LINDY®
COMPUTER CONNECTION TECHNOLOGY

Eight (8)-Port Gigabit Ethernet Switch

USER'S GUIDE

Eight (8)-Port 1000BASE-T/100BASE-TX/10BASE-T Gigabit Ethernet Switch

CE

LINDY Part No. 25008

TABLE OF CONTENTS

1   UNPACKING INFORMATION

Thank you for purchasing this Switch. Before continuing, please check the contents of the product package. This product package should contain the following items:

· One (1) Gigabit Ethernet Switch.
· One (1) Power Cord.
· One (1) Four (4) Rubber Feet.
· One (1) Rackmount Kit.
· One (1) Console Cable
· This User's Guide.

If anything is missing, please contact your place of purchase immediately.
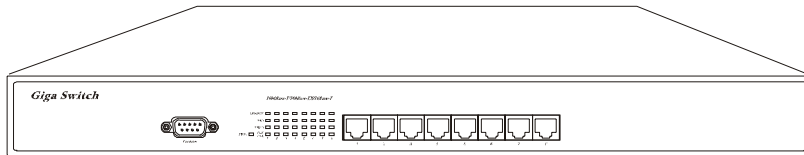
Gigabit Ethernet Smart Switch (19 inches case)
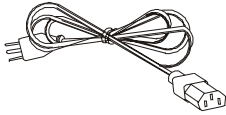
Power Cord

Four (4) Rubber Feet

Rackmount Kit (19 inches case only)

Console cable

User's Guide

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2 PRODUCT INTRODUCTION

2.1 Models

The switch provides Eight (8) Gigabit copper ports. Each port is equipped with 2000 Mbps, Full-Duplex, Collision Free Bandwidth. It's a multi-speed, versatile network device that combines Gigabit, Fast Ethernet, and Ethernet ports in a single device.

2.2 Key Features

· Operates at maximum packet forwarding rate in 14880pps/10M, 148800pps/100M and 1488000pps/1000M.
· Supports 16K MAC address entries.
· Provides 1.5M bytes Packet Memory Buffer.
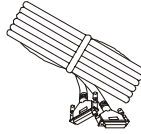· Provides Flow-Control mechanism to ensure zero packet loss. They are IEEE802.3x for Full-Duplex operation and Back-Pressure for Half-Duplex operation.
· Provides Store-and-Forward forwarding scheme.
· Provides 1 DB9 RS-232C console interface configured as DTE for operation, diagnostics, status, and configuration information.
· Provides Menu-Driven console interface from the console port by VT-100 compatible terminal.
· Provides Port-Mirroring function on port 8.
· Provides Link Aggregation function (2,3 or 4 ports per link).
· Supports up to 4 Trunk groups.
· Supports IEEE 802.3ac frame extension for VLAN Tagging.
· Supports Tag-Based VLAN as in IEEE 802.1Q.
· Supports up to 32 Port-Based VLANs.
· Provides 4-level priority for switching.
· Supports 19Gbps backbone bandwidth.

2.3 The Front Panel
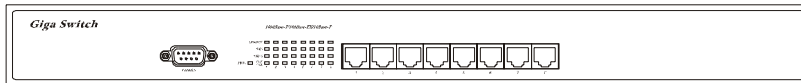
Gigabit Ethernet Switch (19 inches case)

2.3.1 1000BASE-T

The switch is primarily used for network backbone connections.
For the 1000BASE-T TP port, it provides an Auto-Negotiation function that senses for the attached device's maximum operating speed and automatically sets the Switch to operate at that speed. Users only need to connect a network cable into any TP port, and the Auto-Negotiation function will do the rest.

2.3.2 Cabling

1000Mbps - To transmit at 1000Mbps requires Category 5 TP cabling that must use all Four (4) pairs twisted-pair wire for RJ-45 connector.
100Mbps - To transmit at 100Mbps requires Category 5 TP cabling.
10Mbps - When transmitting at 10Mbps Category 3, 4 or 5 TP cabling with RJ-45 sockets can be used.

Port Type	Cable Type	Connector
1000BASE-T	Cat.5 TP	RJ-45
100BASE-TX	Cat.5 TP	RJ-45
10BASE-T	Category 3, 4 or 5 TP	RJ-45

Note: Category 5 TP cable recommended whenever installing new cabling.
To transmit at 1000Mbps requires Category 5 TP cable using Four (4) pairs Twisted-Pair wire.

2.3.3   Status LEDs

The Switch comes with a complete range of LEDs. The table below lists each LEDs name, color and a brief description of its function.

Name	Color	Function
Power	Green	Power on, normal operation
	Off	Power off
Link/Act	Green	Link On
	Blink	Activity
	Off	Link Off
1000M	Green	1000M Speed
	Off	Not 1000M Speed
10M/100M	Green	100M Speed
	Off	10M speed
Full	Green	Full-duplex mode
Collision	Blinking	Collision
Half	Off	Half-duplex mode

2.4   The Rear Panel

Gigabit Ethernet Switch (19 inches case)

2.4.1   Power Socket

The Power Socket is designed to be used with the power cord included in the product package.
· Attach the female end of the power cord to the male power connector on the back panel.
· Attach the male end of the power cord to a grounded power outlet.

2.4.2   Network Ports

The Switch provides Eight (8) 10BASE-T/100BASE-TX/1000BASE-T (RJ-45 connector) ports.

2.4.3   Console Port

The console port interface conforms to the RS-232 electrical specification. This interface supports asynchronous data of Eight (8) data bits, One (1) stop bit, and no parity bit. The unit only operates at 38400bps rates with RS-232 cable in system configure.

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3 INSTALLATION

To locate the switch on a rackmount: (19 inches case only)
· Attach the Four (4) rubber feet included in the product package to the bottom of the Switch, one in each corner.
· Place the Switch on a rackmount.
· Plug in all network connections and the power cord

3.1 Rackmount placement

Attach One (1) rackmounting bracket on each side of the Switch front panel and secure each bracket with the provided screws.
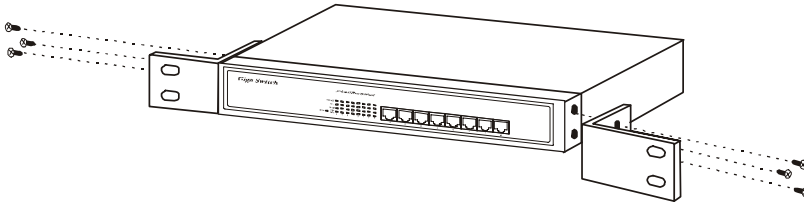
Use the other provided screws to secure each Switch to the rack.

6
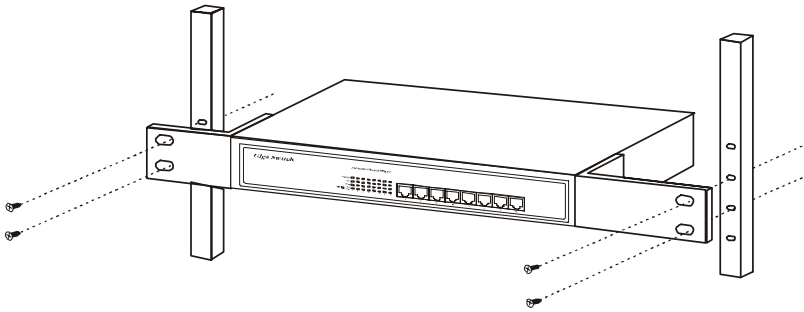
4 HELPFUL SUGGESTIONS

4.1 Prior to Installation

Before installing the Switch and connecting network devices, it is important to plan the network's layout. Things you should consider include:

· **Dedicated Bandwidth:** File servers and other high-traffic hardware improve their performance if they have their own dedicated 10Mbps, 100Mbps, or 1000Mbps bandwidth.

· **Full-Duplex:** Determine which devices support Full-Duplex connections.

· **Fast Ethernet & Gigabit Ethernet:** Make sure rules for cable lengths and categories are followed. 100BASE-TX and 1000BASE-T have the same rules for cable and distance.

· **Auto-Negotiation:** Devices with different speeds may be easily swapped when the other end of the cable is fixed to a port with Auto-Negotiation.

4.2 Half- and Full-Duplex

The Switch supports both Half- and Full-Duplex modes for 10BASE-T and 100BASE-TX. But the 1000BASE-T only supports Full-Duplex mode.

· **In Half-Duplex mode:** Data cannot be transmitted and received at the same time. Attached devices must finish transmitting data before they can receive data.

· **In Full-Duplex mode:** Data can be transmitted and received at the same time.

However:

· Full-Duplex transmission is only possible between two devices with a dedicated link (e.g., Switch-Switch, Switch-PC)

· Both devices must have Full-Duplex capability

· Both devices must be set to Full-Duplex (e.g. Auto-Negotiation – Auto-Negotiation, Non-Auto-Negotiation to Non-Auto-Negotiation)

The 100BASE-TX/10BASE-T or 1000BASE-T/100BASE-TX/10BASE-T ports on the Switch detect and set the line's operating mode by using their Auto-Negotiation function.

4.3 Auto-Negotiation

Every 1000/100/10Mbps speed port on these Switches has a built-in "Auto-Negotiation" function. This technology automatically sets the best possible bandwidth as soon as a connection is established with another network device (usually at Power "On" or Reset). This is capability is achieved via the Switch's Auto-Negotiation function that automatically detects the modes and speeds the second (attached) device is capable of.

Evaluating Auto-Negotiation Capability:

if attached device is:	the Switch will automatically set its TP ports to operate at:
1000Mbps with Auto-Negotiation	2000Mbps (1000BASE-T, Full-Duplex) Note: Almost all 1000Mbps devices only operate in Full-Duplex mode.
100Mbps no Auto-Negotiation	100Mbps (100BASE-TX, Half-Duplex)
100Mbps with Auto-Negotiation	200Mbps (100BASE-TX, Full-Duplex)
10Mbps no Auto-Negotiation	10Mbps (10BASE-T, Half-Duplex)
10Mbps with Auto-Negotiation	20Mbps (10BASE-T, Full-Duplex)

Note: If the attached device is set to a fixed mode (ex: Forced Full-Duplex) it will not operate as an Auto-Negotiation device.

4.4 MAC Address Table

Every Ethernet data packet includes both source and destination addresses. This Six (6) bytes ID is called the MAC (Media Access Control) Address. It supports 16 K MAC address.

The model can automatically learn and store MAC addresses. However, the MAC address table is volatile: it disappears when the Switch is powered "Off" or reset.

Note: When the network needs reconfiguration, we recommend to restart the Switch first. After all nodes have been moved, Remove the power cord and re-attach it to rebuild the internal MAC address table.

5   SAMPLE APPLICATION

The application for these Switches is as a "big pipe" backbone interconnecting file servers with bandwidth-hungry workgroups, departments, and offices.

8 1000BASE-T Gigabit Switch

8 1000BASE-T Gigabit Switch

24 10/100 ports with 2 Gigabit ports switch

Server with Gigabit Ethernet Adapter

2000Mbps
Full-Duplex
100m max.

1000 Mbps TP Cable

100/10 Mbps TP Cable

200Mbps
Full-Duplex
100m max.

Workstations with 10/100
Fast Ethernet Adapters

Printer

Printer Server

Workstations with 10/100
Fast Ethernet Adapters

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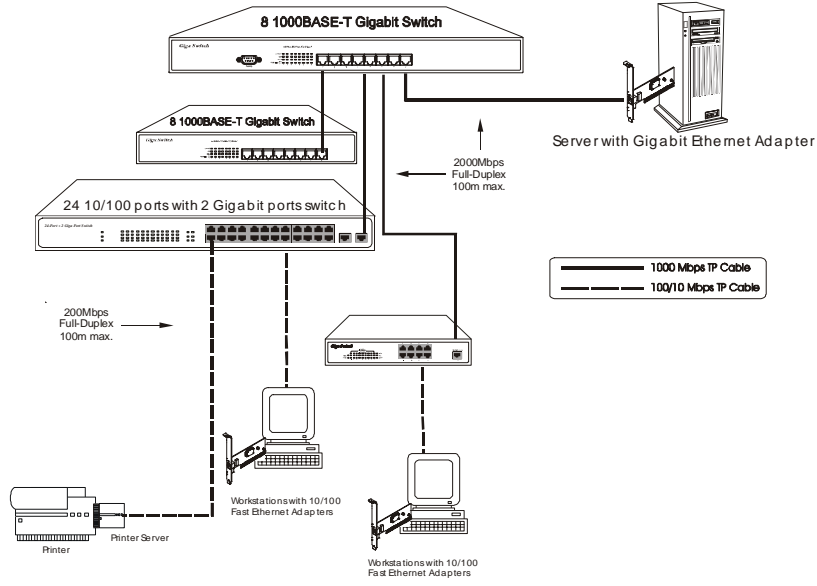
6 SMART FUNCTION CONFIGURATION

6.1 HyperTerminal

The Switch has a smart function that you can use to manage your local area network (LAN) more effectively. You can also use the default setting to operate the Switch as a dumb switch.

If you want to use smart function, install the Switch as below:

· Use the "RS-232" connector to connect the Switch to a computer. Connect One (1) cable end to the Switch, and connect the other end to the computer's "COM1" or "COM2" port.

Note: If your Windows program doesn't have a hyper terminal, you have to install it first.

· Power "ON" the Switch
· Execute the "HyperTerminal" program:
   Start Menu → Application Program → Communication → Hyper Terminal
· Setup the connection content of Hyper Terminal:
     · In connection tag, select which "COM" port is used to connect PC and the Switch.
     · Then press the "SETUP" button, set "Bits per second" to **38400**, "Data bits" to **8**, "Parity" to **None**, "Stop bits" to **1**, "Flow control" to **None**.
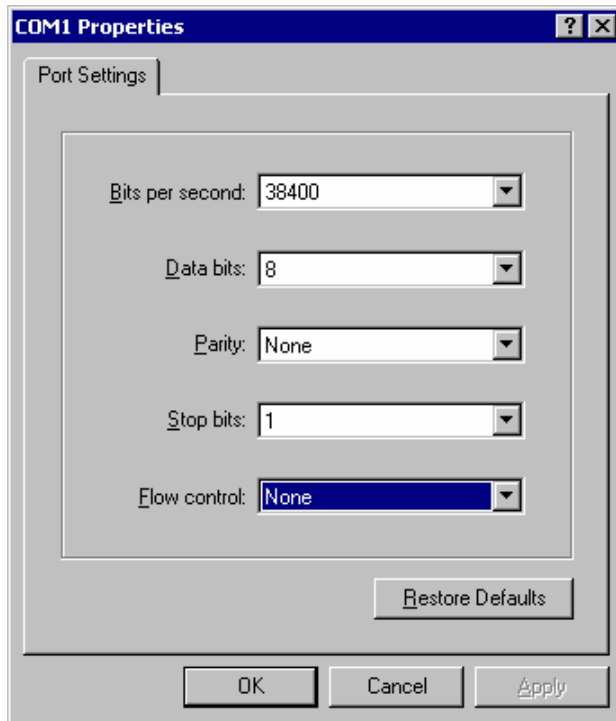
6.2 System Initiating

After you have set up the "HyperTerminal" program, you can power on the switch.

You will see the initializing process appears on the screen.

```
Gigabit Ethernet Smart Switch
Power-up System Self-diagnostic Process
V1.00 02-25-2002 (c) Copyright 2002.

Console I/O test ...
 !"#$%&'()*+,-./0123456789:;<=>?@ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]^_`
 abcdefghijklmnopqrstuvwxyz{|}~

RAM test ..........PASS
EEPROM test ........PASS
EE interface test Pass!
MII test Success
MAINBOARD COM    RAMBIST TEST .......PASS!
MAINBOARD ALE    RAMBIST TEST ......PASS!
MAINBOARD SCM    RAMBIST TEST ......PASS!
MAINBOARD GPC1   RAMBIST TEST ......PASS!
MAINBOARD GPC2   RAMBIST TEST ......PASS!
MAINBOARD GPC3   RAMBIST TEST ......PASS!
MAINBOARD GPC4   RAMBIST TEST ......PASS!
MAINBOARD GPC5   RAMBIST TEST ......PASS!
MAINBOARD GPC6   RAMBIST TEST .......PASS!
MAINBOARD GPC7   RAMBIST TEST ......PASS!
MAINBOARD GPC8   RAMBIST TEST ......PASS!
Press <Enter> to enter the user interface program.
```

Here we can see messages shown in this power-on screen. As described in the screen, this is a Self-Diagnostic process running during power-on stage. Regardless of the test result is successful or not, you are always requested to press <Enter> to enter next stage.

After you press <Enter> to enter the user interface program, you will see the screen shown as follow:

```
                        Smart Switch

                        User Interface

                        v1.00 (c) Copyright 2002




                Password :
```

Log-in is required to access the command console. A password is used to provide the basic security control. The factory default password is "admin". The user can change password once in the System menu. If the password is forgotten, user must return this device for SW maintenance. In this log-in screen, input the correct password and press enter will lead user to main menu. Without valid password, user cannot monitor the system status or set special functions from this interface. We recommend users take special care of the password.

7 USE FUNCTION MENU

7.1 Main menu
The main menu is the top level of all menu-driven screens. All functions are selected from this screen.
The main menu function selections are listed below:
1. System Configuration
2. Port Configuration
3. Port Trunking Configuration
4. Port Mirroring Configuration
5. VLAN Configuration
6. Priority Configuration
7. Port Statistics
8. Restart
9. Exit

```
                          Main Menu
                          ========
                   System Configuration ...

                   Port Configuration ...

                   Port Trunking Configuration ...

                   Port Mirroring Configuration ...

                   VLAN Configuration ...

                   Priority Configuration ...

                   Port Statistic ...

                   Restart ...

                   Exit

                   Configure the password.
                Use arrow keys to move. <Enter> to confirm.
```

You can press the number key (on the right hand side of the keyboard) 8 for moving up the menu bar and 2 for moving down.
When the menu bar stops on the right item that you want to execute, press "Enter" to go into the sub-menu.
Note: Before using number key for moving up or down, please make sure the "Num Lock" LED should not be lit.
There are 4 types of arrow indicator messages which are listed below:

Item	Explanation
[8]:Up	Press the number key 8 to move UP your menu bar.
[2]:Down	Press the number key 2 to move DOWN your menu bar.
[6]:Right	Press the number key 6 to move RIGHT your menu bar.
[4]:Left	Press the number key 4 to move LEFT your menu bar.
[Enter]:Execute	Press Enter to EXECUTE the sub-menu.
[Space]:Option	Press Spacebar to change the current setting to next option.
[ESC]=Exit	Press ESC to EXIT the sub-menu.

7.2 System Configuration
If we want to enable aging time of the system, select " System configuration" sub-menu and press "Enter" to execute. We'll see the following menu on the screen.

```
              Smart Switch : System Configuration
              =========




              Password          :admin

              Aging time        :300          (seconds)

              Logout time       :0            (minutes)

              Auto refresh time :12           (seconds)



                          < Return >
              Password of the administrator.              | READ/WRITE
              Use arrow keys to move. <Enter> to make changes.
```

In the "System Configuration" menu, you can setup the following settings.

Item	default	explanation
Password	admin (A string)	The login password.
Aging time	300 (Integer, in seconds)	Forwarding table aging period Aging Time value is between 0~65000.
Logout time	0 (Integer, in minutes)	Set the automatic logout time. The console will be automatically logged out if idle time period over this setting. Logout Time value is between 0~255.
Auto refresh time	12 (Integer, in seconds)	Many console screens contain data that can be updated constantly. This parameter controls the time between each screen update. Auto Refresh Time value is between 0~255.

7.3   Port Configuration

When you go into the "Port Configuration" sub-menu, the current state will be scanned for all 8 ports of the Switch and shown on the screen as follow:

```
              Smart Switch: Port Configuration
              ========

 Port  Link     Admin      Type        Current     Flow        Flow Control
       Status   Status     Config      Type        Control     Status
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
 01.   Off      Enabled    Auto-Nego   10HDX       Off         Off
 02.   Off      Enabled    Auto-Nego   10HDX       Off         Off
 03.   Off      Enabled    Auto-Nego   10HDX       Off         Off
 04.   Off      Enabled    Auto-Nego   10HDX       Off         Off
 05.   Off      Enabled    Auto-Nego   10HDX       Off         Off
 06.   Off      Enabled    Auto-Nego   10HDX       Off         Off
 07.   Off      Enabled    Auto-Nego   10HDX       Off         Off
 08.   Off      Enabled    Auto-Nego   10HDX       Off         Off




                      < Return >
              Configure the port status.                 | READ/SELECT
              Use arrow keys to move. <Space> to make change.
```

The Port Configuration Screen provides configurable setting and current status for each port. For each Ethernet port, following settings are available:

Item	Type	default	selections	Explanation
Port	R	N/A	N/A	You can select from 1 to 8 port for setting up.
Link Status	R	N/A	N/A	Port Link status. If the port links, it shows "On" else "Off".
Admin Status	R/W	Enabled	Enabled Disabled	Port transmission enable/disable.
Type Config	R/W	Auto-Nego		Preferred Port speed and duplex setting.
			Auto-Nego	Auto-Negotiation
			10HDX	10BASE-T, Half-Duplex mode
			10FDX	10BASE-T, Full-Duplex mode
			100TX-HDX	100BASE-TX, Half-Duplex mode
			100TX-FDX	100BASE-TX, Full-Duplex mode
			1GB-FDX	1000BASE-T, Full-Duplex mode
Current Type	R	N/A	N/A	Current Status of the link speed and duplex with link partner.
Flow Control	R/W	Off		Flow control mode selection.
			Off	No Flow-Control
			BothWay	Accept Pause frame and issue Pause frame.
			SendOnly	Only issue Pause frame and ignore received frame.
			Rcv/BothWay	Accept Pause frame and issue Pause frame, same as Bothway.
Flow Control Status	R	N/A	N/A	Current Flow control result with link partner.

Users can only monitor following items: Link Status / Current Type / Flow Control Status.

Users can set up the following items: Admin Status / Type Config / Flow Control

7.4   Port Trunking Configuration

Port Trunking Configuration menu controls port trunking or the so called Link Aggregation function. Several ports in the Smart Switch can be bundled together to form a high-speed trunk. The available choices are listed in the screen once you press <Add> selection.

```
                   Smart Switch: Port Trunking Configuration
                   ========

   List Current Link Aggregates
           Port Count    Port Number












                        < Return >                <Add>
                           Add trunking port group
                    Use arrow keys to move. <Enter> to confirm.
```

For factory default setting, the trunking group list is empty. To set up a new trunk, select the <Add> function. The following selections list will be shown on screen.

```
                   Port Trunking Configuration: Add Trunking Port
                   ====================

           2-port:
                << 1 to 2 >>    << 3 to 4 >>
                << 5 to 6 >>    << 7 to 8 >>
           3-port:
                << 1 to 3 >>    << 2 to 4 >>
                << 5 to 7 >>    << 6 to 8 >>
           4-port:
                << 1 to 4 >>    << 5 to 8 >>



           *** Note: Trunking has to be within the same VLAN. ***

                              < Return >
                          Add port trunk option.
                    Use arrow keys to move. <Enter> to confirm.
```

Each item represents a set of ports that can be trunked together. Pressing <Enter> on an item selects the set as a new trunk. Note that selecting a set of port may cause other sets to be excluded in further selections. More sets can be selected until all ports are defined.

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The following Figure. shows a sample of Trunking Configuration screen after some trunking ports are defined.

```
                    Smart Switch: Port Trunking Configuration
                    =========

   List Current Link Aggregates
              Port Count      Port Number
   Trunk1   2               port 1 to 2
   Trunk2   2               port 3 to 4
   Trunk3   4               port 5 to 8














                        < Return >
                    Delete trunk1 setting.
              Use arrow keys to move. <Enter> to confirm.
```

The trunked group can also be selected for deletion. To delete a trunk, simply use arrow keys & move and press Enter to select. The following question will appear at the status line:
Are you sure you want to perform this operation? (y/n)
Press Y will delete selected trunk group.
Note: You can't assign 2 of different switch's ports to the same VLAN group.
Note: Members in trunk should be in the same VLAN

7.5 **Port Mirroring Configuration**
Port Mirroring means setting up a monitored port so that data flowing through that port is copied to the 8th port. The port used to monitor other ports is called the Monitoring port. It is fixed at 8th port. The ports being watched are called the Mirrored Port. The Smart Switch is able to monitor one port at one time. The transmitting and receiving direction can be monitored exclusively. Be sure to activate this function before setting port selection and direction.

```
                    Smart Switch : Mirror Port Configuration
                    =========




            Monitored Port:


                    Port Type      Active
                    -----------------------
                    1    Rx Packets Disabled



        *** Note:  ***
        The speed of monitored port must have the speed as 8'th port.

                        < Return >

              Use arrow keys to move. <Enter> to make changes.
```

The following items are available for Port Mirrowing configuration.

item	selections	explanation
Port	1-7	Port to be Monitored.
Type	Rx Packets Tx Packets	Transmit or Receive direction to be monitored.
Active	Disabled Enabled	Disable/Enable Monitor function of 8th port.

For using Mirror function, some limitations should be noted here.
· The monitored and monitoring port should be running in the same speed.
· The transmitting or receiving rate of monitored port should not exceed the wire speed of the 8th port (monitoring port).

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7.6   VLAN Configuration

The VLAN Configuration sets up the VLAN configuration of this switch. The Switch supports 32 VLANs in four pages. Each VLAN can have an ID with range 1-4094, 0 and 4095 are standard reservation. Member set in the same VLAN can be untagged or tagged. Incoming untagged packet will be assigned Port VID of that port. Following is the configuration screen for VLAN function.

```
                    Smart Switch : VLAN Table (1 to 8)
                    =========

           Port      Member Set        Untag Set
    VLAN             12345678          12345678

    1                PPPPPPPP          UUUUUUUU        S : Static
                                                       P : PVID
                                                       U : Untag








           < Return >      <Add>    <Previous Page> <Next Page>
                           Modify the VLAN group.
                    Use arrow keys to move. <Enter> to confirm.
```

Each VLAN has a VLAN ID and a list of members. For each VLAN, a letter is used for specific port to represent the relation of that port to the VLAN.

Initially all ports are PVID 1. To add a new VLAN, press the <Add> Command. The following screen appears:

```
                    Smart Switch : ADD VLAN
                    =========

           Port      Member Set        Untag Set
    VLAN             12345678          12345678

    0                                                  S : Static
                                                       P : PVID
                                                       U : Untag








           <Ok>                                <Cancel>

              Use arrow keys to move. <Enter> to make changes.
```

To add a new VLAN, input the new VLAN ID, edit the member set and untag set of this VLAN.   Press <OK> to complete this setting.

When you want to modify existed VLAN configuration, just press <enter> when cursor is on that VLAN. Display will enter Modify VLAN. Here user can use arrow key to move to target position that needs to be modified. VLAN can only be deleted at this moment. A confirmation message appears on status bar. Press <Y/N> to complete process.

Move to <Config> and press <enter> activates the new VLAN setting and stays in this screen. Move to <Return> and press <enter> completes modification and returns to the VLAN Configuration screen.

7.7 **Priority Configuration**

The Priority Configuration sets the IEEE 802.1p priority function of the system.

The Smart Switch has 4 priority queues per port. Each frame can be sent via high or low priority queue depending on the priority setting and the tag value of it.

```
              Smart Switch : Port Priority Configuration
                           =========


        Default tags:              Priority mapping for each tag:


        Port 1 2 3 4 5 6 7 8       Tag   0 1 2 3 4 5 6 7
        Tag  0 0 0 0 0 0 0 0       queue 1 0 0 1 2 2 3 3




        *** Note: Flow control has to be enabled before setting priority. ***

                            < Return >

               Use arrow keys to move. <Space> to make change.
```

User can input any number between 0~7 at left-side "Tag" field to assign tag value to each port. These default tags settings are only for those packets without tag. After these packets are received, these default tags are appended into these packets. For originally tagged frames, they have no effect.

At right left part of this screen, the mapping of tag value to actual priority are defined here by enter 0~3 number to "queue" field. The queue 3 has the highest priority.   The priority distribution of 0~3 are 1:7:15:31. Packet with tag 0 is always put into queue 1 according to the standard.

7.8 **Port Statistics**

User can display individual statistical counter of selected port. The update rate can be defined in System configuration page. They are good for administrator to monitor each port's usage condition. Also, it is helpful to troubleshooting network problems.

```
                    Smart Switch: Port Statistic
                        ========

Interfaces
   In Octets            : 0        Out Octets           : 0
   In Unicast Pkts      : 0        Out Unicast Pkts     : 0
   In Non-Unicast Pkts  : 0        Out Non-Unicast Pkts : 0
   In Discards          : 0        Out Discards         : 0
   In Errors            : 0        Out Errors           : 0
   Alignment Errors     : 0        CRC Errors           : 0

Ethernet
   Single Collisions    : 0        Multiple Collisions  : 0
   Deferred Transmissions :0       Late Collisions      : 0
   Excess Collisions    : 0        Carrier Sense Errors : 0
   Drop Events          : 0        Fragments            : 0
   Octets               : 0        Jabbers              : 0

   Port Number:  1     <Refresh>         <Previous Port>    <Next Port>
   < Return >          <Reset>           <Reset All>
            Display port statistics defined in such page.       | READ/WRITE
                  Use arrow keys to move. <Enter> to make changes.
```

7.9 Restart

The Reset menu provides 2 functions.

Factory Default	Clear the configuration data and load factory default setting into switch. The switch will then be restarted.
Restart	Performs a SW reset of system.

```
                Smart Switch : System Restart
                =========




                        <Factory default>

                        <Restart>






                              < Return >
                     Reset to factory default setting.
                 Use arrow keys to move. <Enter> to confirm.
```

7.10 Exit

Move cursor to "Exit" and press <enter> will jump to this screen. Follow instruction on screen can drive display to login page.

```



              You have exited from the user interface program.




          If you want to return to the user interface program,
                       press <Enter> repeatedly.


```

8   PRODUCT SPECIFICATIONS

Model	8-Port Gigabit Ethernet Smart Switch	
	(19 inches case)	
Standards	· IEEE 802.3: 10BASE-T · IEEE 802.3u: 100BASE-TX · IEEE 802.3ab: 1000BASE-T · IEEE 802.3x: Flow-Control support · IEEE 802.1D (Bridging) · IEEE 802.1P (Priority) · IEEE 802.1Q (Virtual LAN)	
Ports	· Eight (8) 1000BASE-T/100BASE-TX/10BASE-T TP Copper Ports	
Media Support	· 10BASE-T: Category 3, 4 or 5 TP · 1000BASE-TX/1000BASE-T: Category 5 TP	
Bandwidth	· 1000BASE-T 2000/1000/200/100/20/10 Mbps	
Forwarding/Filtering Rate	· 1488000 packets/second per port @ 1000Mbps maximum · 148800 packets/second per port @ 100Mbps maximum · 14880 packets/second per port @ 10Mbps maximum	
Latency	· 2.2µsec @1000Mbps minimum · 11 µsec @100Mbps minimum · 75 µsec @ 10Mbps minimum	
MAC Addresses	· 16K Self-Learning	
Console port	· RS232 Cable	
Buffer Memory	· 1.5M bytes data package memory	
Duplex Modes	· Auto-Negotiation	
Crossover	· All ports have Auto-Crossover function	
Switch	· One (1) for Power	
LED Indicators	· One (1) per port for display Link/ACT · One (1) per port for display speed- 1000Mbps(Green) · One (1) per port for display 100Mbps(Green) or 10Mbps(Off) · One (1) per port for display Full-duplex and Half –Duplex (collision)	
Power Supply	· Full range Auto-Switching · Input voltage: 100 ~ 240 +-10% VAC/ 50 ~ 60Hz	
Power Consumption	· 30 W maximum	
Environment	· Operating Temperature: 0° ~ 45°C (32° ~ 113°F) · Storage Temperature: 0° ~ 70°C · Humidity: 10% ~ 90% Non-Condensing	
Dimensions	· 442 x 185 x 44mm (17.40x7.28x1.73 inches)	

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