

IKS-6726A/6728A Series

24+2G/24+4G-port modular managed Ethernet switches



- > 2/4 Gigabit plus 24 Fast Ethernet ports for copper and fiber
- > Turbo Ring and Turbo Chain (recovery time < 20 ms @ 250 switches), RSTP/STP, and MSTP for network redundancy
- > Isolated redundant power inputs with universal 24/48 VDC or 110/220 VAC power supply
- > Modular design lets you choose from a variety of media combinations
- > -40 to 75°C operating temperature range
- > Supports MXstudio for easy, visualized industrial network management
- > V-ON™ ensures millisecond-level multicast data and video network recovery



Introduction

The IKS-6726A/6728A series of industrial rackmount Ethernet switches are designed to meet the rigorous demands of mission critical applications for industry and business, such as traffic control systems and maritime applications. The IKS-6726A/6728A's Gigabit and fast Ethernet backbone, redundant ring, and 24/48 VDC or 110/220 VAC

dual isolated redundant power supplies increase the reliability of your communications and save on cabling and wiring costs. The modular design of the IKS-6726A/6728A also makes network planning easy, and allows greater flexibility by letting you install up to 4 Gigabit ports and 24 fast Ethernet ports.

Features and Benefits

- 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 802.3 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

Modular Rackmount Ethernet Switch System, IKS-6726A/6728A

IKS-6726A-2GTXSFP



IKS-6728A-4GTXSFP



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 10/100Base T(X) and 2 modular slots for any 8-port or 6-port Interface Modules with 10/100BaseT(X), 100BaseFX (SC/ST connector), or 100Base SFP

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

Gigabit Ethernet: 2- or 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:

- 24 VDC models: 24 VDC
- 48 VDC models: 48 VDC
- HV models: 110/220 VAC

Operating Voltage:

- 24 VDC models: 18 to 36 VDC
- 48 VDC models: 36 to 72 VDC
- HV models: 85 to 264 VAC

Input Current: (without IM-6700A modules installed)

- Max. 0.36 A @ 24 VDC
- Max. 0.19 A @ 48 VDC
- Max. 0.28/0.14 A @ 110/220 VAC

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: 4100 g (9.05 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: CISPR 32, FCC Part 15B 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

Marine: DNV, GL, LR, ABS, NK

Shock: IEC 60068-2-27

Freefall: IEC 60068-2-32

Vibration: IEC 60068-2-6

MTBF (mean time between failures)

Time:

IKS-6726A: 149,151 hrs

IKS-6728A: 148,687 hrs

Standard: Telcordia (Bellcore), GB

Warranty

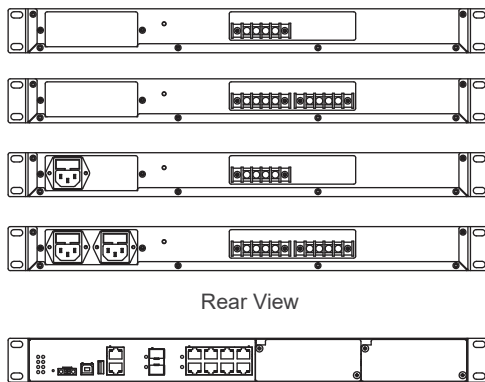
Warranty Period: 5 years

Details: See www.moxa.com/warranty

Dimensions

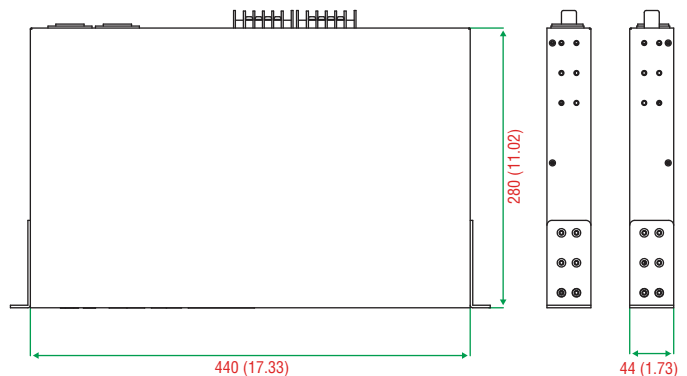
IKS-6726A-2GTXSFP Series

Unit: mm (inch)



Rear View

Front View



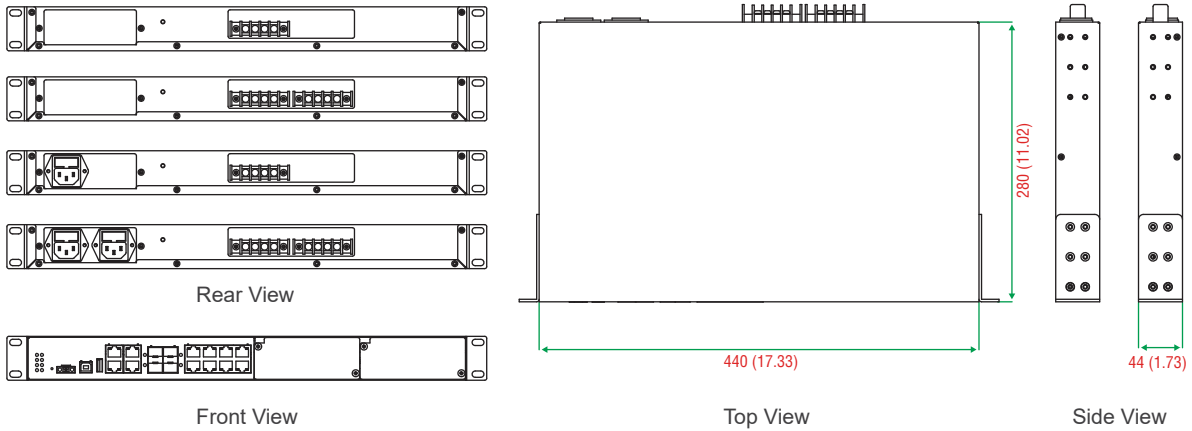
Top View

Side View

Dimensions

IKS-6728A-4GTXSFP Series

Unit: mm (inch)



: Ordering Information

Step 1: Select Ethernet switch system

Step 2: Select interface modules

IKS-6726A/6728A with power supply



IM-6700A modules (Fast Ethernet)

Note: The IKS-6726A/6728A Ethernet switch system is delivered without interface modules. See the IM-6700A datasheet to determine which interface modules are suitable for your application.

IKS-6726A/6728A Modular Rackmount Ethernet Switch System

Modular managed rackmount Ethernet switch with 8 fixed 10/100BaseT(X) ports, 2 or 4 Gigabit Copper/SFP combo ports, and 2 slots for Fast Ethernet modules. Support up to 24+4G 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		
Front Cabling, Wide Temperature (-40 to 75 °C)	10/100/1000 BaseT(X) or 100/1000BaseSFP*	10/100BaseT(X)	100BaseFX	100BaseSFP*	HV (85 to 264 VAC)	48 VDC	24 VDC	HV (85 to 264 VAC)	48 VDC	24 VDC
IKS-6726A Series										
IKS-6726A-2GTXSFP-HV-T	2	Up to 24	Up to 12	Up to 18	1	—	—	—	—	—
IKS-6726A-2GTXSFP-HV-HV-T	2	Up to 24	Up to 12	Up to 18	1	—	—	1	—	—
IKS-6726A-2GTXSFP-24-T	2	Up to 24	Up to 12	Up to 18	—	—	1	—	—	—
IKS-6726A-2GTXSFP-24-24-T	2	Up to 24	Up to 12	Up to 18	—	—	1	—	—	1
IKS-6726A-2GTXSFP-48-T	2	Up to 24	Up to 12	Up to 18	—	1	—	—	—	—
IKS-6726A-2GTXSFP-48-48-T	2	Up to 24	Up to 12	Up to 18	—	1	—	—	1	—
IKS-6728A Series										
IKS-6728A-4GTXSFP-HV-T	4	Up to 24	Up to 12	Up to 20	1	—	—	—	—	—
IKS-6728A-4GTXSFP-HV-HV-T	4	Up to 24	Up to 12	Up to 20	1	—	—	1	—	—
IKS-6728A-4GTXSFP-24-T	4	Up to 24	Up to 12	Up to 20	—	—	1	—	—	—
IKS-6728A-4GTXSFP-24-24-T	4	Up to 24	Up to 12	Up to 20	—	—	1	—	—	1
IKS-6728A-4GTXSFP-48-T	4	Up to 24	Up to 12	Up to 20	—	1	—	—	—	—
IKS-6728A-4GTXSFP-48-48-T	4	Up to 24	Up to 12	Up to 20	—	1	—	—	1	—

Note: The IKS-6726A/6728A series supports 100BaseSFP and 100/1000BaseSFP slots. See 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-6726A or IKS-6728A switch
- AC power cord (HV model only)
- Protective caps for unused ports
- 2 rackmount ears
- USB cable (Type A male to Type B male)
- 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 μ m 800 MHz*km		G.652
		4 km	5 km	40 km
Typical Distance	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

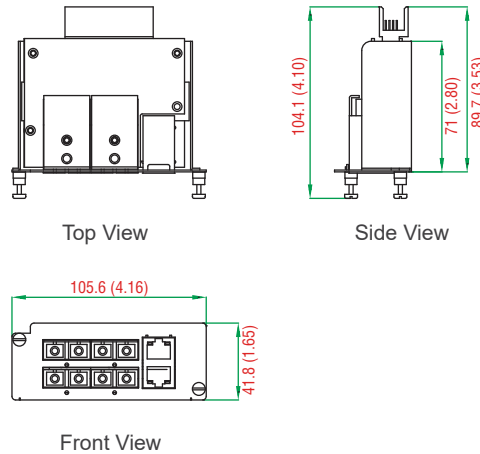
Warranty

Warranty Period: 5 years

Details: See www.moxa.com/warranty

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-20A	SFP-20B	SFP-40A	SFP-40B
Transceiver Type		Single-Mode		Single-Mode		Single-Mode	
Fiber Cable Type		G.652		G.652		G.652	
Typical Distance		10 km		20 km		40 km	
Wave-length	Typical (nm)	TX 1310, RX 1550	TX 1550, RX 1310	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	1290 to 1330	1530 to 1570
	RX Range (nm)	1480 to 1580	1260 to 1360	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 -3	
	RX Range (dBm)	-3 to -21		-2 to -23		-1 to -23	
	Link Budget (dB)	12		15		20	
	Dispersion Penalty (dB)	2		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

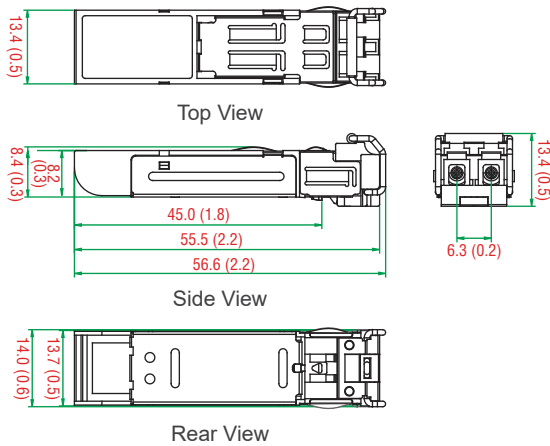
Warranty Period: 5 years

Details: See www.moxa.com/warranty

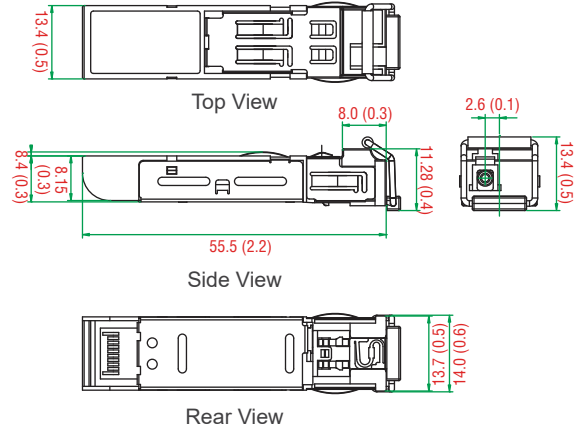
Dimensions

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 Models (0 to 60°C)	Wide Temperature Models (-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 μm	G.652	G.652
			800 MHz*km		
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	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

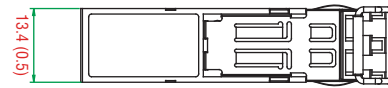
Warranty

Warranty Period: 5 years

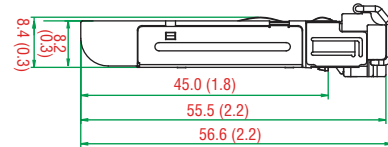
Details: See www.moxa.com/warranty

Dimensions

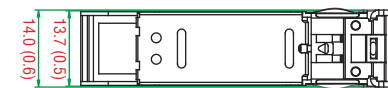
Unit: mm (inch)



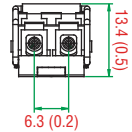
Top View



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

Package Checklist

- SFP-1FE module
- Warranty card