

GV KORONA

CONTROL SURFACE



Installation Planning Guide

071896600AC

7/10/17

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Important Safeguards and Notices

Symbols and Their Meanings iii

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

Symbols and Their Meanings

Important Safeguards and Notices iii



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



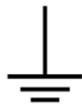
Indicates that the user, operator or service technician should refer to the product manuals for important operating, maintenance, or service instructions.



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



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



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



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



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



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



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



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



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



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

Warnings

Important Safeguards and Notices iii



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

- Appropriately listed/certified mains supply power cords must be used for the connection of the equipment to the mains voltage at either 120 V AC or 240 V AC.
- This product relies on the building's installation for short-circuit (over-current) protection. Ensure that a fuse or circuit breaker for 120 V AC or 240 V AC is used on the phase conductors.
- Any instructions in this manual that require opening the equipment cover or enclosure are for use by qualified service personnel only.
- Do not operate the equipment in wet or damp conditions.
- This equipment is grounded through the grounding conductor of the power cords. To avoid electrical shock, plug the power cords into a properly wired receptacle before connecting the equipment inputs or outputs.
- Route power cords and other cables so they are not likely to be damaged. Properly support heavy cable bundles to avoid connector damage.
- Disconnect power before cleaning the equipment. Do not use liquid or aerosol cleaners; use only a damp cloth.
- Dangerous voltages may exist at several points in this equipment. To avoid injury, do not touch exposed connections and components while power is on.
- High leakage current may be present. Earth connection of product is essential before connecting power.
- Prior to servicing, remove jewelry such as rings, watches, and other metallic objects.
- To avoid fire hazard, use only the fuse type and rating specified in the service instructions for this product, or on the equipment.
- To avoid explosion, do not operate this equipment in an explosive atmosphere.
- Use proper lift points. Do not use door latches to lift or move equipment.
- Avoid mechanical hazards. Allow all rotating devices to come to a stop before servicing.
- Have qualified service personnel perform safety checks after any service.

Cautions

Important Safeguards and Notices iii



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

- This equipment is meant to be installed in a restricted access location.
- When installing this equipment, do not attach the power cord to building surfaces.
- Products that have no on/off switch, and use an external power supply must be installed in proximity to a main power outlet that is easily accessible.
- Use the correct voltage setting. If this product lacks auto-ranging power supplies, before applying power ensure that each power supply is set to match the power source.
- Provide proper ventilation. To prevent product overheating, provide equipment ventilation in accordance with the installation instructions.
- Do not operate with suspected equipment failure. If you suspect product damage or equipment failure, have the equipment inspected by qualified service personnel.
- To reduce the risk of electric shock, do not perform any servicing other than that contained in the operating instructions unless you are qualified to do so. Refer all servicing to qualified service personnel. Servicing should be done in a static-free environment.
- This unit may have more than one power supply cord. Disconnect all power supply cords before servicing to avoid electric shock.
- Follow static precautions at all times when handling this equipment.

Electrostatic Discharge (ESD) Protection



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

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

Battery Handling



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

Cautions for LCD and TFT Displays



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

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

Mesures de sécurité et avis importants

Signification des symboles utilisés vi

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

Signification des symboles utilisés



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



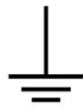
Avertit l'utilisateur, l'opérateur ou le technicien de maintenance que des instructions importantes relatives à l'utilisation et à l'entretien se trouvent dans la documentation accompagnant l'équipement.



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



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



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



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



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



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



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



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



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



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

Avertissements

Mesures de sécurité et avis importants vi



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

- Un cordon d'alimentation dûment homologué doit être utilisé pour connecter l'appareil à une tension de secteur de 120 V CA ou 240 V CA.
- La protection de ce produit contre les courts-circuits (surintensités) dépend de l'installation électrique du bâtiment. Assurez-vous qu'un fusible ou un disjoncteur pour 120 V CA ou 240 V CA est utilisé sur les conducteurs de phase.
- Dans le présent manuel, toutes les instructions qui nécessitent d'ouvrir le couvercle de l'équipement sont destinées exclusivement au personnel technique qualifié.
- N'utilisez pas cet appareil dans un environnement humide.

- Cet équipement est mis à la terre par le conducteur de mise à la terre des cordons d'alimentation. Pour éviter les chocs électriques, branchez les cordons d'alimentation sur une prise correctement câblée avant de brancher les entrées et sorties de l'équipement.
- Acheminez les cordons d'alimentation et autres câbles de façon à ce qu'ils ne risquent pas d'être endommagés. Supportez correctement les enroulements de câbles afin de ne pas endommager les connecteurs.
- Coupez l'alimentation avant de nettoyer l'équipement. Ne pas utiliser de nettoyeurs liquides ou en aérosol. Utilisez uniquement un chiffon humide.
- Des tensions dangereuses peuvent exister en plusieurs points dans cet équipement. Pour éviter toute blessure, ne touchez pas aux connexions ou aux composants exposés lorsque l'appareil est sous tension.
- Avant de procéder à toute opération d'entretien ou de dépannage, enlevez tous vos bijoux (notamment vos bagues, votre montre et autres objets métalliques).
- Pour éviter tout risque d'incendie, utilisez uniquement les fusibles du type et du calibre indiqués sur l'équipement ou dans la documentation qui l'accompagne.
- Ne pas utiliser cet appareil dans une atmosphère explosive.
- Présence possible de courants de fuite. Un raccordement à la masse est indispensable avant la mise sous tension.
- Après tout travail d'entretien ou de réparation, faites effectuer des contrôles de sécurité par le personnel technique qualifié.

Mises en garde

Mesures de sécurité et avis importants vi



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

- L'appareil est conçu pour être installé dans un endroit à accès restreint.
- Au moment d'installer l'équipement, ne fixez pas les cordons d'alimentation aux surfaces intérieures de l'édifice.
- Les produits qui n'ont pas d'interrupteur marche-arrêt et qui disposent d'une source d'alimentation externe doivent être installés à proximité d'une prise de courant facile d'accès.
- Si l'équipement n'est pas pourvu d'un modules d'alimentation auto-adaptables, vérifiez la configuration de chacun des modules d'alimentation avant de les mettre sous tension.
- Assurez une ventilation adéquate. Pour éviter toute surchauffe du produit, assurez une ventilation de l'équipement conformément aux instructions d'installation.
- N'utilisez pas l'équipement si vous suspectez un dysfonctionnement du produit. Faites-le inspecter par un technicien qualifié.
- Pour réduire le risque de choc électrique, n'effectuez pas de réparations autres que celles qui sont décrites dans le présent manuel, sauf si vous êtes qualifié pour le faire. Confiez les réparations à un technicien qualifié. La maintenance doit se réaliser dans un milieu libre d'électricité statique.

- L'appareil peut comporter plus d'un cordon d'alimentation. Afin de prévenir les chocs électriques, débrancher tous les cordons d'alimentation avant toute opération d'entretien.
- Veillez à toujours prendre les mesures de protection antistatique appropriées quand vous manipulez l'équipement.

Protection contre les décharges électrostatiques (DES)



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

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

Remplacement et élimination des piles



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

Précautions pour les écrans LCD et TFT



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

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

Recycling

Visit www.grassvalley.com for recycling information.

Certification and Compliance

<i>Safety Compliance</i>	<i>x</i>
<i>Restriction on Hazardous Substances (RoHS)</i>	<i>xi</i>
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Safety Compliance



This equipment complies with the requirements of CSA/UL/IEC/EN 60950-1, 2nd Ed. + AM1: 2009, AM2:2013, AM22014, Safety of information technology equipment.

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

Restriction on Hazardous Substances (RoHS)

Restriction of Hazardous Substances (RoHS)

KAYN-2-25-2M-KC, KAYN-2-25-3M-KC, KAYN-3-35-3M-KC, KAYN-3-35-4M-KC, KAYN-3-35-4M-KS, KAYN-3-35-5M-KS, KAYN-4-35-4M-KS, KAYN-4-35-5M-KS, KAYN-PNL-100-15, KAYN-PNL-200-25, KAYN-PNL-200-35, KAYN-PNL-300-25, KAYN-PNL-300-35, KAYN-PNL-400-25, KAYN-PNL-400-35, KOR-1-15-1M-KCS, KOR-2-20-2M-KCS, KRR-2-25-2M-KC, KRR-2-25-C-2M-KC, KRR-2-25-C-2M-KCS, KRR-2-25-2M-KCS, KRR-2-25-3M-KC, KRR-3-35-3M-KCS, KRR-2-25-C-3M-KC, KRR-3-35-3M-KC, KRR-3-35-4M-KC, KRR-3-35-4M-KS, KRR-3-35-5M-KS, KRR-PNL-200-25, KRR-PNL-200-25-C and KRR-PNL-300-35	有毒有害物质或元素 (Toxic or hazardous Substances and Elements)						
	部件名称 Part name	铅 (Pb)	汞(Hg)	镉(Cd)	六价铬 (Cr6)	多溴联苯 (PBB)	多溴二苯 (PBDE)
	电缆及电缆组件 Cables and Cable Assemblies	X	0	0	0	0	0
	电路模块 Circuit Modules	X	0	0	0	0	0
	显示装置 Display Assemblies	X	0	0	0	0	0
	组装风扇 Fan Assemblies	X	0	0	0	0	0
	金属零件 Metal Parts	X	0	0	0	0	0
塑料和聚合物零件 Plastic and Polymeric Parts	X	0	0	0	0	0	
KOR-PNL-100-15, KOR-PNL-200-20KRR-ELITE-25-PS and KRR-ELITE-35-PS	有毒有害物质或元素 (Toxic or hazardous Substances and Elements)						
	部件名称 Part name	铅 (Pb)	汞(Hg)	镉(Cd)	六价铬 (Cr6)	多溴联苯 (PBB)	多溴二苯 (PBDE)
	电缆及电缆组件 Cables and Cable Assemblies	X	0	0	0	0	0
	电路模块 Circuit Modules	X	0	0	0	0	0
	显示装置 Display Assemblies	X	0	0	0	0	0
	金属零件 Metal Parts	X	0	0	0	0	0
	塑料和聚合物零件 Plastic and Polymeric Parts	X	0	0	0	0	0
K-FRM-100C, K-FRM-100CS and K-FRM-PSU	有毒有害物质或元素 (Toxic or hazardous Substances and Elements)						
	部件名称 Part name	铅 (Pb)	汞(Hg)	镉(Cd)	六价铬 (Cr6)	多溴联苯 (PBB)	多溴二苯 (PBDE)
	电缆及电缆组件 Cables and Cable Assemblies	X	0	0	0	0	0
	电路模块 Circuit Modules	X	0	0	0	0	0
	组装风扇 Fan Assemblies	X	0	0	0	0	0
	金属零件 Metal Parts	X	0	0	0	0	0
	塑料和聚合物零件 Plastic and Polymeric Parts	X	0	0	0	0	0
KSP-PNL-1ME-KBD	有毒有害物质或元素 (Toxic or hazardous Substances and Elements)						
	部件名称 Part name	铅 (Pb)	汞(Hg)	镉(Cd)	六价铬 (Cr6)	多溴联苯 (PBB)	多溴二苯 (PBDE)
	电缆及电缆组件 Cables and Cable Assemblies	X	0	0	0	0	0
	电路模块 Circuit Modules	X	0	0	0	0	0
	金属零件 Metal Parts	X	0	0	0	0	0
	塑料和聚合物零件 Plastic and Polymeric Parts	X	0	0	0	0	0
	K-FRM-100S and KOR-PNL-PSU,	有毒有害物质或元素 (Toxic or hazardous Substances and Elements)					
部件名称 Part name		铅 (Pb)	汞(Hg)	镉(Cd)	六价铬 (Cr6)	多溴联苯 (PBB)	多溴二苯 (PBDE)
电缆及电缆组件 Cables and Cable Assemblies		X	0	0	0	0	0
电路模块 Circuit Modules		X	0	0	0	0	0
KAYN-ELITE-PS, KAYN-PRO-PS, K-FRM-100CS-KIT,	有毒有害物质或元素 (Toxic or hazardous Substances and Elements)						
	部件名称 Part name	铅 (Pb)	汞(Hg)	镉(Cd)	六价铬 (Cr6)	多溴联苯 (PBB)	多溴二苯 (PBDE)
电缆及电缆组件 Cables and Cable Assemblies	X	0	0	0	0	0	
电路模块 Circuit Modules	X	0	0	0	0	0	
金属零件 Metal Parts	X	0	0	0	0	0	

K-FRM-CTRL-CS, K-FRM-INPUT, K-FRM-IO, K-FRM-IO-10GE, K-FRM-ME-DPM-S, K-FRM-OUTPUT and KRR-PRO-PS 部件名称 Part name	铅 (Pb)	汞(Hg)	镉(Cd)	六价铬 (Cr6)	多溴联苯 (PBB)	多溴二苯 (PBDE)
电路模块 Circuit Modules	X	O	O	O	O	O
金属零件 Metal Parts	X	O	O	O	O	O
KOR-PNL-LAN-20 部件名称 Part name	有毒有害物质或元素 (Toxic or hazardous Substances and Elements)					
	铅 (Pb)	汞(Hg)	镉(Cd)	六价铬 (Cr6)	多溴联苯 (PBB)	多溴二苯 (PBDE)
电缆及电缆组件 Cables and Cable Assemblies	X	O	O	O	O	O
KOR-PNL-KIT 部件名称 Part name	有毒有害物质或元素 (Toxic or hazardous Substances and Elements)					
	铅 (Pb)	汞(Hg)	镉(Cd)	六价铬 (Cr6)	多溴联苯 (PBB)	多溴二苯 (PBDE)
电路模块 Circuit Modules	X	O	O	O	O	O
<p>O: 表示该有毒有害物质在该部件所有均质材料中的含量均在 SJ/T 11364-2014 规定的限量要求以下。 O: Indicates that this toxic or hazardous substance contained in all of the homogeneous materials for this part is below the limit requirement in GB/T 26572-2011.</p> <p>X: 表示该有毒有害物质至少在该部件的某一均质材料中的含量超出 SJ/T 11364-2014 规定的限量要求。 X: Indicates that this toxic or hazardous substance contained in at least one of the homogeneous materials for this part is above the limit requirement in GB/T 26572-2011.</p> <p>技术条款解释: 此声明所依据之数据由 Grass Valley 环境管理部门向我们的部件供应商获取。Grass Valley 公司相信此信息的正确性, 但由于数据来源于公司外部, 我们无法保证它的完整和准确。所有这些特性可能在未获通知的情况下更改。 Technical explanations: This statement is based on the information provided by our suppliers of components and collected through our Grass Valley's environmental management system. Grass Valley believes this environmental information to be correct but cannot guarantee its completeness or accuracy as it is based on data received from sources outside our company. All specifications are subject to change without notice.</p>						

Electromagnetic Compatibility



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

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



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

- EN 55022 Class A Radiated and conducted emissions
- EN 61000-3-2 Limits for harmonic current emissions
- EN 61000-3-3 Limitation of voltage fluctuations and flicker

- EN 61000-4-2 Electrostatic discharge immunity
- EN 61000-4-3 Radiated, radio-frequency, electromagnetic field immunity
- EN 61000-4-4 Electrical fast transient immunity
- EN 61000-4-5 Surge transient immunity
- EN 61000-4-6 Conducted disturbances immunity
- EN 61000-4-8 Power frequency magnetic field immunity
- EN 61000-4-11 Voltage dips, short interruptions and voltage variations immunity

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1 Introduction

Overview

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

The following K-Frame Video Processors are the heart of the system, providing extensive video switching and signal processing capabilities:

- Standard
- Compact
- S-series
- V-series

This functionality is controlled using any Control Panel with any Video Processor Frame:

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

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

Features

General

- Fully digital 10-bit 4:2:2 video switcher including Future-Ready 4K (available on Standard, Compact, S-series, and V-series) and 1080p (level A or B) support.
- Optional smart I/O modules provide up/down/cross-conversion when licensed with SetDef and MatchDef.
- The optional K-FRM-IO-10GE IP I/O board for the K-Frame video processing engine offers Video-Over-IP connectivity for all K-Frame Video Production Switchers (except V-series), using either uncompressed SMPTE 2022-6 or 4K 1-wire compressed IP.
- Integrated Macro Builder/Editor allows users to edit macros online or offline on a PC running the menu application.
- Optional DoubleTake™ (split M/E mode) effectively increases the number of M/Es and adds flexibility to Suites operation while FlexiKey™ programmable clean feed mode supports separately programmable configurations of keyers from four M/E outputs.
- Aux bus transitions for dissolves and wipes on aux bus outputs.

- Interfaces with Grass Valley routers and Kaleido Multiviewers and their control systems.
- Optional Integrated Image Store capable of delivering up to 64 GB storage (up to 32GB for S-series and V-series) of Stills (3,000 images) or “Movies” (up to 50 seconds) of 1080p video.
- LDK Series and LDX Series camera control with Ethernet tally via Connect Gateway.
- Optional integrated external ClipStore provides multiple channels of video/key pairs for up to 10+ hours of nonvolatile video/key/audio clip content.
- 999 macros with many new ways to recall macros from the Control Panel.
- 1,000 E-MEM registers with Define E-MEM for fine control in creation and editing of effects.
- Optional M/E Previewer provides a method to check and monitor any input to an M/E on the Standard, Compact, and Compact S-series.
- VDCP Ethernet connection.
- Ethernet tally connection for integration with external tally systems.
- Optional RGB color correction on M/E buses and aux bus outputs.
- Source Rules:
 - Links keyers to sources.
 - Settings for On/Off/Left Alone on every M/E.
 - Full look-ahead preview of rules.
- Hot-swappable, front/rear removable modules and power supplies.
- Optional multiple Multiviewer capability with 5 pre-configured layouts (maximum 14 panes per layout) with On-Air and Preview tally.

K-Frame Standard Frame

- Up to 192 inputs and 96 outputs.
- Up to 9 M/Es, accessible across two suites—by using DoubleTake this may be increased to 18 virtual M/Es.
- Every M/E has six keyers with standard keying modes including Chroma Key, two frame stores per keyer—every keyer except for Controller M/E can use the pool of floating 3D iDPMs.
- 2D-DPMs (resizers) on every keyer, with 6 Video/Key pairs per M/E so iDPMs can be utilized for more complex effects.
- The Controller M/E has a complement of 6 full keyers with Chroma Key and 2D-DPMs.
- Up to 16 iDPMs (Integrated Digital Picture Manipulators), assigned as either floating iDPMs or within an eDPM at user’s discretion.

K-Frame Compact Frame

- Up to 80 inputs and 48 outputs.
- Up to 5 M/Es, accessible across two suites, increased to 10 virtual M/Es by using DoubleTake.

- Every M/E has six keyers with standard keying modes including Chroma Key, two frame stores per keyer—every keyer except for Controller M/E can use the pool of optional floating 3D iDPMs.
- 2D-DPMs (resizers) on every keyer, with 6 Video/Key pairs per M/E.
- Up to 8 iDPMs (Integrated Digital Picture Manipulators), assigned as either floating iDPMs or within an eDPM at user's discretion.

K-Frame Compact S-series Frame

- Up to 80 inputs and 48 outputs.
- Up to 6 M/Es, accessible across two suites, increased to 12 virtual M/Es by using DoubleTake.
- Every M/E has four keyers with standard keying modes including Chroma Key—every keyer can use the pool of floating 3D iDPMs.
- 2D-DPMs (resizers) on every keyer, with 4 Video/Key pairs per M/E.
- The Controller M/E has a complement of 6 full keyers with Chroma Key and 2D-DPMs.
- Up to 8 iDPMs (Integrated Digital Picture Manipulators), assigned as either floating iDPMs or within an eDPM at user's discretion.
- Two Built-in multiviewers with five pre-configured layouts (maximum 14 panes per layout) with On-Air and Preview tally.

K-Frame V-series Frame

- Up to 32 SDI inputs and 16 SDI outputs.
- Up to four Media Port inputs and two Media Port outputs.
- Up to 3 M/Es plus 2 VPEs, accessible across two suites, increased to 10 virtual M/Es by using DoubleTake.
- Every M/E and VPE has four keyers with standard keying modes including Chroma Key—every keyer can use the pool of floating 3D iDPMs.
- 2D-DPMs (resizers) on every keyer, with 4 Video/Key pairs per M/E and VPE.
- Two Built-in multiviewers with five pre-configured layouts (maximum 14 panes per layout) with On-Air and Preview tally.

GV Korona Control Surfaces

A GV Korona control surface consists of:

- A Control Panel with stripes of buttons,
- System Control area with a Device Control area,
- Switched preview,
- Alternate bus and Aux bus delegation,
- Macro controls,
- Controls for background and keyer source selection,
- Multi-Function and E-MEM area,

- Horizontal keyer cut/mix,
- Multi-function keypad and display, and
- Includes a built-in multi-touch display and menu system.

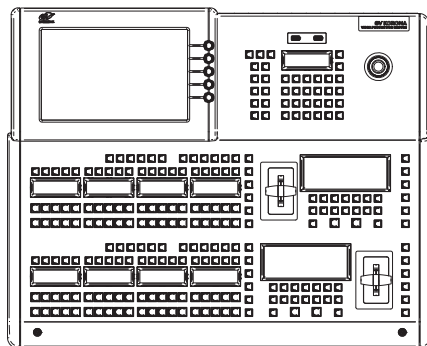


GV Korona Control Surfaces

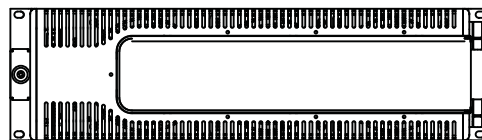
Basic Single Suite GV Korona Panel System Example

A Basic K-Frame GV Korona system consists of a Control Panel with a fully integrated multi-touch menu system and a V-series 3RU Frame.

GV Korona 2-M/E 20 Control Panel



K-Frame V-series 3-RU

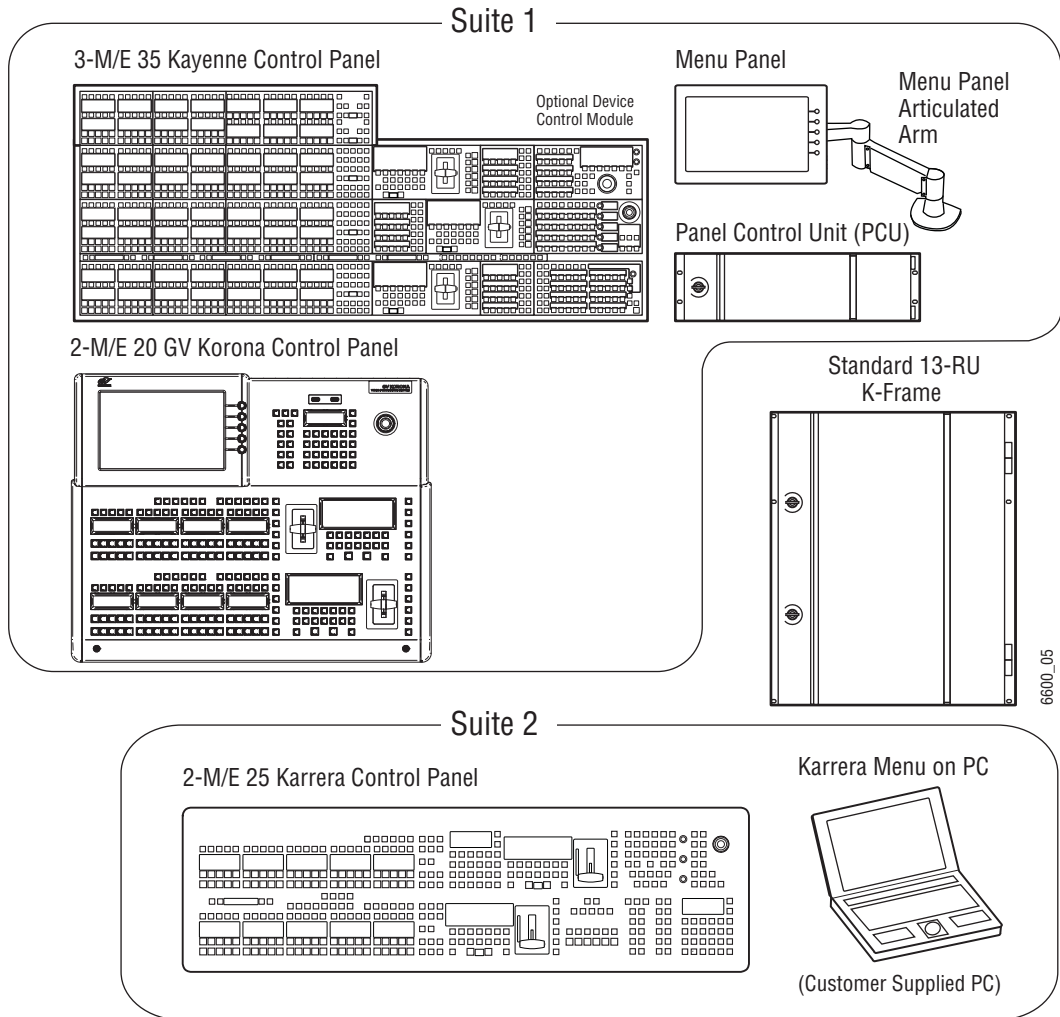


GV Korona Single Suite S-Series Frame Example

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Multiple Suites and Control Surfaces Example

Any K-Frame Kayenne, Karrera, or GV Korona Control Panel can be configured with any K-Frame Video Processor. The K-Frame system can be subdivided into two suites and each suite can have up to two control surfaces. Hardware resources in the Video Processor Frame can be assigned to an individual suite during configuration, essentially creating two separate switchers sharing one Frame. See the *K-Frame Installation & Service Manual* for suite configuration information.



K-Frame Multi-Suite Frame Example

Soft Panel (KSP) Option



Soft Panel Application

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

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

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

Menu Application

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

Supported Control Protocols

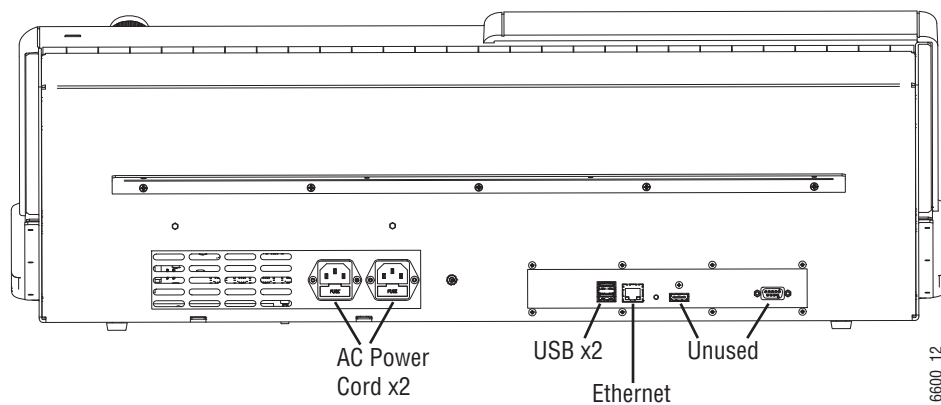
- PBus II
- Grass Valley CPL (Control Point Language) for Control Panel, Menu, Frame, and Automation systems
- GPI Inputs and Outputs
- Serial BVW-75 for VTR control
- Odetics protocol for VTR control
- AMP (advanced media protocol) for Profile PVS, Profile XP Media Platform, K2, M-Series, Turbo iDDR, and T2 iDDR systems over Ethernet
- Grass Valley Native Protocol for routers/routing control systems (Trinix/Trinix NXT, Venus™, Triton™, and third-party routers; Jupiter NV9000 and NV920, and Encore router control systems)
- Tally (contact closure)
- K-Frame Ethernet Tally protocol
- Grass Valley Editor protocol
- SNMP system monitoring
- Serial and Ethernet VDCP
- LDK Series & LDX Series™ camera control with Ethernet tally via Connect Gateway
- RossTalk for XPression con

Control Surface Cabling

Overview

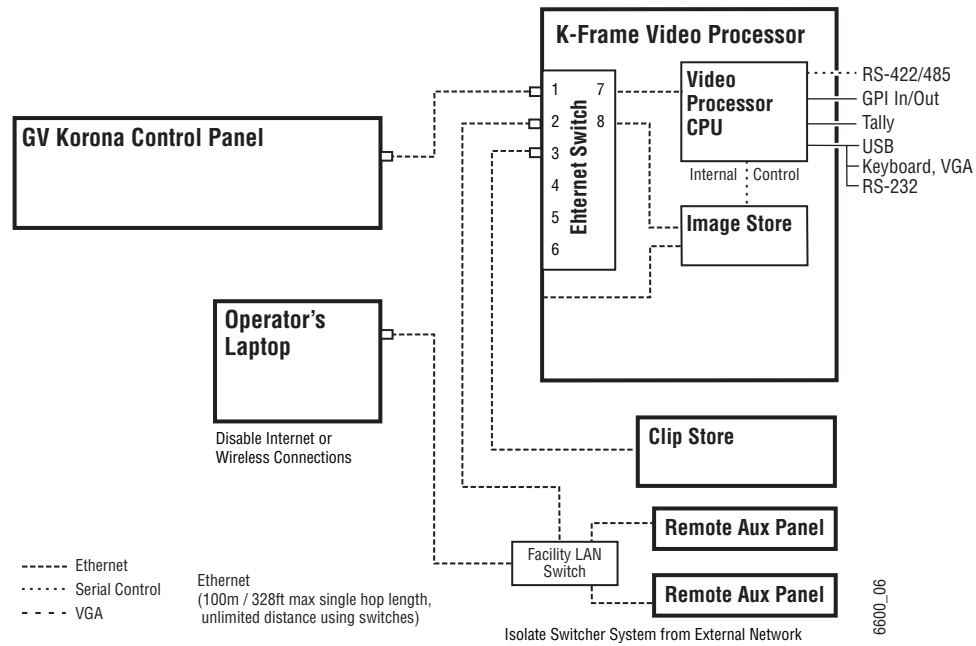
GV Korona Control Panel cable connections:

- An Ethernet connector for communication between the Control Panel and the Video Processor Frame,
- Two USB connectors for a keyboard and mouse (not required),
- Two AC power cord connectors for the redundant power supplies, and
- Unused, non-typical, video and serial ports for *Grass Valley Manufacturing test purposes only*.



K-Frame GV Korona Control Panel Connections

For system communication, the K-Frame Video Processor has a built-in Ethernet switch. Tally outputs and GPI I/O (General Purpose Interface Input/Output) control are also provided.



K-Frame GV Korona System Communications Overview

CAUTION: The facility network used for your K-Frame system (and other video production equipment) should be kept separate from any external network and whenever possible, connected directly to the K-Frame's Ethernet switch to prevent network traffic from adversely affecting K-Frame system operation.

Network Cabling

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

K-Frame Ethernet Tally Verses Serial Tally

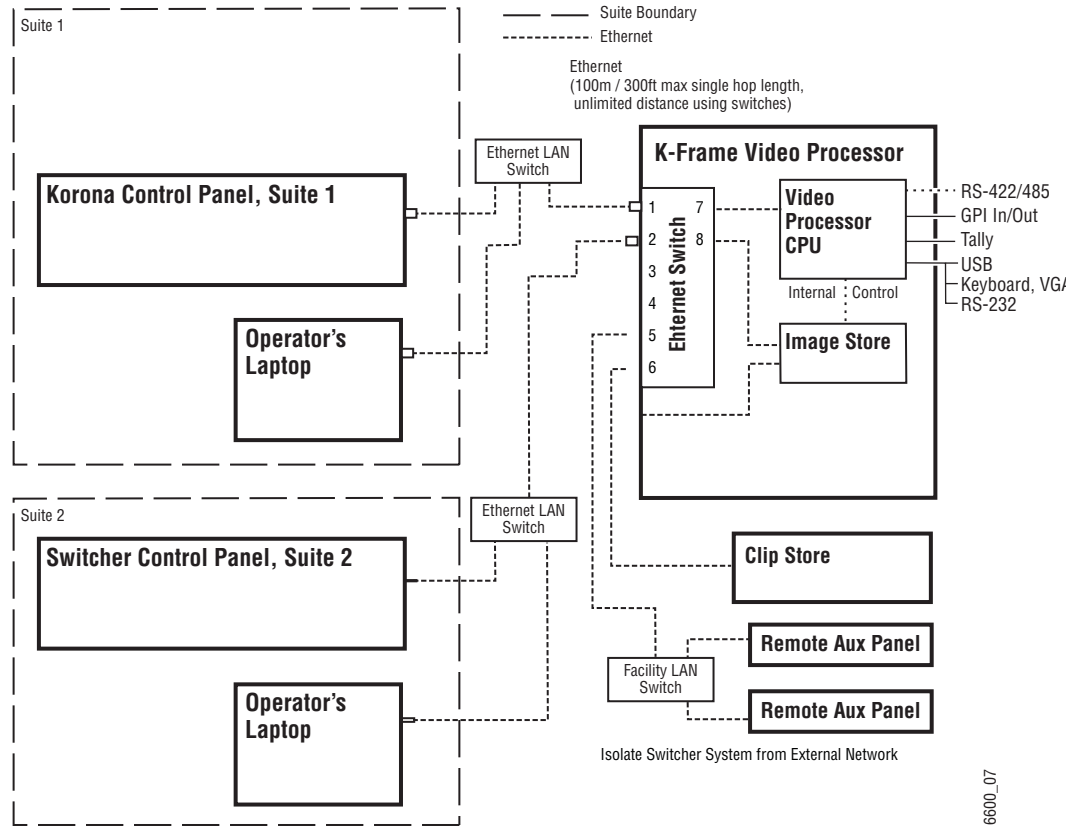
The K-Frame tally system provides significantly more information than the bandwidth of the serial connection. Therefore, we support Ethernet tally only. However, many tally vendors do support our Ethernet tally system so contact your tally vendor for K-Frame Ethernet tally support information.

Suites and Control Surfaces

A K-Frame system can be divided into two suites. K-Frame Video Processor resources (M/Es, eDPMs, external devices, etc.) can be assigned to each suite, creating two switchers with

one K-Frame. Each suite can be subdivided into two control surfaces. Each control surface is intended for use by a single operator. The K-Frame Control Panel system flexibility permits locating these control surfaces in physically separate locations.

The following suite example requires two dedicated, customer supplied Ethernet switches.



Two Suite K-Frame GV Korona System

3

Control Surface Dimensions & Cooling

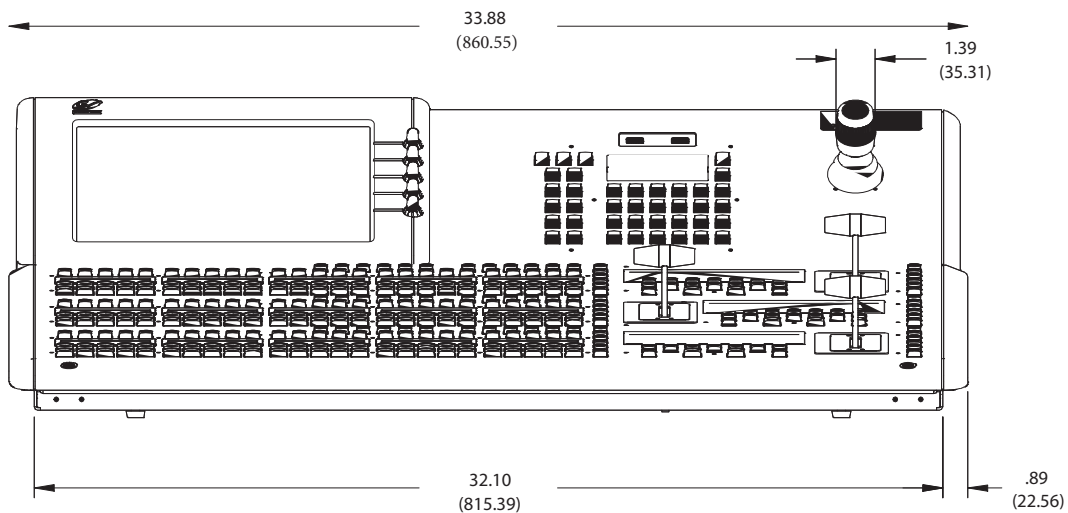
GV Korona Control Surfaces

Use the GV Korona control surface cutout dimensions to prepare your consoles for installation:

- 3-M/E GV Korona Control Panel Cutout Dimensions, [page 15](#)
- 2-M/E GV Korona Control Panel Cutout Dimensions, [page 18](#)
- 1-M/E GV Korona Control Panel Cutout Dimensions, [page 21](#)

3-M/E GV Korona Control Panel Dimensions

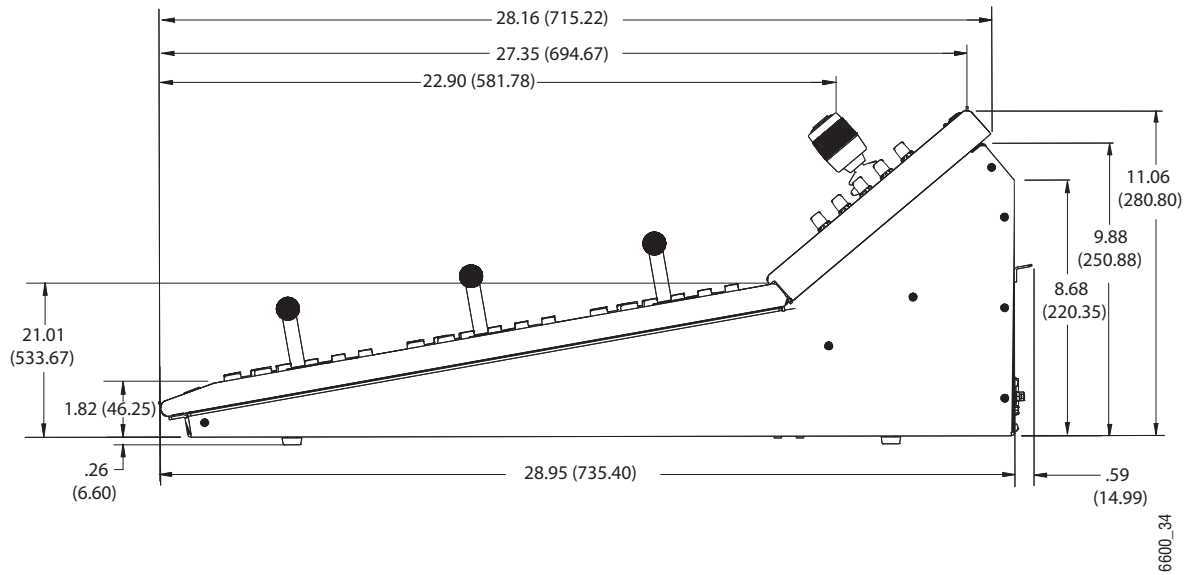
IMPORTANT: All dimensions are in inches with millimeters in parenthesis.



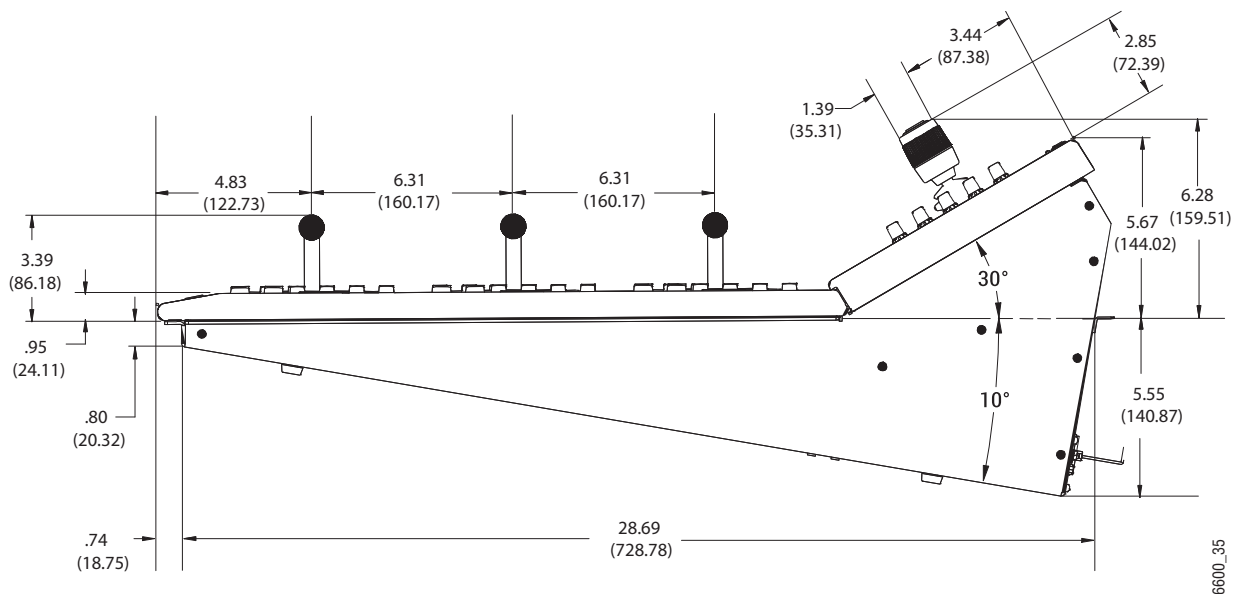
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3-M/E GV Korona Control Panel Front Dimensions

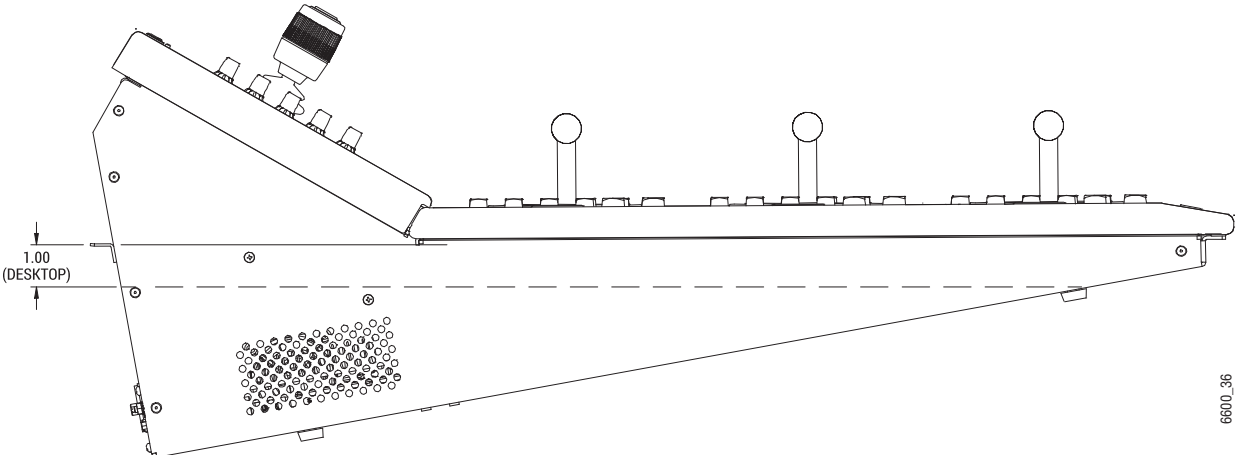
Control Surface Dimensions & Cooling
 3-M/E GV Korona Control Panel Dimensions



3-M/E GV Korona Control Panel Side Dimensions



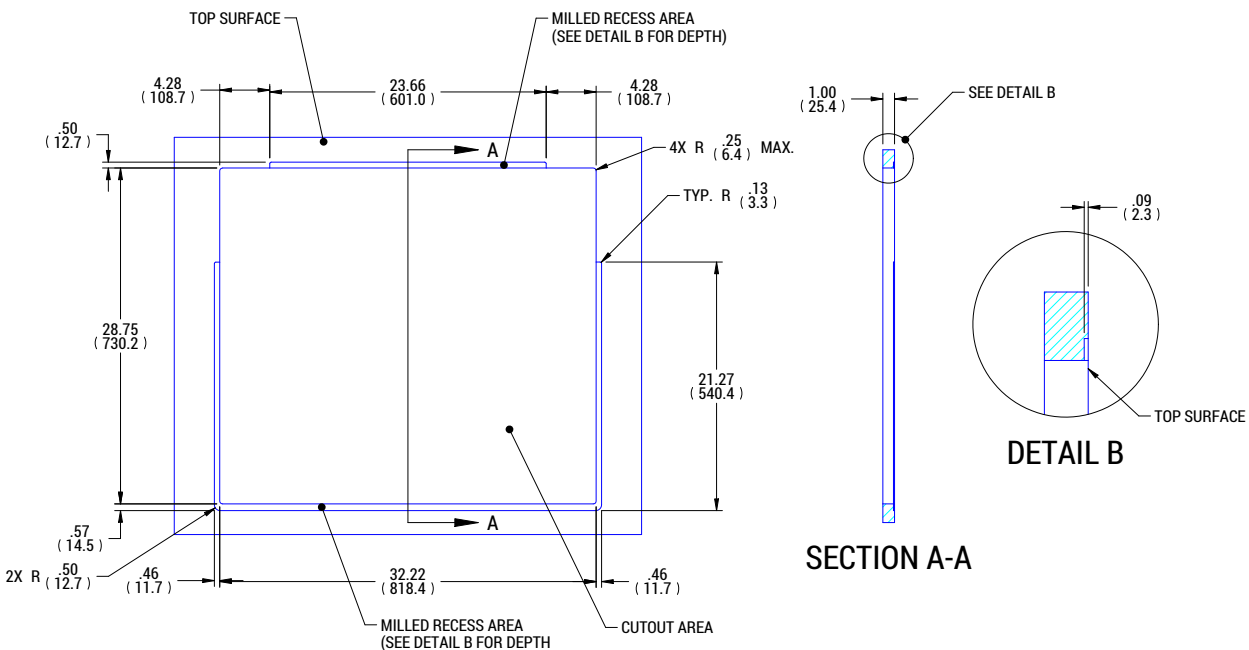
3-M/E GV Korona Control Panel Mounting Dimensions



3-M/E GV Korona Control Panel Left Side Mount to Vent Dimensions

3-M/E GV Korona Control Panel Cutout Dimensions

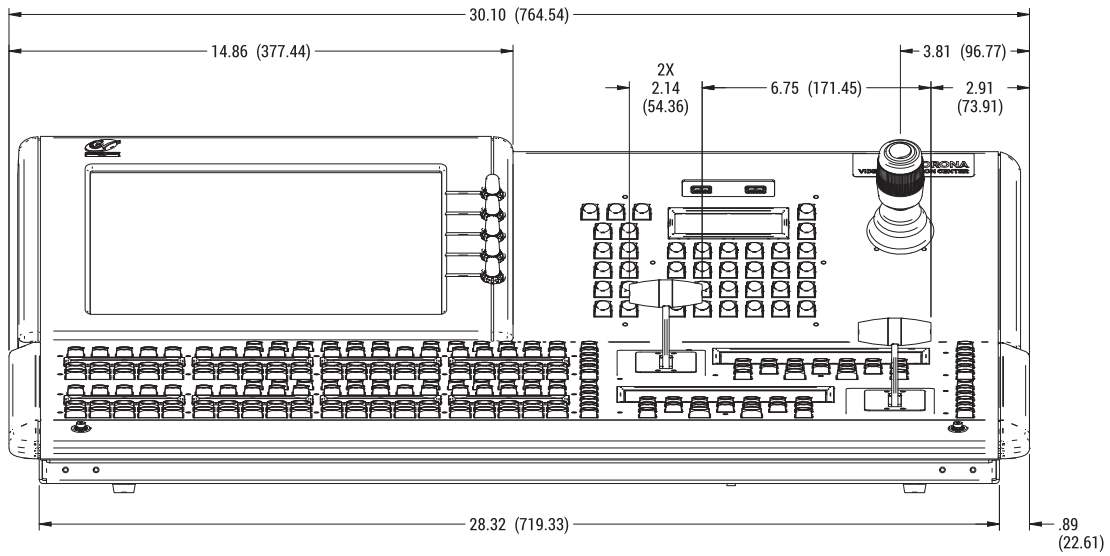
IMPORTANT: All dimensions are in inches with millimeters in parenthesis.



3-M/E GV Korona Control Panel Cutout Dimensions

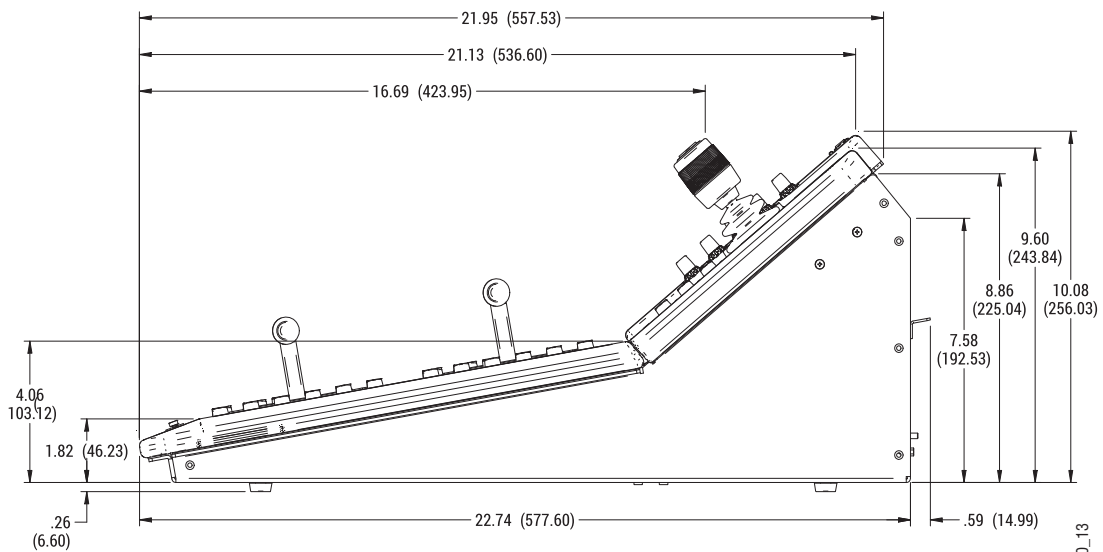
2-M/E GV Korona Control Panel Dimensions

IMPORTANT: All dimensions are in inches with millimeters in parenthesis.



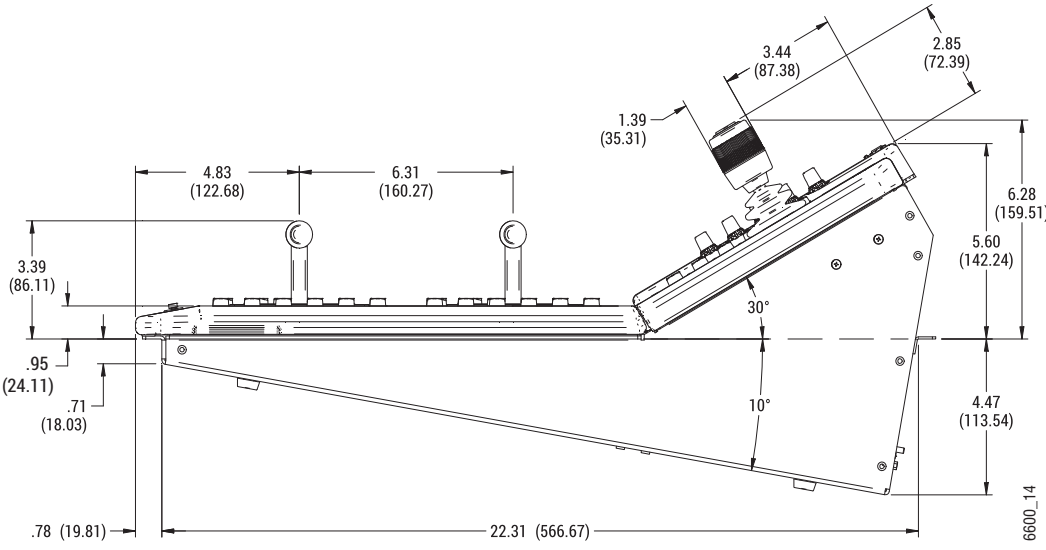
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2-M/E GV Korona Control Panel Front Dimensions

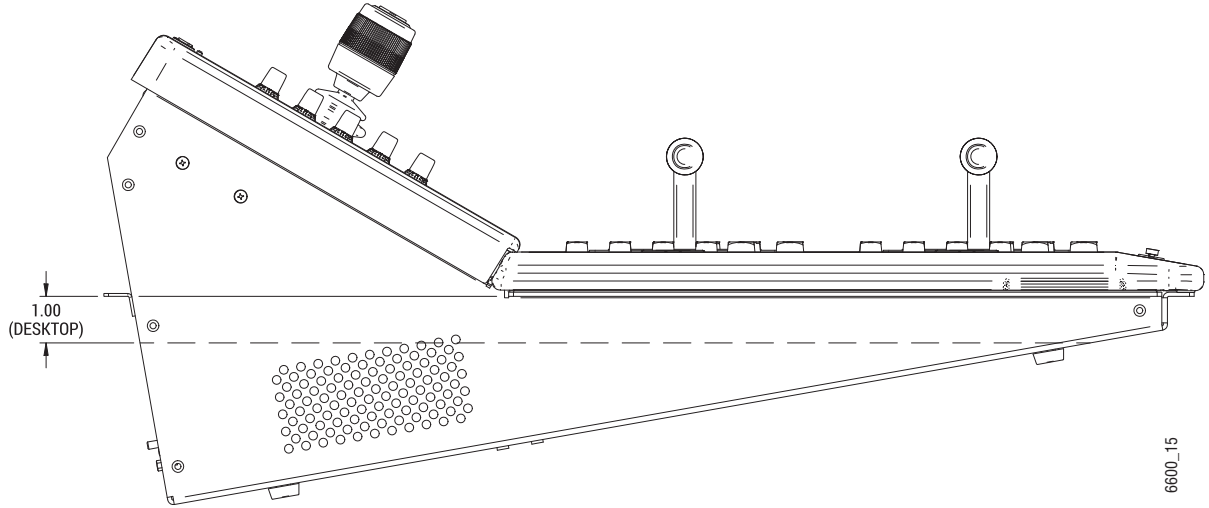


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2-M/E GV Korona Control Panel Side Dimensions



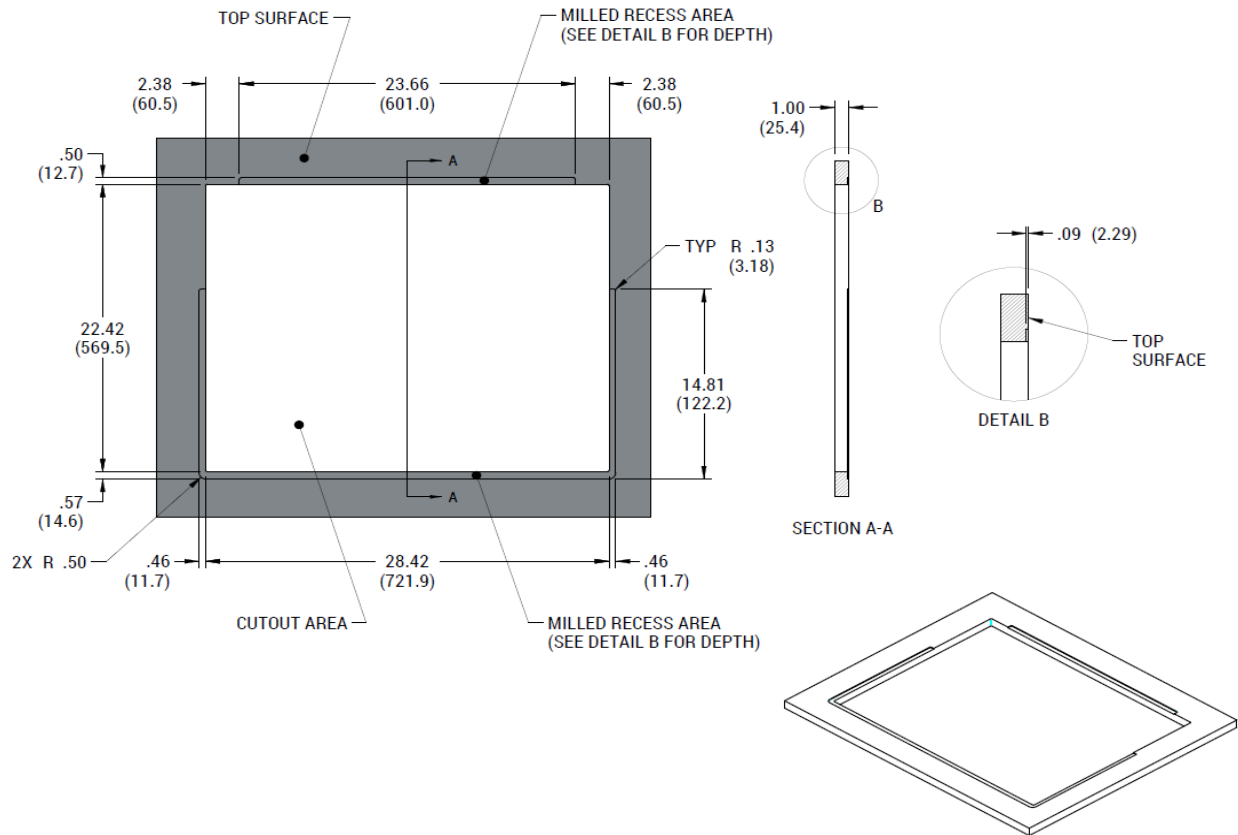
2-M/E GV Korona Control Panel Mounting Dimensions



2-M/E GV Korona Control Panel Left Side Mount to Vent Dimensions

2-M/E GV Korona Control Panel Cutout Dimensions

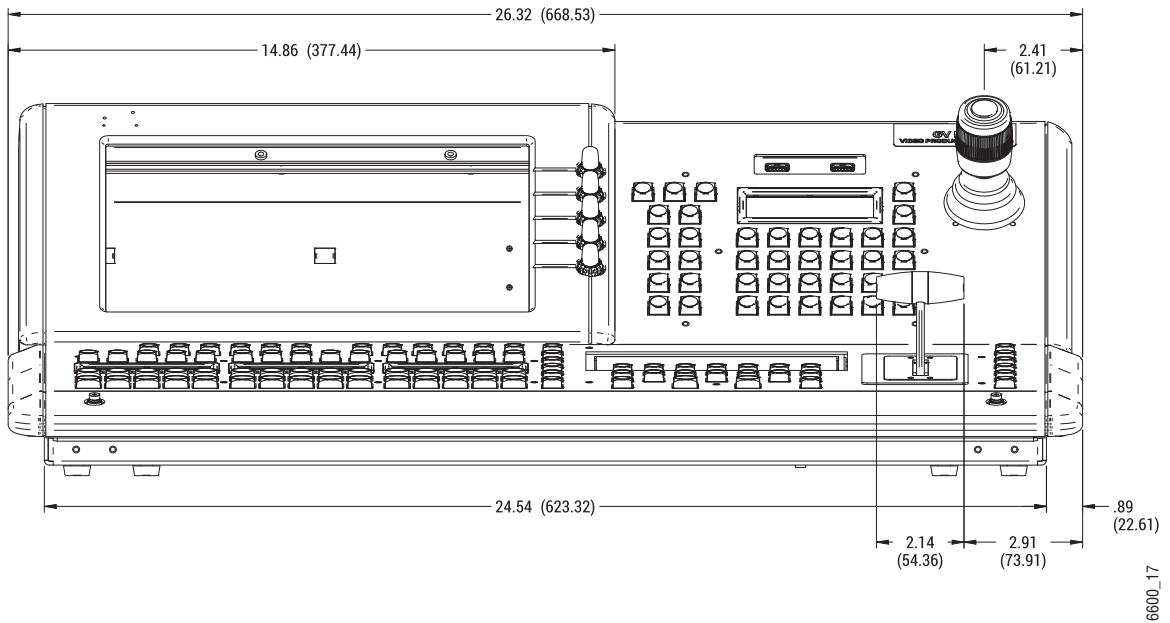
IMPORTANT: All dimensions are in inches with millimeters in parenthesis.



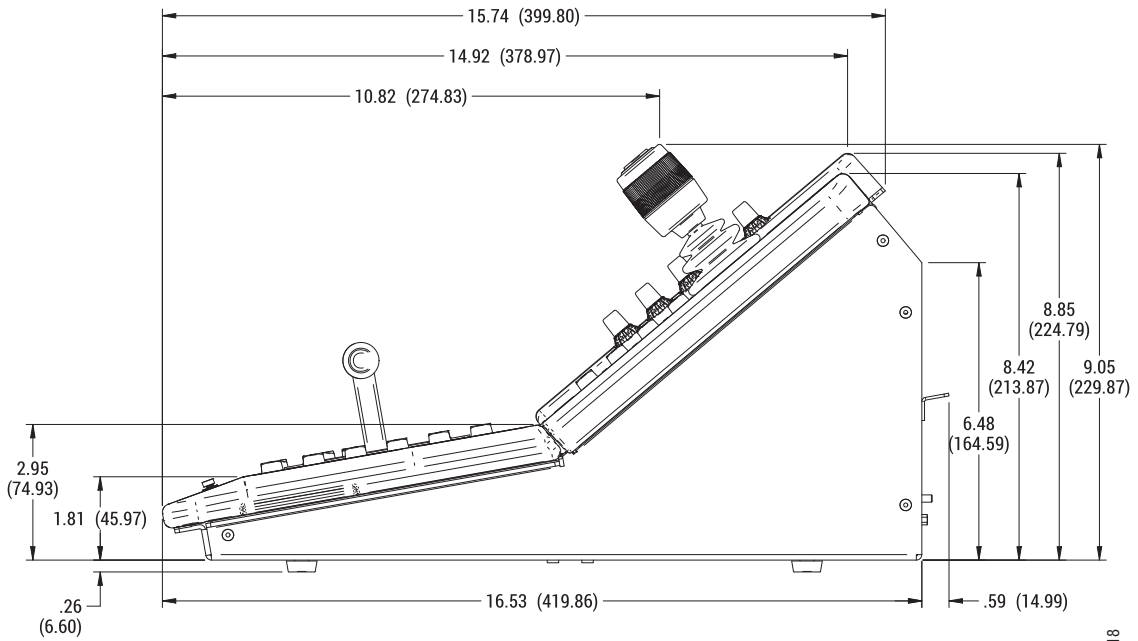
2-M/E GV Korona Control Panel Cutout Dimensions

1-M/E GV Korona Control Panel Dimensions

IMPORTANT: All dimensions are in inches with millimeters in parenthesis.

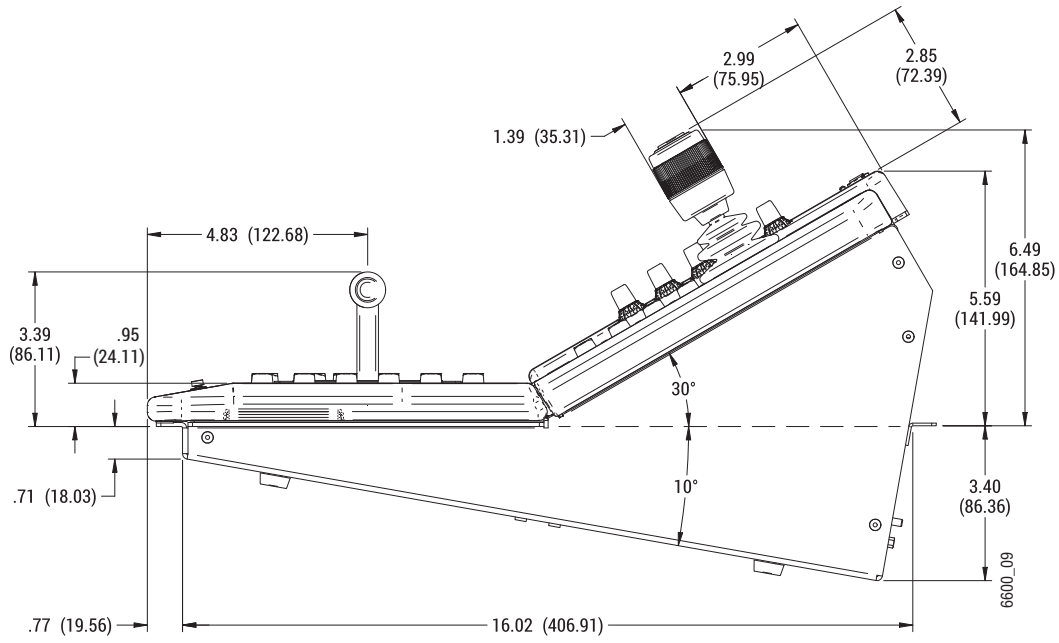


1-M/E GV Korona Control Panel Front Dimensions

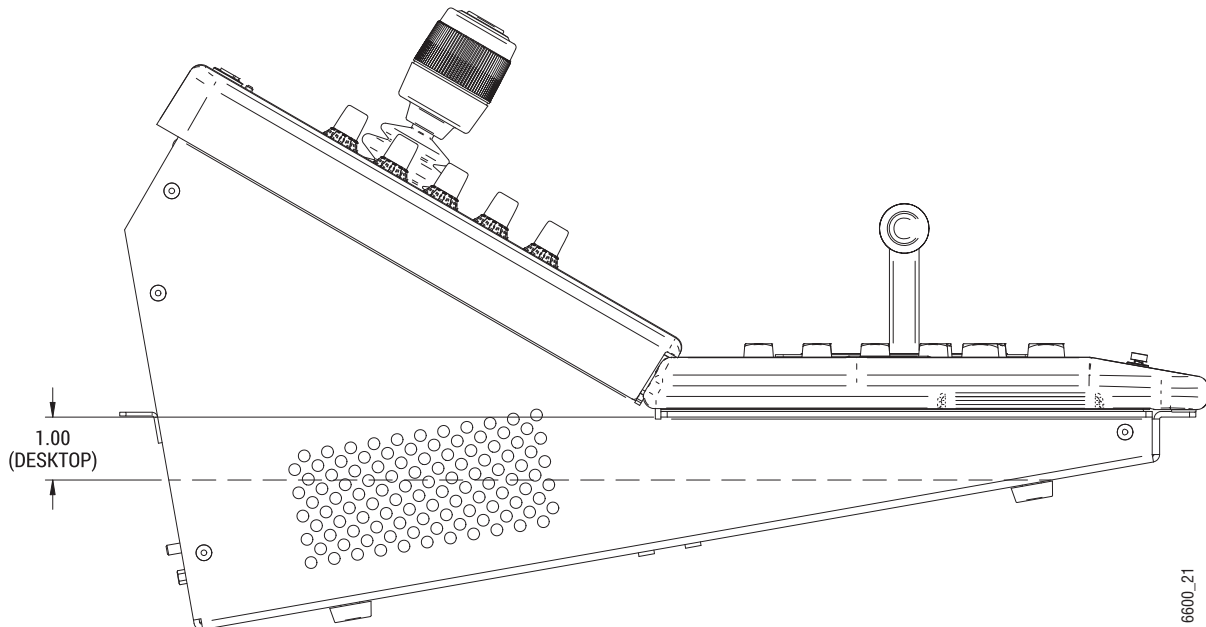


1-M/E GV Korona Control Panel Side Dimensions

Control Surface Dimensions & Cooling
 1-M/E GV Korona Control Panel Dimensions



1-M/E GV Korona Control Panel Mounting Dimensions

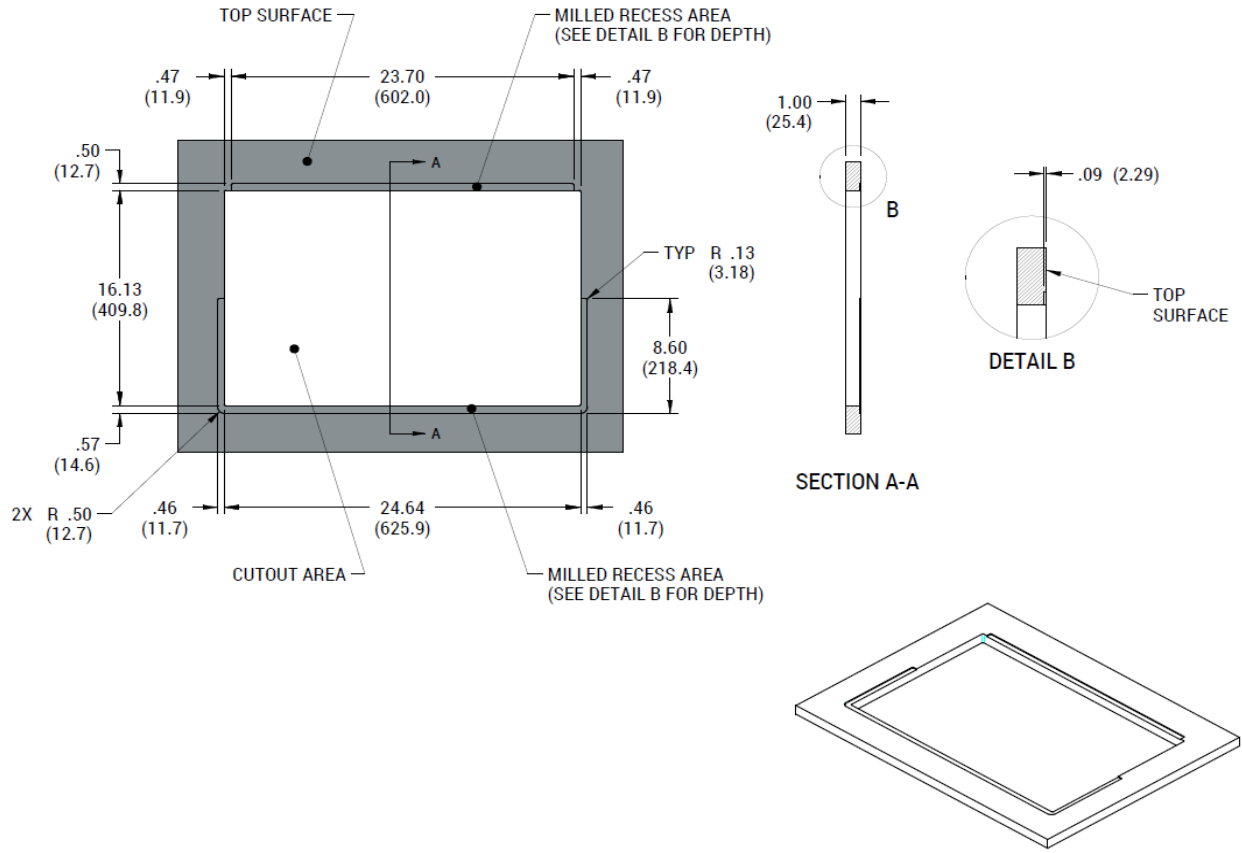


1-M/E GV Korona Control Panel Left Side Mount to Vent Dimension

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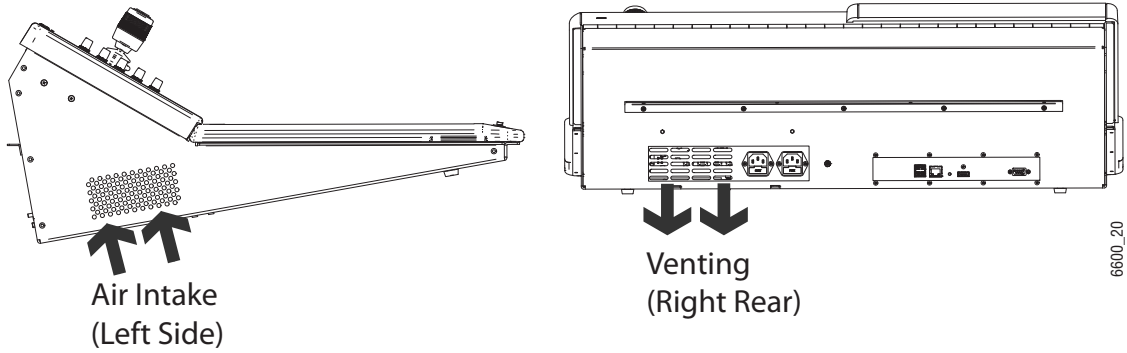
1-M/E GV Korona Control Panel Cutout Dimensions

IMPORTANT: All dimensions are in inches with millimeters in parenthesis.



GV Korona Control Panel Cooling

Cooling airflow is created in each GV Korona Control Panel by a fan pulling air in from the lower left side of the Control Panel and venting it out through the rear of the chassis.



1-M/E GV Korona Control Panel Airflow

A Specifications

GV Korona Mechanical Specifications

Component	Depth	Width	Height	Weight
3-M/E GV Korona Control Panel	28.69in (728.78mm)	33.88in (860.55mm)	11.06in (280.80mm)	61.4lbs
2-M/E GV Korona Control Panel	22.74in (557.60mm)	30.10in (764.54mm)	10.08in (256.03mm)	38.7lbs
1-M/E GV Korona Control Panel	16.53in (419.86mm)	26.32in (668.53mm)	9.05in (229.87)	27.1lbs

Environmental

Storage temperature	-20 to 70 deg C (-4 to 158 deg F)
Operating temperature	0 to 40 deg C (32 to 104 deg F)
Relative humidity	0-95% (non-condensing)
Electromagnetic environment	E2 (according to EN55103-1, -2)

Network Connections

Type of connection	10/100/1000 Base T
Protocol	TCP(UDP)/IP, Auto speed detection
Cable and connectors	CAT5 UTP, RJ45 connectors
Maximum cable length	100m / 300ft

Power

Line Voltage	100V-240V AC +/-10% autorange, power factor corrected. Automatic line-voltage sensing for 120V and 240V sources.
Line frequency	50/60Hz +/- 5%
Power consumption	50W
Leakage current	< 2.5 mA

Certifications and Compliances

FCC Emission Control

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense. Changes or modifications not expressly approved by Grass Valley Group can affect emission compliance and could void the user's authority to operate this equipment.

Canadian EMC Notice of Compliance

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

Le présent appareil numérique n'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

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

Canadian Certified Power Cords

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

Canadian Certified AC Adapter

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

FCC Emission Limits

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesirable operation.

Certification

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

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

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

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

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

DEKRA Certificate

Certifying that Grass Valley product meets the ISO 9001: 2008 standard.

CERTIFICATE

Certificate Number: 510040.001

The Quality System of:

Grass Valley, A Belden Brand and its Grass Valley Affiliates

Headquarters: 3499 Douglas-B Floreani St. Laurent, Quebec H4S 2C6 Canada	3030 NW Aloclek Drive Hillsboro, OR 97124 United States
Street Bergschot 69 4817 PA Breda The Netherlands	125 Crown Point Court Grass Valley, CA 95945 United States

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

Dr. Cem O. Onus
Managing Director, Business Assurance
DEKRA Certification, Inc.

The method of operation for quality certification is defined in the DEKRA Master Services Agreement. Integral publication of this certificate is allowed.

DEKRA Certification, Inc.
1120 Welsh Road, Suite 210
North Wales, PA 19454
USA
Ph: (215)997-4519
Fax: (215)997-3810
ISO 9001 Cert 02662015 Rev C

Accredited By:
ANAB





Grass Valley Technical Support

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

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

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

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