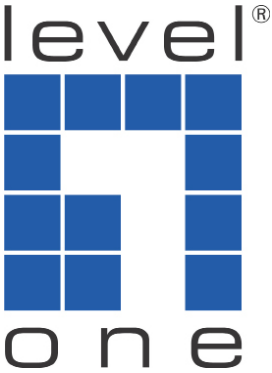

LevelOne

User Manual

GSW-1657/GSW-2457

16/24-Port Gigabit Ethernet Switch

V2.0-0908

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FCC STATEMENT

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 when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions:

1) This device may not cause harmful interference.
2) This device must accept any interference received, including interference that may cause undesired operation.

Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

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.

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Package Contents

The following contents should be found in your package:

- One GSW-1657/GSW-2457 Switch
- One power cord
- This User Guide
- Rubber footpads for Desk-mount
- Rack-mount kit for installing the switch in a 19-inch rack

Note:

Make sure that the package contains the above items. If any of the listed items are damaged or missing, please contact with your distributor.

Safety Notices

Do not use this product near water. Avoid using this product during an electrical storm. Do not place heavy objects on the switch.

Chapter 1. Introduction of the Product

This chapter describes the features of the GSW-1657/GSW-2457 16/24-port Gigabit Ethernet Switch.

1.1 Overview of the Product

The GSW-1657/GSW-2457 16/24-port Gigabit Ethernet Switch provides you with a high-performance, low-cost, easy-to-use, seamless and standard upgrade to boost your old network to 1000Mbps. Increase the speed of your network server and backbone connections make Gigabit a reality. Power users in the home, office, workgroup, or creative production environment can now move large, bandwidth-intensive files faster. Transfer graphics, CGI, CAD, or multimedia files and other applications that have to move large files across the network almost instantly.

The GSW-1657/GSW-2457 features a non-blocking switching architecture that forwards and filters packets at full wire-speed for maximum throughput, MAC address auto- learning and auto-aging, IEEE802.3x flow control for full-duplex mode and backpressure for half-duplex mode. It is compatible with all 10,100 and 1000Mbps Ethernet devices because it is standard-based. It protects your existing network investments while providing you with a straightforward migration path to faster Gigabit speeds.

The GSW-1657/GSW-2457 is plug-and-play and no configuration is required. Auto MDI/MDI-X cable detection on all ports eliminate the need for crossover cable or Uplink port. Each port can be used as general ports or Uplink ports, and any port can be simply plugged into a server, a hub, a router or a switch, using the straight cable or crossover cable. Diagnostic LEDs which display link status and activity, allowing you to quickly detect and correct problems on the network.

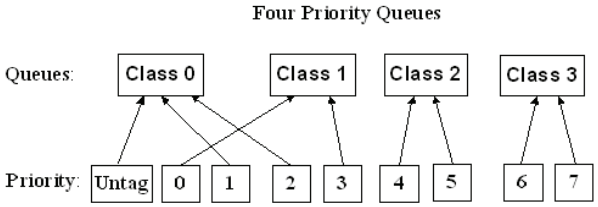
1.2 Features

- Supports IEEE 802.1p QoS
- Complies with IEEE802.3, IEEE802.3u, IEEE802.3ab standards
- 16/24 10/100/1000Mbps Auto-Sense RJ45 ports supporting Auto-MDI/MDIX
- All ports Support Full/Half Duplex transfer mode for 10/100Mbps and Full Duplex transfer mode for 1000Mbps
- Supports IEEE802.3x flow control for full-duplex mode and backpressure for half-duplex transfer mode
- Non-blocking switching architecture that forwards and filters packets at full wire-speed for maximum throughput

- Supports MAC address auto-learning and auto-aging
- LED indicators for monitoring power, link, speed and activity
- Rack-mountable steel case
- Internal power supply

1.3 IEEE 802.1p QoS

The GSW-1657/GSW-2457 16/24-port Gigabit Ethernet Switch supports 802.1p priority queuing Quality of Service, which is an implementation of the IEEE 802.1p standard. With 802.1p QoS function, you can reserve bandwidth for important functions that require a large bandwidth or have a high priority, such as VoIP (Voice-over Internet Protocol), web browsing applications or video conferencing. The Switch has separate hardware queues on every physical port which packets from various applications are mapped to and assigned a priority to. The illustration below shows how 802.1p priority queuing is implemented on the Switch.



Mapping QoS on the Switch

The Switch has four priority queues labeled 0, 1, 2 and 3. The untagged packets and the eight IEEE 802.1p priority levels defined by the standard are mapped to the four class queues used on the Switch. Among these four priority queues on the Switch, Class 3 has the highest priority, while Class 0 has the lowest priority and Class 3 has higher priority compared with Class 2. The Untagged packets and eight priority tags, specified in IEEE 802.1p are mapped to the switch's priority tags as follows:

The Untagged packets, priority 1 and 2 are assigned to the switch's Class 0 queue.

Priority 0 and 3 are assigned to the switch's Class 1 queue.

Priority 4 and 5 are assigned to the switch's Class 2 queue.

Priority 6 and 7 are assigned to the switch's Class 3 queue.

The Switch uses WRR (Weighted Robin Round) for scheduling. WRR queue-scheduling algorithm schedules all the queues in turn and every queue can be assured of a certain service time. The default value of QoS mode on this Switch is "weight 1:2:4:8" from Class 0 to Class 3 queue in turn.

Chapter 2. Installation

2.1 Mounting the Switch on a Desk

Before place the Switch on a desk, attach four rubber footpads to the flutes on the Switch bottom, then lay the Switch on the desktop, where can be have as much as 5kg placed on top.

Note:

1. The electrical outlet shall be installed near the device and shall be easily accessible.
2. Make sure there is free space for radiating heat and air.
3. Make sure not to place anything too heavy on top of the switch.

2.2 Mounting the Switch in a Rack

The dimension of GSW-1657/GSW-2457 is designed according to the standard 19 rack-mountable steel case of Electronic Industries Association.

Turn off all the equipment connected to the Switch before mounting it in the rack, then rivet the two "L" brackets onto each side of the Switch, fasten it with screws in the rack.

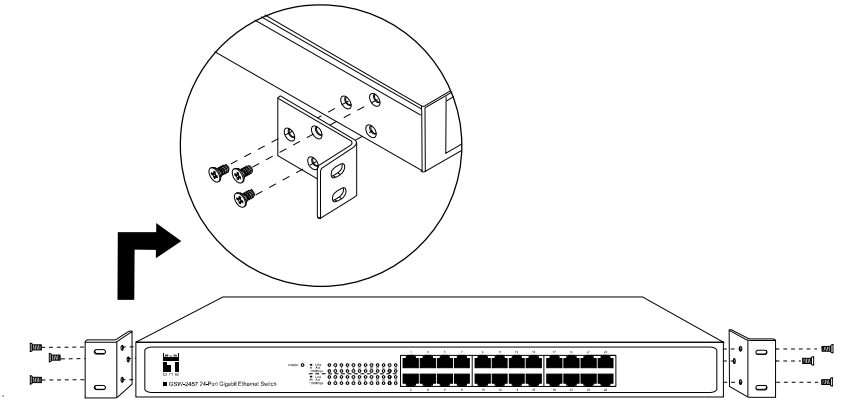


Figure 2-1 Rivet the “L” brackets onto the Switch

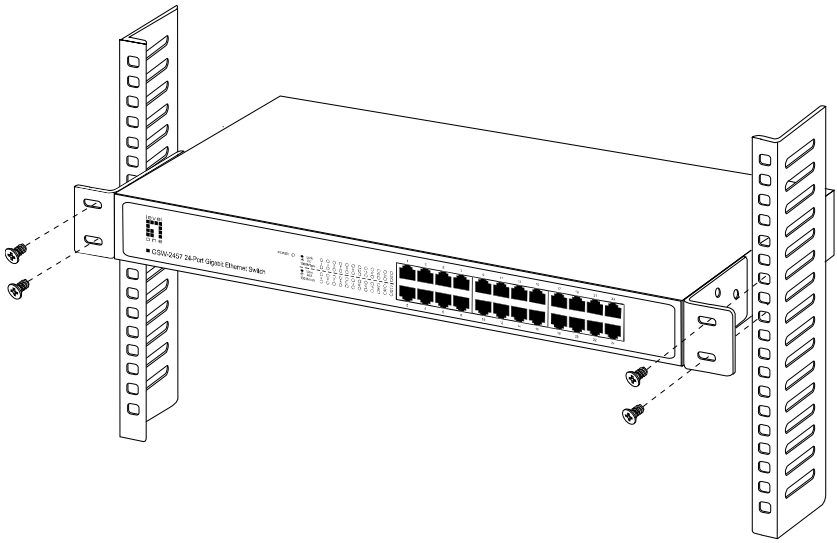


Figure 2-2　Fasten the Switch in the rack

2.3　Power On

GSW-1657/GSW-2457 16/24-port Gigabit Ethernet Switch is powered by AC power supply. Powering on the Switch, it will automatically initialize and its LED indicators should respond as follows:

1）All of the Link/Act and 1000Mbps LED indicators will flash momentarily for one second, which represents a resetting of the system.

2）The Power indicator will light up.

If the LED indicators don't respond as described above, please check the power supply and connection.

Chapter 3. Identifying External Components

This Chapter describes the front panel, rear panel and LED indicators of the Switch. GSW-1657 and GSW-2457 just differ in the number of LED indicators and ports and all figures in this guide are of GSW-2457.

3.4 Front Panel

The front panel of the GSW-2457 consists of switch LED indicators, 24 10/100/1000Mbps RJ-45 ports.

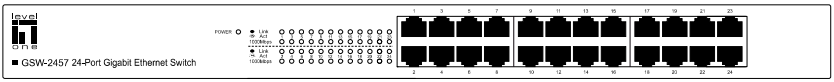


Figure 3-1 GSW-2457 Switch Front Panel sketch

3.5 Rear Panel

The rear panel of the GSW-2457 only features a power receptacle, which is an AC power receptacle. Connect the female of the power cord head here, and the male head to the AC power outlet.

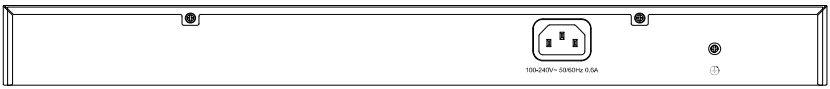


Figure 3-2 GSW-2457 Switch Rear Panel sketch

3.6 LED Indicators

The LED indicators include Power, Link/Act and 1000Mbps LED indicators, which are used for monitoring and pre- troubleshooting of the Switch. The following section shows the LED indicators for the switch along with an explanation of each indicator.

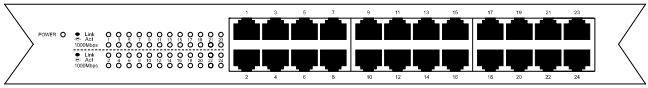


Figure 3-3 GSW-2457 Switch LEDs sketch

- Power LED: This indicator will light solid red when the Switch powers up. If the LED is not lit, please check the power supply and connection.
- Link/Act LED: This indicator will light solid green when the corresponding port is connected to another device and will flash green when data is being transmitted or received on the working connection.
- 1000Mbps LED: This indicator will light solid green when the corresponding port is connected to a 1000Mbps device.

Appendix A: Specifications

General	
Standards	IEEE802.3 10Base-T IEEE802.3u 100Base-TX IEEE802.3ab 1000Base-T
Topology	Star
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)
Network Media (Cable)	10Base-T: UTP category 3, 4, 5 cable (maximum 100m) EIA/TIA-568 100 STP (maximum 100m)
	100Base-TX: UTP category 5, 5e cable (maximum 100m) EIA/TIA-568 100 STP (maximum 100m)
	1000Base-T: UTP category 5, 5e cable (maximum 100m) EIA/TIA-568 100 STP (maximum 100m)
Number of Ports	16/24 10/100/1000Mbps Auto-Negotiation RJ-45 ports
LED indicators	Power, Link/Act, 1000Mbps
Transfer Method	Store-and-Forward
MAC Address Learning	Automatically learning, automatically aging
Frame Filter Rate	10Base-T: 14881pps/Port
	100Base-Tx: 148810pps/Port
	1000Base-T: 1488095pps/Port
Frame Forward Rate	10Base-T: 14881pps/Port
	100Base-Tx: 148810pps/Port
	1000Base-T: 1488095pps/Port

Environmental and Physical	
Dimensions	17.3×7.1×1.7in. (440×180×44mm) W×D×H
Power Supply Output	100-240V~ 50/60Hz 0.6A
Operating Temperature	0 ~40℃ (32 ~104℉)
Storage Temperature	-40 ~70℃ (-40 ~158℉)
Operating Humidity	10%~90% non-condensing
Storage Humidity	5%~90% non-condensing

Appendix B: Troubleshooting

1. The Power LED is not lit

- Make sure the AC power cord connected the Switch with power source properly.
- Make sure the power source is ON.

2. The Link/Act LED is not lit when a device is connected to the corresponding port

- Make sure that the cable connectors are firmly plugged into the Switch and the device.
- Make sure the connected device is turned on and working well.
- The cable must be less than 100 meters long (328 feet).

Appendix C: Contact Information

For help with the installation or operation of the GSW-1657/ GSW-2457 16/24-port Gigabit Ethernet Switch, please contact us.

E-mail: **support@level1.com**

Website: **http://www.level1.com**