Micronet
Faster and Easier Networks

Quick Installation Guide

EtherFast 10/100Mbps Switch

Model No.: SP616R

Website http://www.micronet.info

Introduction

Micronet SP616R provides powerful, high-performance Ethernet switch, with all ports capable of 10 and 100Mbps auto-negotiation operation.

Store-and-forward switching mode promises the low latency plus eliminates all the network errors, including runt and CRC error packets. To work under full-duplex mode, transmission and reception of the frames can occur simultaneously without causing collisions as well as double the network bandwidth.

The switch is plug-n-play without any software to configure and also fully compliant with all kinds of network protocols. Moreover, the diagnostic LEDs on the front-panel can provide the operating status of individual port and whole system.

Package Contents

Before you start installing the device, verify the following items are in the package:

- One SP616R Ethernet Switch
- Quick Installation Guide
- One power cord
- Rack-Mount accessories

Features

- Complies with 10Base-T/100Base-TX specifications of the IEEE802.3/802.3u standard
- Support Auto-Negotiation function to automatically select optimal speed (10/100Mbps) and mode (Full/Half Duplex)
- 8K MAC address table
- 4 Mbyte memory buffer
- Support auto uplink, no more cross-over cable
- Forward and filter packets at non-blocking, full wire speed
- 19-inch standard rack-mountable design
- 100 - 240V AC, universal internal power supply

Physical Description
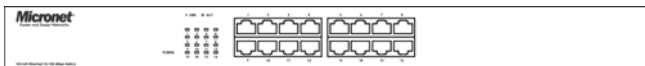
SP616R front view

SP616R rear view

Please refer to the following table for LED definition

| LED	Status	Operation
Power	Steady Green	Power is on
	Off	Power is off
LINK/ACT	Steady Green	A valid link is established
	Off	No link is established
	Blinking Green	Transmitting or receiving data

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Installation

Micronet SP616R Switches do not require software configuration.
Users can immediately use any of the features of this product simply
by attaching the cables and turning on the power.

Rack Mounting
The switch can be mounted in an EIA standard 19-inch rack, which
can be placed in a wiring closet with other equipment. Attach the
mounting brackets at the switch's front panel (one on each side),
and secure them with the provided screws.

Then, use screws provided with the equipment rack to mount each
switch in the rack.
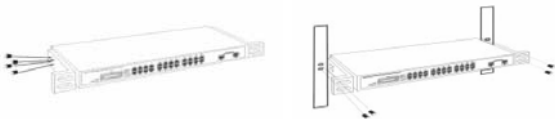
Station Connections
Connect each station to the switch by twisted-pair cable. Plug one
RJ-45 connector into a RJ-45 port of the switch, and plug the other
RJ-45 connector into the station's network adapter. Power on the
switch and then system is ready.

It supports Auto-Negotiation function to automatically select optimal

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speed (10/100Mbps) and mode (Full/Half Duplex). 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.

Switch-to-switch Connections

In making a switch interconnection, you could use any port to connect another switch with straight or crossover cable. **As all the ports support auto-uplink (MDI / MDI-X) function, using a straight cable to make a switch-to-switch connection is allowed.**
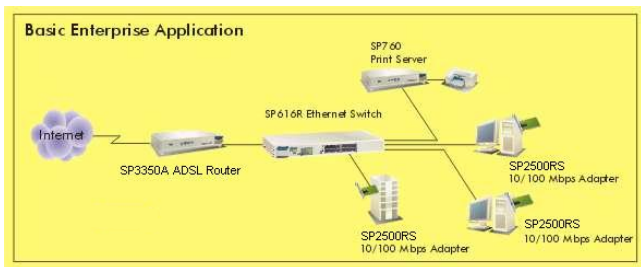
Cable Selection

Refer to the following table：

Network Speed	Cable Type	Max. Length
10Mbps	Cat. 3, 4, 5 UTP/STP	100 meters
100Mbps	Cat. 5 UTP/STP	100 meters

Note: To prevent costly equipment damage and downtime, please consider installing a surge suppression device or a UPS (Un-interrupted Power Supply).

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Network Application

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Specifications

Standard	IEEE802.3, IEEE802.3u
	IEEE802.3x : Flow Control
Interface	16 * RJ-45 ports (10/100Mbps)
Cable Connections	10BASE-T: Category 3, 4, 5 UTP/STP
	100BASE-TX: Category 5 UTP/STP
Network Speed	20M(Full duplex)/10M(Half duplex)
	200M(Full duplex)/100M(Half duplex)
Features	Auto-negotiation, Auto Uplink
Switch Fabric	3.2Gbps
Memory	4 MByte
MAC Address Table	8K entries
Forwarding Method	Store and Forward
Filtering/Forwarding Rate	10Mbps: 14,880pps/14,880pps
	100Mbps: 148,800pps/148,800pps
Emission	FCC Class A, CE
Operating Temperature	$0^\circ \sim 55^\circ$ C ($32^\circ \sim 131^\circ$ F)
Operating Humidity	10% - 95% (Non-condensing)
Dimension & Weight	441 x 130 x 44 mm, 1.34kg
Power Supply	100 - 240V AC, 50/60 Hz
	Full range internal power supply

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.

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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.

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Appendix

A. 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-TX (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 guarantees cost effective and high performance Fast Ethernet solutions in the years to come.

100Mbps Fast Ethernet is a new 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. Since the Switch is compatible with all 10Mbps Ethernet environments, it provides a straightforward upgrade and takes advantage of the existing investment in hardware, software, and personnel training.

B. Switching Technology

Another approach to pushing beyond the limits of Ethernet technology is the development of switching technology. A switch bridges and transmits Ethernet packets at the MAC address level of the Ethernet protocol, among connected Ethernet or Fast Ethernet LAN segments.

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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. Each segment has its own bandwidth and it does not compete with others for network transmission capacity.

A switch acts as a high-speed selective bridge between the individual segments. The switch forwards traffic from origin segment to destination segment, without interfering with any other segments. By doing this, the total network capacity is multiplied, while still maintaining the same network cabling and adapter cards.

For Fast Ethernet networks, a switch is an effective way of eliminating problems of uplinking Fast Ethernet 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. The switch supports both traditional 10Mbps Ethernet and 100Mbps Fast Ethernet, which is also ideal for bridging between the existing 10Mbps networks and the new 100Mbps networks.

LAN Switching technology is a marked improvement over the previous generation of network bridges, which were criticized by their higher latencies. Routers have also been used to segment local area networks. But, the router expensive, difficult to setup, and maintenance intensive, these make it relatively impractical for

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the network. Switch, on the other hand, is less expensive, easier to setup, and practically maintenance free, which make it an ideal solution to today's local area network congestion problems.

C. RJ-45 Pin Assignment

According to the EIA/TIA 586B standard, the color sequence of Cat.5 UTP is as following figure. The Straight-through cable is used to connect between switch and PC. The Cross-over cable is used to connect between two switches without auto uplink (auto MDI/MDI-X).

TIA/EIA 568B Standard
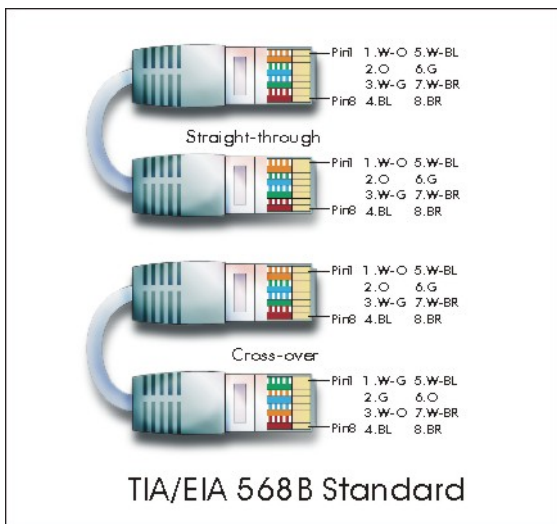
Contact	Media Direct Interface Signal
1	TX + (transmit)
2	TX - (transmit)
3	Rx + (receive)
4	Not used
5	Not used
6	Rx - (receive)
7	Not used
8	Not used

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