

# EDS-608/611/616/619 Series



**8, 8+3G, 16, 16+3G-port compact modular managed Ethernet switches**



- > Up to 19 optical fiber connections in a compact switch (EDS-619)
- > Modular design with 4-port copper/fiber combinations
- > Hot swap media modules for continuous operation
- > Turbo Ring, Turbo Chain, RSTP/STP, and MSTP\* for network redundancy
- > TACACS+\*, SNMPv3, IEEE 802.1X, HTTPS, and SSH to enhance network security
- > Easy network management by web browser, CLI\*, Telnet/serial console, Windows utility, and ABC-01
- > -40 to 75°C operating temperature range (T models)

\*Available in Q3, 2011



## Introduction

The versatile modular design of the compact EDS-600 series Ethernet switch allows users to combine fiber and copper modules to create switch solutions suitable for any automation network. The EDS-600's modular design lets you install up to 3 Gigabit Ethernet ports and 16 Fast Ethernet ports, and the advanced Turbo Ring and Turbo Chain (recovery time < 20 ms) technology, RSTP/STP, and MSTP\* helps increase the reliability and availability of your industrial Ethernet

network. Models with an extended operating temperature range of -40 to 75°C are also available. The EDS-600 series supports several reliable and intelligent functions, including IEEE 1588 PTP V2, EtherNet/IP\*, Modbus/TCP, LLDP, DHCP Option 82, SNMP Inform, QoS, IGMP snooping, VLAN, TACACS+\*, IEEE 802.1X, HTTPS, SSH, SNMPv3, and more, making the Ethernet switches suitable for any harsh industrial environment.

\*Available in Q3, 2011

## Features and Benefits

- Command Line Interface (CLI) for quickly configuring major managed functions\*
- Hot swap media modules for continuous operation
- Turbo Ring and Turbo Chain (recovery time < 20 ms), RSTP/STP, and MSTP\* for network redundancy
- IPv6 Ready logo awarded (IPv6 Logo Committee certified)
- SNMP Inform for ensuring reliable event management
- LLDP for automated topology discovery
- DHCP Option 82 for IP address assignment with different policies
- IEEE 1588 PTP V2 (Precision Time Protocol) for precise time synchronization of networks
- Support EtherNet/IP\* and Modbus/TCP protocols for device management and monitoring
- Compatible with EtherNet/IP and PROFINET protocols for transparent data transmission
- IGMP snooping and GMRP for filtering multicast traffic
- Port-based VLAN, IEEE 802.1Q VLAN, and GVRP to ease network planning
- QoS (IEEE 802.1p/1Q) and TOS/DiffServ to increase determinism
- Port Trunking for optimum bandwidth utilization
- TACACS+\*, SNMPv3, IEEE 802.1X, HTTPS, and SSH to enhance network security
- SNMPv1/v2c/v3 for different levels of network management
- RMON for efficient network monitoring and proactive capability
- Bandwidth management prevents unpredictable network status
- Lock port function for blocking unauthorized access based on MAC address
- Port mirroring for online debugging
- Automatic warning by exception through e-mail, relay output
- Digital inputs to integrate sensors and alarms with IP networks

\*Available in Q3, 2011

## Specifications

### Technology

#### Standards:

- IEEE 802.3 for 10BaseT
- IEEE 802.3u for 100BaseT(X) and 100BaseFX
- IEEE 802.3ab for 1000BaseT(X)
- IEEE 802.3z for 1000BaseX
- IEEE 802.3x for Flow Control
- IEEE 802.1D-2004 for Spanning Tree Protocol\*
- IEEE 802.1w for Rapid STP
- IEEE 802.1s for Multiple Spanning Tree Protocol\*

- IEEE 802.1Q for VLAN Tagging
- IEEE 802.1p for Class of Service
- IEEE 802.1X for Authentication
- IEEE 802.3ad for Port Trunk with LACP
- Protocols:** IGMPv1/v2, GMRP, GVRP, SNMPv1/v2c/v3, DHCP Server/Client, DHCP Option 66/67/82, BootP, TFTP, SMTP, RARP, RMON, HTTP, HTTPS, Telnet, SSH, Syslog, LLDP, EtherNet/IP\*, Modbus/TCP, IEEE 1588 PTP V2, IPv6, NTP Server/Client\*
- MIB:** MIB-II, Ethernet-Like MIB, P-BRIDGE MIB, Q-BRIDGE MIB, Bridge MIB, RSTP MIB, RMON MIB Group 1, 2, 3, 9
- Flow Control:** IEEE 802.3x flow control, back pressure flow control

\*Available in Q3, 2011

### Switch Properties

- Priority Queues:** 4
- Max. Number of Available VLANs:** 64
- VLAN ID Range:** VID 1 to 4094
- IGMP Groups:** 256
- MAC Table Size:** 8 K
- Packet Buffer Size:** 1 Mbit

### Interface

- Fast Ethernet:** 2 or 4 slots for any combination of 4-port interface modules, 10/100BaseT(X) or 100BaseFX
- Gigabit Ethernet:** 3 10/100/1000BaseT(X) with 100/1000BaseSFP combo slots (EDS-611 and EDS-619 only)
- Console Port:** RS-232 (RJ45 connector)
- DIP Switches:** Turbo Ring, Master, Coupler, Reserve
- System LED Indicators:** PWR1, PWR2, FAULT, MSTR/HEAD, CPLR/TAIL, G1/G2/G3 (EDS-611 and EDS-619 only)
- Alarm Contact:** 1 relay output with current carrying capacity of 1 A @ 24 VDC
- Digital Inputs:** 1 input with the same ground, but electrically isolated from the electronics.
  - +13 to +30V for state "1"
  - -30 to +3V for state "0"
  - Max. input current: 8 mA

### Power Requirements

- Input Voltage:** 12/24/48 VDC, redundant dual inputs
- Input Current:**
  - EDS-608: 0.16A @ 24 V
  - EDS-611: 0.31A @ 24 V
  - EDS-616: 0.25A @ 24 V
  - EDS-619: 0.31A @ 24 V

- Overload Current Protection:** Present
- Connection:** 1 removable 5-contact and 1 removable 6-contact terminal block
- Reverse Polarity Protection:** Present

### Physical Characteristics

- Housing:** IP30 protection
- Dimensions:**
  - EDS-608/611 Series: 124.9 x 151 x 157.2 mm (4.92 x 5.95 x 6.19 in)

- EDS-616/619 Series: 185 x 151 x 157.2 mm (7.28 x 5.95 x 6.19 in)
- Weight:**
  - EDS-608: 2080 g
  - EDS-611: 2260 g
  - EDS-616: 2780 g
  - EDS-619: 2950 g
- Installation:** DIN-Rail mounting, wall mounting (with optional kit)

### Environmental Limits

- Operating Temperature:**
  - Standard Models: 0 to 60°C (32 to 140°F)
  - Wide Temp. Models: -40 to 75°C (-40 to 167°F)
- Storage Temperature:** -40 to 85°C (-40 to 185°F)
- Ambient Relative Humidity:** 5 to 95% (non-condensing)

### Standards and Certifications

- Safety:** UL 508, EN 60950-1
- Hazardous Location:** UL/cUL Class I Division 2 Groups A/B/C/D, ATEX Zone 2 Ex nCnAnL IIC T4
- EMI:** FCC Part 15 Subpart B Class A, EN 55022 Class A, EN 61000-6-4
- EMS:** EN 61000-6-2
  - EN 61000-4-2 (ESD) Level 3, EN 61000-4-3 (RS) Level 3, EN 61000-4-4 (EFT) Level 3, EN 61000-4-5 (Surge) Level 3, EN 61000-4-6 (CS) Level 3, EN 61000-4-8, EN 61000-4-29
- Marine:** DNV, GL, LR, ABS, NK
- Rail Traffic:** EN 50121-4
- Shock:** IEC 60068-2-27
- Freefall:** IEC 60068-2-32
- Vibration:** IEC 60068-2-6

Note: Please check Moxa's website for the most up-to-date certification status.

### MTBF (mean time between failures)

- Time:**
  - EDS-608: 596,000 hrs
  - EDS-611: 483,000 hrs
  - EDS-616: 546,000 hrs
  - EDS-619: 475,000 hrs

**Database:** Telcordia (Bellcore), GB

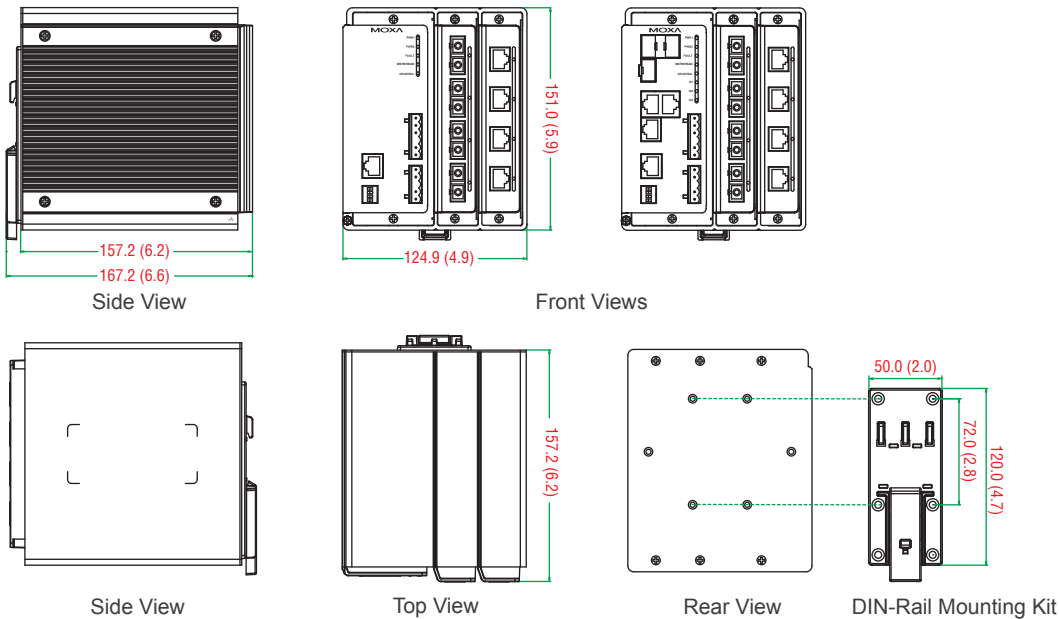
### Warranty

- Warranty Period:** 5 years
- Details:** See [www.moxa.com/warranty](http://www.moxa.com/warranty)

## Dimensions

### EDS-608/611 Series

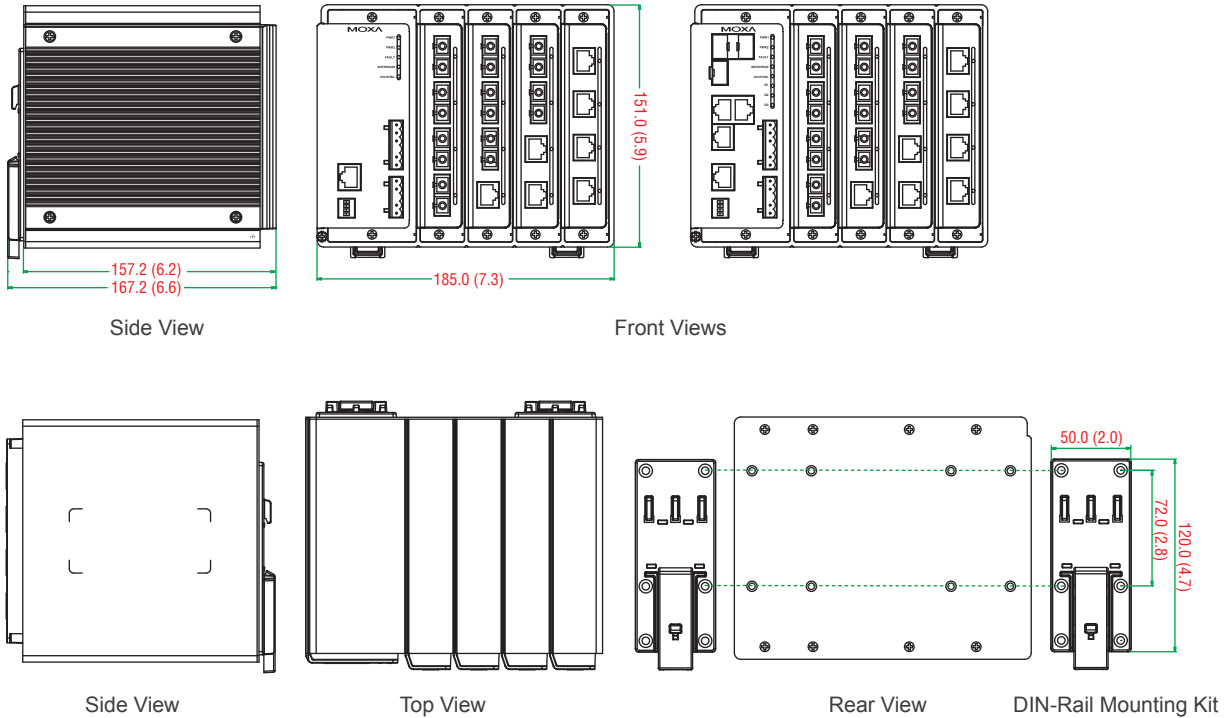
Unit: mm (inch)



**Dimensions**

Unit: mm (inch)

**EDS-616/619 Series**



**Ordering Information**

Step 1: Select Ethernet switch system

Step 2: Select interface modules

EDS-608/611/616/619



CM Series

Note: The EDS-600 switch system is delivered without interface modules. Please see page 1-25 for product information related to the CM series fast Ethernet interface modules.

Available Models		Total No. of Ports	Port Interface		
Standard Temperature (0 to 60°C)	Wide Temperature (-40 to 75°C)		Gigabit Ethernet 10/100/1000BaseT(X) or 100/1000BaseSFP*	Slots	Fast Ethernet 10/100BaseT(X) and/or 100BaseFX
EDS-608	EDS-608-T	8	–	2	up to 8
EDS-611	EDS-611-T	11	3	2	up to 8
EDS-616	EDS-616-T	16	–	4	up to 16
EDS-619	EDS-619-T	19	3	4	up to 16

\*The EDS-611/619 series supports 3 100/1000BaseSFP slots. See pages 1-87 and 1-89 for SFP-1G/1FE series Gigabit/fast Ethernet SFP module product information.

**Optional Accessories** (can be purchased separately)

**MXview:** Moxa industrial network management software with 50, 100, 250, 500, or 1000 nodes

**EDS-SNMP OPC Server Pro:** OPC server software that works with all SNMP devices

**ABC-01:** Configuration backup and restoration tool for managed Ethernet switches, 0 to 60°C operating temperature

**DR-4524/75-24/120-24:** 45/75/120 W DIN-Rail 24 VDC power supplies

**MDR-40-24/60-24:** 40/60 W DIN-Rail 24 VDC power supplies, -20 to 70°C operating temperature

**WK-75:** Wall mounting kit

**AVK-17:** Anti-vibration wiring Kit

**Package Checklist**

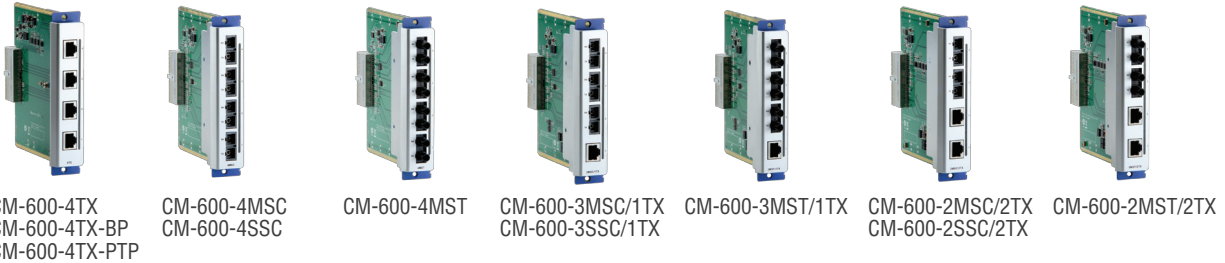
- EDS-608 or EDS-611 or EDS-616 or EDS-619 switch
- RJ45 to DB9 console port cable
- Documentation and software CD
- Hardware installation guide (printed)
- Warranty card

# CM-600 Series

## 4-port fast Ethernet interface modules for EDS-600 series Ethernet switches

### Specifications

#### Fast Ethernet Interface Modules, CM-600 Series



#### Interface

**Fiber Ports:** 100BaseFX ports (SC/ST connector)

**RJ45 Ports:** 10/100BaseT(X) auto negotiation speed, Full/Half duplex mode, and auto MDI/MDI-X connection

**LED Indicators:** 10/100 for TP port, 100M for fiber port

#### Optical Fiber

	100BaseFX	
	Multi-mode	Single-mode
Wavelength	1300 nm	1310 nm
Max. TX	-10 dBm	0 dBm
Min. TX	-20 dBm	-5 dBm
RX Sensitivity	-32 dBm	-34 dBm
Link Budget	12 dB	29 dB
Typical Distance	5 km <sup>a</sup> 4 km <sup>b</sup>	40 km <sup>c</sup>
Saturation	-6 dBm	-3 dBm

- a. 50/125 μm, 800 MHz\*km fiber optic cable
- b. 62.5/125 μm, 500 MHz\*km fiber optic cable
- c. 9/125 μm single-mode fiber optic cable

#### Power Requirements

**Power Consumption:**

- CM-600-4TX: 0.72 W
- CM-600-4TX-BP: 2.81 W
- CM-600-4TX-PTP: 4.08 W
- CM-600-4MSC, -4MST, -4SSC: 2.64 W
- CM-600-3MSC/1TX, -3MST/1TX, -3SSC/1TX: 2.16 W
- CM-600-2MSC/2TX, -2MST/2TX, -2SSC/2TX: 1.68 W

#### Physical Characteristics

**Housing:** IP30 protection

**Dimensions:** 29.7 x 144.4 x 144.8 mm (1.17 x 5.69 x 5.7 in)

#### Weight:

- CM-600-4TX: 190 g
- CM-600-4TX-BP: 240 g
- CM-600-4TX-PTP: 185 g
- CM-600-4MSC, -4MST, -4SSC: 240 g
- CM-600-3MSC/1TX, -3MST/1TX, -3SSC/1TX: 230 g
- CM-600-2MSC/2TX, -2MST/2TX, -2SSC/2TX: 230 g

#### MTBF (mean time between failures)

**Time:** 740,000 hrs

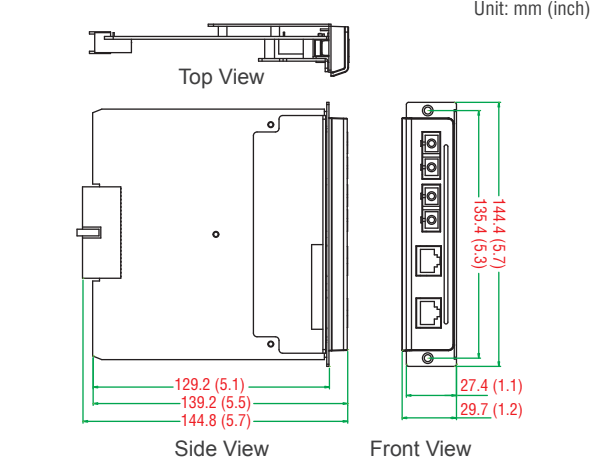
**Database:** Telcordia (Bellcore), GB

#### Warranty

**Warranty Period:** 5 years

**Details:** See [www.moxa.com/warranty](http://www.moxa.com/warranty)

#### Dimensions



### Ordering Information

Available Models (-40 to 75°C)	Port Interface			
	10/100BaseT(X)	100BaseFX		
		Multi-mode, SC Connector	Multi-mode, ST Connector	Single-mode, SC Connector
CM-600-4TX	4	—	—	—
CM-600-4TX-BP*	4	—	—	—
CM-600-4TX-PTP*	4	—	—	—
CM-600-4MSC	—	4	—	—
CM-600-4MST	—	—	4	—
CM-600-4SSC	—	—	—	4
CM-600-3MSC/1TX	1	3	—	—
CM-600-3MST/1TX	1	—	3	—
CM-600-3SSC/1TX	1	—	—	3
CM-600-2MSC/2TX	2	2	—	—
CM-600-2MST/2TX	2	—	2	—
CM-600-2SSC/2TX	2	—	—	2

#### Package Checklist

- CM-600 interface module
- Warranty card

\*The CM-600-4TX-BP supports the bypass relay function on each port; the CM-600-4TX-PTP supports the IEEE 1588 PTP V2 protocol on each port.

# SFP-1G Series

## 1-port Gigabit Ethernet SFP modules



- > IEEE 802.3z compliant
- > Differential LVPECL inputs and outputs
- > TTL signal detect indicator
- > Hot pluggable LC duplex connector
- > Class 1 laser product, complies with EN 60825-1



### Specifications

#### Interface

**Ethernet Ports:** 1

**Connectors:** Duplex LC Connector or Simplex LC Connector (WDM-type only)

**Note:** WDM-type SFP modules must be used in pairs (e.g., SFP-1GXXALC and SFP-1GXXBLC)

#### Optical Fiber

	Gigabit Ethernet													
	SFP-SX	SFP-LSX	SFP-LX	SFP-LH	SFP-LHX	SFP-ZX	SFP-EZX	SFP-EZX-120	SFP-10A	SFP-10B	SFP-20A	SFP-20B	SFP-40A	SFP-40B
Wavelength	850 nm	1310 nm	1310 nm	1310 nm	1310 nm	1550 nm	1550 nm	1550 nm	TX 1310 nm, RX 1550 nm	TX 1550 nm, RX 1310 nm	TX 1310 nm, RX 1550 nm	TX 1550 nm, RX 1310 nm	TX 1310 nm, RX 1550 nm	TX 1550 nm, RX 1310 nm
Max. TX	-4 dBm	-1 dBm	-3 dBm	-2 dBm	1 dBm	5 dBm	5 dBm	3 dBm	-3 dBm	-2 dBm	-2 dBm	-2 dBm	2 dBm	2 dBm
Min. TX	-9.5 dBm	-9 dBm	-9.5 dBm	-8 dBm	-4 dBm	0 dBm	0 dBm	-2 dBm	-9 dBm	-8 dBm	-8 dBm	-8 dBm	-3 dBm	-3 dBm
RX Sensitivity	-18 dBm	-19 dBm	-20 dBm	-23 dBm	-24 dBm	-24 dBm	-30 dBm	-33 dBm	-21 dBm	-21 dBm	-23 dBm	-23 dBm	-23 dBm	-23 dBm
Link Budget	8.5 dB	10 dB	10.5 dB	15 dB	20 dB	24 dB	30 dB	31 dB	12 dB	12 dB	15 dB	15 dB	20 dB	20 dB
Typical Distance	550 m <sup>a</sup>	2 km <sup>b</sup>	10 km <sup>c</sup>	30 km <sup>c</sup>	40 km <sup>c</sup>	80 km <sup>c</sup>	110 km <sup>c</sup>	120 km <sup>c</sup>	10 km <sup>c</sup>	10 km <sup>c</sup>	20 km <sup>c</sup>	20 km <sup>c</sup>	40 km <sup>c</sup>	40 km <sup>c</sup>
Saturation	0 dBm	-3 dBm	-3 dBm	-3 dBm	-3 dBm	-3 dBm	-3 dBm	-8 dBm	-1 dBm	-1 dBm	-1 dBm	-1 dBm	-1 dBm	-1 dBm

a. 50/125 μm, 400 MHz \* km or 62.5/125 μm, 500 MHz \* km @ 850 nm multi-mode fiber optic cable

b. 62.5/125 μm, 750 MHz \* km @ 1310 nm multi-mode fiber optic cable

c. 9/125 μm single-mode fiber optic cable

**Note:** The actual communication distance depends on many factors, including connector loss, cable deployment, and the age of the cabling system. We recommend doing a link budget analysis and reserving a 3 dB margin for such factors.

#### Environmental Limits

##### Operating Temperature:

Standard Models: 0 to 60°C (32 to 140°F)

Wide Operating Temp. Models: -40 to 85°C (-40 to 185°F)

**Storage Temperature:** -40 to 85°C (-40 to 185°F)

**Ambient Relative Humidity:** 5 to 95% (non-condensing)

#### Standards and Certifications

**Safety:** UL 60950-1, TÜV

#### Warranty

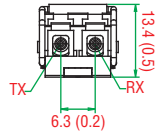
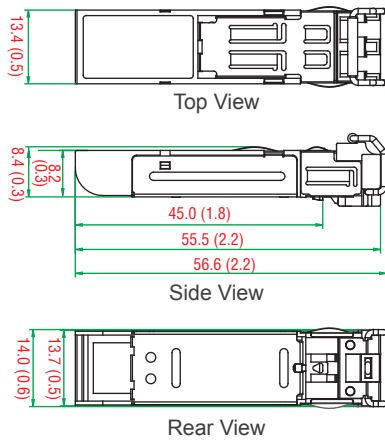
**Warranty Period:** 5 years

**Details:** See [www.moxa.com/warranty](http://www.moxa.com/warranty)

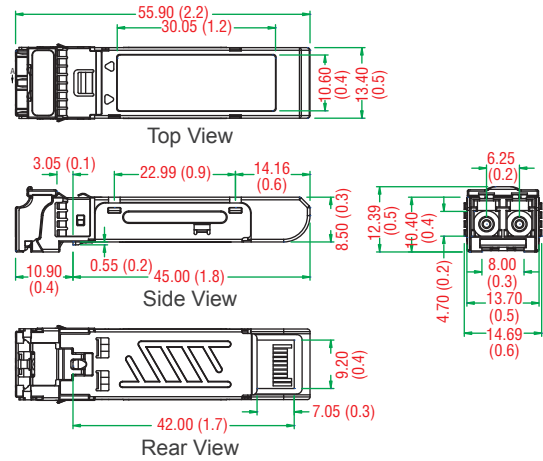
## Dimensions

Unit: mm (inch)

### SFP-1G Series



### SFP-1GEZXC-120



## Ordering Information

### SFP Modules

Available Models		Port Interface							
Standard Temperature (0 to 60°C)	Wide Temperature (-40 to 85°C)	1000BaseSX, LC Connector, 0.5 km	1000BaseLSX, LC Connector, 2 km	1000BaseLX, LC Connector, 10 km	1000BaseLH, LC Connector, 30 km	1000BaseLHX, LC Connector, 40 km	1000BaseZX, LC Connector, 80 km	1000BaseEZ, LC Connector, 110 km	1000BaseEZ, LC Connector, 120 km
SFP-1GSXLC	SFP-1GSXLC-T*	1	-	-	-	-	-	-	-
SFP-1GLSXLC	SFP-1GLSXLC-T	-	1	-	-	-	-	-	-
SFP-1GLXLC	SFP-1GLXLC-T	-	-	1	-	-	-	-	-
SFP-1GLHLC	SFP-1GLHLC-T	-	-	-	1	-	-	-	-
SFP-1GLHLC	SFP-1GLHLC-T	-	-	-	-	1	-	-	-
SFP-1GLHLC	SFP-1GLHLC-T	-	-	-	-	-	1	-	-
SFP-1GZXLC	SFP-1GZXLC-T	-	-	-	-	-	-	1	-
SFP-1GEZXC	-	-	-	-	-	-	-	-	1
SFP-1GEZXC-120	-	-	-	-	-	-	-	-	1

\* SFP-1GSXLC-T: -20 to 75°C operating temperature

### WDM-type (BiDi) SFP Modules

Available Models		Port Interface					
Standard Temperature (0 to 60°C)	Wide Temperature (-40 to 85°C)	1000BaseSFP, LC Connector, 10 km		1000BaseSFP, LC Connector, 20 km		1000BaseSFP, LC Connector, 40 km	
		TX 1310 nm, RX 1550 nm	TX 1550 nm, RX 1310 nm	TX 1310 nm, RX 1550 nm	TX 1550 nm, RX 1310 nm	TX 1310 nm, RX 1550 nm	TX 1550 nm, RX 1310 nm
SFP-1G10ALC	SFP-1G10ALC-T	1	-	-	-	-	-
SFP-1G10BLC	SFP-1G10BLC-T	-	1	-	-	-	-
SFP-1G20ALC	SFP-1G20ALC-T	-	-	1	-	-	-
SFP-1G20BLC	SFP-1G20BLC-T	-	-	-	1	-	-
SFP-1G40ALC	SFP-1G40ALC-T	-	-	-	-	1	-
SFP-1G40BLC	SFP-1G40BLC-T	-	-	-	-	-	1

The SFP-1G series modules can be used with the following products:

IM-2GSFP, EDS-611/619 series, EDS-G509 series, EDS-518A series, EDS-510A series, EDS-P510 series, ICS-G7826/G7828 series, ICS-G7526/G7528 series, IM-G7000-4GSFP, IKS-G6824 series, IKS-G6524 series, IKS-6526-2GTXSFP series, PM-7200-2G/4G series, EDS-G308 series, EDR-G903 series, IMC-101G series, PT-G7509

### Package Checklist

- SFP-1G module
- Warranty card

# SFP-1FE Series

## 1-port fast Ethernet SFP modules



- > IEEE 802.3u compliant
- > Differential PECL inputs and outputs
- > TTL signal detect indicator
- > Hot pluggable LC duplex connector
- > Class 1 laser product; complies with EN 60825-1



### Specifications

#### Interface

Ethernet Ports: 1  
Connectors: Duplex LC Connector

#### Optical Fiber

	Fast Ethernet		
	SFP-M	SFP-S	SFP-L
Wavelength	1300 nm	1310 nm	1550 nm
Max. TX	-18 dBm	0 dBm	0 dBm
Min. TX	-8 dBm	-5 dBm	-5 dBm
RX Sensitivity	-34 dBm	-34 dBm	-34 dBm
Link Budget	26 dB	29 dB	29 dB
Typical Distance	4 km <sup>a</sup>	40 km <sup>b</sup>	80 km <sup>b</sup>
Saturation	0 dBm	-3 dBm	-3 dBm

a. 50/125 μm or 62.5/125 μm, 800 MHz \* km @ 1300 nm multi-mode fiber optic cable  
b. 9/125 μm single-mode fiber optic cable

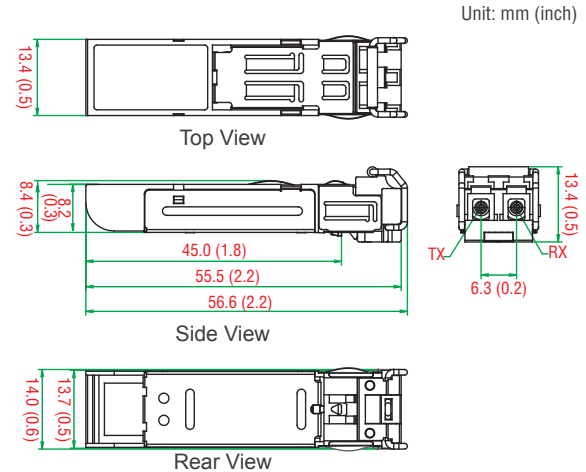
#### Environmental Limits

Operating Temperature: -40 to 85°C (-40 to 185°F)  
Storage Temperature: -40 to 85°C (-40 to 185°F)  
Ambient Relative Humidity: 5 to 95% (non-condensing)

#### Standards and Certifications

Safety: UL 60950-1, TÜV  
Warranty  
Warranty Period: 5 years  
Details: See [www.moxa.com/warranty](http://www.moxa.com/warranty)

#### Dimensions



### Ordering Information

Available Models	Port Interface			
	Wide Temperature (-40 to 85°C)	100BaseFX, Multi-mode, LC Connector, 4 km	100BaseFX, Single-mode, LC Connector, 40 km	100BaseFX, Single-mode, LC Connector, 80 km
SFP-1FEMLC-T		1	-	-
SFP-1FESLC-T		-	1	-
SFP-1FELLC-T		-	-	1

#### The SFP-1FE series modules can be used with the following products:

EDS-611/619 series, EDS-G509 series, EDS-G308-2SFP, EDS-P510 series, ICS-G7826/G7828 series, ICS-G7526/G7528 series, IM-G7000-4GSFP, IKS-G6824 series, IKS-G6524 series, IKS-6524-8SFP series, PM-7200-8SFP, EDR-G903 series

#### Package Checklist

- SFP-1FE module
- Warranty card