

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 |
| Ethernet Software Features | |
| 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 |
| Switch Properties | |
| Max. No. of VLANs | 15 |
| 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 | |
| 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) |
| IPsec VPN | |
| 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) |
| NAT | |
| 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

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

Serial Interface

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|--------------|---|
| Console Port | Web/Telnet/SSH/CLI, and RS-232 serial console |
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Power Parameters

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|-----------------------------|--------------------------|
| Connection | Removable terminal block |
| Input Voltage | 12/24/48 VDC |
| Overload Current Protection | Supported |
| Reverse Polarity Protection | Supported |

Physical Characteristics

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|--------------|---|
| Housing | Metal |
| Dimensions | 51.2 x 152 x 131.1 mm (2.02 x 5.98 x 5.16 in) |
| Weight | 1250 g (2.76 lb) |
| Installation | DIN-rail mounting |

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) |

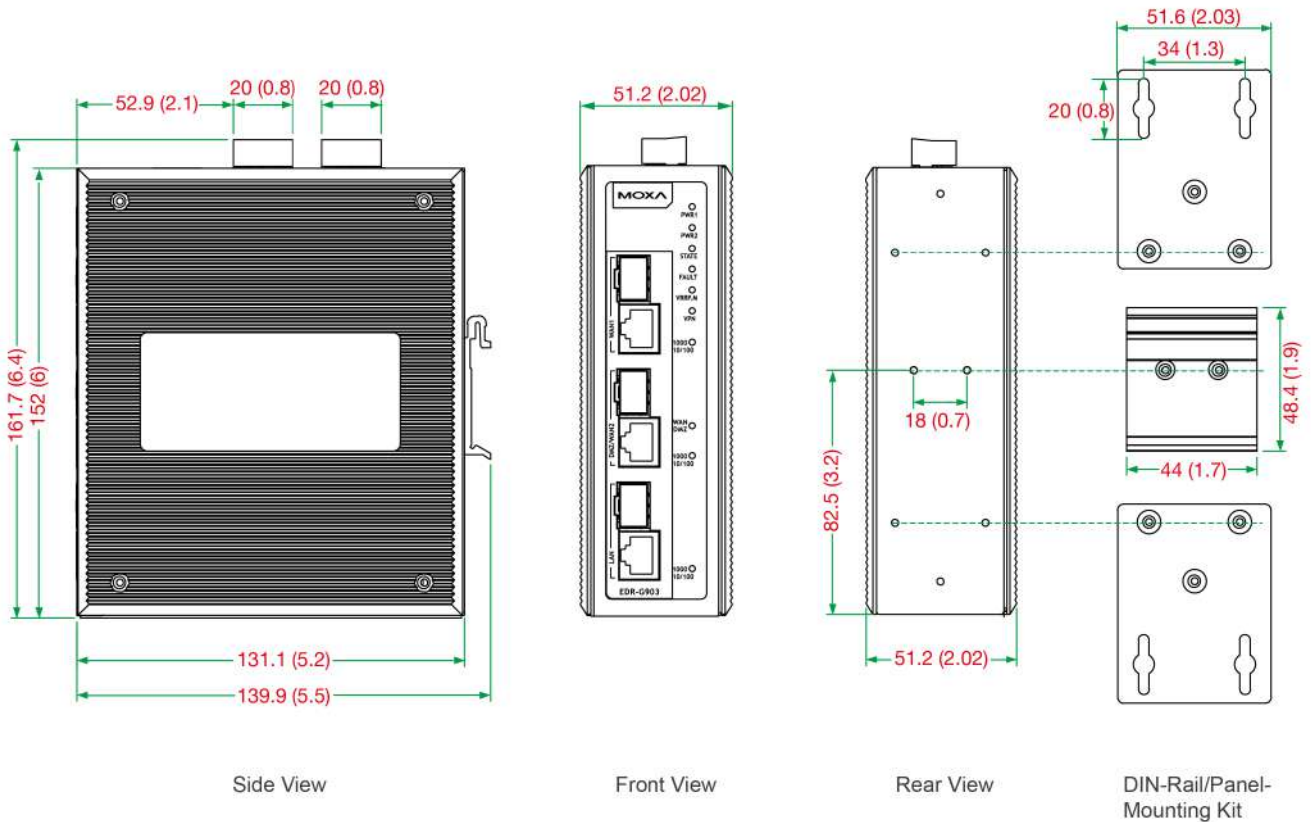
Standards and Certifications

| | |
|----------|--|
| 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 |

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|-------------------------|---|
| 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 www.moxa.com/warranty |
| 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)

Storage Kits

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|--------|--|
| 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

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|----------------|--|
| SFP-1FELLC-T | SFP module with 1 100Base single-mode with LC connector for 80 km transmission, -40 to 85°C operating temperature |
| SFP-1FEMLC-T | SFP module with 1 100Base multi-mode, LC connector for 2/4 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-1GEZXL | SFP module with 1 1000BaseEZ port with LC connector for 110 km transmission, 0 to 60°C operating temperature |
| SFP-1GEZXL-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-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 |

Power Supplies

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|-----------|---|
| 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

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|----------|---|
| WK-51-01 | Wall mounting kit with 2 plates (51.6 x 67 x 2 mm) and 6 screws |
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Rack-Mounting Kits

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|-------|---------------------------|
| RK-4U | 19-inch rack-mounting kit |
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Software

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|-------------------|--|
| 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) |

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