level® one

GSW-0509/GSW-0809

5/8-Port Gigabit Switch

V1. 0_20150422

Table Of Contents

1. INTRODUCTION

1.1 Product Briefs

The switch is a un-management layer 2 10/100/1000Mbps switch; it provide dedicated 10, 100 or 1000 Mbps Ethernet bandwidth on each port. The ports will automatically detect the speed, duplex and MDI/MDIX status of the device it is connecting to, and adjust these settings accordingly. The Switch ports can be used to network computers, printers, servers, routers, other switches or any device equipped with an Ethernet port. For best performance, use Category 5 or better Ethernet cabling.

This stand-alone Switch is very easy to set up, there is no network management required. Just power on the Switch and connect the cables. Keep in mind however that the standard rules of Ethernet regarding cable length apply to this and all Ethernet devices. The length of an Ethernet cable from one device to another cannot exceed 100 meters (or 300 feet).

1.2 Product Features

The Switches do not require any management. All Switches are designed for easy installation, flexibility and high performance. Connect devices to the Switch as the scale and volume of network traffic increases.

- 5/8 10/100/1000Mbps Ethernet ports
- Auto-Negotiation for 10/100/1000Mbps and duplex mode
- Auto-MDI/MDIX for each port
- Supports Full/Half-duplex transfer mode for 10 and 100Mbps
- Supports Full-duplex transfer mode for 1000Mbps
- Full wire speed reception and transmission
- Store-and-Forward Switching method
- Supports 8K absolute MAC addresses
- 5-Port Switch Supports 125KB RAM for data buffering
- 8-Port Switch Supports 125KB RAM for data buffering
- IEEE 802.3x flow control for Full-duplex
- Back pressure flow control for Half-duplex

Gigabit Ethernet is an extension of IEEE 802.3 Ethernet utilizing the same packet structure, format, and support for CSMA/CD protocol, full duplex, flow control, and management objects, but with a tenfold increase in theoretical throughput over 100-Mbps Fast Ethernet and a hundredfold increase over 10-Mbps Ethernet. Since it is compatible with all 10-Mbps and 100-Mbps Ethernet environments, Gigabit Ethernet provides a straightforward upgrade without wasting a company's existing investment in hardware, software and trained personnel.

The increased speed and extra bandwidth offered by Gigabit Ethernet is essential to coping with the network bottlenecks that frequently develop as computers and their bus speeds get faster and more users use applications that generate more traffic. Upgrading key components, such as your backbone and servers to Gigabit Ethernet can greatly improve network response times as well as significantly speed up the traffic between your subnets.
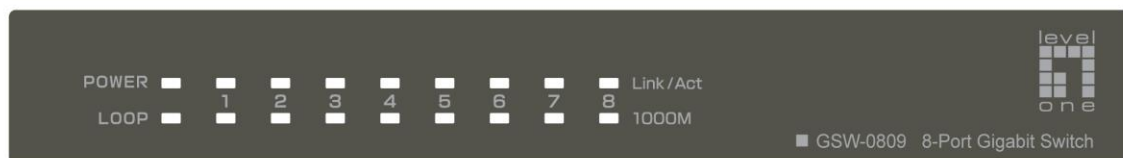
1.3 Hardware Introduction

1.3.1   Product Appearance

1．Front Panel
The figure below shows the front panel of the Switch.

5-Port Gigabit Switch Front Panel

8-Port Gigabit Switch Front Panel

2．Rear Panel

The figure below shows the rear panel of the Switch. There is a AC inlet in the 5/8-Port switch rear panel.

5-Port Gigabit Switch Rear Panel

8-Port Gigabit Switch Rear Panel

Auto MDI/MDI-X Ports:

All ports support automatic MDI/MDI-X crossover detection. The AutoMDI/MDI-X function makes it simple to connect to the switch—just plug either a Crossover or Straight-Through CAT5 cable into any port.

AC inlet

Power is supplied through external AC power. The input AC voltage is 100~240V.

1.3.2 LED Indicators

Table 1-3 Ethernet Switch LED Indicators

LED	Panel signature	Status	Description
Power Indicator	Power	Green ON	Switch is powered ON
		OFF	Switch is powered OFF
Speed	1000M	Green ON	1000Mbit/s

Indicator		OFF	1000M no link
Status Indicator	Link/Act	Green ON	Link
		Green Blinking	Activity
		OFF	No link path
	Loop	Red ON	Network has loops
		OFF	Network normal

2. CONNECTING THE SWITCH

2.1 Package Contents

Open the shipping carton of the Switch and carefully unpack its contents.

The carton should contain the following items:

● One 5/8 Port 10/100/1000BASE-T Gigabit Ethernet Switch

● Four rubber feet with adhesive backing

● One power Cord

● CD-ROM with product documentation

If any item is found missing or damaged, please contact your local reseller for replacement.

2.2 Before You Connect to the Network

The site where you install the Switch may greatly affect its performance. Please follow these guidelines for setting up the Switch.

● Install the Switch on a sturdy, level surface that can support at least 3 kg (6.6 lbs) of weight. Do not place heavy objects on the Switch.

● The power outlet should be within 1.82 meters (6 feet) of the Switch.

● Visually inspect the power cord and see that it is fully secured to the AC power port.

● Make sure that there is adequate space for proper heat dissipation from and adequate ventilation around the Switch. Leave at least 10 cm (4 inches) of space at the front and rear of the Switch for ventilation.

● Install the Switch in a fairly cool and dry place for the acceptable temperature and humidity operating ranges.

● Install the Switch in a site free from strong electromagnetic field generators (such as motors), vibration, dust, and direct exposure to sunlight.

● When installing the Switch on a level surface, attach the rubber feet to the bottom of the device. The rubber feet cushion the Switch, protect the casing from scratches and prevent it from scratching other surfaces.

3. Connecting the switch

Cable Quality

For all connections to the Switch, use these rules to determine the Cable quality.

- For connections to 10BASE-T and 100BASE-TX devices, use Category 5 or 5e UTP/STP cable.
- For connections to 1000BASE-T and 100BASE-TX devices, use Category 5e or better UTP/STP cable. All 1000BASE-T connections operate in full duplex mode.
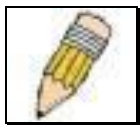
NOTE: UTP (Unshielded Twisted Pair) Ethernet cabling is adequate for most small office environments. More expensive STP (Shielded Twisted Pair) can also be used, but is generally only needed where there will be risk of strong Electromagnetic of Radio Frequency Interference.

3.1 Switch to End Node or Server

End nodes include PCs outfitted with a 10, 100 or 1000 Mbps RJ-45 Ethernet/Fast Ethernet Network Interface Card (NIC) and Ethernet ready routers. Use standard Ethernet cable to connect the Switch to end nodes. Switch ports will automatically adjust to the hardware characteristics (MDI-II/MDI-X, speed, duplex) of the device to which it is connected. Switch connected to an end node
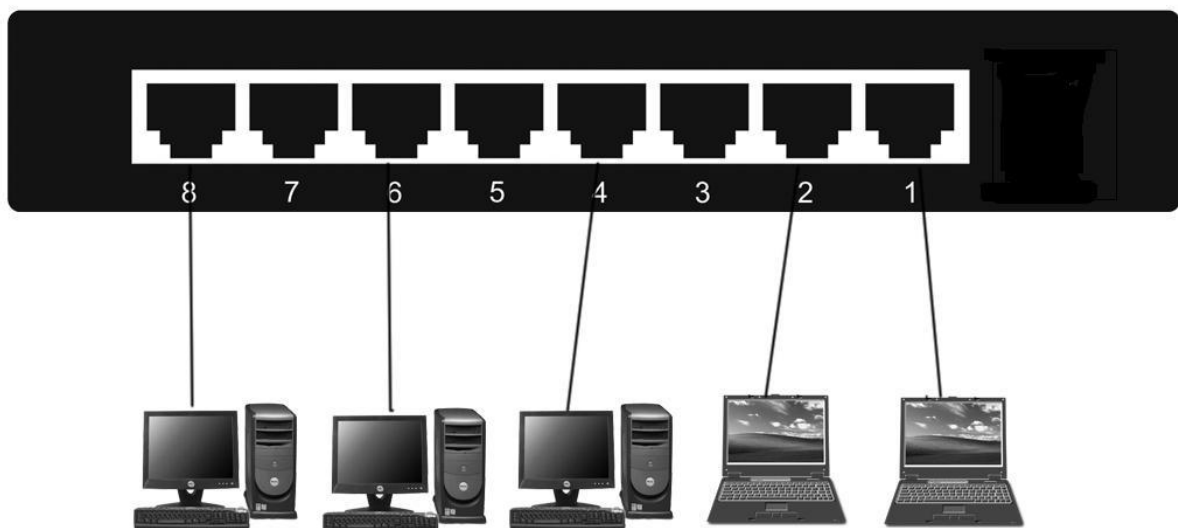
Reference picture

4. Appendix

4.1 Technical Specifications

Table 4-1 Ethernet Switch General Features

General	
Standards:	IEEE 802.3ab 1000BASE-T IEEE 802.3u 100BASE-TX IEEE 802.3 10BASE-T IEEE 802.3x Flow Control
Protocol:	CSMA/CD

Data Transfer Rate:	Ethernet:
	    10Mbps (Half-duplex) 20Mbps (Full-duplex)
	Fast Ethernet:
	    100Mbps(Half-duplex) 200Mbps(Full-duplex)
	Gigabit Ethernet:
	    2000Mbps (Full-duplex)

Topology:	Star

Network Cables:	Ethernet:
	    2-pair UTP Cat. 3,4,5, Unshield Twisted Pair (UTP)Cable
	Fast Ethernet:
	    2-pair UTP Cat. 5, Unshield Twisted Pair (UTP)Cable
	Gigabit Ethernet:
	    4-pair UTP Cat. 5, Unshield Twisted Pair (UTP)Cable

Number of Ports:	5/8

Table 4-2 Ethernet Switch Physical and Environmental Features

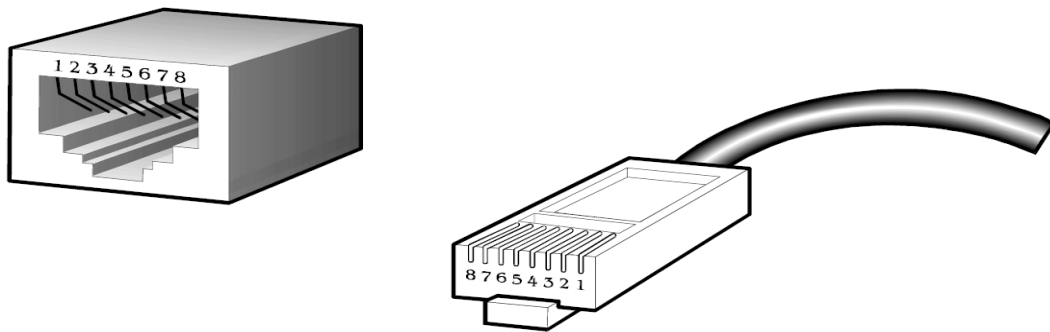| Physical and Environmental	
AC Inputs(For 5/8-Port):	100~240VAC; 3.3V/2A
Power Consumption	5-Port: 6.6 watts maximum 8-Port: 6.6 watts maximum
Operating Temperature	0 °C ~ 45℃(32°F ~ 113F °)
Storage Temperature:	-10°C ~ 70°C (14°F ~ 158°F)
Humidity:	5% ~ 95% RH, non-condensing
Dimensions:	5/8-Port: 190mm x 120mm x 35mm

EMI	FCC Class B, CE Mark Class B
Safety:	CSA International

Table 4-3 Ethernet Switch Performance Features

Performance	
Transmission Method:	Store-and-forward
RAM Buffer:	5-Port : 125KB 8-Port : 125KB
Filtering Address Table:	8K MAC address per device
Packet Filtering/ Forwarding Rate:	Full wire speed
MAC Address Learning:	Self-learning, auto-aging

4.2 RJ-45 PIN SPECIFICATION

The following diagram and tables show the standard RJ-45 receptacle/connector and their pin assignments.

RJ-45 Connector pin assignment			
Contact	Media Direct Interface Signal	Contact	Media Direct Interface Signal
1	TX_D1+	5	BI_D3-
2	TX_D1-	6	RX_D2-
3	RX_D2+	7	BI_D4+
4	BI_D3+	8	BI_D4-

Standard RJ-45 receptacle/connector