T(P)GS-L6416XT

16 GT + 4 10G Copper (w/8/10/16 PoE), EN50155 OS3 Managed Ethernet Switch; WVI / 24TVI input



OVERVIEW

Lantech T(P)GS-L6416XT is a high performance OS3 EN50155 Ethernet switch with 16 10/100/1000T + 4 1G/2.5G/5G/10G Copper. PoE model has 8/10/16 PoE 802.3af/at ports which provides advanced security function for network aggregation deployment. The OS3 platform supports L3**/L2, IPv6/v4, standardized ITU G.803 ring, IEC62443-4-2 semi-compliance cybersecurity, ETBN TTDP** protocol suitable for the future-proof modern network. Unique AUTO-FEED configuration and Health diagnostic snapshot maintenance to ensure reliable and easy onboard network deployment. Its 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. Compliance with EN50155 and EN45545-2 certifications assured the product meets world-class standards for rail onboard performance and reliability.

Dual WVI / 24TVI input with max PoE budget and Inrush current protection

The switch accepts 16.8~137.5VDC (WVI model); 16.8~56VDC (24TVI model) dual input with Ethernet and PoE galvanic isolation and PoE model can feed 54V output for PoE feeding with 80W budget (standard model) or 120W budget (120W model). The 120W WVI model can accept 16.8~137.5VDC and 24TVI model can accept 16.8~56V with T-code power connector. The inrush current on initial power up can be limited lower than 10 x nominal current.

Up to 8/16 PoE at/af on GT ports and 8 GT + 2 10G ports (-10 model) w/advanced PoE

management and PoE galvanic isolation; Ethernet power input galvanic isolation

Compliant with 802.3af/at standard, the PoE model can 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 and then restart the PD; PoE scheduling allows a pre-set power feeding schedule upon a routine timetable. Each PoE port 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** (https://www.lantechcom.tw/global/eng/download/datasheet/D-OS3_OS4.pdf)

Enhanced cybersecurity features with IEC 62443-4-1 certification, optional semi-compliant with IEC 62443-4-2

Lantech OS3 platform is designed with high standard of cybersecurity to prevent the threats from network attacks such as DDoS attacks. To ensure the safety and reliability of communication networks, Lantech develops our products under strict international security standards and is certified with IEC 62443-4-1 network security standards. The optional cybersecurity features that are compliant with IEC 62443-4-2 include vulnerability checking, encrypted files, public key management, strong password enforcement, account management, penetration and stress testing. Among many others, totaling up to 90 security measures. To learn more about Lantech cybersecurity software solution, please refer to **Lantech OS3/OS4 Software Datasheet** (https://www.lantechcom.tw/global/eng/download/datasheet/D-OS3_OS4.pdf)

Support Open API document for Restful API for better switch performance

The switch supports Restful API that uses JSON format to access and use data for GET, PUT, POST and DELETE types to avoid traditional SNMP management occupying CPU utilization. The OPEN API document format for Restful API can greatly improve central management efficiency for various applications including fleet management and AIOT.

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).

Auto feed configuration for swapped new switches for Seamless Network Maintenance, USB port for backup, restoring configuration and upgrading firmware, snapshot switch information for trouble-shooting analysis

The switch supports auto-feed configuration features that revolutionize network switch setup and management. It ensures that new and replacement switches automatically receive the correct configurations without manual intervention. Additionally, it supports the traditional way of uploading or downloading the firmware / configuration through a USB dongle. 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.

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

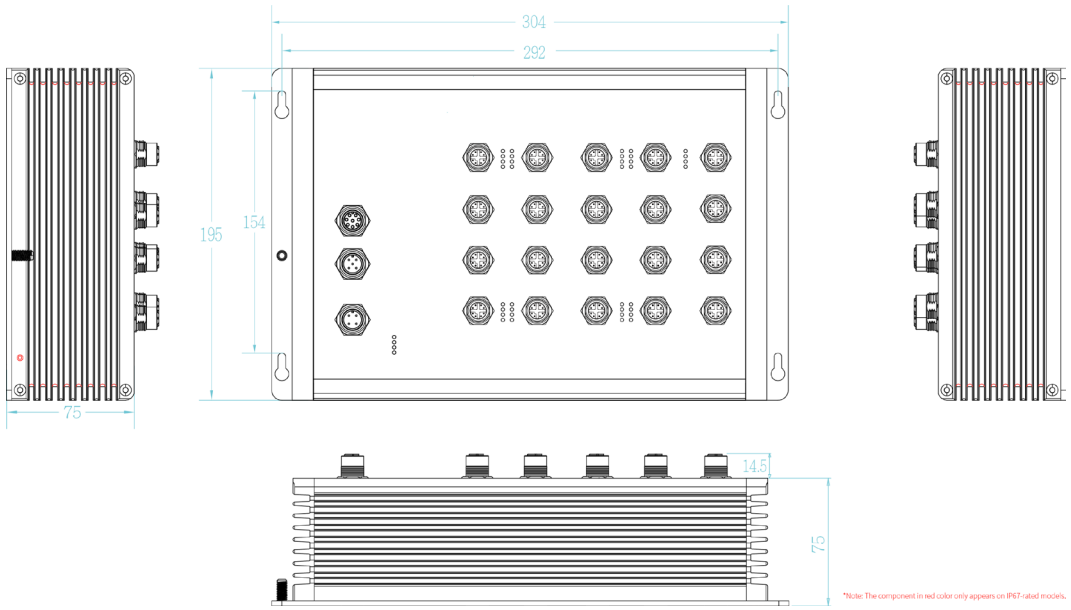
The bypass relay is set to bypass the switch to the next one when power is off to prevent network disruption. Lantech bypass caters to remain in bypass mode until the switch is completely booting up when power is back to avoid another network lost. Optional smart bypass (Up to two pairs) can be activated when switch encounters power failure. (-BT/-BBT model)

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

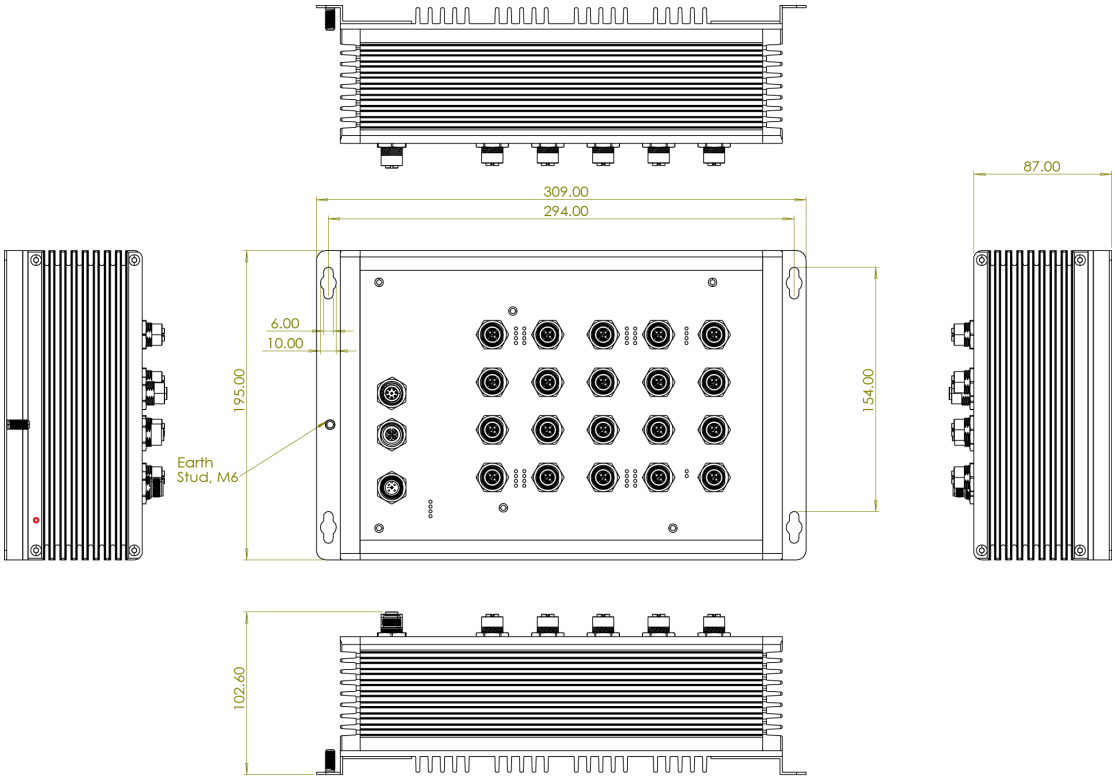
The switch is designed to meet with a critical network environment with IP54/IP67 aluminum enclosure and M12 connectors for waterproofing. The switch passed serious tests under extensive Industrial EMI and Safety standards. With EN45545-2 Fire & Smoke and EN50155 verification, it is best switch for railway 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.

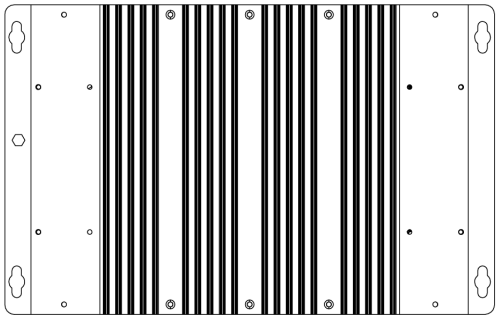
DIMENSIONS (unit=mm)

Standard model


304
292
195
154
75
14.5
75
*Note: The component in red color only appears on IP67-rated models.

120W model


309.00
294.00
87.00
6.00
10.00
195.00
154.00
Earth
Stud, M6
102.60



*Note: The component in red color only appears on IP67-rated models.

SPECIFICATIONS

Hardware Specification

Standards	IEEE802.3 10Base-T Ethernet IEEE802.3u 100Base-TX IEEE802.3ab 1000Base-T IEEE802.3ak 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 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
Switch Architecture	Back-plane (Switching Fabric): 112Gbps
Mac Address	16K MAC address table
Jumbo frame	10KB
Connectors	10/100/1000T:16 x M12 8-pole X-coded with Auto MDI/MDI-X function 1G/2.5G/5G/10G Copper: 4x M12 8-pole X-coded; port 17-18 Power Input connector: 1 x M12 4-pole Male A-coded (120W model: 1x M12 4-pole Male T-coded) Reset/Console/USB: 1 x M12 8-pole A-coded DIDO: 1 x M12 5-pole A-coded
Network Cable	1000Base-T: 4-pair STP Cat5E/6 cable; 10G Copper: 4-pair STP Cat6a/7 cable
LED	Per unit: Power 1 (Green), Power 2 (Green), FAULT (Red); RM(Green) 10/100/1000T Ethernet port: Link/Activity (Green) 1G/2.5G/5G/10G port: speed (1G/2.5G/5G: Yellow; 10G: Orange) PoE : Link/Act (Green) (PoE model)
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	Dual DC input 16.8~137.5VDC (WVI model) ; 16.8~56VDC (24TVI model) (PoE galvanic isolation for PoE models; Ethernet galvanic isolation for all models)
PoE Budget (PoE model)	Standard model: 80W 120W model: 120W @24V above Higher PoE budget can be applied upon request. **
PoE pin assignment (PoE model)	M12 port #1-#8/16 (-8/-16 model); port #1-#8; port #17-#18 support IEEE 802.3at/af End-point, Alternative A mode End-point. Per port provides up to 30W
Power Consumption	max. 40W exclude PoE load
Dimensions	IP54/IP67 model: Aluminum case 304mm(W)x195mm(H)x89.5mm(D) (standard model) 309mm(W)x195mm(H)x102.6mm(D) (-120W model)
Weight	3.45kgs
Installation	Wall Mount Design
EMI & EMS	FCC Part 15 Class A EN61000-6-2 EN61000-6-4 CE EN55032 Class A CE EN55024 CE EN61000-4-2 (ESD) Level 3 CE EN61000-4-3 (RS) Level 3 CE EN61000-4-4 (EFT) Level 3 CE EN61000-4-5 ED3 (Surge) Level 3 CE EN61000-4-6 (CS) Level 3 CE EN61000-4-8 (Magnetic field) Level 3 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
Verifications	EN50155/EN50121-3-2/EN50121-4; EN45545-1, EN 45545-2 Fire & Smoke verification
Stability Testing	EN61373 (Shock and Vibration)
MTBF	234,742 hrs (standards: IEC 62380)
Bypass**	Up to two pairs copper bypass module on 10G copper ports to pass to next switch in case of power failure (-10 model has only one pair copper bypass)

Software Specification

Lantech OS3/OS4 Platform
Download Software Datasheet
(https://www.lantechcom.tw/global/eng/download/datasheet/D-OS3_OS4.pdf)

*Future release
**Optional

ORDERING INFORMATION

All model packages include M12 caps. For optional bypass add –BT (one pair) & –BBT (two pairs) to end of model names. Optional coating add a –C at the end of each model name.

- **TPGS-L6416XT-8-54-WVI……P/N: 8361-637**
  16 10/100/1000T + 4 10G Copper M12 X-coded with 8 PoE at/af EN50155 OS3 Managed PoE Ethernet Switch ; 16.8V~137.5VDC dual input ; -40~70C/-40~158F ; IP54 housing w/ PoE galvanic isolation
- **TPGS-L6416XT-10-54-WVI……P/N: 8361-63703**
  16 10/100/1000T w/8 PoE at/af + 4 10G Copper w/2 PoE at/af M12 X-coded EN50155 OS3 Managed Ethernet Switch ; 16.8V~137.5VDC dual input ; -40~70C/-40~158F ; IP54 housing w/ PoE & Ethernet galvanic isolation
- **TPGS-L6416XT-10-54-WVI-BT……P/N: 8361-63713**
  16 10/100/1000T w/8 PoE at/af + 4 10G Copper w/2 PoE at/af M12 X-coded EN50155 OS3 Managed Ethernet Switch ; 16.8V~137.5VDC dual input ; -40~70C/-40~158F ; IP54 housing w/ PoE & Ethernet galvanic isolation; one-pair copper bypass
- **TPGS-L6416XT-16-54-WVI……P/N: 8361-6372**
  16 10/100/1000T + 4 10G Copper M12 X-coded with 16 PoE at/af EN50155 OS3 Managed PoE Ethernet Switch ; 16.8V~137.5VDC dual input ; -40~70C/-40~158F ; IP54 housing w/ PoE galvanic isolation
- **TGS-L6416XT-54-WVI……P/N: 8361-6371**
  16 10/100/1000T + 4 10G Copper M12 X-coded EN50155 OS3 Managed Ethernet Switch ; 16.8V~137.5VDC dual input ; -40~70C/-40~158F ; IP54 housing w/ galvanic isolation
- **TPGS-L6416XT-8-67-WVI……P/N: 8361-6376**
  16 10/100/1000T + 4 10G Copper M12 X-coded with 8 PoE at/af EN50155 OS3 Managed PoE Ethernet Switch ; 16.8V~137.5VDC dual input ; -40~70C/-40~158F ; IP67 housing w/ PoE galvanic isolation
- **TPGS-L6416XT-10-67-WVI……P/N: 8361-63704**
  16 10/100/1000T w/8 PoE at/af + 4 10G Copper w/2 PoE at/af M12 X-coded EN50155 OS3 Managed Ethernet Switch ; 16.8V~137.5VDC dual input ; -40~70C/-40~158F ; IP67 housing w/ PoE & Ethernet galvanic isolation
- **TPGS-L6416XT-16-67-WVI……P/N: 8361-6377**
  16 10/100/1000T + 4 10G Copper M12 X-coded with 16 PoE at/af EN50155 OS3 Managed PoE Ethernet Switch ; 16.8V~137.5VDC dual input ; -40~70C/-40~158F ; IP67 housing w/ PoE galvanic isolation
- **TGS-L6416XT-67-WVI……P/N: 8361-6378**
  16 10/100/1000T + 4 10G Copper M12 X-coded EN50155 OS3 Managed Ethernet Switch ; 16.8V~137.5VDC dual input ; -40~70C/-40~158F ; IP67 housing w/ galvanic isolation
- **TPGS-L6416XT-8-54-24TVI……P/N: 8361-63702**
  16 10/100/1000T + 4 10G Copper M12 X-coded with 8 PoE at/af EN50155 OS3 Managed PoE Ethernet Switch ; 16.8V~56VDC dual input ; -40~70C/-40~158F ; IP54 housing w/ PoE galvanic isolation
- **TPGS-L6416XT-10-54-24TVI……P/N: 8361-63705**
  16 10/100/1000T w/8 PoE at/af + 4 10G Copper w/2 PoE at/af M12 X-coded EN50155 OS3 Managed Ethernet Switch ; 16.8V~56VDC dual input ; -40~70C/-40~158F ; IP54 housing w/ PoE & Ethernet galvanic isolation
- **TPGS-L6416XT-16-54-24TVI……P/N: 8361-63722**
  16 10/100/1000T + 4 10G Copper M12 X-coded with 16 PoE at/af EN50155 OS3 Managed PoE Ethernet Switch ; 16.8V~56VDC dual input ; -40~70C/-40~158F ; IP54 housing w/ PoE galvanic isolation
- **TGS-L6416XT-54-24TVI……P/N: 8361-63712**
  16 10/100/1000T + 4 10G Copper M12 X-coded EN50155 OS3 Managed Ethernet Switch ; 16.8V~56VDC dual input ; -40~70C/-40~158F ; IP54 housing w/ galvanic isolation
- **TPGS-L6416XT-8-67-24TVI……P/N: 8361-63762**
  16 10/100/1000T + 4 10G Copper M12 X-coded with 8 PoE at/af EN50155 OS3 Managed PoE Ethernet Switch ; 16.8V~56VDC dual input ; -40~70C/-40~158F ; IP67 housing w/ PoE galvanic isolation
- **TPGS-L6416XT-10-67-24TVI……P/N: 8361-63706**
  16 10/100/1000T w/8 PoE at/af + 4 10G Copper w/2 PoE at/af M12 X-coded EN50155 OS3 Managed Ethernet Switch ; 16.8V~56VDC dual input ; -40~70C/-40~158F ; IP67 housing w/ PoE & Ethernet galvanic isolation
- **TPGS-L6416XT-16-67-24TVI……P/N: 8361-63772**
  16 10/100/1000T + 4 10G Copper M12 X-coded with 16 PoE at/af EN50155 OS3 Managed PoE Ethernet Switch ; 16.8V~56VDC dual input ; -40~70C/-40~158F ; IP67 housing w/ PoE galvanic isolation
- **TGS-L6416XT-67-24TVI……P/N: 8361-63782**
  16 10/100/1000T + 4 10G Copper M12 X-coded EN50155 OS3 Managed Ethernet Switch ; 16.8V~56VDC dual input ; -40~70C/-40~158F ; IP67 housing w/ galvanic isolation
- **TPGS-L6416XT-8-54-120W-WVI……P/N: 8361-63701**
  16 10/100/1000T + 4 10G Copper M12 X-coded with 8 PoE at/af 120W budget EN50155 OS3 Managed PoE Ethernet Switch ; 16.8V~137.5VDC dual input ; -40~70C/-40~158F ; IP54 housing w/ PoE galvanic isolation
- **TPGS-L6416XT-10-54-120W-WVI……P/N: 8361-63707**
  16 10/100/1000T w/8 PoE at/af + 4 10G Copper w/2 PoE at/af M12 X-coded 120W budget EN50155 OS3 Managed Ethernet Switch ; 16.8V~137.5VDC dual input ; -40~70C/-40~158F ; IP54 housing w/ PoE & Ethernet galvanic isolation
- **TPGS-L6416XT-16-54-120W-WVI……P/N: 8361-63711**
  16 10/100/1000T + 4 10G Copper M12 X-coded with 16 PoE at/af 120W budget EN50155 OS3 Managed PoE Ethernet Switch; 16.8V~137.5VDC dual input ; -40~70C/-40~158F ; IP54 housing w/ PoE galvanic isolation
- **TPGS-L6416XT-8-67-120W-WVI……P/N: 8361-63761**
  16 10/100/1000T + 4 10G Copper M12 X-coded with 8 PoE at/af 120W budget EN50155 OS3 Managed PoE Ethernet Switch; 16.8V~137.5VDC dual input ; -40~70C/-40~158F ; IP67 housing w/ PoE galvanic isolation
- **TPGS-L6416XT-10-67-120W-WVI……P/N: 8361-63708**

16 10/100/1000T w/8 PoE at/af + 4 10G Copper w/2 PoE at/af M12 X-coded 120W budget EN50155 OS3 Managed Ethernet Switch; 16.8V~137.5VDC dual input ; -40~70C/-40~158F ; IP67 housing w/ PoE & Ethernet galvanic isolation

- **TPGS-L6416XT-16-67-120W-WVI……P/N: 8361-63771**
  16 10/100/1000T + 4 10G Copper M12 X-coded with 16 PoE at/af 120W budget EN50155 OS3 Managed PoE Ethernet Switch ; 16.8V~137.5VDC dual input ; -40~70C/-40~158F ; IP67 housing w/ PoE galvanic isolation
- **TPGS-L6416XT-8-54-120W-24TVI……P/N: 8361-63781**
  16 10/100/1000T + 4 10G Copper M12 X-coded with 8 PoE at/af 120W budget EN50155 OS3 Managed PoE Ethernet Switch; 16.8V~56VDC dual input ; -40~70C/-40~158F ; IP54 housing w/ PoE galvanic isolation
- **TPGS-L6416XT-10-54-120W-24TVI……P/N: 8361-63709**
  16 10/100/1000T w/8 PoE at/af + 4 10G Copper w/2 PoE at/af M12 X-coded 120W budget EN50155 OS3 Managed Ethernet Switch; 16.8V~56VDC dual input ; -40~70C/-40~158F ; IP54 housing w/ PoE & Ethernet galvanic isolation
- **TPGS-L6416XT-16-54-120W-24TVI……P/N: 8361-63773**
  16 10/100/1000T + 4 10G Copper M12 X-coded with 16 PoE at/af 120W budget EN50155 OS3 Managed PoE Ethernet Switch ; 16.8V~56VDC dual input ; -40~70C/-40~158F ; IP54 housing w/ PoE galvanic isolation
- **TPGS-L6416XT-8-67-120W-24TVI……P/N: 8361-63774**
  16 10/100/1000T + 4 10G Copper M12 X-coded with 8 PoE at/af 120W budget EN50155 OS3 Managed PoE Ethernet Switch; 16.8V~56VDC dual input ; -40~70C/-40~158F ; IP67 housing w/ PoE galvanic isolation
- **TPGS-L6416XT-10-67-120W-24TVI……P/N: 8361-63710**
  16 10/100/1000T w/8 PoE at/af + 4 10G Copper w/2 PoE at/af M12 X-coded 120W budget EN50155 OS3 Managed PoE Ethernet Switch; 16.8V~56VDC dual input ; -40~70C/-40~158F ; IP67 housing w/ PoE & Ethernet galvanic isolation
- **TPGS-L6416XT-16-67-120W-24TVI……P/N: 8361-63775**
  16 10/100/1000T + 4 10G Copper M12 X-coded with 16 PoE at/af 120W budget EN50155 OS3 Managed PoE Ethernet Switch ; 16.8V~56VDC dual input ; -40~70C/-40~158F ; IP67 housing w/ PoE galvanic isolation

OPTIONAL ACCESSORIES

Software package

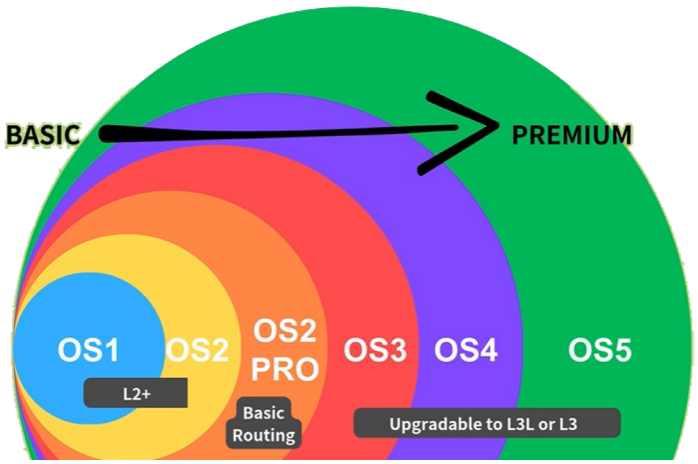
Please refer to the software datasheet (https://www.lantechcom.tw/global/eng/download/datasheet/D-OS3_OS4.pdf)

M12 Connector & Cable

Connector	
ECONM12-04A(F)-C-180	4 pin M12 (Female) A-coded 180 degree crimp type connector for power supply
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	
ECONM12-4P(F)1.5M CABLE	4 pin M12 (Female) A-coded 90 degree cable for power supply, 150cm
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

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

Lantech Communications Global Inc.
www.lantechcom.tw
info@lantechcom.tw

© 2026 Copyright Lantech Communications Global Inc. All rights reserved. Updated on 17 SEP 2026
The revised authority rights of product specifications belong to Lantech Communications Global Inc.
In a continuing effort to improve and advance technology, product specifications are subject to change without notice.