

MV-Flex™ —

1RU and 3RU flexible, modular multiviewer systems



Data Sheet

A flexible, cost effective solution for multi-image displays on up to twelve video monitors.



- Excellent picture quality
- Comprehensive monitoring and alarm capability
- Simple intuitive configuration

The MV-Flex™ is ideal for use in playout, lines in, signal monitoring, and for live production in studio and OB environments.

Features

- Multi format Analog/SD/HD/3G inputs
- Fully scalable images
- Audio metering
- Dolby® metering
- Audio format indication
- Multiple metering scales, with flexible bar layouts
- UMD tallies
- Comprehensive alarms for video, audio and metadata
- Analog and digital clocks (with timezone offsets)
- Subtitle, CC & VITC display
- AFD, WSS detection and auto aspect ratio switching
- GPI/O
- Ethernet and serial comms to external control systems
- Intuitive web interface for simple configuration

Flexible frame configuration

- Fit any number of controller/output modules in a frame, with any combination of input cards per controller
- From 72x2 video, to 12 quad split displays in a single 3RU frame

Up to 6 dual output multiviewer systems in a 3RU chassis

Two independent outputs per system, each SDI with HDMI copy

- Monitor on a local screen using HDMI, and route to remote screens using SDI

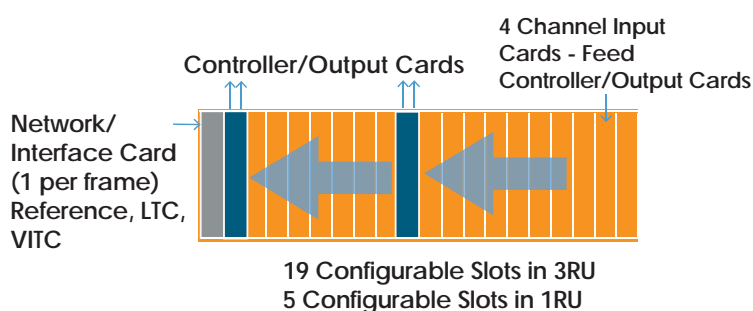
Internal routing option in 1U

- Up to 16 inputs across two outputs, plus 16 routed outputs

Fully modular rear panels for maximum flexibility

- Mix serial video, PC graphics, composite video, audio and tallies in a single system
- SDI auto detection from SD to 3G
- Looping inputs enable simple expansion or in signal path monitoring
- HDMI inputs allow simple display of PC graphics
- Multiple GPIs and GPOs for external tally and alarm triggers

Architecture



Applications

The MV-Flex is ideal for use in . . .

- Playout control rooms
- Studio galleries
- OB trucks
- Post production suites
- Lines monitoring areas

In fact any application that benefits from a single or multiple display(s).

In addition to allowing high quality video images to be viewed the MV-flex will also :

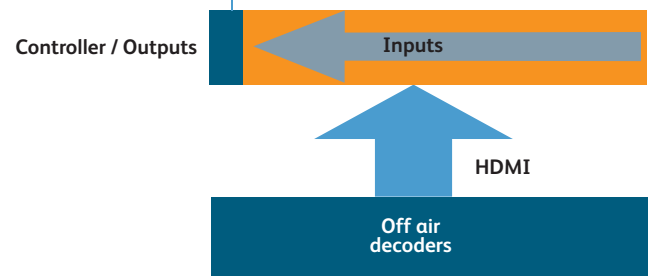
- Generate audio metering of individual channels from AES or Dolby® E
- Auto detect Dolby E formats and adjust bars to suit, or:
- Show incorrect audio formats
- Allow two rows of audio metering for efficient use of display space
- Display audio phase indication
- Displays UMD source names from external routers and production switchers
- Show source tallies from tally systems
- Generate alarm indicators
- Generate safe area marker
- Generate real-time clocks or timers
- Allow multiple clocks with timezone offsets
- Display timecode
- Display closed captioning
- Decode and use WSS (wide screen signalling for aspect ratio control)
- Store and display bitmap files e.g. for channel logo images
- Display message boxes containing text, updated from external systems

News Van applications

- 1U 16x2 for small spaces
- Looping inputs avoid the need for DAs on router outputs
- Routing option available in 1U

Off Air Monitoring

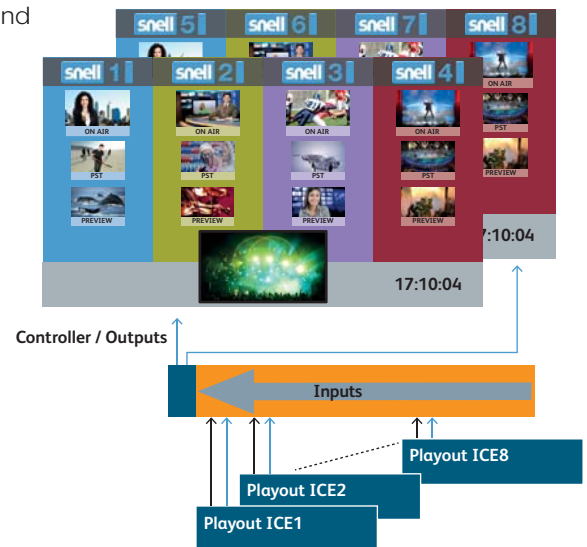
- Up to 72 inputs for off-air monitoring.
- HDMI inputs for direct set top box connection
- Audio loss alarms
- Metadata loss alarms (CC, WSS, V-chip, AFD, etc.)
- Simple on screen labelling of sources



Multi-Channel Playout

Multi-channel display with graphical background and channel logos for clear identification

- Mixer on-air, Program, Preset and key previews
- Full audio metering
- Automation playlist display
- On screen clock with regional time offsets



Applications

Options

MV-EXTPSU

An external backup power unit in a 1RU frame provides power to the MV-flex in the event of an internal power supply failure. It also supports hot swapping of faulty power modules.

Support

SAM provides a host of world class customer services that take our clients from the inception of a project, through all of the key stages to successfully get on air, and throughout the system's working life.

Services include:

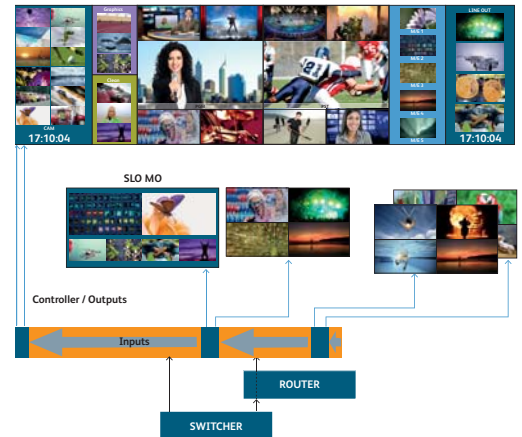
- Workflow Analysis
- Systems Architecture
- Implementation
- Operational Training
- On-going Support

For more information, please contact us at s-a-m.com

Outside Broadcast/Live Production

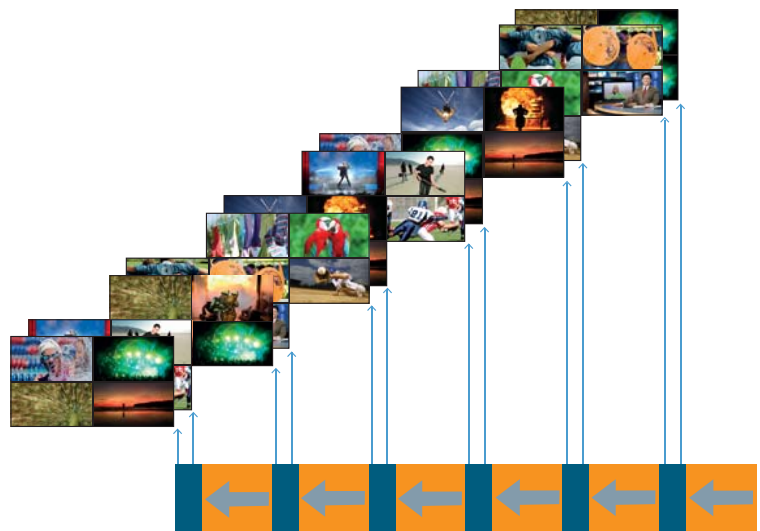
Multi-channel display with graphical background and channel logos for clear identification

- 1U Multiple systems in a single rack allow Production Switcher live operation, plus multiple quad split monitoring feeds.
- Cue lights
- UMD tallies showing switcher and router source names
- Clock
- HDMI out for local monitors, with SDI copy for remote feeds or copies in the trucks



Multi-Channel Quad Split

- Up to 6 dual output systems in 3RU feed 12 quad split displays



SAM provides
a host of world
class customer
services

Monitoring and Alarms

Audio metering of individual channels from AES or DolbyE.

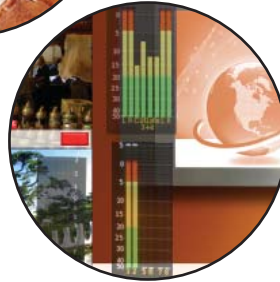
- Auto detect Dolby E formats and adjust bars to suit
- Show incorrect audio formats
- One or two rows of audio metering for efficient use of display space
- Audio phase indication
- UMD source names from external routers and production switchers
- Source tallies from tally systems
- Alarm indicators
- Safe area marker
- Real-time clocks or timers
- VITC or LTC timecode display
- Multiple clocks with timezone offsets
- Closed captioning Decode
- WSS control of individual tile displays
- Store and display graphics for on screen logos
- Alert message boxes containing text, updated from external systems.

Alarms and Meters

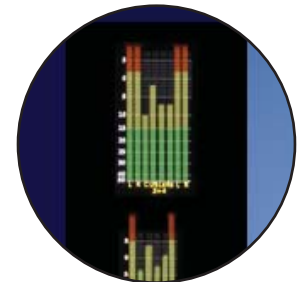


Clear on screen alarms

Video and audio alarms are displayed on each tile. Alarms can be set for each tile, and font size is fully configurable.



Two rows of audio metering for efficient use of display space.

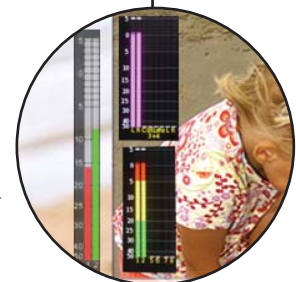


Dolby Metering Meter all Dolby E Formats simply and clearly.



Incorrect audio format indicators and alarms

Expected audio formats can be defined for each channel – if this format is not present, a different colored bar is displayed. Alarm text can also be displayed.



Monitoring and Alarms

Fully modular rear panels for maximum flexibility

- Mix serial video, PC graphics, audio and tallies in a single system
- SDI auto detection from SD to 3G
- Looping inputs enable simple expansion and in signal path monitoring
- HDMI inputs allow simple display of PC graphics
- Multiple GPIs and GPOs for external tally and alarm triggers.

Content and metadata monitoring and alarms

- Clear indication of missing or incorrect metadata on screen and via external alarm
- Audio bargraph (embedded and discrete AES) including Dolby E metering
- 'Wrong audio format' detection gives simple indication on screen or via alarm.
- Subtitle, AFD, WSS, VITC decoding and monitoring
- Subtitle/Teletext monitoring:
 - WST / ITU-R BT.653-3, SD only
 - OP47 – SD, HD, 3G-A
- Closed Captions:
 - CEA-608 NTSC
- AFD driving aspect ratio:
 - SMPTE-2016, SD, HD and 3G-A
- WSS driving aspect ratio
 - ETSI EN300294, composite
- D-VITC display
 - SMPTE-12M - SD-SDI only.

Control Integration

The MV-flex integrates with all SAM Routing and Switcher products. This allows tallies from router and Switcher controllers simultaneously, meaning that all routing changes on either system are correctly indicated. If tielines are used, the original source name is displayed, not just the source on the local router

Custom alarms can be triggered on screen, with configured text and text box colours, driven from Rollcall or other third party applications, providing system level alarms on an MV-flex output.

Simple Browser Based Configuration

Simple web browser based configuration means no software to install before configuration can begin.


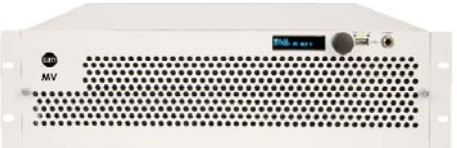
Configuration tools include:




- Grouping
- Align to grid
- Auto scale to aspect ratio
- Multi color indication of borders for different types of tile
- Auto-update of screens as changes are made, or push once layout is complete








Input setups (audio meter colors, over/under levels, and alarm settings) for any input can be applied to one or more selected inputs to speed configuration.

Frame	Systems per frame (each system has 2 outputs)	Total no. of configurable slots	Maximum no. of video inputs (per system)	Maximum no. of audio inputs (per system)
3RU	1-9	19	72 (18 cards)	256 (8 cards)
1RU	1	5	16 (4 cards)	32 (1 card)

Ordering Information







Frames	Order code	Description
 	MP-X1-0	MV-flex 1RU frame including MV-NET MV- NRP rear panel.
	MP-X1-R	MV-flex 1RU frame with router capability Including MV-NET and MV-NRP rear panel. NOTE - routing capability needs MV-R4B rear panels to access router outputs. Routing card is for SDI signals only
	MP-X3-0	MV-flex 3RU frame including MV-NET and MV-NRP rear panel.


Interface & Controller/Outputs	Order code	Description
  	MV-NET	Network/Interface card (1 per frame - supplied with all frames)
	MV-NRP	Network/Interface rear panel (1 per frame- supplied with all frames)
	MV-CTL	Multiviewer control/output card
	MV-RCT	Multiviewer control/output rear panel

Input Cards	Order code	Description	Analog mono channels	AES channels
       	MV-VIP3	VIP3 Video Input Card, Multi Rate SDI/HDMI		
	MV-VIP3D	VIP3D Video Input Card, Multi Rate SDI/HDMI, Dolby E metering		
	MV-AIP08A	MV-Flex 8ch mono Analog Audio I/P	8	-
	MV-AIP16A	MV-Flex 16ch mono Analog Audio I/P	16	-
	MV-AIP32A	MV-Flex 32ch mono Analog Audio I/P	32	-
	MV-AIP08D	MV-Flex 8ch AES Audio I/P	-	8 pairs
	MV-AIP16D	MV-Flex 16ch AES Audio I/P	-	16 pairs
	MV-AIP32D	MV-Flex 32ch AES Audio I/P MV-Flex 32ch	AES Audio I/P	32 pairs
	MV-AIP08AD	MV-Flex 8+8ch AES/Analog Audio I/P	8	8 pairs
	MV-AIP16AD	MV-Flex 16+16ch AES/Analog Audio I/P	16	16 pairs
	MV-AIP32AD	MV-Flex 32+32ch AES/Analog Audio I/P	32*	32 pairs*
	MV-AOP08D	MV-Flex 8ch AES Audio O/P	-	8 pairs
	MV-AOP16D	MV-Flex 16ch AES Audio O/P	-	16 pairs
	MV-AOP32D	MV-Flex 32ch AES Audio O/P	-	32 pairs

* total of 32 connections

Ordering Information

Rear Panels	Order code	Description
	MV-BNC	4 x BNC inputs + GPI/O (8 in, 4 out) All inputs accept SDI Inputs 1 & 2 accept Composite
	MV-HM2	2 HDMI Inputs + 2 BNC Inputs + GPI/O (8 in, 4 out) BNC Inputs accept SDI or Composite
	MV-HM4	4 x HDMI Inputs + GPI/O (8 in, 4 out)
	MV-L4B	4 x SDI/Composite inputs & 4 x SDI Loop-through (HD-BNC) + GPI/O (8 in, 4 out) All inputs accept SDI Inputs 1 & 2 accept Composite
	MV-R4B	4 x Multi Rate SDI/Comp inputs, 4 x SDI Router out + GPI/O (8 in, 4 out) All inputs accept SDI Inputs 1 & 2 accept Composite
	MV-A32	32 x Audio Inputs/Outputs (depending on Audio card type fitted). Balanced audio on 2 x 44W High Density D Type

PSUs	Order code	Description
	MV-EXTPSU	External Backup PSU in 1RU chassis
	MV-1000PSU	PSU module. For 1U, 3U and external PSU chassis

Specification

VIP3 3G/HD SD/Composite video input card		
Number of inputs	4, 3G/HD/SD, optionally 2 x composite video PAL/NTSC, CVBS: 1Vpp.	
Input formats and standards supported: PAL, PAL-M, NTSC, NTSC-4.43 SD-SDI HD-SDI 3G-SDI	720x480i59.94, 720x576i50. 1920x1080i60, 1920x1080i59.94, 1920x1080i50, 1920x1080p30, 1920x1080p29.97, 1920x1080p25, 1920x1080p24, 1920x1080p23.98, 1280x720p60, 1280x720p59.94, 1280x720p50. 1920x1080p60, 1920x1080p59.94, 1920x1080p50.	
Video input loop-through (MV-L4B)	3G, HD and SD. Four channel rear panel with HD BNC connectors with active loopthrough to a second frame.	
VIP3D video input card with Dolby® metering		
Metering capacity	Dolby - Up to 4 Dolby encoded pairs per input. Mono Audio - A maximum of 32 mono audio channel meters can be displayed per video tile.	
Dolby metering operation	Auto-detect - Audio meters adjust to incoming format. Fixed - Audio bars are set to defined format. Channels of different formats are shown in "alarm" color.	
Video outputs		
Output formats	2 x SDI outputs with 2 x HDMI copies	
	Format	Resolution
	HD 720p	1280x720, 50Hz
	HD 720p	1280x720, 59.94/60Hz
	3G 1080p	1920x1080, 50Hz
	3G 1080p	1920x1080, 59.94/60Hz
Video processing delay	Nominal delay with co-timed input signals is 1 frame. Non-synchronous signals can add up to 1 frame of delay. When used, analogue composite inputs add an additional 1 frame of delay.	
Image configuration	Images can be continuously varied in size and position on screen or may be displayed in pre configured layouts, positions and sizes. When the outputs are configured to feed two display devices the tiles may be assigned to one or both outputs. The system menu can be displayed on one or both video outputs.	
Audio metering standards	AES/EBU, BBC PPM, DIN PPM, Nordic PPM, VU and Extended VU.	
Alarms	Video: loss of sync, loss of luminance, freeze frame or motion. Audio: loss of embedded or external audio, over level, out of phase, wrong format + Dolby E loss (VIP3D only). Other: loss of VITC, subtitles or V-chip, video non-sync detection.	
Rear Panels & Connectors		
MV-BNC Inputs Formats	4 x BNC – 4 channels video. SDI (SD, HD or 3G). PAL/NTSC on 2 channels.	
MV-HM2 Inputs Formats	2 x HDMI, 2 xBNC HDMI - All HDMI 1.4 supported aspect ratios BNC - SDI (SD, HD or 3G)	
MV-HM4 Inputs Formats	4 x HDMI 1.4 All HDMI 1.4 supported aspect ratios	
MV-L4B/MV-R4B Inputs Formats	8 x HD-BNC looping or routed - 4 channels video (for expansion to a second frame). SDI (SD, HD or 3G).	
NV-A32 Inputs Formats	2 x 44 way D type – 16 channels per connector. AES / analog audio (depending on module fitted in the front).	
Environmental		
	MV-Flex 1RU	MV-Flex 3RU
Depth	426mm	483mm
Weight	8kg / 18lb	19kg / 42lb
Supply Voltage	100-240Vac, 50/60Hz	100-240Vac, 50/60Hz
Backup power	External 1RU (MV-EXT PSU) provides 24V dc	External 1RU (MV-EXT PSU) provides 24V dc
Power	190W max.	712W max.
Cooling	Fan assisted, front to side	Fan assisted, front to top and side