# T(P)GS-5208GF

## 8 10/100/1000T X-coded + 2 1000FX Q-ODC L2+ (w/8 PoE at/af) EN50155

## Managed Ethernet Switch w/ Enhanced G.8032 Ring; WVI input

- *EN50155/61373/45545-2 certified; 16.8~137.5VDC (WVI)*
- *Built-in IEC 61375-3-4 ECN (Ethernet Consist Network) to work with IEC61375-2-5 ETBN*
- *PoE model: IEEE802.3at/af up to 30W per port; PoE management incl. detection and scheduling*
- *PoE model: PoE galvanic isolation between input, PoE and output as well as case*
- *IP54/IP67 Aluminum housing for best heat dissipation and preventing moist ingress*
- *2 GigaFX uplink ports (Q-ODC QMM/QSM ports)*
- *Enhanced G.8032 ring protection < 20ms for single ring. Supports auto mode, enhanced mode, train mode. Multi-VLAN and basic mode; Enhanced G.8032 ring covers multicast packets*
- *MSTP 16MSTI /RSTP; support MRP ring*
- *Miss-wiring avoidance & node failure protection*
- *Inrush current protection*
- *User friendly UI, including auto topology drawing; Complete CLI*
- *Protocol based VLAN; IPv4 Subnet based VLAN*
- *Support LACP link aggregation, IGMP v3/router port, MLD snooping, DHCP server & DHCP Option82; DHCP Snooping, Port based DHCP distribution, Mac based DHCP server, QoS by VLAN, SSH v2/SSL, HTTPS, INGRESS/EGRESS ACL L2/L3, VLAN, QinQ, TACACS+***
- *N-key configurator** for upgrading, auto back up /editable restoration without computer*

## OVERVIEW

Lantech T(P)GS-5208GF is a high performance L2+ All Gigabit Ethernet switch with 8 10/100/1000T + 2 1000FX QMM/QSM Fiber Q-ODC (w/8 PoE at/af ports at M12 X-coded) providing L2 wire speed and advanced security function for network aggregation deployment. It houses in an IP54/IP67 aluminum compact enclosure that is waterproof and will prevent moisture ingress due to temperature fluctuations. It delivers ITU G.8032 enhanced ring recovery less than 20ms including train coupling ring, enhanced mode for easy configuration, comprehensive QoS, QoS by VLAN, advanced security including INGRESS/EGRESS ACL L2/L3, SSH v2/SSL, TACACS+**, Mac based DHCP server, DHCP Option 82 relay, QinQ VLAN, DHCP server and DHCP Option 82 server, IGMPv1/v2/v3/router port, which are important features required in train and large network. It also supports Cisco Discovery Protocol (CDP) for Ciscoworks to detect the switch info and show on L2 map topology.

***WVI (16.8V~137.5VDC) input, High PoE budget; Inrush current protection***

WVI (16.8V~137.5VDC) dual input power w/PoE isolation and can feed max. 80W PoE budget (PoE model).
The inrush current on initial power up can be limited lower than 10 x nominal current and for less than 1ms.
A voltage which can be minimal 0,5 Un nominal voltage (when Vin≧36V) and/or a voltage which can be maximal 1,5 Un nominal voltage for more than 1000 consecutive ms (one second).

***PoE +, Advanced PoE management (PoE model)***

Lantech TPGS-5208GF supports IEEE802.3at/af standard which can feed power up to 30W at each PoE port for big power consumption devices like PTZ IP camera, wireless AP etc. The advanced PoE management includes PoE detection and scheduling besides the regular PoE per port status. PoE detection can detect if the connected PD is hang up then restart the PD; PoE scheduling is to allow pre-set power feeding schedule upon routine time table. Per port PoE status can remotely On/Off the power and display information of voltage, current, watt and PoE temperature.

***Enhanced G.8032 ring, 16 MSTI MSTP; MRP ring***

Lantech T(P)GS-5208GF features enhanced G.8032 ring which can be self-healed in less than 20ms for single ring topology protection covering multicast packets. It also supports various ring topologies that covers multi-chain (under enhanced ring), train ring, basic ring, multiple-VLAN ring and auto-ring by easy setup than others. The innovative auto-Ring configurator (auto mode) can calculate owner and neighbor in one step. It supports MSTP that allows each spanning tree for each VLAN for redundant links with 16 MSTI.

MRP (Media Redundancy Protocol) can be supported for industrial automation networks.

***QinQ, QoS and GVRP supported***

It supports the QinQ, QoS and GVRP for large VLAN segmentation.

***IGMPv3, GMRP, router port, MLD Snooping, static multicast forwarding and multicast Ring protection***

The unique multicast protection under enhanced G.8032 ring can offer immediate self-recovery instead of waiting for IGMP table timeout. It also supports IGMPv3, GMRP, router port, MLD snooping and static multicast forwarding binding by ports for video surveillance application.

***802.1X security by MAC address***

MAC-based port authentication is an alternative approach to 802.1x for authenticating hosts connected to a port. By authenticating based on the host's source MAC address, the host is not required to run a user for the 802.1x protocol. The RADIUS server that performs the authentication will inform the switch if this MAC can be registered in the MAC address table of switch.

***Miss-wiring avoidance, node failure protection, Loop protection***

The T(P)GS-5208GF also embedded several features for stronger and reliable network protection in an easy and intuitive way. When the pre-set ring configuration failed or looped by miss-wiring, Lantech T(P)GS-5208GF (IP54/IP67) is 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.

***DHCP option 82 & Port based, Mac based DHCP, Option66, DHCP Snooping, IPv6 DHCP server***

DHCP server can assign dedicated IP address by MAC or by port (Port based for single switch), it also can assign IP address by port for multiple switches with single DHCP option82 server. DHCP Snooping is supported. For the ending device which need to download file from TFTP server, DHCP Option66 server can offer IP address of TFTP server to DHCP client. Basic IPv6 DHCP service can be supported.

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

T(P)GS-5208GF complies 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; Optional N-key auto backup, Exported text file***

The configuration file of Lantech T(P)GS-5208GF (IP54/IP67) can be exported and edited with word processor for the other switches configuration with ease.
The optional N-key configurator offers firmware upgrade, auto backup/ editable configuration restore without computer by adjusting the DIP switch.
The built-in watchdog design can automatically reboot the switch when CPU is found dead.

***User friendly UI, Auto topology drawing, complete CLI***

The user-friendly UI, innovative auto topology drawing and topology demo makes T(P)GS-5208GF much easier to get hands-on. The complete CLI enables professional engineer to configure setting by command line.

***Event log & message; 2 DI + 2 DO***

In case of event alarm, the T(P)GS-5208GF will immediately send an email** to pre-defined addresses as well as SNMP Traps out. It provides 2DI and 2DO while 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 alarm while sending alert information to IP network with email and traps.

***Environmental monitoring for inside switch info***

The built-in environmental monitoring can detect switch overall temperature, input voltage, current and total PoE load (PoE model) where can send the SNMP traps and email** when abnormal.

***EN50155, 45545-2, 50121-3-2, 61373 certified; High ESD protection***

Lantech T(P)GS-5208GF features high reliability and robustness coping with extensive EMI/RFI phenomenon, environmental vibration and shocks usually found in factory, substation, steel automation, aviation, mining and process control. It is the best solution for Automation, transportation, surveillance, Wireless backhaul, Semi-conductor factory and assembly lines.

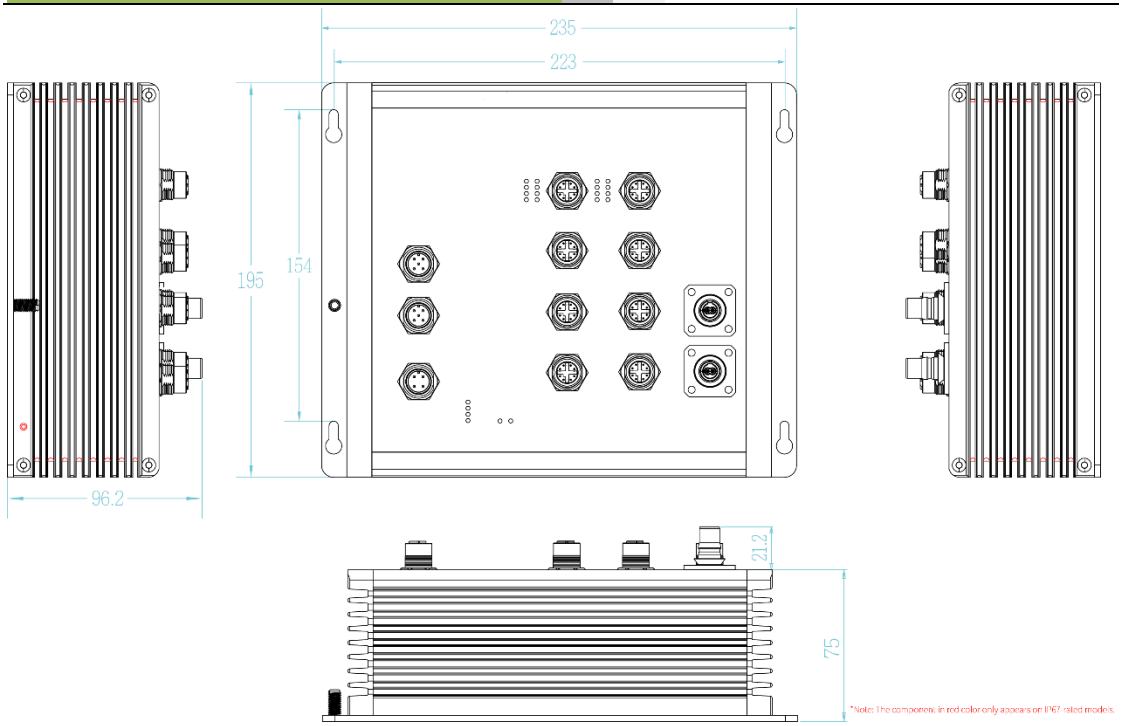
The T(P)GS-5208GF is designed to meet with critical network environment with IP54/IP67 aluminum enclosure and M12 connectors for water proof. With EN45545-2 Fire & Smoke, and EN50155 & 61373 verification, the T(P)GS-5208GF is best for railway in train/track side, vehicle and mining applications. For more usage flexibilities, T(P)GS-5208GF supports wide operating temperature from -40°C to 75°C.

## FEATURES & BENEFITS

- **8 10/100/1000T X-coded + 2 1000FX Q-ODC EN50155 (PoE) Managed IP54/IP67 M12 Ethernet Switch (w/8x 802.3at/af PoE ports) (Total 10 Ports Gigabit Switch)**
- **EN45545-2 Fire & Smoke, EN50155 and EN61373 shock/vibration certified**
- **PoE WVI model w/ PoE galvanic isolation accepts dual 16.8V~137.5VDC power inputs and feed 54V for PoE at/af at to provide max 80W budget (power connector: M12 A-coded)**
- **Galvanic isolation from power input/Ethernet ports to system 1.5KV**
- **Back-plane (Switching Fabric): 20Gbps**
- **16K MAC address table**

- **10KB Jumbo frame supported**
- **User friendly UI, auto topology drawing, topology demo, complete CLI for professional setting**
- **Enhanced G.8032 Ring protection in 20ms for single ring**
  - *Support various ring/chain topologies, including train ring, enhanced ring, basic ring, auto ring & multiple VLAN ring*
  - *Enhanced G.8032 ring configuration with ease*
  - *Auto ring configuration (auto mode) for single ring*
  - *Cover multicast and data packets protection*
- **Supports IEEE 802.1p Class of Service, per port provides 8 priority queues Port base, Tag Base and Type of Service Priority**
- **IEEE 802.1d STP, IEEE 802.1w RSTP,802.1s MSTP VLAN redundancy 16 MSTI**
- **4K 802.1Q VLAN, Port based VLAN, GVRP, QinQ, QoS**
- **Supports IEEE 802.1ab LLDP, Cisco CDP; LLDP info can be viewed via Web/ Console**
- **DHCP server / client / DHCP Option 82 relay / DHCP Option 82 server; Port based DHCP server; DHCP Snooping; DHCP Option 66; basic IPv6 DHCP server**
- **Mac based DHCP server to assign IP address**
- **Bandwidth Control**
  - *Ingress packet filter and egress rate limit*
  - *Broadcast/multicast packet filter control*
- **Miss-wiring avoidance**
  - *LED indicator*
- **Node failure protection**
  - *Ensure the switches in a ring to survive after power breakout is back*
  - *The status can be shown in NMS when each switch is back*
- **Inrush current protection**
- **System Event Log, SMTP** Email alert and SNMP Trap for alarm support; 32 RMON counters**
- **Security**
  - *SSL/SSH v2/INGRESS/EGRESS ACL L2/L3*
  - *MAC address table: MAC address entries/Filter/MAC-Port binding*
  - *IP Security: IP address security management to prevent unauthorized intruder.*
  - *TACACS+***
  - *Management access control with priority*
  - *Login Security: IEEE802.1X/RADIUS*
  - *HTTPS for secure access to the web interface*
- **Static multicast forwarding forward reversed IGMP flow (MVR) with multicast packets binding with ports for IP surveillance application**
- **IGMP router port to assign query in ring for reversed multicast video flow**
- **MLD Snooping for IPv6 Multicast stream**
- **IGMPv1,v2,v3 with Query mode for multimedia GMRP**
- **Watchdog design to auto reboot switch when CPU is found dead**
- **Built-in environmental monitoring for input voltage, current, ambient temperature and total PoE load (PoE model)**
- **Supports 2 DI+ 2 DO (Digital Input/Digital Output)**
- **Diagnostic including Ping / DDM information**
- **Configuration backup and restoration**
  - *Supports editable configuration file for system quick installation*
  - *N-key** for mass configuration auto-backup, editable restoration and auto firmware upgrade*
- **TFTP/HTTP firmware upgrade**
- **Built-in IEC 61375-3-4 ECN (Ethernet Consist Network) to work with IEC61375-2-5 TBN**
- **IP54/IP67 aluminum housing for wall mount design**

## DIMENSIONS (unit=mm)




## SPECIFICATIONS

### Hardware Specification

| | |
|---|---|
| Standards | IEEE 802.3 10Base-T Ethernet<br>IEEE 802.3u 100Base-TX<br>IEEE802.3z Gigabit fiber<br>IEEE802.3x Flow Control and Back Pressure<br>IEEE802.3ad Port trunk with LACP<br>IEEE802.1d Spanning Tree<br>IEEE802.1w Rapid Spanning Tree<br>IEEE802.1s Multiple Spanning Tree<br>IEEE 802.3ad Link Aggregation Control Protocol (LACP)<br>IEEE 802.1AB Link Layer Discovery Protocol (LLDP)<br>IEEE 802.1X User Authentication (Radius)<br>IEEE802.1p Class of Service<br>IEEE802.1Q VLAN Tag<br>IEEE802.3at/af Power over Ethernet |
| Switch Architecture | Back-plane (Switching Fabric): 20Gbps |
| Transfer Rate | 14,880pps for Ethernet port<br>148,800pps for Fast Ethernet port<br>1,488,000pps for Gigabit Ethernet / Gigabit Fiber port |
| Mac Address | 16K MAC address table |
| Jumbo frame | 10KB |
| Connectors | 10/100/1000T: 8 x ports M12 8-pole X-coded with Auto MDI/MDI-X function<br>1000SX/LX: 2 x Q-ODC ports<br>RS-232 connector: 1 x M12 5-pole A-coded<br>Power Input connector:<br>1x M12 4-pole A-coded Male (WVI model) |

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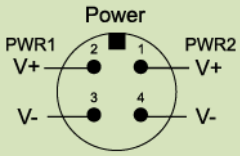
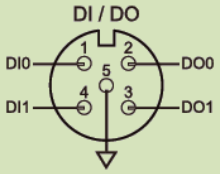
| |  |
| Network Cable | 10Base-T: 2-pair STP Cat. 3, 4, 5/ 5E/ 6 cable EIA/TIA-568 100-ohm (100m)<br>100Base-TX: 2-pair UTP/STP Cat. 6 cable EIA/TIA-568 100-ohm (100m)<br>1000Base-TX: 2-pair UTP/STP Cat. 6 cable EIA/TIA-568 100-ohm (100m) |
| LED | Per unit: Power 1 (Green), Power 2 (Green), FAULT (Red), RM (Green)<br>Ethernet port: Link/Active (Green)<br>PoE: Link / Active (Green, PoE model)<br>1000FX: Link/Activity (Green) |
| DI/DO | 2 Digital Input (DI):<br>Level 0: -30~2V / Level 1: 10~30V<br>Max. input current:8mA<br>2 Digital Output (DO): Open collector to 80 VDC, 50mA<br>  |
| Operating Humidity | 5% ~ 95% (Non-condensing) |
| Operating Temperature | -40°C~75°C / -40°F~167°F |
| Storage | -40°C~85°C / -40°F~185°F |

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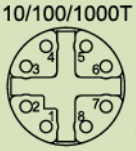
| Temperature | |
| Power Supply | 16.8V~137.5VDC |
| Power Consumption | Max. 17W exclude PoE load |
| PoE Budget (PoE model) | WV/WVI model:<br>Input Range / Power Input / Maximal PoE Budget<br>16.8~27VDC / Dual Power Input / 80W<br>28~137.5VDC / Single Power Input / 80W<br>Higher PoE budget can be applied upon request. ** |
| PoE pin assignment (PoE model) | M12 port # 1~ # 8 support IEEE 802.3at/af End-point<br>Per port provides up to 30W<br>10/100/1000T<br>  <br>1:TXD1+ 5:BID4+<br>2:TXD1- 6:BID4-<br>3:RXD2+ 7:BID3-<br>4:RXD2- 8:BID3+ |
| Dimensions | Aluminum case<br>235mm(W)x195mm(H)x96.2mm(D) |
| Weight | 1.3kgs |
| Installation | Wall Mount Design |
| EMI & EMS | FCC Part 15 Class A, CE EN55022,<br>CE EN55024 , CE EN61000-4-11<br>CE EN61000-4-2 (ESD) Level 3<br>CE EN61000-4-3 (RS) Level 3<br>CE EN61000-4-4 (EFT) Level 3<br>CE EN61000-4-5 ED3 (Surge) Level 3<br>CE EN61000-4-6 (CS) Level 3<br>CE EN61000-4-8 (Magnetic field) Level 3 |
| Stability Testing | EN61373 (Shock and Vibration) |
| Certifications& report | EN50155/EN50121-3-2/EN50121-4 Certificate EN45545-2 R13/R22/R23/R24/R25 (EN ISO 4589-2, EN ISO 5659-2, NF X70-100-1 & 2) Fire & Smoke verification |
| MTBF | 611,267 hrs. (standards: IEC 62380) |
| Warranty | 5 years |

## Software Specification

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|---|---|
| Management | SNMP v1 v2c, v3/ Web/Telnet/CLI |
| SNMP MIB | RFC 1213 MIBII<br>RFC 1158 MIBII<br>RFC 1157 SNMP MIB,<br>RFC 1493 Bridge MIB*<br>RFC 1573 IF MIB<br>Partial RFC 1757 RMON,<br>Private MIB |
| ITU G.8032 | Support ITU G.8032 v2/2012 for Ring protection in less than 20ms for self-heal recovery (single ring enhanced mode)<br>Support various ring/chain topologies<br>Includes train ring, auto ring, basic single ring, enhanced ring, multiple-VLAN ring<br>Enhanced G.8032 ring configuration with ease<br>Cover multicast & data packets protection |
| PoE Management (PoE model) | ■ PoE Detection to check if PD is hang up then restart the PD<br>■ PoE Scheduling to On/OFF PD upon routine time table<br>■ On/ Off, voltage, current, watts, temperature |
| User friendly UI | ■ Auto topology drawing<br>■ Topology demo<br>■ Auto configuration for G.8032(auto mode) for single ring<br>■ Complete CLI for professional setting |

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|---|---|
| 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 |
| Environmental Monitoring | System status for input voltage, current, PoE load (PoE model) and ambient temperature to be shown in GUI and sent alerting if any abnormal status |
| VLAN | Port Based VLAN<br>IEEE 802.1Q Tag VLAN (256 entries)/ VLAN ID (Up to 4K, VLAN ID can be assigned from 1 to 4096)<br>GVRP, QinQ, Protocol based VLAN; IPv4 Subnet based VLAN |
| Spanning Tree | Supports IEEE802.1d Spanning Tree and IEEE802.1w Rapid Spanning Tree, IEEE802.1s Multiple Spanning Tree 16 MSTI |
| Quality of Service | The quality of service determined by port / CoS / ToS / VLAN / 61375-3-4 |
| Class of Service | Support IEEE802.1p class of service, per port provides 8 priority queues |
| 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.<br>802.1X access control for port based and MAC based authentication/MAC-Port binding<br>Ingress/Egress ACL L2/L3<br>SSL/ SSH v2 for Management<br>HTTPS for secure access to the web interface<br>TACACS+** for Authentication |
| IGMP | Support IGMP snooping v1,v2,v3 ; 1024 multicast groups; IGMP router port ; IGMP query; GMRP |
| MVR | Static multicast forwarding forward reversed IGMP flow (MVR) with multicast packets binding with ports for IP surveillance application |
| Bandwidth Control | Support ingress packet filter and egress packet limit.<br>The egress rate control supports all of packet type.<br>Ingress filter packet type combination rules are Broadcast/Multicast/Flooded Unicast packet, Broadcast/Multicast packet, Broadcast packet only and all types of packet.<br>The packet filter rate can be set an accurate value through the pull-down menu for the ingress packet filter and the egress packet limit. |
| 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 |
| SMTP** | Supports SMTP** Server and 8 e-mail accounts for receiving event alert |
| Protection | ■ Miss-wiring avoidance<br>■ Node failure protection<br>■ Loop protection |
| SNMP Trap | Up to 10 trap stations; trap types including:<br>● Device cold start<br>● Authorization failure<br>● Port link up/link down<br>● DI/DO open/close<br>● Typology change (ITU ring)<br>● Power failure<br>● Environmental abnormal |
| DHCP | Provide DHCP Client/ DHCP Server/DHCP Option 82/Port based DHCP; DHCP Snooping; DHCP Option 66; Basic IPv6 DHCP server |
| Mac based DHCP Server | Assign IP address by Mac |
| DNS | Provide DNS client feature |
| SNTP | Supports SNTP to synchronize system clock in Internet |
| MLD Snooping | Support IPv6 Multicast stream |
| Firmware Update | Supports TFTP firmware update, TFTP backup and restore; HTTP firmware upgrade |
| ECN | Complies 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). |
| Diagnostic | Support Ping and DDM information |
| N-Key Configurator** | RJ45 dongle for firmware upgrade, auto / editable configuration backup/restoration |
| Configuration upload and download | Supports editable configuration file for system quick installation |

*Future release
**Optional

## ORDERING INFORMATION

All model packages include M12 caps and wall mount bracket. All standard models are non-coating, optional coating models are available with –C model name

- **TPGS-5208GF-QMM-54-WVI……..P/N: 8361-4227**
  8 10/100/1000T X-coded + 2 Giga SX 550M Q-ODC EN50155 M12 IP54 L2+ Managed Gigabit Ethernet Switch; 16.8~137.5VDC dual input w/ galvanic isolation; PoE max 80W budget ;-40°C to 75°C
- **TPGS-5208GF-QSM-54-WVI……..P/N: 8361-4228**
  8 10/100/1000T X-coded + 2 Giga LX 10KM Q-ODC EN50155 M12 IP54 L2+ Managed Gigabit Ethernet Switch; 16.8~137.5VDC dual input w/ galvanic isolation; PoE max 80W budget ;-40°C to 75°C
- **TGS-5208GF-QMM-54-WVI……..P/N: 8361-4233**
  8 10/100/1000T X-coded + 2 Giga SX 550M Q-ODC EN50155 M12 IP54 L2+ Managed Gigabit Ethernet Switch; 16.8~137.5VDC dual input w/ galvanic isolation;-40°C to 75°C
- **TGS-5208GF-QSM-54-WVI……..P/N: 8361-4229**
  8 10/100/1000T X-coded + 2 Giga LX 10KM Q-ODC EN50155 M12 IP54 L2+ Managed Gigabit Ethernet Switch; 16.8~137.5VDC dual input w/ galvanic isolation ;-40°C to 75°C
- **TPGS-5208GF-QMM-67-WVI……..P/N: 8361-42275**
  8 10/100/1000T X-coded + 2 Giga SX 550M Q-ODC EN50155 M12 IP67 L2+ Managed Gigabit Ethernet Switch; 16.8~137.5VDC dual input w/ galvanic isolation; PoE max 80W budget ;-40°C to 75°C
- **TPGS-5208GF-QSM-67-WVI……..P/N: 8361-42282**
  8 10/100/1000T X-coded + 2 Giga LX 10KM Q-ODC EN50155 M12 IP67 L2+ Managed Gigabit Ethernet Switch; 16.8~137.5VDC dual input w/ galvanic isolation; PoE max 80W budget ;-40°C to 75°C
- **TGS-5208GF-QMM-67-WVI……..P/N: 8361-42331**
  8 10/100/1000T X-coded + 2 Giga SX 550M Q-ODC EN50155 M12 IP67 L2+ Managed Gigabit Ethernet Switch; 16.8~137.5VDC dual input w/ galvanic isolation;-40°C to 75°C
- **TGS-5208GF-QSM-67-WVI……..P/N: 8361-42291**
  8 10/100/1000T X-coded + 2 Giga LX 10KM Q-ODC EN50155 M12 IP67 L2+ Managed Gigabit Ethernet Switch; 16.8~137.5VDC dual input w/ galvanic isolation ;-40°C to 75°C
- **N-key Configurator……..P/N: 8850-100**
  RJ45 connector dongle for firmware upgrade, auto/editable configuration backup and restoration; -20°C to 60°

## OPTIONAL ACCESSORIES

### M12 Connector & Cable

**Connector**

| | |
|---|---|
| **ECONM12-04A(F)-C-180** | 4 pin M12 (Female) A-coded 180 degree crimp type connector for power supply |
| **ECONM12-05A(M)-C-180** | 5 pin M12 (Male) A-coded 180 degree crimp type connector for DI/DO |
| **ECONM12-08X(M)-SPEEDCON** | 8 pin M12 (Male) X-coded 180 degree crimp type connector for data, Ethernet CAT6A (10G), shielded, SPEEDCON |

**Cable**

| | |
|---|---|
| **ECONM12-4P(F)1.5M CABLE** | 4 pin M12 (Female) A-coded 90 degree cable for power supply, 150cm |
| **ECABM12X83MSTP** | 8 pin M12 (Male) X-coded 180 degree RJ45 STP cable for data, shielded, 300cm |
| **ECABMO02-QOP2-3.0-MM-OM3** | Q-ODC 2 plug/LC multi-mode fiber, MM-OM3, 300cm |
| **ECABMO02-QOP2-3.0-SM-OS2** | Q-ODC 2 plug/LC single-mode fiber, SM-OS2, 300cm |

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