

FriendlyNet 4000E Series
Fast Ethernet Switch

FS4002E/FS4004E

FS4008E/FS4016E

User's Manual

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About This Manual

This manual describes four models of the FriendlyNet Fast Ethernet FS4000E Series Switches:

- ❑ FS4002E — two-port 10/100Mbps Fast Ethernet Switch
- ❑ FS4004E — four-port 10/100Mbps Fast Ethernet Switch
- ❑ FS4008E — eight-port 10/100Mbps Fast Ethernet Switch
- ❑ FS4016E — sixteen-port 10/100Mbps Fast Ethernet Switch

These models are similar in every respect except for the number of ports and LED indicators (FS4016E only). Therefore, unless otherwise noted, all information provided in this manual is applicable to all.

Chapter Contents

This manual is divided into the following chapters and appendices:

- ❑ Chapter 1, “Introduction,” describes the FriendlyNet FS4002E, FS4004E, FS4008E and FriendlyNet FS4016E Fast Ethernet Switches and their features
- ❑ Chapter 2, “Installation,” explains how to install, mount, and apply power to the FriendlyNet Fast Ethernet Switches
- ❑ Chapter 3, “LED Indicators,” describes how to interpret the LEDs on the FriendlyNet Fast Ethernet Switches’
- ❑ Appendix A, “Troubleshooting,” explains how to troubleshoot problems by monitoring the FriendlyNet Fast Ethernet Switches’ LEDs
- ❑ Appendix B, “Specifications,” describes the FriendlyNet Fast Ethernet Switches’ technical specifications
- ❑ Appendix C, “Technical Support” explains how to contact Asanté Technical Support

Document Conventions

This manual uses the terms “Switch” (first letter upper case) to refer to the FriendlyNet FS4002E, FS4004E, FS4008E or FS4016E 10/100Mbps Fast Ethernet Switch, and “switch” (first letter lower case) to refer to all other Ethernet switches.

This manual uses the following conventions to convey instructions and information:

- Commands and key words are in **boldface** font.
- ◆ *Note*: Noteworthy information, which contains helpful suggestions or references to other sections in the manual, is in this format.
- ▲ **Important!** Significant information that calls attention to important features or instructions is in this format.

1

Introduction

This chapter introduces the Asanté FriendlyNet Fast Ethernet FS4000E Series 10/100Mbps Switches. It also provides an overview of Fast Ethernet and switching technology.

FriendlyNet Fast Ethernet Switch

Thank you for purchasing an Asanté FriendlyNet FS4000E Series Switch. The FriendlyNet FS4000E products are unmanaged 10/100 Fast Ethernet switches. These switches are designed to address increasing network bandwidth needs and to accommodate future network expansion.



Figure 1-1 FriendlyNet FS4002E

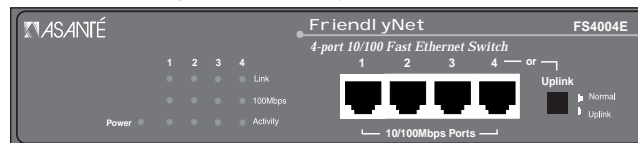


Figure 1-2 FriendlyNet FS4004E

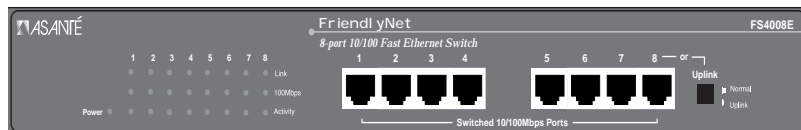


Figure 1-3 FriendlyNet FS4008E

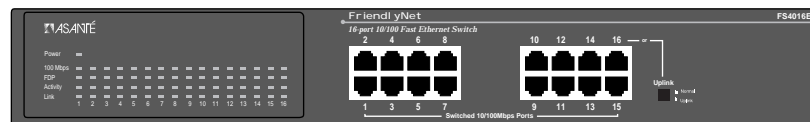


Figure 1-4 FriendlyNet FS4016E

Introduction

Each Switch features full plug-and-play installation. Indicators include power, link, 10/100Mbps, and activity LEDs for easy monitoring of Switch operation. In addition, the FS4016E switch also features FDP (full- or half-duplex) LED indicators, which provide a visual indication of duplex operation.

For network expansion, each Switch has an uplink port that makes it easy to connect it to another Fast Ethernet switch or to the network backbone.

Features

The FriendlyNet FS4000E Series Switches have the following features:

- ❑ Compact size — designed for small to large workgroups in space-limited areas; installs on desktop or wall (FS4002E/FS4004E/FS4008E, optional wall-mount kit for the FS4016E), or installs in a standard 19-inch equipment rack (FS4008E/FS4016E).
- ❑ Plug-and-play installation
- ❑ Connects from two to sixteen (depends on model) 10Base-T or 100Base-TX segments per switch
- ❑ Provides an uplink selector button for connecting to another network device without using a crossover cable
- ❑ Automatic speed detection on all ports to determine network speed
- ❑ Full NWay auto-negotiation for half- or full-duplex operation on all ports
- ❑ Asanté's Intelligent Forwarding Technology chooses the fastest packet forwarding method: fragment free or store-and-forward
- ❑ Asanté's Efficient Data Flow Technology promotes smooth, predictable cell transfer which maximizes time sensitive data transmission
- ❑ Allows cascading from any port to any number of switches (limit of seven chained switches in spanning tree enabled networks).
- ❑ Complies with IEEE 802.3 Ethernet/802.3u Fast Ethernet standard
- ❑ Works with Category 3 or 5 UTP (unshielded twisted-pair) cable
- ❑ Provides power, link, 10/100Mbps operation, and activity or data LEDs to aid network diagnosis and simple management
- ❑ Ideal for deployment with multiple high-speed servers for dedicated bandwidth (10Mbps or 100Mbps) workgroups, or as a segmentation device for larger congested networks.

Performance Features

The FriendlyNet FS4002E, FS4004E, FS4008E and FS4016E have the following performance features:

- ❑ Asanté's Intelligent Forwarding Technology feature provides automatic fragment free or store-and-forward switching, which ensures data integrity with minimum latency
- ❑ Asanté's unique EDF (Efficient Data Flow Technology) minimizes communication delays between ports, which promotes maximum efficiency for time-sensitive business applications such as video and multimedia.
- ❑ NWay auto-negotiation on all ports automatically senses port speed (10/100Mbps) and negotiates duplex mode (full-duplex or half-duplex)
- ❑ Data forwarding rate at 100% of wire-speed, or 148,800pps at 100Mbps, 14,880pps at 10Mbps for 64-byte packets
- ❑ Data filtering at 100% of wire-speed
- ❑ 8K active MAC address entry table per device (self-learning)
- ❑ 4 to 8MB (FS4008E/FS4016E) or 1 to 2MB (FS4002E/FS4004E) packet buffer per device (dynamically allocated for each port)

Fast Ethernet and Switching Technology

This section provides a brief overview of Fast Ethernet switching technology.

Fast Ethernet Technology

Fast Ethernet, or 100Base-T, represents a non-disruptive, smooth evolution from the current 10Base-T technology.

Fast Ethernet technology:

- ❑ Extends the 10Mbps Ethernet standard to transmit and receive data at 100Mbps
- ❑ Maintains the CSMA/CD Ethernet protocol
- ❑ Allows for simple upgrades, since it is compatible with all other 10Mbps Ethernet environments
- ❑ Takes advantage of your company's existing investment in hardware, software and personnel training

Introduction

Switching Technology

An Ethernet switch is a device that can direct network traffic among several Ethernet and Fast Ethernet networks. A switch increases network capacity and decreases network loading by making it possible for a LAN to be divided into multiple, unique dedicated *segments*.

Switch Supports Network Expansion

In Fast Ethernet networks, a switch allows chaining of hubs beyond the “two-repeater limit.” A switch can be used to separate the network into different collision domains, which allows expansion beyond the 205 meter diameter limit for 100BASE-TX networks.

Asanté Switches support traditional 10Mbps Ethernet and 100Mbps Fast Ethernet, and are ideal for bridging them without the need for a separate device.

Switch Acts as a Bridge Between Network Segments

A switch acts as a high-speed selective bridge between individual segments. Traffic that needs to go from one segment to another is automatically forwarded by a switch, without interfering with any other segments. This allows the total network capacity to be multiplied while decreasing network loading.

To ensure network reliability, a switch monitors each of its ports for signal quality. The switch automatically disconnects stations transmitting excessive noise, then reconnects them when the problem is resolved. A switch also automatically drops data packets that exceed the maximum allowable length. This prevents a device from blocking the network by transmitting continuous data streams or extra-long packets.

The Asanté switching engine supports automatic *fragment free* packet forwarding. Fragment free switch mode allows the switch to make the fastest possible switching decisions without forwarding runt packages on the network. The switch automatically drops (or filters) illegally short packets known as *runts*, which prevent bad packets from propagating across segments. Runts are usually the result of packet collisions on a congested network.

The Asanté switching engine also supports *store and forward* switching. It will automatically choose the safest and fastest method of switching if the source and destination are at the same speed. If the speeds are different, such as for a 10Mbps workstation connected to a 100Mbps server, the switch will buffer and read the entire packet, perform a data validity check, then forward the packet at the new speed. With Asanté Intelligent Forwarding your FriendlyNet Switch will automatically pick the best and fastest switching method for you.

2

Installation

This chapter explains how to install the FriendlyNet Fast Ethernet FS4000E Series Switch Family. It contains the following sections:

- ❑ Package Contents
- ❑ FriendlyNet Fast Ethernet Switch Components
- ❑ Cabling and Voltage Requirements
- ❑ Mounting Configurations
- ❑ Connecting Network Devices
- ❑ Powering on the Switch

Package Contents

The FriendlyNet Fast Ethernet FS4000E Series Switches are shipped with the following items:

- ❑ (1) FriendlyNet 2-port FS4002E, 4-port FS4004E, 8-port FS4008E or 16-port FS4016E Fast Ethernet Switch
- ❑ (1) AC power cord for FS4008E or FS4016E
- ❑ (1) Receptacle-mount AC/DC converter for FS4002E or FS4004E
- ❑ (4) Self-adhesive rubber feet
- ❑ (1) Wall-mount kit (FS4002E, FS4004E and FS4008E only) which includes two pan-head #10x3/4 screws and two plastic screw anchors
- ❑ (1) Rack-mount kit (FS4008E and FS4016E only) which includes two rack-mounting brackets and mounting screws
- ❑ (1) User's Manual (this book)

Installation

Components

This section describes the front- and back-panel layouts of the FS4000E Series Switches. The only front panel control on the FS4002E, FS4004E and FS4008E Switches is the Uplink pushbutton switch, and the only control on the rear panel is the Ports Half Duplex Full NWay DIP switch. These units have the same LED indicator arrangement except for differences due to the number of ports. LED indicators are described in detail in Chapter 3.

The FS4016E is similar to the other Switches. It has an uplink pushbutton switch on the front panel but does not have any controls on the back panel. The duplex/NWay function provided by the Ports Half Duplex Full NWay DIP switch in the FS4002E/FS4004E/FS4008 units is implemented automatically in the FS4016E. The function status is indicated by a row of FDP (full-duplex) LEDs on the front panel.

The Uplink pushbutton switch is connected to a single port on each Switch. In Normal position, the port associated with the switch operates like any other port on the unit. When the Uplink pushbutton is in the depressed position, the port associated with the switch becomes an uplink port and eliminates the need for a crossover cable.

Cable tie points are provided on the back panel of the FS4002E and FS4004E Switches and may be used to secure the power cord to the panel.

FS4002E

The front panel of the FS4002E contains two 10/100Mbps ports, one uplink switch button, and LED indicators. See Figure 2-1.

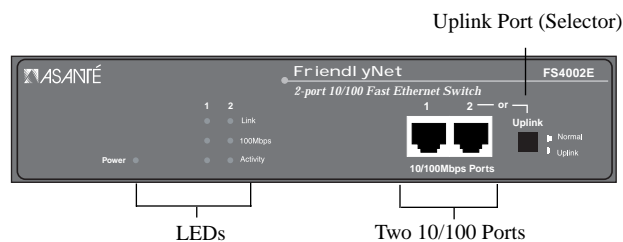


Figure 2-1 FriendlyNet FS4002E front panel

The back panel of the FS4002E contains a 12Vdc power connector, which uses a 115Vac receptacle-mount (or “brick”) type dc power supply. It also contains a Ports switch consisting of two DIP switches. The DIP switches set the mode of operation for each port, either Half Duplex or Full NWay. See Figure 2-2 .

Components

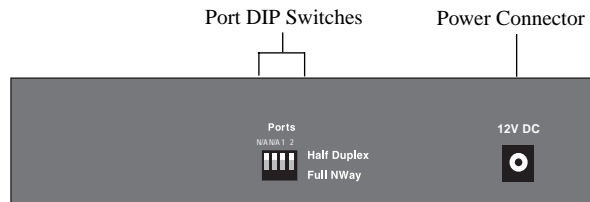


Figure 2-2 FriendlyNet FS4002E back panel

- ◆ *Note:* The FS4002E does not have a power switch. The FS4002E is automatically powered on as soon as the power cord is connected between the FS4002E and a power outlet.

FS4004E

The front panel of the FS4004E contains four 10/100 Mbps ports, one uplink switch button, and LED indicators. See Figure 2-3.

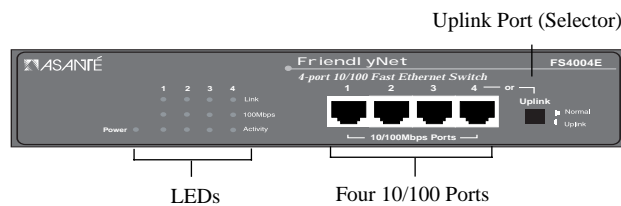


Figure 2-3 FriendlyNet FS4004E front panel

The back panel of the FS4004E contains a 12Vdc power connector, which uses a 115Vac receptacle-mount (or “brick”) type dc power supply. It also contains a ports switch consisting of four DIP switches. The DIP switches set the mode of operation for each port, either half-duplex or full NWay. See Figure 2-4.

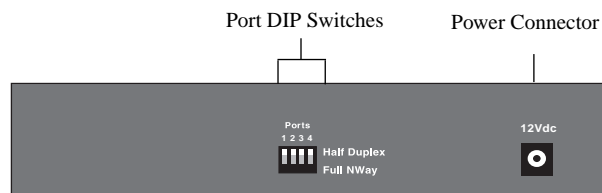


Figure 2-4 FriendlyNet FS4004E back panel

Installation

- ◆ *Note:* The FS4004E does not have a power switch. The FS4002E is automatically powered on as soon as the power cord is connected to the FS4004E and to a power outlet.

FS4008E

The front panel of the FS4008E consists of eight 10/100 Mbps ports, one uplink button switch, and LED indicators. See Figure 2-5.

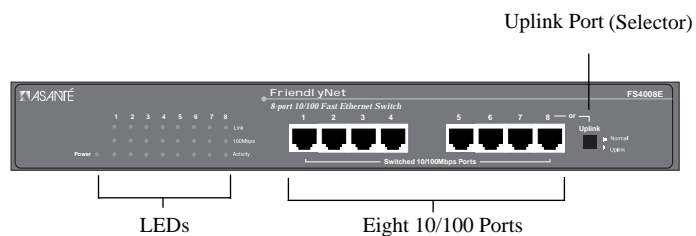


Figure 2-5 FriendlyNet FS4008E front panel

The back panel of the FS4008E contains a 100-240Vac power connector. It also contains a Ports switch consisting of nine DIP switches. (One of the DIP switches, marked N/A, is not used.) The DIP switches set the mode of operation for each port, either Half Duplex or Full NWay.



Figure 2-6 FriendlyNet FS4008E back panel

- ◆ *Note:* The FS4008E does not have a power switch. The FS4008E is automatically powered on as soon as the power cord is connected to the FS4008E and to a power outlet.

FS4016E

The front panel of the FS4016E contains sixteen 10/100Mbps ports, one uplink switch button, and LED indicators. See Figure 2-7.

Cabling and Voltage Requirements

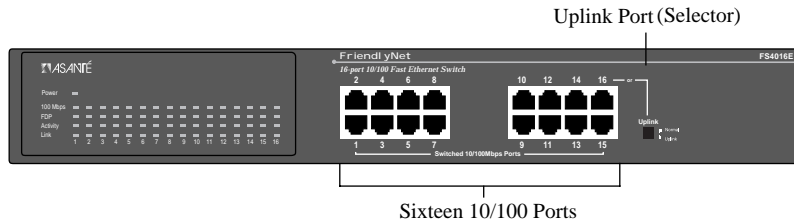


Figure 2-7 FriendlyNet FS4016E front panel

The back panel of the FS4016E contains a 100-240 VAC power connector. There are no other controls or indicators. See Figure 2-8.



Figure 2-8 FriendlyNet FS4016E back panel

- ◆ *Note:* The FS4016E does not have a power switch. The FS4016E is automatically powered on as soon as the power cord is connected between the FS4016E and a power outlet.

Cabling and Voltage Requirements

This section describes the cabling and voltage requirements of the Switches.

Cabling Requirements

100Base-TX requires the use of data-grade Category 5) UTP (unshielded twisted-pair) cable. Category 3 wiring may be used for 10Base-T.

- ▲ **Important!** Some installations have Category 5 cabling but do not have wall outlets and/or wiring closet punch-down blocks that meet Category 5 requirements.

100Base-TX requires that all wiring and accessories meet EIA/TIA 568B specifications for proper operation. When wiring a 100Base-TX network, make sure that the entire cable plant meets specifications.

Installation

Voltage Requirements

Check the AC power line voltage used in your area. The AC power adapter included with the FS4002E and FS4004E Switches must match the utility power.

The FS4008E and FS4016E are equipped with an internal power supply. Power sensing is automatic for all international utility power. There is no power switch on either of these units, they are powered on when the power cord is connected between the Switch and the power outlet.

Mounting Configurations

This section describes how to mount the Switch on a desktop or a wall. It also explains how to install the Switch in an equipment rack.

Desktop Mounting

To mount the Switch on a desktop or shelf:

- 1** Attach the four rubber feet (supplied) to the bottom of each corner on the Switch. See Figure 2-9.

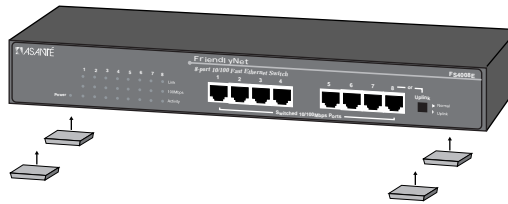


Figure 2-9 Desktop mounting

- 2** Place the Switch on a flat, stable, horizontal desktop or shelf.
Make sure you allow enough ventilation space between the Switch and surrounding objects.
The Switch is ready for network connections.

Mounting Configurations

Wall Mounting the FS4002E, FS4004E, and FS4008E

The FS4002E, FS4004E, and FS4008E come with a wall-mount kit. The kit consists of screws and wall anchors.

- ▲ **Important!** The FS4016E cannot be wall-mounted without the optional wall mount kit, part number 99-00486--07.

To mount the FS4002E, FS4004E, and FS4008E on a wall, consider the following when selecting a site:

- Select a site that is free of obstructions from other equipment or devices
- Place the Switch high enough to easily observe LED indicators and to allow for easy power and cable access
- Decide how you want the orientation of the front panel.

To mount the FS4002E, FS4004E, or FS4008E on a wall:

- 1** Measure the screw holes on the bottom of the Switch.
- 2** Drill two holes into the wall equalling the same distance as measured in step 1.
- ▲ **Important!** Drill the holes only to the depth of the screw's length. If the holes are too deep, the mount may not be secure.
- 3** Insert the plastic anchors (supplied) into the drilled holes and gently tap them in with a hammer.
- 4** Insert and turn the screws (supplied) into the plastic anchors, leaving a small portion of the screws sticking out.
- ▲ **Important!** If the screw head is too high and the unit stands too far off the wall, accidental pressure could cause screw heads to press into the circuit board, and result in damage.
- 5** Lift the Switch and align the slots on the bottom of the Switch with the screw anchors.
- 6** Gently slide the Switch onto the screws.

The Switch wall mounting is complete. The Switch is ready for network connections.

Installation

Rack Mounting the FS4008E or FS4016E

The FS4008E and FS4016E come with a rack-mounting kit.

- ▲ **Important!** The FS4002E and FS4004E cannot be installed in an equipment rack.

The FS4008E or FS4016E can be mounted in a standard 19-inch equipment rack. This rack can be placed in a wiring closet with other equipment.

To install the Switch in an equipment rack:

- 1 Attach the two mounting brackets (supplied) on each side of the chassis. See Figure 2-10.

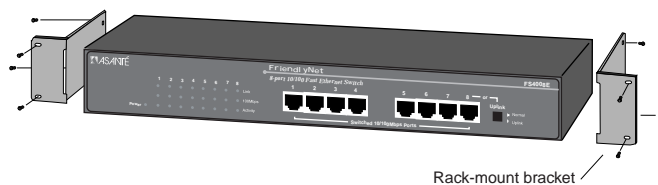


Figure 2-10 Attaching mounting brackets to the FS4008E

- 2 Mount the Switch in the equipment rack by screwing the mounting brackets to the equipment rack. See Figure 2-11.

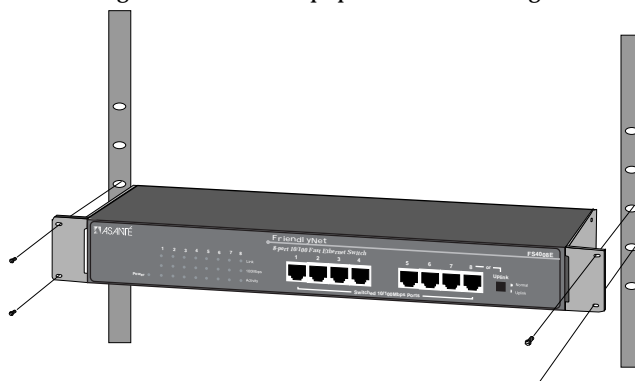


Figure 2-11 Mounting the FS4008E in an equipment rack

The rack mounting is complete. The Switch is ready for network connections.

Connecting Network Devices

Before you connect network devices to the Switch, review the following guidelines:

- Make sure the network cable length is less than 100 meters (Category 5 and up)
- ◆ *Note:* Category 3 is acceptable for 10Base-T
- Use a straight-through twisted pair cable or a crossover cable when appropriate for either uplink or standard data ports
- When connecting two switches together (cascading switches), make sure that the link between them is no longer than 100 meters
- Network cable segments can be connected to, or disconnected from, the Switch while the Switch's power is on

Connecting a PC to the Switch

- Use a four-pair Category 5 UTP straight-through cable with RJ-45 connectors
- Connect the PC to any of the Switch's ports. See Figure 2-12

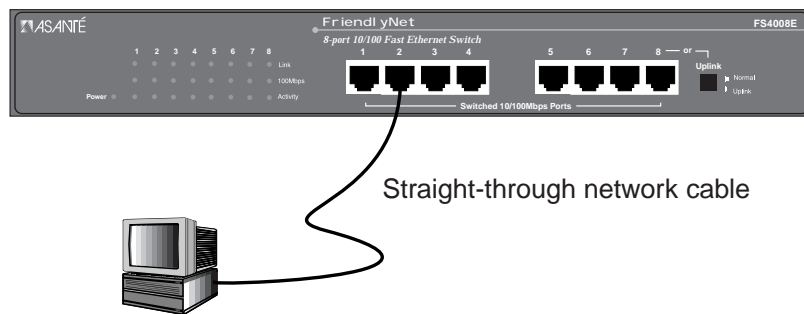


Figure 2-12 Connecting a PC to the Switch

Installation

Connecting a Hub or a Switch to the Asanté Switch

- ❑ Use a two-pair Category 5 UTP straight-through cable with RJ-45 connectors
- ❑ Connect the hub's uplink port to any of the Switch's ports. See Figure 2-13

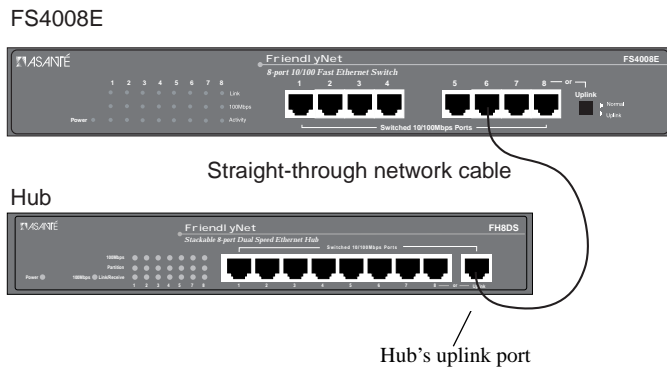


Figure 2-13 Connecting a hub to the Switch

Connecting a Hub with no Uplink Port to the Switch

If a hub is not equipped with an uplink port, connection can be made using straight-through cable, as outlined below. The uplink button must be depressed. See Figure 2-14

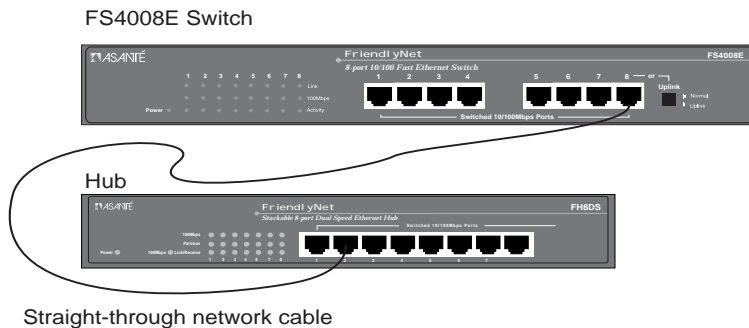


Figure 2-14 Connecting a hub without an uplink port to the Switch

Powering on the Switch

This section describes how to apply power to the FriendlyNet FS4000E Series Switches.

- ◆ *Note:* This applies to the Uplink Port after powering on the Switch. If you are unsure of your cable type (straight-through or crossover) and the Link LED associated with the port is not on, try pressing the Uplink button again.

FS4002E and FS4004E

The FS4002E/FS4004E Switches may be turned on with (or without) LAN segment cables connected. To power on the Switch:

- 1 Connect one end of the power cord (supplied) into the 12Vdc power connector on the back panel of the Switch.
 - ▲ **Important:** Make sure the power supply that was packaged with your FriendlyNet Switch is matched with the line voltage used in your area.
- 2 Plug the 12Vdc power supply into an AC power outlet.
 - ◆ *Note:* There is no power switch on the FS4002E or FS4004E. These switches are automatically powered on as soon as the power cord is connected between the Switch and the power outlet.

FS4008E and FS4016E

The FS4008E/FS4016E may be turned on with (or without) LAN segment cables connected. To power on the Switch:

- 1 Connect one end of the power cord (supplied) into the AC power connector on the back panel of the Switch.
 - ◆ *Note:* The FS4008E and FS4016E are equipped with an internal power supply. Power sensing is automatic for all international utility power.
 - ◆ *Note:* There is no power switch on the FS4008E or FS40016E. These switches are automatically powered on as soon as the power cord is connected between the Switch and the power outlet.
- 2 Connect the power cord to a local power source outlet.

Installation

3

LED Indicators

This chapter explains how to interpret the front panel LED indicators on the FriendlyNet Fast Ethernet FS4000E Series Switches.

LED Indicators on the Switch

The LEDs on the Switch are used to facilitate monitoring and troubleshooting. With the exception of the Power LED, all front panel LEDs are used to monitor the status of each port. There are no LEDs on the rear panel.

These LEDs are:

- Power
- Link
- 100Mbps
- Activity
- FDP (FS4016E only)

The front panel LEDs for the FS4000E Series Switches are shown in Figures 3-1 through Figure 3-4.

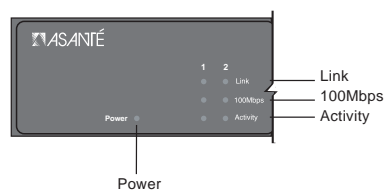


Figure 3-1 FS4002E LEDs

LED Indicators

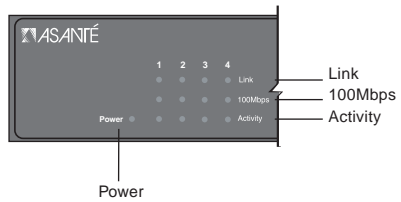


Figure 3-2 FS4004E LEDs

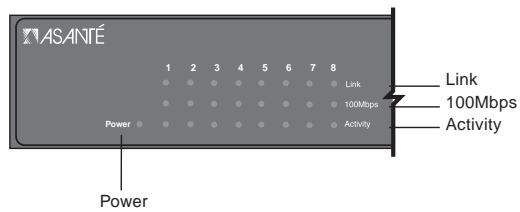


Figure 3-3 FS4008E LEDs

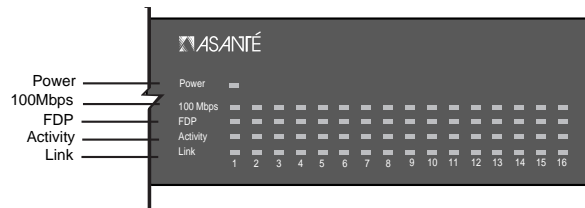


Figure 3-4 FS4016E LEDs

LED Indicators for Power On

After power is turned on the LED indicators should respond as follows:

- All LED indicators blink momentarily. This represents a system reset.
- The Activity LEDs blink from slow to steady as traffic increases.
- The power LED indicator lights and remains ON. If this indicator is not lit, check to make sure that the AC power connector (DC adapter for FS4002E/FS4004E) is properly connected in the socket.

LED Indicators for Port Connections

Link LED

The green Link LED indicates when a device is detected on the other end of the port

Table 3-1 describes the possible status indications of the Link LEDs.

Table 3-1 Link LED status indicators

State	Status
On	Normal data/link pulse reception
Off	No twisted-pair cable connected Wrong cable type, check for crossover or straight-through Link pulse disabled at other end No power to the switch, twisted-pair connection faulty Non-10/100 TX device at other end Twisted-pair cable exceeds recommended length

100Mbps Operation LED

The yellow 100Mbps LED indicates whether 10Mbps or 100Mbps device is connected to the port.

Table 3-2 describes the possible status indications of the 100Mbps LED.

Table 3-2 100Mbps LED Status Indicators

State	Status
On	A 100Mbps device is connected to a port or the uplink port
Off	A 10Mbps device is connected to a port or the uplink port

FDP LEDs (FS4016E Only)

The green FDP LED indicates port operation in full- or half-duplex mode.

Table 3-3 describes the possible status indications of the FDP LEDs.

Table 3-3 FDP LED Status Indicators

State	Status
On	Port is in full-duplex mode
Off	Port is in half-duplex mode

LED Indicators

Activity LEDs

The green Activity LEDs indicate transmit/receive activity.

Table 3-4 describes the possible status indications of the Activity LEDs.

Table 3-4 Activity LED Status Indicators

State	Status
On	Data is transmitting or receiving on this port.
Off	No data activity on this port.

A

Troubleshooting

Table A-1 describes how to troubleshoot problems with your network and/or the Switch by monitoring the Switch's LEDs.

Table A-1 Troubleshooting

Problem	Action
Power LED is off	<p>Make sure the power adapter is connected to the power outlet and is properly inserted into the power connector on the switch.</p> <p>Determine if the power outlet is functional by plugging another device into the receptacle.</p>
Link LED is off	<p>Make sure that both switch and device on the other end are powered on.</p> <p>Make sure the proper cabling is used between the device and the Switch (refer to the cable guidelines specified in Chapter 2).</p> <p>Make sure the correct cable is connected between the Switch and the network device.</p> <p>Push Uplink button again</p> <p>Make sure the cable does not exceed 100 meters.</p>
Slow performance	<p>Make sure the duplex mode on both ends of the link connection is configured to the same mode (half- or full-duplex).</p> <p>If your adapter card supports NWay auto-negotiation, make sure the driver also supports full-duplex mode.</p>

B

Specifications

FS4000E Series Specifications	
Standards	IEEE 802.3 10Base-T Ethernet IEEE 802.3u 100Base-TX Fast Ethernet IEEE 802.3 MAC layer frame size: 64 to 1518 bytes
Protocol	CSMA/CD
Data Transfer Rate	Ethernet/Fast Ethernet 10Mbps (half-duplex)/100Mbps (half-duplex) 20Mbps (full-duplex)/200Mbps (full-duplex)
Topology	Star
Network Cables	10Base-T: 4-pair UTP Category 3 (100m maximum) 100Base-TX: 4-pair UTP Category 5 (100m maximum)
Number of Ports	FS4002E: 2 x 10/100Mbps ports FS4004E: 4 x 10/100Mbps ports FS4008E: 8 x 10/100Mbps ports FS4016E: 16 x 10/100Mbps ports
Connectors	RJ-45 (10Base-T and 100Base-TX)
LEDs	Power Link 100Mbps Activity FDP (FS4016E only)

FS4000E Series Physical and Environmental Specifications

AC Inputs	100 - 240VAC, 50/60 Hz (internal universal power supply)
Power Consumption	40 watts maximum
Operating Temperature	32° - 122° F (0° - 40° C)
Storage Temperature	-22° - 140° F (-30° - 60° C)
Humidity	5% to 95% non-condensing
Dimensions	FS4002E: 7.5 in wide x 5 in deep x 1.5 in high FS4004E: 7.5 in wide x 5 in deep x 1.5 in high FS4008E: 13 in wide x 9 in deep x 1.75 in high FS4016E: 13 in wide x 9 in deep x 1.75 in high
Weight (Shipping)	FS4002E: 2.2 lbs (1 Kg) FS4004E: 2.2 lbs (1 Kg) FS4008E: 5.2 lbs (2.4 Kg) FS4016E: 5.2 lbs (2.4 Kg)
EMI	FCC Class A, CE Mark, VCCI Class I
Safety	UL (UL 1950), CSA (CSA950)

FS4000E Series Performance Specifications

Transmission Method	Store-and-forward
RAM Buffer	FS4002E: 1MB per device, FS4004E: 2MB per device FS4008E: 4MB per device, FS4016E: 8MB per device
Filtering Address Table	8K entries per device
Packet Filtering/ Forwarding Rate	148,800pps per port (for 100Mbps max)

C Technical Support

Contacting Technical Support

To contact Asanté Technical Support:

Telephone	(800) 622-7464
Fax	(801) 566-3787
Fax-Back	(800) 741-8607
E-mail	support@asante.com
World Wide Web Site	http://www.asante.com

Technical Support Hours

6:00 a.m. to 5:00 p.m. Pacific Standard Time USA, Monday - Friday.



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