

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

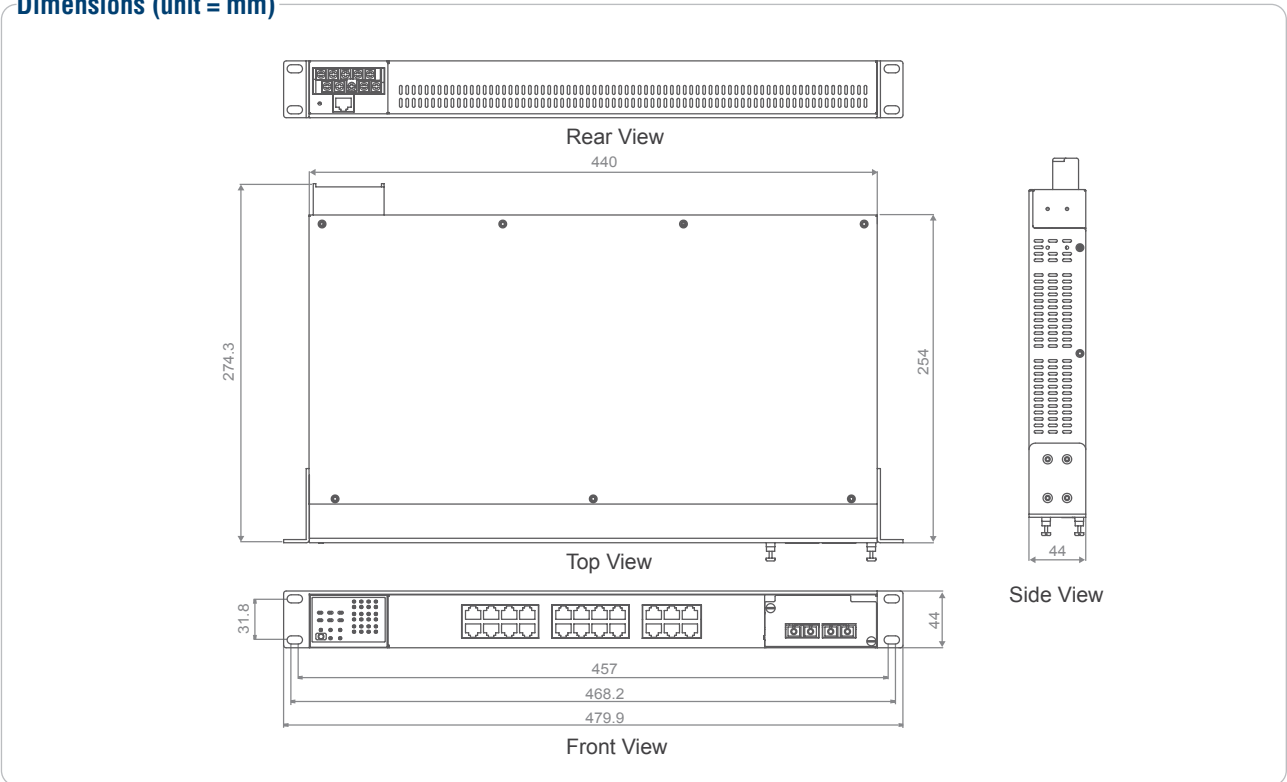
Safety: EN60950-1 (Pending)
Power Automation: IEC 61850-3, IEEE 1613
Road Traffic: NEMA TS2
Rail Traffic: EN50121-4 (Pending)
Maritime: DNV (Pending), GL (Pending)
EMI: FCC Part 15, CISPR (EN55022) class A

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

Warranty

5 years (see www.moxa.com/warranty 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 |

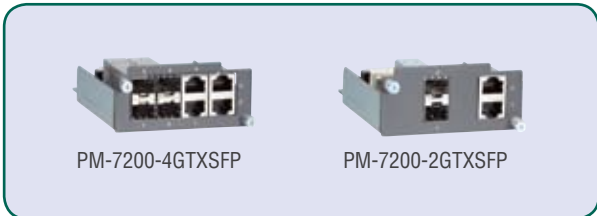
* The PT-7324 Ethernet switch systems provide 1 slot for Gigabit Ethernet or fast Ethernet interface modules. Please refer to page 4-21 to select the PM-7200 series Gigabit Ethernet and fast Ethernet interface modules that you need for your own application.

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 ^a 4 km ^b | 40 km ^c | 80 km ^d |
| 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 |

SFP-1G Series

1G-port Gigabit Ethernet SFP modules



- > Compliant with IEEE 802.3z
- > Differential LVPECL inputs and outputs
- > Single power supply 3.3V
- > TTL signal detect indicator
- > Hot Pluggable
- > Class 1 laser product, complies with EN60825-1



Specifications

Interface

Gigabit Port: 1 port

Connector: Duplex LC Connector or

Simplex LC Connector* (WDM-type only)

* WDM-type SFP modules must be used in pairs (e.g., SFP-1GXALC and SFP-1GXXBLC)

Optical Fiber

| | Gigabit Ethernet | | | |
|------------------|--|---|--------------------|--------------------|
| | SFP-SX | SFP-LX | SFP-LHX | SFP-ZX |
| Wavelength | 850 nm | 1310 nm | 1310 nm | 1550 nm |
| Max. TX | -4 dBm | -3 dBm | 1 dBm | 5 dBm |
| Min. TX | -9.5 dBm | -9.5 dBm | -4 dBm | 0 dBm |
| RX Sensitivity | -18 dBm | -20 dBm | -24 dBm | 24 dBm |
| Link Budget | 8.5 dB | 10.5 dB | 20 dB | 24 dB |
| Typical Distance | 550 m ^a 275 m ^b | 1100 m ^c 550 m ^d 10 km ^e | 40 km ^e | 80 km ^f |
| Saturation | 0 dBm | -3 dBm | -3 dBm | -3 dBm |

| | Gigabit Ethernet | | | | | |
|------------------|------------------------|---------|------------------------|---------|------------------------|---------|
| | SFP-10A | SFP-10B | SFP-20A | SFP-20B | SFP-40A | SFP-40B |
| Wave-length | TX 1310 nm, RX 1550 nm | | TX 1310 nm, RX 1550 nm | | TX 1310 nm, RX 1550 nm | |
| Max. TX | -3 dBm | | -2 dBm | | 2 dBm | |
| Min. TX | -9 dBm | | -8 dBm | | -3 dBm | |
| RX Sensitivity | -21 dBm | | -23 dBm | | -23 dBm | |
| Link Budget | 12 dB | | 15 dB | | 20 dB | |
| Typical Distance | 10 km ^{ef} | | 20 km ^{ef} | | 40 km ^{ef} | |
| Saturation | -1 dBm | | -1 dBm | | -1 dBm | |

- a. 50/125 μm, 400 MHz*km fiber optic cable
- b. 62.5/125 μm, 200 MHz*km fiber optic cable
- c. 50/125 μm, 800 MHz*km fiber optic cable
- d. 62.5/125 μm, 500 MHz*km fiber optic cable
- e. 9/125 μm, 3.5 PS/(nm*km) fiber optic cable
- f. 9/125 μm, 19 PS/(nm*km) fiber optic cable

Environmental Limits

Operating Temperature: 0 to 60°C (32 to 140°F)

-40 to 85°C (-40 to 185°F) for T models

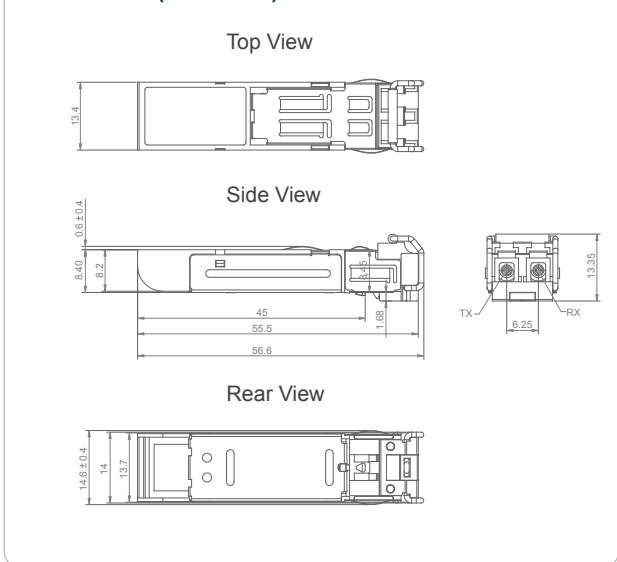
Storage Temperature: -40 to 85°C (-40 to 185°F)

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

Regulatory Approvals

Safety: UL, TÜV, EN60825-1

Dimensions (unit = mm)



Ordering Information

SFP Modules

| Product Model | | Port Interface | | | |
|-------------------------------------|---------------------------------------|--|---------------------------------------|--|---------------------------------------|
| Standard Temperature (0 to 60°C) | Extended Temperature (-40 to 85°C) | 1000BaseSX, LC Connector, 0.5 km | 1000BaseLX, LC Connector, 10 km | 1000BaseLHX, LC Connector, 40 km | 1000BaseZX, LC Connector, 80 km |
| SFP-1GSXLC | SFP-1GSXLC-T* | 1 | | | |
| SFP-1GLXLC | SFP-1GLXLC-T | | 1 | | |
| SFP-1GLHXL | SFP-1GLHXL-T | | | 1 | |
| SFP-1GZXL | SFP-1GZXL-T | | | | 1 |

* SFP-1GSXLC-T: -20 to 75°C operating temperature

WDM-type (BiDi) SFP Modules

| Product Model | | Port Interface | | | | | |
|-------------------------------------|---------------------------------------|-------------------------------------|---------------------------|-------------------------------------|---------------------------|-------------------------------------|---------------------------|
| Standard Temperature (0 to 60°C) | Extended Temperature (-40 to 85°C) | 1000BaseSFP, LC Connector, 10 km | | 1000BaseSFP, LC Connector, 20 km | | 1000BaseSFP, LC Connector, 40 km | |
| | | TX 1310 nm, RX 1550 nm | TX 1550 nm, RX 1310 nm | TX 1310 nm, RX 1550 nm | TX 1550 nm, RX 1310 nm | TX 1310 nm, RX 1550 nm | TX 1550 nm, RX 1310 nm |
| SFP-1G10ALC | SFP-1G10ALC-T | 1 | | | | | |
| SFP-1G10BLC | SFP-1G10BLC-T | | 1 | | | | |
| SFP-1G20ALC | SFP-1G20ALC-T | | | 1 | | | |
| SFP-1G20BLC | SFP-1G20BLC-T | | | | 1 | | |
| SFP-1G40ALC | SFP-1G40ALC-T | | | | | 1 | |
| SFP-1G40BLC | SFP-1G40BLC-T | | | | | | 1 |

Matched Products

- **EDS-828/728 series:** IM-2GSFP series Gigabit Ethernet interface module
- **EDS-G509 series:** 9G-port full Gigabit managed Ethernet switches
- **EDS-518A series:** 16+2G-port Gigabit managed Ethernet switches
- **EDS-510A series:** 7+3G-port Gigabit managed Ethernet switches
- **PX-1510 series:** 7+3G-port Gigabit PoE managed Ethernet switches
- **PT and IKS series:** PM-7200-2G/4G series Gigabit Ethernet interface modules
- **EDS-G308 series:** 8G-port full Gigabit unmanaged Ethernet switches
- **IMC-101G series:** Industrial Gigabit media converters