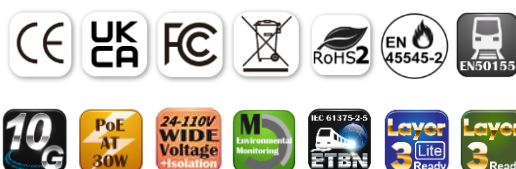# T(P)GS-L6424XFTR

24 10/100/1000T + 2 10G Copper + 2 10G Fiber Q-ODC OM3 (w/8/16 PoE at/af) EN50155 OS3 Managed Ethernet Switch; WVI input

OVERVIEW

Lantech T(P)GS-L6424XFTR is a high performance OS3 full Gigabit Ethernet switch with 24 10/100/1000T + 2 1G/2.5G/5G/10G copper + 2 1G/10G SR/LR Fiber Q-ODC OM3. 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; Ethernet power input 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.

Galvanic isolation between power input and Ethernet power system, also the PoE galvanic isolation provides insulation between the power input to PoE Ethernet ports, preventing cabling and grounding incidents from damaging the Ethernet switch. The efficiency of the galvanically decoupled voltage converters can reach above 90%.

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 with traps 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 (one pair) can be activated when switch encounters power failure. (-BT model)

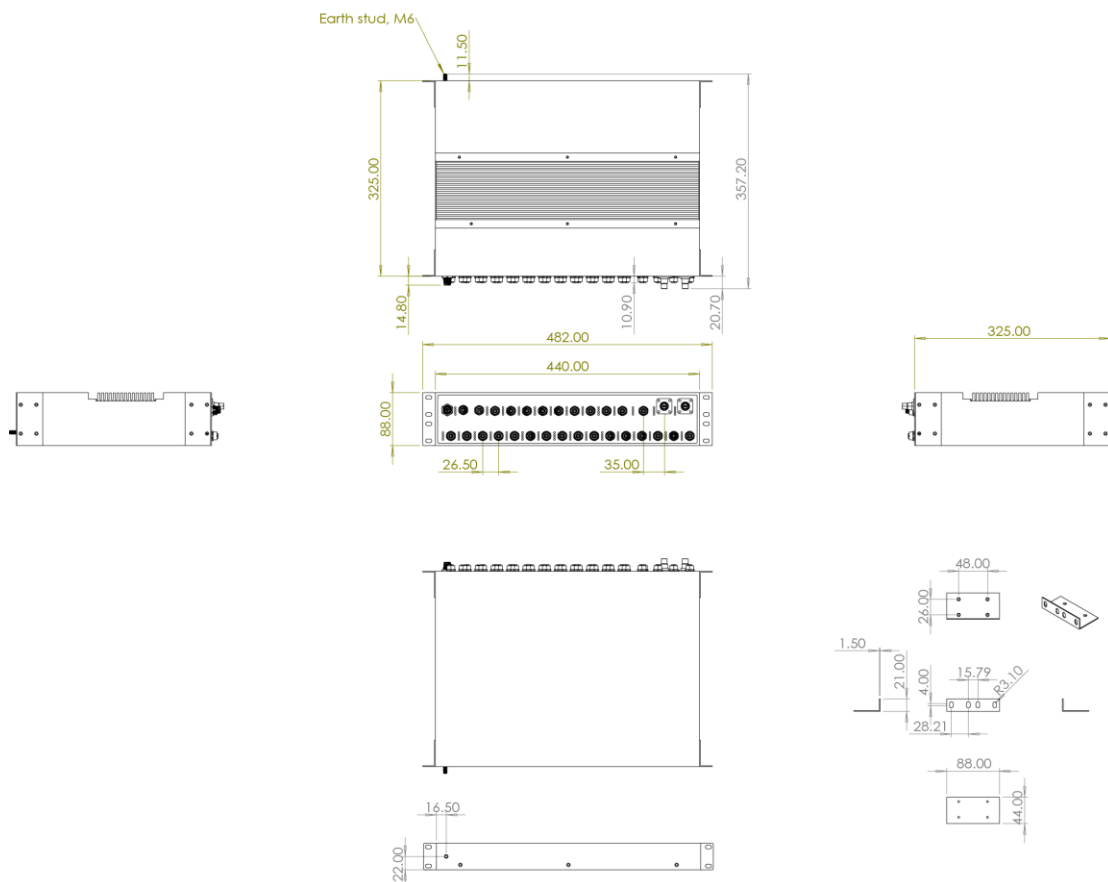### Dual WVI input with max PoE budget and Inrush current protection

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: 2 x ports M12 8-pole

	X-coded with Auto MDI/MDI-X function
	1G/10G FX: 2x ports Q-ODC OM3 with multi-mode/single-mode Fiber
	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	10Base-T: 4-pair STP Cat3 cable
	100Base-TX: 4-pair STP Cat3/5 cable
	1000Base-T: 4-pair STP Cat5/5e cable;
	2.5G Copper: 4-pair STP Cat5e cable
	10G Copper: 4-pair STP Cat6/6A cable
	1G/10G fiber:
	Multi-mode: 0 to 300 m, 850 nm (OM3 50/125 µm); Single-mode: 0 to 2 km, 1310 nm (9/125 µm)
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	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
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 16.8~137.5VDC (PoE galvanic isolation for PoE models; Ethernet galvanic isolation for all models)	
PoE Budget (PoE model)	160W Higher PoE budget can be applied upon request. **	
PoE pin assignment (PoE model)	M12 port #1~#8 (-8 model); port #1~#8 & #17~#24 (-16 model); support IEEE 802.3at/af End-point, Alternative A mode	
Power Consumption	Max. 54.3W exclude PoE load	
Dimensions	IP41 Aluminum alloy case (rack mount): 440mm(W)x88mm(H)x357.2mm(D)	

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**	One pair copper bypass module on 10G copper ports to pass to next switch in case of power failure

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,	

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 model names.

■ **TPGS-L6424XFTR-8-QMM-41-WVI...………….…..........P/N: 8361-010**
24 10/100/1000T w/8 PoE at/af up to 30W + 2 1G/10G Copper M12 X-coded + 2 10G Multimode Fiber Q-ODC OM3 300M; 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-L6424XFTR-8-QMM-41-WVI-BT...………..........P/N: 8361-0101**
24 10/100/1000T w/8 PoE at/af up to 30W + 2 1G/10G Copper M12 X-coded + 2 10G Multimode Fiber Q-ODC OM3 300M; 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-L6424XFTR-8-QSM-41-WVI...………….…..........P/N: 8361-0102**
24 10/100/1000T w/8 PoE at/af up to 30W + 4 10G M12 X-coded + 2 10G Single mode Fiber Q-ODC 2KM; 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-L6424XFTR-8-QSM-41-WVI-BT...………..........P/N: 8361-0103**
24 10/100/1000T w/8 PoE at/af up to 30W + 2 10G M12 X-coded + 2 10G Single mode Fiber Q-ODC 2KM; 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-L6424XFTR-16-QMM-41-WVI...………….…..........P/N: 8361-0104**
24 10/100/1000T w/16 PoE at/af up to 30W + 2 1G/10G Copper M12 X-coded + 2 10G Multimode Fiber Q-ODC OM3 300M; 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-L6424XFTR-16-QMM-41-WVI-BT...………..........P/N: 8361-0105**
24 10/100/1000T w/16 PoE at/af up to 30W + 2 1G/10G Copper M12 X-coded + 2 10G Multimode Fiber Q-ODC OM3 300M; 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-L6424XFTR-16-QSM-41-WVI...………….…..........P/N: 8361-0106**
24 10/100/1000T w/16 PoE at/af up to 30W + 2 10G M12 X-coded + 2 10G Single mode Fiber Q-ODC 2KM; 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-L6424XFTR-16-QSM-41-WVI-BT...………..........P/N: 8361-0107**
24 10/100/1000T w/16 PoE at/af up to 30W + 2 10G M12 X-coded + 2 10G Single mode Fiber Q-ODC 2KM; 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

■ **TGS-L6424XFTR-QMM-41-WVI...………….…...........P/N: 8361-0108**
24 10/100/1000T + 2 1G/10G Copper M12 X-coded + 2 10G Multimode Fiber Q-ODC OM3 300M; EN50155 OS3 Managed Ethernet Switch ; 16.8V~137.5V dual input ; IP41 rack mount design ; -40°C to 70°C ; w/ galvanic isolation

■ **TGS-L6424XFTR-QMM-41-WVI-BT...…………...............P/N: 8361-01081**

24 10/100/1000T + 2 1G/10G Copper M12 X-coded + 2 10G Multimode Fiber Q-ODC OM3 300M; 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-L6424XFTR-QSM-41-WVI...………......................P/N: 8361-0109**

24 10/100/1000T + 4 10G M12 X-coded + 2 10G Single mode Fiber Q-ODC 2KM; EN50155 OS3 Managed Ethernet Switch ; 16.8V~137.5V dual input ; IP41 rack mount design ; -40°C to 70°C ; w/ galvanic isolation

■ **TGS-L6424XFTR-QSM-41-WVI-BT...………...................P/N: 8361-01091**

24 10/100/1000T + 2 10G M12 X-coded + 2 10G Single mode Fiber Q-ODC 2KM; 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

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 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
■ **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

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