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Magnum 6KQE

Industrial Ethernet Managed Edge Switch





Features

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

Magnum™ 6KQE Managed Edge Switches provide configurability in an entry-level industrial-grade package. The high performance 6KQE base unit comes with four 10/100 copper ports (which may be either regular or PoE). Up to 3 100Mb fiber ports or up to four more 10/100 copper ports, or combinations, may also be configured. In addition, one or two Gb ports may be configured as 10/100/1000 copper or SFP fiber in any 6KQE base unit.

Magnum 6KQE comes with the best-of-breed MNS-6K managed networks software featuring 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, and SNTP Server. Over 10 years of field use in industrial networking applications assures maturity and stability. See the MNS-6K and MNS-6K-SECURE datasheets for more information.

Magnum 6KQEs 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 rugged Magnum 6KQE handles stressful workloads.

Advanced thermal design techniques use the 6KQE's metal case as a heat sink. This sealed-case design enables the unit to operate in the harshest industrial grade environments and achieves high EMI noise immunity. The 6KQE is available with Conformal Coating options and rated IP53 for dust and water resistance.

The 6KQE 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.

Like all Magnum products, the 6KQE 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.

GarrettCom®
Industrial Networking at Its Best™

Specifications

6KQE Industrial Ethernet Managed Edge Switch

PERFORMANCE:
RJ-45 Ports: 100 or 10 Mb speed, full- or half-duplex mode, per port, individ. determined. 10/100 auto-negotiating & auto-cross, up to 8 ports. PoE Ports, RJ-45 Power Sourcing per IEEE 802.3af, power on data pair.
Fiber Ports, 100 Mb: SFF-FX (LC or MTRJ), multi-mode and single-mode for each type, max of three 100Mb fiber
Gigabit Ports, 1000 Mb: Configurable, standard 10/100/1000Mb copper or SFF transceiver modules for SX, ESX, LX, ZX , up to 2 Gigabit ports.
Processing type: Store and Forward with IEEE 802.3p QOS and IEEE 802.3x. All Ports non-blocking. System aggregate forward and filter rate 4.76M 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)

NETWORK STANDARDS:
IEEE 802.3, 802.3ab, 802.1p:100BASE-TX,FX;1000BASE-SX,LX,ZX
Auto-negotiation and auto-cross on 10/100 TP and PoE, IEEE 802.3u
See MNS-6K & MNS-6K-SECURE datasheets for software network standards.
All 100 Mb ports use Fast Ethernet rules. 1000 Mb ports use Gigabit rules.

OPERATING ENVIRONMENT:
IEC 60068 Operating temp. per "Type Test" -40° to 195°F (-40° to 85°C)
UL 60950 and "Component Parts" rating: -40° to 140°F (-40° to 60°C)
Storage: -60° to 210°F (-50°to 100°C)
Relative humidity: 5% to 95% (non-condensing)
Altitude: -200 to 13,000ft (-60 to 4,000m)
Conformal coating (humidity protection) optional: Request quote

NETWORK CABLE CONNECTORS:
1000Mb fiber ports: all standard Gb SFP Transceiver types supported
1000Mb copper ports:10/100/1000Mb auto-negotiating, Cat5e & 6 UTP/STP
100Mb Copper and PoE: Category 5 UTP/STP; 10 Mb: Cat. 3, 4, 5 UTP/STP
100 Mb Fiber ports options: multi-mode and single-mode FX-MTRJ, LC
For other port types and port connector types, request quote

DC POWER SUPPLY (Internal, floating ground for internal PCBs):
Power Input: 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)
Power Input for PoE: add up to 15 watts per PoE port to base unit pwr draw
Power Consumption: 20 watts typical for a fully-loaded fiber model with 2Gb, 15 watts typical for 8 port copper and 100 Mb fiber model.
Std. Terminal Block: "-, GND, +". Dual Source is -A, -B, +A, +B, chassis gnd.

DC DUAL POWER SOURCE (OPTIONAL):
All Magnum 6KQE 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.

AC POWER SUPPLY (Internal):
AC Power Connector: IEC-type, male recessed
Power Input, AC: 100 to 240 VAC, 47 to 63 Hz (auto ranging)

RELAY CONTACTS FOR ALARMS:
Form C, one NC indicating internal power, one NC software controllable.

MECHANICAL:
Enclosure: High-strength aluminum for heat-sinking. Vertical panel-mounting brackets included. Console port: DB9
DIN-Rail mounting: Model # DIN-Rail-6KQ, optional
Enclosure Ingress Protection rating: IP53, protects against (5)dust particles and (3)spraying liquids per IEC 60529, and NEMA-3,3X
Cooling Method: Convection, fully-enclosed aluminum case used as a heat sink, designed for vertical mounting, no fans.
Dimensions: 6.85 in H x 7.50 in W x 2.0 in D in vertical panel-mount position. (17.4cm H x 19.1cm W x 5.08cm D) Weight: 3 lbs. (1.3 kg)

LED INDICATORS (two sets) PER RJ-45 PORT:
LK: Steady ON when twisted-pair link is operational.
ACT: ON with port activity
100/10 ON = 100Mb speed, OFF = 10Mb
(Port-side LED set only) F/H: ON for full-duplex, OFF for half-duplex
(PoE only, port-side only) PoE: ON for power to PD device. Note: LK/ACT port becomes steady ON for Link, blinking for activity.

LED INDICATORS (two sets) per 100Mb FIBER PORT:
LK: Steady ON when fiber link is operational
ACT: ON with port activity

LED INDICATORS PER Gb PORT:
LK: Steady ON when link is operational.
ACT: 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

AGENCY APPROVALS AND STANDARDS COMPLIANCE:
UL Listed (UL60950), 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 L3 and ETSI compliant
NEMA TS-2 & TEES for DC-powered and PoE-powered traffic ctrl eqpt.

WARRANTY: Three years Made in USA

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Ordering Information

Magnum 6KQE-24VDC Magnum 6KQE Managed Edge Switch, base unit with four 10/100 copper ports. Up to 3 100Mb fiber ports or up to four more 10/100 copper ports (or combinations) may also be configured, and up to 2 Gb ports are optional. Heavy duty metal case, IP53 for environmental protection, no fans.
Magnum 6KQE-12VDC Same as Model 6KQE-24VDC except the power input is 12VDC.
Magnum 6KQE-48VDC Same as Model 6KQE-24VDC except the power input is -48VDC.
Magnum 6KQEP-48VDC PoE, same as Model 6KQE-48VDC except the four 10/100 ports are PoE-enabled, data pairs.
Magnum 6KQE-125VDC Same as Model 6KQE-24VDC except the power input is 125VDC nominal (range 88-150VDC).
Magnum 6KQE-250VDC Same as Model 6KQE-24VDC except the power input is 250VDC nominal (range 160-300VDC).
Magnum 6KQE-AC Same as Model 6KQE-24VDC except the power input is AC; 100 to 240 VAC, 47 to 63 Hz.

Configuration Options: Each Magnum 6KQE may be configured with a choice of 100Mb ports in the C slot.

6KQE4-RJ45 6KQE configuration, add four 10/100 copper ports in 6KQE slots C
6KQE4-1MMRJ 6KQE configuration, add three 10/100 copper and one mm 100Mb MTRJ fiber ports in 6KQE slots C
6KQE4-2MMRJ 6KQE configuration, add two 10/100 copper and two mm 100Mb MTRJ fiber ports in 6KQE slots C
6KQE4-3MMRJ 6KQE configuration, add one 10/100 copper and three mm 100Mb MTRJ fiber ports in 6KQE slots C
6KQE4-1MLC 6KQE configuration, add three 10/100 copper and one mm 100Mb LC fiber ports in 6KQE slots C
6KQE4-2MLC 6KQE configuration, add two 10/100 copper and two mm 100Mb LC fiber ports in 6KQE slots C
6KQE4-3MLC 6KQE configuration, add one 10/100 copper and three mm 100Mb LC fiber ports in 6KQE slots C
6KQE4-1SLC 6KQE configuration, add three 10/100 copper and one sgl-m 20Km 100Mb LC fiber ports in slots C
6KQE4-2SLC 6KQE configuration, add two 10/100 copper and two sgl-m 20Km 100Mb LC fiber ports in slots C
6KQE4-3SLC 6KQE configuration, add one 10/100 copper and three sgl-m 20Km 100Mb LC fiber ports in slots C

Other models are available for single-mode fiber LC ports at 40KM, 70Km, and longer distances.

6KQE-2GCU 6KQE Gig module, two auto-negotiating 10/100/1000 Mb copper ports, configure in 6KQE slot D only
6KQE-1GCU 6KQE Gig module, one auto-negotiating 10/100/1000 Mb copper port, configure in 6KQE slot D only
6KQE-2GSFP 6KQE Gig module, two SFP pluggable open transceiver ports for user-selectable SFP Gb transceivers in each, configure in 6KQE slot D only. Gb SFP's are available for multi-mode SX (550KM) and ESX (2KM); for single-mode LX (10 and 25KM), ZX (40 and 70KM); and specials.
6KQE-1GSFP Same as -2GSFP model except only 1 Gb SFP port.

Several other Gb Port Modules are available on config. guide at www.garrettcom.com/techsupport/insertion_guides/6kqecg.pdf

DIN-RAIL-6KQ DIN-Rail holder for a secure vertical mount of 6KQ / 6KQE, with screws to attach to 6KQE case.

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