

# TPGS-L6408XFTR

8 10/100/1000T + 2 10G Copper + 2 10G Fiber Q-ODC OM3 w/8 PoE at/af

EN50155 OS3 Managed Ethernet Switch w/ enhanced G.8032 Ring, PXE ;

## WVI input

- Total 8 port 10/100/1000T + 2 1G/2.5G/5G/10G Copper + 2 1G/10G Q-ODC OM3 SR/LR Fiber Ethernet Switch w/8 PoE ports
- EN50155/61373/45545-2 verification
- Support IEEE802.3at/af up to 30W per port PoE management incl. Detection and Scheduling
- Support PXE to verify switch firmware with the latest or certain version on server
- Enhanced G.8032 ring protection < 20ms for single ring. Supports enhanced mode and basic mode; Enhanced G.8032 ring covers multicast packets; MSTP 8 MSTI /RSTP; support MRP ring
- Miss-wiring avoidance & node failure protection
- Inrush current protection
- User friendly UI, including auto topology drawing; Complete CLI
- Support LACP link aggregation, IGMP v3/router port, MLD snooping, DHCP server & DHCP Option82; Port based DHCP distribution, DHCP Snooping, Mac based DHCP server, SSH v2/SSL, HTTPS, INGRESS ACL L2/L3, TACACS+, QinQ, QoS by VLAN
- Protocol based VLAN ; IPv4 Subnet based VLAN
- Enhanced Environmental Monitoring for temp., actual input voltage, current & total power load
- IP41 aluminum enclosure
- Optional L3Lite or IEC 61375-2-5 TBN features to be upgradable
- USB port to upload & download the configuration file
- Optional smart bypass 10GigaT ports in case of power failure, CPU hang (one pair)
- Dual power input 16.8V~137.5V with galvanic isolation between input power, PoE and system
- Factory reset pin to restore factory default setting
- Wide range operation temperature: -40~70C/-40~158F



## OVERVIEW

Lantech TPGS-L6408XFTR is a high performance OS3 Ethernet switch with 8 10/100/1000T + 2 auto-sensing 1G/2.5G/5G/10G Copper + 2 1G/10G SR/LR Fiber Q-ODC OM3 w/8 PoE 802.3af/at ports which provides advanced security function for network aggregation deployment. It delivers ITU G.8032 enhanced ring recovery less than 20ms in single ring while also supports enhanced mode with easy configuration. The comprehensive QoS, advanced security including INGRESS ACL L2/L3, TACACS+, SSH v2/SSL and Mac based DHCP server, DHCP Option 82, DHCP server, IGMPv1/v2/v3/router port are supported and also required in large network. It also supports 10K Jumbo frames.

**Up to 8 PoE at/af ports w/advanced PoE management**  
 Compliant with 802.3af/at standard, the Lantech TPGS-

L6408XFTR is able to feed each PoE port up to 30 Watt at each PoE port for various IP PD devices. Lantech TPGS-L6408XFTR 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 pre-set power feeding schedule upon routine time table. Each PoE ports can be Enabled/disabled, get the voltage, current, Watt, and temperature info displayed on WebUI.

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

The TPGS-L6408XFTR 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, Lantech TPGS-L6408XFTR 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.

**Support PXE to verify switch firmware with latest or certain version**

The switch can check its firmware version during booting time via PXE protocol. If switch finds any newer version, it will upload automatically.

**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. DHCP Option66 server can offer IP address of TFTP server to DHCP client for VOIP application. Basic IPv6 DHCP service can be supported.

**User friendly GUI, Auto topology drawing**

The user-friendly UI, innovative auto topology drawing and topology demo makes TPGS-L6408XFTR much easier to get hands-on. The complete CLI enables professional engineer to configure setting by command line.

**Enhanced G.8032 ring, 8 MSTI MSTP; MRP ring**

Lantech TPGS-L6408XFTR 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 enhanced ring and basic ring by easy setup than others. It supports MSTP that allows RSTP over VLAN for redundant links with 8 MSTI.

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

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

Lantech OS3 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).

**Enhanced Storm control**

Storm control prevents traffic on a LAN from being disrupted by a broadcast, multicast, or unicast storm on one of the physical interfaces and the detection is more precise and reaction is more efficient.

**Optional L3Lite/L3\*/ETBN to be upgradable**

Lantech OS3 are optional upgradable to L3 Lite/ L3\* or ETBN communication protocols for future expansion. The optional L3Lite includes editable routing table, VRRP, Router-on-a-stick, Inter- VLAN routing. Optional ETBN complies with IEC61375-2-5 ETBN for Train Backbone Network.

**QinQ, QoS and GVRP supported**

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

**Protocol based VLAN; Subnet based VLAN**

The protocol-based VLAN processes traffic based on protocol.

It filters IP traffic from nearby end-stations using a particular protocol such as IP, IPX, ARP or other Ethernet-types in a Hex value. Subnet based VLANs group traffics into logical VLANs based on the source IP address and IP subnet.

The above features can help to build VLAN in the network mixed with managed and un-managed switch as to define packets to which VLAN group based on protocol or subnet.

**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.

**Editable configuration file; USB port for upload/download configuration**

The configuration file of Lantech TPGS-L6408XFTR can be exported and edited with word processor for the following switches to configure with ease.

The USB port can upload/download the configuration from/to USB dongle.

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

TPGS-L6408XFTR 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.

**Dual WVI input with max PoE budget and Inrush current protection**

The TPGS-L6408XFTR WVI model accept 16.8~137.5VDC dual input with galvanic protection and can feed 54V output for PoE feeding with 80W budget.

A voltage which can be minimal 0,5 Un nominal voltage (when  $V_{in} \geq 36V$ ) and/or a voltage which can be maximal 1,5 Un nominal voltage for more than 1000 consecutive ms (one second).

The inrush current on initial power up can be limited lower than 10 x nominal current and for less than 1ms.

**Enhanced environmental monitoring for switch inside information**

The enhanced environmental monitoring can detect switch overall temperature, total power load, actual input voltage and current. It also can send the SNMP traps alert when abnormal.

**Optional smart bypass protection on 10G cooper 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 lost. Optional smart bypass (one pair) can be activated when switch encounters power failure or CPU fail. (-BT model)

**EN50155, EN45545-2, EN61373 verification; High ESD protection**

TPGS-L6408XFTR passed serious tests under extensive

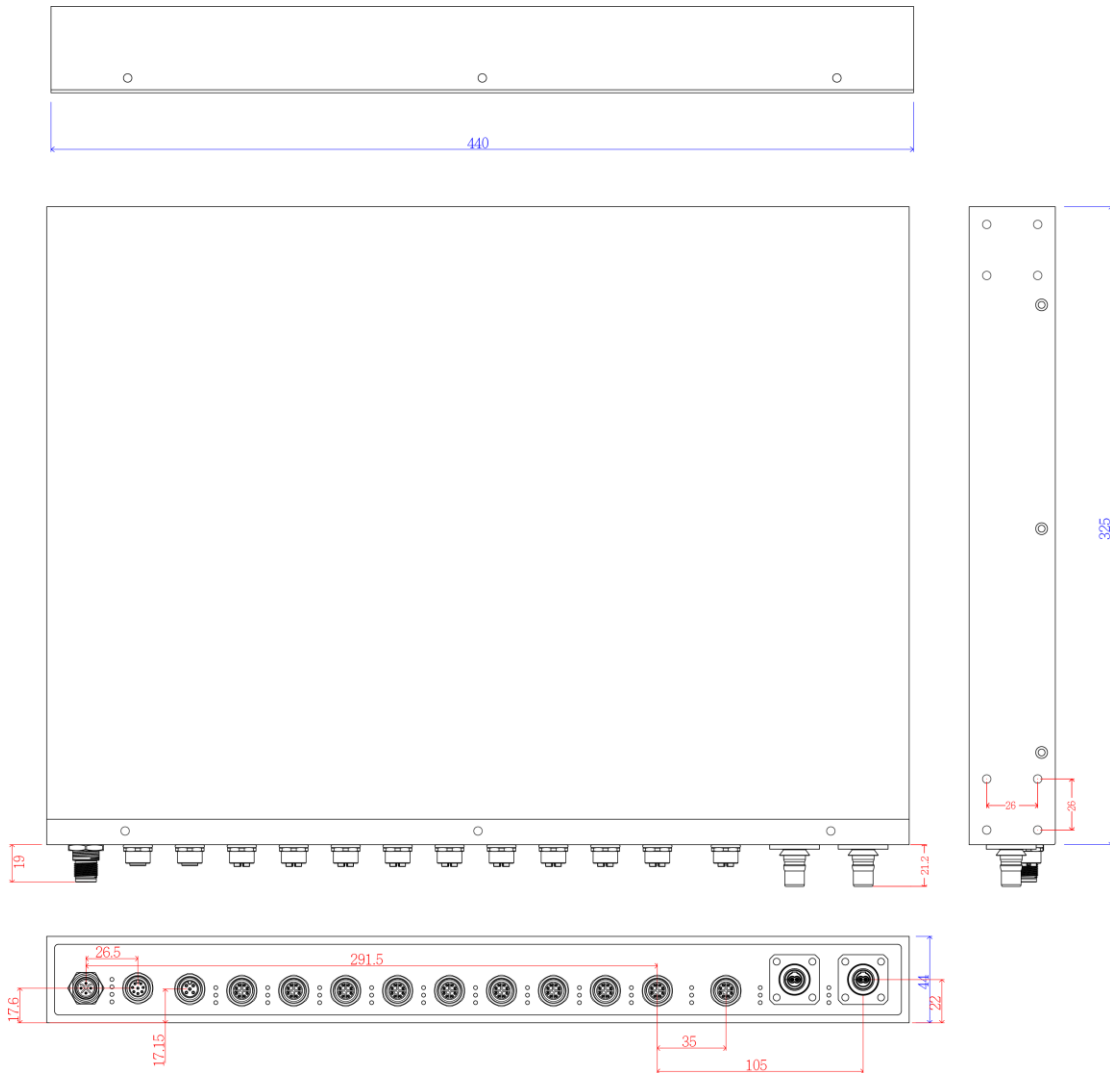
Industrial EMI and Safety standards. With EN45545-2 Fire & Smoke and EN50155 verification, the TPGS-L6408XFTR is best switch for railway on-board/track side, vehicle and mining

applications. For more usage flexibilities, TPGS-L6408XFTR supports wide operating temperature from -40°C to 70°C. (85°C operation for 10min.)

## FEATURES & BENEFITS

- **8 10/100/1000T X-coded + 2 1G/2.5G/5G/10G Copper X-coded + 2 1G/10G SR/LR Fiber Q-ODC OM3 Ethernet Switch w/8 PoE 802.3af/at ports (Total 12 Ports Switch) to feed power up to 30W for active mode operation**
- **Dual WVI input (16.8V~137.5VDC) for PoE budget 80W**
- **Galvanic isolation from power input/Ethernet ports to system 1.5KV**
- **PoE management including PoE detection and scheduling for PD (power devices)**
- **Back-plane (Switching Fabric): 96Gbps**
- **16K MAC address table**
- **10KB Jumbo frame**
- **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 enhanced ring & basic ring*
  - *Enhanced G.8032 ring configuration with ease*
  - *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 with 8 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**
- **Support PXE to verify switch firmware with the latest or certain version**
- **DHCP server / client / DHCP Option 82 relay / DHCP Option 82 server; DHCP Snooping, Port based DHCP server; DHCP Option 66 ; basic IPv6 DHCP server**
- **Mac based DHCP server to assign IP address in DHCP network**
- **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*
- **System Event Log, SMTP alert and SNMP Trap for alarm support**
- **Inrush current protection**
- **Security**
  - *SSL/SSH v2/INGRESS ACL L2/L3*
  - *MAC address table: MAC address entries/Filter/static MAC-Port binding*
  - *Remote Admin: IP address security management to prevent unauthorized intruder*
  - *TACACS+*
  - *Login Security: IEEE802.1X/RADIUS*
  - *HTTPS for secure access to the web interface*
- **Static multicast forwarding forward reversed IGMP flow with multicast packets binding with ports for IP surveillance application**
- **IGMP router port for multicast protection**
- **IGMPv1,v2,v3 with Query mode for multi media**
- **Dual image firmware support**
- **MLD Snooping for IPv6 Multicast stream**
- **Enhanced Storm Control**
- **Factory reset pin to restore setting to factory default**
- **Enhanced environmental monitoring for system actual input voltage, current, ambient temperature and total power load**
- **Supports 2DI/DO (Digital Input/Digital Output)**
- **Configuration backup and restoration**
  - *Supports editable configuration file for system quick installation*
  - *USB port for upload/download the configuration file*
- **TFTP/HTTP firmware upgrade**
- **Wide operation temperature: -40~70C/-40~158F (85°C operation for 10min.)**
- **EN45545-2 Fire & Smoke, EN50155 and EN61373 shock/vibration verification**
- **Built-in IEC 61375-3-4 ECN (Ethernet Consist Network) to work with IEC61375-2-5 TBN**
- **Optional L3Lite/L3\*/ETBN to be upgradable**
- **Optional smart bypass (One pair) (-BT model)**
- **Diagnostic including Ping / ARP table / DDM information**
- **IP41 aluminum housing with wall mount design**

**DIMENSIONS (unit=mm)**



**SPECIFICATION**

**Hardware Specification**

|   |   |             |   |            |  |  |
|---|---|-------------|---|------------|--|--|
| Standards   | IEEE 802.3 10Base-T Ethernet                | Mac Address | 16K MAC address table                                   |            |  |  |
|   | IEEE 802.3u 100Base-TX                      |             | Jumbo frame   | 10KB       |  |  |
|   | IEEE802.3ab 1000Base-T                      |             |   | Connectors | 10/100/1000T: 8 x ports M12 8-pole X-coded with Auto MDI/MDI-X function          |  |
|   | IEEE802.3an 10Gbase-T                       |             |   |            | 1G/2.5G/5G/10G Copper: 2 x ports M12 8-pole X-coded with Auto MDI/MDI-X function |  |
|   | IEEE802.3ae 10Gbase-SR/LR                   |             |   |            | 1G/10G FX: 2x ports Q-ODC OM3 with multi-mode/single-mode Fiber                  |  |
|   | IEEE802.3x Flow Control and Back Pressure   |             |   |            | Power Input connector: 1 x M12 4-pole Male S-coded                               |  |
|   | IEEE802.3ad Port trunk with LACP            |             |   |            | Reset/Console/USB: 1 x M12 8-pole Female A-coded                                 |  |
|   | IEEE802.1d Spanning Tree                    |             |   |            | DIDO: 1 x M12 5-pole Female A-coded  |  |
|   | IEEE802.1w Rapid Spanning Tree              |             |   |            | Network Cable  | 10Base-T: 2-pair STP Cat. 3, 4, 5/ 5E/ 6 cable |
|   | IEEE802.1s Multiple Spanning Tree           |             |   |            |  | EIA/TIA-568 100-ohm (100m)                     |
| IEEE 802.1AB Link Layer Discovery Protocol (LLDP) | 100Base-TX: 2-pair STP Cat. 5/ 5E/ 6 cable  |             |   |            |  |  |
| IEEE 802.1X User Authentication (Radius)          | EIA/TIA-568 100-ohm (100m)                  |             |   |            |  |  |
| IEEE802.1p Class of Service                       | 1000Base-TX: 2-pair STP Cat. 5/ 5E/ 6 cable | LED         | Per unit: Power 1 (Green), Power 2 (Green), FAULT (Red) |            |  |  |
| IEEE802.1Q VLAN Tag                               | EIA/TIA-568 100-ohm (100m)                  |             |   |            |  |  |
| IEEE802.3at/af Power over Ethernet                | 10G Copper: 4-pair STP Cat6a/7 cable        |             |   |            |  |  |
| Switch Architecture                               | Back-plane (Switching Fabric): 96Gbps       |             |   |            |  |  |
| Transfer Rate                                     | 14,880pps for Ethernet port                 |             |   |            |  |  |
|   | 148,800pps for Fast Ethernet port           |             |   |            |  |  |
|   | 1,488,000pps for Gigabit Ethernet port      |             |   |            |  |  |

|                        | 10/100/1000T Ethernet port: Link/Activity (Green), Speed (Green); R.M. indicator (Green)<br>PoE: Link/Act (Green)<br>1G/2.5G/5G/10G copper: Link/Act (1G/2.5G/5G: Yellow; 10G: Orange)<br>1G/10G fiber: Link/Act (Orange)   |                    |             |                    |            |                  |     |             |                    |     |
|------------------------|---|--------------------|-------------|--------------------|------------|------------------|-----|-------------|--------------------|-----|
| 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 40 VDC, 200mA  |                    |             |                    |            |                  |     |             |                    |     |
| Operating Humidity     | 5% ~ 95% (Non-condensing)   |                    |             |                    |            |                  |     |             |                    |     |
| Operating Temperature  | -40°C~70°C / -40°F~158°F (85°C operation for 10min.)  |                    |             |                    |            |                  |     |             |                    |     |
| Storage Temperature    | -40°C~85°C / -40°F~185°F  |                    |             |                    |            |                  |     |             |                    |     |
| Power Supply           | Dual DC input,16.8~137.5VDC   |                    |             |                    |            |                  |     |             |                    |     |
| PoE Budget             | <table border="1"> <thead> <tr> <th>Input Range</th> <th>Power Input</th> <th>Maximal PoE Budget</th> </tr> </thead> <tbody> <tr> <td>16.8~27VDC</td> <td>Dual Power Input</td> <td>80W</td> </tr> <tr> <td>28~137.5VDC</td> <td>Single Power Input</td> <td>80W</td> </tr> </tbody> </table>                 | Input Range        | Power Input | Maximal PoE Budget | 16.8~27VDC | Dual Power Input | 80W | 28~137.5VDC | Single Power Input | 80W |
| Input Range            | Power Input   | Maximal PoE Budget |             |                    |            |                  |     |             |                    |     |
| 16.8~27VDC             | Dual Power Input  | 80W                |             |                    |            |                  |     |             |                    |     |
| 28~137.5VDC            | Single Power Input  | 80W                |             |                    |            |                  |     |             |                    |     |
| PoE pin assignment     | M12 port #1~#8 support IEEE 802.3at/af End-point, Alternative A mode  |                    |             |                    |            |                  |     |             |                    |     |
| Power Consumption      | 40.5W exclude PoE load  |                    |             |                    |            |                  |     |             |                    |     |
| Dimensions             | IP41 Aluminum alloy case<br>440mm(W)x44mm(H)x339.5mm(D)   |                    |             |                    |            |                  |     |             |                    |     |
| Weight                 | 2.9kgs  |                    |             |                    |            |                  |     |             |                    |     |
| Installation           | 1U Rack mount design  |                    |             |                    |            |                  |     |             |                    |     |
| EMI & EMS              | FCC Part 15 Class A,<br>IEC/EN61000-6-2<br>IEC/EN61000-6-4<br>CE EN55032 Class A<br>CE EN55024<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)   |                    |             |                    |            |                  |     |             |                    |     |
| MTBF                   | 421,920 hrs (standards: IEC 62380)  |                    |             |                    |            |                  |     |             |                    |     |
| Verifications & report | EN50155/EN50121-3-2/ EN 60077-1:2017/EN50121-4/IEC61373; EN55032; EN45545-1, EN 45545-2 Fire & Smoke verification   |                    |             |                    |            |                  |     |             |                    |     |
| Warranty               | 5 years   |                    |             |                    |            |                  |     |             |                    |     |
| Bypass**               | One pair bypass module on copper ports to pass to next switch in case of power failure and CPU fail   |                    |             |                    |            |                  |     |             |                    |     |

**Software Specification**

|                |  |
|----------------|--|
| Management     | SNMP v1 v2c, v3/ Web/Telnet/CLI  |
| SNMP MIB       | RFC 1213 MIBII<br>RFC 1158 MIB<br>RFC 1157 SNMP MIB<br>RFC 1493 Bridge MIB*<br>RFC 1573 IF MIB<br>RFC 2674 Q-Bridge MIB*<br>RFC 2819 RMON MIB<br>Private MIB   |
| ITU G.8032     | Support ITU G.8032 for Ring protection in less than 20ms for self-heal recovery (basic mode)<br>Support basic single ring & enhanced ring<br>Enhanced G.8032 ring configuration with ease<br>Ring covers multicast on different ports<br>Train mode for auto coupling ring configuration |
| PoE Management | 1. PoE Detection to check if PD hangs then restart the PD<br>2. PoE Scheduling to ON/OFF PD upon routine time table  |
| Per Port PoE   | On/ Off, voltage, current, watts, temperature  |

|                                   |  |
|-----------------------------------|--|
| Status                            |  |
| IEC 61375-3-4 standard            | <ul style="list-style-type: none"> <li>Support Linear Topology · Linear Topology with Dual Homing · Ring Topology · Ring Topology with Dual Homing and Ladder Topology with Dual Homing.</li> <li>Switch IP address support Consist network address definitions.</li> <li>Set traffic priority with Supervisor/Message/Stream/Process/Best Effort in consist network.</li> </ul>   |
| L3L/IEC61375-2-5/L3*              | Optional L3L/IEC61375-2-5/L3* upgradable   |
| User friendly UI                  | <ul style="list-style-type: none"> <li>Auto topology drawing</li> <li>Topology demo</li> <li>Complete CLI for professional setting</li> </ul>  |
| Port Trunk with LACP              | LACP Port Trunk: 8 Trunk groups/Maximum 8 trunk members  |
| LLDP                              | Supports LLDP to allow switch to advise its identification and capability on the LAN   |
| CDP                               | Cisco Discovery Protocol for topology mapping  |
| Enhanced Environmental Monitoring | System status for actual input voltage, current, total power load 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, QoS<br>Protocol based VLAN<br>IPv4 Subnet based VLAN  |
| Spanning Tree                     | 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 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.<br>802.1X access control for port based and MAC based authentication/MAC-Port binding<br>Ingress 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; Supports IGMP static route; 1024 multicast groups; IGMP router port; IGMP query; GMRP  |
| MLD Snooping                      | Support IPv6 Multicast stream  |
| Static MAC-Port bridge            | Static multicast forwarding forward reversed IGMP flow 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  |
| Enhanced Storm                    | prevents traffic on a LAN from being disrupted   |

|                       |  |
|-----------------------|--|
| Control               | by a broadcast, multicast, or unicast storm on one of the physical interfaces  |
| 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            | <ul style="list-style-type: none"> <li>■ Miss-wiring avoidance</li> <li>■ Node failure protection</li> <li>■ Loop protection</li> </ul>  |
| SNMP Trap             | Up to 5 trap stations; trap types including: <ul style="list-style-type: none"> <li>● Device cold start</li> <li>● Authorization failure</li> <li>● Port link up/link down</li> <li>● DI/DO open/close</li> <li>● Typology change (ITU ring)</li> <li>● Power failure</li> <li>● Environmental abnormal</li> </ul> |
| PXE                   | PXE to verify switch firmware with the latest or certain version   |
| 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 that can include dumb switch in DHCP network  |
| DNS                   | Provide DNS client feature and can set Primary   |

|                                   |   |
|-----------------------------------|---|
|                                   | and Secondary DNS server  |
| SNTP                              | Supports SNTP to synchronize system clock in Internet   |
| Firmware Update                   | Supports TFTP/FTP firmware update, TFTP backup and restore; HTTP firmware upgrade   |
| Dual Image Firmware               | Support dual image firmware function  |
| 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).   |
| Optional L3Lite/L3*/ETBN**        | Lantech OS3 are optional upgradable to L3 Lite/ L3* or ETBN communication protocols for future expansion. The optional L3Lite includes editable routing table, VRRP, Router-on-a-stick, Inter-VLAN routing. Optional ETBN complies with IEC61375-2-5 ETBN for Train Backbone Network. Detail SPEC upon request. |
| Diagnostic                        | Support Ping, ARP table and DDM information   |
| 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. One pair bypass models are available with –BT model names.

- **TPGS-L6408XFTR-8-QMM-41-WVI.....P/N: 8361-003**  
8 10/100/1000T PoE at/af up to 30W + 2 1G/10G Copper M12 X-coded + 2 10G Multimode Fiber Q-ODC OM3 Giga 550M; w/8 at/af PoE EN50155 OS3 Managed Ethernet Switch ; 16.8V~137.5V dual input ; IP41 Rack mount design ; -40°C to 70°C ; w/ PoE galvanic isolation
- **TPGS-L6408XFTR-8-QMM-41-WVI-BT.....P/N: 8361-0035**  
8 10/100/1000T PoE at/af up to 30W + 2 1G/10G Copper M12 X-coded + 2 10G Multimode Fiber Q-ODC OM3 Giga 550M; w/8 at/af PoE EN50155 OS3 Managed Ethernet Switch ; 16.8V~137.5V dual input ; IP41 Rack mount design ; -40°C to 70°C ; w/ PoE galvanic isolation; one pair Copper bypass
- **TPGS-L6408XFTR-8-QSM-41-WVI.....P/N: 8361-0031**  
8 10/100/1000T PoE at/af up to 30W + 2 1G/10G Copper M12 X-coded + 2 10G Single mode Fiber Q-ODC OM3 up to 40KM; w/8 at/af PoE EN50155 OS3 Managed Ethernet Switch ; 16.8V~137.5V dual input ; IP41 Rack mount design ; -40°C to 70°C ; w/ PoE galvanic isolation

## OPTIONAL ACCESSORIES

### Software package

- **OS3 – L3L ..... P/N: 9000-114**  
OS3 software platform with Layer 3 Lite functions (please check Lantech software data sheet for details)
- **OS3 – IEC61375-2-5 ..... P/N: 9000-115**  
OS3 software platform with IEC-61375-2-5 ETBN (Ethernet Train Backbone Networks) functions incl. L3L (please check Lantech software data sheet for details)
- **OS3 – L3\* ..... P/N: 9000-116**  
OS3 software platform with Layer 3 functions incl. IEC61375-2-5 and L3L (please check Lantech software data sheet for details)

### M12 Connector & Cable

#### Connector

- **ECONM12-08A(M)-180** 8 pin M12 (Male) A-coded 180 degree crimp type connector for reset/console/USB
- **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-SCODE(F)70CM CABLE** 4 pin M12 (Female) S-coded cable for power supply, 70cm
- **ECONM12-08M2-CONSOLE** 8 pin M12 (Male) A-coded 180 degree to RS232 cable for console, 150cm
- **ECABM12X83MSTP** 8 pin M12 (Male) X-coded 180 degree RJ45 STP cable for data, shielded, 300cm

- **ECABM002-QOP2-3.0-MM-OM3** Q-ODC 2 plug/LC multimode fiber, MM-OM3, 300cm
- Others**
- **USB adapter (8850-102)** 8pin M12 (Male) A-coded 180 degree M12 to USB 2.0 interface adapter, 8cm
- **USB adapter set (8850-103)** 8 pin M12 (Male) A-coded 180 degree M12 to USB 2.0 to DB9 (Female) Cable, 150cm + USB NIC

**Lantech Communications Global Inc.**

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