

LDK 4000 Elite

SINGLE-FORMAT HD CAMERA

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Grass Valley™ products offer the most comprehensive multi-format solutions for acquisition, production, storage, playback, and transmission—and a strong foundation for centralized, proactive status and activity monitoring. These solutions include one of the broadest selections of standard-definition (SD) and high-definition (HD) digital video cameras.

With one of the best-known imaging design teams in the world and multiple technical Emmy® awards, Grass Valley camera products continue to break ground for innovation and creative ideas.

In many regions of the world, there is no standard format for HD production. Others regions have standardized on only a single format—or do not yet support multiple formats. And then there are production companies who work in only a particular format. These circumstances have created the need for a cost-effective acquisition solution, one

that provides a single, fixed format for HD production.

Single-Format Camera for Cost-Effective HD Production

The LDK 4000 Elite is available as either a 720p or 1080i camera head. In each case, its operating frequency is switchable between 50- and 59.94 Hz, enabling it to support a variety of production environments.

As well, an optional service pack is available to transform the camera head's initial format from 720p to 1080i or the other way around. Please note that this conversion is semi-permanent and not instantly switchable.

Three 9.2-million pixel HD-DPM+™ CCDs within the LDK 4000 Elite camera ensure the highest quality image capture, and 14-bit analog-to-digital conversion takes that quality to the digital domain. Digital signal processing (DSP) takes place on a single chip at 34 bits. This processing

includes all major camera functions such as gamma, knee, contour, and variable matrix. This single-chip approach delivers tremendous benefits in speed, power consumption, and temperature.

The LDK 4000 Elite camera has a magnesium-alloy body that not only gives it a high degree of durability, but also makes it the most lightweight camera in its class—one that is ideal for handheld operation. And with a rotary HD triax connector and optional integrated handgrip zoom control, it makes those difficult low-level shots much easier to achieve.

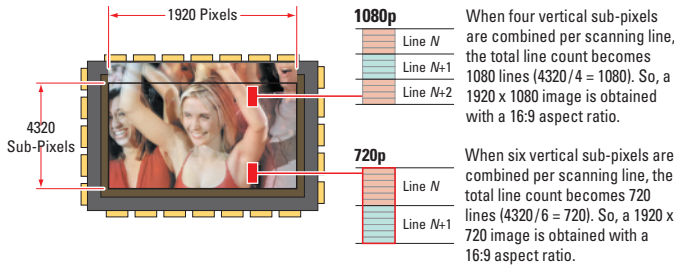
You can also mount the LDK 4000 Elite camera in our SuperXpander large-lens adapter for the use of box-style studio lenses and a high-quality 7-inch HD viewfinder to provide the feel of a full-size studio camera.

KEY FEATURES

- Unrivaled video sampling:
 - Three 9.2-million pixel HD-DPM+ CCDs
 - 14-bit A/D sampling
 - 34-bit digital signal processing resolution
- Secondary color corrector
- User-selectable noise reducer
- Emmy award-winning dual skin contour circuit makes talent look its best
- Dynamic anti-aliasing-on-sensor processing reduces artifacts
- Unique viewfinder focus-assist tools:
 - Crawler for creating an active edge around all objects in focus
 - Instant push-button electronic zoom for enlarging a subject to focus on fine details
- Flexible HD transmission system:
 - Supports standard triax up to 3,500 ft. (1,200m)
 - Supports hybrid fiber SMPTE 311 up to 13,200 ft. (4,000m)
- SuperXpander LLA enables configuration with full size studio or OB lenses, and accessories
- Outputs SD images to HD output
- On line leaking-pixel correction
- Continuous auto-black balance and all-digital auto-white balance
- Dockable system for optional adapters such as the Grass Valley HD Wireless system

DYNAMIC PIXEL MANAGEMENT

By grouping the 4,320 vertical sub-pixels on the CCDs to map to the desired line rate, all popular video formats can be acquired without compromising image quality.

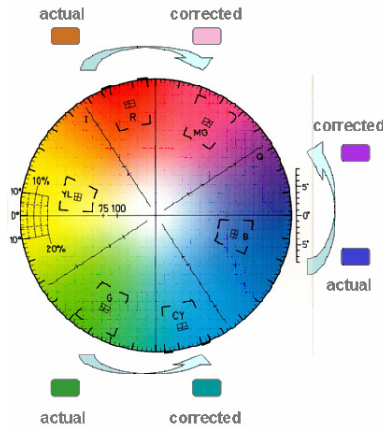


Enhanced Digital Signal Processing Chipsets

The LDK 4000 Elite includes all-new DSP circuits and an updated software platform that performs all camera image management functions such as knee, gamma, contours, and variable matrix, with 34-bit digital precision.

New features of the LDK 4000 Elite have added to those already included with the LDK 4000 mk II. New circuit and chip designs provide substantial performance improvements to the camera.

Additional new features have been added, such as secondary color correction, where users can select specific colors in a scene and modify them as needed to enhance or highlight certain features within a shot. Color selection is divided into 16 vectors. Users can select the width or range of colors included in a selection, then choose the color they wish to modify. Up to three colors can be modified in a



scene. Selected color changes can be saved with scene files during rehearsals then recalled during production.

Other new features include a user selectable noise reducer. While camera performance of the LDK 4000 Elite has already been improved over the LDK 4000 mk II, this feature allows users

to further extend the performance if needed. In default mode, the noise reducer is off. Users can select one of three levels of incremental noise reduction.

Another function of the new chipset is color temperature correction. A wide choice of color temperature settings are available to ensure repeatable accuracy at each color temperature point. This is one of the key differences between LDK camera architecture and other cameras: the LDK cameras do not use optical color correction filters.

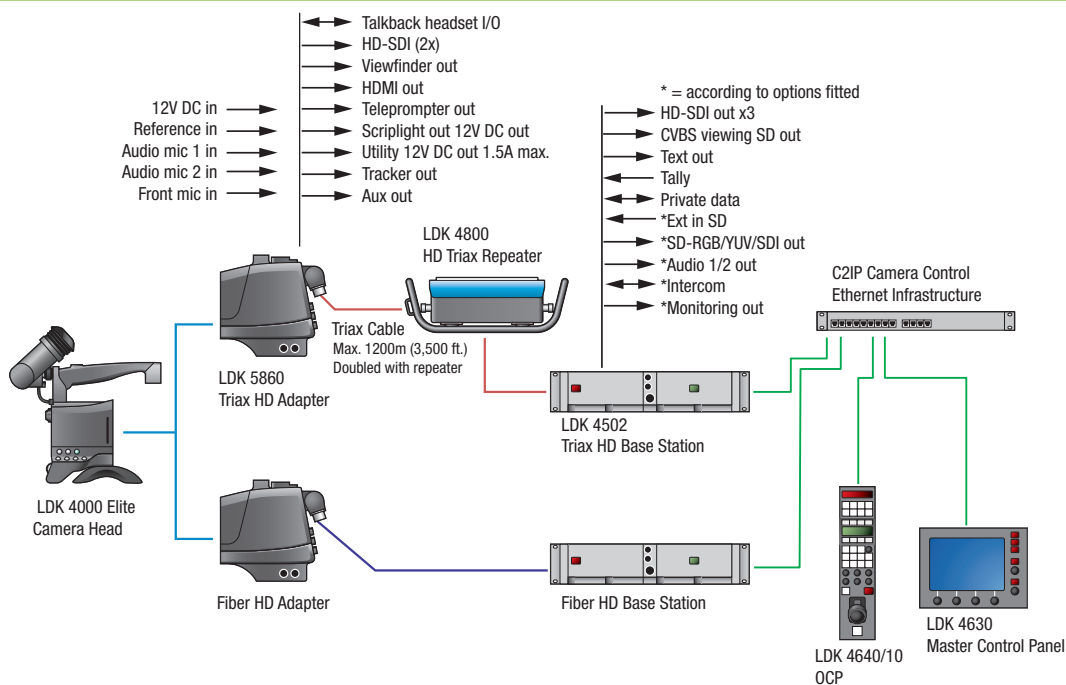
Easy Production System Integration

The LDK 4000 Elite camera readily integrates into a studio or mobile production environment. The dockable camera head supports a range of adapters and options to enable the use of either HD triax, fiber, or wireless connectivity, whether in handheld or studio configurations.

All system components of the LDK 4000 Elite camera offer the same operational features as our LDK 8000 Elite multiformat HD camera. So you have complete compatibility with regard to connectivity, operation, and picture quality.

The LDK 4000 Elite system also uses the same operational control panels as other Grass Valley LDK series cameras and with our Ethernet-based C2IP camera control system up to 99 cameras can be connected into a single system to share control-room facilities or centralize operations.

LDK 4000 ELITE SYSTEM



SPECIFICATIONS

HD Camera Head		LDK 4000 Elite	
Power	Triax or DC 12V; 44W incl. 2" viewfinder & Triax HD adapter		
Temperature range	Operating: -20°C to 45°C (-4°F to 113°F); Storage: -20°C to 60°C (-4°F to 140°F)		
Weight	5.5 kg (11 lbs.) incl. 2" viewfinder and Triax HD adapter		
Dimensions	241 (H) x 164 (W) x 373 (L) mm with Triax HD adapter		
Camera			
Optical system	F1.4 Prism		
Optical filter wheels	2x motorized wheels		
Optical filters on first wheel	Clear, 1/4 ND, 1/16 ND, 1/64 ND		
Optical filters on second wheel	Clear, four-point star, six-point star, soft focus		
Color-correction filters (digital process)	Electronic: 3200°K, 5600°K, 7500°K, FL, 2 AWB presets, continuous auto white		
Pickup device	3 x 2/3" 16:9 HD-DPM+ CCDs		
Picture elements	9.2 million pixels 1920 (H) x 4320 (V) effective		
Smear	No vertical smear		
Temporal Frequencies	LDK 4000 Elite/70		LDK 4000 Elite/71
720p operation	50/59.94 Hz		—
1080i operation	—		50/59.94 Hz
Sensitivity 2000 lux	F10.0 typical		
S/N ratio in Y signal	60 dB typical		
Modulation depth	55% @ 27 MHz (typical 720p59.94)		
Digital quantization/ DSP processing	14 bits A/D, with 34 bits DSP resolution		
Gain	-6 dB to 12 dB in 3 dB steps (user-definable presets)		
Exposure control	Down to 1/1000s		
Clean scanning	50.8 to 125 Hz (at 50 Hz temporal frequency); 61 to 150 Hz (at 59.94 Hz temporal frequency); V-shift		
Front microphone input	XLR-3 female, balanced +48V selectable		
Lens connector	12-pin		
Control input	9-pin RS-232C compatible		
Viewfinder connector	20-pin, and, HDMI connector		
Supplied accessories	Operators manual; camera rain cover; 1x owner card; 2x user cards; shoulder strap		
Options			
2" viewfinder	Model No. LDK 5302		CRT >600 TV lines (center)
7" viewfinder	Model No. LDK 4020		CRT >800 TV lines (center). Requires additional mounting hardware
7" viewfinder	Model No. LDK 5307		LCD color flat panel
LDK 5860 TriaxHD Adapter			
Input connectors	Audio in: XLR-3-31 type (female x2), selectable phantom +48V, selectable attenuator		
	Video ref in, BNC type, 1.0 Vp-p, 75Ω		
Output connectors	DC 12V in: XLR-4 pin type (male x1)		
	VF out, BNC type, 1.0 Vp-p, 75Ω, switchable to external (SD+HD)		
	2 x BNC, SMPTE 292M, HD-SDI out: 1.5 Gb/s, 0.8 Vp-p, 75Ω		
	Prompter out: BNC type, 1.0 Vp-p, 75Ω		
	Scriptlight DC-out: 3-pin, 0.25A/12V DC		
Input/output connectors	DC-out: 4-pin Hirose, 1.5A/12V DC and tally indicators		
	Auxiliary/data 11p private data		
	Tracker: 11-pin		
	Intercom: XLR 5-pin (female x1)		



ORDERING INFORMATION

Please contact your authorized Grass Valley representative.

CUSTOMER SUPPORT & PROFESSIONAL SERVICES

Our customer support and professional services offerings ensure optimal system performance and maximize uptime. These services include call centers staffed around the clock, commissioning, professional training courses, and technical maintenance programs and service agreements.

www.grassvalley.com/support

