![Grass Valley logo](GV Grass Valley)

DATASHEET

MV-1200 SERIES MODULAR MULTIVIEWERS

## 3 RU High-density/High-performance Multiviewer System

Grass Valley's multiviewer technology gives broadcasters the flexibility to work the way they want to work today, yet future-proof their operations for tomorrow.

The MV-1200 Series Modular Multiviewer is a fully-featured broadcast-quality modular multiviewer in 3 RU format with up to 144x12G-SDI inputs via HD-BNC. All image processing, rear interface and control cards are modular and hot-swappable. The configuration is flexible from a minimum of 16 inputs up to a maximum of 144.

For 2K FHD operation, up to 16 independent head outputs are supported at 3G-SDI FHD50/59/60 resolution. For 4K UHD operation, up to four independent outputs are supported with QL-4x3G-SDI outputs at UHD50/59/60 4:2:2 resolution.

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 colors and flashing borders with indicators based on alarm severity and status
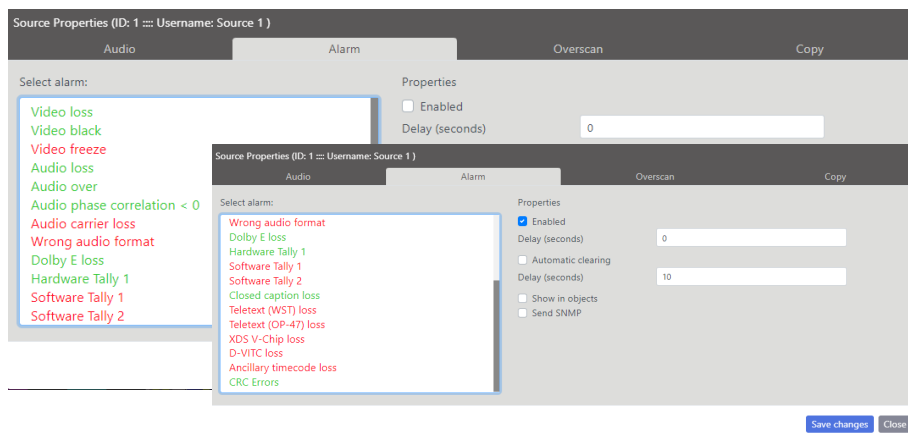
Key Features

- Up to 16 independent head outputs are supported at 3G-SDI FHD50/59/60 resolution
- Up to 4 independent outputs are supported with QL-4x3G-SDI outputs at UHD50/59/60 4:2:2 resolution
- Each multiviewer output card provides 8x3G-SDI outputs and up to 2 cards can be fitted to provide a total of 16 outputs
- Sources can be displayed on any output screen with arbitrary size and location
- Sources may be duplicated in the same resolution without consuming additional scaler resources
- Every input is constantly monitored for signal presence. Source status is simultaneously written to a logfile and displayed on the front panel
- Power supplies with IEC inlets are hot-swappable and power sharing to reduce wear. Intelligent power supply modules are continuously logged for status, temperature and efficiency
- Temperature-controlled fans reduce noise and increase lifespan
- Optimized airflow allows the use of quiet, low-speed fans — ideal for OB trucks/vans
- Remote control over Ethernet via an integrated HTML5 browser
- Local control and source status via color LCD touchscreen

Layout Workspace

The integrated web browser uses ubiquitous HTML5 for maximum interoperability. Tiles are created and customized 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. Customized 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 eight channels per source pair. Clock/date display data can be derived from the system clock, NTP synchronization, 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, center or right justified and may be placed anywhere in the tile. UNICODE is used for storing UMDs. Any TrueType font can be installed to allow any set of characters to be displayed.

Specifications

Frame Features

Dimensions:

– 3 RU

– 440x132x516 mm (17.3x5.2x20.3 in.) (WxHxD)

– 483x132x516 mm (19.0x5.2x20.3 in.) (WxHxD) with rack mount brackets

Weight (two PSUs): 9.5 kg (20.9 lbs.)

Cooling fans:

4 fans each 80x80x20 mm nominal 6-12V operating range

– 60 CFM 44.7 dBA 0.31A 4.1W Sunon Vapo-Bearing technology

3 fans each 40x40x20 mm nominal 6-12V operating range

– 10.8CFM 27.5 dBA 0.092A 1.11W Sunon Vapo-Bearing technology

AC/DC power supplies: Up to 2 hot-swappable power supplies with current sharing and intelligent monitoring

HID color touchscreen: Color touch LCD screen with status information and control

Modular architecture: Hot-swappable 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 upgradable 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-swappable PSU

Signals

Inputs 3G-SDI: Maximum input resolution FHD50/59/60

Inputs 12G-SDI: Maximum input resolution UHD50/59/60

SDI Outputs:

– In 4K UHD mode maximum resolution is UHD50/59/60 4:2:2

– In 2K FHD mode maximum resolution is FHD50/59/60 4:2:2

High frame rate input: Up to 6x frame rate with 6 streams/camera

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 (144 of which can be video sources)

GPIO:

– High-density 44-way D-type

– Assignable 32x GPIO inputs, 8x GPIO outputs

Ethernet:

– Master MVC3 RJ45 LAN: 100Base-T

– Slave MVC3 RJ45 LAN: 100Base-T (only used to update firmware)

Audio:

– 1x 3.5 mm stereo audio jack

– RS-422 & RS-485

– 1x RJ45

Audio

Audio meters (video pips): Each video pip can have its own audio meters up to a maximum of 144 fully configurable video pips with left/right or split meters

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 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 analog line level output

Reference

Genlock reference: BB/Tri-level sync nominal 1 Vp-p 75Ω HD BNC

Time reference: LTC input or NTP (network protocol) Nominal 1 Vp-p

Source Data

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 50 MB

Idents: Idents, text boxes and any TrueType fonts

Alarms

Alarms: Video, audio, and metadata (CC, WST, OP-47, D-VITC, ATC loss and CRC errors)

Alarm outputs:

– Hard and soft alarm outputs

– Soft outputs via LAN and/or SNMP

Tallies:

– Hard (GPIO Input) and Soft Tally input support. 2 tallies per tile

– Maximum 32x GPIO inputs can be assigned

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:

– Analog and digital clocks with foreground and background colors. Date display with digital clock. Clock/date display data can be derived from several sources: the system clock, NTP synchronization, LTC or VITC from a chosen SDI input

– Time-zone and offset settings

Timers:

– Programmable Countdown Color, Transition Color and Destination Color. 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 battery ensures the time and date settings are retained if power is lost or the unit is powered down

Environmental

Temperature: 0°C to 40°C (32°F to 104°F)

Humidity: 30% to 90% (no condensation)

AC/DC power module:

– 90 VAC ~ 264 VAC, 50/60 Hz

– Safety Compliance: CB, CE, CCC, cUL, UL, TÜV

**Max. Power Consumption:** 460W at 200-240 VAC, 50 Hz

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

MV-1200-3RU: Complete 3 RU base frame with 1x PSU and front panel, includes 16x 3G inputs and 8x 3G outputs.

Optional Additional
Power Supply
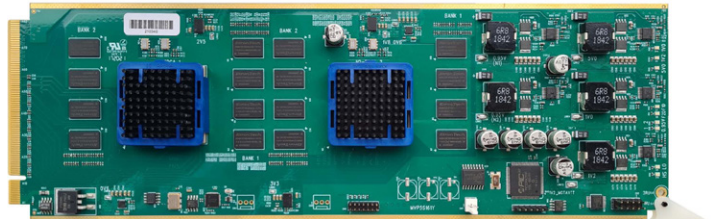
Optional Additional
Output Card
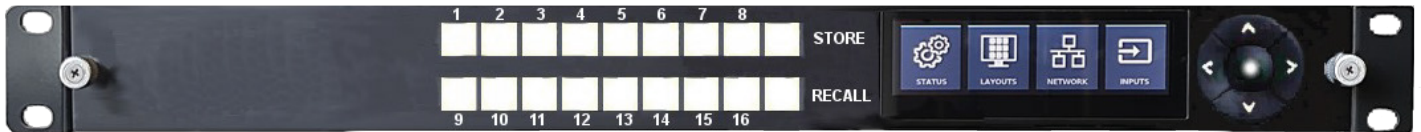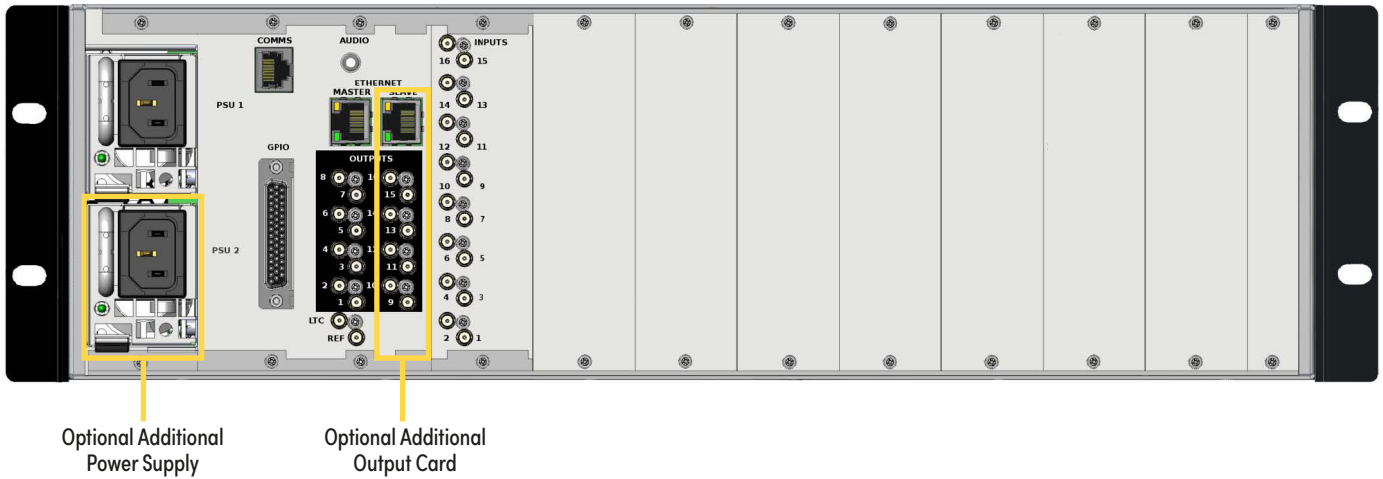
MV-1216-RCP
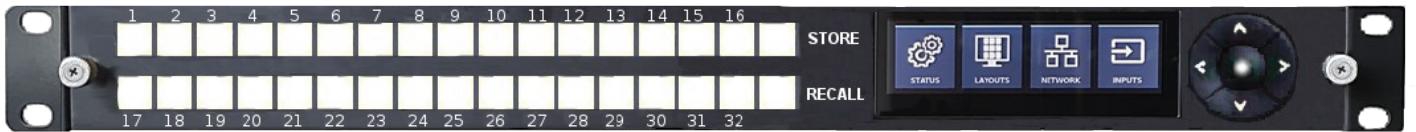
MV-1232-RCP
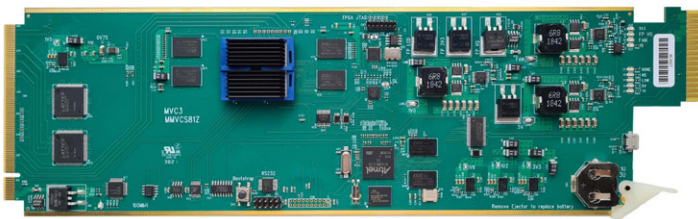
The **MV-1200-OUT-8** card is the output graphics engine of the multiviewer as well as host for the main Linux application. Maximum output resolutions supported are: 4K UHD mode: 2x2160p50/59/60, 2K FHD mode: 8x1080p50/59/60.

Our flagship **MV-1200-IN-16** image processing engine is able to simultaneously process 16x 4K60 sources equivalent to a blistering input bandwidth of 192 Gb/s!

Ordering

MV-1200-3RU

MV-1200 3 RU frame with front panel and 1x PSU, includes 16x 3G inputs and 8x 3G outputs

MV-1200-IN-16

MV-1200 input card supporting 16x 3G inputs

MV-1200-IN-16-DRP

Double width rear panel for MV-1200 input card, slots 1-8

MV-1200-IN-16-SRP

Single width rear panel for MV-1200 input card, slot 9 only

MV-1200-IN-OPT-12G

12G upgrade for MV-1200-IN-16, 1 required per MV-1200-IN-16 card

MV-1200-OUT-8

MV-1200 output card supporting 8x 3G outputs

MV-1200-PS

MV-1200 Series Multiviewer power supply

MV-1200-RCP-18

MV-1200 Series Multiviewer remote control panel with TFT LCD and 18 switches with GPIO breakout

MV-1200-RCP-34

MV-1200 Series Multiviewer remote control panel with TFT LCD and 34 switches with GPIO breakout

MV-1200-RCP-PS

MV-1200 Series Multiviewer remote control panel 12V power supply with IEC 15W