Trademarks

Disclaimer

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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.

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 16/24-Port 10/100Mbps+ 2 Gigabit TP / SFP combo Ethernet Smart Switch User's Manual

FOR MODEL: FGSW-1820RS

FGSW-2620RS

Rev: 1.0(July.2006)

Part No: 2010-A81120-000

Table of Contents

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Chapter 1
Introduction

1.1 Package Contents

Check the contents of your package for following parts:

- 16/24-Port 10/100Mbps+ 2 Gigabit TP / SFP combo Ethernet Smart Switch x1
- User's manual x1
- RS-232 cable 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 16/24-Port 10/100Mbps +2 Gigabit TP / SFP combo Ethernet Smart Switch Users' Manual is structured as follows:

- Section 2, Installation

  It explains the functions of FGSW-1820RS/FGSW-2620RS and how to physically install the FGSW-1820RS/FGSW-2620RS.

- Section 3, Console Configuration

  It contains information about the smart function from the console interface of FGSW-1820RS/FGSW-2620RS.

- Section 4 Switch operation

  It explains the Switch operation of FGSW-1820RS / FGSW-2620RS.

- Section 5 Troubleshooting

  It contains troubleshooting guide of FGSW-1820RS / FGSW-2620RS.

- Appendix A

  It contains cable information of FGSW-1820RS/FGSW-2620RS.

  In the following section, unless specified, the term "Switch" means the two Switches, i.e. FGSW-1820RS or FGSW-2620RS; 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
- 16/24-Port 10/100Mbps Fast Ethernet Switch
- 2 10/100/1000Mbps ports and 2 SFP interfaces
- Each Switching ports support auto-negotiation-10/20, 100/200Mbps 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
- 8K MAC address table, automatic source address learning and ageing
- 2.5Mbit embedded memory for packet buffers
- Console interface for Switch basic management and setup
- Support up to 26 port-based VLAN groups
- Support up to 6/8 Trunk groups, each trunk for up to maximum 4 port with 800Mbps bandwidth
- Support QoS and bandwidth control on each port
- Support IGMP Snooping
- EMI standards comply with FCC, CE class A

1.4 Product Specifications

Product	FGSW-1820RS / FGSW-2620RS 16/24-Port 10/100Mbps + 2 Gigabit TP / SFP combo Ethernet Smart Switch
Hardware Specification	
Ports	16/24 10/100Base-TX RJ-45 Auto-MDI/MDI-X ports
Gigabit ports	2 10/100/1000Mbps ports and 2 SFP interfaces
Switch Processing Scheme	Store-and-forward
Throughput (packet per second)	FGSW-1820RS: 5.35Mpps. FGSW-2620RS: 6.54Mpps
Switch fabric	8.8Gbps
Address Table	8K entries
Share data Buffer	2.5Mbit
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	FGSW-1820RS:1.46 kg FGSW-2620RS:1.57 kg
Power Requirement	100~240 VAC, 50-60 Hz
Power Consumption / Dissipation	FGSW-1820RS: 13.2 watts / 45BTU FGSW-2620RS: 23.1 watts / 78BTU
Temperature	Operating: 0~50 degree C Storage -40~70 degree
Humidity Operating:	5% to 90%, Storage: 5% to 90% (Noncondensing)
Smart function	
System Configuration	Console interface
Port configuration	Port disable/enable. Auto-negotiation 10/100Mbps full and half duplex mode selection. Flow control disable / enable. Bandwidth control on each port
Port Status	Display each port's speed duplex mode, link status, Flow control status. Auto negotiation status, trunk status.

VLAN	26 port-based VLAN groups
Port trunking	Support 6 / 8 groups of 4-Port trunk support
QoS	Allow to assign high priority on each port
IGMP Snooping	Allow to disable or enable.
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) IEEE 802.1p QoS

Chapter 2
Installation

This section describes the functionalities of the Switch 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 Switch provides 16/24 10/100Mbps Fast Ethernet ports with 2 10/100/1000Mbps ports and 2-SFP interfaces (port #17/25, port#18/26), either TP or SFP per port. The two Gigabit ports either can be 1000Base-T for 10/100/1000Mbps or 1000Base-SX/LX through SFP (Small Factor Pluggable) interface. The distance can be extended from 100 meters (TP), 550 meters (Multi-mode fiber), up to above 10/50/70/120 kilometers (Single-mode fiber). The Switch with non-blocking backplane and simplifies the task of upgrading your LAN to cater for increased bandwidth demand.

Equipped with console, the Ethernet Smart Switch can be programmed for basic Switch management functions such as port speed configuration, Port Trunking, VLAN, QoS, bandwidth control and IGMP Snooping.

2.1.1 Product Overview

PLANET FGSW-1820RS/FGSW-2620RS, the Switch is Ethernet Smart Switch with 16/24 RJ-45 10/100Mbps ports. The Switch also provides up to two 10/100/1000Mbps ports and 2-SFP interfaces for cost effective high-performance network connectivity. With its 8.8Gbps non-blocking switch fabric, the PLANET Switch can also provide a local, high bandwidth, Fast Ethernet network for your departmental backbone plus the ability to trunk four ports (800Mbps) to enable switch-to-switch backbone. The advanced functionality of the Switch eliminates traditional problems associated with the use of Ethernet. Users can be segregated using built-in VLAN functionality. These, coupled with the flexible fiber module options, make the Switch one of the best and most cost-effective MTU switch solutions for Multi-tenant service providers.

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 The Front Panel

Figure 2-1 shows front panel of FGSW-1820RS.

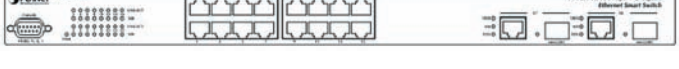


Figure 2-1 PLANET FGSW-1820RS Front Panel

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

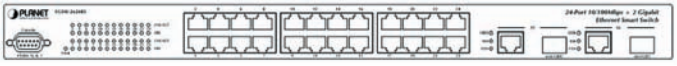


Figure 2-2 PLANET FGSW-2620RS Front Panel

2.1.3 LED Indicators

System

LED	Color	Function
PWR	Green	Lit: Power on

Per 10/100Mbps port

LED	Color	Function
LNK/ACT	Green	Lit: indicate the link through that port is successfully established. Blink: indicate that the switch is actively sending or receiving data over that port.
100	Orange	Lit: indicate that the port is operating at 100Mbps. Off: indicate that the port is operating at 10Mbps.

Per 10/100/1000Base-T port /SFP interfaces

LED	Color	Function
LNK/ACT 1000	Green	Lit: indicate that the port is operating at 1000Mbps. Off: indicate that the port is operating at 10Mbps or 100Mbps. Blink: indicate that the switch is actively sending or receiving data over that port.
LNK/ACT 100	Green	Lit: indicate that the port is operating at 100Mbps. Off: indicate that the port is operating at 10Mbps or 1000Mbps. Blink: indicate that the switch is actively sending or receiving data over that port.
FDX	Green	Lit: indicate that the port is operating at full-duplex mode. Off: indicate that the port is operating at half-duplex mode.

2.1.4 10/100/1000Base-T port / SFP interfaces

The TP / SFP interfaces #17, #18 or #25, #26 of FGSW-1820RS /FGSW-2620RS can be a 10/100Base-TX, 1000Base-T or 1000Base-SX/LX/LX WDM switching port. Please refer to the section 3.2.4.1 Port for the detailed installation and settings.

2.1.5 The 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 2-3 shows Rear panel of the Switch.

Figure 2-3 Rear Panel of The Switch

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 Ethernet Smart 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.

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.

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 2-4 shows how to attach brackets to one side of the Switch.

Figure 2-4 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 2-5.

Figure 2-5 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.

Chapter 3
Console Configuration

Unlike the unmanaged switch, the Smart Switch perform series smart functions that make the Switch operate more effectively. This section will describe the common usage of the Switch Smart Configuration.

☞ Note: The following section will base on the console screens of FGSW-2620RS, for FGSW-1820RS the display will be the same to FGSW-2620RS.

3.1 Preparing for configuration

3.1.1 Connecting a PC or Terminal to the RS-232 Port

When you are ready to configure the smart functions of the Switch, make sure you had connected the supplied RS-232 serial cable to the RS-232 port at the front panel of your Switch and your PC.

3.1.2 Terminal Emulation Setup Program

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

- Emulation: VT-100 compatible
- Baud per second: 19200
- Data bits: 8
- Parity: None
- Stop bits: 1
- Flow Control: None

To get a demonstration, please see the figure 3-1.

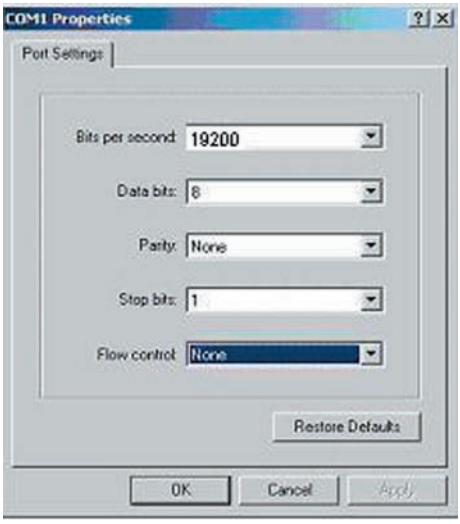


Figure 3-1 Console Port Settings for smart functions

3.1.3 Power-up Self-test Status

As the Switch powers on, it goes through a self-test process to ensure proper operations of the Switch hardware. The messages will be displayed to show the test progress. When the test completes successfully, the system will display a login screen. If any of the components fails during the test, you may need to contact your local dealer and have the Switch replaced. Figure 3-2 shows a successful Self-test menu of the Power-up System Self-diagnostic Process.

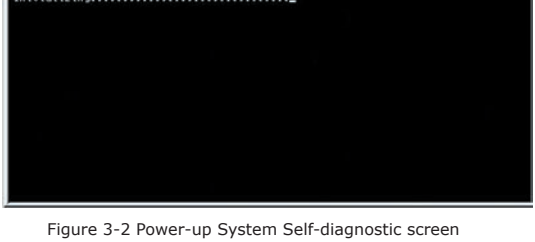


Figure 3-2 Power-up System Self-diagnostic screen

3.1.4 Login

After the self-test completes successfully, the screen in figure 3-3 appears. Login is required to access the console interface. The factory default username is "admin" without password. You may change it in the Password. To access to the Main Menu, please always enter the correct username and password.

Figure 3-3 Switch Console Login screen

3.2 Getting Started

3.2.1 General Guidelines

Switch allows users to configure the device via menu screens.

To work within the menu, please follow the guidelines shown in Table 3-1.

Item	Description
Value 1-7	Choose one item from the console main screen.
I / M / J / L KEY	Means up, down, left, right.
1 / 2 KEY	Page up / Page down.
S KEY	Save the current configuration.
F KEY	Refresh screen
SPACE KEY	When a List item is performed, the Space key starts the selection and scrolls through the available choices.
0 KEY	Return to the previous menu.

Table 3-1 General Guideline within the Menu

3.2.2 Main Menu Screen

The main menu enables you to view and manage the Switch settings. Press "value 1-7" key on your keyboard for chooses Smart function of Switch. After entering into any smart function screen, use "I / M / J / L" for configuring. Then Press the "Space Bar" to toggle back and forth between the options. After setup completed, press "F" key to refresh

screen and press the "S" key for save the current configuration. Please refer to figure 3-4 for available options on main menu.

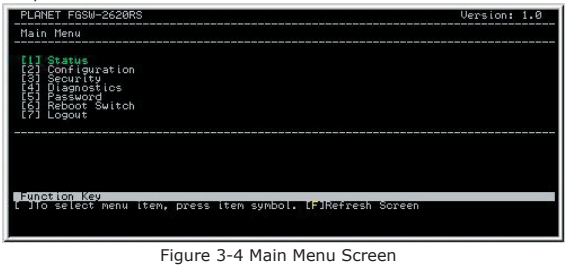


Figure 3-4 Main Menu Screen

1. Status

   Allow user to view the basic information of the Switch. The available options are Switch overview, MIB counter and Port Status. Explained on section 3.2.3.

2. Configuration

   Allow user to perform the smart functions of the Switch. Explained on section 3.2.4.

3. Security

   Reserved for further management purpose. Explained in section 3.2.5.

4. Diagnostics

   Allow user to view the information about the Trunk link warning and Network loop fault port detected. Explained in section 3.2.6.

5. Password

   Allow user to change the username and password. Explained in section 3.2.7.

6. Reboot Switch

   Allow user to reboot the Switch. Explained in section 3.2.8.

7. Logout

   Allow user to logout the Switch console interface. Explained in section 3.2.9.

3.2.3 Port Status

Press 1 on your keyboard to access the screen of Status from the Main Menu screen (please see the figure3-4). The screen of Status in figure 3-5 appears. Table 3-2 describes the Status objects of Switch.

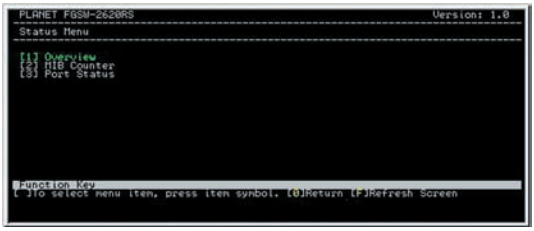


Figure 3-5 Status Screen

Object	Description
Overview	Display the Switch information. Explained in section 3.2.3.1
MIB Counter	Display the traffic counter on each port. Explained in section 3.2.3.2
Port Status	Display the current status of each port. Explained in section 3.2.3.3

Table 3-2 Descriptions of the Status screen Objects

3.2.3.1 Overview

This function display the Switch information, the available items are Switch name, Switch MAC ID, Chip Model ID and Vender ID. The screen in figure 3-6 appears.

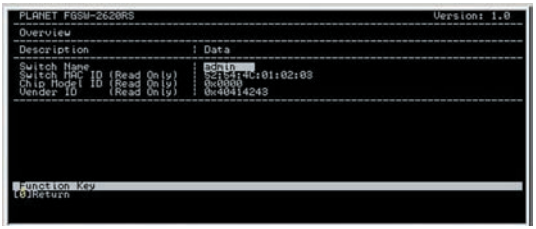


Figure 3-6 Overview Screen

3.2.3.2 MIB Counter

This function provides Ethernet traffic transmits / receive counter on each port. The screen in figure 3-7 appears. Please refer to the guidelines shown in table 3-3.

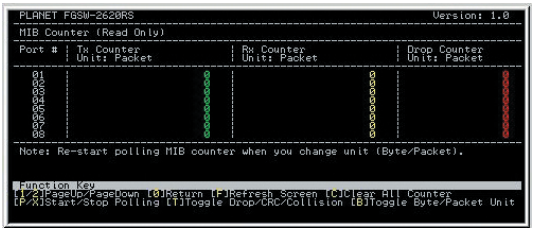


Figure 3-7 MIB Counter Screen

Item	Description
1 / 2 KEY	Page up / Page down.
0 KEY	Return to the previous menu.
F KEY	Refresh screen.
C KEY	Clean all counter traffic on each port.
P/ X KEY	Start / Stop polling.
T KEY	Toggle Drop/ CRC/ Collision.
B KEY	Toggle Byte/ Packet unit.

Table 3-3 Guideline within the MIB Counter screen

3.2.3.3 Port Status

This function displays the real-time status on each port of the Switch. The screen in figure 3-8 appears. Please refer to the guidelines shown in table 3-4.

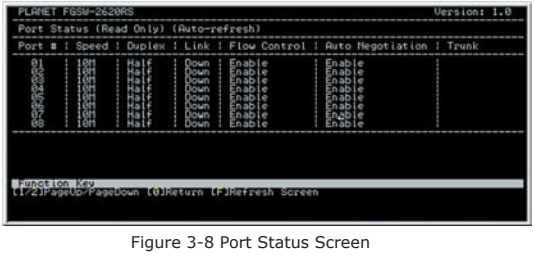


Figure 3-8 Port Status Screen

Item	Description
1 / 2 KEY	Page up / Page down.
0 KEY	Return to the previous menu.
F KEY	Refresh screen.

Table 3-4 Guideline within the Port Status screen

3.2.4 Port Configuration

Press 2 on your keyboard to access the screen of Configuration from the Main Menu screen (please see the figure 3-4). The screen of Configuration in figure 3-9 appears. Table 3-5 describes the Configuration objects of Switch.

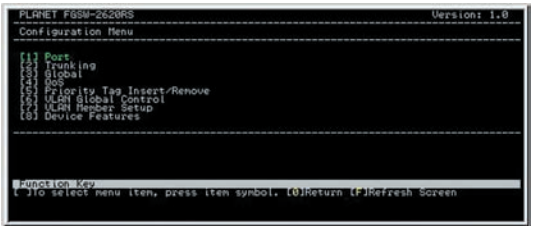


Figure 3-9 Configuration Screen

Object	Description
Port	This function allow user to setting each port of Switch. Explained in section 3.2.4.1.
Trunking	Allow user to disable or enable the trunk function. Explained in section 3.2.4.2.
Global	Allow user to disable or enable the Global functions. Explained in section 3.2.4.3.
QoS	Allow user to disable or enable the QoS functions. Explained in section 3.2.4.4.
Priority Tag Insert/ Remove	Allow user to insert or remove the priority Tag on each port of Switch. Explained in section 3.2.4.5.
VLAN Global Control	Allow user to disable or enable the VLAN Global capabilities. Explained in section 3.2.4.6.
VLAN Member Setup	Allow user to create VLAN group. Explained in section 3.2.4.7.

Device Features	Allow user to disable or enable IGMP Snooping and indicate the IP Multicast Router Port. Explained in section 3.2.4.8.

Table 3-5 Descriptions of the Configuration screen Objects

3.2.4.1 Port

Press 1 on your keyboard to access the screen of Port from the Configuration screen (please see the figure 3-9). This function allows user to setting each port of Switch, the screen in figure 3-10 appears.

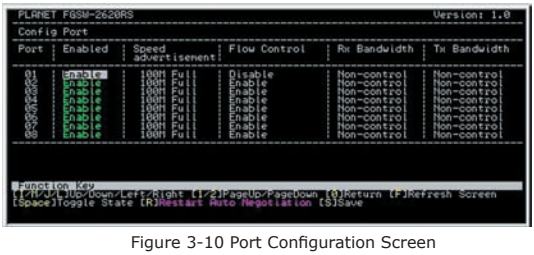


Figure 3-10 Port Configuration Screen

Please use I / M / J / L (Up / Down / Left / Right) key to move the highlight to the object and press the "Space Bar" key to toggle back and forth between the options. After setup completed, press "S" key to saving the current configuration. Then press "R" to restart the Auto-negotiation to ensure the setting activated immediately. Table 3-6 describes the Port objects.

Item	Description
Enabled	Allow disable or enable each port. If the port status is disabled then this port will not receive or transmit any packet. Default mode: enable.
Speed adver-tise-ment	Allow set the port link speed and duplex mode base on auto-negotiation. Default mode: 100M Full (10/100Mbps port); 1000M Full (Gigabit port).
Flow Control	Allow disable or enable flow control. Default mode: Enable.
Rx Bandwidth	Per port packet transmission control (128K, 256K, 512K, 1M, 2M, 4M, 8M). Default mode: non-control.
Tx Bandwidth	Per port packet transmission control (128K, 256K, 512K, 1M, 2M, 4M, 8M). Default mode: non-control.

Table 3-6 Descriptions of the Port screen Objects

☞ Notice:

Be noted, the Switch support auto-negotiation at each port, please remain in option "100M Full", "1000M Full" (port#17/18 or port#25/26) if the other device do not support auto-negotiation. If a device does not support auto-negotiation, the Switch will auto-detect the optimal speed at half-duplex, i.e. 100Mbps half-duplex or 10Mbps half-duplex. Also be noted that in Gigabit module both of devices must support auto-negotiation. Please refer to the tables below:

Link status of the device using Auto-negotiation to the Switch					
Switch's Speed Advertise setting	Device mode setting				
	1000M Full	100M Full	100M Half	10M Full	10M Half
1000M Full*	1000 Full	100M Full	100M Half	10M Full	10M Half
100M Full	100M Full	100M Full	100M Half	10M Full	10M Half
100M Half	100M Half	100M Half	100M Half	10M Full	10M Half
10M Full	10M Full	10M Full	10M Full	10M Full	10M Half
10M Half	10M Half	10M Half	10M Half	10M Half	10M Half

Link status of the device using Auto-negotiation to the Switch					
Switch's Speed Advertise setting	Device mode setting				
	1000M Full	100M Full	100M Half	10M Full	10M Half
1000M Full*	1000 Full	100M Full	100M Half	10M Full	10M Half
100M Full	100M Full	100M Full	100M Half	10M Full	10M Half
100M Half	100M Half	100M Half	100M Half	10M Full	10M Half
10M Full	10M Full	10M Full	10M Full	10M Full	10M Half
10M Half	10M Half	10M Half	10M Half	10M Half	10M Half

1. Fields with gray color is recommended setting in the Switch.
2. NC means no communication.
3. 1000M Full setting can be found only in port #17/18 of FGSW-1820RS or port #25/26 of FGSW-2620RS.

Though device with forced full-duplex mode build the link with the Switch, the performance could be bad due to the devices runs in Full while the Switch runs in Half-duplex.

3.2.4.2 Trunking

Press 2 on your keyboard to access the screen of Trunking from the Configuration screen (please see the figure 3-9).

The screen of Trunking in figure 3-11 appears. Table 3-7 shows the descriptions of the Trunking screen Objects. The Trunking Configuration menu controls the trunking or the so-called Link Aggregation function. There are 6/8 Trunk groups in the FGSW-1820RS/ FGSW-2620RS can be bundled together to form a high-speed trunk. Please use I / M (Up / Down) key to move the high-light to the object and press the "Space Bar" key to toggle back and forth between the options. After setup completed, press "S" key to saving the current configuration.

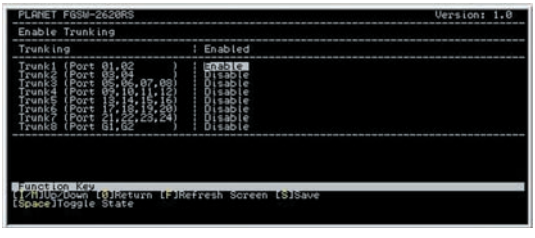


Figure 3-11 Trunking Screen

Object	Description
Trunking	Provide 6/8 trunk groups in FGSW-1820RS/ FGSW-2620RS, maximum up to 4 ports per trunk.
Enable	Allow disable or enable each trunk group.

Table 3-7 Descriptions of the Trunking Screen Objects

☞ Notice: The Switch at the other end must enable the trunking function with the same port count to get the optimal usage of the trunk-bandwidth.

3.2.4.3 Global

Press 3 on your keyboard to access the screen of Global from the Configuration screen (please see the figure 3-9).

The screen of Global in figure 3-12 appears. Table 3-8 shows the descriptions of the Global screen Objects.

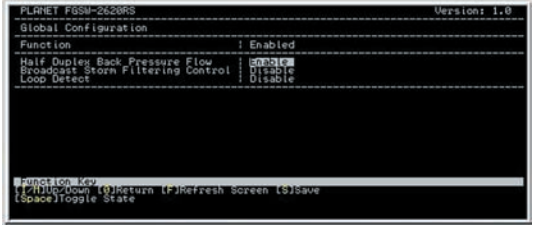


Figure 3-12 Global Screen

Object	Description
Half duplex back pressure flow	Provide disable or enable half duplex backpressure flow. To disable will turn off the half-duplex back pressure control and drop the packets without sending out any collision from that Switch port after the Switch's data buffer overflow. Default: Enable.
Broadcast storm filtering control	Provide disable or enable broadcast storm filtering. Enable will turn on the capability to drop broadcast packets after a continuous 64 broadcast packets. Default: Disable.
Loop Detect	Provide disable or enable loop detect function. To turn on will loop detect the connection status. This feature is used for diagnose purpose. Default: Disable.

Table 3-8 Descriptions of the Global Screen Objects

3.2.4.4 QoS

Press 4 on your keyboard to access the screen of QoS from the Configuration screen (please see the figure 3-9). The screen of QoS in figure 3-13 appears. Table 3-9 shows the descriptions of the QoS screen Objects.

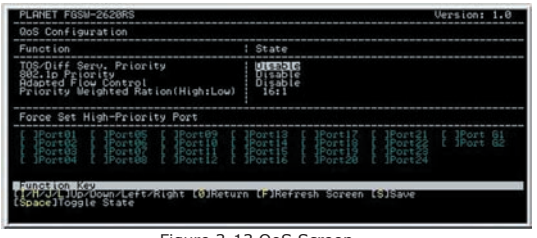


Figure 3-13 QoS Screen

Object	Description
TOS/Diff Serv priority	Provide disable or enable TOS priority. Check the packets' IP TOS priority tag and base on the priority to forward the packets. Default: Disable.
802.1p priority	Provide disable or enable 802.1p priority. Check the packet's 802.1p priority and base on the priority to forward the packets. Default: Disable.
Adapted flow control	Provide disable or enable priority of flow control. Check the priority and turn off the flow-control when high priority packets received. Default: Disable.

Priority weight ration (high:low)	Use "M" key to move down to Priority weight ration then use Space key to select the ration priority. Available weights, 1:0; 4:1, 8:1, 16:1. Default: 16:1.
Force set high-priority port	Use "M" key to move down the cursor and select the ports, by Space toggle, that you would like to set base on the QoS options above.

Table 3-9 Descriptions of the QoS Screen Objects

3.2.4.5 Priority Tag Insert / Remove

Press 5 on your keyboard to access the screen of Priority Tag Insert / Remove from the Configuration screen (please see the figure 3-9).

The screen of Priority Tag Insert / Remove in figure 3-14 appears. Table 3-10 shows the descriptions of the Priority Tag Insert / Remove screen Objects.

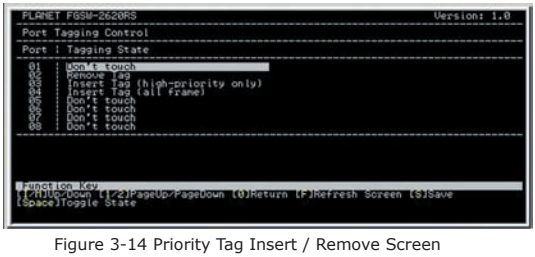


Figure 3-14 Priority Tag Insert / Remove Screen

Object	Description
Insert Tag (high priority only)	Insert priority tag into the untagged high-priority frame
Insert Tag (all frame)	Insert priority tag into the all untagged frame
Remove Tag	Remove the VLAN tag from all tagged frame
Don't touch	The default setting, which means no modify

Table 3-10 Descriptions of the Priority Tag Insert / Remove Screen Objects

3.2.4.6 VLAN Global Control

Press 6 on your keyboard to access the screen of VLAN Global Control from the Configuration screen (please see the figure 3-9).

The screen of VLAN Global Control in figure 3-15 appears. Table 3-11 shows the descriptions of the VLAN Global Control screen Objects.

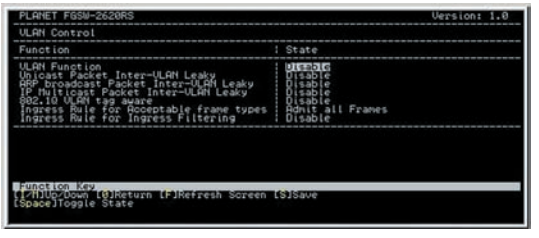


Figure 3-15 VLAN Global Control Screen

Object	Description
VLAN function	Allow disable or enable VLAN function. Default: disable
Unicast packet Inter- VLAN Leaky	Allow disable or enable the packet to be forward to a destination port at different VLAN. Default: disable
ARP broadcast packet Inter-VLAN Leaky	Allow to disable or enable ARP frame to broadcast to all switch port. Default: disable
IP Multicast packet Inter-VLAN Leaky	Allow to disable or enable multicast to be flood to the entire multicast group member. Default: disable
802.1Q VLAN tag aware	Allow to disable or enable IEEE 802.1Q VLAN Tag aware. Default: disable
Ingress Rule for Acceptable frame types	To permit all frames or VLAN-tagged frames. Default: Admin all frames
Ingress Rule for Ingress filtering	Allow to disable or enable filter the frame received from a port which port is not in the classified VLAN group member. Default: disable

Table 3-11 VLAN Global Control Screen Objects

☞ Notice: The Ingress rule only allows use for additional IEEE 802.1Q VLAN operation mode. That is the connected devices, such as any third party switch, workstations, servers should also support IEEE 802.1Q VLAN tag fecauters.

3.2.4.7 VLAN Member Setup

Press 7 on your keyboard to access the screen of VLAN Member Setup from the Configuration screen (please see the figure 3-9).

The screen of VLAN Member Setup in figure 3-16 appears.

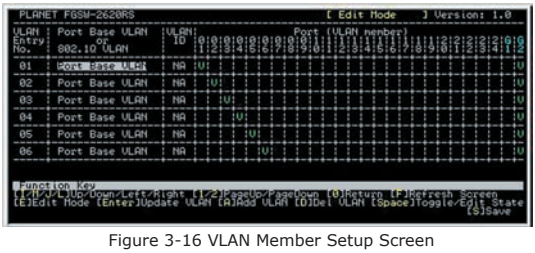


Figure 3-16 VLAN Member Setup Screen

Port-based VLAN setup procedure:

1.Please press "E" key change to "Edit mode".

2.Please press "A" key to add port-based VLAN group.

3.Please use "L" key move to specific port then press "space" key to add this port into current VLAN group.

4. After setup completed, please press "Enter" key to update the VLAN table.

5.Please press "S" key to save the current VLAN configuration.

3.2.4.8 Device Features

Press 8 on your keyboard to access the screen of Device Features from the Configuration screen (please see the figure 3-9).

The screen of Device Features in figure 3-17 appears. Table 3-12 shows the descriptions of the Device Features screen Objects.

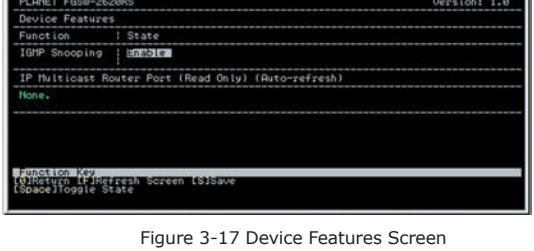


Figure 3-17 Device Features Screen

Object	Description
IGMP Snooping	Allow disable or enable IGMP Snooping. This function is support the ability of IGMP Control packets and IP multicast data packets to learn the multicast router port and group address member port into multicast address table. Default: disable

Table 3-12 Device Features Screen Objects

3.2.5 Security

Press 3 on your keyboard to access the screen of Security from the Main Menu screen (please see the figure 3-4). The screen of Configuration in figure 3-18 appears. This function reserved for further management purpose.

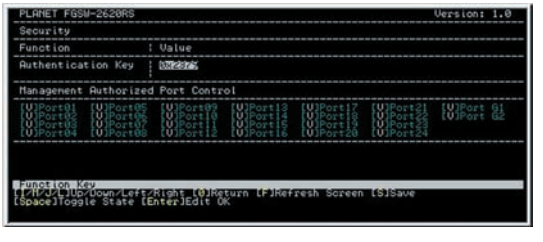


Figure 3-18 Security Screen

3.2.6 Diagnostics

Press 4 on your keyboard to access the screen of Diagnostics from the Main Menu screen (please see the figure 3-4). The screen of Diagnostics in figure 3-19 appears. Table 3-13 shows the descriptions of the QoS screen Objects.

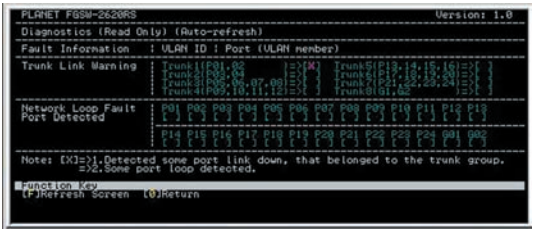


Figure 3-19 Diagnostics Screen

Object	Description
Trunk Link Warning	Display the trunk status at each group when trunk is enabled.
Network loop Fault Port Detected	Display the information loop detect when loop occur on each port.

Table 3-13 Diagnostics Screen Objects

3.2.7 Password

Press 5 on your keyboard to access the screen of Password from the Main Menu screen (please see the figure 3-4). The screen of Password in figure 3-20 appears.

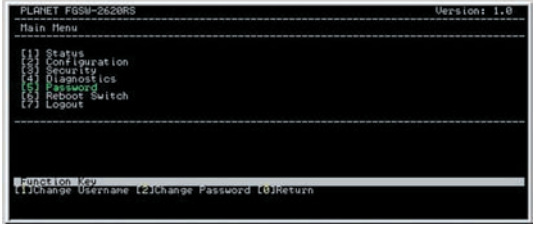


Figure 3-20 Password Screen

Username and password modify procedure:

1. Please press "1" key to change the username, the screen in figure 3-21 & 3-22 appears.

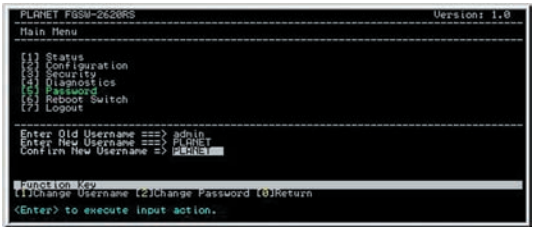


Figure 3-21 Change username Screen

2. Please press “Enter” to execute current configuration.

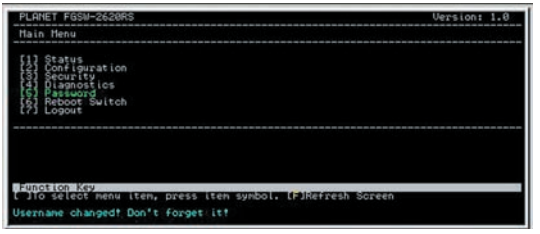


Figure 3-22 Change username successfully Screen

3 Please press “F” to refresh the screen.

4 Please press “2” key to change the password, the screen in figure 3-23 & 3-24 appears.

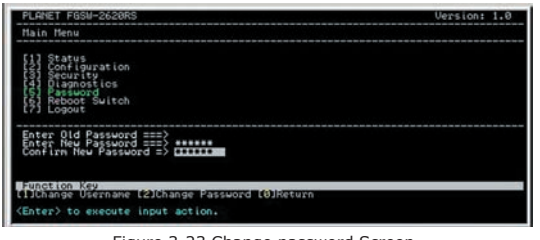


Figure 3-23 Change password Screen

5. Please press “Enter” to execute current configuration.

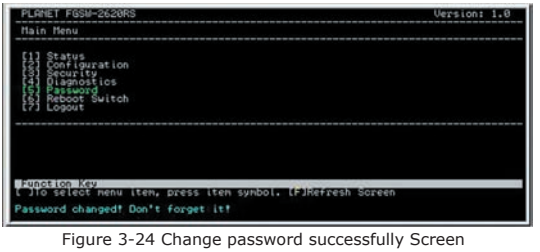


Figure 3-24 Change password successfully Screen

6. Please press “F” to refresh the screen.

☞ Notice: For security reason, please change and memorize the new username and password after this first setup.

3.2.8 Reboot

Press 6 on your keyboard to access the screen of Reboot from the Main Menu screen (please see the figure 3-4). The screen of Reboot in figure 3-25 appears.

Figure 3-25 Reboot Switch Screen

Reboot and reset switch to default mode procedure:

1. Please press "D" key to reset switch to default mode, the screen in figure 3-26 & 3-27 appears.

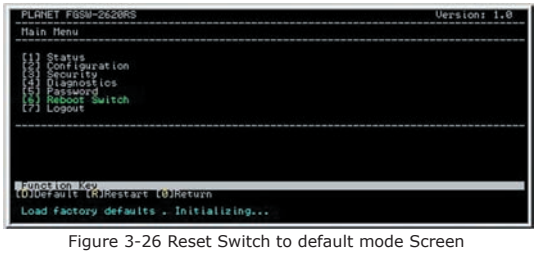


Figure 3-26 Reset Switch to default mode Screen

Figure 3-27 Reset Switch to default mode Screen

2. Please press "F" to refresh the screen.
3. Please press "R" key to reboot Switch, the screen in figure 3-28 & 3-29 appears.

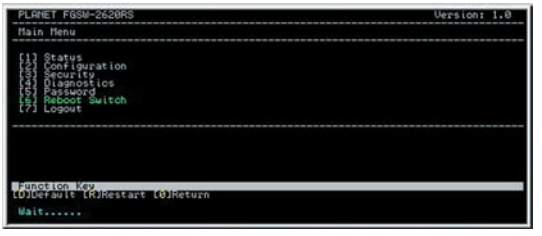


Figure 3-28 Reboot Switch Screen

Figure 3-29 Reboot Switch Screen

☞ Notice: Choose "D" Default to reset the Switch to default mode. Not include the modified username and password. Please memorize the new username and password after change it.

3.2.9 Logout

Press 7 on your keyboard to access the screen of Logout from the Main Menu screen (please see the figure 3-4). The screen of Logout in figure 3-30 appears.

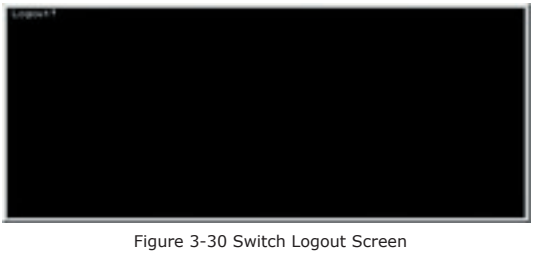


Figure 3-30 Switch Logout Screen

Press any key then the console login screen appears again. The screen in figure 3-31 appears.

Figure 3-31 Switch Login Screen

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 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.

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.

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)

5. TROUBLESHOOTING

This chapter contains information to help you solve problems. If the Ethernet 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 Ethernet Switch

Some stations cannot talk to other stations located on

The other port

Solution:

Please check the VLAN settings, trunk settings, or port enabled / disabled status.

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. Please also check the in/out rate of the port.

Why the Switch doesn't connect to the network

Solution:

Check the LNK/ACT 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

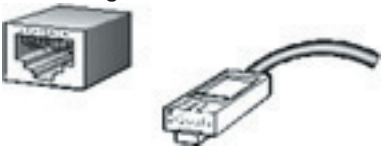
1000Mbps, 1000Base-T

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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