

K-Frame Production Switcher Family Catalog



PRODUCTION SWITCHERS

Production switchers from Grass Valley® are engineered for fast, efficient and creative productions. Operations are optimized with easy-to-load show programming, responsive automation and powerful features using macros and timelines. As an integral component of creating live television coverage of sports, entertainment and news from both studio and mobile installations, Kayenne®, Karrera® and GV Korona® panels include familiar controls and intuitive interfaces. These systems define the industry standard operation, so training costs are lower and finding operators is easier.



These production switchers are powered by Grass Valley's K-Frame™ XP video processing engines — providing the ultimate in production innovation, functionality, power and flexibility. K-Frame production switchers share the same workflow — whether K-Frame SXP, the most powerful switcher in a new generation of switchers for live HD, UHD 4K and even 8K production, or the K-Frame VXP, the powerful entry level of the K-Frame processing engines. This no-compromise approach to features and functionality affords end users peace of mind that, regardless of size, a K-Frame is always just that — a K-Frame.

K-Frame production switchers integrate with camera controllers, routers, server clip storage, third-party tally control and news automation systems for a seamless production ecosystem.

With four Emmy® Awards for production switcher technologies, Grass Valley is the proven leader when it comes to combining power and creativity to deliver the compelling programming and reliability that viewers expect.

4K and IP Scalability

The K-Frame XP-series provides a no-compromise approach to 4K with full raster processing in 4K with no reduction in I/O count, M/Es, keyers or DPMs regardless of format: HD, 1080p, 3G, or 4K UHD (2160p). Build the same high-quality productions you always have, but in 4K.

The K-Frame XP-series makes 8K productions possible by using the full raster 4K 2160p processing and EZ-8K Mode. The K-Frame XP becomes an 8K switcher with up to 48 inputs x 24 outputs and 4 M/Es (three keyers with 2D DPMs with perspective each). The workflow, E-MEMs, and macros are the same as in the HD and 4K UHD productions.

The K-Frame frames have both SDI and IP I/O cards supporting the SMPTE ST 2110 industry standard with both 25 GbE and 100 GbE ports. The K-Frame SXP has up to 192 inputs and 96 outputs with up to 10 16x8 I/O cards and four 8x4 I/O cards. The K-Frame CXP has up to 80 inputs and 40 outputs with four 16x8 and two 8x4 I/O cards. The configuration of the IP I/O cards can

be simplified using IS-04 and IS-05 or by importing a specially formatted Excel spreadsheet.

Even with the more affordable K-Frame VXP, you can be confident that when you transition from traditional HD to 3G or 4K, your switcher maintains its value while not putting additional strain on your CapEx budget. The K-Frame VXP has up to 48 inputs and 24 outputs with the same 8x4 I/O cards as utilized in SXP and CXP frames.

All K-Frame Video Production Centers support and pass HDR source content. Additionally, all inputs and outputs can be color mapped HDR(HLG)<->SDR, as well as utilize 3D LUTs.

Key Features

K-Frame XP-series

SXP Frame:

- Up to 192 inputs and 96 outputs (all SDI, all IP or mixed)
- Up to 9 M/Es, every M/E has six keyers with keying modes including chromakey, 2 frame stores, and 2D DPMs w/ perspective. Additionally, every keyer can utilize optional 3D iDPMs from a pool of floating 3D DPMs

CXP Frame:

- Up to 80 inputs and 40 outputs (all SDI, all IP or mixed)
- Up to 6 M/Es, every M/E has six keyers with keying modes including chromakey, 2 frame stores, and 2D DPMs w/ perspective. Additionally, every keyer can utilize optional 3D iDPMs from a pool of floating 3D DPMs

VXP Frame:

- Up to 48 inputs and 24 outputs (all SDI, all IP or mixed)
- Choice of up to 4 M/Es or 3 M/Es dependent on VPE board, every M/E has either six or four keyers with keying modes including chromakey, 2 frame stores, and either 2D DPMs w/ perspective or simple 2D DPMs. Additionally, every keyer can utilize optional 3D iDPMs from a pool of floating 3D iDPMs
- Full raster processing for 2160p productions with no loss of resources
- EZ-8K Frame Operating Mode
- 2D DPMs (resizers) are available on K-Frames utilizing the K-Frame VPE-VXP board, frames built with VPE-XP boards have 2D DPMs with perspective
- Up to 16 iDPMs (Integrated Digital Picture Manipulators), assigned as either floating iDPMs or within an eDPM at user's discretion on CXP and SXP frames; up to 4 iDPMs on VXP frames
- Optional multiple multiviewer capability with 6 pre-configured layouts (maximum 16 panes per layout) with On-Air and Preview tally
- Optional integrated ImageStore with 8 channels of video/key outputs and 4 pairs of video/key inputs; capable of storage in ranges of 16 GB, 32 GB, 64 GB, or 128 GB for stills or "movies" with audio

- Frame Operating Modes of 720p and 1080p with HDR support are standard. 1080p, 2160p (full raster processing) and EZ-8K can be added with one software license; 1080p is standard on VXP frames
- UltraMatch on every IP input or output, which automatically converts 1080p or 2160p sources into the frame operating mode format of 2160p or 1080p
- Fully digital 10-bit 4:2:2 video switcher
- Optional SDI Format Conversion boards provide up/down/crossconversion when licensed with SetDef/MatchDef
- 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/wipes on aux bus outputs
- Interfaces with Grass Valley routers and Kaleido™ multiviewers and their control systems
- LDK Series & LDX Series® camera control with Ethernet tally via Connect Gateway
- 999 macros with many new ways to recall macros from the 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 and any M/E's output
- VDCP Ethernet connection for stadium applications
- Ethernet tally connection for integration with external tally systems
- Optional RGB color correction on M/E buses and Aux bus outputs, also includes HDR(HLG)<->SDR color mapping and 3D LUT translation
- 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 boards and power supplies
- All frames can be controlled via Ross Video Overdrive automation
- Ross Video Dashboard can control all of the K-Frame switchers
- Integrated control of graphics:
 - Chyron graphics products using specialized VDCP
 - XPressions graphics engine using RossTalk protocol
- Daktronix devices via VDCP and the Daktonix can recall macros on the K-Frame switcher



K-Frame XP I/O Card Features: UltraMatch, GearBox, MatchSync and Extended Buffers

UltraMatch enables every input to be configured as 2160p or 1080p and converted to the Frame Operating Mode of 2160p or 1080p. Any output can be configured as 2160p or 1080p. This is extremely useful for dual feed productions and/or using existing 1080p monitors in a 2160p production. This is a standard feature on every K-Frame XP IP I/O card.

The **GearBox** controls on every K-Frame XP I/O board allow you to use quad-link 2SI or quad-link SDQS for inputs and outputs in addition to the 12G SDI or IP video.

The SDI GearBox I/O Boards also include **MatchSync**, which helps with timing when mixing SDI and IP sources.

The K-Frame XP IP I/O cards have been updated with **Extended Buffers**, providing many of the same capabilities as an input Frame Sync and adapting to a wide variety of input timing issues. Additionally, the ADVI boards have a user choice of single or quad addressing for the 100G ports.

Mixing Panels and Frames

Any Kayenne, Karrera, GV Korona and KSP control surfaces can drive any K-Frame video processing engine: K-Frame SXP, CXP and VXP and even the software application K-Frame CS X for production in the cloud or as an on-prem processor. This gives you the ability to switch today's productions on a panel that meets your budget and production needs, with the ability to run on any frame.

Independent Suites

K-Frame Suites enable you to share resources in one video processor frame across four different production suites while completely isolating the resources in one suite from the other. Each K-Frame suite has its own logical M/Es, aux buses, E-MEM and macro system. The same E-MEMs, macros and Show files can load into any suite and will run the same way and not interfere with a production in another suite.

Each K-Frame suite supports two control panels, each with its own user preferences, to give you a collaborative user configuration. The two users share resources such as M/Es, DPMS, and E-MEM, but can run macros independently. Each user has their own set of user preferences to configure their control panel. Although this is useful for some productions, the K-Frame Switchers give you both true suites configurations and collaborative configurations at the same time. Collaborative Suites may be the only "suites" mode available on competing switchers.



Grass Valley production switchers bring an unsurpassed level of performance to live productions with the innovative features and upgradability expected from a strong history of exemplary switcher solutions.

The K-Frame video processing engine brings a software-based, modular approach to switcher frames that provides simple upgradability, more efficient operations, simplified production workflows, as well as easy configuration and setup. K-Frame requires less initial capital investment and brings the ability to configure a video production switcher with full multiformat support – including 1080p 50/60, and 2160p for 4K and 8K.

High Value Production Platform

Grass Valley production switchers package higher performance, processing, capabilities and usability into solutions unmatched by any other vendor. This makes them powerful, creative production solutions, and smart business propositions.

In addition to being cost-effective, Grass Valley video production switchers offer long-

term savings with a wide variety of configuration options in both hardware and software. Features including 1080p/2160p support are implemented with a simple-to-install software license, enabling the system to grow to suit both present and future needs.

Familiar Grass Valley controls and intuitive interfaces mean that minimal training time is required, which translates into faster setups and an ideal situation for rental and mobile production companies dependent on a freelance workforce.

Immersive User Experience

Configuration, setup and operation are all streamlined to make users more efficient and require fewer resources per production.

The ergonomically designed and finely tuned control panels make users more efficient by providing the

most used functions front and center while also giving quick access to in-depth features. The panels utilizes crisp OLED displays for source and function names, and all pushbuttons have full RGB color illumination to permit custom color schemes which dynamically change for color-coding functions and source grouping.

The high-resolution touchscreen interface has a shallow menu structure including History and Favorites features that operators find extremely useful, and context sensitive pull-down menus that put everything at their fingertips.

Source Rules to simplify accurate key-to-source relationships, E-MEMs with Define E-MEM for granular control, P-MEM for panel memory and pre-built macros all can be recalled from the panel, and many of these functions can be delegated to rows within an operator's easy reach.

Feature		K-Frame SXP – Standard	K-Frame CXP – Compact	K-Frame VXP – Compact
Frame Size		15 RU (plus 1 RU external PS)	8 RU (internal PS)	5 RU (internal PS)
4K Support		Yes – Full Raster Processing		
3G Support		1080p 50/60, level A		
12G Support		Full raster UHD 4K 2160p 12G		
HDR(HLG)<>SDR Support		Yes, plus 3D LUT Translation		
Max. I/O	(3G/HD/UHD)	192 x 96	80 x 40	48 x 24, 4x2 Media Port
Max. M/Es / VPEs	(3G/HD/UHD)	9 M/E	6 M/E	4 or 3 M/E
Full Keyers per M/E / VPE	(3G/HD/UHD)	6	6	4 or 6
Max. iDPM Channels	(3G/HD/UHD)	16	16	4
2 DPMs on all M/E Keyers		Yes (with perspective)		Yes (with perspective on VPE-XP board)
IS-04 & IS-05 Support		Yes	Yes	Yes
PTP Support		Yes	Yes	Yes
ImageStore Support		Still and Movies w/audio		
Multiviewer Support		5	4	3

Each K-Frame SXP and CXP switcher provides more processing power per module with full raster 4K 2160p video processing, supporting six keyers, an array of digital effects processors types, including 2D DPM with perspective, and a significant increase in inputs and outputs compared to competitive offerings. K-Frame VXP switchers provide a choice of VPE board type for either 3 M/Es with 6 keyers or 4 M/Es with 4 keyers, providing a cost-effective selection to meet production requirements. The production switcher keyers give operators more integrated keying capabilities — such as chromakey, memory store and picture processing — as well as flexibility in assignment of keyers to provide more advanced overlays per production.

M/E functionality can be expanded with the DoubleTake software option that has the power to split an M/E bank and assign keyers to each partition, each of which has its own dedicated backgrounds to effectively double the number of M/Es per system with no change in physical hardware to assist users in creating more complex effects. Tools like Layering Mode, DoubleTake, FlexiKey programmable clean feed and transition chaining with automatic source substitution, make complex multiclient live productions much easier and safer to accomplish.

Image processing is extensive with assignable software-based effects processing, assignable I/O image scalers, input resizers and an integrated ImageStore that give users the flexibility they need to create sophisticated on-air looks.

Source Rules automatically add and drop keys when a source is selected — without using macros or E-MEMs. Source Rules also apply during lookahead previews for transitions.

K-Frame File Compatibility

All switcher panels and K-Frames maintain show file compatibility. This not only gives you the ability to move a show file on a thumb drive between similar panel/frame configurations, but to take the entire show or elements of a show from one production to another production that has a different panel or K-Frame processing engine or video format.

This feature saves TDs not only time, but the hassle of having to re-create a show or show elements when moving between panels or frames.

The technology Grass Valley uses to support this feature is unique within the industry.

Up to 999 macros can be recalled in many new ways from the panel, and then fine-tuned with an integrated Macro Editor.

Delegation of macros, E-MEM, aux bus and router control to the control panel's source-select rows ensures that controls are within reach when they are needed. Background buses can be delegated to keyer rows to expand the number of sources on an M/E. Panel Memory stores up to 99 delegation patterns.

Define E-MEM exposes granular sublevels within an M/E or top level E-MEM layers for partial keyframing and allows both fine tuning of effects within a layer as well as the pushing of control of individual effects assets, such as aux bus or servers to M/E layers.

Aux bus transitions permits the switcher to be fully utilized for every production. Dissolves and wipes on aux bus transitions are provided to enhance the look of in-studio, onstage monitors.

A cost-effective option for productions with lower source counts is the internal multiviewer capability. With six pre-configured screen layouts to choose from, up to 16 tiles per layout with On-Air and "Look Ahead" Pre-view tally, along with customizable labelling. Logical and fixed sources come from the menu name while Aux sources come from the aux name.

Powerful Processing, with a User's Choice

All Grass Valley production switchers support multiformat productions.

The **K-Frame XP-series** supports the following Frame Operating Modes:

- 720p (50 Hz, 59.94 Hz, 60 Hz)
- 1080i (25 Hz, 59.94 Hz, 60 Hz)
- 1080p-A (23.98 Hz, 24 Hz, 25 Hz, 29.97 Hz, 30 Hz, 50 Hz, 59.94 Hz, 60 Hz)
- 2160p (23.98 Hz, 24 Hz, 25 Hz, 29.97 Hz, 30 Hz, 50 Hz, 59.94 Hz, 60 Hz)
- 8K 2SI (23.98 Hz, 24 Hz, 25 Hz, 29.97 Hz, 30 Hz, 50 Hz, 59.94 Hz, 60 Hz)
- 8K SQDS (23.98 Hz, 24 Hz, 25 Hz, 29.97 Hz, 30 Hz, 50 Hz, 59.94 Hz, 60 Hz)

All K-Frame processing engines (K-Frame SXP, CXP, VXP and K-Frame CS X), work with any K-Frame control panel (Kayenne, Karrera, Korona and KSP). So your video processing selection ranges from the VXP (5 RU frame with internal power supply, up to 48 inputs and 24 outputs with either 4 M/Es with 4 keys or 3 M/Es with 6 keys and up to 3 multiviewers), up to the SXP (15 RU processing frame plus 1 RU power supply, up to 192 inputs, 96 outputs with 9 M/Es (six keys each), 16 iDPMs and eight video/key channels of Image Store and up to five multiviewers) or even to the K-Frame CS X (in the cloud or on-prem). The control panels range from the software-based Kayenne Software Panel (KSP) to the 1-stripe, 15-crosspoint Korona panel to the 5-stripe including AUX stripe, 35-crosspoint button Kayenne control panel. You select what is right for your production and budget.

All processing frames offer an optional SDI Format Conversion I/O Card that includes format conversion hardware for all eight inputs and four outputs. This means that the video scalers are both internal and fully integrated in the control systems. The SXP can have up to four of these Format Conversion I/O Cards. The CXP has up to two of the Format Conversion I/O boards, while the VXP's I/O footprint is made up of all 8x4 boards. And don't forget that UltraMatch provides conversion between 2160p and 1080p on every input and output of the K-Frame XP IP series systems.

K-Frame XPs' internal ImageStore has four paired video/key inputs and eight paired video/key outputs. The memory storage capacity — up to 128 GB for the SXP and CXP and 64 GB in the VXP — is available for instant recall of stills and movies with audio.

The K-Frame VXP is a no-compromise, low/mid-range switcher that delivers exceptional

production power at an affordable price. It seamlessly integrates into the K-Frame XP-series of video processing frames, providing broadcasters with premium, reliable functionality without compromise.

Designed to extend the K-Frame experience to a broader market, the VXP offers high-end features at a cost-effective price — perfect for smaller productions where advanced creative capabilities matter, but a more compact I/O footprint is ideal for events, game coverage or live shows.

Ideal for stadiums/arenas, corporate productions, houses of worship, news stations, rental flypacks, individual control rooms in fixed facilities, and OB vans, the K-Frame VXP ensures top-tier performance in a more accessible package.

GV Korona K-Frame VXP systems are designed to offer maximum features at a minimum price.



Completely Self-Contained Multiformat Video Production

The SetDef output conversion, combined with MatchDef input conversion, allows complete, multiformat production with up/down/ crossconverting of all input and output formats, including aspect ratio conversion for SDI K-Frame systems.

The converters are not limited to simple vector scaling, but also allow cross-conversion of SD, HD and/ or 3G formats with color space conversion when converting to/ from HD and SD, motion adaptation, and full synchronization. Signals converted with MatchDef video input converters may be used anywhere within the system, sent to any output (including aux buses), and they do not consume expensive resources such as an entire M/E bus or other M/E resources.

The optional SetDef and MatchDef on the K-Frame XP-series add additional capabilities for 2160p support and include conversion/gearboxing to and from 2160p full raster, SQDS and 2SI.

In addition, UltraMatch enables every input and output to be configured as 2160p or 1080p video and converted to the Frame Operating Mode of 2160p or 1080p. UltraMatch is a standard feature on every K-Frame XP I/O Card. This is extremely useful for simultaneous HD and UHD productions and/or using existing 1080p monitors in a 2160p production.

The K-Frame XP-series SDI GearBox Boards can bring in 2160p video as a 12G single stream or as quad-link 2SI or quad-link SDQS.



All K-Frame XP video processing frames have input buffering. This input buffering adds delay to the random ill-timed incoming sources of one-full frame. The SDI GearBox Board with MatchSync will delay the SDI inputs by the same amount, simplifying the system timing. All K-Frame SXP, CXP and VXP IP systems have a full frame of buffering.

Multiple Show Feeds with a Single Technical Director

The optional FlexiKey and DoubleTake split layered modes are available for all M/Es. Control is enhanced on the panel by dedicated primary/secondary partition buttons, and the use of the Kayenne split lever arm. Transition Chaining augments parallel video paths using Key Chaining, Background Chaining and Partition Sync functions to simplify productions requiring multi-client feeds from one operator.

Remote Productions

The control panels for the K-Frame family have been used in many remote operations, including those where the control panel is located far from the frame. We continue to evolve the design to match the ever-growing need for remote productions.

Work Offline with Windows-based KSP, Menu and Frame Simulators

The K-Frame Soft Panel (KSP), menu and frame simulator have many uses. Engineers can create or edit engineering configurations files. TDs can create, manage and edit show files, E-MEMs and macros on their own laptop. The menu and frame simulators run on a Windows computer. There is a frame simulator for every model of K-Frame switcher and the same menu runs across all frames. The menu and frame simulators are free. The KSP is a software option for K-Frame switchers, but works with any frame simulator at no cost.

For training, the K-Frame menu, KSP and frame simulators allow TDs to learn the K-Frame workflow without access to a K-Frame switcher. Experienced TDs can try out new features. These lessons transfer to any of the models and panels of K-Frame switcher.

The K-Frame supports a second menu for productions. It can be used to: save and load stills and movies to the Image Store; convert stills and movies to the Image Store format and load macros, E-MEMs and show files. The EIC can use it to remotely check the switcher status, change its configuration, access logs and diagnostics.

Extensive Digital Effects Availability

The iDPMs (integrated Digital Picture Manipulators) are licensed in groups of two, they come complete with 2D, 3D and defocus effects. The K-Frame XP frames can have up to 16 iDPMs and the VXP frame can have up to four iDPMs. The iDPMs are floating licenses and can be assigned to any full M/E keyer. iDPM includes extensive Kurl™ nonlinear warp effects such as corner pinning, page turn, page roll, slits, mirrors, spheres, defocus, glow and output recursive effects for unlimited creative application.

An alternative use for the iDPM channels is to use them inside the eDPM system, which uses a separate control system, and which also allows effects to be taken to air on any M/E as a single source. Up to six iDPMs and six 2D DPMs can be incorporated within a single eDPM to provide the advantage of an external digital effects, compositing multiple channels to re-enter on one or more keyers with its own independent E-MEMs. The eDPM channels provide the advantage of an external DVE compositing multiple channels to reenter on one or more keyers.

Any M/E key bus can be resized and repositioned using the 2D DPM systems. One global license activates all 2D DPMs available on the video frame — the number of 2D DPMs depends on the number of keyers in the switcher. The K-Frame XP 2D DPM add Pitch Controls to enable perspective effects that do not require a 3D iDPM.

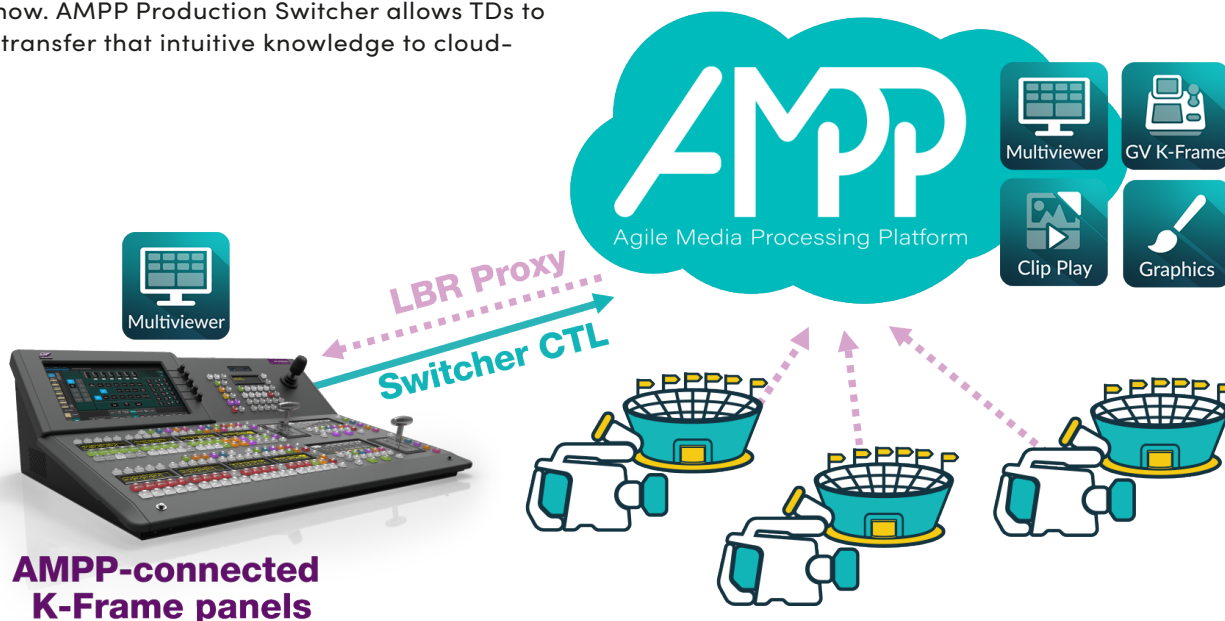
GV K-Frame CS X

Grass Valley continues to fulfill its commitment to provide any panel for any engine across its series of video production centers. Kayenne, Karrera, Korona and KSP control surfaces connect with GV K-Frame CS X to provide a simple transition to cloud-based video production. Any panel from the series operates in the same way regardless of the production environment. TDs can get right to work — even transferring show files between AMPP® and K-Frame engines.

For many TDs, operating a production switcher is done by muscle memory, knowing a panel so well that it is an automatic extension of the hands while the conscious attention focuses on the incoming video sources and cues to switch a show. AMPP Production Switcher allows TDs to immediately transfer that intuitive knowledge to cloud-

based video production. Button presses and transitions respond without delay, providing the precise control TDs have come to expect from Grass Valley production switchers.

With three M/Es, each M/E with six keyers and each keyer with a 2D DPM, operators have the creative resources required for professional video production. Stills and animations with fill/key including transparency also provide a polished production look. Those looks are easy to create and store with hundreds of E-MEMs and macros available for recall at the touch of a button with the familiar Grass Valley feel.



CONTROL PANELS

Kayenne Modular Control Panels

Each module of the Kayenne control panel snaps into an extruded aluminum tray, is easily removable, and is hot-swappable. This modularity provides multiple panel configurations ranging in depth from 2 to 4 M/E stripes and a width choice of 25 or 35 (on selected models) source select buttons per row. The control panels are ergonomically designed and can be mounted flat or in a banked curve.



Each source select and aux bus module has two rows of OLED Source Name Displays that provide ultra-clear text and extremely wide viewing angles. All buttons are illuminated with a selection of RGB colors, which dynamically change to indicate context (M/E colors, key colors, source colors and function colors). Many buttons also have programmable soft functions, which are indicated by a four-character LED display above them, such as those found on the innovative Multifunction Module. Transition Modules have Enhanced Status Displays using easy to read LEDs and eight tactile keyer buttons.

The Kayenne's Device Control Module (DCM) supports full motion control (including jog wheel) for up to 28 devices such as DDRs/VTRs. Another unique feature is Q-MEM, a library of device cues independent of E-MEM, which operate in conjunction with the DCM and the up to six Device Control Windows on the system bar.

The user-friendly menu system also leads the industry with simplified navigation so that no menu view is more than two levels deep. Each menu is assisted by favorites, history and semi-transparent pull-down quick-links. Better yet, it is the same across Kayenne, Karrera and GV Korona control surfaces for quick recognition and ease of use.

Additionally, the intuitive menu view is incorporated into an optional control panel called the Kayenne Soft Panel or KSP. The KSP is an easy-to-use 1 M/E soft-panel GUI paired with a custom keyboard that can be used in many environments as a secondary control for replay or alternate event feeds.

Panel Control Unit

The Kayenne switcher control panels run silently with no fan noise as their CPUs are located remotely in a 1 RU full-rack width panel control unit (PCU) and the separate 1 RU half-rack width touchscreen menu control unit (MCU).

Each PCU supports one or two control surfaces, either in the same or different logical suites. A control surface typically consists of M/E stripes, a local aux stripe, plus a touchscreen menu panel with five knobs. This may be augmented with satellite panels consisting of one or two modules. Each PCU has eight ports that connect to panel stripes or satellite panels. Both the PCU and MCU connections are via 3 meter USB-C cables.



Kayenne Control Panel Features In Depth

- Modular control panel surface with hot-swappable modules
- Completely quiet environment at the technical director's fingertips, as the control panel has no fans or processors to create noise
- RGB button illumination highlights for context and function clarity
- System bar on panel with up to six device control windows, switched preview, aux bus delegation and macro controls
- Optional panel Device Control Module for integrated machine control with Q-MEM cue library for server/VTR content
- Transition module provides 8-keyer tactile control along with touchscreen display
- Works with every K-Frame from the K-Frame SXP to the K-Frame CS X
- Powerful panel memory enables you to change the panel behavior as needed for different segments in the same show

Kayenne Panel Types

KAY-PNL-200-25 or -35

2 M/E panel with 25- or 35-button source selectors
 Panel Control Unit (PCU) & Menu Control Unit (MCU)
 Multi-touchscreen menu panel
 Two 25- or 35-button source select modules
 One 25- or 35-button local aux module
 Two local E-MEM modules
 One master E-MEM module
 Two transition modules
 One multifunction module
 System bar
 Manual set
 Cables

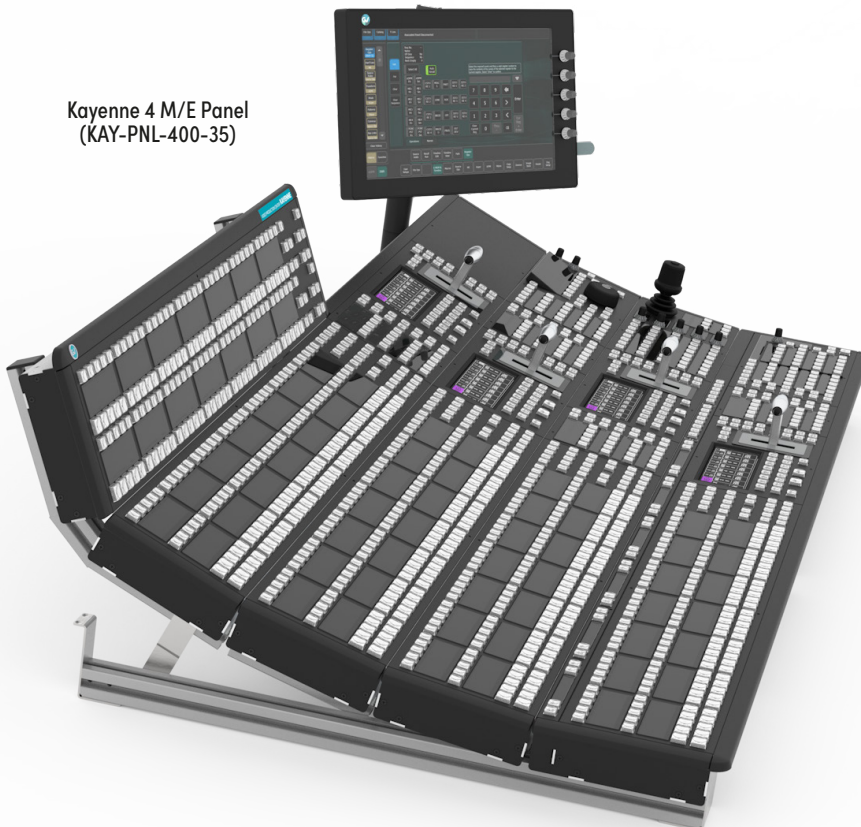
KAY-PNL-300-25 or -35

3 M/E panel with 25- or 35-button source selectors
 Panel Control Unit (PCU) & Menu Control Unit (MCU)
 Multi-touchscreen menu panel
 Three 25- or 35-button source select modules
 One 25- or 35-button local aux module
 Three local E-MEM modules
 One master E-MEM module
 Three transition modules
 One multifunction module
 System bar
 Manual set
 Cables
 One option slot

KAY-PNL-400-25 or -35

4 M/E panel with 25- or 35-button source selectors
 Panel Control Unit (PCU) & Menu Control Unit (MCU)
 Multi-touchscreen menu panel
 Four 25- or 35-button source select modules
 One 25- or 35-button local aux module
 Four local E-MEM modules
 One master E-MEM module
 Four transition modules
 One multifunction module
 System bar
 Manual set
 Cables
 Two option slots

Kayenne 4 M/E Panel
 (KAY-PNL-400-35)



Kayenne K-Frame XP Base Systems

Kayenne K-Frame SXP 3 M/E Systems

KAY-4-35-3M-SXP or (-I)

Kayenne K-Frame SXP SDI or IP 3 M/E system includes control panel, video frame and licenses. XP systems are capable of processing in HD, 1080p 3G and full-raster 4K UHD 2160p with the appropriate license 4-stripe (4 M/E) Kayenne modular panel (KAY-PNL-400-35)

GV K-Frame XP — Standard 15 RU (K-FRM-100SXP) which includes:

- One XP Controller module (K-FRM-CTRL-CXP) with onboard ImageStore, requires license
- One Video Processing Engine module (K-FRM-VPE-XP) with one M/E license (K-FRM-LIC-ME)
- Two SDI I/O modules with 16 inputs and 8 outputs (K-FRM-IO-FULL-X-GB) or two IP I/O modules with 16 inputs and 8 outputs (K-FRM-IO-FULL-ADVI), connectors support 25 GbE or 100 GbE. SFPs or QSFPs must be ordered separately
- Two power supplies (K-FRM-PSU-XP)

Software licenses include:

- Two M/E licenses (K-FRM-LIC-ME)
- 18 2D DPMs with perspective (K-FRM-LIC-2DDPM-XP)

KAY-4-25-3M-SXP or (-I)

Kayenne K-Frame SXP SDI or IP 3 M/E system includes control panel, video frame and licenses. XP systems are capable of processing in HD, 1080p 3G and full-raster 4K UHD 2160p with the appropriate license 4-stripe (4 M/E) Kayenne modular panel (KAY-PNL-400-25)

GV K-Frame XP — Standard 15 RU (K-FRM-100SXP) which includes:

- One XP Controller module (K-FRM-CTRL-CXP) with onboard ImageStore, requires license
- One Video Processing Engine module (K-FRM-VPE-XP) with one M/E license (K-FRM-LIC-ME)
- Two SDI I/O modules with 16 inputs and 8 outputs (K-FRM-IO-FULL-X-GB) or two IP I/O modules with 16 inputs and 8 outputs (K-FRM-IO-FULL-ADVI), connectors support 25 GbE or 100 GbE. SFPs or QSFPs must be ordered separately
- Two power supplies (K-FRM-PSU-XP)

Software licenses include:

- Two M/E licenses (K-FRM-LIC-ME)
- 18 2D DPMs with perspective (K-FRM-LIC-2DDPM-XP)

KAY-3-35-3M-SXP or (-I)

Kayenne K-Frame SXP SDI or IP 3 M/E system includes control panel, video frame and licenses. XP systems are capable of processing in HD, 1080p 3G and full-raster 4K UHD 2160p with the appropriate license 3-stripe (3 M/E) Kayenne modular panel (KAY-PNL-300-35)

GV K-Frame XP — Standard 15 RU (K-FRM-100SXP) which includes:

- One XP Controller module (K-FRM-CTRL-CXP) with onboard ImageStore, requires license
- One Video Processing Engine module (K-FRM-VPE-XP) with one M/E license (K-FRM-LIC-ME)
- Two SDI I/O modules with 16 inputs and 8 outputs (K-FRM-IO-FULL-X-GB) or two IP I/O modules with 16 inputs and 8 outputs (K-FRM-IO-FULL-ADVI), connectors support 25 GbE or 100 GbE. SFPs or QSFPs must be ordered separately
- Two power supplies (K-FRM-PSU-XP)

Software license include:

- Two M/E licenses (K-FRM-LIC-ME)
- 18 2D DPMs with perspective (K-FRM-LIC-2DDPM-XP)

KAY-3-25-3M-SXP or (-I)

Kayenne K-Frame SXP SDI or IP 3 M/E system includes control panel, video frame and licenses. XP systems are capable of processing in HD, 1080p 3G and full-raster 4K UHD 2160p with the appropriate license 3-stripe (3 M/E) Kayenne modular panel (KAY-PNL-300-25)

GV K-Frame XP — Standard 15 RU (K-FRM-100SXP) which includes:

- One XP Controller module (K-FRM-CTRL-CXP) with onboard ImageStore, requires license
- One Video Processing Engine module (K-FRM-VPE-XP) with one M/E license (K-FRM-LIC-ME)
- Two SDI I/O modules with 16 inputs and 8 outputs (K-FRM-IO-FULL-X-GB) or two IP I/O modules with 16 inputs and 8 outputs (K-FRM-IO-FULL-ADVI), connectors support 25 GbE or 100 GbE. SFPs or QSFPs must be ordered separately
- Two power supplies (K-FRM-PSU-XP)

Software licenses include:

- Two M/E licenses (K-FRM-LIC-ME)
- 18 2D DPMs with perspective (K-FRM-LIC-2DDPM-XP)

Kayenne K-Frame CXP 4 M/E Systems

KAY-4-35-3M-CXP or (-I)

Kayenne K-Frame CXP SDI or IP 4 M/E system includes control panel, video frame and licenses. XP systems are capable of processing in HD, 1080p 3G and full-raster 4K UHD 2160p with the appropriate license 4-stripe (4 M/E) Kayenne modular panel (KAY-PNL-400-35)

GV K-Frame XP — Compact 8 RU (K-FRM-100CXP) which includes:

- One XP Controller module (K-FRM-CTRL-CXP) with onboard ImageStore, requires license
- One Video Processing Engine module (K-FRM-VPE-XP) with one M/E license (K-FRM-LIC-ME)
- Two SDI I/O modules with 16 inputs and 8 outputs (K-FRM-IO-FULL-X-GB) or two IP I/O modules with 16 inputs and 8 outputs (K-FRM-IO-FULL-ADVI), connectors support 25 GbE or 100 GbE. SFPs or QSFPs must be ordered separately
- Two power supplies (K-FRM-PSU-XP)

Software licenses include:

- Three M/E licenses (K-FRM-LIC-ME)
- 24 2D DPMs with perspective (K-FRM-LIC-2DDPM-XP)

KAY-4-25-3M-CXP or (-I)

Kayenne K-Frame CXP SDI or IP 4 M/E system includes control panel, video frame and licenses. XP systems are capable of processing in HD, 1080p 3G and full-raster 4K UHD 2160p with the appropriate license 4-stripe (4 M/E) Kayenne modular panel (KAY-PNL-400-25)

GV K-Frame XP — Compact 8 RU (K-FRM-100CXP) which includes:

- One XP Controller module (K-FRM-CTRL-CXP) with onboard ImageStore, requires license
- One Video Processing Engine module (K-FRM-VPE-XP) with one M/E license (K-FRM-LIC-ME)

- Two SDI I/O modules with 16 inputs and 8 outputs (K-FRM-IO-FULL-X-GB) or two IP I/O modules with 16 inputs and 8 outputs (K-FRM-IO-FULL-ADVI), connectors support 25 GbE or 100 GbE. SFPs or QSFPs must be ordered separately
- Two power supplies (K-FRM-PSU-XP)

Software licenses include:

- Three M/E licenses (K-FRM-LIC-ME)
- 24 2D DPMs with perspective (K-FRM-LIC-2DDPM-XP)

Kayenne K-Frame CXP 3 M/E Systems

KAY-3-35-3M-CXP or (-I)

Kayenne K-Frame CXP SDI or IP 3 M/E system includes control panel, video frame and licenses. XP systems are capable of processing in HD, 1080p 3G and full-raster 4K UHD 2160p with the appropriate license 3-stripe (3 M/E) Kayenne modular panel (KAY-PNL-300-35)

GV K-Frame XP — Compact 8 RU (K-FRM-100CXP) which includes:

- One XP Controller module (K-FRM-CTRL-CXP) with onboard ImageStore, requires license
- One Video Processing Engine module (K-FRM-VPE-XP) with one M/E license (K-FRM-LIC-ME)
- Two SDI I/O modules with 16 inputs and 8 outputs (K-FRM-IO-FULL-X-GB) or two IP I/O modules with 16 inputs and 8 outputs (K-FRM-IO-FULL-ADVI), connectors support 25 GbE or 100 GbE. SFPs or QSFPs must be ordered separately
- Two power supplies (K-FRM-PSU-XP)

Software licenses included:

- Two M/E licenses (K-FRM-LIC-ME)
- 18 2D DPMs with perspective (K-FRM-LIC-2DDPM-XP)

KAY-3-25-3M-CXP or (-I)

Kayenne K-Frame CXP SDI or IP 3 M/E system includes control panel, video frame, and licenses. XP systems are capable of processing in HD, 1080p 3G and full-raster 4K UHD 2160p with the appropriate license 3-stripe (3 M/E) Kayenne modular panel (KAY-PNL-300-25)

GV K-Frame XP — Compact 8 RU (K-FRM-100CXP) which includes:

- One XP Controller module (K-FRM-CTRL-CXP) with onboard ImageStore, requires license
- One Video Processing Engine module (K-FRM-VPE-XP) with one M/E license (K-FRM-LIC-ME)
- Two SDI I/O modules with 16 inputs and 8 outputs (K-FRM-IO-FULL-X-GB) or two IP I/O modules with 16 inputs and 8 outputs (K-FRM-IO-FULL-ADVI), connectors support 25 GbE or 100 GbE. SFPs or QSFPs must be ordered separately
- Two power supplies (K-FRM-PSU-XP)

Software licenses included:

- Two M/E licenses (K-FRM-LIC-ME)
- 18 2D DPMs with perspective (K-FRM-LIC-2DDPM-XP)

Karrera Control Panel

Karrera K-Frame Control Panel is designed for shows that need high production values without the high budget. It is a powerful mid-level control panel with all of the ease of use, workflow and flexibility of the K-Frame family of switchers. It works with any switcher frame in the K-Frame family and is available in a 25 crosspoint 2 M/E version and a 35 crosspoint 3 M/E version.



The Karrera Control Panel has the same workflow as the Kayenne Control Panel, in a smaller physical and budgetary footprint. Any panel, any frame means that you choose the control panel and the video processing frames that fit your needs and budget.

The Karrera Control Panel builds on Grass Valley's legendary ease of use, which simplifies the running of the most complex productions. Operators can rapidly build, save, punch and load shows for optimum efficiency. These highly familiar workflows help

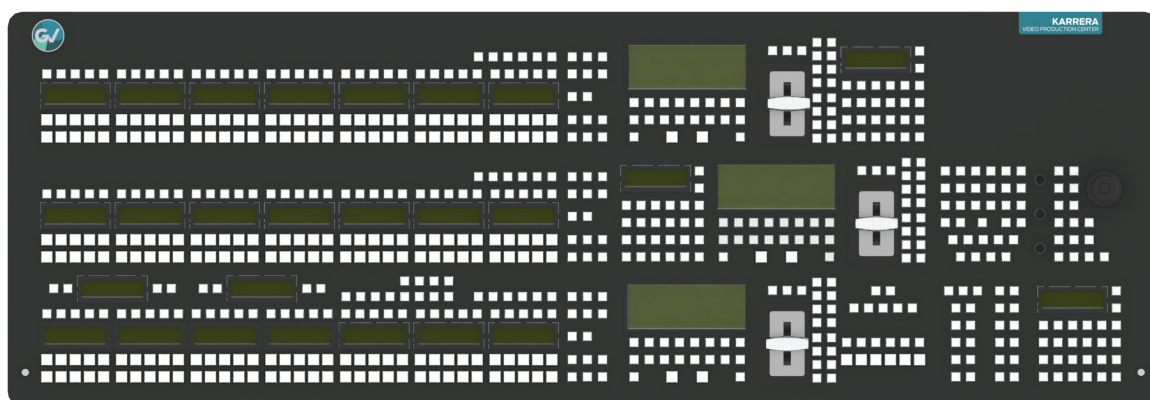
prevent on-air errors, and simplify the hiring and management of operator teams. Like the Kayenne panel, the Karrera also incorporates eight keyer tactile buttons.

This exceptional breadth of capabilities makes these switchers ideal for a wide range of environments, from mobile trucks to fixed facilities. Typical applications include stadiums, broadcast facilities, production houses, corporate studios, houses of worship and educational media.

Many advanced features — including DoubleTake (split M/E mode) and Source Rules — can be enabled with software licenses to further customize the configuration and minimize up-front costs and they are all accessible from the Karrera Control Panel.

Karrera Control Panel Features In Depth

- Stripes are fully configurable to control any M/E, complete with local E-MEM areas
- Crisp OLED displays and customizable RGB buttons enable perfect visual cues
- External touchscreen menuing system runs the same software as every other panel
- Device control can be performed through the menu, the transition touchscreen or a delegation of the keyer bus
- The same powerful panel memory as the Kayenne control panel
- The transition area provides 8-keyer tactile control just like the Kayenne panel
- The associated menu panel and its Menu Control Unit (MCU) is the same as found on the Kayenne
- Optional local and remote aux bus control panels
- Works with every K-Frame from the K-Frame SXP to the K-Frame CS X



KARR-PNL-300-35

Karrera Panel Types

KARR-PNL-200-25

2 M/E Karrera compact panel with 25 button source selectors. Includes two 25-button source select stripes, one 20 meter Ethernet cable and a System Control area with one device control sub-section, switched preview, aux bus delegation and macro controls, with controls for background and keyer source selection, master E-MEM, local E-MEM and horizontal keyer cut/mix. Redundant power supplies. Optional Aux Panel and Menu display sold separately.

KARR-PNL-300-35

3 M/E Karrera panel with 35 button source selectors, Includes three 35 button source select stripes, one 20 meter Ethernet cable and a System Control area with two device control sub-sections, switched preview, aux bus delegation and macro controls, with controls for background and keyer source selection, master E-MEM, local E-MEM and horizontal keyer cut/mix. Redundant power supplies. Optional Aux Panel and Menu display sold separately.

Kayenne & Karrera K-Frame System Ordering



All Kayenne and Karrera K-Frame systems include an enabled license for 2D DPMs and a selected number of licensed M/Es. (Karrera systems also include the KARR-PNL-MENU-SET)

XP Performance Suites

PRO:

Nomenclature: K-FRM-PRO-XP-PS

- ImageStore with license to enable 32 GB of storage
- License to enable two chromakeyers
- FlexiKey license for programmable clean feed
- License to enable two iDPMs (requires purchase of one K-FRM-DPM-XP board)

ELITE:

Nomenclature: K-FRM-ELITE-XP-PS

- ImageStore with license to enable 64 GB of storage
- License to enable all chromakeyers
- FlexiKey license for programmable clean feed
- License to enable eight iDPMs (requires purchase of one K-FRM-DPM-XP board)
- License to enable DoubleTake

XTREME:

Nomenclature: K-FRM-XTREME-XP-PS

- ImageStore with license to enable 128 GB of storage
- License to enable all chromakeyers
- FlexiKey license for programmable clean feed
- License to enable ALL iDPMs (requires purchase of two K-FRM-DPM-XP boards)
- License to enable DoubleTake

Karrera K-Frame XP Base Systems

Karrera K-Frame SXP 3 M/E Systems

KARR-3-35-3M-SXP or (-I)

Karrera K-Frame SXP SDI **or** IP 3 M/E system includes control panel, video frame and licenses. XP systems are capable of processing in HD, 1080p 3G and full-raster 4K UHD 2160p with the appropriate license 3-stripe (3 M/E) Karrera panel (KARR-PNL-300-35), with touchscreen menu panel (KAY-PNL-MENU), menu control unit (KAY-PNL-MCU) and cables GV K-Frame XP Standard 15 RU (K-FRM-100SXP) which includes:

- One XP Controller module (K-FRM-CTRL-SXP) with onboard ImageStore, requires license
- One Video Processing Engine module (K-FRM-VPE-XP) with one M/E license (K-FRM-LIC-ME)
- Two SDI I/O modules with 16 inputs and 8 outputs (K-FRM-IO-FULL-X-GB) **or** two IP I/O modules with 16 inputs and 8 outputs (K-FRM-IO-FULL-ADVI), connectors support 25 GbE or 100 GbE. SFPs or QSFPs must be ordered separately
- Three power supplies (K-FRM-PSU-XP)

Software licenses include:

- Two M/E licenses (K-FRM-LIC-ME)
- 18 2D DPMs with perspective (K-FRM-LIC-2DDPM-XP)

Karrera K-Frame CXP 2 M/E Systems

KARR-2-25-2M-CXP or (-I)

Karrera K-Frame CXP SDI **or** IP 2 M/E system includes control panel, video frame and licenses. XP systems are capable of processing in HD, 1080p 3G and full-raster 4K UHD 2160p with the appropriate license 2-stripe (2 M/E) Karrera compact panel (KARR-PNL-200-25-C) with touchscreen menu panel set (KARR-PNL-200-25)

GV K-Frame XP – Compact 8 RU (K-FRM-100CXP) which includes:

- One XP Controller module (K-FRM-CTRL-CXP) with onboard ImageStore
- One Video Processing Engine module (K-FRM-VPE-XP)
- Two SDI I/O modules with 16 inputs and 8 outputs (K-FRM-IO-FULL-X-GB) **or** two IP I/O modules with 16 inputs and 8 outputs (K-FRM-IO-FULL-ADVI), connectors support 25 GbE or 100 GbE. SFPs or QSFPs must be ordered separately
- Two power supplies (K-FRM-PSU-XP)

Software licenses include:

- Two M/E licenses (K-FRM-LIC-ME)
- 12 2D DPMs with perspective (K-FRM-LIC-2DDPM-XP)

Karrera K-Frame CXP 3 M/E Systems

KARR-3-35-3M-CXP or (-I)

Karrera K-Frame CXP SDI **or** IP 3 M/E system includes control panel, video frame and licenses. XP systems are capable of processing in HD, 1080p 3G and full-raster 4K UHD 2160p with the appropriate license 3-stripe (3 M/E) Karrera compact panel (KARR-PNL-300-35) with touchscreen menu panel set (KARR-PNL-MENU-SET)

GV K-Frame XP – Compact 8 RU (K-FRM-100CXP) which includes:

- One XP Controller module (K-FRM-CTRL-CXP) with onboard ImageStore
- One Video Processing Engine module (K-FRM-VPE-XP)
- Two SDI I/O modules with 16 inputs and 8 outputs (K-FRM-IO-FULL-X-GB) **or** two IP I/O modules with 16 inputs and 8 outputs (K-FRM-IO-FULL-ADVI), connectors support 25 GbE or 100 GbE. SFPs or QSFPs must be ordered separately
- Two power supplies (K-FRM-PSU-XP)

Software licenses include:

- Three M/E licenses (K-FRM-LIC-ME)
- 18 2D DPMs with perspective (K-FRM-LIC-2DDPM-XP)

Karrera K-Frame VXP 2 M/E Systems

KARR-2-25-2M-VXP or (-I)

Karrera K-Frame VXP SDI **or** IP 2 M/E system includes control panel, video frame and licenses. Capable of max. 48x24 I/O and max. 4 M/Es with 4 keyers per M/E. All VXP systems are capable of processing in HD, 1080p 3G and full-raster 4K UHD 2160p with the appropriate license. System includes:

2-stripe (2 M/E) Karrera panel (KARR-PNL-200-25) with touchscreen menu panel (KAY-PNL-MENU), menu control unit (KAY-PNL-MCU) and cables

Compact (5 RU) K-Frame VXP video processing frame (K-FRM-100VXP) which includes:

- VXP Controller module (K-FRM-CTRL-VXP) with internal ImageStore and multiviewers
- One VPE Mix/Effect board (K-FRM-VPE-VXP) capable of 4 M/Es and 4 keyers per
- Two SDI I/O modules with 8 inputs and 4 outputs (K-FRM-IO-CONV-XP) **or** two IP I/O modules with 8 inputs and 4 outputs (K-FRM-IO-ADVI)
- Two power supplies (K-FRM-PSU-VXP)

Software licenses include:

- 2 M/Es each with 4 keyers (K-FRM-LIC-ME-VXP)
- Two floating Chromakeyers (K-FRM-LIC-CHRO-2)
- 8 2D DPMs (K-FRM-LIC-2DDPM)
- Internal ImageStore with storage (K-FRM-LIC-IMG-16GB)
- "Movies" or RAM Record mode with audio for ImageStore (K-FRM-LIC-IMG-RAMR)
- Two internal multiviewers (K-FRM-LIC-MLTVWR)
- FlexiKey functionality (K-FRM-LIC-FLEX)

KARR-2-25-2M-VXPE or (-I)

Karrera K-Frame VXPE SDI **or** IP 2 M/E system includes control panel, video frame and licenses. Capable of max. 48x24 I/O and max. 3 M/Es with 6 keyers per M/E. All VXP systems are capable of processing in HD, 1080p 3G and full-raster 4K UHD 2160p with the appropriate license. System includes:

2-stripe (2 M/E) Karrera panel (KARR-PNL-200-25) with touchscreen menu panel (KAY-PNL-MENU), menu control unit (KAY-PNL-MCU) and cables

Compact (5 RU) K-Frame VXP video processing frame (K-FRM-100VXPE) which includes:

- VXP Controller module (K-FRM-CTRL-VXP) with internal ImageStore and multiviewers
- One VPE Mix/Effect board (K-FRM-VPE-XP) capable of 3 M/Es and 6 keyers per
- Two IP SDI modules with 8 inputs and 4 outputs (K-FRM-IO-CONV-XP) **or** two IP I/O modules with 8 inputs and 4 outputs (K-FRM-IO-ADVI)
- Two power supplies (K-FRM-PSU-VXP)

Software licenses include:

- 2 M/Es each with 6 keyers (K-FRM-LIC-ME)
- Two floating Chromakeyers (K-FRM-LIC-CHRO-2)
- 12 2D DPMs with perspective (K-FRM-LIC-2DDPM-XP)
- Internal ImageStore with storage (K-FRM-LIC-IMG-16GB)
- "Movies" or RAM Record mode with audio for ImageStore (K-FRM-LIC-IMG-RAMR)
- Two internal multiviewers (K-FRM-LIC-MLTVWR)
- FlexiKey functionality (K-FRM-LIC-FLEX)

Karrera K-Frame VXP 3 M/E Systems

KARR-3-35-2M-VXP or (-I)

Karrera K-Frame VXP SDI **or** IP 3 M/E system includes control panel, video frame, and licenses. Capable of max. 48x24 I/O and max. 4 M/Es with 4 keyers per M/E. All VXP systems are capable of processing in HD, 1080p 3G and full-raster 4K UHD 2160p with the appropriate license. System includes:

3-stripe (3 M/E) Karrera panel (KARR-PNL-300-35) with touchscreen menu panel (KAY-PNL-MENU), menu control unit (KAY-PNL-MCU) and cables

Compact (5 RU) K-Frame VXP video processing frame (K-FRM-100VXP) which includes:

- VXP Controller module (K-FRM-CTRL-VXP) with internal ImageStore and multiviewers
- One VPE Mix/Effect board (K-FRM-VPE-VXP) capable of 4 M/Es and 4 keyers per
- Two SDI I/O modules with 8 inputs and 4 outputs (K-FRM-IO-CONV-XP) **or** two IP I/O modules with 8 inputs and 4 outputs (K-FRM-IO-ADVI)
- Two power supplies (K-FRM-PSU-VXP)

Software licenses include:

- 2 M/Es each with 4 keyers (K-FRM-LIC-ME-VXP)
- Two floating Chromakeyers (K-FRM-LIC-CHRO-2)
- 8 2D DPMs (K-FRM-LIC-2DDPM)
- Internal ImageStore with storage (K-FRM-LIC-IMG-16GB)
- "Movies" or RAM Record mode with audio for ImageStore (K-FRM-LIC-IMG-RAMR)
- Two internal multiviewers (K-FRM-LIC-MLTVWR)
- FlexiKey functionality (K-FRM-LIC-FLEX)

KARR-3-35-2M-VXPE or (-I)

Karrera K-Frame VXPE SDI **or** IP 3 M/E system includes control panel, video frame and licenses. Capable of max. 48x24 I/O and max. 3 M/Es with 6 keyers per M/E. All VXP systems are capable of processing in HD, 1080p 3G and full-raster 4K UHD 2160p with the appropriate license. System includes:

3-stripe (3 M/E) Karrera panel (KARR-PNL-300-35) with touchscreen menu panel (KAY-PNL-MENU), menu control unit (KAY-PNL-MCU) and cables

Compact (5 RU) K-Frame VXP video processing frame (K-FRM-100VXPE) which includes:

- VXP Controller module (K-FRM-CTRL-VXP) with internal ImageStore and multiviewers
- One VPE Mix/Effect board (K-FRM-VPE-XP) capable of 3 M/Es and 6 keyers per
- Two IP SDI modules with 8 inputs and 4 outputs (K-FRM-IO-CONV-XP) **or** two IP I/O modules with 8 inputs and 4 outputs (K-FRM-IO-ADVI)
- Two power supplies (K-FRM-PSU-VXP)

Software licenses include:

- 2 M/Es each with 6 keyers (K-FRM-LIC-ME)
- Two floating Chromakeyers (K-FRM-LIC-CHRO-2)
- 12 2D DPMs with perspective (K-FRM-LIC-2DDPM-XP)
- Internal ImageStore with storage (K-FRM-LIC-IMG-16GB)
- "Movies" or RAM Record mode with audio for ImageStore (K-FRM-LIC-IMG-RAMR)
- Two internal multiviewers (K-FRM-LIC-MLTVWR)
- FlexiKey functionality (K-FRM-LIC-FLEX)

GV Korona Control Panels

The GV Korona Control Panels bring standard production control to small and mid-sized environments addressing space restrictions by innovating, not stripping out functionality. Available in 1 M/E 15-button, 2 M/E 20-button, and 3 M/E 25-button – all with built-in menu screen.



GV Korona integrates the touchscreen menu into the panel itself, and adds another color touchscreen within the transition area to allow TDs quick access to commonly used functions that used to have dedicated buttons. Being a programmable touchscreen, options are limitless as to what it can do and, of course, we've added a "lock" to the touchscreen for prohibiting any unwanted actions. No other switcher in this space offers such high-end functionality and innovation with the price point of a GV Korona.

GV Korona K-Frame Systems

VXP

Out of the box, GV Korona K-Frame VXP provides you with 3G/1080p and 4K UHD support capabilities, choice of up to 4 M/Es or 3 M/Es depending on the VPE board selected, for all the no-compromise mixing and keying power you will ever need. Its native 10-bit 4:2:2 processing even supports

High Dynamic Range (HDR). This is real big switcher performance in a small form factor with a lower CAPEX cost than previously available.

Couple the Korona panel with a K-Frame VXP video processing engine for a base package worthy for countless productions: 16x8 I/O footprint, licenses for 2 M/Es, 2D DPMs, 1080p, internal 16 GB ImageStore ready to record, store and instantaneously cue and playback over one minute of HD video, two internal multiviewers, two chromakeyers and FlexiKey for programmable clean feeds.

With the VXP, you can optionally add many additional features including a larger 32 or 64 GB ImageStore, Grass Valley's legendary iDPM capability, up/down/crossconverters with frame syncs, DoubleTake to effectively double the number of M/Es, add a 2160p for 4K events, or even mix SDI and IP I/O boards.

GV Korona Flexibility

Why would you want the smallest K-Frame switcher panel on the largest frame? Many reasons! The suites capabilities of the K-Frame family allows for up to four suites with up to two panels per suite. GV Korona is an ideal panel to use with suites mode, configured with one suite with a Kayenne or Karrera panel for larger productions and a GV Korona panel on another suite for small- to medium-sized productions, back-bench work, home and away production feeds, sub-feeds...producing multiple shows at the same time on the same frame. The GV Korona panel's built-in touchscreen menu and transition modules give you flexibility in a compact form factor with proven workflows and simplified control of complex productions. With 1, 2 or 3 stripes, each of which can be assigned to different M/Es or as E-MEM or Macro control, means you have a great deal of power in a small footprint.

GV Korona Control Panel Features In Depth

- Fully integrated multitouch menu system and innovative touchscreen in transition area
- Same familiar user interface and power as Karrera, but in a smaller form factor
- Compatibility with all K-Frame series frames – can be deployed as a second control panel for large events or as the main control panel for K-Frame VXP
- Just like any K-Frame switcher, the ability to load shows from Kayenne or Karrera show files

GV Korona Panel Types

KOR-PNL-100-15

1-stripe (1 M/E) GV Korona panel including redundant power supply, with 15-button source selectors.

Includes one 15-button source select stripe, one 20 meter Ethernet cable, and a system control area with device control, switched preview, alternate bus and aux bus delegation, and macro controls, with controls for background and keyer source selection, multi-function and E-MEM area, horizontal keyer cut/mix, multi-function keypad and display. Includes built-in multitouch display and menu system.

KOR-PNL-200-20

2-stripe (2 M/E) GV Korona panel including redundant power supply, with 20-button source selectors.

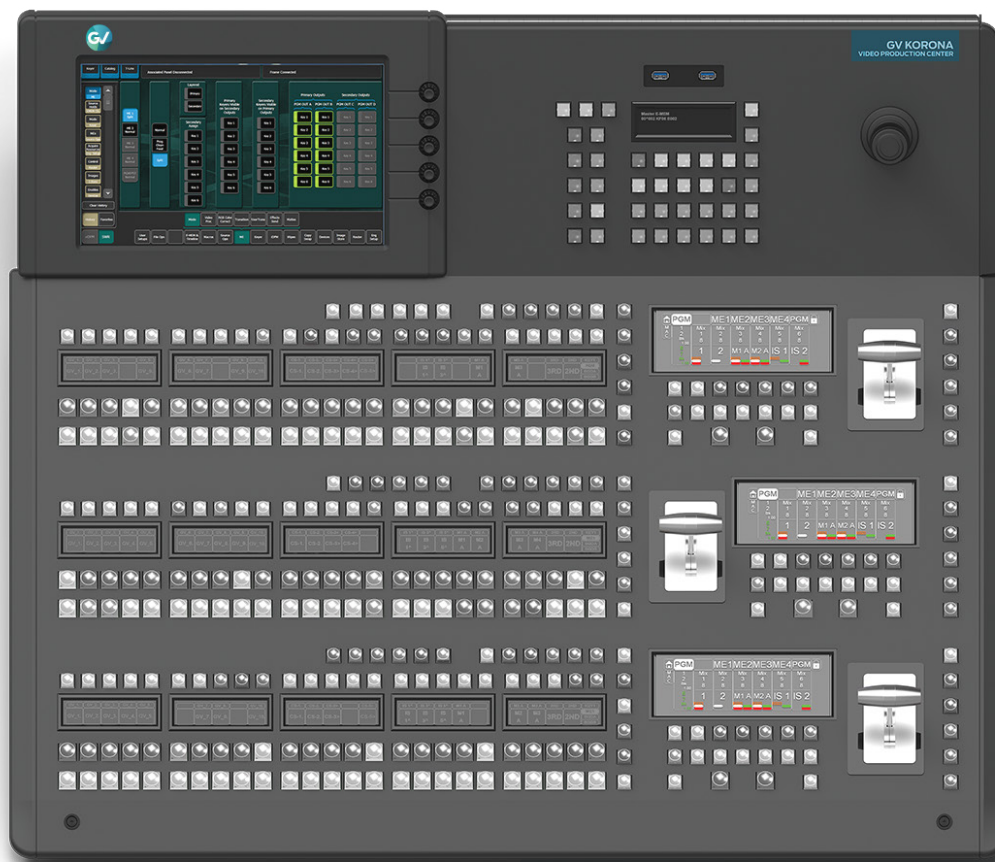
Includes two 20-button source select stripes, one 20 meter Ethernet cable, and a system control area with device control, switched preview, alternate bus and aux bus delegation, and macro controls, with controls for background and keyer source selection, multi-function and E-MEM area, horizontal keyer cut/mix, multi-function keypad and display. Includes built-in multitouch display and menu system.

KOR-PNL-300-25

3-stripe (3 M/E) GV Korona panel including redundant power supply, with 25-button source selectors.

Includes three 25-button source select stripes, one 20 meter Ethernet cable, and a system control area with device control, switched preview, alternate bus and aux bus delegation, and macro controls, with controls for background and keyer source selection, multi-function and E-MEM area, horizontal keyer cut/mix, multi-function keypad and display. Includes built-in multitouch display and menu system.

KOR-PNL-300-25



GV Korona K-Frame CXP Systems

KOR-2-20-2M-CXP or (-I)

GV Korona K-Frame CXP SDI or IP 2 M/E system. Includes control panel, video frame and licenses 2-stripe (2 M/E) GV Korona panel (KOR-PNL-200-20) with built-in multitouch touchscreen menu

GV K-Frame XP – Compact 8 RU (K-FRM-100CXP) which includes:

- One XP Controller module (K-FRM-CTRL-CXP) with onboard ImageStore
- One Video Processing Engine module (K-FRM-VPE-XP)
- Two power supplies (K-FRM-PSU-XP)

CXP includes:

- 32x16 I/O SDI footprint comprised of two I/O modules (K-FRM-IO-FULL-X-GB)

CXP-I includes:

- 32x16 I/O IP footprint comprised of two I/O modules (K-FRM-IO-FULL-ADVI)

SFP connectors support 25 GbE & 100G

SFPs must be ordered separately

Software licenses which include:

- Two M/E licenses (K-FRM-LIC-ME)
- 12 2D DPMs with perspective (K-FRM-LIC-2DDPM-XP)

KOR-3-25-3M-CXP or (-I)

GV Korona K-Frame CXP SDI or IP 3 M/E system. Includes control panel, video frame and licenses

3-stripe (2 M/E) GV Korona panel (KOR-PNL-300-25) with built-in multitouch touchscreen menu

GV K-Frame XP – Compact 8 RU (K-FRM-100CXP) which includes:

- One XP Controller module (K-FRM-CTRL-CXP) with onboard ImageStore
- One Video Processing Engine module (K-FRM-VPE-XP)
- Two Power supplies (K-FRM-PSU-XP)

CXP includes:

- 32x16 I/O SDI footprint comprised of two I/O modules (K-FRM-IO-FULL-X-GB)

CXP-I includes:

- 32x16 I/O IP footprint comprised of two I/O modules (K-FRM-IO-FULL-ADVI)

SFP connectors support 25 GbE & 100G

SFPs must be ordered separately

Software licenses which include:

- Three M/E licenses (K-FRM-LIC-ME)
- 18 2D DPMs with perspective (K-FRM-LIC-2DDPM-XP)

GV Korona K-Frame VXP 2 M/E Systems

KOR-2-20-2M-VXP or (-I)

Korona K-Frame VXP SDI or IP 2 M/E system includes control panel, video frame and licenses. Capable of max. 48x24 I/O and max. 4 M/Es with 4 keyers per M/E. All VXP systems are capable of processing in HD, 1080p 3G and full-raster 4K UHD 2160p with the appropriate license. System includes:

2-stripe (2 M/E) GV Korona panel (KOR-PNL-200-20) with built-in multitouch touchscreen menu

Compact (5 RU) K-Frame VXP video processing frame (K-FRM-100VXP) which includes:

- VXP Controller module (K-FRM-CTRL-VXP) with internal ImageStore and multiviewers
- One VPE Mix/Effect board (K-FRM-VPE-VXP) capable of 4 M/Es and 4 keyers per
- Two SDI I/O modules with 8 inputs and 4 outputs (K-FRM-IO-CONV-XP) or two IP I/O modules with 8 inputs and 4 outputs (K-FRM-IO-ADVI)
- Two power supplies (K-FRM-PSU-VXP)

Software licenses include:

- 2 M/Es each with 4 keyers (K-FRM-LIC-ME-VXP)
- Two floating Chromakeyers (K-FRM-LIC-CHRO-2)
- 8 2D DPMs (K-FRM-LIC-2DDPM)
- Internal ImageStore with storage (K-FRM-LIC-IMG-16GB)
- "Movies" or RAM Record mode with audio for ImageStore (K-FRM-LIC-IMG-RAMR)
- Two internal multiviewers (K-FRM-LIC-MLTVWR)
- FlexiKey functionality (K-FRM-LIC-FLEX)
- 1080p format processing

KOR-2-20-2M-VXPE or (-I)

Korona K-Frame VXPE SDI or IP 2 M/E system includes control panel, video frame and licenses. Capable of max. 48x24 I/O and max. 3 M/Es with 6 keyers per M/E. All VXP systems are capable of processing in HD, 1080p 3G and full-raster 4K UHD 2160p with the appropriate license. System includes:

2-stripe (2 M/E) GV Korona panel (KOR-PNL-200-20) with built-in multitouch touchscreen menu

Compact (5 RU) K-Frame VXP video processing frame (K-FRM-100VXPE) which includes:

- VXP Controller module (K-FRM-CTRL-VXP) with internal ImageStore and Multiviewers
- One VPE Mix/Effect board (K-FRM-VPE-XP) capable of 3 M/Es and 6 keyers per
- Two SDI I/O modules with 8 inputs and 4 outputs (K-FRM-IO-CONV-XP) or two IP I/O modules with 8 inputs and 4 outputs (K-FRM-IO-ADVI)
- Two power supplies (K-FRM-PSU-VXP)

Software licenses include:

- 2 M/Es each with 6 keyers (K-FRM-LIC-ME)
- Two floating Chromakeyers (K-FRM-LIC-CHRO-2)
- 12 2D DPMs with perspective (K-FRM-LIC-2DDPM-XP)
- Internal ImageStore with storage (K-FRM-LIC-IMG-16GB)
- "Movies" or RAM Record mode with audio for ImageStore (K-FRM-LIC-IMG-RAMR)
- Two internal multiviewers (K-FRM-LIC-MLTVWR)
- FlexiKey functionality (K-FRM-LIC-FLEX)
- 1080p format processing

GV Korona K-Frame VXP 3 M/E Systems

KOR-3-25-2M-VXP or (-I)

Korona K-Frame VXP SDI or IP 3 M/E system includes control panel, video frame, and licenses. Capable of max. 48x24 I/O and max. 4 M/Es with 4 keyers per M/E. All VXP systems are capable of processing in HD, 1080p 3G and full-raster 4K UHD 2160p with the appropriate license. System includes:

3-stripe (3 M/E) GV Korona panel (KOR-PNL-300-25) with built-in multitouch touchscreen menu

Compact (5 RU) K-Frame VXP video processing frame (K-FRM-100VXP) which includes:

- VXP Controller module (K-FRM-CTRL-VXP) with internal ImageStore and multiviewers
- One VPE Mix/Effect board (K-FRM-VPE-VXP) capable of 4 M/Es and 4 keyers per
- Two SDI I/O modules with 8 inputs and 4 outputs (K-FRM-IO-CONV-XP) or two IP I/O modules with 8 inputs and 4 outputs (K-FRM-IO-ADVI)
- Two power supplies (K-FRM-PSU-VXP)

Software licenses include:

- 2 M/Es each with 4 keyers (K-FRM-LIC-ME-VXP)
- Two floating Chromakeyers (K-FRM-LIC-CHRO-2)
- 8 2D DPMs (K-FRM-LIC-2DDPM)
- Internal ImageStore with storage (K-FRM-LIC-IMG-16GB)
- "Movies" or RAM Record mode with audio for ImageStore (K-FRM-LIC-IMG-RAMR)
- Two internal multiviewers (K-FRM-LIC-MLTVWR)
- FlexiKey functionality (K-FRM-LIC-FLEX)
- 1080p format processing

KOR-3-25-2M-VXPE or (-I)

Korona K-Frame VXPE SDI or IP 3 M/E system includes control panel, video frame and licenses. Capable of max. 48x24 I/O and max. 3 M/Es with 6 keyers per M/E. All VXP systems are capable of processing in HD, 1080p 3G and full-raster 4K UHD 2160p with the appropriate license. System includes:

3-stripe (3 M/E) GV Korona panel (KOR-PNL-300-25) with built-in multitouch touchscreen menu

Compact (5 RU) K-Frame VXP video processing frame (K-FRM-100VXPE) which includes:

- VXP Controller module (K-FRM-CTRL-VXP) with internal ImageStore and multiviewers
- One VPE Mix/Effect board (K-FRM-VPE-XP) capable of 3 M/Es and 6 keyers per
- Two SDI I/O modules with 8 inputs and 4 outputs (K-FRM-IO-CONV-XP) or two IP I/O modules with 8 inputs and 4 outputs (K-FRM-IO-ADVI)
- Two power supplies (K-FRM-PSU-VXP)

Software licenses include:

- 2 M/Es each with 6 keyers (K-FRM-LIC-ME)
- Two floating Chromakeyers (K-FRM-LIC-CHRO-2)
- 12 2D DPMs with perspective (K-FRM-LIC-2DDPM-XP)
- Internal ImageStore with storage (K-FRM-LIC-IMG-16GB)
- "Movies" or RAM Record mode with audio for ImageStore (K-FRM-LIC-IMG-RAMR)
- Two internal multiviewers (K-FRM-LIC-MLTVWR)
- FlexiKey functionality (K-FRM-LIC-FLEX)
- 1080p format processing

K-Frame XP Frames

K-FRM-100SXP

Standard K-Frame video processor frame (15 RU)
plus separate power supply chassis (1 RU). 2160p and
1080p ready. I/O footprint max. 192x96, up to 9 M/Es.

K-FRM-100SXP-I

Same as the K-FRM-100SXP but with IP I/O instead of SDI.

K-FRM-100CXP

Compact K-Frame video processor frame (8 RU) with internal power supply. 2160p and 1080p ready. I/O footprint max. 80x40, up to 6 M/Es.

K-FRM-100CXP-I

Same as the K-FRM-100CXP but with IP I/O.

K-FRM-100VXP

Compact K-Frame video processor frame (5 RU) with internal power supply. 2160p and 1080p ready. I/O footprint max. 48x24, up to 4 M/Es.

K-FRM-100VXP-I

Same as the K-FRM-100VXP but with IP I/O.

K-FRM-100VXPE

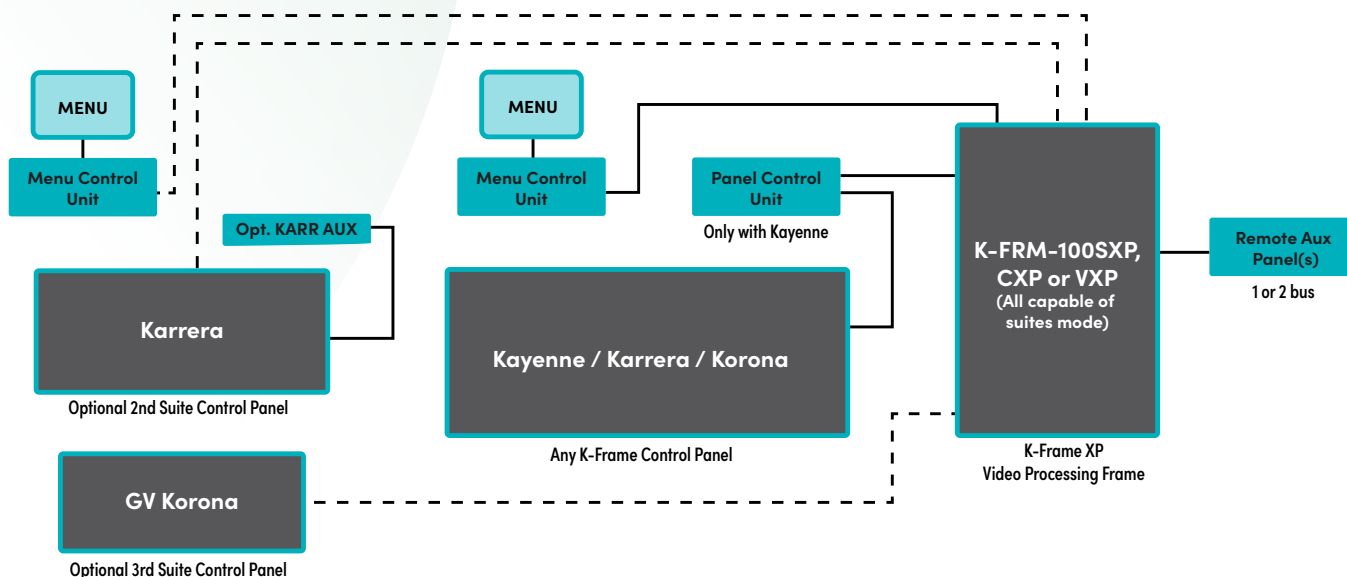
Compact K-Frame video processor frame (5 RU) with internal power supply. 2160p and 1080p ready. I/O footprint max, 48x24, up to 3 M/Es.

K-FRM-100VXPE-I

Same as the K-FRM-100VXPE but with IP I/O.



K-Frame XP System Setup Options



K-Frame XP-series Individual Items

K-Frame XP Hardware Options

K-FRM-100SXP

GV K-Frame XP — Standard (15 RU) SDI-based Video Production Center with (1 RU) external power supply frame is capable of processing in HD, 1080p 3G, and full-raster 4K UHD 2160p with the appropriate license. Maximum I/O footprint 192x96 in HD or 4K UHD 2160p. The frame has a maximum of 9 M/Es with maximum 54 full-function keyers.

Includes:

- Three power supplies (K-FRM-PSU-XP)
- One XP Standard Controller Processor module (K-FRM-CTRL-SXP) with on-board ImageStore, requires a license
- 32 SDI inputs / 16 SDI dual outputs spanning two K-FRM-IO-FULL-X-GB. I/O capable of 4K UHD 2160p, 3G, and/or 12 GB w/ "gearbox" functionality
- One Video Processing Engine module (K-FRM-VPE-XP) capable of licensing three on-board processors as either M/E, eDPM or multiviewer

M/E includes:

- 18 inputs — A/B/C/D backgrounds, 1/2 Utility, 6 Video/Key pairs
- 7 outputs — Program A, B, C, D; Preview A, C; Optional M/E view
- 6 full-function keyers with two pages of V/K store
- Licensable 2D DPMs with perspective on each keyer (K-FRM-LIC-2DDPM-XP)
- Cut, Mix, and Wipe transitions
- 8 GPI inputs and 8 GPI outputs (max. 16 GPI inputs and 8 GPI outputs), 32 tally outputs (max. 64 Tally outputs)
- 999 Macros, 1000 E-MEMs, Machine Control (Serial and Ethernet)

Software licenses include:

- One Mix/Effect license (K-FRM-LIC-ME) enables one M/E on the VPE module

K-FRM-100SXP-I

Same as the K-FRM-100SXP but with 32x16 I/O IP footprint comprised of two I/O modules (K-FRM-IO-FULL-ADVI)

- Port connectors support 25 GbE SFPs or 100G QSFPs
- SFPs must be ordered separately

K-FRM-100CXP

GV K-Frame XP — Compact (8 RU) SDI-based Video Production Center with internal power supplies is capable of processing in HD, 1080p 3G, and full-raster 4K UHD 2160p with the appropriate license.

The frame has a maximum of six (6) M/Es with maximum thirty-six (36) full-function keyers.

Maximum I/O footprint 80x40 in HD or 4K UHD 2160p.

Includes:

- Two Power supplies (K-FRM-PSU-XP)
- One XP Compact Controller Processor module (K-FRM-CTRL-CXP) with on-board ImageStore, requires a license
- 32 SDI inputs / 16 SDI dual outputs spanning two K-FRM-IO-FULL-X-GB. I/O capable of 4K UHD 2160p, 3G, and/or 12 GB w/ "gearbox" functionality
- One Video Processing Engine module (K-FRM-VPE-XP) capable of licensing three on-board processors as either M/E, eDPM or multiviewer

M/E includes:

- 18 inputs — A/B/C/D backgrounds, 1/2 Utility, Six Video/Key Pair
- 7 outputs — Program A, B, C, D; Preview A, C; optional M/E view
- 6 full-function keyers with two pages of V/K store
- One Mix/Effect license (K-FRM-LIC-ME) enables one M/E on the VPE module
- 8 GPI inputs and 8 GPI outputs (max. 16 GPI inputs and 8 GPI outputs), 32 tally outputs (max. 64 Tally outputs) 999 Macros, 1000 E-MEMs, Machine Control (Serial and Ethernet)
- Cut, Mix, and Wipe transitions. Licensable option available for 2D DPMs with perspective on each keyer (K-FRM-LIC-2DDPM-XP).

Software licenses include:

- One Mix/Effect license (K-FRM-LIC-ME) enables one M/E on the VPE module

K-FRM-100CXP-I

Same as the K-FRM-100CXP but with IP I/O (K-FRM-IO-FULL-ADVI) instead of SDI. Port connectors support 25GbE SFPs or 100G QSFPs.

K-FRM-100VXP

GV K-Frame VXP — Sub-compact (5 RU) SDI-based Video Production Center with internal power supply capable of processing in HD, 1080p 3G and full-raster 4K UHD 2160p with the appropriate license; it includes:

- Two power supplies (K-FRM-PSU-VXP)
- One VXP Standard Controller Processor module (K-FRM-CTRL-VXP) with on-board ImageStore and multiviewers, license enabled
- 16 SDI inputs/8 SDI outputs spanning two K-FRM-IO-CONV-XP. I/O capable of 4K UHD 2160p, 3G and/or 12 GB w/ "gearbox" functionality
- One Video Processing Engine module (K-FRM-VPE-VXP) capable of licensing four on-board processors as either M/E, eDPM, and/or multiviewers

M/E includes:

- 14 inputs — A/B/C/D backgrounds, 1/2 Utility, four Video/Key pairs
- 9 outputs — Program A, B, C, D, E; F Preview A,C; Optional M/E view
- 4 full-function keyers with two pages of V/K store
- Licensable 2D DPMs on each keyer (K-FRM-LIC-2DDPM)
- Cut, Mix and Wipe transitions
- One Mix/Effect license (K-FRM-LIC-ME-VXP) enables one M/E on the VPE module
- 8 GPI inputs and 8 GPI outputs, 24 tally outputs
- 999 Macros, 1000 E-MEMs, Machine Control (Serial and Ethernet)

The frame has a maximum of 4 M/Es with maximum 16 full-function keyers

Maximum I/O footprint 48x24 in HD or 4K UHD 2160p

K-FRM-100VXP-I

Same as the K-FRM-100VXP but with IP I/O (K-FRM-IO-ADVI) instead of SDI. Port connectors support 25 GbE SFPs or 100G QSFPs.

K-FRM-100VXPE

GV K-Frame VXPE — Sub-compact (5 RU) SDI-based Video Production Center with internal power supply capable of processing in HD, 1080p 3G and full-raster 4K UHD 2160p with the appropriate license; it includes:

- Two power supplies (K-FRM-PSU-VXP)
- One VXP Standard Controller Processor module (K-FRM-CTRL-VXP) with on-board ImageStore and multiviewers, license enabled
- 16 SDI inputs/8 SDI outputs spanning two K-FRM-IO-CONV-XP. I/O capable of 4K UHD 2160p, 3G and/or 12 GB w/ "gearbox" functionality
- One Video Processing Engine module (K-FRM-VPE-XP) capable of licensing three on-board processors as either M/E, eDPM and/or multiviewers

M/E includes:

- 14 inputs — A/B/C/D backgrounds, 1/2 Utility, four Video/Key pairs
- 9 outputs — Program A, B, C, D, E; F Preview A,C; Optional M/E view
- 3 full-function keyers with two pages of V/K store
- Licensable 2D DPMs with perspective on each keyer (K-FRM-LIC-2DDPM-XP)
- Cut, Mix and Wipe transitions
- One Mix/Effect license (K-FRM-LIC-ME) enables one M/E on the VPE module
- 8 GPI inputs and 8 GPI outputs, 24 tally outputs
- 999 Macros, 1000 E-MEMs, Machine Control (Serial and Ethernet)

The frame has a maximum of 3 M/Es with maximum 18 full-function keyers

Maximum I/O footprint 48x24 in HD or 4K UHD 2160p

K-FRM-100VXPE-I

Same as the K-FRM-100VXPE but with IP I/O (K-FRM-IO-ADVI) instead of SDI. Port connectors support 25GbE SFPs or 100G QSFPs.

K-FRM-CTRL-CXP

GV K-Frame XP — Compact Controller Processor module for K-FRM-100CXP (-I) enabling processing in full-raster 4K UHD 2160p, 1080p 3G and HD. The internal ImageStore functionality resides on-board with eight channel pairs of V&K for stills and movies with audio. ImageStore storage capacity up to 128 GB and movies requires licenses.

K-FRM-CTRL-SXP

GV K-Frame XP — Standard Controller Processor module for K-FRM-100SXP (-I) enabling processing in full-raster 4K UHD 2160p, 1080p 3G and HD. The internal ImageStore functionality resides on-board with eight channel pairs of V&K for stills and movies with audio. ImageStore storage capacity up to 128 GB and movies requires licenses. One internal multiviewer licensable on board.

K-FRM-CTRL-VXP

GV K-Frame VXP — Sub-compact Controller Processor module for K-FRM-100VXP (-I), K-FRM-100VXPE (-I) enabling processing in full-raster 4K UHD 2160p, 1080p 3G, and HD. The internal ImageStore functionality resides on-board with 8 channel pairs of V&K for stills and movies with audio. ImageStore storage capacity up to 64 GB requires licenses. Additionally, Multiviewers reside on the board.

K-Frame XP-series Individual Items (cont.)

K-FRM-VPE-XP

GV K-Frame VXP Video Processing Engine module with 4 processors that can be licensed as either M/E (K-FRM-LIC-ME, multiviewer (K-FRM-LIC-MLTVWR), or an eDPM (K-FRM-LIC-EDPM). M/E includes: 14 inputs - A/B/C/D backgrounds, 1/2 Utility, 4 Video/Key Pairs, 9 Outputs - Program A, B, C, D, E; F Preview A,C; optional M/E View

- 6 full-function keyers with two pages of V/K store
- Licensable 2D DPMs on each keyer (K-FRM-LIC-2DDPM-XP)
- Cut, Mix, and Wipe transitions

K-FRM-VPE-VXP

GV K-Frame VXP Video Processing Engine module with 4 processors that can be licensed as either M/E (K-FRM-LIC-ME-VXP), multiviewer (K-FRM-LIC-MLTVWR), or an eDPM (K-FRM-LIC-EDPM). M/E includes: 14 inputs - A/B/C/D backgrounds, 1/2 Utility, 4 Video/Key Pairs, 9 Outputs - Program A, B, C, D, E; F Preview A,C; optional M/E View

- 4 full-function keyers with two pages of V/K store
- Licensable 2D DPMs on each keyer (K-FRM-LIC-2DDPM)
- Cut, Mix, and Wipe transitions

K-FRM-DPM-XP

K-Frame VXP DPM module adds iDPM capability to VXP frames that supports: 8 licensed V/K channels of iDPM available as floating iDPMs or assignable to eDPM. Includes the enabling DPM software license (K-FRM-LIC-IDPM-ALL).

K-FRM-DPM-VXP

K-Frame VXP DPM module adds iDPM capability to VXP frames that supports: 4 licensed V/K channels of iDPM available as floating iDPMs or assignable to eDPM. Includes the enabling DPM software license (K-FRM-LIC-IDPM-ALL).

K-FRM-100CXP-KIT

GV K-Frame XP - Compact (8 RU) Video Production Center Spares Kit includes: Control Processor module (K-FRM-CTRL-CXP) and fan module.

K-FRM-100SXP-KIT

GV K-Frame XP - Standard (15 RU) Video Production Center Spares Kit includes: Control Processor module (K-FRM-CTRL-SXP) and fan module.

K-FRM-VXP-KIT

GV K-Frame VXP - Sub-compact (5 RU) Video Production Center Spares Kit includes: Control Processor module (K-FRM-CTRL-VXP) and fan module.

K-FRM-PSU-XP

K-Frame XP power supply for redundancy, replacement or spares on K-FRM-100CXP.

K-FRM-PSU-FRAME

Power supply frame, holds up to three power supply modules. Includes two power supply unit modules

K-FRM-PSU

K-Frame power supply for the K-FRM-PSU-FRAME

K-FRM-VXP-PSU

K-Frame VXP power supply for redundancy, replacement, or as a spare.

K-Frame XP Software Options

K-FRM-LIC-12G-SXP

K-Frame software license enabling 12G (full-raster 4K UHD 2160p) and 3G 1080p formats in the GV K-Frame XP - Standard (K-FRM-100SXP or K-FRM-100SXP-I). Order under switcher configuration or under K-FRM-SW-OPT, include frame serial number.

K-FRM-LIC-12G-CXP

K-Frame software license enabling 12G (full-raster 4K UHD 2160p) and 3G 1080p formats in the GV K-Frame XP - Compact (K-FRM-100CXP or K-FRM-100CXP-I). Order under switcher configuration or under K-FRM-SW-OPT, include frame serial number.

K-FRM-LIC-12G-VXP

K-Frame software license enabling 12G (full-raster 4K UHD 2160p) formats in the GV K-Frame VXP Sub-compact (K-FRM-100VXP, K-FRM-100VXP-I, K-FRM-100VXPE, or K-FRM-100VXPE-I). Order under switcher configuration or under K-FRM-SW-OPT, include frame serial number.

K-FRM-LIC-ME

Software license enabling mix/effects functionality on the K-FRM-VPE board. Six keyers per M/E. One license required for every M/E.

K-FRM-LIC-ME-VXP

Software License enabling mix/effects functionality on K-Frame VPE-VXP module. One license required for every M/E. 4 full-function keyers with 2D DPMs Cut/Mix/Wipe transitions. 4 M/E licenses maximum on a K-FRM-VPE-VXP module.

K-FRM-LIC-ME-VIEW

Software license enabling the capability to view an additional preview output from the M/E that displays the input videos for that M/E. Six pre-configured layouts that are separately selectable for each M/E.

K-FRM-LIC-EDPM

Software license enabling M/E hardware to act as either an M/E or an expansion Digital Picture Manipulator (eDPM) for grouping up to six licensed DPMs video and key channels. Includes Kurl with nonlinear transforms including page-turn, page-roll, spheres, ripple, slits, mirrors, splits, size modulation and position modulation, plus Spektra with lighting, wide-range defocus, glow and output recursives.

K-FRM-LIC-IDPM-2

Software license enabling two of the available floating iDPM Digital Picture Manipulator video and key channels. Includes Kurl with nonlinear transforms including page-turn, page-roll, spheres, ripple, slits, mirrors, splits, size modulation and position modulation, plus Spektra with lighting, wide-range defocus, glow and output recursives.

K-FRM-LIC-IDPM-8

Software license enabling eight of the available floating iDPM Digital Picture Manipulator video and key channels. Includes Kurl with nonlinear transforms including page-turn, page-roll, spheres, ripple, slits, mirrors, splits, size modulation and position modulation, plus Spektra with lighting, wide-range defocus, glow and output recursives.

K-FRM-LIC-IDPM-ALL

Software license enabling all of the available floating iDPM video and key channels. Includes Kurl with nonlinear transforms including page-turn, page-roll, spheres, ripple, slits, mirrors, splits, size modulation and position modulation, plus Spektra with lighting, wide-range defocus, glow and output recursives.

K-FRM-LIC-2DDPM-XP

Software license for the K-Frame SXP and CXP, enabling ALL 2D DPMs with perspective available on licensed M/Es. Can only be licensed on GV K-Frame XP-series systems. Order under switcher configuration or under K-FRM-SW-OPT.

K-FRM-LIC-CHRO-2

Software license enabling two floating chromakeyers to use on any of the six keyers on every M/E.

K-FRM-LIC-CHRO-ALL

Software license enabling all chromakeyers on all keyers. Possible 36 chromakeyers in a fully loaded CXP frame and 54 in a fully loaded SXP frame.

K-FRM-LIC-FLEX

Software license enabling FlexiKey programmable clean feed.

K-FRM-LIC-RGB

Software license for RGB color correctors on every M/E bus, with color correction per input and on all outputs. Additional HDR(HLG)<->SDR color mapping and 3D LUT translator.

K-FRM-LIC-DBL

Software license enabling DoubleTake (aux bus transitions, etc.) split M/E.

K-FRM-LIC-MLTVWR

Software license enabling multiviewer functionality on the K-FRM-VPE-XP or K-FRM-VPE-VXP module. One license required for every multiviewer. Maximum licenses dependent on hardware availability. Five pre-configured layouts, max. 16 panes per layout with On-Air and Preview tally.

K-FRM-LIC-IMG-32GB (-64GB or -128GB)

Software license enabling ImageStore on the Controller board for stills. 4 V/K input channels and 8 V/K output channels.

K-FRM-LIC-IMG-RAMR

Software license enabling the ImageStore board to operate in "Movies" RAM Record mode. Requires a K-FRM-LIC-IMG-xx.

K-FRM-LIC-SNMP

Software license enabling the SNMP MIB functions to be used by various SNMP health monitoring systems.

Control Panel Options

Kayenne Options

KAY-PNL-OPT-DCM

Device control module option for an option slot in the main panel or in a satellite panel enclosure. Used for controlling various image record and playback devices with full motion control features and a jog knob.

KAY-PNL-SAT-x

Satellite panel enclosure for remote mounting panel modules separate from the main panel up to 15 meters from the panel control unit. (x = 1 or 2 for the number of modules the enclosure supports)

KAY-PNL-MENU

Touchscreen menu panel and cable, for additional menu panel connected to a secondary MCU or as a spare. Includes swing-arm mounting hardware.

KAY-PNL-PSU

Spare power supply for the panel control unit.

KAY-PNL-SBAR-X

Kayenne control panel System Bar Module(s) with macro and switched preview control buttons, and either two or four device controllers.

KAY-PNL-MCU

Menu Control Unit for Kayenne panel.

KAY-PNL-PCU

Panel Control Unit with two power supplies and 6 ports for control of up to 6 stripes/satellite panels. Stripes include M/E stripes and the local aux panel stripe.

Karrera Options

KARR-PNL-MENU-SET

Touchscreen menu panel set, for a complete menu panel configuration with a Karrera main control panel. Includes menu panel, menu MCU, swing arm mounting hardware for menu panel, 20 meter LAN cable, USB-C cable.

KARR-PNL-AUX-25

Optional 25-button local aux bus control panel for the Karrera panels. Includes the USB-C cable.

KARR-PNL-AUX-35

Optional 35-button local aux bus control panel for the Karrera panels. Includes the USB-C cable.

KARR-PNL-LAN-20

20-meter LAN cable for the Karrera main control panel or menu panel MCU to the video processor frame, for replacements or spares.

GV Korona Options

KOR-PNL-KIT

GV Korona critical spares kit for the KOR-PNL-xxx-xx main control panel models, including the controller board.

KOR-PNL-PSU

GV Korona power supply unit, for replacement or spares.

KOR-PNL-LAN-20

20-meter LAN cable for the GV Korona main control panel to the video processor frame, for replacement or spares.

KSP Control Surface

KSP-PNL-1ME-KBD

Soft panel interface keyboard for 1 M/E GUI with special Keycap labels and colors for switcher control. Requires the KSP-LIC-1ME-SW software option to operate the KSP.

KSP-LIC-1ME-SW

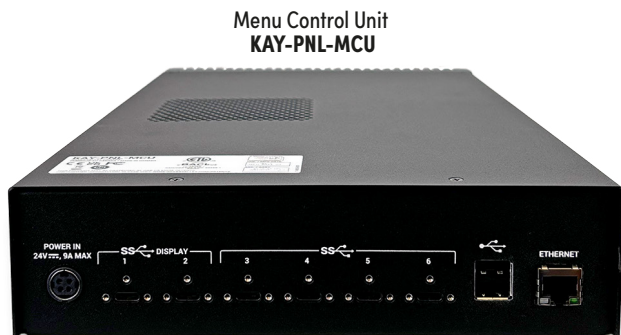
License enabling control of the K-Frame series video processor frames with the 1 M/E soft panel GUI on a customer supplied PC. Suggest the KSP-PNL-1ME-KBD option.



KSP Control Surface provides a software and keyboard option for operating K-Frame.



Touchscreen Menu Panel
KAY-PNL-MENU



Menu Control Unit
KAY-PNL-MCU



Panel Control Unit
KAY-PNL-PCU

Specifications

Mechanical Specifications

For complete product dimensions and installation instructions, please refer to the documentation library at www.grassvalley.com.

Component	Depth	Width	Height	Weight	Rack Units
Kayenne Control Panels					
Flat Support Structure Orientation					
KAY-PNL-200-25	488.4 mm (19.23 in.)	1341.7 mm (52.82 in.)	84.3 mm (3.32 in.)	29.9 kg (65.8 lbs.)	n/a
KAY-PNL-200-35	488.4 mm (19.23 in.)	1533.7 mm (60.38 in.)	84.3 mm (3.32 in.)		n/a
KAY-PNL-300-25	637.1 mm (25.08 in.)	1341.7 mm (52.82 in.)	84.3 mm (3.32 in.)		n/a
KAY-PNL-300-35	637.1 mm (25.08 in.)	1533.7 mm (60.38 in.)	84.3 mm (3.32 in.)	44.7 kg (98.4 lbs.)	n/a
KAY-PNL-400-25	746.3 mm (29.38 in.)	1341.7 mm (52.82 in.)	84.3 mm (3.32 in.)		n/a
KAY-PNL-400-35	746.3 mm (29.38 in.)	1533.7 mm (60.38 in.)	84.3 mm (3.32 in.)	57.3 kg (126.2 lbs.)	n/a
KAY-PNL-AUX-25	185.7 mm (7.31 in.)	621.7 mm (24.48 in.)	84.3 mm (3.32 in.)	6.1 kg (13.4 lbs.)	n/a
KAY-PNL-AUX-35	185.7 mm (7.31 in.)	813.7 mm (32.04 in.)	84.3 mm (3.32 in.)	6.3 kg (13.8 lbs.)	n/a
KAY-PNL-MENU	91.7 mm (3.61 in.)	417.85 mm (16.45 in.)	270.10 mm (10.63 in.)	6.2 kg (13.5 lbs.)	n/a
Kayenne PCU					
KAY-PNL-PCU	588.52 mm (23.17 in.)	482.60 mm (19 in.)	133.35 mm (5.25 in.)	16.06 kg (35.4 lbs.)	3
Karrera Control Panels					
KARR-PNL-200-25	510 mm (20.08 in.)	1010 mm (39.77 in.)	181.36 mm (7.18 in.)	21.10 kg (46.52 lbs.)	n/a
KARR-PNL-300-35	510 mm (20.08 in.)	1440.6 mm (56.72 in.)	181.36 mm (7.18 in.)	31.66 kg (96.88 lbs.)	n/a
KARR-PNL-AUX-25	162 mm (6.38 in.)	610 mm (24.02 in.)	62.47 mm (2.47 in.)	2.20 kg (4.86 lbs.)	n/a
KARR-PNL-AUX-35	162 mm (6.38 in.)	800 mm (31.50 in.)	62.47 mm (2.47 in.)	2.60 kg (5.74 lbs.)	n/a
GV Korona Control Panels					
KOR-PNL-100-15	419.8 mm (16.5 in.)	668.5 mm (26.3 in.)	236.2 mm (9.3 in.)*1	12.3 kg (27.1 lbs.)	n/a
KOR-PNL-200-20	576.5 mm (22.7 in.)	764.5 mm (30.1 in.)	261.6 mm (10.3 in.)*1	17.6 kg (38.7 lbs.)	n/a
KOR-PNL-300-25	736.6 mm (29.0 in.)	861 mm (33.9 in.)	287 mm (11.3 in.)*1	27.9 kg (61.4 lbs.)	n/a
Frames					
K-FRM-SXP	604 mm (23.76 in.)	483 mm (19.00 in.)	662 mm (26.22 in.)	58.3 kg (128.6 lbs.)	15
K-FRM-SXP-I	604 mm (23.76 in.)	483 mm (19.00 in.)	662 mm (26.22 in.)	57.7 kg (127.3 lbs.)	15
K-FRM-PSU	584 mm (23.0 in.)	483 mm (19.0 in.)	440 mm (1.75 in.)	7.3 kg (16.0 lbs.) (empty) 16.0 kg (35.4 lbs.) (with 4 power supplies)	1
K-FRM-CXP	632 mm (25.90 in.)	483 mm (19.0 in.)	345 mm (13.97 in.)	59.7 kg*2 (125 lbs.)	8
K-FRM-100VXP/VXPE	615.95 mm (24.25 in.)	483 mm (19.0 in.)	228.6 mm (9.00 in.)	37.19 kg (82 lbs.)	5
K-FRM-100VXP-I/VXPE-I	615.95 mm (24.25 in.)	483 mm (19.0 in.)	228.6 mm (9.00 in.)	37.19 kg (82 lbs.)	5

*1 Heights for GV Korona panels include tub rubber feet.

*2 Compact frame weight with three power supplies. Each power supply weighs 2.5 kg (5.4 lbs.)

Specifications (cont.)

Frame	VPE boards & licensable M/Es	Inputs/Outputs	I/O Board Types	GPI Inputs	GPI/Tally Outputs
K-Frame SXP	Up to 3 VPE boards 1 or 9 M/Es	192 x 96 max.	Up to ten (10) 16x8 I/O boards and up to four (4) 8x4 boards per frame. Can be all IP, SDI, or mixed.	Up to 40 (4 per 16x8 I/O board)	Up to 40 GPI and 160 tally (4 GPI outputs and 16 tally per 16x8 I/O board)
K-Frame CXP	Up to 2 VPE boards 1 or 6 M/Es	80 x 40 max.	Up to four (4) 16x8 I/O boards and up to two (2) 8x4 boards per frame. Can be all IP, SDI, or mixed.	Up to 16 (4 per 16x8 I/O board)	Up to 16 GPI and 64 tally (4 GPI outputs and 16 tally per 16x8 I/O board)
K-Frame VXP	Single VPE-XP for up to 3 M/Es or VPE-VXP for up to 4 M/Es	48 x 24 max. plus 4x2 Media Ports	Up to six (6) 8x4 boards per frame. Can be all IP, SDI, or mixed.	8 per frame	24 per frame

Video Standards

4K UHD Modes:

- 2160p 50/59.94/60
- 2160p 23.96/24/25/29.97/30
- 4K 2SI Quad Link 50/59.94/60
- 4K SDQS Quad Link 50/59.94/60

3G Modes:

- 1080p 50/59.94/60 Level A

HD Modes:

- 1080i 25/29.97/30
- 1080p 23.976/24/25/29.97/30
- 720P 50/59.94/60

Media Port Inputs & Outputs (VXP only)

4K:

- 3840x2160p 50/59.94/60

HD:

- 1280x720p 50/59.94/60 Hz
- 1920x1080i 25/29.97/30 Hz
- 1920x1080p 50/59.94/60 Hz

Serial Digital Video Inputs

Interface:

- 4K 2160p SMPTE ST 2082-10
- 3G video formats SMPTE ST 424-2006
- HD video formats SMPTE ST 292-1998
- SD video formats SMPTE ST 259-1997 ITU-R BT.656

Return loss:

- >15 dB, 5 MHz to 1.5 GHz
- >10 dB, 1.5 GHz to 3.0 GHz
- >7 dB, 3.0 GHz to 6.0 GHz
- >4 dB, 6.0 GHz to 12.0 GHz

Type of connector: 75Ω BNC (SMPTE ST 259)

Nominal amplitude: 800 mVp-p terminated

Input impedance: 75Ω

Max. cable length: using Belden 1694A type cable

- 12G video 55m (180 ft.) typical
- 3G video 140m (459 ft.) typical
- HD video 200m (656 ft.) typical
- SD video 350m (1,148 ft.) typical

Serial Digital Video Outputs

Interface:

- 12G video formats SMPTE ST 2082
- 6G video formats SMPTE ST 2081
- 3G video formats SMPTE ST 424-2006
- HD video formats SMPTE ST 292-1998
- SD video formats SMPTE ST 259-1997 ITU-R BT.656

Return loss:

- >15 dB, 5 MHz to 1.5 GHz
- >10 dB, 1.5 GHz to 3.0 GHz
- >7 dB, 3.0 GHz to 6.0 GHz
- >4 dB, 6.0 GHz to 12.0 GHz

Type of connector: 75Ω BNC (SMPTE ST 259)

Nominal amplitude: 800 mVp-p across 75Ω

Rise and fall times:

- 12G video formats ≤ 45 ps between 20% and 80% amplitude
- 6G video formats ≤ 80 ps between 20% and 80% amplitude
- 3G & HD video formats ≤ 135 ps between 20% and 80% amplitude
- SD video formats, 400 to 1400 ps between 20% and 80% amplitude

Timing jitter:

- 6G video formats ≤ 2.0 UI
- 12G video formats ≤ 2.0 UI
- 3G video formats ≤ 2.0 UI
- HD video formats ≤ 1.0 UI
- SD video formats ≤ 0.2 UI

Alignment jitter:

- 6G video formats ≤ 0.3 UI
- 12G video formats ≤ 0.3 UI
- 3G video formats ≤ 0.3 UI
- HD video formats ≤ 0.2 UI
- SD video formats ≤ 0.2 UI

Output impedance: 75Ω

DC offset: <500 mV with 75Ω termination

Ancillary and embedded data: blanked or passed (user selectable)

EDH: blanked

Specifications (cont.)

Analog Reference Input

Video standard: Analog Black or Tri-level sync

Return loss: >40 dB, up to 5 MHz

Connectors: 2 BNC loop-through

Impedance: 75Ω external termination

Reference Output (VXP only)

Return loss: >40 dB, 0 to 5 MHz

Nominal amplitude: 1 Vp-p into a 75Ω load

Communications

Connections:

- PCU to video frame: LAN cable 100m (328 ft.) max. length
- Control panel to PCU: USB-C, 3 meters
- Menu panel to MCU: USB-C, 3 meters

Interoperability: The Video Production Centers are interoperable with the Encore, Jupiter, SMS-7000 and NV9000 routing control systems; LDK Series and LDX Series cameras using Connect Gateway; and with ClipStore II server, plus legacy items: K2 Summit and Solo, Profile, M-Series iVDRs, Turbo iDDR and T2 iDDR

Supported Control Protocols

The Video Production Centers support Ethernet and serial AMP protocol (standard in all systems), serial BVW and Odetics protocols, as well as controlling devices using PBus II and GPIs

- Serial BVW-75 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 and serial
- Grass Valley native protocol for routers/routing control systems GV Orbit (Trinix/Trinix NXT, Venus, Triton, NVISION and third-party routers via MAGNUM and VSM; Jupiter, Encore and NV9000 router control systems)
- Ethernet tally
- Grass Valley remote Aux Panels via Ethernet
- Grass Valley editor protocol for edit controllers and external control
- VDCP Serial and Ethernet
- RossTalk protocol support for direct control of XPressions graphics engine and Overdrive automation
- Direct Control of Chyron Lyric and CrossTalk graphics engines
- Daktronics stadium ribbon displays

Power

Video Processing Frame 5 RU:

- Line voltage: 100-240 VAC ±10% power factor corrected with automatic line-voltage sensing for 120V and 240V sources
- Line frequency: 50/60 Hz ±5%
- Power consumption: max. 950W
- Leakage current: <2.5 mA

Video Processing Frame 8 RU:

- Line voltage: 100V-240 VAC ±10% power factor corrected
- Automatic line-voltage sensing for 120V and 240V sources
- Line frequency: 50/60 Hz ±5%
- Power consumption: max. 1800W
- Leakage current: <2.5 mA

Video Processing Frame 15 RU:

- Line voltage: 100V-240 VAC ±10% power factor corrected
- Automatic line-voltage sensing for 120V and 240V sources
- Line frequency: 50/60 Hz ±5%
- Power consumption: max. 2500W
- Leakage current: <2.5 mA

Kayenne Control Panel:

- Line voltage: 100V-240 VAC ±10% power factor corrected
- Automatic line-voltage sensing for 120V and 240V sources
- Line frequency: 50/60 Hz ±5%
- Power consumption: max. panel configuration 600W
- Leakage current: <2.5 mA

Karrera Control Panel:

- Line voltage: 100V-240 VAC ±10% power factor corrected
- Automatic line-voltage sensing for 120V and 240V sources
- Line frequency: 50/60 Hz ±5%
- Power consumption: max. 200W
- Leakage current: <2.5 mA

GV Korona Control Panel:

- Line voltage: 100-240 VAC ±10% power factor corrected with automatic line-voltage sensing for 120V and 240V sources
- Line frequency: 50/60 Hz ±5%
- Power consumption: max. 50W
- Leakage current: <2.5 mA

Environmental Conditions

Storage temperature: -20 to 70°C (-4 to 158°F)

Operating temperature: 0 to 40°C (32 to 104°F)

Relative humidity: 0-95% (non-condensing)

Electromagnetic environment: E2 (according to EN55103-1, -2)

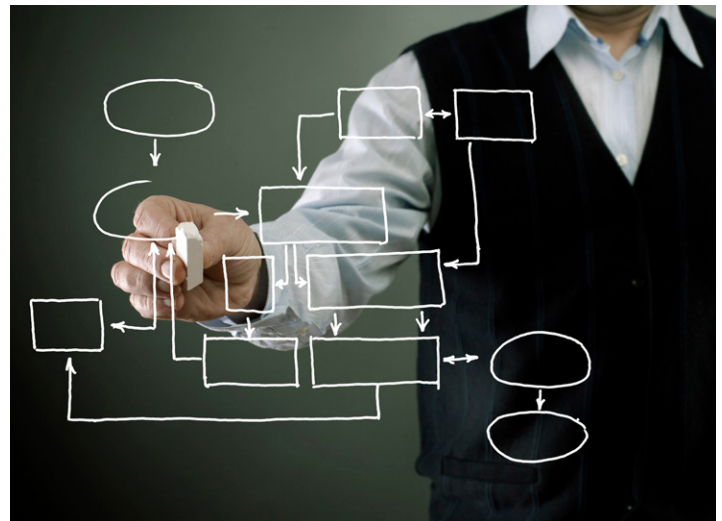


In a world of ever-increasing complexity and system distribution, broadcast producers inside a studio or outside in a vehicle need production control equipment suppliers who can provide industry-leading technical support. Personnel is but one part of the support equation. The other is a business infrastructure capable of deploying and cost-effectively supporting reliable solutions. Grass Valley Global Services has the depth of knowledge, industry experience and technical expertise to achieve this objective. The Global Services portfolio provides everything necessary insure maximum uptime and high velocity problem resolution.

Grass Valley Global Services delivers a comprehensive array of tangible value:

- A global network of field engineers with the experience, knowledge and skill to keep production switchers/vision mixers and associated equipment up to date, operational and optimized
- A worldwide parts distribution system that ensures rapid access to replacement parts
- A team of educators skilled in the nuances of production control and switcher operations
- Technical and operational training, provided on-site at Grass Valley facilities worldwide and online, that maximizes productivity through tailored learning paths
- Comprehensive support agreements that ensure every Grass Valley system remains in peak condition — all while supporting the enterprise's need for financial predictability

Grass Valley Global Services offerings deliver tangible value. The Global Services organization does this by providing the resources to ensure that users get the maximum value from an investment in Grass Valley production switchers — from initial startup through the entire in-service lifespan. Global Services empowers users to meet tactical day-to-day objectives while giving staff more time to focus on strategic business initiatives. A global presence, logistics expertise and world-renowned team of media professionals are here to help the achievement of financial performance objectives by reducing risk while boosting operational efficiencies.



Global Services Provides:

- Unequalled depth of industry knowledge and technical expertise
- Over 50 years of worldwide experience
- Complete set of services:
 - Strategic advice
 - System architecture
 - Workflow analysis and design
 - Project management
 - Integration and implementation
 - Performance optimization
 - Technical and operational training
 - Educational services
- Address today's challenges and prepare for tomorrow's opportunities

This product may be protected by one or more patents. For further information, please visit: www.grassvalley.com/patents

DS-PUB-3-0572E-EN

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