Magnum 6K32F & 6K32FR

32-Port Fiber Industrial Managed Switch

Features

- Provides 4 modular slots for user-selection of 100 Mb, 10 Mb, Gigabit ports and 10/100 copper ports with optional PoE
- Up to 32 100Mb Fiber ports, or 32 10/100 copper ports, or 8 Gigabit ports, or combinations
- Compact 1U rack-mount package, metal case, regular or "reverse" case
- Power input choices: 24VDC, -48VDC, 110-250VDC power, DC Dual Source, universal AC
- Feature-rich MNS-6K and MNS-SECURE managed switch software with GUI and CLI

Magnum™ 6K32F 32-port Fiber Managed Switches provide maximum fiber-port configurability in a rack-mount package, with up to 8 gigabit ports and up to 32 100 Mb fiber and copper ports or 10 Mb fiber and copper ports. High-capacity and high-performance Ethernet switching services are delivered in a robust 1U rack-mount package designed for the most demanding Industrial Networking and Carrier Class applications.

The port modules allow user-selection of mixed-media fiber (all connector types, multi- and single-mode) and 10/100 Mb RJ-45 ports, including Power-over-Ethernet (PoE). Standard SFP or GBIC ports can be configured for a variety of Gigabit fiber cabling types and distances, as well as 10/100/1000 copper.

Designed for use in industrial networks with numerous fiber segments requiring Gigabit backbone interconnections among network centers, the Magnum 6K32F is easy to install and operate. Fiber media is the industrial networking media choice for noise-immunity, for distance, for bandwidth, for preventing ground loops, and for overall reliability. The Magnum 6K32F Fiber Switch delivers industry-leading fiber media flexibility and capacity.

High performance hardware features include non-blocking speed on all ports and 802.1p QoS Traffic Prioritization. Moisture- and corrosion-protecting Conformal Coating is optional. Software includes comprehensive security for network access and for data traffic protection, Magnum 6K32F's are "plug-and-play", ready for use as versatile switches where a mix of bursty data traffic and priority streaming traffic for video surveillance, VoIP, access control and other attached PoE devices are present.

The Magnum 6K32F Switches are provided with LAN software support including advanced security features, SNMP via CLI, RMON, SNMPc™ and Openview™ for Windows, Secure Web Management GUI, and many ease-of-use features. See the Managed Networks Software (MNS-6K and MNS-SECURE) datasheets for additional details on the comprehensive set of software packages and options.

Magnum 6K32F Managed Switches have rugged metal cases and internal AC or DC power supplies, with DC dual source power optional. The 6K32F's and all other Magnum products are designed and manufactured in the USA and backed by a three year warranty.

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Specifications

PERFORMANCE:
Gigabit Ports, 1000 Mb: Configurable, selection of standard SFP or GBIC or fixed copper or fiber transceiver modules, up to 8 ports total
Fiber Ports, 100 Mb (multi-mode and single-mode)**:** Configurable in modules, up to 32 ports total, each FDX or HDX. Default is FDX mode.
Fiber Ports, 10 Mb: Configurable, 4 ST ports per slot. Each port may be FDX or HDX, default is HDX mode up to 16 ports total.
RJ-45 Ports: 100 or 10 Mb speed, full- or half-duplex mode, per port, individually determined. 10/100 auto-negotiating and auto-cross, 32 max.
PoE RJ-45 Ports: 100 or 10 Mb speed, full- or half-duplex mode, per port, individually determined. PoE is per IEEE 802.3af. Up to 32 ports max.
All Ports non-blocking
Processing type: Store and Forward with IEEE 802.3x fdx flow control
System aggregate forward and filter rate 11.9Mpps
Address table: 4K nodes, self-learning, with address aging
Packet buffers: 240 KB for 10/100 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: 100BASE-TX, -FX, 1000BASE-SX, -LX
IEEE 802.3u Auto-negotiation on TP, IEEE802.3af on PoE
See MNS-6K and MNS-6K-SECUREdatasheets for software features

OPERATING ENVIRONMENT:
IEC 60068 Operating Temp. per "Type Test" -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 CONTACT FOR ALARMS (OPTIONAL):
Form C, one NC indicating internal power, one NC software controllable.

NETWORK CABLE CONNECTORS:
1000 Mb ports: all standard SFP, GBIC and fixed types supported
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 ST
100 Mb Copper: Category 5 UTP/STP; 10 Mb: Cat. 3,4, 5 UTP/STP

AC 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: 60 watts typical for a fully-loaded fiber model
30 watts typical for copper-only models

DC POWER SUPPLY OPTIONS:
-48VDC: Input -36 to -70VDC (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)
Magnum 6K32F & 6K32FR 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: 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: Fan cooled, internal @ 25cfm
Dimensions: 1.70inHx17.0inWx9.0inD (4.32cmHx 43.2cmW x 22.9cmD)
Weight: rack-mount 5.0 lbs. (2.2 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.
FDX/HDX: ON = full-duplex mode, OFF = half-duplex mode.
100/10 ON = 100Mb speed, OFF = 10Mb

PORT-SPECIFIC SETTINGS:
Port-specific settings (such as FDX or HDX, and copper 10/100 speed) can be set using software commands.
The RJ-45 copper ports are auto-negotiating and auto-crossover, there are no user controls for auto-crossover.

AGENCY APPROVALS AND STANDARDS COMPLIANCE:
UL Listed (UL60950), cUL, CE, Emissions meet FCC Part 15, Class A
IEC 61850 EMC & Operating Conditions Class C for Power Substations
IEEE 1613 Class 2 Environmental Std for Electric Power Substations
NEBS Level 3 and ETSI Compliant; NEMA TS-2 for traffic control.
EN50155 Compliant; DNV certified

WARRANTY:
Three years Made in USA

Ordering Information

Magnum 6K32F
Magnum 6K32F Managed Switch, 4-slot base unit. May be configured with a selection of 10/100/1000 Mb fiber and copper connector types, 32 ports max or 8 gig ports max. A family of 37 port modules are available for essentially unlimited configuration flexibility. Wire-speed filtering and forwarding across all ports. For licensed management software, see applicable datasheets.
Magnum 6K32FR
"Reverse" model, same as Model 6K32F 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: Each Magnum 6K32F and 6K32FR base unit has four port module slots. Each may be one of the modules below. Select up to 4 modules per base unit. See Configuration Guide for additional details.

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 6K 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
6KP4-F10ST	"2+2" 10 Mb fiber module for 6K Switches, with four 10 Mb 2km FL 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
	Note: Several other Port Module types are available. See Configuration Guide.
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
6KP2-2GSX	Two-port one-slot Gigabit 6K module for 6K Switches, uses one 6K slot and provides two Gigabit Fiber SXSC (1000BASE-SX multi-mode) ports. Includes front-panel sheet metal cover.
6KE-2GCU	Two-port one-slot Gigabit 6K module for 6K 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 6K32F switches, uses one 6K slot and provides one Gigabit copper (1000BASE-T) auto-negotiating port and two 100Mb ST Fiber FX multi-mode ports.

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Magnum 6K32F and 6K32FR Configuration Guide

Magnum 6K32F and FR Managed Switches, base unit is fiber-configurable managed switch. Provides four modular slots for configuration flexibility of up to 32 fiber or 10/100 ports (some PoE).
Note: MNS-6K and MNS-6K-SECURE software are licensed for use on 6K Switches.

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Step 1. Choose 6K32F or 6K32FR chassis and power input type:

Model #	Base Unit, Description
6K32F	Front mount with AC Power
6K32F-24VDC	Front mount with 24V (18-36) DC power
6K32F -48VDC	Front mount with -48V (36-70) DC power
6K32F -125VDC	Front mount with 125V (88-300) DC power
6K32F -250VDC	Front mount with 250V (88-300) DC power

Model #	Base Units continued…
6K32FR	Reverse mount with AC Power
6K32FR -24VDC	Reverse mount with 24V (18-36) DC power
6K32FR -48VDC	Reverse mount with -48V (36-70) DC power
6K32FR -125VDC	Reverse mount with 125V (88-300) DC power
6K32FR -250VDC	Reverse mount with 250V (88-300) DC power

Step 2. Choose 1 module for slots A, B, C & D (some 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-RJMSC	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, fixed ports--Using Small form factor(SFP) transceivers (see Step 3)					
6KP7-1GSFP6RJ	One SFP Gigabit Port and Six 10/100 Mb RJ45 ports				
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					
6KP5-1CU4RJ	4 10/100 RJ45			1 CU (fixed Gb copper)	
6KP2-2GSFP					2 SFP
6KP2-1GSFP1CU					1SFP, 1CU
6KP1-1GSFP					1 SFP
6KP1-1GCU					1 CU
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

Step 3 (Opt) Choose SFPs or GBICs for Gig Ports

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

Model #	Description (Ports for GBPM-COTX / 6KP5-G4RJ/ 6KP3-G2SC)
GBIC-SXSC	One 1000BASE-SX port with m.m. SC fiber
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

Step 4. Choose options & extras:

Model #	Description
6KM-BLNK	Blank cover for 1 unused (A) module slot
DUAL-SRC	Two separate power inputs (24/ 48/125V or 250V)
ALARM-TERMBLK	Alarm contacts, 1 power and 1 software
MNS-6K-SECURE	Optional, licensed per switch for extra security
S-RING-KEY	Software, self-healing ring management
RMB-23W	23" 'Telco' rack-mount kit (1U)
RMB-ETSI	ETSI rack-mount kit (1U)
CONSOLE-CBL	Console attachment cable serial null Modem (aka X-modem) cable with DB9 connectors
CONSOLE-USB	As above, but with a USB connector
CONFORM05-CRM	Conformal coating, 5 mil, for moisture protection
CONFORM08-CRM	Conformal coating, 8 mil, for corrosive environments