

# GV Korona K-Frame S-series

## Video Production Center



All the switcher power you want, with the affordability you need.

The new GV Korona K-Frame S-series systems from Grass Valley, a Belden Brand, combine ultimate mid-range switcher performance, along with proven workflows and simplified control of complex productions. These unrivaled capabilities are offered in two system packages, with 2 M/Es or 1 M/E, for exceptional value.

GV Korona K-Frame S-series systems offer a choice between two new control surfaces with a built-in touchscreen menu system, innovative touchscreens in transition areas, and a K-Frame S-series video processing engine. The systems come pre-configured with 1 or 2 M/Es, 32 inputs and 16 outputs, and software licenses that include floating iDPMs and chromakeyers, 2DDPMs for each keyer, internal 16 GB ImageStore, two multiviewers, and FlexiKey functionality.

The switchers are fully Future-Ready, with multi-format support including 1080p and 4K. Switching of 4K is offered without the need for any hardware or software upgrades.

The K-Frame S-series 6 RU video frame delivers a high level of functional integration for space efficiency. It supports up to 6 M/Es across two suites, with four keyers per M/E, and up to eight licensable floating iDPMs. The frame itself has internal main and back-up power supplies, a controller module with

on-board ImageStore and multiviewer. All this processing power is combined with a large scalable I/O footprint of 80x48 (maximum) supporting SDI and IP for outstanding versatility.

GV Korona K-Frame S-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.

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.

To match individual user requirements, a single frame can be split into separate suites to provide resources across multiple switcher panels. This resource allocation minimizes costs and also saves precious space.

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.

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

## KEY FEATURES

### 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 S-series

- Compact Frame (6 RU) with 10-bit 4:2:2 video processing:
  - 32 standard inputs, up to 80 maximum
  - 16 standard outputs, up to 48 maximum
  - Up to 6 M/Es for exceptional creative freedom
  - Up to 8 floating DPMS, accessed as either iDPM or eDPM at the user's discretion
- 4 full function keyers in every M/E, with standard keying modes including chromakey
- 2D DPMS (resizers) on every keyer, with 4 pairs of 2D DPMS per M/E
- Floating 3D iDPMS for more complex digital effects
- Future-Ready with multiformat support, including 1080p (level A or B) and 4K
- The K-FRM-IO-10GE IP I/O board for the K-Frame video processing engine offers video-over-IP connectivity for all K-Frame production switchers, using either uncompressed SMPTE 2022-6 or 4K 1-wire compressed IP

- Smart I/O modules provide up/down/crossconversion (optional)
- Integrated macro builder/editor allows users to edit macros online (or offline) on a PC running the menu application
- DoubleTake split M/E mode effectively doubles the number of M/Es (optional)
- FlexiKey programmable clean feed mode for separately programmable configurations of keyers from 4 M/E outputs
- Aux bus transitions for dissolves and wipes on aux bus outputs
- Built-in Image Store for storing up to 3,000 stills or 50 seconds of 1080p video to 10 video+key pair outputs
- Integrated external ClipStore provides multiple channels of video+key pairs for up to 10+ hours of non-volatile video/key/audio clip storage
- Built-in, dual output multiviewer with 5 pre-configured layouts (maximum 14 panes per layout) with On-Air and Preview tally
- Interfaces with Grass Valley routers and external Kaleido multiviewers, as well as their control systems
- LDK Series & LDX Series camera control with Ethernet tally via Connect Gateway
- 999 macros with multiple means of recall 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 the M/E buses and aux bus outputs (optional)
- System Control area with device control sub-sections, switched preview, aux bus delegation and macro controls
- Source Rules links keyers to sources and set rules for “on/off/left alone” on every M/E with full look-ahead preview
- Ethernet tally connection for integration with external tally systems
- VDCP Ethernet connect for stadium applications

## SPECIFICATIONS

### Mechanical Specifications

Component	Depth	Width	Height	Weight	Rack Units
<b>Control Panels</b>					
GV Korona 1 stripe	419.9 mm (16.5 in.)	667.9 mm (26.3 in.)	226.1 mm (8.9 in.)	13.6 kg (30.0 lbs.)	n/a
GV Korona 2 stripe	577.6 mm (22.7 in.)	764.5 mm (30.1 in.)	256.0 mm (10.1 in.)	18.1 kg (40.0 lbs.)	n/a
<b>Frames</b>					
K-FRM-100CS	558.8 mm (22.0 in.)	482.8 mm (19 in.)	266 mm (10.47 in.)	36.7 kg (81 lbs.)	6

Frame	M/Es	Inputs	Outputs	GPI Inputs Per Board	GPI/Tally Outputs Per Board	Smart I/O (MatchDef/SetDef)
S-series 6 RU	1 to 6	32 standard, 80 maximum, includes 16 Smart I/O that are SDI or IP*	16 standard, 48 maximum, includes 16 Smart I/O that are SDI or IP*	8 per input	32 per input board	Each Smart I/O module provides 4 inputs and 4 outputs with access to 4 up/down/crossconversion (MatchDef/SetDef) capability
<b>Board Count</b>						
S-series 6 RU	Up to 2 tri-M/E boards	Up to 2 input boards (32 inputs per input board)	Up to 2 output boards (16 dual outputs per output board)			Up to 4 Smart I/O modules that are SDI or IP*

\* IP I/O do not support MatchDef/SetDef

## SPECIFICATIONS (CONT.)

### Video Standards

#### 3G Mode:

1080p50/59.94/60, Level A and Level B  
4K capability, quadrant or 2SI

#### HD Mode:

1080i25/29.97/30  
1080p50/59.94/60  
720p50/59.94/60

#### SD Mode:

525i59.94  
625i50

### Serial Digital Video Inputs

#### Interface:

3G: SMPTE 424M-2006  
HD: SMPTE 292M-1998  
SD: 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: 140m (459 ft.) typical  
HD: 200m (656 ft.) typical  
SD: 350m (1,148 ft.) typical

### IP Digital Video Inputs/Outputs

#### Interface:

SMPTE ST 2022-6; IEEE 802.3 (10 GigE)

#### Connector Type:

SFP+ (LC fiber)

#### Multicast:

IGMPv2

### Compression

#### Interface:

SMPTE RDD 35 (TICO)

#### Connector Type:

75Ω BNC; SFP+ (LC fiber)

#### Compression Ratio:

4:1

#### Latency:

Fixed, low latency pixel and line-based

#### Format:

2-sample interleave (2SI)

### Serial Digital Video Outputs

#### Interface:

3G: SMPTE 424M-2006  
HD: SMPTE 292M-1998  
SD: 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: ≤ 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

### 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 S-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 S-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 6 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. 750W

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

Leakage current: <2.5 mA

### Environmental Conditions

#### Storage temperature:

-20 to 70° C (-4 to 158° F)

#### Operating temperature:

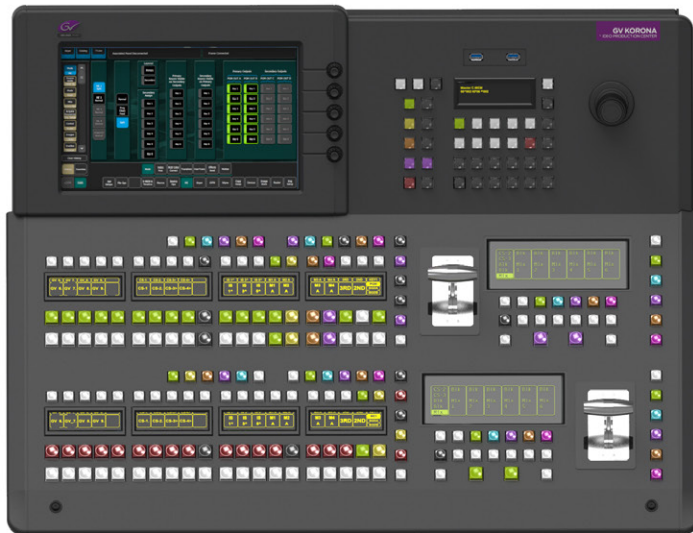
0 to 40° C (32 to 104° F)

#### Relative humidity:

0-95% (non-condensing)

#### Electromagnetic environment:

E2 (according to EN55103-1, -2)



GV Korona 2-Stripe Control Panel (KOR-PNL-200-20)



GV Korona 1-Stripe Control Panel (KOR-PNL-100-15)

**ORDERING**

Select a System

Choose SPORT Performance Suite if desired

Customize with Options as needed



S-series systems come with additional licenses that provide tremendous value and can be seen below:

System	M/Es	Stripes	Buttons	Frame Type	Inputs	Outputs
KOR-1-15-1M-KCS	1*	1	15	Compact (S-series)	32**	16***
KOR-2-20-2M-KCS	2*	2	20	Compact (S-series)	32**	16***

\* S-series frames support up to 6 M/Es

\*\* S-series frames support up to 80 inputs

\*\*\* S-series frames support up to 48 outputs



KOR-1-15-1M-KCS



KOR-2-20-2M-KCS

**GV Korona K-Frame S-series Systems**

**KOR-1-15-1M-KCS**

GV Korona K-Frame S-series 1 M/E 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 (6 RU) K-Frame S-series (K-FRM-100CS) which includes:

- S-series Controller Module (K-FRM-CTRL-CS) with internal ImageStore and Multiviewers
- One S-series Mix/Effects module (K-FRM-ME-DPMs)
- One Input Module with 32 inputs (K-FRM-INPUT)
- One Output Module with 16 outputs (K-FRM-OUTPUT)
- One power Supply Unit (K-FRM-PSU)

Software licenses, which include:

- One (1) S-series M/Es each with four keyers (K-FRM-LIC-ME-S)
- Two (2) floating iDPMs (K-FRM-LIC-IDPM-2)
- Two (2) floating Chromakeyers (K-FRM-LIC-CHRO-2)
- Four (4) 2D DPMs (K-FRM-LIC-2DDPM)
- Internal ImageStore with storage (K-FRM-LIC-IMG-16GB)
- Two (2) internal Multiviewers (K-FRM-LIC-MLTVWR)
- FlexiKey functionality (K-FRM-LIC-FLEX)

**KOR-2-20-2M-KCS**

GV Korona K-Frame S-series 2 M/E system — includes control panel, video frame, and licenses. 2-stripe (1 M/E) GV Korona panel (KOR-PNL-200-20) with built-in multitouch touchscreen menu. Compact (6 RU) K-Frame S-series (K-FRM-100CS) which includes:

- S-series Controller Module (K-FRM-CTRL-CS) with internal ImageStore and Multiviewers
- One S-series Mix/Effects module (K-FRM-ME-DPMs)
- One Input Module with 32 inputs (K-FRM-INPUT)
- One Output Module with 16 outputs (K-FRM-OUTPUT)
- One Power Supply Unit (K-FRM-PSU)

Software licenses, which include:

- Two (2) S-series M/Es each with four keyers (K-FRM-LIC-ME-S)
- Two (2) floating iDPMs (K-FRM-LIC-IDPM-2)
- Two (2) floating Chromakeyers (K-FRM-LIC-CHRO-2)
- Eight (8) 2DDPMs (K-FRM-LIC-2DDPM)
- Internal ImageStore with storage (K-FRM-LIC-IMG-16GB)
- Two (2) internal Multiviewers (K-FRM-LIC-MLTVWR)
- FlexiKey functionality (K-FRM-LIC-FLEX)

**GV Korona Performance Suite**

**KOR-SPORT-PS**

K-Frame Compact S-series SPORT Performance Package adds additional functionality to either KOR-1-15-1M-KCS or KOR-2-20-2M-KCS systems.

- DoubleTake capability (K-FRM-LIC-DBL)
- Additional storage for the ImageStore (K-FRM-LIC-IMG-32GB)
- Movies capability for the ImageStore (K-FRM-LIC-IMG-RAMR)

**GV Korona Panel Options**

**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-KIT**

GV Korona Critical Spares Kit for either KOR-PNL-xxx-xx main control panel models, including the controller board and one fan assembly.

**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.

ORDERING (CONT.)

K-Frame S-series Options

Hardware

**K-FRM-100CS**

K-Frame Compact S-series (6 RU) video frame with internal power supply includes:

- S-series Controller processor module (K-FRM-CTRL-CS)
- 1 S-series mix/effects module (K-FRM-ME-DPM-S)
- 1 input module with 32 inputs (K-FRM-INPUT)
- 1 output module with 16 dual channel outputs (K-FRM-OUTPUT)
- 1 power supply (K-FRM-PSU)
- 8 GPI inputs and 32 GPI outputs
- AMP protocol
- Ethernet tally
- 999 Macros and 1000 E-MEMs

Video frame has 6 M/Es with 4 keyers per M/E capability that may include an eDPM license — 80 inputs/48 outputs maximum.

**K-FRM-CTRL-CS**

K-Frame Compact S-series Controller processor module. Both the internal Image Store and multiviewers functionality reside on this module which are licensable.

**K-FRM-100CS-KIT**

K-Frame Compact S-series Spares Kit includes: Compact S-series control processor (K-FRM-CTRL-CS) and Compact S-series fan module.

**K-FRM-ME-DPM-S**

K-FRM-ME-DPM-S S-series module — adds 1 mix/effects module with 3 processors that supports:

- Up to 3 licensable S-series M/Es (K-FRM-LIC-ME-S):
  - A/B and utility 1 and 2 backgrounds
  - 4 full-function keyers with 2D DPMS
  - Cut/mix/wipe transitions
  - 6 program, preview and clean feed outputs
- Ability to license 1 eDPM (K-FRM-LIC-EDPM) per system, when hardware available

**K-FRM-INPUT**

K-Frame input module — adds 32 inputs, 8 GPI inputs and 32 GPI outputs per input board, 1 board per frame slot.

**K-FRM-OUTPUT**

K-Frame output module — adds 16 dual channel outputs (32 outputs) per output board, 1 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-IO-10GE**

K-Frame Input/Output IP Module adds SMPTE 2022-6 (HD) capability to K-Frame:

- 2 SFP connectors
- 4x4 bi-directional IP signals
- 4K 1-Wire using TICO compression
- 2 BNC connectors allow 4K/UHD TICO over 3G SDI and 4K uncompressed over 12G SDI

**K-FRM-PSU**

K-Frame Power Supply for the K-FRM-PSU-FRAME.

**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.

Software

**KOR-SPORT-PS**

K-Frame Compact S-series SPORT Performance Package adds additional functionality to either KOR-1-15-1M-KCS or KOR-2-20-2M-KCS systems.

DoubleTake capability (K-FRM-LIC-DBL)

Additional storage for the ImageStore (K-FRM-LIC-IMG-32GB)

Movies capability for the ImageStore (K-FRM-LIC-IMG-RAMR)

**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 6 licensed DPM's video+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 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 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 in the video processor frame.

**K-FRM-LIC-ME-S**

Software license enabling M/E functionality on K-Frame Compact S-series mix/effects module.

One license required for every M/E:

- A/B and utility 1 and 2 backgrounds
- 4 full-function keyers with 2D DPMS
- Cut/mix/wipe transitions
- 6 program, preview and clean feed outputs

Three M/E licenses maximum on a K-FRM-ME-DPM-S module

**K-FRM-LIC-CHRO-2**

Software license enabling 2 floating chromakeyers to use on any of the 4 full keyers on every M/E.

**K-FRM-LIC-CHRO-ALL**

Software license enabling ALL floating chromakeyers in the system. Possible 24 in fully loaded compact 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 buses, 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-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, maximum 14 panes per layout with On-Air and Preview tally.

**K-FRM-LIC-ME-VIEW**

Software license enabling the capability to view an additional preview output from the M/E that displays the bus videos for that M/E.

Six pre-configured layouts that are separately selectable for each M/E.

**K-FRM-LIC-3G-C**

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

**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. For previously shipped systems order under Kxxx-SW-OPT configuration and include frame serial number. Requires a KSP-PNL-1ME-KBD keyboard.

**K-FRM-LIC-IMG-32GB**

Software license enabling the image store to operate with 32 GB of memory. Prerequisite: K-FRM-IMG. Capacity as follows: approx. image/key pairs per format = 3040/1080p, 3040/1080i, 6624/720p, 18144/525i, 15328/625i. For previously shipped systems order under K-FRM-SW-OPT configuration and include frame serial number.

**K-FRM-LIC-IMG-RAMREC**

K-FRM-LIC-IMG-RAMR: Software license enabling the ImageStore board to operate in "Movies" RAM Record mode:

- Two channels (Video & Key) of Record
- Ten channels (Video & Key) of Playout
- Ability to assign into individual suites
- Import AVI files w/audio

Delay Line and Loop Record functions

Requires K-FRM-IMG (hardware) and either K-FRM-LIC-IMG-16GB, K-FRM-LIC-IMG-32GB, or K-FRM-LIC-IMG-64GB (software).

For previously shipped systems, order under K-FRM-SW-OPT configuration and include frame serial number.



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