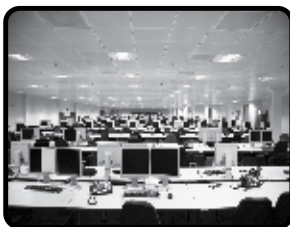


LANPRO

LP-SG2401

**10/100/1000Mbps
24 Port GigaSpeed Switch**



www.lanpro.com

User Guide

LPSG2401_UG_ENB01W

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FC 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.

CONTENTS

Package Contents	4
Chapter 1 Product Introduction.....	5
1.1 Product Overview	5
1.2 Features	5
1.3 IEEE 802.1p QoS	6
Chapter 2 Identifying External Components	7
2.1 Front Panel	7
2.2 Rear Panel	7
Chapter 3 Installation	8
3.1 Precautions	8
3.2 Installation	9
3.2.1 Desktop Installation	9
3.2.2 Rack Installation	10
3.3 Connect to Ground	11
3.4 Power on	12
Appendix A: Specifications	13
Appendix B: Troubleshooting	14
Appendix C: Contact Information	15

Package Contents

The following contents should be found in your box:

➤	One LP-SG2401 24-port Gigabit Ethernet Switch.
➤	One power cord.
➤	The Installation Guide.
➤	Mounting screws and two “L” brackets.

Note: *Make sure that the package contains the above items. If any of the listed items are damaged or missing, please contact the retailer from whom you purchased the **LP-SG2401** 24-port Gigabit Ethernet Switch for assistance.*



Chapter 1: Product Introduction

This chapter describes the features of the LanPro model **LP-SG2401 24-port Gigabit Ethernet Switch**.

1.1 Product Overview

The **LP-SG2401 24-port Gigabit Ethernet Switch** provides 24 10/100/1000Mbps Auto-Negotiation RJ45 ports. Each port of LP-SG2401 supports auto MDI/MDI-X function, eliminating the need for crossover cables or Uplink ports. The switch is “**Plug and Play**” and each port can be simply plugged into a server, a hub or a switch, using straight cable or crossover cable.

The **LP-SG2401 24-port Gigabit Ethernet Switch** provides you with a low-cost, easy-to-use, high-performance, seamless and standard upgrade to improve your old network to a 1000Mbps network. It will boost your network performance up to full duplex data transfer.

The **LP-SG2401 24-port Gigabit Ethernet Switch** support power saving features to help make your network environmentally friendly without compromising performance. The switch automatically powers down ports that have no link.

1.2 Features

- Complies with IEEE802.3, IEEE802.3u and IEEE802.3ab standards.
- 24 10/100/1000Mbps Auto-Negotiation RJ45 ports supporting Auto-MDI/MDIX.
- Supports IEEE802.3x flow control for full-duplex mode and backpressure for half-duplex mode.
- Supports IEEE802.1p QoS.
- Supports power saving features.
- LED indicators for monitoring power, link, activity, speed.
- Rack-mountable steel case.
- Internal power supply.

1.3 IEEE 802.1p QoS

The **LP-SG2401** Switch supports 802.1p priority queuing Quality of Service (QoS), 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.

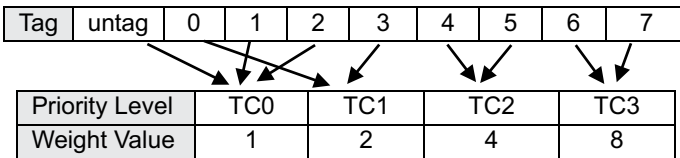


Figure 1. Mapping QoS on the Switch

The switch has four priority levels labeled TC0, TC1, TC2 and TC3. The untagged packets and the eight IEEE 802.1p priority tags defined by the standard are mapped to the four level queues used on the switch. TC3 has the highest priority of the four priority level queues while TC0 has the lowest priority on the switch. 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, packets with priority tag 1 and 2 are assigned to the switch's TC0 level queue.
- ▶ Packets with priority tag 0 and 3 are assigned to the switch's TC1 level queue.
- ▶ Packets with priority tag 4 and 5 are assigned to the switch's TC2 level queue.
- ▶ Packets with priority tag 6 and 7 are assigned to the switch's TC3 level 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 weight value of TC0, TC1, TC2 and TC3 is 1:2:4:8.

Chapter 2: Identifying External Components

This chapter describes the front panel, rear panel and LED indicators of the switch.

2.1 Front Panel

The front panel of LP-SG2401 consists of switch model, switch LED indicators, and 24 10/100/1000Mbps RJ45 ports.

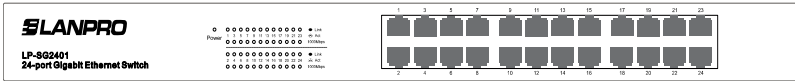


Figure 2. Switch Front Panel Sketch

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 of the switch along with an explanation of each indicator.

- **Power LED:** This indicator will light solid green when the switch powers up. If the LED is not lit, please check the power supply and connection.
- **Link/Act LED:** The LED indicates Link/Active status. The corresponding LED indicator will light solid green when connected to a network device. It flashes green when data is being transmitted or received on the working connection.
- **1000Mbps LED:** The indicator will light solid green when the corresponding port is working on 1000Mbps speed. If the LED is off, it is working on 10/100Mbps speed or no device is connected.

2.2 Rear Panel

The rear panel of LP-SG2401 features a power socket and a Grounding Terminal (marked with ⊕).

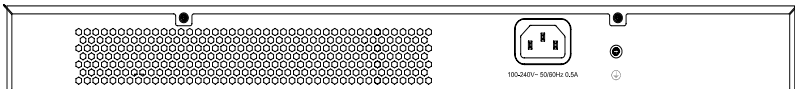


Figure 3. Switch Rear Panel Sketch

- **Grounding Terminal:** LP-SG2401 already comes with Lightning Protection Mechanism. You can also ground the switch through the PE (Protecting Earth) cable of AC cord or with Ground Cable. For detail information, please refer to **section 3.3 Connect to Ground**.
- **AC Power Socket:** Connect the female connector of the power cord here, and the male connector to the AC power outlet. Please make sure the voltage of the power supply meets the requirement of the input voltage.

Chapter 3: Installation

3.1 Precautions

To ensure a long-term and stable performance of the switch, please pay attention to the following before the installation.

1) Safety Requirements:

- Before cleaning the switch, cut off the power supply. Do not clean it by the waterish cloth, and never use any other liquid cleaning method.
- Take waterproof measures during storage, transportation and operation of the equipment.
- Use only the power cord provided with the switch.
- Make sure the voltage of the power supply meets the requirement of the input voltage of the switch.
- Do not push any objects into the openings of the switch.
- Ensure the vent hole is well ventilated and unblocked.
- Do not open or remove the cover of the switch.

2) Location Requirements:

When you choose a location for the switch, please follow these guidelines:

- Install the switch on a flat and stable surface that can support the entire weight of the switch with all fittings.
- Locate the switch far from strong electromagnetic field generators (such as motors), vibration, dust, and direct exposure to sunlight.
- To ensure adequate air flow around the switch. At least 10 cm (4 inches) of space at the front and rear of the switch is needed for ventilation.
- Make sure that the switch will be accessible and that the cables can be easily connected
- Position the switch away from water and moisture sources, be sure to provide an acceptable temperature and humidity operating environment.

3.2 Installation

This switch can be either installed on the standard 19-inch mountable rack or located on the desktop.

Caution:



Please unplug the power cord before installing or removing the switch.

3.2.1 Desktop Installation

To install the switch on the desktop, please follow the steps:

- 1) Set the switch on a flat surface strong enough to support the entire weight of the switch with all fittings.
- 2) Remove the adhesive backing papers from the rubber feet.
- 3) Turnover the switch and attach the supplied rubber feet to the recessed areas on the bottom at each corner of the switch.

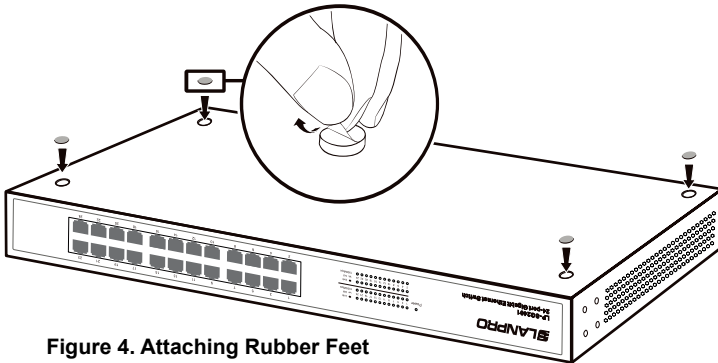


Figure 4. Attaching Rubber Feet

- 4) Upright the switch and connect it to the network devices while keep enough ventilation space around.
- 5) Connect the switch to power source with the provided power cord.

Caution:



Please avoid any heavy thing placed on the switch.

3.2.2 Rack Installation

To install the switch in an EIA standard-sized, 19-inch rack, follow the instructions described below:

- 1) Secure the supplied rack-mounting brackets to each side of the switch with supplied screws, as illustrated in the following figure.

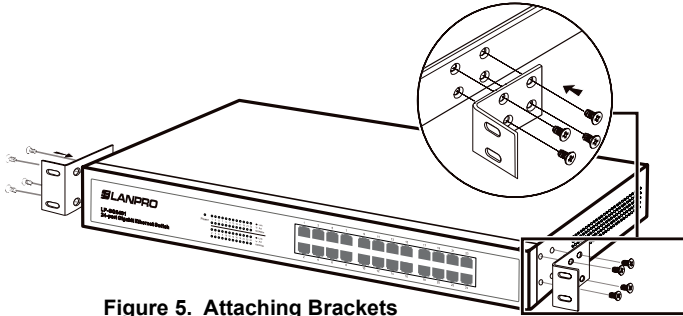


Figure 5. Attaching Brackets

- 2) After the brackets are attached to the switch, use suitable screws (not provided) to secure the brackets to the rack, as illustrated in the following figure.

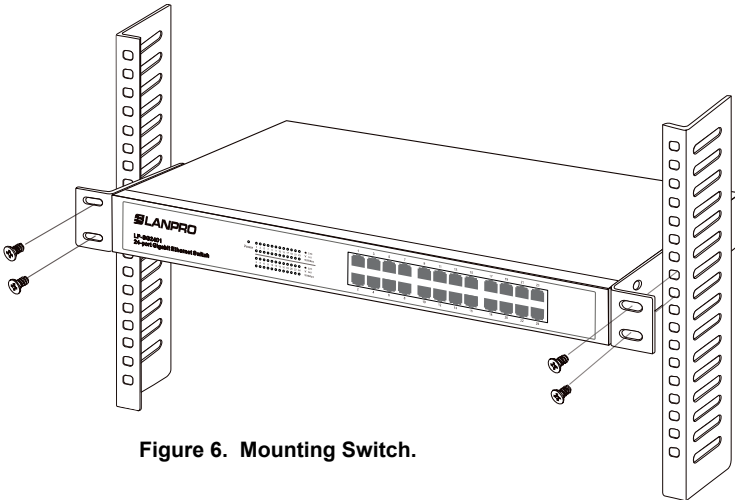


Figure 6. Mounting Switch.

- 3) Connect the switch to network devices.
- 4) Supply power to the switch with the provided power cord.

3.3 Connect to Ground

Connecting the switch to ground is to quickly release the lightning over-voltage and over-current of the switch, which is also a necessary measure to protect the body from electric shock.

In different environments, the switch may be grounded differently. The following will instruct you to connect the switch to the ground in two ways, connecting to the Grounding Bar or connecting to the Ground via the power cord. Please connect the switch to ground in the optimum way according to your specific operation environment.

• Connecting to the Grounding Bar

If the switch is installed in the Equipment Room, where a Grounding Bar is available, you are recommended to connect the switch to the Grounding Bar as shown in the following figure.

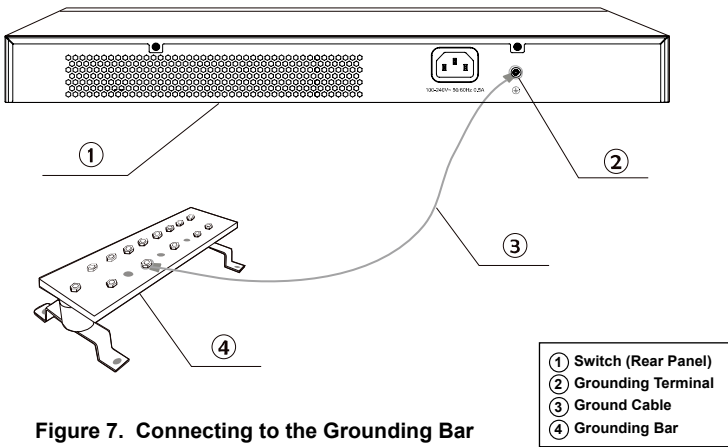


Figure 7. Connecting to the Grounding Bar

Note:



The Grounding Bar and Ground Cable are not provided with our product.

• Connecting to the Ground via the power supply

If the switch is installed in the normal environment, the switch can be grounded via the PE (Protecting Earth) cable of the AC power supply as shown in the following figure.

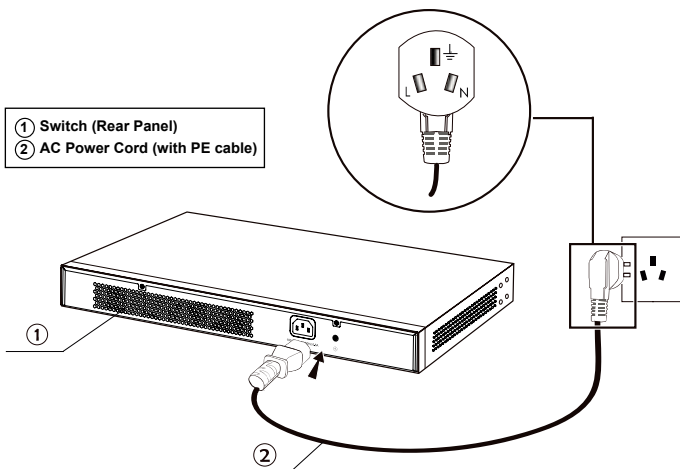


Figure 8. Connecting to the Ground

**The figure is to illustrate the application and principle. The power plug you get from the package and the socket in your situation will comply with the regulation in your country, so they may differ from the figure above.*



If you intend to connect the switch to the ground via the PE (Protecting Earth) cable of AC power cord, please make sure the PE (Protecting Earth) cable in the electrical outlet is well grounded in advance.

3.4 Power on

The **LP-SG2401** 24-port Gigabit Ethernet Switch is powered by an AC Power Supply. Connect the switch and power outlet by power cord. Powering on the switch, it will be automatically initialized and the LED indicators should respond as follows:

- 1) All of the LED indicators will flash momentarily for 2.5 seconds, which represents a resetting of the system.
- 2) The Power LED indicator will light up.

Appendix A: Specifications

General		
Standards	IEEE 802.3, IEEE 802.3u, IEEE802.3ab, IEEE 802.1p, IEEE802.3x	
Topology	Star	
Protocol	CSMA/CD	
Data Transfer Rate	Ethernet: 10Mbps (Half Duplex) 20Mbps (FullDuplex)	
	Fast Ethernet: 100Mbps (Half Duplex) 200Mbps (Full Duplex)	
	Gigabit Ethernet: 2000Mbps (Full Duplex)	
Network Media	10BASE-T	UTP category 3, 4, 5 cable (maximum 100m)
		EIA/TIA-568 100Ω STP (maximum 100m)
	100BASE-TX	UTP category 5, 5e cable (maximum 100m)
		EIA/TIA-568 100Ω STP (maximum 100m)
	1000BASE-T	UTP category 5e, 6 cable (maximum 100m)
		EIA/TIA-568 100Ω STP (maximum 100m)
Number of Ports	24 10/100/1000Mbps Auto-Negotiation RJ45 ports	
Safety & Emissions	FCC, CE	
LED indicators	Power, Link/Act, 1000Mbps	
Transfer Method	Store-and-Forward	
MAC Address Learning	Automatically learning, automatically aging	
Frame Filter Rate	10BASE-T: 14880pps/Port	
	100BASE-Tx: 148800pps/Port	
	1000BASE-T:1488000pps/Port	
Frame Forward Rate	10BASE-T: 14880pps/Port	
	100BASE-Tx: 148800pps/Port	
	1000BASE-T:1488000pps/Port	
Environmental and Physical		
Operating Temperature	0°C ~40°C	
Storage Temperature	-40°C ~70°C	
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 **LP-SG2401**
24-port Gigabit Ethernet Switch, please contact us.

E-mail: support@lanpro.com

Website: <http://www.lanpro.com>

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