T(P)GS-3208GF

8 GE (w/PoE at/af) + 2 GF L2+ NAT Router switch w/ Enhanced G.8032 Ring





OVERVIEW

The Lantech T(P)GS-3208GF (OS2 Pro platform) is a compact router switch with a PoE budget of 120W, designed for industrial network 24V/48V input Ethernet switch systems. It features 8 10/100/1000T + 2 1000M Fiber with single-mode/multi-mode ports, along with 8 PoE 802.3af/at Ethernet ports (PoE model). The switch offers Layer 2 management, NAT, unique AUTO-FEED configuration, MQTT, advanced security functions and Health diagnostic snapshot maintenance to ensure reliable and easy onboard network deployment. It's WebGUI and complete CLI interface make configuration straightforward for all skill levels. Additionally, the OPEN API document format enhances central management efficiency, making it ideal for fleet management and AIoT applications.

Redundant dual power input design (24VI;48VI model)

T(P)GS-3208GF is designed with dual power inputs that accept 12V~56V DC for 24VI vehicle use, and 44V-56VDC for 48VI train model and is capable of withstanding EMI/RFI interference in the onboard network as well as environmental shocks and vibrations. The redundant power input design with galvanic isolation feature shields the system from power transients often present in onboard networks.

PoE budget up to 120W for 8 Ports with PD detection, auto PD reboot, scheduling and Ethernet power input galvanic isolation with partial ports for PoE galvanic isolation

T(P)GS-3208GF supports maximum PoE budget of 120W with advanced PoE management features, including PoE auto-detection and scheduling. The PoE detection function can identify if a connected Powered Device (PD) becomes unresponsive and then auto-restart the PD. Moreover, PoE scheduling allows for a pre-set power feeding schedule based on a routine timetable. Each PoE port can be enabled or disabled, and it provides information on voltage, current, power (W), and temperature.

There is galvanic isolation between the power input and the Ethernet power system. The PoE galvanic isolation on PoE at/af ports provides insulation between the power input and the PoE Ethernet ports, preventing cabling and grounding incidents from damaging the Ethernet switch.

DDoS security to protect switch and server; Optional IEC 62443 compliance with physical tamper resistance and detection for integrity and authenticity of the boot process

The switch is designed with a high standard of security methods to prevent network threads, such as prevention of

DDoS attacks, 802.1X security authentication, Dynamic ARP Inspection, IP Source Guard and Port Security. The optional cybersecurity features compliant with IEC 62443-4-2 include vulnerability checking, encrypted files, public key management, strong password enforcement, account management, and penetration and stress testing, among many others, totaling up to 90 security measures. The compliance of IEC 62443-4-2 employs roots of trust to verify the integrity and authenticity of the firmware, software, and configuration data needed for the switch's boot process.

Lantech OS2 PRO Platform with advanced L2 management and L3 routing protocols incl. OSPF and RIP V1&V2

The switch developed on Lantech OS2 Pro platform is equipped with Layer 2 management and some Layer 3 routing protocols, including OSPF and RIP V1,V2. Engineered for diverse vehicle applications, this platform also supports a range of features such as NAT, Port forwarding, multiple Static IP address, DHCP server/option/client/port based, VLAN, IGMP, RSTP/ G.8032 enhanced ring recovery, LACP etc.

Support Open API document for Restful API for better switch performance

The switch supports an OPEN API that uses JSON format to access and manipulate data using GET, PUT, POST, and DELETE methods, thereby avoiding the CPU utilization associated with traditional SNMP management.

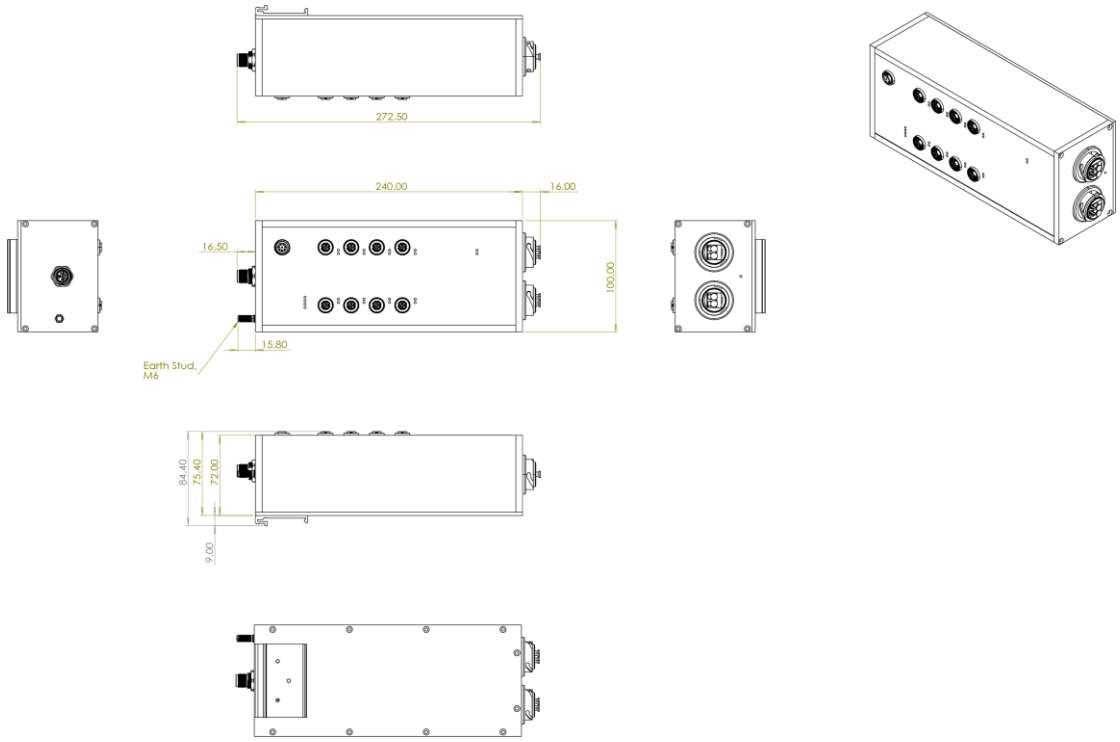
mDNS (Multicast DNS) and DNS server/client feature and MQTT-role of Publisher or Broker

It supports mDNS (Multicast DNS) which enables hosts in the LAN to discover and communicate with devices each other in compliance with the DNS protocol, without requiring a traditional DNS server. The switch can act as MQTT Publisher or Broker that can send data to the broker then broker distributors the "payload" to the subscribers all in a very lightweight protocol.

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

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. The built-in watchdog design can automatically reboot the switch if the CPU becomes unresponsive. With the distinctive Snapshot feature, the switch can gather data, including port statistics, system core information, configuration, and event logs, either at a specific point in time or by scheduling, to address switch issues and analyze the root cause promptly.

DIMENSIONS (unit=mm)



SPECIFICATION

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): 20Gbps
Transfer Rate	14,880pps for Ethernet port 148,800pps for Fast Ethernet port 1,488,000pps for Gigabit Ethernet / Gigabit Fiber port
Mac Address	16K MAC address table
Jumbo frame	10KB
Connectors	10/100/1000T: 8 x M12 8-pole X-coded 1000LX: 2 x LC connectors with single-mode fiber (WAN/LAN configurable) Power Input connector: 1 x M12 5-pole Male K-coded Reset/Console/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	-20°C~60°C / -4°F~140°F -40°C~75°C / -40°F~167°F (-E model)
Storage Temperature	-40°C~85°C / -40°F~185°F
Power Supply	44-56VDC (48VI); 12-56VDC (24VI)
PoE Budget	120W (PoE model)
PoE pin assignment	M12 port #1-#8 supports IEEE 802. 3at/af End-point Per port provides up to 30W
Power Consumption	8W (without PoE load)
Case Dimension	272.5mm(W)x100mm(H)x84.4mm(D)
Weight	1.85 kgs
Installation	DIN-Rail
EMI & EMS	FCC Class A, CE EN55032 Class A, CE EN55024, CE EN61000-4-2, CE EN61000-4-3, CE EN61000-4-4, CE EN61000-4-5, CE EN61000-4-6, CE EN61000-4-8, CE EN61000-6-2, CE EN61000-6-4
Safety	UL62368
MTBF	321,769hrs (standards: IEC 62380)

Software Specification

Management	SNMP v1 v2c, v3/ Web/Telnet/CLI//OPEN API document format for Restful API
SNMP MIB	MIBII MIB SNMP MIB, IF MIB RMON MIB,

	Bridge MIB, LLDP MIB Private MIB
Enhanced G.8032 ring	Support ITU G.8032 v2/2012 for Ring protection in less than 20ms for self-heal recovery (single ring enhanced mode) Support various ring/chain topologies Includes basic single ring and enhanced ring Enhanced G.8032 ring configuration with ease Cover multicast & data packets protection
PoE Management (PoE model)	PoE Detection to check if PD is hang up then restart the PD. PoE Scheduling to On/OFF PD upon routine timetable.
Per Port PoE Status (PoE model)	On/ Off, voltage, current, watts, temperature
User-friendly UI	■ Auto topology drawing ■ Topology demo ■ Complete CLI for professional setting
Port Trunk with LACP	LACP Port Trunk: 8 Trunk groups
LLDP	Supports LLDP to allow switch to advise its identification and capability on the LAN
CDP	Cisco Discovery Protocol for topology mapping
VLAN	Port Based VLAN IEEE 802.1Q Tag VLAN (256 entries)/ VLAN ID (Up to 4K, VLAN ID can be assigned from 1 to 4096.) GVRP
RSTP/MSTP	Supports IEEE802.1d Spanning Tree and IEEE802.1w Rapid Spanning Tree, IEEE802.1s Multiple Spanning Tree 8 MSTI
Quality of Service	The quality of service is determined by port, Tag and IPv4 Type of service, IPv4 Differentiated Services Code Points - DSCP
Class of Service	Support IEEE802.1p class of service, per port provides 8 priority queues
Remote Admin	Supports 10 IP addresses that have permission to access the switch management and to prevent unauthorized intruder.
Login Security	Supports IEEE802.1X Authentication/RADIUS
Port Mirror	Support 3 mirroring types: “RX, TX and Both packet”
Network Security	Support 10 IP addresses that have permission to access the switch management and to prevent unauthorized intruder. 802.1X access control/MAC-Port binding INGRESS ACL L2/L3 SSL/ SSH v2 for Management HTTPS for secure access to the web interface
IGMP	Support IGMP snooping v1,v2,v3; 1024 multicast groups; IGMP router port ; IGMP query; GMRP
Static MAC-Port	Static multicast forwarding forward reversed IGMP
bridge	flow with multicast packets binding with ports for IP surveillance application
WAN Port	■ PPPoE ■ DHCP client
L3 routing functions	Static route RIP/OSPF
Firewall	Port forwarding DMZ Filtering Remote admin DDoS protection NAT
Bandwidth Control	Support ingress packet filter. Ingress filter packet type combination rules are Broadcast/Multicast/Flooded Unicast packet, Broadcast/Multicast packet, Broadcast packet only and all types of packet. The packet filter rate can be set an accurate value through the pull-down menu for the ingress packet filter.
Flow Control	Supports Flow Control for Full-duplex and Back Pressure for Half-duplex
System Log	Supports System log record and remote system log server
Protection	■ Miss-wiring avoidance ■ Node failure protection ■ Loop protection
SNMP Trap	Up to 10 trap stations; trap types including: ● Device cold start ● Authorization failure ● Port link up/link down ● DI/DO open/close ● Topology change (ITU ring) ● Power failure ● Environmental abnormal
DHCP	Provide DHCP Client/ DHCP Server/DHCP Option 82 (Server and relay)/Port based DHCP; DHCP Snooping; DHCP option 66
DNS	Provide DNS Client feature and support Primary and Secondary DNS server.
SNTP	Supports SNTP to synchronize system clock in Internet
Firmware Update	Supports TFTP firmware update, TFTP backup and restore; HTTP firmware upgrade
Configuration upload and download	Supports editable configuration file for system quick installation Support factory reset pin to restore all settings back to factory default USB port for upload/download configuration by USB dongle

*Future Release
**Optional

ORDERING INFORMATION

All model packages include M12 caps. For optional Giga LX multi-mode 2 KM fiber, replace -SM with -MM

- **TPGS-3208GF-8-SM-54-24VI …..……..…….…..... P/N: 8351-1413**
  8 10/100/1000T + 2 Giga LX single-mode 10KM LC L2+ (w/8 PoE at/af) NAT IP54 router Switch; -20 to 60C; 12-56VDC input w/PoE & Ethernet galvanic isolation
- **TGS-3208GF-SM-54-24VI …..……..…….…..... P/N: 8351-1414**
  8 10/100/1000T + 2 Giga LX single-mode 10KM LC L2+ NAT IP54 router Switch; -20 to 60C; 12-56VDC input w/Ethernet galvanic isolation
- **TPGS-3208GF-8-SM-54-24VI-E …….…….…..... P/N: 8351-1415**
  8 10/100/1000T + 2 Giga LX single-mode 10KM LC L2+ (w/8 PoE at/af) NAT IP54 router Switch; -40 to 75C; 12-56VDC input w/PoE & Ethernet galvanic isolation
- **TGS-3208GF-SM-54-24VI-E …….…….…..... P/N: 8351-1416**
  8 10/100/1000T + 2 Giga LX single-mode 10KM LC L2+ NAT IP54 router Switch; -40 to 75C; 12-56VDC input w/Ethernet galvanic isolation
- **TPGS-3208GF-8-SM-54-48VI …..……..…….…..... P/N: 8351-1417**

8 10/100/1000T + 2 Giga LX single-mode 10KM LC L2+ (w/8 PoE at/af) NAT IP54 router Switch; -20 to 60C; 44-56VDC input w/ PoE & Ethernet galvanic isolation

- **TGS-3208GF-SM-54-48VI ..... P/N: 8351-1418**
  8 10/100/1000T + 2 Giga LX single-mode 10KM LC L2+ NAT IP54 router Switch; -20 to 60C; 44-56VDC input w/Ethernet galvanic isolation
- **TPGS-3208GF-8-SM-54-48VI-E ..... P/N: 8351-1419**
  8 10/100/1000T + 2 Giga LX single-mode 10KM LC L2+ (w/8 PoE at/af) NAT IP54 router Switch; -40 to 75C; 44-56VDC input w/ PoE & Ethernet galvanic isolation
- **TGS-3208GF-SM-54-48VI-E ..... P/N: 8351-14191**
  8 10/100/1000T + 2 Giga LX single-mode 10KM LC L2+ NAT IP54 router Switch; -40 to 75C; 44-56VDC input w/Ethernet galvanic isolation
- **TPGS-3208GF-8-SM-67-24VI ..... P/N: 8351-14131**
  8 10/100/1000T + 2 Giga LX single-mode 10KM LC L2+ (w/8 PoE at/af) NAT IP67 router Switch; -20 to 60C; 12-56VDC input w/PoE & Ethernet galvanic isolation
- **TGS-3208GF-SM-67-24VI ..... P/N: 8351-14141**
  8 10/100/1000T + 2 Giga LX single-mode 10KM LC L2+ NAT IP67 router Switch; -20 to 60C; 12-56VDC input w/Ethernet galvanic isolation
- **TPGS-3208GF-8-SM-67-24VI-E ..... P/N: 8351-14151**
  8 10/100/1000T + 2 Giga LX single-mode 10KM LC L2+ (w/8 PoE at/af) NAT IP67 router Switch; -40 to 75C; 12-56VDC input w/PoE & Ethernet galvanic isolation
- **TGS-3208GF-SM-67-24VI-E ..... P/N: 8351-14161**
  8 10/100/1000T + 2 Giga LX single-mode 10KM LC L2+ NAT IP67 router Switch; -40 to 75C; 12-56VDC input w/Ethernet galvanic isolation
- **TPGS-3208GF-8-SM-67-48VI ..... P/N: 8351-1412**
  8 10/100/1000T + 2 Giga LX single-mode 10KM LC L2+ (w/8 PoE at/af) NAT IP67 router Switch; -20 to 60C; 44-56VDC input w/ PoE & Ethernet galvanic isolation
- **TGS-3208GF-SM-67-48VI ..... P/N: 8351-14181**
  8 10/100/1000T + 2 Giga LX single-mode 10KM LC L2+ NAT IP67 router Switch; -20 to 60C; 44-56VDC input w/Ethernet galvanic isolation
- **TPGS-3208GF-8-SM-67-48VI-E ..... P/N: 8351-14192**
  8 10/100/1000T + 2 Giga LX single-mode 10KM LC L2+ (w/8 PoE at/af) NAT IP67 router Switch; -40 to 75C; 44-56VDC input w/ PoE & Ethernet galvanic isolation
- **TGS-3208GF-SM-67-48VI-E ..... P/N: 8351-14193**
  8 10/100/1000T + 2 Giga LX single-mode 10KM LC L2+ NAT IP67 router Switch; -40 to 75C; 44-56VDC input w/Ethernet galvanic isolation

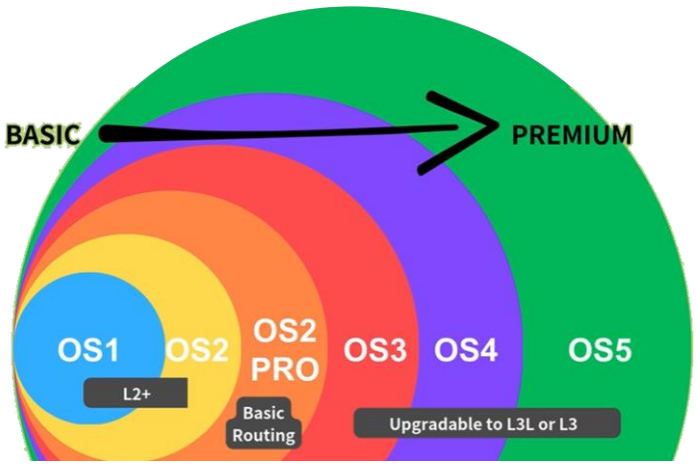
OPTIONAL ACCESSORIES

M12 Connector & Cable

Connector	
4106-00000097-001 ECONM12-05K(F)-S-180	5 pin M12 (Female) K-coded 180 degrees screw type connector for power supply
ECONM12-08X(M)-SPEEDCON	8 pin M12 (Male) X-coded 180 degree crimp type connector for data, Ethernet CAT6A (10G), shielded, SPEEDCON
Cable	
ECABM12X83MSTP	8 pin M12 (Male) X-coded 180 degree 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
ECONM12-08A(M)-180	8 pin M12 (Male) A-coded 180 degree crimp type connector for reset/console/USB
ECABMO02-QOP2-3.0-SM-OS2	Q-ODC 2 plug/LC single-mode fiber, SM-OS2, 300cm

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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