# EDS-G512E Series

## 12G-port (with 8 PoE+ ports option) full Gigabit managed Ethernet switches

### Features and Benefits

- 8 IEEE 802.3af and IEEE 802.3at PoE+ standard ports

- 36-watt output per PoE+ port in high-power mode

- Turbo Ring and Turbo Chain (recovery time < 50 ms @ 250 switches), RSTP/STP, and MSTP for network redundancy

- RADIUS, TACACS+, MAB Authentication, SNMPv3, IEEE 802.1X, MAC ACL, HTTPS, SSH, and sticky MAC-addresses to enhance network security

- Security features based on IEC 62443

- EtherNet/IP, PROFINET, and Modbus TCP protocols supported for device management and monitoring

- Supports MXstudio for easy, visualized industrial network management

- V-ON™ ensures millisecond-level multicast data and video network recovery

### Certifications

DNV·GL MARITIME    Ex    CE    FC

## Introduction

The EDS-G512E Series is equipped with 12 Gigabit Ethernet ports and up to 4 fiber-optic ports, making it ideal for upgrading an existing network to Gigabit speed or building a new full Gigabit backbone. It also comes with 8 10/100/1000BaseT(X), 802.3af (PoE), and 802.3at (PoE+)-compliant Ethernet port options to connect high-bandwidth PoE devices. Gigabit transmission increases bandwidth for higher performance and transfers large amounts of triple-play services across a network quickly.

Redundant Ethernet technologies such as Turbo Ring, Turbo Chain, RSTP/STP, and MSTP increase the reliability of your system and improve the availability of your network backbone. The EDS-G512E Series is designed specifically for communication demanding applications, such as video and process monitoring, ITS, and DCS systems, all of which can benefit from a scalable backbone construction.

### Additional Features and Benefits

- Command line interface (CLI) for quickly configuring major managed functions
- Advanced PoE management function (PoE port setting, PD failure check, and PoE scheduling)
- DHCP Option 82 for IP address assignment with different policies
- Supports 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
- Supports the ABC-02-USB (Automatic Backup Configurator) for system configuration backup/restore and firmware upgrade
- Port mirroring for online debugging

- QoS (IEEE 802.1p/1Q and TOS/DiffServ) to increase determinism
- Port Trunking for optimum bandwidth utilization
- RADIUS, TACACS+, MAB Authentication, SNMPv3, IEEE 802.1X, MAC ACL, HTTPS, SSH, and sticky MAC address to enhance network security
- SNMPv1/v2c/v3 for different levels of network management
- RMON for proactive and efficient network monitoring
- Bandwidth management to prevent unpredictable network status
- Lock port function for blocking unauthorized access based on MAC address
- Automatic warning by exception through email and relay output

## Specifications

### Input/Output Interface

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| --- | --- |
| Alarm Contact Channels | 1, Relay output with current carrying capacity of 1 A @ 24 VDC |
| Buttons | Reset button |
| Digital Input Channels | 1 |
| Digital Inputs | +13 to +30 V for state 1<br>-30 to +3 V for state 0<br>Max. input current: 8 mA |

## Ethernet Interface

| | |
|---|---|
| 10/100/1000BaseT(X) Ports (RJ45 connector) | EDS-G512E-4GSFP: 8<br>Auto negotiation speed<br>Full/Half duplex mode<br>Auto MDI/MDI-X connection |
| PoE Ports (10/100/1000BaseT(X), RJ45 connector) | EDS-G512E-8PoE-4GSFP: 8 |
| 100/1000BaseSFP Slots | 4 |
| Standards | IEEE 802.3 for 10BaseT<br>IEEE 802.3u for 100BaseT(X) and 100BaseFX<br>IEEE 802.3ab for 1000BaseT(X)<br>IEEE 802.3z for 1000BaseSX/LX/LHX/ZX<br>IEEE 802.3x for flow control<br>IEEE 802.1D-2004 for Spanning Tree Protocol<br>IEEE 802.1w for Rapid Spanning Tree Protocol<br>IEEE 802.1s for Multiple Spanning Tree Protocol<br>IEEE 802.1p for Class of Service<br>IEEE 802.1Q for VLAN Tagging<br>IEEE 802.1X for authentication<br>IEEE 802.3ad for Port Trunk with LACP |

## Ethernet Software Features

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|---|---|
| Filter | 802.1Q VLAN, Port-based VLAN, GVRP, IGMP v1/v2/v3, GMRP |
| Industrial Protocols | EtherNet/IP, Modbus TCP, PROFINET IO Device |
| Management | LLDP, Back Pressure Flow Control, BOOTP, Port Mirror, DHCP Option 66/67/82, DHCP Server/Client, Fiber check, Flow control, IPv4/IPv6, RARP, RMON, SMTP, SNMP Inform, SNMPv1/v2c/v3, Syslog, Telnet, TFTP |
| MIB | Ethernet-like MIB, MIB-II, Bridge MIB, P-BRIDGE MIB, Q-BRIDGE MIB, RMON MIB Groups 1, 2, 3, 9, RSTP MIB |
| Redundancy Protocols | Link Aggregation, MSTP, RSTP, STP, Turbo Chain, Turbo Ring v1/v2 |
| Security | Broadcast storm protection, HTTPS/SSL, TACACS+, SNMPv3, MAB authentication, Sticky MAC, NTP authentication, MAC ACL, Port Lock, RADIUS, SSH, SMTP with TLS |
| Time Management | NTP Server/Client, SNTP |

## Switch Properties

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|---|---|
| IGMP Groups | 2048 |
| Jumbo Frame Size | 9.6 KB |
| MAC Table Size | 8 K |
| Max. No. of VLANs | 256 |
| Packet Buffer Size | 4 Mbits |
| Priority Queues | 4 |
| VLAN ID Range | VID 1 to 4094 |

## USB Interface

| | |
|---|---|
| Storage Port | USB Type A |

## LED Interface

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|---|---|
| LED Indicators | PWR1, PWR2, STATE, FAULT, 10/100M (TP port), 1000M (TP port), 100/1000M (SFP port), MSTR/HEAD, CPLR/TAIL, smart PoE LED (EDS-G512E-8PoE-4GSFP Series only) |

## Serial Interface

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|---|---|
| Console Port | USB-serial console (Type B connector) |

## DIP Switch Configuration

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|---|---|
| DIP Switches | Turbo Ring, Master, Coupler, Reserve |

## Power Parameters

| | |
|---|---|
| Connection | 2 removable 4-contact terminal block(s) |
| Input Current | EDS-G512E-4GSFP Series: 0.34 A @ 24 VDC<br>EDS-G512E-8PoE-4GSFP Series: 5.30 A @ 48 VDC |
| Input Voltage | EDS-G512E-4GSFP Series: 12/24/48/-48 VDC<br>EDS-G512E-8PoE-4GSFP Series: 48 VDC<br>(Both series have redundant dual input) |
| Operating Voltage | EDS-G512E-4GSFP Series: 9.6 to 60 VDC<br>EDS-G512E-8PoE-4GSFP Series: 44 to 57 VDC (> 50 VDC for PoE+ output recommended) |
| Overload Current Protection | Supported |
| Reverse Polarity Protection | Supported |
| Power Budget | EDS-G512E-8PoE-4GSFP: Max. 240 W for total PD consumption<br>EDS-G512E-8PoE-4GSFP: Max. 36 W for each PoE port |
| Power Consumption (Max.) | EDS-G512E-8PoE-4GSFP: Max. 14.36 W full loading without PDs' consumption<br>Note: When selecting a power supply, check the PD power consumption. |

## Physical Characteristics

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|---|---|
| Housing | Metal |
| IP Rating | IP30 |
| Dimensions | 79.2 x 135 x 137 mm (3.1 x 5.3 x 5.4 in) |
| Weight | EDS-G512E-4GSFP: 1,440 g (3.18 lb)<br>EDS-G512E-8PoE-4GSFP: 1,540 g (3.40 lb) |
| Installation | DIN-rail mounting, Wall mounting (with optional kit) |

## Environmental Limits

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|---|---|
| Operating Temperature | Standard Models: -10 to 60°C (14 to 140°F)<br>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

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|---|---|
| Safety | EDS-G512E-4GSFP/EDS-G512E-8PoE-4GSFP Series: UL 508<br>EDS-G512E-8PoE-4GSFP Series: EN 60950-1 (LVD) |
| EMC | EN 61000-6-2/-6-4 |
| EMI | CISPR 32, FCC Part 15B Class A |
| EMS | EDS-G512E-4GSFP: IEC 61000-4-2 ESD: Contact: 8 kV; Air: 15 kV<br>EDS-G512E-4GSFP: IEC 61000-4-3 RS: 80 MHz to 1 GHz: 10 V/m<br>EDS-G512E-8PoE-4GSFP: IEC 61000-4-3 RS: 80 MHz to 1 GHz: 20 V/m<br>EDS-G512E-4GSFP: IEC 61000-4-4 EFT: Power: 4 kV; Signal: 4 kV<br>EDS-G512E-8PoE-4GSFP: IEC 61000-4-4 EFT: Power: 2 kV; Signal: 2 kV<br>EDS-G512E-4GSFP: IEC 61000-4-5 Surge: Power: 4 kV; Signal: 4 kV<br>EDS-G512E-8PoE-4GSFP: IEC 61000-4-5 Surge: Power: 2 kV; Signal: 4 kV |

|  |  |
|---|---|
|  | IEC 61000-4-6 CS: 10 V<br>IEC 61000-4-8 PFMF |
| Hazardous Locations | EDS-G512E-4GSFP Series: ATEX, Class I Division 2 |
| Maritime | EDS-G512E-4GSFP: DNV-GL, EDS-G512E-4GSFP: LR, EDS-G512E-4GSFP: ABS, EDS-G512E-4GSFP: NK |
| Power Substation | IEC 61850-3, IEEE 1613 |
| Railway | EN 50121-4 |
| Traffic Control | EDS-G512E-4GSFP: NEMA TS2 |
| Shock | IEC 60068-2-27 |
| Freefall | IEC 60068-2-32 |
| Vibration | IEC 60068-2-6 |

## MTBF

|  |  |
|---|---|
| Time | EDS-G512E-4GSFP Series: 816,823 hrs<br>EDS-G512E-8PoE-4GSFP Series: 361,368 hrs |
| Standards | Telcordia (Bellcore), GB |

## Warranty

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

## Package Contents

|  |  |
|---|---|
| Device | 1 x EDS-G512E Series switch |
| Cable | 1 x USB type A male to USB type B male |
| Installation Kit | 4 x cap, plastic, for RJ45 port |
| Documentation | 1 x quick installation guide<br>1 x warranty card<br>1 x product certificates of quality inspection, Simplified Chinese<br>1 x product notice, Simplified Chinese |
| Note | SFP modules need to be purchased separately for use with this product. |

# Dimensions

Unit: mm (inch)



| Side View | Front View | Rear View | DIN-Rail/Panel-Mounting Kit |
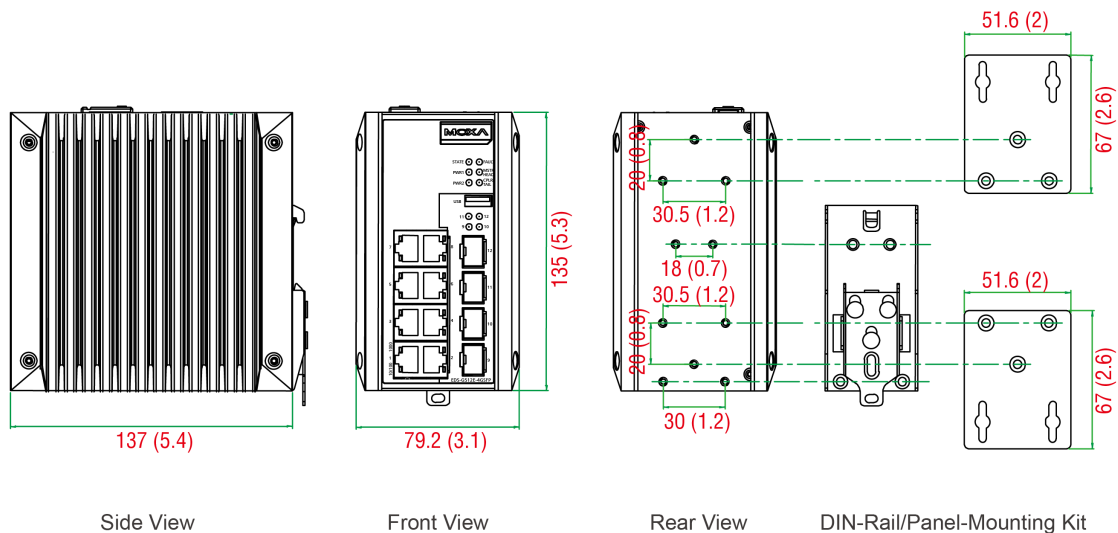
# Ordering Information

| Model Name | 10/100/1000BaseT(X) Ports, RJ45 Connector | PoE Ports, 10/100/ 1000BaseT(X), RJ45 Connector | IEEE 802.3af/at for PoE/PoE+ Output | 100/1000Base SFP Slots | Operating Temp. |
|---|---|---|---|---|---|
| EDS-G512E-4GSFP | 8 | – | – | 4 | -10 to 60°C |
| EDS-G512E-4GSFP-T | 8 | – | – | 4 | -40 to 75°C |
| EDS-G512E-8PoE-4GSFP | – | 8 | ✓ | 4 | -10 to 60°C |
| EDS-G512E-8PoE-4GSFP-T | – | 8 | ✓ | 4 | -40 to 75°C |

# Accessories (sold separately)

### Storage Kits

| ABC-02-USB | Configuration backup and restoration tool, firmware upgrade, and log file storage tool for managed Ethernet switches and routers, 0 to 60°C operating temperature |
|---|---|
| ABC-02-USB-T | Configuration backup and restoration tool, firmware upgrade, and log file storage tool for managed Ethernet switches and routers, -40 to 75°C operating temperature |

### SFP Modules

| SFP-1FELLC-T | SFP module with 1 100Base single-mode with LC connector for 80 km transmission, -40 to 85°C operating temperature |
|---|---|
| SFP-1FEMLC-T | SFP module with 1 100Base multi-mode with LC connector for 4 km transmission, -40 to 85°C operating temperature |
| SFP-1FESLC-T | SFP module with 1 100Base single-mode with LC connector for 40 km transmission, -40 to 85°C operating temperature |
| SFP-1G10ALC | WDM-type (BiDi) SFP module with 1 1000BaseSFP port with LC connector for 10 km transmission; TX 1310 nm, RX 1550 nm, 0 to 60°C operating temperature |
| SFP-1G10ALC-T | WDM-type (BiDi) SFP module with 1 1000BaseSFP port with LC connector for 10 km transmission; TX 1310 nm, RX 1550 nm, -40 to 85°C operating temperature |
| SFP-1G10BLC | WDM-type (BiDi) SFP module with 1 1000BaseSFP port with LC connector for 10 km transmission; TX 1550 nm, RX 1310 nm, 0 to 60°C operating temperature |
| SFP-1G10BLC-T | WDM-type (BiDi) SFP module with 1 1000BaseSFP port with LC connector for 10 km transmission; TX 1550 nm, RX 1310 nm, -40 to 85°C operating temperature |
| SFP-1G20ALC | WDM-type (BiDi) SFP module with 1 1000BaseSFP port with LC connector for 20 km transmission; TX 1310 nm, RX 1550 nm, 0 to 60°C operating temperature |

| | |
|---|---|
| SFP-1G20ALC-T | WDM-type (BiDi) SFP module with 1 1000BaseSFP port with LC connector for 20 km transmission; TX 1310 nm, RX 1550 nm, -40 to 85°C operating temperature |
| SFP-1G20BLC | WDM-type (BiDi) SFP module with 1 1000BaseSFP port with LC connector for 20 km transmission; TX 1550 nm, RX 1310 nm, 0 to 60°C operating temperature |
| SFP-1G20BLC-T | WDM-type (BiDi) SFP module with 1 1000BaseSFP port with LC connector for 20 km transmission; TX 1550 nm, RX 1310 nm, -40 to 85°C operating temperature |
| SFP-1G40ALC | WDM-type (BiDi) SFP module with 1 1000BaseSFP port with LC connector for 40 km transmission; TX 1310 nm, RX 1550 nm, 0 to 60°C operating temperature |
| SFP-1G40ALC-T | WDM-type (BiDi) SFP module with 1 1000BaseSFP port with LC connector for 40 km transmission; TX 1310 nm, RX 1550 nm, -40 to 85°C operating temperature |
| SFP-1G40BLC | WDM-type (BiDi) SFP module with 1 1000BaseSFP port with LC connector for 40 km transmission; TX 1550 nm, RX 1310 nm, 0 to 60°C operating temperature |
| SFP-1G40BLC-T | WDM-type (BiDi) SFP module with 1 1000BaseSFP port with LC connector for 40 km transmission; TX 1550 nm, RX 1310 nm, -40 to 85°C operating temperature |
| SFP-1GEZXLC | SFP module with 1 1000BaseEZX port with LC connector for 110 km transmission, 0 to 60°C operating temperature |
| SFP-1GEZXLC-120 | SFP module with 1 1000BaseEZX port with LC connector for 120 km transmission, 0 to 60°C operating temperature |
| SFP-1GLHLC | SFP module with 1 1000BaseLH port with LC connector for 30 km transmission, 0 to 60°C operating temperature |
| SFP-1GLHLC-T | SFP module with 1 1000BaseLH port with LC connector for 30 km transmission, -40 to 85°C operating temperature |
| SFP-1GLHXLC | SFP module with 1 1000BaseLHX port with LC connector for 40 km transmission, 0 to 60°C operating temperature |
| SFP-1GLHXLC-T | SFP module with 1 1000BaseLHX port with LC connector for 40 km transmission, -40 to 85°C operating temperature |
| SFP-1GLSXLC | SFP module with 1 1000BaseLSX port with LC connector for 500 m transmission, 0 to 60°C operating temperature |
| SFP-1GLSXLC-T | SFP module with 1 1000BaseLSX port with LC connector for 500 m transmission, -40 to 85°C operating temperature |
| SFP-1GLXLC | SFP module with 1 1000BaseLX port with LC connector for 10 km transmission, 0 to 60°C operating temperature |
| SFP-1GLXLC-T | SFP module with 1 1000BaseLX port with LC connector for 10 km transmission, -40 to 85°C operating temperature |
| SFP-1GSXLC | SFP module with 1 1000BaseSX port with LC connector for 300/550 m transmission, 0 to 60°C operating temperature |
| SFP-1GSXLC-T | SFP module with 1 1000BaseSX port with LC connector for 300/550 m transmission, -40 to 85°C operating temperature |
| SFP-1GZXLC | SFP module with 1 1000BaseZX port with LC connector for 80 km transmission, 0 to 60°C operating temperature |
| SFP-1GZXLC-T | SFP module with 1 1000BaseZX port with LC connector for 80 km transmission, -40 to 85°C operating temperature |
| SFP-1GTXRJ45-T | SFP module with 1 1000BaseT port with RJ45 connector for 100 m transmission, -40 to 75°C operating temperature |

## Wall-Mounting Kits

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|---|---|
| WK-51-01 | Wall-mounting kit, 2 plates, 6 screws, 51.6 x 67 x 2 mm |

## Rack-Mounting Kits

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|---|---|
| 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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