# SICOM3024P Industrial Ethernet Switch User's Manual

KYLAND Technology Co., Ltd.

# SICOM3024P Industrial Ethernet Switch

**User's Manual** 

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# Preface

SICOM3024P is a high-performance network-managed industrial Ethernet switch specially designed by KYLAND Technology CO., LTD. for industrial applications. SICOM3024P has passed KEMA authentication. Its high-performance switch engine, solid and sealed case design, highly efficient single-rib heat dispersion shell without fans, 19" rack-mount mounting options, overcurrent, overvoltage and EMC protection at power input side, and excellent EMC protection of RJ45 port makes SICOM3024P applicable in harsh and dangerous industrial environments. The redundant function of optical fiber network, independent entire network management channel, redundant power input function, and entire network real-time management system provides multiplex guarantee for reliable operation of the system.

The user's Manual for SICOM3024P Industrial Ethernet Switch mainly introduces the technical principles, performance indexes, installation and commissioning, etc. It is a reference for users in system startup, expansion and routine maintenance. Also, it is a practical teaching material for user training and technician study.

This manual mainly includes the following contents:

Chapter 1 Overview and system features of SICOM3024P industrial Ethernet switch;

Chapter 2 Performance and service functions of SIOCM3024P industrial Ethernet switch;

Chapter 3 Hardware structure of SICOM3024P industrial Ethernet switch;

Chapter 4 Installation of SICOM3024P industrial Ethernet switch;

Chapter 5 Field test methods for SICOM3024P industrial Ethernet switch;

Chapter 6 Networking modes and system configuration of SICOM3024P.

Appendix A Introduces distribution rules of twisted pair cables and pins of SICOM3024P industrial Ethernet switch;

Appendix B Introduces cable types and specifications of SICOM3024P industrial Ethernet switch;

Appendix C Introduces abbreviations used in this manual.

Statement: With the upgrading and improvement of our products and technologies, what this document describes may not be in complete accordance with the actual product. For product upgrading information, please visit our company's website or directly contact our business representatives.

# **Notice for Safety Operation**

This product performs reliably as long as it is used according to the guidance. Artificial damage or destruction of the equipment should be avoided.

- Read this manual and put it away for future reference;
- Do not place the equipments near water sources or humid places;
- Do not place anything on power cable and put the cable in unreachable places;
- Do not tie or wrap the cable to prevent fire.
- Power connectors and connectors for other equipments should be firmly interconnected and frequently checked.

In the following cases, please immediately cut off the power supply and contact our company:

- 1. Water gets into the equipments;
- 2. Equipment damage or shell breakage;
- Abnormal operation conditions of equipment or the demonstrated performances have changed;
- 4. The equipment emits odor, smoke or makes noise.
- Please keep optical fiber plugs and sockets clean. During the operation of equipments, do not look directly at the cross section of optical fiber;
- Please keep the equipment clean; if necessary, wipe the equipment with soft cotton cloth;
- Do not repair the equipment by yourself, unless it is clearly specified in the manual.

Explanation of Warning Marks:

This manual uses two kinds of noticeable warning signs to arouse special attention of users during operation. The implications of these signs are as follows:



Warning: pay special attention to the notes behind the mark, improper operation will lead to serious damage of the switch or injury of the operating personnel.



Caution, attention, warning, danger: remind the operators places that need to pay attention to.

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# **Chapter 1 System Overview**

#### **1.1 Product Overview**

SICOM3024P is a high-performance network-managed industrial Ethernet switch specially designed by KYLAND Technology CO., LTD. for industrial applications. SICOM3024P has passed KEMA authentication. Its high-performance switch engine, solid and sealed case design, highly efficient single-rib heat dispersion shell without fans, 19" rack-mount mounting options, overcurrent, overvoltage and EMC protection at power input side, and excellent EMC protection of RJ45 port makes SICOM3024P applicable in harsh and dangerous industrial environments. The redundant function of optical fiber network, independent entire network management channel, redundant power input function, and entire network real-time management system provides multiplex guarantee for reliable operation of the system.

SICOM3024P series gigabit industrial Ethernet switch offers strong web-management which support CLI, Telnet, WEB, SNMP and OPC-based network management.

SICOM3024P supports 19 inch stable rack mounting for installation. It has four 1000M SFP interfaces or four 10/100/1000Base-TX, RJ45 connectors in the back panel, at most twenty-four fast Ethernet ports and three slots, each of which support eight SM or MM ports (10/100Base-TX RJ45 connector or 100Base-FX SM/MM fiber ports). The redundant SFP interfaces can form 1000M redundant fiber or cable ring network, recovery time < 50ms. Each RJ45 connector has auto-adaptive function, making it automatically configured to 10Base-TX 100Base-TX and full/half duplex mode and MDI/MDI-X connection.

#### 1.2 System Features

#### 1. High performance industrial Ethernet switch

Plug and play for 1000M SFP, fiber ports or RJ45 connectors

Four Gigabit fiber ports provide various network topologies for customers

Three 100M modules available, each of which has 8 ports (10/100Base-TX RJ45 connector or 100Base-FX

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SM/MM fiber ports). The standard distribution is 8FX, 8TX or 4FX+4TX.. Support various management software such as CLI, TELNET, SNMP and OPC. 10/100Base-TX, self-adoptive Ethernet connector (full/half duplex), MDI/MDI-X adoptive 100Base-FX full/half duplex SM/MM redundant connector Recovery time < 50ms, increasing the reliability of the system IEEE802.3/802.U/802.3X store and forward switching mode **IGMP Snooping** Port mirroring Port assembling Broadcast storm control DT-Ring, DT-Ring+, RSTP and other redundant protecting mechanism VLAN ACL Alarm function SNMP protocol 802.1P, IP TOS and DSCP priority configuration Transparent transmission of VLAN Tag packets FTP-based updating, easy for equipment management and renew RMON 《RMON (statistics, history, alarm, event)》 FDB query function RTC real-time clock module Temperature testing Device diary for user maintenance

#### 2. Industrial Power Design

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Provide industrial power input: 24VDC (18-36VDC), 48VDC (36-72VDC), 110VDC (82-185VDC), 220VAC/DC (85-264VAC/120-370VDC), redundant

Power input with over-current, over-voltage and EMC protection

#### 3. Rugged design

Ribbed heat-removal design (no fans); operation at -40°C to +75°C

Solid and closed case design, IP40, able to work in harsh environments

# 1. 3 Packing list and unpacking check

#### 1. Packing list

#### Please refer to the packing list

The packing case includes the following items:

SICOM3024P	1 unit
User's Manual for SICOM3024P Industrial Ethernet Switch	1 copy
Customer Service Guideline	1 copy
4 grounding cold pressed terminal, M3×8 grounding screw	1 piece each

#### 2. Unpacking check

Before opening the case, place it stably, pay attention to the direction of the packing case and ensure its right side is facing upward, so as to prevent SICOM3024P from falling from the case after opening it. If using a hard object to open the case, do not over extend the hard object into the case to avoid damage of the equipments inside it.

After opening the case, please check the amount of SICOM3024P equipments (including main unit of SICOM3024P, fittings of the equipment, user manual, customer service guideline) according to the packing list, and check the appearance quality of SICOM3024P.

Warning: For the built-in precise parts of the equipment, please handle with care and avoid strenuous vibration to avoid affecting the performances of equipments.

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# **Chapter 2 Performance Specifications**

# 2.1 System Specifications

The system performance specifications of SICOM3024P industrial Ethernet switch are shown in Table 2-1.

Table 2-1 System Specs

Specs	Description		
Quantity of RJ45 ports	At most 24 ×10 /100Base-TX		
Quantity of Gigabit	4×1000Base-SFP ports/10/100/1000Base-T(X)		
redundant ports			
Quantity of 100M redundant	At most 24 × 100Base-FX-SM/MM		
ports			
	Standard: IEEE802.3, IEEE 802.3x, IEEE 802.3u,		
	IEEE802.3ab, IEEE802.3Z, IEEE802.1w, IEEE802.1d,		
	IEEE802.1p, IEEE802.1q		
	Store-and-Forward speed: 1488100 bps		
System performance	Max. filtering speed: 1488100 bps		
	Switching mode: Store-and-Forward		
	Switching bandwidth of system: 32G		
	Electromagnetic compatibility interference: EN55022		
	Electromagnetic compatibility immunity: EN50082-2		
	Physical port: shielded RJ-45		
	RJ-45 port: 10/100Base-TX, supporting auto-negotiation		
Ethernet port	function		
	Port standard: in line with IEEE802.3 standard		
	Transmission distance: <100m		
	Optical power: >-13dbm (SM) >-20dbm (MM)		
	Receiving sensitivity: <-28dbm (SM) <-35dbm (MM)		
	Wave length: 1310nm (SM) 1550nm (SM) 1310 nm (MM)		
Fiber port	Transmission distance: 40-80Km(SM) <2km (MM)		
	(Gigabit) <5km (MM) (100M)		
	Connector type: LC, SC/FC/ST		
	Transmission rate: 1.25Gbps (Gigabit), 125Mbps (100M)		

Chapter Three Hardware Structure

	Input voltage: 24VDC (18-36VDC), 48VDC (36-72VDC),
Douron oundly	110VDC(82-185VDC),220VAC/DC(85-264VAC/120-370VDC)
Power suppry	Input power consumption: <35W
	Over-current Protection: build-in
	Physical dimensions (height×width×depth): 44 mm×482.6 mm
	×420 mm
	Mounting mode: 19' 1UStable rack mounting
Mechanical parameter	Heat removal method: Ribbed aluminum casing heat dissipation
Weenamear parameter	without fans.
	Outlet type: back outlet for service,
	Shell protection: IP40
	Weight: 5Kg
	Operating temperature: -40°C~75°C
Ambient conditions	Storage temperature: -40°C~85°C
	Humidity: 0~95% (non-condensing)

# 2. 2 Service Interface

- 24×100M ports. 1-24×100Base-FX SM/MM fiber ports with the transmission ability of 100Mbps and compulsory 100M half/full duplex working modes. 1-24-port 10/100Base-TX RJ45, Each RJ45 port has auto-adaptation function, capable of automatically configuring between 10Base-T and 100Base-TX and between full duplex and half duplex operation mode. The transmission distance is 100m max. Support line redundant technology, recovery time<50ms.</li>
- 4 redundant 1000Base-LX SM/MM optical fiber interfaces or 10/100/1000Base-TX RJ45 connectors. The maximum throughput of each pair of optical fiber interface is 100Mbps with compulsory 100M full duplex mode. They support optical fiber line redundancy technology, with the recovery time less than 50ms.
- 3. Conform to IEEE802.3, IEEE802.3U, IEEE802.3X , IEEE802.3Z, IEEE802.3ab, IEEE802.1w, IEEE802.1d, IEEE802.1p, IEEE802.1q.
- 4. Meanings of RJ45 port indicator: yellow lamp rate indicator; on:100M, off: 10M; Green lamp connection state indicator, on: effective connection of network; blink: network active; off: no connection. After 30 seconds of all lights on, the indication above will appear.

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### 2.3 Service Function

The service function for SICOM3024P mainly include:

#### **LED Indicator**

The LEDs (front panel) indicate the port status correctly including transmission rate, link status and system status.

#### Layer-2 Switching

Switches work in two ways: Cut-Through and Store-and-Forward. In Cut-Through, a data packet is immediately relayed further after detecting the target address; in Store-and-Forward, a data packet is first read-in completely and checked for errors before the switch relays the same. SICOM3024P employs Store-and-Forward that is a switching mode most widely used.

#### VLAN

VLAN will divide one network into multiple logical subnets. Data packets cannot be transmitted between different VLANs so as to control the broadcast domain and segment flow and improve the reliability, security and manageability. SICOM3024P series supports IEEE802.1q VLAN tag. It can be divided into up to 4094 VLANs based on ports. The VLAN division can be realized via WEB, CLI, Kyvision3.0 software.

#### **QoS Priority**

IEEE 802.1p is the most popular priority solution in the LAN environment. SICOM3024P series supports 802.1p standard, by which you can configure the port-based priority when the terminal does not support 802.1p and different priority for the ports is wanted.

#### **Port Trunking**

In SICOM3024P, multiple physical ports can be aggregated into one logic port, which has the same rate, duplex and VLAN ID. Port Trunking can be configured in one single switch for max 7 ports. In this way, the pressure of network traffic is reduced.

#### **Port Mirroring**

The data of one port can be mapped to another port for user to real-time monitor the communication.

#### **Configure Port Working Modes**

SICOM3024P is able to configure the working mode of all ports through management: full/half duplex adaptive, enforced full/half duplex, 10M/100M adaptive, enforced 100M full-duplex for 10M/100M fiber ports, enforced 1000M full-duplex for 1000M fiber/TP ports.

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#### **Configure Port Traffic Flow**

You can configure the TX and RX rate of all ports via the management software of SICOM3024P. For port of 100Mbps, it can be set as 128K \$256K \$512K \$1M \$2M \$10M \$50M \$100M. For Gigabit port, it can be set as 100M \$500M \$1000M.

#### IGMP

IGMP is Internet Group Multicast Protocol. SICOM3024P series offers IGMP monitor and query functions. Data packets can be transmitted to multiple necessary host computers to prevent overloading. This solves the problems of occupied bandwidth when broadcasting.

#### **Broadcasting Storm Control**

SICOM3024P series offers broadcast storm protection ensuring the smooth communication platform of the switch network. The switch will filter out the over flow once the bandwidth of broadcast flow exceed the limit.

#### **DT-Ring**

Each Ethernet port or fiber port of SICOM3024P series is able to configure as redundant mode or not. It makes you form different Gigabit or 100M redundant ring easily and flexibly. The recovery time is less than 50ms.

# **Chapter 3 Hardware Structure**

### 3. 1 System Structure

The hardware structure is as Figure 3-1:



Figure 3-1 Hardware Structure

It includes:

- 1. ASIC technology, providing layer two wire-speed forwarding
- 2. Fiber ports use modules receiving and sending messages by light
- 3. Industrial power supply with over-current, over-voltage and EMC protection
- 4. All TP ports with EMC protection

### **3.2** Device Structure

#### 3. 2. 1 Case

SICOM3024P case is 19' stable rack mounting type structure. The entire unit has a six-side-enclosed structure, with protection class up to IP40. The case's left and right side plates made of ribbed aluminum profile are a part of the heat dispersion system of the entire unit. The single-rib structure can double heat

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dissipation area. The heat generated when the unit is working is effectively dissipated into the environment via the ribbed heat-dissipation surface in the form of radiation and convection greatly increasing the high temperature resistance of equipment. Discarding the traditional form of axial fan heat dispersion reduces power consumption of the entire unit and increases the stability of the system. The figuration of SICOM3024P case is shown in Figure 3-1.

Its contour dimension is 44 mm×482.6 mm×420 mm (height×width×thickness)



Figure 3-2 outline drawing of SICOM3024P

Warning: The shell of this switch is a part of the heat dissipation system of the unit. It may get hot during working, so never touch the shell when the equipment is working to avoid burning.

#### 3. 2. 2 Front Panel

SICOM3024P Industrial Ethernet switch's front panel is shown as Figure 3-3:



Figure 3-3 SICOM3024P's front panel





#### 3. 2. 3 Back Panel

SICOM3024P Industrial Ethernet switch's front panel is shown as Figure 3-4



Figure 3-4 SICOM3024P's back panel

#### **Gigabit Optical Fiber interface**

SICOM3024P has four redundant 1000M SFP ports available or four 10/100/1000Base-TX RJ45 connectors with the port No. of G1, G2, G3 and G4. Ports are plug and play units. Fiber ports use LC connectors and Gigabit TP ports use RJ45 connectors. Optical fiber interface should be used in pairs (TX and RX are a pair), and TX interface is the transmitting end connected to the receiving end RX of the optical fiber interface of another remote switch; RX is the receiving end connected to the transmitting end TX of the same optical fiber interface of the same remote switch. Users can form redundant fiber ring network or redundant cable ring network with four redundant 1000Base-LX or four 10/100/1000Base-TX RJ45 connectors with recovery time less than 50ms.



Figure 3-4 SFP Plug and Play unit

Gigabit SFP FX/TX Plug and play steps:

Insert SFP unit, Figure 3-4:

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1. Observe the breaks after getting SFP units. There are two breaks on Fiber-port (LC) and one break on Ethernet port (RJ45) of SFP unit.

2. Insert the SFP into case backward to the PCB board. The position is right when you hear a sound. Ready for use if the SFP handle is horizontal with connector.

Pull SFP unit:

- 1. The fiber part could be separate from SFP case when the angle between handle of SFP unit and connector reaches 90 degree.
- 2. Pull out the fiber part from case.



Figure 3-6 Plug and Play SFP

#### 100M fiber ports

SICOM3024P offers twenty-four pairs of redundant 100Base-FX full duplex single mode or multi-mode optical fiber interface with SC FCor ST connectors. Optical fiber interface should be used in pairs (TX and RX are a pair), TX interface is the transmitting end connected to the receiving end RX of the optical fiber interface of another remote switch; RX is the receiving end connected to the transmitting end TX of the same optical fiber interface of the same remote switch. Users can form redundant fiber ring network with 100Base-FX with recovery time less than 50ms.

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#### **RJ45** interface

SICOM3024P offers at most twenty-four 10/100Base-TX RJ45 connectors. Each RJ45 port has auto-adaptation function, support MDI/MDI-X connection and can be connected to end equipments, servers, hubs or other switches in straight-through or cross-over way. Each port supports IEEE802.3x auto-adaptation, so the most suitable transmission mode (half duplex or full duplex) and data rate (10 Mbps or 100Mbps) will be automatically selected (the connected equipment should also support this characteristic). If the equipment connected to these ports does not support auto-adaptation, the ports will be able to send at proper speed but transmission mode is default as half duplex. Users can form redundant cable ring network with 10/100Base-TX RJ45 connectors with recovery time less than 50ms.

#### **LED** indicators

The indicators on the front panel of SICOM3024P can show system operation and port status, helping detect and eliminate faults.

Table 3-1 describes the meanings of all indication lights on the front panel.

Table 3-1 LED indicators

LED	Conditio	Stata				
LED	n	State				
	System state LED					
	Blinking	Switch operates normally				
RUN	1Hz	Switch operates normany				
	OFF	Switch not operate				
		Alarm state LED				
ALARM	On	Alarming				
112/112.11	Off	Working smoothly				
		Power supply LED				
POW1 2	On	Working smoothly				
10,11,2	Off	Working wrong				
Gigabi	t fiber port s	tate LED (optical fiber interface G0、G1、G2、G3)				
DPX	On	Full duplex connection				
DIA	Off	Half duplex connection				
LINK	On	Effective network connection has been established for the				
LINK	Oli	port.				

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Chapter Three Hardware Structure

	Blinking	Network activities of the ports					
	No effective network connection for the ports						
	100M fiber port and Ethernet RJ45 port state LED						
Each RJ45 E	Each RJ45 Ethernet port has two indicators, a yellow lamp and a green lamp. The yellow						
lamp indicate	es port speed, a	and the green lamp indicates port link state.					
10M/100M	On	100M working status (i.e. 100Base-TX)					
(Yellow)	Off	10M working status (i.e. 10Base-T)					
	On	Effective network connection has been established for the port					
LINK/ACT	Blinking	Network activities are available at the port					
(Green)	Off	No effective network connection has been established for the port.					

### Power input terminal

Choose the power supply according to the requirements on the product label and use several power supply wires whose diameter is more than 0.75 mm  $^2$ 

Connection sequence is shown in Figure 3-7. Connection and mounting procedures are as follows:

- 1. Strip 5mm-long sheath from power cable and twist the bare copper wires together into a bundle; welding it to the U-shape terminal and use pyrocondensation pipe to protect it.
- 2. Use a 3 mm cross-slot screwdriver to unscrew the "power cable locking screw", insert the power cable into the hole at the terminal tail, and screw down the "power cable locking screw";

Insert the power terminal into the DC power socket of the equipment and use a 2.5mm one-slot screwdriver to screw down the two "terminal locking screws" to firmly connect the terminal with the power connector.



3-7 DC Power

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#### Alarm interface

The interface is used for alarm output when the power supply is cut off. When the power supply works smoothly, the normally open contact of the alarm relay is on and the normally closed contact is off; when the power supply is cut off, the normally open contact is off and the normally closed contact is on. The normally open and closed contacts send out information through the green three-core 3.81mm interval port.





Instruction: NO. 1 and 2 are normally closed contacts and NO.2 and 3 are normally open contacts. When the device works smoothly, NO.1 and 2 contacts are off and NO.2 and 3 contacts are on; when the power supply is cut off, NO.1 and 2 contacts are on and NO.2 and 3 contacts are off.

Device performance: SPDT relay with the internal power of 200mW.

External port parameter: Max voltage 250VAC, 220VDC; max current 2A

#### RS232 Network management interface (CONSOLE)

The network management interface of SICOM3024P is shielded RJ45 connector and its interface communication standard is 3-wire RS232. Users can use a network management cable with end bearing RJ45 plug and another end DB9F plug to connect the network management interface of SICOM3024P with the 9-pin serial port of the control computer. Operating the local management software to set up SICOM3024P by CLI. The wiring sequence for network management interface of SICOM3024P and the 9-pin serial port of PC computer is shown in Figure 3-9.



Figure 3-9 CONSOLE wiring diagram

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# **Chapter 4 Hardware Installation**

### 4. 1 Installation requirement

As a monomer structure switch. It can be fixed on standard 19' rack .

Before installation, make sure all conditions match the installation requirements.

1: Power supply: 24VDC (18~36VDC), 48VDC (36~72VDC), 110VDC (82~185VDC), 220VAC/DC (85~264VAC/ 120~370VDC)

- 2: Environment: -40°C~75°C; Relative humidity(non-condensing) 10%~95%
- 3: Earth resistance:  $<5\Omega$
- 4: Make sure all fiber units are ready for use
- 5: Avoid direct sunshine, heating device and strong EMC area
- 6: SICOM3024P should be installed on 19' rack.
- 7: Check whether there are cables and connectors needed.

### 4. 2 Mainframe installation

#### Stable rack mounting

SICOM3024P Industrial Ethernet switch proved any rack mounting, before mounting; make sure the following is ready:

- 1. Make sure that there is still have enough space for SICOM3024P.
- 2. The power supply is available for SICOM3024P.

After selecting the mounting location, fix SICOM3024P with M5 $\times$ 14 as the following figures.

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Figure 4-1 SICOM3024P mounting



4-2 Mounting SICOM3024P on the rack

# 4.3 Cable connecting

After fixed the SICOM3024P, the next step is to connect the cables.

#### 1: Service interface.

SICOM3024P has 10 /100Base-TX Ethernet RJ45 ports, able to connect with the terminal equipment by linear cable and with network device by cross cable.

#### 2: Connecting power

The power supply of SICOM3024P should be in accordance with one that on the label. After connecting all the cables, the power supply can be connected.

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# 4. 4 Optical Fiber Connection

SICOM3024P provide at most twenty-four redundant 100Base-FX full duplex ports (single mode or multi-mode), able to form fiber ring network with recovery time less than 50ms. Port types can be chosen from SC, FC and ST.

CAUTION: This switch use fiber as transmitting medium, in order to avoid hurt by the laser, don't look the fiber port and terminator directly after electrifying

The connecting procedure as below

1: Remove the rubber cape of the fiber interface. and keep them for protecting the ports when they are not used.

2: Check whether the ports are clean or not. Use wet handkerchiefs or cotton balls to sweep the cable connectors.

3: Connecting the fiber port between the switch and terminal equipment.

4: Check the port LINK/ACT LED.

## 4.5 Cable wiring

Cable wiring should meet the following requirements:

- 1. Before cable wiring, check whether the specifications, models and quantities of all cables comply with the construction drawing design and contract requirements.
- Before cable wiring, it is necessary to check whether there are damaged cables and whether the cables are accompanied by ex-factory records and vouchers attesting their quality such as quality assurance certificate etc.
- 3. The specifications, quantities, route directions and laying position of the cables to be laid should meet the design requirements of construction drawings. The laying length of each cable should be determined according to its actual position.

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- 4. No intermediate break or joint is allowed for the cables to be laid.
- 5. User's cables and power cable should be laid separately.
- Inside walkways, the cables should be properly arranged in good order, with uniform, smooth and flat turnings.
- Cables should be straightly laid in cable channels. Extruding of cable from cable channels to block other outlet or inlet holes is not allowed. The cables at the outlet part of cable channel or at turnings should be bundled and fixed.
- 8. If cables, power line and grounding conductor are laid in the same channel, cables, power line and grounding conductor should be not folded or blended together. If a cable line is overly long, coil and place it in the middle of the cabling rack, do not let it cover on other cables.
- 9. When laying the pigtail, avoid knotting of optical fiber cable, minimize the amount of turnings and avoid turnings with overly small radius. Bundle pigtails in proper tightness and avoid too tightly bundling. If laid on a cabling rack, it should be placed separately from other cables.
- 10. There must be the relevant marks at both ends of cable and the information on the marks should be explicit to facilitate maintenance.



When laying pigtails, prevent optical fiber cable from knotting, minimize the amount of turnings and avoid turnings with too small radius, because turning with too small radius will result in serious consumption of optical signal of links, affecting communication quality.



# **Chapter 5 Test methods**

### 5.1 Self inspection

When offering power supply to the equipment, all service indicator light will flash. Thirty seconds after that, the RUN will flash, indicating that the device is working smoothly.

### 5. 2 TP Port Test

Showing as 5-1, after electrifying, connect the TP port with the computer, send the "ping" command to each other. Each part should receive complete command. The yellow indicator light will light (100M state)or quench (10M). These state shows the TP port are in good condition. Test other TP ports in the same way.



5-1 TP port test

## 5.3 Fiber Port Test

Connect two equipments as picture 5-2 and connect each equipment with computer through TP port. Send the "ping" commands to each other, and both parts should receive complete command, and the LINK/ACT lamp should light. These show the Fiber port are in good condition. Test other fiber ports in the same way.

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Figure 5-2 Fiber port test

#### PING commands example:

Suppose the IP address for one computer is 192.168.100.10 and the other one is 192.168.100.11, operate the "begin" menu on the one computer, and select the "operation" item. Input "cmd" or "command", sending Ping 192.168.100.11 –1 1000 -t, operate the "begin" menu on the second computer, and select the: operation" item. input "cmd" or "command", sending ping 192.168.100.10 –1 1000 –t. return "Reply from 192.168.100.11 : bytes=1000 time<10ms TTL=128",for the second computer, Return "Reply from 192.168.100.10: bytes=1000 time<10ms TTL=128",after ten minutes for operating ,use CTL+C command to Stat. the missing rate. If the missing rate is "0" shows the equipment are in good condition



# **Chapter 6 Network Topology**

### 6. 1 Network topology

SICOM3024P provides one to twenty-four 10/100Base-TX Ethernet RJ45 port. Each port can be connected to the terminal directly and four redundant 1000Base-LX SM/MM fiber ports or four 10/100/1000Base-TX RJ45 connectors. Users can form redundant Gigabit core fiber ring network with redundant fiber ports, recovery time less than 50ms. They can also form redundant 100M ring network with 100Base-FX SM/MM ports or RJ45 connectors. It can be widely used in various industrial field.



图 6-1 SICOM300 build the redundant ring network

### 6. 2 System configuration

SICOM3024P is an integrated industrial Ethernet switch with twenty-four 100M ports and 10/100Base-TX RJ45 connectors. Detailed configure showing as table 6-1

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Table 6-1 SICOM3024P configure table

SICOM3024P	Port description	Power
	Four Circobit SED (or	
SICOM3024P-4GX(T)-4M(S)-20TX	10/100/1000BASE-1(X),RJ45) ports, four	48VDC
	100BASE-FX, SM or MM(FC/SC/ST), twenty	110VDC
	10/100Base-TX	220VDC/VAC
	Four Gigabit SFP (or	Redundant
SICOM3024P-4GX(T)-8M(S)-16TX	10/100/1000BASE-T(X),RJ45) ports, eight	or not
	100BASE-FX, SM or MM(FC/SC/ST), sixteen	
	10/100Base-TX	
	Four Gigabit SFP (or	
	10/100/1000BASE-T(X),RJ45) ports, twelve	
SICOM3024P-4GX(1)-12M(S)-121X	100BASE-FX, SM or MM(FC/SC/ST), twelve	
	10/100Base-TX	
	Four Gigabit SFP (or	
	10/100/1000BASE-T(X),RJ45) ports, sixteen	
SICOM3024P-4GX(1)-16M(S)-81X	100BASE-FX, SM or MM(FC/SC/ST), eight	
	10/100Base-TX	
	Four Gigabit SFP (or	
	10/100/1000BASE-T(X),RJ45) ports, twenty	
SICOM3024P-4GX(1)-20M(S)-41X	100BASE-FX, SM or MM(FC/SC/ST), four	
	10/100Base-TX	
	Four Gigabit SFP (or	
	10/100/1000BASE-T(X),RJ45) ports,	
SICOM3024P-4GX(1)-24M(S)	twenty-four 100BASE-FX, SM or	
	MM(FC/SC/ST)	
SICOM3024P-4GX(T)-24TX	Four Gigabit SFP (or	
	10/100/1000BASE-T(X),RJ45) ports,	

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SICOM3024P Industrial Ethernet Switch User

	twenty-four 10/100Base-TX
SICOM3024P-4M(S)-20TX	Four 100BASE-FX, SM/MM(FC/SC/ST), twenty 10/100Base-TX
SICOM3024P-8M(S)-16TX	Eight 100BASE-FX, SM/MM(FC/SC/ST), sixteen 10/100Base-TX
SICOM3024P-12M(S)-12TX	Twelve 100BASE-FX, SM/MM(FC/SC/ST), twelve 10/100Base-TX
SICOM3024P-16M(S)-8TX	Sixteen 100BASE-FX, SM/MM(FC/SC/ST), eight 10/100Base-TX
SICOM3024P-20M(S)-4TX	Twenty 100BASE-FX, SM/MM(FC/SC/ST), four 10/100Base-TX
SICOM3024P-24M(S)	Twenty-four 100BASE-FX, SM/MM(FC/SC/ST)
SICOM3024P-24TX	Twenty-four 10/100Base-TX, dual redundant power supply

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# **Chapter 7 WEB Management**

SICOM3024P support WEB page management, through which you can monitor the working state of the switch, configure the switch, update the software and so on.

### 7.1 Login Web Page

Connect the switch with a computer and input the IP address, for example, "192.168.1.71", in the IE browser, a window will appear as Figure 7-1. The default user name and password are admin and 123. After fill them in, click "OK" to enter.

输入网络	密码				×
<b>@</b>	该安全网站	(地址 192.168.0	.2)要求您登录。		
۶Ű	请键入 SICO	∭ 所使用的用户名	和密码。		
	用户名 (1)	admin		•	
	密码(E)	***		_	
	□ 将密码存	入密码表中( <u>S</u> )			
			确定	取消	

Figure 7-1 Login Page

The main page is as Figure 7-2

At the left side of the page is the management tree menu, including device state, basic configuration, advanced configuration, device management, save all changes, restore default settings and so on. Click each menu to open its submenu.




Figure 7-2 Main Page

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# 7. 2 Device Status Display

The menu of device status includes four submenus: Basic Information; Port status, Port Traffic Flow and System Operation Information ...

#### 7. 2. 1 Basic Information

Click "Basic info" and enter the interface as shown in Figure 7-3, which displays MAC address, IP address, and software version, etc.

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Bits       Mode       Image: Construct of the status of the statu	KYLAND SICOM3024P	Web Management System				中文 About Help Exit
Colloce Up   Depand       ■ Basic Configurations       ■ Davis Status						
Barry Configurations     Item     Information       Image: Configurations     MAC Address     ID-1E-CD-17-CD-0F       Image: Configurations     IP Address     ID2-CD-17-CD-0F       Image: Configurations     Device Name     VTLND       Image: Configurations     Device Model     Device Model	Close Up   CExpand	📖 Basic Info				
MCAddress     Dot'to Status       Bott Status     NAC Address       Dot'to Status     BN       Basic Configurations     IP Adress       Device Management     Ouview Management       Status     Device Model       Status     ID 2 VI 3.8 (2009 4-8 1310)	SICOM3024P Web Manager	,	Item		Information	
SN       SN       SN07090016         Port Statistics       IP Address       192.460.2         The dorive Run Info       Stubert Mask       265.355.256.0         Statistics       Gayway       192.188.0.1         Advanced Configurations       Device Nanagement         Save Configurations       Device Nane Vrision         Solucity Output       10.2 VI.3.8 (2009-4.8 12.19)	🖶 💋 Device Status		MAC Address	00-1E-CD-17-C0-0E		
Port Status     Port Stat	"Basic Info		SN	S3M0T090016		
Subort Marking       Subort Marking         Advance       OutwrWar         IP2 1880.1       Device Management         Save Configurations       Device Model         Software Version       Dr.2 VI.3.8 (2009-4-8 13:19)	Port Status		IP Address	192.160.0.2		
Basic Configurations     0:dvtWw     192.188.0.1       Basic Configurations     Device Name     VrUND       Device Management     Device Model     Device Model       Save Configurations     Device Model     Device Model       Load Default     0:dvtWw     192.188.0.1	The device Rup Info		Subnet Mask	255.255.255.0		
Advanced Configurations Covice Management Save Configurations Code Model Covice Model Code Default Cod	Basic Configurations		GateWay	192.168.0.1		
Device Mondeel Device Mondeel Software Version 10:2 VI 3.8 (2009-4-8 13:19)	Advanced Configurations		Device Name	KYLAND		
Satware Configurations Bottware Version Dr 2 VI 3.8 (2009-4-8 12.19)	B Device Management		Device Model			
Load Defeuit:	Save Configurations		Software Version	ID:2 V1.3.8 (2009-4-8 13:19)		
	- Second Default					
<u> </u>	<u>4                                    </u>					
Kyland Technology Co. LTD. All Rights Reserved			Kyland Technology Co	), LTD. All Rights Reserved		

Figure 7-3 Basic Info

## 7. 2. 2 Port Status

Click "Port Status" and enter the page as shown in <u>Figure 7-4</u>, which displays the link state, port speed, full/half <u>duplex and flow control stat</u>us, etc.



024P Web Managem	PortID	State	Link	Speed	Duplex	Flow Control
e Status	FE1	Enable	Down			
c Info	FE2	Enable	Down			
status	FE3	Enable	Down			
tatistics	FE4	Enable	Down			
fourationr	FES	Enable	Down			
Configurations	FE6	Enable	Down			
nanement	FE7	Enable	Down			
ourations	FEG	Enable	Down			
ult	FE9	Enable	Down			
	FE10	Enable	Down			
	FE11	Enable	Down			
	FE12	Enable	Down			
	FE13	Enable	Up	100	Full-duplex	no
	FE14	Enable	Down			
	FE15	Enable	Down			
	FE16	Enable	Down			
	FE17	Enable	Down			
	FE19	Enable	Down	1.000		
	FE19	Enable	Down			
	FE20	Enable	Down			
	FE21	Enable	Down			
	FE22	Enable	Dawn			
	FE23	Enable	Down			
	FE24	Enable	Down			
	GE1	Enable	Down			***
	GE2	Enable	Down			
	GE3	Enable	Down			
	GE4	Enable	Down		-	

Figure 7-4 Port State

#### 7. 2. 3 Port Flow

<u>Click</u> "<u>Port</u> Statistics" and enter the page as shown in Figure 7-5 which <u>display</u>s the port flow statistics of each port.



ST ATUS	Port IC	State	Link	Bytes Sent	Packets Sent	Bytes Received	Packets Received	CRC Error	Packets < 64 bytes
- tota	FE1	Enable	Down	0	0	0	0	0	0
c Info	FE2	Enable	Down	0	0	0	0	0	0
Status	FE3	Enable	Down	0	0	0	0	0	0
device Rup Info	FE4	Enable	Down	0	0	0	0	0	0
onfigurations	FE5	Enable	Down	0	0	0	0	0	0
d Configurations	FE6	Enable	Down	0	0	0	0	0	0
nagement	FE7	Enable	Down	0	0	0	0	0	0
figurations	FEB	Enable	Down	0	0	0	0	0	0
ult	FE9	Enable	Down	0	0	0	0	0	0
	FE10	Enable	Down	0	0	0	0	0	0
	FE11	Enable	Down	0	0	0	0	0	0
	FE12	Enable	Down	0	0	0	0	0	0
	FE13	Enable	Up	1643697	3565	394500	2624	0	0
	FE14	Enable	Down	0	0	0	0	0	0
	FE15	Enable	Down	0	0	0	0	0	0
	FE16	Enable	Down	0	0	0	0	0	0
	FE17	Enable	Down	0	0	0	0	0	0
	FE18	Enable	Down	0	0	0	0	0	0
	FE19	Enable	Down	0	0	0	0	0	0
	FE20	Enable	Down	0	0	0	0	0	0
	FE21	Enable	Down	0	0	0	0	0	0
	FE22	Enable	Down	0	0	0	0	0	0
	FE23	Enable	Down	0	0	0	0	0	0
	FE24	Enable	Down	0	0	0	0	0	0
	GE1	Enable	Down	0	0	0	0	0	0
	0E2	Enable	Down	0	0	0	0	0	0
	0E3	Enable	Down	0	0	0	0	0	0
	GE4	Enable	Down	0	0	0	0	0	0

Figure 7-5 Port Flow

## 7. 2. 4 System Operation Information

Click "System Operation Info" and enter the page as shown in Figure 7-6 which displays device running time, CPU using rate, device temperature and system time information.



KYLAND SICOM3024P V	P Web Management System	中文 About Help Exit
	- David a David o	
Close Up   DExpand		
SICOM3024P Web Managerr	err	
Basic Iofo	Device Run Times 00 25M 105	
	CPU USE: 0%(short-term) 2%(lono-term)	
- Port Statistics	Device temperature, +45℃	
The device Run Info	Device Time 2000.01.29 23:26:11 Monday	
Advanced Configurations	ns	
🖲 🙍 Device Management		
Save Configurations		
Coad Default		
4	<u>x</u>	
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Figure 7-6 System Operation Information

## 7. 3 Device Basic Configuration

In the menu of "Device Basic Configuration", there are functions to configure IP address, device basic information, port, to change password, to query software version and to upgrade software, etc.

### 7.3.1 IP Address Configuration

<u>Click the "IP address</u>" in the left <u>menu and enter the page (as Figure 7-7)</u>, where you can modify <u>IP address</u>, subnet mask and gateway with clicking "Apply". To make the modification take effect, you need to restart the switch.



KYLAND SICOM3024P W	leb Management System 中文 About Help Exit
Close Up   DExpand	🚝 IP Address
Close Up   DExpand SICOM3024P Web Manager Basic Configurations Basic Configurations Configure Port Software Update Software Update Device Management Software Version Update Configurations Device Management Software Version Load Default	MAC Address         00:1E:CD:17:C0:0F           IP Addross         J92:168.0.2           Subwel Mack         255:55.256.0           GubWinn         192:168.0.1
4	
()	Kyland Technology Co., LTD. All Rights Reserved

Figure 7-7 Configure IP Address

## 7. 3. 2 Device Basic Information Configuration

<u>Click the</u> "Device Basic Info" in the left <u>menu and enter the page as Figure 7-8</u>, fill in the device name and system time and click "Apply".





Figure 7-8 Device Basic Information Configuration

#### 7. 3. 3 Port Configuration

<u>Click the</u> "Port Configuration" in the left <u>menu and enter the page as Figure 7-9</u>, where you can configure port state (enable/disable), operating status (enable/disable), auto-negotiation (enable/disable), port speed (10/100M), duplex (full/half), flow control (open/close) and reset (yes/no). After configuration, click "Apply" to make it take effect. If you want to use the port, please choose "enable" in "port state"; if not, choose "disable" in "port state". When the port is FX, disable auto-negotiation and the port speed and duplex is compulsorily 100M and full duplex.



Close Up   DExpand	- compare ron							
ICOM3024P Web Managem	Port ID	administration State	Operation State	Auto	Speed	Duplex	Flow Control	Reset
Basic Configurations	FE1	Enable 💌	Enable 💌	Disable 🗸	100M 🗸	Full-duplex 🗸	Off 👻	Noreset 🛩
1P Address	FE2	Enable 🐱	Enable 🐱	Disable 🗸	100M 🗸	Full-duplex 🗸	Off 🐱	Noreset 🐱
Part Device info	FE3	Enable 💌	Enable 🐱	Disable 🗸	100M 🗸	Full-duplex 🗸	Off 🐱	Noreset 🐱
Configure Port	FE4	Enable 💙	Enable 🗸	Disable 🗸	100M 🗸	Full-duplex 🗸	off 🗸	Noreset 🔽
Software Update	FE5	Enable 💙	Enable 👻	Enable 💙	10M 🗸	Half-duplex 💛	0ff 👻	Noreset 💙
Software Version	FE6	Enable 👻	Enable 🗸	Enable 💙	10M 🗸	Half-duplex 🗸	Off 🗸	Noreset 🖌
Upload & Download	FE7	Enable 🔽	Enable 💌	Enable 🔽	10M ~	Half-duplex 🗸	Off 👻	Noreset 🔽
Advanced Configurations	FE8	Enable 👻	Enable 👻	Enable 💙	10M 🗸	Half-duplex 🗸	Off 🗸	Noreset 🖌
Save Configurations	FE9	Enable 🔽	Enable 🖌	Disable 🗸	100M 🗸	Full-duplex 👻	Off 🗸	Noreset 🔽
.oad Default	FE10	Enable 💌	Enable 👻	Disable 🗸	100M 🗸	Full-duplex 🗸	Off 🖌	Noreset 🐱
	FE11	Enable 💌	Enable 🐱	Disable 🗸	100M v	Full-duplex 🗸	0ff 🐱	Noreset 🐱
	FE12	Enable 💙	Enable 💙	Disable 🗸	100M 🗸	Full-duplex 🗸	Off 🤜	Noreset 🐱
	FE13	Enable 💙	Enable 🗸	Enable 🔽	100M 🗸	Full-duplex 🗸	Off 🗸	Norezet 🔽
	FE14	Enable 💌	Enable 🗸	Enable 🛩	10M 🔍	Half-duplex 🗸	Off 🗸	Noreset 🛩
	FE15	Enable 🛩	Enable 👻	Enable 🛩	10H	Half-duplex 👻	Off 👻	Norezet 🐱
	FE16	Enable 👻	Enable 👻	Enable 😪	104	Half-duplex 😪	0ff 👻	Noreset 😪
	FE17	Enable 👻	Enable 👻	Disable 👻	100M 🚽	Full-duplex 🐭	Off 👻	Norezet 🛩
	FE18	Enable 🐱	Enable 💌	Disable 6	1008 20	Full-dupler 😔	♥ 110	Norezet 🛩
	FE19	Enable 💌	Enable 🛩	Dirable 🛩	1003	Full-duplex 🤟	off 🐱	Noreset 🤜
	FE20	Enable 💌	Enable 🐱	Disable 😒	100%	Full-duples ~	v 110	Norezet 🛩
	FE21	Enable 💌	Enable 💌	Enable 💌	1011 (94	Half-duplex V	Off 👻	Noreset 🛩
	FE22	Enable 😽	Enable 👻	Enable 🛩	10M 🐨	Half-dupler 😪	Off 🐱	Noreset 😽
	FE23	Enable 👻	Enable 🛩	Enable 😪	-10M	Half-duplex -	Off 👻	Norezet 😪
	FE24	Enable 👻	Enable 💌	Enable 👻	10%	Half-duplex w	● 110	Noreset 💌
	GE1	Enable 🛩	Enable 💌	Disable 🛩	1000M 💌	Full-dugles -	0ff 🐱	Norezet 🐱
	0E2	Enable 🛩	Enable 🕑	Disable 🛩	1000M 🕑	Full-duplex 😒	Off 🐱	Norezet 🤜
	GE3	Enable 🐱	Enable 💌	Disable 🛩	1000M 🛩	Full-duplex 🛶	Off 🖌	Noreset 🛩
	OE4	Enable 💌	Enable 💌	Disable 💌	1000M 🛩	Full-duples w	off 💌	Noreset 🐱

Figure 7-9 Port Configuration

## 7. 3. 4 Change Password

<u>Click the</u> "Change Password" in the left <u>menu and enter the page as Figure 7-</u>10, enter old password and new password according to the requirement and click "Apply" to take effect.



KYLAND SICOM3024P	Web Management System 中文 About Help Exit	-
Close Up   DExpand	🛤 Change Password	
Close Up 1 DEspand SCCM024P Web Managerr Basic Configure for Pasic Configure Port Configure Port Configur	Change Password	
(		
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Figure 7-10 Change Password

### 7. 3. 5 Software Updating

<u>Click</u> "Software Updating" in the left <u>menu and enter the page as Figure 7-</u>11 and refer to Appendix D for detailed updating steps.

• Enter the main WEB page, click the updating bar of basic configuration in navigation bar to enter into the updating page as shown in the following Figure:



KYLAND SICOM3024P W	leb Management System 中文 About Help Exit
	Software Indate
Close Up   OExpand SICOM3024P Web Manager Basic Configurations Device Status Basic Configurations Configure Port Software Update Software Version Upload & Download Device Management Software Version Upload & Download Configurations Device Management Software Version Load Default	Software Updade             Software Updade             FTP Software UP Address             FTP Software UP Address             FTP Updar Name             FTP Updar Name             FTP Software UP Address             FTP Updar Name             FTP Updar Nam
4 2	
http://192.168.0.2/up en.am	Wind Technology Co. LTD. All Rights Reserved

Figure 7-11 Update Software

- Configure IP address, user name, password and software name of the FTP server that need updating, click "Apply" and record updated software ID.
- Wait for updating succeeding message.
- Click "Software Version" in navigation bar, set the software ID as the startup version and click "OK" as shown in Figure 7-12.
- Click "reset" in the navigation bar.





Figure 7-12 Reset

• Wait for 30 seconds for starting up network management system. Click "Device Basic Info" and check software version to confirm if it is upgraded successfully.

### 7. 3. 6 Software Version Query

Click "Software Version" in the left menu and enter the page as Figure 7-12 which shows two different software versions—one open and one closed.







Figure 7-12 Software Version Query

#### 7. 3. 7 Upload and Download Configuration

Click "Upload & Download" in the left menu, choose "Upload File" or "Download File" to enter the page as Figure 7-13 and Figure 7-14, fill in the IP address of the server, the file names, user name and password and click "Apply". Please refer to Software Updating for detailed steps.



KYLAND SICOM3024P W	réb Management System 中文 About Help Exit
Close Up   Depand Close Up   Depand Close Up   Device Status Close Status St	Upbead & Download Coufiguration             Image: Image
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Figure 7-13 Configuration Uploading

KYLAND SICOM3024P W	reb Management System 中文 About Help Exit	-
	🗏 Urboad & Download Configuration	
Close Up   CExpand	со средни и сочнисти совиданиот	
SICOM3024P Web Managem	Choose Mode Download file 💌	
Basic Configurations	FTP Server IP Address	
- Device info	FTP File Name	
Configure Port	FTP User Name	
Software Update	FTP Password	
Upload & Download	Apply Help	
Advanced Configurations     Device Management		
Save Configurations		
<u>د</u>		
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Figure 7-14 Configuration Downloading

#### 7. 4 Device Advanced Configuration

The advanced configurations include port traffic flow, VLAN, port mirroring, port trunking, line topology status, static multicasting address, IGMP Snooping, ACL, ARP, SNMP, RSTP, DT-Ring, QoS, MAC, alarm, RMON, diary query, unicast address and query.

#### 7.4.1 Port Flow

<u>Click</u> "Port Flow" in the left <u>menu and enter the page as Figure 7-</u>15 where you can configure the speed limiting type in limit message classification. Here you can limit the speed of every port, broadcasting and sending. If the limiting speed is set at 0, the speed limitation is disabled. After you have finished the configuration, please click "Apply" to make it effective.



Figure 7-15 Port Traffic Flow

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#### 7. 4. 2 VLAN

<u>Click the</u> "VLAN" in the left <u>menu</u>, <u>enter the page as Figure 7-</u>16 and select VLAN mode, click "Add" to enter into the page as Figure 7-17. Enter VLAN name and ID(VLAN1 is the default), select VLAN member, tagged or untagged and click "Apply" to finish configuration. In untagged status, you can carry out priority configuration from L0-L7 for ports.

Note: In the default state, VLAN ID is "1", the range of ID no. is from 2 to 4093.



Figure 7-16 Add VLAN

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KYLAND SICOM3024P W	Feb Management System 中文 About Help Exit
Close Up   CExpand	AddivLan
SICOM3024P Web Managem Device Status Basic Configurations	VLAN Name v1m2 VLAN ID 2 Port ID VLAN Member Priority
- Port Rate	FE1 Tagged V 0 V
- Port Mirroring	FE2 Tagged V 0 V
Port Trunk	FE3 Untagged V 0 V
FDB IGMP	FE4 Untaged V 0 V
IGMP Snooping	FE5
ACL	FE6
- SNMP	FE7
DT-RING RSTP	FEB 5
RSTP Penetrate	FE9
Qos Configuration     Moc Aging Time	
a Alarm	FE11 0 0 0
RMON	FE12
Dicast Configuration	FE13
i 💼 Device Management	FE14 0 0 0
- Save Configurations - Save Default	FE15 0 0 0
	FF18 0 V
	FE17 0 0 0
	FF18 0 V
	FE20
	FE21
	FE22
	FE23
	FE24
• • • • • • • • • • • • • • • • • • •	
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Figure 7-17 VLAN Configuration

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Figure 7-18 VLAN Configuration Succeed

### 7.4.3 Port Mirroring

<u>Click the</u> "Port Mirroring" in the left <u>menu and enter the page as Figure 7-</u>19, select mirroring port within the range between FE1 and FE24 and between GE1 and GE4 and mirrored port among TX, RX and TX&RX and click "Apply" to finish configuration.



KYLAND SICOM3024PV	leb Management System			中文 About Help Exit
Close Up   GExpand	🗯 Port Mirroring			<u>^</u>
SICOM3024P Web Managerr Device Status		Mirroring Port	FE1 🗸	
Basic Configurations		Mirrorad Dort	Mode	
Port Rate		FE1	82 101	
- NLAN		E CES	88	
		E FER	XX	
LINK CHECK		E res	EX A TX	
FDB IGMP		E FEA	57	
ACL		E PED	82	
ARP		E FES	104 IV	
SNMP DT-RING		E FE7	P.K. 1961	
RSTP		FE8	XX (W)	
RSTP Penetrate		FE9	EX W	
MAC Aging Time		EFE10	72	
🗷 💼 Alarm		EFE11	RX V	
B RMON		FE12	RX	
<ul> <li>Duricast Configuration</li> </ul>		E13	RX 🗸	
🖲 💼 Device Management		E14	88 🗸	
Save Configurations		E15	RX 🗸	
		E16	RE 🗸	
		E17	RX 🗸	
		E19	RX 🗸	
		E19	RX v	
		E20	RX V	
		EFE21	RX V	_
		FE22	RX V	
		FE23	RX	
		EE24	EX V	
4		DOFI	RX	~
		1 8001		

Figure 7-19 Port Mirroring

#### 7.4.4 Port Trunking

Click "Port Trunking" in the left menu and enter the page as Figure 7-20. Six trunk groups are supported,

each of which can add four ports. Click  $\leq$  or  $\geq$ , to add or delete trunked port. Click "Apply" to finish the configuration.

Note:Port GE1 to Port GE4 can only be in one trunk group and can not be in one group with ports of 100Mpbs.

The ports trunked should be in one VLAN and all the ports trunked should have the same business.





Figure 7-20 Port Trunking

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Figure 7-21 Port Trunking Example

### 7.4.5 Topology Examination

<u>Click</u> "Topology Examination" in the left <u>menu and enter the page as Figure 7-</u>22. After configuring ports as "RSTP", "STP" or "DT-Ring", you can configure Port Examination as "enabled" or "disabled" and click "Apply" to finish the configuration. Click "Topology Examination" again in the left menu to check the port topology status as Figure 7-23.



Up   QExpand				
13024P Web Managerr		LINK CHECK		
vice Status	Port	Link start	State	
sic Configurations	FE1	Disable 🗸	Disable	
Port Pate	FE2	Disable 🗸	Disable	
VLAN	FE3	Disable v	Disable	
Port Mirroring	FE4	Disable v	Disable	
Port Trunk	FE5	Disable v	Disable	
LINK CHECK	FE6	Disable v	Disable	
IGMP Seconing	FE7	Disable v	Disable	
ACL	FER	Disable v	Disable	
ARP	FE9	Disable v	Disable	
SNMP	EE10	Disable v	Disable	
DT-RING	FE11	Disable v	Disable	
RSTP Denetrate	EE12	Disable v	Disable	
Oos Configuration	FE13	Disable x	Disable	
MAC Aging Time	FE14	Dirable v	Disable	
Alarm	FE15	Disable w	Disable	
RMON	5516	Dicable v	Disable	
Log List Unicast Configuration	5517	Dirable w	Dicable	
vice Management	FE10	Disable w	Disable	
ve Configurations	5510	Dicable w	Disable	
ad Default	5520	Disable w	Disable	
	FE20	Disable w	Disable	
	FE21	Disable w	Disable	
	FE22	Disable	Disable	
	FE23	Dissble v	Disable	
	FE24	Disable V	Disable	
	GE1	Disable V	Disable	
	GE2	Disable V	UISADIE	
	GE3	Disable V	Disable	
	OE4	Disable 🗸	Disable	

Figure 7-22 Topology Status Comfiguration

LINK CHECK			
xpand			
Web Managerr		LINK CHECK	(
cus	Port	Link start	State
Configurations	FE1	Enable 🐱	Receive Fault
angu comp	FE2	Enable 😽	Receive Fault
	FE3	Disable 🗸	Disable
	FE4	Disable 🗸	Disable
	FE6	Disable 🗸	Disable
9	FEG	Disable 🗸	Disable
	FE7	Disable ~	Disable
	FEO	Digable v	Disable
	FEG	Disable w	Disable
	FE0	Digable	Disable
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ate	FE12	Disable V	Disable
lime	FE13	Disable v	Disable
	FE14	Disable 🗸	Disable
	FE15	Disable 🗸	Disable
	FE16	Disable 🗸	Disable
figuration	FE17	Disable 🛩	Disable
igement	FE18	Disable 🗸	Disable
rations	FE19	Disable 🗸	Disable
·	FE20	Disable 🗸	Disable
	FE21	Disable 🗸	Disable
	FE22	Digable v	Disable
	FF23	Disable v	Disable
	FE24	Disable	Disable
	rc24	Dissbla	Disable
	GET	Dischile W	Disable
	GE2	DISSDIE V	Disable
	GE3	Disable V	Disable
	GE4	Disable 🗸	Disable

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Figure 7-23 Checking Port Topology Status

#### 7. 4. 6 Static Multicast Address

Click "Static Multicast Address" in the left menu and enter the page as Figure 7-24, configure "Multicast Filtering Mode" as "Unknown Multicast Discard" or "Unknown Multicast Forwarding", enable FDB Multicast and click "Apply". Add static multicast MAC address, VLAN ID, select ports as Figure 7-25 and click "Apply". After the configuration succeeds, click "Static Multicast Address" in the left menu again and you can see the page as Figure 7-26. If you want to configure the address, choose the serial number in the address list and click "Revise" to reset the port list; if you want to delete any multicast address, please click "Delete".

Attention: Please close "IGMP Snooping" before you start static multicast address.



Figure 7-24 Static Multicast Address

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#### Figure 7-25 Address Filling Example



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Figure 7-26 Configuration Succeed Example

### 7.4.7 IGMP Snooping

<u>Click</u> "IGMP-Snooping" in the left <u>menu</u> to <u>enter the page as Figure 7-</u>27, enable IGMP-Snooping and auto query and click "Apply" to finish configuration. After the message telling you that the configuration succeeds, click again "IGMP Snooping" in the left menu to show the configuration results.

Attention: Please close "Static Multicast Address" before you start IGMP Snooping. The switch can only support 256 multicast addresses.

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Close Up   DExpand	🗮 IGMP Snooping
Close Up   Despand SICOM3024F Web Manager Device Status Basic Configurations Advanced Configurations Advanced Configurations Advanced Configurations Advanced Configurations Advanced Configuration Clust CircleCk Field Device Status Configuration Configur	KGMP Smooping Status         Enable v         Auto Ouery Status         Auto Ouery Status         Colap Member List         MAC         VLAN ID       Member
4 2	
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Figure 7-27 IGMP Snooping





Figure 7-28 Example of Successful Configuration of IGMP Snooping

### 7.4.8 ACL Configuration

<u>Click</u> "ACL Configuration" in the left <u>menu to enter the page as Figure 7-</u>29, select from "enable" or "disable" in "port ACL mode configuration" and click "Apply" to finish configuration. Click "Add" to enter the page as Figure 7-31, choose the group number, serial number of the table (1 to 512), action (discard/change forwarding port/ add forwarding port), working port (all/ FE1 to FE24, GE1 to GE4), Source MAC, Destination MAC, Ethernet Type (from 1537 to 65535) and VLAN Tag (from 1 to 4094) and click "Apply" to take effect.

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Figure 7-29 IP ACL

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VLAND SICOM3024P Web Management System		中文 About Help Exi
Close Up   DExpand		
SICOM2024P Web Manager		
Device Status	Port Status Configuration	
Basic Configurations	Port Port State	
Advanced Configurations	FF1 Disable v	
Port Rate	EE2 Dirable M	
- SI VLAN		
- Port Mirroring	FE3 Disable V	
Port Trunk	FE4 Disable 🛩	
LINK CHECK	FE5 Disable 🗸	
FDB IGMP	FE6 Disable 🗸	
Place	FE7 Disable 🗸	
ACC ARD	FFR Disable v	-
SNMP	EE9 Disable w	
DT-RING	PEO Dishle v	-
RSTP	FEI0 DISable V	
STP Penetrate	FE11 Disable V	_
Seconfiguration	FE12 Disable v	
MAC Aging Time	FE13 Disable 🗸	
Alarm Alarm	FE14 Disable 🗸	
RMON	FE15 Disable v	
Log List	FE16 Disable V	-
Device Macagement	FE17 Disable w	
Save Configurations	FC10 Disable M	
I oad Default	PEIS DISADIC V	
cour benaut	FE19 Disable V	
	FE20 Disable V	
	FE21 Disable 🛩	
	FE22 Disable 🛩	
	FE23 Disable v	
	FE24 Disable V	-
	OF1 Disable v	
	OE2 Disable v	
	052 Disable V	_
	GE3 Disable V	
	Apply Help	

Figure 7-30 Port ACL Configuration

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SICOM3024P Web Managerr	,	Configure Item			
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Basic Configurations	Group	1	~		
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Port Kate			(1~512)		
Port Mirroring	Action	Deny	~		
- Port Trunk		FEI	Y		
LINK CHECK	Control Port	All Ports	× .		
FDB IGMP	0.000		MAC		
- Snooping	Source MAD		MASK		
- Sector Act	Destautes		MAC		
	Uestnation MAC		merc.		
SNMP			MASK		
DT-RING	Ethernet Type		(1537~65535)		
PSTD Depatrate	Vian Tag		(1~4094)		
-Sos Configuration		inclu Wele			
MAC Aging Time	-	where were			
🖲 👩 Alarm					
RMON					
🖲 👩 Log List					
Unicast Configuration					
Device Management					
Save Configurations					
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Figure 7-31 Port ACL Configuration

### 7.4.9 ARP Configuration

Click "ARP Configuration" in the left menu to enter the page as Figure 7-32, configure the ARP aging time and click "Apply". Then configure the ARP address, including IP and MAC address and click "Apply". If you want to delete a ARP address, please select its serial number and click "Delete".



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	- M
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SICOM3024P Web Managem	ABB leastly 00 control to the later
Basic Configurations	Add. Modeline
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Port Rate	App A) Birdap
	ABP address
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LINK CHECK	mes accress
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-Saci	
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	Number IP address MAC address Flass
	192168.0.24 00-10-7D-CF-54-52 dynamic
RSTP	
RSTP Penetrate	Add Delet Help
MAC Aging Time	
🖲 🙍 Alarm	
🗷 💼 RMON	
🖲 👩 Log List	
Unicast Configuration	
Device Management	
Save Conngurations	
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Figure 7-32 ARP Address Configuration

## 7.4.10 SNMP Configuration

Click "SNMP Configuration" in the left menu to enter the page as Figure 7-33, enable SNMP, select "read only", fill in the group name, select the IP address and port No. of Trap server and click "Apply". After that, the device will only accept message from the group listed; after configuring the IP address of the Trap server, Trap message can be sent selectively—the device will only send Trap message to the IP addresses that have been listed; through configuring Trap port No., EMS management server can only receive Trap message at the ports configured.

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C Close Up (DEpard Device Status C Device Sta	KYLAND SICOM3024P	/eb Management System			中文 About Help
Close by 10E Brand         ● Device Statusanane         ● Device Management         ● Device Management         ● Device Statusane         ● Device Statusane         ● Device Statusane         ● Device Statusane					
SICCMUGGEW Web Manager         Basic Configurations         Advanced Configurations	Close Up   DExpand	M SNMP			
Image: Configurations         Image: Configurations <td< td=""><td>SICOM3024P Web Manager</td><td>SNMP State</td><td>Enable</td><td>~</td><td></td></td<>	SICOM3024P Web Manager	SNMP State	Enable	~	
<u> </u>	Orevice Status     Orevice	Read-Write Community Read-Write Community Read-Write Community Server IP Address1 Server IP Address3 Trap On-off Trap Port ID Server IP Address1 Server IP Address3 Server IP Address3 Server IP Address3	public private ageneed Station Enable 162	(2-16)           (2	
<u> </u>					
<u> </u>					
	<u> </u>				

Figure 7-33 SNMP Configuration

### 7.4.11 RSTP Configuration

Click "RSTP Configuration" in the left menu to enter the page as Figure 7-34 and select from RSTP and STP to configure. You can set Spanning Tree Priority (From 0 to 65535. The default is 32768 with the step of 4096), Hello Time (from 1 to 10. The default is 2), Max Age Time (From 6 to 40. The default is 20), Forward Delay Time (From 4 to 30. The default is 15) and Message-age inc (default or compulsion) and click "Apply" to take effect. Besides, you can also configure the port protocol status, priority, path cost and cost calculation. Please click "Apply" to finish the configuration.

Attention: RSTP cannot be used together with DT-Ring.



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M3024P Web Managerr		物议》	版本配置		
evice Status	协议类型		RSTP 🛩		
Ivanced Configurations					
Port Rate	Spanning Tree Priority	r -	32768 (0-85	35)	
Port Mirroring	Hello Time		2 (1-10)		
Port Trunk	Max Age Time		20 (6-40)		
LINK CHECK	Forward Delay Time		15 (4-30)		
IGMP Snooping	message-age increme	nt	default 🗸		
ACL		atte (10)	17.01		1
ARP		Ŀдля	**1.80		
DT-RING		第0(	自己的		
RSTP					
RSTP Penetrate	端口 协议状态	优先版(0~255)	路径成本(1~200000000)	成本自动计算	
MAC Aging Time	FEI TONE V	128	200000	2 1	
Alarm	FE2 1018 V	128	200000	-72 ¥	
Log List	FE3 /∿2005 ♥	120	200000	22 ¥	
Unicast Configuration	FE4 小ttt #5	120	200000	2 4	
evice Management	PE0 70000 V	100	2000000	72 0	
ad Default	FE0 小式報告 ¥	120	2000000	72 ¥	
	PE7 70000 V	120	2000000	72 4	
	FE0 小記版 V	128	200000	2 4	
	FE10 不備約 w	128	200000	1 1	
	FE11 不僅約 w	128	200000		
	FC11 77000 V	128	200000	1	
	FC12 FF000 V	128	200000	A	
	FET3 FREE V	128	2000000	- 72 V	
	FE16 不確認 v	128	2000000	1	
	FE18 不便設 w	128	2000000		
	FEAT 不佳的	100	200000	1	

Figure 7-34 RSTP Configuration

## 7. 4. 12 RSTP Transparent Transmission

Click "RSTP Transparent Transmission" in the left menu to enter the page as Figure 7-35 and enable or disable port RSTP transparent transmission. Ports already set as RSTP or STP cannot carry out RSTP transparent transmission.

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KYLAND SICOM3024P	Web Management System			中文 About Help	Exit
Close Up   DExpand	🗮 RSTP 遗传配置				
SICOM3024P Web Managem Basic Configurations Port Rate VLAN Port Mirroring Port Turnk LINK CHECK TOB ISMP ACL ARP SITE Pont Stopping ACL ARP SITE Pont Stopping ACL ARP SITE Pontration BITE Pontration ARP SITE Pontration ARP SITE Pontration ARP SITE Pontration ARP SITE Pontration ARP SITE Pontration ARP SITE Pontration ARP SITE Pontration ALINK CHECK DIST Pontration ARP SITE Pontration ARP SITE Pontration ALINK CHECK SITE PONTRATION ALINK CHECK		NCU           FE1           FE2           FE3           FE4           FE5           FE6           FE7           FE8           FE10           FE11           FE12           FE13           FE16           FE16           FE16           FE17           FE18           FE19           FE20           FE21           FE21           FE22           FE23           FE24           OE1           OE2           OE3           OE4	麻雪丁 通来           不使能 マ           不使能 マ		
		应用	帮助		÷

Figure 7-35 RSTP Transparent Transmission

### 7.4.13 DT-Ring Configuration

Click "DT-Ring Configuration" in the left menu to enter the page as Figure 7-36, set redundant rings and ring status cheching based on ports and VLAN as enable or disable and click "Apply". Click "Add" to enter the page as Figure 7-37 and Figure 7-38, fill in field ID (from 1 to 32)and field name, set site type as homesite or subsite and choose ring ports (from GE1 to GE4 and FE1 to FE24). The device has DT-Ring+ function. You can enable the function at the page: select first "enable" in DT-Ring+ and then backup ports and click "Apply". Click the ring field in DT-Ring list as Figure 7-39 to check ring status.

Attention: Every ring can only have one homesite. The device ring ID in one ring should be the same and redundant ring support DT-Ring. You cannot configure rings based on ports and on VLAN at the same time. The ring ports at



homesite are one blocked and one forwarding data. If the forwarding port is blocked, the blocked port will start forwarding within 50ms.

When four switches are connected through DT-Ring+, every two rings have and can only have two backup ports within one ring.

VLAND SICOM3024P Web	Management System	中文 About Help Exit
Close Up Lifevoard	L. DI-Ring	
Class of Leepand Class of Leepand Device Status Basic Configurations Advanced Configurations Advanced Configurations Port Bars Port Trunk Device Marconing Advanced Device Management Save Configuration Device Management Save Configurations Load Default	Redundancy Mode Choose     DT-PORT       Check Loop Diale     Dialable       Apply     Binlp   D1-Rang List Domain (DDIation TypeRing Port(2)D1- Status Backup PortChange times)  Add  Binlp	

Figure 7-36 Redundant Ring Configuration

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Close Up   CExpand	A D1-Ring
SICOM3024P Web Managerr	
🖲 💼 Device Status	Redundancy DT-Ring
Basic Configurations	Domain ID 3
Port Rate	Domain Name ring3
	Station Type Master 🗸
Port Mirroring	Ring Port1 FE19
LINK CHECK	Ring Port2 FE20 V
FDB IGMP	DT-Ring+
	DT-Ring Enable V
ARP	Backup Port FE18
- SNMP - SNMP	AddVA ANL ist
RSTP	VLAN Choose VLAN ID VLAN Name
	2 1 default
MAC Aging Time	2 Vian2
Alarm	Apply Campel Help
B fog List	
🐵 💼 Unicast Configuration	5
Device Management     Save Configurations	
- Soad Default	
( )	

Figure 7-37 Redundant Ring Configuration Based on VLAN

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Figure 7-38 Figure 7-37 Redundant Ring Configuration Based on Port

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KYLAND SICOM3024P W	Yeb Management System 中文 About Help Exit
Close Up   DExpand	- D1-Ring
SICOM3024P Web Managem	Redundancy Mode Choose DT-PORT
Advanced Configurations	CheckLoop State Disable 🗸
VLAN Port Mirroring	Apply Help
	DT-Ring List
	Domain iDStation TypeRing Port(1,2)DT+ StatusBackup PortChange times
ARP	ring2-2 master 0E1,0E2 Disable 0
- DT-RING	Add Help
RSTP	
Qos Configuration	
-% MAC Aging Time	
RMON	
Log List     Direct Configuration	
🖲 🙍 Device Management	
-% Save Configurations	
4	
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Figure 7-39 DT-Ring Configuration Finished

#### 7.4.14 QoS Configuration

<u>Click the</u> "QoS Configuration" in the left <u>menu to enter the page as Figure 7-40</u>. In the mode of QoS, configure the port as disable, weighting (scheduling data packets according to the ratio) and preemption (when business of top priority comes, it will be forward first. After that, other data packets will be forwarded according to the user's configuration). It supports weighting ratio which can be set by you. The default is 8:4:2:1 (Highest, SecHigh, SecLow, Lowest). You can also choose from 802.1P-based priority, IP TOS priority, DSCP or port top priority. After that, click "Apply".

Attention: Port based priority can only reflect two groups—high and low; other priority configuration has four groups. The priority relation of the three scheduling strategies: port based priority > IP TOS priority > 802.1P based priority.


KYLAND SICOM3024PW	leb Management System			_		中文 About Help Exit
Close Up   DExpand	📖 Configure Qos					
Close Up Decapand SICOM3024P Web Manager Cover Status Configurations Advanced Configurations Out Rate Port Rate Port Mirroring Port Mirrorin		Qos Mo Qos Mo IP TOSID 3-HIGHI	de Hq-preeap BCP Disable WRR Hq-preeap Weight of the EST 2-SECHIOH 4	rt 💙 Priosity Ques	802.1P Priority IP TOS Priority DSCP Priority es N D-LOWERT	
- Shooping - Shooping - ARP - ARP			Configure	Port Priority		
SNMP DT-RING		Port	Highest priority	TOS/DIFF	802.1P Priority	
RSTP		FE1				
RSTP Penetrate		FE2				
Qos Configuration		FE3				
B Alarm		FE4				
🕀 🚮 RMON		FE5				
🗄 💼 Log List		FE6			•	
Unicast Configuration		FE7			V	
Save Configurations		FE8			•	
Load Default		FE9				
		FE10				
		FE11			v	
		FE12				
		FE13				
		FE14				
		FE15				
		FE16				
		FE17				
		FE18				
		FE19				
		FE20				
		FE21				

Figure 7-40 QOS Configuration

Click 802.1P based priority which has eight priorities to enter the page as Figure 7-41, select the corresponding relations according to your requirements and click "Apply".

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KYLAND SICOM3024P W	Veb Management System			中文 About Help Exit
Close Up   DExpand	📖 802.1P Priority Configuration			
SICOM3024P Web Managerr		80	2.1P Priority 0~7	
<ul> <li>Basic Configurations</li> <li>Advanced Configurations</li> </ul>		Priority	Queue	
Port Rate		0	0 ~	
Port Mirroring		2	1 🗸	
Port Trunk		3	1 🗸	
FDB IGMP		4	2 🗸	
- Snooping		6	3 V	
ARP		7	3 🗸	
		Outputs : 0.1000EST	1 SECTOR 2 SECURA 3 HOUEST	
RSTP		data i oscorresi,	macceon, enacemon, annonear	
Qos Configuration		App	ly Back	
MAC Aging Time				
RMON				
E fog Log List				
🖻 🙍 Device Management				
Save Configurations				
4 2				
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Figure 7-41 802.1P Based Configuration

Click IP TOS based priority which has eight priorities to enter the page as Figure 7-41, select the corresponding relations according to your requirements and click "Apply".



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Close Up   DExpand	F IP TOS Priority Configuration
SICOM3024P Web Managem	IP TOS Priority 0-7
Basic Configurations	Priority Queue
Advanced Configurations	IP TOS 0 0 💌
Port Rate	IP TOS 1 0 V
	IF TOS 2 0 V
Port Trunk	
-SILINK CHECK	
- 1GMP Snooping	1P1055 U V
ACL	IP TOS 6 0 V
ARP	IP TOS 7 0 💌
- DT-RING	
RSTP	Queue : 0-LOWEST, 1-SECLOW, 2-SECHIOR, 3-HIGHEST
RSTP Penetrate	Appaly Back
- Qos Configuration	
MAC Aging Time	
🕷 👩 Alarm	
# RMON	
E Log List	
Concase Configuration	
Sava Coofgurations	
-Save Configurations	
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Figure 7-42 IP TOS Priority Configuration

Click DSCP based priority which has sixty-four priorities to enter the page as Figure 7-41, select the corresponding relations according to your requirements and click "Apply".

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Close op   Despand														
SICOM3024P Web Managem Device Status						DSC	Prio	eity 0-63						
Basic Configurations		0.000	A A.		0000	A		0000	A A		0.000	A		
Advanced Configurations		DSCP	uosuu	lene	DSCP	QOS Q	ueue	DSCP	uos uu	eue	DSCP	uosu	lueue	
		DSCP 0	0	~	DSCP 1	0	~	DSCP 2	0	~	DSCP 3	0	~	
Port Mirroring		DSCP 4	0	~	DSCP 5	0	~	DSCP 6	0	~	DSCP7	0	~	
		DSCP 8	0	~	DSCP 9	0	~	DSCP 10	0	~	DSCP 11	0	~	
LINK CHECK		DSCP 12	0	~	DSCP 13	0	~	DOOD 10	0	~	DOOP 15	0	~	
-SaligMP Snooping		DSCP 20	0	~	DSCP 24	0	-	DSCP 22	0	· ·	DSCP 22	0	~	
ACL		DBCP 20	0	-	DBCP 21	0		DOOP 22	0	-	DOCP 23	0		
		DSCP 28	0	~	DSCP 29	0	-	DSCP 10	0	÷	DSCP 31	0	-	
SNMP		DSCP 32	0	~	DSCP 33	0	-	DSCP 34	0	-	DSCP 35	0	~	
		DSCP 38	0	~	DSCP 37	0		DSCP 38	0	-	DSCP 39	0	-	
RSTP Penetrate		DSCP 40	0	~	DSCP 41	0	~	DSCP 42	0	~	DSCP 43	0	~	
		DSCP 44	0	~	DSCP 45	0	~	DSCP 46	0	~	DSCP 47	Û	~	
MAC Aging Time		DSCP 48	0	¥	DSCP 49	0	v	DSCP 50	0	v	DSCP 51	0	~	
B MANN		DSCP 52	0	¥	DSCP 53	0	¥	DSCP 54	0	¥	DSCP 55	0	~	
🗈 🙍 Log List		DSCP 56	0	~	DSCP 57	0	×	DSCP 58	0	×	DSCP 59	0	~	
Inicast Configuration		DSCP 60	0	¥	DSCP 61	0	¥	DSCP 62	0	~	DSCP 63	0	~	
Device Management     Sava Configurations										_				
Load Default			Qu	eue :	: 0LOWE	ST, 1-	SECL	.0W, 2SE	CHIGH,	3H	IGHEST			
						Apply		Back	3					
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Figure 7-43 DSCP Priority Configuration

#### 7. 4. 15 MAC Aging Time

<u>Click</u> "MAC Aging Time" in the left <u>menu to enter the page as Figure 7-44</u>, select MAC aging time from 15s to 3600s (The default is 300s.) and click "Apply".

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Figure 7-44 MAC Aging Time

#### 7. 4. 16 Alarm

Alarm includes alarm display and alarm configuration/

#### 7.4.16.1 Alarm Display

Click "Alarm Display" in the left menu to enter the page as Figure 7-45 which shows power alarm, temperature alarm, IP conflict alarm, MAC conflict alarm, port alarm status, ring alarm status that have been enabled. When ports are linked, the alarm status is Link Up; when ports are not linked, the alarm status is Link Down; when DT-Ring alarms, the alarm status is Ring Open; when DT-Ring don't alarm, the alarm status is Ring Close.



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Port Trunk		POR	Mailli State	POR EE2	Adamn State	FED	Alarm State	FEA	Alarm State
- EINK CHECK		FES		FEG		FE7		FER	
IGMP Snooping		FE9		FE10		FE11		FE12	
ACL		FE13	Link Up	FE14	Link Down	FE15		FE16	
ARP SNMD		FE17		FE19	-	FE19		FE20	
DT-RING		FE21		FE22	•	FE23	•	FE24	•
RSTP		GE1		GE2		GE3		GE4	•
RSTP Penetrate					DT-Rin	o Alarm			
MAC Aging Time			DT-R	Ning ID			Alam	State	
8 👩 Alarm				2			Ring	Open	
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Figure 7-45 Alarm Display

#### 7.4.16.2 Alarm Configuration

Click "Alarm Configuration" in the left menu to enter the page as Figure 7-46, set IP and MAC conflict alarm, power alarm, temperature alarm, port alarm and ring alarm, select IP and MAC conflict alarm checking time from 180s to 600s (The default is 300s), enable temperature alarm, set the temperature limits and click "Apply".



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Port Trunk			Pe	wer Alarm				2		
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					Tempe	rature Ala	rm			
IGMP Snooping		Alarm	Name	Alarm Ena	ble	Te	mperature Ala	rm Boun	d	
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Qos Configuration		555		FE2	-	FE3		550		
MAC Aging Time		FE9		EE10		EE11		EE12		
Alarm		5512		EE14		5516	-	EE16		
Alarm Setting		5617	-	5510	-	5610	-	5520	-	
RMON		FE17	<u> </u>	FEID		FE13		FE20		
Log List		PE21		052		PE23	-	PE24		
🖲 👩 Unicast Configuration		OEI		062		063		OE4		
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•										

Figure 7-46 Alarm Configuration

#### 7.4.17 RMON Configuration

RMON includes RMON statistics, history, alarm and event.

#### 7.4.17.1 RMON Statistics

Click "RMON Statistics" in the left menu to enter the page as Figure 7-47, fill in Index number (ID group from 1 to 65535), owner (settler name from 1 to 32), select ports (ifindex 1 to 26) and click "Apply".







Figure 7-47 RMON Statistics

#### 7. 4. 17. 2 RMON History

Click "RMON History" in the left menu to enter the page as Figure 7-48, fill in index number (from 1 to 65535) and owner (from 1 to 32), select ports (from ifindex 1 to 26), sample number (from 1 to 65535, the default is 50) and sample space (from 1 to 3600) and click "Apply".



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Figure 7-48 RMON History

#### 7. 4. 17. 3 ROMN Alarm

Click "RMON Alarm" in the left menu to enter the page as Figure 7-49. Click twice after selecting the alarm nodes from MIB node list and OID will be automatically filled. Then you can fill in Index number (ID from 1 to 65535), owner (from 1 to 32), select ports (ifindex 1 to 26), sample type (absolute/delta), alarm type (Rising Alarm/ Falling Alarm/ Rise or Fall Alarm), sample interval (from 1 to 65535), upper limit (from 1 to 65535), lower limit (from 1 to 65535), rising event index (from 1 to 65535) and falling event index (from 1 to 65535). After that, click "Apply".





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Figure 7-49 RMON Alarm

#### 7. 4. 17. 4 RMON Event

Click "RMON Event" in the left menu to enter the page as Figure 7-50, fill in Index number (Event group ID from 1 to 65535), owner (from 1 to 32), event type (LOG/Snmp-Trap/Log and Trap), event description (from 1 to 127) and event community (The management group receiving event trap is from 1 to 127). After finishing the configuration, click "Apply".



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× >			

Figure 7-50 RMON Event

## 7. 4. 18 Log Query

Log query includes enabling log and running log.

#### 7. 4. 18. 1 Enable Log

Click "Enable Log" in the left menu to enter the page as Figure 7-51, select "Enable" and click "Apply".





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Figure 7-51 Enable Diary

#### 7. 4. 18. 2 Running Log

Click "Run Log" in the left menu to enter the page as Figure 7-51, select "enable log" and click "Apply".



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Close op I dexpand					
SICOM3024P Web Managem			Runlog Deman	đ	
Basic Configurations					
Advanced Configurations	Index	LogType	Time	Description	
Port Rate	8690	PowerAlarm	SUN JAN 30 00:30:53 2000	Power alarm: entity id:2 state:Power down	
- 1 VLAN	8689	Broadcast	SAT JAN 15 01:41:10 2000	broadcast storm attack	
Port Mirroring	8688	Broadcast	SAT JAN 15 01:41:00 2000	broadcast storm attack	
Port Trunk	8687	Broadcast	SAT JAN 15 01:39:58 2000	broadcast storm attack	
EDB. IGMP	8686	Broadcast	SAT JAN 15 01:39:47 2000	broadcast storm attack	
-SIGMP Snooping	8685	Broadcast	SAT JAN 15 01:39:36 2000	broadcast storm attack	
ACL	8684	Broadcast	SAT JAN 15 01:39:25 2000	broadcast storm attack	
ARP	8683	Broadcast	SAT JAN 15 01:39:14 2000	broadcast storm attack	
- SNMP	8682	Broadcast	SAT JAN 15 01:39:03 2000	broadcast storm attack	
DT-RING	8681	Broadcast	SAT JAN 15 01:38 52 2000	broarleast storm attack	
RSTP Reportate	9690	Broadcast	SAT JAN 15 01:39:41 2000	hrondrast storm attack	
- Son Configuration	8670	Broadcast	SAT JAN 16 01:38:30 2000	broadcast storm attack	
MAC Aging Time	9676	Broadcast	CAT JAN 15 01:30:30 2000	hradract starn attack	
🖲 👩 Alarm	9677	Broadcast	PAT JAN 16 01:26:12 2000	broadcast storm attack	
RMON	0077	Broadcast	TUE INVIOL 00 50 00 0000	broadsast stoff ataas.	
E Dog List	8676	Broadcast	TUE JAN 04 06:52:28 2000	broadcast storm attack	
Enable Log	8675	Broadcast	TUE JAN 04 06:52:17 2000	broadcast storm attack	
d Unicast Configuration	8674	Broadcast	TUE JAN 04 06:52:06 2000	broadcast storm attack	
Device Management	0673	Broadcast	TUE JAN 04 06:51:55 2000	broadcast storm attack	
Save Configurations	8672	Broadcast	TUE JAN 04 06:51:44 2000	broadcast storm attack	
Load Default	8671	Broadcast	TUE JAN 04 06:51:33 2000	broadcast storm attack	
	8670	Broadcast	TUE JAN 04 06:51:22 2000	broadcast storm attack	
	8669	Broadcast	TUE JAN 04 06:51:11 2000	broadcast storm attack	
	9669	Broadcast	TUE JAN 04 06:51:00 2000	broadcast storm attack	
	8667	Broadcast	TUE JAN 04 06:50:49 2000	broadcast storm attack	
	8666	Broadcast	TUE JAN 04 06:50:38 2000	broadcast storm attack	
	8665	Broadcast	TUE JAN 04 06:50:27 2000	broadcast storm attack	
	9664	Broadcast	TUE JAN 04 06 50 16 2000	broadcast storm attack	
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1 1	8662	Soloviare Restart	105 344 04 06:49:19 2000	sotoware system reboot.	
	8661	Broadcast	1 TUE JAN 04 06:49:15 2000	broadcast storm attack	

Figure 7-52 Runing Diary Query

#### 7. 4. 19 Unicast Address Configuration and Query

This includes static unicast address configuration, dynamic unicast address query.

#### 7. 4. 19. 1 Static Unicast Address Configuration

Click "Static Unicast Configuration" to enter the page as Figure 7-53, select member ports, configure MAC address and VLAN ID (from 1 to 4093) and click "Apply". Choose from the address list serial number and click "Add", "Delete" and "Revise" to configure static unicast address list.





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Port Trunk	FOR Unicast Mac List
FDB IGMP	Index MAC VLANID Member Port
ACL	Add Delete Modify
RSTP Penetrate	
MAC Aging Time	
B 👖 Log List B 🖉 Unicast Configuration	
Static Unicast Configuration	
Device Management     Save Configurations	
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Figure 7-53 Static Unicast Address Configuration

#### 7. 4. 19. 2 Dynamic Unicast Address Query

Click "Dynamic Unicast Configuration" in the left menu to enter the page as Figure 7-54 to check dynamic unicast address list which shows the MAC address of terminal devices, connected switch port No. and port VLAN ID.



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Figure 7-54 Dynamic Unicast Address Query

#### 7. 5 Device Management

Device Management includes restarting and logout.

#### 7. 5. 1 Reboot

Click "Reboot" in the left menu to enter the page as Figure 7-55 and click "Reboot" to restart the device.



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Figure 7-55 Restart

#### 7. 5. 2 Log Out

<u>Click</u> "Logout" in the left <u>menu to enter the page</u> as Figure 7-56 and click "Logout" to exit the management system.



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Figure 7-56 Log Out

### 7. 6 Save All Revisions

Click "Save Configurations" in the left menu to enter the page as Figure 7-57 and click "Save" to save the configurations.

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Advanced Configurations     Advanced Configurations		
Save Configurations		
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Figure 7-57 Save All Revisions

## 7. 7 Restore the Default Configuration

Click "Load Default" in the left menu to enter the page as Figure 7-58 and click "Load Default" to restore the default configuration.



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Figure 7-58 Restore

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## **Appendix A Twisted-pair and Pin Distribution**

For the connection of 10Base-T/100Base-TX, the twisted-pair must have two pair cable. Each pair is distinguished with two different colors. For example, one strand is green, and the other is the alternate of green and white stripes. RJ-45 connector should be equipped at both ends of the cable.



Don't insert a telephone plug into any RJ-45 port. Only use twisted-pair with RJ45 connectors at both ends conforming to FCC standard.



Pin distribution of 10Base-T/100Base-TX

Unshielded twisted- pair (UTP) or shielded twisted-pair (STP) will be used for the connection of RJ-45: for the connection of 10Mbps, category 3, 4 and 5 of 100 ohm will be used, and cat.5 of 100 ohm will be used for 100Mbps. Additionally, do make sure that the connecting length of any twisted-pair shall not exceed 100 meter.

Port of RJ-45 supports automatic MDI/MDI-X operation, PC or server may be connected with straight-through cable, or connect with other switch or hub. In straight-through cable, pin 1, 2, 3 and 6 at one end of the cable are connected to pin 1, 2, 3 and 6 at the other end of the straight-through cable respectively. Cross-over cable must be used for switch or hub with MDI-X port. The pin distribution of 10Base-T/100Base-TX is listed in the table A-1.



Pin	MDI-X signal name	MDI signal name
1	Receiving data + (RD+)	Output data+ (TD+)
2	Receiving data $-$ (RD-)	Output data – (TD-)
3	Output data + (TD+)	Receiving data+ (RD+)
6	Output data - (TD-)	Receiving data – (RD-)
4, 5, 7, 8	Unused	Unused

Table A-1 Pin distribution of 10Base-T/100Base-TX

Note: "+""-"denoting cable polarity.

#### Definition of straight-through cable from RJ45 (8-pin) to RJ45 (8-pin)



Figure A-2 Cable sequence of straight-through cable

#### Definition of Cross-over cable from RJ45 (8-pin) to RJ45 (8-pin)



Figure A-3 Cable sequence of cross-over cable

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# **Appendix B Cable Type and Specifications**

The cable type and specifications are shown as table B-1:

Cable	Туре	Max. length	Connect or
10Base-T	Cat 3,4 and 5_100 ohmUTP	100m (328foot)	RJ-45
100Base-TX	Cat 5100ohmUTP	100m (328foot)	RJ-45
100Base-FX	50/125 or 62.5/125µm core multi-mode fiber (MMF)	2km (1.24mile)	SC/FC
100Base-FX	9/125µm single-mode fiber (SMF)	20km (12.43mile)	SC/FC
1000Base-T	Cat 5-100 ohm UTP	100m (328foot)	RJ-45
1000Base-LX	9μm or 10μm core sigle-mode fiber(1310nm)	5km (3.1mile)	LC
1000Base-LX	50/125 or 62.5/125μm core multi-mode fiber (MMF) (850nm)	550m	LC

Table B-1 Cable type and specificati



Appendix	С	Glossary
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	Terminology	Explanation
10Base-T		Twisted-pair standard of Cat3, Cat4 and Cat5 in IEEE specification for 10Mbps Ethernet
100Base-TX		Twisted-pair standard of Cat5 or above in IEEE specification for 100Mbps Fast Ethernet
100Base- F X		Fast Ethernet which uses one pair of multi-mode or single mode optical fiber to transmit.
Adaptive		A characteristic that is automatically configured to adaptive mode for the speed, duplex and traffic control port.
Bandwidth		The information capacity that the channel can transmit. For instance, the bandwidth of the Fast Ethernet is 100Mbps (bit per second).
Baud Rate		It expresses the signaling rate which is defined as the change times of the status for the electric or optical transmission medium within 1 second.
Bridge		One of network equipments which run on the layer2 in the OSI layer7 model, and it can be connected to the LAN or network segment which uses the same protocol. It presents the automatic network address learning and network configuration function.

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MDLV	
MDI	It is the Medium Dependent Interface, in which, one Ethernet port is taken as the receiving terminal to connect to the port of other equipment.
Half Duplex	The communication for two nodes can only move toward one direction at the same time, but can not move toward both directions.
Full Duplex	Use switches to set up the point to point connection among nodes in the LAN and allow them to receive and send data packet at the same time.
IGMP	IGMP means Internet Group Multicast Protocol.
Broadcast storm	Restless forward broadcast frame or multicast frame on bridge caused by the bridge ring.
Broadcast	One data packet is sent to all equipments on the network.
VLAN	It is the Virtual Local Area Network, which means that it takes the network management software to establish the point to point logic network which can cross different network segment and various network on the switching LAN.
Traffic Control	It is a congestion control mechanism. The network equipment sends the data to the equipment which has overloaded and causes the port to congest. The traffic control can prevent the data packet from loss and avoid the congestion for the port.



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