

Features

- Network-enable serial industrial devices and remote consoles
- Integrated Ethernet switch with serial device server
- DNP, ModBus, telnet and raw mode serial encapsulation and interworking
- Redundant Ethernet connectivity with high performance ring recovery
- Hardened to substation EMI/ESD specs and -40° C to +85° C with no fans



The Magnum DX1000 Terminal Server network-enables serial devices and remote console ports in power utility substations, transportation systems and other rugged environments. SCADA, remote device access, physical surveillance, metering and other applications using serial protocols can be integrated with IP/Ethernet networks.

MNS-DX Serial-IP terminal services support diverse serial interfaces and protocols including DNP, telnet, raw mode, and Modbus-ASCII/RTU to Modbus-TCP interworking. DX1000 supports serial-to-multicast topologies as well as multi-master implementations. Traffic prioritization is provided locally and downstream via 802.1p and DiffServ mechanisms to ensure that critical applications such as SCADA are not impeded by other applications in a mixed network. The DX supports a broad range of device interfaces including software-defined RS-232 or RS-485 mode at speeds from 300 bps to 230.4 kbps, with optional data set signaling.

The DX1000 has an integrated managed Ethernet switch with copper and fiber interface options to connect additional Ethernet-based devices and to have multiple connections to an IP/Ethernet infrastructure. In resilient ring topologies with high performance RSTP, the DX1000 provides ring recovery times of under 5 ms per node.

Cyber security capabilities include per-connection SSL or SSH-port forwarding and physical port security (enable/disable) and Ethernet port security. Combined with the CrossBow™ Secure Access Manager, the DX1000 provides for authentication, authorization, logging and compliance reporting for remote user access to local devices. DX management security includes encrypted interfaces (HTTPS, SSH, S-FTP and SNMPv3), multi-level userIDs with strong form passwords, authentication via RADIUS, and extensive local and/or remote logging and alerting. A flexible integrated protocol analyzer provides remote trouble shooting and detailed traffic analysis.

The DX1000 is purpose built for extremely harsh environments such as power utility substations. The DX1000 meets IEEE1613 and IEC 61850-3 specifications for EMI/ESD protection and operates at -40°C to +85°C without open vent holes or fans. The DX1000 has both single and dual wide-ranging power supply options.

Serial Interfaces

- RS232 or RS485, software selectable
- 2- or 4+ wire w/ Data Set Signaling
- 300 bps to 230.4 kbps
- Serial-IP terminal server
- Multicast, multi-master
- DNP, Modbus, Telnet, Raw
- Modbus-ASCII/RTU to Modbus/TCP

Ethernet Interfaces

- Wire speed switching
- VLANs per 802.1Q
- Prioritization via 802.1p
- STP/RSTP per 802.1d/802.1w (<5msec/hop on rings)

Cyber Security Features

- HTTPS, SSH, S-FTP, SNMPv3
- Multilevel passwords
- RADIUS
- Management activity logging
- VPN via SSH port forwarding
- Serial port SSL VPNs
- Port enable/disable
- Ethernet port security

Management and Diagnostics

- Web-based Graphical User Interface (GUI)
- CLI via local port, Telnet or SSH
- Built-in protocol analyzer
- SNMP MIB and traps
- Syslog Event Logging
- XML-based config file
- Multiple on-board software and config files
- Relay contact alarm

Configuration:

- 12 ports Serial via DB9
- 5 ports Ethernet
 - 5 TX via RJ-45 or
 - 3 TX plus 2 SFP fiber
 - Fiber FX SFPs ordered separately: 100FX only
 - Multimode or single mode SFPs with LC connectors
- Single or Dual Power supply, same or mixed voltage
- Serial console port via DB9
- Contact alarm output via DB9
- LEDS front and rear

Power Options

- High Voltage (H)
- 90–250 Vac or Vdc, 50–60Hz
 - .3A, 27 watts

Low Voltage DC (L)

- 24–48 Vdc
- 1.3A, 31 watts

Single or dual PS, same or mixed HV/LV

Operating Temperature

- –40°C to +85°C, no fans

Storage Temperature

- –40°C to +85°C

Humidity

- 95% non-condensing

Dimensions

17.25" W x 11.13" D x 2.6" H
(43.82 cm x 28.45 cm x 6.6 cm)
19 inch Rack Mount, 1.5U

Weight

Single PS: 11 lbs (5 kg)
Dual PS: 12 lbs (5.44 kg)

Industrial:

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

Emissions:

- EN55022A, FCC Part 15A

Immunity

- EN55024
- EN61000-6-2
- EN61000-6-5
- 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 (OSCILLATORY)
- EN61000-4-16 (CCM)
- EN61000-4-17 (RIPPLE)
- EN61000-4-29 (VDI)

Safety

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

Telecom

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

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Doc No. DX1000-TS-R1 1/09

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