

### Features

- Industrial Ethernet Managed Switch, designed for vertical or DIN-Rail mounting, convection cooling (no fans)
- Provides 2 modular slots for user selection of 100 Mb, 10 Mb, Gigabit fiber ports, and copper 10/100, Gigabit ports
- Choose from a family of 20 port modules for almost unlimited configuration flexibility
- Input power choices include -48VDC, 24VDC, 5VDC, 125VDC, dual source, or worldwide AC
- IEEE 1613 and IEC 61850 standards for electric power substations



Magnum™ 6K16V Managed Fiber Switches provide modularity of fiber and copper ports, 10Mb 100Mb and Gigabit speed ports, and comprehensive management software in a compact industrial-grade package. Setting a new standard for Industrial and Carrier Class applications, heavy duty Ethernet Switch jobs are readily accommodated with an extended temperature rating of -40°C to 60°C by the UL Component Parts method, or -50°C to 95°C by the IEC 60068 Type Test method. With options such as all popular DC power input types, worldwide AC power, and DIN-Rail mounting, the hardened Magnum 6K16V is a “go-anywhere do-anything” Industrial Ethernet Switch.

The large family of port modules offer the choice of all fiber media (all connector types, multi- and single-mode) and 10/100 Mb auto-negotiating RJ-45 ports. Standard GBIC ports can be configured for a variety of Gigabit cabling types and distances.

High performance features include non-blocking speed on all ports and 802.1p QoS Traffic Prioritization. Magnum 6K16Vs are “plug-and-play” ready for use as backbone switches where a mix of bursty data traffic and priority streaming traffic for VoIP and audio/video applications is present.

Magnum 6K16V Fiber Switches are provided with LAN management software including SNMP, Tag- and Port-based VLANs, IGMP Snooping and Port Security, control via command line interface. For high availability LANs using ring topologies, Spanning Tree Protocol, Link-Loss-Learn™ and S-Ring™ are available. See the Managed Networks Software (MNS-6K) and S-Ring datasheets for additional details on the comprehensive set of software programs and options.

Designed for use in transportation and traffic control systems, power utilities, industrial factory-floor jobs, and video surveillance systems with segments requiring Gigabit backbone interconnections, the Magnum 6K16V is easy to install and operate. The next generation of industrial applications will need advanced managed network software, operation at extended temperatures, fiber ports modularity, support for self-healing ring structures, and gigabit backbone configurability. The Magnum 6K16V has all of these, and is available now.

Magnum 6K16V Managed Fiber Switches have heavy duty metal cases and auto-ranging power supplies for operation with standard AC power worldwide. Internal DC power supplies are optional. The 6K16Vs and all other Magnum products are designed and manufactured in the USA and backed by a three year warranty.

### PERFORMANCE:

**Gigabit Ports, 1000 Mb:** Configurable, standard GBIC transceiver modules, up to 4 Gigabit ports.

**Fiber Ports, 100 Mb** (multi-mode and single-mode): Configurable SC, ST, LC MTRJ, Small Form Factor (SFF) is featured for high fiber port density.

**Fiber Ports, 10 Mb:** Configurable, ST, up to 8 fiber ports, each FDX or HDX, default is HDX mode.

**RJ-45 Ports: 100 or 10 Mb** speed, full- or half-duplex mode, per port, individually determined. 10/100 auto-negotiating and auto-cross, up to 16 ports.

**Processing type:** Store and Forward with IEEE 802.3x full-duplex flow control.

All Ports non-blocking. System aggregate forward and filter rate 6.0 Mpps.

Address table: 4K nodes, with address aging time of 155 seconds typical

Packet buffers: 240 KB for 10/100 and 120KB for 1000 Mb

Latency: 6µs + packet time max (TX - TX, TX - FX, FX - FX, TX-G, G-G)

### NETWORK STANDARDS:

IEEE 802.3z, 802.3ab, 802.1p: 10BASE-FL, 100BASE-TX, -FX, 1000BASE-SX, -LX Auto-negotiation and auto-cross on TP, IEEE 802.3u

See MNS-6K datasheet for software network standards, Link-Loss-Learn, and other software features.

All 10 Mb ports obey the rules for configuring 10 Mb Ethernet

All 100 Mb ports use Fast Ethernet rules. 1000 Mb ports use Gigabit rules.

### OPERATING ENVIRONMENT:

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

IEC 60068 "Type Test" rating: -60° to 205°F (-50° to 95°C)

Storage: -60° to 210°F (-50° to 100°C)

Relative humidity: 5% to 95% (non-condensing)

Altitude: -200 to 13000ft (-60 to 4000m)

Conformal coating (humidity protection) option: Request quote

### RELAY CONTACT FOR ALARMS:

Form C, one NC indicating internal power, one NC software controllable.

### NETWORK CABLE CONNECTORS:

1000 Mb ports: all standard GBIC Transceiver types supported

100 Mb Copper: Category 5 UTP/STP; 10 Mb: Cat. 3, 4, 5 UTP/STP

100 Mb Fiber ports connector options: multi-mode FX-MTRJ, LC, ST, SC; single-mode LC, 20Km SC and ST, and 40Km "long reach" single-mode SC.

10 Mb Fiber port connector: multi-mode and single-mode ST

### AC POWER SUPPLY (INTERNAL):

AC Power Connector: IEC-type, male, recessed, top of unit

Power Input: 100 - 240 VAC, 47 to 63 Hz, auto ranging

Power Consumption: 50 watts typical for a fully-loaded fiber model, 30 watts typical for 16 port copper-only models.

### DC POWER SUPPLY Options (INTERNAL):

**-48VDC:** Input -36 to -70VDC

**24VDC:** Input 18 to 36VDC

**125VDC:** Input 88 to 300VDC

Std. Terminal Block: "-", GND, "+", Power Consumption: Same as AC

### DC DUAL POWER SOURCE (OPTIONAL)

The Magnum 6K16V DC models may be ordered with optional Dual DC power input, for continuity of operation when either one of the DC input sources is interrupted. Available for -48VDC, 24VDC, or 100-250VDC.

### MECHANICAL:

Enclosure: High-strength metal. For vertical panel or DIN-Rail mounting.

DIN-Rail mounting: Model DIN-Rail-VRM, optional

Cooling Method: Convection, designed for vertical mounting, no fans

Dimensions: 9.50 in H x 8.75 in W x 1.75 in D

24.1 cm H x 22.2 cm W x 4.4 cm D

Weight: 4.2 lbs. (1.9 kg)

### LED INDICATORS PER RJ-45 PORT:

LK: Steady on when twisted-pair link is operational.

ACT: On with port activity

F/H: ON = full-duplex mode, OFF = half-duplex mode.

100/10 ON = 100Mb speed, OFF = 10Mb

### LED INDICATORS, 100Mb and 10Mb FIBER PORTS:

LK: Steady on when fiber link is operational.

ACT: On with port activity

F/H: ON = full-duplex mode, OFF = half-duplex mode.

### PORT-SPECIFIC SETTINGS:

Port-specific user settings (such as FDX or HDX, copper 10/100 speed) can be set using software commands.

(The RJ-45 copper ports are auto-negotiating and auto-crossover, there are no user controls for auto-crossover).

### AGENCY APPROVALS AND STANDARDS COMPLIANCE:

UL Listed (UL60950), cUL, CE, Emissions meet FCC Part 15, Class A.

NEBS L3 and ETSI compliant

IEEE 1613 Environmental Standard for Electric Power Substations.

IEC61850 EMC and Operating Conditions Class C for Power Substations

NEMA TS-2 and TEES for traffic control equipment.

### WARRANTY:

Three years

Made in USA

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## Ordering Information

### Magnum 6K16V

Magnum 6K16V Managed Fiber Switch, base unit for vertical mounting. May be configured with a variety of 10/100/1000 Mb fiber and copper port connector types from a family of port modules. 16 ports max. 4K node address table, 240KB packet buffers. For licensed network management software (MNS-6K and S-Ring), see separate data sheets.

**Configuration Options:** Each Magnum 6K16V may be configured with up to two modules from the selection below.

6KP8V-45MT

"4+4" module for 6Ks, w/four 10/100 RJ-45 and four 100 Mb 2km multi-mode FX MTRJ connectors

6KP8V-SLC

SFF Fiber module for 6K Switches, w/eight 100 Mb 15km single-mode FX LC connectors

6KP8V-RJ45

TP Module w/eight 10/100 Mb auto-negotiating RJ-45 ports

6KP8V-MTRJ

SFF Fiber module for 6K Switches, w/eight 100 Mb 2km multi-mode FX MTRJ connectors

6KP8V-45SLC

"4+4" module for 6Ks, w/four 10/100 RJ-45 and four 100 Mb 15km single-mode FX LC connectors

6KP6V-RJMST

"4+2" module for 6Ks, w/four 10/100 RJ-45 and two 100 Mb 2km multi-mode FX ST connectors

6KP6V-RJSSC

"4+2" module for 6Ks, w/four 10/100 RJ-45 and two 100 Mb 20km single-mode FX SC connectors

6KP6V-RJSSCL

"4+2" module for 6Ks, w/four 10/100 RJ-45 and two 100 Mb 40km single-mode FX SC connectors

6KP6V-RJ10ST

"4+2" module for 6Ks, w/four 10/100 RJ-45 and two 10 Mb 2km FL ST connectors

6KP4V-FXSC

"2+2" 100 Mb Fiber module for 6K Switches, w/four 100 Mb FX SC connectors.

6KP4V-F10ST

"2+2" 10 Mb fiber module for 6K Switches, w/four 10Mb 2km FL ST connectors

**Note: Several other Port Module types are available. See Configuration Guide.**

6KP5V-G4RJ

"G+4" module, uses, one 6K slot and provides one GBIC open transceiver port for a user-selectable GBIC transceiver module, plus 4 10/100Mb copper ports. Includes front-panel.

6KP3V-G2SC

"G+2" module, uses one 6K slot and provides one GBIC open transceiver port for a user-selectable GBIC Transceiver module, plus 2 100Mb 2km FX SC fiber ports. Includes front panel. Two-port Gigabit 6K module, provides two GBIC open transceiver ports.

GBPMV-20TX

GBIC-SXSC

GBIC-LXSC10

GBIC transceiver module for use in GBPM-COTX, one SX port with multi-mode SC fiber connector

GBIC transceiver module for use in GBPM-COTX, one LX port with single-mode SC 10Km

**Note: Single-mode GBICs are available at 10Km, 25Km, 40Km, and 70Km.**

6KP2V-2GSX

Two-port one-slot Gigabit 6K module, uses one 6K slot and provides two Gigabit Fiber

SXSC (1000BASE-SX multi-mode) ports. Includes front-panel sheet metal cover.

6KP2V-2GCU

Two-port one-slot Gigabit 6K module, uses one 6K slot and provides two Gigabit Copper (1000BASE-T) auto-negotiating ports. Includes front-panel sheet metal cover.

6KP5V-1CU4MT

Five-port one-slot Gigabit 6K module, uses one 6K slot and provides one Gigabit Copper (1000BASE-T) auto-negotiating port and four 100 Mb MTRJ Fiber FX multi-mode ports. Includes front panel.

6KP3V-1CU2FXT

Three-port one-slot Gigabit 6K module, uses one 6K slot and provides one Gigabit

Copper (1000BASE-T) auto-negotiating port and two 100 Mb ST Fiber FX multi-mode ports.

6KM-BLNC

Blank cover for slot opening in a Magnum 6K chassis



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