

TE100-S5P+/TE100-S8P/TE100-S55E+ TE100-S88E+/TE100-S16E+

5/8/16 Port 10/100Mbps Auto-MDIX Fast Ethernet Switch
User's Guide

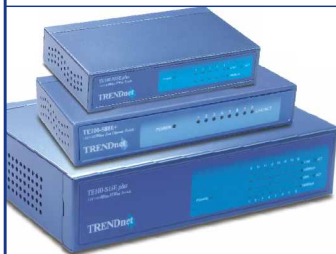
Commutateur Fast Ethernet Auto-MDIX À 5/8/16 ports 10/100Mbps
Guide de l'utilisateur

5/8/16-Port 10/100 Mbit/s Auto-MDIX Fast-Ethernet-Switch
Bedienungsanleitung

Puerto 5/8/16 a 10/100Mbps Conmutador Fast Ethernet Auto-MDIX
Guía del Usuario

5/8/16-портовый коммутатор 10/100 Мбит/с Auto-MDIX для сети Fast Ethernet
Руководство пользователя

Version 05.11.2005



TRENDnet[®]
TRENDware, USA
What's Next in Networking

Table of Contents

English	1
1. Unpacking and Installation	1
2. Introduction	2
3. Unpacking and Setup	6
4. Identifying External Components	7
5. Connecting The Switch	10
6. RJ-45 Pin Specification	14
Technical Specifications	15
Limited Warranty	17

English UG

1. About This Guide

Congratulations on your purchase of the 5/8/16-port 10/100Mbps Fast Ethernet Switch. This device integrates 100Mbps Fast Ethernet and 10Mbps Ethernet network capabilities in a highly flexible desktop package.

Purpose

This manual provides installation instructions for the 5/8/16-port 10/100Mbps Fast Ethernet Switch.

Terms/Usage

In this guide, the term "Switch" (first letter upper case) refers to the 5/8/16-port 10/100M auto-negotiation Fast Ethernet Switch, and "switch" (first letter lower case) refers to other Ethernet switches.

Overview

Introduction: Describes the Switch and its features.

Unpacking and Setup: Prepares you for the basic installation of the Switch.

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

Connecting the Switch: Explains how to connect the Switch to your Ethernet network.

Technical Specifications: Lists the technical (general, physical and environmental, and performance) specifications of the Switch.

RJ-45 Pin Specification: Describes the RJ-45 receptacle/connector.

2. Introduction

This chapter describes the features of the Switch and provides relevant background information about Ethernet/Fast Ethernet switching technology.

Fast Ethernet Technology

The growing importance of LANs and the increasing complexity of desktop computing applications are fueling the need for high performance networks. A number of high-speed LAN technologies have been proposed to provide greater bandwidth and improve client/server response times. Among them, 100BASE-T (Fast Ethernet) provides a non-disruptive, smooth evolution from the current 10BASE-T technology. The non-disruptive and smooth evolution nature, and the dominating potential market base virtually guarantee cost effective and high performance Fast Ethernet solutions in the years to come. 100Mbps Fast Ethernet is a standard specified by the IEEE 802.3 LAN committee. It is an extension of the 10Mbps Ethernet standard with the ability to transmit and receive data at 100Mbps while maintaining the CSMA/CD Ethernet protocol. Some of the 100Mbps Fast Ethernet products (10/100Mbps dual-speed) are compatible with 10Mbps Ethernet environments; they provide a straightforward upgrade and take advantage of existing investments in hardware, software, and personnel training.

Switching Technology

Another approach to pushing beyond the limits of Ethernet technology is the development 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 dividing a local area network into different segments, which don't compete with each other for network transmission capacity.

The switch acts as a high-speed selective bridge between the individual segments. The switch, without interfering with any other segments, automatically forwards traffic that needs to go from one segment to another. This allows the total network capacity to be dramatically increased while using existing network cables and adapter cards.

For Fast Ethernet networks, a switch is an effective way of eliminating problems that arise when chaining hubs beyond the “two-repeater limit.” A switch can be used to split parts of the network into different collision domains, making it possible to expand your Fast Ethernet network beyond the 205 meter network diameter limit for 100BASE-TX networks. Switches supporting both traditional 10Mbps Ethernet and 100Mbps Fast Ethernet is also ideal for bridging existing 10Mbps networks and new 100Mbps networks. Switching LAN technology is a marked improvement over the previous generation of network bridges, which were characterized by higher latencies. Today, switches are an ideal solution to most kinds of local area network congestion problems.

Features

The Fast Ethernet Switch is designed for easy installation and high performance in an environment where traffic on the network and the number of users increase continuously.

Its small, compact size is specifically designed for small to mid size workgroups. These Switches can be installed where space is limited; moreover, it can provide immediate access to a rapidly growing network through a wide range of functions.

The Fast Ethernet Switch is ideal for deployment with multiple high-speed servers for shared bandwidth 10Mbps or 100Mbps workgroups. With a maximum bandwidth of 200Mbps (full-duplex mode), each port provides a workstation with a congestion-free data pipe, allowing multiple workstations to simultaneously access the server.

The Fast Ethernet Switch is expandable by cascading two or more switches together. As all ports support 200Mbps, the Switch can be cascaded from any port and to any number of switches.

The Fast Ethernet Switch is a perfect choice for networks planning to upgrade to Fast Ethernet in the future. Ethernet workgroups can connect to the Switch now, and change adapters and hubs without having to replace the Switches or reconfigure the network.

The Fast Ethernet Switch combines dynamic memory allocation with store-and-forward switching to ensure that the buffer is effectively allocated for each port, while controlling the data flow between the transmit and receive nodes to prevent possible packet loss.

The Fast Ethernet Switch is an unmanaged 10/100 Fast Ethernet Switch that increases small Ethernet/Fast Ethernet workgroup bandwidth. Other key features are:

- Store and forward switching scheme capability. By utilizing complete frame checking and error frame filtering, this scheme prevents error packages from transmitting among segments.
- Auto-MDI function supports automatic MDI/MDIX crossover. The detection function provides true 'plug and play' capability and eliminates the need for confusing crossover cables or crossover ports.
- Auto-Negotiation on all ports. This allows each port to detect and adjust network speeds (10/100Mbps) automatically, adding flexibility to your network and increasing performance.
- Flow control for any port. This minimizes dropped packets by sending out collision signals when the port's receiving buffer is full. Note that flow control is only available in half duplex mode.
- Data filtering rate eliminates all error packets, runts, etc., per port at wire-speed for 100Mbps and 10Mbps speed.

3. Unpacking and Setup

This chapter provides unpacking and setup information for the Fast Ethernet Switch.

Unpacking

This package should contain the following items:



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

Setup

As you proceed, please ensure that the following precautionary guidelines are met.

- The surface must support at least 1.5 Kg for the Switch.
- The power outlet should be within 1.82 meters (6 feet) of the Switch.
- Visually inspect the DC power jack to make sure that it is securely connected to the power adapter.
- Make sure that there is proper heat dissipation from and adequate ventilation around the Switch. Do not place heavy objects on the Switch.

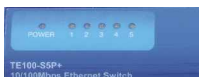
4. Identifying External Component

This section identifies all the major external components of the switch. Both the front and rear panels are shown with descriptions of each panel feature. The indicator panel is described in detail in the next chapter.

Front Panel

The figure below shows the front panels of the Fast Ethernet Switch.

TE100-S5P+
5-port Switch LED Indicator Panel



TE100-S8P
8-port Switch LED Indicator Panel



TE100-S55E+
5-port Switch LED Indicator Panel



TE100-S88E+
8-port Switch LED Indicator Panel



TE100-S16E+
16-port Switch LED Indicator Panel



Refer to the LED Indicator section for detailed information about the Switch's LED indicators.

Rear Panel

TE100-S5P+
5-port Switch Rear Panel



TE100-S8P
8-port Switch Rear Panel



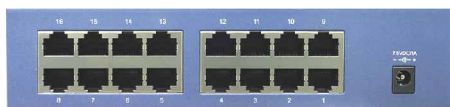
TE100-S55E+
5-port Switch Rear Panel



TE100-S88E+
8-port Switch Rear Panel



TE100-S16E+
16-port Switch Rear Panel



DC Power Jack:

Power is supplied through an external AC/DC power adapter. Check the technical specification section for information about the DC power input voltage.

Since the switch does not include a power on/off switch, plugging its power adapter into a power outlet will immediately power on the Switch.

Auto MDIX Ports:

These ports support an automatic MDI-II/MDI-X crossover detection function, giving the Switch true Plug & Play capability.

With the Auto-MDIX function, you can just connect a network cable to a port without having to specify whether the end node is a NIC (Network Interface Card) or switch or hub.

LED Indicators

When you power on the Switch, all LEDs will turn ON for about 1 second and then turn OFF, only the Power LED will stay lit.

Power

This indicator lights green when the switch is receiving power.

Link/Act [Link/Activity]

This indicator lights green when the port is connected to an active Ethernet/Fast Ethernet device. The indicator blinks green when the port is transmitting or receiving data on the network.

Note: It is normal to see some collisions in the network. If a Port's Collision LED is on constantly, check the status of the device the port is connected to.

100Mbps

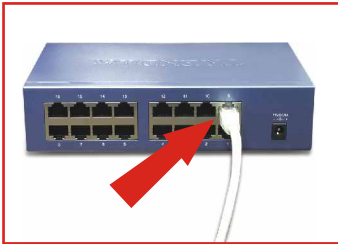
This indicator lights green when the port is connected to an active 100Mbps Fast Ethernet device. This LED is off when the connection is 10Mbps or there is no connection to the port.

5. Connecting The Switch

This chapter describes how to connect the Switch to your Fast Ethernet network.

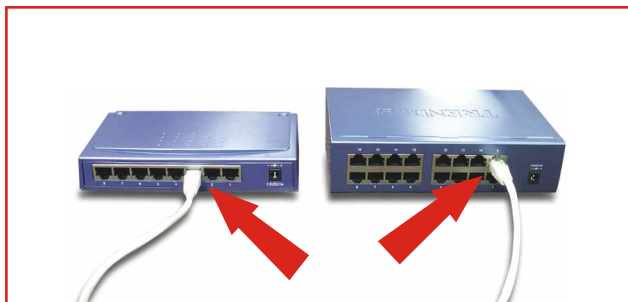
PC to Switch

You can connect a PC to any of the Switch's ports via a two-pair Category 3, 4, 5 UTP/STP cable. You can connect the PC (equipped with a RJ-45 10/100Mbps jack) to any of the ports. When connecting PC to the Switch, the Switch's 100Mbps LED indicator will light up according to the network adapter's connection speed. If the Link/Act LED indicator does not light up after making a proper connection, check the PC network card, the cable, and the Switch to ensure that each device is working.



Hub to Switch

A hub (10BASE-T or 100BASE-TX) can be connected to the Switch via a two-pair Category 3, 4, 5 UTP/STP cable (use Category 5 for a 100Mbps connection). The connection can be made from any RJ-45 port on the hub to any RJ-45 port on the Switch. After connecting the hub to the Switch, the Switch's 100Mbps LED indicator will light up according to the hub's connection speed. If the Link/Act LED indicator does not light up after making a proper connection, check the hub, the cable, and the Switch to ensure that each device is working. Each port on the Switch has auto-MDI function; you can make the connection using crossover or straight through cable with uplink port or regular port from the hub.



Switch to switch (or other Ethernet devices)

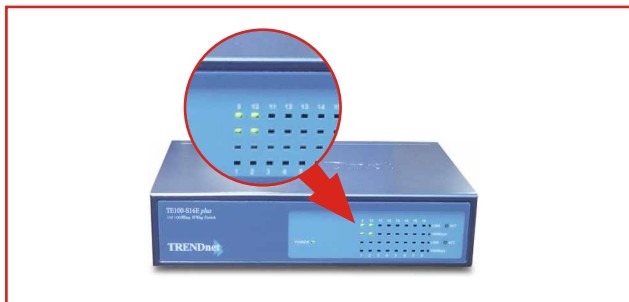
You can connect a switch or other Ethernet devices (10BASE-T or 100BASE-TX) to this Switch via a two-pair Category 3, 4, 5 UTP/STP cable (use Category 5 for a 100Mbps connection). The connection can be made from any RJ-45 port on the device to any RJ-45 port on the Switch. After connecting the switch to the Switch, the Switch's Port LED indicator will light according to the switch's connection speed. If the Link/Act LED indicator does not light after making a proper connection, check the device, the cable, and the Switch to ensure that each device is working. Each port on the Switch has auto-MDI function; you can make the connection using crossover or straight through cable with uplink port or regular port from the device.



Port Speed & Duplex Mode

After a connection is made, the Switch uses auto-negotiation to determine the transmission mode for this twisted-pair connection.

If the attached device does not support auto-negotiation or has auto-negotiation disabled, an auto-sensing process is initiated to select the speed and set the duplex mode to half-duplex.

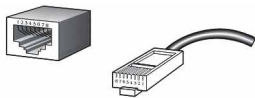


6. RJ-45 Pin Specification

The following diagram and table show the standard RJ-45 receptacle/connector and its pin assignments.

RJ-45 Connector pin assignment	
Contact	Media Direct Interface Signal
1	TX + (transmit)
2	TX - (transmit)
3	Rx + (receive)
4	Not used
5	Not used
6	Rx - (receive)
7	Not used
8	Not used

The standard cable, RJ-45 pin assignment



The standard RJ-45 receptacle/connector

Technical Specifications

GENERAL	
Standards:	IEEE 802.3 10BASE-T Ethernet IEEE 802.3u 100BASE-TX Fast Ethernet ANSI/IEEE 802.3 NWay Auto-negotiation IEEE 802.3x Full-Duplex Flow Control
Protocol:	CSMA/CD
Data Transfer Rate:	<u>Ethernet</u> : 10Mbps (half duplex), 20Mbps (full-duplex) <u>Fast Ethernet</u> : 100Mbps (half duplex), 200Mbps (full- duplex)
Topology:	Star
Network Cables:	<u>10BASE-T</u> : 2-pair UTP Cat. 3,4,5 (100 m), EIA/TIA 568 100-ohm STP (100 m) <u>100BASE-TX</u> : 2-pair UTP Cat. 5 (100 m), EIA/TIA-568 100-ohm STP (100 m)
Number of Ports:	5, 8, or 16 x 10/100Mbps auto-negotiation, auto-MDI ports

PHYSICAL AND ENVIRONMENTAL

DC inputs:	DC 7.5V, 1A DC 7.5V 1A (for TE100-S16E+)
Power Consumption:	TE100-S55E+: 2.5W (Max.) TE100-S88E+: 2.8W (Max.) TE100-S16E+: 6W (Max.) TE100-S5P+: 2.5W (Max.) TE100-S8P: 3.6W (Max.)
Temperature:	Operating: 0 ~ 50°C, Storage: -10 ~ 70°C
Humidity:	Operating: 10% ~ 90%, Storage: 5% ~ 90%
Dimensions:	TE100-S55E+: 125 x 73 x 30 mm (L x W x H) TE100-S88E+: 136 x 70 x 25 mm (L x W x H) TE100-S16E+: 184 x 124 x 44 mm (L x W x H) TE100-S5P+: 125 x 85 x 34 mm (L x W x H) TE100-S8P: 171 x 100 x 34 mm (L x W x H)
EMI:	FCC Class B, CE Mark B, VCCI-B

PERFORMANCE

Transmits Method:	Store-and-forward
RAM Buffer:	TE100-S55E+: 64KB TE100-S88E+: 96KB TE100-S16E+: 512KB TE100-S5P+: 64 KB TE100-S8P: 64 KB
Filtering Address Table:	TE100-S55E+: 1K entries per device TE100-S88E+: 1K entries per device TE100-S16E+: 8K entries per device TE100-S5P: 1K entries per device TE100-S8P: 1K entries per device
Packet Filtering/ Forwarding Rate:	10Mbps Ethernet: 14,880/pps 100Mbps Fast Ethernet: 148,800/pps
MAC Address Learning:	Automatic update

Limited Warranty

TRENDware warrants its products against defects in material and workmanship, under normal use and service, for the following lengths of time from the date of purchase.

Fast Ethernet Products: 5-Year Warranty

If a product does not operate as warranted above during the applicable warranty period, TRENDware shall, at its option and expense, repair the defective product or part, deliver to customer an equivalent product or part to replace the defective item, or refund to customer the purchase price paid for the defective product. All products that are replaced will become the property of TRENDware. Replacement products may be new or reconditioned.

TRENDware shall not be responsible for any software, firmware, information, or memory data of customer contained in, stored on, or integrated with any products returned to TRENDware pursuant to any warranty.

There are no user serviceable parts inside the product. Do not remove or attempt to service the product by any unauthorized service center. This warranty is voided if (i) the product has been modified or repaired by any unauthorized service center, (ii) the product was subject to accident, abuse, or improper use (iii) the product was subject to conditions more severe than those specified in the manual.

Warranty service may be obtained by contacting TRENDware office within the applicable warranty period for a Return Material Authorization (RMA) number, accompanied by a copy of the dated proof of the purchase. Products returned to TRENDware must be pre-authorized by TRENDware with RMA number marked on the outside of the package, and sent prepaid, insured and packaged appropriately for safe shipment.

WARRANTIES EXCLUSIVE: IF THE TRENDWARE PRODUCT DOES NOT OPERATE AS WARRANTED ABOVE, THE CUSTOMER'S SOLE REMEDY SHALL BE, AT TRENDWARE'S OPTION, REPAIR OR REPLACEMENT. THE FOREGOING WARRANTIES AND REMEDIES ARE EXCLUSIVE AND ARE IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED, EITHER IN FACT OR BY OPERATION OF LAW, STATUTORY OR OTHERWISE, INCLUDING WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. TRENDWARE NEITHER ASSUMES NOR AUTHORIZES ANY OTHER PERSON TO ASSUME FOR IT ANY OTHER LIABILITY IN CONNECTION WITH THE SALE, INSTALLATION MAINTENANCE OR USE OF TRENDWARE'S PRODUCTS.

TRENDWARE SHALL NOT BE LIABLE UNDER THIS WARRANTY IF ITS TESTING AND EXAMINATION DISCLOSE THAT THE ALLEGED DEFECT IN THE PRODUCT DOES NOT EXIST OR WAS CAUSED BY CUSTOMER'S OR ANY THIRD PERSON'S MISUSE, NEGLIGENCE, IMPROPER INSTALLATION OR TESTING, UNAUTHORIZED ATTEMPTS TO REPAIR OR MODIFY, OR ANY OTHER CAUSE BEYOND THE RANGE OF THE INTENDED USE, OR BY ACCIDENT, FIRE, LIGHTNING, OR OTHER HAZARD.

LIMITATION OF LIABILITY: TO THE FULL EXTENT ALLOWED BY LAW TRENDWARE ALSO EXCLUDES FOR ITSELF AND ITS SUPPLIERS ANY LIABILITY, WHETHER BASED IN CONTRACT OR TORT (INCLUDING NEGLIGENCE), FOR INCIDENTAL, CONSEQUENTIAL, INDIRECT, SPECIAL, OR PUNITIVE DAMAGES OF ANY KIND, OR FOR LOSS OF REVENUE OR PROFITS, LOSS OF BUSINESS, LOSS OF INFORMATION OR DATA, OR OTHER FINANCIAL LOSS ARISING OUT OF OR IN CONNECTION WITH THE SALE, INSTALLATION, MAINTENANCE, USE, PERFORMANCE, FAILURE, OR INTERRUPTION OF THE POSSIBILITY OF SUCH DAMAGES, AND LIMITS ITS LIABILITY TO REPAIR, REPLACEMENT, OR REFUND OF THE PURCHASE PRICE PAID, AT TRENDWARE'S OPTION. THIS DISCLAIMER OF LIABILITY FOR DAMAGES WILL NOT BE AFFECTED IF ANY REMEDY PROVIDED HEREIN SHALL FAIL OF ITS ESSENTIAL PURPOSE.

Governing Law: This Limited Warranty shall be governed by the laws of the state of California.

FCC Warning

This equipment has been tested and found to comply with the regulations for a Class B 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 B product. In a domestic environment, this product may cause radio interference, in which case the user may be required to take adequate measures.

VCCI Mark Warning

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。

NOTE: THE MANUFACTURER IS NOT RESPONSIBLE FOR ANY RADIO OR TV INTERFERENCE CAUSED BY UNAUTHORIZED MODIFICATIONS TO THIS EQUIPMENT. SUCH MODIFICATIONS COULD VOID THE USER'S AUTHORITY TO OPERATE THE EQUIPMENT.





What's Next in Networking

Product Warranty Registration

Please take a moment to register your product online.
Go to TRENDware's website at <http://www.TRENDNET.com>

TRENDnet Technical Support

US/Canada Support Center

Contact

Telephone: 1(310) 626-6252

Fax: 1(310) 626-6267

Email: support@trendnet.com

Tech Support Hours

7:30am - 6:00pm Pacific Standard Time

Monday - Friday

European Support Center

Contact**Telephone**

Deutsch : +49 (0) 6331 / 268-460

Français : +49 (0) 6331 / 268-461

Español : +49 (0) 6331 / 268-462

English : +49 (0) 6331 / 268-463

Italiano : +49 (0) 6331 / 268-464

Dutch : +49 (0) 6331 / 268-465

Fax: +49 (0) 6331 / 268-466

Tech Support Hours

8:00am - 6:00pm Middle European Time

Monday - Friday

TRENDware International, Inc.
3135 Kashiwa Street. Torrance, CA 90505
<http://www.TRENDNET.com>