

# EDS-4014 系列

## 8+4G+2 2.5GbE 埠網管型乙太網路交換器



### 特色與優點

- 根據 IEC 62443-4-1 開發，符合 IEC 62443-4-2 工業網路安全性標準
- 透過支援最高達 2.5 Gbps 的光纖 SFP 插槽提升頻寬能力
- Turbo Ring 和 Turbo Chain ( 250 台交換器，復原時間小於 20 毫秒 )<sup>1</sup>，以及透過 RSTP/STP 協議支援網路備援
- 大範圍功率輸入選項適用於彈性部署
- 小巧且富有彈性的外殼設計，可輕易安裝至狹小空間。
- 支援 MXstudio，輕鬆實現可視化的工業網路管理

### 認證



### 簡介

EDS-4014 系列包含多款 14 埠網管型快速乙太網路交換器，可選配四個 1 Gbps 及兩個 2.5 Gbps 光纖連接埠。

備援乙太網路技術（例如 Turbo Ring、Turbo Chain 與 RSTP/STP）可增加系統的可靠性，並且改善 網路骨幹的可用性。EDS-4014 系列是專門為 高要求的應用所設計（例如視訊與流程 監控、ITS 和 DCS 系統）所有應用都可 從可擴充的骨幹中獲益。

EDS-4014 系列 通過 IEC 62443-4-2 與 IEC 62443-4-1 工業網路安全性 認證，其中包括產品安全性與安全開發 生命週期需求，可協助客戶符合安全工業 網路設計的 合規性需求。

### 規格

| Ethernet Interface                    |                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|---------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 10/100BaseT(X) Ports (RJ45 connector) | 8<br>Auto MDI/MDI-X connection<br>Auto negotiation speed<br>Full/Half duplex mode                                                                                                                                                                                                                                                                                                                                                             |
| 100/1000BaseSFP Slots                 | 4                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| 1000/2500BaseSFP Ports                | 2                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| 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 1000BaseX<br>IEEE 802.3bz for 2.5GBaseX<br>IEEE 802.3x for flow control<br>IEEE 802.3ad for Port Trunk with LACP<br>IEEE 802.1Q for VLAN Tagging<br>IEEE 802.1D-2004 for Spanning Tree Protocol<br>IEEE 802.1w for Rapid Spanning Tree Protocol<br>IEEE 802.1p for Class of Service<br>IEEE 802.1X for authentication |

1. 如果連接埠連結速度為 1 Gigabit 或以上，復原時間小於 < 50 毫秒

## Ethernet Software Features

|                      |                                                                                                                                                                                                                                                                                                      |
|----------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Industrial Protocols | EtherNet/IP<br>Modbus TCP<br>PROFINET IO Device                                                                                                                                                                                                                                                      |
| Management           | IPv4/IPv6<br>Flow control<br>Back Pressure Flow Control<br>DHCP Server/Client<br>ARP<br>RARP<br>LLDP<br>Fiber check<br>Port Mirroring (SPAN, RSPAN)<br>Linkup Delay<br>SMTP<br>SNMP Trap<br>SNMP Inform<br>SNMPv1/v2c/v3<br>RMON<br>TFTP<br>SFTP<br>HTTP<br>HTTPS<br>Telnet<br>Syslog<br>Private MIB |
| Filter               | GMRP<br>GVRP<br>GARP<br>802.1Q VLAN<br>IGMP Snooping v1/v2/v3<br>IGMP Querier                                                                                                                                                                                                                        |
| Redundancy Protocols | STP<br>RSTP<br>Turbo Ring v2<br>Turbo Chain<br>Ring Coupling<br>Dual-Homing<br>Link Aggregation<br>MRP<br>MSTP                                                                                                                                                                                       |
| Security             | Broadcast storm protection<br>Rate Limit<br>Trust access control<br>Static Port Lock<br>MAC Sticky<br>HTTPS/SSL<br>SSH<br>RADIUS<br>TACACS+<br>Access control list<br>Login and Password Policy<br>DHCP Snooping                                                                                     |
| Time Management      | SNTP<br>NTP Server/Client<br>NTP Authentication<br>IEEE 1588v2 PTP (hardware-based)<br>Supported power profiles: IEEE 1588 Default 2008, IEC 61850-9-3-2016, IEEE C37.238-2017                                                                                                                       |

|           |                                                                                                                                                                                                     |
|-----------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Protocols | IPv4/IPv6<br>TCP/IP<br>UDP<br>ICMP<br>ARP<br>RARP<br>TFTP<br>DNS<br>NTP Client<br>DHCP Server<br>DHCP Client<br>802.1X<br>QoS<br>HTTPS<br>HTTP<br>Telnet<br>SMTP<br>SNMPv1/v2c/v3<br>RMON<br>Syslog |
| MIB       | P-BRIDGE MIB<br>Q-BRIDGE MIB<br>IEEE8021-SPANNING-TREE-MIB<br>IEEE8021-PAE-MIB<br>IEEE8023-LAG-MIB<br>LLDP-EXT-DOT1-MIB<br>LLDP-EXT-DOT3-MIB<br>SNMPv2-MIB<br>RMON MIB Groups 1, 2, 3, 9            |

#### 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 |
|----------------|------------------------------------------------------|

#### Serial Interface

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

#### USB Interface

|               |                       |
|---------------|-----------------------|
| USB Connector | USB Type A (Reserved) |
|---------------|-----------------------|

#### 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<br>-30 to +3 V for state 0<br>Max. input current: 8 mA |
| Buttons                | Reset button                                                                    |

## DIP Switch Configuration

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

## Power Parameters

|                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|-----------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Connection                  | 2 removable 4-contact terminal block(s)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| Pre-installed Power Module  | -LV/-LV-T models: PWR-100-LV<br>-HV/-HV-T models: PWR-105-HV-I                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| Note                        | <p>The EDS-4014 Series supports modular power supplies. The model names and power parameters are determined by the installed power module.</p> <p>For example:<br/>EDS-4014-4GS-2QGS-T + PWR-100-LV = EDS-4014-4GS-2QGS-LV-T<br/>EDS-4014-4GS-2QGS-T + PWR-105-HV-I = EDS-4014-4GS-2QGS-HV-T</p> <p>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-4014-4GS-2QGS-LV-T with the PWR-105-HV-I, refer to the specifications of the EDS-4014-4GS-2QGS-HV-T.</p> |
| Input Voltage               | -LV/-LV-T models: 12/24/48 VDC, Redundant dual inputs<br>-HV/-HV-T models: 110/220 VDC/VAC, Single input                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| Operating Voltage           | -LV/-LV-T models: 9.6 to 60 VDC<br>-HV/-HV-T models: 88 to 300 VDC, 85 to 264 VAC                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| Input Current               | -LV/-LV-T models: 12-48 VDC, 1.50-0.40 A or 24 VDC, 0.70 A<br>-HV/-HV-T models: 110-220 VAC, 50-60 Hz, 0.30-0.20 A or 110-220 VDC, 0.30-0.20 A                                                                                                                                                                                                                                                                                                                                                                                                                        |
| Power Consumption (Max.)    | EDS-4014-4GS-2QGS-LV(-T) models: 12.15 W<br>EDS-4014-4GS-2QGS-HV(-T) models: 14.44 W                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Overload Current Protection | Supported                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| Reverse Polarity Protection | Supported                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |

## Physical Characteristics

|              |                                                        |
|--------------|--------------------------------------------------------|
| IP Rating    | IP40                                                   |
| Dimensions   | 55 x 140 x 122.5 mm (2.17 x 5.51 x 4.82 in)            |
| Weight       | 846 g (1.87 lb)                                        |
| Installation | DIN-rail mounting<br>Wall mounting (with optional kit) |
| Housing      | Metal                                                  |

## 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) |
|-----------------------|---------------------------------------------------------------------------------------------|

## Standards and Certifications

|                          |                                                                                           |
|--------------------------|-------------------------------------------------------------------------------------------|
| Industrial Cybersecurity | IEC 62443-4-1<br>IEC 62443-4-2                                                            |
| Safety                   | UL 61010-2-201<br>EN 62368-1 (LVD)                                                        |
| EMC                      | EN 55032/35<br>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<br>IEC 61000-4-3 RS: 80 MHz to 1 GHz: 20 V/m |

|                     |                                                                                                                                                |
|---------------------|------------------------------------------------------------------------------------------------------------------------------------------------|
|                     | 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 |
| Maritime            | -LV/-LV-T models: DNV, ABS, NK, LR                                                                                                             |
| Vibration           | IEC 60068-2-6                                                                                                                                  |
| Shock               | IEC 60068-2-27                                                                                                                                 |
| Freefall            | IEC 60068-2-32                                                                                                                                 |
| Railway             | EN 50121-4                                                                                                                                     |
| Traffic Control     | NEMA TS2                                                                                                                                       |
| Power Substation    | IEC 61850-3<br>IEEE 1613 Class 1                                                                                                               |
| Hazardous Locations | -LV/-LV-T models:<br>ATEX<br>IECEX<br>Class I Division 2                                                                                       |

### MTBF

|      |                                                                                    |
|------|------------------------------------------------------------------------------------|
| Time | EDS-4014-4GS-2QGS-LV/LV-T: 1,003,814 hrs<br>EDS-4014-4GS-2QGS-HV/HV-T: 489,769 hrs |
|------|------------------------------------------------------------------------------------|

### Warranty

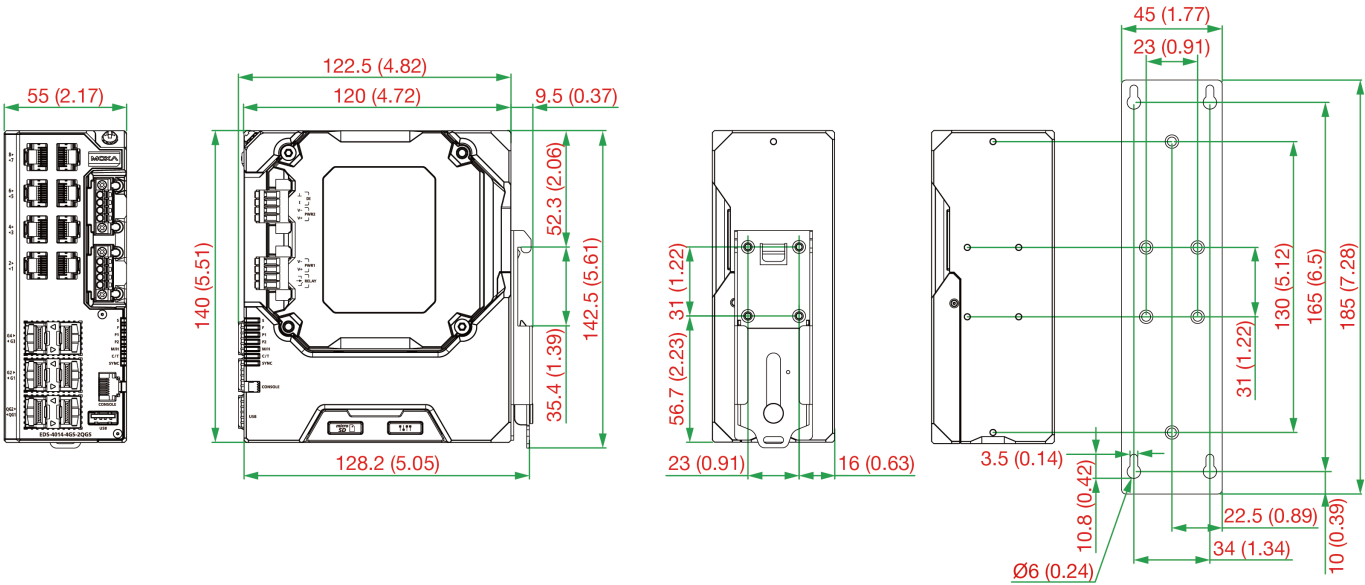
|                 |                                                                            |
|-----------------|----------------------------------------------------------------------------|
| Warranty Period | 5 years                                                                    |
| Details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

### Package Contents

|               |                                                                                                                                                                   |
|---------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Device        | 1 x EDS-4014 Series switch                                                                                                                                        |
| Documentation | 1 x quick installation guide<br>1 x product notice, Simplified Chinese<br>1 x product certificates of quality inspection, Simplified Chinese<br>1 x warranty card |

## 尺寸

單位：公釐（英吋）



## 訂購資訊

| Model Name             | 10/100BaseT(X)<br>Ports (RJ45<br>Connector) | 100/1000BaseSFP<br>Ports | 1000/<br>2500BaseSFP<br>Ports | Operating Voltage               | Pre-installed<br>Power Module | Operating Temp. |
|------------------------|---------------------------------------------|--------------------------|-------------------------------|---------------------------------|-------------------------------|-----------------|
| EDS-4014-4GS-2QGS-LV   | 8                                           | 4                        | 2                             | 9.6 to 60 VDC                   | PWR-100-LV                    | -10 to 60°C     |
| EDS-4014-4GS-2QGS-LV-T | 8                                           | 4                        | 2                             | 9.6 to 60 VDC                   | PWR-100-LV                    | -40 to 75°C     |
| EDS-4014-4GS-2QGS-HV   | 8                                           | 4                        | 2                             | 88 to 300 VDC, 85<br>to 264 VAC | PWR-105-HV-I                  | -10 to 60°C     |
| EDS-4014-4GS-2QGS-HV-T | 8                                           | 4                        | 2                             | 88 to 300 VDC, 85<br>to 264 VAC | PWR-105-HV-I                  | -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                      |
| ABC-03-microSD-T | MicroSD-based configuration backup and restoration tool, firmware upgrades, and log file storage tool for managed Ethernet switches and WLAN products, -40 to 85°C operating temperature |

### SFP Modules

|                |                                                                                                                                                      |
|----------------|------------------------------------------------------------------------------------------------------------------------------------------------------|
| SFP-1GEZXC     | SFP module with 1 1000BaseEZ port with LC connector for 110 km transmission, 0 to 60°C operating temperature                                         |
| SFP-1GEZXC-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-1GLHXC     | SFP module with 1 1000BaseLHX port with LC connector for 40 km transmission, 0 to 60°C operating temperature                                         |
| SFP-1GLSXC     | SFP module with 1 1000BaseLS port with LC connector for 1km/2km transmission, 0 to 60°C operating temperature                                        |
| SFP-1GLXC      | SFP module with 1 1000BaseLX port with LC connector for 10 km transmission, 0 to 60°C operating temperature                                          |
| SFP-1GSXC      | SFP module with 1 1000BaseSX port with LC connector for 300m/550m transmission, 0 to 60°C operating temperature                                      |
| SFP-1GZXC      | 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-1GLHXC-T   | SFP module with 1 1000BaseLHX port with LC connector for 40 km transmission, -40 to 85°C operating temperature                                       |
| SFP-1GLSXC-T   | SFP module with 1 1000BaseLS port with LC connector for 1km/2km transmission, -40 to 85°C operating temperature                                      |
| SFP-1GLXC-T    | SFP module with 1 1000BaseLX port with LC connector for 10 km transmission, -40 to 85°C operating temperature                                        |
| SFP-1GSXC-T    | SFP module with 1 1000BaseSX port with LC connector for 300m/550m transmission, -40 to 85°C operating temperature                                    |
| SFP-1GZXC-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                                      |
| SFP-2.5GSLC-T   | SFP module with 1 2.5GBaseFX port with LC connector, single-mode, for 5 km transmission, -40 to 85 °C operating temperature                            |
| SFP-2.5GLSLC-T  | SFP module with 1 2.5GBaseFX port with LC connector, single-mode, for 20 km transmission, -40 to 85 °C operating temperature                           |
| SFP-2.5GMLC-T   | SFP module with 1 2.5GBaseFX port with LC connector, multi-mode, for 170, 200, 550, 600 m transmission, -40 to 85 °C operating temperature             |
| SFP-2.5GSLHLC-T | SFP module with 1 2.5GBaseFX port with LC connector, single-mode, for 45 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                                         |

## 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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