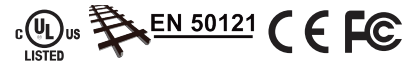


# IKS-6728A-8PoE Series

## 24+4G-port Gigabit modular managed PoE+ Ethernet switches



- > 8 built-in PoE+ ports compliant with IEEE 802.3af/at
- > Up to 36 W output per PoE+ port
- > 3 kV LAN surge protection for extreme outdoor environments
- > PoE diagnostics for powered-device mode analysis
- > 4 Gigabit combo ports for high bandwidth communication
- > -40 to 75°C operating temperature range at 720 W full loading
- > Supports MXstudio for easy, visualized industrial network management
- > V-ON™ ensures millisecond-level multicast data and video network recovery



### Introduction

The Moxa IKS-6728A-8PoE series of Gigabit modular managed PoE+ Ethernet switches are designed to meet the demands of mission critical applications for business and industry. The IKS-6728A-8PoE comes standard with up to 24 10/100BaseT(X), or PoE/PoE+, and 4 combo Gigabit Ethernet ports. The IKS-6728A-8PoE Ethernet switches provide up to 30 watts of power per PoE+ port in standard mode, and also support high power output of up to 36 watts for heavy-duty industrial PoE devices, such as weather-proof IP surveillance cameras with wipers/heaters, high-performance wireless access points, and rugged IP phones. IKS-6728A-8PoE Ethernet switches support two

types of power input sources: 48 VDC for PoE+ ports and system power, and 110/220 VAC for system power. These Ethernet switches also support a variety of management functions, including STP/RSTP, Turbo Ring, Turbo Chain, PoE power management, PoE device auto-checking, PoE power scheduling, PoE diagnostic, IGMP, VLAN, QoS, RMON, bandwidth management, and port mirroring. The IKS-6728A-8PoE series is designed especially for harsh outdoor applications with 3kV surge protection to ensure the uninterrupted reliability of PoE systems.

### Features and Benefits

- Advanced PoE management functions: PoE output setting, PD failure check, PoE scheduling, and PoE diagnostics
- Command Line Interface (CLI) for quickly configuring major managed functions
- Software-based IEEE 1588 PTPv2 (Precision Time Protocol) for time synchronization of networks
- DHCP Option 82 for IP address assignment with different policies
- Supports EtherNet/IP, Modbus/TCP, and PROFINET protocols for device management and monitoring
- Turbo Ring and Turbo Chain (recovery time < 20 ms @ 250 switches), RSTP/STP, and MSTP for network redundancy
- 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
- IEEE 802.3ad, LACP for optimum bandwidth utilization
- TACACS+, IEEE 802.1X, SNMPv3, 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 with "Lock port" to restrict access to authorized MAC addresses
- Port mirroring for online debugging
- Automatic warning by exception through email, relay output
- Automatic recovery of connected device's IP addresses
- Line-swap fast recovery
- Configurable by web browser, Telnet/serial console, CLI, Windows utility, and ABC-02-USB automatic backup configurator

## Specifications

### Technology

#### Standards:

- IEEE 802.3af/at for PoE/PoE+ output
- 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

### Software Features

**Management:** IPv4/IPv6, SNMP v1/v2c/v3, LLDP, Port Mirror, DDM, RMON, DHCP Server/Client, DHCP Option 66/67/82, BootP, TFTP, SMTP, RARP, Telnet, Syslog, SNMP Inform, Flow Control, Back Pressure Flow Control

**Filter:** 802.1Q VLAN, Port-Based VLAN, GVRP, IGMP v1/v2/v3, GMRP

**Redundancy Protocols:** STP, RSTP, MSTP, Turbo Ring v1/v2, Turbo Chain, Link Aggregation

**Security:** RADIUS, TACACS+, SSL, SSH, Broadcast Storm Protection, Port Lock, MAC ACL, MAC Sticky, NTP Authentication, SMTP with TLS

**Time Management:** SNTP, NTP Server/Client, IEEE 1588v2 PTP (software-based)

**Industrial Protocols:** EtherNet/IP, Modbus/TCP, PROFINET

**MIB:** MIB-II, Ethernet-like MIB, P-BRIDGE MIB, Q-BRIDGE MIB, Bridge MIB, RSTP MIB, RMON MIB Group 1, 2, 3, 9

### Switch Properties

**Priority Queues:** 4

**Max. Number of VLANs:** 64

**VLAN ID Range:** VID 1 to 4094

**IGMP Groups:** 2048

**MAC Table Size:** 16 K

**Packet Buffer Size:** 12 Mbit

**Jumbo Frame Size:** 9.6 KB

### Interface

**Fast Ethernet:** 8-port 10/100BaseT(X) or PoE+ 10/100BaseT(X) 2 modular slots for any 8-, or 6-port Interface Modules with 10/100BaseT(X), 100BaseFX (SC/ST connector), 100Base SFP, or PoE+ 10/100BaseT(X)

*Note: See the IM-6700A datasheet for Fast Ethernet module and PoE+ module product information.*

**Gigabit Ethernet:** 4-port 10/100/1000BaseT(X) or 100/1000Base SFP

**Console Port:** USB-serial console (Type B connector)

**Storage Port:** USB storage (Type A connector for ABC-02-USB)

**Alarm Contact:** 1 relay output with current carrying capacity of 2 A @ 30 VDC

### Power Requirements

#### Input Voltage:

HV models:

- 110/220 VAC for switch system
- 48 VDC for PoE system (53 to 57 VDC is recommended for PoE+ devices)

48 VDC models:

- 48 VDC (46 to 57 VDC) for switch and PoE system

#### Operating Voltage:

HV models:

- 85 to 264 VAC for switch system
- 46 to 57 VDC for PoE system

48 VDC models:

- 46 to 57 VDC for Switch and PoE system

## Modular Rackmount Ethernet Switch System, IKS-6728A-8PoE series

IKS-6728A-8PoE-4GTXSFP-HV-T  
 IKS-6728A-8PoE-4GTXSFP-HV-HV-T  
 IKS-6728A-8PoE-4GTXSFP-48-T  
 IKS-6728A-8PoE-4GTXSFP-48-48-T



#### Input Current:

HV models:

- PWR input current (switch system):

Max. 0.33 A @ 110 VAC

Max. 0.24 A @ 230 VAC

- EPS input current (PoE system):

Max. 0.29 A @ 48 VDC (excluding power consumption of PoE devices)

48 VDC models:

- PWR/EPS input current (switch and PoE systems):

Max. 0.53 A @ 48 VDC (excluding power consumption of PoE devices)

Max. 17.81 A @ 46-57 VDC (including power consumption of PoE devices in high power mode)

**Overload Current Protection:** Present

**Reverse Polarity Protection:** Present

### Physical Characteristics

**IP Rating:** IP30 protection

**Dimensions:** 440 x 44 x 280 mm (17.32 x 1.37 x 11.02 in)

**Weight:** IKS-6728A-8PoE-4GTXSFP-HV-HV-T: 4250 g (9.38 lb)

IKS-6728A-8PoE-4GTXSFP-HV-T: 4150 g (9.15 lb)

IKS-6728A-8PoE-4GTXSFP-48-48-T: 4250 g (9.38 lb)

IKS-6728A-8PoE-4GTXSFP-48-T: 4150 g (9.15 lb)

**Installation:** 19-inch rack mounting

### Environmental Limits

**Operating Temperature:** -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

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

**Safety:** UL 60950-1, EN 60950-1

**EMC:** EN 55032/24

**EMI:** FCC Part 15 Subpart B Class A

**EMS:**

IEC 61000-4-2 ESD: Contact: 6 kV; Air: 8 kV

IEC 61000-4-3 RS: 80 MHz to 1 GHz: 10 V/m

IEC 61000-4-4 EFT: Power: 2 kV; Signal: 2 kV

IEC 61000-4-5 Surge: Power: 2 kV; Signal: 1 kV

IEC 61000-4-6 CS: Signal: 10 V

IEC 61000-4-8

**Rail Traffic:** EN 50121-4

**Shock:** IEC 60068-2-27

**Freefall:** IEC 60068-2-32

**Vibration:** IEC 60068-2-6

**MTBF** (mean time between failures)

**Time:**

IKS-6728A-8PoE-4GTXSFP-48-T: 224,420 hrs

IKS-6728A-8PoE-4GTXSFP-48-48-T: 215,994 hrs

IKS-6728A-8PoE-4GTXSFP-HV-T: 159,173 hrs

IKS-6728A-8PoE-4GTXSFP-HV-HV-T: 120,731 hrs

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

### Warranty

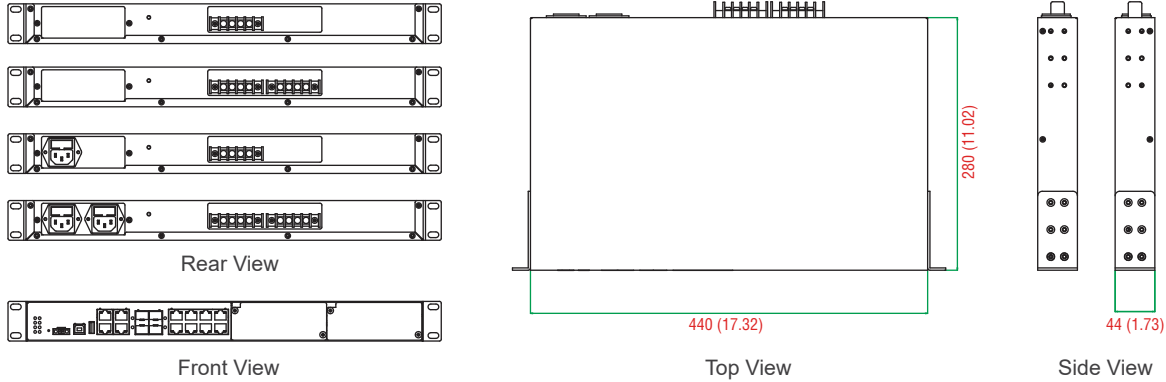
**Warranty Period:** 5 years

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

**Dimensions**

**IKS-6728A-8PoE-4GTXSFP Series**

Unit: mm (inch)



**Ordering Information**

Step 1: Select Ethernet switch system

Step 2: Select interface modules



Note: The IKS-6728A-8PoE Ethernet switch system is delivered without interface modules. See the IM-6700A datasheet to determine which interface modules are suitable for your application.

**IKS-6728A-8PoE Modular Rackmount Ethernet PoE+ Switch System**

Modular managed rackmount Ethernet PoE+ switch with 8 built-in 10/100BaseT(X) PoE+ ports, 4 Gigabit Copper/SFP combo ports, and 2 slots for Fast Ethernet PoE+ modules. Support up to 24+4G ports with 8 built-in PoE+ ports and up to 24 PoE+ ports, -40 to 75°C operating temperature.

Available Models	Port Interface				Power Supply			
	Gigabit Ethernet	Fast Ethernet			Isolated Power Supply 1		Isolated Power Supply 2	
		10/100/1000BaseT(X) or 100/1000BaseSFP*	10/100BaseT(X) (or PoE+ ports)	100BaseFX	100BaseSFP*	HV (85 to 264 VAC)	48 VDC (46 to 57 VDC)	HV (85 to 264 VAC)
<b>IKS-6728A-8PoE Series</b>								
IKS-6728A-8PoE-4GTXSFP-HV-T	4	Up to 24	Up to 12	Up to 20	1	-	-	-
IKS-6728A-8PoE-4GTXSFP-HV-HV-T	4	Up to 24	Up to 12	Up to 20	1	-	1	-
IKS-6728A-8PoE-4GTXSFP-48-T	4	Up to 24	Up to 12	Up to 20	-	1	-	-
IKS-6728A-8PoE-4GTXSFP-48-48-T	4	Up to 24	Up to 12	Up to 20	-	1	-	1

Note:  
 The IKS-6728A-8PoE series needs an external 48 VDC (46 to 57 VDC) power supply for PoE+ output  
 The IKS-6728A-8PoE series supports up to 24 PoE+ ports. 8 PoE+ ports are built in. Two IM-6700A-8PoE modules can add up to 16 more PoE+ ports.  
 The IKS-6728A-8PoE series supports 100BaseSFP and 100/1000BaseSFP slots. Please the SFP-1G and SFP-1FE datasheets for SFP module product information

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

- MXview:** Moxa industrial network management software with 50, 100, 250, 500, 1000, or 2000 nodes
- EDS-SNMP OPC Server Pro:** OPC server software that works with all SNMP devices
- ABC-02-USB:** Configuration backup and restoration tool for managed Ethernet switches, 0 to 60°C operating temperature
- Power Cords:** See Appendix A for details

**Package Checklist**

- IKS-6728A-8PoE switch
- USB Cable: CBL-USBAB-100
- AC power cord (US type x1, EU type x1, HV model only)
- Protective caps for unused ports
- 2 rackmount ears
- Documentation and software CD
- Hardware installation guide (printed)
- Warranty card

# IM-6700A Series

**Fast Ethernet modules for IKS-6726A-2GTXSFP/IKS-6728A-4GTXSFP/  
IKS-6728A-8PoE-4GTXSFP series switches**

## Specifications

### Fast Ethernet Interface Modules, IM-6700A Series



IM-6700A-8TX



IM-6700A-8SFP\*



IM-6700A-6SSC  
IM-6700A-6MSC



IM-6700A-6MST



IM-6700A-2MSC4TX  
IM-6700A-2SSC4TX



IM-6700A-2MST4TX



IM-6700A-4MSC2TX  
IM-6700A-4SSC2TX



IM-6700A-4MST2TX



IM-6700A-8PoE\*\*

\*See the SFP-1FE datasheet for Fast Ethernet module product information.  
\*\*IM-6700A-8PoE is supported by the IKS-6728A-8PoE series

#### Interface

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

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

**PoE Ports:** 10/100BaseT(X) auto negotiation speed, Full/Half duplex mode, and auto MDI/MDI-X connection, IEEE 802.3af/at standards, Mode A

#### Optical Fiber

		100BaseFX		
		Multi-Mode		Single-Mode
Fiber Cable Type		OM1	50/125 $\mu$ m 800 MHz*km	G.652
		Typical Distance		4 km
Wave-length	Typical (nm)	1300		1310
	TX Range (nm)	1260 to 1360		1280 to 1340
	RX Range (nm)	1100 to 1600		1100 to 1600
Optical Power	TX Range (dBm)	-10 to -20		0 to -5
	RX Range (dBm)	-3 to -32		-3 to -34
	Link Budget (dB)	12		29
	Dispersion Penalty (dB)	3		1

Note: When connecting a single-mode fiber transceiver, we recommend using an attenuator to prevent damage caused by excessive optical power.  
Note: Compute the "typical distance" of a specific fiber transceiver as follows: Link budget (dB) > dispersion penalty (dB) + total link loss (dB).

#### Power Requirements

##### Power Consumption:

IM-6700A-8TX: 1.21 W  
IM-6700A-8PoE: 1.21 W (w/o PoE output)  
IM-6700A-8SFP: 0.92 W  
IM-6700A-6MSC/6MST/6SSC: 7.57 W  
IM-6700A-4MSC2TX/4MST2TX/4SSC2TX: 5.28 W  
IM-6700A-2MSC4TX/2MST4TX/2SSC4TX: 3.19 W

#### Physical Characteristics

##### Weight:

IM-6700A-8TX: 225 g (0.50 lb)  
IM-6700A-8PoE: 260 g (0.58 lb)  
IM-6700A-8SFP: 295 g (0.65 lb)  
IM-6700A-6MSC-6MSC/6MST/6SSC: 390 g (0.86 lb)  
IM-6700A-4MSC2TX-4MSC2TX/4MST2TX/4SSC2TX: 270 g (0.60 lb)  
IM-6700A-2MSC4TX-2MSC4TX/2MST4TX/2SSC4TX: 270 g (0.60 lb)

#### Reliability

##### MTBF (mean time between failures):

IM-6700A-8TX: 10,412,400 hrs  
IM-6700A-8SFP: 3,510,110 hrs  
IM-6700A-6MSC: 366,119 hrs  
IM-6700A-6MST: 365,741 hrs  
IM-6700A-6SSC: 365,741 hrs  
IM-6700A-4MSC2TX: 530,268 hrs  
IM-6700A-4MST2TX: 537,942 hrs  
IM-6700A-2MSC4TX: 1,031,180 hrs  
IM-6700A-2MST4TX: 1,031,180 hrs  
IM-6700A-2SSC4TX: 1,031,180 hrs  
IM-6700A-8PoE: 338,800 hrs

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

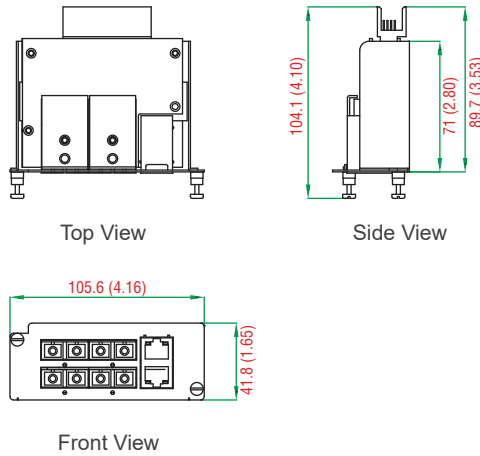
#### Warranty

**Warranty Period:** 5 years

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

## Dimensions

Unit: mm (inch)



## Ordering Information

### Compatible Rackmount Ethernet Switch Systems

#### Modular Rackmount Ethernet Switch System:

IKS-6726A-2GTXSFP



IKS-6728A-4GTXSFP



IKS-6728A-8PoE



### Fast Ethernet Modules, IM-6700A Series

Available Models	Port Interface				
	10/100BaseT(X)	100BaseFX			100BaseSFP*
		Multi-Mode, SC Connector	Multi-Mode, ST Connector	Single-Mode, SC Connector	
IM-6700A-8TX	8	–	–	–	–
IM-6700A-8SFP	–	–	–	–	8
IM-6700A-6MSC	–	6	–	–	–
IM-6700A-6MST	–	–	6	–	–
IM-6700A-6SSC	–	–	–	6	–
IM-6700A-4MSC2TX	2	4	–	–	–
IM-6700A-4MST2TX	2	–	4	–	–
IM-6700A-4SSC2TX	2	–	–	4	–
IM-6700A-2MSC4TX	4	2	–	–	–
IM-6700A-2MST4TX	4	–	2	–	–
IM-6700A-2SSC4TX	4	–	–	2	–
IM-6700A-8PoE	8 (PoE+ ports)	–	–	–	–

#### Package Checklist

- IM-6700A series interface module
- Warranty card

# SFP-1G Series

## 1-port Gigabit Ethernet SFP modules



- > Digital Diagnostic Monitor Function
- > -40 to 85°C operating temperature range (T models)
- > 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)

#### Optical Fiber

		Gigabit Ethernet SFP									
		SFP-SX		SFP-LSX		SFP-LX	SFP-LH	SFP-LHX	SFP-ZX	SFP-EZX	SFP-EZX-120
Transceiver Type		Multi-Mode		Multi-Mode		Single-Mode	Single-Mode	Single-Mode	Single-Mode	Single-Mode	Single-Mode
Fiber Cable Type		OM1	OM2	OM2	OM1	G.652	G.652	G.652	G.652	G.652	G.652
Typical Distance		300 m	550 m	1 km	2 km	10 km	30 km	40 km	80 km	110 km	120 km
Wave-length	Typical (nm)	850		1310		1310	1310	1310	1550	1550	1550
	TX Range (nm)	830 to 860		1270 to 1355		1280 to 1355	1280 to 1355	1280 to 1340	1530 to 1570	1530 to 1570	1530 to 1570
	RX Range (nm)	770 to 860		1260 to 1610		1260 to 1610	1260 to 1610	1260 to 1610	1260 to 1610	1260 to 1610	1100 to 1600
Optical Power	TX Range (dBm)	-4 to -9.5		-1 to -9		-3 to -9	-3 to -8	+3 to -4	+5 to 0	+5 to 0	+3 to -2
	RX Range (dBm)	0 to -18		-1 to -19		-3 to -21	-3 to -23	-1 to -24	-1 to -24	-9 to -30	-8 to -33
	Link Budget (dB)	8.5		10		12	15	20	24	30	31
	Dispersion Penalty (dB)	4.3	3.6	5	5	2	1	1	1	1	2

Note: When connecting the SFP-LHX, ZX, EZX, or EZX-120, we recommended using an attenuator to prevent the transceiver from being damaged by excessive optical power.

		WDM Gigabit Ethernet SFP							
		SFP-10A		SFP-10B		SFP-20B		SFP-40B	
Transceiver Type		Single-Mode		Single-Mode		Single-Mode		Single-Mode	
Fiber Cable Type		G.652		G.652		G.652		G.652	
Typical Distance		10 km		20 km		40 km		40 km	
Wave-length	Typical (nm)	TX 1310, RX 1550		TX 1550, RX 1310		TX 1310, RX 1550		TX 1550, RX 1310	
	TX Range (nm)	1270 to 1355		1530 to 1570		1270 to 1355		1530 to 1570	
	RX Range (nm)	1480 to 1580		1260 to 1360		1480 to 1580		1260 to 1360	
Optical Power	TX Range (dBm)	-3 to -9		-2 to -8		-2 to -8		+2 to -3	
	RX Range (dBm)	-3 to -21		-2 to -23		-2 to -23		-1 to -23	
	Link Budget (dB)	12		15		15		20	
	Dispersion Penalty (dB)	2		3		3		1	

Note: WDM-type SFP modules must be used in pairs (e.g., SFP-1G10ALC and SFP-1G10BLC)

Note: When connecting the SFP-40A and 40B, we recommend using an attenuator to prevent damage caused by excessive optical power.

**Typical Distance:** To reach the typical distance of specified fiber transceiver, please refer to formula: Link budget(dB) > dispersion penalty(dB) + total link loss(dB).

### Power Requirements

Power Consumption: Max. 1 W

### Environmental Limits

Operating Temperature:

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

Wide 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: CE, FCC, TÜV (EN 60825), UL 60950-1

Marine: DNV, GL

### Warranty

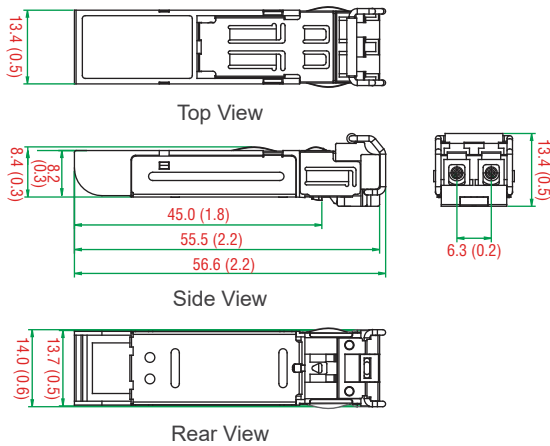
Warranty Period: 5 years

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

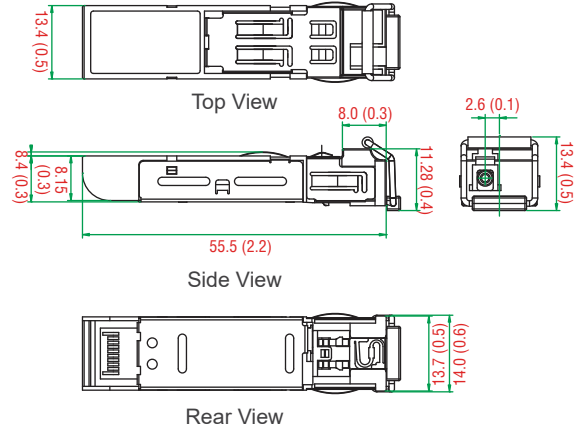
### Dimensions

Unit: mm (inch)

#### SFP-1G Series



#### SFP-1G Series (WDM Type)



## Ordering Information

Gigabit Ethernet SFP Models				WDM Gigabit Ethernet SFP Models			
Standard Temperature Models (0 to 60°C)	Wide Temperature Models (-40 to 85°C)	Tranceiver Type	Typical Distance	Standard Temperature (0 to 60°C)	Wide Temperature (-40 to 85°C)	Tranceiver Type	Typical Distance
SFP-1GSXLC	SFP-1GSXLC-T	Multi-Mode	300/550 m	SFP-1G10ALC	SFP-1G10ALC-T	Single-Mode	10 km
SFP-1GLSXLC	SFP-1GLSXLC-T	Multi-Mode	1/2 km	SFP-1G10BLC	SFP-1G10BLC-T	Single-Mode	10 km
SFP-1GLXLC	SFP-1GLXLC-T	Single-Mode	10 km	SFP-1G20ALC	SFP-1G20ALC-T	Single-Mode	20 km
SFP-1GLHLC	SFP-1GLHLC-T	Single-Mode	30 km	SFP-1G20BLC	SFP-1G20BLC-T	Single-Mode	20 km
SFP-1GLHXLC	SFP-1GLHXLC-T	Single-Mode	40 km	SFP-1G40ALC	SFP-1G40ALC-T	Single-Mode	40 km
SFP-1GZXLC	SFP-1GZXLC-T	Single-Mode	80 km	SFP-1G40BLC	SFP-1G40BLC-T	Single-Mode	40 km
SFP-1GEZXLC	-	Single-Mode	110 km	-	-	-	-
SFP-1GEZXLC-120	-	Single-Mode	120 km	-	-	-	-

#### Package Checklist

- SFP-1G module
- Warranty card

# SFP-1FE Series

## 1-port Fast Ethernet SFP modules



- > Digital Diagnostic Monitor Function
- > 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			
	SFP-M		SFP-S	SFP-L
Transceiver Type	Multi-Mode		Single-Mode	
Fiber Cable Type	OM1/OM2	62.5/125, 50/125 $\mu$ m 800 MHz* km	G.652	G.652
Typical Distance	2 km	4 km	40 km	80 km
Wave-length	Typical (nm)	1310	1310	1550
	TX Range (nm)	1280 to 1340	1280 to 1340	1530 to 1570
	RX Range (nm)	1100 to 1650	1100 to 1600	1100 to 1600
Optical Power	TX Range (dBm)	-8 to -18	0 to -5	0 to -5
	RX Range (dBm)	-3 to -32	-3 to -34	-3 to -34
	Link Budget (dB)	14	29	29
	Dispersion Penalty (dB)	2	3	1

Note: When connecting the SFP-S or L, we recommend using an attenuator to prevent damage caused by excessive optical power.

#### Power Requirements

Power Consumption: Max. 1 W

#### 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

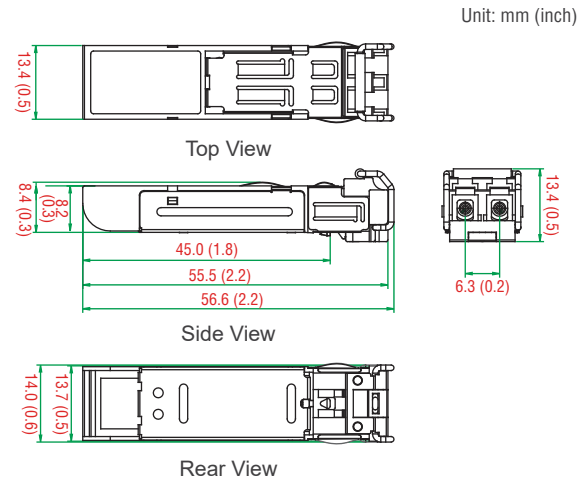
Safety: CE, FCC, TÜV, UL 60950-1  
 Marine: DNV, GL

#### Warranty

Warranty Period: 5 years

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

#### Dimensions



### Ordering Information

Available Models	Port Interface		
	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

#### Package Checklist

- SFP-1FE module
- Warranty card