

TAILYN

Built Rugged.

INDUSTRIAL L2/L3 MANAGED ETHERNET SWITCH

IMP-PT500/PT800 series



IEEE
1588v2 PTP

L2 / L3

Modular
Design

IEC 61850-3
IEEE 1613

PRP / HSR

IMP-PT500/800 series are 1RU rack-mount type, high performance ruggedized Ethernet switches, supporting up to 28 Gigabit Ethernet ports, and Layer2 or Layer3 options.

With flexible combination of Ethernet modular options for fiber and copper ports, this series offers powerful features such as IEEE 1588v2 PTP, zero packet loss PRP/HSR redundant network protection, and designed to serve critical applications like Industrial Automation, Transportation and power utility substation.

Features

- **MODULAR DESIGN**, support up to 28 Gigabit Ethernet ports
- Ethernet module options: 8 x 100/1000Base SFP ports, or 8 x 10/100/1000BaseT Copper ports, or 4 x 100/1000BaseSFP & 10/100/1000BaseT combo ports, or **PRP/HSR** module.
- 9K Jumbo frames
- **L2/L3** wire-speed switching (L3 for IMP-PT800 series)
- Network redundant LACP, Spanning tree STP, RSTP & MSTP, Parallel Redundancy Protocol (PRP), High-availability Seamless Redundancy (HSR)
- Advanced VLAN operations: IEEE 802.1ad/QinQ VLAN, VLAN tag add/remove/replace
- Private VLAN, port-based /tag-based/protocol-based VLAN
- Multicasting support IGMP v1/v2/v3, proxy & snooping
- **IEEE 1588v2 PTP**, IEEE C37.238 Power Profile
- Security: IEEE 802.1x authentication, RADIUS & TACACS+ AAA (pending)
- Policy-based traffic control engine for actions of Deny, Allow, Queue mapping, rate limit, mirror, or CoS remark on any combination of specific Layer -2 /Layer- 3 / Layer-4 patterns
- QoS (SPQ, WRR, SPQ+ WRR): Hierarchical per-port, per queue shaping & scheduling with bandwidth management
- **IEC 61850-3** Edition 2 Class 2 / **IEEE 1613** Class 2 certificated
- **IEC 61850-3/ IEEE1613 UCAIug Level A** Laboratory certificated
- Industrial grade and Fanless Design

Technical Specification

ETHERNET

Ethernet Interface	Slot WAN: 4 x 100/1000BaseSFP & 10/100/1000BaseT combo ports, with or without PRP/HSR Slot 1-3: 8 x 100/1000Base SFP ports, or 8 x 10/100/1000BaseT Copper ports
Operating mode	Store and forward, L2 wire-speed/non-blocking switching engine
MAC addresses	16K
Jumbo frames	9K Bytes

Copper RJ45 Ports

Speed	10/100/1000 Mbps
MDI/MDIX Auto-crossover	Support straight or cross wired cables
Auto-negotiating	10/100/1000 Mbps speed auto-negotiation; Full and half duplex

SFP (pluggable) Ports

Port types supported	Gigabit fiber multimode, fiber single mode, fiber long-haul single mode 100/1000BaseF (SX/LX/LH)
Fiber port connector	LC typically for fiber (depends on module)

Network Redundancy

Fast failover protection rings	IEC 62439-3 Clause 4 Parallel Redundancy Protocol (PRP)
	IEC 62439-3 Clause 5 High Availability Seamless Redundancy (HSR)
Spanning Tree Protocol	IEEE 802.1D STP, IEEE 802.1w RSTP, IEEE 802.1s MSTP
	Ring Protection, recovery time < 20ms
	BPDU forwarding and filtering
Port Trunk	IEEE 802.3ad LAG: Static or Dynamic (LACP, Link Aggregation Control Protocol)

Bridge, Virtual Local Area Networks (VLANs) & Protocols

Flow control	IEEE 802.3x (Full Duplex) and Back-Pressure(Half Duplex)
Max VLANs	2048
VLAN Types	Port-based VLANs, IEEE 802.1Q tag-based VLANs, IEEE 802.1v protocol-based VLANs, IEEE 802.1ad Double Tagging (Q in Q) Private VLAN
VLAN operations	Attach/Remove/Replacement VLAN tag
MVR (Multicast VLAN Registration)	Yes
Multicast protocols	IGMP v1, v2 and v3 with up to 512 multicast groups
	IGMP snooping and querying, Immediate leave and leave proxy
Discovery Protocol	IEEE 802.1ab Link layer Discovery Protocol (LLDP)
PTP Precision Time Protocol	IEEE 1588v2 PTP Precision Time Protocol, IEEE C37.238 Power Profile

Traffic management engine & QoS

Policy-based access control engine	Policy/profile-based Access Control List (ACL)
	Multi-layer ACL support;
	Flexible combination of well-known fixed Layer 2/3/4 fields: - VLAN ID, Source/Destination MAC address, EtherType - Source/Destination IP address, IP protocol number - UDP or TCP, Source/Destination port number of TCP/UDP - DSCP or ToS value
	Actions per rule: Deny, Allow, Queue mapping, rate limit, mirror, CoS remark
	Max number of profiles per switch: 10
	Max number of rules per profile: 16

Number of queues per port	8
Scheduling schemes	SPQ, WRR, SPQ + WRR
Traffic Shaper	Hierarchical per port and per queue shaping & scheduling with bandwidth management
Traffic Policer	Ingress rate limit in 1K bps granularity TrTCM (Two Rate Three Color Marker) policer engine
IEC 61850 Message & Type	QoS(Quality of Service) Priority configuration for GOOSE, SV, PTPv2 frames

Management

User Management interfaces	Console port; Cisco-like CLI (command line interface); Telnet (5 sessions) WEB-based Management (HTTP/HTTPS) SNMP v1, v2c, v3
Management Security	HTTPs, SSH Radius Client for Management (*pending); TACACS+ Client for Management (*pending) 3 levels of user authority management; use access events
IEC 61850 communication	IEC 61850-90-4 MMS bridge modeling (Server and Client) IEC 61850 Publishing and Subscribing GOOSE/SV message transmissions Multicast Filtering management for IEC 61850 Publishing and Subscribing GOOSE messages
Upgrade & Restore	FTP for Configuration Import/Export, FTP for Firmware Upgrade USB configuration backup/restore, Firmware upgrade
Diagnostic	Syslog Port-based mirroring, Policy-based stream mirroring Ethernet Copper & SFP connection diagnostic, port utilization
SNTP	Yes

Security

Port security	IP and MAC-based Access control; Policy-based Access control IEEE 802.1X authentication Network Access Control RADIUS Client for IEEE 802.1X
Storm Control	Multicast/Broadcast/Flooding Storm Control on per port and per VLAN basis

L3 (IMP-PT800 series)

L3 routing	Static routing, RIPv1/RIPv2, OSPF, DVMRP, PIM-DM (*by request) VRRP
------------	--

Power

Power input options	AC/DC Dual Isolated redundancy powers
Input voltage (range)	110-250VDC (88-300VDC), 100-240VAC (85/264 VAC), 50Hz - 60Hz 24-48VDC (18-72VDC)
Power consumption	56W@85VAC (max) 53W@18VDC (max)

Indicators

Power Status indication	Indication of power input status
Ethernet port indication	Link & Speed
Network protection indication	Protection Network status
Module service indication	Module status
Front & Rear panel indicators	Front & Rear panel indicators for system status, Ethernet port status, alarm status, power status

Alarm

Alarm relay output	Dry Contact Relay output, max 30VDC/ 1A (+/- 10%) ; 125VDC/125VAC/0.24A (+/- 10%)
Alarm notification	Configurable alarm profile to enable Alarm LED, Alarm relay & SNMP traps

Environmental and Compliances

Operating temperature	-40 to +85°C (compliant to IEC 61850-3)
Storage temperature	-40 to +85°C
Humidity (non-condensing)	5 to 95% RH
Vibration, shock & freefall	Vibration: IEC60068-2-6, IEC60068-2-27, IEC60068-2-31
Certification compliance	UL; CE/FCC; EN 50121-4; IEC 61850-3; IEEE 1613;
EMI	Radiated Emission: CISPR 22, EN55032 Class A
	Conducted Emission: EN55032 Class A
EMS	ESD: IEC61000-4-2
	Radiated RF (RS): IEC61000-4-3
	EFT: IEC61000-4-4
	Surge: IEC61000-4-5
	Conducted RF (CS) : IEC61000-4-6
	Power Frequency (MS): IEC61000-4-8
RoHS and WEEE	RoHS (Pb free) and WEEE compliant
MTBF	> 400,000 hours

Mechanical

Ingress protection	IP30
Dimensions	435 (W) x 44 (H) x 390 (D) mm (maximum)
Weight	8.1 kg (maximum)
Installation option	19" rack mounting

Ordering Information

MAIN CHASSIS

DESCRIPTION

IMP-PT800	IMP-PT series L3 Main Chassis
IMP-PT500	IMP-PT series L2 Main Chassis

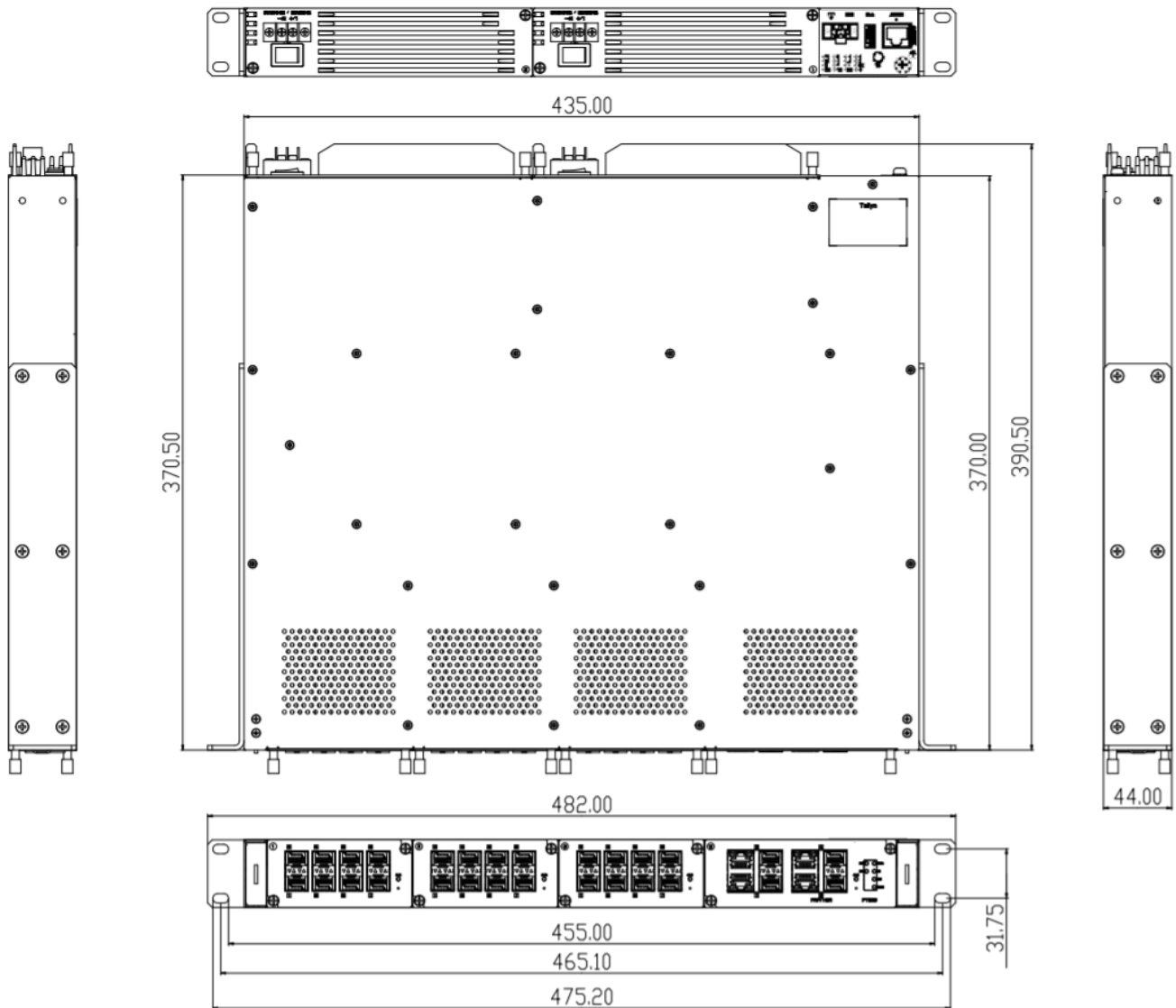
MODULE OPTIONS

SLOT POSITION

DESCRIPTION

PWR-PR-HV	Power 1, 2	Power module, 110-250VDC (88-300VDC), 100-240VAC (85/264 VAC), 50Hz - 60Hz
PWR-PR-LV	Power 1, 2	Power module, 24-48VDC (18-72VDC)
ETH-PH-4C	Slot Wan	PTP Ethernet module, 4 x 10/100/1000TX + 100/1000SFP combo ports, with PRP/HSR Redbox
ETH-CB-4C	Slot Wan	PTP Ethernet module, 4 x 10/100/1000TX + 100/1000SFP combo ports,
ETH-TX-8P	Slot 1, 2, 3	PTP Ethernet module, 8 x 10/100/1000TX ports
ETH-SF-8P	Slot 1, 2, 3	PTP Ethernet module, 8 x 100/1000SFP ports

Dimension (unit : mm)



TAILYN

TAILYN TECHNOLOGIES, INC.

Headquarters

No.10, Rong-an Road, Luzhu District,
Taoyuan City 33852, Taiwan R.O.C.

Tel : (886) 3-3222201

Fax : (886) 3-3222563

Email : sales@tailyn.com.tw

US Office

Tel : +1-408-334-1188

Email : ussales@tailyn.com.tw