

NOW with API

# PROFESSIONAL VIDEO STREAMING and RECORDING APPLIANCE



## Matrox<sup>®</sup> Monarch<sup>™</sup> HD

### Professional video streaming and recording appliance

Matrox Monarch HD is a small, easy-to-use video streaming and recording appliance designed for professional video producers who need to simultaneously stream a live event and record the master quality version for post-event editing. By separating the task of recording from streaming in a single integrated unit, Matrox Monarch HD ensures that the Content Delivery Networks (CDNs) are focused on delivering quality video to your audience while you control the quality of the archive.

From any HDMI input source such as a camera or switcher, Matrox Monarch HD generates an H.264-encoded stream compliant with RTSP or RTMP protocols. While encoding the video at bitrates suitable for live streaming, Matrox Monarch HD simultaneously records a high-quality MP4 or MOV file to an SD card, a USB drive, or a network-mapped drive. Matrox Monarch HD is remotely controlled using any computer or mobile device with a web browser.

## Record master quality video while streaming

If an event is worth streaming, it is worth recording at the highest possible quality. The better the recording quality, the more value it offers a post event produced asset. These assets can be made available to your audience as fast turnaround VOD files or as fully post produced highlight reels.

Matrox Monarch HD supports sharing the H.264 encoder between the streaming and recording processes so recording quality and upload bandwidth are independent of each other. A typical setting will let a user record a master quality file at 25 Mbps while simultaneously streaming at a bitrate of 5 Mbps. As a dedicated streaming or recording appliance, Matrox Monarch HD can stream at bitrates up to 20 Mbps or record at bitrates as high as 30 Mbps.

Matrox Monarch HD injects the highest quality video into every bit regardless of input source or target bitrate. Combining the power of the built-in H.264 encoder with Matrox's high quality deinterlacing and scaling engines guarantees stunning results.



## Ready to edit and upload with MP4 and MOV

Matrox Monarch HD gives the option of recording high quality H.264 video as MP4 or MOV files. These formats offer maximum versatility for use in any application. Upload a file to your own web server or to a Content Delivery Network (CDN) like YouTube. Alternatively, you can directly import the file into most creation tools without the need for file transcoding.

## Robust and practical design

Powerful and robust, Matrox Monarch HD offers simple, one touch stream and record push-buttons, low power consumption, a locking power connector, and a fanless design. Matrox Monarch HD's HDMI output makes it easy to monitor what you are streaming and recording, regardless of whether the signal received from a camera, a switcher, a signal convertor, or a computer. All eight channels of embedded audio can be passed from the HDMI input to HDMI output ports. Two channels of analog audio input with loopout are also available via 1/8" stereo jacks. Its design allows Matrox Monarch HD to be just as easily located on a desktop as in a rack - up to three units can fit in a single 1RU tray. The storage and button controls are conveniently located on the front of the unit while the power and I/O ports are found at the back.



RTMP streaming



RTSP streaming



## Easily Reach your Audience

Whether you're providing live content to Adobe Flash or Wowza Media servers, to any of the popular CDNs, or directly to a computer or device found on a LAN, Matrox Monarch HD's flexible video streaming protocols' support is up to task. The Monarch HD is a certified "Works with Wowza" encoder allowing our users to benefit from enhanced integration with the Wowza streaming engine. As a certified encoder Wowza Manager can provide an XML file which contains the credentials required for the Monarch HD to easily connect to the Wowza Streaming engine. The Monarch HD also supports XML files generated for use with Flash Live Media Encoder. These files are often offered by CDNs to allow their customers to easily connect to their service. Both XML files are loaded into the Monarch HD using the Command Center, a web based UI. Finally, the Monarch HD can be configured to target only a handful on viewers using software based players such as VideoLAN's VLC Player. This is particularly useful for remote viewing of content being recorded locally.

## Stream and record SDI signals

A/V professionals and broadcast engineers often work with SDI signals from devices like switchers, routers and cameras that do not have HDMI outputs. Matrox Monarch HD can stream and record these signals using Matrox MC-100, a versatile SDI to HDMI convertor. This convertor accepts any HD-SDI or 3G-SDI sources and converts it to an HDMI signal that may be used as a source for the Monarch HD if it is of a supported resolution.

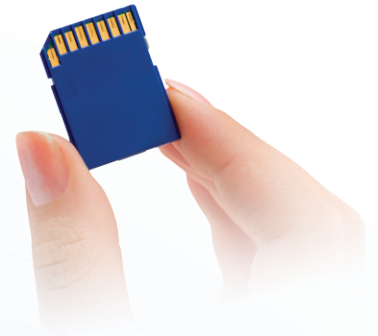


## Record to Anything

Matrox Monarch HD lets you select from a variety of recording media types. Use an SD card when a compact portable solution is required or a USB drive for long form recording. Alternately, a system drive on a computer found on the network may prove extremely useful if multiple individuals need to access the footage.

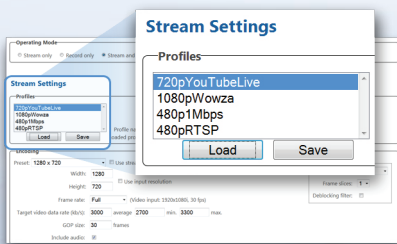
The Monarch HD provides users the ability to create split files while recording. This is particularly useful when recording for extended periods of time. The user can enter a file length and Monarch HD will automatically split your recording into separate files, switching to a new file without losing a single frame. When loaded on an NLE timeline sequentially, they will playback seamlessly and can be exported as a single contiguous file.

Regardless of how or where you store the footage, the record controls can be executed without affecting the streaming operations. High quality files will be available to create video assets to complement the live stream well after the event is completed.



## Presets and Profiles for simple Configuration

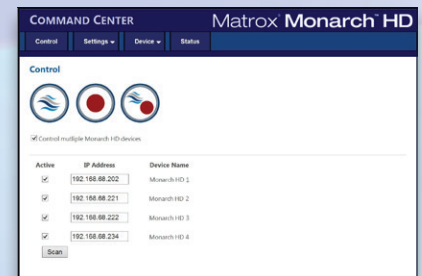
The Monarch HD firmware ships with a number of typical streaming and recording presets that define all the encoding parameters including resolution and bitrate. Whether preset or custom parameters are used, they only need to be entered once and saved as a unique profile. A profile not only contains encoding parameters but also destination information detailing where the encoded video is being sent. Multiple profiles can be saved if the device is used in different environments. Recording and streaming profiles are saved independently allowing a user to mix and match profiles depending how the Monarch is being used at the time. Each profile can be loaded instantly without having to re-enter data.



## Remote command and control

A simple web page is all that is needed to harness the power of Matrox Monarch HD. You can control and configure the appliance using any device on your network that supports a standard web browsing application.

A single Matrox Monarch HD device can act as a master to multiple slave devices. From a single web page, you can simultaneously start the recording and/or streaming of up to four Matrox Monarch HD devices.



## Integrate Matrox Monarch HD into your own Application or Environment

Network- or cloud-based video management platform developers, A/V integrators and value-added resellers can use Monarch HD Dev Tools, which include automatic configuration tools and the Monarch HD Control API, to provide a unified, consistent and branded user experience. Individual users need not interact with the Monarch HD Command Center web UI, which can simplify enterprise-level and centrally administered deployments.

Automatic configuration tools can be used to set all Monarch HD encoding and destination settings by simply loading a properly formatted configuration file. For example, specialized CDNs and video platform providers who wish to offer a branded plug-and-play user experience can use the automatic configuration tools to give their customers a very simple installation procedure. The customer would just insert a USB key containing the customized automatic configuration file, boot the new Monarch HD and be ready to stream at exactly the right settings. Similarly, IT administrators in corporate and education environments with deployments of multiple Monarch HD units on a network can use the tools to manage all of the units from a single application or portal. This can be done automatically by having each Monarch HD check a defined webpage for configuration settings at boot up. Alternatively, the task of fetching configuration settings can be triggered manually from the Monarch HD Command Center.

Monarch HD Control API is an HTTP-based API that lets system integrators create their own control software to start, stop, set streaming bitrate and destination, and get the status of a Monarch HD device. The Monarch HD Command Center or the automatic configuration tools are used to initially configure devices with complete streaming and recording parameters. Once set up, units can be controlled using the custom application, on-device buttons only or the Command Center.



## Integrate with Crestron

The Monarch HD Control API is an ideal way to integrate Monarch HD functionality into an existing classroom, boardroom or other space equipped with a Crestron control system. Monarch HD registered users are invited to download a sample SIMPL module written to run on Crestron 2-Series® and 3-Series® Room Media Controllers.



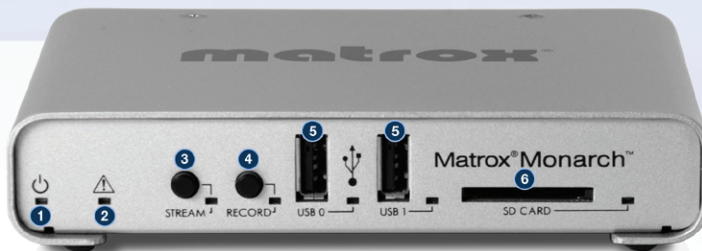
## Install in a Rack

Matrox offers an optional Monarch HD Rack Mount Kit, an ideal space and cable management accessory which allows a user to fit up to three Monarch HD units in a single 1RU space.

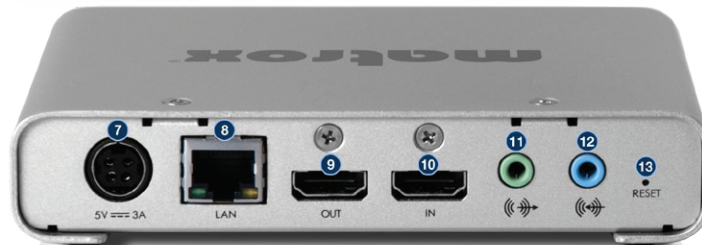


## MATROX MONARCH HD LABELS

Front View



Back View



- 1) Power LED
- 2) Warning LED
- 3) Stream Button
- 4) Record Button
- 5) USB 2.0 ports
- 6) SD card slot
- 7) Power Connector
- 8) Gigabit Ethernet Port
- 9) HDMI Output Connector (with embedded Audio)
- 10) HDMI Input Connector (with embedded Audio)
- 11) Analog Audio Output
- 12) Analog Audio Input
- 13) Reset Button

[www.matrox.com/video](http://www.matrox.com/video)

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