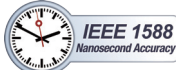# EDS-405A-PTP Series

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

Turbo Ring — Self-Healing Ethernet

Turbo Chain — Beyond Redundant Ring

IEEE 1588 Nanosecond Accuracy

c UL us LISTED   CE   FC

: 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
Protocols: IGMPv1/v2, GMRP, GVRP, SNMPv1/v2c/v3, DHCP Server/Client, TFTP, SNTP, SMTP, RARP, RMON, HTTP, Telnet, Syslog, DHCP Option 66/67/82, BootP, LLDP, PROFINET, EtherNet/IP, Modbus/TCP, IPv6, NTP Server/Client, HTTPS, SSH
MIB: MIB-II, Ethernet-Like MIB, P-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
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
LED Indicators: STATE, PWR1, PWR2, FAULT, MSTR/HEAD, CPLR/TAIL, 10/100M
Alarm Contact: 1 relay output with current carrying capacity of 1 A @ 24 VDC

Power Requirements

Input Voltage: 12/24/48 (9.6 to 60 VDC), redundant dual inputs
Input Current: 0.27 A @ 24 V
Overload Current Protection: Present
Connection: 1 removable 6-contact terminal block
Reverse Polarity Protection: Present

Physical Characteristics

Housing: Metal, IP30 protection
Dimensions: 53.6 x 135 x 105 mm (2.11 x 5.31 x 4.13 in)
Weight: 820 g
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 (pending)
EMI: FCC Part 15 Subpart B Class A, EN 61000-6-4 (industrial)
EMS:
EN 61000-4-2 (ESD) Level 3, EN 61000-4-3 (RS) Level 3,
EN 61000-4-4 (EFT) Level 3, EN 61000-4-5 (Surge) Level 3,
EN 61000-4-6 (CS) Level 3, EN 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: 1,292,680 hours
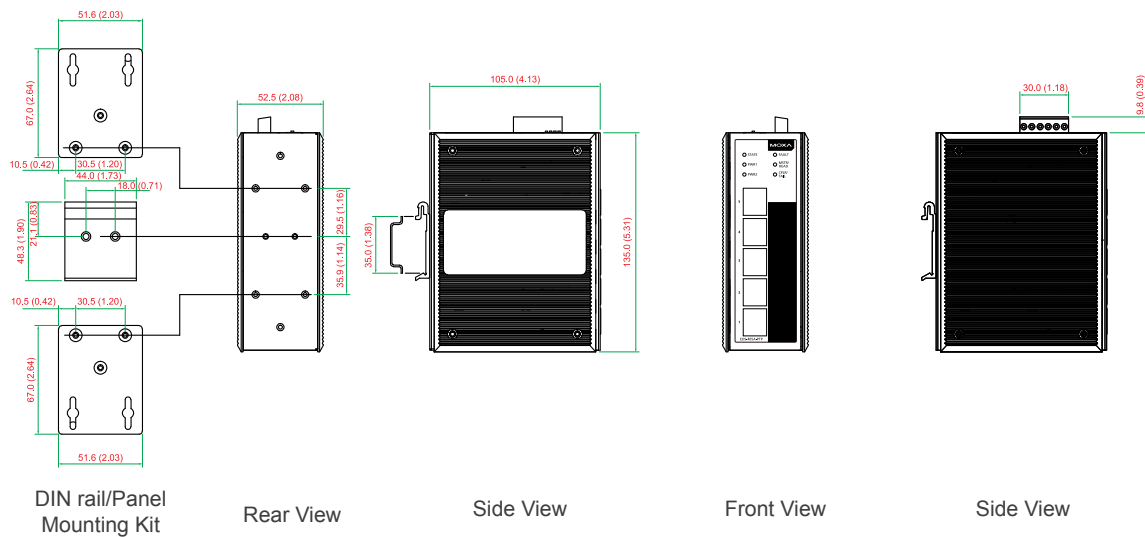**Database:** Telcordia (Bellcore), GB

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

Dimensions

Unit: mm (inch)

DIN rail/Panel Mounting Kit

Rear View

Side View

Front View

Side View

Ordering Information

Available Models		10/100BaseT(X)	Port Interface		
Standard Temperature (-10 to 60˚C)	Wide Temperature (-40 to 75˚C)		100BaseFX		
			Multi-mode, SC Connector	Multi-mode, ST 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
WK-46: Wall mounting kit
RK-4U: 4U-high 19" rack mounting kit

Package Checklist
- EDS-405A-PTP switch
- RJ45 to DB9 console port cable
- Protective caps for unused ports
- Documentation and software CD
- Hardware installation guide (printed)
- Warranty card