# Industrial 4-/8-Port 10/100TX + 2-Port 1000X SFP Ring Ethernet Switch

## Brand-new Solution for More Practicability and Efficiency

In response to the growing demand for IIoT (Industrial Internet of Things) infrastructures, PLANET has launched a series of Industrial Ring Ethernet Switches designed for industrial networking applications. The series is able to operate in temperatures ranging from **-40** to **75 degrees C**. The IFGS-620TF, IFGS-624PTF and IFGS-1222TF Industrial Ring Ethernet Switches are designed for easy deployment of industrial networks with their Plug and Play capability. Furthermore, the series ensures stable and reliable data and power transmission at a high speed. It also supports PROFINET traffic pass-through with QoS, making it an ideal choice for integrating with industrial automation systems and enhancing communication between devices in a factory setting. The tables below show the models and descriptions with the number of ports:

| Model Name | Model Description |
|---|---|
| IFGS-620TF | Industrial 4-Port 10/100TX + 2-Port 1000X SFP Ring Ethernet Switch |
| IFGS-624PTF | Industrial 4-Port 10/100TX 802.3at PoE + 2-Port 1000X SFP Ring Ethernet Switch |
| IFGS-1222TF | Industrial 8-Port 10/100TX + 2-Port 10/100/1000T + 2-Port 1000X SFP Ring Ethernet Switch |

| Model Name | 10/100TX Copper Ports | 802.3at PoE Ports | 10/100/100T Copper Ports | 1000X SFP Ports |
|---|---|---|---|---|
| IFGS-620TF | 4 | - | - | 2 |
| IFGS-624PTF | 4 | 4 | - | 2 |
| IFGS-1222TF | 8 | - | 2 | 2 |

## Fast Recovery for Industrial Ethernet Transmission Applications

The Industrial Ring Ethernet Switch series supports the super-fast, fault-tolerant ring redundancy technology and features strong rapid self-recovery capability to prevent interruptions and external intrusions. Its **dual SFP ports** incorporate the advanced **ring data recovery through DIP switch** technology and **redundant power** input system into customer's industrial automation network to enhance system reliability and uptime in harsh environments. In a simple Ring network with **8 units**, the recovery time of data link can be **as fast as 1ms**.

## IFGS-620TF Physical Port

- Four 10/100BASE-TX RJ45 ports with auto MDI/MDI-X function
- Two SFP interfaces, supporting 1000BASE-X transceiver type auto detection

## IFGS-624PTF Physical Port

- Four 10/100BASE-TX Fast Ethernet **IEEE 802.3at PoE+** RJ45 copper ports with auto MDI/MDI-X function
- Two SFP interfaces, supporting 1000BASE-X transceiver type auto detection

## IFGS-1222TF Physical Port

- Eight 10/100BASE-TX RJ45 ports with auto MDI/MDI-X function (Port 1 to port 8).
- Two 10/100/1000BASE-T RJ45 ports with auto MDI/MDI-X function (Port 9 to port 10).
- Two SFP interfaces, supporting 1000BASE-X transceiver type auto detection (Port 11 to port 12).

## One Key Ring Feature

- In a simple Ring network with **8 units**, the recovery time of data link can be as fast as 1ms.

## Layer 2 Features

- Complies with IEEE 802.3 10BASE-T, IEEE 802.3u 100BASE-TX, IEEE 802.3ab 1000BASE-T and IEEE 802.3z 1000BASE-X Ethernet standard
- Supports auto-negotiation and 10/100Mbps half/full duplex mode and 10/100/1000Mbps half/full duplex mode
- Prevents packet loss with back pressure (half-duplex) and IEEE 802.3x pause frame flow control (full-duplex)
- High-performance Store and Forward architecture, broadcast storm control and runt/CRC filtering eliminate erroneous packets to optimize the network bandwidth
- PROFINET traffic pass-through with QoS
- IFGS-620TF/IFGS-624PTF Backplane (switching fabric): 4.8Gbps
- IFGS-1222TF Backplane (switching fabric): 9.6Gbps
- Integrated address look-up engine, supporting 4K absolute MAC addresses
- 16K jumbo packet size
- Automatic address learning and address aging
- IEEE 802.1p Class of Service (Works under Ring function disable)
- IEEE 802.1Q VLAN transparency
- CSMA/CD Protocol

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Due to differences in algorithm between the Industrial Ring Ethernet Switch series one Key Ring and the ERPS Ring functions available on PLANET Industrial Managed Switch devices, the two functions are not compatible with each other. The Industrial Ring Ethernet Switch series One Key Ring function offers easier and faster deployment with DIP switch adjustments.
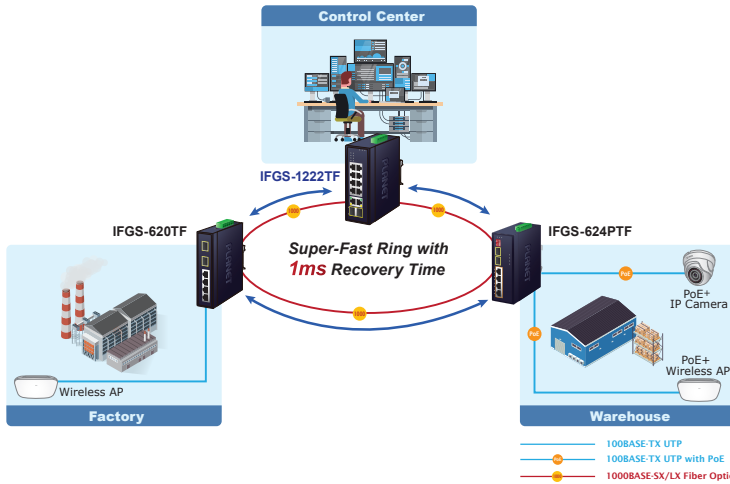


## PROFINET Traffic with Higher Delivery Priority

The Industrial Ring Ethernet Switch series features a brand-new function that enhances support for recognizing the PROFINET traffic for higher delivery priority. Once the IFGS-624PTF receives the PROFINET traffic, it will forward the PROFINET traffic first, and then handle other Ethernet traffic. With this enhanced function, the Industrial Ring Ethernet Switch series will become the ideal Industrial Unmanaged Switch for the faster PROFINET traffic.

**PLANET PROFINET Protocol Pass-through Industrial Switch**
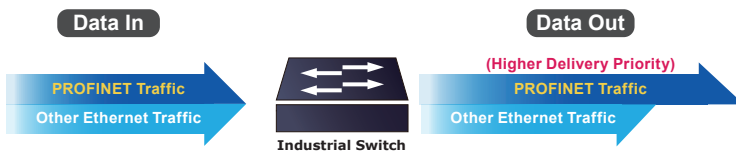


## Fiber Optic Link Capability Enables Extension of Network Deployment

The Industrial Ring Ethernet Switch series two SFP ports are compatible with **1000BASE-X** SFP (small form factor pluggable) fiber-optic transceivers. The fiber optic uplink capability guarantees the throughput to all nodes hooked into the network and the Gigabit Ethernet distance can be extended from 550 meters (Multi-mode fiber cable) to 120 kilometers (Single-mode fiber cable). They are well suited for applications within the factory data centers and distributions.

Thus, building a network solution of FTTH (Fiber to the Home), FTTC (Fiber to the Curb) for ISPs or FTTB (Fiber to the Building) for enterprises becomes so easy to users when long-distance deployment is employed. The Industrial Ring Ethernet Switch series can handle extremely large amounts of data in a secure topology linking to a metro switch, backbone or high-capacity server.
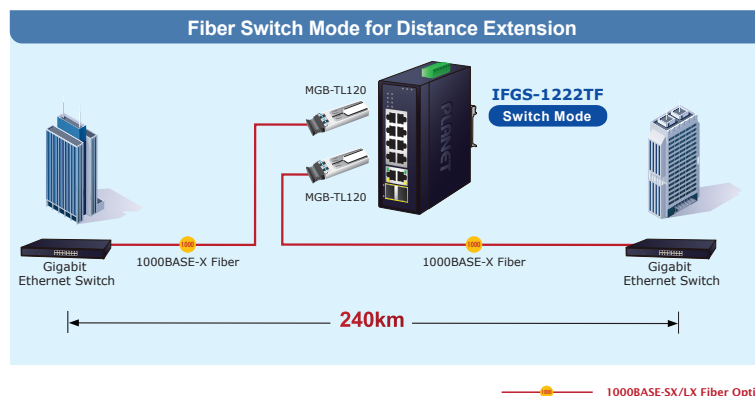


## Industrial Case and Installation

- IP30 metal case (IFGS-620TF/IFGS-1222TF)
- IP40 metal case (IFGS-624PTF)
- DIN-rail, wall-mount or side wall-mount design for redundant power design
  – 9 to 48V DC, redundant power with reverse polarity protection (IFGS-620TF/IFGS-1222TF)
  – AC 24V power adapter acceptable (IFGS-620TF/IFGS-1222TF)
  – 12 to 54V DC, redundant power with reverse polarity protection (IFGS-624PTF)
- Supports 6000 VDC Ethernet ESD protection
- -40 to 75 degrees C operating temperature
- 4 real-time PoE power usage indicators
- Free fall, shock-proof and vibration-proof for industries

## Power over Ethernet (IFGS-624PTF)

- Complies with IEEE 802.3at Power over Ethernet Plus, end-span PSE
- Backward compatible with IEEE 802.3af Power over Ethernet
- Up to 4 ports of IEEE 802.3af/at devices powered
- Up to 120-watt PoE budget
- Supports PoE power up to 36 watts for each PoE port
- Each port supports 54V DC power to PoE powered device
- Auto detects powered device (PD)
- Circuit protection prevents power interference between ports
- Remote power feeding up to 100m in standard mode with 250m in extend mode

## Dual Power Input for High Availability Network System

The Industrial Ring Ethernet Switch series features a strong dual power input system with wide-ranging voltages (9V~48V DC or 24V AC for IFGS-620TF/IFGS-1222TF) or (12V~54V DC for IFGS-624PTF) incorporated into customer's automation network to enhance system reliability and uptime. In the example below, when power supply 1 fails to work, the hardware failover function will be activated automatically to keep powering the Industrial Ring Ethernet Switch series via power supply 2 alternatively without any loss of operation.

**Non-stop Ethernet Transmission Dual Power Input with Auto Failover**
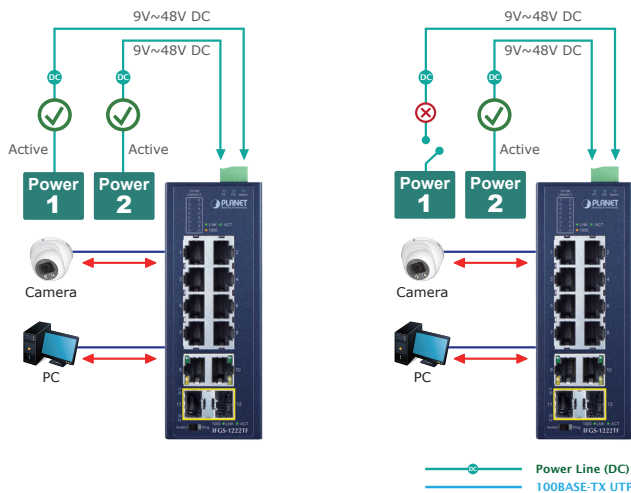
**Non-stop Ethernet Transmission Dual Power Input with Auto Failover**
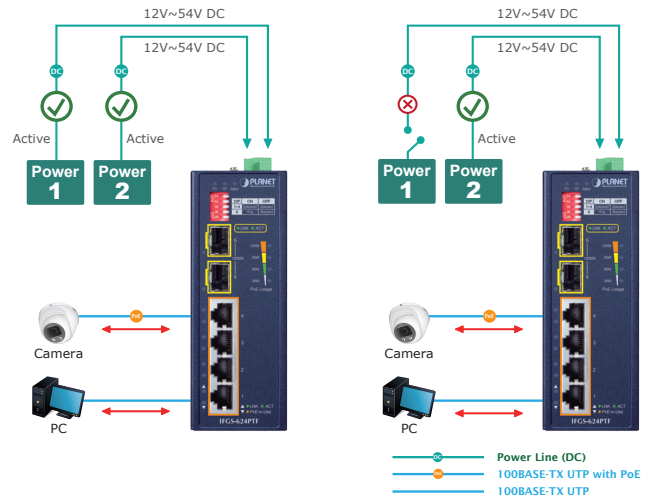


## Robust Protection

The Industrial Ring Ethernet Switch series provides a contact discharge of ±6KV DC and air discharge of ±6KV DC for Ethernet ESD protection. It also supports ±6KV surge immunity to improve product stability and protects users' networks from devastating ESD attacks, making sure the flow of operation does not fluctuate.

## Flexible and Easy Installation with Limited Space

The Industrial Ring Ethernet Switch series is specially designed to be installed in a narrow environment, such as wall enclosure. It can be installed by fixed wall mounting or DIN rail, thereby making its usability more flexible and easier in any space-limited location.

# Optional installation method



| DIN-rail Mounting | Wall Mounting | Side Wall Mounting (Space saving) |

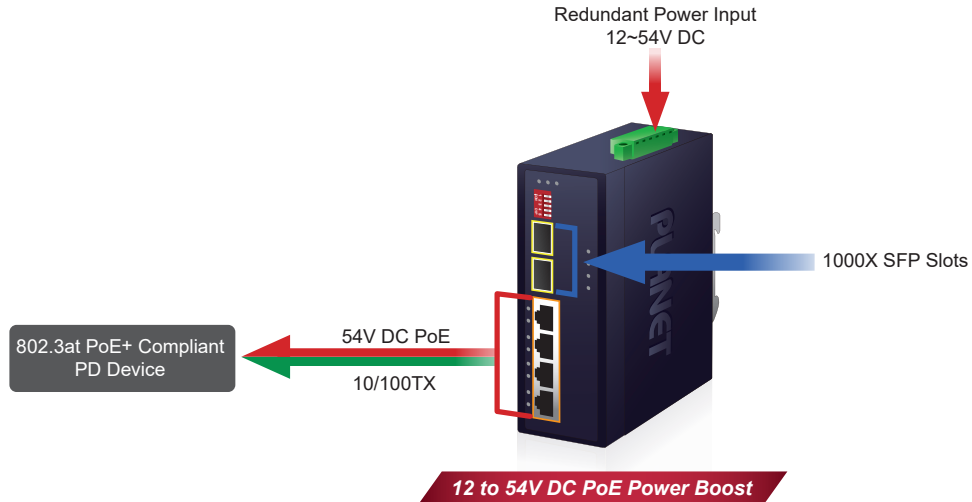* The above pictures are for illustration only.

## Low Power Consumption for Green Networking to implement ESG (IFGS-620TF/IFGS-1222TF)

The IFGS-620TF and IFGS-1222TF, adopting the advanced green networking technology, provides cable length power saving, and link-up and link-down power saving. These features make the IFGS-620TF and IFGS-1222TF consume very low power in full load operation mode, which helps conserve energy effectively but maintains high performance efficiently.

With the IEEE 802.3az Energy Efficient Ethernet (EEE) Protocol, the IFGS-620TF and IFGS-1222TF can automatically detect cable link status and network traffic, and thus is able to adjust power consumption accordingly. It enables the switch to consume less power when it is less active.

## Convenient and Reliable Power System (IFGS-624PTF)

To facilitate the 802.3at PoE+ usage with the commonly-used 12~54V DC power input for transportation and industrial-level applications, the IFGS-624PTF adopts the **12~54V DC to 54V DC power boost technology** to solve power source issue but does not require special power supplies. Its wide-ranging voltages design is suitable for worldwide operability with high- availability applications requiring dual or backup power inputs.

Redundant Power Input
12~54V DC

1000X SFP Slots

802.3at PoE+ Compliant
PD Device

54V DC PoE

10/100TX

**12 to 54V DC PoE Power Boost**

## A Perfect Full PoE+ Power Solution Ideal for Hardened Environment (IFGS-624PTF)

With Plug and Play design, PLANET IFGS-624PTF Industrial-grade, DIN-rail type Unmanaged Fast Ethernet PoE+ Switch, featuring 4 **IEEE 802.3at PoE+10/100BASE-TX** ports and **two 1000BASE-X SFP fiber ports** for uplink connection, allows to automatically detect and configure internal and external peripherals. With a rugged **IP40** metal housing and **12-54V redundant power** system for a total power budget of up to **120 watts** for different kinds of PoE applications, the IFGS-624PTF also operates efficiently in harsh environments, with an operating **temperature range of -40** to **75 degrees** Celsius.

In response to the growing demand for IIoT (Industrial Internet of Things) infrastructure, the IFGS-624PTF is designed for easy deployment of industrial networks with its Plug and Play capability. Furthermore, it ensures stable and reliable fast data and power transmission. The IFGS-624PTF also supports PROFINET traffic pass-through with QoS, making it an ideal choice for integrating with industrial automation systems and enhancing communication between devices in a factory setting.

Ring with 1ms Recovery Time    PROFINET Traffic Higher Delivery Priority    1000X SFP Fiber Optics

6KV ESD    75℃/-40℃

1000 BASE-X

10/100BASE-TX 802.3at PoE+

DIP Switch

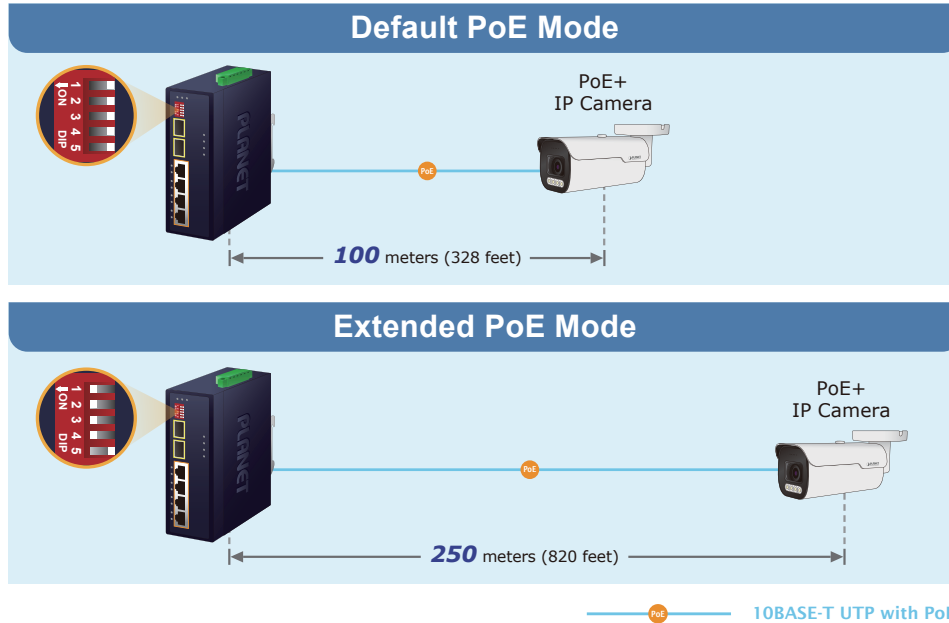## Intelligent LED Indicator for Real-time PoE Usage (IFGS-624PTF)

The IFGS-624PTF helps users to monitor the current status of PoE power usage easily and efficiently by its advanced LED indication. Called **"PoE Power Usage"**, the front panel of the IFGS-624PTF has four orange LEDs indicating 30W, 60W, 90W and 120W of PoE power usage.

120W

90W

60W

30W

PoE Usage

**PoE Power Usage Display**

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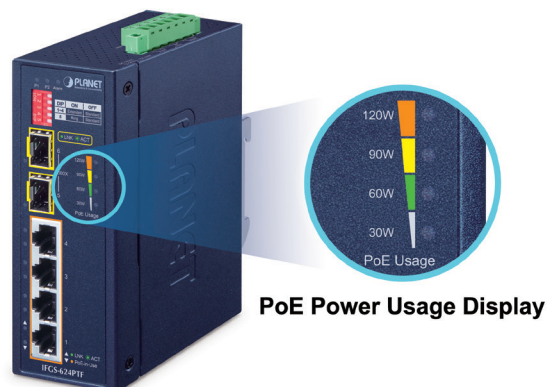
802.3at PoE+ Power and Ethernet Data Transmission Extension (IFGS-624PTF)
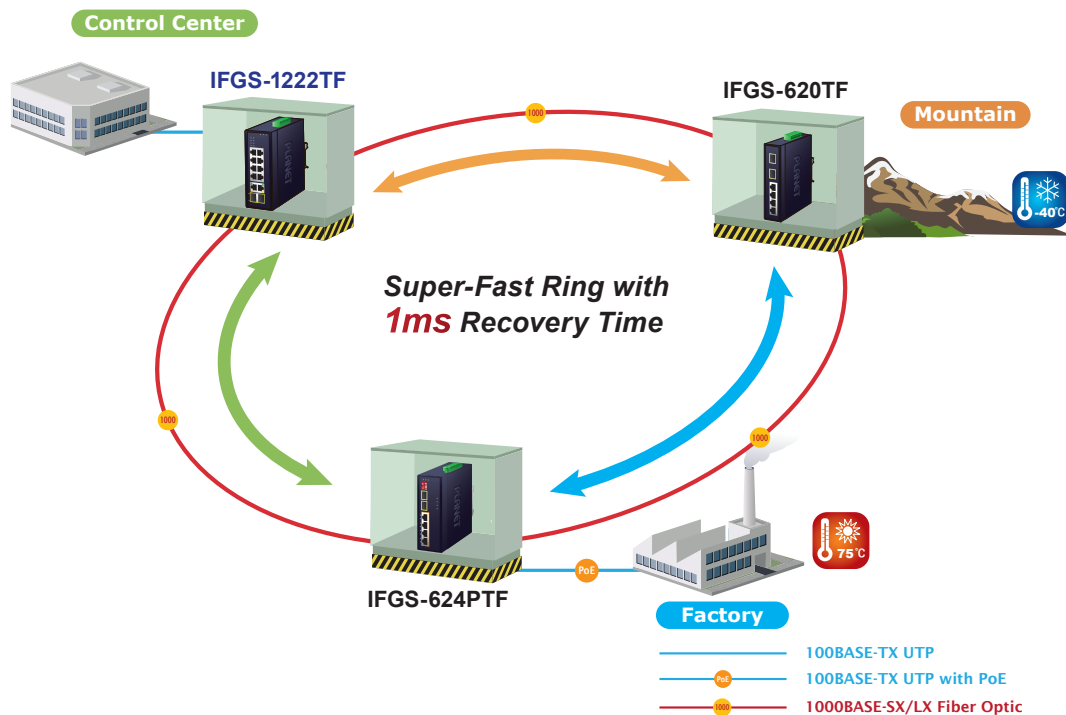
The IFGS-624PTF has a built-in solid DIP switch providing **"Standard"** and **"Extend"** operation modes for 802.3at PoE+ ports (Port 1 to Port 4). By default, the IFGS-624PTF operates as a normal IEEE 802.3af/at PoE+ Switch in the **"Standard"** operation mode. In the **"Extend"** operation mode, the IFGS-624PTF operates on a per-port basis at 10Mbps full duplex and can support 25-watt PoE power output over a distance of up to **250 meters**, overcoming the 100-meter limit of Ethernet UTP cable.



**Default PoE Mode**

PoE+ IP Camera

**100** meters (328 feet)

**Extended PoE Mode**

PoE+ IP Camera

**250** meters (820 feet)
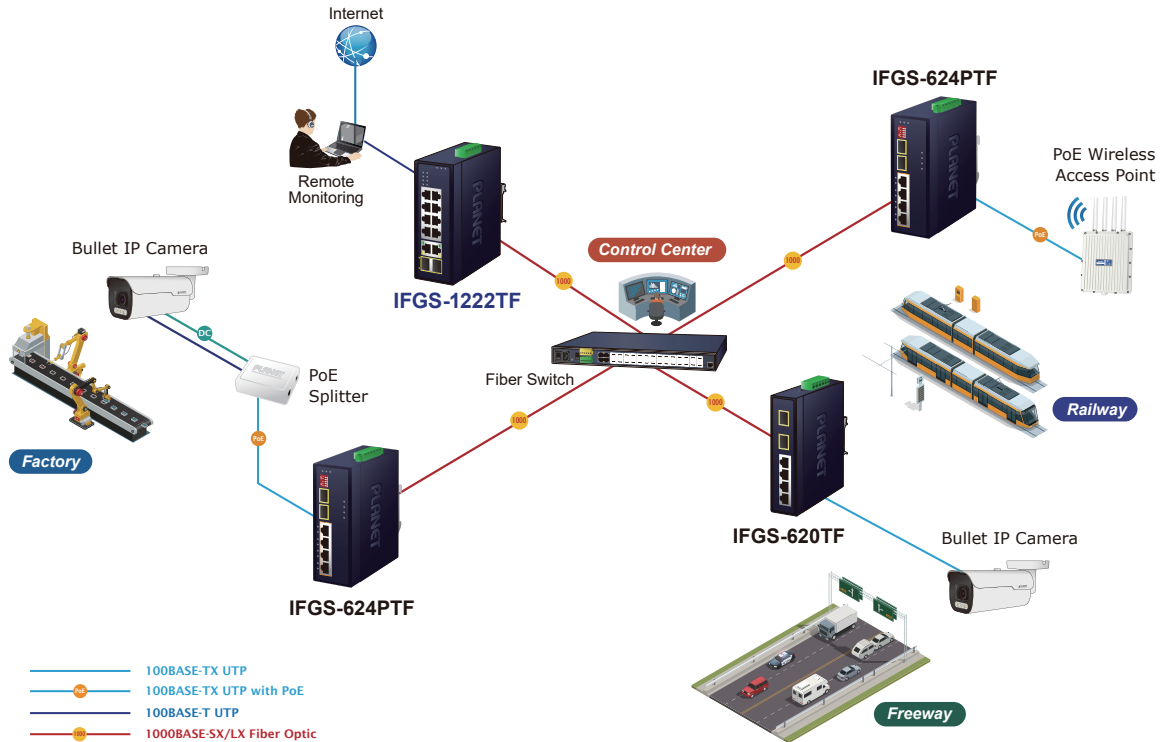
10BASE-T UTP with PoE

# Applications

One Key Ring Makes Data Transmission Uninterrupted

The Industrial Ring Ethernet Switch series features strong rapid self-recovery capability to prevent interruptions and external intrusions. It incorporates the **super-fast**, **fault-tolerant ring redundancy technology** into customer's automation network to enhance system reliability and uptime. The Industrial Ring Ethernet Switch series can easily help system integrators with the available network infrastructure to build wireless AP, IP camera and VoIP systems where power can be centrally-controlled. In a simple Ring network with **8 units**, the recovery time of data link can be **as fast as 1ms**.



**Control Center**

**IFGS-1222TF**

**IFGS-620TF**

**Mountain**

*Super-Fast Ring with*
***1ms*** *Recovery Time*

**IFGS-624PTF**

**Factory**

100BASE-TX UTP
100BASE-TX UTP with PoE
1000BASE-SX/LX Fiber Optic

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## Ethernet Applications with Long-distance Fiber Uplink for Hardened Environment

The Industrial Ring Ethernet Switch series provides very high reliability and security features to make sure the continuous operation in harsh environments such as control cabinet of transportation, factory, outdoors and places where extreme low or high temperatures can be experienced. Moreover, the Industrial Ring Ethernet Switch series also compatible with 1000Mbps SFP transceivers to provide a strong, stable and long-distance connection and flexible industrial networking deployment.



| | 100BASE-TX UTP |
| --- | --- |
| | 100BASE-TX UTP with PoE |
| | 100BASE-T UTP |
| | 1000BASE-SX/LX Fiber Optic |

## Fiber-optic Networking for ISPs, Enterprises, and Homes

With stable performance of data transmission and easy installation, the Industrial Ring Ethernet Switch series can build an ISP network solution of FTTH (Fiber to the Home), FTTC (Fiber to the Curb) for ISPs, or FTTB (Fiber to the Building) for enterprises in a small office network environment.



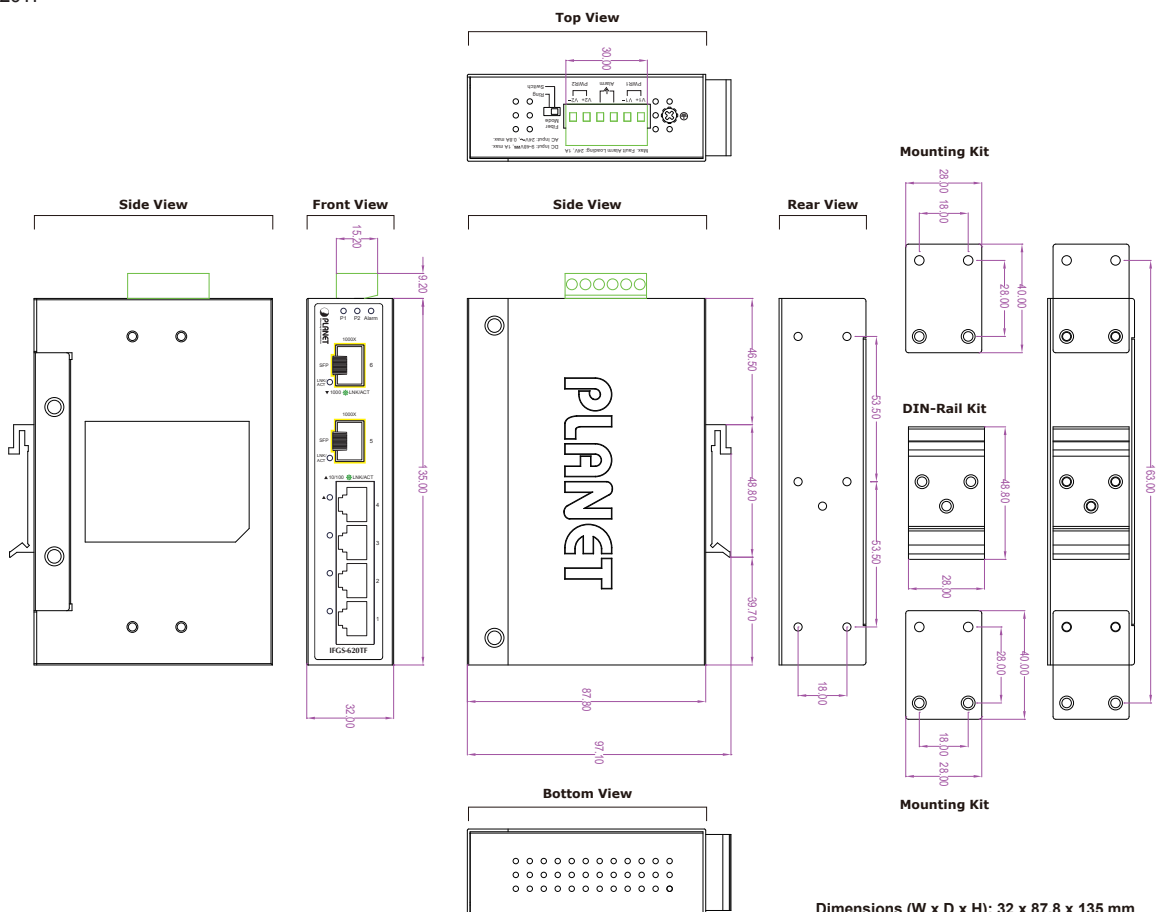| | 100BASE-TX UTP |
| --- | --- |
| | 1000BASE-SX/LX Fiber Optic |

**120km max.**
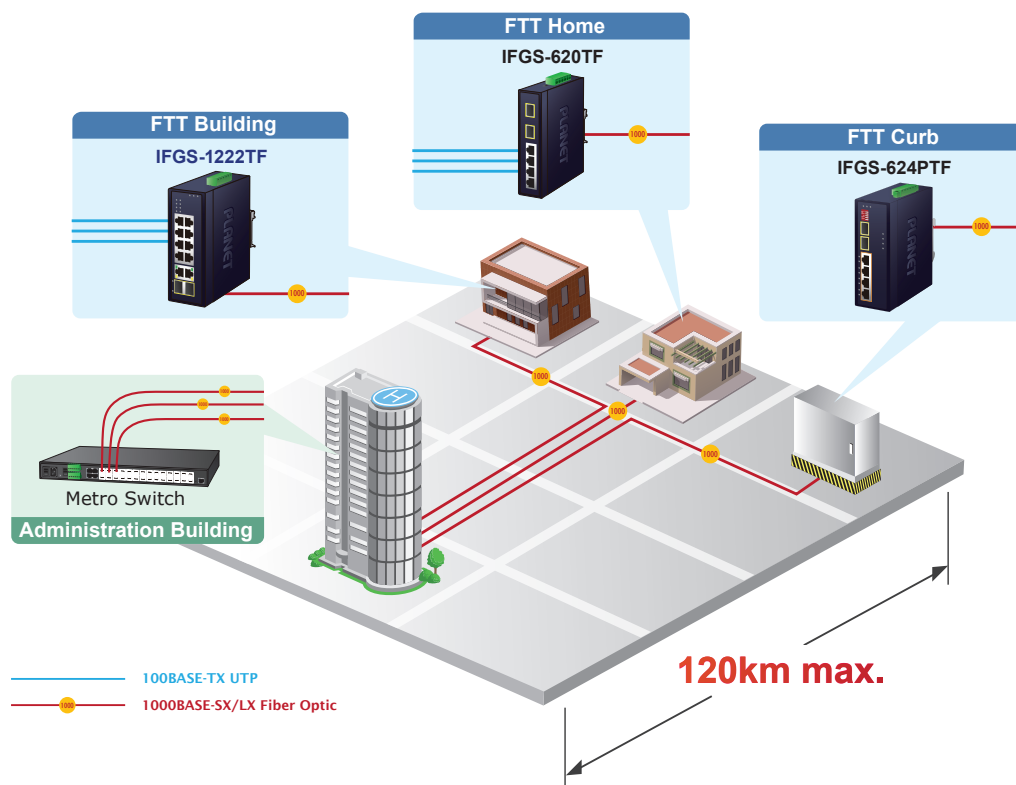
## Industrial-grade PoE+ Switch for Building Automation and Security (IFGS-624PTF)

Suitable for buildings where security is strictly enforced, the IFGS-624PTF, with four Fast Ethernet 802.3at 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, 4 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-624PTF makes the installation of IP cameras or wireless APs easier and more efficient.



PoE+ Wireless AP · PoE VoIP · Internet · IFGS-624PTF · Core Switch · Security Gate · Serial Server · PoE IP Camera

100BASE-TX UTP
100BASE-TX UTP with PoE
1000BASE-SX/LX Fiber Optic
Serial Line (RS-XXX)

# Dimensions

■ IFGS-620TF



Top View · Side View · Front View · Side View · Rear View · Mounting Kit · DIN-Rail Kit · Bottom View · Mounting Kit

IFGS-620TF

**Dimensions (W x D x H): 32 x 87.8 x 135 mm**
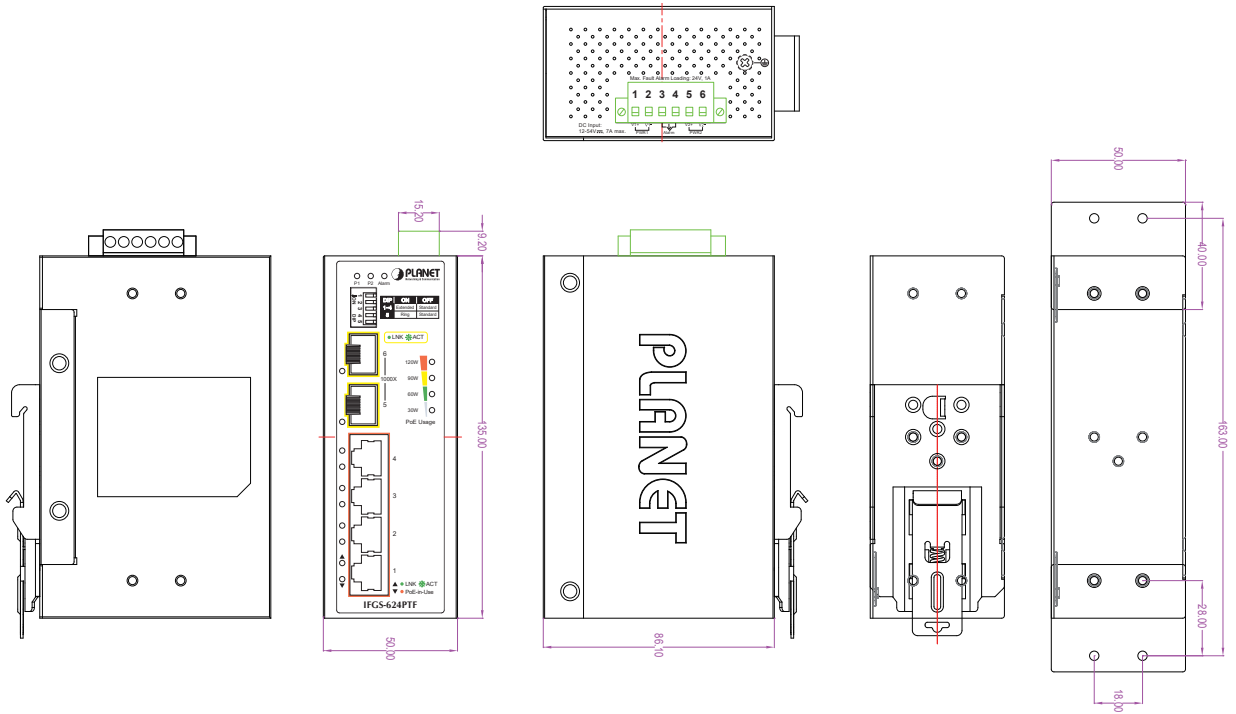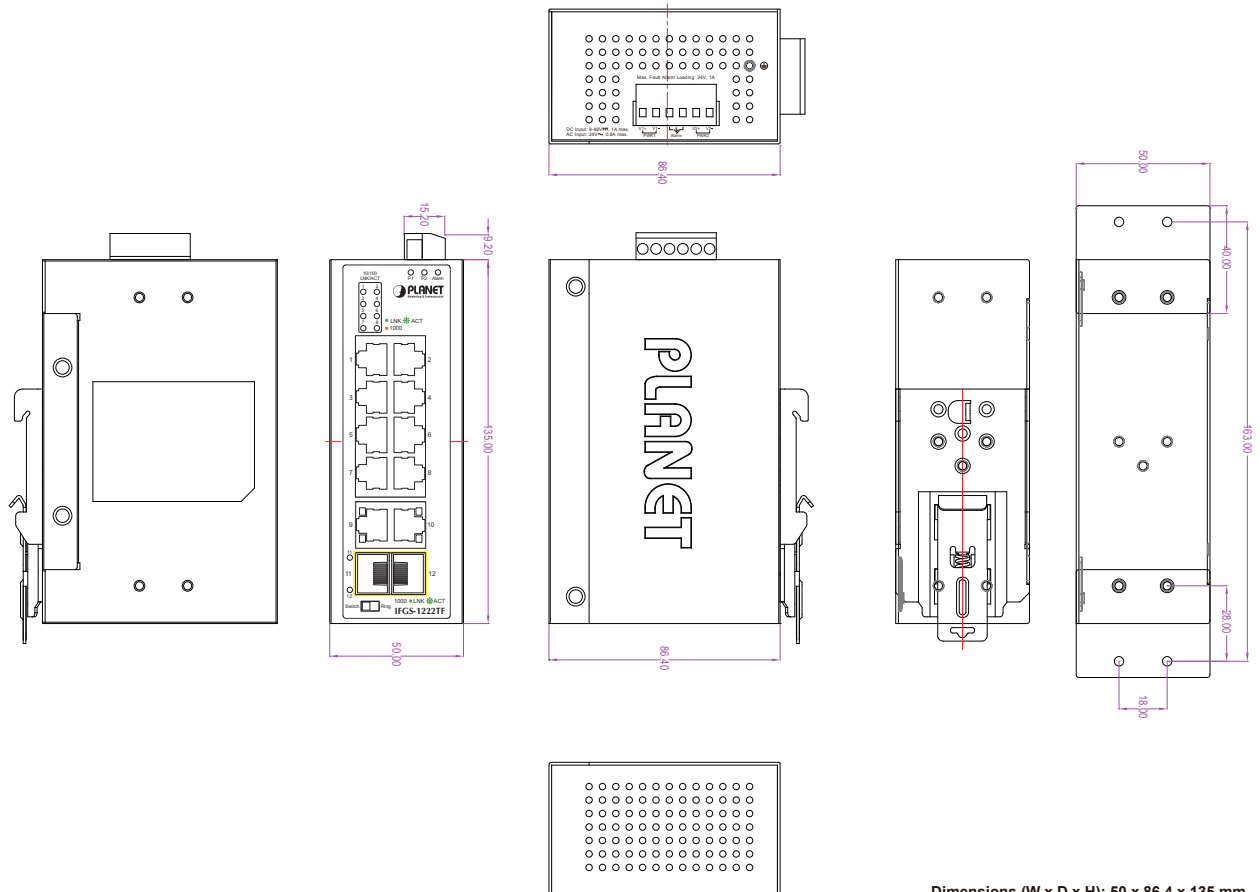
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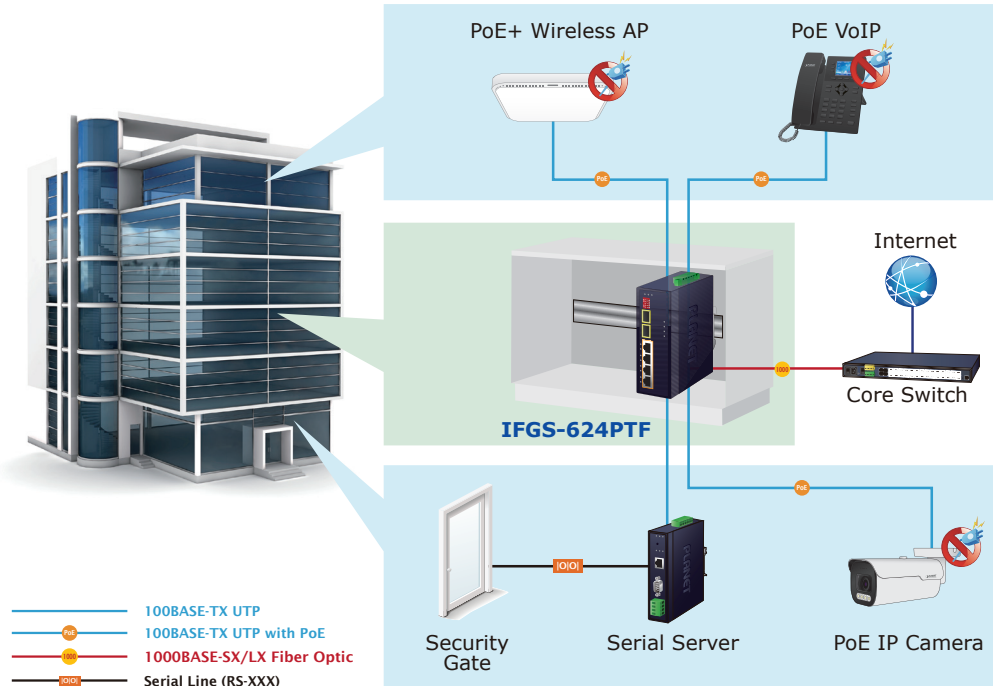
■ IFGS-624PTF



**Dimensions (W x D x H): 50 x 86.1 x 135mm**

■ IFGS-1222TF



**Dimensions (W x D x H): 50 x 86.4 x 135 mm**

# Specifications

| Model | IFGS-1222TF | IFGS-620TF | IFGS-624PTF |
|---|---|---|---|
| **Hardware Specifications** | | | |
| Copper Ports | 8 x 10/100BASE-TX RJ45 TP Auto-MDI/MDI-X, auto-negotiation | 4 x 10/100BASE-TX RJ45 TP Auto-MDI/MDI-X, auto-negotiation | 4 x 10/100BASE-TX RJ45 TP Auto-MDI/MDI-X, auto-negotiation |
| PoE Injector Port | 2 x 10/100/1000BASE-T RJ45 TP | - | - |
| PoE Injector Ports | NA | NA | Four ports with 802.3at PoE+ injector function (Ports 1 to 4) |
| SFP Slots | 2 x 1000BASE-X SFP interfaces | | |
| DIP Switch | OFF: Fiber port Ring mode<br>ON: Fiber port Switch mode | OFF: Fiber port Ring mode<br>ON: Fiber port Switch mode | DIP 1-4:<br>OFF: Standard mode<br>ON: Port 1-4 Extend mode<br>DIP-5:<br>OFF: Fiber port Ring mode<br>ON: Fiber port Switch mode |
| | **Note :**<br>1. Power off the Industrial Ring Ethernet Switch before adjusting the DIP switch and then power it on.<br>2. Extend mode: PoE transmission distance of 250m at speed of 10Mbps. **(IFGS-624PTF).**<br>3. The Ring function can connect to a simple Ring network with up to 8 units; the recovery time of data link can be as fast as 1ms.<br>4. Ring performance may vary depending on the length of the fiber optic and UTP cables.<br>5. The active Ring function is not compatible with the IEEE 802.1p class of service function. | | |
| Connector | Removable 6-pin terminal block<br>Pin 1/2 for Power 1; Pin 3/4 for fault alarm; Pin 5/6 for Power 2 | | |
| Alarm | Provides one relay output for power failure<br>Alarm Relay current carry ability: 1A @ DC 24V | | |
| ESD Protection | ±6KV air gap discharge<br>±6KV contact discharge | | |
| Surge Immunity | 6KV DC | | |
| Enclosure | IP30 metal case | IP30 metal case | IP40 metal case |
| Installation | DIN-rail kit and wall-mount ear | | |
| Dimensions (W x D x H) | 50 x 87.8 x 135mm | 32 x 87.8 x 135mm | 50 x 86.1 x 135mm |
| Weight | 545g | 430g | 613g |
| Power Requirements | **DC 9~48V or AC 24V**<br>Redundant power with reverse polarity protection | **DC 9~48V or AC 24V**<br>Redundant power with reverse polarity protection | **DC 12~54V**<br>Redundant power with reverse polarity protection |
| Power Consumption / Dissipation | DC 9V:<br> 4.6 watts/15.6BTU<br>DC 48V:<br> 6 watts/20.4BTU<br>AC 24V:<br> 5.7 watts/19.4BTU | DC 9V:<br> 3.3 watts/11.2BTU<br>DC 48V:<br> 3.4 watts/11.6BTU<br>AC 24V:<br> 3.4 watts/11.6BTU | DC 54V (System):<br> Max. 7 watts/ 23.8BTU<br>DC 54V (Ethernet + PoE Full Loading)<br> Max. 140 watts/ 477BTU |
| LED | 3 x LED for System and Power:<br>■ Green: Power 1<br>■ Green: Power 2<br>■ Red: Alarm<br><br>Copper Ports (Ports 1 to 8 ):<br>■ Green: 10/100 LNK/ACT<br><br>SFP interfaces (Ports 11 to 12)<br>■ Green: 1G LNK/ACT<br><br>2 x LED for Per Copper Port (Port-9~Port-10):<br>■ Green: LNK/ACT<br>■ Amber: 1000 | 3 x LED for System and Power:<br>■ Green: Power 1<br>■ Green: Power 2<br>■ Red: Alarm<br><br>Copper Ports (Ports 1 to 4):<br>■ Green: 10/100 LNK/ACT<br><br>SFP interfaces (Ports 5 to 6)<br>■ Green: 1G LNK/ACT<br><br>- | 3 x LED for System and Power:<br>■ Green: DC Power 1<br>■ Green: DC Power 2<br>■ Red: Alarm<br><br>Copper Ports (Ports 1 to 4):<br>■ Green: 10/100 LNK/ACT<br>■ Amber: PoE-in-Use<br><br>SFP interface (Ports 5 to 6)<br>■ Green: 1G LNK/ACT<br><br>4 x LED for PoE Usage (W) (Low to high):<br>■ Amber: 30W, 60W, 90W and 120W |
| **Switch Specifications** | | | |
| Switch Processing Scheme | Store-and-Forward | | |
| Switch Fabric | 9.6Gbps | 4.8Gbps | 4.8Gbps |
| Throughput (packet per second) | 7.14Mpps@64bytes | 3.57Mpps@64bytes | 3.57Mpps@64bytes |
| Address Table | 4K entries | | |
| Jumbo Frame | 16K bytes | | |

| Flow Control | Back pressure for half duplex<br>IEEE 802.3x pause frame for full duplex | | |
|---|---|---|---|
| **Power over Ethernet** | | | |
| 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 | - | - | Per port 54V DC<br>Max. 36 watts |
| PoE Power Budget (max.) | - | - | 120W max.@48-54V DC<br>100W max.@24V DC<br>60W max.@12V DC |
| Max. Number of Class 2 PDs | - | - | 4 |
| Max. Number of Class 3 PDs | - | - | 4 |
| Max. Number of Class 4 PDs | - | - | 4 |
| **Standards Conformance** | | | |
| Standards Compliance | IEEE 802.3 Ethernet 10BASE-T<br>IEEE 802.3u Fast Ethernet 100BASE-TX<br>IEEE 802.3ab Gigabit Ethernet 1000BASE-T (IFGS-1222TF)<br>IEEE 802.3z Gigabit Ethernet 1000BASE-SX/LX<br>IEEE 802.3x Full-Duplex Flow Control<br>IEEE 802.1p Class of Service (Works under Ring function disable)<br>IEEE 802.3af Power over Ethernet (IFGS-624PTF)<br>IEEE 802.3at Power over Ethernet Plus(IFGS-624PTF)<br>PROFINET Traffic Pass-through with QoS | | |
| Regulatory Compliance | FCC Part 15 Class A, CE | | |
| Stability Testing | IEC60068-2-32 (Free fall)<br>IEC60068-2-27(Shock)<br>IEC60068-2-6 (Vibration) | | |
| **Environment** | | | |
| Temperature | Operating: -40~75 degrees C<br>Storage: -40~75 degrees C | | |
| Humidity | Operating: 5~95% (Non-condensing)<br>Storage: 5~95% (Non-condensing) | | |

# Ordering Information

| IFGS-620TF | Industrial 4-Port 10/100TX + 2-Port 1000X SFP Ring Ethernet Switch (-40~75 degrees C) |
|---|---|
| IFGS-624PTF | Industrial 4-Port 10/100TX 802.3at PoE + 2-Port 1000X SFP Ring Ethernet Switch (-40~75 degrees C) |
| IFGS-1222TF | Industrial 8-Port 10/100TX + 2-Port 10/100/1000T + 2-Port 1000X SFP Ring Ethernet Switch  (-40~75 degrees C) |

## Related Products

| | |
|---|---|
| MGB-GT | SFP-Port 1000 BASE-T Module |
| MGB-LX | SFP-Port 1000 BASE-LX mini-GBIC module - 20km |
| MGB-SX | SFP-Port 1000 BASE-SX mini-GBIC module - 550m |
| MGB-SX2 | SFP-Port 1000 BASE-SX mini-GBIC module - 2km |
| MGB-L40 | SFP-Port 1000 BASE-LX mini-GBIC module - 40km |
| MGB-L80 | SFP-Port 1000 BASE-LX mini-GBIC module - 80km |
| MGB-L120 | SFP-Port 1000 BASE-LX mini-GBIC module - 120km |
| MGB-LA10 | SFP-Port 1000 BASE-BX (WDM, TX:1310nm) mini-GBIC module - 10km |
| MGB-LB10 | SFP-Port 1000 BASE-BX (WDM, TX:1550nm) mini-GBIC module - 10km |
| MGB-LA20 | SFP-Port 1000 BASE-BX (WDM, TX:1310nm) mini-GBIC module - 20km |
| MGB-LB20 | SFP-Port 1000 BASE-BX (WDM, TX:1550nm) mini-GBIC module - 20km |
| MGB-LA40 | SFP-Port 1000 BASE-BX (WDM, TX:1310nm) mini-GBIC module - 40km |
| MGB-LB40 | SFP-Port 1000 BASE-BX (WDM, TX:1550nm) mini-GBIC module - 40km |
| MGB-LA80 | SFP-Port 1000 BASE-BX (WDM, TX:1490nm) mini-GBIC module - 80km |
| MGB-LB80 | SFP-Port 1000 BASE-BX (WDM, TX:1550nm) mini-GBIC module - 80km |
| MGB-TSX | SFP-Port 1000 BASE-SX mini-GBIC module - 550m (-40 ~ 85 degrees C) |
| MGB-TSX2 | SFP-Port 1000 BASE-SX mini-GBIC module – 2km (-40 ~ 85 degrees C) |
| MGB-TL40 | SFP-Port 1000 BASE-LX mini-GBIC module - 40km (-40 ~ 85 degrees C) |
| MGB-TL80 | SFP-Port 1000 BASE-LX mini-GBIC module - 80km  (-40 ~ 85 degrees C) |
| MGB-TLA10 | SFP-Port 1000 BASE-BX (WDM, TX:1310nm) mini-GBIC module - 10km  (-40 ~ 85 degrees C) |
| MGB-TLB10 | SFP-Port 1000 BASE-BX (WDM, TX:1550nm) mini-GBIC module - 10km (-40 ~ 85 degrees C) |
| MGB-TLA20 | SFP-Port 1000 BASE-BX (WDM, TX:1310nm) mini-GBIC module - 20km (-40 ~ 85 degrees C) |
| MGB-TLB20 | SFP-Port 1000 BASE-BX (WDM, TX:1550nm) mini-GBIC module - 20km(-40 ~ 85 degrees C) |
| MGB-TLA40 | SFP-Port 1000 BASE-BX (WDM, TX:1310nm) mini-GBIC module - 40km (-40 ~ 85 degrees C) |
| MGB-TLB40 | SFP-Port 1000 BASE-BX (WDM, TX:1550nm) mini-GBIC module - 40km (-40 ~ 85 degrees C) |
| MGB-TLA80 | SFP-Port 1000 BASE-BX (WDM, TX:1490nm) mini-GBIC module - 80km (-40 ~ 85 degrees C) |
| MGB-TLB80 | SFP-Port 1000 BASE-BX (WDM, TX:1550nm) mini-GBIC module - 80km (-40 ~85 degrees C) |

**IFGS-620TF/IFGS-624PTF/IFGS-1222TF**