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KAYENNE K-FRAME

VIDEO PRODUCTION CENTER

Installation & Service Manual

Software Version 6.0

www.grassvalley.com

071887903
NOVEMBER 2013

CERTIFICATE

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Grass Valley Web Site

The http://www.grassvalley.com/support web site offers the following:

Online User Documentation — Current versions of product catalogs, brochures, data sheets, ordering guides, planning guides, manuals, and release notes in .pdf format can be downloaded.

FAQ Database — Solutions to problems and troubleshooting efforts can be found by searching our Frequently Asked Questions (FAQ) database.

Software Downloads — Download software updates, drivers, and patches.

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END-OF-LIFE PRODUCT RECYCLING NOTICE

Grass Valley's innovation and excellence in product design also extends to the programs we've established to manage the recycling of our products. Grass Valley has developed a comprehensive end-of-life product take back program for recycle or disposal of end-of-life products. Our program meets the requirements of the European Union's WEEE Directive, the United States Environmental Protection Agency, and U.S. state and local agencies.

Grass Valley's end-of-life product take back program assures proper disposal by use of Best Available Technology. This program accepts any Grass Valley branded equipment. Upon request, a Certificate of Recycling or a Certificate of Destruction, depending on the ultimate disposition of the product, can be sent to the requester.

Grass Valley will be responsible for all costs associated with recycling and disposal, including freight. However, you are responsible for the removal of the equipment from your facility and packing the equipment to make it ready for pickup.

For further information on the Grass Valley product take back system please contact Grass Valley at + 800 80 80 20 20 or +33 1 48 25 20 20 from most other countries. In the U.S. and Canada please call 800-547-8949, and ask to be connected to the EH&S Department. Additional information concerning the program can be found at: www.grassvalley.com/about/environmental-policy

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Preface

About This Manual

This *Kayenne K-Frame Installation & Service Manual* is designed for technical personnel responsible for installing and maintaining Kayenne K-Frame Video Production Center systems.

Standard Documentation Set

The standard Kayenne K-Frame documentation set consists of a:

- *User Manual*,
- *Installation & Service Manual,*
- *Release Notes*,
- *Release Notes Addendum*,

The *Kayenne K-Frame User Manual* contains background information about the Kayenne K-Frame Video Production Center, and describes operating procedures. This manual can be used while learning about Kayenne K-Frame, and for enhancing your basic knowledge of the system.

The *Kayenne K-Frame Installation & Service Manual* contains information about installing, configuring, and maintaining the system.

The *Kayenne K-Frame Release Notes* contain information about new features and system enhancements for a specific software version, and also includes software installation procedures. Always check the release notes for your current system software before you begin operating your system.

The *Kayenne K-Frame Release Notes Addendum* contains corrected and known issues about the system software.

Other Documentation

The *Switcher Products Protocols Manual* is available for developers and software engineers to use to design interfaces to the Kayenne K-Frame system.

The K-Frame Ethernet Tally is a proprietary protocol that provides all of the switcher status information required to calculate the Tally state of the

switcher. The K-Frame Ethernet Tally Software Development Kit (SDK) is available to approved vendors who need to interface with the Ethernet Tally system of the K-Frame. Contact Grass Valley Product Management for more information on this SDK.

The *KSP Graphical User Interface Instruction Manual* provides information, requirements, and instructions for operating the 1-ME switcher Soft Panel GUI on a touch screen or regular PC, including the optional customized keyboard.

The *Switcher Concepts Manual* provides an overview of switcher operation and describes basic switcher fundamentals.

Safety Summary

Read and follow the important safety information below, noting especially those instructions related to risk of fire, electric shock or injury to persons. Additional specific warnings not listed here may be found throughout the manual.

WARNING Any instructions in this manual that require opening the equipment cover or enclosure are for use by qualified service 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.

Safety Terms and Symbols

Terms in This Manual

Safety-related statements may appear in this manual in the following form:

WARNING Warning statements identify conditions or practices that may result in personal injury or loss of life.

CAUTION Caution statements identify conditions or practices that may result in damage to equipment or other property, or which may cause equipment crucial to your business environment to become temporarily non-operational.

Terms on the Product

The following terms may appear on the product:

DANGER — A personal injury hazard is immediately accessible as you read the marking.

WARNING — A personal injury hazard exists but is not immediately accessible as you read the marking.

CAUTION — A hazard to property, product, and other equipment is present.

Symbols on the Product

The following symbols may appear on the product:

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 user, operator or service technician should refer to product manual(s) for important operating, maintenance, or service instructions.

This is a prompt to note fuse rating when replacing fuse(s). 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.

Warnings

The following warning statements identify conditions or practices that can result in personal injury or loss of life:

Dangerous voltage or current may be present — Disconnect power and remove battery (if applicable) before removing protective panels, soldering, or replacing components.

Do not service alone — Do not internally service this product unless another person capable of rendering first aid and resuscitation is present.

Remove jewelry — Prior to servicing, remove jewelry such as rings, watches, and other metallic objects.

Avoid exposed circuitry — Do not touch exposed connections, components or circuitry when power is present.

Use proper power cord — Use only the power cord supplied or specified for this product.

Ground product — Connect the grounding conductor of the power cord to earth ground.

Operate only with covers and enclosure panels in place — Do not operate this product when covers or enclosure panels are removed.

Use correct fuse — Use only the fuse type and rating specified for this product.

Use only in dry environment — Do not operate in wet or damp conditions.

Use only in non-explosive environment — Do not operate this product in an explosive atmosphere.

High leakage current may be present — Earth connection of product is essential before connecting power.

Dual power supplies may be present — Be certain to plug each power supply cord into a separate branch circuit employing a separate service ground. Disconnect both power supply cords prior to servicing.

Double pole neutral fusing — Disconnect mains power prior to servicing.

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.

Cautions

The following caution statements identify conditions or practices that can result in damage to equipment or other property:

Use correct power source — Do not operate this product from a power source that applies more than the voltage specified for the product.

Use correct voltage setting — If this product lacks auto-ranging power supplies, before applying power ensure that the each power supply is set to match the power source.

Provide proper ventilation — To prevent product overheating, provide equipment ventilation in accordance with installation instructions.

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

Do not operate with suspected equipment failure — If you suspect product damage or equipment failure, have the equipment inspected by qualified service personnel.

Ensure mains disconnect — If mains switch is not provided, the power cord(s) of this equipment provide the means of disconnection. The socket outlet must be installed near the equipment and must be easily accessible. Verify that all mains power is disconnected before installing or removing power supplies and/or options.

Route cable properly — Route power cords and other cables so that they ar not likely to be damaged. Properly support heavy cable bundles to avoid connector damage.

Use correct power supply cords — Power cords for this equipment, if provided, meet all North American electrical codes. Operation of this equipment at voltages exceeding 130 VAC requires power supply cords which comply with NEMA configurations. International power cords, if provided, have the approval of the country of use.

Use correct replacement battery — This product may contain batteries. To reduce the risk of explosion, check polarity and replace only with the same or equivalent type recommended by manufacturer. Dispose of used batteries according to the manufacturer's instructions.

Troubleshoot only to board level — Circuit boards in this product are densely populated with surface mount technology (SMT) components and application specific integrated circuits (ASICS). As a result, circuit board repair at the component level is very difficult in the field, if not impossible. For warranty compliance, do not troubleshoot systems beyond the board level.

Sicherheit – Überblick

Lesen und befolgen Sie die wichtigen Sicherheitsinformationen dieses Abschnitts. Beachten Sie insbesondere die Anweisungen bezüglich Brand-, Stromschlag- und Verletzungsgefahren. Weitere spezifische, hier nicht aufgeführte Warnungen finden Sie im gesamten Handbuch.

WARNUNG **Alle Anweisungen in diesem Handbuch, die das Abnehmen der Geräteabdeckung oder des Gerätegehäuses erfordern, dürfen nur von qualifiziertem Servicepersonal ausgeführt werden. Um die Stromschlaggefahr zu verringern, führen Sie keine Wartungsarbeiten außer den in den Bedienungsanleitungen genannten Arbeiten aus, es sei denn, Sie besitzen die entsprechende Qualifikationen für diese Arbeiten.**

Sicherheit – Begriffe und Symbole

In diesem Handbuch verwendete Begriffe

Sicherheitsrelevante Hinweise können in diesem Handbuch in der folgenden Form auftauchen:

WARNUNG **Warnungen weisen auf Situationen oder Vorgehensweisen hin, die Verletzungs- oder Lebensgefahr bergen.**

VORSICHT Vorsichtshinweise weisen auf Situationen oder Vorgehensweisen hin, die zu Schäden an Ausrüstungskomponenten oder anderen Gegenständen oder zum zeitweisen Ausfall wichtiger Komponenten in der Arbeitsumgebung führen können.

Hinweise am Produkt

Die folgenden Hinweise können sich am Produkt befinden:

GEFAHR — Wenn Sie diesen Begriff lesen, besteht ein unmittelbares Verletzungsrisiko.

WARNUNG — Wenn Sie diesen Begriff lesen, besteht ein mittelbares Verletzungsrisiko.

VORSICHT — Es besteht ein Risiko für Objekte in der Umgebung, den Mixer selbst oder andere Ausrüstungskomponenten.

Symbole am Produkt

Die folgenden Symbole können sich am Produkt befinden:

Weist auf eine gefährliche Hochspannung im Gerätegehäuse hin, die stark genug sein kann, um eine Stromschlaggefahr darzustellen.

Weist darauf hin, dass der Benutzer, Bediener oder Servicetechniker wichtige Bedienungs-, Wartungs- oder Serviceanweisungen in den Produkthandbüchern lesen sollte.

Dies ist eine Aufforderung, beim Wechsel von Sicherungen auf deren Nennwert zu achten. Die im Text angegebene Sicherung muss durch eine Sicherung ersetzt werden, die die angegebenen Nennwerte besitzt.

Weist auf eine Schutzerdungsklemme hin, die mit dem Erdungskontakt verbunden werden muss, bevor weitere Ausrüstungskomponenten angeschlossen werden.

Weist auf eine externe Schutzerdungsklemme hin, die als Ergänzung zu einem internen Erdungskontakt an die Erde angeschlossen werden kann.

Weist darauf hin, dass es statisch empfindliche Komponenten gibt, die durch eine elektrostatische Entladung beschädigt werden können. Verwenden Sie antistatische Prozeduren, Ausrüstung und Oberflächen während der Wartung.

Warnungen

Die folgenden Warnungen weisen auf Bedingungen oder Vorgehensweisen hin, die Verletzungs- oder Lebensgefahr bergen:

Gefährliche Spannungen oder Ströme — Schalten Sie den Strom ab, und entfernen Sie ggf. die Batterie, bevor sie Schutzabdeckungen abnehmen, löten oder Komponenten austauschen.

Servicearbeiten nicht alleine ausführen — Führen Sie interne Servicearbeiten nur aus, wenn eine weitere Person anwesend ist, die erste Hilfe leisten und Wiederbelebungsmaßnahmen einleiten kann.

Schmuck abnehmen — Legen Sie vor Servicearbeiten Schmuck wie Ringe, Uhren und andere metallische Objekte ab.

Keine offen liegenden Leiter berühren — Berühren Sie bei eingeschalteter Stromzufuhr keine offen liegenden Leitungen, Komponenten oder Schaltungen.

Richtiges Netzkabel verwenden — Verwenden Sie nur das mitgelieferte Netzkabel oder ein Netzkabel, das den Spezifikationen für dieses Produkt entspricht.

Gerät erden — Schließen Sie den Erdleiter des Netzkabels an den Erdungskontakt an.

Gerät nur mit angebrachten Abdeckungen und Gehäuseseiten betreiben — Schalten Sie dieses Gerät nicht ein, wenn die Abdeckungen oder Gehäuseseiten entfernt wurden.

Richtige Sicherung verwenden — Verwenden Sie nur Sicherungen, deren Typ und Nennwert den Spezifikationen für dieses Produkt entsprechen.

Gerät nur in trockener Umgebung verwenden — Betreiben Sie das Gerät nicht in nassen oder feuchten Umgebungen.

Gerät nur verwenden, wenn keine Explosionsgefahr besteht — Verwenden Sie dieses Produkt nur in Umgebungen, in denen keinerlei Explosionsgefahr besteht.

Hohe Kriechströme — Das Gerät muss vor dem Einschalten unbedingt geerdet werden.

Doppelte Spannungsversorgung kann vorhanden sein — Schließen Sie die beiden Anschlußkabel an getrennte Stromkreise an. Vor Servicearbeiten sind beide Anschlußkabel vom Netz zu trennen.

Zweipolige, neutrale Sicherung — Schalten Sie den Netzstrom ab, bevor Sie mit den Servicearbeiten beginnen.

Fassen Sie das Gerät beim Transport richtig an — Halten Sie das Gerät beim Transport nicht an Türen oder anderen beweglichen Teilen fest.

Gefahr durch mechanische Teile — Warten Sie, bis der Lüfter vollständig zum Halt gekommen ist, bevor Sie mit den Servicearbeiten beginnen.

Vorsicht

Die folgenden Vorsichtshinweise weisen auf Bedingungen oder Vorgehensweisen hin, die zu Schäden an Ausrüstungskomponenten oder anderen Gegenständen führen können:

Gerät nicht öffnen — Durch das unbefugte Öffnen wird die Garantie ungültig.

Richtige Spannungsquelle verwenden — Betreiben Sie das Gerät nicht an einer Spannungsquelle, die eine höhere Spannung liefert als in den Spezifikationen für dieses Produkt angegeben.

Gerät ausreichend belüften — Um eine Überhitzung des Geräts zu vermeiden, müssen die Ausrüstungskomponenten entsprechend den Installationsanweisungen belüftet werden. Legen Sie kein Papier unter das Gerät. Es könnte die Belüftung behindern. Platzieren Sie das Gerät auf einer ebenen Oberfläche.

Antistatische Vorkehrungen treffen — Es gibt statisch empfindliche Komponenten, die durch eine elektrostatische Entladung beschädigt werden können. Verwenden Sie antistatische Prozeduren, Ausrüstung und Oberflächen während der Wartung.

CF-Karte nicht mit einem PC verwenden — Die CF-Karte ist speziell formatiert. Die auf der CF-Karte gespeicherte Software könnte gelöscht werden.

Gerät nicht bei eventuellem Ausrüstungsfehler betreiben — Wenn Sie einen Produktschaden oder Ausrüstungsfehler vermuten, lassen Sie die Komponente von einem qualifizierten Servicetechniker untersuchen.

Kabel richtig verlegen — Verlegen Sie Netzkabel und andere Kabel so, dass Sie nicht beschädigt werden. Stützen Sie schwere Kabelbündel ordnungsgemäß ab, damit die Anschlüsse nicht beschädigt werden.

Richtige Netzkabel verwenden — Wenn Netzkabel mitgeliefert wurden, erfüllen diese alle nationalen elektrischen Normen. Der Betrieb dieses Geräts mit Spannungen über 130 V AC erfordert Netzkabel, die NEMA-Konfigurationen entsprechen. Wenn internationale Netzkabel mitgeliefert wurden, sind diese für das Verwendungsland zugelassen.

Richtige Ersatzbatterie verwenden — Dieses Gerät enthält eine Batterie. Um die Explosionsgefahr zu verringern, prüfen Sie die Polarität und tauschen die Batterie nur gegen eine Batterie desselben Typs oder eines gleichwertigen, vom Hersteller empfohlenen Typs aus. Entsorgen Sie gebrauchte Batterien entsprechend den Anweisungen des Batterieherstellers.

Das Gerät enthält keine Teile, die vom Benutzer gewartet werden können. Wenden Sie sich bei Problemen bitte an den nächsten Händler.

Consignes de sécurité

Il est recommandé de lire, de bien comprendre et surtout de respecter les informations relatives à la sécurité qui sont exposées ci-après, notamment les consignes destinées à prévenir les risques d'incendie, les décharges électriques et les blessures aux personnes. Les avertissements complémentaires, qui ne sont pas nécessairement repris ci-dessous, mais présents dans toutes les sections du manuel, sont également à prendre en considération.

AVERTISSEMENT **Toutes les instructions présentes dans ce manuel qui concernent l'ouverture des capots ou des logements de cet équipement sont destinées exclusivement à des membres qualifiés du personnel de maintenance. Afin de diminuer les risques de décharges électriques, ne procédez à aucune intervention d'entretien autre que celles contenues dans le manuel de l'utilisateur, à moins que vous ne soyez habilité pour le faire.**

Consignes et symboles de sécurité

Termes utilisés dans ce manuel

Les consignes de sécurité présentées dans ce manuel peuvent apparaître sous les formes suivantes:

AVERTISSEMENT **Les avertissements signalent des conditions ou des pratiques susceptibles d'occasionner des blessures graves, voire même fatales.**

ATTENTION Les mises en garde signalent des conditions ou des pratiques susceptibles d'occasionner un endommagement à l'équipement ou aux installations, ou de rendre l'équipement temporairement non opérationnel, ce qui peut porter préjudice à vos activités.

Signalétique apposée sur le produit

La signalétique suivante peut être apposée sur le produit:

DANGER — risque de danger imminent pour l'utilisateur.

AVERTISSEMENT — Risque de danger non imminent pour l'utilisateur.

MISE EN GARDE — Risque d'endommagement du produit, des installations ou des autres équipements.

Symboles apposés sur le produit

Les symboles suivants peut être apposés sur le produit:

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.

Signale que l'utilisateur, l'opérateur ou le technicien de maintenance doit faire référence au(x) manuel(s) pour prendre connaissance des instructions d'utilisation, de maintenance ou d'entretien.

Il s'agit d'une invite 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 protection de mise à la masse qui doit être raccordée correctement avant de procéder au raccordement des autres équipements.

Identifie une borne de protection de mise à la masse qui peut être connectée en tant que borne de mise à la masse 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.

Avertissements

Les avertissements suivants signalent des conditions ou des pratiques susceptibles d'occasionner des blessures graves, voire même fatales:

Présence possible de tensions ou de courants dangereux — Mettez hors tension, débranchez et retirez la pile (le cas échéant) avant de déposer les couvercles de protection, de défaire une soudure ou de remplacer des composants.

Ne procédez pas seul à une intervention d'entretien — Ne réalisez pas une intervention d'entretien interne sur ce produit si une personne n'est pas présente pour fournir les premiers soins en cas d'accident.

Retirez tous vos bijoux — Avant de procéder à une intervention d'entretien, retirez tous vos bijoux, notamment les bagues, la montre ou tout autre objet métallique.

Évitez tout contact avec les circuits exposés — Évitez tout contact avec les connexions, les composants ou les circuits exposés s'ils sont sous tension.

Utilisez le cordon d'alimentation approprié — Utilisez exclusivement le cordon d'alimentation fourni avec ce produit ou spécifié pour ce produit.

Raccordez le produit à la masse — Raccordez le conducteur de masse du cordon d'alimentation à la borne de masse de la prise secteur.

Utilisez le produit lorsque les couvercles et les capots sont en place — N'utilisez pas ce produit si les couvercles et les capots sont déposés.

Utilisez le bon fusible — Utilisez exclusivement un fusible du type et du calibre spécifiés pour ce produit.

Utilisez ce produit exclusivement dans un environnement sec — N'utilisez pas ce produit dans un environnement humide.

Utilisez ce produit exclusivement dans un environnement non explosible — N'utilisez pas ce produit dans un environnement dont l'atmosphère est explosible.

Présence possible de courants de fuite — Un raccordement à la masse est indispensable avant la mise sous tension.

Deux alimentations peuvent être présentes dans l'équipement — Assurez vous que chaque cordon d'alimentation est raccordé à des circuits de terre séparés. Débranchez les deux cordons d'alimentation avant toute intervention.

Fusion neutre bipolaire — Débranchez l'alimentation principale avant de procéder à une intervention d'entretien.

Utilisez les points de levage appropriés — Ne pas utiliser les verrous de la porte pour lever ou déplacer l'équipement.

Évitez les dangers mécaniques — Laissez le ventilateur s'arrêter avant de procéder à une intervention d'entretien.

Mises en garde

Les mises en garde suivantes signalent les conditions et les pratiques susceptibles d'occasionner des endommagements à l'équipement et aux installations:

N'ouvrez pas l'appareil — Toute ouverture prohibée de l'appareil aura pour effet d'annuler la garantie.

Utilisez la source d'alimentation adéquate — Ne branchez pas ce produit à une source d'alimentation qui utilise une tension supérieure à la tension nominale spécifiée pour ce produit.

Assurez une ventilation adéquate — Pour éviter toute surchauffe du produit, assurez une ventilation de l'équipement conformément aux instructions d'installation. Ne déposez aucun document sous l'appareil — ils peuvent gêner la ventilation. Placez l'appareil sur une surface plane.

Utilisez des procédures antistatiques - Les composants sensibles à l'électricité statique présents dans l'équipement sont susceptibles d'être endommagés par une décharge électrostatique. Utilisez des procédures, des équipements et des surfaces antistatiques durant les interventions d'entretien.

N'utilisez pas la carte CF avec un PC — La carte CF a été spécialement formatée. Le logiciel enregistré sur la carte CF risque d'être effacé.

N'utilisez pas l'équipement si un dysfonctionnement est suspecté — Si vous suspectez un dysfonctionnement du produit, faites inspecter celui-ci par un membre qualifié du personnel d'entretien.

Acheminez les câbles correctement — Acheminez les câbles d'alimentation et les autres câbles de manière à ce qu'ils ne risquent pas d'être endommagés. Supportez correctement les enroulements de câbles afin de ne pas endommager les connecteurs.

Utilisez les cordons d'alimentation adéquats — Les cordons d'alimentation de cet équipement, s'ils sont fournis, satisfont aux exigences de toutes les réglementations régionales. L'utilisation de cet équipement à des tensions dépassant les 130 V en c.a. requiert des cordons d'alimentation qui satisfont aux exigences des configurations NEMA. Les cordons internationaux, s'ils sont fournis, ont reçu l'approbation du pays dans lequel l'équipement est utilisé.

Utilisez une pile de remplacement adéquate — Ce produit 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 instructions du fabricant des piles.

Cette unité ne contient aucune partie qui peut faire l'objet d'un entretien par l'utilisateur. Si un problème survient, veuillez contacter votre distributeur local.

Regulatory Notices

Certifications and Compliances

FCC Emission Control

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. Changes or modifications not expressly approved by Grass Valley Group can affect emission compliance and could void the user's authority to operate this equipment.

Canadian EMC Notice of Compliance

This digital apparatus does not exceed the Class A limits for radio noise emissions from digital apparatus set out in the Radio Interference Regulations of the Canadian Department of Communications.

Le présent appareil numérique n'emet pas de bruits radioélectriques dépassant les limites applicables aux appareils numeriques de la classe A préscrites dans le Règlement sur le brouillage radioélectrique édicte par le ministère des Communications du Canada.

EN55022 Class A Warning

For products that comply with Class A. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

Canadian Certified Power Cords

Canadian approval includes the products and power cords appropriate for use in the North America power network. All other power cords supplied are approved for the country of use.

Canadian Certified AC Adapter

Canadian approval includes the AC adapters appropriate for use in the North America power network. All other AC adapters supplied are approved for the country of use.

FCC Emission Limits

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may no cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesirable operation.

Certification

This product has been evaluated for Electromagnetic Compatibility under the EN 55103-1/2 standards for Emissions and Immunity and meets the requirements for E4 environment.

This product complies with Class A. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

This product has been evaluated and meets the following Safety Certification Standards:

Category	Standard	Designed/tested for compliance with:
Safety	UL 60950	UL 60950-1 Issue 2007/03/27 Ed. 2 Information Technology Equipment-Safety Part 1 General Requirements.
	IEC 60950	IEC 60950-1 Issue: 2005/12/08 Ed. 2 Information Technology Equipment-Safety Part 1 General Requirements; Corrigendum 1: 8/2006; Amendment 1: 2009/12/17.
	CAN C22.2, No. 60950	C22.2 #60950-1 Issue 2007/03/01 Ed. 2 Information Technology Equipment-Safety-Part 1 General Requirements.
	EN60950	Safety of Information Technology Equipment, including Electrical Business Equipment.
	2006/95/EC	Low Voltage Directive

Category	Standard	Designed/tested for compliance with:
EMC	EMC Directive 2004/108/EC via EN 55103-1 and 2	Audio, Video and Entertainment Lighting Control for the European Community.
	EN55103-1 : 2009	Electromagnetic compatibility. Product family standard for audio, video, audio-visual and entertainment lighting control apparatus for professional use. Part 1 Emissions, Environment E4 EN 55022: Class A Radiated Emissions EN 61000-3-2: Powerline Harmonic Emissions EN 61000-3-3: Voltage Fluctuations “Flicker” EN 55022: Class A Conducted Emissions Radiated Magnetic Field Emissions Peak Inrush Current
	EN55103-2 : 2009	Electromagnetic compatibility--Product family standard for audio, video, audio-visual and entertainment lighting control apparatus for professional use. Part 2 Immunity, Environment E4 EN 61000-4-3: Radiated RF Immunity EN 61000-4-2: Electrostatic Discharge “ESD” EN 61000-4-4: Electrical Fast Transients “EFT” EN 61000-4-11: Voltage Dips & Fluctuations EN 61000-4-5: Power Line Surge EN 61000-4-6: Conducted RF Immunity Radiated Magnetic Field Immunity
	US FCC Class A	CISPR Pub. 22 (1985)
	Canada FCC Industry Canada	ICES-003
	Australia & New Zealand:	AS/NZS 3548

Section 1

Introduction

Overview

The Grass Valley K-Frame family of multi-format digital production switchers provides powerful, ground-breaking features designed to meet the widest range of requirements for live studio, mobile, and post-production applications.

The K-Frame Video Processor is the heart of the system, providing extensive video switching and signal processing capabilities. This functionality is controlled using:

- a Kayenne control surface,
- a Karrera control surface,
- the Soft Panel (KSP option), and/or
- the Menu application running on a PC.

In addition, a K-Frame system supports direct control of external devices (DDRs, Servers) and bi-directional control to and from routing and automation systems.

Features

- Standard K-Frame: Up to 192 inputs and 96 outputs. Up to 9 MEs, 18 MEs in split mode. Up to 16 DPMs, accessed as either iDPM or eDPM at user's discretion.
- Compact K-Frame: Up to 80 inputs and 48 outputs. Up to 5 MEs, 10 MEs in split mode. Up to 8 DPMs, accessed as either iDPM or eDPM at user's discretion.
- Modular I/O: Optional modules for format conversion, or in bypass mode provides four inputs and outputs per module. Standard K-Frame supports up to eight modules, Compact K-Frame supports up to four modules.

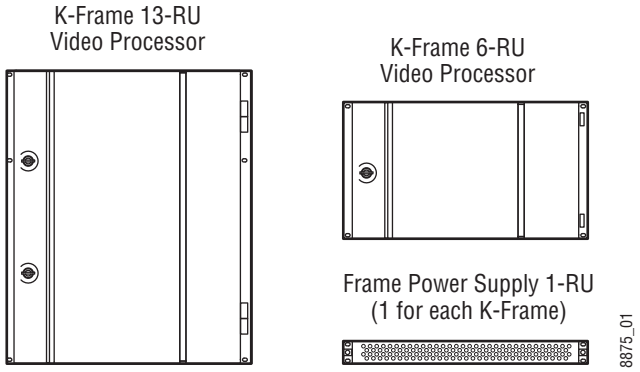
- Fully digital 10-bit 4:2:2 video switcher including 1080p level A or B support.
- Six keyers in every full ME, including Chroma Key and two frame stores per keyer.
- Source memory available on every source,
- The Controller ME has a full complement of 6 keyers with Chroma Key and two frame stores per keyer.
- Optional RGB color correction on ME buses and aux bus outputs.
- Aux bus transitions for dissolves and wipes on aux bus outputs.
- Hot-swappable, front removable modules and power supplies.
- Optional smart I/O modules provide up/down/cross conversion.
- Optional DoubleTake™ split ME mode effectively increases the number of MEs and includes FlexiKey™ programmable clean feed mode for separately programmable configurations of keyers from four ME outputs.
- The optional integrated Image Store is capable of both record and playing back stills and, optionally, movies
- Integrated external ClipStore provides multiple channels of video/key pairs for up to 10+ hours of nonvolatile video/key/audio clip content.
- 1,000 E-MEM registers with Define E-MEM for fine control in creating and editing effects.
- 999 macros with many ways to recall macros from the panel.
- Integrated macro editor allows users to edit macros online or offline on a PC running the menu application.
- Source Rules links keyers with sources to automatically turn keys on or off on PGM and PST buses when the source is selected.
- Up to 16 channels of 3dDPMs with Kurl, lighting, trails, boarders and more can be assigned to a keyer or to create transitions and effects that can be used to feed any ME in the switcher.
- Other powerful features are available that enhance the ability to produce complicated shows in regular or 3D productions. These include key chaining, bus linking, source substitution, transition chaining and many more features.

K-Frame Video Processor

The K-Frame Video Processor is available in two sizes (Figure 1). The number of licensed boards present in the frame determines the number of

MEs available, as well as the number of video inputs, outputs, GPIOs and Relay Tallies.

Figure 1. K-Frame Video Processors



K-Frame Control Surfaces

Kayenne

A Kayenne control surface typically consists of a Control Panel, a Menu Panel with an included articulated support arm, a Panel Control Unit (PCU) frame, and optional Satellite Panels. This control surface has an innovative modular design. Representative Kayenne control surfaces are shown in the following illustrations.

Figure 2. Kayenne 4-ME 35 Control Surface

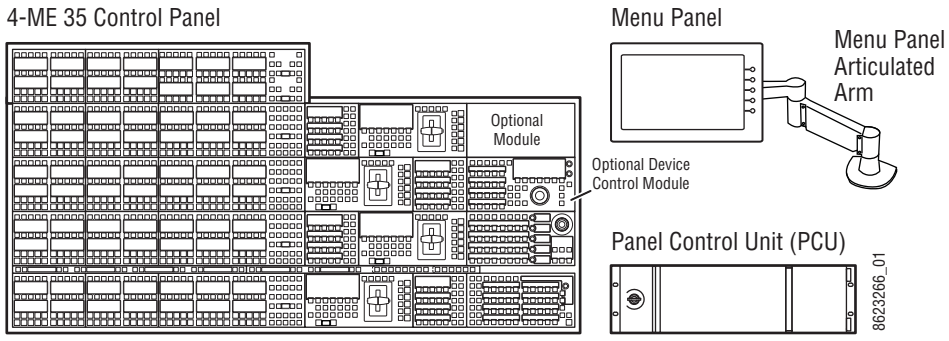


Figure 3. Kayenne 3-ME 35 Control Surface

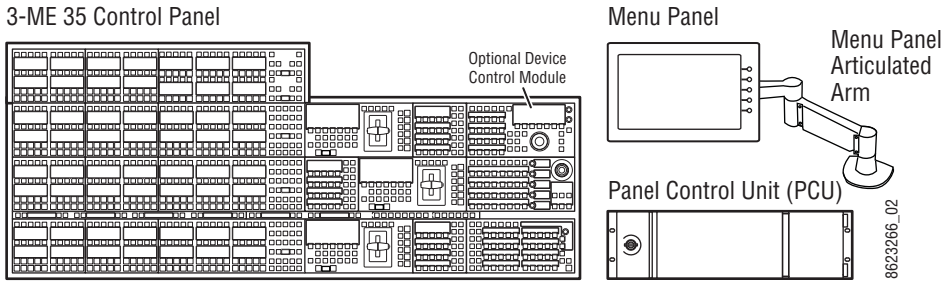


Figure 4. Kayenne 2-ME 25 Control Surface

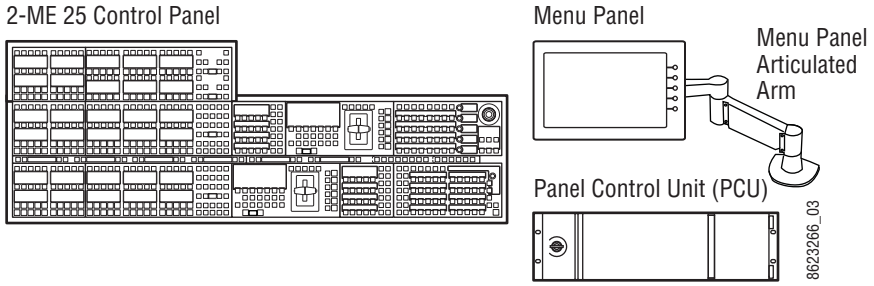
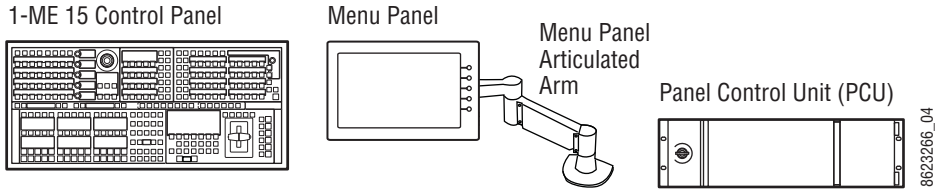


Figure 5. Kayenne 1-ME 15 Control Surface

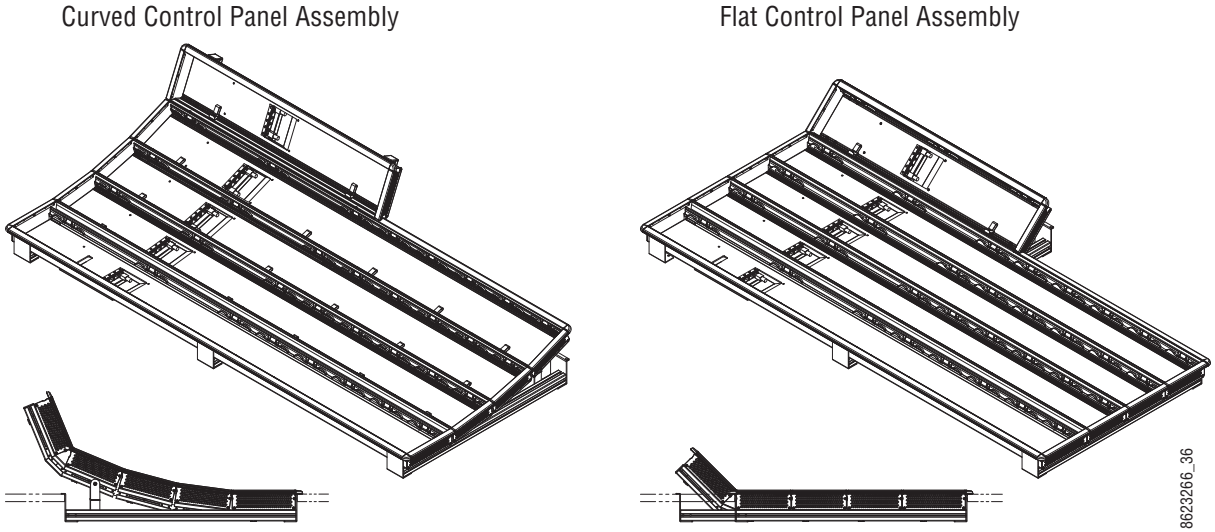


The modular design and use of a separate PCU supports the hot-replacement of individual Control Panel components, if necessary, while the rest of the system remains operational.

Flat or Curved Control Panel Orientation

The main Kayenne Control Panel supports different physical orientations. Besides a conventional flat surface, a special support design permits a curved working surface, where the MEs progressively tilt for improved ergonomics (Figure 6).

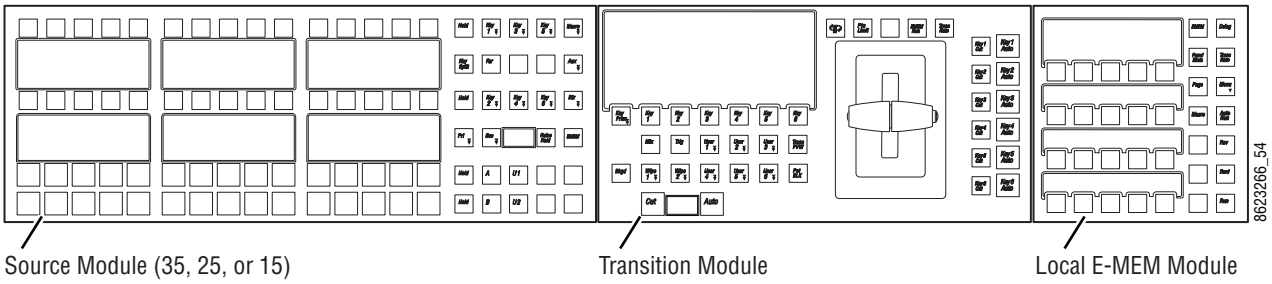
Figure 6. Curved and Flat Control Surface Installations



Control Panel Stripes

The main Kayenne Control Panel is organized into from one to five Stripes. Each Stripe consists of a tray and its complement of drop-in modules. An ME Stripe has a module for Source Selection, Transition, and individual E-MEM control (Figure 7). Additional Master E-MEM, Machine Control, Multi-Function, and Local Aux modules are populated to complete the control surface functionality.

Figure 7. Portion of Control Panel ME Stripe

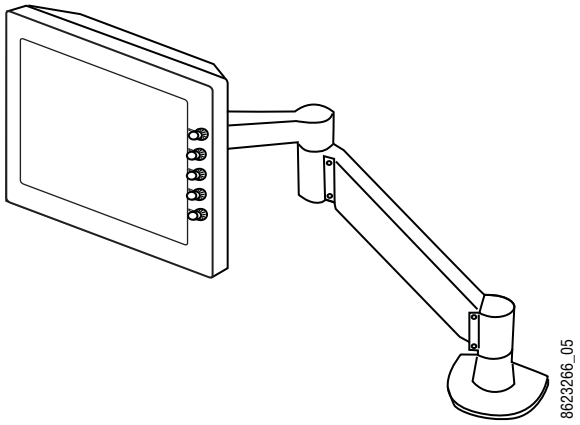


Touch Screen Menu Panel

Each Kayenne control surface includes a Menu Panel that features a wide format 15 in. touch screen display. An articulated arm is also included, offering a wide variety of installation options (Figure 8). The Menu Panel has a standard VESA-75 hole pattern and M4 threads, compatible with this and many other mounting devices.

The Menu Panel has four USB ports, two on the right side edge of the panel and two on the back for keyboard and mouse (wired or wireless are supported).

Figure 8. Menu Panel with Articulated Arm



Soft Panel (KSP) Option

Figure 9. Soft Panel Application

The KSP is an optional 1-ME Soft Panel GUI which provides direct control of switching crosspoints, recalling effects and macros together with an integrated version of the Menu application. A customized PC keyboard is included with the option for users who like quick cut and mix action from a hard-button interface. The KSP can be used as an adjunct to a main panel, providing a second seat (second control surface) in a Suite, or as the only control surface for a second Suite.

The KSP GUI application is designed to run on a PC platform. The screen must be 1920x1080 resolution or better (which is common in professional video environments). A touchscreen is not required, but can be very useful.

The KSP software is included with the switcher application software. Purchasing the option provides a software license that enables the interface for the selected switcher, and includes a customized PC keyboard. The license activates an unlimited number of KSP applications associated with the licensed video processor frame. Additional customized PC keyboards are also available for purchase.

Menu Application

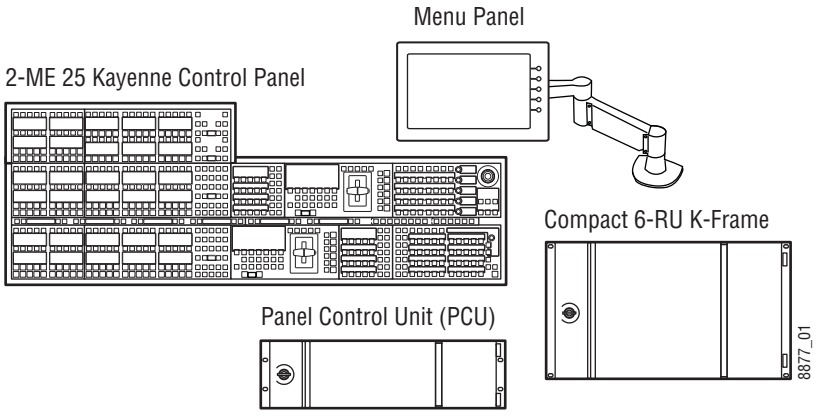
The Menu application software provided with every K-Frame system can be run on a standard PC. This software accesses all the system's functionality, permitting mouse and keyboard control from a laptop, or remote control from any location on the network.

K-Frame System Examples

Basic Single Suite Kayenne Panel System

A basic K-Frame system consists of a Control Panel, a Menu application running on a touch screen Menu Panel, and a Video Processor Frame. The Control Panel and Menu application make up a control surface associated with that frame. (Figure 10). The Kayenne Control Panel and Menu Panel have associated active electronics housed in the Panel Control Unit (PCU).

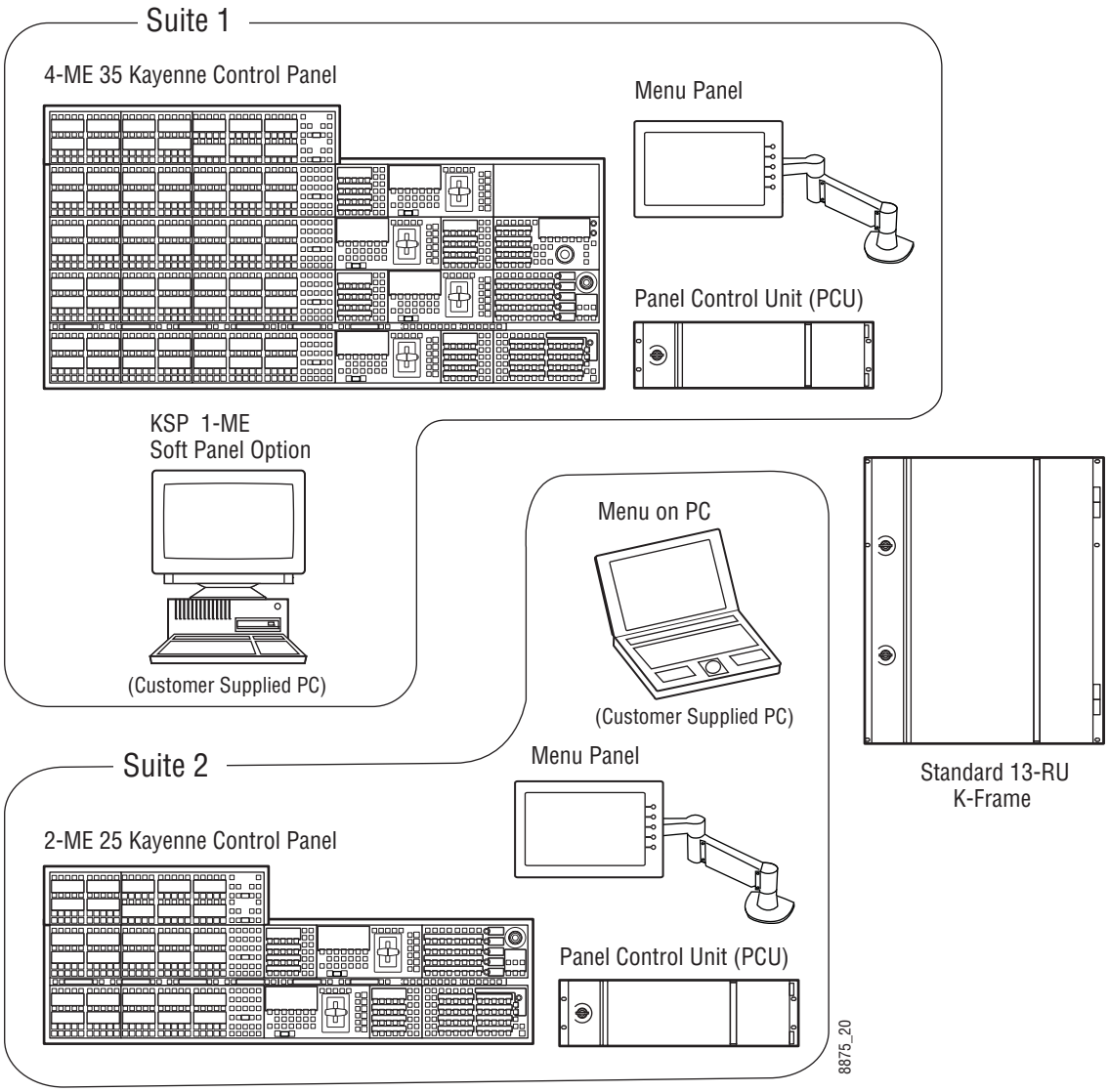
Figure 10. Kayenne Single Suite Compact Frame Example



Multiple Suite Kayenne Panel System

A K-Frame system can be subdivided into two suites, if desired, each of which can have two control surfaces (Surface A and Surface B). Each surface has it's own set of Panel Preferences for configuration of the control panel behavior and independent macro systems to allow for independent building and running of macros by each operator at the control surface. Hardware resources in the Video Processor Frame can be assigned to an individual suite during configuration, essentially creating two separate switchers sharing one frame (Figure 11).

Figure 11. Kayenne Multi-Suite Standard Frame Example



Supported Control Protocols

- Ethernet
- PBus II
- GPI Inputs and Outputs
- Serial BVW-75 for VTR control
- Odetics protocol for VTR control
- AMP (advanced media protocol) for Profile PVS, Profile XP Media Platform, K2, M-Series, Turbo iDDR, and T2 iDDR systems over Ethernet
- Grass Valley Native Protocol for routers/routing control systems (Trinix/Trinix NXT, Venus™, Triton™, and third-party routers; Jupiter and Encore router control systems)
- Tally (contact closure)
- K-Frame Ethernet Tally protocol
- Ethernet CPL to control Grass Valley external remote AUX Panels
- Grass Valley Editor protocol
- SNMP system monitoring
- Serial and Ethernet VDCP
- LDK Series & LDX Series™ camera control with Ethernet tally via Connect Gateway

Section 2

Control Surface Installation

Overview

A typical Kayenne control surface has a modular Control Panel, a Menu Panel, and is driven by a Panel Control Unit (PCU) frame. Additional Menu Panels and Satellite Panels are available as options.

A Control Panel consists of system operation modules, which mount into trays, which are in turn held in place by a Control Panel support structure. One Control Panel tray filled with modules is called a Stripe. Various numbers and types of modules and trays can be combined to create a wide variety of control surface functionality.

The Control Panel and Menu Panel's processing electronics are located in the PCU. The Stripes and Menu Panels are connected to the PCU via multi-pin cables that carry power and communication signals.

Kayenne Control Panels ship to the customer as boxed Stripes, which are assembled with the support structure on site. You will need to know what Control Panel configuration(s) you intend to use at your facility in order to plan your installation effectively.

The Kayenne Control Panel support kit uses 30mm series components sourced from Bosch Rexroth.

Control Panel Assembly

Support Structure Assembly Required

CAUTION Assembly of the Control Panel support structure is nontrivial. Do not attempt assembly without first reading the detailed instructions in the separate *Kayenne K-Frame Installation & Service Manual*.

If you purchased commissioning with your K-Frame system, assembly of the Control Panel support is included as part of the commissioning.

If you did not purchase commissioning, but would like to reconsider the option, contact Grass Valley Customer Support.

Control Panel Variations

Seven basic Control Panel assemblies are considered standard: 4-ME 35, 4-ME 25, 3-ME 35, 3-ME 25, 2-ME 35, 2-ME 25, and 1-ME 15. Each assembly name identifies the number of MEs present and the number of source selector buttons in each ME.

Two Control Panel Assembly orientations are possible, flat and curved. The curved panel provides improved operator ergonomics. This orientation raises the Control Panel height, so visibility of a monitor wall should be considered prior to installation. An assembled Control Panel can be operated from a tabletop, or it can be installed into a cutout.

The Local Aux Stripe can be connected to the Control Panel support structure at a 45 degree angle, or it can be mounted separately in its own backsplash cutout.

The following diagrams show some standard Control Panel assemblies. It is also possible to create different Control Panel assemblies (for example, a 2-ME 35), since the parts are interchangeable. Specific information for non-standard configurations is not included in this document.

Control Panel Cooling

The Kayenne Control Panel is externally powered and does not have internal cooling fans. Electronics in the panel are convection cooled and require free air movement. Do not install the panel into a sealed space.

CAUTION If the panel is mounted in a counter-top, do not enclose the lower portion of the cutout. Leave the bottom open to allow passive air movement.

Truck and High Vibration Environment Considerations

The Kayenne Control Panel has several bolt and screw tightened components. In high vibration environments these attachments could loosen over time. Loctite Blue 242 or equivalent thread locking compound is recommended for these environments. This compound is designed to lock threaded components together during assembly, but permits them to be loosened if necessary later using hand tools.

During Control Panel assembly, apply a drop of the locking compound to the ends of the threads of the support beam bolts, to the screws connecting the cutout lip brackets to the support beams, and to the bolts attaching the

trays to the support beams. Make sure the locking compound is present where the thread interfaces to each bolt or beam.

4-ME 35 Control Panel, Curved Assembly

Figure 12. 4-ME 35 Control Panel Dimensions, Curved Installation

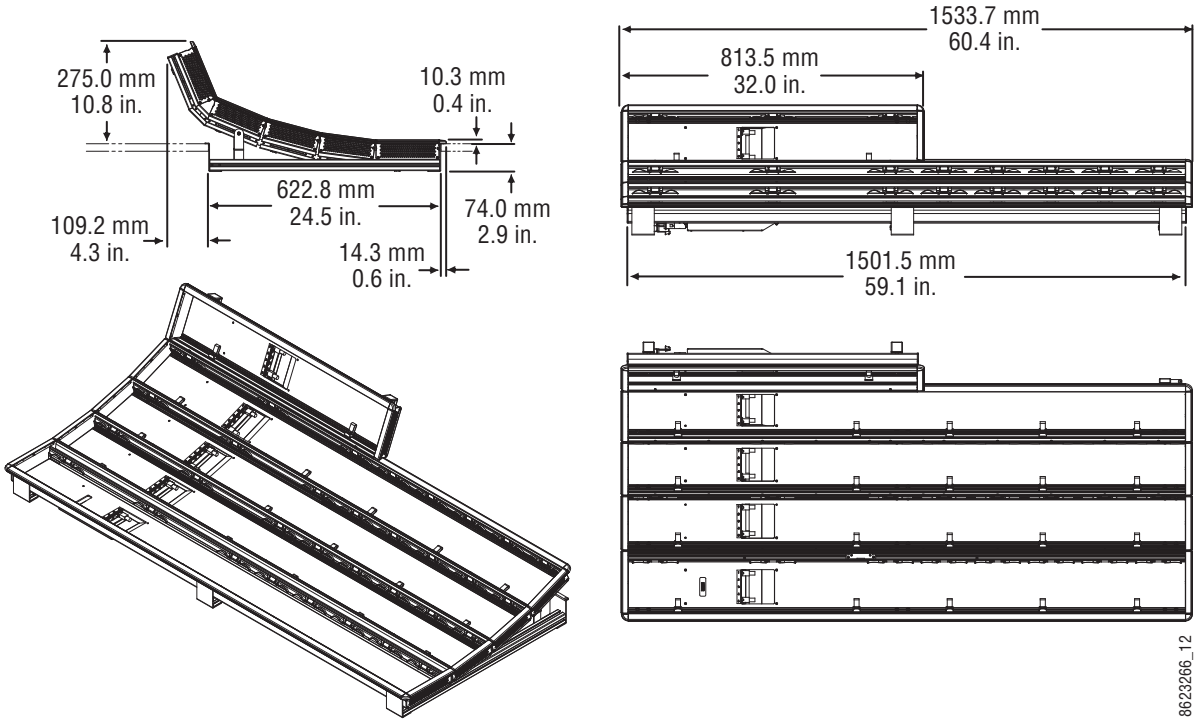


Figure 13. 4-ME Control Panel Cutout Dimensions, Curved Installation

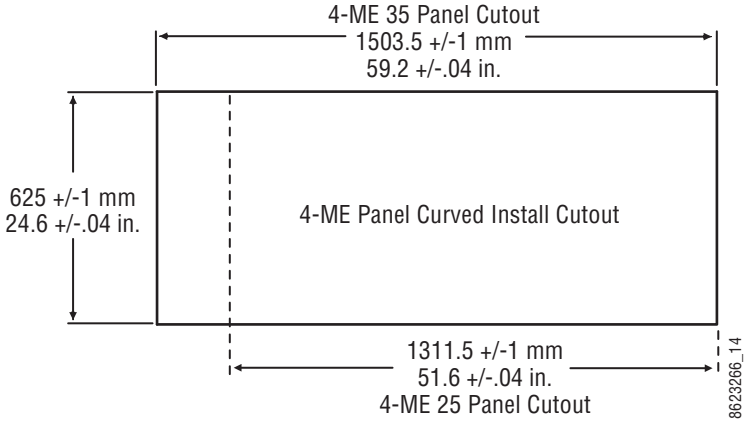
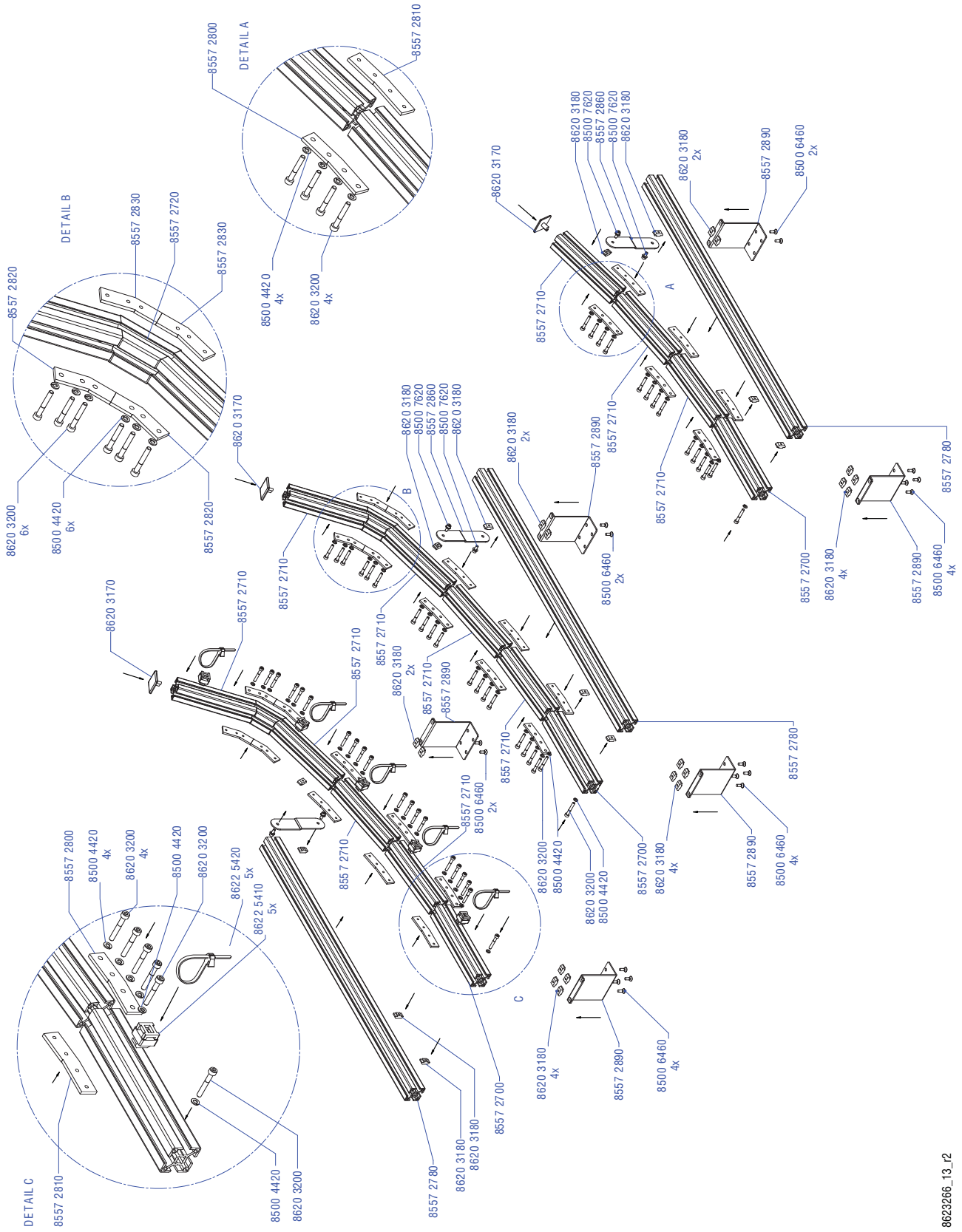


Figure 14. 4-ME Support Structure, Curved Installation



4-ME 35 Control Panel, Flat Assembly

Note Read through the entire procedure before you begin actual assembly.

Figure 15. 4-ME 35 Control Panel Dimensions, Flat Installation

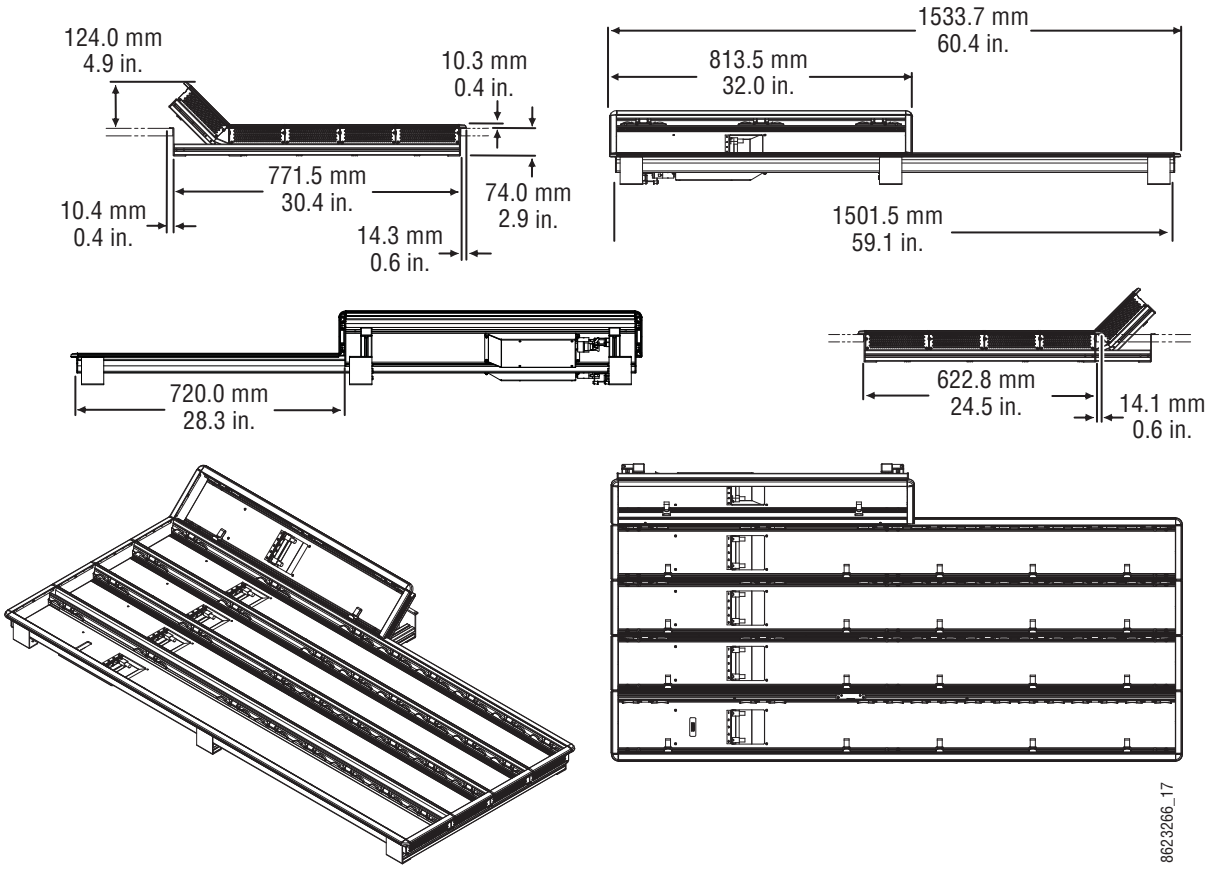


Figure 16. 4-ME Control Panel Cutout Dimensions, Flat Installation

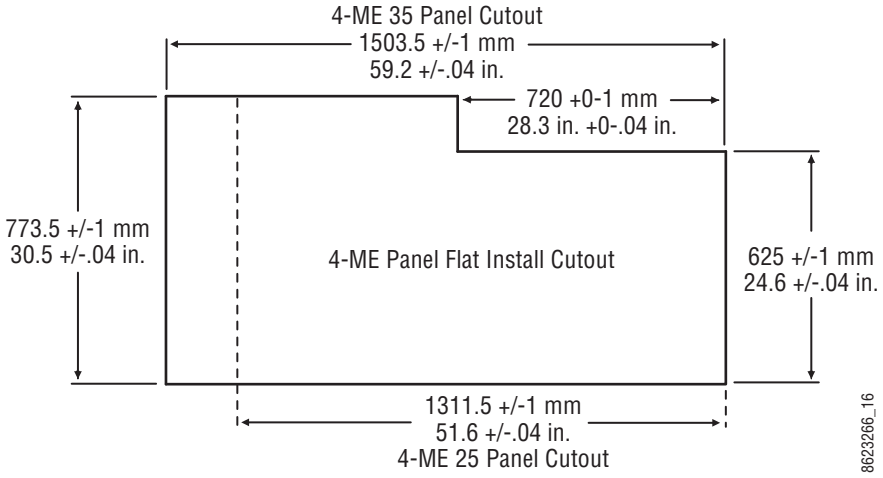
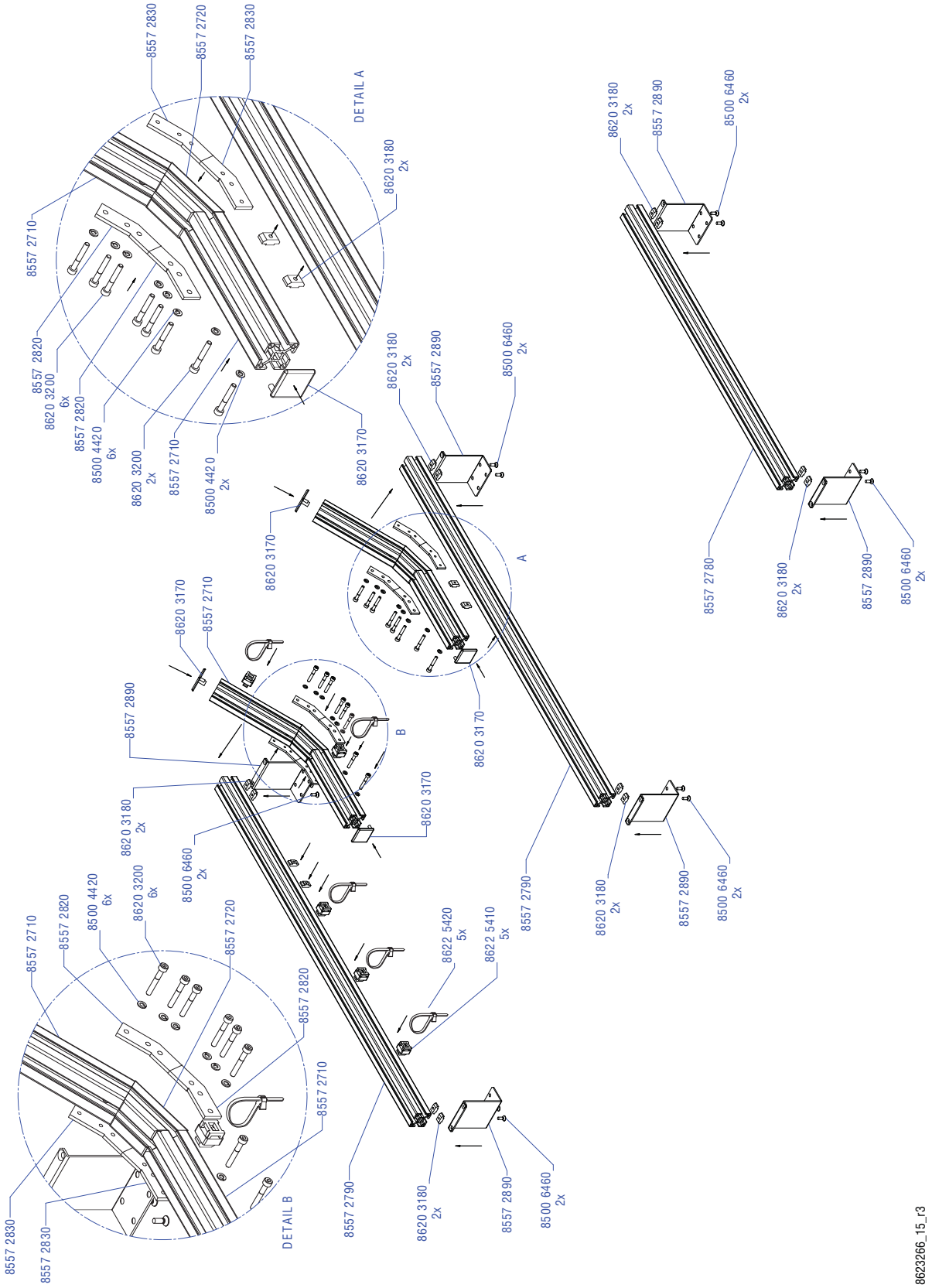


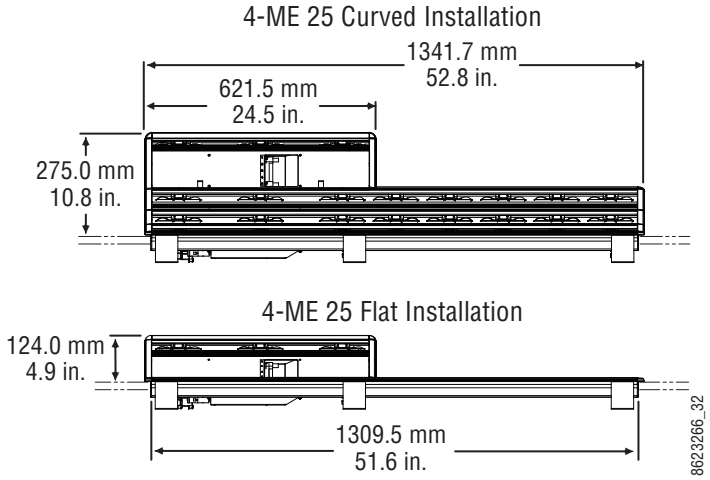
Figure 17. 4-ME Support Structure, Flat Installation



4-ME 25 Control Panel

Control panels with 25 source selection buttons are narrower in width, but otherwise have the same dimensions as 35 source button models.

Figure 18. 4-ME 25 Control Panel Dimensions



3-ME 35 Control Panel, Curved Assembly

Figure 19. 3-ME 35 Control Panel Dimensions, Curved Installation

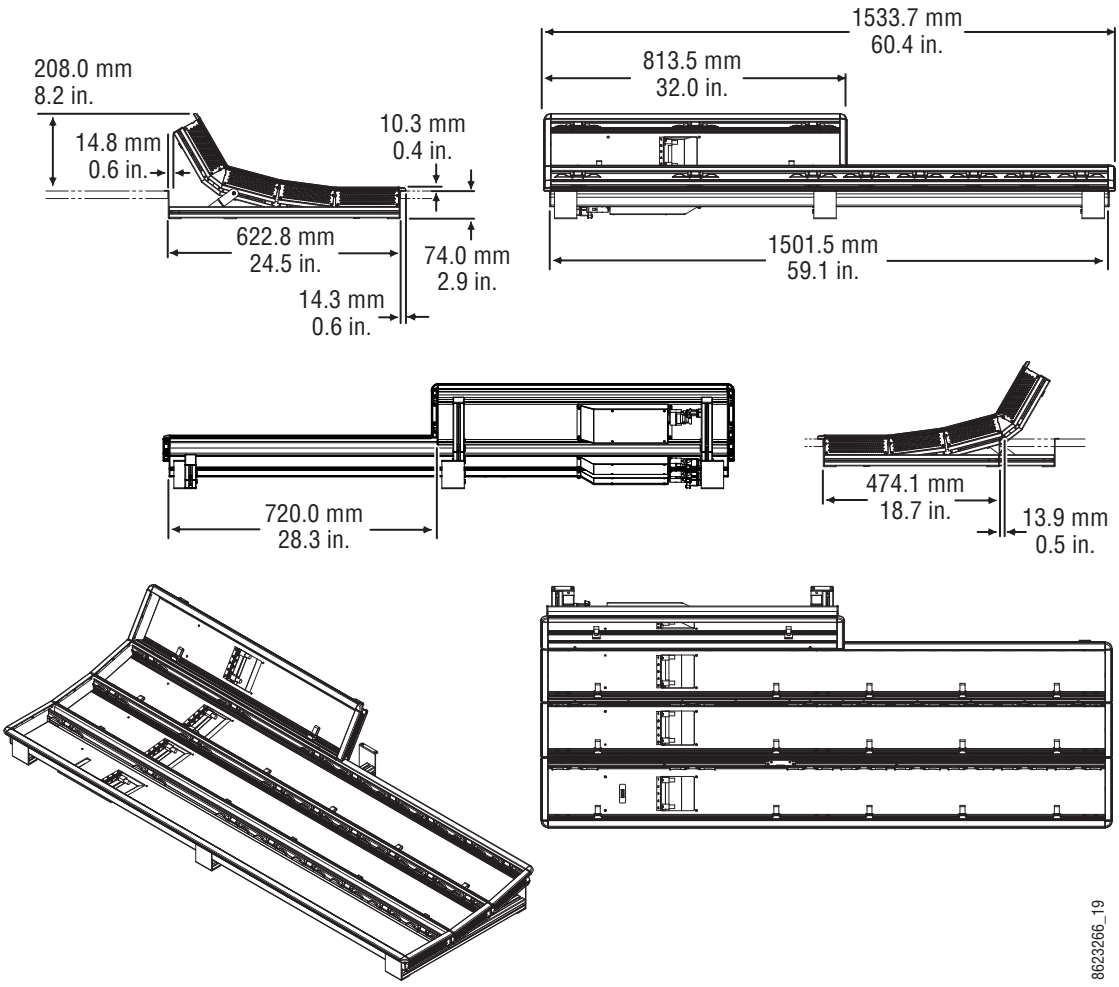


Figure 20. 3-ME Control Panel Cutout Dimensions, Curved Installation

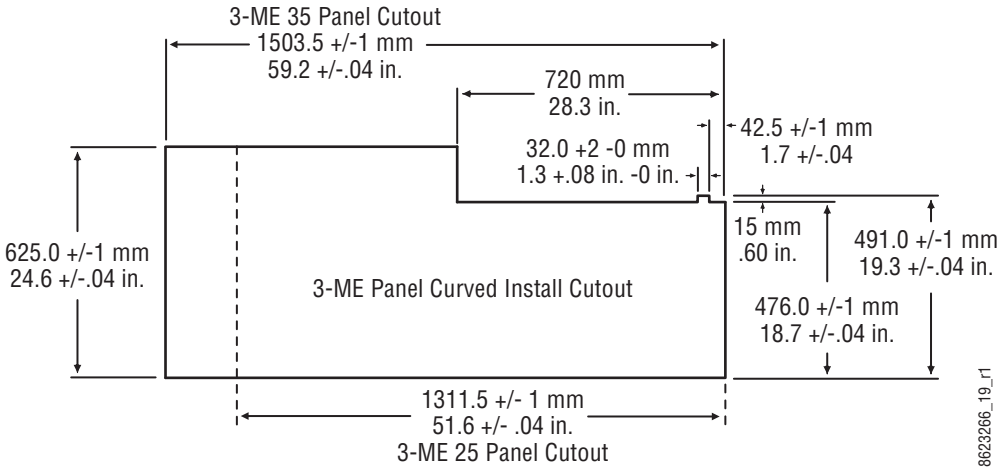
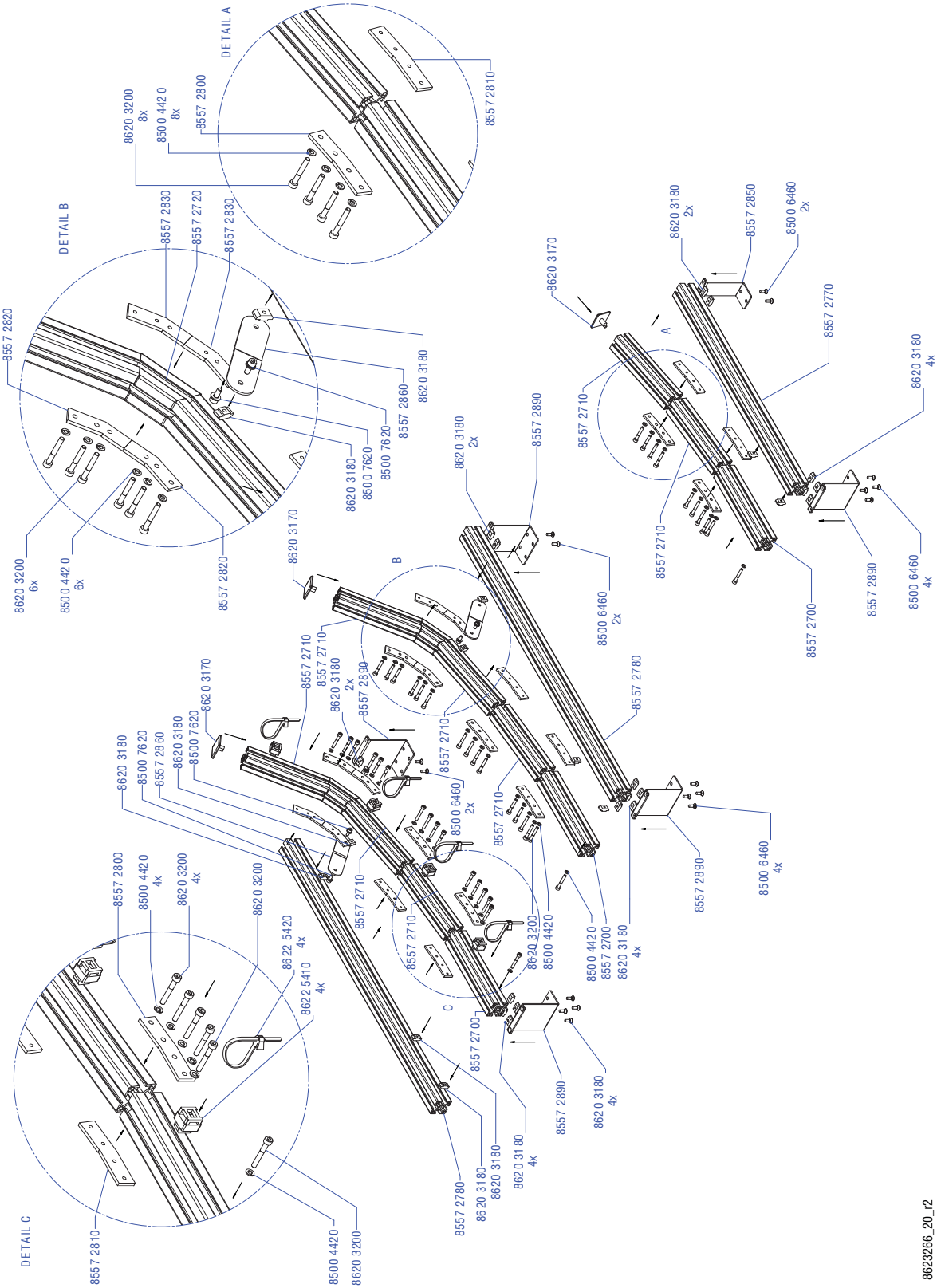


Figure 21. 3-ME Support Structure, Curved Installation



3-ME 35 Control Panel, Flat Assembly

Figure 22. 3-ME 35 Control Panel Dimensions, Flat Installation

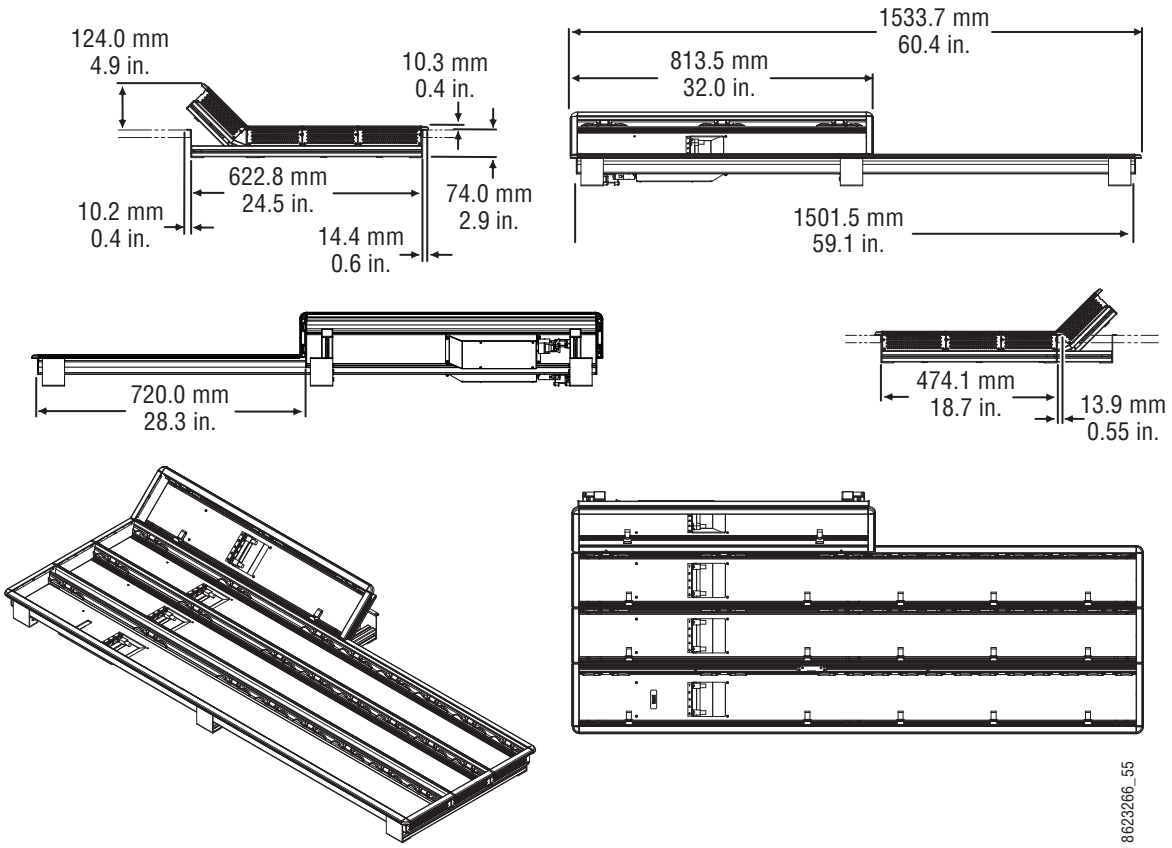


Figure 23. 3-ME Control Panel Cutout Dimensions, Flat Installation

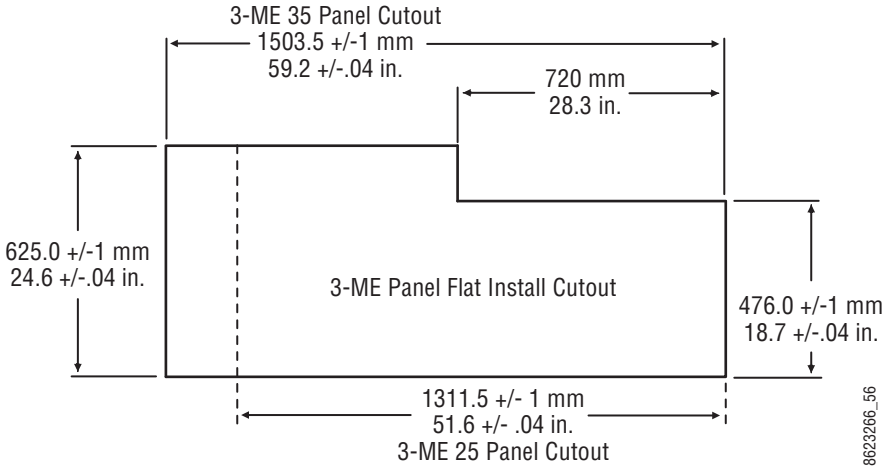
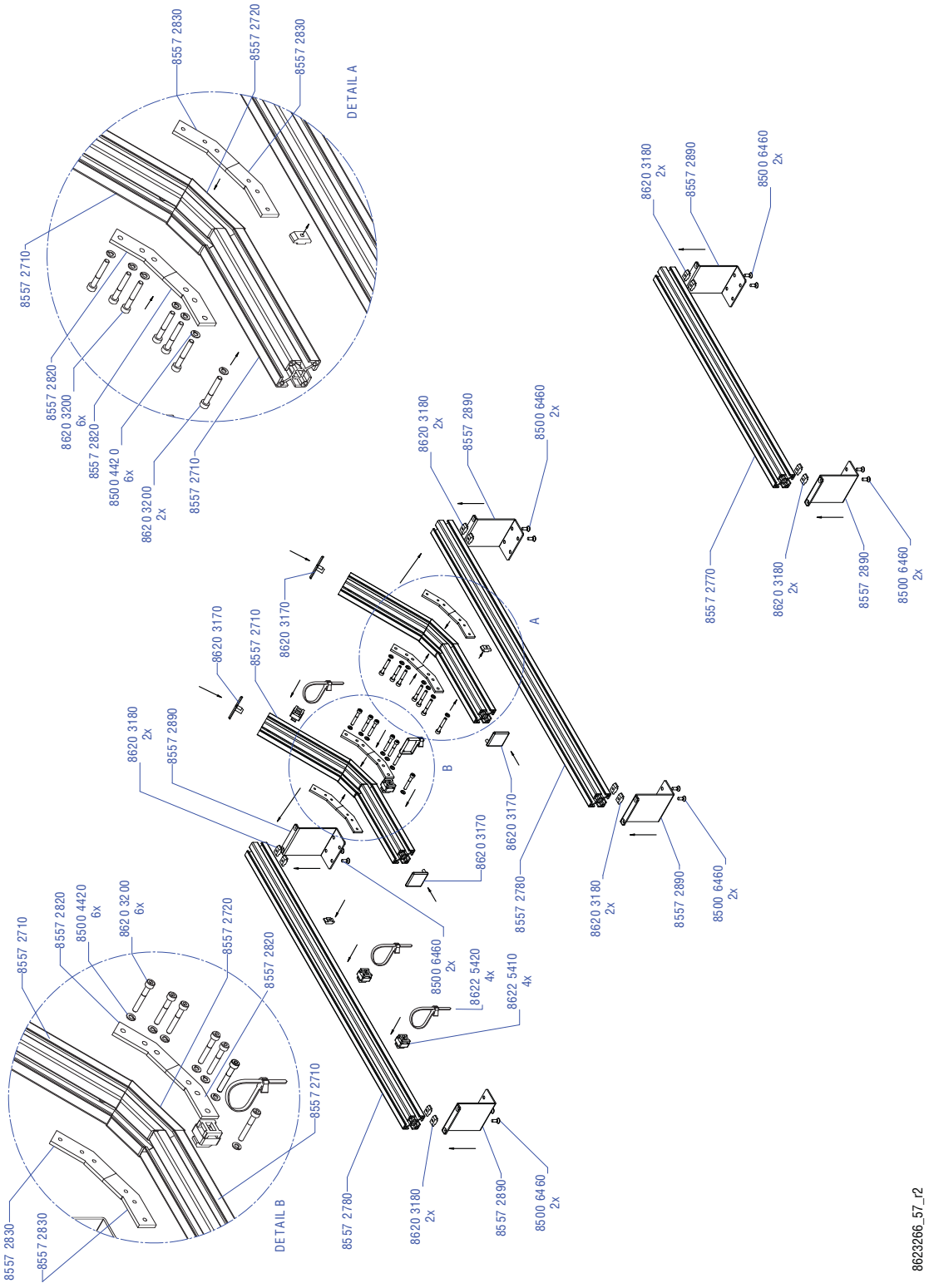


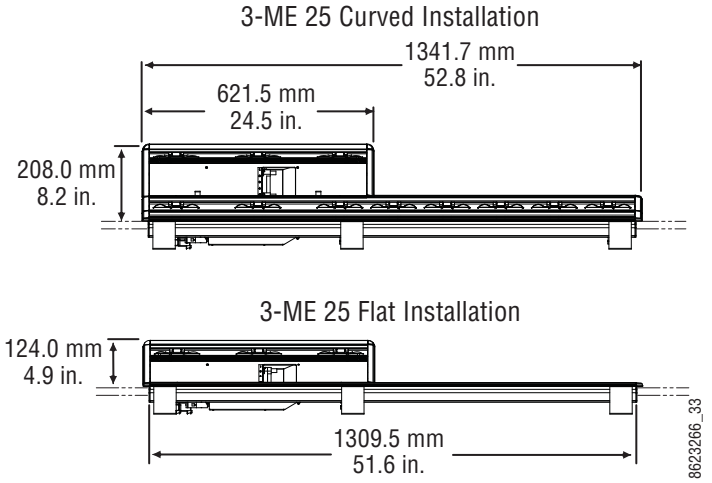
Figure 24. 3-ME Support Structure, Flat Installation



3-ME 25 Control Panel

Control panels with 25 source selection buttons are narrower in width, but otherwise have the same dimensions as 35 source button models.

Figure 25. 4-ME 25 Control Panel Dimensions



2-ME 35 Control Panel, Curved Assembly

Figure 26. 2-ME 35 Control Panel Dimensions, Curved Installation

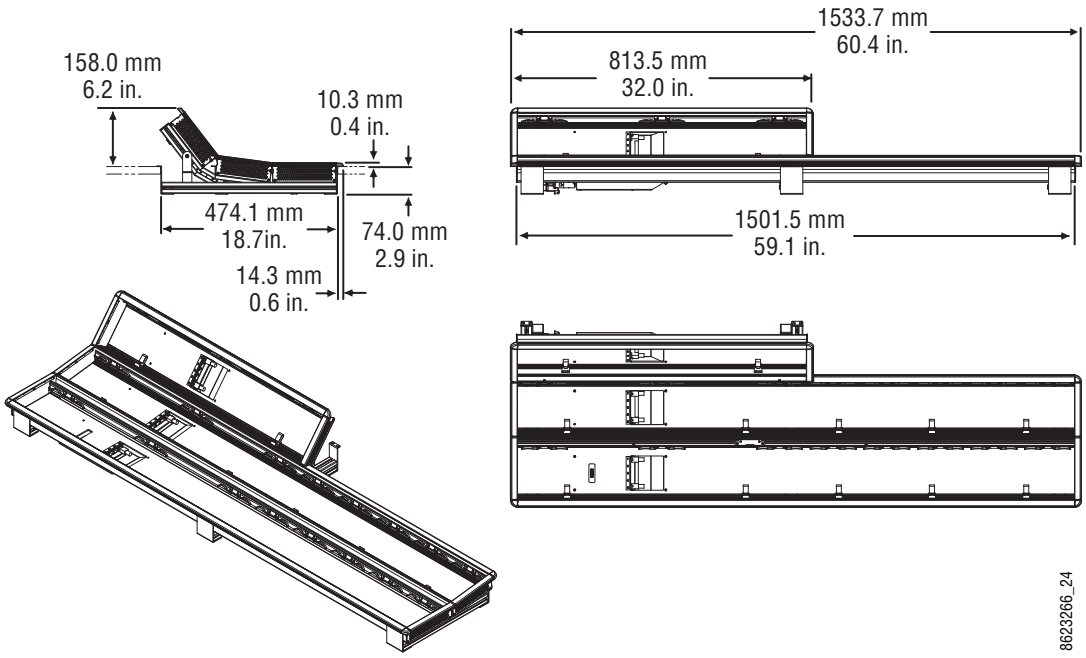


Figure 27. 2-ME Control Panel Cutout Dimensions, Curved Installation

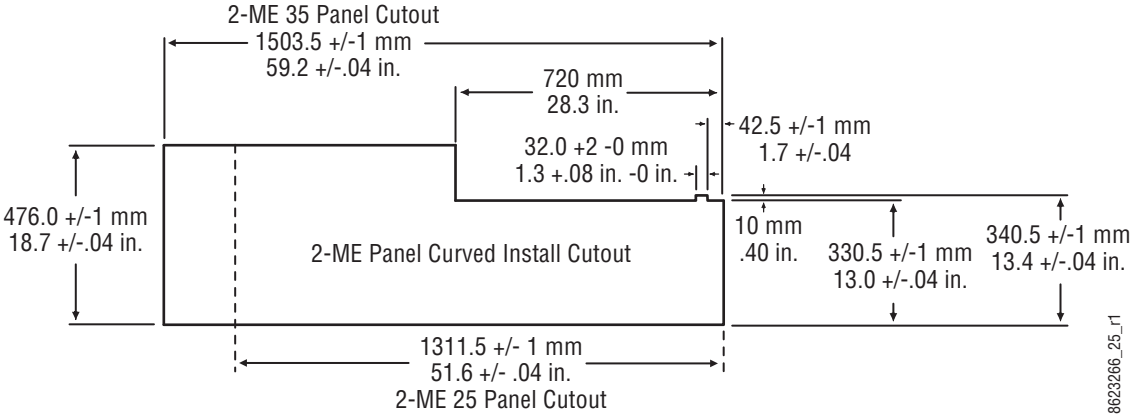
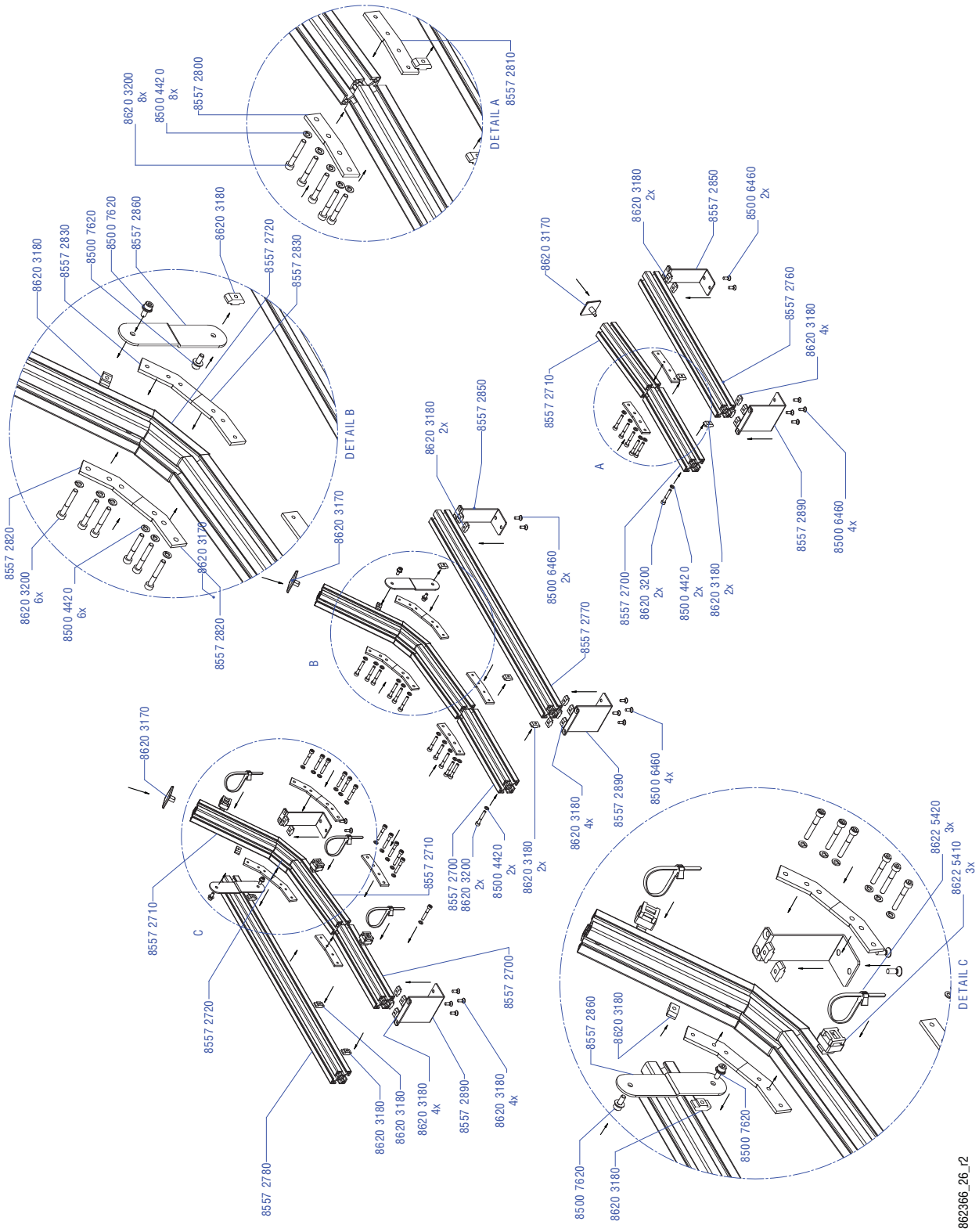


Figure 28. 2-ME Support Structure, Curved Installation



2-ME 35 Control Panel, Flat Assembly with Local Aux

Figure 29. 2-ME 35 Control Panel Dimensions, Flat Installation

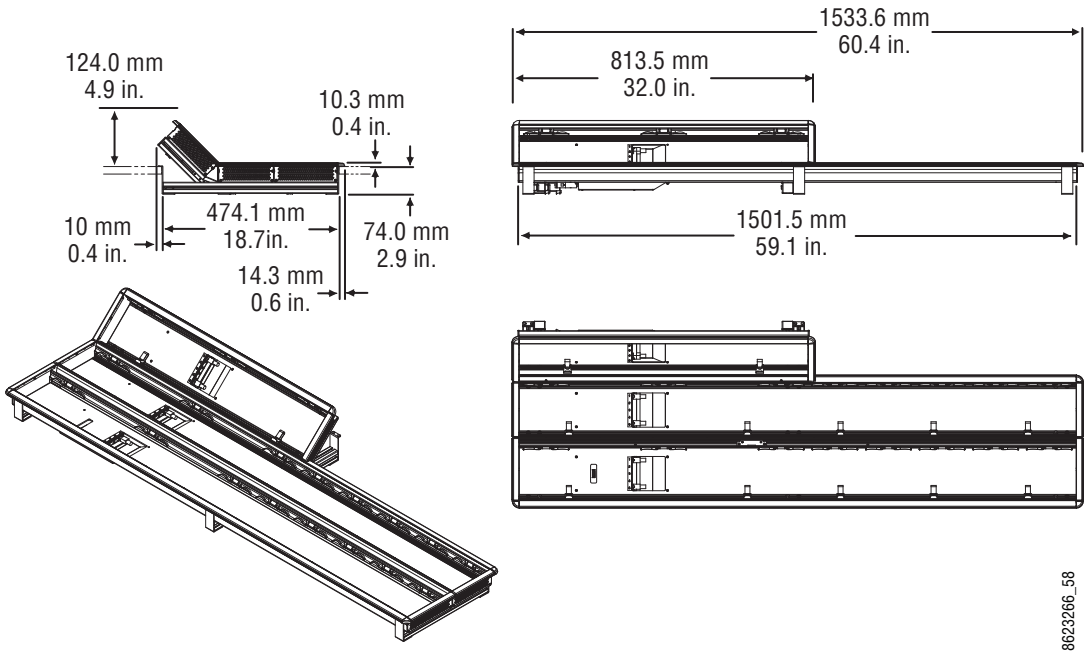


Figure 30. 2-ME Control Panel Cutout Dimensions, Flat Installation

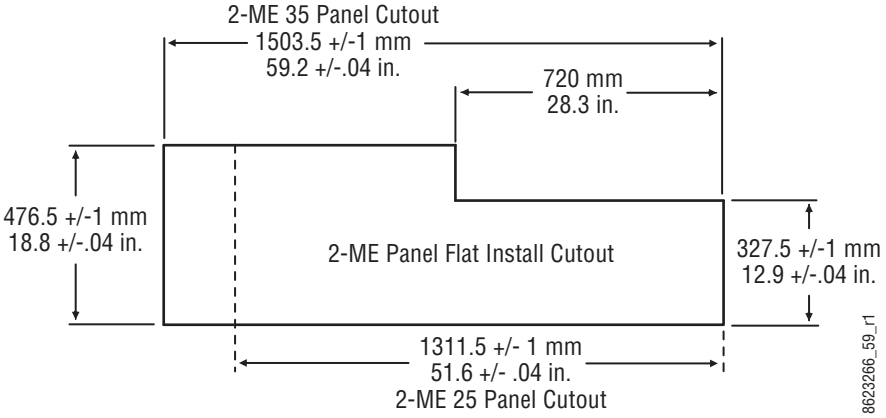
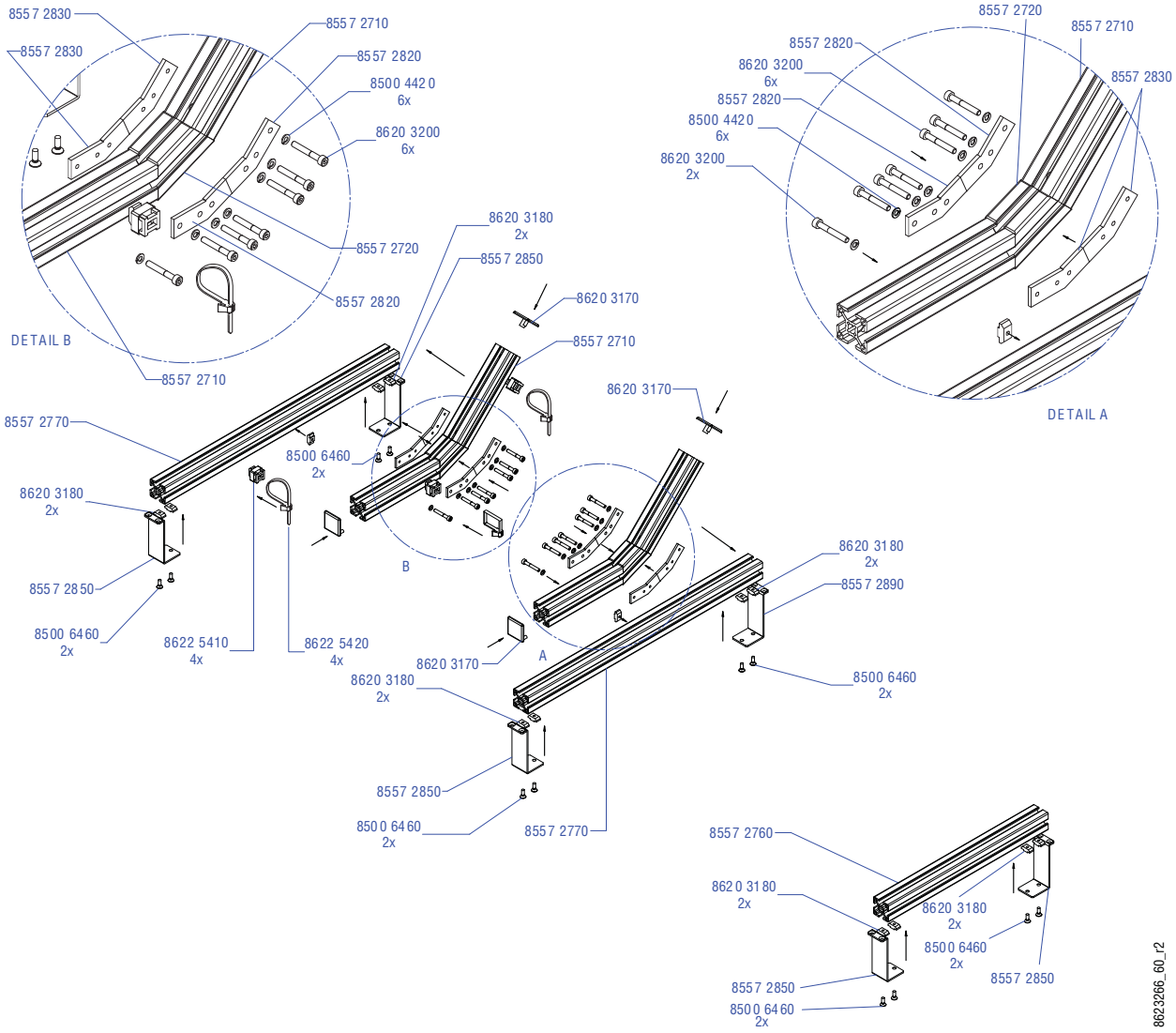


Figure 31. 2-ME Support Structure, Flat Installation



2-ME 35 Control Panel, Flat without Local Aux

Figure 32. 2-ME 35 Control Panel Dimensions, Flat Installation

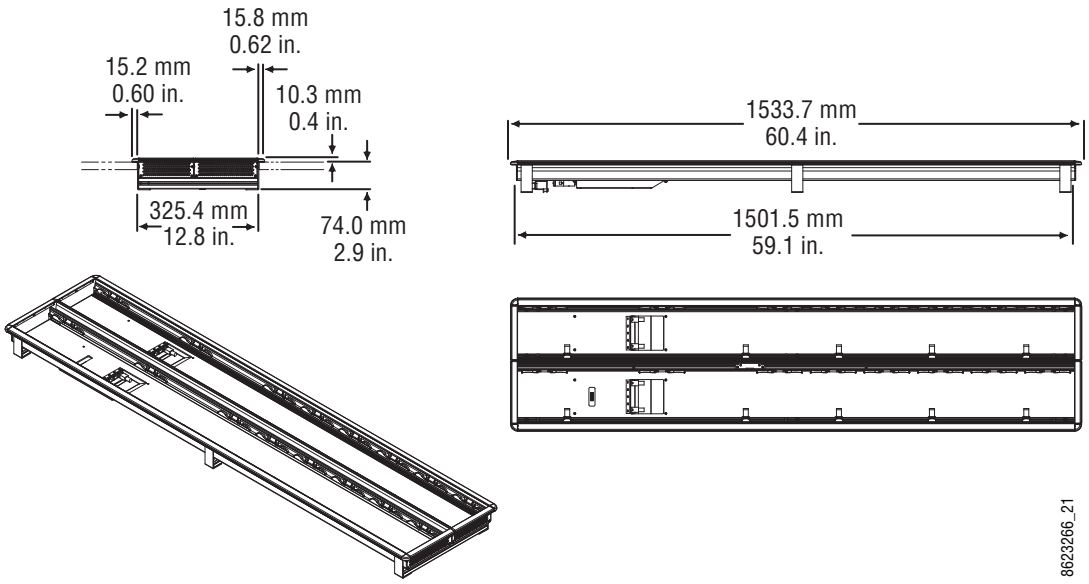


Figure 33. 2-ME Control Panel Cutout Dimensions, Flat Installation

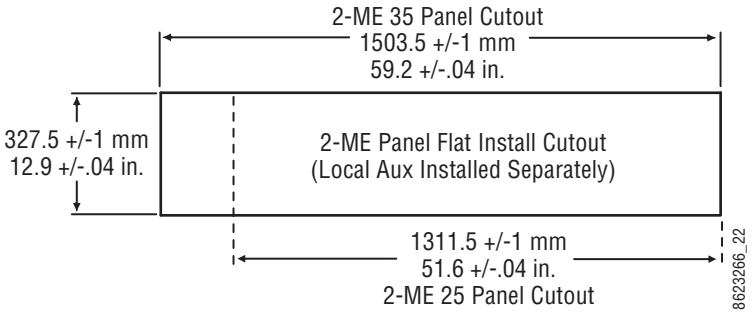
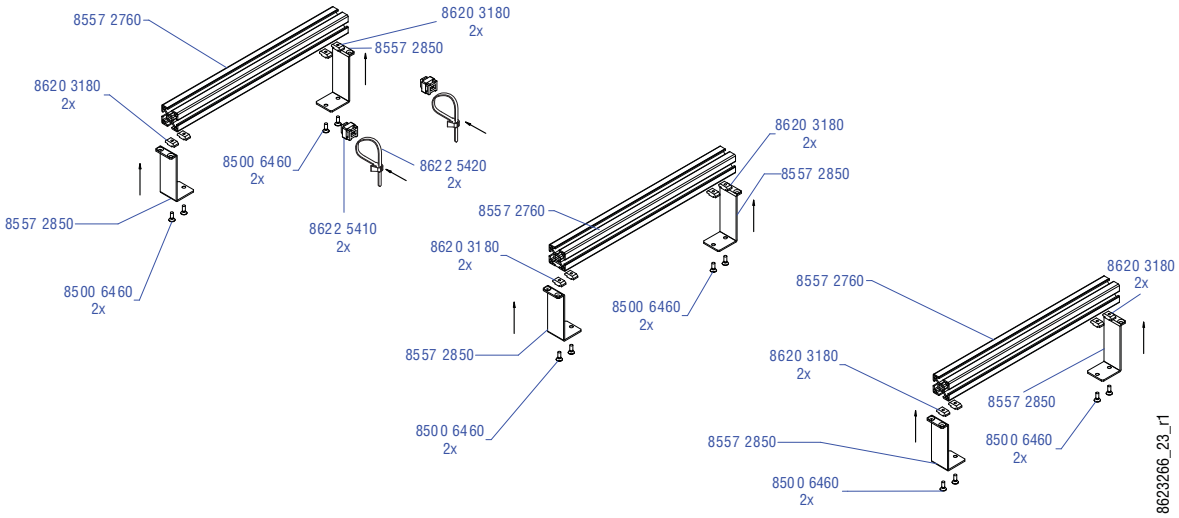


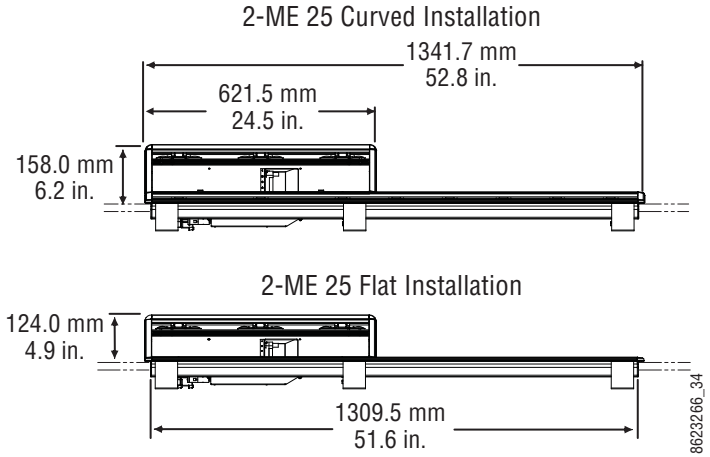
Figure 34. 2-ME Support Structure, Flat Installation, w/o Local Aux Stripe



2-ME 25 Control Panel

Control panels with 25 source selection buttons are narrower in width, but otherwise have the same dimensions as 35 source button models.

Figure 35. 2-ME 25 Control Panel Dimensions



1-ME 15 Control Panel

Figure 36. 1-ME 15 Control Panel Dimensions, Flat Installation

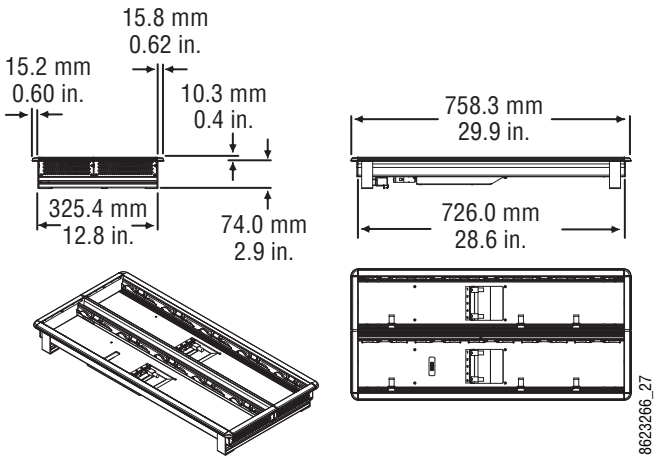


Figure 37. 1-ME 15 Control Panel Cutout Dimensions, Flat Installation

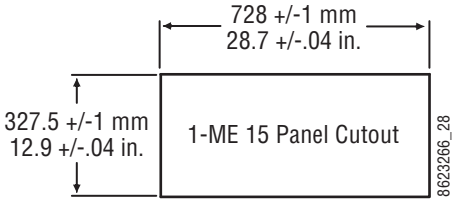
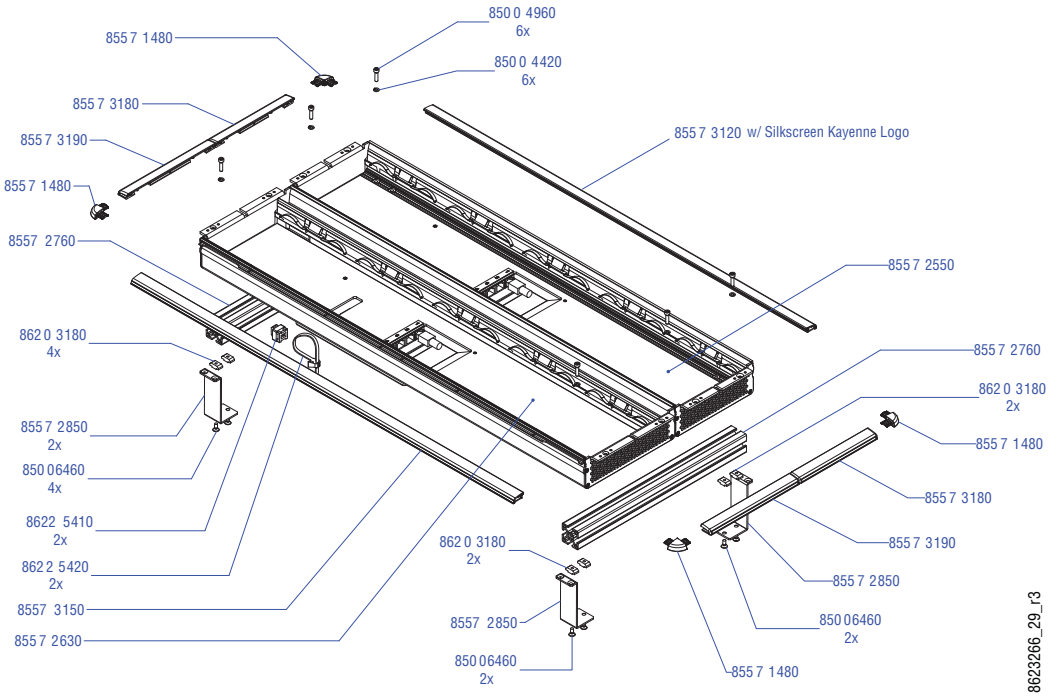


Figure 38. 1-ME Support Structure and Trim, Flat Installation



Separately Mounted Local Aux Stripe (35 & 25 Models)

Figure 39. Local Aux Stripe Separate Installation Dimensions

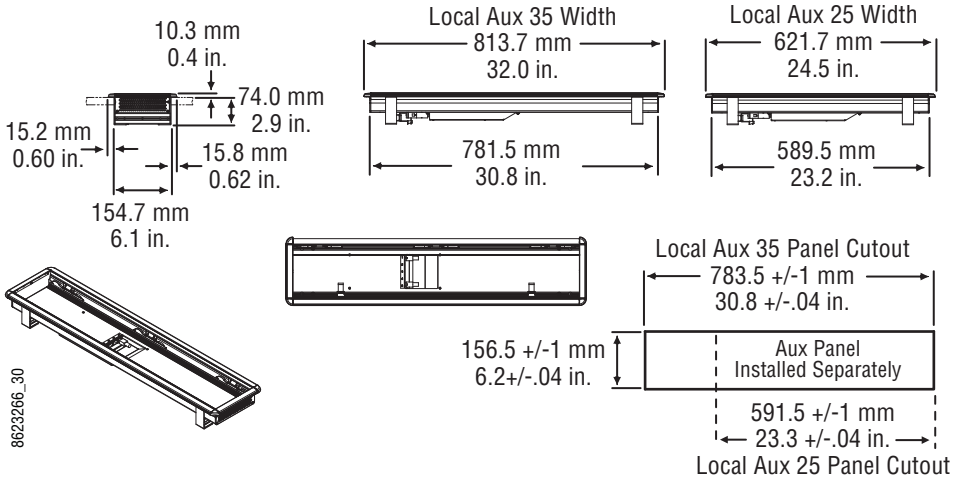
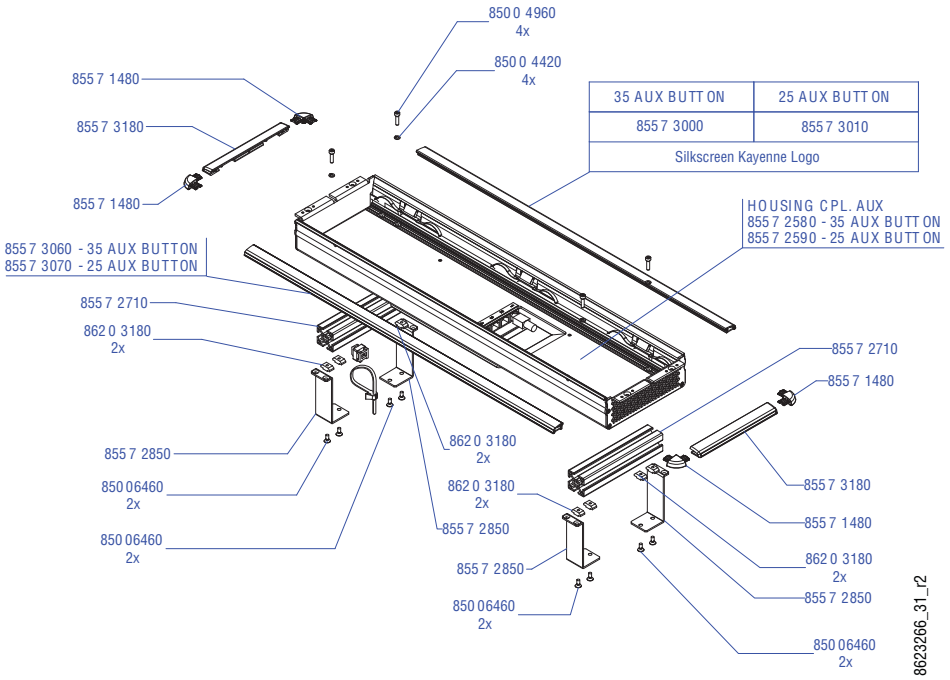


Figure 40. Local Aux Stripe Support Structure, Tray, and Trim



Control Panel Stripe-PCU Connections

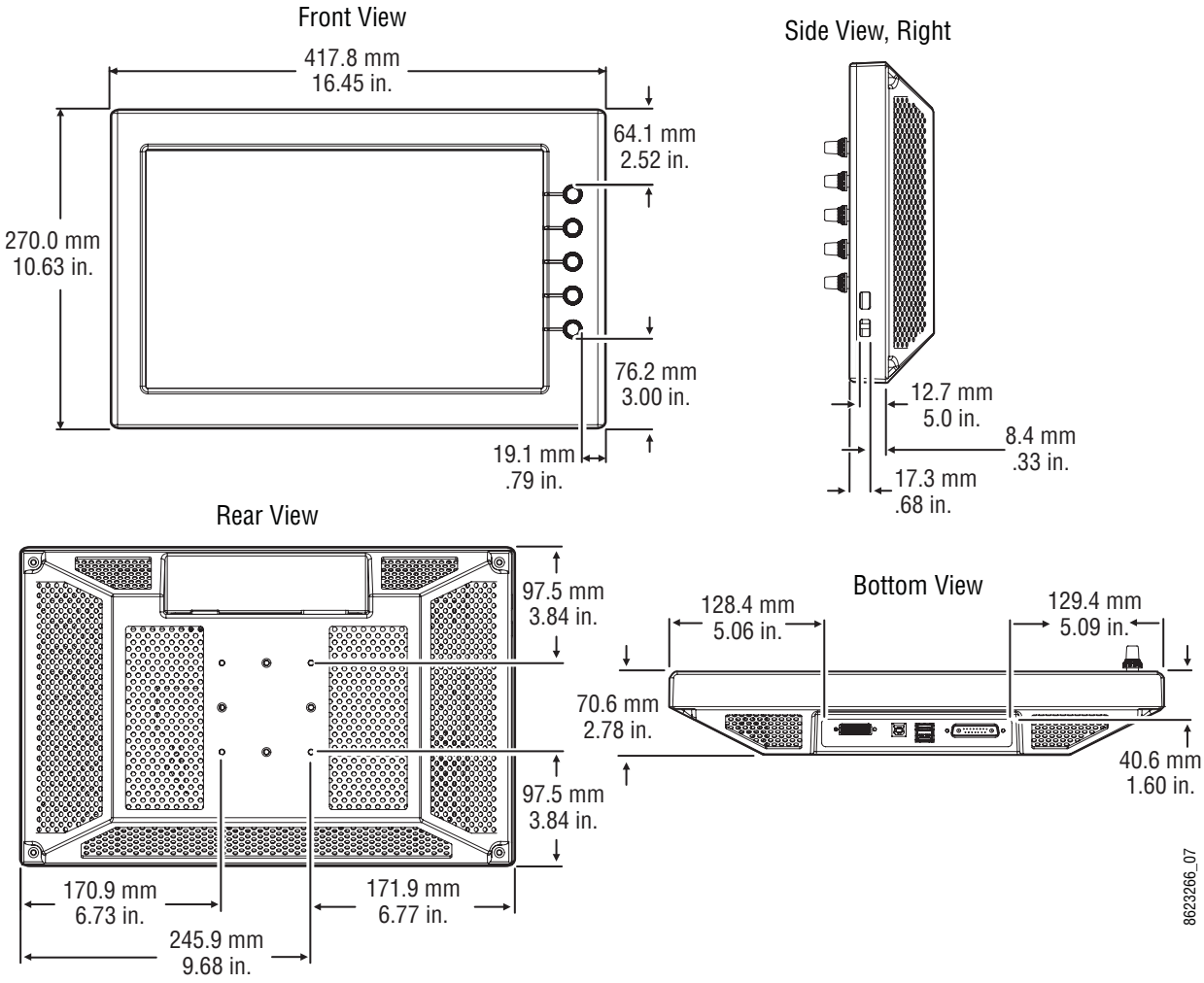
Connectors on the outside bottom of the Stripe connect to the PCU, using a special multi-pin cable that carries both power and communications.

CAUTION Do not connect or disconnect the multi-pin cables linking a Kayenne Control Panel tray and PCU while the PCU is powered up. Damage to the equipment can result.

Touch Screen Menu Panel Installation

Menu Panel Dimensions

Figure 41. Menu Panel Dimensions

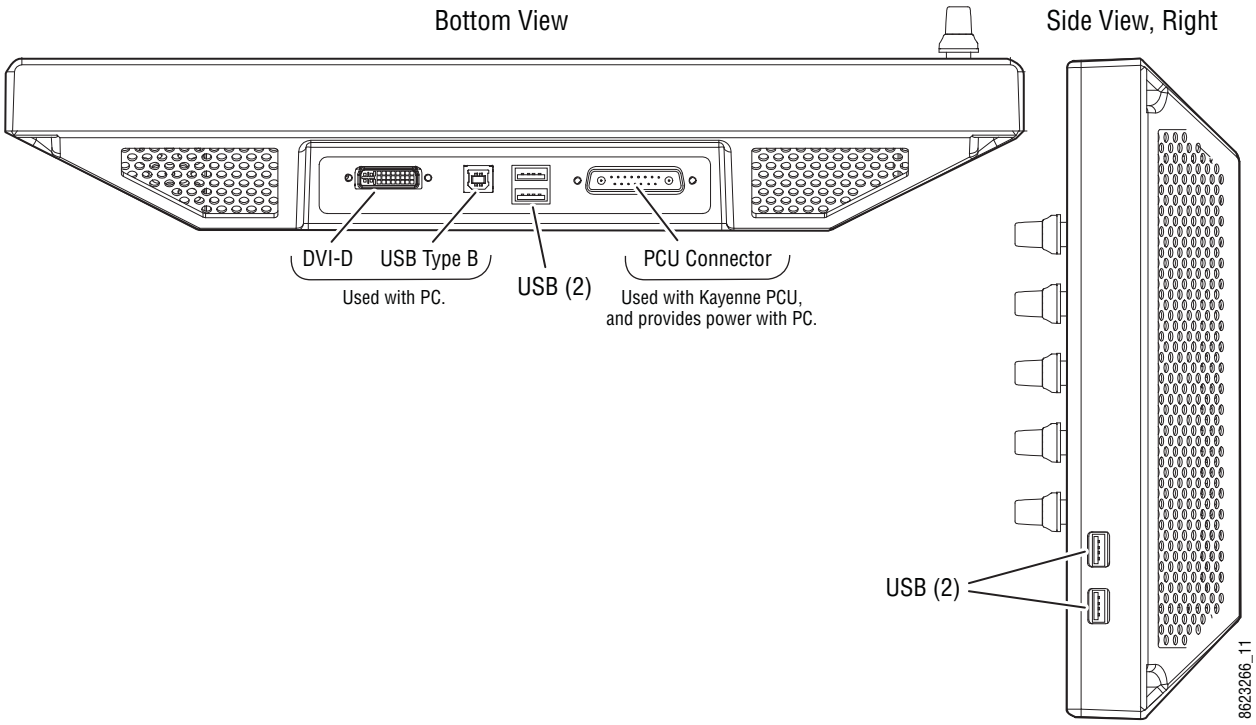


Menu Panel Connectors

The Kayenne Menu Panel's processor is located in the PCU. The Menu Panel connects to the PCU with a special multi-pin cable that carries both power and communications signals.

CAUTION Do not connect or disconnect the multi-pin cables linking a Kayenne Menu Panel to the PCU while the PCU is powered up. Damage to the equipment can result.

Figure 42. Menu Panel Connections



Menu Panel Cooling

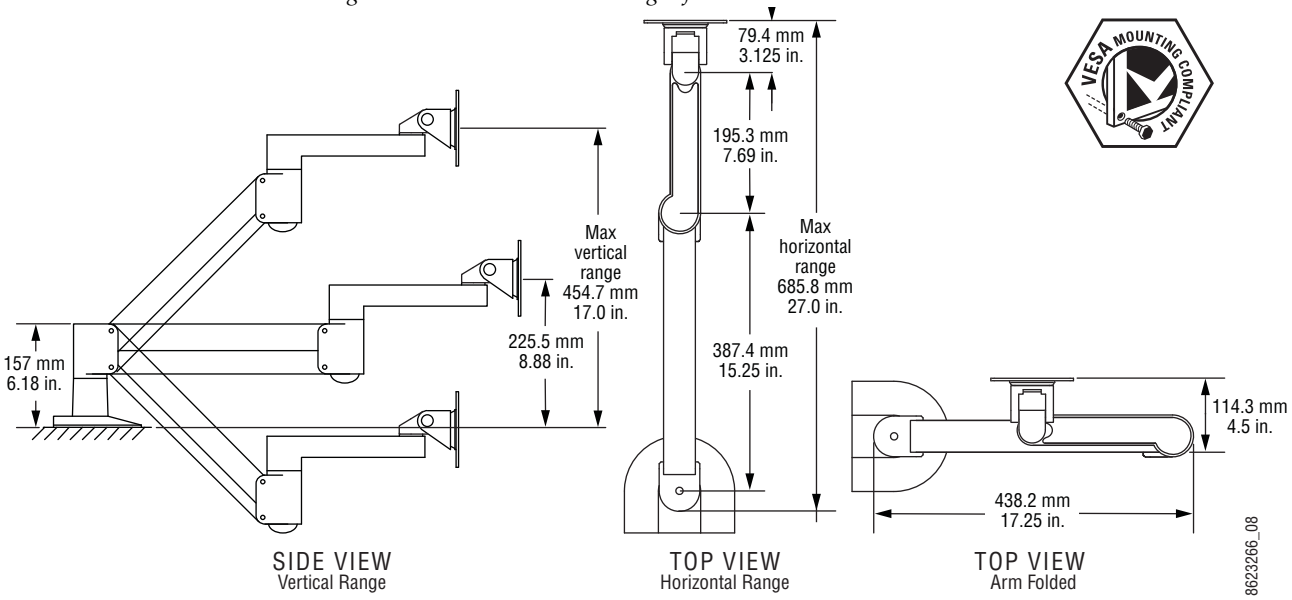
CAUTION Do not install the Menu Panel into an enclosed space. Passive air movement is required for cooling.

The Kayenne Menu Panel is externally powered and does not have internal cooling fans. The electronics are convection cooled through perforations in the rear of the Menu Panel chassis. Mounting the panel free-standing with the articulated arm allows maximum air movement, and is the preferred installation method. If an alternative method is used, ensure that all vents are unobstructed and adequate airflow is available.

Menu Panel Articulated Arm Installation

The Kayenne Menu Panel has VESA 75 threads on the back that can be used to mount the Menu Panel to the supplied articulated arm, or any VESA compliant mounting system.

Figure 43. Articulated Arm Range of Motion Dimensions



The supplied articulated arm is equipped with a flex-mount system, permitting a variety of mounting options (table-top, wall mount, etc.). See the documentation provided with the articulated arm for specific installation instructions.

Additional Kayenne Menu Panels

Touch Screen Menu Panel Using PCU

An additional Touch Screen Menu Panel, available as an option, requires a second Menu Panel processor board in the PCU. A multi-pin cable is provided with the option to supply power and signals to the Menu Panel.

Touch Screen Menu Panel Using PC

A Touch Screen Menu Panel can be configured to operate without a PCU, using a PC. Communication between the Menu Panel and the K-Frame system is handled using the PC's Ethernet connection. A special power supply brick is required, which powers the Menu Panel through the PCU connector.

Menu Application on PC (Keyboard & Mouse)

The Kayenne menu application can also be run on a standard PC, permitting mouse and keyboard control from a nearby laptop, or remote control of the K-Frame system from any location on the network. If a PC is used for Kayenne Menu operation, the PC's IP address must be set to a compatible value to work with the rest of the K-Frame system.

Section 3

Frames Installation

General Rack Mounting Instructions

Weight Distribution

Make sure that you mount the unit in the rack so that it is evenly balanced to prevent damage to the frame and to avoid creating a hazardous condition. K-Frame Video Processors require rear rack support.

Cooling Requirements

The maximum ambient temperature for a Kayenne K-Frame chassis is 40-degrees C (104-degrees F) monitored at the air intake. Installing the frame in a closed or multi-unit rack assembly together with other units could increase the maximum ambient temperature for this unit.

Make sure you install the frame to allow for cooling airflow. When the unit is installed in a rack, ventilation openings should not be blocked or otherwise covered. Air intake holes exist on the right side of the K-Frame Video Processor (as you face the frame front) and air exhaust holes are on the left.

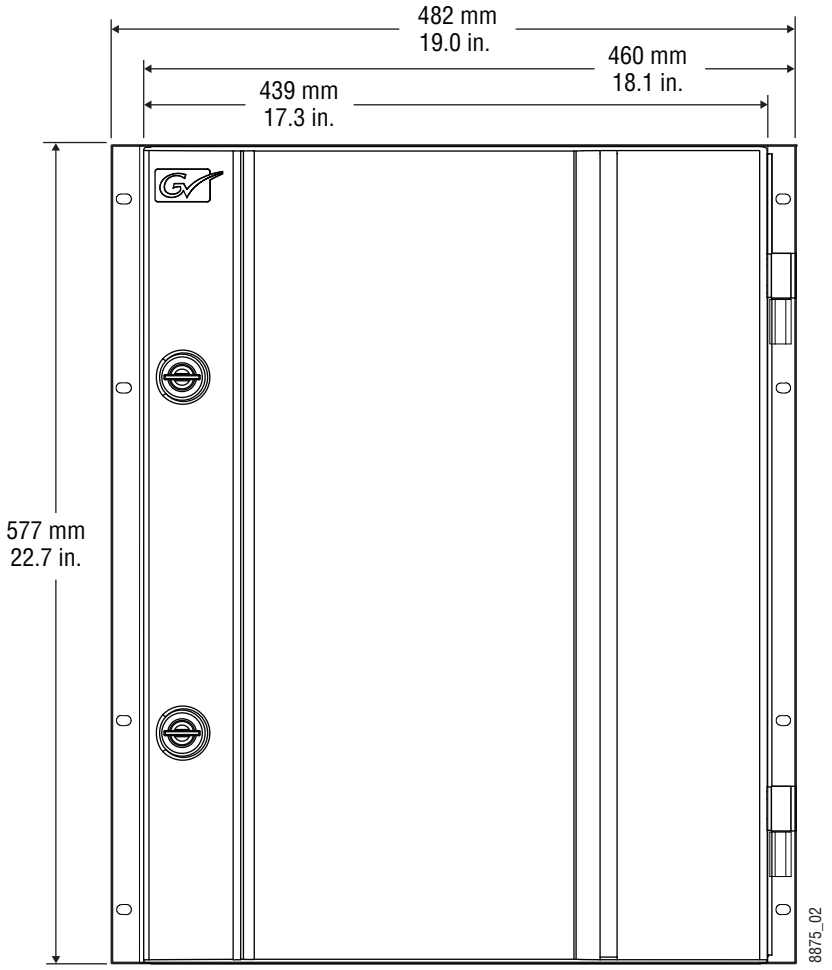
Power Connections

When connecting the unit to the supply circuit be sure that the supply circuit of the rack is not overloaded. The unit must be well-grounded. The safety ground is accomplished via the third wire in the AC line cord(s). The rear panel ground lug is available for an optional ground.

All K-Frame Video Processor power supplies are 100V-240V AC +/-10% autorange, power factor corrected. Each power supply has its own line IEC line cord. Connecting each line cord to a separate AC circuit is recommended.

13-RU Standard Video Processor

Figure 44. K-Frame 13-RU Dimensions (Front View)



Note Mounting a K-Frame in a rack immediately below equipment that extends forward from the rack may not provide enough clearance to completely remove the K-Frame door. See *13-RU Standard Video Processor* on page 66.

Figure 45. K-Frame 13-RU Dimensions (Top View)

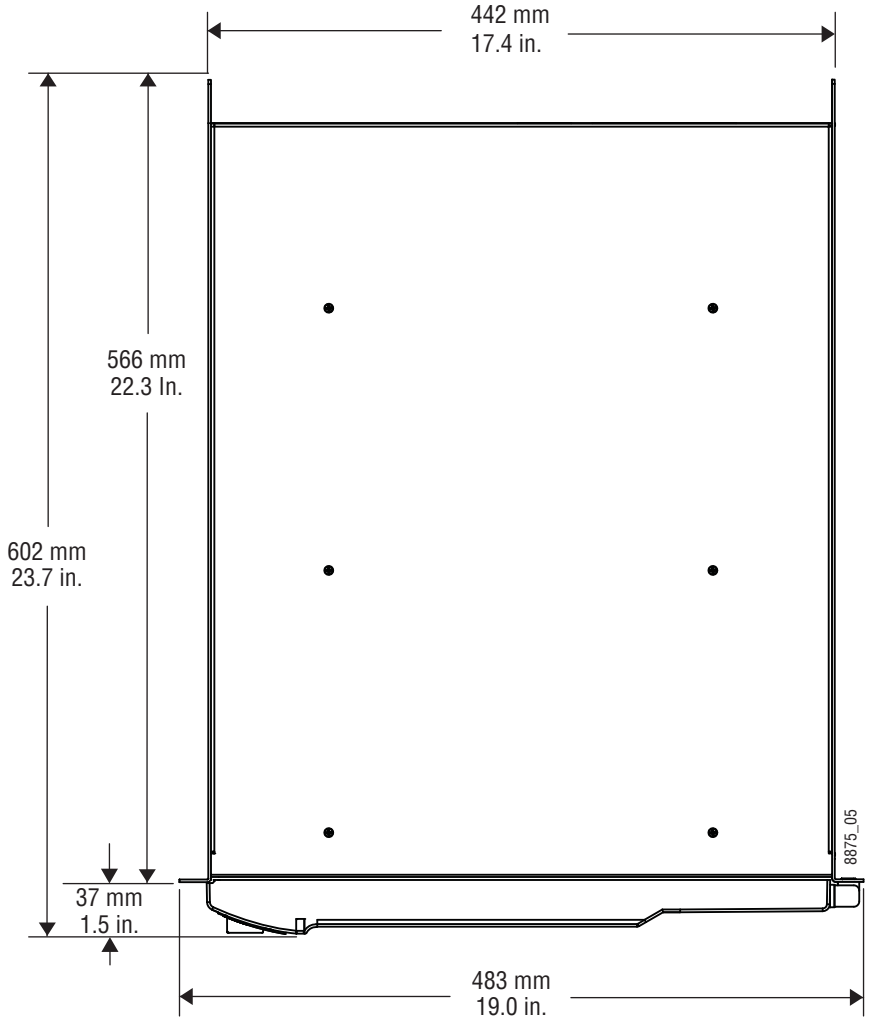
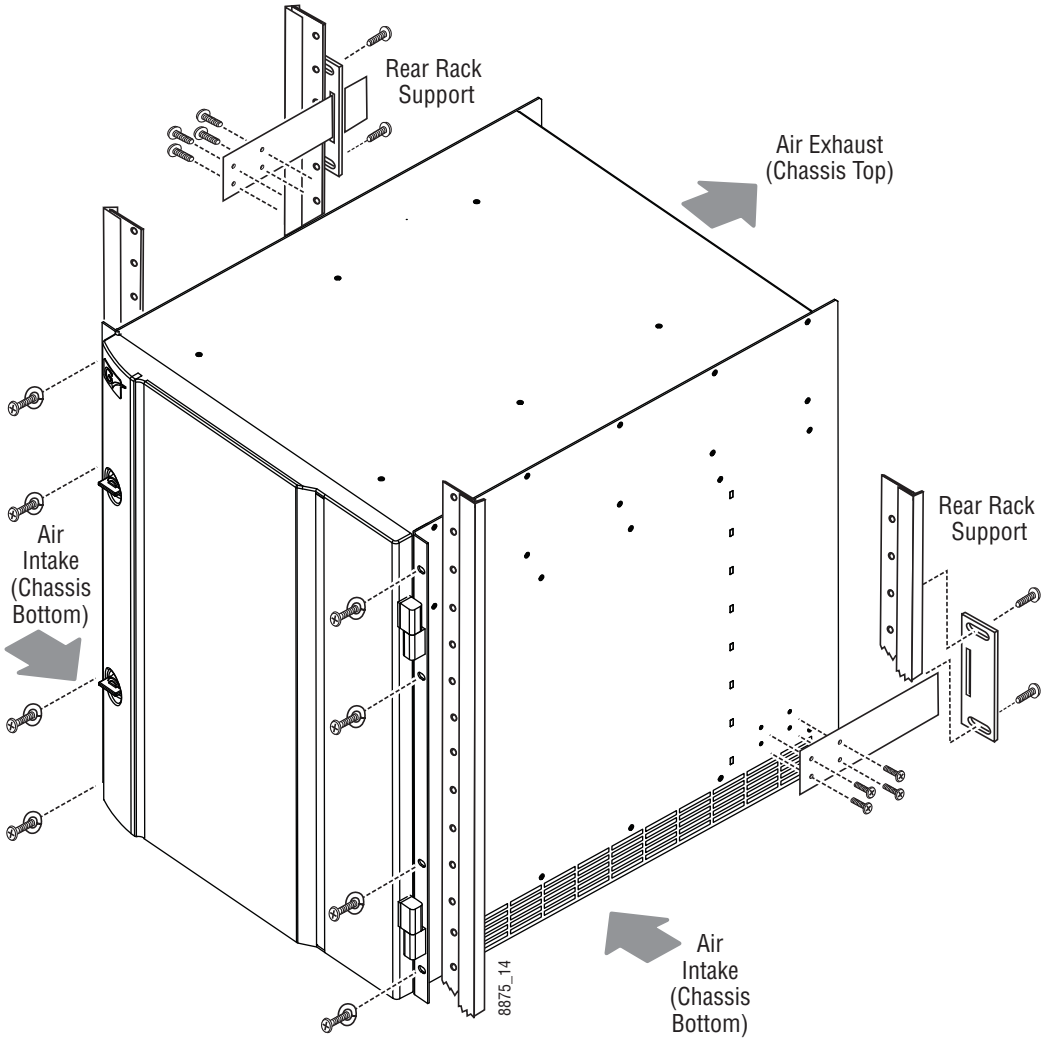
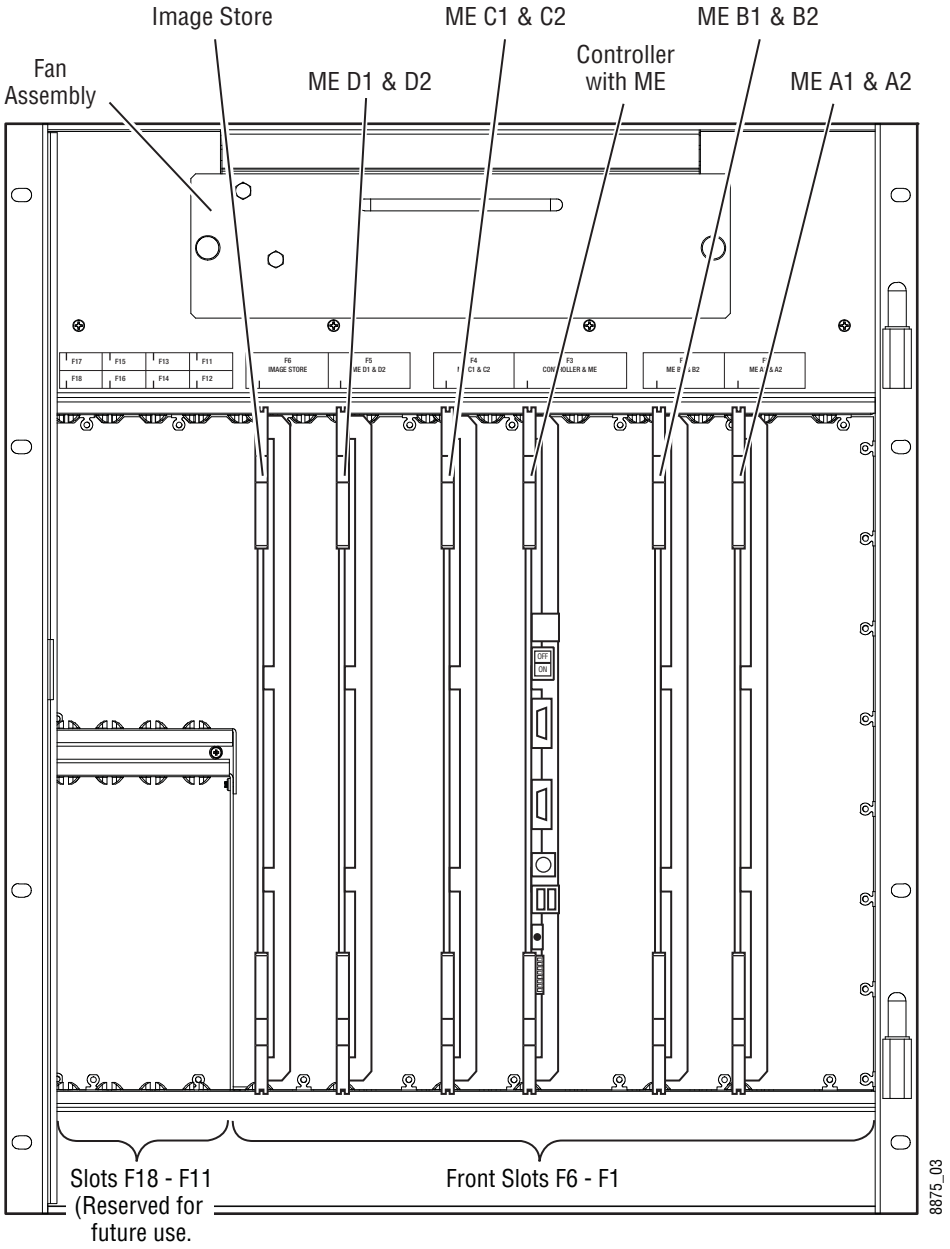


Figure 46. K-Frame 13-RU Rack Mounting and Cooling Airflow



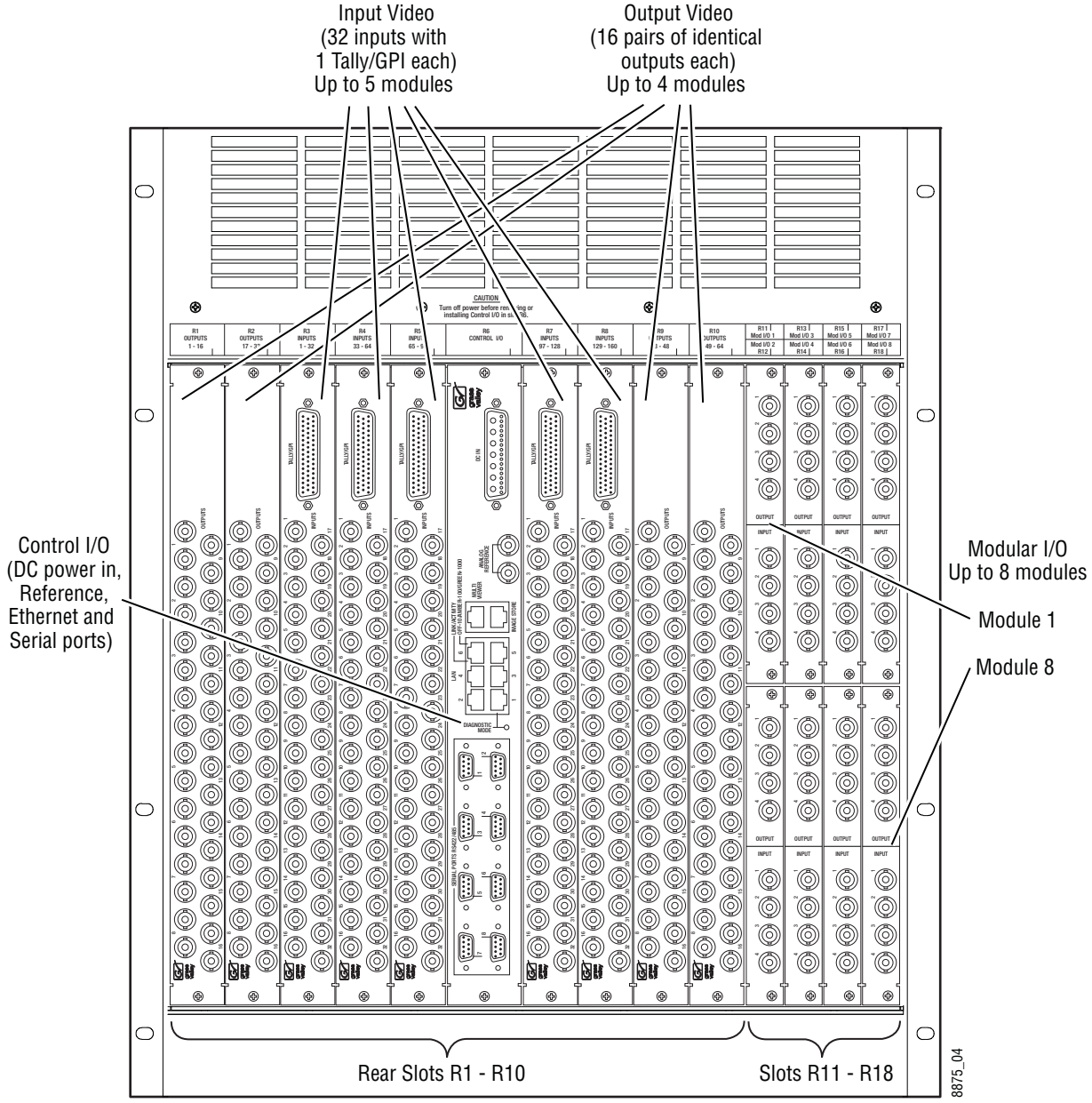
CAUTION K-Frame installations require the use of the provided rear rack supports.

Figure 47. K-Frame 13-RU, Front View with Door Removed



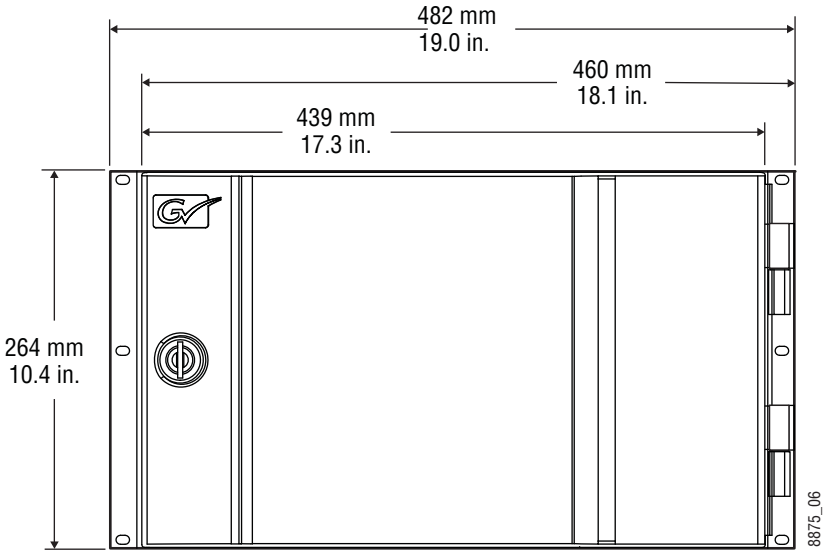
CAUTION The Video Processor front door must remain in place and closed during normal system operation to maintain maximum cooling efficiency.

Figure 48. K-Frame 13-RU, Rear View



6-RU Compact Video Processor

Figure 49. K-Frame 6-RU Dimensions (Front View)



Note Mounting a K-Frame in a rack immediately below equipment that extends forward from the rack may not provide enough clearance to completely remove the K-Frame door. See *13-RU Standard Video Processor* on page 66.

Figure 50. K-Frame 6-RU Dimensions (Top View

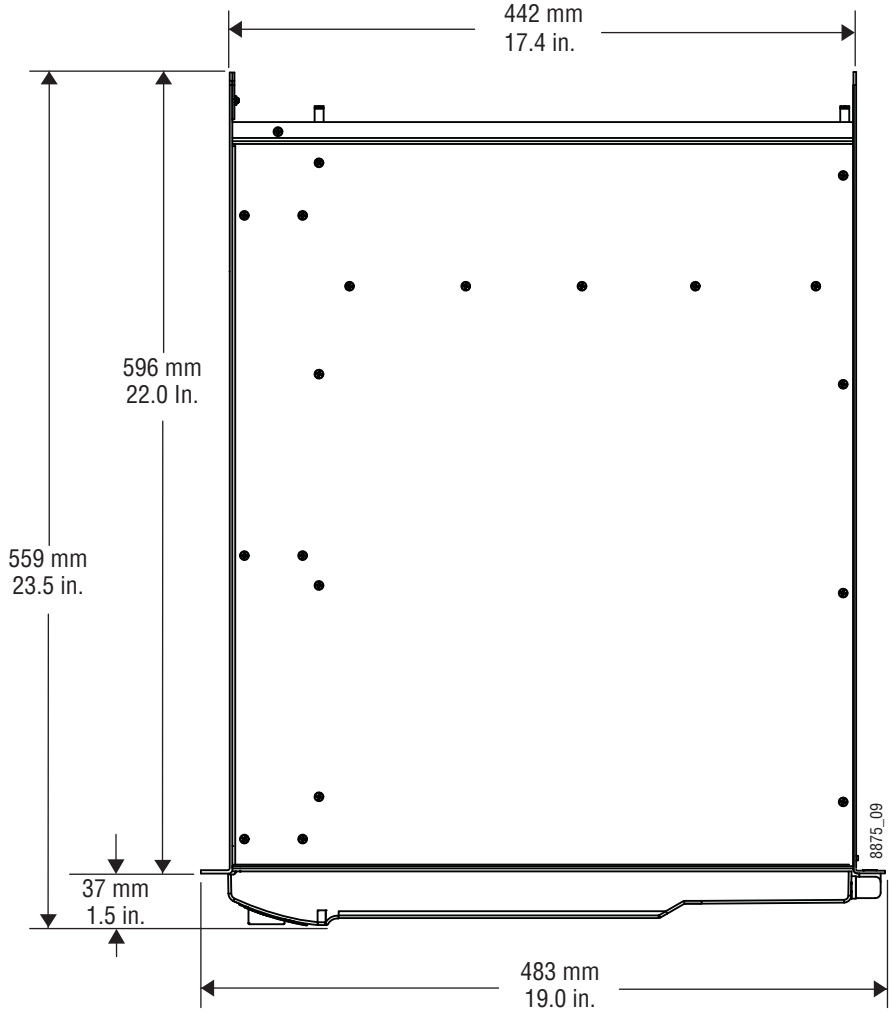
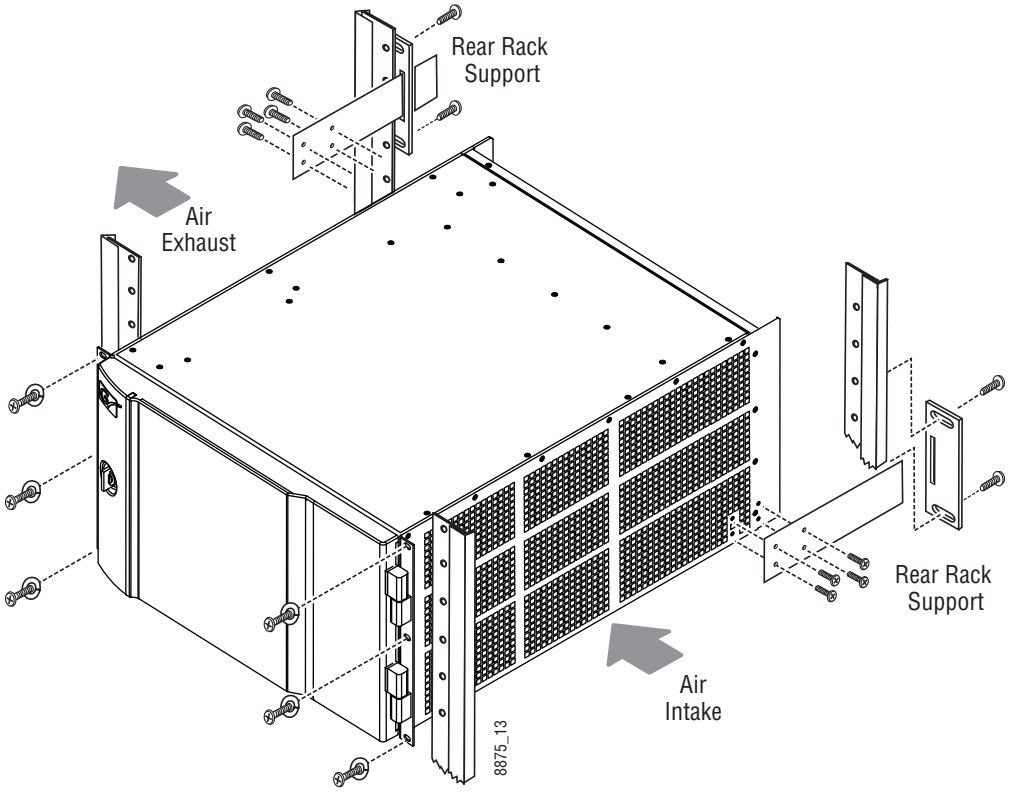
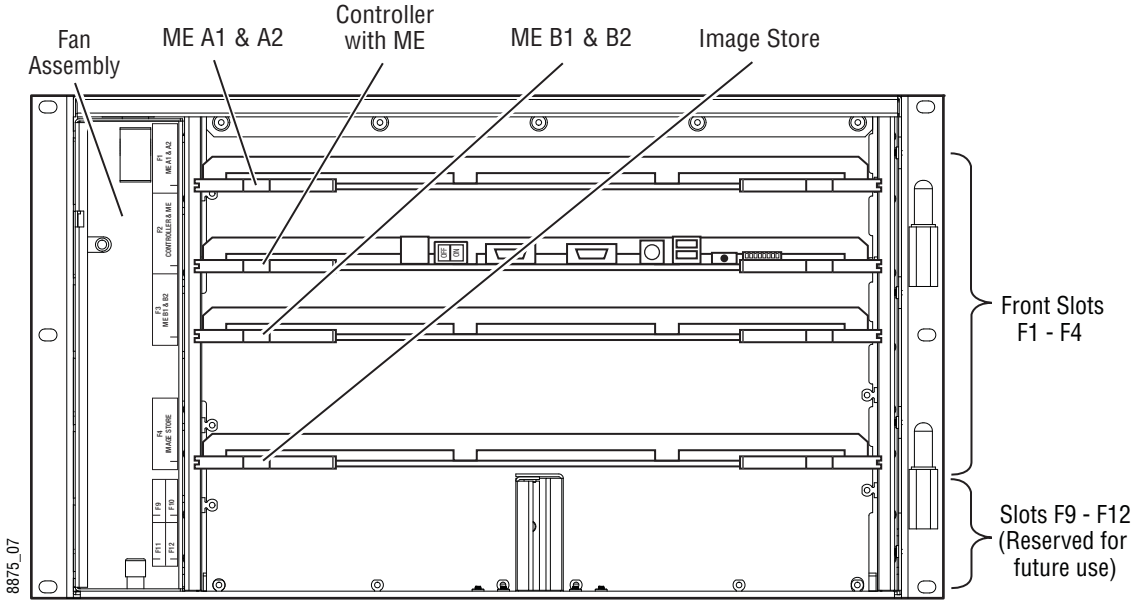


Figure 51. K-Frame 6-RU Rack Installation and Cooling Airflow



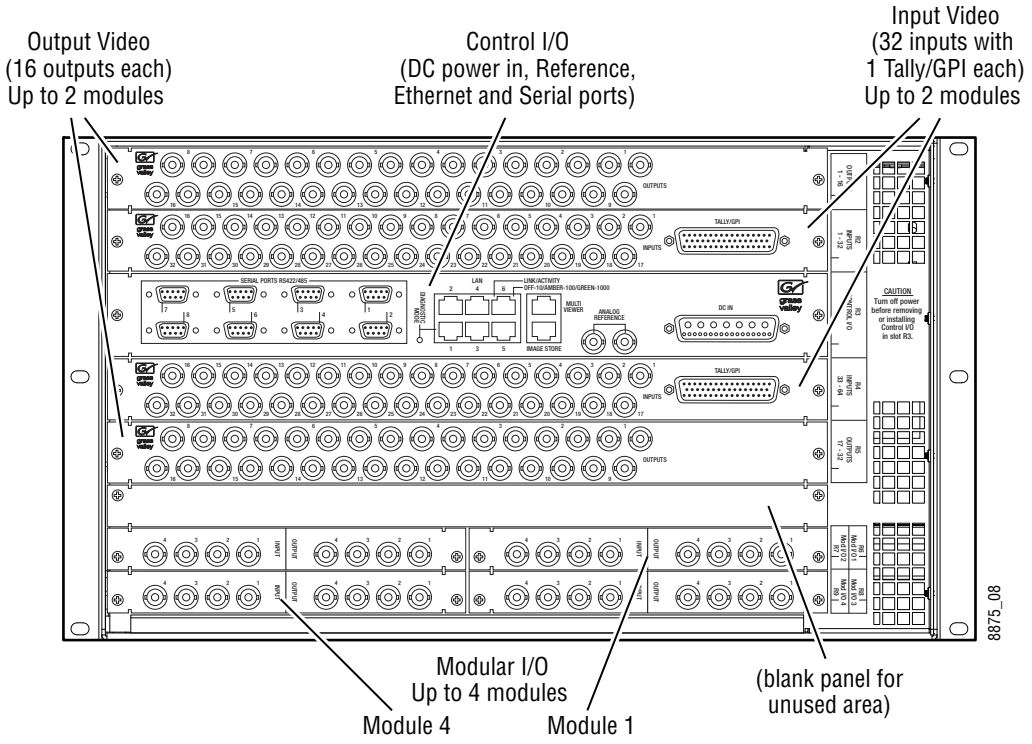
CAUTION K-Frame installations require the use of the provided rear rack supports.

Figure 52. K-Frame 6-RU, Front View with Door Removed



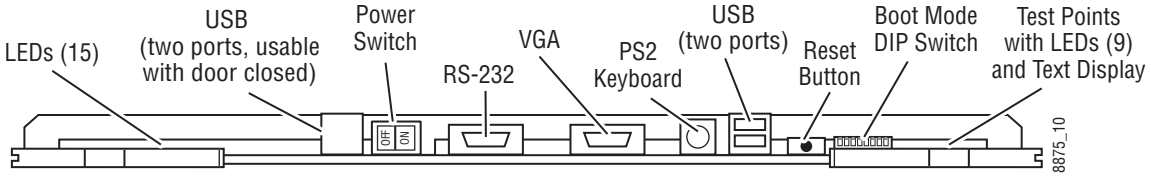
CAUTION The Video Processor front door must remain in place and closed during normal system operation to maintain maximum cooling efficiency.

Figure 53. K-Frame 6-RU, Rear View



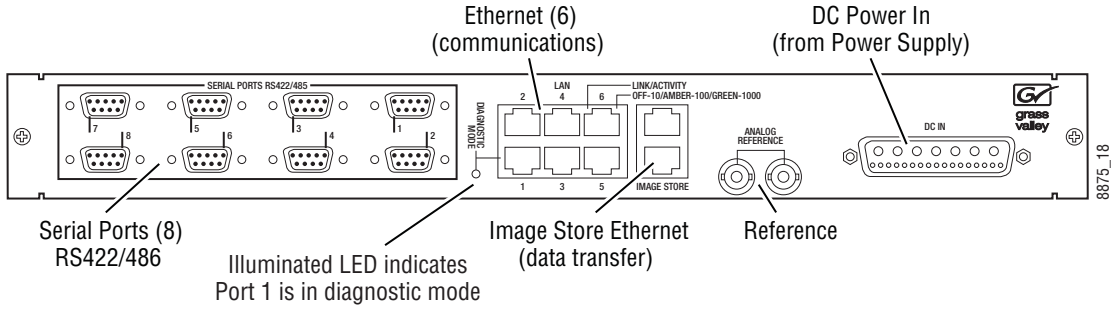
K-Frame Controller Connections

Figure 54. K-Frame Controller Board, Inside Chassis



NOTE: Ports and indicators here are intended only for diagnostic and service procedures.

Figure 55. Controller I/O Connections, Rear of Chassis



K-Frame Power Supply Frame Installation

A 1-RU Power Supply Frame provides DC power for the K-Frame Video Processor. The same power supply is used for either the Standard or Compact version of the K-Frame.

Figure 56. K-Frame Power Supply Frame Dimensions (Front and Rear Views)

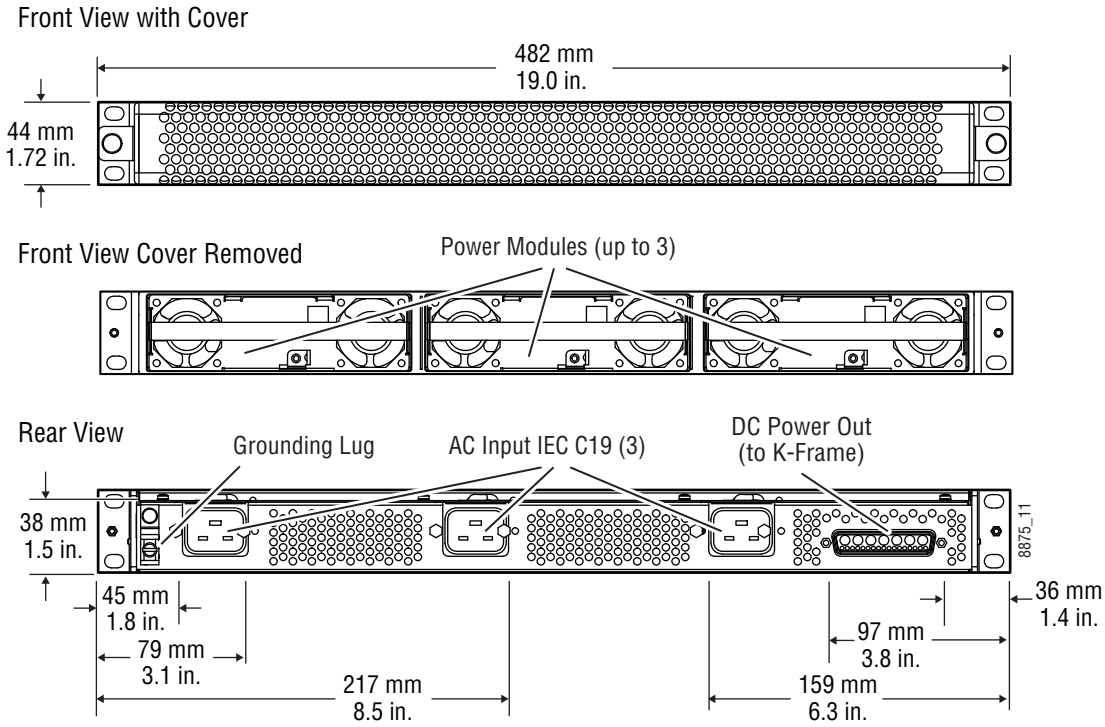
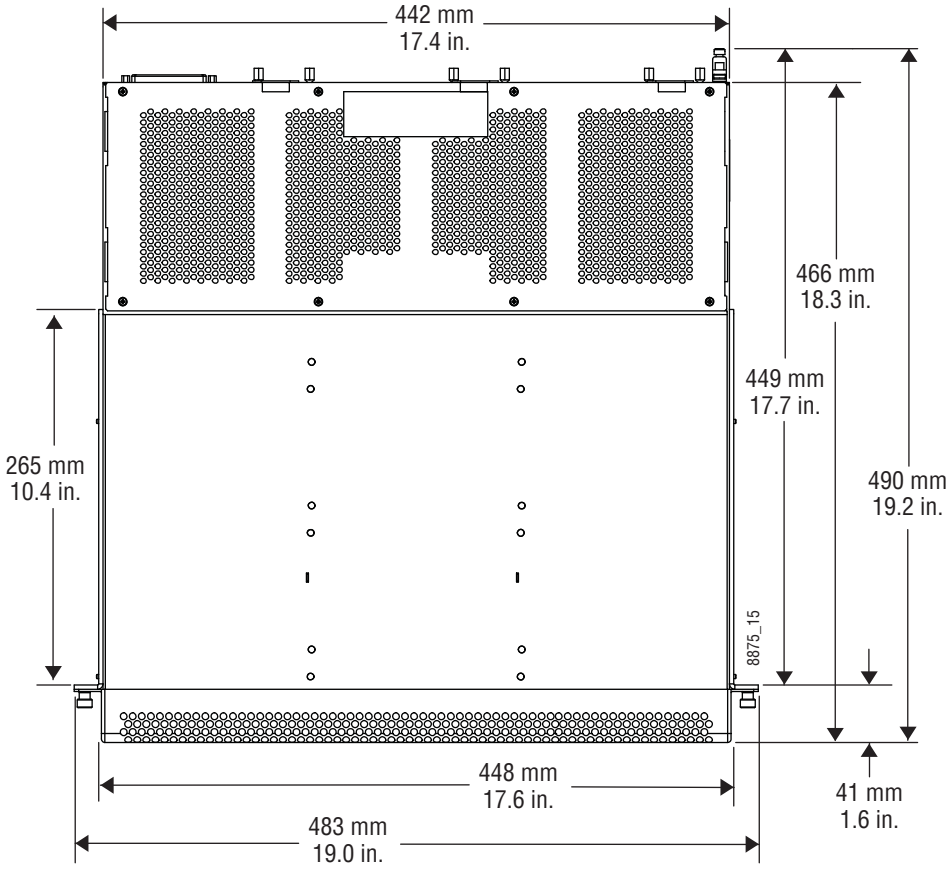


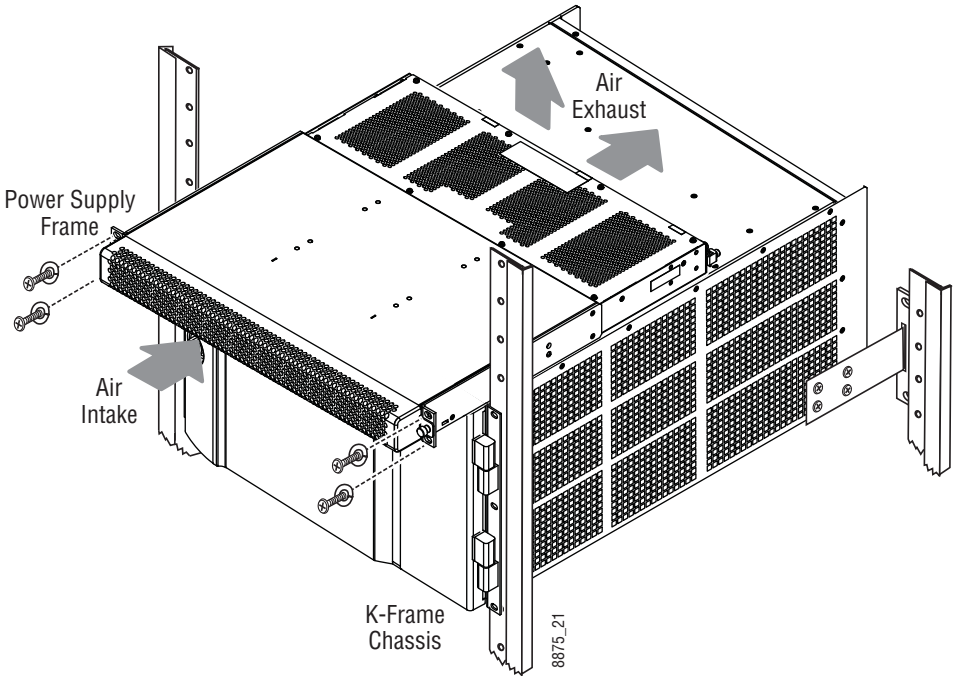
Figure 57. K-Frame Power Supply Frame Dimensions (Top View)



K-Frame Power Supply Frame Rack Placement

The K-Frame power supply frame is ideally rack mounted immediately above the Video Processor chassis. The power supply frame is then supported by the lower chassis and eliminates the need for power supply rear rack supports (Figure 58).

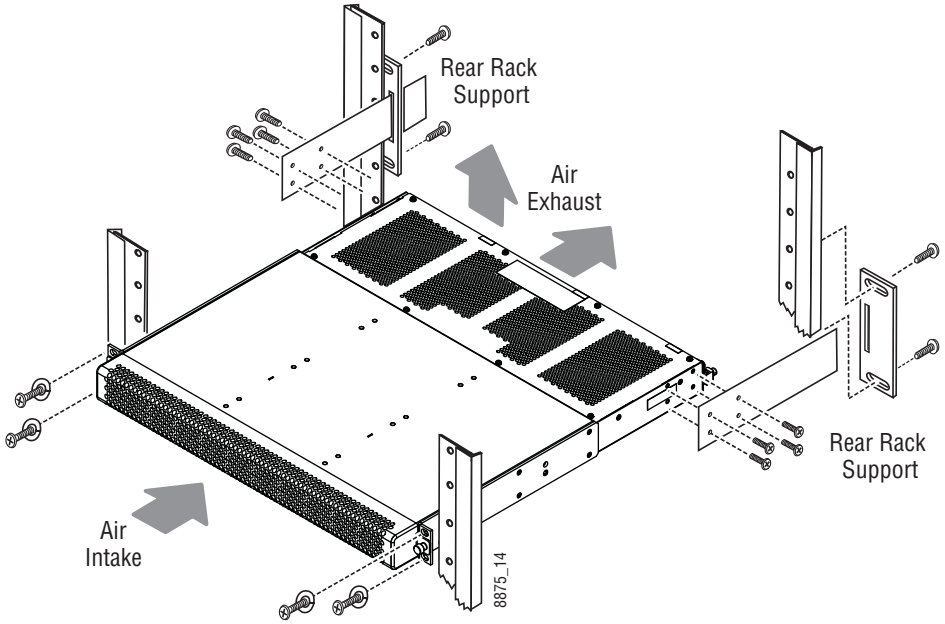
Figure 58. K-Frame Power Supply Rack Installation and Cooling Airflow



In addition, this placement allows removal of the front door of the K-Frame (see *13-RU Standard Video Processor* on page 66).

If the power supply frame is not mounted above the K-Frame chassis, rear rack supports are required (Figure 59). If mounting in an alternative location, allow for the 34″ DC interconnect cable length.

Figure 59. Isolated K-Frame Power Supply Rack Installation



K-Frame Power Supply Cooling

The top surface of the rear of the K-Frame Power Supply Frame has air holes and is slightly recessed, which permits air flow even if equipment is mounted in the rack directly above. These top recessed air holes must remain open for proper cooling. Ensure paper or other obstructions do not block these air holes.

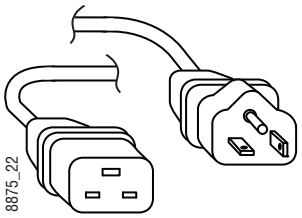
K-Frame Power Supply AC Requirements

The K-Frame Power Supply Frame has provision to support up to three hot swappable power modules. These convert the AC line input to 48V DC for the Video Processor Frame. The cells for the three modules (referred to as left, center, right) are identical and any or all cells can have a module installed. Each cell has its own AC line cord. The supplies are power factor corrected and automatically accommodate low line (120V nominal) or high line (240V nominal). The power supply frame has a rating of 100 – 240 volts, although it is designed and tested for a range of 90 to 264 volts to accommodate under and over voltage conditions. A Compact K-Frame is supplied with one power module. A second power module can be fitted as a redundant power supply option. A Standard K-Frame is supplied with two power modules. A third power module can be fitted as a redundant (n+1) power supply option.

Supplied Power Cables

The K-Frame Power Supply Frame has IEC C19 sockets, instead of the more common C13 style, to accommodate potentially higher currents. Cables provided with K-Frame systems are matched to the destination country's standard. For example, in the USA C19 to NEMA 5-20P cables are provided (Figure 60).

Figure 60. USA Power Cable Example



Low Line (120V) Operational Considerations

If low line (120V) operation is used (mostly in North America) three characteristics of the switcher should be kept in mind when provisioning AC power for the system, which will result in the most reliable system possible:

- Consider brown-out—Modern switching power supplies are constant power devices and as such, unlike resistive loads, the input current increases as the input voltage decreases.
- Consider power supply failure—If two or three power modules are present, they will load share. For instance, if two modules are fitted and the total AC line current is 10 amps, each of the two line cords will draw about 5 amps. If one supply fails, the other supply takes up the entire load. At this point, one line cord will draw 0 amps and the other cord will draw 10 amps.
- Consider future options—The total AC power consumption is significantly influenced by the number and type of hardware options installed. This includes the number of MEs, Inputs, Outputs, and Modular I/Os.

About High Line (208V-240V) Verses Low Line (120V) Operations

North American users usually have a choice to use low line (120 volts) or high line (208-240 volts) as the AC source. If Lo line is used, a Standard (13RU) K-Frame with all options installed and running at 120 volts will draw a total of approximately 12 amps from the line cords. At 100 volts, this increases to approximately 14 amps. This load will be evenly distributed among the line cords. However, if one or more power supplies go offline, it is possible for the entire 12 – 14 amps to be drawn by one line cord. For this reason, it is recommended that each line cord be serviced by a dedicated 20 amp circuit. If this circuit is shared by other loads, consider what will happen if the switcher line cord suddenly doubles (or triples) its current consumption.

One 20 amp circuit is adequate to service the two or three K-Frame line cords since the total current never exceeds 14 amps. The only disadvantage is the reduced redundancy using one branch circuit instead of multiple circuits. In a three phase WYE distribution system, additional protection can be achieved by using different phases for each of these circuits.

The possibility of drawing as much as 14 amps from a line cord explains the 20 amp (NEMA 5-20P) plug on the line cords supplied. The NEC in the US specifies that the ubiquitous 15 amp outlet be de-rated to 12 amps for continuous loads. A 20 amp outlet is needed for the rare case of a 14 amp load experienced during a fault condition.

Most of the above is not an issue if high line (240V) operation is used. Since AC line currents are approximately half of those at low line, exceeding the current rating of a circuit should not be a problem. In areas where there is

a choice between high line or low line operation, the user should consider the advantages and disadvantages of each power sourcing scheme.

Video Processor Door Removal Clearance

CAUTION The Video Processor front door must remain in place and closed during normal system operation to maintain maximum cooling efficiency.

The K-Frame Video Processor door can be completely removed when installed in a rack immediately below conventional flush mounted rack-ear only equipment. If the K-Frame power supply is mounted directly above the K-Frame chassis, the chassis door can be completely removed after removing the power supply's front screen. However, mounting a K-Frame in a rack immediately below other equipment that extends forward from the rack (for example, under another K-Frame chassis) may not provide enough clearance to remove the K-Frame door.

If mounted below equipment that extends forward from the rack, allow at least 24 mm (0.94 in.) of vertical clearance above the K-Frame to permit door removal. A flush design 1 RU blank filler panel can be used for clearance, if required.

Section 4

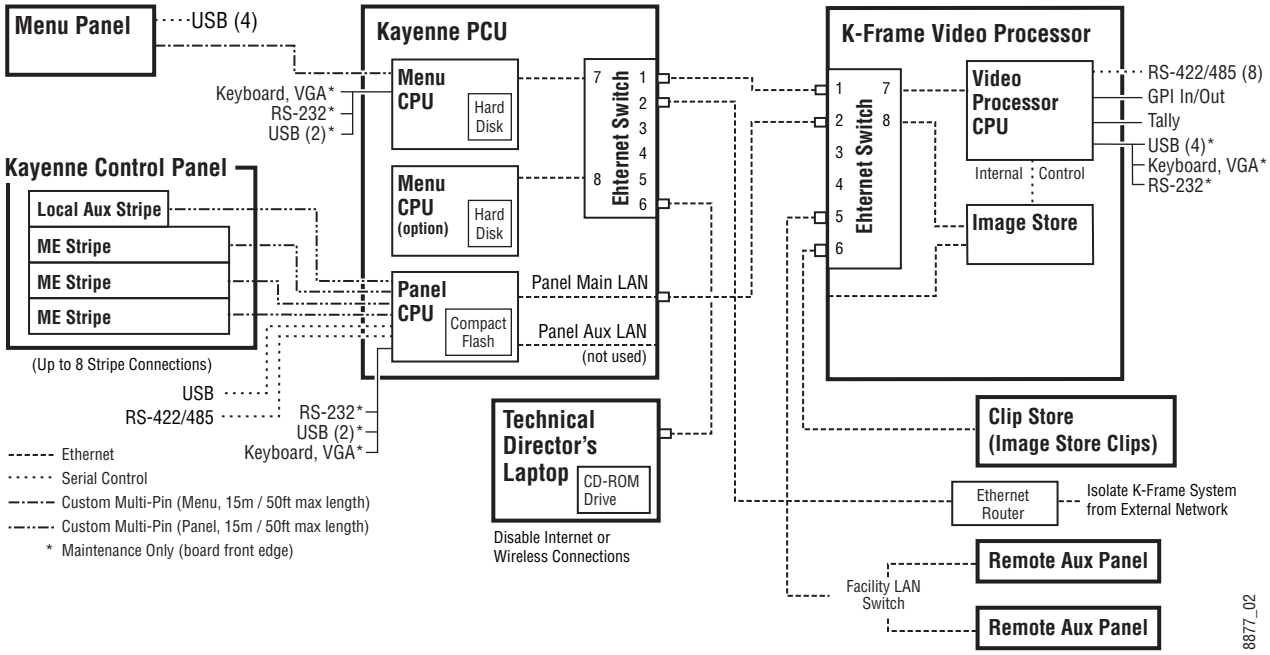
System Cabling

Overview

Note This section covers. Kayenne control surface cabling. Refer to the separate K-Frame documentation set for K-Frame system, and Video Processor Frame cabling information.

The K-Frame system uses Ethernet, serial, and USB connections. Custom multi-pin cabling is also used to connect the Kayenne Panel Control Unit (PCU) to Kayenne control surface and Menu Panel components. The K-Frame Video Processor and PCU each have built-in Ethernet switches. Tally outputs and GPI I/O (General Purpose Interface Input/Output) control is also available (Figure 61).

Figure 61. Kayenne K-Frame System Communications Overview



CAUTION The facility network used for your K-Frame system (and other video production equipment) should be kept separate from any external network, to prevent network traffic from adversely affecting K-Frame system operation.

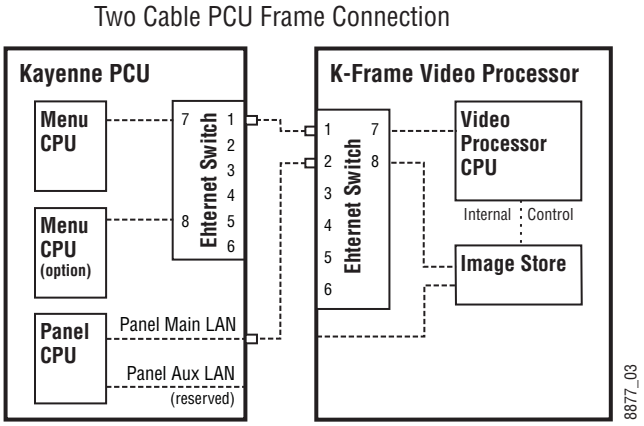
Network Cabling

Network connections are required between the K-Frame Video Processor and the PCU. The PCU routes network communications to and from the Control Panel Stripes and Menu Panels, using custom multi-pin cables.

The Ethernet switches built into the K-Frame Video Processor and PCU auto-detect speed and polarity, and are 10/100/1000 Mbps capable. Either straight-through or crossover Ethernet cabling can be used. Available Ethernet connectors may be connected to the Facility LAN or other devices, as needed. However, should the K-Frame Video Processor or PCU power down, the internal Ethernet switches will also power down, interrupting communication to devices connected to that K-Frame's or PCU's internal Ethernet switches. Only connect devices that are K-Frame system related.

The use of two Ethernet cables to connect the PCU to the K-Frame Video Processor is recommended (Figure 62).

Figure 62. PCU to K-Frame Network Connection Methods



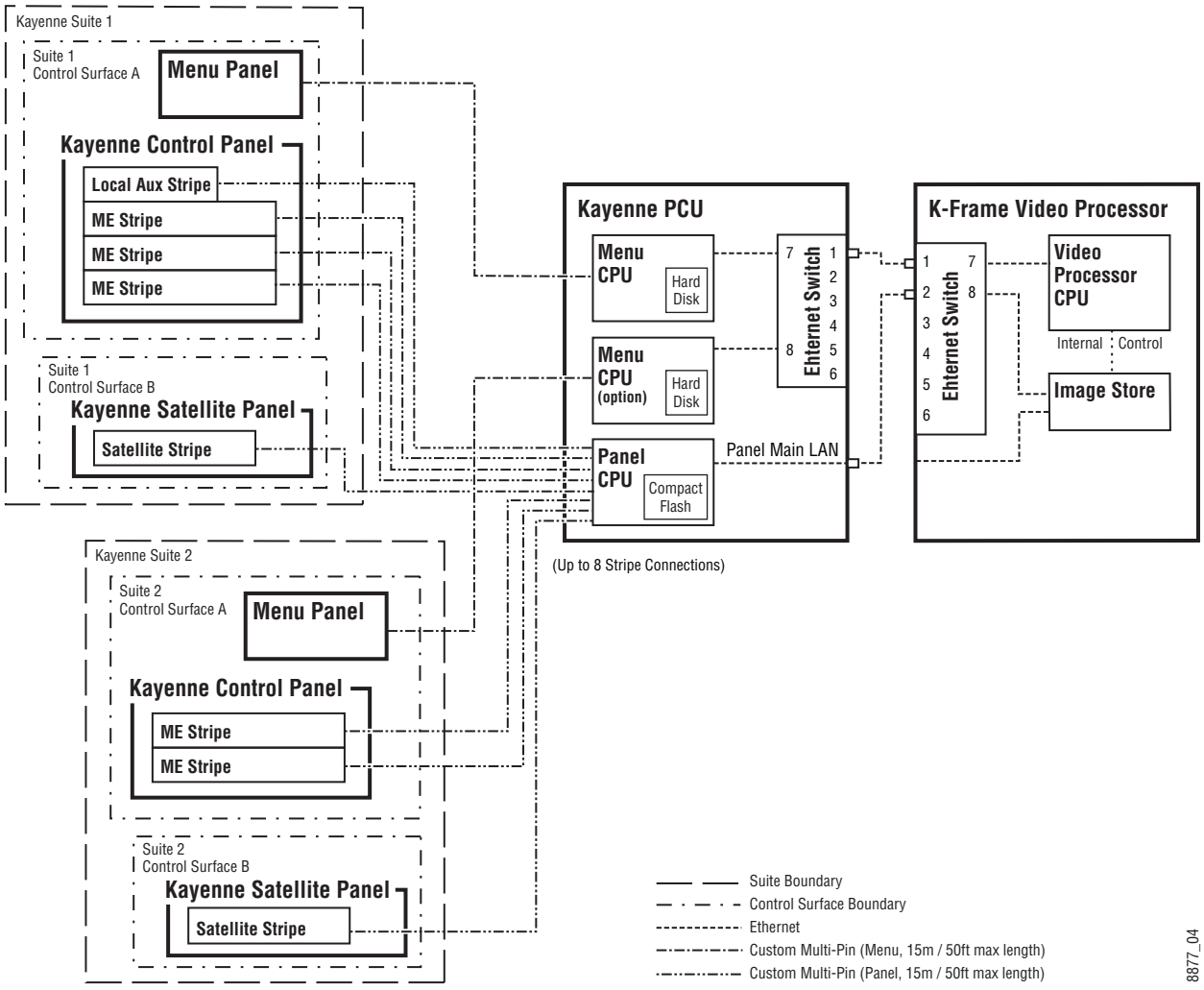
The PCU Ethernet switch to K-Frame Video Processor Ethernet switch cable connection is used for Menu Panel communications. The second cable connects the Panel PCU directly to the K-Frame's Ethernet switch. Using two cables provides additional Ethernet communications throughput (to support Image Store file operations) and also offers redundancy. Because the Menu Panel and the Control Panel have independent cable connections, failure of one of these cables will not completely disable the K-Frame system. Either the Menu Panel or the Control Panel will remain operational after a single network cable failure.

Suites and Control Surfaces

A K-Frame system can be divided into two suites. K-Frame Video Processor resources (MEs, eDPMs, external devices, etc.) can be assigned to each suite, creating two switchers with one K-Frame. Each suite can be subdivided into two control surfaces. Each control surface is intended for use by a single operator. The Kayenne Control Panel system flexibility permits locating these control surfaces in physically separate locations.

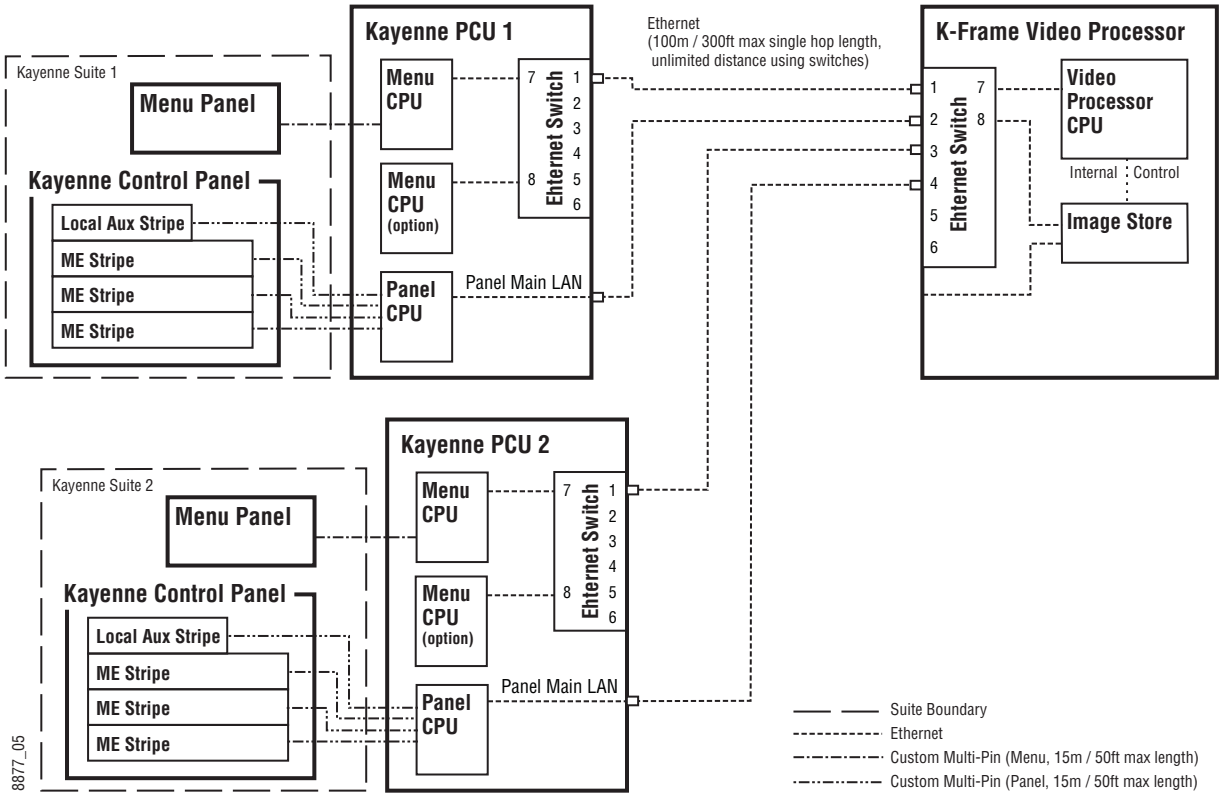
Custom multi-pin cable runs are limited to 15 meters (50 ft.) If this length is sufficient, a single PCU can be used for an entire multi-suite K-Frame system (Figure 63).

Figure 63. Two Suites with Two Control Surfaces Using One PCU



Using a second PCU, K-Frame suites can be located anywhere on the network, permitting system control from different rooms, floors, or even different buildings (Figure 64).

Figure 64. Two Suites Using Two PCUs



Customer Supplied Ethernet Routers and Switches

Existing facility Ethernet switches can be used in conjunction with a Kayenne system. If connecting to a network area outside that used by the Kayenne system, use of an appropriately configured Ethernet Router is strongly advised. This reduces network traffic on the Kayenne network and keeps it isolated. Any Ethernet switches added specifically for use with the

Kayenne system should be 1000 Mbps capable for the most efficient operation (see Table 1).

Table 1. Ethernet Specifications

Cables	**Type**	10BaseT, 100BaseT, 1000BaseT compatible. Category 5 cable, 8 conductor twisted pair. The system will work at lower ratings with reduced performance. 1000BaseT components are highly recommended.
	Connectors	RJ-45 male connector at each end of cable.
	Length	100BaseT, 1000BaseT: 328 ft. (100 m) maximum. 10BaseT: 984 ft. (300 m) maximum. Use additional switches to exceed maximum cable runs.
Switch	**Speed**	10/100/1000 Mbps
	Ports	RJ-45 auto-negotiating 10/100/1000 Mbps; number of ports required is dependent upon system size. Frame and PCU ports are capable of 1000 Mbps. Using a 1000 Mbps Ethernet switch enhances Image Store transfer speeds.
	Unmanaged	Recommended. Configuration not required, but does not provide remote monitoring capability.
	Managed	May be used. Requires configuration, but offers remote monitoring capability.

Factory Default Network Settings

Table 2. Kayenne System Default IP Addresses

Device	IP Address
Video Processor Frame CPU	192.168.0.170
Image Store CPU	192.168.0.171
Control Panel Surface 1A	192.168.0.173
Touch Screen Menu Panel 1	192.168.0.175
Touch Screen Menu Panel 2	192.168.0.176
Control Panel Surface 1B	192.168.0.177
Control Panel Surface 2A	192.168.0.178
Control Panel Surface 2B	192.168.0.179
32-Crosspoint Remote Aux Panels V1.6.5 and higher software: (hard reset with the front panel buttons)	IP Address: 192.168.1.2 Frame IP: 192.168.1.1 Gateway IP: 192.168.1.1 Subnet Mask 255.255.255.0 **Note** 32-Crosspoint Remote Aux Panel default settings must be changed to operate with a Kayenne system whose other components are configured with their default IP addresses.
All Subnet Masks)	255.255.255.0
All Gateways (except V1.6.5 software Remote Aux panel)	192.168.0.1
Reserved For Future Use	**CAUTION** Do not connect any devices configured with the following IP addresses to a Kayenne network.
Video Processor Frame Gigabit Ethernet	**192.168.0.172**
PCU Panel Reserved LAN Port	**192.168.0.174**

To integrate Kayenne devices into an existing network, ask the local network administrator for that network's subnet mask. Before changing IP addresses always set the subnet masks of the Kayenne devices to the mask of the local network.

Control Panel Cabling

Connectors on the outside bottom of the Control Panel tray connect to numbered ports on the PCU, using special multi-pin cables that carry both power and communications signals. Special cables are also used to connect the Menu Panels to the PCU.

CAUTION Do not connect or disconnect the multi-pin cables linking a Kayenne Control Panel tray or Menu Panel to the PCU while the PCU is powered up. Damage to the equipment can result.

ME and Local Aux Stripe Connections

It is recommended that the PCU numbered ports be connected to Control Panel Stripes in ascending ME order, followed by the Local Aux Stripe. PCU port connections can be re-mapped, but this order matches the default configuration. The table below shows the connections for various Kayenne Control Panel models used in a single suite.

Table 3. PCU Port to Control Panel Stripe Connections, Single Suite

Control Panel Model	PCU Port	Panel Stripe
4-ME with Local Aux	1	ME 1 (top Stripe)
	2	ME 2 (second Stripe)
	3	ME 3 (third Stripe)
	4	ME 4 (bottom Stripe)
	5	Local Aux Stripe
3-ME with Local Aux	1	ME 1 (top Stripe)
	2	ME 2 (second Stripe)
	3	ME 3 (bottom Stripe)
	4	Local Aux Stripe
2-ME with Local Aux	1	ME 1 (top Stripe)
	2	ME 2 (bottom Stripe)
	3	Local Aux Stripe
1-ME (no Local Aux)	2	Master EMEM, MFM (top tray)
	1	ME (bottom tray)

Satellite Panel Cabling

PCU Cabling

CAUTION Do not connect or disconnect multi-pin PCU cables while the PCU is powered up. Damage to the equipment can result.

Each Satellite Panel has a standard multi-pin cable for connection to the PCU. Modules independent of a particular Stripe (for example Device Control or Master E-MEM modules) can use any available PCU connector.

Modules to be associated with a particular Stripe (like a Transition Module) must be connected to the next higher PCU port for that Stripe. For example, if you wish to use a Transition Module with ME 4 that uses PCU Port 4, plug the Satellite Panel into PCU Port 5, and move the Local Aux Stripe connector (if used) to PCU Port 6.

Internal Cabling

CAUTION The RJ-45 connectors inside the Satellite Panel trays are used for proprietary communications only. Ethernet devices may be damaged if plugged into these connectors.

The Single Module Satellite Panel has internal module cabling the same as the other Stripes. Simply plug the module into a port using the provided cable.

The Double Module Satellite Panel has a similar internal cabling arrangement, but one cable passes through a hole to the other tray.

Touch Screen Menu Panels (Used with PCU)

Connect a single or primary Menu Panel to the PUC **Menu 1** connector, using the supplied custom multi-pin cable. Connect an optional second Menu Panel to the **Menu 2** connector. Menu Panels are assigned to suites during system configuration.

MatchDef and SetDef Format Conversion

K-Frame Video Processor modular I/O is available for MatchDef and SetDef signal conversion, or to increase the number of standard video inputs and outputs. This functionality is configurable in software. The 13-RU Standard K-Frame can hold up to eight modules, and the 6-RU can hold up to four.

Each modular I/O module has four pairs of connectors, labeled IN 1-4 and OUT 1-4. The connectors with the same number on that module constitutes a configurable pair. Three different software settings are available for each pair of modular I/O connectors:

Table 4.

Setting	Connector Function
Bypass	Input connector receives normal video.
	Output connector is a normal Aux bus.
MatchDef	Input connector has a configurable MatchDef scaler
	Output connector is a normal Aux bus.
SetDef	Input connector receives normal video.
	Output connector has a configurable SetDef scaler

Reference Input

The K-Frame Video Processor has one analog looping reference input, which can be used with any SD/HD/3G standard. This reference input signal must have the same frame rate as the native operating standard of the K-Frame.

75-ohm termination of the looping input is required, either directly on the adjacent connector or at the end of a daisy chain looping to other equipment.

Alternatively, any one of the K-Frame video inputs can also be used as reference in the respective standard.

K-Frame System Video Timing and Delay

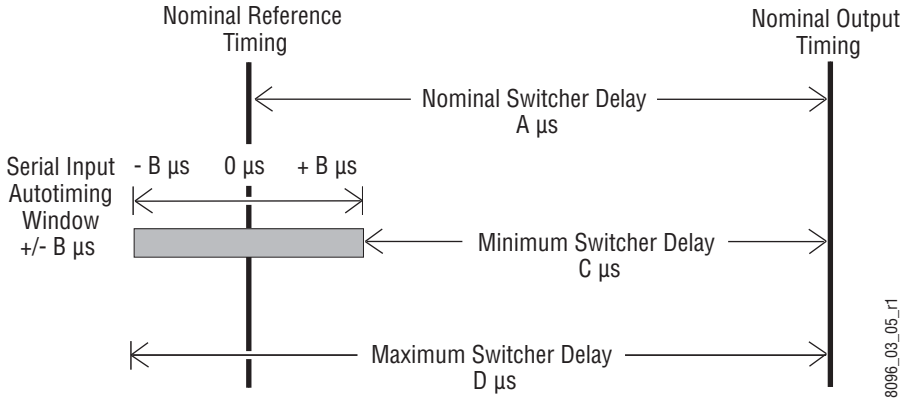
The total delay of a video input to the switcher output can vary according to the relationship of the input to the switcher reference. The switcher will automatically autotime inputs that fall within an autotiming window (Table 5). Inputs must be within this range to be properly timed at the output. The calculation of the actual video delay of a specific input is the Nominal Switcher Delay minus the input time location within the autotiming window (the time location value can be zero, positive, or negative).

Table 5. K-Frame System Timing, 4.5 ME System

Frame Operating Mode	A Nominal Switcher Delay	B Autotiming Window	C Minimum Switcher Delay	D Maximum Switcher Delay
525i/29.97	54.91 us	+/- 8.69 µs	46.22 µs	63.56 µs
625i/25	55.10 µs	+/- 8.88 µs	46.22 µs	64.00 µs
720p/59.94/60	20.22 µs	+/- 2.02 µs	18.20 µs	22.24 µs
720p/50	22.43 µs	+/- 4.23 µs	18.20 µs	26.67 µs
1080i-1080psf/29.97/30	23.93 µs	+/- 5.73 µs	18.20 µs	29.66 µs
1080i-1080psf/25	26.88 µs	+/- 8.68 µs	18.20 µs	35.56 µs
1080psf 23.98/24	27.63 µs	+/- 9.43 µs	18.20 µs	37.04 µs
1080pA 59.94/60	11.97 µs	+/- 2.87 µs	9.1 µs	14.83 µs
1080pA 50	13.44 µs	+/- 4.34 µs	9.1 µs	17.78 µs
1080pB 59.94/60	20.23 µs	+/- 9.44 µs	10.79 µs	29.66 µs
1080pB 50	23.18 µs	+/- 12.39 µs	10.79 µs	35.56 µs

A timing diagram of the input autotiming window and various switcher delay values is provided in Figure 65.

Figure 65. Switcher Timing Diagram



- For inputs entering the switcher in zero time with the reference, the total delay through the switcher is the Nominal Switcher Delay (A µs).
- Inputs that reach the switcher at the latest point in the autotiming window (+B µs) will have a total delay that equals the time required for switcher processing. This value is the Minimum Switcher Delay (C µs).
- Inputs that reach the switcher at the earliest point in the autotiming window (-B µs) will have a total delay equal to the Nominal Switcher Delay (A µs) plus the autotiming window range. This value is the Maximum Switcher Delay value (D µs).

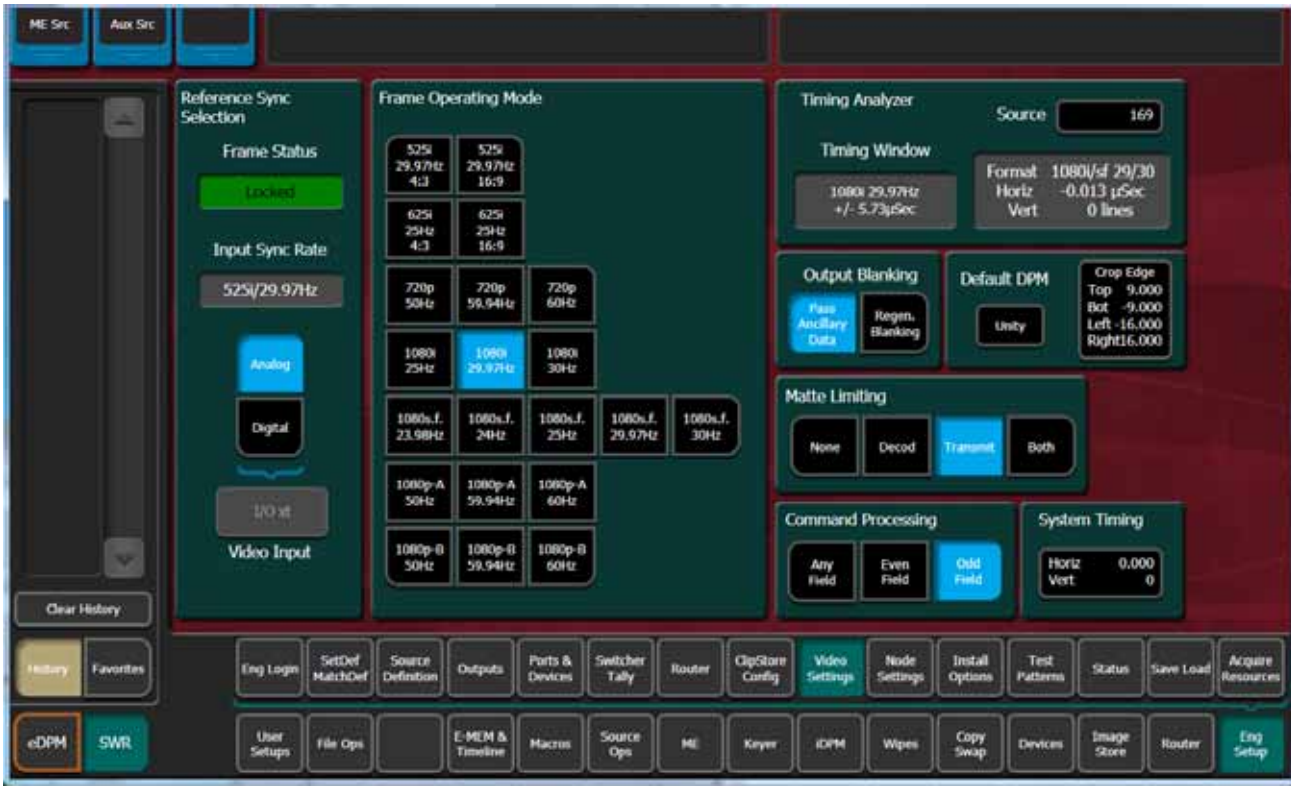
On K-Frame systems the autotiming window varies depending on the operating mode. The Timing Analyzer in the Video Settings Menu displays this autotiming information.

Note The maximum switcher delay is approximately one line of video.

Timing Analyzer

The Sync/Timing menu on Kayenne K-Frame systems (accessed via **Eng Setup**, **Video Settings**) has a Timing Analyzer pane (Figure 66), which can help when timing the system.

Figure 66. Video Settings Menu,



This analyzer reports the timing position of a selected source relative to the Kayenne K-Frame internal sync generator. The source is selected with the upper right **Analyzer Source** soft knob and data pad. The relative position of that source is reported in lines and µs. Positive values indicate the source is later in time than the internal sync generator, and negative values indicate the source is earlier.

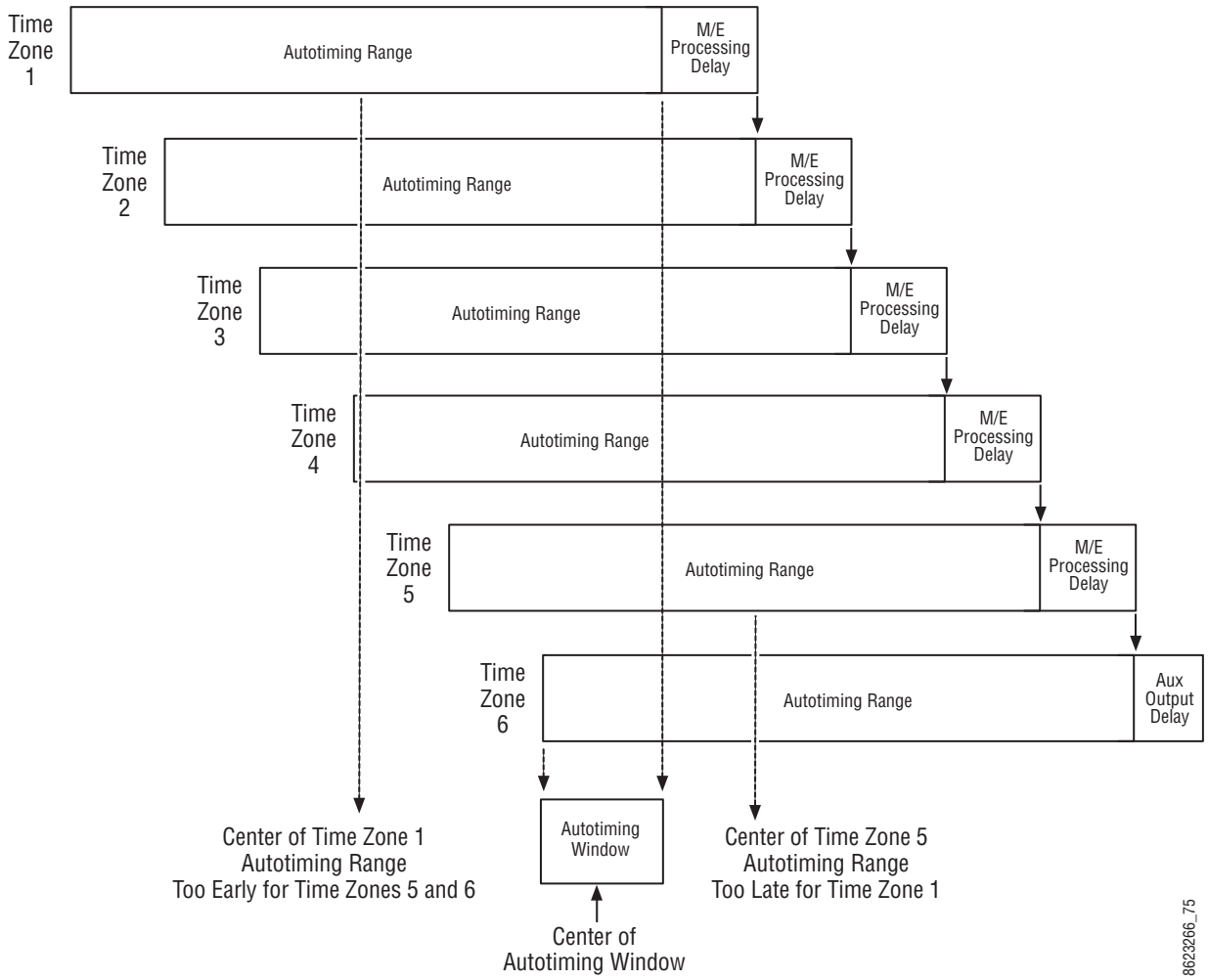
Kayenne K-Frame systems have an autotiming window. Sources that fall within that window will be properly timed throughout the Kayenne K-Frame system, even if the signal is cascaded through multiple MEs.

The **Switcher Horizontal** and **Switcher Vertical** soft knobs adjust the timing of the Kayenne K-Framesystem relative to the incoming reference. These values are generally best left at zero.

Time Zones and the Autotiming Window

Each ME has a fixed amount of delay from its input to output. To allow reentries to remain in time, ME timings are staggered such that the up stream ME outputs are earlier in time than down stream ME inputs. A 5 ME production switcher has six time zones to accommodate reentry through all the MEs to any output (Figure 67). When all MEs are cascaded into each other, the most up stream ME is in the earliest time zone. Aux buses and other outputs are always in the latest time zone. The overlapping range of all the autotimers is the published autotiming window for the switcher.

Figure 67. Production Switcher Time Zones



Any source fed to the switcher must be within the autotiming range of all six time zones. If not, the source will be in time on some MEs but not on others. As illustrated in the figure, a source centered in one time zone's autotiming range can be too early or late for other switcher time zones.

If a signal falls just outside the autotiming window, that image will be shifted one line up or down. On SD systems a shift of one line could be

easily seen, but on higher resolution systems the lines are so narrow that a single line shift may be difficult to observe.

ClipStore Cabling

Overview

The Kayenne K-Frame system uses an Ethernet connection for communications with ClipStore (K2 Summit/Solo, Figure 61 on page 81). Connect an Ethernet cable from the Kayenne K-Frame, either directly or through a dedicated Ethernet switch, to the bottom left (of the four) 100BT/1000BT Ethernet ports on the Summit/Solo backplane.

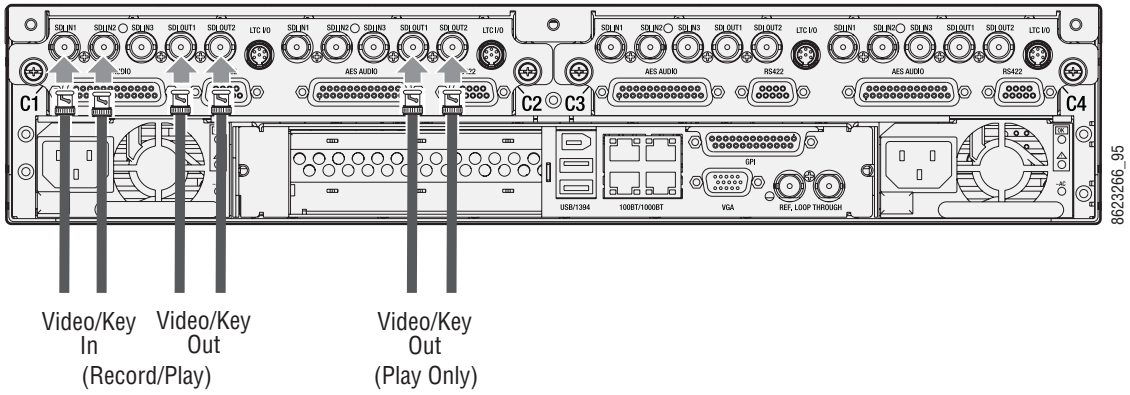
Note For a detailed cabling description, see the K2 Summit/Solo manuals included in the packaging.

ClipStore Video Cabling

The ClipStore channels on the server backplane are labeled C1-C4 (Channel 1 through Channel 4 on the Summit) from left to right (Figure 68). The Solo backplane is not labeled, Channel 1 is on the left and Channel 2 is on the right when facing the backplane.

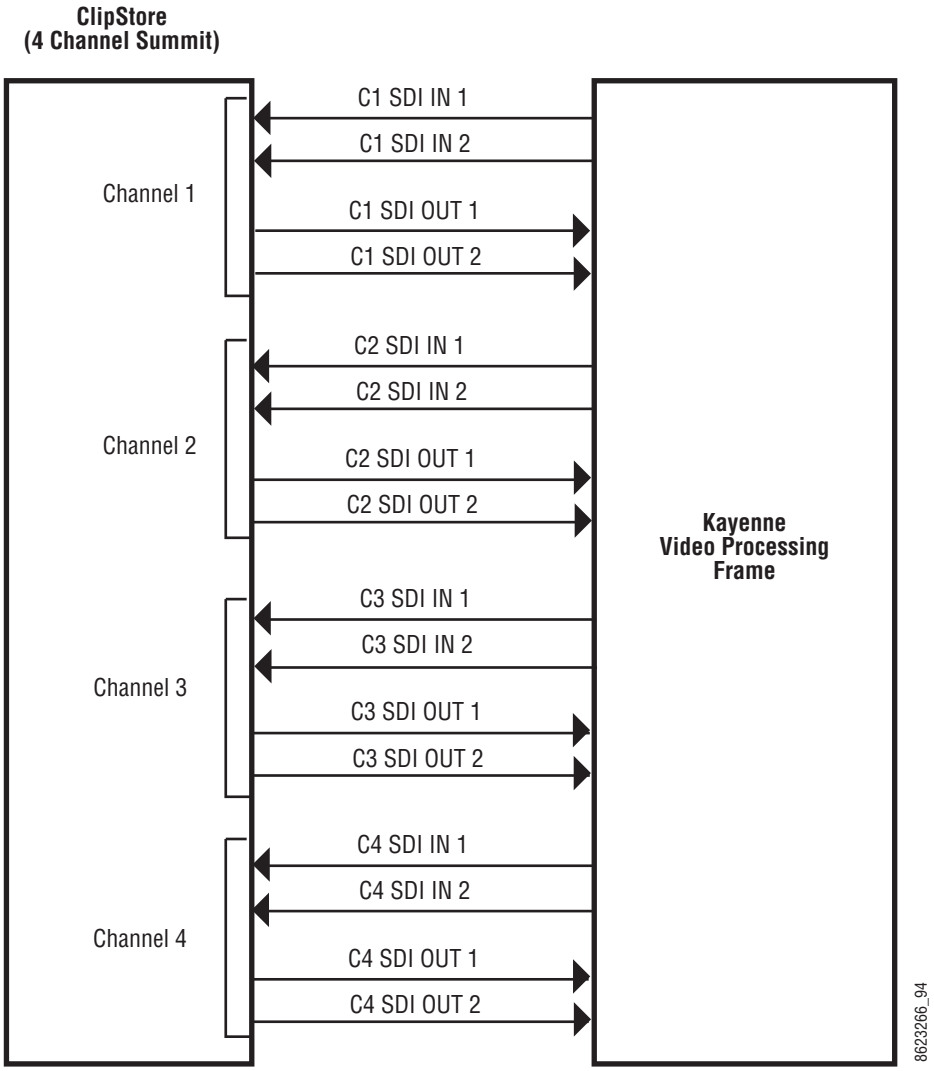
ClipStore requires SDI connections for both video and key— two connections In/Out per channel (C1 in Figure 68) for recording and playback. For playback only, two SDI connections to Out 1 and Out 2 are all that is required per channel (C2 in Figure 68).

Figure 68. ClipStore Backplane Connections



The ClipStore server (4-channel Summit/2-Channel Solo) can be connected directly to the frame (Figure 69). It is also possible to connect to the Clip-Store directly from a router and not use any switcher outputs.

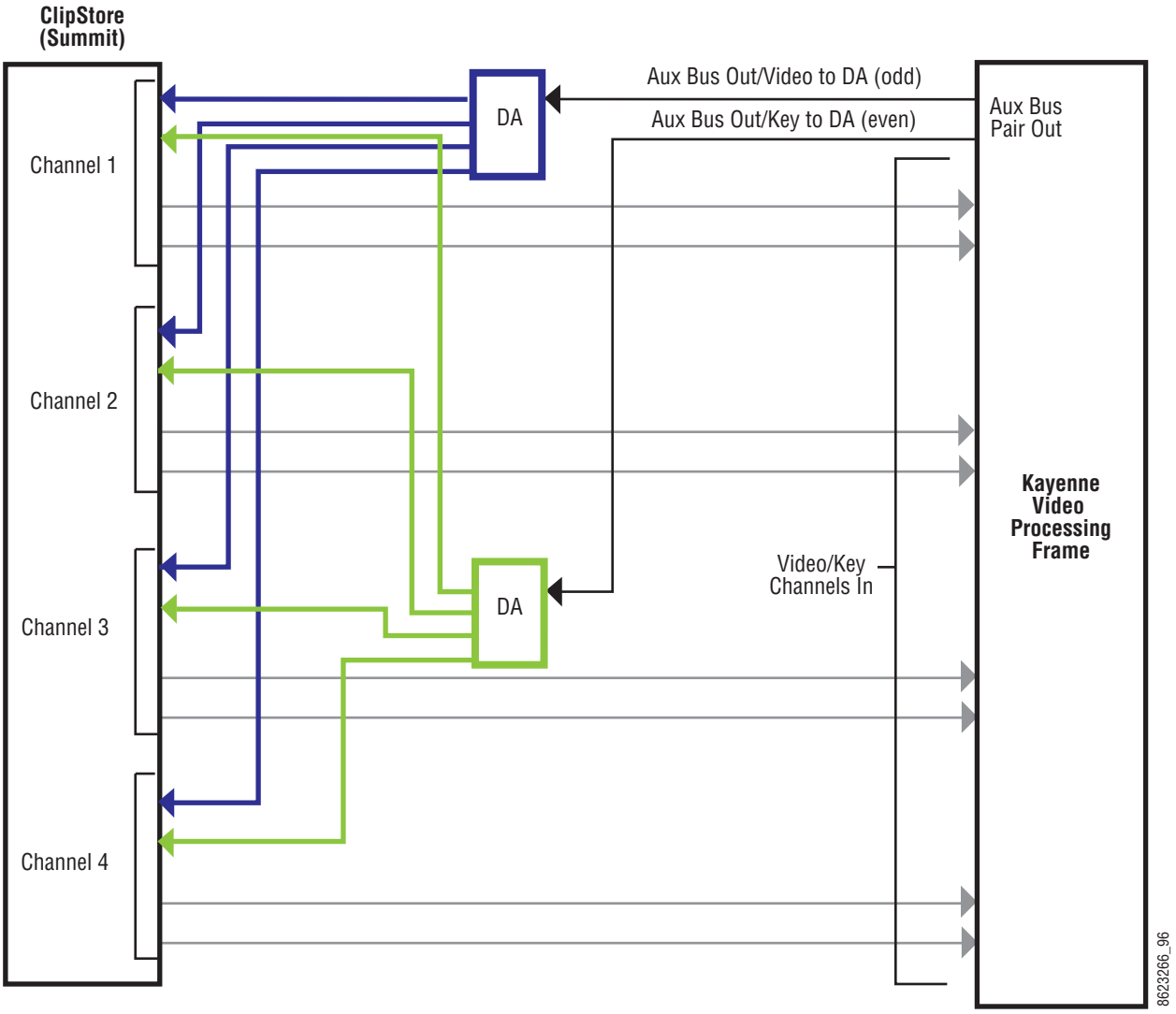
Figure 69. ClipStore Direct Connection



Odd numbered outputs are used for fill and even are used for cut. The first output assigned to a ClipStore channel must be an odd numbered output.

Also, DAs (Distribution Amplifiers) can be used to distribute Kayenne K-Frame Aux Bus output. The example in Figure 70 shows DAs being used for both the Video and Key Aux Bus outputs from the frame.

Figure 70. ClipStore Connection Using Distribution Amplifiers



Video Processor Frame GPI/Tally Interface

The GPI (General Purpose Interface) and tally interface provides a means to transfer commands to and from the switcher to external customer provided equipment. A one wire per function parallel hardware relay mechanism is used. The nominal contact rating specification for each relay is 1A, 60 V.

Note A tally interface that communicates with third party devices over Ethernet is also available. Refer to the separate *Switcher Products Protocols Manual* for specific information.

GPI and Tally Connections

Each K-Frame Video Input module has a 50 pin female subminiature D connectors on the rear of the chassis, available for GPI and tally. Each connector has 8 GPI Inputs, 24 Tally Outputs, and 8 GPI Outputs. These connectors do not share any signals in common, other than ground reference and chassis ground. Because of this, some GPI/Tally interconnects may require external common connections between connectors, as explained below.

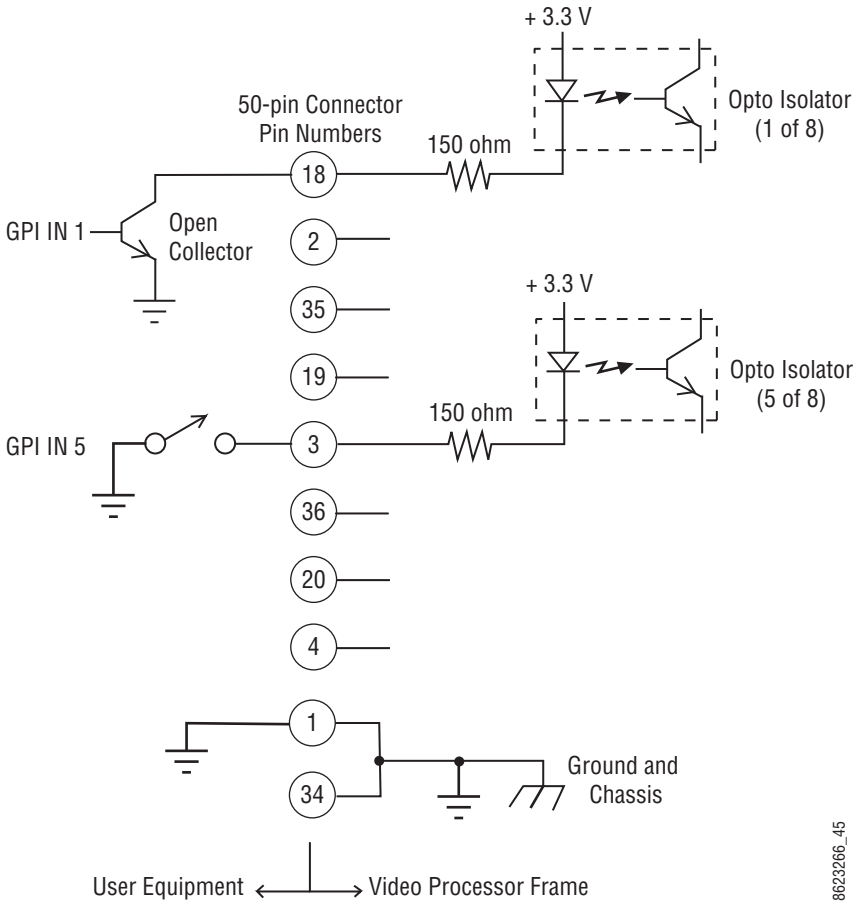
GPI Inputs

The purpose of the GPI In pins is to provide a stimulus from the customer's equipment to the switcher. A simple connection of two pins activates the corresponding input. An external relay contact or an open-collector output can be employed.

CAUTION When connecting to an open-collector output, there is no ground potential isolation between the Video Processor Frame and controlling devices.

Since the circuit ground is led out of the device, cabling should be shielded for this kind of control. Non-shielded cables may cause EMC and/or ESD problems. To activate a GPI In you must provide switch closure between a particular GPI In pin and one of the two GPI In Com pins (1 and 34). Pins 1 and 34 of each connector is connected to ground (Figure 71). For applications that span across more than one connector, only one ground (common) connection is required.

Figure 71. GPI Input Connections (Typical 2 of 8 Connections)

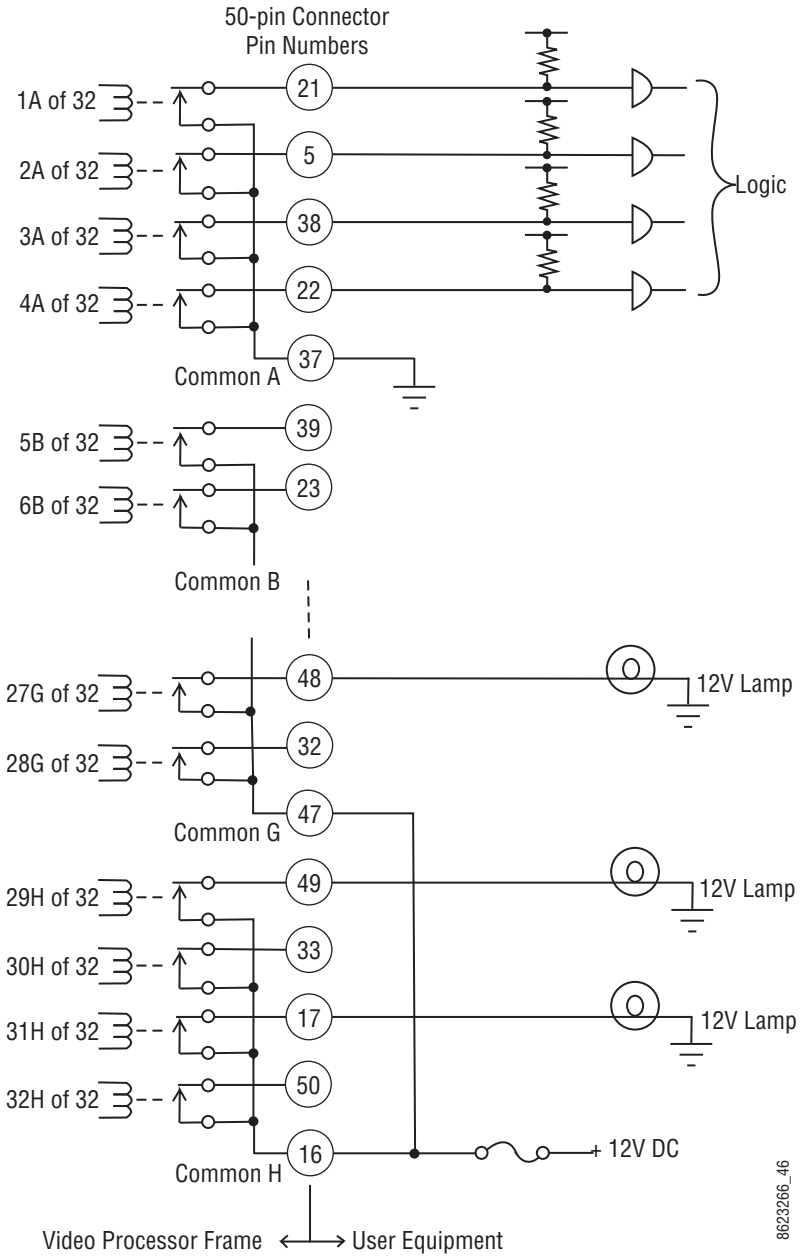


The function of each GPI input is user assignable. A function can be programmed to occur on the leading edge or the trailing edge of the closure, or both edges. The switch must be closed for at least one field.

Tally/GPI Outputs

Tally and GPI Outputs are arranged in groups of four. Each group has its own common connection. These commons can all be tied together, forming one common bus for all the outputs. Alternatively, multiple smaller commons can be constructed to interface with systems that need isolated common connections. This common or isolated bus scheme can extend across multiple connectors. For example, a situation may require two isolated common busses, half of the commons form the first common bus and the other half form the second common bus.

Figure 72. Tally and GPI Output Connection Example



The example shown in Figure 72 illustrates two common buses. The first four outputs (COMMON A) have the common bus tied to ground. This drives a logic system. The last outputs (COMMON G and COMMON H) have the common bus tied to +12 volts. This drives a tally lamp system.

Although diagram shows mechanical relays, the actual outputs are implemented with solid state relays. The solid state relays are bidirectional; either polarity voltage can be applied. If the switcher GPI/Tally outputs are used to drive downstream DC relays, be sure to install diodes across the

relay coils to clamp inductive spikes. Shielded cable is recommended for the connection from the switcher to the user tally system.

Table 6. Tally and GPI Output Specifications

Maximum current for any one output	1 amp AC/DC
Maximum current for any one common	2 amp AC/DC
Maximum off (open circuit) voltage between output and common	60 Volts peak
Maximum voltage between any point and ground (chassis)	60 Volts peak

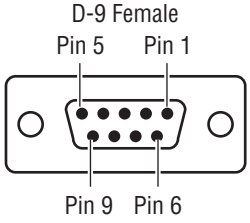
Pin Assignments

RS-422/485 Ports

Eight RS-422/485 ports are available on the rear of the K-Frame Video Processor, and can be used to control various devices, or for switcher control by an external controller.

Note The Frame serial port pinout is automatically configured based on assignment. The Frame is the bus controller when controlling external devices and PBus. The Frame is a tributary when controlled by an editor.

Table 7. RS-422/485 Pinouts

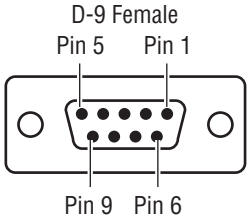
Socket	Pin	Bus Controller	Tributary
	1	Chassis Ground	Chassis Ground
	2	RxA (-)	TxA (-)
	3	TxB (+)	RxB (+)
	4	Signal Ground	Signal Ground
	5	Not used	Not used
	6	Signal Ground	Signal Ground
	7	RxB (+)	TxB (+)
	8	TxA (-)	RxA (-)
	9	Chassis Ground	Chassis Ground

RS-232 Ports

RS-232 serial ports are located on each processor board (Video Processor, Panel Processor, Menu PC), available for maintenance and diagnostics.

Standard VGA and keyboard ports, present on all processor boards, are also available for maintenance.

Table 8. RS-232 Pinouts

Socket	Pin	Signal
	1	Chassis Ground
	2	Transmit Data
	3	Receive Data
	4	Not used
	5	Signal Ground
	6	Not used
	7	Clear to Send
	8	Request to Send
	9	Not used

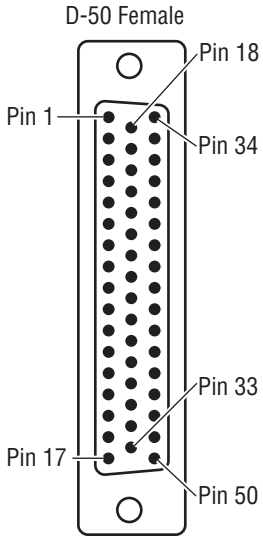
GPI In, Tally, GPI Out

Each Input Module has a 50 pin connector for GPI and Tally. The connectors are arranged in left to right order on the rear of the Standard (13-RU) K-Frame, and in top to bottom order on the Compact (8RU) K-Frame.

Table 9. Input Module Connectors

Module Number	Signals	8RU Frame	13 RU Frame
1	GPI In 1-8 Tally 1-24 GPI Out 1-8	Yes	Yes
2	GPI In 9-16 Tally 25-48 GPI Out 9-16	Yes	Yes
3	GPI In 17-24 Tally 49-72 GPI Out 17-24	No	Yes
4	GPI In 25-32 Tally 73-96 GPI Out 25 - 32	No	Yes
5	GPI In 33-40 Tally 97-120 GPI Out 33-40	No	Yes

Table 10. GPI In, Tally, GPI Out Signals



Socket	Ribbon Cable	50-Pin D-Sub			1	2	3	4	5
	1			1	GPIInCom	GPIInCom	GPIInCom	GPIInCom	GPIInCom
	2	34			GPIInCom	GPIInCom	GPIInCom	GPIInCom	GPIInCom
	3		18		GPIIn1	GPIIn9	GPIIn17	GPIIn25	GPIIn33
	4			2	GPIIn2	GPIIn10	GPIIn18	GPIIn26	GPIIn34
	5	35			GPIIn3	GPIIn11	GPIIn19	GPIIn27	GPIIn35
	6		19		GPIIn4	GPIIn12	GPIIn20	GPIIn28	GPIIn36
	7			3	GPIIn5	GPIIn13	GPIIn21	GPIIn29	GPIIn37
	8	36			GPIIn6	GPIIn14	GPIIn22	GPIIn30	GPIIn38
	9		20		GPIIn7	GPIIn15	GPIIn23	GPIIn31	GPIIn39
	10			4	GPIIn8	GPIIn16	GPIIn24	GPIIn32	GPIIn40
	11	37			TallyComA	TallyComJ	TallyComS	TallyComAA	TallyComAG
	12		21		Tally1A	Tally25J	Tally49S	Tally73AA	Tally97AG
	13			5	Tally2A	Tally26J	Tally50S	Tally74AA	Tally98AG
	14	38			Tally3A	Tally27J	Tally51S	Tally75AA	Tally99AG
	15		22		Tally4A	Tally28J	Tally52S	Tally76AA	Tally100AG
	16			6	TallyComB	TallyComK	TallyComT	TallyComAB	TallyComAH
	17	39			Tally5B	Tally29K	Tally53T	Tally77AB	Tally101AH
	18		23		Tally6B	Tally30K	Tally54T	Tally78AB	Tally102AH
	19			7	Tally7B	Tally31K	Tally55T	Tally79AB	Tally103AH
	20	40			Tally8B	Tally32K	Tally56T	Tally80AB	Tally104AH
	21		24		TallyComC	TallyComL	TallyComU	TallyComAC	TallyComAJ
	22			8	Tally9C	Tally33L	Tally57U	Tally81AC	Tally105AJ
	23	41			Tally10C	Tally34L	Tally58U	Tally82AC	Tally106AJ
	24		25		Tally11C	Tally35L	Tally59U	Tally83AC	Tally107AJ
	25			9	Tally12C	Tally36L	Tally60U	Tally84AC	Tally108AJ
	26	42			TallyComD	TallyComM	TallyComV	TallyComAD	TallyComAK
	27		26		Tally13D	Tally37M	Tally61V	Tally85AD	Tally109AK
	28			10	Tally14D	Tally38M	Tally62V	Tally86AD	Tally110AK
	29	43			Tally15D	Tally39M	Tally63V	Tally87AD	Tally111AK
	30		27		Tally16D	Tally40M	Tally64V	Tally88AD	Tally112AK
	31			11	TallyComE	TallyComN	TallyComW	TallyComAE	TallyComAL
	32	44			Tally17E	Tally41N	Tally65W	Tally89AE	Tally113AL
	33		28		Tally18E	Tally42N	Tally66W	Tally90AE	Tally114AL
	34			12	Tally19E	Tally43N	Tally67W	Tally91AE	Tally115AL
	35	45			Tally20E	Tally44N	Tally68W	Tally92AE	Tally116AL
	36		29		TallyComF	TallyComP	TallyComX	TallyComAF	TallyComAM
	37			13	Tally21F	Tally45P	Tally69X	Tally93AF	Tally117AM
	38	46			Tally22F	Tally46P	Tally70X	Tally94AF	Tally118AM
	39		30		Tally23F	Tally47P	Tally71X	Tally95AF	Tally119AM
	40			14	Tally24F	Tally48P	Tally72X	Tally96AF	Tally120AM
	41	47			GPIOutComG	GPIOutComQ	GPIOutComY	GPIOutComAG	GPIOutComAJ
	42		31		GPIOut1G	GPIOut9Q	GPIOut17Y	GPIOut25AG	GPIOut33AJ
	43			15	GPIOut2G	GPIOut10Q	GPIOut18Y	GPIOut26AG	GPIOut34AJ
	44	48			GPIOut3G	GPIOut11Q	GPIOut19Y	GPIOut27AG	GPIOut35AJ
	45		32		GPIOut4G	GPIOut12Q	GPIOut20Y	GPIOut28AG	GPIOut36AJ
	46			16	GPIOutComH	GPIOutComR	GPIOutComZ	GPIOutComAH	GPIOutComAK
	47	49			GPIOut5H	GPIOut13R	GPIOut21Z	GPIOut29AH	GPIOut37AK
	48		33		GPIOut6H	GPIOut14R	GPIOut22Z	GPIOut30AH	GPIOut38AK
	49			17	GPIOut7H	GPIOut15R	GPIOut23Z	GPIOut31AH	GPIOut39AK
	50	50			GPIOut8H	GPIOut16R	GPIOut24Z	GPIOut32AH	GPIOut40AK

Section 5

Basic Configuration

Introduction

This section provides basic system configuration information for the Kayenne K-Frame Video Production Center. Refer to the *Kayenne/Karrera K-Frame Release Notes* for information specific to your current software version.

Configuration Steps

Kayenne K-Frame basic system configuration includes the following steps:

1. Power up the system.
2. Set IP addresses for your facility (if not using defaults). Node Settings will also need to be configured for proper system communications (see page 111).
3. If necessary, adjust Control Panel button and display illumination (page 123).
4. If necessary, calibrate Control Panel lever arms and joystick (see *Maintenance* section).
5. Define your basic Engineering Setups. Essential settings include:
   - Source Definition (see page 125)
   - Outputs (see page 131)
   - Tally (see page 136)
6. Define a baseline User Setups (Panel Prefs and Suite Prefs). Important settings include:
   - Button Mapping (see page 165)
   - Source Patching (see page 167)
   - Default Keyframe (see page 167)

7. Configure external devices with the Kayenne K-Frame system (see *Section 6-External Interfaces*).
8. Save your configuration files (see page 168).
9. Additional configuration will be required if multiple suites are being used (see page 173).

Kayenne K-Frame Configuration Data

Current configuration settings reside on the Video Processor Frame (in the NV folder on the Compact Flash drive on the Processor Board). These settings affect Kayenne K-Frame system operation. When the Video Processor resets, these settings are read and enacted. Configuration settings can be saved to files and loaded back into the Kayenne K-Frame system at a later time to restore those operational settings.

Kayenne K-Frame configuration data falls into a few basic categories:

Eng Setup

Engineering Setup defines basic Kayenne K-Frame system functionality, including how it is cabled into a facility. Eng Setup applies to the entire Kayenne K-Frame system and can affect both suites if a second suite has been configured. Engineering Setups are intended to be used and maintained by technical staff. These parameters are typically set once and seldom changed, unless the facility changes in some way (new devices installed, signals rerouted, etc.).

User Setups

User Setups can customize Kayenne K-Frame system behavior for personal preferences, and to meet workflow requirements of a particular show. These settings are divided into **Panel Prefs** and **Suite Prefs**.

Panel Prefs affects how a specific Kayenne K-Frame control surface operates for an individual user, including Button Mapping, Source Colors, etc. These settings apply to a single control surface.

Suite Prefs controls more fundamental system behavior like Resource Allocation, Source Patching, E-MEM Prefs, etc. These settings apply to all Kayenne K-Frame control surfaces within that suite, and so can affect multiple operators. On Kayenne K-Frame systems configured with multiple suites, each suite will has its own independent Suite Prefs settings.

Network IPs and Node Settings

The Kayenne K-Frame system employs Ethernet IP communications. IP addresses are set on the Video Processor Frame, Image Store, Control Panel,

and Menu Panel. The Kayenne K-Frame Video Processor Frame maintains a list of IP nodes to enable communication with the other devices in the system. This list is stored separately from the Eng Setup and User Setups configuration files. This permits loading these configuration files without the danger of accidentally disrupting system communications.

One exception is Remote Aux Panel IP network settings, which are stored in the Kayenne K-Frame Eng Setup configuration file, along with other Remote Aux Panel settings.

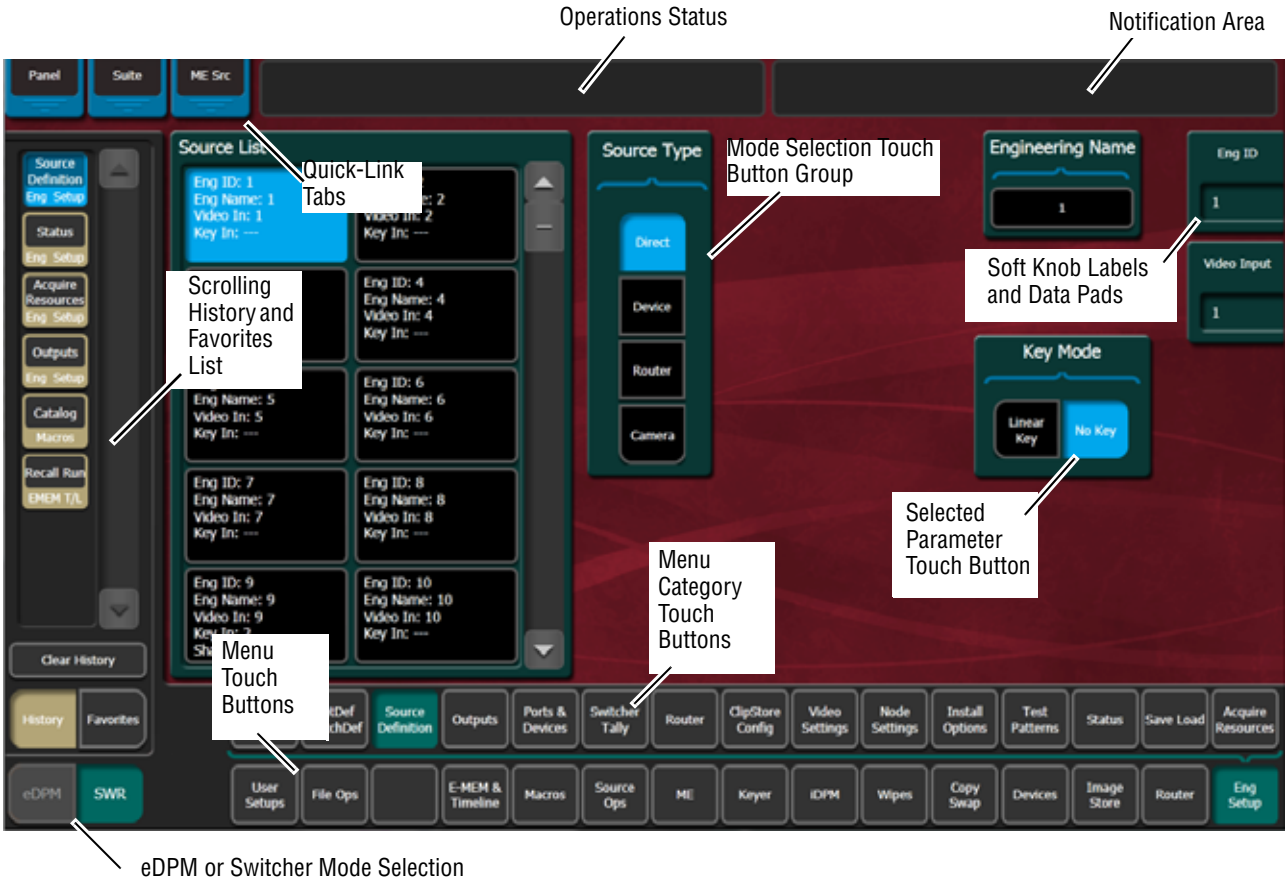
GV Switcher Menu Application

Note A brief description of the GV Switcher menu application is presented here. Refer to the separate *Kayenne K-Frame User Manual* for detailed information.

The GV Switcher menu application is used to configure your Kayenne K-Frame system. This application can run on a user supplied PC, using a mouse and keyboard, and can run on the optional Kayenne K-Frame Touch Screen menu, allowing system operation by touching the screen.

The GV Switcher system menus are context sensitive. They display different information and provide various types of controls depending on what area of the system is involved. A representative menu is shown in Figure 73.

Figure 73. GV Switcher Menu Example



Menu Top Line

The top line is identical in all the GV Switcher system menus:

- The left portion of the top line has three **Quick-Link Tabs**, which provide access to other related GV Switcher menus.
- The center portion of the top line displays operations status messages.
- The right portion of the top line is an operator notification area, where messages generated by the Kayenne K-Frame system are displayed.

Data Pads and Touch Buttons

Data pads are active areas on the screen that display a summary of the status of an object, and when clicked or touched bring up additional controls and information for that object.

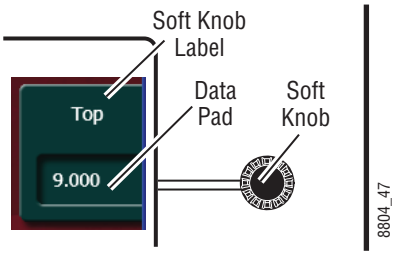
Touch buttons are labeled by their function and do not display data. Clicking or touching these buttons will immediately activate their function.

Touch buttons can control on/off functions, and have an indicator on the left side, or they can select from a group of parameters, and turn light blue

to indicate the state of that parameter. For on/off buttons, green indicates this is a normal parameter and that either an on or off state is typical. Yellow indicates an active function that may change expected behavior. Red indicates an active function which significantly changes normal behavior.

Data Pads and Soft Knobs

Figure 74. Soft Knob and Data Pad



Data pads on the right side of the screen allow adjusting parameters with ranges of values. Left clicking or touching a data pad opens a numeric keypad, allowing entry of a specific value.

When equipped with a Touch Screen Menu Panel, knobs along the right side of the panel can be used to dial in parameter values for functions displayed. When a knob is active, the touch screen shows the parameter name and its current value on that data pad (Figure 74).

Menu Selection

Various GV Switcher system operating menus are selected using the menu buttons at the bottom of the Menu panel touch screen. Menu category selection touch buttons are directly above the **Menu** touch buttons. Touching one of these buttons displays that category (see Figure 73 on page 106).

As each menu is accessed, a button for it appears in the scrolling **History** pane on the left, providing a quick return to that menu. **Favorites** can also be programmed for quick access to specific menus that are not overwritten.

Note The optional eDPM system has its own set of operating menus, accessed by touching the **eDPM** button on the lower left. For basic Kayenne K-Frame configuration be sure the **SWR** button is selected.

System Power Up and Initialization

The Kayenne K-Frame Video Processor Frame, Control Panel, and menu application must be running for full system operation.

1. The Kayenne K-Frame Video Processor power switch is located inside the front door, on the front of the control board (see Figure 47 on page 69 and Figure 52 on page 73).

CAUTION The front doors of the Video Processor Frame must remain closed during normal system operation for proper cooling airflow.

2. The Kayenne K-Frame Control Panel power switch is located inside the tub, near the center of the upper board. The two screws holding down the lid can be opened with a 1/4 turn using a coin or flat-blade screwdriver.
3. The PC (customer supplied or optional Fanless PC) running the GV Switcher menu application must be turned on, as well as that PC's monitor or optional Touch Screen menu display.

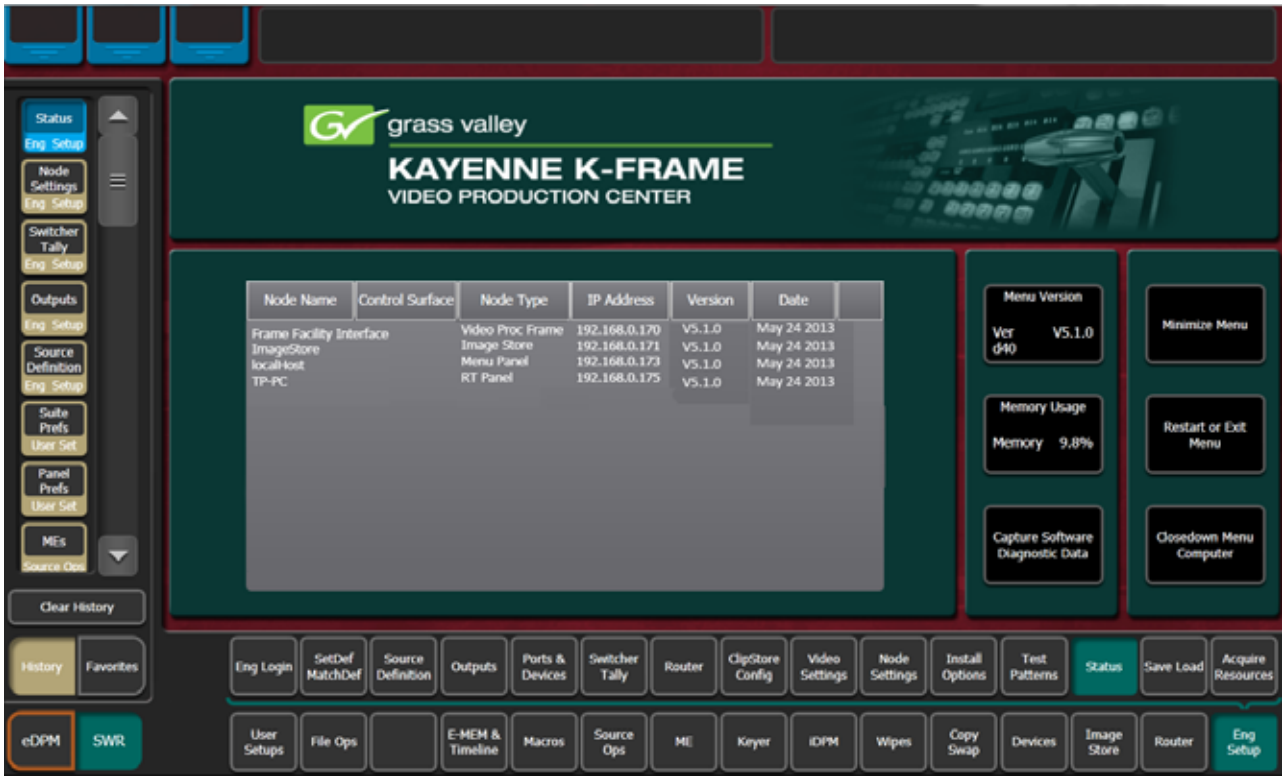
Power and Initialization Indications

Power to the system is indicated by operation of the fans in the Video Processor Frame, illuminated buttons on the Control Panel, and a Kayenne K-Frame screen is displayed on the Menu Panel.

Kayenne K-Frame Menu Application Initialization

When GV Switcher menu application initialization completes the Status menu is displayed. This menu reports any connected devices, IP addresses, and software versions and dates of those devices in the center of the screen (Figure 75).

Figure 75. Eng Setup Status Menu



Default Kayenne K-Frame System Communications

Kayenne K-Frame systems ship with factory default settings that allow components to communicate with one another when powered up, provided they are connected properly). These Kayenne K-Frame components appear on the Status menu.

We recommend you use an isolated Ethernet network with your Kayenne K-Frame system (to prevent possible IP address or network traffic conflicts), particularly when first setting up your system.

Establishing Menu to Frame Communication

If a Video Processor Frame is not found by the GV Switcher menu application, the Status menu central window will be empty and a **NO FRAME COM** message will be displayed in the upper right Notification Area.

The following conditions need to be met before the GV Switcher menu application can communicate with the Video Processor Frame. This list assumes the Kayenne K-Frame Touch Screen Menu Panel is being used. Similar requirements apply when the GV Switcher menu application is run on a PC:

- The Video Processor Frame must be powered up and running.
- The IP address of the Kayenne K-Frame Menu Panel must be set to be on the same network as the Video Processor Frame.
- Ethenet cabling should connect the Control Panel to the Video Processor Frame, either directly or though an Ethernet switch.
- The IP Address the menu application will use to communicate with the Frame must be in the **Frame IP Address** field of the **Frame Suite Nodes & ID** menu (to identify which Frame the Menu Panel will connect to).
- The Menu Panel's IP address must be in the **IP Address** field of the **Control Surfaces** menu (to register that Menu Panel as a node on the Frame).

Connecting the Menu Application to a Frame

Use the following procedure to connect a Menu Panel with a compatible IP address to a properly cabled and operating Video Processor Frame. Two

menu application resets will be required, one to connect to the Frame and another to register the menu application IP with that Frame:

1. On the GV Switcher menu application, go to **Eng Setup**, **Node Settings**, **Frame Suite Nodes & ID** (Figure 76).

Figure 76. Frame Suite Nodes & ID Menu

2. Enter the IP address the menu will use to communicate with the Frame in the **Frame IP Address** field.

3. A Restart menu dialog box will appear (Figure 77)

Figure 77. Restart Menu Dialog Box.

4. You can either touch **Restart Now** to restart Menu Panel application, or you can **Cancel**, make changes to the Image Store IP Address and Track DPOPs from Panel IP, and then do a single Menu Panel restart.

5. After the Menu Panel restarts, go to **Node Settings**, **Control Surfaces**. This is the only GV Switcher menu that will be active when the Menu Panel is not registered with the Frame.

6. Enter a descriptive **Node Name** for the Menu Panel, and enter its **IP address** in one of the fields available (Figure 78).

Figure 78. Control Surfaces Node Menu

7. Touch the **Status** subcategory button to exit the menu. A Restart menu dialog box will appear.

8. Touch **Restart Now** to restart Menu Panel application.

After restart, the **Status** menu should show the Video Processor Frame, and the Menu Panel should be fully operational.

Network Configuration

IP Address Background Information

Each device connected to any Ethernet network must have a unique IP address. An IP address has two components: the network address and the

node address. The Subnet mask defines the dividing line between the two. The first three octets of Subnet mask provide the network address; the fourth is the node address. Nodes with the same network address can communicate directly with each other, while nodes with different network addresses normally do not communicate directly.

The Kayenne K-Frame system uses Ethernet switches built into the Video Processor Frame. The switch provides isolation between port pairs, providing deterministic communication for panel and frame messaging, and also allows Control Panel and Menu Panel communication for DPOPs. All nodes must also have the same network address and be given a different node address.

Gateway IP Addresses

A gateway IP address can be entered to allow communication with devices not located on the local Kayenne K-Frame system network. Communication outside the local network requires using a configured network gateway server, a description of which is beyond the scope of this document. See your network administrator for information about gateway server installation and configuration.

Kayenne K-Frame Default IP Addresses On Isolated Network

Each Kayenne K-Frame system is shipped with default IP addresses (see *Factory Default Network Settings* on page 86). Grass Valley has chosen these default IP addresses to make Kayenne K-Frame configuration easy. Kayenne K-Frame devices should communicate with each other right out of the box when properly connected on an isolated network.

Connecting to an Existing Network

Additional network configuration is required if you connect the Kayenne K-Frame Ethernet LAN to your facility Ethernet backbone, install additional Kayenne K-Frame system components, or have multiple Kayenne K-Frame systems on the same network cabling. For example, if more than one Kayenne K-Frame system resides on the same network, the IP address of each additional Kayenne K-Frame device must be changed before it is connected to the network.

To enable communication between Kayenne K-Frame and other facility devices, you will need to change the Kayenne K-Frame system default network addresses to match the facility address, or place a router between Kayenne K-Frame and the facility networks. This complexity of network configuration is beyond the scope of this manual. Consult a networking expert if such networking is desired.

See your network System Administrator before connecting the Kayenne K-Frame system to an existing network or making any IP address changes. The IP addresses (including any Subnet mask) of all the Kayenne K-Frame devices on the network must be known before any changes are made.

Setting IPs with the K-Frame Switcher Installer Program

Figure 79. Installer Icon

The K-Frame Switcher Installer Program can be used to set IP addresses of the Kayenne K-Frame Video Processor and Kayenne K-Frame Control Panels.

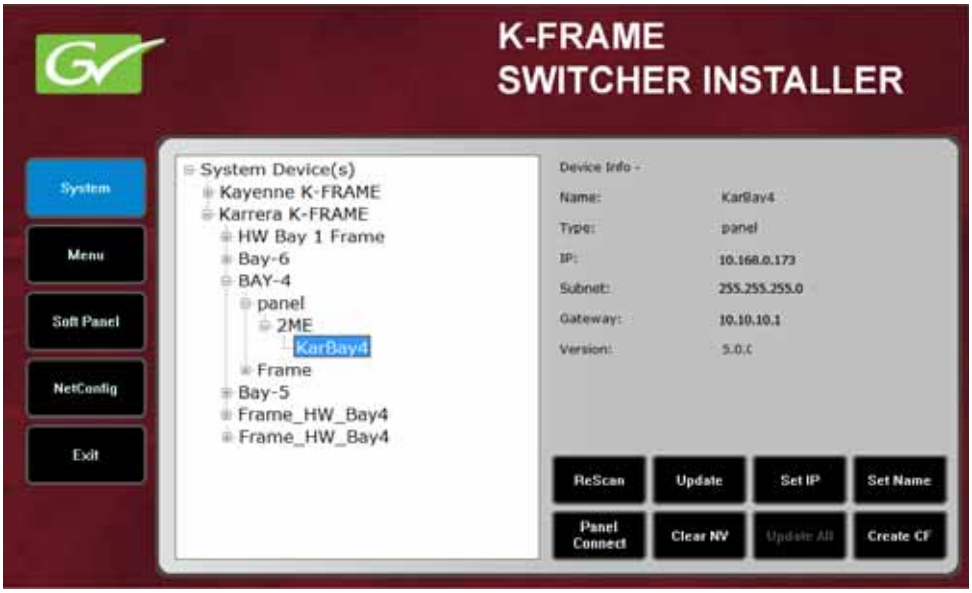
When the Kayenne K-Frame software package has been deployed to your Menu Panel or PC, the K-Frame Installer icon will appear on the desktop (Figure 79).

Note A mouse and keyboard is required to navigate through the K-Frame Installer program and enter IP numbers and system names. Standard USB devices can be connected to any of four available ports on the Kayenne K-Frame Menu Panel.

Kayenne K-Frame System Names

The K-Frame Installer program includes a hierarchy display of Kayenne K-Frame system components. This hierarchy starts with the name of the Kayenne K-Frame system, and groups that system's Video Processor Frame with the Control Panel(s) configured with that Frame. The Kayenne K-Frame system name is taken from the Video Processor Frame name. This hierarchy allows easy identification of each Kayenne K-Frame system when multiple systems reside on the same network (Figure 80).

Figure 80. K-Frame Switcher Installer Program Hierarchy, Multiple Systems



The default name for every Kayenne K-Frame Video Processor is **SystemA**, and this works well when only one system is present on the network. However, if more than one Kayenne K-Frame system with the default name is present, all the Frames and Control Panels will be grouped under that name.

If you have more than one Kayenne K-Frame system, be sure to change the name of the Video Processor Frames so you can identify them easily. When each Frame has a unique name, the Control Panels configured with each Frame will be grouped with that system name.

The name of a Kayenne K-Frame Video Processor (and Kayenne K-Frame system name) can be changed in several ways. Once changed by any method, any properly refreshed user display will report that changed name. The Video Processor Frame name can be changed with:

- K-Frame Switcher Installer Program,
- Video Processor Frame web page,
- GV Switcher menu Application Frame Suite Nodes & ID menu, and
- NetConfig.

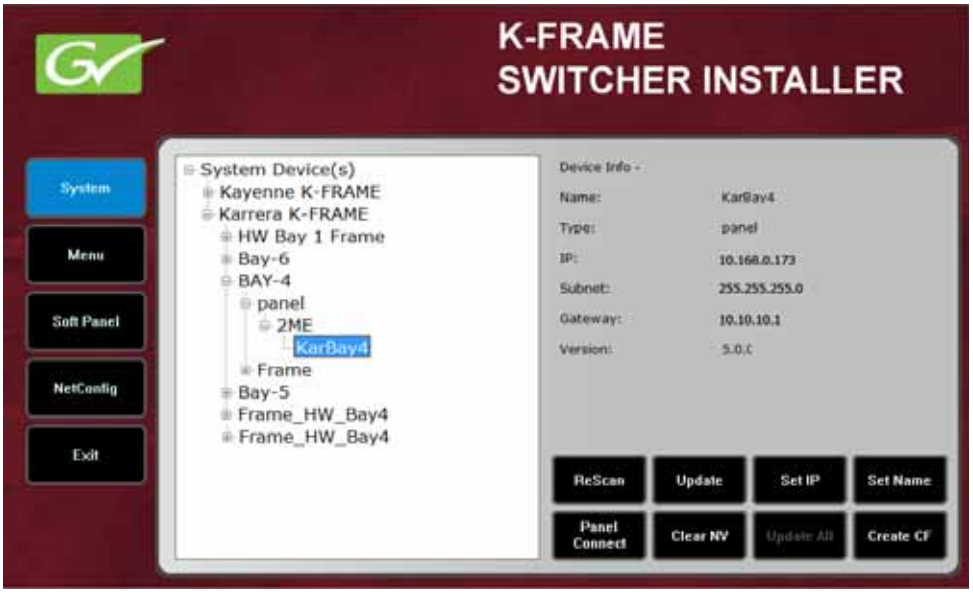
Set IP Procedure Using K-Frame Installer Program

1. Ensure the Menu Panel or PC has an IP address able to communicate with the Kayenne K-Frame system components and is physically connected to the Kayenne K-Frame network.
2. Double click on the **K-Frame Installer** icon. The K-Frame Switcher Installer program will be launched (Figure 81).

Note The K-Frame Switcher Installer program cannot run if the separate NetConfig application or any monitoring program is also being run simultaneously on that same Menu Panel or PC.

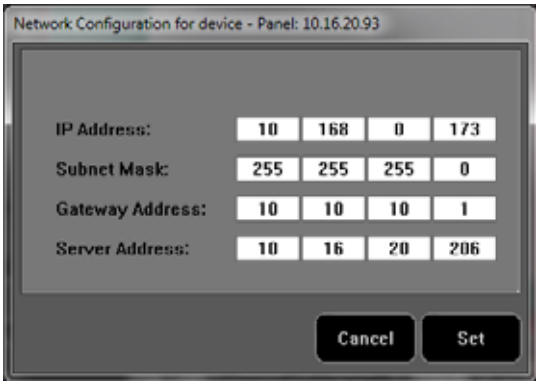
3. Click on the **System** button on the left to open a hierarchy display of Kayenne K-Frame systems. Each Kayenne K-Frame system consists of a Video Processor Frame and associated Control Panel(s). Use the mouse to navigate to the desired component (Figure 81).

Figure 81. K-Frame Switcher Installer Program, System Hierarchy



4. Click the **Set IP** button to open an IP Address entry window (Figure 82).

Figure 82. K-Frame Switcher Installer Program, IP Address Entry Window



5. Click on each field to be changed, type in the desired IP address, and click **Set**.

6. The component will need to be reset to make the IP address change take effect. Press the reset button on the Video Processor Frame, or the Panel Reset button (the one on the left) on the Control Panel to reset the device. See *Reset Procedures* on page 217 for details.

CAUTION Changing the IP address of an operating Kayenne K-Frame component can disrupt system communications until matching changes to the addresses other components use are made on those other devices. Registering new IP Node addresses may also be necessary.

Other K-Frame Switcher Installer Program Functions

The K-Frame Switcher Installer program can also be used to install the KSP and NetConfig applications on that PC, using the buttons on the left.

In addition the K-Frame Switcher Installer application has the following other features, accessed by clicking on its labeled button:

Rescan - Re-scans the network for devices. This refreshes the screen to show the currently connected components and any modified system names.

Update - Updates the software on the selected device using the software deployed with this K-Frame Switcher Installer version.

Set Name - Opens a window allowing you to change the name of the selected device.

Set Server - (Control Panel selected in hierarchy window) - Opens a window allowing you to enter the IP address the Control Panel will use to communicate with the Video Processor Frame.

Clear NV - (Frame or Control Panel selected) Clears NV Memory.

Update All - (System selected) Updates software to all devices for the selected system, excluding menus.

Create CF - Allows the duplication of a Frame or Control Panel Compact Flash Card onto another CF Card.

Setting IPs with Device Web Pages

Kayenne K-Frame Video Processors and Control Panels have web pages that can be used to set that device's IP addresses.

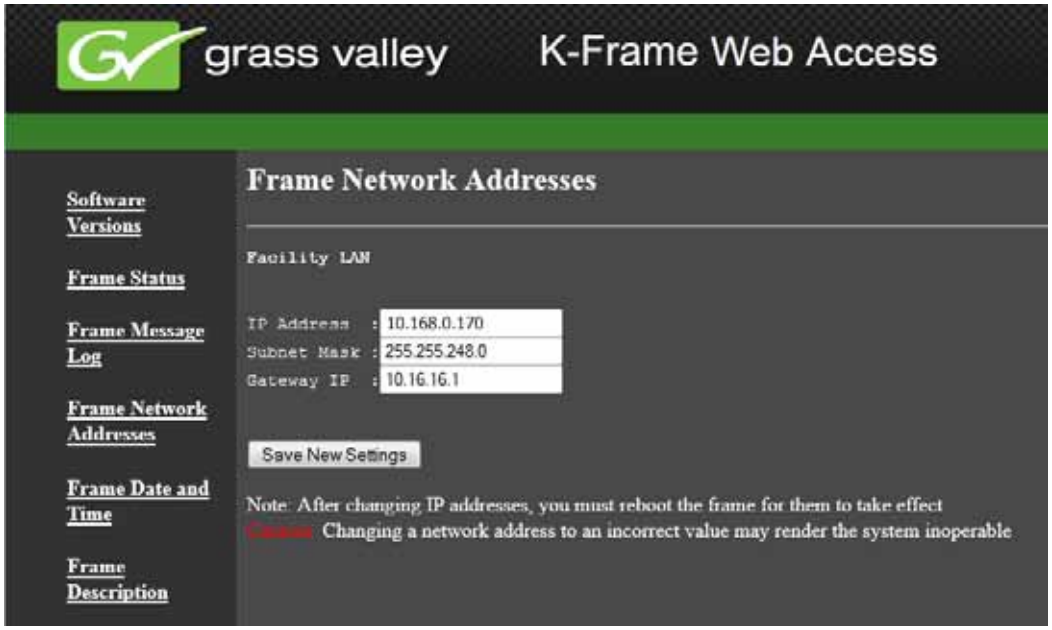
Set IP Procedure Using Device Web Pages

You need to know the current IP address of the Kayenne K-Frame Video Processor or Control Panel before you can change it using a Web browser, mouse and keyboard.

Note The NetConfig application, included with the Kayenne K-Frame software, can be used to find IP addresses of devices accessible on the network. Refer to the separate *NetConfig Instruction Manua*l for more information.

1. Using any web browser connected to your Kayenne K-Frame network, enter the IP address of the device in the address field and press **Enter**.
2. Click on **Frame Network Addresses** (Figure 83).

Figure 83. Frame Network Address Web Page



3. Under Facility LAN, type in the new IP address (and subnet mask and gateway if needed). Make sure you enter the correct number exactly. A typing error can make the frame inaccessible over the network, since you need to know its IP address for use with the Web browser.

Note If you make a mistake, you can use the Serial Port and Terminal method to view the existing Video Processor frame IP address and change then to the correct values.

4. Click on the **Save New Settings** button.
5. Reset the device.

The device will boot up with the new IP address.

When a Video Processor Frame IP address has been changed, communications will no longer occur with any Kayenne K-Frame system devices that are configured to use the old frame IP address. You will need to go to each device and change the address they use to communicate with the Video Processor Frame.

Changing Image Store IP Address

The Image Store IP address can be changed using the Video Processor Frame web page. See *Setting IPs with Device Web Pages* on page 116 for more information.

Changing Control Panel IP Addresses

A Kayenne K-Frame Control Panel's IP address can be changed using various methods:

- K-Frame Switcher Installer program (see *Setting IPs with the K-Frame Switcher Installer Program* on page 113).
- the Kayenne K-Frame Control Panel webpage (see *Set IP Procedure Using Device Web Pages* on page 116),
- the Grass Valley NetConfig application, or

Changing Menu Panel IP Address

Set the Kayenne K-Frame Menu Panel IP addresses using the Windows XP interface. You may use the touch screen to access the Windows settings but you will need to use a mouse and keyboard connected to the Menu Panel for entering the IP address values. To set the Menu Panel address:

1. Go to **Eng Setup**, **Status** and touch the **Minimize Menu** button. This will take you to the Windows desktop.
2. Go to **Start**, **Settings**, **Network Connection**, **Local Area Connection**, **Properties**, and follow the standard Windows IP address setting procedure.

See *Menu Panel Registration* on page 121 regarding additional configuration steps required.

Setting 32-Crosspoint Remote Aux Panel IP Address

The default IP addresses of Remote Aux Panels are set to at the factory before shipment will not work with a Kayenne K-Frame system whose other components are set to defaults. Typically, Kayenne K-Frame systems are equipped with more than one Remote Aux Panel. If more than one Remote Aux Panel will be used on your Kayenne K-Frame system, you will need to change each panels' IP addresses so none are duplicated, and this must be done before you connect them to the network. This will require a mouse and keyboard connected to a PC disconnected from the network.

Check with your network administrator to learn what IP addresses should be used at your facility.

Setting the IP Address

A PC equipped with an Ethernet interface and a web browser is required to change Remote Aux Panel IP addresses.

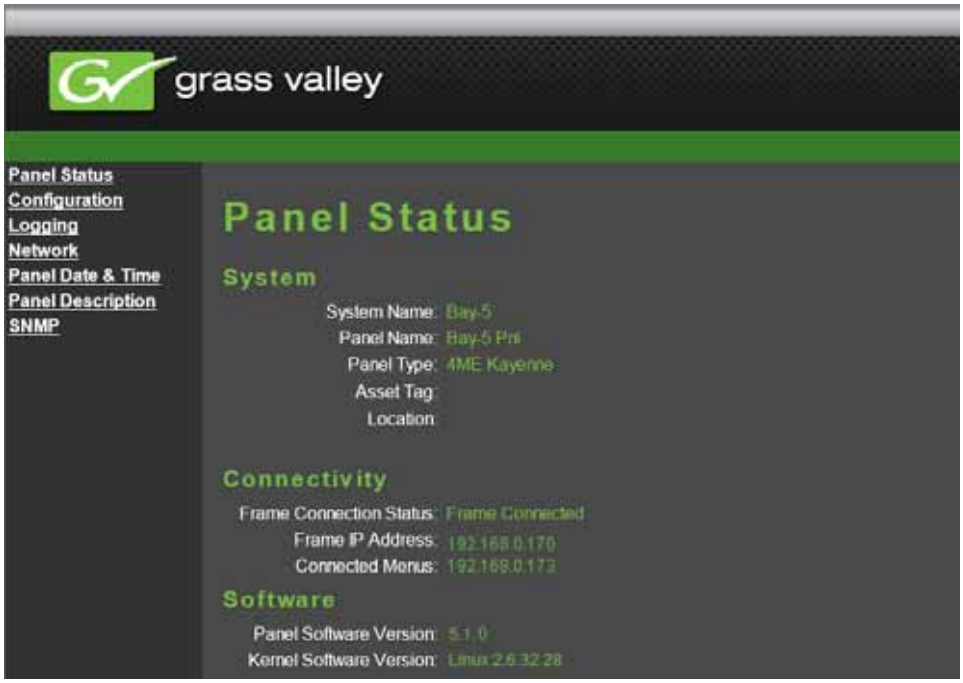
1. With the PC disconnected from all facility networks, connect the PC's Ethernet port directly to the Remote Aux Panel.

Note A crossover Ethernet cable (Tx/Rx pair crossed) is needed when connecting a PC directly to the Remote Aux Panel without a hub intermediary.

2. Start the web browser, enter the default IP address (192.168.1.2) in the address field, and press **Enter**. If the address is found, a Panel Status screen similar to Figure 84 will appear.

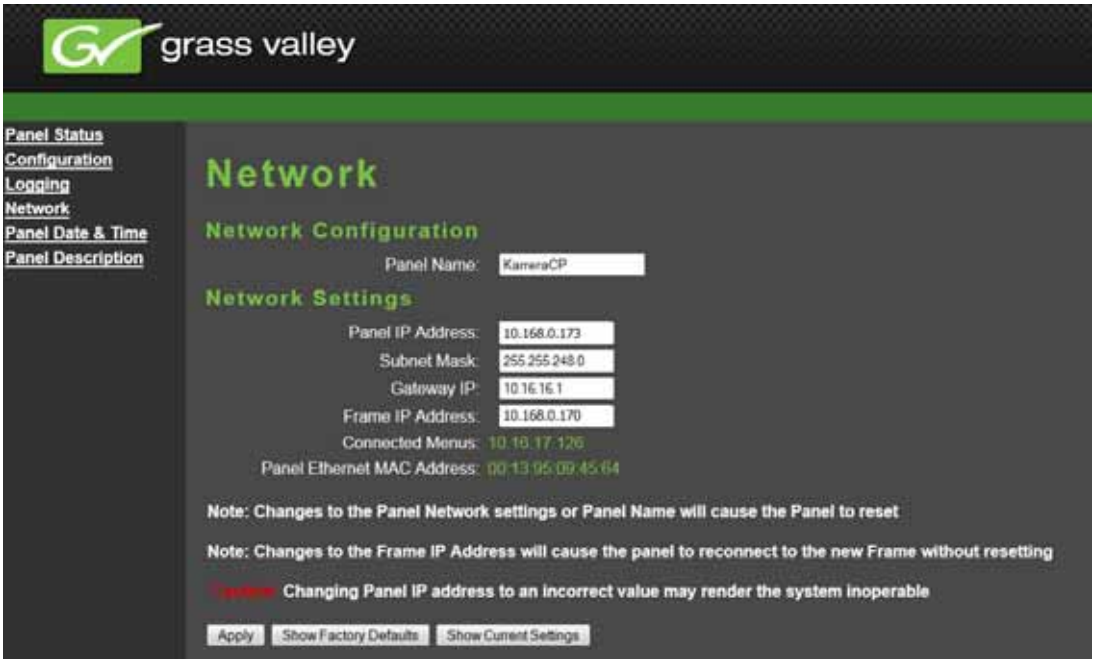
Note If the Remote Aux Panel address is not found, you may need to reset the panel to its defaults (see page 120).

Figure 84. Panel Description Screen



3. Click on **Network**. A Network Configuration screen similar to Figure 85 will appear, displaying the factory default settings.

Figure 85. Panel Network Screen, Default Information



4. Enter the IP addresses and other information appropriate for your system.
   - The **Panel Name** is used to name the panel, for user convenience. This field does not affect the operation of the unit.
   - The **Frame IP Address** field is for the Kayenne K-Frame Video Processor.
5. Click on **Apply**. The new IP addresses will be saved and the Remote Aux Panel will reset. You should label the panel with its IP address and keep a record of all IP addresses for future reference.
6. Disconnect the PC, and connect the Remote Aux Panel to the Kayenne K-Frame system network.
7. Repeat this procedure on all the Remote Aux Panels to be used with your Kayenne K-Frame system, entering a unique IP address for each Remote Aux Panel.

See *Remote Aux Panel Registration* on page 122 regarding additional configuration steps required.

Restoring the Default IP Address

You need to know the current IP address of the Remote Aux Panel in order to change it using the Web browser. If a panel's IP address has been changed and its new value not recorded, it will be impossible to change its

IP address. You can restore the panel to its factory default address, if necessary, with the following procedure.

1. Disconnect the Ethernet cable and the AC power cable from the Remote Aux Panel.
2. Reconnect only the AC power cable. The panel will enter a diagnostic mode.
3. Push down and hold any panel button. After three seconds panel buttons will light up sequentially, indicating different available diagnostics.
4. When three buttons illuminate, release the held button. This places the panel in IP Address reset mode, and one button will be flashing.
5. Press the flashing button. This resets the IP address to factory default.

Registering Kayenne K-Frame System Nodes

When IP addresses have been changed on Kayenne K-Frame system components, or new components are added, the Video Processor Frame needs to know what new addresses it will use to communicate with those components. This is accomplished by registering those addresses with the Frame using the GV Switcher menu application Node Settings menus.

Menu Panel Registration

Registering the Kayenne K-Frame Menu Panel (or PC running the GV Switcher menu application) with the Frame was described earlier (see *Establishing Menu to Frame Communication* on page 109). The GV Switcher menu application needs to be in communication with the Video Processor Frame before other nodes can be registered.

Control Panel Registration

1. Touch **Eng Setup**, **Node Settings**, **Control Surfaces** (Figure 86).

Figure 86. Control Surfaces Menu

2. Touch an available set of buttons and enter a Node Name and the IP address of the Control Panel.
3. You can assign the component to a suite and control surface now if you wish, but it is recommended to initially configure your Kayenne K-Frame system as a single suite. Later, you can modify the configuration for multi-suite operation.
4. If you want that Control Panel button DPOPs (double press open) button) to affect this Menu Panel, touch **Frame Suite Nodes & ID** and enter the IP address of that Control Panel in the Track DPOPs from Panel ID field (see Figure 76 on page 110).
5. After making an addition or change, you will need to reset the Control Panel. This can be done two different ways:
   - On the Control Panel Multi-Function Module access the Home menu, then press **Panl**, **IP**, **Boot** and press **Yes**.

Remote Aux Panel Registration

Note Do not confuse the Local Aux Panel, which is considered a Control Panel Stripe, with Remote Aux Panels, which are small panels used to change Aux Bus sources from a different location. The Local Aux Panel Stripe is not configured with the following menus.

1. Touch **Eng Setup**, **Node Settings**, **Remote Aux IP Network** (Figure 87).

Figure 87. Remote Aux IP Network Menu

2. Touch an available set of buttons and enter an Aux Panel Name and IP address of each Aux Panel.
3. Identify the type of Remote Aux Panel (Single or Multi- Destination).
4. You can assign the component to a suite and control surface now if you wish, but it is recommended to initially configure your Kayenne K-Frame system as a single suite. Later, you can modify the configuration for multi-suite operation.

Remote Aux Panel Configuration

Each Remote Aux Panel needs to be configured, which involves identifying what Aux Bus(es) it will be able to control, and which sources will be available on that panel's button. See *Mapping Logical Remote Aux Panels* on page 192 and *Remote Aux Button Mapping* on page 194 for more information.

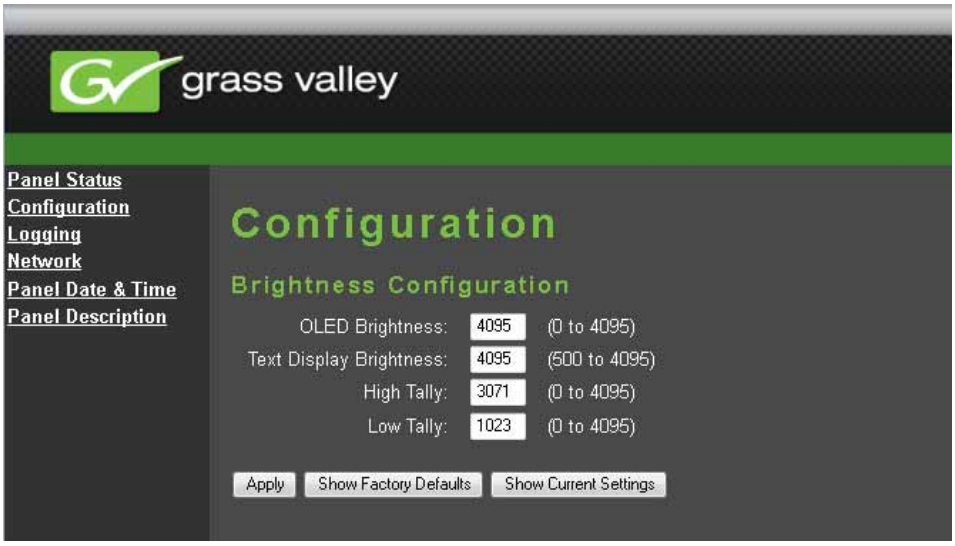
Control Panel Brightness Adjustment

The Control Panel is calibrated at the factory for even brightness and color balance. Individual panel area illumination levels cannot be adjusted in the field. However, the relative brightness of button tally, source name dis-

plays, and text displays can be adjusted on a global basis to meet individual requirements (for example, to accommodate varying ambient room lighting levels).

1. Access the Kayenne K-Frame Panel webpage, by entering its IP address in a web browser, then clicking on **Configuration** (Figure 88).

Figure 88. Control Panel Brightness Adjustment



2. Enter the desired values for **OLED**, **Text Display**, **High Tally**, and **Low Tally**, and then click **Apply**.

Note To extend the life of display illumination hardware (in particular the OLEDs), the Control Panel automatically enters a panel saver state when its controls have not been touched for a specified time (ranging from 10 to 30 minutes). In the panel saver state all the Control Panel buttons and displays go dark, except the **Key 1** through **Key 6** and **Key Prior** buttons are illuminated blue and cycle. Touching any button or control on the Control Panel exits the panel saver state.

Lever Arm and Joystick Calibration

Kayenne K-Frame Lever Arms and Joysticks are calibrated at the factory and should not need to be adjusted when a new system is installed. Calibration settings are stored within each module.

If Lever Arm or Joystick calibration becomes necessary, see *Control Panel Adjustments* on page 219.

Engineering Setups

Kayenne K-Frame inputs and outputs are connected to the rear of the Video Processor Frame. These video signals need to be configured to your facility's requirements. Engineering Setups defines Kayenne K-Frame system component functionality and how it is cabled into a facility. Engineering setups are intended to be used and maintained by technical staff, and can be loaded and saved to disk.

The Engineering Setup menus are accessed by touching the **Eng Setup** menu button at the bottom of the screen, and then selecting the appropriate Menu Category touch button.

Source Definition

Source definition tells the system which physical inputs or internal signals to use when a particular source is selected. The source definition, denoted by an Engineering ID number, specifies the signals involved, how to process that signal, and what external devices, if any, are associated with that source. Each Kayenne K-Frame Video Processor has one source definition set, shared by all users of that system (both control surfaces in both suites).

Source Definition Inputs

Table 11. Standard K-Frame Source Definition Inputs

Inputs					Modular Inputs			
1-32	33-64	65-96	97-128	129-160	161-164	169-172	177-180	185-188
					165-168	173-176	181-184	189-192

Table 12. Compact K-Frame Source Definition Inputs

Inputs					Modular Inputs			
1-32	33-64	N/A	N/A	N/A	161-164	169-172	N/A	N/A
					165-168	173-176	N/A	N/A

Source Definition Outputs

Table 13. Standard K-Frame Source Definition Outputs

Outputs				Modular Outputs			
1-16	17-32	33-48	49-64	65-68	73-76	81-84	89-92
				69-72	77-80	85-88	93-96

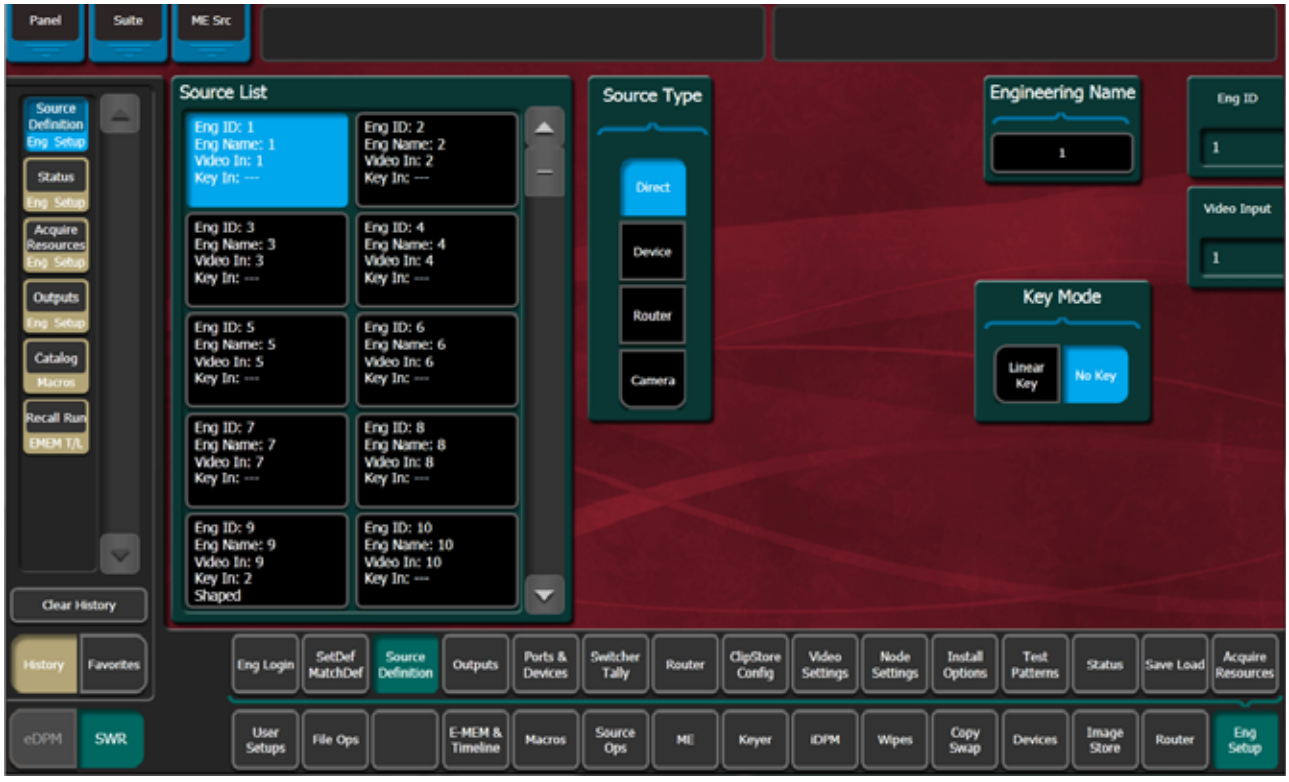
Table 14. Compact K-Frame Source Definition Outputs

Outputs				Modular Outputs			
1-16	17-32	N/A	N/A	65-68	73-76	N/A	N/A
				69-72	77-80	N/A	N/A

Source Definition Menu

The Eng Setup Source Definition menu is used to change source definitions. Press the **Eng Setup** button, then touch the **Source Definition** to display the menu (Figure 89).

Figure 89. Source Definition Menu



Direct Source Definition

To Change Direct Source Definitions:

1. Touch the button of the desired Source located on left side of the screen (it is a vertical scrolling list).
2. Touch the **Engineering Name** data pad to name the source using the pop up alphanumeric keypad or standard keyboard. Up to 30 characters can be entered, but shorter names are recommended. See *Source Naming Background Information* on page 127 for more information.
3. Touch the **Video Input** data pad to enter or scroll to the input number of the connector the source will use for video. The change is immediate and can be viewed on a connected monitor.
4. If the source includes a key signal, select **Linear** key with the lower touch buttons. Then touch the **Key Input** data pad and enter to the input number of the connector the source will use for the key.

Note For Chroma keys you can select either **Linear** or **No Key**. Chroma keys always use the video signal for keying, ignoring any separate key signal.

5. If desired, define **Clip High** and **Clip Low** values (used when a fixed linear key is selected for that source) with the labeled soft knobs and data pads.

External Device Source Definition

The **Device** and **Router** Source Type buttons are used to set up a source as an external device (including GPI and Peripheral Bus II controlled devices), or as a Router source. See *Section 6-External Interfaces* for information on configuring external devices.

Source Naming Background Information

Facility engineers need to know the exact routing of all the video signals connecting all the devices they are responsible for. These engineers need to be able to identify video signals in a way that will help them connect devices properly. Production personnel, on the other hand, are interested in the content they work with for their shows, and are generally not concerned about which individual device or routing path is used to make those signals available. They just need a way to identify the content and access it when they need it. To support these differing needs, two source naming mechanisms are available on Kayenne K-Frame systems.

Engineering Names, Eng IDs, and Logical IDs

Engineering names are intended to identify a source as it applies to a specific facility. In a truck, for example, cameras may be hard wired to the pro-

duction switcher and might be given Engineering names 1, 2, and 3. Names like Patch 14 or Rtr 5 may be used for inputs that are patched or routed. Engineering names are entered in the Eng Setup Source Definition menu, as described above. Engineering source IDs are numeric only, and are available on data pads and scroll knobs for quick selection. The Kayenne K-Frame system also has logical IDs, that can be used for source patching, as explained later.

Alternative Source Names

Alternative names can be assigned to sources for the convenience of production personnel. For example, you may give the cameras menu names that include the operator (C1 Bob, C2 Phil, and C3 Bill), but remove the operator names from the OLED names to show C1, C2, and C3 in larger characters. These alternative names are entered in the Source Patch menu.

The Source Patch menu (Figure 90) has three editable columns for defining up to three alternative names:

A **Panel Name** is limited to four characters, to fit the space available on the Control Panel's Transition Module. This name is only displayed on the Control Panel.

An **OLED Name** appears only on the Source Name Displays on the Control Panel. Up to eight characters are displayed.

A **Menu Name** is limited to eight characters, and appears on all the GV Switcher menu application screens except Engineering Setup menus, which always display engineering IDs or names.

Multiple Suites and Source Names

Different sets of these alternative source names are defined for each Kayenne K-Frame suite. Ensure the GV Switcher menu application you are using is logged into the correct suite (**Eng Setup**, **Eng Login**). The same set of engineering names will be used by both Kayenne K-Frame suites, however.

Name Display Hierarchy

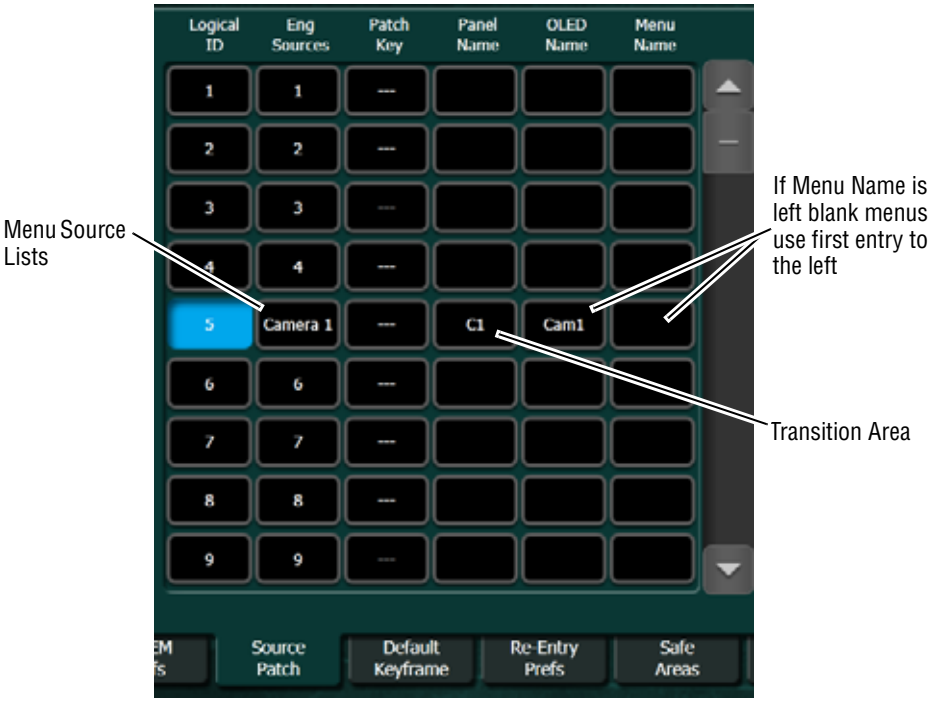
If a source's engineering name is left blank, the Eng ID number will be used. If no alternative names are defined for that source, then that Eng ID number will appear on all the Kayenne K-Frame system displays.

If an engineering name has been entered then the engineering name will be displayed on all the Kayenne K-Frame system displays, including menus. Engineering names will be truncated to the character limits of the display, starting with the first character.

For alternative names entered in the User Setups, Suite Prefs, Source Patch menu (Figure 90), the following rules apply:

For the three editable columns: **Panel Name**, **OLED Name**, and **Menu Name**, if any of the three are left blank for that source, the first name to the left appears in that display on the system (if all three are left blank, the name in the Eng. Source Column is displayed). For example, if an alternative name is entered in the OLED Name column for a source and the other two columns remain blank, the Menu Name takes the OLED Name (OLED Name being first to the left of the Menu Name) but the Panel Name takes the Eng. Source column's name (first name to its left). If names are entered in all three alternative name columns, each area of the system displays the name entered in each column of the Source Patch menu (Figure 90).

Figure 90. Source Patch Alternative Source Names



It a good practice to create the least number of names possible. This ensures consistency in the various displays and reduces the time needed to enter and edit the names. If you can create short engineering names that work for both the production staff and engineering, complete naming consistency is assured. However, this level of simplicity is probably only feasible at a fixed installation where all the shows use the same source names. When multiple names are created, try to keep the first four characters unique, and make different names for the same source similar for ease of recognition.

Fixed Sources

Additional, fixed internal sources exist on a Kayenne K-Frame system (Table 15). These internal sources do not have user accessible Engineering IDs and are not displayed on the Eng Setup Source Definition menu.

Table 15. Fixed Internal Kayenne K-Frame Sources

Area	Signals	Source Patch Eng. Source Names
ME 1, 2, 3, 4, Pgm	A, B, C, D, Preview A, Preview C, and ME Viewer (pM) outputs	M1 A, M1 B, M1 C, M1 D, M1 pA, M1 pC, M1 pM same for M2 - M4, Pg A, Pg B, Pg C, Pg D, Pg pA, Pg pC, Pg pM
eDPM	Video Out A, C	eDA, eDC
	Key Out A, B, C, D	eDAk, eDCk
internally generated signals	Test 1, Test 2	Test
	Black, Black Key	Blk
	White	Wht
	Background 1	BG 1
	Background 2	BG 2
Image Store	Video Out 1 - 10	IS 1A - IS 10A
	Key Out 1-10	IS 1B - IS 10B

These fixed sources are accessible via:

- User Setups. Suite Prefs, Source Patch menu
- User Setups, Panel Prefs, Button Mapping menu
- Eng Setup, Outputs menu

Source Patch Feature

The Kayenne K-Frame system provides a way to map engineering source IDs to logical IDs, using the Source Patch feature. By default this mapping is one-to-one, but this feature can be used to quickly set up production elements for use in a different facility. For example, a show's effects, DDR clips, and taped material may have been built in one production truck with one set of devices, but the next show is scheduled for a different truck. Previously, to use effects in the other truck the Technical Director (TD) would need to edit the engineering source definitions in the new truck so they exactly matched the old truck. By remapping the engineering sources of the devices in the new truck to the logical sources used to build the effects, all the effects can be used without having to edit them. Source Patching can also be used to quickly swap out a defective device during a show without having to reconfigure the engineering sources. In this case logical names seen by the production personnel would be identical for that content, even though the actual device playing the material changed.

Note Source Patching is the bridge between engineering sources and logical sources. Both TD and EIC should make reference to this menu when resolving source issues. The mechanism is similar in concept to a physical patch panel. Effects and all source selections are based on logical sources. Tally and associations with external devices are based on engineering sources.

Button Mapping

After sources have been defined they can be mapped to Kayenne K-Frame system Control Panel buttons. The Button Mapping menu (accessed by touching **Daily Setups**, **Panel Prefs**, **Button Mapping**) is used to map the sources associated with each source selection button. Refer to the separate *Kayenne K-Frame User Manual* for specific button mapping instructions.

Output Assignments

Any Kayenne K-Frame outputs can be assigned as fixed outputs, which includes any ME, Image Store, or eDPM outputs. In addition, any Logical input source can be assigned to any output.

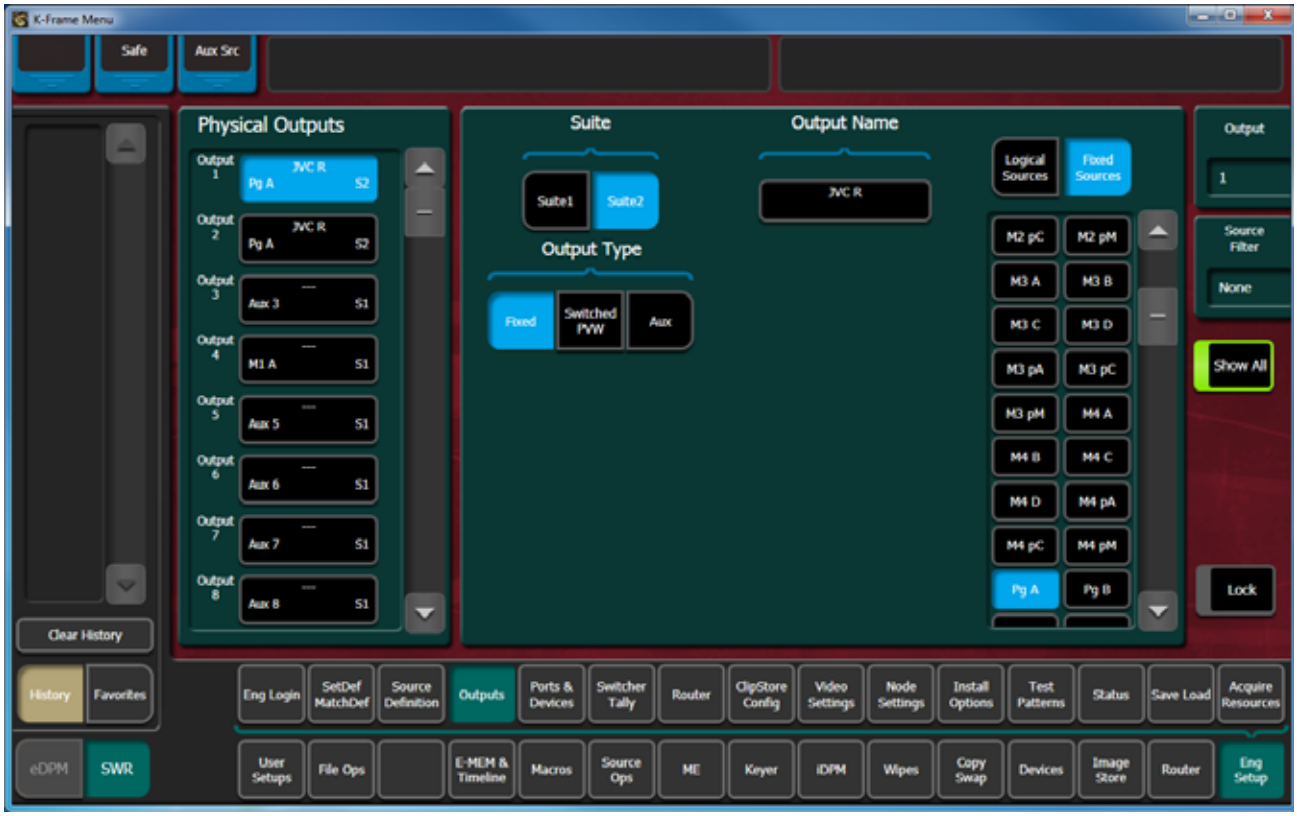
Default Output Assignments

Default output assignments for K-Frame systems are one-to-one with the Aux buses, beginning with Aux 1.

Changing Output Assignments

The Outputs menu is used to change the Kayenne K-Frame system output assignments. The current output assignments can be viewed in this menu. Press **Eng Setup**, **Outputs** to access this menu (Figure 91).

Figure 91. Outputs Menu



The scrolling list of data pads along the left side of the screen shows the currently assigned output for each listed module output connector. The right side of the menu shows the items available for assignment to that output connector. Different choices appear, depending on the **Output Type** selected.

To Change Output Assignments:

1. Touch one of the output data pads from the left scrolling list to select it and display information for that output connector.

2. Select the appropriate Output Type:
   - Select **Fixed** if the output is to be dedicated. Later you will be able to select from either Logical Sources or Fixed Sources for that output.
   - Select **Switched PVW** if the output will be used for switched preview. Switched preview can be assigned to multiple outputs.
   - Select **Aux** if the output will be an Aux bus (see *Aux Bus Configuration* on page 133 for more information).
3. The **Suite 1** and **Suite 2** buttons are used to assign the currently selected output to a suite. The default setting is **Suite 1**.
4. Touch the button of the desired item for the selected output connector from the list on the right. The change is immediate, and can be viewed on a connected monitor. (Switched Preview mode does not offer any output sources to select from).
5. If desired, touch the **Output Name** data pad to change the name of the output using the pop up alphanumeric keypad or standard keyboard. This name appears on the data pad of the scrolling list on the left. Up to 12 characters can be entered.

Aux Bus Configuration

Aux buses can be used to send dynamically selected sources to an output. Aux bus sources are selected using the Local Aux panel, delegating an ME for Aux Bus control, or using Remote Aux Panels delegated to control that Aux bus.

The number of Aux buses on a Kayenne K-Frame system varies, depending on how the physical outputs have been mapped. Any output that is not configured as Fixed or Switched Preview is available for use as an Aux bus.

Video Only Aux Bus

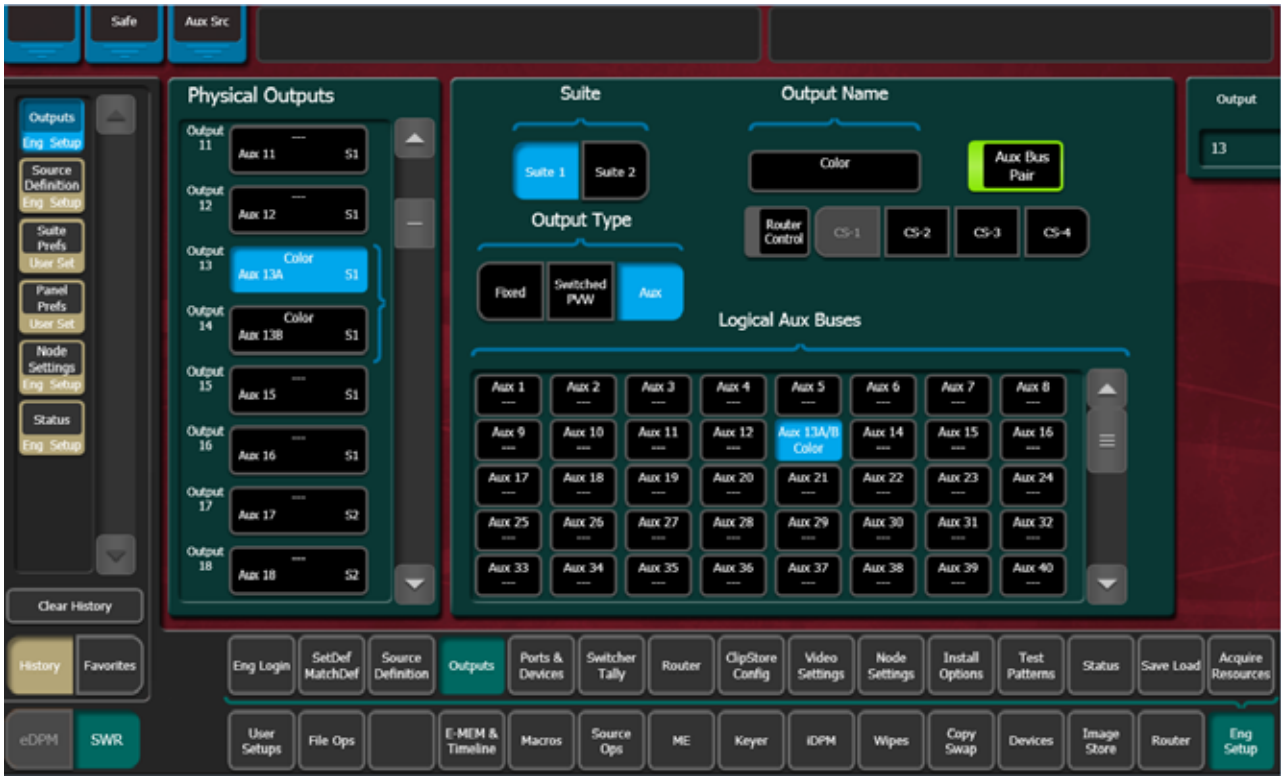
When the **Aux Bus Pair** button is not selected, the Aux bus is configured as a single video-only output (Figure 92).

Figure 92. Output Assignments Menu, Video Only Aux Bus

Aux Bus Pairs

Touching the **Aux Bus Pair** button configures the Aux Bus as an Aux Pair (Figure 93).

Figure 93. Output Assignments Menu, Aux Bus Pair

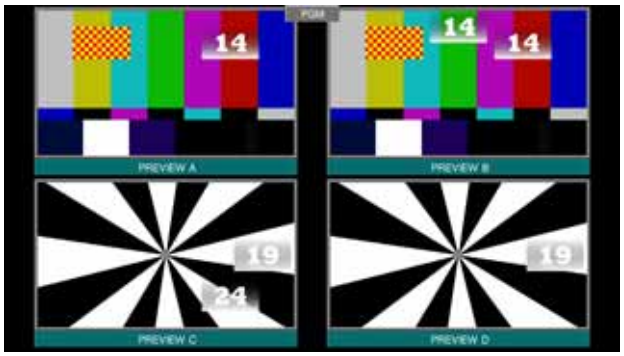


Aux Pairs are two physical Aux Buses that have been configured to send a video and associated key (or another video) signal. Pairing of the video and key signal to be used on the Aux bus is defined in the Sources menu as explained earlier. Aux pairs are indicated on the menu with a bracket beside the two connector buttons. The Aux Bus pairs are also identified with A and B letter indicators. The Aux A signal is always a video signal.

ME Viewer

The K-Frame ME Viewer optional feature provides a special source from each ME that can be used to display multiple ME signals on a single monitor. Each ME has a fixed source named **(ME) pM** (ME = 1-4 or Pg). This source can be assigned one of six multiple signal arrangements, in User Setups/Suite Prefs. Assigning this source to a physical output connector permits viewing that arrangement of signals on a monitor.

Figure 94. Examples of ME Viewer Displays



Previews

Programs

Previews Programs

Primary Secondary Keys

Programs Previews Keys

Primary Previews Programs Keys

Switcher Tally Configuration

The Switcher Tally menus are used to configure tally system relays. These menus include multiple tally calculators, three different tally calculation methods, and user assignment of tally relays. The results of the tally calculators are applied to the tally relays on the GPI/Tally connectors on the rear of the Kayenne K-Frame Video Processor. Those relays can control external tally lights. The Switcher Tally menus also allow the user to map Engineering Sources to the tally relays. Up to 96 tally relay outputs are available on a Kayenne K-Frame Video Processor, 24 for each installed Controller or ME board. Tally is recalculated and refreshed every field.

Note Tally Contribution is an alternative electronic tally mechanism that can be assigned to a Kayenne K-Frame Video Processor serial port. Refer to the separate *Grass Valley Switcher Protocols Manual* for technical information.

About Tally Systems

In general, a tally system identifies which sources to the switcher contribute to the final picture at a selected point in the video chain. The identification is communicated by activating relays in the Video Processor Frame. The method by which the sources are determined is called the tally calculation.

The tally calculation begins at a point in the video path and then traces the path of the signals upstream to their original video (and key) sources. The state of the switcher affects tally. For example, tally on a true clean feed only includes sources that contribute to the main output, but tally on a programmable clean feed can include sources that do not contribute to the main output.

When configuring a tally calculation, the user chooses the starting video path point (called a tributary) to trace back to its origin. The main On Air tally video output point is Pgm-Pst PGM A, but Pgm-Pst PGM B, Pgm-Pst C, and Pgm-Pst D are included in case these alternate programmable clean feed outputs have keys (or utility buses) that don't contribute to the PGM A output.

The On Air tally calculations are essential for switcher operation. (One calculator is reserved for On Air.) This tally calculation forms the basis for On Air indication (panel, camera tally lights, etc.), and other functions such as external device Auto Start, Off Air Advance, or router protections. On Air tally calculations normally start at the Pgm-Pst PGM A-D outputs.

User tally calculations can be used for purposes other than On Air tally. These tally calculations still trace the video path up stream from the specified points in the video path, but the starting point does not necessarily have to be a program output. For example, a Look Ahead tally begins at the Pgm-Pst Look Ahead Preview (LAP). When a transition is not in progress this virtual output is not on air.

The Output tally calculator indicates which sources contribute to designated outputs. For example, an ME Iso tally is a user configured Output tally set up to begin at an ME's PGM A, B, C and D. The tally would indicate what contributes to the ME's program outputs but not anything down stream of it. The tally would be the same whether or not the ME was On Air.

The Look Ahead tally calculator indicates which sources will be on air if a main transition is performed on the selected level. One way this can be used is for a second set of tally lamps on a camera to alert the camera operator that his camera is next to be taken on air. Many control room monitor walls also include a secondary tally indicator for Look Ahead. Look Ahead tributaries do not necessarily leave the switcher as video signals. For example, an ME has four program outputs but only two physical preview

outputs. The LAP information for all four program outputs may be included in a tally calculation.

However, if an ME is placed down stream of Pgm-Pst the On Air tally calculation can be configured to start at that ME's program outputs. If this situation is planned, it is recommended that aux buses be set up to provide the real program outputs for the switcher and the On Air calculation configured using those aux buses as the tributaries.

You can use more than one starting point for tally calculations. Programmable clean feed (FlexiKey) and DoubleTake allow the exclusion of video signals from the ME main output (PGM A) that appear on one of the other program outputs. Include the other program outputs with the ME main output (PGM A) as calculation starting points to tally all the On Air sources.

The Bus Selection tally calculator indicates which sources are selected on a specified set of switcher buses. The tally calculator using this method does not trace tributaries upstream; it only tells what sources contribute to the specified bus(es), even if the source is an ME. For example, a Bus Selection tally calculation could be set up to indicate which source is selected on the Pgm-Pst A bus, permitting audio-follow-video selections to be run by the tally system.

Switcher Tally Calculator Menus

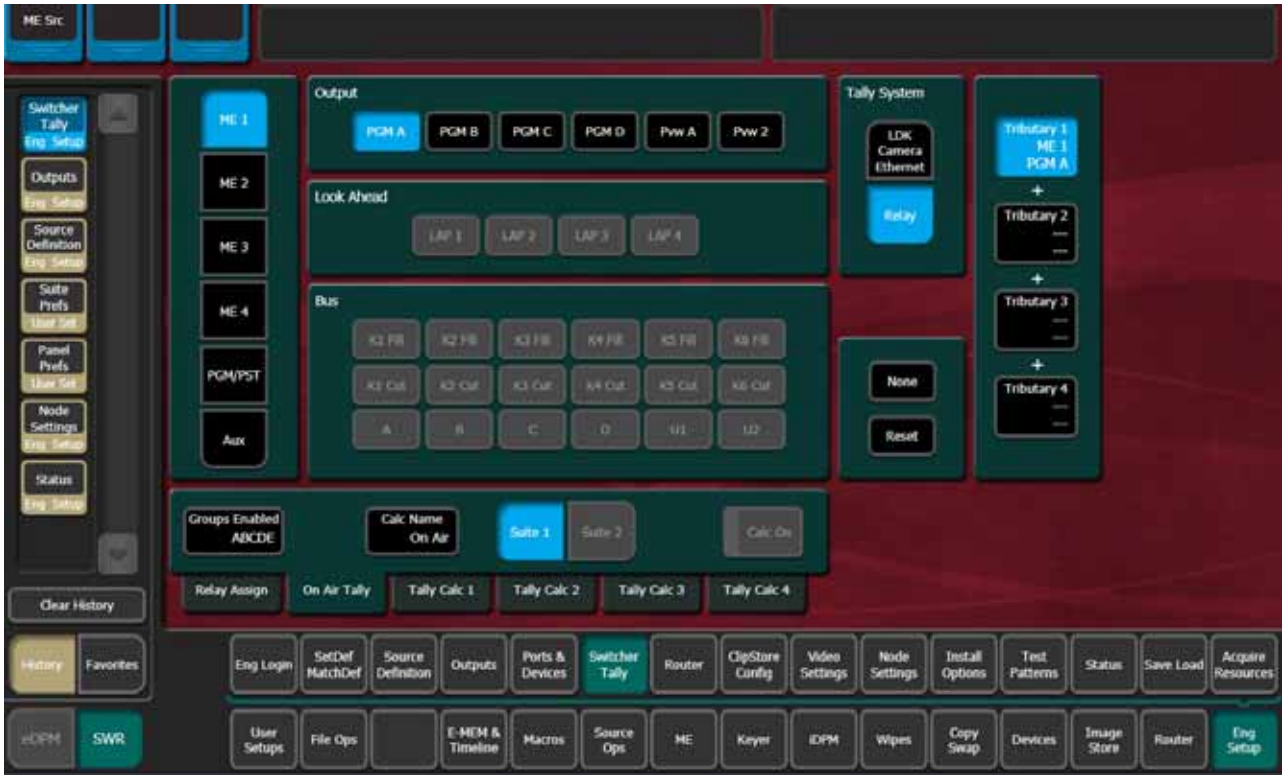
The Switcher Tally menus are used to select calculators, methods, and levels, name calculators, and assign items to Tributaries.

Kayenne K-Frame has six independently running tally calculators. For example, the system can calculate On Air tally independently for suite 1 and suite 2, and at the same time can calculate Look Ahead tally, and ME output tallies for three MEs. The first of the tally calculators is reserved for On Air tally calculations for the currently logged in suite (1 or 2). The other four tally calculators can be assigned to either suite 1 or suite 2.

Up to four tributaries can be included as the basis for each tally calculation. For example, multiple program outputs of the PGM/PST bank are typically included in the On Air tally calculation. The final tally source list is a union of the sources found on each of the four tributaries. If aux buses are used as the program outputs of the switcher, up to four aux buses can be the basis of On Air tally calculations. Tally calculations do not require actual outputs, for example, LAP tributaries are virtual and may never leave the ME.

Selecting an **On Air Tally** or **Tally Calc 1-4** tab delegates the menu controls to the selected calculator. The On Air Tally menu is shown in Figure 95.

Figure 95. On Air Tally Menu, PGM/PST Outputs



Calc On - Turns the delegated Tally Calculator on or off. When on, the **Calculation Enables** button on the separate Relay Assign menu will be activated for that calculator.

Groups Enabled - Reports which Tally Groups are currently assigned for that calculator, by group letter (A, B, C, D, corresponding to Tally/GPI connectors 1-4 on the rear of the Kayenne K-Frame Video Processor). To Enable a Tally Relay Group, it must first be turned on, using the **Calc On** button for that calculator.

The first tally calculator name is fixed to **On Air**. Since the On Air Calculator is restricted the Look Ahead and Bus buttons are disabled (grayed out).

Creating an On Air Tally Calculator Using MEs or PGM/PST

1. If necessary, login to the desired suite (**Eng Setup**, **Eng Login**).
2. Touch **Eng Setup**, **Switcher Tally**, **On Air Tally** to access the On Air Tally menu. The Suite button for the current suite will be highlighted.
3. Touch a **Tributary** button on the right.
4. Touch an **ME** or **PGM/PST** button on the left.
5. Touch an Output button to assign that output of that ME or PGM/PST to that tributary. The name of the output is displayed on the Tributary button.

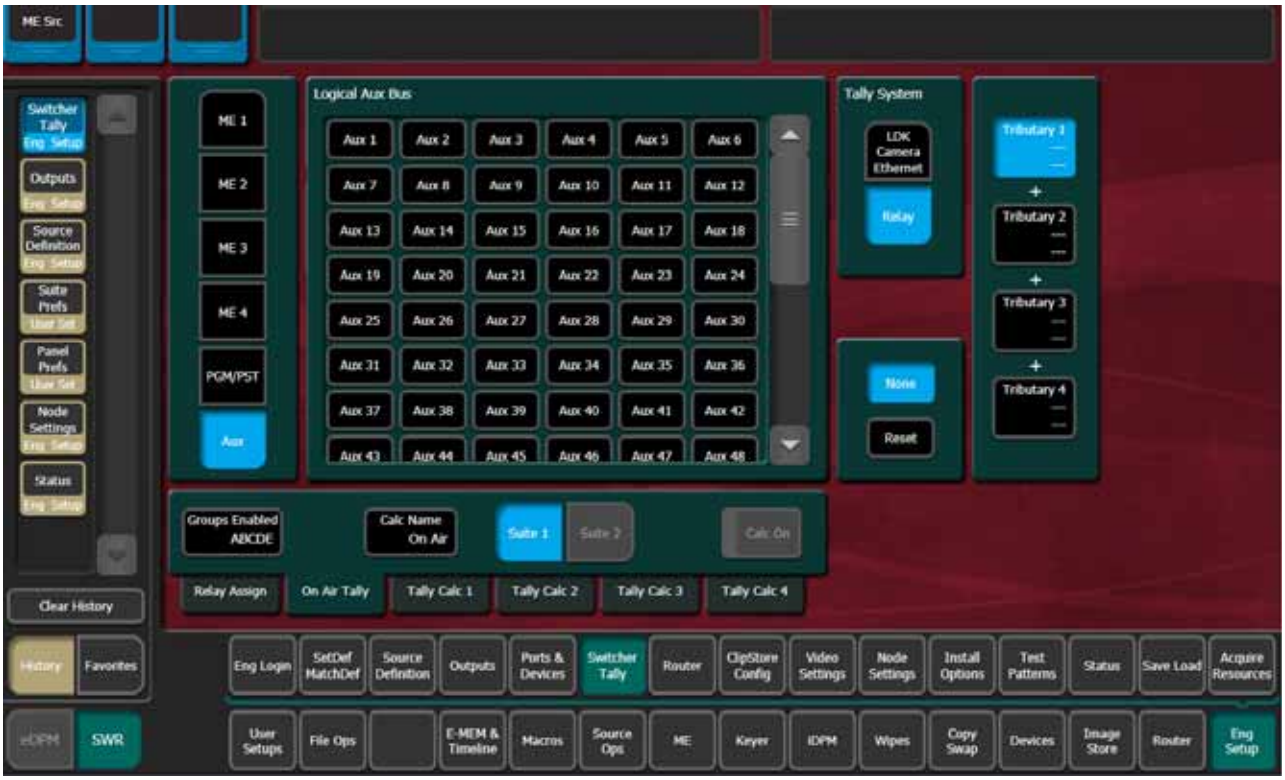
6. Repeat the steps above for other Tributaries for all the outputs you wish to assign for On Air Tally.

- Pressing the **None** button clears the assignment for that Tributary.
- Pressing the **Reset** button clears all the assignments to all the Tributaries.

Creating an On Air Tally Calculator Using Aux Buses

Use the steps above, but select **Aux** on the left, and choose the Aux bus(es) being used for program output to the On Air calculation (Figure 96).

Figure 96. On Air Tally Menu Aux Outputs

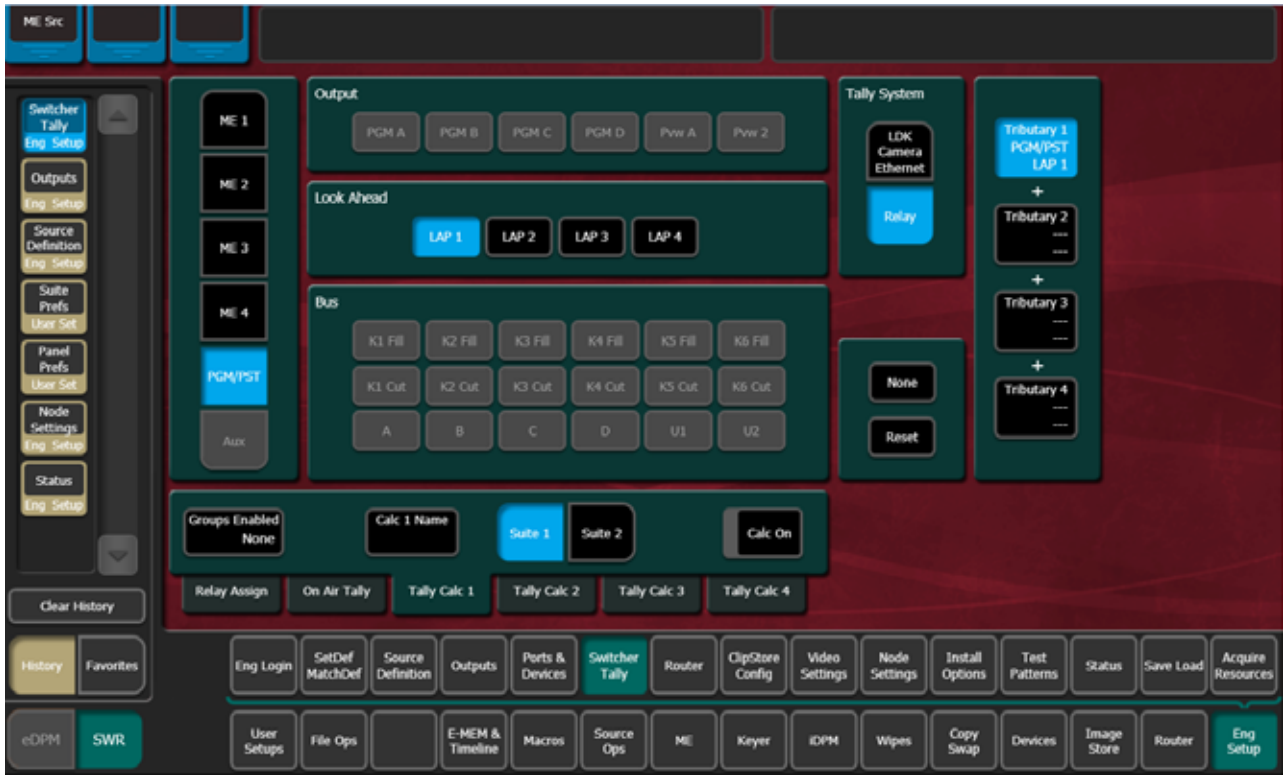


Creating a Look Ahead Tally Calculator

1. Touch **Eng Setup**, **Switcher Tally**, **Tally Calc 1-4** to access a Tally Calc menu.
2. Touch the **Calc 1-4 Name** button to open a keypad you can use to name that calculator.
3. Choose the **Suite 1-2** button for the Kayenne K-Frame suite that will use this calculator.
4. Touch a **Tributary** button on the right.
5. Touch an **ME** or **PGM/PST** button on the left.

6. Touch a LAP 1-4 button to assign that look ahead to that Tributary (Figure 97).

Figure 97. Look Ahead Preview Tally



7. Repeat Step 4 through Step 6 to assign all the desired look aheads to the calculation.

8. To activate this calculator, touch the **Calc On** button so it is highlighted.

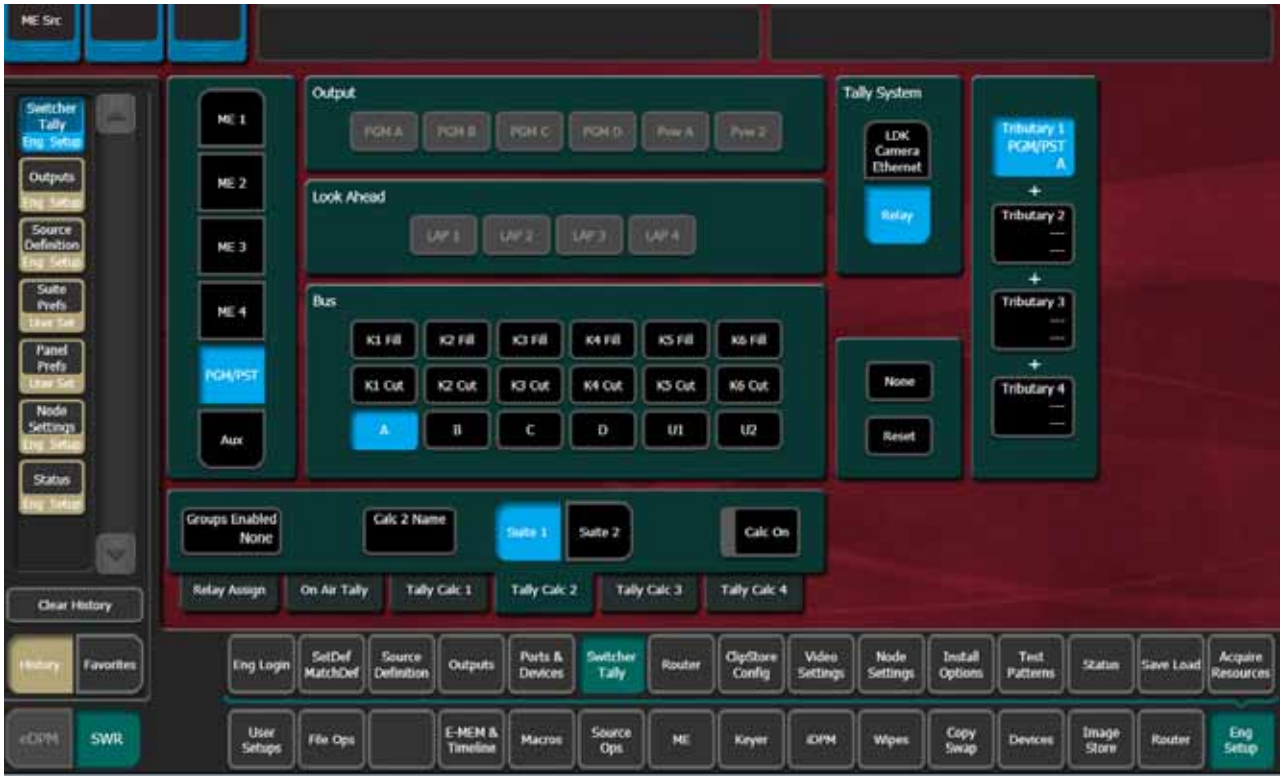
Note Though the calculator is activated, it will not actually affect Video Processor Frame relay contacts until that calculator has been assigned to a Tally Group (see *Relay Assign Menu* on page 142).

Creating a Bus Tally Calculator

Bus tallies report what source(s) are currently selected on a particular set of buses, and does not trace tributaries upstream.

Use the Look Ahead Preview procedure above, but choose PGM/PST, ME, or Aux, on the left, and then select the desired bus in the center of the screen. Repeat for all the buses you wish to tally for that (Figure 98).

Figure 98. Bus Tally



Relay Assign Menu

The Relay Assign menu is used to assign the Tally Calculators to Relay Groups, and assign Engineering Sources to relays on the Video Processor Frame GPI/Tally connectors. Touch the Relay Assign tab to access the menu (Figure 99).

Figure 99. Tally Relay Assign Menu

Tally Relay Group - Delegates the menu controls to configure the selected Tally Group. The A, B, C, and D Tally Groups correspond to Tally/GPI connectors 1 through 4 on the rear of the Kayenne K-Frame Video Processor.

Calculation Enables - Assigns the Tally Calculators to the delegated Tally Group. When a calculator button is off, that calculator's results will not trigger relays for that Tally Group.

Note A calculator must be activated with its **Calc On** button before it can be assigned to a Tally Group (see Step 8 on page 141).

Assigning Sources to Tally Relays

Sources are assigned to specific relay connectors with the controls on the upper right.

1. Touch the button for the desired Relay in the center of the menu.

2. Choose the Engineering Source in the scrolling list on the right. The name of the source will be displayed on the Relay button.

- The **None** button clears the current Source assignment for the selected relay.
- The **Source Number** data pad and scroll dial can be used to quickly select the desired Engineering Source.
- The **Lock** button can be used to prevent the source list from scrolling automatically to that relay's source. This permits easy selection of adjacent sources.

ClipStore Configuration

ClipStore basic configuration includes preparing the Summit/Solo and Kayenne K-Frame systems through licensing, IP addressing, software installation, cabling, and GV Switcher menu configurations.

Summit/Solo Software Version

The latest version of the ClipStore server software is available on the Grass Valley Switcher Software Download site.

CAUTION Do not use AppCenter Elite software for ClipStore from the Summit/Solo server web site as it may not be compatible.

For more information about installing and updating AppCenter Elite software, see the Summit/Solo manuals.

Summit Preparation

Setting the IP Address

The ClipStore Summit/Solo server is shipped with the following defaults:

- IP Address: 192.168.0.180
- Mask: 255.255.255.0
- Gateway: 192.168.0.1
- WINS: disabled (0.0.0.0)
- DNS: disabled (0.0.0.0)

You can temporarily change the default settings using Netconfig (see the *NetConfig Network Configuration Application Instruction Manual* at www.grassvalley.com).

To set a new IP Address at the ClipStore (Summit/Solo) server, see *Setting the Summit/Solo IP Address* on page 153.

The NetConfig Network Configuration Tool is installed as part of the Kayenne K-Frame software.

Note Make note of the ClipStore IP Address, it will be used later to enable ClipStores as external devices later in the Kayenne K-Frame configuration process.

Kayenne K-Frame System Preparation

Install Kayenne K-Frame Software

Verify that the GV Switcher software is version 5.0 or later. For information about upgrading software, see the *Kayenne/Karrera K-Frame Release Notes*.

Install the ClipStore license (Figure 100). The following are the ClipStore options:

- KRR-CLPS-2CH-PAK (2-Channel Solo Server Platform)
- KRR-CLPS-4CH-PAK (4-Channel Summit Server Platform)

Figure 100. ClipStore License

Kayenne K-Frame Configuration

Configuring ClipStore as a Node

ClipStore must be configured as a node in the Eng Setup, Node Settings menu before the Kayenne K-Frame system can communicate with the Summit/Solo ClipStore server.

1. Verify there is a valid network connection.
2. Go to the Node Settings menu by touching **Eng Setup**, **Node Settings**, **Frame Suite Nodes & ID** (Figure 101).
3. Input a valid IP address for the ClipStore server by touching the **ClipStore IP Address** data pad, typing the address, and touching **Enter** (Figure 101).
4. Touch the **Enable** button (Figure 101).

   The Enable button allows communication between the Kayenne K-Frame and the ClipStore server and highlights green indicating a proper connection. Red will show no connection and yellow shows that some channels are connected. For both red and yellow indications, ensure that channels are in AMP mode and available for remote control. Other troubleshooting may be required.

Figure 101. ClipStore Node Settings

Configuring Source Definitions

To configure source definitions for ClipStore return outputs, choose a source, a source type, an input, and in the case of a key, an Engineering Name for the source if desired.

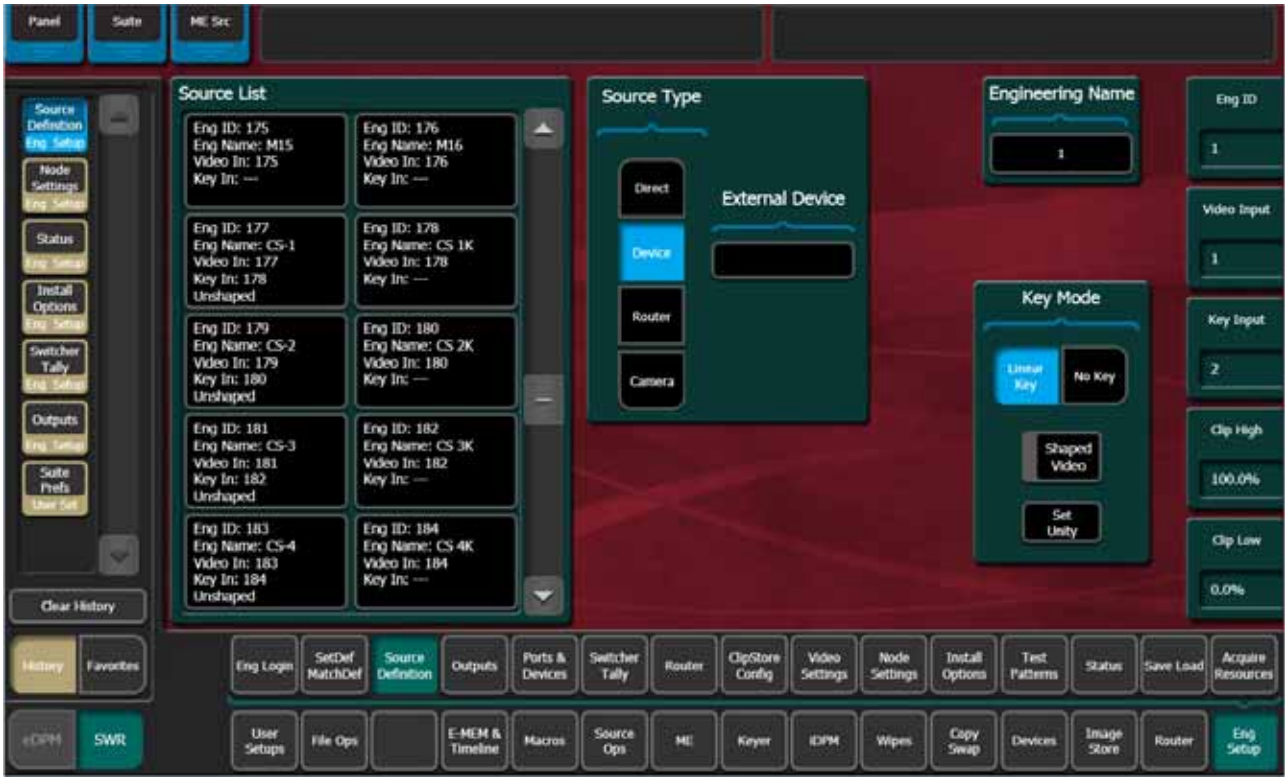
The following example demonstrates the configuration of a Summit with four ClipStore channels. In this example the physical BNC connections from the ClipStore to the K-Frame are Inputs 25-32.

ClipStore can record Video only, Key only, or Video/Key clips. To do this, both a video and a key for the video must be configured for each ClipStore channel.

To configure a source for as a ClipStore Video input:

1. Go to the Eng Setup, Source Definition menu (Figure 102).

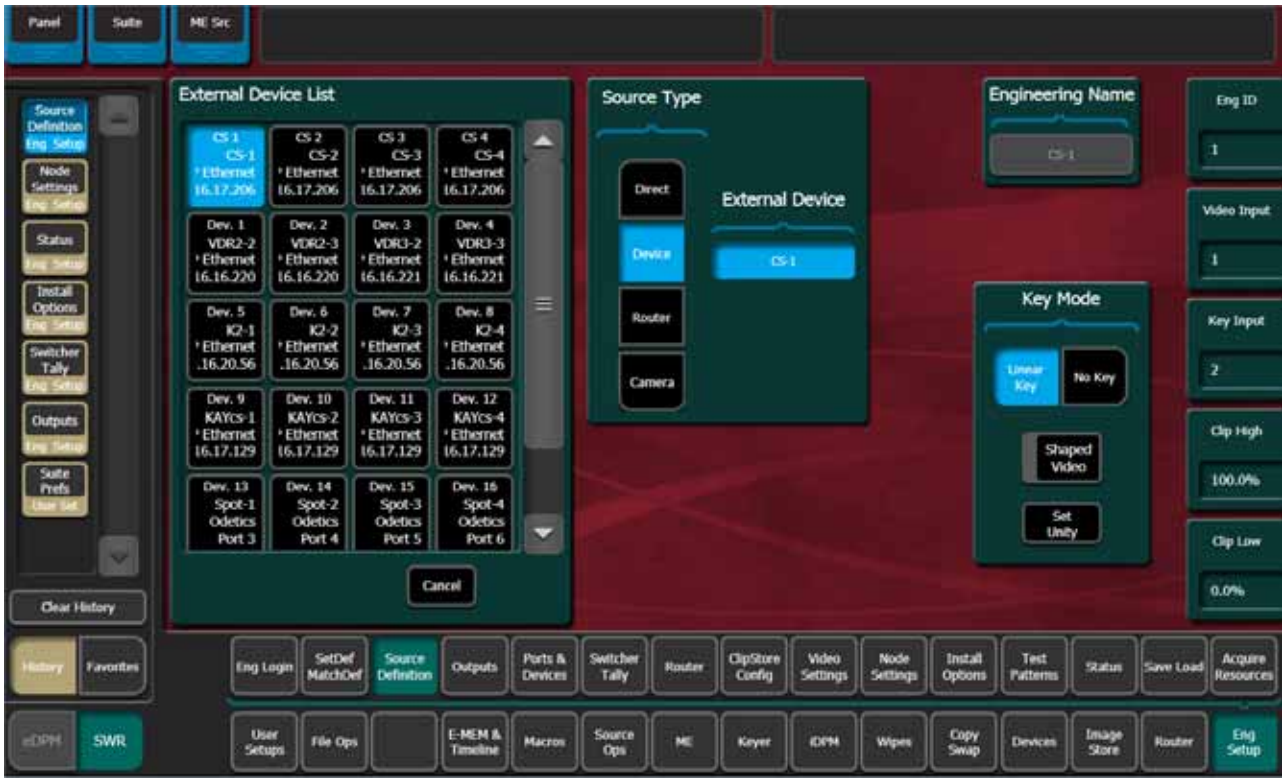
Figure 102. ClipStore Source Definition



2. From the Source List, touch a source (Figure 102).
3. Use the default video input (Video In:) or change it using the **Video Input** data pad.
4. Touch the Linear Key button to select it.
5. Use the **Key Input** data pad (or soft knob) to select the source number of the Key source you will use for the ClipStore channel.

6. Configure the Source Type:
   a. Touch the **Device** mode button in the Source Type pane (Figure 103).
   b. Touch the **External Device** data pad, the External Device List is displayed (Figure 103).

Figure 103. ClipStore External Device List



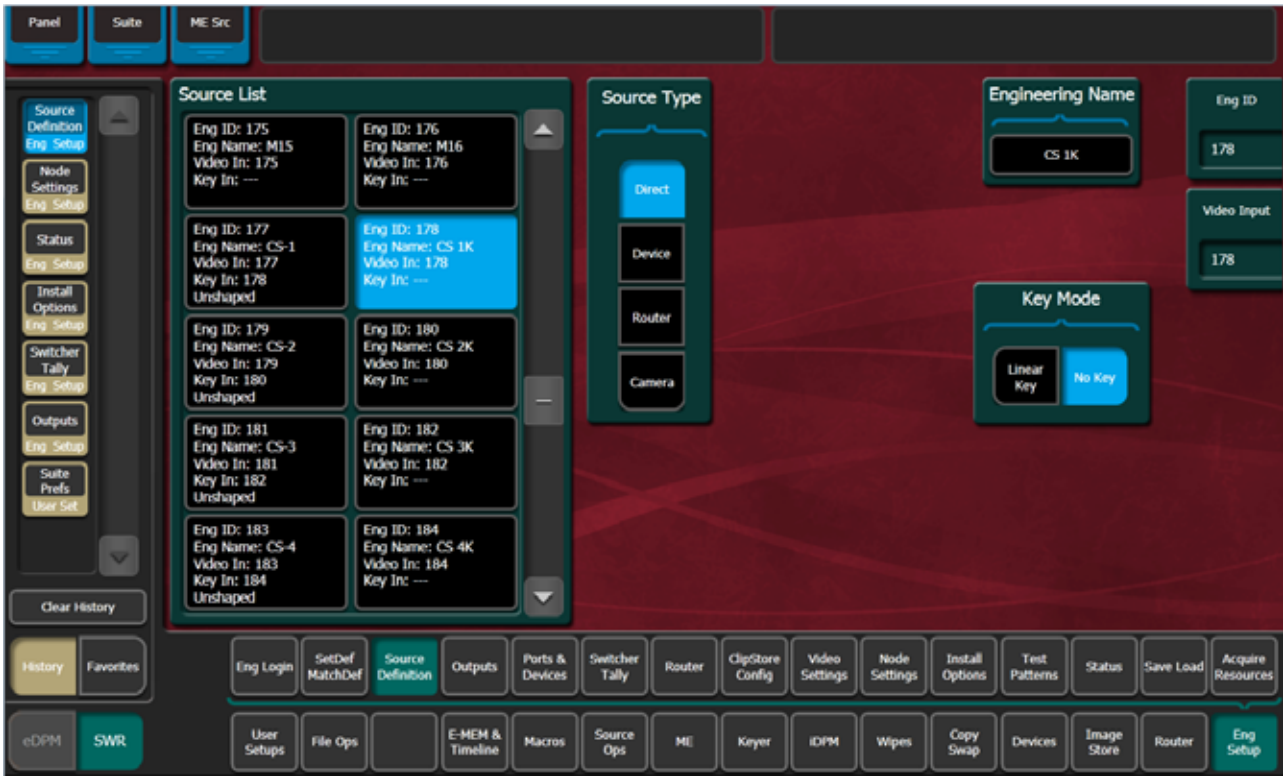
   c. Touch a CS channel to select it (Figure 103).

   The External Device List closes and the Engineering Name is filled in with the ClipStore External Device name automatically.

To configure a source as a ClipStore Key input (Key input to the ClipStore Video input created earlier):

1. From the Source List, touch a source (Figure 104).
2. Touch the **No Key** button in the Key Mode pane to select it (if not selected).
3. Use the default video input (Video In:) or change it using the **Video Input** data pad.
4. Touch the **Direct** mode button in the Source Type pane to select it.
5. Give the ClipStore key input an Engineering Name if desired (CS-1K, Figure 104), by touching the **Engineering Name** data pad and entering the name in the pop-up keyboard.

Figure 104. ClipStore Key Input Source



You now have device control over this ClipStore resource, and it can be mapped. Repeat the preceding steps for each ClipStore channel.

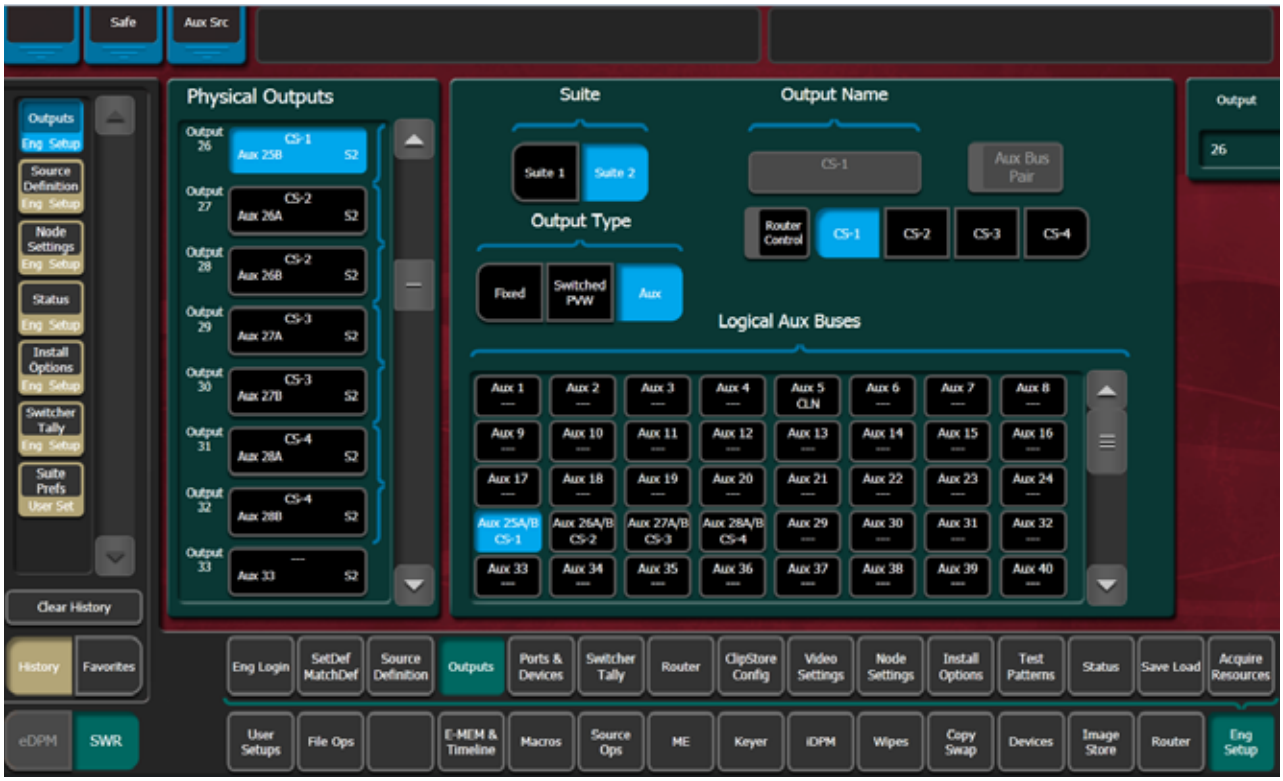
Configuring Outputs

Set the switcher outputs that are feeding into ClipStore. By selecting an Aux bus then touching one of the CS-1 through CS-4 enable buttons, those Aux bus outputs will be paired. In other words, if you select the output, then

Aux 5, Aux 5a and Aux 5b will be paired as a ClipStore Video/Key pair when the ClipStore button is enabled.

1. Go to the Outputs menu (Figure 105) by touching **Eng Setup**, **Outputs**.

Figure 105. ClipStore Output Configuration



2. Select the odd numbered output (first Aux bus output assigned for a video/key pair must be odd/fill) that you wish to use as the input to ClipStore (Figure 105). Then select Aux as the Output Type and the desired logical Aux bus.
3. Touch one of the ClipStore buttons (Figure 105).
4. Repeat the preceding steps for each channel of ClipStore.

Note You only need to configure all channels as video/key if you wish to record on all channels.

The Engineering Names for each ClipStore channel will appear in the Local Aux area and/or can be button mapped as desired.

When acquiring CS channels in another suite, before reassigning CS channels:

1. In the Outputs menu, deselect the CS channels to be acquired (Figure 105).

2. Touch the **Suite 1** or **Suite 2** button (Figure 105) to change suite delegation.
3. Re-acquire the CS outputs by touching the CS buttons (CS-1, CS-2, etc.).

It is recommended at this point that you save a new Eng Setup file that includes these changes.

ClipStore Config Menu

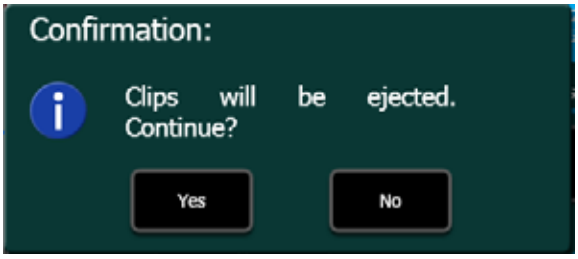
The ClipStore Config menu is used to configure the ClipStore input/output parameters and read those input/output parameters from, or send them to, the ClipStore server (Figure 106).

Figure 106. ClipStore Configuration Menu

Read from ClipStore button—Updates the Eng Setup, ClipStore Config menu with the current parameter settings for the configured ClipStore server channels (Figure 106).

Send to ClipStore button—Sends all parameter and system settings required by ClipStore to record, edit, and control clips to the server. Any changes to the Record Setup or Replay Setup parameter settings will also be sent to the ClipStore server (Figure 106). A dialog is displayed when this button is pressed (Figure 107), stating that all clips will be ejected as part of this operation; keep this in mind if considering this operation during a broadcast.

Figure 107. Send to ClipStore Confirmation Dialog



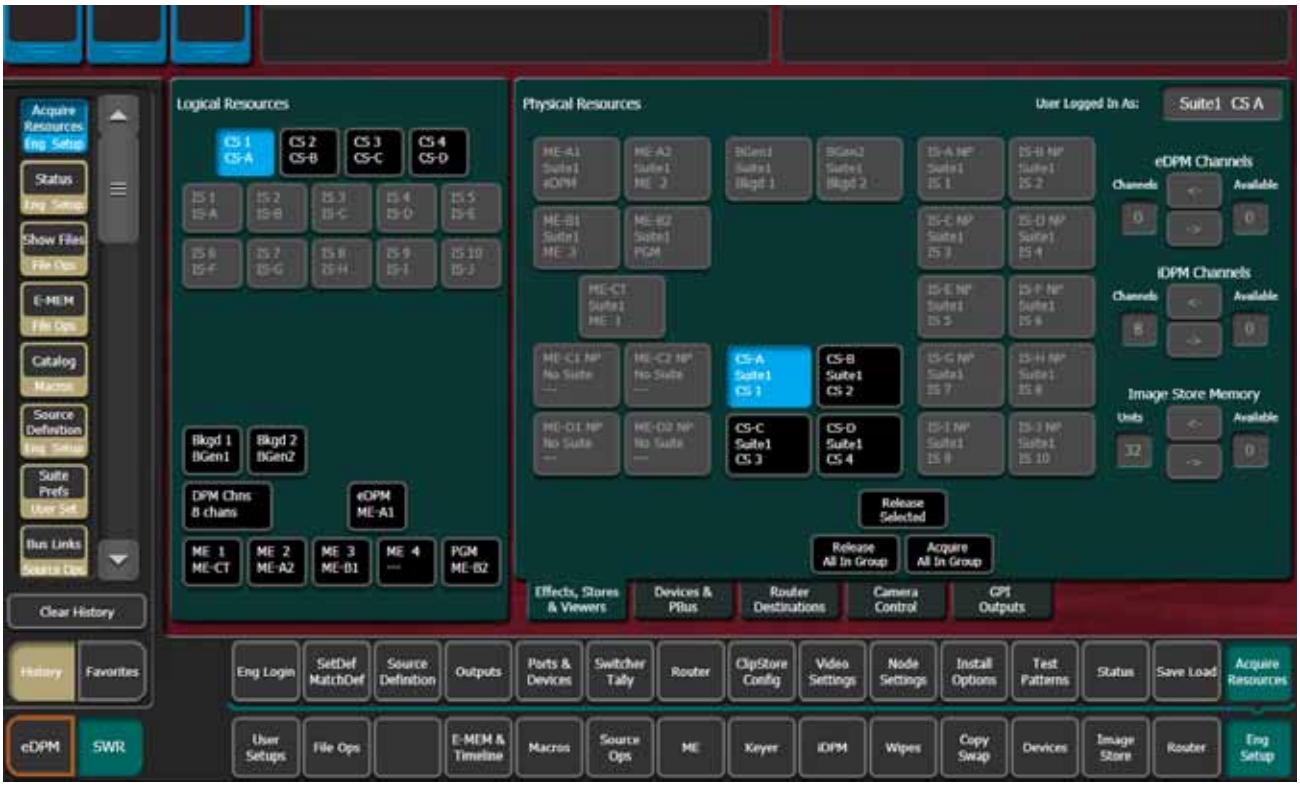
The ClipStore Source Numbers Pane (read-only), provides channel and source information, for example CS-1025 means ClipStore Channel1 (CS-1), Eng Source ID 25 (025).

Bars and Tone button—Turning this button on (highlighted green) then touching the **Send to ClipStore** button, loads color bars (and updates the configuration) and sends a tone to the selected ClipStore channel for testing.

Assigning ClipStore Channel Resources to a Suite

ClipStore resources can be acquired in suites. ClipStore suite assignment buttons in the Eng Setup, Acquire Resources, Effects, Stores, & Viewers menu. For information about acquiring suite resources, see the *Divide Resources Between Suites* on page 180.

Figure 108. ClipStore Acquire Resources



Setting the Summit/Solo IP Address

For more information, see the Summit/Solo manuals packaged with the system.

Remote Desktop Connection

To create a Remote Desktop Connection with the Summit/Solo, perform the following:

1. Minimize the GV Switcher menu on the menu Panel (or PC).
2. Beginning with the Start button in Windows XP, touch **Start**, **Programs**, **Accessories**, **Remote Desktop Connection**.
3. Enter the current IP Address for the Summit/Solo server. (default IP Address: 192.168.0.180) in the Remote Desktop Connection dialog.
4. Touch **Connect**.
5. Enter the following in the Log On to Windows dialog:

- Login: **administration**
- Password: **adminK2**, touch enter.

The Elite AppCenter application window is displayed.

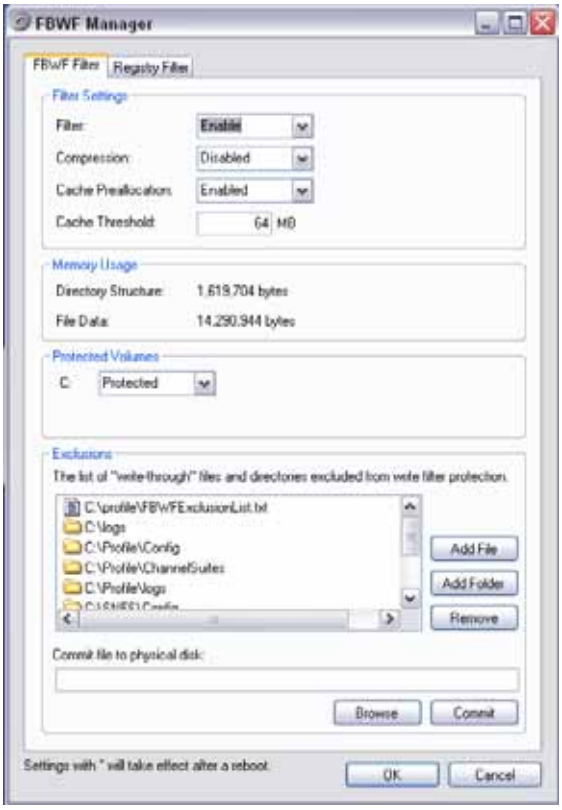
Changing the Summit/Solo IP Address

To change the Summit IP Address, perform the following:

1. Disable the FBWF (File Based Write Filter)
   a. Click on the **Start** menu and navigate to **All Programs**, **Grass Valley**.
   b. Click on **Write Filter Utility** (top of list).

   The FBWF Manager is displayed (Figure 109).

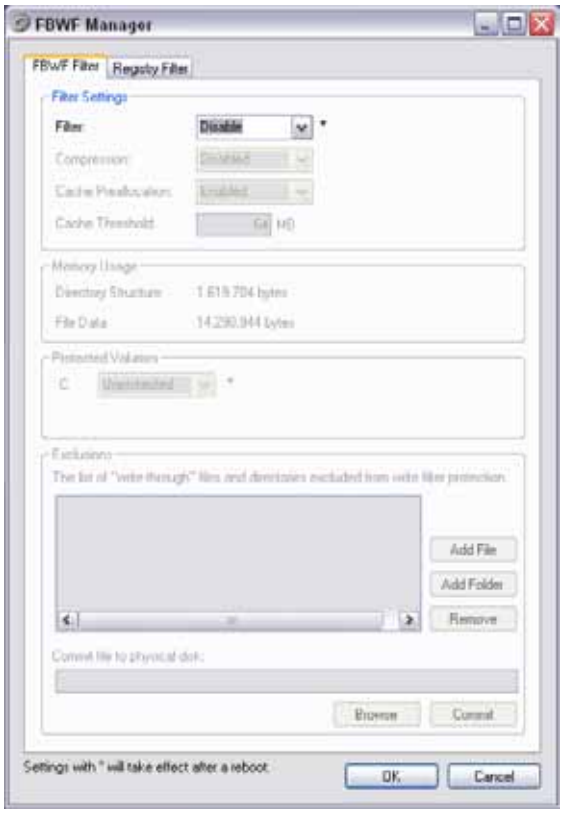
Figure 109. FBWF Manager



c. Under Filter Settings (Figure 110) click on the **Filter:** pull-down menu and click **Disable** (Enabled is the default).

An asterisk (*) will appear next to 'Disable' that indicates the system must be rebooted to implement the configuration change (Figure 110).

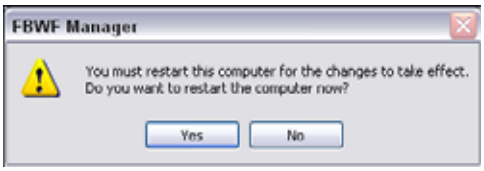
Figure 110. Disable/Enable Filter Settings



d. Click **OK**.

e. At the reboot prompt, click **Yes** (Figure 111).

Figure 111. Reboot Prompt



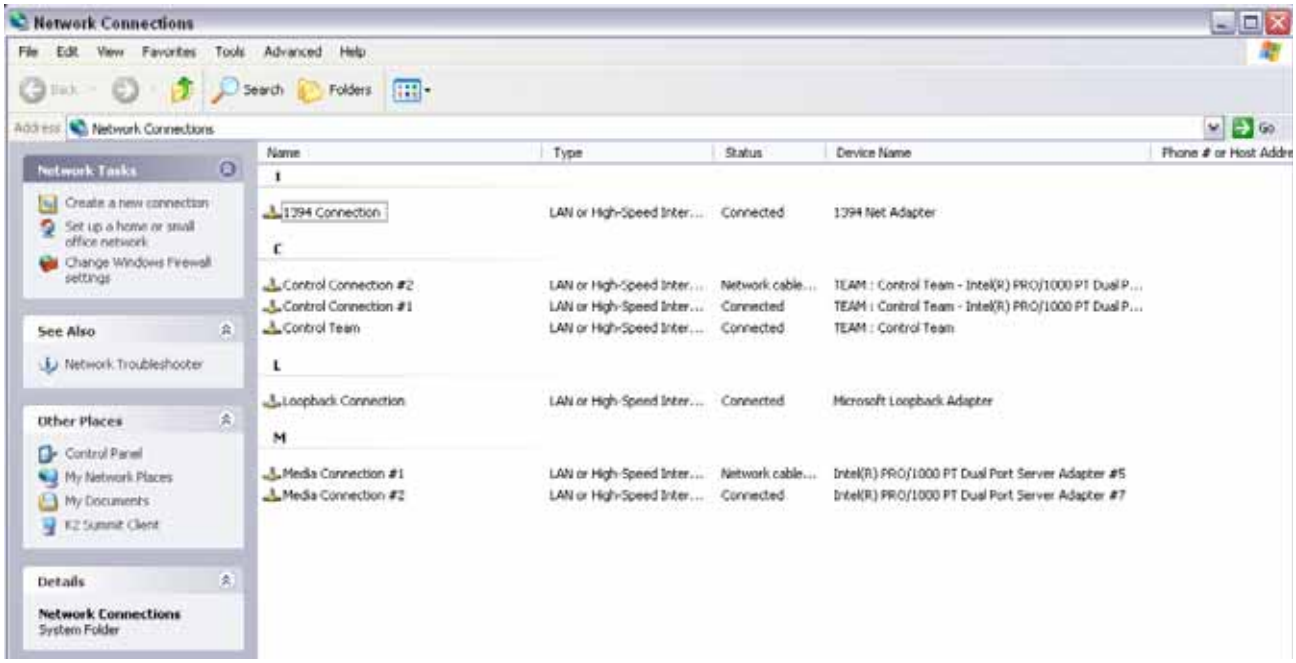
2. Once the server has rebooted, enter your login and password.

3. Right-click on **Network Places**.

4. Click **Properties**.

5. Right-click on **Control Team** (Figure 112).

Figure 112. Network Connections—Control Team



6. Click **Properties**.

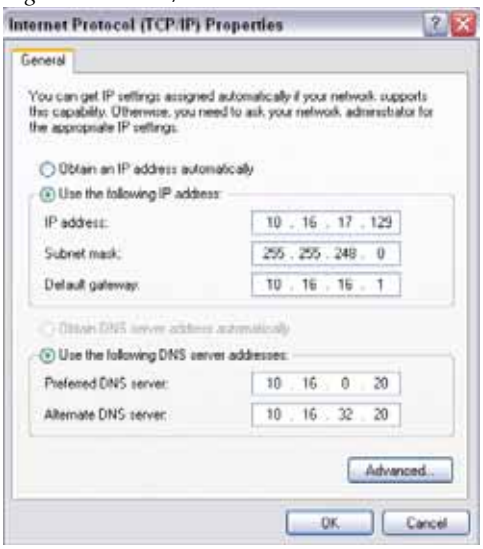
7. Scroll down to "Internet Protocol (TCP/IP)" and click to highlight it (Figure 113).

Figure 113. Control Team Properties—TCP/IP Disable/Enable Filter Settings

8. Click **Properties**.

   The TCP/IP Properties Dialog is displayed (Figure 114).

Figure 114. TCP/IP—Enter IP Address



9. Enter the desired IP Address (Figure 114), and click **OK**.

   The Subnet mask will be filled in automatically.

10. Click **OK**.

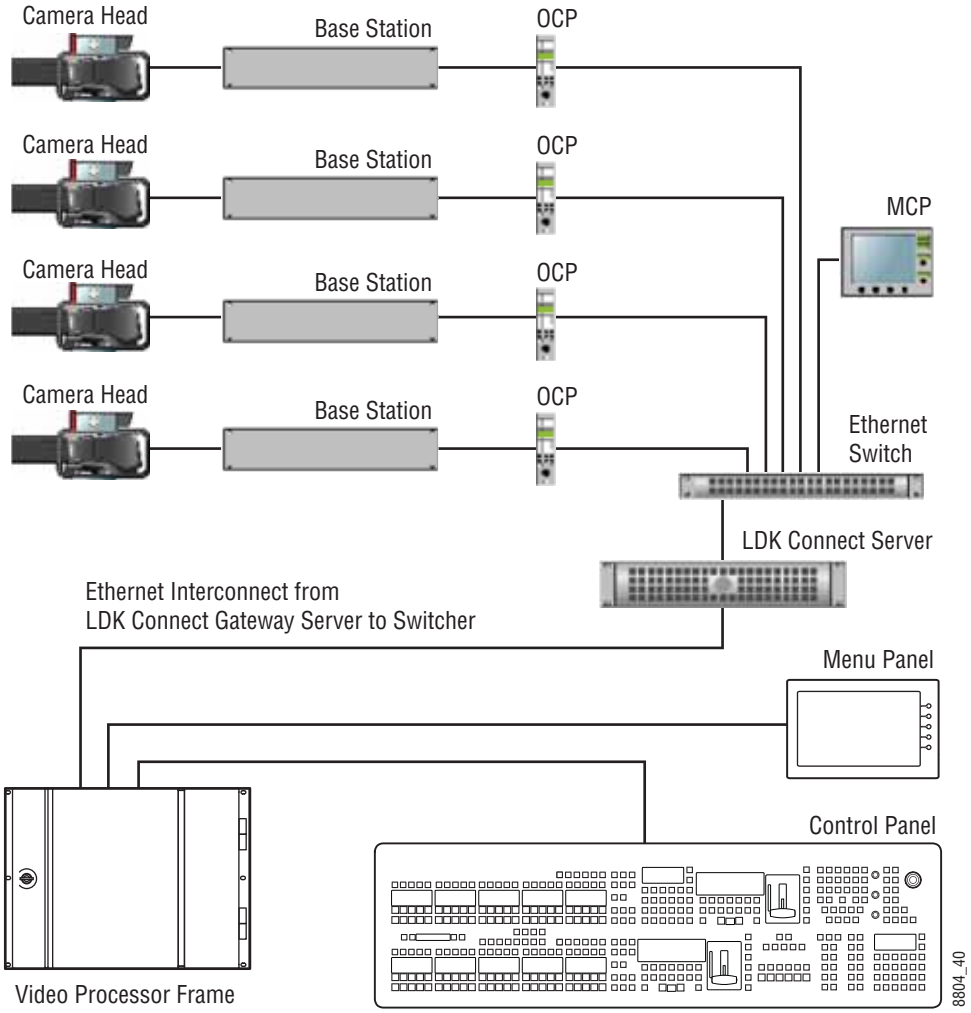
Enable the FBWF

1. Enable the FBWF (File Based Write Filter), see *Setting the IP Address* on page 144, Step 1.
2. Reboot the ClipStore Summit/Solo server.

Camera Control with Ethernet Tally Configuration

The Kayenne K-Frame system uses Ethernet to communicate with the LDK Connect Gateway. Some basic configuration is required in the Eng Setup menu.

Figure 115. Kayenne System Interconnection with Camera Gateway



Node Settings

In the Eng Setup, Node Settings menu, enter a valid IP Address for the camera gateway and touch the **Enable** button. When connected, the LDK Connect LED will turn green (Figure 116).

Figure 116. Camera IP/Enable, Node Settings Menu

Source Definitions

To enable camera control from the Kayenne K-Frame, the source is defined as a “Camera” type then assigned as a camera in the Eng Setup, Source Definition menu (Figure 117).

Figure 117. Camera Source Type, Source Definition Menu

1. Touch the desired source in the Source List (Figure 117).
2. Set the Video Input and Key Mode (see the *Kayenne K-Frame User Manual* for more information).
3. Touch the **Camera** source type button in the Source Type pane (Figure 117).

   Once the "Source Type" is defined as Camera, the Camera Source can be selected.

4. Touch the **Camera Source** data pad—the Ethernet Connected Camera List pane is displayed (Figure 118).

Figure 118. Ethernet Connected Camera List, Eng Setup, Source Definition Menu

5. Touch a camera in the Ethernet Connected Camera List.

   The Ethernet Connected Camera List pane closes and the selected camera's Engineering Name is defined by the selection automatically. A green **Status LED** signifies a connected camera (Figure 118).

Note The Engineering Name of the source becomes "Cam##" and cannot be edited, however the Panel, OLED, and Menu Name can be changed in the Source Patch menu (see the *Kayenne K-Frame User Manual* for more information).

Acquire Resources

A camera resource can be acquired by Suite 1 or Suite 2 but not both (E-MEM control is only from the suite currently controlling the camera source). Camera resources are acquired in the Eng Setup, Acquire Resources, Camera Control menu (Figure 119).

Camera resource acquisition is represented in the Camera Controls Acquired in Suite pane (Figure 119) in the Camera Controls menu as follows:

Green—Successfully acquired in the current suite

White—Resource not acquired in any suite

Blue—Resource successfully acquired by a suite other than the current suite

Figure 119. Camera Control, Eng Setup, Acquire Resources Menu

Acquire control of camera components in another suite by releasing one, several, or all components from the current suite using the **Release Selected** and **Release All Cameras** buttons, changing suites, then acquiring those components in the other suite. For more information on acquiring resources, see the *Kayenne K-Frame User Manual*.

1. Select the components (cameras) you wish to acquire in another suite in the Components: Camera Control pane (Figure 119).
2. Release those components using the release buttons.
3. Go to the Eng Login menu, and touch the **Change Identity** data pad.
4. Touch the data pad of the desired suite.
5. Return to the Eng Setup, Acquire, Camera Control menu and touch the component buttons you wish to acquire to the suite.
6. Touch the **Acquire Selected** button.

Switcher Ethernet Camera Tally

The Kayenne K-Frame system provides a quickly connected, reliable, three color tally (Red, Yellow, and Green) via Ethernet to Grass Valley cameras (Figure 120).

Figure 120. Switcher Tally LDK Camera Ethernet Menu

Tally Calc Menus

As with Switcher Tally, the LDK Camera Ethernet menu is used to select calculators, name calculators, and assign bus contributors to tributaries.

Colors Enabled—Reports which colors are currently using that calculator, by color letter corresponding to the viewfinder indicators (Figure 120):

- R (Red=On-Air),
- Y (Yellow=media (record)), and
- G (Green=ND/RE or 'Call').

Color Assign Menu

Assigning a source as a Camera type and giving it a Camera Number is similar to assigning a source to a relay in a Switcher Tally Group.

The Color Assign menu is used to assign the Tally Calculators to the Tally Colors. Touch the Eng Setup, Switcher Tally, Color Assign menu tab to access this menu (Figure 121).

Figure 121. Color Assign Menu

User Setups

User Setups are intended primarily for operators, to allow them to customize their working environment. However, some settings affect basic system operation. The engineer in charge of a Kayenne K-Frame system should create and save at least one default set of User Setups (Panel Prefs and Suite Prefs) so the system can be set to a known state.

Particularly important settings are described briefly below. Refer to the separate *Kayenne K-Frame User Manual* for more information about User Setups.

Panel Prefs

Button Mapping Menu

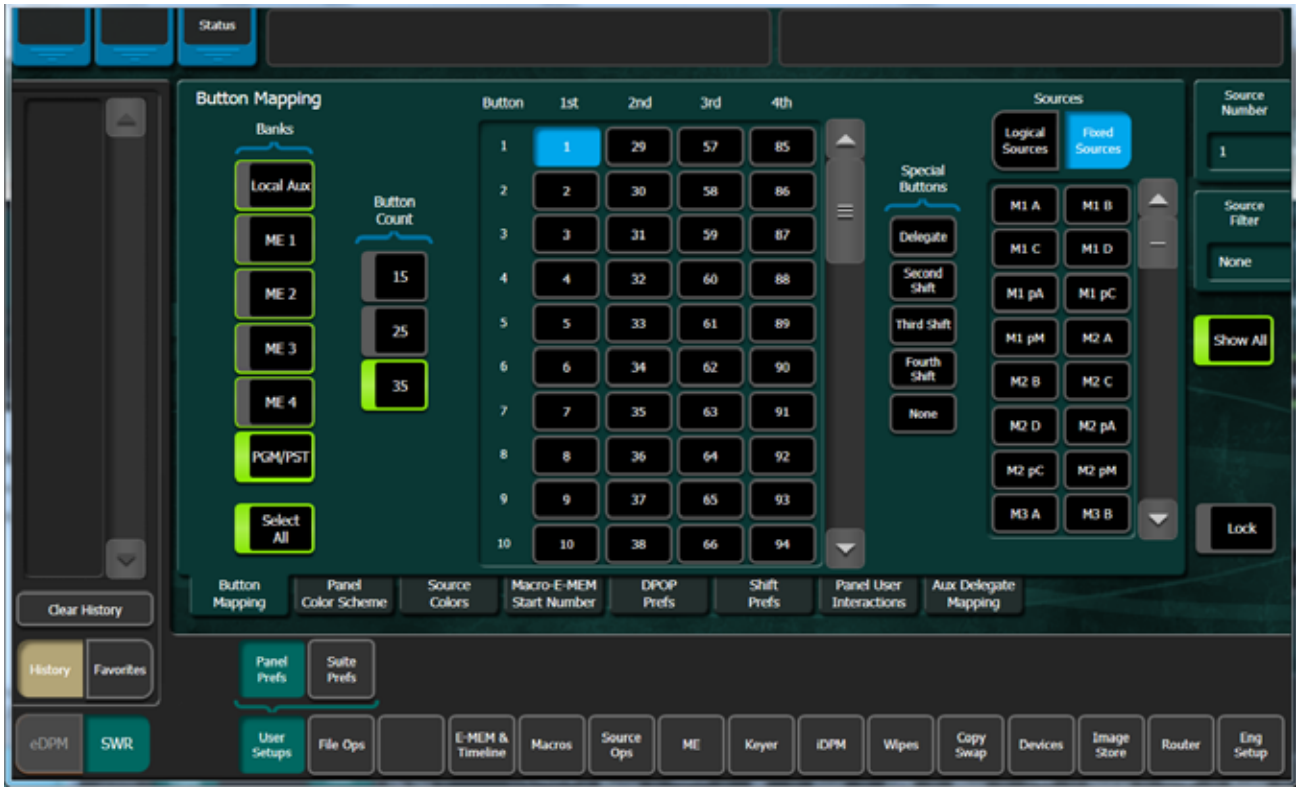
Button mapping determines what sources are selected by the buttons on the Control Panel MEs. The Button Mapping menu is accessed via **User Setups**, **Panel Prefs**, **Button Mapping** (Figure 122).

Figure 122. Button Mapping Menu. Logical Sources

Select the desired Bank(s) on the left, a Source Select button on the scrolling list in the center of the menu, then assign a source to that button from the scrolling lists on the right.

Two source lists are available, Logical Sources (Figure 122), and Fixed Sources (Figure 123).

Figure 123. Button Mapping Menu. Fixed Sources



- The **Button Count** settings identify the size of the bank (15, 25, or 35 Source Select Buttons.
- The **Source Number** data pad and knob can be used to quickly scroll through and select sources.
- The **Source Filter** data pad opens a keyboard allowing entry of an alpha-numeric source name filter. Only source names that begin with the entered text will be displayed in the scrolling to the immediate left.
- The **Show All** button clears the source filter.

Suite Prefs

Source Patch Menu

The Source Patch menu controls what source names are displayed on the Control Panel and menus, and permits patching of engineering sources to logical sources.

Default Keyframe

Default Keyframe settings are applied when an empty register is recalled and when the **CWB** (Clear Working Buffer**)** button is pressed in the Master EMEM Module (**EMEM Edit**, **CWB** button) of the main panel. The Default Keyframe menu is used to learn the current panel state to the system's Default Keyframe. Individual settings for each MEs are stored in the Default Keyframe, so different states can be saved for different MEs, if desired.

The Default Keyframe menu is accessed by touching **User Setups**, **Suite Prefs**, **Default Keyframe** (Figure 124).

Figure 124. Default Keyframe Menu

To Learn a Default Keyframe:

1. Setup the entire Control Panel to the desired state.

2. Press the **Learn** button in the Default Keyframe pane.

You will want to save this setting with your baseline Suite Prefs file.

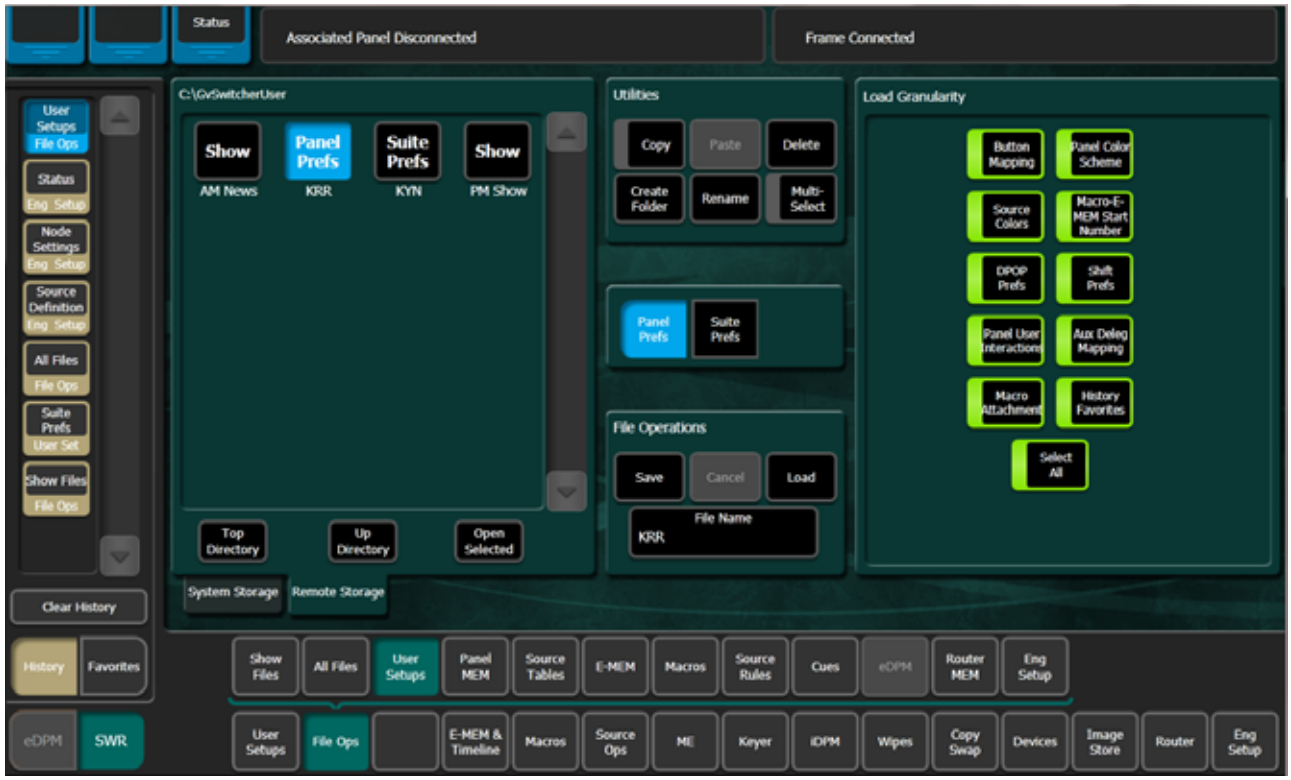
Note Individual Default Keyframe settings are saved for each ME.

Configuration File Save and Load

Kayenne K-Frame File Browser

The Kayenne K-Frame system has a file browser. You can browse through folders on the local Kayenne K-Frame Menu hard disk, the Kayenne K-Frame Video Processor, and the entire network file hierarchy of mapped drives. The various browser menus can be accessed via the **File Ops** menu tab (Figure 125).

Figure 125. Files Ops, User Setups Menu



Eng Setup files can be accessed two ways, via **File Ops**, **Eng Setup**, or via **Eng Setup**, **Save Load** (Figure 126).

Figure 126. Eng Setup Save-Load Menu

File Storage Organization

The file browser gives you great flexibility for choosing and creating storage locations for your files. Any number of folders can be created in various locations. File folders and the files themselves can be named in any manner. To prevent accidentally saving and loading incorrect files, your facility should establish file storage and naming conventions and follow them consistently.

The engineer in charge should create default Eng Setup, Panel and Suite Prefs files that are not to be modified by anyone. These can provide a known starting point for users when they build their own preference files.

Kayenne K-Frame Drive Access

The Kayenne K-Frame File Operation menus can access directories located on the USB Memory Stick in the Video Processor Frame (System Storage) and the Menu Panel hard drive (Remote Storage). Local and network drives mapped on the Menu Panel's Windows system are also accessible (Remote Storage). Standard Windows functionality automatically maps all local drives during startup. Mapping network drives to a drive letter using

the Windows Explorer allows them to appear at the top of the File Operation menus on that menu system.

Files saved to the **System Storage**, **Frame User Directory** will be available to any system user.

Files saved to the **Remote Storage**, **Menu C:** location on the Kayenne K-Frame Menu Panel will be available to any user of that Menu Panel. Multiple Kayenne K-Frame Menu Panels operating with that system will not be able to access files stored at this location on another Menu Panel, unless drives are mapped.

Files can also be saved to an external medium, like a USB Memory Stick, and then removed for personal storage unavailable to other users.

Save important files to multiple locations (for example, to the Video Processor Frame, Menu Panel, and a USB Memory Stick), clearly identify the files (perhaps including the date in the file name), and store removable media containing these files in a safe place.

File Type Extensions

Kayenne K-Frame files are named by the user when saved, and this name appears below the icon in the browser. The extension for each system file type is listed in Table 16.

Table 16. Kayenne System File Extensions

Icon Example	File Type	Extension
	Panel Prefs	.GVC .GVF .GVJ
	Suite Prefs	.GVS .GVZ
	Source Mem	.GVM
	Eng Setup	.GVE .GVH .GVN
	E-MEM Reg	.GVR
	R-MEM Reg	.GVY
	Panel Memory Reg	.PMEM
	Cues Reg	.GVB
	e-DPM Reg	.GVI
	Image Store	.EIF
	Macro Reg	.GVG
	Source Rules	.GVL
	Show Folders	.GVV

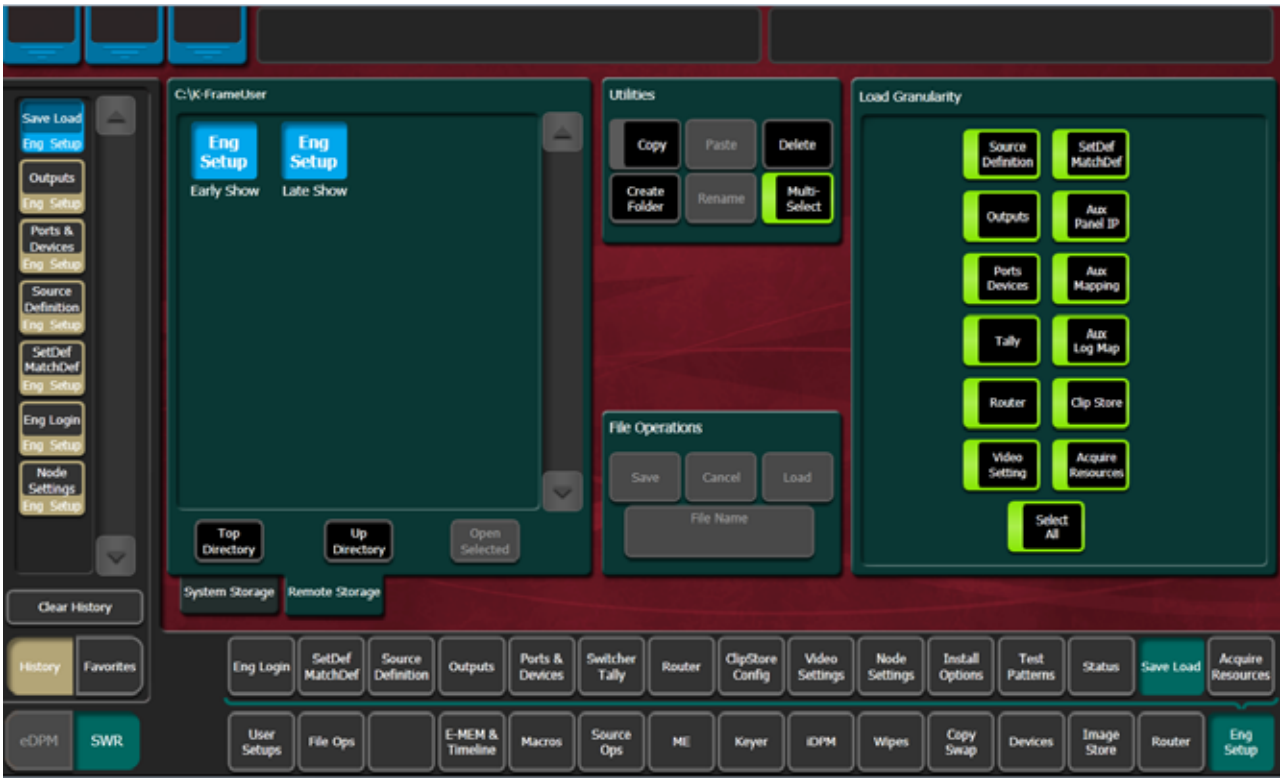
The extension is added to the file automatically when saved, but is not displayed as part of the file name itself by the file browser. To prevent confusion, do not try to add an extension to the file name when saving files.

Non-Kayenne K-Frame generated file icons show the file name with extension, and displays the extension letters in the icon.

Eng Setup File Operations

The Eng Setup, Save Load menu is used to save and load engineering setups information. Only this file format is supported in this menu (Figure 127).

Figure 127. Eng Setup Save-Load Menu



Left Navigation Pane

The left pane has tabs that select **System Storage** (Video Processor Frame) or **Remote Storage**. The **Top Directory**, **Open Directory**, and **Open Selected** buttons permit navigation through the file hierarchy.

Right Load Granularity Pane

The right Load Granularity pane allows selection of different categories of configuration data for save and load operations. The **Select All** button selects or deselects all the categories.

Utilities Pane

The Utilities pane buttons perform Copy, Paste, Delete and Create Folder operations and has a Multi-Select toggle button.

File Operations Pane

The File Operations pane is used to name, save, and load files.

To Save Eng Setup Files

1. Select all or individual file types to save.
2. Touch the **File Name** data pad and enter the name you wish the saved file to have.
3. Navigate to the desired destination directory using the buttons in the left navigation pane. You can create and name a new directory for the file with the **Create Folder** button in the Utilities pane if you wish.
4. Touch the **Save** button.

To Load Eng Setup Files

1. Navigate to the directory containing the files you wish to load, using the buttons at the bottom of the left navigation pane.
2. Select the file(s) to be loaded (choose the **Multi-Select** button for multiple files).
3. Touch the **Load** button.

CAUTION The Load button immediately replaces information the Kayenne K-Frame system is currently using with the selected file information. When configuration files are loaded, significant changes to system operation are possible.

Multiple Suite Resource Sharing

Introduction

The Resource Sharing feature permits the allocation of Kayenne K-Frame system resources between two suites. This allows independent system operation from multiple locations without conflict.

Logical resource assignments allow the reuse of E-MEM effects in either suite regardless of which specific hardware resources were allocated.

Each suite can be run with its own Suite Prefs settings, and two different Panel Prefs preference settings can operate simultaneously in each suite. These preferences can be saved and loaded, permitting reliable system changes to meet varying requirements.

The system retains the current suite/resource relationships. If the system powers down or is reset, resource allocations for each suite are restored when the system returns to operation.

Collaborative Resource Sharing

Collaborative resource sharing permits a group of operators to have simultaneous access to a resource. For example, a video operator may want access to an ME so he can set up a chroma key, but the TD also wants control of that ME so that he can put the chroma key on air. This type of sharing is available simply by installing additional Control Panels.

Corroborative system operation has inherent limitations. Since one operator can change the settings used by another operator, it is assumed the operators are in close communication with each other so they can avoid system control conflicts.

If two conflicting corroborative commands are sent, the Kayenne K-Frame system ends in the state of the last command processed. For example, one operator could select a source on a bus of an ME at nearly the same time another operator selects a different source on that same bus. The output of that ME will momentarily display the first source and then switch to the last source selected, possibly causing an apparent flash on that output.

The Resource Sharing feature allows collaborative sharing of system components with different User Prefs. For example, when a smaller 25 source panel is used in a corroborative environment with a larger 35 source panel, the button mapping for the two panels must be different because of the different number of source buttons available.

Independent Resource Sharing

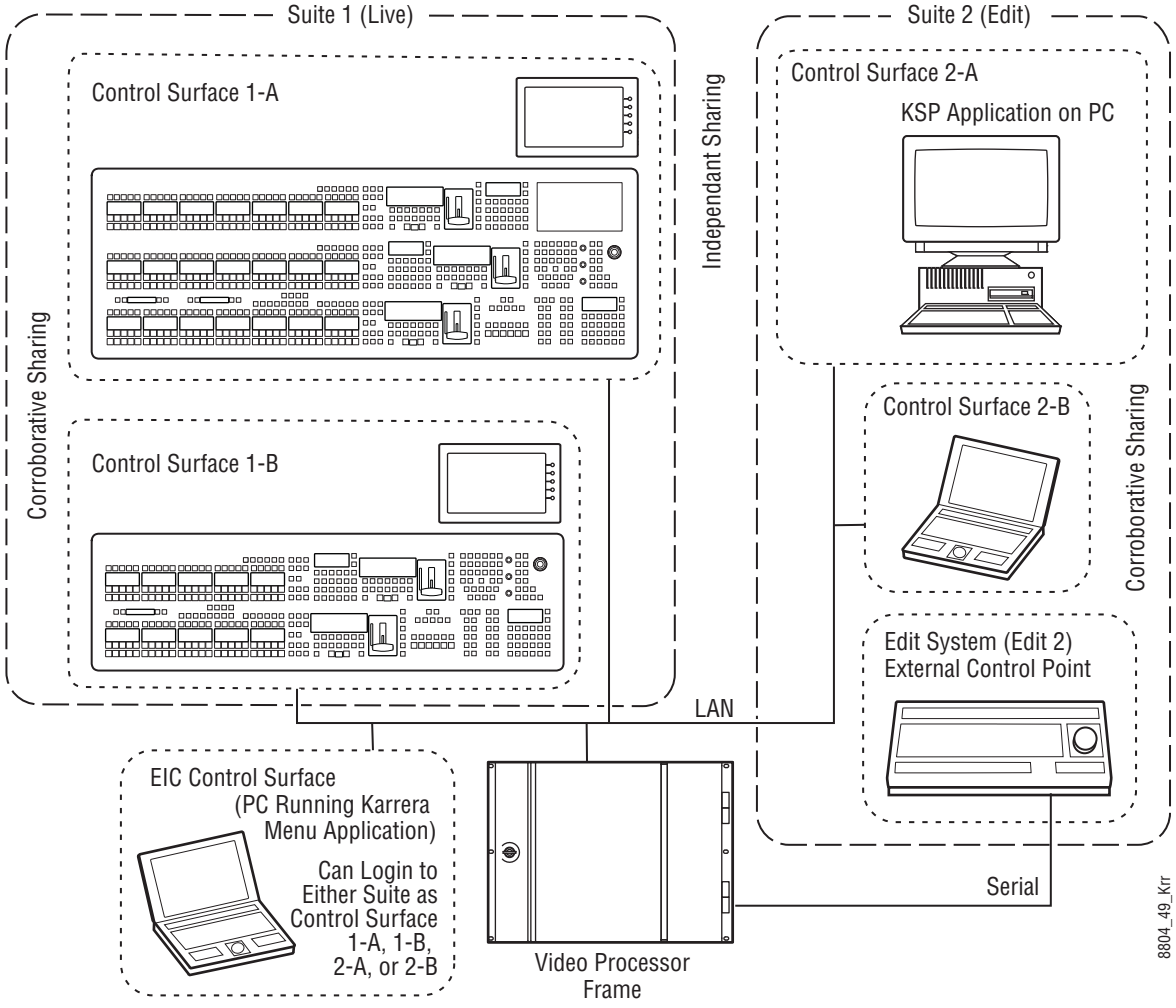
Independent resource sharing isolates an operator or group of operators from other operators, by defining two separate suites. When one suite has acquired a resource, only the operator or group of operators in that suite will be able to control it. An example of independent sharing is splitting a 4-ME Kayenne K-Frame system into two independent 2-ME switchers.

When a suite acquires a physical resource (like an ME) it uses that resource logically. For example, the ME B physical resource can be used as a logical PGM PST bank. Each of the two switchers created can therefore have their own PGM PST bank, and this allows effects built in one suite to operate correctly when loaded and run in the other suite. Effects will also run correctly in the same suite when run at a later time even if different physical resources have been acquired. Resources can be released by a suite. Once released, these resources can be acquired by the other suite. This permits dynamic reconfiguration of the system resources to meet varying operational requirements.

Suite

A suite is a grouping of one or more control surfaces (described below), and constitutes a coordinated working environment. Resources are attached to a suite rather than to individual control surfaces. All control surfaces in one suite have access to all resources assigned to that suite (collaborative sharing). Control surfaces in one suite are not able to control resources assigned to the other suite (independent sharing). Suites provide isolation from operators in the other suite (Figure 128).

Figure 128. Suites and Control Surfaces Example



Control Surface

A control surface is generally a group of panels which interact and provide a single user a unified work surface. An example of this type of control surface is a Control Panel and Menu Panel of a 4-ME Kayenne K-Frame system. These panels combine to form a Technical Director's (TD) control surface. Other Control Panel modules or additional Menu Panels can be added to a control surface.

A control surface may also consist of a single item. For example, a Menu Panel (or a laptop computer running the GV Switcher menu application) can act as a separate control surface in a suite.

With Resource Sharing, up to two control surfaces can be created for each of the two suites. Each control surface can load its own Panel Prefs, so they can behave differently from one another. For example, different sources can be mapped to the source select buttons of the two control surfaces in the

same suite, permitting quick access to different sources appropriate for each work location.

Control surfaces allow operators to collaborate on the same production while providing isolation between the operators themselves. For example, a smaller Control Panel set up in the studio for rehearsals will need access to the same effects as a larger Control Panel in the control room, but may need access to a specific set of sources. The smaller panel also requires a different button mapping. If a Menu Panel is associated with each Main panel, the DPOP operations of one panel should affect its menu, not the other one.

Logical Aux Buses

Each suite can be configured to have its own set of numbered Logical Aux buses. This means effects built for one suite will run properly in the other as long as the physical connections for the same numbered logical Aux buses are similar. For example, if Aux bus 5 in one suite is used to feed that studio's monitor wall, using Aux bus 5 in the other suite to also feed that studio's monitor wall will make effects compatible between the suites. Note that these Aux buses have different internal paths and different physical connections, but share the same logical Aux bus number.

Remote Aux Panels

Remote Aux Panels are set up as part of a particular suite. They then become another control surface of that suite, with functionality limited to controlling only the Aux buses assigned to that suite.

External Control Points

Some types of Kayenne K-Frame system control originate from an external location, like an edit controller, or a GPI contact closure. The Resource Sharing feature accommodates these control points differently.

A separate editor port can be assigned to each suite. An edit controller connected to each port is considered part of only that suite, and controls only the resources currently acquired by that suite.

GPI inputs themselves are not assigned to individual suites. Each suite can be configured to respond to particular GPI commands, with the other suite ignoring these commands.

Setting Up Resource Sharing

Preparation

Your Kayenne K-Frame system should first be fully operational. For new customers, an initial system configuration will be required. This basic setup will become the baseline for suite 1 operation. This includes having an Eng Setup configured with the sources defined, suite 1 outputs assigned, suite 1 tally contacts connected and Ethernet tally defined (if used), and any external interfaces (DDR, VTR.) that will be used in suite 1 should be installed and operational.

Default Suite Prefs should also be defined and saved under a file name identifying its use for suite 1. A default Panel Prefs file should also be defined and saved identifying it as a default setting for control surface A of suite 1. All these files will become the starting point from which changes will be made to make full use of Resource Sharing.

When the above is accomplished and basic system functionality is confirmed, you can then set up suite 2, and more easily troubleshoot any configuration issues that may arise.

If you will be adding new system components for use with Resource Sharing, all these components must be installed and configured on the network, using valid IP addresses. All control surfaces participating in Resource Sharing will also need to be in communication with the same Video Processor Frame. After the primary Main panel has been installed and its connectivity verified, one new panel should be installed and its connectivity also verified before you install any additional panels. This will make it easier to troubleshoot any IP addressing problems that may occur.

Prepare Worksheet

A worksheet is helpful for planning your multi-suite installation and configuration. The worksheet should list all Control Panels, Menu Panels, and PCs running the GV Switcher menu application, their IP addresses, and their suite and control surface associations. It should also list all Remote Aux Panels and which suite they belong to. Physical outputs should also be listed with their suite association and which Fixed output or Aux bus they are associated with, the main program and preview outs for the suite, etc.

Configure Control Surfaces

1. Touch **Eng Setup**, **Node Settings**, **Control Surfaces**, and enter the IP address and name the control surface you are adding. Assign it to **Suite 2 Surface A**. If you are using an additional Menu Panel or PC for that suite, you can change it to **Suite 2 Surface A** at this time as well (Figure 129).

Figure 129. Control Surface Menu with Suite 2 PC and Panel

2. Touch **Reset Panel**. This will re-establish system communications.

Note After reboot, the Eng Setup, Status menu will display the added control surface.

Define Default Multi-Suite Engineering Resources

Assign the following items as appropriate to suite 1 or suite 2:

- Outputs (Pgm, Switched Preview, Aux Buses, etc. accessed via **Eng Setup**, **Outputs**). An example showing reassignment of an output for suite 2 is shown in Figure 130 on page 179.
- GPI Outputs (**Eng Setup**, **Ports & Devices**, **GPI Outputs**).
- Editor Ports, if used, are permanently assigned for use by each suite (**Eng Setup**, **Ports & Devices**, **Editor Ports**).
- Switcher Tally (**Eng Setup**, **Switcher Tally**).

Note Each suite has its own, logical set of outputs that are identically numbered. Use the **Suite 1** and **Suite 2** buttons to assign them to a suite.

Figure 130. PGM Output Assigned to Suite 2

Divide Resources Between Suites

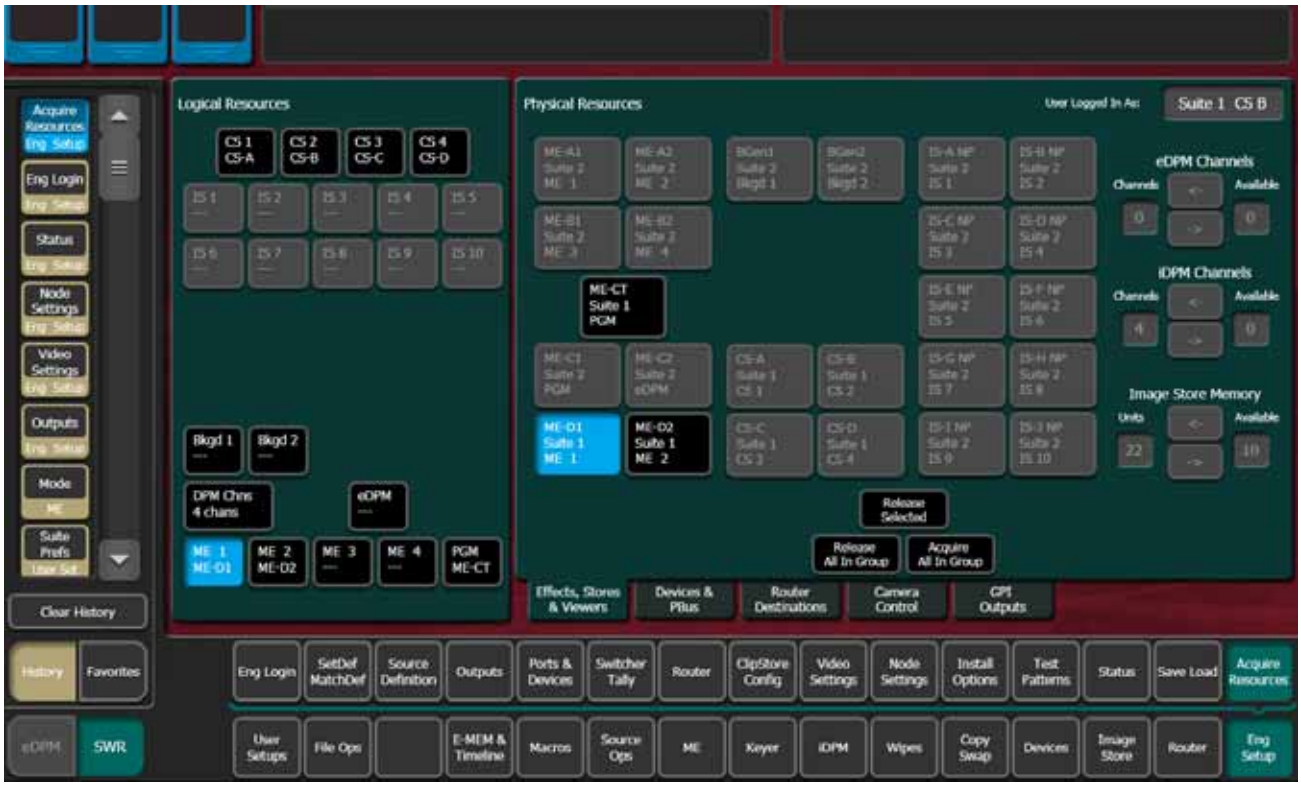
Note Changes to Suites and Resource Sharing can have serious Kayenne K-Frame system operation impacts that may not be completely obvious. For this reason, precautionary messages requiring a response are posted.

1. If necessary, go to **Eng Setup**, **Eng Login**, answer **Yes** to the warning message, and login as **Suite 1 CS A** using the **Change Identity** button (Figure 131).

Figure 131. Eng Login Menu

2. Touch **Eng Setup**, **Acquire Resources**, select **Yes** to the warning message, and release resources not needed in suite 1 that you wish to make available to suite 2. You can use the category tabs on the right to release all the resources in each category, and then reacquire only what is needed by suite 1.

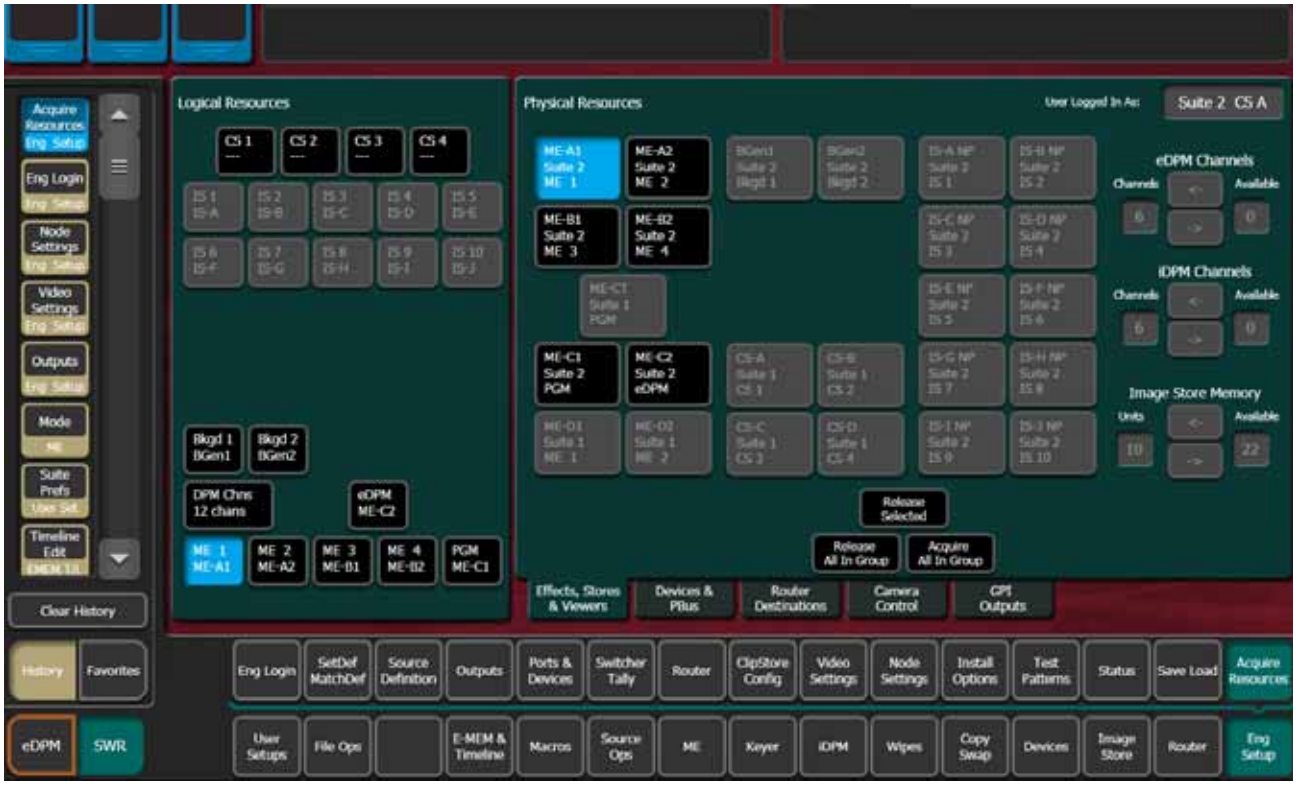
Figure 132. Acquire Resources Menu, Suite 1



3. To acquire installed DPM options, move available iDPM Channels from Available to Channels using the arrow keys (Figure 132). Any number of licensed iDPM channels can be acquired to the selected resource, or acquired as eDPMs using the Acquire Resources menu.

4. Go to **Eng Setup**, **Eng Login**, and use the **Change Identity** button to login as **Suite 2 CS A**. Then touch **Eng Setup**, **Acquire Resources** and acquire the resources needed in suite 2 that have been freed in suite 1 (Figure 133).

Figure 133. Acquire Resources Menu, Suite 2



Save Default Multi-Suite Engineering Setups File

Save this Eng Setup configuration to disk, naming the file to identify it as the default multi- suite engineering configuration for the facility.

Define and Save Default Suite Prefs

Define default Suite Preferences as appropriate for suite 1 and suite 2. This is accomplished by logging in to each suite individually, accessing the various configuration menus, setting the available parameters, and then saving a Suite Prefs file for each suite while logged into that suite.

Define and Save Default Panel Prefs

Similar to Suite Prefs above, Panel Prefs files can be created and saved for each control surface, if you wish. For engineering troubleshooting purposes, you may be able to define and save a single Panel Prefs file for use on any control surface.

To use different Panel Prefs for different control surfaces, create and save each Panel Prefs file while logged into that suite and control surface. This is necessary for button mappings on each suite's control panel.

Multi Suite Independent Operation

Once configured with two suites, operators can work on each control surface completely independently from one another. Coordination will be required, however, to ensure the resources each operator needs are shared as necessary.

Operators should also test any EMEMs, RMEMs, or other items created or saved previously to be sure they work properly with their currently acquired resources.

Engineering Login

A Kayenne K-Frame system can be configured as two suites, with each suite having up to two control surfaces. The Eng Login menu is used to choose which suite and control surface the GV Switcher menu will interact with and control.

To access a different Suite or Control Surface (CS), go to the **Eng Setup**, **Eng Login** menu and touch the **Change Identity** button (Figure 134). The **Suite** and **CS** buttons will then be available for selection. After selecting a different button, a warning message appears. Select **Yes** to make the change, or **No** to cancel the change and retain the existing menu identity.

Note Changing a menu's identity in this way is temporary. Reloading the menu application or rebooting the Menu Panel will restore the Suite and Control Surface identity defined in the Node Settings, Control Surfaces menu.

Figure 134. Eng Login Menu

Kayenne K-Frame system resources can be allocated to each suite. By default all system resources are allocated to suite 1. See *Multiple Suite Resource Sharing* on page 173 for more information.

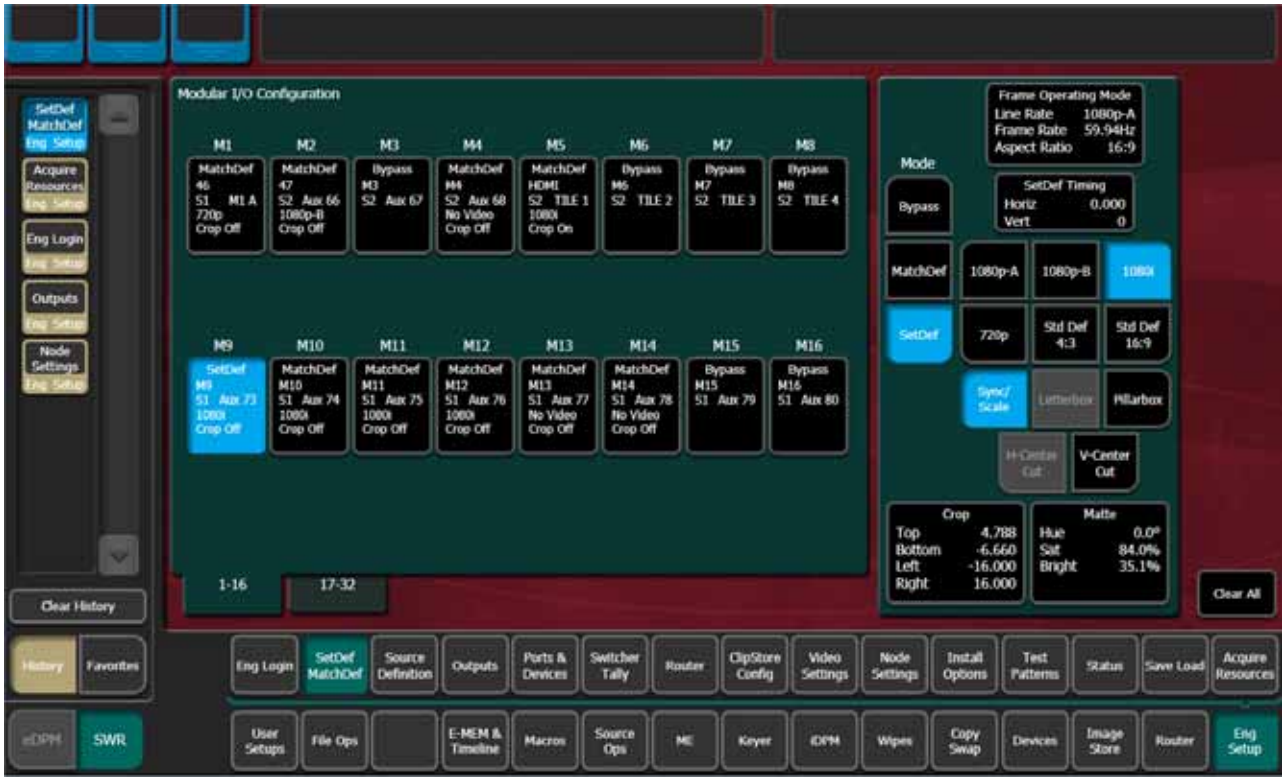
Note Changing a menu's identity in this way is temporary. Reloading the menu application or rebooting the Menu Panel will restore the Suite and Control Surface identity defined in the Node Settings Control Surfaces menu.

SetDef and MatchDef

The SetDef and MatchDef options permit line rate signal format conversion of selected Kayenne K-Frame system outputs and inputs. SetDef output and MatchDef input conversion is licensed in groups of four. Connectors are active when the associated Modular I/O board is present and the

license is enabled. Selecting an output or input button automatically brings up controls for that conversion.

Figure 135. SetDef MatchDef Menu, SetDef Selected



SetDef Output Conversion

When selected as SetDef Mode, the Modular I/O buttons report the current source, format, suite, output, Line rate, and crop status for that output.

The currently operating video standard is shown in the **Frame Operating Mode** status display on the upper right portion of the menu.

The **SetDef Timing** button, when selected, displays Horizontal and Vertical Offset data pads, allowing changes to the timing of that output relative the the system video reference.

The conversion format for the selected output is chosen from the labeled buttons in the right pane (**1080p-A**, **1080p-B**, **1080i**, **720p**, **Std Def 4:3**, **Std Def 16:9**). This format is applied to both output pairs.

Controls for Scale, Letterbox, Pillarbox, H-Center Cut and V-Center Cut are displayed, depending on the format selected.

Sync/Scale - Synchronizes the image then scales it to fill the full raster of the screen. If mismatched formats are involved, the image may distort and appear wider or narrower that its original state.

Letterbox - Used to convert 16:9 to 4:3 by adding bars above and below the image.

Pillarbox - Used to convert 4:3 to 16:9 by adding bars to the left and right sides of the image.

H-Center Cut - Fills the screen with the center portion of the image, cutting off some of the left and right sides.

V-Center Cut - Fills the screen with the center portion of the image, cutting off some of the top and bottom.

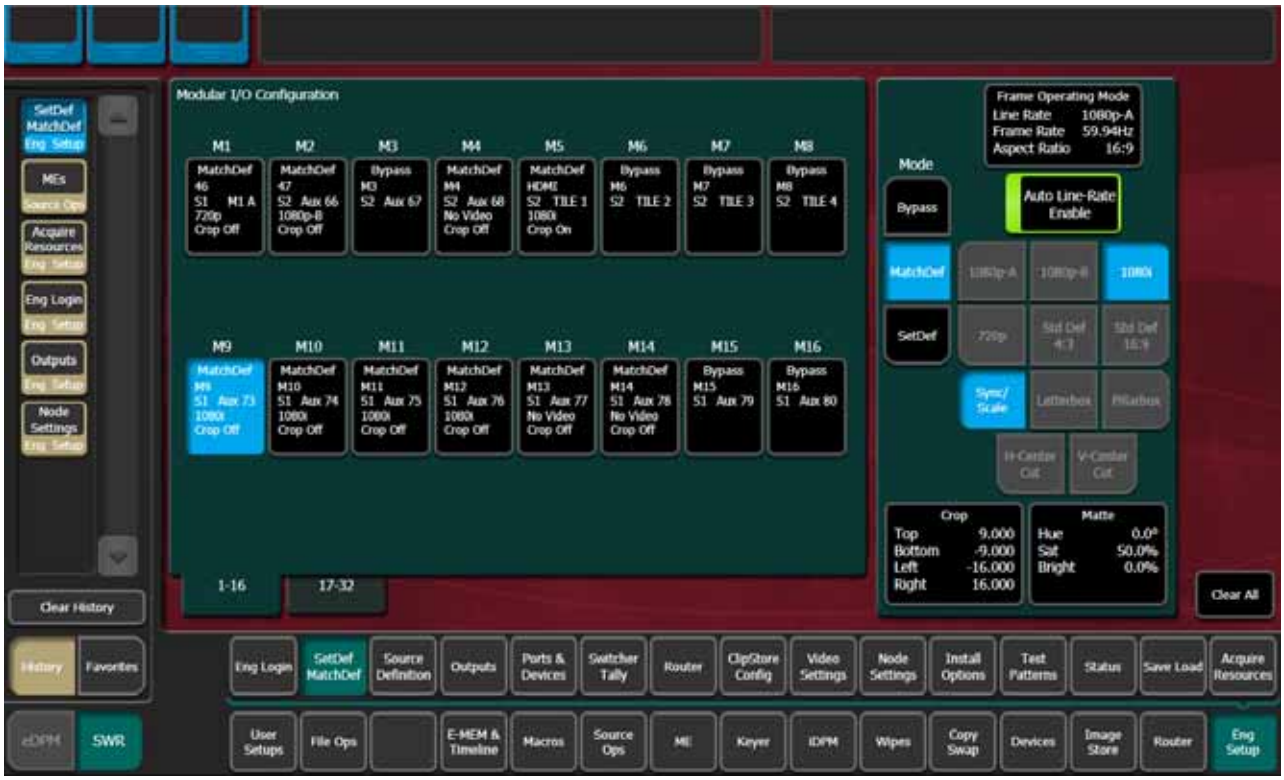
The **Crop** button, when selected, displays Top, Bottom, Left, and Right crop data pads. Crop values can be entered and activated by touching the **Crop Enable** button.

When Crop, Letterbox, or Pillarbox is active, the **Matte** button can be selected, which displays Hue, Saturation, and Brightness data pads. The color values entered are applied to the non-image portion of the raster.

MatchDef Input Conversion

When selected as MatchDef Mode, the Modular I/O buttons report the current source, format, suite, output, Line rate, and crop status for that output.

Figure 136. SetDef MatchDef Menu, MatchDef Selected



The currently operating video standard is shown in the **Frame Operating Mode** status display on the upper right portion of the menu.

Auto Line-Rate Enable – When on, the system detects the input video format and automatically chooses the appropriate line rate for the selected input. One frame of video is required for detection. If the incoming video signal format changes, one incorrect frame of video will be displayed. When Auto Line-Rate Enable is on, the Line Rate selection buttons below are inactive.

Note If the incoming source is has a noisy signal, choosing the correct frame rate manually may provide better performance.

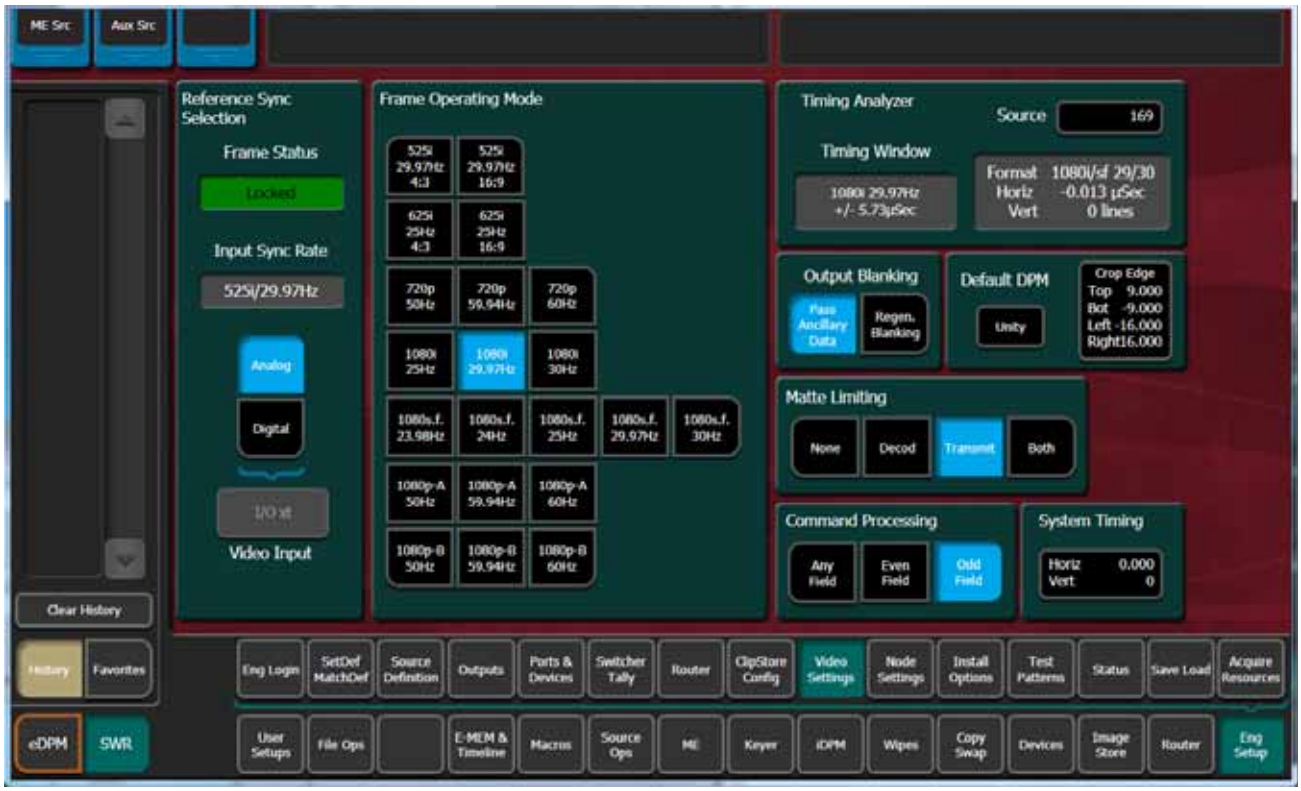
When Auto-Line Rate Enable is off, the conversion format for the currently selected input can be chosen from the Line Rate selection buttons in the right pane (**1080p-A**, **1080p-B**, **1080i**, **720p**, **Std Def 4:3**, **Std Def 16:9**).

Controls for Scale/Sync, Letterbox, Pillarbox, H-Center Cut and V-Center Cut are displayed, depending on the format selected. These controls are identical to those used for SetDef. The **Sync/Scale** button behaves the same as the SetDef **Scale** button, but also employs frame sync circuitry.

Crop and **Matte** controls are also available, which operate the same as for SetDef (see page 186).

Video Settings

Figure 137. Video Settings Menu



The Video Settings menu reports the current system sync reference and status, allows selection of the Frame Operating Mode, and provides other system functions.

Reference Sync Selection

Choosing **Analog** selects the Analog Reference connector on the Video Processor Frame for system reference.

CAUTION A tri-level sync reference signal is required for proper HD system operation.

Choosing **Digital** allows selection of a video input source to for use as system reference. This should only be used temporarily, for troubleshooting or initial system test, because an interruption of that input signal can cause Kayenne K-Frame system problems.

Frame Status – Reports the current sync status of the frame (for example, Locked).

Input Sync Rate – Reports the current input sync reference format.

Frame Operating Mode

The selected Frame Operating Mode determines the K-Frame's video input and output formats (excluding MatchDef and SetDef) and the internal processing used for the video.

About PSF Video, Supported Live Mode, and Film Mode

Progressive Segmented Frame (psf) video splits each progressive video frame raster into even and odd lines, creating two fields for each frame that can be sent through video equipment using the same transport protocol as an interlaced image. Unlike interlaced video, the two fields making up that progressive frame represent the same instant in time. When the psf image is to be displayed, the monitor puts the progressive image back together for display at the same instant on the screen.

The fact that psf video is actually a progressive image that has been broken up means that a switcher needs to do a number of things differently than when processing an interlaced image. This includes making sure cuts occur on frame boundaries (not between the even and odd fields) and DPM filtering is done in an appropriate manner. In addition to selecting and combining incoming video that contains motion, a switcher can also internally generate movement in the final video (like wipes and DPM moves). When psf video is displayed in a non-film environment, wipes, DPM moves, and other internally generated motion can look jerky at frame rates lower than 30 times per second. The K-Frame uses a "Live Mode" type of psf processing, where motion generated in the switcher is updated at the field rate. This makes that internally generated motion look smoother.

An alternative "Film Mode" of processing, which the K-Frame does not support, is intended for use when the final output is only film. In this mode all of the motion in the image only changes on frame boundaries, and, in 24psf video for example, all motion is only updated 24 times per second. If the psf video has no switcher generated motion, Live Mode and Film Mode processing is exactly alike.

When the K-Frame is set to a psf Frame Operating Mode, it uses "Live Mode" processing for smother internally generated motion, while retaining some "Film Look" aesthetics.

Other Settings

Matte Limiting

Matte Limiting determines how the matte generators produce colors. Limits can be imposed to prevent downstream signal problems.

None – In this mode, no limiting is imposed. Analog signal paths and monitors may behave poorly to some colors produced in this mode.

Decodable – This limiter mode produces colors that decode to valid RGB components. Not all valid RGB colors can be transmitted in NTSC, however. Saturated colors near yellow and cyan over modulate an NTSC transmitter.

Transmittable – This limiter mode prevents over modulating an NTSC transmitter, but can produce colors which can not be decoded into RGB. For example, a 0% luminance blue produces negative green and red components.

Both – This limiter mode is similar to **Decodable**, except that maximum levels are reduced slightly around yellow and cyan to prevent over modulating an NTSC transmitter.

Command Processing

These controls determine when commands (like source selections or the initiation of mixes or wipes) will be enacted by the Kayenne K-Frame system (also known as field dominance). These controls can be useful for consistent match frame editing.

Any Field – The action will occur at the start of the next field, either even or odd. Use this setting if you are not going to edit the video output and want the fastest response.

Even Field – The action will always occur at the start of the next even field. This is probably only appropriate if your edit controller is set to edit in the middle of a frame.

Odd Field – The action will always occur at the start of the next odd field. This is the normal setting for almost all conditions, especially when the video output will be edited, and is compatible with most video editing systems that use the frame boundary for edits. This setting is essential, however, when controlling external devices like DDRs that execute commands only at the beginning of the frame.

Output Blanking

Production switchers normally regenerate a clean blanking interval. When the switcher must pass ancillary information such as embedded audio, this blanking regeneration can be disabled. This following settings apply to the output blanking of all the MEs.

Pass Bus A's Ancillary Data – Passes the ancillary data from the A bus to the ME Program output during the vertical interval.

Regenerate Blanking – Regenerates blanking during the vertical and horizontal intervals.

Default iDPM Crop

Default crops are intended to define the extent of a standard image for a facility. The Default iDPM Crop controls adjust cropping when individual iDPM channel crop is turned off. Individual iDPM cropping is used to adjust for variations in individual sources.

SMPTE RP-187 establishes recommended practices for standard image sizes (production aperture, clean aperture). If a facility conforms to these practices, the Kayenne K-Frame system default values will be correct and no adjustment should be necessary. Changing the default crops is not recommended, unless absolutely necessary.

Unfortunately, not all video images have the transition to blanking (black) in exactly the same place. Normally, these blanking variations are hidden at the extreme edges of the picture and are not visible. If an image smaller than expected is transformed, however, black lines can occur at its edges, which are now visible because they have moved inside the visible picture area. If it is necessary to compensate for variations in your facility's nominal blanking, adjust the default crops so they just remove black edges on the facility's normal image.

The 4:3 and 16:9 aspect ratios have different default crops.

Crop Edge – Allows setting alternative cropping for iDPM processing.

Unity – Resets iDPM cropping to factory default.

Timing Analyzer

The Video Settings menu also has a timing analyzer and system timing adjustments. See *Timing Analyzer* on page 91 for more information.

Node Settings

The Node Settings menus are used to establish communications among various Kayenne K-Frame system components. These important settings are not included in Eng Setup configuration files, to prevent accidental system communication failures if Eng Setup files are loaded incorrectly.

Frame Suite Nodes & ID Menu

Figure 138. Frame Suite Nodes & ID Menu

The Frame Suite Nodes & ID menu has fields to enter the IP addresses the GV Switcher menu application will use to communicate with the Video Processor Frame, Image Store, and the Control Panel whose DPOPs will affect this application's menu displays. A menu restart is required to make IP address changes take effect.

When connected, the currently defined names of these devices are displayed. These names can be edited from this menu, and will be sent to the device as soon as the new name has been entered. Subsequent connections to this device from this or another menu will show that edited name.

Note Do not change device or suite names unnecessarily, as this could cause confusion to other Kayenne K-Frame system users.

Mapping Logical Remote Aux Panels

The Remote Aux Logical Map menu (Figure 139) is used to assign Aux Buses for control by that Remote Aux Panel. Single Aux Panels can control one Aux Bus, while Multi-Delegation panels can have several Aux Buses be assigned to delegation buttons on that panel.

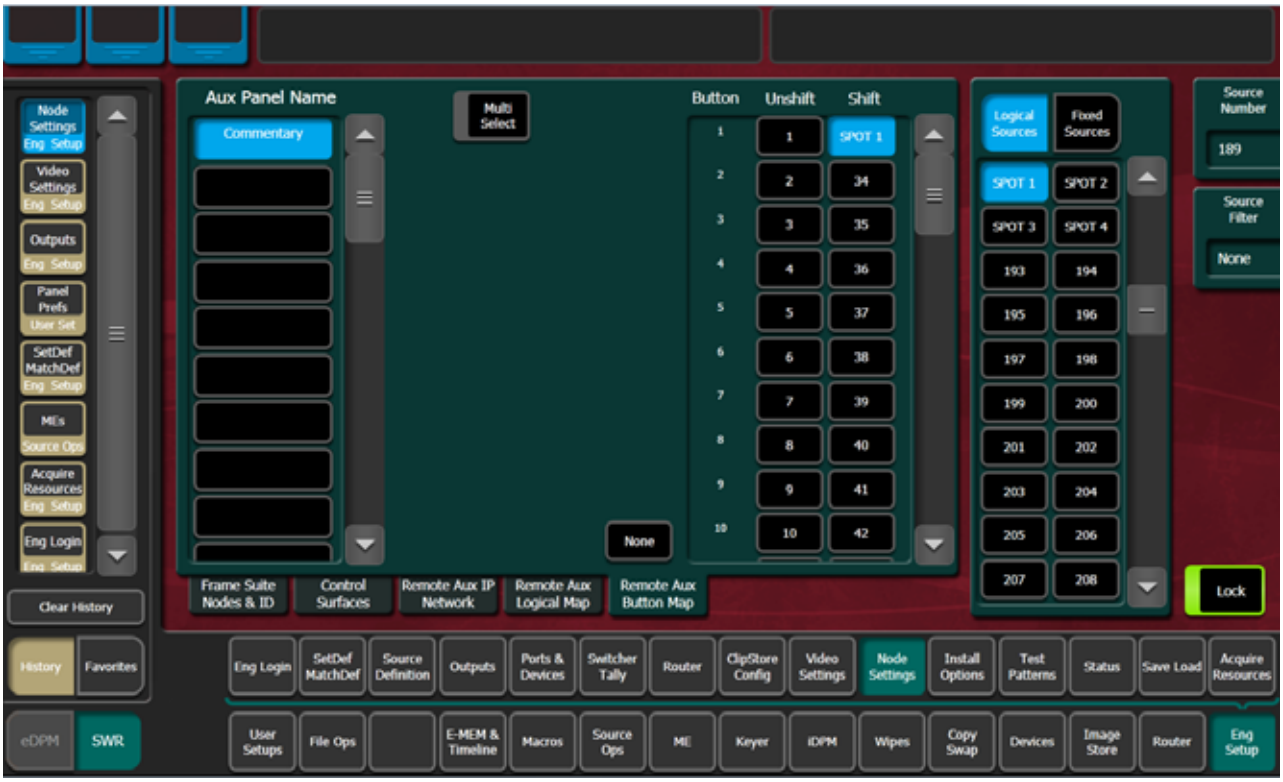
Figure 139. Remote Aux Logical Map Menu

To Assign Aux Buses on a Multi-Destination Panel:

1. Highlight a Panel Delegation button at the top of the screen.
2. Touch one of the Logical Aux Buses buttons on the lower screen. That Aux Bus will then be selected when that Remote Aux Delegation button is pressed on that panel.

Remote Aux Button Mapping

Figure 140. Remote Aux Button Map Menu



The Remote Aux Button Map menu is used to configure sources to the Remote Aux Panel source select buttons.

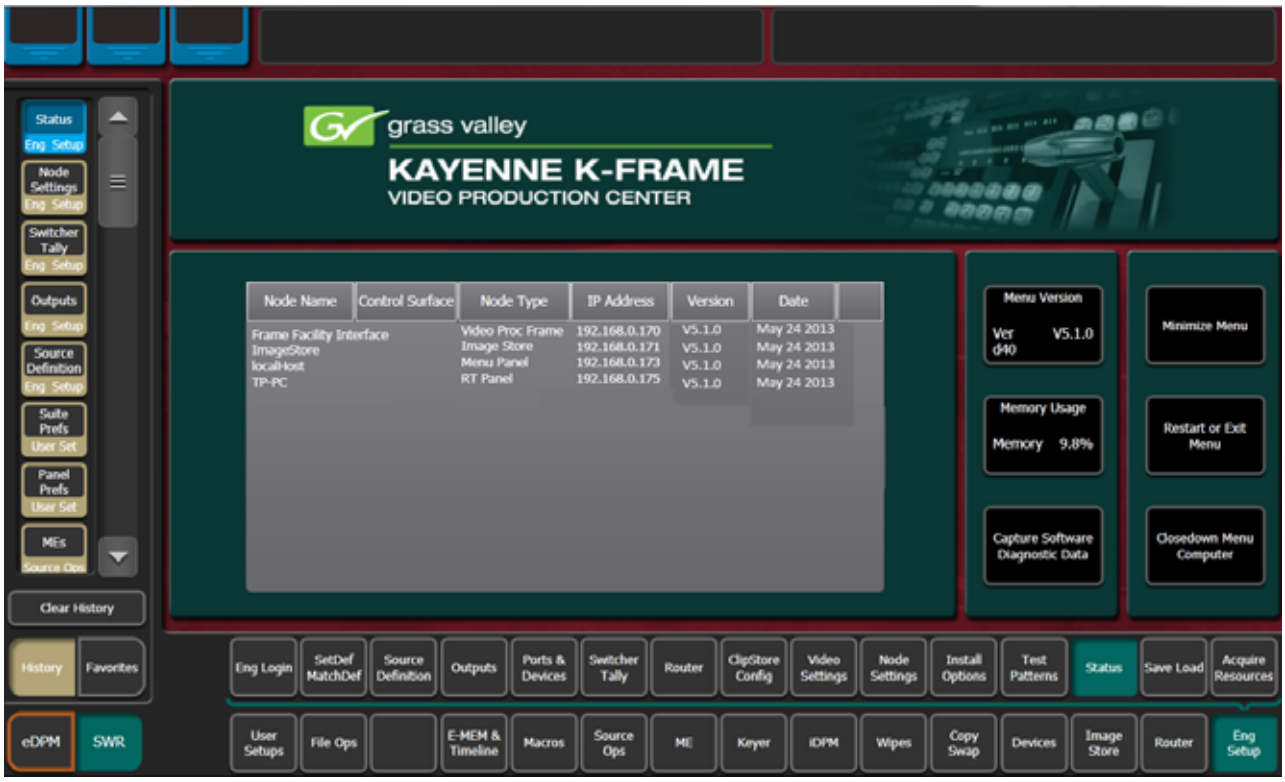
To Map Remote Aux Panel Buttons:

1. Highlight a source select button in the central scrolling list.
2. Touch a source button on the scrolling list on the right. It will be assigned to that Remote Aux Panel button.

- The **Source Number** data pad and scroll knob on the upper right can be used to quickly select a Kayenne K-Frame source by its logical ID number
- The **Lock** button at the bottom prevents the source list from scrolling when choosing different Remote Aux buttons.

About the Status Menu

Figure 141. Status Menu



The Status menu reports the currently connected Kayenne K-Frame devices by their name, control surface, type, IP address, software version, and date in the central window.

Note The Control Surface of a Menu Panel indicated on this menu is defined by the Node Settings, Control Surfaces menu settings. It does NOT report the Control Surface that Menu Panel is currently logged in as.

Menu Version – Reports the version of the GV Switcher menu application.

Memory Usage – Reports the amount E-MEM and other keyframe memory currently in use. If usage reaches 100%, no new keyframes will be able to be added to any effect. Deleting keyframes from any effect will regain space.

Capture Software Diagnostic Data – This button provides a convenient method to save the current configuration files, E-MEM, Macro, and also any frame software diagnostics data files that may exist (see Diagnostic Data Collection below). If you need to contact Grass Valley for assistance about any software problems, the engineering team will want these files for efficient troubleshooting. See *Section 7-Maintenance* for more information.

The **Minimize Menu** button minimizes the menu application, revealing the Windows desktop. The **Exit Menu** and **Closedown Menu Computer** buttons perform those functions.

Acquiring Resources

The Acquire Resources menus are used to acquire and release Kayenne K-Frame system resources when multiple suites are being used. Different menus are used for different resource types.

General Procedure to Acquire Resources

1. Login to the suite.
2. Select the button of the Logical Device you wish to acquire a resource for. These are the left most buttons on the scrolling list on the left. The menu will automatically display the menu for that resource type on the right.
3. Touch the button of the physical resource you wish to acquire on the right side of the screen.

If no resources are available, you may need to Login to the other suite, release the resource(s) you need, then return to the original suite and acquire them.

Section 6

External Interfaces

Introduction

The Kayenne K-Frame Video Production Center has that name because it is more than just a video switcher. For example, a Kayenne K-Frame system is also able to control a variety of external devices.

Devices can be associated with sources, via source definition. Three types of source definitions for the Kayenne K-Frame are available:

- **Direct** (used for standard video and key inputs, not for external interfaces),
- **Device** (used for DDR and VTRs). These devices can be controlled via Ethernet or serial port using various protocols. Each device uses a Device Definition that specifies the control mechanism.
- **Router** (used with an external routing system). This type permits the assignment of an external routing system destination to that source. Once assigned, different external routing system sources can be routed to that destination with the system. It is also possible to associate a router source to a device, to allow machine control of that source whenever it is selected on the Kayenne K-Frame Control Panel.

Serial ports can also be used to control PBus configured external devices.

GPI outputs can be configured to provide relay closure control of hard-wired external devices from the Kayenne K-Frame system.

In addition, external control of a Kayenne K-Frame system is possible using GPI input connections, and by configuring an Editor with a serial port.

General External Device Interfacing

In general, interfacing an external device to the Kayenne K-Frame system involves the following elements:

- Control cabling and configuration (Ethernet, serial ports, GPIs).
- Video cabling (K-Frame input connectors).
- Creating an External Device Definition (for DDR, VTR, etc.) and assigning it to a source definition.
- Mapping that source to a Control Panel button.

Once configured, that external device can be selected as a source on the Control Panel. If a DDR or VTR it can be directly controlled from the System Bar, Device Control Module, Multi-Function Module, or from the Kayenne K-Frame Menu Panel, as well as via EMEM.

PBus and GPI control of external devices is generally accomplished by the operator using EMEM. PBus and GPI triggers can be manually tested from the GV Switcher menu application, and Macros can be created to allow triggering using Control Panel buttons.

Routing System configuration with Kayenne K-Frame involves establishing communications between the Kayenne K-Frame and Routing control systems, assigning Router destinations to sources, and identifying which Router sources will be accessible to the system.

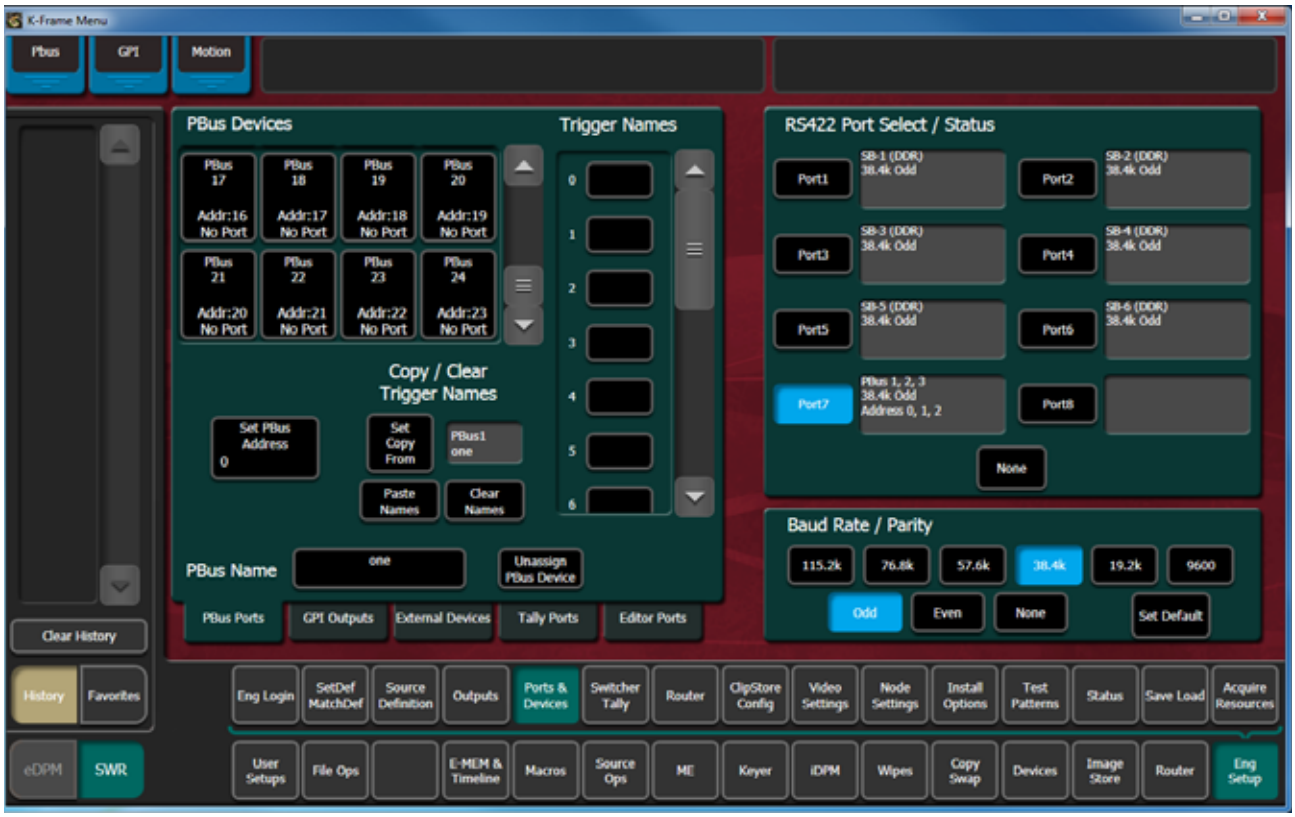
Ports & Devices

Control ports, GPI outputs, External Device Definitions, Ethernet Tally and Editor Ports are configured with the Ports & Devices menus, accessed via **Eng Setup**, **Ports & Devices**, and then touching the appropriate tab.

PBus Ports

The PBus Ports menu (Figure 142) is used to configure serial ports for PBus control of external devices. Twenty four PBus devices are supported, which can be assigned to the same or different serial ports, using PBus addresses (0-23) when the same port is used for multiple devices.

Figure 142. PBus Ports Menu



PBus Devices – One of the twenty four available PBus devices can be selected on the upper left side of the menu. Once selected, the remainder of the menu is delegated to that PBus device.

RS422 Port Select / Status – The button for the port currently assigned to the selected item will be highlighted. Touching **None** clears the port assignment.

Baud Rate / Parity – Serial port settings are selected with these buttons. The **Set Default** button returns the settings to the Kayenne K-Frame factory defaults.

PBus Name – Touching this button opens an alphanumeric keypad used to give the PBus device a descriptive name. These names appear on the separate Devices, PBus and PBus & GPI Enables menus, to help the operator identify each function.

Set PBus Address – Touching this button opens a keypad allowing entry of a PBus address, which is required if multiple PBus devices use the same port.

Unassign PBus Device – Clears the name of the selected PBus device and also clears its port assignment.

Trigger Names – Names can be entered for each of the 16 PBus triggers (0-15), by touching each button.

Clear Names – Removes the names from the currently selected PBus device.

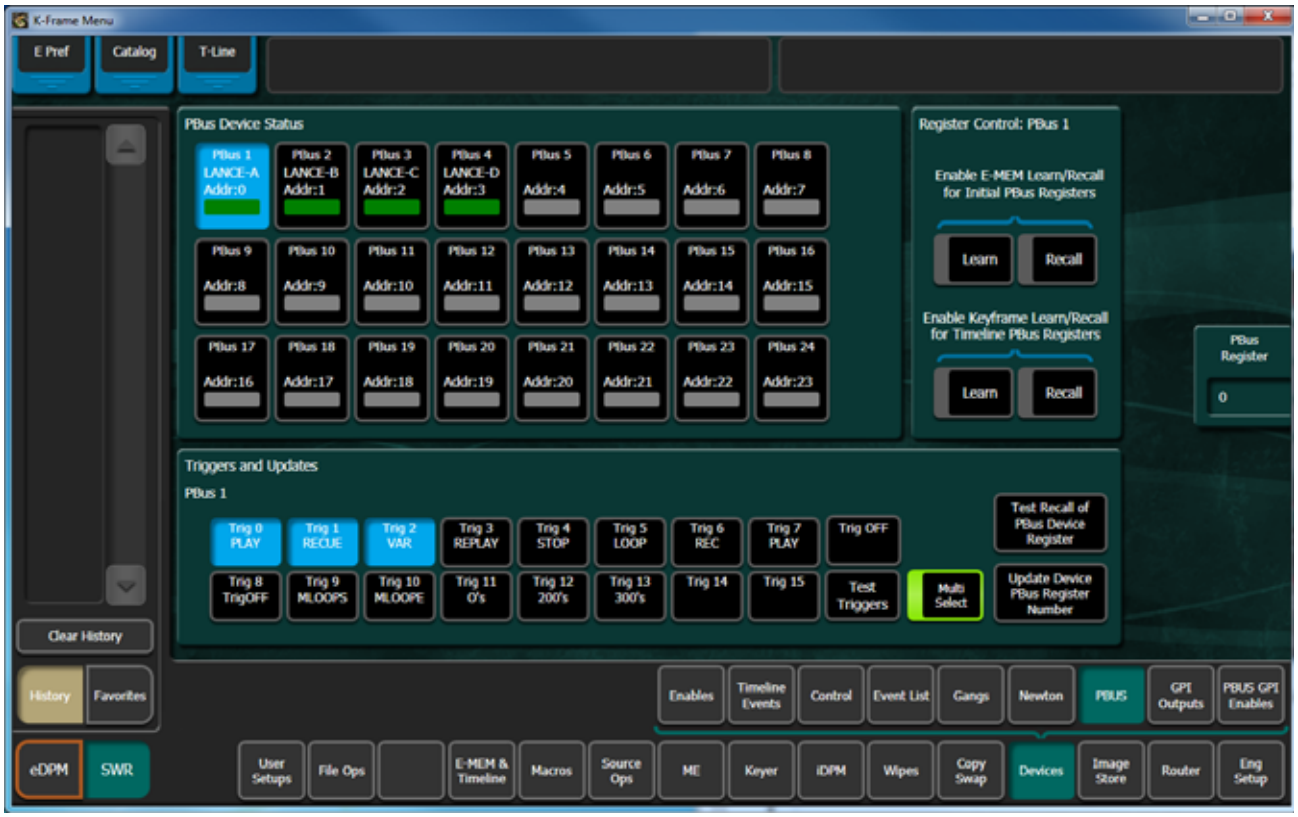
Copying Trigger Names

Trigger names can be copied from one PBus device to another.

1. Highlight the PBus device you wish to copy names from.
2. Touch the **Set Copy From** button to enter that device in the adjacent window.
3. Highlight the PBus device you wish to copy the trigger names to.
4. Touch the **Copy Names** button.

Once configured, PBus devices will be available to operators for use with EMEMs via the Devices, PBus menu (Figure 143).

Figure 143. Devices, PBUS Menu



GPI Outputs

The GPI Outputs menu (Figure 142) is used to configure the K-Frame's GPI connectors. GPI outputs can be assigned to Suite 1 or Suite 2 using the Eng Setup Acquire Resources menu.

Figure 144. GPI Outputs Menu

GPI Outputs – The buttons in the scrolling list represent the physical GPI output relays available on the system. The functions performed by these relays depend on how they have been connected to the device being controlled. One output can be selected at a time.

GPI Name – Touching this button opens an alphanumeric keypad used to give the GPI Output a descriptive name. These names appear on the separate Devices, GPI Outputs and PBus & GPI Enables menus, to help the operator identify each function.

Duration – Sets the duration the relay will be closed, in video frames.

Test GPI – Touching this button triggers the selected GPI.

Once configured, GPI Outputs will be available to operators for use with EMEMs on the Devices GPI Outputs menu (Figure 145).

Figure 145. Devices, GPI Outputs Menu

PBus and GPI Enables

PBus and GPI Output functionality (communications) can be enabled and disabled by an operator from the Devices, PBus and GPI Enables menu. This menu has two tabs, one for PBus (Figure 146), and the other for GPIs (Figure 147). When items are disabled on these menus, EMEM or Macro programmed PBus and GPI Output triggers will be inactive when the EMEM or Macro is run.

Figure 146. PBus and GPI Enables Menu, PBus Tab

Figure 147. PBus and GPI Enables Menu, GPI Tab

External Devices

The Eng Setup External Devices menus are used to create and edit Device Definitions. Different menus are displayed depending on whether a serial or Ethernet control type of device is selected.

Figure 148. External Devices Menu, Serial Control Device

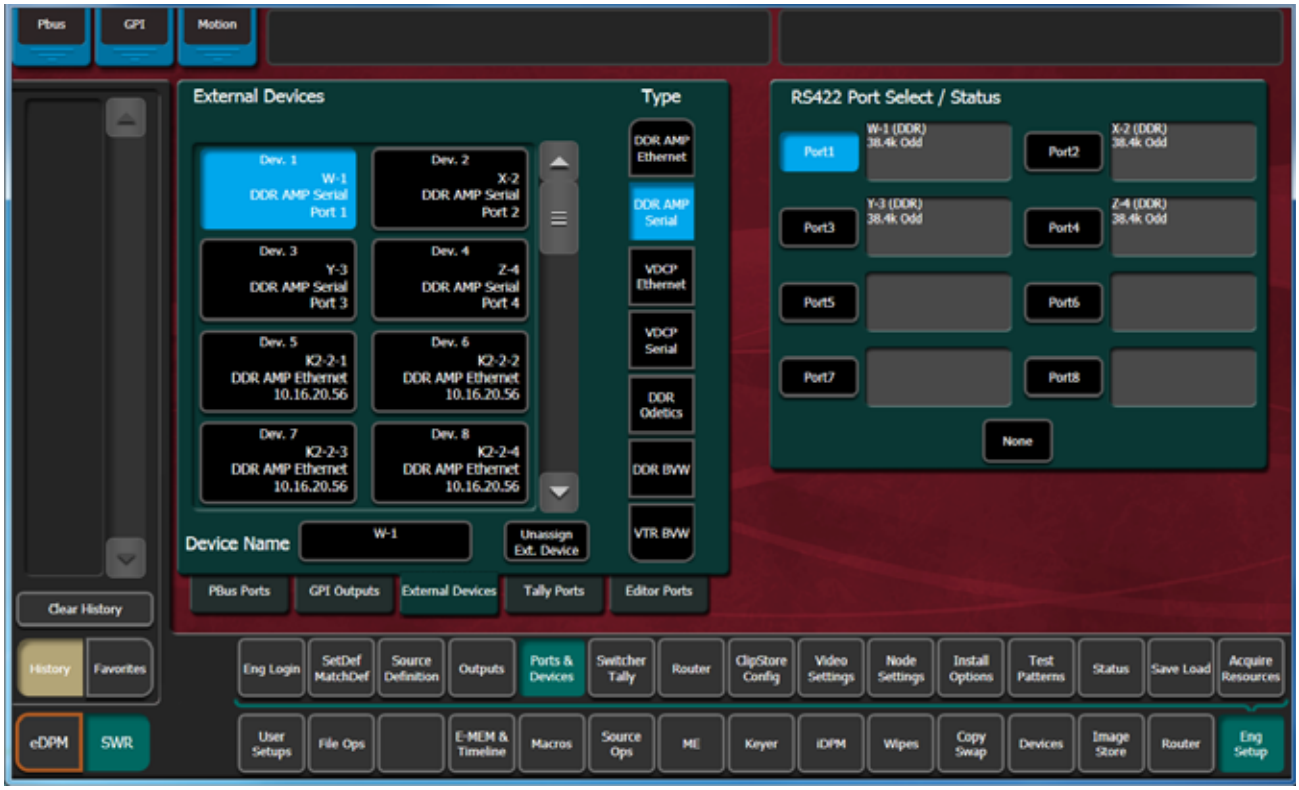
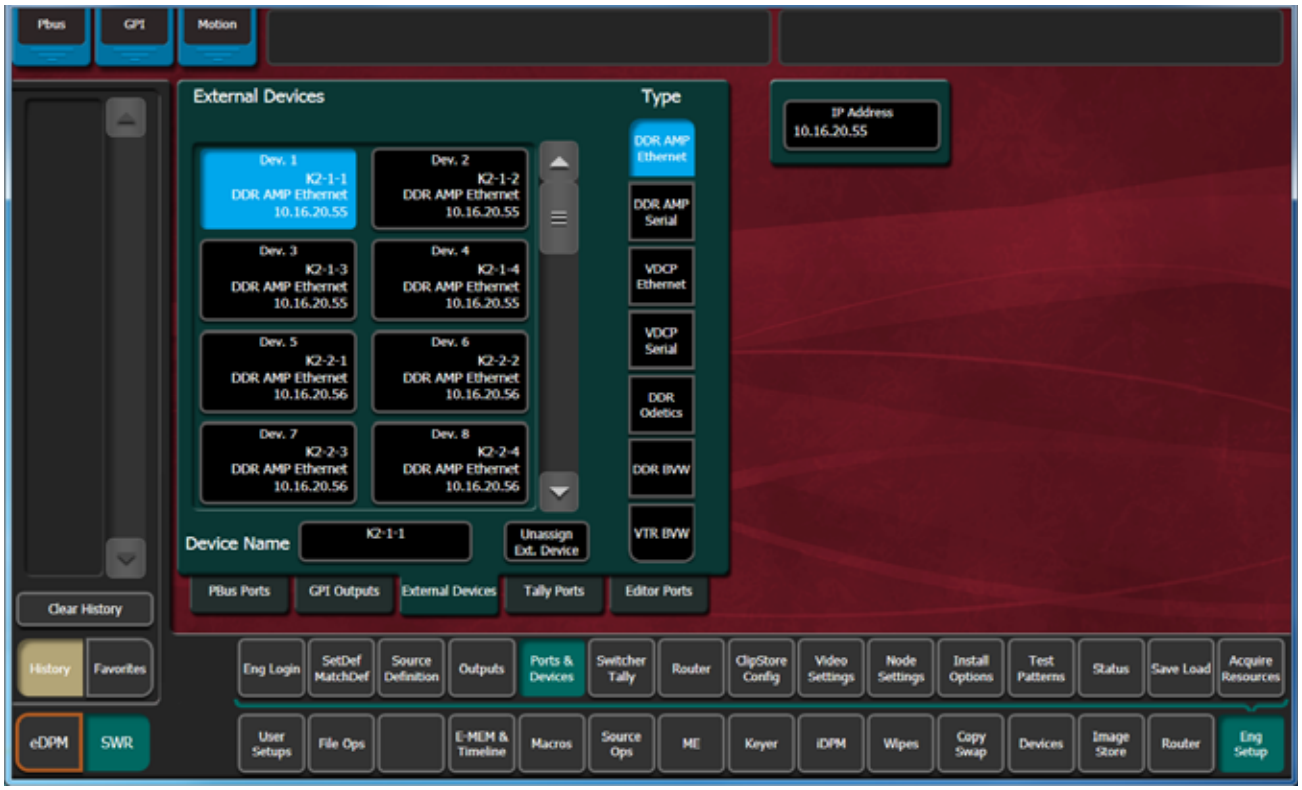


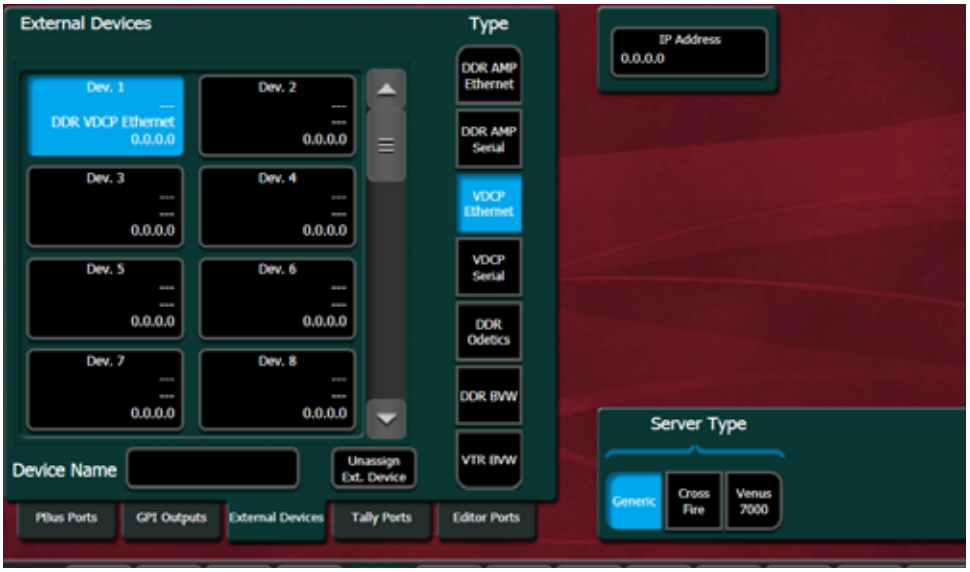
Figure 149. External Devices Menu, Ethernet Device



VDCP Ethernet

When VDCP Ethernet is selected, additional parameters are available.

Figure 150. External Devices Menu, with VDCP Ethernet Selected



Server Type

- Generic
- CrossFire
- Venus 7000

Name Length

- Variable
- Fixed

VDCP on Ethernet Configuration

For Ethernet VDCP, the user must specify the IP Address of the device they are connecting to, in the Eng Setups/Ports & Devices/External Devices menu.

When configuring a device to connect to the K-Frame with Ethernet VDCP, the device should be configured to use port 8000. The one exception to this is when the Server Type is CrossFire. When the Server Type is CrossFire, the device should be configured to use port 8000 plus the Device number. For example, if Device 7 in the External Devices menu is configured to use Ethernet VDCP with a server type of CrossFire, the CrossFire device should be configured to accept the connection on port 8007.

Device Definition

The Kayenne K-Frame system uses a software External Device Definition object to define the capabilities of each device interfaced with the system.

External Device Definitions contain the interface information required for that external device, (e.g., IP Address or Serial Port). Each Device Definition is given a unique name. Once a Device Definition has been created for a device (DDR, or VTR), it can be assigned to a source. That source then supports the specific capabilities of that external device. (PBus and GPI configurations are different, and are not associated with a particular source.)

Touching an already defined item in the scrolling External Devices list on the left brings up information for that device and delegates the rest of the menu to that object.

Device Name – Touching this button opens an alphanumeric keypad used to give the External Device a descriptive name. These names appear in the Control Panel System Bar and GV Switcher menus.

Note When configuring servers with multiple channels, the channel number must be appended to the device name with a - character, and the base name be the same for all channels on the same server (e.g. 'Vdr4-1', 'Vdr4-2', etc.).

Type – Chooses a control protocol for the currently selected device.

- For Ethernet devices, and IP address field is available for entering the IP address of the External Device (Figure 149).
- For serial control devices, touching a Port button on the right assigns the selected device to that port (Figure 149).

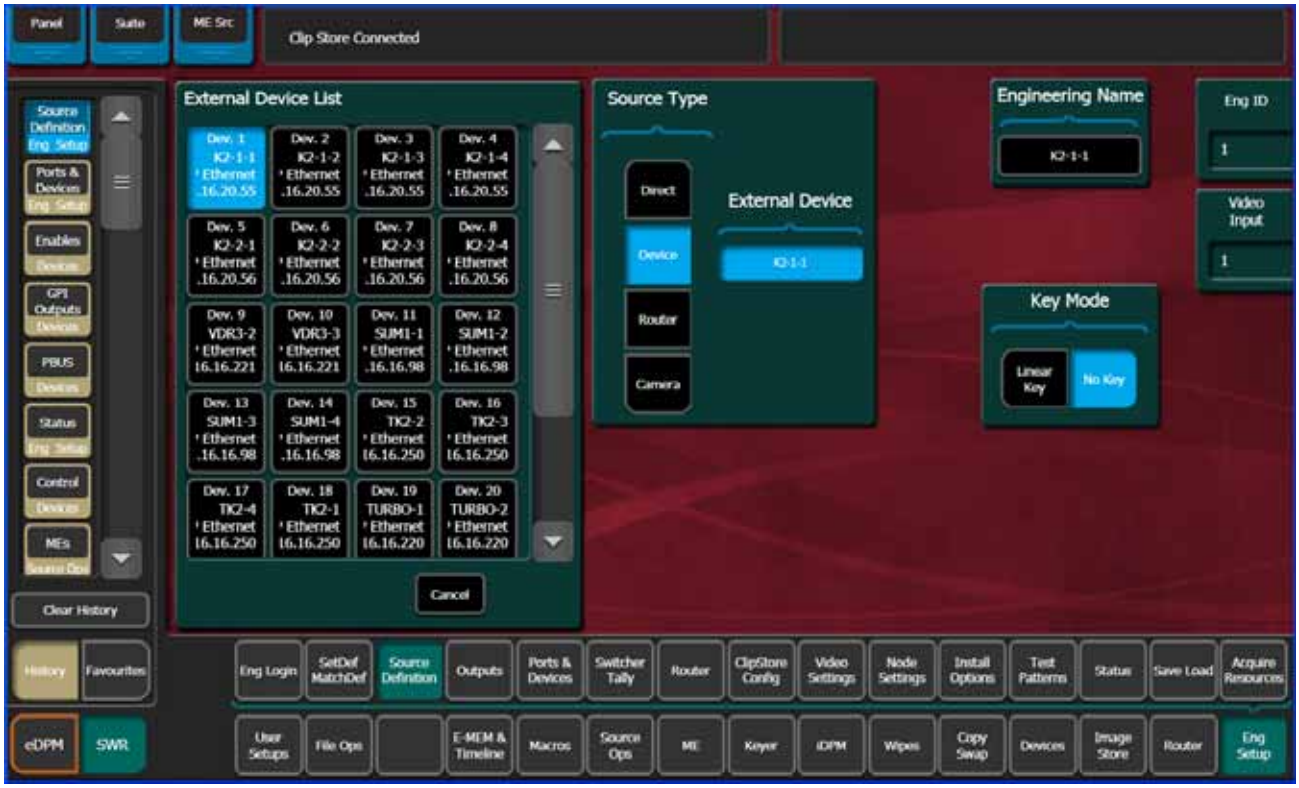
Unassign Ext. Device – Clears the definition of the selected item.

Creating an External Device Definition

1. Touch **Eng Setup**, **Ports & Devices**, **External Devices** to go to the External Device Definition menu.
2. Scroll through the list of devices on the left and select an available device.
3. Touch **Device Name** and enter a descriptive name for the External Device.
4. Choose the control protocol for that device from the **Type** list.
   - If an Ethernet protocol was selected, enter the IP address for the External Device.
   - If a serial protocol was selected, choose the port the device will use.

When External Device Definitions have been created, the Source Definition menu lists them when the **Device** Source Type has been selected and the **External Device** button is touched (Figure 151).

Figure 151. Source Definition Menu, Device Type Selected



Tally Ports

About Ethernet Tally

The K-Frame Video Production Center connects to tally systems using Ethernet. In the K-Frame Tally Ports menu, there are two configurable Ethernet Tally ports. Tally port configuration can vary depending on your needs, for example one tally port could be used for tally signal while the other is used for diagnostics. See the documentation that came with your tally system for more information.

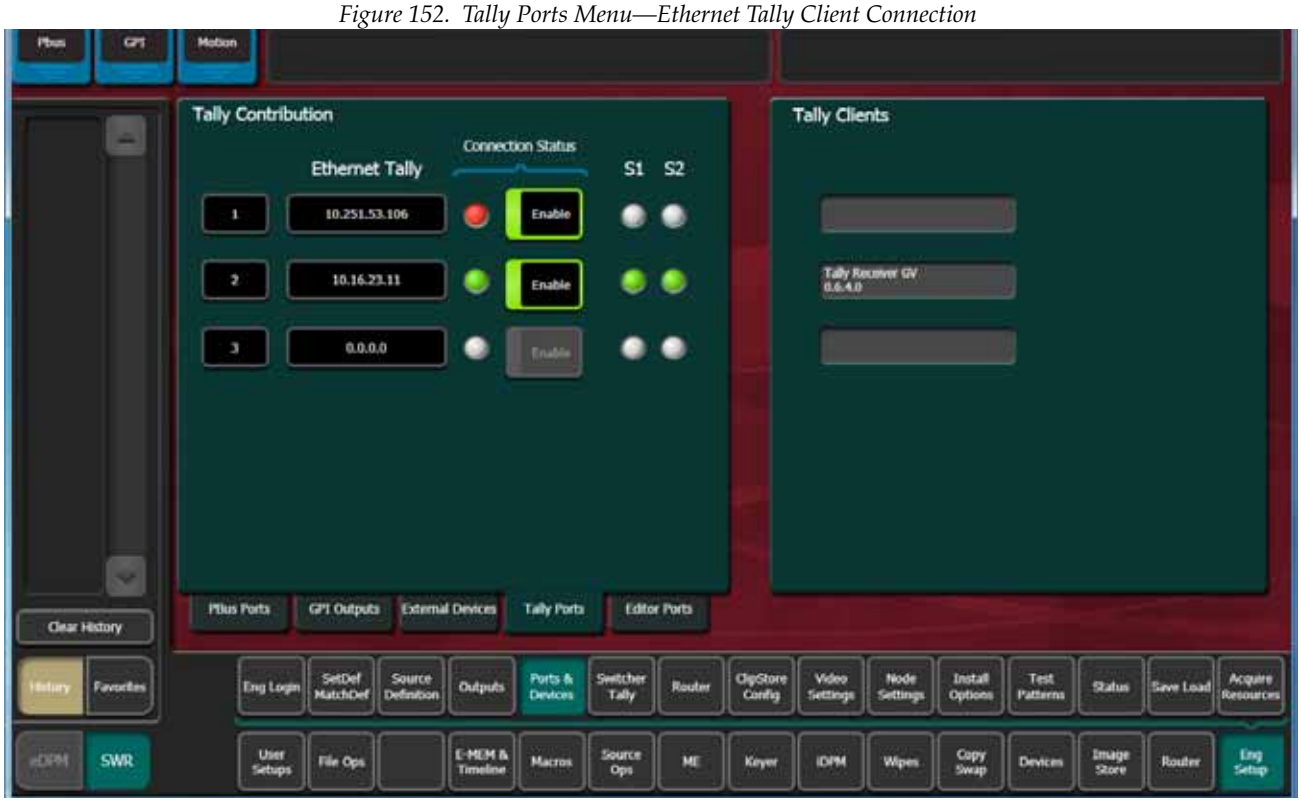
Additionally, tally is supported via GPO connections.

Note Serial tally is not supported for K-Frame systems due to the vast amount of data being transmitted.

Connecting Ethernet Tally

1. In the K-Frame menu, select Eng Setup, Ports & Devices, Tally Ports.

Figure 152. Tally Ports Menu—Ethernet Tally Client Connection

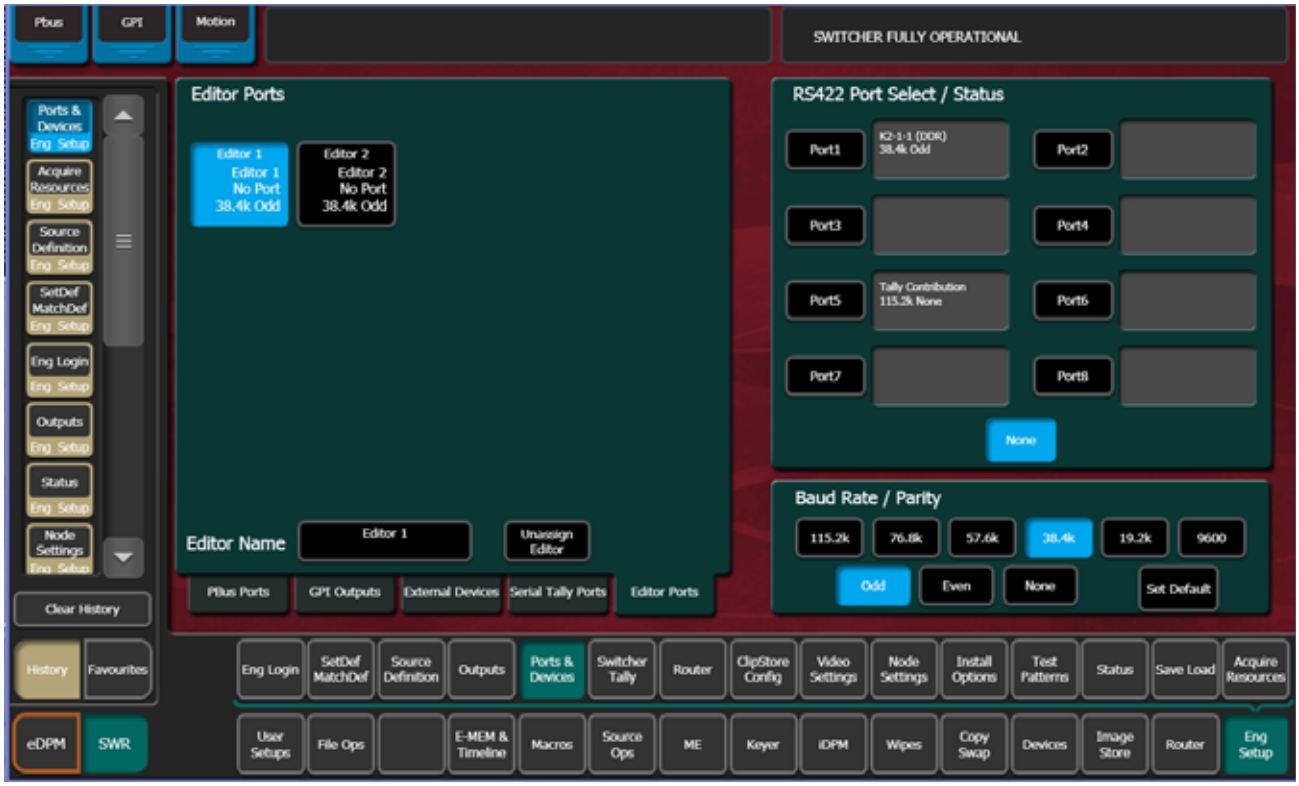


2. In one of the ports, select the IP Address data pad.
3. Enter the client IP Address in the pop-up keypad and select **Enter**.

See the separate *Grass Valley Switcher Protocols Manual* for technical information.

Editor Ports

Figure 153. Editor Ports Menu



Editor Ports – Two editor ports can be configured and assigned to the Kayenne K-Frame serial ports. Selecting an Editor button on the left delegates the rest of the menu to that item.

RS422 Port Select / Status – The button for the port currently assigned to the selected item will be highlighted. Touching **None** clears the port assignment.

Editor Name – Touching this button opens an alphanumeric keypad used to give the Editor a descriptive name.

Unassign Editor – Clears the selected serial port's assignment.

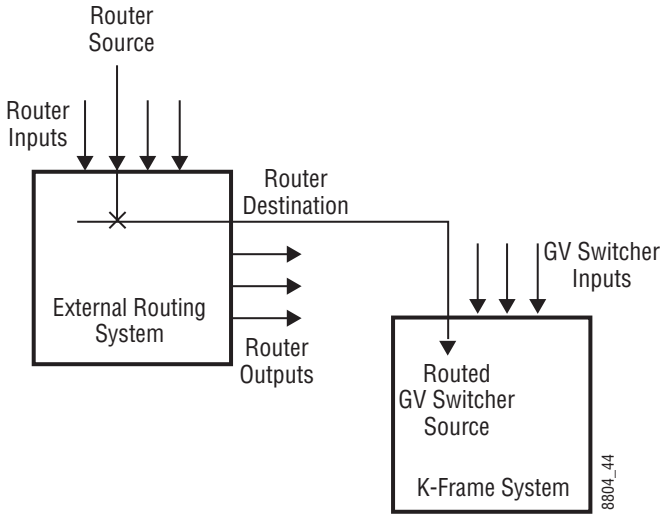
Baud Rate / Parity – Serial port settings are selected with these buttons. The **Set Default** button returns the settings to the Kayenne K-Frame factory defaults.

Router Interface

Introduction

The Kayenne K-Frame system can interface with an external routing system. A routing system connects a router source (router input) to a router destination (router output). Changing the router source sends a different signal to the destination (called a take). A router destination can in turn be connected to a Kayenne K-Frame input and be configured as a routed source (called switcher source in this discussion and in the GV Switcher menus). The router acts as a pre-selector for the switcher source, and so increases the number of inputs available to a button on a Kayenne K-Frame system bus (Figure 154).

Figure 154. Router Source, Router Destination, and Routed Switcher Source



An external routing system can be configured into levels, to allow the switching of multiple signals simultaneously. For example, video signals can be organized on one level, and key signals on another. By specifying both levels when giving a router take command, both the video and key signals of a source will be routed to their destinations.

Note K-Frame system router Take commands are only applied to all router levels.The external routing system's destinations must be configured with all router levels selected.

Router control panels can also protect router destinations from being changed by other control panels. A protected router destination cannot be changed by a different control panel, but may be changed by the panel that set the protection. Protections help prevent inappropriate router source changes. The Kayenne K-Frame system can be considered a type of router control panel, and so the system can protect router destinations. The

Kayenne K-Frame system router protect commands are applied to all router levels.

Features

- Interfaces to the Grass Valley SMS 7000, Encore, and other routing systems via Native protocol.
- Kayenne K-Frame system configuration of routed Kayenne K-Frame-sources.
- Names of router sources are shown on the Kayenne K-Frame Control Panel and Kayenne K-Frame Menu Panel displays.
- Router source selection control via the Kayenne K-Frame Control Panel and Kayenne K-Frame Menu Panel displays.
- Protection types (None, Protect, and On Air).

Router Interface Installation

Control Interface Cabling

Connect an Ethernet cable from a Kayenne K-Frame system Ethernet switch to the external routing system Ethernet network. The system can communicate with devices on different networks via a gateway router. If a gateway router is not used, the external routing system must be on the same subnet as the Kayenne K-Frame system.

Video Interface Cabling

Connect each external routing system destination to an available input connector on the Kayenne K-Frame Video Processor. You will need to know the input connector number used for each destination when you configure the Kayenne K-Frame source.

External Routing System Configuration

It is assumed the external routing system has already been configured for basic use in your facility, and only needs to be re-configured to interface with the Kayenne K-Frame system.

Configuring a GV Switcher Router

Setting IP Addresses

The Eng Setup Router menu is used to set the IP Address(es) the Kayenne K-Frame system will use to communicate to the external routing system. The external routing system can have an optional redundant, or secondary, controller which takes over should the primary fail. Both router control systems will require their own IP address settings.

Touch **Eng Setup**, **Router** selection button to go to this menu (Figure 155).

Figure 155. Eng Setup Router Menu

The **Status** indicator is red when communication is not detected, and goes green when communication is established.

To Set the IP Addresses:

1. Touch the **Primary IP** data pad and enter the primary address of the router with the pop-up keypad.
2. Touch the **Secondary IP** data pad and enter the secondary IP address of the router, if appropriate. If the router has only one control system, leave this address set to the blank default.

Note If the K-Frame system has been configured with a router IP address but a connection to the router has not been established, changing the IP address in this menu will not make the K-Frame system immediately try to connect to the new router address. The K-Frame system will automatically try to connect after about 30 seconds using the entered router IP addresses.

Primary and Secondary Router Communications

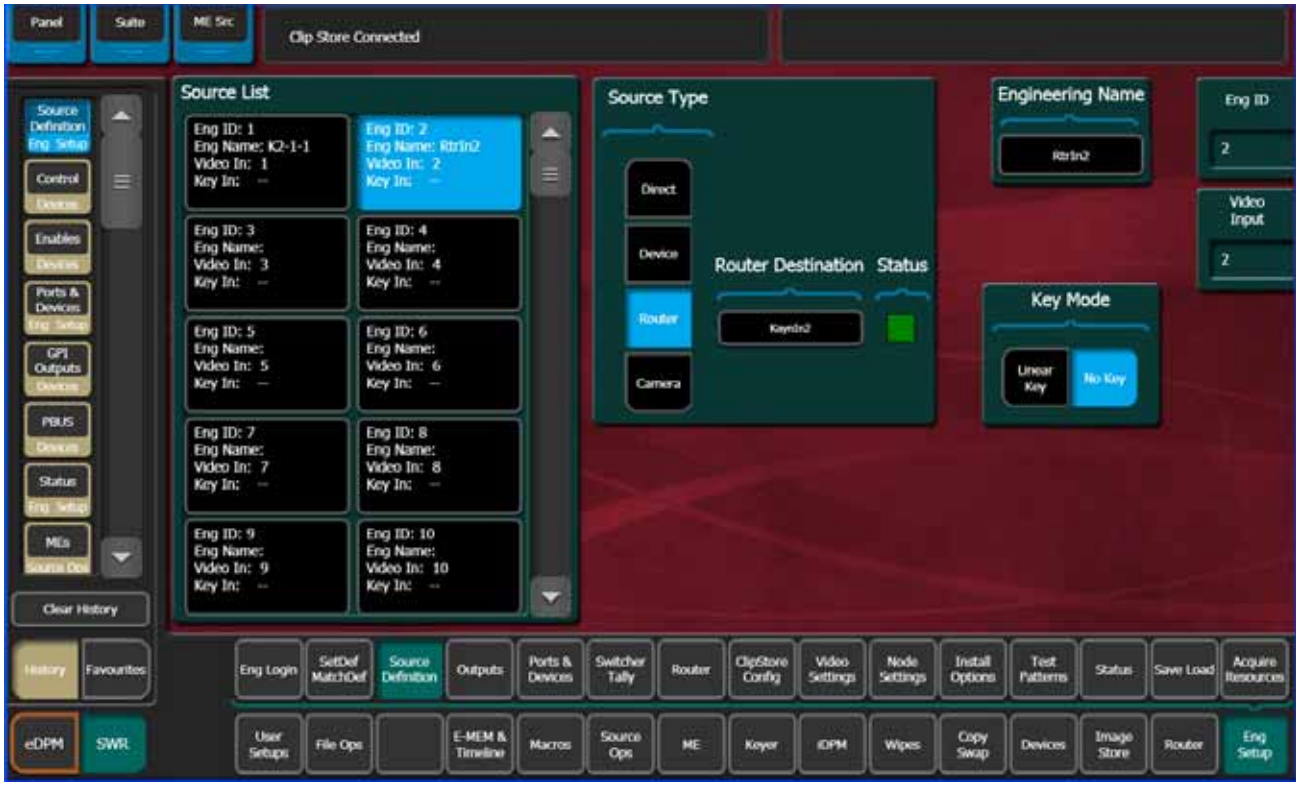
The Kayenne K-Frame system will initially use the primary router IP address for communications. If the primary control system fails to respond, the system will attempt to use the secondary IP address for router communications, and if successful will continue using it in the future. If communications then is lost to the secondary control system, the system will attempt to reestablish communications with the primary router control system.

Defining Routed Sources Definition

The Eng Setup Source Definition menu is used to define routed Kayenne K-Frame sources, which includes specifying which router destination will be associated with each switcher source.

1. Press the **Eng Setup** Menu panel button, then touch the **Source Definition** category selection button, to go to this menu (Figure 156).

Figure 156. Source Definition Menu



2. Select the source to be configured with the router on the left scrolling list.
3. Touch the Video Input data pad and enter the number of the input that will be used with the router video destination.
4. If the routed source will have an associated key signal, touch the appropriate Key Input button, then touch the Key Input data pad and enter the number of the input that will be used with the router key signal destination.

Note If you assign a key input, the router system needs to be configured to switch that key destination along with the video destination. Router levels can be used to accomplish this.

5. Touch the **Router** type button to identify it as a routed source.

Note The adjacent status indicator is green when a router is detected, and red when there is no response. If red, you should check the K-Frame or router system configuration or the physical Ethernet connections.

6. Touch the **Router Destination** data pad to open the Router Destinations menu. The K-Frame Video Processor receives a list of destination from the router and displays them on scrolling list on the left (Figure 157).

Figure 157. Router Destination Selection Menu

7. Touch the button for the desired destination to assign it to the previously selected router source.
8. Complete the source definition by entering an engineering name using the standard source definition procedure.

User Setups

Once a Kayenne K-Frame routed source has been defined, it can be mapped to source buttons using the standard button mapping procedure (User Prefs), and can be given alternate names (Suite Prefs, Source Patch menu).

Section 7

Maintenance

Introduction

This section provides routine maintenance information for servicing the Kayenne K-Frame Video Production Center.

Servicing Precautions

Before performing any type of Kayenne K-Frame system maintenance or troubleshooting, read the complete *Safety Summary* on page 15 at the front of this manual.

Grass Valley Web Site

Visit the Grass Valley website for documentation, software updates, online support (including FAQs), spare parts information, and a link to the File Transfer Protocol (FTP) site.

Grass Valley Customer Support FAQ Database

Answers to many common questions can be found by searching the Grass Valley Customer Support Frequently Asked Questions (FAQ) database, available on the Grass Valley web site.

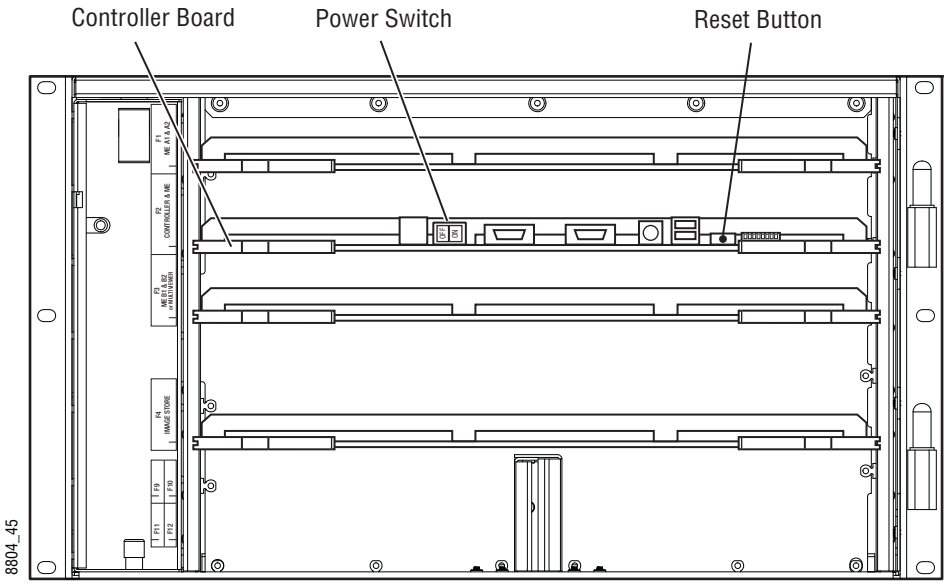
Reset Procedures

Video Processor Frame Reset

A Video Processor Frame reset button is located near the center of the front edge of the Controller Board, accessed by opening the front door of the

Frame (Figure 158). The 13-RU and 6-RU Frames use the same type of Controller Board. Pressing this button will reset both the Video Processor CPU and the Image Store Processor CPU. Powering the unit off and back on also resets the Video Processor Frame.

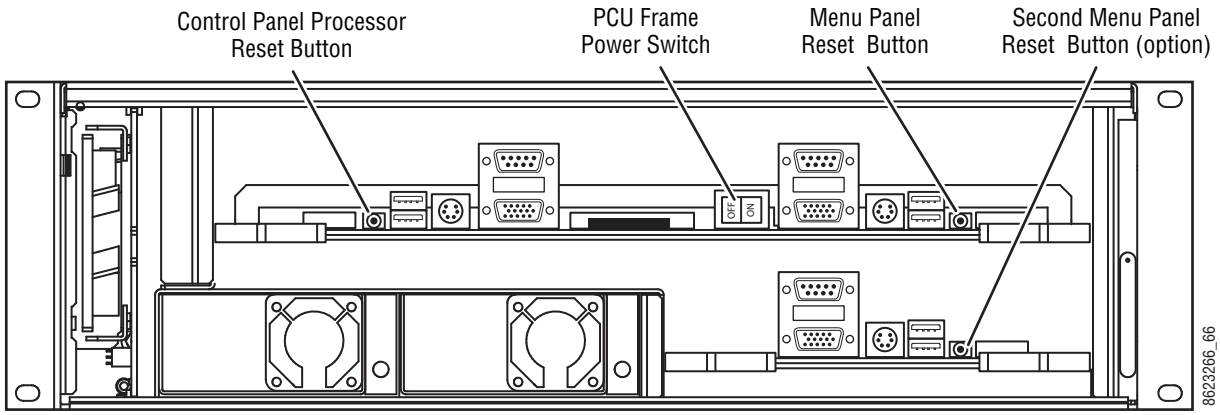
Figure 158. 6-RU Video Processor Frame Reset Button and Power Switch



Panel Control Unit (PCU)

The PCU has up to three reset buttons, one for the Control Panel Processor, one for the standard Menu Panel, and one for the optional second Menu Panel. These controls are accessible by opening the front door of the PCU Frame (Figure 159). Powering the unit off and back on also resets all installed components (Panel and Menus).

Figure 159. PCU Reset Buttons and Power Switch

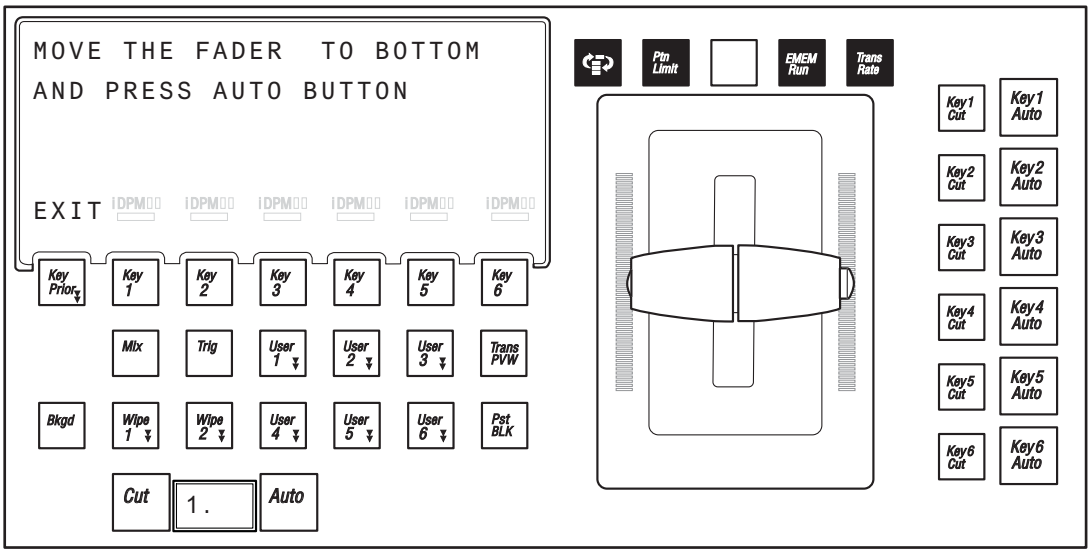


Control Panel Adjustments

Lever Arm Calibration

Press the **Exchange ME** (the left-most graphic symbol button over the Lever Arm), **Ptn Limit**, **EMem Run**, and T**rans Rate** buttons simultaneously (in any order) to enter calibration mode for that module (Figure 160). Follow the instructions displayed, moving the fader to the bottom and top limits and pressing the **Auto** button. When done, press the **Key Prior** button to exit calibration mode.

Figure 160. Button Hold Down for Lever Arm Calibration



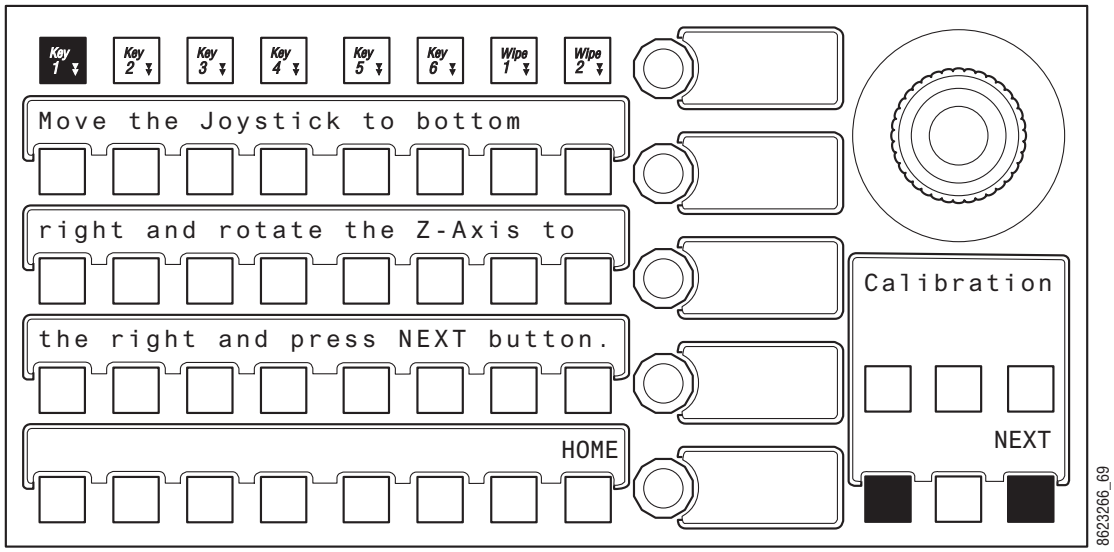
Calibration settings are saved with the module. Disconnecting, reconnecting, or moving the module to a different location on the Control Panel (including a different Stripe) should not affect the calibration for that module.

Joystick Calibration

If necessary, press the **Home** button to take the Multi-Function module to its Home state. Hold down the two bottom outside buttons below the Joystick and press the **Key 1** button on the upper left to put the module into Calibration mode (Figure 161). Follow the instructions displayed, rotating the Joystick and pressing the bottom right button labeled **NEXT**. At the end of the calibration procedure that button label changes to **END**. Pressing the **END** button completes the calibration and returns the module to its Home state.

Pressing the **Home** button at any time also takes the module back to the Home state, retaining the last calibration saved to the module.

Figure 161. Button Hold Down for Joystick Calibration



Calibration settings are saved with the module. Disconnecting, reconnecting, or moving the module to a different location on the Control Panel (including a different Stripe) should not affect the calibration for that module.

ME Stripe Mapping

The recommended PCU port to Stripe multi-pin cable connection order uses the following conventions:

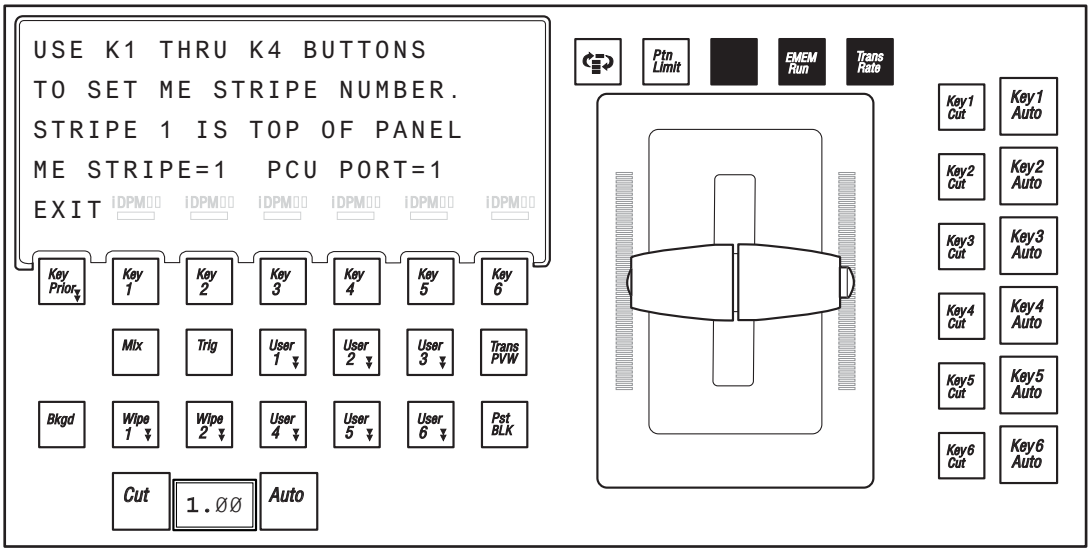
- Lowest PCU Port > Top ME Stripe (under Local Aux Stripe if present)
- Next PCU Port > Next lower ME Stripes in order
- Highest contiguous PCU Port > Local Aux Stripe
- Stripes in the same Suite should use contiguous PCU ports.

By following these cabling conventions, troubleshooting will be easier because the connections will be consistent.

It is possible to re-map ME Stripe to PCU port connections. This can be useful if an essential ME Stripe (for example, the one with the Multi-Function Module) fails due to a multi-pin cable problem. That essential ME Stripe can be re-assigned to a different PCU port that has an operational multi-pin cable, restoring Kayenne Control Panel operation.

To remap ME Stripes, on any Transition Module press the three right-most buttons over the Lever Arm at the same time to enter ME Stripe Mapping mode (Figure 162).

Figure 162. Button Hold Down for ME Stripe Mapping



On the ME Stripe you wish to remap, press a **Key 1** through **Key 6** button on the Transition Module in that Stripe to choose a PCU port for that Stripe. If that PCU port is used by another Stripe, it will be swapped.

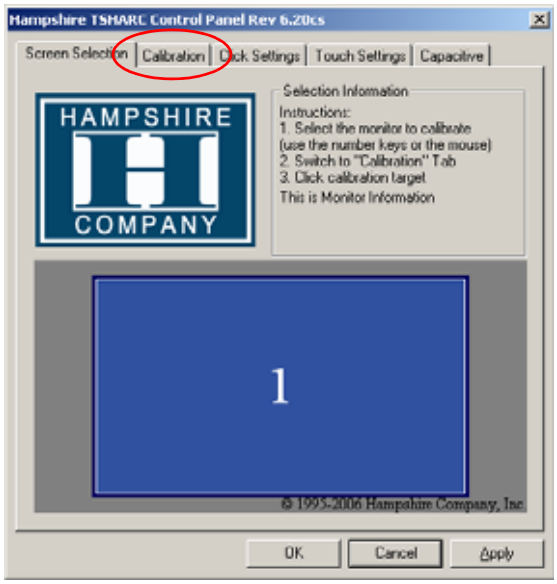
When the Stripes are remapped, press the button labeled EXIT (**Key Prior**). The display informs you that mapping changes take place after reboot, and a with a Reboot Now prompt appears. Pressing the button labeled YES will reboot the Panel.

Touchscreen Calibration

The Kayenne Touch Screen Menu Panel is adjusted in the factory before shipment, and so should not require calibration. If the Menu Panel does not respond correctly to screen touches, however, you can perform this procedure.

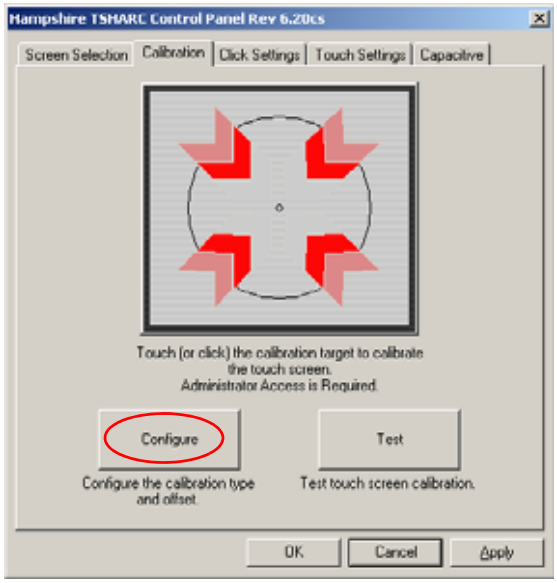
1. **Minimize** or **Exit** the Kayenne Menu application.
2. With the Windows desktop visible, click on **Start**/**Programs**/**Hampshire TSHARC Control Panel**. The Hampshire application will open (Figure 163).

Figure 163. Hampshire Calibration Application



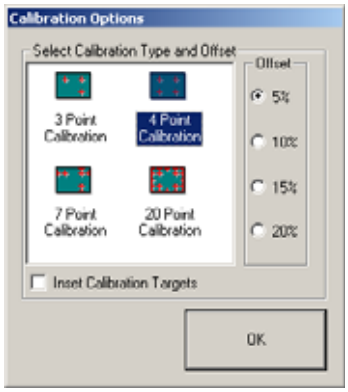
3. Select the second **Calibration** tab on the top (Figure 163) to open that menu screen (Figure 164).

Figure 164. Calibration Menu Screen



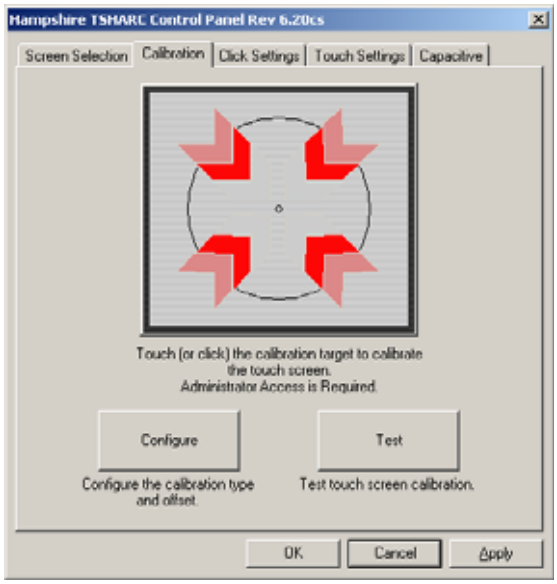
4. Touch **Configure** on the lower part of the screen (Figure 164) to open a menu for selecting the calibration type (Figure 165).

Figure 165. Calibration Type Selection



5. Touch **4 Point Calibration** and then **OK**. You will return to the Calibration Menu screen (Figure 166).

Figure 166. Calibration Menu Screen



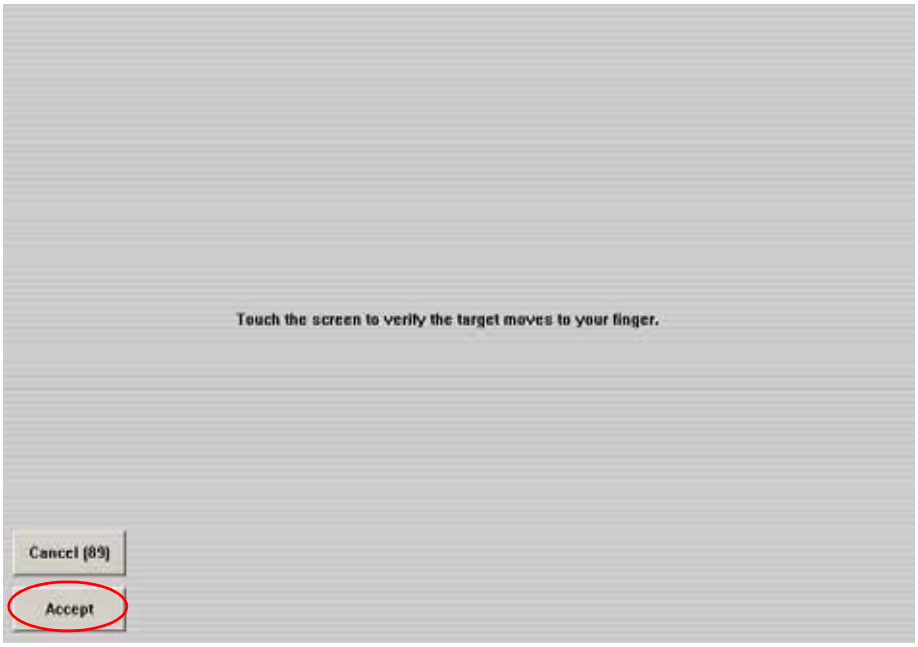
6. Start the calibration process by touching the center of the calibration box and circle where the red arrows are pointing (Figure 166).

Figure 167. Calibration Box

7. The Calibration Menu screen will then go away and a new calibration target circle will appear in a corner of the screen (Figure 167).

8. Touch and hold the dot in the center of the small calibration box. The screen will report **TOUCH**, then **HOLD**, and then **RELEASE**. When done the application will register the location and move the circle to another corner. Repeat for all four corners. A blank screen will then appear (Figure 168).

Figure 168. Touchscreen Calibration Final Confirmation Screen



9. Touch the screen to verify the calibration. A calibration circle will appear and follow your finger touch across the screen. If satisfied, touch the **Accept** button at the bottom of the screen to save the calibration.

The Calibration Menu screen then reappears. Touch **OK** at the bottom of the screen to exit the application.

Software Installation

Kayenne K-Frame systems are shipped with the current software version installed. Updates to GV Switcher system software are available for download from the Grass Valley website. Software installation tools are provided with each update package.

Refer to the separate *Kayenne/Karrera Release Notes* for complete software installation instructions.

Software Option Authorization

Introduction

Some Kayenne K-Frame system options have software components that can be enabled via an authorization process, using authorization codes. Authorization codes are also used for tracking maintenance contracts.

New Kayenne K-Frame systems ship with the appropriate authorization codes installed, enabling all purchased options. When new optional features become available, Grass Valley sends new authorization codes to the customers.

Authorization Codes

The authorization process involves receiving an authorization code from Grass Valley and entering it in a menu on the system. The authorization code is associated with a particular Kayenne K-Frame Video Processor, identified by a System ID#, and is not transferable to different hardware. If you have multiple systems at your facility, you will need to enter an authorization code onto each system.

Standard authorization codes (Permanent) apply to purchased options and maintenance contracts. Other authorization codes (Temporary) may also be available that can enable selected options for a limited time. Temporary authorizations can be used for trial demonstrations and other special purposes. Temporary authorizations add to any permanently enabled options, but these additional options are disabled after the allotted time elapses.

Expiration Dates

Maintenance contract and temporary authorizations have expiration dates. Messages will be posted on the GV Switcher menu when an expiration date approaches. Expirations occur at midnight, but do not immediately go into effect. Instead, any expired options continue to operate until the system is power cycled or reset, at which time the options are disabled. This is intended to prevent loss of functionality during on-air operations. Expiration of the maintenance portion of an authorization will not disable any options.

Authorization Procedure

Acquire Authorization Code

Grass Valley will be sending authorization codes to all Kayenne K-Frame system customers. If you have received your codes and the system IDs are correct, proceed to *Enter Permanent Authorization Code* on page 227. If you do not have valid authorization codes you will need to acquire them from the Grass Valley.

1. Go to the Install Options menu by touching **Eng Setup**, **Install Options** (Figure 169).

Figure 169. Install Options Menu

2. Write down the System ID displayed on the upper left portion of the menu.
3. If you have more than one system, repeat the above steps on every system that will have options enabled.
4. Contact Grass Valley Customer Support and request a code for each Kayenne K-Frame System ID. If options have not already been purchased, you can order the options directly from the service representative.

Enter Permanent Authorization Code

1. Go to the Install Options menu (**Eng Setup**/**Install Options**) on a Menu Panel of the system whose options you are enabling (Figure 169 on page 226). Confirm that the System ID on the menu matches the System ID# of the authorization code.
2. Touch the **Perm** button in the Option Group pane.
3. Touch the **New Auth Code for Perm** data pad and enter the code on the pop-up keypad.

Note System ID and Authorization Codes are alphanumeric and need to be entered exactly. Authorization codes do not use the letters “o” or “I” to avoid confusion with the numbers “0” and “1”. The dashes in authorization codes are required for use.

4. Touch the button labeled either **Replace** or **Install** next to the new authorization code. The codes will be added and the expiration date of any maintenance contract will be indicated. If you do not believe the option statuses reported are correct, contact Grass Valley Customer Support to resolve the issue.
5. If options were removed, reset the Video Processor Frame.

Note When an option is removed, it remains operational until the Video Processor Frame is reset or power cycled. When an option is added, it becomes operational immediately without requiring a Frame reset.

6. Write down the authorization codes, specifying which system they apply to, and store this information in a safe place, should you need to re-enter the codes at some time in the future.

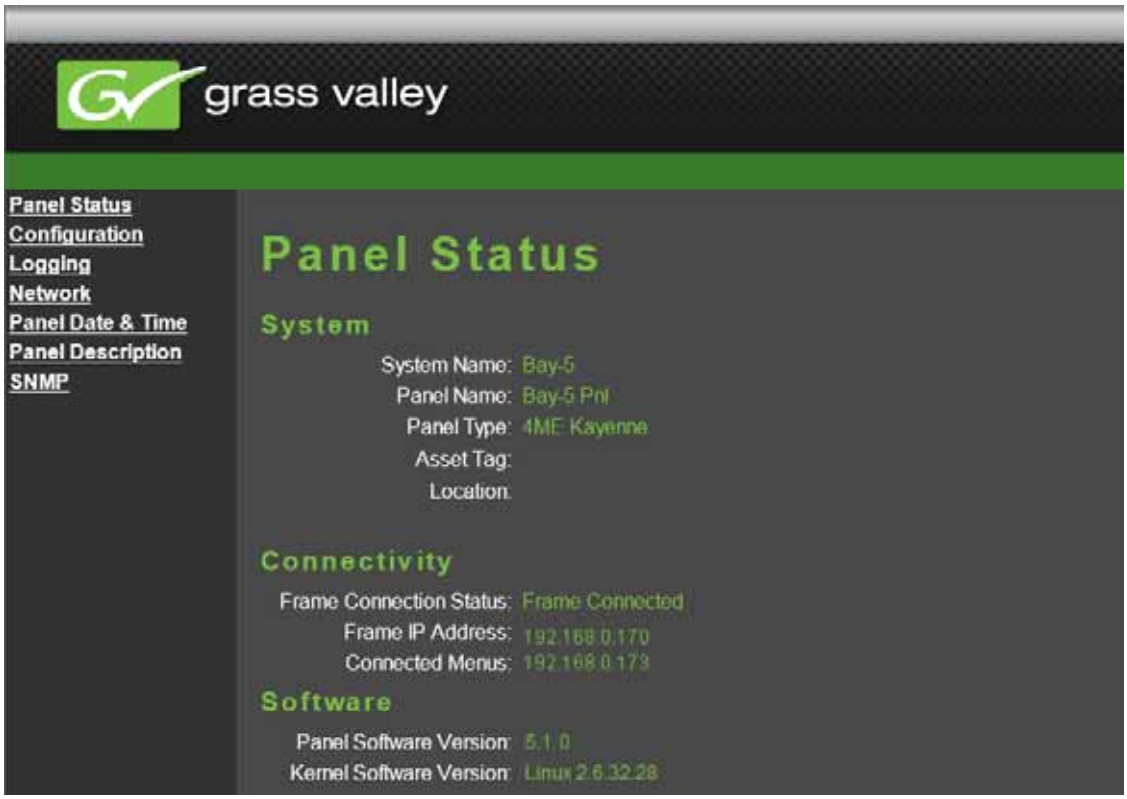
Temporary Authorizations

For demonstration or rental, optional features can be authorized temporarily. Once you have obtained the temporary authorization code, enter it on the Kayenne K-Frame system using the procedure described above, except you first select one of the **Temp** buttons. Temporary authorization information is displayed on the right portion of the menu. Up to four temporary authorizations are allowed at a time. Temporary authorization features that are removed remains active until the Video Processor Frame is reset.

Control Panel Webpages

Web browser access is available for the K-Frame Control Panels. Using any web browser able to access the network, type the IP address in the browser’s Address field to view the Control Panel web pages.

Figure 170. Control Panel Webpage, Panel Status



Control Panel NV Memory

The Control Panel circuitry has NV Memory, which stores some Control Panel configuration information, including:

- Macro Attachments
- Panel Memory

Some related panel settings can be saved as configuration files (Panel Prefs, Panel Memory), or as part of a Show file. Should Control Panel software problems occur, clearing the Control Panel NV memory may help with diagnostics and recovery.

Clear Control Panel NV Memory Procedure

Follow the same procedure for clearing the Video Processor Frame NV Memory (see *Clear VP Frame NV Memory Procedure* on page 230), but select the Control Panel in the hierarchy screen. After the Control Panel resets, restoring User and Panel Prefs and Panel Memory configuration files should restore the Control Panel to its previous operational state.

Control Panel IP Information

After a panel processor board replacement, the Video Processor Frame IP address will need to be re-entered into the Control Panel.

Menu Panel IP Information

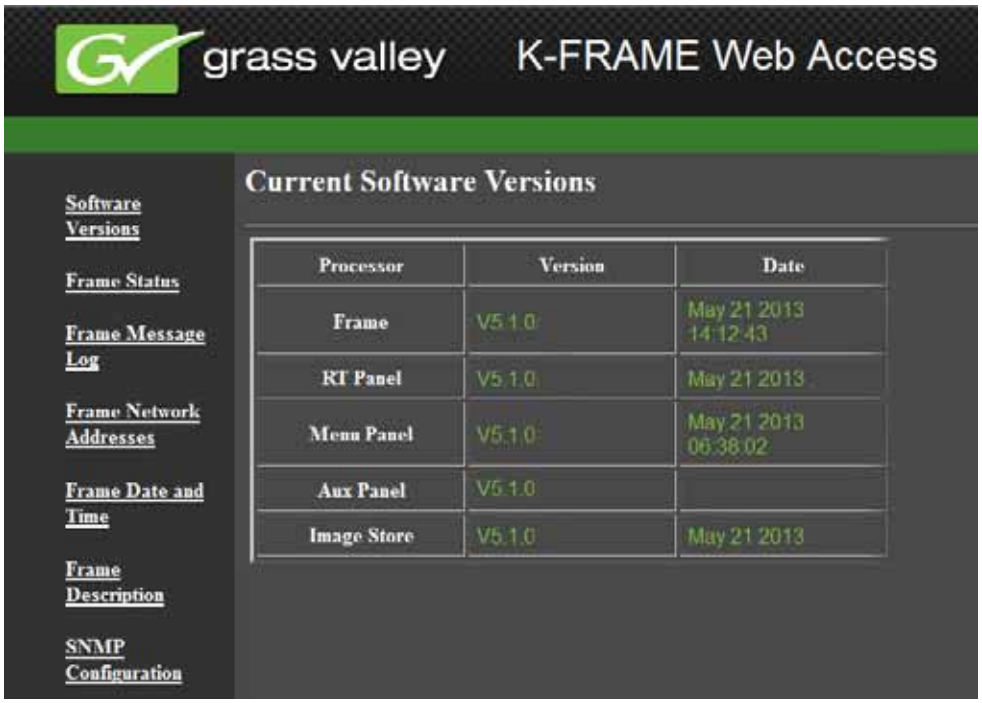
Replacing a Menu Panel processor will require resetting all Menu Panel IP addresses. This includes the actual Menu Panel IP addresses, as well as the addresses the Menu Panel uses to communicate with the Video Processor Frame and Control Panel (DPOPs).

Video Processor Frame Maintenance

Video Processor Frame Web Pages

Web browser access is available for the Kayenne K-Frame Video Processor. Using any web browser able to access the network, type the Video Processor Frame IP address in the browser's Address field to view the following web pages.

Figure 171. K-Frame Video Processor Frame, Current Software



Video Processor Frame NV Memory

K-Frame system non-volatile memory (NV Memory) contains Engineering, Suite, and User configuration data, and also has data for all the effects registers. This data is stored as files on the Video Processor Frame CF card, and is loaded on bootup. Errors in this data could cause system problems, which may be overcome, perhaps only temporarily, by clearing the NV Memory.

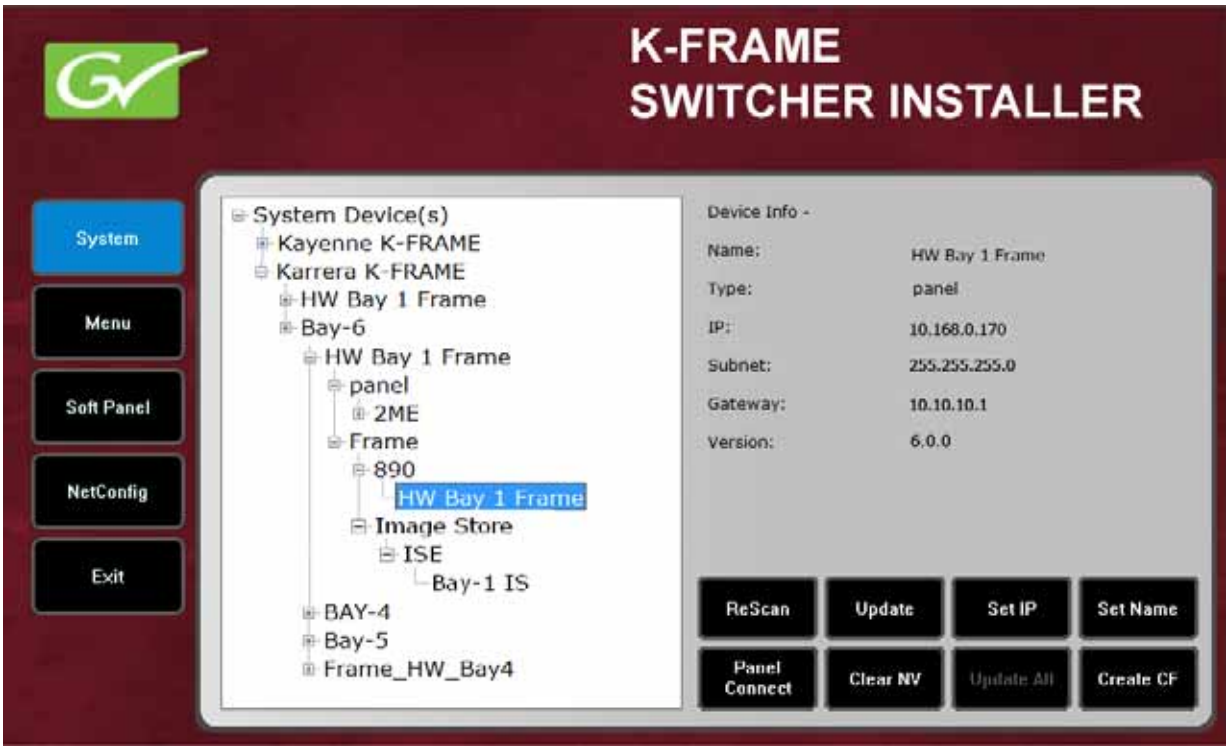
Note You should have backup copies of your configuration and EMEM files compatible with your current software version so they can be restored after the NV Memory is cleared.

Clear VP Frame NV Memory Procedure

Figure 172. Installer Icon

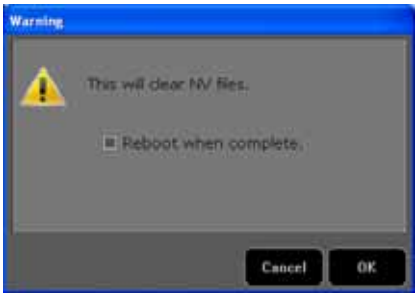
1. Launch the K-Frame Switcher Installer program via its desktop icon (Figure 172), or run the K_FrameInstaller.exe file included on the K-Frame Software USB stick.
2. Navigate to the Video Processor Frame whose NV Memory you wish to clear (Figure 173).

Figure 173. DIP 1 Reset K-Frame Selected



3. Click on the **Clear NV** button. The following Clear NV Files screen will appear (Figure 174).

Figure 174. Video Processor Frame



4. Leave the **Reboot when complete** box filled and click **OK**.
5. The Video Processor Frame's NV Memory will be cleared and the Frame will be rebooted.

Restore System Files

If you have a Show File with a set of standard Kayenne K-Frame system settings, you can load it now to restore your system to that state. However, if you are experiencing problems, you may want to reload the files individually to help find what might be causing problems.

1. For troubleshooting, restore your backup files in the following order:
   a. Reload your backup Engineering Setup file and make sure it is correct by, for example, checking that the proper source names appear in the Source Definition menu.
   b. Reload a Suite Prefs file and a User Setups file and check that these settings are correct.
   c. Load some EMEMs and run them to check that they operate correctly.
2. If there are any problems with any of the restored files, they may have become corrupted and need to be deleted and rebuilt. If a problem file locks the system, you may need to clear NV Memory again to restore system operation, but you will know what file is responsible. Contact Grass Valley Customer Support if you need troubleshooting assistance.

Restoring Multiple Suites

If your Kayenne K-Frame system is configured has multiple suites, each suite will have its own Suite Prefs file. Clearing Video Processor Frame NV Memory will both suites, so to restore the system completely you will need to reload Suite Prefs for each suite.

IP Address Information

Storing Video Processor Frame IP address information on the backplane of the Frame allows control processor board replacement without the need to enter the IP address of the Frame.

After control processor board replacement you will need to go to the Node Settings menus (**Eng Setup**, **Node Settings**) and re-enter Panel and Menu IP addresses (**Control Surfaces**), and Remote Aux information (**Remote Aux IP Network**)

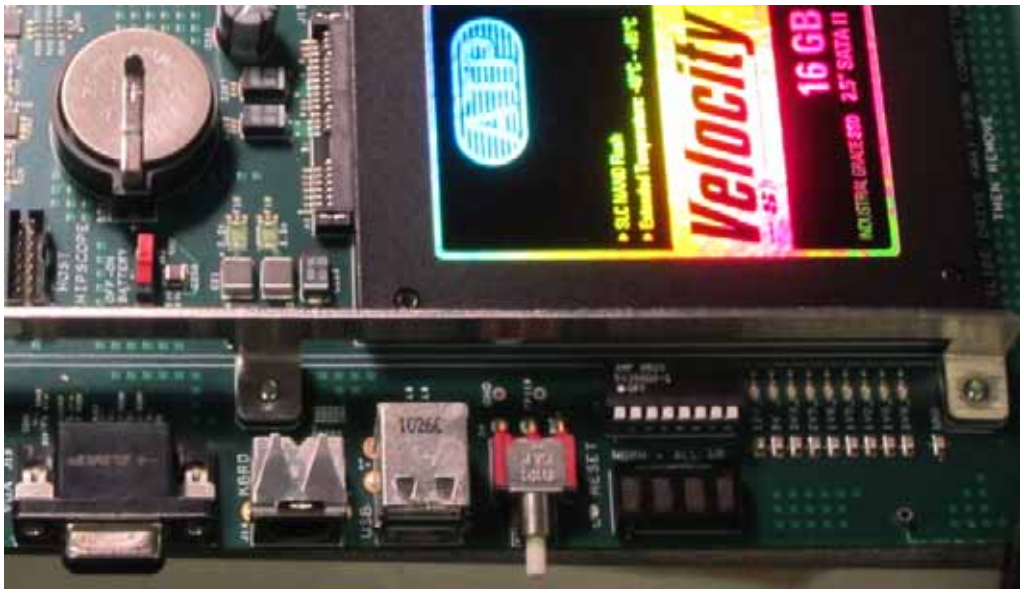
License Information

License information stored on the Video Processor Frame EEPROMS determine which features are available for use. Licensing is keyed to the serial number (System ID) for the K-Frame Video Processor.

VP Frame Processor Board Replacement

When replacing the K-Frame Video Processor Frame control processor board, in either the 6U or 13U K-Frame, verify that the S2 Boot Mode Dipswitch settings are all in the **UP** or **Normal** position. The dipswitch is located below the SATA drive on the control processor board, as shown in Figure 175.

Figure 175. K-Frame Control Processor Board - S2 Boot Mode Dipswitch Location



CAUTION If the Dipswitch settings are not in the UP or Normal position, the system may not boot.

Lifetime of the Internal Battery

Battery life of the K-Frame Video Processor internal battery is dependent on the operating time of the switcher.

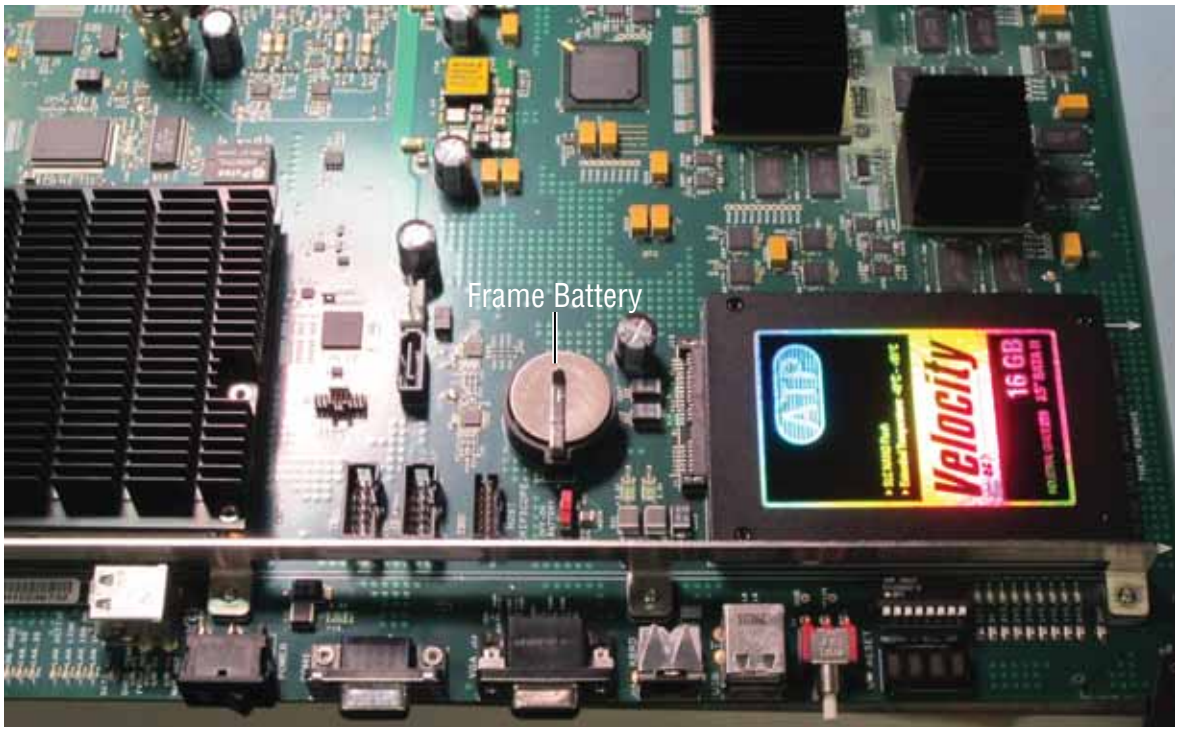
Table 17. Lifetime of the Internal Battery

Capacity	GV #	Type
1000 mA/h	146013800	CR 2477

Video Processor Frame Battery Replacement

1. Turn off all power to the Frame before opening it.
2. Using a grounding strap, open the door to the Video Processor Frame and remove the Controller Board.
3. Remove the old battery by lifting the clip holding it in place.

Figure 176. Video Processor Frame Controller Board with Battery Indicated



4. Put the new battery in place and secure the clip.
5. Re-insert the frame controller board and close the frame door.

Control Panel NV Memory

The Kayenne Control Panel control circuitry (located in the PCU Frame) has NV Memory, which stores some Control Panel configuration information, including:

- Workplace settings (for suite and control surfaces)
- System Bar Delegation
- User Colors
- Macro Attachments
- Panel Memory

Some of these settings can be saved as configuration files (Panel Prefs, Panel Memory), or as part of a Show file. Should Control Panel software problems occur, clearing the Control Panel NV memory may help with diagnostics and recovery.

Clear Control Panel NV Memory Procedure

Follow the same procedure for clearing the Video Processor Frame NV Memory, but select the Control Panel in the hierarchy screen. After the Control Panel resets, restoring User and Panel Prefs and Panel Memory configuration files should restore the Control Panel to its previous operational state.

Restoring Multiple Control Panels

If your Kayenne system has multiple Control Panels connected to the same PCU Frame, the Clear NV process will clear settings for all the connected panels. Because separate Panel Prefs exist for each Control Panel, you will need to restore each Control Panel's configuration files individually.

Control Panel IP Information

The Video Processor Frame IP address will need to be re-entered, either using the Kayenne Installer program, or on the Control Panel using the Multi Function Module.

Menu Panel IP Information

Menu Panel IP information is not stored on the PCU EEPROMS. This information resides on each Menu Panel processor, using standard Windows OS methods. Replacing a PCU processor board, or Menu Panel option board,

will require resetting all Menu Panel IP addresses. This includes the actual Menu Panel IP addresses, as well as the addresses the Menu Panel uses to communicate with the Video Processor Frame and Control Panel (DPOPs).

Control Panel System Bar Maintenance

The System Bar is only present on the Control Panel Pgm Pst Stripe. On larger Control Panels the System Bar has two main parts. The right active part is called the System Bar, and the left part is called the Extended System Bar. On 35 button Kayenne systems an additional System Bar blank panel is used.

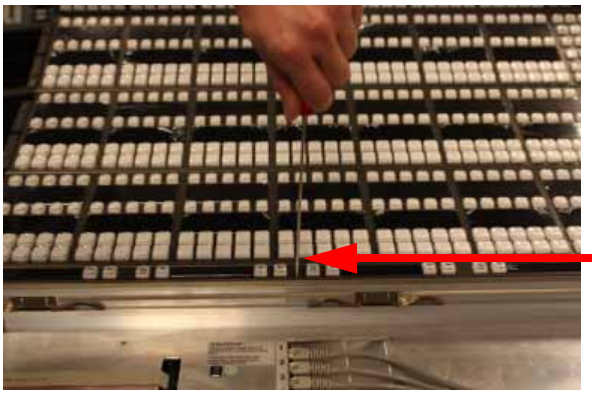
The right System Bar has a socketed electrical connector inside the tray. The left Extended System Bar uses a flat ribbon cable.

Removing the System Bar

Each active System Bar part is fixed to the tray with one hex screw recessed into the top surface of the part. A 2.5 mm hexagonal driver (Allen wrench) is used for removal. This tool is provided with the Control Panel. The blank panel is held in place with a single crosshead Phillips screw located underneath, but lacking active components it will probably never need to be removed.

1. Insert the driver and turn the hex screw counter clockwise. As the screw is turned the System Bar part will lift up because it is spring loaded (Figure 177).

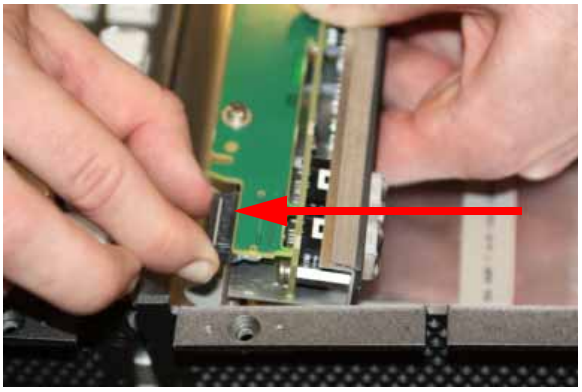
Figure 177. Unscrewing the System Bar



2. The right System Bar will disengage from its socket as it is unscrewed. Once it is completely unthreaded it can be lifted out of the tray. You may need to tilt it to a flat, horizontal position to allow clearance for removal.

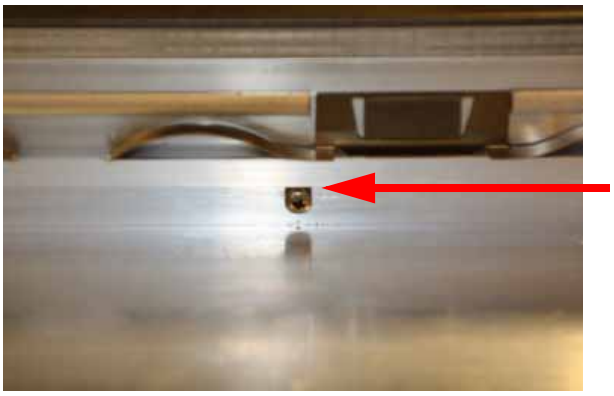
3. After unscrewing the left Extended System Bar and lifting it out of the tray, the flat cable on the left will need to be removed. Press the push clamps on the plug to connect or disconnect the plug (Figure 178).

Figure 178. Extended System Bar Cable Removal



4. Should the blank panel need to be removed, you must first take out the module below it in the Pgm Pst tray to access a crosshead Phillips screw (Figure 179).

Figure 179. System Bar Blank Panel Screw



Replacing the System Bar

1. Align the System Bar horizontally (Figure 180) and screw it into place using the provided hex tool. Do not push down on the screw. The module pulls itself into the plug while the screw is tightened.

Figure 180. Aligning the System Bar for Replacement

2. On larger Control Panels, connect the flat ribbon cable to the Extended System Bar, align it horizontally and screw it into place as above.
3. If the blank panel needs to be replaced, you will need to hold the blank panel parts in place so the screw holes are aligned before threading the screw.

Diagnostics

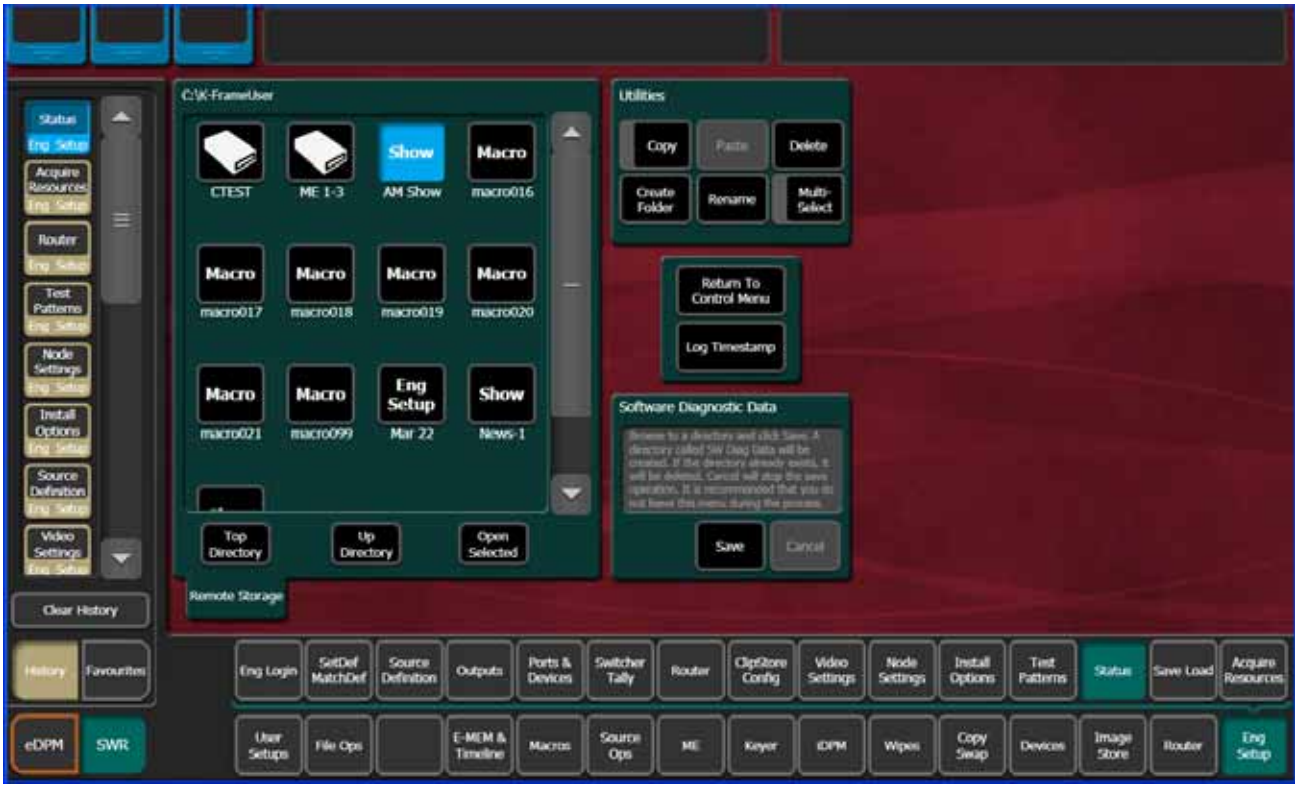
Capture Software Diagnostic Data

Software diagnostic data can be captured on a K-Frame Video Processor. This information can be useful to Grass Valley engineers for trouble-shooting purposes. Typically this procedure is only used when the system is experiencing problems, and is done after a Video Processor Frame reboot.

Note During the diagnostic data capture the K-Frame system may remain functional, but system operation is not recommended at this time. Leave the Software Diagnostic menu displayed and monitor the file save process shown at the top of the menu to allow optimum information collection.

1. Touch the **Capture Software Diagnostic Data** button located on the Status menu (accessed via **Eng Setup**, **Status**). A file browser window will open (Figure 181).

Figure 181. Software Diagnostics Data Capture Menu



2. After selecting the destination for the files in the left pane, press the **Save** button to initiates the file copy process. A SW Diag Data directory will be created (or overwritten if on already exists) containing GV Switcher system data. The time required to transfer the files varies depending on the amount of data being saved, and may take several minutes.

3. After the files have been copied, the entire contents of the directory should be compressed into a .zip archive. Grass Valley Customer Support can provide instructions on how to send this information to the GV engineering team for analysis.

Control Panel Module Diagnostics

On Control Panels, boot information/diagnostic is shown on the left most character display of every panel board. This information (Table 18) is

immediately visible after a power cycle and present until the application software writes the first data to the character displays

Table 18. Control Panel Board Boot Display Codes

Digit				
3	**2**	**1**	**0**	Digit Zero shows the link and FPGA boot status
			*	1. Module interface link is working (normal/default). 2. FPGA was loaded over application area (normal/default).
			+	1. Module interface link is working (normal/default). 2. FPGA was loaded over factory area: application area damaged, reprogramming necessary.
				1. Module interface link is not working: link should come up after 1-3 seconds, if not there may be a hardware problem. 2. FPGA was loaded over application area (normal/default).
			!	1. Module interface link is not working: link should come up after 1-3 seconds, if not there may be a hardware problem. 2. FPGA was loaded over factory area: application area damaged, reprogramming necessary!.
		Digit 1 shows the lower number of the FPGA firmware version.		
	Digit 2 shows the middle number of the FGPA firmware version.			
Digit 3 shows the upper number of the FPGA firmware version. (X1 always shows "!" to see the difference to the released versions).				

Example codes are shows in Table 19

Table 19. Control Panel Module Boot Display Codes Examples

Digit				
0	**3**	**7**	*****	1. Module interface link is working (normal/default). 2. FPGA was loaded over application area (normal/default). 3. FPGA firmware version is 037 (DS1281.037).
0	**3**	**7**	**+**	1. Module interface link is working (normal/default). 2. FPGA was loaded over factory area: application area damaged, reprogramming necessary. 3. FPGA firmware version is 037 (DS1281.037).
0	**3**	**7**		1. Module interface link is not working: link should come up after 1-3 seconds, if not there may be a hardware problem. 2. FPGA was loaded over application area (normal/default). 3. FPGA firmware version is 037 (DS1281.037).
0	**3**	**7**	**!**	1. Module interface link is not working: link should come up after 1-3 seconds, if not there may be a hardware problem. 2. FPGA was loaded over factory area --> application area damaged, reprogramming necessary. 3. FPGA firmware version is 038 (DS1281.038).
!	**3**	**5**	*****	1. Module interface link is working (normal/default). 2. FPGA was loaded over factory area because X1 doesn't have a application area (normal/default). 3. FPGA firmware version is X1 and 35 (DS5831.035).
!	**3**	**5**		1. Module interface link is not working: link should come up after 1-3 seconds, if not there may be a hardware problem. 2. FPGA was loaded over factory area because X1 doesn't have a application area (normal/default). 3. FPGA firmware version is X1 and 35 (DS5831.038).

Creating Compact Flash Cards

The Control Panels each use their own specially formatted and partitioned Compact Flash (CF) card. The system cannot use blank CF cards directly formatted by a PC or other device.

The K-Frame Switcher Installer program is used to format, partition, and load boot files onto system CF cards. Once prepared in this manner, the appropriate GV Switcher software (Control Panel) will need to be installed

onto each card. System configuration information will also need to be reloaded and/or re-entered after CF card replacement to restore normal system operation.

Materials Required

To format a K-Frame Control Panel CF card you will need:

- A CF card reader/writer (USB 2.0 recommended),
- PC, or Menu Panel equipped with a mouse and keyboard,
- K-Frame Switcher Installer application program deployed onto the PC or Menu Panel, and
- GV Switcher release software.

After creating new CF cards, you will need the following to restore your system to full operation:

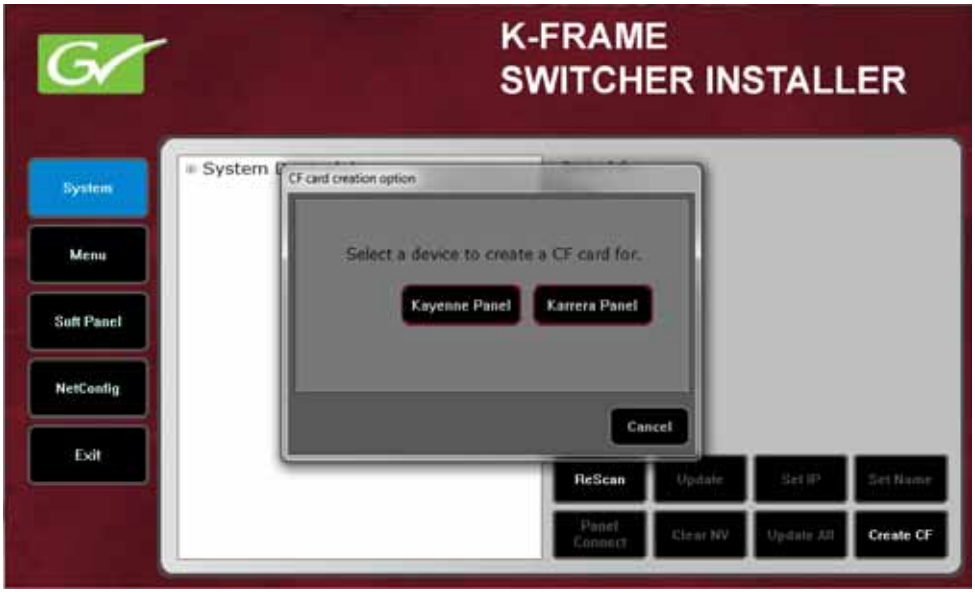
- Backup system configuration files (a Show file, or a set of Eng Setups and User Setups files), and
- Node Settings information (IP addresses and names of all system components). This may be written notes, screen shots, or a spread sheet. This information is not saved to configuration files.

CF Card Formatting Procedure

1. Connect the CF card reader/writer to the USB port of the PC or Menu Panel and insert the CF card into the reader/writer.
2. Launch the K-Frame Switcher Installer program.

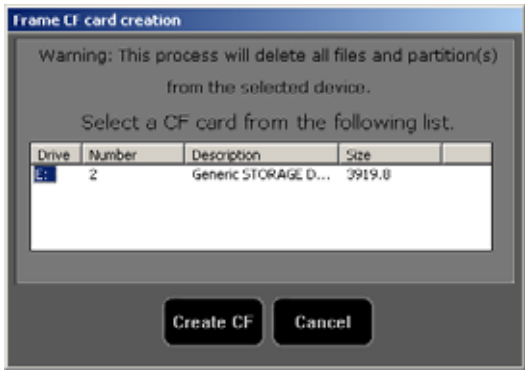
3. Select **System**, click on the **Create CF** button, and choose the CF card type, either **Kayenne Panel** or **Karrera Panel** (Figure 184).

Figure 182. K-Frame Installer, Create CF Card Screen



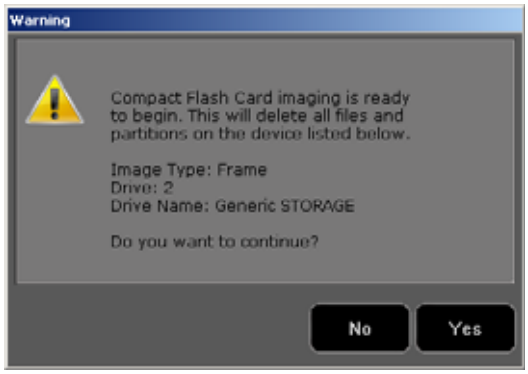
4. A DOS window will start, and then a separate window opens asking for the CF card location (D, E, F etc.) with the memory size of the device. Choose the correct device (CF card) to format. Even if only one CF card is present, you may still need to choose it on the list (Figure 183).

Figure 183. K-Frame Switcher Installer, Select CF Card Screen



5. Click **Create CF**. The following screen will appear (Figure 184)

Figure 184. K-Frame Installer, Format CF Card Screen

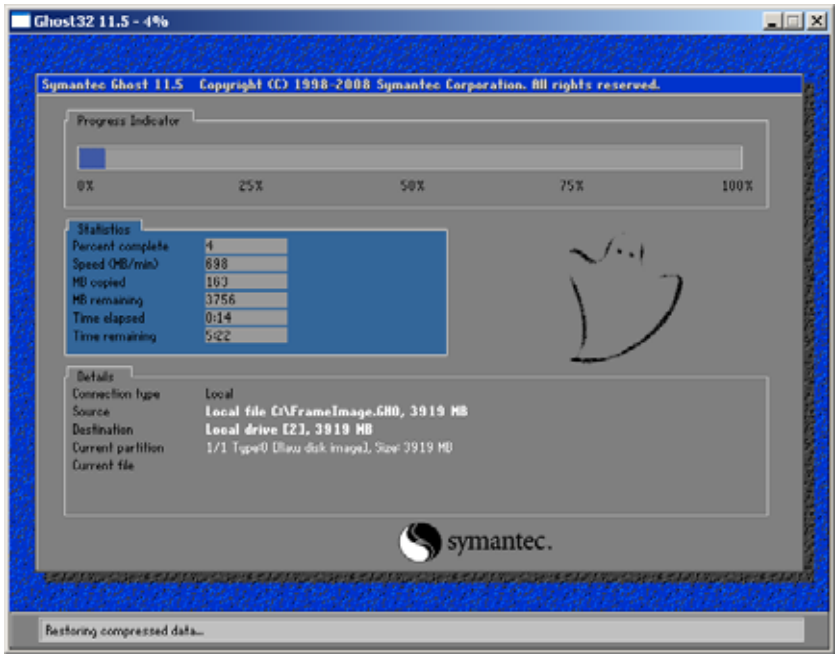


CAUTION Any existing files or partitions on the CF card will be deleted.

6. Click **Yes**. A new Ghost application screen appears that reports the progress of the formatting (Figure 185). The process can take 8 to 20 minutes to fully erase, format, test and partition the CF card.

Note For Control Panel CF cards, though the progress bar reaches 100% a couple more minutes are still required to complete the process. During this time **Configuring operating system disk layout…** is reported at the bottom of the screen.

Figure 185. K-Frame Installer, Format CF Card Screen



Note Additional formatting time may be required (perhaps more than an hour) if an older USB 1.1 port or slow reader/writer device is used.

7. When finished, the Ghost window will close by itself.
   - A VP Frame CF card will now contain a set of files making it a SWUP bootable image. These files can be seen by the Windows OS.
   - The Control Panel CF card now has a Linux O/S that can boot the Control Panel. These files are not visible to the Windows OS.

CAUTION Do Not format CF cards using Windows.

Neither CF card contains Kayenne K-Frame release software yet. Proceed with the appropriate update process described below.

Updating System Software on a New Control Panel CF Card

1. Remove the CF card from the reader, power down the Control Panel, install the CF card in the Control Panel's processor, and power up the panel.
2. Follow the normal software update process, except the Control Panel will be identified as **Unknown / Panel** in the K-Frame Switcher Installer application program hierarchy.

Restore Control Panel Configuration Files

After installing the K-Frame release software, you can now reload a Show file containing the Eng Setups and User Setups for your system, or reload these configuration files individually.

You will also need to enter the Node Settings information. Go to **Eng Setup**, **Nodes Settings**, and enter the IP address and device name information in the **Control Surfaces** and **Frame Suite Nodes & ID** tabs.

SNMP Monitoring

Introduction

Simple Network Management Protocol (SNMP) is an industry standard mechanism for monitoring devices over a network, primarily intended to support service and maintenance activity. With SNMP, devices can be interrogated about the current status of specific device components (reported as values), and devices can report without prompting (traps) certain conditions that may require immediate attention.

An SNMP system consists of one or more Managed Devices, each of which has an Agent (software running as a daemon on that device), and a Network Management System (NMS). The NMS is a software application running on a computer that communicates with the Agents over the network. The information exchanged is determined by a Management Information Base (MIB) database file. The MIB defines the structure and content of the variables that are available as data for monitoring and reporting. A Community Name is also used as a rudimentary security measure, acting as a password to enable communications with the Agent.

For example, a Managed Device may have a cooling fan and thermocouple. The MIB may define a variable for the thermocouple readout, and a request for this data can be sent from the NMS to the Agent, which will reply (if the community name matches) with the current temperature value. The MIB may also define a Trap that reports a fan failure. Should the device's fan stop working, the Agent sends an unprompted message to the NMS. The NMS can be configured to respond to that Trap message, and may have the capability to alert maintenance staff of the problem, via an automatic email message or by triggering a warning alarm.

SNMP is an optional feature for Grass Valley switchers, and requires the purchase and entry of a license key.

SNMP is an industry standard, however, any third party NMS can be used. For third party NMS installation & configuration, please contact your SNMP NMS software vendor.

Grass Valley switchers comply with the following SNMP standards:

Table 20. SNMP Standards Supported

RFC 1155	Structure and Identification of Management for TCP/IP-based Internets
RFC 1157	SNMP v1
RFC 1901-1907	SNMP v2c
RFC 1213	MIB II
RFC 1215	Convention for defining traps for use with the SNMP

The Grass Valley switcher MIBs are available from Grass Valley Customer Support. Load the MIBs for the Video Processor Frame and Control Panel as shown in Table 21.

Table 21. Grass Valley Proprietary MIBs

MIB	Description	Video Processor Frame	Control Panel
gvg-reg	last updated "200402190000Z"	X	X
gvg-element	last updated "200503230000Z"	X	X
gvg-gcp	last updated "200503240000Z"		X
gvg-vsm	last updated "201304260000Z"	X	

Grass Valley Switcher Device Monitoring by SNMP

Grass Valley switchers support monitoring of the devices and device components shown in the following tables.

Note Only the capabilities described in this document are supported. For detailed information about each supported item, please refer to the MIBs.

Video Processor Frame

Table 22. Supported K-Frame Video Processor SNMP Monitoring

System Information	High level information regarding the Video Processor Frame including operating system, name, location, serial number, software revision and high level frame state.
Module	Each plug in board slot in the Frame is a module (Controller, ME or eDPM). Information is provided regarding the board plugged into the slot and the current state of the slot.
Power Supply (Up to 3)	Reports power failure if a power supply fails or is not present.
Thermal	High level temperature and fan status for the entire system. If a failure is reported here then look at Fans or Temperature Sensor categories for details.
Fans	Detailed speed and status for each fan in the frame. Five fans are on the compact frame and one fan in the standard frame. Typically inspected if Thermal category is reporting a cooling problem.
Temperature Sensors	Detailed information from each monitored temperature sensor on the Frame. Typically inspected if Thermal category is reporting a cooling problem.
Video Sync	Status of external video reference signal and what type of signal is present.
Network Configuration Data	IP address, Gateway and Netmask settings for external facing network interfaces.

Control Panel

Table 23. Supported Kayenne/Karrera K-Frame Control Panel SNMP Monitoring

Fan (3 or 2)	Kayenne: PCU has three fans. Karrera: 2ME Control Panel has one fan, 3 ME has two fans.
Power Supply (2)	Will report power failure if a power supply is not present or not plugged in.
Temperature (2 or 3)	Kayenne: One ambient temperature, one on CPU. Karrera: One ambient temperature, one on the Panel Processor FPGA, one on CPU.
Modules (Control Panel boards)	Status change traps are sent when a module is connected or disconnected.

Menu Panel Processor

The Menu Panel Processor (the PC running the Menu application) can be monitored separately, using the standard built-in Windows SNMP capabilities and a third-party NMS. No unique Grass Valley MIB entries or traps are available.

SNMP Installation

Grass Valley K-Frame switchers system devices have SNMP Agent software already installed. No user installation is required.

Separate NMS software (third party package) will need to be installed onto a PC that resides on the switcher network. Refer to the documentation provided with the NMS for installation instructions.

SNMP Licensing

Grass Valley switcher system SNMP licensing is based on the Video Processor Frame, and is tied to that Frame's unique System ID number. All Control Panels associated with a Frame will use that same SNMP license.

The Frame's System ID is shown on the Menu application's Install Options screen This screen also reports the current licensing status of that Frame (Figure 186).

Figure 186. Install Options Screen

An SNMP license is purchased from Grass Valley Customer Support. You need to provide the Frame's System ID with your payment, and you will then be given a license key. Enter that license key in the Install Options screen to license the SNMP feature for that entire Kayenne system.

Licensing Definitions

SNMP Licensed - SNMP is capable of running with all documented features available. See SNMP enable/disabled for additional operational implications.

SNMP Unlicensed - SNMP runs minimal functionality provided by the operating system vendor (VxWorks on Kayenne/Karrera K-Frames, Linux on Kayenne/Karrera K-Frame Control Panels) and is always enabled.

SNMP Enabled - (licensed only) all SNMP variable requests are processed and SNMP traps are sent.

SNMP Disabled - (licensed only) all SNMP variable requests are ignored and SNMP traps are not sent.

SNMP Power Up License Processing

Frames and Control Panels power up with SNMP Unlicensed capabilities. If a SNMP license is detected on the Frame then the Frame and Control Panel initialize SNMP licensed capabilities. SNMP Licensed Configuration must be done to properly configure some of the licensed capabilities.

SNMP Licensed Configuration

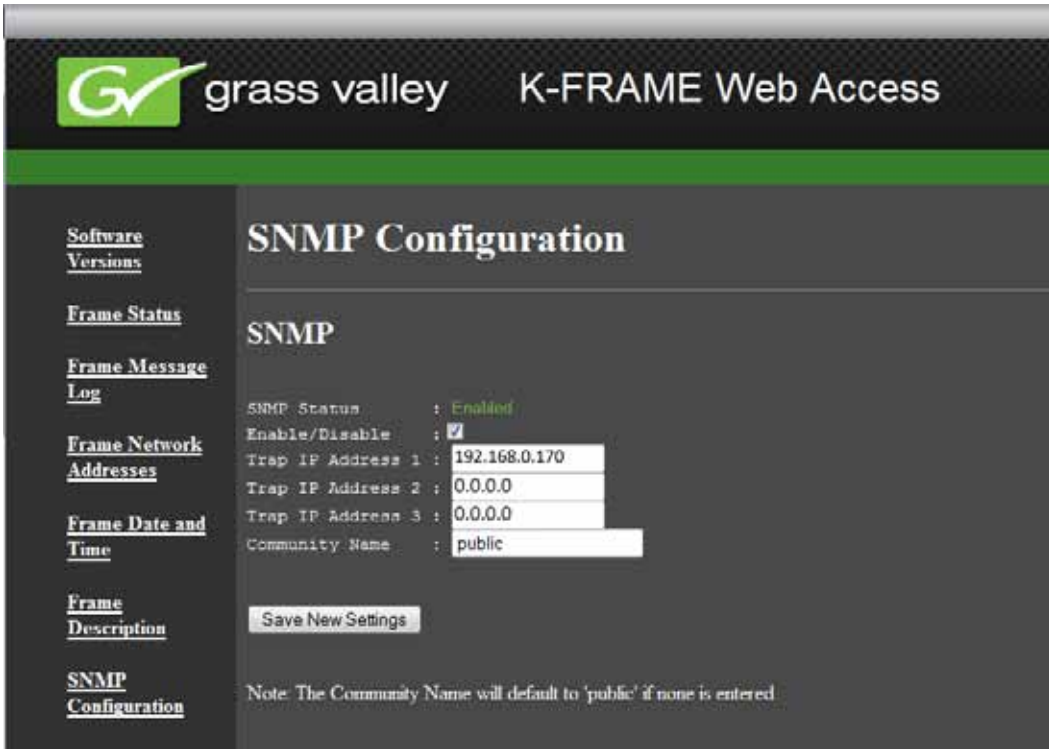
SNMP Licensed capabilities require additional configuration though the web interface as noted in this document. The Video Processor Frame and Control Panel have separate web interfaces that are accessed by specifying the correct IP address in the URL (example: **http://192.168.1.170**). An example of the Kayenne Frame Webpage is shown in Figure 187.

Configuration steps consist of:

- Enable/Disable SNMP
- Configure Trap Destination IP addresses
- Configure Community Name

Configuration of the NMS software itself will also be required to make full use of the SNMP feature.

Figure 187. Video Processor K-Frame SNMP Web Page



Switcher Device SNMP Configuration Procedure

Refer to Figure 187 for reference.

1. Check the **Enable/Disable** box to activate SNMP for that device.

Note SNMP configuration fields are inoperable (grayed out) if a valid license is not accessible.

2. Enter the IP address of the PC running a NMS where you want trap messages to be sent. Up to three IPs can be entered.
3. If you are not using the **public** community, enter the name of the community to be used.
4. Click **Save New Settings**.

SNMP Trap Messages

The SNMP trap messages listed below are available for various switcher system components.

Note Only the capabilities described in this document are supported. For detailed information about each supported item, please refer to the MIBs.

Video Processor Frame Traps

Table 24. Supported K-Frame SNMP Traps

Name	Type	Description	Severity
vsmPowerSupplyStatusChange	status	If the current status is different than the last status then a trap is sent. A power supply OK message is only sent if all power supplies are OK after one of more power supplies have failed or been removed. At boot time, the first running status generates an informational message. After that, a transition to the running status generates a normal message.	comm error = alarm fault = alarm power supply removed = warning power supply OK = normal
vsmFanStatusChange	status	If the fan board is not present or if all fans have stopped working a trap is sent. This trap is resent every 12 seconds until the condition is corrected. If any of the fans are not working properly a trap is sent. This trap is resent every 20 seconds until the condition is corrected. When the system starts running normally or returns from an abnormal condition to running normally a trap is sent.	fan board not present = alarm all fans not working = alarm fan not working = warning normal operation = informational (start up), normal (returning from a warning or alarm condition)
vsmTempStatusChange	status	If temperature crosses the warm threshold in any direction a trap is sent.	hot = alarm normal = normal
vsmModuleStatusChange	powerOK	If the current power status is different than the last power status a trap is sent.	power OK = normal power Fault = alarm
vsmModuleStatusChange	status	If the current status is different than the last status a trap is sent.	operational = normal failed = alarm not inserted = warning
vsmReferenceStatusChange	status	When the video reference transitions between locked and not locked in either direction a trap is sent.	not locked = warning locked = normal
gvgElStateChange	status	When the switcher starts the boot process and the trap status is “initializing” a trap is sent. Another trap is sent when the switcher becomes fully operational and the trap status is “running”.	initializing = warning running = normal

Control Panel Traps

Table 25. Supported Kayenne/Karrera K-Frame Control Panel Traps

Name	Type	Description	Severity[a]
gcpUnknown(1)	Panel Status Change NOTE: This value can be a bit-wise ORing of the enumerated states. When a faulty state is fixed the corresponding bit in the value gets cleared.	The panel is in an unknown state, or does not possess enough intelligence to report its state.	normal
gcpOk(2)		The panel is connected to the equipment it is controlling and is operating normally.	normal
gcpCommunicationError(4)		The panel is unable to communicate with the equipment that it is controlling.	alarm
gcpMainPowerFault(8)		The Main power supply on the controller was removed, got disconnected from the ac line, or was faulty.	alarm
gcpRedundantPowerFault(16)		A redundant power supply on the controller was removed, got disconnected from the ac line, or was faulty.	warning
gcpFanFault(32)		The panel has detected a fault on one or more cooling fans. Karrera has up to two fans, Kayenne PCU has three fans.	warning
gcpThermalFault(64)		The temperature in the panel is too high for reliable operation.	warning
gvgElementRunning (1)	Device Status Change	The element is running and processing load.	NA
gvgElementInitializing(6)		This is a post bootstrap state where the element has been restarted, and is initializing its hardware and software components.	NA
gvgElementHalted(8)		The element has halted and not processing load.	NA
gcpModStateUnknown(1)	Module Status Change	The module is in an unknown state.	normal
gcpModRunning(2)		The module is running OK.	normal
gcpModRemoved(4)		The previously installed hot-swappable module has been removed.	alarm
gcpModCommError(9)		The system is unable to communicate with the module.	alarm

[a] Severity Levels: EGvgAlarm = 6, EGvgWarning = 5, EGvgNormal = 4

Appendix A

Specifications

Table 26. K-Frame Video Standards

3G Modes	
1080p50/59.94/60, Level A and Level B	SMPTE 424M-2006
HD Modes	
1080i 29.97/30	SMPTE 274M Table 4, 5
1080i 25	SMPTE 274M Table 6
1080psf 23.976/24/25/29.97/30	SMPTE RP211 Table 12-16
720p 50/59.94/60	SMPTE 296 Table 1-3
SD Modes	
525i 29.97	SMPTE 259M
625i 25	SMPTE 259M

Table 27. K-Frame Mechanical Specifications

Component	Depth	Width	Height	Weight [a]	Rack Units
Compact 6-RU K-Frame	558.8 mm (22.0 in.)	482.8 mm (19 in.)	266 mm (10.47 in.)	31.1 kg (68.2 lbs.)	6
Standard 13-RU K-Frame	566.2 mm (22.29 in.)	482.8 mm (19 in.)	577.1 mm (22.72 in.)	55.1 kg (121.0 lbs.)	13
Power Supply Frame	492 mm (19.37 in.)	483.1 mm (19 in.)	44.0 mm (1.75 in.)	10.5 kg (23.0 lbs.) Above for two PS modules. A single module weighs 2.5 kg (5.4 lbs.). Up to three modules supported.	1

[a] All weights approximate.

Table 28. Environmental

Storage temperature	-20 to 70 deg C (-4 to 158 deg F)
Operating temperature	0 to 40 deg C (32 to 104 deg F)
Relative humidity	0-95% (non-condensing)
Electromagnetic environment	E2 (according to EN55103-1, -2)

Table 29. Network Connections

Type of connection	10/100/1000 Base T
Protocol	TCP(UDP)/IP, Auto speed detection. Auto crossover cable configuration.
Cable and connectors	CAT5 UTP, RJ45 connectors;
Max. Cable Length	100m / 300ft
Note	The K-Frame Video Processor has an internal Ethernet switch with six available external ports. One connection is required for each Control Panel and one is required for each Menu PC. An external Ethernet switch is required to connect more than six devices.

Table 30. Power

K-Frame Video Processor Power Supply	
Line voltage	100V-240V AC +/-10% autorange, power factor corrected. Automatic line-voltage sensing for 120V and 240V sources.
Line frequency	50/60Hz +/- 5%
Power consumption	6-RU K-Frame, max. 900W
	13-RU K-Frame, max. 1400W
Leakage current	< 2.5 mA
Interconnect DC cable length	864 mm 34 in.

Table 31. Numbers of MEs, Inputs, and Outputs

Frame	**M/Es**	**Inputs**	**Outputs**	**GPI Inputs**	**GPI/Tally Outputs**	**Smart I/O Modules (MatchDef/SetDef)**
Compact 6-RU	1 to 5	32 to 64 plus up to 16 MatchDef	16 to 32 dual plus 4 to 16 SetDef	8 per input board	32 per input board	Each Smart I/O module provides 4 inputs and 4 outputs with up/down/cross conversion capability
Standard 13-RU	1 to 9	32 to 160 plus up to 32 MatchDef	16 to 64 dual plus up to 32 SetDef			
Board Count						
Compact 6 RU	Up to 2 M/E boards	Up to 2 input boards (32 inputs per input board)	Up to 2 output boards (16 dual outputs per output board)			Up to 4 modules
Standard 13 RU	Up to 4 M/E boards	Up to 5 input boards (32 inputs per input board)	Up to 4 output boards (16 dual outputs per output board)			Up to 8 modules

Table 32. Serial Digital Video Inputs

Format	ITU-R656, SMPTE 259M, 270 Mbit/s. SMPTE 292M, 1.485 Gbit/s SMPTE 424M-2006, 3 Gbit/s
Return loss	>10 dB, 1.5GHz to 3GHz
Type of Connector	75 ohm BNC (SMPTE 259M)
Nominal Amplitude	800mV peak-to-peak terminated
Channel Coding	conforms to SMPTE 259M, SMPTE 292M
Ancillary Data	Blanked or passed (user selectable)
Embedded audio	Blanked or passed (user selectable)
EDH	Blanked
Input Impedance	75 ohm
Max cable length	HD Video 100 meters (328 ft.) using Belden 1694A type cable
	SD Video 300 meters (984 ft.) using Belden 1694A type cable

Table 33. Serial Digital Video Outputs

Format	ITU-R656, SMPTE 259M, 270 Mbit/s. SMPTE 292M, 1.485 Gbit/s SMPTE 424M-2006, 3 Gbit/s
Return loss	>10 dB, 1.5GHz to 3GHz
Type of Connector	75 ohm BNC (SMPTE 259M)
Nominal Amplitude	800 mv peak-to-peak across 75 ohm +/- 10%
Rise & Fall Times	400 to 1400 picoseconds 75 ohm termination between 20% and 80% amplitude
Timing Jitter	≤ I UI R 601/656
Alignment jitter	≤ 2 UI (SD), ≤ 1 UI (HD)
Output Impedance	75 ohm
DC Offset	< 50mV with 75 ohm termination

Table 34. Analog Reference Input

Video Standard	Tri-level Sync or Color Black, analog equivalent to the standard being used.
Return loss	> 40dB, up to 5 MHz
Connectors	2 BNC loop-through
Impedance	75 ohm external

Table 35. Kayenne Control Panel Mechanical Specifications

Component	Depth	Width	Height	Weight [a]	Rack Units
Control Panels	Curved Support Structure Orientation				
4 ME-35, with attached Local Aux Stripe, 15 m Cables	746.3 mm (29.38 in.)	1533.7 mm (60.38 in.)	559.3 mm (22.02 in.)	57.3 kg (126.2 lbs.)	n/a
3 ME-35, with Local Aux Stripe, 15 m Cables	637.1 mm (25.08 in.)	1533.7 mm (60.38 in.)	292.3 mm (11.51 in.)	44.7 kg (98.4 lbs.)	n/a
2 ME-25, with Local Aux Stripe, 15 m Cables	488.4 mm (19.23 in.)	1341.7 mm (52.82 in.)	242.3 mm (9.54 in.)	29.9 kg (65.8 lbs.)	n/a
1 ME-15,with 15 m Cables, without Local Aux Stripe	356.4 mm (14.03 in.)	758.3 mm (29.85 in.)	84.3 mm (3.32 in.)	14.5 kg (32.0 lbs.)	n/a
Local Aux Stripe	Separately Mounted, Flat Orientation				
Local Aux-35 with 15 m Cable	185.7 mm (7.31 in.)	813.7 mm (32.04 in.)	84.3 mm (3.32 in.)	6.3 kg (13.8 lbs.)	n/a
Local Aux-25 with 15 m Cable	185.7 mm (7.31 in.)	621.7 mm (24.48 in.)	84.3 mm (3.32 in.)	6.1 (13.4 lbs.)	n/a
Menu Panel					
Touch Screen with 15 m cable	91.7 mm (3.612 in.)	417.85 mm (16.45 in.)	270.10 mm (10.63 in.)	6.2 kg (13.5 lbs)	n/a
Menu Panel Support Arm	n/a	n/a	n/a	4.8 kg (10.5 lbs)	n/a
Panel Control Unit (PCU)	588.52 mm (23.17 in.)	482.60 mm (19 in.)	132.59 mm (5.22 in.)	16.1 kg (35.4 lbs)	3

[a] All weights approximate.

Table 36. PCU Interconnects

Control Panel - PCU Connections		
Cable and connectors	Custom 7 Pin D style	
Number Required	1 for each Control Panel Stripe, Local Aux Stripe, and Satellite Panel	
Max. Interconnect Cable Length	15 m / 50 ft. (7.5 m / 25 ft. cable length also available)	
Cable Weight	15 m / 50 ft.	1.3 kg (2.9 lbs)
	7.5 m / 25 ft.	0.7 kg (1.6 lbs.)
Touch Screen Menu Panel - PCU Connection		
Cable and connectors	Custom 17 Pin D style	
Number Required	1 for each Menu Panel (2 maximum)	
Max. Interconnect Cable Length	15m / 50ft (7.5m / 25ft cable length also available)	
Cable Weight	15 m / 50 ft.	1.6 kg (3.7 lbs)
	7.5 m / 25 ft.	0.9 kg (2.0 lbs.)

Table 37. Power

Panel Control Unit (required for Control Panel and Touch Screen Menu Panel Operation)	
Line voltage	100V-240V AC +/-10% autorange, power factor corrected. Automatic line-voltage sensing for 120V and 240V sources.
Line frequency	50/60Hz +/- 5%
Power consumption	max. 500W
Leakage current	< 2.5 mA

Appendix B

Field Replaceable Units

This appendix provides lists of the Field Replaceable Units (FRU) and Critical Spares for the Kayenne K-Frame Video Production Center.

Note The lists given here are for general guidelines only and are subject to change at any time. They do not reflect current pricing or availability information.

The modules and assemblies for the Kayenne K-Frame system that can be replaced in the field and ordered from Grass Valley Customer Support are listed in Table 38.

Table 38. K-Frame FRU List and Replacement Notes and References

Name	Part Number	Replacement Notes and References
K-Frame Video Processors		
13-RU Frame Assembly	761045600	Includes Midplane, Chassis, Fan Assembly
6-RU Frame Assembly	761045300	Includes Midplane, Chassis, Fan Assembly
13-RU Front Door	751039200	K-Frame Door
6-RU Front Door	751036000	K-Frame Door
Power Supply Frame	761049300	Includes 1-RU Power Supply Frame w/Power Supply Distribution PCBA
Power Supply Module	720007800	120/240VAC/48VDC
Power Supply DC Power Cable	731031200	
13-RU Control Processor Board	771052700	
6-RU Control Processor Board	771052200	
Dual Mix/Effects Board	771052300	
Video Input Assembly	772001400	
Video Output Assembly	772001500	
Control I/O Assembly	771051800	
Modular I/O Board	771052800	
Image Store Board	771052500	
13-RU Chassis Fan Assembly	751042200	
6-RU Chassis Fan Assembly	751046000	
Battery	146013800	Panasonic CR2477

Table 39. Kayenne Control Panel FRU List and Replacement Notes and References

Name	Part Number	Replacement Notes and References
Kayenne Panel Control Unit (PCU)		
Panel Control Unit (standard)	761037800	Includes PCU Chassis and Backplane only.
PCU Power Supply Module	86200400	
Panel/Menu Processor Board	771041812	Includes programmed 4G Kayenne (KL) CF Card.
Second Menu Processor Board	771041901	
PCU Chassis Fan Assembly	751028000	
PCU Fan Filter	378209500	
Kayenne Control Panel		
KAYN-PNL-TRM - Transition Module	761045100	(Replaces 8553050)
Kayenne Transition Keycap Set	85570600	
KAYN-PNL-LEM - Local E-MEM Module	85553240	
Kayenne Local E-MEM Keycap Set	85570630	
KAYN-PNL-MEM - Master E-MEM Module	85553810	
Kayenne Master E-MEM Keycap Set	721013000	
KAYN-PNL-MFM - Multi-Function Module	85553430	(Keycaps included)
KAYN-PNL-SRC-35 - Source Select Module	85552910	Modules available in 35, 25, and 15 button widths. 15 button width for 1-ME Control Panel only.
KAYN-PNL-SRC-25 - Source Select Module	85552620	
KAYN-PNL-SRC-15 - Source Select Module	85552380	
Kayenne Source Select Keycap Set (15)	721014500	
KAYN-PNL-AUX-35 - Local Aux Module	85552970	Available in 35 and 25 button widths.
KAYN-PNL-AUX-25 - Local Aux Module	85552790	
Kayenne Local Aux Keycap Set	85570500	
KAYN-PNL-SYSTEM BAR-4 DEVICE	85552040	Used with SYSTEM BAR-2 DEVICE on 25 or 35 Source Control Panels. Not used on 1-ME Control Panel. (Keycaps included)
KAYN-PNL-SYSTEM BAR-2 DEVICE	85552020	Used on 25, 35, and 1-ME Control Panels. (Keycaps included)
KAYN-PNL-DCM - Device Control Module,	85554000	Available as an option for 3 and 4-ME Control Panels, or as a Satellite Device Control Module.
4-ME Panel Support Structure	85573800	Supports either Curved or Flat configurations. Hex assembly tools included.
3-ME Panel Support Structure	85573820	
2-ME Panel Support Structure	85573840	
1-ME Panel Support Structure	85573860	
Distribution Board	85554640	
ME Stripe-PCU Cable - 7.5 m (25 ft.)	85572390	
ME Stripe-PCU Cable - 15 m (50 ft.)	85572400	
Dimple Keycaps - Small	86205210	quantity 5, 12mm AT3086, NKK
Dimple Keycaps - Large	86205220	quantity 10, 15mm, AT3087, NKK
Source Select 35 Tray Assembly (empty)	761043700	Includes distribution board, internal cables, etc. No modules.
Source Select 25 Tray Assembly (empty)	761043600	
Source Select 15 Tray Assembly (empty)	761043500	

Table 39. Kayenne Control Panel FRU List and Replacement Notes and References - (continued)

Name	Part Number	Replacement Notes and References
Aux 35 Tray Assembly (empty)	761043900	Includes distribution board, internal cables, etc. No modules.
Aux 25 Tray Assembly (empty)	761043800	
System Bar 35 Tray Assembly (empty)	761044200	
System Bar 25 Tray Assembly (empty)	761044100	
System Bar 15 Tray Assembly (empty)	85572630	
Internal Tray Cables (connect distribution board to modules)	85572430	500mm
	85572440	750mm
	85572450	1000mm
	85572460	1250mm
	85572470	1500mm
Menu Panel		
Menu Panel Assembly	761040601	
Menu Panel- PCU Cable - 7.5 m (25 ft.)	731027700	
Menu Panel- PCU Cable - 15 m (50 ft.)	731027600	
KSP (Soft Panel)		
	711056400	Custom legend keyboard for KSP
Satellite Panels		
1 Module width, 1 Tray (empty)	85574000	Holds one larger module (286mm, 11.25 in) or two smaller modules (143mm, 5.6 in). Includes trim, internal cables. No modules included.
1 Module width, 2 Trays (empty)	85574200	Holds two larger modules in two Trays. Larger and smaller module sizes supported. Includes trim, internal cables. No modules included.
Remote Aux Panels		
32-Crosspoint Remote Aux Panel (1RU)	761000300	KAL32AUX1
32-Crosspoint Remote Aux Panel (2RU)	761000400	KAL32AUX2

Table 39. Kayenne Control Panel FRU List and Replacement Notes and References - (continued)

Name	Part Number	Replacement Notes and References
Software		
USB Stick	86211560	Blank
	86211560	Kayenne Menu Panel Hard Drive image backup and restore. (Labeled with s/n of PCU Frame.)
Compact Flash Card	86207620	Blank
	163843800	With Kayenne Control Panel Software installed (for PCU).

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