

MDS-G4012-L3-4XGSシリーズ

8 GbE + 4 10GbEポートレイヤ3フルギガビットモジュール式マネージド・イーサネット・スイッチ



機能とメリット

- 複数のLANセグメントを相互接続するレイヤー3ルーティング
- 多様なインターフェースタイプモジュールで汎用性向上
- 最大8個のギガビットイーサネットポートならびにSFPスロットと4個の組み込み10Gイーサネットポート
- ツール不要の設計で、スイッチの電源を切ることなくモジュールの追加や交換が容易
- 超小型サイズと多様な設置オプションで柔軟な設置が可能
- パッシブバックプレーンでメンテナンスの手間を最小限に抑える
- 過酷な環境でも使用できる堅牢なダイキャスト設計
- 直感的なHTML5ベースのWebインターフェースで、異なるプラットフォーム間でシームレスな操作性を実現
- IEC 61850-3およびIEEE 1613に準拠した高いEMC耐性
- ハードウェアベースのIEEE 1588 PTPで高精度な時刻同期を実現

認証



製品紹介

MDS-G4012-L3-4XGSシリーズのモジュール式スイッチは、4つの組み込みポート、2つのインターフェースモジュール拡張スロット、および2つの電源モジュールスロットを含む4つの10GbE + 8ギガビットポートに対応し、様々なアプリケーションに十分な柔軟性を確保します。非常にコンパクトなMDS-G4012-L3-4XGSシリーズは、進化するネットワーク要件を満たすように設計されており、設置とメンテナンスが簡単に行えます。また、ホットスワップ可能なモジュール設計を採用しているため、スイッチをシャットダウンしたりネットワーク操作を中断したりすることなく、モジュールを簡単に変更または追加できます。

複数の種類のインターフェースモジュール（RJ45、SFP、PoE+）と電源ユニット（24/48 VDC、110/220 VAC/VDC）により、柔軟性と様々な動作条件に対する適合性がさらに高まり、イーサネットアグリゲーション/エッジスイッチとして機能するために必要な汎用性と帯域幅を提供する適応型のフルギガビットプラットフォームが実現します。MDS-G4012-L3-4XGSシリーズスイッチは、限られたスペースに収まるコンパクトな設計、複数の設置方法、便利なツール不要のモジュール取り付けを特徴としており、高度なスキルを持つエンジニアを必要とせず、多用途かつ簡単に導入できます。MDS-G4012-L3-4XGSシリーズは、複数の業界認証を取得し、耐久性の高い筐体を採用しているため、変電所、採掘現場、ITS、石油・ガスアプリケーションなど、過酷で危険な環境でも確実に動作します。デュアルLVまたはHV電源モジュールのサポートにより、高い信頼性と可用性を実現する冗長性が提供され、様々なアプリケーションの電力要件に対応する柔軟性も得られます。

レイヤ3ルーティング機能のサポートにより、これらのスイッチは様々なネットワーク間でのアプリケーションの導入を容易にし、大規模な産業用ネットワークに最適です。さらに、MDS-G4012-L3-4XGSシリーズはHTML5ベースのユーザーフレンドリーなWebインターフェースを備えており、様々なプラットフォームやブラウザで応答性に優れたスムーズなユーザーエクスペリエンスを提供します。

仕様

Ethernet Interface

Pre-installed Modules	4 embedded 10Gigabit ports
Module	2 slots for optional FE/GE modules

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-A, PWR-LV-P48-A 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</p>

Ethernet Software Features

Management	<p>IPv4 ARP Flow control Back Pressure Flow Control DHCP Relay Agent (Option 82) Fiber check RARP LLDP Linkup Delay Port Mirroring (SPAN, RSPAN) SMTP SNMP Trap SNMP Inform SNMPv1/v2c/v3 RMON TFTP SFTP HTTP HTTPS Telnet Syslog Private MIB</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 Link Aggregation Network Loop Protection MRP MSTP MRP Interconnection Multiple Dual Homing Multiple Network Coupling Tracking</p>
Routing Redundancy	VRRP
Security	<p>Broadcast storm protection DHCP Snooping</p>

	Dynamic ARP Inspection IP Source Guard Rate Limit Trust access control Static Port Lock MAC Sticky HTTPS/SSL SSH RADIUS TACACS+ Login and Password Policy Secure Boot MAC Authentication Bypass Access control list IEEE 802.1AE MAC security
Time Management	SNTP IEEE 1588v2 PTP (hardware-based) Supported power profiles: IEEE 1588 Default 2008, IEC 61850-9-3-2016, IEEE C37.238-2017 NTP Server/Client NTP Authentication
Protocols	IPv4 Syslog TCP/IP UDP ICMP ARP RARP TFTP DNS NTP Client 802.1X QoS HTTPS HTTP Telnet SMTP SNMPv1/v2c/v3 RMON VLAN Assignment
Industrial Protocols	EtherNet/IP Modbus TCP PROFINET
Unicast Routing	OSPF Static Route
Multicast Routing	Multicast Local Route PIM-DM PIM-SM
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
Power Substation	GOOSE Check MMS 1588 PTP Power Profile IEC 61850-9-3 1588 PTP Power Profile C37.238-2017

Switch Properties

MAC Table Size	16 K
Max. No. of VLANs	256
VLAN ID Range	VID 1 to 4094
IGMP Groups	1024
Jumbo Frame Size	9.216 KB
Priority Queues	8
Packet Buffer Size	12 Mbits

LED Interface

LED Indicators	PWR, EPS, STATE, SYNC, FAULT, MSTR/HEAD, CPLR/TAIL
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Serial Interface

Console Port	RS-232 (RJ45)
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USB Interface

USB Connector	USB Type A
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Input/Output Interface

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
Buttons	Reset button

Power Parameters

Input Voltage	With PWR-HV-P48-A installed: 110/220 VDC, 110 VAC, 60 HZ, 220 VAC, 50 Hz, PoE: 48 VDC With PWR-LV-P48-A installed: 24/48 VDC, PoE: 48 VDC With PWR-HV-NP installed: 110/220 VDC, 110 VAC, 60 HZ, 220 VAC, 50 Hz With PWR-LV-NP installed: 24/48 VDC
Operating Voltage	With PWR-HV-P48-A installed: 88 to 300 VDC, 90 to 264 VAC, 47 to 63 Hz, PoE: 46 to 57 VDC With PWR-LV-P48-A installed: 18 to 72 VDC, PoE: 46 to 57 VDC With PWR-HV-NP installed: 88 to 300 VDC, 90 to 264 VAC, 47 to 63 Hz With PWR-LV-NP installed: 18 to 72 VDC
Input Current	With PWR-HV-P48-A/PWR-HV-NP installed: Max. 0.38 A @ 110 VDC Max. 0.20 A @ 220 VDC Max. 0.75 A @ 110 VAC Max. 0.48 A @ 220 VAC

	<p>With PWR-LV-P48-A/PWR-LV-NP installed: Max. 1.90 A @ 24 VDC Max. 0.95 A @ 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-A/PWR-HV-NP installed: Max. 41.8 W @ 110 VDC Max. 44.2 W @ 220 VDC Max. 46.6 W @ 110 VAC Max. 46.5 W @ 220 VAC</p> <p>With PWR-LV-P48-A/PWR-LV-NP installed: Max. 45.8 W @ 24 VDC Max. 45.8 W @ 48 VDC</p> <p>Note: These are the maximum power consumption ratings for the device with the maximum number of modules installed.</p>
Overload Current Protection	Supported
Reverse Polarity Protection	Supported
Max. PoE Power Output per Port	36 W
Total PoE Power Budget	<p>Max. 360 W (with one power supply) for total PD consumption at 48 VDC input for PoE systems</p> <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>

Physical Characteristics

IP Rating	IP40
Dimensions	197 x 115 x 163.25 mm (7.76 x 4.53 x 6.43 in) 212 x 115 x 163.25 mm (8.35 x 4.53 x 6.43 in) with dual PWR-HV-P48-A/PWR-LV-P48-A power modules installed
Weight	3,030 g (6.68 lb)
Installation	DIN-rail mounting Wall mounting (with optional kit) Rack mounting (with optional kit)

Environmental Limits

Operating Temperature	-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

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 IEC 61000-4-11 Voltage Dips & Interruptions
Safety	EN IEC 62368-1 IEC 62368-1 UL 62368-1 IEC 60950-1 EN 61010-2-201 UL 61010-2-201
Railway	EN 50121-4
Traffic Control	NEMA TS2
Shock	IEC 60068-2-27
Freefall	IEC 60068-2-31
Vibration	IEC 60068-2-6
Power Substation	IEC 61850-3 IEEE 1613

MTBF

Time	794,532 hrs
Standards	Telcordia Standard SR-332

Warranty

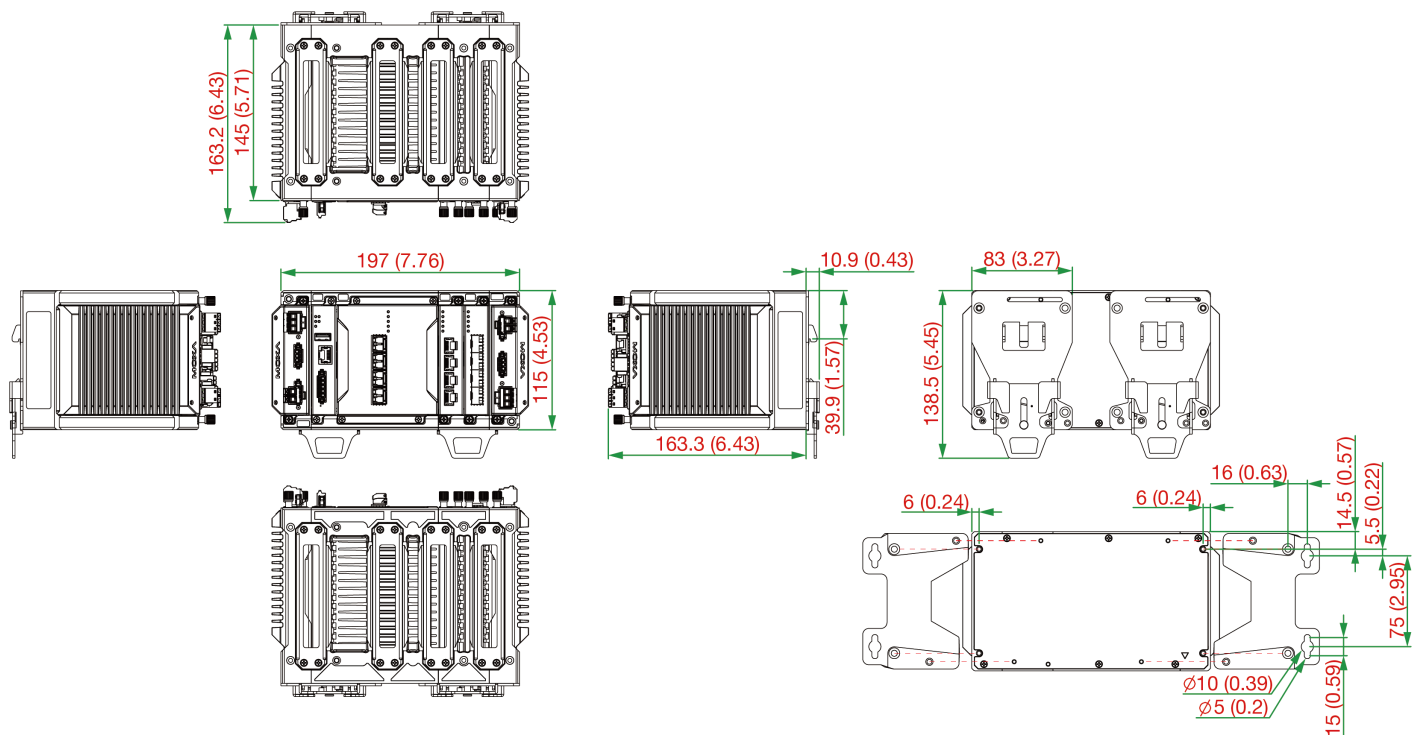
Warranty Period	5 years
Details	See www.moxa.com/jp/warranty

Package Contents

Device	1 x MDS-G4012-L3-4XGS Series switch
Installation Kit	Preinstalled, 2 x DIN-rail kit 4 x cap, plastic, for SFP+ slots
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.

寸法

単位：mm（インチ）



注文情報

Model Name	Layer	Total No. of Ports	10G SFP+ Slots	100/1000Base SFP Slots	10/100/1000BaseT(X) Ports RJ45 Connector	10/100BaseT(X) Ports RJ45 Connector	Operating Temp.
MDS-G4012-L3-4XGS-T	3	12	4	Up to 8	Up to 8	Up to 8	-40 to 75°C

アクセサリ（別売）

LM-7000H Module Series

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
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

PWR-LV-P48-A	24/48 VDC power supply module with system power, relay, PoE power input, advanced heat sink
PWR-HV-P48-A	110/220 VAC/VDC power supply module with system power, relay, PoE power input, advanced heat sink
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

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

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

SFP-10GERLC-T	SFP+ module with 1 10GBase-ER port, LC connector for 40 km transmission, -40 to 85°C operating temperature
SFP-10GLRLC-T	SFP+ module with 1 10GBase-LR port, LC connector for 10 km transmission, -40 to 85°C operating temperature
SFP-10GSRLC-T	SFP+ module with 1 10GBase-SR port, LC connector for 33m/82m/300m/400m transmission, -40 to 85°C operating temperature
SFP-10GZRLC-T	SFP+ module with 1 10GBase-ZR port, LC connector for 80 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-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-1GEZXC	SFP module with 1 1000BaseEZXC port with LC connector for 110 km transmission, 0 to 60°C operating temperature
SFP-1GEZXC-120	SFP module with 1 1000BaseEZXC 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 1km/2km transmission, 0 to 60°C operating temperature
SFP-1GLSXLC-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
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

Cables

CN20070	10-pin RJ45 to DB9 female serial cable
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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

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