

# EDS-405A-PTP Series

## 5-port IEEE 1588v2 PTP managed Ethernet switches



- > IEEE 1588v2 PTP with hardware time stamping for precise time synchronization of networks
- > Turbo Ring and Turbo Chain (recovery time < 20 ms @ 250 switches), and RSTP/STP for network redundancy
- > IGMP Snooping, QoS, IEEE 802.1Q VLAN, and port-based VLAN supported
- > Easy network management by web browser, CLI, Telnet/serial console, Windows utility, and ABC-01
- > Supports MXstudio for easy, visualized industrial network management



### Introduction

The EDS-405A-PTP are 5-port IEEE 1588v2 PTP switches designed especially for real-time control applications. The switches support Modbus TCP, PROFINET RT, and EtherNet/IP for better SCADA

integration. Other management functions such as IGMP snooping, IEEE 802.1Q VLAN, QoS, RMON and relay warning, make the network planning more flexible and easy.

### IEEE 1588 PTP Features

- IEEE 1588v2 PTP (Precision Time Protocol) with hardware time stamping for precise time synchronization of networks
- Support both IEEE 1588 Boundary Clock and Transparent Clock
- Support both End to End (2-step) and Peer to Peer (2-step) modes in Transparent Clock
- High precision time accuracy (under 1 μs)

### General Features and Benefits

- Command Line Interface (CLI) for quickly configuring major managed functions
- DHCP Option 82 for IP address assignment with different policies
- Support EtherNet/IP, Modbus/TCP and PROFINET protocols for device management and monitoring
- Turbo Ring and Turbo Chain (recovery time < 20 ms @ 250 switches), and RSTP/STP for network redundancy
- IGMP snooping and GMRP for filtering multicast traffic
- Port-based VLAN, IEEE 802.1Q VLAN, and GVRP to ease network planning
- QoS (IEEE 802.1p and TOS/DiffServ) to increase determinism
- RMON for efficient network monitoring and proactive capability
- SNMPv1/v2c/v3 for different levels of network management security
- Bandwidth management to prevent unpredictable network status
- Port mirroring for online debugging

### Specifications

#### Technology

##### Standards:

- IEEE 802.3 for 10BaseT
- IEEE 802.3u for 100BaseT(X)
- IEEE 802.3x for Flow Control
- IEEE 802.1D-2004 for Spanning Tree Protocol
- IEEE 802.1w for Rapid STP
- IEEE 802.1p for Class of Service
- IEEE 802.1X for Authentication
- IEEE 802.1Q for VLAN Tagging

#### Software Features

**Management:** IPv4/IPv6, SNMP v1/v2c/v3, LLDP, Port Mirror, RMON, DHCP Server/Client, DHCP Option 66/67/82, BootP, TFTP, SMTP, RARP, DDM, Telnet, Syslog, SNMP Inform, Flow Control, Back Pressure Flow Control

**Filter:** 802.1Q VLAN, Port-Based VLAN, GVRP, IGMP v1/v2, GMRP

**Redundancy Protocols:** STP, RSTP, Turbo Ring v1/v2, Turbo Chain

**Time Management:** SNTP, NTP Server/Client, IEEE 1588v2 PTP (hardware-based)

**Industrial Protocols:** EtherNet/IP, Modbus/TCP

**MIB:** MIB-II, Ethernet-Like MIB, P-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
- MAC Table Size:** 8 K
- Packet Buffer Size:** 1 Mbit

#### Interface

**RJ45 Ports:** 10/100BaseT(X) auto negotiation speed, Full/Half duplex mode, and auto MDI/MDI-X connection

**Console Port:** RS-232 (RJ45 connector)

**DIP Switches:** Turbo Ring, Master, Coupler, Reserve

**Alarm Contact:** 1 relay output with current carrying capacity of 1 A @ 24 VDC

#### Power Requirements

**Input Voltage:** 12/24/48 VDC, redundant dual inputs

**Operating Voltage:** 9.6 to 60 VDC

**Input Current:** 0.23 A @ 24 V

**Overload Current Protection:** Present

**Connection:** 1 removable 6-contact terminal block

**Reverse Polarity Protection:** Present

**Physical Characteristics**

**Housing:** Metal

**IP Rating:** IP30 protection

**Dimensions:** 53.6 x 135 x 105 mm (2.11 x 5.31 x 4.13 in)

**Weight:** 820 g (1.81 lb)

**Installation:** DIN-rail mounting, wall mounting (with optional kit)

**Environmental Limits**

**Operating Temperature:**

Standard Models: -10 to 60°C (14 to 140°F)

Wide Temp. Models: -40 to 75°C (-40 to 167°F)

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

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

**Standards and Certifications**

**Safety:** UL 508

**EMC:** EN 55032/24

**EMI:** CISPR 32, FCC Part 15B Class A

**EMS:**

IEC 61000-4-2 ESD: Contact: 4 kV; Air: 8 kV

IEC 61000-4-3 RS: 80 MHz to 1 GHz: 3 V/m

IEC 61000-4-4 EFT: Power: 0.5 kV; Signal: 0.5 kV

IEC 61000-4-5 Surge: Power: 0.5 kV; Signal: 1 kV

IEC 61000-4-6 CS: Signal: 3 V

IEC 61000-4-8

**Shock:** IEC 60068-2-27

**Freefall:** IEC 60068-2-32

**Vibration:** IEC 60068-2-6

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

**MTBF (mean time between failures)**

**Time:** 1,354,590 hours

**Standard:** Telcordia (Bellcore), GB

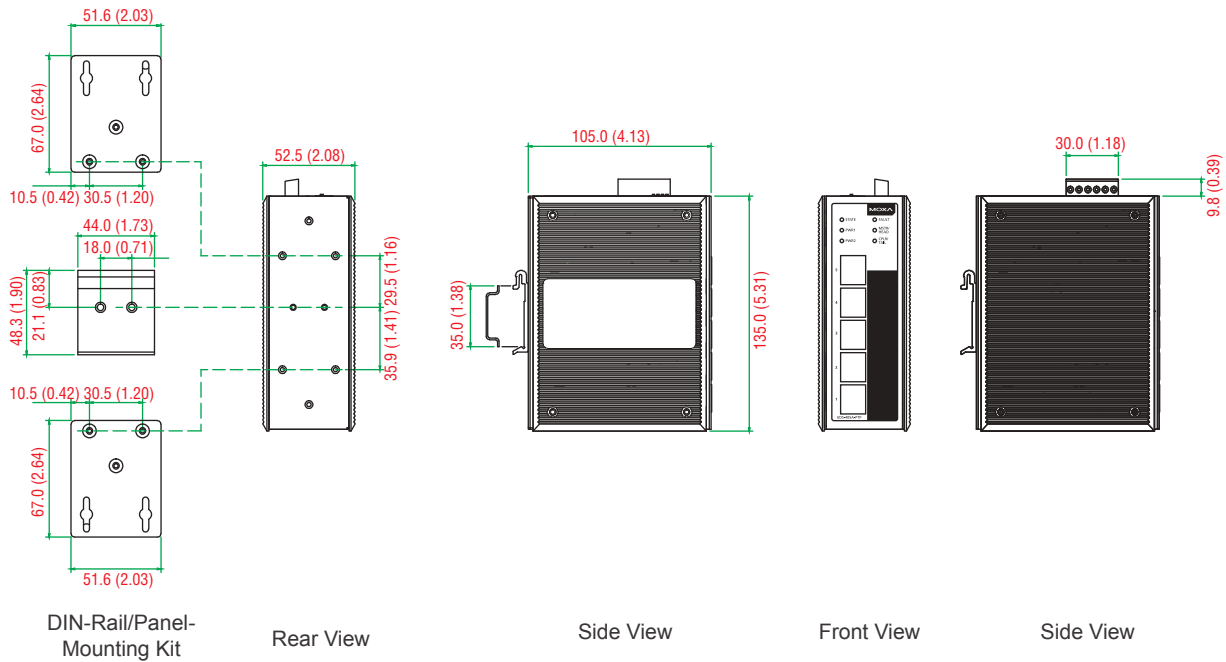
**Warranty**

**Warranty Period:** 5 years

**Details:** See [www.moxa.com/warranty](http://www.moxa.com/warranty)

**Dimensions**

Unit: mm (inch)



**Ordering Information**

Available Models		Port Interface		
Standard Temperature (-10 to 60°C)	Wide Temperature (-40 to 75°C)	10/100BaseT(X)	100BaseFX	
			Multi-Mode, SC Connector	Single-Mode, SC Connector
EDS-405A-PTP	EDS-405A-PTP-T	5	-	-

**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

**DR-4524/75-24/120-24:** 45/75/120 W DIN-rail 24 VDC power supplies

**MDR-40-24/60-24:** 40/60 W DIN-rail 24 VDC power supplies, -20 to 70°C operating temperature

**RK-4U:** 4U-high 19-inch rack-mounting kit

**WK-46:** Wall-mounting kit, 2 plates with 8 screws

**Package Checklist**

- EDS-405A-PTP switch
- Serial Cable: CN20070
- Protective caps for unused ports
- Documentation and software CD
- Hardware installation guide (printed)
- Warranty card