

## Magnum DX900 Industrial Router

### Features

- Access to remote sites via Digital WANs using DDS or T1/E1, IP and Frame Relay
- Versatile integration of IP router, Ethernet switch, Serial terminal server and security appliance
- Compact panel, DIN-Rail or rack mounting with integral CSU/DSU and power supply
- Hardened to substation EMI/ESD specs and -40° to +85° C with no fans
- Network perimeter and management security including IPsec, SSL and firewall



The Magnum DX900 Industrial Router enables remote network connectivity to substations, transportation systems and other remote industrial sites using Digital WAN services such as DDS, T1/E1, frame relay, TDM, IP and MPLS-based VPN services.

The versatility of the DX900 increases cost effectiveness in many applications where a combination of WAN access, IP routing, Ethernet switching, Serial-IP terminal services and advanced security features is provided in a single compact device. The DX900 provides IP routing over frame relay and local Ethernet connections, including routing on a per-VLAN basis. Serial-IP terminal services support RS232, RS485 and RS422 serial interfaces and protocols such as DNP, telnet and Modbus, including Modbus-ASCII/RTU to Modbus-TCP interworking. DX900 SCADA Frame Forwarding provides low-overhead, high-performance encapsulation for legacy SCADA protocols.

Compact packaging makes the DX900 suitable for smaller and mid-sized remote sites such as distribution substations and transportation control pedestals. The DX900 is 9" by 9.5" and one 1.75" rack unit deep, with mounting options for panels, DIN rails or 19" racks. Integration of wide-input auto-ranging power supplies and of telco-compatible CSU/DSU functionality into the base DX900 product further reduces space requirements and local wiring complexity.

The DX900 is purpose built for extremely harsh environments such as power utility substations. The DX900 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 is also available.

Cyber security capabilities cover both electronic perimeter protection for remote sites and management security for the DX900 itself. The DX900 provides IP firewall features including address/port inspection/filtering, NAT/PAT (address translation), and IPsec and SSL Virtual Private Networks (VPNs) with strong 3DES and AES encryption and both shared key (PSK) and X.509 certificates. Management security includes encrypted interfaces (HTTPS, SSH, S-FTP and SNMPv3 multi-level userIDs with strong form passwords, and authentication via RADIUS. Advanced statistics and event recording are available with downloadable local logs, SNMP MIBs and traps, and syslog remote logging. A flexible integrated protocol analyzer provides remote trouble shooting and detailed traffic analysis.

## Specifications

### WAN INTERFACE

- DDS: 56/64 kbps
- T1/E1: 1.544 Mbps / 2.048 Mbps G.703;
- Full rate and fractional (N\*56/64kbps)
- Integral CSU/DSU
- Frame relay, IP

### SERIAL INTERFACES

- 4 ports, RS232/RS485/RS422 software selectable
- 2- or 4-wire RS485
- RS232 with optional Data Set Signaling
- 300 bps to 230.4 kbps
- Serial-IP terminal server / reverse terminal server
- Multicast, multi-master
- DNP, Modbus, Telnet
- Modbus-ASCII/RTU to Modbus/TCP
- SCADA Frame Forwarding

### ETHERNET INTERFACES

- 4 ports, 10/100TX auto-sensing or fixed
- Wire speed switching
- VLANs per 802.1Q
- STP/RSTP per 802.1d/802.1w
- Prioritization via 802.1p
- Static MAC port security
- Port security per 802.1x
- Port rate limiting

### IP ROUTING SERVICES

- Routing per interface
- Routing Per VLAN
- Static routing, RIP, RIP-II
- OSPF, BGP\*
- DiffServ prioritization
- DHCP Server

### IP FIREWALL / PERIMETER SECURITY

- IP address and port filtering
- Stateful inspection and logging
- NAT/PAT
- IPsec VPNs
- Serial port SSL VPNs
- 3DES, AES, PSK, X.509

### MANAGEMENT SECURITY

- HTTPS, SSH, SFTP, SNMPv3
- Multilevel strong form passwords and aging
- RADIUS
- Management activity logging and alarms

### MANAGEMENT & DIAGNOSTICS

- Web-based Graphical User Interface (GUI)
- CLI access via TELNET connection
- Powerful built-in protocol analyzer
- Layer 1 through 3 statistics
- SNMP MIB II and SNMP Traps
- Proprietary Enterprise MIB
- Syslog Event Logging
- XML-based config file
- Multiple on-board software and config files
- Relay contacts for alarms:
  - Form C, 2 NC/NO, software controllable

### ENVIRONMENTAL

#### Operating Temperature:

- -40C to +85C, no fans

#### Storage Temperature:

- -40C to +85C

#### Humidity:

- 95% non-condensing

#### Industrial:

- IEEE1613
- IEC 61850-3
- IEC 61000-6-5

#### Emissions:

- EN55022A, FCC Part 15A

#### Safety:

- UL60950-1
- EN60950-1
- CSA C22.2

#### 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)

#### TELECOM:

- UACTA TIA/EIA IS-968A (FCC part 68)
- IC CS03
- EN55022: 1998 Telco Port Emissions

#### POWER OPTIONS

- High Voltage (H)
- 90-250 Vac or Vdc, 50-60Hz
- 0.3A, 27 watts

#### Low Voltage DC (L)

- 24-48 Vdc
- 1.3A, 31 watts

#### MECHANICAL

#### Dimensions:

- 9.5" W x 9.0" D x 1.75" H (24.13 cm x 22.86 cm x 4.45 cm)
- Optional 19 inch Rack Mount, 1U

#### Weight:

- 5 lbs (2.3 kg)

#### Mounting:

- Rack, Panel Mount and DIN Rail Options