

IKS-6524/6526 Series

24 and 24+2G-port managed Ethernet switches



- > 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
- > Isolated redundant power inputs with 110/220 VAC power supply and standardized power inlets
- > Meets industrially recognized standards for transportation, process automation, and maritime applications
- > -40 to 75°C operating temperature range

*Available in Q3, 2011



Introduction

The IKS-6500 series fixed-type industrial managed rackmount switches are designed to seamlessly integrate your control networks and field networks. The switches can operate in extreme operating temperatures ranging from -40 to 75°C, and are equipped with up to two AC power inputs for conventional usage as well as advanced

Ethernet switching functionality to ensure the reliability of your communication network. The IKS-6500 switches are designed to meet the rigorous demands of mission critical applications, including traffic control systems (NEMA TS2), networks along railway tracks (EN 50121-4), and maritime applications (DNV/GL and other maritime certifications).

Features and Benefits

- Command Line Interface (CLI) for quickly configuring major managed functions*
- IPv6 Ready logo awarded (IPv6 Logo Committee certified)
- IEEE 1588 PTP V2* (Precision Time Protocol) for precise time synchronization of networks
- DHCP Option 82 for IP address assignment with different policies
- Support EtherNet/IP* and Modbus/TCP protocols for device management and monitoring
- Compatible with EtherNet/IP and PROFINET protocols for transparent data transmission
- Turbo Ring and Turbo Chain (recovery time < 20 ms), 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
- Automatic recovery of connected device's IP addresses
- Line-swap fast recovery
- Configurable by web browser, Telnet/serial console, CLI*, Windows utility, and ABC-01 automatic backup configurator

*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: IGMP v1/v2, GMRP, GVRP, SNMPv1/v2c/v3, DHCP Server/Client, BootP, TFTP, SNTp, SMTP, RARP, RMON, HTTP, HTTPS, Telnet, SSH, Syslog, DHCP Option 66/67/82, EtherNet/IP*, Modbus/TCP, LLDP, 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:** 2 Mbit

Interface

Fiber Ports: 100BaseSFP slot (IKS-6524-8SFP series) or 1000BaseSFP slot (IKS-6526-2GTXSFP series)

RJ45 Ports: 10/100BaseT(X) and/or 10/100/1000BaseT(X) auto negotiation speed

Console Port: RS-232 (RJ45 connector)

System LED Indicators: STAT, PWR1, PWR2, FAULT, MSTR/HEAD, CPLR/TAIL

Mode LED Indicators: LNK/ACT, FDX/HDX, RING PORT, COUPLER PORT, SPEED

Power Requirements

Input Voltage: 110/220 VAC (85 to 264 VAC)

Input Current:

- IKS-6524-F-HV-T: Max. 333/222 mA @ 110/230 VAC
- IKS-6524-F-HV-HV-T: Max. 402/324 mA @ 110/230 VAC
- IKS-6524-8SFP-F-HV-T: Max. 501/295 mA @ 110/230 VAC
- IKS-6524-8SFP-F-HV-HV-T: Max. 555/390 mA @ 110/230 VAC
- IKS-6526-2GTXSFP-F-HV-T: Max. 398/254 mA @ 110/230 VAC
- IKS-6526-2GTXSFP-F-HV-HV-T: Max. 465/350 mA @ 110/230 VAC

Overload Current Protection: Present

Reverse Polarity Protection: Present

Physical Characteristics

Housing: IP30 protection

Dimensions: 440 x 44 x 342.5 mm (17.32 x 1.73 x 13.48 in)

Weight:

IKS-6524 series: 4780 g

IKS-6524-8SFP series: 4850 g

IKS-6526-2GTXSFP series: 4820 g

Installation: 19" rack mounting

Environmental Limits

Operating Temperature: -40 to 75°C (-40 to 167°F), cold start requires min. of 100 VAC at -40°C

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, CSA C22.2 No. 60950-1, EN 60950-1

EMI: FCC Part 15 Subpart B Class A, EN 55022 Class A

EMS:

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 61000-4-11

Marine: DNV, GL, LR, ABS, NK

Traffic Control: NEMA TS2

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: 237,700 hrs

Database: Telcordia (Bellcore), GB

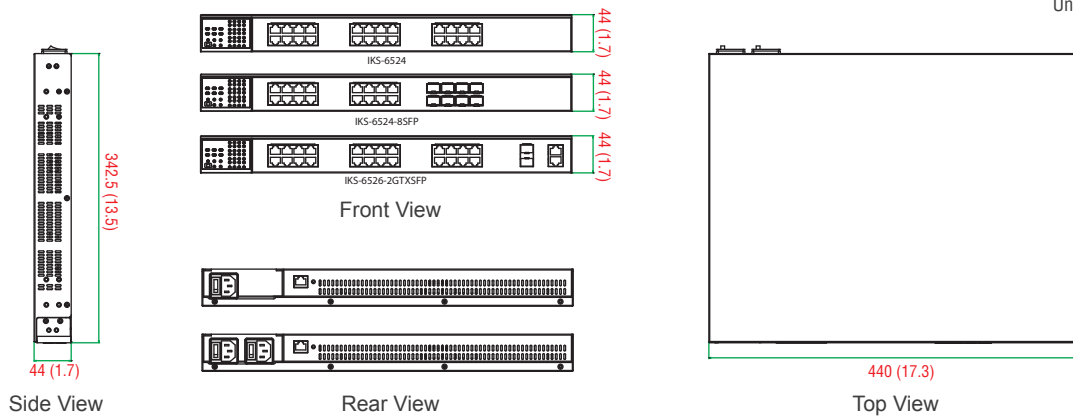
Warranty

Warranty Period: 5 years

Details: See www.moxa.com/warranty

Dimensions

Unit: mm (inch)



Ordering Information

Available Models (-40 to 75°C)	Port Interface			Power Supply	
	Gigabit Ethernet	Fast Ethernet		Isolated Power Supply 1	Isolated Power Supply 2
	Combo Port, 10/100/1000BaseT(X) or 1000BaseSFP*	10/100BaseT(X)	100BaseSFP*	HV: 85 to 264 VAC	HV: 85 to 264 VAC
IKS-6524-F-HV-T	–	24	–	1	–
IKS-6524-F-HV-HV-T	–	24	–	1	1
IKS-6524-8SFP-F-HV-T	–	16	8	1	–
IKS-6524-8SFP-F-HV-HV-T	–	16	8	1	1
IKS-6526-2GTXSFP-F-HV-T	2	24	–	1	–
IKS-6526-2GTXSFP-F-HV-HV-T	2	24	–	1	1

*The IKS-6500 series switches support 2 1000BaseSFP slots or 8 100BaseSFP 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)

Power Cords and Adaptors: See Appendix A for details

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

Package Checklist

- IKS-6524 or IKS-6526 switch
- RJ45 to DB9 console port cable
- Protective caps for unused ports
- 2 rackmount ears
- Documentation and software CD
- Hardware installation guide (printed)
- Warranty card

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	
Min. TX	-9.5 dBm	-9 dBm	-9.5 dBm	-8 dBm	-4 dBm	0 dBm	0 dBm	-2 dBm	-9 dBm		-8 dBm		-3 dBm	
RX Sensitivity	-18 dBm	-19 dBm	-20 dBm	-23 dBm	-24 dBm	-24 dBm	-30 dBm	-33 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	31 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	120 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	-8 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

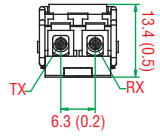
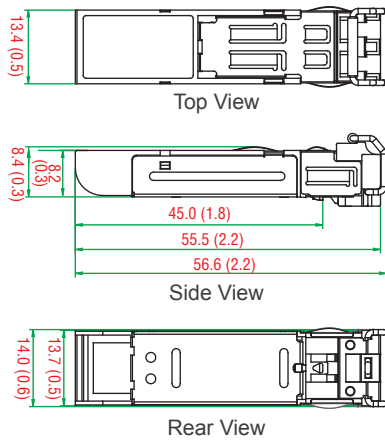
Warranty Period: 5 years

Details: See www.moxa.com/warranty

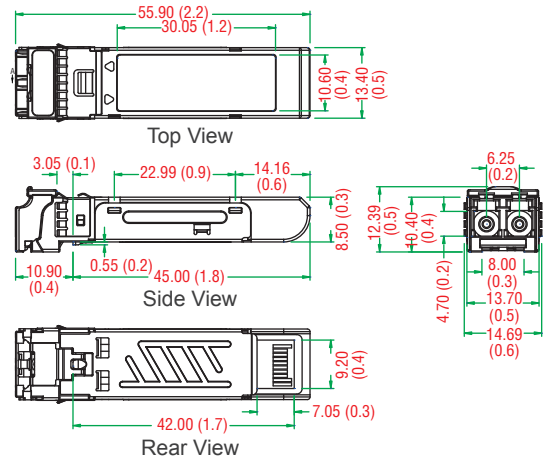
Dimensions

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 ^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)

Standards and Certifications

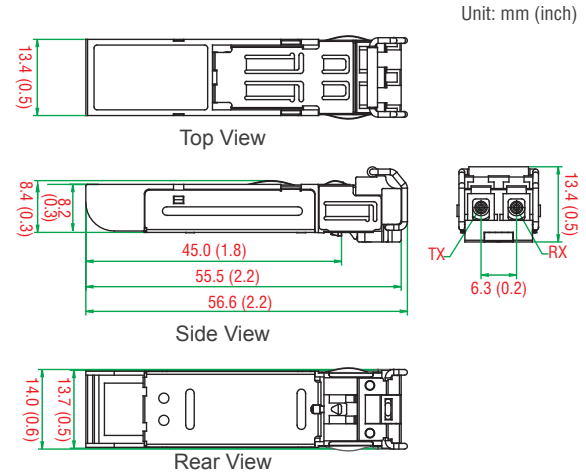
Safety: UL 60950-1, TÜV

Warranty

Warranty Period: 5 years

Details: See 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