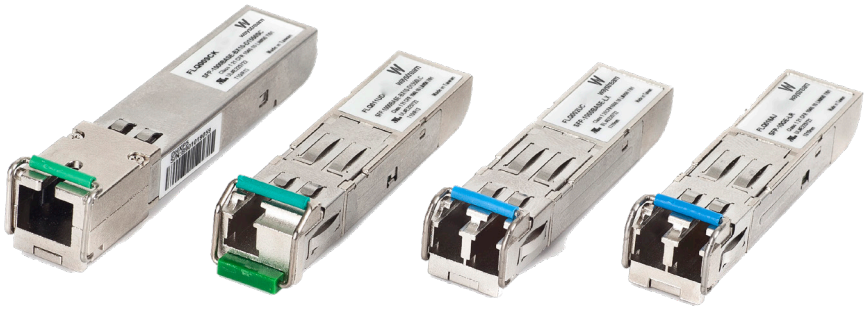
SFP/SFP+ Accessories

SFP and SFP+ accessories for FTTH networks



High quality optical tranceivers for FTTH

SFP and SFP+ modules, with low power consumption for optical connection and passive coaxial cables - everything you need to connect network equipment at high speeds

All accessories comply with the IEEE Gigabit Ethernet standard 802.3 and SFF-8472 specification and are interchangeable between all Waystream equipment.

BENEFITS

- **Gigabit Ethernet and 10 Gigabit Ethernet SFP optics**
- **Multi-rate models**
- **Compatible with all Waystream products**
- **Ultra low power models**
- **5 year warranty**

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Product overview

Our wide range of SFP modules comply with the Small Form Factor Pluggable Multi-Sourcing Agreement (MSA).

All SFPs support 2-wire serial communication protocol as defined in the SFP MSA, which provides access to sophisticated identification information that describes the transceiver's capabilities, standard interfaces, manufacturer, and more.

Most SFPs support enhanced Digital Diagnostic Monitoring function as defined in SFF-8472 with an extended memory map compared to SFP MSA. This allows real time monitoring of the device's operating parameters, such as temperature, voltage, optical power, alarm and warning, etc.

Some SFP models are bidirectional over one single fiber, which is achieved by using different wavelengths for transmitting and receiving.

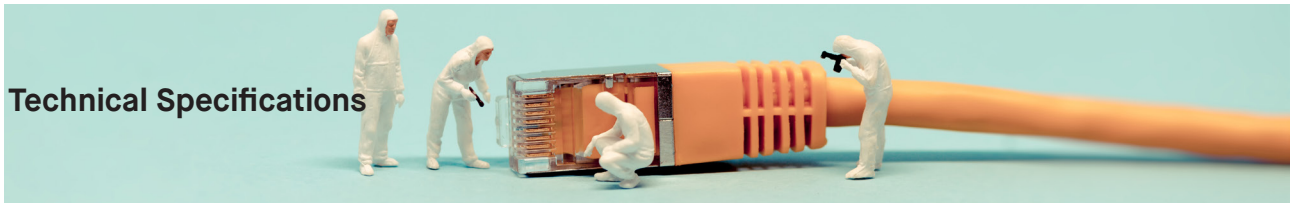
Some models also support multirate mode, which allows the SFP be used both for Fast Ethernet (100 Mbit/s) and Gigabit Ethernet (1 Gbit/s) or 10 Gigabit Ethernet (10 Gbit/s).

5 year warranty

All Waystrem SFP/SFP+ accessories are sold with a 5-year warranty.

Attenuators

You may need attenuators if the fiber distance is short, to avoid too strong input signal on the receiver side. A rule of thumb is for the link to have at least 8dB of signal degradation over the distance. If the loss is less than that, then an attenuator should be considered.



Ultra Low Power 1GBIT/S SFP

The ultra low power power SFP modules from Waystream reduce power consumption. For example BX models perform at 0.3-0.4W compared to a normal consumption in the range of 0.8- 1W. This enable saving as much as 20-25% of the overall power consumption of a typical 24-port FTTH switch.

Model	Description	Connector	Nominal wavelength	Minimum output	Minimum sensitivity	Range (optimal conditions)*	Link budget
SFP-1000BASE-LX20-MULP	Single-mode, multi-rate	2xLC	1310nm	-11 dBm	-22 dBm	20 km	11 dB
SFP-1000BASE-BX20-D1550LCULP	Bidirectional, single mode, multi-rate	1xLC	1550/1310nm	-11 dBm	-22 dBm	20 km	11 dB
SFP-1000BASE-BX20-U1550LCULP	Bidirectional, single mode, multi-rate	1xLC	1310/1550nm	-11 dBm	-22 dBm	20km	11 dB
SFP-1000BASE-BX20-U-ULP	Bidirectional, single mode, multi-rate	1xLC	1310/1490nm	-11 dBm	-22 dBm	20km	11 dB
SFP-1000BASE-BX20-D-ULP	Bidirectional, single mode, multi-rate	1xLC	1490/1310nm	-11 dBm	-22 dBm	20km	11 dB

SFP Specification

The SFP modules from Waystream usualy consumes around 0.6-0.8W. They support DDM and many have multi-rate support to allow both 100Mbit/s and 1Gbit/s link-speed.

Model	Description	Connector	Nominal wavelength	Minimum output	Minimum sensitivity	Range (optimal conditions)*	Link budget
SFP-1000BASE-SX	Multimode	2xLC	850nm	-9 dBm	-20 dBm	550 m	11 dB
SFP-1000BASE-BX20-D1550LC	Bidirectional, single mode, multi-rate	1xLC	1550/1310nm	-8 dBm	-22 dBm	20 km	14 dB
SFP-1000BASE-BX20-D1550LC-I	Bidirectional, single mode, multi-rate	1xLC	1550/1310nm	-8 dBm	-22 dBm	20 km	14 dB
SFP-1000BASE-BX20-D1550SC	Bidirectional, single mode, multi-rate	1xSC	1550/1310nm	-9 dBm	-22 dBm	20 km	14 dB
SFP-1000BASE-BX20-D1550SC-I	Bidirectional, single mode, multi-rate	1xSC	1550/1310nm	-8 dBm	-22 dBm	20 km	14dB
SFP-1000BASE-BX20-DI	Bidirectional, single mode, multi-rate	1xSC	1490/1310nm	-8 dBm	-22 dBm	20 km	14dB
SFP-1000BASE-BX20-SGMII-D1490LC	Bidirectional, single mode, multi-rate	1xLC	1490/1310nm	-8 dBm	-22 dBm	20 km	14dB
SFP-1000BASE-BX20-SGMII-D1550LC	Bidirectional, single mode, multi-rate	1xLC	1550/1310nm	-8 dBm	-22 dBm	20 km	14dB
SFP-1000BASE-BX20-SGMII-U1490LC	Bidirectional, single mode, multi-rate	1xLC	1310/1490nm	-8 dBm	-22 dBm	20 km	14dB
SFP-1000BASE-BX20-SGMII-U1550LC	Bidirectional, single mode, multi-rate	1xLC	1310/1550nm	-8 dBm	-22 dBm	20 km	14dB
SFP-1000BASE-BX20-U1550LC	Bidirectional, single mode, multi-rate	1xLC	1310/1550nm	-9 dBm	-21 dBm	20 km	12 dB
SFP-1000BASE-BX20-U1550LC-I	Bidirectional, single mode, multi-rate	1xLC	1310/1550nm	-8 dBm	-22 dBm	20 km	14 dB
SFP-1000BASE-BX20-U1550SC	Bidirectional, single mode, multi-rate	1xSC	1310/1550nm	-9 dBm	-21 dBm	20 km	12 dB
SFP-1000BASE-BX20-U1550SC-I	Bidirectional, single mode, multi-rate	1xSC	1310/1550nm	-8 dBm	-22 dBm	20 km	14 dB
SFP-1000BASE-BX20-UI	Bidirectional, single mode, multi-rate	1xLC	1310/1550nm	-8 dBm	-22 dBm	20 km	14 dB
SFP-1000BASE-BX3ND-D1550SC	Bidirectional, single mode, multi-rate	1xSC	1550/1310nm	-9 dBm	-17 dBm	3 km	8 dB
SFP-1000BASE-BX40-D1550LC	Bidirectional, single mode, multi-rate	1xLC	1550/1310nm	-5 dBm	-23 dBm	40km	18 dB
SFP-1000BASE-BX40-D1550SC	Bidirectional, single mode, multi-rate	1xSC	1550/1310nm	-5 dBm	-23 dBm	40km	18 dB
SFP-1000BASE-BX40-U1550LC	Bidirectional, single mode, multi-rate	1xLC	1310/1550nm	-5 dBm	-23 dBm	40km	18 dB
SFP-1000BASE-BX40-U1550LC	Bidirectional, single mode	1xLC	1310/1550nm	-5 dBm	-23 dBm	40 km	18 dB
SFP-1000BASE-BX40-U1550SC	Bidirectional, single mode, multi-rate	1xSC	1310/1550nm	-5 dBm	-23 dBm	40km	18 dB
SFP-1000BASE-BX-D	Bidirectional, single mode	1xLC	1490/1310nm	-9 dBm	-22 dBm	10km	14 dB
SFP-1000BASE-BX-D-SC	Bidirectional, single mode	1xSC	1490/1310nm	-8 dBm	-22 dBm	20 km	14 dB
SFP-1000BASE-BX-U	Bidirectional, single mode	1xLC	1310/1490nm	-9 dBm	-22 dBm	10 km	14dB
SFP-1000BASE-BX-U-SC	Bidirectional, single mode	1xSC	1310/1490nm	-8 dBm	-22 dBm	20 km	14dB
SFP-1000BASE-LX20-M	Single mode, multi-rate	2xLC	1310nm	-9 dBm	-22 dBm	20 km	13 dB
SFP-1000BASE-LX20-M-I	Single mode, mul-tirate	2xLC	1310nm	-9dBm	-22 dBm	20 km	13 dB
SFP-1000BASE-LX20-SGMII	Bidirectional, single mode	2xLC	1310nm	-9dBm	-22 dBm	20 km	13 dB
SFP-1000BASE-LX40-M	Single mode, mul-tirate	2xLC	1310nm	-5 dBm	-23 dBm	40 km	18 dB
SFP-1000BASE-LX-M	Single mode, mul-tirate	2xLC	1310nm	-9dBm	-22 dBm	20 km	13 dB
SFP-1000BASE-T-MR	Duplex, multirate	Copper	-	-	-	100 m	-
SFP-100BASE-FX-1310	Multimode	2xLC	1310	-20 dBm	-30 dBm	2 km	10dB
SFP-1000BASE-ZX	Single mode	2xLC	1550nm	0 dBm	-22 dBm	80 km	22 dB

ULTRA LOW POWER 10GBIT/S SFP+

The ultra low power SFP+ also reduces power consumption reaching below 0.7W per SFP+.
See the description of ultra low power SFP on the previous page for details.

Model	Description	Connector	Nominal wavelength	Minimum output	Minimum sensitivity	Range (optimal conditions)*	Link budget
SFP-10GE-LR20ULP	Single mode, multi-rate	2xLC	1310nm	-3 dBm	-14.4 dBm	20 km	11 dB
SFP-10GE-BX15-U1550LCULP	Bidirectional, Single mode, multi-rate	1xLC	1310/1550nm	-6 dBm	-14.4 dBm	15 km	8dB
SFP-10GE-BX15-D1550LCULP	Bidirectional, Single mode, multi-rate	1xLC	1550/1310nm	-6 dBm	-14.4 dBm	15 km	8dB
SFP-10GE-BX20-DULP	Bidirectional, Single mode	1xLC	1330/1270nm	-3 dBm	-14.4 dBm	20 km	11dB
SFP-10GE-BX20-UULP	Bidirectional, Single mode	1xLC	1270/1330nm	-3 dBm	-14.4 dBm	20 km	11dB

SFP+ Specification

SFP+ are capable of 10Gbit/s speed. Multi-rate support is also available on some models to allow 1Gbit/s and 10Gbit/s operation. DDM is supported.

Model	Description	Connector	Nominal wavelength	Minimum output	Minimum sensitivity	Range (optimal conditions)*	Link budget
SFP-10GE-SR	Multimode	2xLC	850nm	-7.3 dBm	-11.1 dBm	300m*	3.8 dB
SFP-10GE-LR	Single mode, multi-rate	2xLC	1310nm	-8.2 dBm	-12.6 dBm	10 km	4.4 dB
SFP-10GE-LR20	Single mode, multi-rate	2xLC	1310nm	-5 dBm	-12.6 dBm	20 km	7.6 dB
SFP-10GE-CU-1M	Twinax copper cable, 1m	N/A	N/A	N/A	N/A	1 meter	N/A
SFP-10GE-CU-3M	Twinax copper cable, 3m	N/A	N/A	N/A	N/A	3 meter	N/A
SFP-10GE-BX20-U	Bidirectional, single mode	1xLC	1270/1330nm	-2 dBm	-14.5 dBm	20 km	12.5 dB
SFP-10GE-BX20-D	Bidirectional, single mode	1xLC	1330/1270nm	-2 dBm	-14.5 dBm	20 km	12.5 dB
SFP-10GE-BX40-U	Bidirectional, single mode	1xLC	1270/1330nm	1 dBm	-15 dBm	40 km	16 dB
SFP-10GE-BX40-D	Bidirectional, single mode	1xLC	1330/1270nm	1 dBm	-15 dBm	40 km	16 dB
SFP-10GE-ZR	Single mode	2xLC	1550nm	0 dBm	-21 dBm	80 km	21 dB
SFP-10GBASE-ER-40	Single mode	2xLC	1550nm	-4.7 dBm	-15.8 dBm	40 km	11.1 dB
SFP-10GE-ER-40-1310	Single mode	2xLC	1310nm	-2 dBm	-20 dBm	40 km	18 dB

Did you not find the right model?

Contact your Waystream reseller or Waystream directly on sales@waystream.com. This datasheet does not list all available models and variants.

Best fit for your network

Waystream optical modules are verified to work with Waystream equipment - protect your investment and get the best reliability and compability solution.

Our products use tier 1 laser optics for best performance and endurance. Our generous five year warranty proves that we trust our products. So can you.

Service and Support

Waystream provides several different support options with a defined Service Level Agreement (SLA) to give you the mix of technical support and hardware replacement services that best suits your needs. We are committed to help you protect your investment and our Technical Assistance Center team, or approved Partners, are ready to handle all your support issues.

Through our support web site, we provide software updates and upgrades, and has an extensive Knowledge Base for both general network topics and product specific questions. You will also find documentation, release notes, product specifications and other useful information to help you achieve the best results with our products.

Training

Waystream offers on-site and online training programs to enhance the skill and knowledge of your network engineering teams. For further details, please contact sales@waystream.com.

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To find out how you can join the growing number of networks using the Waystream products, please contact your local parter or sales@waystream.com.

ABOUT WAYSTREAM

Waystream develops and sells high-quality and advanced digital infrastructure, such as routers and switches. With our products and expertise, we make it possible for telecom operators, service providers and city networks to offer reliable and user-centric network services with the best features. Our products are smart, simple to configure and maintain, and are designed to create the best end user experience.

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