I(P)GS-5416MGSFP

16 10/100/1000T (PoE at/af) + 4 1G/2.5G SFP L2+ Industrial Managed Ethernet Switch; 24VI/24TVI/48V input models

OVERVIEW

Lantech I(P)GS-5416MGSFP is a high performance L2+ (All Gigabit) Ethernet switch with 16 10/100/1000T + 4 1G/2.5G SFP (w/16 PoE 802.3af/at Ports) which provides advanced security function for network aggregation deployment.

Up to 16 PoE at/af ports w/advanced PoE management; 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, 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.

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 reset button

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 traps. The factory reset button can restore the setting back to factory default.

PoE models: Dual power 24VI/24TVI/48V input, high PoE budget

The PoE model is designed with dual power supply at 44~56VDC (48V model), 9~36VDC (24VI model) or 16.8~56VDC input (24TVI model). The 48V model can have 240W PoE budget. 24VI and 24TVI model can have 80W PoE budget (@24VDC input). The PoE galvanic isolation is built in for 24VI and 24TVI models.

Non PoE models: 24VI/24TVI input voltage selection

The non-PoE model is able to work at dual 9~36VDC (24VI model) or 16.8~56VDC (24TVI model). The Ethernet galvanic isolation is built in.

Industrial hardened design with high EFT and ESD protection

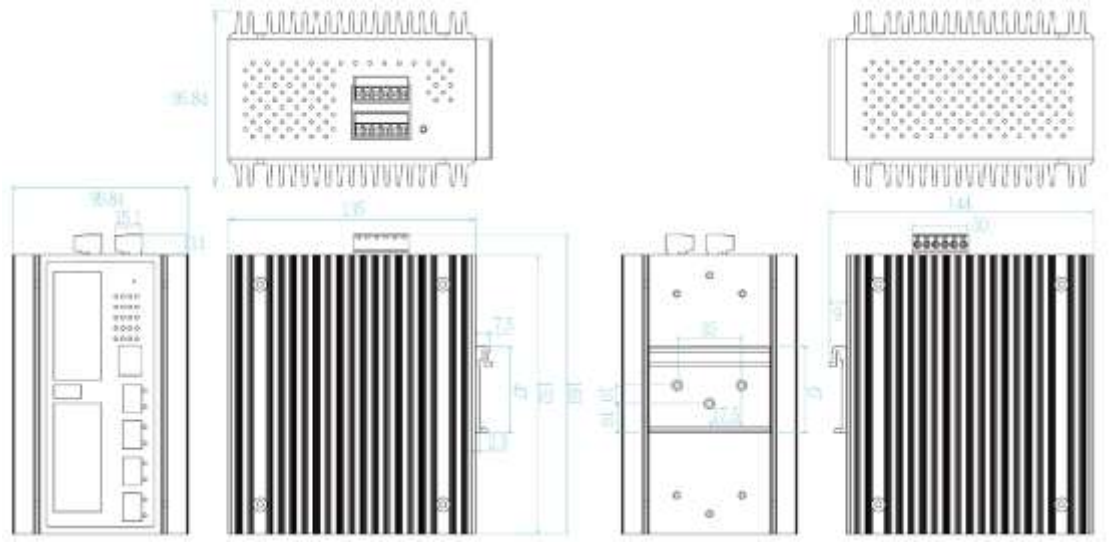
The switch features high reliability and robustness coping with extensive EMI/RFI phenomenon, environmental vibration and shocks usually found in factory, substation, steel automation, aviation, mining and process control. It is the best solution for Automation, transportation, autonomous vehicles, surveillance, Wireless backhaul, Semi-conductor factory applications. The -E model can be used in extreme environments with an operating temperature range of -40°C to 75°C.

E-marking certificate (24VI model) & EN50155 compliant (24TVI model)

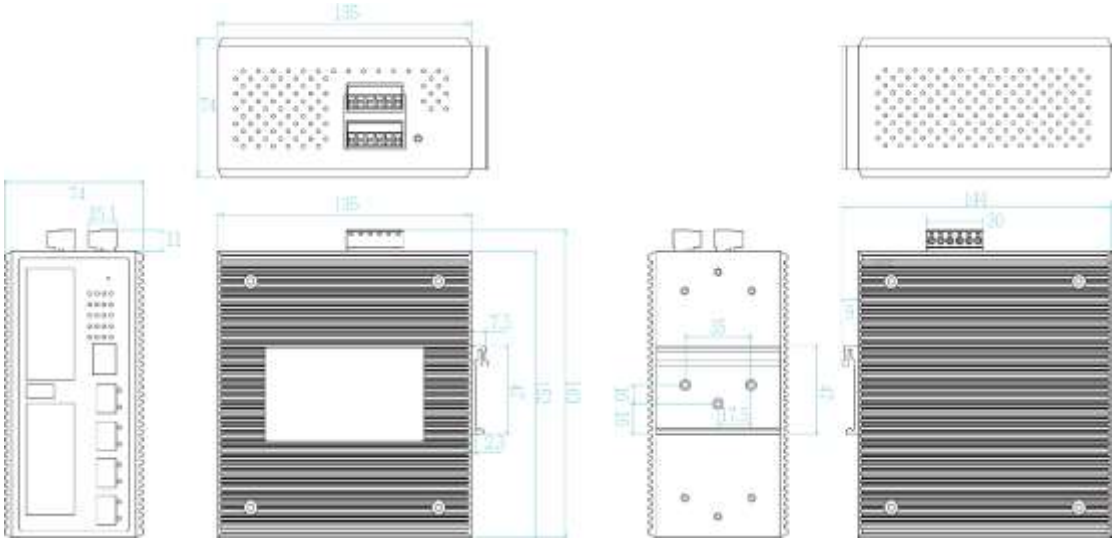
The E-marking certificate (24VI model) makes it the most suitable switch for bus, carriage, other vehicles application as well as for industrial areas where the power source is limited with 24V but has demand of IP surveillance or VoIP applications. With EN50155 verification, the 24TVI model is best switch for railway on-board/track side, vehicle, and mining applications.

DIMENSIONS (unit=mm)

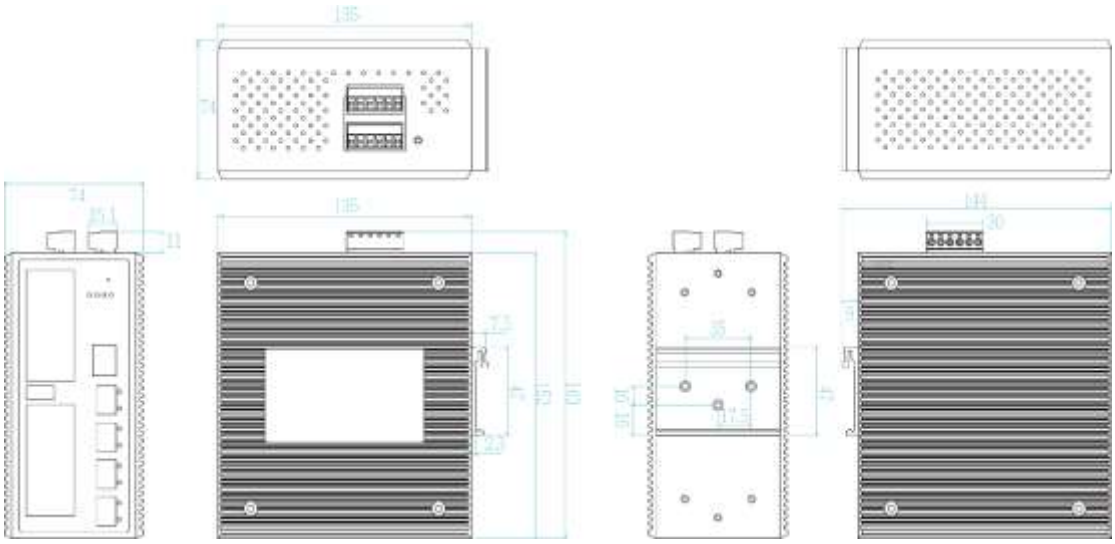
IPGS-5416MGSFP (24VI/24TVI model)



IPGS-5416MGSFP (48V model)



IGS-5416MGSFP



SPECIFICATIONS

Hardware Specification

Standards	IEEE802.3 10Base-T Ethernet IEEE802.3u 100Base-TX IEEE802.3ab 1000Base-T IEEE802.3z Gigabit fiber 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): 40Gbps
Forwarding rate	29.76Mpps
Mac Address	16K MAC address table
Jumbo frame	10KB
Connectors	10/100/1000T: 16 x ports RJ-45 with Auto MDI/MDI-X function Mini-GBIC: 4 x 1G/2.5G SFP socket with DDMI RS-232 connector: RJ-45 type USB x 1 Power connector: 1 x 6-pole terminal block DIDO: 1 x 6-pole terminal block
Network Cable	100Base-TX: 2-pair UTP/STP Cat. 5/ 5E/ 6 cable EIA/TIA-568 100-ohm (100m)
Optical Cable	**1Gbps:** Multi-mode: 0 to 550 m, 850 nm (50/125 µm); 0 to 2 km, 1310 nm (50/125 µm) Single mode: 0 to 10 km/ 30 km/ 40 km, 1310 nm (9/125 µm); 0 to 50 km/ 60 km/ 80km/ 120 km, 1550 nm (9/125 µm) **2.5Gbps** Multi-mode: 0 to 300 m, 850 nm (50/125 µm); Single mode: 0 to 2 km/ 15 km/ 40 km, 1310 nm (9/125 µm); 0 to 40 km/ 80 km/ 100km, 1550 nm (9/125 µm) **WDM 1Gbps:** Single-mode: 0 to 10 km/ 20 km/ 40 km/ 60 km, 1310 nm (9/125 µm); 0 to 80 km, 1490 nm (9/125 µm); 0 to 10 km/ 20 km/ 40 km/ 60 km/ 80 km, 1550 nm (9/125 µm) **WDM 2.5Gbps** Single-mode: 0 to 5 km/ 20 km/ 40 km/ 60 km, 1310 /1550nm (9/125 µm); 0 to 80 km, 1490/1550 nm (9/125 µm)
LED	Per unit: Power 1 (Green), Power 2 (Green), FAULT (Red); RM(Green) Ethernet port: Link/Activity (Green), Speed (Green); PoE: Link/Act (Green, PoE model); Mini-GBIC: Link/Activity (Green)
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 40 VDC, 200mA
Operating Humidity	5% ~ 95% (Non-condensing)
Operating Temperature	-20°C~60°C / -4°F~140°F (Standard model) -40°C~75°C / -40°F~167°F(-E model)
Storage Temperature	-40°C~85°C / -40°F~185°F
Power Supply	**IPGS-5416MGSFP** Dual DC input, 44~56VDC with Ethernet galvanic isolation (48V model); Dual DC input, 9~36VDC with PoE and Ethernet galvanic isolation (24VI model) Dual DC input, 16.8~56VDC with PoE and Ethernet galvanic isolation (24TVI model) **IGS-5416MGSFP** Dual DC input, 9~36VDC with Ethernet galvanic isolation (24VI model) Dual DC input, 16.8~56VDC with Ethernet galvanic isolation (24TVI model)
PoE Budget (PoE model)	240W @48VDC (48V model) (50-56VDC input is recommended for 802.3at 30W applications) 80W @24VDC (24VI/24TVI model) Higher PoE budget can be applied upon request. **
PoE pin assignment (PoE model)	RJ-45 port # 1~#16 support IEEE 802.3at/af End-point, Alternative A mode. Positive (VCC+): RJ-45 pin 1,2. Negative (VCC-): RJ-45 pin 3,6.
Power	Max. 21W

Consumption	
Case Dimension	Metal case. IP-30, 95.84 (W) x 135 (D) x 152 (H) mm (IPGS-5416MGSFP, 24VI/24TVI) 74 (W) x 135 (D) x 152 (H) mm (IPGS-5416MGSFP, 48V; IGS-5416MGSFP)
Weight	1400g (IGS-5416MGSFP) 1800g (IPGS-5416MGSFP, 48V) 1950g (IPGS-5416MGSFP, 24VI/24TVI)
Installation	DIN Rail and Wall Mount** Design
EMI & EMS	EN 55011:2016 FCC Class A, CE EN55035:2017/A11:2020, CE EN55032:2015/A11:2020, CE EN61000-4-2, CE EN61000-4-3, CE EN61000-4-4, CE EN61000-4-5, CE EN61000-4-6, CE EN61000-4-8,

	CE EN61000-6-2
Railway compliance	EN50155:2017, EN50121-3-2:2015, EN50121-4:2015, EN61373:2010 (24TVI model)
Safety	EN IEC 62368-1
Stability Testing	IEC60068-2-31 (Free fall), IEC60068-2-27 (Shock), IEC60068-2-6 (Vibration)
MTBF	586,057 hours (standards: IEC 62380)
Vehicle certificate	E24 marking (24VI model)
Warranty	5 years
CPU Clock	1.6Ghz
RAM	512MB
Software Specification	
Lantech OS3 Platform	Download Software Datasheet

*Future release
**Optional

ORDERING INFORMATION

- **IPGS-5416MGSFP-16-48V……P/N: 8350-860**
  16 10/100/1000T PoE at/af up to 30W + 4 1G/2.5G Dual Speed SFP L2+ Industrial Managed Ethernet Switch; -20°C to 60°C; Enhanced Environmental Monitoring; dual 44~56VDC input w/ Ethernet galvanic isolation; PoE budget 240W
- **IPGS-5416MGSFP-16-48V-E……P/N: 8350-861**
  16 10/100/1000T PoE at/af up to 30W + 4 1G/2.5G Dual Speed SFP L2+ Industrial Managed Ethernet Switch; -40°C to 75°C; Enhanced Environmental Monitoring; dual 44~56VDC input w/ Ethernet galvanic isolation; PoE budget 240W
- **IPGS-5416MGSFP-16-24VI……P/N: 8350-87622**
  16 10/100/1000T PoE at/af up to 30W + 4 1G/2.5G Dual Speed SFP L2+ Industrial Managed Ethernet Switch; -20°C to 60°C; Enhanced Environmental Monitoring; dual 9~36VDC input, PoE budget 80W at 24V w/ PoE & Ethernet galvanic isolation (E-Marking Certified)
- **IPGS-5416MGSFP-16-24VI-E……P/N: 8350-87632**
  16 10/100/1000T PoE at/af up to 30W + 4 1G/2.5G Dual Speed SFP L2+ Industrial Managed Ethernet Switch; -40°C to 75°C; Enhanced Environmental Monitoring; dual 9~36VDC input, PoE budget 80W at 24V w/ PoE & Ethernet galvanic isolation (E-Marking Certified)
- **IPGS-5416MGSFP-16-24TVI……P/N: 8350-87623**
  16 10/100/1000T PoE at/af up to 30W + 4 1G/2.5G Dual Speed SFP L2+ Industrial Managed Ethernet Switch; -20°C to 60°C; Enhanced Environmental Monitoring; dual 16.8~56VDC input, PoE budget 80W at 24V w/ PoE & Ethernet galvanic isolation (EN50155 Compliance)
- **IPGS-5416MGSFP-16-24TVI-E……P/N: 8350-87633**
  16 10/100/1000T PoE at/af up to 30W + 4 1G/2.5G Dual Speed SFP L2+ Industrial Managed Ethernet Switch; -40°C to 75°C; Enhanced Environmental Monitoring; dual 16.8~56VDC input, PoE budget 80W at 24V w/ PoE & Ethernet galvanic isolation (EN50155 Compliance)
- **IGS-5416MGSFP-24VI……P/N: 8350-8764**
  16 10/100/1000T + 4 1G/2.5G Dual Speed SFP L2+ Industrial Managed Ethernet Switch; -20°C to 60°C; Enhanced Environmental Monitoring; dual 9~36VDC input w/ Ethernet galvanic isolation (E-Marking Certified)
- **IGS-5416MGSFP-24VI-E……P/N: 8350-87652**
  16 10/100/1000T + 4 1G/2.5G Dual Speed SFP L2+ Industrial Managed Ethernet Switch; -40°C to 75°C; Enhanced Environmental Monitoring; dual 9~36VDC input w/ Ethernet galvanic isolation (E-Marking Certified)
- **IGS-5416MGSFP-24TVI……P/N: 8350-87641**
  16 10/100/1000T + 4 1G/2.5G Dual Speed SFP L2+ Industrial Managed Ethernet Switch; -20°C to 60°C; Enhanced Environmental Monitoring; dual 16.8~56VDC input w/ Ethernet galvanic isolation (EN50155 Compliance)
- **IGS-5416MGSFP-24TVI-E……P/N: 8350-87651**
  16 10/100/1000T + 4 1G/2.5G Dual Speed SFP L2+ Industrial Managed Ethernet Switch; -40°C to 75°C; Enhanced Environmental Monitoring; dual 16.8~56VDC input w/ Ethernet galvanic isolation (EN50155 Compliance)

OPTIONAL ACCESSORIES

Software package

Please refer to the software datasheet

48~54VDC DIN Rail Power for 802.3at Applications

- **NDR-480 Series** 480W Single Output Industrial Din Rail Power; 90-264VAC / 127-370VDC Input Range; Cooling by free air convection; RoHS2 ; Operating Temp. -20°C~70°C (ambient, derating each output at 2.5% per degree from 50°C ~ 70°C)

- **NDR-240 Series** 240W Single Output Industrial Din Rail Power, 90-264VAC / 127`370VDC Input Range; Cooling by free air convection; RoHS2 ; Operating Temp. -20°C~70°C (ambient, derating each output at 2.5% per degree from 50°C ~ 70°C)
- **NDR-120 Series** 120W Single Output Industrial Din Rail Power; 90-264VAC / 127-370VDC Input Range; Cooling by free air convection; RoHS2 ; Operating Temp. -20°C~70°C (ambient, derating each output at 2.5% per degree from 50°C ~ 70°C; For 115VAC, please refer to derating curve on NDR-120 Series datasheet)

Mini GBIC (SFP)

- **8330-162D-V1** MINI GBIC 1000SX (LC/0.5km) Transceiver
- **8330-163D-V1** MINI GBIC 1000SX2 (LC/2km) Transceiver
- **8330-165D-V1** MINI GBIC 1000LX (LC/10km) Transceiver
- **8340-0591D-V1** MINI GBIC 1000LHX (LC/40km) Transceiver
- **8330-166D-V1** MINI GBIC 1000XD (LC/50km) Transceiver
- **8330-169D-V1** MINI GBIC 1000XD (LC/60km) Transceiver
- **8330-167D-V1** MINI GBIC 1000ZX (LC/80km) Transceiver
- **8330-170D-V1** MINI GBIC 1000EZX (120km) Transceiver
- **8330-168-V1** MINI GBIC 1000T (100m) Transceiver
- **8330-188D-V1** LTSFP-1000BX-10KM Transceiver (WDM 1310)
- **8330-189D-V1** LTSFP-1000BX-10KM Transceiver (WDM 1550)
- **8330-186D-V1** LTSFP-1000BX-20KM Transceiver (WDM 1310)
- **8330-187D-V1** LTSFP-1000BX-20KM Transceiver (WDM 1550)
- **8330-180D-V1** LTSFP-1000BX-40KM Transceiver (WDM 1310)
- **8330-182D-V1** LTSFP-1000BX-40KM Transceiver (WDM 1550)
- **8330-181D-V1** LTSFP-1000BX-60KM Transceiver (WDM 1310)
- **8330-183D-V1** LTSFP-1000BX-60KM Transceiver (WDM 1550)
- **8330-184D-V1** LTSFP-1000BX-80KM Transceiver (WDM 1490)
- **8330-185D-V1** LTSFP-1000BX-80KM Transceiver (WDM 1550)
- **8330-262D-V1** MINI GBIC 2.5G 850nm VCSEL (LC/0.3km) Transceiver
- **8330-263D-V1** MINI GBIC 2.5G 1310nm FP (LC/2km) Transceiver
- **8330-265D-V1** MINI GBIC 2.5G 1310nm DFB (LC/15km) Transceiver

All SFP ended with D are with Diagnostic function

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