

# PT-G7509 Series

## IEC 61850-3 9G-port 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 precise 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

### Cyber-security Features

- User passwords with multiple levels of security 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

**Protocols:** IGMPv1/v2, GMRP, GVRP, SNMPv1/v2c/v3, DHCP Server/Client, BootP, TFTP, SNMP, SMTP, RARP, LACP, RMON, HTTP, HTTPS, Telnet, Syslog, DHCP Option 66/67/82, SSH, LLDP, IEEE 1588v2 PTP, EtherNet/IP, Modbus/TCP, SNMP Inform, NTP Server/Client  
**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**

**RJ45 Ports:** 10/100/1000BaseT(X) auto negotiation speed  
**Fiber Ports:** 100/1000BaseSFP slot  
**Console Port:** RS-232 (RJ45)  
**System LED Indicators:** STAT, PWR1, PWR2, FAULT, MSTR/HEAD, CPLR/TAIL  
**Mode LED Indicators:** LNK/ACT, FDX/HDX, RING/CHAIN 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. 1.17 A @ 24 VDC  
 • Max. 0.59 A @ 48 VDC  
 • Max. 0.27/0.16 A @ 110/220 VDC  
 • Max. 0.61/0.35 A @ 110/220 VAC  
**Overload Current Protection:** Present  
**Connection:** 10-pin terminal block  
**Reverse Polarity Protection:** Present

**Physical Characteristics**

**Housing:** IP30 protection  
**Dimensions:** 440 x 44 x 254 mm (17.32 x 1.73 x 10.00 in)  
**Weight:** 3300 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)

**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 55022 Class A  
**Power Automation:** IEC 61850-3, IEEE 1613  
 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](http://www.moxa.com/warranty)

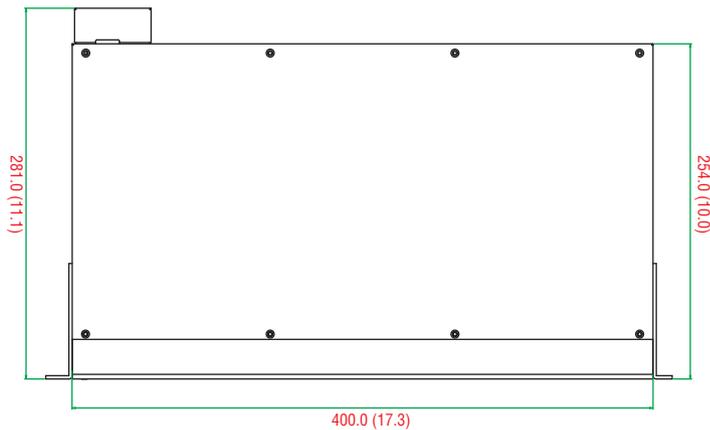
**Dimensions**

Unit: mm (inch)

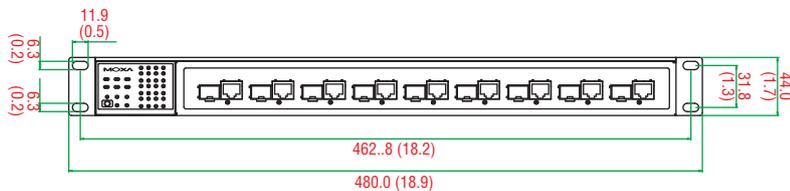
Rear View



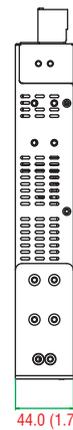
Top View



Front View



Side View



## 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 page 1-85 for SFP-1G/1FE series Gigabit/Fast Ethernet SFP module product information.

Available Models		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-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
- RJ45-to-DB9 console port cable
- Protective caps for unused ports
- 2 rackmount ears
- Documentation and software CD
- Hardware installation guide
- Warranty card