

### Features

- 16 switched ports, of which up to two may be 100Mb fiber
- High performance non-blocking operation, plug-and-play installation for switching services, transparent to system software
- All ports are switching and support full- and half-duplex; auto-negotiation on TP ports
- Has a compact 1U package for installation in rack cabinets, with metal case and auto-ranging internal power supply
- Available options include -48VDC, 24VDC, and 125VDC power, dual-source, NEBS and ETSI certification, "Reverse" rack-mount, ETSI and 23" Telco brackets, Class B EMI, and extended temperature range operation



**M**agnum™ Model 4K16 Switches boost the performance of medium-sized Ethernet LANs, with the flexibility of both twisted-pair and fiber switched ports. Fiber ports may number zero, one or two, and a variety of user selected fiber connector types may be configured. The Magnum 4K-Series provides the switching speed and the reliability to smoothly support multiple workgroups, each with its own switched 100Mb or 10Mb domain, for increased network performance.

The Magnum 4K16 Switch offers application flexibility with a series of optional fiber connector types. Users may choose a fiber port type (100Mb FX-ST, SC, MTRJ) and fiber cable mode (multi-mode and single-mode) which are configurable using a family of 1- or 2-port modules. The twisted-pair ports are 10/100 auto-negotiating.

In a common application, groups of standard dual-speed 10/100 hubs, 10Mb hubs, or 100Mb hubs and switches would form a series of subnets for workgroups or multi-system power users. A separate switched port on a Magnum 4K-Series Switch would serve each subnet, and each of these subnets would have full 100Mb or 10Mb bandwidth, operating in either half- or full-duplex mode. Local traffic on one subnet, either 100Mb or 10Mb, is switch-isolated from the other subnets for high overall network performance.

Magnum 4K16 Switches are easy to install and use. Addresses of attached nodes are automatically learned and maintained, adapting the switching services to network changes and expansions to provide plug-and-play operation. LEDs provide status information on each port. "Reverse" models with front-mounted ports and LEDs, or with front-mounted LEDs, rear ports and power connections, are also available.

The Magnum Model 4K16 Switches are non-blocking on all 16-ports, and include large 2MB packet buffers for advanced performance, even with unbalanced loads. The dynamic 2K-node address table allows the 16-port Magnum 4K16 to support medium-sized networks. The entire Magnum 4K-Series, with store-and-forward switching, filters all faulty packets to minimize traffic congestion.

Magnum Model 4K16 Switches are provided in a rack-mountable package and have a rugged metal case and an auto-ranging power supply for operation with standard AC power worldwide. "Carrier Class" and "Industrial Strength" models with optional DC input power features are also available. The 4K-Series and all other Magnum products are designed and manufactured in the USA and backed by a three-year warranty.



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### PERFORMANCE:

**RJ-45 Ports:** 100 or 10Mbps, full- or half-duplex mode, per port, individually determined. 10/100 auto-negotiating, fdx/hdx, internal jumper can select 100-only

**Fiber Ports** (m.-mode and sgl.-mode): 100Mb speed per port based on the fiber connector part. FDX or HDX selection, default is FDX.

**All Ports:** Processing type: Non-blocking, Store and Forward with IEEE 802.3x full-duplex flow control

System aggregate forwarding rate: 2.3M pps (all ports 100Mb speed) System (16p) aggregate filter rate: 2.3M pps for all ports.

Address table: 32K nodes, self-learning, with address aging

Packet buffers: 2MB dynamic

Latency: 5µs + packet time max (TX - TX, TX - FX, FX - FX), PDV: 50BT

### NETWORK STANDARDS:

IEEE 802.3u: 100BASE-TX, -FX, IEEE 802.3: 10BASE-T

Auto-negotiation on TP, IEEE 802.3u

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

100Mb ports use Fast Ethernet rules

### OPERATING ENVIRONMENT:

Ambient: 25° to 140°F (-5° to 60°C), optional extended range

Storage: -40° to 185°F (-40° to 85°C)

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

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

Conformal coating (humidity protection) option: Request quote

### UP-LINK, PORT #1:

Thumb-operated slide switch, converts Port #1 from a regular (= position) port to a crossover (X position) Up-Link for on/off connection to an upstream or cascaded hub or switch.

### NETWORK CABLE CONNECTORS:

RJ-45 shielded female ports

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

Fiber ports: Zero, One or Two / unit.

Connector options: Multi-mode FX-ST, SC, MTRJ; Single-mode 20Km SC, and 40Km "long reach" single-mode SC.

### AC POWER SUPPLY (INTERNAL):

AC Power Connector: IEC-type, male recessed, ON/OFF switch.

Power Input Voltage: 100 - 240 VAC (auto ranging)

Power Input Frequency: 47 to 63 Hz

Power Consumption: 19 Watts typical, 25 Watts max with FKM

### DC POWER SUPPLY OPTIONS:

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

**24VDC:** Input 20 to 40VDC

**125VDC:** Input 120 to 160VDC

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

## Ordering Information

### Magnum 4K16

Ethernet Switch with 16 RJ-45 ports, each auto-sensing for 100Mb / 10Mb FDX / HDX operation. Optional fiber ports may be configured, one or two from the family of modules below, to operate at 100Mb in place of one or two RJ-45 ports. User-selected fiber port connector types. Each port is switched and provides a full-speed traffic domain with non-blocking performance. Includes internal auto-ranging power supply, cooling fan, and metal brackets for rack mounting. LEDs and user ports are in the front, power input is in the rear. Request quote for units with DC input.

### Magnum 4K16R

"Reverse" model, same as Model 4K16 except user ports and the power input connectors are in the rear.

### Fiber Port Modules (for 4K-Series Switches, Models 4K16 and 4K24F):

FKM-1SC	Fiber module with one 100Mb multi-mode FX SC connector
FKM-1ST	Fiber module with one 100Mb multi-mode FX ST connector
FKM-1MTRJ	Fiber module with one 100Mb multi-mode FX MTRJ small form factor connector
FKM-1SSC	Fiber module with one 100Mb 20Km single-mode FX SC connector
FKM-1SSCL	Fiber module with one 100Mb 40Km "long reach" single-mode FX SC connector
FKM-2SC	Fiber module with two 100Mb multi-mode FX SC connectors
FKM-2ST	Fiber module with two 100Mb multi-mode FX ST connectors
FKM-2MTRJ	Fiber module with two 100Mb multi-mode FX MTRJ small form factor connectors
FKM-2SSC	Fiber module with two 100Mb 20Km single-mode FX SC connectors
FKM-2SSCL	Fiber module with two 100Mb 40Km "long reach" single-mode FX SC connectors
FKM-BLNK	Blank module with no fiber ports, included in 4K16 Switch unit when no fiber port option is selected or configured.

### DC DUAL POWER SOURCE (OPTIONAL)

The Magnum 4K16 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, and 125VDC input types.

### MECHANICAL:

Enclosure: Rugged high-strength sheet metal. Suitable for stand-alone or 1U rack mounting.

Rack-mounting brackets: 19" included; ETSI and 23" Telco optional.

Cooling Method: Fan cooled, internal, on chip.

Dimensions: 1.75 in H x 17.0 in W x 9.0 in D

4.45 cm H x 43.2 cm W x 22.9 cm D

Weight: 3.2 lb. (1.5 kg)

### SWITCHES ON CHASSIS, MANUAL:

Power ON/OFF, standard AC models

Full/half duplex on fiber ports.

### LED INDICATORS ON CHASSIS:

POWER: Steady on when power applied

ERR: Self-test at power up failed.

Reverse Model Option Available: Reverse models are designed with the LED indicators in the front and all wiring and power connections in the rear, normally rack-mounted.

### LED INDICATORS PER PORT:

Link/Act: Steady ON for LINK with no traffic, blinking indicates port is transmitting and receiving

SPEED: ON=100, OFF=10Mb/s

F / H: Steady ON for Full duplex, OFF for Half duplex.

### LED INDICATORS, FIBER PORTS:

The 1 or 2 fiber ports, when present, render the corresponding copper ports inoperative. LEDs for fiber ports have the same meaning as for copper ports.

### AGENCY APPROVALS:

UL Listed (UL60950), cUL, CE

Emissions meet FCC Part 15, Class B

Optional: ETSI and NEBS L3 Certified

### WARRANTY:

Three years

Made in USA

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