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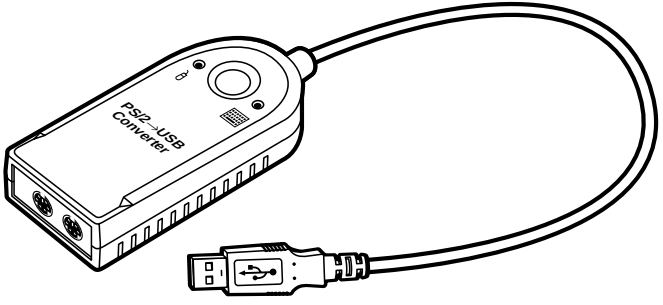
1000 Park Drive • Lawrence, PA 15055-1018 • 724-746-5500 • Fax 724-746-0746

BLACK BOX®
NETWORK SERVICES

AUGUST 2000
AC249A

PS/2→USB Converter



CUSTOMER SUPPORT INFORMATION

Order **toll-free** in the U.S.: Call **877-877-BBOX** (outside U.S. call **724-746-5500**)
FREE technical support 24 hours a day, 7 days a week: Call **724-746-5500** or fax **724-746-0746**
Mailing address: **Black Box Corporation**, 1000 Park Drive, Lawrence, PA 15055-1018
Web site: **www.blackbox.com** • E-mail: **info@blackbox.com**

FEDERAL COMMUNICATIONS COMMISSION AND INDUSTRY CANADA RADIO-FREQUENCY INTERFERENCE STATEMENTS

Class B Digital Device. This equipment has been tested and found to comply with the limits for a Class B computing device pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. However, there is no guarantee that interference will not occur in a particular installation. This equipment generates, uses, and can radiate radio frequency energy, and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. If this equipment does cause harmful interference to radio or telephone reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult an experienced radio/TV technician for help.

Caution:

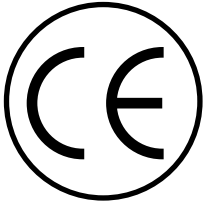
Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

This digital apparatus does not exceed the Class A limits for radio noise emission from digital apparatus set out in the Radio Interference Regulation of Industry Canada.

Le présent appareil numérique n'émet pas de bruits radioélectriques dépassant les limites applicables aux appareils numériques de classe A prescrites dans le Règlement sur le brouillage radioélectrique publié par Industrie Canada.

EUROPEAN UNION DECLARATION OF CONFORMITY

The PS/2→USB Converter has been tested and found to comply with the requirements of the EMC Directive 89/336/EEC.



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1. Specifications

Operating System Required — Microsoft Windows 98 or Windows 2000 or higher (*not* Windows NT) or Mac OS 8.6 or higher

Compliance — CE; FCC Class B, IC Class/classe B

Standards — USB 1.0 and 1.1

Interfaces — USB, IBM PS/2 keyboard/mouse

User Controls — (1) Bottom-mounted pushbutton for waking the computer from sleep mode

Indicators — (2) Top-mounted LEDs: (1) for keyboard activity and (1) for mouse activity

Connectors — (1) USB Type A male at the end of an 11.8-inch (30-cm) cable and (2) 6-pin mini-DIN female mounted on the end of the Converter body

Temperature Tolerance —
Operating: 41 to 104˚F (5 to 40˚C);
Storage: –4 to +176˚F (–20 to +80˚ C)

Humidity Tolerance — Up to 80% noncondensing

Enclosure — Plastic

Power — Unit gets all its power from the USB bus

Size — 0.9"H x 2.2"W x 3.2"D (2.3 x 5.5 x 8.2 cm)

Weight — 2.6 oz. (50 g)

2. Introduction

2.1 Overview

Universal Serial Bus (USB) port technology has emerged in response to the proliferation of external peripheral devices that are increasingly being connected to the latest generation of PCs: keyboards, mice, scanners, digital cameras, removable-disk drives, etc. USB behaves in a way similar to older buses such as the RS-232 serial, IBM® PC parallel, and IBM PS/2® keyboard/mouse buses, but it is much faster. Also, because it doesn't need to be assigned any of the computer's IRQ (interrupt request) lines, more devices can be attached to it, and the perennial computer-peripheral problem of IRQ conflict is eliminated.

You can use the PS/2→USB Converter (product code AC249A) to attach a PS/2 type keyboard and mouse to a desktop, laptop, or handheld computer that uses USB instead of the PS/2 keyboard/mouse bus. This is especially useful for laptops, because you can attach an external mouse and keyboard to them at the same time without causing conflicts.

On one end, the Converter has two 6-pin mini-DIN connectors that you'll plug the mouse and keyboard into, marked with the appropriate icons. On the other end, it has a 1-ft. (30.5-cm) cable with a USB Type A plug that you can attach to the USB port of a computer.

If your computer, like many of today's models, only has one or two USB ports, you might want to attach the Converter to the computer through a "USB hub" such as our USB Director (product code IC165A). The hub will provide additional USB ports so that you can connect more devices to the computer at the same time.

The Converter can also be used to attach PS/2 keyboards and mice to the user ports of all-USB KVM switches, or to attach iMac™ and other computers that have only USB ports to the computer ports of PS/2 type KVM switches.

The PS/2→USB Converter gets all its power from the attached computer through the Universal Serial Bus, so you don't need an external power supply for it. And because it's fully USB compliant, the Converter also supports energy-saving "suspend" and "resume" operations.

2.2 System Requirements

To use the PS/2→USB Converter, your computer needs to be either (a) an IBM PC compatible machine running Microsoft® Windows® 98 or Windows 2000 or higher or (b) an Apple® Macintosh® compatible machine running Mac® OS 8.6 or higher. The computer must have a USB host controller installed and must have at least one free USB port.

NOTE

Do *not* attach the Converter to a PC running Windows NT®. Windows NT does not support USB properly.

2.3 Features

- Translates signals from a PS/2 type keyboard and a PS/2 type mouse into USB format so that the keyboard and mouse can be attached to a computer through one of its USB ports.
- Supports both the regular PS/2 mouse and the Microsoft IntelliMouse®.
- Supports both the PC and Mac USB implementations.
- Fully USB 1.0 and 1.1 compliant.
- Easy to install.
- Requires no software.
- Bus-powered, so it doesn't need a power cord or power-supply transformer.
- Compatible with many ServSwitch™ family KVM switches, as well as other KVM-switching devices.

3. Installation

Take these steps to install your PS/2→USB Converter, referring to Figures 3-1 and 3-2 on the next page:

1. Attach your PS/2 type keyboard, or the PS/2 type keyboard cable from your KVM switch, to the 6-pin mini-DIN connector marked with a keyboard icon on the end of the Converter.

2. Attach your PS/2 type mouse, or the PS/2 type mouse cable from your KVM switch, to the 6-pin mini-DIN connector marked with a mouse icon on the end of the Converter.

3. Plug the Converter's USB Type A connector into one of the USB ports on your computer, or one of the Type A ports on your USB hub, or one of the Type A ports on your KVM switch or its user cable.

That's all there is to it. Once you've finished these steps and the attached computer, hub, or switch has recognized and initialized the Converter, you should be able to use your keyboard and mouse as you normally would.

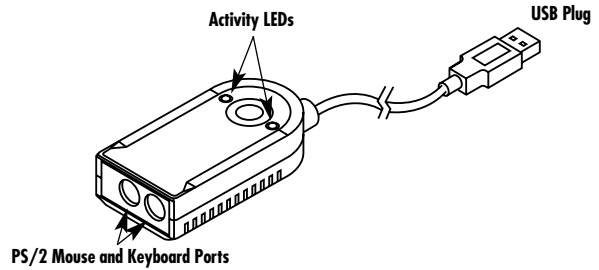

Figure 3-1. The top of the Converter.

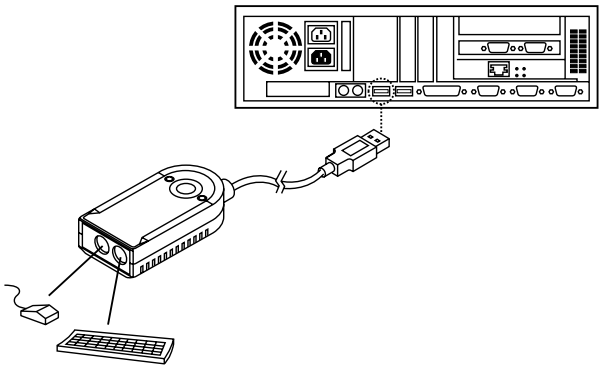

Figure 3-2. Attaching equipment to the Converter.

4. Operation

4.1 The LEDs

The PS/2→USB Converter has two activity LEDs mounted on its top panel, as shown in Figure 3-1 on the previous page. One flashes when the keyboard is transmitting data; the other flashes when the mouse is transmitting data.

4.2 The Wakeup Button

The Converter also has a "wakeup pushbutton" mounted on its bottom panel, as shown in Figure 4-1 on the next page. In order to conserve energy, many of today's computers can be manually or automatically switched into "sleep mode," in which the computer is operating at minimum power, does not output video signals, and does not respond to keyboard and mouse signals. You can press this button on the Converter to "wake up" the attached computer and prepare it for active operation.

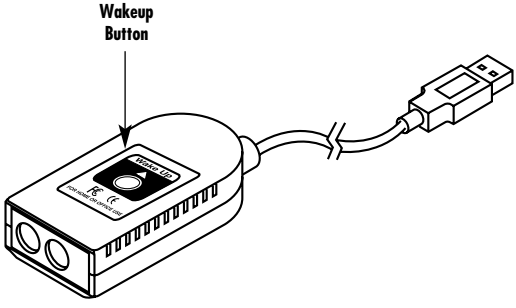

Figure 4-1. The bottom of the Converter.

5. Troubleshooting

5.1 Calling Black Box

If your PS/2→USB Converter seems to be malfunctioning, *do not attempt to alter or repair the unit.* It contains no user-serviceable parts. Call Black Box Technical Support at 724-746-5500; the problem might be solvable over the phone.

Before you call, make a record of the history of the problem. We will be able to provide more efficient and accurate assistance if you have a complete description, including:

- the nature and duration of the problem;
- when the problem occurs;
- the components involved in the problem;
- any particular application that, when used, appears to create the problem or make it worse; and
- the results of any tests you might have already performed.

5.2 Shipping and Packaging

If you need to transport or ship your Converter:

- Package it carefully. We recommend that you use the original container.
- If you are returning the Converter, please include everything you received with it. Before you ship the Converter back to us for any reason, contact Black Box to get a Return Authorization (RA) number.

DISCLAIMERS

The manufacturer and its agents make no warranty or representation (express, implied, or statutory) with respect to the contents or use of this documentation, and they especially disclaim its quality, performance, merchantability, or fitness for any particular purpose.

The manufacturer and its agents also reserve the right to change the Converter and/or its documentation without obligation to notify any individual or entity of such changes.

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