

# Matrox MXO2 Family for PC Product Guide



 matrox MXO2<sup>TM</sup> Family

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## Table of Contents Matrox MXO2 for PC

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## Why buy an I/O card and a breakout box when you can get all the features of both in one of the Matrox MXO2 products?

The award-winning Matrox MXO2 devices can easily be moved among the Windows desktop systems in your facility, installed in an OB van, or taken on the road with a laptop. You get highly-reliable, broadcast-quality video and audio input/output and HDMI video monitoring with the unique Matrox calibration controls including blue-only. You also benefit from a wide variety of HD and SD workflows with Adobe CS5 Production Premium thanks to a 10-bit hardware scaling engine and support for a wealth of file-based formats and industry-standard codecs.

The MAX versions of the Matrox MXO2 devices give you the added advantages of lightning fast high definition H.264 file creation and Matrox RT technology that enhances the Adobe Mercury Playback Engine to provide full-resolution, full-frame-rate, multi-layer, realtime video editing and advanced realtime effects.

Matrox MXO2 Mini provides a cost-effective HD monitoring solution for Avid editing systems.

The Matrox MXO2 family can also be used with Intel-based MacBook Pros, Mac Pros, and Apple Xserve systems.

Enjoy maximum I/O flexibility – edit anything, anywhere!

**Matrox MXO2 Mini** – Affordable HDMI/analog video and audio I/O

**Matrox MXO2 LE** – Professional HD/SD video and audio I/O

**Matrox MXO2** – Complete HD/SD video and audio I/O

**Matrox MXO2 Rack** – Most comprehensive HD/SD video and audio I/O



Matrox MXO2 Mini



Matrox MXO2 LE - Patent pending



Matrox MXO2 - Patent pending



Matrox MXO2 Rack - Patent pending

## Key features of the Matrox MXO2 family for PC

- Convenient form factors for use in studio, on set, in the field, and in OB vans
- Works with Windows 7 and Windows Vista (64-bit) laptops and desktops
- Broadcast quality HD/SD video and audio input/output
- Flexible support for leading codecs, file formats, cameras, and workflows
- Captures to HD and SD codecs – 8- and 10-bit uncompressed and highly efficient Matrox MPEG-2 I-frame
- Extensive application support including Adobe Premiere Pro, Encore, Photoshop, and After Effects
- Cost-effective HD monitoring for Avid Media Composer 5 and Avid NewsCutter 9 with Matrox MXO2 Mini
- 10-bit HDMI input, output and monitoring with calibration controls including blue-only
- 10-bit realtime hardware up/down/cross conversion on capture and output
- Matrox A/V Tools application for fast capture/playback of audio, video, and still frames
- Three-year hardware warranty and complimentary telephone support

### Additional features with Matrox MAX

- Lightning fast H.264 encoding with Adobe Media Encoder, Adobe Premiere Pro and Adobe Encore
- Matrox RT technology that enhances the Adobe Mercury Playback Engine to provide full-resolution, full-frame-rate, multi-layer, realtime video editing and advanced realtime Matrox Flex CPU effects

# Convenient Form Factors

## Convenient form factors

The Matrox MXO2 products connect to your laptop via an ExpressCard slot or to your desktop or workstation via a PCI Express adapter card. (Refer to Kit Contents for more information.)



### Portable

MXO2 Mini, MXO2 LE and MXO2 are lightweight, portable devices that easily fit into your laptop bag.

### Can run off standard field batteries

MXO2 and MXO2 LE can run off standard field batteries or their included AC power adapter. MXO2 LE attaches directly to a battery via a standard 4-pin XLR connector. MXO2 connects to a battery via an optional cable that can be purchased separately.

### Rackmountable

MXO2 Rack occupies 2RU in a standard 19" inch rack. It comes with two adjustable mounting "ears" so that the unit can be mounted in the rack with the connectors facing the front or back of the rack. The design of the ears allows you to adjust the depth of the unit in the rack.

## Dimensions and weight

	Dimensions	Weight
<i>Matrox MXO2 Mini</i>	6 1/2" x 4 5/16" x 1 1/2" (166mm x 110mm x 40mm)	0.6 lbs (280g)
<i>Matrox MXO2 LE</i>	9 1/4" x 9 1/2" x 2" (235mm x 241mm x 51mm)	2 3/4 lbs (1245g)
<i>Matrox MXO2</i>	13" x 9 1/2" x 2" (330mm x 241mm x 51mm)	3 1/2 lbs (1600g)
<i>Matrox MXO2 Rack</i>	21" x 18" x 8.25" (533mm x 457mm x 210mm)	15 lbs (7000g)



### Broadcast-quality HD/SD video and audio input/output

#### Video I/O

The Matrox MXO2 products provide a full range of professional video inputs and outputs.

MXO2 LE, MXO2 and MXO2 Rack provide RS-422 machine control for frame-accurate capture and print-to tape with Adobe Premiere Pro CS5.

Matrox MXO2 LE, MXO2 and MXO2 Rack provide SD analog black burst (bi-level) or HD tri-level sync genlock. They can genlock to any type of video input or to house sync. Timing offset controls can be used to align your video output relative to your external genlock source to compensate for cable delays within your facility. On MXO2 Rack, loop through is supported.

Matrox MXO2 LE, MXO2 and MXO2 Rack support up to five user-selectable simultaneous video outputs – HD and/or SD on HDMI, SDI, and analog.

	MXO2 Mini	MXO2 LE	MXO2	MXO2 Rack
<b>Video Inputs</b>				
<i>Component HD/SD (YUV or RGB)</i>	Yes	Yes	Yes	Yes
<i>SDI HD/SD</i>	No	Yes	Yes	Yes
<i>Y/C</i>	Yes	Yes	Yes	Yes
<i>Composite</i>	Yes	Yes	Yes	Yes
<i>HDMI (YUV or RGB)</i>	Yes	Yes	Yes	Yes
<b>Video Outputs</b>				
<i>Component HD/SD (YUV or RGB)</i>	Yes	Yes	Yes	Yes
<i>SDI HD/SD</i>	No	Yes	Yes	Yes
<i>Y/C</i>	Yes	Yes	Yes	Yes
<i>Composite</i>	Yes	Yes	Yes	Yes
<i>HDMI (YUV or RGB)</i>	Yes	Yes	Yes	Yes

# Inputs and Outputs

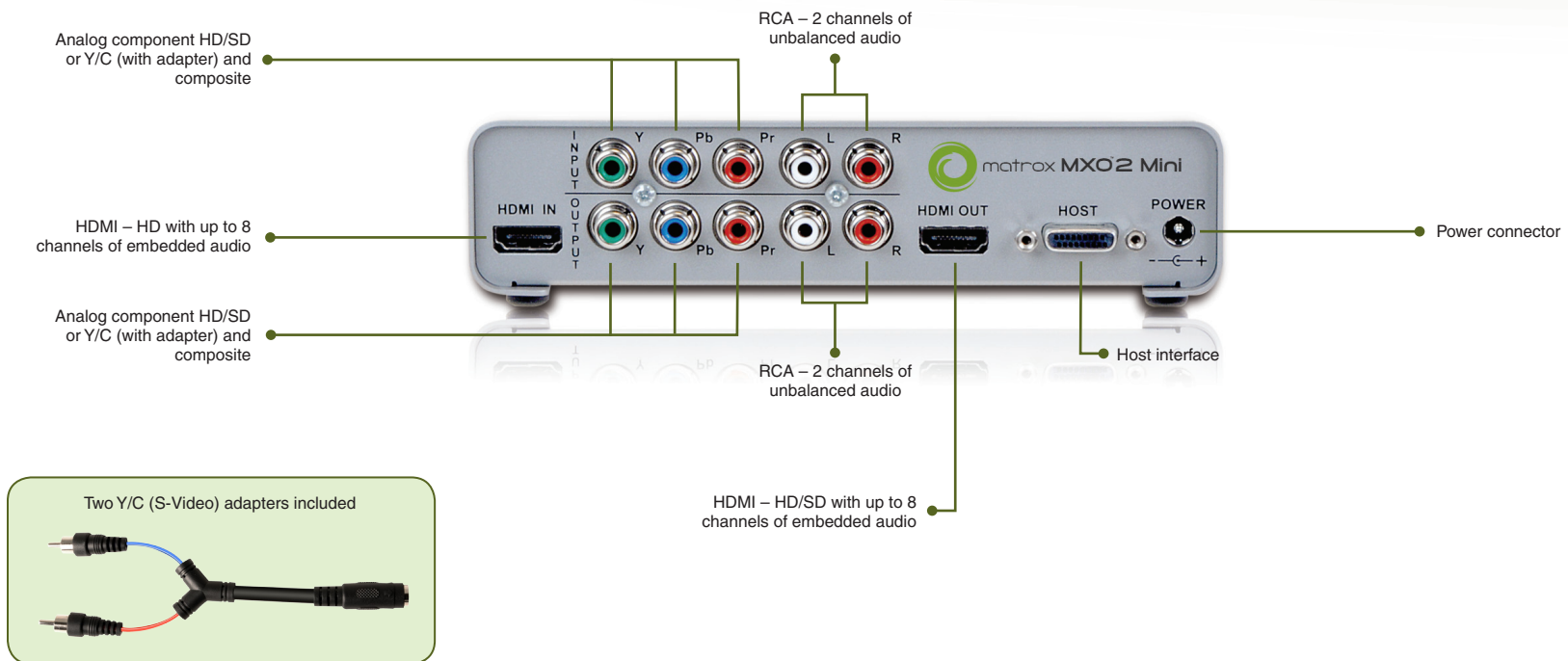
## Audio

### Audio I/O

The Matrox MXO2 products provide a full range of audio inputs and outputs with the flexibility to map any audio track in Adobe Premiere Pro to any audio output.

Audio Inputs	MXO2 Mini	MXO2 LE	MXO2	MXO2 Rack
<i>RCA Audio (unbalanced)</i>	<i>2 channels</i>	<i>2 channels</i>	<i>2 channels</i>	<i>No</i>
<i>XLR Audio (balanced)</i>	<i>No</i>	<i>2 channels</i>	<i>2 channels</i>	<i>4 channels</i>
<i>AES/EBU (unbalanced)</i>	<i>No</i>	<i>No</i>	<i>2 channels</i>	<i>4 channels</i>
<i>SDI embedded audio (8 channels)</i>	<i>No</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>
<i>HDMI embedded audio (8 channels)</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>
<b>Audio Outputs</b>				
<i>RCA Audio (unbalanced)</i>	<i>2 channels</i>	<i>2 channels</i>	<i>6 channels</i>	<i>No</i>
<i>XLR Audio (balanced)</i>	<i>No</i>	<i>2 channels</i>	<i>4 channels</i>	<i>8 channels</i>
<i>AES/EBU (unbalanced)</i>	<i>No</i>	<i>No</i>	<i>2 channels</i>	<i>4 channels</i>
<i>SDI embedded audio (8 channels)</i>	<i>No</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>
<i>HDMI embedded audio (8 channels)</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>
<i>Direct surround sound monitoring</i>	<i>No</i>	<i>No</i>	<i>5.1</i>	<i>5.1 and 7.1</i>

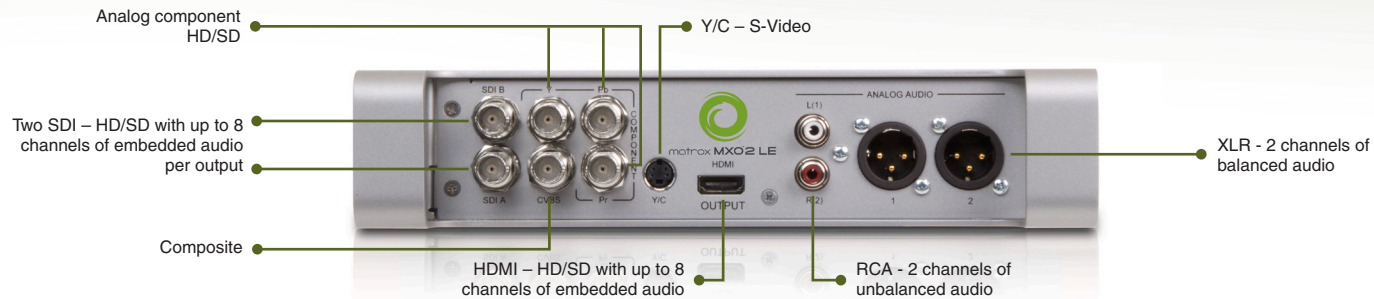
### Matrox MXO2 Mini Connections



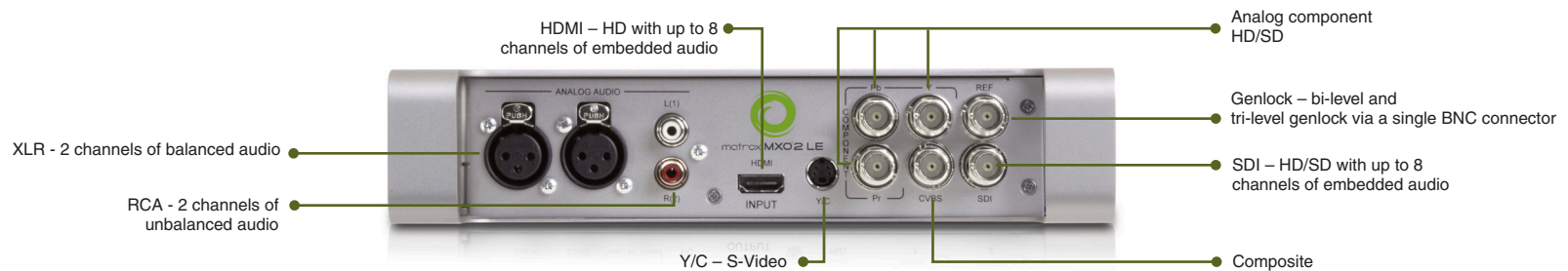
# Connections

## Matrox MXO2 LE

### Matrox MXO2 LE Connections - Outputs



### Matrox MXO2 LE Connections - Inputs

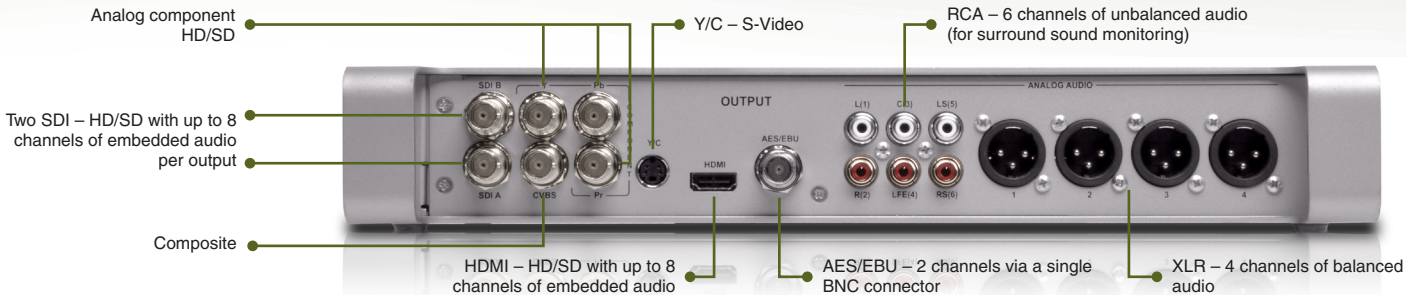




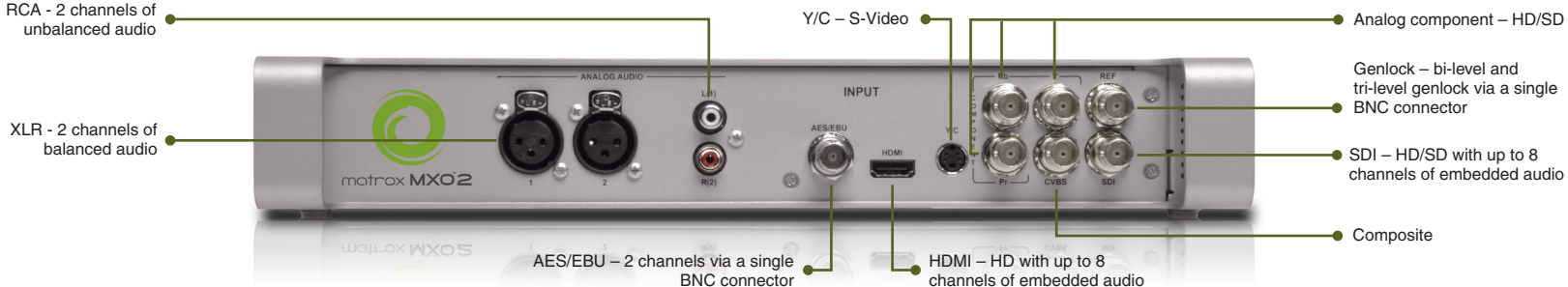
# Connections

## Matrox MXO2

### Matrox MXO2 Connections - Outputs



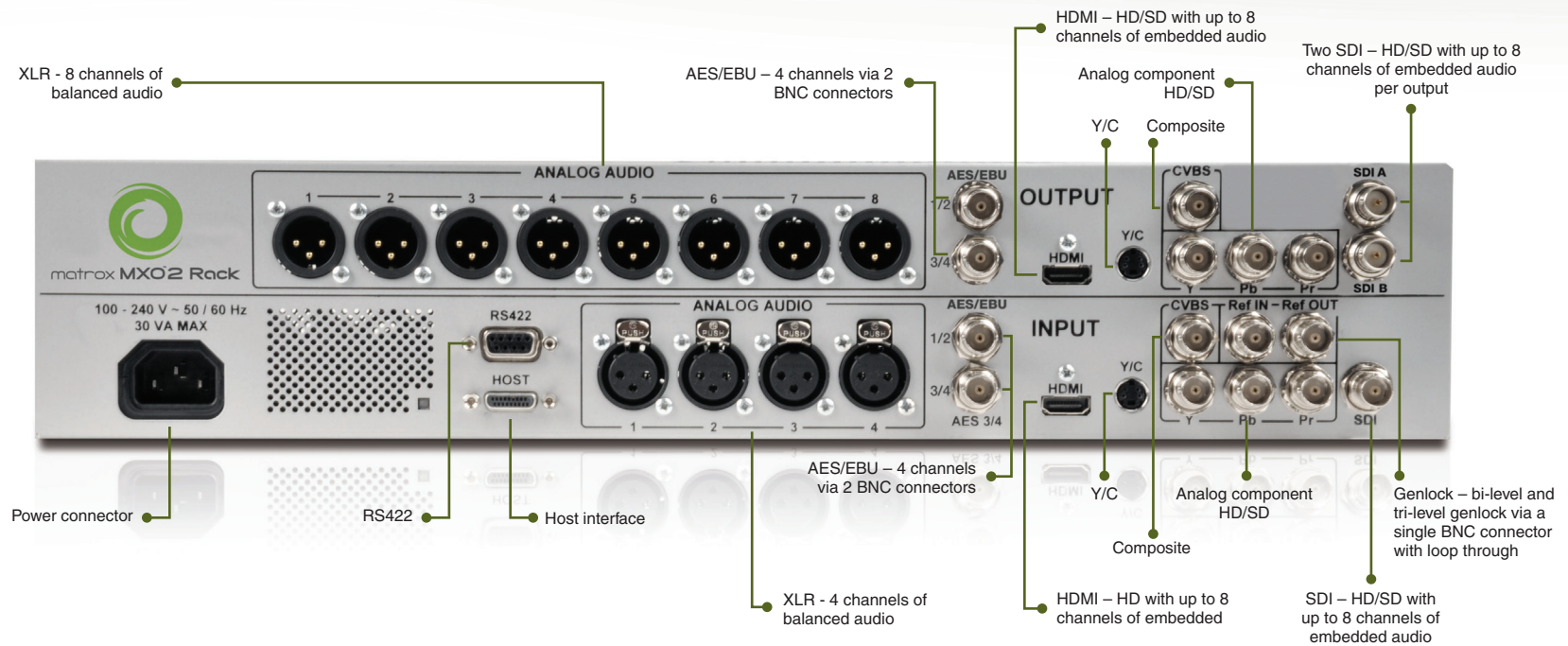
### Matrox MXO2 Connections - Inputs



# Connections

## Matrox MXO2 Rack

### Matrox MXO2 Rack Connections



## Flexible support for leading codecs, file formats, cameras, and workflows

The MXO2 product family lets you work with virtually any codec, file format, camera, and workflow out there.

### Works with a variety of codecs

The Matrox MXO2 devices let you work with all the codecs supported by Adobe Premiere Pro including AVCHD, HDV, DVCPRO HD, DVCPRO50, DVCPRO, and DV. You can also capture video from within the Adobe Premiere Pro capture interface to 8- and 10-bit uncompressed and Matrox MPEG-2 I-frame codecs in HD and SD.

### Use your favorite file-based formats

The Matrox MXO2 devices give you full-screen monitoring as you work with file-based formats such as XDCAM, XDCAM HD, XDCAM EX, P2, and P2HD in Adobe Premiere Pro.

**P2HD**



**XDCAM HD**  
Professional Disc System



## RED workflow support (does not apply to Matrox MXO2 Mini)



RED users can benefit from Matrox MXO2 LE, MXO2 or MXO2 Rack to capture, monitor, and playback on set. Back in the post suite, you can use your Matrox MXO2 device to work with R3D files and output to SD, 720, or 1080.

### Interoperability with Matrox RT.X2 and Axio

Matrox sequences created using Adobe Premiere Pro CS5 will be compatible across the Matrox MXO2, RT.X2 and Axio platforms once CS5 is supported.

# Extensive Application Support

## Extensive application support

The Matrox MXO2 products amplify your productivity with editing, content creation, and H.264 encoding/authoring applications on the PC.

### Editing applications

You benefit from the full range of Matrox MXO2 features with Adobe Premiere Pro CS5. Matrox MXO2 Mini provides a cost-effective HD monitoring solution for Avid editing systems.

### Content creation applications

The Matrox MXO2 devices provide WYSIWYG support for applications such as Adobe Encore CS5, Photoshop CS5, and After Effects CS5.

### H.264 encoding/authoring applications that take advantage of Matrox MAX technology

The Matrox MXO2 devices equipped with Matrox MAX technology tap in to Adobe Media Encoder to let you quickly and easily create H.264 files for Blu-ray, the web and mobile devices. You can create Blu-ray H.264 level 4.0 files, directly from Adobe Media Encoder that can be authored in Adobe Encore and burned without re-encoding on either Blu-ray or DVD media. These Blu-ray H.264 level 4.0 files can also be used for mass replication of Blu-ray discs.

## Adobe Premiere Pro

The Matrox MXO2 platforms go far beyond the capabilities of systems that combine Adobe Premiere Pro CS5 and a simple I/O card. The additional benefits you get include:

- Convenient form factors for use with laptops and desktops in studio, on set, in the field, and in OB vans
- 10-bit HDMI input, output and monitoring with unique Matrox color calibration controls including blue-only
- 10-bit realtime hardware up/down/cross conversion on capture and output
- Capture to HD and SD video to 8- and 10-bit uncompressed AVI files
- Capture to HD and SD video to the highly-efficient Matrox MPEG-2 I-frame intermediate codec at bit rates from 50 to 300 mbps
- Playback of 32-bit MPEG-2 I-frame AVI files with alpha
- Matrox A/V Tools application for fast capture/playback of audio, video, and still frames

When you include the Matrox MAX option in your MXO2 device you also get:

- Matrox MAX technology for lightning fast H.264 encoding with Adobe Media Encoder, Adobe Premiere Pro and Adobe Encore
- Matrox RT technology that enhances the Adobe Mercury Playback Engine to provide full-resolution, full-frame-rate, multi-layer, realtime video editing and advanced realtime Matrox Flex CPU effects





# Adobe Premiere Pro CS5

## Matrox RT Technology

### Matrox RT technology for Adobe Premiere Pro

The Matrox MXO2 platforms with MAX feature Matrox RT technology that enhances the Adobe Mercury Playback Engine to provide full-resolution, full-frame-rate, multi-layer, realtime video editing.

Matrox RT technology is designed for use with or without the presence of GPU acceleration. It provides many of the benefits of GPU acceleration but works with any system, even laptops. It optimizes your system to output to professional monitors at full-resolution and full-frame-rate.

In addition, Matrox RT provides advanced realtime Matrox Flex CPU effects such as primary and secondary color correction, smooth speed changes, and many more; along with a high-quality, highly-efficient MPEG-2 I-frame intermediate codec that streamlines working with CPU-taxing footage such as AVCHD and XDCAM.

### Realtime Matrox Flex CPU effects with Adobe Premiere Pro

The Matrox MXO2 platforms with MAX work in conjunction with the power of your CPU to perform a variety of advanced realtime effects including:

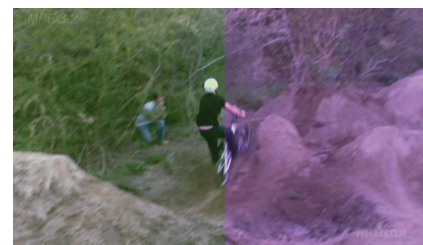
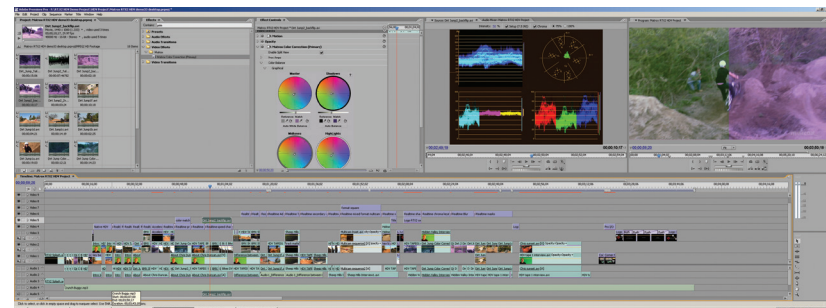
- Realtime primary color correction
- Realtime secondary color correction
- Realtime chroma and luma keying
- Realtime speed changes
- Realtime transitions
- Realtime track matte
- Realtime move & scale
- Realtime SD clip upscaling in an HD timeline
- Realtime HD clip downscaling in an SD timeline
- Native Adobe Premiere Pro effects and transitions
- Realtime timecode

The Matrox Flex CPU effects are also available in Adobe After Effects. If you have a timeline in Premiere Pro with any of the Matrox Flex CPU effects and you copy/paste the timeline into After Effects, the Matrox effects will remain intact. This is a huge time saver, given that these effects are realtime in Premiere Pro.

Matrox Flex CPU effects are also available for use with versions of the MXO2 devices without MAX, however, the effects may not perform in real time.

### Realtime primary color correction

Primary color correction is a critically important effect for all productions, whether to achieve continuity when cutting between shots, ensure broadcast safe levels, or establish and emphasize a “look”. The primary color corrector provides basic proc amp control; three-way color correction complete with master, shadows, midtones and highlights control; input/output level control; and RGB curves control.

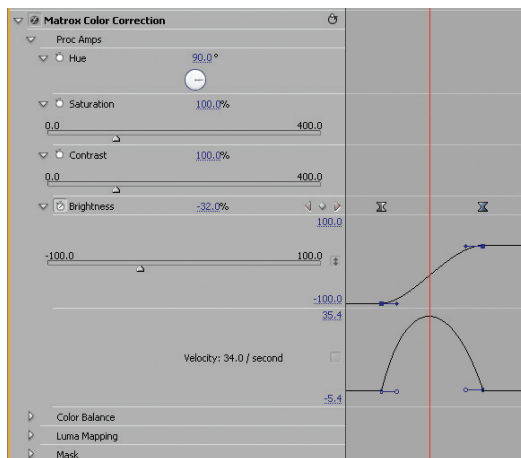


# Adobe Premiere Pro CS5

## Realtime Matrox Flex CPU Effects

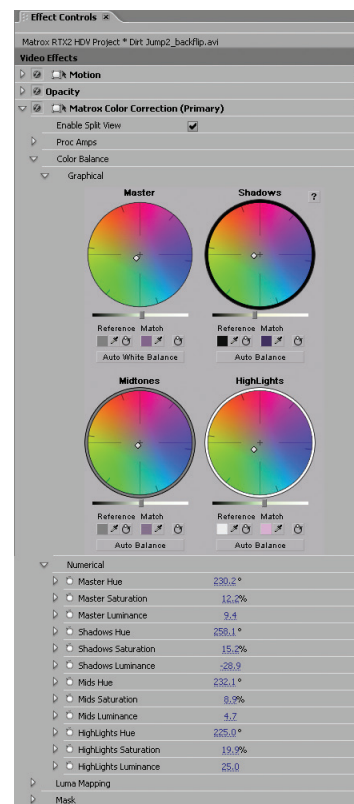
### Realtime proc amp controls

The Matrox MXO2 devices let you easily adjust four proc amp controls - hue, saturation, brightness, and contrast. Hue adjusts the tint of the colors in the image, saturation adjusts the vividness, contrast adjusts the difference in luminance between the lightest and darkest areas of the image, and brightness adjusts the level of black. You can also use these controls to create special effects, such as black and white, in real time.



### Realtime color match and color balance

Colors can be corrected using nine parameters related to the black (shadow), midtone, and white (highlight) levels of your clips. You can easily match colors or balance blacks, whites, and grays against a reference shot in one simple step.



Reference



Match



Corrected

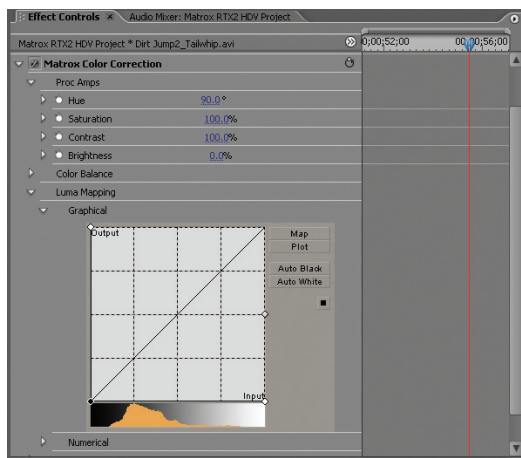
Matrox MXO2 Family for PC Product Guide

# Adobe Premiere Pro CS5

## Realtime Matrox Flex CPU Effects

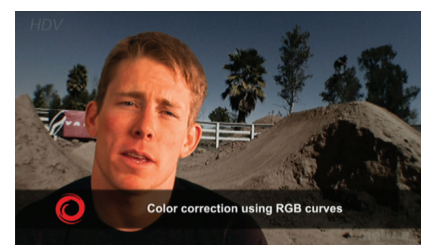
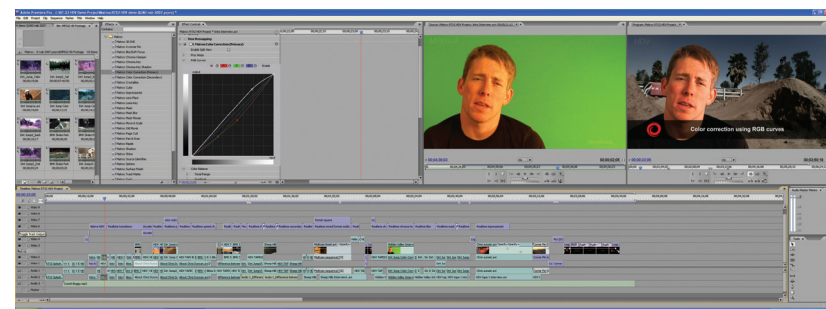
### Realtime input/output level control

Using the histogram display and level controls, luminance levels can be remapped to maximize the dynamic range of a clip. For example, bright areas can be made brighter and dark areas can be made darker. Five parameters are available - black, white, and gamma levels on the input; and black and white levels on the output. Auto white and auto black controls are also provided.



### Realtime RGB curves control

RGB curves control offers a fast, natural way to fine-tune the colors in your video. If, for example, you want to remove a blue tint from your video, you simply drag the blue curve down. With RGB curves you can also achieve wild color effects and other looks that are otherwise impossible.





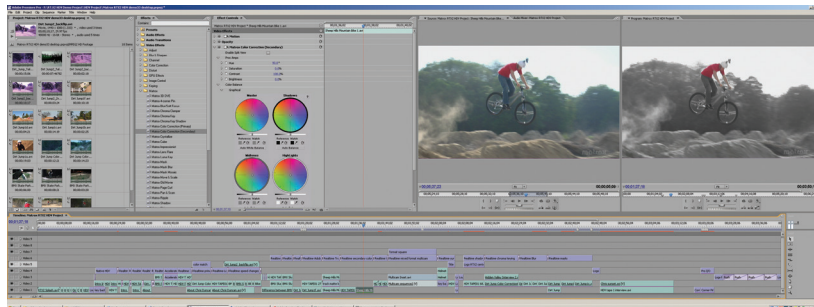
# Adobe Premiere Pro CS5

## Realtime Matrox Flex CPU Effects

### Realtime secondary color correction

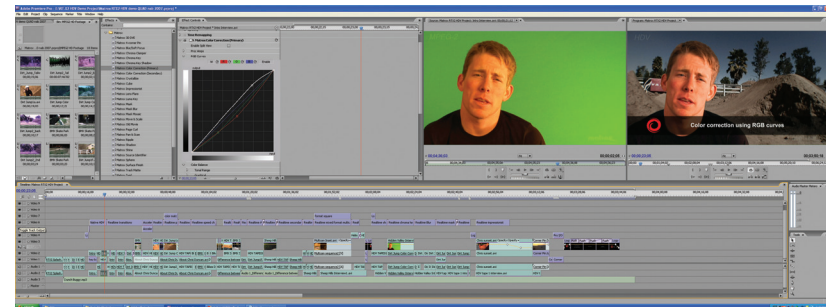
The secondary color corrector is an advanced tool used for fine-tuning or dramatic effects creation. It offers all the controls found in the primary color correction filter with the added capability of limiting the effect to a specific range of pixels. Pixel selection can be done using color and/or brightness. Using the simple garbage matte tool, you can also limit the effect to a specific region. The pixel selection can also be inverted.

The secondary color corrector lets you achieve effects such as color pass and color replace. It can be used, for example, to change the color of a dress, deepen the background sky color, or to achieve an effect similar to the film Schindler's List where only one object or person remains in color while the rest of the image becomes black and white.



### Realtime chroma and luma keying

The Matrox MXO2 devices provide one of the finest realtime chroma keys in the industry. Clean blue- and green-screen keys are easy to achieve, even with HDV and AVCHD material shot in less than optimal lighting conditions. Your video is upsampled to 4:4:4 resolution and advanced noise reduction algorithms are used to ensure superior results. The auto key button intelligently adjusts the key with soft edges, spill removal, and shadow preservation. If needed, you can further refine the key with manual controls. You can key on any color, not just blue and green. You can also invert the selection and display the matte being generated to fine tune the key.

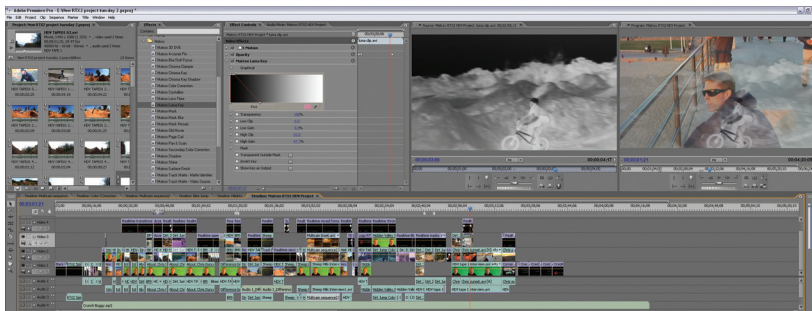




# Adobe Premiere Pro CS5

## Realtime Matrox Flex CPU Effects

The realtime luma keyer gives you low clip, low gain, high clip, high gain, and transparency controls.



### Realtime speed changes

You can use speed changes to emphasize special moments, extend the duration of shots to match voiceover timing, or enhance the feeling of dramatic shots. You can apply smooth slow and fast motion with field or frame blending.

### Realtime transitions

The Matrox MXO2 devices support standard dissolves, SMPTE wipes, and organic wipes with soft edges and color borders.



# Adobe Premiere Pro CS5

## Realtime Matrox Flex CPU Effects

### Realtime move & scale

This effect lets you apply multiple 2D DVEs simultaneously in real time to easily set up picture-in-picture effects. You can also use the move & scale effect to animate multiple titles in real time.

### Realtime SD clip upscaling in an HD timeline

This effect is enabled by right-clicking on an SD clip in an HD timeline and selecting “scale to frame size”. It provides realtime playback of SD clips upscaled to HD to let you mix NTSC material into a 1080i at 29.97 fps timeline or PAL material into a 1080i at 25 fps timeline. It also provides realtime playback of 576p or 486p SD clips upscaled to HD to mix into a 1080p timeline.

### Realtime HD clip downscaling in an SD timeline

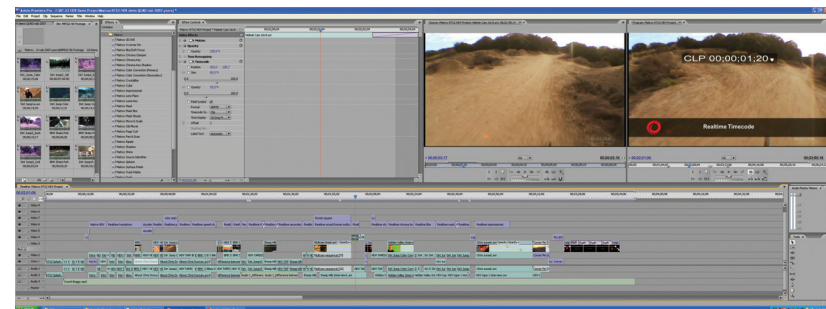
This effect is enabled by right-clicking on an HD clip in an SD timeline and selecting “scale to frame size”. It provides realtime playback of HD clips downscaled to SD to let you mix 1080i at 29.97 fps material into an NTSC timeline or 1080i at 25 fps material into a PAL timeline.

### Native Adobe Premiere Pro effects and transitions

Some of Adobe Premiere Pro’s most popular native effects and transitions such as Opacity, Crop, Dip to Black, Black and White, Dissolve, and Additive Dissolve can be used in real time in SD. The Matrox MXO2 devices accelerate these effects and transitions in HD.

### Realtime timecode

The MXO2 devices overwrite the Adobe Premiere Pro timecode filter so that it becomes realtime. The realtime time code effect lets you generate and overlay a time code counter on a video production. You can use it to make a dub of source tapes with time code “burn-in” then use these tapes to log scenes, create edit decision lists, or get client feedback on your finished production.



# Adobe Premiere Pro CS5

## Matrox MPEG-2 I-Frame Intermediate Codec

### **Matrox MPEG-2 I-frame intermediate codec with Adobe Premiere Pro**

The Matrox MPEG-2 I-frame intermediate codec is a high-quality, highly-efficient 8-bit 4:2:2 video codec used mainly as a less processor-intensive way of working with long-GOP footage such as HDV, AVCHD, and XDCAM HD. The bit rate of the codec can be set between 50 and 300 Mbps, giving you the flexibility on each clip to make your own tradeoffs between video quality and storage considerations.

It can be used with Adobe Premiere Pro in four ways:

1. as a full-raster capture codec when capturing from SDI or analog;
2. as an intermediate editing format when working with CPU-taxing formats such as AVCHD to maximize quality as well as editability;
3. as a rendering codec to ensure that “flattened” files maintain high quality when exporting or printing to tape; and
4. as an effective archiving codec for material that may be used in future projects.

## Avid Editing Systems

Matrox MXO2 Mini is your new choice for HD monitoring with Avid editing systems.

- Turns your HDMI screen into a professional-grade video monitor with color calibration tools including blue-only
- Small, lightweight, external box for use in studio, on set, in the field, and in OB vans
- Cross-platform support – Mac and PC; laptops, desktops, and workstations
- HDMI, analog component, S-Video, and composite output
- Stereo RCA and up to 8 channels of HDMI audio output
- 5.1 and 7.1 surround sound monitoring on the HDMI output
- Compatible with Avid Media Composer V5 and Avid NewsCutter V9





# Video Monitoring and Downscaling

## HD and SD video monitoring

The Matrox MXO2 devices provide full quality previews on all digital and analog outputs for popular applications such as Adobe Premiere Pro, Encore, Photoshop, and After Effects so you don't need to rely on just a small preview window on your desktop. In addition, MXO2's realtime downscaling feature lets you view your HD projects on an SD monitor.

Matrox MXO2 Mini provides a cost-effective HD monitoring solution for Avid editing systems.

## HDMI monitoring with 10-bit 4:2:2 color precision

The Matrox MXO2 products let you adjust and control your HDMI monitor exactly like you would a broadcast HD/SD monitor so you won't need to buy expensive HD monitoring equipment. Controls for hue, chroma, contrast, brightness, and blue-only are provided. This unique control gives you accurate color representation so that you can use your HDMI monitor even for color grading.



## Pixel-to-pixel mapping on the HDMI display

The Matrox MXO2 products provide 1:1 pixel mapping on HDMI monitors that support this feature.



## **Realtime hardware up/down/cross conversion on capture and output**

The Matrox MXO2 products let you deliver in any format your clients demand. The 10-bit hardware scaling provides high-quality mastering.

### **HD to SD downscaling**

The Matrox MXO2 products provide realtime HD to SD downscaling with proper conversion of the HD color space to the SD color space and proper aspect ratio conversion to anamorphic, letterbox, and center cut. You can monitor or record an SD master of your HD project in real time.

### **SD to HD upscaling**

The Matrox MXO2 products provide realtime SD to HD upscaling with proper conversion of the SD color space to the HD color space. MXO2 will “pillarbox” 4:3 footage and scale 16:9 SD footage to full screen.

### **Cross conversion**

The Matrox MXO2 products offer realtime cross conversions from 720 to 1080 and 1080 to 720. Realtime frame rate conversion is also supported with 2:3:2:3 and 2:3:3:2 cadences. This feature is useful if, for example, your source material is recorded at a different frame rate or resolution than the delivery format your client requires. It also facilitates monitoring when, for example, you need to work with 23.98 fps footage but your monitor does not support that frame rate. You can use the MXO2 family's realtime frame rate conversion to view your project at 29.97 fps. Conversion from 23.98 fps to 25 fps is handled by Adobe Premiere Pro and the host.

# Matrox MAX Option and Matrox A/V Tools

## Matrox MAX option for lightning fast H.264 encoding

The Matrox MXO2 devices are available in versions that include Matrox MAX H.264 encoding acceleration hardware.

Matrox MAX is a unique technology that speeds up H.264 encoding for resolutions ranging from iPod to HD. It uses a dedicated hardware processor to accelerate the creation of H.264 files for Blu-ray, the web, and mobile devices. By using specialized hardware acceleration, jobs are finished with amazing speed and system resources are liberated for other tasks. Quality and flexibility are ensured through direct integration with professional applications such as Adobe Media Encoder and Adobe Premiere Pro on the PC.



## Matrox A/V Tools application for fast capture/playback of audio, video, and still frames

Matrox A/V Tools is a stand-alone application for fast capture and playback of your audio/video assets. It's particularly useful when all you need to do is quickly capture video for web streaming or DVD authoring. Matrox A/V Tools lets you capture HD and SD analog, SDI or HDMI video from your camera or VTR into AVI files on your computer. You can choose to capture to the uncompressed 8- or 10-bit codecs for the highest quality or to the highly-efficient Matrox MPEG-2 I-frame codec at up to 300 Mb/s. Using the MPEG-2 I-frame codec lets you easily edit XDCAM or AVCHD footage which would otherwise be difficult to work with.

Matrox A/V Tools provides on-screen transport controls to let you navigate quickly and easily through clips on disk. You can create playlists and change the order of clips by simply dragging and dropping them. You can also grab single-frame images and save them as TGA files to create photo montages.



## Kit contents

The Matrox MXO2 products are packaged with the most popular accessories. Optional components including additional Matrox MXO2 host adapters can be purchased separately.

### Matrox MXO2 Mini

Matrox MXO2 Mini input/output device  
Matrox MXO2 PCIe cable (1 meter)  
Matrox MXO2 Mini external power supply  
Two S-Video adapters

One of the following:

- Matrox MXO2 PCIe x 1 host adapter (for use with desktops and workstations)
- Matrox MXO2 PCIe host ExpressCard/34 adapter (for use with laptops)

### Matrox MXO2 LE

Matrox MXO2 LE input/output device  
Matrox MXO2 PCIe cable (1 meter)  
Matrox MXO2 LE external power supply and IEC-C13 power cord

One of the following:

- Matrox MXO2 PCIe host adapter (for use with desktops and workstations)
  - Matrox MXO2 PCIe ExpressCard/34 adapter (for use with laptops)
- (A third-party RS422 cable is required for machine control.)

### Matrox MXO2

Matrox MXO2 input/output device  
Matrox MXO2 PCIe cable (1 meter)  
Matrox MXO2 external power supply and IEC-C13 power cord  
Matrox MXO2 PCIe host adapter (for use with desktops and workstations)  
Matrox MXO2 PCIe host ExpressCard/34 adapter (for use with laptops)  
(The Matrox MXO2 battery power cable may be purchased separately.  
A third-party RS422 cable is required for machine control.)

### Matrox MXO2 Rack

Matrox MXO2 Rack input/output device with two mounting “ears”  
Matrox MXO2 PCIe cable (3 meter)  
IEC-C13 power cord  
BNC 75-ohm terminator (for REF OUT connector)  
Matrox MXO2 PCIe host adapter (for use with desktops and workstations)  
(A third-party RS422 cable is required for machine control.)



Matrox MXO2 Mini



Matrox MXO2 LE



Matrox MXO2



Matrox MXO2 Rack