I(P)GS-R6416XF

16 10/100/1000T (PoE at/af) + 4 1G/2.5G/10G SFP+ OS4 Industrial Managed Ethernet Switch; 24V/24VI/48V input models w/ optional dynamic routing, multicast routing, cybersecurity, and hardware NAT



OVERVIEW

Lantech I(P)GS-R6416XF is a high performance OS4 (All Gigabit) Ethernet switch with 16 100/1000T + 4 1G/2.5G/10G auto sensing SFP+ (w/16 PoE 802.3af/at Ports) which provides advanced security function for network aggregation deployment.

Lantech OS4 Platform with complete L2 management and upgradable optional L3 & L3Lite communication protocols incl. dynamic routing, multicast routing, hardware NAT, and PTP

The switch runs Lantech OS4 platform which is powerful with complete Layer 2 management features and optional upgradable for future expansion, such as Layer 3 Lite, Layer 3, hardware NAT, PTP, etc. The PTP V2 supports transparent clock and two-step processing that improves network time accuracy and precision. To learn more about the Lantech OS4 Platform, please refer to **Lantech OS3/OS4 Software Datasheet**

Enhanced cybersecurity features with IEC 62443-4-1, optional IEC 62443-4-2 compliance & built-in DDoS attack protection

Lantech OS4 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 and the switch is also compliant to optional IEC 62443-4-2 standard. To learn more about Lantech cybersecurity software solution, please refer to **Lantech OS3/OS4 Software Datasheet**

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.

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.

Real-Time Clock for precise time

The switch built-in a real-time clock (RTC) for measurement the passage of time with a NTP server.

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 24V/48V input, high PoE budget

The PoE model is designed with dual power supply at 45~56VDC (48V model), 9~36VDC (24V model). The 48V model can have 240W PoE budget. 24V model can have 120W PoE budget (@24VDC input).

Non-PoE models: 24VI input voltage selection

The non-PoE model is able to work at dual 9~36VDC (24VI model) with Ethernet galvanic isolation.

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. 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.

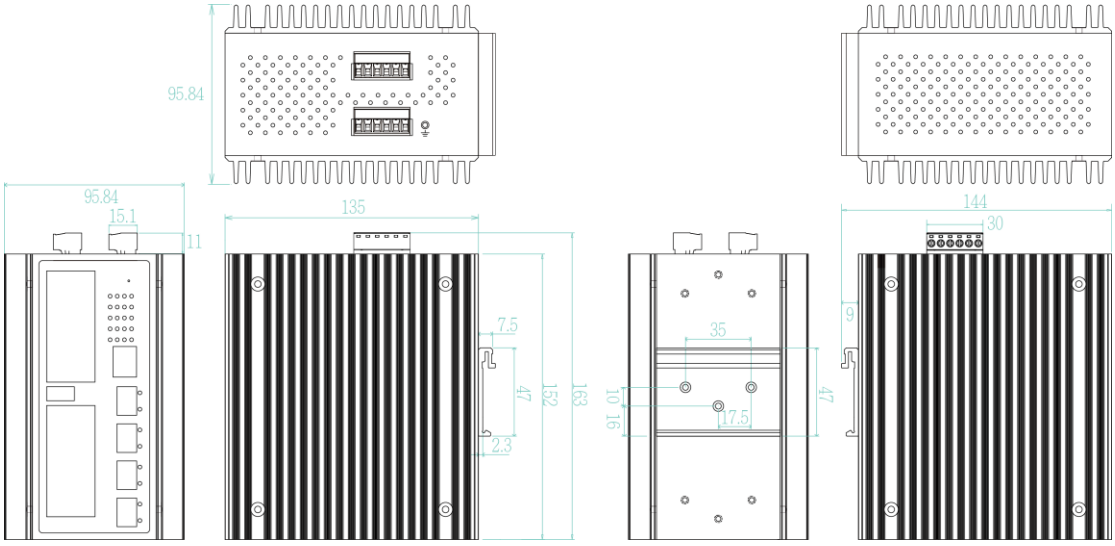
E-marking certificate*

The E-marking certificate (24V model) makes it the most suitable switch for bus, carriage, other vehicles applications as well as for industrial areas where the power source is limited with 24V but has demand of IP surveillance or VoIP

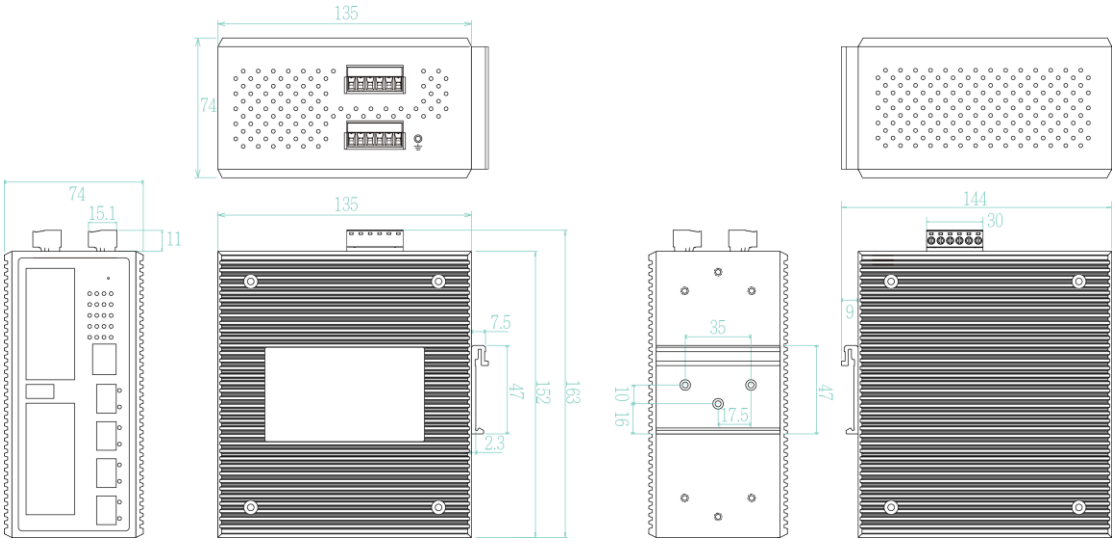
applications.

DIMENSIONS (unit=mm)

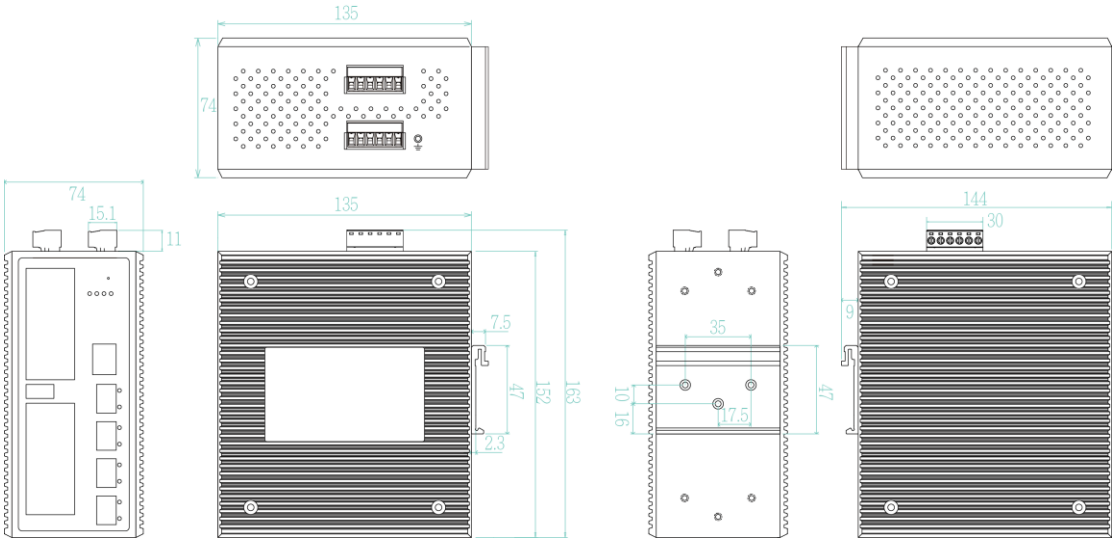
IPGS-R6416XF, 48V model



IPGS-R6416XF, 24V model



IGS-R6416XF, 24VI model



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): 112Gbps
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/10G SFP+ auto-sensing 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 STP Cat. 5/ 5E/ 6 cable; EIA/TIA-568 100-ohm (100m) 1000Base-T: 4-pair STP Cat5E/6 cable; 10GBaseT:4-pair STP Cat6/6A/7 cable
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) **10Gbps** Multi-mode: 0 to 300 m, 850 nm (OM3 50/125 µm); Single mode: 0 to 10 km/ 20 km, 1310 nm (9/125 µm); 0 to 40 km/ 80km/ 100 km, 1550 nm (9/125 µm) **WDM 10Gbps** Single-mode: 0 to 10 km/ 20 km/ 40 km/ 60 km, 1270/1330 nm (9/125 µm); 0 to 80km, 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); 10G (Amber) 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-R6416XF** Dual DC input, 45~56VDC with Ethernet galvanic isolation (48V model); Dual DC input, 9~36VDC with Ethernet galvanic isolation (24V model) **IGS-R6416XF** Dual DC input, 9~36VDC with Ethernet galvanic isolation (24VI model)
PoE Budget (PoE model)	240W at 50V input (50-56VDC input is recommended for 802.3at 30W applications)

	80W at 12V input; 120W at 24V input
PoE pin assignment (PoE model)	RJ-45 port # 1~#16 supports IEEE 802.3at/af End-point, Alternative A mode. Positive (VCC+): RJ-45 pin 1,2 Negative (VCC-): RJ-45 pin 3,6
Power Consumption	Max. 27W (full load w/o PoE)
Case Dimension	Metal case. IP-30, 95.84 (W) x 135 (D) x 152 (H) mm (48V model) 74 (W) x 135 (D) x 152 (H) mm (24V model)
Weight	1400g (IGS-R6416XF, 24V model) 1400g (IPGS-R6416XF, 24V model) 1800g (IPGS-R6416XF, 48V model)
Installation	DIN Rail and Wall Mount** Design
EMI & EMS	EN 55035:2017/A11:2020, EN 55032:2015/A11:2020, FCC Part 15, Subpart B ICES-003 Issue 7, IEC 61000-4-2:2008, IEC 61000-4-3:2020, IEC 61000-4-4:2012, IEC 61000-4-5:2014+AMD1:2017 CSV,
	IEC 61000-4-6:2023, IEC 61000-4-8:2009, IEC 61000-6-2:2016, IEC 61000-6-4:2018, EN IEC 61000-6-2:2019, EN IEC 61000-6-4:2019, BS EN 55035:2017+A11:2020, BS EN 55032:2015+A11:2020
Safety	EN IEC 62368-1
Stability Testing	IEC60068-2-31 (Free fall), IEC60068-2-27 (Shock), IEC60068-2-6 (Vibration)
MTBF	315,114hrs (standards: IEC 62380)
Vehicle certificate	E24* marking (24V model)
Warranty	5 years

Software Specification

Lantech OS4 Platform	Download Software Datasheet

*Future release
**Optional

ORDERING INFORMATION

- **IPGS-R6416XF-16-48V……..P/N: 8350-913**
  16 10/100/1000T PoE at/af up to 30W + 4 1G/2.5G/10G SFP+ OS4 Industrial PoE Managed Ethernet Switch; -20°C to 60°C; Enhanced Environmental Monitoring; dual 45~56VDC input w/ Ethernet galvanic isolation; PoE budget 240W
- **IPGS-R6416XF-16-48V-E……..P/N: 8350-9131**
  16 10/100/1000T PoE at/af up to 30W + 4 1G/2.5G/10G SFP+ OS4 Industrial PoE Managed Ethernet Switch; -40°C to 75°C; Enhanced Environmental Monitoring; dual 45~56VDC input w/ Ethernet galvanic isolation; PoE budget 240W
- **IPGS-R6416XF-16-24V……..P/N: 8350-9132**
  16 10/100/1000T PoE at/af up to 30W + 4 1G/2.5G/10G SFP+ OS4 Industrial PoE Managed Ethernet Switch; -20°C to 60°C; Enhanced Environmental Monitoring; dual 9~36V input w/ Ethernet galvanic isolation; PoE budget 80W at 12V, 120W at 24V
- **IPGS-R6416XF-16-24V-E……..P/N: 8350-9133**
  16 10/100/1000T PoE at/af up to 30W + 4 1G/2.5G/10G SFP+ OS4 Industrial PoE Managed Ethernet Switch; -40°C to 75°C; Enhanced Environmental Monitoring; dual 9~36V input w/ Ethernet galvanic isolation; PoE budget 80W at 12V, 120W at 24V
- **IGS-R6416XF-24VI……..P/N: 8350-9136**
  16 10/100/1000T + 4 1G/2.5G/10G SFP+ OS4 Industrial Managed Ethernet Switch; -20°C to 60°C; Enhanced Environmental Monitoring; dual 9~36V input w/ Ethernet galvanic isolation
- **IGS-R6416XF-24VI-E……..P/N: 8350-9137**
  16 10/100/1000T + 4 1G/2.5G/10G SFP+ OS4 Industrial Managed Ethernet Switch; -40°C to 75°C; Enhanced Environmental Monitoring; dual 9~36V input w/ Ethernet galvanic isolation

OPTIONAL ACCESSORIES

Software package

Please refer to the software datasheet

DIN Rail Power for 802.3at Applications

- **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)

Mini GBIC (SFP)

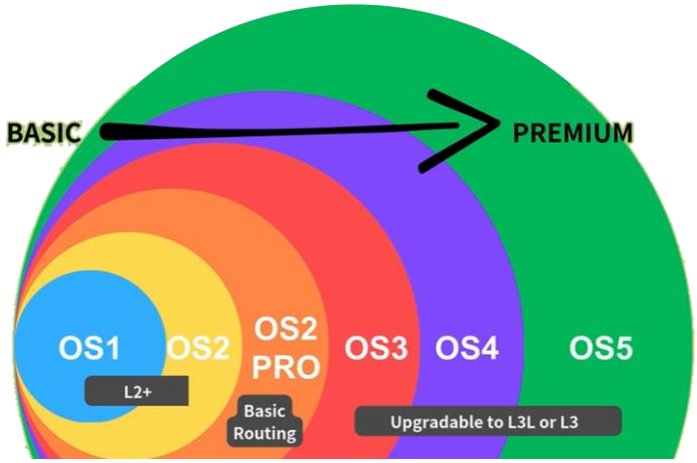
- **8330-162D-V1** MINI GBIC 1000SX (LC/0.5km) Transceiver
- **8330-163D-V1** MINI GBIC 1000SX2 (LC/2km) Transceiver
- **8330-165D-V1** MINI GBIC 1000LX (LC/10km) Transceiver
- **8340-0591D-V1** MINI GBIC 1000LHX (LC/40km) Transceiver
- **8330-166D-V1** MINI GBIC 1000XD (LC/50km) Transceiver
- **8330-169D-V1** 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
- **8330-193D-V1** 10G Base SFP+ SR, Multi-mode (LC/300m) Transceiver
- **8330-194D-V1** 10G Base SFP+ LR, Single-mode (LC/10km) Transceiver
- **8330-223D-V1** 10G Base SFP+ LR, Single-mode (LC/1310nm/20km) DDM Transceiver
- **8330-225D-V1** 10G Base SFP+ LR , Single-mode (LC/1310nm /40km)

DDM Transceiver
- **8330-205D-V1** 10G Base SFP+ LR , Single-mode (LC/1550nm/40km) DDM Transceiver
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- **8330-209D-V1** 10G Base SFP+ , Single-mode(10km) Transceiver (WDM 1270)
- **8330-210D-V1** 10G Base SFP+ , Single-mode(10km) Transceiver (WDM 1330)
- **8330-200D-V1** 10G Base SFP+ , Single-mode(20km) Transceiver (WDM 1270)
- **8330-201D-V1** 10G Base SFP+ , Single-mode(20km) Transceiver (WDM 1330)
- **8330-202D-V1** 10G Base SFP+ , Single-mode(40km) Transceiver (WDM 1270)
- **8330-203D-V1** 10G Base SFP+ , Single-mode(40km) Transceiver (WDM 1330)
- **8330-206-V1** 10G/5G/2.5G/1000Base-T SFP, 3.3V,30m (10G) 50m (2.5G/5G) 100m (1G); -10~70°C

All SFPs ended with D are with Diagnostic function

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

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