T(P)ER-3208T-WEB

8 FE + 2 GE (w/8 PoE at/af) Vehicle Web Managed and EN50155 M12 NAT Router Switch

OVERVIEW

Lantech T(P)ER-3208T-WEB is a compact router switch with an 80W PoE budget, designed for bus and vehicle 24V input Ethernet systems. It features 8 10/100TX ports and 2 10/100/1000T M12 X-coded ports, along with 8 PoE 802.3af/at Ethernet ports (PoE model). The switch provides L2 management, NAT, and advanced security functions for onboard network deployment. WebGUI and comprehensive CLI settings make configuration simple, while the OPEN API in Restful format enables efficient central management for applications such as fleet management and AIoT. Advanced cybersecurity mechanisms protect against hacking and network attacks. Compliance with EN50155, ITxPT*, and e-marking certifications ensures the design meets world-class standards.

Redundant dual power input design; EN50155 verification with high ESD and inrush current prevention and reverse polarity protection; E-marking & ITxPT* certificate; ISO 16750-2 P5A compliant

T(P)ER-3208T-WEB is designed with dual power inputs that accept 9V~36V DC for 24VI vehicle use and is capable of withstanding EMI/RFI interference in the onboard network as well as environmental shocks and vibrations. The redundant power input design integrates inrush current protection also protect against polarity reversal. Additionally, the galvanic isolation feature shields the system from power transients often present in onboard networks. The switch complies with ITxPT* public transport standards and E-marking*. It also meets the requirements of ISO 16750-2 P5A, reducing the impact of high-frequency pulse voltage that could be incurred by motor applications.

Support Perpetual*/Fast PoE*; PoE budget up to 80W for 8 Ports with PD detection, auto PD reboot, scheduling and Ethernet power input galvanic isolation with partial ports for PoE galvanic isolation

Fast PoE* and Perpetual PoE* combined provide uninterrupted power delivery for critical devices. Fast PoE instantly supplies power after startup, while Perpetual PoE maintains power during switch reboots or upgrades. Together, they

ensure continuous, reliable operation of Powered devices (PD) in mission-critical environments.

T(P)ER-3208T-WEB supports a maximum PoE budget of 80W and offers advanced PoE management features such as auto-detection and scheduling. The PoE detection automatically identifies unresponsive the PD and promptly restarts them. Additionally, PoE scheduling enables preset power feeding based on routine timetables. Each PoE port can be individually enabled or disabled and provides real-time data on voltage, current, power (W), and temperature.

Galvanic isolation between the power input and Ethernet power system enhances safety. Extra PoE galvanic isolation on 802.3at/af ports insulates the power input from PoE Ethernet ports, preventing damage from cabling and grounding incidents to the Ethernet switch.

Sleep Mode & efficient PoE timer under Ignition-Off State on IGN model

The PoE-IGN model supports network operation for up to 60 minutes before entering Sleep Mode (0.048W), preventing unnecessary reboots when power is restored. It also includes a configurable PoE timer, with a default delay of 10 minutes after ignition-off.

The Ignition timer allows flexible configuration of both individual PoE port shutdown delays and system shutdown (Sleep Mode), ranging from 30 seconds to 60 minutes (default: 60 minutes). This design eliminates the need for additional relay wiring and enables remote PoE timer configuration anytime, from anywhere.

mDNS (Multicast DNS) and DNS server/client feature and MQTT-role of Publisher or Broker, ITxPT Inventory service, X status

T(P)ER-3208T-WEB supports mDNS (Multicast DNS), enabling hosts within the LAN to discover and communicate with each other following DNS protocol, without the need for a traditional DNS server.
The switch also functions as an MQTT Publisher or Broker, sending data to the broker which then distributes the “payload” to subscribers efficiently using a lightweight protocol.
In addition, the switch supports ITxPT Inventory service, X status, DNS-SD, and MQTT protocols for comprehensive remote monitoring of Ethernet switch status.

Reliable eMMC for better power efficiency and reliability

T(P)ER-3208T-WEB utilizes eMMC for firmware storage, enhancing product reliability and effectively extending its lifespan under frequent power on/off conditions.

Comprehensive Network Protection Against DDoS and Layer 2 Threats

Lantech OS2Pro 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.

Lantech OS2 PRO Generation with L2 management and routing protocols incl. OSPF and RIP V1&V2

T(P)ER-3208T-WEB developed on the Lantech OS2 Pro generation, is equipped with comprehensive Layer 2 management and routing protocols, including inter-VLAN routing, OSPF, and RIP v1/v2. Designed for versatile vehicle applications, the generation further supports advanced networking functions such as NAT, port forwarding, multiple static IP addresses, DHCP (server/option/client/port-based), VLAN, DHCP over VLAN, IGMP, RSTP/G.8032 enhanced ring recovery, LACP, and more.

Open RESTful API for Seamless Integration and High-Performance Network Management

T(P)ER-3208T-WEB features a lightweight and efficient Open RESTful API designed for seamless integration with centralized network management software. Using standard HTTP methods (GET, PUT, POST, DELETE) and JSON

data structures, the API enables real-time access to configuration and operational data.
By leveraging modern web technologies, the switch minimizes CPU overhead typically associated with traditional SNMP polling, delivering faster response times, reduced system load, and improved scalability for high-performance network environments.

Auto feed configuration for swapped new switches for Seamless Network Maintenance, USB port for backup, restoring configuration and upgrading firmware

T(P)ER-3208T-WEB supports auto-feed configuration features that revolutionize network switch setup and management. It ensures that new and replacement switches automatically receive the correct configurations without manual intervention. Additionally, it supports the traditional way of uploading or downloading the firmware / configuration through a USB dongle.

User-friendly GUI, Auto topology drawing, Editable configuration text file, CPU watchdog, Snapshot switch information for trouble-shooting analysis

T(P)ER-3208T-WEB offers a user-friendly UI complemented by innovative auto topology drawing and topology demo features, simplifying network management. Configuration files can be exported as editable text files, facilitating easy modification and mass deployment. Its built-in watchdog function automatically reboots the switch if the CPU becomes unresponsive. Additionally, the unique Snapshot feature enables data collection—including port statistics, system core info, configurations, and event logs—either on-demand or scheduled, helping quickly identify and resolve network issues.

OPTIONAL FEATURES

Optional LantechView for Lantech devices maintenance

LantechView software automatically detects Lantech devices across the network, enabling seamless configuration management over multiple IP subnets and VLANs—both for individual devices and batch operations. It also offers comprehensive firmware management, supporting single or group verification and simultaneous upgrades to the latest versions.
For more details on LantechView software solutions, please visit:
https://www.lantechcom.tw/global/eng/download/datasheet/D-LantechView.pdf

Optional Embedded Inner-lock push-pull connectors ensure fast installation and connection reliability (-PP model)

The built-in inner-lock push-pull connectors give the switch small-footprint design and for space-saving cabling installation. They ensure quick, tool-free installation with a simple push. Most importantly, their secure locking mechanism provides unwavering reliability, preventing accidental disconnections crucial for network uptime.

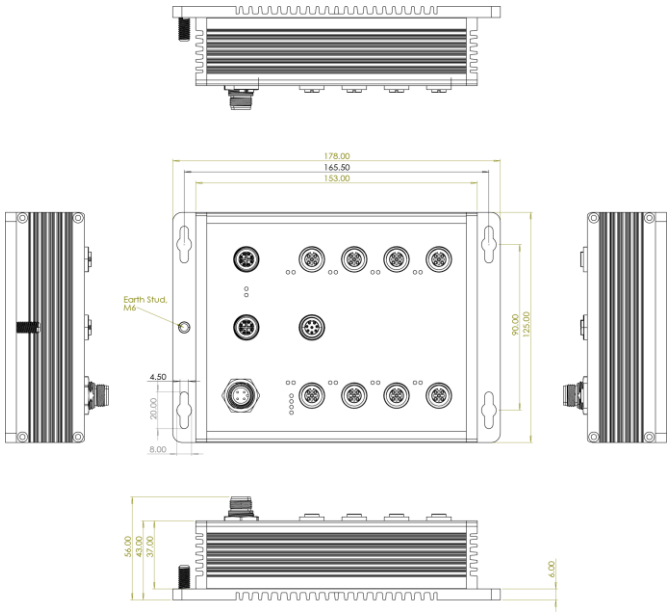
OS2 Pro web-managed vs. OS2 Pro Standard models comparison

	OS2 Pro web-managed (-WEB-24VI models)	OS2 Pro Standard (-24VI ; -24TVI models)
Management	Web UI/Telnet	Web UI/Telnet complete CLI command line
IEC 62443 Cybersecurity	NA	Y(optional)
Hardware Environmental Monitoring	NA	Y
Bypass	NA	Y(optional)
Boot up time	Within 60sec.	Within 60sec. (for security -SEC model around 90sec.)

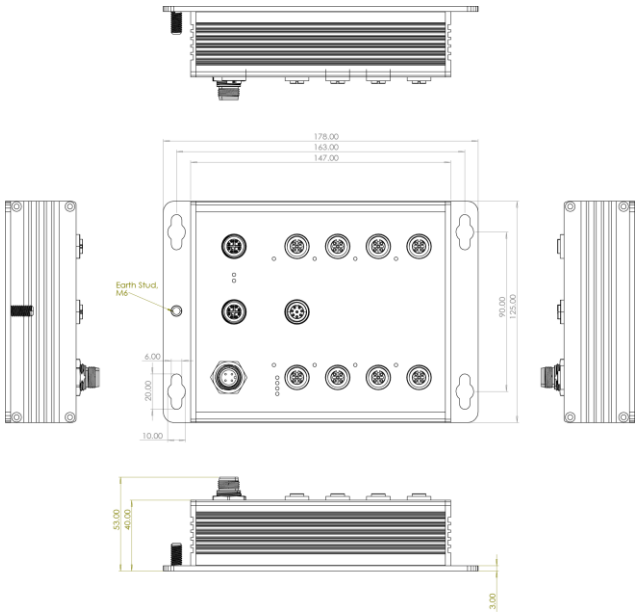
(Note: OS2 Pro web-managed is only available on 24VI models)

DIMENSIONS (unit=mm)

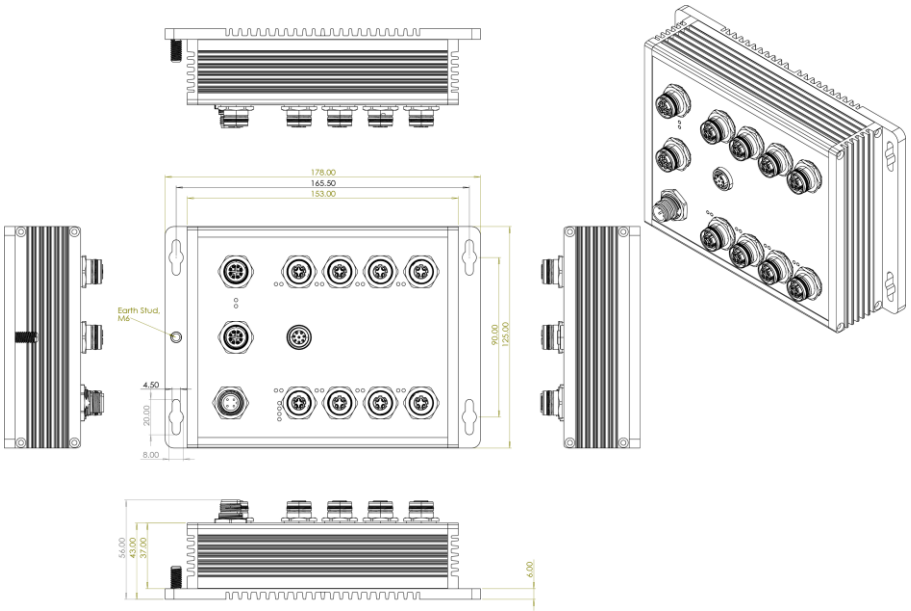
PoE models



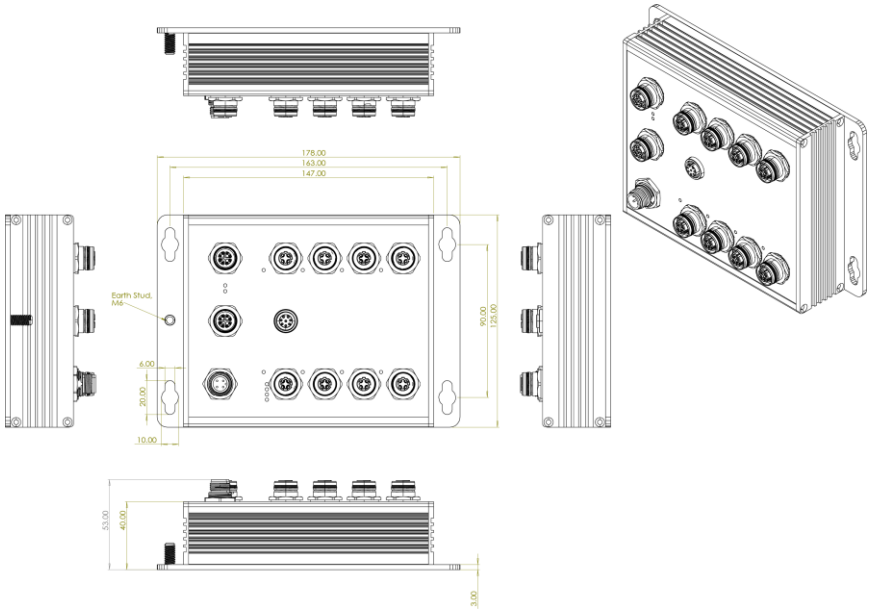
Non-PoE models



PoE -PP models



Non-PoE -PP models



SPECIFICATIONS

Hardware Specification

Standards	IEEE802.3 10Base-T Ethernet IEEE802.3u 100Base-TX IEEE802.3ab 1000Base-T Ethernet 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 (PoE model)
Switch Architecture	Back-plane (Switching Fabric): 5.6Gbps
Transfer Rate	14,880pps for Ethernet port 148,800pps for Fast Ethernet port 1,488,000pps for Gigabit Ethernet port
Mac Address	16K MAC address table
Jumbo frame	10KB
Connectors	10/100TX: 8 x M12 4-pole D-coded (router/LAN configurable) 10/100/1000T: 2 x M12 8-pole X-coded (router/LAN configurable) Power Input connector: 1 x M12 4-pole Male A-coded Reset/ USB: 1 x M12 8-pole A-code
Network Cable	10Base-T: 2-pair UTP/STP Cat. 3, 4, 5/ 5E/ 6 cable EIA/TIA-568 100-ohm (100m) 100Base-TX: 2-pair UTP/STP Cat. 5/ 5E/ 6 cable
	EIA/TIA-568 100-ohm (100m) 1000Base-TX: 2-pair UTP/STP Cat. 5/ 5E/ 6 cable EIA/TIA-568 100-ohm (100m)
LED	Per unit: Power 1 (Green), Power 2 (Green), FAULT (Red); RM(Green) Ethernet port: Link/Activity (Green), Speed (Amber) PoE: Link/Act (Green)
Operating Humidity	5% ~ 95% (Non-condensing)
Operating Temperature	-40°C~70°C / -40°F~167°F (-E, -24TVI model)
Storage Temperature	-40°C~85°C / -40°F~185°F
Power Supply	9-36VDC (24VI) 16.8-56VDC (24TVI)
PoE Budget	80W at 24VDC
PoE pin assignment	M12 port #1-#8 supports IEEE 802. 3at/af End-point. Per port provides up to 30W
Power Consumption	7W (w/o PoE load)
Case Dimension	IP67/IP54: Aluminum case 178mm(W)x125mm(H)x56mm(D) (PoE models) 178mm(W)x125mm(H)x53mm(D) (Non-PoE models)
Weight	1.03kgs (PoE models) 880g (Non-PoE model)
Installation	Wall Mount / Din Rail mount**
EMI & EMS	EN 55035: 2017/ A11: 2020 EN 55032: 2015/ A11: 2020 FCC Part 15, Subpart B ICES-003 Issue 7 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	EN 50155: 2021 EN 50121-4: 2016/ A1: 2019 EN 50121-3-2: 2016/ A1: 2019 EN45545-1, EN 45545-2 Fire & Smoke
Stability Testing	EN 61373: 2010 (Shock and Vibration)
Vehicle Certificate	E24 marking (UN ECE R10)ITxPT labeled*

Vehicle Compliance	UN ECE R118
MTBF	326,701hrs

Software Specification

Lantech OS2PRO Generation
Download Software Datasheet
(https://www.lantechcom.tw/global/eng/download/datasheet/D-OS2PRO.pdf)

*Future release
**Optional

*** not for web-managed model

ORDERING INFORMATION

All model packages include M12 caps. For coating add –C to model names; add -IGN for ignition models, -PP for push-pull connector models

✻ To support environmental sustainability, the console cable will not be included with each device by default, but partially when required

- **TPER-3208T-WEB-8-54-24VI-E …….. P/N: 8351-161**
  8 10/100TX + 2 10/100/1000T w/8 PoE at/af L2+ Web-managed NAT router Switch w/ PoE & Ethernet galvanic isolation; 9~36VDC dual input; -40°C to 70°C; IP54 rated
- **TPER-3208T-WEB-8-54-24VI-IGN-E ……P/N: 8351-1611**
  8 10/100TX + 2 10/100/1000T w/8 PoE at/af L2+ Web-managed NAT router Switch w/ PoE & Ethernet galvanic isolation & ignition timer; 9~36VDC dual input; -40°C to 70°C; IP54 rated
- **TER-3208T-WEB-54-24VI-E …….. P/N: 8351-1612**
  8 10/100TX + 2 10/100/1000T L2+ Web-managed NAT router Switch w/ Ethernet galvanic isolation; 9~36VDC dual input; -40°C to 70°C; IP54 rated
- **TER-3208T-WEB-54-24VI-IGN-E …….. P/N: 8351-1613**
  8 10/100TX + 2 10/100/1000T L2+ Web-managed NAT router Switch w/ Ethernet galvanic isolation & ignition; 9~36VDC dual input; -40°C to 70°C; IP54 rated

OPTIONAL ACCESSORIES

Software package

Please refer to the software datasheet (https://www.lantechcom.tw/global/eng/download/datasheet/D-OS2PRO.pdf)

M12 Connector & Cable

Connector

ECONM12-04D(M)-C-180	4 pin M12 (Male) D-coded 180 degree crimp type connector for data
ECONM12-08X(M)-SPEEDCON	8 pin M12 (Male) X-coded 180 degree crimp type connector for data, Ethernet CAT6A (10G), shielded, SPEEDCON

Cable

ECAB124030MJS	4 pin M12 (Male) D-coded 180 degree RJ45 STP cable for data, 300cm
ECABM12X83MSTP	8 pin M12 (Male) X-coded 180 degree RJ45 STP cable for data, shielded, 300cm
ECONM12-4P(F)1.5M CABLE	4 pin M12 (Female) A-coded 90 degree cable for power supply, 150cm
ECONM12-08M2-CONSOLE	8 pin M12 (Male) A-coded 180 degree to RS232 cable for console, 150cm

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