# ES5018G-2GS-16POE-300W-P(220VAC)
# Full Gigabit Managed POE Switches
# User manual

**Version 1.0.0, September. 2014**

**www.3onedata.com**

# Statement

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## Revision History

| Version No. | Date | Reason |
|---|---|---|
| V1.0.0 | 2014-9 | Creating Documents |

## Notes

In reading this manual, please pay attention to the following symbols,

Information necessary to explain

Special attention

# Content

# CHAPTER 1 SUMMARIZE

## 1.1 Introduction

ES5018G-2GS-16POE-300W-P(220VAC) is Full gigabit , managed , 16-port Gigabit high power (IEEE 802.3at) PoE Switches,utilizing a compact factor which can be mounted in a 19-inch rack with rack-mounting kits or placed on desktop.

With data and power supported by one unit, the switches shall reduce cables and eliminate the need for dedicated electrical outlets on the wall,ceiling or any unreachable place. Auto PoE detection and Plug and play installation makes Gigabit PoE Switch easy to use and with clear LED indicators to tell the working condition.

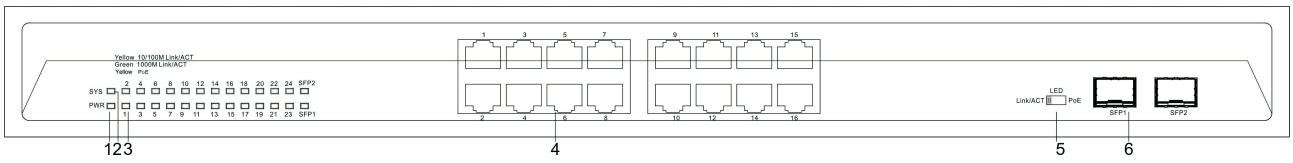
## 1.2 Features

- Compatible with both IEEE802.3at(30W) and IEEE802.3af(15.4W), can supply power to PDs under these two standards
- Automatically detect and supply power to IEEE802.3at and IEEE 802.3af compliant powered devices(PDs)
- Advanced SAFC function, only supply power to IEEE 802.3af/at compliant PDs, no worry about damaging other private standard POE devices or devices without POE function
- Support port power supply prioritization, guarantee the continuous power supply of key nodes
- Up to 100m network cable transmitting distance
- Built-in PSE power supply module, plug-and play design, easy to install
- High security performance defending against power surge
- Support short-circuit protection function
- Energy-saving green design, support auto-switch to standby mode and auto-detect cable length.
- Support simple WEB management, easy to configure the functions of switches

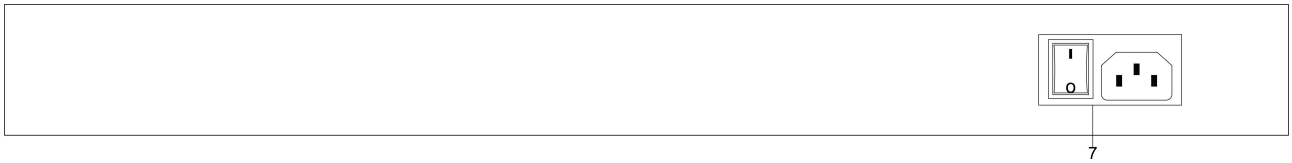
# CHAPTER 2 HARDWARE DESCRIPTION

## 2.1 Panel design

Front panel

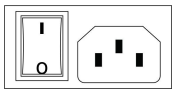



Back panel




1. Power Indicator
2. System Indicator
3. The corresponding interface LED indicator
4. 10Base-T /100Base-T/1000Base-TX port
5. Toggle switch
6. 1000Base-FX SFP port
7. Power input socket and switch

## 2.2 Power supply input



The swich provides three power socket rear panel Used in the AC power input (220 VAC)

## 2.3 Toggle switch

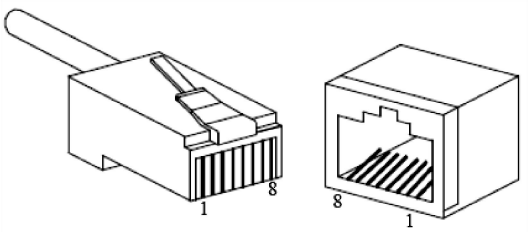

There is a toggle switch on the right side of front panel(beside the SFP ports).If sliding the toggle switch to the left “S-LED” side, The LED display the LINK state of the port ;if Sliding the toggle switch to the right “P-LED” side, The LED display corresponding port of POE function is normal work.

## 2.4 Communication port

**10Base-T /100Base-T/1000Base-TX Ethernet port**

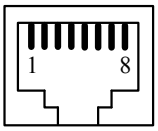
10Base-T/100Base-TX/1000 Base-TX Ethernet port use in front panel, It is RJ45 port, the PIN define of RJ45 is as follows: connection adopt UTP or STP, the distance is no more than 100m, 1000Mbps use cat5e,

100Mbps use cat5, 10Mbps use cat3,4, 5.




RJ45 port support MDI/MDI-X self-adaption. In (MDI), PIN1, 2, 3, 4, 5, 6, 7, 8 connect corresponding, in (MDI-X) PIN1→3, 2→6, 3→1, 6→2, 4→7, 5→8, 7→4, 8→5. In MDI/MDI-X, 1000 Base-TX PIN define is as follows:

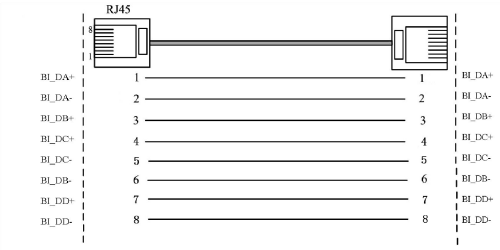
| PIN | 10/100Mbps | | 1000Mbps | |
|---|---|---|---|---|
| | MDI | MDI-X | MDI | MDI-X |
| 1 | TX+ | RX+ | BI_DA+/TX+ | BI_DB+/RX+ |
| 2 | TX- | RX- | BI_DA-/TX- | BI_DB-/RX- |
| 3 | RX+ | TX+ | BI_DB+/RX+ | BI_DA+/TX+ |
| 4 | - | - | BI_DC+/— | BI_DD+/— |
| 5 | | | BI_DC-/— | BI_DD-/— |
| 6 | RX- | TX- | BI_DB-/RX- | BI_DA-/TX- |
| 7 | - | - | BI_DD+/— | BI_DC+/— |
| 8 | - | - | BI_DD-/— | BI_DC-/— |



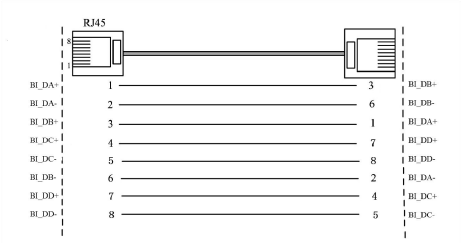

Information necessary to explain:

Note: “TX±”Transmitting data±, “RX±”receiving data±, “—”no use

MDI（**straight-through cable**）：



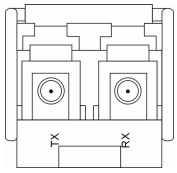

MDI-X（**Cross over cable**）：

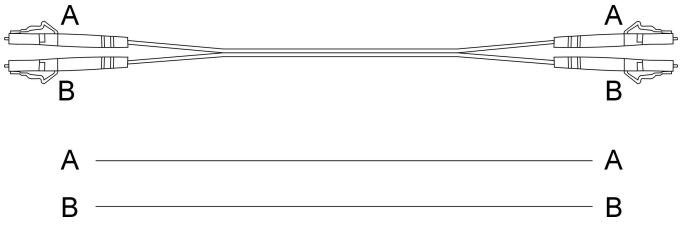



## 1000SFP fiber port(mini-GBIC)

1000BaseSFP fiber port adopts gigabit mini-GBIC transmission, can choice different SFP module according to different transfer distance. Fiber interface must use for pair, TX port is transmit side, must connect to RX(receive side). The fiber interface support loss line indicator.

**Suppose**: If you make your own cable, we suggest labeling the two sides of the same line with the same letter (A-to-A and B-to-B, shown as below, or A1-to-A2 and B1-to-B2).




## 2.5 LED Indicator

The swich LED indicator light on the front panel .the function of each LED is described in the table as below:

| LED | Indicator | Description |
|---|---|---|
| **PWR** | ON | Power connection regularly |
| | OFF | Power supply have no connection or unwonted |
| **Sys** | Blinking | Software running in the CPU |
| | Destroy/normally on | The software runs abnormally in the CPU |
| **Link/ACT** | ON | Established effective network connection |
| | Flashing | Network in activity statues |
| | OFF | Did not established effective network connection |
| | Yellow | The 10/100M ports auto-negotiate connected |
| | Green | The 1000Mbps ports auto-negotiate connected |
| **POE** | ON | The PoE function works |
| | Flashing | The PoE ports failed to work or the PDs are overloaded |

## 2.6 Installation

**Precautions**

Please read the following precautions carefully before operation, to avoid damaging the device or causing body injuries.

1). Please remove the power socket before cleaning the switch. Don' wipe the switch with wet cloth or wash the switch with liquid.

2). Don't stock the device in damp environment or near water, to avoid water or moisture penetrating into the inner device.

3). Don't put the device on a unstable box or desk, the device will get damaged from falling.

4). Please keep good ventilation indoor, and make sure the heat dissipation function of switch works well.

5). The switch only works normally in suitable voltage. Please check the working voltage first.

6). Please don't open the switch enclosure randomly, especially when the switch is powered on, there is risk of electric shock.

7). Please wear anti-static wrist strap when change the interface board,to avoid the static electricity damage the board.

**Check Installation Environment**

The switch is for indoor use only, please pay attention to the following problems when install the switch in a cabinet or put the device directly on the desktop.

1) The air vents of switch must have enough space to dissipate the heat inside enclosure.

2) A good heat dissipation system in the cabinet or on the desktop.
3) The cabinet or desktop strong enough to support the weight of switch and installation accessories.
**4)** Safe ground connection for the cabinet or desktop.

**Installation Tools**

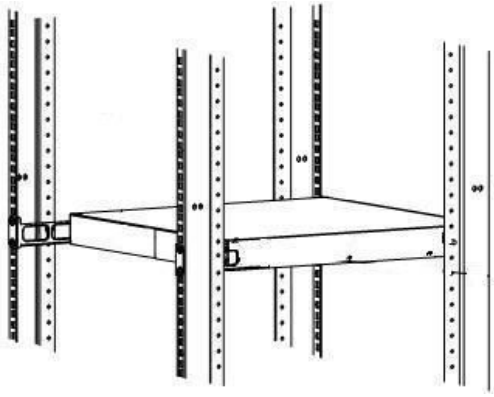
1) Flathead screw driver
2) Cross screw driver
3) Anti-static wrist strap

**Installation**

1.Install the Switch

1.1 Install the switch on a 19 inch standard cabinet

1) First fix the provided two L-shaped brackets on the two sides of switch.
2) Fix the switch on the rack with screws(screws are not provided).



1.2 Install the switch on the desktop

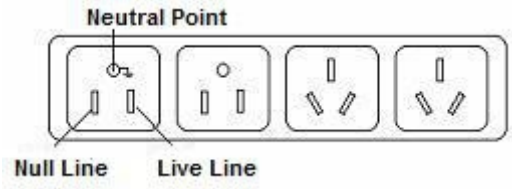
When there is no 19 inch standard cabinet, the switch is usually put on clean desktop. The operation is easier, please follow the below instructions:

1) Keep the desktop stable and safely grounded.
2) Set aside 10cm space around switch for heat dissipation.
3) Don't put any heavy device on the switch.

2.Connect the power cord and grounded cord

2.1 Select of AC Power Socket

The neutral one-phase 3-wire power socket is advised to adopt, or the multifunctional PC power socket. The neutral point of power supply must be well grounded, please check the grounded power supply before operation.




2.2 Connection of AC power cord

Step one: please connect one end of power cord to the power jack on the switch rear panel, Connect the other end to the AC power socket.
Step two: check the power indicator(PWR) on the front panel, if the LED is on, connection is Successful.

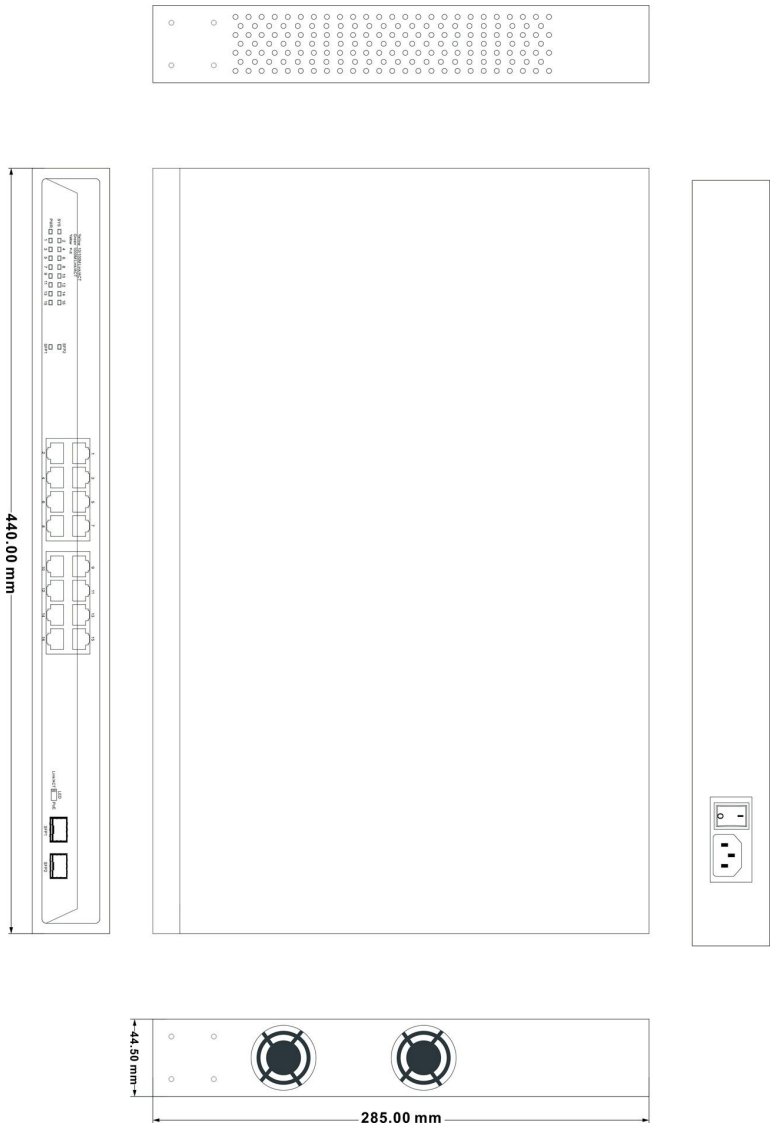
3.Test after Installation

Make sure the working voltage is the same with the rated voltage of switch.
Check the connection of grounded cord.
Check the connection of configuration cable and power input cord.
If the interface cable is partly deployed outdoor, please check the connection of anti-thunder AC power strip and interface anti-thunder device.

# Chapter 3 Appearance and Dimension

## 3.1 Appearance

## 3.2 Dimension



# CHAPTER 4 PACKLING LIST

Please check the packaging and accessories by your first using. Please inform us or our distributor if your equipments have been damaged or lost any accessories, we will try our best to satisfy you.

| Description | Quantity |
|---|---|
| POE switch | 1 |
| Power Cord | 1 |
| User manual | 1 |
| CD | 1 |
| Warranty card | 1 |
| Product Qualified Card | 1 |

# CHAPTER 5 Configure POE switch

## 5.1 User Login

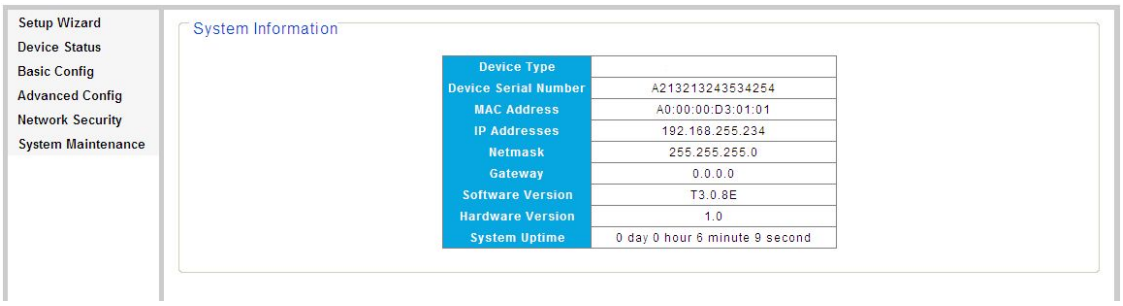
Switch adopt Web-based interface management, the default IP is 192.168.255.1. Please make sure the IP address of PC is in the same network segment with that of switch,or the PC can't access to manage the switch. After the setting of IP address, please input 192.168.255.1 in the browser to access the configuration interface of switch.
The Web management interface consists of five parts, which are switch status, basic configuration, advanced configuration, network security, system maintenance.


Picture5.1.1 Login Page

Enter user password in the above login page, the default password is admin. The system only support single user login, other logins will be refused until the user logs out.
If IP address conflict occurs, it suggests the latest user didn't log out successfully. Please reboot the device or try to log in again180s later.
It is advised to reset the IP address and password in first login, and make sure the switch is not configured in the same network segment with DHCP server or Internet Gateway device.

## 5.2 Setup Wizard

**5.2.1** Setup Wizard

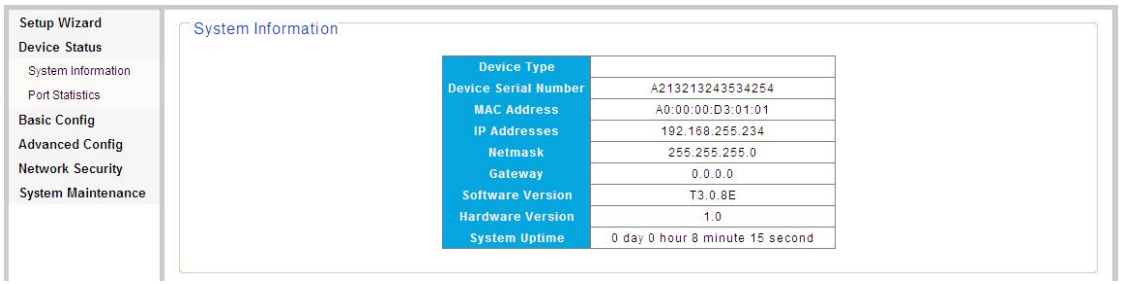



Picture 5.2.1 Setup Wizard

When use the switch at first time, please follow the configuration guide and set the basic configurations. The basic configurations include resetting IP address and password, revising the aggregation configuration and save the configuration.

# 5.3 Device Status

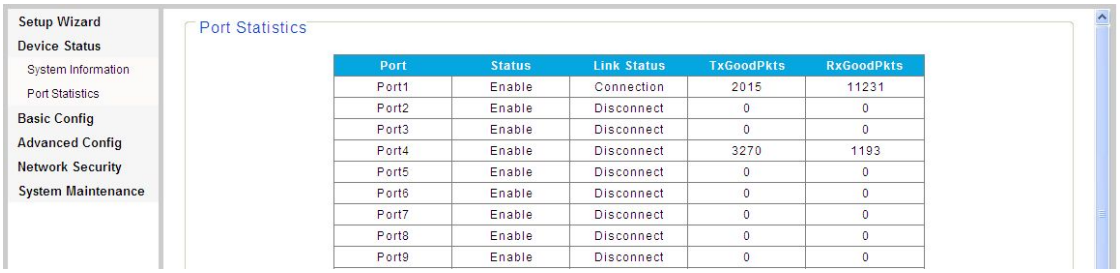
### 5.3.1 System Information




Picture 5.3.1.1 System Information

Device information can be checked in the above system information interface, the informations include: device model number, serial number, MAC address, IP address, network mask, network gateway, software version and hardware version.

### 5.3.2 Port Statistics



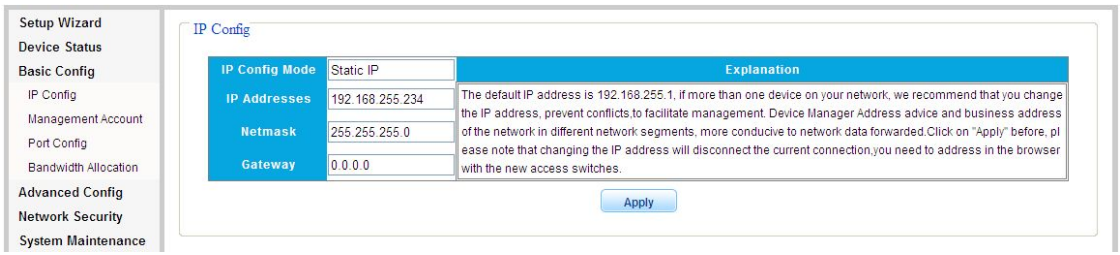

Picture 5.3.2.1 Port Statistics

This age allows you to check the port state, link state, quantity of forwarded/received correct packets and quantity of forwarded/received wrong packets. If there are too many wrong packets, it suggests the port has a poor working performance, users need to examine the connection network cable or the network card.

There is data reset button, you can clear the old data and start to get new data. This software version doesn't support real-time data refresh, to get new data please click the "refresh" button.

# 5.4 Basic Configuration

### 5.4.1 IP Config

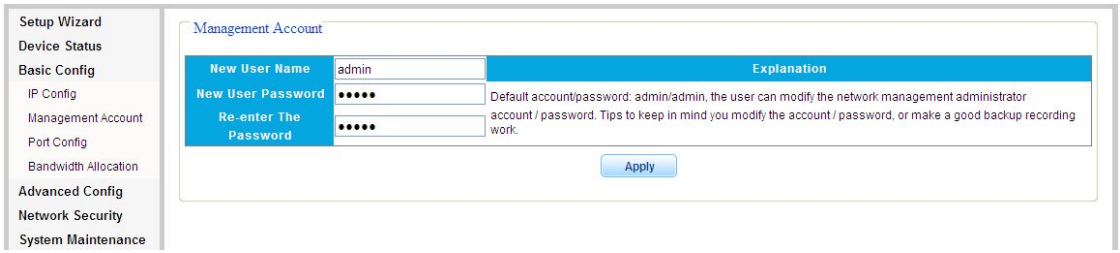



Picture 5.4.1.1 IP Config

IP address,subnet mask and network gateway can be revised in above page:

Notice: Don't modify the subnet mask unless exceptional case, login problem will be caused by improper modification.

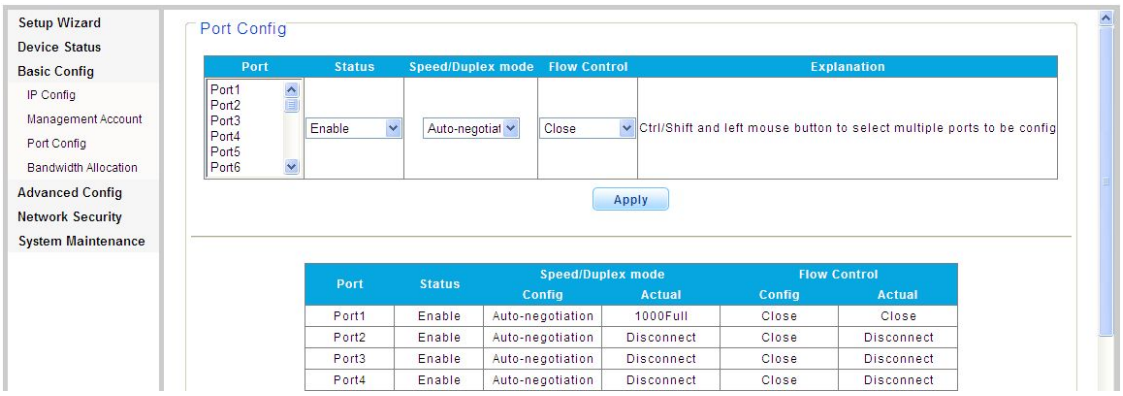
### 5.4.2 Management Account




Picture 5.4.2.1 Account Management

Users can register new user name and password or reset password in this page. It will automatically jump to login interface after the register or reset finished. The user can login in with new user name.
Notice: Remember your user name and password.

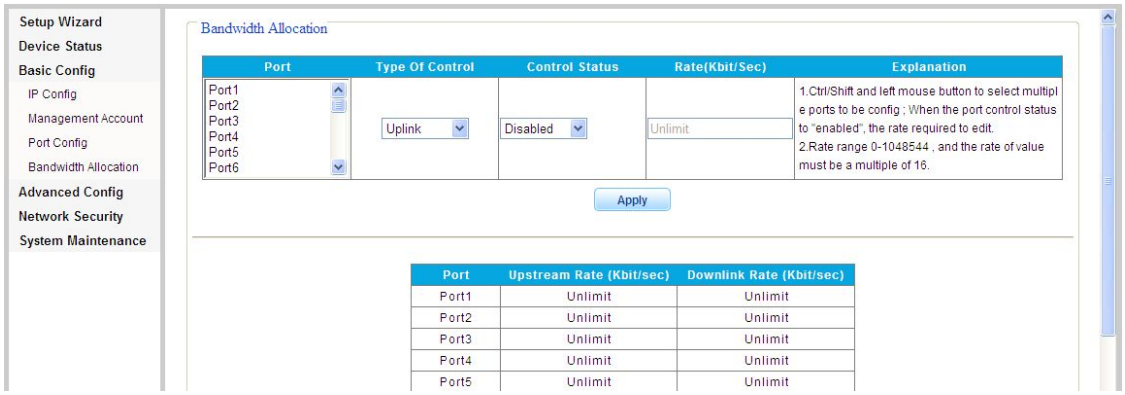
### 5.4.3 Port Config




Picture 5.4.3.1 Port Config

You can choose from two port configurations: Enable and Disable. Click “Enable” to open the port, click “Disable” to close the port, the default setting is “Enable”.
There are 5 types of port modes for choosing, they are 10Harf,10Full,100Harf,100Full, auto-negotiation. Default port mode is auto-negotiation, please change modes in pull-down list. The flow control function of system is closed in default resetting, open it when needed.

### 5.4.4 Bandwidth Allocation




Picture 5.4.4.1 Bandwidth Allocation

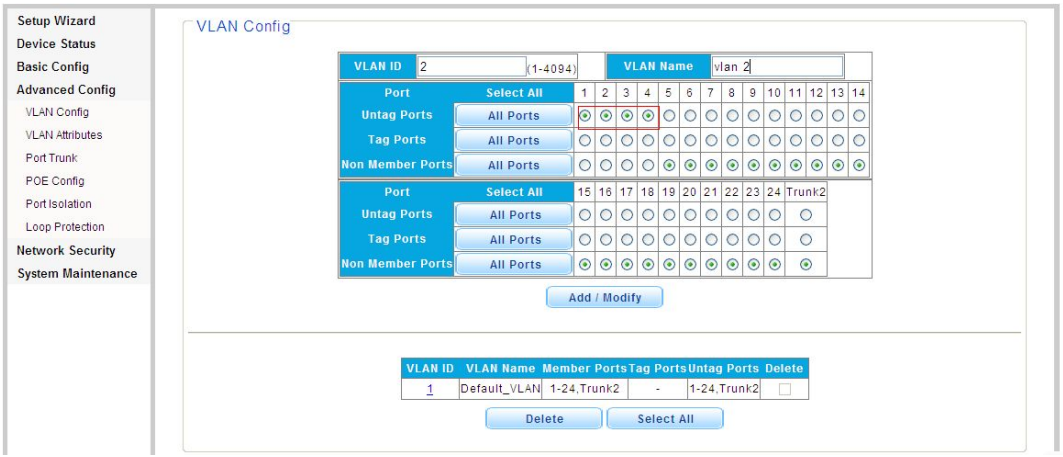
The *Bandwidth Page* allows user to define the bandwidth settings for specified egress and ingress interfaces. The user can limit maximum burst ingress flow, the port flow control function works when the bandwidth limit is exceeded. The flow control settings include “Enable” and “Disable”, default setting is “Enable”. Default flow rate is not limited, user can reset the flow rate between 0Kbit/sec -1048544Kbit/sec.

# 5.5 Advanced Config

## 5.5.1 VLAN Config

The System VLAN function consist of two parts: one is VLAN configuration, which mainly include creating VLAN, add VLAN membership; the other is VLAN property, the user can define PVID for every ports.

### 5.5.1.1 VLAN Configuration

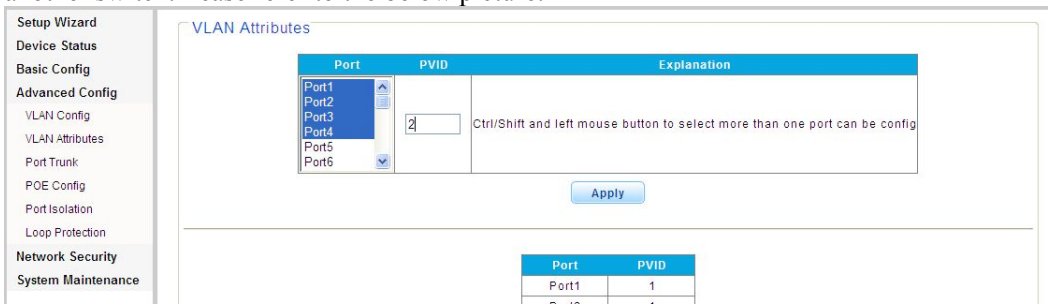



Picture 5.5.1.1 Vlan Configuration

The Switch allows users to create/delete VLAN, users can elect a port to associate with the VLAN membership. The default VLAN is “VLAN 1”, it’s the management VLAN, all switch ports are defaulted in this VLAN. Refer to Picture 5.1.1, users can create a new VLAN(called VLAN 2), and add port 1~4 to this new VLAN.

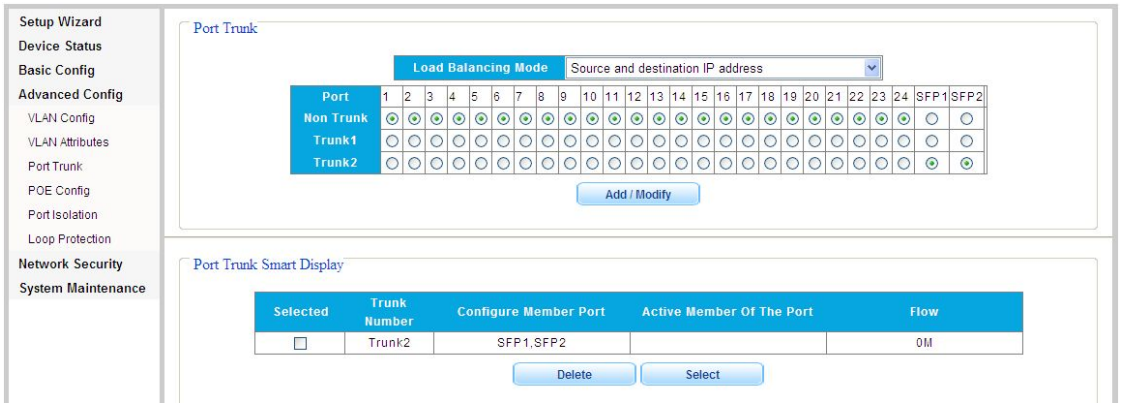
### 5.5.1.2 VLAN Attributes

Please configure default VLAN ID(PVID). PVID can be renamed according to Port VLAN ID when connect PDs to the switch, but the PVID will be defaulted as “1” when the port is used to uplink or downlink to another switch.Please refer to the below picture.




Picture 5.1.2 VLAN Attributes

### 5.5.2 Port Trunk



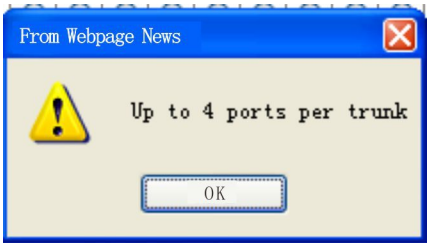

Picture5. 5.2.1 Port Trunk

The load balance modes of port aggregation include:

1. . Source MAC Address Mode: load balance calculation of packet-based source MAC address;
2. . Destination MAC Address Mode:load balance calculation of packet-based destination MAC address;
3. .Source and Destination MAC Address Mode: load balance calculation after XOR of packet source MAC address and destination MAC address;
4. . Source and Destination IP Mode: load balance calculation after XOR of packet source IP address and destination IP address.

The designation of balance calculation is based on overall situation, the default mode is " Source and Destination IP Mode". No modification needed except special requirement.

There is pull-down list in the port aggregation page, there are two aggregation groups in the list, each group supports maximum 4 ports. If the user configure more than 4 ports for a group, there will be a error prompt box displayed as below picture.



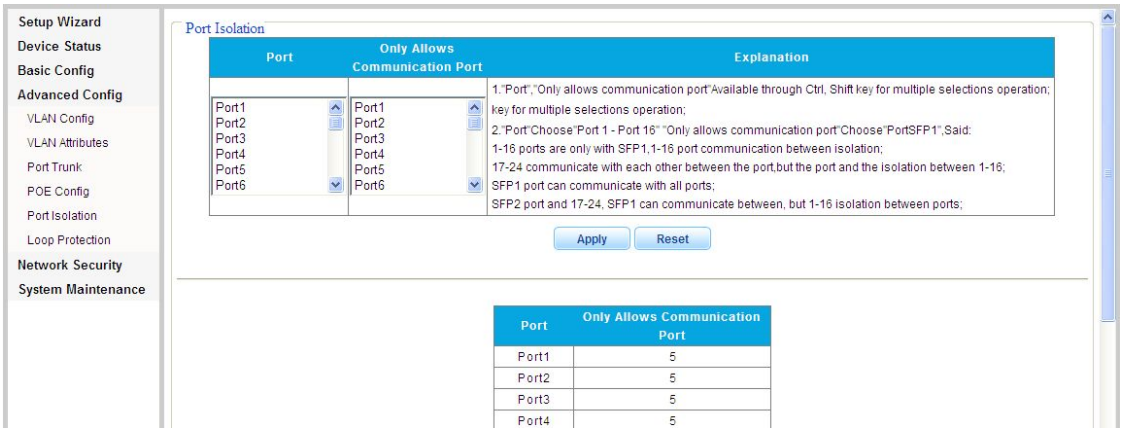

Picture 5.5.2.2 Port Trunk Error Prompt Box

### 5.5.3 Port Isolation

One of the routine method to isolate L2 Messages is associating different ports to different VLANs and the isolation between VLANs works, which cause the waste of VLAN resources.With the port isolation function, messages of different ports can be isolated even in the same VLAN.

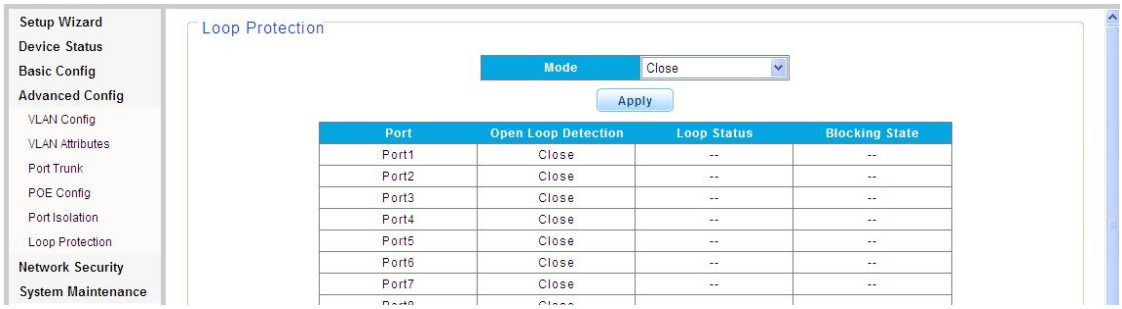
Users only need to put the ports to the isolation list, and the ports will be isolated.The port isolation function enables safer and more flexible network solutions.

As shown in below picture, Port 1-4 can only communicate with Port 5 and they are isolated from Port 6-24,SFP1 and SFP2. Port 1-4 are isolated from each other.




Picture 5.5.3.1 Configuration of Port Isolation

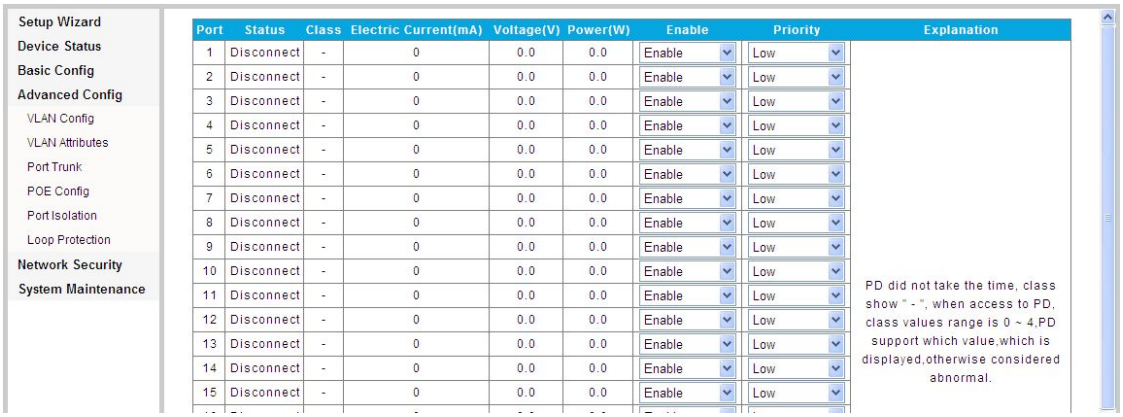
### 5.5.4 Loop Protection




Picture 5.5.4.1 Loop Detection

There are two Loop protection modes: Off and Loop Protection, the default configuration is Loop Protection mode. When there is a loop detected, the related port will be blocked and port indicator will be red on,and the buzzer will alarm.

### 5.5.5 PoE Config




Picture5. 5.5.1 PoE Config

This page allows users to configure PoE features.
Enable Bar: users can select from " Enable or Disable" in the Enable list, if "Disable" selected, the PoE power supply will be cut off;
Priority Bar: users can select from Priority List three priority levels " Low/ Middle/High" , specific ports can be configured as power supply priorities. The priority ports can get normal power supply when the PoE power supply is overloaded;
Current(mA) Bar: the output currents of specific ports are showed;
Voltage(V) Bar: the output voltages of specific ports are showed;

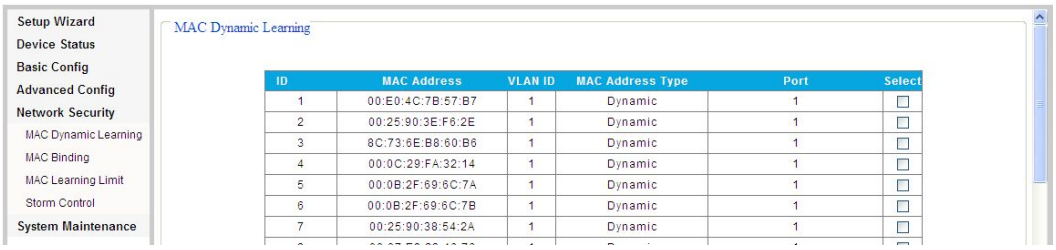
Power(W) Bar: the output power of specific ports are showed;
Class Bar: PoE output level is showed, “0” is defaulted, refers to” 0-13W”; “1” refers to “<4W”; “2” refers to “4-7W”; “3” refers to “7-13W”; “4” refers to IEEE 802.3at standard power output; “5/6” are undefined yet.
Status Bar: showing the PoE power supply state, connected / disconnected.Users can also check the state from LED indicator on front panel(Slide the toggle switch to PoE side first).

# 5.6 Network Security

## 5.6.1 MAC Addresses

Users can check MAC address list or clear the list here. The MAC addresses can be dynamically learned or statically configured, users can configure the MAC address mode. And the dynamical learning of MAC addresses can be limited, users can configure the quantity of port learning MAC addresses.

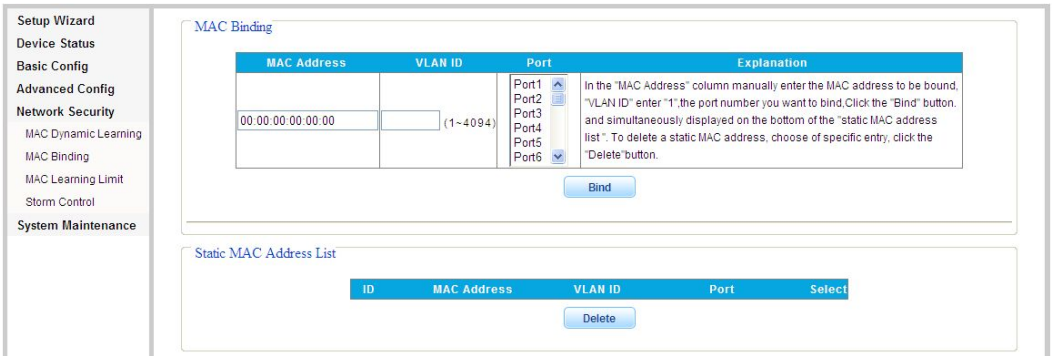
### 5.6.1.1 MAC Dynamic Learning




Picture5. 6.1.1 MAC Dynamic Learning

This page enables to check MAC address information( dynamic MAC address list), users can clear the list as needed. The fixed MAC address items can also be configured as static MAC addresses.

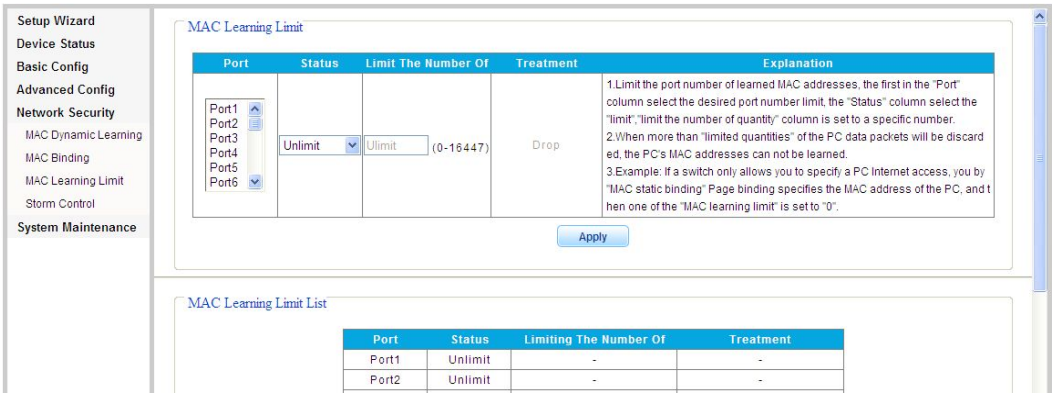
### 5.6.1.2 MAC Binding




Picture5. 6.1.2 MAC Binding

The fixed MAC address items can be manually configured as static MAC addresses, please select VLAN number and related Port number, if entered wrong number, there will be error prompt box displayed.

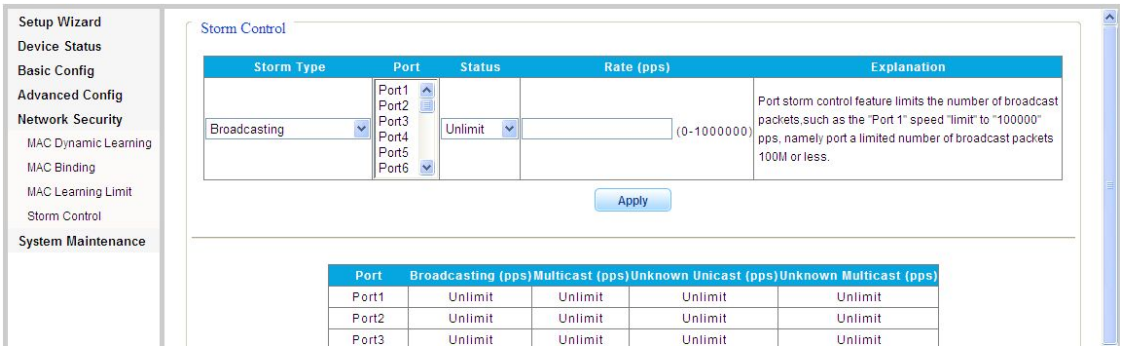
#### 5.6.1.3 MAC Learning Limit




Picture 6.1.3 MAC Learning Limit

The switch support port-based MAC learning limitation, users can defined the MAC learning quantity limitation of specific ports.

## 5.6.2 Storm Control

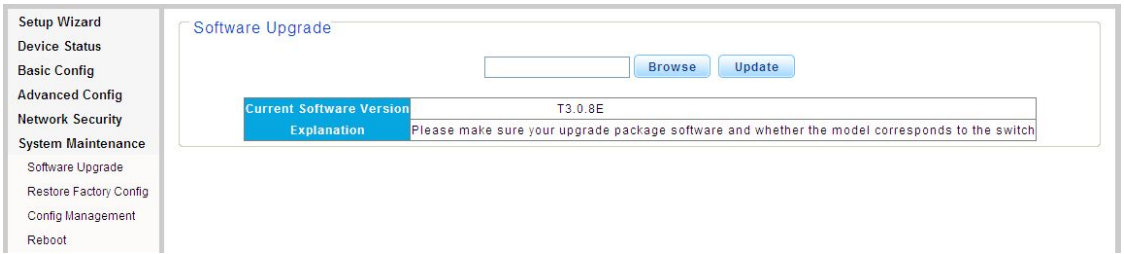



Picture 6.2.1 Storm Control

The switch supports multiple storm control modes: broadcast flow control, multicast flow control, unknown unicast flow control and unknown multicast flow control. The will be impact on network system if there are too many packets, the storm control function will help to suppress the storm problem.

# 5.7 System Maintenance

### 5.7.1 Software Upgrade




Picture 7.1.1 Software Upgrade

Users can upgrade the switch software version in this page, the current software version is displayed, users can compare the new version with old version.

### 5.7.2 Restore Factory Config


Picture 5.7.2.1 Restore Factory Config

Users can factory reset the configurations, IP addresses and user's passwords.
If the IP address or password is forgotten, please factory reset by connecting Port 9 and Port 16. Please follow the instruction:
Step one: Connect Port 9 and Port 16 with a RJ45 cable, the switch will reboot and factory reset.
Step Two: Several seconds after the connection, LED lights of all ports will flash for twice and finish the factory reset. After the lights flash, please disconnect the two ports.
After factory reset, please login the management system again. The login process is the same with first login.

### 5.7.3 Config Management


Picture 5.7.3.1 Config Management

This management page enables configure the saving, uploading and downloading of data. users can backup and recover the system configuration in this page.
Notes:
1. Please save the configurations, or the data will be lost after rebooting the switch.
2. All the modifications operated on configuration pages need to be saved here, or the modification will be ineffective after system rebooting.

### 5.5.7.4 Reboot


Picture 5.7.4.1 Reboot

The software upgrading and some configurations can only work after rebooting the switch system, please reboot the switch.

# Appendix Trouble shooting

| Problems | Reasons | Solutions |
|---|---|---|
| All LEDs are off when power on the switch | Power cord connection error or power supply failure | Check power cord connection and the power socket. |
| The LINK LED is unlit. | 1. Network cable is damaged or the connection is not firm.<br>2. Wrong network cable type or the cable is longer than 100m. | Change the network cable. |
| Slower data transmitting and packets loss. | The communication pattern of switch and PDs are not matched. | Changed to matched pattern or configure to auto-negotiation pattern. |
| The network cable works in one port ,doesn't work in another new port. | There is no data transmitting from PD and the switch can't learn a new address to do communication. | Waiting for 120s, the swith will get auto-updated address or transmitting data from the PD, the switch will get address then. |
| All the "ACT" LEDs flash and the network rate slow down | Caused by broadcast storm. | 1. Check if there is a loop problem, reasonably configure the network.<br>2. Check if there are large numbers of broadcast packets from specific sites. |
| Stop to work after working for a while. | 1. Abnormal power supply.<br>2. Overheating. | 1. Check power connection and the working voltage;<br>2. Check the working environment,including air hole and switch fan. |
| "PoE" LED indicators flash | 1. PoE port doesn't work<br>2. PD is overloaded<br>3. The network cable is damaged. | Check the network cable, port connection or reduce the load of PDs. |