PT-G7509 Series

IEC 61850-3 9G-port Layer 2 full Gigabit managed rackmount Ethernet switches

- IEC 61850-3, IEEE 1613 (power substations) compliant
- VLAN Unaware: Supports priority-tagged frames to be received by specific IEDs
- Turbo Ring, Turbo Chain, RSTP/STP, and MSTP for network redundancy
- Isolated redundant power supplies with universal 24 VDC, 48 VDC, or 110/220 VDC/VAC power supply range
- -40 to 85°C operating temperature range

Introduction

The PowerTrans PT-G7509 is equipped with 9 combo Gigabit Ethernet ports, making it ideal for upgrading an existing network to Gigabit speeds and building a new full Gigabit backbone. The PT-G7509 is designed to meet the demands of power substation automation systems (IEC 61850-3, IEEE 1613). Gigabit transmission increases bandwidth to provide higher performance and transfer large amounts of video, voice, and data across a network quickly. The redundant Ethernet Turbo Ring, Turbo Chain, and RSTP/STP/MSTP (IEEE 802.1w/D/s) functions increase system reliability and the availability of your network backbone. The choice of either front or rear wiring makes the PT-G7509 suitable for different types of application.

General Features and Benefits

- Command line interface (CLI) for quickly configuring major managed functions
- IPv6 Ready logo awarded (IPv6 Logo Committee certified)
- Software-based IEEE 1588v2 PTP (Precision Time Protocol) for time synchronization of networks
- VLAN Unaware: Supports priority-tagged frames to be received by specific devices
- DHCP Option 82 for IP address assignment with different policies
- EtherNet/IP and Modbus/TCP industrial Ethernet protocols supported
- Turbo Ring and Turbo Chain (recovery time < 50 ms @ 250 switches), RSTP/STP, and MSTP for network redundancy
- IGMP snooping and GMRP for filtering multicast traffic from industrial Ethernet protocols
- IEEE 802.3ad, LACP for optimum bandwidth utilization
- Bandwidth management prevents unpredictable network status
- Automatic warning by exception through email, relay output
- RMON for efficient network monitoring and proactive capability
- Automatic recovery of connected device's IP addresses
- Line-swap fast recovery
- Configurable by web browser, Telnet/serial console, CLI, Windows utility, and ABC-01 automatic backup configurator

Cybersecurity Features

- User passwords with multiple levels of security to protect against unauthorized configuration
- SSH/HTTPS is used to encrypt passwords and data
- Lock switch ports with 802.1X port-based network access control so that only authorized clients can access the port
- Disable one or more ports to block network traffic
- 802.1Q VLAN allows you to logically partition traffic transmitted between selected switch ports
- Secure switch ports so that only specific devices and/or MAC addresses can access the ports
- RADIUS/TACACS+ allows you to manage passwords from a central location
- SNMPv3 provides encrypted authentication and access security

Specifications

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 1000BaseX
IEEE 802.3x for Flow Control
IEEE 802.1D-2004 for Spanning Tree Protocol
IEEE 802.1w for Rapid STP
IEEE 802.1s for Multiple Spanning Tree Protocol
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

Software Features

Management: IPv4/IPv6, SNMPv1/v2c/v3, DHCP Server/Client, BootP, TFTP, SMTP, RARP, HTTP, HTTPS, Telnet, DHCP Option 66/67/82, LLDP, Flow Control, Back Pressure Flow Control, SNMP Inform, Port Mirror, Syslog
Filter: IGMPv1/v2, GMRP, GVRP, 802.1Q VLAN, VLAN Unaware, Port-Based VLAN, GVRP
Redundancy Protocols: STP/RSTP, MSTP, Turbo Ring v1/v2, Turbo Chain, Link Aggregation
Security: RADIUS, TACACS+, SSL, SSH, Port Lock
Time Management: SNTP, NTP Server/Client, IEEE 1588v2 PTP (software-based)
Industrial Protocols: EtherNet/IP, Modbus/TCP
MIB: MIB-II, Ethernet-like MIB, P-BRIDGE MIB, Q-BRIDGE MIB, Bridge MIB, RSTP MIB, RMON MIB Group 1, 2, 3, 9

Switch Properties

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

Interface

RJ45 Ports: 10/100/1000BaseT(X) auto negotiation speed
Fiber Ports: 100/1000BaseSFP slot
Console Port: RS-232 (RJ45)
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
• 48 VDC
• 110/220 VDC/VAC
Operating Voltage:
• 18 to 36 V (24 VDC)
• 36 to 72 V (48 VDC)
• 88 to 300 VDC, 85 to 264 VAC (110/220 VAC/VDC)
Input Current: (all ports are equipped with fiber)
• Max. 1.08 A @ 24 VDC
• Max. 0.55 A @ 48 VDC
• Max. 0.25/0.15 A @ 110/220 VDC
• Max. 0.57/0.33 A @ 110/220 VAC
Overload Current Protection: Present
Connection: 10-pin terminal block
Reverse Polarity Protection: Present

Physical Characteristics

Housing: Aluminum alloy
IP Rating: IP30 protection
Dimensions: 440 x 44 x 254 mm (17.32 x 1.73 x 10.00 in)
Weight: 3300 g (7.33 lb)
Installation: 19-inch 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)

Standards and Certifications

Safety: UL 60950-1, CSA C22.2 No. 60950-1, EN 60950-1
EMI: FCC Part 15 Subpart B Class A, EN 55032 Class A
EMS:
IEC 61000-4-2 ESD: Contact: 8 kV; Air: 15 kV
IEC 61000-4-3 RS: 80 MHz to 1 GHz: 35 V/m
IEC 61000-4-4 EFT: Power: 4 kV; Signal: 4 kV
IEC 61000-4-5 Surge: Power: 4 kV; Signal: 4 kV
IEC 61000-4-6 CS: 10 V
IEC 61000-4-8
IEC 61000-4-11
Electrical Substation: IEC 61850-3, IEEE 1613
*Complies with a portion of EN 50155 specifications.
Note: Please check Moxa's website for the most up-to-date certification status.

MTBF (mean time between failures)

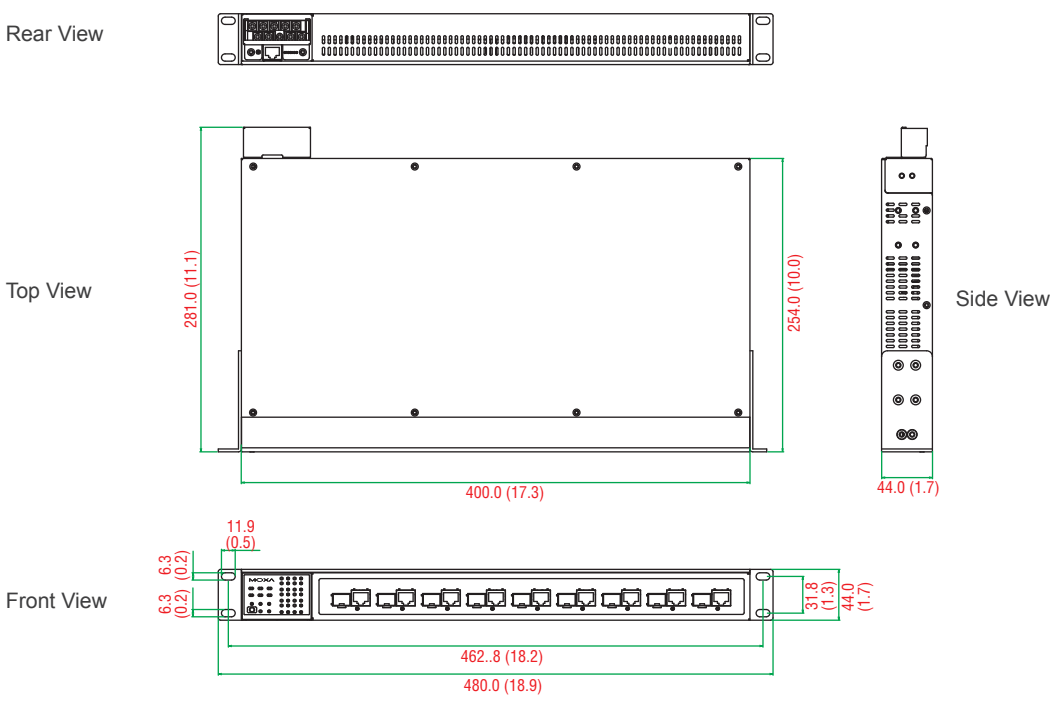
Time: 258,058 hrs
Standard: Telcordia SR332

Warranty

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

Dimensions

Unit: mm (inch)



Ordering Information

PT-G7509 Full Gigabit Managed Rackmount Ethernet Switch System

The PT-G7509 switch system consists of 9 combo 10/100/1000BaseT(X) or 100/1000BaseSFP slot Gigabit ports and the switch can be used in a temperature range from -40 to 85°C.

Note: See the SFP-1G and SFP-1FE datasheets for SFP-1G/1FE series Gigabit/Fast Ethernet SFP module product information.

Available Models		Power Supply					
		Isolated Power Supply 1			Isolated Power Supply 2		
Front Cabling, Front Display	Rear Cabling, Front Display	24 VDC	48 VDC	HV: 110/220 VDC/VAC	24 VDC	48 VDC	HV: 110/220 VDC/VAC
PT-G7509-F-24	PT-G7509-R-24	1	–	–	–	–	–
PT-G7509-F-24-24	PT-G7509-R-24-24	1	–	–	1	–	–
PT-G7509-F-24-HV	PT-G7509-R-24-HV	1	–	–	–	–	1
PT-G7509-F-48	PT-G7509-R-48	–	1	–	–	–	–
PT-G7509-F-48-48	PT-G7509-R-48-48	–	1	–	–	1	–
PT-G7509-F-HV	PT-G7509-R-HV	–	–	1	–	–	–
PT-G7509-F-HV-HV	PT-G7509-R-HV-HV	–	–	1	–	–	1

PT-G7509-F series
(Front Cabling, Front Display)

PT-G7509-R series
(Rear Cabling, Front Display)

Optional Accessories (can be purchased separately)

MXview: Moxa industrial network management software with 50, 100, 250, 500, 1000, or 2000 nodes
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

Package Checklist

- PT-G7509 switch
- Serial Cable: CN20070
- Protective caps for unused ports
- 2 rackmount ears
- Documentation and software CD
- Hardware installation guide
- Warranty card