

PB00145

**GarrettCom[®] Magnum[™]
6K32F Series Fiber-
configurable Industrial
Managed Switch**

Highly configurable fiber switch with convection or fan-cooled options.



Rack-mount Space Efficiency and Rich Fiber Port Configurability with Optional Convection-cooled Base Unit (no fans) for Heavy-duty Industrial Applications.

Features

6K32F

- Provides four modular slots for configuration flexibility of up to 8 Gb ports or 16 standard fiber ports or 32 copper ports (some PoE)
- Choice of Regular or "Reverse" case designs provide power and port cables in the front or in the rear
- Power input choices: 24VDC, -48VDC, 110-250VDC power, DC Dual Source, universal AC

6K32FR

- Same as 6K32F, except user ports and the power input connectors are in the rear (reverse model type). Two sets of LED's (both rear and front) provide duplicate status data for viewing from either side.

6K32FC

- Same as 6K32F, except, convection-cooled in 1U rack-mount package, for dusty and dirty industrial environments

6K32FRC

- Same as 6K32FR, except, convection-cooled in 1U rack-mount package, for dusty and dirty industrial environments

Flexible Design

Magnum 6K32F Series 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 applications.

Designed for use in industrial networks with numerous fiber segments requiring Gigabit backbone interconnections among network centers, the Magnum 6K32F Series are 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 Series 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 corrosionprotecting Conformal Coating is optional.

GarrettCom Magnum 6K32F Series

Configurable for Flexibility

The four configuration slots in the Magnum 6K32F series 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 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.

Software

Magnum 6K32F Series 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.

Applications

The Magnum 6K32FC Series 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.

Design

Magnum 6K32F Series Managed Switches have rugged metal cases for regular or "Reverse" rack-mounting, and auto-ranging power supplies for operation with standard AC power worldwide, or internal DC power supply choices.

The 6K32F Series are designed and manufactured in the USA and have a three year warranty.

Product Specifications

Type	6K32F	6K32FR	6K32FC	6K32FRC
Product Description	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 port modules are available for essentially unlimited configuration flexibility. Wirespeed filtering and forwarding across all ports	"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.	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.	"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.
Mechanical				
Enclosure	Rugged high-strength sheet metal. Suitable for 1U rackmounting or stand-alone.			
Rack-mounting Brackets	19" included; ETSI and 23" Telco optional.			
Cooling Method	Free convection, special (patent pending) thermal techniques			
Dimensions	1.70in H x 17.0in Wx 9.0in D (4.32cm H x 43.2cm W x 22.9cm D)			
Weight	Rack-mount 5.0 lbs. (2.2 kg)			
Network Standards				
Ethernet	IEEE 802.3z, 802.3ab, 802.1p: 100BASE-TX, -FX, 1000BASE-SX, -LX			
Auto-negotiation and Auto-crossover	TP, IEEE 802.3u			
Software	See MNS-6K/MNS-6K-SECURE datasheet for software, network security, redundant LANs management, GUI and other software features.			
Performance				
Fiber Ports, 100 Mb (multi-mode and single-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 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			
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)			

Product Specifications (continued)

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	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 (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 Series 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.	
Dual Power Supplies (optional)	
Magnum 6K32FC models with 125VDC, 250VDC and 110VDC nominal power input may be ordered with Dual Power Supplies, load-sharing with software monitoring, for continuity of operation when either one of the two power supplies or their associated power input is inoperative.	
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
Relay Contacts for Alarms (optional)	
Form C	One NC indicating internal power, one NC software controllable
Operating Environment	
Operating Temperature	IEC 60068 per "Type Test" -40° to 185°F (-40° to 85°C)
Temperature Rating (components)	140°F (60°C)
Storage Temperature	-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)	Request quote
Network Cable Connectors	
1000 Mb Ports	Standard SFPs and RJ45 Copper supported, see modules description
100 Mb Fiber Ports	Multi-mode FX-MTRJ, LC, ST, SC; single-mode 20km LC, SC and ST, and 50km "long reach" single-mode LC, SC
10 Mb Fiber Ports	Multi-mode and single-mode ST
100 Mb Copper Ports	Category 5 UTP/STP; 10 Mb: Cat. 3,4, 5 UTP/STP
Agency Standards Approval and Compliance	
UL/cUL 60950, EN55022 FCC Part 15	CE, EMC & ENV
IEC61850-3	EMC and Operating Conditions Class C for Power Substations
IEEE 1613 Class 2	Environmental Standard for Electric Power Substations
NEBS L3 and ETSI	Telecommunications
NEMA TS-2	Traffic Control
EN50155	Railways
DNV	Marine
Warranty	
Warranty	Three Years

MAGNUM 6K32F Series

Be Certain with Belden



Magnum 6K32F Configuration Guide

Mounting

- 6K32F = Front mount, AC Power
- 6K32FR = Reverse mount, AC Power
- 6K32FC = Front mount, AC Power, convection cooled
- 6K32FRC = Reverse mount, AC Power, convection cooled

Power Supply Options

- 24V = 24V (18-36) DC
- 48V = 48V (44-57) DC
- 125V = 125V (88-300) DC
- 2AC = 2 internal AC power supplies (with 6K32FRC models only)
- 2DC125 = 2 internal 125 DC (with 6K32FRC models only)

Slot A

- 6KP8-RJ45 = 8x 10/100Mb RJ45
- 6KP8-45-2SLC = 6x 10/100Mb RJ45 + 2x 100Mb FX LC SM 20Km
- 6KP6-RJMST = 4x 10/100Mb RJ45 + 2x 100Mb FX ST MM
- 6KP6-RJSSC = 4x 10/100Mb RJ45 + 2x 100Mb FX SC SM 20Km
- 6KP8-45MT = 4x 10/100Mb RJ45 + 4x 100Mb FX MTRJ MM
- 6KP8-45SLC = 4x 10/100Mb RJ45 + 4x 100Mb FX LC SM 20Km
- 6KP4-FLSTFX = 2x 10Mb FX ST MM + 2x 100Mb FX ST MM
- 6KP6-RJSSCL = 4x 10/100Mb RJ45 + 2x 100Mb FX SC SM 40Km
- 6KP8-MLC = 8x 100Mb FX LC MM
- 6KP6-MT10ST = 2x 10Mb FX ST MM + 4x 100Mb FX MTRJ MM

- 6KP8-45-2MT = 6x 10/100Mb RJ45 + 2x 100Mb FX MTRJ MM
- 6KP6-RJ10ST = 4x 10/100Mb RJ45 + 2x 10Mb FX ST MM
- 6KP6-RJMSC = 4x 10/100Mb RJ45 + 2x 100Mb FX SC MM
- 6KP8-SLC = 8x 100Mb FX LC SM 20Km
- 6KP8-45MLC = 4x 10/100Mb RJ45 + 4x 100Mb FX LC MM
- 6KP4-F10ST = 4x 10Mb FX ST MM
- 6KP4-FXST = 4x 100Mb FX ST MM
- 6KP4-FXSC = 4x 100Mb FX SC MM
- 6KP8-MTRJ = 8x 100Mb FX MTRJ MM

Or Choose from Gigabit Ports

- 6KP7-1GSFP6RJ = 1x 1000Mb SFP + 6x 10/100Mb RJ45
- 6KP7-1G2RJ4MLC = 1x 1000Mb SFP + 2x 10/100Mb RJ45 + 4x 100Mb FX LC MM
- 6KP7-1G2RJ4SLC = 1x 1000Mb SFP + 2x 10/100Mb RJ45 + 4x 100Mb FX LC SM 20Km
- 6KP7-1G2RJ4SLCL = 1x 1000Mb SFP + 2x 10/100Mb RJ45 + 4x 100Mb FX LC SM 40Km
- 6KP5-1CU4RJ = 1x 10/100/1000Mb RJ45 + 4x 10/100Mb RJ45
- 6KP2-2GSFP = 2x 1000Mb SFP
- 6KP2-1GSFP1CU = 1x 1000Mb SFP + 1x 10/100/1000Mb RJ45
- 6KP1-1GSFP = 1x 1000Mb SFP
- 6KP1-1GCU = 1x 10/100/1000Mb RJ45
- 6KP2-2GCU = 2x 10/100/1000Mb RJ45
- 6KP3-1CU2FXT = 1x 10/100/1000Mb RJ45 + 2x 100Mb FX ST MM

OR Choose from PoE Port Options (only with 48VDC Models).

- P6KP7-1GSFP6RJ = 4x 10/100Mb RJ45 PoE + 2x 10/100Mb RJ45 + 1x 1000Mb SFP
- P6KP8-RJ45 = 8x 10/100Mb RJ45 PoE
- P6KP8-45-2MT = 4x 10/100Mb RJ45 PoE + 2x 10/100Mb RJ45 + 2x 100Mb FX LC MM
- P6KP8-45-2SLC = 4x 10/100Mb RJ45 PoE + 2x 10/100Mb RJ45 + 2x 100Mb FX LC SM 20Km
- P6KP6-RJ10ST = 4x 10/100Mb RJ45 PoE + 2x 10Mb FX ST MM
- P6KP6-RJMST = 4x 10/100Mb RJ45 PoE + 2x 100Mb FX ST MM
- P6KP6-RJMSC = 4x 10/100Mb RJ45 PoE + 2x 100Mb FX SC MM
- P6KP6-RJSSC = 4x 10/100Mb RJ45 PoE + 2x 100Mb FX SC SM 20Km
- P6KP6-RJSSCL = 4x 10/100Mb RJ45 PoE + 2x 100Mb FX SC SM 40Km
- P6KP8-45RJ = 4x 10/100Mb RJ45 PoE + 4x 10/100Mb RJ45
- P6KP8-45MT = 4x 10/100Mb RJ45 PoE + 4x 100Mb FX MTRJ MM
- P6KP8-45MLC = 4x 10/100Mb RJ45 PoE + 4x 100Mb FX LC MM
- P6KP8-45SLC = 4x 10/100Mb RJ45 PoE + 4x 100Mb FX LC SM 20Km

XX = Blank Slot

Slot B (Pick from Slot A options)

Slot C (Pick from Slot A options)

Slot D (Pick from Slot A options)



6K32FC shown

Slot A

Slot B

Slot C

Slot D

6K32F Accessories

Model No.	Description
SFP-SX	Gb SX, 850nm wavelength, 550 meters
SFP-ESX	Gb SX, 1310nm wavelength, 2km
SFP-LX25	Gb LX, 1310nm wavelength, 25km
SFP-ZX40	Gb ZX, 1550nm wavelength, 40km
SFP-ZX70	Gb ZX, 1550nm wavelength, 70km
SFP-GTP	Gb Copper
SFP-LX10	Gb LX, 1310nm wavelength, 10km
CONSOLE-CBL	Console attachment cable serial null Modem (aka X-modem) cable with DB9 connectors
CONSOLE-USB	Console attachment cable serial null Modem (aka X-modem) cable with a USB connector
CONFORM05-CRM	Conformal coating, 5 mil, for moisture protection
CONFORM08-CRM	Conformal coating, 8 mil, for corrosive environments

Model No.	Description
MNS-6K-SECURE-LIC1	Optional, licensed per switch for extra security
S-RING-KEY	Software, optional self-healing redundant ring management
DUAL-SRC	Two separate power inputs (24/48/125V)
6KM-BLNK	Blank cover for 1 unused (A) module slot
ALARM-TERMBLK	Alarm contacts, 1 power and 1 software
RMB-23W	23" 'Telco' rack-mount kit (1U)
RMB-ETSI	ETSI rack-mount kit (1U)



Belden Competence Center

As the complexity of communication and connectivity solutions has increased, so have the requirements for design, implementation and maintenance of these solutions. For users, acquiring and verifying the latest expert knowledge plays a decisive role in this. As a reliable partner for end-to-end solutions, Belden offers expert consulting, design, technical support, as well as technology and product training courses, from a single source: Belden Competence Center. In addition, we offer you the right qualification for every area of expertise through the world's first certification program for industrial networks. Up-to-date manufacturer's expertise, an international service network and access to external specialists guarantee you the best possible support for products. Irrespective of the technology you use, you can rely on our full support – from implementation to optimization of every aspect of daily operations.

About Belden

Belden Inc., a global leader in high quality, end-to-end signal transmission solutions, delivers a comprehensive product portfolio designed to meet the mission-critical network infrastructure needs of industrial, enterprise and broadcast markets. With innovative solutions targeted at reliable and secure transmission of rapidly growing amounts of data, audio and video needed for today's applications, Belden is at the center of the global transformation to a connected world. Founded in 1902, the company is headquartered in St. Louis, USA, and has manufacturing capabilities in North and South America, Europe and Asia.

For more information, visit us at www.belden.com and follow us on Twitter [@BeldenIND](https://twitter.com/BeldenIND).

Got questions? Need to talk to an expert? Send us an email:
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