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

IEC 61850-3 / IEEE 1613   NEMA TS2   CE   FC

: 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).
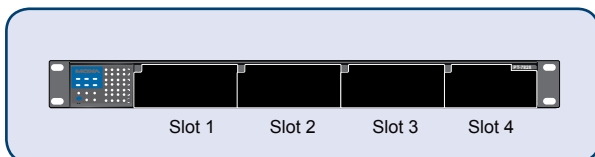
The PT-7828's Gigabit and fast Ethernet backbone, redundant ring, and 24/48 VDC or 110/220 VDC/VAC dual isolated redundant power supplies increase the reliability of your communications and save on cabling/wiring costs. The modular design of the PT-7828 makes network planning easy, and allows greater 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

Slot 1   Slot 2   Slot 3   Slot 4

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, 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

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◄◄◄ *Rackmount Ethernet Switches* PT-7828

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Overview

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Modular Ethernet Switches

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Managed Ethernet Switches

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Unmanaged Ethernet Switches

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Rackmount Ethernet Switches

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Wireless Ethernet

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Active Ethernet I/O

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Peer-to-Peer I/O

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Modular Remote I/O

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Ordering Information

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)

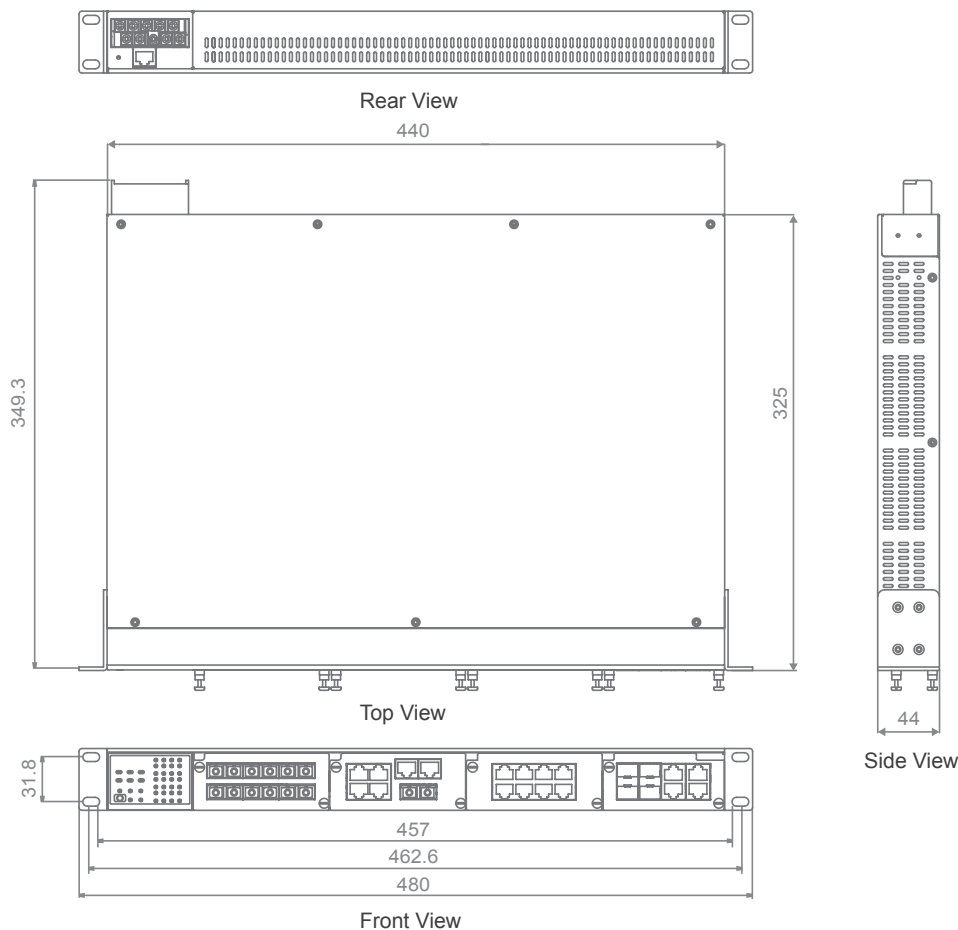**Ambient Relative Humidity:** 5 to 95% (non-condensing)

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 for details)

Dimensions (unit = mm)

Rear View

440

349.3

325

Top View

44

Side View

31.8

457

462.6

480

Front View

: Ordering Information

Step 1: Select Ethernet switch system

PT-7828 with power supply

Step 2: Select interface modules

PM-7200 series
(Gigabit or fast Ethernet)

*The PT-7828 Ethernet switch system is delivered without interface module.
Please refer to page 4-23 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					
		Isolated Power Supply 1			Isolated Power Supply 2		
Front Cabling, Front Display	Rear Cabling, Front Display	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 4-23 to select the PM-7200 Gigabit Ethernet and fast Ethernet interface modules that you need for your own application.

PT-7828-F series
(Front Cabling, Front Display)

PT-7828-R series
(Rear Cabling, Front Display)

Gigabit/Fast Ethernet Modules for the PT-7828

Interface Module													
	PM-7200-4GTXSFP	PM-7200-2GTXSFP	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
Slot 1			√	√	√	√	√	√	√	√	√	√	√
Slot 2			√	√	√	√	√	√	√	√	√	√	√
Slot 3			√	√	√	√	√	√	√	√	√	√	√
Slot 4	√	√											

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