

EDR-G9010 系列

8 GbE 銅 + 2 GbE SFP 多連接埠工業級安全路由器



特色與優點

- 基於 IEC 62443-4-1 開發並符合 IEC 62443-4-2 工業網路安全標準
- 10 連接埠 Gigabit 多合一 防火牆/NAT/VPN/路由器/交換器
- 工業級入侵防禦/偵測系統 (IPS/IDS)
- 以 MXsecurity 管理軟體將 OT 安全機制可視化
- VPN 保護遠端存取通道
- 以深度封包檢測 (Deep Packet Inspection, DPI) 技術檢驗工業級通訊協定資料
- 透過網路位址轉譯 (NAT) 輕鬆設定網路
- RSTP/Turbo Ring 備援通訊協定強化網路備援能力
- 支援安全開機以確認系統完整性
- -40 至 75°C 操作溫度範圍 (-T 型號)

認證



簡介

EDR-G9010 系列是一組高整合的工業級多連接埠安全路由器，具有防火牆/NAT/VPN 及 Layer 2 網管型交換器功能。這些裝置設計係針對基於以太網路的安全應用而設計，用於至關重要的遠端控制或監控網路。這些安全路由器提供電子安全邊界，以保護至關重要的網路資產，包括電力應用中的變電站、水站中的泵浦處理系統、石油與天然氣應用中的分散式控制系統，以及工廠自動化作業的 PLC/SCADA 系統。另外，新增 IDS/IPS 的 EDR-G9010 系列為工業級次世代防火牆，配備威脅偵測和預防功能，可進一步保護關鍵基礎設施，免受網路安全攻擊。

運用先進網路安全功能抵禦惡意威脅

EDR-G9010 系列的嵌入式防火牆採用政策規則以控制可信區域之間的網路流量，則網路位址轉譯 (Network Address Translation, NAT) 保護內部網路免受外部主機未經授權的存取。虛擬私人網路 (The Virtual Private Networking, VPN) 功能進一步為使用者提供安全通訊通道，以利於公共網際網路存取私人網路。為有助於保護您的 OT (營運技術) 資產免受網路攻擊，EDR-G9010 系列支援深度封包檢測 (Deep Packet Inspection, DPI)，以用於檢驗各種 OT 專用通訊協定網路封包的資料部分。

採用戶戶友善的介面和快速設定功能以簡化配置

EDR-G9010 系列的「設定精靈」為使用者提供了一種輕鬆的方法，只需四個步驟即可設定 WAN、LAN 和橋接連接埠以達到路由功能目的。此外，防火牆管理功能採物件導向，工程師簡單就能配置和維護 IP 位址和子網路、網路服務、工業應用服務以及使用者定義服務的防火牆過濾功能。

工業級設計 確保連網不斷線

EDR-G9010 系列硬體堅固耐用，則這些安全路由器十分適合用於嚴峻的工業環境，其機型可承受廣泛溫度範圍，可於危害條件和 -40 至 75°C 的極端溫度中穩定運作。此外，EDR-G9010 系列支援全面 Layer 2 和 Layer 3 備援機制，確保網路永遠保持連線。

虛擬修補智慧型資威脅防護功能

修補仍為 OT 環境中是主要挑戰之一，因為 OT 應用承擔不起關閉系統中斷運作再進行修補的代價。虛擬修補技術可屏蔽已知和未知的安全漏洞，進而彌補現有修補管理程序的不足。此外，EDR-G9010 具可連續發揮保護作用的智慧 IPS 功能，其運用模式偵測識別及攔截已知攻擊來抵禦網路威脅。

規格

Input/Output Interface

Alarm Contact Channels	Resistive load: 1 A @ 24 VDC
Buttons	Reset button
Digital Input Channels	+13 to +30 V for state 1 -30 to +3 V for state 0 Max. input current: 8 mA

Ethernet Interface

10/100/1000BaseT(X) Ports (RJ45 connector)	8
1000BaseSFP Slots	2
Standards	IEEE 802.1Q for VLAN Tagging IEEE 802.3 for 10BaseT IEEE 802.3ab for 1000BaseT(X) Static Port Trunk IEEE 802.3u for 100BaseT(X) IEEE 802.3x for flow control IEEE 802.3z for 1000BaseSX/LX/LHX/ZX IEEE 802.1X for authentication

Ethernet Software Features

Broadcast Forwarding	IP directed broadcast, broadcast forwarding
Management	Back Pressure Flow Control DDNS DHCP Server/Client Web Console (HTTP/HTTPS) LLDP QoS/CoS/ToS SNMPv1/v2c/v3 Telnet TFTP HTTPS SSH
Redundancy Protocols	RSTP STP Turbo Ring v2
Routing	Throughput: 350K packets per second (max. 1500 Mbps)
Routing Table	Max. 4K routing rules
Concurrent Connections	Max. 400K
Connections Per Second	Max. 20K
Routing Redundancy	VRRP
Security	Secure Boot IPsec L2TP (server) RADIUS Trust access control
Time Management	NTP Server/Client SNTP
Unicast Routing	OSPF RIPV1/V2 Static Route

Multicast Routing	Static Route
Filter	IGMP v1/v2/v3

Switch Properties

VLAN ID Range	VID 1 to 4094
IGMP Groups	256
Max. No. of VLANs	16

LED Interface

LED Indicators	PWR1, PWR2, STATE, MSTR/H.TC, CPLR/T.TC, VRRP/HA, VPN, USB
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DoS and DDoS Protection

Technology	<ul style="list-style-type: none"> ARP-Flood FIN Scan ICMP-Death NEWWithout-SYN Scan NMAP-ID Scan NMAP-Xmas Scan Null Scan SYN/FIN Scan SYN/RST Scan SYN-Flood Xmas Scan
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Firewall

Filter	<ul style="list-style-type: none"> DDoS Ethernet protocols ICMP IP address MAC address Ports
Stateful Inspection	<ul style="list-style-type: none"> Router firewall Transparent (bridge) firewall
Deep Packet Inspection	<ul style="list-style-type: none"> DNP3 EtherNet/IP IEC 60870-5-104 IEC 61850 MMS Modbus TCP Modbus UDP Omron FINS Siemens S7 Comm. Additional protocols will be supported through future firmware updates.
Intrusion Prevention System	Requires an additional license.
Throughput	Max. 350K packets per second (max. 1500 Mbps)

IPsec VPN

Authentication	<ul style="list-style-type: none"> MD5 and SHA (SHA-256) RSA (key size: 1024-bit, 2048-bit) X.509 v3 certificate
Concurrent VPN Tunnels	Max. 250 IPsec VPN tunnels
Encryption	<ul style="list-style-type: none"> DES 3DES AES-128 AES-192 AES-256

Protocols	IPsec L2TP (server) PPTP (client)
Throughput	Max. 300 Mbps (Conditions: AES-256, SHA-256)

NAT

Features	1-to-1 N-to-1 NAT loopback Port forwarding
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Real-Time Firewall / VPN Event Log

Event Type	Firewall event VPN event
Media	Local storage SNMP Trap Syslog server

Serial Interface

Console Port	RS-232 (TxD, RxD, GND), 3-pin (115200, n, 8, 1)
Connector	USB Type-C

Power Parameters

Connection	Removable terminal block
Input Voltage	EDR-G9010-VPN-2MGSFP(-T) models: 12/24/48 VDC (DNV-certified for 24 VDC) EDR-G9010-VPN-2MGSFP-HV(-T) models: 120/240 VDC/VAC
Operating Voltage	non-HV(-T) models: 9.6 to 60 VDC -HV(-T) models: 88 to 300 VDC, 90 to 264 VAC
Input Current	EDR-G9010-VPN-2MGSFP(-T) models: 1.51 A @ 12 VDC 0.70 A @ 24 VDC 0.35 A @ 48 VDC EDR-G9010-VPN-2MGSFP-HV(-T) models: 0.28 A @ 120 VAC 0.18 A @ 240 VAC 0.15 A @ 120 VDC 0.08 A @ 240 VDC
Reverse Polarity Protection	Supported

Physical Characteristics

Housing	Metal
Dimensions	EDR-G9010-VPN-2MGSFP(-T) models: 58 x 135 x 105 mm (2.28 x 5.31 x 4.13 in) EDR-G9010-VPN-2MGSFP-HV(-T) models: 64 x 135 x 105 mm (2.52 x 5.31 x 4.13 in)
Weight	EDR-G9010-VPN-2MGSFP(-T) models: 1030 g (2.27 lb) EDR-G9010-VPN-2MGSFP-HV(-T) models: 1150 g (2.54 lb)
Installation	DIN-rail mounting (DNV-certified) Wall mounting (with optional kit)

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) EDR-G9010-VPN-2MGSFP(-T) models: DNV-certified for -25 to 70°C (-13 to 158°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	IEC 62368-1 UL 62368-1 IEC 60950-1 UL 60950-1
EMC	EN 55032/35
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: 2 kV; Signal: 4 kV IEC 61000-4-6 CS: 10 V IEC 61000-4-8 PFMF
Industrial Cybersecurity	IEC 62443-4-1 IEC 62443-4-2
Railway	EDR-G9010-VPN-2MGSFP(-T) models: EN 50121-4
Traffic Control	EDR-G9010-VPN-2MGSFP(-T) models: NEMA TS2
Maritime	EDR-G9010-VPN-2MGSFP(-T) models: IEC 60945, DNV
Power Substation	IEEE 1613 IEC 61850-3 Edition 2.0
Hazardous Locations	EDR-G9010-VPN-2MGSFP(-T) models: ATEX, Class I Division 2
Shock	IEC 60068-2-27
Freefall	IEC 60068-2-32
Vibration	IEC 60068-2-6

MTBF

Time	EDR-G9010-VPN-2MGSFP(-T) models: 1,080,807 hrs EDR-G9010-VPN-2MGSFP-HV(-T) models: 509,714 hrs
Standards	Telcordia (Bellcore), GB

Warranty

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

Package Contents

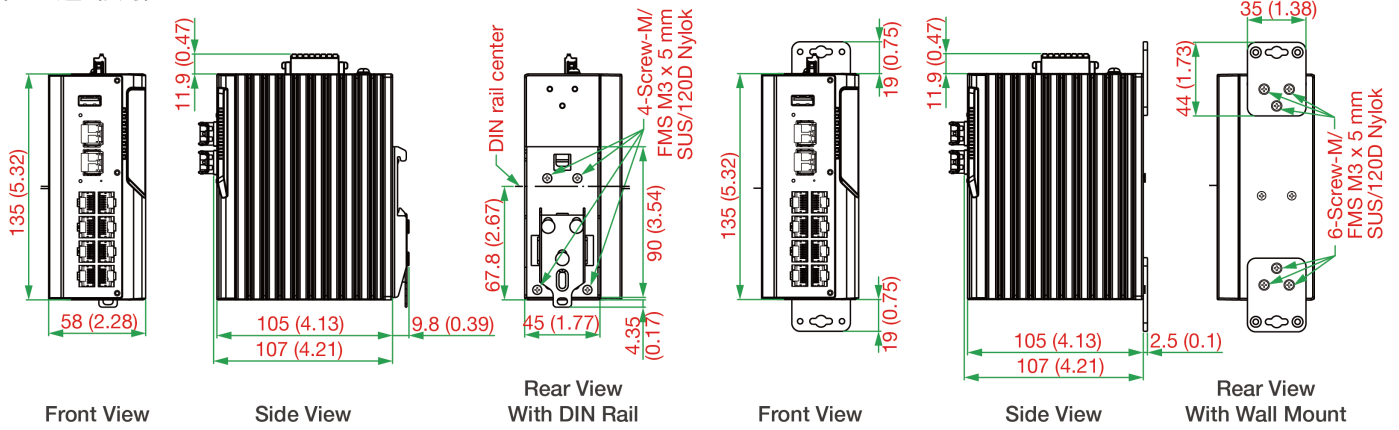
Device	1 x EDR-G9010 Series secure router
Cable	1 x DB9 female to USB Type-C
Installation Kit	4 x cap, plastic, for RJ45 port 2 x cap, plastic, for SFP slot

Documentation	1 x quick installation guide 1 x warranty card
Note	SFP modules need to be purchased separately for use with this product.

尺寸

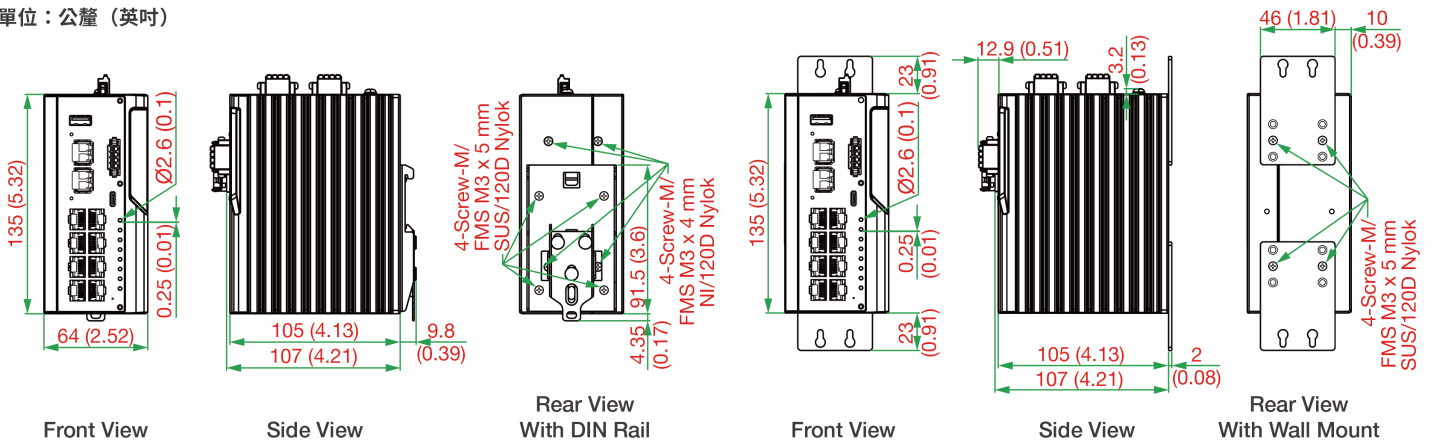
標準 型號

單位：公釐 (英寸)



HV 型號

單位：公釐 (英寸)



訂購資訊

型號名稱	10/100/1000BaseT(X) 連接埠 (RJ45 連接器)	1000BaseSFP Slots	防火牆	NAT	VPN	Input Voltage (輸入電壓)	Operating Temp. (運作溫度)
EDR-G9010-VPN-2MGSFP	8	2	P	P	P	12/24/48 VDC	-10 至 60°C (DNV-認證)
EDR-G9010-VPN-2MGSFP-T	8	2	P	P	P	12/24/48 VDC	-40 至 75°C (DNV-認證: -25 至 70°C)
EDR-G9010-VPN-2MGSFP-HV	8	2	P	P	P	120/240 VDC/VAC	-10 至 60°C
EDR-G9010-VPN-2MGSFP-HV-T	8	2	P	P	P	120/240 VDC/VAC	-40 至 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

SFP Modules

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-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-1GZXC	SFP module with 1 1000BaseZX port with LC connector for 80 km transmission, 0 to 60°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-1GTXRJ45-T	SFP module with 1 1000BaseT port with RJ45 connector for 100 m transmission, -40 to 75°C operating temperature

Mounting Kits

WK-35-01	Wall-mounting kit with 2 plates (35 x 44 x 2.5 mm) and 6 screws
WK-46-01	Wall-mounting kit, 2 plates, 8 screws, 46 x 66.8 x 2 mm

Software

LIC-MXsecurity-NEW-1Y-XN-SR	1-year MXsecurity license with customizable node quantity (minimum 1 node)
LIC-MXsecurity-NEW-XM-XN-DMR	MXsecurity license with customizable duration and node quantity (minimum 1 month, minimum 1 node)
LIC-MXsecurity-RENEW-1Y-XN-SR	1-year MXsecurity renewal license with customizable node quantity (minimum 1 node)
LIC-MXsecurity-RENEW-XM-XN-DMR	MXsecurity renewal license with customizable duration and node quantity (minimum 1 month, minimum 1 node)
LIC-MXsecurity-ADD-1Q-XN-SR	3-month MXsecurity add-on license with customizable node quantity (minimum 1 node)
LIC-MXsecurity-ADD-2Q-XN-SR	6-month MXsecurity add-on license with customizable node quantity (minimum 1 node)
LIC-MXsecurity-ADD-3Q-XN-SR	9-month MXsecurity add-on license with customizable node quantity (minimum 1 node)
LIC-MXsecurity-ADD-4Q-XN-SR	1-year MXsecurity add-on license with customizable node quantity (minimum 1 node)
LIC-MXsecurity-ADD-XM-XN-DMR	MXsecurity add-on license with customizable duration and node quantity (minimum 1 month, minimum 1 node)
LIC-IPS-MXsecurity-NEW-1Y-XN-SR	1-year IPS license for MXsecurity with customizable node quantity (minimum 1 node)
LIC-IPS-MXsecurity-NEW-XM-XN-DMR	IPS license for MXsecurity with customizable duration and node quantity (minimum 1 month, minimum 1 node)
LIC-IPS-MXsecurity-RENEW-1Y-XN-SR	1-year IPS renewal license for MXsecurity with customizable node quantity (minimum 1 node)
LIC-IPS-MXsecurity-RENEW-XM-XN-DMR	IPS renewal license for MXsecurity with customizable duration and node quantity (minimum 1 month, minimum 1 node)
LIC-IPS-MXsecurity-ADD-1Q-XN-SR	3-month IPS add-on license for MXsecurity with customizable node quantity (minimum 1 node)
LIC-IPS-MXsecurity-ADD-2Q-XN-SR	6-month IPS add-on license for MXsecurity with customizable node quantity (minimum 1 node)
LIC-IPS-MXsecurity-ADD-3Q-XN-SR	9-month IPS add-on license for MXsecurity with customizable node quantity (minimum 1 node)
LIC-IPS-MXsecurity-ADD-4Q-XN-SR	1-year IPS add-on license for MXsecurity with customizable node quantity (minimum 1 node)
LIC-IPS-MXsecurity-ADD-XM-XN-DMR	IPS add-on license for MXsecurity with customizable duration and node quantity (minimum 1 month, minimum 1 node)
LIC-IPS-DEVICE-NEW-1Y-1N-MR	1-year device-based IPS license
LIC-IPS-DEVICE-RENEW-1Y-1N-MR	1-year device-based IPS renewal license

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