

19-inch
FGSW-2620

24-Port 10/100Mbps+2-Port Gigabit Ethernet Switch



User's Manual

**24-Port 10/100Mbps + 2-Port
Gigabit Ethernet Switch**

FGSW-2620

User's Manual

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Revision

PLANET 24-Port 10/100Mbps+ 2-Port Gigabit Ethernet Switch User's Manual

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1. Introduction

1.1 Package Contents

Check the contents of your package for following parts:

- 24-Port 10/100Mbps+ 2-Port Gigabit Ethernet Switch x1
- User's manual x1
- Power cord x1
- Two Rack-Mounting Brackets with Attachment Screws x1

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 against to repack the product in case there is a need return to it to us for repairing.

1.2 How to Use This Manual

This 24-Port 10/100Mbps+ 2-Port Gigabit Ethernet Switch Users' Manual is structured as follows:

- Section 2, **Installation**

It explains the functions of Switch and how to physically install the FGSW-2620.

- Section 3 **Switch operation**

It explains the Switch operation of FGSW-2620.

- Section 4 **Troubleshooting**

It contains troubleshooting guide of FGSW-2620.

- **Appendix A**

It contains cable information of FGSW-2620.

In the following section, the term "**Switch**" means the Switch, i.e. FGSW-2620; term of "**switch**" can be any third part switches.

1.3 Product Features

- Comply with the IEEE 802.3, IEEE 802.3u, IEEE 802.3ab, IEEE 802.3z Gigabit Ethernet standard
- 24-Port 10/100Mbps Fast Ethernet ports
- 2 10/100/1000Mbps ports
- Each Switching ports support auto-negotiation-10/20, 100/200Mbps, 1000/2000Mbps supported
- Auto-MDI/MDI-X detection on each RJ-45 port
- 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, runt/CRC filtering eliminates erroneous packets to optimize the network bandwidth
- 4K MAC address table, automatic source address learning and ageing
- 2.5Mbits embedded memory for packet buffers
- 19-inch rack mount size
- EMI standards comply with FCC Class A, CE

1.4 Product Specifications

Product	FGSW-2620
Hardware Specification	
Ports	24 10/100Base-TX RJ-45 Auto-MDI/MDI-X ports
Gigabit ports	2 10/100/1000Mbps ports
Switch Processing Scheme	Store-and-Forward
Throughput (packet per second)	6.54Mpps
Switch fabric	8.8Gbps
Address Table	4K entries
Share data Buffer	2.5Mbits
Flow Control	Back pressure for half duplex, IEEE 802.3x Pause Frame for full duplex
Dimensions	440 x 120 x 44 mm (1U height)
Weight	1.57 kg
Power Requirement	100~240 VAC, 50~60 Hz
Power Consumption / Dissipation	23.1 watts / 78 BTU
Temperature	Operating: 0~50 degree C Storage: -40~70 degree C
Humidity Operating:	5% to 90%, Storage: 5% to 90% (Non-condensing)
Standards Conformance	
Regulation Compliance	FCC Part 15 Class A, CE
Standards Compliance	IEEE 802.3 (Ethernet) IEEE 802.3u (Fast Ethernet), IEEE 802.3x (Full-duplex flow control)

2. Installation

This section describes the functionalities of FGSW-2620 components and guides how to install it on the desktop or shelf. Basic knowledge of networking is assumed. Please read this chapter completely before continuing.

2.1 Product Description

The PLANET FGSW-2620 provides 24 10/100Mbps Fast Ethernet ports with 2 10/100/1000Mbps ports (port 25/26). The two Gigabit ports can be 1000Base-T for 10/100/1000Mbps; the distance can be extended from 100 meters (TP). The Switch with non-blocking backplane and simplifies the task of upgrading your LAN to cater for increased bandwidth demand.

2.1.1 Product Overview

PLANET FGSW-2620 is Ethernet Switch with 24 RJ-45 10/100Mbps ports. The Switch also provides up to two 10/100/1000Mbps ports for cost effective high-performance network connectivity. With its 8.8Gbps non-blocking switch fabric, the Switch can also provide a local, high bandwidth, Fast Ethernet network for your departmental backbone.

This Switch also supports store-and-forward forwarding scheme to ensure low latency and high data integrity, eliminates unnecessary traffic and relieves congestion on critical network paths. With an intelligent address recognition algorithm, Switch could recognize up to 8K different MAC address and enables filtering and forwarding at full wire speed.

2.1.2 FGSW-2620 Front Panel

Figure 2-1 shows front panel of FGSW-2620.



Figure 2-1 FGSW-2620 Front Panel

2.1.3 LED Indicators

System

LED	Color	Function
PWR	Green	Lights to indicate that the Switch is powered on.

Per 10/100Mbps port

LED	Color	Function
LNK/ACT	Green	Lights: to indicate the link through that port is successfully established. Blink: indicate that the Switch is actively sending or receiving data over that port.
10/100	Orange	Steady Lights: to indicate the port is run at 100Mbps. Blinking Slowly: to indicate the port is run at 10Mbps.

Per 10/100/1000Base-T port

LED	Color	Function
LNK/ACT	Green	Lights: to indicate the link through that port is successfully established. Blink: indicate that the Switch is actively sending or receiving data over that port.
10/100/1000	Green	Steady Lights: indicate the port is operating at 1000Mbps. Blinking Slowly: to indicate the port is run at 100Mbps. Off: to indicate the port is run at 10Mbps.

2.1.4 FGSW-2620 Rear Panel

The rear panel of the Switch indicates an AC inlet power socket, which accepts input power from 100 to 240VAC, 50-60Hz. Figure 2-2 shows Rear panel of the Switch.



Figure 2-2 Rear Panel of FGSW-2620

Power Notice:

1. The device is a power-required device, it means, it will not work till it is powered. If your networks should active all the time, please consider using UPS (Uninterrupted Power Supply) for your device. It will prevent you from network data loss or network downtime.
2. In some area, installing a surge suppression device may also help to protect your Switch from being damaged by unregulated surge or current to the Switch or the power adapter.

2.2 Installing a FGSW-2620

This part describes how to install your Ethernet Switch and make connections to the Switch. Please read the following topics and perform the procedures in the order being presented.

To install your Switch on a desktop or shelf, simply complete the following steps.

2.2.1 Desktop Installation

To install a Switch on a desktop or shelf, simply complete the following steps:

- Step1:** Attach the rubber feet to the recessed areas on the bottom of the Switch.
- Step2:** Place the Switch on a desktop or shelf near an AC power source.

Step3: Keep enough ventilation space between the Switch and the surrounding objects.

 Note	When choosing a location, please keep in mind the environmental restrictions discussed in Chapter 1, Section 4, Specification.
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Step4: Connect your Switch to network devices

- A. Connect one end of a standard network cable to the 10/100 RJ-45 ports on the front of the Switch.
- B. Connect the other end of the cable to the network devices such as printer servers, workstations or routers...etc.

 Note	Connection to the Switch requires UTP Category 5 network cabling with RJ-45 tips. For more information, please see the Cabling Specification in Appendix A .
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Step5: Supply power to the Switch.

- A. Connect one end of the power cable to the Switch.
- B. Connect the power plug of the power cable to a standard wall outlet then power on the Switch.

When the Switch receives power, the Power LED should remain solid Green.

2.2.2 Rack Mounting

To install the Switch in a 19-inch standard rack, follow the instructions described below.

Step1: Place your Switch on a hard flat surface, with the front panel positioned towards your front side.

Step2: Attach a rack-mount bracket to each side of the Switch with supplied screws attached to the package. Figure 2-3 shows how to attach brackets to one side of the Switch.



Figure 2-3 Attaching the brackets to the Switch

Caution:

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

Step3: Secure the brackets tightly.

Step4: Follow the same steps to attach the second bracket to the opposite side.

Step5: After the brackets are attached to the Switch, use suitable screws to securely attach the brackets to the rack, as shown in figure 2-4.

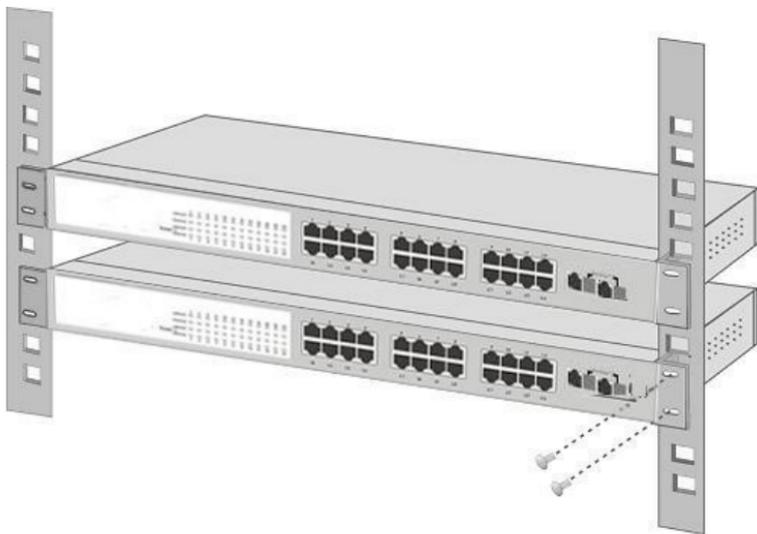


Figure 2-4 Mounting the Switch in a Rack

Step6: Proceed with the steps 4 and steps 5 of section **2.2.1 Desktop Installation** to connect the network cabling and supply power to your Switch.

3. Switch Operation

3.1 Address Table

The Switch is implemented with an address table. This address table composed of many entries. Each entry is used to store the address information of some node in network, including MAC address, port no, etc. This information comes from the learning process of Ethernet Switch.

3.2 Learning

When one packet comes in from any port, the Switch will record the source address, port no. And the other related information in address table. This information will be used to decide either forwarding or filtering for future packets.

3.3 Forwarding & Filtering

When one packet comes from some port of the Ethernet Switching, it will also check the destination address besides the source address learning. The Ethernet Switching will lookup the address-table for the destination address. If not found, this packet will be forwarded to all the other ports except the port, which this packet comes in. And these ports will transmit this packet to the network it connected. If found, and the destination address is located at different port from this packet comes in, the Ethernet Switching will forward this packet to the port where this destination address is located according to the information from address table. But, if the destination address is located at the same port with this packet comes in, then this packet will be filtered. Thereby increasing the network throughput and availability.

3.4 Store-and-Forward

Store-and-Forward is one type of packet-forwarding techniques. A Store-and-Forward Ethernet Switching stores the incoming frame in

an internal buffer, do the complete error checking before transmission. Therefore, no error packets occurrence, it is the best choice when a network needs efficiency and stability.

The Ethernet Switch scans the destination address from the packet-header, searches the routing table provided for the incoming port and forwards the packet, only if required. The fast forwarding makes the switch attractive for connecting servers directly to the network, thereby increasing throughput and availability. However, the switch is most commonly used to segment existence hubs, which nearly always improves overall performance. An Ethernet Switching can be easily configured in any Ethernet network environment to significantly boost bandwidth using conventional cabling and adapters.

Due to the learning function of the Ethernet switching, the source address and corresponding port number of each incoming and outgoing packet are stored in a routing table. This information is subsequently used to filter packets whose destination address is on the same segment as the source address. This confines network traffic to its respective domain, reducing the overall load on the network.

The Switch performs "**Store and forward**" therefore, no error packets occur. More reliably, it reduces the re-transmission rate. No packet loss will occur.

3.5 Auto-Negotiation

The STP ports on the Switch have built-in "**Auto-negotiation**". This technology automatically sets the best possible bandwidth when a connection is established with another network device (usually at Power On or Reset). This is done by detect the modes and speeds at the second of both device is connected and capable of, both 10Base-T and 100Base-TX devices can connect with the port in either Half- or Full-Duplex mode. 1000Base-T can be only connected in Full-duplex mode.

If attached device is:	100Base-TX port will set to:
• 10Mbps, no auto-negotiation	10Mbps
• 10Mbps, with auto-negotiation	10/20Mbps (10Base-T/Full-Duplex)
• 100Mbps, no auto-negotiation	100Mbps
• 100Mbps, with auto-negotiation	100/200Mbps (100Base-TX/Full-Duplex)

4. Troubleshooting

This chapter contains information to help you solve issues. If the Ethernet Switch is not functioning properly, make sure the Ethernet Switch was set up according to instructions in this manual.

The per port LED is not lit

Solution: Check the cable connection of the FGSW-2620.

Performance is bad

Solution: Check the speed duplex mode of the partner device. The FGSW-2620 is run at Auto-negotiation mode and if the partner is set to half duplex, then the performance will be poor.

Per port LED is lit, but the traffic is irregular

Solution: Check that the attached device is not set to dedicate full duplex. Some devices use a physical or software switch to change duplex modes. Auto-negotiation may not recognize this type of full-duplex setting.

Why the Switch doesn't connect to the network

Solution: Check per port LED on the switch. Try another port on the Switch. Make sure the cable is installed properly. Make sure the cable is the right type. Turn off the power. After a while, turn on power again.

Appendix A Networking Connection

A.1 Switch's RJ-45 Pin Assignments

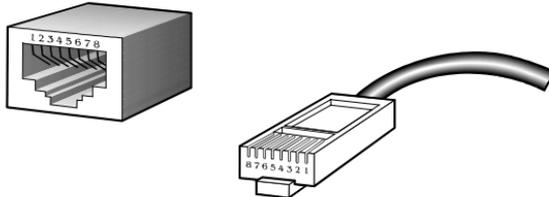
1000Mbps, 1000Base T

Contact	MDI	MDI-X
1	BI_DA+	BI_DB+
2	BI_DA-	BI_DB-
3	BI_DB+	BI_DA+
4	BI_DC+	BI_DD+
5	BI_DC-	BI_DD-
6	BI_DB-	BI_DA-
7	BI_DD+	BI_DC+
8	BI_DD-	BI_DC-

10/100Mbps, 10/100Base-TX

RJ-45 Connector pin assignment		
Contact	MDI Media Dependant Interface	MDI-X Media Dependant Interface -Cross
1	Tx + (transmit)	Rx + (receive)
2	Tx - (transmit)	Rx - (receive)
3	Rx + (receive)	Tx + (transmit)
4, 5	Not used	
6	Rx - (receive)	Tx - (transmit)
7, 8	Not used	

A.2 RJ-45 cable Pin Assignments



The standard RJ-45 receptacle/connector

There are 8 wires on a standard UTP/STP cable and each wire is color-coded. The following shows the pin allocation and color of straight cable and crossover cable connection:



Figure A-1: Straight-Through and Crossover Cable

Please make sure your connected cables are with same pin assignment and color as above picture before deploying the cables into your network.

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