level one

GSW-0508

4-Port TP + 1-Port SFP

Gigabit Ethernet Switch

User Manual

Ver. 1.0.0-0806

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 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.

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. No part of this document can be copied or reproduced in any form without written consent from the company.

Trademarks:
All trade names and trademarks are the properties of their respective companies.

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Unpacking Information

Thank you for purchasing this product. Before installation, please verify that your package contains the following items.

1. One 4-Port Gigabit Ethernet Switch with 1-Port Mini-GBIC
2. One AC power Adapter
3. User's Manual

Introduction

General Description

Easily boost your networking throughput; the product equips 4 Gigabit ports that lead you to a real Gigabit connection. Users are now able to transfer large and high bandwidth-needed files faster and hence get a real efficiency improvement. In addition to the cooper ports, 1 of the ports supports fiber connection with the equipped Mini-GBIC ports for obtaining long-distance communication.

This product offers users with fast and reliable network. The store-and-forward architecture filters errors and forwards packets in a non-blocking environment. Flow control prevents data loss while transmitting. The 802.3x and backpressure flow control mechanisms work respectively for full and half duplex modes.

The switch features with easy installation and maintenance. It supports Nway auto-negotiation protocol that detects the networking speed (10/100/1000 Mbps) and the duplex modes (Full/Half) automatically. Auto-MDI/MDI-X function alleviates the effort to use crossover cables. Also, rich diagnostic LEDs are provided for users to get real-time information of the connection status.

Key Features

- Complies with IEEE802.3, IEEE 802.3u, IEEE 802.3ab, IEEE 802.1x and IEEE 802.3z standards.
- 4 * 10/100/1000 Mbps RJ-45 Nway ports
- 1* Mini-GBIC port for optional fiber optical communication
- Supports NWay protocol for speed (10/100/1000Mbps) and duplex mode (Half/Full) auto-detection
- Supports MDI/MDI-X auto crossover
- Supports full and half duplex operation on all copper ports
- Supports back-pressure (half duplex) and flow control (IEEE 802.3x)
- Wire-speed packet filtering and forwarding rate
- Store-and-forward architecture
- Supports 9K bytes jumbo frame.
- Supports 1K bytes MAC address entries in whole system
- Broadcast/Multiple storm control
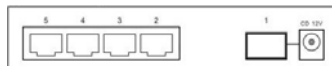- 832K bits buffer memory
- FCC,VCCI,CE Class A

The Front Panel

Please refer to the following table for LED definition:

LED	Status	Operation
Power	Steady Green	The switch is powered on
	Off	The switch is powered off
Link/Act	Steady Green	Port connected
	Blinking Green	The port is transmitting/receiving data
	Off	Port disconnected

The Rear Panel

To power on the switch, plug the female end of the power cord firmly into the receptacle of the switch and the other end into an electric service outlet. After the power cord installation, please check if the power LED is illuminated for a normal power status.

Installation

This switch can be placed on your desktop directly, or mounted in a rack. The installation is a snap. Users can use all the features of the switch with simply attaching the cables and turning the power on.

Before installing the switch, we strongly recommend:

1. The switch is placed with appropriate ventilation environment. A minimum 25mm space around the unit is recommended.
2. The switch and the relevant components are away from sources of electrical noise such as radios, transmitters and broadband amplifiers
3. The switch is away from environments beyond recommend moisture

Desktop Installation

1. Attach the provided robber feet to the bottom of the switch to keep the switch from slipping. The recommend position has been square-marked.
2. Install the switch on a level surface that can support the weight of the unit and the relevant components.
3. Plug the switch with the female end of the provided power cord and plug the male end to the power outlet.

Network Cables Installation

1. **Crossover or straight-through cable**: All the 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 as well as other devices like switches, hubs or router.

2. **Category 3, 4, 5 or 5e UTP/STP cable**: To make a valid connection and obtain the optimal performance. Appropriate cables corresponding to different transmitting/receiving speed is required. To choose a suitable cable, please refer to the following table.

Media	Speed	Wiring
10/100/1000 Mbps copper	10Mbps	Category 3,4,5 UTP/STP
	100Mbps	Category 5 UTP/STP
	1000Mbps	Category 5,5e UTP/STP
1000Mbps Fiber (Mini GBIC required)	1000Mbps	The cable type differs from the mini-GBIC you choose. Please refer to the instruction came with your mini-GBIC.

Port Operation

The auto-negotiation feature allows ports running 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

Note: For the last port, when both the fiber and cooper interfaces are connected,

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the system adapts the fiber interface and disables the relevant cooper port automatically.

Backbone Network Application

This switch is ideal for boosting the throughput of backbone. For an application sample of network topology, please refer to the following chart.
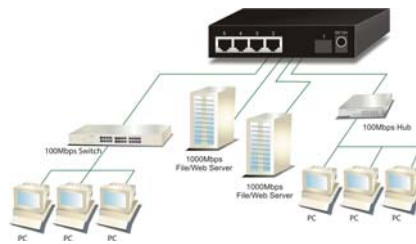
Product Specifications

Standard	IEEE802.3 10BASE-T IEEE802.3u 100BASE-TX IEEE802.3x full-duplex flow control IEEE802.3z/ab 1000BASE-T
Interface	4 *10/100/1000 Mbps auto MDI/MDI-X RJ-45 switching ports 1* Mini-GBIC module sockets
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: depend on Mini-GBIC types
Transmission Mode	10/100Mbps Full-duplex, Half-duplex 1000Mbps Full-duplex
LED indications	Power, LINK/ACT
Memory	1K MAC entries 832K bits buffer memory
Emission	FCC, CE, VCCI class A
Operating Temperature	$0^0 \sim 40^0C$ ($32^0 \sim 104^0F$)
Operating Humidity	10% - 90%(non-condensing)
Power Supply	External power adapter 12VDC 1A