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Magnum 5RX Fixed Configuration Security Router

Belden has introduced a new device that combines routing with network security – the Magnum 5RX Security Router – to meet the mid-level needs of the power transmission and distribution industry.



The new Magnum 5RX Security Router offers advanced routing and security capabilities in a single, cost-efficient platform. The support for legacy wide area network (WAN) protocols and serial interface make it a natural migration path for customers moving to next generation, high-performance technologies.

- **Two-in-one platform** – routing and security functionalities in a single, fixed-configuration device. The Magnum 5RX Security Router helps build cost-effective systems, especially in highly distributed network deployment scenarios.
- **Optimal performance** – cutting-edge software offers Layer 3 advanced routing capability, along with best-in-class firewall protection and virtual private network (VPN) security, to address growing security concerns.
- **Total network solution** – complete, integrated network solution when using the new Magnum 5RX Security Router at the edge of the network and the legacy Magnum 10RX Configurable Router with Security Appliance at the core of the network.

The Magnum 5RX Security Router is designed for industrial applications where hardened and industrial-grade solutions are required to deliver high-performance routing while ensuring network security.

Applications

The new Magnum 5RX Security Router has a comprehensive set of features designed for use in power transmission and distribution settings, especially in distributed substations. Providing maximum substation protection and compliance with IEC 61850-3 standards, this compact

router is well suited for deployments at the edge of the network where modular solutions are expensive and not required.

The Magnum 5RX Security Router is also a key solution for other industrial sectors, including oil and gas, water and wastewater, mining, wind power, solar power and power generation.

Your Benefits

The Magnum 5RX Security Router is the most cost-effective, mid-level routing and security solution available for industrial applications. The router's fixed configuration reduces total infrastructure costs by combining functionalities; reduces flairs ups and potential failure points; and makes overall management and monitoring easier. Its low cost is especially important when working on a highly distributed network with a volume of substations in the field.

The Magnum 5RX Security Router offers a comprehensive set of features essential for a highly secured and reliable communication network in the energy and utility industries. The router comes with best-in-class firewall protection and VPN security along with Layer 2 functionalities, as well as advanced Layer 3 routing capabilities.

The new security router also provides both current and legacy WAN interfaces and communication support – offering a valuable migration path to the new generation of network backbones.

A new product to serve your needs. Be certain.

Magnum 5RX Security Router



Offering a comprehensive set of features and functionalities essential for success in the field, the router is available in the following physical interfaces with four possible configurations: four Gigabit copper RJ45 ports (fixed), two Gigabit auto-media combo ports (fixed), four DB9 serial ports (fixed), high or low voltage power supply and one T1/E1 or DDS WAN port. The router is 19-inch rack mountable with convection cooling.

The Magnum 5RX Security Router guarantees ultimate performance and reliability with its two-in-one approach to routing and network security.

Benefits at a Glance

- Legacy protocol and communication support for both current and legacy networks
- Two-in-one solution offering both routing and security capabilities
- Fixed configuration for cost efficiency
- Fanless design with conventional cooling
- Supports a comprehensive set of routing protocols, such as RIP, OSPF and BGP
- Virtual Router Redundancy Protocol (VRRP) for improved network redundancy
- GOOSE and GRE tunneling support to facilitate management and network communication between central workstation and multiple remote substations
- Frame relay service over Ethernet with IP over FR (RFC 1490), Serial Over FR, FR Switching, Backup and Shunt functionality over T1/E1/DDS interfaces
- Generic Routing Encapsulation (GRE) allows network traffic to travel across the internet securely via a virtual point-to-point connection
- Hardened for substations
- IEC 61850-3, IEEE 1613 Class 2, NEMA TS-2 and EN50155 compliant
- Operating environment of -40 °C to +85 °C
- Five-year warranty included

Technical Information

Product Description	
Type	Magnum 5RX
Description	The Magnum 5RX is a hardened security router with fixed configuration, and comes with integrated firewall and secure VPN server.
Serial Protocols	
	Async to TCP/IP; TCP/IP to serial/reverse terminal server, Serial Multipoint & Multimaster Topologies; PPP with authentication.
Performance	
WAN Ports	T1/E1: 1.544 Mbps / 2.048 Mbps G.703 or DDS: 56/64 kbps
Serial DB9 Ports	RS232/RS485 software selectable DB9 interface. Serial data rate from 300 bps to 230.4 kbps. See the user guide pinout details and supported interfaces.
Serial RJ45 Ports	Same functionality as DB-9 ports (RJ45 pinout conforms to EIA-561 DTE standard) See the user guide pinout details and supported interfaces.
RJ45 Ports	10/100/1000 Mbps R Fiber Ports, via SFP J45/SFP auto media ports.
Fiber Ports, via SFP (multi-mode and single-mode)	



Technical Information *(continued)*

Network Standards

IEEE 802.3z, 802.3ab, 802.1p: 100BASE-TX, -FX, 1000BASE-SX, -LX

IEEE 802.3u: Auto-negotiation on TP

IEEE 802.3x, 802.1p: flow control and prioritization

IEEE 802.1Q: VLANs

IEEE 802.1d, 802.1w: Spanning Tree, Rapid Spanning Tree including

RSTP 2004 extensions providing sub-second hop on rings

IEEE 802.1p: DiffServ, traffic prioritization for routed IP flows/ports

Software Industrial Network Operating System (INOS)

Comprehensive L2 features such as LLDP, VLAN, QoS, VLAN Trunking, Spanning Tree (STP, RSTP, MSTP) and etc.

Advanced L3 features including IP, ICMP, ARP, Frame Relay, PPP/MLPPP, PPP over WAN and more.

Essential L4 features such as TCP/UDP, routing (RIP, OSPF, and BGP) and etc.

Useful System Management and monitoring capabilities including port mirroring, GRE, VRRP, Object tracking, Protocol Analyzer and much more.

Enhanced Security features such as Firewall/NAT and IPSec VPN.

Features that support Industrial Applications such as GOOSE and Bit Oriented Protocol.

Management & Diagnostics

Ease of Use: Web-based Graphical User Interface (GUI) or CLI access remote SSH or TELNET connection Powerful built-in protocol analyzer to assist with trouble shooting.

Other: Comprehensive statistics, SNMP MIB II and SNMP Traps, Routing Information, DHCP, ARP and other tables.

Operating Environment

IEC 60068 Operating Temperature	per "Type Test" -40 °F to 185 °F (-40 °C to +85 °C)
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UL 60950 "Component Parts" Temperature Rating	140 °F (60 °C)
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Storage	-40 °F to 185 °F (-40 °C to +85 °C)
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Ambient Relative Humidity	5% to 95% (non-condensing)
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Altitude	-200 to 13000 ft (-60 to 4000 m)
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Conformal coating (humidity protection) Option	Request quote
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Mechanical

Enclosure	Rugged high-strength sheet metal. 1.5U (with thermal fins) rack-mounting or stand alone
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Rack-Mounting Brackets	19" included
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Cooling Method	Free convection, special thermal techniques
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Dimensions	2.63 in H (with thermal fins) x 17.5 in W x 12. in D (4.3 cm H x 44.5 cm W x 30.7 cm D)
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Weight	14.2 lbs. (6.5 kg)
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Fixed Power Supply Options

High (H) Nominal	90 to 250 V AC/DC; Terminal Block: "-", GND, +"
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Low (L) nominal	Input 22 V DC to 60 V DC
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Serial LED Indicators Per DB-9 or RJ45 Port

	One LED/port indicating active connection
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Ethernet LED Indicators Per RJ45 or Fiber Port

Link/Activity	One LED/port indicating Link (solid green) and Activity (blinks to indicate activity)
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Relay Contacts for Alarms (except PoE Version)

Two alarm contact: HW & SW alarms are normally open until the unit is powered & software started. Under normal operation they are closed.

Form C HW alarm will be opened with any power supply loss.

Form C SW alarm will be opened when any pre-defined SW event occurs.

Agency Standards Approval and Compliance

UL/cUL 60950, EN 55022 FCC Part 15	CE, EMC & ENV
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IEC 61850-3	EMC and Environmental Operating Conditions Class C for Power Substations
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IEEE 1613 Class 2	Environmental Standard for Electric Power Substations
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NEMA TS-2	Traffic Control
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EN 50155	Railways
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Reliability

Warranty	5 years (standard)
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Magnum 5RX Configuration Guide

Magnum 5RX Fixed Configuration Security Router

The Magnum 5RX is rack-mountable and comes with fixed configuration, offering 4 x Gigabit RJ45 copper ports, 2 Gigabit Auto-media ports, 4 DB9-DTE serial ports and 1 T1/E1 or DDS WAN port.



Magnum 5RX	
Model No.	Product Description
5RX-L-T1E1	24/48 V DC, 2 x 10/100/1000 Combo, 4 x 10/100/1000 TX, 4 x Serial, 1 x T1E1
5RX-H-T1E1	90–250 V AC/DC, 2 x 10/100/1000 Combo, 4 x 10/100/1000 TX, 4 x Serial, 1 x T1E1
5RX-L-DDS	24/48 V DC, 2 x 10/100/1000 Combo, 4 x 10/100/1000 TX, 4 x Serial, 1 x DDS
5RX-H-DDS	90–250 V AC/DC, 2 x 10/100/1000 Combo, 4 x 10/100/1000 TX, 4 x Serial, 1 x DDS

Choose options & extras	
Model No.	Product Description
CONSOLE-CBLQD	Console attachment cable serial null; Modem cable with one RJ-45 and a DB-9
CONSOLE-CBLQU	Console attachment cable serial null; Modem cable with one RJ-45 and a USB
CONFORM05-RMOD	Conformal coating, 5 mil, for moisture protection
CONFORM08-RMOD	Conformal coating, 8 mil, for corrosive environments

Optional – Choose SFP transceivers to be used with the 10-1RJSFP or 10-2RJSFP-RX modules	
Model No.	Product Description
SFP-SX	Gb SX, 850nm wavelength, 550 meters distance
SFP-ESX	Gb SX, 1310nm wavelength, 2 km distance
SFP-LX10	Gb LX, 1310nm wavelength, 10 km distance
SFP-LX25	Gb LX, 1310nm wavelength, 25 km distance
SFP-ZX40	Gb ZX, 1550nm wavelength, 40 km distance
SFP-ZX70	Gb ZX, 1550nm wavelength, 70 km distance
SFP100P-FXMM2	100FX Fiber Optic SFP transceiver, multi-mode, 2 km
SFP100P-FXSM20	100FX Fiber Optic SFP transceiver, single-mode, 20 km
SFP100P-FXSM40	100FX Fiber Optic SFP transceiver, single-mode, 40 km

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