

EDR-G9010 Series

8 GbE copper + 2 GbE SFP multiport industrial secure router



Features and Benefits

- 10-port Gigabit all-in-one firewall/NAT/VPN/router/switch
- Industrial-grade Intrusion Prevention/Detection System (IPS/IDS)
- Visualize OT security with the MXsecurity management software
- Secure remote access tunnel with VPN
- Examine industrial protocol data with Deep Packet Inspection (DPI) technology
- Easy network setup with Network Address Translation (NAT)
- RSTP/Turbo Ring redundant protocol enhances network redundancy
- Security features based on IEC 62443/NERC CIP
- Supports secure boot for checking system integrity
- -40 to 75°C operating temperature range (-T model)

Certifications



Introduction

The EDR-G9010 Series is a set of highly integrated industrial multi-port secure routers with firewall/NAT/VPN and managed Layer 2 switch functions. These devices are designed for Ethernet-based security applications in critical remote control or monitoring networks. These secure routers provide an electronic security perimeter to protect critical cyber assets including substations in power applications, pump-and-treat systems in water stations, distributed control systems in oil and gas applications, and PLC/SCADA systems in factory automation. Furthermore, with the addition of IDS/IPS, the EDR-G9010 Series is an industrial next-generation firewall, equipped with threat detection and prevention capabilities to further protect critical infrastructure from cybersecurity attacks.

Defend Against Malicious Threats With Advanced Cybersecurity Features

The EDR-G9010 Series' embedded firewall uses policy rules to control network traffic between trusted zones while Network Address Translation (NAT) shields the internal network from unauthorized access by outside hosts. The Virtual Private Networking (VPN) functionality further provides users with secure communication tunnels when accessing the private network from the public Internet. To help protect your OT assets from cyberattacks, the EDR-G9010 Series supports Deep Packet Inspection (DPI) to examine the data portion of network packets for various OT-specific protocols.

Simplify Configurations With the User-friendly Interface and Quick Settings

The EDR-G9010 Series' Setup Wizard provides an easy way for users to set up WAN, LAN, and Bridge ports for routing functionality in just four steps. In addition, the object-based firewall management feature gives engineers a simple way to configure and maintain firewall filtering for IP addresses and subnets, network services, industrial application services, and user-defined services.

Industrial-grade Design to Ensure Uninterrupted Network Connectivity

The EDR-G9010 Series' rugged hardware makes these secure routers ideal for harsh industrial environments, featuring wide-temperature models that are built to operate reliably in hazardous conditions and extreme temperatures of -40 up to 75°C. Moreover, the EDR-G9010 Series supports comprehensive Layer 2 and Layer 3 redundancy mechanisms to ensure that your network stays connected at all times.

Virtual Patching and Intelligent Threat Protection

Patching remains a major challenge in OT environments because OT applications cannot afford interrupting operations by shutting down systems to apply patches. Virtual patching technology can help complement existing patch management processes by shielding known and unknown vulnerabilities. In addition, the EDR-G9010 features intelligent IPS functionality for continuous protection against cyberthreats which uses pattern-based detection to identify and block known attacks.

Specifications

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

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	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	DDoS, Ethernet protocols, ICMP, IP address, MAC address, Ports
Stateful Inspection	Router firewall Transparent (bridge) firewall
Deep Packet Inspection	Modbus TCP Modbus UDP DNP3 IEC 60870-5-104 IEC 61850 MMS 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	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	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, 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
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
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/warranty

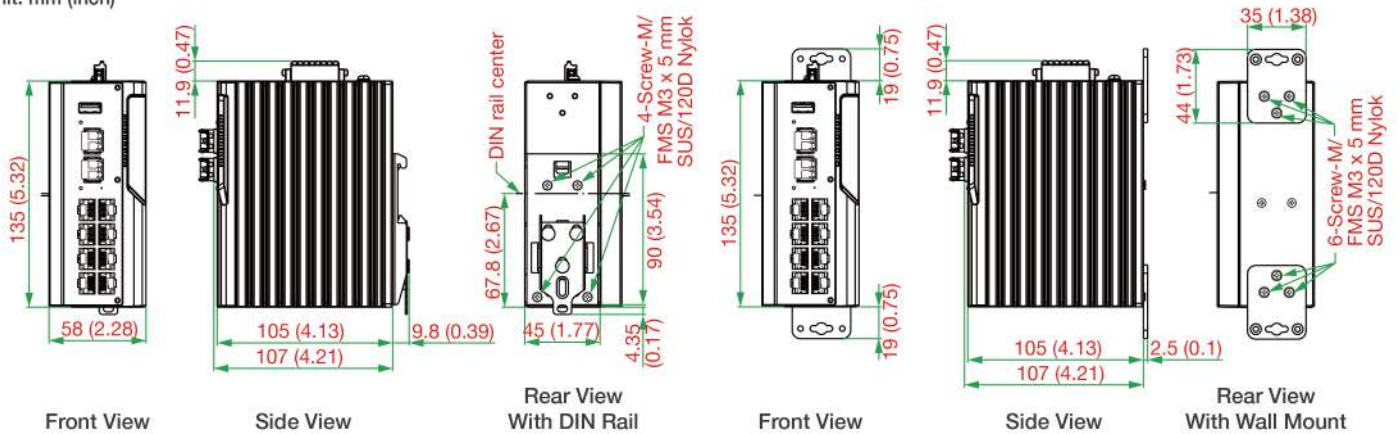
Package Contents

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.

Dimensions

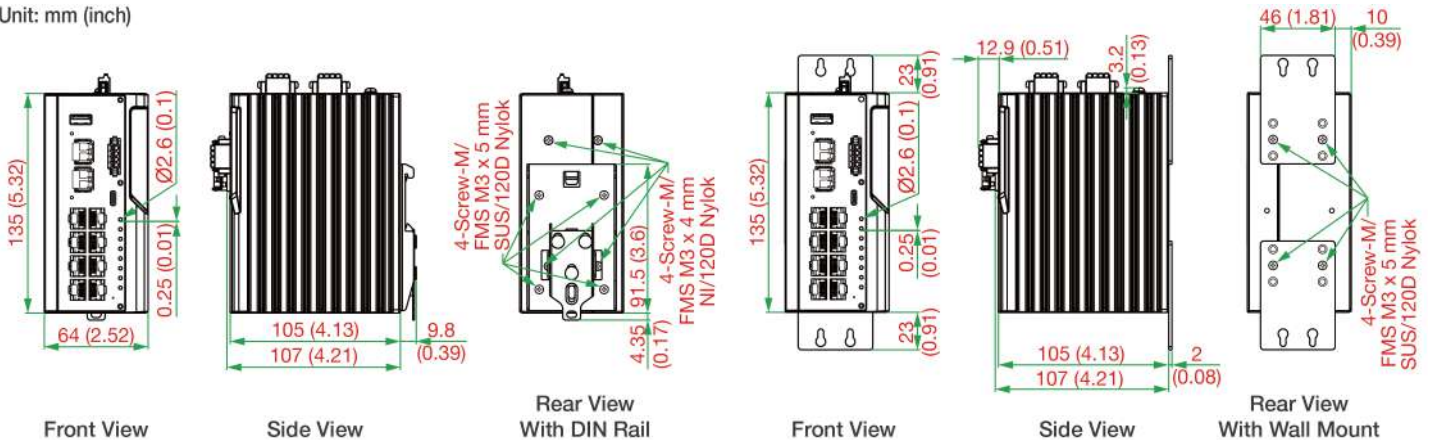
Standard Models

Unit: mm (inch)



HV Models

Unit: mm (inch)



Ordering Information

Model Name	10/100/1000BaseT(X) Ports (RJ45 Connector)	1000BaseSFP Slots	Firewall	NAT	VPN	Input Voltage	Operating Temp.
EDR-G9010-VPN-2MGSFP	8	2	✓	✓	✓	12/24/48 VDC	-10 to 60°C (DNV-certified)
EDR-G9010-VPN-2MGSFP-T	8	2	✓	✓	✓	12/24/48 VDC	-40 to 75°C (DNV-certified for -25 to 70°C)

Model Name	10/100/ 1000BaseT(X) Ports (RJ45 Connector)	1000BaseSFP Slots	Firewall	NAT	VPN	Input Voltage	Operating Temp.
EDR-G9010-VPN- 2MGSFP-HV	8	2	✓	✓	✓	120/240 VDC/ VAC	-10 to 60°C
EDR-G9010-VPN- 2MGSFP-HV-T	8	2	✓	✓	✓	120/240 VDC/ VAC	-40 to 75°C

Accessories (sold separately)

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 1000BaseEZXC port with LC connector for 110 km transmission, 0 to 60°C operating temperature
SFP-1GEZXLC-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-1GLHXC	SFP module with 1 1000BaseLHX port with LC connector for 40 km transmission, 0 to 60°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	SFP module with 1 1000BaseLSXC 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 1 km/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

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

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
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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