

## 2-Port KVM Console Adapter - Laptop to Server

SV231USBLC



\*actual product may vary from photos

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For the latest information, technical specifications, and support for this product, please visit [www.startech.com/SV231USBLC](http://www.startech.com/SV231USBLC).

## FCC Compliance Statement

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

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

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

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This Class B digital apparatus complies with Canadian ICES-003.

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CAN ICES-3 (B)/NMB-3(B)

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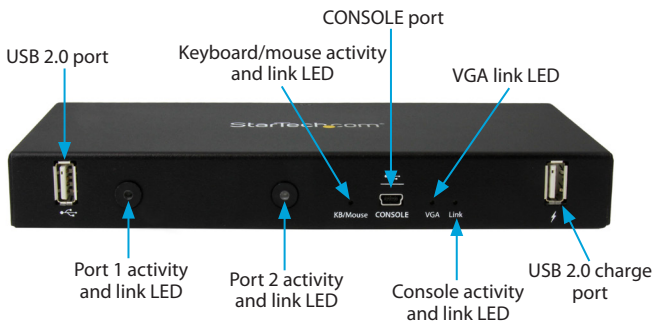
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# Introduction

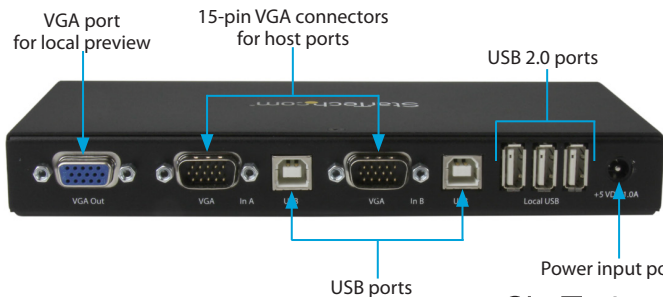
This two-port USB KVM console adapter provides you with KVM control of your servers directly from your laptop computer, and provides a convenient way to run diagnostics, maintenance, and updates for small-scale server applications. The console adapter allows you to access servers located in small spaces or congested server racks, and is ideal in environments where a fixed-installation console server isn't feasible. The adapter also comes with mounting hardware that you can use to install the adapter in your server rack.

## Product diagram

### Front view



### Rear view



## Packaging contents

- 1 x 2-port laptop-to-KVM console adapter
- 2 x mounting brackets (mounting screws included)
- 2 x 2-1 USB and VGA cables - 6 feet
- 1 x USB A to Mini-B cable
- 1 x USB software key
- 1 x universal power adapter (NA/EU/UK/AU)
- 1 x quick-start guide

## System requirements

### Laptop requirements

- USB 2.0-enabled laptop
- 20 MB of available storage drive space
- 24-bit capable display
- One of the following operating systems:
  - Windows® 7 (32-bit and 64-bit)
  - Windows 8.1 (32-bit and 64-bit)
  - Windows 10 (32-bit and 64-bit)
  - Mac OS 10.6 and later (tested up to 10.10)
  - Linux® 2.6.x to 3.13x (32-bit and 64-bit)

### Server requirements

- VGA-enabled video card (DVI support via optional DVIVGAMF adapter)
- USB keyboard and mouse support

Operating system requirements are subject to change. For the latest requirements, please visit [www.startech.com/SV231USBLC](http://www.startech.com/SV231USBLC).

# About the KVM console adapter

You must install the provided software on the laptop to be able to use the KVM console adapter. You don't need to make any changes to the server(s) being controlled, and the adapter can be connected or disconnected at any time. You don't need to start or shut down the software before you unplug the adapter.

## Install the software

### Windows

**Note:** Complete the following steps before you connect the adapter.

1. Insert the provided USB software key into your laptop and run the **setup.exe** installation program.
2. Follow the on-screen instructions to complete the installation.
3. Connect a USB 2.0 cable to the USB **CONSOLE** port on the front of the adapter and to your laptop.
4. A **Found New Hardware** dialog window should appear.
5. Windows locates the device driver files and installs them automatically. This is a one-time step that you won't need to complete again.
6. Open the **USB Crash Cart Adapter** software and begin using the adapter.

**Note:** You don't need to restart your computer to complete the installation.

### Mac OS

1. Disconnect the adapter.
2. Insert the provided USB software key into your MacBook.
3. Double-click the **MacOSX-install.dmg** file.
4. After a short delay to verify the disk image, a window opens and displays the application and a link to **Applications**. Drag and drop the main application onto the **Applications** link.
5. To use the application, double-click **Applications**.
6. To add this application to the dock, drag and drop the main application from **Applications** onto the dock.
7. Connect a USB 2.0 cable to the USB console port on the front of the adapter and to your laptop.
8. Open the **USB Crash Cart Adapter** software and begin using the adapter.

**Note:** You don't need to restart your computer to complete the installation.

# Connect the adapter

After you install the drivers and software for the adapter onto your laptop, you can plug the adapter into the server.

- Connect the VGA cable and the USB cable to the desired server. For DVI-I (analog) computer systems, use a DVI to VGA adapter, for example, the [StarTech.com DVIVGAMF](#) (sold separately).

## About the LED indicators

The adapter includes five LEDs: Two port activity LEDs, a server keyboard/mouse LED, a server VGA LED, and a console LED.

### Port LEDs

LED behavior	Significance
LED is illuminated green	The port is active
LED is illuminated red	The video isn't available

### Server keyboard or mouse LED

LED behavior	Significance
LED is illuminated green	USB is attached to the active PC port
LED is blinking green	Indicates activity

### Server VGA LED

LED behavior	Significance
LED is illuminated green	VGA is attached to the active PC port
LED is blinking green	Server VGA isn't connected

### Console LED

LED behavior	Significance
LED is illuminated green	Console is connected to a laptop
LED is blinking green	Indicates activity



# Mounting the adapter

The adapter comes with mounting brackets and hardware that you can use to install the adapter in a server rack or mount the adapter to a wall. You can also place the adapter on a shelf in a server rack.

## Attach the mounting brackets

1. Line up one of the mounting brackets with the mounting holes on the side of the adapter so that the four holes in the mounting bracket are facing downward.
2. Use a screw and a screwdriver to attach the mounting bracket to the adapter.
3. Follow steps 1 and 2 to attach the second mounting bracket on the other side of the adapter.

## Mount the adapter

You can mount the adapter in any of the following ways:

- Use the mounting brackets to attach the adapter to a wall.
- Place the adapter on a shelf in your server rack.
- Use the provided cage nuts and screws to install the adapter vertically (*figure 1*) or horizontally (*figure 2*) in your server rack.

*figure 1*



*figure 2*



# About the software toolbar

A toolbar is displayed along the top edge of the main screen of the software. You can hide, detach, or drag the toolbar onto the other three edges of the screen. This toolbar includes a number of shortcuts and displays some status information. Most of the functions included in the toolbar are also available in the drop-down menus located across the top of the screen.

## Move or detach the toolbar

To change the position of the toolbar on the screen, do one of the following:

- To detach the toolbar, drag the move handle on the top-left edge of the screen.
- To close the toolbar when the toolbar is detached, click the red X or circle.
- To move the toolbar, drag the handle on the top-left edge of the screen. When you drag or move the toolbar, you can leave it on the top or bottom edge of the screen if you're in horizontal mode, or on the left or right edges of the screen if you're in vertical mode.













## View status information










When the system is running, the system statistics are displayed on the far-right side of the toolbar. The software information that is displayed varies depending on what processes the other software on your laptop is running. The status information that is displayed includes the following:

- The first number that is displayed is the USB bandwidth in bits per second. When no motion is detected by the hardware video compression, no bits are sent. "Noisy" video cards and ongoing video animations cause a constant stream of USB traffic.
- The second number indicates the achieved frames rates for the hardware components. The hardware information is measured in Hz and ranges from 1 to 85 Hz, but is typically 30 or 60 Hz.
- The third number indicates the achieved frame rates for the software components. The software information is measured in frames per second (fps) and is limited to a maximum of 60 fps.

## Toolbar shortcuts

The following shortcuts are available in the toolbar:

Icon	Task
	Click to change the orientation of the toolbar to vertical or horizontal.
	Click to exit the pocket console application.
	Click to fine-tune the video picture.
	Click to open the <b>video settings</b> screen.
	Click to take a screen shot and save it as a .png, .jpg, or .bmp file.
	Click to record.
	Click to loop record.
	Click to play previously recorded videos.
	Click to pause the playback.
	Click to make a movie (.avi file) out of a previously recorded video.
	Click to switch between full-screen and window mode.
	Click to go to 100% zoom or the largest zoom possible.
81%	The current zoom percentage. (The number will vary from what is shown in the Icon column.)
	The disk control (file transfer) icon.

Icon	Task
	Click to open the <b>special keys</b> screen. If there's an issue with the keyboard, a red X will appear on the icon.
	Indicates whether the USB or PS/2 keyboard emulation is active.
	Click to simulate pressing the <b>Caps Lock</b> button. If caps lock is turned on, the icon will be green.
	Click to simulate pressing the <b>Num Lock</b> button. If num lock is turned on, the icon will be green.
	Click to simulate pressing the <b>Scroll Lock</b> button. If scroll lock is turned on, the icon will be green.
	Click to send <b>Ctrl+Alt+Del</b> to the server.
	Click to switch to channel one.
	Click to switch to channel two.
	The status area that displays the USB bandwidth, and hardware and software frame rates.

## Software menu options

To help manage your displays and servers, there are several menus available in the adapter software that contain additional features and settings. The menus include File, Zoom, Video, Keyboard, Mouse, File Transfer, Toolbar, and Help.

### About the zoom options

The **Zoom** menu includes a number of options that you can use to set the zoom percentage and resize the window accordingly. For example, if the attached server is running at XGA resolution (1024 x 768) and you select 50% zoom, the main window is set to a size of approximately 512 x 384.

**Note:** Not all of the zoom options are possible because laptop screens are too small for the larger zoom percentages. In those cases, the software resizes the screen to the largest window possible.

The following are some things to note when using some of the options available in the **Zoom** menu:

- This program doesn't enlarge video, it only shrinks it. As such, text mode (720 x 480 or similar dimensions) won't be enlarged to fill your screen.
- The toolbar is automatically disabled when you select a zoom percentage below 50%. When you zoom out and return to a larger screen size, you need to manually enable the toolbar in the **Toolbar** menu.
- Unusable parts of the window are displayed in grey. This happens because the video is scaled by an integer factor of 1/16 and as a result of other rounding issues.

## Change the zoom settings

- On the **Zoom** menu, do any of the following:
  - Click **Turn on full-screen mode**. This option is ideal for smaller screens. If the toolbar is disabled when you enter full-screen mode, a smaller toolbar with only the full-screen and quit options is displayed. This smaller toolbar floats and can be moved, but it can't be hidden. To stop running full-screen mode, click **Turn on full-screen mode** again.
  - Click **Maximize window**.
  - Click **Center on screen**. This option is useful when the window is off of the edge of the screen.
  - Click **Auto Resize Window**.
  - Click **Shrink to Fit Window**.
  - To select a preset zoom value, click a zoom percentage.

The current zoom percentage is displayed at the bottom of the **Zoom** menu and is formatted as **Current zoom: <number %>**.

## Change the video channel

When you change the video channel, you select the corresponding port on the KVM switch.

1. On the **Video** menu, click **Channels**.
2. Do one of the following:
  - Click **Channel 1**.
  - Click **Channel 2**.

## Automatically fine tune the picture

This option makes the picture sharper and reduces USB traffic. The picture will freeze for about one second while the calibration is performed.

- On the **Video** menu, click **Auto fine-tune picture**.

## Adjust the position of the image

1. On the **Video** menu, click **Settings**.
2. In the **Picture Positioning** section, do one of the following:
  - Click the **up**, **down**, **left**, and **right arrow** buttons to move the picture. The directional arrow buttons function similarly to the centering controls found on video monitors.
  - To automatically center the video image within the program window, click **Auto**.
  - To apply the default settings, click **Default**.
  - To save your changes, click **Save**.

The adjusted values are automatically applied whenever the same video mode is displayed again.

## Adjust the sharpness of the image

1. On the **Video** menu, click **Settings**.
2. In the **Sampling phase (Sharpness)** section, do one of the following:
  - To automatically adjust the image sharpness, click **Auto**.
  - To manually adjust the image sharpness, move the **Phase** slider.

## Adjust the noise filters

The adapter uses the noise filter and the flatness filter to reduce USB traffic and improve the picture quality.

The noise filter:

- Helps to remove speckle noise.
- Doesn't usually display a visual effect, unless you move the mouse to high values and then some pixels may be left behind.

The flatness filter:

- Converts regions that are nearly all of the same color to the same color to aid with compression.
- At higher values, color banding is much more visible.

By default, both filters are enabled and set to 1, but you can change these settings.

1. On the **Video** menu, click **Settings**.
2. In the **Noise Filters** section, do one of the following:
  - To adjust the noise level, move the **Noise** slider.
  - To adjust the flatness of the image, move the **Flatness** slider.
  - To save your changes, click **Save**.
  - To apply the default settings, click **Defaults**.

## Adjust the color brightness of the image

1. On the **Video** menu, click **Settings**.
2. In the **Color Brightness Adjustments** section, do one of the following:
  - To adjust the red level, move the **R Gain** slider.
  - To adjust the green level, move the **G Gain** slider.
  - To adjust the blue level, move the **B Gain** slider.
  - To automatically adjust the brightness, click **Auto**.
  - To apply the default settings, click **Defaults**.

## Adjust the color offset of the image

1. On the **Video** menu, click **Settings**.
2. In the **Color Offset Adjustments** section, do one of the following:
  - To adjust the red level, move the **R Offset** slider.
  - To adjust the green level, move the **G Offset** slider.
  - To adjust the blue level, move the **B Offset** slider.
  - To automatically adjust the color offset, click **Auto**.
  - To apply the default settings, click **Defaults**.

## Take a screen shot

Select this option to take a screen shot of the current window contents and save it as a PNG, JPG, or BMP file. Screen shots are always stored at full resolution and contain the whole screen.

1. To take a screen shot, on the **Video** menu, click **Save PNG snapshot**.
2. Select the location where you want to save the screen shot and follow the on-screen instructions.

## Record the current display

You can select to capture the current display until you stop the recording or until the user-defined period is reached (functions only when the SV231USBLC is connected). You can also specify a destination folder where the recorded files are stored.

1. To start recording, on the **Video** menu, click **Record**.
2. Select a destination folder that the video will be saved to.

**Note:** Make sure that you have read and write access to your destination folder or an error message will be displayed when you try to save files to the folder.

3. If necessary, set the maximum record time (1 to 3600 seconds). Values outside the 1 to 3600 range are automatically reset to 1 or 3600.
4. To stop recording, on the **Video** menu, click **Record**.

The **Playback**, **Pause**, **Make Movie**, and **File Transfer** menu options are disabled while you're recording.

## Use the Loop Record feature

You can use the Loop Record feature to continuously capture the latest video until the user-defined period is reached (functions only when the SV231USBLC is connected).

1. To start recording, on the **Video** menu, click **Loop Record**.
2. Select a destination folder that the video will be saved to.

**Note:** Make sure that you have read and write access to your destination folder or an error message will be displayed when you try to save files to the folder.

3. Set a maximum record time (1 to 3600 seconds). Values outside the 1 to 3600 range are automatically reset to 1 or 3600. If the preset time is  $Y$  seconds, the final record time could be in the range of  $Y$  to  $2Y$  seconds.
4. To stop recording, on the **Video** menu, click **Loop Record**.

The **Playback**, **Pause**, **Make Movie**, and **File Transfer** menu options are disabled while you're recording.

## View a video

You can use the playback and pause functions to view recorded or loop-recorded files. This option is available regardless of whether the SV231USBLC is connected or not.

1. To view a video file, on the **Video** menu, click **Playback**.
2. Select the folder that contains the video file that you want to view.
3. Select the playback frame rate. The lower the frame rate is, the slower the video is replayed, which may mean that you can see more details.



**Note:** 30 is the recommended playback frame rate for Windows and 60 is recommended for Mac and Linux systems.

4. To pause the video, on the **Video** menu, click **Pause**.

The **Playback**, **Pause**, **Make Movie**, and **File Transfer** menu options are disabled while you're recording.

## Make a movie with previously recorded videos

You can create an .avi file from previously recorded or loop-recorded files. This option is available regardless of whether the SV231USBLC is connected or not.

1. To create an .avi file, on the **Video** menu, click **Make Movie**.
2. Select the folder that contains the video files that you want to use.
3. Select an output resolution for the .avi file.

**Note:** If the recording was created using a resolution larger than the chosen output resolution, the output video may look squashed.

The **Playback**, **Pause**, **Make Movie**, and **File Transfer** menu options are disabled while you're recording.

## Reset the video processing

Sometimes when you switch resolutions, the video might get stuck. Resetting the processing will usually resolve this issue.

- On the **Video** menu, click **Reset video processing**.

## Access the advanced video settings

- On the **Video** menu, click **Advanced**.

## Turn on keyboard transparent mode

When you turn on keyboard transparent mode, system key events are only sent to the computer connected through the adapter. When you turn off keyboard transparent mode, system key events are sent to the computer connected through the adapter and the laptop that is running the software.

- On the **Keyboard** menu, click **Transparent mode**.

## Send a key combination

Most of the keystrokes are forwarded directly to the connected host computer, however, some special key combinations, such as Ctrl+Alt+Del, are blocked by the computer's operating system unless you select the key combination on the menu.

- On the **Keyboard** menu, click **Send: Ctrl+Alt+Del**.

## Set virtual keys

You can view and select virtual keys and special key sequences on the Keyboard menu.

1. On the **Keyboard** menu, click **More special keys**.
2. On the **Virtual Keys** screen, do one of the following:
  - Select the check boxes for the keys that you want to set.
  - To reset to the default settings, click **Reset**.

## Use the hot plug feature

Hot plugging simulates unplugging the USB cable and immediately reconnecting it, and completely resets the USB keyboard and mouse emulation.

**Note:** When you initiate hot plugging, the keyboard and mouse aren't available until the device driver on the host computer reinitializes the emulated keyboard and mouse. During this time, a red **X** is shown on the **Keyboard** icon on the toolbar.

- To use the hot plug feature, on the **Keyboard** menu, click **Simulate Hotplug (reset)**.

## Select an active emulation type for the keyboard

1. On the **Keyboard** menu, click **Active emulation type**.
2. Do one of the following:
  - Click **USB**.
  - Click **PS/2**.

## Select emulated keyboard lights

1. On the **Keyboard** menu, click **Emulated keyboard lights**.
2. Do one of the following:
  - Click **Caps Lock**.
  - Click **Num Lock**.
  - Click **Scroll Lock**.

## Disable the emulated mouse

- To disable the mouse, on the **Mouse** menu, click **Disable mouse entirely**.

## Swap buttons on the emulated mouse

You can swap the order of the buttons so that the left and right buttons are reversed. This setting is useful for people who control the mouse with their left hand. It's not always clear how many swaps are needed and which layer is doing the swapping. As such, you should experiment with this option to achieve the settings that you want.

- On the **Mouse** menu, click **Swap buttons (for lefties)**.

## Select a captured mouse setting

1. On the **Mouse** menu, click **To release captured mouse**.
2. Do any of the following:
  - Click **Circle gesture with mouse**.
  - Click **Press Alt+Ctrl+Shift together**.
  - Click **Show reminder window**.

**Note:** You can make more than one selection at a time.

## Enable MacOS X scaling

- On the **Mouse** menu, click **MacOS X scaling**.

## Select a mouse reporting mode

You can use this submenu to view the current mouse reporting mode and to force the system into **Relative** mode. Any BIOS system that uses the USB mouse probably won't support **Absolute** mode. Similarly, programs that run in DOS with the BIOS converting USB events into legacy PS/2 mouse events won't be able to understand absolute mouse events. The USB laptop console will drop down to **Relative** mode when the host computer indicates that it doesn't support **Absolute** mode (there is a way to do this over USB protocol). You can also force **Relative** mode, which causes a USB hotplug event and is internally remembered by the USB laptop console itself. If the host computer doesn't correctly implement the USB HID specification, you may need to force **Relative** mode.

1. On the **Mouse** menu, click **Motion reporting mode**.
2. Do one of the following:
  - Click **Absolute (default)**.
  - Click **Relative (compatibility)**.
  - Click **Force relative mode**.

The two options that you don't select are greyed out in the menu, but you can still select them.

## About the File Transfer menu

File transfer works like a removable USB drive, but instead of a real drive, it creates a disk image on the host computer that stores the files. Only one computer at a time may access the image. Similar to what happens when you plug in a USB drive, when the disk image is created, the target computer can read and write to the disk image but the host computer can't. The virtual USB drive can be used by any program or operating system without requiring special drivers.

Disk images are dynamic. For example, if you create a 10 GB disk and copy a 1 MB file, it uses only 1 MB plus overhead. **Note:** Large images are less efficient and may take up more space when copying many small files.

Disk images that use the VHD format are compatible with Microsoft Windows and can be mounted by Windows Explorer.

ISO CD-ROM and DVD images can also be used for read-only storage, meaning that you can install an operating system without burning a real CD.

You can also drag and drop files onto the video window to automatically copy files and create a temporary image.

## Select a file transfer option

- On the **File Transfer** menu, do one of the following.
  - Click **Disk Control**.
  - Click **Eject**.

## Change the toolbar options

The options in this menu provide a more direct way to control the toolbar. Options include docking, floating, hiding, or showing the toolbar. A check mark next to the option indicates the current state of the toolbar. Depending on your current toolbar settings, some of the options listed below won't appear in the Toolbar menu.

- On the **Toolbar** menu, click any of the following:
  - Click **Show toolbar**.
  - Click **Hide toolbar**.
  - Click **Horizontal toolbar**.
  - Click **Vertical toolbar**.
  - Click **Dock the toolbar**.
  - Click **Float the toolbar**.
  - Click **Restore default window layout**.

When you close and reopen a program, the toolbar remains in the state that it was in when you closed the program.

## Select a Help menu option

- On the Help menu, do one of the following:
  - Click **Online manual**.
  - Click **Get latest version**.
  - Click **License**.
  - Click **About**.

# Troubleshooting

### None of the lights on the SV231USBLC are illuminated

One of the possible causes of this issue is that the adapter isn't receiving power from either of the USB connections.

Try the following action:

- Connect the device to other USB ports that you know are receiving power.

### A black bar is appearing on the left or top of the image

Try the following actions:

1. Click **Video > Settings**.
2. Click the directional arrows to move the image to the left or up until you can't see any black on the image.
3. To save your changes, click **Save**.

### The LEDs on the user console are flashing or the software says SV231USBLC isn't connected

This issue may be a result of the device drivers not being installed properly.

To verify that the device drivers are installed correctly on a computer running a version of Windows OS, complete the following steps:

1. Unplug the SV231USBLC.
2. Restart your system.
3. Plug in the SV231USBLC.

If the device drivers are installed correctly, a **Found New Hardware** message should appear.

## **A red X appeared over the keyboard icon in the toolbar**

One of the possible causes of this issue is that the attached computer isn't handling the emulated USB keyboard and/or mouse. The attached computer may be disconnected or powered down, or the operating system may be halted. If any of those things are occurring, the keyboard and mouse won't work, as indicated by the red X.

# Technical support

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