LevelOne

GSW-0504
GSW-0804

5/8-Port Gigabit Switch
with internal power

User Manual

Version 2.0-0710

Table of Contents

Introduction

The **GSW-0504/0804** 5/8-Port Gigabit Switch is an ideal solution for solving traffic block at the core of the network. It offers 5/8 auto-negotiation 10/100/1000Base-T Gigabit Ethernet ports which can significantly improve your network backbone performance. Besides, this Switch will fit into any enterprise level network to act as an exit to the backbone switch.

The **GSW-0504/0804** 5/8-Port Gigabit Switch features **Auto MDI/MDIX** function for each port. [In general, MDI means connecting to another Hub or Switch while MDIX means connecting to a workstation or PC. Therefore, Auto MDI/MDIX means that you can connect to another switch or workstation without changing non-crossover or crossover cabling.] Besides, it also features a store-and-forward switching and can auto-learn and store source address on a 4K MAC address table.

Features

- Conforms to IEEE 802.3, 802.3u, 802.3ab and 802.3x
- 5 / 8-port 10/100/1000 Mbps Gigabit Switch with internal power
- Automatic MDI/MDIX crossover for all ports
- 4K entry MAC address table
- 1Mbit Memory buffer
- Back-plane:
  - ➢ 5 port: 10Gbps back-plane
  - ➢ 8 port: 16Gbps back-plane
- N-Way Auto-Negotiation
- Back pressure half duplex
- Flow control full duplex
- True non-blocking switching
- Store-and-Forward architecture support

Package Contents

- ■ 5 / 8-port 10/100/1000 Mbps Gigabit Switch with internal power
- ■ Power Cord
- ■ Four Rubber Feet
- ■ Stackable Kits
- ■ User's Manual

5/8-Port Gigabit Switch w/internal power

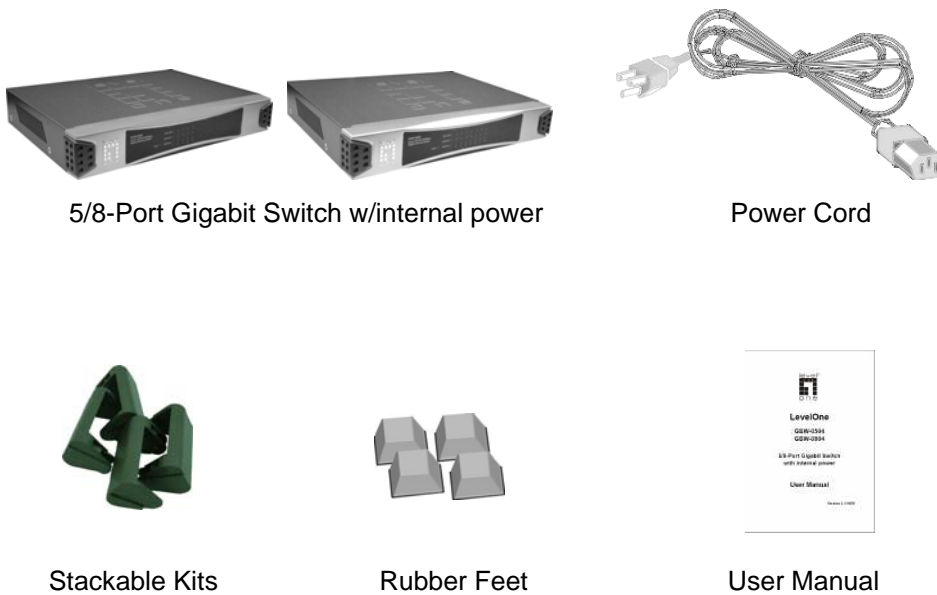Power Cord

Stackable Kits

Rubber Feet

User Manual

Figure 1-1. Package Contents

Compare the contents of your 5 / 8-port 10/100/1000 Mbps Gigabit Switch package with the standard checklist above. IF any item is missing or damaged, please contact your local dealer for service.

Hardware Description

This Section describes the hardware of the 5/8-Port Gigabit Switch.

Front Panel

The Front Panel of the 5/8-Port Gigabit Switch consists of LED-indicators (100/1000, Link/Activity, Full duplex/Collision) for each Gigabit port and power LED-indicator for unit. The details of LED indicator description refer to the LED Indicator section.

Rear Panel

The Rear Panel of the 5/8-port Gigabit Switch consists of 5/8 auto-negotiation 10/100/1000Mbps Ethernet RJ-45 connectors.

■ **RJ-45 Ports (Auto MDI/MDIX):** 5/8-port auto-negotiation 10/100/1000 Mbps Ethernet RJ-45 connectors

   [**Auto MDI/MDIX** means that you can connect to another switch or workstation without changing straight through or crossover cabling.]
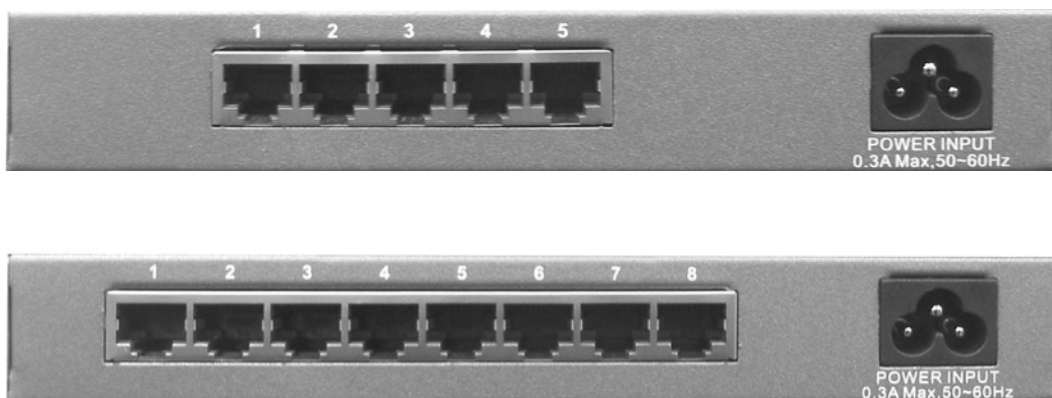

Figure 2-2. The Rear Panel of the 5/8 Port Gigabit Switch

LED Indicators

The LED Indicators gives a real-time indication of system operating statuses. There are 3 LED-indicators (100/1000, LNK/ACT, FDX/COL) for each Gigabit port and one Power LED for unit. The following table provides descriptions of LEDs status and their meaning.
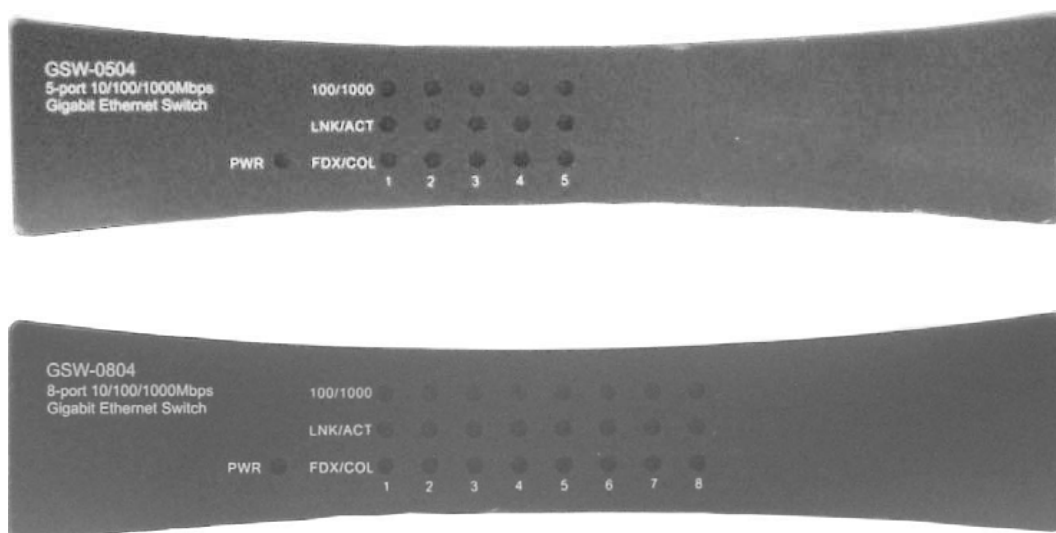
Figure 2-3.LED Indicators

LED	Status	Description
Power	Green	Power On
	Off	Power is not connected
100/1000	Green	The port is operating at the speed of 1000Mbps.
	Orange	The port is operating at the speed of 100Mbps.
	Off	No device attached or in 10Mbps mode
LNK/ACT	Green	The port is connecting with the device.

	Blinking	The port is receiving or transmitting data.
	Off	No device attached.
FDX/COL	Orange	The port is operating in Full-duplex mode.
	Blinking	Packet collision occurred on this port.
	Off	No device attached or in half-duplex mode.

Table 2-1. The Descriptions of LED Indicators

Installation

This section shows the installation procedures of the switch.

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

Attaching Rubber Feet

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

Power On

Connect the power cord to the power socket on the rear panel of the Switch. The other side of power cord connects to the power outlet. Check the power indicator on the front panel to see if power is properly supplied.

Network Application

This section provides you one sample of network topology in which the 5/8-Port Gigabit Switch is used. In general, the 5/8-Port Gigabit Switch is designed as a high-bandwidth backbone switch.

You can use the 5/8-Port Gigabit Switch to connect servers, switches, workstation, and PCs (Of course, the Gigabit 1000Base-T NIC has installed into the PC) to each other by connecting these devices directly to the Switch. The Switch automatically learns node address, which are subsequently used to filter and forward all traffic based on the destination address.

For enterprise networks where large data broadcast are constantly processed, this switch is an ideal suitable for departmental switches to connect to the core switch.

All ports can connect to departmental switches, and the departmental switches can be connected to the 5/8-Port Gigabit Switch. Then all the devices in this network can communicate with each other. Connecting servers to the core switch allow each end station to access the server's data.

This switch is an ideal solution for backbone connectivity. In the above example, servers, department switches, and workstation are directly connected to the Core Switch, 5/8-Port Gigabit Switch.

Technical Specification

The following table provides the technical specification of 5/8 ports Gigabit Copper Switch.

Standard	IEEE 802.3 10BASE-T Ethernet, IEEE 802.3u 100BASE-TX Fast Ethernet IEEE 802.3ab Gigabit Ethernet IEEE802.3x Flow Control and Back-pressure
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
Connector	5/8 Gigabit Copper: RJ-45; Auto-MDIX on all ports
MAC Address	8K Mac address table
Memory Buffer	112KB (GSW-0504); 114KB (GSW-0804)
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)
Back plane	5 port: 10Gbps 8 port: 16Gbps

LED	Per port: 100/1000, Link/Activity, Full duplex/ Collision Per unit: Power
Power Supply	100~240VAC, 50~60Hz,internal power
Power Consumption	5 port: 9.6Watt (maximum) 8 port: 12.8Watt (maximum)
Operation Temperature	0℃ to 45℃ (32℉ to 113℉)
Operation Humidity	10% to 90% (Non-condensing)
Dimension	199mm x 147mm x 31.5 mm (W x D x H)
EMI	CE

CE FC

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**

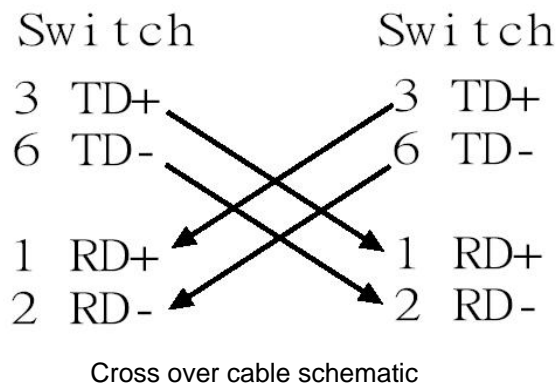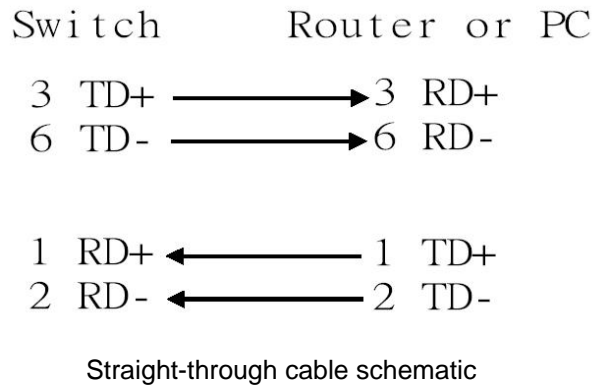| Pin Number	Assignment
1	Tx+
2	Tx-
3	Rx+
6	Rx-

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.

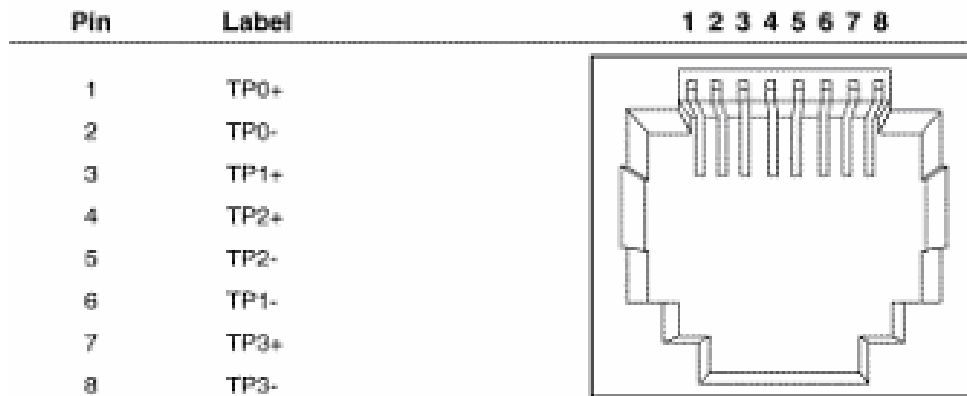| Pin MDI-X	Signal Name	MDI Signal Name
1	Receive Data plus (RD+)	Transmit Data plus (TD+)
2	Receive Data minus (RD-)	Transmit Data minus (TD-)
3	Transmit Data plus (TD+)	Receive Data plus (RD+)
6	Transmit Data minus (TD-)	Receive Data minus (RD-)

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	Label	1 2 3 4 5 6 7 8
1	TP0+	
2	TP0-	
3	TP1+	
4	TP2+	
5	TP2-	
6	TP1-	
7	TP3+	
8	TP3-	

10/100/1000Base-TX Cable Schematic

Switch			Router or PC
1	TP0+	◄────►	1 TP1+
2	TP0-	◄────►	2 TP1-
3	TP1+	◄────►	3 TP0+
6	TP1-	◄────►	6 TP0-
4	TP2+	◄────►	4 TP3+
5	TP2-	◄────►	5 TP3-
7	TP3+	◄────►	7 TP2+
8	TP3-	◄────►	8 TP2-
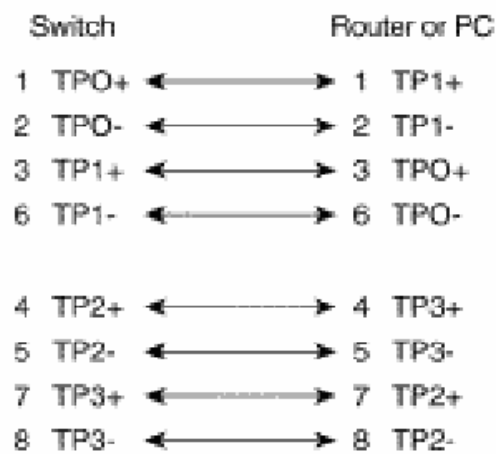
Straight through cables schematic
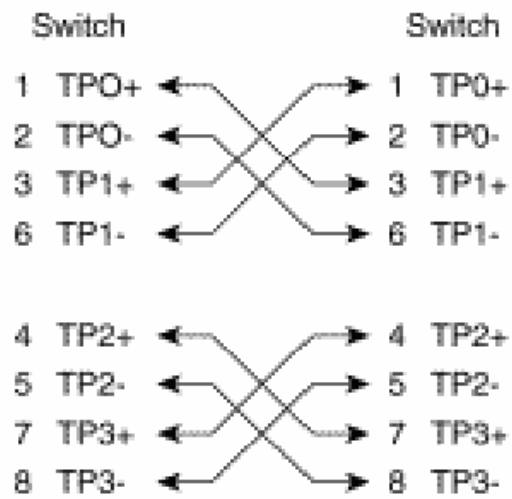
Cross over cables schematic