

MDS-G4012-L3 Series

12G-port Layer 3 full Gigabit modular managed Ethernet switches



Features and Benefits

- Layer 3 routing interconnects multiple LAN segments
- Multiple interface type 4-port modules for greater versatility
- Tool-free design for effortlessly adding or replacing modules without shutting down the switch
- Ultra-compact size and multiple mounting options for flexible installation
- Rugged die-cast design for use in harsh environments
- Intuitive, HTML5-based web interface for a seamless experience across different platforms

Certifications



Introduction

The MDS-G4012-L3 Series modular switches support up to 12 Gigabit ports, including 4 embedded ports, 2 interface module expansion slots, and 2 power module slots to ensure sufficient flexibility for a variety of applications. The highly compact MDS-G4000-L3 Series is designed to meet evolving network requirements, ensuring effortless installation and maintenance, and features a hot-swappable module design that enables you to easily change or add modules without shutting down the switch or interrupting network operations.

The multiple Ethernet modules (RJ45, SFP, and PoE+) and power units (24/48 VDC, 110/220 VAC/VDC) provide even greater flexibility as well as suitability for different operating conditions, delivering an adaptive full Gigabit platform that provides the versatility and bandwidth necessary to serve as an Ethernet aggregation/edge switch. Featuring a compact design that fits in confined spaces, multiple mounting methods, and convenient tool-free module installation, the MDS-G4000-L3 Series switches enable versatile and effortless deployment without the need for highly skilled engineers. With multiple industry certifications and a highly durable housing, the MDS-G4000-L3 Series can reliably operate in tough and hazardous environments such as power substations, mining sites, ITS, and oil and gas applications. Support for dual power modules provides redundancy for high reliability and availability while LV and HV power module options offer additional flexibility to accommodate the power requirements of different applications.

Support for Layer 3 routing functionality enables these switches to facilitate the deployment of applications across different networks, making them ideal for large-scale industrial networks. In addition, the MDS-G4000-L3 Series features an HTML5-based, user-friendly web interface providing a responsive, smooth user experience across different platforms and browsers.

Specifications

Ethernet Interface

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| Pre-installed Modules | 4 embedded Gigabit ports |
| Module | 2 slots for optional 4-port FE/GE modules |

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| Slot Combination | <p>See the LM-7000H module series datasheet for more information.</p> <p>Note: The required power module depends on the choice of LM-7000H module. Refer to the following power/module combination requirements.</p> <p>LM-7000H non-PoE modules: Any power module</p> <p>LM-7000H PoE modules: PWR-HV-P48, PWR-LV-P48 only</p> |
| Standards | <p>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 IEEE 802.3af/at for PoE/PoE+ output</p> |

Ethernet Software Features

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|----------------------|---|
| Management | <p>IPv4 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 Loopback interface</p> |
| Filter | <p>GMRP GVRP GARP 802.1Q VLAN IGMP Snooping v1/v2/v3 IGMP Querier</p> |
| Redundancy Protocols | <p>STP RSTP Turbo Ring v2 Turbo Chain Ring Coupling Dual-Homing Link Aggregation</p> |
| Routing Redundancy | <p>VRRP</p> |
| Security | <p>Broadcast storm protection Rate Limit Trust access control Static Port Lock MAC Sticky HTTPS/SSL SSH</p> |

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| | RADIUS TACACS+ Login and Password Policy |
| Time Management | SNTP NTP Server/Client NTP Authentication |
| Protocols | IPv4 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 |
| Unicast Routing | OSPF Static Route |
| 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 |
| Switch Properties | |
| MAC Table Size | 16 K |
| Max. No. of VLANs | 256 |
| VLAN ID Range | VID 1 to 4094 |
| IGMP Groups | 1024 |
| Priority Queues | 8 |
| Packet Buffer Size | 12 Mbits |
| 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

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| Digital Input Channels | 1 (On MGMT Module) |
| Digital Inputs | +13 to +30 V for state 1 -30 to +3 V for state 0 Max. input current: 8 mA |
| Alarm Contact Channels | 3 (On MGMT, PWR1, PWR2 Module) Relay output with current carrying capacity of 2 A @ 30 VDC |

Power Parameters

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| Input Voltage | <p>With PWR-HV-P48 installed: 110/220 VDC, 110 VAC, 60 HZ, 220 VAC, 50 Hz, PoE: 48 VDC</p> <p>With PWR-LV-P48 installed: 24/48 VDC, PoE: 48 VDC</p> <p>With PWR-HV-NP installed: 110/220 VDC, 110 VAC, 60 HZ, 220 VAC, 50 Hz</p> <p>With PWR-LV-NP installed: 24/48 VDC</p> |
| Operating Voltage | <p>With PWR-HV-P48 installed: 88 to 300 VDC, 90 to 264 VAC, 47 to 63 Hz, PoE: 46 to 57 VDC</p> <p>With PWR-LV-P48 installed: 18 to 72 VDC (24/48 VDC for hazardous location), PoE: 46 to 57 VDC (48 VDC for hazardous location)</p> <p>With PWR-HV-NP installed: 88 to 300 VDC, 90 to 264 VAC, 47 to 63 Hz</p> <p>With PWR-LV-NP installed: 18 to 72 VDC</p> |
| Input Current | <p>With PWR-HV-P48/PWR-HV-NP installed: Max. 0.30 A @ 110 VDC Max. 0.11 A @ 220 VDC Max. 0.60 A @ 110 VAC Max. 0.29 A @ 220 VAC</p> <p>With PWR-LV-P48/PWR-LV-NP installed: Max. 3.3 A @ 24 VDC Max. 0.73A @ 48 VDC</p> <p>EPS (PoE models only): Max. 8.2 A @ 48 VDC</p> <p>Note: These are the input current ratings for the device with the maximum number of modules installed.</p> |
| Power Consumption (Max.) | <p>With PWR-HV-P48/PWR-HV-NP installed: Max. 33.0 W @ 110 VDC Max. 24.2 W @ 220 VDC Max. 32.3 W @ 110 VAC Max. 27.3 W @ 220 VAC</p> <p>With PWR-LV-P48/PWR-LV-NP installed: Max. 79.2 W @ 24 VDC Max. 35.0 W @ 48 VDC</p> <p>Note: These are the maximum power consumption ratings for the device with the maximum number of modules installed.</p> |
| Max. PoE Power Output per Port | 36 W |
| Total PoE Power Budget | Max. 360 W (with one power supply) for total PD consumption at 48 VDC input for PoE systems |

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| | <p>Max. 360 W (with one power supply) for total PD consumption at 53 to 57 VDC input for PoE+ systems</p> <p>Max. 720 W (with two power supplies) for total PD consumption at 48 VDC input for PoE systems</p> <p>Max. 720 W (with two power supplies) for total PD consumption at 53 to 57 VDC input for PoE+ systems</p> |
| Overload Current Protection | Supported |
| Reverse Polarity Protection | Supported |
| Physical Characteristics | |
| IP Rating | IP40 |
| Dimensions | 134 x 115 x 163.25 mm (5.28 x 4.53 x 6.44 in) |
| Weight | 2000 g (4.41 lb) |
| Installation | <p>DIN-rail mounting</p> <p>Wall mounting (with optional kit)</p> <p>Rack mounting (with optional kit)</p> |
| Environmental Limits | |
| Operating Temperature | <p>Standard Temp Models: -10 to 60°C (-14 to 140°F)</p> <p>Wide Temp Models: -40 to 75°C (-40 to 167°F)</p> |
| Storage Temperature (package included) | -40 to 85°C (-40 to 185°F) |
| Ambient Relative Humidity | 5 to 95% (non-condensing) |
| Standards and Certifications | |
| Safety | <p>EN 62368-1</p> <p>IEC 62368-1</p> <p>UL 62368-1</p> <p>IEC 60950-1</p> |
| EMC | <p>EN 55032/35</p> <p>EN 61000-6-2/-6-4</p> |
| EMI | CISPR 32, FCC Part 15B Class A |
| EMS | <p>IEC 61000-4-2 ESD: Contact: 8 kV; Air: 15 kV</p> <p>IEC 61000-4-3 RS: 80 MHz to 1 GHz: 20 V/m</p> <p>IEC 61000-4-4 EFT: Power: 4 kV; Signal: 4 kV</p> <p>IEC 61000-4-5 Surge: Power: 4 kV; Signal: 4 kV</p> <p>IEC 61000-4-6 CS: 10 V</p> <p>IEC 61000-4-8 PFMF</p> <p>IEC 61000-4-11: Voltage Dips and Voltage Interruptions</p> |
| Railway | EN 50121-4 |
| Traffic Control | NEMA TS2 |
| Shock | IEC 60068-2-27 |
| Freefall | IEC 60068-2-31 |
| Vibration | IEC 60068-2-6 |
| Hazardous Locations | <p>Class I Division 2</p> <p>ATEX</p> |
| Power Substation | <p>IEEE 1613</p> <p>IEC 61850-3</p> |

MTBF

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| Time | 1,008,160 hrs |
| Standards | Telcordia SR332 |

Warranty

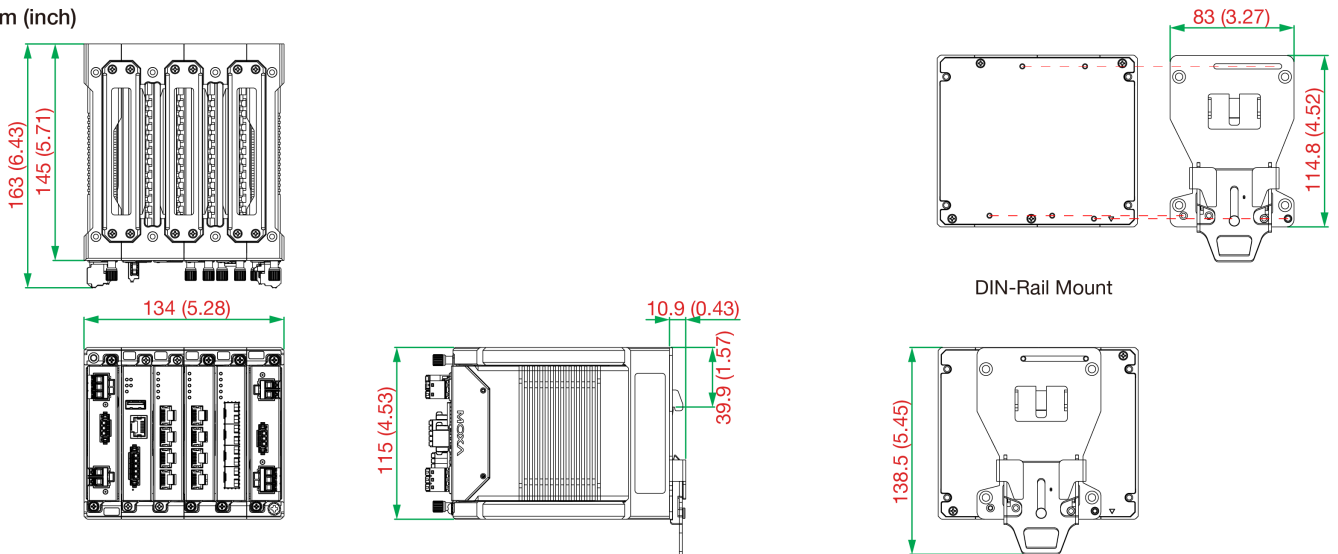
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|-----------------|--|
| Warranty Period | 5 years |
| Details | See www.moxa.com/warranty |

Package Contents

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|------------------|---|
| Device | 1 x MDS-G4012-L3 Series switch |
| Cable | 1 x RJ45-to-DB9 console cable |
| Installation Kit | (Pre-installed) 2 x DIN-rail kit 2 x cap, plastic, for RJ45 port |
| 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 |
| Note | This product requires additional modules (sold separately) to function. |

Dimensions

Unit: mm (inch)



Ordering Information

| Model Name | Layer | Total No. of Ports | 100/1000BaseSFP Slots | 10/100/1000BaseT(X) Ports (RJ45 Connector) | PoE 10/100/1000BaseT(X) Ports (RJ45 Connector) | 10/100BaseT(X) Ports (RJ45 Connector) | PoE 10/100BaseT(X) Ports (RJ45 Connector) | Operating Temp. |
|----------------|-------|--------------------|-----------------------|--|--|---------------------------------------|---|-----------------|
| MDS-G4012-L3 | 3 | 12 | Up to 8 | Up to 12 | Up to 8 | Up to 8 | Up to 8 | -10 to 60°C |
| MDS-G4012-L3-T | 3 | 12 | Up to 8 | Up to 12 | Up to 8 | Up to 8 | Up to 8 | -40 to 75°C |

Accessories (sold separately)

LM-7000H Module Series

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|----------------|---|
| LM-7000H-4GTX | Gigabit Ethernet module with 4 10/100/1000BaseT(X) ports |
| LM-7000H-4GPoE | Gigabit Ethernet module with 4 10/100/1000BaseT(X) IEEE 802.3af/at PoE+ ports |

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| LM-7000H-4GSFP | Gigabit Ethernet module with 4 100/1000BaseSFP slots |
| LM-7000H-4TX | Fast Ethernet module with 4 10/100BaseT(X) ports |
| LM-7000H-4PoE | Fast Ethernet module with 4 10/100BaseT(X) IEEE 802.3af/at PoE+ ports |

Power Modules

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| PWR-LV-P48 | Power supply module (24/48 VDC) with system power input, relay, PoE power input |
| PWR-HV-P48 | Power supply module (110/220 VAC/VDC) with system power input, relay, PoE power input |
| PWR-LV-NP | Power supply module (24/48 VDC) with system power input, relay |
| PWR-HV-NP | Power supply module (110/220 VAC/VDC) with system power input, relay |

Wall-Mounting Kits

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| WK-112-01 | Wall-mounting kit, 2 plates, 8 screws |
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Rack-Mounting Kits

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| RK-3U-02 | Rack-mounting kit with 4 L-shaped plates for the MDS-G4000 and MDS-G4000-4XGS Series |
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SFP Modules

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| 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-1FELLC-T | SFP module with 1 100Base single-mode 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-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-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-1GLSXL | SFP module with 1 1000BaseLSX port with LC connector for 1km/2km transmission, 0 to 60°C operating temperature |

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| SFP-1GLSXLC-T | SFP module with 1 1000BaseLSX port with LC connector for 1 km/2 km 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-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-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-1GEZXL | SFP module with 1 1000BaseEZ port with LC connector for 110 km transmission, 0 to 60°C operating temperature |
| SFP-1GEZXL-120 | SFP module with 1 1000BaseEZ port with LC connector for 120 km transmission, 0 to 60°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

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

Software

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