

# EDS-516A Series

## 16-port managed Ethernet switches



### Features and Benefits

- Turbo Ring and Turbo Chain (recovery time < 20 ms @ 250 switches), and STP/RSTP/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

### Certifications



## Introduction

The EDS-516A standalone 16-port managed Ethernet switches, with their advanced Turbo Ring and Turbo Chain technologies (recovery time < 20 ms), RSTP/STP, and MSTP, increase the reliability and availability of your industrial Ethernet network. Models with a wide operating temperature range of -40 to 75°C are also available, and the switches support advanced management and security features, making the EDS-516A switches suitable for any harsh industrial environment.

### Additional Features and Benefits

- Command line interface (CLI) for quickly configuring major managed functions
- DHCP Option 82 for IP address assignment with different policies
- Supports EtherNet/IP and Modbus TCP protocols for device management and monitoring
- Compatible with PROFINET protocol for transparent data transmission
- Lock port function for blocking unauthorized access based on MAC address
- 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 proactive and efficient network monitoring
- SNMPv1/v2c/v3 for different levels of network management
- Bandwidth management to prevent unpredictable network status
- Automatic warning by exception through email and relay output

## Specifications

### Input/Output Interface

Alarm Contact Channels	Resistive load: 1 A @ 24 VDC
Digital Inputs	+13 to +30 V for state 1 -30 to +3 V for state 0 Max. input current: 8 mA
Buttons	Reset button

### Ethernet Interface

10/100BaseT(X) Ports (RJ45 connector)	EDS-516A Series: 16 EDS-516A-MM-SC/MM-ST Series: 14  All models support: Auto negotiation speed Full/Half duplex mode Auto MDI/MDI-X connection
100BaseFX Ports (multi-mode SC connector)	EDS-516A-MM-SC Series: 2

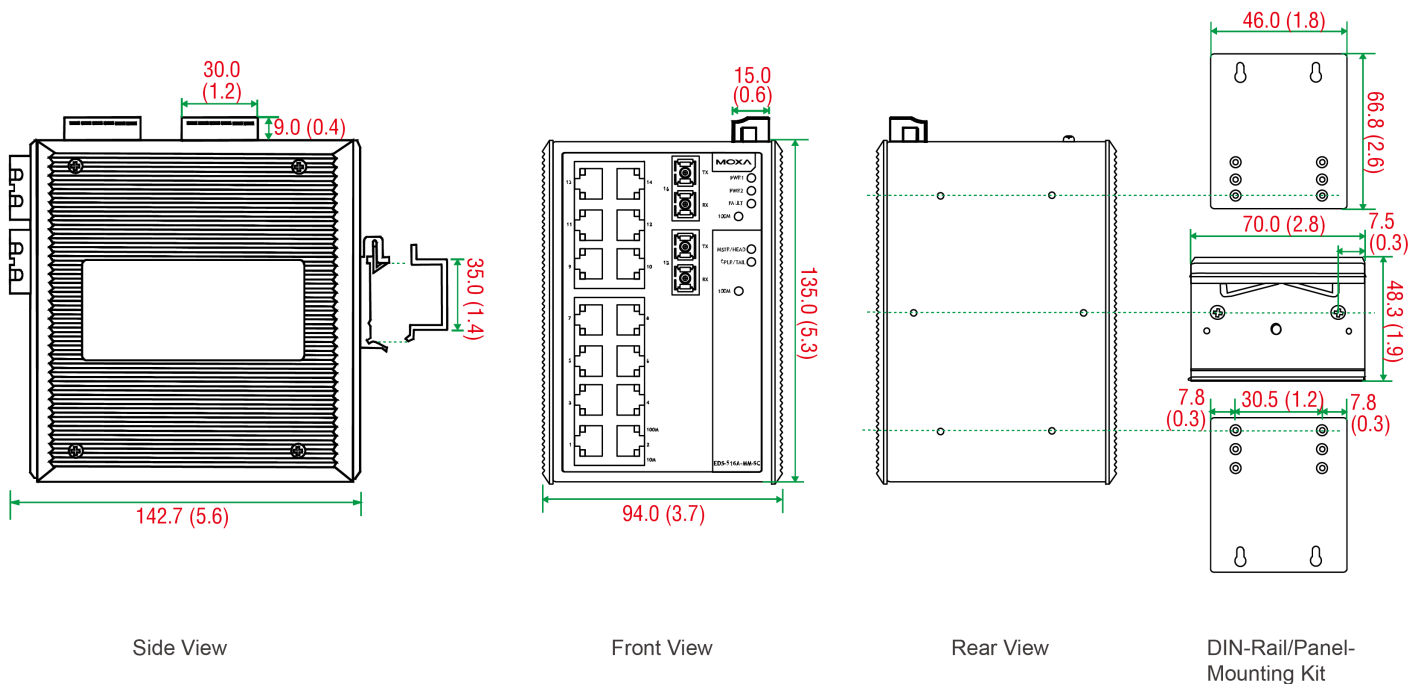
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Optical Fiber	<table border="1"> <thead> <tr> <th colspan="2" rowspan="2"></th> <th colspan="3">100BaseFX</th> </tr> <tr> <th>Multi-Mode</th> <th>Single-Mode (40 km)</th> <th>Single-Mode (80 km)</th> </tr> </thead> <tbody> <tr> <th rowspan="2">Fiber Cable Type</th> <th rowspan="2">OM1</th> <td>50/125 <math>\mu</math>m</td> <td rowspan="2">G.652</td> <td rowspan="2">G.652</td> </tr> <tr> <td>800 MHz x km</td> </tr> <tr> <th colspan="2">Typical Distance</th> <td>4 km</td> <td>5 km</td> <td>40 km</td> <td>80 km</td> </tr> <tr> <th rowspan="3">Wavelength</th> <th>Typical (nm)</th> <td colspan="2">1300</td> <td>1310</td> <td>1550</td> </tr> <tr> <th>TX Range (nm)</th> <td colspan="2">1260 to 1360</td> <td>1280 to 1340</td> <td>1530 to 1570</td> </tr> <tr> <th>RX Range (nm)</th> <td colspan="2">1100 to 1600</td> <td>1100 to 1600</td> <td>1100 to 1600</td> </tr> <tr> <th rowspan="4">Optical Power</th> <th>TX Range (dBm)</th> <td colspan="2">-10 to -20</td> <td>0 to -5</td> <td>0 to -5</td> </tr> <tr> <th>RX Range (dBm)</th> <td colspan="2">-3 to -32</td> <td>-3 to -34</td> <td>-3 to -34</td> </tr> <tr> <th>Link Budget (dB)</th> <td colspan="2">12</td> <td>29</td> <td>29</td> </tr> <tr> <th>Dispersion Penalty (dB)</th> <td colspan="2">3</td> <td>1</td> <td>1</td> </tr> </tbody> </table> <p>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) &gt; dispersion penalty (dB) + total link loss (dB).</p>			100BaseFX			Multi-Mode	Single-Mode (40 km)	Single-Mode (80 km)	Fiber Cable Type	OM1	50/125 $\mu$ m	G.652	G.652	800 MHz x km	Typical Distance		4 km	5 km	40 km	80 km	Wavelength	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
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Standards	IEEE 802.3 for 10BaseT IEEE 802.3u for 100BaseT(X) and 100BaseFX IEEE 802.1X for authentication IEEE 802.1D-2004 for Spanning Tree Protocol IEEE 802.1w for Rapid Spanning Tree Protocol IEEE 802.1s for Multiple Spanning Tree Protocol IEEE 802.1Q for VLAN Tagging IEEE 802.1p for Class of Service IEEE 802.3x for flow control IEEE 802.3ad for Port Trunk with LACP																																																									
<b>Ethernet Software Features</b>																																																										
Filter	802.1Q VLAN, GMRP, GVRP, IGMP v1/v2, Port-based VLAN																																																									
Industrial Protocols	EtherNet/IP, Modbus TCP, PROFINET																																																									
Management	IPv4/IPv6, SNMPv1/v2c/v3, LLDP, Port Mirror, Back Pressure Flow Control, BOOTP, DDM, DHCP Option 66/67/82, DHCP Server/Client, Flow control, RARP, RMON, SMTP, SNMP Inform, Syslog, Telnet, TFTP																																																									
MIB	MIB-II, Bridge MIB, Ethernet-like MIB, P-BRIDGE MIB, Q-BRIDGE MIB, RMON MIB Groups 1, 2, 3, 9, RSTP MIB																																																									
Redundancy Protocols	STP, MSTP, RSTP, LACP, Link Aggregation, Turbo Chain, Turbo Ring v1/v2																																																									
Security	HTTPS/SSL, RADIUS, TACACS+, Port Lock, SSH, Broadcast storm protection																																																									
Time Management	NTP Server/Client, SNTP, IEEE 1588v2 PTP (software-based)																																																									
<b>Switch Properties</b>																																																										
IGMP Groups	256																																																									
MAC Table Size	8 K																																																									
Max. No. of VLANs	64																																																									

Packet Buffer Size	2 Mbits
Priority Queues	4
VLAN ID Range	VID 1 to 4094
<b>LED Interface</b>	
LED Indicators	PWR1, PWR2, FAULT, 10/100M (TP port), 100M (fiber port), MSTR/HEAD, CPLR/TAIL
<b>Serial Interface</b>	
Console Port	RS-232 (TxD, RxD, GND), 8-pin RJ45 (115200, n, 8, 1)
<b>DIP Switch Configuration</b>	
Ethernet Interface	Turbo Ring, Master, Coupler, Reserve
<b>Power Parameters</b>	
Connection	2 removable 6-contact terminal block(s)
Input Voltage	24 VDC, Redundant dual inputs
Operating Voltage	12 to 45 VDC
Input Current	EDS-516A Series: 0.35 A @ 24 VDC EDS-516A-MM-SC/MM-ST Series: 0.44 A @ 24 VDC
Overload Current Protection	Supported
Reverse Polarity Protection	Supported
<b>Physical Characteristics</b>	
Housing	Metal
IP Rating	IP30
Dimensions	94 x 135 x 142.7 mm (3.7 x 5.31 x 5.62 in)
Weight	1586 g (3.50 lb)
Installation	DIN-rail mounting, Wall mounting (with optional kit)
<b>Environmental Limits</b>	
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 (package included)	-40 to 85°C (-40 to 185°F)
Ambient Relative Humidity	5 to 95% (non-condensing)
<b>Standards and Certifications</b>	
Safety	EN 60950-1, UL 60950-1, CSA C22.2 No. 60950-1, UL 508
Hazardous Locations	ATEX, Class I Division 2
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: 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 PFMF

Maritime	DNV-GL
Shock	IEC 60068-2-27
Freefall	IEC 60068-2-32
Vibration	IEC 60068-2-6
<b>MTBF</b>	
Time	247,676 hrs
Standards	Telcordia (Bellcore), GB
<b>Warranty</b>	
Warranty Period	5 years
Details	See <a href="http://www.moxa.com/warranty">www.moxa.com/warranty</a>
<b>Package Contents</b>	
Device	1 x EDS-516A Series switch
Cable	1 x DB9 female to RJ45 10-pin
Installation Kit	4 x cap, plastic, for RJ45 port 2 x cap, plastic, for SC fiber port (-SC models) 2 x cap, plastic, for ST fiber port (-ST models)
Documentation	1 x document and software CD 1 x quick installation guide 1 x warranty card 1 x product certificates of quality inspection, Simplified Chinese 1 x product notice, Simplified Chinese

## Dimensions

Unit: mm (inch)



## Ordering Information

Model Name	10/100BaseT(X) Ports RJ45 Connector	100BaseFX Ports Multi-Mode, SC Connector	100BaseFX Ports Multi-Mode, ST Connector	Operating Temp.
EDS-516A	16	–	–	0 to 60°C
EDS-516A-T	16	–	–	-40 to 75°C
EDS-516A-MM-SC	14	2	–	0 to 60°C
EDS-516A-MM-SC-T	14	2	–	-40 to 75°C
EDS-516A-MM-ST	14	–	2	0 to 60°C
EDS-516A-MM-ST-T	14	–	2	-40 to 75°C

## Accessories (sold separately)

### Software

MXview	Industrial network management software designed for converged automation networks
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### Storage Kits

ABC-01	Configuration backup and restoration tool for managed Ethernet switches and AWK Series wireless APs/bridges/clients, 0 to 60°C operating temperature
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### Power Supplies

DR-120-24	120W/2.5A DIN-rail 24 VDC power supply with universal 88 to 132 VAC or 176 to 264 VAC input by switch, or 248 to 370 VDC input, -10 to 60°C operating temperature
DR-4524	45W/2A DIN-rail 24 VDC power supply with universal 85 to 264 VAC or 120 to 370 VDC input, -10 to 50°C operating temperature
DR-75-24	75W/3.2A DIN-rail 24 VDC power supply with universal 85 to 264 VAC or 120 to 370 VDC input, -10 to 60°C operating temperature
MDR-40-24	DIN-rail 24 VDC power supply with 40W/1.7A, 85 to 264 VAC, or 120 to 370 VDC input, -20 to 70°C operating temperature
MDR-60-24	DIN-rail 24 VDC power supply with 60W/2.5A, 85 to 264 VAC, or 120 to 370 VDC input, -20 to 70°C operating temperature

### Wall-Mounting Kits

WK-46	Wall-mounting kit, 2 plates, 8 screws, 46.5 x 66.8 x 1 mm
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### Rack-Mounting Kits

RK-4U	19-inch rack-mounting kit
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