

Gigabit Switch

8-Port Gigabit Ethernet
Switch

GS810w



Networking

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1 Getting to know the Switch

1.1 Introduction

The Gigabit Ethernet Switch is equipped with 8 Gigabit copper ports and each port provides a max speed of 2000Mbps and a Full-Duplex, Collision Free Bandwidth. It's a multi-speed, versatile network device that combines Gigabit, Fast Ethernet, and Ethernet ports in a single device. This device meets RoHS compliance. It saves power with Green Ethernet technology.

1.2 Key Features

- Supports Auto-Negotiation on each TP port
- Supports 2047byte maximum packet length
- Supports Green Ethernet
 - Link-On and Cable Length Power Saving : The switch provides detection of cable length and adjustment of power required for the detected cable length. This feature provides high performance with minimum power consumption
 - Link-Down Power Saving : The switch implements link-down power saving on a per-port basis, greatly cutting power consumption when the network cable is disconnected greatly cutting power consumption when the network cable is disconnected
 - IEEE 802.3az Energy Efficient Ethernet (EEE) supported : Energy Efficient Ethernet (EEE) ability for 100Base-TX in full duplex operation, and supports 10Base-Te for 10Base-T in full/half duplex, which can reduce power consumption during periods of low link utilization
- Provides Store-and-Forward switching scheme
- Supports Auto-MDI/MDI-X function
- Supports IEEE 802.3x Flow-Control for Full-Duplex operation
- Back-Pressure function supports for Half-Duplex operation
- 2K-entry lookup MAC address table
- Loop detection : If a loop is detected, the switch will drive the external LEDs and buzzer alarm
- Supports QoS (Quality of Service) function
- Supports VLAN function

1.3 The Front Panel



1.3.1 LEDs status

Information about the Switch's activity is displayed through its LEDs, shown as below.

LED	Function	Color	Status	Description
Power x1	Power indication	Green	On	Power is being applied to this product
		Orange	Blinking 30ms	Loop detected
		Red		
Port x 8	Ethernet port activity	Green	On	Connected at 10/100Mbps
			Blinking 30ms	10/100Mbps TX/RX Activity
		Orange	On	Connected at 1000Mbps
			Blinking 30ms	1000Mbps TX/RX Activity
			Blinking 30ms	Loop detected

1.4 The Rear Panel



1.4.1 Power Connector

The power connector is designed to be used with the power adapter included in the product package.

1.4.2 Network Ports

The Switch is equipped with eight RJ-45 ports that support network speeds of 10/100/1000Mbps.

1.4.3 Cabling

1000Mbps - To transmit at 1000Mbps requires Cat.5 TP cabling that has all Four (4) twisted-pair wires connected in RJ45 connector.

100Mbps - To transmit at 100Mbps requires Cat. 5 cabling.

10Mbps - When transmitting at 10Mbps, Cat. 3, 4 or 5 TP cabling with RJ-45 sockets can be used.

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

Note: Cat. 5 TP cable recommended whenever installing new cabling.

1.4.4 QoS/VLAN mode switch

The Switch button can setup two mode of QoS function. You must restart the power when setting the switch button.

1.4.4.1 QoS

- Normal model

- ◆ Port 8 —> Normal Priority (Red)
- ◆ Port 7 —> Normal Priority (Red)
- ◆ Port 6 —> Normal Priority (Green)
- ◆ Port 5 —> Normal Priority (Green)
- ◆ Port 4 —> Normal Priority (Red)
- ◆ Port 3 —> Normal Priority (Red)
- ◆ Port 2 —> Normal Priority (Green)
- ◆ Port 1 —> Normal Priority (Green)

- Auto control mode

- ◆ Group1

- Port 8 —> High Priority (Red)
- Port 7 —> High Priority (Red)
- Port 6 —> Normal Priority (Green)

- Port 5 —> Normal Priority (Green)
- ◆ Group2
 - Port 4 —> High Priority (Red)
 - Port 3 —> High Priority (Red)
 - Port 2 —> Normal Priority (Green)
 - Port 1 —> Normal Priority (Green)

1.4.4.2 VLAN

HG-3208 provides two VLAN groups, 1~4port and 5~8 port. These 2 groups can not communicate with each other when VLAN enable

2 Useful Tips

2.1 Prior to Installation

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

- **Dedicated Bandwidth:** File servers and other high-traffic hardware will have better and improved performance if they have their own dedicated 10Mbps, 100Mbps, or 1000Mbps bandwidth.
- **Full-Duplex:** Determine which devices support Full-Duplex connections.
- **Fast Ethernet & Gigabit Ethernet:** Make sure rules for cable lengths and categories are followed. 100BASE-TX and 1000BASE-T have the same rules for cable and distance.
- **Auto-Negotiation:** Devices with different speeds may be easily swapped when the other end of the cable is fixed to a port with Auto-Negotiation.

2.2 Half- and Full-Duplex

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

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

However:

- Full-Duplex transmission is only possible between two devices with a dedicated link (e.g., Switch-Switch, Switch-PC)
- Both devices must have Full-Duplex capability
- Both devices must be set to Full-Duplex (e.g. Auto-Negotiation – Auto-Negotiation, Non-Auto-Negotiation to Non-Auto-Negotiation)

The 10/100/1000Mbps ports on the switch detect and set the line's operating mode by using their Auto-Negotiation function.

2.3 Auto-Negotiation

Every 10/100/1000Mbps port on the switch has a built-in "Auto-Negotiation" function. This technology allows each port to automatically sense and set the best possible speed as soon as a connection with another network device is established (usually at Power "On" or Reset).

Evaluating Auto-Negotiation Capability:

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

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

3 PRODUCT SPECIFICATIONS

Item	Specification
Key Components	
Chipset	Realtek RTL8370 (8-port MAC with 8-port PHY)
Ethernet Interfaces	
Standards	IEEE 802.3 10Base-T Ethernet IEEE 802.3u 100Base-TX Fast Ethernet IEEE 802.3ab 1000Base-T Gigabit Ethernet IEEE 802.3x Flow Control
Ethernet Port	8 x 10Base-T/100Base-TX/1000Base-T Gigabit Ethernet ports Supports Auto-MDI/MIDX and Auto-Negotiation Supports 10Base-T: Category 3、4 or 5 TP Supports 100Base-TX/1000Base-T : Category 5、5e TP
Transfer Mode	Store-and-Forward
MAC Address Table	8K-entry lookup table
Bandwidth	10BASE-T: 10/20Mbps (half/full duplex) 100BASE-TX: 100/200Mbps (half/full duplex) 1000BASE-T: 2000Mbps (full duplex)
Forwarding/Filtering Rate	14881 packets/second per port @ 10Mbps maximum 148810 packets/second per port @ 100Mbps maximum 1488095 packets/second per port@1000Mbps maximum
Switch Fabric	16Gbps
Jumbo Frame	Supports maximum 9216bytes packet length
Green Ethernet	Link-On and Cable Length Power Saving Link-Down Power Saving IEEE 802.3az Energy Efficient Ethernet (EEE)
Miscellaneous	
LED Indicators	Power x 1 Port Link/Act/Loop x 8
Operation Requirement	Operating Temp. 攝氏 0 to 40 度(華氏 32 to 104 度) Storage Temp. 攝氏 -20 to 70 度(華氏 -4 to 158) Operating Humidity 10% to 85% Non-Condensing Storage Humidity 5% to 90% Non-Condensing
Power Supply	Power Adapter DC5V/1A

Dimensions	145(L) x 85(W) x 25(H) mm
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