T(P)GS-H7808XT

8 2.5G + 8 10G Copper M12 Push-Pull X-coded (PoE) EN50155

Managed Ethernet Security Switch w/optional L3L/L3 & Cybersecurity



OVERVIEW

Lantech T(P)GS-H7808XT is a high-performance OS5 managed Ethernet managed with 8 100/1000/2.5GT + 8 100/1G/2.5G/5G/10G Copper security switch (total 16 ports) w/ M12 X-coded Push-Pull lock connectors (IEC 61076-2-010). The OS5 platform supports L3/L2, IPv6/v4, NAT**, standardized ITU G.803 ring, IEC62443-4-2 certified cybersecurity, SNMPv3, Macsec**, PTP v2** as well as ETBN TTDP** protocol suitable for the future-proof modern network.

Lantech OS5 platform is equipped with complete L2 management and L3 communication protocols incl. dynamic routing, multicast routing, hardware NAT and ETBN TTDP; optional PTP, MacSec to be upgradable

The switch runs on the Lantech OS5 platform which is powerful with complete Layer 2 management features and major L3 protocols inclusive of RIP, OSPF, PIM, DVMRP, IEC61375-2-5 (ETBN), and hardware-based NAT. It also supports optional Macsec for authentication and encryption between two Macsec devices. The optional PTP V2 and gPTP support transparent clock, boundary clock and ordinary clocks with 2-step processing that synchronizes network time accuracy to sub-microseconds. To learn more about the Lantech OS5 Platform, please refer to **Lantech OS5 Software Datasheet** (https://www.lantechcom.tw/global/eng/download/datasheet/D-OS5.pdf)

Support Restful API for better switch performance; Auto-provisioning* for firmware/configuration

update

The switch supports Restful API that uses JSON format to access and use data for GET, PUT, POST and DELETE types to avoid traditional SNMP management occupying CPU utilization. The OPEN API document format for Restful API can greatly improve central management efficiency for various applications including fleet management and AIOT.

It also supports auto-provisioning for switch to auto-check the latest software image and configuration through TFTP server.

Certified cybersecurity development process with IEC 62443-4-1, and IEC 62443-4-2* certificate with physical tamper resistance and detection for integrity and authenticity of the boot process

Lantech OS5 platform is designed with a high standard of cybersecurity to prevent threats from network attacks. To ensure the safety and reliability of communication networks, Lantech software development is certified with IEC 62443-4-1 security process standards and the switch is also certified with IEC 62443-4-2*. The switch uses roots of trust to verify the integrity and authenticity of the firmware, software, and configuration data needed for the switch's boot process.

To learn more about Lantech cybersecurity software solutions, please refer to **Lantech OS5 Software Datasheet** (https://www.lantechcom.tw/global/eng/download/datasheet/D-OS5.pdf)

SNMP v3 Security Models

SNMPv3 enhances security with three key models. The User-based Security Model (USM) provides authentication and encryption, verifying the sender's identity and protecting data. The View-based Access Control Model (VACM) manages user access to specific objects based on their security level. The Transport Security Model (TSM) uses secure protocols like TLS or DTLS for communication encryption. Together, these models make SNMPv3 implementations highly secure, meeting modern cybersecurity standards for large-scale and high-security projects.

Comprehensive Network Protection Against DDoS and Layer 2 Threats

Lantech OS5 generation integrates advanced security mechanisms to safeguard both switches and networks. Key features include DDoS attack mitigation, 802.1X port-based authentication, Dynamic ARP Inspection (DAI), IP Source Guard, and Port Security, providing multi-layer protection against spoofing, unauthorized access, and traffic floods. These security capabilities ensure stable, resilient network operation.

Redundant dual WVI input; inrush current prevention and polarity reverse protection and over-heat protection

The T(P)GS-H7808XT WVI model accepts 16.8~137.5VDC dual inputs with galvanic isolation to PoE and all Ethernet ports. The redundant power input design prevents inrush current and safeguards against polarity reversal. The switch will automatically disable power output when the switch ambient temperature is over 85°C and re-boot when the temperature is back to normal.

Up to 8 PoE at/af and 4 T4 PoE bt/at/af ports w/advanced PoE management and PoE galvanic isolation with max PoE budget, support Perpetual/Fast PoE

Compliant with 802.3af/at standard, the PoE model is able to feed 8 PoE ports up to 30 Watt for various IP PD devices and 4 T4 PoE IEEE 802.3bt to feed PoE per port up to 90 Watt. PoE feeding with 120W budget from internal power.It supports advanced PoE management including PoE detection and scheduling. PoE detection can detect if the connected PD hangs then restart the PD; PoE scheduling is to allow a pre-set power feeding schedule upon a routine timetable. Each PoE port can be enabled/disabled, get the voltage, current, Watt, and temperature info displayed on WebUI.Perpetual and Fast PoE provides immediate and continuous power to devices during PSE switch reboots.

Support RTC (Real Time Clock) with longevity Golden Capacitor

Our switch supports RTC which is powered by a golden capacitor, ensuring accurate real-time event logs. Unlike traditional batteries, golden capacitors offer superior reliability, and longevity, without a need to change battery.

Reliable eMMC for better power efficiency and reliability

The T(P)GS-H7808XT utilizes eMMC for firmware storage. The eMMC with integrated controller that offloads and simplifies the task for the main processor. Its standard interface simplifies the design process while delivering improved power efficiency and enhanced reliability, thereby extending the storage's lifespan, increasing the lifespan of the storage.

Miss-wiring avoidance, node failure protection, Loop protection

The switch also embedded several features for strong and reliable network protection in an easy and intuitive way. When the pre-set ring configuration failed or looped by miss-wiring, the switch being able to alert with the LED indicator and disable ring automatically. Node failure protection ensures the switches in a ring to survive after power breakout is back. The status can be shown in NMS when each switch is back. Loop protection is also available to prevent the generation of broadcast storm when a dumb switch is inserted in a closed loop connection.

User-friendly GUI, Auto topology drawing, Enhanced Environmental Monitoring

The user-friendly UI, innovative auto topology drawing, and topology demo make the Lantech switch much easier to use. The complete CLI enables professional engineers to configure settings via the command line. The configuration file can be exported as a text file, allowing it to be easily edited and reconfigured for mass deployment. It supports enhanced environmental monitoring of actual input voltage, current, ambient temperature, and total power load (including PoE if any) where user can set threshold to trigger an alert or event log.

Built-in IEC 61375-3-4 ECN (Ethernet Consist Network) to work with IEC61375-2-5 TBN

Lantech OS5 Ethernet switches comply with IEC 61375-3-4 (ECN) standard. The support of Ethernet Consist Network allows interconnection between end devices located in single consist of train and interoperability with IEC61375-2-5 (TBN).

Editable configuration file; USB port for import/export configuration

The configuration file of the switch can be imported and edited with word processor for the following switches to configure with ease. The USB port can import/export the configuration from/to USB dongle and also to upgrade firmware from USB dongle. TFTP/HTTP firmware upgrade is supported.

Event log & message; 2DI + 2DO; Factory default pin

The switch provides 2DI and 2DO. When disconnection of the specific port was detected; DO will activate the signal LED to alarm. DI can integrate the sensors for events and DO will trigger the outside alarm and switch will send alert information to IP network with email and traps. The factory reset pin can restore the setting back to factory default.

Optional smart bypass protection on dual 10G copper ports

The bypass relay is set to bypass the switch to the next one when power is off to prevent network disruption. Lantech bypass caters to remain in bypass mode until the switch is completely booting up when power is back to avoid another network loss. Optional smart bypass (Up to two pairs) can be activated when switch encounters power failure or CPU hang. (-BT/-BBT model)

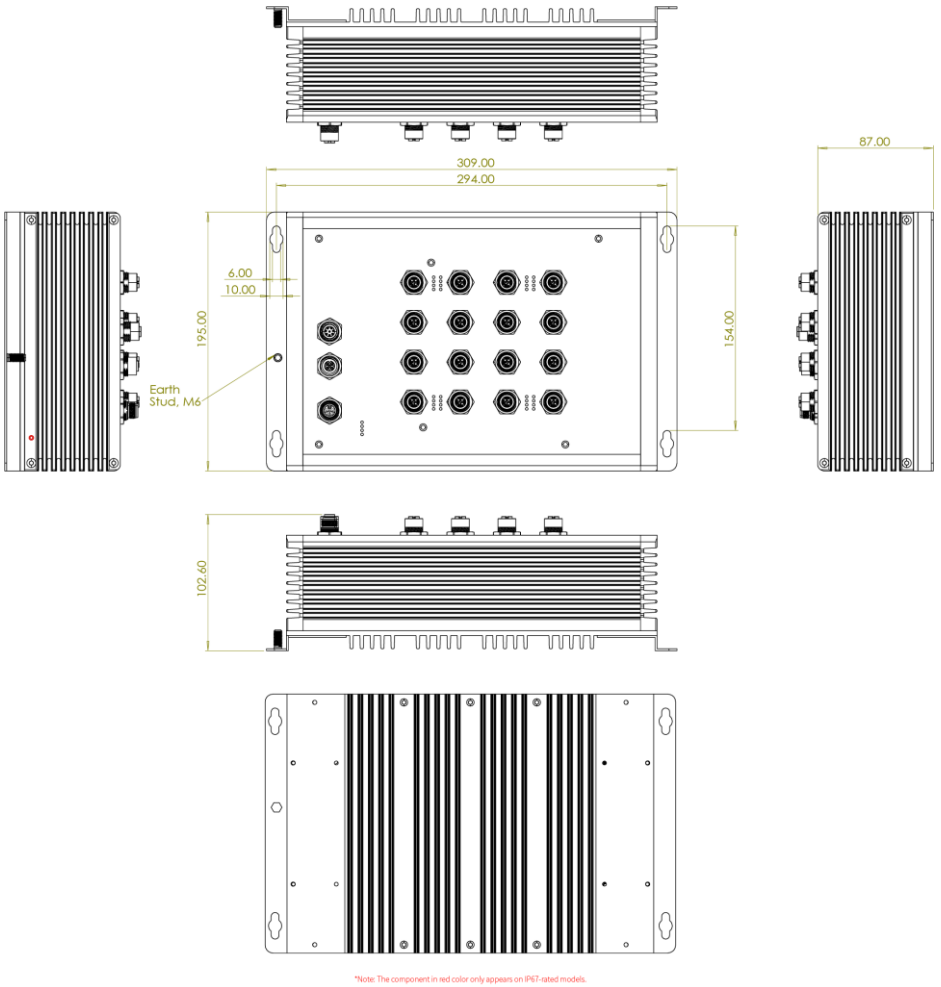
EN50155, EN45545-2; EN61373 compliance; Rugged design with high ESD protection

The switch is designed to meet with a critical network environment with IP54 aluminum enclosure and M12 connectors for waterproofing. The switch passed serious tests under extensive Industrial EMI and Safety standards. With EN45545-2 Fire & Smoke and EN50155 verification, it is the best switch for railway on-board/track side, vehicle, and mining applications. For more usage flexibilities, the switch supports wide operating temperature from -40°C to 70°C (85°C operation for 10min), which is compliant to the EN50155 Operating Temperature Range Requirement Class OT4.

OS5 vs. OS5 - SEC models comparison

	OS5	OS5 - SEC
IEC 62443-4-2 Cyber Security	NA	Y, need optional license
Boot up time	Around 100 sec.	Around 135 sec.

DIMENSIONS (unit=mm)



*Note: The component in red color only appears on IP67-rated models.

SPECIFICATIONS

Hardware Specification

Standards	IEEE802.3 10Base-T Ethernet IEEE802.3u 100Base-TX IEEE802.3ab 1000Base-T IEEE802.3an 10Gbase-T IEEE802.3x Flow Control and Back Pressure IEEE802.3ad Port trunk with LACP IEEE802.1d Spanning Tree IEEE802.1w Rapid Spanning Tree IEEE802.1s Multiple Spanning Tree IEEE802.3ad Link Aggregation Control Protocol (LACP) IEEE802.1AB Link Layer Discovery Protocol (LLDP) IEEE802.1X User Authentication (Radius) IEEE802.1p Class of Service IEEE802.1Q VLAN Tag IEEE802.3at/af Power over Ethernet
	Type 3 IEEE802.3bt Power over Ethernet Type 4 IEEE802.3bt Power over Ethernet
Switch Architecture	Back-plane (Switching Fabric): 200Gbps
Mac Address	32K MAC address table
Jumbo frame	10KB
Connectors	2.5GT: 8 ports M12 X-coded with Push-Pull connectors 100M/1G/2.5G/5G/10G: 8 ports M12 X-coded with Push-Pull connectors Power Input connector: 1 x M12 5pole Male K-coded Reset/Console/USB: 1 x M12 8-pole Female A-coded Push-Pull connector DIDO: 1 x M12 5-pole Female A-coded Push-Pull connector
Network Cable	1000Base-T: 4-pair STP Cat5E/6 cable;

	10G Copper: 4-pair STP Cat6a/7 cable
LED	Per unit: Power 1 (Green), Power 2 (Green), FAULT (Red) 100/1000T Ethernet port: Link/Activity (Green), Speed (Green); R.M. indicator (Green) PoE: Link/Act (Green) 100M/1G/2.5G/5G/10G Copper port: Speed (100M/1G/2.5G/5G: Yellow; 10G: Orange)
DI/DO	2 Digital Input (DI): Level 0: -30~2V / Level 1: 10~30V Max. input current: 8mA 2 Digital Output (DO): Open collector to 80 VDC, 50mA
Operating Humidity	5% ~ 95% (Non-condensing)
Operating Temperature	-40C~70C / -40F~158F (85°C operation for 10min.)
Storage Temperature	-40°C~85°C / -40°F~185°F
Power Supply	16.8~137.5VDC
PoE Budget (PoE model)	120W with PoE galvanic isolation
PoE pin assignment (PoE model)	M12 port #1~#8 supports IEEE 802.3at/af End-point, Alternative A mode,30W per port M12 port #11~#14 supports IEEE 802.3bt/at/af End-point, Alternative A mode,90W per port
Power Consumption	Max. 45W excludes PoE load
Dimensions	IP54 Aluminum alloy case (wall mount): 309mm(W)x102.6mm(H)x195mm(D)
Weight	3.45kgs
Installation	Wall Mount Design
EMI & EMS	FCC Part 15, Subpart B ICES-003 Issue 7

	EN 55035: 2017/A11: 2020 EN 55032: 2015/A11: 2020 IEC 61000-4-2: 2008 IEC 61000-4-3: 2020 IEC 61000-4-4: 2012 IEC 61000-4-5: 2014+AMD1: 2017 CSV IEC 61000-4-6: 2023 IEC 61000-4-8: 2009 IEC 61000-6-2: 2016 IEC 61000-6-4: 2018 EN IEC 61000-6-2: 2019 EN IEC 61000-6-4: 2019 BS EN 55035: 2017+A11: 2020 BS EN 55032: 2015+A11: 2020
Verifications	EN50155: 2021 EN50121-4: 2016/A1: 2019 EN50121-3-2: 2016/A1: 2019 EN 45545-1, EN 45545-2 Fire & Smoke verification
Stability Testing	EN61373: 2010 (Shock and Vibration)
MTBF	196,762hrs (standards: IEC 62380)
Bypass**	Up to two pairs Bypass module on 10GT ports to pass to next switch in case of power failure and CPU fail

Software Specification

Lantech OS5 Platform
Download Software Datasheet
(https://www.lantechcom.tw/global/eng/download/datasheet/D-OS5.pdf)

*Future release
**Optional

ORDERING INFORMATION

All model packages include M12 caps. All standard models are non-coating, optional coating models are available with –C model name. Optional bypass models are available with –BT/BBT model names. For optional PTP add -PTP; for optional MacSec add -MacSec as model names.

- **TPGS-H7808XT-12-54-WVI.....P/N: 8361-02601**
  8 100/1000/2.5G PoE at/af + 8 100/1G/2.5G/5G/10G w/4 T4 PoE bt 90W M12 X-coded EN50155 OS5 Managed Ethernet Switch; 16.8V~137.5V dual input; IP54 wall mount design; -40°C to 70°C; w/ PoE & ethernet galvanic isolation
- **TGS-H7808XT-54-WVI.....P/N: 8361-0261**
  8 100/1000/2.5G + 8 100/1G/2.5G/5G/10G M12 X-coded EN50155 OS5 Managed Ethernet Switch; 16.8V~137.5V dual input; IP54 wall mount design; -40°C to 70°C; w/ ethernet galvanic isolation

*For all detailed part nos. and model names, please refer to the Part Number Table

OPTIONAL ACCESSORIES

Software package

Please refer to the software datasheet (https://www.lantechcom.tw/global/eng/download/datasheet/D-OS5.pdf)

M12 Connector & Cable

Connector

ECONM12-08A(M)-180	8 pin M12 (Male) A-coded 180 degrees crimp type connector for reset/console/USB
ECONM12-05A(M)-S-180	5 pin M12 (Male) A-coded 180 degrees crimp type connector for DI/DO
ECONM12-08X(M)-SPEEDCON	8 pin M12 (Male) X-coded 180 degrees crimp type connector for data, Ethernet CAT6A (10G), shielded, SPEEDCON
4106-00000097-001 **ECONM12-05K(F)-S-180**	5 pin M12 (Female) K-coded 180 degrees screw type connector for power supply

Cable

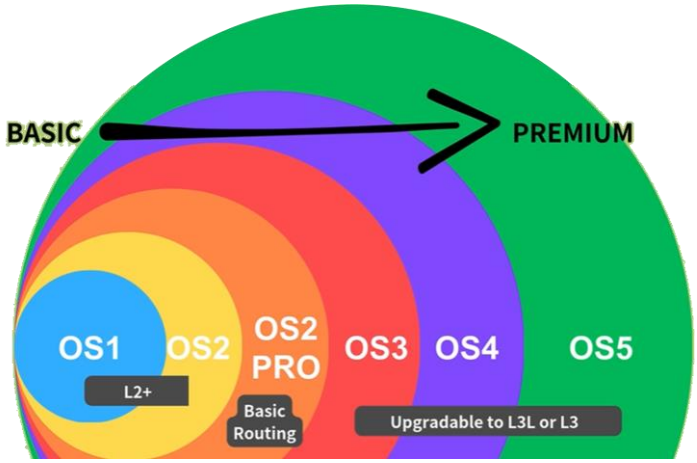
ECABM12X83MSTP	8 pin M12 (Male) X-coded 180 degrees RJ45 STP cable for data, shielded, 300cm
4106-00000096-001 **ECABM12-05K(F)-90-1.5M**	5 pin M12 (Female) K-coded 90 degrees 1.5M cable for power supply

Others

4106-00000100-001	8 pin M12 (Male) A-coded 180 degrees to USB Female/male plug, 150cm

Managed Switch OS Generations

We offer a comprehensive range of managed switches, from OS1 and OS2 with rich L2+ management features, to OS2 PRO with basic routing functionality, and OS3, OS4, and OS5, which can be upgraded with optional Layer 3 Lite or Layer 3 capabilities to meet diverse customer needs. Note: Model differences include both software features and hardware specifications.



[LEARN MORE]

→ OS2PRO Generation

→ OS3/OS4 Generation

→ OS5 Generation

[CHECK THE DIFFERENCES]

→ Generation Comparison Table

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