Trademarks

Disclaimer

PLANET Technology does not warrant that the hardware will work properly in all environments and applications, and makes no warranty and representation, either implied or expressed, with respect to the quality, performance, merchantability, or fitness for a particular purpose.

PLANET has made every effort to ensure that this User's Manual is accurate; PLANET disclaims liability for any inaccuracies or omissions that may have occurred.

Information in this User's Manual is subject to change without notice and does not represent a commitment on the part of PLANET. PLANET assumes no responsibility for any inaccuracies that may be contained in this User's Manual. PLANET makes no commitment to update or keep current the information in this User's Manual, and reserves the right to make improvements to this User's Manual and/or to the products described in this User's Manual, at any time without notice.

If you find information in this manual that is incorrect, misleading, or incomplete, we would appreciate your comments and suggestions.

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.

Revision

PLANET Switch User's Manual
FOR MODELS: FGSW-2402S
Part No.: EM-FG24V1

TABLE OF CONTENTS

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1. INTRODUCTION

1.1 Checklist

Check the contents of your package for following parts:

- FGSW-2402S.
- User's manual.
- Power cord.
- 19” rack mount brackets.
- RS-232 cable.

If any of these pieces 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 repairing.

1.2 About the Switch

With two open slots available for fiber or copper Gigabit modules, the FGSW-2402S can accelerate your Cat5 backbone to 10 times the performance of existing 100 Megabit without re-wiring your cabling infrastructure. The optional Gigabit modules can be Gigabit fiber-optic, (SX or LX) and also Fast Ethernet fiber-optic up to 10 kilometers away. Powered by a non-blocking 9.6Gbps backplane, the FGSW-2402S simplifies the task of upgrading your LAN to cater for increased bandwidth demand.

Equipped with a console interface the Gigabit Smart Switch can be programmed for basic switch management functions such as bandwidth provision, port status configuration, VLAN parameters, port-trunking, and port monitoring.

The switch is suitable for the following applications:

Workgroup switch:

By installing a Gigabit copper NIC such as PLANET’s ENW-9601T (32/64-bit PCI Gigabit Ethernet Adapter), upgrading your workgroups or servers from Ethernet or Fast Ethernet to Gigabit Ethernet is simple, ensuring compatibility for current and future networks and protecting your network investment.

Department Switch:

With a proven Gigabit Ethernet Interface, there has never been a better time to connect your workgroups to the backbone using the 4-pair CAT 5/5e UTP cables that already exist in your building. IEEE802.3x flow-control is enabled to ensure high performance Gigabit trunking (up to 4Gbps bandwidth) without any loss of network packets. The choice of Gigabit fiber optic modules includes LX to extend network reach where required.

MTU Switch:

In an MTU/MDU application, the advanced functionality of the FGSW-2402S eliminates traditional problems associated with the use of Ethernet. Users can be segregated with advanced VLAN functionality and the unique 'MTU switch mode' to enhance security, and bandwidth managed with tiered bandwidth provision and control using configurable 9 levels of upstream/downstream restriction. This, couple with the flexible 100FX, 1000SX/LX/T module options make the FGSW-2402S one of the best and most cost-effective MTU switch solutions for Multi-tenant service providers.

1.3 Features

- Complies with the IEEE802.3, IEEE802.3u, IEEE802.3z and IEEE802.3ab Gigabit Ethernet standard
- 24 (10/100 Mbps), 2-open slots (10/100/1000Mbps) Ethernet Smart Switch
- 9.6 Gbps switching fabric, true non-blocking switch architecture, wire-speed forwarding
- 10Base-T/100Base-TX ports provide auto-negotiation for speed and duplex mode selection
- Gigabit Ethernet Module slot support for 10/100/1000Mbps copper interface, 1000Base-SX/LX or 100Base-FX optic interface.
- Prevents packet loss with back pressure (half-duplex) and 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

- 8K MAC address table, automatic source address learning and ageing
- 6 Mbit shared data memory buffering
- Console interface for switch basic management and setup
- Nine levels (3%, 6%, 9%, 12%, 20%, 40%, 60%, 80%, Full Speed) of configurable symmetric or asymmetric bandwidth provision on each port
- Supports MTU Switch mode to prohibit all 24 ports from communicating each other but only to 25th or 26th module port
- Support 8-group port-based VLAN
- Support 4 trunks per switch, each aggregates up to 8 100Base-TX ports into a 1600 Mbit/s (full-duplex) or 2 1000Base-T/SX/LX ports into a 4000 Mbit/s fat-pipe
- Port mirroring allows monitoring of the traffic across any port in real time

1.4 Specifications

Hardware Specification	
Ports	24 10/100Base-TX RJ-45 Auto-MDI/MDI-X ports 2 open slot 1 RS-232 DB-9 male
Dimensions	430 x 200 x 44 mm 1U height
Weight	2.8 kg (5.5 lb)
Power Requirement	100~240 (±10%) VAC, 50-60 (±3) Hz
Power Consumption / Dissipation	40 Watts maximum / 136 BTU/hr maximum
Maximum Current (@110/240VAC)	0.15A/0.10A

Switch Processing Scheme	Store-and-forward
Address Table	8K entries, auto learning/ageing
Queue Buffer	6Mbit shared buffer
Flow Control	Back pressure for half duplex, IEEE 802.3x for full duplex
Packet Control	Runt & CRC filtering, Broadcast storm control
LED indicators	Power, Ready LNK/ACT, 100, FDX/COL for each port 1000,100,10(FX), FDX/COL, TX, RX for modules
Switch Management	
System management	Console port
Aging Time	1~999 seconds, disable
Broadcast Storm Control	Disable, 6%, 20%
Port Configuration	Enable/Disable port 10/100/Full/Half/Auto-negotiation Enable/Disable Flow Control Nine levels (3%, 6%, 9%, 12%, 20%, 40%, 60%, 80%, Full Speed) for transmitting (TX) and receiving (RX) rate
Port Statistics	Show each port's statistics data
VLAN	MTU VLAN Supported (1~25 uplink to 26, or 1~12 uplink to 25 and 13~24 uplink to 26) Up to 8 port-based VLAN groups
Link Aggregation	4 trunks support per switch Up to 8 10/100 ports or 2 Gigabit ports per trunk
Port Mirroring	Mirroring single port's traffic

Standards Conformance	
CE Mark	EN50081-1, EN55022 Class A; EN50082-1, IEC 1000-4-2/3/4/6
Emissions	FCC Class A, VCCI Class A, CISPR 22 Class A
Safety	CSA/NRTL (C.22.2.950, UL1950), TÜV/GS (EN60950)
Immunity	EN60555-2 Class A, EN60555-3
Temperature	Standard Operating: 0~50ºC (32~122ºF) Storage -40~70ºC (-40~158ºF)
Humidity	5% to 95% (Non-condensing)
Standards	IEEE 802.3 (Ethernet), IEEE 802.3u (Fast Ethernet), IEEE 802.3ab, IEEE802.3z (Gigabit Ethernet), IEEE8023x (flow control)

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2. HARDWARE DESCRIPTION

This product series provide three different running speeds – 10Mbps, 100Mbps, and 1000Mbps (port 25, 26) in the same switch and automatically distinguish the speed of incoming connection.

This section describes the hardware features of these Switches. For easier management and control of the switch, familiarize yourself with its display indicators, and ports. Front panel illustrations in this chapter display the unit LED indicators. Before connecting any network device to the switch, read this chapter carefully

There are five choice of different module for expansion:

- 10/100/1000Mbps Ethernet Module (RJ-45 copper)
- 1000Base-SX Gigabit Ethernet Module (SC, MM)
- 1000Base-LX Gigabit Ethernet Module (SC, SM/MM)
- 100Base-FX Fast Ethernet Module (ST, MM)
- 100Base-FX Fast Ethernet Module (SC, MM)

2.1 Front Panel

The unit front panel provides a simple interface monitoring the switch. It includes a power and port indicator for each port and a RS-232 console port for setting up the switch via a connection to a console terminal or PC using a terminal emulation program.

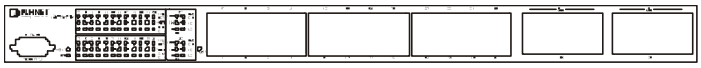


Figure 1:FGSW-2402S Switch front panel

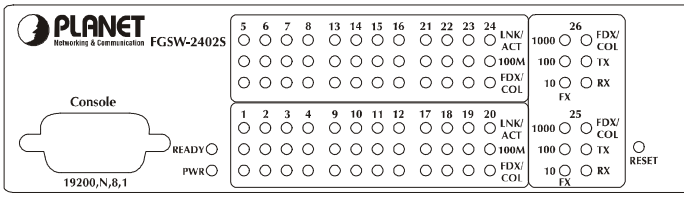


Figure 2: Detail view of LED panel

2.1.1 LED indictor for whole switch

There are two LEDs for whole switch system.

PWR	Green	Lit: power on
READY	Green	Lit: CPU initial completed

2.1.2 LED indictor for 10/100Base-TX port

Each 10/100Base-TX port has three LED indicators.

LNK/ACT	Green	Lit: port has established a valid network connection. Blink: traffic is passing through the port
100Mbps	Green	Lit: connected on 100M speed. Lit off: connected on 10M speed
FDX/ COL	Yellow	Lit: Full-Duplex Blink: Half-Duplex/ Collision Off: Half-duplex or not connected

2.1.3 LED indictor for modules

There are six LED indicators for modules of FGSW-2402S. These modules have different LED definition when different module installed.

SGSW-A1GT 10/100/1000Base-T modules

1000	Green	Lit: indicate link status and connected on 1000Mbps
100	Green	Lit: indicate link status and connected on 100Mbps
10 (FX)	Green	Lit: indicate link status and connected on 10Mbps
FDX/COL	Green	Lit: Full-Duplex Blink: Half-Duplex/ Collision Off: Half-duplex or not connected
TX	Green	Lit: indicate data transmitting status
RX	Green	Lit: indicate data receiving status

SGSW-A1SX / SGSW-A1LX 1000Base-SX/LX modules

10(FX)	Green	Lit: indicate the link is established Blink: Traffic is passing through the port

SGSW-A1SC / SGSW-A1ST 100Base-FX modules

10(FX)	Green	Lit: indicate the link is established Blink: Traffic is passing through the port.
100	Green	Lit: Full-Duplex Blink: Half-Duplex / Collision Off: Half-duplex or not connected

2.1.4 Reset button

At the right side of front panel, the reset button is designed for rebooting the switch without turning power off and on.

2.2 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 3:FGSW-2402S Switch rear panel

Power Notice:

1. The device is a power-required device, it means, it will not operate 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.

2.3 Hardware Installation

2.3.1 Switch Placement

This section describes how to install your FGSW-2402S Gigabit /Fast Ethernet Switch and make connections to the switch. Please read the following topics and perform the procedures in the order being presented.

PLANET FGSW-2402S Gigabit /Fast Ethernet Switch do not need software configuration. To install your FGSW-2402S on a desktop or shelf, simply complete the following steps.

2.3.1.1 Desktop or Shelf Mounting

To install a FGSW-2402S 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 FGSW-2402S 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 1.4, Specification.*

Step4: Connect your FGSW-2402S to network devices

A. Connect one end of a standard network cable to the 10/100 RJ-45 ports on the front of the FGSW-2402S.

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 Chapter 1.4, Specification and Appendix.*

Step5**: Supply power to the Switch.**

A. Connect one end of the power cable to the FGSW-2402S

B. Connect the power plug of the power cable to a standard wall outlet.

When the FGSW-2402S receives power, the Power LED should remain solid Green.

2.3.1.2 Rack Mounting

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

Step1: Place your FGSW-2402S 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 4 shows how to attach brackets to one side of the switch.

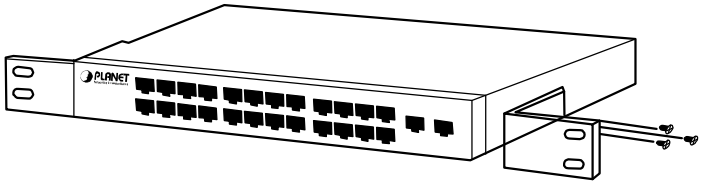


Figure 4: Attaching the brackets to the FGSW-2402S

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 5

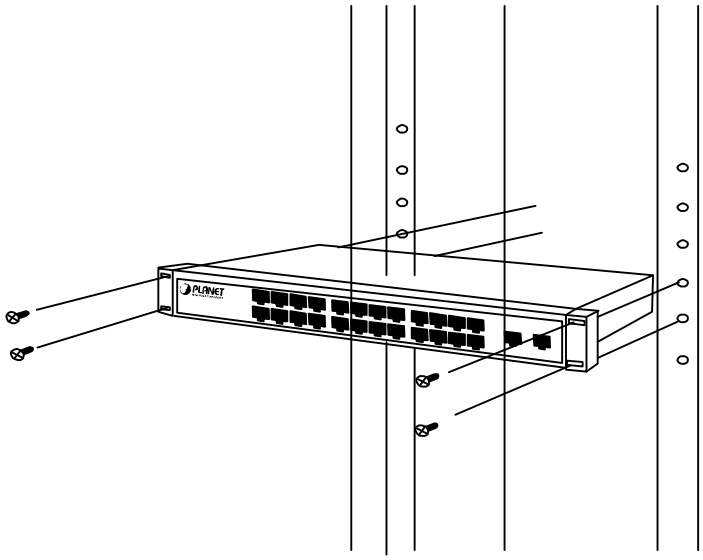


Figure 5: Mounting the Switch in a Rack

Step6: Proceed with the steps 4 and steps 5 of session **2.3.1.1 Desktop or Shelf Mounting** to connect the network cabling and supply power to your switch.

2.3.2 Network Installation

2.3.2.1 Connecting end node, hub or switch

1. Place the Switch on a smooth surface or fasten the mounting brackets with the provided screws in a standard 19" rack.
2. Connect switch or PC to one port of the Switch using Category 3/4/5 UTP/STP cabling.
3. Connect another switch or PC to the other port of Switch by following the same process as described in Step2.

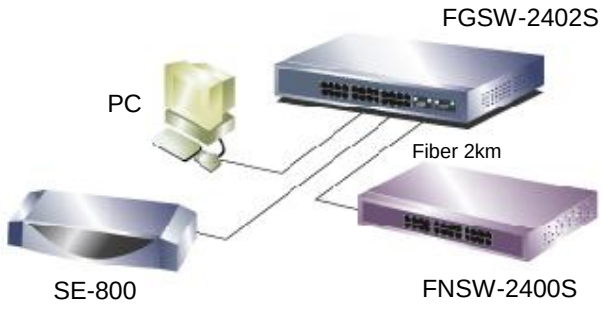


Figure 6: End node, Hub or Switch connection

Notice:

Cable distance for Switch

The cable distance between Ethernet Switch and hub/PC should not exceed 100 meter for UTP/STP cable, 220m for 62.5/125 fiber cable and 500m for 50/125 fiber cable in Gigabit Ethernet and 2 kilometers in Fast Ethernet full-duplex.

Make sure the wiring is correct

It can be used Category 3/4/5 cable in 10 Mbps operation. To reliably operate your network at 100Mbps and 1000Mbps, you must use an Unshielded Twisted-Pair (UTP) Category 5 cable, or better Data Grade cabling. While a Category 3 or 4 cable may initially seem to work, it will soon cause data loss.

2.3.2.2 Connecting to Network Backbone or Server

Connect to the Gigabit Ethernet ports with Category 5 copper cable or fiber optic cable for uplinking to a network backbone or network server. These ports operate at 1000Mbps in full-duplex mode. A valid connection is indicated when the Link LED is light. The following sections describe the function of LEDs on the front panel

Function: the indicator LED flash up whenever there is a collision between a directly attached end node and any other node, and light up steadily for Full-duplex mode.

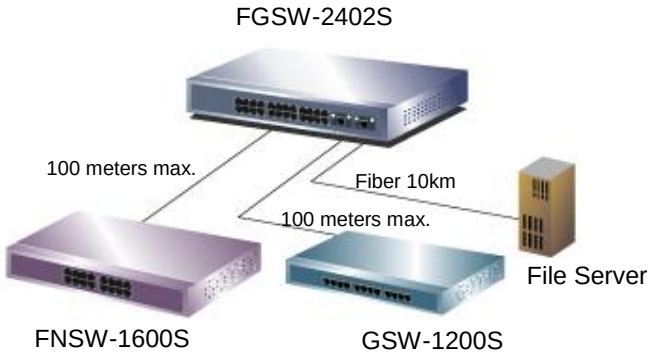


Figure 7: Network Backbone or Server connection

3.CONFIGURATION

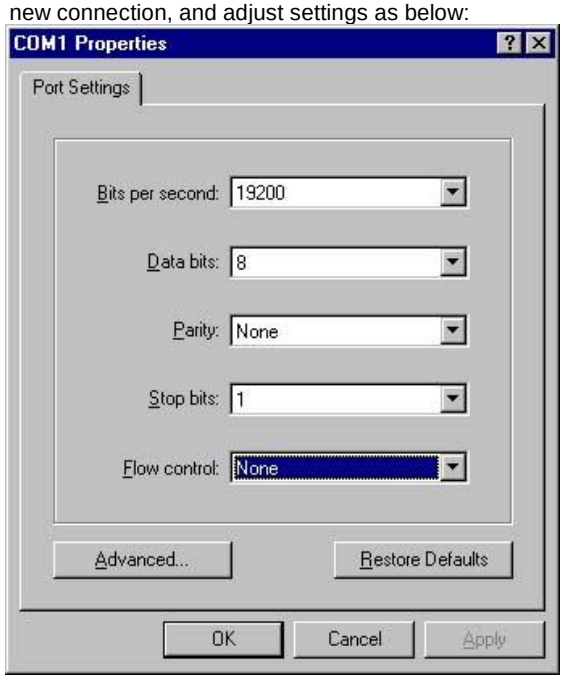
3.1 Connect to PC

RS-232 serial cable

Prepare a RS-232 serial cable. Attach the 9-pin female connector to the male connector on the switch. Plug the other side of this cable to your PC.

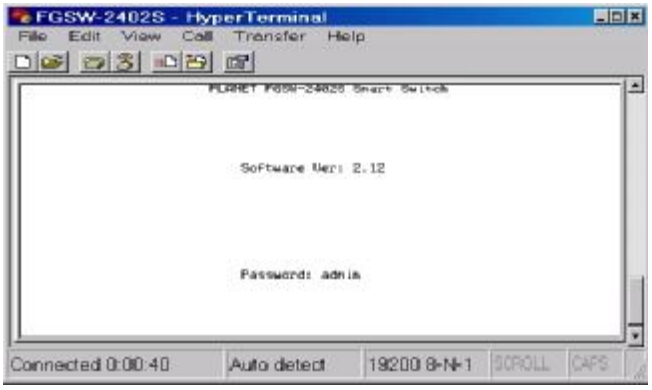
Hyper Terminal

In Windows 95/98/2000/XP,launch “HyperTerminal”, create a new connection, and adjust settings as below:



3.2 Main Menu

Launch the new terminal you just set up, and then, turn on the switch. See the following messages for successful connection.

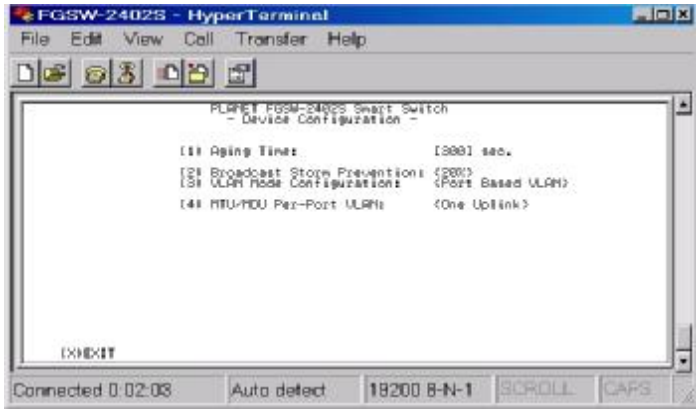


Password :

The default password is **"admin"**. After type the password, you can see the screen as below:

To enter any of the sub-menus, simply type the number on the main menu

3.3 Submenu: (1) Device Configuration



Entry: select "1" from main menu.

Device Configuration:

(1) **Aging Time:** allow to set up aging cycle time, the maximum time is 999 sec.

(2) **Broadcast Storm Prevention:** allow limit per port incoming rate of broadcast traffic.

(3) **VLAN Mode Configuration:** provide two methods to assign VLAN.

Port Based VLAN: 8 VLAN groups can be assigned.

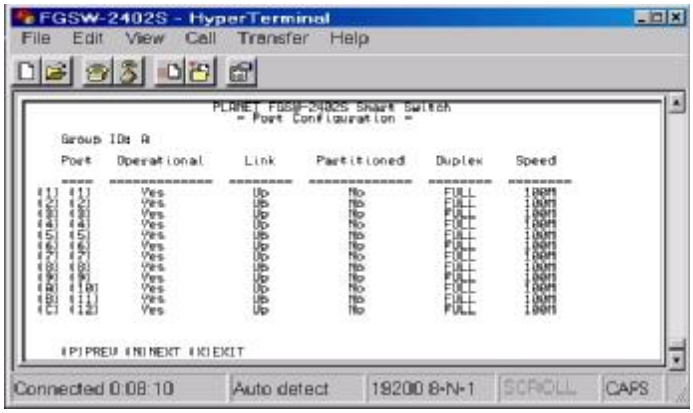
MTU/MDU Per-Port VLAN: divide 1-24 port into different VLAN group

(4) **MTU/MDU Per-Port VLAN:** provide two different VLAN choices:

One Uplink (MTU): port 1-25 will be assign to different VLAN groups and uplink to port 26.

Two Uplink (MDU): it will assign port 1-12 as different VLAN groups and uplink to port 25, assign port 13-24 as different groups and uplink to port 26

3.4 Submenu :(2) Port Configuration



Entry: Select “2” from Main Menu.

Purpose: Media Speed Control on each port.

Default: All ports assigned to one VLAN.

Type **’’N’’** to next page.

Type **“port number”** to enter the port configuration of each port. The following screen is shown as below:

Port Configuration:

(1) **Admin. State**: provide disable or enable specific port.

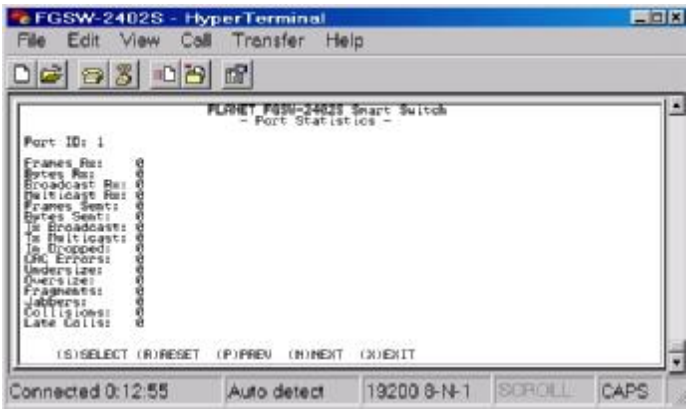
(2) **Speed & Duplex:** allow to set various speed-duplex mode.

(3) **Flow Control:** provide disable or enable flow control.

(4) **Tx Bandwidth Provision:** provide 9 levels: 3%, 6%,9%,12%, 20%,40%,60%,80%, full-speed for transmitting(TX).

(5) **Rx Bandwidth Provision:** provide 9 levels: 3%, 6%,9%,12%, 20%,40%,60%,80%, full-speed for receiving(RX).

3.5 Submenu: (3) Port Statistics



Port Statistics :

Frames Rx: Frame count on received good unicast frames of all priority levels.

Bytes Rx: Octets count on received good unicast frames of priority level 1.

Broadcast Rx: Frame count on received good broadcast frames of all priority.

Multicast Rx: Frame count on received good multicast frames of all priority levels.

Frames Sent: Frame count on successfully transmitted unicast frames.

Bytes Sent: Octets count on transmitted unicast frames of priority level 1.

Tx Broadcast: Frame count on successfully transmitted broadcast frames.

Tx Multicast: Frame count on successfully transmitted multicast frames.

In Dropped: Events count on frames being dropped due to HOB protection.

CRC Errors: Events count on frames with valid size , wrong FCS value, and with no dribble bit.

Undersize: Events count on received frames less than 64 byte and with valid FCS value.

Oversize: Events count on received frames larger than 1522/1536 byte and with valid FCS value.

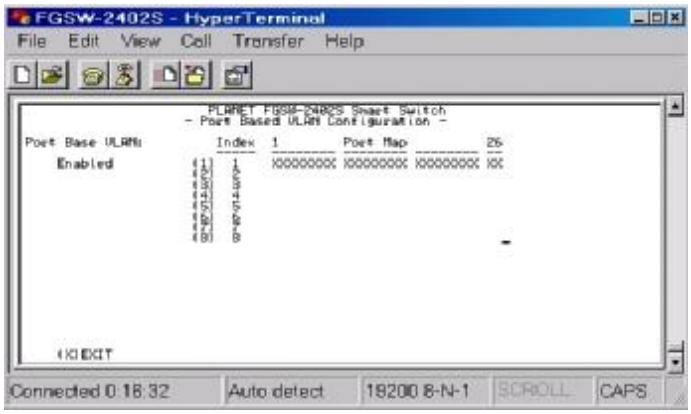
Fragments: Events count on received frames less than 64 byte and wrong FCS value.

Jabbers: Events count on carrier sense assertion longer than 50,000 bit times.

Collisions: Events count on total number of collisions occurred.

Late Colls: Frame count on successfully transmitted frames with late collision.

3.6 Submenu:(4) Port-based VLAN Configuration

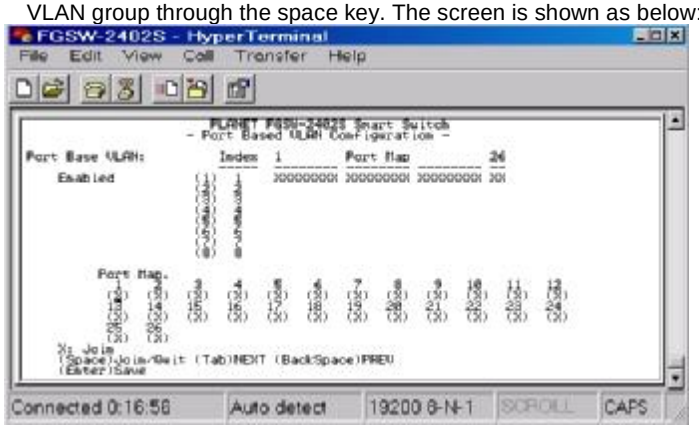


Entry: Select “4” from Main Menu.

Purpose: Port-based VLAN select.

Default: If you select < MTU/MDU Per-Port VLAN > From <Device Configuration>, This configuration will not work

Type **“VLAN group number”** to add VLAN member port on each VLAN group through the space key. The screen is shown as below:



After set completed, press **“Enter”** to save the current setting.

3.7 Submenu: (5) Port Trunk Configuration

Entry: Select “5” from Main Menu.

Default: 4 Trunk groups are disable.

Purpose: Trunk Configuration

4 trunk groups option shown as below:

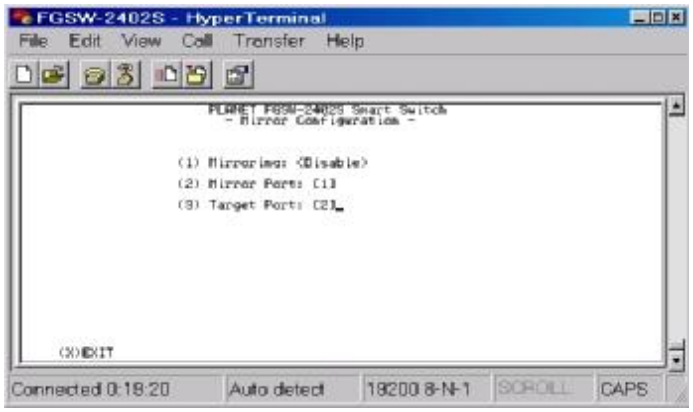
Group1 : (0)Disable (1)<1,5> (2)<1,2,5,6> (3)<1,2,3,4,5,6,7,8>:

Group2 : (0)Disable (1)<9,13> (2)<9,10,13,14>
(3)<9,10,11,12,13,14,15,16>:

Group3 : (0)Disable (1)<17,21> (2)<17,18,21,22>
(3)<17,18,19,20,21,22,23,24>:

Group4 : (0)Disable (1)<25,26>

3.8 Submenu: (6) Port Mirror Configuration



Entry: Select “6” from Main Menu.

Purpose: Source Port: choose one port to be monitored

Target Port: the frames duplicated from source port to this port

Default: “disable”

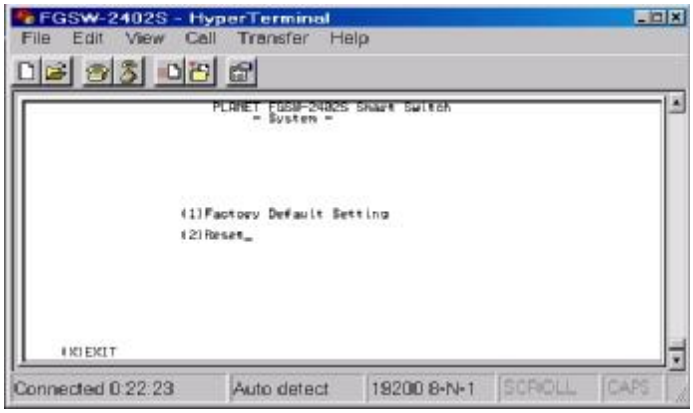
Port Mirror Configuration:

(1) Mirroring: (0) Disable (1) Enable: choose 0 and 1 to disable or enable port mirror function.

(2) Mirror Port: enter a port number as source port.

(3) Target Port: enter a port number as target port

3.9 Submenu: (7) System

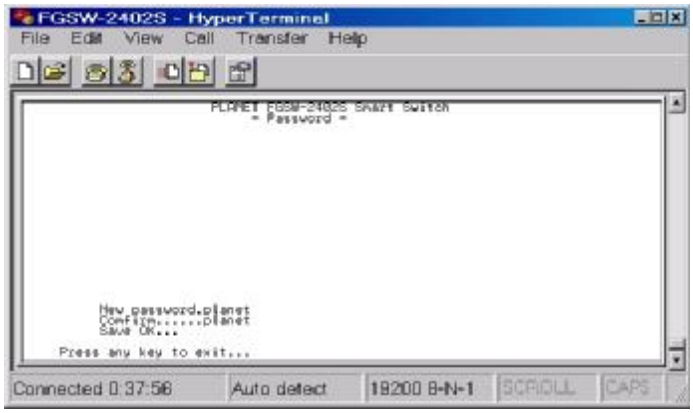


Entry: Select “7” from Main Menu.

Purpose: (1) Factory Default Setting: reset the default setting value of the Switch.

(2) Reset: provide reboot the Switch.

3.10 Submenu: (8) Password



Entry: Select “8” from Main Menu.

Purpose: User can change password. The default password is **“admin”,** if you want to change it , select item 8 from main menu , the maximum length is 10 characters.

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4. SWITCH OPERATION

4.1 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.

4.2 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.

4.3 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.

4.4 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 existing hubs, which nearly always improves overall performance. A 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.

4.5 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 and 1000Base-SX can only connected in Full-duplex mode.

5. TROUBLESHOOTING

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

The Link LED is not lit

Solution:
Check the cable connection and remove duplex mode of the Giga Switch

Some stations can not talk to other stations located on The other port

Solution:
The address table may contain older information than of the address table of that node. Please power down to refresh the address information

Performance is bad

Solution:
Check the full duplex status of the Ethernet Switch. If the Ethernet Switch is set to full duplex and the partner is set to half duplex, then the performance will be poor.

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APPENDIX A

A.1 Switch's RJ-45 Pin Assignments

1000Mbps, 1000Base T

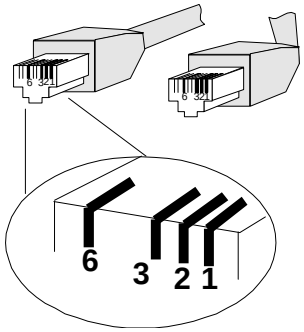
Contact	MDI	MDI-X
1	BI_DA+	BI_DB+
2	BI_DA-	BI_DB-
3	BI_DB+	BI_DA+
4	BI_DC+	BI_DD+
5	BI_DC-	BI_DD-
6	BI_DB-	BI_DA-
7	BI_DD+	BI_DC+
8	BI_DD-	BI_DC-

Implicit implementation of the crossover function within a twisted-pair cable, or at a wiring panel, while not expressly forbidden, is beyond the scope of this standard.

A.2 10/100Mbps, 10/100Base-TX

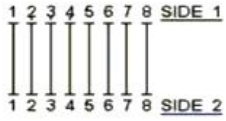
Contact	MDI	MDI-X
1	TX+	RX+
2	TX-	RX-
3	RX+	TX+
6	RX-	TX-

A.3 RJ-45 cable pin assignment



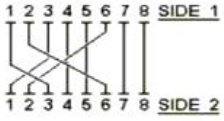
There are 8 wires on a standard UTP/STP cable and each wire is color-coded. The following shows the pin allocation and color of straight cable and crossover cable connection:

Straight Cable



SIDE 1	SIDE 2
1 = White/Orange	1 = White/Orange
2 = Orange	2 = Orange
3 = White/Green	3 = White/Green
4 = Blue	4 = Blue
5 = White/Blue	5 = White/Blue
6 = Green	6 = Green
7 = White/Brown	7 = White/Brown
8 = Brown	8 = Brown

Cross Over Cable



SIDE 1	SIDE 2
1 = White/Orange	1 = White/Green
2 = Orange	2 = Green
3 = White/Green	3 = White/Orange
4 = Blue	4 = Blue
5 = White/Blue	5 = White/Blue
6 = Green	6 = Orange
7 = White/Brown	7 = White/Brown
8 = Brown	8 = Brown

Figure A-1: Straight-Through and Crossover Cable

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

EM-FG24V1