



grass valley  
A **BELDEN** BRAND

# IGNITE

LIVE PRODUCTION CONTROL SYSTEM

Installation Manual

Software Version 7.3

071874903  
JULY 2015

# CERTIFICATE

Certificate Number: 510040.001

The Quality System of:

## Grass Valley, A Belden Brand and its Grass Valley Affiliates

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Including its implementation, meets the requirements of the standard:

## ISO 9001:2008

Scope:

St. Laurent HQ: The design, manufacture and support of video and audio products and systems.

Grass Valley and Hillsboro: Design, outsource manufacture and support.

Breda: Design, manufacture, including outsource manufacture, and support.

This Certificate is valid until: June 14, 2018  
This Certificate is valid as of: June 14, 2015  
Certified for the first time: June 14, 2000



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## Grass Valley Web Site

The Grass Valley Web ([www.grassvalley.com](http://www.grassvalley.com)) site offers the following:

**Online User Documentation** — Current versions of product catalogs, brochures, data sheets, ordering guides, planning guides, manuals, and release notes are available.

**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.

## Grass Valley Technical Support

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

To obtain a local phone number for the support center nearest you, please consult the Contact Us section of Grass Valley's Web site ([www.grassvalley.com](http://www.grassvalley.com)).

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

## Recycling

Visit [www.grassvalley.com](http://www.grassvalley.com) for recycling information.

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# 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 are 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 Installationsan-

weisungen 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

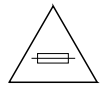
Les symboles suivants peuvent être apposés sur le produit:



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 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'émet pas de bruits radioélectriques dépassant les limites applicables aux appareils numériques de la classe A prescrites dans le Règlement sur le brouillage radioélectrique édicté par le ministère des Communications du Canada.

### **EN55022 Class A Warning**

In a domestic environment, products that comply with Class A 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.

## Laser Compliance

### Laser Safety Requirements

The device used in this product is a Class 1 certified laser product. Operating this product outside specifications or altering from its original design may result in hazardous radiation exposure, and may be considered an act of modifying or new manufacturing of a laser product under U.S. regulations contained in 21CFR Chapter 1, subchapter J or CENELEC regulations in HD 482 S1. People performing such an act are required by law to recertify and reidentify this product in accordance with provisions of 21CFR subchapter J for distribution within the U.S.A., and in accordance with CENELEC HD 482 S1 for distribution within countries using the IEC 825 standard.

### Laser Safety

Laser safety in the United States is regulated by the Center for Devices and Radiological Health (CDRH). The laser safety regulations are published in the “Laser Product Performance Standard,” Code of Federal Regulation (CFR), Title 21, Subchapter J.

The International Electrotechnical Commission (IEC) Standard 825, “Radiation of Laser Products, Equipment Classification, Requirements and User’s Guide,” governs laser products outside the United States. Europe and member nations of the European Free Trade Association fall under the jurisdiction of the Comité Européen de Normalization Electrotechnique (CENELEC).

For the CDRH: The radiant power is detected through a 7 mm aperture at a distance of 200 mm from the source focused through a lens with a focal length of 100 mm.

For IEC compliance: The radiant power is detected through a 7 mm aperture at a distance of 100 mm from the source focused through a lens with a focal length of 100 mm.

## **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 not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesirable operation. This device has been tested and found to comply with FCC Part 15 Class B limits for a digital device when tested with a representative laser-based fiber optical system that complies with ANSI X3T11 Fiber Channel Standard.

## Certifications:

Category	Standard	Designed/tested for compliance with:
<b>Safety</b>	ANSI / UL60950	"Standard for Safety of Information Technology Equipment - Safety - Part 1: General Requirements", (ANSI/UL 60950-1, First Edition, Dated April 1, 2003, with revision through and including November 26, 2003.)
	IEC 60950	"Standard for Safety of Information Technology Equipment - Safety - Part 1: General Requirements", (IEC 60950-1, First Edition, 2001, Corrigendum 1:10-2002)
	CAN/CSA C22.2, No. 60950	"Standard for Safety of Information Technology Equipment - Safety - Part 1: General Requirements", (CAN/CSA-C22.2 No. 60950-1-03. First Edition Dated April 1, 2003, with revisions through and including November 26, 2003)
	EN60950	Safety of Information Technology Equipment, including Electrical Business Equipment.
	2006/95/EC	Low Voltage Directive
<b>EMI</b>	EMC Directive 2004/108/EC via EN 55103-1 and 2	Audio, Video and Entertainment Lighting Control for the European Community.
	EN 55103-1 standards	Electromagnetic compatibility. Product family standard for audio, video, audio-visual and entertainment lighting control apparatus for professional use. Part 1 Emissions, Environment E1/E2 EN 55022: Class A Radiated and Conducted Emissions EN 61000-3-2: Power Line Harmonic Emissions, Radiated Magnetic Field Emissions, Peak Inrush Current
	EN55103-2 standards	Electromagnetic compatibility--Product family standard for audio, video, audio-visual and entertainment lighting control apparatus for professional use. Part 2 Immunity, Environment E1/E2 EN 50082-1: Immunity EN 61000-4-2: Electrostatic Discharge "ESD" Immunity EN 61000-4-3: Radiated RF Electromagnetic Field Immunity EN 61000-4-4: Electrical Fast Transient/Burst "EFT" Immunity EN 61000-4-5: Surge Immunity EN 61000-4-6: Conducted RF Immunity EN 61000-4-11: Voltage Dips, Short Interruptions and Voltage Variations Annex A - Radiated Magnetic Field Immunity Note: This only applies to assemblies sensitive to magnetic fields
	US FCC Class A Canada FCC Industry Canada	CISPR Pub. 22 (1985)
	Australia & New Zealand:	AS/NZS CISPR 22

SOME OLDER PRODUCTS (KAYAK DD FOR EXAMPLE) MAY REQUIRE OLDER “UL1419” SAFETY INFORMATION. THE INFORMATION BELOW REPLACES THE “ANSI/UL60950” SAFETY INFORMATION LISTED AS THE FIRST ITEM IN THE TABLE ABOVE FOR THESE OLD PRODUCTS.

Category	Standard	Designed/tested for compliance with:
Safety	UL1419	Professional Video and Audio Equipment



# *Preface*

## About This Manual

This manual is a part of the Ignite/Ignite Konnect Live Production Control System documentation set (refer to [Standard Documentation](#)). As a part of the documentation set, the contents of this manual support a specific purpose in either planning, installation/service, configuration, or use/operation. In all cases, the user is presumed to be familiar with associated concepts and terminology and to have the skills and experience necessary for that purpose.

## Standard Documentation

The typical Ignite/Ignite Konnect documentation set comprises:

- Release Notes—When applicable, describes any release-specific information. New features and corrected problems not included in the base manual set are included, as well as software installation procedures.
- Release Notes Addendum—When applicable, describes corrected problems in the current and previous releases as well as any known software problems.
- User Manual—Intended for an Ignite/Ignite Konnect system operator, this manual describes basic operational procedures and provides background information users should understand before they operate the system.
- Installation Manual—Intended for facility engineering staff, this manual describes how to install the product within the customer environment.
- Installation Planning Guide—Briefly describes how the product is physically installed in a facility, including dimensions, power and cooling requirements, and specifications.

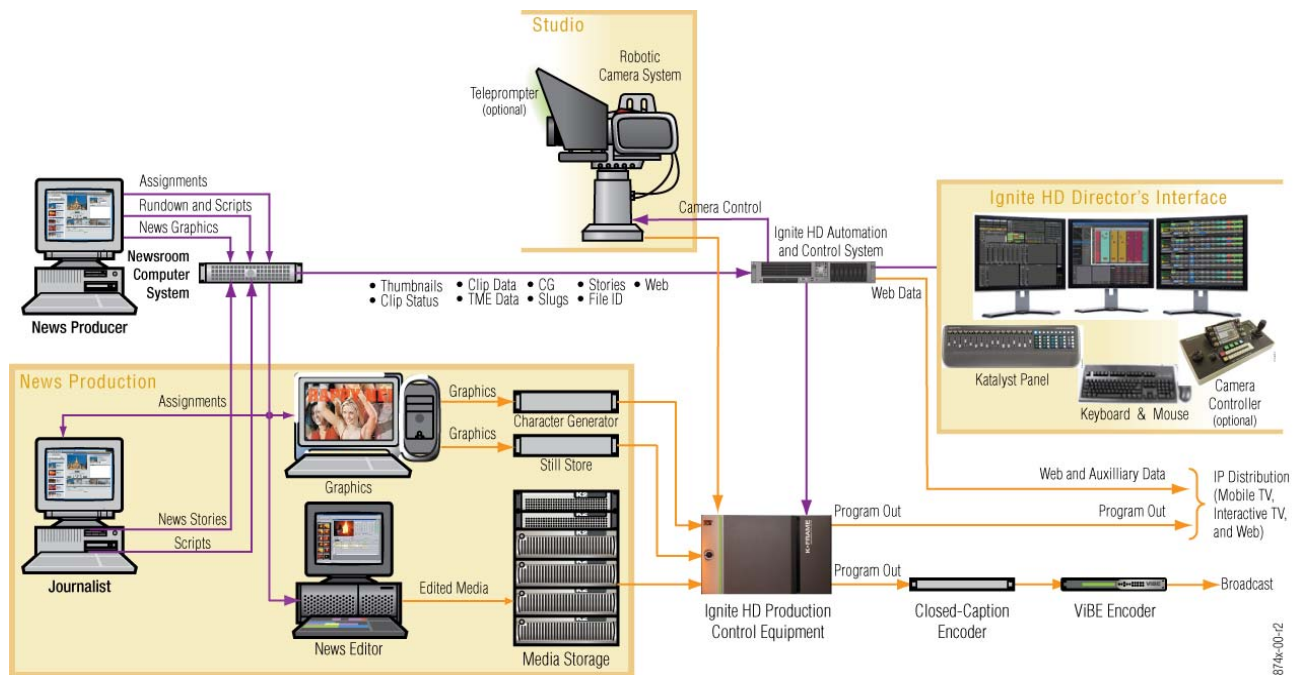
## **Other Documentation**

This Ignite/Ignite Konnect Live Production Control System documentation provides information on the use of the peripheral components as they relate to the Ignite/Ignite Konnect system. For any other peripheral component information, refer to the respective support documentation.

# Functional Description

The Ignite™ Live Production Control System (Figure 1) is an integrated hardware and software workflow solution. The Ignite system accomplishes this by functioning as a single point-of-control for the devices used in live television production.

Figure 1. Ignite Live Production Control System



Ignite systems are fully scalable, enabling the video professional to choose the configuration that best fits both their capital budget and production needs.

The major functions of a typical Ignite system are:

- [Network Communication/Architecture on page 28](#)
- [Device Control on page 29](#)
- [Video Processing on page 30](#)
- [Audio Processing on page 30](#)

## Network Communication/Architecture

A typical Ignite system network ([Figure 2](#)) is connected to the facility (house) LAN and optional customer-supplied XMOS Server via a firewall. The firewall provides intrusion prevention and reduces Ignite system network traffic by isolating it from the facility NCS XMOS. The firewall connects to a network switch, which provides connection for Ignite system TCP/IP and UDP components. Ignite system networked components typically include an Ignite CPU, video switcher, audio mixer, serial control module, tally controller, Ignite Katalyst Automation Control Panel, optional SHOT Director, and optional Grass Valley RS LDX robotic camera(s). In addition to TCP/IP, UDP traffic exists on the Ignite private LAN. The Ignite network interface to ENPS or iNEWS is shown in [Figure 3](#).

Figure 2. Ignite Network Topology (Simplified)

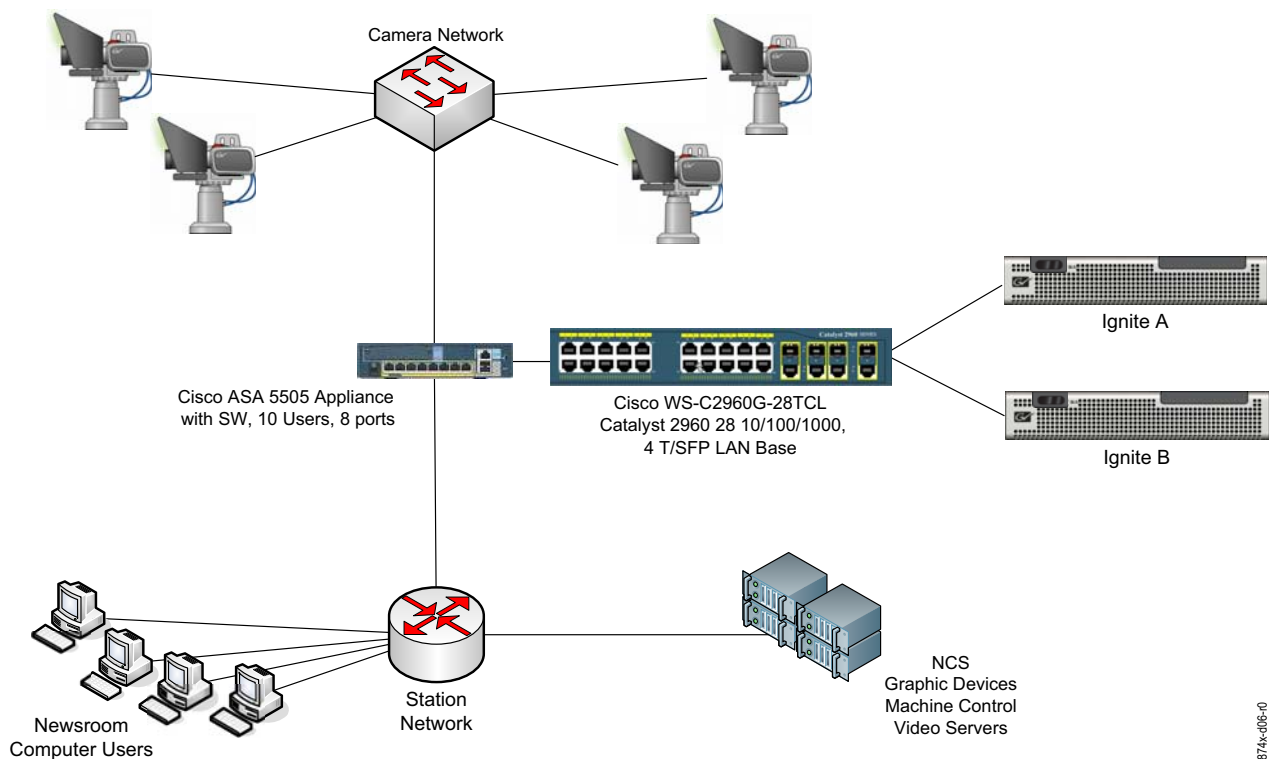
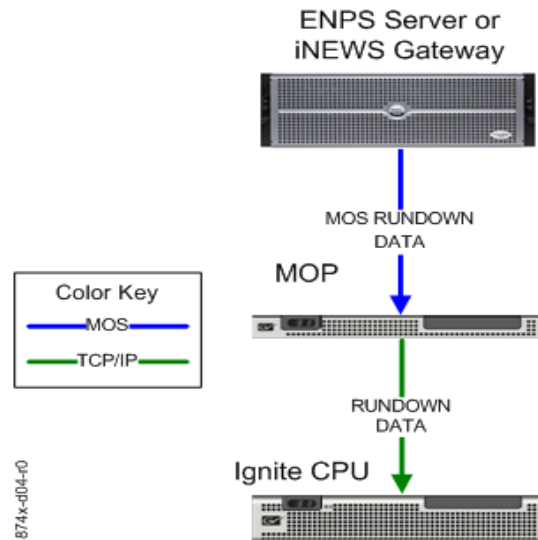


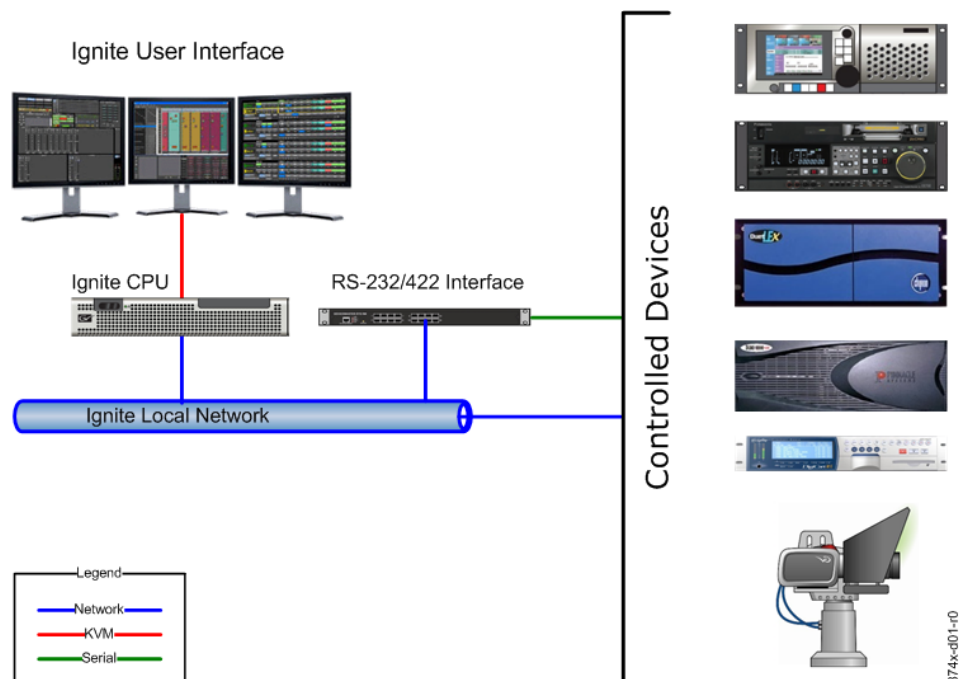
Figure 3. ENPS or iNEWS to Ignite Network Interface



## Device Control

Ignite system controlled devices fall into two categories: IP or serial (Figure 4). IP controlled devices are connected to the Ignite network via TCP/IP. Serial controlled devices (RS-232/422) are connected to the supplied serial control module, which is connected to the Ignite network via TCP/IP.

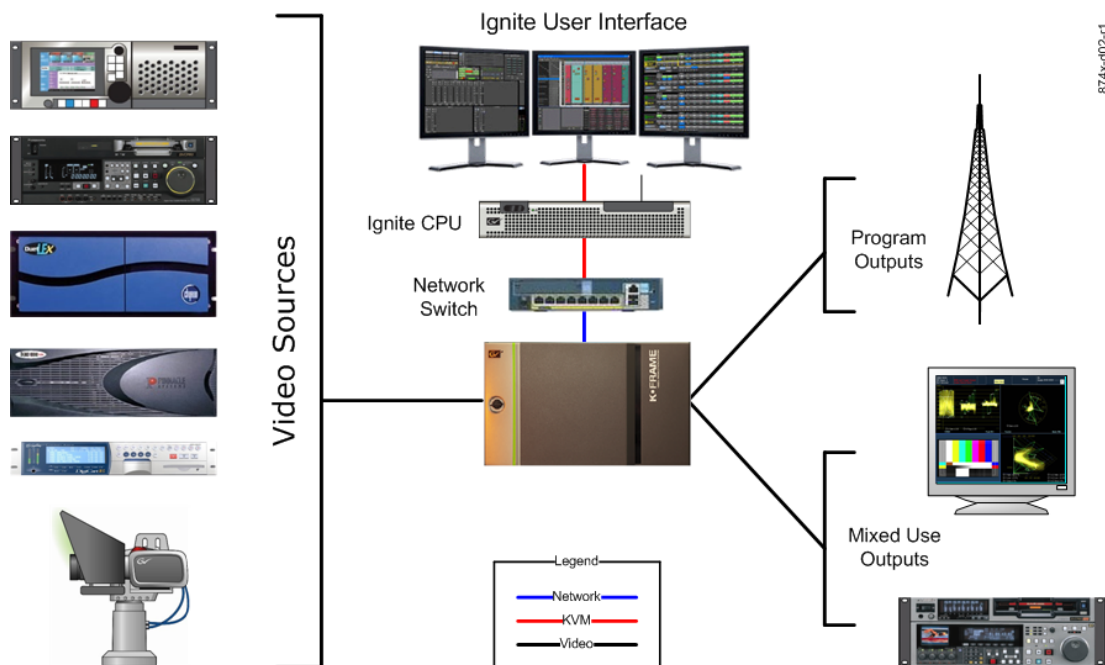
Figure 4. Control Overview



## Video Processing

Video switching and effects are performed by the Kayak or K-Frame switcher, which is connected to the Ignite network via UDP. (Figure 5).

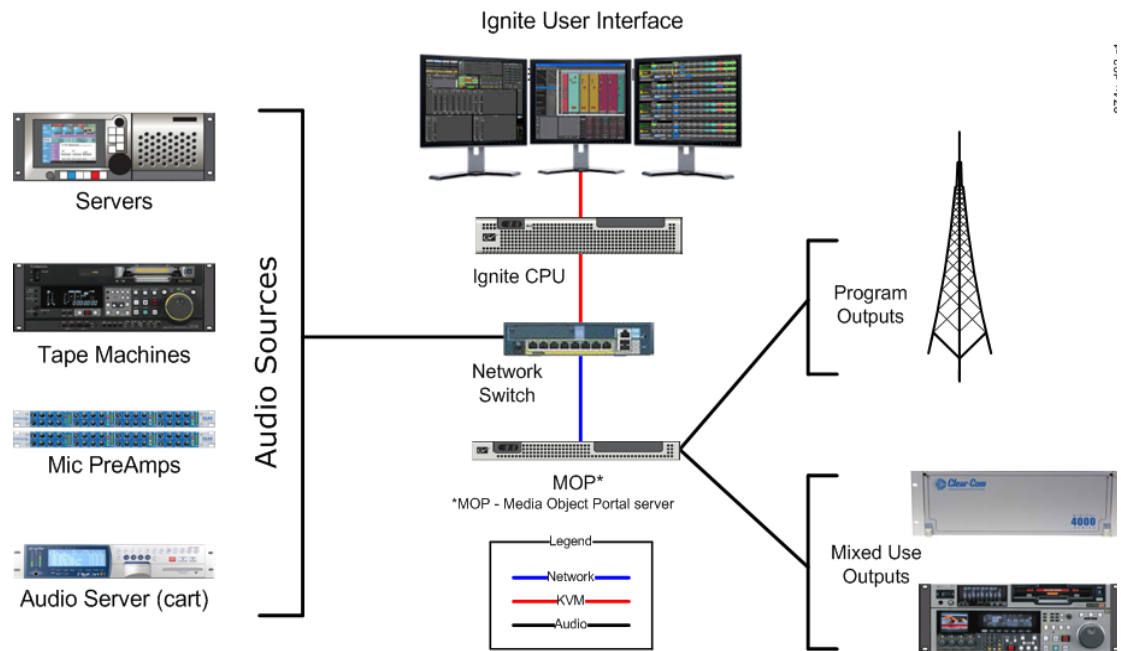
Figure 5. Video Overview



## Audio Processing

Audio mixing is performed by an audio frame or mixer, which is connected to the Ignite network via TCP/IP. Refer to the overview example in Figure 6.

Figure 6. Audio Overview





# Hardware Description

Ignite™ Live Production Control System hardware is discussed in the following paragraphs:

- [Workstation Hardware on page 34](#)
  - [Tri-monitor Display Workstation on page 34](#)
  - [Ignite Katalyst Automation Control Panel \(Optional\) on page 34](#)
- [Rack-mounted Hardware on page 35](#)
  - [Firewall on page 35](#)
  - [Network Switch on page 36](#)
  - [Ignite Application Server on page 36](#)
  - [Video Switchers on page 37](#)
  - [Serial Control Module on page 38](#)
  - [Tally Expander on page 38](#)

# Workstation Hardware

## Tri-monitor Display Workstation

Figure 7. Tri-monitor Display Workstation



The tri-monitor display workstation (Figure 7) comprises 3 Ignite GUI 20" LCD monitors, a keyboard, optical mouse, and Ignite Katalyst Automation Control Panel. Optional workstation equipment includes: a JSC-2300 SHOT Director™ controller, and a video control panel.

## Ignite Katalyst Automation Control Panel (Optional)

Figure 8. Ignite Katalyst Automation Panel (Optional)



The Ignite Katalyst Automation Control Panel (Figure 8) is a modular and scalable peripheral control panel that provides tactile control of Ignite system functions for:

- Events [up to 10 banks of 20 buttons per bank]
- Audio faders

This control panel works dynamically with Ignite/Ignite Konnect software to provide programmable buttons and audio controls that meet the workflow requirements of both individual stations and individual operators:

**Note** The **Ignite Katalyst** Automation Control Panel is not required for Ignite/Ignite Konnect Live Production Control system operation but rather provides an alternate, manual event-triggering capability

- Profiles are selected at runtime by the user
- Profiles are selected using the **Ignite Katalyst Profiles** dialog box, which is accessed from the **Event Timeline Setup** menu.
- Profiles are edited using the **Ignite Katalyst Profiles Editor**, which is accessed from the Windows **Start** button
- Buttons are configured using the **Ignite Katalyst Button Toolbox**.

**Note** Button programming is accomplished using the **Ignite Katalyst Button Toolbox**. The **Ignite Katalyst Button Toolbox** is accessed via the Windows **Start** button or from the Profile Editor, Button module, and Fader module **Tools** menus. Ignite Katalyst Profiles are configured/edited via the **Ignite Katalyst Profiles Editor**. The **Ignite Katalyst Profiles** Editor is accessed from the Windows **Start** button.

Programming includes the ability to store and recall both simple and complex functions such as:

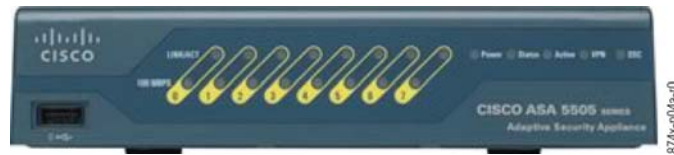
- Manual Video Switching & Audio Mixing
- Event Timeline Next Event command
- Manual CG & Keyer Controls
- GPI Triggers
- ShowBuilder Key Insert & Take Commands
- Audio Talkback, Cue, Hold, & Group Commands

## Rack-mounted Hardware

### Firewall

The firewall ([Figure 9](#)) provides intrusion prevention for the Ignite network. It reduces Ignite system network traffic by isolating it from the facility (house) LAN (with the exception of a connection to the facility provided NCS XMOS server).

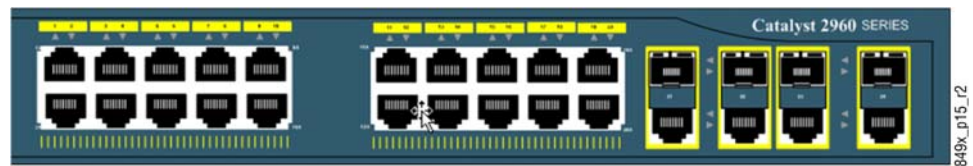
Figure 9. Firewall



## Network Switch

A 28-port, 10/100/1000 Gigabit Ethernet switch ([Figure 10](#)) provides connection to all Ignite TCP/IP and UDP network devices. The RJ-45, auto-sensing ports detect and adjust their speed and duplex (half or full) to the connected device.

Figure 10. Network Switch



## Ignite Application Server

The Ignite™ Application Server ([Figure 11](#)) is a dual-processor running Ignite application software in a Windows™ operating system environment. It is equipped with a quad graphics card and internal RAID array.

Figure 11. Ignite Main CPU



## MOP Server (Media Object Portal Server)

The Ignite MOP™ Server ([Figure 11](#)) is a dual-processor running Ignite application software in a Windows™ operating system environment. It is equipped with an internal RAID array.

Figure 12. Media Object Portal Server



## Video Switchers

### K-Frame Switcher

**Note** For Kalypso and Kayenne video switchers, refer to the documentation included with the product.

The K-Frame Video Processor is available in two sizes (Figure 13). 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 13. K-Frame Digital Production Video Switchers - Compact (6RU) and Standard 13 RU



### GV Director

The GV Director™ Nonlinear Live Production System is the ultimate multipurpose tool for live production. GV Director comprises: switcher, video server, graphics generator, and multiviewer display—in a simple, powerful, and creative workspace for live monitoring and switching. GV Director's interface gives you the choice of how you want to work. There's a smart control surface with touchscreen panel, assignable buttons, a T-bar, and a multiviewer, as well as a keyboard, mouse, and computer monitor for maximum operational flexibility.

Figure 14. GV DirectorNonlinear Live Production System



## Serial Control Module

The serial control module (Figure 15) enables communications with serial controlled devices over an Ethernet network. A 16-port model is standard for all systems. Device ports are software configurable RS-422 or RS-232 connections for controlling a wide range of devices.

Figure 15. Serial Control Device



## Tally Expander

The tally expander (Figure 16) has 64 GPO relays for external device control. The relays can be operated through logic parameters or from commands placed on the Ignite event timeline. There are also 32 GPI connections for control of the Ignite event timeline. This device is controlled through a network connection using standard IP protocol.

**Note** Additional tally/GPO connections are available on the video switcher frame. These switcher tally/GPO connections are exclusively controlled via the switcher .

Figure 16. Tally Expander



# Installation Planning

## General Considerations

Time and effort must be devoted to planning. Any of the following can impact the Ignite system installation and operation:

- **Computer and Networking** – The Ignite live production control system requires the same computer network considerations afforded to any other computer/computer-controlled system in a facility. Security measures, virus protection, a stable network connection, and regular data backups should be planned and implemented for the Ignite system.
- **Network and NCS (Newsroom Computer System)** – The Ignite system Main CPU communicates with the NCS over a TCP/IP network. In addition, the Ignite system communicates with Ignite IP devices via the network. Therefore the system requires several unique IP addresses and a logon account for the station network (refer to *Network Communication/Architecture* [on page 28](#)).
- **VTRs** – The Ignite system uses RS-422 protocol.
- **Video Servers** – The system controls video servers that use Louth VDCP or AMP protocol. This includes most, but not all manufacturers.

**Note** To verify the compatibility of an intended device, Contact either the Grass Valley Sales or Project Manager for the latest Ignite Supported Device List.

- **Camera Robotics** – Using the Robotics/Camera Controller, the Ignite system can control up to 16 Grass Valley robotic cameras. The Ignite system also works with other manufacture’s robotic systems.

**Note** To verify the compatibility of an intended device, Contact either the Grass Valley Sales or Project Manager for the latest Ignite Supported Device List.

- **Control Ports** – The Ignite system has 16 control ports for either RS-232 or RS-422 external devices such as: VTRs, Video Servers, CGs & Graphics Systems, and Audio Playback devices.

**Note** To verify the compatibility of an intended device, Contact either the Grass Valley Sales or Project Manager for the latest Ignite Supported Device List.

- Number of video sources – This varies by Ignite system (refer to [Table 2 on page 32](#)).

**Note** To verify the compatibility of an intended device, Contact either the Grass Valley Sales or Project Manager for the latest Ignite Supported Device List.

- System Source Timing – The Ignite HD system typically requires a tri-level sync generator, which is not provided with the Ignite system.
- Cabling – Use cables and connectors that are specifically designed for HD digital video.
- Audio Inputs/Outputs – Varies by Ignite configuration. Please specify the number of digital and/or analog audio I/O at the time of order placement.
- Audio Delay – Due to signal processing within the video switcher, an audio lip-sync problem could develop. An audio delay compensation device should be planned to address this issue.
- GPI/GPO – The system provides 64 GPO relays to control external devices. The GPOs are either:
  - Fired by logic settings for camera tallies, on-air lights, speaker mutes, etc.
  - Fired from the timeline to trigger other devices not controlled via serial protocol
- Device Control – The Ignite system controls a variety of devices via RS-232, RS-422, or IP protocol.

**Note** To verify the compatibility of an intended device, Contact either the Grass Valley Sales or Project Manager for the latest Ignite Supported Device List.

- Operating space and ergonomics – The operator's console should have enough room to operate three computers, one of which has a triple monitor display. For specific concerns, contact the Grass Valley Project Manager.

**Note** Systems employing a Grass Valley K-Frame might have a touchpanel monitor if no switcher panel is purchased.

- KVM (Keyboard, Mouse, Monitor) extensions – KVM cable runs in excess of 20 feet require the use of KVM extenders.

# Workstation Considerations

**Note** Space requirements are determined by the specific site system configuration. Therefore, an Ignite system might not include all of the components shown in [Workstation Considerations on page 41](#) and [Equipment Room Racking Considerations on page 43](#).

**Note** The Control Room/Director's workstation furniture is customer supplied.

**Note** For a system with a prep station, two workstation desks are required.

Workstation space requirements are similar, regardless of system configuration. [Table 1](#) provides the standard footprints for workstation peripherals. Except for component footprints, workstation layout consideration is more a function of individual station requirements, workflow, area, and ergonomics. [Figure 17 on page 42](#) provides examples of workstation layouts.

Table 1. Workstation Component Footprints





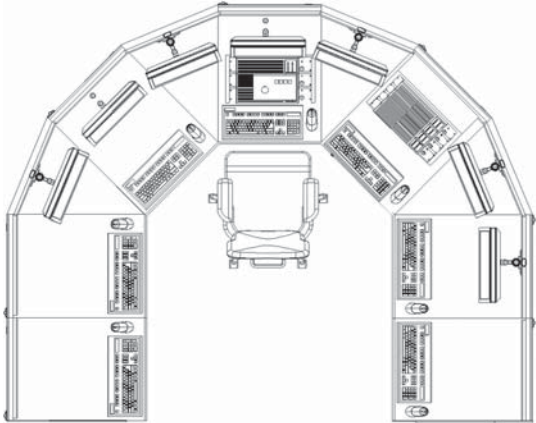
Component	Function	Description	Dimensions (WxDxH)
	Automation Control	Tri-Monitor Display Assembly (3 19" LCD VGA monitors with tri-monitor stand), Keyboard, and Optical Mouse Kit	48 in x 24 in x 24 in (1219 mm x 609 mm x 609 mm)
		Enhanced Ignite Catalyst Automation Control Panel with 16-motorized audio faders  NOTE: The audio fader panel is not available for Ignite without audio option.	27.125 in x 11.5 in x 3.25 in (688.975 mm x 292.1 mm x 82.55 mm)
	Camera Control	Robotics/Camera Controller	Refer to manufacturer's specifications
	Switcher Control	K-Frame KSP	Refer to the respective switcher specifications

Figure 17. Workstation Layout Examples



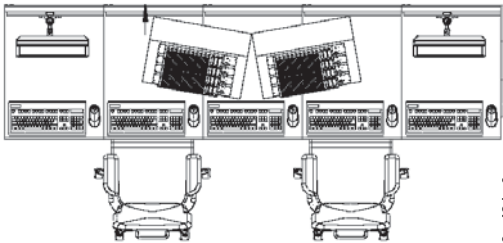
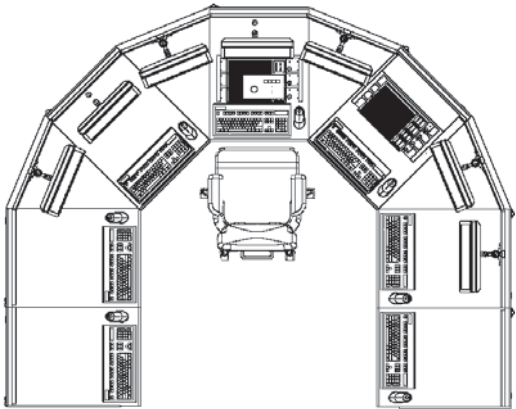
849x\_40\_r0

Illustration courtesy of Winsted Technical Interiors



849x\_42b\_r0

Illustration courtesy of Winsted Technical Interiors



849x\_42d\_r0

Illustration courtesy of Winsted Technical Interiors



849x\_41\_r0

Illustration courtesy of Winsted Technical Interiors

# Equipment Room Racking Considerations

**CAUTION** Use a rack enclosure that meets the specifications of American National Standards Institute (ANSI)/Electronic Industries Association (EIA) standard ANSI/EIA-310-D-92, International Electrotechnical Commission (IEC) 297, and Deutsche Industrie Norm (DIN) 41494. Improperly supported equipment could become damaged and/or cause personnel injury.

**CAUTION** Do not overload the AC supply branch circuit that provides power to the rack. The total rack load should not exceed 80 percent of the branch circuit rating.

**CAUTION** To avoid personal injury, use two people to lift components that weigh more than 50 lbs (22.68 kg). Use appropriate equipment to support the device until it is safely mounted in the rack.

**CAUTION** After installing components in a rack, never pull more than one component out of the rack on its slide assemblies at one time. The weight of more than one extended component could cause the rack to tip over and may result in serious injury.

**CAUTION** It is the customer's responsibility to ensure that the final combination of system and rack complies with all applicable safety standards and local electric code requirements.

**Note** Equipment racks/cabinets are supplied by the customer.

**Note** Ensure that proper airflow is provided to components in the rack.

**Note** Space requirements are determined by the specific site system configuration. Therefore, an Ignite system might not include all of the components referenced in [Workstation Considerations on page 41](#) and [Equipment Room Racking Considerations on page 43](#).

Use the recommended, typical 1-/2-M/E partial redundant rack layout shown in [Figure 18 on page 44](#), the rack-mounted components information in [Table 2 on page 45](#), and the recommendations listed below to develop a rack plan for your specific Ignite system configuration.

When possible:

- Locate redundant system (A and B) components together
- Locate audio, video, CPU, and network components together
- Load the rack from the bottom up, and load the heaviest item in the rack first

Figure 18. Recommended System Racking

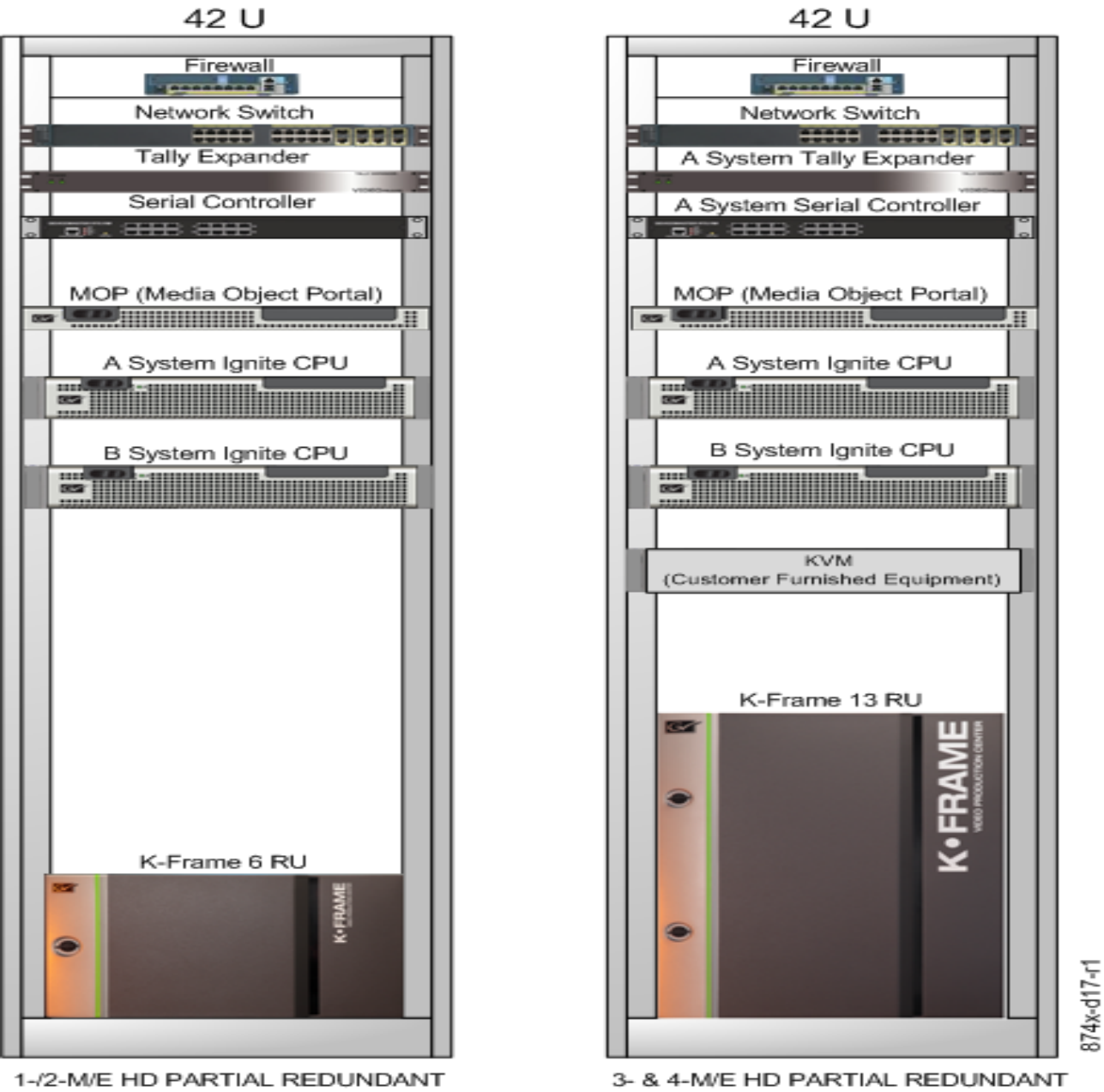










Table 2. Rack-mounted Components

Component	Description	Rack Units (RU)	Weight
	Video Switcher 6RU Example <b>Note</b> For specific switcher information, refer to the documentation provided with the product.	For specific switcher information, refer to the documentation provided with the product.	For specific switcher information, refer to the documentation provided with the product.
	Video Switcher 13RU Example <b>Note</b> For specific switcher information, refer to the documentation provided with the product.	For Specific switcher information, refer to the documentation provided with the product.	For specific switcher information, refer to the documentation provided with the product.
	CPU	2RU	26.1 kg (57.5 lbs)
	Media Object Portal Server (MOPS)	2 RU	26.1 kg (57.5 lbs)
	Serial Controller	1RU	3.18 kg (7 lbs)
	Tally Expander	1RU	2.72 kg (6 lbs)
	Network Switch	1RU	4.5 kg (10 lbs)
	Firewall	1RU	1.8 kg (4 lbs)

## Power

**WARNING** For all power and grounding installation requirements, refer to respective national, local, and/or site engineering standards.

**CAUTION** Do not overload the AC supply branch circuit that provides power to the rack. The total rack load should not exceed 80 percent of the branch circuit rating.

**Note** Due to the expansive configuration options, the single-system power requirements provided below are based on an approximate value for a fully configured system. Typically, on less populated systems, this also allows for future upgrades without the need to repower equipment. To determine site/system specific power requirements, refer to the detailed specifications in each component's respective documentation.

Table 3. Approximate Power Requirements

	Single 4 ME HD	Partially Redundant 4 ME HD	Single 2 ME HD	Partially Redundant 2 ME HD
Rack 1	3583 W	1410 W	2775 W	4175 W
Rack 2		3823 W		
Rack 3				
Workstation 1	497 W	210 W	510 W	510 W
Workstation 2		195 W		195 W
Cameras*	320 W	320 W	272 W	272 W

**Note** Generally:  
 For a 3 ME system, use the 4 ME system requirements.  
 For a 1 ME system, use the 2 ME system requirements

## Environmental

General equipment room environmental conditions should be:

Storage temperature	-20 C to 70 C (-4 F to 158 F)
Operating temperature	5 C to 40 C (41 F to 104 F)
Relative humidity	0-95% non-condensing
Electromagnetic environment	E2 (according to EN55103-1, -2)

General production room environmental conditions should be:

Ambient temperature	0 C to 37.78 C (32 F to 100 F)
Relative humidity	0-95% non-condensing
Electromagnetic environment	E2 (according to EN55103-1, -2)

## Interconnecting Cabling

**Note** Cabling requirements depend upon rack and workstation configurations. Refer to *Interconnection Diagrams* [on page 93](#) for typical interconnection information.

Due to varying site requirements, common interconnecting cables are customer provided. Unique cabling is provided with the system. Contact the Grass Valley Project Manager for cabling questions.



# Interconnections

- [Network Components on page 49](#)
- [Video Cabling on page 50](#)
- [Serial Control Module Cabling on page 50](#)
- [GPI/GPO Cabling on page 52](#)
- [Power on page 54](#)

## Network Components

**WARNING** Ensure all devices are powered off prior to connecting cables or wiring.

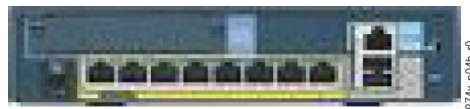
**CAUTION** For proper operation, the Ignite system network must be configured as shown below. The use of any other network configuration and resulting problems become the sole responsibility of the customer.

**Note** Keep cabling away from sources of electrical noise, power lines, and fluorescent lighting fixtures.

### Cisco ASA 5505 Firewall

The Cisco ASA 5505 ([Figure 19](#)) features a flexible 8-port 10/100/1000 Fast Ethernet switch. IT provides intelligent threat defense that stops attacks before they penetrate the network perimeter, controls network and application activity, and delivers secure remote access and site-to-site connectivity. The Cisco ASA 5505's SSL VPN remote access enables remote access support.

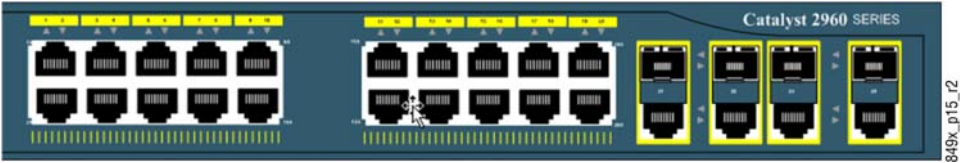
Figure 19. Cisco ASA 5505 Firewall



## Cisco Catalyst 2960 Network Switch

The Cisco® Catalyst® 2960 switch (Figure 20), with 28 Ethernet 10/100 ports and 2 fixed Ethernet 10/100/1000 uplink ports, is a stand-alone intelligent Ethernet device that provides Fast Ethernet and Gigabit Ethernet connectivity. The Cisco Catalyst 2960 has integrated security, including Network Admission Control (NAC), advanced quality of service (QoS), and resiliency to deliver intelligent services for the network edge.

Figure 20. Cisco Catalyst 2960 Network Switch



## Video Cabling

Figure 21 and Figure 22 show a simplified Ignite system video signal flow. For specific cabling information refer to the respective switcher product documentation.

Figure 21. Simplified Video Block Diagram - Single Redundant Ignite System

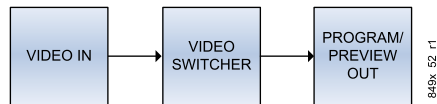
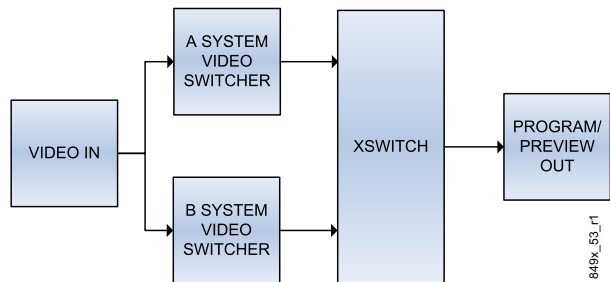


Figure 22. Simplified Video Block Diagram - Full Redundant Ignite System



## Serial Control Module Cabling

Figure 23 and Figure 24 illustrate the simplified control signal flow of both a standard and a partial redundant Ignite system.

Figure 23. Simplified Control Block Diagram - Standard Ignite System

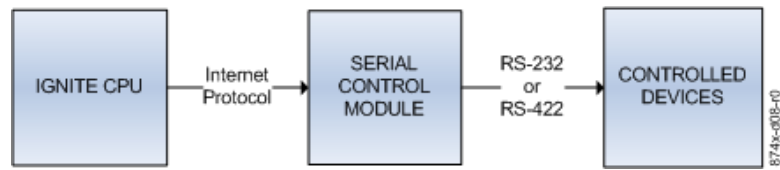
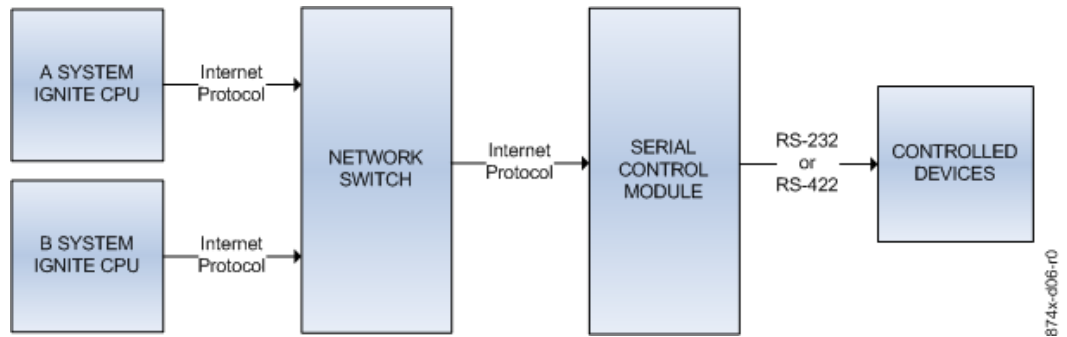


Figure 24. Simplified Control Block Diagram - Partial Redundant Ignite System



Use the Control Devices worksheets and the configuration specific control interconnect drawings listed below, to complete all control connections.

**WARNING** Ensure all devices are powered off prior to connecting cables or wiring.

**Note** Refer to [Serial Control Module Cabling on page 50](#) for control cabling specifics.

The SCM-3016 ([Figure 25](#)) has 16 RJ45 serial control ports, and is supplied with 8 female and 8 male RJ45 to DB9 adapters. It is also supplied with an insertion/extraction tool to facilitate wiring to serial devices. Refer to [Figure 26](#) for both standard and Digicart serial connector pinouts.

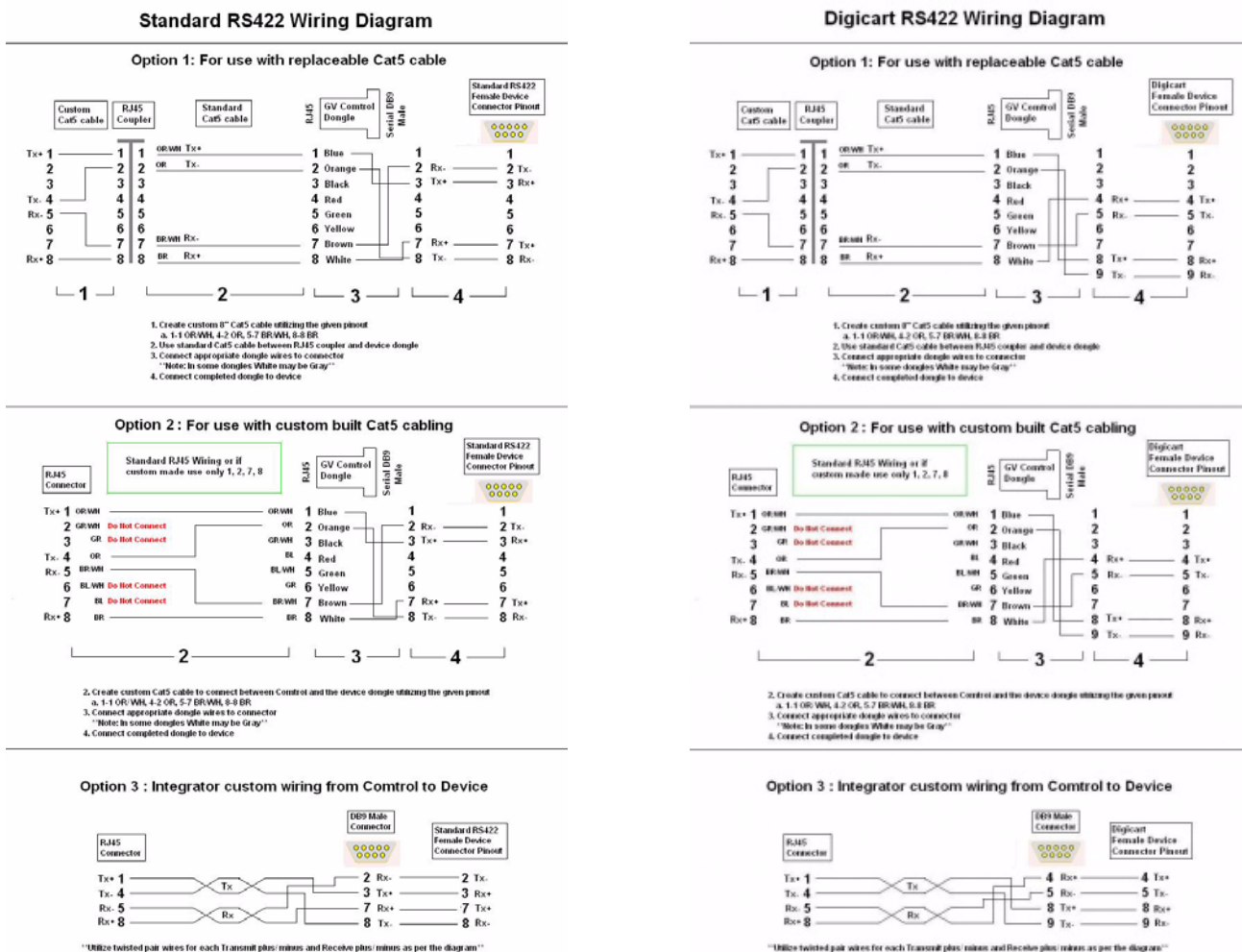
Figure 25. Serial Control Module - SCM-3016



**Note** Always use twisted-pair wiring for Tx and Rx signal lines.

**Note** For help with connector pinouts or cabling for a particular serial device, refer to the hardware manufacturer's installation documentation or contact your Grass Valley Service Engineer (refer to [Contacting Grass Valley on page 4](#))

Figure 26. Standard RS-422 Pinout



## GPI/GPO Cabling

**WARNING** Ensure all devices are powered off prior to connecting cables or wiring.

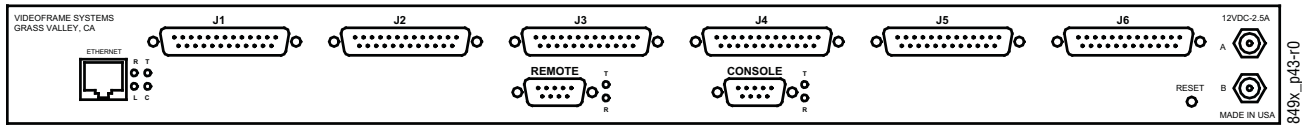
The Tally Expander provides 64 GPO relays to control external devices. The GPOs are fired by logic settings (for camera tallies, on-air lights, speaker mutes, etc.) or they can be fired from the timeline to trigger other devices not controlled via serial protocol. In addition, there are 32 GPI relays to control the timeline.

## Talley Expander Rear Panel Connectors J1 - J6

The rear panel of the Tally Expander is shown in [Figure 27](#). J1, J2, J4, and J5 are GPO connectors. J3 and J6 are GPI connectors.

**Note** REMOTE and CONSOLE connectors are not used in Ignite systems.

Figure 27. Tally Expander Rear Panel



## GPI/GPO Pinouts

Connectors J1 through J6 are D-Sub 25-pin female connectors ([Figure 28](#)).

Figure 28. J1-J6 D-Sub 25-Pin Female Connector



GPI (Tally) and GPO pinouts for J1 through J6 are listed in [Table 4](#).

Table 4. J1-J6 GPO/GPI Pinouts

J1		J2		J3		J4		J5		J6	
GPO		GPO		GPI		GPO		GPO		GPI	
Relay	Pin	Relay	Pin	GPI	Pin	Relay	Pin	Relay	Pin	GPI	Pin
Relay 1	13	Relay 17	13	GPI 1	25	Relay 33	13	Relay 49	13	GPI 17	25
Relay 2	25	Relay 18	25	GPI 2	12	Relay 34	25	Relay 50	25	GPI 18	12
Relay 3	12	Relay 19	12	GPI 3	24	Relay 35	12	Relay 51	12	GPI 19	24
Relay 4	24	Relay 20	24	GPI 4	11	Relay 36	24	Relay 52	24	GPI 20	11
Relay 5	11	Relay 21	11	GPI 5	23	Relay 37	11	Relay 53	11	GPI 21	23
Relay 6	23	Relay 22	23	GPI 6	10	Relay 38	23	Relay 54	23	GPI 22	10
Relay 7	10	Relay 23	10	GPI 7	22	Relay 39	10	Relay 55	10	GPI 23	22
Relay 8	22	Relay 24	22	GPI 8	9	Relay 40	22	Relay 56	22	GPI 24	9
Common Relay 1-8	8, 9, 20, 21	Common Relay 17-24	8, 9, 20, 21	Common GPI 1-8	7, 8, 20, 21	Common Relay 33-40	8, 9, 20, 21	Common Relay 49-56	8, 9, 20, 21	Common GPI 17-24	7, 8, 20, 21
Relay 9	7	Relay 25	7	GPI 9	19	Relay 41	7	Relay 57	7	GPI 25	19
Relay 10	19	Relay 26	19	GPI 10	6	Relay 42	19	Relay 58	19	GPI 26	6
Relay 11	6	Relay 27	6	GPI 11	18	Relay 43	6	Relay 59	6	GPI 27	18
Relay 12	18	Relay 28	18	GPI 12	5	Relay 44	18	Relay 60	18	GPI 28	5
Relay 13	5	Relay 29	5	GPI 13	17	Relay 45	5	Relay 61	5	GPI 29	17
Relay 14	17	Relay 30	17	GPI 14	4	Relay 46	17	Relay 62	17	GPI 30	4
Relay 15	4	Relay 31	4	GPI 15	16	Relay 47	4	Relay 63	4	GPI 31	16
Relay 16	16	Relay 32	16	GPI 16	3	Relay 48	16	Relay 64	16	GPI 32	3
Common Relay 9-16	2, 3, 14, 15	Common Relay 25-32	2, 3, 14, 15	Common GPI 9-16	1, 2, 14, 15	Common Relay 41-48	2, 3, 14, 15	Common Relay 57-64	2, 3, 14, 15	Common GPI 25-32	1, 2, 14, 15

## Power

Use only the power supplies and cords provided with the respective equipment.

**WARNING** For safety, the installer must always provide for a readily accessible and rapid method of disconnecting all power sources.

**WARNING** All units must be well-grounded.

# Standardization

## Folders/Directories

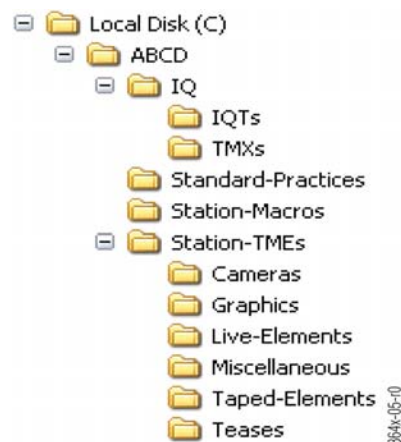
**Note** For all file structures, use standard and consistent techniques and practices.

Organize TMEs very carefully when saving them so they can be found easily and quickly. To do so, it is necessary to:

- Use standard and consistent techniques and practices.
- Create a standardized file management structure ([Figure 29](#)).

**Note** With a standard, it is easy to maintain control of existing files and to enable better back-up procedures.

Figure 29. Sample File Structures.



1. Create a folder at the root level of the C: drive and name it with the station identifier; e.g., [Figure 29](#).

2. Under the station identifier folder, create sub-folders (Figure 29) for Standard-Practices, Station-Macros, Station-TMEs, and the IQ option; e.g., C:\ABCD\Station-TMEs\Graphics.
  - The IQ sub-folder  
C:\(station identifier)\IQ  
should contain all IQTs and TMXs. This IQ folder should have separate sub-folders for each type; e.g.:
    - C:\(station identifier)\IQ\IQTs
    - C:\(station identifier)\IQ\TMXs
  - The Station-Macros sub-folder  
C:\(station identifier)\Station-Macros  
should contain all macros for all shows and directors.
  - The Station-TMEs sub-folder  
C:\(station call letters)\Station-TMEs  
should contain all TMEs. This TME folder should have separate sub-folders for each TME type; e.g.:
    - C:\(station identifier)\TMEs\Cameras
    - C:\(station identifier)\TMEs\Graphics
    - C:\(station identifier)\TMEs\Live-Elements
    - C:\(station identifier)\TMEs\Miscellaneous
    - C:\(station identifier)\TMEs\Taped-Elements
  - The Standard-Practices sub-folder  
C:\(station call letters)\Standard-Practices  
should contain all the standard naming, abbreviations, colors, and file structure techniques and practices used. This file should be kept current.

**Note** Typically, for ease of use and access, the Standards file(s) is a text file created and maintained with Microsoft® Notepad.

# Abbreviations and Names

## TME Standards

### TME Abbreviations

**Note** For all abbreviations, use standard and consistent techniques and practices. For quick and easy reference, create and maintain a site specific list of standard abbreviations text file at  
C:\(station call letters)\Standard\_Practices\TME-Abbreviations.txt.

The most commonly used Ignite TME abbreviations are listed in [Table 5 on page 57](#) and [Table 6 on page 58](#)

**Note** The following list is not all inclusive but rather a starting point and guideline for establishing site relative abbreviations.

Table 5. TME Abbreviation Examples

Abbreviation	Definition
C	Camera
CG	Character Generator
CK	Chroma Key
DB	Double Box
FS REM RTR	FrameSync Remote Router
FUL	Full Screen
LP	Load Prompter
M	Mic
MON	Monitor
NR	Newsroom
OTS	Over The Shoulder
RAM	RAM Recorder
SOT	Any Video with sound full
SS	Still Store
SVO	SOT VO or NATS Pause
SX	Sports
T	Talent
TB	Triple Box
TZ	Teases
V	For Video sources (tapes or servers)
VO	Anything with NAT sound
WX	Weather

Using the standard abbreviations in [Table 5 on page 57](#) and adding a sequential number to identify each instance of that item, the site abbreviations might resemble those in [Table 6 on page 58](#).

**Note** This following list is not all inclusive but rather a starting point and guideline for establishing site relative abbreviations.:

*Table 6. Site Specific TME Abbreviation Examples*

Site Abbreviation	Definition
C1	Camera 1
C2	Camera 2
C3	Camera 3
CG1	Character Generator Channel 1
CG2	Character Generator 2
M1	Mic 1
M2	Mic 2
M3	Mic 3
T1	Talent 1
T2	Talent 2
T3	Talent 3
V1	Video Source 1
V2	Video Source 2
T4	Talent 4
T5	Talent 5
T6	Talent 6

**Note** For all names, use standard and consistent techniques and practices.

## TME Names

**Note** For all names, use standard and consistent techniques and practices. For quick and easy reference, create and maintain a site specific list of standard TME names at  
C:\(station call letters)\Standard\_Practices\TME-Names.txt.

Typically, the most common naming conventions use the standard abbreviations and answers to the four questions below.

*Table 7. Common TME Naming Convention Examples*

Question	Sample Answer
What is the transition?	Dissolve
What Video is involved?	Camera 1
What Audio is included?	Talent 1
What CG/SS elements that might be needed?	CG2 keyed

For example, based upon the standard site abbreviations and the answers above, the standard naming would be **DC1T1CG2**; i.e., Dissolve, Camera One, Talent One, With Character Generator Channel 2 keyed on top.

## TME Effect Names

**Note** For quick and easy reference, create and maintain a site specific list of standard effects naming at  
C:\(station call letters)\Standard\_Practices\TME-EffectNames.txt.

Typically, the most common effect naming uses the standard abbreviations and answers to the three questions below:

Question	Sample Answer
What is the effect type? (Cut, Wipe, Chroma Key, Double Box, etc.)	DB
What is the M/E? bank (ME1, ME2, ME3, ME4)	ME1
What is the keyer? (Key 1, Key 2, Key 3, Key 4)	K1K2

For example, based upon the standard site abbreviations and the answers above, the standard effect name would be **DBME1K1K2**; i.e., The effect is a **Chroma Key**, on **M/E 1**, and the keyer(s) is **Key 1** and **Key 2**.

## IQT Standards

### IQ Template Abbreviations

**Note** For all IQ Template abbreviations, use standard and consistent techniques and practices. For quick and easy reference, create and maintain a site specific list of standard abbreviations text file at  
C:\(station call letters)\Standard\_Practices\IQ-TemplateAbbreviations.txt.

The most commonly used Ignite IQ Template abbreviations are listed in [Table 8 on page 60](#). Guidelines for these abbreviations are:

- The number of characters should be limited to 3
- Per station, all IQ templates should have the same number of characters

**Note** The following list is not all inclusive but rather a starting point and guideline for establishing site relative abbreviations. Based on the guidelines provided in [IQ Template Abbreviations on page 59](#), station sites can add/delete as necessary to meet their individual production needs.

Table 8. IQ Template Abbreviation Examples

Abbreviation	Definition
AUX	Auxiliary
BOX	Double Box, Triple Box, Quad Box, Split Screen, etc.
CAM	Camera
CKY	Chroma Key, Weather, etc.
DIG	DigiCart®
DPM	Wipe, Page Turn, Slab, etc.
GFX	Graphics Device (CG, SS)
MDK	Minidisk
MIC	Microphone
MON	Monitor
OTS	Camera with OTS, Camera with Key Graphic
RAM	RAM Recorder
REM	Remote or FrameSync
SVR	Video Server
TAL	Talent
VTR	Video Tape Recorder/Video Cassette

## IQT Parameter Names

**Note** For all abbreviations and names, use standard and consistent techniques and practices. For quick and easy reference, create and maintain a site specific list of standard abbreviations text file at  
C:\(station call letters)\Standard\_Practices\IQ-ParamNameAbbreviations.txt.

The most commonly used Ignite IQ Parameter Name abbreviations are listed in [Table 9 on page 60](#). Guidelines for these abbreviations are:

- The number of characters should be limited to 1
- Per station, all IQ parameter names should have the same number of characters

**Note** The following list is not all inclusive but rather a starting point and guideline for establishing site relative abbreviations. Based on these guidelines, station sites can add/delete as necessary to meet their individual production needs.

Table 9. IQ Parameter Name Abbreviations

Abbreviation	Definition
C	Camera
E	Switcher and DPM effects

Table 9. IQ Parameter Name Abbreviations

Abbreviation	Definition
G	Graphics
M	Microphone
P	Camera Presets

## IQT Value Abbreviations

**Note** For all abbreviations, use standard and consistent techniques and practices. For quick and easy reference, create and maintain a site specific list of standard abbreviations text file at  
C:\(station call letters)\Standard\_Practices\IQ-ValueAbbreviations.txt.

The most commonly used Ignite IQ Value abbreviations are listed in [Table 10 on page 61](#). Per station, all IQ value abbreviations should be consistent.

**Note** The following list is not all inclusive but rather a starting point and guideline for establishing site relative abbreviations.

Table 10. IQ Value Abbreviations

Parameter Name	Value
C	1–16 (maximum value range)
E	C = Cut W = Wipe F = Fade CK1, CK2, CK3, CK4 = Cut Key 1–4 FK1, FK@, FK3, FK4 = Fade Key 1–4 WK1, WK@, WK3, WK4 = Wipe Key 1–4 etc.
G	1–4 (or more based on the number of graphic device channels)
M	1–99999999 (maximum value range)
P	1–125 per camera

## IQT Effect Names

**Note** For quick and easy reference, create and maintain a site specific list of standard effects naming at  
C:\(station call letters)\Standard\_Practices\IQ-EffectNaming.txt.

Typically, the most common effect naming uses the standard abbreviations and answers to the three questions below:

Table 11.

Question	Sample Answer
What is the effect type? (Cut, Wipe, Chroma Key, Double Box, etc.)	DB

Table 11.

















What is the M/E? bank (ME1, ME2, ME3, ME4)	ME1
What is the keyer? (Key 1, Key 2, Key 3, Key 4))	K1K2

For example, based upon the standard site abbreviations and the answers above, the standard effect name would be **DBME1K1K2**; i.e., The effect is a **Double Box**, on **M/E 1**, and the keyers are **Key 1** and **Key 2**.

## Color Relationships

**Note** For all colors, use standard and consistent techniques and practices. For quick and easy reference, create and maintain a site specific list of standard abbreviations text file at  
C:\(station call letters)\Standard\_Practices\Colors.txt.

The most commonly applied color relationships are:.

	SOT-V0
	Chroma Key
	SS/CG, Graphics Devices
	DPM Effects
	Teases
	Fade to Black
	Music-DigiCart, Minidisk
	Camera-C
	Aux
	V0
	Mics
	Camera-OTS
	Live-Remotes
	SOT
	Boxes
	RAM Recorder





# Glossary

## A

### AES/EBU

The standard for digital audio as defined by the Audio Engineering Society and the European Broadcast Union. The standard specified for professional post production audio, a sample frequency of 48 kHz and a quantizing level of either 16 or 20 bits. Used by most forms of digital audio from CDs to D1—Sony 19mm cassette tape format—the first digital tape format, hence D1.

### Aspect

The horizontal and vertical display dimension ratio of a picture; i.e., the width divided by the height (usually expressed as x:y). The aspect ratio of a traditional standard definition (SD) television screen is 4:3, or 1.33:1. High definition (HD) television uses an aspect of 16:9 (5 1/3 to 3), or about 1.78:1.

### Auto Transition

A transition having a predefined duration generally initiated by pressing a control panel button.

### Automation Section

Consists of a rundown list, event timeline, rundown converter, and LBN buttons.

## B

### Background Bus

A row of buttons on an M/E used to select background video signals. Typically labeled A and B, with A representing the current output and B representing the next output.

### Background Transition

A transition between the background video signals selected on an M/E.

### Background Video

Video that forms a background scene into which a key may be inserted.

### Backing Color

The color in a chroma key scene that will be replaced with another video signal.

### Bit Rate

The number of bits per second passed from one point to another.

### Black

A black video signal generated within the switcher.

### Box Wipe

A rectangular wipe pattern. For masking, the system provides a special box wipe pattern generator allowing independent control of the placement of each side of the box.

## C

### CCD (Charge-Coupled Device)

An image sensor used in digital photography.

### CCFL (Cold-Cathode Fluorescent)

CCFL tubes are used for backlighting an LCD display.

### CG (Character Generator)

Generates text and sometimes graphics for video titles.

## Chroma

The depth or saturation of color. Chroma, hue, and luminance make up the three characteristics of television color.

## Chroma Gain (chroma, color, saturation)

The gain of an amplifier as it pertains to the intensity of colors in the active picture.

## Chroma Key

A video key effect in which one video signal (insert video) is inserted in place of areas of a particular color in another video signal. Blue and green are the chroma key colors most frequently used.

## Clean Feed

A final output of the switcher that does not include downstream key effects or fade to black. Also refer to **Programmable Clean Feed**.

## Clip

A threshold level adjustment to which the keying attribute (luminance, chrominance) is compared for generating the internal key control signal. Clip, in conjunction with gain, sets the switching point between the background and the key fill. Also refer to **Gain**.

## Clip High, Clip Low

An alternative to Clip and gain keying, providing independent control of the points where the background video and the key fill video are each fully visible.

## Complex Wipe Pattern Generator

A wipe pattern generator with additional capabilities (for example, matrix wipes).

## Component Video

A video signal that keeps color and luminance information separate. RGB; Y, R Y, B Y; and Y, Cr, Cb are examples of component video.

## Composite Video

An encoded video signal that combines color information with luminance information. NTSC, PAL, and D 2 are examples of composite video.

## Compositing

Combining two or more video signals together into one output signal.

## Control Signal

A signal used to perform an alteration or transition of video signals. For example, control signals are used for keying, masking, and wipe transitions.

## Control Surface

The set of controls available to a single operator. These controls may reside on separate but related control panels.

## Cross Fade

Refer to **Mix**.

## Crosspoint

An electronic switch, usually controlled by a button on the panel, that allows video or audio to pass when the switch is closed.

## Cut

An instantaneous switch from one picture to another. Switching circuitry allows cuts only during the vertical interval of the video signal to prevent disruption of the picture.

## Cutaway

The act of momentarily "cutting away" (taking a shot of something else) from the main scene to hide jump cuts. This brief shot establishes continuity between two other shots, provides the necessary video pad when editing according to sound bites (portion of videotaped interview in which you see and hear the person talk), and helps to bridge jumps in time and/or location.

**Cutback**

The act of “cutting back” to the main scene to hide jump cuts. This brief shot establishes continuity between two other shots, provides the necessary video pad when editing according to sound bites (portion of video-taped interview in which you see and hear the person talk), and helps to bridge jumps in time and/or location.

**D****DDR (Digital Data Recorder)**

Refer to **DVR**.

**DE**

Digital Effects

**Delegate**

To assign panel controls to a particular operating function. Some panel controls (buttons, knobs, and joystick) can affect more than one function. The operator can choose an alternative function by delegating the panel controls to that function (typically by pressing or holding down a panel button).

**Deserializer**

A device that converts serial digital information to parallel.

**Dissolve**

Refer to **Mix**.

**DPM® (Digital Picture Manipulator)**

Grass Valley USA, LLC term for digital video effects equipment that performs digital effects such as: compression and transformations; e.g., change its size, shape, angle, flying a picture, turning a page, shattering an image. Also refer to **DVE**.

**DPOP (Double Press Open)**

Rapidly pressing a control panel button twice to open a related menu. On the system, buttons supporting DPOP are labeled with a graphical indicator.

**DVE (Digital Video Effects)**

Refers to video equipment that performs digital effects for production such as: compression and transformations; e.g., flying a picture, turning a page, shattering an image. (A registered trademark of Nippon Electric Company.) Also refer to **DPM**.

**DVR (Digital Video Recorder)**

[Also **DDR** (Digital Data Recorder), **VDR** (Video Disk Recorder)]

A video recorder/playback device that uses a hard disk drive or optical disk drive mechanism. Disk recorders offer nearly instantaneous access to recorded material.

**E****Effect**

A setup of panel controls specifying the sources involved and any processing applied to those sources. Effects can be learned (saved) and recalled by the E MEM effects memory system.

**Effect Transition**

Recalling an E MEM effect so that a transition is automatically performed at the start of the recall.

**Effects Processor**

The portion of a switcher that performs mixes, wipes, and cuts between background and/or effects key video signals.

**E-MEM (Effects Memory)**

A feature that permits control panel setups (effects) to be stored for later recall.

## Engineering Setups

On the system, a collection of configuration settings that establishes an essential baseline for system operation and integrates the system into a facility.

## ENPS

Electronic News Production System

## Ethernet

A form of high speed data transport between devices on a network.

## Event Timeline

A timeline that combines all production events in the form of TMEs that allow one person to direct a live show.

## F

### Fade To Black

A mix transition to black.

### Field

One scan of an interlaced video image. In interlace systems, two fields are required to make a complete picture (video frame) because alternate lines are scanned. Also refer to **Frame**.

### Fill Video

A video signal that fills a hole cut in background video by a key control signal.

### Fixed Linear Key

A linear key that uses predetermined Clip and gain settings that are not adjustable.

### Flip-Flop

A transition where the sources selected on the background buses (for example, preset and program) of an M/E are exchanged at the end of a transition. The original preset bus source becomes selected on the program bus and the original program bus source becomes selected on the preset bus.

## FPGA

Field Programmable Gate Array.

## Frame

One complete scan of a video image. For interlace video, alternate lines are scanned so a frame containing all the picture information consists of two fields. Also refer to **Field**.

## Frame Rate

The number of frames presented per second. For interlace systems the frame rate is half the field presentation rate.

## G

### Gain

An amplification factor applied to a key control signal by a keyer that determines how much, if any, of the background and key fill video will be mixed together at the key edge areas. Low gain (1, or unity) generally results in a linear key.

### GPI (General Purpose Input)

### GPO (General Purpose Output)

A digital signal interface, used to activate a device or piece of equipment for limited remote control of a device's functions.

### GUI (Graphical User Interface)

A Windows based user interface screen or series of screens allowing the user to point-and-click to select icons rather than typing commands

## H

### HD

High Definition

### House Sync

Sync generated within a facility that is used as a reference for generating and/or timing other signals.

**Hue**

The location of a color on the color spectrum (i.e. red, yellow, green, blue). Chroma, hue, and luminance make up the three characteristics of television color.

**I****iDPM™**

Internal Digital Picture Manipulator. Also refer to **DPM**.

**iNEWS**

Avid Newsroom Computer System (formerly AvStar)

**Interlace**

A system of video scanning where the odd and even numbered lines of a picture are presented consecutively as two separate interleaved fields. The two fields required to make a complete picture are called a frame.

**IP (Internet Protocol)**

A data-oriented protocol used for communicating data across a packet-switched inter-network.

**J****Jitter**

An undesirable variation in the timing of transitions in a digital signal.

**Joystick**

A hardware positioner with control of multiple axes.

**K****Key**

An effect where a portion of a background scene is replaced by a new video. Key cut and key fill signals are involved, though in some cases the same signal may be used for both (self key).

**Key Cut**

In key effects, the key cut signal is used to specify where to cut a hole in the background that will be filled with the key fill video. The key cut signal determines the shape of the key effect.

**Key Fill**

In key effects, the video signal that fills the hole cut in the background video.

**Key Frame (Keyframe)**

A complete definition of an effect at a single point in time. Default key frame values can be set for a suite.

**Key Invert**

Reversing the polarity of a key, such that material formerly keyed out will be keyed in, and vice versa.

**Key Mask**

[Also **Mask**]

A key mode that allows use of a wipe pattern generator to prevent some undesirable portions of the key cut signal from cutting holes in the background video.

**Key Memory**

A feature where the last keying and video processing settings for a source are retained and re-imposed when that source is re-selected. Default source memory values can be set for each source on each bus.

## Key Priority

The stacking order of multiple keys. The keyed signal with the highest priority appears in front of all the others. Keyed signals appear below higher priority keys and in front of lower priority keys, in a stack. A key priority transition changes the order of the keys without changing the background output.

## Keyer

An electronic circuit that creates a control signal to control a video multiplier based on selective information contained in a video signal.

## L

### LBN (Late Breaking News) Hotkey

A quick way (hotkey) to insert a stored element onto the Event Timeline during a show. TMEs or sequences of multiple TMEs can be stored on a single LBN hotkey.

## LCD

Liquid Crystal Display

## Learn

To save a panel setup using E-MEM.

## LED

Light-Emitting Diode

## Linear Key

A key in which the keyer signal is faithfully reproduced in the final key effect. Linear keying preserves soft key edges, and generally has a gain of 1, or unity.

## Look Ahead Preview

Video that shows the result of the currently setup next transition.

## Looping, Loop-Through

An input that includes two connectors. One connector accepts the input signal, and the other connector is used as an output for connecting the input signal to another piece of equipment. Only the analog reference input is loop through.

## Luminance

The brightness of the picture or area of the screen being considered. Chroma, hue, and luminance make up the three characteristics of television color.

The color video picture information contains two components: luminance (brightness and contrast) and chrominance (hue and saturation).

## Luminance Key

A key effect in which the portions of the key cut signal that are greater in luminance than the clip level cuts the hole in the background scene. Generally used when the key cut and key fill signals originate from the same source. Luminance key clip and gain is adjustable.

## Lux

A standardized model of human brightness perception, it is the SI unit of illuminance and luminous emittance, used as a measure of apparent light intensity hitting or passing through a surface.

## M

### M/E (Mix/Effects)

Pertaining to the video production circuitry and controls of a switcher involved in compositing video signals where a composite of two or more images can be created.

## Mask

Refer to **Key Mask**.

**Matte**

Internally-generated color video that can be adjusted for luminance, hue, and chroma. Matte can be used to fill areas of keys and borders.

**Matte Fill**

Using matte video to fill the hole of a key effect.

**Matte Generator**

A video generator that produces matte signals.

**Mix**

[Also **Dissolve**, **Cross Fade**]

A transition between two video signals in which one signal fades out as the other signal fades in.

**Multiplier**

A control circuit in which a control signal is multiplied with one or more input video signals. The resulting video output level varies from full on to full off according to the state of the control signal.

**N****NRCS**

Newsroom Computer System

**NTSC (National Television System Committee)**

U.S. government and industry committee that defined the 525-line 60 (59.94) interlaced fields per second analog broadcast TV standard over 50 years ago. (This format is referred to as NTSC.) Of the 525 scan lines, 480 (give or take a few) contain the picture and the rest contain synchronizing information, hold the encoded closed caption text, and provide a time delay to move the electron beam back to the top of the screen. NTSC is used mainly in North America and Japan.

**O****Object**

An individual functional area of a system, typically one of several having similar capabilities.

**P****PAL (Phase Alternate Line)**

A 625 line 50 interlaced fields per second analog broadcast standard used in many parts of the world, primarily Europe, but not the U.S.A. So named because the chroma sub-signal phase is different on each successive scan line to reduce picture artifacts.

**Pattern Border**

A variable width border that occurs at the edges of a wipe pattern.

**Pixel**

A picture element. A pixel is a digital sample of the luminance and color values of a picture at a single point.

**Point of Use**

A location in the system where a resource is used. A resource is generally used at different locations at different times. However, with some resources it is possible to use the same resource at different locations at the same time.

**Preference**

Refer to **Suite Preference** and **User Preference**.

**Preset Bus**

[Also **B bus**]

A row of source buttons used to select the source that will be output by that M/E during the next background transition. .

## **Preset Pattern**

A key effect in which a wipe pattern that has been preset to a desired size and location is used to cut the key hole. The characteristics of the pattern are set using pattern controls.

## **Preview**

A video signal that is viewed before it is output by the switcher. Also refer to **Look Ahead Preview** and **Switched Preview**.

## **Production Switcher**

Refer to **Switcher**.

## **Profile**

Model name of a Grass Valley USA, LLC Video Disk Recorder.

## **Program Bus**

[Also **A bus**]

A row of source buttons used to select the source for the current output of that M/E. It is the final output from a switcher that is broadcast or recorded. (.)

## **Programmable Clean Feed**

A type of clean feed where different keys can be selected for inclusion or exclusion from the clean feed.

## **Q**

## **R**

## **RAM Recorder**

A device that captures, saves, and outputs a still video image or in some cases motion video clips. On the Kayak system the RAM Recorder option can capture still images, motion video, and animation for playback. The RAM Recorder is also referred to as a Still Store.

## **Recall**

To restore a previous panel setup that has been learned using E-MEM.

## **Reclocking**

The process of clocking the data with a re-generated clock to remove jitter.

## **Register**

A place to store an effect.

## **Resource**

A capability of the system, typically consisting of a set of circuitry.

## **Rundown Converter**

Converts a producer's rundown into a full script with graphics, cues, and prompter scripts.

## **Rundown List**

Illustrates story, page and all events associated with that specific story. The Ignite replica of the show rundown.

## **S**

## **Saturation**

The degree of purity of a color. Adding white to a color reduces its degree of saturation.

## **SD**

Standard Definition.

## **Self Key**

A key effect in which a single video signal serves as both the key cut and key fill.

## **Sequence**

On the system, a feature allowing a series of E MEMs to be recalled in a specific order with a single command.

## **Serial Digital Interface (SDI)**

[Also **Serial Digital Video**]

A standard for digital video transmission over coaxial cable; i.e., passing video data bits in serial form (one bit after another), along a single wire. Standard Definition serial digital video (SMPTE 259M) operates at 270 Mbits/sec ( $2 \times 13.5 \text{ MHz} \times 10 \text{ bits}$ ).

The SDI standard uses data words that are 8 or 10 bits in length. Signals are uncompressed and are self-synchronizing between the source (transmitter) and destination (receiver). A signal in SDI can contain up to four independent digital audio signals along with the video signal.

### **Serial Interface**

An interface that allows the switcher to be controlled remotely by a computer editor or other serial controller. Data is passed serially between the editor and the switcher at selectable baud (transmission) rates.

### **Serializer**

A device that converts parallel digital information to serial.

### **Snapshot**

An E-MEM with only one keyframe.

### **S/N (Signal to Noise) Ratio**

The ratio of a signal power to the noise power corrupting the signal. In less technical terms, signal-to-noise ratio compares the level of a desired signal to the level of background noise. The higher the ratio, the less obtrusive the background noise is.

### **Soft Border**

A wipe pattern border that is mixed on the edges to give a soft effect.

### **Soft Edge**

A pattern edge between two video signals in which the signals are mixed for a soft effect.

### **Source**

- 1) An external device providing video. A source may provide only one video signal, or it may provide two signals (key fill and key cut).
- 2) The video signal(s) from a source, along with the source definition information associated with that source. Also refer to **Source Definition**.

### **Source Definition**

A definition of the video signals making up a source, the device type and name of source, and the default processing and other parameters to be used for that source. The system is based on source selection, rather than choosing crosspoints.

### **Source Memory**

A feature where the last keying and video processing settings for a source are retained and re-imposed when that source is re-selected. Default source memory values can be set for each source on each bus.

### **SPOP (Single Press Open)**

Automatically opening a related menu when a control panel button is pressed. On the system, buttons supporting SPOP are labeled with a graphical indicator.

### **Stack**

Refer to **Key Priority**.

### **Still Store**

A device that captures, saves, and outputs individual video frames, either in analog or digital form, allowing extremely fast access time.

### **Suite**

One or more control surfaces configured for use on the same project.

## Suite Preference

A collection of settings used to configure a suite to create a consistent working environment for all involved.

## Supers

Information from the show script that is sent to the character generator, and then output (superimposed/placing text over a video signal) to the lower third with the correct story.

## Switched Preview

A special output of the system connected to a dedicated monitor. The operator can select and switch various system video signals to that output to preview them.

## Switcher

A device that accepts inputs from a variety of video sources and allows the operator to select a particular source to be sent to the switcher's output(s). Also does transitions between sources and special effects (video mixing, wiping, keying, and such).

## Sync

1) General term for a synchronizing signal or signal component. Digital systems generally employ an analog external timing reference signal (such as color black or tri-level sync) to synchronize different pieces of equipment. Within the digital signal itself, however, synchronizing information is carried by special digital codes inserted at the beginning and end of each active line.

2) In analog television systems, sync is the portion of the video signal that occurs during blanking and is used to synchronize the operation of cameras, monitors, and other equipment. Horizontal sync occurs within the blanking period in each horizontal scanning line, and vertical sync occurs within the vertical blanking period. A color black signal is often used for synchronizing different pieces of analog equipment.

## T

### Tally

A lighted indication that the associated video source is in use. Tally lights may be in front of a camera to show that it is the camera being used at that moment, or they may be used to light up the pushbuttons of video switchers.

### Terminate, Termination

To complete a circuit by connecting a resistive load to it.

### Timecode

Electronic guide track added to film, video or audio material to provide a time reference for editing, synchronization, etc.

### TFT

**Thin-film Transistor** – often called “active matrix” display, this is the brightest, most viewable kind of LCD flat-panel display. It is also more expensive than “passive matrix” screens. In a TFT display, each pixel is actively controlled by one or more transistors.

### TME

Refer to **Transition Macro Event**.

### Transition

A change from one picture to another. Cut, mix, and wipe are transitions.

### Transition Macro™ Event

A group of individual production tasks that are combined to create an automated video production event. A TME is created by dragging and dropping task icons on the timeline, defining the individual task properties, and then saving the resulting TME as an individual event macro.

**TTL**

**Through-the-Lens** – term used to describe a type of prompter. A TTL prompter mounts in front of the camera. A glass screen mounted 45° above the prompter reflects the script so that the announcer can read the text while looking at the camera behind the screen.

**U****User Preference**

A collection of user-available control configuration settings that enables working environment customization.

**V****VDR (Video Disk Recorder)**

Refer to **DVR**.

**Vertical Interval**

The portion of the video signal that occurs between the end of one field or frame and the beginning of the next.

**Video Fill**

A video signal used to fill the hole made by a key cut signal.

**Video Mixer**

Refer to **Switcher**.

**Video Path**

The path that video takes through the switcher.

**Video Switcher**

Refer to **Switcher**.

**VTR (Video Tape Recorder)**

A video recorder and playback device that records audio and video signals on magnetic tape.

**W****Wash Matte**

A type of matte that contains two elements rather than a single flat color. For example, a wash matte can have one color that mixes gradually across the screen to another color.

**Wipe**

A transition between two video signals that occurs in the shape of a selected pattern.

**Wipe Pattern Generator**

Circuitry that creates patterns that can be used to create wipe transitions, preset patterns, key masks, and matte washes.

**Work Buffer**

An active area of memory where the current effect parameters are stored, allowing the operator to use and modify the effect without changing the data stored E MEM.

**X****Y****Z**



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