Matrox Monarch LCS Technical Specifications

Inputs and Outputs	
Supported HDMI Video Input 1 (Video Sources)	Progressive 1920x1080 @ 60/59.94/50/30/29.97/25 Frames per second 1280x720 @ 60/59.94/50 Frames per second Interlaced 1920x1080i 29.97/25 Frames per second
Supported HDMI Video Input 2 (Computer Sources)	Progressive 1920x1080 @ 60/59.94/50/30/29.97/25 Frames per second 1280x720 @ 60/50 Frames per second Interlaced 1920x1080i 29.97/25 Frames per second
HDMI Video Output	Preview output of video input signals. Preview output can be mapped from either SDI or HDMI input sources. *Note that when input is an SD resolution, the HDMI preview output will show video window-boxed on an HD output.* *When HDMI output is set to Preview Mode, refer to the manual for a complete description of behavior.*
Supported SDI Video Input	Progressive 1920x1080 @ 60/59.94/50/30/29.97/25 Frames per second 1280x720 @ 60/59.94/50 Frames per second Interlaced 1920x1080i @ 29.97/25 Frames per second 720x486i @ 29.97 Frames per second 720x576i @ 25 Frames per second

	Compliant with SMPTE 259M/292M/424M (Level A) / 425M
SDI Video Output	Preview output of video input signals. Preview output can be mapped from either SDI or HDMI input sources.
Audio Input	Processes the first two channels of audio embedded in HDMI or SDI input signals. Unbalanced analog stereo input via 1/8" (3.5mm) jack. Line Level
Audio Output	Passthrough of 8 channel of embedded audio channels in HDMI and SDI signals. Unbalanced analog stereo output via 1/8" (3.5mm) jack—passthrough of input. Line Level *Note that all outputs are active regardless of audio and video input selection.*
Extra features	Video Input Format is Auto-Detected in SDI and HDMI. All outputs are active regardless of audio and video input selection.

Frame Synchronization

Frame Synchronization	The Monarch LCS contains frame synchronization circuitry designed to compensate for disruptions of the input signal. This circuitry is in place for both SDI and HDMI inputs. Streaming and recording operations will proceed cleanly with repeated or dropped frames.

H.264/MPEG-4 Part 10 (AVC) Video Encoder

Resolutions	Selectable encoding resolutions ranging from: 128x128 to 1920x1080
Bit Rates Ranges	Single Encoder - Streaming mode: 16 Mbps Dual Encoder - Maximum of 8 Mbps for streaming channels Dual Encoder - Maximum of 10 Mbps for recording channels
Encode Frame Rates	Encode frame rates selection includes; 60/50, 30/25 and 15/12.5. Note that 50/60 fps setting is limited to following use cases: Single Input, single encoder – 1080p60 and 720p60 supported in RTMP, RTSP or Recording modes Single Input, dual encoder – 720p60 in RTSP and Recording modes All other operating modes will limit the frame rate to the 30/25 fps setting regardless of encoding resolution.
Encoding Profiles	Baseline, Main and High
Encoding Controls	2.0, 3.0, 3.1, 4.0, 4.1 Level Support GOP Size Variable bit rate support Average max/min data rate controls Deblocking Filter

MPEG-4 AAC Audio Encoder

Standard	AAC-LC
Sample Frequency	32, 44.1 and 48 kHz when digitized from an analog source

Channels	2 channels Stereo (L/R)
Bit Rates	Range from 32 kbps to 256 kbps *Note that audio codec settings are applied to both encoders.*

Scaler	
	High Quality multi-tap 10 bit Down Scaler and De-Interlacer Available to both streaming and recording operations

Recording File Format	
File Type	Industry Standard MP4 and MOV files with two channels of embedded AAC audio
Recording Lengths	Maximum file length of 300 minutes—irrespective of storage type used. File splitting feature allows a user to record continuously for long periods by defining file segment sizes. The Monarch LCS will create these sequential file segments over the course of the recording operation without losing a single frame of video. File segment can have a length of 1 to 300 minutes.

Network Interfaces	
Connector	RJ45 providing 10/100/1000 Base-T Ethernet with Static or DHCP addressing
Protocols	RTMP, RTSP/RTP IPv4 Support Unicast and Multi Unicast (number of clients may vary from 3 to 10)

User Interface	
Computer Based control	HTTP via standard PC or Mac web browser using Monarch LCS Command Center.
Physical Interface	On Device push buttons for independent streaming and recording with Start/Stop control

Storage Types for File Recording	
2 x USB 2.0	Support for NTFS (3.1) and FAT32 file system *The Monarch LCS will support writing to USB3 devices at USB2 speeds. Also note, there is a very high variability in the performance capabilities of "thumb" drives (even USB3 versions). Many are optimized for "read" operations while the Monarch LCS requires sustained "write" capabilities. For best results, Matrox recommends using powered USB drives. If small portable media is required, SD cards may be more suitable.*
1 x SD card Slot	Supports SD and SDHC cards. Only NTFS formatted SDXC cards are supported. (Class 10 highly recommended).
Network Mapped Drive	Support for writing to shared folders in computers found on a network using Windows Share protocols (suitable for Windows system) as well as NFS protocols (suitable for Mac and Linux systems).

Physical	
Dimensions	Length (shell) - 5.6" (14.2cm), Length (shell +BNCs) - 6"(15.3cm), Width - 8.5" (21.6 cm), Height (shell) - 1.4"(3.6cm), Height (Shell + pads) - 1.5" (3.81cm)
Weight	1.3 lbs, 0.6 kg
Operating conditions	32 to 104 deg. F (0 to 40 deg. C), 20 to 80% relative humidity (non-condensing)

Power	- Input: 9-24 volts - Connector: Din4 - Total Power Consumption: 20-30 watts (42 max)
Power Supply	- Line Voltage: 100-240 VAC - Frequency: 50-60 Hz - Input: External AC/DC adapter - IEC320-C14 - DIN4 Locking Power Connector
Transport and Storage	Max Operating Altitude: 3000 meters Max Transport altitude: 12,000 meters Storage Humidity 5 to 95% relative humidity (non-condensing)
Regulatory	- EMI: FCC Class A, CE Mark Class A, ACMA C-Tick Mark, VCCI - Power-supply Safety: UL/CUL(UL60950-1), TUV-GS(EN60950-1), T-LICENSE(BS EN60950-1), CCC(GB4943.1-2011), PSE(J60950), SAA(AS/NZS60950-1), KC-MARK(K60950), S-MARK(IEC60950-1) - RoHS Directive 2002/95/EC
Warranty	2 years with free telephone support
Kit Contents	
In the box	- Matrox Monarch LCS device - Matrox Monarch LCS external power supply - IEC320-C14 power cords (US, GB and EU)
Ordering Information	
MHLCS/I	Matrox Monarch LCS part number
MRCH/RACK/KIT	Monarch Rack Mount Kit. Can fit up to two Monarch LCS units in a 1RU space.
PWR/SUP/MHLS	Monarch LCS power supply unit. Does not include IEC-C14 power cord. These cables must be sourced locally.