



## ServSwitch™ 4site II

The multiviewer, KVM switch, scaler, and video converter, all in one.

Display and administer up to four computers on a single monitor.



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Order toll-free in the U.S.: Call 877-877-BBOX (outside U.S. call 724-746-5500)  
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Mailing address: Black Box Corporation, 1000 Park Drive, Lawrence, PA 15055-1018  
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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.
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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.
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10. El equipo eléctrico debe 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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# Chapter 1: Specifications

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## 1.0 Specifications

**Casing** — Desktop or 19", black (RAL 9005)

**Distance (Maximum):** — Video (DVI/VGA): up to 20 meters; Keyboard/Mouse: up to 5 meters

**EDID Adjustments** — EDID at each input port customizable

**Keyboard Layouts Supported** — English, French, German, Italian, Japanese, Spanish

**Operating Controls** — Front Panel: Channel Selection (4); Quad Mode (1); PiP mode (1), Full screen mode (1)  
Rear panel: Power On/Off switch; Reset button

**Ports** — Computer: 4 x DVI-I (analog and digital), 4 x PS/2, 4 x USB  
Console: (1) DVI-I, (2) USB for keyboard and mouse  
USB: (4) Transparent high-speed USB 2.0

**Resolution (Output)** — Up to 1920 x 1200 @ 60 (DVI and VGA)  
(at WUXGA: reduced blanking only - WUXGAr)

**RoHS** — Yes

**Environment** — Operating Temperature: 41 to 113° F (5 to 45° C);  
Storage Temperature: 14 to 140° F (-10 to 60° C);  
Humidity: 5 to 65%, noncondensing

**Indicators** — LEDs: Four: Active Channel; Quad mode; PiP mode, Full-screen mode

**Power** — AC adapter: Internal, 100–240 VAC input voltage; 50-60 Hz;  
Consumption: 40 watts

**Size** — 1.7"H x 17.2"W x 9.2"D x (4.4 x 43.6 x 23.4 cm)

**Weight** — 6.4 lb. (2.9 kg)

### What's Included

- ServSwitch 4site II
- 19" rackmount kit
- Installation and Operation Manual on CD
- USB to (2) PS/2 converter
- Serial adapter with green CAT5 cable

### 2.0 Introduction

Thank you for choosing the ServSwitch 4site II from Black Box. This product provides state-of-the-art technology in keyboard-video-mouse (KVM) switching. Its key advantage over conventional KVM switches is that it allows you to simultaneously display and administer four computers on a single console. It combines key features of a high-end KVM switch and a digital multiviewer, scaling and converting videos at both inputs and output.

### 2.1 Display Modes

**Quad Mode:** The screen is split into four fields of equal size, each displaying the entire screen contents of one source.

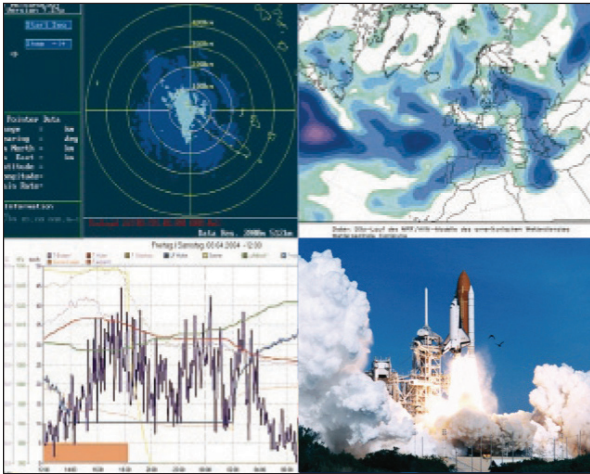


Figure 2-1. Quad mode.

**Full-Screen Mode:** One of the four sources is displayed in full-screen size and maximum resolution.



Figure 2-2. Full-Screen mode.

## Chapter 2: Introduction

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**PiP (Picture-in-Picture) Mode:** The full-screen display of one of the four video sources is accompanied by one to three small images (thumbnails) of the other video sources displayed on the right hand side of the screen, allowing simultaneous monitoring. All PiP display modes are described in Section 4.5, OSD Mode, Picture in Picture.



Figure 2-3. PiP Mode

**Dual Mode:** The left halves of full-screen images from two video sources are displayed side by side at full size and at full vertical resolution.

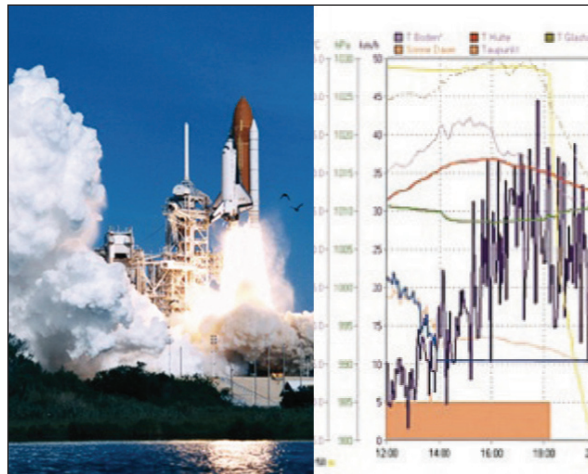


Figure 2-4. Dual Mode

### 2.2 Features

#### DVI & VGA

The ServSwitch 4site II supports resolutions of up to 1920 x 1200 @ 60 Hz for both DVI and VGA. Any combination of VGA and DVI at all standard resolutions is possible at the inputs and output. Analog video input is converted to digital. If an analog display is connected, the ServSwitch 4site II converts the digital signal to analog at the output. Internally, the ServSwitch 4site II processes video purely digitally, guaranteeing the best digital image quality.

#### USB and PS/2 for keyboard/mouse/touchscreen/trackball

Use either PS/2 or USB ports on the computer to connect the keyboard and mouse to the ServSwitch 4site II. It supports any combination. To connect the console, the switch features two USB ports for mice, keyboard, touchscreens, or trackballs.

#### Transparent USB 2.0

The ServSwitch 4site II features a transparent high-speed USB 2.0 matrix: USB 2.0 devices (e.g. printer, external memory, memory stick, webcam, 3D mouse, finger printer) can be switched to connected computers.

#### Operation

There are six ways to operate the ServSwitch 4site II, switch channels, and select display modes:

1. Using the buttons on the front of the unit
2. Using configurable hotkeys
3. Using the unit's external configuration program on a remote computer
4. Via a serial port using the protocol DCP XML
5. Using mouse functions (Hotmouse)
6. Using a touchscreen

Configure the ServSwitch 4site II through the on-screen display (OSD) navigating either with keyboard commands or front-panel buttons or remotely via ConfDev on an external PC.

The LEDs on the front panel indicate the unit's current status.

Use the serial (RS-232) port for remote control and firmware updates.

Configure the serial port with the following settings:

Speed: 57600 bps  
Data Bits: 8  
Parity: none  
Stop Bits: 1  
Flow Control: none

## Chapter 2: Introduction

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### 2.3 Safety

*WARNING: To avoid risk of electric shock do not open the device or remove any part of the casing. Please contact Tech Support if the device requires service.*

Please read this manual carefully before putting the device into operation.

Observe all warnings and instructions on the device and in the operation manual. Keep this user manual for future reference.

#### **Power supply**

Only connect the device to a grounded power supply.

#### **Installation**

Ensure that the device is disconnected from the power outlet before performing any installation work.

Unplug the device or disconnect the power supply.

#### **Cables**

Only use the cables supplied by Black Box with the device.

Damage resulting from the use of third-party cables is not covered by warranty.

Take care not to create tripping hazards when laying cables.

#### **Location**

Electronic devices should never be placed on the ground between the cables.

Never obstruct any vents on the device.

Take care to ensure adequate ventilation.

#### **Maintenance**

This device is maintenance free.

Never open the casing.

No settings can be made inside the device.

## 2.4 Front and Rear Panels

### Front Panel

The ServSwitch 4site II front panel has seven status indicators (LEDs) and seven buttons. Buttons 1 to 4 switch between channels, and LEDs 1 to 4 indicate the status of the individual channels. Full, Quad and PiP buttons and LEDs are used to switch and indicate display modes and other functions, e.g. open the OSD menu, etc.



Figure 2-5. Front panel.

### Indicator Lights



Figure 2-6. Indicator lights.

**LEDs 1 to 4:** When these LEDs light steady green, the corresponding channel (computer port) has been selected and is available for keyboard and mouse access. When an LED flashes green, there is no signal at the video input of the selected channel.

An LED lights yellow when there is a signal at the video input, but another channel has been selected. When the LED is dark, there is no signal at the video input and another channel has been selected.

**Full:** This LED lights green when the Full-Screen mode is selected.

**Quad:** When this LED lights green, the unit is in Quad mode.

**PiP:** This LED lights green when the PiP function is enabled.

*NOTE: While the OSD menu is open, the active computer can still be operated by using the mouse.*



## Chapter 2: Introduction

### Front Panel, Continued



Figure 2-7. Push buttons.

**Buttons 1 to 4:** These buttons activate the corresponding channel (computer port).

**Full button:** Press to choose the Full-Screen mode.

**Quad button:** Press this button to switch from Full-Screen mode to Quad mode.

**PiP button:** Press this button to enable the PiP (picture in picture) function.

### Location of the Selector

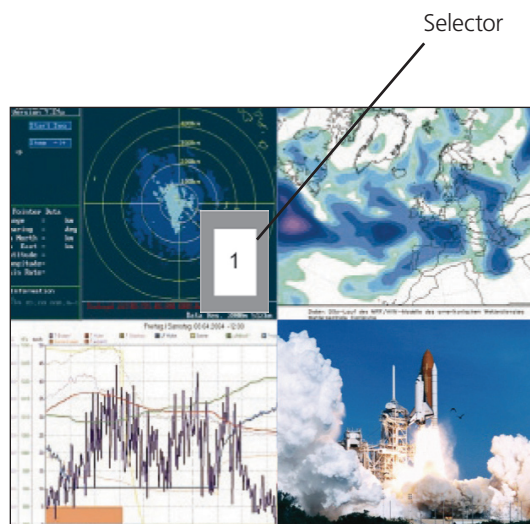


Figure 2-8. The selector.

You can also select the active channel using hotkey and the arrow keys.

The selection window closes upon expiration of the channel selection timeout period.

Channel selection timeout is configured in OSD under SYSTEM > QUAD MODE.

Use the “Time out of channel selection:” menu item to define how long the selector is to be displayed.

### Additional Button Functions

#### Set Resolution

Set output resolution to safe display modes: To set output resolution to 640 x 480 @ 60 Hz, press Buttons 1 and 2 together, for at least one second. Use this feature when you cannot use the OSD because the output resolution setting is not supported by the monitor. After setting the correct output resolution (640 x 480 @ 60 Hz), you can choose a resolution the connected monitor supports in the OSD.



Or, hold Buttons 1 and 2 again to cycle through the following video modes:

VGA: 640 x 480 @ 60 Hz,  
SVGA: 800 x 600 @ 60 Hz,  
XGA: 1024 x 768 @ 60 Hz,  
UXGA: 1600 x 1200 @ 60 Hz,

and the preferred video resolution found in the monitor EDID.

LEDs 1 to 4 and FULL indicate the selected mode.



Figure 2-9. Arrow Buttons 1 and 2 enable you to set these resolutions: VGA, SVGA, XGA, and UXGA

### Hardware Reset

Press Buttons 3 and 4 simultaneously for longer than four seconds to reset the unit completely (video + mouse + keyboard) (see Reset button on the following page).

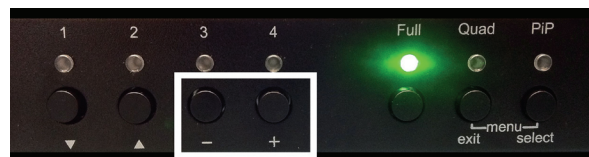


Figure 2-10. Arrow buttons.

### Calling up the OSD menu

To access the OSD menu, press the Quad and PIP buttons simultaneously for more than one second.



Figure 2-11. Accessing the OSD menu.

*NOTE: While the OSD menu is open, the active computer can still be operated by using the mouse.*

## Chapter 2: Introduction

### Rear Panel

The rear panel of the ServSwitch 4site II features four input source/computer ports, the console port (KVM), the serial RS-232 port, four transparent high-speed USB 2.0 device ports, the power connection, and a reset button.

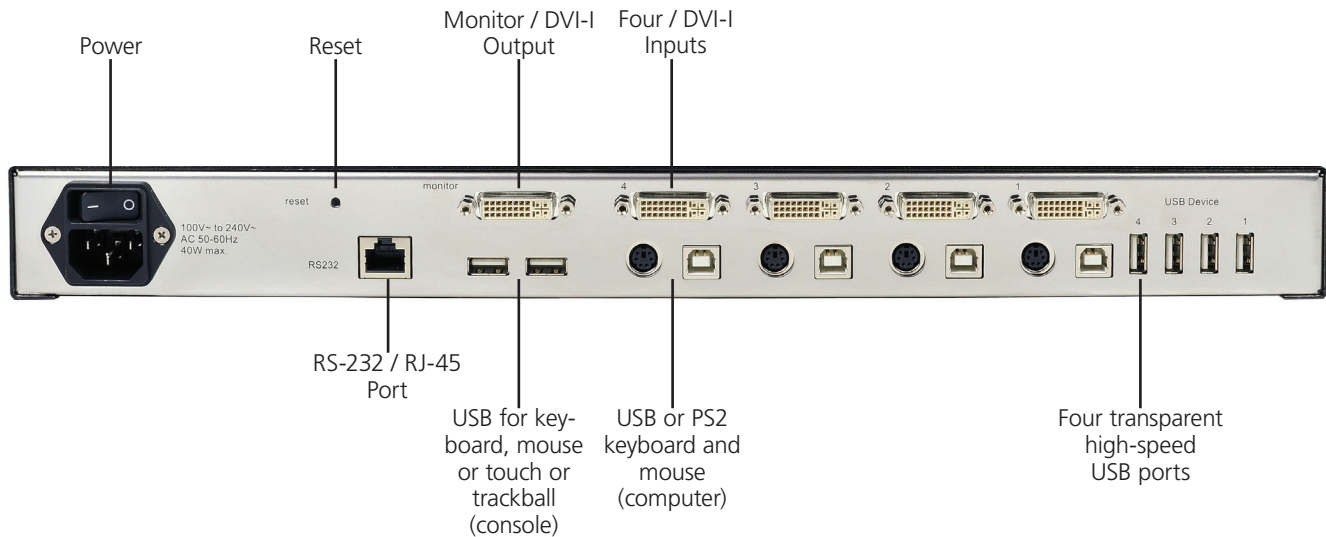


Figure 2-12. The rear panel.

**Power:** This is the plug for the enclosed power cable.

**Reset:** Press this button, using a suitable pointed object (e.g. ballpoint pen), to completely reset the ServSwitch 4site II .

*NOTE: Because of the "keep alive" function of keyboard and mouse, turning power off/on resets only the video circuit. If you experience problems with the mouse or keyboard, we recommend executing a complete RESET by either pressing the RESET button on the rear panel or by simultaneously pressing Buttons 3 and 4 on the front panel for longer than four seconds (see 2.4, Front and Rear Panels: Hardware Reset).*

**Monitor/DVI-I output:** Connect your analog or digital display to this DVI-I port

**DVI-I inputs:** Connect the analog or digital video signal for up to four sources to these four DVI-I ports.

**RS-232/RJ-45 port:** Connect external serial control devices to this RJ-45 port to operate the unit remotely. Connect to this port to access the OSD menu from a computer using the ConfDev device configuration tool (see Section A.2, ConfdevEn.exe Program). The serial RS-232 port is also used for firmware updates (see Updating the Firmware in Section A.2).

**USB for keyboard, mouse, touchpad, or trackball (console):** Two USB ports enable you to connect keyboard, mouse, touch screen, or trackball. Using a USB Hub, you can use multiple keyboards and mice. They will work in Share mode with an inactivity timeout of three seconds.

**USB or PS2 keyboard and mouse (computer):** Each computer source can be connected with PS/2 or USB for keyboard and mouse.

**Four transparent high-speed USB 2.0 ports:** Connect USB devices (printer, memory stick, finger printer, 3D mouse) to the four transparent USB ports. The transparent USB 2.0 matrix switches USB 2.0 peripherals to computer sources connected to the ServSwitch 4site II.

### 3.0 Installation

The ServSwitch 4site II is best located as close as possible to the sources/computers to reduce the length of cables.

By default, the ServSwitch 4site II is delivered as a desktop chassis. Using the supplied rackmount kit, it may also be mounted in a 19" rack.

Connect keyboard, monitor, mouse (console) and USB devices using the corresponding cables (DVI, USB, or PS/2).

KVM extenders enable you to work remotely via a CAT5, a fiber optic, or an Ethernet connection.

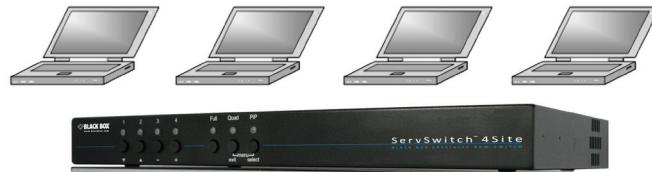


Figure 3-1. Locate the unit as close as possible to computers to reduce the length of cables needed.

#### Connecting the unit to power

Plug the power cable into the power plug located on the rear panel of the ServSwitch 4site II, but do not turn on power yet.

#### Connecting the console (monitor, keyboard, mouse, touchscreen, trackball mouse)

Connect your monitor to the monitor port of the ServSwitch 4site II via VGA-DVI cable (analog) or DVI cable (digital) up to 5 meters. For greater distances, use a DVI or VGA extender.

Connect your USB mouse and keyboard to the USB Type A ports on the console up to 5 meters. For greater distances, use a KVM or USB extender.

The PS/2 mouse and keyboard can be connected to the ServSwitch 4site II using a PS/2-USB adapter.

Connect your touchscreen to the DVI-I port and the USB Type A port (see Section 4.6, OSD Configuration Menu, Touchscreen Calibration).

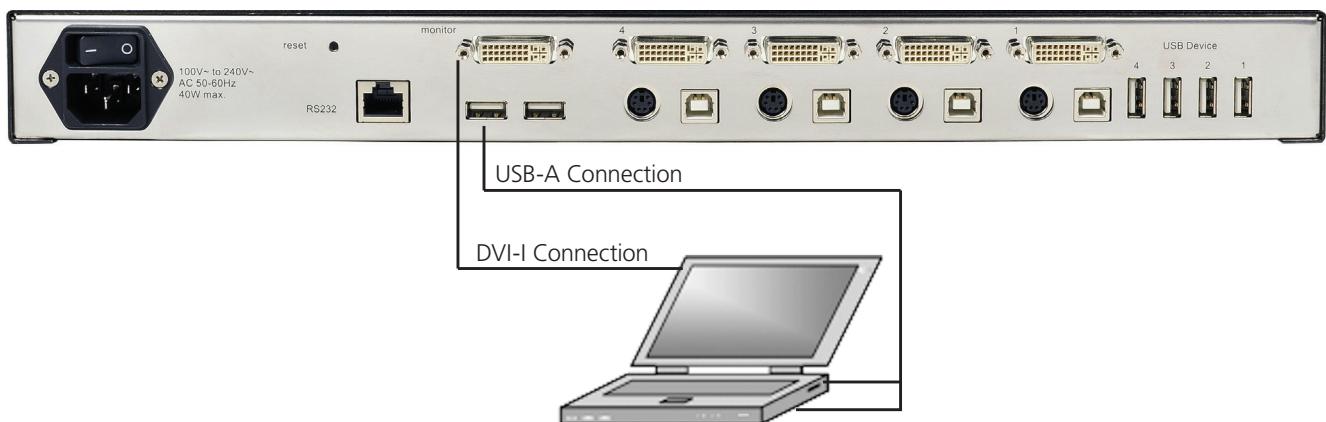


Figure 3-2. Connections from the KVM console with a digital or an analog monitor, a USB mouse, and a USB keyboard.

*NOTE: The maximum cable length for video (DVI/VGA) is up to 5 meters. Maximum cable length for USB/PS2 keyboard and mouse is up to 5 meters. For greater distances, the ServSwitch 4site II supports most KVM extenders, video (DVI/VGA) extenders, and USB extenders.*

## Chapter 3: Installation

### Connecting sources/computers

Switch off the computer and disconnect the keyboard, monitor, and mouse.

Connect the keyboard and mouse to the computer ports either with a single USB cable or via the PS/2 interface (use a Y cable) up to 5 meters. For greater distances, use a KVM or USB extender.

To connect an analog video/computer source (VGA) to the ServSwitch 4site II, use a VGA-DVI cable. Digital video sources are connected via a DVI cable up to 5 meters. For greater distances, use a DVI or VGA extender.

### Connecting USB devices

Connect your USB device to one of the four transparent USB ports to use it with computers connected to the ServSwitch 4site II. It supports transparent USB devices such as a printer, external memory, 3D mouse, and finger printer.

(For configuration instructions, see Section 4.10, OSD USB Devices.)

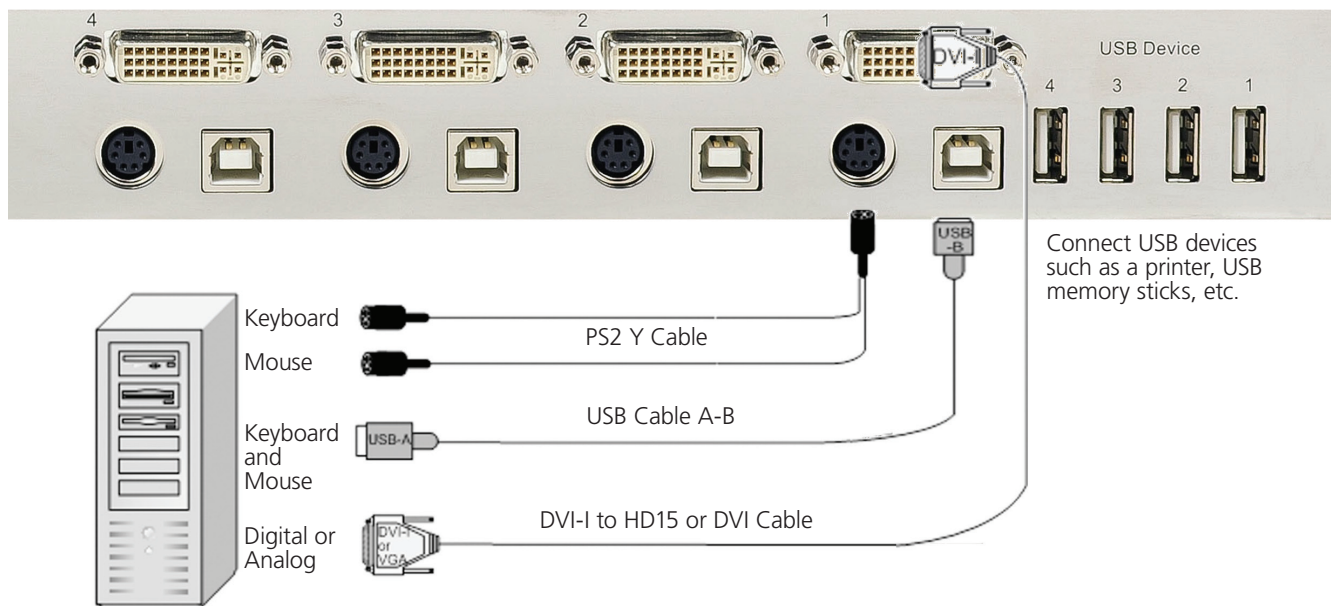


Figure 3-3. Connections for various devices

### Powering up the system

Switch on the ServSwitch 4site II using the power switch on the rear panel. All front-panel LEDs light up briefly indicating that unit is ready for operation. The ServSwitch 4site II is now in Quad mode (default).

Power up all connected computers. The ServSwitch 4site II recognizes all input video sources automatically and displays them on your monitor screen.

To select another display mode, use the relevant keyboard commands (see Section A.1, Keyboard Commands) or buttons on the front panel (Figure 2-7).

### 4.0 On-Screen Display (OSD)

The ServSwitch 4site II's on-screen display (OSD) overview

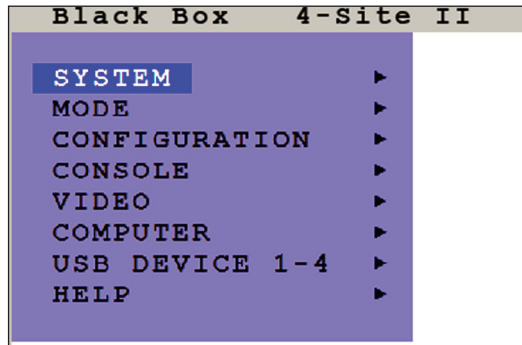


Figure 4-1. OSD overview screen.

Table 4-1. On-screen display commands

Description	Header	Header
SYSTEM	Hotkey	Multiple Hotkey / Double Click Hotkey
	Hotmouse	Hotmouse Recognition, Hotmouse Timeout
	Quad Mode	Channel Selection Timeout
	OSD Position	Position of OSD window
	OSD Language	English, French, German, Italian, Japanese, Spanish
	Security	Set security level
	Test Pattern	Crosshairs – Color gradient - Rhombus - Rectangle – Stripes
	Disable Channel	
	Control	
MODE	PIP (Picture in Picture)	Size, zoom, position and display modes
	Start	Set start configuration
CONFIGURATION	Backup	Save configuration settings
	Recall	Restore last saved configurations
	Factory Reset	Reset to factory default settings
CONSOLE	Video Output	Video resolution and frequency
	Keyboard	Keyboard layout
	Touchscreen	Calibration / Mouse key emulation / Enlarge on touch
	Fade	Smooth transitions
	Multi Monitor	Assign mouse/keyboard to video
	EDID	Read and display EDID data of monitor

Table 4-1. On-screen display commands (continued)

Description	Header	Header
VIDEO	Input Status	Display computers' video input resolutions
	DVI/VGA	Setting: DVI - VGA - VGA/DVI - DVI/VGA
	Brightness	Set brightness of analog input signal
	Contrast	Set contrast of analog input signal
	Horiz Position	Horizontal screen position
	Vert Position	Vertical screen position
	Screen Width	Set screen width of analog input signal
	Phase	Adjust phase of analog input signal
	Format	Fit input format to screen
COMPUTER	Keyboard	Display type of keyboard (PC1, PC2, PC3, or USB)
	Mouse	Display type of mouse (PS/2, PS/2 wheel or USB)
	USB	Set USB mouse positioning (absolute/relative)
	Reset PS/2	Reset PS/2 mouse and keyboard
	EDID/DDC	Program input EDID
USB DEVICE 1-4	USB Port Status	Shows USB 2.0 matrix status
	Change	Switch to/Switching mode/Device name
HELP	Hotkey	List of keyboard commands
	Info	Revision level –firmware/hardware
	Contact	Contact information

## 4.1 OSD Overview

There are three ways to open the OSD main menu (Figure 4-2) for the ServSwitch 4site II:

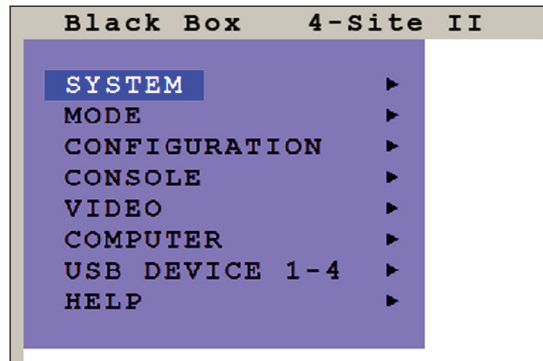


Figure 4-2. The OSD main menu

1. Use the keyboard command "hotkey" + "O" (see Appendix, Section A.1, Keyboard Commands).
2. Simultaneously press the front-panel buttons "Quad" and "PiP" for longer than one second.

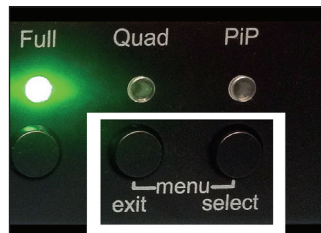


Figure 4-3. The OSD main menu will open if you simultaneously press the Quad and PiP buttons for more than one second.

3. Remotely open the OSD via ConfDev program on an external PC with a serial connection (see Appendix, Section A.1, Keyboard Commands).

The main menu pops up in the center of the screen (on top of the video image).



## Chapter 4: On-Screen Display

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### 4.2 Main Menu Window

Using the OSD is simple and easy. To navigate, either use the buttons on the front panel or your keyboard.

#### Navigation with the Keyboard

To navigate from one field to the next in the OSD menu, use the UP and DOWN arrow keys or TAB/SHIFT-TAB keys. Use the LEFT and RIGHT arrow or + (PLUS) and – (MINUS) keys to change the value in the current field. Press ENTER to select a menu item.

Press ESC to return to the previous window (higher menu level) or exit the OSD. Changes in parameters are saved automatically.

### 4.3 Navigation

#### Navigation Using the Buttons on the Front Panel



Figure 4-4. Navigation using the buttons on the front panel

Navigation using the buttons on the front panel is analogous to using the console keyboard. Buttons 1 and 2 correspond to the UP and DOWN arrow keys and Buttons 3 and 4 correspond to the LEFT and RIGHT arrow keys or the +/- keys. Confirm your entry by pressing the PIP/Select button.

Press the Quad/Exit button to return to the previous page (higher menu level) or exit the OSD. Changed settings are saved automatically.

*NOTE: Keyboard commands are possible while the OSD window is open. To activate hotkey commands, use the CTRL key instead of the currently set hotkey(see Appendix, Section A.1, Keyboard Commands).*



## 4.4 The OSD System Menu

### Hotkey Commands

Use the arrow keys to navigate in the System menu to the entry Hotkey and press the Enter/Select key to open the Hotkey window.

### Two Different Hotkey Modes are Available

**Multiple Keys:** For multiple hotkey commands, you can define one to four keys that are pressed simultaneously to enter the command mode. Selectable keys are: Strg, Shift, Alt, and Windows.

**Double Click:** For double-click hotkey commands you can choose one key, which is double clicked to enter the command mode. Selectable keys are: Strg, Shift, Alt, and Scroll.

To change the hotkey mode or select another hotkey, navigate with the Tab or Arrow Up/Down keys to the respective field and use the Arrow Left/Right or the +/- keys to change the setting.

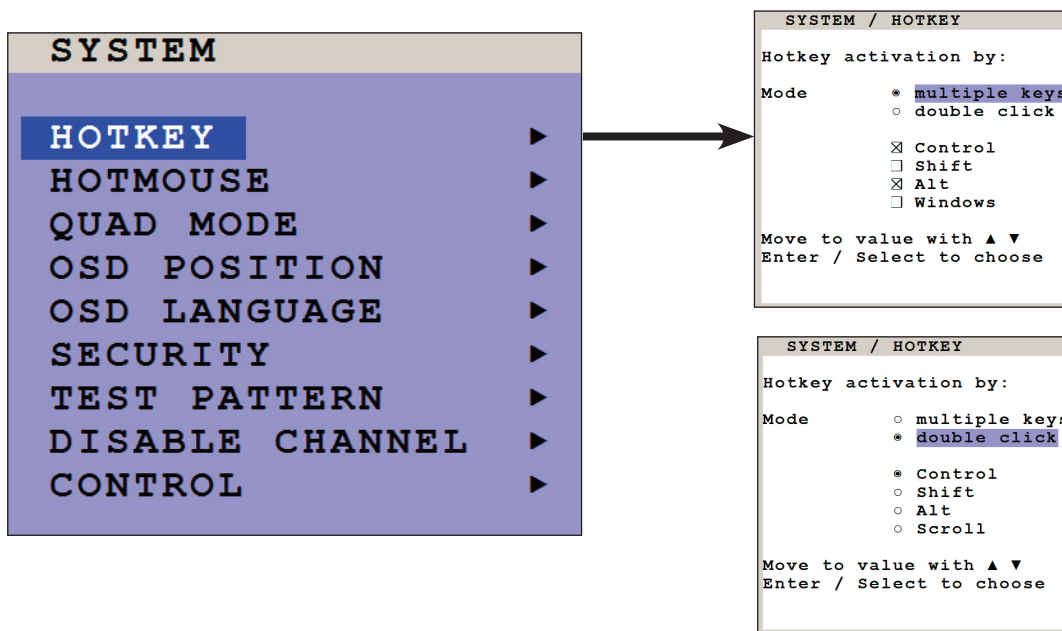


Figure 4-5. Two different Hotkey modes are available.

*NOTE: The command mode is indicated by the LED flashing on the console keyboard. The default setting for the Multiple Hotkey is CTRL + ALT.*

*NOTE: For a list of hotkeys to operate the ServSwitch 4site II, See Appendix, Section A.1: Keyboard Commands).*

## Chapter 4: On-Screen Display

### The Hotmouse Function

Use the arrow keys to navigate in the System menu to the entry Hotmouse and press Enter/Select to open the Hotmouse window.

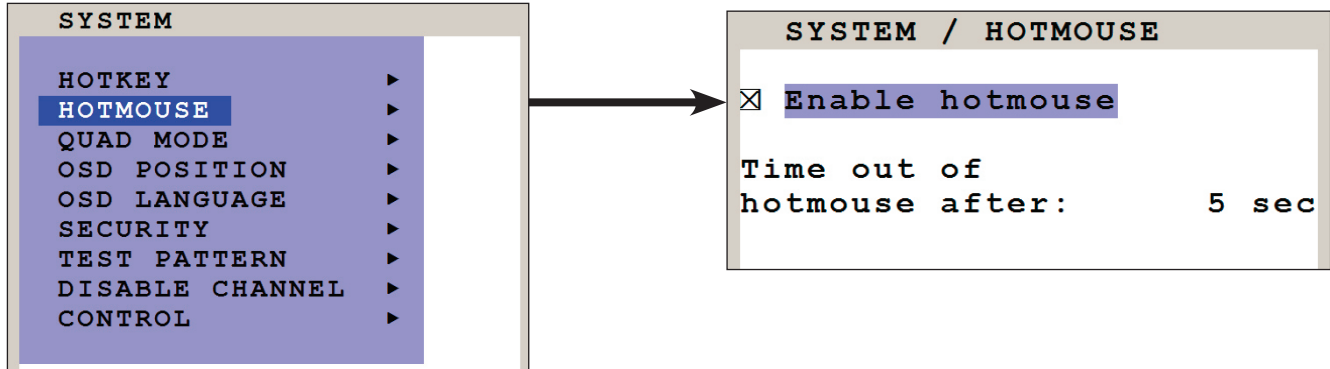


Figure 4-6. How to enable the Hotmouse function.

Hotmouse is an exclusive function that comes with *the ServSwitch 4site II*. It works with your standard mouse or trackball mouse.

To activate Hotmouse operation, navigate to "Enable Hotmouse" and click the checkbox

There are two modes of Hotmouse operation: Hotmouse Cursor and Hotmouse Menu.

**Hotmouse Cursor:** The Hotmouse Cursor mode supports only a limited set of operations.

**Hotmouse Menu:** The Hotmouse Menu allows execution of all switch operations and PiP settings.

*NOTE: While the Hotmouse function is activated, the active computer can still be operated by keyboard.*

*NOTE: For a detailed description of Hotmouse, Hotmouse functionalities, and Hotmouse menu, see Chapter 5: Using Hotmouse.*

Quad Mode

Use the arrow keys to navigate in the System menu to the entry Quad Mode and press Enter/Select to open the Quad Mode window.

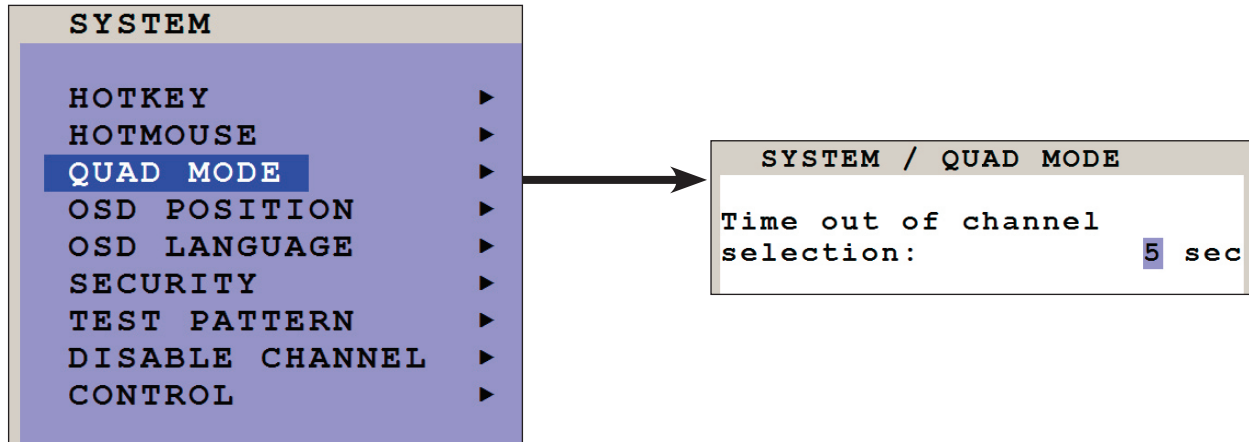


Figure 4-7. Enabling Quad mode.

Channel selection timeout defines the period (1 to 30 seconds) after which the selector will close automatically. The default setting is 5 seconds.

Location of the Selector

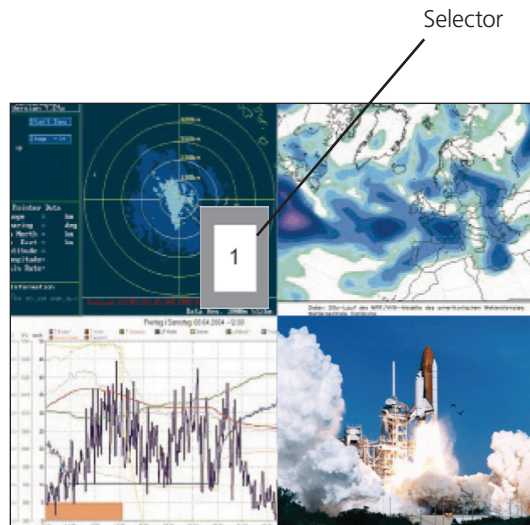


Figure 4-8. The selector.

In Quad mode, use Hotkey Q to open the selector. The selector indicates the active channel (mouse and keyboard enabled). Alternatively, press front button "Quad".

*NOTE: Press Hotkey + arrow key to switch the selector (active channel) from one channel to the next.*

*NOTE: After expiration of the selector timeout, the selector closes.*

## Chapter 4: On-Screen Display

### OSD Position

Use the arrow keys to navigate in the SYSTEM menu to the OSD POSITION entry, and press ENTER/SELECT to open the OSD POSITION window.

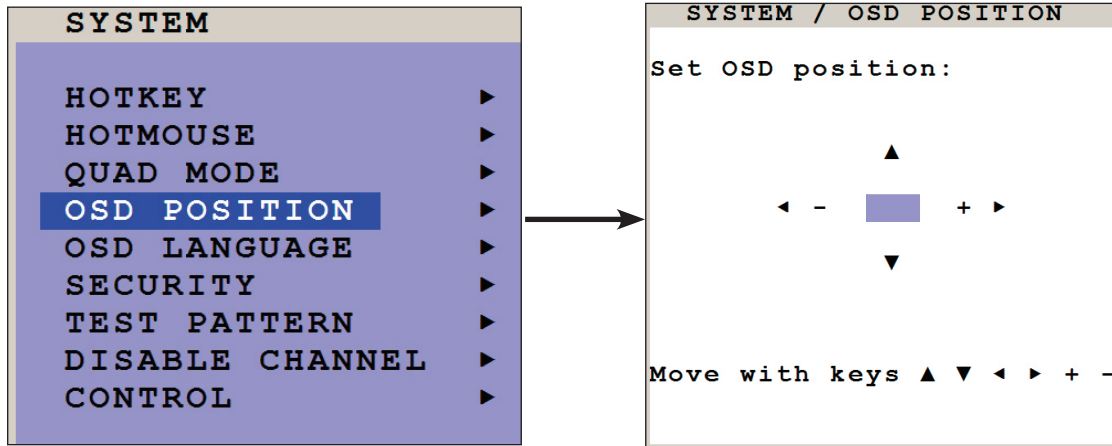


Figure 4-9. The OSD Position window.

Use this function to move the OSD window to any position on the screen.

### OSD Language

Use the arrow keys to navigate in the SYSTEM menu to the OSD LANGUAGE entry, and press ENTER/SELECT to open the OSD LANGUAGE window.

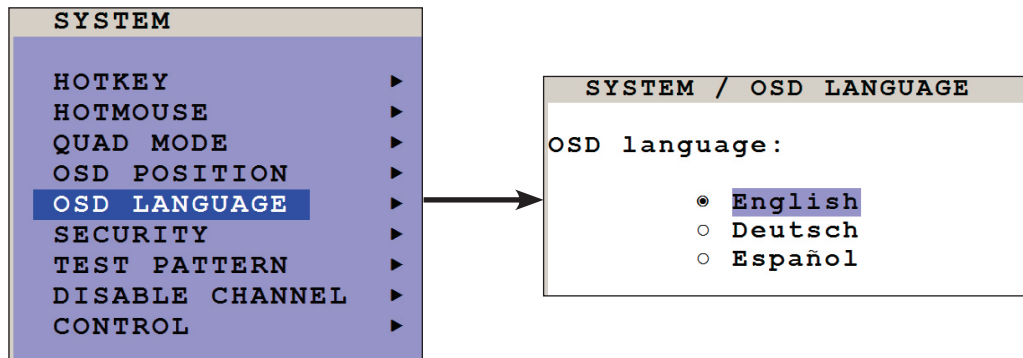


Figure 4-10. The OSD Language window.

Set OSD LANGUAGE to either English (default: English), Deutsch (German), or Español (Spanish).

## Security – Security Levels

Use the arrow keys to navigate in the System menu to the Security entry and press Enter/Select to open the Security window.

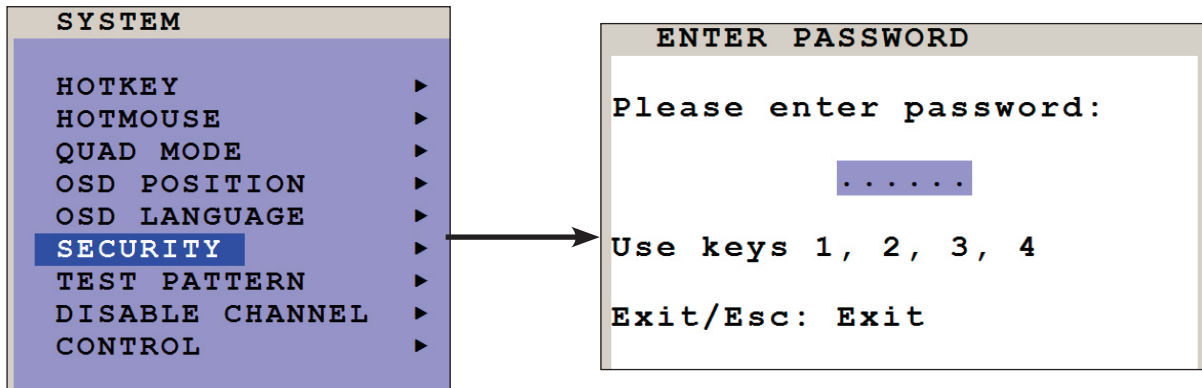


Figure 4-11. The OSD Security window.

The Security feature enables you to reduce the functional range of the ServSwitch 4site II. Eight security levels are available.

By default, all functions are enabled (Security Level 0). To change the security level, you must first enter a predefined password. This six-digit password is 241143.

After entering the password on the keyboard or front panel (the password is not displayed in the password field), the Security window opens. Enter the desired security level (0 to 8) under "Select security level."

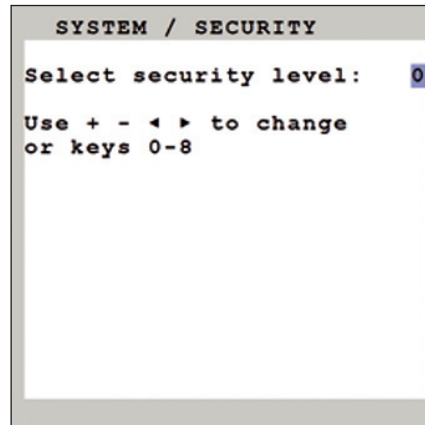


Figure 4-12. Select the security level.

## Chapter 4: On-Screen Display

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### SECURITY LEVEL 0

This is the default setting of the ServSwitch 4site II. All settings are allowed and all functions are enabled.

*NOTE: Before changing the security level, please set the configuration you wish to work with to the higher security level, under MODE ► START (see Section 4.5, OSD Mode Menu). This configuration will be maintained when the ServSwitch 4site II is reset, in case of power failure, or when power is turned off and on again.*

### SECURITY LEVEL 8

Security Level 8 allows you to work only on one channel (computer) in a predefined display mode (Quad, Full-Screen or PiP mode). No settings can be changed, apart from the Security menu item, where you can change the security level.

SYSTEM            SECURITY

### SECURITY LEVEL 7

Like Security Level 8, but you can open OSD windows that only show display modes and device settings.

Console	Video Output/EDID
Video	Input Status
Computer	Keyboard/Mouse/EDID/DDC
Help	Hotkey/About/Contact

### SECURITY LEVEL 6

Like Security Level 7, with the following additional operations:

System	Control
Console	Fade

- Setting of active channel using front-panel buttons, hotkeys or hotmouse
- Selecting channel with PiP button in Quad mode
- Changing the directly selectable PiP channel in PiP mode single direct

### SECURITY LEVEL 5

Like Security Level 6, with the following additional operations:

System	Test Pattern
--------	--------------

- Setting of display mode (Quad/Full-Screen/PiP) using front-panel buttons, hotkeys, or hotmouse.

### SECURITY LEVEL 4

Like Security Level 5, with the following additional settings in the OSD:

System	OSD Position
Mode	PiP/Start
Configuration	Recall
Video	Format

- Modify PiP settings in Hotmouse menu
- Changing both channels in Dual mode
- Changing the fixed PiP channel in PiP mode single fixed

### SECURITY LEVEL 3

Like Security Level 4, with the following additional settings in the OSD:

System	OSD Language
Video	Brightness/Contrast/Horiz Position/Vert Position
USB Device 1-4	Screen Width/Phase

### SECURITY LEVEL 2

Like Security Level 3, with the following additional settings in the OSD:

System	Hotkey/Hotmouse/Quad Mode
Console	Keyboard/Touchscreen

### SECURITY LEVEL 1

Like Security Level 2, with the following additional settings in the OSD:

System	Disable Channel
Console	Multimonitor/Video Output
Video	DVI/VGA
Computer	Mouse/Reset PS/2

- Switch video output to VGA (using hotkey 'V' or front panel buttons 1+2)

## Chapter 4: On-Screen Display

### Test Pattern

Use the arrow keys to navigate in the System menu to the Test Pattern entry and press Enter/Select to open the Test Pattern window:

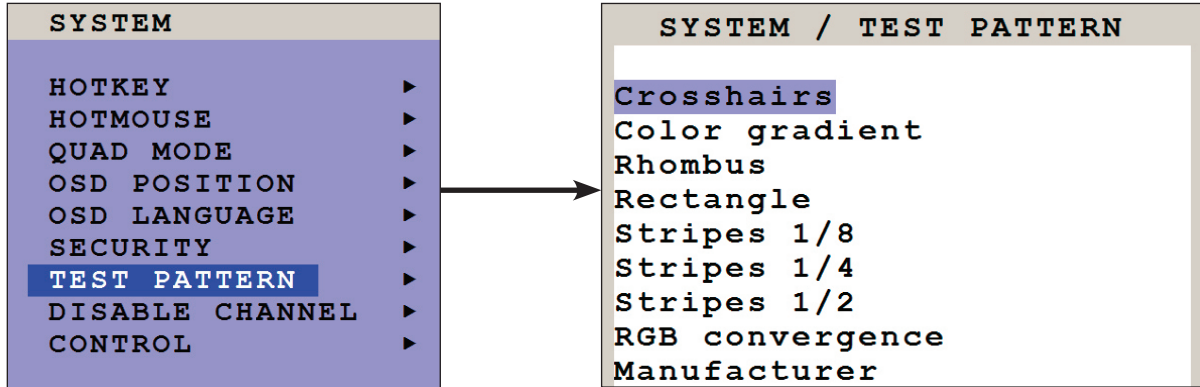


Figure 4-13. The Test Pattern window.

Use the Test Pattern feature to check monitor quality (pixel errors, contrast, etc.) or the functionality of the ServSwitch 4site II's video output. It is recommended that you use all available test patterns for the test procedure.

To exit TEST PATTERN mode, use the front-panel buttons "Quad" "Full" or "PiP" or hotkey commands accordingly.

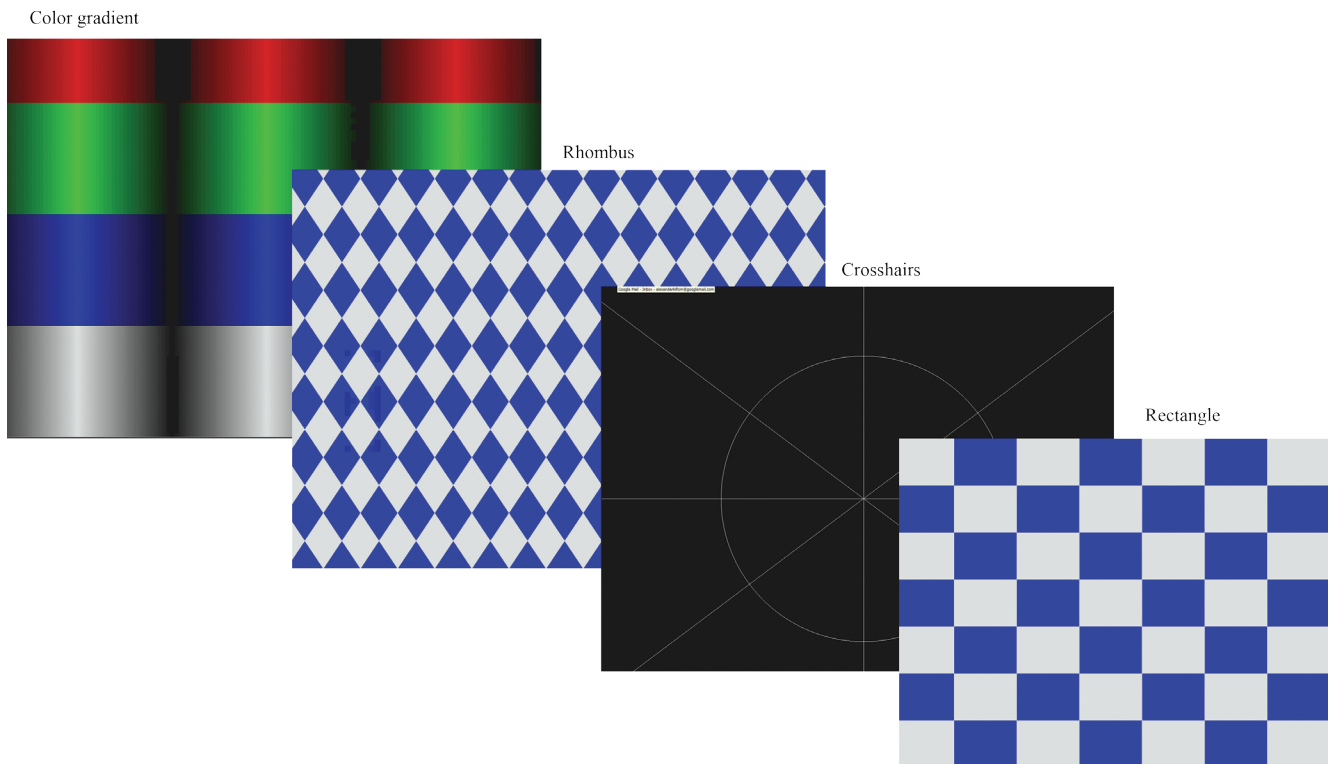


Figure 4-14. Four separate test pattern gradients are available.



### Disable Channel

Use the arrow keys to navigate in the System menu to the Disable Channel entry, and press Enter/Select to open the Disable Channel window.

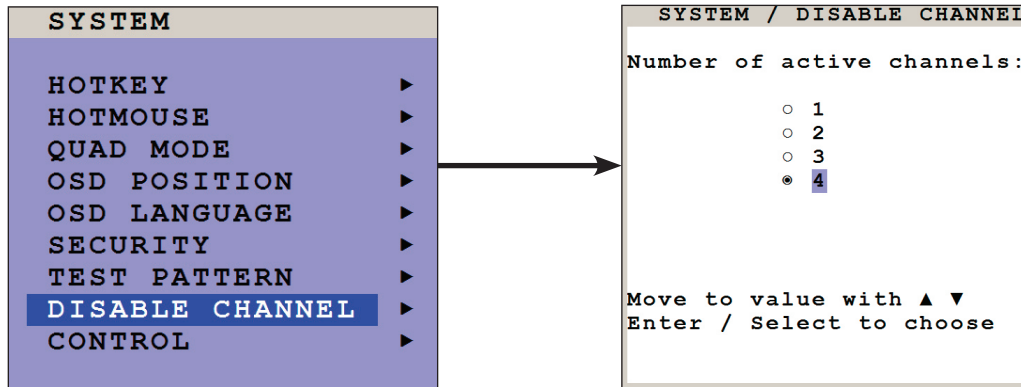


Figure 4-15. The Disable Channel window.

If two or three computers or video sources are connected to the ServSwitch 4site II, use the Disable Channel feature to ensure that for the unused channels:

- a) the message “no signal input x” is not shown in Quad mode
- b) PIP images are not displayed on-screen
- c) these channels are not selectable in Full-Screen mode

For example, if you have connected three computers (Channel 1 to 3) to the ServSwitch 4site II, use the arrow keys to navigate to the number 3 and confirm by pressing Enter/Select.

*NOTE: To use the Disable Channel feature, computers and video sources must be connected to the ServSwitch 4site II in ascending order from Channels 1 to 4.*

The diagram below provides an example of how, in Quad mode, four, three, and two channels, respectively, are displayed. Note that when only two channels are enabled, they are centered from top to bottom on the screen.

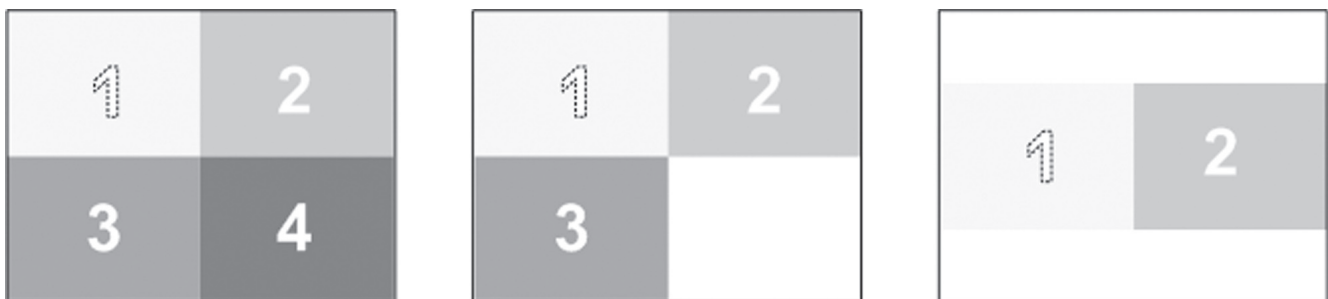


Figure 4-16. Quad mode layouts as Channels 4 then 3 are disabled.

## Chapter 4: On-Screen Display

### Control Window

Use the arrow keys to navigate in the System menu to the Control entry and press Enter/Select to open the Control window.

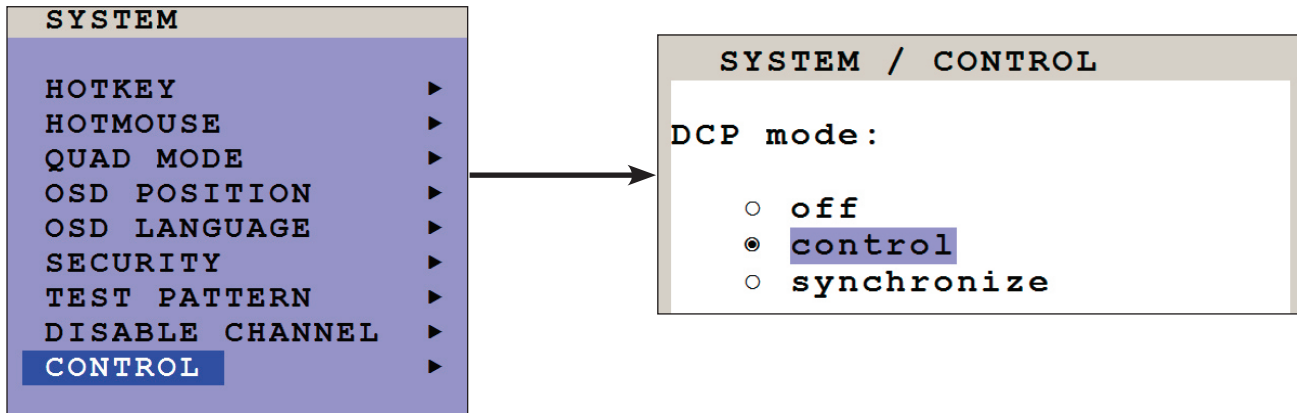


Figure 4-17. The Control window.

The ServSwitch 4site II can be controlled via DCP (Device Control Protocol), an XML-based protocol (see Appendix, Section A.4, DCP).

There are two DCP modes:

1. DCP Control: This mode enables external control of the display mode.
2. DCP Synchronize: This mode keeps several ServSwitch 4site II devices in the same display mode.

*NOTE: the Default setting is "off", which prevents any external devices from accessing control of the units.*

To control multiple devices from the same unit: use a serial cable to connect a control unit to the RS-232 port (RJ-45) on the ServSwitch 4site II rear panel.

To synchronize several devices, special Y cables are required. Settings for the connection are:

Transfer rate 57600 baud, 8 data bits, no parity, 1 stop bit, no flow control

The two control modes operate as follows:

### DCP Control

This mode allows direct control of a ServSwitch 4site II by means of a control device, e.g. a computer.

The control device can query and change the mode of ServSwitch 4site II.

The ServSwitch 4site II responds to each DCP message sent by the control device with a DCP reply. This reply includes the values of all settings queried or set by means of the last message. If the message sent by the control unit contains errors, the ServSwitch 4site II will reply by sending an error message.

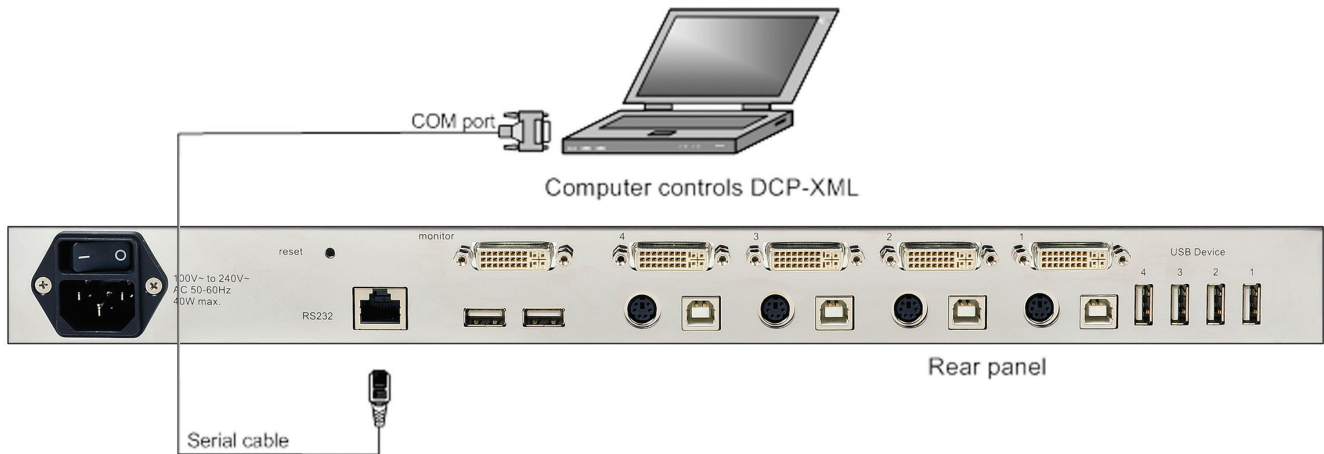


Figure 4-18. Example of DCP control.

For an introduction to the Device Control Protocol, see Appendix, Section A.4, DCP.

### DCP Synchronize

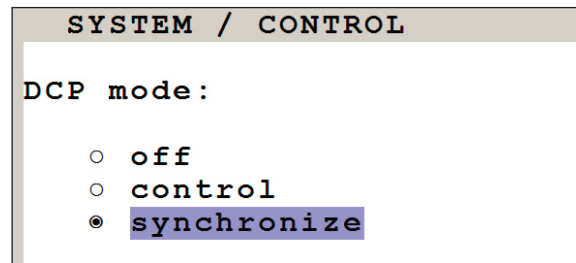


Figure 4-19. DCP synchronize.

Use this mode to keep several ServSwitch 4site II devices in the same mode. Every change in settings initiated in the first ServSwitch 4site II by hotkeys, hotmouse, front-panel buttons, or a controlling device, synchronizes the modes of all connected devices via DCP messages.

Special serial Y cables are used for this purpose. (See an example in the Appendix, Section A.3, Pinning of the Serial Cable).

*NOTE: Each time you restart a ServSwitch 4site II set to Synchronize, it will send all its settings to the next connected device. This process also takes place after activating Synchronize in the OSD menu. When starting a chain of devices, always start by first switching on the device at the end of the chain. When the device has completed its startup phase and sent its DCP messages, switch on the next device in the chain. Finally, switch on the first device in the chain, which synchronizes the settings of all other devices in the chain with its own settings as it starts up.*

## Chapter 4: On-Screen Display

### An example of DCP synchronization

Here, the ServSwitch 4site II #2 and #3 are synchronized with the ServSwitch 4site II #1.

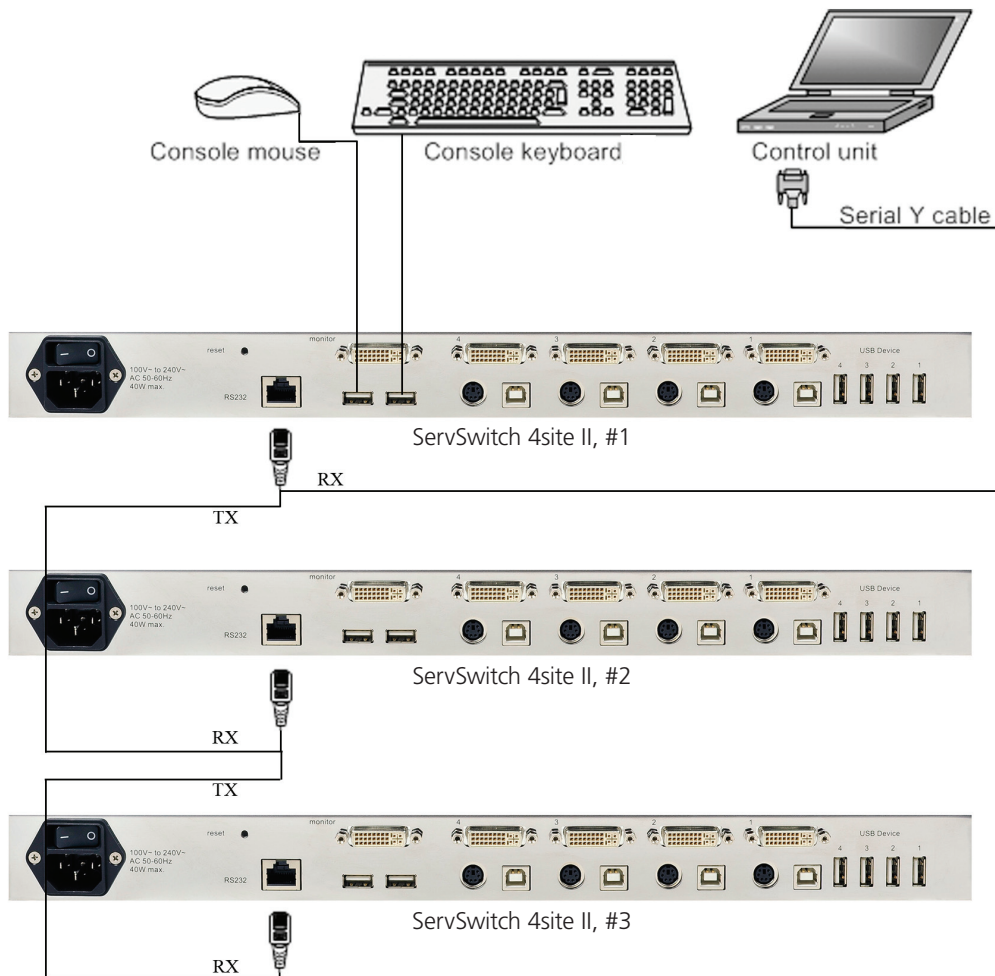


Figure 4-20. DCP synchronization, in which the ServSwitch 4site II #2 and #3 are synchronized with the ServSwitch 4site II #1.

To synchronize, the ServSwitch 4site II #1 sends every change in settings as a DCP message via the serial Y cable to the RX input of the ServSwitch 4site II #2. The ServSwitch 4site II #2 adopts the settings and sends a DCP message via TX output over the Y cable to the RX input of the ServSwitch 4site II #3.

The synchronization chain can have any length.

*NOTE: Do not connect the last device in the chain to the first device (i.e. do not create a loop).*

**DCP Security Levels**

The security level settings in the OSD menu described in Section 4.4, the OSD System Menu, Security also apply to control via DCP messages. Queries are possible up to Security Level 7.

The table below shows the maximum security levels for simple element settings. These settings may be changed via DCP up to the specified protection level.

Table 4-2. Maximum Security Levels.

Channel	Maximum Security Level
Console Channel	6
Video Channel	6
Video Layout	5
PiP Layout	4
PiP Size	4
PiP Offset	4
PiP Zoom	4
PiP Channel	4
Dual Channels (L/R)	6
PiP Scan Time	4

### 4.5 OSD Mode Menu

#### PiP (Picture in Picture) Mode

Use the arrow keys to navigate in the Mode menu to the PiP entry, and press Enter/Select to open the PiP window.

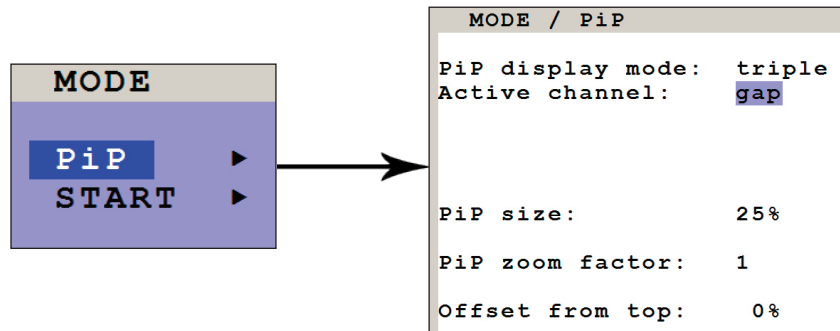


Figure 4-21. The PiP menu.

In the PiP window you can configure PiP size, position, and display mode.

#### PiP Size

Adjust the size of PiP images to your requirements. There are 12 different sizes available in single mode, or nine different sizes available in triple mode. These are:

Single Mode: 3%, 5%, 7%, 10%, 15%, 20%, 25%, 28%, 33%, 38%, 44%, 50%

Triple Mode: 3%, 5%, 7%, 10%, 15%, 20%, 25%, 28%, 33%

*NOTE: 50% here equals the size of one quad screen (one quarter of a full-size screen).*

#### PIP Zoom Factor

Use this option to zoom the center of the PiP images by a factor of two.

#### Offset from the top of the screen

Use this option to change the position of PiP images. PiP images can be moved vertically to any position on the screen's right-hand margin.

*NOTE: All settings may be reached via the Hotmouse menu. See Chapter 5, Using the Hotmouse.*

PIP Display Modes

The the ServSwitch 4site II offers a number of PIP display modes. The next three figures show “triple” display mode:

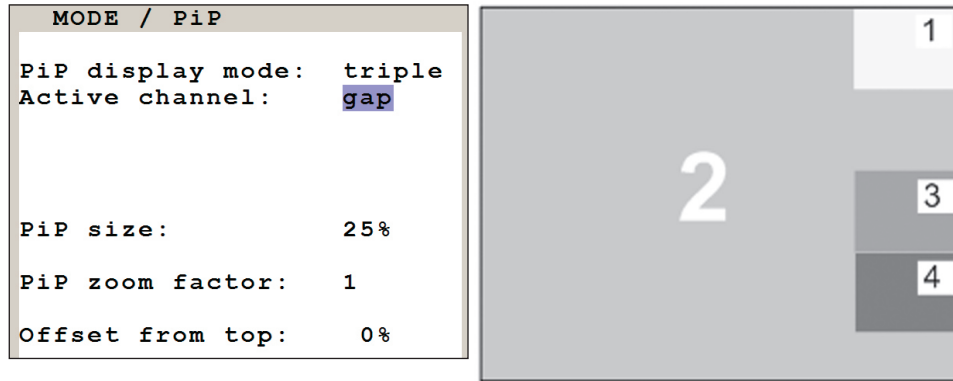


Figure 4-22. Triple Gap: PiP images are displayed with a gap in place of the active channel.

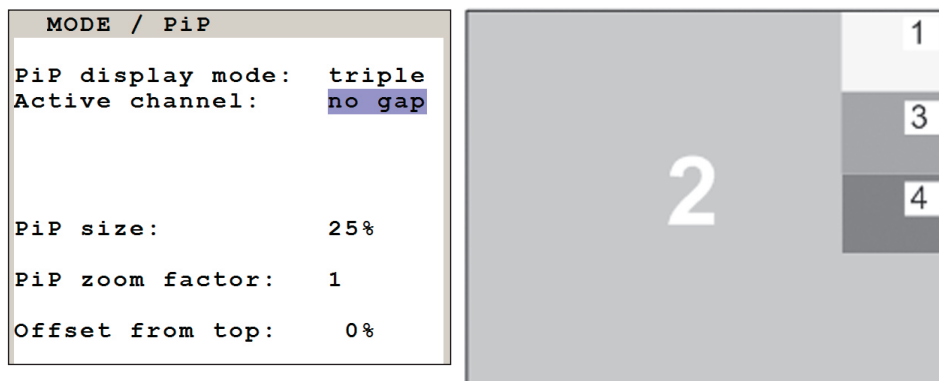


Figure 4-23. Triple no gap: PiP images are displayed without a gap.

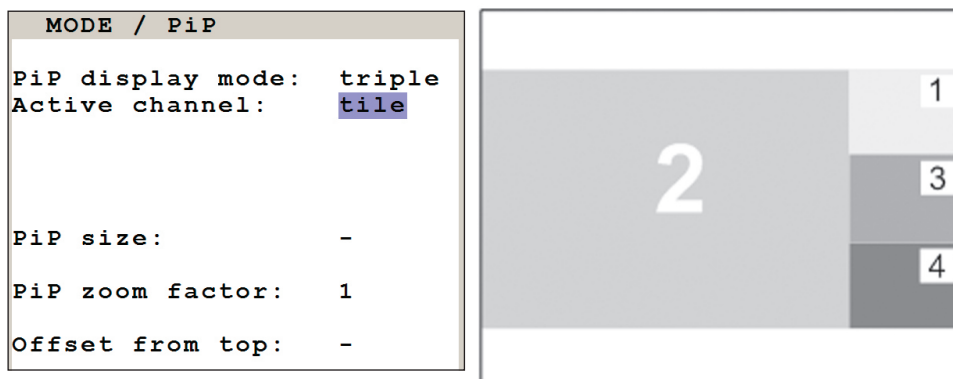


Figure 4-24. Triple tile: The size of the main image and the PiP images is optimized so that the main image and the PiP images are shown as large as possible without overlapping.

## Chapter 4: On-Screen Display

### PiP Display Modes (Continued)



Figure 4-25. The PiP Menu Single Mode display. One image is displayed. There are two different display modes.

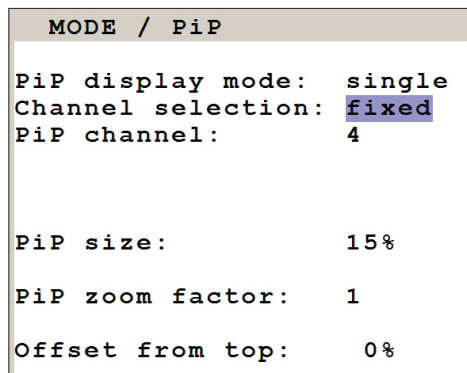


Figure 4-26. The PiP Menu Single Fixed Mode. One channel is selected to be displayed as permanent PiP image. Only the active channel (full image) can be switched. Press the front-panel Buttons 1, 2, 3, or 4 to switch the full image.

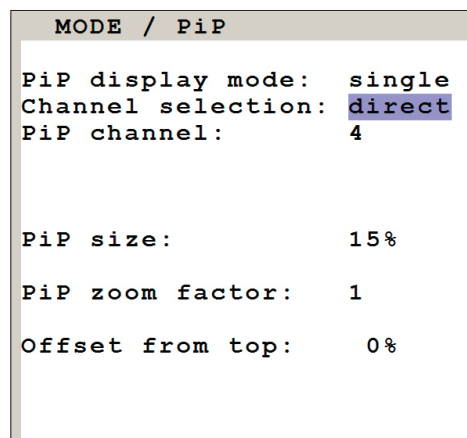


Figure 4-27. The PiP Menu Single Direct Mode: One channel is selected to be displayed as permanent full image (active channel). Only the PiP can be switched. Press the front-panel Buttons 1, 2, 3, or 4 to switch the full image.



PiP Display Modes (Continued)

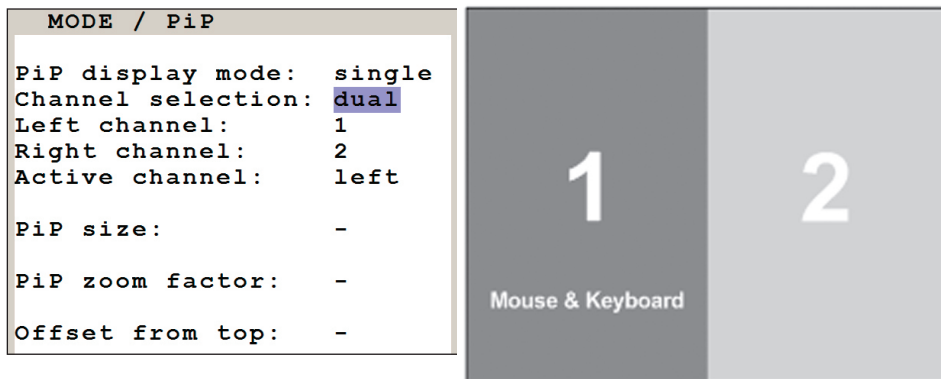


Figure 4-28. The PiP Menu Single Dual Mode. In Dual Mode the left halves of the two full-screen images from two video sources are displayed side by side. You can choose the left of the right image as the active channel. To switch the active channel, use the OSD, hotkeys, or front-panel buttons.

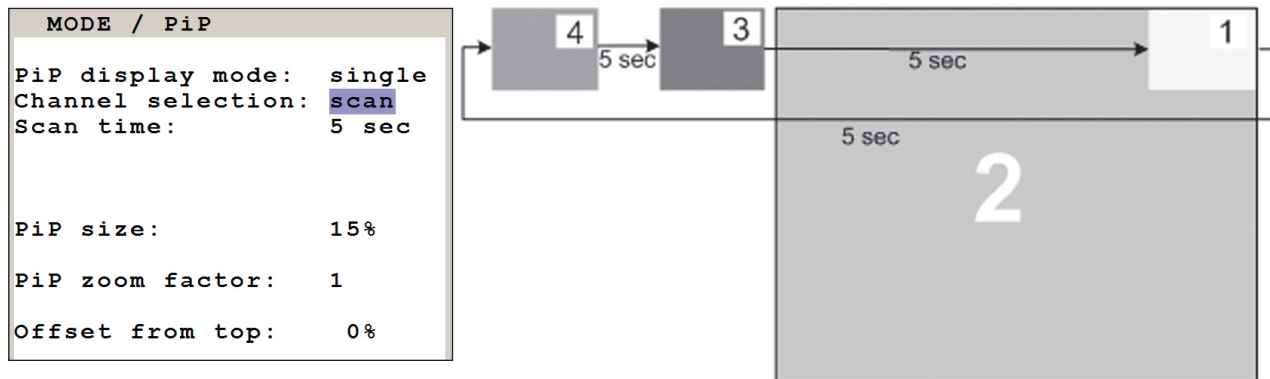


Figure 4-29. The PiP Menu Single Scan Mode. In Single Scan Mode, within a PIP image, the three other video sources are displayed one after the other. The delay can be set to between one second and nine seconds.

## Chapter 4: On-Screen Display

### OSD Set Start Mode

Use the arrow keys to navigate in the Mode menu to the Start entry, and press Enter/Select to open the Start window.

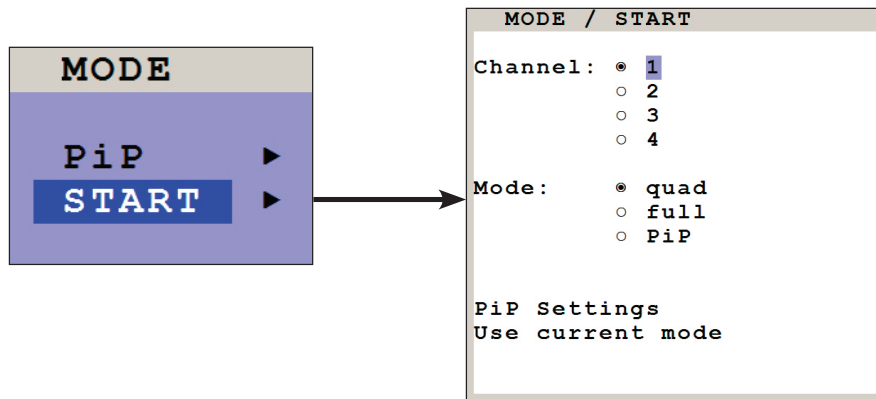


Figure 4-30. Set Start mode.

This feature enables you to define the start configuration, i.e. the display mode (Quad, Full-Screen, or PiP), active channel, and PiP settings, which the ServSwitch 4site II uses after a reset or when the system is powered up. When the Start menu is called up, the current start configuration is displayed. To modify your start configuration, change the parameters in the channel, mode, and PiP fields. Press ESC to save the new parameters and exit the Start menu. Choose "Use current mode" to adopt the current settings as start mode. Use the arrow keys to navigate to "Use current mode" and confirm by pressing Enter.

*NOTE: The factory default start mode is Quad-mode with active Channel 1.*

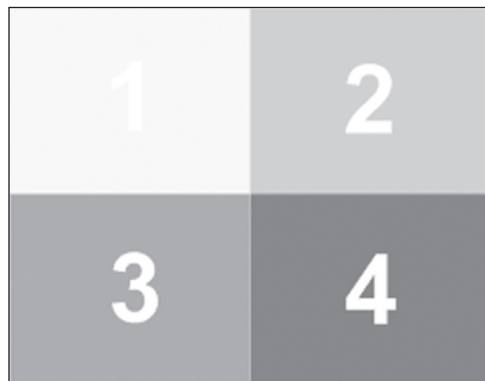


Figure 4-31. Default start screen.

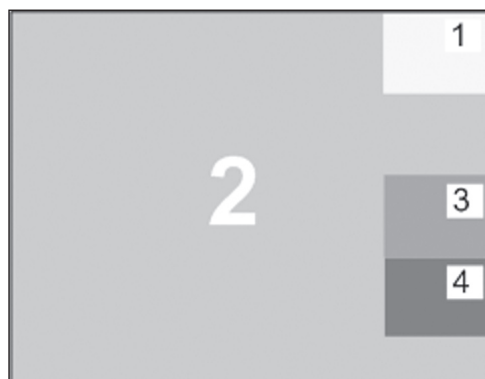


Figure 4-32. Example of a start screen configuration.

### 4.6 OSD Configuration Menu

#### Backup

Use the arrow keys to navigate in the Configuration menu to the Backup entry and press Enter/Select to open the Backup window.

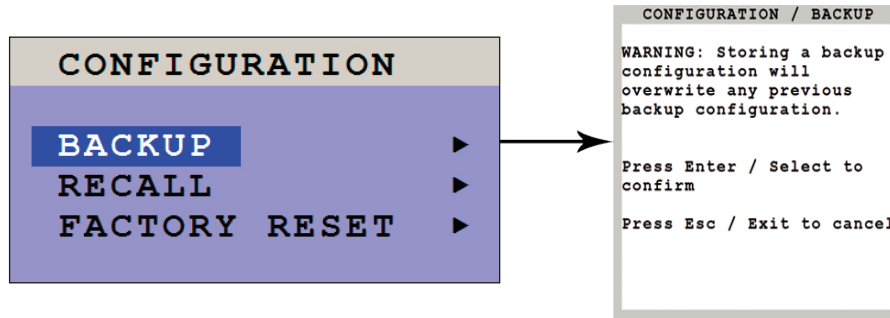


Figure 4-33. The Backup function saves the current device settings, including the start mode set in Mode--> Start.

*NOTE: The EDID configuration will not be saved and cannot be recovered with the Recall function (see below)*

#### Recall

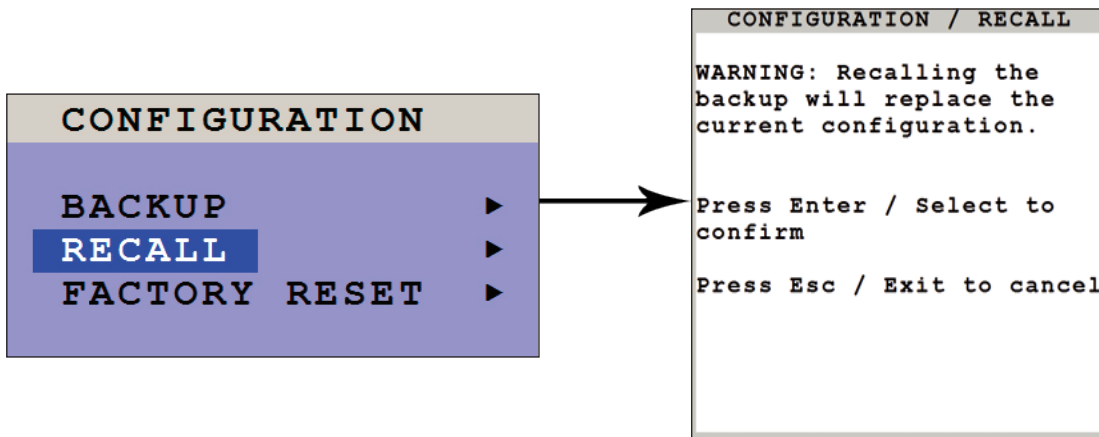


Figure 4-34. The Recall feature replaces the current settings with the last configuration saved using the Backup command.

### Factory Reset

Use the arrow keys to navigate in the Configuration menu to the Factory Reset entry, and press Enter/Select to open the Factory Reset window.

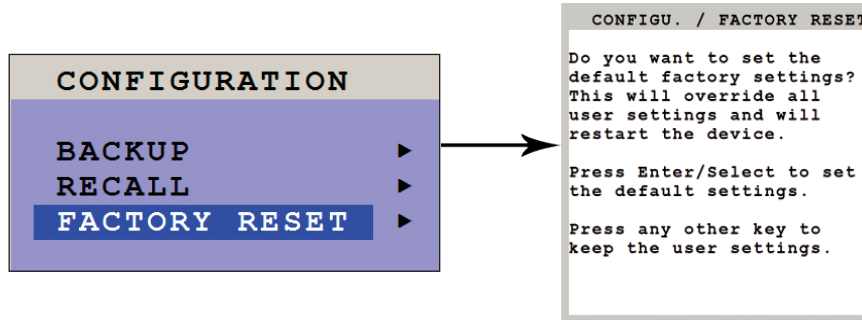


Figure 4-35. Resetting to factory defaults.

Use this function to reset the current settings of the ServSwitch 4site II to the factory default configuration. All four input EDIDs are also reset to their default values.

If necessary, save your current settings before using the Defaults command. Execution of this command results in a complete reset and reboot of the ServSwitch 4site II with factory defaults.

Table 4-3. Factory Default Settings.

Description	Function	Value
System	Hotkey	Multiple Hotke /Hotkey = Ctrl + Alt
	Hotmouse	ON / Hotmouse timeout = 5 sec.
	Quad Mode	Channel selection timeout = 5 sec.
	OSD Position	Centered
	OSD Language	English
	Security	None (security level = 0)
	Disable Channel	All four channels are active
	Control	Off
Mode	PiP	Size = 15%; Zoom factor = 1;
		Display mode = triple; Active channel = gap
		Offset from top = 0%
		Start configuration = Quad / active channel = 1
Console	Video Output	Auto
	Keyboard	English
	Touchscreen	Mouse emulate right click / Quad remains / PiP switches
	Face	Off
	Multi Monitor	Monitor 1 --> Channel 1; Monitor 2 --> Channel 2
		Monitor 3 --> Channel 3; Monitor 4 --> Channel 4
Video	Video Input	DVI / VGA (all channels)
	Brightness	+0 (all channels)
	Contrast	56% (all channels)
	Horiz Position	Auto (all channels)
	Vert Position	Auto (all channels)
	Screen Width	+0 (screen-width correction of all channels)
	Phase	+0 (all channels)
	Format	Fit to screen = No (all channels)
Computer	Mouse	USB mouse positioning = relative (all channels)
	EDID/DDC	1600 x 1200 @ 60 Hz, 1920 x 1200 @ 60 Hz, digital
USB Device 1-4		Off / manual switching w. warning / name: Device 1 (-4)

## 4.7 OSD Console Menu

### Video Output

Use the arrow keys to navigate in the Console menu to the Video Output entry and press Enter/Select to open the Video Output window.

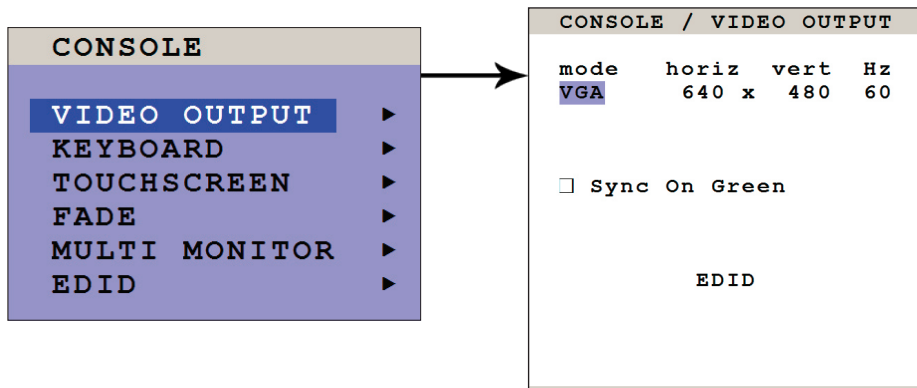


Figure 4-36. Accessing Video Output Settings.

Use the Video Output menu to choose an output resolution supported by your monitor. Press Enter/Select to enter the selection menu. Use the arrow keys to select the desired line in the list shown in Figure 4-37 and press Enter/Select for the new video format.

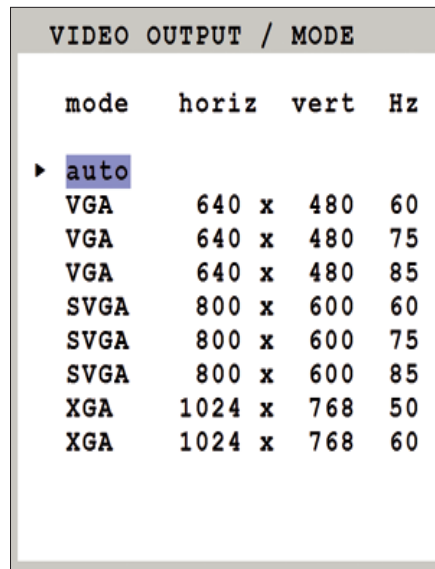


Figure 4-37. Settings in Video Output Mode

When the output mode is set to "auto", the ServSwitch 4site II chooses a resolution by reading the connected monitor's EDID data. Choose the EDID menu item to check whether the connected monitor provides this data.

If the monitor does not offer this data, ServSwitch 4site II sets VGA mode (640 x 480 @60 Hz) as default and activates Sync on Green.

*NOTE: Sync on Green can be deactivated on the ServSwitch 4site II.*

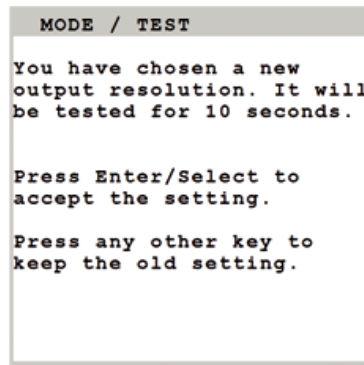


Figure 4-38. Press Enter/Select to accept the new output mode, or Esc to exit.

The new output mode is visible for 10 seconds. Within this time you can either accept the new setting by pressing Enter/Select or return to your original setting by pressing Esc/Exit.

#### Keyboard Language/Layout

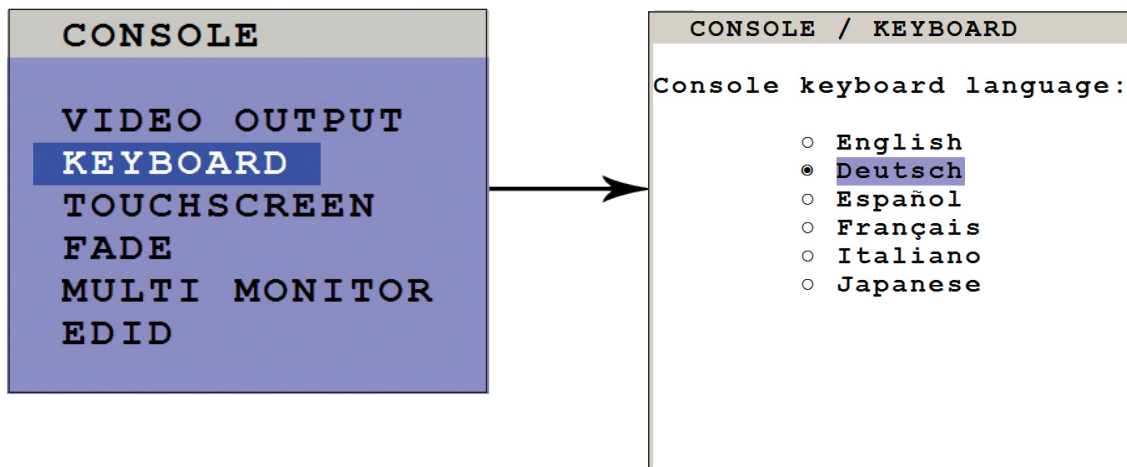


Figure 4-39. Choosing a Keyboard/Language layout.

Use the arrow keys to navigate in the Console menu to the entry Keyboard and press Enter/Select to open the Keyboard window. Set the keyboard layout to the desired language, English, Deutsch (German), Español (Spanish), Français (French), Italiano (Italian), or Japanese.

## Chapter 4: On-Screen Display

### Touchscreen

The ServSwitch 4site II enables the user to use a touchscreen to control and switch between four computers as well as change display modes.

The ServSwitch 4site II supports a great number of USB touchscreens with commonly integrated touch controllers. For a list of supported touchscreens, please see the Appendix, Section A.5, Supported Touchscreen Consoles.

To control the ServSwitch 4site II using a touchscreen, connect the touchscreen to the ServSwitch 4site II by connecting the VGA or DVI cable from the ServSwitch 4site II monitor port to the input of the touchscreen. Connect the USB port of the touchscreen to the ServSwitch 4site II console USB port. See 2.4 Front and Rear Panels for a description of the ServSwitch 4site II ports.

### Calibration

After connecting a touchscreen to the ServSwitch 4site II for the first time, calibrate the touchscreen. Open Console ► Touchscreen menu, choose Calibrate, and press Enter/Select.

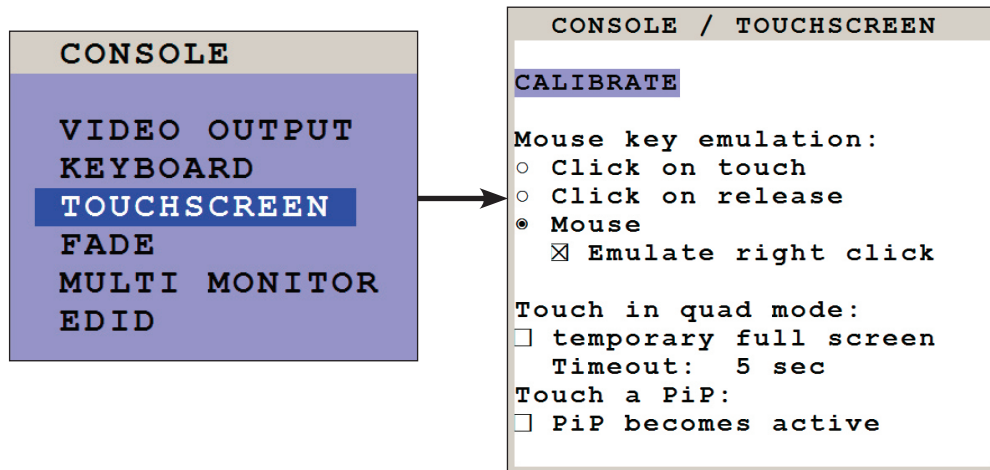


Figure 4-40. Calibrate the touchscreen.

Four markers will be displayed in the corners of the touchscreen. Figure 4-41 shows the first marker in the top left corner of the screen. Touching the center of the markers as accurately as possible yields best calibration results. Then repeat for the other three markers to complete calibration.



Figure 4-41. The first of four calibration markers appears in the top left corner of the screen. Touch the center of this marker and the other three markers to calibrate the touchscreen.



### Mouse Key Emulation

The ServSwitch 4site II offers three modes of interpreting the user input as mouse clicks.

1. Mouse: When touching the touchscreen, the mouse button is pressed. When the finger is released from the touchscreen, the mouse button is released. This mode can be used for drag and drop operations.
2. Click on touch: When touching the touchscreen, a mouse click is generated at the position of the touch.
3. Click on release: When the finger is released from the touchscreen, a mouse click is generated at the last position of the finger.

By default, the touchscreen is set to “Mouse” mode. You could use your finger on the touchscreen the same way you would use your mouse. “Click on touch” and “click on release” settings are suited for kiosk applications or environments where touchscreens are used instead of keyboards and mice, such as in medical industries for hygienic reasons, in industrial production and automation for operation with gloves, or in vehicles and aircraft where robust components are required.

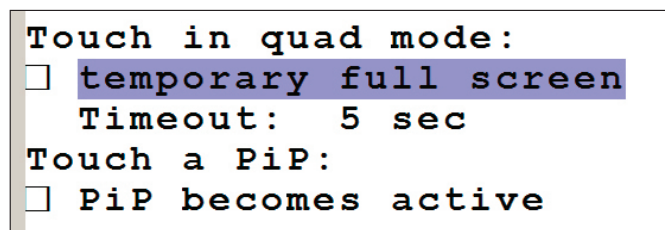


Figure 4-42. Temporary Full-screen mode.

### Touch in Quad Mode

Check this box to switch a quadrant from Quad mode temporarily to full screen when touching the quadrant. This activates the keyboard and mouse of that quadrant and allows operating the computer in full screen. The other sources are not visible during this time. After a timeout of 5 seconds without keyboard/mouse activity, the ServSwitch 4site II automatically switches back to Quad mode. The timeout can be set to values between 1 and 10 seconds.

### Touch a PiP

Check this box to activate keyboard and mouse on a computer shown as PiP. When touching a PiP, keyboard and mouse become active in this PiP. This activated channel now remains a little PiP and does not switch to full image. In this PiP you can operate the computer with keyboard and mouse. When unchecked (by default), a PiP is switched to full image as soon as it is touched. The full image gets exchanged with the other sources remaining visible as PiPs.

### Right Mouse Button

Press and hold your finger on the touchscreen to emulate the right mouse button. This only works in “mouse” emulation mode, not in “click on touch” or “click on release”. By default “Emulate right click” is set to perform a right mouse click. Some touch controller models do not support right mouse click. Using touchscreens with such controllers requires unchecking the box “Emulate right click.”

### Hotmouse and Hotmouse Menu

To open the Hotmouse menu, tap the screen twice, and leave your finger pressed on the touchscreen after the second tap (tap – hold, like a double click without lifting the finger on the second click), until the Hotmouse menu opens. By clicking outside the Hotmouse menu, you can open the Hotmouse cursor to enlarge and reposition PiPs (only in PiP mode), and switch channels (see Chapter 5, Using the Hotmouse for a description of the Hotmouse function). After you are finished using the Hotmouse cursor, the Hotmouse menu will reopen.

## Chapter 4: On-Screen Display

### Mouse Position

#### Absolute Mouse Position

The ServSwitch 4site II works best with touchscreens when using absolute mouse positioning mode with the connected computers. To enable absolute mouse positioning mode, use the menu **COMPUTER ► MOUSE** in the OSD (see Section 4.9, OSD Computer menu).

This mode works when a computer is connected via USB, and with most modern operating systems.

#### Relative mouse position

When using relative mouse positioning, please check the configuration of the computers connected to ensure that mouse acceleration is switched off and mouse scaling is set to 1:1.

Resetting the mouse position: When using relative positioning mode, the actual position of the mouse cursor and the position of your finger on the touchscreen may not match in certain cases when a computer switches resolution or changes the mouse position (e.g. when the system is configured to place the mouse pointer over the 'OK' button of a window). In these cases, to reset the mouse position, either switch to a different channel, and back again, or tap the touchscreen three times, and leave your finger pressed on the touchscreen after the third tap (tap – tap – hold), until the mouse cursor moves to the top left corner of the screen.

### Fade

Use the arrow keys to navigate in the **CONSOLE** menu to the **FADE** entry and press **ENTER/SELECT** to open the **FADE** window.

Fade Through Black is an elegant visual effect for presentations: When switching channels or display modes, the previous image fades to black, and the next image is faded in smoothly.

To enable Fade Through Black, check the box "Smooth transitions".

The "Speed" setting controls the speed of the transition, with 1 being the slowest, and 5 the fastest transition.

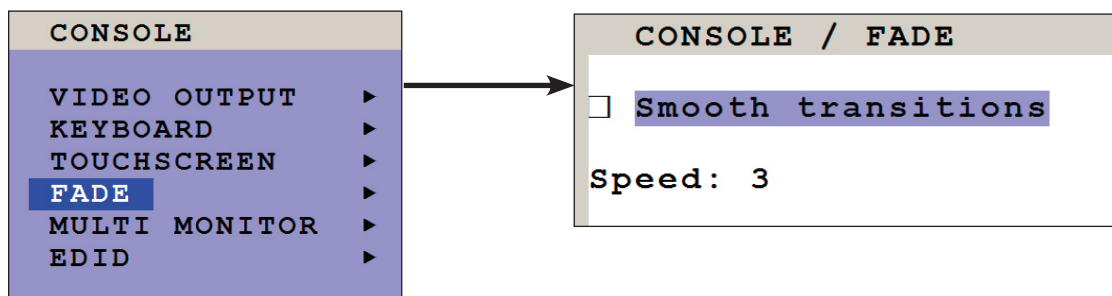


Figure 4-43. Setting Fade Through Black.

## Multi Monitor

Use the arrow keys to navigate in the Console menu to the Multi Monitor entry and press Enter/Select to open the Multi Monitor window.

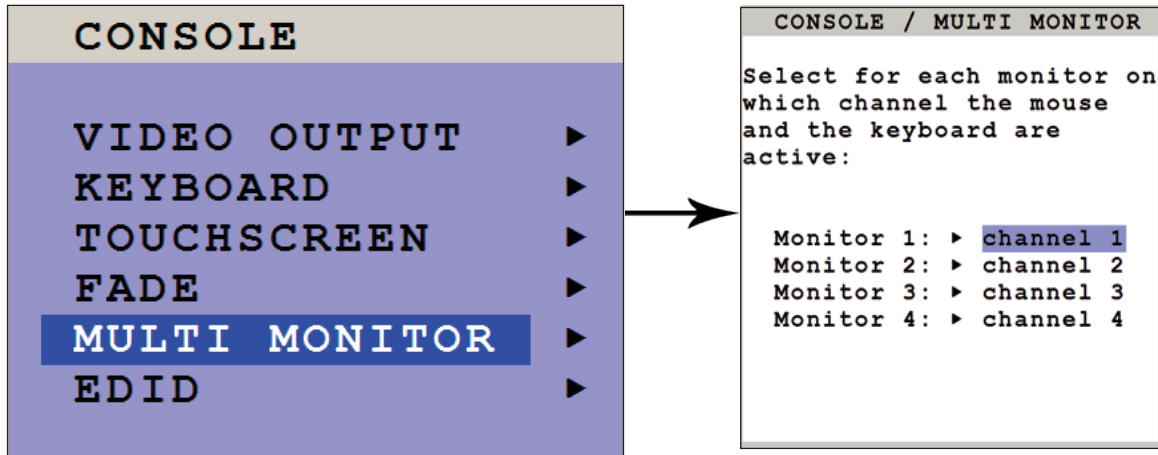


Figure 4-44. Accessing the Multi Monitor controls.

Multi Monitor is used if computers with multiple video output are connected to the ServSwitch 4site II but only one keyboard and mouse are used to operate the computer. If you use graphics cards with multiple video outputs, you must assign the computer's mouse and keyboard to the corresponding video output (Channels 1–4).

### Example:

If a computer with quad-head graphics card is connected to the ServSwitch 4site II, and the keyboard and mouse are connected to Channel 1, you must assign console "Channel 1" to all video channels ("Monitor 1–4").

## Chapter 4: On-Screen Display

### EDID

Use the arrow keys to navigate in the Console menu to the EDID entry and press Enter/Select to open the EDID window.

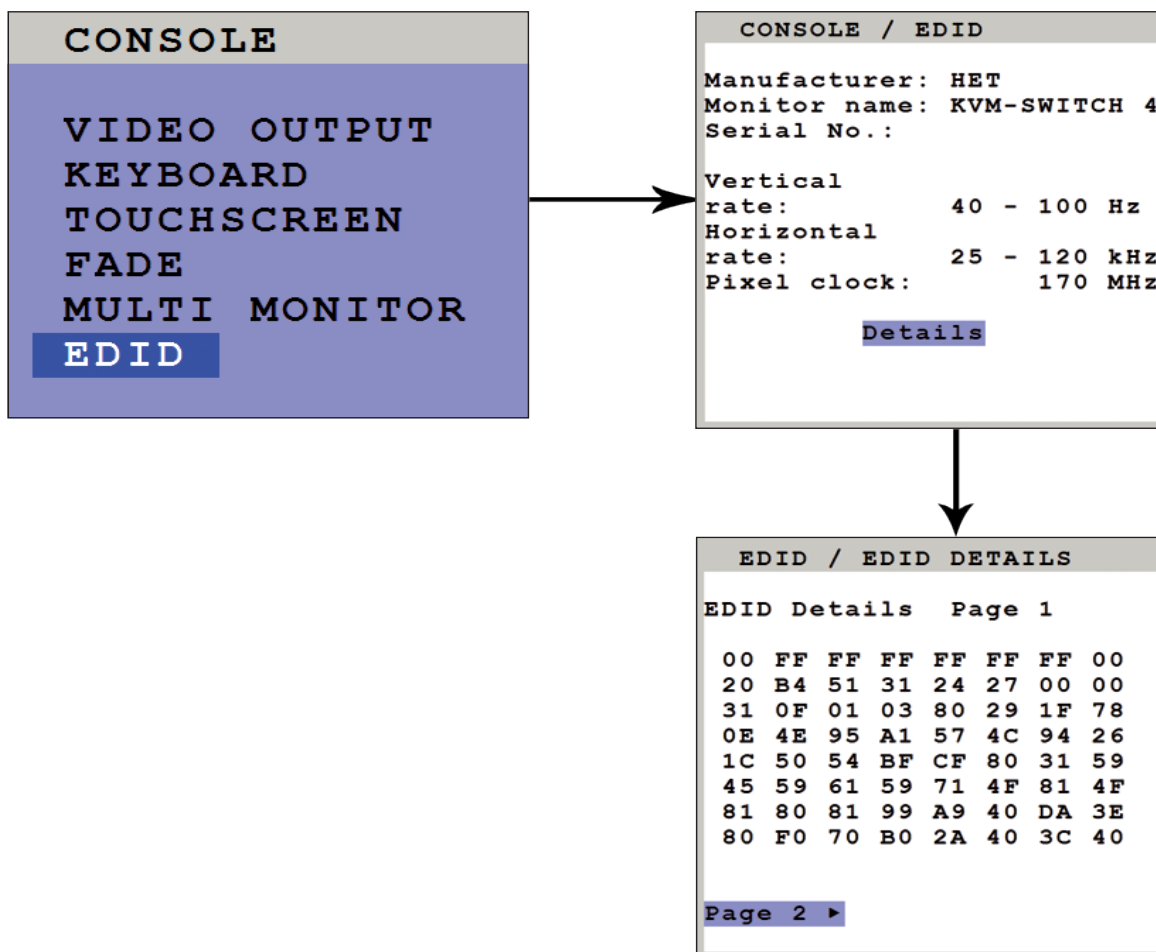


Figure 4-45. Accessing the EDID controls.

Use the EDID command to read and display monitor data (manufacturer, monitor name, serial number etc.) from the monitor's EDID memory. If Video Output is set to "auto", the ServSwitch 4site II uses the optimum output resolution offered by the EDID.

*NOTE: EDID (Extended Display Identification Data) is a VESA standard data format that contains basic information about a monitor and its capabilities. This information is stored in the monitor by the manufacturer and can be read by the ServSwitch 4site II or graphics card via a monitor cable's Display Data Channel (DCC) interface.*

## 4.8 OSD Video Menu

### Input Status (Display Video Formats)

Use the arrow keys to navigate in the Video menu to the Input Status entry and press Enter/Select to open the Input Status window.

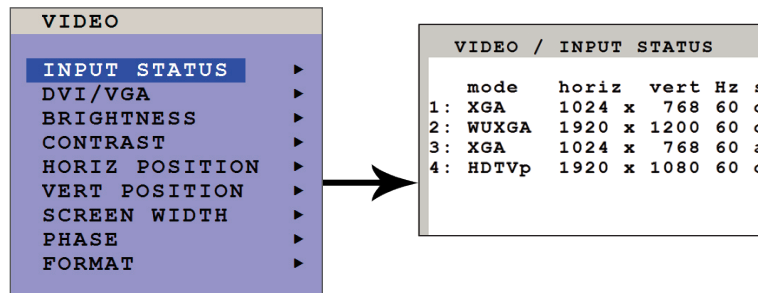


Figure 4-46. Input Status for Display Video Formats.

This window shows the resolutions at the four video inputs:

S = Signal Key:

a = analog

d = digital

g = sync on green

c = composite sync

Resolution recognition at the four video inputs is automatic. Some analog input resolutions may not be detected correctly.

*NOTE: For Fluid Video Performance in Quad Mode: With digital input and a resolution of 800 x 600, the input frame rate may be increased up to 180 Hz. This provides smooth video output even in Quad mode. To use this feature, it is necessary to choose this resolution and refresh rate on all devices connected to the ServSwitch 4site II's video inputs.*

### DVI/VGA

Use the arrow keys to navigate in the VIDEO menu to the INPUT STATUS entry and press ENTER/SELECT to open the INPUT STATUS window.

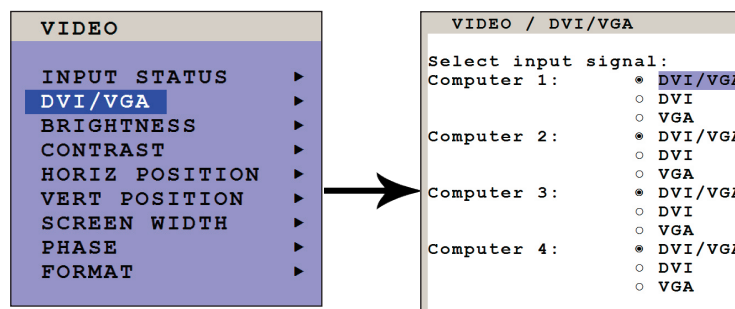


Figure 4-47. Setting DVI/VGA.

Go to "Select input signal" and define which video signal (VGA or DVI) is to be displayed. If the setting "DVI/VGA" is selected, the ServSwitch 4site II will first check the digital input. If there is no signal at this input, the analog signal input will be checked.

## Chapter 4: On-Screen Display

### Brightness/Contrast (with analog input only)

Use the arrow keys to navigate in the Video menu to the Brightness or Contrast entry and press Enter/Select to open the Brightness or Contrast window.

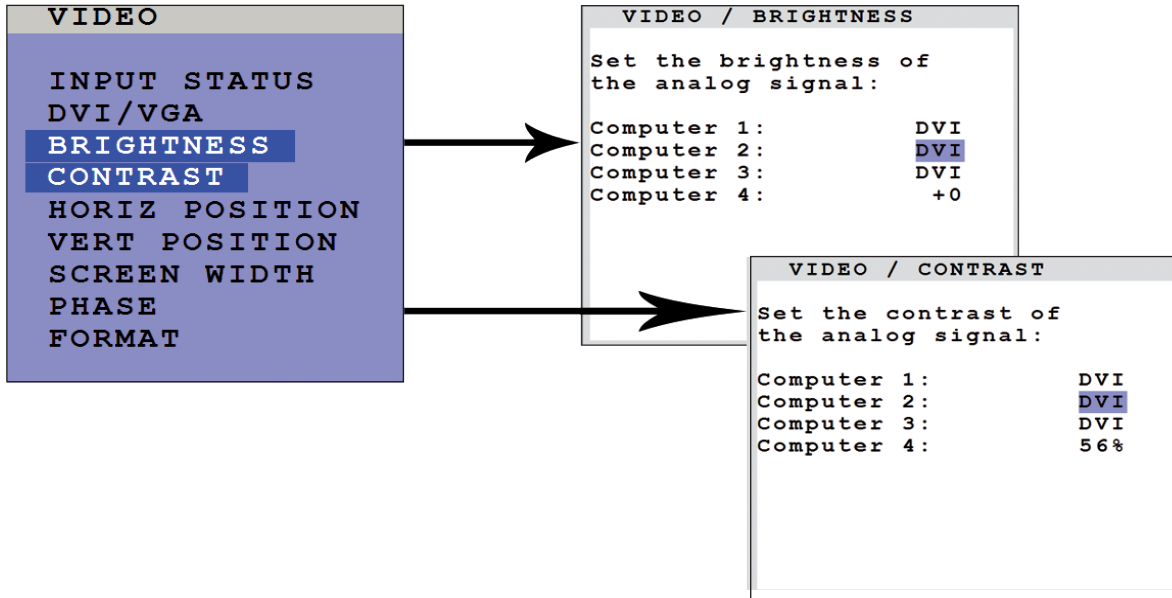


Figure 4-48. Video Brightness and Contrast.

*NOTE: DVI Video Signals cannot be adjusted.*

### Horiz/Vert Position (Horizontal/Vertical Position of Computer Screen) (with Analog Input Only)

Use the arrow keys to navigate in the Video menu to the Horiz Position or Vert Position entry and press Enter/Select to open the Horiz Position or Vert Position window.

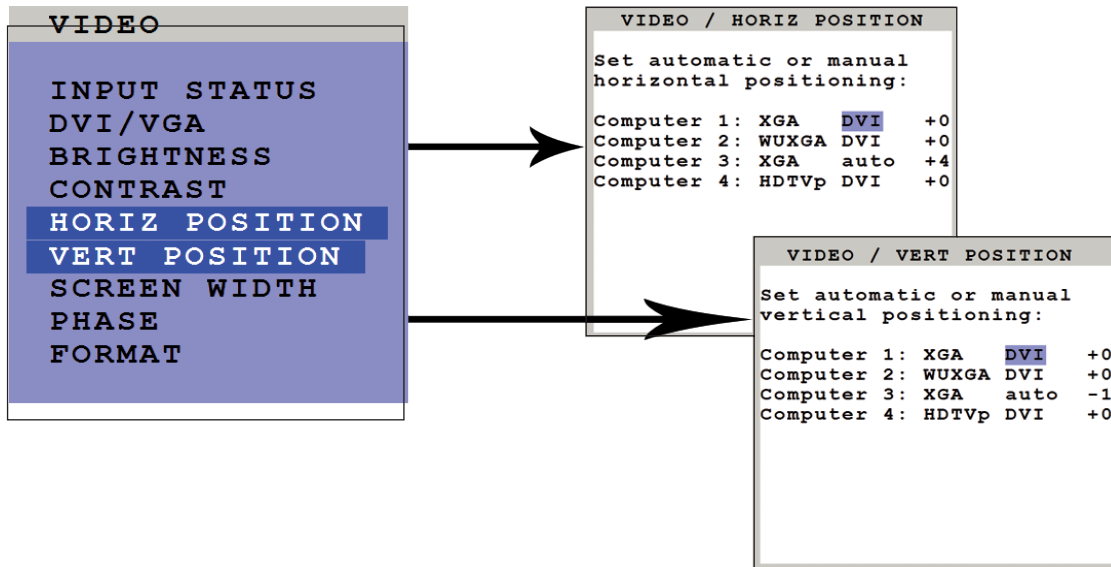


Figure 4-49. Horizontal and Vertical Position Controls.

In case a computer screen's horizontal position is incorrect, use this feature to adjust the computer screen manually. Use the arrow keys to navigate to the AUTO/MAN field and set MAN for manual. Use the "+" or "-" keys in the value field to adjust the vertical position between -20 and +20, and the horizontal position between -63 and +63.

## Chapter 4: On-Screen Display

### Screen Width (with Analog Input Only)

Use the arrow keys to navigate in the Video menu to the Screen Width entry and press Enter/Select to open the Screen Width window.

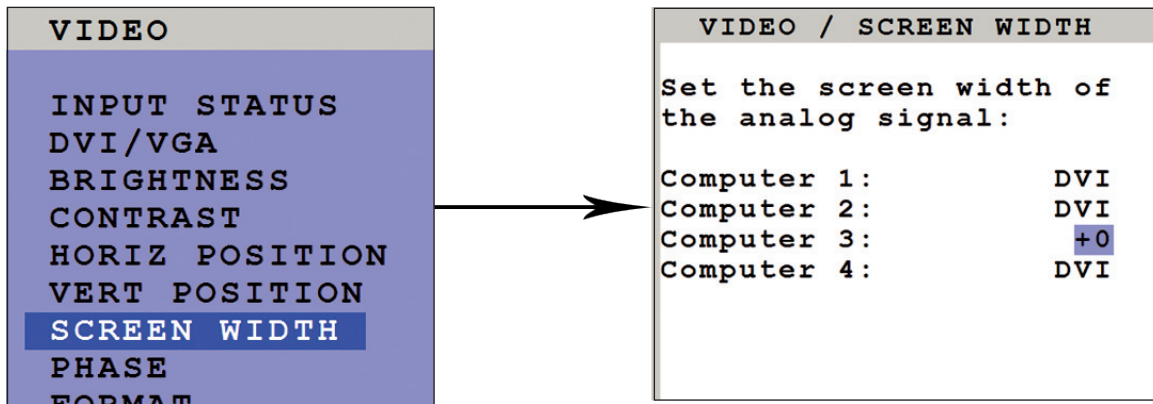


Figure 4-50. Adjusting Screen Width settings.

Normally, screen width (number of horizontal pixels) is defined by the VESA standard. If the screen appears blurred, change this setting to improve screen quality.

### Phase (with Analog Input Only)

Use the arrow keys to navigate in Video menu to the Phase line and press Enter/Select to open the Phase window.

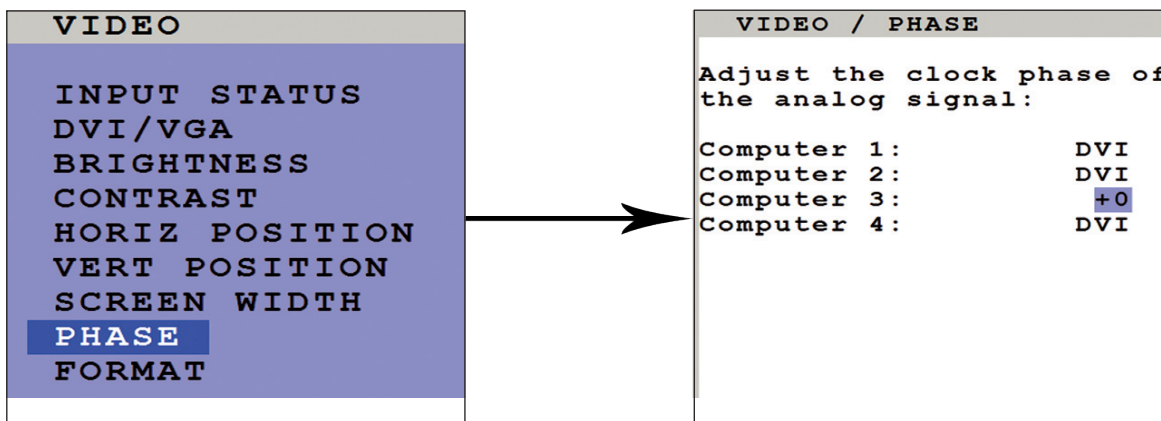


Figure 4-51. Adjusting Video Phase Settings.

Incorrect phase (sampling time of pixel color value) may result in blurring, bad contrast, or poor legibility. Use the Adjusting Video Phase Settings screen to adjust the Phase setting.



Format

Use the arrow keys to navigate in the Video menu to the Format entry and press Enter/Select to open the Format window.

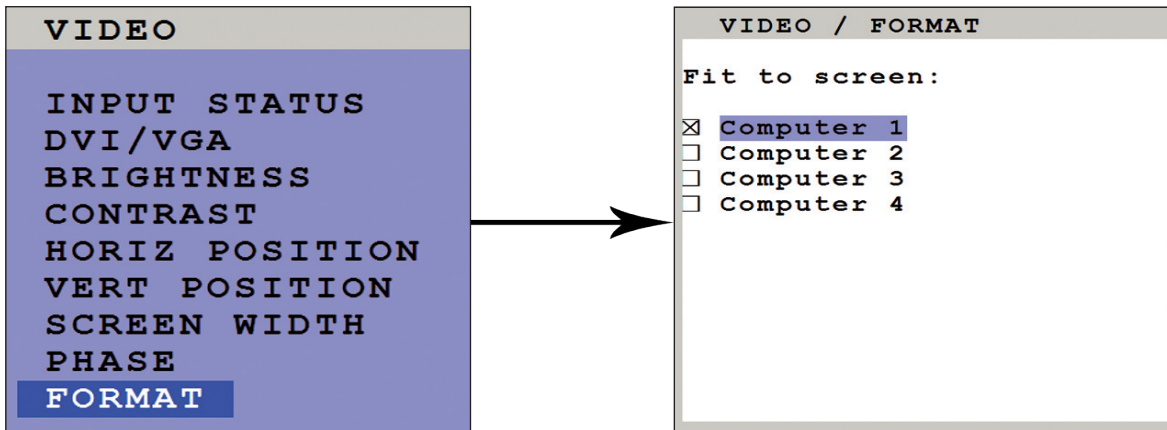


Figure 4-52. Opening the Format window.

When using a wide-screen monitor (aspect ratio 16:10) in Quad mode, a video input with a different aspect ratio is normally displayed with black borders to the left and right. If “fit to screen” is enabled, the image is resized to fill the entire quadrant in Quad mode. By default, “fit to screen” is disabled to display each source in its native aspect ratio in all display modes (Quad, PiP, Full) of the ServSwitch 4site II.

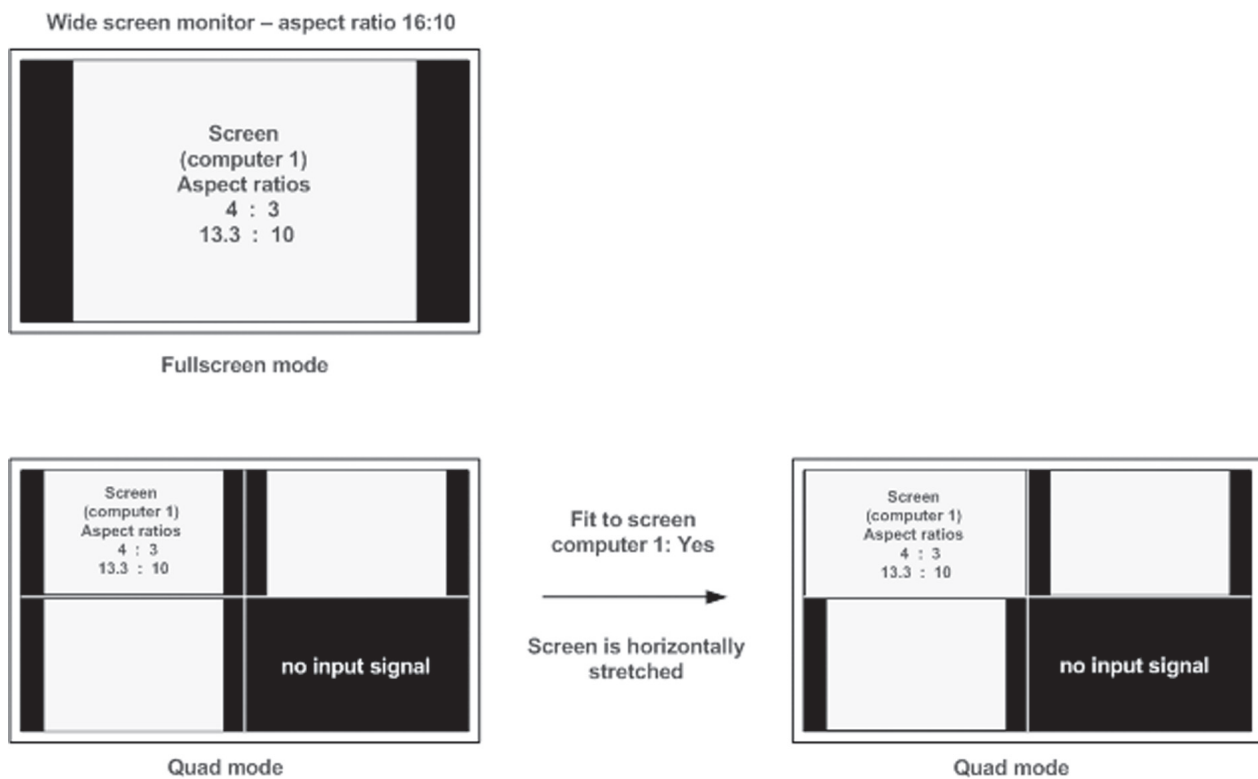


Figure 4-53. By default, “fit to screen” is disabled to display each source in its native aspect ratio in all display modes (Quad, PiP, Full).

## Chapter 4: On-Screen Display

### PiP mode for wide-screen monitors

If you use a wide-screen monitor (for example with an aspect ratio of 16:10), and the active channel does not have a wide-screen aspect ratio (e.g. 4:3), PiPs are placed aside the full image of the active channel in the black bar on the right side. The full image of the active channel is displayed left-aligned on the screen, resulting in a black bar on the right side. Provided appropriate PiP size (20%) is set, and PiP images are placed entirely outside the full-screen channel. No screen content is overlapped. All content of all sources is visible.

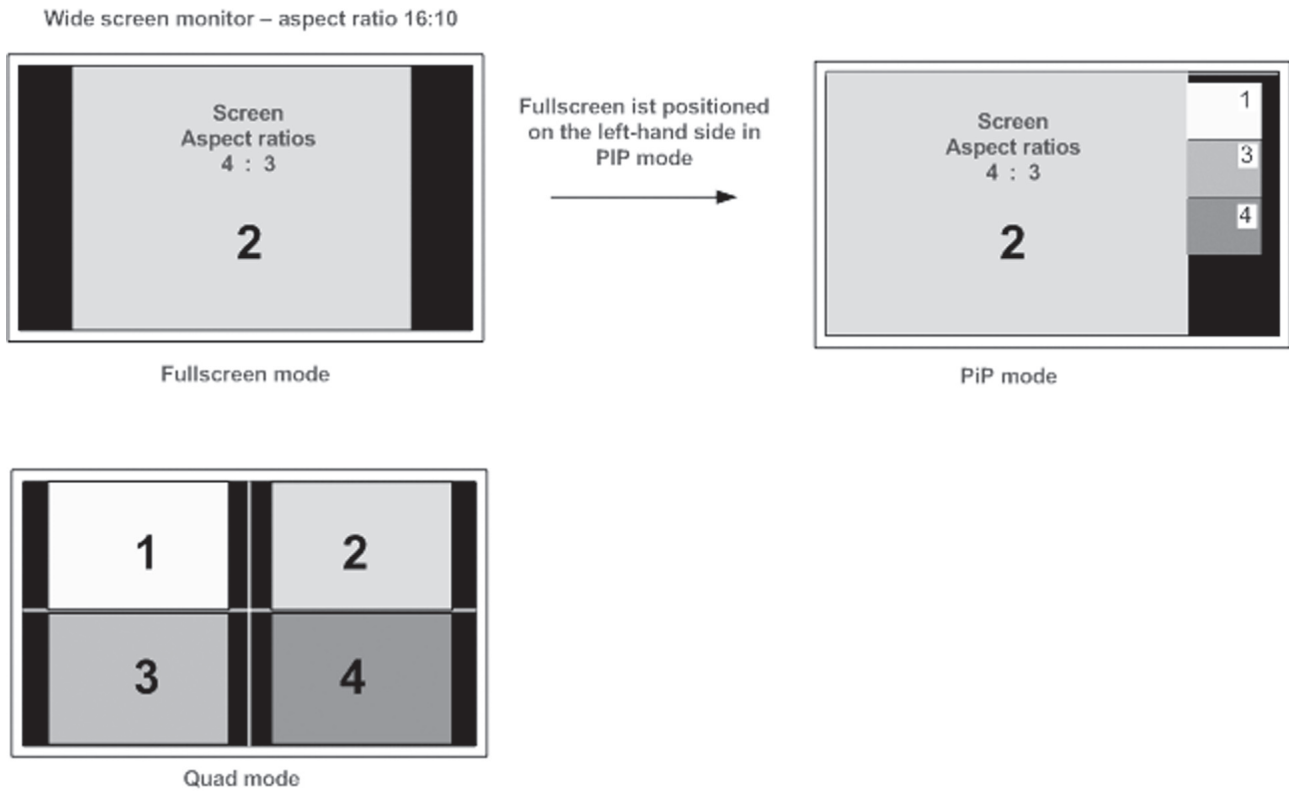


Figure 4-54. PiP mode for wide-screen monitors.

## 4.9 OSD Computer Menu

### Keyboard

Use the arrow keys to navigate in the Computer menu to the Keyboard entry and press Enter/Select to open the Keyboard window.

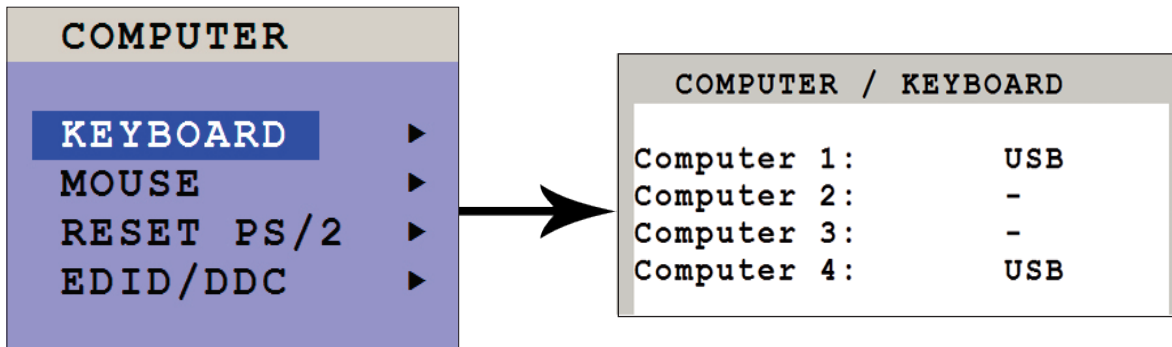


Figure 4-55. Keyboard Settings.

Use this display feature to identify which keyboard type (USB, PC1, PC2 or PC3) has been recognized at which computer port.

### Mouse

Use the arrow keys to navigate in Computer menu to the Mouse line and press Enter/Select to open the Mouse window.

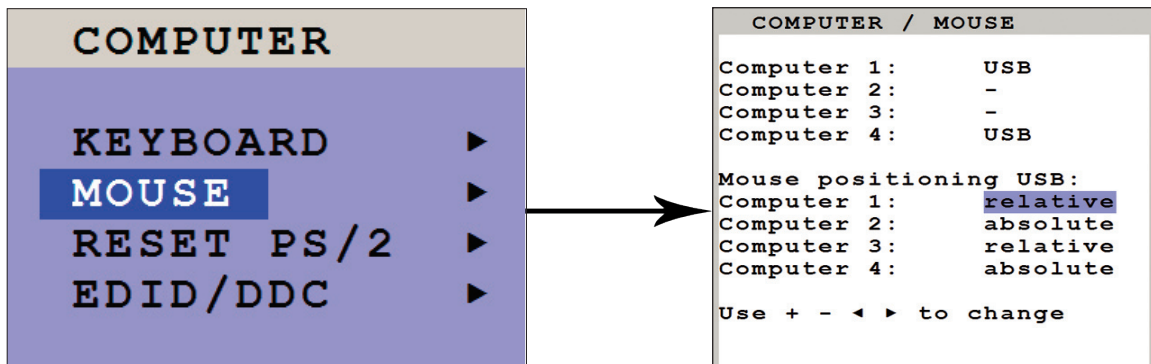


Figure 4-56. Mouse Settings

The upper half of the Mouse window shows which mouse type (USB, PS/2 or PS/2 wheel) has been recognized at which computer port.

### USB Mouse Positioning

For USB ports, you may specify absolute or relative mouse positioning.

Choose absolute mouse positioning if a device is connected to the console that supports absolute coordinates, such as graphics trays, screen pads, or KVM extenders.

## Chapter 4: On-Screen Display

### Reset PS/2

Use arrow keys to navigate in the Computer menu to the entry Reset PS/2 and press Enter/Select to open the Reset PS/2 window.

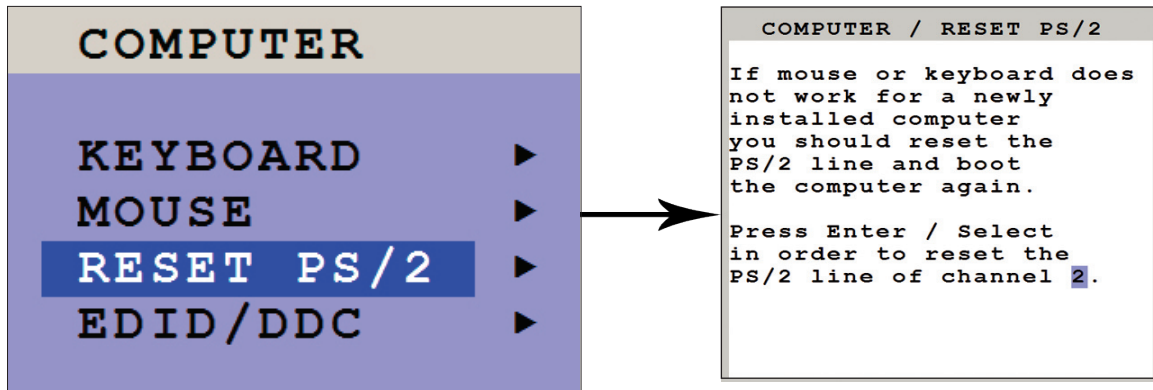


Figure 4-57. Resetting the PS/2 window.

Use the arrow keys ◀▶ or the "+" and "-" keys to select the channel (1 to 4) you wish to reset and confirm by pressing Enter/Select.

### EDID/DDC

This window presents an overview of the status of the input EDIDs and the display EDID.

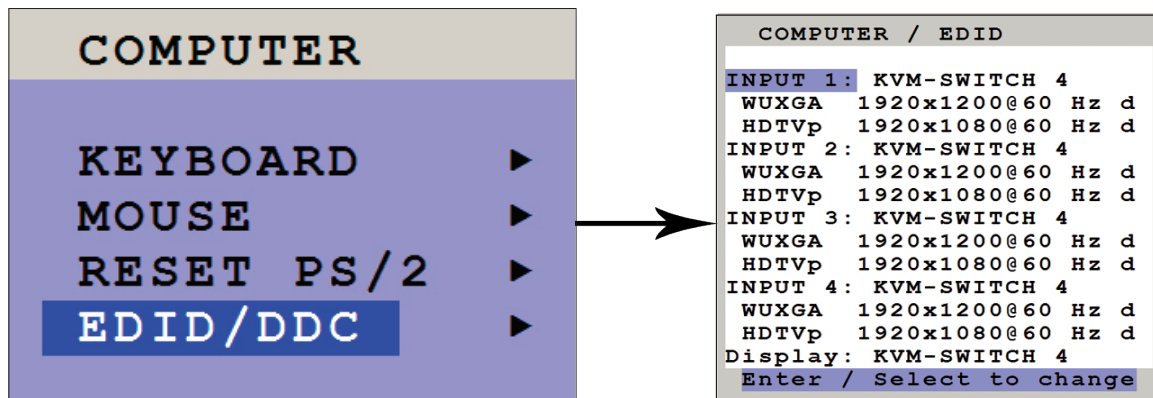


Figure 4-58. The EDID/DDC window.

Use the arrow keys to select one EDID and press Enter/Select to open the window with detailed settings for this EDID.

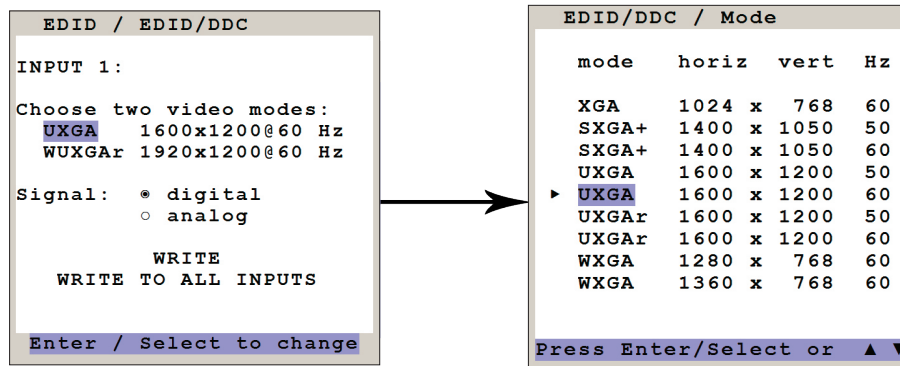


Figure 4-59. EDID/DDC settings.

In this window, two freely selectable video modes can be programmed in the input EDID visible to the connected computer at the input port. Black Box recommends that you program the preferred video modes for the connected signal source.

The ServSwitch 4site II also uses these entries to distinguish between confusable analog input video signals. The following groups of analog input signals are difficult to distinguish automatically:

WUXGA 1920 x 1200 60 Hz  
 UXGA 1600 x 1200 60 Hz  
 UXGA 1600 x 1200 60 Hz with reduced blanking

WUXGA 1920 x 1200 50 Hz  
 UXGA 1600 x 1200 50 Hz  
 UXGA 1600 x 1200 50 Hz with reduced blanking

SXGA+ 1400 x 1050 60 Hz  
 WSXGA 1680 x 1050 60 Hz

XGA 1024 x 768 60 Hz  
 WXGA 1280 x 768 60 Hz  
 WXGA 1360 x 768 60 Hz

If you experience problems with the automatic input detection of an analog input signal in these groups, you can overwrite the automatic detection by programming the expected video signal into the input EDID.

*NOTE: Keep in mind that this setting will overwrite the automatic analog input mode detection. If you connect a different video source, or change the video mode from the PC, you may need to change this setting again to get correct results. For the detection of digital input signals, this setting has no effect.*

Use the arrow keys ◀▶ to navigate to the first video mode entry and press Enter/Select to open the window with a list of selectable video modes.

In this window use the arrow keys ◀▶ to select the desired line in the list shown on the right and press Enter/Select for the video format.

Use the arrow keys ◀▶ to navigate to the second video mode entry and press Enter/Select to open the window with a list of selectable video modes.

Use the arrow keys ◀▶ to navigate to "Signal" and press Enter/Select to switch between analog or digital. This setting specifies whether the EDID should identify the ServSwitch 4site II as an analog or digital device. Usually it is safe to leave this setting at "digital."

## Chapter 4: On-Screen Display

Use arrow keys ◀▶ to navigate to the following write options:

Write: Save the changes in the current input EDID.

Write to All Inputs: Save the changes to all four input EDIDs.

Same as Display EDID: Write the contents of the display EDID to the current input EDID.

Press Enter/Select to start the selected write option and wait until "successful" is displayed in the bottom status line.

*NOTE: If a display EDID was written to an input EDID, then a subsequent write command will restore the content of the input EDID to the default ServSwitch 4site II values.*

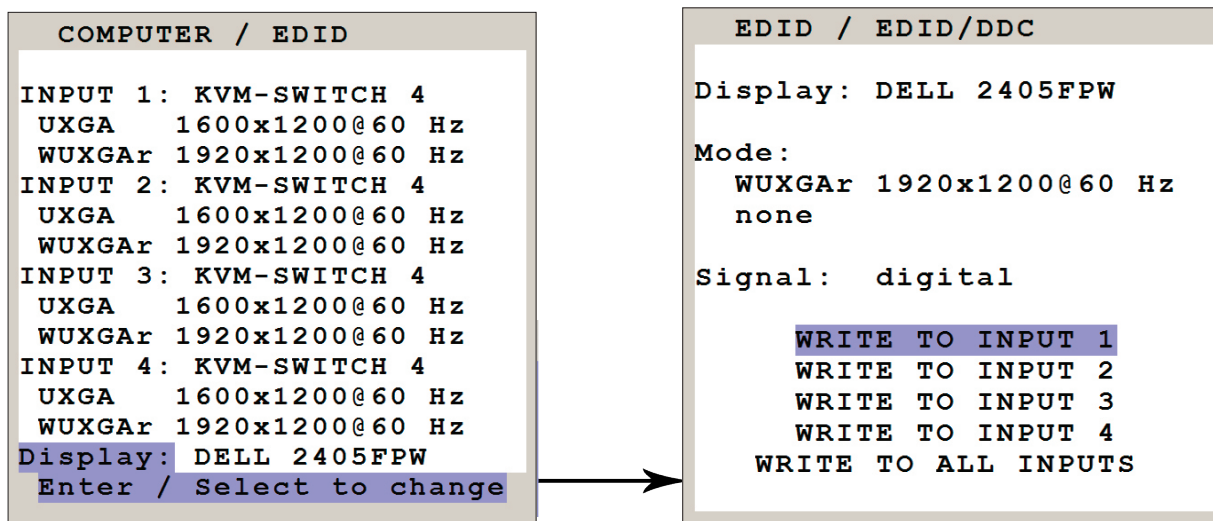


Figure 4-60. Changing EDID/DDC settings.

This window gives an overview of the contents of the display EDID. It has the following write options:

Write to Input 1: Write the monitor EDID to Input 1

Write to Input 2: Write the monitor EDID to Input 2

Write to Input 3: Write the monitor EDID to Input 3

Write to Input 4: Write the monitor EDID to Input 4

Write to All Inputs: Write the monitor EDID to all Inputs

*NOTE: The content of the input EDIDs can be reset to default by the OSD function Configuration/Factory Reset.*

## 4.10 OSD USB Devices Menu

### USB Devices 1-4

The ServSwitch 4site II supports and switches transparent USB 2.0 devices such as printers, cameras, 3D mice, finger printers, and external memory. Connect a single finger printer to log in on all four computers connected to the ServSwitch 4site II; or connect a memory stick to copy data from one computer to the stick, and from the stick to another computer connected to the ServSwitch 4site II: Data can be copied between computers without being networked.

Use the arrow keys to navigate in the OSD menu to the USB Device 1-4 entry and press Enter/Select to open the window.

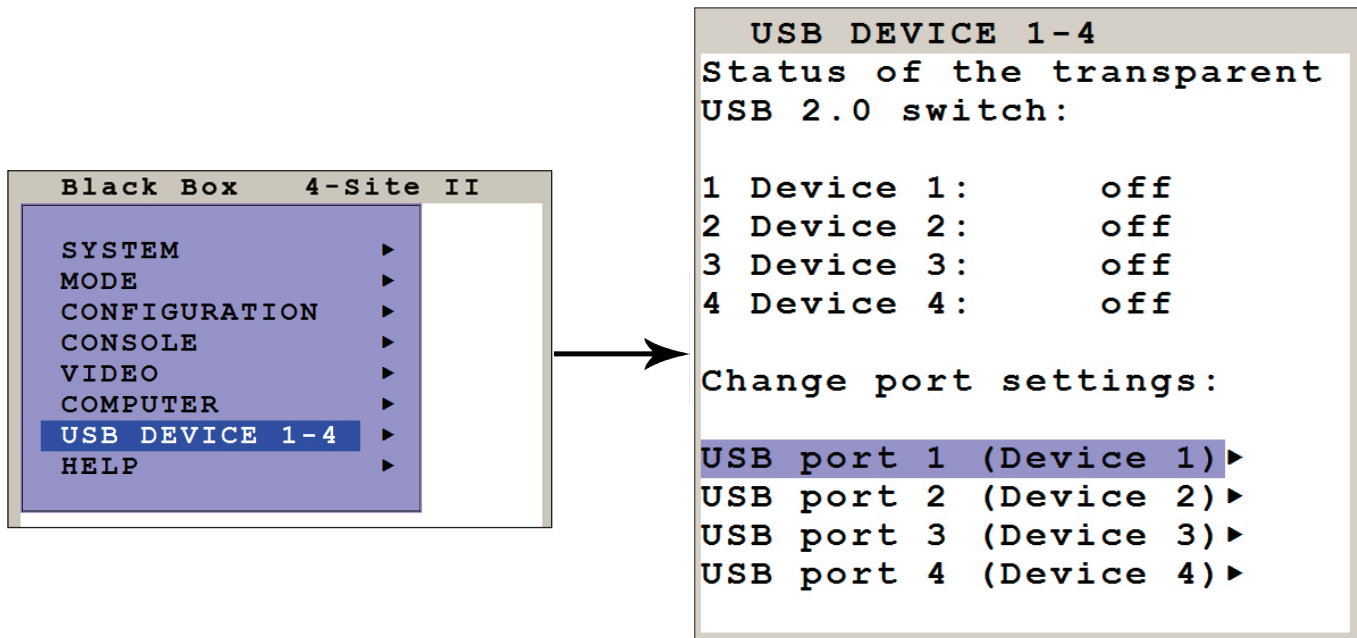


Figure 4-61. Moving between USB devices.

This window shows the status of the transparent USB 2.0 switch: Which USB device/port is switched to which computer (1 to 4) connected to the ServSwitch 4site II or switched off.

OFF: Port is not switched to a computer. A USB device may be connected, but it is not switched to a computer. Computer (1-4): Port is switched to one of the computers.

## Chapter 4: On-Screen Display

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The window below also allows changing port and switching settings. Use the arrow keys to select one of the four USB ports and open its submenu by pressing Enter/Select.

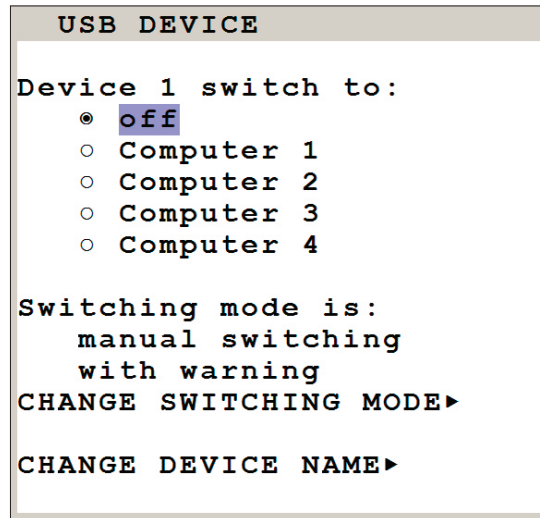


Figure 4-62. Moving between USB devices.

This window allows changing the following settings dedicated to this USB port: manual switching, change switching mode, change USB device name.

### Device 1 Switch to

By default, it is switched “off”: This USB port is not switched to any of the four computers.

To switch this USB port manually to one of the four computers or “off”, use arrow keys to navigate in the “Device 1 switch to” menu and press Enter/Select.



## Switching Mode

By default, switching mode is “manual switching with warning.” To change the switching mode, use the arrow keys to navigate to “Change Switching Mode” and press Enter/Select.

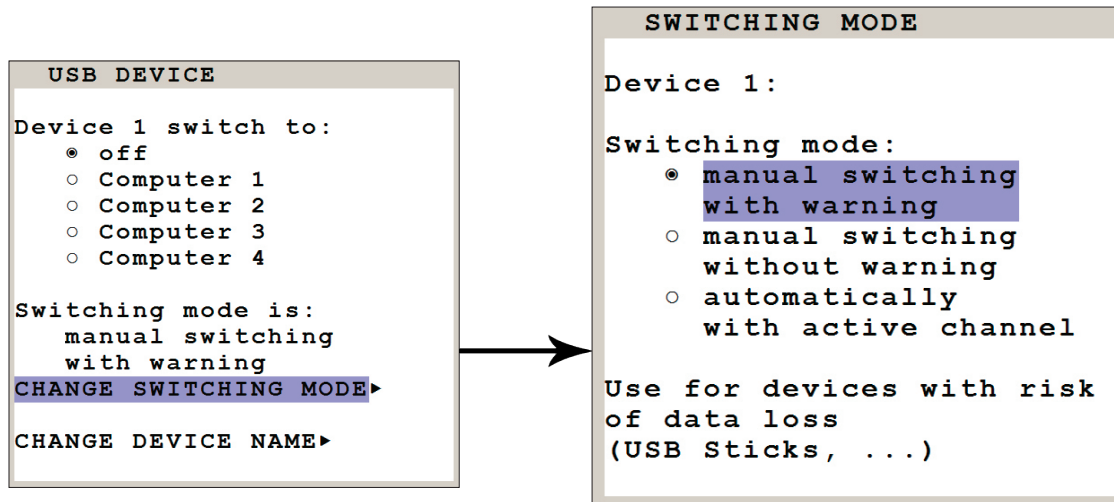


Figure 4-63. Switching mode.

Use the arrow keys to choose one of the following modes to change the switching mode:

1. **Manual Switching with Warning:** This mode allows switching the USB port manually by selecting one of the computers connected. But before executing the switching, the following warning message is displayed: “In order to prevent data loss, stop the USB device before switching!” To execute the switching press Enter/Select. This switching mode is recommended for USB devices with risk of data loss (e.g. USB stick, printer, external memory).
2. **Manual Switching without Warning:** This mode allows switching the USB port manually by selecting one of the computers connected. The switching is executed immediately. This switching mode is recommended for USB devices that don’t have the risk of data loss.
3. **Automatically with Active Channel:** In this mode, the USB device/port is always switched automatically with the active channel. When switching channel/computer, this USB device/port will automatically be switched to the activated channel/computer.

*NOTE: After power on, all USB devices are disconnected from computers except devices with switching mode “automatically with active channel.”*

## Chapter 4: On-Screen Display

### Change Device Name

In the "USB Device/USB Device" menu, choose "Change device name" and press Enter/Select to change the name of the connected USB device. Use the keyboard to rename the USB device or use the front panel buttons (as described in the OSD). Exit the menu. The new name will automatically be saved and displayed in the other menus.

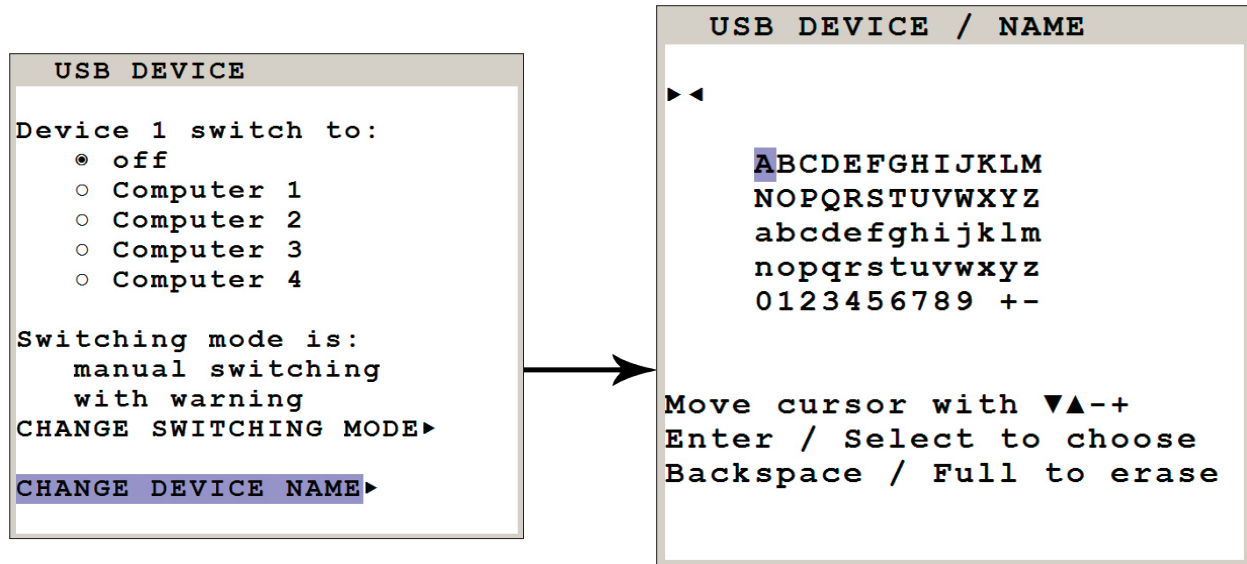


Figure 4-64. Changing the device name.

*NOTE: Use hotkey + "u" (by default: hotkey = Ctrl + Alt) to quickly access the USB Device 1–4 menu. This allows quick access to this menu when switching manually. To directly open the switching menu of e.g. USB device/Port 1, use hotkey + "F1" (by default: hotkey = Ctrl + Alt).*

### 4.11 OSD Help Menu

Use the arrow keys to navigate in the Help menu to the desired line and then press Enter/Select to open the corresponding window:

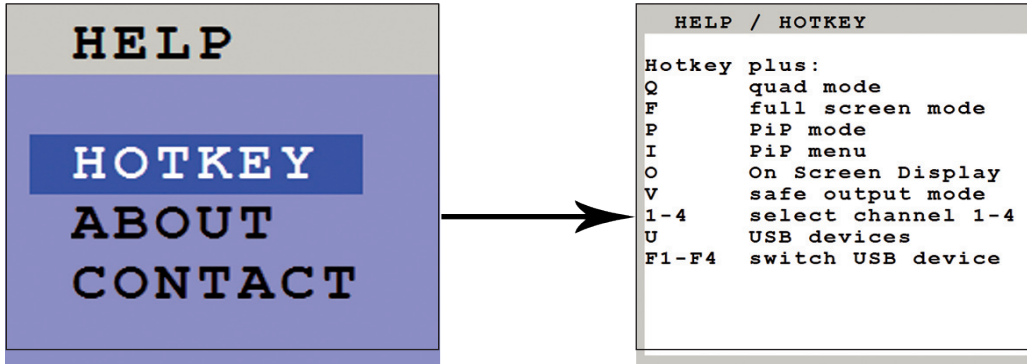
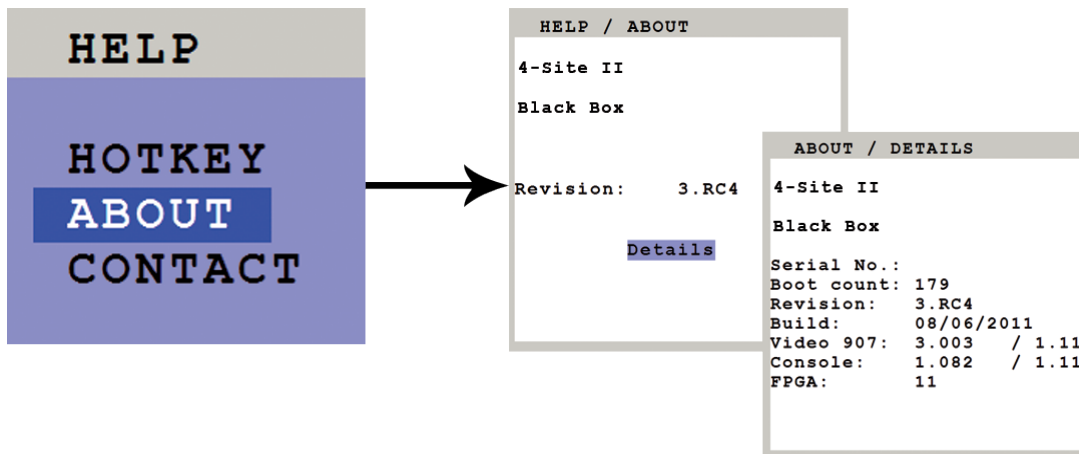
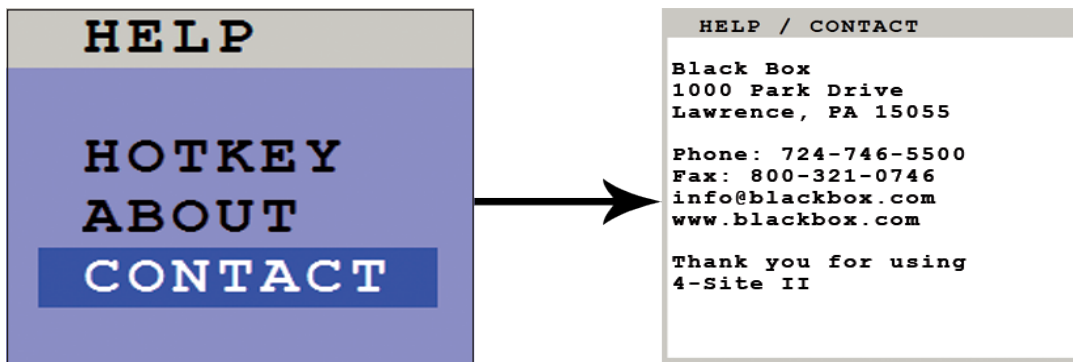


Figure 4-65. The Help/Command List window lists keyboard commands and their functions.



4-66. The Help/About Window shows the current revision levels of the ServSwitch 4site II hardware and firmware.



4-67. The Help/Contact Window shows how to contact Black Box.

### 5.0 Using Hotmouse

Hotmouse is an exclusive function offered by the Black Box ServSwitch 4site II. It works with your standard mouse or trackball. Similar to using hotkeys on your keyboard, Hotmouse is a quick and comfortable way to operate the ServSwitch 4site II simply with your standard mouse, trackball, or touchscreen. No software or additional hardware is required.

When activated, your mouse cursor becomes Hotmouse cursor—a gray and white rectangle—that enables it to perform all Hotmouse functions.

#### Activating the Hotmouse Cursor

To activate the Hotmouse cursor, move or shake your mouse at the console rapidly four times in an alternating horizontal direction.



The Hotmouse cursor can also be activated via touchscreen: Tap the screen twice and leave your finger pressed on the touchscreen after the second tap (tap – hold, like a double click without lifting the finger on the second click), until the Hotmouse menu opens. Now click outside the Hotmouse menu to open the Hotmouse cursor.

The Hotmouse cursor changes its look depending on its position on the screen (arrows in vertical or horizontal direction, and number of channel).

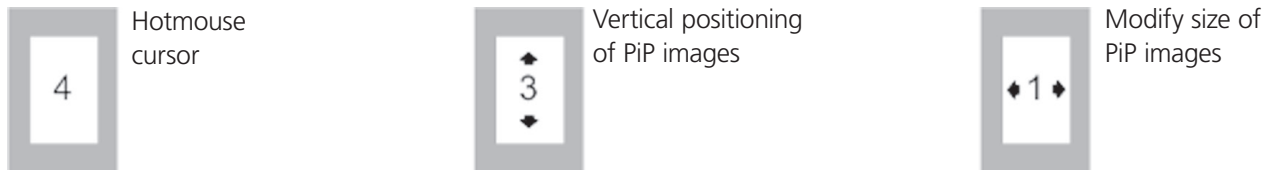


Figure 5-1. The Hotmouse cursor.

Use the Hotmouse cursor to perform the following functions:

- in Full-Screen mode: Switch to another full-screen channel.
- in Quad mode: Select another active channel (keyboard, mouse).
- in PiP mode: Modify position and size of PiP images.  
Change active channel.

Using the Hotmouse Cursor in Full-Screen Mode

When you activate the Hotmouse cursor in Full-Screen mode, PiP images of the other channels are temporarily displayed to allow you to switch to another channel.

Switching to Another Full-Screen Channel

Activate Hotmouse cursor. Move the Hotmouse cursor over the PiP image of the channel that you wish to activate and press the left mouse button.

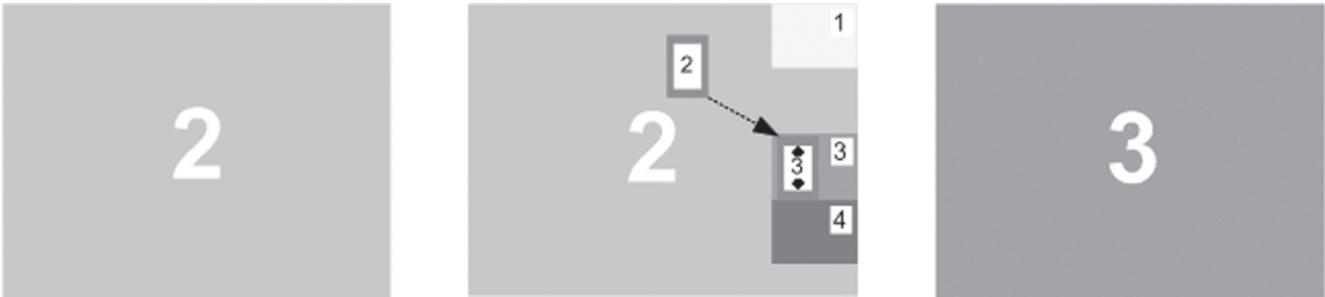


Figure 5-2. Switching to another full-screen channel. This example shows how to switch from Channel 2 to Channel 3.

Hotmouse Cursor in Quad Mode

Switching Active Channel (Mouse, Keyboard)

Activate the Hotmouse cursor. To change the active channel (switching mouse and keyboard), position the Hotmouse cursor in the respective channel field (1 to 4) and press the left mouse button.

*NOTE: When you move into another channel field, the channel number in the Hotmouse cursor changes.*



Figure 5-3. This example shows how to switch from Channel 1 to Channel 3.

## Chapter 5: Using Hotmouse

### Change the Active Channel

Enable the Hotmouse cursor. Move the Hotmouse cursor to the PiP image of the channel that you wish to activate and press the left mouse button.

*NOTE: When the Hotmouse cursor moves over a PiP image, its appearance changes (arrows, channel number).*

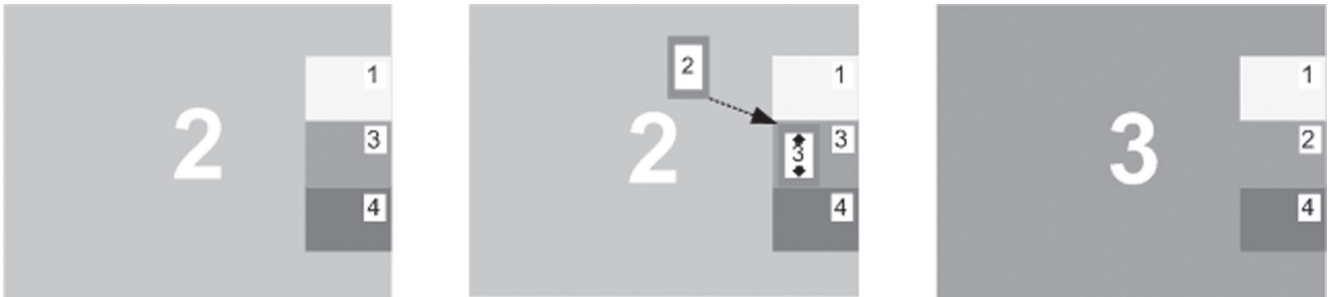


Figure 5-4. This example shows how to switch from Channel 2 to Channel 3.

### Vertical Positioning of PiP Images

Activate the Hotmouse cursor. Move the Hotmouse cursor to the PiP image area, hold down the left mouse button and drag the PiPs to the desired vertical position.

*NOTE: As soon as the Hotmouse cursor moves over a PiP image, its appearance changes (arrows, channel number).*

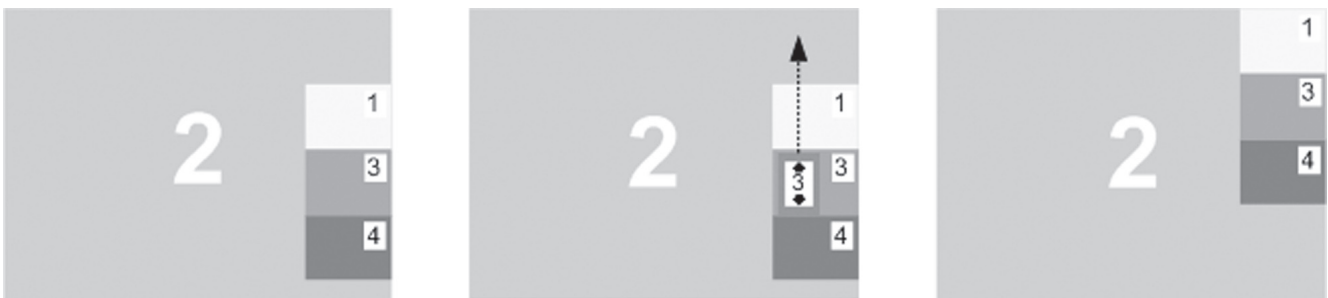


Figure 5-5. This example shows how to move PiP images upward.

Modify the Size of PiP Images

Activate the Hotmouse cursor and move to the left edge of the PiP image area until horizontal arrows appear in the Hotmouse cursor. Hold down the left mouse button and drag the Hotmouse cursor to the left to increase PiP image size, or to the right to reduce PiP image size.

*NOTE: As soon as the Hotmouse cursor moves to the left edge of the PiP image area, its appearance changes (horizontal arrows, channel number).*

Scaling PiP Images Up



Figure 5-6. Hold the left mouse button and drag the Hotmouse cursor to the left to increase the image size.

Scaling PiP Images Down



Figure 5-7. Hold the left mouse button and drag the Hotmouse cursor to the right to reduce the image size.

*NOTE: This procedure scales all the PiP images up or down—not just one of them.*

## Chapter 5: Using Hotmouse

### Activating the Hotmouse Menu

Activate the Hotmouse cursor and press the right mouse button to open the Hotmouse menu. The Hotmouse menu can also be opened via touchscreen: Tap the screen twice and leave your finger pressed on the touchscreen after the second tap (tap – hold, like a double click without lifting the finger on the second click), until the Hotmouse menu opens.

By clicking outside the Hotmouse menu, you can open the Hotmouse cursor to enlarge and reposition PiPs (only in PiP mode), and switch channels.

After you are finished using the Hotmouse cursor, the Hotmouse menu will reopen. Menu appearance varies depending on display mode (Quad/Full Screen/PiP). This menu enables you to carry out switching operations and change PiP settings:

### Using the Hotmouse Menu

The Hotmouse menu enables you to carry out switching operations and to enter PiP settings by mouse click (left mouse button).

Click "Help" on the Hotmouse menu for information on the individual symbols.

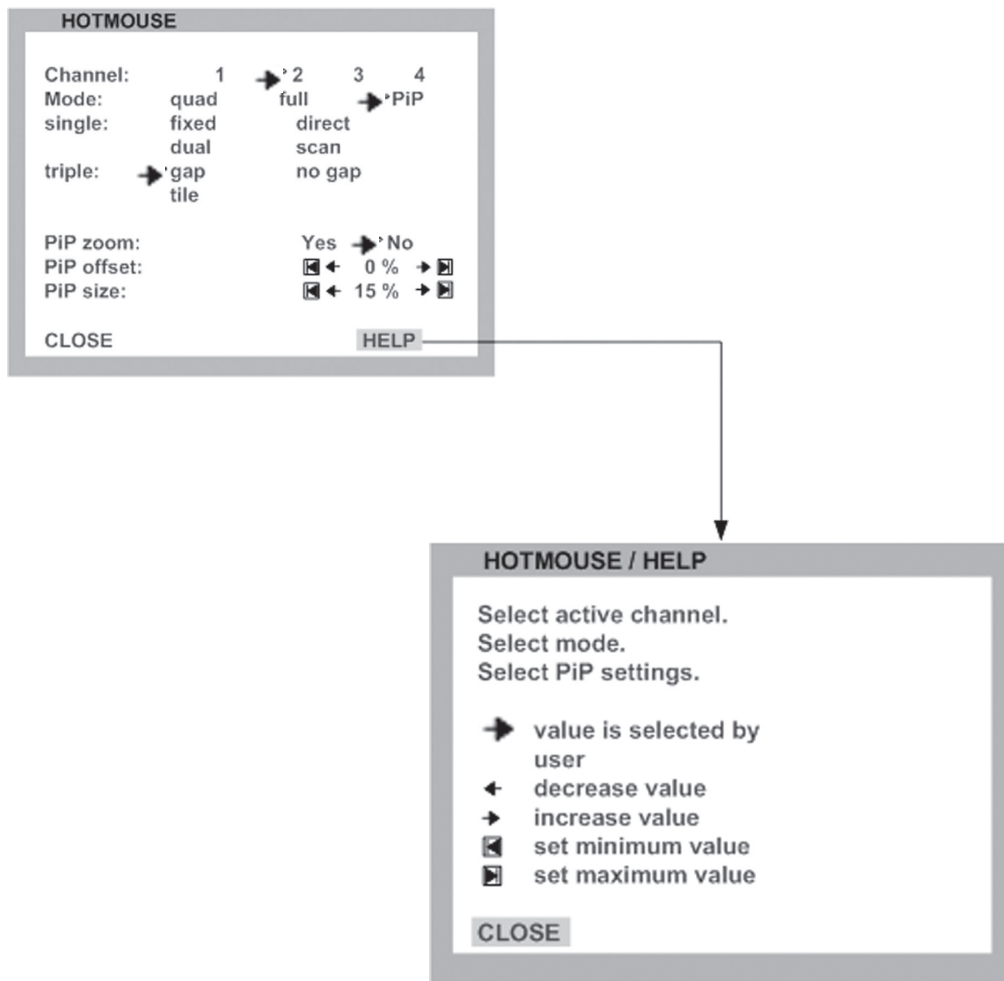


Figure 5-8. Click on "help" to open the Hotmouse Help window.



The Hotmouse menu enables you to carry out switching operations and to enter PiP settings by mouse click (left mouse button). Click Help on the Hotmouse menu for information on the individual symbols.

**Hotmouse Menu in PiP Mode**

Click with the left mouse button on the → arrow symbols to either increase or decrease the values in question. Clicking on the |▶◀| arrow symbols sets the minimum or maximum value.

After completing the settings, click on Close to close the Hotmouse Menu window and exit the Hotmouse function.

**Hotmouse Menu in Quad Mode**

Use the mouse to navigate to a channel in the Hotmouse menu and click the left mouse button to activate it. You can also switch to a different mode with the left mouse button.



Figure 5-9. Hotmouse menu in Quad mode.

**Hotmouse Menu in Full-Screen Mode**

Use the mouse to navigate to a channel in the Hotmouse menu and click the left mouse button to activate it. You can also switch to a different mode with the left mouse button.

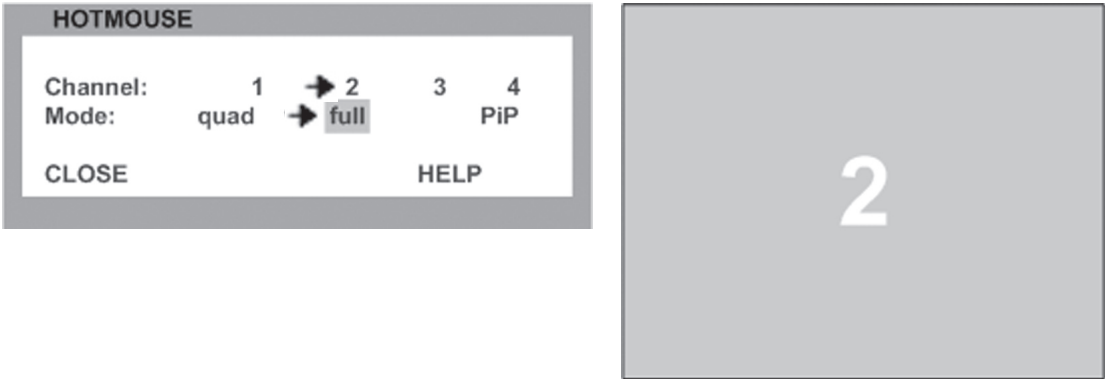


Figure 5-10. Hotmouse menu in Full-Screen mode.

# Chapter 5: Using Hotmouse

## Hotmouse Menu—PiP Mode

Use the mouse to navigate to a channel in the Hotmouse menu and click the left mouse button to activate it. Change position and size of PiP images, and PiP zoom. Change PiP mode (triple/triple gap/single fixed/single direct/single scan) and scan time. The PiP modes are described in detail in Section 4.5, OSD Mode Menu Picture in Picture (PiP) Mode.

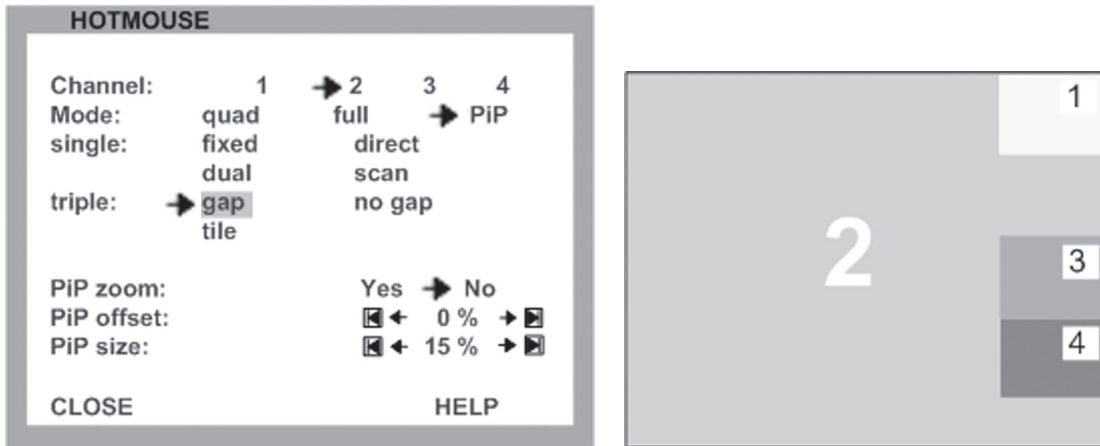


Figure 5-11. Triple Gap: PiP images are displayed with a gap in place of the active channel.

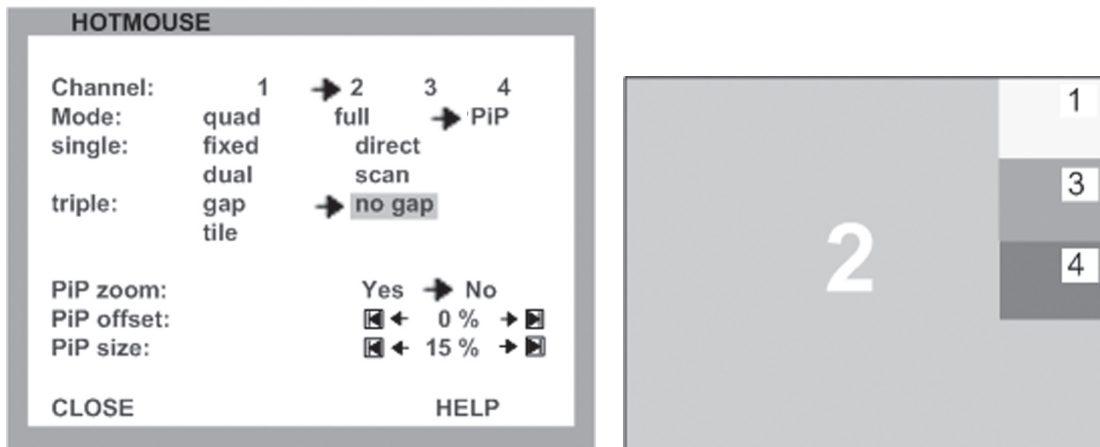


Figure 5-12. Triple No Gap: PiP images are displayed without a gap.

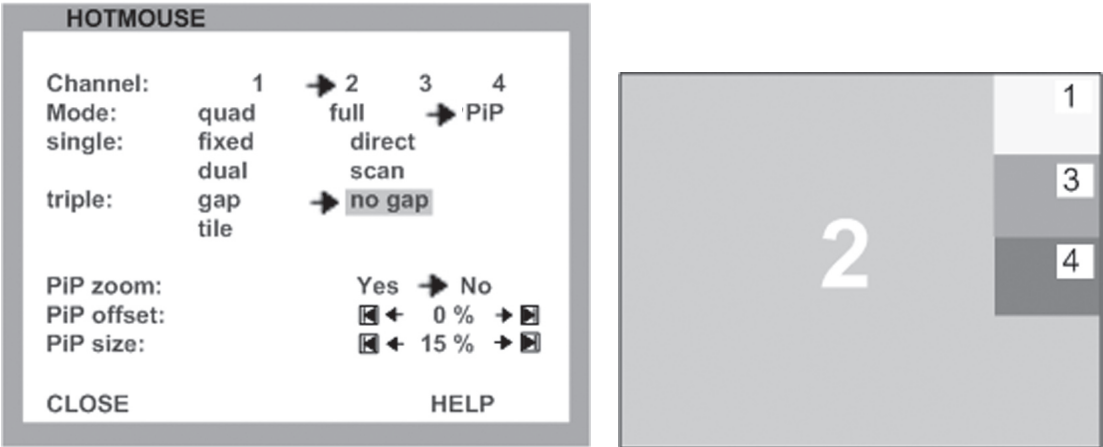


Figure 5-13. Triple Tile: The size of the main image and the PiP images is optimized so that the main image and the PiP images are shown as large as possible without overlapping.

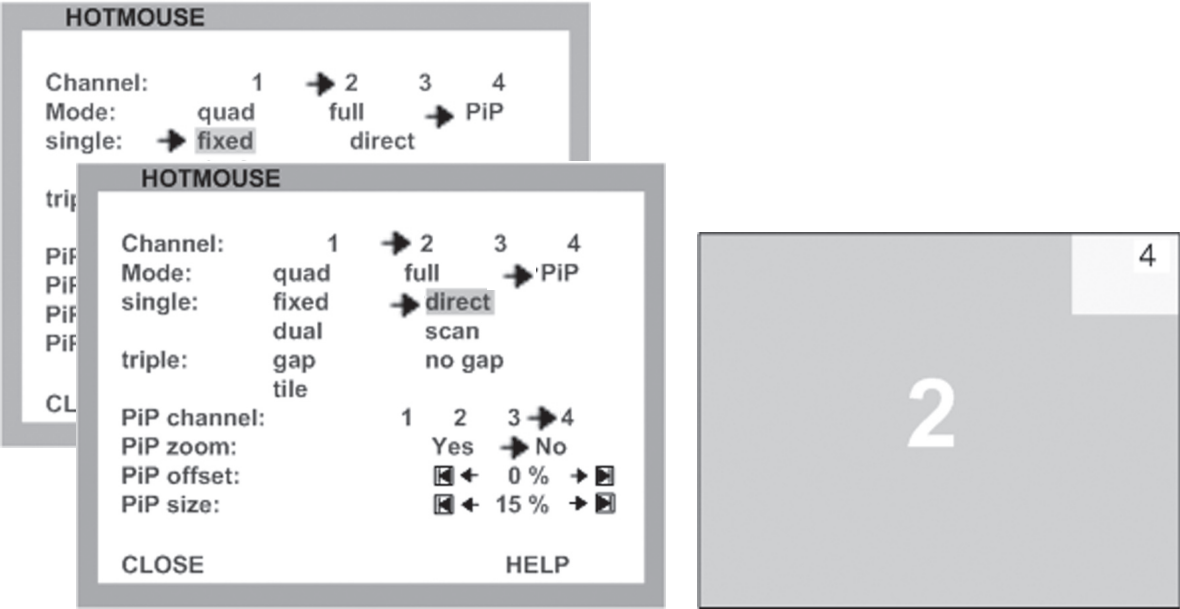


Figure 5-14. Single Fixed: One selected PiP image is permanently displayed, and Single Direct: Press the front-panel Buttons 1, 2, 3, or 4 to directly select the PiP channel you want.

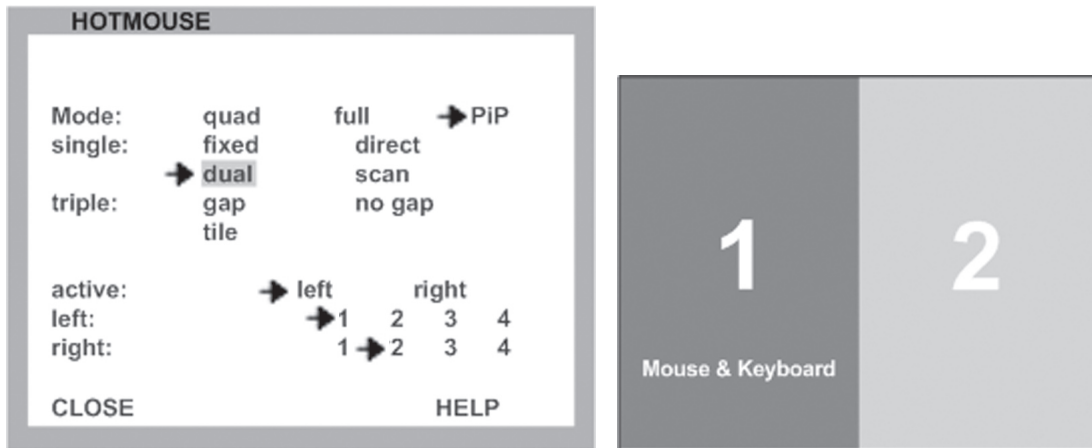


Figure 5-15. Single Dual: The left half of the first channel is displayed at full size next to the left half of the second channel. Use the “Active” setting to select the active channel. To switch the active channel, use the OSD, hotkeys, or front-panel buttons.

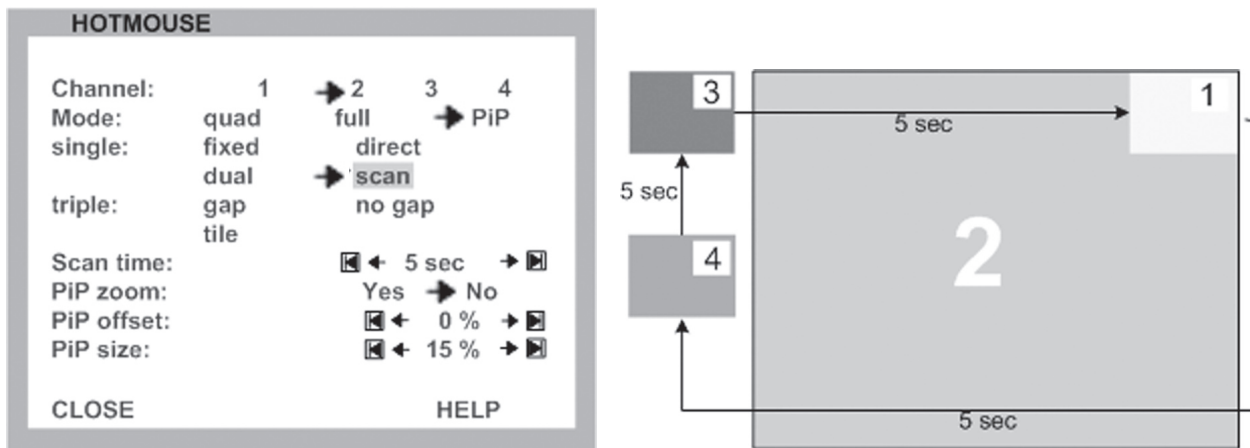


Figure 5-16. Single Scan: Cycles through the PiP images at a set interval.

### 6.0 Contacting Black Box

If you determine that your ServSwitch 4site II is malfunctioning, do not attempt to alter or repair it. It contains no user-serviceable parts. Contact Technical Support at Black Box.

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

- The nature and duration of the problem.
- When the problem occurs.
- The components involved in the problem—what type of computers, what type of keyboard, brand of mouse, make and model of monitor, type and make of cable, etc.
- Any particular application that, when used, appears to create the problem or make it worse.
- The results of any testing you've already done.

#### Shipping and Packaging

If you need to transport or ship your ServSwitch 4site II:

- Package it carefully. We recommend that you use the original container.
- If you are shipping it for repair, please include the unit's external power supplies. If you are returning it, please include everything you received with it. Before you ship the extender back to Black Box for repair or return, contact Tech Support to get a return authorization (RA) number.

## Appendix

### A.1 Keyboard Commands

The ServSwitch 4site II supports two types of hotkeys: "multiple keys" and "double click." By default, the unit is set to "multiple hotkeys". Use the OSD menu to choose the hotkey type and keys (see Section 4.4, The OSD System Menu, Hotkey Commands).

**Multiple Keys: Press multiple keys plus the Command key.**

Command = Hotkey  and  together.

The following hotkeys are available:

, , , and 

By default: Hotkey  =  + 

More Examples:

 =  +  + 

 =  + 

 = 

Double Click Key: Double click one key (=hotkey) and press the Command key within two seconds.

Command = Hotkey  and  in sequence.

For a double-click hotkey, you can choose one of the following keys:

, , , and 

Examples: Hotkey  =  + 

 =  + 

*NOTE: In Command mode (hotkey is activated), the LED flashes on the keyboard. In Double-Click hotkey mode, pressing an invalid key leaves the command mode. While OSD is open, the hot key is "CTRL".*

## Appendix A

---

### Common Keyboard Commands

Selecting the display mode:

 +  = Quad Mode

 +  = Full-Screen Mode

 +  = PiP Mode

Selecting the active channel in Full-Screen, Quad, and PiP modes:

 +  = Computer 1

 +  = Computer 2

 +  = Computer 3

 +  = Computer 4

You can also use hotkey and the arrow keys to switch the active channel.

In Dual mode, you can select the channel on the right using the 1, 2, 3, or 4 keys on the numeric keypad. Switch the active channel with hotkey and the arrow keys. In PiP mode, the active channel automatically is displayed as full image.

### Open USB Device Switch Menu

 +  = Open USB Device / Port 1 Switch Menu

 +  = Open USB Device / Port 2 Switch Menu

 +  = Open USB Device / Port 3 Switch Menu

 +  = Open USB Device / Port 4 Switch Menu



## Other Commands

**HK** + **O** = Open OSD

**HK** + **U** = Directly open OSD USB Device 1–4

**HK** + **V** = Safe output resolution

**HK** + **I** = Directly open the OSD PiP menu (in the background, the display mode switches to PiP as long as the menu is open).

## Installing the Device Configuration Program (CONFDEV)

The Device Configuration Program enables you to remotely operate the OSD of the ServSwitch 4site II on an external Windows® computer via a serial connection.

To install the device configuration software CONFDEV, you will need:

- A Windows computer with a free RS-232 COM port.
- Your ServSwitch 4site II
- The installation CD with the confdevEn.exe program
- the enclosed serial cable (RJ-45 to DB9 adapter + the RJ-45 CAT5 cable)



Figure A-1. Connecting the computer to the ServSwitch 4site II.

## A.2 The ConfdevEn.exe Program

Use the serial cable to connect the COM port of the Windows computer with the serial port of your ServSwitch 4site II.

Insert the installation CD into the CD-ROM drive and start the confdevEn.exe program.

The Device Configuration Program (CONFDEV) window opens:

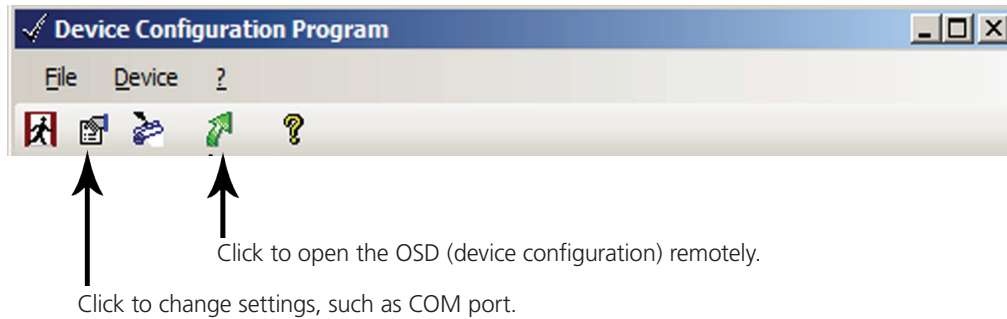



Figure A-2. The confdevEn.exe program when installed.

### Settings

Click the “Device Configuration” button  to open the Settings window. It enables you to set the font size for the OSD window, to log parameters, and to set the COM port the ServSwitch 4site II is connected to.

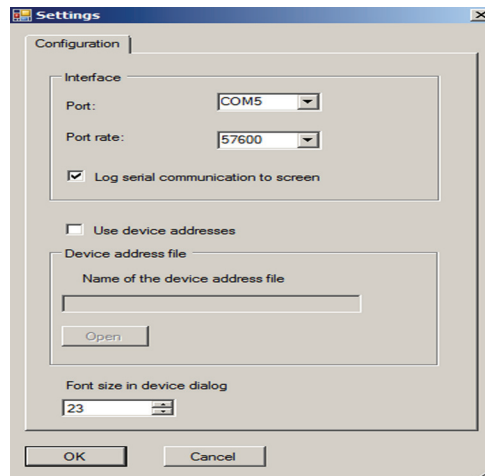



Figure A-3. The Device Configuration Settings control panel.

### Remote OSD Operation

Click the green arrow  to open the ServSwitch 4site II OSD remotely on your external Windows computer. Now, the main OSD menu is open and ready for navigation.

## Navigation

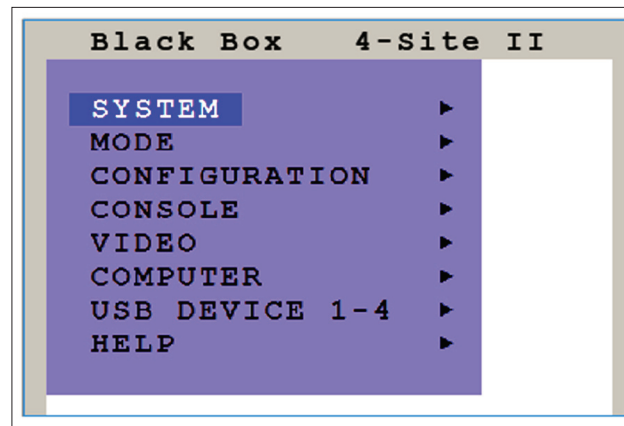


Figure A-4. System Navigation

Use the arrow keys on the keyboard of your remote Windows computer to navigate to the desired line in the OSD menu and confirm by pressing Enter. Use the ESC key to return to the previous menu.

## Updating the Firmware of the ServSwitch 4site II

To execute a firmware update, you will need:

- A computer with a serial port.
- The enclosed serial cable (RJ-45 to DB9 adapter + the RJ-45 CAT5 cable).
- The current executable firmware file.

Use the serial cable to connect the COM port of your computer to the RS-232 port on the ServSwitch 4site II.



Figure A-5. To update the firmware, connect the computer to the ServSwitch 4site II.

## Appendix A

Start the executable firmware file. Set the desired COM port and press “Update”. All LEDs on the front panel of the ServSwitch 4site II will flash blue during the upgrade.

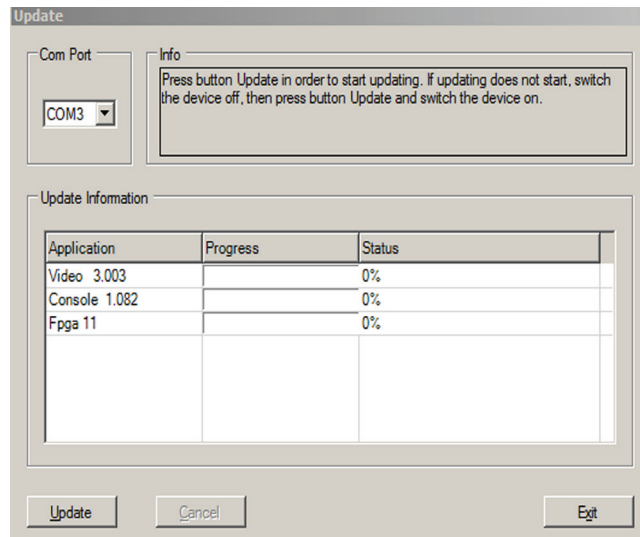


Figure A-6. Setting the COM Port

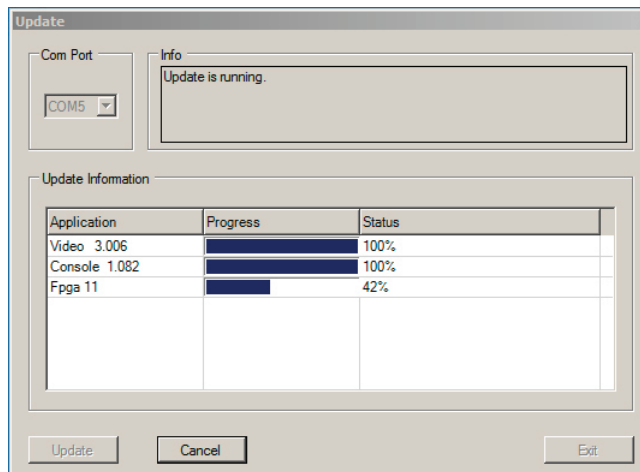


Figure A-7. Status of the Firmware Upgrade.

After a successful update, the ServSwitch 4site II restarts without changing any of your configurations.

### A.3 Pinning of the Serial Cable

For serial remote control, the ServSwitch 4site II requires a special adapter to connect a CAT5 cable to the serial RJ-45 port at the rear panel of the ServSwitch 4site II.

This adapter is connected to your external serial control device (e.g. computer). You can connect any CAT5 cable to this adapter. The CAT5 cable again is connected to the RJ-45 port of the ServSwitch 4site II.

The adapter (plus a standard CAT5 cable (in green)) is delivered with the ServSwitch 4site II.

Serial cable = ServSwitch adapter + standard CAT5 cable.

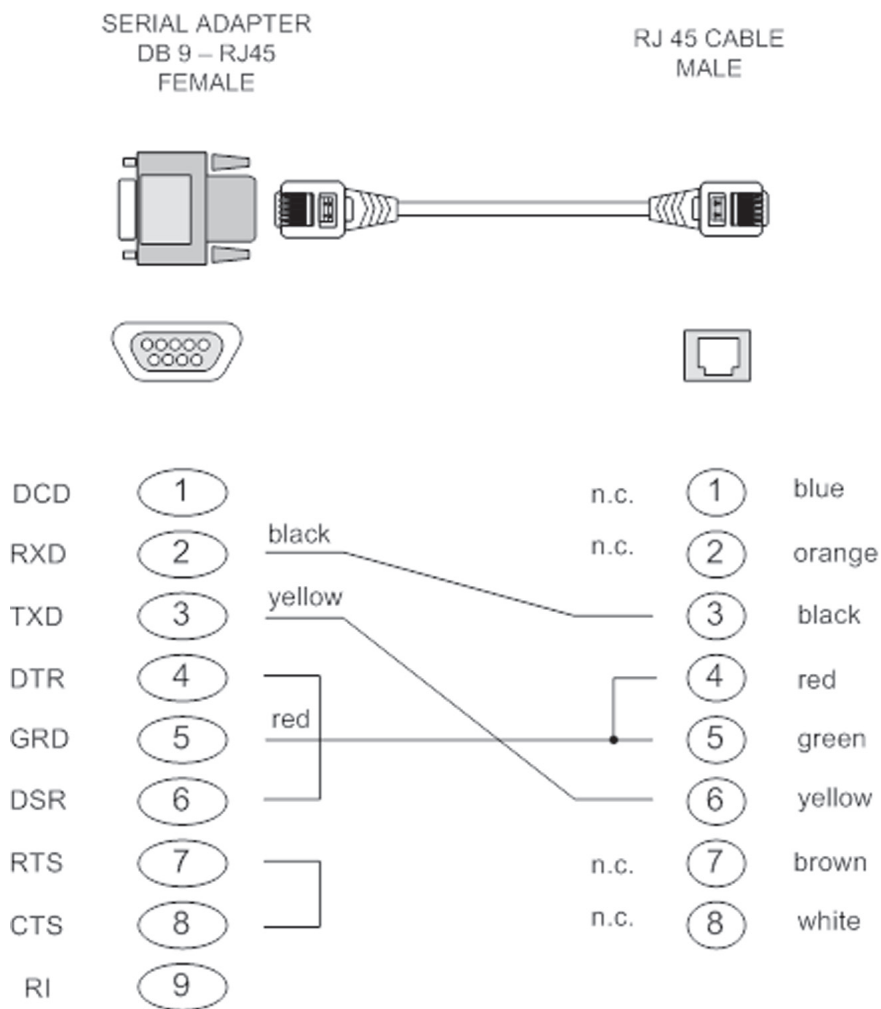


Figure A-8. Pinning for the ServSwitch 4site II Adapter.

## A.4 DCP

### DCP-XML Remote Control

DCP-XML permits remote control of the ServSwitch 4site II by a computer or other devices using the RS-232 serial port of the ServSwitch 4site II. To connect to this port, use the "serial cable" (RJ-45 to DB9 adapter + standard RJ-45 CAT5 cable).

DCP is an XML-based protocol. Using DCP, all important settings of the ServSwitch 4site II can be queried and changed.

A general description of XML can be found at <http://www.w3.org/XML/>

The XML scheme for DCP can be found on the enclosed CD, under the name "dcp.xsd".

For a detailed description on how to use DCP-XML with the ServSwitch 4site II, see the "DCP-XML Manual" on the CD supplied with the ServSwitch 4site II.

### DCP Modes

DCP has two modes of operation:

1. **Control:** This mode is intended for direct control of a ServSwitch 4site II, using a computer, for example.
2. **Synchronize:** This mode is used to synchronize multiple, linked devices. In Synchronize mode, the ServSwitch 4site II sends all settings changes as DCP messages. In this way, a chain of linked ServSwitch 4site II units can be controlled synchronously.

## A.5 Supported Touchscreen Controllers

The ServSwitch 4site II supports USB touchscreens that have one of the following built-in controllers:

### Tyco ELO Touch System

- AccuTouch® Five-Wire Resistive Touch Technology: includes models 1215L, 1229L, 1515L, 1522L, 1528L Medical, 1529L, 1537L, 1715L, 1729L, 1739L, 1915L, 1928L, 1928L Medical, 1939L, 2020L;
- IntelliTouch® Surface Wave Touch Technology: elo 2701 Controller Series (IntelliTouch, SecureTouch®);
- CarrolTouch Infrared Touch Technology

(not supported: Acoustic Pulse Recognition [APR])

**TSharc** (TSharc Octopus Controller). Widely used, including in touchscreens manufactured by 3M®, MicroTouch®, TrollTouch, The Bergquist Company.

### 3M MicroTouch EX II (new release delivered since 2009 with support of HID)

- MicroTouch DST, only restrict: (first calibrate it at computer, then same procedure but while connected at ServSwitch 4site II; only left mouse key support, right mouse key has no function). E.g. integrated at display NEC Multeos 32" und 40" LCD with touch option.

**ET&T Technology**: ETouch IR™ infrared touchscreen, aluminium frame, 26" up to 65"

**eGalaxy eMPIA Technology Inc. (EETI)**: S5000UEGG; 4/5-Wire Resistive Touch Technology; USB.

*NOTE: If your USB touchscreen does not feature one of the controllers listed above, contact Black Box Technical Support to determine compatibility.*

## A.6 Video Input (Display Video Formats)

Table A-1. Input Display Video Formats.

Mode	Resolution	Sync Polarity H/V	Refresh Rate		Set in EDID	VESA / CEA Standard
			Analog Hz	Digital* Hz		
CGA	640x350	+/-	85	85		DMT
CGA	640x400	-/+	85	85		DMT
EGA	720x400	+/+	70	70	x	CVT
EGA	720x400	-/+	85	85		DMT
VGA	640x480	-/-	60	22 - 60	x	DMT
VGA	640x480	-/-	72	72	x	DMT
VGA	640x480	-/-	75	75	x	DMT
VGA	640x480	-/-	85	85	x	DMT
SVGA	800x600	+/+	56	22 - 56	x	DMT
SVGA	800x600	+/+	60	60	x	DMT
SVGA	800x600	+/+	72	72	x	DMT
SVGA	800x600	+/+	75	75	x	DMT
SVGA	800x600	+/+	85	85 - 180	x	DMT
XGA	1024x768	-/+	50	22- 50		CVT
GA	1024x768	-/-	60	60	x	DMT
XGA	1024x768	-/-	70	70	x	DMT
XGA	1024x768	+/+	75	75	x	DMT
XGA	1024x768	+/+	85	85	x	DMT
XGA/B	1152x864	+/+	75	75	x	DMT
SUN	1152x900	+/+	66	66		CVT
HDTVp	1280x720	+/+	50	22 - 50		CEA-861-E
HDTVp	1280x720	+/+	60	60		CEA-861-E
WXGA	1280x768	-/+	60	60		DMT
UWXGA	1280x960	+/+	60	60		DMT
UWXGA	1280x960	+/+	85	85		DMT
SXGA	1280x1024	g	50	50		CVT
SXGA	1280x1024	+/+	60	60	x	DMT
SXGA	1280x1024	g	72	72		CVT
SXGA	1280x1024	+/+	75	75	x	DMT
XGA	1280x1024	+/+	85	85	x	DMT
XGA	1360x768	+/+	60	22 - 60		DMT
SXGA+	1400x1050	-/+	50	22 - 50		CVT
SXGA+	1400x1050	-/+	60	60		DMT
SGI	1600x1024	+/+	60	60		CVT
UXGA	1600x1200	+/+	50	50		CVT
UXGA	1600x1200	+/+	60	60	x	DMT
UXGAr	1600x1200	+/+	50	50		CVT
UXGAr	1600x1200	+/+	60	60		CVT
WSXGA	1680x1050	-/+	60	60		DMT
HDTVp	1920x1080	+/+	---	22 - 24		CEA-861-E
HDTVp	1920x1080	+/+	50	50		CEA-861-E
HDTVp	1920x1080	+/+	60	60	x	CEA-861-E
WUXGAr	1920x1200	+/+	50	22 - 50		CVT
WUXGAr	1920x1200	+/+	60	60	x	DMT

NOTE: Digital: All video formats up to 162 MHz pixel clock following DMT, CVT or GTF standard timings are supported. Within this range ANY digital resolution is supported. Analog input may not be detected correctly. See EDID/DDC.



## A.7 Video Output (Display Video Formats)

The table lists all video formats supported by the ServSwitch 4site II at the output port.

Table A-2. Output Display Video Formats.

Mode	Horizontal	Vertical	Hz
VGA	640	480	60
VGA	640	480	75
VGA	640	480	85
SVGA	800	600	60
SVGA	800	600	75
SVGA	800	600	85
XGA	1024	768	50
XGA	1024	768	60
XGA	1024	768	70
XGA	1024	768	75
XGA	1024	768	85
SXGA	1280	1024	50
SXGA	1280	1024	60
SXGA	1280	1024	75
SXGA+	1400	1050	50
SXGA+	1400	1050	60
UXGA	1600	1200	50
UXGA	1600	1200	60
UXGAr	1600	1200	50
UXGAr	1600	1200	60
XGA/B	1152	864	75
UWXGA	1280	960	60
UWXGA	1280	960	85
SUN	1152	900	66
WXGA	1280	768	60
WXGA	1366	768	60
WSXGA	1680	1050	60
WUXGAr	1920	1200	40
WUXGAr	1920	1200	50
WUXGAr	1920	1200	60
HDTVp	1280	720	50
HDTVp	1920	1080	24
HDTVp	1920	1080	50
HDTVp	1920	1080	60

*NOTE: When set to auto (by default), the ServSwitch 4site II reads the EDID of the monitor connected and automatically supports its resolution.*

*NOTE: Fluid Video Performance: With digital input and a resolution of 800 x 600, the input frame rate may be increased up to 180 Hz. This provides smooth video output even in Quad mode. To use this feature, it is necessary to choose this resolution and refresh rate on all devices connected to the ServSwitch 4site II's video inputs.*

## A.8 Cascading Multiple ServSwitch 4site II Units

### Using More than Four Sources on a Single Display

The ServSwitch 4site II can be cascaded to display more than four sources simultaneously on a single display.

In this master-slave-system, any ServSwitch 4site II can be used as master or slave. It is the same hardware. One ServSwitch 4site II is used as the master unit. The console with the keyboard, mouse, and display or touchscreen is connected to the output of the master unit. A slave ServSwitch 4site II can be connected to each input of the master unit. In this way, each quadrant on the display can be split in four more quadrants.

Example: In a setup with one master and four slave ServSwitch 4site II units, a total of 16 sources can be displayed simultaneously on a single console.

### All Display Modes:

Display modes (Quad, PiP, Dual, Full Screen) of master and slaves can individually be set, combined, and switched, e.g. the master unit could be set to Quad mode, while the first slave is set to PiP, the second slave to Full Screen, the third slave to Quad, and the fourth slave to Dual mode. Any combination is possible.

### Keyboard and Mouse Operation

Keyboard and mouse can be activated on any of up to 16 computers connected to operate them.

### Hotkeys for Switching

Use hotkeys to quickly activate any of the up to 16 channels or to switch the display mode of any of the ServSwitch 4site II units in the master-slave-system.

Different levels (master or slave) require different types of hotkeys.

For example, keep the hotkey default setting  for all slave ServSwitch 4site II units.

Just change the hotkey settings for the master ServSwitch 4site II to e.g. .

For how to change hotkeys, see Section A.1 Keyboard Commands.

Example: In a cascaded ServSwitch 4site II setup with one master, 4 slaves, and 16 computers connected, you can activate the keyboard and mouse of Computer 16 by pressing the following hotkey combination:

HK2 + 4 (to activate the Channel 4 on the master level), then HK1 + 4 (to activate the Channel 4 on the slave ServSwitch 4site II connected to Port 4 of the master)

Example: To change a display mode of the slave ServSwitch 4site II connected to Port 4 of the master ServSwitch 4site II press the following hotkey combination:

HK2 + 4 (to activate Channel 4 on the master level), then HK1 + P to switch from default Quad mode to PiP mode in this quadrant. The result is a screen split into four equal quadrants. All quadrants are split again into four equal quadrants (Quad mode); just the quadrant in the lower right corner (Channel 4) is showing its four sources in PiP mode.



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