EDS-210A Series

8+2G/9+1G-port Gigabit unmanaged Ethernet switches

> Up to 2 Gigabit uplinks for high bandwidth data aggregation
> Multiple fiber ports with up to 4 100BaseSFP port combinations for maximum flexibility
> IP30 metal housing
> Redundant dual power input (12/24/48 VDC)
> -40 to 75°C operating temperature range (T models)

Introduction

The EDS-210A series 10-port industrial Ethernet unmanaged switches provide up to 2 Gigabit Ethernet ports and are ideal for applications that require high-bandwidth data convergence. In particular, the EDS-210A-1GSFP-1SFP is equipped with 1 Gigabit fiber SFP slot, whereas the EDS-210A-1GTX-1GSFP-4SFP is equipped with 1 Gigabit fiber SFP slot and 1 Gigabit copper port.

The EDS-210A unmanaged switches are also equipped with multiple 100M ports, up to 4 100BaseSFP slots, and 8 100BaseTX copper ports for maximum flexibility in port combinations and long-distance communications.

The EDS-210A series provides 12/24/48 VDC redundant power inputs, rugged IP30-rated metal housing, DIN-rail mounting, and high level EMI/EMC capability. In addition to its compact size for space-saving installation, each EDS-210A has passed a 100% burn-in test to ensure its quality. Moreover, the EDS-210A series has an operating temperature range of -10 to the 60°C with wide temperature (-40 to 75°C) models also available.

All of these features make the EDS-210A ideal for applications that require high-bandwidth transmission and data converge for uplink, such as video surveillance, tolling systems, ITS, and factory automation.

Specifications

Technology
Standards:
IEEE 802.3 for 10BaseT
IEEE 802.3u for 100BaseT(X)
IEEE 802.3ab for 1000BaseT
IEEE 802.3z for 1000BaseX
Processing Type: Store and Forward

Switch Properties
MAC Table Size: 8 K
Packet Buffer Size: 1 Mbit

Interface
RJ45 Ports: 10/100BaseT(X) auto negotiation speed, full/half duplex mode, and auto MDI/MDI-X connection, 10/100/1000 BaseT(X)*
*EDS-210A-1GTX-1GSFP-4SFP series only
Fiber Ports: 100BaseSFP slot and 1000BaseSFP slot

Power Requirements
Input Voltage: 12/24/48 VDC, redundant dual input
Operating Voltage: 9.6 to 60 VDC
Input Current: EDS-210A-1GSFP-1SFP: 0.39 A @ 24 V
EDS-210A-1GTX-1GSFP-4SFP: 0.39 A @ 24 V
Overload Current Protection: 3A
Connection: 2 removable 2-contact terminal block
Reverse Polarity Protection: Present

Physical Characteristics
Housing: Metal
IP Rating: IP30 protection

Dimensions:
45.8 x 134 x 105 mm (1.8 x 5.28 x 4.13 in)
Weight:
EDS-210A-1GSFP-1SFP: 520 g (1.15 lb)
EDS-210A-1GTX-1GSFP-4SFP: 570 g (1.26 lb)
Installation: DIN-rail mounting, wall mounting (with optional kit)

Environmental Limits
Operating Temperature:
Standard Models: -10 to 60°C (14 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
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: 10 V
IEC 61000-4-8
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-210A-1GSF-1SFP: 2,469,233 hrs
EDS-210A-1GTX-1GSF-4SFP: 2,485,402 hrs
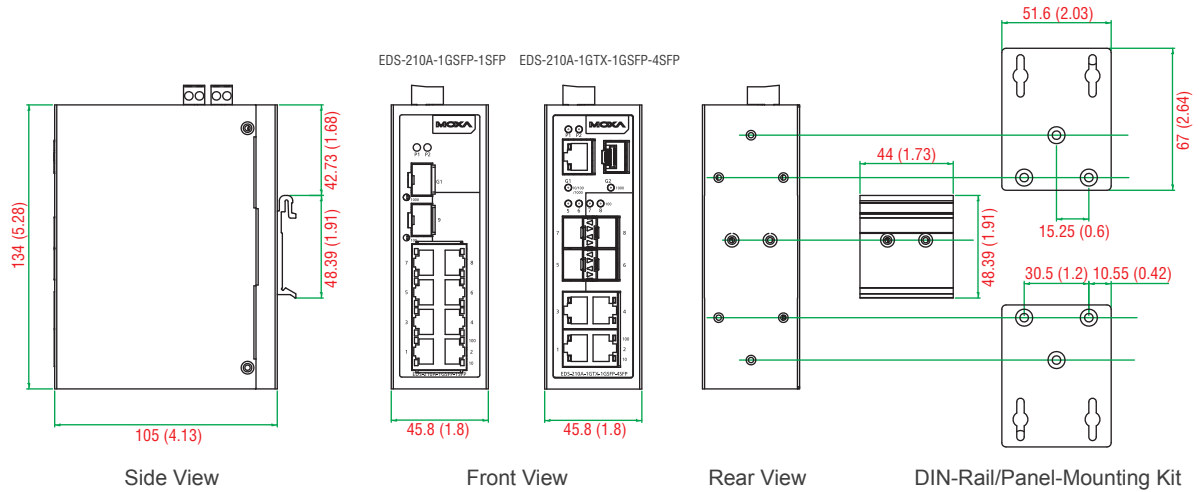**Standard:** Telcordia (Bellcore), GB

Warranty
Warranty Period: 5 years
Details: See www.moxa.com/warranty

Dimensions

Unit: mm (inch)

Side View | Front View | Rear View | DIN-Rail/Panel-Mounting Kit

Ordering Information

Available Models		Port Interface			
		Gigabit Ethernet		Fast Ethernet	
Standard Temperature (-10 to 60°C)	Wide Temperature (-40 to 75°C)	10/100/1000 BaseT(X)	1000BaseSFP	100BaseSFP	10/100BaseT(X)
EDS-210A-1GSFP-1SFP	EDS-210A-1GSFP-1SFP-T	0	1	1	8
EDS-210A-1GTX-1GSFP-4SFP	EDS-210A-1GTX-1GSFP-4SFP-T	1	1	4	4

Note: The EDS-210A series supports 100BaseSFP and 1000BaseSFP slots. See the SFP-1G and SFP-1FE datasheets for SFP module product information.

Optional Accessories (can be purchased separately)
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-51-01: Wall-mounting kit, 2 plates with 6 screws
RK-4U: 4U-high 19-inch rack-mounting kit

Package Checklist
- EDS-210A switch
- Hardware installation guide (printed)
- 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	1	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).

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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
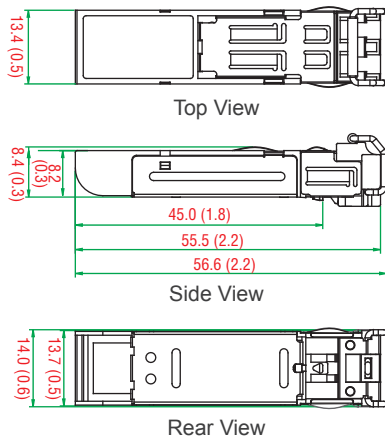**Safety:** CE, FCC, TÜV (EN 60825), UL 60950-1
Marine: DNV, GL

Warranty
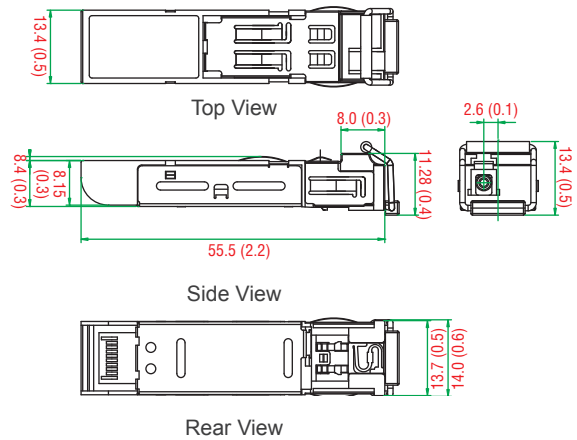**Warranty Period:** 5 years
Details: See www.moxa.com/warranty

Dimensions

Unit: mm (inch)

SFP-1G Series

Top View

Side View

Rear View

SFP-1G Series (WDM Type)

Top View

Side View

Rear View

: 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)	Transeiver Type	Typical Distance	Standard Temperature (0 to 60°C)	Wide Temperature (-40 to 85°C)	Transeiver 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	–	–	–	–

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

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)
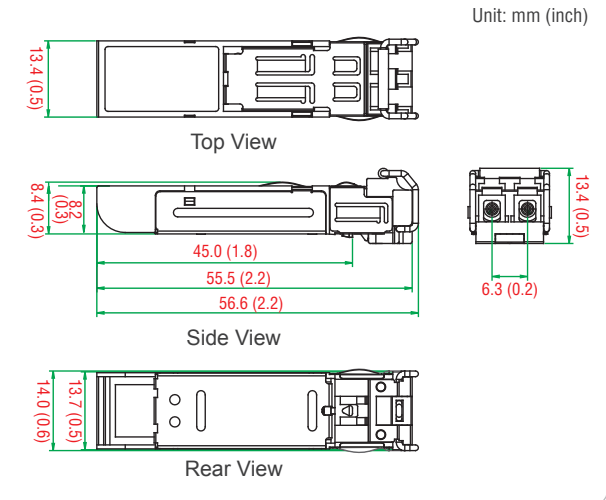
Standards and Certifications
Safety: CE, FCC, TÜV, UL 60950-1
Marine: DNV, GL

Warranty
Warranty Period: 5 years
Details: See www.moxa.com/warranty

Dimensions

Unit: mm (inch)

13.4 (0.5)

Top View

8.4 (0.3) 8.2 (0.3)

45.0 (1.8)
55.5 (2.2)
56.6 (2.2)

Side View

13.4 (0.5)

6.3 (0.2)

14.0 (0.6) 13.7 (0.5)

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