

# 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



### 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)
- 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, PROFINET\*, and Modbus/TCP 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
- 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

\*Available in Q4, 2013

### 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

**Protocols:** IGMPv1/v2, GVRP, SNMPv1/v2c/v3, DHCP Server/Client, BootP, TFTP, SNMP, SMTP, RARP, GMRP, LACP, RMON, HTTP, HTTPS, Telnet, Syslog, DHCP Option 66/67/82, SSH, SNMP Inform, EtherNet/IP, PROFINET\*, Modbus/TCP, LLD, 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 Q4, 2013

#### 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:** 1 Mbit (EDS-505A/508A), 2 Mbit (EDS-516A)

#### Interface

- Fiber Ports:** 100BaseFX ports (SC/ST connector)
- RJ45 Ports:** 10/100BaseT(X) auto negotiation speed, Full/Half duplex mode, and auto MDI/MDI-X connection
- Console Port:** RS-232 (RJ45 connector)
- DIP Switches:** Turbo Ring, Master, Coupler, Reserve (EDS-505A/508A)

series only)

**LED Indicators:** PWR1, PWR2, FAULT, MSTR/HEAD, CPLR/TAIL, 10/100M

**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 +30V for state “1”
- -30 to +3V for state “0”
- Max. input current: 8 mA

**Optical Fiber**

|                  | 100BaseFX                              |                    |                    |
|------------------|--|--------------------|--------------------|
|                  | Multi-mode                             | Single-mode        | Single-mode, 80 km |
| Wavelength       | 1300 nm                                | 1310 nm            | 1550 nm            |
| Max. TX          | -10 dBm                                | 0 dBm              | 0 dBm              |
| Min. TX          | -20 dBm                                | -5 dBm             | -5 dBm             |
| RX Sensitivity   | -32 dBm                                | -34 dBm            | -34 dBm            |
| Link Budget      | 12 dB                                  | 29 dB              | 29 dB              |
| Typical Distance | 5 km <sup>a</sup><br>4 km <sup>b</sup> | 40 km <sup>c</sup> | 80 km <sup>d</sup> |
| Saturation       | -6 dBm                                 | -3 dBm             | -3 dBm             |

- a. 50/125 μm, 800 MHz\*km fiber optic cable
- b. 62.5/125 μm, 500 MHz\*km fiber optic cable
- c. 9/125 μm single-mode fiber optic cable
- d. 9/125 μm single-mode fiber optic cable (80 km)

**Power Requirements**

**Input Voltage:** 24 VDC (12 to 45 VDC), redundant dual inputs

**Input Current:**

- EDS-505A: 0.24 A @ 24 V
- EDS-505A-MM/SS: 0.35 A @ 24 V
- EDS-508A: 0.26A @ 24 V
- EDS-508A-MM/SS: 0.36 A @ 24 V
- EDS-516A: 0.41 A @ 24 V
- EDS-516A-MM: 0.51 A @ 24 V

**Overload Current Protection:** Present

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

**Reverse Polarity Protection:** Present

**Physical Characteristics**

**Housing:** Metal, 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

EDS-516A Series: 1586 g

**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 I Division 2 Groups A/B/C/D, ATEX Zone 2 Ex nC IIC

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

**EMS:**

EN 61000-4-2 (ESD) (EDS-505A/508A: Level 3; EDS-516A: Level 2),

EN 61000-4-3 (RS) Level 3, EN 61000-4-4 (EFT) Level 2,

EN 61000-4-5 (Surge) Level 3, EN 61000-4-6 (CS) Level 3,

EN 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

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

**Warranty**

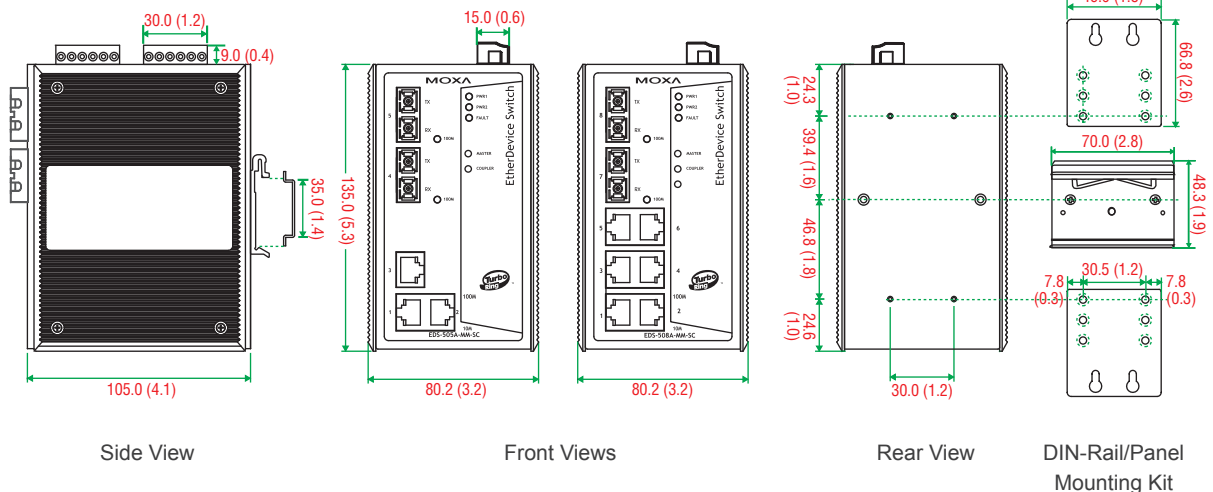
**Warranty Period:** 5 years

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

**Dimensions**

Unit: mm (inch)

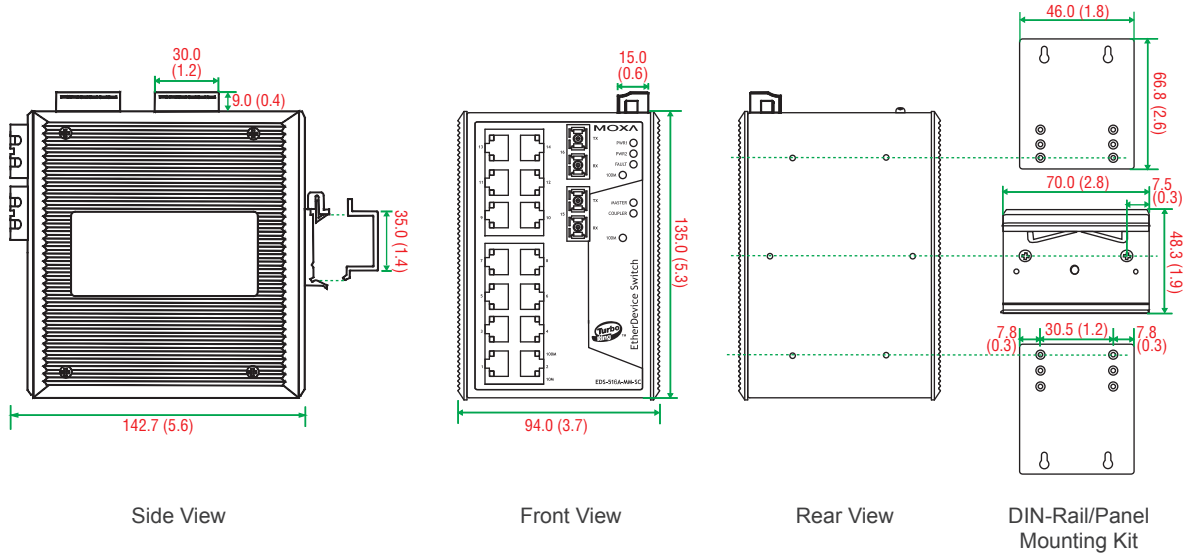
**EDS-505A/508A Series**



**Dimensions**

**EDS-516A Series**

Unit: mm (inch)



**Ordering Information**

| Available Models                    |                                   | Port Interface |                             |                             |                              |                                     |
|-------------------------------------|-----------------------------------|----------------|-----------------------------|-----------------------------|------------------------------|-------------------------------------|
| Standard Temperature<br>(0 to 60°C) | Wide Temperature<br>(-40 to 75°C) | 10/100BaseT(X) | 100BaseFX                   |                             |                              |                                     |
|                                     |                                   |                | Multi-mode,<br>SC Connector | Multi-mode,<br>ST Connector | Single-mode,<br>SC Connector | Single-mode, SC<br>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-505A/508A-SS-SC-80              | -                                 | 3/6            | -                           | -                           | -                            | 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

**WK-46:** Wall mounting kit

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

**Package Checklist**

- EDS-505A or EDS-508A or EDS-516A switch
- RJ45 to DB9 console port cable
- Protective caps for unused ports
- Documentation and software CD
- Hardware installation guide (printed)
- Warranty card