PT-7828 Series

IEC 61850-3 24+4G-port Layer 3 Gigabit modular managed rackmount Ethernet switches

- Layer 3 routing interconnects multiple LAN segments
- IEC 61850-3, IEEE 1613 (power substations), NEMA TS2 (traffic control systems), and EN50121-4 (railway applications) compliant
- Turbo Ring, Turbo Chain, and IEEE 802.1D-2004 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, M12, and SFP ports
- -40 to 85°C operating temperature range

Introduction

The PowerTrans PT-7828 switches are high performance Layer 3 Ethernet switches that support Layer 3 routing functionality to facilitate the deployment of applications across networks. The PT-7828 switches are 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 and 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 switches suitable for a variety of applications.

Features and Benefits

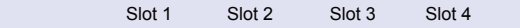
- Layer 3 switching functionality to divide a large network into hierarchical subnets and allow data and information to communicate across networks
- IEEE 1588 PTP (Precision Time Protocol) for precise time synchronization of networks
- DHCP Option 82 for IP address assignment with different policies
- Modbus/TCP industrial Ethernet protocol supported
- Turbo Ring, Turbo Chain and IEEE 802.1D-2004 RSTP/STP
- IGMP snooping and GMRP for filtering multicast traffic from industrial Ethernet protocols
- IEEE 802.1Q VLAN and GVRP protocols to ease network planning
- QoS (IEEE802.1p/1Q) and TOS/DiffServ to increase determinism
- IEEE 802.3ad, LACP for optimum bandwidth utilization
- SNMPv3, 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
- Bandwidth management prevents unpredictable network status
- 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 devices' IP addresses
- Line-swap fast recovery
- Configurable by web browser, Telnet/serial console, Windows utility, and ABC-01 automatic backup configurator

Specifications

Technology

Standards:
IEEE 802.3 for 10BaseT
IEEE 802.3u for 100BaseT(X) and 100Base FX
IEEE 802.3ab for 1000BaseT(X)
IEEE 802.3z for 1000BaseX
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: IGMPv1/v2 device, GMRP, GVRP, SNMPv1/v2c/v3, DHCP Server/Client, BootP, TFTP, SNTP, SMTP, RARP, RMON, RIP V1/V2, HTTP, HTTPS, Telnet, SSH, Syslog, DHCP Option 66/67/82, LLDP, Modbus/TCP, IEEE 1588 PTP, SNMP Inform

Layer 3 Modular Rackmount Ethernet Switch System, PT-7828



Layer 3 Switching: Static routing, RIP V1/V2, OSPF, DVMRP, PIM-DM, VRRP for router redundancy
MIB: MIB-II, Ethernet-like MIB, P-BRIDGE MIB, Q-BRIDGE MIB, Bridge MIB, RSTP MIB, RMON MIB Groups 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: Slots 1, 2, and 3 for any combination of 4, 6, 7, or 8-port PM-7200 fast Ethernet modules with 10/100BaseT(X) (TP/M12 interface), 100BaseFX (SC/ST connector), or 100BaseSFP
Gigabit Ethernet: Slot 4 for 2 or 4-port PM-7200 Gigabit Ethernet combo module, 10/100/1000BaseT(X) or 1000BaseSFP
Console Port: RS-232 (RJ45)
System LED Indicators: STAT, PWR1, PWR2, FAULT, MASTER, COUPLER
Mode LED Indicators: LNK/ACT, FDX/HDX, RING PORT, COUPLER PORT, SPEED
Alarm Contact: 1 relay output with current carrying capacity of 3 A @ 30 VDC or 3 A @ 240 VAC

Power Requirements

Input Voltage:
• 24 VDC (18 to 36 V)
• 48 VDC (36 to 72 V)
• 110/220 VDC/VAC (88 to 300 VDC, 85 to 264 VAC)
Input Current: (all ports are equipped with fiber)
• Max. 2.58 A @ 24 VDC
• Max. 1.21 A @ 48 VDC
• Max. 0.64/0.33 A @ 110/220 VDC
• Max. 0.53/0.28 A @ 110/220 VAC
Overload Current Protection: Present
Connection: 10-pin terminal blocks
Reverse Polarity Protection: Present

Physical Characteristics

Housing: IP30 protection
Dimensions: 440 x 44 x 325 mm (17.3 x 1.7 x 12.8 in)
Weight: 5900 g
Installation: 19" rack mounting

Environmental Limits

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

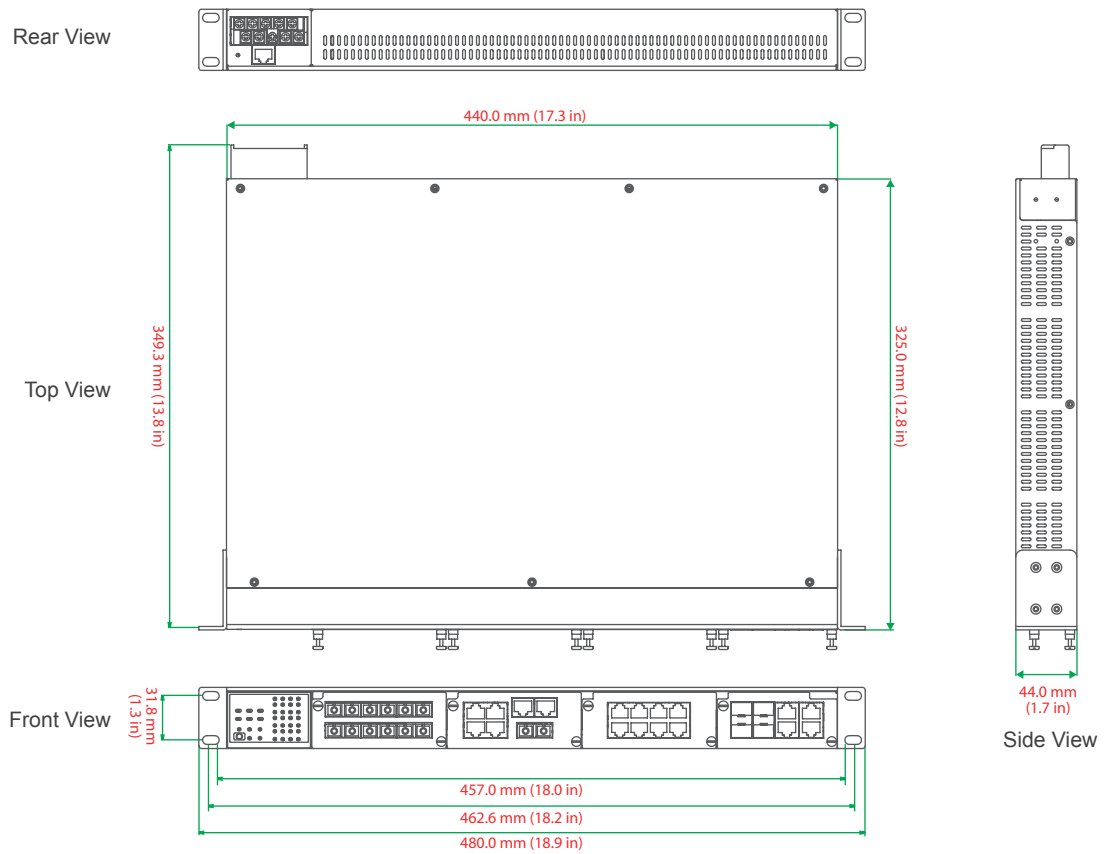
Regulatory Approvals

Safety: UL60950-1, CSA C22.2 No. 60950-1, EN60950-1
EMI: FCC Part 15, CISPR (EN55022) class A
Power Automation: IEC 61850-3, IEEE 1613
Traffic Control: NEMA TS2
Rail Traffic: EN50155, EN50121-4
Shock: IEC 60068-2-27
Note: Please check Moxa's website for the most up-to-date certification status.

Warranty

Warranty Period: 5 years
Details: See www.moxa.com/warranty

Dimensions



Ordering Information

Step 1: Select Ethernet switch system

PT-7828 with power supply

Step 2: Select interface modules

PM-7200 module (Gigabit or fast Ethernet)

Note: The PT-7828 Ethernet switch system is delivered without interface modules. See pages ??? to choose PM-7200 interface modules.

PT-7828 Layer 3 Modular Rackmount Ethernet Switch System

The PT-7828 switch system consists of 18 Layer 3 modular managed rackmount Ethernet switch systems, each with 3 slots for fast Ethernet modules and 1 slot for a Gigabit Ethernet module. A total of 24+4G ports can be installed, and the switch can be used in a temperature range from -40 to 85°C.

Available Models		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

Note: The PT-7828 Layer 3 Ethernet switch systems provide 1 slot for a Gigabit Ethernet interface module and 3 slots for fast Ethernet interface modules. See pages ??? to select the PM-7200 Gigabit Ethernet and fast Ethernet interface modules 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																								
Product Model	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	PM-7200-1MST6TX	PM-7200-1SSC6TX	PM-7200-1MSC6TX	PM-7200-8PoE	PM-7200-8SFP	PM-7200-4M12
Slot 1	–	–	–	–	–	–	–	–	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	–	✓	✓
Slot 2	–	–	–	–	–	–	–	–	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	–	✓	✓
Slot 3	–	–	–	–	–	–	–	–	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	–	✓	✓
Slot 4	✓	✓	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–

Optional Accessories (can be purchased separately)

EDS-SNMP OPC Server Pro: OPC server software that works with all SNMP devices

ABC-01: Configuration backup and restoration tool for managed Ethernet switches, 0 to 60°C operating temperature