Lantech

LGS-1108C

7 10/100/1000T

+ 1 Giga Copper / Mini GBIC

Web Smart Switch

User Manual

Notice

This manual contents are based on the below table listing software kernel version, hardware version, and firmware version. If the switch functions have any different from the manual contents description, please contact the local sale dealer for more information.

Firmware Version	V1.04
Kernel Version	---------
Hardware Version	V1.00

FCC Warning

This Equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

CE Mark Warning

This is a Class-A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

Content

Introduction

The 7 10/100/1000T + 1 Giga Copper/Mini GBIC Web Smart Switch that can be used to build high-performance switched workgroup networks. The switch is targeted at workgroup or department.

The 7 10/100/1000T + 1 Giga Copper/Mini GBIC Web Smart Switch features a Store-and-Forward Switching scheme that offers low latency for high-speed networking and allows the switch to auto-learn and store source address in a 8K-entry MAC address table.

The 7 10/100/1000T + 1 Giga Copper/Mini GBIC Web Smart Switch has 7 auto-sensing 10/100/1000 Base-TX RJ-45 ports plus one auto detect Giga copper / MINI GBIC slot that enables extended distance connection.

Features

- Conform to IEEE 802.3, 802.3u, 802.3ab, 802.3x and 802.1x
- Store-and-Forward switching architecture
- True non-blocking switching
- Web Management
- Auto-MDIX on all ports
- 16Gbps back-plane
- 144Kbytes memory buffer
- N-Way Auto-Negotiation
- 8K MAC address table
- Back pressure with half duplex
- Flow control with full duplex
- Support Port Based VLAN
- Support Port Trunk

- ■ VLAN
  - ➢ Port Based VLAN
  - ➢ IEEE 802.1Q VLANs. Up to 256 groups
- ■ Support DHCP client
- ■ Support Class of Service
- ■ Support Spanning Tree
- ■ 9K Jumbo Frame support

Software Feature

Management	Web Management
Firmware update	Web UI firmware update
System default	One default button for system default Default IP: 192.168.16.1 Subnet Mask: 255.255.255.0 Gateway: 192.168.16.254
Port Trunk	IEEE802.3ad port trunk with link aggregation control protocol (LACP) The trunk group up to 2 and maximum trunk port member up to 8 ports
VLAN	Port Based VLAN VLAN ID from 1 to 1095 VLAN group up to 255
DHCP	DHCP client feature

Quality of Service	Port based
	Tag based
	IPv4 Type of Service
Class of Service	Per port support 4 priority queues
Spanning Tree	IEEE802.1w rapid spanning tree and compatible with IEEE 802.1d

Package Contents

Unpack the contents of the 7 10/100/1000T + 1 Giga Copper/Mini GBIC Web-Smart Switch and verify them against the checklist below:

■ 7 10/100/1000T + 1 Giga Copper/Mini GBIC Web Smart Switch

■ Power Cord

■ Four Rubber Pads

■ User Manual

7 10/100/1000T + 1 Giga Copper/Mini-GBIC Web-Smart Switch

Four Rubber Pads
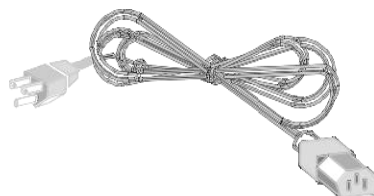
Power Cord

User Manual

Package Contents

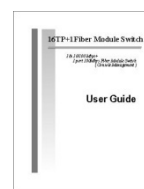Compare the contents of your 7 10/100/1000T + 1 Giga Copper/Mini GBIC Web-Smart Switch package with the standard checklist above. If any item is missing or damaged, please contact the local dealer for exchanging.

Hardware Description

This section mainly describes the hardware of the 7 10/100/1000T + 1 Giga Copper/Mini GBIC Web-Smart Switch and gives a physical and functional overview on certain switch.

Physical dimension

The 7 10/100/1000T + 1 Giga Copper/Mini GBIC Web Smart Switch's physical dimension is **217 x 140 x 43 mm** (L x W x H).

Front Panel

The front panel of the 7 10/100/1000T + 1 Giga Copper/Mini GBIC Web-Smart Switch consists of the 7 10/100/1000Base-TX RJ-45 port, one auto detect Giga Copper / Mini GBIC port , LED Indicators and reset button. Please refer to the LED Indicator section for LED description.

■ **Reset button:**
  ➢ **Restart:** Press the bottom for 3 seconds for system software restarting.
  ➢ **Reset to default:** Press 5 seconds for reset back to default value settings.

The front panel of the 7 10/100/1000T + 1 Giga Copper/Mini GBIC Web Smart Switch

■ **RJ-45 Ports (Auto MDI/MDIX):** 7x 10/100/1000 N-way auto-sensing for 10Base-T, 100Base-TX or 1000Base-T connections.

In general, **MDI** means connecting to another Hub or Switch while **MDIX** means connecting to a workstation or PC. Therefore, **Auto MDI/MDIX** would allow connecting to another Switch or workstation without changing non-crossover or crossover cabling.

■ **Giga Copper / Mini GBIC combo port:** The system will automatically detect which is Giga UTP or Giga fiber. The Giga copper/Mini GBIC combo port is located on front panel which is named as port 1 with 7 10/100/1000T ports. Giga fiber is the mini GBIC slot that module is optional.

[NOTE] Disconnect the Giga copper connection before installing the Mini GBIC module. Otherwise, the switch couldn't detect the Mini GBIC that has been installed. While Giga copper port or Mini GBIC port is operating, only one of them will operate.

Rear Panel

The 3-pronged power plug is located at the rear Panel of 7 10/100/1000T + 1 Giga Copper/Mini GBIC Web-Smart Switch. The switch will work with AC voltage in the range of 100 to 240 volts / 50~60 Hz.

The Rear Panel of 7 10/100/1000T + 1 Giga Copper/Mini GBIC Web Smart Switch

LED Indicators

The LED Indicators display real-time information of systematic operation status. The following table provides descriptions of LED status and their meaning.

LED Panel of 7 10/100/1000T + 1 Giga Copper/Mini GBIC Web Smart Switch

LED	Status	Color	Description
Power	On	Green	Power On
	Off	--	No Power inputs or Power cord disconnected
1000M	On	Green	The port is operating at the speed of 1000Mbps
	On	Orange	The port is operation at the speed of 100Mbps
	Off	--	In 10Mbps mode or no device attached
LNK /ACT	On	Green	The port is successfully connecting with the device
	Blinks	Green	The port is receiving or transmitting data
	Off	--	No device attached
FDX /COL	On	Orange	The port is operating in Full-duplex mode
	Blinks	Orange	Collision of Packets occurs in the port
	Off	--	Half-duplex mode or no device attached

LNK /ACT (MINI GBIC)	On	Green	The port is successfully connecting with the device
	Blinks	Green	The port is receiving or transmitting data
	Off	--	No data transmitted or no device connected

The Description of LED Indicators

Desktop Installation

Set the switch on a sufficiently large flat space with a power outlet nearby. The surface where the switch locates should be clean, smooth, level and sturdy. Make sure there is enough clearance around the switch to allow attachment of cables, power cord and allow air circulation.

Attaching Rubber Pads

A. Make sure mounting surface on the bottom of the switch is grease and dust free.
B. Remove adhesive backing from the Rubber Pads.
C. Apply the Rubber Pad to each corner on the bottom of the switch. These footpads can prevent the switch from shock/vibration.

Power On

Connect the power adaptor to the power jag on the rear panel of the switch. The other side of power adaptor connects to the power outlet. The external power supply in the switch works with the AC power from 100 to 240V. Please check with the power indicator on the front panel to see if power is properly supplied.

Network Application

This section provides user a few samples of network topology in which the switch is used. In general, the 7 10/100/1000T + 1 Giga Copper/Mini GBIC Web Smart Switch is designed as a segment switch. That is, with its address table (8k MAC address) and high performance, it is ideal for interconnecting networking segments.

PC, workstations, and servers can communicate each other by directly connecting with 7 10/100/1000T + 1 Giga Copper/Mini GBIC Web Smart Switch. The switch automatically learns nodes address, which are subsequently used to filter and forward all traffic based on the destination address.

By using Uplink port, the switch can connect with another switch or hub to interconnect other small-switched workgroups to form a larger switched network. Meanwhile, you can also use fiber ports to connect switches. The distance between two switches via fiber cable depends on the type of fiber transceiver.

Small Workgroup

The 7 10/100/1000T + 1 Giga Copper/Mini GBIC Web Smart Switch can be used as a standalone switch to which personal computers, server, printer server, are directly connect to form small workgroup.
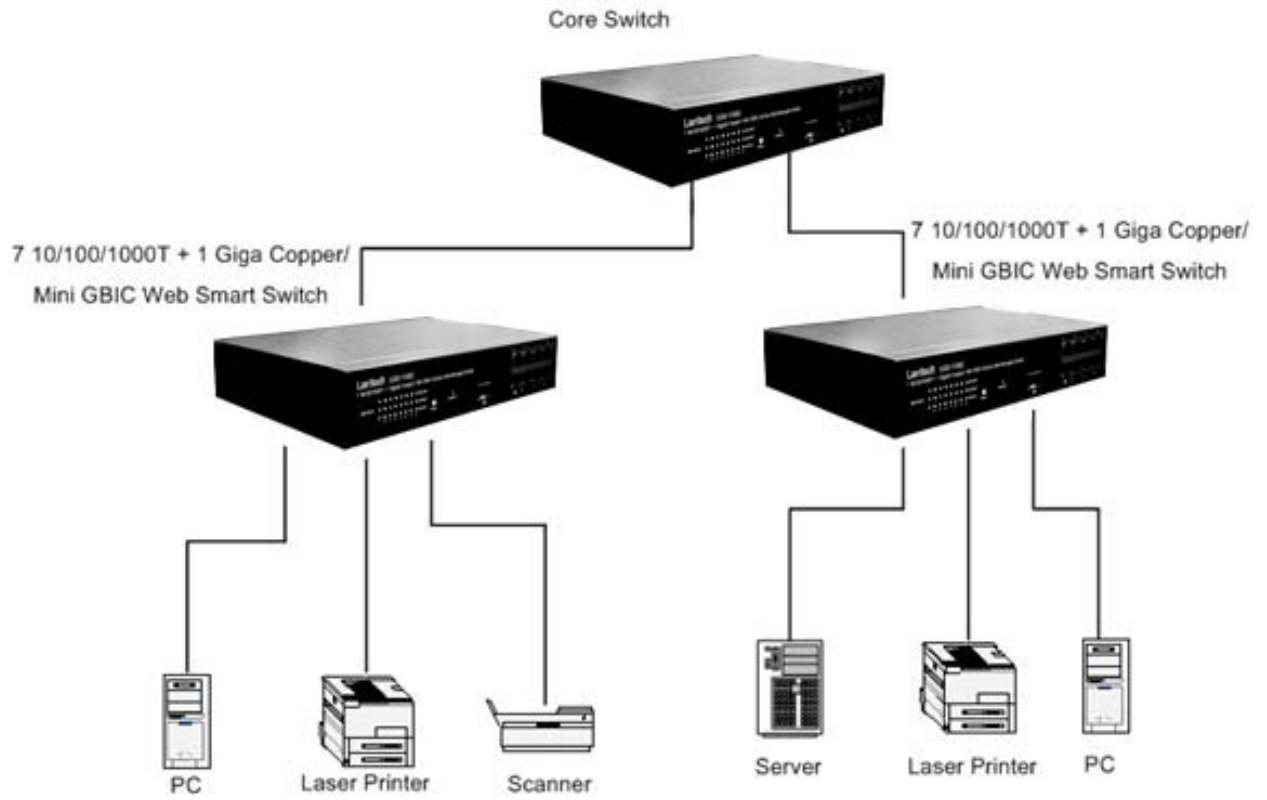
7 10/100/1000T + 1 Giga Copper/Mini GBIC
Web Smart Switch

PC   Laser Printer   Scanner
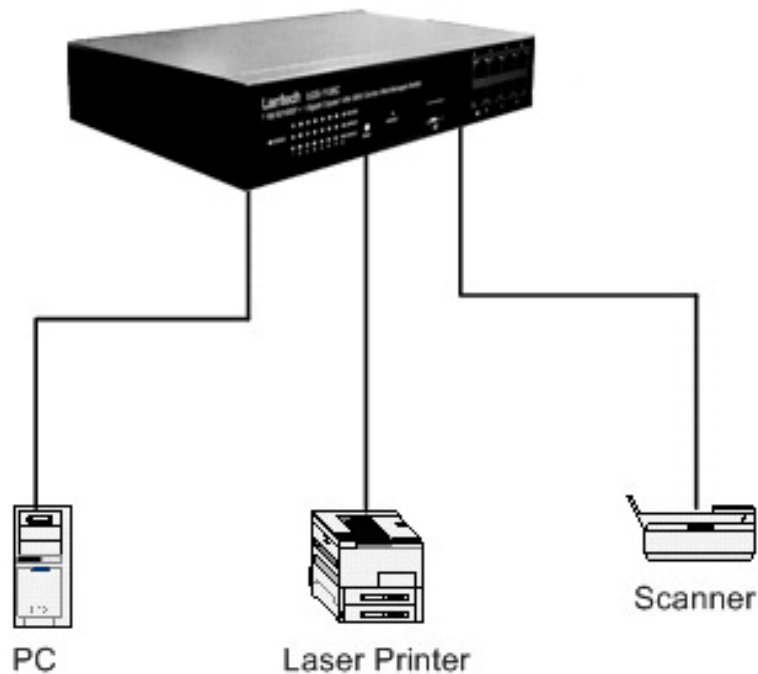
Segment Bridge

For enterprise networks where large data broadcasts are constantly processed, this switch is an ideal solution for department users to connect to the corporate backbone.

Use two 7 10/100/1000T + 1 Giga Copper/Mini GBIC Web Smart Switch with PCs, print server, and local server attached, are both connecting to the core switch. All the devices in this network can communicate with each other through the core switch. Connecting servers to the 7 10/100/1000T + 1 Giga Copper/Mini GBIC Web Smart Switch allows other users to access the data on server. By using fiber ports to connect switches, the distance between two switches depends on the type of fiber transceiver.

Core Switch

7 10/100/1000T + 1 Giga Copper/
Mini GBIC Web Smart Switch

7 10/100/1000T + 1 Giga Copper/
Mini GBIC Web Smart Switch

PC   Laser Printer   Scanner   Server   Laser Printer   PC

Web-Based Management

This section introduces the function configuration of the 7 10/100/1000T + 1 Giga Copper/Mini GBIC Web Smart Switch.

About Web-based Management

On the CPU board of the switch there is an embedded HTML web site residing in flash memory, which offers advanced management features and allow users to manage the switch from anywhere on the network through a standard browser such as Microsoft Internet Explorer.

The Web-Based Management supports Internet Explorer 5.0. And, it is applied with Java Applets for reducing network bandwidth consumption, enhance access speed and present an easy viewing screen.

[NOTE] By default, IE5.0 or later version does not allow Java Applets to activate sockets. In fact, the user has to explicitly modify the browser setting to enable Java Applets to operate network ports.

System Login

The default value is as below:
- IP Address: **192.168.16.1**
- Subnet Mask: **255.255.255.0**
- Default Gateway: **192.168.16.254**
- Password: **root**

1. Launch the Internet Explorer

2. Key in "http://" + "IP Address" of the 7 10/100/1000T + 1 Giga Copper/Mini GBIC Web Smart Switch, and then press "**Enter**"

3. Login screen will appear right after

4. Key in the password(The default password is "**root**")

5. And then, click [Apply], and then configuration is ready to be set up

Main Interface

System Configuration

Display system parameters information as listed below, and the other parameters of system can be configured as well.

■ **MAC Address:** The unique hardware address assigned by manufacturer (default)

■ **S/W Version:** The Software Version of Kernel

■ **H/W Version:** The Hardware Version of Switch

■ **Active IP Address:** Current IP Address

■ **Active Subnet Mask:** Current IP Subnet Mask

■ **Active Gateway:** Current Gateway

■ **DHCP Server:** DHCP Server IP Address

■ **Lease Time Left:** The DHCP lease time. After 50% of the lease time has passed, the client/switch will attempt to renew the lease with the original DHCP server that it obtained the lease from using a DHCPREQUEST message. Any

time the client/switch boots and the lease is 50% or more passed, the client/switch will attempt to renew the lease. At 87.5% of the lease completion, the client/switch will attempt to contact any DHCP server for a new lease

System Configuration

MAC Address	00-ff-38-ff-f2-f9
S/W Version	v1.04
H/W Version	1.0
Active IP Address	192.168.16.1
Active Subnet Mask	255.255.255.0
Active Gateway	192.168.16.254
DHCP Server	0.0.0.0
Lease Time Left	0 secs

DHCP Enabled	☐
Fallback IP Address	192.168.16.1
Fallback Subnet Mask	255.255.255.0
Fallback Gateway	192.168.16.254
Management VLAN (1~4095)	1
Name	root
Password	••••
Inactivity Timeout (10~10000secs, 0secs means login forever)	300

[Apply] [Refresh]

System Configuration interface

- **DHCP Enable:** To enable DHCP Client Function
- **Fallback IP Address:** Assigning the switch IP address(The default IP is 192.168.16.1)
- **Fallback Subnet Mask:** Assigning the switch IP Subnet Mask
- **Fallback Gateway:** Assigning the switch Gateway(The default value is 192.168.16.254)
- **Management VLAN:** It is used for Remote Management Security; in fact, it can

remote management that include telnet, SNMP, and Web browse the switch only when the port of VLAN group ID is equal to the Management VLAN ID

- **Name:** the name of the switch
- **Password:** Web GUI login password. The default password is root
- **Inactivity Timeout:** The web connection timeout time
- And then, click Apply to apply the configuration
- Or, click Refresh to reset the configuration before applying

Port Configuration

Configure the port of status.

- **Link:** Display the current connection speed(1000FDX, 100FDX, 100HDX, 10FDX, 10HDX, Down)
- **Mode:** Set the Auto Speed, 1000 Full mode of the port
- **Flows control:** Set Flow Control function is "enable" or "disable" in Full Duplex mode
- **MaxFrame(1518 ~ 9600):** The Maximum Frame Size that in Bytes fro frames received on the port. Tagged frames are allowed to be 4 Bytes longer than the Maximum Frame Size
- And then, click Apply to apply the configuration
- Or, click Refresh to reset the configuration before applying

Port Configuration

Port	Link	Mode	Flow Control	MaxFrame (1518~9600)
1	Down	Auto Speed ▾	☐	1518
2	Down	Auto Speed ▾	☐	1518
3	Down	Auto Speed ▾	☐	1518
4	Down	Auto Speed ▾	☐	1518
5	1000FDX	Auto Speed ▾	☐	1518
6	Down	Auto Speed ▾	☐	1518
7	Down	Auto Speed ▾	☐	1518
8	Down	Auto Speed ▾	☐	1518

Combo Port 1 is Copper Port

[Apply]   [Refresh]

Port Configuration interface

Statistics Overview

The following information provides the current port statistic information

■ Press [Clear] button to clean all counts

■ And then, click [Refresh] to get the new setting information as below:

Statistics Overview for all ports

Port	Tx Bytes	Tx Frames	Rx Bytes	Rx Frames	Tx Errors	Rx Errors
1	0	0	0	0	0	0
2	0	0	0	0	0	0
3	0	0	0	0	0	0
4	0	0	0	0	0	0
5	54291	104	516731	5813	0	0
6	0	0	0	0	0	0
7	0	0	3062797	35318	0	1
8	0	0	0	0	0	0

[Clear]   [Refresh]

Statistics Overview interface

Statistics Detail

The following information provides statistic detail information of statistic on each port, and simply selecting the port to viewing the statistic information.

■ Press Clear button to clean all counts

■ And then, click Refresh to get the new setting information as below:

Statistics for Port 1

Port 1	Port 2	Port 3	Port 4	Port 5	Port 6	Port 7	Port 8

Receive Total		Transmit Total	
Rx Packets	0	Tx Packets	0
Rx Octets	0	Tx Octets	0
Rx Broadcast and Multicast	0	Tx Broadcast and Multicast	0
Rx Error Packets	0	Tx Error Packets	0

[Clear] [Refresh]

Statistics Detail interface

VLAN Setting

A Virtual LAN (VLAN) is a logical network grouping that limits the broadcast domain, which would allows user to isolate network traffic so only the members of VLAN will receive traffic from the same members of VLAN. Basically, creating a VLAN from a switch is logically equivalent of reconnecting a group of network devices to another Layer 2 switch. However, all the network devices are still plugged into the same switch physically.

■ Assign the VLAN ID

■ Grouping the members of VLAN

■ Click Add All Port to add all of the ports into a VLAN entry.

■ Click Clear All Port to clear all of check box for canceling all the ports to be added into a VLAN entry.

■ And then, click Apply to bring up the configuration interface as below:

802.1Q Vlan Setting

Current Page: 1   Total Page:16

Vlan Entry No	Vlan ID/VID(1~4095)	Port1	Port2	Port3	Port4	Port5	Port6	Port7	Port8	Add All Ports	Clear All Ports
1	VID 1	☑	☑	☑	☑	☑	☑	☑	☑	add all	clear all
2	VID	☐	☐	☐	☐	☐	☐	☐	☐	add all	clear all
3	VID	☐	☐	☐	☐	☐	☐	☐	☐	add all	clear all
4	VID	☐	☐	☐	☐	☐	☐	☐	☐	add all	clear all
5	VID	☐	☐	☐	☐	☐	☐	☐	☐	add all	clear all
6	VID	☐	☐	☐	☐	☐	☐	☐	☐	add all	clear all
7	VID	☐	☐	☐	☐	☐	☐	☐	☐	add all	clear all
8	VID	☐	☐	☐	☐	☐	☐	☐	☐	add all	clear all
9	VID	☐	☐	☐	☐	☐	☐	☐	☐	add all	clear all
10	VID	☐	☐	☐	☐	☐	☐	☐	☐	add all	clear all
11	VID	☐	☐	☐	☐	☐	☐	☐	☐	add all	clear all
12	VID	☐	☐	☐	☐	☐	☐	☐	☐	add all	clear all
13	VID	☐	☐	☐	☐	☐	☐	☐	☐	add all	clear all
14	VID	☐	☐	☐	☐	☐	☐	☐	☐	add all	clear all
15	VID	☐	☐	☐	☐	☐	☐	☐	☐	add all	clear all
16	VID	☐	☐	☐	☐	☐	☐	☐	☐	add all	clear all

Quick Search Vlan Entry, Vlan ID: [ ] Search

[Vlan Port Setting]

[Apply] [Refresh] [FirstPage] [PrePage] [NextPage] [EndPage]

VLAN Setting interface

VLAN Port Setting

Click VLAN Port Setting to bring up the configuration interface for adjusting the VID Setting

■ **PVID:** Enter the Port VLAN ID

■ **Awareness:** Enable the awareness that ports will strip the VLAN tag from received frames and insert the tag in transmitted frames (PVID). Disable the awareness that ports will not strip the tag from received frames or insert the tag

in transmitted frames

- ■ **Frame Type:** To set the outgoing frames
  - ➢ **Tagged:** Outgoing frames with VLAN-Tagged
  - ➢ **All:** All type of frames
- ■ After that, click Apply to apply the configuration
- ■ Or, click Refresh to reset the configuration before applying

Vlan Port Setting

Port	PVID(1~4095)	Awareness	Frame Type
1	1	Disable	All
2	1	Disable	All
3	1	Disable	All
4	1	Disable	All
5	1	Disable	All
6	1	Disable	All
7	1	Disable	All
8	1	Disable	All

PVID can be set to 'none' used for trunk links. You can leave this value to none for setting PVID to none.

Apply Refresh

VLAN Port Setting interface

Port Trunk

Port trunk allows multiple links to be bundled together and act as a single physical link for increased throughput. It provides load balancing, and redundancy of links in a switched inter-network. Actually, the link does not have an inherent total bandwidth equal to the sum of its component physical links. Traffic in a trunk is distributed across an individual link within the trunk in a deterministic method that called a hash algorithm. Traffic pattern on the network should be considered carefully before you apply it. When a proper hash algorithm is used, traffic is kind of randomly decided to be transmitted across either link within the trunk and load balancing will be seen.

- Grouping the members of Trunk. Normal means the port is not trunk port
- And then, click Apply to apply the configuration
- Or, click Refresh to reset the configuration before applying

Aggregation/Trunking Configuration

Group\Port	1	2	3	4	5	6	7	8
Normal	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙
Group 1	○	○	○	○	○	○	○	○
Group 2	○	○	○	○	○	○	○	○

Apply   Refresh

Port Trunk interface

LACP Setting

The Link Aggregation Control Protocol (LACP) provides a standardized means for exchanging information between Partner Systems on a link to allow their Link Aggregation Control instances to reach agreement on the identity of the Link Aggregation Group to which the link belongs, move the link to that Link Aggregation Group, and enable its transmission and reception functions in an orderly manner. Link aggregation lets user group up to eight consecutive ports into a single dedicated connection. This feature can expand bandwidth to a device on the network. **LACP operation requires full-duplex mode,** more detail information refers to IEEE 802.3ad.

- **Protocol Enable:** To enable the LACP protocol of the port
- **Key Value:** The LACP key determines which ports potentially can aggregate together
- And then, click Apply to apply the configuration

■   Or, click   Refresh   to reset the configuration before applying

LACP Port Configuration

Port	Protocol Enabled	Key Value
1	☐	auto
2	☐	auto
3	☐	auto
4	☐	auto
5	☐	auto
6	☐	auto
7	☐	auto
8	☐	auto

Apply   Refresh

LACP Setting interface

LACP Status

When the LACP aggregator had been setup, the LACP status information will display as below:

LACP Aggregation Overview

Group/Port	1	2	3	4	5	6	7	8
Normal								

Legend

	Down	Port link down
0	Blocked	Port Blocked by RSTP. Number is Partner port number if other switch has LACP enabled
0	Learning	Port Learning by RSTP
	Forwarding	Port link up and forwarding frames
0	Forwarding	Port link up and forwarding by RSTP. Number is Partner port number if other switch has LACP enabled

LACP Port Status

Port	Protocol Active	Partner Port Number	Operational Port Key
1	no		
2	no		
3	no		
4	no		
5	no		
6	no		
7	no		
8	no		

Refresh

LACP Status interface

Spanning Tree

The Rapid Spanning Tree Protocol (RSTP) is an evolution of the Spanning Tree Protocol and provides for faster spanning tree convergence after a topology change. The system also supports STP and the system will auto detect the connected device that is running STP or RSTP protocol.

RSTP System Configuration

■ **System Priority:** A value used to identify the root bridge. The bridge with the

lowest value has the highest priority and is selected as the root. If the value has being changed, user has to reboot the switch. The value must be multiple of 4096 according to the protocol standard rule.

- **Hello Time (1-10):** The scale of 1~10 sec will be set as a period of time that how often the switch broadcasts hello messages to other switches

- **Max Age (6-40):** The number of seconds (from 6~ 40) which determines the amount of time that protocol information received on a port is stored by the switch.

- **Forward Delay Time (4-30):** The number of seconds (from 4 ~ 30) which determines how long each of the listening and learning states will last before the port begins forwarding.

- **Force version:** Select the RSTP default protocol. Normal means RSTP protocol. Compat is for compatibling with STP protocol.

RSTP System Configuration

System Priority	32768
Hello Time (1~10)	2
Max Age (6~40)	20
Forward Delay (4~30)	15
Force version	Normal

RSTP Port Configuration

Port	Protocol Enabled	Edge	Path Cost(auto|1-200000000)
Aggregations	☐		
1	☐	☑	auto
2	☐	☑	auto
3	☐	☑	auto
4	☐	☑	auto
5	☐	☑	auto
6	☐	☑	auto
7	☐	☑	auto
8	☐	☑	auto

[Apply] [Refresh]

RSTP Configuration interface

RSTP Port Configuration

- **Protocol Enable:** To enable or disable the port protocol
- **Edge:** The port directly connected to end stations cannot create bridging loop in the network. To configure the port as an edge port, mark the port
- **Path Cost:** The cost of the path to the other bridge from this transmitting bridge at the specified port. Enter a number 1 through 200000000
- And then, click Apply to apply the configuration
- Or, click Refresh to reset the configuration before applying

Spanning Tree Status

Click Refresh to get the newest configuration information. Also, the RSTP VLAN Bridge information will display as below:

RSTP VLAN Bridge Overview

VLAN Id	Bridge Id	Hello Time	Max Age	Fwd Delay	Topology	Root Id
1	32769:00-ff-38-ff-f2-e9	2	20	15	Steady	This switch is Root!

RSTP Port Status

Port/Group	Vlan Id	Path Cost	Edge Port	P2p Port	Protocol	Port State
Port 1						Non-STP
Port 2						Non-STP
Port 3						Non-STP
Port 4						Non-STP
Port 5						Non-STP
Port 6						Non-STP
Port 7						Non-STP
Port 8						Non-STP

Refresh

802.1X Configuration

802.1x is an IEEE authentication specification that allows a client to connect to a wireless access point or wired switch but prevents the client from gaining access to the Internet until it provides credentials, like a user name and password that are verified by a separate server.

- **Mode:** To disable or enable 802.1x protocol
- **RADIUS IP:** Set the Radius Server IP address
- **RADIUS UDP Port:** Set the UDP destination port for authentication requests to the specified Radius Server
- **RADIUS Secret:** Set an encryption key for use during authentication sessions with the specified radius server. This key must match the encryption key used on the Radius Server
- **Admin State:** Select the state of port
  - ➤ **Force Authorized:** The specified port is required to be held in the unauthorized state
  - ➤ **Force Unauthorized:** The specified port is required to be held in the authorized state
  - ➤ **Auto:** The specified port is set to the authorized or unauthorized state in accordance with the outcome of an authentication exchange between the Supplicant and the authentication server
- **Re-authenticate:** Restart authentication process for the port
- **Force Reinitialize:** Restart a complete authentication process for the port
- **Statistics:** Click to view each port statistic
- **Re-authenticate All:** Restart authentication process for all the port
- **Force reinitialize All:** Restart a complete authentication process for the port
- And then, click Apply to apply the configuration

■ Or, click Refresh to reset the configuration before applying

802.1X Configuration

Mode: Disabled

RADIUS IP   0.0.0.0

RADIUS UDP Port 1812

RADIUS Secret

Port	Admin State	Port State			
1	Force Authorized	802.1X Disabled	Re-authenticate	Force Reinitialize	Statistics
2	Force Authorized	802.1X Disabled	Re-authenticate	Force Reinitialize	Statistics
3	Force Authorized	802.1X Disabled	Re-authenticate	Force Reinitialize	Statistics
4	Force Authorized	802.1X Disabled	Re-authenticate	Force Reinitialize	Statistics
5	Force Authorized	802.1X Disabled	Re-authenticate	Force Reinitialize	Statistics
6	Force Authorized	802.1X Disabled	Re-authenticate	Force Reinitialize	Statistics
7	Force Authorized	802.1X Disabled	Re-authenticate	Force Reinitialize	Statistics
8	Force Authorized	802.1X Disabled	Re-authenticate	Force Reinitialize	Statistics
			Re-authenticate All	Force Reinitialize All	

Parameters

Apply   Refresh

802.1X Configuration interface

Parameters Configuration

■ **Reauthentication Enable:** To enable the re-authentication mode

■ **Reauthentication period (1~3600 seconds):** Set the period of time after which clients connected must be re-authenticated

■ **EPA Timeout (1~255 seconds):** Set the period of time the switch waits for a supplicant response to an EAP request

■ And then, click Apply to apply the configuration

■ Or, click Refresh to reset the configuration before applying

802.1X Parameters

Reauthentication Enabled	☐ Enabled
Reauthentication Period [1-3600 seconds]	3600
EAP timeout [1 - 255 seconds]	30

Apply   Refresh

QoS Setting

Configuring QoS mode of the port and per port priority, TOS and COS priority setting.

■ **Mode:** Select the QoS mode – port, DSCP, or vlantag

■ **Port Priority:** Select the priority level – low, normal, medium, or high

■ And then, click   Apply   to apply the configuration

■ Or, click   Refresh   to reset the configuration before applying

QoS Configuration

Port	Mode	Port Priority
1	port ▾	high ▾
2	port ▾	high ▾
3	port ▾	high ▾
4	port ▾	high ▾
5	port ▾	high ▾
6	port ▾	high ▾
7	port ▾	high ▾
8	port ▾	high ▾

[DSCP Mapping]

[Vlan tag Mapping]

[Apply] [Refresh]

QoS Configuration interface

- Click DSCP Mapping to enter TOS priority configuration interface

  ➢ **DSCP [0- 63]:** The system provides 0~63 TOS priority level. When the IP packet is received, the system will check the TOS level value in the IP packet that has received. For example: user set the TOS level 25 is high. The port 1 is following the TOS priority policy. When the packet received by port 1, the system will check the TOS value of the received IP packet. If the TOS value of received IP packet is 25(priority = high), and then the packet priority will have highest priority

  ➢ **Priority:** Select the priority level – high, medium, low, or normal

- And then, click Apply to apply the configuration

- Or, Click Refesh to reset the configuration before applying

QoS DSCP Mapping

DSCP [0-63]	Priority
	high
	high
	high
	high
	high
	high
	high
All others	high

Apply   Refresh

QoS DSCP Mapping interface

■ Click VLAN tag Mapping to enter VLAN tag priority configuration interface.

Select the VLAN tag priority level: High, Medium, Normal and Low.

■ And then, click Apply to apply the configuration

■ Or, press Refresh to reset the configuration before applying

QoS Vlan Tag Priority Mapping

Port	VaInTag=0	VaInTag=1	VaInTag=2	VaInTag=3	VaInTag=4	VaInTag=5	VaInTag=6	VaInTag=7
1	normal	low	low	normal	medium	medium	high	high
2	normal	low	low	normal	medium	medium	high	high
3	normal	low	low	normal	medium	medium	high	high
4	normal	low	low	normal	medium	medium	high	high
5	normal	low	low	normal	medium	medium	high	high
6	normal	low	low	normal	medium	medium	high	high
7	normal	low	low	normal	medium	medium	high	high
8	normal	low	low	normal	medium	medium	high	high

Apply   Refresh

QoS VLAN Tag Priority Mapping interface

System Restart

Reboot the switch in software reset. All the configurations will be reminded

- Click **Yes** to restart the system

Warm Restart

Are you sure you want to perform a Warm Restart? Yes No

System Restart interface

Factory Default

Reset switch to default configuration

- Click **Yes** to reset the all configuration to the default value

Factory Default

Are you sure you want to perform Factory Default and Warm Restart? Yes No

Factory Default interface

Firmware Upload

The system provides the Web GUI firmware update function which would allow the user to update the switch firmware.

- Click **Browse** to locate the firmware

■ And then, press [Upload] to update the firmware

Software Upload

[_____] [瀏覽...]

[Upload]

Warnning: Upload Progress cannot be interrupted. You should not open other webpages when uploaded. This operation may cause system to crash very easily. When you have to do this, we strongly recommand you to reboot system before upgrade.
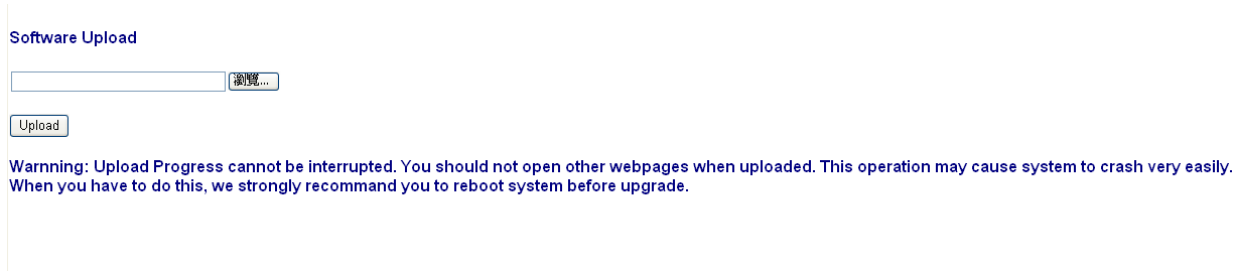
Firmware Upload interface

Configuration File Transfer

The system provides the Web GUI configuration upload function which would allow the user to backup the switch configuration.

■ Click [Browse] to locate the path for Uploading

■ And then, press [Upload] to update the configuration file

■ And then, press [Download] to download the configuration file

Configuration Upload

[_____] [Browse]

[Upload]

Configuration Download

[Download]
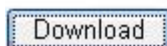
Firmware Upload interface

Troubleshooting

This section is intended to help user solve the most common problems on the 7 10/100/1000T + 1 Giga Copper/Mini GBIC Web Smart Switch with.

Incorrect connections

The switch port can auto detect straight or crossover cable when link switch with other Ethernet device. For the RJ-45 connector should use correct UTP or STP cable, 10/100Mbps port use 2 pairs twisted cable and Gigabit 1000T port use 4 pairs twisted cable. If the RJ-45 connector is not correct pin on right position then the link will fail.   For fiber connection, please notice that fiber cable mode and fiber module should be match.

■ Faulty or loose cables

Look for loose or obviously faulty connections. If they appear to be OK, make sure the connections are snug. IF that does not correct the problem, try a different cable.

■ Non-standard cables

Non-standard and miss-wired cables may cause numerous network collisions and other network problem, and can seriously impair network performance. A category-5 cable tester is a recommended tool for every 100Base-T network installation.

RJ-45 ports: use unshielded twisted-pair (UTP) or shield twisted-pair (STP) cable for RJ-45 connections: 100Ω Category 3, 4 or 5 cable for 10Mbps connections   or 100Ω Category 5 cable for 100Mbps connections. Also be sure that the length of

any twisted-pair connection does not exceed 100 meters (328 feet). Gigabit port should use Cat-5 or cat-5e cable for 1000Mbps connections. The length does not exceed 100 meters.

■ **Improper Network Topologies**

It is important to make sure that have a valid network topology. Common topology faults include excessive cable length and too many repeaters (hubs) between end nodes. In addition, user should make sure that the network topology contains no data path loops. Between any two ends nodes, there should be only one active cabling path at any time. Data path loops will cause broadcast storms that will severely impact the network performance.

Diagnosing LED Indicators

The switch can be easily monitored through panel indicators to assist in identifying problems, which describes common problems may encounter and where can find possible solutions.

If the power indicator does turn on when the power cord is plugged in, it may have a problem with power outlet, or power cord. However, if the switch powers off after running for a while check for loose power connections, power losses or surges at power outlet. If the problem still cannot be solved, contact the local dealer for assistance.

Technical Specification

This section provides the specifications of 7 10/100/1000T + 1 Giga Copper/Mini GBIC Web Smart Switch with.

Standard	IEEE 802.3 10BASE-T Ethernet IEEE 802.3u 100BASE-TX Fast Ethernet IEEE 802.3ab 1000Base-T IEEE 802.3z Gigabit Fiber IEEE 802.3x Flow Control and Back-pressure IEEE 802.1w Rapid Spanning Tree IEEE 802.3ad Port trunk with LACP IEEE 802.1p Class of Service IEEE 802.1x user authentication IEEE 802.1q Port VLAN Tag
Protocol	CSMA/CD
Technology	Store-and-Forward switching architecture
Transfer Rate	14,880 pps for 10Mbps 148,800 pps for 100Mbps 1,488,000 pps for 1000Mbps

LED Indicators	Per RJ-45 port: 100/1000
	              Link/Activity
	              Full duplex/ Collision
	 Per MINI GBIC: Link/Activity

	Per unit: Power

Network Cable	10BASE-T: 2-pair UTP/STP Cat. 3, 4, 5 cable
	            EIA/TIA-568 100-ohm (100m)
	100BASE-TX: 2-pair UTP/STP CAT. 5 cable
	             EIA/TIA-568 100-ohm (100m)
	Gigabit Copper: 4 pair UTP/STP CAT. 5 cable
	               EIA/TIA 568 100-ohm (100M)

Connector	Gigabit copper: 8 x RJ-45 with Auto-MDIX MINI GBIC: 1 x MINI GBIC socket (3.3v)
Back-plane	16Gbps
MAC address	8K Mac address table
Memory Buffer	144Kbytes
Jumbo packet	Support 9Kbytes jumbo frame
Dimensions	250mm(W) x 133mm(D) x 37mm(H)
Power Supply	Internal power AC 100~240V / 50~60Hz
Power Consumption	4.8 Watt (maximum)
Operating Temperature	0℃ to 45℃ (32℉ to 113℉)

Operating Humidity	10% to 90% (Non-condensing)
EMI	FCC Class A CE
Safety	UL cUL

Appendix

10 /100BASE-TX Pin outs

With10 /100BASE-TX cable, pins 1 and 2 are used for transmitting data, and pins 3 and 6 for receiving data.

■ **RJ-45 Pin Assignments**

Pin Number	Assignment
1	Tx+
2	Tx-
3	Rx+
6	Rx-

[NOTE] "+" and "-" signs represent the polarity of the wires that make up each wire pair.

The table below shows the 10 / 100BASE-TX MDI and MDI-X port pin outs.

Pin MDI-X	Signal Name	MDI Signal Name
1	Receive Data plus (RD+)	Transmit Data plus (TD+)
2	Receive Data minus (RD-)	Transmit Data minus (TD-)
3	Transmit Data plus (TD+)	Receive Data plus (RD+)
6	Transmit Data minus (TD-)	Receive Data minus (RD-)

10/100Base-TX Cable Schematic

The following two figures show the 10/100Base-TX cable schematic.

Switch   Router or PC

3 TD+ ――――――→ 3 RD+
6 TD- ――――――→ 6 RD-

1 RD+ ←―――――― 1 TD+
2 RD- ←―――――― 2 TD-

Straight-through cable schematic

Switch   Switch

3 TD+   3 TD+
6 TD-   6 TD-

1 RD+   1 RD+
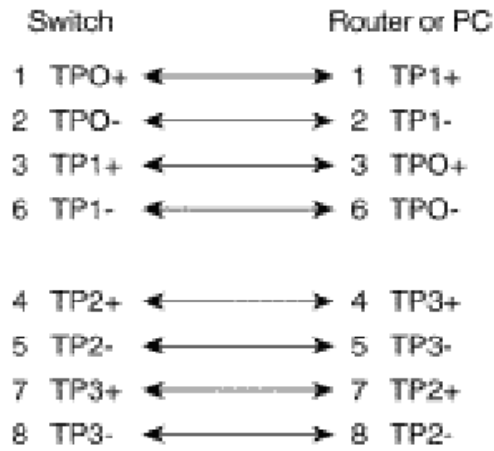2 RD-   2 RD-

Cross over cable schematic
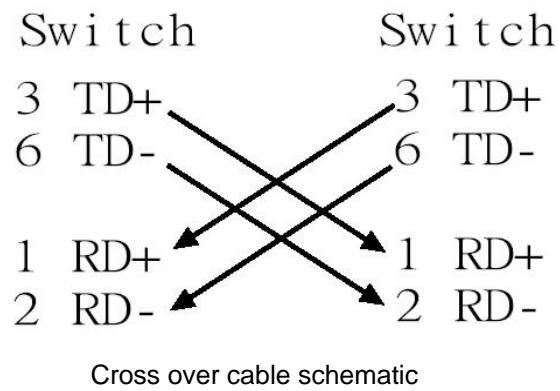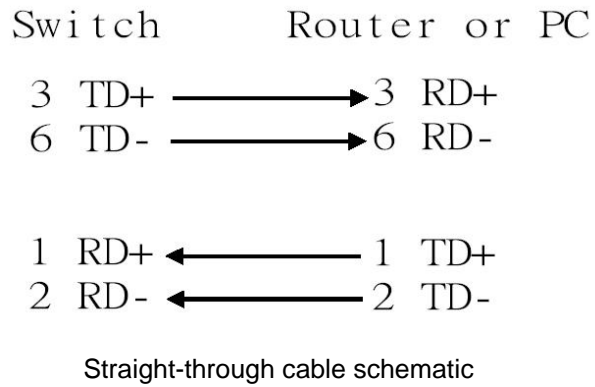
10/100/1000Base-TX Pin outs

The following figure shows the 10/100/1000 Ethernet RJ-45 pin outs.

Pin Number	Assignment
1	TP0+
2	TP0-
3	TP1+
6	TP1-

10/100/1000Base-TX Cable Schematic

```
        Switch                          Router or PC

    1   TPO+   ◄─────────────►   1   TP1+
    2   TPO-   ◄─────────────►   2   TP1-
    3   TP1+   ◄─────────────►   3   TPO+
    6   TP1-   ◄─────────────►   6   TPO-


    4   TP2+   ◄─────────────►   4   TP3+
    5   TP2-   ◄─────────────►   5   TP3-
    7   TP3+   ◄─────────────►   7   TP2+
    8   TP3-   ◄─────────────►   8   TP2-
```

Straight through cables schematic

```
        Switch                          Switch

    1   TPO+   ◄───┐   ┌────►   1   TP0+
    2   TPO-   ◄── ╲ ╱ ──►      2   TP0-
    3   TP1+   ◄── ╱ ╲ ──►      3   TP1+
    6   TP1-   ◄───┘   └────►   6   TP1-


    4   TP2+   ◄───┐   ┌────►   4   TP2+
    5   TP2-   ◄── ╲ ╱ ──►      5   TP2-
    7   TP3+   ◄── ╱ ╲ ──►      7   TP3+
    8   TP3-   ◄───┘   └────►   8   TP3-
```
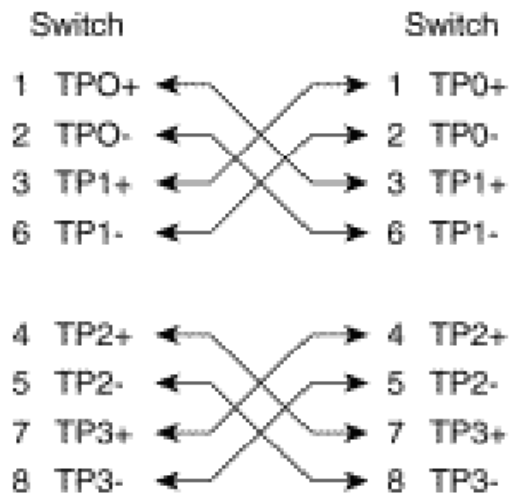
Cross over cables schematic