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USER GUIDE

EZ Switch™ 10/100/1000
24+2G Port Unmanaged Fast Ethernet Switch

SMCFS2601

EZ Switch™ 10/100/1000 User Guide

From SMC's EZ line of low-cost workgroup LAN solutions

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Warranty and Product Registration

To register SMC products and to review the detailed warranty statement, please refer to the Support Section of the SMC Website at http://www.smc.com.

COMPLIANCES AND SAFETY STATEMENTS

FCC - CLASS A

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:

- This device may not cause harmful interference.
- This device must accept any interference received, including interference that may cause undesired operation.

Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

CE MARK DECLARATION OF CONFORMANCE FOR EMI AND SAFETY (EEC)

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.

About This Guide

Purpose

This guide details the hardware features of the switch, including the physical and performance-related characteristics, and how to install the switch.

Audience

The guide is intended for use by network administrators who are responsible for installing and setting up network equipment; consequently, it assumes a basic working knowledge of LANs (Local Area Networks).

Conventions

The following conventions are used throughout this guide to show information:

Note: Emphasizes important information or calls your attention to related features or instructions.

Caution: Alerts you to a potential hazard that could cause loss of data, or damage the system or equipment.

Warning: Alerts you to a potential hazard that could cause personal injury.

Revision History

This section summarizes the changes in each revision of this guide.

May 2011 Revision

This is the first revision of this guide.

CONTENTS

1 INTRODUCTION

OVERVIEW

The SMCFS2601 switch provides 24 10/100 Mbps auto-negotiating RJ-45 ports and 2 10/100/1000 Mbps auto-negotiating RJ-45 ports. Each port on the switch supports auto MDI/MDI-X, which eliminates the need for crossover cables or uplink ports. The switch is plug-and-play; any port can be connected to a server, a hub, or a switch, using straight-through or crossover cable.

FEATURES

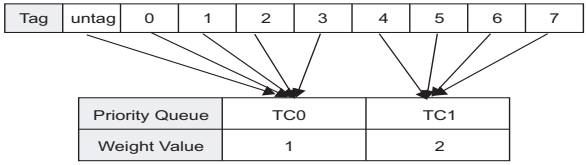
- Complies with IEEE 802.3, IEEE 802.3u, IEEE 802.3ab standards
- 24 ports for 10/100BASE-TX full- and half-duplex connections.
- 2 ports for 10/100 Mbps full/half-duplex and 1000 Mbps full-duplex connections.
- Auto-MDI/MDIX on all ports.
- Auto-negotiation on all ports.
- Store-and-forward switching eliminates error packets.
- MAC address learning.
- Supports IEEE 802.3x flow control for full-duplex mode and back pressure for half-duplex mode.

IEEE 802.1P QOS

The SMCFS2601 switch supports 802.1p priority queuing Quality of Service, which is an implementation of the IEEE 802.1p standard. With the 802.1p QoS function, you can reserve bandwidth for important functions that require a lot of bandwidth or have a high priority, such as VoIP (Voice-over Internet Protocol), web browsing applications, or video conferencing. The switch has separate hardware queues on each physical port to which packets from various applications are mapped and priorities assigned.

The illustration below shows how 802.1p priority queuing is implemented on the switch.

Figure 1: Mapping QoS on the Switch



There are two priority queues labeled TC0 and TC1. The untagged packets and the eight IEEE 802.1p priority values (defined by the standard) are mapped to the two priority queues on the switch. TC1 has the highest priority of the two priority queues, while TC0 has the lowest priority.

The SMCFS2601 switch uses Weighted Robin Round (WRR) for scheduling. The WRR queue-scheduling algorithm schedules all the queues in turn with every queue assured a certain service time. The default weight values of TC0 and TC1, are 1:16

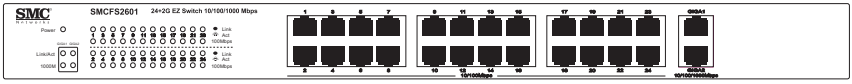
2 HARDWARE DESCRIPTION

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

FRONT PANEL

The front panel of SMCFS2601 consists of switch LED indicators, 24 10/100 Mbps RJ-45 ports and 2 10/100/1000 Mbps RJ-45 ports.

Figure 2: SMCFS2601 Switch Front Panel



PORT AND SYSTEM STATUS LEDS

The switch includes a display panel for key system and port indications that simplify installation and network troubleshooting. The LEDs, which are located on the front panel, are described in the following table.

Table 1: System and Port Status LEDs

LED	Condition	Status
Power	On Green	The internal power supply is operating normally.
	Off	The unit has no power connected.
Link/Act	On/Flashing Green	Port has established a valid network connection. Flashing indicates activity.
	Off	There is no valid link on the port.
100Mbps	On Green	The port is operating at 100 Mbps.
	Off	The port is operating at 10 Mbps.

Table 1: System and Port Status LEDs (Continued)

LED	Condition	Status
1000M	On Green	The port is operating at 1000 Mbps.
	Off	The port is operating at 10 or 100 Mbps.

RJ-45 PORTS

The switch contains 24 10/100 Mbps RJ-45 ports and 2 10/100/1000 Mbps RJ-45 ports. All ports support automatic MDI/MDI-X operation, so you can use straight-through cables for all network connections to PCs or servers, or to other switches or hubs.

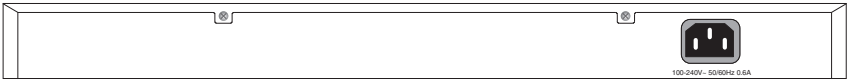
Each of these ports support auto-negotiation, so the optimum transmission mode (half or full duplex), and data rate (10, 100 or 1000 Mbps) is selected automatically.

Each port also supports IEEE 802.3x auto-negotiation of flow control, so the switch can automatically prevent port buffers from becoming saturated.

REAR PANEL

The rear panel of the switch features the AC power socket.

Figure 3: SMCFS2601 Switch Rear Panel



AC POWER SOCKET

Connect the female connector of the power cord to the socket on the switch, and the male connector to the AC power outlet. Make sure the voltage of the power supply meets the requirement of the input voltage.

3 INSTALLING THE SWITCH

Before installing the switch, verify that you have all the items listed under "Package Contents." If any of the items are missing or damaged, contact your local SMC distributor. Also be sure you have all the necessary tools and cabling before installing the switch.

PACKAGE CONTENTS

The following contents should be found in your package:

- One SMCFS2601 Switch
- One power cord
- This User Guide
- Rackmount Kit
- Four rubber foot pads
- SMC Warranty Card

PRECAUTIONS

To ensure long-term and stable performance of the switch, pay attention to the following before installation.

SAFETY REQUIREMENTS

- Before cleaning the switch, disconnect the power supply. Do not clean the switch using a wet cloth, and never use any other liquid for cleaning.
- Take waterproof measures during storage, transportation and operation of the equipment.
- Use only the power cord provided with the switch.
- Make sure the voltage of the power supply meets the requirement of the input voltage of the switch.
- Do not push any objects into the openings of the switch.
- Ensure the vent holes are well ventilated and unblocked.
- Do not open or remove the cover of the switch.

LOCATION REQUIREMENTS

When you choose a location for the switch, follow these guidelines:

- Install the switch on a flat and stable surface that can support the entire weight of the switch with all fittings.
- Locate the switch far from strong electromagnetic field generators (such as motors), vibration, dust, and direct exposure to sunlight.
- To ensure adequate air flow around the switch. At least 10 cm (4 inches) of space at the front and rear of the switch is needed for ventilation.
- Make sure that the switch will be accessible and that the cables can be easily connected.

- Position the switch away from water and moisture sources, be sure to provide an operating environment that is within the temperature and humidity specifications.

INSTALLATION

This switch can be either installed in a standard 19-inch mountable rack or located on a desktop.

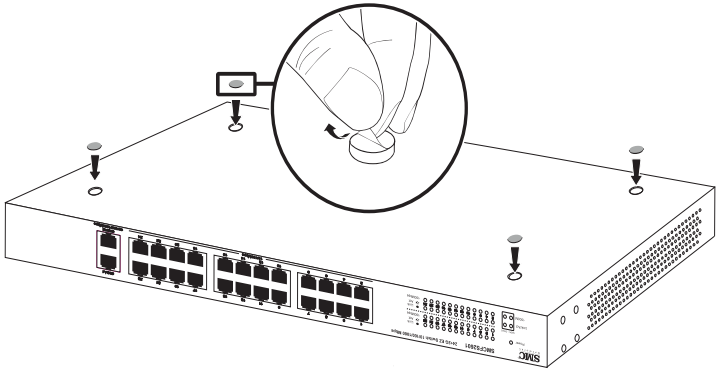
CAUTION: Please unplug the power cord before installing or removing the switch.

DESKTOP INSTALLATION

To install the switch on the desktop, follow these steps:

1. Set the switch on a flat surface strong enough to support the entire weight of the switch with all fittings.
2. Remove the adhesive backing papers from the rubber feet.
3. Turn the switch over and attach the supplied rubber feet to the recessed areas on the bottom at each corner of the switch.

Figure 4: Attaching Rubber Feet



4. Upturn the switch and set in the desired location, making sure there is enough ventilation space on all sides for proper air flow

5. Connect the switch to a power source with the provided power cord. See "Powering On" on page 19.

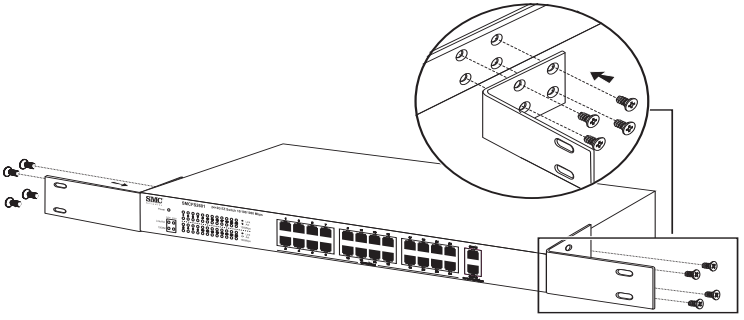
CAUTION: Avoid placing anything heavy on the switch.

RACK INSTALLATION

To install the switch in an EIA standard-sized, 19-inch rack, follow the instructions described below:

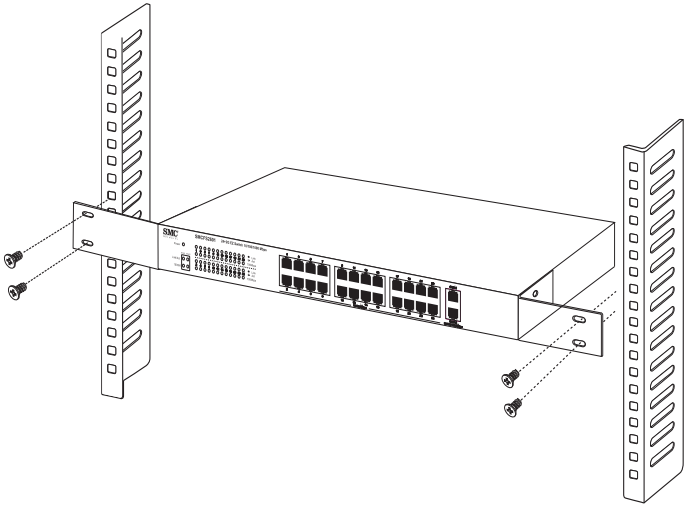
1. Secure the supplied rack-mounting brackets to each side of the switch with supplied screws, as illustrated in the following figure.

Figure 5: Attaching Brackets



2. Use suitable screws (not provided) to secure the brackets to the rack, as illustrated in the following figure.

Figure 6: Mounting the Switch



3. Connect the switch to a power source with the provided power cord. See "Powering On" on page 19.

POWERING ON

The SMCFS2601 switch is powered by connecting to an AC power supply using a power cord. When powering on the switch, it automatically initializes and the LED indicators respond as follows:

1. All of the LED indicators flash momentarily for one second, which represents a resetting of the system.

2. The Power LED indicator turns on green.

CONNECTING NETWORK DEVICES

The switch is designed to be connected to network cards in PCs and servers, as well as to other switches and hubs.

CABLING GUIDELINES

The RJ-45 ports on the switch support automatic MDI/MDI-X pinout configuration, so you can use standard straight-through twisted-pair cables to connect to any other network device (PCs, servers, switches, routers, or hubs).

Each device requires an unshielded twisted-pair (UTP) cable with RJ-45 connectors at both ends. Use Category 5, 5e or 6 cable for 1000BASE-T connections, Category 5 or better for 100BASE-TX connections, and Category 3 or better for 10BASE-T connections.

CONNECTING TO PCS, SERVERS, HUBS AND SWITCHES

1. Attach one end of a twisted-pair cable segment to the device's RJ-45 connector.

2. Attach the other end of the cable segment to an available port on the switch.

   Make sure each twisted pair cable does not exceed 100 meters (328 ft) in length.

3. As each connection is made, the relevant port LED (on the switch) corresponding to each port will turn on green to indicate that the connection is valid.

A TROUBLESHOOTING

DIAGNOSING SWITCH INDICATORS

THE POWER LED IS OFF

- Make sure the AC power cord is connected to the switch and power source properly.
- Make sure the power source is ON.

THE LINK/ACT LED IS OFF WHEN A DEVICE IS CONNECTED TO THE CORRESPONDING PORT

- Make sure that the cable connectors are firmly plugged into the switch and the device.
- Make sure the connected device is turned on and working properly.
- The cable must be less than 100 meters long (328 feet).
- Check the port on the attached device and cable connections for possible defects. Replace the defective cable if necessary.

POWER AND COOLING PROBLEMS

If the power indicator does not turn on when the power cord is plugged in, you may have a problem with the power outlet, power cord, or internal power supply. However, if the unit powers off after running for a while, check for loose power connections, power losses or surges at the power outlet. If you still cannot isolate the problem, the internal power supply may be defective.

INSTALLATION

Verify that all system components have been properly installed. If one or more components appear to be malfunctioning (such as the power cord or network cabling), test them in an alternate environment where you are sure that all the other components are functioning properly.

B SPECIFICATIONS

PHYSICAL CHARACTERISTICS

STANDARDS
IEEE 802.3 10BASE-T
IEEE 802.3u 100BASE-TX
IEEE 802.3ab 1000BASE-T

TOPOLOGY
Star

PROTOCOL
CSMA/CD

DATA TRANSFER RATE
Ethernet: 10 Mbps (half/full duplex)
Fast Ethernet: 100 Mbps (half/full duplex)
Gigabit Ethernet: 1000 Mbps (full duplex)

NETWORK MEDIA (CABLE)
10BASE-T: UTP Category 3, 4, 5 cable (maximum 100 m)
EIA/TIA-568 100 STP (maximum 100 m)
100BASE-TX: UTP Category 5, 5e cable (maximum 100 m)
EIA/TIA-568 100 STP (maximum 100 m)
1000BASE-T: UTP Category 5e, 6 cable (maximum 100 m)
EIA/TIA-568 100 STP (maximum 100 m)

NUMBER OF PORTS
24 10/100 Mbps and 2 port 10/100/1000 Mbps auto-negotiation RJ-45 ports

LED INDICATORS
Power, Link/Act, 100Mbps, 1000M

TRANSFER METHOD
Store-and-Forward

MAC ADDRESS LEARNING
Automatically learning, automatically aging

FRAME FILTER RATE
10BASE-T: 14880 pps/port
100BASE-TX: 148800 pps/port
1000BASE-T: 1488000 pps/port

FRAME FORWARD RATE
10BASE-T: 14880 pps/port
100BASE-TX: 148800 pps/port
1000BASE-T: 1488000 pps/port

SWITCHING DATABASE
8K MAC address entries

BUFFER MEMORY
2.5 Mbits/device

SWITCHING CAPACITY
8.8 Gbps

THROUGHOUT
6.5 Mpps

POWER SUPPLY
100 to 240 V, 50-60 Hz, 0.6A

DIMENSIONS
44 x 18.0 x 4.4 cm (17.4 x 7.11 x 1.73 in)

WEIGHT
2.4 Kg (5.28 lbs)

FEATURE
Auto–MDI/MDIX
Green Saving
IEEE 802.1p QoS

TEMPERATURE
Operating: 0 °C to 40 °C (32 to 104 °F)
Storage: -40 °C to 70 °C (-40 to 158 °F)

HUMIDITY
Operating: 10% to 90% (non-condensing)

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