

# Your Industrial Ethernet Solutions for Control and Automation

Product  
Catalog

Gigabit Ethernet

Video / Audio  
Ethernet I/O  
DCS / PLC / PAC  
HMI



 MTL  
Instruments  

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MOXA®

Rackmount Ethernet Switches



## Rackmount Ethernet Switches

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## Rackmount Ethernet Switches

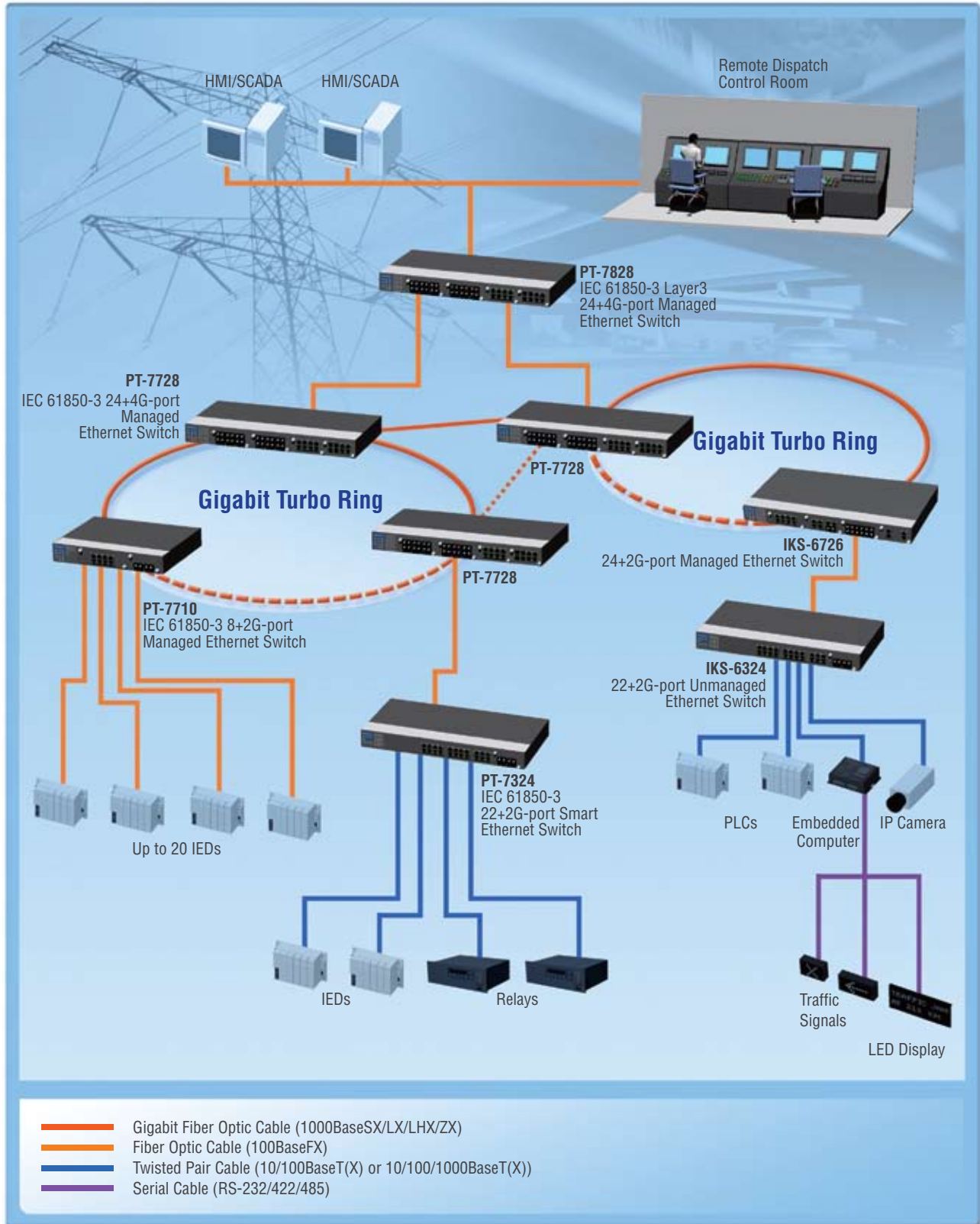
# Powerful Ruggedized Rackmount Solution

• Suitable for Demanding Power Utility and Transportation Applications

4

Rackmount Ethernet Switches

Solution Tutorial



## Tailor-made Rackmount Solutions Fit Diverse Requirements

Ethernet has already penetrated into the industrial environment, and is widely adopted from control rooms to controllers and devices on the shop floor. Industrial Ethernet is not only being used in a wide range of vertical markets, but is also finding uses in different facets of each market. For example, IEC 61850-3 industrial Ethernet networks are applied as the physical medium for power substation automation, which means that a host of legacy field buses must be connected to the Ethernet network. The bottom line is that Industrial Ethernet is becoming the future trend for automation communication.

Different vertical markets require different solutions, which is why Moxa developed two distinct rackmount Ethernet switch product lines. The new PowerTrans PT series IEC 61850-3 rackmount Ethernet switch series and IKS industrial rackmount Ethernet switch series were developed to meet the needs of a variety of applications (see the table at the right).

Two Product Lines for Diverse Applications		
Applications	Substation automation	Power automation
	Rail traffic	Traffic control center
	Road traffic	Marine & offshore
Certifications Required	IEC 61850-3/IEEE 1613	NEMA TS2
	NEMA TS2	DNV/GL
	EN 50121-4	
	DNV/GL	
Moxa's Solution	PowerTrans PT series IEC 61850-3 rackmount Ethernet switches	IKS series industrial rackmount Ethernet switch

### Scalable Network Infrastructure Capability

Substation and transportation automation networks can be extremely large and cover expansive territories. Moxa's rackmount Ethernet switches satisfy the scalable network requirements with long-haul fiber solutions from Layer 3 to Layer 2 Ethernet switches.

- The PT-7828 Layer 3 Ethernet switch can divide a large network into hierarchical sub-nets. Controlling network traffic on its own subnet can help to improve the performance of the entire network.
- The Layer 2 modular managed Ethernet switches PT-7728, PT-7710, and IKS-6726 support advanced network management and control functions, including VLAN, QoS, IGMP snooping,

LACP, and GMRP to optimize and prioritize network communication.

- The Layer 2 smart Ethernet switch PT-7324 offers web-smart functions, such as port-based VLAN and QoS, to make network management easier.
- The Layer 2 unmanaged IKS-6324 series of Ethernet switches are reliable plug-and-play Ethernet communication solutions that give users an easy and economical way to connect with end devices.

\* Please check the "Comparison Chart for Rackmount Ethernet Switches" on page 4-5 for details of features that each product model supports.

### Redundancy for Higher Network Availability

Moxa's rackmount Ethernet switches provide multiple levels of redundant features:

#### Media Redundancy

Managed rackmount Ethernet switches come with the world's fastest Turbo Ring redundancy (20 ms @ 250 switches), and standard STP or RSTP redundant protocol. In addition to a single ring redundancy structure, Turbo Ring also provides multiple ring-coupling functions, such as "Ring Coupling," "Dual Homing," and "Dual Ring."



#### Power Input Redundancy

Non-stop operation is the key criterion for mission-critical applications. The PT-7828/7728 and IKS-6726 support dual, isolated, redundant power supplies with different power sources (24/48 VDC or 110/220 VAC/VDC input voltage). For example, you can choose 110/200 VAC/VDC as your main power source, and 48 VDC from a battery as your back up power source.



#### Configuration Redundancy

The ABC-01 backup configuration tool can both save and load configurations automatically when connected to a Moxa managed Ethernet switch. This novel management tool helps reduce downtime, and can be used for fast configuration duplication of large-scale networks.



\* Please check the "Comparison Chart for Rackmount Ethernet Switches" on page 4-5 for details of features that each product model supports.

## Rugged Design Suitable for Harsh Environments

The rugged design of the PowerTrans PT and IKS series Ethernet switches make them well-qualified for a diverse number of mission-critical communication applications in the power utility and transportation automation markets.

- 19-inch rack-mountable design to meet the installation needs of substation and traffic control rooms.
- To perform flawlessly in the uncontrolled climates found in utility

## Future-proof Flexibility

### Up to 4 Gigabit Ports for Backbone and Uplink

As industry adopts bandwidth-hungry applications such as video surveillance, there is a greater need for high bandwidth and fault-tolerance solutions with Gigabit Ethernet equipment. Demand is growing for applications in industrial networks that comprise multiple, interconnected Gigabit backbones among different network centers. Moxa offers a range of Gigabit managed Ethernet solutions that can be used to form a Gigabit backbone that connects to control centers, video-over-IP servers, Ethernet-enabled devices, or other Ethernet switches. These Gigabit Ethernet switches support fault-tolerant rings with fiber-optic ports, allowing operation in the toughest industrial environments.

Gigabit Ethernet is the trend, and we can already see a lot of work stations, HMI/SCADA equipment, and video monitoring panels that come standard with a Gigabit Ethernet interface in control rooms.

Moxa's modular rackmount Ethernet switches come with up to 4 Gigabit combo ports for the PT-7828/7728 series. Other modular Ethernet switches include the managed PT-7710 Ethernet switch, the IKS-6726 Ethernet switch, the smart PT-7324 Ethernet switch, and the unmanaged IKS-6324 Ethernet switch, all of which support 2 Gigabit combo ports. Any combination of twisted pair and fiber optical ports can be chosen to form a redundant Gigabit Turbo Ring or connected to a Gigabit HMI/SCADA in the control room.

substations and industrial environments, these rackmount Ethernet switches are designed for fan-less operation in a wide temperature range of -40 to 85°C.

-All PT series Ethernet switches are designed for use in a -40 to 85°C wide operating temperature range.

-All IKS series Ethernet switches are designed for use in a -40 to 75°C wide operating temperature range.

## Media Configuration Flexibility

The PT and IKS series modular Ethernet switches support different numbers of Gigabit and fast Ethernet interface modules that allow users to choose from a variety of copper/fiber media combinations. The modular design benefits users in three ways:

- Higher flexibility for system design and fast network changes
- Easy maintenance and lower cost of spare parts
- Reduced cost of future upgrade

## Cabling Flexibility

Moxa's rackmount Ethernet switches provide two options of cabling direction. Front cabling is ideal for maintenance, whereas rear cabling is neater and results in an arrangement that is safer in the event once a cable gets disconnected.



## : Certifications to Ensure Reliable Operation

### Power Substation Certifications

#### IEC 61850-3

IEC 61850-3 specifically addresses environmental and electromagnetic interference (EMI) immunity for communications networks and systems in substations. The EMI immunity requirements are based on IEC 61000-6-5, which establishes performance criteria for key functions within the substation. To be compliant with the standard, critical functions, such as protection relay and control functions, on-line processing and regulation, as well as metering and network communication, must experience no delays or data loss when exposed to various EMI phenomena.

#### IEEE 1613

IEEE 1613 is another industry standard that establishes EMI immunity requirements for networking devices in electric power substations. Included in this standard are ratings, environmental performance requirements, and testing requirements for compliant communication devices.

According to the IEEE 1613 standard, compliant devices may not experience permanent damage under EMI stress. Two different classes of devices are defined in the standard according to how EMI stress affects performance.

#### Class 1

Compliant devices in this class may experience some data errors, losses, or delays under EMI stress conditions.

#### Class 2

Compliant devices in this class must not experience any data errors, delays, or losses under EMI stress conditions.

The PowerTrans PT series is compliant with IEC 61850-3 and IEEE 1613 certifications specifying a high level of EMC, shock, and vibration in power substations.

## Road Traffic Control System Standard

### NEMA TS2

The National Electrical Manufacturers Association (NEMA) established the TS1 standard to define technically adequate and safe traffic control equipment. The TS2 standard was later introduced to address some drawbacks of the original guidelines. NEMA TS2 defines controllers, cabinets, and systems more completely than TS1, promotes better interchangeability, and allows for future expandability. Section 2 contains the environmental and testing requirements, including guidelines for temperature, humidity, voltage, vibration, and shock.

PT series and IKS series switches are compliant with the NEMA TS2 traffic control system standard.

Test	NEMA TS2
Temperature	-34 to 74°C
Humidity	18% to 90% RH, non-condensing
Voltage	120 to 135 VAC @ 57 to 63 Hz
Vibration	0.5 g @ 5 to 30 Hz
Shock	10 G's for 11 ms

## Railway Control System Standards

### EN 50121-4

EN 50121-4 defines the emission and immunity of signaling and telecommunication apparatus.

## Comparison Chart for Rackmount Ethernet Switches

Model	Port Interface			Certification				Features											
	Total Number of Ports	Gigabit Ethernet (10/100/1000 Mbps)	Fast Ethernet (10/100 Mbps)	IEC 61850-3, IEEE 1613	NEMA TS2	EN 50121-4	DNV/GL	Routing (Static, RIP V1/V2)	Turbo Ring and RSTP/STP	IGMP snooping/GMRP	Port Trunking	IEEE 802.1X/HTTPS/SSH	Port Lock	SNMP/RMON	802.1Q VLAN	Port-based VLAN	QoS	Isolated Redundant Power	ABC-01*
PT-7828	28	4	24	✓	✓	△	△	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓
PT-7728	28	4	24	✓	✓	△	△		✓	✓	✓	✓	✓	✓	✓		✓	✓	✓
PT-7710	10	2	8	✓	✓	△	△		✓	✓	✓	✓	✓	✓	✓	✓	✓		✓
PT-7324	24	2	22	✓	✓	△	△									✓	✓		
IKS-6726	26	2	24		✓		△		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
IKS-6324	24	2	22		✓		△												

✓ Available    △ Pending    \*Please check Moxa's website for the most up-to-date certification status.

\*Operating temperature supported: -40 to 85°C for PT series; -40 to 75°C for IKS series.

\*ABC-01 is an RS-232 RJ45-based automatic backup configurator for Managed Ethernet Switches. Please check page 11-1 for detailed information.

# PT-7828 Series

## IEC 61850-3 24+4G-port Layer 3 Gigabit modular managed Ethernet switch



- > Static routing and RIP V1/V2 supported
- > IEC 61850-3, IEEE 1613 (power substations), NEMA TS2 (traffic control systems), and EN50121-4 (railway applications) compliant
- > Turbo Ring and RSTP/STP for Ethernet redundancy
- > Isolated redundant power inputs with universal 24/48 VDC or 110/220 VDC/VAC power supply range
- > Modular design for various media options: RJ45, Fiber optic and SFP ports
- > -40 to 85°C operating temperature range



### Introduction

The PowerTrans PT-7828 is a high performance Layer 3 Ethernet switch that supports IP routing protocols, including static routing and RIP V1/V2, which facilitate the deployment of applications across networks. The PT-7828 is also designed to meet the strict demands of power substation automation systems (IEC 61850-3, IEEE 1613), traffic control systems (NEMA TS2), and railway applications (EN50121-4).

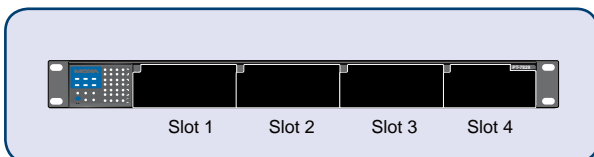
The PT-7828's Gigabit and fast Ethernet backbone, redundant ring, and 24/48 VDC or 110/220 VDC/VAC dual isolated redundant power supplies increase the reliability of your communications and save on cabling/wiring costs. The modular design of the PT-7828 makes network planning easy, and allows greater flexibility by letting you install up to 4 Gigabit ports and 24 fast Ethernet ports. Optional front or rear wiring makes the PT-7828 suitable for a variety of applications.

### Features and Benefits

- Static routing, RIP V1/V2 to divide a large network into hierarchical sub-nets and allow data and information to communicate across networks
- Turbo Ring and RSTP/STP (IEEE 802.1w/D)
- IGMP Snooping and GMRP for filtering multicast traffic from industrial Ethernet protocols
- IEEE 802.1Q VLAN and GVRP protocol to ease network planning
- QoS-IEEE802.1p/1Q and TOS/DiffServ to increase determinism
- 802.3ad, LACP for optimum bandwidth utilization
- IEEE 802.1X, HTTPS, and SSH to enhance network security
- SNMPv1/v2c/v3 for different levels of network management
- ABC-01 for system configuration backup
- RMON for efficient network monitoring and proactive capability
- Bandwidth management prevents unpredictable network status
- Lock port for only authorized MAC address access
- Port mirroring for online debugging
- Automatic warning by exception through email, relay output
- Automatic recovery of connected device's IP addresses
- Line-swap fast recovery
- Configurable by Web browser, Telnet/Serial console, Windows utility, and ABC-01

### Specifications

#### Layer 3 Modular Rackmount Ethernet Switch System, PT-7828



IEEE 802.3x for Flow Control,  
 IEEE 802.1D for Spanning Tree Protocol,  
 IEEE 802.1w for Rapid STP,  
 IEEE 802.1Q for VLAN Tagging,  
 IEEE 802.1p for Class of Service,  
 IEEE 802.1X for Authentication,  
 IEEE 802.3ad for Port Trunk with LACP

**Protocols:** IGMP v1/v2 device, GMRP, GVRP, SNMPv1/v2c/v3, DHCP Server/Client, DHCP Option 82, BootP, TFTP, SNMP, SMTP, RARP, RMON, RIP V1/V2, HTTP, HTTPS, Telnet, SSH, Syslog

**MIB:** MIB-II, Ethernet-like MIB, P-BRIDGE MIB, Q-BRIDGE MIB, Bridge MIB, RSTP MIB, RMON MIB Group 1, 2, 3, 9

**Flow Control:** IEEE 802.3x flow control, back pressure flow control

### Technology

**Standards:** IEEE 802.3 for 10BaseT,  
 IEEE 802.3u for 100BaseT(X) and 100BaseFX,  
 IEEE 802.3ab for 1000BaseT(X),  
 IEEE 802.3z for 1000BaseSX/LX/LHX/ZX,

**Switch Properties**

**Priority Queues:** 4  
**Max. Number of Available VLANs:** 64  
**VLAN ID Range:** VID 1 to 4094  
**IGMP Groups:** 256

**Interface**

**Fast Ethernet:** Slot 1, 2, 3 for any combination of 8-, 7-, or 6-port PM-7200 fast Ethernet modules with 10/100BaseT(X) or 100BaseFX (SC/ST connector)

**Gigabit Ethernet:** Slot 4 for 4- or 2-port PM-7200 Gigabit Ethernet combo module with 10/100/1000BaseT(X) or 1000BaseSFP slots

**Console:** RS-232 (RJ45)

**System LED Indicators:** STAT, PWR1, PWR2, FAULT, MASTER, COUPLER

**Module LED Indicators:** LNK/ACT, FDX/HDX, RING PORT, COUPLER PORT, SPEED

**Alarm Contact:** One relay output with current carrying capacity of 3A@30 VDC or 3A@240 VAC

**Power Requirements**

**Input Voltage:** 24 VDC (18 to 36 V), or 48 VDC (36 to 72 V), or 110/220 VDC/VAC (88 to 300 VDC and 85 to 264 VAC)

**Input Current:** (all ports are equipped with fiber)

Max. 2.58A @ 24 VDC,  
 Max. 1.21A @ 48 VDC,  
 Max. 0.64/0.33A @ 110/220 VDC,  
 Max. 0.53/0.28A @ 110/220 VAC

**Connection:** 10-pin terminal block  
**Overload Current Protection:** Present  
**Reverse Polarity Protection:** Present

**Physical Characteristics**

**Casing:** IP30 protection  
**Dimensions (W x H x D):** 440 x 44 x 325 mm (17.32 x 1.73 x 12.80 in.)  
**Weight:** 5900 g  
**Installation:** 19" rack mounting

**Environmental Limits**

**Operating Temperature:** -40 to 85°C (-40 to 185°F), cold start of min. 100 VAC at -40°C  
**Storage Temperature:** -40 to 85°C (-40 to 185°F)  
**Ambient Relative Humidity:** 5 to 95% (non-condensing)

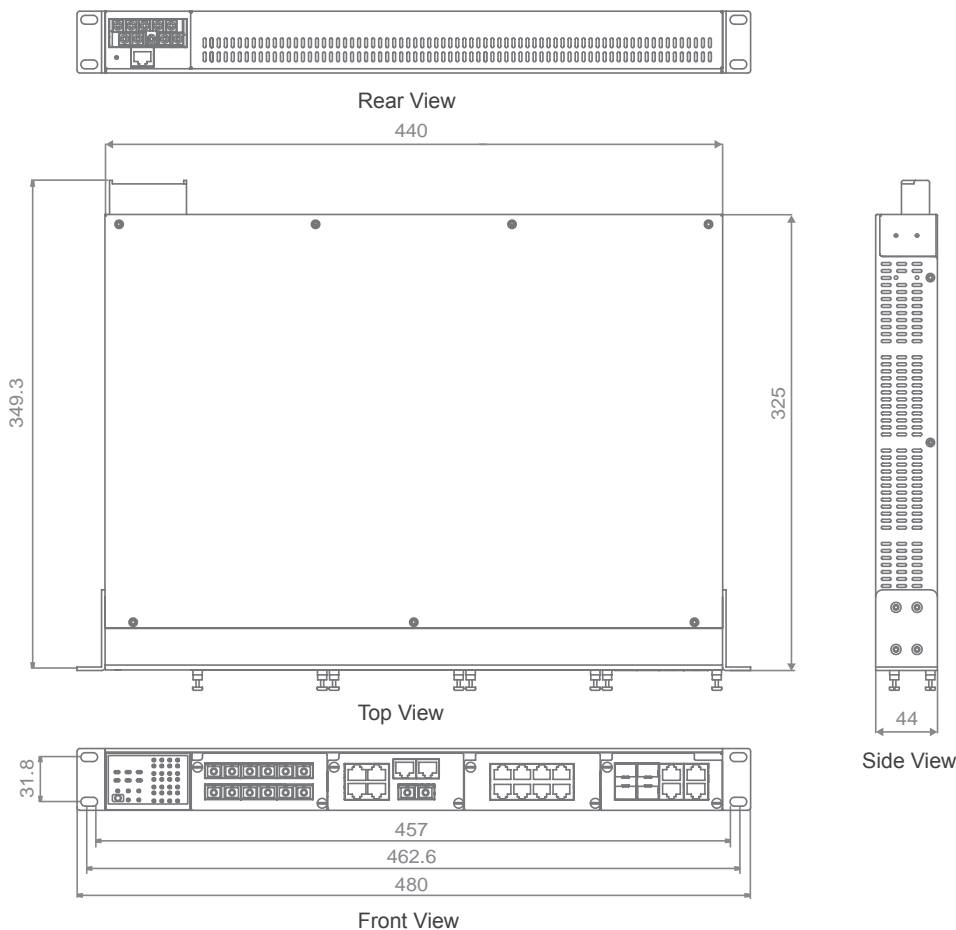
**Regulatory Approvals**

**Safety:** EN60950-1 (Pending)  
**Power Automation:** IEC 61850-3, IEEE 1613  
**Road Traffic:** NEMA TS2  
**Rail Traffic:** EN50121-4 (Pending)  
**Maritime:** DNV (Pending), GL (Pending)  
**EMI:** FCC Part 15, CISPR (EN55022) class A  
*\*Please check Moxa's website for the most up-to-date certification status*

**Warranty**

5 years (see [www.moxa.com/warranty](http://www.moxa.com/warranty) for details)

**Dimensions (unit = mm)**





## Ordering Information

Step 1: Select Ethernet switch system

Step 2: Select interface modules

PT-7828 with power supply



PM-7200 series  
(Gigabit or fast Ethernet)

\*The PT-7828 Ethernet switch system is delivered without interface module. Please refer to page 4-21 to choose PM-7200 interface modules.

### Layer 3 Modular Rackmount Ethernet Switch System, PT-7828

Layer 3 modular managed rackmount Ethernet switch system with 3 slots for fast Ethernet modules, and 1 slot for Gigabit Ethernet modules, for a total of up to 24+4G ports, -40 to 85°C

Product Model		Power Supply					
Front Cabling, Front Display	Rear Cabling, Front Display	Isolated Power Supply 1			Isolated Power Supply 2		
		24 VDC (18 to 36 V)	48 VDC (36 to 72 V)	HV: 88 to 300 VDC and 85 to 264 VAC	24 VDC (18 to 36 V)	48 VDC (36 to 72 V)	HV: 88 to 300 VDC and 85 to 264 VAC
PT-7828-F-24	PT-7828-R-24	1					
PT-7828-F-24-24	PT-7828-R-24-24	1			1		
PT-7828-F-24-48	PT-7828-R-24-48	1				1	
PT-7828-F-24-HV	PT-7828-R-24-HV	1					1
PT-7828-F-48	PT-7828-R-48		1				
PT-7828-F-48-48	PT-7828-R-48-48		1			1	
PT-7828-F-48-HV	PT-7828-R-48-HV		1				1
PT-7828-F-HV	PT-7828-R-HV			1			
PT-7828-F-HV-HV	PT-7828-R-HV-HV			1			1

\* The PT-7828 Layer 3 Ethernet switch systems provide 1 slot for Gigabit Ethernet interface modules and 3 slots for fast Ethernet interface modules. Please refer to page 4-21 to select the PM-7200 Gigabit Ethernet and fast Ethernet interface modules that you need for your own application.

### Optional Accessories

- **ABC-01:** Industrial RS-232, RJ45-based, automatic backup configurator
- **EDS-SNMP OPC Server Pro:** CD with EDS-SNMP OPC server software and manual

# PT-7728 Series

## IEC 61850-3 24+4G-port Gigabit modular managed Ethernet switch



- > IEC 61850-3, IEEE 1613 (power substations), NEMA TS2 (traffic control systems), and EN50121-4 (railway applications) compliant
- > Turbo Ring and RSTP/STP for Ethernet Redundancy
- > Isolated redundant power inputs with universal 24/48 VDC or 110/220 VDC/VAC power supply range
- > Modular design lets you choose from a variety of media combinations
- > -40 to 85°C operating temperature range



### Introduction

The PowerTrans PT-7728 is designed to meet the demands of power substation automation systems (IEC 61850-3, IEEE 1613), traffic control systems (NEMA TS2), and railway applications (EN50121-4). The PT-7728's Gigabit and fast Ethernet backbone, redundant ring, and 24/48 VDC or 110/220 VDC/VAC dual isolated redundant power supplies increase the reliability of your communications and save on cabling/wiring costs.

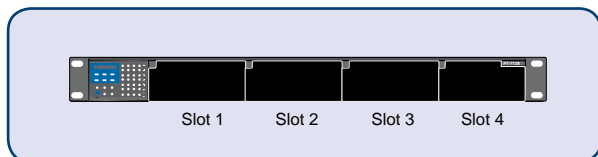
The modular design of the PT-7728 also makes network planning easy, and allows greater flexibility by letting you install up to 4 Gigabit ports and 24 fast Ethernet ports. Along with the optional front or rear wiring, these features together make the PT-7728 suitable for a variety of industrial applications.

### Features and Benefits

- Turbo Ring and RSTP/STP (IEEE 802.1w/D)
- IGMP Snooping and GMRP for filtering multicast traffic from industrial Ethernet protocols
- IEEE 802.1Q VLAN and GVRP protocol to ease network planning
- QoS-IEEE 802.1p/1Q and TOS/DiffServ to increase determinism
- 802.3ad, LACP for optimum bandwidth utilization
- IEEE 802.1X, HTTPS, and SSH to enhance network security
- SNMPv1/v2c/v3 for different levels of network management
- RMON for efficient network monitoring and proactive capability
- ABC-01 for system configuration backup
- Bandwidth management prevents unpredictable network status
- Lock port for only authorized MAC address access
- Port mirroring for online debugging
- Automatic warning by exception through email, relay output
- Automatic recovery of connected device's IP addresses
- Line-swap fast recovery
- Configurable by Web browser, Telnet/Serial console, Windows utility, and ABC-01

### Specifications

#### Modular Rackmount Ethernet Switch System, PT-7728



#### Technology

**Standards:** IEEE 802.3 for 10BaseT,  
 IEEE 802.3u for 100BaseT(X) and 100BaseFX,  
 IEEE 802.3ab for 1000BaseT(X),  
 IEEE 802.3z for 1000BaseSX/LX/LHX/ZX,

IEEE 802.3x for Flow Control,  
 IEEE 802.1D for Spanning Tree Protocol,  
 IEEE 802.1w for Rapid STP,  
 IEEE 802.1Q for VLAN Tagging,  
 IEEE 802.1p for Class of Service,  
 IEEE 802.1X for Authentication,  
 IEEE 802.3ad for Port Trunk with LACP

**Protocols:** IGMP v1/v2 device, GMRP, GVRP, SNMPv1/v2c/v3, DHCP Server/Client, DHCP Option 82, BootP, TFTP, SNTP, SMTP, RARP, RMON, HTTP, HTTPS, Telnet, SSH, Syslog  
**MIB:** MIB-II, Ethernet-like MIB, P-BRIDGE MIB, Q-BRIDGE MIB, Bridge MIB, RSTP MIB, RMON MIB Group 1, 2, 3, 9  
**Flow Control:** IEEE 802.3x flow control, back pressure flow control

**Switch Properties**

**Priority Queues:** 4  
**Max. Number of Available VLANs:** 64  
**VLAN ID Range:** VID 1 to 4094  
**IGMP Groups:** 256

**Interface**

**Fast Ethernet:** Slot 1, 2, 3 for any combination of 8-, 7-, or 6-port PM-7200 fast Ethernet modules with 10/100BaseT(X) or 100BaseFX (SC/ST connector)

**Gigabit Ethernet:** Slot 4 for 4- or 2-port PM-7200 Gigabit Ethernet combo module with 10/100/1000BaseT(X) or 1000BaseSFP slots

**Console:** RS-232 (RJ45)

**System LED Indicators:** STAT, PWR1, PWR2, FAULT, MASTER, COUPLER

**Module LED Indicators:** LNK/ACT, FDX/HDX, RING PORT, COUPLER PORT, SPEED

**Alarm Contact:** One relay output with current carrying capacity of 3A@30 VDC or 3A@240 VAC

**Power Requirements**

**Input Voltage:** 24 VDC (18 to 36 V), or 48 VDC (36 to 72 V), or 110/220 VDC/VAC (88 to 300 VDC and 85 to 264 VAC)

**Input Current:** (all ports are equipped with fiber)

Max. 2.58A @ 24 VDC,  
 Max. 1.21A @ 48 VDC,  
 Max. 0.64/0.33A @ 110/220 VDC,  
 Max. 0.53/0.28A @ 110/220 VAC

**Connection:** 10-pin terminal block  
**Overload Current Protection:** Present  
**Reverse Polarity Protection:** Present

**Physical Characteristics**

**Casing:** IP30 protection  
**Dimensions (W x H x D):** 440 x 44 x 325 mm (17.32 x 1.73 x 12.80 in.)  
**Weight:** 5900 g  
**Installation:** 19" rack mounting

**Environmental Limits**

**Operating Temperature:** -40 to 85°C (-40 to 185°F), cold start of min. 100 VAC at -40°C  
**Storage Temperature:** -40 to 85°C (-40 to 185°F)  
**Ambient Relative Humidity:** 5 to 95% (non-condensing)

**Regulatory Approvals**

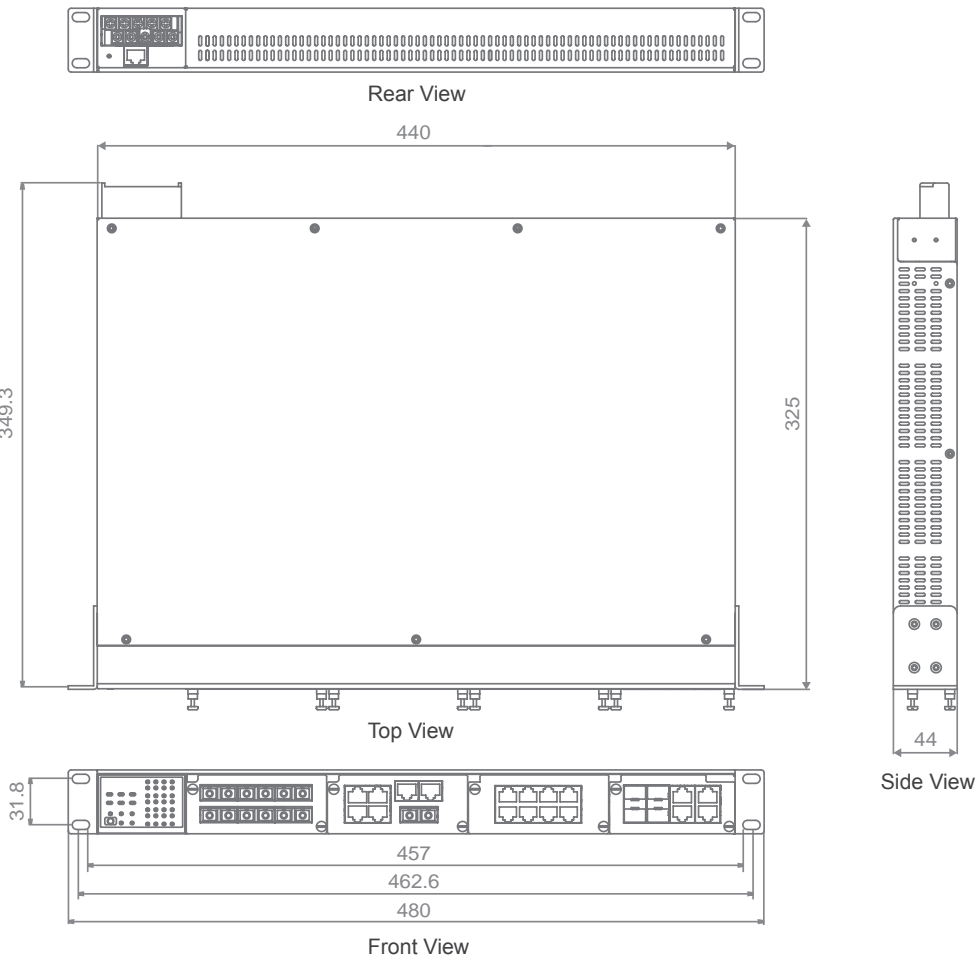
**Safety:** EN60950-1 (Pending)  
**Power Automation:** IEC 61850-3, IEEE 1613  
**Road Traffic:** NEMA TS2  
**Rail Traffic:** EN50121-4 (Pending)  
**Maritime:** DNV (Pending), GL (Pending)  
**EMI:** FCC Part 15, CISPR (EN55022) class A

*\*Please check Moxa's website for the most up-to-date certification status*

**Warranty**

5 years (see [www.moxa.com/warranty](http://www.moxa.com/warranty) for details)

**Dimensions (unit = mm)**



## Ordering Information

Step 1: Select Ethernet switch system

Step 2: Select interface modules

PT-7728 with power supply



PM-7200 series  
(Gigabit or fast Ethernet)

\*The PT-7728 Ethernet switch system is delivered without interface module. Please refer to page 4-21 to choose PM-7200 interface modules.

### Modular Rackmount Ethernet Switch System, PT-7728

Modular managed rackmount Ethernet switch system with 3 slots for fast Ethernet modules, and 1 slot for Gigabit Ethernet modules, for a total of up to 24+4G ports, -40 to 85°C

Product Model		Power Supply					
Front Cabling, Front Display	Rear Cabling, Front Display	Isolated Power Supply 1			Isolated Power Supply 2		
		24 VDC (18 to 36 V)	48 VDC (36 to 72 V)	HV: 88 to 300 VDC and 85 to 264 VAC	24 VDC (18 to 36 V)	48 VDC (36 to 72 V)	HV: 88 to 300 VDC and 85 to 264 VAC
PT-7728-F-24	PT-7728-R-24	1					
PT-7728-F-24-24	PT-7728-R-24-24	1			1		
PT-7728-F-24-48	PT-7728-R-24-48	1				1	
PT-7728-F-24-HV	PT-7728-R-24-HV	1					1
PT-7728-F-48	PT-7728-R-48		1				
PT-7728-F-48-48	PT-7728-R-48-48		1			1	
PT-7728-F-48-HV	PT-7728-R-48-HV		1				1
PT-7728-F-HV	PT-7728-R-HV			1			
PT-7728-F-HV-HV	PT-7728-R-HV-HV			1			1

\* The PT-7728 Ethernet switch systems provide 1 slot for Gigabit Ethernet interface modules and 3 slots for fast Ethernet interface modules. Please refer to page 4-21 to select the PM-7200 Gigabit Ethernet and fast Ethernet interface modules that you need for your own application.

### Optional Accessories

- **ABC-01:** Industrial RS-232, RJ45-based, automatic backup configurator
- **EDS-SNMP OPC Server Pro:** CD with EDS-SNMP OPC server software and manual

# PT-7710 Series

## IEC 61850-3 8+2G-port Gigabit modular managed Ethernet switch



- > IEC 61850-3, IEEE 1613 (power substations), NEMA TS2 (traffic control systems), and EN50121-4 (railway applications) compliant
- > Turbo Ring and RSTP/STP for Ethernet redundancy
- > Universal power supply range, 24/48 VDC or 110/220 VDC/VAC
- > Modular design lets you choose from a variety of media combinations
- > -40 to 85°C operating temperature range



### Introduction

The PowerTrans PT-7710 is designed to meet the demands of power substation automation systems (IEC 61850-3, IEEE 1613), traffic control systems (NEMA TS2), and railway applications (EN50121-4). The PT-7710's Gigabit and fast Ethernet backbone, redundant ring, and 24/48 VDC or 110/220 VDC/VAC dual redundant power supplies

increase the reliability of the communications and reduce cabling and wiring costs. The modular design of the PT-7710 makes network planning easy, and allows greater flexibility by letting you install up to 2 Gigabit ports and 8 fast Ethernet ports, or 10 fast Ethernet ports.

### Features and Benefits

- Turbo Ring and RSTP/STP (IEEE 802.1w/D)
- IGMP Snooping and GMRP for filtering multicast traffic from industrial Ethernet protocols
- Port-based VLAN, IEEE 802.1Q VLAN, and GVRP protocol to ease network planning
- QoS-IEEE 802.1p/1Q and TOS/DiffServ to increase determinism
- 802.3ad, LACP for optimum bandwidth utilization
- IEEE 802.1X, HTTPS, and SSH to enhance network security
- SNMPv1/v2c/v3 for different levels of network management
- RMON for efficient network monitoring and proactive capability
- ABC-01 for system configuration backup
- Bandwidth management prevents unpredictable network status
- Lock port for only authorized MAC address access
- Port mirroring for online debugging
- Automatic warning by exception through email, relay output
- Automatic recovery of connected device's IP addresses
- Line-swap fast recovery
- Configurable by Web browser, Telnet/Serial console, Windows utility, and ABC-01

### Specifications

#### Modular Rackmount Ethernet Switch System, PT-7710



IEEE 802.1Q for VLAN Tagging,  
IEEE 802.1p for Class of Service,  
IEEE 802.1X for Authentication,  
IEEE 802.3ad for Port Trunk with LACP

**Protocols:** IGMP v1/v2 device, GMRP, GVRP, SNMPv1/v2c/v3, DHCP Server/Client, DHCP Option 82, BootP, TFTP, SNMP, SMTP, RARP, RMON, HTTP, HTTPS, Telnet, SSH, Syslog

**MIB:** MIB-II, Ethernet-like MIB, P-BRIDGE MIB, Q-BRIDGE MIB, Bridge MIB, RSTP MIB, RMON MIB Group 1, 2, 3, 9

**Flow Control:** IEEE 802.3x flow control, back pressure flow control

#### Switch Properties

**Priority Queues:** 4

**Max. Number of Available VLANs:** 64

**VLAN ID Range:** VID 1 to 4094

**IGMP Groups:** 256

#### Technology

**Standards:** IEEE 802.3 for 10BaseT,  
IEEE 802.3u for 100BaseT(X) and 100BaseFX,  
IEEE 802.3ab for 1000BaseT(X),  
IEEE 802.3z for 1000BaseSX/LX/LHX/ZX,  
IEEE 802.3x for Flow Control,  
IEEE 802.1D for Spanning Tree Protocol,  
IEEE 802.1w for Rapid STP,

**Interface**

**Fast Ethernet:** Slot 1 for any combination of 8-, 7-, or 6-port PM-7200 fast Ethernet modules with 10/100BaseT(X) or 100BaseFX (SC/ST connector), and Slot 2 for a 2- or 1-port interface modules with 100BaseFX (SC/ST connector)

**Gigabit Ethernet:** Slot 2 for 2-port PM-7200 Gigabit Ethernet combo module with 10/100/1000BaseT(X) or 1000BaseSFP slots

**Console:** RS-232 (RJ45)

**System LED Indicators:** STAT, PWR1, PWR2, FAULT, MASTER, COUPLER

**Module LED Indicators:** LNK/ACT, FDX/HDX, RING PORT, COUPLER PORT, SPEED

**Alarm Contact:** One relay output with current carrying capacity of 3A@30 VDC or 3A@240 VAC

**Power Requirements**

**Input Voltage:** 24/48 VDC (9 to 60 V), or 110/220 VDC/VAC (88 to 300 VDC and 85 to 264 VAC)

**Input Current:** (all ports are equipped with Fiber)

Max. 0.81A @ 24 VDC

Max. 0.42A @ 48 VDC

Max. 0.17/0.10 @ 110/220 VDC,

Max. 0.20/0.12 @ 110/220 VAC

**Connection:** 10-pin terminal block

**Overload Current Protection:** Present

**Reverse Polarity Protection:** Present

**Physical Characteristics**

**Casing:** IP30 protection

**Dimensions (W x H x D):** 266.7 x 44 x 195 mm (10.5 x 1.73 x 7.68 in.)

**Weight:** 2200 g

**Installation:** 19" rack mounting, wall mounting

**Environmental Limits**

**Operating Temperature:** -40 to 85°C (-40 to 185°F)

**Storage Temperature:** -40 to 85°C (-40 to 185°F)

**Ambient Relative Humidity:** 5 to 95% (non-condensing)

**Regulatory Approvals**

**Safety:** EN60950-1 (Pending)

**Power Automation:** IEC 61850-3, IEEE 1613

**Road Traffic:** NEMA TS2

**Rail Traffic:** EN50121-4 (Pending)

**Maritime:** DNV (Pending), GL (Pending)

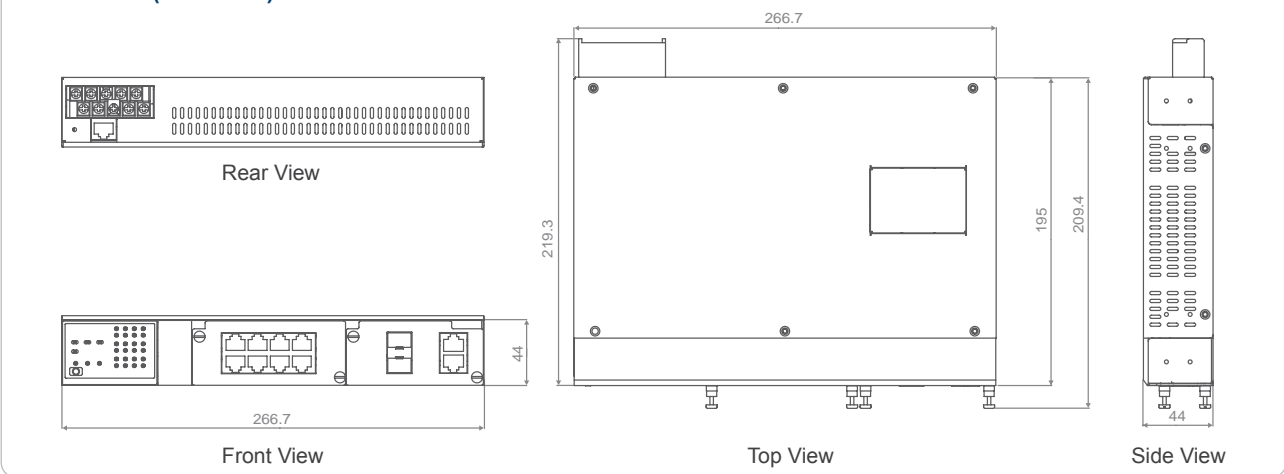
**EMI:** FCC Part 15, CISPR (EN55022) class A

\*Please check Moxa's website for the most up-to-date certification status

**Warranty**

5 years (see www.moxa.com/warranty for details)

**Dimensions (unit = mm)**



**Ordering Information**

**Step 1: Select Ethernet switch system**

**Step 2: Select interface modules**

PT-7710 with power supply



PM-7200 series (Gigabit or fast Ethernet)

\*The PT-7710 Ethernet switch system is delivered without interface module. Please refer to page 4-21 to choose PM-7200 interface modules.

**Modular Rackmount Ethernet Switch System, PT-7710**

Modular managed rackmount Ethernet switch system with 1 slot for fast Ethernet modules, and 1 slot for fast Ethernet or Gigabit Ethernet modules, for a total of up to 10- or 8+2G- ports, -40 to 85°C

Product Model		Power Supply	
Rackmounting, Front Cabling, Front Display	Wall mounting, Down Cabling, Front Display	LV: 24/48 VDC (9 to 60 V)	HV: 88 to 300 VDC and 85 to 264 VAC, isolated
PT-7710-F-LV	PT-7710-D-LV	1	
PT-7710-F-HV	PT-7710-D-HV		1

\* The PT-7710 Ethernet switch systems provide 1 slot for Gigabit Ethernet interface modules and 1 slot for fast Ethernet interface modules. Please refer to page 4-21 to select the PM-7200 Gigabit Ethernet and fast Ethernet interface modules that you need for your own application.

**Optional Accessories**

- **ABC-01:** Industrial RS-232, RJ45-based, automatic backup configurator
- **EDS-SNMP OPC Server Pro:** CD with EDS-SNMP OPC server software and manual

# PT-7324 Series

## IEC 61850-3 22+2G-port Gigabit smart Ethernet switch



- > IEC 61850-3, IEEE 1613 (power substations), NEMA TS2 (traffic control systems), and EN50121-4 (railway applications) compliant
- > Port-based VLAN to enhance security/network performance
- > 802.1p priority queues, port-based QoS
- > Smart web-based management makes configuration easy
- > Universal power supply range, 24/48 VDC or 110/220 VDC/VAC
- > -40 to 85°C operating temperature range



### Introduction

The PowerTrans PT-7324 smart Ethernet switch is designed to meet the demands of power substation automation systems (IEC 61850-3, IEEE 1613), traffic control systems (NEMA TS2), and railway applications (EN50121-4). The PT-7324 is also equipped with smart features, "Class of Service" features suitable for multimedia applications, and port-based

#### Features and Benefits

- Port-based VLAN to ease network planning
- 802.1p priority queues and port-based QoS to increase determinism

VLAN features that can be used to segment your network without being restricted by physical connections. If you do not want to receive too many broadcast packets, the broadcast storm filtering feature will discard broadcast packets if the number of such packets exceeds a threshold in a preset period of time.

- Broadcast storm filtering

### Specifications

#### Smart Rackmount Ethernet Switch System, PT-7324



#### Technology

**Standards:** IEEE 802.3 for 10BaseT,  
IEEE 802.3u for 100BaseT(X) and 100BaseFX,  
IEEE 802.3ab for 1000BaseT(X),  
IEEE 802.3z for 1000BaseSX/LX/LHX/ZX,  
IEEE 802.3x for Flow Control,  
IEEE 802.1p for Class of Service

**Flow Control:** IEEE 802.3x flow control, back pressure flow control

#### Switch Properties

**Priority Queues:** 2  
**Max. Number of Available VLANs:** 24

#### Interface

**RJ45 Ports:** 10/100BaseT(X) or 10/100/1000BaseT(X) auto negotiation speed, F/H duplex mode and auto MDI/MDI-X connection

**Fiber Ports:** 100BaseFX (SC/ST connector) or 1000BaseSFP slots

\*Slot 1 for 2-port PM-7200 Gigabit Ethernet combo module, or 2- or 1-port PM-7200 fast Ethernet modules.

**LED Indicators:** STAT, PWR1, PWR2, FAULT, LNK/ACT, FDX/HDX, SPEED

**Alarm Contact:** One relay output with current carrying capacity of 3A@30 VDC or 3A@240 VAC

#### Power Requirements

**Input Voltage:** 24/48 VDC (9 to 60 V), or HV: 88 to 300 VDC and 85 to 264 VAC

#### Input Current:

Max. 0.68A @ 24 VDC

Max. 0.35A @ 48 VDC

Max. 0.17/0.11A @ 110/220 VDC

Max. 0.33/0.23A @ 110/220 VAC

**Connection:** 10-pin terminal block

**Overload Current Protection:** Present

**Reverse Polarity Protection:** Present

#### Physical Characteristics

**Casing:** IP30 protection

**Dimensions (W x H x D):** 440 x 44 x 254 mm (17.32 x 1.73 x 10.00 in.)

**Weight:** 4700 g

**Installation:** 19" rack mounting

#### Environmental Limits

**Operating Temperature:** -40 to 85°C (-40 to 185°F)

**Storage Temperature:** -40 to 85°C (-40 to 185°F)

**Ambient Relative Humidity:** 5 to 95% (non-condensing)

**Regulatory Approvals**

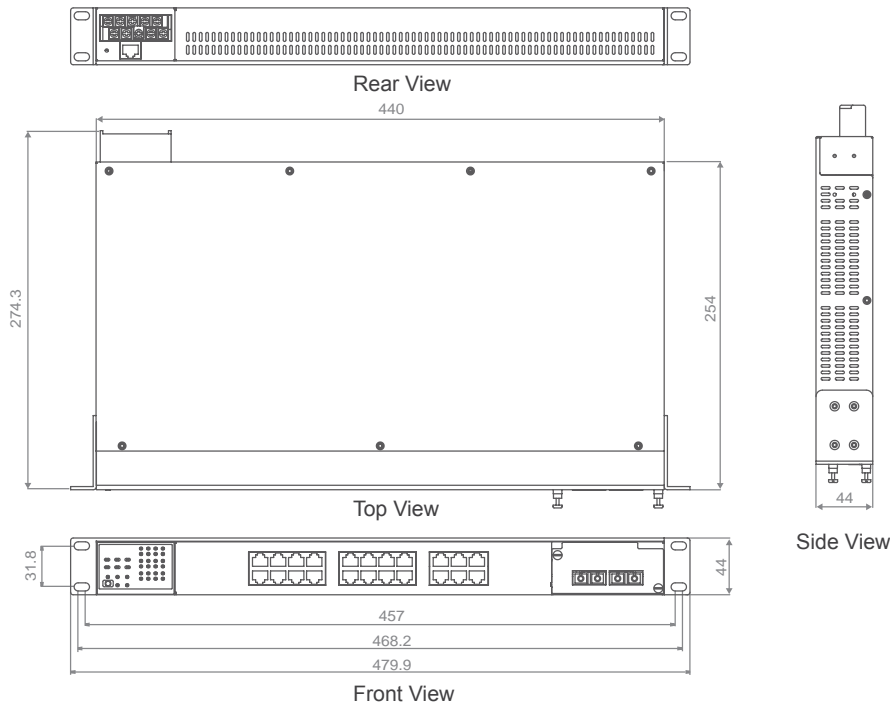
**Safety:** EN60950-1 (Pending)  
**Power Automation:** IEC 61850-3, IEEE 1613  
**Road Traffic:** NEMA TS2  
**Rail Traffic:** EN50121-4 (Pending)  
**Maritime:** DNV (Pending), GL (Pending)  
**EMI:** FCC Part 15, CISPR (EN55022) class A

\*Please check Moxa's website for the most up-to-date certification status

**Warranty**

5 years (see [www.moxa.com/warranty](http://www.moxa.com/warranty) for details)

**Dimensions (unit = mm)**



**Ordering Information**

**Step 1: Select Ethernet switch system**

**Step 2: Select interface modules**

PT-7324 with power supply



PM-7200 series  
(Gigabit or fast Ethernet)

\*The PT-7324 Ethernet switch system is delivered without interface module. Please refer to page 4-21 to choose PM-7200 interface modules.

**Smart Rackmount Ethernet Switch System, PT-7324**

Smart rackmount Ethernet switch system with 22 10/100BaseT(X) ports, and 1 slot for fast Ethernet or Gigabit Ethernet modules, for a total of up to 24 or 22+2G ports, -40 to 85°C

Product Model		Power Supply	
Front Cabling, Front Display	Rear Cabling, Front Display	LV: 24/48 VDC (9 to 60 V)	HV: 88 to 300 VDC and 85 to 264 VAC, isolated
PT-7324-F-LV	PT-7324-R-LV	1	
PT-7324-F-HV	PT-7324-R-HV		1

\* The PT-7324 Ethernet switch systems provide 1 slot for Gigabit Ethernet or fast Ethernet interface modules. Please refer to page 4-21 to select the PM-7200 series Gigabit Ethernet and fast Ethernet interface modules that you need for your own application.



# IKS-6726 Series

Preliminary

## 24+2G-port Gigabit modular managed Ethernet switch



- > Meets UL 60950-1, NEMA TS2, and DNV/GL certifications
- > Turbo Ring and RSTP/STP for Ethernet Redundancy
- > Isolated redundant power inputs with universal 24/48 VDC or 110/220 VDC/VAC power supply
- > Modular design lets you choose from a variety of media combinations
- > -40 to 75°C operating temperature range



### Introduction

The industrial rackmount Ethernet switch IKS-6726 is designed to meet the demands of industrial application networks such as traffic control systems (NEMA TS2) and maritime applications (DNV/GL). The IKS-6726's Gigabit and fast Ethernet backbone, redundant ring, and 24/48 VDC or 110/220 VDC/VAC dual isolated redundant power

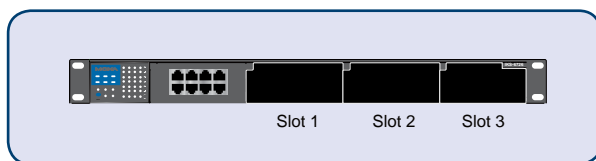
supplies increase the reliability of your communications and save on cabling/wiring costs. The modular design of the IKS-6726 also makes network planning easy, and allows greater flexibility by letting you install up to 2 Gigabit ports and 24 fast Ethernet ports.

### Features and Benefits

- Turbo Ring and RSTP/STP (IEEE 802.1w/D)
- IGMP Snooping and GMRP for filtering multicast traffic from industrial Ethernet protocols
- IEEE 802.1Q VLAN and GVRP protocol to ease network planning
- QoS-IEEE 802.1p/1Q and TOS/DiffServ to increase determinism
- 802.3ad, LACP for optimum bandwidth utilization
- IEEE 802.1X, HTTPS, and SSH to enhance network security
- SNMPv1/v2c/v3 for different levels of network management
- RMON for efficient network monitoring and proactive capability
- ABC-01 for system configuration backup
- Bandwidth management prevents unpredictable network status with "Lock port" to restrict access to authorized MAC addresses
- Port mirroring for online debugging
- Automatic warning by exception through email, relay output
- Automatic recovery of connected device's IP addresses
- Line-swap fast recovery
- Configurable by Web browser, Telnet/Serial console, Windows utility, and ABC-01

### Specifications

#### Modular Rackmount Ethernet Switch System, IKS-6726



IEEE 802.1Q for VLAN Tagging,  
IEEE 802.1p for Class of Service,  
IEEE 802.1X for Authentication,  
IEEE 802.3ad for Port Trunk with LACP

**Protocols:** IGMP v1/v2 device, GMRP, GVRP, SNMPv1/v2c/v3, DHCP Server/Client, DHCP Option 82, BootP, TFTP, SNMP, SMTP, RARP, RMON, HTTP, HTTPS, Telnet, SSH, Syslog

**MIB:** MIB-II, Ethernet-like MIB, P-BRIDGE MIB, Q-BRIDGE MIB, Bridge MIB, RSTP MIB, RMON MIB Group 1, 2, 3, 9

**Flow Control:** IEEE 802.3x flow control, back pressure flow control

#### Switch Properties

**Priority Queues:** 4

**Max. Number of Available VLANs:** 64

**VLAN ID Range:** VID 1 to 4094

**IGMP Groups:** 256

#### Technology

**Standards:** IEEE 802.3 for 10BaseT,  
IEEE 802.3u for 100BaseT(X) and 100BaseFX,  
IEEE 802.3ab for 1000BaseT(X),  
IEEE 802.3z for 1000BaseSX/LX/LHX/ZX,  
IEEE 802.3x for Flow Control,  
IEEE 802.1D for Spanning Tree Protocol,  
IEEE 802.1w for Rapid STP,

**Interface**

**Fast Ethernet:** Slot 1 and 2 for any combination of 8-, 7-, or 6-port PM-7200 fast Ethernet modules with 10/100BaseT(X) or 100BaseFX (SC/ST connector)

**Gigabit Ethernet:** Slot 3 for 2-port PM-7200 Gigabit Ethernet combo module with 10/100/1000BaseT(X) or 1000BaseSFP slots

**Console:** RS-232 (RJ45)

**System LED Indicators:** STAT, PWR1, PWR2, FAULT, MASTER, COUPLER

**Module LED Indicators:** LNK/ACT, FDX/HDX, RING PORT, COUPLER PORT, SPEED

**Alarm Contact:** One relay output with current carrying capacity of 3A@30 VDC or 3A@240 VAC

**Power Requirements**

**Input Voltage:** 24 VDC (18 to 36 V), or 48 VDC (36 to 72 V), or 110/220 VDC/VAC (88 to 300 VDC and 85 to 264 VAC)

**Connection:** 10-pin terminal block

**Overload Current Protection:** Present

**Reverse Polarity Protection:** Present

**Physical Characteristics**

**Casing:** IP30 protection

**Dimensions (W x H x D):** 440 x 44 x 325 mm (17.32 x 1.73 x 12.80 in.)

**Installation:** 19" rack mounting

**Environmental Limits**

**Operating Temperature:** -40 to 75°C (-40 to 167°F), cold start of min. 100 VAC at -40°C

**Storage Temperature:** -40 to 85°C (-40 to 185°F)

**Ambient Relative Humidity:** 5 to 95% (non-condensing)

**Regulatory Approvals**

**Safety:** EN60950-1 (Pending)

**Maritime:** DNV (Pending), GL (Pending)

**Road Traffic:** NEMA TS2

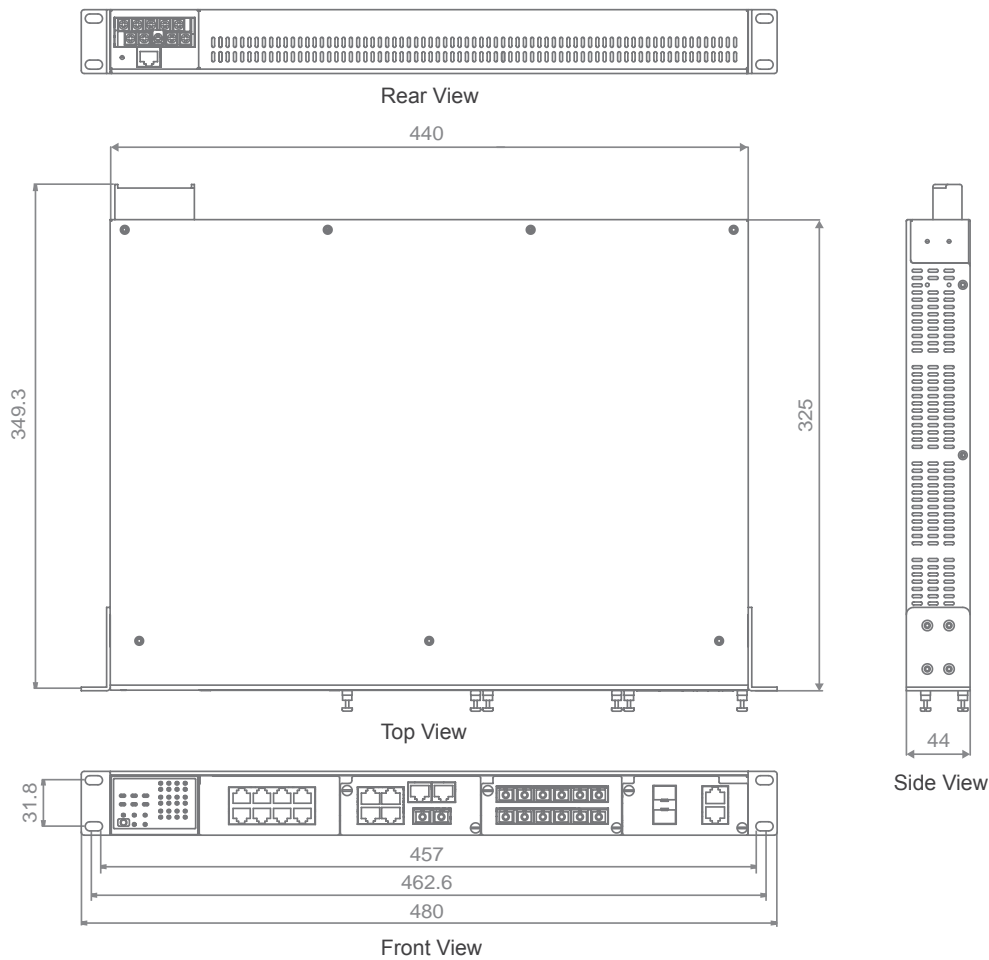
**EMI:** FCC Part 15, CISPR (EN55022) class A

*\*Please check Moxa's website for the most up-to-date certification status*

**Warranty**

5 years (see [www.moxa.com/warranty](http://www.moxa.com/warranty) for details)

**Dimensions (unit = mm)**



## : Ordering Information

Step 1: Select Ethernet switch system

Step 2: Select interface modules

IKS-6726 with power supply



PM-7200 series  
(Gigabit or fast Ethernet)

\*The IKS-6726 Ethernet switch system is delivered without interface module. Please refer to page 4-21 to choose PM-7200 interface modules.

### Modular Rackmount Ethernet Switch System, IKS-6726

Modular managed rackmount Ethernet switch system with 8 10/100BaseT(X) ports, 2 slots for fast Ethernet modules, and 1 slot for Gigabit Ethernet modules, for a total of up to 24+2G ports, -40 to 75°C

Product Model	Power Supply					
	Isolated Power Supply 1			Isolated Power Supply 2		
	24 VDC (18 to 36 V)	48 VDC (36 to 72 V)	HV: 88 to 300 VDC and 85 to 264 VAC	24 VDC (18 to 36 V)	48 VDC (36 to 72 V)	HV: 88 to 300 VDC and 85 to 264 VAC
IKS-6726-F-24	1					
IKS-6726-F-24-24	1			1		
IKS-6726-F-24-48	1				1	
IKS-6726-F-24-HV	1					1
IKS-6726-F-48		1				
IKS-6726-F-48-48		1			1	
IKS-6726-F-48-HV		1				1
IKS-6726-F-HV			1			
IKS-6726-F-HV-HV			1			1

\* The IKS-6726 Ethernet switch systems provide 1 slot for Gigabit Ethernet interface modules and 2 slots for fast Ethernet interface modules. Please refer to page 4-21 to select the PM-7200 Gigabit Ethernet and fast Ethernet interface modules.

### Optional Accessories

- **ABC-01:** Industrial RS-232, RJ45-based, automatic backup configurator
- **EDS-SNMP OPC Server Pro:** CD with EDS-SNMP OPC server software and manual

# IKS-6324 Series

Preliminary

## 22+2G-port Gigabit unmanaged Ethernet switch



- > Meets UL 60950-1, NEMA TS2, and DNV/ GL certifications
- > Universal power supply range, 24/48 VDC or 110/220 VDC/VAC
- > Redundant dual 24 VDC power inputs
- > -40 to 75°C operating temperature range



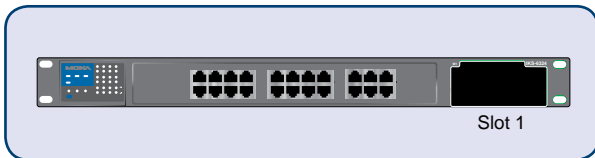
### Introduction

The industrial rackmount Ethernet switch IKS-6324 is designed to meet the demands of industrial application networks such as traffic control systems (NEMA TS2), and maritime applications (DNV/ GL). The IKS-6324 is a 24-port industrial 19" rackmount Ethernet switch series that provides a rugged and economical solution for your industrial Ethernet connections. Up to two fast Ethernet fiber optic ports and combo Gigabit Ethernet TP or fiber optic ports can be

chosen to make the construction of a reliable Ethernet network easy. A universal power supply range of 24/48 VDC or 110/220 VDC/VAC give users greater flexibility in choosing power inputs. The Ethernet switches comply with UL standards and support a wide operating temperature range of -40 to 75°C. All models undergo a 100% burn-in test to ensure that they fulfill the special needs of industrial automation control applications.

### Specifications

#### Unmanaged Rackmount Ethernet Switch System, IKS-6324



#### Technology

**Standards:** IEEE 802.3 for 10BaseT, IEEE 802.3u for 100BaseT(X) and 100BaseFX, IEEE 802.3ab for 1000BaseT(X), IEEE 802.3z for 1000BaseSX/LX/LHX/ZX, IEEE 802.3x for Flow Control,

**Flow Control:** IEEE 802.3x flow control, back pressure flow control

#### Interface

**RJ45 Ports:** 10/100BaseT(X) or 10/100/1000BaseT(X) auto negotiation speed, F/H duplex mode and auto MDI/MDI-X connection

**Fiber Ports:** 100BaseFX (SC/ST connector) or 1000BaseSFP slots  
 \*Slot 1 for 2-port PM-7200 Gigabit Ethernet combo module, or 2- or 1-port PM-7200 fast Ethernet modules.

**LED Indicators:** STAT, PWR1, PWR2, FAULT, LNK/ACT, FDX/HDX, SPEED

**Alarm Contact:** One relay output with current carrying capacity of 3A@30 VDC or 3A@240 VAC

#### Power Requirements

**Input Voltage:** 24/48 VDC (9 to 60 V), or 110/220 VDC/VAC (88 to 300 VDC and 85 to 264 VAC)

**Connection:** 10-pin terminal block  
**Overload Current Protection:** Present  
**Reverse Polarity Protection:** Present

#### Physical Characteristics

**Casing:** IP30 protection  
**Dimensions (W x H x D):** 440 x 44 x 254 mm (17.32 x 1.73 x 10.00 in.)  
**Installation:** 19" rack mounting

#### Environmental Limits

**Operating Temperature:** -40 to 75°C (-40 to 167°F)  
**Storage Temperature:** -40 to 85°C (-40 to 185°F)  
**Ambient Relative Humidity:** 5 to 95% (non-condensing)

#### Regulatory Approvals

**Safety:** EN60950-1 (Pending)  
**Maritime:** DNV (Pending), GL (Pending)  
**Road Traffic:** NEMA TS2

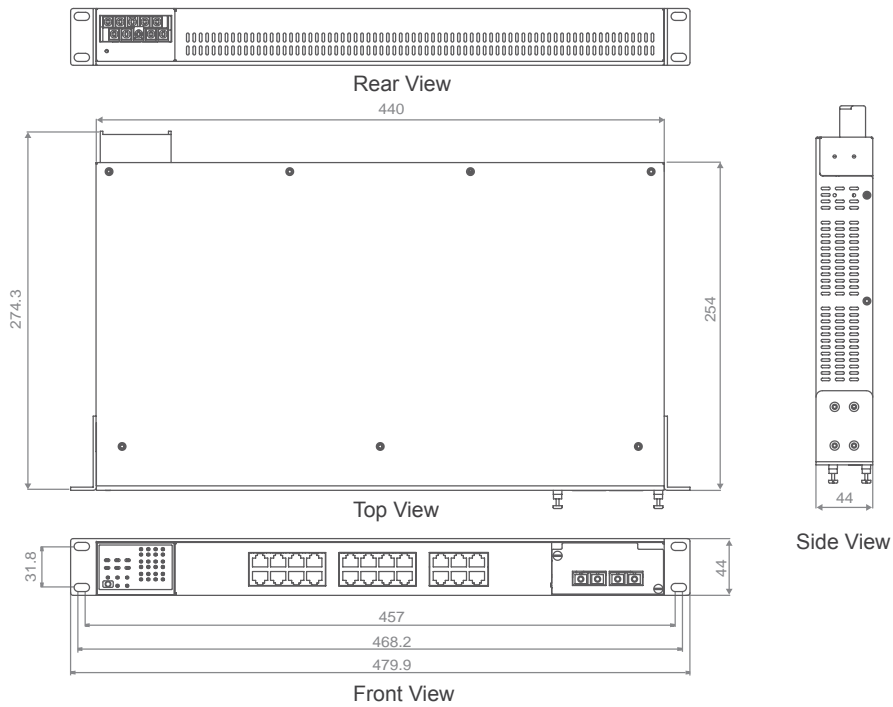
**EMI:** FCC Part 15, CISPR (EN55022) class A

\*Please check Moxa's website for the most up-to-date certification status

#### Warranty

5 years (see [www.moxa.com/warranty](http://www.moxa.com/warranty) for details)

Dimensions (unit = mm)



Ordering Information

Step 1: Select Ethernet switch system

Step 2: Select interface modules

IKS-6324 with power supply



PM-7200 series  
(Gigabit or fast Ethernet)

\*The IKS-6324 Ethernet switch system is delivered without interface module. Please refer to page 4-21 to choose PM-7200 interface modules.

Unmanaged Rackmount Ethernet Switch System, IKS-6324

Unmanaged rackmount Ethernet switch system with 22 10/100BaseT(X) ports, and 1 slot for fast Ethernet or Gigabit Ethernet modules, for a total of up to 24 or 22+2G ports, -40 to 75°C

Product Model Front Cabling, Front Display	Power Supply	
	LV: 24/48 VDC (9 to 60 V)	HV: 88 to 300 VDC and 85 to 264 VAC, isolated
IKS-6324-F-LV	1	
IKS-6324-F-HV		1

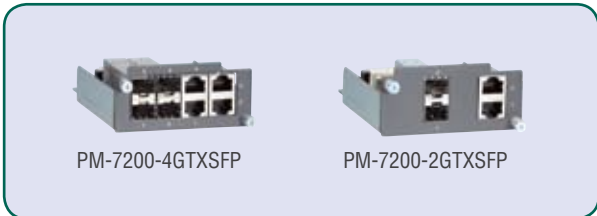
\* The IKS-6324 Ethernet switch systems provide 1 slot for Gigabit Ethernet or fast Ethernet interface modules. Please refer to page 4-21 to select the PM-7200 series Gigabit Ethernet and fast Ethernet interface modules that you need for your own application.

# PM-7200 Series Interface Modules

**4- or 2-port Gigabit Ethernet and 8-, 7-, 6-, 2-, or 1-port fast Ethernet interface modules for PT and IKS series rackmount Ethernet switches**

## Specifications

### Gigabit Ethernet Interface Modules, PM-7200-2G/4G series



#### Interface

**RJ45 Ports:** 10/100/1000BaseT(X) auto negotiation speed, and auto MDI/MDI-X connection

**Fiber Ports:** 1000BaseSFP slots

\* The PM-7200-2G/4G series Gigabit Ethernet combo modules support 2 or 4 SFP slots. Please refer to page 2-23 to select the SFP-1G series Gigabit Ethernet modules.

### Fast Ethernet Interface Modules, PM-7200 series



#### Interface

**RJ45 Ports:** 10/100BaseT(X) auto negotiation speed, F/H duplex mode, and auto MDI/MDI-X connection

**Fiber Ports:** 100BaseFX ports (SC/ST connector)

#### Optical Fiber

	100BaseFX		
	Multi Mode	Single Mode	Single Mode, 80 km
Wavelength	1300 nm	1310 nm	1550 nm
Max. TX	-10 dBm	0 dBm	0 dBm
Min. TX	-20 dBm	-5 dBm	-5 dBm
RX Sensitivity	-32 dBm	-34 dBm	-34 dBm
Link Budget	12 dB	29 dB	29 dB
Typical Distance	5 km <sup>a</sup> 4 km <sup>b</sup>	40 km <sup>c</sup>	80 km <sup>d</sup>
Saturation	-6 dBm	-3 dBm	-3 dBm

a. 50/125 μm, 800 MHz\*km fiber optic cable

b. 62.5/125 μm, 500 MHz\*km fiber optic cable

c. 9/125 μm, 3.5 PS/(nm\*km) fiber optic cable

d. 9/125 μm, 19 PS/(nm\*km) fiber optic cable

**Ordering Information**

**Rackmount Ethernet Switch System and Interface Module Compatibility Chart**

Product Model	Interface Module																		
	PM-7200-4GTXSFP	PM-7200-2GTXSFP	PM-7200-1MSC	PM-7200-1MST	PM-7200-2MSC	PM-7200-2MST	PM-7200-1SSC	PM-7200-2SSC	PM-7200-8TX	PM-7200-2MSC4TX	PM-7200-2MST4TX	PM-7200-2SSC4TX	PM-7200-4MSC2TX	PM-7200-4MST2TX	PM-7200-4SSC2TX	PM-7200-6MSC	PM-7200-6MST	PM-7200-6SSC	PM-7200-1LSC6TX
PT-7828	✓	✓							✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
PT-7728	✓	✓							✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
PT-7710		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
PT-7324		✓	✓	✓	✓	✓	✓	✓											
IKS-6726		✓							✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
IKS-6324		✓	✓	✓	✓	✓	✓	✓											

**Gigabit Ethernet Modules for PT and IKS Series Rackmount Ethernet Switches, PM-7200-2G/4G Series**

Product Model	Port Interface
	Combo Port, 10/100/1000BaseT(X) or 1000BaseSFP*
PM-7200-2GTXSFP	2
PM-7200-4GTXSFP	4

\*The PM-7200-2G/4G series Gigabit Ethernet combo modules support 4 or 2 SFP slots. Please see page 2-23 for the product information of SFP-1G series Gigabit Ethernet SFP modules.

**Fast Ethernet Modules for PT and IKS Series Rackmount Ethernet Switches, PM-7200 Series**

Product Model	Port Interface			
	10/100BaseT(X)	100BaseFX		
		Multi Mode, SC Connector	Multi Mode, ST Connector	Single Mode, SC Connector
PM-7200-8TX	8			
PM-7200-6MSC		6		
PM-7200-6MST			6	
PM-7200-6SSC				6
PM-7200-4MSC2TX	2	4		
PM-7200-4MST2TX	2		4	
PM-7200-4SSC2TX	2			4
PM-7200-2MSC4TX	4	2		
PM-7200-2MST4TX	4		2	
PM-7200-2SSC4TX	4			2
PM-7200-1LSC6TX	6			1
PM-7200-2MSC		2		
PM-7200-2MST			2	
PM-7200-2SSC				2
PM-7200-1MSC		1		
PM-7200-1MST			1	
PM-7200-1SSC				1