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
- Bandwidth management to prevent unpredictable network status
- Automatic warning by exception through email and relay output

Specifications

Input/Output Interface

<table>
<thead>
<tr>
<th>Alarm Contact Channels</th>
<th>Resistive load: 1 A @ 24 VDC</th>
</tr>
</thead>
</table>

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

| Ethernet Interface | 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  
EDS-516A-MM-SC Series: 2  
EDS-516A-MM-MM-ST Series: 2 |
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>10/100BaseT(X) Ports (RJ45 connector)</td>
<td>100BaseFX Ports (multi-mode SC connector)</td>
</tr>
<tr>
<td>100BaseFX Ports (multi-mode ST connector)</td>
<td>100BaseFX Ports (multi-mode ST connector)</td>
</tr>
</tbody>
</table>
### Optical Fiber

<table>
<thead>
<tr>
<th>Fiber Cable Type</th>
<th>OM1 50/125 µm 800 MHz x km</th>
<th>G.652</th>
<th>G.652</th>
</tr>
</thead>
<tbody>
<tr>
<td>Typical Distance</td>
<td>4 km, 5 km, 40 km, 80 km</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wave-length</td>
<td>Typical (nm)</td>
<td>1300</td>
<td>1310</td>
</tr>
<tr>
<td></td>
<td>TX Range (nm)</td>
<td>1260 to 1360</td>
<td>1280 to 1340</td>
</tr>
<tr>
<td></td>
<td>RX Range (nm)</td>
<td>1100 to 1600</td>
<td>1100 to 1600</td>
</tr>
<tr>
<td>Optical Power</td>
<td>TX Range (dBm)</td>
<td>-10 to -20</td>
<td>0 to -5</td>
</tr>
<tr>
<td></td>
<td>RX Range (dBm)</td>
<td>-3 to -32</td>
<td>-3 to -34</td>
</tr>
<tr>
<td></td>
<td>Link Budget (dB)</td>
<td>12</td>
<td>29</td>
</tr>
<tr>
<td></td>
<td>Dispersion Penalty (dB)</td>
<td>3</td>
<td>1</td>
</tr>
</tbody>
</table>

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).

### 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

### Ethernet Software Features

**Filter**
- 802.1Q VLAN, GMRP, GVRP, IGMP v1/v2, Port-based VLAN

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

**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)

### Switch Properties

**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

### LED Interface

**LED Indicators** | PWR1, PWR2, FAULT, 10/100M (TP port), 100M (fiber port), MSTR/HEAD, CPLR/TAI

### Serial Interface

**Console Port** | RS-232 (TxD, RxD, GND), 8-pin RJ45 (115200, n, 8, 1)

### DIP Switch Configuration

**Ethernet Interface** | Turbo Ring, Master, Coupler, Reserve

### Power Parameters

**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

### Physical Characteristics

**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)

### 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 (package included)** | -40 to 85°C (-40 to 185°F)
**Ambient Relative Humidity** | 5 to 95% (non-condensing)

### Standards and Certifications

**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
Vibration | IEC 60068-2-6
Freefall | IEC 60068-2-31

**MTBF**

| Time | 247,676 hrs |

**Standards**

Telcordia (Bellcore), GB

**Warranty**

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

**Package Contents**

| 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)

Side View: 142.7 (5.6) x 35.0 (1.4) x 90.0 (3.5)
Front View: 94.0 (3.7) x 35.0 (1.4) x 150.0 (5.9)
Rear View: 94.0 (3.7) x 35.0 (1.4) x 48.0 (1.9)
DIN-Rail/Panel-Mounting Kit: 46.0 (1.8) x 66.0 (2.6) x 7.5 (0.3)
## Ordering Information

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

## Accessories (sold separately)

### 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

### 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

### Rack-Mounting Kits
- **RK-4U**: 19-inch rack-mounting kit

### Software
- **MXview-50**: Industrial network management software with a license for 50 nodes (by IP address)
- **MXview-100**: Industrial network management software with a license for 100 nodes (by IP address)
- **MXview-250**: Industrial network management software with a license for 250 nodes (by IP address)
- **MXview-500**: Industrial network management software with a license for 500 nodes (by IP address)
- **MXview-1000**: Industrial network management software with a license for 1000 nodes (by IP address)
- **MXview-2000**: Industrial network management software with a license for 2000 nodes (by IP address)
- **MXview Upgrade-50**: License expansion of MXview industrial network management software by 50 nodes (by IP address)

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