

# EDR-G903 Series

Industrial secure routers with firewall/NAT/VPN



## Features and Benefits

- Firewall/NAT/VPN/Router all-in-one
- Secure remote access tunnel with VPN
- Stateful firewall protects critical assets
- Inspect industrial protocols with PacketGuard technology
- Easy network setup with Network Address Translation (NAT)
- Dual WAN redundant interfaces through public networks
- Support for VLANs in different interfaces
- -40 to 75°C operating temperature range (-T model)
- Security features based on IEC 62443/NERC CIP

## Certifications



## Introduction

The EDR-G903 is a high-performance, industrial VPN server with a firewall/NAT all-in-one secure router. It is designed for Ethernet-based security applications on critical remote control or monitoring networks, and it provides an Electronic Security Perimeter for the protection of critical cyber assets such as pumping stations, DCS, PLC systems on oil rigs, and water treatment systems. The EDR-G903 Series includes the following cybersecurity features:

- Virtual Private Network (VPN): VPNs are designed to provide users with secure communication links when accessing a private network from the public Internet. They use IPsec (IP Security) server or client mode for encryption and authentication of all IP packets at the network layer to ensure confidentiality and sender authentication.
- Firewall: Controls network traffic between different trust zones. Network Address Translation (NAT), which shields the internal LAN from unauthorized activity from outside hosts.

The EDR-G903's Quick Automation Profile function supports most common fieldbus protocols, including EtherCAT, EtherNet/IP, FOUNDATION Fieldbus, Modbus TCP, and PROFINET. Users can easily create a secure Ethernet Fieldbus network from a user-friendly web UI with a single click. In addition, Moxa's PacketGuard technology (Deep Packet Inspection) helps to filter Modbus TCP commands at OSI layer 7. The wide-temperature range models that are available operate reliably in hazardous, -40 to 75°C environments.

## Specifications

### Input/Output Interface

Alarm Contact Channels	1 relay output with current carrying capacity of 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
Relay Channels	1

### Ethernet Interface

Combo Ports (10/100/1000BaseT(X) or 100/1000BaseSFP+)	3
Standards	IEEE 802.1Q for VLAN Tagging IEEE 802.3 for 10BaseT IEEE 802.3ab for 1000BaseT(X) IEEE 802.3u for 100BaseT(X) and 100BaseFX

	IEEE 802.3x for flow control IEEE 802.3z for 1000BaseSX/LX/LHX/ZX
WAN Ports, RJ45/Fiber Combo Port	1
DMZ Ports, RJ45/Fiber Combo Port	1
LAN Ports, RJ45/Fiber Combo Port	1
<b>Ethernet Software Features</b>	
Management	Back Pressure Flow Control, DDNS, DHCP Server/Client, HTTP, LLDP, QoS/CoS/ToS, SMTP, SNMPv1/v2c/v3, Telnet, TFTP
Routing	Throughput: 40,000 packets per second (max. 500 Mbps)
Routing Redundancy	VRRP
Security	HTTPS/SSL, SSH, IPsec, OpenVPN (client and server), UDP and TCP Tunnel mode (routing) and TAP mode (bridge), L2TP (server), RADIUS
Time Management	NTP Server/Client, SNTP
Unicast Routing	OSPF, RIPV1/V2, Static Route
<b>Switch Properties</b>	
Max. No. of VLANs	15
<b>DoS and DDoS Protection</b>	
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
<b>Firewall</b>	
Deep Packet Inspection	Modbus TCP Modbus UDP
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
Throughput	Max. 40000 packets per second (max. 500 Mbps)
<b>IPsec VPN</b>	
Authentication	MD5 and SHA (SHA-256) RSA (key size: 1024-bit, 2048-bit) X.509 v3 certificate
Concurrent VPN Tunnels	Max. 100 IPsec VPN tunnels
Encryption	3DES, AES-128, AES-192, AES-256, DES
Protocols	IPsec, L2TP (server), PPTP (client)
Throughput	Max. 150 Mbps (Conditions: AES-256, SHA-256)
<b>NAT</b>	
Features	1-to-1, N-to-1, Port forwarding

## OpenVPN

Authentication	User password by MD5 and SHA1
Concurrent VPN Tunnels	Client Mode: max. 2 external servers Server Mode: max. 5 external clients
Encryption	AES-128/192/256 CBC, Blowfish CBC, DES CBC, DES-EDE3 CBC
Protocols	OpenVPN (client and server), UDP, and TCP, Tunnel mode (routing) and TAP mode (bridge), Tunnel mode (routing)

## Real-Time Firewall / VPN Event Log

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

## Serial Interface

Console Port	Web/Telnet/SSH/CLI, and RS-232 serial console
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## Environmental Limits

Operating Temperature	EDR-G903: 0 to 60°C (32 to 140°F) EDR-G903-T: -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

Freefall	IEC 60068-2-32
EMC	EN 55032/24
EMI	CISPR 32, FCC Part 15B Class A
EMS	IEC 61000-4-2 ESD: Contact: 6 kV; Air: 8 kV IEC 61000-4-3 RS: 80 MHz to 1 GHz: 10 V/m IEC 61000-4-4 EFT: Power: 4 kV; Signal: 4 kV IEC 61000-4-5 Surge: Power: 2 kV; Signal: 1 kV IEC 61000-4-6 CS: 10 V IEC 61000-4-8 PFMF
Safety	UL 508
Shock	IEC 60068-2-27
Vibration	IEC 60068-2-6
Power Substation	IEC 61850-3

## MTBF

Time	903,311 hrs
Standards	Telcordia (Bellcore), GB

## Warranty

Warranty Period	5 years
Details	See <a href="http://www.moxa.com/warranty">www.moxa.com/warranty</a>

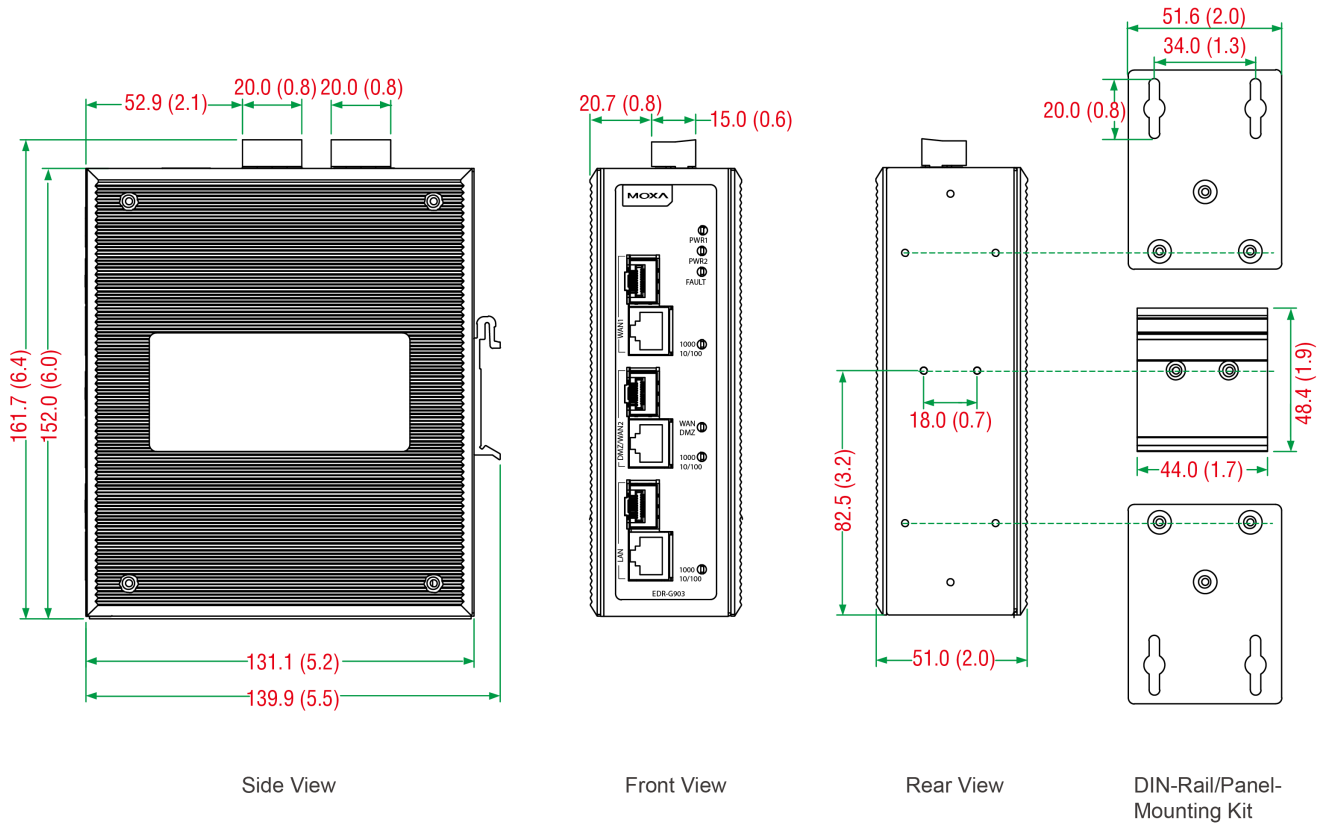
## Package Contents

Device	1 x EDR-G903 Series secure router
Cable	1 x RJ45-to-DB9 console cable

Documentation	1 x document and software CD 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)



## Ordering Information

Model Name	10/100/1000BaseT(X) RJ45 Connector, 100/1000Base SFP Slot Combo WAN Port	10/100/1000BaseT(X) RJ45 Connector, 100/ 1000Base SFP Slot Combo WAN/DMZ Port	Firewall/NAT/VPN	Operating Temp.
EDR-G903	1	1	✓	0 to 60°C
EDR-G903-T	1	1	✓	-40 to 75°C

## Accessories (sold separately)

### Software

MXview	Industrial network management software designed for converged automation networks
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### Storage Kits

ABC-01	Configuration backup and restoration tool for managed Ethernet switches and AWK Series wireless APs/bridges/clients, 0 to 60°C operating temperature
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### SFP Modules

SFP-1FELLC-T	SFP module with 1 100Base single-mode with LC connector for 80 km transmission, -40 to 85°C operating temperature
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SFP-1FEMLC-T	SFP module with 1 100Base multi-mode with LC connector for 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-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 1000BaseLSX port with LC connector for 500 m transmission, 0 to 60°C operating temperature
SFP-1GLSXC-T	SFP module with 1 1000BaseLSX port with LC connector for 500 m 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-1GSXC	SFP module with 1 1000BaseSX port with LC connector for 300/550 m transmission, 0 to 60°C operating temperature
SFP-1GSXC-T	SFP module with 1 1000BaseSX port with LC connector for 300/550 m 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

## Power Supplies

DR-120-24	120W/2.5A DIN-rail 24 VDC power supply with universal 88 to 132 VAC or 176 to 264 VAC input by switch, or 248 to 370 VDC input, -10 to 60°C operating temperature
DR-4524	45W/2A DIN-rail 24 VDC power supply with universal 85 to 264 VAC or 120 to 370 VDC input, -10 to 50°C operating temperature
DR-75-24	75W/3.2A DIN-rail 24 VDC power supply with universal 85 to 264 VAC or 120 to 370 VDC input, -10 to 60°C operating temperature
MDR-40-24	DIN-rail 24 VDC power supply with 40W/1.7A, 85 to 264 VAC, or 120 to 370 VDC input, -20 to 70°C operating temperature
MDR-60-24	DIN-rail 24 VDC power supply with 60W/2.5A, 85 to 264 VAC, or 120 to 370 VDC input, -20 to 70°C operating temperature

## Wall-Mounting Kits

WK-51-01	Wall-mounting kit, 2 plates, 6 screws, 51.6 x 67 x 2 mm
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## Rack-Mounting Kits

RK-4U	19-inch rack-mounting kit
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