

8-Port 10/100/1000Mbps Gigabit Ethernet Switch

GSD-805 / GSD-805F

User's Manual

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FCC Warning

This equipment 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.

CE Mark Warning

This is a Class A product. In a domestic environment, this product may cause radio interference, in which case the user may be required to take adequate measures.

Energy Saving Note of the Device

This power required device does not support Standby mode operation.

For energy saving, please remove the power cable to disconnect the device from the power circuit.

Without removing power cable, the device will still consuming power from the power source. In the view of Saving the Energy and reduce the unnecessary power consuming, it is strongly suggested to remove the power connection for the device if this device is not intended to be active.

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.

Revision

PLANET 8-Port 10/100/1000Mbps Gigabit Ethernet Switch User's Manual

For Models: GSD-805 (v2) / GSD-805F

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1. Introduction

1.1 Package Contents

Check the contents of your package for following parts:

Gigabit Ethernet Switch x 1

User's Manual x 1

Power Cord x 1

Rubber Feet x 4

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 to return it to us for repair.

In the following section, the term "**Gigabit Ethernet Switch**" means the GSD-805 and GSD-805F.

1.2 How to Use This Manual

This Gigabit Ethernet Switch User Manual is structured as follows:

Chapter 2 Installation

The chapter explains the feature, functionality and the physical installation of the Gigabit Ethernet Switch.

Chapter 3 Switch operation

The chapter explains the Gigabit Ethernet Switch transmit operation.

Chapter 4 Troubleshooting

The chapter explains the troubleshooting of the Gigabit Ethernet Switch.

Appendix A

This chapter contains cable information of the Gigabit Ethernet Switch.

1.3 Product Features

- Comply with IEEE 802.3 10Base-T, IEEE 802.3u 100Base-TX, IEEE 802.3ab 1000Base-T and IEEE 802.3z 1000Base-SX / LX (GSD-805F) Ethernet standard
- GSD-805: 8-Port 10/100/1000Mbps Gigabit Ethernet
- GSD-805F: 8-Port 10/100/1000Mbps with 1 SFP Port (Shared with Port 1)
- Features Store-and-Forward mode with wire-speed filtering and forwarding rates
- Hardware based 10/100Mbps, Half / Full Duplex and 1000Mbps Full Duplex mode, Flow Control and Auto-negotiation
- IEEE 802.3x Flow Control for Full Duplex and Back-pressure for Half Duplex operation
- Integrated address look-up engine, support 8K absolute MAC addresses
- 1Mbit on-chip frame buffer
- 9K Jumbo packet Feature
- Automatic address learning and address aging
- Supports Auto MDI/MDI-X function
- Support CSMA/CD protocol
- Internal power adapter 100-240V AC, 50/60Hz, 0.2A
- FCC, CE class A compliant

1.4 Product Specifications

Product		GSD-805	GSD-805F
Hardware Specification			
Hardware Version		2	1
10/100/1000Base-T Ports		8	
SFP/mini-GBIC Slot		NA	1 SFP Shared with Port 1
Dimensions (W x D x H)		191 mm x 85.7 mm x 26.3 mm	
Weight		430g	440g
Power Requirement		Internal power 100-240V AC, 50/60Hz, 0.2A	
Power Consumption / Dissipation		8.6Watts / 29BTU	9.2Watts / 31BTU
Switch Specification			
Switch Processing Scheme		Store-and-Forward	
Address Table		8K entries	
Share Data Buffer		1Mbit on-chip frame buffer	
Flow Control		Back pressure for Half Duplex IEEE 802.3x Pause Frame for Full Duplex	
Switch Fabric		16Gbps / non-blocking	
Throughput (packet per second)		11.9Mpps@64Bytes	
Network Cables	UTP	Cat. 3, 4, 5, 5e, 6 UTP cable (100 meters, max.) EIA/TIA-568 100-ohm STP (100 meters, max.)	
	Fiber (GSD-805F)	50/125µm or 62.5/125µm multi-mode fiber cable, up to 220/550m. 9/125µm single-mode cable, up to 10/15/20/30/40/50/60/70/120km (Vary on fiber transceiver or SFP module)	
Standards Conformance			
Standards Compliance		IEEE 802.3 Ethernet IEEE 802.3u Fast Ethernet IEEE 802.3ab Gigabit Ethernet IEEE 802.3x Full-duplex Flow Control IEEE 802.3z Gigabit Fiber Ethernet (GSD-805F)	
Temperature		Operating: 0 ~ 45 Degree C Storage: -40 ~ 70 Degree C	
Humidity Operating		Operating: 5% to 90%, Storage: 5% to 90% (Non-condensing)	
Regulation Compliance		FCC Part 15 Class A, CE	

2. Installation

This section describes the functionalities of the Gigabit Ethernet Switch's components and guides how to install it on the desktop. Basic knowledge of networking is assumed. Please read this chapter completely before continuing.

2.1 Product Description

The PLANET GSD-805 and GSD-805F are Gigabit Ethernet Switch with non-blocking wire-speed performance and new metal shape for easily desktop deployment in compact housing or SOHO application.

With 16Gbps internal switching fabric and 9K Jumbo frame, the Gigabit Ethernet Switch can handle extremely large amounts of data in a secure topology linking to a backbone or high capacity servers. The high data throughput of the device makes it ideal for most Gigabit environments, especially network upgrades to a Gigabit environment.

All RJ-45 copper interfaces support 10/100/1000Mbps Auto-Negotiation for optimal speed detection through RJ-45 Category 5, 5e or 6 cables. Support standard of Auto-MDI/MDI-X feature which can detect the type of connection to any Ethernet device without requiring special straight or crossover cables.

The Flow Control function allows Gigabit Ethernet Switch supported routers and Servers to directly connect to this device for fast, reliable data transfer.

2.1.1 Product Overview

The PLANET Gigabit Ethernet Switch can also automatically identify and determine the correct transmission speed of Half / Full Duplex mode. The Gigabit Ethernet 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, the Gigabit Ethernet Switch could recognize up to 8K different MAC address and enables filtering and forwarding at full wire speed.

2.1.2 Switch Front Panel

Figure 2-1 and 2-2 show front panel of GSD-805 and GSD-805F.



Figure 2-1: GSD-805 Front Panel

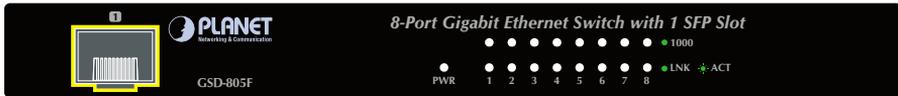


Figure 2-2: GSD-805F Front Panel



Note

1. TP Port 1 and SFP Slot 1 are shared combo interface.
2. Please connects either SFP Slot 1 or TP Port 1 at a time. Not allow to connect both at the same time.

2.1.3 LED Indicators

GSD-805 / GSD-805F

■ System

LED	Color	Function
PWR	Green	Light: Indicate that the Switch has power.

■ Per 10/100/1000Base-T RJ-45 Port

LED	Color	Function
1000	Green	Light: Indicate that the Switch is successfully connecting to the network at 1000Mbps. OFF: Indicate that the Switch is successfully connecting to the network at 10Mbps or 100Mbps.
LNK/ACT	Green	Light: Indicate the link through that port is successfully established. Blink: Indicate that the Switch is actively sending or receiving data over that port.

■ Per 1000Base-X SFP Port (GSD-805F)

LED	Color	Function
LNK/ACT	Green	<p>Light: Indicate that the Switch is successfully connecting to the network at 1000Mbps.</p> <p>Blink: Indicate that the Switch is actively sending or receiving data over that port.</p>

2.1.4 Switch Rear Panel

Figure 2-3 shows a rear panel of GSD-805 and GSD-805F.

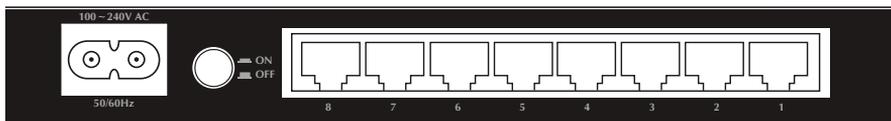


Figure 2-3: GSD-805 / GSD-805F Rear Panel



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 the Switch

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



This Gigabit Ethernet Switch does not need software configuration.

2.2.1 Desktop Installation

To install the Gigabit Ethernet Switch on desktop, simply follow the next steps:

Step 1: Attach the rubber feet to the recessed areas on the bottom of the Gigabit Ethernet Switch.

Step 2: Place the Gigabit Ethernet Switch on desktop near an AC power source.

Step 3: Keep enough ventilation space between the Gigabit Ethernet Switch and the surrounding objects.



When choosing a location, please keep in mind the environmental restrictions discussed in Chapter 1, Section 1.4 Product Specifications.

Step 4: Connect your Gigabit Ethernet Switch to network devices.

- A. Connect one end of a standard network cable to the 10/100/1000Mbps RJ-45 ports on the Back of the Gigabit Ethernet Switch.
- B. Connect the other end of the cable to the network devices such as printer servers, workstations or routers...etc.



Connection to the Gigabit Ethernet Switch requires UTP Category 5 network cabling with RJ-45 tips. For more information, please see the Cabling Specification in Appendix A.

Step 5: Supply power to the Gigabit Ethernet Switch.

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

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

2.3 Installing SFP Module (GSD-805F Only)

The section describes how to insert an SFP transceiver into a SFP slot.

The SFP transceivers are hot-pluggable and hot-swappable. You can plug-in and out the transceiver to / from any SFP port without having to power down the Switch. As the Figure -1 appears.



Figure 2-4: Plug-in the SFP transceiver

Before connects the other switches, workstation or Media Converter.

1. Make sure both side of the SFP transceivers are the same media type, for example: 1000Base-SX to 1000Base-SX, 1000Base-LX to 1000Base-LX.
2. Check the fiber-optic cable type match the SFP transceiver model.
 - ◆ To connect to **MGB-SX** SFP transceiver, use the **multi-mode** fiber cable with one side must be male duplex LC connector type.
 - ◆ To connect to **MGB-LX** SFP transceiver, use the **single-mode** fiber cable with one side must be male duplex LC connector type.

Connect the fiber cable

1. Attach the duplex LC connector on the network cable into the SFP transceiver.
2. Connect the other end of the cable to a device – switches with SFP installed, fiber NIC on a workstation or a Media Converter.
3. Check the LNK/ACT LED of the SFP slot of the Switch. Ensure that the SFP transceiver is operating correctly.
4. Check the Link mode of the SFP port if the link failed.

3. Switch Operation

3.1 Address Table

The Gigabit Ethernet 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 Gigabit Ethernet Switch.

3.2 Learning

When one packet comes in from any port, the Gigabit Ethernet 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 Gigabit Ethernet Switch, it will also check the destination address besides the source address learning. The Gigabit Ethernet Switch 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 Gigabit Ethernet Switch 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 Gigabit Ethernet Switch 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 Gigabit 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 existing 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 Gigabit Ethernet Switch, 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 Gigabit Ethernet 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 Gigabit Ethernet 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.

4. Troubleshooting

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

The per port LED is not light

Solution:

Check the cable connection of the Gigabit Ethernet Switch.

Performance is bad

Solution:

Check the speed duplex mode of the partner device. The Gigabit Ethernet Switch 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 light, 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 Gigabit Ethernet Switch doesn't connect to the network

Solution:

Check per port LED on the Gigabit Ethernet Switch. Try another port on the Gigabit Ethernet 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

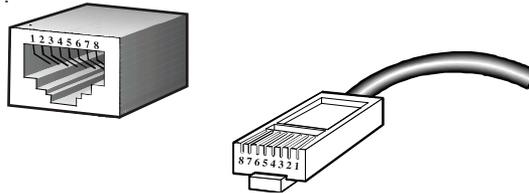
1000Mbps, 1000Base-T

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		
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.



EC Declaration of Conformity

For the following equipment:

*Type of Product: 8-Port 10/100/1000Mbps Desktop Gigabit Ethernet Switch (Internal Power)
*Model Number: GSD-805

* Produced by:
Manufacturer's Name : **Planet Technology Corp.**
Manufacturer's Address: 11F, No 96, Min Chuan Road,
Hsin Tien, Taipei, Taiwan, R.O.C.

is herewith confirmed to comply with the requirements set out in the Council Directive on the Approximation of the Laws of the Member States relating to Electromagnetic Compatibility Directive on (2004/108/EC).

For the evaluation regarding the EMC, the following standards were applied:

EN55022		(2006, CLASS B)
EN 61000-3-2		(2006)
EN 61000-3-3		(1995, A1: 2001, A2: 2005)
EN55024		(1998, A1: 2001, A2: 2003)
	IEC 61000-4-2	(2001)
	IEC 61000-4-3	(2006)
	IEC 61000-4-4	(2004)
	IEC 61000-4-5	(2006)
	IEC 61000-4-6	(2007)
	IEC 61000-4-8	(2001)
	IEC 61000-4-11	(2004)

Responsible for marking this declaration if the:

Manufacturer Authorized representative established within the EU

Authorized representative established within the EU (if applicable):

Company Name: Planet Technology Corp.

Company Address: 11F, No.96, Min Chuan Road, Hsin Tien, Taipei, Taiwan, R.O.C

Person responsible for making this declaration

Name, Surname Kent Kang

Position / Title : Product Manager

Taiwan
Place

29th Aug., 2008
Date


Legal Signature

PLANET TECHNOLOGY CORPORATION

e-mail: sales@planet.com.tw http://www.planet.com.tw
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EC Declaration of Conformity

For the following equipment:

*Type of Product: 8-Port 10/100/1000Mbps with 1 SFP Slot Gigabit Ethernet Switch , Metal (Internal Power)
*Model Number: GSD-805F

* Produced by:

Manufacturer's Name : **Planet Technology Corp.**
Manufacturer's Address: 11F, No 96, Min Chuan Road,
Hsin Tien, Taipei, Taiwan, R.O.C.

is herewith confirmed to comply with the requirements set out in the Council Directive on the Approximation of the Laws of the Member States relating to Electromagnetic Compatibility Directive on (2004/108/EC).

For the evaluation regarding the EMC, the following standards were applied:

EN55022	(2006, CLASS B)
EN 61000-3-2	(2006)
EN 61000-3-3	(1995, A1: 2001, A2: 2005)
EN55024	(1998, A1: 2001, A2: 2003)
IEC 61000-4-2	(2001)
IEC 61000-4-3	(2006)
IEC 61000-4-4	(2004)
IEC 61000-4-5	(2006)
IEC 61000-4-6	(2007)
IEC 61000-4-8	(2001)
IEC 61000-4-11	(2004)

Responsible for marking this declaration if the:

Manufacturer Authorized representative established within the EU

Authorized representative established within the EU (if applicable):

Company Name: Planet Technology Corp.

Company Address: 11F, No.96, Min Chuan Road, Hsin Tien, Taipei, Taiwan, R.O.C

Person responsible for making this declaration

Name, Surname Kent Kang

Position / Title : Product Manager

Taiwan

Place

30th Nov., 2010

Date


Legal Signature

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