



grass valley

A **BELDEN** BRAND

GV NODE

IP AGGREGATION, PROCESSING AND EDGE ROUTING
PLATFORM

Quick Start Guide

M6103-9805-100

2016-03-31

www.grassvalley.com

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Part Number	M6103-9805-100
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Important Safeguards and Notices

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.



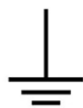
Indicates that the user, operator or service technician should refer to the product manuals for important operating, maintenance, or service instructions.



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 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 mains voltage at either 120 V AC or 240 V AC.
- This product relies on the building's installation for short-circuit (over-current) protection. Ensure that a fuse or circuit breaker for 120 V AC or 240 V AC 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. Servicing should be done in a static-free environment.
- 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.

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 includes 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* appendix.

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 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 nettoyeurs 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.

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.

Remplacement et élimination des piles



L'appareil renferme une pile. Pour réduire le risque d'explosion, vérifiez la polarité et ne remplacez la pile que par une pile du même type, recommandée par le fabricant. Mettez les piles usagées au rebut conformément aux directives du fabricant. Avant de vous défaire de l'équipement, assurez-vous d'avoir lu l'appendice *Disposal and Recycling Information*.

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.

Recycling

Visit www.grassvalley.com for recycling information.

Certification and Compliance

Safety Compliance



c

This equipment complies with the requirements of CSA/UL/IEC/EN 60950-1, 2nd Ed. + AM1 + AM2, Safety of information technology equipment.

us The power cords supplied with this equipment meet the appropriate national standards for the country of destination.

Safety of Laser Modules



This equipment incorporates modules containing Class 1 lasers. These modules are certified by the manufacturer to comply with:

- IEC/EN 60825-1 Safety of laser products
- IEC 60950-1 Safety of information technology equipment

Environmental Compliance

GVN FR4 部件名称 Part name	有毒有害物质或元素 (Toxic or hazardous substances and elements)					
	铅 (Pb)	汞 (Hg)	镉 (Cd)	六价铬 (Cr6)	多溴联苯 (PBB)	多溴二苯 (PBDE)
电缆及电缆组件 Cables and cable assemblies	X	O	O	O	O	O
电路模块 Circuit modules	X	O	X	O	O	O
显示装置 Display Assemblies	X	O	O	O	O	O
组装风扇 Fan Assemblies	X	O	O	O	O	O
金属零件 Metal parts	X	O	O	O	O	O

IFM-2T 部件名称 Part name	有毒有害物质或元素 (Toxic or hazardous substances and elements)					
	铅 (Pb)	汞 (Hg)	镉 (Cd)	六价铬 (Cr6)	多溴联苯 (PBB)	多溴二苯 (PBDE)
电缆及电缆组件 Cables and cable assemblies	X	O	O	O	O	O
电路模块 Circuit modules	X	O	O	O	O	O
组装风扇 Fan Assemblies	X	O	O	O	O	O

O: 表示该有毒有害物质在该部件所有均质材料中的含量均在 GB/T 26572-2011 规定的限量要求以下。

O: Indicates that this toxic or hazardous substance contained in all of the homogeneous materials for this part is below the limit requirement in GB/T 26572-2011.

X: 表示该有毒有害物质至少在该部件的某一均质材料中的含量超出 GB/T 26572-2011 规定的限量要求。

X: Indicates that this toxic or hazardous substance contained in at least one of the homogeneous materials for this part is above the limit requirement in GB/T 26572-2011.

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Technical explanations: This statement is based on the information provided by our suppliers of components and collected through our Grass Valley's environmental management system. Grass Valley believes this environmental information to be correct but cannot guarantee its completeness or accuracy as it is based on data received from sources outside our company. All specifications are subject to change without notice.

Electromagnetic Compatibility



This equipment has been tested for verification of compliance with FCC Part 15, Subpart B requirements for class A digital devices.

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.



This equipment has been tested and found to comply with the requirements of the EMC directive 2004/108/EC:

- EN 55022 Class A Radiated and conducted emissions
- EN 61000-3-2 Limits for harmonic current emissions
- EN 61000-3-3 Limitation of voltage fluctuations and flicker
- EN 61000-4-2 Electrostatic discharge immunity
- EN 61000-4-3 Radiated, radio-frequency, electromagnetic field immunity
- EN 61000-4-4 Electrical fast transient immunity
- EN 61000-4-5 Surge transient immunity
- EN 61000-4-6 Conducted disturbances immunity
- EN 61000-4-8 Power frequency magnetic field immunity
- EN 61000-4-11 Voltage dips, short interruptions and voltage variations immunity

Setting Up Your GV Node

The GV Node is the cornerstone of Grass Valley's IP routing and processing solution. It integrates SDI/IP conversion, IP routing and multiviewer presentation within a single, compact platform. This Quick Start Guide is designed to help you get your GV Node up and running in a basic configuration.

Summary

<i>About GV Node</i>	1
<i>Getting Organized</i>	2
<i>Step 1: Physical Installation</i>	3
<i>Step 2: Networking and Control Setup</i>	7
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About GV Node

The 4 RU GV Node frame incorporates dual redundant power supplies, a frame controller and the fabric module, as well as 16 modular card slots. All signal and control connections are made on the rear panel. The front door opens to provide access to the controller, fabric module and power supplies for maintenance, and also to the modular card slots. The controller card's touch screen interface is accessible through an aperture in the door.

Power supplies and modular cards are hot-swappable. The frame is front-to-back air-cooled and all modules, redundant PSUs and fans are monitored to provide status via GPI or the Ethernet port.

The GVN-CPU-ETH3 controller installed in the GV Node frame supports all on-frame communication between cards, and incorporates a touch-screen panel for local control and adjustment of the frame and installed cards. The GVN-CPU-ETH3 controller serves as the communications port for control and alarm information entering and leaving the frame. The GVN-CPU-ETH3 controller features two Ethernet ports for system-wide monitoring and control of the frame. This controller card is compatible with the TCP/IP protocol and can support polling or report on error modes (unsolicited messaging).

The IFM-2T fabric module is the internal router of the GV Node. It is configured as a 288×288 video router, along with a 9216×9216 audio router. This provides 9 inputs and 9 outputs for each of the 16 slots in the frame (i.e. 144 total in and 144 total out) allowing full routing capacity between all of the frame's GV Node modular cards. In addition, the GV Node incorporates 12 40 GigE aggregation ports, available on the rear panel. These ports are accessed by 144 outputs and 144 inputs to the fabric card, providing interconnectivity to the outside world and allowing the GV Node to be integrated into larger distributed routing systems. The IFM-2T is operated by an external control solution: Grass Valley's NV9000 or GV Convergent.

Getting Organized

This section provides information about system requirements, and items shipped with your GV Node.

Required Materials

Your GV Node package includes the following:

- GV Node frame, with the following components factory-installed:
 - Power supplies (2)
 - GVN-CPU-ETH3 Controller and rear connector panel
 - IFM-2T fabric module and aggregation port rear panel
 - Modular cards per order
 - Fan assemblies (3)
- Rear rack adapters (2)
- Power cords (2)
- Power cord retaining clips (2)
- GV Node Quick Start Guide (this document)

Note: In line with our commitment to environmental preservation, only the Quick Start Guide for your GV Node, and some ancillary documents (e.g. welcome letters, warranty cards) are distributed in printed form. You can obtain the latest version of the manuals, the Release Notes, as well as software and useful data, from the Documentation Library section, and from the Downloads section of Grass Valley's website.

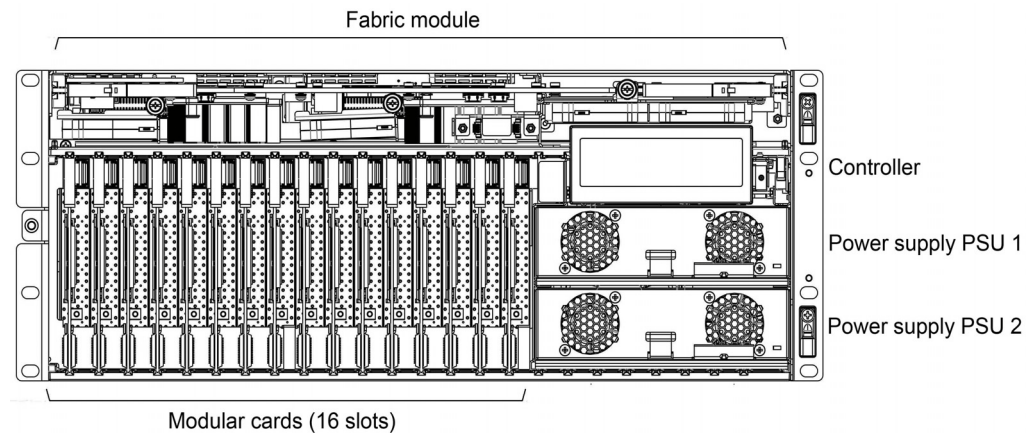
These items are required but are not supplied:

- Rack-mounting screws (8)

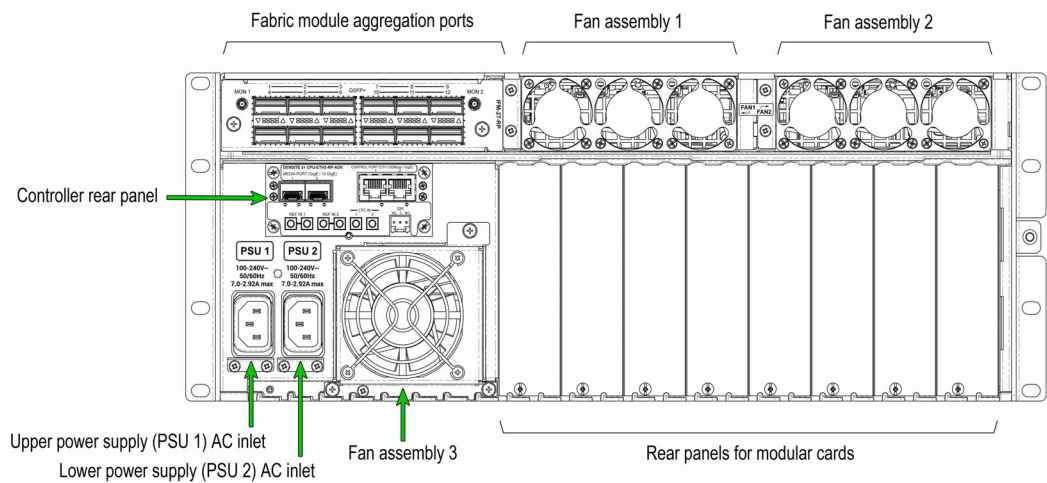
Modular cards and their rear panels that are part of your order are installed in the GV Node when shipped. Modular cards ordered separately must be user-installed. See [Install the Optional Modular Cards](#), on page 6, for modular card installation instructions.

Part Locations

The following images identify the front and rear panel components and features of the GV Node frame.



Part locations—front of frame (door removed)



Part locations—rear of frame

Step 1: Physical Installation

Follow these steps to install and power up your GV Node:

- [Open and Remove the Front Door](#), on page 3.
- [Install the GV Node in a Rack](#), on page 4.
- [Verify that the Cards and Power Supplies are Properly Seated](#), on page 5.
- [Install the Optional Modular Cards](#), on page 6.
- [Install the Power Cords with their Retaining Clips](#), on page 6.
- [Power Up the GV Node](#), on page 7.

Open and Remove the Front Door

The front door of the GV Node frame is hinged on the right-hand side, and latched by a captive thumbscrew on the left-hand side. There are no electrical connections to the door.

To open and remove the door

- 1 Turn the thumbscrew counterclockwise until it releases, and pull the door open.
- 2 Slide the door vertically off the hinge pins on the right-hand side to remove it.

Install the GV Node in a Rack

Note: You may choose to install the GV Node in a rack either before or after the other steps in this section, whichever is most convenient. However, power up the frame last.

The GV Node housing frame occupies 4 RU in a standard 19-inch rack.

The GV Node is supplied with a pair of rear rack adapters that provide additional support for the GV Node frame when it is installed in a rack. Their use is optional.

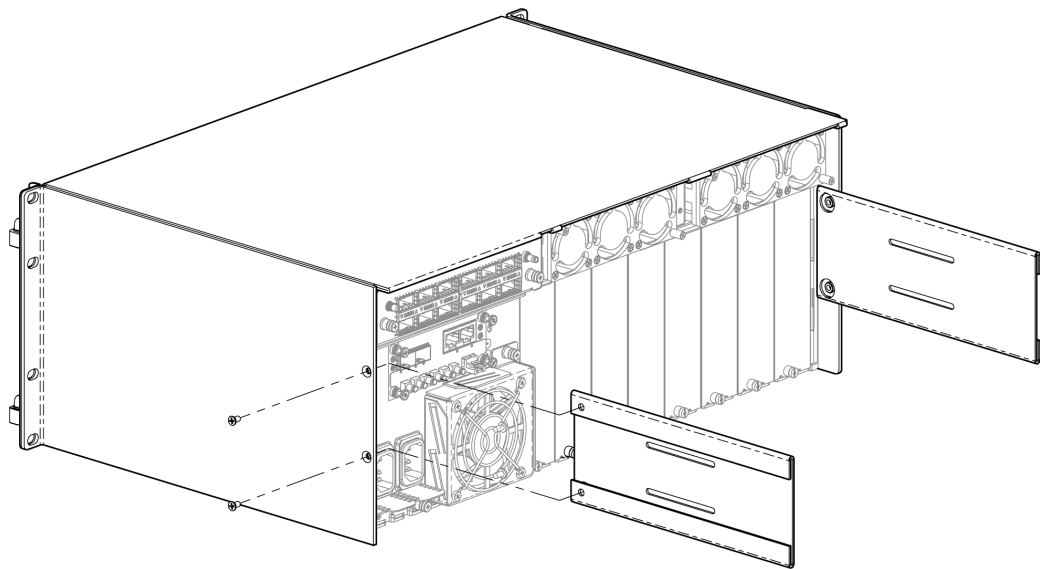
To mount the frame

- Position the frame in the rack and secure it in place using 8 standard rack-mounting screws (not supplied) .

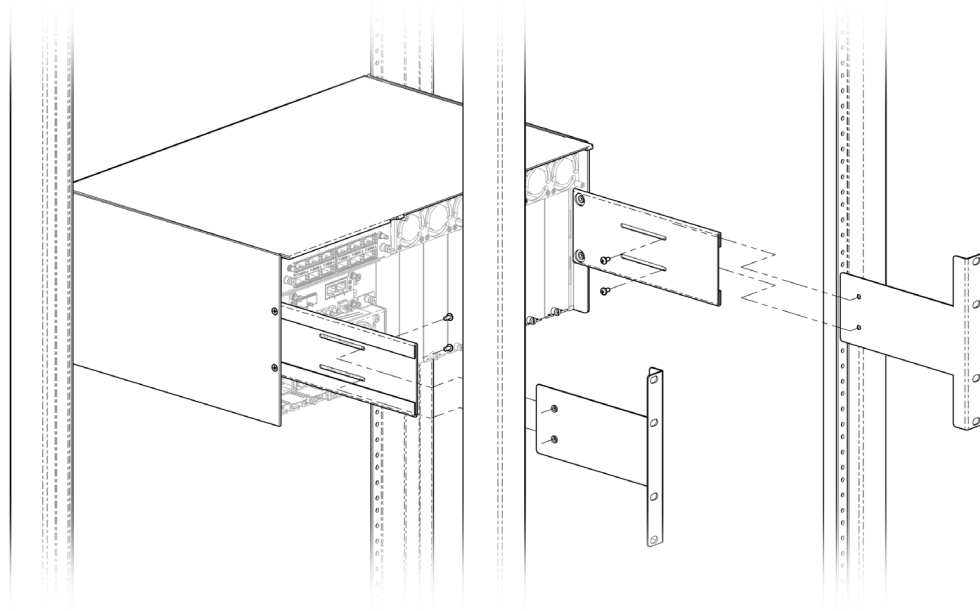
To install the rear rack adapters

- 1 Install the 2 extender sections on the rear of the frame, using the supplied screws.

Note: You will need a T15 (Torx) bit or screwdriver to install the screws supplied with the adapters.



- 2 Starting from outside the rear rack columns, slide the two bracket sections into the slots of the extender sections.
- 3 Secure the bracket sections to the rack using rack mounting screws (not supplied).
- 4 Fasten the extender and bracket sections together using the supplied screws.

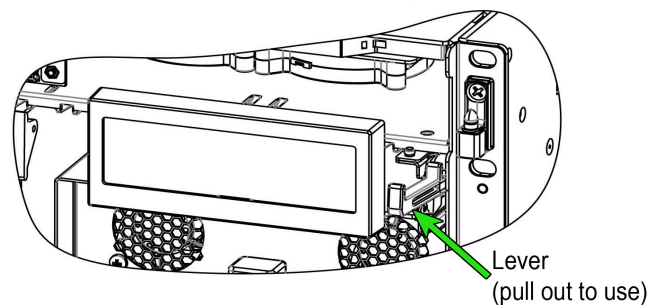


Verify that the Cards and Power Supplies are Properly Seated

Despite solid packaging, pre-installed components may have been disturbed in transit. Take a moment to verify that the power supplies, fabric module, modular cards and controller are securely installed.

To verify that components are securely installed

- 1 Open the front door of the frame.
- 2 Inspect the components for signs that they are not properly installed.
- 3 Attempt to move them with your fingers; they should feel solid and stable.
- 4 If a power supply is loose, push it gently back into position.
- 5 If the fabric module is loose, push gently on the two handles located on outside corners of the card until it is fully engaged in its slot.
- 6 If a modular card is loose, push gently on the swivel handle at the top to reseal it.
- 7 If the controller module is loose, do not push on the display to reseal it. Instead, proceed as follows:
 - a Grasp the lever on the lower right-hand side of the controller beside the display, and pull it straight out until it is fully extended.



- b Firmly push the lever down to seat the card in its connectors.
- c Slide the lever back into the chassis.

Install the Optional Modular Cards

Each modular card has an associated rear panel for inputs and outputs.

IMPORTANT

The rear panel must be installed before the card is inserted into the frame.

To install the rear connector panel

- 1 Remove any existing panel (either blank or belonging to an existing card that is being changed) by releasing the captive screw(s) on the bottom.
- 2 Slide the top edge of the new panel under the lip at the top of the empty space and secure the panel in place with the captive screw(s) on the bottom.

To install the modular card

- 1 Open the front door of the frame.
- 2 Position the card with the swivel handle at the top.
- 3 Slide the card into the slot and push gently on the swivel handle to seat the connectors.

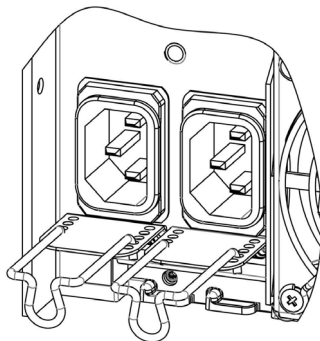
Note: If the card requires a double-width rear panel or larger, it should be inserted into the rightmost slot. Inserting the card into the wrong slot will not damage the card, but will be flagged by the on-card status LED flashing red when power is applied, to indicate that there is no connection to the rear panel.

Install the Power Cords with their Retaining Clips

Each power inlet has a retaining clip that holds the power cord in place to prevent inadvertent disconnections.

To install a retaining clip and power cord

- 1 Slip both ends of the retaining clip into a pair of holes in the plate that extends out beneath the power inlet on the rear of the frame. Use the holes that position the clip closest to the body of the power cord connector.



- 2 Position the clip horizontally and insert the power cord connector into the inlet.
- 3 Rotate the clip up and press the cord into the gripping loop of the clip.

Power Up the GV Node

- To power up the GV Node, connect the two power supply cords to AC power.

Notes

- There is no Power switch; the GV Node is powered up as soon as either power supply is plugged into an AC source.
- Connect the two (redundant) power supplies to separate circuits, if available, for enhanced failure protection.

Step 2: Networking and Control Setup

For the GV Node to join a TCP/IP network, it must be configured with an IP address, a network mask, and a gateway. Use the local control panel to configure ethernet port ETH1 so that you can connect to the GV Node online.

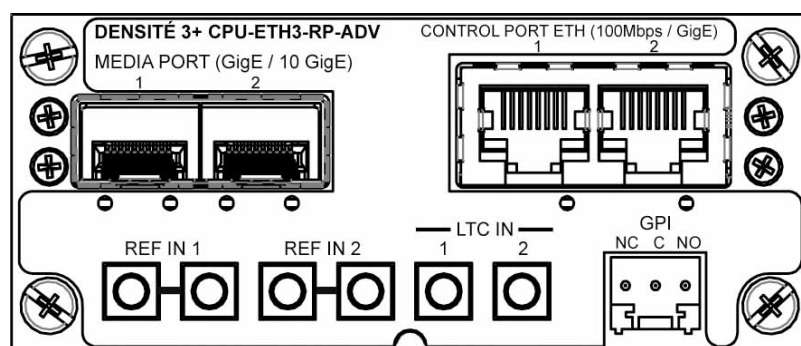
GV Node is shipped with the following default settings:

System IP address	192.168.3.1
Network mask	255.255.0.0
Gateway	0.0.0.0

See [Setting the GV Node's IP Address](#), on page 8 for instructions on replacing these with settings that apply to your local network, so that the GV Node can be located by control applications such as Grass Valley's iControl.

Note: The GV Node should be located in the same subnet as the iControl Application Server that will control it.

Once the ETH1 port settings have been configured, you can connect your GV Node to the network via the rear controller connection panel. See [Connecting the GV Node to your Network](#), on page 10.



The following signal connections are available on the panel:

Connector Name	Function
CONTROL PORT ETH 1, 2	Dual GigE Ethernet ports for connection to external control systems (e.g. , iControl, GV Convergent) on RJ45 connectors.
MEDIA PORT (GigE / 10 GigE) 1, 2	Dual streaming ports for internal/external connectivity to the modular cards, on SFP+ interfaces. <i>(Future use)</i>
REF IN 1 (2 connectors)	External reference signal for the frame, with a loop-through, on DIN connectors.
REF IN 2 (2 connectors)	<i>(Future use)</i>
LTC IN 1	External time code on DIN connector.
LTC IN 2	<i>(Future use)</i>
GPI	Alarms generated on the controller card may be reported on this GPI connector.

You must install and configure iControl or iControl Solo before you can configure your GV Node.

Notes

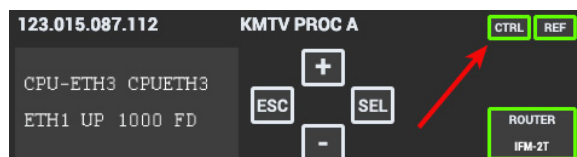
- For detailed information about iControl , refer to the iControl User Guide, available from the Documentation Library section of Grass Valley's website.
- For detailed information about iControl Solo, refer to the iControl Solo User Guide, available from the the Documentation Library section of Grass Valley's website.
iControl Solo is available from the Downloads section of the Grass Valley website.
- GV Node is compatible with iControl and iControl Solo version 7.2 and later.

Once the GV Node is connected to the network, you can use iControl or iControl Solo to configure the GV Node. See [Registering your GV Node to iControl](#), on page 10, for detailed instructions on setting up the connection between your GV Node and iControl.

Setting the GV Node's IP Address

To set the GV Node's IP Address

- 1 On the GV Node control panel, touch CTRL.



The GV Node controller menu appears on the display.

Note: You can navigate the menu by using the four virtual buttons on the touch display:

- Touch the [+] and [-] buttons to navigate between menu options or between parameter values.
 - Touch SEL to access the next menu level. When a parameter value is shown on the display, modify the value by using the [+] and [-] buttons, and then touch SEL to apply the value.
 - Touch ESC to go back to the previous menu level.
 - Once you have completed your changes, touch CTRL again to exit the menu.
-

2 Touch [-] repeatedly until ETH1 OPTIONS appears on the display, and then touch SEL. IP ADDRESS appears on the display.

3 Touch SEL.

The current IP address value appears on the display.

4 Change the current values using the virtual buttons:

- Touch [+] and [-] to change the value at the current input position.
- Touch SEL to move one position to the right, and to accept the current value.
- Touch ESC to move one position to the left and leave the current value unchanged.

Note: Touching ESC when the input focus is in the first position returns you to the previous menu level.

5 Once you have accepted all values in the desired address, touch ESC repeatedly to move to the first position, and then touch ESC again to move back to the previous level. IP ADDRESS appears on the display.

6 Touch [-] until NETWORK MASK appears on the display, and then touch SEL.

The current network mask value appears on the display.

7 Repeat [step 4](#) and [step 5](#) to change the network mask values.

8 Touch [-] until GATEWAY appears on the display, and then touch SEL.

The current gateway value appears on the display.

9 Repeat [step 4](#) and [step 5](#) to change the gateway values.

10 Touch CTRL on the display to exit the Controller menu.

Notes

- If you do not touch any buttons on the local control panel, the controller will revert to its normal standby mode after 30 seconds.
 - If you changed a parameter from the control menu, but have not applied your change (you did not touch the SEL button on the control panel), once the 30-second timeout has occurred, the parameters will be confirmed as if you had touched the SEL button.
-

You have changed the IP settings for the ETH1 port.

Connecting the GV Node to your Network

To connect the GV Node to your network

- 1 Connect CONTROL PORT ETH1 to your local TCP/IP network via an RJ45 connector.
- 2 Connect a local reference signal (black burst or tri-level sync) to REF IN 1.
You may use either of the two connectors; the second connector is a loop-through and does not require termination.

Registering your GV Node to iControl

To register your GV Node to iControl

- 1 Open iControl Navigator.
- 2 In **Logical** view, open the **Managers** folder.
- 3 In the **Managers** folder, locate the Densité Manager associated with your application server and double-click its icon.
The Densité Manager window opens.
- 4 In the **Configuration** tab, click **Add**.
The **Target Information** window opens.
- 5 In **Target Information**, enter the IP address that you have given your GV Node, and a Densité name for the GV Node (e.g., DNAME).
- 6 Click **OK**.
The **Target Information** window closes.
Your GV Node appears in the **Configuration** tab.
The GV Node's status is Online, and its icon is green.
- 7 Close the Densité Manager window.
The frame and its cards are now accessible from iControl Navigator.
- 8 Look for these four devices in iControl Navigator :

- The GV Node frame controller.

By default, the controller is identified as follows:

Label	Frame ControllerDNAME
Short label	Frame Co
Type	GV Node Frame Controller
Comments	Densité Frame Service
Frame	DNAME

DNAME is the Densité name you created in [step 5](#) on page 10.

- The GV Node frame reference module, incorporated into the controller, but with its own control panel.

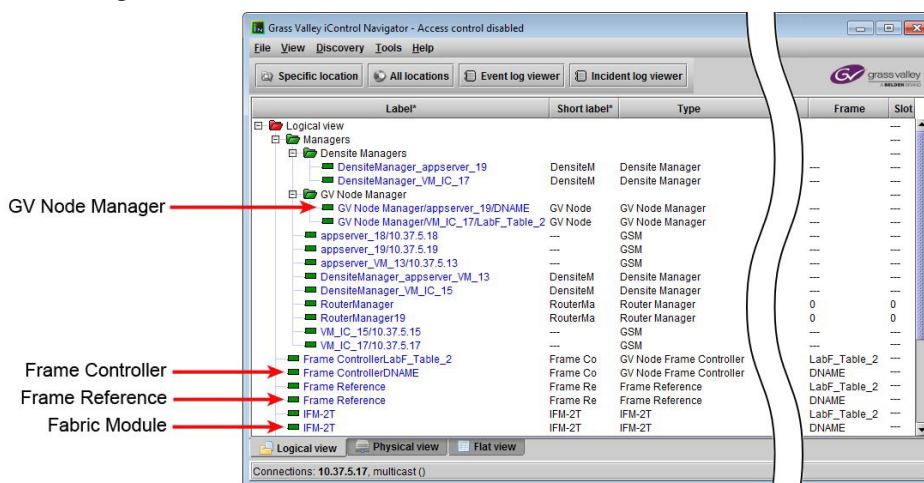
Label	Frame Reference
Short label	Frame Re
Type	Frame Reference

Comments	HD/SD Frame Reference Module
Frame	DNAME

- IFM-2T - the GV Node fabric module.

Label	IFM-2T
Short label	IFM-2T
Type	IFM-2T
Comments	Internal Router card
Frame	DNAME

- The GV Node Manager associated with your GV Node is found in the GV Node Manager folder.



The modular cards installed in the GV Node are also now available in the iControl Navigator window.

Together, these devices make up the iControl presence of your GV Node.

Step 3: GV Node Configuration

You will configure three elements of your GV Node in this initial setup:

- [Configure the Controller](#), on page 11.
- [Configure the Frame Reference](#), on page 13.
- [Configure the Fabric Module](#), on page 13.

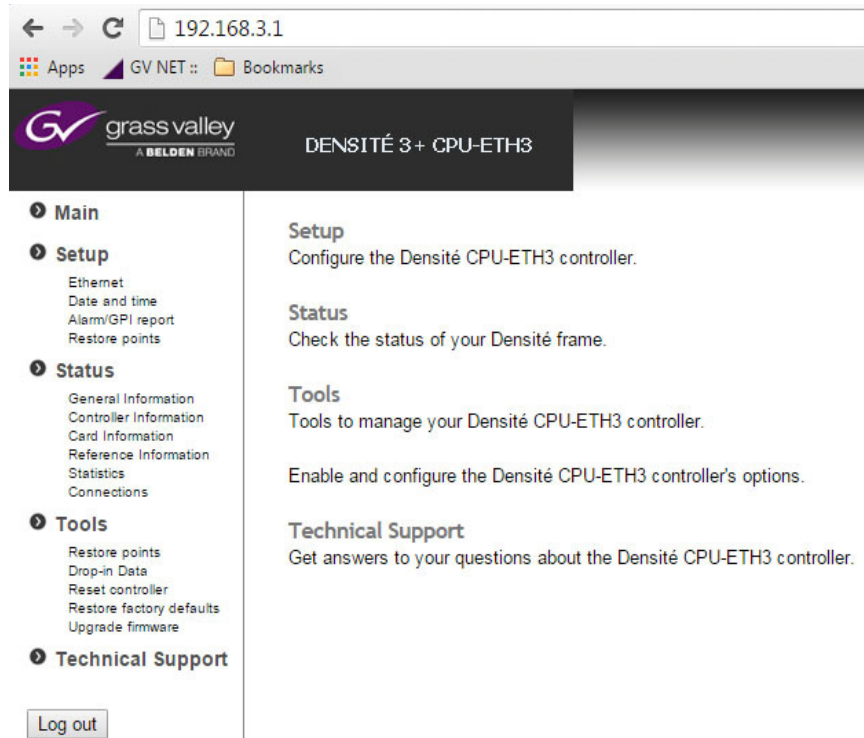
Configure the Controller

Use the CPU-ETH3 Web client application to perform the configuration steps that follow.

To configure the GV Node controller

- 1 Open a Web browser window and enter your GV Node's IP address in the address bar.

The home page of the CPU-ETH3 Web client appears.



- 2 Under Setup, in the navigation area on the left of the page, click **Ethernet**.
The Ethernet setup page appears.
- 3 Modify the Hostname for the GV Node's controller, if needed.
- 4 Verify that MII status for eth1 is set to AUTONEGOTIATION.
- 5 Click **Apply** to save your changes.
- 6 Click **Setup - Time/Date** in the navigation area.
The Time/Date setup page appears.
 - If you have an NTP server's IP address, enter it and select **Enabled**.
 - If you do not have an NTP server's IP address, manually enter the current date and time, and select **Disabled**.
- 7 Click **Apply**.
- 8 Click **Alarm/GPI Report** in the navigation area.
The Alarm/GPI Report setup page appears.
- 9 Set the values shown in this table:

Include power supply failure in Alarm Report	Enabled
Include fan failure in Alarm Report	Enabled
Report card alarm on GPI	Disabled

- 10 Click **Apply**.
- 11 Click **Restore Points** in the navigation area.
The Restore Points setup page appears.

- 12 Set the values shown in this table:

Default action for card inserted	Keep card settings
Auto save	Disabled

- 13 Click **Apply**.

Configure the Frame Reference

- 1 In iControl Navigator, locate the GV Node's frame reference and double-click its icon.

Note: In the presence of multiple frame references, locate yours by checking the Frame column—it will have the DNAME you chose for your GV Node. See [step 5](#) under [Registering your GV Node to iControl](#).

The frame reference module's iControl panel opens.

- 2 To set the timecode and reference sources:
 - a Click the **Input** tab.
 - b In the **Reference Source** list, select **Auto**.
 - c In the **Timecode Source** list, select **Auto**.

Changes are applied immediately.

- 3 To set the URS Generation Mode:
 - a Select the **Mode** tab.
 - b In the **URS Generation Mode** list, select **Normal**.

Note: The URS (Universal Reference Signal) is the timing reference distributed within the GV Node to all modular cards.

Changes are applied immediately.

Configure the Fabric Module

- 1 In iControl Navigator, locate the GV Node's Fabric Module and double-click its icon.
The Fabric Module's control panel opens.

Note: In the presence of multiple Fabric Modules, locate yours by checking the Frame column—it will have the DNAME you chose for your GV Node. See [step 5](#) under [Registering your GV Node to iControl](#).

- 2 To set the switching alignment:
 - a Click **Global Configuration** and then click the **Timing** tab.
 - b Select **Module Slots** from the **Switching Alignment** list.

Changes are applied immediately.

- 3 To enable options you have purchased:
 - a Click **Options** and then click the tab for the purchased option.

- b Enter the key you received for the option into the data box and then click **Enable Option**.

The status box turns green and reports that the option is activated.

- 4 To manage the inputs and outputs between the Fabric Module and the modular cards:
 - a In iControl Navigator, locate the GV Node Manager associated with your GV Node and double-click its icon.

The GV Node's **GV Node Manager** panel opens.

Note: In the presence of multiple GV Node managers, locate yours by checking the Comments column—the DNAME you chose for your GV Node will be the last element in the comment. See [step 5](#) under [Registering your GV Node to iControl](#).

- b In the row beside each GV Node modular card, select the status of each of the 9 inputs to the fabric module and 9 outputs from the fabric module.

XIO-4901: The available choices depend on whether the MDX option is activated on the XIO-4901 card.

MDX Option	I/O CH 1-7	I/O CH 8 & 9
NOT ACTIVATED	OFF SDI	OFF SDI MADI
ACTIVATED	OFF SDI MDX	OFF SDI MDX

#	Card	Rear panel	Options	Inputs to Internal Fabric Module									Outputs from Internal Fabric Module									
				1	2	3	4	5	6	7	8	9	1	2	3	4	5	6	7	8	9	
1	Empty																					
2	Empty																					
3	XIO-4901	XIO-4901-4SRP-D		SDI	SDI	SDI	SDI	SDI	SDI	SDI	SDI	SDI	SDI	SDI	SDI	SDI	SDI	SDI	SDI	SDI	SDI	SDI
4	XIO-4901	XIO-4901-4SRP-D		SDI	SDI	SDI	SDI	SDI	SDI	SDI	SDI	SDI	SDI	SDI	SDI	SDI	SDI	SDI	SDI	SDI	SDI	SDI
5	XIO-4901	XIO-4901-4SRP-D		SDI	SDI	SDI	SDI	SDI	SDI	SDI	SDI	SDI	SDI	SDI	SDI	SDI	SDI	SDI	SDI	SDI	SDI	SDI
6	XIO-4901	XIO-4901-4SRP-D		SDI	SDI	SDI	SDI	SDI	SDI	SDI	SDI	SDI	SDI	SDI	SDI	SDI	SDI	SDI	SDI	SDI	SDI	SDI
7	XIO-4901	XIO-4901-4SRP-D		SDI	SDI	SDI	SDI	SDI	SDI	SDI	SDI	SDI	SDI	SDI	SDI	SDI	SDI	SDI	SDI	SDI	SDI	SDI
8	XIO-4901	XIO-4901-4SRP-D		SDI	SDI	SDI	SDI	SDI	SDI	SDI	SDI	SDI	SDI	SDI	SDI	SDI	SDI	SDI	SDI	SDI	SDI	SDI
9	XIO-4901	XIO-4901-4SRP-D		SDI	SDI	SDI	SDI	SDI	SDI	SDI	SDI	SDI	SDI	SDI	SDI	SDI	SDI	SDI	SDI	SDI	SDI	SDI
10	XIO-4901	XIO-4901-4SRP-D		SDI	SDI	SDI	SDI	SDI	SDI	SDI	SDI	SDI	SDI	SDI	SDI	SDI	SDI	SDI	SDI	SDI	SDI	SDI
11	XIO-4901	XIO-4901-4SRP-D		SDI	SDI	SDI	SDI	SDI	SDI	SDI	SDI	SDI	SDI	SDI	SDI	SDI	SDI	SDI	SDI	SDI	SDI	SDI
12	Empty																					
13	Empty																					
14	Empty																					
15	XIO-4901	XIO-4901-4SRP-D		SDI	SDI	SDI	SDI	SDI	SDI	SDI	SDI	SDI	SDI	SDI	SDI	SDI	SDI	SDI	SDI	SDI	SDI	SDI
16	XIO-4901	XIO-4901-4SRP-D		SDI	SDI	SDI	SDI	SDI	SDI	SDI	SDI	SDI	SDI	SDI	SDI	SDI	SDI	SDI	SDI	SDI	SDI	SDI
	Empty			Total Inputs to Internal Fabric Module: 99									Total Outputs from Internal Fabric Module: 99									

Changes are applied immediately.



Grass Valley Technical Support

For technical assistance, contact our international support center, at 1-800-547-8949 (US and Canada) or +1 530 478 4148.

To obtain a local phone number for the support center nearest you, please consult the Contact Us section of Grass Valley's website (www.grassvalley.com).

An online form for e-mail contact is also available from the website.

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