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Matrox MicroQuad

User Guide

July 7, 2014

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1

Introduction

This chapter lists the Matrox MicroQuad requirements and explains how to install your Matrox MicroQuad software.

Welcome to Matrox MicroQuad

Matrox MicroQuad is an SDI to HDMI multiviewer that allows you to monitor up to four SDI (3G, HD, or SD) inputs on an HDMI display. You can view each of the four SDI inputs in full screen independently or together through a quadrant view on an HDMI display. Matrox MicroQuad does not require a computer, and has three buttons on the unit for switching between full screen view and quadrant view. The Matrox MicroQuad unit has predefined DIP switches and a Mini USB port that can be used to control the Matrox MicroQuad unit remotely.

Matrox MicroQuad requirements

Matrox MicroQuad requires the following:

- An HDMI display device for viewing the SDI inputs, and a good-quality HDMI cable for connecting the HDMI display device to the HDMI output connector on the Matrox MicroQuad unit.

Caution Using a low-quality HDMI cable can damage the HDMI connector on the Matrox MicroQuad unit.

- To use the optional Matrox MicroQuad Remote Control Panel, you will need a computer with the following:
  - Microsoft Windows 7 (32-bit or 64-bit) with Service Pack 1, or Microsoft Windows XP (32-bit) with Service Pack 3.
  - A USB port and a third-party USB cable to connect Matrox MicroQuad to your computer. If your computer does not have a USB port, or if it has a different type of USB port, you can use a compatible USB adapter/cable.

Installing your Matrox MicroQuad software

Matrox MicroQuad has a Remote Control Panel that can be installed on your Windows system for controlling the Matrox MicroQuad unit remotely. To download and install the latest version of the Matrox MicroQuad software (MicroQuadUtils), visit the Downloads section of our website at www.matrox.com/video/support.

Remarks

- You must download and run Matrox MicroQuadUtils on a Windows system. Matrox MicroQuadUtils does not support Mac OS systems.
- To uninstall your Matrox MicroQuad software, choose **Start > All Programs > Matrox MicroQuadUtils > Uninstall Matrox MicroQuadUtils**.

Updating your Matrox MicroQuad firmware

When you install the Matrox MicroQuad software (MicroQuadUtils), the installation program also installs the Matrox MicroQuad Updater, which you can use to update the device's firmware or FPGA.

Note You must run the Matrox MicroQuad Updater (and MicroQuadUtils) on a Windows system. They do not work on Mac OS systems.

1. Power up the Matrox MicroQuad. For more information, see "Powering Matrox MicroQuad" on page 6.
2. Connect a third-party USB cable from Matrox MicroQuad's USB port to your computer's USB port.
3. Choose **Start > All Programs > Matrox MicroQuadUtils > Matrox MicroQuad Updater**.

   The Matrox MicroQuad Updater opens, and indicates if an update is required.
4. Click **Update** to begin the firmware update.

Note If the updater shows that the MicroQuad is up-to-date, you can still force an update by selecting **Force update**, and then clicking **Update**.

The MicroQuad has been updated, and will be running the latest firmware after you reboot the device.

Matrox MicroQuad Development Library

Matrox MicroQuad provides a development library (MveTetraLibrary) that contains programming information (in *.h*, *.dll*, and *.lib* files) for Matrox MicroQuad so that you can integrate the functions of the MicroQuad interface within your own application. All the functions needed to control the Matrox MicroQuad unit are provided in MveTetraLibrary. To download the latest version of MveTetraLibrary, visit the Downloads section of our website at www.matrox.com/video/support.

Last-minute information

Any important information that wasn't available for inclusion in this manual by publication time is provided to you in the *Matrox MicroQuad Release Notes*.

Your notes

2

Connecting External Devices to Matrox MicroQuad

This chapter shows how to supply power and connect external devices to Matrox MicroQuad.

Available Matrox MicroQuad connections

Matrox MicroQuad provides the following inputs and outputs for connecting external devices:

- Four BNC SDI input connectors with up to 16 channels of embedded audio per connector.
- One HDMI output connector with up to eight channels of embedded audio.

Powering Matrox MicroQuad

You can supply power to Matrox MicroQuad using an AC outlet via the Matrox external power supply cable. To turn Matrox MicroQuad off, unplug the Matrox external power supply cable from the AC outlet.

Note For a secure power connection, use the locking connector supplied on the power supply cable to fasten it to Matrox MicroQuad.

Matrox MicroQuad operating safety feature

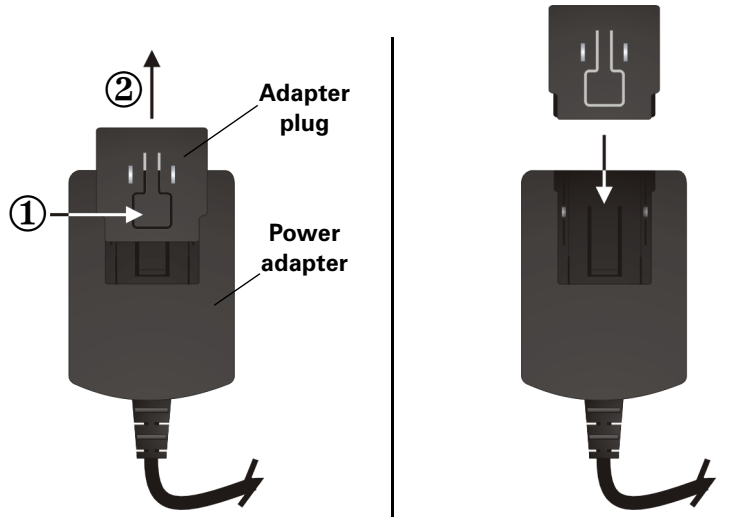
Matrox MicroQuad has an operating safety feature that will cause all four SDI LEDs to flash red as a warning when the Matrox MicroQuad unit exceeds normal operating temperature. If all four SDI LEDs flash red, unplug the external power supply cable from the AC outlet, and wait a few minutes for the Matrox MicroQuad unit to cool before reconnecting the power supply cable back into the AC outlet.

Matrox MicroQuad power supply and adapter plugs

Matrox MicroQuad provides an external power supply cable with international adapter plugs for use in different regions:

- To remove an adapter plug from the power adapter, hold down the button on the adapter plug, and then slide the adapter plug up until it releases from the power adapter.
- To insert an adapter plug into the power adapter, ensure that the adapter plug is properly aligned with the corresponding slot on the power adapter, and then slide the adapter plug down into the power adapter until it locks into place.

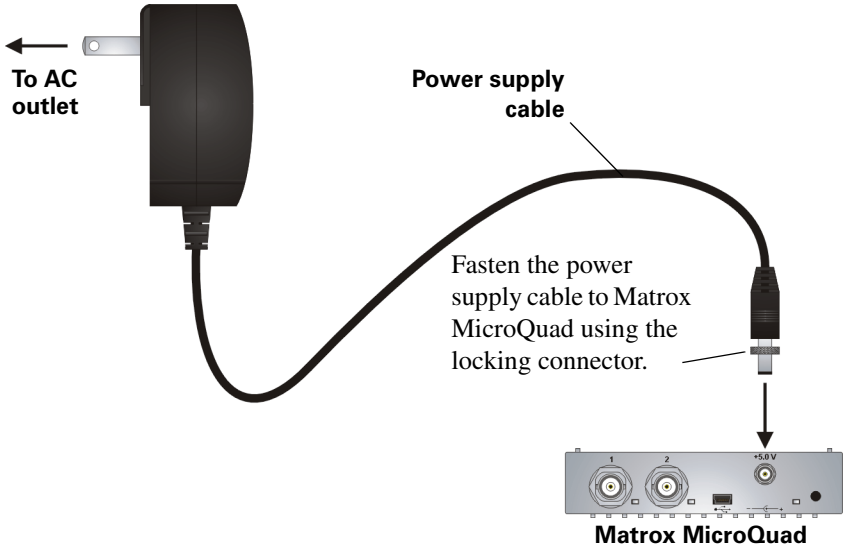
Removing/inserting adapter plug



Removing an adapter plug

Inserting an adapter plug

Powering Matrox MicroQuad



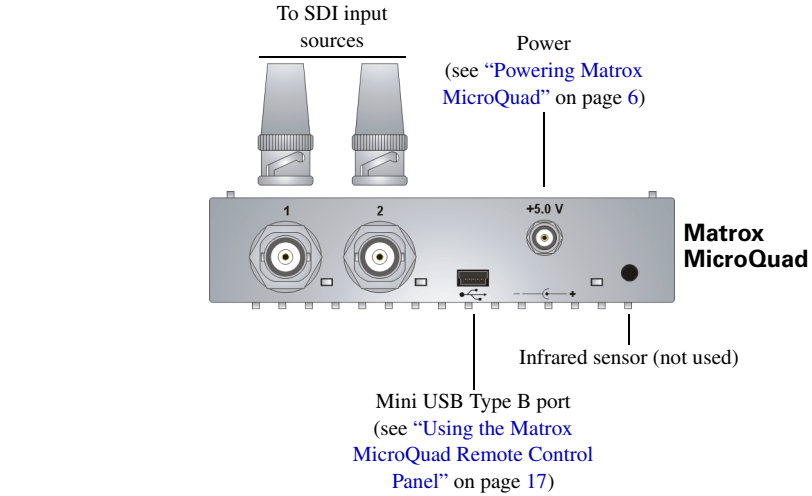
Matrox MicroQuad

Connecting input and output devices

The Matrox MicroQuad unit supports four SDI input sources via four BNC input connectors and one HDMI output device via an HDMI output connector. For a list of the supported input and output formats, see "Supported SDI input and HDMI output formats" on page 21.

Important If you are connecting more than one input source to Matrox MicroQuad, the input sources must have the same video format.

Matrox MicroQuad connections and buttons



Caution Using a low-quality HDMI cable can damage the HDMI connector on the Matrox MicroQuad unit.

3

Using Your Matrox MicroQuad

This chapter explains how to use your Matrox MicroQuad to monitor video and audio.

Overview

Matrox MicroQuad is operated using the Matrox MicroQuad buttons located on the unit (see "Using the Matrox MicroQuad buttons" on page 14) or using the Matrox MicroQuad Remote Control Panel (see "Using the Matrox MicroQuad Remote Control Panel" on page 17). Matrox MicroQuad also features status LEDs (see "Understanding the Matrox MicroQuad status LEDs"), and DIP switches for performing various functions (see "Setting the Matrox MicroQuad DIP switches" on page 15").

Understanding the Matrox MicroQuad status LEDs

Matrox MicroQuad features the following status LEDs:

- **SDI 1**, **SDI 2**, **SDI 3**, and **SDI 4**
  - **Green** The input source is connected.
  - **Red** The input source is not connected.
- **Power** The LED is green when power is supplied to Matrox MicroQuad and the hardware is functioning properly.



Note If the Matrox MicroQuad unit exceeds normal operating temperature, all four SDI LEDs will flash red as a warning. For more information see "Matrox MicroQuad operating safety feature" on page 6.

Matrox MicroQuad input channels

Matrox MicroQuad supports four input channels that correspond to the SDI input connectors (SDI 1 to SDI 4). The SDI input connector number and the input channel number correspond. For example, SDI input connector 1 (SDI 1) corresponds to input channel 1 and SDI input connector 4 (SDI 4) corresponds to input channel 4. If DIP switch 2 is OFF on the Matrox MicroQuad unit (see "Setting the Matrox MicroQuad DIP switches" on page 15) or **Hide HDMI labels** in the **DIP Switch Settings** of the Matrox MicroQuad Remote Control Panel is not selected (see "Using the Matrox MicroQuad Remote Control Panel" on page 17), the HDMI labels that appear on the HDMI output will correspond to the input channel numbers. In the following examples, SDI input connector 1 (SDI 1) corresponds to CAM 1 (input channel 1) and SDI input connector 4 (SDI 4) corresponds to CAM 4 (input channel 4).

You can also show the VU meters for each input channel. For more information on VU meters, see "Monitoring audio levels" on page 13.

Matrox MicroQuad quadrant view



Note If the resolution and frame rate on all SDI input sources do not match, only SDI input channel 1 (SDI 1) will be displayed while the other channels will appear black.

Matrox MicroQuad full screen view



Matrox MicroQuad's synchronized inputs

Matrox MicroQuad synchronizes the video and audio on the HDMI output to SDI input channel 1 (SDI 1). This ensures that when the HDMI display is in quadrant view, all four video outputs are synchronized, thereby eliminating artifacts and video tearing.

Note If nothing is connected to SDI input channel 1 (SDI 1), then Matrox MicroQuad automatically synchronizes the HDMI output to the next available valid SDI input channel.

HDMI output display

Matrox MicroQuad outputs the video and audio from the SDI inputs to an HDMI display device. The video output can be displayed either in quadrant view or in full screen view, and you can select the audio channel pairs to be output.

Quadrant view and full screen view

Matrox MicroQuad allows you to monitor up to four SDI input sources at the same time in quadrant view (see figure "Matrox MicroQuad quadrant view" on page 11), or view a selected SDI input source in full screen view on the HDMI display device (see figure "Matrox MicroQuad full screen view" on page 11).

The quadrant view is the default view when you first supply power to Matrox MicroQuad. A red selection box can be used in quadrant view to indicate which video input will be viewed in full screen view when selected. You can show or hide the red selection box using the DIP switch settings on the Matrox MicroQuad unit (see "Setting the Matrox MicroQuad DIP switches" on page 15) or the Matrox MicroQuad Remote Control Panel (see "Using the Matrox MicroQuad Remote Control Panel" on page 17).

To switch from quadrant view to full screen view, to move from one input source to the next, or to select a video input to view in full screen, see "Using the Matrox MicroQuad buttons" on page 14 or "Using the Matrox MicroQuad Remote Control Panel" on page 17.

Selecting the audio channel pairs to output

Matrox MicroQuad allows you to select up to four audio channel pairs (from audio channels 1 to 8) to output to the HDMI display device. To do this, you must use the Matrox MicroQuad Remote Control Panel (see "Using the Matrox MicroQuad Remote Control Panel" on page 17). If you do not indicate which audio pairs to output, audio channels 1 to 8 will be output by default. Audio is output for the currently selected input source, or you can lock the audio output to input channel 1 (SDI 1) using the DIP switches (see "Setting the Matrox MicroQuad DIP switches" on page 15) or using the Matrox MicroQuad Remote

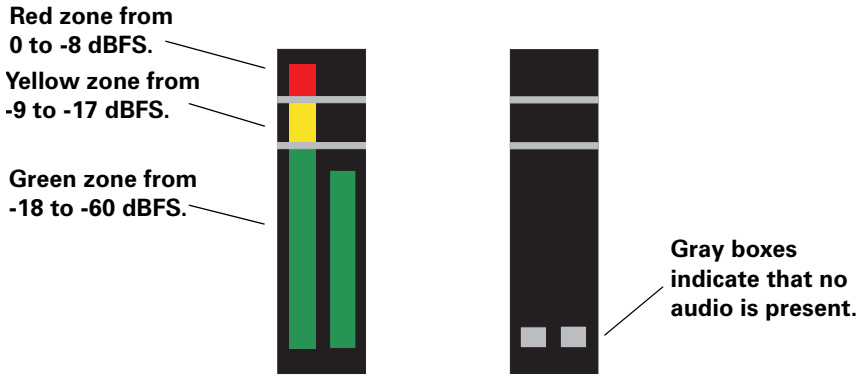
Control Panel (see “Using the Matrox MicroQuad Remote Control Panel” on page 17).

Monitoring audio levels

You can monitor the audio levels of your input sources through VU meters by setting the DIP switch setting accordingly on the Matrox MicroQuad unit (see “Setting the Matrox MicroQuad DIP switches” on page 15) or in the Matrox MicroQuad Remote Control Panel (see “Using the Matrox MicroQuad Remote Control Panel” on page 17).

Vertical colored bars indicate the input level. As the audio source is played, the color of the input level is green at or below -18 dBFS, yellow between -17 to -9 dBFS, and red above -8 dBFS. Gray boxes indicate that no audio is present. If needed, adjust the audio level on your input source device to keep the average input level between -60 and -18 dBFS. To select the audio input pair that you would like to monitor, see “Using the Matrox MicroQuad Remote Control Panel” on page 17. By default, input pair 1-2 will be displayed on the VU meters.

Matrox MicroQuad VU meters



Note In quadrant view, audio is output only for the currently selected input source. However, the VU meters will display the audio levels for each of your input sources.

Using the Matrox MicroQuad buttons

The Matrox MicroQuad buttons are used to switch from quadrant view to full screen view and to cycle through the input sources on the HDMI display of Matrox MicroQuad.

- ⊕ and ⊖ (Cycle buttons) Use these buttons to move from one input source to the next when in quadrant view, or to cycle through the different video inputs when in full screen view.
- ⟳ (Select button) Use this button to select the video input to view in full screen view when in quadrant view, or to toggle between full screen view and quadrant view.

Instead of using the Matrox MicroQuad buttons, you can use the Matrox MicroQuad Remote Control Panel to switch from quadrant view to full screen view and to cycle through the input sources on the HDMI display (see "Using the Matrox MicroQuad Remote Control Panel" on page 17).

Remarks

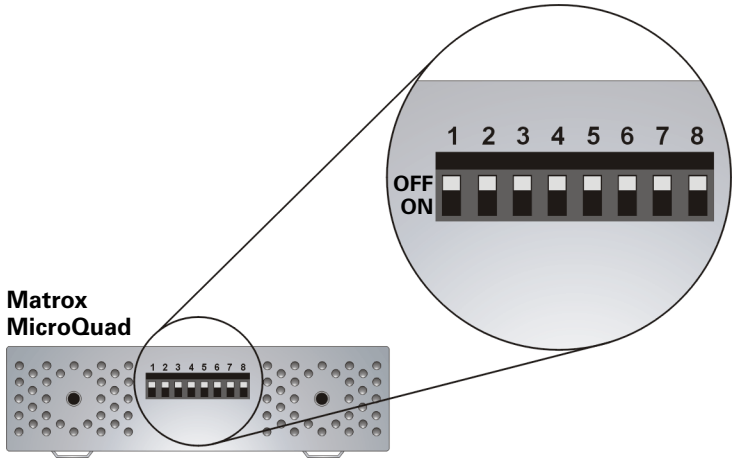
- You can lock the Matrox MicroQuad buttons by setting DIP switch 1 accordingly on the Matrox MicroQuad unit (see "Setting the Matrox MicroQuad DIP switches" on page 15).
- If the resolution and frame rate on all SDI input sources do not match, only SDI input channel 1 (SDI 1) will be displayed while the other channels will appear black.
- Switching between quadrant view and full screen view, or switching from one input source to another is done without signal interruption.
- If you want to select the audio channels for the VU meters and HDMI output, you must use the Matrox MicroQuad Remote Control Panel (see "Using the Matrox MicroQuad Remote Control Panel" on page 17).

Setting the Matrox MicroQuad DIP switches

Matrox MicroQuad features DIP switches on the side of the unit for locking the Matrox MicroQuad buttons, hiding the HDMI labels, hiding the red selection box, hiding the VU meters, locking the audio to input channel 1 (SDI 1), and for indicating whether or not your video inputs are PsF. A DIP switch is ON when the switch is down, and OFF when it is up.

Instead of using the DIP switches, you can set some of the DIP switch actions using the Matrox MicroQuad Remote Control Panel (see "Using the Matrox MicroQuad Remote Control Panel" on page 17).

Matrox MicroQuad DIP switches



- **DIP switch 1** When ON, the Matrox MicroQuad buttons are locked and will not function.
- **DIP switch 2** When ON, the HDMI labels are hidden. When OFF, the HDMI labels are visible in order to identify the video input channel in quadrant view (see figure "Matrox MicroQuad quadrant view" on page 11) and full screen view (see figure "Matrox MicroQuad full screen view" on page 11).
- **DIP switch 3** When ON, the red selection box is hidden. When OFF, the red selection box is visible in quadrant view to indicate which video input will be viewed in full screen view (see figure "Matrox MicroQuad quadrant view" on page 11).

Note If the red selection box is hidden, you can still select which video input to view in full screen view.

- **DIP switch 4** When ON, the VU meters are hidden. When OFF, the VU meters are displayed to allow you to monitor the audio levels of your input sources. For more information on monitoring the audio levels, see "Monitoring audio levels" on page 13.
- **DIP switch 5** When ON, the audio output to the HDMI display device is locked to input channel 1 (SDI 1). Even if locked, the audio channels selected will be output, but the audio will correspond to input channel 1. When OFF, the audio corresponds to the currently selected input source in quadrant or full screen view.

  Remarks

  – If nothing is connected to SDI input channel 1 (SDI 1) when DIP switch 5 is ON, then no audio is output to the HDMI display device.

  – If you lock the audio to input channel 1 (SDI 1), but you do not indicate which audio pairs to output using the Matrox MicroQuad Remote Control Panel (see "Using the Matrox MicroQuad Remote Control Panel" on page 17), audio channels 1 to 8 are output by default.
- **DIP switch 6** Turn the switch ON when your video inputs are PsF. Turn it OFF when your video inputs are progressive or interlaced.
- **DIP switches 7 and 8** Not used.

Using the Matrox MicroQuad Remote Control Panel

Matrox MicroQuad has an optional Remote Control Panel for controlling the Matrox MicroQuad unit remotely. To install the Matrox MicroQuad Remote Control Panel, see "Installing your Matrox MicroQuad software" on page 2. The Matrox MicroQuad Remote Control Panel is accessed through the Mini USB Type B port on the Matrox MicroQuad unit, and lets you control many functions on the Matrox MicroQuad unit, such as to switch from quadrant view to full screen view, select the audio channels for the VU meters and HDMI output, and lock the audio to input channel 1 (SDI 1).

Instead of using the Matrox MicroQuad Remote Control Panel to perform certain functions, you can use the Matrox MicroQuad buttons and the DIP switches on the Matrox MicroQuad unit (see "Using the Matrox MicroQuad buttons" on page 14 and "Setting the Matrox MicroQuad DIP switches" on page 15).

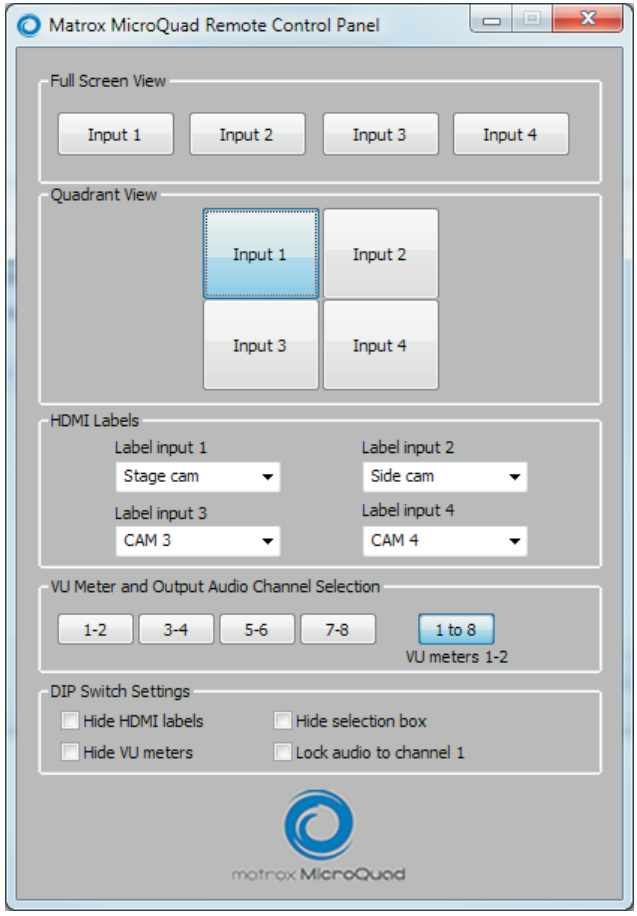
Note To indicate whether or not your video input sources are PsF, you must use the DIP switches on the Matrox MicroQuad unit (see "Setting the Matrox MicroQuad DIP switches" on page 15).

To use the Matrox MicroQuad Remote Control Panel:

1. Make sure that power is supplied to the Matrox MicroQuad unit (see "Powering Matrox MicroQuad" on page 6), and that you have an HDMI output display device and at least one SDI input source connected to the Matrox MicroQuad unit (see "Connecting input and output devices" on page 8).
2. Connect a third-party USB cable from Matrox MicroQuad's USB port to your computer's USB port.

Note If your computer does not have a USB port, or if it has a different type of USB port, you can use a compatible USB adapter/cable.

The Matrox MicroQuad Remote Control Panel appears on your computer monitor.



Note When you first access the Matrox MicroQuad Remote Control Panel, the DIP switch settings on the Matrox MicroQuad unit for hiding the HDMI labels, hiding the red selection box, hiding the VU meters, and locking the audio to input channel 1 (DIP switches 2, 3, 4, and 5, respectively) are reflected in the Matrox MicroQuad Remote Control Panel. (For more information on DIP switches, see "Setting the Matrox MicroQuad DIP switches" on page 15.) If you change these settings in the Matrox MicroQuad Remote Control Panel, these settings will override the DIP switch settings. To reset the DIP switch settings on the Matrox MicroQuad unit to reflect their actual settings, unplug and reconnect the power cable (see "Powering Matrox MicroQuad" on page 6).

3 Under **Full Screen View** or **Quadrant View**, click **Input 1**, **Input 2**, **Input 3**, or **Input 4** to display an input source in full screen view, or select an input source in quadrant view on your HDMI output display device. For information on full screen view and quadrant view, see "HDMI output display" on page 12.

Alternatively, you can select an input source in full screen or quadrant view using keyboard shortcuts (see "Using the Matrox MicroQuad keyboard shortcuts" on page 20) or the Matrox MicroQuad buttons (see "Using the Matrox MicroQuad buttons" on page 14).

Remarks

– If the resolution and frame rate on all SDI input sources do not match, only SDI input channel 1 (SDI 1) will be displayed while the other channels will appear black.

– Switching between quadrant view and full screen view, or switching from one input source to another is done without signal interruption.

4 Under **HDMI Labels**, you can customize the labels that appear on the HDMI display device. Enter or select the HDMI label that you would like for each input in the **Label input 1**, **Label input 2**, **Label input 3**, and/or **Label input 4** boxes. The Matrox MicroQuad Remote Control Panel will retain the last five HDMI labels that were entered so that you can re-use your most common labels.

Remarks

– The HDMI labels are limited to ten characters.

– If you disconnect the USB cable from the Matrox MicroQuad unit, the unit will display the current HDMI labels.

5 Under **VU Meter and Output Audio Channel Selection**, select the audio input channels that you would like to monitor on the VU meters and output to the HDMI display device. If you select **1-2**, **3-4**, **5-6**, or **7-8**, the selected audio input pair will be displayed on the VU meters and output to the HDMI display device. If you select **1 to 8**, audio input channels 1 to 8 will be output to the HDMI display device and only audio input pair 1-2 will be displayed on the VU meters. For more information about monitoring audio levels, see "Monitoring audio levels" on page 13.



Note If you do not indicate which audio pairs to output, audio input channels 1 to 8 will be output by default and audio input pair 1-2 will be displayed on the VU meters.

6 Under **DIP Switch Settings**, select:

- **Hide HDMI labels** if you do not want to display the HDMI labels of the input sources on the HDMI output display device.
- **Hide selection box** if you do not want the red selection box to appear when viewing the input sources in quadrant view on the HDMI ouput display device.
- **Hide VU meters** if you do not want to display the VU meters of the input sources on the HDMI output display device.
- **Lock audio to channel 1** to lock the audio output to the HDMI display device to input channel 1 (SDI 1).



Note If nothing is connected to SDI input channel 1 when you select **Lock audio to channel 1**, then no audio will be output.

Using the Matrox MicroQuad keyboard shortcuts

The Matrox MicroQuad Remote Control Panel allows you to use keyboard shortcuts to display an input source in full screen view or select an input source in quadrant view on your HDMI output display device.

Keyboard shortcuts	
Full screen view	
Input 1	**CTRL+SHIFT+1**
Input 2	**CTRL+SHIFT+2**
Input 3	**CTRL+SHIFT+3**
Input 4	**CTRL+SHIFT+4**
Quadrant view	
Input 1	**CTRL+SHIFT+5**
Input 2	**CTRL+SHIFT+6**
Input 3	**CTRL+SHIFT+7**
Input 4	**CTRL+SHIFT+8**

Supported SDI input and HDMI output formats

The HDMI output format corresponds to the SDI input format. For example, if the input format is 1920×1080p at 60 fps, the output format will also be 1920×1080p at 60 fps.

Important If you are connecting more than one input source to Matrox MicroQuad, the input sources must have the same video format.

Matrox MicroQuad supports the following SDI input and HDMI output video formats:

- NTSC
- PAL
- 1280×720p at 50, 59.94, and 60 fps
- 1920×1080i at 50, 59.94, and 60 fps
- 1920×1080PsF at 23.98, 24, 25, 29.97, and 30 fps
- 1920×1080p at 23.98, 24, 25, 29.97, 30, 50, 59.94, and 60 fps

Remarks

- Make sure that your HDMI monitor supports the SDI input format that you are using. Otherwise, your HDMI monitor will not display an output.
- When using PsF video input formats, DIP switch 6 must be in the ON position (see "Setting the Matrox MicroQuad DIP switches" on page 15).
- Dual-link input is only supported on 3G Level B as a single SDI connector. Two SDI connectors cannot be used to create a dual-link input.
- 4:4:4 video input signals are not supported.

Your notes

A

Matrox MicroQuad Specifications

This appendix provides specifications for Matrox MicroQuad.

Matrox MicroQuad specifications

General

- **Video formats** NTSC, PAL, 720p, 1080p/i/PsF
- **Regulatory compliance**
  - FCC Class B, CE Mark Class B, ACMA Class B
  - RoHS Directive 2002/95/EC
- **Dimensions**
  - Length 125 mm (4.92 in)
  - Width 118 mm (4.65 in)
  - Height 26 mm (1.02 in)
  - Weight 220 g (7 ¾ oz)
- **External AC/DC adapter**
  - Input: 100-240 VAC 50-60 Hz
  - Output: +5V DC, 3A max
  - Dimensions: L 78 mm × W 46 mm × H 36 mm (3.1 in × 1.8 in × 1.4 in)
- **Total power consumption** 12 watts

Video

- **SDI input**
  - Compliant with SMPTE 259M/292M/424M
  - SDI support of YUV 4:2:2 8-bit/10-bit
  - Automatic detection of input signal
  - 16 channels of embedded audio
  - Four BNC SDI connectors (75 Ω), terminated
  - Belden 1694a cable length supported:
    - 350 m (1148 ft) for SD
    - 150 m (492 ft) for HD
    - 50 m (164 ft) for 3G
- **HDMI output**
  - HDMI support of YUV 4:2:2
  - Eight channels of embedded audio
  - Standard Type A HDMI connector (19 pins)

Environmental specifications

- Minimum/maximum operating temperature: 0 to 40º C
- Minimum/maximum storage temperature: –40 to 75º C
- Maximum altitude for operation: 3,000 meters
- Maximum altitude for transport: 12,000 meters
- Operating humidity: 20 to 80% relative humidity (non-condensing)
- Storage humidity: 5 to 95% relative humidity (non-condensing)

Your notes

B

Matrox Customer Support

This appendix explains how you can register your Matrox MicroQuad and obtain customer support.

How to get Matrox customer support

If you have a problem that you're unable to solve by referring to the documentation for your Matrox product, please contact your Matrox representative. He or she should be able to help you quickly correct any installation or system configuration problem.

If your representative is unable to solve your problem, contact Matrox for further information and assistance.

Registration

You can register your Matrox product in the Matrox Support section of our website at www.matrox.com/video/support.

Only registered users are entitled to customer support, software updates, special promotional offers, and access to our user forum.

Keep up to date with our website

In addition to registering your Matrox product, our website offers you up-to-the-minute information about Matrox products and software updates. Be sure to place our site in your favorites or bookmarks: www.matrox.com/video/support.

Contacting us

Matrox is proud to offer worldwide customer support. Please use the contact information for your Matrox product and area as provided on our website at www.matrox.com/video/support.

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Compliance Statements

USA

FCC Compliance Statement

Remark for the Matrox hardware products supported by this guide These devices have 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 causes 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.

WARNING Changes or modifications to this unit not expressly approved by the party responsible for the compliance could void the user's authority to operate this equipment. The use of shielded cables for connection of equipment and other peripherals to the card is required to meet FCC requirements.

Declaration of conformity of a Class B digital device according to the FCC rules

We, the Responsible Party Matrox, 625 State Route 3, Unit B, Plattsburgh, NY 12901-6530 • Telephone: (514) 822-6000 (ext. 2026) • Attention: Conformity Group

Declaration The Matrox hardware products supported by this guide comply with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) these devices may not cause harmful interference, and (2) these devices must accept any interference received, including interference that may cause undesired operation. Any question regarding this declaration should be forwarded to the above coordinates.

Canada

(English) Industry Canada Compliance Statement

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

Remark for the Matrox hardware products supported by this guide These digital devices do not exceed the Class B limits for radio noise emission from digital apparatus devices set out in the Radio Interference Regulation of Industry Canada.

(Français) Conformité avec les exigences du ministère de l'Industrie Canada

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

Remarque sur les produits matériels Matrox couverts par ce guide Ces appareils numériques n'émettent aucun bruit radioélectrique dépassant les limites applicables aux appareils numériques de Classe B prescrites dans le Règlement sur le brouillage radioélectrique édicté par Industrie Canada.

Japan

VCCI Compliance Statement

Remark for the Matrox hardware products supported by this guide These are Class B products based on the standard of the Voluntary Control Council for Interference from Information Technology Equipment (VCCI). If these are used near a radio or television receiver in a domestic environment, they may cause radio interference. Install and use the equipment according to instructions in the manual.

この装置は、情報処理装置等電波障害自主規制協議会（ＶＣＣＩ）の基準に基づくクラスＢ情報技術装置です。この装置は、家庭環境で使用することを目的としていますが、この装置がラジオやテレビジョン受信機に近接して使用されると、受信障害を引き起こすことがあります。
取扱説明書に従って正しい取り扱いをして下さい。

Europe

(English) European user's information – Declaration of Conformity

Remark for the Matrox hardware products supported by this guide These devices comply with EC Directive 2006/95/EC for a Class B digital device. They have been tested and found to comply with EN55022/CISPR22 and EN55024/CISPR24. In a domestic environment these products may cause radio interference in which case the user may be required to take adequate measures.To meet EC requirements, shielded cables must be used to connect equipment and other peripherals to the card. These products have been tested in a typical class B compliant host system. It is assumed that these products will also achieve compliance in any class B compliant system.

(Français) Informations aux utilisateurs Européens – Déclaration de conformité

Remarque sur les produits matériels Matrox couverts par ce guide Ces unités sont conformes à la directive communautaire 2006/95/EC pour les unités numériques de classe B. Les tests effectués ont prouvé qu'elles sont conformes aux normes EN55022/CISPR22 et EN55024/CISPR24. Le fonctionnement de ces produits dans un environnement résidentiel peut causer des interférences radio, dans ce cas l'utilisateur peut être amené à prendre les mesures appropriées. Pour respecter les impératifs communautaires, les câbles de connexion entre l'équipement ou autres périphériques et la carte doivent être blindés. Ces produits ont été testés dans un système hôte typique compatible classe B. On suppose qu'ils présenteront la même compatibilité dans tout système compatible classe B.

(Deutsch) Information für europäische Anwender – Konformitätserklärung

Anmerkung für die Matrox Hardware-Produktunterstützung durch dieses Handbuch Diese Geräte entsprechen EC Direktive 2006/95/EC für ein digitales Gerät Klasse B. Sie wurden getestet und entsprechen demnach EN55022/CISPR22 und EN55024/CISPR24. In einer Wohnumgebung können diese Produkte Funkinterferenzen erzeugen, und der Benutzer kann genötigt sein, entsprechende Maßnahmen zu ergreifen. Um EG-Anforderungen zu entsprechen, müssen zum Anschließen des ausrüstung und anderer Peripheriegeräte an die Karte abgeschirmte Kabel verwendet werden. Diese Produkt wurden in einem typischen, der Klasse B entsprechenden, Host-System getestet. Es wird davon ausgegangen, daß diese Produkte auch in jedem Klasse B entsprechenden System entsprechend funktionieren.

(Italiano) Informazioni per gli utenti europei – Dichiarazione di conformità

Nota per i prodotti hardware Matrox supportati da questa guida Questi dispositivi sono conformi alla direttiva CEE 2006/95/EC relativamente ai dispositivi digitali di Classe B. Sono stati provati e sono risultati conformi alle norme EN55022/CISPR22 e EN55024/CISPR24. In un ambiente domestico, questi prodotti possono causare radiointerferenze, nel qual caso all'utente potrebbe venire richiesto di prendere le misure adeguate. Per soddisfare i requisiti CEE, l'apparecchiatura e le altre periferiche vanno collegati alla scheda grafica con cavi schermati. Questi prodotti sono stati provati in un tipico sistema host conforme alla classe B. Inoltre, si dà per scontato che questi prodotti acquisiranno la conformità in qualsiasi sistema conforme alla classe B.

(Español) Información para usuarios europeos – Declaración de conformidad

Observación referente a los productos de hardware de Matrox apoyados por este manual Estos dispositivos cumplen con la directiva de la CE 2006/95/EC para dispositivos digitales de Clase B. Dichos dispositivos han sido sometidos a prueba y se ha comprobado que cumplen con las normas EN55022/CISPR22 y EN55024/CISPR24. En entornos residenciales, estos productos pueden causar interferencias en las comunicaciones por radio; en tal caso el usuario deberá adoptar las medidas adecuadas. Para satisfacer las disposiciones de la CE, deberán utilizarse cables apantallados para conectar el equipo y demás periféricos a la tarjeta. Estos productos han sido sometidos a prueba en un típico sistema anfitrión que responde a los requisitos de la clase B. Se supone que estos productos cumplirán también con las normas en cualquier sistema que responda a los requisitos de la clase B.



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