

Features

- Managed Ethernet Switch with mixed media port types, for mounting in 19" or ETSI or 23" Telco racks with front-to-rear fan cooling
- 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 unlimited configuration flexibility
- Options include -48VDC, 24VDC, 125VDC, and 250VDC power, dual source, or AC
- Tested for high availability Telco & Industrial applications, NEBS and ETSI compliant



Two 6K units side-by-side fit in a 19" rack

Magnum™ 6K16 Managed Ethernet Switches provide configurability for fiber and copper ports, 10 Mb, 100 Mb and Gigabit speed ports, and comprehensive management software in a compact rack-mount package. Two units can fit side-by-side in a rack, simplifying redundant and hot backup systems in mission-critical applications.

Setting a new standard for Carrier Class equipment and Industrial plant-wide applications, robust Ethernet Switch jobs are made easy by the flexibility and power of the Magnum 6K16. With options such as dual-source -48V and 24V DC power input, worldwide AC power, and front-to-rear fan cooling, the mixed-media Magnum 6K16 handles 100 Mb user connectivity along with Gigabit backbone ports, mix and match, in half the space normally required.

High performance features include non-blocking speed on all ports and 802.1p QoS Traffic Prioritization. Magnum 6K16s 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 6K16 Managed Switches are provided with LAN management software including SNMPv1 and RMON management with access control, SNMPv3 authentication security, Tag- and Port-based VLANs, IGMP Snooping, Port Security, Port Mirroring, STP, SMTP, BootP and DHCP, and control via command line interface. For high availability LANs redundant topologies, Spanning Tree Protocol (STP), Rapid Spanning Tree (RSTP), 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 telecom equipment systems, industrial process plants, power utilities, transportation systems, and video surveillance jobs with segments requiring Gigabit backbone interconnections, the Magnum 6K16 is easy to install and operate. The next generation of carrier class 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 6K16 has all of these, and is available now.

Magnum 6K16 Managed 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 6K16s and all other Magnum products are designed and manufactured in the USA and backed by a three year warranty.



GarrettCom®

Industrial Networking at Its Best™

Magnum 6K16 Configuration Guide



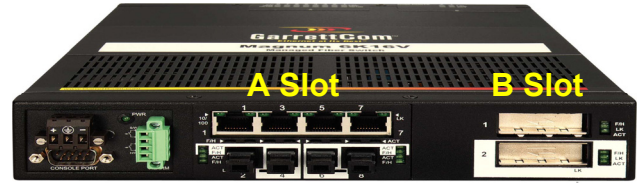
GarrettCom
Industrial Networking at Its Best™

Magnum 6K16 Managed Switch, base unit with front-to-rear fan cooling, for rack mounting or table-top. May be configured with a variety of 10/100/1000 Mb fiber and copper port connector types via selection from a family of port modules. 16 ports max. Two 6K16 units can be mounted side by side in a 19" rack. Wire speed filtering and forwarding across all ports, 2 alarm contacts, 802.3x flow control, 802.1p priority packet processing, 4K node address table, 240KB packet buffers.

Note: MNS-6K and MNS-6K-SECURE software are licensed for 6K switches.

Step 1. Choose 6K16 chassis and power input type:

Model #	Base Unit, Description
6K16	AC Power
6K16-24 VDC	24V (18-36) DC power
6K16-48 VDC	-48V (36-70) DC power
6K16-125 VDC	125V (88-300) DC power
6K16-250 VDC	250V (88-300) DC power



Step 2. Choose 1 module for slot A and/or B (may be blank):

Note: If PoE module is desired, see [PoE Configuration Guide](#).

Module Model #	10/100	10BASE-FL	100BASE-FX(MM)	100BASE-FX(SM)	Gigabit
6KP8-RJ45	8				
6KP8-45-2MT	6		2 (MTRJ)		
6KP8-45-2SLC	6			2 (20km LC)	
6KP6-RJ10ST	4	2 (ST)			
6KP6-RJMST	4		2 (ST)		
6KP6-RJMST	4		2 (SC)		
6KP6-RJSSC	4			2 (20km SC)	
6KP6-RJSSCL	4			2 (40km SC)	
6KP8-45MT	4		4 (MTRJ)		
6KP8-45MLC	4		4 (LC)		
6KP8-45SLC	4			4 (20km LC)	
6KP4-F10ST		4 (ST)			
6KP4-FLSTFX		2 (ST)	2 (ST)		
6KP4-FXST			4 (ST)		
6KP4-FXSC			4 (SC)		
6KP6-MT10ST		2 (ST)	4 (MTRJ)		
6KP8-MTRJ			8 (MTRJ)		
6KP8-MLC			8 (LC)		
6KP8-SLC				8 (20km LC)	
Gigabit Modules using GBICs (see Step 3)					
6KP3-G2SC			2 (SC)		1 GBIC
GBPM-COTX					1 GBIC
GBPM-2OTX					2 GBIC
Gigabit Modules, fixed ports					
6KP2-2GSX					2 SX
6KP2-2GCU					2 CU
6KP3-1CU2FXT			2 (ST)		1 CU
6KP5-1CU4RJ	4				1 CU
Gigabit Modules, fixed ports—Using Small form factor (SFP) transceivers					
6KP7-1G2RJ4MLC, 6KP7-1G2RJ4SLC, 6KP7-1G2RJ4SLCL w/ 1 SFP Gb port, 2 10/100 RJ45 & 4 m-mode, sgl-mode or "long haul" sgl-mode fiber					
6KP7-1GSFP6RJ	6				1 SFP
6KP2-2GSFP					2 SFP
6KP2-1GSFP1CU					1SFP, 1CU
6KP1-1GSFP					1 SFP
6KP1-1GCU					1 CU

Step 3 (Opt) Choose GBICs or SFPs for Gig Ports (if configured) in Slot A and/or B:

Model #	Description (Ports for GBPM-COTX / 6KP5-G4RJ/ 6KP3-G2SC)
GBIC-SXSC	One 1000BASE-SX port with m.m. SC fiber connector
GBIC-LXSC10	One 1000BASE-LX/LH port 1310nm s.m. SC 10Km
GBIC-LXSC25	One 1000BASE-LX/LH port 1310nm s.m. SC 25Km
GBIC-TP	One IEEE 802.3ab TP port, RJ-45 connector
GBIC-ZXSC40	One 1000BASE-ZX port 1550nm s.m. SC 40Km
GBIC-ZXSC70	One 1000BASE-ZX port 1550nm s.m. SC 70Km

Gb SFP fiber optic transceivers	
SFP-GTP	Gb Copper
SFP-SX	Gb SX, 850nm wavelength, 550 meters distance
SFP-ESX	Gb SX, 1310nm wavelength, 2km distance
SFP-LX10	Gb LX, 1310nm wavelength, 10km distance
SFP-LX25	Gb LX, 1310nm wavelength, 25km distance
SFP-ZX40	Gb ZX, 1550nm wavelength, 40km distance
SFP-ZX70	Gb ZX, 1550nm wavelength, 70km distance

Step 4. Choose options & extras:

Model #	Description
6KM-BLNK	Blank cover for 1 unused (A) module slot
CONSOLE-CBL	Console attachment cable serial null Modem (aka X-modem) cable with DB9 connectors
CONSOLE-USB	As above, but with a USB connector
DUAL-SRC	Two separate pwr inputs (24/ 48/ 125 or 250V)
MNS-6K-SECURE	Optional, licensed per switch for extra security
S-RING-KEY	Software, self-healing ring, includes RS-Ring
K16-2TRAY	Rack-mount Tray holds 2 6K16s side-by-side
K16-RMB	Two metal Brackets for 19" Rack Mount
K16-RMB-CTR	2 Metal Brackets for center-mount in 19" Rack
K16-EXTN-KIT	Convert K16-RMB/K16-2TRAY to ETSI or 23"
CONFORM05-CRM	Conformal coating, 5 mil, for moisture protect.
CONFORM08-CRM	Conformal coating, 8 mil, for corrosive environ.
ALARM-TRMBLK	2 Alarm contacts, incl., std feature on 6K16

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, 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 on TP, IEEE 802.3u
 See MNS-6K datasheet for software network standards, Link-Loss-Learn, and other software features.

OPERATING ENVIRONMENT:

IEC 60068 Operating temp. per "Type Test" -60° to 205°F (-50° to 95°C)
 UL 60950 "Component Parts" temperature rating: 140°F (60°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, in the rear of the 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:

-48VDC: Input -36 to -60VDC (PoE input range: -44 to -57VDC)
 24VDC: Input 20 to 40VDC
 125VDC, 250VDC, and 110VDC nominal: Input 88 to 300VDC
 Std. Terminal Block: "-", GND, "+", Power Consumption: Same as AC

DC DUAL POWER SOURCE (OPTIONAL)

The Magnum 6K16 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, 125VDC, or 250VDC.

MECHANICAL:

Enclosure: High-strength metal. Panel-mount brackets for secure horizontal mounting included.
 Optional rack mounting: Model K16-RMB for one unit in a 1U rack space
 Model K16-2TRAY for 2 units side-by-side in a 1.5U rack space
 Fan cooled, 3 fans each rated 3 cfm, rear-mounted w/front-to-rear air flow
 Dimensions: 1.75 in H x 8.75 in W x 10.0 in D
 4.4 cm H x 22.2 cm W x 25.4 cm D
 Weight: 4.0 lbs. (1.8 kg)

LED INDICATORS PER RJ-45 PORT:

LK: Steady on when link is operational.
 ACT: On with port activity
 F/H: ON = full-duplex mode, OFF = half-duplex
 100/10 ON = 100Mb speed, OFF = 10Mb



6K16 rear view

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.



Single unit Rack Mount

PORT-SPECIFIC SETTINGS:

The copper module has an internal switch for MDIX crossover on port #1. Other port-specific user settings are via software commands.

AGENCY APPROVALS AND STANDARDS COMPLIANCE:

UL Listed (UL1950), cUL, CE, Emissions meet FCC Part 15, Class A
 IEC 61850 EMC and Operating Conditions Class C for Power Substations
 IEEE 1613 Class 2 Environmental Standard for Electric Power Substations
 NEBS Level 3 and ETSI Compliant; NEMA TS-2 for traffic control

WARRANTY:

Three years

Made in USA

©2010 GarrettCom, Inc. Printed in United States of America Doc No. 6K16 10/10
 GarrettCom, Inc. reserves the right to change specifications, performance characteristics and/or model offerings without notice. GarrettCom is a registered trademark of GarrettCom Inc. Magnum, Dymec, DynaStar, S-Ring, and Link-Loss-Learn are trademarks of GarrettCom, Inc. NEBS is a registered trademark of Telcordia Technologies. UL is a registered trademark of Underwriters Labs.

Ordering Information

Magnum 6K16

Magnum 6K16 Managed Switch, base unit for horizontal 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. AC and DC power types. Wire speed filtering and forwarding across all ports, 802.3x flow control, 802.1p priority packet processing, 4K node address table, 240KB packet buffers. For licensed network management software (MNS-6K and S-Ring), see separate data sheets.

Configuration Options: Magnum 6K32TRC base unit has two port module slots, each of which may be a module from below:

- 6KP8-45MT "4+4" module for 6Ks, w/four 10/100 RJ-45 and four 100 Mb 2km multi-mode FX MTRJ connectors
- 6KP8-SLC SFF Fiber module for 6K Switches, w/eight 100 Mb 15km single-mode FX LC connectors
- 6KP8-RJ45 TP Module for 6K16 switches, w/eight 10/100 Mb auto-negotiating RJ-45 ports
- 6KP8-MTRJ SFF Fiber module for 6K Switches, w/eight 100 Mb 2km multi-mode FX MTRJ connectors
- 6KP8-45SLC "4+4" module for 6Ks, w/four 10/100 RJ-45 and four 100 Mb 20km single-mode FX LC connectors
- 6KP6-RJMST "4+2" module for 6Ks, w/four 10/100 RJ-45 and two 100 Mb 2km multi-mode FX ST connectors
- 6KP6-RJSSC "4+2" module for 6Ks, w/four 10/100 RJ-45 and two 100 Mb 20km single-mode FX SC connectors
- 6KP6-RJSSCL "4+2" module for 6Ks, w/four 10/100 RJ-45 and two 100 Mb 40km single-mode FX SC connectors
- 6KP6-RJ10ST "4+2" module for 6Ks, w/four 10/100 RJ-45 and two 10 Mb 2km FL ST connectors
- 6KP4-FXSC "2+2" 100 Mb Fiber module for 6K Switches, w/four 100 Mb FX SC connectors.
- 6KP4-F10ST "2+2" 10 Mb fiber module for 6K Switches, w/four 10Mb 2km FL ST connectors
- 6KP7-1GSFP6RJ "G+6" module for 6Ks, w/one SFP Gigabit Port and six 10/100 Mb RJ45 ports
- 6KP7-1G2RJ4MLC "G+4+2" module for 6Ks, w/one SFP Gigabit Port, four multi-mode LC fiber ports, and two 10/100 RJ-45
- 6KP7-1G2RJ4SLC "G+4+2" module for 6Ks, w/one SFP Gigabit Port, four single-mode LC fiber ports, and two 10/100 RJ-45
- 6KP7-1G2RJ4SLCL "G+4+2" module for 6Ks, w/one SFP Gb Port, four sgl-mode long-haul LC fiber ports, and two 10/100 RJ-45
 Note: Several other Port Module types are available. See Configuration Guide.
- 6KP3-G2SC "G+2" module for 6K16 Switches, 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.
- GBPM-20TX Two-port Gigabit 6K module for 6K16 switches, provides two GBIC open transceiver ports.
- GBIC-SXSC GBIC transceiver module for use in GBPM-COTX, one SX port with multi-mode SC fiber connector
- GBIC-LXSC10 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.
- 6KP2-2GSX Two-port one-slot Gigabit 6K module for 6K16 switches, uses one 6K slot & provides two Gigabit Fiber SXSC (1000BASE-SX multi-mode) ports. Includes front-panel sheet metal cover.
- 6KP2-2GCU Two-port one-slot Gigabit 6K module for 6K16 switches, uses one 6K slot and provides two Gigabit Copper (1000BASE-T) auto-negotiating ports. Includes front-panel sheet metal cover.
- 6KP3-1CU2FXT Three-port one-slot Gigabit 6K module for 6K16 switches, uses one 6K slot and provides one Gigabit Copper (1000BASE-T) auto-negotiating port and two 100Mb ST Fiber FX multi-mode ports.
- 6KM-BLNC Blank cover for slot opening in a Magnum 6K16 chassis



GarrettCom[®]

Industrial Networking at Its Best™

GarrettCom, Inc.
 47823 Westinghouse Drive
 Fremont, CA 94539
 PH: (510) 438-9071
 FAX: (510) 438-9072
 Email: mktg@garrettcom.com
 Web: www.GarrettCom.com