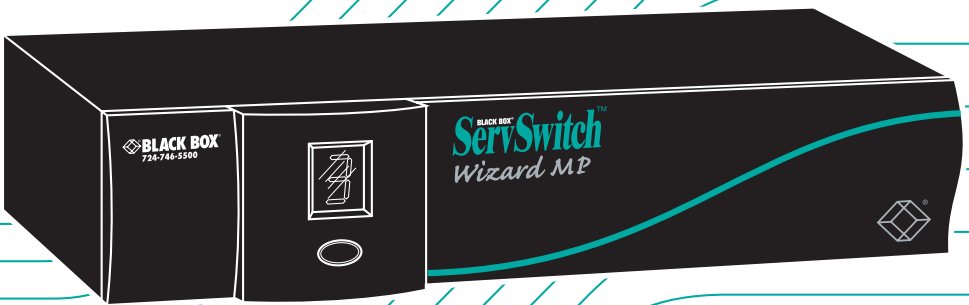


NOVEMBER 2001

BLACK BOX[®] *ServSwitch*[™] *Wizard MP*



KV804A
KV805A

 **BLACK BOX**[®]
NETWORK SERVICES

Welcome to the ServSwitch™ Family!

Thank you for purchasing a BLACK BOX® ServSwitch™ Brand KVM switch! We appreciate your business, and we think you'll appreciate the many ways that your new ServSwitch keyboard/video/mouse switch will save you money, time, and effort.

That's because our ServSwitch family is all about breaking away from the traditional, expensive model of computer management. You know, the one-size-fits-all-even-if-it-doesn't model that says, "One computer gets one user station, no more, no less." Why not a single user station (monitor, keyboard, and mouse) for multiple computers—even computers of different platforms? Why not a pair of user stations, each of which can control multiple computers? Why not multiple user stations for the same computer?

With our ServSwitch products, there's no reason why not. We carry a broad line of robust solutions for all these applications. Do you have just two PCs, and need an economical alternative to keeping two monitors, keyboards, and mice on your desk? Or do you need to share dozens of computers, including a mix of IBM® PC, RS/6000®, Apple® Macintosh®, Sun Microsystems®, and SGI® compatibles among multiple users with different access levels? Does your switch have to sit solidly on a worktable and use regular everyday cables? Or does it have to be mounted in an equipment rack and use convenient many-to-one cables? No matter how large or small your setup is, no matter how simple or how complex, we're confident we have a ServSwitch system that's just right for you.

The ServSwitch™ family from Black Box—the one-stop answer for all your KVM-switching needs!

*


This manual will tell you all about your new ServSwitch™ Wizard MP, including how to install, operate, and troubleshoot it. For an introduction to the ServSwitch Wizard MP, see **Chapter 2**. The ServSwitch Wizard MP product codes covered in this manual are:

KV804A
KV805A

This manual also includes information about the Remote-Control Module accessory, whose product codes are:

KV6REM **KV6REM-25** **KV6REM-50** **KV6REM-75**

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This equipment generates, uses, and can radiate radio-frequency energy, and if not installed and used properly, that is, in strict accordance with the manufacturer's instructions, may cause interference to radio communication. It has been tested and found to comply with the limits for a Class A computing device in accordance with the specifications in Subpart B of Part 15 of FCC rules, which are designed to provide reasonable protection against such interference when the equipment is operated in a commercial environment. Operation of this equipment in a residential area is likely to cause interference, in which case the user at his own expense will be required to take whatever measures may be necessary to correct the interference.

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

Shielded cables must be used with this equipment to maintain compliance with radio-frequency energy-emission regulations and ensure a suitably high level of immunity to electromagnetic disturbances.

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

Shielded cables must be used with this equipment to maintain compliance with radio-frequency energy-emission regulations and ensure a suitably high level of immunity to electromagnetic disturbances.



NORMAS OFICIALES MEXICANAS (NOM) ELECTRICAL SAFETY STATEMENT

INSTRUCCIONES DE SEGURIDAD

1. Todas las instrucciones de seguridad y operación deberán ser leídas antes de que el aparato eléctrico sea operado.
2. Las instrucciones de seguridad y operación deberán ser guardadas para referencia futura.
3. Todas las advertencias en el aparato eléctrico y en sus instrucciones de operación deben ser respetadas.
4. Todas las instrucciones de operación y uso deben ser seguidas.
5. El aparato eléctrico no deberá ser usado cerca del agua—por ejemplo, cerca de la tina de baño, lavabo, sótano mojado o cerca de una alberca, etc.
6. El aparato eléctrico debe ser usado únicamente con carritos o pedestales que sean recomendados por el fabricante.
7. El aparato eléctrico debe ser montado a la pared o al techo sólo como sea recomendado por el fabricante.
8. Servicio—El usuario no debe intentar dar servicio al equipo eléctrico más allá a lo descrito en las instrucciones de operación. Todo otro servicio deberá ser referido a personal de servicio calificado.
9. El aparato eléctrico debe ser situado de tal manera que su posición no interfiera su uso. La colocación del aparato eléctrico sobre una cama, sofá, alfombra o superficie similar puede bloquea la ventilación, no se debe colocar en libreros o gabinetes que impidan el flujo de aire por los orificios de ventilación.
10. El equipo eléctrico deber ser situado fuera del alcance de fuentes de calor como radiadores, registros de calor, estufas u otros aparatos (incluyendo amplificadores) que producen calor.
11. El aparato eléctrico deberá ser conectado a una fuente de poder sólo del tipo descrito en el instructivo de operación, o como se indique en el aparato.

12. Precaución debe ser tomada de tal manera que la tierra física y la polarización del equipo no sea eliminada.
13. Los cables de la fuente de poder deben ser guiados de tal manera que no sean pisados ni pellizcados por objetos colocados sobre o contra ellos, poniendo particular atención a los contactos y receptáculos donde salen del aparato.
14. El equipo eléctrico debe ser limpiado únicamente de acuerdo a las recomendaciones del fabricante.
15. En caso de existir, una antena externa deberá ser localizada lejos de las líneas de energía.
16. El cable de corriente deberá ser desconectado del cuando el equipo no sea usado por un largo periodo de tiempo.
17. Cuidado debe ser tomado de tal manera que objetos líquidos no sean derramados sobre la cubierta u orificios de ventilación.
18. Servicio por personal calificado deberá ser provisto cuando:
 - A: El cable de poder o el contacto ha sido dañado; u
 - B: Objetos han caído o líquido ha sido derramado dentro del aparato; o
 - C: El aparato ha sido expuesto a la lluvia; o
 - D: El aparato parece no operar normalmente o muestra un cambio en su desempeño; o
 - E: El aparato ha sido tirado o su cubierta ha sido dañada.

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1. Specifications

Compliance:	CE (EN55022 Class A); FCC Part 15 Subpart B Class A, IC Class/classe A
Standards:	VGA, SVGA, XGA, XGA-2, SXGA, or UXGA video; supports VESA DDC, DDC1, and DDC2 signaling
Interfaces:	Video: VGA; Keyboard and mouse: Both models: IBM PS/2 or Sun compatible; KV805A only: USB; With appropriate adapters, both models also support IBM PC/AT type keyboards, CPUs with PC/AT keyboard ports, and CPUs with EIA/TIA RS-232 mouse ports; Audio: 3.5-mm stereo; OPTIONS/FLASH port: EIA/TIA RS-232 proprietarily pinned on DB15
Resolution:	Up to 1600 x 1280 noninterlaced at up to 100 Hz
Protocol:	RS-232: Asynchronous
Data Format:	RS-232: 8 data bits, no parity, 1 stop bit
Data Rate:	RS-232: 1200 bps
Flow Control:	RS-232: None
Maximum Distance:	2 m (6 ft.) if interface-powered or 10 m (32 ft.) if AC-powered to any attached keyboard, monitor, and mouse; 5 m (16 ft.) if interface-powered or 30 m (100 ft.) if AC-powered to any attached CPU or cascaded KVM switch

User Controls:	Keyboard commands; Mouse-click functions; (1) Front-mounted pushbutton for channel change and configuration mode; (1) Bottom-mounted recessed switch for reset and firmware upgrade
Indicator:	(1) Front-mounted 7-segment status display
Connectors:	All rear-mounted: (4) DB25 female composite CPU ports; (1) Multipurpose DB15 female (see Section A.3 of the Appendix); (1) Barrel jack for optional power-supply connection; User port: (1) HD15 female for monitor attachment, (2) 6-pin mini-DIN female for PS/2 keyboard and mouse attachment; (1) 8-pin mini-DIN female for Sun keyboard and mouse attachment; (2) 3.5-mm stereo audio jacks: (1) for microphone attachment, (1) for speaker or headphone attachment
MTBF:	500,000 hours (based on the historical reliability of similarly designed and manufactured products)
Maximum Altitude:	10,000 ft. (3048 m)
Temperature Tolerance:	32 to 104°F (0 to 40°C)
Humidity Tolerance:	5 to 60% noncondensing
Enclosure:	Steel, aluminum, and plastic

Power:	<p>Either:</p> <ul style="list-style-type: none">• 5 VDC at up to 500 mA from the keyboard interfaces of the attached computers, or• From the optional power supply PS649 (not included): Input: 100 to 240 VAC at 50 to 60 Hz from utility-power outlet, through detachable power cord and IEC 320 male inlet, to external transformer; Output: 5 VDC at up to 1 A; Consumption: 5 watts maximum
Size:	1.75"H (1U) x 10.3"W x 5.9"D (4.4 x 26.2 x 15 cm)
Weight:	2.2 lb. (1 kg)

2. Introduction

The ServSwitch™ Wizard MP is a high-performance multiplatform keyboard-, monitor-, mouse-, and audio-sharing device that supports a wide range of IBM® PC and Sun® compatible hardware and software platforms, including some high-end IBM PS/2® compatible computers (IBM RS/6000®, Compaq® Alpha®, and SGI™). The KV805A model also supports computers with USB keyboard and mouse ports, including USB versions of the Apple® Macintosh®, G3™, G4™, etc.

2.1 Features and Benefits

- Control multiple PC and/or Sun compatible CPUs (both desktop and portable) from a single user station (keyboard, monitor, mouse, stereo speakers or headphones, and microphone). This includes IBM RS/6000®, IBM ThinkPad® (with its “Y” cables), Compaq® Alpha®, and SGI™ computers.
- KV805A also supports computers with USB interfaces, including USB CPUs by Apple.
- Supports computers with VGA (HD15) video ports and PS/2 (6-pin mini-DIN), Sun (8-pin mini-DIN), or (KV805A only) USB keyboard and mouse ports. With adapters, can also support computers with legacy Sun (13W3) video ports, PC/AT (5-pin DIN) keyboard ports, or RS-232 serial (DB9 or DB25) mouse ports.
- Supports PS/2 (6-pin mini-DIN) or Sun (8-pin mini-DIN) keyboards and mice. With adapter, also supports PC/AT (5-pin DIN) keyboards.
- Supports all popular PC and Sun operating systems. The KV805A supports Mac® OS version 8.6 and higher.
- Seamless conversion between different hardware platforms.
- Continuous keyboard and mouse emulation on all ports ensures problem-free computer bootup. And because all ports are simultaneously active, all attached CPUs can be booted at the same time.
- On the KV805A model, continuous USB-device emulation on all ports ensures quick and reliable switching without having to wait several seconds for the USB bus to enumerate.
- Uses color-coded one-to-many cables for neat, easy CPU connections.
- Automatically detects attached hardware.

- Can usually draw all the power it needs from the attached CPUs. For demanding applications with cascading and/or high-end video, an optional power supply (product code PS649) is available.
- Local channel switching using its front-panel pushbutton, a keyboard hotkey sequence, a 3-button mouse, or a Sun keyboard's "hot media" keys.
- Remote channel switching using its convenient optional Remote-Control Module.
- Intelligent switching: You can scan/switch between all ports or just the active ones.
- Flash-upgradable for easy on-site firmware upgrades.
- Supports high-bandwidth monitors, at resolutions up to 1600 x 1280 pixels and refresh rates up to 100 Hz, with low distortion.
- Video channels support Display Data Channel (DDC/DDC1/DDC2) signaling.
- Supports a microphone and stereo speakers or headphones for multimedia applications.
- "Clickless" audio switching ensures that the speakers don't "thump" every time you switch channels.
- Can be cascaded to control a large number of CPUs.
- Password security prevents unauthorized use.
- Stores its configuration in persistent EEPROM memory.
- Automatically restores keyboard and mouse states when channel is changed.
- Supports keyboard modes 2 and 3, as well as both "prompt" and "stream" mouse modes, for maximum compatibility.
- Support for Microsoft® IntelliMouse™ and many other "wheel mice."
- Supports mixed-platform user stations (those with a Sun keyboard and a PC mouse, for example).
- Keyboard data is passed through in its native format, enabling support for the additional keys on enhanced keyboards. Performs keyboard remapping to emulate the special keys on a Sun keyboard with a PC keyboard, or to assign special PC keystroke sequences to those keys on the Sun keyboard.

- Mouse-restoration functions make it possible to hot-plug certain systems.
- If problems occur, you can soft-reset the keyboard, the mouse, or the Wizard MP itself without disconnecting any devices.
- Supports IBM ThinkPad® notebooks and their “Y” cables.
- Includes screen-blank, autoscan, and variable-hotkey options.
- Front-panel 7-segment LED shows you how the Wizard MP is operating.
- Metal enclosure for good shielding and video quality.

2.2 The Complete Package

The only other things that come with the ServSwitch Wizard MP are this manual and a DB9 female to DB15 male firmware-upgrade cable. (We don't include a power supply because most applications don't require one. If you need a power supply for the Wizard MP, it can be purchased separately as product code PS649.)

The only other things that come with the Wizard MP's optional Remote-Control Module (the KV6REM series of product codes—see **Section 5.2**) are Velcro® mounting strips.

2.3 The ServSwitch Wizard MP Illustrated

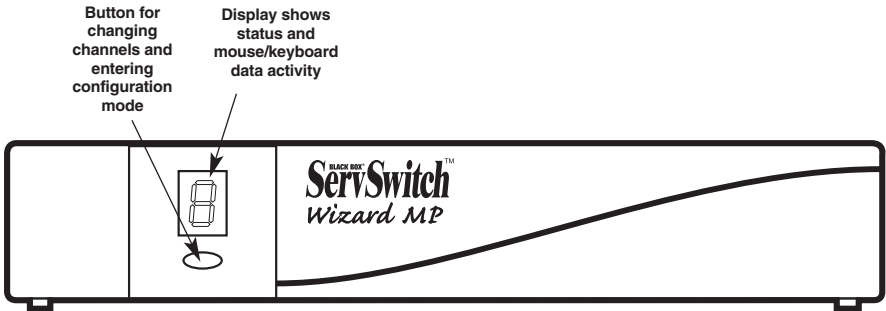


Figure 2-1. The ServSwitch Wizard MP's front panel.

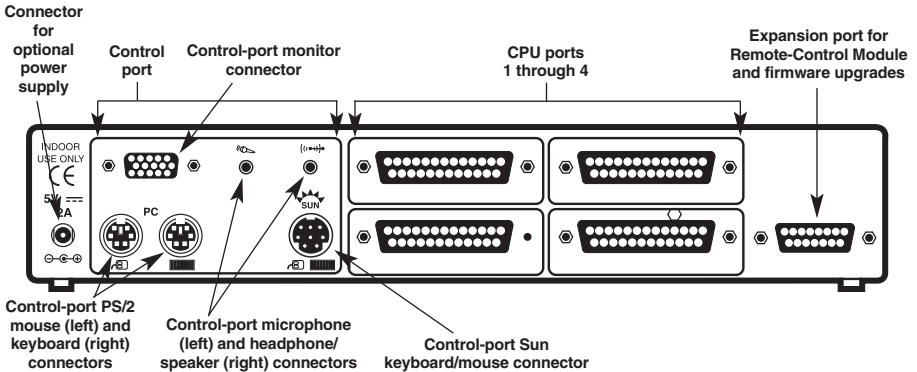


Fig. 2-2. The ServSwitch Wizard MP's rear panel.

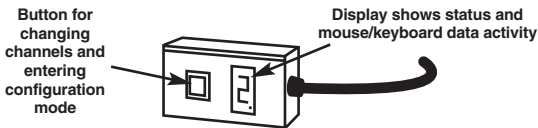


Figure 2-3. The Remote-Control Module (KV6REM), an optional accessory.

The bottom panel of the ServSwitch Wizard MP isn't shown here, but there's a small hole for a recessed switch on it. You'll use this switch—which can be activated with the tip of a pen, a paperclip, etc.—if you ever do a “warm reset” of the Wizard MP (see [Section 5.11](#)) or upgrade the Wizard MP's firmware (see [Section 5.12](#)).

2.4 Safety Concerns

As you prepare to install the ServSwitch Wizard MP, please keep these things in mind:

- The Wizard MP is for use in dry, oil-free indoor environments only.
- Do *not* attempt to fix the Wizard MP yourself.
- Follow all warnings and instructions marked on the Wizard MP, its optional power supply, and any other accessories.
- If you'll be using the Wizard MP's optional power supply:
 - **Warning:** The Wizard MP's power-supply transformer contains *no* user-serviceable parts, but it *does* contain “live” parts capable of delivering hazardous electric shocks—do *not* attempt to dismantle it!
 - Make sure that the total current rating of the devices plugged into the AC outlet that's supplying the Wizard MP is not greater than the outlet's rated current capacity.
 - If you use an extension cord with the power supply, make sure that the total current rating of the devices plugged into the extension cord is not greater than the cord's rated current capacity.
 - Do *not* continue to use the Wizard MP's power supply if its transformer's case becomes damaged, cracked, or broken, or if you suspect that the power supply isn't operating properly.
 - If the Wizard MP's power supply stops working, replace it with a manufacturer-approved power supply of the same type only.

3. Installation

3.1 What You Will Need

You'll need these things to be in place before you can install your ServSwitch Wizard MP:

- One-to-many cables to connect the ServSwitch Wizard MP to your computer CPUs or (in cascaded systems) to your other Wizard MPs. We offer these in varieties with PS/2 (EHN825 product codes), Sun (EHN826), and USB (EHN827) keyboard and mouse connectors. You'll need adapters to connect the Wizard MP to the keyboard and mouse ports of PC/AT style computers, or to the 13W3 video ports of legacy Sun computers. For more information about cables and adapters, see the **Appendix**.
- A monitor with a standard VGA (HD15) connector that will work when connected directly to each of your computers. The ServSwitch Wizard MP supports low- and high-resolution monitors. If you want to use a legacy Sun monitor with a 13W3 video connector, you'll need an adapter such as product code FA070.
- A standard Sun keyboard with an 8-pin mini-DIN connector—recommended if you'll be attaching any Sun CPUs—or PS/2 style keyboard with a 6-pin mini-DIN connector. (If you use an FA211 adapter, you could attach a PC/AT keyboard with a 5-pin DIN connector instead.)
- A standard Sun mouse with an 8-pin mini-DIN connector or a suitable PS/2 style mouse with a 6-pin mini-DIN connector, such as a two- or three-button Microsoft® or Logitech™ compatible mouse or a Microsoft IntelliMouse® or IntelliMouse Explorer compatible mouse. If you want to use the mouse to switch channels on the ServSwitch Wizard MP, you'll need a three-button mouse or an IntelliMouse. (The Wizard MP supports other IntelliMouse compatible “Internet mice”—fitted with a wheel or other scrolling control, and sometimes additional buttons—including several models by Logitech and Genius™.)

All of the mouse connections from ServSwitch Wizard MP to the attached computers support either PS/2 mouse ports or RS-232 serial mouse ports. The Wizard MP automatically converts PS/2 mouse data and commands to serial-mouse data and commands, but you'll still need an FA314 adapter to connect the Wizard MP to a PC with a serial mouse port. See **Section A.2** in the **Appendix**.

The Wizard MP will operate without a mouse connected if you don't want to use one.

- A suitable mouse driver for any attached IBM compatible PCs. Supported types are:
 - PS/2 or RS-232 two-button mouse drivers by any manufacturer.
 - Microsoft mouse drivers, including those for the IntelliMouse. (You might be able to use other drivers with IntelliMouse compatible data formats, but these might not work—trial-and-error testing might be necessary.)
 - Logitech mouse drivers, including those for two-button, three-button, and wheel mice.

3.2 Placement

The ServSwitch Wizard MP should be placed on a desktop or shelf near your monitor and peripherals. You can use the optional Remote-Control Module if you want to put a Wizard MP farther from your monitor and peripherals.

3.3 Connecting Your Equipment

NOTES

When you connect devices to Wizard MPs’ “control ports” and “CPU ports,” refer to Figure 2-2 in Section 2.3 to see where these ports are.

Any unused CPU-port or control-port connectors on a ServSwitch Wizard MP can be left vacant.

Most ServSwitch Wizard MP applications will involve a keyboard, monitor, mouse, and two to four computer CPUs attached to a *single* Wizard MP. If that describes what you want to do, follow the procedure in **Section 3.3.1**.







If you want to switch between more than four CPUs, you’ll need multiple *cascaded* Wizard MPs to connect them together. Follow the procedure in **Section 3.3.2**.

As described in **Sections 3.3.1** and **3.3.2**, you’ll use Wizard MP CPU Cables to connect your CPUs. You might need to also use ServSwitch Brand KVM extenders if the distances involved are long enough. And to connect PC/AT style equipment, you’ll need adapters. These cables, extenders, and adapters are described in **Section 3.3.3**.




3.3.1 SYSTEMS WITH A SINGLE WIZARD MP

Make sure that the ServSwitch Wizard MP is unplugged and powered down. If possible, turn off and unplug all of the devices that you want to attach to it. (If you have to “hot-plug” any powered computers into the Wizard MP, see **Section 5.9**.)



Plug your user equipment directly into the appropriate “control port” connectors on the Wizard MP’s rear panel:

- Plug the monitor into the unlabeled HD15 female connector.
- Plug the speakers or headphones into the 3.5-mm jack labeled .
- Plug the microphone into the 3.5-mm jack labeled .
- *If you’re using a PS/2 keyboard:* Plug the keyboard into the 6-pin mini-DIN female connector labeled “PC” and .
- *If you’re using a PS/2 mouse:* Plug the mouse into the 6-pin mini-DIN female connector labeled “PC” and .
- *If you’re using a Sun keyboard:* Plug the keyboard into the 8-pin mini-DIN female connector labeled “SUN” and .
- *If you’re using a Sun mouse:* Plug the mouse into the keyboard if you’re using a Sun keyboard. Otherwise, plug the mouse into the Wizard MP’s 8-pin mini-DIN female connector labeled “SUN” and .

Next, connect each computer CPU to the Wizard MP by running a Wizard MP Cable (see **Section 3.3.3**) from one of the DB25 female CPU ports on the Wizard MP’s rear panel to the appropriate connectors on the CPU:

- Plug the dark blue HD15 male connector of the Cable’s video strand into the CPU’s video-output port. If the CPU is a PC99-compliant PC, this port will be the same shade of blue and will be labeled with a monitor icon similar to .
- Plug the maroon 3.5-mm plug of the Cable’s microphone strand into the CPU’s microphone jack. If the CPU is a PC99-compliant PC, this port will be pink and will be labeled with a microphone icon similar to . The microphone jacks on many sound cards, however, are the same maroon color as the Cable strand.
- Plug the light green 3.5-mm plug of the Cable’s speaker/headphone strand into the same port on the CPU that local speakers would plug into. If the CPU is a PC99-compliant PC, you might use the audio-out port, which would be colored lime (yellowish green) and labeled with an icon similar to . You

could also use a port designed for right-to-left speakers, which is supposed to be colored brown; a port designed for speakers with a subwoofer, which is supposed to be colored orange; or a port designed specifically for headphone output. These will probably be labeled with a different speaker or headphone icon. The speaker jacks on many sound cards, however, are the same light green color as the Cable strand.

- *If the CPU has a PS/2 keyboard port:* Plug the light purple 6-pin mini-DIN male connector of the PS/2 Cable's keyboard strand into this port. If the CPU is a PC99-compliant PC, this port will be the same shade of purple and will be labeled with an icon similar to .
- *If the CPU has a PS/2 mouse port:* Plug the light green 6-pin mini-DIN male connector of the PS/2 Cable's mouse strand into this port. If the CPU is a PC99-compliant PC, this port will be the same shade of green and will be labeled with an icon similar to .
- *If the CPU has a Sun keyboard/mouse port:* Plug the beige 8-pin mini-DIN male connector of the Sun Cable's keyboard/mouse strand into this port.
- *If the CPU has a USB keyboard/mouse port:* Plug the black Type A male USB connector of the USB Cable's keyboard/mouse strand into this port.

If you need to cross any particularly long distances in your Wizard MP system—user equipment to switch or switch to CPU—you might be able to use one of our ServSwitch Brand KVM Extenders to make these connections. See **Section 3.3.3**.

A complete system using a single Wizard MP is shown in Figure 3-1.

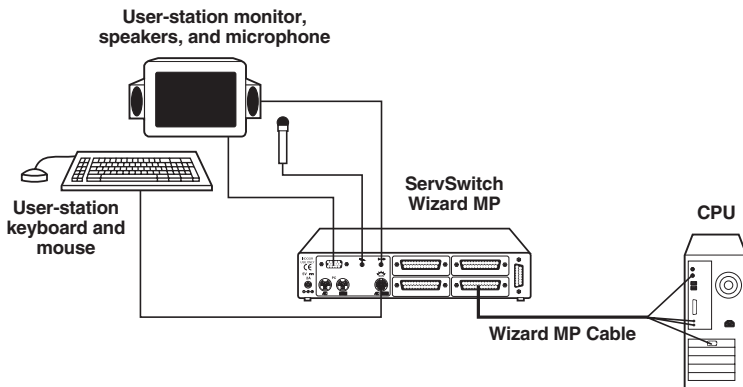


Figure 3-1. System using a single ServSwitch Wizard MP. For clarity, only one CPU is pictured.

3.3.2 CASCADED WIZARD MP SYSTEMS FOR MORE THAN FOUR CPUs

Multiple ServSwitch Wizard MPs can be cascaded (connected together in a one-to-many scheme) in order to increase the maximum number of available CPU ports in your KVM-switching system. (Note that *each* Wizard MP in a cascade *must* be powered through a power supply and *not* from the keyboard interface.)

You can include regular ServSwitch Wizards, ServSwitch Wizard LPs, ServSwitch Wizard Pros, and ServSwitch Duos in ServSwitch Wizard MP cascades, although your cabling will be more complicated. We don't recommend including Duos, however, unless a single ServSwitch Duo is the "master" switch for your cascade. This is because users attached to two or more Duos in the same cascade might see the same CPUs as having different CPU numbers, and might have to use different commands to access them. On the other hand, we don't recommend using anything but a ServSwitch Wizard MP as the master switch if there are any Sun computers attached to your cascade, or if audio I/O is a must. Call Black Box for technical support if you need to install such a mixed daisychain.

To install a cascade (assuming all switches are Wizard MPs):

Make sure that your master ServSwitch Wizard MP—the chassis that your monitor, keyboard, mouse, and audio devices will be attached to—is unplugged and powered down. If possible, turn off and unplug all of the devices that you want to attach to this Wizard MP. (If you have to "hot-plug" any powered computers into your Wizard MP system, see **Section 5.9**.)

Connect your user equipment (keyboard, PS/2 mouse, monitor, and audio devices) to the appropriate "control port" connectors on the master Wizard MP's rear panel, as described in **Section 3.3.1**.

Now connect a layer of as many as four "subsidiary" Wizard MPs to your master Wizard MP by running Wizard MP Cables (see **Section 3.3.3**) from the master Wizard MP's "CPU ports" to the subsidiary switches' control ports. It doesn't matter which type of Wizard MP Cable you use, but we recommend using Sun cable if you're using a Sun keyboard or if you'll be attaching any Sun CPUs. Connect the various Cable strands to the corresponding control-port connectors.

You can extend your cascade to a third layer by repeating the process and attaching additional subsidiary Wizard MPs to the subsidiary Wizard MPs already attached to your master Wizard MP chassis. Though it's theoretically possible to cascade Wizard MPs to four, five, or more layers, we recommend that you limit your setup to three, because the addresses you need to enter to switch CPU channels become ridiculously long. If you need to connect that many computers, use a more powerful KVM switch such as our ServSwitch™ Affinity or ServSwitch™ Multi.

Finally, connect each computer CPU to the Wizard MP system by running cabling from one of the subsidiary Wizard MP's CPU ports to the CPU's keyboard, mouse, video, and audio ports, as described in **Section 3.3.1**.

If you need to cross any particularly long distances in your cascade—user equipment to switch, switch to switch, or switch to CPU—you might be able to use one of our ServSwitch Brand KVM Extenders to make these connections. See **Section 3.3.3**.

Figure 3-2 features a basic but complete cascaded Wizard MP system.

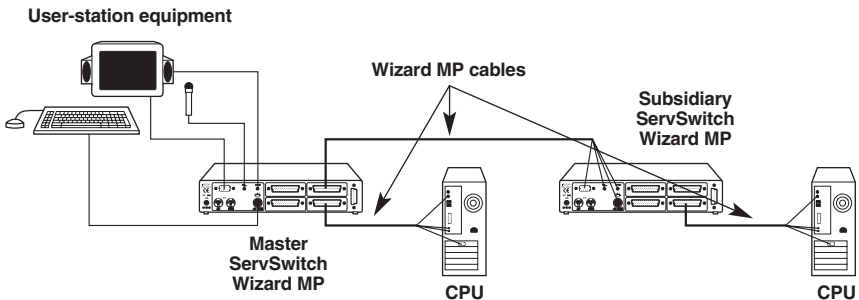


Figure 3-2. A simple cascaded system with two ServSwitch Wizard MPs.

3.3.3 WIZARD MP CABLES, SERVSWITCH EXTENDERS, AND PC/AT ADAPTERS

The Wizard MP Cables come in the three types shown in Figure 3-3 on the next page, each designed to connect to CPUs with one of these three types of keyboard and mouse connectors: PS/2 (EHN825 product codes), Sun (EHN826), or USB (EHN827). Each type comes in either 6-foot (2-m) lengths (add “-0006” to the product code) or 16-foot (5-m) lengths (add “-0016”).

All models of this cable have a single DB25 male connector at the Wizard MP end. The CPU-end connectors are color-coded to conform (for the most part) to the PC99 color specifications. All models of the cable have a blue HD15 male connector to plug into the CPU's video port, a light green 3.5-mm plug to plug into the CPU's speaker/headphone jack, and a maroon 3.5-mm plug to plug into the CPU's microphone jack. (The green and maroon audio colors are not PC99-compliant, but are the colors used by many sound-card and sound-cable manufacturers.)

The PS/2 models of this cable have two 6-pin mini-DIN male connectors: one light purple to plug into the CPU's keyboard jack, the other light green to plug into the CPU's mouse jack. The Sun models have a single beige 8-pin mini-DIN

male connector to plug into the CPU's keyboard/mouse jack. The USB models have a single black USB Type A male connector to plug into the CPU's USB keyboard/mouse connector.

We offer many types of ServSwitch Brand KVM Extenders. At the time of this writing, there are several models that you might want to use to extend switch-to-user, switch-to-CPU, or switch-to-switch distances in a non-USB ServSwitch Wizard MP system. Call Black Box Technical Support for help choosing appropriate Extenders and planning an Extender-assisted ServSwitch Wizard MP system.

To connect computers with legacy Sun video ports, or computers with serial mouse ports and/or PC/AT style keyboard ports, you'll need adapters like those shown in Figure 3-4 on the next page. Refer to the **Appendix**.

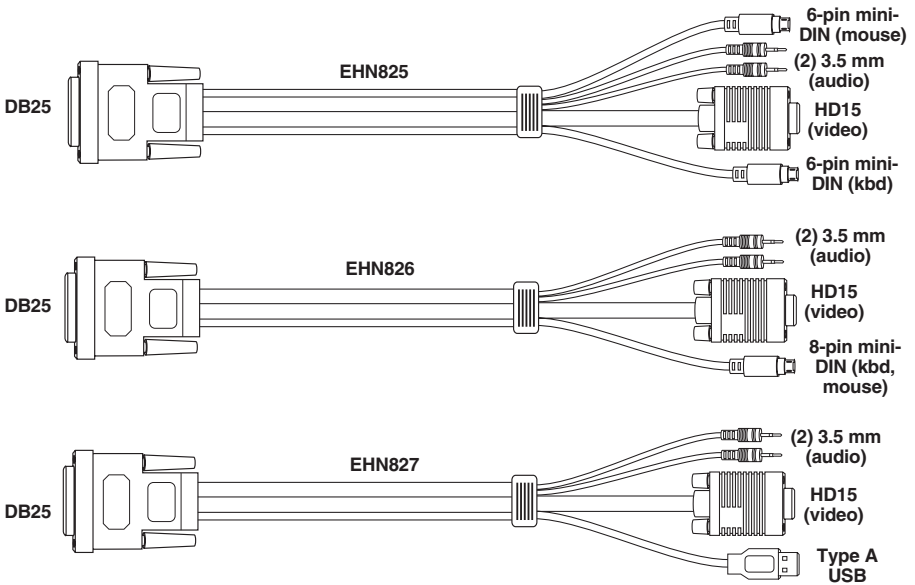


Figure 3-3. The Wizard MP Cables: PS/2 (top), Sun (middle), USB (bottom).

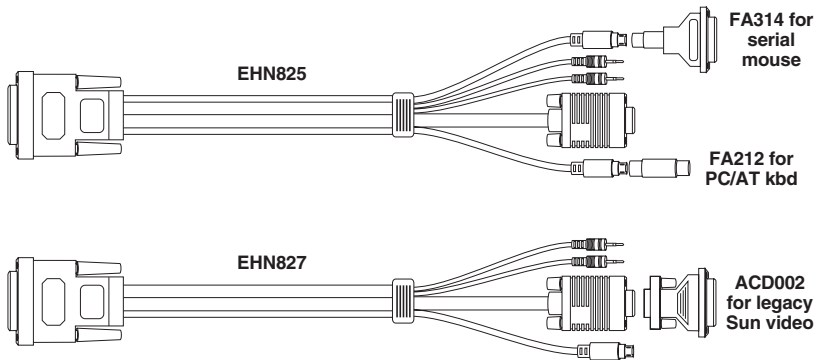


Figure 3-4. Using PC/AT keyboard-port and serial-mouse-port adapters (top) or a legacy Sun video adapter (bottom).

3.4 Powering the Wizard MP

Once you've installed your ServSwitch Wizard MP system and the attached devices, you need to apply power to each Wizard MP. Most basic systems should be able to get the power they need from the attached CPUs. Some systems will require the optional PS649 power supply for each Wizard MP, especially if the system (a) runs cabling for long distances, (b) uses high-resolution video, or (c) is cascaded.

If you're powering a Wizard MP with the attached CPUs: Power up the CPUs. The Wizard MP (which has no ON/OFF switch) might be able to start operating right away, because it can draw power from the CPUs' keyboard interfaces. A single cable connection to a CPU's keyboard port is usually sufficient to power the Wizard MP if the cable isn't more than 5 meters (16.4 feet) long. (If more than one CPU is connected, you'll probably be able to use longer cables; the Wizard MP will draw power intelligently from all of the CPUs.) As you power up your CPUs, watch the Wizard MP's 7-segment display as discussed in **Section 5.1**: If it shows the number "1" or the letter "P," the Wizard MP will be able to operate using the power it's getting from the CPUs, but if it's blank, the Wizard MP is not receiving enough power, and you'll have to either use the power supply or swap in shorter CPU cables.

*If you **are** using the power supply:* Plug the power supply's output cord into the power jack on the back of the ServSwitch Wizard MP. Then attach its input cord to the power-supply transformer's IEC 320 inlet. Then plug the input cord into utility (mains) power. (Do this *first*, then power on the monitor and each of the computers; if you power up the computers before the Wizard MP, the computers might not recognize the presence of the mouse or keyboard.) The Wizard MP should start operating immediately; it has no ON/OFF switch.

4. Configuration

To configure your ServSwitch Wizard MP system, you'll need to configure first the attached PCs, as directed in **Section 4.1**, then the Wizard MP itself, as directed in the rest of this chapter.

IMPORTANT NOTE

Throughout the rest of this manual, the [Enter] designation refers to the main “enter” or “carriage-return” key (often labeled “↵”) on the main section of the keyboard. Do not use the “Enter” key on the numeric keypad or the extra “Enter” key found on the main section of some specialized keyboards.

4.1 Configuring Your Computers

Configure your computers in the same way that you would if your keyboard, mouse, monitor, and audio peripherals were all connected directly to them. Keep in mind that the ServSwitch Wizard MP emulates Microsoft compatible serial, IntelliMouse, and PS/2 mice; so you'll need to make sure that the software on any attached IBM compatible PCs is configured for a Microsoft mouse of the correct type. Refer to the list of supported drivers in **Section 3.1**.

4.2 Configuring the ServSwitch Wizard MP

The ServSwitch Wizard MP comes from the factory preset to default configuration settings which are suitable for most applications. If you need to set the Wizard MP differently, you can access its “configuration mode” to do so; once you do, the new settings are stored in the ServSwitch Wizard MP's EEPROM memory and are retained when the Wizard MP is powered OFF.

4.2.1 ENTERING CONFIGURATION MODE

You can access the ServSwitch Wizard MP's configuration mode in either of two different ways: Use one method when you power up the Wizard MP; use the other while the Wizard MP is operating.

- To enter configuration mode at power-up, make sure the ServSwitch Wizard MP and all attached computers are turned OFF and unplugged. Hold down the front-panel pushbutton while you plug in the ServSwitch Wizard MP (if you're using the optional power supply) or power up one or more of the attached CPUs (if you're *not* using the Wizard MP's power supply); do *not* release the button until the ServSwitch Wizard MP displays lowercase “u”. While the Wizard MP is displaying “u”, release the button, then hold it down again for five seconds until the Wizard MP displays “C” to show that it is in configuration mode.

To reboot the Wizard MP without powering down the attached computers, press the recessed switch on the underside of the Wizard MP to trigger a power-on reset.

- To enter configuration mode while the ServSwitch Wizard MP is running, hold down its front-panel pushbutton for 5 seconds until the front-panel display shows “C”.

In configuration mode, you can change settings by typing a single-letter command (for a given feature), followed by a single-digit numeric argument (for how you want that feature to behave), followed by the [Enter] key. Press the [Esc] (escape) key to abort a setting change before you fully enter it. The ServSwitch Wizard MP will remain in configuration mode until you type the letter “E” followed by the [Enter] key.

For example: To set the hotkey sequence to option #2 ([Ctrl] + [Shift] + command key), type [H][2][Enter] while the ServSwitch Wizard MP is displaying “C”, then type [E][Enter] to exit configuration mode.

The remaining sections of this chapter describe the Wizard MP’s user-configurable settings.

4.2.2 SETTING THE SCREEN-SAVER TIMEOUT

The ServSwitch Wizard MP has a programmable screen-saver function which will blank the display on the shared monitor after a certain time elapses with no activity on the shared keyboard or mouse.

The Wizard MP’s front-panel display will flash while the Wizard MP is in screen-saver mode. To restore the blanked monitor display, just type at the keyboard or move the mouse. Use the “B” command (type [B] [*digit*] [Enter]) to set how long the ServSwitch Wizard MP waits for keyboard or mouse activity before activating the screen saver:

- B1** Screen saver disabled (default)
- B2** Screen saver is activated after 1 minute of inactivity
- B3** 2 minutes
- B4** 4 minutes
- B5** 8 minutes
- B6** 12 minutes
- B7** 16 minutes
- B8** 20 minutes

4.2.3 AUTOSCANNING: SETTING THE SCAN MODE AND PAUSE TIME

The ServSwitch Wizard MP begins autoscanning its CPU channels (that is, briefly displaying each channel's video in turn) when you type in the hotkey sequence followed by the letter "A" (see **Section 5.5**). By default, the Wizard MP only scans those channels that have a powered-up computer or cascaded switch connected to them. But if you need the Wizard MP to scan all of its channels, you can send it the [L][2] or [L][4] command. (In these settings, when the Wizard MP scans a channel that has no computer or cascaded switch attached, or a channel whose attached computer or switch is off or just not outputting video, the shared monitor will display a blank screen.) Also, if you want the Wizard MP to start autoscanning as soon as it powers up, instead of waiting for the "A" command, you can send it the [L][3] or [L][4] command.

Please keep in mind that in cascaded systems, it isn't possible to perform a single autoscan of the whole cascade; you must separately scan each Wizard MP that has CPUs attached to it. During a scan, when a Wizard MP switches to a port with a cascaded switch attached to it, the system will display the video from whatever channel is currently selected at the *cascaded* switch. Refer to **Section 5.10**.

- L1 ServSwitch Wizard MP only scans active ports during autoscanning (default)
- L2 ServSwitch Wizard MP scans every one of its ports during autoscanning
- L3 ServSwitch Wizard MP powers on in autoscan mode and scans active ports only
- L4 ServSwitch Wizard MP powers on in autoscan mode and scans all ports

CAUTION!

Many modern monitors are fitted with automatic power-saver relays and will automatically blank their displays after a short time if the computer they're communicating with becomes idle. If you are using such a monitor, you should not use the Wizard MP's L2 or L4 setting unless you can set the monitor's power-saver timeout to an interval longer than the Wizard MP's autoscan pause time (see the next page), because if the monitor keeps going in and out of power-saver mode during autoscanning, the constant switching ON and OFF of your monitor's relay will eventually damage your monitor.

While autoscanning, the Wizard MP will pause at each channel to display that channel's video signal for the duration of the currently selected autoscans-pause time:

- T1 During autoscans, the Wizard MP pauses at each channel for 2 seconds (default)
- T2 5 seconds
- T3 7 seconds
- T4 10 seconds
- T5 15 seconds
- T6 20 seconds
- T7 30 seconds
- T8 60 seconds

To get out of autoscans mode, simply select a fixed channel using the Wizard MP's front-panel pushbutton, the keyboard hotkeys, or the mouse.

4.2.4 ENFORCING MOUSE SPEED

In its factory-default state, the ServSwitch Wizard MP allows each CPU to handle mouse communication any way the CPU wants to. However, some CPUs with particular rare combinations of operating systems, mice, and mouse drivers can be abnormally sensitive to small timing changes in mouse communication. These CPUs can react badly to the presence of older KVM switches related to the Wizard MP, making persistent timing errors that cause the mouse to seem slow or sluggish. This has especially been noted to occur while using Logitech mice with some HP® Vectra® machines running later versions of Windows NT® and Logitech mouse drivers. The Wizard MP is a high-performance device that's been carefully engineered to avoid these kinds of problems, and it shouldn't be susceptible to them, but it's not always possible to predict their occurrence.

One way to fix this problem is to change the mouse driver. But if this isn't an option, at least in the short term, you can send the Wizard MP the [L][6] command. This causes the Wizard MP to take a more active role in mouse communication, ensuring that the CPU won't have timing problems and keeping the mouse up to speed.

- L5 ServSwitch Wizard MP allows CPU to react to the mouse at any speed (default)
- L6 ServSwitch Wizard MP forces normal mouse speed

4.2.5 SETTING THE CASCADE-QUERY CODE

Each ServSwitch Wizard MP uses a special “query code” to detect whether or not it is connected in a cascade to another ServSwitch Wizard MP (or to a ServSwitch Wizard MP LP, ServSwitch Wizard MP Pro, or ServSwitch Duo). By default, your Wizard MP uses query code “AD” hex; this code should be fine for most applications. However, older ServSwitch Duos with firmware versions earlier than 1.09 always use query code “EF” hex, and because it is essential that all of the switches in a ServSwitch Wizard MP/Duo cascade use the same query code, you’ll need to change the Wizard MP’s query code to “EF” if any of those older Duos are hooked up to your cascade.

- L7 Cascade-query code = “AD” (default)
- L8 Cascade-query code = “EF”

4.2.6 SETTING MOUSE-MODE REPORTING AND ENABLING/DISABLING MOUSE SWITCHING FOR PC CPUs

If any IBM PC compatible CPUs are attached to your ServSwitch Wizard MP, you might want to consider how you want the Wizard MP to handle the mouse. In the Wizard MP’s factory-default state, you can use a three-button PS/2 mouse or an IntelliMouse to cycle through the Wizard MP’s CPU channels. To switch to the next channel, simply hold down the center or “wheel” button on the mouse, then press its left button. If you don’t want to use this feature—particularly if it’s going to conflict with mouse-controlled application functions—you can disable it by sending the [U][2], [U][3], or [U][5] command. If the third button on a three-button mouse is being used to switch the Wizard MP, it won’t be available for use with PC software, although the wheel on an IntelliMouse can be used for both switching and software with no problems. For this reason, we’ve included the [U][1], [U][2], and [U][4] command options, which cause the Wizard MP to report to the attached PCs that they are attached to a 2-button mouse. If you want to use all the functions of a 3-button mouse or IntelliMouse for your PC software, you should send the Wizard MP the [U][3] or [U][5] command.

The ServSwitch Wizard MP supports “Internet mice” that are compatible with the Microsoft IntelliMouse. These are fitted with a wheel or other type of scrolling control and sometimes have additional buttons. Many such mice are available from several different manufacturers.

You can connect either a standard PS/2 mouse or an IntelliMouse compatible mouse to the Wizard MP’s control port. You can configure your CPUs using Microsoft PS/2 or IntelliMouse drivers in any combination as required.

IntelliMouse features are supported on both PS/2 and RS-232 CPU connections. When you use PS/2 CPU connections, the Wizard MP will automatically configure itself to the type of mouse requested by the driver. If you are using RS-232 CPU connections, you will need to send the [U][4] or [U][5] command to enable the IntelliMouse features.

- U1 Channels are mouse-switchable; the Wizard MP reports “2-button mouse” to the attached PCs (default)
- U2 Channels are not mouse-switchable; the Wizard MP reports “2-button mouse” to the attached PCs
- U3 Channels are not mouse-switchable; the Wizard MP reports “3-button mouse” to the attached PCs
- U4 Channels are mouse-switchable; the Wizard MP reports “IntelliMouse” to the attached PCs
- U5 Channels are not mouse-switchable; the Wizard MP reports “IntelliMouse” to the attached PCs

4.2.7 CHOOSING ACTIVE PORTS OR ALL PORTS FOR KEYBOARD-TAB AND MOUSE SWITCHING

In the ServSwitch Wizard MP’s factory-default state, when you “cycle through” the CPU ports on the Wizard MP by pressing {Hotkeys} + [Tab] or when you switch to the next or previous channel with your mouse, the Wizard MP stops at *every* channel. It does this even if the device attached to a particular channel is off or not outputting video, or even if there *isn’t* any device attached to that channel. (The Wizard MP will display a blank screen for such channels.) But if you’d rather have the Wizard MP “skip over” any ports that don’t have a powered-up computer or cascaded switch connected to them, you can send it the [U][8] command.

- U7 Switch to all ports when switching with {Hotkeys} + [Tab] or with the mouse (default)
- U8 Switch only to active ports when switching with {Hotkeys} + [Tab] or with the mouse

The U7/U8 setting has no effect on autoscanning (see **Section 4.2.3**) or on switching with {Hotkeys} + [*digit*], with the front-panel pushbutton, or with the Remote-Control Module.

4.2.8 SETTING THE HOTKEY SEQUENCE

You can access many of the ServSwitch Wizard MP's main functions (such as CPU-channel selection, autoscanning, and locking) by sending commands from the shared keyboard. Each command must start with a "hotkey sequence" (series of keystrokes) that alerts the Wizard MP to interpret the keyboard data that follows it as a command. The default hotkey sequence is [Ctrl] and [Alt] pressed simultaneously. If any of the applications on computers attached to the Wizard MP require this sequence to trigger important application-specific functions, you will have to change the Wizard MP's hotkey sequence with the "H" command (type [H][*digit*][Enter]).

Alternative hotkey sequence #5 is particularly suitable for extended keyboards whose additional keys can be programmed to act as combinations of other keys. Such keyboards are supplied with many Gateway™ computers. If you program one of these "spare" keys to produce both hotkey keystrokes, or if you program a set of these keys to produce the hotkey *and* channel-number keystrokes, you'll be able to select channels, lock the Wizard MP, etc., with as few as one or two keypresses.

- H1 Either of the left and right [Ctrl] keys and either of the left and right [Alt] keys together (default)
- H2 Either of the left and right [Ctrl] keys and either of the left and right [Shift] keys together
- H3 Either of the left and right [Alt] keys and either of the left and right [Shift] keys together
- H4 Right [Alt] key only
- H5 Both the left and right [Alt] keys together
- H6 The left [Ctrl] key and the left [Alt] key together
- H7 The right [Ctrl] and the right [Alt] key together
- H8 No hotkey enabled; the hotkey-dependent functions can't be accessed from the keyboard

4.2.9 VIEWING THE FIRMWARE REVISION, RESTORING MOUSE FUNCTION, OR RESETTING TO FACTORY DEFAULTS

For technical-support purposes, it might be necessary to find out the firmware-release version of the control software in your ServSwitch Wizard MP. Before calling Black Box Tech Support about a problem, you can use the [F][1], [F][2], and [F][3] commands to retrieve this; each of these commands causes the Wizard MP to briefly show one of the digits of the firmware's version number on its front-panel display. For example, if the Wizard MP responds to [F][1][Enter] with the digit "1", to [F][2][Enter] with the digit "0", and to [F][3][Enter] with the digit "2", your Wizard MP is using firmware version 1.02.

You can also restore the function of previously disconnected PS/2 type CPU mouse ports with the [F][5] and [F][6] commands (see **Section 5.9**) and you can reset all of the Wizard MP's configuration options to their factory-default states with [F][8].

Keep in mind that [F][1], [F][2], and so on refer to the letter [F] followed by the number key, *not* the function keys [F1], [F2], etc.

- F1 Display first digit of firmware-version number
- F2 Display second digit of firmware-version number
- F3 Display third digit of firmware-version number
- F4 (Reserved for future use)
- F5 Restore PS/2 mouse function to the currently selected CPU's mouse port
- F6 Restore IntelliMouse function to the currently selected CPU's mouse port
- F7 (Reserved for future use)
- F8 Reset all configuration options to their factory-default settings (the Wizard MP will briefly show the letter "r" on its front-panel display to indicate that this has been completed)

4.2.10 SETTING THE PASSWORD

There are many situations where access to corporate file servers or sensitive information needs to be controlled. In such circumstances, the ServSwitch Wizard MP can be locked away in a room or secure cabinet and controlled remotely. In this mode, you can type the hotkey sequence followed by the letter “L” at the keyboard in order to “lock” the Wizard MP. When you do so, the Wizard MP blanks the screen, disconnects the keyboard and mouse from all of the computers, and displays the letter “P” on its front-panel display. Control can only be regained by typing the correct password on the keyboard.

To set this password, get into configuration mode, then type the letter “P” and press the [Enter] key. The ServSwitch Wizard MP will light the middle and bottom horizontal segments of its front-panel display, so that it resembles a wide equals sign, and you can then type your password. The password is not case-sensitive and can be any combination of keystrokes, including function keys but excluding [Ctrl], [Alt], [Shift], and [Enter], as well as the keys that appear on Sun keyboards but don’t map to anything on the PC keyboard, such as [Help], [Stop], and [Again]. (For example, the password [F4] [F] [R] [E] [D] [Home] would be valid.) When you’ve finished typing in your password, press [Enter] to save it to the Wizard MP’s EEPROM. (This type of memory does not depend on active power or even a battery backup, so it can persist indefinitely.) Don’t worry if you type the password incorrectly; you can always re-enter it, even if you’ve exited and re-entered configuration mode. (The exception to this is if somebody locks the Wizard MP, and you discover only then that you messed up entering the password or can’t remember what the password is. At that point, you’ll have to power down the Wizard MP and hold down its front-panel pushbutton while powering it back on to get back into configure mode—as described in **Section 4.2.1**—in order to change the password.)

If you want to remove the password after setting one, get into configuration mode, type the letter “P”, and press the [Enter] key as before, but then press [Enter] again without typing in any other characters. (If you try to lock the Wizard MP before you’ve set a password, or after you’ve removed the password, the Wizard MP will still blank the video, but it won’t prevent someone from selecting another channel.)

4.2.11 SETTING THE DEFAULT SUN KEYBOARD TYPE FOR SUN CPUs

The ServSwitch Wizard MP interrogates any attached Sun keyboard to find out its country-code and keyboard-type settings; this information is then transmitted back to any attached Sun CPUs. The CPUs will then produce different characters in response to certain keycodes, depending on what the key layout of that type of keyboard is supposed to be. If you don't have a Sun keyboard attached, the Wizard MP can tell any attached Sun CPUs that the keyboard type is either "UK" or "UNIX/US."

- D1 Default Sun keyboard type is "UK"
- D2 Default Sun keyboard type is "UNIX/US" (default)

4.2.12 ENABLING/DISABLING SWITCHING USING THE SUN KEYBOARD'S "HOT MEDIA" KEYS

Sun keyboards have four "hot media" keys in their upper right-hand corners. If these keys aren't being used by any applications running on your Sun CPUs, you can set the ServSwitch Wizard MP to interpret them as single-keystroke channel-switching commands instead. In this setting, you can press the [Mute] key to have the Wizard MP switch to channel 1; the [Volume -] key to switch to channel 2, the [Volume +] key to switch to channel 3, and the [Power] key to switch to channel 4. While the Wizard MP is using the "hot media" keys this way, the keystrokes won't be passed through to the attached CPUs.

- S1 Enable switching with "hot media" keys (default)
- S2 Disable switching with "hot media" keys and pass the keystrokes through

4.2.13 REMAPPING THE SUN KEYBOARD TO PRODUCE THE "£" CHARACTER

The ServSwitch Wizard MP is always remapping the attached keyboard in cross-platform applications (see **Section 5.6**). Sometimes users in Britain and in the financial-services industries also need to generate the extended-ASCII "£" (librum) character that stands for pounds sterling, but this is difficult to do on either a Sun or PC keyboard. You can set the ServSwitch Wizard MP to cause an attached Sun keyboard to generate this character instead of "#" when you press [Shift] and [3] together. (The Wizard MP does this by substituting the [Compose][L][-] keystroke sequence—the normal method of generating this character on a Sun keyboard—for [Shift][3].)

- S3 Enable [Shift][3] remapping
- S4 Disable [Shift][3] remapping (default)

4.2.14 EXITING CONFIGURATION MODE

When you've finished configuring the ServSwitch Wizard MP, simply type the letter "E" and press [Enter]. The Wizard MP will exit the configuration mode and return to normal operation. The attached computers can now be switched on.

5. Operation

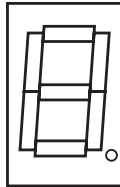
This chapter explains how to operate the ServSwitch Wizard MP. Please read this chapter carefully before starting to use the Wizard MP; also make sure you have read the important note at the start of **Chapter 4**.

5.1 Power Status

At power-up, the ServSwitch Wizard MP will go through its bootup sequence, then try to select CPU channel #1 unless (a) a password has been set or (b) the Wizard MP isn't getting enough power to operate properly. Watch the Wizard MP's front-panel 7-segment display, as described in Figure 5-1: If the Wizard MP isn't receiving enough power, the display will be blank; while the Wizard MP's booting, the display will show "b"; if the Wizard MP can select CPU 1, the display will show "1"; or if a password has been set, the Wizard MP will display "P" and remain locked until a valid password is entered. (For the meaning of this display after power-up, see **Section 5.3**.)

DISPLAY SHOWS:

Blank



MEANING:

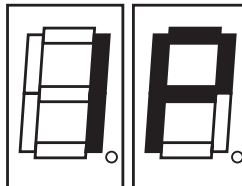
Switch is not receiving enough power to operate

The letter "b"



Switch is booting up; if this condition persists for more than a few seconds, the switch needs to be upgraded

The number "1"



Switch has powered up normally and has selected channel 1

The letter "P"

Switch has powered up normally but is locked and is waiting for the password to be entered

Figure 5-1. The front-panel status display at power-up.

5.2 The Front-Panel Pushbutton and the Remote-Control Module

You can use the ServSwitch Wizard MP's front-panel pushbutton to select which CPU channel (CPU port) is currently controlled by the active control port. Press the key once during normal operation to select the next CPU channel in sequence (for example, to select channel 4 if channel 3 is currently selected); press the key repeatedly to manually cycle through the channels.

You can also use this button to access the ServSwitch Wizard MP's configuration mode (see **Section 4.2.1**). To access configuration mode while the Wizard MP is operating, press the button and hold it down for 5 seconds until "C" appears on the Wizard MP's front-panel display.

An optional Remote-Control Module ("RCM") is also available for the ServSwitch Wizard MP. It's a small hand-held component—with a SELECT key that mimics the Wizard MP's pushbutton and an identical copy of the Wizard MP's front-panel display—whose cord you can plug into the Wizard MP's RS-232 port. This is particularly useful in applications where the ServSwitch Wizard MP is located some distance from the shared keyboard, mouse, monitor, and audio peripherals. The RCM can be conveniently attached to your keyboard with the included Velcro strips so you can have channel information and channel-selection control at your fingertips.

At the time of this writing, four different models of the Remote-Control Module are available, each with a different cord length: 10 ft. (3 m, product code KV6REM), 25 ft. (7.6 m, KV6REM-25), 50 ft. (15.2 m, KV6REM-50), and 75 ft. (22.9 m, KV6REM-75).

5.3 The Status Display

The ServSwitch Wizard MP's front-panel 7-segment status display usually shows the number of the currently selected computer channel, while the dot LED alongside it flashes in response to data from the shared keyboard or mouse (see the top illustration in Figure 5-2). If you select autoscan mode, however, the display will alternately (a) display the current channel number and (b) light each of its outer six LED segments, one after the other, in a clockwise sequence, as shown in the second illustration. If the Wizard MP is in configuration mode, it will display "C". If the Wizard MP has been locked, it will display "P" until a valid password has been typed to unlock the Wizard MP. Finally, if the screen-saver mode has been activated, the channel number will flash.

DISPLAY SHOWS:

Channel number 1 through 4,
steadily lit

As above, with flashing dot in
lower right-hand corner

Zero



MEANING:

That channel is selected

Switch is receiving keyboard or
mouse data to be transmitted to
the selected computer

Display is disabled, but not controls

Alternately, channel number and
clockwise progression of lit
segments



Switch is in autoscan mode,
scanning from channel to
channel at user-selected rate

The letter "P"

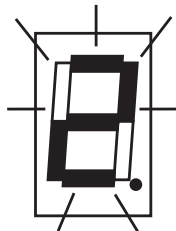
The letter "C"



Switch is locked and is waiting
for the password to be entered

Switch is in configuration mode

Channel number, flashing



Switch is in screen-saver mode
and is waiting for keyboard or
mouse activity to restore video

Figure 5-2. The front-panel status display during regular operation.

5.4 Things to Keep in Mind About the Keyboards and Mice

CPU bootup sequence: When your computer CPUs are powered on, they communicate with any attached keyboards and mice and load the setup parameters required by their particular operating systems. It's necessary for the ServSwitch Wizard MP to be attached and powered on during this sequence so that it can give the CPUs the required responses and keep track of all the modes and settings requested by each of the connected CPUs.

Mouse characteristics: Do not unplug a PS/2 mouse connection from a IBM PC compatible CPU while the CPU is on. Because of the way PS/2 mice communicate, the CPU will lose mouse function and you will have to reboot the CPU to regain normal operation. Unplugging a shared PS/2 mouse from the ServSwitch Wizard MP will have no immediate effect, but any selected PC CPU will lose mouse function as soon as you plug the mouse back in. (RS-232 mouse-port connections can usually be freely unplugged and replugged, provided that a mouse was connected when the operating system initially booted.) The ServSwitch Wizard MP has a PS/2 mouse-recovery system which allows you to disconnect and reconnect the shared mouse without powering down the system, but we recommend using this only when absolutely necessary. See **Section 5.9** for details.

Keyboard- and mouse-mode handling during channel switching: The ServSwitch Wizard MP keeps a log of the keyboard and mouse modes and resolution settings requested by each of the connected computer CPUs, including the keyboard Num Lock, Caps Lock, and Scroll Lock states. These settings are automatically restored to the shared keyboard and mouse when the ServSwitch Wizard MP channel is switched, ensuring maximum software compatibility.

5.5 Keyboard Control: Hotkey Commands

You can control many functions on the ServSwitch Wizard MP—such as CPU-channel selection, autoscanning, or locking—from the keyboard, using commands triggered with the Wizard MP's currently selected hotkey combination. All of the hotkey-control commands are invoked by holding down the one or two hotkeys and then pressing a command key. By default, the two hotkeys are [Ctrl] and [Alt], although other keystroke combinations can be selected (see **Section 4.2.8**).

Normally, when you send a hotkey command, you have to release the hotkeys and the command key before you can send another one. The one exception to this rule is {Hotkeys} + [Tab], the “switch to next CPU channel” command; you can “tab through” the channels by holding down the hotkeys and repeatedly pressing [Tab].

The hotkey commands are summarized below and on the next page. Note that to generate the numeric digits in the commands that contain them, you need to press the number keys on the top row of the main section of the keyboard, *not* the number keys on the keypad; the Wizard MP will not recognize keypad numbers.

- Use {Hotkeys} + [x], where *x* is a number from one to four, to switch to the corresponding CPU channel. If you try to select a channel with a higher number than the Wizard MP has ports, the Wizard MP will ignore the command and pass it through to the currently selected computer.
- Use {Hotkeys} + [Tab] to switch to the next channel in numeric sequence (if the Wizard MP is set to “U7”) or to the next *active* channel (if the Wizard MP is set to “U8”); refer to **Section 4.2.7**.
- Use {Hotkeys} + [A] to have the Wizard MP start autoscanning (briefly displaying the video from each CPU channel in turn). You can control whether or not it scans empty channels, and for how long it pauses at each channel, with the “L1” through “L4” and “Tx” configuration commands respectively (see **Section 4.2.3**). To stop autoscanning, simply select a fixed channel using the Wizard MP's front-panel pushbutton, the keyboard hotkeys, or the mouse (if mouse switching is enabled and the mouse is a 3-button or IntelliMouse type).

Please note that, in cascaded systems, it is not possible to scan through all of the channels on every Wizard MP in the same scan. Each Wizard MP must be scanned separately.

- Use {Hotkeys} + [0] to select nonexistent “channel zero” in order to shut off the video output from the Wizard MP to the shared monitors. The Wizard MP’s front-panel display will show “0”. You can re-enable video by selecting another channel through the keyboard, front-panel pushbutton, or mouse.
- Use {Hotkeys} + [L] to lock the Wizard MP (disable its shared keyboard and mouse and select nonexistent “channel zero” in order to shut off the video output from the Wizard MP to the shared monitors). If a password has not been set (see **Section 4.2.10**), the Wizard MP behaves exactly as if you had entered {Hotkeys} + [0] (see above). If a password has been set, the Wizard MP displays “P” to indicate that a valid password must be entered to unlock the switch; simply type in the password followed by the [Enter] key to do so. Note that if anyone has tried to type something at the shared keyboard while the Wizard MP is locked, you will have to press [Enter] to clear those characters so that they won’t invalidate the password when you proceed to type it in.
- Use {Hotkeys} + {Channel Address} to select a CPU channel in a cascaded system (see **Sections 3.3.2** and **5.10**). The {Channel Address} is a series of one- or two-digit channel numbers that specify the “path” to follow to get from the master ServSwitch Wizard MP (or other switch) to the desired CPU channel on the subsidiary Wizard MP (or other switch). The numbers in the {Channel Address} can be single digits if *all* of the switches in the cascade are 2-, 4-, or 8-port switches; if *any* are 12- or 16-port switches, you’ll have to add a leading zero before the single-digit numbers. For example, if you want to access
 - CPU port 4 (“04”) on a “second-layer” subsidiary Wizard MP attached to
 - CPU port 2 (“02”) on a “first-layer” subsidiary Wizard MP attached to
 - CPU port 16 on a master Duo, you would enter:
 {Hotkeys} + [1][6][0][2][0][4].

To make sure that the Wizard MP doesn’t switch prematurely to the wrong channel, hold down the hotkeys until you enter the last digit, *then* release them.

Examples of common hotkey commands (assuming the hotkeys are [Ctrl] and [Alt]):

- *To select channel 2:*
Press and hold [Ctrl] and [Alt], press and release [2], release [Ctrl] and [Alt].
- *To “tab through” channels:*
Press and hold [Ctrl] and [Alt], press and release [Tab] (repeat as many times as necessary), release [Ctrl] and [Alt].

- To select channel 7 on an 8-port subsidiary Wizard Pro connected to port 4 on a master Wizard MP:
Press and hold [Ctrl] and [Alt], press and release [4], press and release [7], release [Ctrl] and [Alt].
- To select channel 13 on a subsidiary Duo connected to port 3 on a 4-port master Wizard MP:
Press and hold [Ctrl] and [Alt], press and release [0], press and release [3], press and release [1], press and release [3], release [Ctrl] and [Alt].

5.6 Cross-Platform Keyboard Remapping

The ServSwitch Wizard MP can be set to remap the [Shift] [3] key combination on a Sun keyboard to produce the “£” character (see **Section 4.2.13**), but when you’re using a Sun keyboard to control PC-compatible or Mac computers, or a PC keyboard to control Sun or Mac CPUs, the Wizard MP continuously performs certain other key remappings. First, it remaps some of the control keys from each platform to roughly equivalent keys on either of the others:

Sun keyboard:	PC 104/105-key keyboard:	Apple Mac keyboard:
[Control]	Left-[Ctrl]	Left-[Control]
Left-[Alt]	Left-[Alt]	Left-[Option (alt)]
Left-[Command] (⬢)	Left-[Windows Start] (⊞)	Left-[Command] (⌘)
Right-[Command] (⬢)	Right-[Windows Start] (⊞)	Right-[Command] (⌘)
[Alt Graph]	Right-[Alt] or -[Alt Graph]	Right-[Option (alt)]
[Compose]	[Windows Application] (⊞)	N/A
N/A	Right-[Ctrl]	Right-[Control]
[Power] (⏻)	N/A*	[Power] (⏻)

*If you’re using a PC keyboard with a proprietary Power key, that key will be mapped to the Sun and Mac Power keys. If you’re using a basic PC keyboard without such a key, you can still emulate the Power key on a Sun keyboard (see below), but not the Power key on a Mac keyboard. If you have any Mac CPUs attached to the Wizard MP, you’ll have to use a Sun keyboard or a PC keyboard with a Power key to perform Power-key functions with them.

In order to produce the “extra” keys present on a Sun keyboard if you’re using a PC keyboard, you can type in certain Right-[Ctrl] keystroke sequences and the Wizard MP will substitute the “missing” characters for them:

These PC keystrokes:	Produce these Sun characters:	These PC keystrokes:	Produce these Sun characters:
Right-[Ctrl] [F1]	[Stop]	Right-[Ctrl] [F9]	[Find]
Right-[Ctrl] [F2]	[Again]	Right-[Ctrl] [F10]	[Cut]
Right-[Ctrl] [F3]	[Props]	Right-[Ctrl] [1]	[Mute]
Right-[Ctrl] [F4]	[Undo]	Right-[Ctrl] [2]	[Volume –]
Right-[Ctrl] [F5]	[Front]	Right-[Ctrl] [3]	[Volume +]
Right-[Ctrl] [F6]	[Copy]	Right-[Ctrl] [4]	[Power] (⏻)
Right-[Ctrl] [F7]	[Open]	Right-[Ctrl] [H]	[Help]
Right-[Ctrl] [F8]	[Paste]		

If you're using a Sun keyboard, you can press some of the "extra" Sun keys and the Wizard MP will substitute certain keystroke sequences often used in PC applications for important (and sometimes analogous) functions:

These Sun keystrokes:	Produce these PC characters:	These Sun keystrokes:	Produce these PC characters:
[Stop]	[Ctrl] [q] ("Quit")	[Open]	[Ctrl] [o] ("Open")
[Again]	[Ctrl] [s] ("Save")	[Paste]	[Ctrl] [v] ("Paste")
[Props]	[Ctrl] [p] ("Print")	[Find]	[Ctrl] [f] ("Find")
[Undo]	[Ctrl] [z] ("Undo")	[Cut]	[Ctrl] [x] ("Cut")
[Copy]	[Ctrl] [c] ("Copy")		

5.7 Mouse Control

Yet another convenient way to select CPU channels on the ServSwitch Wizard MP is through a three-button mouse, if this feature is enabled (see **Section 4.2.6**). As shown in Figure 5-3 (button to hold down is black, button to click is gray):

- To switch to the *next* channel, hold down the central mouse button or "wheel" button, then click on the *left-hand* mouse button.
- To switch to the *previous* channel, hold down the central mouse button or wheel button, then click on the *right-hand* mouse button.

Depending on whether the Wizard MP's set to "U7" or "U8" (see **Section 4.2.7**), the mouse will switch to either each channel in sequence or to *active* channels only.

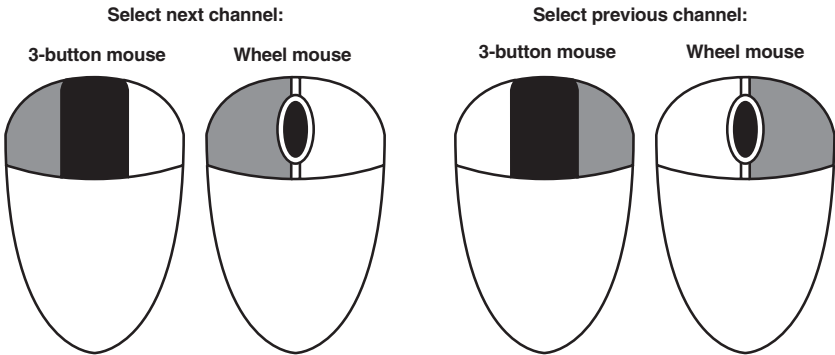


Figure 5-3. Using the mouse buttons for switching.

5.8 Re-Enabling a Disconnected PS/2 Mouse

If you accidentally disconnect the shared PS/2 mouse from the ServSwitch Wizard MP while the Wizard MP is operating, the mouse will not work correctly when you plug it back in. To avoid having to reboot the entire system in this situation, the Wizard MP has an automatic mouse-recovery system.

With the PS/2 mouse disconnected, change the channel using the Wizard MP's front-panel pushbutton or the keyboard hotkeys. The ServSwitch Wizard MP detects that the mouse has been disconnected and triggers the automatic recovery system. Plug in the PS/2 mouse and the ServSwitch Wizard MP will re-initialize it.

Alternatively, you can reset the keyboard and mouse by holding the Wizard MP's front-panel pushbutton down for five seconds to enter configuration mode, then releasing the button, then pressing the button again while the display shows "C". When you do, the Wizard MP will perform a complete power-off reset of the connected keyboard and mouse. This function only resets the shared keyboard and mouse that are plugged into the control port; it does not affect the status of any of the other ports on the Wizard MP or of the CPU connections.

5.9 Hot-Plugging Devices Into the ServSwitch Wizard MP and Re-Enabling Disconnected CPU PS/2 Mouse Ports

We suggest that you turn off the computers that will be connected to the ServSwitch Wizard MP before you install a Wizard MP system. However, even if this is not possible, most systems can be "hot-plugged" (connected to the Wizard MP while they are powered and operating); the PS/2 mouse-port malfunctions this usually causes can often be overcome by using the ServSwitch Wizard MP's mouse-restoration functions. (The keyboard connection will normally restore itself automatically.)

Let's take this from the top: On many computer CPUs, mouse movement will be lost if the PS/2 mouse is unplugged and plugged back in while the CPU is running. Mouse movement can then only be restored by rebooting the CPU. This is because the mouse drivers only set up and enable the mouse when the CPU is initially booted.

If you have powered down your ServSwitch Wizard MP, or if you are attempting to hot-plug a system into it, you might be able to restore lost mouse movement using the ServSwitch Wizard MP's mouse-restoration functions.

Important: Mouse-restoration functions should be used with caution, because unpredictable results might occur if the wrong mouse type is selected. If in doubt, restore the mouse by rebooting the CPU normally.

Standard PS/2 mouse data uses a different data format than IntelliMouse data, so two reset functions are provided on the ServSwitch Wizard MP. The type of data format expected by the CPU depends upon the driver and the type of mouse that was connected when the driver was booted. The following table may be used as a guide; note that the mouse-reset functions predict the likely mouse *resolution* settings but may not restore the *speed* or *sensitivity* of the mouse exactly as they were when the CPU originally booted:

Type of mouse/ system connected at bootup:	Driver type:	Probable expected data format:	Suggested restoration command:
PS/2	PS/2 only	PS/2	F5
PS/2	IntelliMouse	PS/2	F5
IntelliMouse	PS/2 only	PS/2	F5
IntelliMouse	IntelliMouse	IntelliMouse	F6

To restore lost mouse movement on a CPU connected to the ServSwitch Wizard MP:

1. Select the CPU that has lost its mouse movement.
2. Press and hold the pushbutton on the front of the ServSwitch Wizard MP for five seconds until “C” appears in the front-panel display. The Wizard MP is now in configuration mode.
3. To restore a PS/2 mouse connection, type the letter “F”, then the number “5”, then [Enter]. Or, to restore an IntelliMouse connection, type the letter “F”, then the number “6”, then [Enter].
4. Exit from configure mode by typing the letter “E” followed by [Enter].
5. Test the mouse movement by moving the mouse a short distance.

5.10 Operating Cascaded ServSwitch Wizard MPs

As described in **Section 3.3.2**, multiple ServSwitch Wizard MPs can be cascaded together. To select channels in cascaded systems, you will need to send hotkey commands from the master Wizard MP's attached keyboard (see the "{Hotkeys} + {Channel Address}" paragraph in **Section 5.5**).

For an example of hotkey switching, consider a situation in which two ServSwitch Wizard MPs are connected together as shown in Figure 5-4 on the next page. To select the computer attached to port 1 on the subsidiary ServSwitch Wizard MP, you would press and hold down the hotkeys, then press and release "3," press and release "1," and finally release the hotkeys. This causes the master Wizard MP to switch to its port 3, to which the subsidiary Wizard MP is attached, and send the subsidiary Wizard MP the command to switch to port 1, to which your desired computer is attached. (If there were any 12- or 16-port switches in the system, you would have to use two digits to designate each port, inserting a leading zero when necessary.)

Two more examples, assuming that the hotkeys are the default combination of [Ctrl] + [Alt]:

- *To switch to channel 4 of a 4-port subsidiary Wizard MP attached to channel 1 of your 4-port master Wizard MP:*
Press and hold [Ctrl] + [Alt], press and release [1], press and release [4], release [Ctrl] + [Alt].
- *To switch to channel 13 of a 16-port subsidiary Duo attached to channel 2 of your 4-port master Wizard MP:*
Press and hold [Ctrl] + [Alt], press and release [0], press and release [2], press and release [1], press and release [3], release [Ctrl] + [Alt].

Please note that it is not possible to autoscan every channel in a cascaded system with a single scan. Cascaded Wizard MPs must be scanned individually using their front-panel pushbuttons or {Their Hotkeys} + [A]. When you switch or scan to a port on a Wizard MP to which a subsidiary Wizard MP is attached, the Wizard MP system will display the video from the currently selected port on the *subsidiary* Wizard MP.

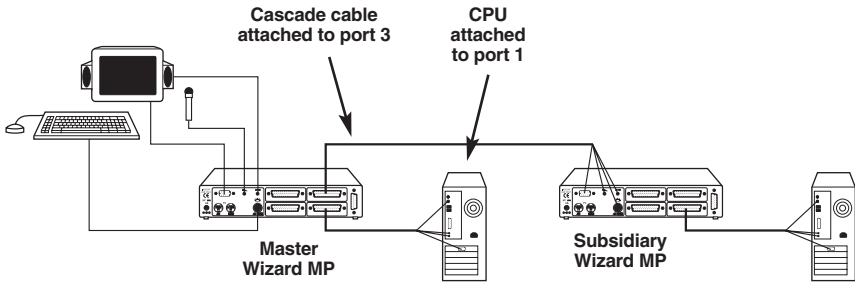


Figure 5-4. Cascade layout.

5.11 Performing a Warm Reset

Sometimes, when problems occur in a ServSwitch Wizard MP system, powering the Wizard MP off and back on again can fix the problem. If a Wizard MP is getting power from its optional power supply, you can do this by unplugging and replugging the power supply. But if the Wizard MP is getting power from the attached computers, the only way to shut it down is to disconnect it from those computers or turn the computers off, which might not be desirable or possible.

Instead of powering the Wizard MP off and back on to completely reinitialize it, you can accomplish the same results by having the Wizard MP do a “warm reset” (hardware reset) while it’s still operating. You’ll see a small hole on the bottom of the Wizard MP; this hole has a recessed switch in it. Use a paperclip, the tip of a pen or pencil, etc., to press this switch and trigger a warm reset.

Even though the Wizard MP doesn’t have any CPU startup communication to work with after a warm reset, it should still be able to autodetect the correct keyboard mode and mouse type under most circumstances. Occasionally, however, you’ll also need to do a mouse reset and/or recovery (see **Sections 5.8** and **5.9**) to get the mouse working properly.

5.12 Upgrading the Wizard MP's Firmware

Because the ServSwitch Wizard MP stores most of its firmware (its “operating system,” if you will) in flash memory, the firmware is upgradable. To fix bugs in existing firmware, or to add features to your Wizard MP, Black Box Technical Support might sometimes recommend that you upgrade the Wizard MP's firmware if a newer revision is available. (Follow the procedure described in **Section 4.2.9** to find out which firmware version your Wizard MP is currently running.)

To upgrade the Wizard MP's firmware, you'll need a “host PC,” which must be an IBM PC compatible computer with an RS-232 serial port. This computer must be running an operating system that can execute DOS programs, such as MS-DOS® or Windows® 3.x, 95, 98, or 2000. Use the Wizard MP's included DB9 female to DB15 male firmware-upgrade cable to transfer the firmware files to the Wizard MP. (Refer to the **Appendix** for the pinning of this cable. If you ever need to replace it, it's available separately as product code KV6SER.)

Take these steps (filenames might be different from those shown here):

1. Download the necessary files for the upgrade from our Web site at **www.blackbox.com** onto the host PC (if you can't find these files, ask Tech Support for help). They should be compressed into a single archive named “SSWMP_{xyz}.ZIP”, where *xyz* represents the firmware's *x.yz* version number (for example, “129” = firmware version 1.29.) The “MP” model prefixes and version numbers in the filenames should all match each other, and all of these files should be uncompressed into the same directory:
 - A universal upgrade installation/verification program named “SSWMP.EXE”.
 - A data file named “MP_{xyz}SP.DAT” that tells the program which firmware files to use for the upgrade and where in the Wizard MP's memory to put them. Theoretically, this file can be modified so that only certain processors inside the Wizard MP are upgraded, but *don't try to do this* unless specifically instructed to do so by Black Box Tech Support.
 - The firmware binary files themselves. There will be three of these named “MP_{xyz}M.HEX”, “MP_{xyz}S.HEX”, and “MP_{xyz}U.S19”, one for each of the Wizard MP's processors.
 - A batch file named “MP_{xyz}SP.BAT” that will run the upgrade program for you.
2. Run the firmware-upgrade cable from the host PC to the OPTIONS/FLASH port on the ServSwitch Wizard MP.

At this point, make *very sure* that the Wizard MP is receiving adequate power. The upgrade program monitors the Wizard MP's voltage and won't allow an upgrade to proceed if the voltage is insufficient. If you're using the Wizard MP's optional power supply, it's definitely going to get the power it needs. If it's being powered by the attached computers, it's normally possible to perform an upgrade when the Wizard MP is powered by a single computer, but it's a good idea to power up all of the computers attached to the switch anyway. This minimizes the possibility that power will fail during an upgrade due to a sudden brownout, cable disconnection, etc.

3. While holding down the Wizard MP's front-panel pushbutton, use the recessed switch on the bottom of the chassis to do a warm reset of the Wizard MP as described in **Section 5.11**. Keep holding down the pushbutton while the Wizard MP finishes its bootup process, until its 7-segment display shows a lowercase "u" to indicate that the Wizard MP is ready to be upgraded:



4. Run the SSWMP.EXE firmware-upgrade program that you downloaded in step 1, using the DAT file you downloaded as the argument. The command line should be "SSWMP MP_{xyz}SP.DAT". Or just type in "MP_{xyz}SP" and hit return to run the batch file you also downloaded in that step; it contains the proper command line. Follow the directions that appear on the host PC's screen to transfer the new firmware to the Wizard MP. The Wizard MP's 7-segment display will change to show an uppercase "U" and its dot will flash to show that the Wizard MP's receiving data from the PC (the upgrade program rewrites the Wizard MP's existing firmware code with the code in the MP_{xyz}.HEX file):



5. The upgrade program will now rewrite the Wizard MP's existing firmware code with the code in the MPxyz.HEX file. When the upgrade is complete, the upgrade program will either respond with an error message if the upgrade has failed (if it was interrupted by a power failure, for example), or it will confirm that the upgrade has been successful and then terminate.

Do another warm reset on the Wizard MP. If the upgrade was successful, this will return the Wizard MP to normal operation. If the upgrade failed, the Wizard MP will detect the problem and boot into upgrade mode so that you can run the upgrade program again. (The code that the Wizard MP uses to download new firmware is not itself affected by the upgrade process.)

6. Verify that the upgrade has been successful by having the Wizard MP indicate its new firmware revision as described in **Section 4.2.9**.

6. Troubleshooting

6.1 Things to Try

This section suggests possible answers for a number of problems that people sometimes encounter when trying to operate the ServSwitch Wizard MP. If the suggested actions don't solve your problem, or if you don't see a listing for the type of trouble you're having, contact Black Box Technical Support as described in **Section 6.2**.

Problem:

Your mouse does not move the cursor/pointer.

Possible Solutions:

If you move the mouse and the activity indicator (the dot on the 7-segment display) does not flash, then the ServSwitch Wizard MP is not receiving data from the mouse. Check the mouse's connection to the Wizard MP; if it's OK, try resetting the mouse using the reset function (see **Section 5.8**), warm-resetting the Wizard MP (see **Section 5.11**) or powering the Wizard MP OFF and then ON again. If you are attempting to connect the Wizard MP to a CPU with a PS/2 mouse connection that has not been powered down, you will need to use the mouse-restoration function F5 or F6 (see **Section 5.9**).

Make sure that the selected computer's software is configured to accept a Microsoft compatible PS/2 mouse of the type that you have connected.

Make sure that (a) the mouse and computer were both connected to the ServSwitch Wizard MP before any part of the system was powered up, and (b) the Wizard MP was powered ON before the attached computer. If you're not sure whether this was the case, then (if it's possible to do so) power everything down, make sure all cable connections are correct and secure, power up the Wizard MP, then power up all attached computers.

Problem:

Your keyboard does not function or functions only intermittently. The Num Lock LED does not always light when the Num Lock key is pressed.

Possible Solution:

Some older keyboards were designed for use with specific computers and are not truly PC/AT or PS/2 compatible. These are not common, but if you're having problems like this and you're using an old keyboard, try a newer keyboard.

Problem:

Just using your mouse normally causes the CPU channel to change unexpectedly.

Possible Solutions:

Some cheaper mice are not fully compatible with the ServSwitch Wizard MP and can lose data, which—if mouse switching is enabled (see **Section 4.2.6**)—sometimes causes the Wizard MP to interpret a data stream as a channel-change request. Try using a Microsoft, Logitech, IBM, Compaq®, or Hewlett-Packard® mouse instead.

Make sure that you are using a Microsoft compatible mouse driver on your PC. Some drivers by other manufacturers can cause the mouse to use proprietary mouse-data formats that the Wizard MP doesn't support. If you have unplugged and reconnected a mouse to the ServSwitch Wizard MP, make sure that you reset it (see **Section 5.8**) or—especially if the mouse is an IntelliMouse—use the mouse-restoration function (see **Section 5.9**).

Problem:

When you select a PC, the mouse moves the cursor/pointer very slowly but otherwise functions correctly.

Possible Solutions:

Change to a Microsoft mouse driver or set the Wizard MP to the “L6” configuration option. See **Section 4.2.4**.

Problem:

The cursor/pointer jumps around the screen after you disconnect the mouse cable or power down the ServSwitch Wizard MP.

Possible Solution:

If you have disconnected and reconnected a CPU mouse cable or you have powered down the ServSwitch Wizard MP, and you're using a PS/2 mouse or IntelliMouse, the mouse might have gotten out of sync with the CPU. Try the mouse-reset function (see **Section 5.8**) or the mouse-restoration function (see **Section 5.9**), or reboot the CPU.

Problem:

Compaq MX11800 model integrated keyboard and mouse only: The mouse consistently fails to boot when the Wizard MP is connected to PCs running Windows NT 4.0 through their PS/2 style mouse ports.

Possible Solutions:

There are three possible solutions to this problem:

1. Use a different type of mouse.
2. Connect the Wizard MP to your NT 4.0 PCs through adapters and their serial ports rather than through their PS/2 ports.
3. Select channel 0, or another channel that is not connected to an NT 4.0 PC, while NT is booting. You should be able to use the system normally once the logon screen appears.

6.2 Calling Black Box

If you determine that your ServSwitch Wizard MP is malfunctioning, *do not attempt to alter or repair it*. It contains no user-serviceable parts. Contact Black Box Technical Support at 724-746-5500.

Before you do, 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—that is, what types of computers, what type of keyboard, brand of mouse, make and model of monitor, etc.;
- any particular application that, when used, appears to create the problem or make it worse; and
- the results of any testing you've already done.

6.3 Shipping and Packaging

If you need to transport or ship your ServSwitch Wizard MP:

- Package it carefully. We recommend that you use the original container.
- Before you ship the Wizard MP back to Black Box for repair or return, contact us to get a Return Authorization (RA) number.

Appendix: Cable Guidelines

IMPORTANT NOTE

The maximum supported cable lengths vary widely between devices and cables. It might be possible to use cables that are longer than those specified in this Appendix with certain computers and peripherals, but this can't be guaranteed. If you have problems, try using shorter cables.

A.1 Cabling from the User Equipment to the ServSwitch Wizard MP

All of the shared devices plug directly into the relevant control-port connectors at the rear of the ServSwitch Wizard MP. If you use a PC/AT style keyboard you'll need a PC/AT (5-pin DIN female) to PS/2 (6-pin mini-DIN male) adapter. (These are available from Black Box as product code FA211.)

If you're *not* using the optional power supply, these peripherals' cables should be no longer than 6 ft. (2 m). If you *are* using the power supply, you can use audio-extension cables and KVM-extension cables such as our Premium KVM User Cables (product code EHN409) to increase the distance from the Wizard MP to your peripherals to as much as 32 ft. (10 m). Many keyboards and mice will operate at distances up to 65 ft. (20 m), but don't count on this.

A.2 Cabling from the ServSwitch Wizard MP to the CPUs

All CPUs are connected to the ServSwitch Wizard MP through one-to-many Wizard MP Cables (see Figure 3-3 in **Section 3.3.3**), which plug into the CPU ports on the Wizard MP's rear panel. If you are *not* using the Wizard MP's optional power supply, you should not extend these Cables beyond the length of the longer (16-ft./5-m) models. If you *are* using the power supply, you might be able to run good video-, keyboard-, mouse-, and audio-extension cables to extend the distance between the Wizard MP Cables' CPU-side connectors and the CPUs. (Do *not* try to place DB25 extension cables between the Wizard MP and the Wizard MP Cables' DB25 connectors—video quality would suffer badly.) With the power supply, total end-to-end distance between the Wizard MP and the CPU can be as much as 16 ft. (5 m) if you're using a USB model of the Wizard MP Cable, or 65 ft. (20 m) if you're using a non-USB model of the Wizard MP Cable.

If you want to connect a PC CPU that has a 5-pin DIN PC/AT style keyboard connector to the Wizard MP, you will need a PS/2 to PC/AT keyboard adapter, 6-pin mini-DIN female to 5-pin DIN male (product code FA212). To connect a PC CPU with a DB9 male RS-232 serial mouse port, you'll need a special adapter with the pinning shown in Figure A-1 on the next page (product code FA314).

6-pin mini-DIN attaches to Wizard MP
or cable from Wizard MP

DB9 attaches to PC's serial port or
cable to PC's serial port

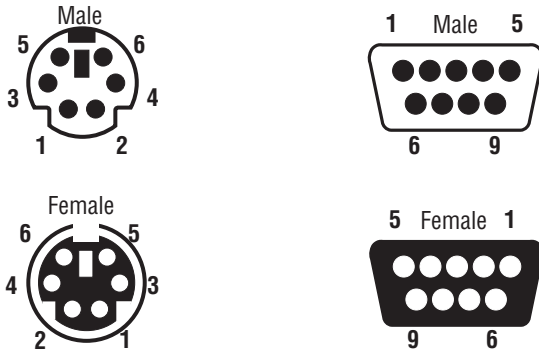
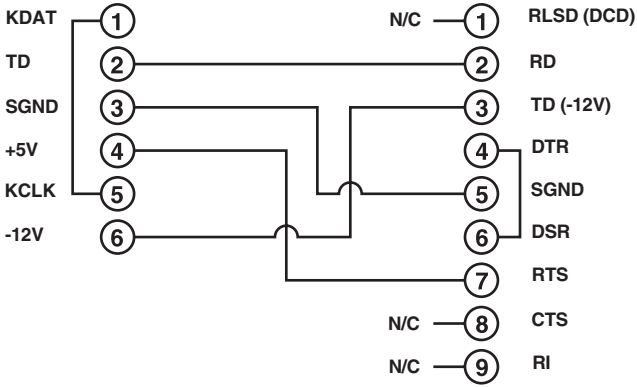


Figure A-1. The RS-232 mouse adapter's pinout.

A.3 Cabling Attached to the OPTIONS/FLASH Port

The DB15 connector labeled “OPTIONS/FLASH” on the back of the ServSwitch Wizard MP is a proprietarily pinned port using RS-232-type signaling. You can connect either of these devices to it:

- The Wizard MP’s optional Remote-Control Module (RCM, see **Section 5.2**);
- A PC, in order to upgrade the Wizard MP’s firmware (see **Section 5.12**).

The pinout of this connector is pretty simple: Pin 9 (Signal Ground, SGND), Pin 10 (Transmit Data, TD), and Pin 11 (Receive Data, RD) are the only pins used for serial communication to PCs. All other pins are intended for RCM communication only and should be left unconnected; attaching them to PCs could have unpredictable and possibly damaging effects.

The pinout for the Wizard MP’s included firmware-upgrade cable is shown in Figure A-2. If you ever need to replace this cable, you can order it separately as product code KV6SER.

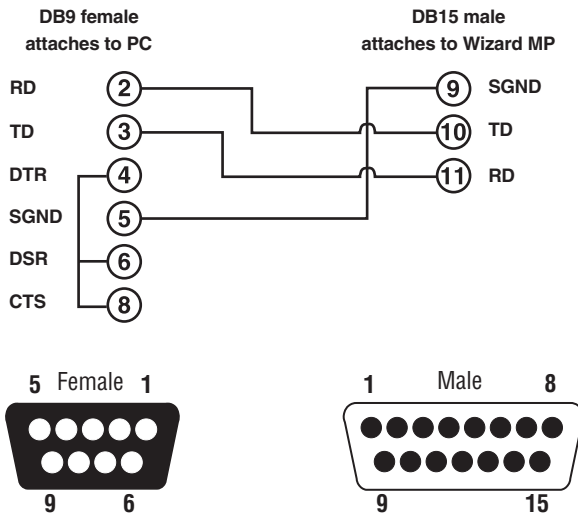


Figure A-2. The firmware-upgrade cable.

DISCLAIMERS

While every precaution has been taken in the preparation of this manual, neither the manufacturer nor its authorized agents assume any responsibility for errors or omissions. Nor do they assume any liability for damages resulting from the use of the information contained herein. They reserve the right to change the specifications, functions, or circuitry of the product without notice.

Neither the manufacturer nor its authorized agents accept liability for damage due to misuse of the product or due to other circumstances outside their control. And they will not be responsible for any loss, damage, or injury arising directly or indirectly from the use of this product.

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Customer Support Information:

FREE tech 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 Dr., Lawrence, PA 15055-1018

World-Wide Web: www.blackbox.com • E-mail: info@blackbox.com

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