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

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

User's Manual

Table of Contents

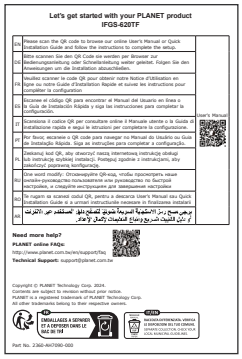
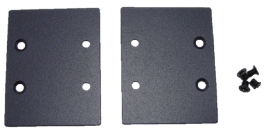
1. Package Contents

Thank you for purchasing PLANET Industrial 4-/8-port 10/100TX + 2-port 1000X SFP Ring Ethernet Switch, IFGS-620TF, IFGS-624PTF or IFGS-1222TF. The table below shows the models with the number of ports:

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

In the following sections, the term **"Industrial Ring Ethernet Switch"** means the IFGS-620TF, IFGS-624PTF or IFGS-1222TF.

Open the box of the Industrial Ring Ethernet Switch and carefully unpack it. The box should contain the following items:

<table>
<tr><td colspan="2">Industrial Ring Ethernet Switch x 1</td><td>QR Code Sheet x 1</td><td>Wall-mount Kit</td></tr>
<tr><td colspan="2">  </td><td>  </td><td>  </td></tr>
<tr><td>RJ45 Dust Cap</td><td>SFP Dust Cap x 2</td><td colspan="2">DIN-rail Kit</td></tr>
<tr><td>IFGS-620TF x 4
IFGS-624PTF x 4
IFGS-1222TF x 8
  </td><td>  </td><td>IFGS-620TF
  </td><td>IFGS-624PTF/
IFGS-1222TF
  </td></tr>
</table>

If any of these are missing or damaged, please contact your dealer immediately; if possible, retain the carton including the original packing material, and use them again to repack the product in case there is a need to return it to us for repair.

2. Hardware Introduction

2.1 Switch Front Panel

The front panel of the Industrial Ring Ethernet Switch consists of Ethernet interfaces and LED indicators.

■ Front View

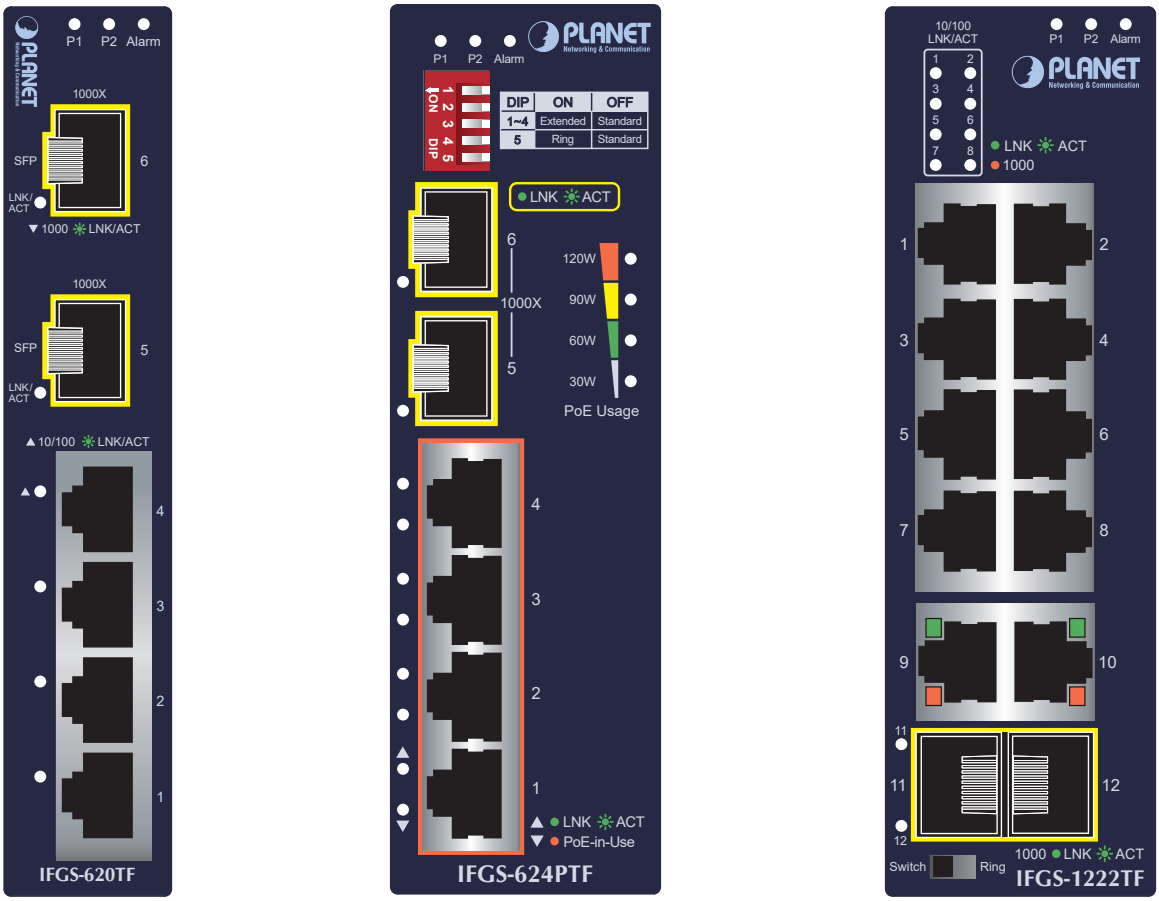


Figure 1: IFGS-620TF/IFGS-624PTF/IFGS-1222TF Front View

■ Ethernet Interfaces

Fast Ethernet TP interfaces (Port 1 to port 4/8)

10/100BASE-TX copper, RJ45 twisted-pair: Up to 100 meters.

Gigabit Ethernet TP interfaces (Port 9 to port 10) for IFGS-1222TF only

10/100/1000BASE-T copper, RJ45 twisted-pair: Up to 100 meters.

Gigabit SFP Interfaces (Port 5/11 to port 6/12)

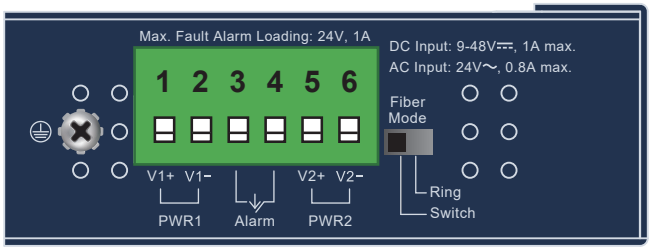
1000BASE-SX/LX mini-GBIC slot, SFP (small factor pluggable) transceiver module: From 550 meters (multi-mode fiber) to 10/20/40/80/120 kilometers (single-mode fiber or WDM fiber).

■ DIP Switch

The front panel of the Industrial Ring Ethernet Switch provides DIP Switch which is for configuring Ring function and PoE extension.

IFGS-620TF

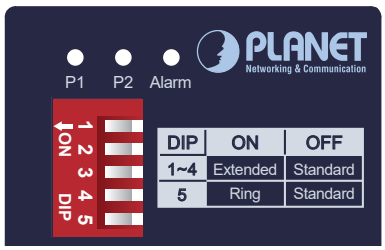
The DIP Switch settings and descriptions:



DIP Switch	Position	Function
Mode	Ring	Ring Mode
	Switch (default)	Switch Mode

IFGS-624PTF

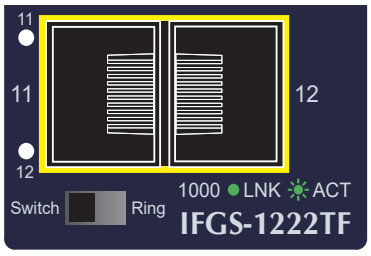
The DIP Switch settings and descriptions:



DIP Switch	Position	Function
DIP-1-4	OFF (default)	Standard (Switch Mode)
	ON	Ports 1-4 Extend Mode (250m)
DIP-5	OFF (default)	Standard (Switch Mode)
	ON	Ring Mode

IFGS-1222TF

The DIP Switch settings and descriptions:



DIP Switch	Position	Function
Mode	Ring	Ring Mode
	Switch (default)	Switch Mode

■ One Key Ring Function Overview

The Industrial Ring Ethernet Switch 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 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**.

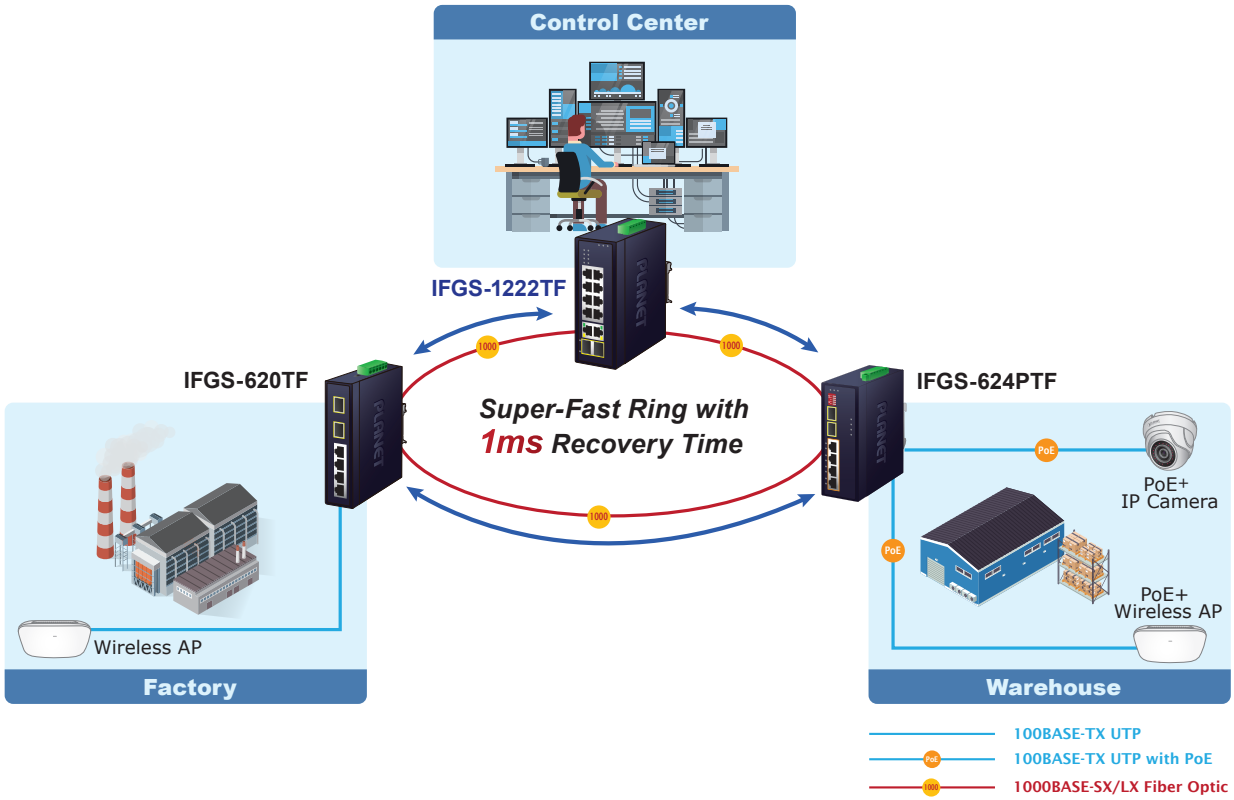


Figure 2: One Key Ring Topology

Note

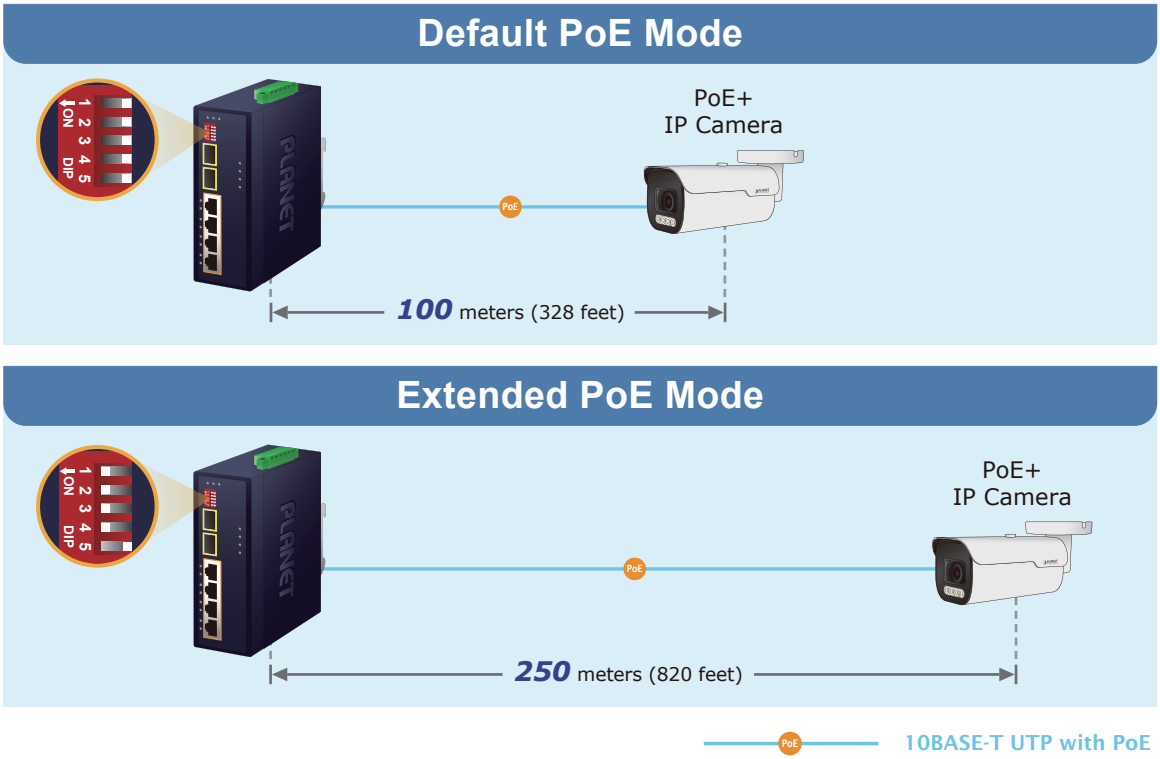
1. Power off the Industrial Ring Ethernet Switch before adjusting the DIP switch and then power it on.
2. Ring performance may vary depending on the length of the fiber optic and UTP cables.
3. The active Ring function is not compatible with the IEEE 802.1p class of service function.

Note

Due to differences algorithm in design between the Industrial Ring Ethernet Switch One Key Ring and the ERPS Ring functions available on PLANET Industrial Managed Switch devices, the two functions are not compatible with each other.

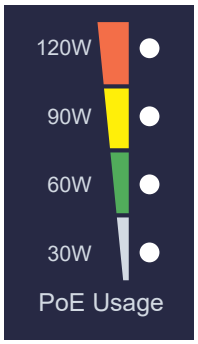
■ PoE Extended Function (IFGS-624PTF Only)

This mode makes the IFGS-624PTF operate on a per-port basis at 10Mbps full duplex operation but can support IEEE 802.3at PoE+ power output over a distance of up to **250 meters** overcoming the 100m limit on Ethernet UTP cable.



■ PoE Power Usage LED (IFGS-624PTF Only)

The front panel of the IFGS-624PTF has four Fast Ethernet 802.3at PoE+ ports, and four LEDs which indicate P**oE Power Usages of 30W, 60W, 90W** and **120W**. With these LED indications, you can monitor the current PoE power-in-use status of the IFGS-624PTF easily and efficiently.



2.2 LED Definition

■ System

LED	Color	Function
P1	Green	**Lights** to indicate power 1 has power.
P2	Green	**Lights** to indicate power 2 has power.
Alarm	Red	**Lights** to indicate either power 1 or power 2 has no power.

■ 10/100BASE-TX Interfaces (Port 1 to Port 4/8) (IFGS-620TF/IFGS-1222TF only)

LED	Color	Function
LNK/ACT	Green	**Lights** to indicate the port is running at 10/100Mbps and successfully established.
		Blinks to indicate that the switch is actively sending or receiving data over that port.

■ 10/100BASE-TX 802.3at PoE+ Interfaces (Port 1 to Port 4) (IFGS-624PTF only)

LED	Color	Function
LNK/ACT	Green	**Lights** to indicate the port is running at 10/100Mbps and successfully established.
		Blinks to indicate that the switch is actively sending or receiving data over that port.
PoE-in-Use	Amber	**Lights** to indicate the port is providing DC in-line power.
		Off to indicate the connected device is not a PoE powered device (PD).

■ 10/100/1000BASE-T Interfaces (Port 9 to Port 10) (IFGS-1222TF only)

LED	Color	Function
LNK/ACT	Green	**Lights** to indicate the link through that port is successfully established.
		Blinks to indicate that the switch is actively sending or receiving data over that port.
1000	Amber	**Lights** to indicate that the port is operating at 1000Mbps.
		Off to indicate that the port is operating at 10/100Mbps.

■ 1000BASE-X Interfaces (Port 5/11 to Port 6/12)

LED	Color	Function
1000 LNK/ACT	Green	**Light** to indicate the port is running at 1000Mbps and successfully established.
		Blinks to indicate that the switch is actively sending or receiving data over that port.

■ PoE Power Usage (Unit: Watt) (Lower LED to upper LED) (IFGS-624PTF only)

LED	Color	Function
30W	Amber	**Off** to indicate the PoE usage is less than 14W. Blinks to indicate that the PoE usage is around 15W to 30W. Lights to indicate the PoE usage is around/over 30W.
60W	Amber	**Blinks** to indicate that the PoE usage is around 45W to 60W. Lights to indicate the PoE usage is around/over 60W.
90W	Amber	**Blinks** to indicate that the PoE usage is around 75W to 90W. Lights to indicate the PoE usage is around/over 90W.
120W	Amber	**Blinks** to indicate that the PoE usage is around 100W to 120W. Lights to indicate the PoE usage is at the maximum 120W.

2.3 Switch Upper Panel

The upper panel of the Industrial Ring Ethernet Switch consists of one terminal block connector within two DC power inputs. Figures 3, 4 and 5 show the upper panels of the Industrial Ring Ethernet Switches.

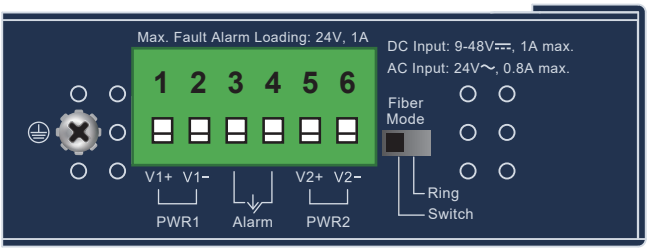


Figure 3: IFGS-620TF Upper Panel

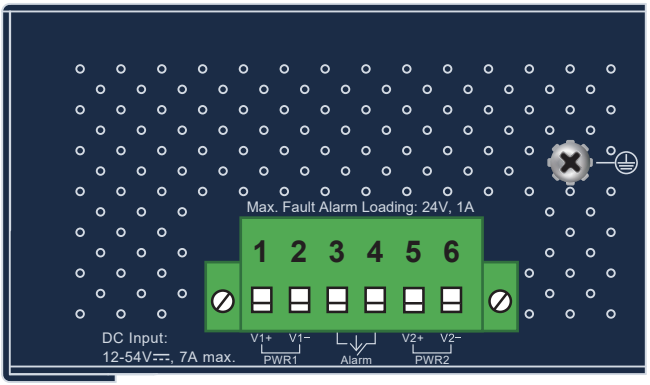


Figure 4: IFGS-624PTF Upper Panel

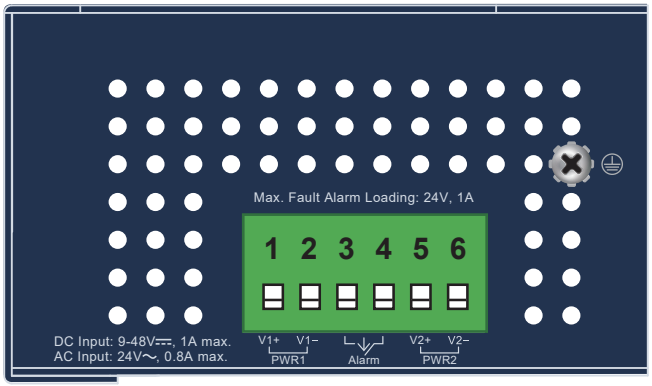


Figure 5: IFGS-1222TF Upper Panel

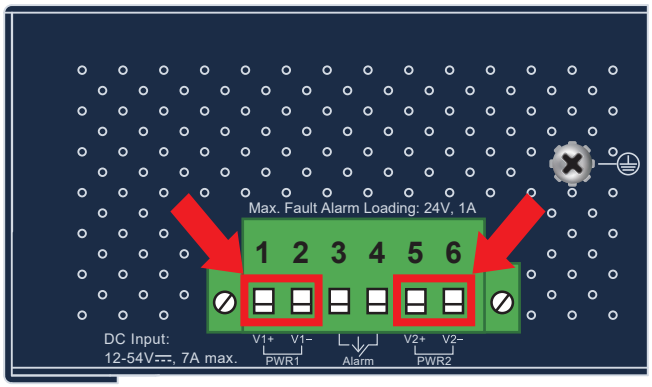
2.4 Wiring the Power Inputs

The 6-contact terminal block connector on the top panel of Industrial Ring Ethernet Switch is used for two redundant power inputs. Please follow the steps below to insert the power wire.

Caution

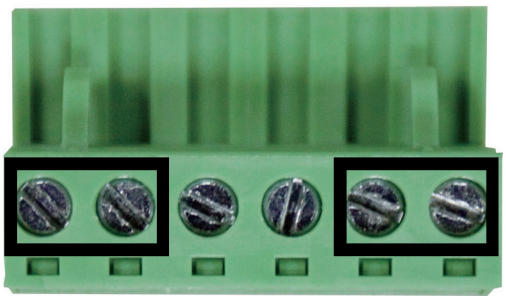
When performing any of the procedures like inserting the wires or tightening the wire-clamp screws, make sure the power is OFF to prevent from getting an electric shock.

1. Insert positive and negative DC power wires into contacts 1 and 2 for POWER 1, or contacts 5 and 6 for POWER 2.



V1+	V1-	V2+	V2-
PWR1		PWR2	

2. Tighten the wire-clamp screws for preventing the wires from loosening.



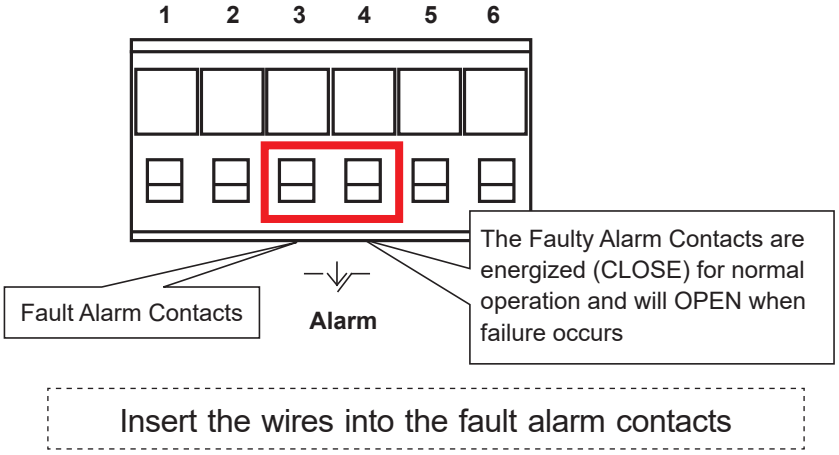
1	2	3	4	5	6
Power 1		Alarm		Power 2	
V+	V-			V+	V-

Caution

PWR1 and PWR2 must provide the **same DC voltage** for power load balance while operating with dual power input.

2.5 Wiring the Faulty Alarm Contact

The faulty alarm contacts are in the middle of the terminal block connector as the picture shows below. Inserting the wires, the Industrial Ring Ethernet Switch will detect the fault status of the power failure and then forms an open circuit. The following illustration shows an application example for wiring the faulty alarm contacts.

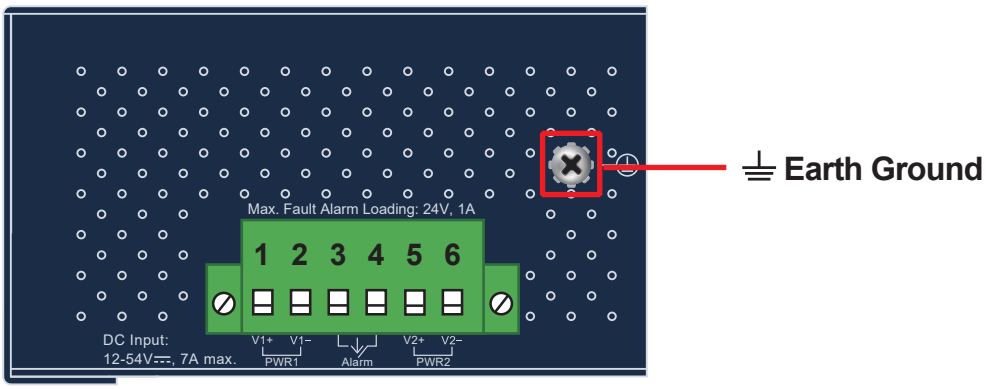


Note

1. The wire gauge for the terminal block should be in the range of 12 ~ 24 AWG.
2. Alarm relay circuit accepts up to 24V, max. 1A currents.

2.6 Grounding the Device

Users **MUST** complete grounding wired with the device; otherwise, a sudden lightning could cause fatal damage to the device.



Note

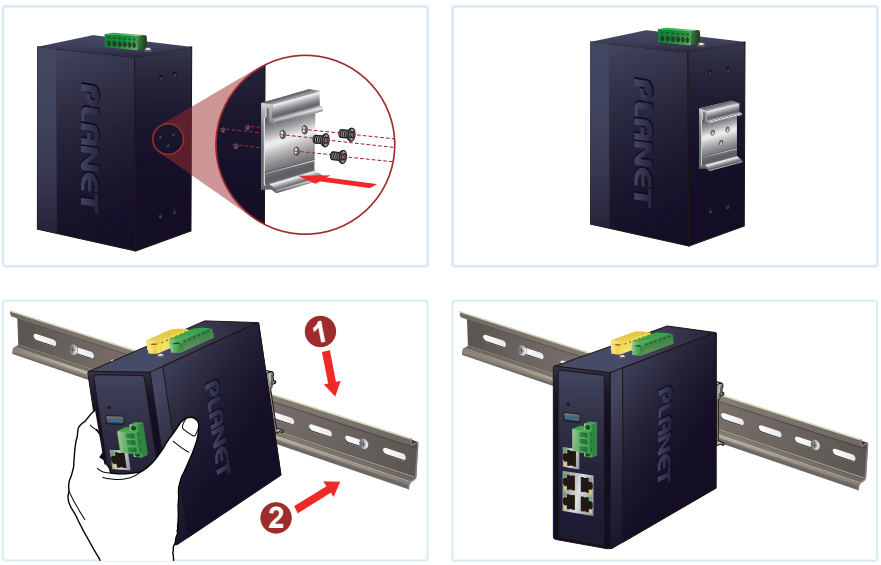
EMD (Lightning) DAMAGE IS NOT COVERED UNDER WARRANTY.

3. Installation

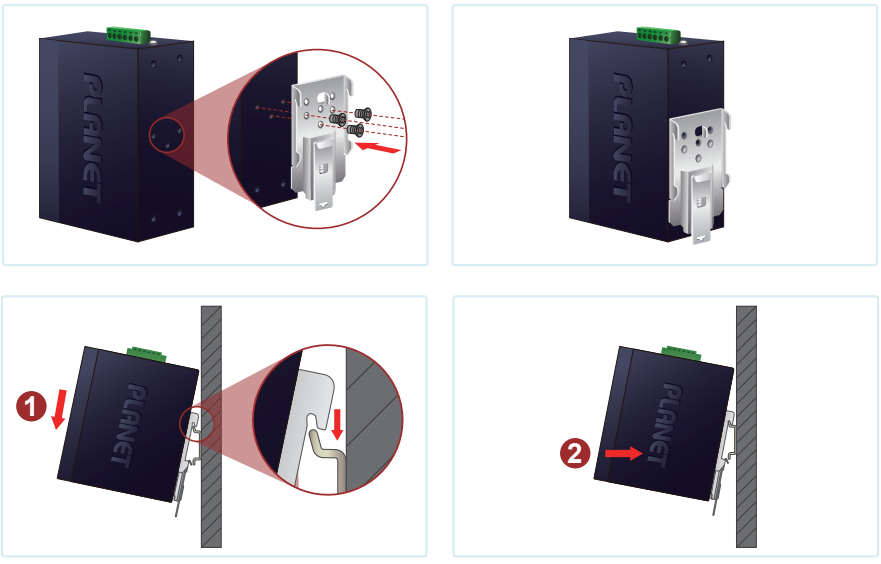
This section describes the functionalities of the Industrial Ring Ethernet Switch's components and guides you to installing it on the DIN rail and wall. Please read this chapter completely before continuing.

Note	The following pictures show how to install the device. However, the device in the picture is not Industrial Ring Ethernet Switch.

3.1 DIN-rail Mounting Installation

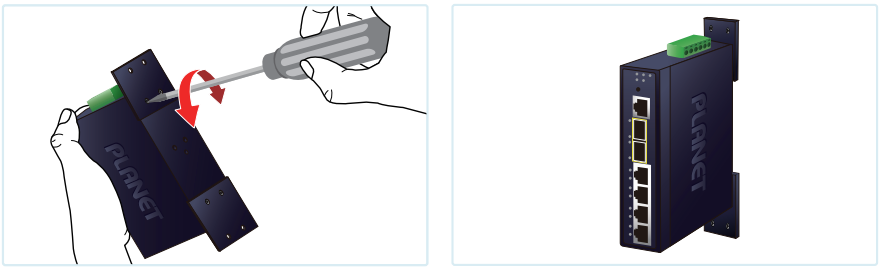


IFGS-620TF DIN-rail Mounting Installation

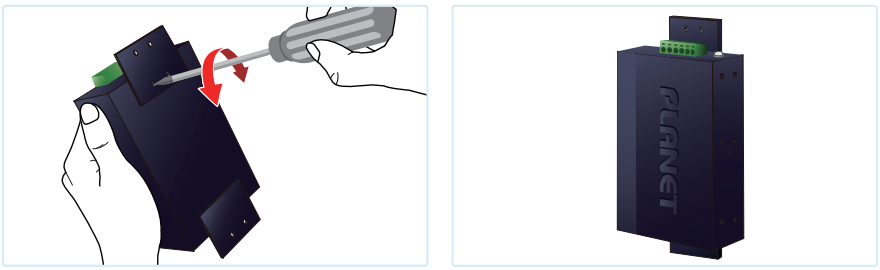


IFGS-624PTF/IFGS-1222TF DIN-rail Mounting Installation

3.2 Wall-mount Plate Mounting



3.3 Side Wall-mount Plate Mounting



Caution

You must use the screws supplied with the wall-mounting brackets. Damage caused to the parts by using incorrect screws would invalidate your warranty.

4. Product Specifications

This section describes the functionalities of the Industrial Ring Ethernet Switch's components and guides you to installing the Switch.

<table>
<tr><th>Model</th><th>IFGS-1222TF</th><th>IFGS-620TF</th><th>IFGS-624PTF</th></tr>
<tr><td colspan="4">Hardware Specifications</td></tr>
<tr><td rowspan="2">Copper Ports</td><td>8 x 10/100BASE-TX RJ45 TP Auto-MDI/ MDI-X, auto-negotiation</td><td colspan="2" rowspan="2">4 x 10/100BASE-TX RJ45 TP Auto-MDI/ MDI-X, auto-negotiation</td></tr>
<tr><td>2 x 10/100/1000BASE-T RJ45 TP</td></tr>
<tr><td>PoE+ Injector Ports</td><td>NA</td><td>NA</td><td>Four ports with 802.3at PoE+ injector function (Ports 1 to 4)</td></tr>
<tr><td>SFP Slots</td><td colspan="3">2 x 1000BASE-X SFP interfaces</td></tr>
<tr><td rowspan="2">DIP Switch</td><td>OFF: Fiber port Ring mode
ON: Fiber port Switch mode</td><td>OFF: Fiber port Ring mode
ON: Fiber port Switch mode</td><td>DIP 1-4:
OFF: Standard mode
ON: Port 1-4 Extend mode
DIP-5:
OFF: Fiber port Ring mode
ON: Fiber port Switch mode</td></tr>
<tr><td colspan="3">Note:
1. Power off the Industrial Ring Ethernet Switch before adjusting the DIP switch and then power it on.
2. Extend mode: PoE transmission distance of 250m at speed of 10Mbps. (IFGS-624PTF).
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.
4. Ring performance may vary depending on the length of the fiber optic and UTP cables
5. The active Ring function is not compatible with the IEEE 802.1p class of service function.</td></tr>
<tr><td>Connector</td><td colspan="3">Removable 6-pin terminal block
Pin 1/2 for Power 1; Pin 3/4 for fault alarm; Pin 5/6 for Power 2</td></tr>
</table>

Alarm	Provides one relay output for power failure Alarm Relay current carry ability: 1A @ DC 24V		
ESD Protection	±6KV air gap discharge ±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 135 mm	32 x 87.8 x 135 mm	50 x 86.1 x 135 mm
Weight	545g	430g	613g
Power Requirements	DC 9~48V or AC 24V Redundant power with reverse polarity protection	DC 9~48V or AC 24V Redundant power with reverse polarity protection	DC 12~54V Redundant power with reverse polarity protection
Power Consumption/ Dissipation	DC 9V: 4.6 watts/15.6BTU DC 48V: 6 watts/20.4BTU AC 24V: 5.7 watts/19.4BTU	3.4 watts/11.6BTU	DC 54V (System): Max. 7 watts/23.8BTU DC 54V (Ethernet + PoE Full Loading) Max. 140 watts/477BTU
LED	3 x LED for System and Power: ■ Green: Power 1 ■ Green: Power 2 ■ Red: Alarm	3 x LED for System and Power: ■ Green: Power 1 ■ Green: Power 2 ■ Red: Alarm	3 x LED for System and Power: ■ Green: Power 1 ■ Green: Power 2 ■ Red: Alarm
	Copper Ports (Ports 1 to 8): ■ Green: 10/100 LNK/ACT	Copper Ports (Ports 1 to 4): ■ Green: 10/100 LNK/ACT	Copper Ports (Ports 1 to 4): ■ Green: 10/100 LNK/ACT ■ Amber: PoE-in-Use
	SFP interfaces (Ports 11 to 12) ■ Green: 1G LNK/ ACT	SFP interfaces (Ports 5 to 6) ■ Green: 1G LNK/ ACT	SFP interface (Ports 5 to 6) ■ Green: 1G LNK/ACT

LED	2 x LED for Per Copper Port (Port-9~Port-10): ■ Green: LNK/ACT ■ Amber: 1000	-	4 x LED for PoE Usage (W) (Low to high): ■ 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 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 Max. 36 watts
PoE Power Budget (max.)	-	-	120W max.@48-54V DC 100W max.@24V DC 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 IEEE 802.3u Fast Ethernet 100BASE-TX IEEE 802.3ab Gigabit Ethernet 1000BASE-T (IFGS-1222TF) IEEE 802.3z Gigabit Ethernet 1000BASE-SX/LX IEEE 802.3x Full-Duplex Flow Control IEEE 802.1p Class of Service (Works under Ring function disable) IEEE 802.3af Power over Ethernet (IFGS-624PTF) IEEE 802.3at Power over Ethernet Plus (IFGS-624PTF) PROFINET Traffic Pass-through with QoS		
Regulatory Compliance	FCC Part 15 Class A, CE		
Stability Testing	IEC60068-2-32 (Free fall) IEC60068-2-27(Shock) IEC60068-2-6 (Vibration)		
Environment			
Temperature	Operating: -40~75 degrees C Storage: -40~75 degrees C		
Humidity	Operating: 5~95% (Non-condensing) Storage: 5~95% (Non-condensing)		

5. Customer Support

Thank you for purchasing PLANET products. You can browse our online FAQ resource on PLANET web site first to check if it could solve your issue. If you need more support information, please contact PLANET switch support team.

PLANET online FAQs:
https://www.planet.com.tw/en/support/faq

Switch support team mail address:
support@planet.com.tw

FCC Warning

This equipment has been tested and found to comply with the regulations for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with this user's guide, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case the user will be required to correct the interference at his own expense.

CE Mark Warning

This device is compliant with Class A of CISPR 32. In a residential environment this equipment may cause radio interference.

WEEE Warning

To avoid the potential effects on the environment and human health as a result of the presence of hazardous substances in electrical and electronic equipment, end users of electrical and electronic equipment should understand the meaning of the crossed-out wheeled bin symbol. Do not dispose of WEEE as unsorted municipal waste and have to collect such WEEE separately.