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# **OmniSwitch AOS Release 8 Transceivers Guide**

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Alcatel·Lucent   
Enterprise

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**This user guide contains transceiver specifications and compatibility information for the OmniSwitch AOS Release 8 and supported platforms. The information described in this guide is subject to change without notice.**

**Attention: Use of any transceivers other than those part numbers listed in the Compatibility Matrices is prohibited. Failure to comply with these matrices is not guaranteed for proper performance and may result in voiding the warranty for the affected platforms.**

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# About This Guide

This *OmniSwitch AOS Release 8 Transceivers Guide* provides specifications and compatibility information for the supported OmniSwitch transceivers for all OmniSwitch AOS Release 8 products.

## Supported Platforms

This information in this guide applies to the following products:

- OmniSwitch 6900
- OmniSwitch 6860(E)
- OmniSwitch 6865
- OmniSwitch 9900
- OmniSwitch 6560

## Who Should Read this Manual?

The audience for this user guide is network administrators and IT support personnel who need to provide network connectivity using SFP, SFP+, and QSFP+ transceivers.

## When Should I Read this Manual?

Read this guide as soon as you are ready to integrate your OmniSwitch into your network and you are ready to provide connectivity using the supported transceivers. You should have already stepped through the first login procedures and read the brief software overviews in the appropriate *OmniSwitch Hardware Guide*.

This guide includes information about the supported OmniSwitch transceivers.

- SFP/SFP+/QSFP+ specifications
- SFP/SFP+/QSFP+ compatibility information

## What is Not in this Manual?

Procedures for switch management methods, such as CLI, web-based (WebView or OmniVista) or SNMP, are outside the scope of this guide.

For information on WebView and SNMP switch management methods consult the *OmniSwitch Switch Management Guide*. Information on using WebView and OmniVista can be found in the context-sensitive on-line help available with those network management applications.

This guide is designed to provide transceiver specification and compatibility information only and is not intended as a reference for any CLI commands or configuration information. Refer to the Documentation Roadmap for a list of available user guides.

## How is the Information Organized?

Chapters in this guide are broken down by transceiver type.

**Specification Information.** Each transceiver has an associated table providing individual specifications for all supported transceivers.

**Compatibility Information.** A compatibility chart is provided for each transceiver specifying which modules or switch the transceiver is supported on.

# Documentation Roadmap

The OmniSwitch user documentation suite was designed to supply you with information at several critical junctures of the configuration process. The following section outlines a roadmap of the manuals that will help you at each stage of the configuration process. Under each stage, we point you to the manual or manuals that will be most helpful to you.

## Stage 1: Using the Switch for the First Time

**Pertinent Documentation:** *OmniSwitch Hardware Users Guide*  
*Release Notes*

This guide provides all the information you need to get your switch up and running the first time. It provides information on unpacking the switch, rack mounting the switch, installing NI modules, unlocking access control, setting the switch's IP address, and setting up a password. It also includes succinct overview information on fundamental aspects of the switch, such as hardware LEDs, the software directory structure, CLI conventions, and web-based management.

At this time you should also familiarize yourself with the Release Notes that accompanied your switch. This document includes important information on feature limitations that are not included in other user guides.

## Stage 2: Gaining Familiarity with Basic Switch Functions

**Pertinent Documentation:** *OmniSwitch Hardware Users Guide*  
*OmniSwitch AOS Release 8 Switch Management Guide*

Once you have your switch up and running, you will want to begin investigating basic aspects of its hardware and software. Information about switch hardware is provided in the *OmniSwitch 10K Hardware Guide*. This guide provides specifications, illustrations, and descriptions of all hardware components, such as chassis, power supplies, Chassis Management Modules (CMMs), Network Interface (NI) modules, and cooling fans. It also includes steps for common procedures, such as removing and installing switch components.

This guide is the primary users guide for the basic software features on a single switch. This guide contains information on the switch directory structure, basic file and directory utilities, switch access security, SNMP, and web-based management. It is recommended that you read this guide before connecting your switch to the network.

## Stage 3: Integrating the Switch Into a Network

**Pertinent Documentation:** *OmniSwitch AOS Release 8 Network Configuration Guide*  
*OmniSwitch AOS Release 8 Advanced Routing Configuration Guide*  
*OmniSwitch AOS Release 8 Data Center Switching Guide*

When you are ready to connect your switch to the network, you will need to learn how the OmniSwitch implements fundamental software features, such as 802.1Q, VLANs, Spanning Tree, and network routing protocols. The *Network Configuration Guide* contains overview information, procedures, and examples on how standard networking technologies are configured on the OmniSwitch.

The *Advanced Routing Guide* includes configuration information for networks using advanced routing technologies (OSPF and BGP) and multicast routing protocols (DVMRP and PIM-SM).

The *Data Center Switching Guide* includes configuration information for data center networks using virtualization technologies (SPBM and UNP) and Data Center Bridging protocols (PFC, ETC, and DCBX).

**Anytime**

The *OmniSwitch AOS Release 8 CLI Reference Guide* contains comprehensive information on all CLI commands supported by the switch. This guide includes syntax, default, usage, example, related CLI command, and CLI-to-MIB variable mapping information for all CLI commands supported by the switch. This guide can be consulted anytime during the configuration process to find detailed and specific information on each CLI command.



## Related Documentation

The following are the titles and descriptions of all the OmniSwitch user manuals:

- *OmniSwitch 9900/6900/6860/6865/6560 Hardware Users Guides*

Describes the hardware and software procedures for getting an OmniSwitch up and running as well as complete technical specifications and procedures for all OmniSwitch chassis, power supplies, fans, and Network Interface (NI) modules.

- *OmniSwitch AOS Release 8 CLI Reference Guide*

Complete reference to all CLI commands supported on the OmniSwitch. Includes syntax definitions, default values, examples, usage guidelines and CLI-to-MIB variable mappings.

- *OmniSwitch AOS Release 8 Switch Management Guide*

Includes procedures for readying an individual switch for integration into a network. Topics include the software directory architecture, image rollback protections, authenticated switch access, managing switch files, system configuration, using SNMP, and using web management software (WebView).

- *OmniSwitch AOS Release 8 Network Configuration Guide*

Includes network configuration procedures and descriptive information on all the major software features and protocols included in the base software package. Chapters cover Layer 2 information (Ethernet and VLAN configuration), Layer 3 information (routing protocols, such as RIP and IPX), security options (authenticated VLANs), Quality of Service (QoS), link aggregation, and server load balancing.

- *OmniSwitch AOS Release 8 Advanced Routing Configuration Guide*

Includes network configuration procedures and descriptive information on all the software features and protocols included in the advanced routing software package. Chapters cover multicast routing (DVMRP and PIM-SM), Open Shortest Path First (OSPF), and Border Gateway Protocol (BGP).

- *OmniSwitch AOS Release 8 Data Center Switching Guide*

Includes an introduction to the OmniSwitch data center switching architecture as well as network configuration procedures and descriptive information on all the software features and protocols that support this architecture. Chapters cover Shortest Path Bridging MAC (SPBM), Data Center Bridging (DCB) protocols, Virtual Network Profile (vNP), and the Edge Virtual Bridging (EVB) protocol.

- *OmniSwitch AOS Release 8 Transceivers Guide*

Includes transceiver specifications and product compatibility information.

- *OmniSwitch AOS Release 8 Specifications Guide*

Includes Specifications table information for the features documented in the Switch Management Guide, Network Configuration Guide, Advanced Routing Guide, and Data Center Switching Guide.

- *Technical Tips, Field Notices*

Includes information published by Alcatel's Customer Support group.

- *Release Notes*

Includes critical Open Problem Reports, feature exceptions, and other important information on the features supported in the current release and any limitations to their support.

# Technical Support

An Alcatel-Lucent service agreement brings your company the assurance of 7x24 no-excuses technical support. You'll also receive regular software updates to maintain and maximize your Alcatel-Lucent product's features and functionality and on-site hardware replacement through our global network of highly qualified service delivery partners.

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# 1 Small Form-Factor Pluggables (SFP/SFP+/QSFP+)

OmniSwitch Series switches use both copper-based and fiber-based optical Small Form Factor Pluggable transceivers. These transceivers are fully hot-swappable and are available for both short-reach and long-reach applications. Copper-based and fiber-based optical transceivers can be mixed on the same module.

## In This Chapter

This chapter describes the technical specifications for all the OmniSwitch supported transceivers. For additional details about OmniSwitch modules, see the appropriate *OmniSwitch Hardware Guide*.

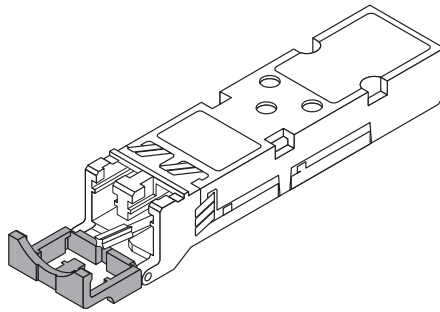
Transceiver specifications in this chapter include:

- SFP MSA Specifications. See [“SFP MSA Specification”](#) on page 1-2.
- Transceiver Installation. See [“Transceiver Installation and Removal”](#) on page 1-3.
- 40-Gigabit Fiber Optic Cable Overview. See [“40-Gigabit Fiber Optic Cables”](#) on page 1-6.
- Gigabit Ethernet Transceivers. See [“Gigabit Ethernet Transceivers”](#) on page 1-7.
- Dual Speed Ethernet Transceivers. See [“Dual Speed Ethernet Transceivers”](#) on page 1-13.
- 100-FX Ethernet Transceivers. See [“100 FX Ethernet Transceivers”](#) on page 1-15.
- 10-Gigabit SFP+ Transceivers. See [“10-Gigabit SFP+ Transceivers”](#) on page 1-19.
- 40-Gigabit QSFP+ Transceivers. See [“40-Gigabit QSFP+ Transceivers”](#) on page 1-24.
- 40-Gigabit QSFP+ Transceivers. See [“Industrial Transceivers”](#) on page 1-29.
- Fibre Channel Transceivers. See [“Fibre Channel Transceivers”](#) on page 1-28.
- For a transceiver compatibility matrix, see [“Transceiver Compatibility Matrix”](#) on page 2-35.

# SFP MSA Specification

The Small Form-Factor Pluggable (SFP) MSA (Multi Source Agreement) is a specification for a common interface for optical modular transceivers. The SFP connector consists of a 20-pin receptacle and an SFP housing cage. The connector provides the interface for the hot pluggable SFP module. Each SFP module contains a serial interface to provide identification information that describes the SFP capabilities, stand interfaces, manufacturer and other information.

For information on installing SFPs, refer to the documentation included with the transceiver.



This diagram is a representation only; the physical appearance of the actual module may vary slightly.

## Small Form Factor Pluggable (SFP)

# Transceiver Installation and Removal

Follow the instructions below for the appropriate transceiver type.

**ESD Caution:** Before handling the module, you must discharge all static electricity on your person to avoid Electrostatic Discharge (ESD) damage. If using a wrist strap, ensure that the wrist strap touches your skin. Attach the other end of the strap to the chassis. If your chassis provides a grounding lug, this can be used. Refer to your hardware user guide for details.

If using a wrist strap, ensure that the wrist strap touches your skin. Attach the other end of the strap to the chassis. If your chassis provides a grounding lug, this can be used. Refer to your hardware user guide for details.

**Dust Exposure:** To reduce the risk of dust exposure and physical damage, be sure to replace the protective rubber cover (provided) when the SFP is not in use.

**Eye Safety:** SFP transceivers are international Class 1 laser products and are eye-safe devices *when operated within the limits of manufacturers' specifications*. Operating SFP transceivers in a manner inconsistent with intended usage and specification may result in hazardous radiation exposure.

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**Note:** After removing a transceiver, wait for a minimum of 5 seconds before re-inserting any transceiver into the same port. This allows sufficient time for software to detect the removal of the transceiver.

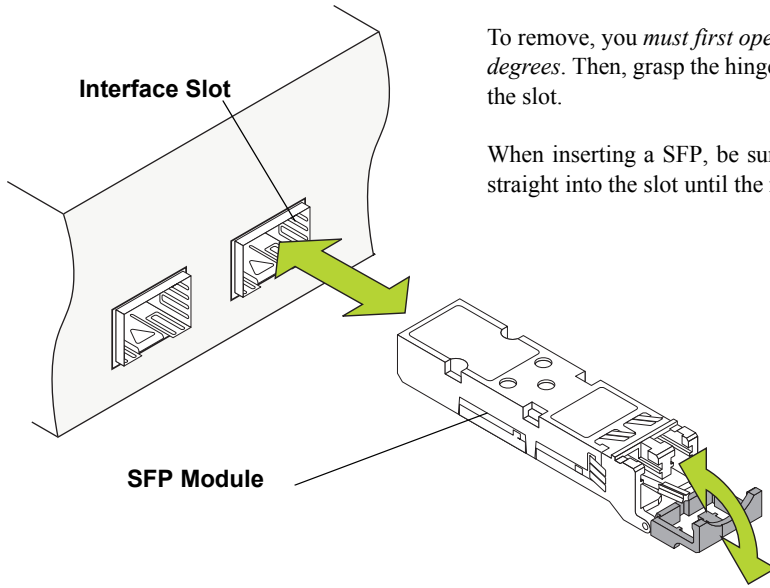
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**Note:** *Never force the transceiver in or out of the transceiver slot.*

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**Note:** *The design of the OS6865 chassis may result in a slight pressure on the transceiver cages. If the transceiver does not easily slide out of the slot, gently move the transceiver side-to-side while firmly pulling out.*

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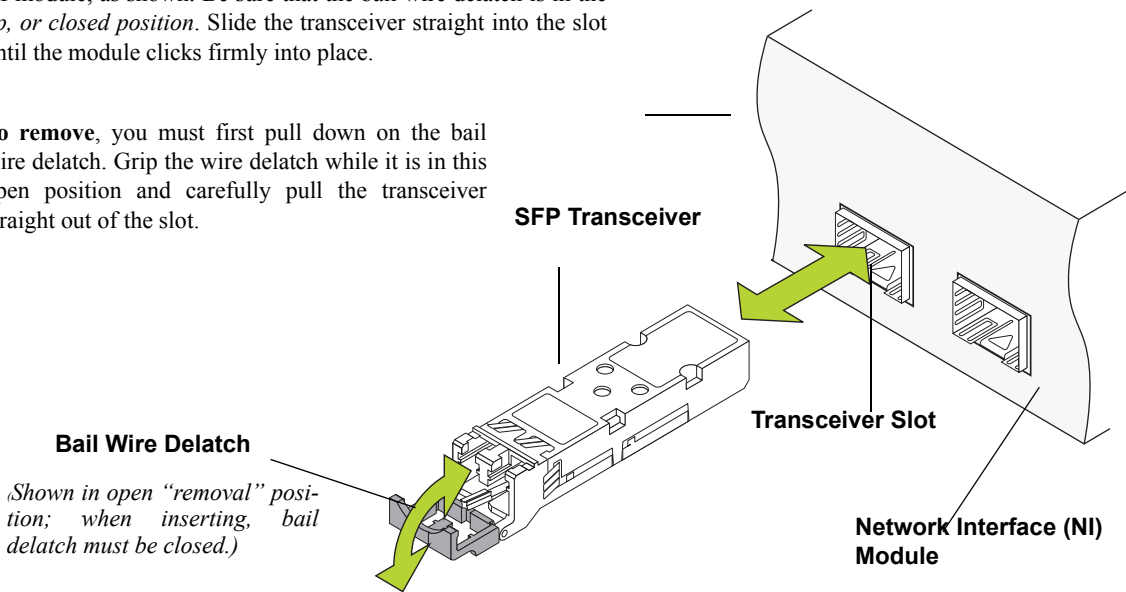
To remove, you *must* first open the SFP's hinged face to approximately ninety degrees. Then, grasp the hinged face and carefully pull the SFP *straight* out of the slot.

When inserting a SFP, be sure that the hinged face is *closed*. Slide the SFP straight into the slot until the module clicks firmly into place.

**SFP - Hinged**

**To install**, align the transceiver with the transceiver slot on the NI module, as shown. Be sure that the bail wire delatch is in the *up, or closed position*. Slide the transceiver straight into the slot until the module clicks firmly into place.

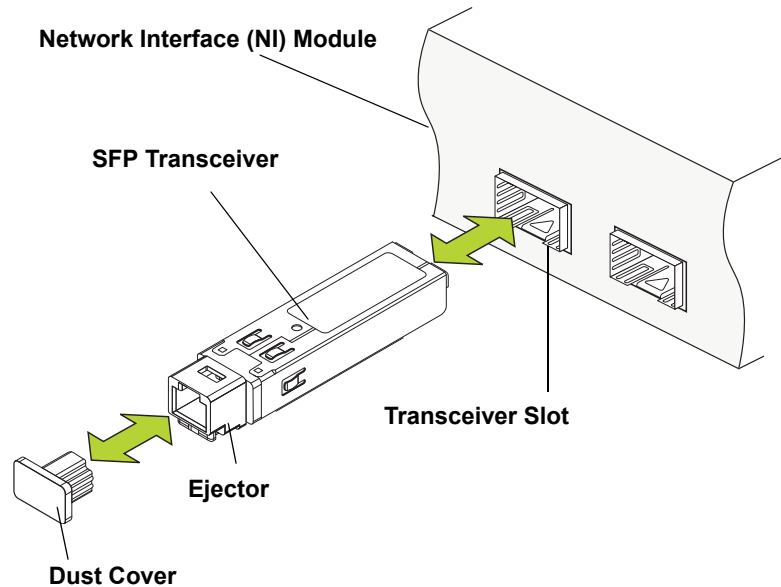
**To remove**, you must first pull down on the bail wire delatch. Grip the wire delatch while it is in this open position and carefully pull the transceiver straight out of the slot.



**SFP - Bail Wire**

**To install**, align the transceiver with the transceiver slot on the NI module, as shown. Carefully slide the transceiver back until it clicks into place; this is an indication that the connectors are firmly seated.

**To remove**, use the ejector tool (provided with each switch chassis) to push the transceiver's ejector button. The ejector button is located just below the transceiver port; refer to the diagram for more information. The transceiver will disengage from the connectors and eject slightly. Once disengaged, use the clip end of the ejector tool to carefully pull the transceiver straight out and away from the NI module.

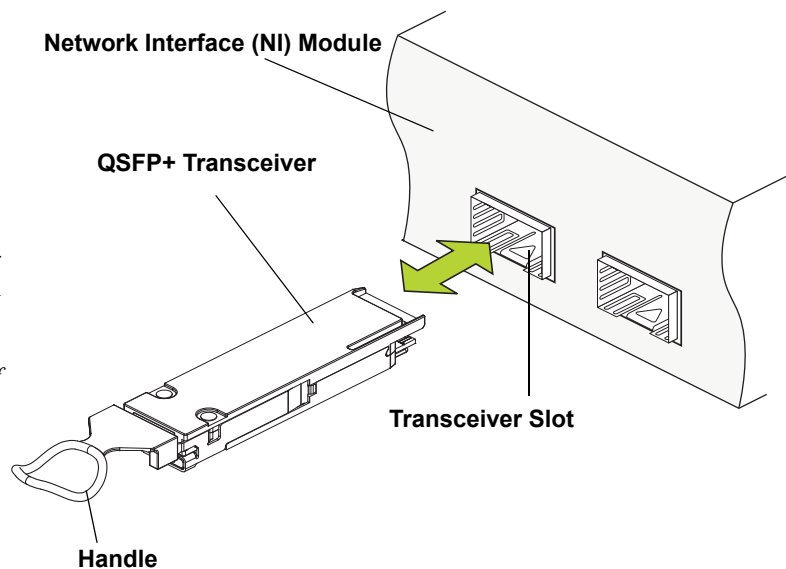


### SFP - Ejector Button

**To install**, align the transceiver with the transceiver slot on the NI module, as shown. Carefully slide the transceiver back until it clicks into place; this is an indication that the connectors are firmly seated.

**To remove**, use the rubber or metal ejector handle and pull transceiver straight out and away from the NI module.

**Note:** Never force the transceiver in or out of the transceiver slot.



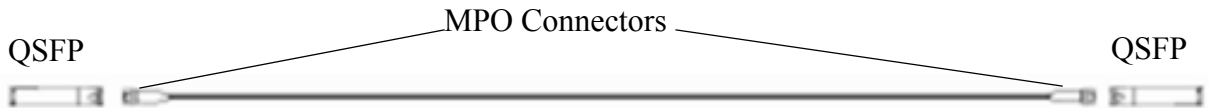
### QSFP+ - Removal

# 40-Gigabit Fiber Optic Cables

## QSFP to QSFP 40G Fiber Optic Cable

To directly connect two Omniswitches with a 40G transceiver, an MPO trunk cable can be used. The cable can have 8 or 12 fibers, however, the 40G standard only uses 8 fibers. The cable should be a Type-B cross-over cable. This type of cable should be used with the [QSFP-40G-SR](#) transceiver.

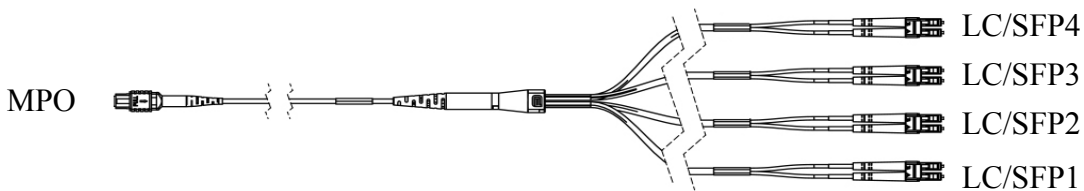
|               |              |            |            |            |            |            |            |            |            |            |
|---------------|--------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|
|               | <b>Fiber</b> | <b>1</b>   | <b>2</b>   | <b>3</b>   | <b>4</b>   | <b>5-8</b> | <b>9</b>   | <b>10</b>  | <b>11</b>  | <b>12</b>  |
| <b>Type A</b> | <b>MPO1</b>  | <b>Tx1</b> | <b>Tx2</b> | <b>Tx3</b> | <b>Tx4</b> | <b>N/A</b> | <b>Rx4</b> | <b>Rx3</b> | <b>Rx2</b> | <b>Rx1</b> |
|               | <b>MPO2</b>  | <b>Rx1</b> | <b>Rx2</b> | <b>Rx3</b> | <b>Rx4</b> | <b>N/A</b> | <b>Tx4</b> | <b>Tx3</b> | <b>Tx2</b> | <b>Tx1</b> |
|               | <b>Fiber</b> | <b>1</b>   | <b>2</b>   | <b>3</b>   | <b>4</b>   | <b>5-8</b> | <b>9</b>   | <b>10</b>  | <b>11</b>  | <b>12</b>  |
| <b>Type B</b> | <b>MPO1</b>  | <b>Rx1</b> | <b>Rx2</b> | <b>Rx3</b> | <b>Rx4</b> | <b>N/A</b> | <b>Tx4</b> | <b>Tx3</b> | <b>Tx2</b> | <b>Tx1</b> |
|               | <b>MPO2</b>  | <b>Tx1</b> | <b>Tx2</b> | <b>Tx3</b> | <b>Tx4</b> | <b>N/A</b> | <b>Rx4</b> | <b>Rx3</b> | <b>Rx2</b> | <b>Rx1</b> |
|               | <b>Fiber</b> | <b>12</b>  | <b>11</b>  | <b>10</b>  | <b>9</b>   | <b>5-8</b> | <b>4</b>   | <b>3</b>   | <b>2</b>   | <b>1</b>   |



Example Type B - MPO Cable Connection

## QSFP to SFP+ Splitter Fiber Optic Cable

To connect a 40G transceiver to four 10G transceivers an MTP-LC splitter cable can be used. The MPO-LC cable has eight fibers that connect the 40G MPO connector to four 10G LC connectors. This type of cable should be used with the [QSFP-4X10G-SR](#) transceiver. The LC connectors can be manually rearranged to meet the necessary transmit/receive requirements.



Example MPO/LC Splitter Cable



# Gigabit Ethernet Transceivers

## SFP-GIG-SX

Gigabit SFP Optical Transceiver.

|                               |  |
|-------------------------------|--|
| Connector Type                | LC   |
| Standards Supported           | 802.3z, SFP MSA  |
| Connections Supported         | 1000Base-SX  |
| Fiber Type                    | MMF  |
| Wavelength                    | 850 nm   |
| Optical Power Output          | -9.0 to -2.5 dBm                                       |
| Receiver Sensitivity          | -17 dBm  |
| Transmission Distance         | ~300 m on 62.5/125 $\mu$ m<br>~550 m on 50/125 $\mu$ m |
| Operating Temperature         | -20 °C to 85°C   |
| Digital Diagnostic Monitoring | Supported (Alcatel-Lucent branded transceivers only)   |

## SFP-GIG-LX

Gigabit SFP Optical Transceiver.

|                               |  |
|-------------------------------|--|
| Connector types               | LC   |
| Standards supported           | 802.3z, SFP MSA                                      |
| Connections supported         | 1000Base-LX  |
| Fiber Type                    | SMF  |
| Wavelength                    | 1310 nm  |
| Optical Power Output          | -9.5 to -3 dBm                                       |
| Receiver Sensitivity          | -14.5 dBm  |
| Transmission Distance         | ~10 km   |
| Operating Temperature         | -40 °C to 85 °C / 0 °C to 70 °C                      |
| Digital Diagnostic Monitoring | Supported (Alcatel-Lucent branded transceivers only) |

**SFP-GIG-LH40**

Gigabit SFP Optical Transceiver.

|                               |                 |
|-------------------------------|-----------------|
| Connector Type                | LC              |
| Standards Supported           | 802.3z, SFP MSA |
| Connections Supported         | 1000Base-LH40r  |
| Fiber Type                    | SMF             |
| Wavelength                    | 1310 nm         |
| Optical Power Output          | 0 to +5 dBm     |
| Receiver Sensitivity          | -22 dBm         |
| Transmission Distance         | ~40 km          |
| Operating Temperature         | -10 °C to 70 °C |
| Digital Diagnostic Monitoring | Supported       |

**SFP-GIG-LH70**

Gigabit SFP Optical Transceiver.

|                               |                 |
|-------------------------------|-----------------|
| Connector Type                | LC              |
| Standards Supported           | 802.3z, SFP MSA |
| Connections Supported         | 1000Base-LH70   |
| Fiber Type                    | SMF             |
| Wavelength                    | 1550 nm         |
| Optical Power Output          | 0 to +5 dBm     |
| Receiver Sensitivity          | -22 dBm         |
| Transmission Distance         | ~70 km          |
| Operating Temperature         | -10 °C to 70 °C |
| Digital Diagnostic Monitoring | Supported       |

**SFP-GIG-CWD**

Coarse Wavelength Division Multiplexing (CWDM) is an optical transceiver supporting single-mode fiber over various wavelengths. CWDMs are hot-pluggable and are available for long-reach applications.

|                               |  |
|-------------------------------|--|
| Connector Type                | LC   |
| Standards Supported           | 802.3z, SFP MSA                                |
| Connections Supported         | 1000Base-LX                                    |
| Fiber Type                    | SMF  |
| Wavelength                    | 1470, 1490, 1510, 1530, 1550, 1570, 1590, 1610 |
| Optical Power Output          | -2 to +3 dBm                                   |
| Receiver Sensitivity          | -24 dBm  |
| Transmission Distances        | ~62 km   |
| Operating Temperature         | -5 °C to 70 °C                                 |
| Digital Diagnostic Monitoring | Not Supported                                  |

**SFP-GIG-T**

Gigabit SFP Copper Transceiver.

|                               |                   |
|-------------------------------|-------------------|
| Connector Type                | RJ-45             |
| Standards Supported           | 802.3z, SFP MSA   |
| Connections supported         | 10/100/1000Base-T |
| Cable Type                    | CAT5, CAT5e, CAT6 |
| Transmission Distance         | ~100 m            |
| Digital Diagnostic Monitoring | Not Supported     |

**SFP-GIG-EXTND**

Gigabit SFP Optical Transceiver.

|                               |                |
|-------------------------------|----------------|
| Connector Type                | LC             |
| Standards Supported           | 802.3, SFP MSA |
| Connections Supported         | -              |
| Fiber Type                    | MMF            |
| Wavelength                    | 1310 nm        |
| Saturation Power              | 0 dBm          |
| Transmission Distance         | ~2 km          |
| Operating Temperature         | 0 °C to 70 °C  |
| Digital Diagnostic Monitoring | Supported      |

**SFP-GIG-BX-D**

Bi-Directional SFP Optical Transceiver.

|                               |                                       |
|-------------------------------|---------------------------------------|
| Connector Type                | LC                                    |
| Standards Supported           | 802.3ah, SFP MSA                      |
| Connections Supported         | 1000Base-BX10                         |
| Fiber Type                    | SMF                                   |
| Wavelength                    | Transmit: 1490 nm<br>Receive: 1310 nm |
| Average Power Output          | -9 to -3 dBm                          |
| Receiver Sensitivity          | -19.5 dBm                             |
| Transmission Distance         | ~10 km                                |
| Operating Temperature         | 0 °C to 70 °C                         |
| Digital Diagnostic Monitoring | Supported                             |
| Notes                         | Designed for use with SFP-GIG-BX-U    |

**SFP-GIG-BX-U**

Bi-Directional SFP Optical Transceiver.

|                               |                                       |
|-------------------------------|---------------------------------------|
| Connector Type                | LC                                    |
| Standards Supported           | 802.3ah, SFP MSA                      |
| Connections Supported         | 1000Base-BX10                         |
| Fiber Type                    | SMF                                   |
| Wavelength                    | Transmit: 1310 nm<br>Receive: 1490 nm |
| Average Power Output          | -9 to -3 dBm                          |
| Receiver Sensitivity          | -19.5 dBm                             |
| Transmission Distance         | ~10 km                                |
| Operating Temperature         | 0 °C to 70 °C                         |
| Digital Diagnostic Monitoring | Supported                             |
| Notes                         | Designed for use with SFP-GIG-BX-D    |

**SFP-GIG-BX-D20**

Bi-Directional SFP Optical Transceiver.

|                               |                                       |
|-------------------------------|---------------------------------------|
| Connector Type                | LC                                    |
| Standards Supported           | 802.3ah, SFP MSA                      |
| Connections Supported         | 1000Base-BX20                         |
| Fiber Type                    | SMF                                   |
| Wavelength                    | Transmit: 1490 nm<br>Receive: 1310 nm |
| Average Power Output          | -8 to -3 dBm                          |
| Receiver Sensitivity          | -23 dBm                               |
| Transmission Distance         | ~20 km                                |
| Operating Temperature         | -5 °C to 70 °C                        |
| Digital Diagnostic Monitoring | Supported                             |
| Notes                         | Designed for use with SFP-GIG-BX-U20  |

**SFP-GIG-BX-U20**

Bi-Directional SFP Optical Transceiver.

|                               |                                      |
|-------------------------------|--------------------------------------|
| Connector Type                | LC                                   |
| Standards Supported           | 802.3ah, SFP MSA                     |
| Connections Supported         | 1000Base-BX20                        |
| Fiber Type                    | SMF                                  |
| Wavelength                    | Transmit: 130 nm<br>Receive: 1490 nm |
| Average Power Output          | -8 to -3 dBm                         |
| Receiver Sensitivity          | -23 dBm                              |
| Transmission Distance         | ~20 km                               |
| Operating Temperature         | -5 °C to 70 °C                       |
| Digital Diagnostic Monitoring | Supported                            |
| Notes                         | Designed for use with SFP-GIG-BX-D20 |

**SFP-GIG-BX-D40**

Bi-Directional SFP Optical Transceiver.

|                               |                                       |
|-------------------------------|---------------------------------------|
| Connector Type                | LC                                    |
| Standards Supported           | 802.3ah, SFP MSA                      |
| Connections Supported         | 1000Base-BX40                         |
| Fiber Type                    | SMF                                   |
| Wavelength                    | Transmit: 1490 nm<br>Receive: 1310 nm |
| Average Power Output          | -2 to +3 dBm                          |
| Receiver Sensitivity          | -23 dBm                               |
| Transmission Distance         | ~40 km                                |
| Operating Temperature         | -5 °C to 70 °C                        |
| Digital Diagnostic Monitoring | Supported                             |
| Notes                         | Designed for use with SFP-GIG-BX-U40  |

**SFP-GIG-BX-U40**

Bi-Directional SFP Optical Transceiver.

|                               |                                       |
|-------------------------------|---------------------------------------|
| Connector Type                | LC                                    |
| Standards Supported           | 802.3ah, SFP MSA                      |
| Connections Supported         | 1000Base-BX20                         |
| Fiber Type                    | SMF                                   |
| Wavelength                    | Transmit: 1310 nm<br>Receive: 1490 nm |
| Average Power Output          | -2 to +3 dBm                          |
| Receiver Sensitivity          | -23 dBm                               |
| Transmission Distance         | ~40 km                                |
| Operating Temperature         | -5 °C to 70 °C                        |
| Digital Diagnostic Monitoring | Supported                             |
| Notes                         | Designed for use with SFP-GIG-BX-D40  |

## Dual Speed Ethernet Transceivers

### SFP-DUAL-MM

#### SFP-DUAL-MM-N

Dual speed Optical Transceiver.

|                               |  |
|-------------------------------|--|
| Connector Type                | LC   |
| Standards Supported           | 802.3z, 802.3ah, SFP MSA                                   |
| Connections Supported         | 100Base-FX, 1000Base-LX                                    |
| Fiber Type                    | MMF  |
| Wavelength                    | 1310 nm  |
| Average Power Output          | 100Base-FX: -20 to -14 dBm<br>1000Base-LX: -11.5 to -3 dBm |
| Receiver Sensitivity          | 100Base-FX: -28 dBm<br>1000Base-LX: -22 dBm                |
| Transmission Distance         | 550 m at 1000 Mbps<br>2 km at 100 Mbps                     |
| Operating Temperature         | -5 °C to 70 °C   |
| Digital Diagnostic Monitoring | Not Supported  |

### SFP-DUAL-SM10

Dual speed Optical Transceiver.

|                               |  |
|-------------------------------|--|
| Connector Type                | LC   |
| Standards Supported           | 802.3z, 802.3ah, SFP MSA                                 |
| Connections Supported         | 100Base-FX, 1000Base-LX                                  |
| Fiber Type                    | SMF  |
| Wavelength                    | 1310 nm  |
| Average Power Output          | 100Base-FX: -15 to -8 dBm<br>1000Base-LX: -9.5 to -3 dBm |
| Receiver Sensitivity          | 100Base-FX: -28 dBm<br>1000Base-LX: -22 dBm              |
| Transmission Distance         | ~10 km   |
| Operating Temperature         | 0 °C to 70 °C  |
| Digital Diagnostic Monitoring | Not Supported  |

**SFP-DUAL-BX-D**

Dual speed Optical Transceiver.

|                               |                                       |
|-------------------------------|---------------------------------------|
| Connector Type                | LC                                    |
| Standards Supported           | 802.3z, 802.3ah, SFP MSA              |
| Connections Supported         | 1000BASE-BX10-D                       |
| Fiber Type                    | SMF                                   |
| Wavelength                    | Transmit: 1550 nm<br>Receive: 1310 nm |
| Average Power Output          | -9 to -3 dBm                          |
| Receiver Sensitivity          | -18.7 dBm                             |
| Transmission Distance         | ~10 km                                |
| Operating Temperature         | -5 °C to 70 °C                        |
| Digital Diagnostic Monitoring | Supported                             |

**SFP-DUAL-BX-U**

Dual speed Optical Transceiver.

|                               |                                       |
|-------------------------------|---------------------------------------|
| Connector Type                | LC                                    |
| Standards Supported           | 802.3z, 802.3ah, SFP MSA              |
| Connections Supported         | 1000BASE-BX10-U                       |
| Fiber Type                    | SMF                                   |
| Wavelength                    | Transmit: 1310 nm<br>Receive: 1550 nm |
| Average Power Output          | -9 to -3 dBm                          |
| Receiver Sensitivity          | -18.7 dBm                             |
| Transmission Distance         | ~10 km                                |
| Operating Temperature         | -5 °C to 70 °C                        |
| Digital Diagnostic Monitoring | Supported                             |



# 100 FX Ethernet Transceivers

---

## SFP-100-BX20LT

Bi-Directional SFP Optical Transceiver.

|                               |                                       |
|-------------------------------|---------------------------------------|
| Connector Type                | SC                                    |
| Standards Supported           | 802.3ah, SFP MSA, ITU-T G.983         |
| Connections Supported         | 100Base-BX                            |
| Fiber Type                    | SMF                                   |
| Wavelength                    | Transmit: 1550 nm<br>Receive: 1310 nm |
| Average Power Output          | -14 to -8 dBm                         |
| Receiver Sensitivity          | -32 dBm                               |
| Transmission Distance         | ~20 km                                |
| Operating Temperature         | 0 °C to 70 °C                         |
| Digital Diagnostic Monitoring | Supported                             |
| Notes                         | Designed for use with SFP-100-BX20NU  |

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## SFP-100-BX20NU

Bi-Directional SFP Optical Transceiver.

|                               |                                       |
|-------------------------------|---------------------------------------|
| Connector Type                | SC                                    |
| Standards Supported           | 802.3ah, SFP MSA, ITU-T G.983         |
| Connections Supported         | 100Base-BX                            |
| Fiber Type                    | SMF                                   |
| Wavelength                    | Transmit: 1310 nm<br>Receive: 1550 nm |
| Average Power Output          | -14 to -8 dBm                         |
| Receiver Sensitivity          | -32 dBm                               |
| Transmission Distance         | ~20 km                                |
| Operating Temperature         | 0 °C to 70 °C                         |
| Digital Diagnostic Monitoring | Supported                             |
| Notes                         | Designed for use with SFP-100-BX20LT  |

**SFP-100-BXLC-D**

Bi-Directional SFP Optical Transceiver.

|                               |                                       |
|-------------------------------|---------------------------------------|
| Connector Type                | LC                                    |
| Standards Supported           | 802.3ah, SFP MSA, ITU-T G.983         |
| Connections Supported         | 100Base-BX                            |
| Fiber Type                    | SMF                                   |
| Wavelength                    | Transmit: 1550 nm<br>Receive: 1310 nm |
| Average Power Output          | -14 to -8 dBm                         |
| Receiver Sensitivity          | -32 dBm                               |
| Transmission Distance         | ~20 km                                |
| Operating Temperature         | 0 °C to 70 °C                         |
| Digital Diagnostic Monitoring | Supported                             |
| Notes                         | Designed for use with SFP-100-BXLC-U  |

**SFP-100-BXLC-U**

Bi-Directional SFP Optical Transceiver.

|                               |                                       |
|-------------------------------|---------------------------------------|
| Connector Type                | LC                                    |
| Standards Supported           | 802.3ah, SFP MSA, ITU-T G.983         |
| Connections Supported         | 100Base-BX                            |
| Fiber Type                    | SMF                                   |
| Wavelength                    | Transmit: 1310 nm<br>Receive: 1550 nm |
| Average Power Output          | -14 to -8 dBm                         |
| Receiver Sensitivity          | -32 dBm                               |
| Transmission Distance         | ~20 km                                |
| Operating Temperature         | 0 °C to 70 °C                         |
| Digital Diagnostic Monitoring | Supported                             |
| Notes                         | Designed for use with SFP-100-BXLC-D  |

**SFP-100-LC-MM**

SFP Optical Transceiver.

|                               |   |
|-------------------------------|---|
| Connector Type                | LC  |
| Standards Supported           | 802.3u, SFP MSA   |
| Connections supported         | 100Base-FX  |
| Fiber Type                    | MMF   |
| Wavelength                    | 1310 nm   |
| Optical Power Output          | -19 to -14 dBm on 62.5/125 $\mu$ m<br>-22 to 14 dBm on 50/125 $\mu$ m |
| Transmission Distance         | ~2 km on 62.5/125 $\mu$ m<br>~2 km on 50/125 $\mu$ m                  |
| Operating Temperature         | 0 °C to 70 °C   |
| Digital Diagnostic Monitoring | Not Supported   |

**SFP-100-LC-SM15**

SFP Optical Transceiver.

|                               |                 |
|-------------------------------|-----------------|
| Connector Type                | LC              |
| Standards Supported           | 802.3u, SFP MSA |
| Connections Supported         | 100Base-FX      |
| Fiber Type                    | SMF             |
| Wavelength (nm)               | 1310 nm         |
| Optical Power Output          | -15 to -8 dBm   |
| Receiver Sensitivity          | -34 dBm         |
| Transmission Distance         | ~15 km          |
| Operating Temperature         | 0 °C to 70 °C   |
| Digital Diagnostic Monitoring | Not Supported   |

**SFP-100-LC-SM40**

SFP Optical Transceiver.

|                               |                 |
|-------------------------------|-----------------|
| Connector Type                | LC              |
| Standards Supported           | 802.3u, SFP MSA |
| Connections Supported         | 100Base-FX      |
| Fiber Type                    | SMF             |
| Wavelength                    | 1310 nm         |
| Optical Power Output          | -15 to -8 dBm   |
| Receiver Sensitivity          | -34 dBm         |
| Transmission Distances        | ~40 km          |
| Operating Temperature         | 0 °C to 70 °C   |
| Digital Diagnostic Monitoring | Not Supported   |

# 10-Gigabit SFP+ Transceivers

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## SFP-10G-SR

10-Gigabit SFP+ Optical Transceiver.

|                               |                  |
|-------------------------------|------------------|
| Connector Type                | LC               |
| Standards Supported           | 802.3 Clause 52  |
| Connections supported         | 10GBase-SR       |
| Fiber Type                    | MMF              |
| Wavelength                    | 850 nm           |
| Optical Power Output          | -7.3 to -3.0 dBm |
| Receiver Sensitivity          | -11.1 dBm        |
| Transmission Distance         | ~ 300 m          |
| Operating Temperature         | -5 °C to 70°C    |
| Maximum Power Consumption     | 1 W              |
| Digital Diagnostic Monitoring | Supported        |

---

## SFP-10G-LR

10-Gigabit SFP+ Optical Transceiver.

|                               |                 |
|-------------------------------|-----------------|
| Connector Type                | LC              |
| Standards Supported           | 802.3 Clause 52 |
| Connections supported         | 10GBase-LR      |
| Fiber Type                    | SMF             |
| Wavelength                    | 1310 nm         |
| Optical Power Output          | -8.2 to 0.5 dBm |
| Receiver Sensitivity          | -10.3 dBm       |
| Transmission Distance         | ~ 10 km         |
| Operating Temperature         | -5 °C to 70°C   |
| Maximum Power Consumption     | 1 W             |
| Digital Diagnostic Monitoring | Supported       |

**SFP-10G-ER**

10-Gigabit SFP+ Optical Transceiver.

|                               |                 |
|-------------------------------|-----------------|
| Connector Type                | LC              |
| Standards Supported           | 802.3ae         |
| Connections supported         | 10GBase-E       |
| Fiber Type                    | SMF             |
| Wavelength                    | 1550 nm         |
| Optical Power Output          | -4.7 to 4.0 dBm |
| Receiver Sensitivity          | -14.1 dBm       |
| Transmission Distance         | ~ 40 km         |
| Operating Temperature         | -5 °C to 70 °C  |
| Maximum Power Consumption     | 1.5 W           |
| Digital Diagnostic Monitoring | Supported       |

**SFP-10G-LRM**

10-Gigabit SFP+ Optical Transceiver.

|                               |                |
|-------------------------------|----------------|
| Connector Type                | LC             |
| Standards Supported           | 802.3aq        |
| Connections supported         | 10GBase-LRM    |
| Fiber Type                    | MMF            |
| Wavelength                    | 1310 nm        |
| Optical Power Output          | -4.5 to 1.5dBm |
| Receiver Sensitivity          | -6.5 dBm       |
| Transmission Distance         | ~ 220 m        |
| Operating Temperature         | -5 °C to 70°C  |
| Maximum Power Consumption     | 1 Watt         |
| Digital Diagnostic Monitoring | Supported      |

**SFP-10G-ZR**

10-Gigabit SFP+ Optical Transceiver.

|                       |            |
|-----------------------|------------|
| Connector Type        | LC         |
| Standards Supported   | 802.3ae    |
| Connections supported | 10GBase-ZR |
| Fiber Type            | SMF        |

**SFP-10G-ZR**

10-Gigabit SFP+ Optical Transceiver.

|                               |                |
|-------------------------------|----------------|
| Wavelength                    | 1550 nm        |
| Optical Power Output          | 0 to +5 dBm    |
| Receiver Sensitivity          | -20 dBm        |
| Transmission Distance         | ~ 80 km        |
| Operating Temperature         | -5 °C to 70 °C |
| Maximum Power Consumption     | 1.2 W          |
| Digital Diagnostic Monitoring | Supported      |

**SFP-10G-T**

10-Gigabit SFP+ Copper Transceiver.

|                               |               |
|-------------------------------|---------------|
| Connector Type                | RJ-45         |
| Standards Supported           | 802.3az       |
| Connections supported         | 10GBaseT      |
| Cable Type                    | CAT6a/7       |
| Transmission Distance         | ~30 m         |
| Digital Diagnostic Monitoring | Not Supported |

**SFP-10G-C**

10-Gigabit SFP+ Direct Attach Copper Cable.

|                               |                               |
|-------------------------------|-------------------------------|
| Connector Type                | Direct Attached Copper        |
| Standards Supported           | 802.3ae, SFF-8431             |
| Cable Length                  | 1m, 3m, 7m, 60cm <sup>1</sup> |
| Wire Gauge                    | 24AWG                         |
| Bend Radius                   | 1.25 in.                      |
| Digital Diagnostic Monitoring | Not Supported                 |

1. Check for availability of additional supported lengths.

**SFP-10G-24DWD80**

10-Gigabit SFP+ Optical Transceiver.

|                |    |
|----------------|----|
| Connector Type | LC |
|----------------|----|

**SFP-10G-24DWD80**

10-Gigabit SFP+ Optical Transceiver.

|                               |              |
|-------------------------------|--------------|
| Standards Supported           | 802.3ae      |
| Connections supported         | 10GBase-ZR   |
| Fiber Type                    | SMF          |
| Wavelength                    | 1558.17 nm   |
| Optical Power Output          | 0 to 5dBm    |
| Receiver Sensitivity          | -23 dBm      |
| Transmission Distance         | ~ 80 km      |
| Operating Temperature         | -5°C to 70°C |
| Maximum Power Consumption     | 1.2 Watt     |
| Digital Diagnostic Monitoring | Supported    |

**SFP-10G-GIG-SR**

10-Gigabit SFP+ Optical Transceiver.

|                               |  |
|-------------------------------|--|
| Connector Type                | LC   |
| Standards Supported           | 802.3-2005   |
| Connections supported         | 10GBase-SR/SW, 1000Base-SX   |
| Fiber Type                    | MMF  |
| Wavelength                    | 850 nm   |
| Optical Power Output          | -5 to -1 @ 10G<br>-9.5 to -1dBm @ 1G   |
| Receiver Sensitivity          | -11.1 dBm @ 10G<br>-17 dBm @ 1G  |
| Transmission Distance         | OM1: ~33m @ 10G, ~275m @ 1G<br>OM2: ~82m @ 10G, ~550m @ 1G<br>OM3: ~300m @ 10G, ~550m @ 1G |
| Operating Temperature         | 0°C to 70°C  |
| Maximum Power Consumption     | <1.0 Watt  |
| Digital Diagnostic Monitoring | Supported  |

**SFP-10G-GIG-LR**

10-Gigabit SFP+ Optical Transceiver.

|                       |                            |
|-----------------------|----------------------------|
| Connector Type        | LC                         |
| Standards Supported   | 802.3-2005                 |
| Connections supported | 10GBase-LR/LW, 1000Base-LX |



**SFP-10G-GIG-LR**

10-Gigabit SFP+ Optical Transceiver.

|                               |  |
|-------------------------------|--|
| Fiber Type                    | SMF  |
| Wavelength                    | 1310 nm                                    |
| Optical Power Output          | -8.2 to +5 dBm @ 10G<br>-11 to -3 dBm @ 1G |
| Receiver Sensitivity          | -12.6 dBm @ 10G<br>-19 dBm @ 1G            |
| Transmission Distance         | ~10 km                                     |
| Operating Temperature         | -5°C to 70°C                               |
| Maximum Power Consumption     | <1.0 Watt                                  |
| Digital Diagnostic Monitoring | Supported                                  |

## 40-Gigabit QSFP+ Transceivers

**CAUTION** - CLASS 1M LASER RADIATION WHEN OPEN. DO NOT VIEW DIRECTLY WITH OPTICAL INSTRUMENTS.

### QSFP-40G-SR

Four channel 40-Gigabit QSFP+ Optical Transceiver.

|                               |                               |
|-------------------------------|-------------------------------|
| Connector Type                | MPO                           |
| Standards Supported           | 802.3ba, QSFP+ MSA            |
| Connections supported         | 40GBase-SR4                   |
| Fiber Type                    | MMF                           |
| Wavelength                    | 850 nm                        |
| Optical Power Output          | -7.6 to +2.4 dBm              |
| Receiver Sensitivity          | -5.4 dBm                      |
| Transmission Distance         | OM3 - ~ 100 m<br>OM4 - ~150 m |
| Operating Temperature         | 0 °C to 70°C                  |
| Maximum Power Consumption     | 1.5 W                         |
| Digital Diagnostic Monitoring | Supported <sup>1</sup>        |

### QSFP-40G-SR-BD

Four channel 40-Gigabit QSFP+ Optical Transceiver.

|                               |                               |
|-------------------------------|-------------------------------|
| Connector Type                | LC                            |
| Standards Supported           | 802.3ba-2010, QSFP+ MSA       |
| Connections supported         | 40GBase-SR4                   |
| Fiber Type                    | MMF                           |
| Wavelength                    | 850 / 900 nm                  |
| Optical Power Output          | -4.0 to +5.0 dBm              |
| Receiver Sensitivity          | -7.1 / -7.7 dBm               |
| Transmission Distance         | OM3 - ~ 100 m<br>OM4 - ~150 m |
| Operating Temperature         | 10 °C to 70°C                 |
| Maximum Power Consumption     | 3.5 W                         |
| Digital Diagnostic Monitoring | Not Supported                 |

**QSFP-40G-LR**

Four channel 40-Gigabit QSFP+ Optical Transceiver.

|                               |                        |
|-------------------------------|------------------------|
| Connector Type                | LC                     |
| Standards Supported           | 802.3ba, QSFP+ MSA     |
| Connections supported         | 40GBase-LR4            |
| Fiber Type                    | SMF                    |
| Wavelength                    | 1310 nm                |
| Optical Power Output          | -7.0 to +2.3 dBm       |
| Receiver Sensitivity          | -11.5 dBm              |
| Transmission Distance         | 10 km                  |
| Operating Temperature         | 0 °C to 70°C           |
| Maximum Power Consumption     | < 3.5 W                |
| Digital Diagnostic Monitoring | Supported <sup>1</sup> |

1. Supports the DDM parameters of Voltage (V), Temperature (T), Current (mA) and Input (dBm). If the threshold values of the transceiver are '0' then NS will be displayed in the DDM output display.

**QSFP-40G-C**

Four channel 40-Gigabit QSFP+ Direct Attach Copper Cable

|                               |                                   |
|-------------------------------|-----------------------------------|
| Connector Type                | Direct Attached Copper            |
| Standards Supported           | 802.3ba, QSFP+ MSA                |
| Cable Length                  | 40cm, 1m, 3m, 7m <sup>1,2,3</sup> |
| Wire Gauge                    | 26AWG                             |
| Bend Radius                   | 1.69 in.                          |
| Digital Diagnostic Monitoring | Not Supported                     |

1. Check for availability of lengths.
2. The QSFP-40G-C7 (7m) cable has been verified for proper operation when connected between OmniSwitch products. When connecting this cable between an OmniSwitch and other vendors' equipment, it's recommended to verify proper operation prior to network deployment.
3. When connecting any QSFP-40G-C direct attached transceiver between the OS9900 and the OS6900, auto-negotiation must be disabled on the OS9900 port.

**QSFP-4X10G-SR**

Four channel 40-Gigabit QSFP+ Optical Transceiver. Connects a single 40G QSFP+ port to four 10G SFP+ ports

|                |     |
|----------------|-----|
| Connector Type | MPO |
|----------------|-----|

**QSFP-4X10G-SR**

Four channel 40-Gigabit QSFP+ Optical Transceiver. Connects a single 40G QSFP+ port to four 10G SFP+ ports

|                               |                               |
|-------------------------------|-------------------------------|
| Standards Supported           | 802.3ba, 802.3ae, QSFP+ MSA   |
| Connections supported         | 40GBase-SR4, 10GBase-SR       |
| Fiber Type                    | MMF                           |
| Wavelength                    | 850 nm                        |
| Optical Power Output          | -7.5 to +0.5 dBm              |
| Receiver Sensitivity          | -7.5 dBm (SRS)                |
| Transmission Distance         | OM3 - ~ 300 m<br>OM4 - ~400 m |
| Operating Temperature         | 0 °C to 70°C                  |
| Maximum Power Consumption     | 1.5 W                         |
| Digital Diagnostic Monitoring | Supported                     |

**QSFP-4X10G-C**

Four channel 40-Gigabit QSFP+ Direct Attached Copper Splitter Cable. Connects a single 40G QSFP+ port to four 10G SFP+ ports

|                               |                                       |
|-------------------------------|---------------------------------------|
| Connector Type                | Direct Attached Copper Splitter Cable |
| Cable Length                  | 1m, 3m, 5m                            |
| Digital Diagnostic Monitoring | Not Supported                         |

**QSFP-40G-AOC20M**

|                                |  |
|--------------------------------|--|
| Description                    | Four channel 40-Gigabit QSFP+ active optical cable |
| Connector Type                 | Direct attached                                    |
| Standards Supported            | 802.3ba, QSFP+ MSA                                 |
| Connections supported          | 40GBase-SR4  |
| Cable Length                   | 20 m   |
| Bend Radius                    | 45 mm  |
| Operating Temperature          | 0 °C to 70°C                                       |
| Maximum Power Consumption      | < 1.3 W  |
| Digital Diagnostics Monitoring | Supported  |

**OS6860-CBL-100**

|                                |  |
|--------------------------------|--|
| Description                    | 20-Gigabit QSFP+ direct attached copper transceiver. |
| Connector Type                 | Direct Attached Copper                               |
| Standards Supported            | 802.3ba, QSFP+ MSA                                   |
| Cable Length                   | 1m   |
| Wire Gauge                     | 26AWG  |
| Bend Radius                    | 1.69 in.   |
| Digital Diagnostics Monitoring | Not Supported  |

**OS6860-CBL-300**

|                                |  |
|--------------------------------|--|
| Description                    | 20-Gigabit QSFP+ direct attached copper transceiver. |
| Connector Type                 | Direct Attached Copper                               |
| Standards Supported            | 802.3ba, QSFP+ MSA                                   |
| Cable Length                   | 3m   |
| Wire Gauge                     | 26AWG  |
| Bend Radius                    | 1.69 in.   |
| Digital Diagnostics Monitoring | Not Supported  |

**OS6860-CBL-40**

|                                |  |
|--------------------------------|--|
| Description                    | 20-Gigabit QSFP+ direct attached copper transceiver. |
| Connector Type                 | Direct Attached Copper                               |
| Standards Supported            | 802.3ba, QSFP+ MSA                                   |
| Cable Length                   | 40cm   |
| Wire Gauge                     | 26AWG  |
| Bend Radius                    | 1.69 in.   |
| Digital Diagnostics Monitoring | Not Supported  |

# Fibre Channel Transceivers

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## SFP-FC-SR

Triple-speed SFP+ Fibre Channel optical transceiver.

|                                    |  |
|------------------------------------|--|
| Connector Type                     | LC   |
| Standards Supported                | FC-P1-4  |
| Connections supported              | Auto-sensing 2G, 4G, 8G  |
| Fiber Type                         | MMF  |
| Wavelength                         | 850 nm   |
| Average Optical Power Output       | -8.2 dBm   |
| Transmission Distance <sup>1</sup> | OM3: ~150m @ 8Gbps, 310m @ 4Gbps, 500m @ 2Gbps<br>OM1: ~21m @ 8Gbps, 70m @ 4Gbps, 150m @ 2Gbps |
| Operating Temperature              | 0 °C to 85°C   |
| Maximum Power Consumption          | 3.3 V  |
| Digital Diagnostic Monitoring      | Supported  |

1. Distances based on FC-P1-4 specification.

# Industrial Transceivers

## iSFP-GIG-SX

Gigabit SFP Optical Transceiver.

|                               |  |
|-------------------------------|--|
| Connector Type                | LC   |
| Standards Supported           | 802.3z, SFP MSA  |
| Connections Supported         | 1000Base-SX  |
| Fiber Type                    | MMF  |
| Wavelength                    | 850 nm   |
| Optical Power Output          | -9.0 to -2.5 dBm                                       |
| Receiver Sensitivity          | -18 dBm  |
| Transmission Distance         | ~300 m on 62.5/125 $\mu$ m<br>~500 m on 50/125 $\mu$ m |
| Operating Temperature         | -40°C to 85°C  |
| Digital Diagnostic Monitoring | Supported  |

## iSFP-GIG-LX

Gigabit SFP Optical Transceiver.

|                               |  |
|-------------------------------|--|
| Connector types               | LC   |
| Standards supported           | 802.3z, SFP MSA                                      |
| Connections supported         | 1000Base-LX  |
| Fiber Type                    | SMF  |
| Wavelength                    | 1310 nm  |
| Optical Power Output          | -9.5 to -3 dBm                                       |
| Receiver Sensitivity          | -14.5 dBm  |
| Transmission Distance         | ~10 km   |
| Operating Temperature         | -40 °C to 85 °C                                      |
| Digital Diagnostic Monitoring | Supported (Alcatel-Lucent branded transceivers only) |

**iSFP-GIG-LH40**

Gigabit SFP Optical Transceiver.

|                               |                 |
|-------------------------------|-----------------|
| Connector Type                | LC              |
| Standards Supported           | 802.3z, SFP MSA |
| Connections Supported         | 1000Base-LH40   |
| Fiber Type                    | SMF             |
| Wavelength                    | 1310 nm         |
| Optical Power Output          | -2 to +3 dBm    |
| Receiver Sensitivity          | -23 dBm         |
| Transmission Distance         | ~40 km          |
| Operating Temperature         | -40 °C to 85 °C |
| Digital Diagnostic Monitoring | Supported       |

**iSFP-GIG-LH70**

Gigabit SFP Optical Transceiver.

|                               |                 |
|-------------------------------|-----------------|
| Connector Type                | LC              |
| Standards Supported           | 802.3z, SFP MSA |
| Connections Supported         | 1000Base-LH70   |
| Fiber Type                    | SMF             |
| Wavelength                    | 1550 nm         |
| Optical Power Output          | 0 to +5 dBm     |
| Receiver Sensitivity          | -22 dBm         |
| Transmission Distance         | ~70 km          |
| Operating Temperature         | -40 °C to 85°C  |
| Digital Diagnostic Monitoring | Supported       |



**iSFP-GIG-T**

Gigabit SFP Copper Transceiver.

|                               |                   |
|-------------------------------|-------------------|
| Connector Type                | RJ-45             |
| Standards Supported           | 802.3z, SFP MSA   |
| Connections supported         | 10/100/1000Base-T |
| Cable Type                    | CAT5, CAT5e, CAT6 |
| Transmission Distance         | ~100 m            |
| Operating Temperature         | -40 °C to 85 °C   |
| Digital Diagnostic Monitoring | Not Supported     |

**iSFP-GIG-BX-D**

Bi-Directional SFP Optical Transceiver.

|                               |                                       |
|-------------------------------|---------------------------------------|
| Connector Type                | LC                                    |
| Standards Supported           | 802.3ah, SFP MSA                      |
| Connections Supported         | 1000Base-BX10                         |
| Fiber Type                    | SMF                                   |
| Wavelength                    | Transmit: 1490 nm<br>Receive: 1310 nm |
| Average Power Output          | -9 to -3 dBm                          |
| Receiver Sensitivity          | -19.5 dBm                             |
| Transmission Distance         | ~10 km                                |
| Operating Temperature         | -40 °C to 85 °C                       |
| Digital Diagnostic Monitoring | Supported                             |
| Notes                         | Designed for use with iSFP-GIG-BX-U   |

**iSFP-GIG-BX-U**

Bi-Directional SFP Optical Transceiver.

|                       |                                       |
|-----------------------|---------------------------------------|
| Connector Type        | LC                                    |
| Standards Supported   | 802.3ah, SFP MSA                      |
| Connections Supported | 1000Base-BX10                         |
| Fiber Type            | SMF                                   |
| Wavelength            | Transmit: 1310 nm<br>Receive: 1490 nm |

**iSFP-GIG-BX-U**

Bi-Directional SFP Optical Transceiver.

|                               |                                     |
|-------------------------------|-------------------------------------|
| Average Power Output          | -9 to -3 dBm                        |
| Receiver Sensitivity          | -19.5 dBm                           |
| Transmission Distance         | ~10 km                              |
| Operating Temperature         | -40 °C to 85 °C                     |
| Digital Diagnostic Monitoring | Supported                           |
| Notes                         | Designed for use with iSFP-GIG-BX-D |

**iSFP-10G-LR**

10-Gigabit SFP+ Optical Transceiver.

|                               |                 |
|-------------------------------|-----------------|
| Connector Type                | LC              |
| Standards Supported           | 802.3 Clause 52 |
| Connections supported         | 10GBase-LR      |
| Fiber Type                    | SMF             |
| Wavelength                    | 1310 nm         |
| Optical Power Output          | -8.2 to 0.5 dBm |
| Receiver Sensitivity          | -10.3 dBm       |
| Transmission Distance         | ~ 10 km         |
| Operating Temperature         | -40 °C to 85 °C |
| Maximum Power Consumption     | 1 W             |
| Digital Diagnostic Monitoring | Supported       |

**iSFP-10G-ER**

10-Gigabit SFP+ Optical Transceiver.

|                           |                 |
|---------------------------|-----------------|
| Connector Type            | LC              |
| Standards Supported       | 802.3ae         |
| Connections supported     | 10GBase-E       |
| Fiber Type                | SMF             |
| Wavelength                | 1550 nm         |
| Optical Power Output      | -4.7 to 4.0 dBm |
| Receiver Sensitivity      | -14.1 dBm       |
| Transmission Distance     | ~ 40 km         |
| Operating Temperature     | -40 °C to 85 °C |
| Maximum Power Consumption | 1.5 W           |

**iSFP-10G-ER**

10-Gigabit SFP+ Optical Transceiver.

|                               |           |
|-------------------------------|-----------|
| Digital Diagnostic Monitoring | Supported |
|-------------------------------|-----------|

**iSFP-10G-C**

10-Gigabit SFP+ Direct Attach Copper Cable.

|                               |                         |
|-------------------------------|-------------------------|
| Connector Type                | Direct Attached Copper  |
| Standards Supported           | 802.3ae, SFF-8431       |
| Cable Length                  | 1m, 3m, 7m <sup>1</sup> |
| Wire Gauge                    | 24AWG                   |
| Bend Radius                   | 1.25 in.                |
| Operating Temperature         | -40 °C to 85 °C         |
| Digital Diagnostic Monitoring | Not Supported           |

1. Check for availability of lengths.

**OS6865-CBL-40/100/300**

Four channel 40-Gigabit QSFP+ Direct Attach Copper Cable

|                               |                        |
|-------------------------------|------------------------|
| Connector Type                | Direct Attached Copper |
| Standards Supported           | 802.3ba, QSFP+ MSA     |
| Cable Length                  | 40cm, 1m, 3m           |
| Wire Gauge                    | 26AWG                  |
| Bend Radius                   | 1.69 in.               |
| Operating Temperature         | -40°C to 85°C          |
| Digital Diagnostic Monitoring | Not Supported          |

**iSFP-100-MM**

SFP Optical Transceiver.

|                               |                                    |
|-------------------------------|------------------------------------|
| Connector Type                | LC                                 |
| Standards Supported           | SFP MSA                            |
| Connections supported         | 100Base-FX                         |
| Fiber Type                    | MMF                                |
| Wavelength                    | 1310 nm                            |
| Optical Power Output          | -20 to -14 dBm on 62.5/125 $\mu$ m |
| Receiver Sensitivity          | -31 dBm                            |
| Transmission Distance         | ~2 km on 62.5/125 $\mu$ m          |
| Operating Temperature         | -40 °C to 85 °C                    |
| Digital Diagnostic Monitoring | Not Supported                      |

**iSFP-100-SM15**

SFP Optical Transceiver.

|                               |                 |
|-------------------------------|-----------------|
| Connector Type                | LC              |
| Standards Supported           | SFP MSA         |
| Connections Supported         | 100Base-FX      |
| Fiber Type                    | SMF             |
| Wavelength (nm)               | 1310 nm         |
| Optical Power Output          | -15 to -8 dBm   |
| Receiver Sensitivity          | -28 dBm         |
| Transmission Distance         | ~15 km          |
| Operating Temperature         | -40 °C to 85 °C |
| Digital Diagnostic Monitoring | Not Supported   |

# 2 Transceiver Compatibility Matrix

## In This Chapter

The following sections document the transceiver configurations and minimum release required for support on the OmniSwitch.

Compatibility specifications in this chapter include:

- OmniSwitch 6900 . See [“OmniSwitch 6900 Compatibility”](#) on page 2-36
- OmniSwitch 6860. See [“OmniSwitch 6860 Compatibility”](#) on page 2-38
- OmniSwitch 6865. See [“OmniSwitch 6865 Compatibility”](#) on page 2-40
- OmniSwitch 9900. See [“OmniSwitch 9900 Compatibility”](#) on page 2-41
- OmniSwitch 6560. See [“OmniSwitch 6560 Compatibility”](#) on page 2-43

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**Note:** For transceivers supporting Digital Diagnostics Monitoring there may be a slight variance between actual and reported values for both the transmit and receive side depending on the transceiver.

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# OmniSwitch 6900 Compatibility

The following table shows the available transceivers and minimum release required for support:

| Transceiver            | OS6900-X20/X40     | OS6900-Q32 | OS6900-X72             | XNI-U4/U12         | HNI-U6    | QNI-U3 | XNI-U12E           |
|------------------------|--------------------|------------|------------------------|--------------------|-----------|--------|--------------------|
| <b>SFP-GIG-SX</b>      | 7.2.1              | N/S        | 7.3.4.R02              | 7.2.1              | 7.2.1.R02 | N/S    | 7.3.3              |
| <b>SFP-GIG-LX</b>      | 7.2.1              | N/S        | 7.3.4.R02              | 7.2.1              | 7.2.1.R02 | N/S    | 7.3.3              |
| <b>SFP-GIG-LH40</b>    | 7.2.1              | N/S        | 7.3.4.R02              | 7.2.1              | 7.2.1.R02 | N/S    | 7.3.3              |
| <b>SFP-GIG-LH70</b>    | 7.2.1              | N/S        | 7.3.4.R02              | 7.2.1              | 7.2.1.R02 | N/S    | 7.3.3              |
| <b>SFP-GIG-CWD</b>     | N/S                | N/S        | N/S                    | N/S                | N/S       | N/S    | N/S                |
| <b>SFP-GIG-T</b>       | 7.2.1 <sup>1</sup> | N/S        | 7.3.4.R02 <sup>1</sup> | 7.2.1 <sup>1</sup> | N/S       | N/S    | 7.3.3 <sup>1</sup> |
| <b>SFP-GIG-EXTND</b>   | 7.2.1              | N/S        | 7.3.4.R02              | 7.2.1              | N/S       | N/S    | 7.3.3              |
| <b>SFP-GIG-BX-D</b>    | 7.2.1              | N/S        | 7.3.4.R02              | 7.2.1              | 7.2.1     | N/S    | 7.3.3              |
| <b>SFP-GIG-BX-U</b>    | 7.2.1              | N/S        | 7.3.4.R02              | 7.2.1              | 7.2.1     | N/S    | 7.3.3              |
| <b>SFP-GIG-BX-D20</b>  | Not Supported      |            |                        |                    |           |        |                    |
| <b>SFP-GIG-BX-U20</b>  | Not Supported      |            |                        |                    |           |        |                    |
| <b>SFP-GIG-BX-D40</b>  | Not Supported      |            |                        |                    |           |        |                    |
| <b>SFP-GIG-BX-U40</b>  | Not Supported      |            |                        |                    |           |        |                    |
| <b>SFP-DUAL-MM</b>     | Not Supported      |            |                        |                    |           |        |                    |
| <b>SFP-DUAL-MM-N</b>   | Not Supported      |            |                        |                    |           |        |                    |
| <b>SFP-DUAL-SM10</b>   | Not Supported      |            |                        |                    |           |        |                    |
| <b>SFP-DUAL-BX-D</b>   | Not Supported      |            |                        |                    |           |        |                    |
| <b>SFP-DUAL-BX-U</b>   | Not Supported      |            |                        |                    |           |        |                    |
| <b>SFP-100-BX20LT</b>  | Not Supported      |            |                        |                    |           |        |                    |
| <b>SFP-100-BX20NU</b>  | Not Supported      |            |                        |                    |           |        |                    |
| <b>SFP-100-BXLC-D</b>  | Not Supported      |            |                        |                    |           |        |                    |
| <b>SFP-100-BXLC-U</b>  | Not Supported      |            |                        |                    |           |        |                    |
| <b>SFP-100-LC-MM</b>   | Not Supported      |            |                        |                    |           |        |                    |
| <b>SFP-100-LC-SM15</b> | Not Supported      |            |                        |                    |           |        |                    |
| <b>SFP-100-LC-SM40</b> | Not Supported      |            |                        |                    |           |        |                    |
| <b>SFP-10G-SR</b>      | 7.2.1              | N/S        | 7.3.4.R02              | 7.2.1              | 7.2.1     | N/S    | 7.3.3              |
| <b>SFP-10G-LR</b>      | 7.2.1              | N/S        | 7.3.4.R02              | 7.2.1              | 7.2.1     | N/S    | 7.3.3              |
| <b>SFP-10G-ER</b>      | 7.2.1              | N/S        | 7.3.4.R02              | 7.2.1              | 7.2.1     | N/S    | 7.3.3              |
| <b>SFP-10G-LRM</b>     | 7.2.1              | N/S        | N/S                    | 7.2.1              | 7.2.1     | N/S    | 7.3.3              |

| Transceiver             | OS6900-X20/X40 | OS6900-Q32 | OS6900-X72 | XNI-U4/U12 | HNI-U6    | QNI-U3    | XNI-U12E |
|-------------------------|----------------|------------|------------|------------|-----------|-----------|----------|
| <b>SFP-10G-ZR</b>       | 7.3.4          | N/S        | 7.3.4.R02  | 7.3.4      | 7.3.4     | N/S       | 7.3.4    |
| <b>SFP-10G-T</b>        | N/S            | N/S        | 8.3.1.R02  | N/S        | N/S       | N/S       | N/S      |
| <b>SFP-10G-C</b>        | 7.2.1          | N/S        | 7.3.4.R02  | 7.2.1      | 7.2.1     | N/S       | 7.3.3    |
| <b>SFP-10G-24DWD80</b>  | 7.3.1          | N/S        | 7.3.4.R02  | 7.3.1      | 7.3.1     | N/S       | 7.3.3    |
| <b>SFP-10G-GIG-SR</b>   | 7.3.1          | N/S        | 7.3.4.R02  | 7.3.1      | 7.3.1     | N/S       | 7.3.3    |
| <b>SFP-10G-GIG-LR</b>   | 7.3.1          | N/S        | 7.3.4.R02  | 7.3.1      | 7.3.1     | N/S       | 7.3.3    |
| <b>SFP-FC-SR</b>        | N/S            | N/S        | N/S        | N/S        | N/S       | N/S       | 7.3.3    |
| <b>QSFP-40G-SR</b>      | N/S            | 7.3.4      | 7.3.4.R02  | N/S        | 7.2.1.R02 | 7.2.1.R02 | N/S      |
| <b>QSFP-40G-SR-BD</b>   | N/S            | 8.3.1.R02  | 8.3.1.R02  | N/S        | 8.4.1.R01 | 8.4.1.R01 | N/S      |
| <b>QSFP-40G-LR</b>      | N/S            | 7.3.4      | 7.3.4.R02  | N/S        | 7.3.1.R01 | 7.3.1.R01 | N/S      |
| <b>QSFP-40G-C</b>       | N/S            | 7.3.4      | 7.3.4.R02  | N/S        | 7.2.1.R02 | 7.2.1.R02 | N/S      |
| <b>QSFP-4X10G-SR</b>    | N/S            | 7.3.4      | 7.3.4.R02  | N/S        | N/S       | N/S       | N/S      |
| <b>QSFP-4X10G-C</b>     | N/S            | 7.3.4      | 7.3.4.R02  | N/S        | N/S       | N/S       | N/S      |
| <b>QSFP-40G-AOC-20M</b> | N/S            | 8.3.1.R02  | 8.3.1.R02  | N/S        | 8.3.1.R02 | 8.3.1.R02 | N/S      |

1. Only supports 1G.

# OmniSwitch 6860 Compatibility

The following table shows the available transceivers and minimum release required for support:

| Transceiver                                 | OS6860/6860E<br>(Excluding U28) | OS6860E-U28 |
|---|---------------------------------|-------------|
| <a href="#">SFP-GIG-SX</a>                  | 8.1.1                           | 8.1.1       |
| <a href="#">SFP-GIG-LX</a>                  | 8.1.1                           | 8.1.1       |
| <a href="#">SFP-GIG-LH40</a>                | 8.1.1                           | 8.1.1       |
| <a href="#">SFP-GIG-LH70</a>                | 8.1.1                           | 8.1.1       |
| <a href="#">SFP-GIG-CWD</a>                 | 8.1.1                           | 8.1.1       |
| <a href="#">SFP-GIG-T<sup>1</sup></a>       | 8.1.1                           | 8.1.1       |
| <a href="#">SFP-GIG-EXTND</a>               | 8.1.1                           | 8.1.1       |
| <a href="#">SFP-GIG-BX-D</a>                | 8.1.1                           | 8.1.1       |
| <a href="#">SFP-GIG-BX-U</a>                | 8.1.1                           | 8.1.1       |
| <a href="#">SFP-GIG-BX-D20</a>              | 8.1.1                           | 8.1.1       |
| <a href="#">SFP-GIG-BX-U20</a>              | 8.1.1                           | 8.1.1       |
| <a href="#">SFP-GIG-BX-D40</a>              | 8.1.1                           | 8.1.1       |
| <a href="#">SFP-GIG-BX-U40</a>              | 8.1.1                           | 8.1.1       |
| <a href="#">SFP-DUAL-MM<sup>2</sup></a>     | N/S                             | 8.4.1.R01   |
| <a href="#">SFP-DUAL-MM-N<sup>2</sup></a>   | 8.4.1.R01                       | 8.4.1.R01   |
| <a href="#">SFP-DUAL-SM10<sup>2</sup></a>   | N/S                             | 8.4.1.R01   |
| <a href="#">SFP-DUAL-BX-D<sup>2</sup></a>   | N/S                             | 8.4.1.R01   |
| <a href="#">SFP-DUAL-BX-U<sup>2</sup></a>   | N/S                             | 8.4.1.R01   |
| <a href="#">SFP-100-BX20LT</a>              | N/S                             | N/S         |
| <a href="#">SFP-100-BX20NU</a>              | N/S                             | N/S         |
| <a href="#">SFP-100-BXLC-D<sup>2</sup></a>  | N/S                             | 8.1.1       |
| <a href="#">SFP-100-BXLC-U<sup>2</sup></a>  | N/S                             | 8.1.1       |
| <a href="#">SFP-100-LC-MM<sup>2</sup></a>   | N/S                             | 8.1.1       |
| <a href="#">SFP-100-LC-SM15<sup>2</sup></a> | N/S                             | 8.1.1       |
| <a href="#">SFP-100-LC-SM40<sup>2</sup></a> | N/S                             | 8.1.1       |
| <a href="#">SFP-10G-SR</a>                  | 8.1.1                           | 8.1.1       |
| <a href="#">SFP-10G-LR</a>                  | 8.1.1                           | 8.1.1       |
| <a href="#">SFP-10G-ER</a>                  | 8.1.1                           | 8.1.1       |
| <a href="#">SFP-10G-LRM</a>                 | 8.1.1                           | 8.1.1       |
| <a href="#">SFP-10G-ZR</a>                  | 8.2.1                           | 8.2.1       |
| <a href="#">SFP-10G-T</a>                   | 8.3.1.R02                       | 8.3.1.R02   |
| <a href="#">SFP-10G-C</a>                   | 8.1.1                           | 8.1.1       |



| Transceiver  | OS6860/6860E<br>(Excluding U28) | OS6860E-U28 |
|--|---------------------------------|-------------|
| <b>SFP-10G-24DWD80</b>   | N/S                             | N/S         |
| <b>SFP-10G-GIG-SR<sup>3</sup></b>  | 8.1.1                           | 8.1.1       |
| <b>SFP-10G-GIG-LR<sup>3</sup></b>  | 8.2.1                           | 8.2.1       |
| <b>SFP-FC-SR</b>   | N/S                             | N/S         |
| <b>QSFP-40G-SR<sup>4</sup></b>   | 8.1.1                           | 8.1.1       |
| <b>QSFP-40G-SR-BD</b>  | N/S                             | N/S         |
| <b>QSFP-40G-LR</b>   | N/S                             | N/S         |
| <b>QSFP-40G-C<sup>4</sup></b><br>- OS6860-CBL-100<br>- OS6860-CBL-300<br>- OS6860-CBL-40 | 8.1.1                           | 8.1.1       |
| <b>QSFP-4X10G-SR<sup>4</sup></b>   | 8.4.1.R01                       | 8.4.1.R01   |
| <b>QSFP-4X10G-C</b>  | N/S                             | N/S         |
| <b>QSFP-40G-AOC20M<sup>4</sup></b>   | 8.2.1                           | 8.2.1       |

1. OS6860E-U28 user ports (1 - 28) support 10/100/1000. All 6860 uplink ports support 1Gbps only with this transceiver. If manually setting the user port speed to 10M the transceiver must first be inserted before setting the speed.
2. Supports 100/1000 on OS6860E-U28 SFP user ports (1 - 28) only. Uplink ports support 1G only.
3. Not supported on OS6860E-U28 1G SFP user ports (1-28).
4. Supported for 20-Gigabit VFL connections only.

# OmniSwitch 6865 Compatibility

The following table shows the available transceivers and minimum release required for support:

| <b>Transceiver</b>                    | <b>OS6865</b> |
|---------------------------------------|---------------|
| <a href="#">iSFP-GIG-SX</a>           | 8.3.1         |
| <a href="#">iSFP-GIG-LX</a>           | 8.3.1         |
| <a href="#">iSFP-GIG-LH40</a>         | 8.3.1         |
| <a href="#">iSFP-GIG-LH70</a>         | 8.3.1         |
| <a href="#">iSFP-GIG-T</a>            | 8.3.1         |
| <a href="#">iSFP-GIG-BX-D</a>         | 8.3.1         |
| <a href="#">iSFP-GIG-BX-U</a>         | 8.3.1         |
| <a href="#">iSFP-10G-LR</a>           | 8.3.1         |
| <a href="#">iSFP-10G-ER</a>           | 8.3.1         |
| <a href="#">iSFP-10G-C</a>            | 8.3.1         |
| <a href="#">OS6865-CBL-40/100/300</a> | 8.4.1.R01     |
| <a href="#">iSFP-100-MM</a>           | 8.4.1.R01     |
| <a href="#">iSFP-100-SM15</a>         | 8.4.1.R01     |

# OmniSwitch 9900 Compatibility

The following table shows the available transceivers and minimum release required for support:

| Transceiver                     | OS99-CMM      | OS99-XNI-U48           | OS99-GNI-U48  |
|---------------------------------|---------------|------------------------|---------------|
| <a href="#">SFP-GIG-SX</a>      | Not Supported | 8.3.1                  | 8.4.1.R01     |
| <a href="#">SFP-GIG-LX</a>      | Not Supported | 8.3.1                  | 8.4.1.R01     |
| <a href="#">SFP-GIG-LH40</a>    | Not Supported | 8.3.1                  | 8.4.1.R01     |
| <a href="#">SFP-GIG-LH70</a>    | Not Supported | 8.3.1                  | 8.4.1.R01     |
| <a href="#">SFP-GIG-CWD</a>     | Not Supported | Not Supported          | 8.4.1.R01     |
| <a href="#">SFP-GIG-T</a>       | Not Supported | 8.3.1 <sup>1</sup>     | 8.4.1.R01     |
| <a href="#">SFP-GIG-EXTND</a>   | Not Supported | 8.3.1                  | 8.4.1.R01     |
| <a href="#">SFP-GIG-BX-D</a>    | Not Supported | 8.3.1                  | 8.4.1.R01     |
| <a href="#">SFP-GIG-BX-U</a>    | Not Supported | 8.3.1                  | 8.4.1.R01     |
| <a href="#">SFP-GIG-BX-D20</a>  | Not Supported | 8.3.1.R02              | 8.4.1.R01     |
| <a href="#">SFP-GIG-BX-U20</a>  | Not Supported | 8.3.1.R02              | 8.4.1.R01     |
| <a href="#">SFP-GIG-BX-D40</a>  | Not Supported | Not Supported          | 8.4.1.R01     |
| <a href="#">SFP-GIG-BX-U40</a>  | Not Supported | Not Supported          | 8.4.1.R01     |
| <a href="#">SFP-DUAL-MM</a>     | Not Supported | 8.3.1.R02 <sup>1</sup> | 8.4.1.R01     |
| <a href="#">SFP-DUAL-MM-N</a>   | Not Supported | 8.3.1.R02 <sup>1</sup> | 8.4.1.R01     |
| <a href="#">SFP-DUAL-SM10</a>   | Not Supported | Not Supported          | 8.4.1.R01     |
| <a href="#">SFP-DUAL-BX-D</a>   | Not Supported | Not Supported          | 8.4.1.R01     |
| <a href="#">SFP-DUAL-BX-U</a>   | Not Supported | Not Supported          | 8.4.1.R01     |
| <a href="#">SFP-100-BX20LT</a>  | Not Supported | Not Supported          | Not Supported |
| <a href="#">SFP-100-BX20NU</a>  | Not Supported | Not Supported          | Not Supported |
| <a href="#">SFP-100-BXLC-D</a>  | Not Supported | Not Supported          | 8.4.1.R01     |
| <a href="#">SFP-100-BXLC-U</a>  | Not Supported | Not Supported          | 8.4.1.R01     |
| <a href="#">SFP-100-LC-MM</a>   | Not Supported | Not Supported          | 8.4.1.R01     |
| <a href="#">SFP-100-LC-SM15</a> | Not Supported | Not Supported          | 8.4.1.R01     |
| <a href="#">SFP-100-LC-SM40</a> | Not Supported | Not Supported          | 8.4.1.R01     |
| <a href="#">SFP-10G-SR</a>      | Not Supported | 8.3.1                  | Not Supported |
| <a href="#">SFP-10G-LR</a>      | Not Supported | 8.3.1                  | Not Supported |
| <a href="#">SFP-10G-ER</a>      | Not Supported | 8.3.1                  | Not Supported |
| <a href="#">SFP-10G-LRM</a>     | Not Supported | 8.3.1                  | Not Supported |
| <a href="#">SFP-10G-ZR</a>      | Not Supported | 8.3.1                  | Not Supported |
| <a href="#">SFP-10G-T</a>       | Not Supported | 8.3.1.R02              | Not Supported |
| <a href="#">SFP-10G-C</a>       | Not Supported | 8.3.1                  | Not Supported |
| <a href="#">SFP-10G-24DWD80</a> | Not Supported | 8.3.1                  | Not Supported |

| <b>Transceiver</b>     | <b>OS99-CMM</b> | <b>OS99-XNI-U48</b> | <b>OS99-GNI-U48</b> |
|------------------------|-----------------|---------------------|---------------------|
| <b>SFP-10G-GIG-SR</b>  | Not Supported   | 8.3.1               | Not Supported       |
| <b>SFP-10G-GIG-LR</b>  | Not Supported   | 8.3.1               | Not Supported       |
| <b>SFP-FC-SR</b>       | Not Supported   | Not Supported       | Not Supported       |
| <b>QSFP-40G-SR</b>     | 8.3.1.R02       | Not Supported       | Not Supported       |
| <b>QSFP-40G-SR-BD</b>  | 8.3.1.R02       | Not Supported       | Not Supported       |
| <b>QSFP-40G-LR</b>     | 8.3.1.R02       | Not Supported       | Not Supported       |
| <b>QSFP-40G-C</b>      | 8.3.1.R02       | Not Supported       | Not Supported       |
| <b>QSFP-4X10G-SR</b>   | 8.3.1.R02       | Not Supported       | Not Supported       |
| <b>QSFP-4X10G-C</b>    | 8.3.1.R02       | Not Supported       | Not Supported       |
| <b>QSFP-40G-AOC20M</b> | 8.3.1.R02       | Not Supported       | Not Supported       |

1. Supports 1G only.

# OmniSwitch 6560 Compatibility

The following table shows the available transceivers and minimum release required for support:

| Transceiver                               | OmniSwitch 6560 |
|---|-----------------|
| <a href="#">SFP-GIG-SX</a>                | 8.4.1.R02       |
| <a href="#">SFP-GIG-LX</a>                | 8.4.1.R02       |
| <a href="#">SFP-GIG-LH40</a>              | 8.4.1.R02       |
| <a href="#">SFP-GIG-LH70</a>              | 8.4.1.R02       |
| <a href="#">SFP-GIG-CWD</a>               | N/S             |
| <a href="#">SFP-GIG-T<sup>1</sup></a>     | 8.4.1.R02       |
| <a href="#">SFP-GIG-EXTND</a>             | 8.4.1.R02       |
| <a href="#">SFP-GIG-BX-D</a>              | 8.4.1.R02       |
| <a href="#">SFP-GIG-BX-U</a>              | 8.4.1.R02       |
| <a href="#">SFP-GIG-BX-D20</a>            | 8.4.1.R02       |
| <a href="#">SFP-GIG-BX-U20</a>            | 8.4.1.R02       |
| <a href="#">SFP-GIG-BX-D40</a>            | 8.4.1.R02       |
| <a href="#">SFP-GIG-BX-U40</a>            | 8.4.1.R02       |
| <a href="#">SFP-DUAL-MM<sup>1</sup></a>   | 8.4.1.R02       |
| <a href="#">SFP-DUAL-MM-N<sup>1</sup></a> | 8.4.1.R02       |
| <a href="#">SFP-DUAL-SM10<sup>1</sup></a> | 8.4.1.R02       |
| <a href="#">SFP-DUAL-BX-D<sup>1</sup></a> | 8.4.1.R02       |
| <a href="#">SFP-DUAL-BX-U<sup>1</sup></a> | 8.4.1.R02       |
| <a href="#">SFP-100-BX20LT</a>            | N/S             |
| <a href="#">SFP-100-BX20NU</a>            | N/S             |
| <a href="#">SFP-100-BXLC-D</a>            | 8.4.1.R02       |
| <a href="#">SFP-100-BXLC-U</a>            | 8.4.1.R02       |
| <a href="#">SFP-100-LC-MM</a>             | 8.4.1.R02       |
| <a href="#">SFP-100-LC-SM15</a>           | 8.4.1.R02       |
| <a href="#">SFP-100-LC-SM40</a>           | 8.4.1.R02       |
| <a href="#">SFP-10G-SR</a>                | 8.4.1.R02       |
| <a href="#">SFP-10G-LR</a>                | 8.4.1.R02       |
| <a href="#">SFP-10G-ER</a>                | 8.4.1.R02       |
| <a href="#">SFP-10G-LRM</a>               | N/S             |
| <a href="#">SFP-10G-ZR</a>                | 8.4.1.R02       |
| <a href="#">SFP-10G-T</a>                 | 8.4.1.R02       |
| <a href="#">SFP-10G-C</a>                 | 8.4.1.R02       |
| <a href="#">SFP-10G-24DWD80</a>           | N/S             |

| Transceiver   | OmniSwitch 6560 |
|---|-----------------|
| <a href="#">SFP-10G-GIG-SR</a>  | 8.4.1.R02       |
| <a href="#">SFP-10G-GIG-LR</a>  | 8.4.1.R02       |
| <a href="#">SFP-FC-SR</a>   | N/S             |
| <a href="#">QSFP-40G-SR<sup>2</sup></a>   | 8.4.1.R02       |
| <a href="#">QSFP-40G-SR-BD</a>  | N/S             |
| <a href="#">QSFP-40G-LR</a>   | N/S             |
| <a href="#">QSFP-40G-C<sup>2</sup></a><br>- OS6560-CBL-100<br>- OS6560-CBL-300<br>- OS6560-CBL-40 | 8.4.1.R02       |
| <a href="#">QSFP-4X10G-SR</a>   | N/S             |
| <a href="#">QSFP-4X10G-C</a>  | N/S             |
| <a href="#">QSFP-40G-AOC20M<sup>2</sup></a>   | 8.4.1.R02       |

1. Uplink ports support 1Gbps only with this transceiver.
2. Supported for VFL connections only.