



# Cisco 100BASE-X Small Form-Factor Pluggable Modules for Fast Ethernet Applications

---

# Contents

Product overview	3
Cisco 100BASE-FX SFP	3
Cisco 100BASE-LX10 SFP	4
Cisco 100BASE-BX10 SFP	4
Cisco 100BASE-EX SFP	4
Cisco 100BASE-ZX SFP	4
Cisco 100BASE-T Copper SFP	4
Technical specifications	5
Warranty	7
Ordering information	7
Cisco environmental sustainability	8
Cisco Capital	8
Additional Information	8

---

## Product overview

The Cisco® 100BASE-X Small Form-Factor Pluggable (SFP) device (Figure 1) is a hot-swappable input/output device that plugs into Fast Ethernet ports, dual-rate Fast/Gigabit Ethernet ports, or Gigabit Ethernet ports of a Cisco switch or router, linking the port with the fiber cabling network.

Main features include the following:

- Hot-swappable when deployed, the switch or router does not have to reboot
- Supports the “pay-as-you-populate” model
- Interchangeable with other 100BASE-X SFPs on the same line card
- Supports the Cisco quality ID feature that enables the switch or router to identify whether or not the SFP is a Cisco qualified SFP
- Optically interoperable with respective 100BASE-X Ethernet interfaces on the same link



**Figure 1.**  
Cisco 100M Ethernet SFP

## Cisco 100BASE-FX SFP

The Cisco 100BASE-FX SFP operates on ordinary multimode fiber-optic (MMF) link spans up to 2 kilometers (km) long.

GLC-FE-100FX modules operate in Fast Ethernet or dual-rate Fast/Gigabit Ethernet ports of Cisco switches and routers.

GLC-FE-100FX-RGD modules operate in Fast Ethernet or dual-rate Fast/Gigabit Ethernet ports of Cisco Industrial Ethernet and SmartGrid switches and routers.

GLC-GE-100FX modules operate in Gigabit Ethernet ports of Cisco switches and routers.

All these modules are interoperable with industrywide interfaces compliant to the IEEE 100BASE-FX standard.

## Cisco 100BASE-LX10 SFP

The Cisco 100BASE-LX10 SFP operates on ordinary single-mode fiber-optic (SMF) link spans up to 10 km long.

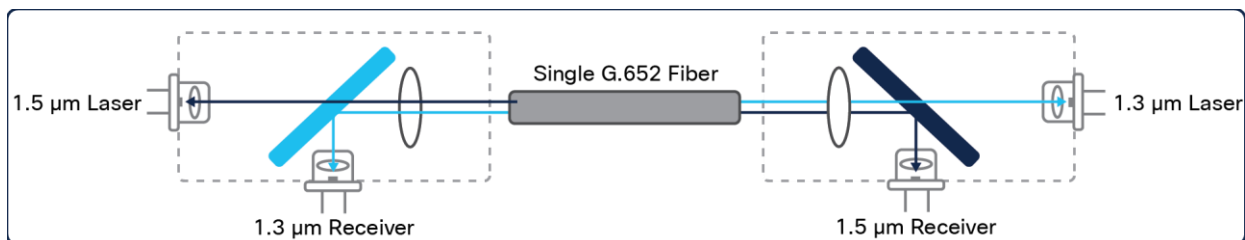
GLC-FE-100LX modules operate in Fast Ethernet or dual-rate Fast/Gigabit Ethernet ports of Cisco switches and routers.

GLC-FE-100LX-RGD modules operate in Fast Ethernet or dual-rate Fast/Gigabit Ethernet ports of Cisco Industrial Ethernet and SmartGrid switches and routers.

These modules are interoperable with industrywide interfaces compliant to the IEEE 100BASE-LX10 standard.

## Cisco 100BASE-BX10 SFP

The Cisco 100BASE-BX10 (part numbers GLC-FE-100BX-D and GLC-FE-100BX-U) SFPs operate on ordinary SMF single-strand link spans up to 10 km long. A 100BASE-BX10-D device is always connected a 100BASE-BX10-U device with a single strand of standard SMF with an operating transmission range up to 10 km. The communication over a single strand of fiber is achieved by separating the transmission wavelength of the two devices as depicted in Figure 2. 100BASE-BX10-D transmits a 1550-nm channel and receives a 1310-nm signal, whereas a 100BASE-BX10-U transmits a 1310-nm wavelength and receives a 1550-nm signal. Note in Figure 2 the presence of a Wavelength-Division Multiplexing (WDM) splitter integrated into the SFP to split the 1310-nm and 1550-nm light paths.



**Figure 2.**  
Bidirectional Transmission on a Single Strand of SMF

## Cisco 100BASE-EX SFP

The Cisco 100BASE-EX SFP operates on ordinary SMF link spans up to 40 km long.

GLC-FE-100EX modules operate in Fast Ethernet or dual-rate Fast/Gigabit Ethernet ports of Cisco switches and routers.

## Cisco 100BASE-ZX SFP

The Cisco 100BASE-ZX SFP operates on ordinary SMF link spans up to 80 km long.

GLC-FE-100ZX modules operate in Fast Ethernet or dual-rate Fast/Gigabit Ethernet ports of Cisco switches and routers.

## Cisco 100BASE-T Copper SFP

The 100BASE-T SFP operates on standard Category 5 unshielded twisted-pair copper cabling of link lengths up to 100 m (328 ft). It supports Industrial temperature range of -40 to 85C.

## Technical specifications

### Platform Support

The Cisco SFPs are supported across a variety of Cisco switches, routers, and optical transport devices. For more details, refer to the document [Cisco 100M Ethernet SFP Compatibility Matrix](#).

### Connectors and Cabling

**Connectors:** Dual LC connector (GLC-FE-100FX, GLC-FE-100FX-RGD, GLC-GE-100FX, GLC-FE-100LX, GLC-FE-100LX-RGD, GLC-FE-100EX, and GLC-FE-100ZX) or single LC connector (GLC-FE-100BX-D and GLC-FE-100BX-U).

Table 1 provides cabling specifications for the SFPs for installation in a Fast Ethernet SFP port. Note that all SFP ports have LC-type connectors, and the minimum cable distance for all SFPs listed (MMF and SMF [G.652]) is 2 meters (6.5 feet).

**Table 1.** SFP Port cabling specifications

SFP	Wavelength (nm)	Fiber Type	Cable Distance
GLC-FE-100FX GLC-FE-100FX-RGD GLC-GE-100FX	1300	MMF	2 km (6,562 ft)
GLC-FE-100LX GLC-FE-100LX-RGD	1310	SMF	10 km (32,810 ft)
GLC-FE-100BX-U	1310	SMF	10 km (32,810 ft)
GLC-FE-100BX-D	1550	SMF	10 km (32,810 ft)
GLC-FE-100EX	1310	SMF	40 km (131,240 ft)
GLC-FE-100ZX	1550	SMF	80 km (262,480 ft)

Table 2 gives information about fiber loss.

**Table 2.** Fiber-loss budgets

SFP	Type	Transmit (dBm)		Receive (dBm)	
		Maximum	Minimum	Maximum	Minimum
GLC-FE-100FX GLC-FE-100FX-RGD GLC-GE-100FX	100BASE-FX	-14	-20	-14	-31
GLC-FE-100LX GLC-FE-100LX-RGD	100BASE-LX10	-8	-15	-8	-28
GLC-FE-100BX-U	100BASE-BX10-U	-8	-14	-3	-28.2
GLC-FE-100BX-D	100BASE-BX10-D	-8	-14	-3	-28.2
GLC-FE-100EX	100BASE-EX	0	-5	-8	-28
GLC-FE-100ZX	100BASE-ZX	2	-3	-8	-30

## Dimensions

**Dimensions (H x W x D):** 8.5 x 13.4 x 56.5 mm

## Environmental Conditions and Power Requirements

- **Operating temperature range:**
  - **Commercial temperature range (COM):** 0 to 70° C (32 to 158° F), applicable to GLC-GE-100FX, GLC-FE-100BX-D, GLC-FE-100BX-U, and GLC FE 100ZX
  - **Extended temperature range (EXT):** -5 to 85° C (23 to 185° F) applicable to GLC-FE-100FX, GLC-FE-100LX and GLC-FE-100-EX
  - **Industrial temperature range (IND):** -40 to 85° C (-40 to 185° F), applicable to GLC-FE-100FX-RGD, GLC-FE-100LX-RGD and GLC-FE-T-I
- **Storage temperature range:** -40 to 85° C (-40 to 185° F)
- **Power consumption:**
  - GLC-FE-100FX, GLC-FE-100FX-RGD, GLC-FE-100BX-D, GLC-FE-100BX-U, GLC-FE-100EX, and GLC-FE-100ZX modules consume up to 1W per port
  - GLC-GE-100FX modules typically consume 1.5W per port (up to 1.7W)
  - GLC-FE-T-I modules typically consume 1W per port

## Warranty

- Standard warranty: 5 years
- Expedited replacement available via a Cisco SMARTnet® Service support contract

## Ordering information

Table 3 gives ordering information for the Cisco SFP.

**Table 3.** Ordering Cisco SFP

Product Number	SFP
<b>GLC-FE-100FX</b>	100BASE-FX SFP for Fast Ethernet SFP Ports
<b>GLC-FE-100FX-RGD</b>	100BASE-FX Rugged SFP for Fast Ethernet SFP Ports
<b>GLC-GE-100FX</b>	100BASE-FX SFP for Gigabit Ethernet SFP Ports
<b>GLC-FE-100LX</b>	100BASE-LX10 SFP for Fast Ethernet SFP Ports
<b>GLC-FE-100LX-RGD</b>	100BASE-LX10 Rugged SFP for Fast Ethernet SFP Ports
<b>GLC-FE-100BX-U</b>	100BASE-BX10-U SFP for Fast Ethernet SFP Ports
<b>GLC-FE-100BX-D</b>	100BASE-BX10-D SFP for Fast Ethernet SFP Ports
<b>GLC-FE-100EX</b>	100BASE-EX for Fast Ethernet SFP Ports
<b>GLC-FE-100ZX</b>	100BASE-ZX for Fast Ethernet SFP Ports
<b>GLC-FE-T-I</b>	100BASE-T for Fast Ethernet SFP Ports

## Regulatory and Standards Compliance

### Safety

- Laser Class 1 21CFR1040 LN#50 7/2001
- Laser Class I IEC 60825

### Standards

- IEEE 802.3u
- IEEE 802.3z
- IEEE 802.3ah
- GR-20-CORE: Generic Requirements for Optical Fiber and Optical Fiber Cable
- GR-326-CORE: Generic Requirements for Single-Mode Optical Connectors and Jumper Assemblies
- GR-1435-CORE: Generic Requirements for Multifiber Optical Connectors
- RoHS 5

## Cisco environmental sustainability

Information about Cisco’s environmental sustainability policies and initiatives for our products, solutions, operations, and extended operations or supply chain is provided in the “Environment Sustainability” section of Cisco’s [Corporate Social Responsibility](#) (CSR) Report.

Reference links to information about key environmental sustainability topics (mentioned in the “Environment Sustainability” section of the CSR Report) are provided in the following table:

Sustainability topic	Reference
Information on product material content laws and regulations	<a href="#">Materials</a>
Information on electronic waste laws and regulations, including products, batteries, and packaging	<a href="#">WEEE compliance</a>

Cisco makes the packaging data available for informational purposes only. It may not reflect the most current legal developments, and Cisco does not represent, warrant, or guarantee that it is complete, accurate, or up to date. This information is subject to change without notice.

## Cisco Capital

### Flexible payment solutions to help you achieve your objectives

Cisco Capital makes it easier to get the right technology to achieve your objectives, enable business transformation and help you stay competitive. We can help you reduce the total cost of ownership, conserve capital, and accelerate growth. In more than 100 countries, our flexible payment solutions can help you acquire hardware, software, services and complementary third-party equipment in easy, predictable payments. [Learn more](#).

## Additional Information

For more information about Cisco 100BASE-X SFPs for Fast Ethernet SFP ports, contact:

- United States and Canada: 800 553-6387
- Europe: 32 2 778 4242
- Australia: 61 2 9935 4107
- Other: 408 526-7209
- <https://www.cisco.com>

**Americas Headquarters**  
Cisco Systems, Inc.  
San Jose, CA

**Asia Pacific Headquarters**  
Cisco Systems (USA) Pte. Ltd.  
Singapore

**Europe Headquarters**  
Cisco Systems International BV Amsterdam,  
The Netherlands

Cisco has more than 200 offices worldwide. Addresses, phone numbers, and fax numbers are listed on the Cisco Website at <https://www.cisco.com/go/offices>.

Cisco and the Cisco logo are trademarks or registered trademarks of Cisco and/or its affiliates in the U.S. and other countries. To view a list of Cisco trademarks, go to this URL: <https://www.cisco.com/go/trademarks>. Third-party trademarks mentioned are the property of their respective owners. The use of the word partner does not imply a partnership relationship between Cisco and any other company. (1110R)