Industrial Ethernet Switch

IGS-1000 Series

User's Manual

Table of Contents

1. Package Contents

Thank you for purchasing PLANET **IGS-1000-8T4X, IGS-1000-8UP4X and IGS-1000-4UP2X Industrial Ethernet Switches**. The descriptions of this IGS-1000 series are as follows:

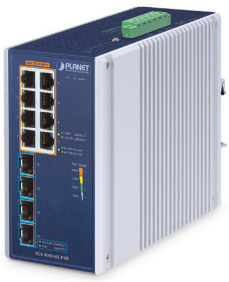
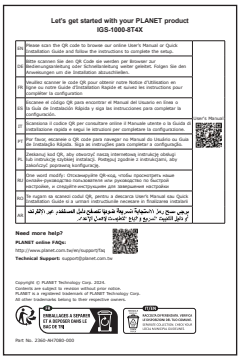
IGS-1000-8T4X	Industrial 8-Port 10/100/1000T + 4-Port 10G SFP+ Ethernet Switch (-40~75 degrees C)
IGS-1000-8UP4X	Industrial 8-Port 10/100/1000T 802.3bt PoE + 4-Port 10G SFP+ Ethernet Switch (-40~75 degrees C)
IGS-1000-4UP2X	Industrial 4-Port 10/100/1000/2500T 802.3bt PoE + 4-Port 10G SFP+ Ethernet Switch (-40~75 degrees C)

The hardware specifications of these models are shown below:

Item / Mode Name	10/100/1000T RJ45 Ports	10/100/1G/ 2.5G RJ45 Ports	1G/2.5G/ 10GX SFP+ Slots	PoE Ports	Power Input Range
IGS-1000-8T4X	8	--	4	--	DC 9~48V
IGS-1000-8UP4X	8	--	4	8 x 802.3bt	DC 48~54V
IGS-1000-4UP2X		4	2	4 x 802.3bt	DC 48~54V

In the following sections, the term **"Industrial Ethernet Switch"** refers to the IGS-1000-8T4X, IGS-1000-8UP4X or IGS-1000-4UP2X.

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

<table>
<tr><td>Industrial Ethernet Switch x 1</td><td>QR Code Sheet x 1</td><td>Wall-mount Kit x 1</td></tr>
<tr><td>  </td><td>  </td><td>  </td></tr>
<tr><td colspan="2">DIN-rail Kit x 1</td><td>RJ45 Dust Cap</td><td>SFP Dust Cap</td></tr>
<tr><td> 
IGS-1000-8T4X
and
IGS-1000-8UP4X</td><td> 
IGS-1000-4UP2X</td><td> 
IGS-1000-8T4X/
IGS-1000-8UP4X x 8
IGS-1000-4UP2X x 4</td><td> 
IGS-1000-8T4X/
IGS-1000-8UP4X x 4
IGS-1000-4UP2X x 2</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 panels of the **Industrial Ethernet Switch series** consist of Ethernet interfaces and LED indicators as shown below:

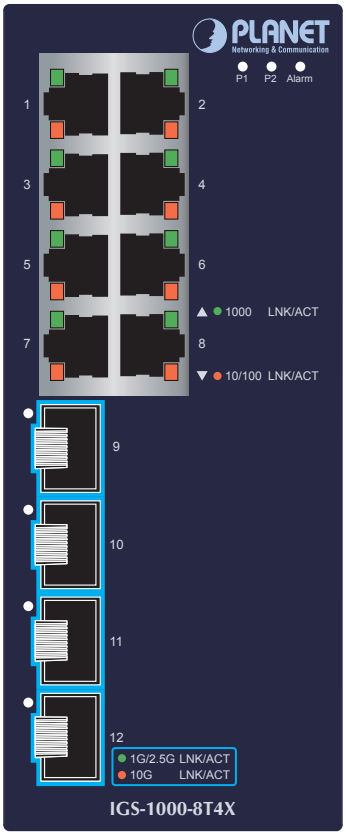


Figure 2-1:
IGS-1000-8T4X
front panel

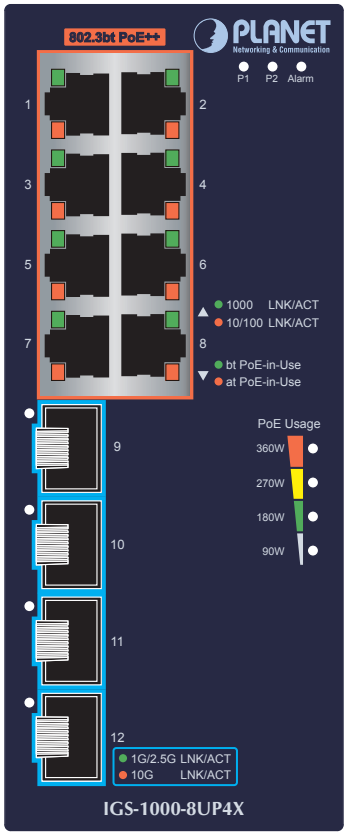


Figure 2-2:
IGS-1000-8UP4X
front panel

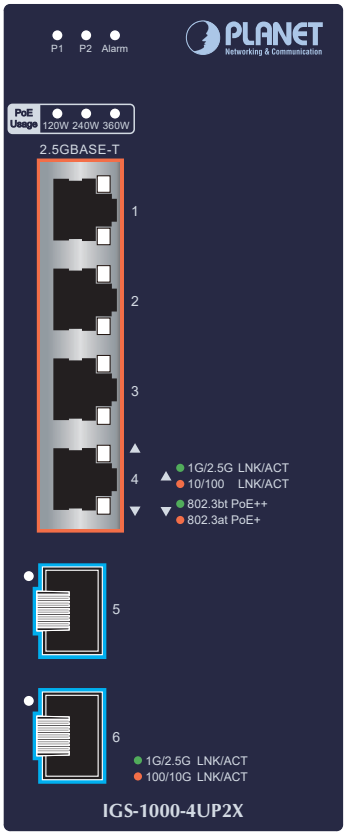


Figure 2-3:
IGS-1000-4UP2X
front panel

■ RJ45 Copper Interfaces

Model	Description	Port No.
IGS-1000-8T4X	Eight 10/100/1000BASE-T	Port 1 to Port 8
IGS-1000-8UP4X	Eight 10/100/1000BASE-T come with 802.3bt PoE++ type 4 injector function	Port 1 to Port 8
IGS-1000-4UP2X	Four 10/100/1000/2500BASE-T come with 802.3bt PoE++ type 4 injector function	Port 1 to Port 4

■ 10Gigabit SFP+ Slots

Model	Description	Port No.
IGS-1000-8T4X	Four 1G/2.5G/10GBASE-X SFP+ slots	Port 9 to Port 12
IGS-1000-8UP4X		
IGS-1000-4UP2X	Two 1G/2.5G/10GBASE-X SFP+ slots	Port 5 and Port 6

2.2 LED Indicators

IGS-1000-8T4X

■ System

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

■ 10/100/1000Mbps RJ45 Ports (Port 1 to Port 8)

LED	Color	Function
1000 LNK/ACT	Green	**Lights:** 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.
10/100 LNK/ACT	Amber	**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.

■ 10GBASE-X SFP+ Interfaces (Port 9 to Port 12)

LED	Color	Function
1G/2.5G LNK/ACT	Green	**Lights:** To indicate the port is running at **1000Mbps** or **2500Mbps** and successfully established. **Blinks:** To indicate that the switch is actively sending or receiving data over that port.

10G LNK/ACT	Amber	**Lights:** To indicate the port is running at **10Gbps** and successfully established.

IGS-1000-8UP4X

■ System

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

■ 10/100/1000Mbps RJ45 PoE++ Ports (Port 1 to Port 8)

LED	Color	Function
1000 LNK/ACT	Green	**Lights:** 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.
10/100 LNK/ACT	Amber	**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	Green	**Lights:** To indicate the PoE port is working in 4-pair PoE mode (End-span+Mid-span) and offers up to 95 watts of power.
	Amber	**Lights:** To indicate the PoE port is working in 802.3at PoE+ mode (End-span or mid-span) and offers up to 36 watts of power.

■ 10GBASE-X SFP+ Interfaces (Port 9 to Port 12)

LED	Color	Function
1G/2.5G LNK/ACT	Green	**Lights:** To indicate the port is running at **1000Mbps** or **2500Mbps** and successfully established. **Blinks:** To indicate that the switch is actively sending or receiving data over that port.
10G LNK/ACT	Amber	**Lights:** To indicate the port is running at **10Gbps** and successfully established.

■ PoE Usage LED

LED	Color	Function
360W	Amber	**Blinks:** To indicate the system consumes **close to 360-watt** PoE power budget
270W	Amber	**Lights:** To indicate the system consumes over 270-watt PoE power budget
180W	Amber	**Lights:** To indicate the system consumes over 180-watt PoE power budget
90W	Amber	**Lights:** To indicate the system consumes over 90-watt PoE power budget

IGS-1000-4UP2X

■ System

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

■ 10/100/1000/2500Mbps RJ45 PoE++ Ports (Port 1 to Port 4)

LED	Color	Function
1G/2.5G LNK/ACT	Green	**Lights:** To indicate the port is running at **1000Mbps** or **2500Mbps** and successfully established. **Blinks:** To indicate that the switch is actively sending or receiving data over that port.
10/100 LNK/ACT	Amber	**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	Green	**Lights:** To indicate the PoE port is working in 4-pair PoE mode (End-span+Mid-span) and offers up to 95 watts of power.
	Amber	**Lights:** To indicate the PoE port is working in 802.3at PoE+ mode (End-span or mid-span) and offers up to 36 watts of power.

■ 10GBASE-X SFP+ Interfaces (Port 5 to Port 6)

LED	Color	Function
1G/2.5G LNK/ACT	Green	**Lights:** To indicate the port is running at **1000Mbps** or **2500Mbps** and successfully established. **Blinks:** To indicate that the switch is actively sending or receiving data over that port.
100/10G LNK/ACT	Amber	**Lights:** To indicate the port is running at **100Mbps** or **10Gbps** and successfully established.

■ PoE Usage LED

LED	Color	Function
360W	Amber	**Blinks:** To indicate the system consumes **close to 360-watt** PoE power budget
240W	Amber	**Blinks:** To indicate the system consumes close to 240-watt PoE power budget **Lights:** To indicate the system consumes over 240-watt PoE power budget
120W	Amber	**Blinks:** To indicate the system consumes close to 120-watt PoE power budget **Lights:** To indicate the system consumes over 120-watt PoE power budget

2.3 Switch Upper Panel

The upper panel of the Industrial Ethernet Switch consists of one terminal block connector within two power input.

Figure 2-3 shows the upper panel of the IGS-1000-8T4X.

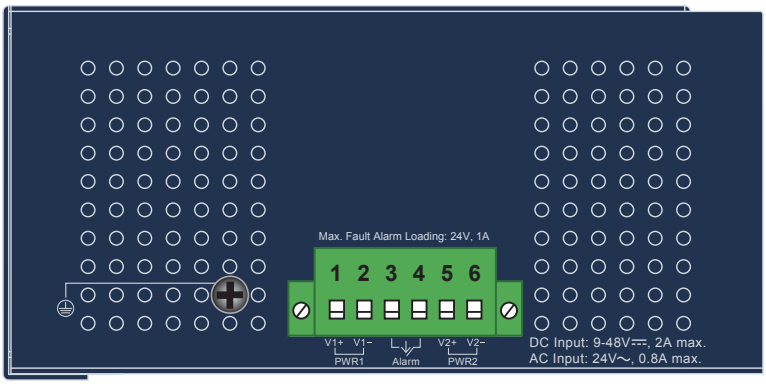


Figure 2-3: IGS-1000-8T4X Upper Panel

Figure 2-4 shows the upper panel of the IGS-1000-4UP2X and IGS-1000-8UP4X

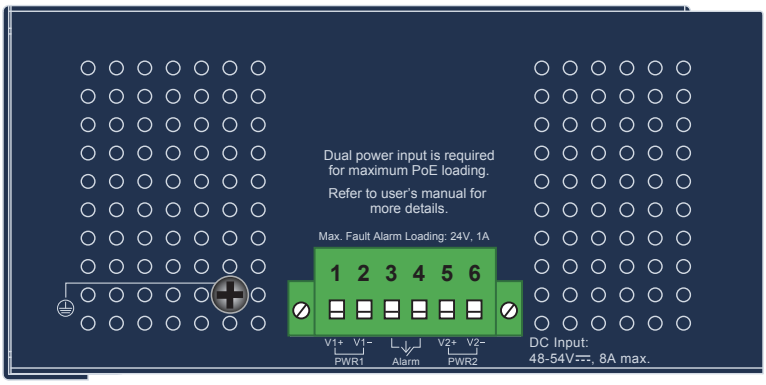


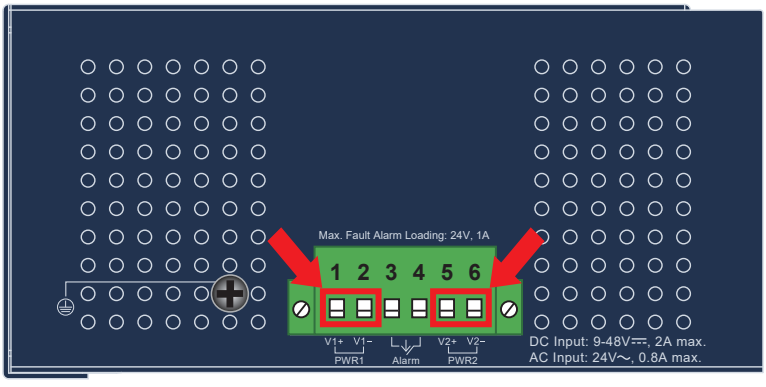
Figure 2-4: IGS-1000-4UP2X and IGS-1000-8UP4X Upper Panel

2.4 Wiring the Power Inputs

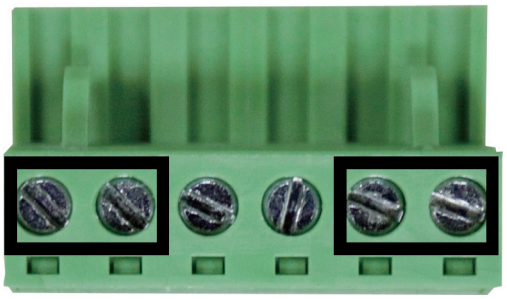
The 6-contact terminal block connector on the top panel of Industrial Ethernet Switch is used for two DC redundant power inputs. Please follow the steps below to insert the power wire.

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.



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



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

Note

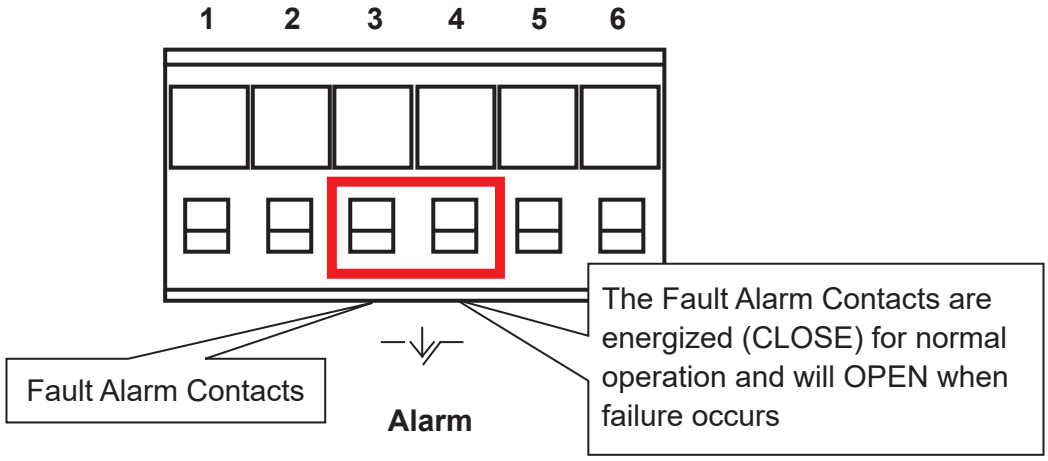
1. The wire gauge for the terminal block should be in the range between 12 and 24 AWG.
2. The **IGS-1000-8T4X** supports DC input range of 9V to 48V.
   The **IGS-1000-4UP2X and IGS-1000-8UP4X** supports DC input range of 48V to 54V.
   To avoid damage, please use the IGS-1000 Series under its specification.

Caution

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

2.5 Wiring the Fault Alarm Contact

The fault alarm contacts are in the middle of the terminal block connector as the picture shows below. Inserting the wires, the Industrial 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 fault alarm contacts.



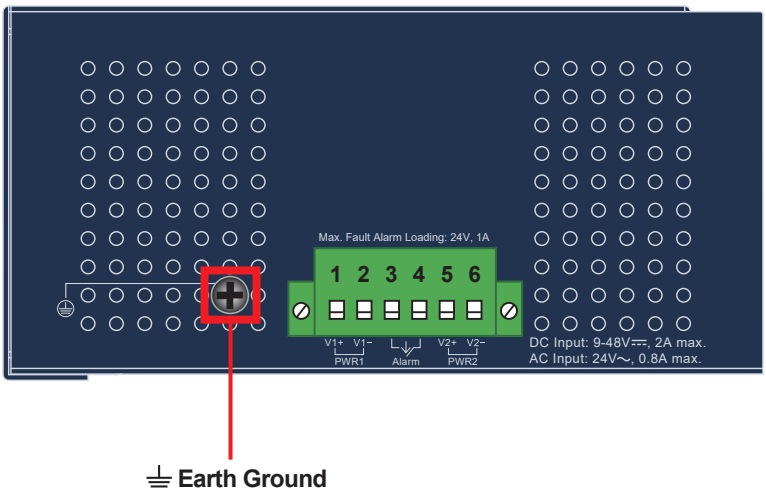
Insert the wires into the fault alarm contacts

Note

1. The wire gauge for the terminal block should be in the range between 12 and 24 AWG.
2. Alarm relay circuit accepts up to 24V with a maximum current of 1A.

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.

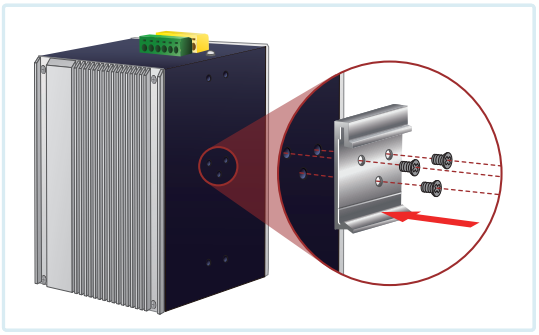
3. Installation

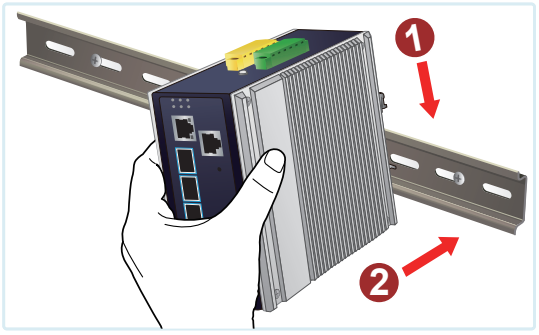
This section describes the functionalities of the Industrial Ethernet Switch's components and guides you to installing it on the DIN-rail and wall. Basic knowledge of networking is assumed. Please read this chapter completely before continuing.

Note	The installation procedures of the IGS-1000-8T4X and IGS-1000-8UP4X are the same as those shown below.

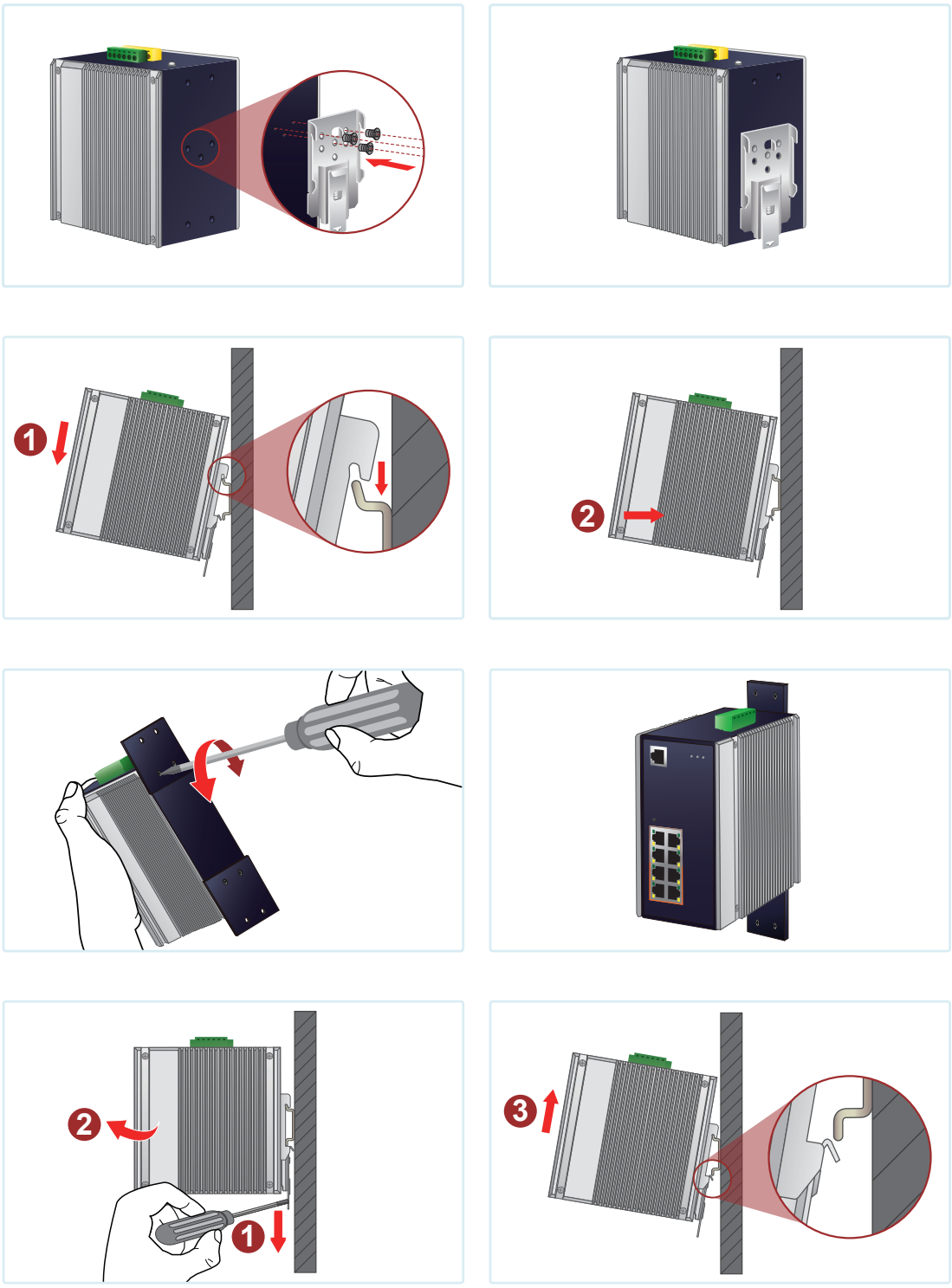
3.1 DIN-rail Mounting Installation

■ IGS-1000-8T4X and IGS-1000-8UP4X



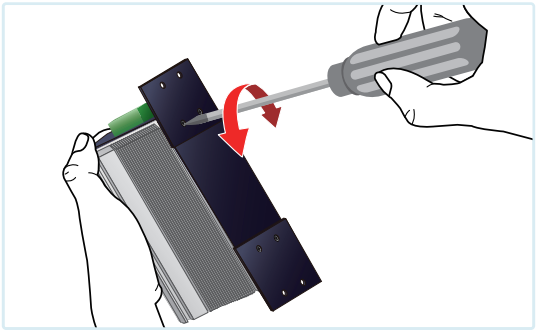


■ IGS-1000-4UP2X



* The above pictures are for illustration only.

3.2 Wall-mount Plate Mounting



* The above pictures are for illustration only.

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

Model	IGS-1000-8T4X	IGS-1000-8UP4X	IGS-1000-4UP2X
Hardware Specifications			
Copper Ports	8 10/100/1000BASET RJ45 auto-MDI/ MDI-X ports	8 10/100/1000BASET RJ45 auto-MDI/ MDI-X ports	4 10/100/1000/2500BASET RJ45 auto-MDI/ MDI-X ports
PoE Injector Ports	--	8 ports with 802.3bt PoE++ injector function (Ports 1 to 8)	4 ports with 802.3bt PoE++ injector function (Ports 1 to 4)
SFP+ Slots	4 10GBASE-X SFP+ interfaces (Ports 9 to 12) Backward compatible with 1000BASE-X and 2500BASE-X SFP transceivers	4 10GBASE-X SFP+ interfaces (Ports 9 to 12) Backward compatible with 1000BASE-X and 2500BASE-X SFP transceivers	2 10GBASE-X SFP+ interfaces (Ports 5 to 6) Backward compatible with 100BASE-FX, 1000BASE-X and 2500BASE-X SFP transceivers
Connector	Removable 6-pin terminal block Pin 1/2 for Power 1 Pin 3/4 for fault alarm Pin 5/6 for Power 2		
Power Requirements	9~48V DC, 4A max. Redundant power with reverse polarity protection function	48~54V DC, 8A max. Redundant power with reverse polarity protection function	
Power Consumption	Max. 14.73 watts/50.2BTU	Max. 8.69 watts/29.6BTU (System on) Max. 387.2 watts/1320BTU (Ethernet + PoE Full Loading)	Max. 4.86 watts/16.6BTU (System on) Max. 372 watts/1268.5BTU (Ethernet + PoE Full Loading)
Dimensions (W x D x H)	76 x 135 x 152 mm	76 x 135 x 152 mm	76.8 x 107.3 x 152 mm
Weight	1213g	1349g	1018g
Enclosure	IP30 aluminum case		

Installation	DIN-rail kit and wall-mount kit * Please note that the DIN-rail kit for the IGS-1000-4UP2X is different from that of the other two models.		
ESD Protection	6KV	6KV	5KV
LED Indicators	System: P1, P2 (Green), Alarm (Red)	System: P1, P2 (Green), Alarm (Red)	System: P1, P2 (Green), Alarm (Red)
	10/100/1000BASE-T RJ45 Interfaces (Port 1 to Port 8): 1000Mbps LNK/ACT (Green) 10/100Mbps LNK/ ACT (Amber)	10/100/1000BASE-T RJ45 Interfaces (Port 1 to Port 8): 1000Mbps LNK/ACT (Green) 10/100Mbps LNK/ ACT (Amber) 802.3bt PoE-in-Use (Green) 802.3at PoE-in-Use (Amber)	10/100/1000/2500BASE-T RJ45 Interfaces (Port 1 to Port 4): 1000/2500Mbps LNK/ACT (Green) 10/100Mbps LNK/ACT (Amber) 802.3bt PoE-in-Use (Green) 802.3at PoE-in-Use (Amber)
	Per 1G/2.5G/10Gbps SFP+ Interfaces 1G/2.5Gbps LNK/ACT (Green) 100/10Gbps LNK/ACT (Amber)		
		PoE Usage: 90W, 180W, 270W, 360W (Amber)	PoE Usage: 120W, 240W, 360W (Amber)
Switch Specifications			
Switch Architecture	Store-and-Forward		
Switch Fabric	96Gbps	96Gbps	60Gbps
Throughput (packet per second)	71.43Mpps@64bytes	71.43Mpps@64bytes	44.462Mpps@64bytes
Address Table	16K entries	16K entries	4K entries
Buffer Memory	12M bits on-chip buffer memory	12M bits on-chip buffer memory	8M bits on-chip buffer memory
Jumbo Frame	9Kbytes	9Kbytes	12Kbytes

Flow Control	Back pressure for half duplex IEEE 802.3x pause frame for full duplex	
Power over Ethernet		
PoE Standard	--	IEEE 802.3bt PoE++ PSE Backward compatible with IEEE 802.3at PoE+ PSE
PoE Power Supply Type	--	802.3bt, End-span+ Mid-span
PoE Power Output	--	95 watts max.
Power Pin Assignment	--	End-span+ Mid-span: 1/2(-), 3/6(+), 4/5(+), 7/8(-)
PoE Power Budget (max.)	--	Single power input: 240W maximum Dual power input: 360W maximum
Standards Conformance		
Regulatory Compliance	FCC Part 15 Class A, CE	
Stability Testing	IEC 60068-2-32 (free fall) IEC 60068-2-27 (shock) IEC 60068-2-6 (vibration)	
Standards Compliance	IEEE 802.3 Ethernet IEEE 802.3u Fast Ethernet IEEE 802.3ab Gigabit Ethernet IEEE 802.3z Gigabit SX/LX IEEE 802.3ae 10 Gigabit Ethernet IEEE 802.3x Full-Duplex Flow Control IEEE 802.3bt Power over Ethernet Plus Plus PSE (For IGS-1000-8UP4X and IGS-1000-4UP2X) IEEE 802.3at Power over Ethernet Plus PSE (For IGS-1000-8UP4X and IGS-1000-4UP2X) IEEE 802.3af Power over Ethernet Plus (For IGS-1000-8UP4X and IGS-1000-4UP2X) IEEE 802.1p Class of Service IEEE 802.3bz 2.5GBASE-T (For and IGS-1000-4UP2X)	

Environment	
Temperature	Operating: -40~75 degrees C Storage: -40~75 degrees C
Humidity	Operating: 5~90% (non-condensing) Storage: 5~90% (non-condensing)

5. Customer Support

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

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

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

FCC Warning

This device has been tested and found to comply with the limits 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 the Instruction manual, 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.

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.