Magnum 6K32FC & 6K32FRC

Fiber-configurable Convection-cooled Industrial Managed Switch

Features

- Convection-cooled 1U rack-mount package, for dusty and dirty industrial environments
- Provides four modular slots for configuration flexibility of up to 8 Gb ports or 16 standard fiber ports or 32 copper ports (some PoE)
- Energy-efficient thermal design enables operation at extended temperatures with high reliability
- Choice of Regular or "Reverse" case designs provide power and port cables in the front or in the rear
- Input power choices include 24VDC, -48VDC, 110-250VDC power, dual source, or AC

The Magnum™ 6K32FC Switch provides rack-mount space efficiency and rich fiber port configurability in a convection-cooled unit (no fans) for heavy duty industrial applications where the presence of dust and dirt may inhibit normal cooling. Moisture- and corrosion- protecting Conformal Coating is optional. New static thermal design techniques (patent pending) enable the 6K32FC to deliver high reliability even at extended operating temperatures. Special rack-mount cooling techniques include:

- internal heat barriers confine heat to areas where it is least detrimental
- large copper power supply heat sinks to dissipate the power heat loss
- aluminum case material used for efficient heat conduction & distribution
- perforated case areas enable some vertical air flow via convection
- cooling space above and below the unit in the rack, 1/2U top and bottom
- multiple heat sinks distribute heat from internal electronic components
- premium high-efficiency components used to minimize heat generation

The highest energy efficiency of any rack-mount industrial switch not only enables high reliability, but also makes the 6K32FC a "green" environmentally friendly product.

The four configuration slots in the Magnum 6K32FC provide the flexibility for network designers to configure up to sixteen 100 Mb standard ST or SC fiber ports, and/or some 10 Mb fiber ports, and/or one to 8 Gigabit ports, or some copper ports, or combinations including 100Mb SFF fiber ports. SFP, GBIC, and fixed gigabit ports can be configured for a variety of Gigabit fiber and copper cabling types and distances. Copper ports can optionally be Power-Sourcing PoE. There are over 30 modules for various port types and combinations to choose from.

Magnum 6K32FC Managed Switches come with LAN software support including SNMP management, Secure Web Management, IGMP, graphical user interface (GUI), redundant LANs support, and many network management security and ease-of-use features. See the Managed Networks Software (MNS-6K and MNS-6K-SECURE) datasheets for more details.

Magnum 6K32FCs are ideal for building a fiber-rich industrial network for use in harsh industrial applications in power utilities, plants and factories and mines, transportation, telecommunications, video surveillance and oil & gas facilities. The networks commonly include industrial IEDs, RTUs, HMI computers, routers, video surveillance cameras, smaller field switches, and other managed switches for multiple Gigabit backbone interconnections or redundancy.

Magnum 6K32FC Managed Switches have rugged metal cases for regular or "Reverse" rack-mounting, and auto-ranging power supplies for operation with standard AC power worldwide. Internal DC power supplies are optional. The 6K32FCs and all other Magnum products are designed and manufactured in the USA and have a three year warranty.

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Specifications

Fiber-configurable Convection-cooled Industrial Managed Switch

PERFORMANCE:

Fiber Ports, 100 Mb (multi-mode and sgl-mode)**:** Configurable in modules. Regular ST or SC at 4/module, or SFF (Small Form Factor) for high fiber port density, 8 per module. Each FDX or HDX, default is FDX mode
Fiber Ports, 10 Mb: Configurable, up to 4 ST ports max. per module, multi-mode or single-mode. Each port may be FDX or HDX, default is HDX
Gigabit Ports, 1000 Mb: Configurable, std. See selection of modules.
RJ-45 Ports: 100 or 10 Mb speed, full- or half-duplex mode, per port, individually determined.10/100 auto-negotiating & auto-cross, 32 ports max.
All Ports non-blocking:
Processing type: Store and Forward with IEEE 802.3x full-duplex flow control
System aggregate forward and filter rate: 11.9Mpps
Address table: 4K nodes, self-learning, with address aging
Packet buffers: 240 KB for 10 and 100Mb, 120KB for Gb
Latency: 6µs + packet time max (TX - TX, TX - FX, FX - FX, TX-G, G-G)

NETWORK STANDARDS:
IEEE 802.3z, 802.3ab, 802.1p: 100BASE-TX, -FX, 1000BASE-SX, -LX
Auto-negotiation and auto-crossover on TP, IEEE 802.3u
See MNS-6K and MNS-6K-SECURE datasheets for software, network security, redundant LANs management, GUI and other software features.

OPERATING ENVIRONMENT:
IEC 60068 "Type Test" rating: -40° to 185°F (-40° to 85°C)
UL 60950 "Component Parts" temperature rating: 140°F (60°C)
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

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

NETWORK CABLE CONNECTORS:
1000 Mb ports: standard SFPs and GBICs supported, see modules description
100 Mb Fiber ports connector options: multi-mode FX-MTRJ, LC, ST, SC; single-mode LC, 20Km SC, and 40Km "long reach" single-mode SC.
10 Mb Fiber port connector: multi-mode and single-mode ST
100 Mb Copper: Category 5 UTP/STP; 10 Mb: Cat. 3,4, 5 UTP/STP

POWER SUPPLY (INTERNAL):
AC Power Connector: IEC-type, male recessed, ON/OFF switch (optional)
Power Input, AC: 100 to 240 VAC, 47 to 63 Hz (auto ranging)
Power Consumption: 45 watts typical with 16 fully-loaded fiber ports, 30 watts typical for a copper-only 32-port model.

DC POWER SUPPLY OPTIONS:
-48VDC: Input -36 to -70VDC
24VDC: Input 20 to 40VDC
125VDC and 110VDC nominal: Input 88 to 300VDC
Std. Terminal Block: "-, GND, +", **Power Consumption:** Same as AC

DC DUAL POWER SOURCE (OPTIONAL)
Magnum 6K32FC 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 110-250VDC.

MECHANICAL:
Enclosure: Rugged high-strength sheet metal. Suitable for 1U rack-mounting or stand-alone.
Rack-mounting brackets: 19" included; ETSI and 23" Telco optional.
Cooling Method: free convection, special (patent pending) thermal techniques
Dimensions: 1.70inHx17.0inWx9.0inD (4.32cmHx 43.2cmW x 22.9cmD)
Weight: rack-mount 5.0 lbs. (2.0 kg)

LED INDICATORS, 100 Mb and 10 Mb FIBER PORTS:
LK: Steady on when fiber link is operational.
ACT: On with port activity, FDX/HDX

LED INDICATORS PER RJ-45 PORT:
LK: On when twisted-pair link is operational.
ACT: Blinking with port activity. LK and ACT combined on fixed ports.
FDX/HDX: ON = full-duplex mode, OFF = half-duplex mode.
100/10 ON = 100Mb speed, OFF = 10Mb

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

AGENCY APPROVALS AND STANDARDS COMPLIANCE:
UL Listed (UL 60950), cUL, CE, Emissions meet FCC Part 15, Class A
IEC61850 EMC and Operating Conditions Class C for Power Substations
IEEE 1613 Class 2 Environmental Std for Electric Power Substations
NEBS Level 3 and ETSI Compliant for Carrier Central Offices

WARRANTY:
Three years

Made in USA

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Ordering Information

Magnum 6K32FC Magnum 6K32FC Fiber-configurable Convection-cooled Managed Switch, base unit. Provides four port module slots which may be configured with a selection of 10/100/1000 Mb fiber and copper connector types, 8 ports max. each slot. For licensed management software, see applicable MNS-6K and MNS-6K-SECURE datasheets.
Magnum 6K32FRC "Reverse" model, same as Model 6K32FC except user ports and the power input connectors are in the rear. Two sets of LEDs (both rear and front) provide duplicate status data for viewing from either side.

Configuration Options: Magnum 6K32FC base unit has four port module slots, each of which may be configured with a module from below, max of 8Gb or 16 100Mb fiber or 32 10/100 copper (or Power Sourcing PoE) ports:

6KP4-FXSC	"2+2" 100 Mb Fiber module for 6K Switches, w/four 100 Mb FX SC connectors
6KP4-FXST	"2+2" 100 Mb Fiber module for 6K Switches, w/four 100 Mb FX ST connectors
6KP4-F10ST	"2+2"10 Mb fiber module for 6K Switches, w/four 10Mb 2km FL ST connectors
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 6K32FC 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 Mb15km 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
	Note: Several other Port Module types are available. See Configuration Guide.
6KP5-G4RJ	"G+4" module for 6K32FC Switches, 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.
6KP3-G2SC	"G+2" module for 6K32FC 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-2OTX	Two-port Gigabit 6K module for 6K32FC switches, provides two GBIC open transceiver ports.
GBIC-LXSC10	GBIC transceiver module for use in GBPM-COTX, one LX port with single-mode SC 10Km nominal
SFP-LX10	Gb Fiber Optic SFP Transceiver, 1000mb LX one LX port with single-mode SC 10Km nominal
	Note: Single-mode Gb SFPs and GBICs are available at 10Km, 25Km, 40Km, and 70Km.
6KP2-2GSFP	Two-port one-slot Gigabit 6K module for 6K32FC switches, uses one 6K slot & provides two Gigabit Fiber SFP (Small Form-factor Pluggable) Transceiver ports. Includes front-panel sheet metal cover.
6KP2-2GCU	Two-port one-slot Gigabit 6K module for 6K32FC 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 6K32FC 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-BLNK	Blank cover for slot opening in a Magnum 6K32FC chassis

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