

# EDS-528E 系列

## 24+4G 埠 Gigabit 網管型乙太網路交換器



### 特色與優點

- 4 個 Gigabit 連接埠加 24 個快速乙太網路連接埠，銅質纜線和光纖纜線適用
- 支援 Turbo Ring 和 Turbo Chain (對於 250 台交換器斷線復連時間小於 20 毫秒)<sup>1</sup>、RSTP/STP 和 MSTP 網路備援
- RADIUS、TACACS+、MAB Authentication、SNMPv3、IEEE 802.1X、MAC ACL、HTTPS、SSH 和綁訂 MAC 位址可提高網路安全
- 支援 EtherNet/IP、PROFINET 和 Modbus TCP 通訊協定以進行裝置管理與監控
- 支援 MXstudio，輕鬆實現可視化的工業網路管理
- V-ON™ 可確保毫秒等級的 Multicast 資料和視訊網路復原

### 認證



### 簡介

EDS-528E 系列是一種獨立精巧的 28 埠網管型乙太網路交換器，提供內建 RJ45 或 SFP 插槽的 4 個 combo Gigabit 連接埠，可供 Gigabit 光纖通訊之用。24 個快速乙太網路連接埠採用各種銅質和光纖連接埠組合，在設計網路和應用時可更彈性地使用 EDS-528E 系列。乙太網路備援技術 Turbo Ring、Turbo Chain、RSTP/STP 和 MSTP 可提升網路骨幹的系統可靠性和可用性。EDS-528E 還支援進階管理和安全功能。

此外，EDS-528E 系列的設計特別適合安裝空間有限而對於防護等級要求相當高的嚴苛工業環境，例如，海運、鐵路沿線、石油和天然氣、工廠自動化及過程自動化。

### 附加特色與優點

- DHCP Option 82 以不同原則指派 IP 位址
- 支援 EtherNet/IP、PROFINET 及 Modbus TCP 通訊協定，便於進行設備管理和監控
- IGMP snooping 和 GMRP，用於過濾 multicast 流量
- 以連接埠為基礎的 VLAN、IEEE 802.1Q VLAN 以及 GVRP，用來簡化網路規劃
- QoS (IEEE 802.1p/1Q 和 TOS/DiffServ) 提高資料傳送穩定性
- Port Trunking 可將頻寬使用率最佳化
- SNMPv1/v2c/v3，支援不同層級的網路管理
- RMON 提供主動且有效率的網路監控
- 頻寬管理可預防不穩定的網路狀態出現
- 連接埠鎖定功能可依據 MAC 位址封鎖未經授權的存取
- 發生狀況時可透過電子郵件或是繼電器輸出自動發出告警
- 支援 ABC-02-USB (自動備份配置器) 以進行系統配置備份/還原與韌體升級

### 規格

#### Input/Output Interface

|                        |                                                                                 |
|------------------------|---------------------------------------------------------------------------------|
| Alarm Contact Channels | 1<br>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 |

1. Gigabit 乙太網路斷線復連時間小於 50 毫秒

## Ethernet Interface

|                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|-------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 10/100BaseT(X) Ports (RJ45 connector)                 | 24<br>Auto negotiation speed<br>Full/Half duplex mode<br>Auto MDI/MDI-X connection                                                                                                                                                                                                                                                                                                                                                                                            |
| Combo Ports (10/100/1000BaseT(X) or 100/1000BaseSFP+) | 4                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| 10/100/1000BaseT(X) Ports (RJ45 connector)            | Auto negotiation speed<br>Full/Half duplex mode<br>Auto MDI/MDI-X connection                                                                                                                                                                                                                                                                                                                                                                                                  |
| 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

|                      |                                                                                                                                                                                                                                                 |
|----------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Filter               | 802.1Q VLAN<br>BPDU Filter<br>BPDU Guard<br>GMRP<br>GVRP<br>IGMP v1/v2/v3<br>Port-based VLAN                                                                                                                                                    |
| Industrial Protocols | EtherNet/IP<br>Modbus TCP<br>PROFINET IO Device                                                                                                                                                                                                 |
| Management           | LLDP<br>Back Pressure Flow Control<br>BOOTP<br>Port Mirror<br>DHCP Option 66/67/82<br>DHCP Server/Client<br>Fiber check<br>Flow control<br>IPv4/IPv6<br>RARP<br>RMON<br>SCP<br>SMTP<br>SNMP Inform<br>SNMPv1/v2c/v3<br>Syslog<br>Telnet<br>TFTP |
| MIB                  | Ethernet-like MIB<br>MIB-II<br>Bridge MIB<br>P-BRIDGE MIB<br>Q-BRIDGE MIB<br>RMON MIB Groups 1, 2, 3, 9<br>RSTP MIB                                                                                                                             |
| Redundancy Protocols | Link Aggregation<br>MRP<br>MSTP<br>RSTP<br>STP                                                                                                                                                                                                  |

|                 |                                                                                                                                                                                  |
|-----------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                 | Turbo Chain<br>Turbo Ring v1/v2                                                                                                                                                  |
| Security        | Broadcast storm protection<br>HTTPS/SSL<br>TACACS+<br>SNMPv3<br>MAB authentication<br>Sticky MAC<br>NTP authentication<br>MAC ACL<br>Port Lock<br>RADIUS<br>SSH<br>SMTP with TLS |
| Time Management | NTP Server/Client<br>SNTP                                                                                                                                                        |

### Switch Properties

|                    |               |
|--------------------|---------------|
| IGMP Groups        | 2048          |
| MAC Table Size     | 16 K          |
| Max. No. of VLANs  | 64            |
| Packet Buffer Size | 1 Mbits       |
| Priority Queues    | 4             |
| VLAN ID Range      | VID 1 to 4094 |

### USB Interface

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

### LED Interface

|                |                                                                                                  |
|----------------|--------------------------------------------------------------------------------------------------|
| LED Indicators | PWR1, PWR2 (LV model), STATE, FAULT, 10/100M (TP port), Gigabit combo port, MSTR/HEAD, CPLR/TAIL |
|----------------|--------------------------------------------------------------------------------------------------|

### Serial Interface

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

### DIP Switch Configuration

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

### Power Parameters

|                             |                                                                                                                                                                   |
|-----------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Connection                  | EDS-528E-4GTXSFP-HV Series: 1 removable 4-contact and 1 removable 5-contact terminal block<br>EDS-528E-4GTXSFP-LV Series: 2 removable 4-contact terminal block(s) |
| Input Current               | EDS-528E-4GTXSFP-LV Series: 0.47 A @ 24 VDC<br>EDS-528E-4GTXSFP-HV Series: 0.11/0.055 A @ 110/220 VDC, 0.21/0.13 A @ 110/220 VAC                                  |
| Input Voltage               | EDS-528E-4GTXSFP-LV Series: 12/24/48/-48 VDC, Redundant dual inputs<br>EDS-528E-4GTXSFP-HV Series: 110/220 VDC/VAC, Single input                                  |
| Operating Voltage           | EDS-528E-4GTXSFP-LV Series: 9.6 to 60 VDC<br>EDS-528E-4GTXSFP-HV Series: 88 to 300 VDC, 85 to 264 VAC                                                             |
| Overload Current Protection | Supported                                                                                                                                                         |
| Reverse Polarity Protection | Supported                                                                                                                                                         |

## Physical Characteristics

|              |                                                        |
|--------------|--------------------------------------------------------|
| Housing      | Metal                                                  |
| IP Rating    | IP30                                                   |
| Dimensions   | 115.4 x 135 x 137 mm (4.54 x 5.31 x 5.39 in)           |
| Weight       | 1850 g (4.08 lb)                                       |
| Installation | DIN-rail mounting<br>Wall mounting (with optional kit) |

## Environmental Limits

|                                        |                                                                                             |
|----------------------------------------|---------------------------------------------------------------------------------------------|
| 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

|                  |                                                                                                                                                                                                                                             |
|------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Safety           | UL 61010-2-201<br>EN 62368-1                                                                                                                                                                                                                |
| EMC              | EN 61000-6-2/-6-4<br>EN 55032/35                                                                                                                                                                                                            |
| EMI              | CISPR 32, FCC Part 15B Class A                                                                                                                                                                                                              |
| EMS              | IEC 61000-4-2 ESD: Contact: 8 kV; Air: 15 kV<br>IEC 61000-4-3 RS: 80 MHz to 1 GHz: 20 V/m<br>IEC 61000-4-4 EFT: Power: 4 kV; Signal: 4 kV<br>IEC 61000-4-5 Surge: Power: 4 kV; Signal: 4 kV<br>IEC 61000-4-6 CS: 10 V<br>IEC 61000-4-8 PFMF |
| Power Substation | IEC 61850-3<br>IEEE 1613                                                                                                                                                                                                                    |
| Shock            | IEC 60068-2-27                                                                                                                                                                                                                              |
| Freefall         | IEC 60068-2-32                                                                                                                                                                                                                              |
| Vibration        | IEC 60068-2-6                                                                                                                                                                                                                               |

## MTBF

|           |                                                                      |
|-----------|----------------------------------------------------------------------|
| Time      | EDS-528E-4GTXSFP-HV: 808,428 hrs<br>EDS-528E-4GTXSFP-LV: 774,632 hrs |
| Standards | Telcordia (Bellcore), GB                                             |

## Warranty

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

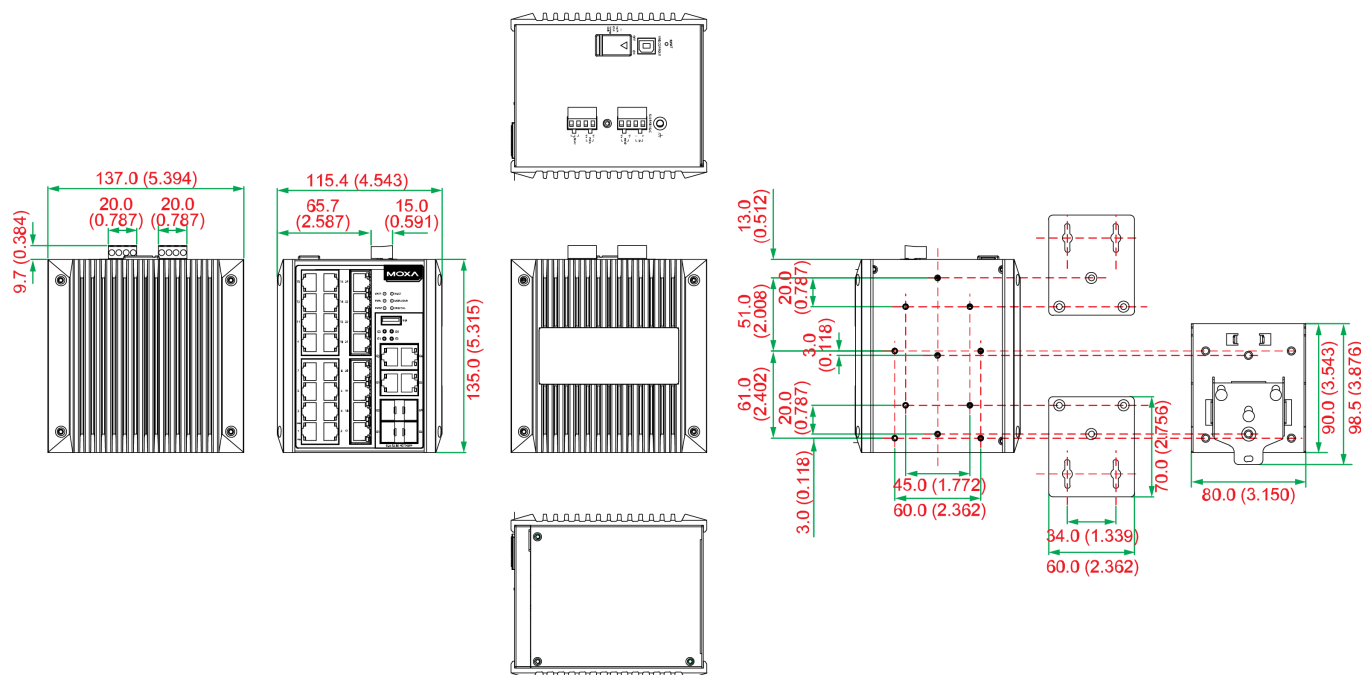
## Package Contents

|                  |                                                                   |
|------------------|-------------------------------------------------------------------|
| Device           | 1 x EDS-528E Series switch                                        |
| Cable            | 1 x USB type A male to USB type B male                            |
| Installation Kit | 4 x cap, plastic, for RJ45 port<br>4 x cap, plastic, for SFP slot |

|               |                                                                                                                                                                   |
|---------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 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.                                                                                            |

## 尺寸

單位：公釐（英吋）



## 訂購資訊

| Model Name            | 10/100BaseT(X) Ports<br>RJ45 Connector | Combo Ports<br>10/100/1000BaseT(X)<br>or 100/1000BaseSFP+ | 12/24/48/-48 VDC | 110/220 VDC/VAC | Operating Temp. |
|-----------------------|----------------------------------------|-----------------------------------------------------------|------------------|-----------------|-----------------|
| EDS-528E-4GTXSFP-LV   | 24                                     | 4                                                         | 2                | –               | -10 to 60°C     |
| EDS-528E-4GTXSFP-LV-T | 24                                     | 4                                                         | 2                | –               | -40 to 75°C     |
| EDS-528E-4GTXSFP-HV   | 24                                     | 4                                                         | –                | 1               | -10 to 60°C     |
| EDS-528E-4GTXSFP-HV-T | 24                                     | 4                                                         | –                | 1               | -40 to 75°C     |

## 配件（選購）

### 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 |

### 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                |

#### 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, 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                                      |
| 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 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-1GLHLC-T    | SFP module with 1 1000BaseLH port with LC connector for 30 km transmission, -40 to 85°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-1GLHXL-T    | SFP module with 1 1000BaseLHX port with LC connector for 40 km transmission, -40 to 85°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-1GLSXL-T    | SFP module with 1 1000BaseLSX port with LC connector for 1km/2km 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 300m/550m transmission, 0 to 60°C operating temperature   |
| SFP-1GSXLC-T | SFP module with 1 1000BaseSX port with LC connector for 300m/550m 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     |

#### Rack-Mounting Kits

|       |                           |
|-------|---------------------------|
| RK-4U | 19-inch rack-mounting kit |
|-------|---------------------------|

#### Wall-Mounting Kits

|          |                                                       |
|----------|-------------------------------------------------------|
| WK-60-01 | Wall-mounting kit, 2 plates, 6 screws, 60 x 70 x 2 mm |
|----------|-------------------------------------------------------|

#### Software

|                   |                                       |
|-------------------|---------------------------------------|
| MXview-50         | MXview license for 50 nodes           |
| MXview-100        | MXview license for 100 nodes          |
| MXview-250        | MXview license for 250 nodes          |
| MXview-500        | MXview license for 500 nodes          |
| MXview-1000       | MXview license for 1000 nodes         |
| MXview-2000       | MXview license for 2000 nodes         |
| MXview Upgrade-50 | MXview license expansion for 50 nodes |

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