40GE / 100GE | Other: |
| <input type="checkbox"/> Fiber Channel 1GFC (1.25Gbps) / 2GFC / 4GFC / 8GFC / 16GFC | |
| <input type="checkbox"/> SDH STM-1 (155Mbps) / STM-4 (622Mbps) / STM-16 (2.5Gbps) / STM-64 (10Gbps) | |
| <input type="checkbox"/> Multirate (155Mbps to 2.67Gbps) | |
| <input type="checkbox"/> CPRI up to 6Gbps (for Video Transmission) | |

C) Power Budget

The transceiver power budget is the difference between laser launch power and receiver sensitivity and has to be 2-3dB larger than the measured link loss. If the link loss cannot be measured it has to be calculated. Therefore transmission distance [km], number of ODFs, patches and passive optical components (Muxes) have to be known. Please state all additional component / splice / patch cords losses that are present.

| | |
|---|--|
| <input type="checkbox"/> Power budget (dB) | dB |
| <input type="checkbox"/> Alternative values | Distance: no of patch cords: loss from other components (incl. Muxes): |

D) Transport Media / Transceiver "Color"

What transport media will be used: copper, single mode fiber (SMF), multimode fiber (MMF). If SMF is used what is the optical transmission spectrum: "grey" (wide 1310 / wide 1550nm) or "colored" (CWDM or DWDM).

If CWDM or DWDM shall be used, channels need to be specified (lead time may vary significantly).

| | |
|--|--------|
| <input type="checkbox"/> 850nm MM / 1310nm grey / 1550nm grey / Copper (RJ45) | Other: |
| <input type="checkbox"/> <u>CWDM</u> (1270-1610nm) / <u>DWDM</u> (100GHz ch 17-61) / DWDM tunable 50GHz (c-Band) | |
| <input type="checkbox"/> Bi-Di (pls. specify wavelength pair) | |

MM = Multimode / all others are single mode

E) Equipment Compatibility / "Coding"

In what switch/router is the transceiver supposed to work. Is the equipment "open for 3rd party transceivers" or "vendor locked". In the 2nd case, the transceiver has to be coded to be accepted by the equipment. Therefore switch/router brand and model & firmware version must be known (e.g. Cisco Catalyst 8500, IOS 12.2 - 44SE)

| | | |
|--|--|--------|
| Switch / Router Vendor Name -> coding type | | |
| <input type="checkbox"/> | Uncoded / None | Other: |
| <input type="checkbox"/> | 3 Com / Alcatel / Arista / Brocade (pls. differ from Foundry) / Ciena / Cisco / Dell | |
| <input type="checkbox"/> | Ericsson / Force 10 / HP / Juniper / Huawei / Marconi / Nortel / Transmode | |

F) Extras

Usually digital diagnostics are included and expected, but some SFP are available without DMI on request. Are further extras needed like extended operating temperature range?

Quantity

Requested quantity has significant influence on price / delivery time

| | | |
|--------------------------|-----|--|
| <input type="checkbox"/> | pcs | |
|--------------------------|-----|--|

Additional Comments

| | | |
|--------------------------|--------------------------------------|--|
| <input type="checkbox"/> | e.g. testing requested / recommended | |
|--------------------------|--------------------------------------|--|

Additional Info

How to "translate" common IEEE descriptions (used by Cisco) like LX, SR, ZR...

Base -T: "copper" SFP with electrical RJ45 interface

SX: SFP 850nm, MM, grey, 1GE, approx. 500m

LX: SFP 1310nm, SM, grey, 1GE, approx. 8km

EX: SFP 1310nm, SM, grey, 1GE, approx. 40km

ZX: SFP 1550nm, SM, grey, 1GE, approx. 70km

CX4: "copper" XFP with electrical IB4x connector

SR: SFP+ or XFP 850nm, MM, grey, 10GE, approx. 300m

LR: SFP+ or XFP 1310nm, SM, grey, 10GE, approx. 10km

ER: SFP+ or XFP 1550nm, SM, grey, 10GE, approx. 40km

ZR: SFP+ or XFP 1550nm, SM, grey, 10GE, approx. 80km

SR4: QSFP 850nm, MM, 40GE, approx. 100m

SR10: CFP 850nm, MM, 100GE, approx. 100m

LR4: CFP or QSFP 1310nm, SM, 40GE (CFP or QSFP) or 100GE, approx. 10km

MM = multimode

SM = single mode