

### Features

- Four network interface types in one industrial unit:
  - Ethernet copper or fiber, 100Mb or Gb
  - T1 /E1/DDS WAN
  - 3G Cellular wireless
  - Serial RS232/RS485
- Hardened to substation EMI/ESD specs and -40° to +85° C with no fans
- Modbus TCP and Modbus ASCII/RTU internetworking
- Network cyber security and management security including IPsec, VPN, SSL and firewall
- Panel, DIN-Rail or rack mounting with integral CSU/DSU and power supply



The versatile Magnum™ DX940 Configurable Industrial Router combines WAN access, IP routing, Ethernet switching, Serial-to-IP terminal services and advanced security features in a small-footprint industrial package suitable for small and mid-sized remote sites such as electrical substations, renewable power generation facilities and transportation control pedestals. With 3G wireless capability, as well as configurable port options for 10/100 and 1Gb copper and fiber media, the DX940 secure access even where wireline is too difficult or too expensive to deploy.

Magnum™ MNS-DX – Managed Network Software (MNS) for Magnum DX family of routers provides the functionality needed by industrial routers. A full range of routing software along with security features enables the Magnum DX940 router to perform efficiently in harsh industrial environments. A flexible integrated protocol analyzer provides remote trouble shooting. Advanced statistics provide detailed traffic analysis.

The configurability of Magnum DX940 extends to MNS-DX software features as well. A licensed software key unlocks additional features for extra security and advanced routing. Extra security features such as IPSec/VPN, firewall, RADIUS, syslog and other security capabilities can be added to MNS-DX via MNS-DX-SECURE, which also provides IP firewall features including address/port inspection/filtering; VPN connectivity over IPsec with strong 3DES and AES encryption and both shared key (PSK) and X.509 certificates. VPN's comply to various IPSec/VPN standards and have proven interoperability with other industry standard VPN devices. Cyber security capabilities cover both electronic perimeter protection for remote sites and management security for the DX940. Advanced statistics and event recording are available with downloadable local logs, SNMP MIBs and traps, and syslog remote logging. Advanced routing capabilities such as OSPF and BGP are added to MNS-DX using the MNS-DX-ADVAR.

Adding Serial ports enables Serial-IP terminal services via RS232, RS485 and RS422 serial interfaces as well as protocols such as DNP, telnet and Modbus, including Modbus-ASCII/RTU to Modbus-TCP interworking. With MNS-DX-SECURE, serial devices can transmit data securely using Serial-SSL using well proven, robust encryption methods.

The DX940 is purpose built for extremely harsh environments such as power utility substations. The DX940 meets IEEE 1613 and IEC 61850-3 specifications for EMI/ESD protection and operates at -40 to +85° C without open vent holes or fans. Hard metal packaging is standard and conformal coating for protection against moisture and corrosion is also available.

The DX940 is 9" by 9.5" and one 1.75" rack unit deep, with mounting options for panels, DIN rails or 19" or 23" or ETSI racks. Integration of wide-input auto-ranging power supplies and of telco-compatible CSU/DSU functionality into the base DX940 product further reduces space requirements & local wiring complexity.



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Industrial Networking at Its Best™

### CONFIGURABLE PORTS

**Four 10/100 Ethernet ports** Four 10/100 Ethernet ports configured as auto negotiating RJ45 copper ports

**Four 100M SFP Ethernet ports** SFP fiber modules available as 100Mb fiber (multi-mode and single-mode.) Single-mode up to 40Km. Multi-mode up to 2Km

### Two Gigabit Ethernet ports

Two 10/100/1000 Copper ports or two Gigabit SFP sockets for Gigabit fiber via Gb SFP's

**Four Serial DB9 ports** RS232/RS485 software selectable DB9 interface. Serial data rate from 300 bps to 230.4 kbps. Data length - 1-32 bits.

**WAN Ports** DDS: 56/64 kbps OR T1/E1: 1.544 Mbps / 2.048 Mbps G.703; Full rate and fractional (N\*56/64kbps); Integral CSU/DSU

**Cellular Wireless Data Access** 3G EVDO REV A, EVDO, CDMA,; Frequency – 1900MHz/800 MHz; supports antenna diversity

### 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, maximum 32 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

### SERIAL PROTOCOLS

Async to TCP/IP – including Modbus gateway for connectivity to serial Modbus devices and to other Modbus Ethernet devices; TCP/IP to serial terminal server, reverse terminal server; Serial Multipoint and Multimaster Topologies; PPP with authentication

### SOFTWARE

See MNS-DX data sheet for details on MNS-DX-SECURE and MNS-DX-ADVAR licensed software

### 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.

### ENVIRONMENTAL MONITORING

Alarm Port: Relay contacts for alarms, Form C, two NC/NO, software controllable

### OPERATING ENVIRONMENT

IEC 60068 Op. Temp. per "Type Test" -40° to 185°F (-40° to 85°C)

UL 60950 "Component Parts" temperature rating: 140°F (60°C)

Storage: -40° to 185°F (-40° to 85°C),

Ambient relative humidity: 5% to 95% (non-condensing)

### POWER OPTIONS

High Voltage (H): 90-250 V AC or DC, 50-60Hz, 0.3A, 27 W

Low Voltage DC (L): 24-48 V DC, 1.3A, 31 W

### MECHANICAL

Dimensions: 9.5" W x 9.0" D x 1.75" H (24.13 cm x 22.86cm x 4.45 cm);

Optional 19 inch Rack Mount, 1 RU

Weight: 5 lbs (2.3 kg)

Mounting: 19" ETSI and 23" Rack, Panel Mount and DIN-Rail

### AGENCY APPROVALS AND STANDARDS COMPLIANCE

Safety: UL 60950-1, cUL, EN60950-1, CSA C22.2, Emissions meet FCC Part 15, Class A. IEEE 1613 Class 2 Environmental Std., IEC 61850-3, IEC 61000-6-5 for Electric Power Substations, NEMA TS-2 for traffic control

Immunity: EN55024, EN61000-6-2, EN61000-4-2 (ESD), EN61000-4-3 (RF),

EN61000-4-4 (EFT), EN61000-4-5 (SURGE) EN61000-4-6 (CRF), EN61000-4-10 (MAG FIELD), EN61000-4-11 (VDI), EN61000-4-12 (OSCILLATION),

EN61000-4-16 (CCM), EN61000-4-17 (RIPPLE), EN61000-4-29 (VDI)

### WARRANTY:

Three years

Made in USA

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