

# EDS-4012 Series

8+4G-port (with 8 802.3bt PoE port option) managed Ethernet switches



## Features and Benefits

- Developed according to the IEC 62443-4-1 and compliant with the IEC 62443-4-2 industrial cybersecurity standards
- Support for IEEE 802.3bt PoE for up to 90 W output per port
- Turbo Ring and Turbo Chain (recovery time < 20 ms @ 250 switches)<sup>1</sup>, and RSTP/STP for network redundancy
- Wide range of power input options for flexible deployment
- Compact and flexible housing design to fit into confined spaces
- Supports MXstudio for easy, visualized industrial network management

## Certifications



## Introduction

The EDS-4012 Series is a range of 12-port managed Fast Ethernet switches with the option for four 1 Gbps fiber-optic uplink ports. This Series also offers models with four 10/100BaseT(X) 802.3af (PoE), 802.3at (PoE+), and 802.3bt-compliant Ethernet PoE port options to connect high-bandwidth PoE devices.

Redundant Ethernet technologies such as Turbo Ring, Turbo Chain, and RSTP/STP increase the reliability of your system and improve the availability of your network backbone. The EDS-4012 Series is designed specifically for demanding applications such as video and process monitoring, ITS, and DCS systems, all of which can benefit from a scalable backbone.

The EDS-4012 Series is compliant with the IEC 62443-4-2 and IEC 62443-4-1 Industrial Cybersecurity certifications, which cover both product security and secure development life-cycle requirements, helping our customers meet the compliance requirements of secure industrial network design.

## Specifications

### Ethernet Interface

10/100BaseT(X) Ports (RJ45 connector)	EDS-4012-4GS-LV/-HV/-T models: 8 EDS-4012-4GC-LV/-HV/-T models: 8 Auto negotiation speed Full/Half duplex mode Auto MDI/MDI-X connection
PoE Ports (10/100BaseT(X), RJ45 connector)	EDS-4012-8P-4GS-LVA/-LVB/-T models: 8
100/1000BaseSFP Ports	EDS-4012-4GS-LV/-HV/-T models: 4 EDS-4012-8P-4GS-LVA/-VB/-T models: 4

1. If the port link speed is 1 Gigabit or higher, the recovery time is < 50 ms.

Combo Ports (10/100/1000BaseT(X) or 100/1000BaseSFP)	EDS-4012-4GC-LV/-HV/-T models: 4
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 802.3ad for Port Trunk with LACP IEEE 802.1Q for VLAN Tagging IEEE 802.1D-2004 for Spanning Tree Protocol IEEE 802.1w for Rapid Spanning Tree Protocol IEEE 802.1p for Class of Service IEEE 802.1X for authentication

### Ethernet Software Features

Filter	GMRP, GVRP, GARP, 802.1Q VLAN, IGMP Snooping v1/v2/v3, IGMP Querier
Management	IPv4/IPv6, Flow control, Back Pressure Flow Control, DHCP Server/Client, ARP, RARP, LLDP, Port Mirror, Linkup Delay, SMTP, SNMP Trap, SNMP Inform, SNMPv1/v2c/v3, RMON, TFTP, SFTP, HTTP, HTTPS, Telnet, Syslog, Private MIB
MIB	P-BRIDGE MIB, Q-BRIDGE MIB, IEEE8021-SPANNING-TREE-MIB, IEEE8021-PAE-MIB, IEEE8023-LAG-MIB, LLDP-EXT-DOT1-MIB, LLDP-EXT-DOT3-MIB, SNMPv2-MIB, RMON MIB Groups 1, 2, 3, 9
Redundancy Protocols	STP, RSTP, Turbo Ring v2, Turbo Chain, Ring Coupling, Dual-Homing, Link Aggregation
Security	Broadcast storm protection, Rate Limit, Trust access control, Static Port Lock, MAC Sticky, HTTPS/SSL, SSH, RADIUS, TACACS+, Login and Password Policy
Time Management	SNTP, NTP Server/Client, NTP Authentication
Protocols	IPv4/IPv6, TCP/IP, UDP, ICMP, ARP, RARP, TFTP, DNS, NTP Client, DHCP Server, DHCP Client, 802.1X, QoS, HTTPS, HTTP, Telnet, SMTP, SNMPv1/v2c/v3, RMON, Syslog

### Switch Properties

MAC Table Size	16 K
Jumbo Frame Size	9.216 KB
Max. No. of VLANs	256
VLAN ID Range	VID 1 to 4094
IGMP Groups	512
Priority Queues	4
Packet Buffer Size	1 MB

### LED Interface

LED Indicators	PWR1, PWR2, STATE, FAULT, MSTR/HEAD, CPLR/TAIL, SYNC
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### Serial Interface

Console Port	RS-232 (TxD, RxD, GND), 8-pin RJ45 (115200, n, 8, 1)
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### USB Interface

USB Connector	USB Type A (Reserved)
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### Input/Output Interface

Alarm Contact Channels	1, Relay output with current carrying capacity of 1 A @ 24 VDC
Digital Input Channels	1

Digital Inputs	+13 to +30 V for state 1 -30 to +3 V for state 0 Max. input current: 8 mA
Buttons	Reset button
<b>DIP Switch Configuration</b>	
DIP Switches	Turbo Ring, Master, Coupler, Reserve
<b>Power Parameters</b>	
Connection	2 removable 4-contact terminal block(s)
Pre-installed Power Module	-LV/-LV-T models: PWR-100-LV -HV/-HV-T models: PWR-105-HV-I -LVA/-LVA-T models: PWR-101-LV-BP-I -LVB/-LVB-T models: PWR-103-LV-VB-I
Note	The EDS-4012 Series supports modular power supplies. The model names and power parameters are determined by the installed power module.  For example: EDS-4012-4GS-T + PWR-100-LV = EDS-4012-4GS-LV-T EDS-4012-4GS-T + PWR-105-HV-I = EDS-4012-4GS-HV-T  If you install a different power module, refer to the specifications of the corresponding model. For example, if you replace the power module of the EDS-4012-4GS-LV-T with the PWR-105-HV-I, refer to the specifications of the EDS-4012-4GS-HV-T.
Input Voltage	-LV/-LV-T models: 12/24/48 VDC, Redundant dual inputs -HV/-HV-T models: 110/220 VDC/VAC, Single input -LVA/-LVA-T models: 48 VDC, Redundant dual inputs -LVB/-LVB-T models: 12/24/48 VDC, Redundant dual inputs
Operating Voltage	-LV/-LV-T models: 9.6 to 60 VDC -HV/-HV-T models: 88 to 300 VDC, 85 to 264 VAC -LVA/-LVA-T models: 44 to 57 VDC (>52 VDC for PoE+ output recommended) -LVB/-LVB-T models: 12 to 57 VDC (>52 VDC for PoE+ output recommended)
Input Current	-LV/-LV-T models: 12-48 VDC, 1.50-0.40 A or 24 VDC, 0.70 A -HV/-HV-T models: 110-220 VAC, 50-60 Hz, 0.30-0.20 A or 110-220 VDC, 0.30-0.20 A -LVA/-LVA-T models: 48 VDC, 5.42 A -LVB/-LVB-T models: 12/48 VDC, 7.46/4.27 A or 24 VDC, 7.26 A
Power Consumption (Max.)	EDS-4012-4GS-LV/-T models: 10.52 W EDS-4012-4GS-HV/-T models: 12.22 W EDS-4012-4GC-LV/-T models: 10.7 W EDS-4012-4GC-HV/-T models: 13.35 W  EDS-4012-8P-4GS-LVA/-T models: Without PoE: 13.34 W With PoE: Max. 240 W for total PD power consumption @ 48 VDC input  EDS-4012-8P-4GS-LVB/-T models: Without PoE: 15.32 W With PoE: Max. 180 W for total PD power consumption @ 48 VDC input Max. 150 W for total PD power consumption @ 24 VDC input (Max. 120 W for -T model) Max. 62 W for total PD consumption @ 12 VDC input
Max. PoE Power Output per Port	90 W
Overload Current Protection	Supported
Reverse Polarity Protection	Supported
<b>Physical Characteristics</b>	
IP Rating	IP40
Dimensions	55 x 140 x 120 mm (2.17 x 5.51 x 4.72 in)

Weight	827 g (1.82 lb)
Installation	DIN-rail mounting, Wall mounting (with optional kit)
Housing	Metal

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

#### Standards and Certifications

Industrial Cybersecurity	IEC 62443-4-1 IEC 62443-4-2
Safety	UL 61010-2-201, EN 62368-1 (LVD)
EMC	EN 55032/35, EN 61000-6-2/-6-4
EMI	CISPR 32, 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: 20 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: 10 V IEC 61000-4-8 PFMF
Vibration	IEC 60068-2-6
Shock	IEC 60068-2-27
Freefall	IEC 60068-2-32
Railway	EN 50121-4
Traffic Control	NEMA TS2

#### MTBF

Time	EDS-4012-4GC-LV/-T models: 1,036,336 hrs EDS-4012-4GC-HV/-T models: 497,392 hrs EDS-4012-4GS-LV/-T models: 874,838 hrs EDS-4012-4GS-HV/-T models: 456,870 hrs EDS-4012-8P-4GS-LVA/-T models: 799,780 hrs EDS-4012-8P-4GS-LVB/-T models: 759,924 hrs
Standards	Telcordia SR332

#### Warranty

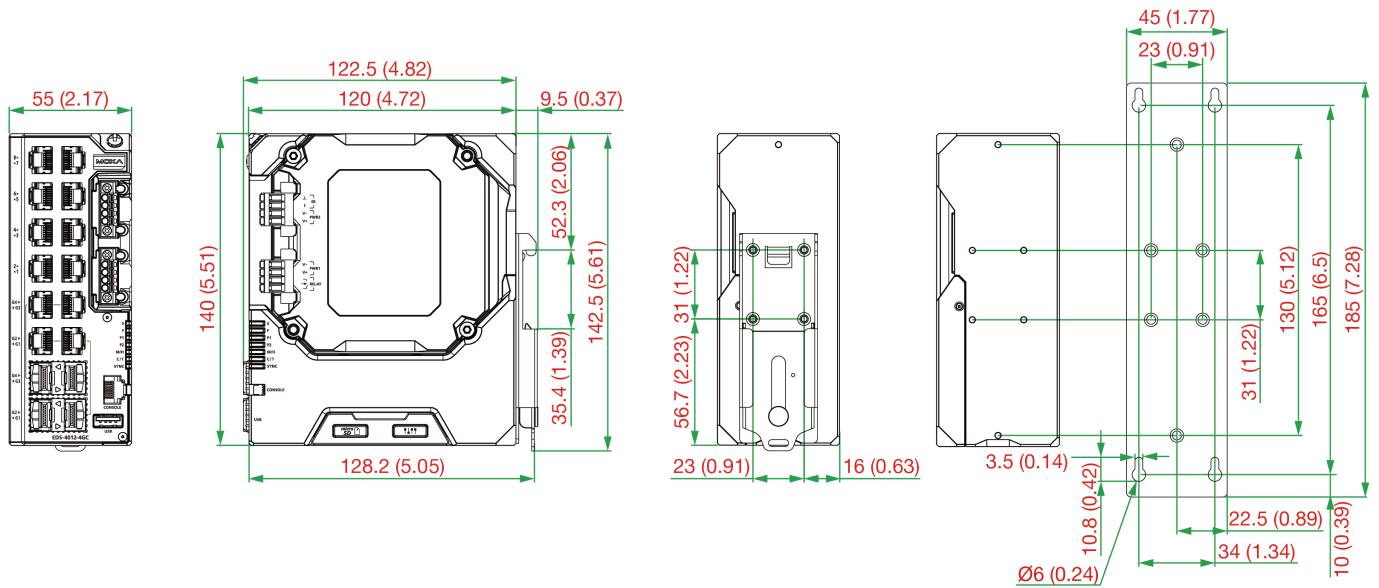
Warranty Period	5 years
Details	See <a href="http://www.moxa.com/warranty">www.moxa.com/warranty</a>

#### Package Contents

Device	1 x EDS-4012 Series switch
Documentation	1 x quick installation guide 1 x product notice, Simplified Chinese 1 x product certificates of quality inspection, Simplified Chinese 1 x warranty card

## Dimensions

Unit: mm (inch)



## Ordering Information

Model Name	10/100BaseT(X) Ports (RJ45 Connector)	PoE 10/100BaseT(X) Ports (RJ45 Connector)	100/1000BaseSFP Slots	Combo Ports (10/100/1000BaseT(X) or 100/1000BaseSFP)	Operating Voltage	Pre-installed Power Module	Operating Temp.
EDS-4012-4GS-LV	8	-	4	-	9.6 to 60 VDC	PWR-100-LV	-10 to 60°C
EDS-4012-4GS-LV-T	8	-	4	-	9.6 to 60 VDC	PWR-100-LV	-40 to 75°C
EDS-4012-4GS-HV	8	-	4	-	88 to 300 VDC, 85 to 264 VAC	PWR-105-HV-I	-10 to 60°C
EDS-4012-4GS-HV-T	8	-	4	-	88 to 300 VDC, 85 to 264 VAC	PWR-105-HV-I	-40 to 75°C
EDS-4012-4GC-LV	8	-	-	4	9.6 to 60 VDC	PWR-100-LV	-10 to 60°C
EDS-4012-4GC-LV-T	8	-	-	4	9.6 to 60 VDC	PWR-100-LV	-40 to 75°C
EDS-4012-4GC-HV	8	-	-	4	88 to 300 VDC, 85 to 264 VAC	PWR-105-HV-I	-10 to 60°C
EDS-4012-4GC-HV-T	8	-	-	4	88 to 300 VDC, 85 to 264 VAC	PWR-105-HV-I	-40 to 75°C
EDS-4012-8P-4GS-LVA	-	8	4	-	44 to 57 VDC (> 52 VDC for PoE+ output recommended)	PWR-101-LV-BP-I	-10 to 60°C
EDS-4012-8P-4GS-LVA-T	-	8	4	-	44 to 57 VDC (> 52 VDC for PoE+ output recommended)	PWR-101-LV-BP-I	-40 to 75°C
EDS-4012-8P-4GS-LVB	-	8	4	-	12 to 57 VDC (> 52 VDC for PoE+ output recommended)	PWR-103-LV-VB-I	-10 to 60°C
EDS-4012-8P-4GS-LVB-T	-	8	4	-	12 to 57 VDC (> 52 VDC for PoE+ output recommended)	PWR-103-LV-VB-I	-40 to 75°C

## Accessories (sold separately)

### SFP Modules

SFP-1GEZXLC	SFP module with 1 1000BaseEZ port with LC connector for 110 km transmission, 0 to 60°C operating temperature
SFP-1GEZXLC-120	SFP module with 1 1000BaseEZ 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-1GLHXL	SFP module with 1 1000BaseLHX port with LC connector for 40 km transmission, 0 to 60°C operating temperature
SFP-1GLSXL	SFP module with 1 1000BaseLSX port with LC connector for 1km/2km transmission, 0 to 60°C operating temperature
SFP-1GLXL	SFP module with 1 1000BaseLX port with LC connector for 10 km transmission, 0 to 60°C operating temperature
SFP-1GSXL	SFP module with 1 1000BaseSX port with LC connector for 300m/550m transmission, 0 to 60°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-1GLHLC-T	SFP module with 1 1000BaseLH port with LC connector for 30 km transmission, -40 to 85°C operating temperature
SFP-1GLHXL-T	SFP module with 1 1000BaseLHX port with LC connector for 40 km transmission, -40 to 85°C operating temperature
SFP-1GLSXL-T	SFP module with 1 1000BaseLSX port with LC connector for 1km/2km transmission, -40 to 85°C operating temperature
SFP-1GLXL-T	SFP module with 1 1000BaseLX port with LC connector for 10 km transmission, -40 to 85°C operating temperature
SFP-1GSXL-T	SFP module with 1 1000BaseSX port with LC connector for 300m/550m transmission, -40 to 85°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-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-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-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-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-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-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-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-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-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-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-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-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-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, LC connector for 2/4 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

#### Power Supplies

HDR-60-24	60 W/2.5 A DIN-rail 24 VDC power supply, universal 85 to 264 VAC or 120 to 370 VDC input voltage, -30 to 70°C operating temperature
NDR-120-24	120 W/5.0 A DIN-rail 24 VDC power supply, universal 90 to 264 VAC or 127 to 370 VDC input voltage, -20 to 70°C operating temperature
NDR-120-48	120 W/2.5 A DIN-rail 48 VDC power supply, universal 90 to 264 VAC or 127 to 370 VDC input voltage, -20 to 70°C operating temperature
NDR-240-48	240 W/5.0 A DIN-rail 48 VDC power supply, universal 90 to 264 VAC or 127 to 370 VDC input voltage, -20 to 70°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

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