

PB00140

### GarrettCom Magnum 6KL Industrial Ethernet Managed Edge Switch

The high performance 6KL base unit comes with four 10/100 copper ports (either regular or PoE). Up to four 100Mb fiber ports or up to four more 10/100 copper ports, or combinations, may also be configured.



**The Magnum 6KL is Ideal for Building a Switched, Hardened Ethernet Network Infrastructure and Connecting Edge Devices such as PLCs and LEDs with Upstream Switches or Routers.**

#### Features

- Entry-level Heavy Duty Managed Switch for industrial networking applications
- Full-featured MNS-6K software in a small Edge Switch package, DIN-Rail or panel mounting
- Configurable, all 100Mb fiber port types, 10/100 copper ports, Gb with SFPs
- Metal case used as a heat sink (no fans), rated IP52
- DC power: 12V, 24V, 48V, 125V, 250VDC, Dual-Source; Universal
- PoE+ (802.3at) possible on four ports

#### High Performance

The Magnum 6KL Managed Edge Switches incorporate reliability and security for harsh environments, especially "edge" applications on the periphery of the network where industrial devices are connected. The high performance 6KL base unit comes with four 10/100 copper ports (either regular or standard 802.3af PoE). Up to 4 100Mb fiber ports or up to four more 10/100 copper ports, or combinations, may also be configured. Two Gb ports may be configured as SFP ports or as 10/100/1000 copper ports.

#### Network Software

The Magnum 6KL comes with the best-of-breed MNS-6K managed networks software, proven in tens of thousands of hardened applications over 10 years of service. It features GUI ease of use, Secure Web Management, SNMPv2,v3 management, 802.1p QoS Prioritization, Tag-based VLANs, IGMP Snooping and IGMP-L2 multicast management, port security, and a choice of software redundancy options including RSTP-2004 with industry leading fault recovery times in rings and meshes, and GarrettCom's S-Ring product which supports unmanaged switches as part of resilient rings. MNS-6K-SECURE adds more security features such as SSH, RADIUS and TACACS+ support, SFTP, DHCP Server, Syslog events, TFTP and SNTP Server. See the MNS-6K datasheet for more information.

**Be certain.  
Belden.**

## GarrettCom Magnum 6KL - Industrial Ethernet Managed Edge Switch

### Applications

Magnum 6KLs are ideal for building a switched, hardened Ethernet network infrastructure, connecting edge devices such as PLCs and IEDs with upstream switches or routers. Designed for use in industrial and heavy duty outdoor applications such as industrial video surveillance systems with PoE, power utility substations, traffic control and transportation facilities, tariffed carrier field facilities, or oil and gas, the hardened Magnum 6KL handles stressful workloads.

### Heat Sink Metal Casing

The 6KL's sealed metal case serves as a heat sink, enabling the 6KL to operate in the harshest industrial grade environments and achieves high EMI noise immunity. The 6KL is available with Conformal Coating options and is rated IP52 for dust and water resistance.

### Power Supplies

The 6KL can be configured with the user's choice of DC power supplies: 12V and 24V for factory floor, 48V for tariffed carrier field facilities and for PoE-powered applications such as IP video surveillance, and 125V or 250V for substations. An internal AC power supply may also be chosen, universal AC for use worldwide.

### Agency Approvals and Compliance

The Magnum 6KL Managed Edge Switch has all appropriate agency approvals and compliance certifications, including third-party UL testing for safety and temperature rating, NEBS L3 compliance, IEC 61850 & IEEE 1613 for power utilities, and NEMA TS-2 for use in transportation systems outdoors.

### Warranty

Three years.

## Product Specifications

Type	6KL
<b>Product Description</b>	Magnum 6KL Configurable Managed Edge Switch, base unit with DC power supply and four 10/100 copper ports. May be configured with a variety of 10/100/1000 Mb fiber and copper port connector types via selection from a family of 6KL port modules per this 6KL Configuration Guide. 10 ports max. Heavy duty fully enclosed metal case used as a heat sink, rated IP52 for environmental protection, no fans. For licensed network management software information (MNS-6K, MNS-6K-SECURE, and S-Ring), see their respective data sheets.
<b>Mechanical</b>	
<b>Enclosure</b>	Steel case. Vertical panel-mounting brackets included. Console port: RJ-45 serial interface
<b>Console Port</b>	RJ-45 serial interface
<b>DIN-Rail Mounting</b>	Model # DIN-Rail-6KL, optional
<b>Enclosure Ingress Protection Rating</b>	IP52, per IEC 60529, and NEMA-3,3X.
<b>Cooling Method</b>	Convection, fully-enclosed ribbed-surface aluminum case used as a heat sink, designed for vertical mounting, no fans.
<b>Dimensions</b>	8.0 in H x 1.75 in W x 6.0 in D in vertical panel-mount position. (20.3cm H x 4.4cm W x 15.2cm D)
<b>Weight</b>	2.1 lbs (.95 kg)
<b>Network Standards</b>	
<b>Ethernet</b>	IEEE 802.3, 802.3ab, 802.1p:10BASE-FL;100BASE-TX,FX;1000BASE-SX,LX,ZX
<b>Auto-negotiation and Auto-Cross</b>	10/100 TP and PoE, IEEE 802.3u.
All 100 Mb ports use Fast Ethernet rules. 1000 Mb ports use Gigabit rules.	
<b>Performance</b>	
<b>Gigabit Ports, 1000 Mb</b>	Configurable, standard 10/100/1000Mb copper or SFF transceiver modules for SX, ESX, LX, ZX, up to 2 Gigabit ports.
<b>Fiber Ports, 100 Mb</b>	SFF-FX (LC or MTRJ), multi-mode and single-mode for each type, max of three 100Mb fiber
<b>RJ-45 Ports</b>	100 or 10 Mb speed, full- or half-duplex mode, per port, individual determined. 10/100 auto-negotiating & auto-cross, up to eight ports. PoE Ports, RJ-45 Power Sourcing per IEEE 802.3af, power on data pair.
<b>Processing Types</b>	Store and Forward with IEEE 802.3p QOS and IEEE 802.3x.
<b>All Ports Non-Blocking</b>	System aggregate forward and filter rate 4.17M pps. Address table: 4K nodes, with address aging time of 300 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)
<b>AC Power Supply (Internal)</b>	
<b>AC Power Connector</b>	IEC-type, male recessed.
<b>Power Input AC</b>	100 to 240 VAC, 47 to 63 Hz (auto ranging).

# MAGNUM 6KL

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## Product Specifications (continued)

<b>DC Power Supply</b> (Internal, floating ground for internal PCBs)	
<b>Power Input</b>	12V nominal (10 to 15V) 24V nominal (18 to 36V), 48V nominal (36 to 60V), 125V nominal (88 to 150V) 250V nominal (160 to 300V).
<b>Power Input for PoE</b>	Add up to 15 watts per PoE port to base unit power draw
<b>Power Consumption</b>	20 watts typical for a fully-loaded fiber model with 2Gb, 15 watts typical for eight port copper and 100 Mb fiber model.
<b>Standard Terminal Block</b>	"-, GND, +"
<b>Dual Source</b>	-A, -B, +A, +B, chassis ground.
<b>DC Dual Power Source</b> (Optional)	
All Magnum 6KL DC models (12, 24, 48, 125, and 250 VDC) may be ordered with optional Dual-Source DC power input, for continuity of operation when either one of the DC input sources is interrupted.	
<b>LED Indicators (two sets) per RJ-45 Port</b>	
<b>LK</b>	Steady ON when twisted-pair link is operational.
<b>ACT</b>	ON with port activity 100/10 ON = 100Mb speed, OFF = 10Mb (Port-side LED set only).
<b>F/H</b>	ON for full-duplex, OFF for half-duplex (PoE only, port-side only)
<b>PoE</b>	ON for power to PD device. Note: LK/ACT port becomes steady ON for Link, blinking for activity.
<b>LED Indicators (two sets) per 100Mb Fiber Ports</b>	
<b>LK</b>	Steady ON when fiber link is operational.
<b>ACT</b>	ON with port activity
<b>LED Indicators per Gb Port</b>	
<b>LK</b>	Steady ON when link is operational.
<b>ACT</b>	ON with port activity 1000Mb ON = Gb speed (Top-side LED set only, copper only)100/10 ON = 100Mb speed,OFF=10Mb (Port-side LED set only, copper only) 3 LEDs indicate Gb,100Mb or 10Mb.
<b>Relay Contacts for Alarms</b>	
Form C, one NC indicating internal power, one NC software controllable.	
<b>Operating Environment</b>	
<b>Operating Temperature</b>	IEC 60068 Operating temp. per "Type Test" -40° to 195°F (-40° to 85°C).
<b>Temperature Rating (components)</b>	UL 60950 -40° to 140°F (-40° to 60°C).
<b>Storage Temperature</b>	-60° to 210°F (-50°to 100°C).
<b>Relative Humidity</b>	5% to 95% (non-condensing).
<b>Altitude</b>	-200 to 13000ft (-60 to 4000m).
<b>Conformal Coating (humidity protection)</b>	Request quote.
<b>Network Cable Connectors</b>	
<b>1000 Mb Fiber Ports</b>	All standard Gb SFP Transceiver types supported.
<b>1000 Mb Copper Ports</b>	10/100/1000Mb auto-negotiating, Cat5e & 6 UTP/STP.
<b>100 Mb Copper and PoE Ports</b>	Category 5 UTP/STP; 10 Mb: Cat. 3, 4, 5 UTP/STP.
<b>100 Mb Fiber Ports</b>	Multi-mode and single-mode FX-MTRJ, LC.
<b>Agency Standards Approval and Compliance</b>	
<b>UL/cUL 60950</b>	cUL, CE, Emissions meet FCC Part 15, Class B.
<b>IEC61850</b>	EMC and Operating Conditions Class C for Power Substations.
<b>IEEE 1613 Class 2</b>	Environmental Standard for Electric Power Substations.
<b>NEBS</b>	Level 3 and ETSI Compliant.
<b>EN50155</b>	Compliant.
<b>NEMA TS-2 &amp; TEES</b>	For DC-powered and PoE-powered traffic control equipment.
<b>EN61000</b>	EN61000-4-1, -4-2, -4-3, -4-4, -4-5 Compliant
<b>Warranty</b>	
<b>Warranty</b>	Three Years.

## Magnum 6KL Configuration Guide

6KLP-48V - 6KL-2GSFP | PP6KL4-RJ45

### Power Supply with Slot A Options

6KL-24V = 24V (18-36) DC power, slot A has 4x 10/100 Ports  
 6KL-12V = 12V (10-15) DC power, slot A has 4x 10/100 Ports  
 6KL-48V = 48V (44-57) DC power, slot A has 4x 10/100 Ports  
 6KLP-48V = 48V (44-57) DC power, slot A has 4x (802.3af) PoE 10/100 ports  
 6KL-125V = 125V (88-150) DC power, slot A has 4x 10/100 Ports  
 6KL-250V = 250V (160-300) DC power, slot A has 4x 10/100 ports  
 6KL-AC = 100 to 240 VAC, 47 to 63 Hz, slot A has 4x 10/100 ports

### Slot B (gigabit ports only)

6KL-2GCU = 2x 10/100/1000Mb RJ45 ports  
 6KL-2GSFP = 2x 1000Mb SFP ports  
 XX = Blank Slot

### Slot C

6KL4-RJ45 = 4x 10/100Mb RJ45  
 6KL4-2MLC2RJ = 2x 10/100Mb RJ45 + 2x 100Mb FX LC MM  
 6KL4-2SLC2RJ = 2x 10/100Mb RJ45 + 2x 100Mb FX LC SM 20Km  
 6KL4-4SLCL = 4x 100Mb FX LC SM 40Km  
 6KL4-4MT = 4x 100Mb FX MTRJ MM  
 6KL4-4MSC = 4x 100Mb FX SC MM  
 6KL4-4MST = 4x 100Mb FX ST MM  
 6KL4-2SLC2MLC = 2x 100Mb FX LC SM + 2x 100Mb FX LC MM  
 6KL4-1MLC3RJ = 3x 10/100Mb RJ45 + 1x 100Mb FX LC MM  
 6KL4-1SLCL3RJ = 3x 10/100Mb RJ45 + 1x 100Mb FX LC SM 40Km  
 6KL1-1MLC = 1x 100Mb FX LC MM  
 6KL4-1SLCL = 1x 100Mb FX LC SM 40Km  
 6KL4-2SL2MLC = 2x 100Mb FX LC MM + 2x 100Mb FX LC SM 20km  
 6KL4-4SSC = 4x 100Mb FX SC SM 20Km  
 6KL4-2FX2FLMST = 2x 10Mb FX SC MM 2Km + 2x 100Mb FX ST MM  
 6KL4-1ML1SLC2RJ = 2x 10/100Mb RJ45 + 1x 100Mb FX LC SM 20Km + 1x 100Mb FX LC MM

6KL4-4MLC = 4x 100Mb FX LC MM  
 6KL4-4SLC = 4x 100Mb FX LC SM 20Km  
 6KL4-2SST2RJ = 2x 10/100Mb RJ45 + 2x 100Mb FX ST SM 20Km  
 6KL4-2SLCL2RJ = 2x 10/100Mb RJ45 + 2x 100Mb FX LC SM 40Km  
 6KL4-2MT2RJ = 2x 10/100Mb RJ45 + 2x 100Mb FX MTRJ MM  
 6KL4-2MSC2RJ = 2x 10/100Mb RJ45 + 2x 100Mb FX SC MM  
 6KL4-2MST2RJ = 2x 10/100Mb RJ45 + 2x 100Mb FX ST MM  
 6KL4-1MT3RJ = 3x 10/100Mb RJ45 + 1x 100Mb FX MTRJ MM  
 6KL4-1SLC3RJ = 3x 10/100Mb RJ45 + 1x 100Mb FX LC SM 20Km  
 6KL1-1MT = 1x 100Mb FX MTRJ MM  
 6KL1-1SLC = 1x 100Mb FX LC SM 20Km  
 6KL4-1SL3MLC = 1x 100Mb FX LC SM + 3x 100Mb FX LC MM  
 6KL4-2SSC2RJ = 2x 10/100Mb RJ45 + 2x 100Mb FX SC SM 20Km  
 6KL4-4SSCL = 4x 100Mb FX SC SM 40Km  
 6KL4-4FLST = 4x 10Mb FX ST MM

### OR

PoE Option (only with 6KLP-48VDC models)  
 P6KL4-RJ45 = 4x 10/100Mb RJ45 w/ PoE  
 PoE+ Option (only with 6KLP-48VDC models)  
 PP6KL4-RJ45 = 4x 10/100Mb RJ45 w/ PoE+  
 OR  
 XX = Blank Slot

## 6KL Accessories

Model No.	Description	Model No.	Description
SFP-SX	Gb SX, 850nm wavelength, 550 meters	MNS-6K-SECURE-LIC1	Optional, licensed per switch for extra security
SFP-ESX	Gb SX, 1310nm wavelength, 2km	S-RING-KEY	Software, optional self-healing redundant ring management
SFP-LX25	Gb LX, 1310nm wavelength, 25km	DIN-Rail-6KL	DIN-Rail mount for 6KL
SFP-ZX40	Gb ZX, 1550nm wavelength, 40km	KL-2TRAY	Rack-mount tray for two 6KL for 19" mounting
SFP-ZX70	Gb ZX, 1550nm wavelength, 70km	DUAL-SRC	Two separate power inputs (12/24/48/125/250V)
SFP-GTP	Gb Copper	KQ-CABLE-BKT	Bracket for cable tie-wrap attachment
SFP-LX10	Gb LX, 1310nm wavelength, 10km	CONFORM05-CRM	Conformal coating, 5 mil, for moisture protection
CONSOLE-CBLQD	Console attachment cable serial null Modem (aka X-modem) cable with DB9 connectors	CONFORM08-CRM	
CONSOLE-CBLQU	Console attachment cable serial null Modem (aka X-modem) cable with a USB connector		

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