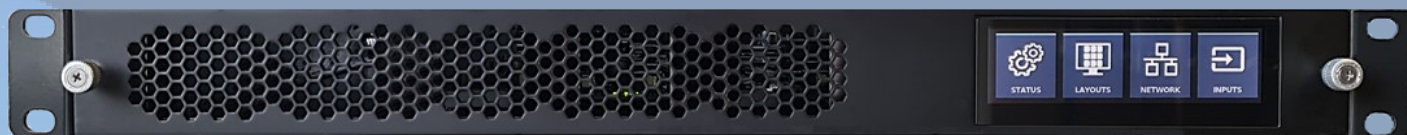


# SMP-MVxx

## High Performance Multiviewer



**Chromatec SMP-MVxx Brochure**  
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# SMP-MVxx High Performance Multiviewer



## Key Features

The SMP-MVXX is a fully-featured broadcast-quality multiviewer in 1RU format with up to 48x3G/12G-SDI inputs via HD-BNC.

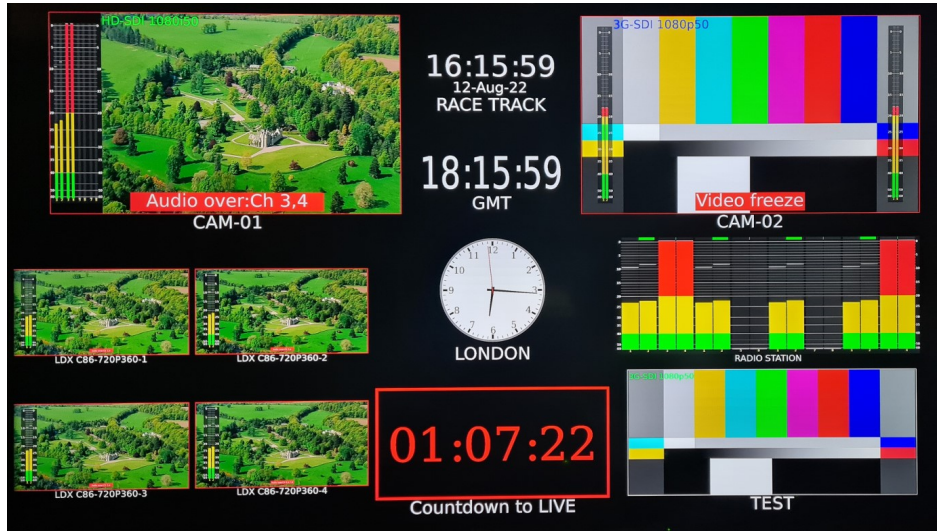
For 2K FHD operation - up to 4 independent outputs are supported with simultaneous SDI and HDMI outputs at 3G-SDI FHD50/59/60 resolution.  
For 4K UHD operation - up to 2 independent outputs are supported with simultaneous QL-4x3G-SDI and HDMI outputs at UHD50/59/60 resolution.

All image processing and control cards are modular and hot-swappable. MV configuration may be 16,32 or 48 channels depending on the number of image processing cards fitted.

Sources can be displayed on any output screen with arbitrary size and location. Sources may be duplicated in the same location without consuming additional scaler resources.

Power supplies with IEC inlets are hot-swappable and power sharing. Intelligent power supply modules are continuously logged for status, temperature and efficiency.

Quiet low-noise fans adapt to frame temperature.  
Remote control over ethernet via an integrated HTML5 browser.  
A long-life colour touch screen LCD displays MV and source status and can be used for local control.



## Frame and PSU Status

Optimised airflow allows the use of quiet – low speed fans ideal for OB trucks/vans.  
Temperature controlled fans reduce noise and increase lifespan.

## Signal Integrity

Every input is constantly monitored for signal presence. Source status is simultaneously written to a logfile and displayed on the front panel.

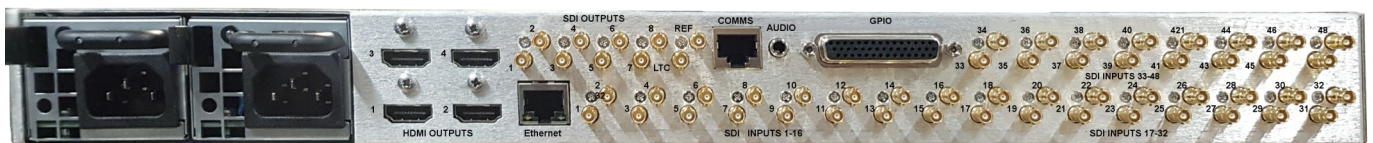


image shows model: SMP-MV48

## Order Codes

Part Number	Description	Inputs
SMP-MV16	Multiviewer with 16xSDI inputs and 4 simultaneous SDI/HDMI Outputs	16xSD/HD/FHD
SMP-MV32	Multiviewer with 32xSDI inputs and 4 simultaneous SDI/HDMI Outputs	32xSD/HD/FHD
SMP-MV48	Multiviewer with 48xSDI inputs and 4 simultaneous SDI/HDMI Outputs	48xSD/HD/FHD
MV-12VPSU	Additional PSU 12V 450W	

# SMP-MVxx High Performance Multiviewer



## Layout Workspace

The integrated web-browser uses ubiquitous HTML5 for maximum interoperability. Tiles are created and customised in the layout workspace.

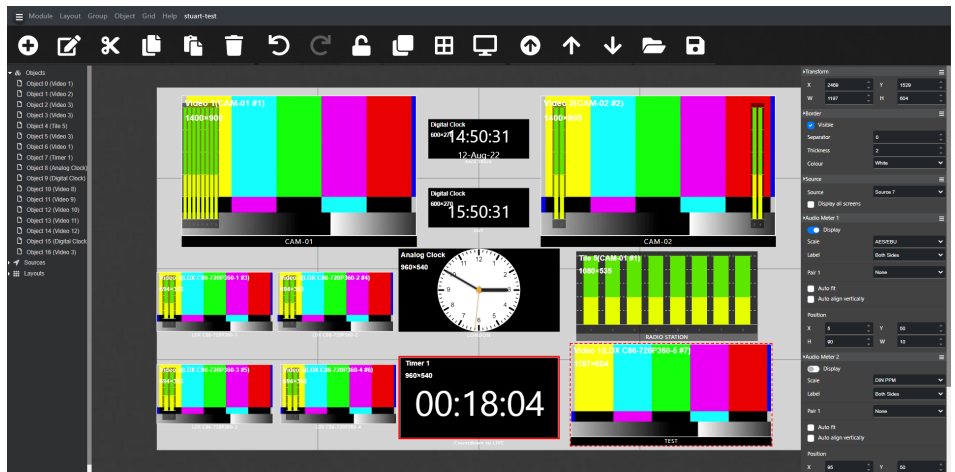
Navigation is simple and intuitive using the Object selection filter on the left panel. The main parameters for each Object can be quickly adjusted on the right hand panel with changes reflected immediately on the layout before committing to the multiviewer.

There is no restriction on the size and location of any of the objects which can be of type: Video, Audio, Text, Clock, Logo or Timer up to a maximum of 128 tiles.

The multiviewer includes a number of factory layouts. Customised layouts can be stored and recalled as required.

Up to 16 audio channels can be configured for each source. Dolby E Metadata can be configured with up to 8 channels per source pair.

Clock/date display data can be derived from the system clock, NTP synchronisation, LTC, or VITC from a chosen SDI input. D-VITC and ATC decoding and display is supported. Hardware and software tallies for each source. Up to two lines of UMD text can be left, centre, or right justified and may be placed anywhere in the tile. UNICODE is used for storing UMDs. Any True-Type font can be installed to allow any set of characters to be displayed.



## Powerful Suite of alarms and indicators

VIDEO alarms can be generated from: Video Loss or Video Frozen with definable zone based monitoring inside the tile.

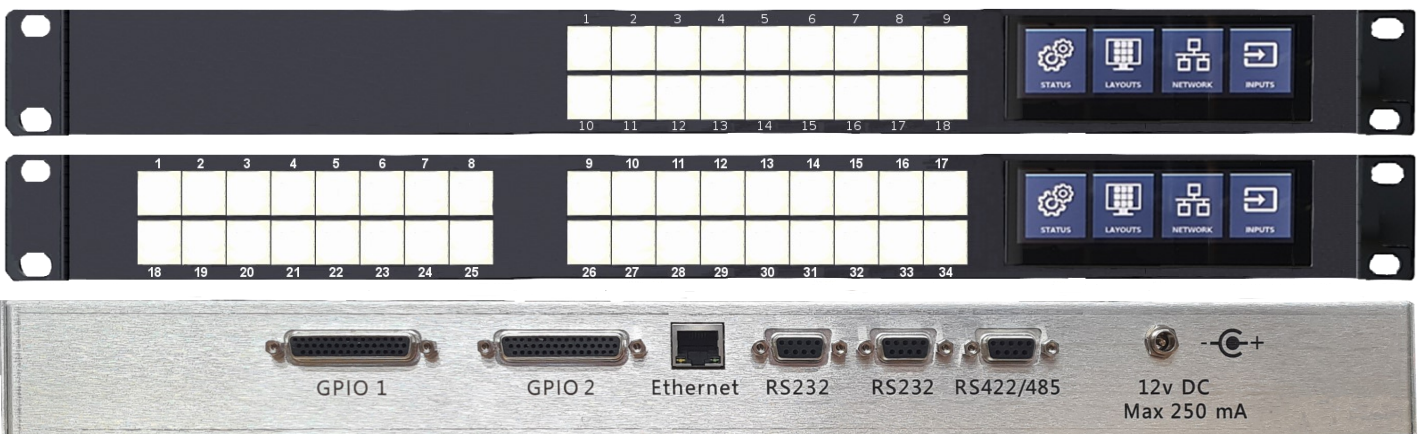
LUMINANCE alarms can be configured for over or under-range values or black level.

AUDIO alarms include carrier loss, silence, over-range, phase error and Mono.

METADATA alarms including CC and Subtitling can be configured on every input.

INDICATORS can be configured with a variety of colours and flashing borders with indicators based on alarm severity and status.

## MV Remote Panels



## Order Codes

Part Number	Description
MV-RCP16	Multiviewer remote control panel with TFT LCD and 18 switches with GPIO breakout
MV-RCP32	Multiviewer remote control panel with TFT LCD and 34 switches with GPIO breakout
RCP-12VPSU	Desktop 12V power supply with IEC 15W

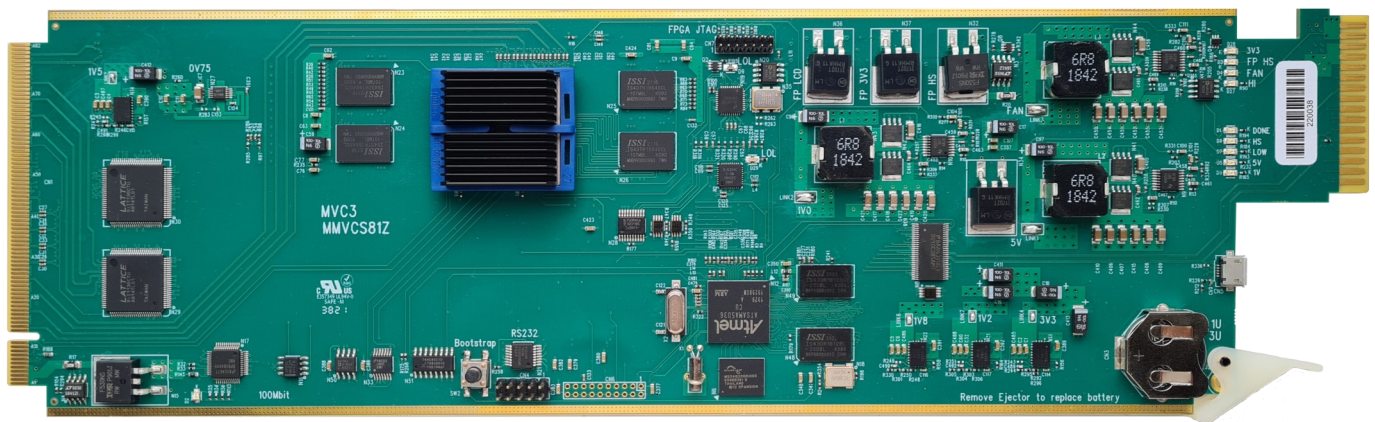
# SMP-MVxx High Performance Multiviewer



## Hot-Swap Video Processing Cards

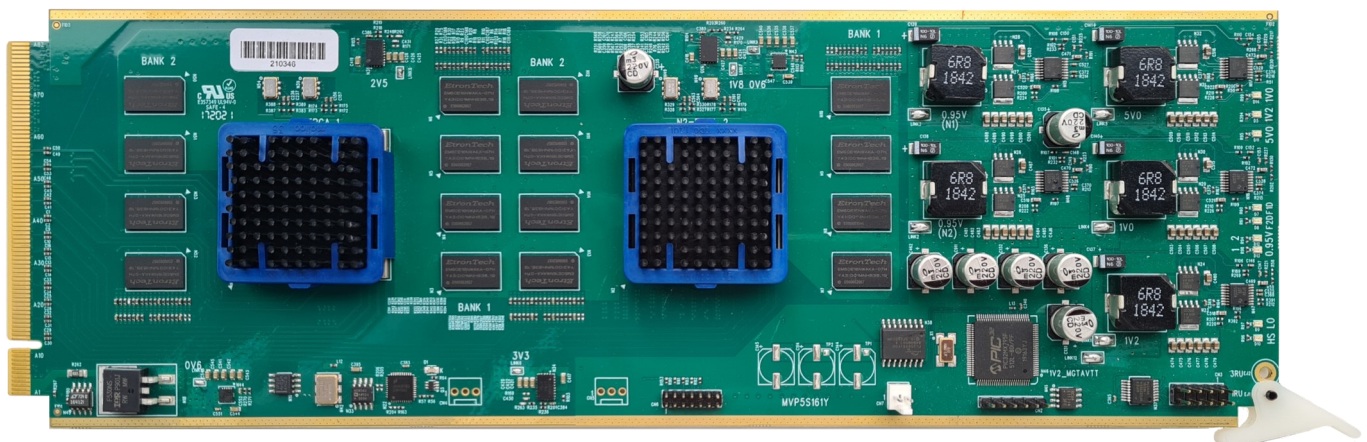
### MVC3

The MVC3 card is the output graphics engine of the multiviewer as well as host for the main Linux application. Maximum output resolutions supported are: 4K UHD mode: 2x2160p50/59/60, 2K FHD mode: 4x1080p50/59/60.



### VIP5

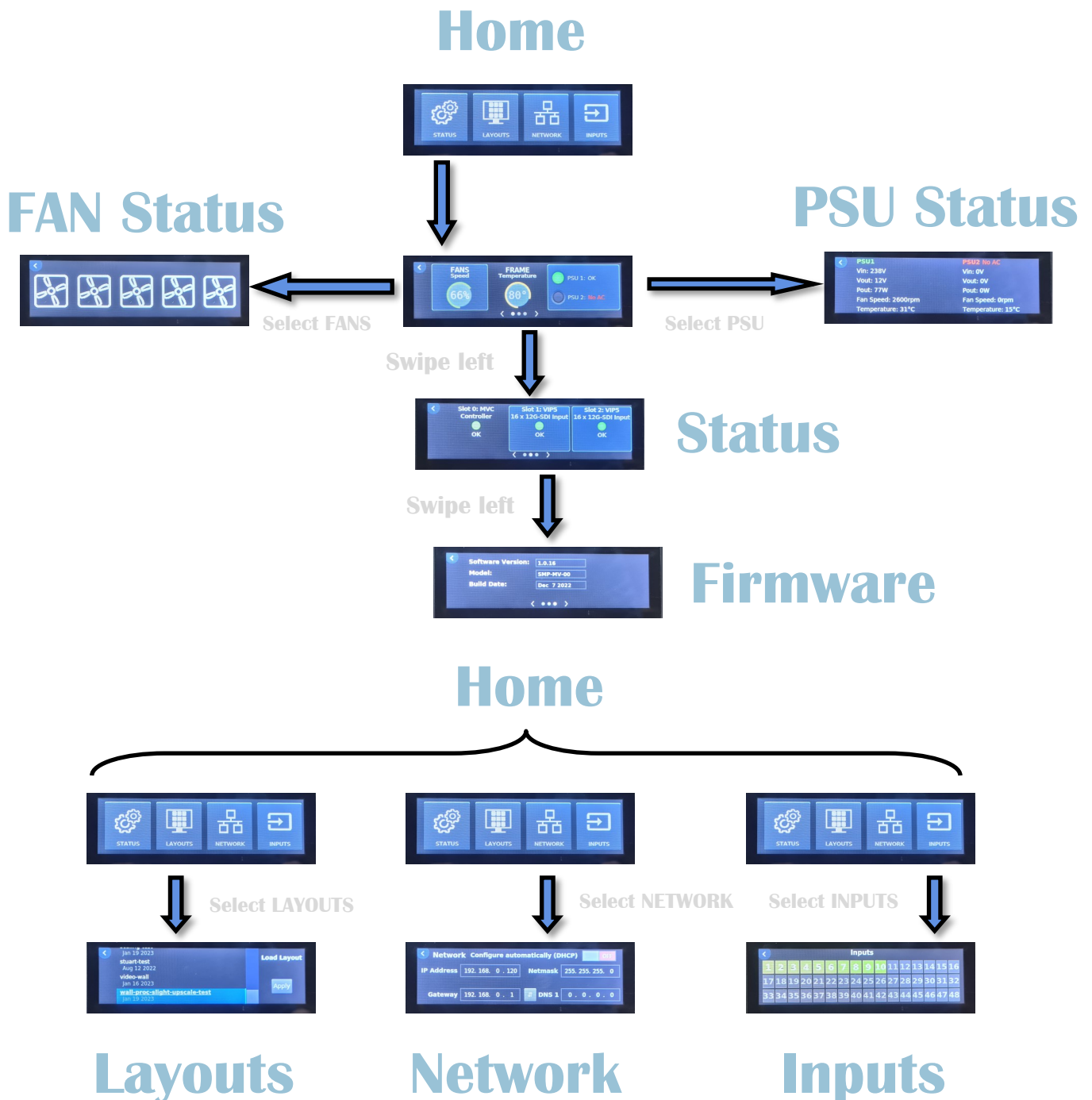
Our flagship VIP5 image processing engine is able to simultaneously process 16x4K60 sources equivalent to a blistering input bandwidth of 192Gbit/s!



# SMP-MVxx High Performance Multiviewer



## Touch Screen Control



### Touch Screen LCD display

Though control and monitoring of a frame will primarily be via the browser GUI, the front panel LCD display can provide a quick way of checking the frame status.

Network settings can be modified and layouts can be recalled from here.

# SMP-MVxx High Performance Multiviewer



Main Menu

Toolbar

GUI



Layout Workspace

Object, Source and  
Layout Explorer

Quick Properties  
Editor

The browser GUI interface comprises the following areas:

<b>Main Menu</b>	Comprising the Module, Layout, Group, Object, Grid and Help menus from which all parameters of the multiviewer can be configured
<b>Layout Workspace</b>	This is where Layouts are loaded for each video screen output. Existing Layouts can also be edited with Tile Objects added or removed, their Sources, Properties etc. modified as required. A Valid Workspace indicator flags any conflicts with new Tile Objects or changes made to existing tiles that are not compatible with the Layout being edited.
<b>Toolbar</b>	A selection of the most commonly used functions to allow for quick and easy Tile layout and Tile Object editing.
<b>Object Source and Layout Explorer</b>	Allows Tile Objects and Sources to be configured as well as allowing Layouts to be selected.

# SMP-MVxx

## High Performance Multiviewer

spec

FRAME FEATURES	DESCRIPTION
1RU	Size: 440(W) x 44(H) x 516(D) mm Size: 483(W) x 44(H) x 516(D) mm with rack mount brackets Weight: 8 kg (two PSUs)
Cooling Fans	5 fans each 40x40x28mm nominal 6-12V Closed-loop speed control according to internal temperature
AC/DC Power Supplies	Up to 2 hot-swap power supplies with current sharing and intelligent monitoring
HID colour touch screen	Colour touch LCD screen with status information and control
Modular Architecture	Hot swap modular video processing cards
Remote Control	Linux OS with Integrated HTML5 browser
Protocols supported	Grass Valley SW-P-02, SW-P-08, RollCall Open Protocol/TSL Protocol v3.1 and v5.0
Firmware updates	Field upgradeable via IP with on screen progress meter
Fault monitoring	CSV log files accessible via LAN and browser
Layouts	Burnt-in layouts, edit and save as new layouts, recall and upload/download
Redundant PSU	Slot available for Additional hot swap PSU

VIDEO INPUTS	DESCRIPTION
SDI Inputs	Up to 48xSD/HD/FHD up to a maximum input resolution of FHD50/59/60. Automatic signal detection of SD/HD/FHD input format
SDI Format	SD-SDI (SMPTE259M 270Mbit/s): 525/59.94Hz, 625/50Hz HD-SDI (SMPTE292M 1.5Gbit/s) 3G-SDI (SMPTE424M 3Gbit/s Level A Mapping, Level B Dual Stream Mapping)
SDI Cable Length	SD SDI >250m Belden1694A, HD SDI >200m Belden 1694A, 3G SDI 150m Belden1694A
SDI Equalisation	75ohm impedance >15dB up to 1.5GHz, >10dB up to 3GHz
SDI Embedded Audio	SD-SDI SMPTE-274M-A, HD & 3G SDI SMPTE 299M
SDI Connector	Dual HD-BNC 75ohm

VIDEO OUTPUTS	DESCRIPTION
SDI/HDMI Outputs	In 2K mode maximum resolution is 4xFHD50/59/60. In 4K mode maximum resolution is 2xUHD50/59/60
SDI Format	HD-SDI (SMPTE292M 1.5Gbs) 3G-SDI (SMPTE424M 3Gbs)
SDI Cable Length	HD SDI >150m Belden 1694A, 3G SDI 100m Belden1694A
SDI Connector	Dual HD-BNC 75ohm

# SMP-MVxx High Performance Multiviewer

spec

AUDIO PROCESSING	DESCRIPTION
Audio meters (video pips)	Each video pip can have its own audio meters up to a maximum of 32 fully-configurable video pips with left/right or split meters. All pairs of embedded audio can be displayed.
Audio meters (audio pips)	Audio pips can be configured up to a maximum of 512 (including video pips) with audio sources derived from the video inputs.
Embedded Audio on Outputs	SDI or HDMI outputs can be individually configured to include up to 4 pairs of embedded audio from any of the inputs.
Audio Monitoring Out	1 Pair of embedded audio from any input can be monitored on an 3.5mm stereo analogue line level output.

ALARMS	DESCRIPTION
Alarms	Video Loss, Video Freeze, Video Black, Over/Under, Audio Carrier Loss, Audio Silence, Audio Over/Under threshold, Audio Phase Error, Audio mono, Metadata (CC, WST, OP-47, D-VITC, ATC loss and CRC errors). Zone based monitoring inside the pip to detect video freeze and Black.
Alarm Outputs	Hard and Soft Alarm outputs Soft Outputs via LAN and/or SNMP
Tallies	Hard Tally (via GPIO up to a maximum of 32). Soft Tally (TSL protocol) with 2 tallies per tile.
Under monitor displays	Under Monitor Display (UMD) information may be generated from remote sources via the LAN operating on a remote PC or serial using TSL/Open protocols.
Clocks/Dates	Analogue and Digital Clocks with foreground and background colours. Date display with digital clock. Clock/date display data can be derived from several sources; the system clock, NTP synchronisation, LTC, or VITC from a chosen SDI input. Time-zone and offset settings.
Timers	Programable Countdown Colour, Transition Colour and Destination Colour. Countdown timer may be setup to start at a certain time of the day or controlled by GPIO Inputs. Timer modes for single and dual GPIO inputs supporting Pause, Resume and Reset.
Battery Backup	A non-rechargeable battery ensures the time and date settings are retained if power is lost or the unit is powered down.



# SMP-MVxx High Performance Multiviewer

spec

VIDEO PROCESSING	DESCRIPTION
High Frame Rate Input	Up to 6x frame rate with 6 streams/camera up to 5 cameras
Multiple source scaling	Sources can be routed to any output with arbitrary scaling and location with the proviso that each source is assigned to a dedicated scaler
High Dynamic Range	BT2100 up-mapping/down-mapping
Maximum pips	A maximum of 512 unique tiles can be configured per output and up to 48 of which can be video sources (e.g. SMP-MV48)

COMMS	DESCRIPTION
GPIO	High-density 44-way D-type. Assignable 32xGPIO Inputs, 8xGPIO Outputs
Ethernet	RJ45 LAN: 100BASE-T
Audio	1 x 3.5mm stereo audio jack
RS422 & RS485	1 x RJ45

REFERENCE	DESCRIPTION
Genlock reference	BB/Tri-level sync nominal 1V pk-pk 75Ω HD BNC
Time reference	LTC input or NTP (network protocol) Nominal 1V pk-pk

SOURCE METADATA	DESCRIPTION
Subtitles	WST on SD-SDI or OP-47 on HD-SDI
Aspect ratio	Automatic adjustment using AFD decoding
Timecode	D-VITC and Ancillary TC SD/HD-SDI
User Logo	PNG format with storage capacity up to 50MByte
Idents	Idents, text boxes and any TrueType fonts

ENVIRONMENTAL	DESCRIPTION
Temperature	0°C to 40°C
Humidity	30% to 90% (no condensation)
AC/DC Power Module	(90VAC ~ 264VAC), 50/60 Hz Safety Compliance: CB, CE, CCC, cUL, UL, TÜV
Max. Power Consumption	151.7W at 200-240VAC, 50Hz, 0.68A
Compliance	EMC – Emissions EU: EN55103-1 USA: FCCR 47 CFR: 2009, Part 15, Sub-part B (Class A) EMC – Immunity EU: EN55103-2. Safety EN: EN60950-1 USA: Tested to UL1419 (3rd Edition) Hazardous Material UK: RoHS-6 – Complies with EU Directive

# SMP-MVxx High Performance Multiviewer



# Contacts

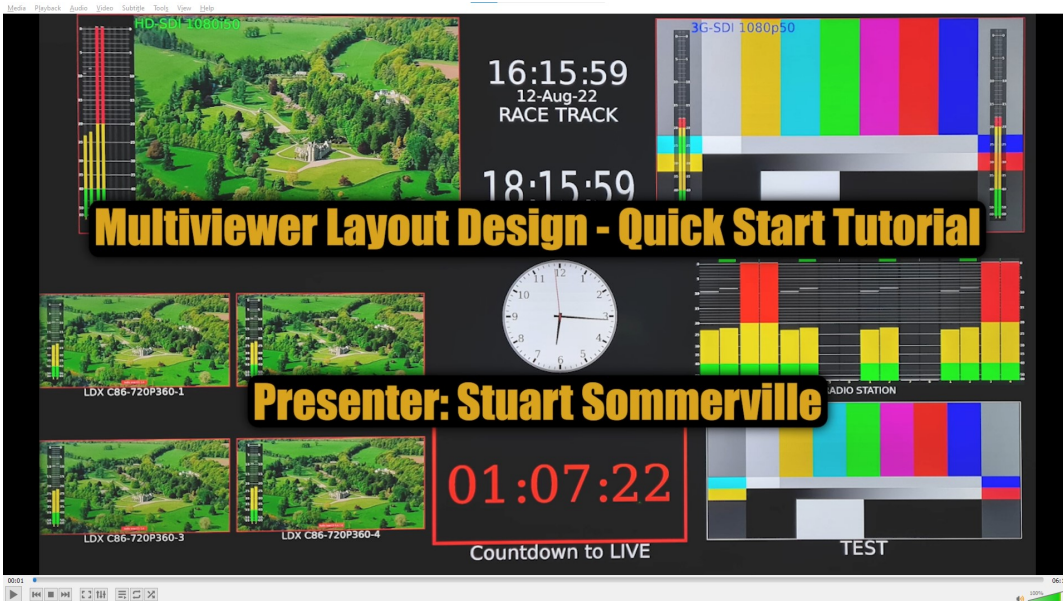
<b>Chromatec Technical Support</b>	<b>Office hours: 9:00am - 6:00pm (GMT)</b> <b>Telephone: +44 2392 170330</b> <b>E-mail: <a href="mailto:stuart.office@chromatec.com">stuart.office@chromatec.com</a></b>
<b>Emergency Technical Support</b>	Office hours: 9:00am - 5:00pm Australia Sydney NSW (GMT+11) E-mail: <a href="mailto:michael@chromatec.com">michael@chromatec.com</a>
<b>Head Office</b>	Chromatec Unit 4, Falcon Court, Parklands Business Park Hampshire, United Kingdom, PO7 6BZ Telephone: +44 2392 170330 E-mail: <a href="mailto:wendy@chromatec.com">wendy@chromatec.com</a>
<b>Chromatec Sales enquiries</b>	Office hours: 9:00am - 6:00pm (GMT) Telephone: +44 2392 170330 E-mail: <a href="mailto:sales@chromatec.com">sales@chromatec.com</a>

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# SMP-MVxx High Performance Multiviewer



Check out our support training videos on YouTube on a wide-range of multiviewer topics.



**Tile Properties**

- Tile & Transform
- Border
- Source
- UMD
- Audio
  - Meter 1
    - Layout & Properties
    - Position
  - Meter 2
    - Layout & Properties
    - Position
- Error
- Tally
- VBI
- WSS
- Safe Area Generator

**Display Meter**

Scale type: DIN PPM

Scale label position: Both Sides

**Meter layout**

Multi-Channel Metering

Pair	Source	Format	2nd Row
Pair 1	None	Auto	<input type="checkbox"/>
Pair 2	None	Auto	<input type="checkbox"/>
Pair 3	Embedded 3+4	Auto	<input type="checkbox"/>
Pair 4	Embedded 5+6	Auto	<input type="checkbox"/>

**Source Properties (ID: 1 ::: Username: Source 1)**

Copy from: Source 1

Copy to: Source 1, Source 2, Source 3, Source 4

Audio settings  
 Alarm settings  
 Overscan settings

**Alarms**

Source	Audio Loss	Audio Over	Phase	Carrier Loss
Left 1	✓	✓	✓	✓
Right 1	✓	✓	✓	✓
Left 2	✓	✓	✓	✓
Right 2	✓	✓	✓	✓
Left 3	✗	✗	✗	✗
Right 3	✗	✗	✗	✗
Left 4	✗	✗	✗	✗
Right 4	✗	✗	✗	✗
Left 5	✗	✗	✗	✗

Buttons: Save changes, Close

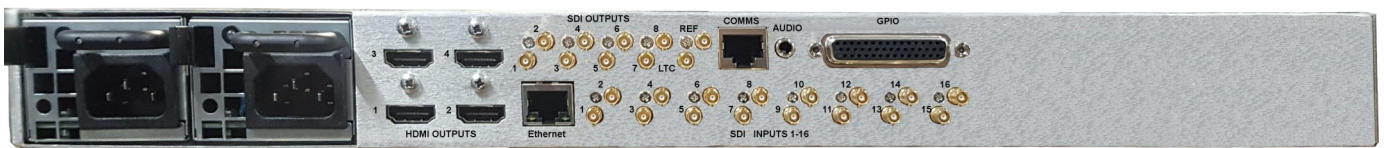
# SMP-MVxx High Performance Multiviewer



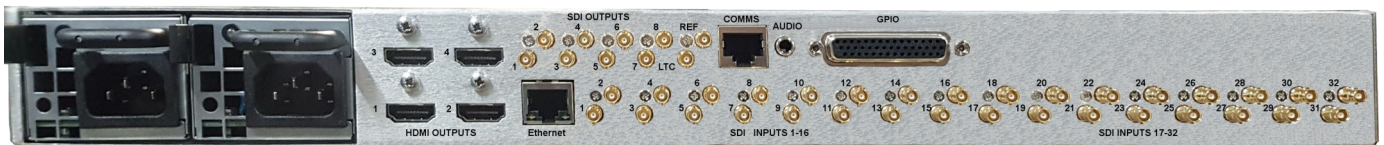
## Multiviewers Models



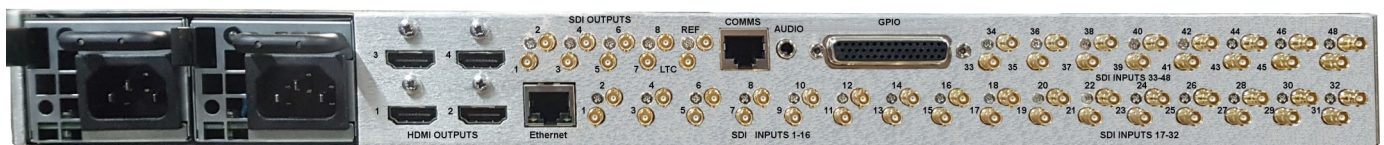
Front View (All Models)



Model: SMP-MV16



Model: SMP-MV32



Model: SMP-MV48

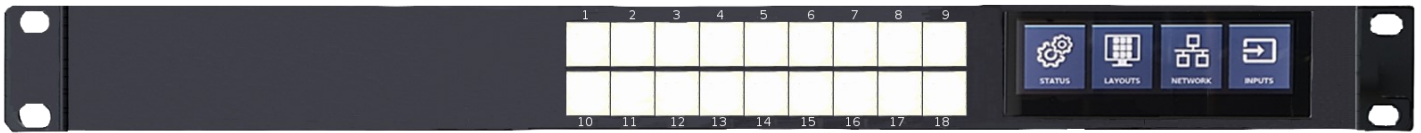
### Order Codes

Part Number	Description	Inputs
SMP-MV16	Multiviewer with 16xSDI inputs and 4 simultaneous SDI/HDMI Outputs	16xSD/HD/FHD
SMP-MV32	Multiviewer with 32xSDI inputs and 4 simultaneous SDI/HDMI Outputs	32xSD/HD/FHD
SMP-MV48	Multiviewer with 48xSDI inputs and 4 simultaneous SDI/HDMI Outputs	48xSD/HD/FHD
MV-12VPSU	Additional PSU 12V 450W	

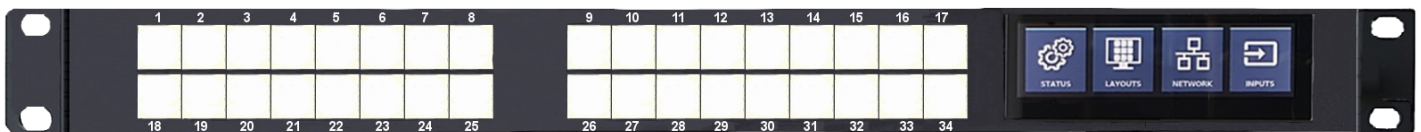
# SMP-MVxx High Performance Multiviewer



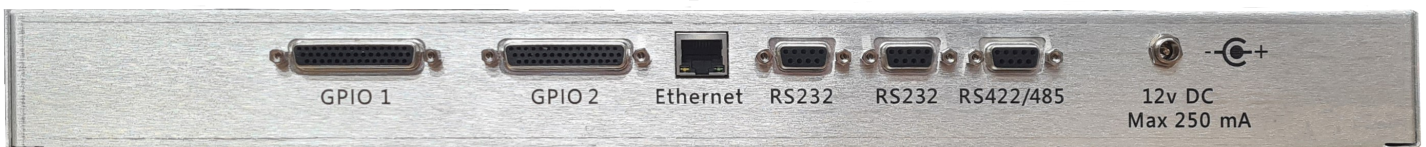
## Multiviewer Remote Panels



Model: MV-RCP16



Model: MV-RCP32



Model: MV-RCP16/32 (rear view)

### Order Codes

Part Number	Description
MV-RCP16	Multiviewer remote control panel with TFT LCD and 18 switches with GPIO breakout
MV-RCP32	Multiviewer remote control panel with TFT LCD and 34 switches with GPIO breakout
RCP-12VPSU	Desktop 12V power supply with IEC 15W

### Remote panel communication with the MV on a network

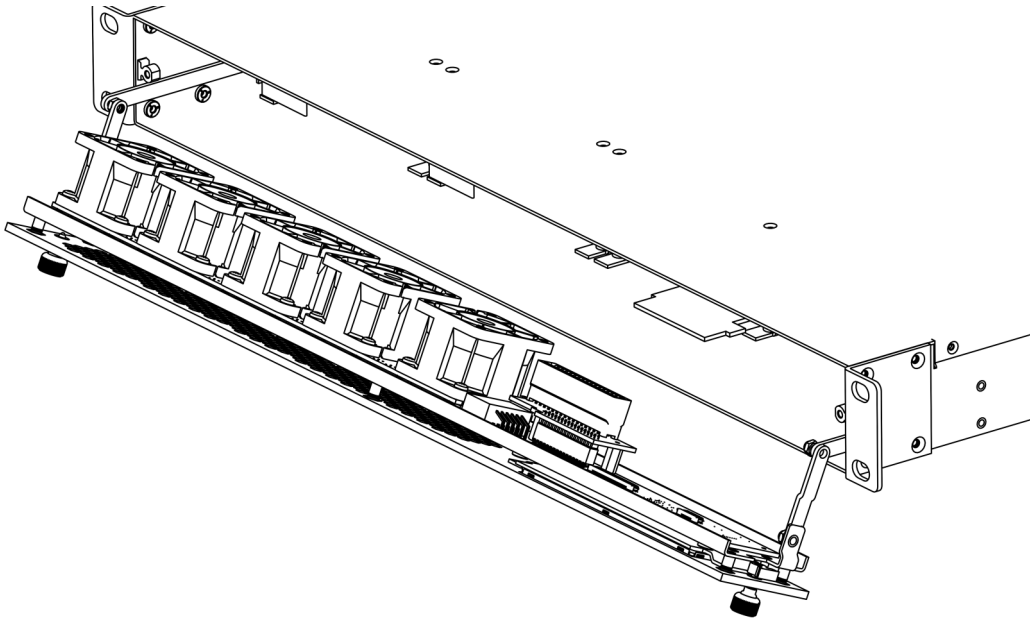
The MV's browser GUI provides a page for discovering remotes available on the network, which MV each one is assigned to (if any), and the ability to assign one or more of these remotes to the MV.

The TFT on the remote has similar menus to the MV's TFT where applicable - e.g. for displaying the status and selecting layouts.

Each hard button can be assigned to selecting a layout or triggering a timer, and the configuration for doing this is done from the MV's GUI.

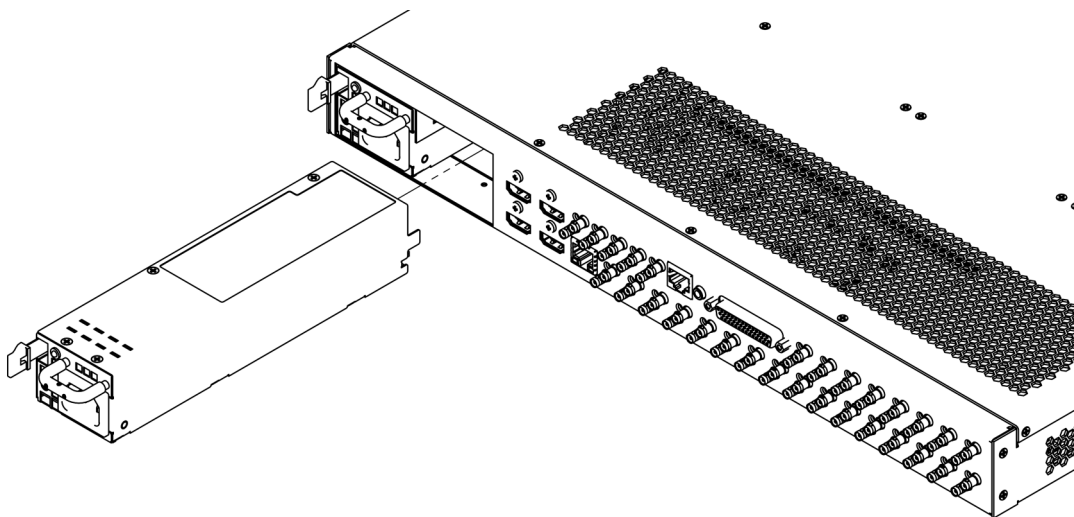
The GPI inputs serve the same purpose, and again are configured from the MV's GUI, as are the GPI outputs which can be assigned to specific alarms.

# SMP-MVxx High Performance Multiviewer



## Front Panel

The front panel is hinged at each side of the frame. Turn the two retaining screws on the front panel anti clockwise to release the front panel which can then be pulled out and allowed to drop down as shown above. This allows access to the cards in the frame.



## Smart hot-swap PSU

The PSU modules can be inserted and removed as shown above. The PSU retaining catch should be fully depressed before removing the PSU module.

# SMP-MVxx High Performance Multiviewer

