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.

Table of Contents

Unpacking Information

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

1. **One 16/ 24–Port Gigabit Ethernet Switch with 2- Port Mini-GBIC**
2. **One AC power cord**
3. **Rubber feet and screws**
4. **Rack-mount brackets**
5. **User's Manual**

Introduction

General Description

Easily boost your networking throughput, the rack-mountable switch provides you 16/24* 10/100/1000Mbps 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, 2 of the ports support fiber connection with the 2 equipped Mini-GBIC ports for obtaining long-distance communication.

The switch offers users with fast and reliable network. The store-and-forward architecture filters errors and forwards packets in a non-blocking environment. Flow control ensures the correctness of data 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, which detects the networking speed (either 10/100/1000 Mbps) and the duplex modes (Full or Half duplex mode) automatically and do an immediately adjustment to advance the capability and performance. Auto-MDI/MDI-X function alleviates the effort to use crossover cables. Users need not to prepare crossover cables for equipment connectivity. Also, rich diagnostic LEDs are provided for users to get real-time information of the connection status that helps to do quick response and correction.

Key Features

- Complies with 10BASE-T specifications of the IEEE802.3 standard
- Complies with 100BASE-TX specifications of the IEEE802.3u standard
- Complies with 1000BASE-T specifications of the IEEE802.3ab standard
- 16/24 * 10/100/1000Mbps RJ-45 Nway ports
- 2* Mini-GBIC ports 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 ports
- Supports back-pressure (half duplex) and flow control (IEEE 802.3x)
- Store-and-forward architecture filters fragment & CRC error packets
- Supports 8K bytes MAC address entries in whole system
- 272K (16-Ports model)/ 400K(24-Ports Model) Bytes buffer memory
- Support up to 9K bytes jumbo Frames
- Supports extensive LED indicators for network diagnostics
- Rack mountable
- Internal power supply
- 100~240VAC/50~60Hz universal input
- FCC, CE, VCCI

The Front Panel

The front panel consists of LED indicators and the ports. For detailed LED definition, please refer to the next paragraph.

The front panel of the switch is shown as below:

LEDs Definition

Both the 16/24 ports switch contain 1* power LED for the device, 2 * Speed/Link/Act LEDs for each port that shows the activities and information of the ports.

LED for the device:

The switch provides a power LED for the device.

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

Port LEDs

The switch provides one "Link/ACT" LED and one " 1000 M " LED for each port.

LED	Status	Operation
Link/ ACT	Steady Green	Valid port connection
	Blinking Green	Valid port connection and there is data transmitting/ receiving
	Off	Port disconnected
1000M	Steady Green	Valid port connection at 1000 Mbps
	Off	Port disconnected or the port is connected at 10 Mbps or 100 Mbps

The Rear Panel

The rear panel of the switch is shown as below

Power Receptacle

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

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.

Rack-mount Installation

Rack mounting facilitate to an orderly installation when series of networking devices being installed. The switch is supplied with rack mounting brackets and screws for rack mounting the unit.

Procedures to Rack-Mount the Switch in the rack:

1. Disconnect all the cables from the switch before continuing.
2. Place the unit the right way up on a hard, flat surface with the front facing you.
3. Locate a mounting bracket over the mounting holes on one side of the unit.
4. Insert the screws and fully tighten with a suitable screwdriver.
5. Repeat the two previous steps for the other side of the unit.
6. Insert the unit into the rack and secure with suitable screws (not provided).
7. Reconnect all the cables.

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
10/100/1000Mbps copper	10Mbps	Category3,4,5 UTP/STP
	100Mbps	Category 5 UTP/STP
	1000Mbps	Category5,5e UTP/STP
1000Mbps Fiber (Mini GBIC required)	1000Mbps	The cable type differs from the mini-GBIC you purchase. Please refer to the instruction that came with your mini-GBIC.

Port Operation

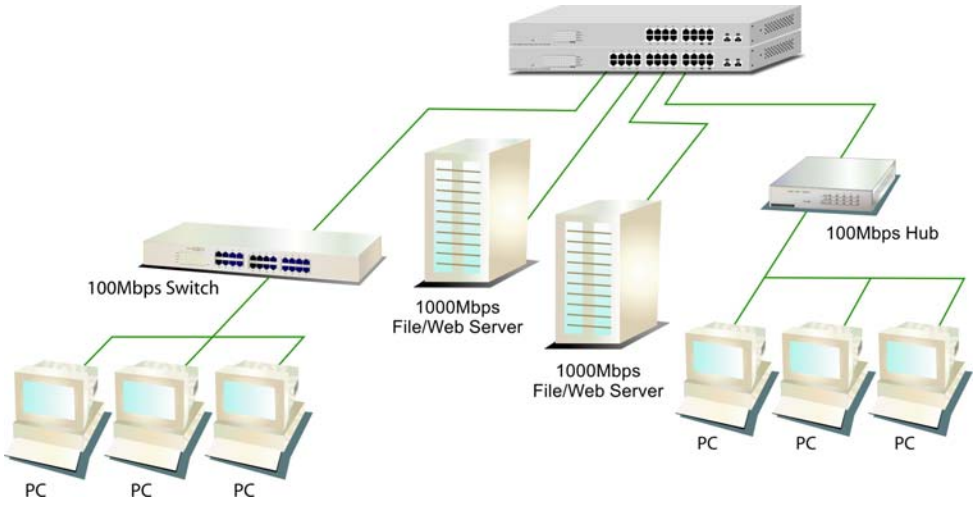
The auto-negotiation feature allows ports running at one of the following operation modes:

Port	Media	Speed	Duplex Mode
10/100/1000Mbps	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 two ports, when both the fiber and cooper interfaces are connected, 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	16/24 * 10/100/1000Mbps auto MDI/MDI-X RJ-45 switching ports 2* Mini-GBIC ports
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
Network Data Rate	10/100/1000Mbps Auto-negotiation
Transmission Mode	10/100Mbps Full-duplex, Half-duplex 1000Mbps Full-duplex
LED indications	System: Power Ports: Link/ACT, 1000 Mbps
Memory	8K MAC entries 272K bytes (16-ports model) / 400K bytes (24-ports model) Buffer Memory
Jumbo frame	9K bytes
Emission	FCC, CE, VCCI
Operating Temperature	0^0 ~ 40^0C (32^0 ~ 104^0F)
Operating Humidity	10% - 90%(non-condensing)
Power Supply	Internal power supply 5V 8A 100-240V/50-60 Hz universal input