

# GV Korona K-Frame V-series

## Video Production Center



GV Korona 2 M/E Switcher



GV Korona 1 M/E Switcher



KSP Control Surface

Grass Valley switcher power, with the size/price/performance flexibility you need.

The new GV Korona K-Frame V-series systems from Grass Valley, a Belden Brand, are specifically designed for low- and mid-range broadcast and media applications, where compromising on performance is not an option. GV Korona K-Frame V-series systems are available in two system packages, with 1 or 2 M/Es and a compliment of licenses, for exceptional value and incredible power.

The small footprint of the GV Korona K-Frame V-series is ideal for smaller stations, sub-studios, mobile environments, corporate, sports venues, educational, government and houses of worship production facilities. With its modular design for simple scalability and serviceability to its handling SD/HD and the ability to produce in 3G/1080p with no loss of functionality and 4K UHD with a simple license upgrade, it is ready for anything.

Out of the box, GV Korona K-Frame V-series provides you with 3G/1080p and 4K UHD (quad-split and 2SI) support capabilities, up to 3 M/Es plus two additional and powerful Video Processing Engines (VPEs) 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.

As part of the K-Frame family of Video Production Centers, the V-series works with any Grass Valley switcher control panel, just as any control panel works with any K-Frame. This gives you the power to build a show on one panel, with the confidence to know that it will play back on any other panel. To lower training costs, once a TD learns one Grass Valley panel, they've learned them all, as the panels are based on the same software, making upgrading

and moving between panels easy. K-Frame and menu emulators are available and are great tools for training and operation providing the ability to create, edit and save shows offline.

GV Korona K-Frame V-series systems offer a choice between two control surfaces with a built-in touchscreen menu system, innovative touchscreens in transition areas, and a K-Frame V-series Video Production Center. The systems come pre-configured with a 1-stripe (15 button) or 2-stripe (20 button) control panel, a processing frame with 16 SDI inputs, 8 SDI outputs and 2x2 MediaPorts, capable of expanding to 32x16 SDI and 4x2 MediaPorts. Software licenses include 1, 2 or 3 M/Es and two VPEs, each with 4 keyers and a mix effects engine, 2D DPMs (resizers) for every keyer, internal 16 GB ImageStore ready to record, store and instantaneously cue and playback over one minute of HD video, two internal multiviewers, two chromakeyers, two analog sync offset reference outputs and FlexiKey for programmable clean feeds.

That is just the starting point, you can optionally add many additional features including a larger 32 GB ImageStore, Grass Valley's legendary iDPM capability, up/down/crossconverters with frame syncs, DoubleTake to effectively double the number of M/Es and even IP IO boards in the future to support your migration to IP.

GV Korona K-Frame V-series switchers build 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.

## KEY FEATURES

### K-Frame V-series

- Supports 3G-SDI without compromising any other features
- VPEs offer four full function keyers, resizers and a mixer for all the keying power you will ever need
- Using K-FRM-CONV-IO, every path supports frame sync and up/down/crossconversion without compromising other features
- Modular design, buy only what you need today and reconfigure/up-grade as your needs change
- IP IO option protects your investment (future)
- MediaPorts for non-SDI production signal types
- Optional iDPM for added 3DDVE capabilities
- Optional KSP GUI control software can be used instead of, or in conjunction with, hardware panels

### GV Korona Panel

- 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
- Just like any K-Frame switcher, the ability to load shows from Kayenne or Karrera show files
- No compromises on enterprise features, even with such a competitively priced product
- Training costs can be spread across the entire GV production switcher range — learn one panel, learn them all!
- Made by Grass Valley — a company with a proven and reliable pedigree in production switchers

### K-Frame V-series Capabilities

- V-series compact frame (3 RU) with 10-bit 4:2:2 video processing:
  - Up to 32 SDI and 4 MediaPort inputs
  - Up to 16 SDI and 2 MediaPort outputs
  - Up to 3 M/Es each with 4 keyers (6 program, preview and clean feed outputs per M/E)
  - Up to 2 VPEs each with 4 keyers (6 program, preview and clean feed outputs per VPE)
  - Up to 20 2D DPMs, 1 for every keyer
  - Up to 20 floating chromakeyers
  - Up to 32 GB, 8 channel (video plus key), internal ImageStore with RAM Record
  - 2 discrete AES audio outputs for ImageStore audio (available Q3 2017)
  - 2 integrated internal analog sync offset outputs
  - 2 internal multiviewers
  - FlexiKey functionality
  - 3G/1080p support (optional)
  - iDPM capability (optional and available Q3 2017)
  - eDPM capability (optional)
  - Up/down/crossconverters with frame syncs (optional and available Q3 2017)
  - RGB color correction (optional)
  - DoubleTake effectively doubling the number of MEs (optional)
  - Redundant power supply (optional)



KOR-2-20-2M-KV



KOR-1-15-1M-KV

## ORDERING

### KOR-2-20-2M-KV

**GV Korona K-Frame V-series 2 M/E 20 button 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

Compact (3 RU) K-Frame V-series video processing frame (K-FRM-100V) which includes:

- V-series Controller module (K-FRM-CTRL-V) with internal ImageStore
- One V-series Mix/Effects module (K-FRM-ME-V) with Multiviewers
- Two Input/Output modules with 8 inputs and 4 outputs (K-FRM-IO-STND-V)
- One Power Supply (K-FRM-PSU-V)

Software licenses include:

- Two (2) V-series M/Es each with four keyers (K-FRM-LIC-ME-V)
- Two (2) floating Chromakeyers (K-FRM-LIC-CHRO-2)
- Sixteen (16) 2DDPMs (K-FRM-LIC-2DDPM), 8 assigned to 2 M/E-Vs and 8 assigned to 2 VPEs
- Internal ImageStore with 16 GB storage (K-FRM-LIC-IMG-16GB)
- “Movies” or RAM Record mode with audio for ImageStore (K-FRM-LIC-IMG-RAMR)
- Two (2) internal Multiviewers (K-FRM-LIC-MLTVWR)
- FlexiKey functionality (K-FRM-LIC-FLEX)

### KOR-1-15-1M-KV

**GV Korona K-Frame V-series 1 M/E 15 button system includes control panel, video frame, and licenses**

1 stripe (1 M/E) GV Korona panel KOR-PNL-100-15 with built-in multitouch touchscreen menu

Compact (3 RU) K-Frame V-series video processing frame (K-FRM-100V) which includes:

- V-series Controller module (K-FRM-CTRL-V) with internal ImageStore
- One V-series Mix/Effects module (K-FRM-ME-V) with Multiviewers
- Two Input/Output modules with 8 inputs and 4 outputs (K-FRM-IO-STND-V)
- One Power Supply (K-FRM-PSU-V)

Software licenses include:

- One (1) V-series M/E with four keyers (K-FRM-LIC-ME-V)
- Two (2) floating Chromakeyers (K-FRM-LIC-CHRO-2)
- Twelve (12) 2DDPMs (K-FRM-LIC-2DDPM), 4 assigned to 1 M/E-V and 8 assigned to 2 VPEs
- Internal ImageStore with 16 GB storage (K-FRM-LIC-IMG-16GB)
- “Movies” or RAM Record mode with audio for ImageStore (K-FRM-LIC-IMG-RAMR)
- Two (2) internal Multiviewers (K-FRM-LIC-MLTVWR)
- FlexiKey functionality (K-FRM-LIC-FLEX)

### K-FRM-100V

K-Frame V-series (3 RU) video processing frame with internal power supply includes:

- V-series Controller module (K-FRM-CTRL-V)
- One V-series Mix/Effects module (K-FRM-ME-V)
- Two Input/Output modules (K-FRM-IO-STND-V)
- Two additional MediaPort outputs
- One Power supply (K-FRM-PSU-V)
- Eight (8) GPI inputs, 8 GPI outputs, and 24 tally connections
- AMP protocol
- Ethernet tally
- 999 Macros and 1000 E-EMEs

Video frame has six (6) VPEs each with four (4) keyer capability and a slot for optional DPM module; 36 inputs/18 outputs maximum.

## K-Frame Options

### K-FRM-DPM-V (available Q3 2017)

K-FRAME V-series DPM Module adds iDPM capability to V-series that supports:

- Four (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-CTRL-V

K-FRAME V-series Controller Processor module. The internal ImageStore functionality resides on this module, which is licensable

### K-FRM-ME-V

K-FRAME V-series Mix/Effects Module with six (6) Video Processing Engines (VPE) that can be utilized as M/Es or VPEs. One module per frame:

- V-series M/Es (K-FRM-LIC-ME-V):
  - A/B and Utility 1 and 2 backgrounds
  - Four (4) full-function keyers with 2DDPMs
  - Cut/Mix/Wipe transitions
  - Six (6) program, preview, and clean feed outputs

Two (2) licensable multiviewers (K-FRM-LIC-MLTVWR)

### K-FRM-PSU-V

K-FRAME V-series Power Supply, for replacement or spares

### K-FRM-100V-KIT

K-FRAME V-series Spares Kit includes:

- V-series Control Processor (K-FRM-CTRL-V)
- V-series Fan Assembly

### K-FRM-IO-STND-V

K-FRAME V-series Input/Output Module, adds 8 SDI inputs (plus 1 MediaPort input) and 4 SDI outputs

### K-FRM-IO-CONV-V (available Q3 2017)

K-FRAME V-series Input/Output with Conversion Module, adds 8 SDI inputs (plus 1 MediaPort input) and 4 SDI outputs with 12 licensable video up/down/crossconverters. Requires one K-FRM-LIC-SETM-V license per module. (Supports conversion between SD, HD, 1080p and quad-link 4K UHD 2SI or SDQS.)

### K-FRM-LIC-3G-V

Software license enabling 3G formats in the K-FRM-100V video processing frame. For previously shipped systems, order under K-FRM-SW-OPT configuration and include frame serial number

### K-FRM-LIC-ME-V

Software License enabling M/E functionality on K-Frame V-series Mix/Effects Module.

- One license required for every M/E:
  - A/B and Utility 1 and 2 backgrounds
  - Four (4) full-function keyers with 2DDPMs
  - Cut/Mix/Wipe transitions
  - Six (6) program, preview, and clean feed outputs

Six (6) M/E licenses maximum on a K-FRM-ME-V module

### K-FRM-LIC-SETM-V (available Q3 2017)

Software License enabling 12 SetDef/MatchDef video format converters for up, down, and cross converting inputs and outputs of SD and HD including 1080p. Modular Input/Output Module(s) (K-FRM-IO-CONV-V) are required for SETMATCH software option. For previously shipped systems order under K-FRM-SW-OPT configuration and include frame serial number. (Supports conversion between SD, HD, 1080p and quad-link UHD 2SI or SDQS.)

### 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-2DDPM

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

### 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 floating chromakeyers in the system. Possible 30 in fully loaded Compact frame, 54 in fully loaded Standard frame. Six chromakeyers per M/E.

### 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.

### 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-ME-DPM module. One license required for every multiviewer. Maximum licenses dependent on hardware availability. Five pre-configured layouts, max. 14 panes per layout with On-Air and Preview tally.

### K-FRM-LIC-IMG-RAMR

Software license enabling the ImageStore board to operate in “Movies” RAM Record mode. Requires a K-FRM-IMG and 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.

### KAL-32AUXx

Single and multibus remote aux panels.

## GV Korona Control Surface

### KOR-PNL-200-20

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

### KOR-PNL-100-15

1 stripe (1 M/E) GV Korona panel with built-in multitouch touchscreen menu

### 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.

## 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-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.

# GV Korona K-Frame V-series Video Production Center

## SPECIFICATIONS

### Video Standards

#### 4K UHD Mode:

2-Sample-Interleave (2SI), Quad Link  
Square Division Quad Split (SDQS), Quad Link

**3G Mode:** 1080p50/59.94/60, Level A and Level B

#### HD Mode:

1080i25/29.97/30  
1080PsF23.976/24/25  
720p50/59.94/60

#### SD Mode:

525i59.94  
625i50

### Serial Digital Video Inputs

#### Interface:

3G: SMPTE ST 424  
HD: SMPTE ST 292  
SD: SMPTE ST 259 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 ST 259)

**Nominal amplitude:** 800 mVp-p terminated

**Input impedance:** 75Ω

**Max. cable length:** Using Belden 1694A type cable

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

### MediaPort

Preliminary specifications are not available

### Serial Digital Video Outputs

#### Interface:

3G: SMPTE ST 424  
HD: SMPTE ST 292  
SD: SMPTE ST 259 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 ST 259)

**Nominal amplitude:** 800 mVp-p across 75Ω

#### Rise and fall times:

3G & HD: ≤ 135 ps between 20% and 80% amplitude  
SD: 400 to 1400 ps between 20% and 80% amplitude

#### Timing jitter:

3G: ≤ 2.0 UI  
HD: ≤ 1.0 UI  
SD: ≤ 0.2 UI

#### Alignment jitter:

3G: ≤ 0.3 UI  
HD: ≤ 0.2 UI  
SD: ≤ 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

### AES Audio Outputs

**Interface:** AES-3id (2 mono channels per output)

**Sample rate:** 48 kHz

**Output level:** 1 Vp-p ± 20% into 75Ω

**Output return loss:** <-15 dB, from 100 kHz to 6 MHz

**Output connector:** BNC, 75Ω

### 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 GV Korona K-Frame V-series Video Production Center is interoperable with the Encore, Jupiter, SMS-7000 and NV9000 routing control systems; LDK Series and LDX Series cameras using Connect Gateway; and with the K2 media server family (including K2 Summit and K2 Solo), legacy Profile servers, M-Series iVDRs, Turbo iDDR and T2 iDDR.

### Supported Control Protocols

The GV Korona K-Frame V-series 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 GPLs

RossTalk (for Xpression control)

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 (Trinix/Trinix NXT, Venus, Triton, NVISION and third-party routers; Jupiter, Encore and NV9000 router control systems)

Ethernet tally

Grass Valley remote Aux panels via Ethernet  
Ethernet CPL to control Grass Valley external remote Aux panels

GV Editor protocol for edit controllers and external control

VDCP serial and Ethernet

### Power

#### Video Processing Frame 3 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. 500W

Leakage current: <2.5 mA

#### 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. 60W (GV Korona control panels)

Leakage current: <2.5 mA

### Environmental Conditions

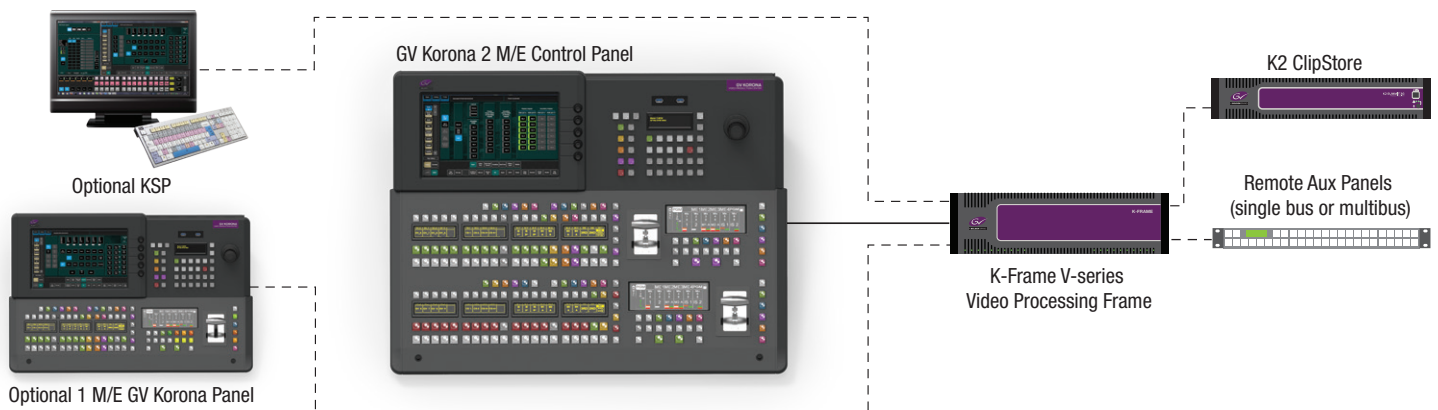
**Storage temperature:** -20 to 70° C (-4 to 158° F)

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

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

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

## GV Korona System Setup Options



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Join the Conversation at **GrassValleyLive** on Facebook, Twitter, YouTube and **Grass Valley - A Belden Brand** on LinkedIn.



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