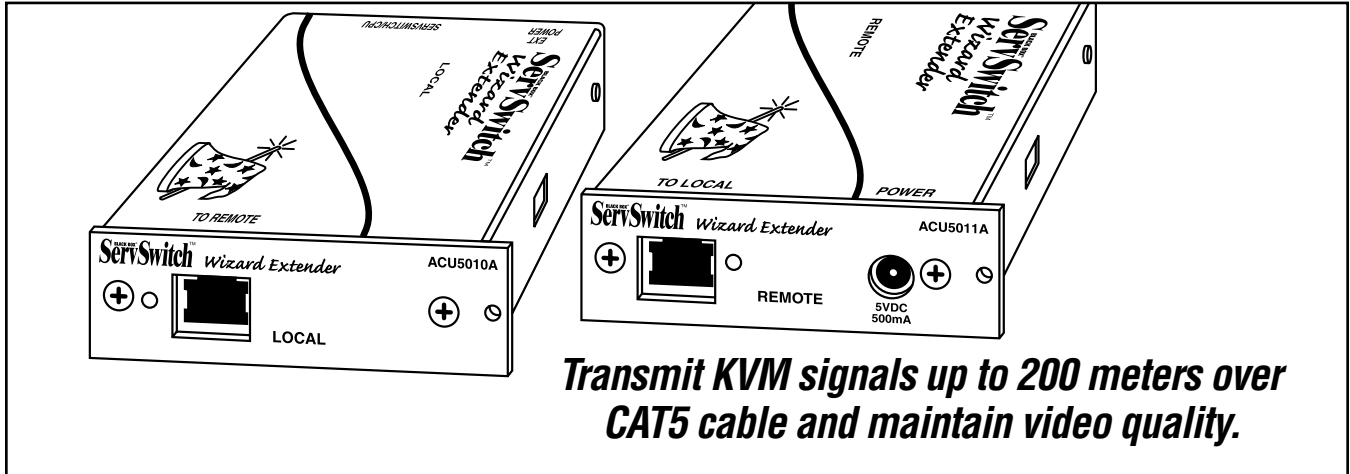# BLACK BOX®
NETWORK SERVICES

SERVSWITCH WIZARD EXTENDERS

Transmit KVM signals up to 200 meters over CAT5 cable and maintain video quality.

Key Features

▶ *Uses CAT5 or better cable to carry all KVM signals.*

▶ *Locate a keyboard, monitor, and mouse up to 200 meters from a CPU or KVM switch.*

▶ *Rackmount local and remote extender units in optional 2U chassis.*

▶ *Video resolutions up to 1600 x 1280.*

▶ *Automatic and manual video settings.*

▶ *Password security.*

▶ *Remote units can be used with ServSwitch Duo or Quadro.*

▶ *Works with Wizard Skew Compensator.*

Our ServSwitch™ Wizard Extender family provides keyboard, video, and mouse (KVM) extension capabilities within an easy-to-wire system that can serve one user or be expanded to serve multiple users.

Designed to transfer KVM signals up to 200 meters (656 ft.) over Category 5 or higher twisted-pair cable*, the Wizard Extender is a modular system that, at its most basic, consists of a local transmitter unit and a remote receiver unit that you connect using the twisted-pair cable. Both modular units are sold together as a kit (ACU5010A) that also includes a CPU-connection cable for easy installation.

The receiver module connects to your keyboard, monitor, and mouse, and the transmitter module connects to the computer CPU that you want to control. Order multiple kits for multiple users, but if your application starts to become unwieldy, order the optional rackmount chassis

(ACU5000A), which holds up to 16 transmitter or receiver modules in a 2U-high cage for mounting in a standard 19" cabinet or rack. Any mixture of Wizard Extender modules can be added to the chassis. If you won't be filling all of the slots in the chassis, you can install optional Single (ACU5003, one-slot) or Quad (ACU5004, four-slot) Blank Chassis Panels to cover the empty slots.

To provide power to as many as four remote receivers with a single AC transformer, install an optional ServSwitch Wizard Extender Chassis Power Supply Module (PS5000). This PSU supplies power for up to four remote modules with the power supply reflected via an indicator on the rackmount chassis. With the PSU, you're given four patch cables that provide the connection between the PS5000's four power outlets and rackmounted remote modules.

We also offer the receiver module as a standalone product

(ACU5011A) that's used to receive extension signals from either a ServSwitch Duo or a ServSwitch Quadro, advanced KVM extenders that contain their own built-in transmitters and are used for *multiuser* CPU management.
Uses easy-to-handle CAT5.

For cabling the ServSwitch Wizard Extender modules, you may already have the cable installed. All you need is four-pair (eight-wire) twisted-pair cabling that's rated to at least CAT5 and is long enough to connect a transmitter to the receiver. The cable should be pinned straight through and paired according to the TIA-568A or, even better, TIA-568B specification.

This cable can be up to 200 meters (656 ft.) long if it's unshielded twisted-pair (UTP) and 100 meters (328 ft.) long if it's shielded (STP).
Video compensation for clarity.

Supporting high-bandwidth monitors at resolutions up to 1600

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*Can be used with CAT5e or CAT6 cable when used with the ServSwitch Wizard Skew Compensator (ACU5100A)

x 1280, the Wizard Extender system has video-compensation equalizers that maximize the picture quality for your system even though the video signal is being sent across twisted-pair cable.

Video quality can be optimized for any given length of cable using automatic and user-adjustable video compensation. If you choose the manual compensation mode, the compensation only needs to be adjusted once during setup. The setting remains in the system's EEPROM memory even when the extender is turned off. In automatic compensation mode the video compensation automatically fine-tunes the video signal every time that the extender is powered on or reset.

For video extension, you'll need a standard low- or high-resolution VGA/SVGA (HD15) monitor that can be directly attached to your PC.

A Wizard Skew Compensator may be needed for CAT5e or CAT6.

Keep in mind that if you plan to use twisted-pair cabling (particularly the higher-grade type such as CAT5e or CAT6 rated cabling) to connect the local and remote modules, you may need to order an optional ServSwitch Wizard Skew Compensator (ACU5100A).

This device cleans up signal skew. If one or more of the red, green, and blue colors in the video seems separated or offset—for example, if colored shadows trail bright white objects—then you have skew (or color drift). It's caused by the varying lengths of a cable's wire pairs on long runs of CAT5 or higher cable.

The Skew Compensator can be installed alongside the other modules within the ACU5000A chassis. Placed between your video source and destination, the compensator deliberately delays one or two of the color signals in the video sent so all signals arrive at their destination at the same time and minimize skew.

For more information on the Wizard Skew Compensator, request **FaxBack 26293** or call Tech Support.

What else you'll need.

For the ServSwitch Wizard Extender system, you will also need a standard PC/AT® or PS/2® style keyboard. If you plan to use a PC/AT keyboard with a 5-pin DIN connector, you'll need a keyboard adapter to connect the keyboard to the extender.

The system supports keyboard modes 1, 2, and 3 and "prompt" and "stream" mouse modes for maximum compatibility. Keyboard data is kept in its native format, ensuring the additional keys on enhanced keyboards are also supported.

You can use the Wizard Extender system with or without a mouse connected. But if you use one, you'll need a PS/2 style two- or three-button Microsoft® or Logitech® compatible mouse or a Microsoft IntelliMouse® compatible mouse. The extender also supports other "Internet mice" that are compatible with the IntelliMouse, such as those fitted with a wheel or other scrolling controls.

As noted earlier, the kit includes a CPU-connection cable, which is a 2-meter (6.5-ft.) 3-in-1 cable for connecting your CPU to the Wizard Extender transmitter's DB25 connector. If the cable isn't long enough, you can use one or more VGA or PS/2 style cables to replace or extend the transmitter connection up to a maximum distance of 5 meters (16.4 ft.).

Configuration and security.

The ServSwitch Wizard Extender ships from the factory in a default state that's suitable for most applications. But it also has a number of configuration options.

To select automatic or manual video compensation and other hardware-related functions, you need only to adjust the 8-position DIP switches on the Wizard Extender's modules. Continuously read by the extender system, these switches can be changed even while it's powered on.

You also get security functions with the Wizard Extender system. In situations where you want to control access to corporate file servers or sensitive information, you can keep the Wizard Extender's transmitter module and the attached CPU locked away in a secure room or cabinet while keeping a primary control station attached to the receiver in the open.

Password protection helps prevent unauthorized use of the system. "Lock" the receiver so, without the correct password typed in at the primary keyboard, it's incapable of outputting video to the monitor or accepting input from the keyboard or mouse. Locking the receiver has no effect on the operation of the transmitter.
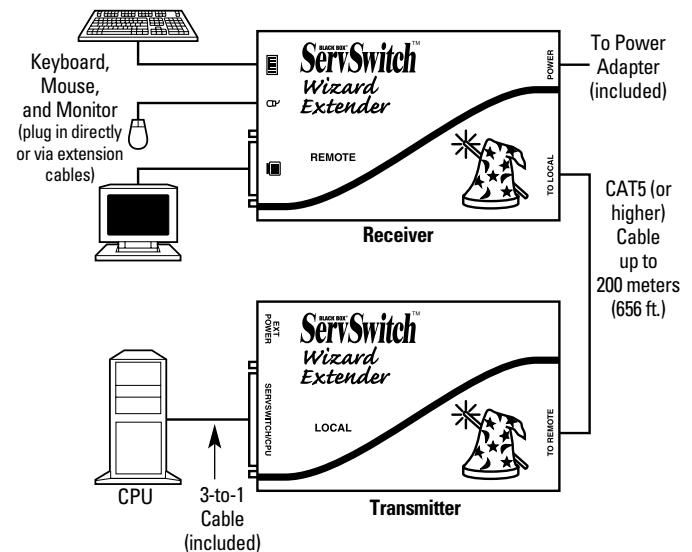
During CPU switching, the Wizard Extender keeps a log of the keyboard and mouse modes as well as the resolution settings that are requested by each of the connected CPUs. The settings are automatically restored to the primary keyboard and mouse when you switch CPUs or when you return the extender to normal operation after configuring the system or setting a password.

You can control many of the Wizard Extender's functions from the keyboard using hotkey commands. In addition to providing access to the configuration mode, hotkey commands can be used to disable keyboard and mouse input to the attached CPU or switch; to lock the receiver module from any input from its attached keyboard and mouse; to password lock the receiver; and to blank the attached monitor's video.

The Wizard Extender uses flash-rewritable program memory, and you can upgrade its firmware code by using a PC program to download new firmware into the transmitter and receiver modules through their keyboard connections.
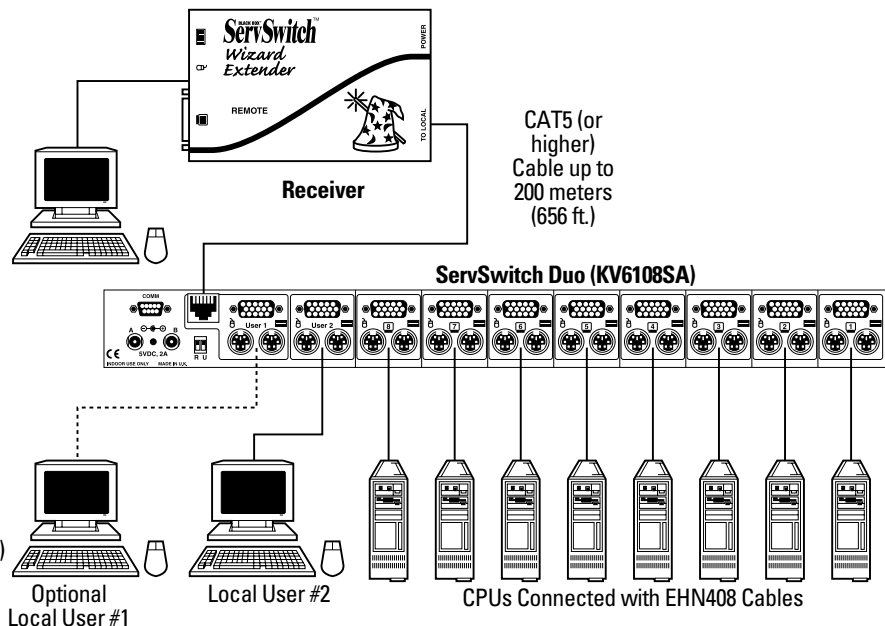
An ACU5010A Wizard Extender Installation

An ACU5011A Wizard Extender Installation

ServSwitch™
Wizard Extender

POWER

REMOTE

TO LOCAL

Receiver

Keyboard, Monitor, and Mouse for Remote User (plug in directly or via extension cables)

CAT5 (or higher) Cable up to 200 meters (656 ft.)

ServSwitch Duo (KV6108SA)

COMM

User 1 User 2

Local Users' Keyboards, Monitors, and Mice (plug in directly or via extension cables)

Optional Local User #1

Local User #2

CPUs Connected with EHN408 Cables

▼

Packages Include

ServSwitch™ Wizard Extender Kit (ACU5010A):

- Local transmitter module
- Remote receiver module
- Power adapter for the receiver module
- (1) 2-m (6.5-ft.) 3-to-1 cable to connect the transmitter to a computer or KVM switch
- (2) pan-head screws for attaching the modules to the optional extender chassis (ACU5000A)
- (8) adhesive rubber feet
- Users' manual

ServSwitch Wizard Extender Remote Receiver (ACU5011A):

- Remote receiver module
- Power adapter for the receiver module
- Pan-head screw for attaching the module to the optional extender chassis (ACU5000A)
- (4) adhesive rubber feet
- Users' manual

Rackmount Chassis for ServSwitch Wizard Extender Modules (ACU5000A):

- Empty chassis
- (4) washers and (2) screws
- (2) handles
- Users' manual

ServSwitch Wizard Extender Chassis Power Supply Module (PS5000):

- Power module
- 5-VDC 2.5-amp power supply transformer and output cord
- (1) power supply input cord
- (4) 21" cables to connect (4) ServSwitch Wizard Extender Remote Receiver modules to the power supply
- Users' manual

Specifications for Extenders

Cable Required: Between transmitters and receivers: 4-pair (8-wire) Category 5 or higher unshielded twisted-pair (UTP); shielded twisted-pair (STP) can also be used at shorter distances

Approvals: CE; FCC Part 15 Subpart B Class A, IC Class/classe A

Standards: VGA, SVGA, XGA, or XGA-2 video

Interfaces: Video: VGA; Keyboard and mouse: IBM® PS/2® compatible

Distance (Maximum): Between transmitters and receivers: Up to 200 m (656 ft.) of UTP cable or 100 m (328 ft.) of STP cable; From ACU5010A transmitter: 5 m (16.4 ft.) to any attached CPU; From ACU5010A receiver or ACU5011A: 10 m (32.8 ft.) to any attached keyboard, monitor, or mouse

User Controls: Keyboard commands; ACU5010A transmitter, ACU5010A receiver, ACU5011A: (1) rear-mounted 4-position DIP switch for various options and functions

Indicators: ACU5010A transmitter, ACU5010A receiver, ACU5011A: LED for power and data activity

Resolution: At distances to 65 m (213 ft.): Up to 1600 x 1280 noninterlaced @ up to 85 Hz; At distances to 100 m (328 ft.):

Up to 1600 x 1280 noninterlaced @ up to 65 Hz; At distances to 200 m (656 ft.): Up to 1024 x 768 noninterlaced @ up to 65 Hz

Connectors: ACU5010A transmitter: (1) DB25 F (CPU connection); (1) 8-pin mini-DIN F (future use); (1) RJ-45 (CAT5 connection); ACU5010A receiver, ACU5011A: (2) 6-pin mini-DIN F (keyboard/mouse); (1) HD15 F (monitor); (1) RJ-45 (CAT5 connection); (1) 2.5-mm barrel jack (power)

Temperature Tolerance: 32 to 104°F (0 to 40°C)

Humidity Tolerance: 5 to 60% noncondensing

Power: ACU5010A transmitter: 5 VDC at 500 mA (normally draws only 180 mA) from CPU's keyboard interface; ACU5010A receiver or ACU5011A using included external power adapter: Input: 100–240 VAC, 50–60 Hz; Output: 5 VDC at up to 2.5 A; ACU5010A receiver or ACU5011A using PS5000: 5 VDC at 500 mA

Size ACU5010A transmitter, ACU5010A receiver, ACU5011A: 1"H x 4.9"W x 3.1"D (2.5 x 12.4 x 7.9 cm); rear edge of endplate protrudes an additional 0.4" (1 cm); adhesive feet, is used, protrude an additional 0.1" (0.3 cm)

Weight: ACU5010A transmitter, ACU5010A receiver, ACU5011A: 12.3 oz. (348.7 g)

Ordering Information

ITEM	CODE

ServSwitch™ Wizard Extender Kit
    (includes Transmitter/Receiver Modules) ...ACU5010A

To rackmount multiple transmitter, receiver, and power supply modules, order…
Rackmount Chassis, 16-Slot..............................ACU5000A

To supply power to up to 4 rackmounted receiver modules, order…
Rackmountable Power Distribution Module.........PS5000

NOTE: Transmitter modules don't require a power supply.

To cover unused slots in the ACU5000A, order…
Rackmount Blanking Plate
    Single-Slot ACU5003
    Quad-Slot..ACU5004

You can also order the remote receiver module on its own for use with either the ServSwitch Duo* or Quadro* (which contain internal transmitters)…
ServSwitch Wizard Extender Remote
    Receiver ACU5011A

To compensate for any video drift , order…
ServSwitch Wizard Skew Compensator*........ACU5100A

* NOTE: For more information on these ServSwitch products,
    go to **www.blackbox.com** and search our online product catalog
    or request the following FaxBack(s):
        for ServSwitch Duo or ServSwitch Quadro...............**FaxBack 25371**
        for ServSwitch Wizard Skew Compensator..............**FaxBack 26293**

To connect remote receiver modules, order…
CAT5 Unshielded Bulk Cables, 100-MHz, Solid,
    4-Pair, Beige, 1000-ft. (304.8-m) Spool
        PVC...EYN840A-1000
        Plenum EYN860A-1000

To connect the extenders to a nearby patch panel or wall jack, order…
CAT5 Solid-Conductor Patch Cable, 100-MHz, 4-Pair,
    Straight-Pinned, PVC, Beige
        10-ft. (3-m)...EYN737MS-0010
        20-ft. (6.1-m)..EYN737MS-0010

If the included CPU cable isn't long enough, order…
VGA Video Extension Cable, 10-ft. (3-m)
        Male/Female.......................................EVNPS05-0010-MF
6-Pin Mini-DIN Cable (for PS/2), Male/Female
        ....EVMPS03-0010-MF

For AT style keyboard connections, order…
IBM® PC Keyboard Adapter,
    5-Pin DIN Female to 6-Pin Mini-DIN Male
        with 6-inch (15.2-cm) Cable................................FA221