MV-801

INTEGRATED MULTIVIEWER

User Manual

RMY3 MV-801-UM

Issue 1 Revision 1 2020-10-21

www.grassvalley.com

FCC Compliance

In order to comply with FCC/CFR47: Part 15 regulations, it is necessary to use high-quality, triple-screened Media or Monitor cable assemblies with integrated ferrite suppression at both ends.

Patent Information

This product may be protected by one or more patents.

For further information, please visit: www.grassvalley.com/patents/

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Title	MV-801User Manual	
Part Number	RMY3 MV-801-UM	Issue 1 Revision 1
Revision	2020-10-21, 15:12	

Read Me First

Thank you for purchasing your new MV-801 product from Grass Valley.

The MV-801 contains a powerful multiviewer.

When using the MV-801 you will need access to the following Grass Valley documents, available from the Grass Valley website:

1 This manual - ***MV-801 Integrated Multiviewer User Manual***

2 ***MV-8 Series Core Multiviewer User Manual*** - which provides information about the MV-801's core multiviewer features, control screens, 'getting going' instructions, and maintenance.

About this Manual

This MV-801 user manual describes how to install, configure and operate the MV-801 multiviewer in the Sirius 830, 840 and 850 routers.

Refer to the *MV-8 Series Core Multiviewer User Manual* for information about the MV-801's core multiviewer features, control screens, 'getting going' instructions, and maintenance.

Refer to the appropriate Sirius 800 Router Installation Manuals for details on how to unpack, install and test a Sirius 800 router. Refer to the Sirius 800 Router User Manual for router details. Some of the safety warnings and cautions given the Sirius 800 manuals are repeated in this MV-801 user manual and are provided herein for information.

If you have any questions regarding the installation and setup of your product, please contact Grass Valley Customer Support. See Grass Valley Technical Support, on page 51, for contact details.

Related Documents

The following Grass Valley manuals are related documents:

Related Document	Description
MV-801 User Manual (This document)	Describes MV-801 multiviewer.
MV-8 Series Core Multiviewer User Manual	User manual for the core multiviewer 'engine' within all MV-8XX Multiviewer products, including the MV-801.
Sirius 800 Router User Manual	User manual for Sirius 800 series routers.
Sirius 830, Sirius 840, and Sirius 850 Installation Manuals	Installation manuals for Sirius 800 series routers.

Important Safety Information

This section provides important safety guidelines for operators and service personnel. Specific warnings and cautions appear throughout the manual where they apply. Please read and follow this important information, especially those instructions related to the risk of electric shock or injury to persons.

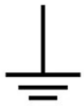
Symbols and Their Meanings

Indicates that dangerous high voltage is present within the equipment enclosure that may be of sufficient magnitude to constitute a risk of electric shock.

Indicates that the user, operator or service technician should refer to the product manuals for important operating, maintenance, or service instructions.

This is a prompt to note the fuse rating when replacing fuses. The fuse referenced in the text must be replaced with one having the ratings indicated.

Identifies a protective grounding terminal which must be connected to earth ground prior to making any other equipment connections.



Identifies an external protective grounding terminal which may be connected to earth ground as a supplement to an internal grounding terminal.

Indicates that static sensitive components are present, which may be damaged by electrostatic discharge. Use anti-static procedures, equipment and surfaces during servicing.

Indicates that the equipment has more than one power supply cord, and that all power supply cords must be disconnected before servicing to avoid electric shock.

The presence of this symbol in or on Grass Valley equipment means that it has been tested and certified as complying with applicable Underwriters Laboratory (UL) regulations and recommendations for USA.

The presence of this symbol in or on Grass Valley equipment means that it has been tested and certified as complying with applicable Canadian Standard Association (CSA) regulations and recommendations for USA/Canada.

The presence of this symbol in or on Grass Valley equipment means that it has been tested and certified as complying with applicable Underwriters Laboratory (UL) regulations and recommendations for USA/Canada.

The presence of this symbol in or on Grass Valley equipment means that it has been tested and certified as complying with applicable Intertek Testing Services regulations and recommendations for USA/Canada.

The presence of this symbol in or on Grass Valley product means that it complies with all applicable European Union (CE) directives.

The presence of this symbol in or on Grass Valley product means that it complies with safety of laser product applicable standards.

Warnings

A warning indicates a possible hazard to personnel, which may cause injury or death. Observe the following general warnings when using or working on this equipment:

•Appropriately listed/certified mains supply power cords must be used for the connection of the equipment to the rated mains voltage.

- This product relies on the building's installation for short-circuit (over-current) protection. Ensure that a fuse or circuit breaker for the rated mains voltage is used on the phase conductors.
- Any instructions in this manual that require opening the equipment cover or enclosure are for use by qualified service personnel only.
- Do not operate the equipment in wet or damp conditions.
- This equipment is grounded through the grounding conductor of the power cords. To avoid electrical shock, plug the power cords into a properly wired receptacle before connecting the equipment inputs or outputs.
- Route power cords and other cables so they are not likely to be damaged. Properly support heavy cable bundles to avoid connector damage.
- Disconnect power before cleaning the equipment. Do not use liquid or aerosol cleaners; use only a damp cloth.
- Dangerous voltages may exist at several points in this equipment. To avoid injury, do not touch exposed connections and components while power is on.
- High leakage current may be present. Earth connection of product is essential before connecting power.
- Prior to servicing, remove jewelry such as rings, watches, and other metallic objects.
- To avoid fire hazard, use only the fuse type and rating specified in the service instructions for this product, or on the equipment.
- To avoid explosion, do not operate this equipment in an explosive atmosphere.
- Use proper lift points. Do not use door latches to lift or move equipment.
- Avoid mechanical hazards. Allow all rotating devices to come to a stop before servicing.
- Have qualified service personnel perform safety checks after any service.

Cautions

A caution indicates a possible hazard to equipment that could result in equipment damage. Observe the following cautions when operating or working on this equipment:

- This equipment is meant to be installed in a restricted access location.
- When installing this equipment, do not attach the power cord to building surfaces.
- Products that have no on/off switch, and use an external power supply must be installed in proximity to a main power outlet that is easily accessible.
- Use the correct voltage setting. If this product lacks auto-ranging power supplies, before applying power ensure that each power supply is set to match the power source.
- Provide proper ventilation. To prevent product overheating, provide equipment ventilation in accordance with the installation instructions.

- Do not operate with suspected equipment failure. If you suspect product damage or equipment failure, have the equipment inspected by qualified service personnel.
- To reduce the risk of electric shock, do not perform any servicing other than that contained in the operating instructions unless you are qualified to do so. Refer all servicing to qualified service personnel.
- This unit may have more than one power supply cord. Disconnect all power supply cords before servicing to avoid electric shock.
- Follow static precautions at all times when handling this equipment. Servicing should be done in a static-free environment.
- To reduce the risk of electric shock, plug each power supply cord into separate branch circuits employing separate service grounds.

Electrostatic Discharge (ESD) Protection

Electrostatic discharge occurs when electronic components are improperly handled and can result in intermittent failure or complete damage adversely affecting an electrical circuit. When you remove and replace any card from a frame always follow ESD-prevention procedures:

- Ensure that the frame is electrically connected to earth ground through the power cord or any other means if available.
- Wear an ESD wrist strap ensuring that it makes good skin contact. Connect the grounding clip to an *unpainted surface* of the chassis frame to safely ground unwanted ESD voltages. If no wrist strap is available, ground yourself by touching the *unpainted* metal part of the chassis.
- For safety, periodically check the resistance value of the antistatic strap, which should be between 1 and 10 megohms.
- When temporarily storing a card make sure it is placed in an ESD bag.
- Cards in an earth grounded metal frame or casing do not require any special ESD protection.

Battery Handling

This product may include a backup battery. There is a danger of explosion if the battery is replaced incorrectly. Replace the battery only with the same or equivalent type recommended by the manufacturer. Dispose of used batteries according to the manufacturer's instructions. Before disposing of your Grass Valley equipment, please review the *Disposal and Recycling Information* at:

http://www.grassvalley.com/assets/media/5692/Take-Back_Instructions.pdf

Cautions for LCD and TFT Displays

Excessive usage may harm your vision. Rest for 10 minutes for every 30 minutes of usage.

If the LCD or TFT glass is broken, handle glass fragments with care when disposing of them. If any fluid leaks out of a damaged glass cell, be careful not to get the liquid crystal fluid in your mouth or skin. If the liquid crystal touches your skin or clothes, wash it off immediately using soap and water. Never swallow the fluid. The toxicity is extremely low but caution should be exercised at all times.

Mesures de sécurité et avis importants

La présente section fournit des consignes de sécurité importantes pour les opérateurs et le personnel de service. Des avertissements ou mises en garde spécifiques figurent dans le manuel, dans les sections où ils s'appliquent. Prenez le temps de bien lire les consignes et assurez-vous de les respecter, en particulier celles qui sont destinées à prévenir les décharges électriques ou les blessures.

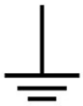
Signification des symboles utilisés

Signale la présence d'une tension élevée et dangereuse dans le boîtier de l'équipement ; cette tension peut être suffisante pour constituer un risque de décharge électrique.

Avertit l'utilisateur, l'opérateur ou le technicien de maintenance que des instructions importantes relatives à l'utilisation et à l'entretien se trouvent dans la documentation accompagnant l'équipement.

Invite l'utilisateur, l'opérateur ou le technicien de maintenance à prendre note du calibre du fusible lors du remplacement de ce dernier. Le fusible auquel il est fait référence dans le texte doit être remplacé par un fusible du même calibre.

Identifie une borne de mise à la terre de protection. Il faut relier cette borne à la terre avant d'effectuer toute autre connexion à l'équipement.



Identifie une borne de mise à la terre externe qui peut être connectée en tant que borne de mise à la terre supplémentaire.

Signale la présence de composants sensibles à l'électricité statique et qui sont susceptibles d'être endommagés par une décharge électrostatique. Utilisez des procédures, des équipements et des surfaces antistatiques durant les interventions d'entretien.

Le symbole ci-contre signifie que l'appareil comporte plus d'un cordon d'alimentation et qu'il faut débrancher tous les cordons d'alimentation avant toute opération d'entretien, afin de prévenir les chocs électriques.

La marque UL certifie que l'appareil visé a été testé par Underwriters Laboratory (UL) et reconnu conforme aux exigences applicables en matière de sécurité électrique en vigueur au Canada et aux États-Unis.

La marque C-CSA-US certifie que l'appareil visé a été testé par l'Association canadienne de normalisation (CSA) et reconnu conforme aux exigences applicables en matière de sécurité électrique en vigueur au Canada et aux États-Unis.

La marque C-UL-US certifie que l'appareil visé a été testé par Underwriters Laboratory (UL) et reconnu conforme aux exigences applicables en matière de sécurité électrique en vigueur au Canada et aux États-Unis.

La marque ETL Listed d'Intertek pour le marché Nord-Américain certifie que l'appareil visé a été testé par Intertek et reconnu conforme aux exigences applicables en matière de sécurité électrique en vigueur au Canada et aux États-Unis.

Le marquage CE indique que l'appareil visé est conforme aux exigences essentielles des directives applicables de l'Union européenne en matière de sécurité électrique, de compatibilité électromagnétique et de conformité environnementale.

Le symbole ci-contre sur un appareil Grass Valley ou à l'intérieur de l'appareil indique qu'il est conforme aux normes applicables en matière de sécurité laser.

Avertissements

Les avertissements signalent des conditions ou des pratiques susceptibles d'occasionner des blessures graves, voire fatales. Veuillez vous familiariser avec les avertissements d'ordre général ci-dessous :

- Un cordon d'alimentation dûment homologué doit être utilisé pour connecter l'appareil à une tension de secteur de 120 V CA ou 240 V CA.
- La protection de ce produit contre les courts-circuits (surintensités) dépend de l'installation électrique du bâtiment. Assurez-vous qu'un fusible ou un disjoncteur pour 120 V CA ou 240 V CA est utilisé sur les conducteurs de phase.
- Dans le présent manuel, toutes les instructions qui nécessitent d'ouvrir le couvercle de l'équipement sont destinées exclusivement au personnel technique qualifié.
- N'utilisez pas cet appareil dans un environnement humide.
- Cet équipement est mis à la terre par le conducteur de mise à la terre des cordons d'alimentation. Pour éviter les chocs électriques, branchez les cordons d'alimentation sur une prise correctement câblée avant de brancher les entrées et sorties de l'équipement.
- Acheminez les cordons d'alimentation et autres câbles de façon à ce qu'ils ne risquent pas d'être endommagés. Supportez correctement les enroulements de câbles afin de ne pas endommager les connecteurs.
- Coupez l'alimentation avant de nettoyer l'équipement. Ne pas utiliser de nettoyants liquides ou en aérosol. Utilisez uniquement un chiffon humide.
- Des tensions dangereuses peuvent exister en plusieurs points dans cet équipement. Pour éviter toute blessure, ne touchez pas aux connexions ou aux composants exposés lorsque l'appareil est sous tension.
- Avant de procéder à toute opération d'entretien ou de dépannage, enlevez tous vos bijoux (notamment vos bagues, votre montre et autres objets métalliques).
- Pour éviter tout risque d'incendie, utilisez uniquement les fusibles du type et du calibre indiqués sur l'équipement ou dans la documentation qui l'accompagne.
- Ne pas utiliser cet appareil dans une atmosphère explosive.
- Présence possible de courants de fuite. Un raccordement à la masse est indispensable avant la mise sous tension.
- Après tout travail d'entretien ou de réparation, faites effectuer des contrôles de sécurité par le personnel technique qualifié.

Mises en garde

Les mises en garde signalent des conditions ou des pratiques susceptibles d'endommager l'équipement. Veuillez vous familiariser avec les mises en garde ci-dessous :

- L'appareil est conçu pour être installé dans un endroit à accès restreint.
- Au moment d'installer l'équipement, ne fixez pas les cordons d'alimentation aux surfaces intérieures de l'édifice.

- Les produits qui n'ont pas d'interrupteur marche-arrêt et qui disposent d'une source d'alimentation externe doivent être installés à proximité d'une prise de courant facile d'accès.
- Si l'équipement n'est pas pourvu d'un modules d'alimentation auto-adaptables, vérifiez la configuration de chacun des modules d'alimentation avant de les mettre sous tension.
- Assurez une ventilation adéquate. Pour éviter toute surchauffe du produit, assurez une ventilation de l'équipement conformément aux instructions d'installation.
- N'utilisez pas l'équipement si vous suspectez un dysfonctionnement du produit. Faites-le inspecter par un technicien qualifié.
- Pour réduire le risque de choc électrique, n'effectuez pas de réparations autres que celles qui sont décrites dans le présent manuel, sauf si vous êtes qualifié pour le faire. Confiez les réparations à un technicien qualifié. La maintenance doit se réaliser dans un milieu libre d'électricité statique.
- L'appareil peut comporter plus d'un cordon d'alimentation. Afin de prévenir les chocs électriques, débrancher tous les cordons d'alimentation avant toute opération d'entretien.
- Veillez à toujours prendre les mesures de protection antistatique appropriées quand vous manipulez l'équipement.
- Pour réduire le risque de choc électrique, branchez chaque cordon d'alimentation dans des circuits de dérivation distincts utilisant des zones de service distinctes.

Protection contre les décharges électrostatiques (DES)

Une décharge électrostatique peut se produire lorsque des composants électroniques ne sont pas manipulés de manière adéquate, ce qui peut entraîner des défaillances intermittentes ou endommager irrémédiablement un circuit électrique. Au moment de remplacer une carte dans un châssis, prenez toujours les mesures de protection antistatique appropriées :

- Assurez-vous que le châssis est relié électriquement à la terre par le cordon d'alimentation ou tout autre moyen disponible.
- Portez un bracelet antistatique et assurez-vous qu'il est bien en contact avec la peau. Connectez la pince de masse à une *surface non peinte* du châssis pour détourner à la terre toute tension électrostatique indésirable. En l'absence de bracelet antistatique, déchargez l'électricité statique de votre corps en touchant une surface métallique *non peinte* du châssis.
- Pour plus de sécurité, vérifiez périodiquement la valeur de résistance du bracelet antistatique. Elle doit se situer entre 1 et 10 mégohms.
- Si vous devez mettre une carte de côté, assurez-vous de la ranger dans un sac protecteur antistatique.
- Les cartes qui sont reliées à un châssis ou boîtier métallique mis à la terre ne nécessitent pas de protection antistatique spéciale.

Précautions pour les écrans LCD et TFT

Regarder l'écran pendant une trop longue période de temps peut nuire à votre vision. Prenez une pause de 10 minutes, après 30 minutes d'utilisation.

Si l'écran LCD ou TFT est brisé, manipulez les fragments de verre avec précaution au moment de vous en débarrasser. veillez à ce que le cristal liquide n'entre pas en contact avec la peau ou la bouche. En cas de contact avec la peau ou les vêtements, laver immédiatement à l'eau savonneuse. Ne jamais ingérer le liquide. La toxicité est extrêmement faible, mais la prudence demeure de mise en tout temps.

Environmental Information

European (CE) WEEE directive.

This symbol on the product(s) means that at the end of life disposal it should not be mixed with general waste.

Visit www.grassvalley.com for recycling information.

Grass Valley believes this environmental information to be correct but cannot guarantee its completeness or accuracy since it is based on data received from sources outside our company. All specifications are subject to change without notice.

If you have questions about Grass Valley environmental and social involvement (WEEE, RoHS, REACH, etc.), please contact us at environment@grassvalley.com.

Further Safety Information

The hardware modules covered by this user manual are not mains powered. The hardware modules must be fitted into a mains powered frame, host equipment, for operation.

Safety Warnings

CAUTION: These servicing instructions are for use by qualified personnel only. To reduce the risk of electric shock, do not perform any servicing other than that contained in the Operating Instructions unless you are qualified to do so. Refer all servicing to qualified service personnel.

> WARNING
> To reduce the risk of electric shock, do not expose the host equipment to rain or moisture.

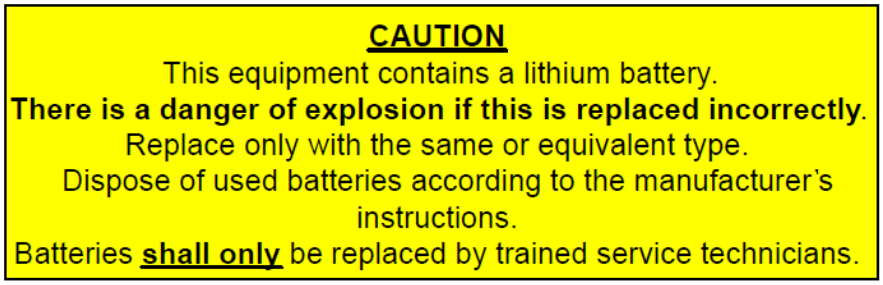
Always ensure that the host equipment is properly earthed and power connections correctly made.

The host equipment must be supplied from a power system providing a PROTECTIVE EARTH connection and having a neutral connection which can be reliably identified.

The power circuit breakers or switches supplying power to the host equipment should be close to the unit and easily accessible.

Lithium Batteries

Battery Warning



Your Grass Valley equipment usually comes with at least one button battery located on the main printed circuit board. The batteries are used for backup and should not need to be replaced during the lifetime of the equipment.

Battery Disposal

Before disposing of your Grass Valley equipment, please remove the battery as follows:

1. Make sure the AC adapter / power Cord is unplugged from the power outlet.
2. Remove the protective cover from your equipment.

3 Gently remove the battery from its holder using a blunt instrument for leverage such as a screwdriver if necessary. In some cases the battery will need to be desoldered from the PCB.

4 Dispose of the battery and equipment according to your local environmental laws and guidelines.

WARNING

- Be careful not to short-circuit the battery by adhering to the appropriate safe handling practices.
- Do not dispose of batteries in a fire as they may explode.
- Batteries may explode if damaged or overheated.
- Do not dismantle, open or shred batteries.
- In the event of a battery leak, do not allow battery liquid to come in contact with skin or eyes.
- Seek medical help immediately in case of ingestion, inhalation, skin or eye contact, or suspected exposure to the contents of an opened battery.

Laser Safety

Laser Safety - Fiber Output SFP and QSFP Modules Warning

LASER SAFETY

The average optical output power does not exceed 0 dBm (1mW) under normal operating conditions. Unused optical outputs should be covered to prevent direct exposure to the laser beam.

Even though the power of these lasers is low, the beam should be treated with caution and common sense because it is intense and concentrated. Laser radiation can cause irreversible and permanent damage of eyesight. Please read the following guidelines carefully:

- Make sure that a fiber is connected to the board's fiber outputs before power is applied. If a fiber cable (e.g. patchcord) is already connected to an output, make sure that the cable's other end is connected, too, before powering up the board.
- **Do not** look in the end of a fiber to see if light is coming out. The laser wavelengths being used are totally invisible to the human eye and can cause permanent damage. Always use optical instrumentation, such as an optical power meter, to verify light output.

Cable Management

It is important that the cabling to and from the multiviewer is correctly labeled and routed. This will simplify the work required if the installation needs to be changed or added to at a future date.

CAUTION

- Cables connected to the MV-801 Integrated Multiviewer must be fitted with adequate vertical and horizontal strain relief to avoid twisting of the rear panels causing damage to the MV-801 rear connectors and loss of electrical/signal connection to the multiviewer or monitor displays.
- Cables connected to the MV-801 Integrated Multiviewer should be routed so they do not cover any of the router frame fan exhausts because any obstruction can restrict cooling airflow through the router.

Sirius Router Power Requirements

Before adding an MV-801 to a Sirius 800 router frame, check that the power supplies fitted to the router frame can supply sufficient power to the router and MV-801. See the Sirius 800 User Manual for router power requirements and contact Grass Valley Support for advice.

Safety and EMC Standards

This equipment complies with the following standards:

Safety Standards

CE

Information Technology Equipment - Safety Part 1

EN60950-1: 2006

Safety of Information Technology Equipment Including Electrical Business Equipment.

UL1419 (4th Edition)

Standard for Safety – Professional Video and Audio equipment (UL file number E193966)

EMC Standards

This unit conforms to the following standards:

EN55032:2015 (Class A)

Electromagnetic Compatibility of multimedia equipment - Emission requirements

EN61000-3-2:2014 (Class A)

Electromagnetic Compatibility - Limits for harmonic current emissions

EN61000-3-3:2013

Electromagnetic Compatibility - Limits of voltage changes, voltage fluctuations and flicker

EN55103-2:2009 (Environment E2)

Electromagnetic Compatibility, Product family standard for audio, video, audio-visual and entertainment lighting control apparatus for professional use. Part 2. Immunity

WARNING
This equipment is compliant with Class A of CISPR 32. In a residential environment this equipment may cause radio interference.

FCC / CFR 47:Part 15 (Class A)

Federal Communications Commission Rules Part 15, Subpart B

Caution to the user that changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

Note: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment.
This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications.
Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

EMC Performance of Cables and Connectors

Grass Valley products are designed to meet or exceed the requirements of the appropriate European EMC standards. In order to achieve this performance in real installations it is essential to use cables and connectors with good EMC characteristics.

All signal connections (including remote control connections) shall be made with screened cables terminated in connectors having a metal shell. The cable screen shall have a large-area contact with the metal shell.

SIGNAL/DATA PORTS

For unconnected signal/data ports on the unit, fit shielding covers. For example, fit EMI blanking covers to SFP+ type ports; and fit 75 Ω RF terminators to BNC type ports

COAXIAL CABLES

Coaxial cables connections (particularly serial digital video connections) shall be made with high-quality double-screened coaxial cables such as Belden 8281 or BBC type PSF1/2M and Belden 1694A (for 3Gbps).

D-TYPE CONNECTORS

D-type connectors shall have metal shells making good RF contact with the cable screen. Connectors having “dimples” which improve the contact between the plug and socket shells, are recommended.

Document History

Publication Date	Document Part Number	Document Issue and Revision	Notes
2020-10-21	RMY3 MV-801-UM	Issue 1 Revision 1	First issue of the user manual.

Contents List

1 Product Overview

The MV-801 module brings a wealth of capabilities in a router-integrated multiviewer. The multiviewer 'engine' within the unit is a Grass Valley MV-8 Series multiviewer. One or more modules can be added into any existing Sirius 800 router.

The MV-801 is available from Grass Valley as an option on a new Sirius 800 router from the factory, or as an option to be installed in the field. A single MV-801 can drive up to 12 head display monitors.

Figure 1 MV-801 Multiviewer Video Walls and Screens

1.1 MV-801 Integrated Multiviewer Benefits

- Monitor router input sources. No additional space required.
- No loss of router outputs.
- Reduced power consumption and cooling requirements.
- No external multiviewer cabling, simplified installation.
- Control and monitoring integration using open protocols.
- H.264 streaming capability for all multiviewer input video sources onto a video wall.
- Flexible screen design from multi-channel quad-splits to flexible multi-tile screen layouts, see Figure 1.

Note: MV-8 Series Multiviewer:
For information about the MV-8 Series Multiviewer 'engine' within the MV-801 Integrated Multiviewer product,
please refer to the *MV-8 Series Core Multiviewer User Manual*.
(See Related Documents, on page iii.)

1.2 Typical User Applications

The MV-801 Integrated Multiviewer is ideal for any user application that requires single or multiple displays. For example: Play out control rooms, multi-channel play out, studio galleries, OB trucks, post-production suites, and signal lines monitoring areas.

1.3 Features

With the development of advanced technology within the MV-801 Integrated Multiviewer, Grass Valley can offer some unique, powerful features:

Integrates into all Sirius 800 systems:

- Uses built-in dedicated multiviewer output slots.
- Uses a dedicated internal multiviewer crosspoint.
- Access to all router video inputs
- No loss of router capabilities:
  - Main router outputs.
  - Redundancy.
  - Routing capacity.
  - Processing capability.
- More than one MV-801 per router, see Table 1.

Table 1 MV-801 in Sirius 800 series routers

Sirius 800 Router Model	Maximum number of MV-801 multiviewers
Sirius 830	2-off
Sirius 840	3-off
Sirius 850	2-off

Display up to 48 router inputs (sources) per MV-801 on multiviewer video walls:

- Sirius 830 – select from the router's 288 inputs.
- Sirius 840/850 – select from the router's 576 inputs.

Advanced broadcast media monitoring:

- Media biometric signature generation for all MV-801 multiviewer inputs.
  - Low-bandwidth video and audio signatures streamed.
  - Applications include: Lip sync, Channel mapping detection, Confidence Monitoring. Identification and comparison.
- HDR support.

Up to 12 head display outputs per MV-801, connections to monitor display screens:

- 3G 1080p, HD 720p.
- High image quality: De-interlacing, scaling.
- Four 3G display outputs can be used together to provide a UHD quad-link.
- Multiviewer head display outputs:
  - 4 display outputs on baseline MV-801 model.
  - Up to 12 display outputs per MV-801, enabled (in pairs) with licensed options.
- Head display outputs use flexible SFP modules.
  - Outputs can be a mixture of 3G SDI dual-coax or dual-fiber SFPs, or single-HDMI SFPs.

Total multiviewer screen flexibility:

- Display status and alarms from external devices.
- Additionally: web pages, automation play lists, device status screens etc.
- Change between video wall layouts on the fly.
- Design video walls with the GV Orbit Client software tool:
  - Flexible video tile arrangements and customizable design.
  - Adjustable layering, transparencies and fine-positioning.
  - Drag and Drop graphical objects onto the design screen.

Flexible alarm capability:

- Monitoring of video, audio and metadata, with alarm notification.
- Intelligent monitoring of external devices, with configurable on-screen alarms.
- Control and acknowledgment of alarms from hardware- and soft-panels.

Streaming out of MV-801 input-copies (Licensed Option):

- Each MV-801 multiviewer input can be scaled and H.264-encoded to create 'input-copies' which can then be streamed out over an IP interface.
- MV-801 'input-copy' video streams can be viewed on a desktop PC with appropriate software. See the *MV-8 Series Core Multiviewer* user manual.

Note: Viewing H.264-encoded video IP streams with GV Orbit:
Grass Valley GV Orbit can be used to form a PC-based, streamed-video monitoring wall (ideal for secondary monitoring applications).
Input H.264 video IP streams, from one or more MV-8X0/8X1 modules, may be displayed on a PC monitor, showing live video, audio levels and alarms.

1.4 Integration into Sirius 800 Routers

The MV-801 Multiviewer fits into dedicated multiviewer module slots in a Sirius 800 router frame. More than one MV-801 may be fitted to a router. (See Identifying Modules and Slots in the Sirius Router, on page 24 in the MV-801 Hardware Installation chapter, for slot information.)

The Sirius 800 internal router architecture allows the MV-801 to tap into the signal flow within the router at the input signals, just before the main router crosspoint. Figure 2 shows a Sirius 800 router block diagram which includes up to three MV-801 Integrated Multiviewer units.

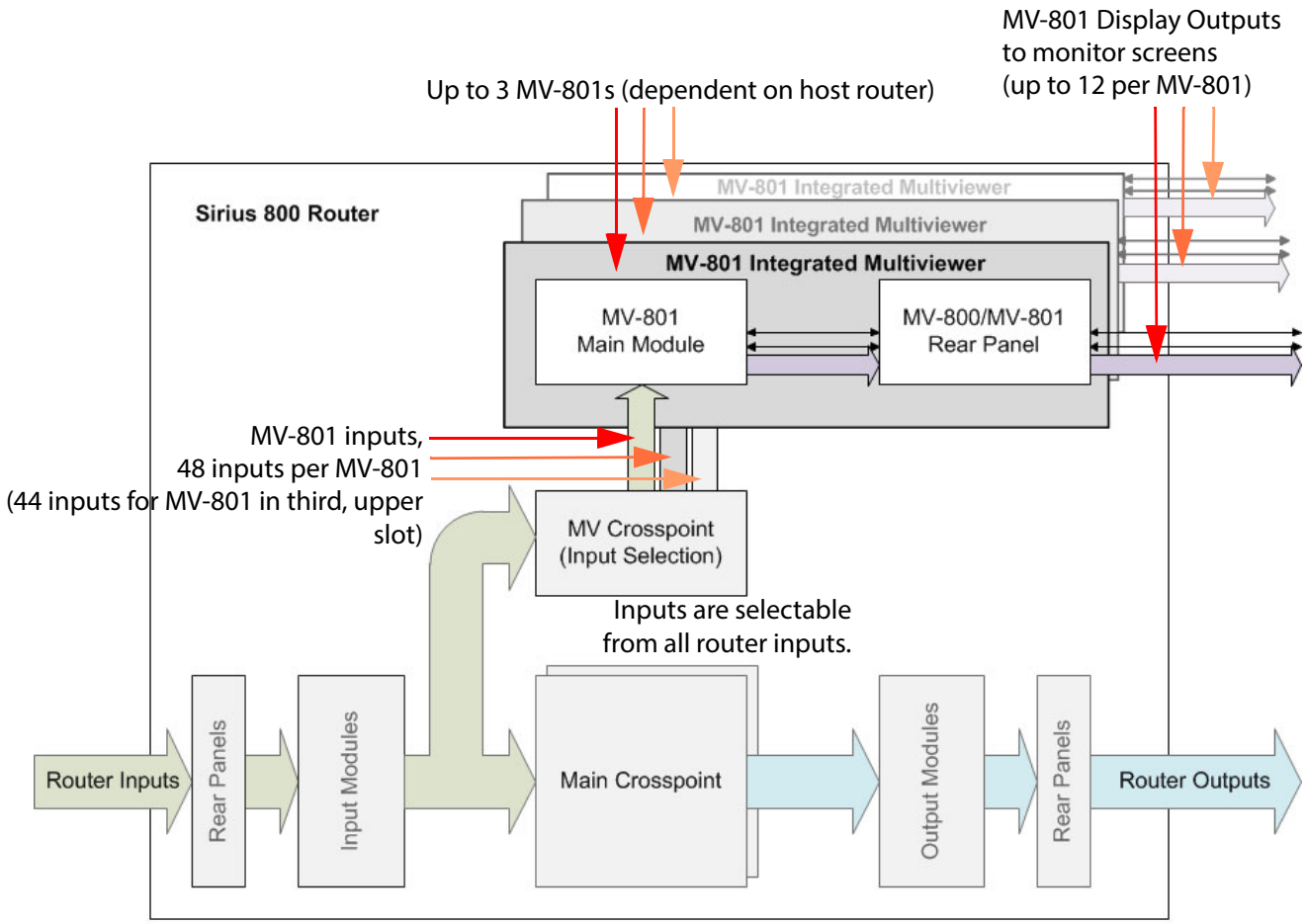


Figure 2 Sirius 800 Router block diagram, with MV-801 Integrated Multiviewer(s)

The MV-801 uses a Sirius Multiviewer Crosspoint module (MV Crosspoint) to select which of the router inputs the MV-801 can monitor. This is an auxiliary crosspoint which is dedicated to multiviewer use. A Sirius 800 Multiviewer Crosspoint module is required for the MV-801.

Thus, the addition of an MV-801 Integrated Multiviewer into a Sirius router retains the router's:

- Main outputs.
- Main Crosspoint redundancy.
- Processing capability on all router inputs and outputs.

1.5 MV-801 Main Input and Output Connections

Figure 3 shows the MV-801 Integrated Multiviewer with its core MV-8 Series Core Multiviewer and its main inputs and outputs, comprising:

- 48 video inputs (internal to the router):
  - Selected from all router inputs via the MV Crosspoint module.
  - Mapped to router destinations. For mapping details, see Table 11, Router Destination Matrix Port Number Mapping for MV-801 module slots, on page 40.

    Note: There are 44 inputs on the top, third MV-801 fitted into a router.
- Ethernet connections:
  - 2-off 1Gbit.
  - Communications traffic and H.264 streaming out of multiviewer 'input-copies'.
- LTC and GPIO.
- Head display screen outputs:
  - Up to 6-off SFPs.
  - Up to 12 outputs for monitor display screens.
  - Outputs available in SDI coax, fiber or HDMI.

    Note: There is only one HDMI connector per HDMI SFP. Thus, there are only up to 6 HDMI display outputs.
  - UHD outputs via quad-link 3G-SDI.

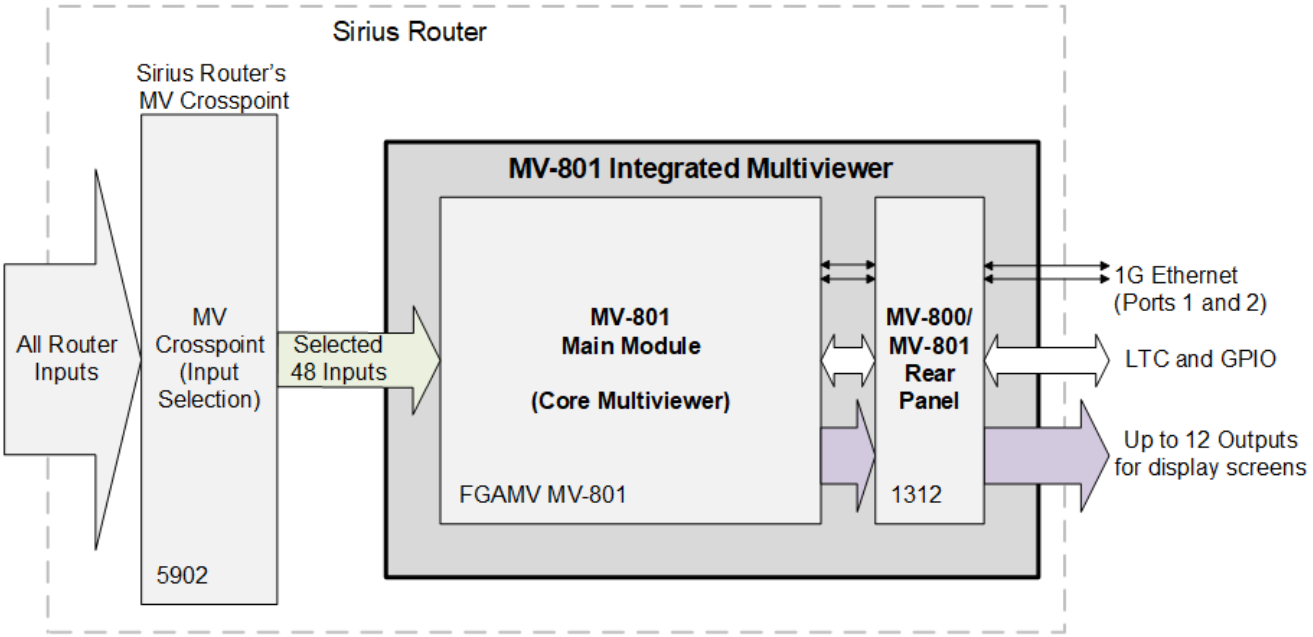


Figure 3 MV-801 Main Input and Output Connections

For more detailed information about external connections to MV-801, see MV-801 Hardware Modules, on page 11.

1.6 MV-801 Components

The MV-801 Integrated Multiviewer option consists of some hardware modules fitted into front and rear slots of a Sirius 800 router frame. The multiviewer may be purchased already fitted into a new Sirius 800 router from Grass Valley or bought separately as a hardware upgrade option, to be fitted to an existing Sirius 800 router. One or more MV-801's may be fitted to a router.

MV-801 Hardware Installation, on page 21 shows which Sirius router frame slots are used for the MV-801.

When fitting the MV-801 into an existing router, the relevant router slots may already be used by other Sirius 800 option modules and, in this case, some or all of those modules need to be removed as part of the MV-801 installation.
For example, an existing router may already be fitted with the Sirius Multiviewer Output option (i.e. router SDI outputs provided for an *external* multiviewer).
If in doubt, contact Grass Valley Support. (See Grass Valley Technical Support, on page 51, for contact details.)

The MV-801 Integrated Multiviewer requires:

- 1-off upper router front module slot and its corresponding rear module slot, per MV-801, in a router frame.
- 1-off Sirius 5902 Multiviewer Crosspoint module fitted to the router.
- Sirius 800 router controller software version 3.17.4 or later.
- Grass Valley RollCall Control Panel software version 4.16.11 or later.
- Grass Valley GV Orbit Client software version 4.0 or later.

One MV-801 comprises a front module (FGAMV MV-801) and a rear module (1312). Several factors determine the parts required for an MV-801 installation, including:

- Model of Sirius router.
- Existing router options fitted.
- How many MV-801's are being fitted to the router.

The list of front modules, rear panels etc. required for an MV-801 installation is given in Table 2.

Table 2 List of Front Modules and Rear Panels etc required for an MV-801 router installation

Part	Sirius Router			Comment
	830	840	850	
FGAMV MV-801 (MV-801 Main Module)	1 or 2-off	1, 2 or 3-off	1 or 2-off	**FGAMV MV-801** and **FGAEY 1312** are ordered together in complementary pairs (i.e. 1x FGAMV MV-801 and 1x FGAEY 1312).
FGAEY 1312 (MV-801/MV-800 Rear Panel)	1 or 2-off	1, 2 or 3-off	1 or 2-off	
SFP video modules:	up to 6-off per 1312	up to 6-off per 1312	up to 6-off per 1312	Up to 6-off SFPs per 1312 rear module. Mixture of video SFP modules and SFP blanking plugs. See **Note 1**. Baseline MV-801 is licensed for 4-off display outputs, i.e. 2-off SFP video modules, enough for a UHD display. SFPs may be supplied separately or already fitted to each 1312 Rear.
5902 Multiviewer Crosspoint Module	1-off	1-off	1-off	(Required if not already fitted to router)

Note 1: Total 6-off SFPs per 1312, comprising:

- Minimum 2-off: SFP video output modules.
  (Depending on MV-801 licensing option purchased.)
- Up to 4-off: SFP blanking plugs.

SFP type:

- SM-TT-3G (SDI, dual transmit).
- ST31ST31-3 (Fiber).
- FC1-HDMI2 (HDMI).
- SFPBLANK.

See MV-801 Hardware Installation, on page 21 for hardware installation instructions.

1.7 Order Codes

Table 3 Order Codes

Order Code	Description
FGAMV MV-801	MV-801 Integrated Multiviewer main module, includes license for 4 display outputs. (Display outputs 1 to 4.) Grass Valley module number FGAMV MV-801.
FGAMV MV-800-RP	Multiviewer Rear Panel used for MV-801, with SFP *cages* for accepting SFP video output modules. (Grass Valley module number 1312.) **Note:** This rear panel item is used on MV-801 and on MV-800. **Note:** SFPs must be ordered separately.
Additional Licenses	
MV-801-H264	License to provide capability to stream out scaled, H.264-encoded 'input-copies' of multiviewer inputs.
Additional Display Outputs:	For the MV-801 unit, MV-801-XXX output license are used: Additional display outputs. A license comprises a code to enable more outputs:
MV-801-OP56	Upgrade to enable outputs 5 and 6. SFPs ordered separately.
MV-801-OP78	Upgrade to enable outputs 7 and 8. SFPs ordered separately.
MV-801-OP910	Upgrade to enable outputs 9 and 10. SFPs ordered separately.
MV-801-OP112	Upgrade to enable outputs 11 and 12. SFPs ordered separately.
SFP Modules (Video):	One SFP video module offers: 2-off SDI outputs (coaxial or fiber) or 1-off HDMI output.
CC-TTH-3G-N	Multiviewer HD-BNC Dual Output SFP module. Module number Grass Valley module number SM-TT-3G
ST31ST31-3	Multiviewer Fiber Dual Output SFP module (1310 nm, single mode).
FC1-HDMI1	HDMI single output SFP module
SFP Module (Ethernet):	
FGAEY 1GBE-SFP	Ethernet 1GbE SFP.
SFP Module (Blank):	
SFPBLANK	SFP blanking plug (dust and EMC cover).
Also Required:	
5902	Sirius 800 series Multiviewer Crosspoint module, unless a 5902 module is already fitted to the router. Only one required per Sirius 800 router frame.

1.8 Multiviewer Terminology

Note: For a glossary of multiviewer terminology, refer to the *MV-8 Series Core Multiviewer* user manual.

1.9 MV-801 Set up

1.9.1 Hardware Installation

Hardware installation of the MV-801 Integrated Multiviewer is described in MV-801 Hardware Installation, on page 21.

1.9.1.1 Power Supply Considerations

CAUTION **Power supply considerations:**

It is likely that your Sirius router already has enough power supply capacity to power the additional MV-801 Integrated Multiviewer modules. However, there are many different Sirius 800 system module combinations. Therefore, before adding an MV-801 to a Sirius 800 router, check that the configuration of power supplies fitted to your router can supply sufficient power to the MV-801 Multiviewer:

- See the 'Sirius 800 Router' user manual for router power requirements.
- See Appendix A MV-801 Specification, on page 45, for MV-801 power requirements.
- Contact Grass Valley support for advice.

Note: Upgrading of the Sirius 800 router controller software is described the 'Sirius Maintenance and Upgrade Manual', Section 9, "Nucleus Upgrade and Maintenance".

1.9.2 Initial MV-801 Configuration

Each MV-801 is configured separately.

Typically, a new MV-801 will be using a default IP address (10.54.31.221, 10.54.31.226 or 10.54.31.231) on Ethernet port 1 ("1G1"). See Appendix A MV-801 Specification, Table 14 on page 49, for default IP addresses on all network ports.

Initial configuration and set up of the MV-801 multiviewer is done via Grass Valley's RollCall Control Panel application. See the '*MV-8 Series Core Multiviewer*' user manual, in the section about RollCall templates and "Getting Started".

Note: For full details about the **MV-8 Series Core Multiviewer**, see the *MV-8 Series* Core *Multiviewer User Manual*, see Related Documents, on page iii. This includes information about core multiviewer:

- RollCall templates (control screens).
- Features.
- Getting started information.
- Licensing and upgrading.

1.9.3 Configuration Screens (RollCall Templates)

Following the initial configuration of the MV-801 Multiviewer, the RollCall Control Panel tool or GV Orbit Client may then be used to access RollCall templates and control various MV-801 items, including the selection of video wall layouts, monitoring alarm status, acknowledging alarms and control of timer widgets on the video wall.

Refer to the '*MV-8 Series Core Multiviewer*' user manual (see Related Documents, on page iii) for full details of the MV-801 module's RollCall templates and configuration information.

1.9.4 Video Wall Design

The layout and style of the MV-801 video walls are designed with the GV Orbit software application. Wall designs are stored as individual projects (GV Orbit projects), which are pushed to an MV-801 for use.

Multiple wall layout designs may be generated and stored on a PC. Different wall designs can then be pushed to the multiviewer for various MV-801 multiviewer applications.

Note: For information about the design and management of MV-801 multiviewer video wall layouts with the GV Orbit application, refer to the '*MV-8 Series Core Multiviewer*' user manual (see Related Documents, on page iii).

1.10 Maintenance

1.10.1 Multiviewer Licensing

Note: For information about licensing the MV-801 multiviewer, refer to the 'MV-8 Series Core Multiviewer' user manual (see Related Documents, on page iii).

1.10.2 Multiviewer Software Upgrade

Note: For information about software upgrading the MV-801 multiviewer, refer to the '*MV-8 Series Core Multiviewer*' user manual (see Related Documents, on page iii).

1.11 MV-801 Integrated Multiviewer H.264 Streaming Out

An MV-801 has a license option which enables streaming out of H.264-encoded copies of the input video signals going to the multiviewer block on the MV-801. Streaming is done over Ethernet interfaces 1 or 2. The license option can be added later to MV-801 modules in the field.

2 MV-801 Hardware Modules

MV-801 hardware primarily comprises:

- Main front horizontal module (FGAMV MV-801). (MV-801 Multiviewer Front Module (FGAMV MV-801), on page 12.)
- Rear panel horizontal module (1312). (MV-800-RP Multiviewer Rear Panel (1312) (Used on MV-800/MV-801), on page 15.)

These modules are described in this section.

CAUTION **Electrostatic Damage**

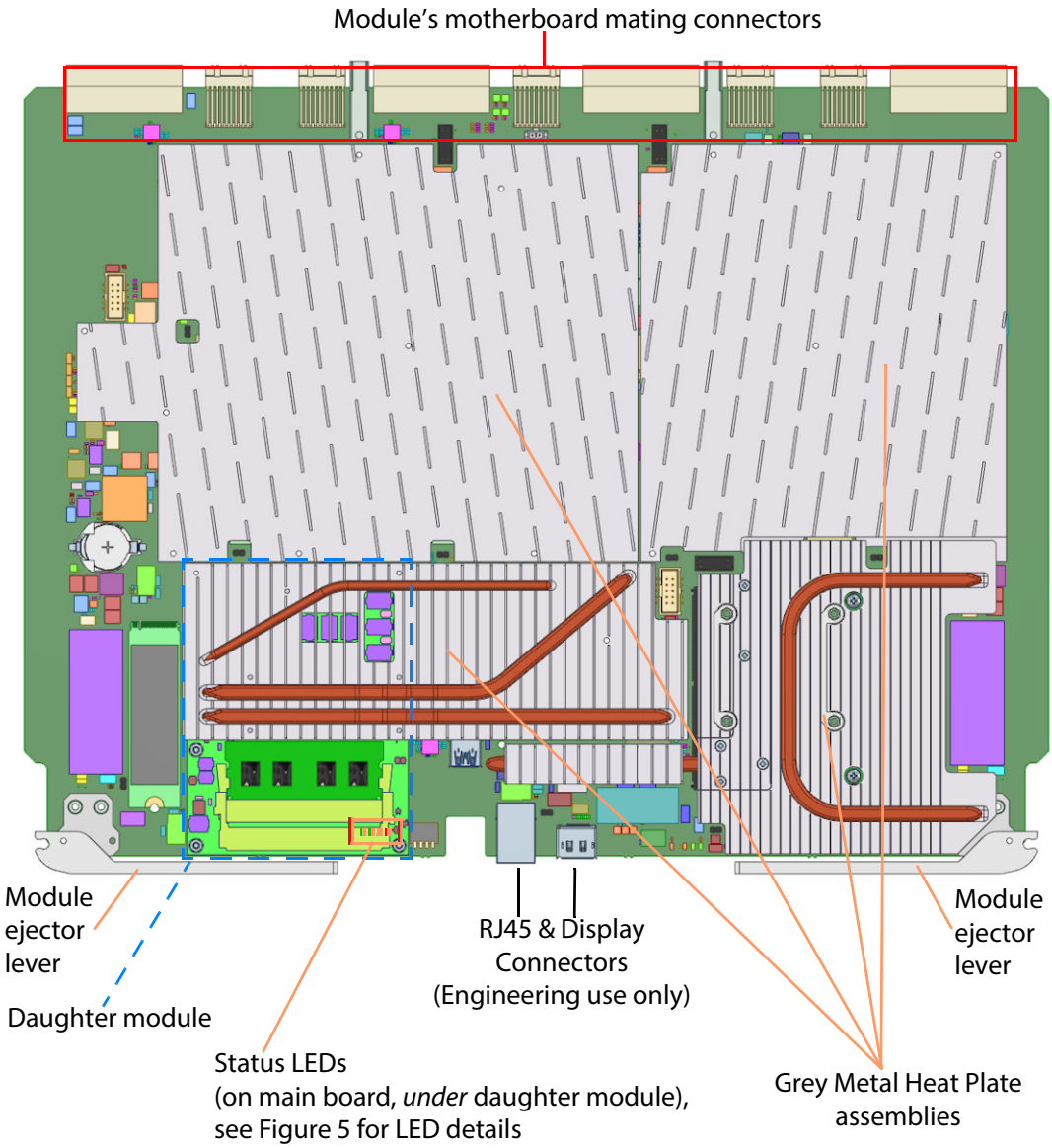
Static precautions must be observed when handling, inserting or removing modules.

Note: Installation of the modules into Sirius 800 routers is described in Chapter 3, MV-801 Hardware Installation, on page 21.

2.1 MV-801 Multiviewer Front Module (FGAMV MV-801)

The FGAMV MV-801 front module for a MV-801 Integrated Multiviewer is a full-sized Sirius router horizontal front module.
It is a single-height module, occupying one horizontal slot in the router frame. The top-side of the module is mostly covered with gray metal heat plates.

More than one MV-801 may be fitted to a router, see Table 1 on page 2.



Note: Module's main component side is shown, which is upper-most in the router frame.

Figure 4 MV-801 Integrated Multiviewer Module (FGAMV MV-801)

2.1.1 Front Module Status LED Indicators

Table 4 shows the LED color codes for the MV-801 module, and Figure 5 shows the front edge of the module.

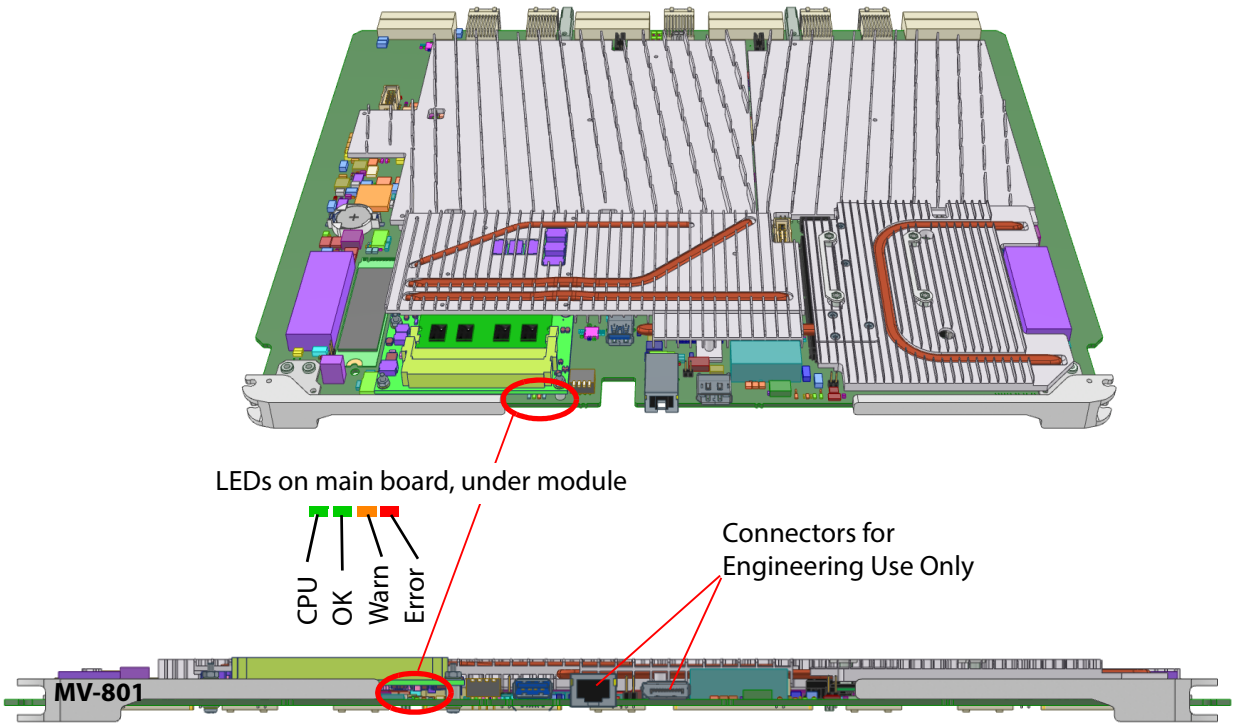


Figure 5 Front Module (FGAMV MV-801) LEDs

Label	LED Color	Detail	Status
CPU	**Green**	**CPU Heartbeat**	**Flashing (2Hz):** Working correctly. **Solid On** or **Off:** software fault detected. Contact Grass Valley Customer Support (Grass Valley Technical Support, on page 51 for contact details).
OK	**Green**	**Hardware Communications**	**Solid On:** Working correctly. **Flashing (2Hz):** hardware communications fault detected, contact Grass Valley Customer Support (Grass Valley Technical Support, on page 51 for contact details).
WARN	**Amber**	**Over Temperature Warning**	**Off:** Working correctly. **On:** MV-801 module overheating - make sure the router frame fan assemblies are all closed and the fans are all operating correctly.
ERROR	**Red**	**Error**	**Off:** Working correctly. **On:** Hardware fault detected. Contact Grass Valley Customer Support (Grass Valley Technical Support, on page 51 for contact details).

Table 4 FGAMV MV-801 Module-Front LED Information

2.1.2 DIP switches

The four DIP switches are not used. Check that all four switches are in the “up” position.

2.1.3 Engineering connectors

There are two other connectors on the front edge of the module, see Figure 5. These are for Engineering use only and should not be used.

2.2 MV-800-RP Multiviewer Rear Panel (1312) (Used on MV-800/MV-801)

CAUTION **Electrostatic Damage**

Static precautions must be observed when handling, inserting or removing modules.

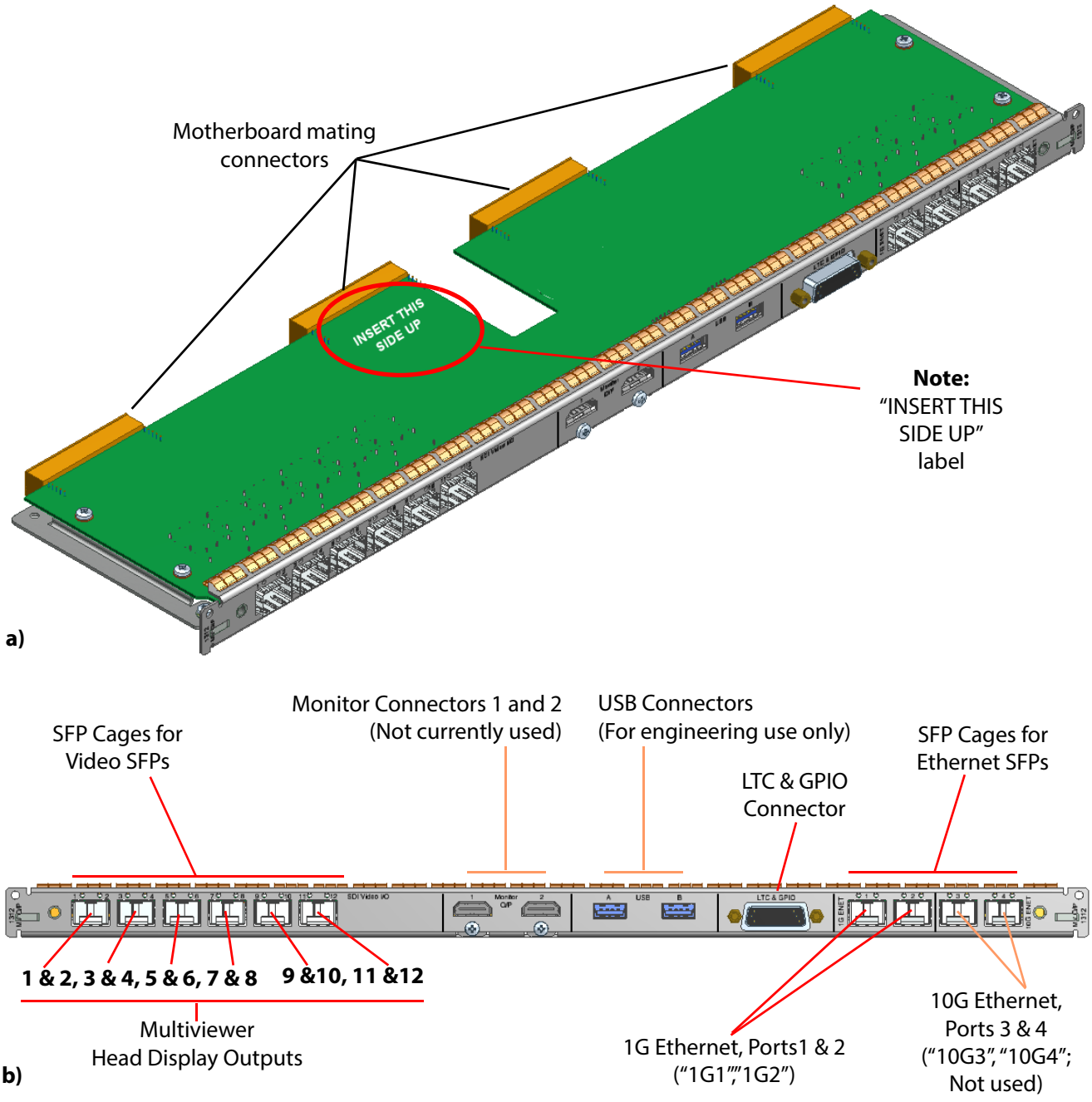


Figure 6 MV-801 Integrated Multiviewer: a) 1312 Rear Module View; b) Rear Connectors.

There are up to 12 multiviewer display outputs from the MV-801:

- 2 outputs per SDI coax or fiber SFP video module.
- 1 output per HDMI SFP video module.

The Multiviewer display outputs come from SFP modules fitted into the SFP cages on the MV-801 Rear Panel module's rear plate. SFP blanking plugs must be fitted if an SFP is not fitted into any of the cages.

2.2.1 Connectors

Table 5 describes each connector type.

Table 5 MV-801 Integrated Multiviewer 1312 Rear panel Connectors

Connector	Description
Display Outputs 1 to 12	Multiviewer video wall display outputs. 6-off SFP cages for SFP modules [See note 1]: • 2-off SDI Coax outputs per SFP, or • 2-off SDI Fiber outputs per SFP, or • 1-off HDMI output per SFP.
Monitor Connectors 1 and 2	Not currently used.
USB connectors A and B	For engineering use only.
LTC & GPIO Connector	26 Way High Density "D" Type female connector, see Table 8 on page 19 for pinout details.
1G Ethernet Ports 1 and 2	2-off 1 Gbps, SFP+ Ethernet sockets, RJ45
10G Ethernet Ports 3 and 4	Not currently used. 2-off 10 Gbps, SFP+ Ethernet sockets, RJ45
Note 1: SFP blanking plugs must be fitted if no SFP is present.	

2.2.2 Rear Panel LEDs

Multiviewer head display outputs and Ethernet ports have LED status indicators, see Figure 7.

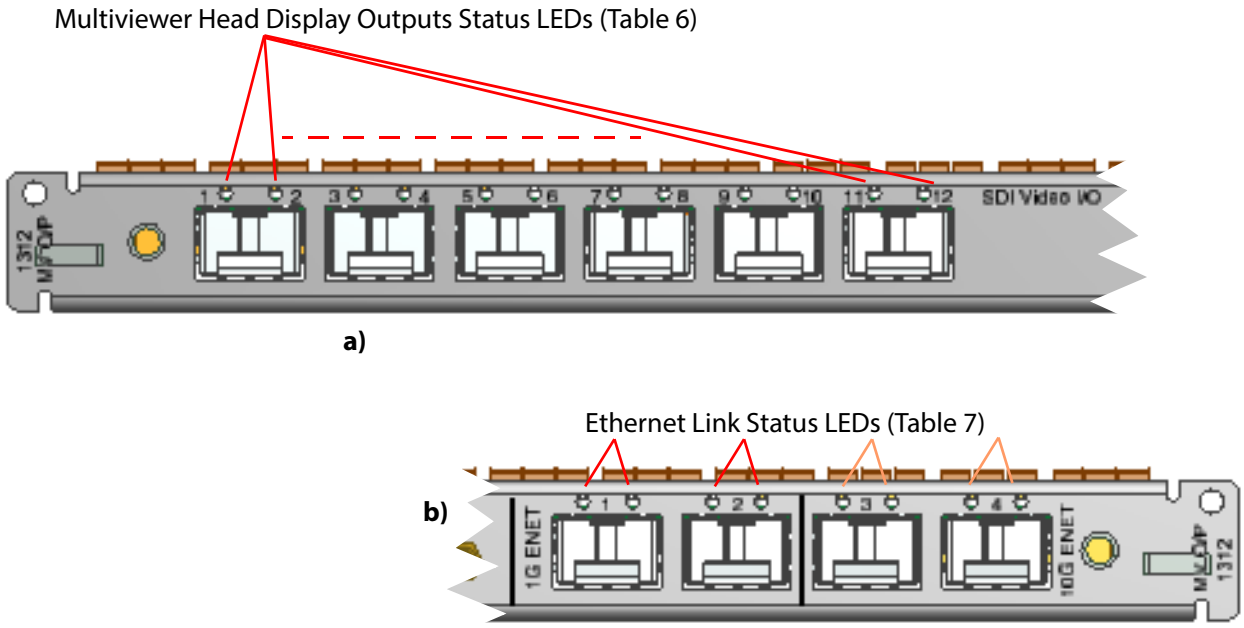


Figure 7 MV-801 Rear Panel LEDs: a) Multiviewer Head Display Outputs; b) Ethernet Ports

2.2.2.1 Multiviewer Head Display Outputs

One status LED per output. Table 6 describes the LED function.

Table 6 Multiviewer Head Display Output Status LED

Color	LED	Status
Blue		Licensed Output; SFP Fitted. 1080p video output signal.
Blue / White Flashing		Flashes Blue/White at 1Hz. Licensed Output; SFP fitted. 1080p with embedded audio.
Green		Licensed Output; SFP Fitted. 720p video output signal.
Green / White Flashing		Flashes Green/White at 1Hz. Licensed Output; SFP fitted. 720p with embedded audio.
Red		Licensed Output; No SFP Fitted.
Off	OFF	Unlicensed output.
Red / Green Flashing		Flashes Red/Green at 1Hz *during* an internal FPGA upgrade (part of a unit software upgrade).
Red Flashing		Flashes Red/Off at 1Hz *after* a unit software upgrade if: • internal FPGA upgrading was unsuccessful; or • internal FPGAs fail to load during unit boot. **Note:** A unit upgrade to the same version may be carried out to recover a unit if FPGA upgrading was unsuccessful. Otherwise, contact Grass Valley support.

2.2.2.2 Ethernet Outputs

Two status LEDs per port. Table 7 describes the LED function.

Table 7 Ethernet Port Status LEDs

Color	LEDs		Status
Green / Off		OFF	Ethernet link established
Green Solid / Flashing		***	Activity on Ethernet link
Off / Off	OFF	OFF	Establishing link, or unconnected.

2.2.3 LTC and GPIO Connector Pin-outs

Female high density 26 way 'D' type connector assignments

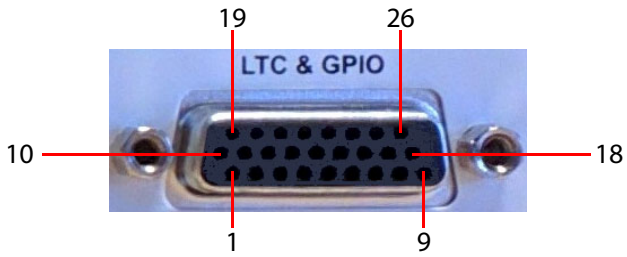


Figure 8 Female High Density 26 Way 'D' Type LTC and GPIO Connector

The following table gives the pin assignments for the LTC and GPIO connector:

Table 8 Female High Density 26 Way 'D' Type LTC and GPIO Connector

Pin Number	Signal	Pin Number	Signal
1	+5 Vdc Out	**14**	GND
2	+5 Vdc Out	**15**	GND
3	Do Not Connect	**16**	GND
4	nc	**17**	GND
5	nc	**18**	GND
6	Do Not Connect	**19**	nc
7	Do Not Connect	**20**	Do Not Connect
8	nc	**21**	nc
9	LTC+	**22**	GPI 1
10	nc	**23**	GPI 2
11	nc	**24**	GPI 3
12	nc	**25**	GPI 4
13	GND	**26**	LTC-
	Note: 'nc' denotes a "not connected" connector pin.		

Note: MV-801 **GPI outputs** - Open collector outputs. Require external pull-up resistors of value between 10 kΩ and 100 kΩ. Each output can sink up to 100 mA.

- "+5 Vdc Out" pins are provided on the connector for this purpose.
- Maximum voltage, +5 V.
- See Example: Driving LEDs from the GPI Outputs, on page 20, for an example of how GPI outputs can be used to drive LEDs.

Note: MV-801 **GPI inputs** - Inputs have weak internal pull-down resistors.

- Can be driven by input voltages of up to +5 V.
- A logic "low" input is represented by an input voltage below +0.8 V.

2.2.4 Example: Driving LEDs from the GPI Outputs

MV-801 GPI outputs have open collector drivers. There is a +5 VDC pin on the GPIO connector to provide the power needed to drive LEDs or relays.

The following schematic is an example of the circuit needed to drive an LED by each GPI output. MV-801 GPIO connector pin names and numbers are shown on the left.

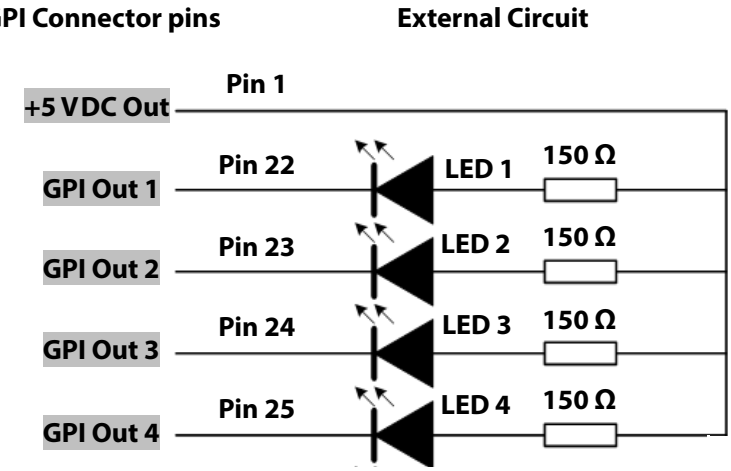


Figure 9 Connecting LEDs to GPI Outputs

CAUTION

Electrostatic Damage

Static precautions must be observed when inserting and removing cards.

3 MV-801 Hardware Installation

3.1 Introduction

This section describes the installation of the MV-801 Integrated Multiviewer hardware. Installation can be carried out while the Sirius 800 router is operating, without impacting the main routing function.

MV-801 installation into a Sirius router also requires a Sirius 800 Multiviewer Crosspoint module (5902) fitted in the router frame. The 5902 module is described in the *Sirius 800 User Manual*.

> **Note:** If your Sirius 800 router has been purchased from Grass Valley with the MV-801 Integrated Multiviewer option already fitted, then the MV-801 hardware installation task just comprises making connections to the MV-801 Rear Panel at the rear of the router (See Connecting Cables, on page 38).

If the MV-801 is being fitted to an existing, installed router, then the router frame's module slots for the MV-801 hardware must be identified. Slot identification is part of the MV-801 hardware installation instructions contained in this section.

An MV-801 Quick Setup Guide is shipped with the module and is also available as a download from Grass Valley.

CAUTION

Electrostatic Damage

Static precautions must be observed when handling, inserting or removing modules.

MV-801 hardware installation comprises the following steps:

1. Initial Checks and Actions, on page 22.
2. Identifying Modules and Slots in the Sirius Router, on page 24.
3. Removal Preliminaries, on page 32.
4. Module Removal Procedure, on page 33.
5. Fitting Preliminaries, on page 34.
6. Connecting Cables, on page 38.

The following sections describe these installation steps. More than one MV-801 unit may be fitted to a Sirius router and these instructions cover the fitting of one or more units.

The router may already have some options installed in the module slots required for the MV-801 option. These installation instructions do not assume the presence or absence of any particular option modules already in the router.

The Sirius 800 router controller software version installed on the router must support the MV-801 Integrated Multiviewer option. Upgrading the Sirius 800 router controller software, if required, can be carried out either before or after the MV-801 hardware installation.

3.2 Initial Checks and Actions

3.2.1 Router Model Check

One or more MV-801 modules may be fitted into a Sirius 800 router.

3.2.2 Router Frame Check

The MV-801 modules must only be fitted into a *Mark 3 type Sirius 800* router frame.
This router frame type has a blue fan rack (see *Sirius 800 User Manual*, section 3.12.1, Table 5).

CAUTION Fit MV-801 modules into a Sirius 800 *Mark 3* router frame.

The fitting of one or more MV-801 modules into a Sirius 800 router frame affects the frame's operating temperature range. See table note in Appendix A Physical/Electrical, on page 45.

3.2.3 Power Checks

Your Sirius 800 router may already have enough power supply capacity to power the additional MV-801 module(s).

However, there are many different Sirius 800 system module combinations. Therefore, before adding any MV-801's to a Sirius 800 router, check that the configuration of power supplies and modules fitted to your router can supply sufficient power to the MV-801(s):

A router's available power supply capacity depends on:

- Complement of modules fitted to the router.
- Power Supply Modules fitted to the router.
- Whether the MV-801 replaces any currently-fitted modules and their module type.

CAUTION **Power supply considerations:**

The Sirius router must have enough power supply capacity to power any MV-801 modules being fitted.

Check that the configuration of power supplies fitted to your router can supply sufficient power to the MV-801 Multiviewer:

- See Sirius 800 User Manual for router power requirements.
- See Appendix A MV-801 Specification, on page 45 for MV-801 power requirements.
- Contact Grass Valley support for advice.

3.2.4 Fitting of Video SFPs to MV-801 Rear Panel

Before fitting the Rear Panel (1312) into the router frame, first fit any SFP video modules, if this has not already been done. This sub-section provides SFP video module fitting guidelines.

Note: It is possible to hot-plug SFP modules but this is not recommended here.
Because it is easier and more practical to fit them to the MV-801 Rear Panel before it is fitted into the router frame.

Figure 10 Coax and fiber SFP video modules

Note: The normal orientation of the 1312 Rear Panel in the router has the printed circuit board upper-most, see Figure 11. This affects the orientation of each SFP when fitting into the target router.

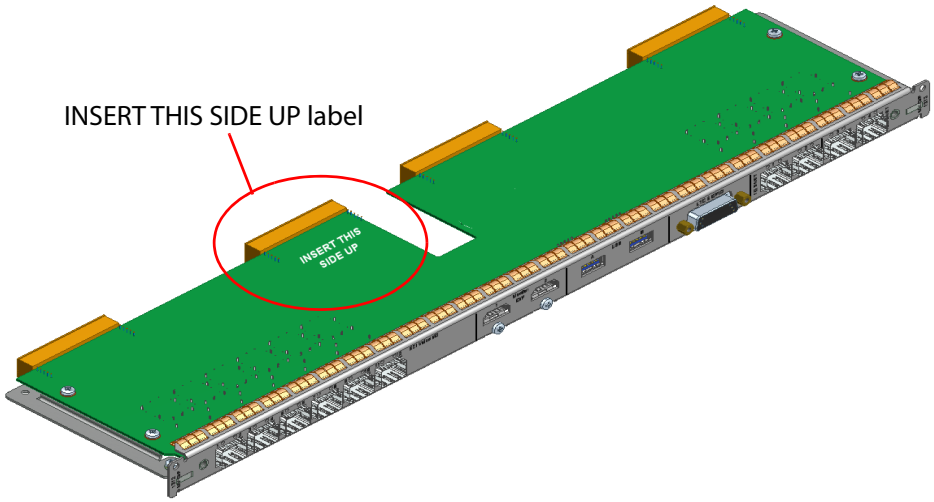


Figure 11 1312 MV-800/MV-801 Rear Panel orientation, showing "INSERT THIS SIDE UP" label.

Before inserting the SFP modules, take notice of the required SFP orientation for fitting into the SFP cages of the Rear Panel, as shown in Figure 12.

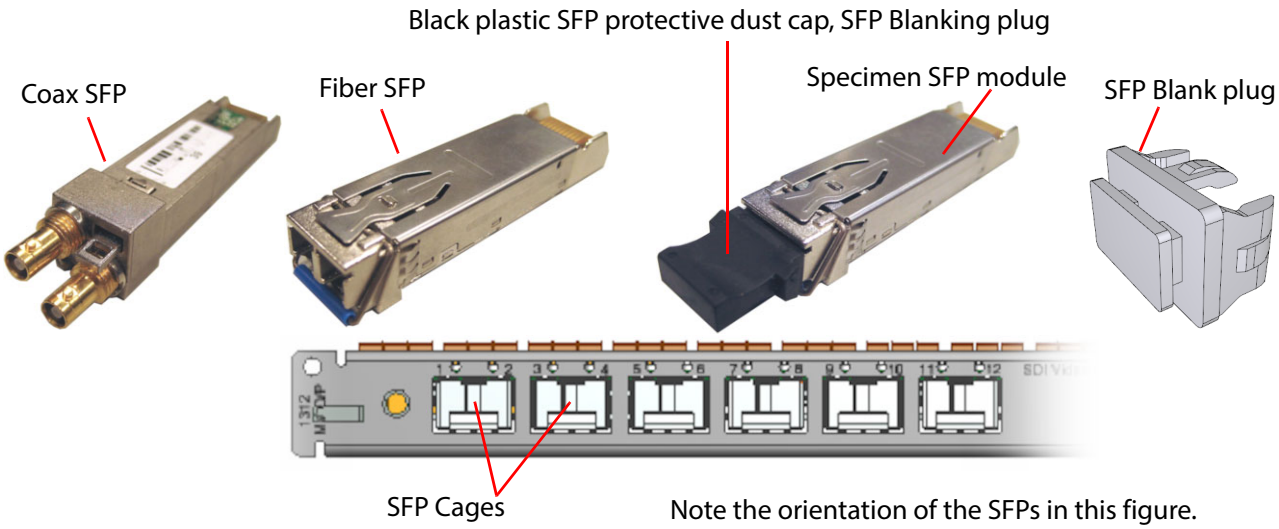


Figure 12 SFP orientation for fitting into 1312 Rear Panel SFP cages

Insert the SFP video modules into the SFP cages on the MV-800/MV-801 Rear Panel (1312). The modules slide in until there is an audible click.

Start by filling the SFP cage for output pair 1 & 2, then 3 & 4 etc. see Figure 13.
Fill any remaining slots with SFP blanking plugs (SFP-BLANK).

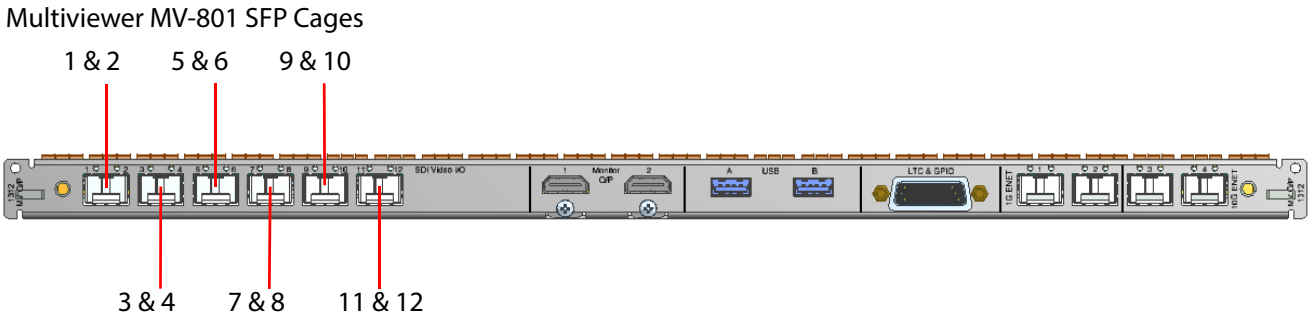


Figure 13 MV-801 Head Display Outputs 1 to 12

SFP module removal, if required, is achieved by operating a small lever or lever-bar on the SFP module before sliding the SFP video module out of its cage.

3.3 Identifying Modules and Slots in the Sirius Router

Note: The MV-801 front module (part number FGAMV MV-801) is referred to in this section as MV-801-MB.

This sub-section locates the slots in the router frame for the MV-801 Integrated Multiviewer and identifies the module types required. Slots must be located precisely in the router frame to ensure correct and swift MV-801 hardware installation, and to avoid the risk of disruption to the router and its operation.

To help locate the relevant slots for the MV-801 option, please refer to the Sirius 800 User Manual ("Module Location" section) and also to the figures in this section.

Step 1. Locate the relevant section of the router frame.
Table 9 states which part of the upper section of the router frame (both front and rear) to look at. This is shown in Figure 14.

Table 9 Section of Router Frame for MV-801 installation

Router	Section of router frame	Comment
Sirius 830	Above the horizontal Main Crosspoint module slots	The Main Crosspoint slots are: 2-off half-width Audio Crosspoints + 2-off full-width Video Crosspoints.
Sirius 840	Above vertical Input module slots	-
Sirius 850	Above vertical Input module slots	-

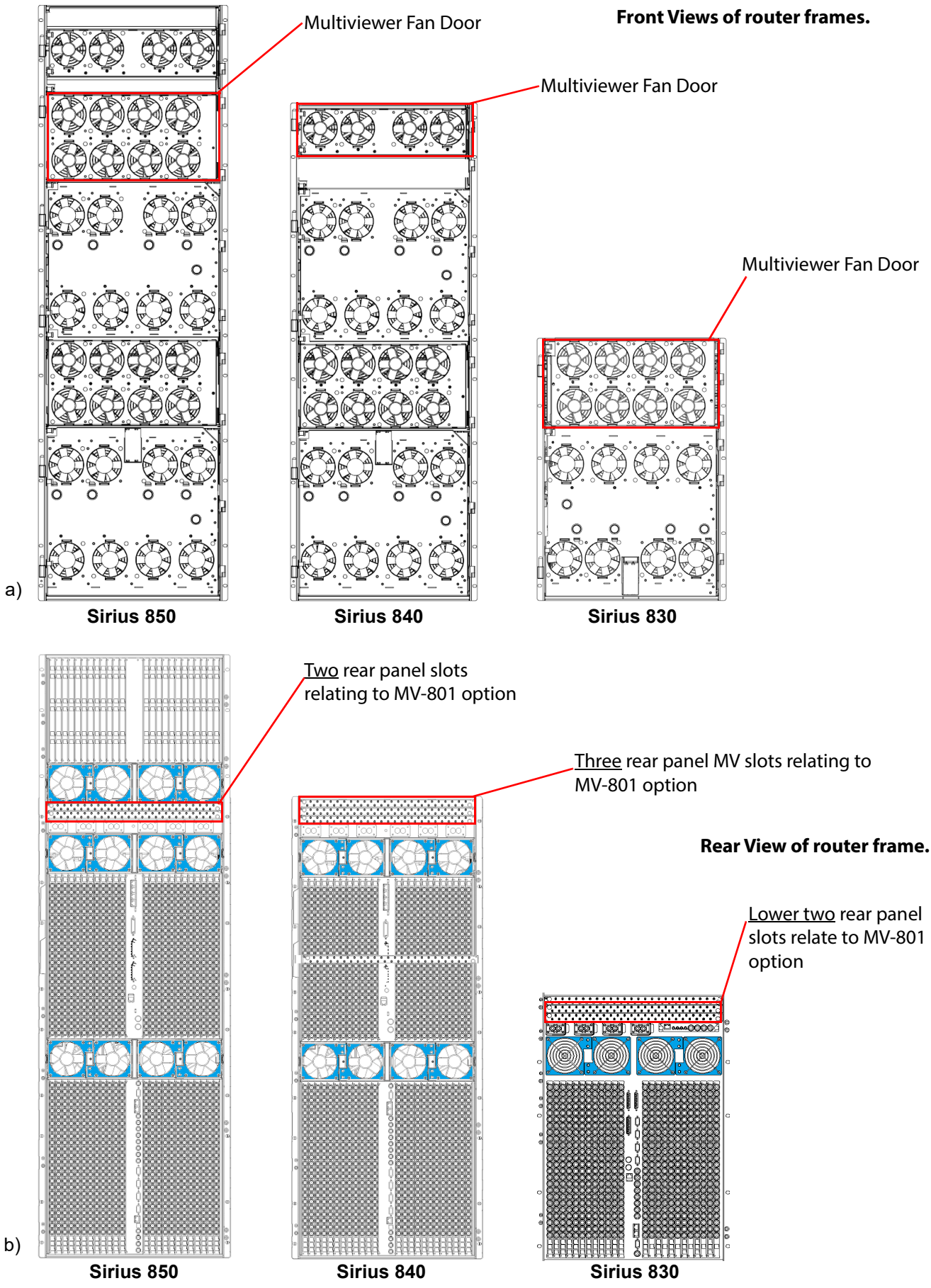


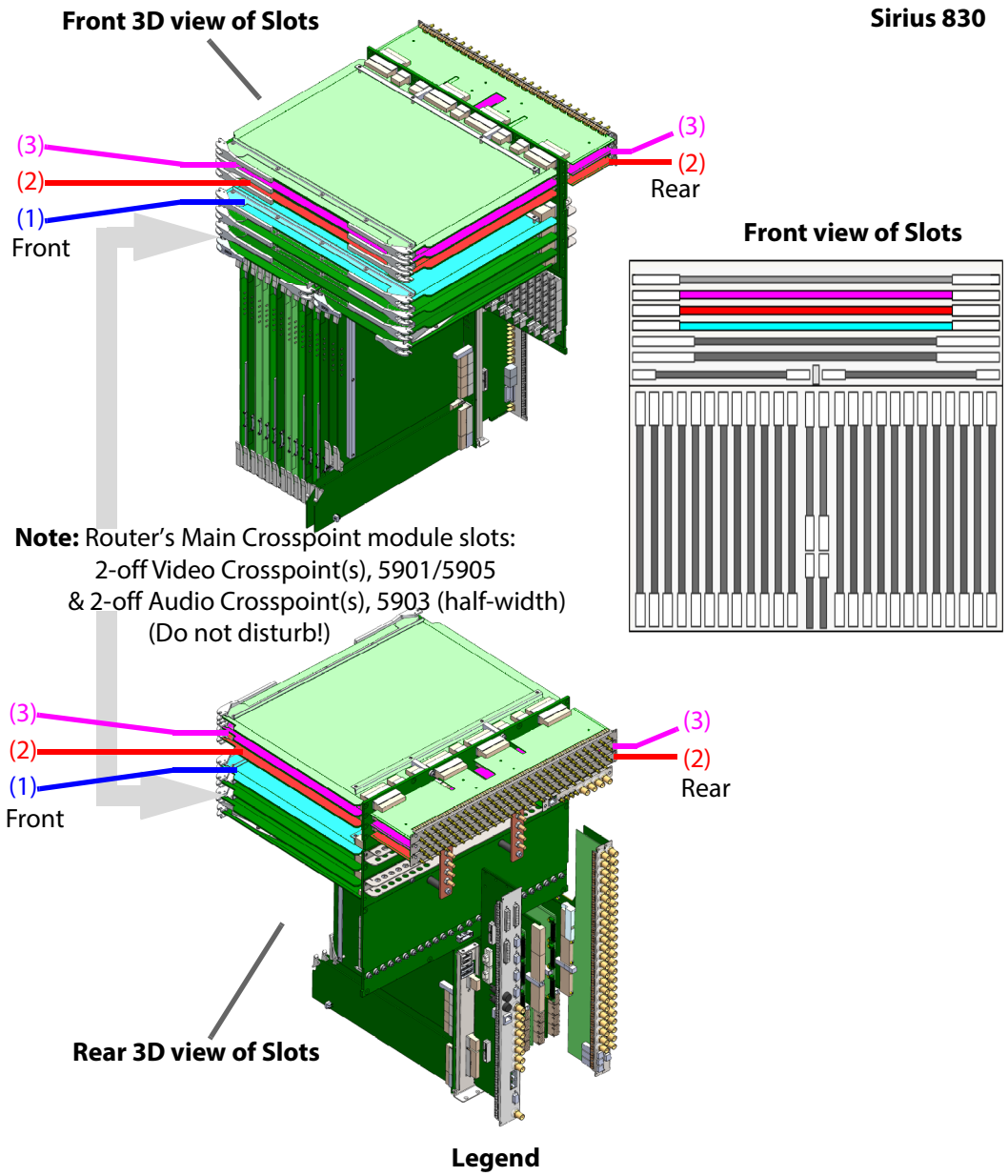
Figure 14 Sirius 800 sections of the router frame for MV-801 option installation, a) front Multiviewer Fan Doors and b) Rear Panel Section

Step 2. Locate and identify the relevant router frame slots relating to the MV-801 Integrated Multiviewer option. These are all horizontal slots.

Refer to Figure 15, Figure 16 or Figure 17 for Sirius 830, 840 and 850 respectively for slot locations in a router frame.
These figures show skeletal drawings of a full complement of router modules, internal cards and rear panels.
Relevant slot locations for the MV-801 option are highlighted and annotated with the types of module and types of rear panel allowed in an MV-801 installation.

IMPORTANT
Do not disturb any of the router's other modules, otherwise router operation may be affected.

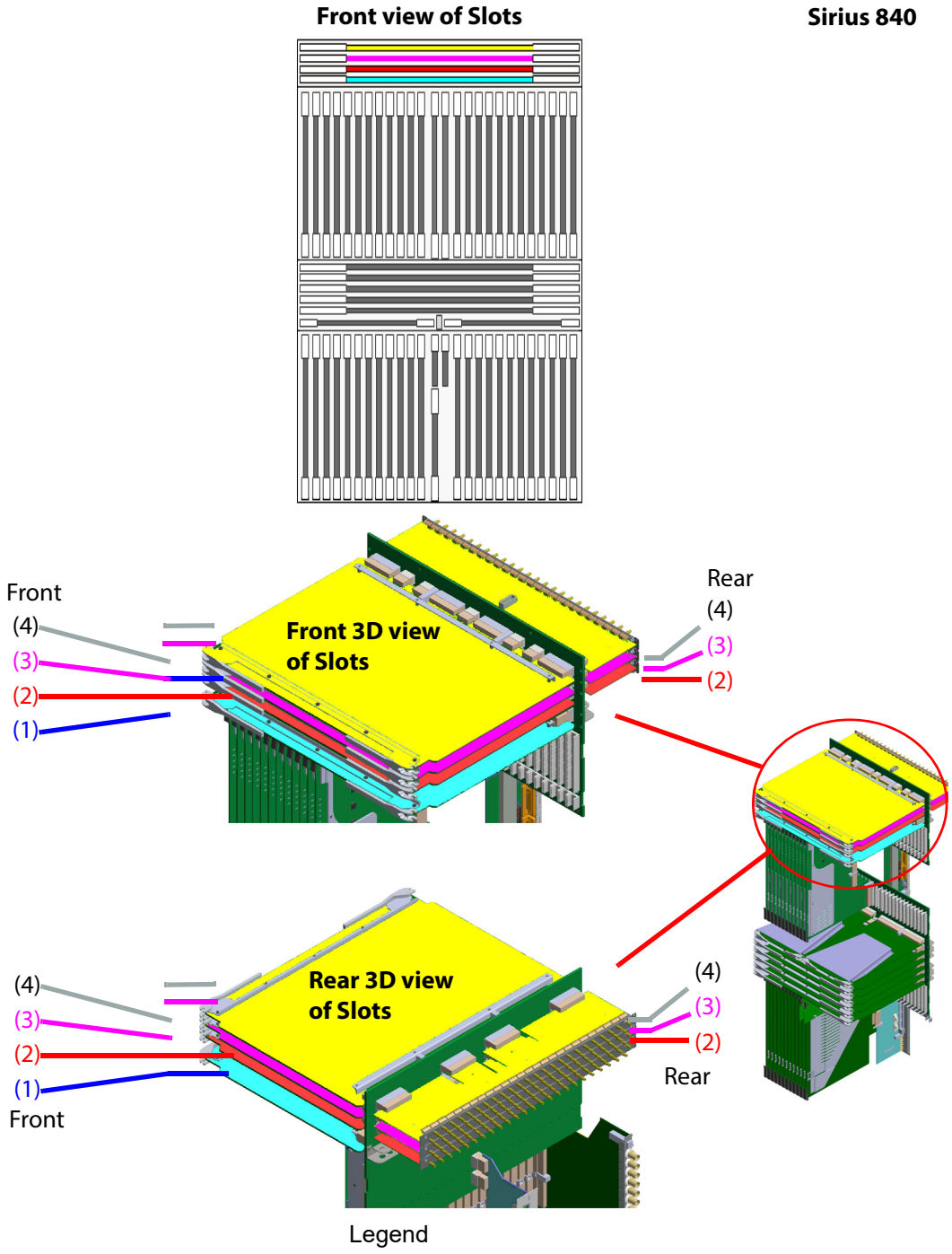
IMPORTANT
Only open router fan doors for less than 2 minutes and ensure they are fully closed afterwards. This ensures continued cooling of the router.



Legend

Front Slots	Rear Slots
(3) * FGAMV MV-801 Main Module	(3) * 1312 Rear Panel Or Blanking Panel
(2) FGAMV MV-801 Main Module	(2) 1312 Rear Panel
(1) 5902 Multiviewer Crosspoint Module	N/A
* Possible second MV-801. Otherwise, fit Blanking Rear Panel.	

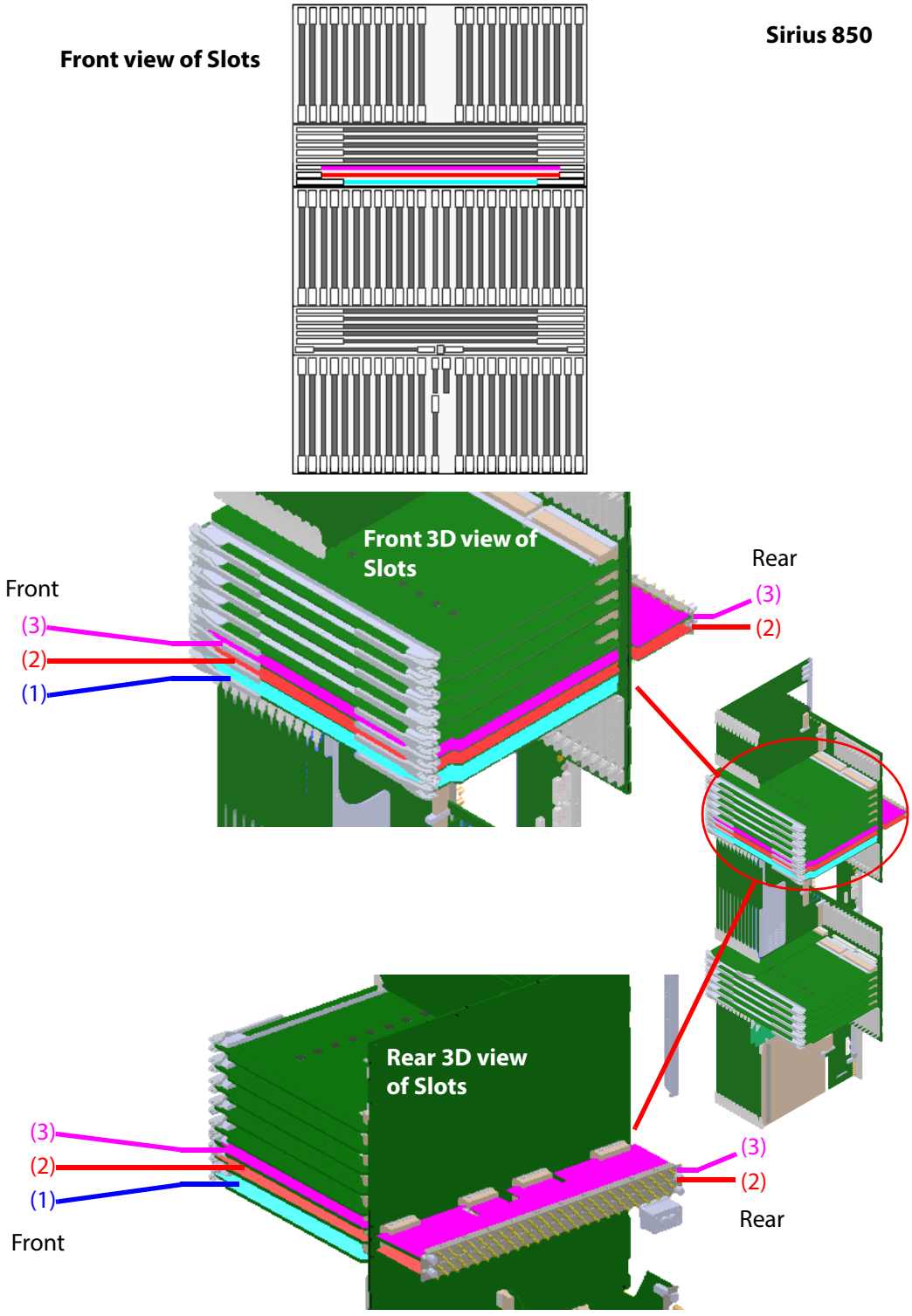
Figure 15 Sirius 830 - Relevant Module Positions for MV-801 modules



Front Slots	Rear Slots
(4) ** FGAMV MV-801 Main Module	(4) ** 1312 Rear Panel Or Blanking panel
(3) * FGAMV MV-801 Main Module	(3) * 1312 Rear Panel Or Blanking Panel
(2) FGAMV MV-801 Main Module	(2) 1312 Rear Panel
(1) 5902 Multiviewer Crosspoint Module	N/A

* Possible second MV-801, otherwise fit a Blanking Rear Panel.
** Possible third MV-801, otherwise fit Blanking Rear Panel. (Note: only 44 inputs.)

Figure 16 Sirius 840 - Relevant Module Positions for MV-801 modules



Legend

Front Slots	Rear Slots
(3) * FGAMV MV-801 Main Module	(3) * 1312 Rear Panel Or Blanking panel
(2) FGAMV MV-801 Main Module	(2) 1312 Rear Panel
(1) 5902 Multiviewer Crosspoint Module	N/A
* Possible second MV-801, or fit a Blanking Rear Panel.	

Figure 17 Sirius 850 - Relevant Module Positions for MV-801 modules

Note: The slot labeling nomenclature used in Figure 15, Figure 16 and Figure 17 will continue to be used in this section.
Thus, front Slot (1) will refer to the front slot labeled (1) in the figures etc.

Step 3. For the modules *already* fitted to your router, record the module type and slot location in the left-hand side columns of the record sheet in Table 10, in the columns headed "Before fitting MV-801" column.

Step 4. The types of modules that are required for your MV-801 installation are listed in the right-hand side columns of the record sheet in Table 10, in the columns headed "After fitting MV-801"

Table 10 Record Sheet: Modules and Rear Panels, Before and After MV-801 Installation:
a) Sirius 830 router frame,
b) Sirius 840 router frame,
c) Sirius 850 router frame.
Where (1), (2), (3) etc. refer to slot labels in Figure 15, Figure 16 and Figure 17.

a) Record sheet: Sirius 830 router frame

***Before* fitting MV-801**		***After* fitting MV-801**	
Front slot	Rear slot	Front slot	Rear slot
(3)	(3)	(3) FGAMV MV-801 Module Or Nothing fitted	(3) 1312 Rear Or Blanking Plate
(2)	(2)	(2) FGAMV MV-801 Module	(2) 1312 Rear Panel
(1)		(1) 5902 Multiviewer Crosspoint Module	

b) Record sheet: Sirius 840 router frame

***Before* fitting MV-801**		***After* fitting MV-801**	
Front slot	Rear slot	Front slot	Rear slot
(4)	(4)	(4) FGAMV MV-801 Module Or Nothing fitted	(4) 1312 Rear Or Blanking Plate
(3)	(3)	(3) FGAMV MV-801 Module Or Nothing fitted	(3) 1312 Rear Or Blanking Plate
(2)	(2)	(2) FGAMV MV-801 Module	(2) 1312 Rear Panel
(1)		(1) 5902 Multiviewer Crosspoint Module	

c) Record sheet: Sirius 850 router frame

***Before* fitting MV-801**		***After* fitting MV-801**	
Front slot	Rear slot	Front slot	Rear slot
(3)	(3)	(3) FGAMV MV-801 Module Or Nothing fitted	(3) 1312 Rear Or Blanking Plate
(2)	(2)	(2) FGAMV MV-801 Module	(2) 1312 Rear Panel
(1)		(1) 5902 Multiviewer Crosspoint Module	

For any other possible combination of modules, please contact Grass Valley support.

Note: When completed, Table 10 will indicate which modules need to be removed for MV-801 installation.

3.4 Removal and then Fitting of Modules

This section covers the removal of any existing modules from relevant slots in the router frame and then the fitting of modules for the MV-801 option.

Modules may be fitted while the router is powered up.

3.4.1 Removal Preliminaries

Some warnings and points of note are provided below: The following removal and fitting procedures is designed to comply with these points.

CAUTION Ensure both of the *front and rear slots* in the router frame are *first empty* before inserting the FGAMV MV-801 main module or Rear Panel.

This is because:

- The MV-801 front Main Modules must not be accidentally connected to any other rear panels already fitted in the router frame.
- The Rear Panels must not be accidentally connected to any other front modules already fitted in the front of the router frame.

Thus, these instructions are deliberately written in two stages:

- Removal. (See Module Removal Procedure on page 33)
- *Then* fitting. (See Fitting Preliminaries on page 34)

This avoids any interim incompatibility between front and rear modules during fitting, which may damage the modules and the router.

Note: Fit the 1312 MV-800/MV-801 Rear Panel(s) before fitting the front MV-801 main module(s).

Note: The fan door assemblies should be returned to the closed position as soon as possible after opening. This ensures correct ventilation and operation of the router frame.

In practice:

- Maximum time that a fan door may be left open will depend on a number of factors, such as: ambient temperature, router frame loading, crosspoint routing, etc.
- To ensure correct operation under all conditions the fan assemblies should be left open for no more than 2 minutes at a time.
- Take care not to trap any cables when opening and closing the fan doors.

To minimize the time that router frame doors and fan doors are open, ensure that you understand which modules need to be changed and where they are located:
Table 10 gives the *before* and *after* module configuration.

Read through the following installation steps and notes to ensure that you understand them before installing the MV-801 option.

Prepare all required modules, rear panels and other components.

Relevant router frame slots for MV-801 installation are Slot (1) through to Slot (4) in Figure 15, Figure 16 and Figure 17.

Front modules plug into the router's internal motherboard and connect to their respective rear modules. This front-and-rear slot arrangement and the slot labeling is restated in the diagram in Figure 18, which is a side view of the card arrangement.

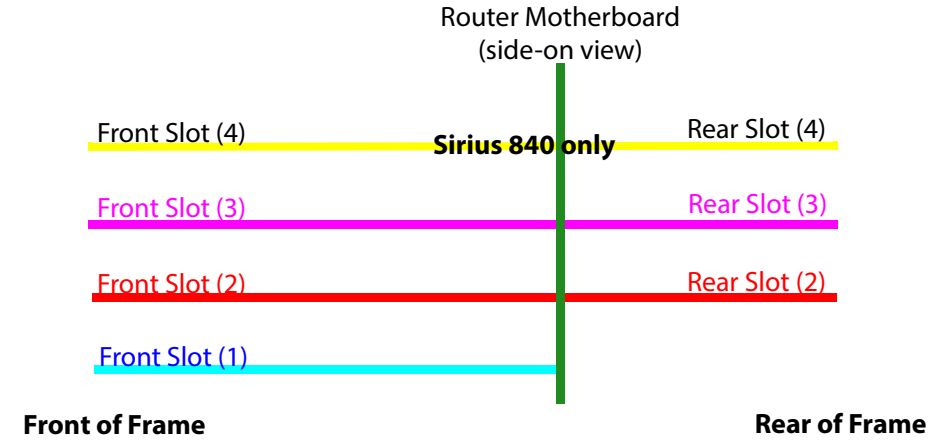


Figure 18 Side-on View of Front and Rear slot arrangement (Labeling from Figure 15, Figure 16 and Figure 17.)

The relevant slots need to be emptied first before fitting the MV-801 option hardware.

3.4.2 Module Removal Procedure

CAUTION

Electrostatic Damage
Static precautions must be observed when handling, inserting or removing modules.

Note: Rear module removal requires:

- A Pozidriv screwdriver suitable for pan head, M3 x 6 mm, zinc plated screws.

Refer to Removal Preliminaries, on page 32 before starting removal.

The first step is to empty *relevant* slots of front modules or rear panels.
Table 10 indicates which slots should be emptied.

Removal procedure:

1. Start at the rear of the router:
2. Disconnect all cables connected to rear panel connectors for rear slots that need to be emptied.

Rear module removal:

3. Remove all rear modules for slots that need to be emptied. Unscrew two rear panel securing screws on each module; then remove the module.

IMPORTANT
When removing a module - Take care not to knock high components mounted on the top- or on the bottom-side of the module.

Any knock may damage the module being removed, or the modules above and below it in the router frame.

The rear slots are now emptied.

4. Now move to the front of the router.

5. Unlock and open the router front door and
open the relevant internal fan door (refer to Figure 14).

Front module removal:

6. Remove all front modules from front slots that need to be emptied.

   Remove a front module by pulling on the two module eject levers and sliding the module out of the frame.

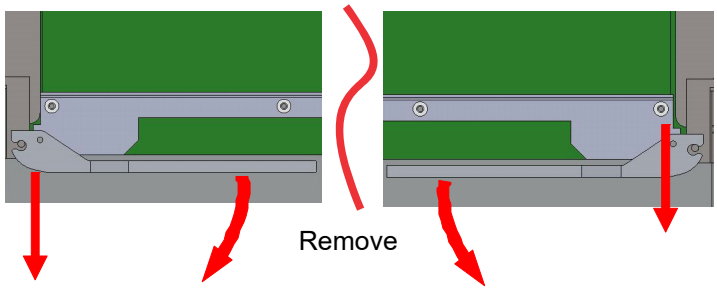


Figure 19 Removing Front Modules, showing use of module eject levers

7. Close and secure the internal fan door.
Close and lock the router front door.

All relevant slots should now be empty, front and rear.

8. Continue immediately to read Section 3.4.3 Fitting Preliminaries, on page 34 before starting Module Fitting Procedure, on page 36.

3.4.3 Fitting Preliminaries

Note: The slot labeling nomenclature used in Figure 15, Figure 16 and Figure 17 (on pages 27, 28 and 29) is used in this section to identify the slots. Thus, for example, front Slot (1) refers to the front slot labeled (1) in the figures, etc.

IMPORTANT **Electrostatic Damage**

Static precautions must be observed when handling, inserting or removing modules.

Note: Rear module fitting requires:

- A Pozidriv screwdriver
- Two pan head, M3 x 6 mm, zinc plated screws per rear module.

IMPORTANT

When inserting a module - Take care not to knock high components which are mounted on the top- or on the under-side of the module.

Any knocks may damage the module being inserted, or the modules above and below it in the router frame.

Note: When inserting a *rear* module into a rear slot:

- Check the module is the correct one for the slot.
- Check there are no obstructions at the module connectors.
- Check for any high components on the top- or under-side of the module. Do not knock these during fitting.
- Insert the module into the slot and slide the module into the frame.
- In the last few millimeters of travel, the module connectors mate with the router motherboard. Some resistance will be met; ease, but do not force, the module in.
- If excessive resistance is met, remove the module and re-check that the module and slot are correct. Check the slot for any obstruction. Check the module connectors for any damage or foreign objects.
- Fasten the two module securing screws at the far left and far right of the module's rear plate. Gently tighten the fixing screws. Do not over-tighten them.

Note: When inserting a *front* module into a front slot:

- Check the module is the correct one for the slot.
- Check there are no obstructions at the module connectors.
- Check for any high components on the module's top- or under-side. Do not knock these during fitting.
- Insert the module into the slot and slide the module into the frame.
- When the module is nearly fully in the frame, gently push the module levers. See Figure 22
- In the last few millimeters of travel, the module connectors mate with the internal router motherboard. Some resistance will be met; ease, but do not force, the module in with the levers.
- If excessive resistance is met, remove the module and re-check that the module and slot are correct. Check the slot for any obstruction. Check the module connectors for any damage or foreign objects.
- In the final few millimeters of travel, the levers engage with the router frame, locking the module into position

Note: The slot labeling nomenclature used in Figure 15, Figure 16 and Figure 17 (on pages 27, 28 and 29) is used in this section to identify the slots.
Thus, Slot (1) refers to the slot labeled (1) in the figures, etc

Refer to Table 10 on page 31, this shows which modules may be fitted.

3.4.4 Module Fitting Procedure

Please ensure you have read Fitting Preliminaries, on page 34 before proceeding to fit modules.

1. Go to the **rear of the router frame**.

The procedure continues with the fitting of rear modules:

2. **Rear Slot (2):** Insert a1312 MV-800/MV-801 Rear Panel module into rear Slot (2). Check the orientation of the rear module, see Figure 20.

> IMPORTANT
> Ensure the 1312 MV-800/MV-801 Rear Panel module is the correct way up,
> "INSERT THIS SIDE UP" label is printed on the top of the rear panel, see Figure 20.

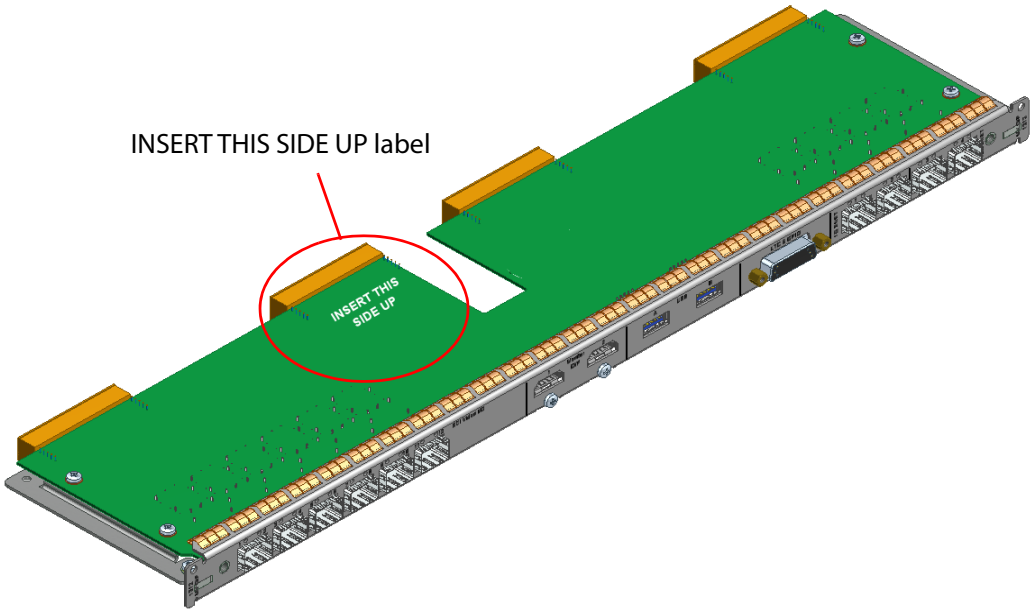


Figure 20 1312 Rear panel module, showing "INSERT THIS SIDE UP" label.

3. Fasten the two rear panel module securing screws. Do not over-tighten them.

> IMPORTANT
> Do not over tighten the rear panel fastening screws.
> - They should screw in without any resistance until the screw head secures the rear panel to the frame.
> - If a rear panel fastening screw binds up then it should be removed and the screw and its alignment should be checked before the screw is refitted.

4. **Rear Slot (3):** Fit a second 1312 Rear Panel module or a blanking plate (see Figure 21) to rear Slot (3).
Fasten the two rear plate-securing screws. Gently tighten. Do not over-tighten.

> IMPORTANT
> The risk of non-compliance and overheating is with the user if blanking plates are not fitted in unused rear slots.

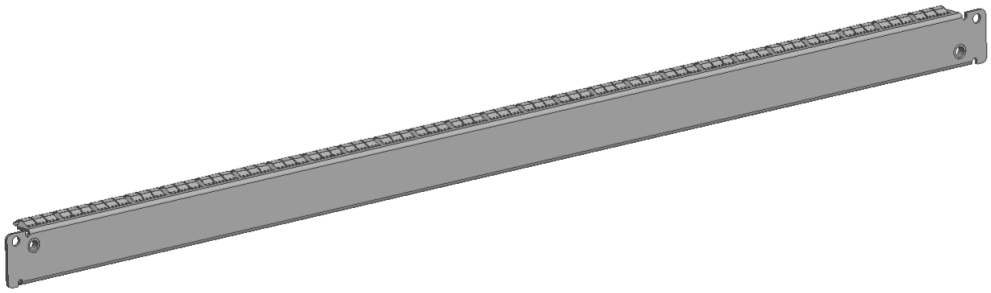


Figure 21 Rear Blanking Panel - for empty rear slots

5. **Rear Slot (4)**: (Sirius 840 routers only)
   Fit a third 1312 Rear Panel module or a blanking plate to rear Slot (4).
   Fasten the two plate-securing screws. Gently tighten the fixing screws. Do not over-tighten them.

Rear modules are now installed.
Now go to the **front** of the router:

6. **Front Slot (1)**: Insert a 5902 Multiviewer Crosspoint Module into the empty slot.
   If the slot is already occupied, it should only be occupied with a 5902 Multiviewer Crosspoint Module.
   If the slot is occupied with another type of module, then contact Grass Valley Support for advice.

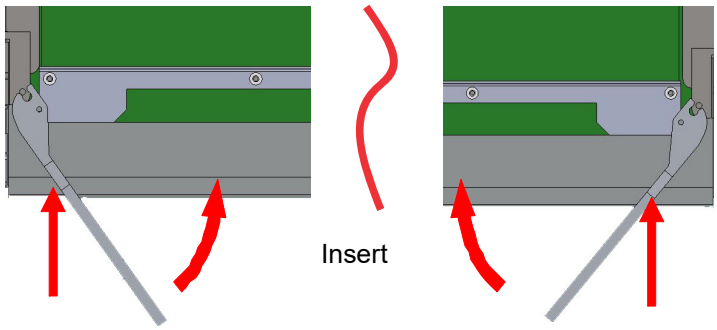


Figure 22 Inserting a Front Module with Levers

7. **Front Slot (2)**: Fit a FGAMV MV-801 front main module to front Slot (2).
   Be careful not to knock the high components on the top- and under-side of the module.
8. **Front Slot (3)**: Fit a second FGAMV MV-801 Main Module to front Slot (3) or leave empty.
9. **Front Slot (4)**: Fit a third FGAMV MV-801 Main Module (Sirius 840 only) to front Slot (4) or leave empty.
10. Close and secure the front fan door assembly, making sure not to trap any wires.
11. Close and lock the router front door.

The MV-801 Integrated Multiviewer hardware is now installed in the router frame.

3.5 Connecting Cables

Now that the MV-801 option hardware is installed, some connections need to be made.

3.5.1 Connecting the Network and Multiviewer Display Output(s)

Note: The MV-801 must initially be configured from a computer before being attached to the router's IT network.
See the 'MV-8 Series Multiviewer' user manual for more information.

1. Connect the MV-801 directly to a computer network port via 1G Ethernet port 1 (see Figure 23) using a standard CAT 5e Ethernet cable.

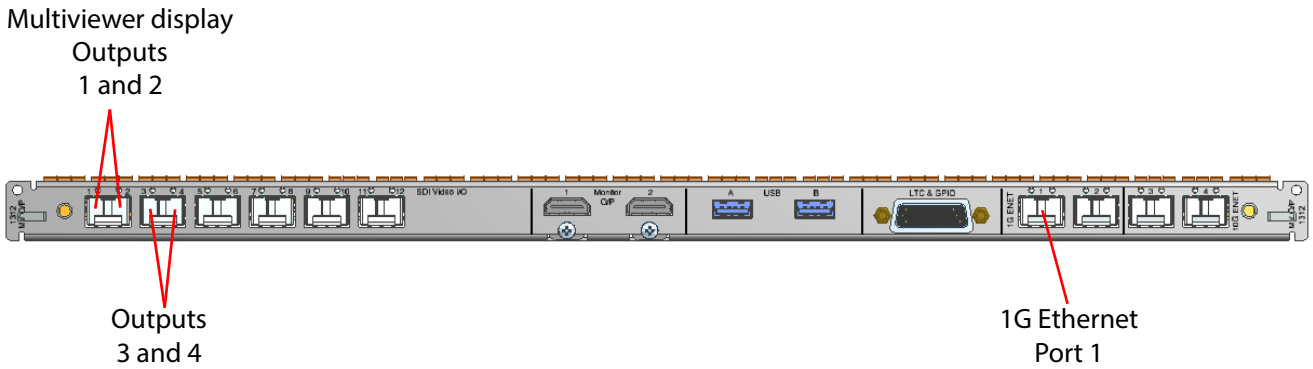


Figure 231312 MV-800/MV-801 Integrated Multiviewer Rear panel Connectors

2. Connect up to 4 display monitor screens to display output ports 1 to 4.
3. If more display outputs have been licensed, then connect these.
4. See the 'MV-8 Series Multiviewer' user manual for details about configuring the MV-801 multiviewer using its RollCall templates.

IMPORTANT
Ethernet connection:

Check the logical and physical connection of all Ethernet ports to the MV-801 rear panel.
This is required for optimum MV-801 performance.

Explanation:

The MV-801 has more than one Ethernet port with one IP address per Ethernet port. However, even if a port is disconnected, its IP address can still be "seen" through other the Ethernet ports.
This means the MV-801 can still *appear* to be operating normally, i.e. with all Ethernet ports connected, even with one or more unconnected network ports.
There is a MV-801 performance penalty for operating in this way.

3.6 MV-801 Module Booting

Refer to the 'MV-8 Series Multiviewer' user manual for information about MV-801 module booting and start-up splash screen.

Note: Use the '1G1' network interface when performing the initial unit configuration with Grass Valley RollCall control panel.

Note: The 'Eng' interface is a reserved internal IP network interface, do not use this interface.

4 Sirius 800 Router Configuration

The Sirius 800 router configuration needs to be updated to match the modules now fitted in the router slots for the MV-801 option. New modules may include:

- MV-801 modules, FGAMV MV-801 (front module) and FGAEY 1312 (rear panel module).
- Multiviewer Crosspoint module, 5902.

Router configuration changes are done with the Grass Valley Workbench tool and include:

- Specifying Matrix Output Ports - Specifying the extra crosspoint destinations to be a multiviewer and making name associations to properly name the multiviewer crosspoint destinations.
- Specifying Module Configuration - Specifying what modules are fitted in which router module slots.

Using Grass Valley Workbench, **Pull** the router's configuration from the router, modify it and **Push** it back to the router. Contact Grass Valley support for help and advice.

4.1 Matrix Output Ports

4.1.1 Router Output Ports

Router output ports for the multiviewer crosspoint module must be set to be of type 'DigitalVideo', covering router matrix port numbers 1153 to 1292.

4.1.2 Matrix Destinations

The mapping of destination matrix port numbers to router module slots is given in Table 11.

Table 11 Router Destination Matrix Port Number Mapping for MV-801 module slots

Slot ( ) (see Section 3.3 for slot identification)	**Sirius Router Model**		
	830	**840**	**850**
Slot (4) (Top slot)	N/A (Slot not available for MV-801 on Sirius 830)	1249 - 1292 (**44** inputs **See Note 1**)	N/A (No third upper rear slot on Sirius 850)
Slot (3)	1201 - 1248 (48 inputs)	1201 - 1248 (48 inputs)	1153 - 1200 **See Note 2** (48 inputs)
Slot (2)	1153 - 1200 (48 inputs)	1153 - 1200 (48 inputs)	1225 - 1272 **See Note 2** (48 inputs)

Note 1: Only 44 inputs are available in the top slot.

Note 2: Different slot numbering used for Router Destinations of a Sirius 850 frame.

Note: There are normally 48 inputs for a MV-801 module from the host Sirius 800 router frame.
However, for a third, 'upper-slot' MV-801 module (i.e. top slot in router frame), only **44** inputs are available to the MV-801.
This is reflected in Table 11.

4.2 Module Configuration

4.2.1 Module Type

See Table 12 for the module types for router configuration.

Table 12 Router Configuration - Module Types

Sirius Router Module Addresses		
Module Number	**Module Name**	**Router Module Type**
5902	Multiviewer Crosspoint	VideoCrosspointVariant2
FGAMV MV-801	MV-801 Main Module	Multiviewer

Other router module combinations are possible in these slots, for example, 5931 Multiviewer Output modules; contact Grass Valley support for advice.

4.2.2 Sirius Router Module Addresses

A Sirius router controller and router configuration refers to module slots with module addresses, given in Table 13.

Table 13 Sirius 800 Module Addresses

Slot Number (see Section 3.3)	Sirius Router Module Addresses					Comment
	830	840	850	Dual 850 Frame 1	Dual 850 Frame 2	
Slot (4)	-	248	-	-	-	Sirius 840 only. For possible third MV-801.
Slot (3)	247	247	246 *	246 *	249 *	For possible MV-801
Slot (2)	246	246	247 *	247 *	250 *	For possible MV-801
Slot (1)	245	245	245	245	248	For 5902 Multiviewer Crosspoint
Note: * There is a difference in the module address number sequence for the Sirius 850 router frame.						

Corresponding router frame slot locations are found in the Grass Valley 'Workbench User Manual' (see Appendix C, Sirius 800 Routers) and are shown in figures below:

- Figure 24 and Figure 25 for Sirius 830,
- Figure 26 and Figure 27 for Sirius 840,
- Figure 28 and Figure 29 for Sirius 850.

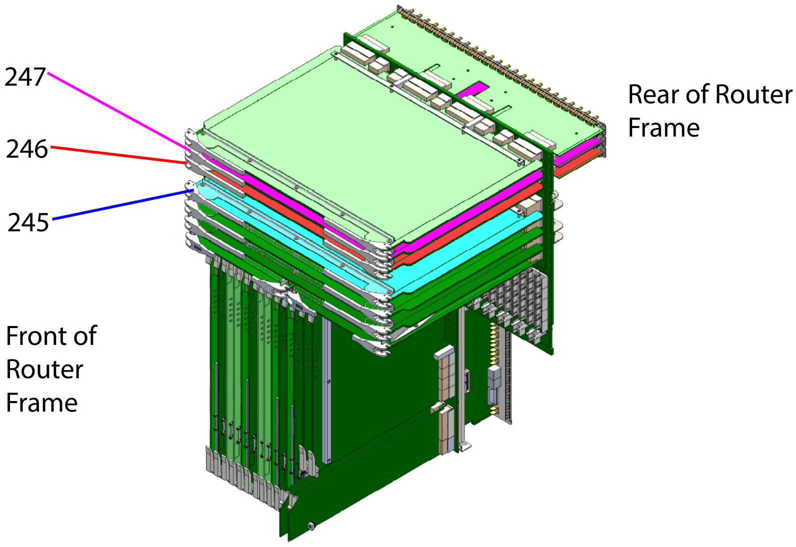


Figure 24 Sirius 830 Modules

MV Output 3	248																									
MV Output 1	247																									
MV Output 2	246																									
MV XPT 1	245																									
XPT R [1]	194																									
XPT M	193																									
Audio XPT	1													2												
	233													234												
Fan Controllers													237	238												
Input and Outputs	1	97	2	98	3	99	4	100	5	101	6	102			7	103	8	104	9	105	10	106	11	107	12	108

Figure 25 Sirius 830 Module Addresses

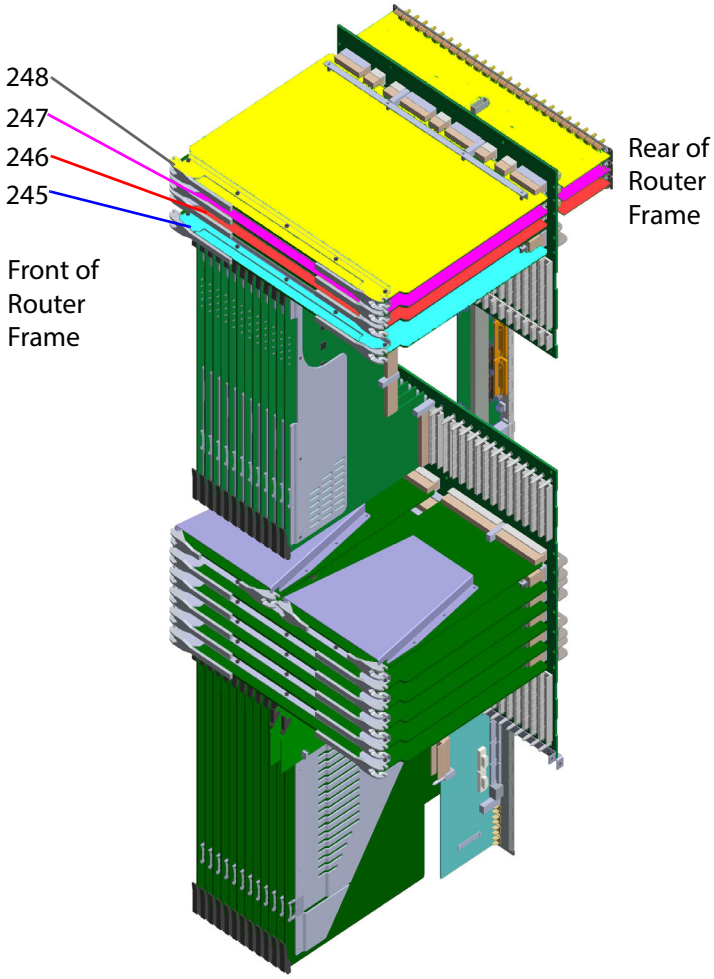


Figure 26 Sirius 840 Modules

MV Output 3	248																							
MV Output 2	247																							
MV Output 1	246																							
MV XPT	245																							
Input Row and Fan Controllers	1	2	3	4	5	6	7	8	9	10	11	12	1	2	13	14	15	16	17	18	19	20	21	22	23	24
	1	2	3	4	5	6	7	8	9	10	11	12	237	238	13	14	15	16	17	18	19	20	21	22	23	24
Audio XPT	1													2												
	233													234												
XPT 1	193																									
XPT 2	194																									
XPT R [1]	197																									
XPT 3	195																									
XPT 4	196																									
Outputs and Monitor	1	2	3	4	5	6	7	8	9	10	11	12	1		13	14	15	16	17	18	19	20	21	22	23	24
	97	98	99	100	101	102	103	104	105	106	107	108	1		109	110	111	112	113	114	115	116	117	118	119	120

Front of Router Frame

Figure 27 Sirius 840 Module Addresses

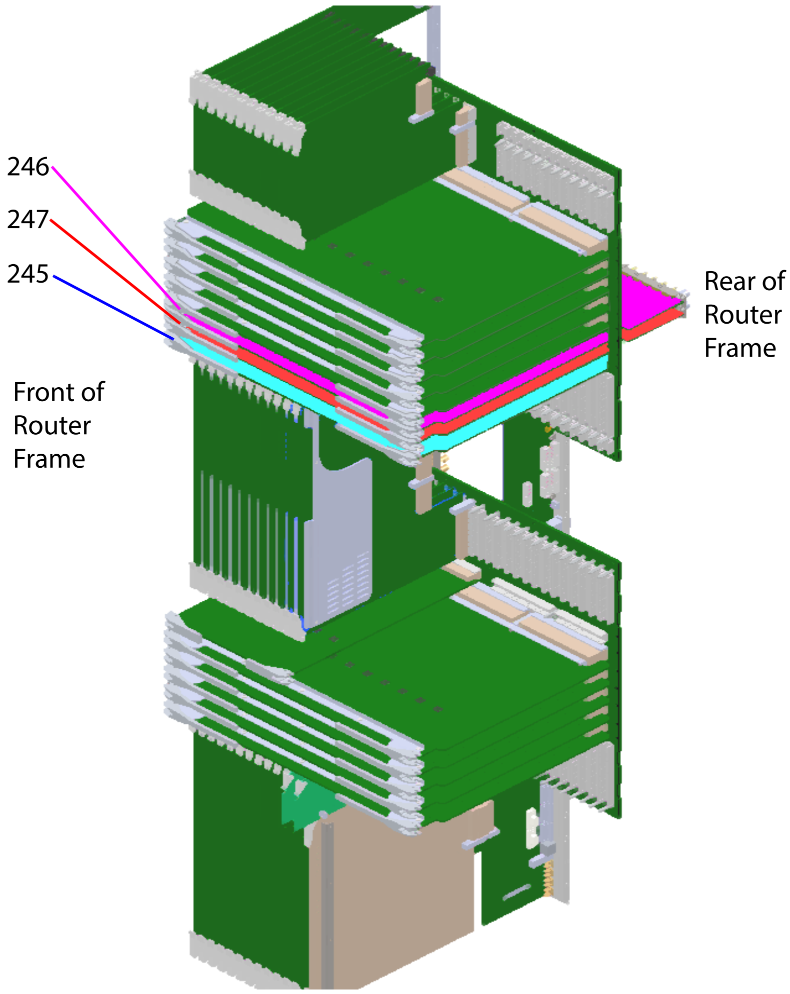


Figure 28 Sirius 850 Modules

Expansion Modules	1	2	3	4	5	6	7	8	9	10	11	12			13	14	15	16	17	18	19	20	21	22	23	24
	145	146	147	148	149	150	151	152	153	154	155	156			157	158	159	160	161	162	163	164	165	166	167	168
XPT 1	198																									
XPT 2	199																									
XPT R [1]	202																									
XPT 3	200																									
XPT 4	201																									
MV Output 1	246																									
MV Output 2	247																									
MV XPT 1	245																									
Input Row and Fan Controllers	1	2	3	4	5	6	7	8	9	10	11	12	1	2	13	14	15	16	17	18	19	20	21	22	23	24
	1	2	3	4	5	6	7	8	9	10	11	12	237	238	13	14	15	16	17	18	19	20	21	22	23	24
Audio XPT	1													2												
	233													234												
XPT 1	193																									
XPT 2	194																									
XPT R[1]	197																									
XPT 3	195																									
XPT 4	196																									
Outputs and Monitor	1	2	3	4	5	6	7	8	9	10	11	12	1		13	14	15	16	17	18	19	20	21	22	23	24
	97	98	99	100	101	102	103	104	105	106	107	108	1		109	110	111	112	113	114	115	116	117	118	119	120

Figure 29 Sirius 850 Module Addresses

Appendix A MV-801 Specification

A.1 Physical/Electrical

Power	
Power consumption	200W MV-801 hardware modules are powered by the hosting Sirius 800 router frame. Check with Grass Valley support to ensure that your Sirius router power supply configuration and router module configuration can support the MV-801.
Operating Temperature	5 to 30°C ambient. See **Note 1**.
Weight:	
Front Module	3.5kg
Rear Panel	0.75kg
Note 1:	The MV-801 operating temperature range is lower than that of a Sirius 800 host router. Refer to the Sirius 800 User Manual for the router frame operating temperature range.

A.2 Inputs

Signal	
Internal from Sirius Router Inputs	48 off internal inputs from router. Selectable from all router inputs. (For router destination number mapping, see Table 11 on page 40.) **Note:** There are only 44 inputs available to an MV-801 fitted into the upper slot of a Sirius 840 router frame.

A.3 Head Display Outputs

Signal	
Multiviewer Head Display Outputs	From 4-off up to 12-off outputs: • Outputs 1 to 4 on standard MV-801. • Outputs 5 to 12 requires licenses. (Licensed in pairs.) SDI HD-BNC or fiber via SFP.
Video standards	Video standard: • 3G 1080p (50, 59.94 and 60 frames/s). • HD 720p (50, 59.94 and 60 frames/s).
Reference Lock	One reference for all head display outputs. These are locked according to multiviewer reference selection setting to: • one of the four internal references of the host router; or to the • multiviewer's internal reference (free-running).
SFPs	Optional SFPs: • Dual coax SFP. • Dual Fiber SFP. • Single HDMI SFPs. (Up to 6 x HDMI outputs, 1080p).
Display Output Delay	Progressive input: 1 input frame + 1 to 3 output frames. Interlaced input: 1 input fields + 1 to 3 output frames.

A.4 Input Video Standards

Input Video Standard			
3G-SDI: 2.97Gbps	1080p	59.94Hz	SMPTE 424M/Level A
	1080p	60Hz	SMPTE 424M/Level A
	1080p	50Hz	SMPTE 424M/Level A
HD-SDI: 1.485 Gbps	1080i	60Hz	(ANSI/SMPTE-274M(4) 292M(D))
	1080i	59.94Hz	(ANSI/SMPTE-274M(5) 292M(E))
	1080i	50Hz	(ANSI/SMPTE-274M(6),-292M(F))
	1035i	60Hz	(ANSI/SMPTE-260M-292M(A))
	1035i	59.94Hz	(ANSI/SMPTE-260M,-292M(B))
	1080p	30Hz sF	(ANSI/SMPTE-274M(12) as per RP211)
	1080p	29.97Hz sF	(ANSI/SMPTE-274M(13) as per RP211)
	1080p	25Hz sF	(ANSI/SMPTE-274M(14) as per RP211)
	1080p	24Hz sF	(ANSI/SMPTE-274M(15) as per RP211)
	1080p	23.976Hz sF	(ANSI/SMPTE-274M(16) as per RP211)
	1080p	30Hz	(ANSI/SMPTE-274M(7)-292M(G))
	1080p	29.97Hz	(ANSI/SMPTE-274M(8)-292M(H))
	1080p	25Hz	(ANSI/SMPTE-274M(9)-292M(I))
	1080p	24Hz	(ANSI/SMPTE-274M(10)-292M(J))
	1080p	23.976Hz	(ANSI/SMPTE-274M(11)-292M(K))
	720p	60Hz	(ANSI/SMPTE-296M(1)-292M(L))
	720p	59.94Hz	(ANSI/SMPTE-296M(2)-292M(M))
	720p	50Hz	(ANSI/SMPTE-296M(2)-292M(M))
SD Video Standards	525	60Hz/ 59.94Hz 4:3/16:9	(ITU-R BT.601-5, ANSI/SMPTE-259M(2)
	625	50Hz 4:3/16:9	(ITU-R BT.601-5, ANSI/SMPTE-259M(2)

A.5 Streamed 'Input-Copy' Outputs

Signal	
IP Stream Outputs	**MV-801-H264** license required. Up to 48-off streamed 'input-copy' outputs. Streaming out of scaled, H.264-encoded Multiviewer video 'input-copies'. Each multiviewer input can be H.264 encoded to create streamed, scaled copies of the 48 inputs. These are streamed out over IP. H.264 encoding latency is approximately 2 video frames. (For information about 'end-to-end' viewing latency, please refer to the *MV-8 Series Core Multiviewer* user manual.) These can be viewed on desktop PCs via Orbit. Applications include: confidence monitoring, compliance monitoring. **Note:** The H.264 streams do not function for the following slower-frame-rate HD standards: • 1080p30 (and slower frame rates); and • 720p30 (and slower frame rates). Applications include: confidence monitoring, compliance monitoring.

A.6 Rear Panel Connectors

The MV-800-RP Rear Panel is used on MV-801 and the module number is 1312. See Figure 6 on page 15 for an illustration of the Rear Panel connectors.

Connectors	
Multiviewer Display Outputs 1 to 12	6-off SFP cages. Each for an SFP video module: • 2-off SDI Coax, HD-BNC. • or 2-off SDI Fiber. • or 1-off HDMI.
HDMI	Not currently used.
USB	For engineering use only.
LTC & GPIO	1 x 26 Way High Density D-Type female connector,. See Section 2.2 *MV-800-RP Multiviewer Rear Panel (1312) (Used on MV-800/MV-801)* for wiring details and pin-out.
1G Ethernet	2 x 1 Gbps SFP+ cages for Ethernet SFPs. Ethernet socket RJ45.
10G Ethernet	Not currently used. 2 x 10 Gbps SFP+ cages for Ethernet SFPs. Ethernet socket RJ45. Interfaces are not used.

Table 14 MV-801 Default IP Addresses, Ethernet Ports 1 to 4

Ethernet port	RollCall Control Panel MV-801 Template	Interface Type	Default IP Address See **Note 1**		
			a)	b)	c)
Port 1	1G1	1G	10.54.31.221	10.54.31.226	10.54.31.231
Port 2	1G2	1G	10.54.31.222	10.54.31.227	10.54.31.232
Port 3 ‡	10G1	10G	10.54.31.223	10.54.31.228	10.54.31.233
Port 4 ‡	10G2	10G	10.54.31.224	10.54.31.229	10.54.31.234

Note 1: Up to three MV-801's may be fitted to a Sirius 800 router.
MV-801 default IP addresses ship with default IP addresses of either a), b) or c).

Note 2: ‡ 10G interfaces are not used.

A.7 Monitoring and Alarms

For specification of the multiviewer engine and all video wall capabilities, please refer to the '*MV-8 Series Multiviewer*' user manual.

A.8 Software Versions

Tool	Version
RollCall Control Panel	4.17.1 or later
Sirius Router Controller	3.17.4 or later
Orbit Client	3.0.10 or later
GV Orbit Client	4.0.0 or later
MV-8 Series Multiviewer	3.2.22 or later

Note: For future releases:
Please refer to Multiviewer, GV Orbit and RollCall Control Panel etc. software release notes for compatibility information.

User Notes:

Contact Us

Grass Valley Technical Support

For details of our Regional Customer Support Offices please visit the Grass Valley web site and navigate to Support/Customer Support Contacts.

https://www.grassvalley.com/contact/support/

Customers with a support contract should call their personalized number, which can be found in their contract, and be ready to provide their contract number and details.

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