Karrera Video Production Center with K-Frame

STREAMLINED POWER FOR FAST, EFFICIENT, AND CREATIVE PRODUCTIONS

Karrera with K-Frame brings an unsurpassed level of performance to live productions with the innovative features and upgradability expected from a strong history of exemplary switcher solutions.

Karrera® with K-Frame™ is Grass Valley's sleek, next-generation 3G Video Production Center solution, sporting high-performance features at a mid-range price. The Karrera panel opens the door for Kayak™ and Kayenne® users to experience a similar level of powerful functionality. At the same time, its intuitive user interface ensures that running the Karrera will feel very familiar.

K-Frame is a new 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 3G 1080p50/60 high-definition support to a user's specific application.

High-Value Production Platform

Karrera Video Production Center combines greater performance, processing, and usability, making it a powerful creative production solution and a smart business proposition.

Karrera offers long-term savings with a wide variety of configuration options and features—including upgrading to 1080p with simple to install software licenses so your system can grow with your 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.

KEY FEATURES

- Standard Frame:
  - Up to 192 inputs and 96 outputs
  - Up to 9 M/Es, accessible across two suites – by using DoubleTake™ this may be increased to 18 virtual M/Es
  - Up to 16 iDPMs (integrated Digital Picture Manipulators), assigned as either floating iDPMs or within an eDPM at user's discretion
- Compact Frame:
  - Up to 80 inputs and 48 outputs
  - Up to 5 M/Es – by using DoubleTake this may be increased to 10 virtual M/Es
  - Up to 8 iDPMs, assigned as either floating iDPMs or within an eDPM at user's discretion
- Fully digital 10-bit 4:2:2 video switcher including 1080p level A or B support
- Optional smart I/O modules provide up/down/crossconversion
- Integrated macro editor allows users to edit macros online or offline on a PC running the menu application
- Source Rules links keyers to sources and set rules for whether they are on, off, or left alone on every M/E with full look-ahead preview
- Every M/E has six keyers with standard keying modes including chromakey, two frame stores per keyer, and every keyer in a full M/E can use the floating iDPM system
- Optional DoubleTake split M/E mode effectively increases the number of M/Es and includes FlexiKey™ programmable clean feed mode for separately programmable configurations of keyers from four M/E outputs
- 2D DPMs (resizers) on every M/E, with 6 pairs of 2D DPMs per M/E so the iDPMs can be used for more complex digital effects
- The Controller M/E has a full complement of six keyers with chromakeys and 2D DPMs
- Aux bus transitions for dissolves and wipes on aux bus outputs
- Interfaces with Grass Valley routers and their control systems
- Integrated Image Store capable of delivering up to 1,800 stills or 30 seconds of 1080p video to 10 video and key pair outputs
- LDK Series & LDX Series™ camera control with Ethernet tally via Connect Gateway
- Integrated external ClipStore provides multiple channels of video/key pairs for up to 10+ hours of nonvolatile video/key/audio clip content
- 999 macros with many new ways to recall macros from the panel
- 1,000 E-MEM registers with Define E-MEM for fine control in creation and editing of effects
- RGB color correction on M/E buses and aux bus outputs
- System Control area with device control sub-sections, switched preview, aux bus delegation, and macro controls

Immersive User Experience

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

The finely-tuned Karrera panel brings the most used functions front and center while providing quick access to in-depth features. The panel utilizes bright, crisp OLED displays for source and function names, and all pushbuttons have full RGB color illumination to allow custom color schemes which dynamically change for color-coding functions and source grouping.

The optional 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 can be recalled from the panel, many of which be delegated to rows to be within an operator's easy reach.

Advanced Production Processing

Karrera provides more processing power per module with 1080p support and more keyers, digital effects processors, I/Os, and video scalers than any comparable switcher. Karrera's keyers gives 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 use can be expanded with the DoubleTake software option to double the number per system with no change in physical hardware to assist users in creating more complex effects. DoubleTake split M/E mode is very useful for multi-client feeds and 3D production when linked together with Transition Chaining and the FlexiKey programmable clean feed option. And the integrated output video scalers make multi-format delivery easy. The large I/O count on the standard frame supports splitting the number of M/Es in a single frame across locations and controllers with a substantial cost saving for users.

Image processing is extensive with assignable software-based effects processing, assignable I/O image scalers, input resizers, and an integrated Image Store 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 look-ahead previews for transitions.

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 Karrera panel's source-select rows ensures that controls are within reach when they are wanted. 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 23 sublevels per M/E for partial keyframing and allows assignment of non-M/E sublevels such as aux buses to M/Es for precision control when creating and running effects.

The Suites mode in Karrera adds the ability to share resources in one video processor frame across two different production suites while completely isolating the resources in one suite from the other, as well as supporting more than one control panel in the same suite.

Aux bus transitions allows the switcher to be fully utilized for every production. Karrera provides dissolves and wipes on aux bus transitions to enhance the look of in-studio, on-stage monitors.

Powerful Processing

Karrera systems support 1080p 50/60 standards, Level A and B.

Karrera frames are available in two different sizes—the 13 RU frame and the 6 RU frame, with a separate 1 RU power supply housing.

The Standard frame (13 RU) has a maximum of 192 inputs—32 per module and 96 outputs—16 per module.

The Compact frame (6 RU) has a maximum of 80 inputs—32 per module and 48 outputs—16 per module.

Processing frames can offer a third type of module option with four inputs and four outputs that includes four internal video scalers. The scalers are flexible to scale any input or output signal from the frame.

Every M/E has six keyers and all can be used with chromakey. Every keyer is also capable of storing two video+key images.

The internal Image Store has two paired video/key inputs and 10 paired video/key outputs. The memory storage capacity is 1,800 frames or 30 seconds in 1080p60 format (36 seconds in 1080p50 format). The Image Store option has its own CPU and SATA disk for quick backup.

Another K-Frame addition is the Controller M/E with six full keyers, each having two key stores and chromakey capability; plus all the keyers have 2D DPMs. This is yet another feature that gives Grass Valley Video Production Centers unmatched capability for any type of event.

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 Standard frame can have up to 16 iDPMs, and the Compact frame can have up to 8 iDPMs. The iDPMs are floating licenses and can be assigned to any full M/E keyer. An alternative use for the DPM channels is to use them inside the eDPM system which uses a separate control system and which also allows effects to be taken air on any M/E as a single source. Video+key on any M/E bus can be resized and repositioned using the 2D DPM systems. This means that the Standard Frame may use up to 54 2D DPMs and the Compact up to 30 pairs.

iDPM includes extensive Kurl™ nonlinear warp effects such as corner pinning, page turn, page roll, slits, mirrors, spheres, and ripples along with Spektra advanced lighting, defocus, glow, and output recursive effects for unlimited creative effects.

The eDPM channels provide the advantage of an external DVE compositing multiple channels to re-enter on one or more keyers.

Completely Self-Contained Multiformat Video Production

The SetDef output conversion, combined with MatchDef input conversion, allows complete, multiformat production with up/down/crossconverting of HD input and output formats, including aspect ratio conversion.

The converters are not limited to simple vector scaling but also allow crossconversion of HD and/or 3G formats with color space conversion when converting to/from HD and SD, motion adaptation , and full synchronization. Simultaneous HD and SD program feeds are easily done without external conversion gear. Signals converted with MatchDef video input converters may be used anywhere within Karrera, sent to any output (including aux buses), and do not consume expensive resources such as entire mix/effects or other M/E resources.

The optional FlexiKey and DoubleTake split layered modes are available for all M/Es (including the Controller M/E). Control is enhanced on the panel by dedicated primary and secondary partition buttons.

Transition Chaining augments parallel video paths using Key Chaining, Background Chaining, and Partition Sync functions to simplify productions requiring multi-client feeds.

Live 3D Production

Live stereoscopic 3D production is as straightforward as 2D production using DoubleTake and linked M/Es. Left-eye and right-eye content is automatically switched in parallel, with all of the resources of Karrera's M/Es.

Transition Chaining simplifies operator configuration of M/E resources by setting up parallel background and keyer paths for this kind of application.

SPECIFICATIONS

Mechanical Specifications

Component	Depth	Width	Height	Weight	Rack Units
Control Panels					
KRR-PNL-200-25	362 mm (14.3 in.)	1248.6 mm (49.2 in.)	132 mm (5.2 in.)	18.71 kg (41.25 lbs.)	n/a
KRR-PNL-200-25C	510 mm (20.08 in.)	1010 mm (39.77 in.)	178 mm (7.01 in.)	18.71 kg (41.25 lbs.)	n/a
KRR-PNL-300-35	510 mm (20.08 in.)	1440.6 mm (56.72 in.)	178 mm (7.01 in.)	28.28 kg (62.4 lbs.)	n/a
KRR-PNL-AUX-25	162 mm (6.38 in.)	610 mm (24.02 in.)	76 mm (3.00 in.)	3.07 kg (6.75 lbs.)	n/a
KRR-PNL-AUX-35	162 mm (6.38 in.)	800 mm (31.50 in.)	76 mm (3.00 in.)	4.08 kg (9.0 lbs.)	n/a
Frames					
K-FRM-100C (6 RU*)	558.8 mm (22.0 in.)	482.8 mm (19 in.)	266 mm (10.47 in.)	31.1 kg (68.2 lbs.)	6*
K-FRM-100S (13 RU*)	566.2 mm (22.29 in.)	482.8 mm (19 in.)	577.1 mm (22.72 in.)	55.1 kg (121.0 lbs.)	13*
K-FRM-PSU-FRAME (1 RU)**	492 mm (19.37 in.)	483.1 mm (19 in.)	44 .0 mm (1.75 in.)	10.5 kg (23.0 lbs.)	1

Weights for the K-FRM-100C and K-FRM-100S are with fully populated units

* Does not include required 1 RU K-FRM-PSU-FRAME power supply frame

** Frame weight is with two power supplies. A single power supply weighs 2.5 kg (5.4 lbs.). The K-FRM-PSU-FRAME supports up to three power supplies.

Frame	M/Es	Inputs	Outputs	GPI Inputs Per Board	GPI/Tally Outputs Per Board	Smart I/O (MatchDef/SetDef)
Compact 6 RU	1 to 5*	32 to 64 plus up to 16 Smart I/O	16 to 32 dual plus up to 16 Smart I/O	8 per input	32 per input board	Each Smart I/O card provides 4 inputs and 4 outputs with 4 up/down/crossconversion (MatchDef/SetDef) capability
Standard 13 RU	1 to 9*	32 to 160 plus up to 32 Smart I/O	16 to 64 dual plus up to 32 Smart I/O	8 per input	32 per input board	
Board Count						
Compact 6 RU	Up to 2 M/E boards (two M/Es per board)	Up to 2 input boards (32 inputs per board)	Up to 2 output boards (16 dual outputs per board)			Up to 4 I/O modules
Standard 13 RU	Up to 4 M/E boards (two M/Es per board)	Up to 5 input boards (32 inputs per board)	Up to 4 output boards (16 dual outputs per board)			Up to 8 I/O modules

* Includes Controller M/E

SPECIFICATIONS (CONT.)

Video Standards

3G Mode:

- 1080p 50 Hz SMPTE 425-1 section 4 – Level A
- 1080p 59.94 Hz SMPTE 425-1 section 4 – Level A
- 1080p 60 Hz SMPTE 425-1 section 4 – Level A
- 1080p 50 Hz SMPTE 425-1 section 5 – Level B
- 1080p 59.94 Hz SMPTE 425-1 section 5 – Level B
- 1080p 60 Hz SMPTE 425-1 section 5 – Level B

HD Mode:

- 1080i 29.97 Hz SMPTE 274M
- 1080i 30 Hz SMPTE 274M
- 1080i 25 Hz SMPTE 274M
- 720p 50 Hz SMPTE 296M
- 720p 59.94 Hz SMPTE 296M
- 720p 60 Hz SMPTE 296M

SD Mode*:

- 525i 29.97 Hz SMPTE 259M
- 625i 25 Hz SMPTE 259M

Serial Digital Video Inputs

Interface:

- 3G video formats SMPTE 424M-2006
- HD video formats SMPTE 292M-1998
- SD video formats SMPTE 259M-1997 ITU-R BT.656

Return loss:

- >15 dB, 5 MHz to 1.5 GHz
- >10 dB, 1.5 GHz to 3.0 GHz

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

Nominal amplitude: 800 mVp-p terminated

Input impedance: 75Ω

Max. cable length: using Belden 1694A type cable

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

Serial Digital Video Outputs

Interface:

- 3G video formats SMPTE 424M-2006
- HD video formats SMPTE 292M-1998
- SD video formats SMPTE 259M-1997 ITU-R BT.656

Return loss:

- >15 dB, 5 MHz to 1.5 GHz
- >10 dB, 1.5 GHz to 3.0 GHz

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

Nominal amplitude: 800 mVp-p across 75Ω

Rise and fall times:

- 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:

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

Alignment jitter:

- 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

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

Communications

Connections:

- Panel to frame: LAN cable 100m (328 ft.) max. length
- Menu panel to frame: LAN cable 100m (328 ft.) max. length

Interoperability:

The Karrera Video Production Center is interoperable with the Encore™, Jupiter™, and SMS-7000 routing control Systems; LDK Series and LDX Series cameras using Connect Gateway; and with the K2 media server family (including the K2 Summit® and K2 Solo®), legacy Profile® servers, M-Series™ iVDRs, Turbo™ iDDRs, and T2™ iDDRs.

Supported Control Protocols

The Karrera Video Production Center supports 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
- Grass Valley Native Protocol for Routers/routing control systems (Trinix™/Trinix NXT, Venus™, Triton™, and third-party routers; Jupiter and Encore router control systems)
- Ethernet Tally (optional)
- Ethernet CPL to control Grass Valley external remote AUX Panels
- Grass Valley editor protocol for edit controllers and external control

Power

Video Processing Frame 6 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. 900W
- Leakage current: <2.5 mA

Video Processing Frame 13 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. 1400W (1000W with eDPM)
- Leakage current: <2.5 mA

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

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)

*SD mode available mid 2013 for full SD operation – scalers permit SD I/Os in HD mode

ORDERING INFORMATION

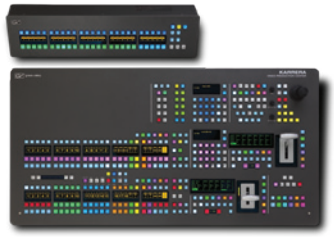
Karrera offers an extremely competitive entry price point with a wide variety of options to customize the system:

KRR-PNL-200-25

2 M/E Karrera 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. Optional Aux Panel and Menu display sold separately.

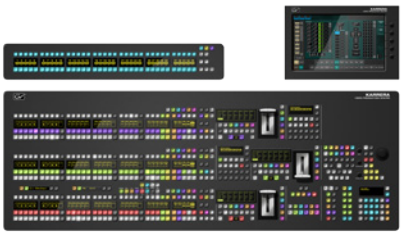
KRR-PNL-200-25C

2 M/E Karrera 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. Optional Aux Panel and Menu display sold separately.



KRR-PNL-300-35

3 M/E Karrera panel with 35 button source selectors, Includes two 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. Optional Aux Panel and Menu display sold separately.



K-FRM-100x

K-FRAME 3G-ready video processor frames with Controller module with one M/E, 32 inputs, 16 dual outputs, 8 GPI in, 32 GPI out, AMP, 999 macros, 1000 E-MEMs, Source Rules, Panel Memory, six keyers per M/E, hot-swappable modules, and power supply.

Select a FLEX System → **Choose a PRO or ELITE Performance Suite if desired** → **Customize with Options as needed**

Karrera FLEX Systems (Includes license to enable all 2D DPMs on licensed M/Es.)

System	M/Es	Stripes	Buttons	Frame Type	Inputs	Outputs
KRR-2-25-2M-KC	2	2	25	Compact	32	16
KRR-2-25-3M-KC	3	2	25	Compact	32	16
KRR-3-35-3M-KC	3	3	35	Compact	32	16
KRR-3-35-4M-KC	4	3	35	Compact	32	16
KRR-3-35-4M-KS	4	3	35	Standard	64	32
KRR-3-35-3M-KC	3	3	35	Compact	32	16
KRR-3-35-5M-KS	5	3	35	Standard	64	32

Karrera Performance Suites

PRO:

- Nomenclature: KRR-PRO-PS
- Image Store with license to enable 16 GB of stills operation
- License to enable two chromakeyers
- FlexiKey license for programmable clean feed
- License to enable two iDPMs
- License to enable ALL 2D DPMs on licensed M/Es

ELITE:

- Nomenclature: KRR-ELITE-xx-PS
- Image Store with license to enable 32 GB of stills operation
- License to enable ALL chromakeyers
- License to enable FlexiKey
- License to enable ALL iDPMs available in the frame
- License to enable ALL 2D DPMs on licensed M/Es
- License to enable DoubleTake
- Auxiliary panel, 25 button (xx = 25) or 35 button (xx = 35)

OPTIONS

K-FRM-LIC-EDPM

Software license enabling M/E hardware to act as either a M/E or an expansion Digital Picture Manipulator (eDPM) for grouping up to 6 licensed DPMs' video and key channels. Includes Kurl with non-linear 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 2 of the available floating iDPM video and key channels.

K-FRM-LIC-IDPM-ALL

Software license enabling ALL of the available floating iDPM video and key channels. Includes Kurl with non-linear 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

Software license enabling ALL 2D DPMs available on licensed M/Es in the video processor frame.

K-FRM-LIC-ME

Software license enabling mix/effects functionality on the K-FRM-ME/DPM Module. One license required for every M/E.

K-FRM-LIC-CHRO-2

Software license enabling 2 floating chroma keyers to use on any of the 6 full keyers on every full M/E.

K-FRM-LIC-CHRO-ALL

Software license enabling ALL floating chroma keyers in the system. Possible 16 in fully loaded compact frame, 32 in fully loaded standard frame.

K-FRM-LIC-FLEX

Software license enabling FlexiKey programmable clean feed.

K-FRM-LIC-RGB

Software license for all (up to 32) RGB Color Correctors on full M/E busses, 8 per M/E, with color correction per input, and on all (up to 48) outputs.

K-FRM-LIC-SETMATCH

Software license enabling 4 SetDef/MatchDef video source format converters for up/down/crossconverting inputs or outputs of SD and HD including 1080p. Modular Input/Output Module(s) (K-FRM-IO) are required for SETMATCH software option.

K-FRM-LIC-DBL

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

K-FRM-100C

K-FRAME Compact (6 RU) with standalone power supply (1 RU) frame and one PS, Compact Controller processor module with 1 M/E standard, 6 keyers, 32 inputs, 32 outputs (16 dual outputs), 8 GPI inputs and 32 GPI outputs, AMP, 999 macros, 1000 E-MEMs. Frame has a 5 M/E maximum with 6 keyers per M/E; 80 inputs maximum, 48 outputs maximum.

K-FRM-100S

K-FRAME Standard (13 RU) frame with standalone power supply (1 RU) frame and two PS, Standard Controller processor module with 1 M/E standard, 6 keyers, 32 inputs, 32 outputs (16 dual outputs), 8 GPI inputs and 32 GPI outputs, AMP, 999 macros, 1000 E-MEMs Frame has a 9 M/E maximum with 6 keyers per M/E; 192 inputs maximum, 96 outputs maximum.

K-FRM-ME-CTRL-C

Controller M/E board for Compact frame.

K-FRM-ME-CTRL-S

Controller M/E board for Standard frame.

K-FRM-C-KIT

K-FRAME Compact 6 RU Spares Kit: Includes Control Processor and Fan Module.

K-FRM-S-KIT

K-FRAME Standard 13 RU Spares Kit: Includes Control Processor and Fan Module.

K-FRM-IMG

K-FRAME Image Store – Requires one of the two following licenses for operation:

- K-FRM-LIC-IMG-16GB
- K-FRM-LIC-IMG-32GB

K-FRM-ME-DPM

K-FRAME ME/DPM module: adds one mix/effects module with two licensable M/Es and four licensable DPMs to the K-FRAME. M/E includes: A/B and Utility 1 and 2 backgrounds and 6 full-function keyers with two pages of video and key store, cut, mix and wipe transitions, with 6 program, preview and clean feed outputs. Module hardware may also be utilized to support an eDPM license.

K-FRM-INPUT

K-FRAME input module: adds 32 inputs, 8 GPI inputs and 32 GPI outputs per input board, one board per frame slot.

K-FRM-OUTPUT

K-FRAME output module: adds 16 dual channel outputs (32 outputs) per output board, one board per frame slot.

K-FRM-IO

K-FRAME input/output module: adds 4 inputs and 4 outputs with 4 licensable video up/down/crossconverting SD and HD sources including 1080p.

K-FRM-PSU-FRAME

Power supply frame, Hold up to 3 power supply modules. Includes 2 power supply unit modules.

KRR-PRO-25-PS

Karrera PRO 25 Performance Suite comprising: K-FRM-IMG-32GB, K-FRM-LIC-CHRO-2, K-FRM-LIC-FLEX and K-FRM-LIC-IDPM-2.

KRR-PRO-35-PS

Karrera PRO 35 Performance Suite comprising: K-FRM-IMG-32GB, K-FRM-LIC-CHRO-2, K-FRM-LIC-FLEX and K-FRM-LIC-IDPM-2.

KRR-ELITE-25-PS

Karrera ELITE 25 Performance Suite comprising: K-FRM-IMG-32GB, K-FRM-LIC-IDPM-ALL, K-FRM-LIC-CHRO-ALL, K-FRM-LIC-FLEX, K-FRM-LIC-DBL and KRR-PNL-AUX-25.

KRR-ELITE-35-PS

Karrera ELITE 25 Performance Suite comprising: K-FRM-IMG-32GB, K-FRM-LIC-IDPM-ALL, K-FRM-LIC-CHRO-ALL, K-FRM-LIC-FLEX, K-FRM-LIC-DBL and KRR-PNL-AUX-35.

KRR-PNL-MENU-SET

Touchscreen menu panel set, for a complete menu panel configuration with a Karrera main control panel. Includes menu panel, menu CPU, menu power supply, swing arm mounting hardware for menu panel and menu CPU, 20 meter LAN cable, DVI cable, USB cable, and power cables.

K-FRM-LIC-3G-C

Software License enabling 3G formats in the K-FRM-100C Compact video processing frame.

K-FRM-LIC-3G-S

Software License enabling 3G formats in the K-FRM-100S Standard video processing frame.

KRR-LIC-1ME-GUI provides a software and keyboard option for controlling Karrera.

MAXIMIZE AND OPTIMIZE YOUR INVESTMENT

PROFESSIONAL SERVICES

With program production and distribution becoming ever more complex and affecting business issues on a daily basis, you need a trusted partner that understands those complexities and how to convert them into opportunities. Grass Valley's team of experienced engineers and system integrators can help you turn your challenges into opportunities in the most efficient and cost-effective way possible, from system design all the way through to commissioning. Grass Valley Professional Services helps you to:

Define: We consult with you to help define your business and technology requirements and then design the right solutions to meet them.

Deploy: Our professional service organization, backed by proven project management methodologies, can take you from design through deployment, commissioning, and training.

Support: We offer a complete portfolio of support services to keep your systems running, and help manage your long-term maintenance needs.

For information about Grass Valley, please visit **www.grassvalley.com**.

Join the Conversation at **GrassValleyLive** on Facebook, Twitter, and YouTube.

grass valley