

pakedgedevice&software inc.

Pakedge SW8-GBP

Silent, 8 Port Gigabit AV Priority Switch with SFP

User Manual

Version 2.1

FCC Certifications



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 or her 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, and (2) this device must accept any interference received; including interference that may cause undesired operation.

CE Mark Warning



This equipment complies with the requirements relating to electromagnetic compatibility, EN 55022 class A for ITE, the essential protection requirement of Council Directive 89/336/EEC on the approximation of the laws of the Member States relating to electromagnetic compatibility.

The company has an on-going policy of upgrading its products and it may be possible that information in this document is not up-to-date. Please check with your local distributors for the latest information.

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Unpacking Information

Thank you for purchasing the Pakedge SW8-GBP, Silent 8-Port Gigabit AV Priority Switch with SFP. Before you start, please verify that your package contains the following items:

1. One Pakedge SW8-GBP 8-Port Gigabit AV Priority Switch with SFP
2. One power cord (type - region specific)
3. Rack-mount brackets and screws (optional)

Introduction

General Description

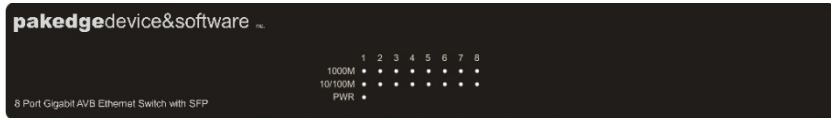
The SW8-GBP is a simple-to-use, pre-configured, plug-and-play switch designed to ensure a high Quality of Service, or QoS. High bandwidth-demanding applications such as video and audio streaming over IP LANs are given priority 'by port' within the internal network, helping to achieve a smooth, uninterrupted, jitter-free audio/video experience. Also, the SW8-GBP can give priority to traffic going from the internal network out to the internet cloud. It is designed to be used with other Pakedge plug-and-play switches to create the most robust IP network for both computers and audio/video devices. No configuration - just plug and play!

Key Features

- 8 fixed 10/100/1000Mbps Gigabit Ethernet ports
- One SFP port for optional fiber connection
- Supports "By Port" QoS for better communication quality
- Store-and-forward forwarding scheme
- Error packet filtering
- FCC Class A, CE, VCCI. Meets RoHS

Front Panel

The front panel consists of LED indicators.



LEDs for each port:

The switch provides one "1000M" LED and one "10/100M" LED for each port.

1000M LED: Shows the current transmitting/receiving speed of the port.

10/100M LED: Shows link status and the activities on the port.

LED	Status	Operation
1000M	Green	The port is connected at 1000 Mbps.
	Blinking Green	A valid link is established, and there is data transmitting/receiving.
	Off	No valid link on this port or the port is connected at 10/100 Mbps.
10/100M	Steady Green	A valid link is established and there is no data transmitting/receiving.
	Blinking Green	A valid link is established and there is data transmitting/receiving.
	Off	No valid link on this port or the port is connected at 1000 Mbps.

Note : The mini GBIC slot shares the same LED indicator with port 8.

LED for the device:

The SW8-GBP's power (PWR) LED reads as follows:

LED	Status	Operation
Power	Steady Green	The switch is powered on.
	Off	The switch is turned off.

Rear Panel

The rear panel of the switch is laid out as follows:



Port Operation

The auto-negotiation feature allows the ports to run at one of the following operation modes:

Media	Speed	Duplex Mode
10/100/1000Mbps(copper)	10Mbps	Full Duplex
		Half Duplex
	100Mbps	Full Duplex
		Half Duplex
	1000Mbps	Full Duplex
1000Mbps(Fiber) (mini GBIC required)	1000Mbps	Full Duplex

Port Priority

Port	Color	Port Priority
1	Gray	High
2	Green	High
3	Green	High
4	Yellow	Medium
5	Yellow	Medium
6	Orange	Normal
7	Orange	Normal
8	Red	Low

Note: For the last port, when both the fiber and Cat5e interfaces are connected, the system uses the fiber cable and disables the Cat5e port automatically.

Restore Default Button

You can use this button to reset the switch or restore factory default settings. To reset the switch, press the button once. To restore factory default settings, press and hold the button for three seconds.

Power Plug

To be compatible with electric service standards around the world, the switch is designed with a power supply in the range from 100 to 240VAC, 50/60Hz. Please make sure that your outlet standard is within this range.

To power the switch, plug the female end of the power cord firmly into the receptacle of the switch and the other end into a power outlet. After the power cord is plugged in, the power LED should be a solid green to indicate normal power status.

Network Configuration Overview

The Pakedge SW8-GBP is designed to be a plug-and-play device that controls the Quality of Service (QoS) of the overall Local Area Network (LAN). QoS enhances the communication quality by giving different routing priority to specific packets based on the type of information. For example, latency of video packets will directly impact the user's experience because the video stream will freeze or pixilate. Therefore, any packet carrying a video stream must have a higher priority than packets carrying computing information.

The SW8-GBP provides **port-based QoS** by classifying the priority of packets based on the port from which they originate. The packets are transmitted and received according to their classified priorities. This mechanism helps high bandwidth applications such as VoIP and video streaming to get an unobstructed connection due to their higher priority.

There are many ways the SW8-GBP can be installed in the overall network. However, the SW8-GBP must be the central device where all other network devices and switches terminate in order for this priority scheme to be enforced. In other words, every other device connects to the SW8-GBP because it controls the packet priority of the internal network and also directs what goes out to the internet cloud first.

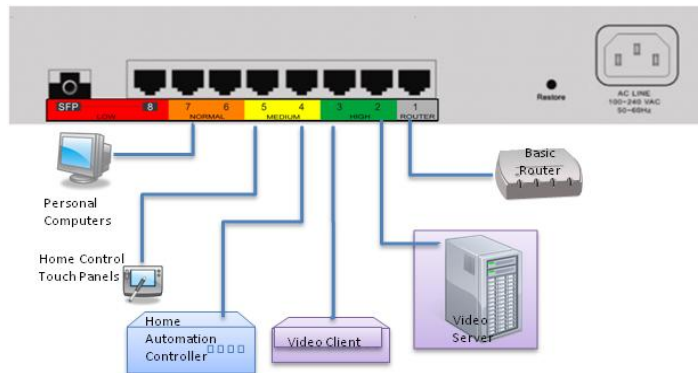


The SW8-GBP ensures Quality of Service (QoS) by prioritizing traffic 'by port'.

- Devices connected to port 2 and 3 will have the highest priority (Green color code);
- Devices connected to ports 4 and 5 will have medium priority (Yellow color code);
- Devices connected to port 6 and 7 will have normal priority (Orange color code);
- Device connected to port 8 will have the lowest priority (Red color code).
- If additional ports/switches are needed, each switch will be stacked/plug into the SW8-GBP so that the SW8-GBP can control packet priority and nothing is by-passed.

Network Configuration Example

Example 1- Small Scale Network

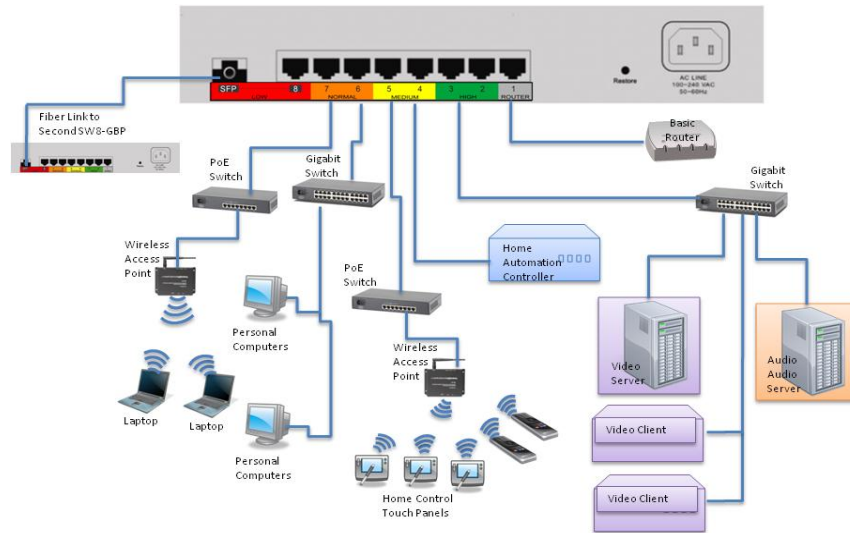


The diagram above shows a simple network setup where IP-based A/V devices and personal computers shared the same LAN. The highest priority ports (Ports 1 and 2) should be given to audio and video streaming devices. Home controls should have medium

priority because home control speed is critical but does not take priority over audio and video streaming devices.

Finally, computers and laptops should have normal priority because slight packet latency will not affect overall performance and user experience. Note- Port 1 is reserved for connecting to the Router.

Example 2 – Large Scale Network

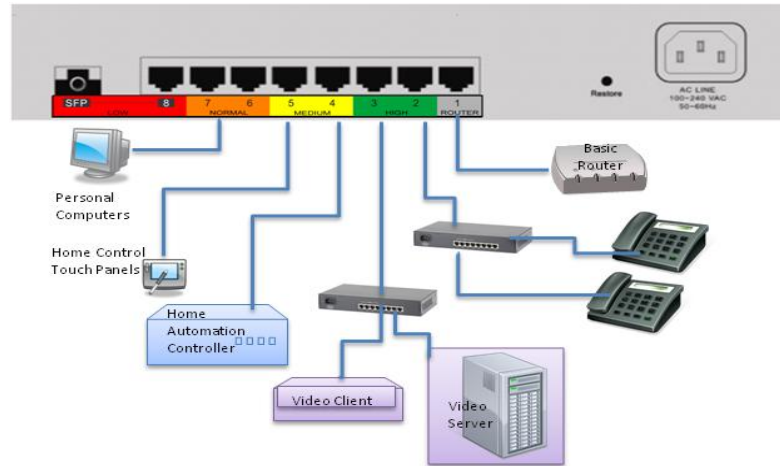


The layout for a large network is very similar to the small network example above, however additional ports are required for the additional client devices on the network. To accommodate all the client devices, other Packedge switches are added and stacked into the SW8-GBP. In the example, note how similar devices that need to communicate with priority are all plugged into the same Packedge switch and then stacked to the SW8-GBP.

For example, all AV streaming media server and clients are plugged into a common Packedge switch and then the switch is stacked into the highest priority port on the SW8-GBP. The overall network configuration is designed to keep similar traffic with similar devices within a Packedge switch. In addition, when dissimilar devices need to communicate, such as a personal computer with a media server, the priority of its interaction is controlled by the SW8-GBP.

Also from the example, Port 8 is a dual connection port. Port 8 can be used for another low-priority device using Cat5e or the fiber capabilities can be used to bridge with another SW8-GBP.

Example 3- Internet Gateway Priority



The SW8-GBP only establishes priority for the internal network. In other words, the SW8-GBP controls which internal devices have priority when they communicate with each other and which internal devices have priority when they go out to the internet cloud.

One point to note, once network requests go out to the internet cloud, priority is no longer guaranteed. The SW8-GBP only ensures priority for internal devices and which internal devices have priority going out the internet gateway.

In the above example, VoIP is connected to the high priority port because we want to ensure first priority going out to the internet. The VoIP devices share high priority with A/V streaming devices. Home controls and PC then take up the Normal and Medium priority ports, respectively.

Hardware Installation

The Pakedge SW8-GBP can be installed on a flat surface, or mounted in an audio/video rack.

Before installing the SW8-GBP, we recommend that:

1. The switch should be placed with a minimum of 25mm space around the unit for proper ventilation.
2. The switch must be away from environments with excessive moisture.

Desktop Installation

1. Install the switch on a level surface that can support the weight of the device and the relevant components.
2. Plug the female end of the provided power cord into the switch and plug the male end into a power outlet.

Rack-mount Installation

Rack-mounting is the best way for the Pakedge SW8-GBP to be installed when combined with a series of networking devices.

Procedures to rack-mount the SW8-GBP:

1. Disconnect all cables and place the switch on a flat surface.
2. Fasten mounting brackets onto both sides of the unit. Tighten with a screwdriver.
3. Insert the unit into the rack and secure with suitable screws.
4. Reconnect all cables.

Installing Network Cables

1. **Crossover or straight-through cable:** All ports on the switch support Auto-MDI/MDI-X functionality. Both straight-through or crossover cables can be used to connect the switch with PCs and other devices such as switches, hubs, or routers.
2. **Category 3, 4, 5, 5e, or 6 UTP/STP cable:** To make a solid connection and obtain optimal performance, an appropriate

cable that corresponds to different transmitting/receiving speeds is required. To choose a suitable cable, please refer to the following table.

Media	Speed	Wiring
10/100/1000Mbps	10Mbps	Category 3, 4, 5 UTP/STP
	100Mbps	Category 5 UTP/STP
	1000Mbps	Category 5, 5e, 6 UTP/STP
1000Mbps Fiber (Mini GBIC required)	1000Mbps	The cable type differs depending on the type of mini-GBIC. Please refer to the instructions that came with your mini-GBIC.

Product Specifications

Standard:	IEEE802.3 10BASE-T IEEE802.3u 100BASE-TX IEEE802.3x full-duplex operation and flow control IEEE802.3ab/z 1000BASE-T IEEE802.1p Priority Operation
Interface:	8* 10/100/1000Mbps auto MDI/MDI-X RJ-45 switching ports 1 * SFP(mini-GBIC) port 1 * Restore Default Button
Cable Connections:	RJ-45 (10BASE-T): Category 3,4,5 UTP/STP RJ-45 (100BASE-TX): Category 5 UTP/STP RJ-45 (1000BASE-T): Category 5,5e or enhanced UTP/STP Fiber: depends on Mini-GBIC types
Network Data Rate:	10/100/1000Mbps Auto-negotiation
Transmission Mode:	10/100Mbps Full-duplex, Half-duplex 1000Mbps Full-duplex
LED indications:	System Power Cat5e Port 1000M, 10/100M
Memory:	8K MAC entries 180K Buffer Memory 9K Byte Jumbo Frame
Emission:	FCC Class A, CE, VCCI, RoHS
Operating Temperature:	0° ~ 40°C (32° ~ 104°F)
Operating Humidity:	10% - 90% (non-condensing)
Power Supply:	Internal power supply 100-240V/ 50-60Hz universal input

Technical Support

Please visit our website for up-to-date support information:

Website: **www.pakedge.com**

Email: **support@pakedge.com**

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