

# EDR-G9004 Series

*2 Gigabit copper + 2 Gigabit copper/SFP combo port industrial secure routers*



## Features and Benefits

- 4-port Gigabit all-in-one firewall/NAT/VPN/router
- Gen3 LAN Bypass for system fault tolerance
- Dual WAN redundant interfaces through public networks
- Next-generation industrial firewall with 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)
- -40 to 75°C operating temperature range (-T model)

## Certifications



## Introduction

The EDR-G9004 Series is a set of highly integrated industrial multi-port secure routers with firewall/NAT/VPN 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-G9004 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-G9004 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-G9004 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-G9004 Series' Setup Wizard provides an easy way for users to set up DMZ ports to create a secure network buffer zone in just three 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-G9004 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-G9004 Series supports WAN, Layer 3 redundancy mechanisms, and Gen3 LAN Bypass fault tolerance 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-G9004 features intelligent IPS functionality for continuous protection against cyberthreats which uses pattern-based detection to identify and block known attacks.

## MX-ROS Addresses Growing Cybersecurity Threats

Moxa's MX-ROS is a software platform for industrial security routers and firewalls. The platform supports robust security and user-friendly operation of secure routers through simplified web and CLI interfaces. MX-ROS devices offer a wealth of the latest cross-industry Operational Technology (OT) network management features with each release to safeguard your hardware and software.

## 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)	2 (with Gen3 LAN Bypass)
Combo Ports (10/100/1000BaseT(X) or 1000/2500BaseSFP)	2
DMZ	Supports DMZ port
Standards	IEEE 802.3 for 10BaseT IEEE 802.3u for 100BaseT(X) IEEE 802.3ab for 1000BaseT(X) IEEE 802.3z for 1000BaseSX/LX/LHX/ZX IEEE 802.3x for flow control

### Ethernet Software Features

Management	Back Pressure Flow Control DDNS DHCP Server/Client Web Console (HTTP/HTTPS) LLDP SNMPv1/v2c/v3 Telnet TFTP HTTPS SSH
Routing Throughput	Max. 350K packets per second / 2 Gbps (based on RFC 2544)
Routing Table	Max. 4K routing rules
Concurrent Connections	Max. 400K (based on RFC 3511)
Connections Per Second	Max. 20K (based on RFC 3511)
Routing Redundancy	VRRP
Security	Secure Boot IPsec L2TP (server) RADIUS TACACS+ Trust access control SCP SFTP NTP authentication Syslog Authentication
Time Management	NTP Server/Client SNTP
Multicast Routing	Static Route
Unicast Routing	OSPF RIPV1/V2 Static Route

## LED Interface

### LED Indicators

PWR1, PWR2, STATE, BYPASS, WAN/DMZ, VRRP/HA, VPN, USB

## DoS and DDoS Protection

### Technology

ARP-Flood  
FIN Scan  
ICMP Flood  
TCP Sessions Without SYN  
NMAP-ID Scan  
NMAP-Xmas Scan  
Null Scan  
SYN/FIN Scan  
SYN/RST Scan  
SYN-Flood  
Xmas Scan

## 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  
EtherNet/IP  
MELSEC  
Omron FINS  
OPC UA  
Siemens S7 Comm.  
Siemens S7 Comm. Plus  
Additional protocols will be supported through future firmware updates.

### Intrusion Prevention System

Requires an additional license.

### Throughput

Firewall:  
Max. 350K packets per second / 2 Gbps (based on RFC 2544)  
  
IPS:  
Max. 200K packets per second / 2 Gbps (based on RFC 2544)

## IPsec VPN

### Authentication

MD5 and SHA (SHA-512)  
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  
AES-256-GCM

### Protocols

IPsec  
L2TP (server)  
PPTP (client)

### Throughput

Conditions: AES-256, SHA-256  
Max. 100K packets per second / 800 Mbps (based on RFC 2544)

## 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	12/24/48 VDC, redundant dual inputs (DNV-certified for 24 VDC)
Operating Voltage	9.6 to 60 VDC
Input Current	1.01 A @ 12 VDC 0.51 A @ 24 VDC 0.27 A @ 48 VDC
Reverse Polarity Protection	Supported

## Physical Characteristics

Housing	Metal
IP Rating	IP40
Dimensions	45 x 135 x 105 mm (1.77 x 5.31 x 4.13 in)
Weight	800 g (1.76 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) DNV-certified for -25 to 70°C (-13 to 158°F) Wide Temp. Models: -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

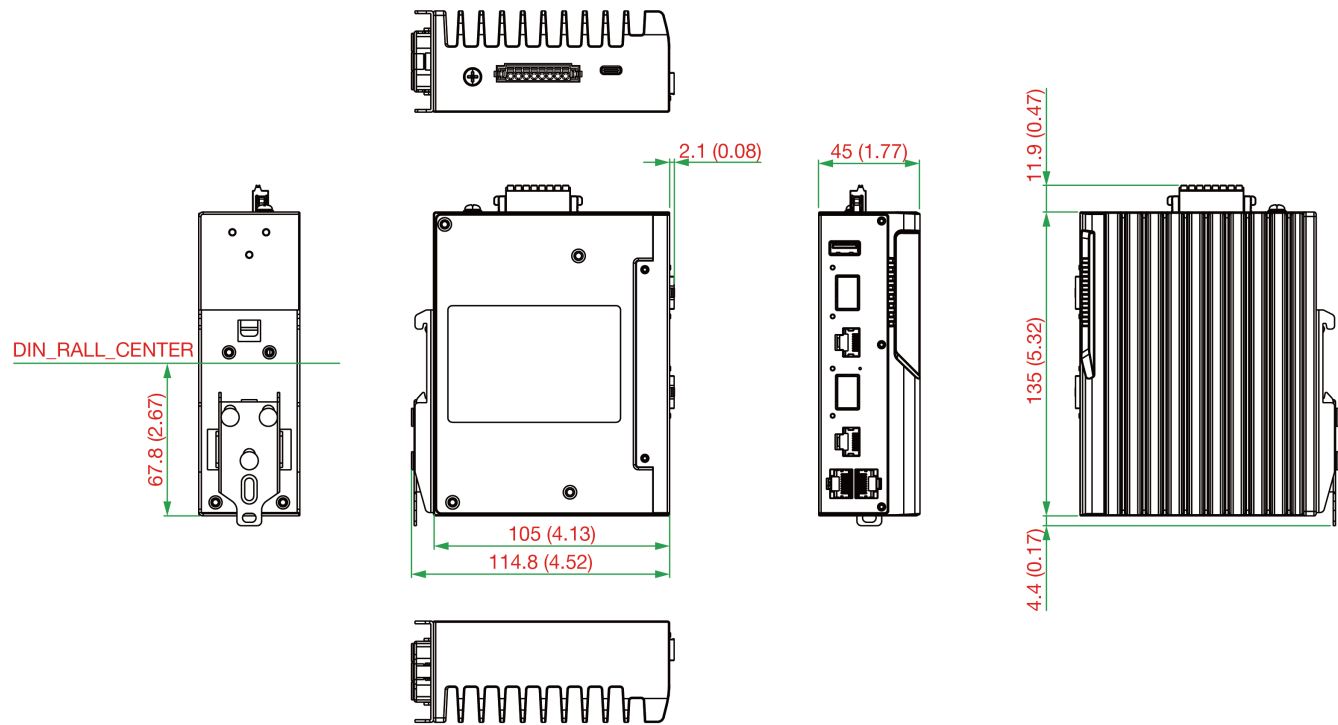
Safety	IEC 62368-1 UL 62368-1
EMC	EN 55032/35
EMI	CISPR 32, FCC Part 15B Class A
EMS	IEC 61000-4-2 ESD: Contact: 8 kV; Air: 15 kV IEC 61000-4-3 RS: 80 MHz to 1 GHz: 20 V/m IEC 61000-4-4 EFT: Power: 4 kV; Signal: 4 kV

	IEC 61000-4-5 Surge: Power: 2 kV; Signal: 4 kV IEC 61000-4-6 CS: 10 V IEC 61000-4-8 PFMF
Railway	EN 50121-4
Traffic Control	NEMA TS2
Maritime	DNV IEC 60945
Power Substation	IEEE 1613 IEC 61850-3 Edition 2.0
Hazardous Locations	ATEX Class I Division 2 IECEX
Shock	IEC 60068-2-27
Freefall	IEC 60068-2-32
Vibration	IEC 60068-2-6
<b>MTBF</b>	
Time	1,876,185 hrs
Standards	Telcordia (Bellcore), GB
<b>Warranty</b>	
Warranty Period	5 years
Details	See <a href="http://www.moxa.com/warranty">www.moxa.com/warranty</a>
<b>Package Contents</b>	
Device	1 x EDR-G9004 Series secure router
Cable	1 x DB9 female to USB Type-C
Documentation	1 x quick installation guide 1 x warranty card
Note	SFP modules need to be purchased separately for use with this product.

Dimensions

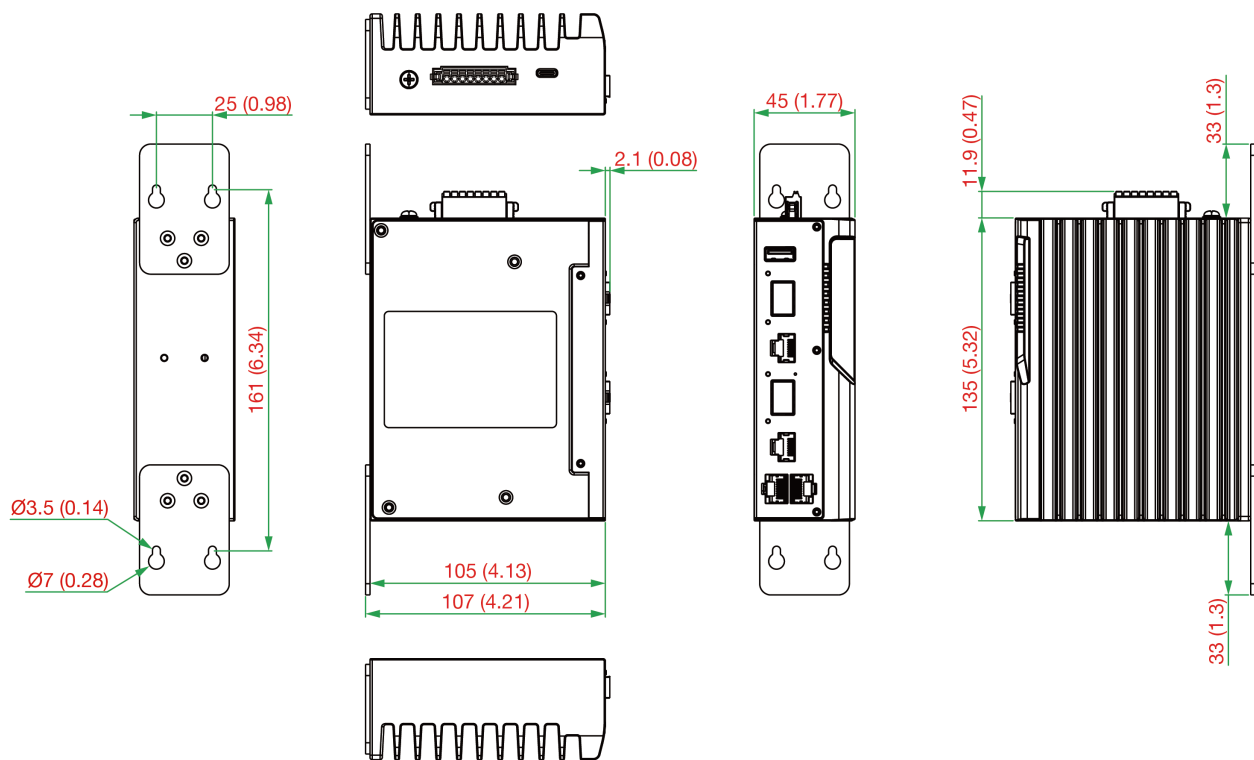
DIN-rail Mount

Unit: mm (inch)



Wall Mount

Unit: mm (inch)



## Ordering Information

Model Name	10/100/ 1000BaseT(X) Ports (RJ45 Connector)	10/100/ 1000BaseT(X) or 1000BaseSFP Combo Ports	Firewall	NAT	VPN	Input Voltage	Conformal Coating	Operating Temp.
EDR-G9004-VPN-2MGTXSFP	2	2	✓	✓	✓	12/24/48 VDC	–	-10 to 60°C
EDR-G9004-VPN-2MGTXSFP-T	2	2	✓	✓	✓	12/24/48 VDC	–	-40 to 75°C
EDR-G9004-VPN-2MGTXSFP-CT	2	2	✓	✓	✓	12/24/48 VDC	✓	-10 to 60°C
EDR-G9004-VPN-2MGTXSFP-CT-T	2	2	✓	✓	✓	12/24/48 VDC	✓	-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 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-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-1GLSXL	SFP module with 1 1000BaseLSX port with LC connector for 1km/2km transmission, 0 to 60°C operating temperature
SFP-1GLSXL-T	SFP module with 1 1000BaseLSX port with LC connector for 1km/2km transmission, -40 to 85°C operating temperature
SFP-1GLXL	SFP module with 1 1000BaseLX port with LC connector for 10 km transmission, 0 to 60°C operating temperature
SFP-1GLXL-T	SFP module with 1 1000BaseLX port with LC connector for 10 km transmission, -40 to 85°C operating temperature
SFP-1GSXL	SFP module with 1 1000BaseSX port with LC connector for 300m/550m transmission, 0 to 60°C operating temperature
SFP-1GSXL-T	SFP module with 1 1000BaseSX port with LC connector for 300m/550m transmission, -40 to 85°C operating temperature
SFP-1GZXL	SFP module with 1 1000BaseZX port with LC connector for 80 km transmission, 0 to 60°C operating temperature
SFP-1GZXL-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
SFP-2.5GSLC-T	SFP module with 1 2.5GBaseFX port with LC connector, single-mode, for 20 km transmission, -40 to 85 °C operating temperature
SFP-2.5GSLC-T	SFP module with 1 2.5GBaseFX port with LC connector, single-mode, for 5 km transmission, -40 to 85 °C operating temperature
SFP-2.5GMLC-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

#### Wall-Mounting Kits

WK-40-01	Wall-mounting kit, 2 plates, 6 screws, 40 x 58 x 2 mm
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#### Software

LIC-MXsecurity-NEW-XN-SR	MXsecurity perpetual node license with customizable node quantity (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

