EDR-G9010 Series

8 GbE copper + 2 GbE SFP multiport industrial secure router

Features and Benefits

- All-in-one firewall/NAT/VPN/router/switch with 10 GbE ports

- Secure remote access tunnel with VPN

- Stateful firewall protects critical assets

- 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

- Check firewall settings with the intelligent SettingCheck feature

- -40 to 75°C operating temperature range (-T model)

Certifications

IEC 61850-3 / IEEE 1613   DNV   Ex   NEMA TS2

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.

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' "Interface Type Quick Settings" provide an easy way for users to set up WAN, LAN, and Bridge ports for routing functionality in just four steps. In addition, the "Quick Automation Profile" feature gives engineers a simple way to configure the firewall filtering function for general automation protocols, including EtherNet/IP, Modbus TCP, EtherCAT, FOUNDATION Fieldbus, and PROFINET.

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.

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

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

Firewall

Filter	DDoS, Ethernet protocols, ICMP, IP address, MAC address, Ports
Quick Automation Profiles	DNP, EtherCAT, EtherNet/IP, FOUNDATION Fieldbus, FTP, HTTP, IEC 60870-104, IPsec, L2TP, LonWorks, Modbus TCP, PPTP, PROFINET, RADIUS, SSH, Telnet
Stateful Inspection	Router firewall Transparent (bridge) firewall

MOXA®
Reliable Networks ▲ Sincere Service

Deep Packet Inspection	Modbus TCP Modbus UDP DNP3 Additional protocols will be supported through future firmware updates.
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

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 (DNV-certified for 24 VDC)
Input Current	1.51 A @ 12 VDC 0.70 A @ 24 VDC 0.35 A @ 48 VDC
Reverse Polarity Protection	Supported

Physical Characteristics

Housing	Metal
Dimensions	58 x 135 x 105 mm (2.28 x 5.31 x 4.13 in)
Weight	1030 g (2.27 lb)
Installation	DIN-rail mounting (DNV-certified), Wall mounting (with optional kit)

Environmental Limits

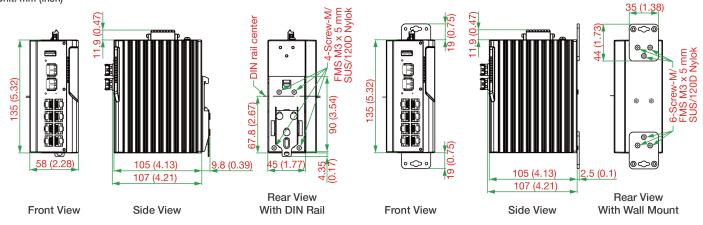|	
Operating Temperature	Standard Models: -10 to 60°C (14 to 140°F) Wide Temp. Models: -40 to 75°C (-40 to 167°F), DNV-certified for -25 to 70°C (-13 to 158°F)
Storage Temperature (package included)	-40 to 85°C (-40 to 185°F)
Ambient Relative Humidity	5 to 95% (non-condensing)

Standards and Certifications

Safety	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	IEC 60945, DNV
Power Substation	IEEE 1613, IEC 61850-3 Edition 2.0
Hazardous Locations	ATEX, Class I Division 2
Shock	IEC 60068-2-27
Freefall	IEC 60068-2-32
Vibration	IEC 60068-2-6

MTBF

Time	1,080,807 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

Unit: mm (inch)

Front View   Side View   Rear View With DIN Rail   Front View   Side View   Rear View With Wall Mount

Ordering Information

Model Name	10/100/ 1000BaseT(X) Ports (RJ45 Connector)	1000BaseSFP Slots	Firewall	NAT	VPN	Operating Temp.
EDR-G9010-VPN-2MGSFP	8	2	✓	✓	✓	-10 to 60°C
EDR-G9010-VPN-2MGSFP-T	8	2	✓	✓	✓	-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 1000BaseEZX port with LC connector for 110 km transmission, 0 to 60°C operating temperature
SFP-1GEZXLC-120	SFP module with 1 1000BaseEZX 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

Mounting Kits

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

Software

MXview-50	Industrial network management software with a license for 50 nodes (by IP address)
MXview-100	Industrial network management software with a license for 100 nodes (by IP address)
MXview-250	Industrial network management software with a license for 250 nodes (by IP address)
MXview-500	Industrial network management software with a license for 500 nodes (by IP address)
MXview-1000	Industrial network management software with a license for 1000 nodes (by IP address)
MXview-2000	Industrial network management software with a license for 2000 nodes (by IP address)
MXview Upgrade-50	License expansion of MXview industrial network management software by 50 nodes (by IP address)