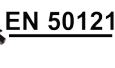# EDS-518E Series

14+4G-port Gigabit managed Ethernet switches

> ❯ **4 Gigabit plus 14 Fast Ethernet ports for copper and fiber**
> ❯ **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**
> ❯ **EtherNet/IP, PROFITNET, and Modbus/TCP protocols supported for device management and monitoring**
> ❯ **Fiber Check™—comprehensive fiber status monitoring and warning on MST/MSC/SSC/SFP fiber ports**
> ❯ **Supports MXstudio for easy, visualized industrial network management**
> ❯ **V-ON™ ensures millisecond-level multicast data and video network recovery**

Turbo Ring · Turbo Chain · V-ON

IEC 61850-3 IEEE 1613   EN 50121   CE   FC

: Introduction

The EDS-518E series is a standalone, compact-size 18-port managed Ethernet switch that provides 4 combo Gigabit ports with built-in RJ45 or SFP slots for Gigabit fiber optic communication. The 14 fast Ethernet ports with a variety of copper and fiber port combinations gives the EDS-518E series greater flexibility for designing your network and application. The Ethernet redundant Turbo Ring, Turbo Chain ,

RSTP/STP, and MSTP increase the system reliability and availability of your network backbone. The EDS-518E also supports advanced management and security features.

In addition, the EDS-518E series is designed especially for harsh industrial environments with limited installation space and high protection level requirements, such as maritime, rail wayside, oil and gas, factory automation and process automation.

Features and Benefits

- Software-based IEEE 1588v2 PTP (Precision Time Protocol) for 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
- 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

- SNMPv1/v2c/v3 for different levels of network management
- RMON for efficient network monitoring and proactive capability
- Fiber Check™ provides s comprehensive fiber Digital Diagnostic Monitoring (DDM) function and event warning on MST/MSC/SSC/ SFP fiber ports
- Bandwidth management prevents unpredictable network status
- Lock port function for blocking unauthorized access based on MAC address
- Port mirroring for online debugging
- Automatic warning by exception through e-mail, relay output
- ABC-02-USB (Automatic Backup Configurator) for system configuration backup/restore and firmware upgrade.

: Specifications

Technology

Standards:
IEEE 802.3 for 10BaseT
IEEE 802.3u for 100BaseT(X) and 100BaseFX
IEEE 802.3ab for 1000BaseT(X)
IEEE 802.3z for 1000BaseX
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, Fiber Check, 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/v3, GMRP
Redundancy Protocols: STP, RSTP, MSTP, Turbo Ring v1/v2, Turbo Chain, Link Aggregation
Security: RADIUS, TACACS+, SSL, SSH, Broadcast Storm Protection, Port Lock

Time Management: SNTP, NTP Server/Client, IEEE 1588v2 PTP (software-based)
Industrial Protocols: EtherNet/IP, Modbus/TCP, PROFINET IO
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 Available VLANs: 64
VLAN ID Range: VID 1 to 4094
IGMP Groups: 256
MAC Table Size: 16 K
Packet Buffer Size: 1 Mbit

Interface

RJ45 Ports: 10/100BaseT(X) or 10/100/1000BaseT(X) auto negotiation speed
Fiber Ports: 100BaseFX (SC/ST connector) and 100/1000BaseSFP slot
Console Port: USB-serial console (Type B connector)
Storage Port: USB storage port (Type A connector)
LED Indicators: PWR1, PWR2, STATE, FAULT, 10/100M (TP port), 100M (fiber port), 100/1000M (Gigabit port), MSTR/HEAD, CPLR/TAIL
Alarm Contact: 1 relay output with current carrying capacity of 1 A @ 24 VDC

Digital Inputs: 1 input 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

Button: Reset button

Optical Fiber

		100BaseFX		
		Multi-Mode		Single-Mode
Fiber Cable Type		OM1	50/125 µm 800 MHz*km	G.652
Typical Distance		4 km	5 km	40 km
Wave-length	Typical (nm)	1300		1310
	TX Range (nm)	1260 to 1360		1280 to 1340
	RX Range (nm)	1100 to 1600		1100 to 1600
Optical Power	TX Range (dBm)	-10 to -20		0 to -5
	RX Range (dBm)	-3 to -32		-3 to -34
	Link Budget (dB)	12		29
	Dispersion Penalty (dB)	3		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: 12/24/48/-48 VDC, redundant dual inputs
Input Current:
EDS-518E-4GTXSFP: 0.75 A @ 24 V
EDS-518E-MM-ST/SC-4GTXSFP: 0.61 A @ 24 V
EDS-518E-SS-SC-4GTXSFP: 0.61 A @ 24 V
Overload Current Protection: Present
Connection: 2 removable 4-contact terminal blocks
Reverse Polarity Protection: Present

Physical Characteristics
Housing: Metal
IP Rating: IP30 protection
Dimensions: 94 x 135 x 137 mm (3.7 x 5.31 x 5.39 in)
Weight: 1,518 g (3.35 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
Hazardous Location: UL/cUL Class 1 Division 2 Groups A/B/C/D, ATEX Zone 2 Ex nA nC IIC
EMC: EN 61000-6-2/6-4
EMI: CISPR 22, FCC Part 15B Class A
EMS:
IEC 61000-4-2 ESD: Contact: 8 kV; Air: 15 kV
IEC 61000-4-3 RS: 80 MHz to 1 GHz: 10 V/m
IEC 61000-4-4 EFT: Power: 4 kV; Signal: 4 kV
IEC 61000-4-5 Surge: Power: 4 kV; Signal: 4 kV
IEC 61000-4-6 CS: Signal: 10 V
IEC 61000-4-8
Electrical Substations: IEC 61850-3, IEEE 1613
Traffic Control: NEMA TS2
Rail Traffic: EN 50121-4
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.

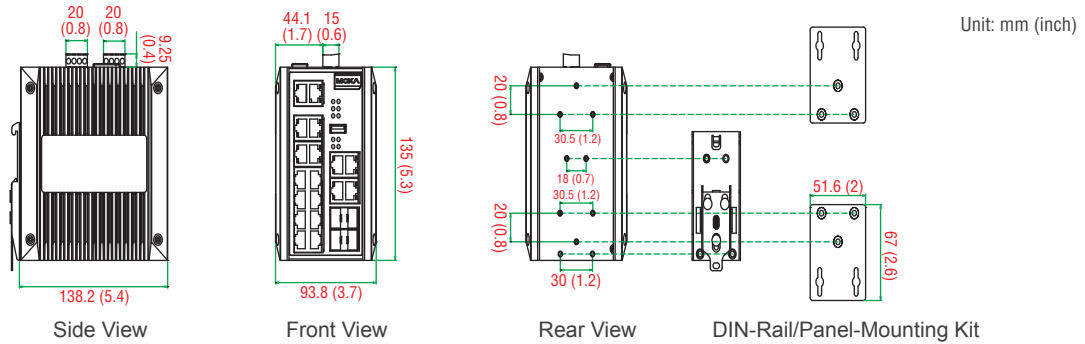## MTBF (mean time between failures)
Time: 723,953 hrs
Standard: Telcordia (Bellcore), GB

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 Combo Port	Fast Ethernet			
					100BaseFX		
Standard Temperature (-10 to 60°C)	Wide Temperature (-40 to 75°C)	Total No. of Ports	10/100/1000BaseT(X) or 100/1000BaseSFP*	10/ 100BaseT(X)	Multi-Mode, SC Connector	Multi-Mode, ST Connector	Single-Mode, SC Connector
EDS-518E-4GTXSFP	EDS-518E-4GTXSFP-T	18	4	14	–	–	–
EDS-518E-MM-SC-4GTXSFP	EDS-518E-MM-SC-4GTXSFP-T	18	4	12	2	–	–
EDS-518E-MM-ST-4GTXSFP	EDS-518E-MM-ST-4GTXSFP-T	18	4	12	–	2	–
EDS-518E-SS-SC-4GTXSFP	EDS-518E-SS-SC-4GTXSFP-T	18	4	12	–	–	2

*The EDS-518E series supports 4 1000BaseSFP slots. See the SFP section for Gigabit Ethernet SFP module product information.

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-02-USB-T: Configuration backup and restoration tool for managed Ethernet switches, -40 to 75°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-51-01: Wall-mounting kit, 2 plates with 6 screws
RK-4U: 4U-high 19-inch rack-mounting kit

Package Checklist
- EDS-518E switch
- USB Cable: CBL-USBA/B-100
- Protective caps for unused ports
- Documentation and software CD
- Hardware installation guide (printed)
- Warranty card