TEG-S40TXE

4-Port 10/100/1000Mbps Copper Gigabit Ethernet Switch with External Power Supply

User's Guide

FCC Warning

This equipment has been tested and found to comply with the regulations 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 this user's guide, 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.

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.

VCCI Warning

This is a product of VCCI Class A Compliance.

注意
　この装置は、情報処理装置等電波障害自主規制協議会（VCCI）の基準
に基づく第一種情報技術装置です。この装置を家庭環境で使用すると電波妨
害を引き起こすことがあります。この場合には使用者が適切な対策を講ずる
よう要求されることがあります。

P/N : 1907GSW304T5000

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ABOUT THIS GUIDE

This user's guide tells you how to install your 4-Port 10/100/1000Mbps Copper Gigabit Ethernet Switch and how to connect it to your Gigabit Ethernet network.

Terms

For simplicity, this documentation uses the terms "Switch" (first letter upper case) to refer to the 4-Port 1000BASE-T Gigabit Ethernet Switch, and "switch" (first letter lower case) to refer to all Ethernet switches, including this 4-Port 1000BASE-T Gigabit Ethernet Switch.

Overview of this User's Guide

Introduction. Describes the Switch and its features.

Unpacking and Setup. Helps you get started with the basic installation of the Switch.

Identifying External Components. Describes the front panel, rear panel and LED indicators of the Switch.

Technical Specifications. Lists all the technical specifications of the Switch.

INTRODUCTION

This section describes the features of the Gigabit Ethernet Switch, as well as providing some background information about Gigabit Ethernet and switching technology.

Gigabit Ethernet Technology

Gigabit Ethernet is an extension of IEEE 802.3ab Ethernet utilizing the same packet structure, format, and support for CSMA/CD protocol, full duplex, flow control, and management objects, but with a tenfold increase in theoretical throughput over 100Mbps Fast Ethernet and a hundredfold increase over 10Mbps Ethernet. Since it is compatible with all 10Mbps and 100Mbps Ethernet environments, Gigabit Ethernet provides a straightforward upgrade without wasting a company's existing investment in hardware, software, and trained personnel.

The increased speed and extra bandwidth offered by Gigabit Ethernet is essential for coping with the network bottlenecks that frequently develop as computers and their busses get faster and more users use applications that generate more traffic. Upgrading key components, such as your backbone and servers to Gigabit Ethernet can greatly improve network response times

as well as significantly speed up the traffic between your subnets.

Gigabit Ethernet supports video conferencing, complex imaging, and similar data-intensive applications. Likewise, since data transfers occur 10 times faster than Fast Ethernet, servers outfitted with Gigabit Ethernet adapters are able to perform 10 times the number of operations in the same amount of time.

Switching Technology

Another key development pushing the limits of Ethernet technology is in the field of switching technology. A switch bridges Ethernet packets at the MAC address level of the Ethernet protocol transmitting among connected Ethernet or fast Ethernet LAN segments.

Switching is a cost-effective way of increasing the total network capacity available to users on a local area network. A switch increases capacity and decreases network loading by making it possible for a local area network to be divided into different segments which don't compete with each other for network transmission capacity, giving a decreased load on each segment.

The switch acts as a high-speed selective bridge between the individual segments. The switch automatically forwards traffic

that needs to go from one segment to another without interfering with any other segments. This allows the total network capacity to be multiplied, while maintaining the same network cabling and adapter cards.

Switching LAN technology is a marked improvement over the previous generation of network bridges, which were characterized by higher latencies. Routers have also been used to segment local area networks, but the cost of a router and the setup and maintenance required make routers relatively impractical. Today's switches are an ideal solution to most local area network congestion problems.

Features

The 4-Port 10/100/1000Mbps Copper Gigabit Ethernet Switch with External Power Supply was designed for easy installation and high performance in an environment where traffic on the network and the number of users increase continuously.

- ✍✍ **4 10/100/1000Mbps Gigabit Ethernet ports**
- ✍✍ **Auto-Negotiation and Auto-MDIX for each port**
- ✍✍ **Supports Full/Half duplex transfer mode for 10 and 100Mbps**
- ✍✍ **Supports Full duplex transfer mode for 1000Mbps**
- ✍✍ **Wire speed reception and transmission**

- **Store-and-Forward switching method**
- **Supports 8K MAC addresses entities per device**
- **Supports 256 Kbytes RAM for data buffering**
- **Extensive diagnostic LEDs on the front panel**
- **IEEE 802.3x flow control for full-duplex**
- **Back pressure flow control for half-duplex**

UNPACKING AND SETUP

This chapter provides unpacking and setup information for the Switch.

Unpacking

Open the shipping carton of the Switch and carefully unpack its contents. The carton should contain the following items:

One 4-Port 10/100/1000Mbps Gigabit Ethernet Switch

Four rubber feet with adhesive backing

One external power adapter

This User's Guide

If any item is found missing or damaged, please contact your local reseller for replacement.

Setup

The setup of the Switch can be performed using the following steps:

?? Install the Switch at a fairly cool and dry place. See <u>Technical Specification</u> for the acceptable operating temperature and humidity ranges.

?? Install the Switch at a site free from direct sunlight, dust, electromagnetic source, and vibration.

?? Leave at least 10cm of space around the Switch for ventilation.

?? Visually inspect the DC power jack and make sure that it is securely connected to the power adapter.

Connecting Network Cable

The 4-Port 10/100/1000Mbps Gigabit Ethernet Switch supports four 10/100/1000Mbps Gigabit Ethernet connections. In 10Mbps or 100Mbps, these ports support half or full duplex mode. They support full duplex mode when running in 1000Mbps.

All ports of the Switch are Auto-MDIX type ports. They can transform to MDI-II or MDI-X medium type automatically and user can make connections with either "straight through" or "crossover" Cat. 5 cables.

The 4-Port 10/100/1000Mbps Gigabit Ethernet Switch requires 5V DC/2.4A power supply. The power supply is included in the package and you can power up the Switch without having any or all LAN segment cables connected.
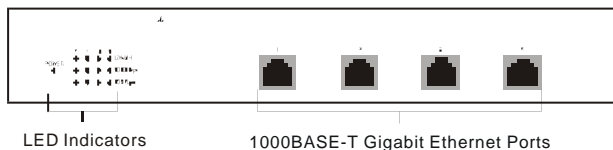
IDENTIFYING EXTERNAL COMPONENTS

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

Front Panel

The front panel of the Switch consists of four 1000BASE-T ports and 13 LED indicators.

LED Indicators   1000BASE-T Gigabit Ethernet Ports

Front panel of the Switch

1000BASE-T Ports:

Four 10/100/1000Mbps Auto-Negotiation Gigabit Ethernet interface.

LED Indicators

Comprehensive LED indicators display the conditions of the Switch and status of the network connections. Please go to <u>LED</u>

Indicators section in the following page for descriptions of the LED indicators.

Rear Panel

The rear panel of the Switch consists of a DC power connector. The following figure shows the rear panel of the Switch.

DC Power Jack

<Rear panel of the Switch>

DC Power Jack:

Power is supplied through an external DC power adapter. Check the Technical Specification section for information about the DC power input voltage.
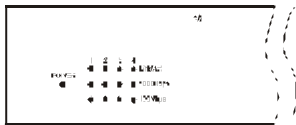
LED Indicators

The Switch has the following LED indicators: **Power**, **Link/Act**, **1000Mbps** and **100Mbps**. The followings show the LED indicators for the Switch along with the function of each indicator.

<The LED indicators>

POWER

This indicator lights green when the Switch is receiving power otherwise it is off.

Link/Act

This LED indicator lights up when there is a secure connection (or link) to the related port. It blinks whenever there is data reception or data transmission (i.e. Activity—Act) occurring at the port.

1000Mbps

This LED indicator lights up when there is a secure connection (or link) to 1000Mbps Gigabit Ethernet device at the related port.

100Mbps

This LED indicator lights up when the related port is connecting (or linking) to 100Mbps Fast Ethernet device.

10Mbps

When both the 1000Mbps and 100Mbps LED indicators are off, the connection (or link) is 10Mbps.

TECHNICAL SPECIFICATIONS

General		
Standards:	IEEE 802.3ab 1000BASE-T	
	IEEE 802.3u 100BASE-TX	
	IEEE 802.3 10BASE-T	
	IEEE 802.3x Flow Control	
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)	
Topology:	Star	
Network Cables:	Ethernet: 2-pair UTP/STP Cat. 3,4,5 Cable, 100 meters max.	
	Fast Ethernet: 2-pair UTP/STP Cat. 5 Cable, 100 meters max.	
	Gigabit Ethernet: 4-pair UTP/STP Cat. 5 Cable, 100 meters, max.	
Number of Ports	Four 10/100/1000Mbps Gigabit Ethernet ports	

General	
Ports:	

Physical and Environmental	
DC inputs:	5V, 2.4A
Power Consumption:	12 Watts max.
Operating Temperature:	0 ?C ~ 40?C (32°F ~ 104°F)
Storage Temperature:	-10?C ~ 70?C (14°F ~ 158°F)
Humidity:	5% ~ 90% (non-condensing)
Dimensions:	190 × 120× 38mm (7.5" x 1.5" x 4.7") (W x H x D)
Weight:	1.50 kg (3.31 lbs)
Certification:	CE Mark Class A, FCC Class A, VCCI Class A
Performance	
Transmission Method:	Store-and-forward
RAM Buffer:	256 Kbytes per device
Address Table:	8K MAC addresses per device
Packet Filtering/Forwarding Rate:	10Mbps: 14,880 Packet per Second (pps) 100Mbps: 148,800 pps

Physical and Environmental	
	1000Mbps: 1,488,000 pps
MAC Address Learning:	Self-learning