

# EDS-505A/508A/516A Series

## 5, 8, and 16-port managed Ethernet switches



- > Turbo Ring and Turbo Chain (recovery time < 20 ms @ 250 switches), 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
- > Supports MXstudio for easy, visualized industrial network management



### Introduction

The EDS-505A/508A/516A are standalone 5, 8, and 16-port managed Ethernet switches. With their advanced Turbo Ring and Turbo Chain technology (recovery time < 20 ms), RSTP/STP, and MSTP support the EDS-505A/508A/516A switches increase the reliability and availability of your industrial Ethernet network. Models with an wide operating

temperature range of -40 to 75°C are also available, and the switches support advanced management and security features, making the EDS-505A/508A/516A switches suitable for any harsh industrial environment.

### Features and Benefits

- Command Line Interface (CLI) for quickly configuring major managed functions
- IPv6 Ready logo awarded (IPv6 Logo Committee certified)
- Software-based IEEE 1588 PTPv2 (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 PROFINET protocol for transparent data transmission
- 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
- Port Trunking for optimum bandwidth utilization
- RMON for efficient network monitoring and proactive capability
- SNMPv1/v2c/v3 for different levels of network management
- TACACS+, SNMPv3, IEEE 802.1X, HTTPS, and SSH to enhance network security
- Bandwidth management to prevent unpredictable network status
- Lock port function for blocking unauthorized access based on MAC address
- Automatic warning by exception through e-mail, relay output

### Specifications

#### Technology

##### Standards:

- IEEE 802.3 for 10BaseT
- IEEE 802.3u for 100BaseT(X) and 100BaseFX
- 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, GMRP

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

Chain, Link Aggregation

**Security:** RADIUS, TACACS+, SSL, SSH, Port Lock, Broadcast Storm Protection (EDS-516A only)

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

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

**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:** 256

**MAC Table Size:** 8 K

**Packet Buffer Size:** 1 Mbit (EDS-505A/508A), 2 Mbit (EDS-516A)

#### 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 connector)

**Console Port:** RS-232 (RJ45 connector)

**DIP Switches:** Turbo Ring, Master, Coupler, Reserve (EDS-505A/508A series only)

**Alarm Contact:** 2 relay outputs with current carrying capacity of 1 A @ 24 VDC

**Digital Inputs:** 2 inputs with the same ground, but electrically isolated from the electronics.

- +13 to +30 V for state "1"
- -30 to +3 V for state "0"
- Max. input current: 8 mA

**Optical Fiber**

Fiber Cable Type	100BaseFX			
	OM1	Multi-Mode	Single-Mode (40 km)	Single-Mode (80 km)
		50/125 μm	G.652	G.652
Typical Distance	4 km	5 km		
Wave-length	Typical (nm)	1300	1310	1550
	TX Range (nm)	1260 to 1360	1280 to 1340	1530 to 1570
	RX Range (nm)	1100 to 1600	1100 to 1600	1100 to 1600
Optical Power	TX Range (dBm)	-10 to -20	0 to -5	0 to -5
	RX Range (dBm)	-3 to -32	-3 to -34	-3 to -34
	Link Budget (dB)	12	29	29
	Dispersion Penalty (dB)	3	1	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**

**Input Voltage:** 24 VDC, redundant dual inputs

**Operating Voltage:** 12 to 45 VDC

**Input Current:** EDS-505A: 0.21 A @ 24 V

EDS-505A-MM/SS: 0.3 A @ 24 V

EDS-508A: 0.22A @ 24 V

EDS-508A-MM/SS: 0.31 A @ 24 V

EDS-516A: 0.35 A @ 24 V

EDS-516A-MM: 0.44 A @ 24 V

**Overload Current Protection:** Present

**Connection:** 2 removable 6-contact terminal blocks

**Reverse Polarity Protection:** Present

**Physical Characteristics**

**Housing:** Metal

**IP Rating:** IP30 protection

**Dimensions:**

EDS-505A/508A Series: 80.2 x 135 x 105 mm

(3.16 x 5.31 x 4.13 in)

EDS-516A Series: 94 x 135 x 142.7 mm (3.7 x 5.31 x 5.62 in)

**Weight:**

EDS-505A/508A Series: 1040 g (2.30 lb)

EDS-516A Series: 1586 g (3.50 lb)

**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)

**Standards and Certifications**

**Safety:** UL 508, UL 60950-1, CSA C22.2 No. 60950-1, EN 60950-1

**Hazardous Location:** UL/cUL Class 1 Division 2 Groups A/B/C/D,

ATEX Zone 2 Ex nA nC IIC T4 Gc

**EMC:** EN 55022/24

**EMI:** CISPR 22, 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: 1 kV; Signal: 0.5 kV

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

IEC 61000-4-6 CS: 10 V

IEC 61000-4-8

**Marine:** DNV, GL

**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-505A Series: 352,000 hrs

EDS-508A Series: 339,000 hrs

EDS-516A Series: 247,000 hrs

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

**Warranty**

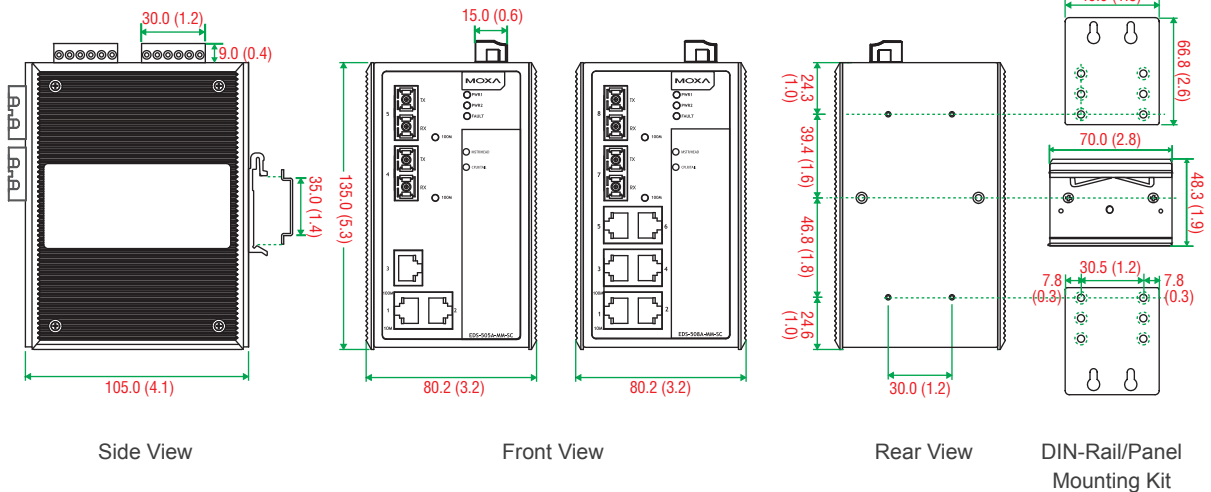
**Warranty Period:** 5 years

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

**Dimensions**

**EDS-505A/508A Series**

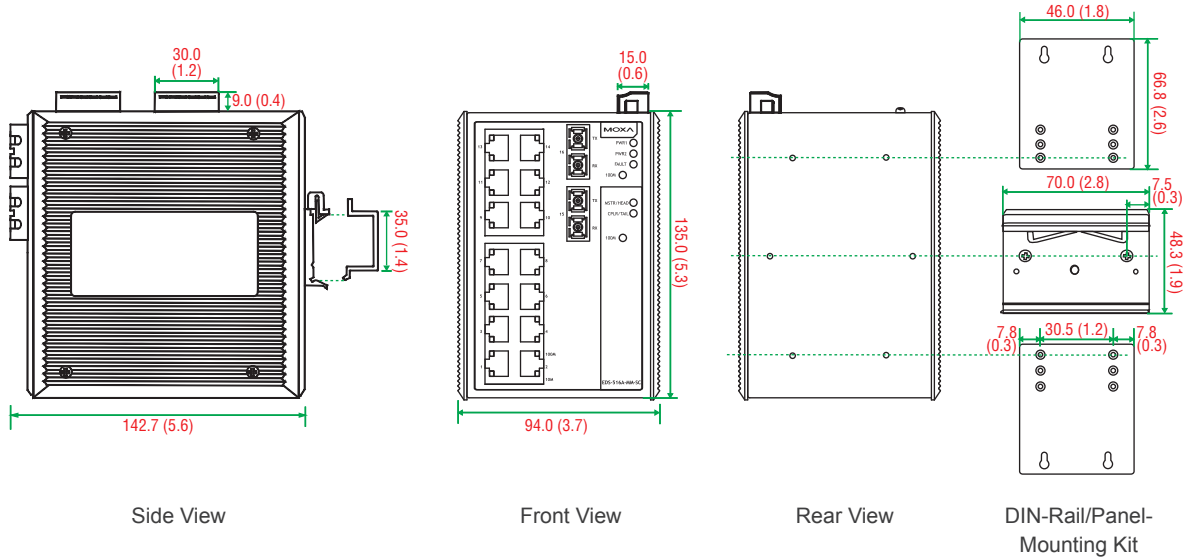
Unit: mm (inch)



**Dimensions**

**EDS-516A Series**

Unit: mm (inch)



**Ordering Information**

Available Models		Port Interface				
Standard Temperature (0 to 60°C)	Wide Temperature (-40 to 75°C)	10/100BaseT(X)	100BaseFX			
			Multi-Mode, SC Connector	Multi-Mode, ST Connector	Single-Mode, SC Connector	Single-Mode, SC Connector, 80 km
<b>EDS-505A/508A Series</b>						
EDS-505A/508A	EDS-505A/508A-T	5/8	-	-	-	-
EDS-505A/508A-MM-SC	EDS-505A/508A-MM-SC-T	3/6	2	-	-	-
EDS-505A/508A-MM-ST	EDS-505A/508A-MM-ST-T	3/6	-	2	-	-
EDS-505A/508A-SS-SC	EDS-505A/508A-SS-SC-T	3/6	-	-	2	-
EDS-508A-SS-SC-80	-	6	-	-	-	2
<b>EDS-516A Series</b>						
EDS-516A	EDS-516A-T	16	-	-	-	-
EDS-516A-MM-SC	EDS-516A-MM-SC-T	14	2	-	-	-
EDS-516A-MM-ST	EDS-516A-MM-ST-T	14	-	2	-	-

**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-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

**RK-4U:** 4U-high 19-inch rack-mounting kit

**WK-46:** Wall-mounting kit, 2 plates with 8 screws

**Package Checklist**

- EDS-505A or EDS-508A or EDS-516A switch
- Serial Cable: CN20070
- Protective caps for unused ports
- Documentation and software CD
- Hardware installation guide (printed)
- Warranty card