Matrox MXO2 Revealed

Here are the answers to the most frequently asked questions about Matrox MXO2.

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What inputs does Matrox MXO2 have?

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Can Matrox MXO2 convert my 720p timeline to 1080i and vice versa in real time?

I shot at 23.98 fps, but now my client demands 29.97 fps for broadcast, can Matrox MXO2 help?

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How does Matrox MXO2 connect to my Mac?

Matrox MXO2 connects to a MacBook Pro via the ExpressCard/34 slot. You may have been told that this precludes you from using the best storage solution but FireWire storage is actually more than adequate for editing multiple layers of SD or compressed HD footage. With Final Cut Pro, Firewire 800 storage lets you transfer up to 6 layers of DV, 8 layers of HDV 1080i, 2 layers of DVCPRO HD 1080i, 2 layers of ProRes 422 1080, or 2 layers of 10-bit uncompressed SD in real time.

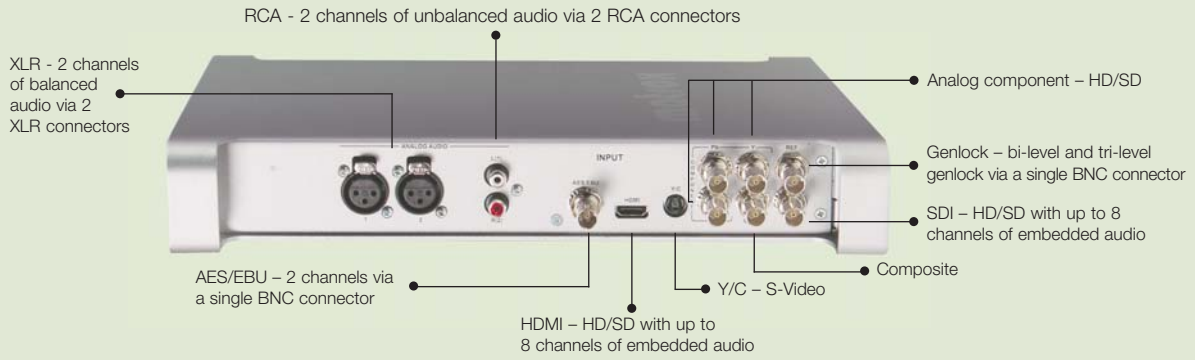
Matrox MXO2 connects to a MacPro via the internal PCIe slot. This allows you to use any storage solution. The benefit of using the PCIe connection is that you can work with uncompressed 10-bit HD video as well as any other format including ProRes 422 HQ. You have complete flexibility.

Everything you need to connect to both systems is included in the Matrox MXO2 package.

What inputs does Matrox MXO2 have?

Matrox MXO2 offers a full complement of analog and digital, HD and SD, video and audio inputs. You can attach a variety of devices to Matrox MXO2 and use the control panel to select the active input via software. Matrox MXO2 supports SD analog black burst (bi-level) or HD tri-level sync genlock. It 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.

Matrox MXO2 Inputs



Does Matrox MXO2 support ProRes?

Matrox MXO2 gives you the freedom and flexibility to use a wide variety of codecs and video formats including ProRes 422 and ProRes 422 HQ.

A codec is a device or program able to encode and/or decode a digital video signal. There are many different codecs and video formats in use today such as DV, HDV, DVCPRO, ProRes, and XDCAM to name a few. Unlike some other products, Matrox MXO2 does not force you to use one specific codec. You are free to use the codec that is best for each job, including your camera's native codec. Since Matrox MXO2 is not a FireWire 800 device, it also supports uncompressed workflows.

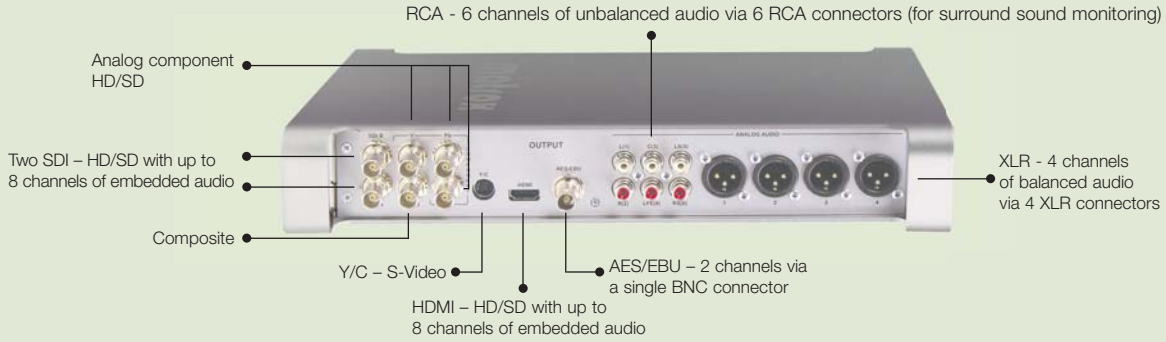
Can Matrox MXO2 let me do realtime HD capture to ProRes on a MacBook Pro?

Yes. On a MacBook Pro with a 2.4 GHz or faster Core2 Duo CPU, Matrox MXO2 lets you capture to ProRes 422 at full raster 720p and 1080i. You can also capture to DVCPRO HD at 720p and 1080i in real time.

What output and monitoring capabilities does Matrox MXO2 provide?

Matrox MXO2 gives you complete freedom to customize your video and audio outputs to support the equipment in your facility and the optimal workflow for each project. You can select up to five simultaneous video outputs for print-to-tape and monitoring. The two SDI outputs are always the same, either HD or SD. The SDI, HDMI, and analog outputs are independent. You can choose whether each is HD or SD. Matrox MXO2 provides built-in 5.1 surround sound monitoring via RCA and HDMI so you don't need to invest in additional equipment as you do with some other I/O products. Matrox MXO2 also gives you the flexibility to map any audio track in Final Cut Pro to any audio output.

Matrox MXO2 Outputs



What can the Matrox MXO2 upscaling and downscaling feature do for me?

Matrox MXO2 provides realtime 10-bit hardware scaling on the outputs. You can upscale from NTSC or PAL to either 720 or 1080. You can downscale 720 or 1080 HD footage to NTSC or PAL.

Matrox MXO2's realtime scaling feature is particularly useful when you need to master both HD and SD because it lets you output both simultaneously from the same timeline. It is also invaluable when you need to proof DVD content from an HD video source or make quick SD rushes from HD material.

Can Matrox MXO2 convert my 720p timeline to 1080i and vice versa in real time?

Yes. Matrox MXO2 provides realtime cross conversion in hardware, saving you hours of rendering when your source material does not match your client's delivery requirements.

I shot at 23.98 fps, but now my client demands 29.97 fps for broadcast, can Matrox MXO2 help?

Yes. Matrox MXO2 provides realtime frame rate conversion in hardware. It can output a 23.98 timeline to tape at 29.97 fps in real time, saving hours of rendering. This feature is also beneficial if you work in 23.98 but your monitoring equipment does not support that frame rate. Matrox MXO2 lets you view your 23.98 fps project at 29.97 fps to ensure correct title placement and accurate color temperature of your 23.98 fps project. Conversion from 23.98 fps to 25 fps is handled by Final Cut Pro and the host.

Can Matrox MXO2 run off standard camera batteries?

Yes. Matrox MXO2 can run off field batteries as well as its power supply. For example, we have validated the Anton Bauer Dionic90 and Dionic160 field batteries for use with MXO2. A special cable adapter is required and can be purchased from your Matrox dealer.

Does Matrox MXO2 provide deck control?

Yes. Matrox MXO2 comes with an RS-422 port to communicate with devices that support this protocol. Frame-accurate capture and print-to-tape with guaranteed audio video sync are provided.

What are the system requirements for MXO2?

Matrox MXO2 requires a Mac system with the following configuration:

- Intel-based Mac Pro or MacBook Pro
- Mac OS X v10.5 or later
- One free PCIe slot on the Mac Pro to install the Matrox PCIe host adapter
- One free ExpressCard/34 slot on the MacBook Pro to install the Matrox PCIe host ExpressCard/34 adapter
- If using MXO2 with Final Cut Studio 2 – 2 GB physical memory (RAM) when working with compressed HD and uncompressed SD sources, or 4 GB physical memory (RAM) when working with uncompressed HD sources
- HDMI monitor that supports 1920×1080 and "dot-by-dot" mode is recommended for 1:1 pixel mapping.

How does Matrox MXO2 compare with other products on the market?

Matrox MXO2 vs. AJA IoHD

1. **Matrox MXO2 costs substantially less –** $1,595 vs. about $3,000.
2. **Matrox MXO2 is truly portable –** fits easily into a laptop bag, can run off a field battery, weighs 3 ½ lbs vs. 9 ½ lbs.
3. **Matrox MXO2 is road ready and rugged –** built entirely on one circuit board, MXO2 is a robust design whereas IoHD has many stacked circuit boards which can become loose over time.
4. **Matrox MXO2 provides direct surround sound monitoring –** IoHD has only stereo RCA output for monitoring.
5. **Matrox MXO2 works with a variety of codecs, not just ProRes –** there is no need to transcode your native XDCAM, P2, HDV, and DV footage, for example.
6. **Matrox MXO2 does not use the FW800 bus –** the PCIe bus used by MXO2 provides higher bandwidth so you are not limited to just compressed workflows, you can work with all formats including uncompressed 10-bit HD. You also have the flexibility to use popular FireWire storage solutions with MXO2, even on towers.

Matrox MXO2 vs. AJA Kona3

1. **Matrox MXO2 costs substantially less –** $1,595 vs. about $2,550.
2. **Matrox MXO2 is a professional breakout box –** with Kona3 the breakout box is separate, increasing your cost by about $260.
3. **Matrox MXO2 works with Mac Pros and MacBook Pros –** Kona3 works only with towers.
4. **Matrox MXO2 provides analog, SDI, and HDMI I/O –** Kona3 has analog preview output and SDI I/O only.
5. **Matrox MXO2 provides direct surround sound monitoring and XLR audio –** Kona3 has only stereo RCA output for monitoring.

Matrox MXO2 vs. AJA Kona LHe

1. **Matrox MXO2 is a professional breakout box –** with Kona LHe the breakout box is separate, increasing your cost by about $290.
2. **Matrox MXO2 works with Mac Pros and MacBook Pros –** Kona LHe works only with towers.
3. **Matrox MXO2 provides HDMI I/O –** Kona LHe has no HDMI support.
4. **Matrox MXO2 provides direct surround sound monitoring and 4 XLR audio outputs –** Kona LHe has only stereo RCA output for monitoring and 2 XLR outputs.
5. **Matrox MXO2 provides realtime 10-bit hardware up/down/cross conversion –** Kona LHe offers only downscaling.

Matrox MXO2 vs. Blackmagic DeckLink HD Extreme

1. **Matrox MXO2 works with Mac Pros and MacBook Pros –** DeckLink HD Extreme works only with towers.
2. **Matrox MXO2 fits in a single PCIe slot –** DeckLink HD Extreme occupies 2 slots.
3. **Matrox MXO2 is a professional breakout box –** DeckLink HD Extreme does not have a breakout box option.
4. **Matrox MXO2 offers simultaneous HD and SD output –** DeckLink HD Extreme does not.
5. **Matrox MXO2 provides direct surround sound monitoring and more audio I/Os –** DeckLink HD Extreme supports only two channels of audio via AES/EBU, XLR, and HDMI.
6. **Matrox MXO2 provides 10-bit realtime hardware up/down/cross conversion –** DeckLink HD Extreme depends on your CPU to do all scaling, and "center-cut" aspect ratio conversion is not supported.
7. **Matrox MXO2 comes with a 3-year warranty –** DeckLink HD Extreme comes with a 1-year warranty.

Matrox MXO2 vs. Blackmagic Multibridge Pro

1. **Matrox MXO2 works with Mac Pros and MacBook Pros –** Multibridge Pro works only with towers.
2. **Matrox MXO2 provides direct surround sound monitoring and more audio I/Os –** Multibridge Pro has only 2 channels of unbalanced audio output via RCA, 2-in/2-out XLR, and 2 channels of support for HDMI audio.
3. **Matrox MXO2 provides 10-bit realtime hardware up/down/cross conversion –** Multibridge Pro depends on your CPU to do all scaling, and "center-cut" aspect ratio conversion is not supported.

Matrox MXO2 vs. Blackmagic Multbridge Eclipse

1. **Matrox MXO2 costs substantially less –** $1,595 vs. about $2,570.
2. **Matrox MXO2 works with Mac Pros and MacBook Pros –** Multibridge Pro works only with towers.
3. **Matrox MXO2 provides direct surround sound monitoring and 8 channels of support for HDMI audio –** Multibridge Eclipse has only 2 channels of unbalanced audio output via RCA and 2 channels of support for HDMI audio.
4. **Matrox MXO2 provides 10-bit realtime hardware up/down/cross conversion –** Multibridge Eclipse depends on your CPU to do all scaling, and "center-cut" aspect ratio conversion is not supported.

Matrox MXO2 vs. Motu V4HD

1. **Matrox MXO2 costs substantially less –** $1,595 vs. about $2,750 plus a separate breakout cable if you want access to more than 4 channels of audio.
2. **Matrox MXO2 is truly portable –** fits easily into a laptop bag, can run off a field battery, weighs 3 ½ lbs vs. 14 lbs.
3. **Matrox MXO2 provides HDMI input and output –** V4HD does not have HDMI input.
4. **Matrox MXO2 works with a variety of codecs, not just DVCPRO HD and ProRes –** there is no need to transcode your native XDCAM, P2, HDV, and DV footage, for example.