

# SFP Transceivers



- FibroLAN broad portfolio of optical transceivers include SFP, SFP+ and XFP series
- Optical Transceivers are Multi-Source Agreement (MSA) compliant
- These devices provide high performance Simplex and Duplex data links for bi-directional communications over MM and SM mode fibers
- These FibroLAN devices are protocol independent for the specified transmission speed and support the broadband range from FE to 10GE
- This document deals with SFP transceivers and their usage covering FE/OC3, GE, 1xFC, 2xFC, 4FC, SONET/SDH and CWDM/DWDM
- Typical Applications: Broadband Access, Business Enterprise, Mobile Backhaul, (P2P and Ring topologies)

The FibroLAN 100/155Mbps and 1.25/2.5 /4.0 **Small Form Factor Pluggable (SFP)** Optical Transceivers are Multi-Source Agreement (MSA) compliant and provide high performance simplex and duplex data links for bi-directional communication over Multi-mode and Single mode fiber.

***DSB235R1114***

## Small Form Factor Pluggable Transceivers

The **SFP SF1G** series are designed for Gigabit Ethernet data links and are deployed in FibroLAN MCM1000X and MCM1000X-RL *MetroStar* modules, in GSM1000X, U.CON2500 remote access device, and in Falcon NTU&μFalcon series.

The **SF2G** series are designed to operate from 100Mbps to 2.5Gbps and are deployed in FibroLAN MSM2500U *MetroStar* module and in U.CON2500 Converter/Extender device

The **SFP SF4G** series transceivers operate within the range from 100 to 4.25Gbps and are suitable for Fiber Channel applications deploying the MSM4000U module and U.CON4000 device

These FibroLAN devices are protocol independent for the specified transmission speed and efficiently support Fast Ethernet, Fiber Channel, Gigabit Ethernet, OC3, OC12, OC48, STM1, STM4, and STM16.

Small Form-factor pluggable optical interfaces are suitable for ease of deployment, maintenance and logistics, and do not require any settings or measurements.

The main advantages of the hot-swappable SFP optical interfaces are the density, flexibility, and cost savings. **SFP** modules can be easily interchanged, thus fiber optic networks can be upgraded more conveniently than with traditional modules. The SFP transceivers provide status information (SFP modules status and digital diagnostic status). The key features are common to all SFP series.

## Key Features

- Compliant with SFP/MSA Specification
- Compliant with SFF-8472
- Data Rate: 100Mbps to 4.0Gbps
- Hot Pluggable transceivers
- Compliant to full IEC825 and CDRH class1 eye safety
- Single fiber working support
- SFP status and diagnostic information
- Digital diagnostic monitoring
- Metal enclosure for lower EMI
- Network Extension: up to 80Km (120Km for GBE)
- Pull de-latch mechanism for easy deployment
- Supported topologies: P2P, and Ring topologies with fixed and reconfigurable OADM

## CWDM SFP Specifications

- **CWDM DFB Laser**
- High sensitivity **PIN detector**
- **The ITU G.694.2 provides a grid for CWDM with 18 Wavelength** within the range 1260 ~ 1610 nm spaced 20nm
- **Passband @0.5dB:** ITU+/-6.5nm
- **Single 3.3V Power Supply**
- **LVTTTL Control** Logic Interface
- **Hot-Pluggable** SFP Duplex LC Connector Interface
- **Class 1 FDA** and IEC60825-1 Laser Safety Compliant
- **Compliant with Digital Diagnostic** Monitor Interface SFF-8472 MSA
- **Operating Case Temperature** Standard:0°C~+70°C
- **Component Recognition**  
UL and CUL  
EN60950-1:2006
- **Electromagnetic Interference (EMI):**  
FCC Part 15 Class B  
EN55022:2006. CISPR 22B :2006  
VCCI Class B
- **Immunity**  
EN 55024:1998+A1+A2  
IEC 61000-4-3
- **Laser Eye Safety**  
CDRH compliant and Class I laser product  
FDA 21CFR 1040.10 and 1040.11  
EN (IEC) 60825-1:2007  
EN (IEC) 60825-2:2004+A1
- **Storage Temperature:** -40°C~+85°C
- **Operating Relative Humidity:** Max 95%
- **RoHS6**  
2002/95/EC 4.1&4.2  
2005/747/EC 5&7&13

## DWDM SFP Specifications

- **DWDM DFB Laser**
- **ITU-T G.694.1 Compliance**
- **Channel Spacing** 0.8nm (100GHz)
- **Passband@0.5dB** = ITU +/- 0.1nm
- **Operating Data Rate** up to 4.25Gbps
- Available in all 100 GHz **C-Band WL** on the 100GHz DWDM ITU Grid
- **DWDM Rated laser and APD High Sensitivity Receiver** (4.25Gbps SFP)
- **Single 3.3V Power Supply**
- **TTL/LVTTTL Control** Logic Interface
- **Laser Eye Safety**  
CDRH compliant and **Class I laser** product  
FDA 21CFR 1040.10 and 1040.11  
EN (IEC) 60825-1:2007  
EN (IEC) 60825-2:2004+A1
- **RoHS6**  
2002/95/EC 4.1&4.2  
2005/747/EC 5&7&13
- **Hot-Pluggable** SFP Duplex LC Connector Interface
- **Class 1 FDA** and IEC60825-1 Laser Safety Compliant
- **Operating Case Temperature** Standard:  
0°C~+70°C (SFP up to 2.67Gbps)  
-5°C~+70°C (SFP up to 4.25Gbps)
- **Electromagnetic Interference (EMI):**  
FCC Part 15 Class B  
EN55022:2006. CISPR 22B :2006  
VCCI Class B
- **Immunity**  
EN 55024:1998+A1+A2  
IEC 61000-4-3
- **Component Recognition**  
UL and CUL  
EN60950-1:2006
- **Storage Temperature:** -40°C~+85°C

## General Specifications

- **Standard Compliance**  
Fast Ethernet (100Base-FX), Gigabit Ethernet, Fiber Channel , OC3, OC12, OC48, STM-1, STM-4, STM-16
- **Conversion Method:**  
Universal protocol transparent device  
CWDM  
DWDM  
Other protocols (FC, SONET/SDH, etc)
- **F/O Ports**  
Simplex and Duplex LC connectors  
Each F/O port may be disconnected via management
- **Operating /Storage Temperature**  
0° ÷ + 70°C / -40° ÷ + 85°C
- **Product Support**  
*MetroStar* modules:  
MCM1000X, MCM1000X-RL  
MSM2500U MSM4000U  
CPE Stand-alone devices:  
GSM1000x, U.CON2500 U.CON4000,  
Falcon NTUs and µFalcon series
- **Diagnostic LED**  
TX-LOW LED for Port 1 and Port 2;  
Off= Transmission is OK  
Lit red = Transmission signal low (does not reach the required distance)  
Blinking = Invalid Authentication: implies that is not a FibroLAN SFP used (no TX)

## Applications

- Fast Ethernet, ATM, Giga Ethernet
- Tri-Rate 1.063/2.125/4.25Gbps  
Fiber Channel
- CWDM/DWDM Networks
- Broadband Access
- Business enterprise
- Mobile Backhaul
- SONET/SDH infrastructure
- Network Extension: up to 120Km
- Supported topologies:  
P2P and Ring with fixed and reconfigurable OADMs

## Ordering Information (SFP List for FE/OC3, GE, 1xFC, 2xFC, 4xFC)

Part #	Model	Description
<b>Fast Ethernet/OC3/ATM</b>		
<b>B289</b>	SF155-SMRF15	SFP (Small Form Pluggable) OC3 Single Fiber Strand F/O transceiver, LC connector, SM 1550nmTx/1310nmRx,15 km
<b>B290</b>	SF155-SMRF13	SFP (Small Form Pluggable) OC3 Single Fiber Strand F/O transceiver, LC connector, SM 1310nmTx/1550nmRx,15 km
<b>B312</b>	SF100-SMRF15	SFP (Small Form Pluggable) 100Base-FX Single Fiber Strand F/O transceiver, SC connector, SM 1550nmTx/1310nmRx, 15km
<b>B358</b>	SF100-850	SFP (Small Form Pluggable) 100BaseFX, F/O transceiver, dual LC connector, MM 850nm, 1km/2km
<b>B359</b>	SF100-GMS1-85	SFP (Small Form Pluggable) <b>100BaseFX</b> /transceiver, (suitable for the Falcon series or any other product with SGMII based SFP ports) , dual LC connector, MM 850nm, 0.5km/2km
<b>B330</b>	SF1G-GM51	SFP <b>100BaseFX</b> transceiver, (suitable for the Falcon series or any other product with SGMII based SFP ports) , dual LC connector, MM 1310nm, 2km
<b>B307</b>	SF1G-GMLX1	SFP <b>100BaseFX</b> transceiver, (suitable for the Falcon series or any other product with SGMII based SFP ports) , dual LC connector, SM 1310nm, 10km
<b>Gigabit Ethernet</b>		
<b>B248</b>	SF1G-T	SFP module, GBE F/O transceiver,1000Base-T, shielded RJ45, 100m over Cat.6 cable
<b>B304</b>	SF1G-TX	SFP GBE STP transceiver,10/100/1000BaseT, shielded RJ-45, 100m over Cat.6 cable (suitable for the Falcon series or any other product with SGMII based SFP ports)
<b>B235</b>	SF1G-S1	SFP module, GBE F/O transceiver, dual LC connector, MM 850nm, 220/550m
<b>B435</b>	SF1G-S2	SFP (Small Form Pluggable) GBE F/O transceiver, dual LC connector, MM 1310nm, 2km with 50/125µm MMF
<b>B236</b>	SF1G-LX1	SFP module, GBE F/O transceiver, dual LC connector, SM1310nm, 10km
<b>B237</b>	SF1G-LX2	SFP module, GBE F/O transceiver, dual LC connector, SM 1310nm, 20km
<b>B238</b>	SF1G-LX3	SFP module, GBE F/O transceiver, dual LC connector, SM 1550nm/DFB , 40km
<b>B239</b>	SF1G-LX4	SFP module, GBE F/O transceiver, dual LC connector, SM 1550nm/DFB , 80km
<b>B240</b>	SF1G-LX5	SFP module, GBE F/O transceiver, dual LC connector, SM1550nm/DFB/ APD, 120km
<b>B241</b>	SF1G-SF13	SFP module, Single Fiber Strand, GBE F/O transceiver, 1* LC, SM 1310nm Tx/1550nmRx, 20km
<b>B242</b>	SF1G-SF15	SFP module, SFS, GBE, F/O transceiver, 1*LC, SM 1550nmDFB Tx/1310nm Rx, 20km
<b>B308</b>	SF1G-SF13C	SFP (Small Form Pluggable) Single Fiber Strand GBE F/O transceiver, LC connector, SM 1310nmTx - 1490nmRx, 20km, color code - Blue
<b>B309</b>	SF1G-SF14C	SFP (Small Form Pluggable) Single Fiber Strand GBE F/O transceiver, LC connector, SM 1490nm-DFB Tx - 1310nmRx, 20km, color Code - Violet
<b>B243</b>	SF1G-LF13	SFP module, Single Fiber Strand GBE F/O transceiver, 1* LC, SM 1310nmDFB Tx/1550nmRx, 40km
<b>B244</b>	SF1G-LF15	SFP module, SFS, GBE F/O transceiver, 1*LC, SM 1550nmDFB Tx/1310nm Rx, 40km
<b>B269</b>	SF1G-ZF49	SFP, Single Fiber Strand, GBE F/O transceiver, LC connector, SM, 1490nmTxDFB/ 1570nmRx, 80km
<b>B270</b>	SF1G-ZF57	SFP, SFS, GBE F/O transceiver, LC connector, SM 1570nmDFBTx/1490nmRx, 80km
<b>B281-XX</b>	SF1G-LX5-5C-XX	CWDM SFP, 1.25Gbps F/O transceiver, dual LC connector, SM, Wavelength =1xx1nm, DFB/APD, 100km
<b>B311-XX</b>	SF1G-LX6 5C-XX	CWDM SFP 1.25Gbps F/O transceiver, dual LC connector, SM, Wavelength=1xx1nm-DFB/APD, 120 km
<b>B335-XX</b>	SF1G-LX7-5C-XX	CWDM SFP 1.25Gbps F/O transceiver, dual LC connector, SM Wavelength=1xx1nm-DFB/APD, 41db power budget, 120 km
<b>B343-XX</b>	SF1G-LX3-5D-XX	DWDM SFP 1Gbps F/O transceiver, dual LC connector, ITU channel xx, DFB/APD, 40km, 19dB power budge
<b>B299-XX</b>	SF1G-LX4-5D-XX	DWDM SFP 1Gbps F/O transceiver, dual LC connector, ITU channel xx (29/31/33/35/37/51/53/55/57/59), DFB/APD, 80km
<b>B333-XX</b>	SF1G-LX5-5D-XX	DWDM SFP 1Gbps F/O transceiver, dual LC connector, ITU channel xx (29/31/33/35/37/51/53/55/57/59), DFB/APD, 100km, 32dB power budget
<b>B334-XX</b>	SF1G-LX6-5D-XX	DWDM SFP 1Gbps F/O transceiver, dual LC connector, ITU channel xx (29/31/33/35/37/51/53/55/57/59), DFB/APD, 120km, 37dB power budget

**SFP=Small Form Pluggable; SFS=Single Fiber Strand**

2.5Gbps		
<b>B268</b>	SF2G-S1	SFP module, 2.5Gbps F/O transceiver, dual LC connector, MM 850nm, 300/400m
<b>B249</b>	SF2G-S2	SFP module, 2.5Gbps F/O transceiver, dual LC connector, SM 1310nm, 2 km
<b>B250</b>	SF2G-LX2-3	SFP module, 2.5Gbps F/O transceiver, dual LC connector, SM,1310nm DFB, 15 km
<b>B251</b>	SF2G-LX2-5	SFP module, 2.5Gbps F/O transceiver, dual LC connector, SM, 1550nm DFB, 15 km
<b>B340</b>	SF2GPL-LX2/ET	SFP (Small Form Pluggable), GPON OLT transceiver, Simplex SC connector, 2.5Gbps/1490nm Tx, /1310nm Rx, 20km, Extended temperature (-40 - +85C)
<b>B252</b>	SF2G-LX3-3	SFP module, 2.5Gbps F/O transceiver, dual LC connector, SM,1310nm DFB/APD, 40km
<b>B253</b>	SF2G-LX3-5	SFP module, 2.5Gbps F/O transceiver, dual LC connector, SM 1550nm DFB, 40 km
<b>B254</b>	SF2G-LX4-5	SFP module, 2.5Gbps F/O transceiver, dual LC connector, SM1550nm DFB/APD, 80 km
<b>B301</b>	SF2G-SF13	SFP Single Fiber Strand 2.5G F/O transceiver, LC connector, SM 1310nmTx 1550nmRx, 20km
<b>B302</b>	SF2G-SF15	SFP Single Fiber Strand 2.5G F/O transceiver, LC connector, SM 1550nm-DFB Tx 1310n mRx, 20km
<b>B271-XX</b>	SF2G-LX3-5C-XX	CWDM, SFP 2.5Gbps F/O transceiver, dual LC connector, SM 1471/1611nm DFB, 40Km
<b>B258-XX</b>	SF2G-LX4-5C-XX	CWDM, SFP 2.5Gbps F/O transceiver, dual LC connector, SM 1471/1611nm, DFB/APD, 80 km
<b>B338-XX</b>	SF2G-LX4-5D-XX	DWDM SFP 2.5Gbps F/O transceiver, dual LC connector, ITU channel xx, DFB/APD, 80km

4.0Gbps (1xFC, 2xFC, 4xFC )		
<b>B316</b>	<b>SF4G-S1</b>	SFP 4Gbps F/O transceiver, dual LC connector, MM 850nm, 70/150
<b>B317</b>	<b>SF4G-LX1-3</b>	SFP 4Gbps F/O transceiver, dual LC connector, SM 1310nm, 5km
<b>B318</b>	<b>SF4G-LX2-3</b>	SFP 4Gbps F/O transceiver, dual LC connector, SM 1310nm, 10km
<b>B319</b>	<b>SF4G-LX3-3</b>	SFP 4Gbps F/O transceiver, dual LC connector, SM 1310nm, 30km
<b>B332</b>	<b>SF4G-LX4-3</b>	SFP 4Gbps F/O transceiver, dual LC connector, SM 1310nm, 40km
<b>B320</b>	<b>SF4G-LX4-5</b>	SFP 4Gbps F/O transceiver, dual LC connector, SM 1550nm,DFB 80k
<b>B321</b>	<b>SF4G-SF13</b>	SFP SFS 4 Gbps F/O transceiver, LC connector, SM 1310nmTx - 1550nmRx,DFB, 20km
<b>B322</b>	<b>SF4G-SF15</b>	SFP SFS 4 Gbps F/O transceiver, LC connector, SM 1550nmTx - 1310nmRx,DFB, 20km
<b>B323</b>	<b>SF4G-LF55</b>	SFP SFS 4 Gbps F/O transceiver, LC connector, SM 1550nmTx - 1490nmRx,DFB,40km
<b>B324</b>	<b>SF4G-LF49</b>	SFP SFS 4 Gbps F/O transceiver, LC Connector,SM 1490nmTx, - 1550NM Rx DFB, 40km
<b>B325</b>	<b>SF4G-ZF55</b>	SFP Single Fiber Strand, 4 Gbps F/O transceiver, LC connector, SM 1550nmTx - 1490nmRx,DFB,APD 80km
<b>B326</b>	<b>SF4G-ZF49</b>	SFP (Small Form Pluggable) Single Fiber Strand, 4 Gbps F/O transceiver, LC connector, SM 1490nmTx - 1550nmRx,DFB,APD, 80km
<b>B327-XX</b>	<b>SF4G-LX3-5C-XX</b>	CWDM SFP (Small Form Pluggable) 4Gbps F/O transceiver, dual LC connector, Wavelength=1xx1nm (47/49/51/53/55/57/59/61), DFB, 40 km
<b>B328-XX</b>	<b>SF4G-LX4-5C-XX</b>	CWDM SFP (Small Form Pluggable) 4Gbps F/O transceiver, dual LC connector, Wavelength=1xx1nm (47/49/51/53/55/57/59/61), DFB/APD , 80 km
<b>B329-XX</b>	<b>SF4G-LX4-5D-XX</b>	DWDM SFP 4Gbps F/O transceiver, dual LC connector, ITU channel xx (29/31/33/35/37/51/53/55/57/59), DFB/APD, 80km

**Specifications are subject to change w/out any prior notice. SFP=Small Form Pluggable; SFS=Single Fiber Strand**

**Notes: The SFP transceivers from SF1G-T (B248) through SF1G-LX6-5D-XX (B334-XX) are normally deployed in the following FibroLAN equipment: MetroStar modules MCM1000X, MCM100X-RL, CPE device GSM1000X, Falcon NTU and µFalcon series. For CWDM GbE distance 40 or 80Km applications, you may use the SFP B271-XX and B258-XX WL transceivers**

**The SFP transceivers from SF1G-GMLX1 (B307), (except copper SFP, B248 and B304), through SF2G-LX4-5C-XX (B258-XX) are deployed in the MetroStar module MSM2500U and U.CON2500 device**

**All the previous listed SFP transceivers may be used in the MetroStar module MSM4000U and in the U.CON4000 device**

**All recommended distances for CWDM/DWDM active components assume direct P2P or Ring topologies. If these are passing thru passive MUX/DEMUX/OADM, the additional attenuation introduced by such devices must be considered when assessing the actual distance.**

## SFP Transceivers Technical Specifications

Model	Minimal Output Power	Maximum Output Power	Minimal Receive Sensitivity	Maximum Input Power	Wavelength nm	Distance Km
<b>SF155-SMRF13</b>	-15dBm	-5dBm	-30dBm	-8dBm	OC3-1310Tx/1550Rx	5 -15
<b>SF155-SMRF15</b>	-15dBm	-5dBm	-30dBm	-8dBm	OC3-1550Tx/1310Rx	5 -15
<b>SF100-SMRF15</b>	-15dBm	-8dBm	-28dBm	-8dBm	100Base-Fx-1550Tx/1310Rx	5 -15
<b>SF100-850</b>	-9.5dBm	-4dBm	-25dBm	0dBm	Fast Ethernet-MM 850nm	1-2
<b>SF100-GMS1-85</b>	-9.5dBm	-4dBm	-24dBm	0dBm	100Base-FX MM 850nm	0.5-2
<b>SF1G-GMLX1</b>	-15dBm	-8dBm	-28dBm	-8dBm	100Base-Fx 1310 SM	5 -10
<b>SF1G-GMS1</b>					100Base-Fx -1310 MM	1-2
<b>SF1G-T</b>					1000Base-T Cat 6 cable	100m
<b>SF1G-TX</b>					10/100.1000BaseT Cat 6	100m
<b>SF1G-S1</b>	-9 dBm	0dBm	-19dBm	-3dBm	850 MM	220/500m
<b>SF1G-S2</b>	-9 dBm	-3dBm	-19dBm	-3dBm	1310 MM	0.5-2
<b>SF1G-LX1</b>	-9dBm	-3dBm	-21dBm	-3dBm	1310 SM	5 -10
<b>SF1G-LX2</b>	-5dBm	0dBm	-22dBm	-3dBm	1310 SM	5 - 20
<b>SF1G-LX3</b>	-5dBm	0dBm	-23dBm	-3dBm	1550/DFB SM	10 - 40
<b>SF1G-LX4</b>	-3dBm	2dBm	-24dBm	-3dBm	1550/DFB SM	25 -80
<b>SF1G-LX5</b>	0dBm	3dBm	-30dBm	-9dBm	1550/DFB/APD SM	80 -120
<b>SF1G-SF13</b>	-9dBm	0dBm	-21dBm	-3dBm	Tx1310/Rx1550 SFS	5 -20
<b>SF1G-SF15</b>	-9dBm	0dBm	-21dBm	-3dBm	Tx1550DFB /Rx1310 SFS	5 -20
<b>SF1G-SF13C</b>	-9dBm	0dBm	-21dBm	-3dBm	Tx1310Rx1490 SFS	5 -20
<b>SF1G-SF14C</b>	-9dBm	0dBm	-21dBm	-3dBm	Tx1490DFB/ Rx 1310 SFS	5 -20
<b>SF1G-LF13</b>	-3dBm	0dBm	-22dBm	-3dBm	Tx1310DFB/Rx1550 SFS	10 -40
<b>SF1G-LF15</b>	-3dBm	0dBm	-22dBm	-3dBm	Tx1550DFB /Rx1310 SFS	10 -40
<b>SF1G-ZF49</b>	0dBm	5dBm	-24dBm	-3dBm	Tx1490DFB/ Rx 1570 SFS	25 -80
<b>SF1G-ZF57</b>	0dBm	5dBm	-24dBm	-3dBm	Tx1570DFB/ Rx1490 SFS	25 -80
<b>SF1G-LX5-5C-xx</b>	0dBm	5dBm	-32dBm	-3dBm	DFB/APD SM, WL=1xx0nm	80 -100
<b>SF1G-LX6-5C-xx</b>	3dBm	5dBm	-34dBm	-8dBm	DFB/APD SM, WL=1xx0nm	80 -120
<b>SF1G-LX7-5C-XX</b>	4dBm	7dBm	-37dBm	-10dBm	CWDM DFB/APD	80 -120
<b>SF1G-LX3-5D-XX</b>	0dBm	5dBm	-24dBm	-3dBm	DWDM DFB/APD	10 -40
<b>SF1G-LX4-5D-XX</b>	0dBm	4dBm	-28dBm	-7dBm	XX=DWDM ITU Channels, DFB/APD	30-80
<b>SF1G-LX5-5D-XX</b>	0dBm	5dBm	-32dBm	-10dBm	XX=DWDM ITU Channels DFB/APD	80-100
<b>SF1G-LX6-5D-XX</b>	2dBm	7dBm	-35dBm	-10dBm	XX=DWDM ITU Channels DFB/APD	80 -120

xx= CWD:1470/1490/1510/1530/1550/1570/1590/1610nm

XX= DWDM ITU GRID CHANNELS(100GHz Spacing) MM=Multi Mode; SM= Single Mode; SFS= Single Fiber Strand

Model	Minimal Output Power	Maximum Output Power	Minimal Receive Sensitivity	Maximum Input Power	Wavelength nm	Distance Km
<b>SF2G-S1</b>	-10dBm	0dBm	-13dBm	-3dBm	850 MM	300/400
<b>SF2G-S2</b>	-10dBm	-3dBm	-18dBm	-3dBm	1310 SM	0 - 2
<b>SF2G-LX2-3</b>	-5dBm	0dBm	-18dBm	-3dBm	1310DFB SM	5 - 15
<b>SF2G-LX2-5</b>	-5dBm	0dBm	-21dBm	0dBm	1550DFB SM	5 - 15
<b>SF2GPL-LX2/ET</b>	+1.5dBm	5dBm	-28dBm	-8dBm	1490Tx/1310Rx	5 -20
<b>SF2G-LX3-3</b>	-2dBm	3dBm	-27dBm	-9dBm	1330/DFB/APD SM	10 -40
<b>SF2G-LX3-5</b>	-2dBm	3dBm	-20dBm	-3dBm	1550DFB SM	10 -40
<b>SF2G-LX4-5</b>	-2dBm	3dBm	-28dBm	-9dBm	1550/DFB/APD SM	25 -80
<b>SF2G-SF13</b>	-9dBm	0dBm	-18dBm	0dBm	Tx 1310 SM Rx1550, <b>SFS</b>	5 -20
<b>SF2G-SF15</b>	-9dBm	0dBm	-18dBm	0dBm	Tx1550DFB SM Rx1310, <b>SFS</b>	5 - 20
<b>SF2G-LX3-5C-xx</b>	-3dBm	2dBm	-20dBm	-3dBm	CWDM 1xx0nm/DFB	10-40
<b>SF2G-LX4-5C-xx</b>	0dBm	5dBm	-29dBm	-8dBm	CWDM 1xx0nm/DFB/APD	25 -80
<b>SF2G-LX4-5D-XX</b>	0dBm	5dBm	-25dBm	-9dBm	DWDM DFB/APD	25 -80
<b>SF4G-S1</b>	-9.5dBm	-2.5dBm	-15dBm	-3dBm	850 MM	70/150m
<b>SF4G-LX1-3</b>	-8dBm	-3dBm	-17dBm	-3dBm	1310 SM	1-5
<b>SF4G-LX2-3</b>	-8.4dBm	-1dBm	-17dBm	-3dBm	1310 SM	5-10
<b>SF4G-LX3-3</b>	0dBm	5dBm	-18dBm	-3dBm	1310 SM	10-30
<b>SF4G-LX4-3</b>	0dBm	5dBm	-18dBm	-3dBm	1310 SM	10-40
<b>SF4G-LX4-5</b>	2dBm	5dBm	-24dBm	-9dBm	1550 DFB SM	25-80
<b>SF4G-SF13</b>	-5dBm	0dBm	-18dBm	0dBm	Tx1310 DFB SM Rx1550 <b>SFS</b>	0 -20
<b>SF4G-SF15</b>	-5dBm	0dBm	-18dBm	0dBm	1550TxDFB SM 1310Rx <b>SFS</b>	0 -20
<b>SF4G-LF55</b>	-2dBm	3dBm	-18dBm	0dBm	Tx1550 DFBSM Rx 1490 <b>SFS</b>	10-40
<b>SF4G-LF49</b>	-2dBm	3dBm	-18dBm	0dBm	Tx1490DFBSM Rx1550 <b>SFS</b>	
<b>SF4G-ZF55</b>	0dBm	4dBm	-25dBm	-6dBm	Tx1550Rx1490DFB/APD <b>SFS</b>	25-80
<b>SF4G-ZF49</b>	0dBm	4dBm	-25dBm	-6dBm	Tx1490 Rx1550DFB/APD <b>SFS</b>	25-80
<b>SF4G-LX3-5C-xx</b>	0dBm	4dBm	-18dBm	-3dBm	CWDM 1xx0nm/DFB	10 -40
<b>SF4G-LX4-5C-xx</b>	0dBm	5dBm	-26dBm	-3dBm	CWDM 1xx0nm/DFB/APD	25 -80
<b>SF4G-LX4-5D-XX</b>	0dBm	4dBm	-24dBm	-6dBm	DWDM ITU Channels DFB/APD	25-80

xx= CWDM:1470/1490/1510/1530/1550/1570/1590/1610nm

XX= DWDM ITU GRID CHANNELS(100GHz Spacing)



## Related Product

Model	Part#	Description
MS-CH/A	2100	<i>MetroStar</i> Chassis, 3U, 16 slots, including 2 AC Power Supplies, 6*BP-01, 1*BP-02, 19" Rack-mount bracket set ( <i>MetroStar</i> with DC Power Supplies is also available)
MCM1000X	2650	Flexible Gigabit Ethernet conversion module for <i>MetroStar</i> with 2 SFP modular ports, each may accept any FibroLAN copper or fiber SFP transceiver, MA management
MCM1000X-RL	2651	Any to Any link protection Gigabit Ethernet conversion module for <i>MetroStar</i> with 4 SFP modular ports, each may accept any FibroLAN copper or fiber SFP transceiver, MA
MSM2500U	2519	Universal Extender module, 100Mbps to 2.5Gbps, includes 2 SFP slots (Only FibroLAN SFP transceivers can be used)
MSM4000U	2521	Universal Extender module, 100Mbps to 4.0Gbps, includes 2 SFP slots, (Only FibroLAN SFP transceivers can be used).
GSM1000X	3750	MA Managed Gigabit Ethernet converter/access device/extender with 2 SFP modular ports, each may accept any FibroLAN copper or fiber SFP transceiver.
U.CON2500	B266	Universal Extender , 100Mbps to 2.5Gbps, includes 2 SFP slots (Only FibroLAN SFP transceivers can be used)
U.CON40000	B315	Universal Extender , 100Mbps to 4.0Gbps, includes 2 SFP slots (Only FibroLAN SFP transceivers can be used)

*Specifications are subject to change w/o prior notice*

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