

# Industrial 8-Port 10/100TX 802.3at PoE + 2-Port Gigabit TP/SFP Combo Ethernet Switch (-40~75 degrees C)



## Cost-effective Full PoE+ Power and Gigabit Extension Solution Ideal for Hardened Environment

Designed to be plug-and-play installed in heavy industrial demanding environments, the IFGS-1022HPT is a new member of PLANET Industrial-grade, DIN-rail type Unmanaged Fast Ethernet PoE+ Switch family with **8 10/100/BASE-TX** ports featuring **30-watt 802.3at PoE+**, and **2 additional Gigabit copper/SFP** combo interfaces for Gigabit Ethernet extension and video uplink.

The IFGS-1022HPT is designed with redundant power system and is able to operate reliably, stably and quietly in any hardened environment without affecting its performance. It comes with a total power budget of up to **240 watts** for different kinds of PoE applications and operating temperature ranging from **-40 to 75 degrees C** in a rugged IP30 metal housing.



## 802.3at PoE+ Power and Ethernet Data Transmit Distance Extension

The IFGS-1022HPT has a built-in solid DIP switch providing **"Standard"** and **"Extend"** operation modes. The IFGS-1022HPT operates as a normal IEEE 802.3af/at PoE+ Switch in the **"Standard"** operation mode. In the **"Extend"** operation mode, the IFGS-1022HPT operates on a per-port basis at 10Mbps full duplex operation and can support 30-watt PoE power output over a distance of up to **250 meters**, overcoming the 100-meter limit on Ethernet UTP cable.

## Physical Port

- **Eight 10/100BASE-TX** Fast Ethernet RJ45 ports with **IEEE 802.3at/af PoE+** Injector (Port-1 to Port-8)
- **Two 10/100/1000BASE-T** Gigabit Ethernet RJ45 ports (Port-9 and Port-10)
- **Two 1000BASE-X mini-GBIC/SFP** slots for SFP type auto detection (Port-9 and Port-10)

## Power over Ethernet

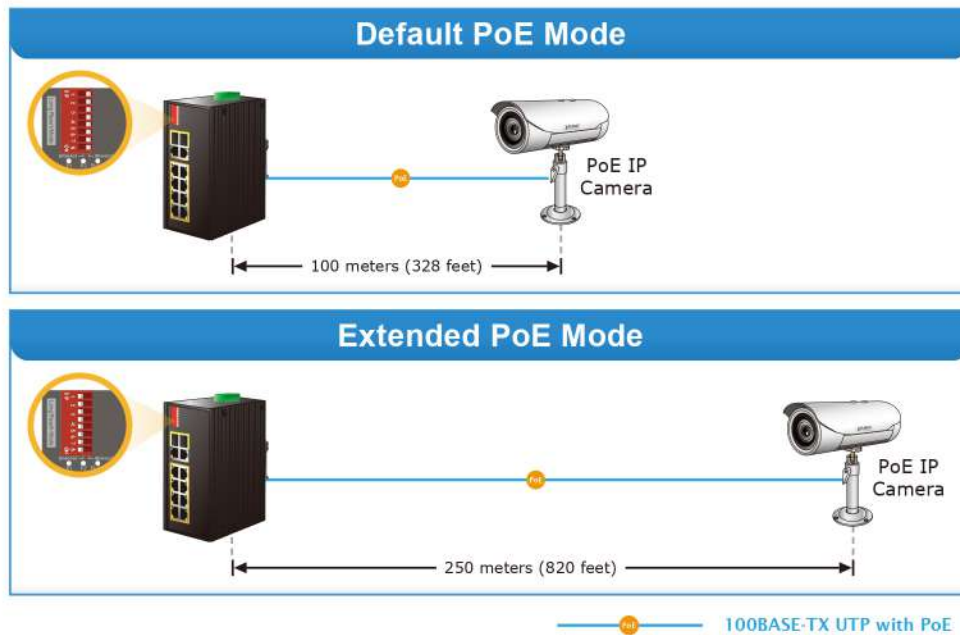
- Complies with IEEE 802.3at Power over Ethernet Plus, end-span PSE
- Backward compatible with IEEE 802.3af Power over Ethernet
- Up to 8 ports of IEEE 802.3af/802.3at devices powered
- 240-watt PoE budget
- Supports PoE power up to 30 watts for each PoE port
- Auto detects powered device (PD)
- Circuit protection prevents power interference between ports
- Remote power feeding up to 100 meters

## Industrial Case and Installation

- IP30 metal case
- DIN rail and wall-mount design
- 48~56V DC, redundant power with polarity reverse protect function
- Supports 6000V DC Ethernet ESD protection
- -40 to 75 degrees C operating temperature

## Switching

- Hardware-based 10/100Mbps (half/full duplex), 1000Mbps (full duplex), auto-negotiation and auto MDI/MDI-X
- Features Store-and-Forward mode with wire-speed filtering and forwarding rates
- IEEE 802.3x flow control for full duplex operation and back pressure for half duplex operation
- 16K MAC address table size
- 10K jumbo frame
- IEEE 802.1Q VLAN transparency
- Hardware DIP switch for **"Standard"** and **"Extend"** mode selection; the **"Extend"** mode features 30-watt PoE transmit distance of 250m at speed of 10Mbps
- Automatic address learning and address aging
- Supports CSMA/CD protocol



#### Two Gigabit Uplink Ports

The IFGS-1022HPT provides 2 extra Gigabit TP/SFP combo interfaces that enable network administrators to increase their network bandwidth to relieve traffic congestion when the 2 uplink ports are used to connect PoE-capable devices, such as NVR, Video Streaming Server, NAS and more. With the combo design, administrators can easily connect and supply power to PoE-capable devices no matter how large the network expansion is.

#### Flexibility and Long-distance Extension Solution

Through the two shared **Gigabit-speed fiber SFP** slots, it can also connect with the **1000BASE-SX/LX SFP** (Small Form-factor Pluggable) fiber transceiver to uplink to backbone switch and monitoring center in long distance. The distance can be extended from 550 meters (multi-mode fiber) to 10/20/30/40/50/60/70/120 kilometers (single-mode fiber or WDM fiber). They are well suited for applications within the industrial data centers and distributions.

#### Environmentally Hardened Design

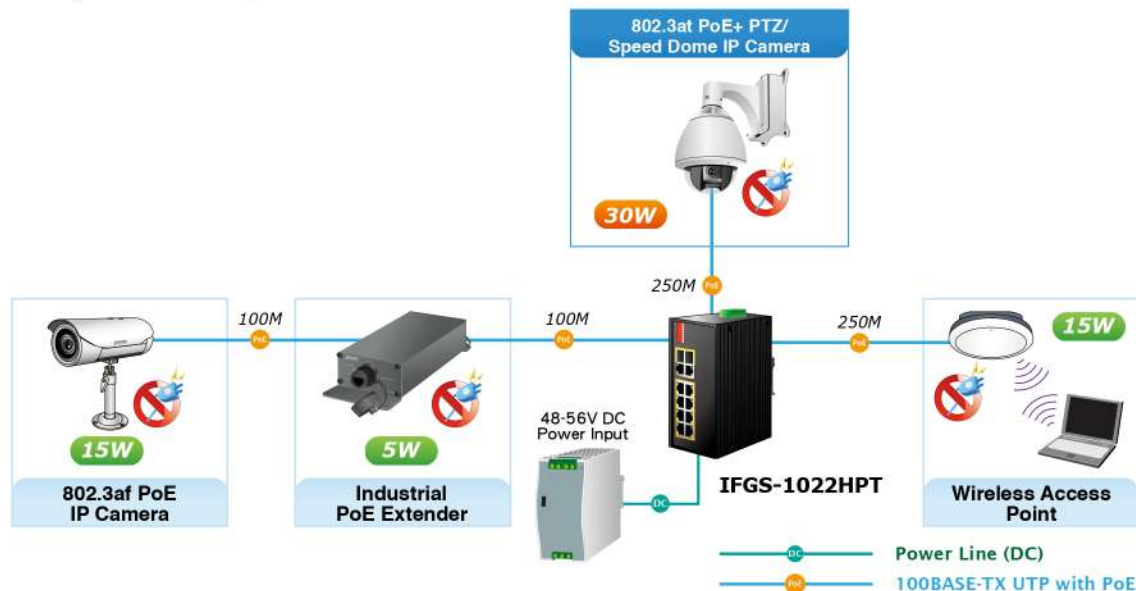
With the IP30 aluminum industrial case, the IFGS-1022HPT provides a high level of immunity against electromagnetic interference and heavy electrical surges which are usually found on plant floors or in curb-side traffic control cabinets without air conditioning. Being able to operate under the temperature range from -40 to 75 degrees C, the IFGS-1022HPT can be placed in almost any difficult environment.

#### Robust Protection

The IFGS-1022HPT provides contact discharge of  $\pm 6\text{KV}$  DC and air discharge of  $\pm 6\text{KV}$  DC for Ethernet ESD protection. It also supports  $\pm 6\text{KV}$  surge immunity to improve product stability and protects users' networks from devastating ESD attacks, making sure the flow of operation does not fluctuate.

### Safe and Easy PoE Network Deployment

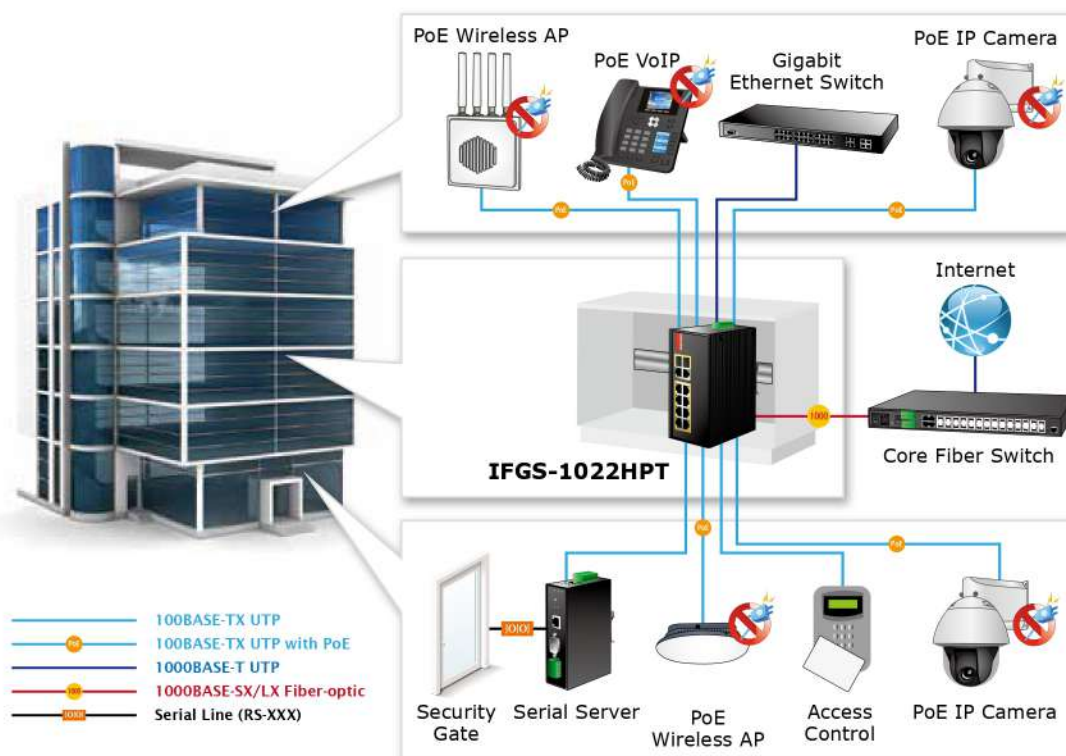
Carrying both Ethernet data and power simultaneously, the IFGS-1022HPT reduces cabling requirements and eliminates the need for dedicated electrical outlets on the wall, ceiling or any unreachable place. It helps users to utilize just one Ethernet cable to install and deploy IP camera, wireless AP or VoIP phone more efficiently and cost-effectively.



## Applications

### Industrial-grade PoE+ Switch for Building Automation and Security

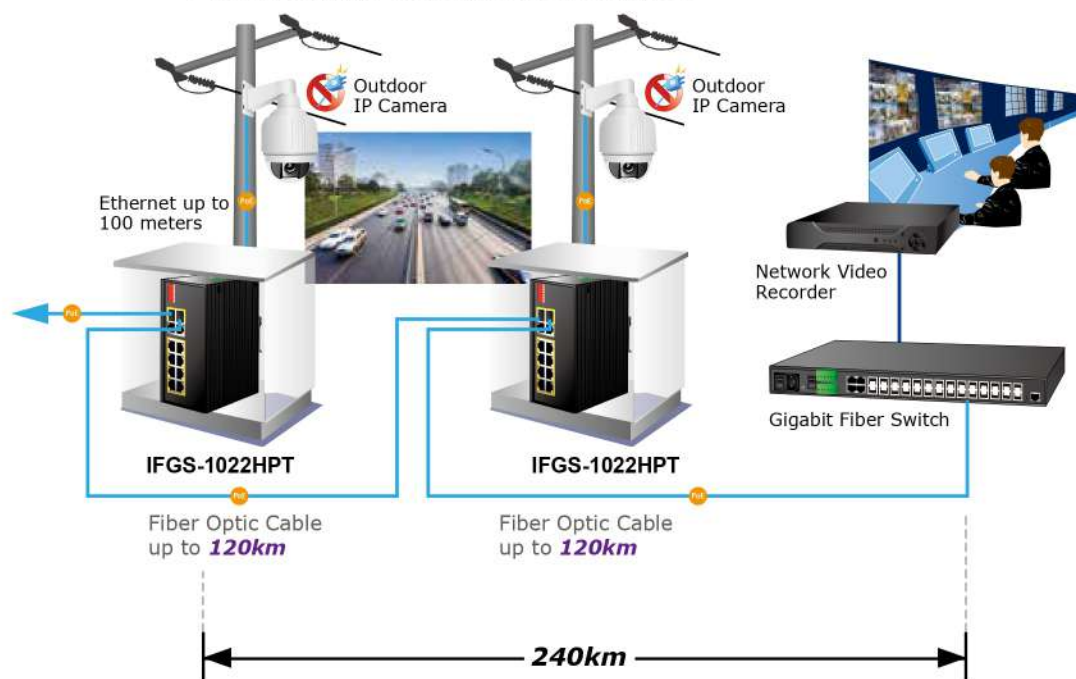
Suitable for buildings where security is strictly enforced, the IFGS-1022HPT, with eight Fast Ethernet 802.3af PoE+, in-line power interfaces, can easily build a power centrally controlled for an IP phone system, IP surveillance system, and wireless AP group in the harsh Industrial environment. For instance, 8 PoE IP cameras or PoE wireless APs can be easily installed for surveillance demands or a wireless roaming environment in the industrial area can be built. Without the power-socket limitation, the IFGS-1022HPT makes the installation of IP cameras or wireless APs easier and more efficient.



### Perfect Integration Solution for IP PoE Camera and NVR System

The IFGS-1022HPT provides eight 10/100BASE-TX 802.3at PoE+ ports which can offer sufficient PoE power to 8 PoE IP cameras at the same time. In addition, with the two 1000BASE-X SFP combo interfaces, the IFGS-1022HPT can connect to a core fiber switch and send video streams to an NVR and monitoring center. Through the high-performance switch architecture, the IFGS-1022HPT facilitates the recorded video files from the 8 PoE+ IP cameras to be saved in the NVR systems. Furthermore, the NVR systems can be controlled and monitored in both the local LAN and the remote site via Internet. The IFGS-1022HPT undoubtedly brings an ideal secure surveillance system at a lower total cost.

### Extending Ethernet Distance

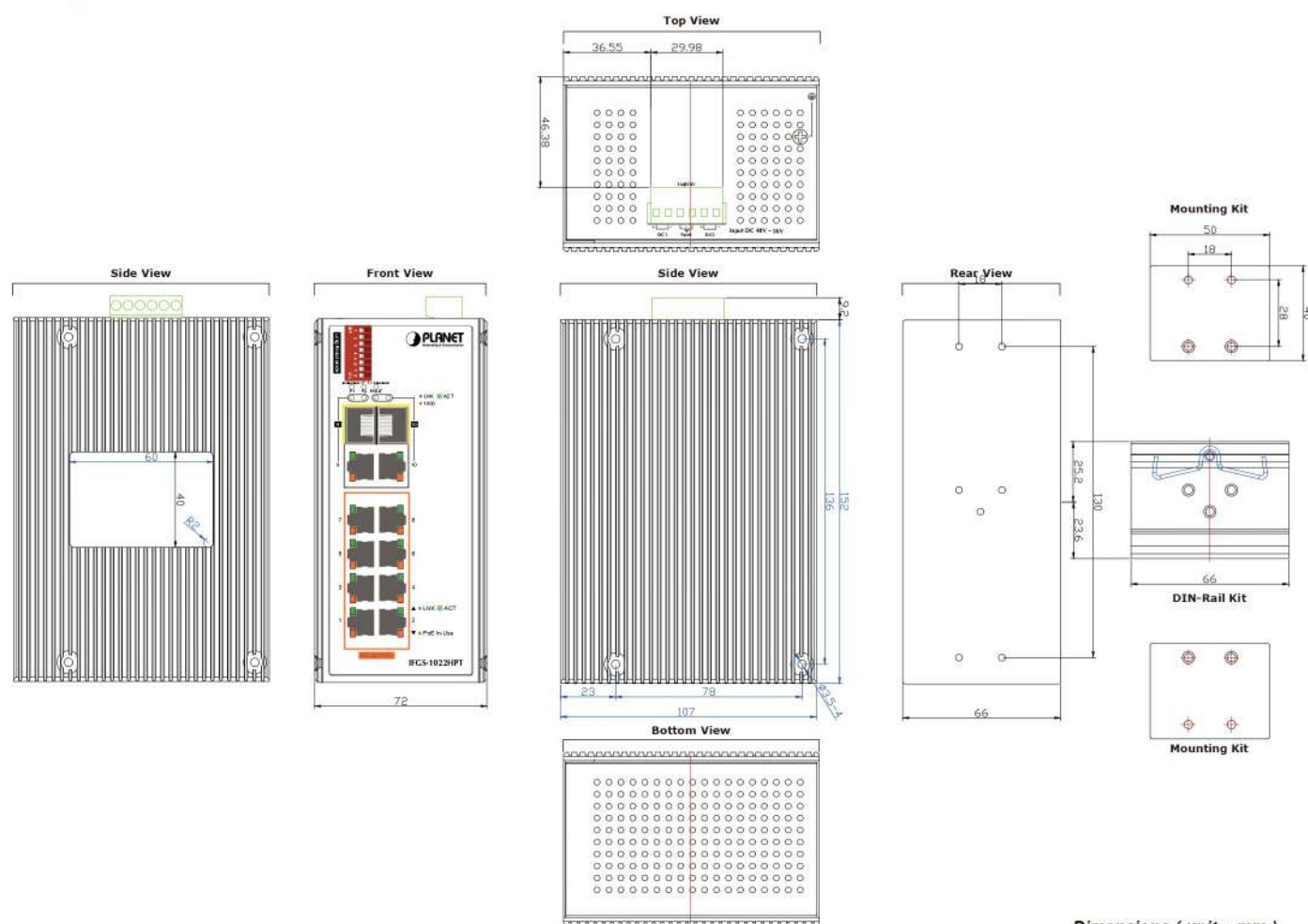


## Specifications

|                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|--------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Product                        | IFGS-1022HPT                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| <b>Hardware Specifications</b> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| Fast Ethernet Copper Ports     | Eight 10/100BASE-TX RJ45 auto-MDI/MDI-X ports (Port-1 to Port-8)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| Gigabit Ethernet Copper Ports  | Two 10/100/1000BASE-T RJ45 auto-MDI/MDI-X ports (shared with Port-9 and Port-10)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| SFP/mini-GBIC Slots            | Two 1000BASE-SX/LX/BX SFP interfaces (shared with Port-9 and Port-10)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| PoE Injector Port              | Eight ports with 802.3af/802.3at PoE+ injector function (Port-1 to Port-8)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Switch Architecture            | Store-and-Forward                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| Switch Fabric                  | 5.6Gbps/non-blocking                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| Switch Throughput@64 bytes     | 4.1Mpps @64 bytes                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| MAC Address Table              | 16K entries                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Shared Data Buffer             | 4Mb SRAM                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| Flow Control                   | IEEE 802.3x pause frame for full-duplex<br>Back pressure for half-duplex                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| Jumbo Frame                    | 10 Kbytes                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| DIP Switch (Port-1 to Port-8)  | Standard mode: 30-watt PoE transmit distance of 100m at speed of 10/100Mbps<br>Extend mode: 30-watt PoE transmit distance of 250m at speed of 10Mbps                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| LED                            | 3 x LED for System and Power:<br><ul style="list-style-type: none"> <li>■ Green: DC Power 1</li> <li>■ Green: DC Power 2</li> <li>■ Red: Power Fault Alarm</li> </ul> 2 x LED for PoE Copper Port (Port-1~Port-8):<br><ul style="list-style-type: none"> <li>■ Green: LNK/ACT (10/100Mbps)</li> <li>■ Orange: PoE-In-Use</li> </ul> 2 x LED for 10/100/1000T Copper Port (Port-9~Port-10):<br><ul style="list-style-type: none"> <li>■ Green: LNK/ACT</li> <li>■ Orange: 1000</li> </ul> 2 x LED for per mini-GBIC interface (Port-9~Port-10):<br><ul style="list-style-type: none"> <li>■ Green: LNK/ACT</li> <li>■ Orange: 1000</li> </ul> |
| Connector                      | Removable 6-pin terminal block<br><ul style="list-style-type: none"> <li>■ Pin 1/2 for Power 1</li> <li>■ Pin 3/4 for power fault alarm</li> <li>■ Pin 5/6 for Power 2</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| Alarm                          | One relay output for power failure.<br>Alarm relay current carry ability: 1A @ 24V AC                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| Power Requirements             | 48~56V DC, 5.5A (max.) (>51V DC for PoE+ output recommended)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| Power Consumption/ Dissipation | 6.4 watts, 21BTU (Standby without PoE function) at DC 56V power input<br>8.2 watts, 27BTU (Full loading without PoE function) at DC 56V power input<br>241 watts, 832BTU (Full loading with PoE function) at DC 56V power input                                                                                                                                                                                                                                                                                                                                                                                                              |
| Dimensions (W x D x H)         | 72 x 107 x 161 mm                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| Weight                         | 1034g                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| ESD Protection                 | 6KV DC                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| Enclosure                      | IP30 aluminum case                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Installation                   | DIN-rail kit and wall-mount kit                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| <b>Power over Ethernet</b>     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| PoE Standard                   | IEEE 802.3at Power over Ethernet Plus/PSE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| PoE Power Supply Type          | End-span                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| Power Pin Assignment           | 1/2(+), 3/6(-)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| PoE Power Output               | IEEE 802.3af Standard<br>- Per port 48V~51V DC (depending on the power supply), max. 15.4 watts<br>IEEE 802.3at Standard<br>- Per port 51V~56V DC (depending on the power supply), max. 30 watts                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| PoE Power Budget               | Dual power input: maximum 240W (depending on power input)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| Max. Number of Class 2 PDs     | 8                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| Max. Number of Class 3 PDs     | 8                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| Max. Number of Class 4 PDs     | 8                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| <b>Standards Conformance</b>   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| Regulatory Compliance          | FCC Part 15 Class A, CE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| Stability Testing              | IEC 60068-2-32 (free fall)<br>IEC 60068-2-27 (shock)<br>IEC 60068-2-6 (vibration)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |

|                       |                                            |
|-----------------------|--------------------------------------------|
| Standards Compliance  | IEEE 802.3 10BASE-T                        |
|                       | IEEE 802.3u 100BASE-TX                     |
|                       | IEEE 802.3ab Gigabit 1000BASE-T            |
|                       | IEEE 802.3z Gigabit SX/LX                  |
|                       | IEEE 802.3x Flow Control and Back Pressure |
|                       | IEEE 802.3af Power over Ethernet           |
| Environment           | IEEE 802.3at Power over Ethernet Plus      |
|                       |                                            |
|                       |                                            |
|                       |                                            |
| Operating Temperature | -40 ~ 75 degrees C                         |
| Storage Temperature   | -40 ~ 85 degrees C                         |
| Humidity              | 5 ~ 95% (non-condensing)                   |

## Diagram



Dimensions ( unit = mm )

## Ordering Information

|              |                                                                                                          |
|--------------|----------------------------------------------------------------------------------------------------------|
| IFGS-1022HPT | Industrial 8-Port 10/100TX 802.3at PoE + 2-Port Gigabit TP/ SFP combo Ethernet Switch (-40~75 degrees C) |
|--------------|----------------------------------------------------------------------------------------------------------|

## Related Products

|                 |                                                                                                                           |
|-----------------|---------------------------------------------------------------------------------------------------------------------------|
| IGS-4215-4P4T   | Industrial 4-Port 10/100/1000T 802.3at PoE + 4-Port 10/100/1000T Managed Switch                                           |
| IGS-4215-4P4T2S | Industrial 4-Port 10/100/1000T 802.3at PoE + 4-Port 10/100/1000T + 2-Port 100/1000X SFP Managed Switch (-40~75 degrees C) |
| IGS-4215-8P2T2S | Industrial 8-Port 10/100/1000T 802.3at PoE + 2-Port 10/100/1000T + 2-Port 100/1000X SFP Managed Switch (-40~75 degrees C) |

## Accessories

|            |                                                                                 |
|------------|---------------------------------------------------------------------------------|
| PWR-240-48 | 240W 48V DC Single Output Industrial DIN-rail Power Supply (-20 ~ 70 degrees C) |
| PWR-480-48 | 480W 48V DC Single Output Industrial DIN-rail Power Supply (-20 ~ 70 degrees C) |

## available Gigabit SFP Modules for IFGS-1022HPT

|           |                                                                          |
|-----------|--------------------------------------------------------------------------|
| MGB-GT    | SFP-Port 1000BASE-T Module                                               |
| MGB-SX    | SFP-Port 1000BASE-SX mini-GBIC module - 220/550m                         |
| MGB-SX2   | SFP-Port 1000BASE-SX mini-GBIC module - 2km                              |
| MGB-LX    | SFP-Port 1000BASE-LX mini-GBIC module - 10km                             |
| MGB-L30   | SFP-Port 1000BASE-LX mini-GBIC module - 30km                             |
| MGB-L50   | SFP-Port 1000BASE-LX mini-GBIC module - 50km                             |
| MGB-L70   | SFP-Port 1000BASE-LX mini-GBIC module - 70km                             |
| MGB-L120  | SFP-Port 1000BASE-LX mini-GBIC module - 120km                            |
| MGB-LA10  | SFP-Port 1000BASE-LX (WDM,TX:1310nm) mini-GBIC module - 10km             |
| MGB-LB10  | SFP-Port 1000BASE-LX (WDM,TX:1550nm) mini-GBIC module - 10km             |
| MGB-LA20  | SFP-Port 1000BASE-LX (WDM,TX:1310nm) mini-GBIC module - 20km             |
| MGB-LB20  | SFP-Port 1000BASE-LX (WDM,TX:1550nm) mini-GBIC module - 20km             |
| MGB-LA40  | SFP-Port 1000BASE-LX (WDM,TX:1310nm) mini-GBIC module - 40km             |
| MGB-LB40  | SFP-Port 1000BASE-LX (WDM,TX:1550nm) mini-GBIC module - 40km             |
| MGB-TSX   | SFP-Port 1000BASE-SX mini-GBIC module - 220/550m (-40 ~ 75°C)            |
| MGB-TLX   | SFP-Port 1000BASE-LX mini-GBIC module - 10km (-40 ~ 75°C)                |
| MGB-TL30  | SFP-Port 1000BASE-LX mini-GBIC module - 30km (-40 ~ 75°C)                |
| MGB-TL70  | SFP-Port 1000BASE-LX mini-GBIC module - 70km (-40 ~ 75°C)                |
| MGB-TLA10 | SFP-Port 1000BASE-LX (WDM,TX:1310nm) mini-GBIC module - 10km (-40 ~ 7°C) |
| MGB-TLB10 | SFP-Port 1000BASE-LX (WDM,TX:1550nm) mini-GBIC module - 10km (-40 ~ 7°C) |
| MGB-TLA20 | SFP-Port 1000BASE-LX (WDM,TX:1310nm) mini-GBIC module - 20km (-40 ~ 7°C) |
| MGB-TLB20 | SFP-Port 1000BASE-LX (WDM,TX:1550nm) mini-GBIC module - 20km (-40 ~ 7°C) |
| MGB-TLA40 | SFP-Port 1000BASE-LX (WDM,TX:1310nm) mini-GBIC module - 40km (-40 ~ 7°C) |
| MGB-TLB40 | SFP-Port 1000BASE-LX (WDM,TX:1550nm) mini-GBIC module - 40km (-40 ~ 7°C) |
| MGB-TLA60 | SFP-Port 1000BASE-LX (WDM,TX:1310nm) mini-GBIC module - 60km (-40 ~ 7°C) |
| MGB-TLB60 | SFP-Port 1000BASE-LX (WDM,TX:1550nm) mini-GBIC module - 60km (-40 ~ 7°C) |

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