T(P)GS-L6424XTR

24 10/100/1000T + 4 10G Copper M12 X-coded OS3 (w/8/16 PoE at/af) EN50155 Managed Ethernet Switch; WVI input

OVERVIEW

Lantech T(P)GS-L6424XTR is a high performance OS3 full Gigabit Ethernet switch with 24 10/100/1000T + 4 1G/2.5G/5G/10G copper M12 X-coded. PoE model has 8/16 PoE 802.3af/at ports which provides advanced security function for network aggregation deployment.

Up to 8/16 PoE at/af ports w/advanced PoE management and PoE galvanic isolation

Compliant with 802.3af/at standard, the PoE model is able to feed each PoE port up to 30 Watt at each PoE port for various IP PD devices. 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 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.

PoE galvanic isolation up to 1.5KVDC to provide power input to PoE Ethernet ports insulation prevents cabling and grounding incidents from damaging the Ethernet switch itself.

Lantech OS3 Platform with complete L2 management and upgradable optional L3 & communication protocols

The switch runs Lantech OS3 platform which is powerful with complete Layer 2 management features and optional upgradable for future expansion, such as Layer 3 Lite, Layer 3, IEC61375-2-5 (ETBN), etc. To learn more about the Lantech OS3 Platform, please refer to **Lantech OS3/OS4 Software Datasheet**

Enhanced cybersecurity features with IEC 62443-4-1 certification

Lantech OS3 platform is designed with high standard of cybersecurity to prevent the threats from network attack such as DDoS attacks. To ensure the safety and reliability of communication networks, Lantech develops our products under strict international security standard and is certified with IEC 62443-4-1 network security standard. To learn more about Lantech cybersecurity software solution, please refer to **Lantech OS3/OS4 Software Datasheet**

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 makes the switch much easier to get hands-on. The complete CLI enables professional engineer to configure setting by command line. It supports enhanced environmental monitoring for actual input voltage, current, ambient temperature and total power load.

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).

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 lost. Optional smart bypass (Up to two pairs) can be activated when switch encounters power failure. (-BT/-BBT model)

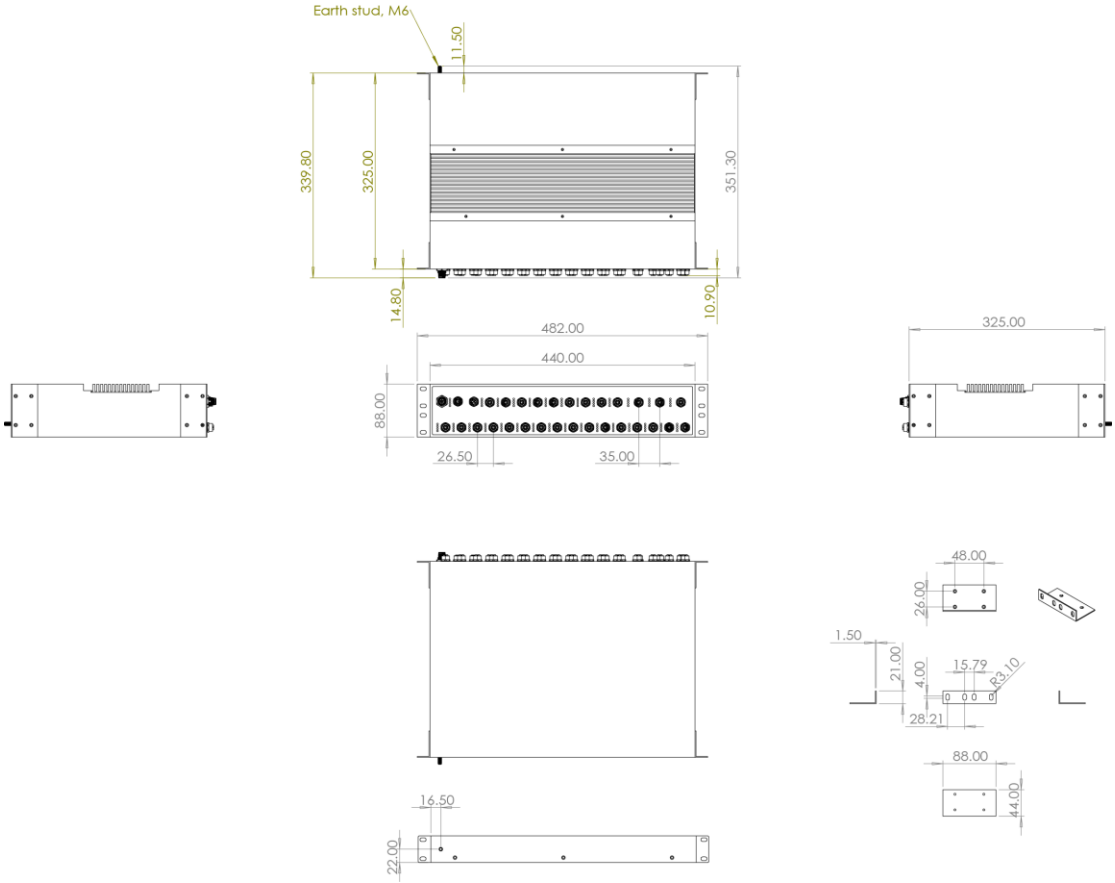
Dual WVI input with max PoE budget and Inrush current protection

The switch accept 16.8~137.5VDC (WVI model) dual input with galvanic isolation and PoE model can feed 54V output for PoE feeding with 160W budget. The inrush current on initial power up can be limited lower than 10 x nominal current.

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

The switch is designed to meet with critical network environment with IP41 aluminum enclosure and M12 connectors for water proof. The switch passed serious tests under extensive Industrial EMI and Safety standards. With EN45545-2 Fire & Smoke and EN50155 verification, it is 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 with the EN50155 Operating Temperature Range Requirement Class OT4.

DIMENSIONS (unit=mm)



SPECIFICATIONS

Hardware Specification

Standards	IEEE 802.3 10Base-T Ethernet IEEE 802.3u 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 IEEE 802.1AB Link Layer Discovery Protocol (LLDP) IEEE 802.1X User Authentication (Radius) IEEE802.1p Class of Service IEEE802.1Q VLAN Tag IEEE802.3at/af Power over Ethernet
Switch Architecture	Back-plane (Switching Fabric): 128Gbps
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	10/100/1000T: 24 ports M12 8-pole X-coded with Auto MDI/MDI-X function 1G/2.5G/5G/10G Copper: 4 x ports M12 8-pole X-coded with Auto MDI/MDI-X function Power Input connector: 1 x M12 4-pole Male S-coded Reset/Console/USB: 1 x M12 8-pole Female A-coded
	DIDO: 1 x M12 5-pole Female A-coded
Network Cable	100Base-TX: 2-pair STP Cat. 5/ 5E/ 6 cable EIA/TIA-568 100-ohm (100m) 1000Base-TX: 2-pair STP Cat. 5/ 5E/ 6 cable EIA/TIA-568 100-ohm (100m) 10G Copper: 4-pair STP Cat6a/7 cable
LED	Per unit: Power 1 (Green), Power 2 (Green), FAULT (Red) 10/100/1000T Ethernet port: Link/Activity (Green), Speed (Green); R.M. indicator (Green) PoE: Link/Act (Green) (PoE model) 1G/2.5G/5G/10G Copper port: Speed (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	-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	16.8~137.5VDC
PoE Budget (PoE model)	160W Higher PoE budget can be applied upon request. **
PoE pin assignment (PoE	M12 port #1~#8 (-8 model); port #1~#8 & #17~#24 (-16 model); support IEEE 802.3at/af

model)	End-point, Alternative A mode
Power Consumption	Max. 54.3W exclude PoE load
Dimensions	IP41 Aluminum alloy case (rack mount): 440mm(W)x88mm(H)x351.3mm(D)
Weight	5 kgs
Installation	2U Rack mount design
EMI & EMS	FCC, EN 55032:2015, EN 55024:2010, EN IEC 61000-6-2, EN IEC 61000-6-4, IEC 61000-4-2 (ESD), IEC 61000-4-3 (RS), IEC 61000-4-4 (EFT), IEC 61000-4-5 (Surge), IEC 61000-4-6 (CS), IEC 61000-4-8 (Magnetic field) BS EN61000-4-2, BS EN61000-4-3, BS EN61000-4-4,
	BS EN61000-4-5, BS EN61000-4-6, BS EN61000-4-8, BS EN55032, BS EN55024
Stability Testing	EN61373 (Shock and Vibration)
MTBF	TBC (standards: IEC 62380)
Verifications & report	EN50155:2017, EN50121-3-2:2016, EN50121-4:2016, EN45545-1, EN 45545-2 Fire & Smoke verification
Warranty	5 years
Bypass**	Up to two pairs copper bypass module on 10G copper ports to pass to next switch in case of power failure.

Software Specification

Lantech OS3 Platform	Download Software Datasheet

*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.

- **TPGS-L6424XTR-8-41-WVI.....P/N: 8361-006**
  24 10/100/1000T w/8 PoE at/af up to 30W + 4 10G M12 X-coded 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-L6424XTR-8-41-WVI-BT.....P/N: 8361-0061**
  24 10/100/1000T w/8 PoE at/af up to 30W + 4 10G M12 X-coded 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-L6424XTR-8-41-WVI-BBT.....P/N: 8361-0062**
  24 10/100/1000T w/8 PoE at/af up to 30W + 4 10G M12 X-coded EN50155 OS3 Managed Ethernet Switch ; 16.8V~137.5V dual input ; IP41 rack mount design ; -40°C to 70°C ; w/ PoE galvanic isolation ; two pairs copper bypass
- **TPGS-L6424XTR-16-41-WVI.....P/N: 8361-0063**
  24 10/100/1000T w/16 PoE at/af up to 30W + 4 10G M12 X-coded 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-L6424XTR-16-41-WVI-BT.....P/N: 8361-0064**
  24 10/100/1000T w/16 PoE at/af up to 30W + 4 10G M12 X-coded 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-L6424XTR-16-41-WVI-BBT.....P/N: 8361-0065**
  24 10/100/1000T w/16 PoE at/af up to 30W + 4 10G M12 X-coded EN50155 OS3 Managed Ethernet Switch ; 16.8V~137.5V dual input ; IP41 rack mount design ; -40°C to 70°C ; w/ PoE galvanic isolation ; two pairs copper bypass
- **TGS-L6424XTR-41-WVI.....P/N: 8361-0066**
  24 10/100/1000T + 4 10G M12 X-coded EN50155 OS3 Managed Ethernet Switch ; 16.8V~137.5V dual input ; IP41 rack mount design ; -40°C to 70°C ; w/ galvanic isolation
- **TGS-L6424XTR-41-WVI-BT.....P/N: 8361-00661**
  24 10/100/1000T + 4 10G M12 X-coded EN50155 OS3 Managed Ethernet Switch ; 16.8V~137.5V dual input ; IP41 rack mount design ; -40°C to 70°C ; w/ galvanic isolation ; one pair copper bypass
- **TGS-L6424XTR-41-WVI-BBT.....P/N: 8361-00662**
  24 10/100/1000T + 4 10G M12 X-coded EN50155 OS3 Managed Ethernet Switch ; 16.8V~137.5V dual input ; IP41 rack mount design ; -40°C to 70°C ; w/ galvanic isolation ; two pairs copper bypass

OPTIONAL ACCESSORIES

Software package

Please refer to the software datasheet

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** 4 pin M12 (Female) S-coded cable for power supply, 70cm

CABLE

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

Others

M12 to USB interface adapter	8 pin M12 (Male) A-coded 180 degree M12 to USB 2.0 interface adapter, 8cm
USB 2.0 Ethernet Adapter	USB 2.0 to RJ45 Ethernet Adapter
ECONM12-08(M) TO DB9+USB2.0-1.5M CABLE	8 pin M12 (Male) A-coded 180 degree M12 to USB2.0 to DB9 (Female) cable, 150cm

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