EDS-608/611/616/619 Series

Preliminary

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

> Up to 19 optical fiber connections in a small switch (EDS-619)
> Modular form factor lets you choose from several 4-port copper/fiber combination modules
> Hot swap media modules for continuous operation
> Turbo Chain, Turbo Ring, and RSTP/STP for network redundancy
> Modbus/TCP, LLDP, SNMP Inform, QoS, IGMP snooping, VLAN, IEEE 802.1X, HTTPS, and SSH supported
> -40 to 75°C operating temperature (T models)

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 Chain and Turbo Ring (recovery time < 20 ms) technology and RSTP/STP (IEEE 802.1w/D) 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, Modbus/TCP, LLDP, DHCP Option 82, SNMP Inform, QoS, IGMP snooping, VLAN, IEEE 802.1X, HTTPS, SSH, SNMPv3, and more, making the Ethernet switches suitable for any harsh industrial environment.

Features and Benefits

- Hot swap media modules for continuous operation (available soon)
- Turbo Chain and Turbo Ring (recovery time < 20 ms at full load), and RSTP/STP (IEEE 802.1w/D)
- 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 (Precision Time Protocol) for precise time synchronization of networks
- Modbus/TCP industrial Ethernet protocol supported
- 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
- 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

Specifications

Technology

Standards:
IEEE 802.3 for 10BaseT
IEEE 802.3u for 100BaseT(X) and 100Base FX
IEEE 802.3ab for 1000BaseT(X)
IEEE 802.3z for 1000BaseSX/LX/LHX/ZX/EZX
IEEE 802.3x for Flow Control
IEEE 802.1D for Spanning Tree Protocol
IEEE 802.1w for Rapid STP
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 device, GMRP, GVRP, SNMPv1/v2c/v3, DHCP Server/Client, DHCP Option 66/67/82, BootP, TFTP, SNTP, SMTP, RARP, RMON, HTTP, HTTPS, Telnet, SSH, Syslog, LLDP, Modbus/TCP, IEEE 1588 PTP, IPv6

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

Switch Properties

Priority Queues: 4

Max. Number of Available VLANs: 64

VLAN ID Range: VID 1 to 4094

IGMP Groups: 256

MOXA®

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) or 100/1000BaseSFP slots (EDS-611 and EDS-619 only)

System LED Indicators: PWR1, PWR2, FAULT, MSTR/HEAD, CPLR/TAIL, G1, G2, G3

Mode LED Indicators: 10/100M for TP port, 100M for Fiber port

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)

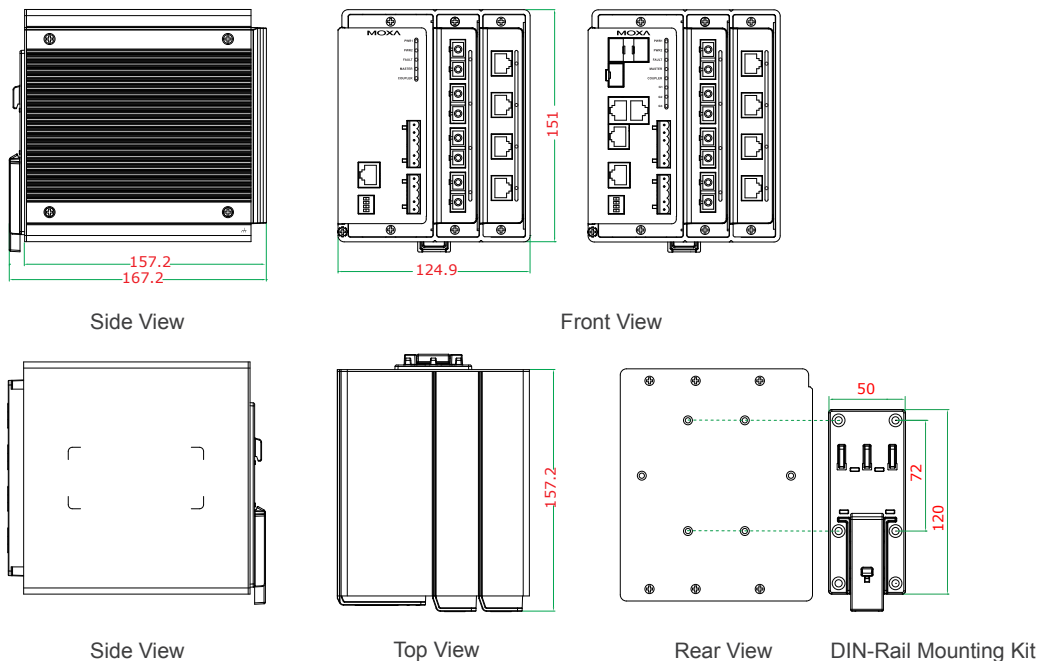**Ambient Relative Humidity:** 5 to 95% (non-condensing)

Regulatory Approvals

Safety: UL508 (Pending), EN60950-1 (Pending)

Hazardous Location: UL/cUL Class I, Division 2, Groups A, B, C, and D (Pending); ATEX Zone 2, Ex nC IIC (Pending)

EMI: FCC Part 15, EN61000-6-4

EMS: EN61000-6-2
 EN61000-4-2 (ESD),
  level 2 for multi-mode models with ST connectors
  level 3 for all other models
 EN61000-4-3 (RS), level 3
 EN61000-4-4 (EFT), level 3
 EN61000-4-5 (Surge), level 3
 EN61000-4-6 (CS), level 3
 EN61000-4-8
 EN61000-4-11
 EN61000-4-29

Maritime: DNV (Pending), GL (Pending), ABS (Pending), LR (Pending), NKK (Pending)

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.
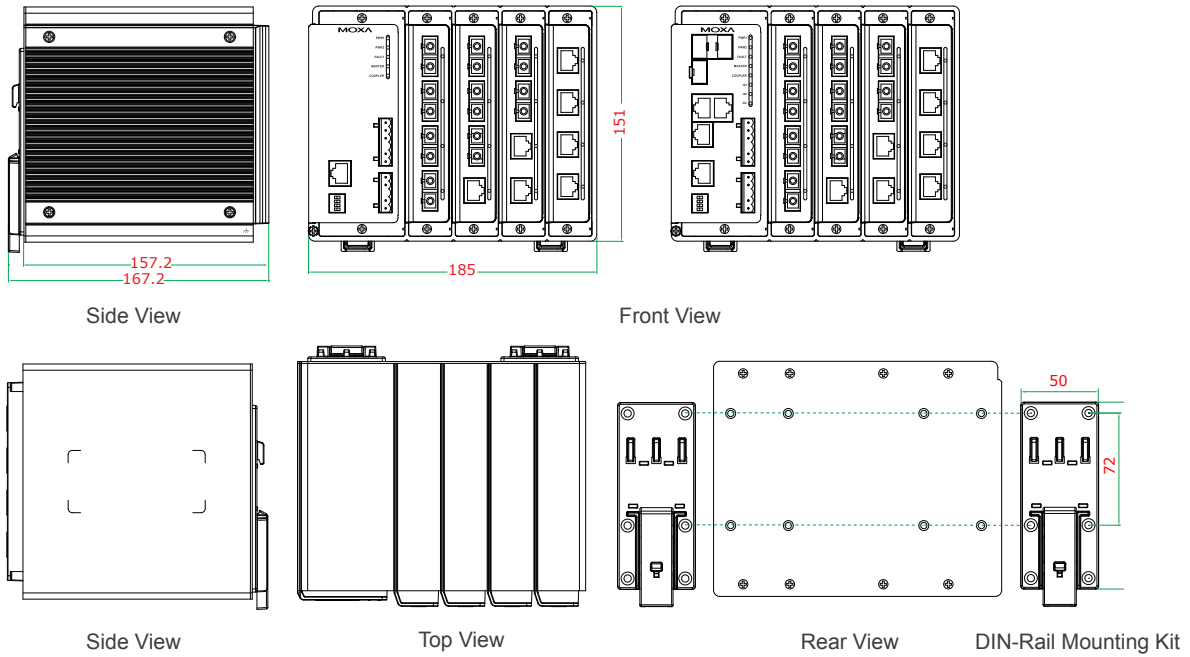
Warranty

Warranty Period: 5 years

Details: See www.moxa.com/warranty

Dimensions (unit = mm)
EDS-608/611 Series

Side View

Front View

Side View

Top View

Rear View

DIN-Rail Mounting Kit

Dimensions (unit = mm)

EDS-616/619 Series

Side View   Front View

Side View   Top View   Rear View   DIN-Rail Mounting Kit

: Ordering Information

Step 1: Select Ethernet switch system

EDS-608/611/616/619

Step 2: Select interface modules

CM Series

Note: The EDS-600 switch system is delivered without interface modules. Please see page 3-28 for product information related to the CM series fast Ethernet interface modules.

: Ordering Information

Available Models		Total No. of Ports	Port Interface		
			Gigabit Ethernet	Fast Ethernet	
Standard Temperature (0 to 60°C)	Wide Temperature (-40 to 75°C)		10/100/1000BaseT(X) or 1000Base SFP*	Slots	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

Note: The EDS-600 series supports 3 1000BaseSFP slots. See page 3-45 and 3-47 for SFP-1G/1FE series Gigabit/fast Ethernet SFP module product information.

Optional Accessories (can be purchased separately)

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
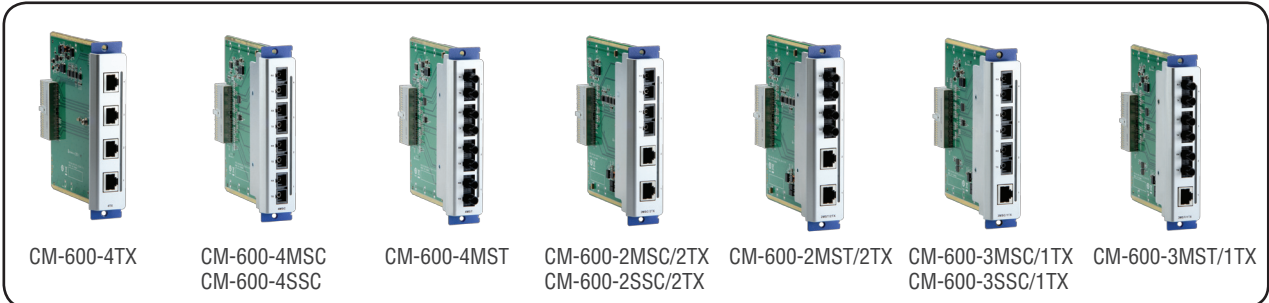
WK-75: Wall mounting kit

AVK-17: Anti-vibration wiring Kit

CM-600 Series *Preliminary*

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

: Specifications

Fast Ethernet Interface Modules, CM-600 Series

| CM-600-4TX | CM-600-4MSC
CM-600-4SSC | CM-600-4MST | CM-600-2MSC/2TX
CM-600-2SSC/2TX | CM-600-2MST/2TX | CM-600-3MSC/1TX
CM-600-3SSC/1TX | CM-600-3MST/1TX |

Interface

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

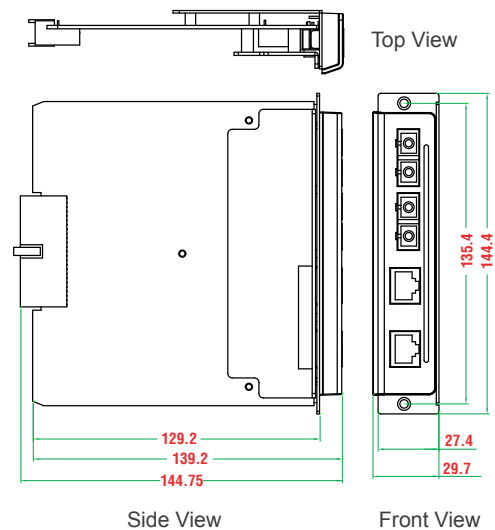**RJ45 Ports:** 10/100BaseT(X) auto negotiation speed, F/H duplex mode, and auto MDI/MDI-X connection

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

Optical Fiber

	100BaseFX		
	Multi Mode	**Single Mode**	**Single Mode, 80 km**
Wavelength	1300 nm	1310 nm	1550 nm
Max. TX	-10 dBm	0 dBm	0 dBm
Min. TX	-20 dBm	-5 dBm	-5 dBm
RX Sensitivity	-32 dBm	-34 dBm	-34 dBm
Link Budget	12 dB	29 dB	29 dB
Typical Distance	5 km [a] 4 km [b]	40 km [c]	80 km [d]
Saturation	-6 dBm	-3 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
d. 9/125 μm single-mode fiber optic cable (80 km)

Physical Characteristics

Housing: IP30 protection

Dimensions: 29.7 x 144.4 x 144.75 mm (1.17 x 5.69 x 5.7 in)

Dimensions (unit = mm)

Top View

Side View

Front View

135.4
144.4
129.2
139.2
144.75
27.4
29.7

: Ordering Information

Available Models	Port Interface			
	10/100BaseT(X)	100BaseFX		
		Multi-mode, SC Connector	Multi-mode, ST Connector	Single-mode, SC Connector
CM-600-4TX	4	---	---	---
CM-600-4MSC	---	4	---	---
CM-600-4MST	---	---	4	---
CM-600-4SSC	---	---	---	4
CM-600-2MSC/2TX	2	2	---	---
CM-600-2MST/2TX	2	---	2	---
CM-600-2SSC/2TX	2	---	---	2
CM-600-3MSC/1TX	1	3	---	---
CM-600-3MST/1TX	1	---	3	---
CM-600-3SSC/1TX	1	---	---	3

SFP-1G Series

1G-port Gigabit Ethernet SFP modules

> Compliant with IEEE 802.3z
> Differential LVPECL inputs and outputs
> Single 3.3 V power supply
> TTL signal detect indicator
> Hot pluggable
> Class 1 laser product, complies with EN60825-1

EN : 60825

⁝ 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-10A	SFP-10B	SFP-20A	SFP-20B	SFP-40A	SFP-40B
Wave-length	850 nm	1310 nm	1310 nm	1310 nm	1310 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		-2 dBm		2 dBm	
Min. TX	-9.5 dBm	-9 dBm	-9.5 dBm	-8 dBm	-4 dBm	0 dBm	0 dBm	-9 dBm		-8 dBm		-3 dBm	
RX Sensitivity	-18 dBm	-19 dBm	-20 dBm	-23 dBm	-24 dBm	-24 dBm	-30 dBm	-21 dBm		-23 dBm		-23 dBm	
Link Budget	8.5 dB	10 dB	10.5 dB	15 dB	20 dB	24 dB	30 dB	12 dB		15 dB		20 dB	
Typical Distance	550 m [a]	2 km [b]	10 km [c]	30 km [c]	40 km [c]	80 km [c]	110 km [c]	10 km [c]		20 km [c]		40 km [c]	
Saturation	0 dBm	-3 dBm	-3 dBm	-3 dBm	-3 dBm	-3 dBm	-3 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

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)
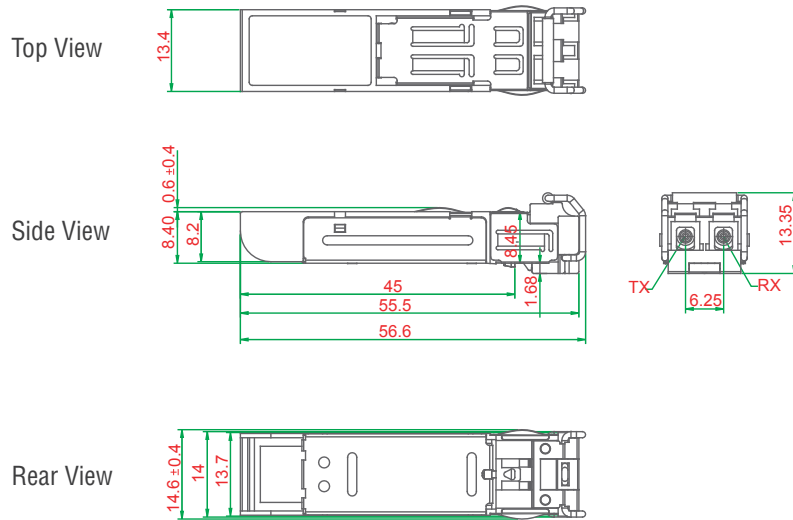
Regulatory Approvals

Safety: UL, TÜV

Warranty

Warranty Period: 3 years
Details: See www.moxa.com/warranty

Dimensions (unit = mm)

Top View

13.4

Side View

8.40 0.6 ±0.4 8.2 8.45 1.68 45 55.5 56.6

13.35

TX 6.25 RX

Rear View

14.6 ±0.4 14 13.7

: 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	1000BaseEZX, LC Connector, 110 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-1GLHXLC	SFP-1GLHXLC-T	---	---	---	---	1	---	---
SFP-1GZXLC	SFP-1GZXLC-T	---	---	---	---	---	1	---
SFP-1GEZXLC	---	---	---	---	---	---	---	1

Note: SFP-1GSXLC-T: -20 to 75˚C operating temperature

WDM-type (BiDi) SFP Modules

Availabe 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

EDS-728/828 series: IM-2GSFP series Gigabit Ethernet interface modules

EDS-G509 series: 9G-port full Gigabit managed Ethernet switches

EDS-518A series: 16+2G-port Gigabit managed Ethernet switches

EDS-510A series: 7+3G-port Gigabit managed Ethernet switches

EDS-P510 series: 7+3G-port Gigabit PoE managed Ethernet switches

PT and IKS series: PM-7200-2G/4G series Gigabit Ethernet interface modules

EDS-G308 series: 8G-port full Gigabit unmanaged Ethernet switches

IMC-101G series: Industrial Gigabit media converters

SFP-1FE Series

1-port fast Ethernet SFP modules

> Single + 3.3 V power Supply
> Small From Factor Pluggable MSA Compliant
> PECL Differential Inputs and Output
> TTL Signal Detect Indicator
> Compliant with SONET / SDH Standard
> LC Duplex Connector
> EEPROM with serial ID functionality
> Class 1 Laser International Safety Standard IEC 825 Compliant

EN : 60825   c**UR**us

: 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 [a]	40 km [b]	80 km [b]
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)
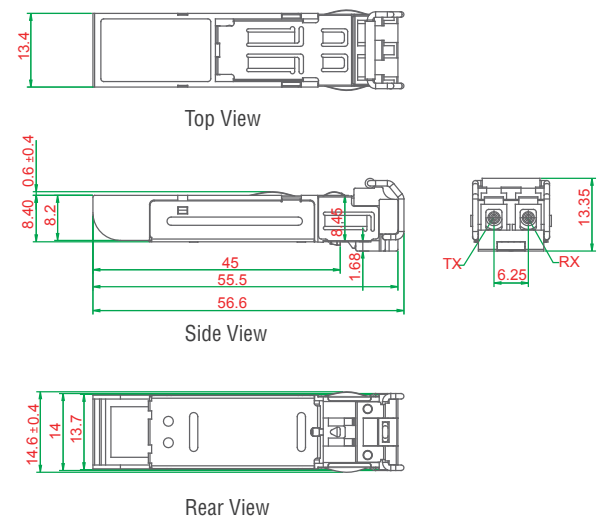
Regulatory Approvals

Safety: UL, TÜV

Warranty

Warranty Period: 3 years
Details: See www.moxa.com/warranty

Dimensions (unit = mm)

Top View

Side View

Rear View

: 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-G509 series: 9G-port full Gigabit managed Ethernet switches
EDS-G308 series: 8G-port full Gigabit unmanaged Ethernet switches
EDS-P510 series: 7+3G-port Gigabit PoE managed Ethernet switches
PT and IKS series: PM-7200-8SFP fast Ethernet interface modules