

LDK 8300

LIVE SUPER SLOMO CAMERA

In 1998, the LDK 23 camera set the standard in standard-definition super slow-motion (slo-mo). Now, a decade later, Grass Valley is again setting the standard with high-definition super slo-mo with the introduction of the LDK 8300 Live Super SloMo camera. At major sporting events in 2008, athletes scoring goals and winning gold medals were captured with the LDK 8300 and played back in stunning slo-mo for millions of viewers worldwide.



One of the best-known imaging design teams in the world has proven themselves again with the design of this unique multi-format and multi-speed Live Super SloMo camera. Based on the same leading imaging and video-processing technologies as our popular LDK 8000 multi-format HD camera, the LDK 8300 camera is an HD Live Super SloMo camera which is perfect for almost any mobile application.

Native Format Switching

The ability to instantly switch between 720p and 1080i modes is made possible by three Emmy® Award-winning, next-generation 9.2-million pixel High Definition Dynamic Pixel Management (HD DPM+™) sensors, which capture true HD images natively. These are the same sensors used in our LDK 8000 Elite series of HD cameras, which are renowned for their high picture quality performance.

Operating at the Speed You Need

Unique to the LDK 8300 camera is its ability to operate at 1x, 2x, and 3x speeds. Directors/producers can choose to select the most suitable speed for slo-mo replays for the event they are covering. In a fast sporting event, such as basketball, the selection can be double-speed; while covering soccer, triple-speed is the standard. And, when no live slo-mo capture is needed, the LDK 8300 camera performs in single-speed exactly the same as every other LDK 8000 camera. This versatility keeps the total cost of operation of the LDK 8300 camera at a minimum.

AnyLight Flicker Reduction

In stadiums, sports arenas, and the like, lighting conditions are often not ideal for triple-speed acquisition. A visual “flicker” is perceived as changes in light levels due to the mismatch between the camera scanning frequency and

the mains power frequency of artificial lights. The unique AnyLight feature compensates for this mismatch and helps reduce flicker automatically. There are five presets for different lighting conditions available in the LDK 8300 camera. These presets can be accessed from the operational control panel or the base station. The various presets allow the camera to reduce the flickering in the most effective way based on the lighting situation and scanning frequency.

No Compromise Performance

In triple-speed mode, the Grass Valley™ LDK 8300 Live Super SloMo camera captures video at 150 and 180 images per second—three times the 50 and 60 images per second rate of traditional HD camera—with a superb signal-to-noise ratio, resulting in stunning slo-mo replays. A new, specially developed fiber interface delivers the camera’s extremely high data rate to the servers flawlessly.

KEY FEATURES

- 1x, 2x, 3x speed selectable
- Multi-format support 720p or 1080i:
 - 1080i50/59.94 (1x)
 - 1080i100/119.88 (2x)
 - 1080i150/179.82 (3x)
 - 720p50/59.94 (1x)
 - 720p100/119.88 (2x)
 - 720p150/179.82 (3x)
- Unique AnyLight anti-flicker feature
- High-quality HD acquisition
- Signal-to-noise ratio for HD broadcast requirements: >57 dB
- Enhanced cooling system
- Robust digital fiber transmission and communication
- High-quality, simultaneous SD output available during HD recording
- Same controls, look, and feel as LDK 8000 Standard and WorldCam cameras
- Supports third-party digital disk device for recording and storing HD images

SPECIFICATIONS

HD Camera Head

Camera

Pickup device: 3-CCD 2/3"-type 16:9 HD-DPM+ CCDs

Picture elements: 9.2 million pixels 1920x4320

Operating modes: 1x, 2x, and 3x speed

Temporal frequencies:

- 720p: 50/59.94 Hz
- 100/119.88 Hz
- 150/179.82 Hz
- 1080i: 50/59.94 Hz
- 100/119.88 Hz
- 150/179.82 Hz

Sensitivity

1x speed (normal): F8.0 at 2000 lux (1080i)

2x speed (double): F5.6 at 2000 lux (1080i)

3x speed (triple): F4.5 at 2000 lux (1080i)

S/N ratio: 57 dB on combined output; 54 dB on phases 1, 2, 3

Modulation depth: 55% at 27 MHz (typical 1080i mode, single-speed only)

Dynamic range: >600%

Exposure control: TBD

Gain selection: -6 to +18 dB in 3 dB steps (user-definable presets) + continuous

Smear level: no vertical smear

Clean scanning (in single-speed): 50.8 to 125 Hz (at 50 Hz temporal frequency); 61 to 150 Hz (at 59.94 Hz temporal frequency); V-shift

General

Spectrum system: F1.4 prism system

Optical filter wheels: 2x servo filter controls

Optical filters on first wheel: Clear, 4p star, 6p star, soft focus

Optical filters on second wheel: Clear, 1/4 ND, 1/16 ND, 1/64 ND

Weight: 5.5 kg (11 lbs., including 2" viewfinder, camera head, and adapter)

Dimensions (HxWxL, approx.): 241 x 164 x 373 mm (9.5 x 6.5 x 14.7 in.)

Operating temperature: -20 to +45°C (-4 to +113°F)

Storage temperature: -20 to +60°C (-4 to +140°F)

Typical cable length fiber: Hybrid fiber (SMPTE 311): up to 4,000m (13,123 ft.) in portable mode; up to 2,500m (8,202 ft.) in full studio mode

3G Fiber Adapter (LDK 5420)

General

Dimensions (HxWxL, approx.): 220 x 120 x 205 mm (8.7 x 4.7 x 8.1 in.) without handgrip

Operating temperature: -20 to +45° C (-4 to +113° F)

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

Operation humidity: Max. 90% (non-condensing)

Weight: 2.3 kg (5.1 lbs.)

Input Connectors

Front mic: XLR-3-31 type (female) balanced, +48V, ch1

Audio 1: XLR-3-31 type (female), selectable phantom +48V; mic/line switch

Audio 2: XLR-3-31 type (female), selectable phantom +48V; mic/line switch

DC (12V): XLR-4 pin type (male)

Output Connectors

HD-SDI VF: BNC type, 1.0 Vp-p, 75Ω

HD-SDI (EXT):

- BNC, SMPTE 292M, 1.5 Gb/s, 0.8 Vp-p, 75Ω
- BNC, SMPTE 425M-A, 3.0 Gb/s, 0.8 Vp-p, 75Ω (live output)

Scriptlight DC (0.25A/12V): 4-pin Hirose

DC (12V/1.5A) and tally indicators: 4-pin Hirose

Input/Output Connectors

Adapter (to base station): Fiber communication + power connection

Typical SMPTE hybrid fiber (SMPTE 311) cable length: 3,000m (9,842 ft.)

Intercom (to headset): XLR 5-pin (female)

Video Ref (input)/Teleprompter

(output): BNC type, 1.0 Vp-p, 75Ω (tri-level sync input/SD-output)

Auxiliary/Data (private data): 1-pin (female)

Tracker: 11-pin (female)

VF mon./ext. output (analog)/AES/EBU input: BNC type, 1.0 Vp-p, 75Ω

Hot shoe connection (bottom plate): 20-pin connector (power + control)

3G Fiber Base Station (LDK 4410)

General

Dimensions (HxWxL, approx.): 438 (19" rack) x 88 (2 RU) x 510 mm

Operating temperature: 0 to +45° C (+32 to +113° F)

Storage temperature: -40 to +70° C (-40 to +158° F)

Operation humidity: Max. 90% (non-condensing)

Weight: 13.0 kg (28.66 lbs.) full option equipped

Power consumption: 380VA or 375 watt max. in studio configuration; 200 VA or 180 watt max. in portable configuration

Typical SMPTE hybrid fiber (SMPTE 311) cable length: 3,000m (9,842 ft.)

Connectors

Teleprompter in: BNC 1X (loop-through output), (C)VBSS, 1.0 Vp-p, 75Ω

Reference in: 1X (loop-through output), 1.0 Vp-p, 75Ω HD tri-level sync or SD black-burst

HD-SDI out:

- BNC 6X 0.8 Vp-p, 75Ω, SMPTE 292M, 1080i/720p at 59.94/50 Hz
- BNC 6X 0.8 Vp-p, 75Ω, SMPTE 425M-A/SMPTE 425M-B, 1080p at 59.94/50 Hz

HD-SDI out (live/effect): BNC 2X 0.8 Vp-p, 75Ω, SMPTE 292M, 1080i/720p at 59.94/50 Hz

HD monitoring out: BNC 1X 0.8 Vp-p, 75Ω, SMPTE 292M, 1080i/720p at 59.94/50 Hz

Composite video out: BNC 1X 1.0 Vp-p, 75Ω (CVBS text w/ or w/o video, for viewing purposes)

Signaling in/out: D-sub 15-pin, male; preview, green tally (call), dry contact; yellow tally (iso), dry contact; red tally (on-air), dry contact; remote audio level control (22-64 dB), DC

Auxiliary in/out: D-sub 9-pin, female; An0, 0-5 VDC in, An1, 0-5 VDC in, output on camera head; 16:9 <0.8 VDC in; private data in/out; 100 kb TTL (RS-232)

Control data: RJ-45 connector for Ethernet C2IP

Power requirement: AC 115V/230V ±15%, 47 to 63 Hz

Power connector: IEC type, 3-pin male

Power consumption: 380 VA or 375W max. in studio configuration; 200 VA or 180W max. in portable configuration or Lemo hybrid fiber connector acc. SMPTE 304 / Fischer hybrid fiber connector acc. SMPTE 304. Other fiber connectors on request

External video in:

- HD-SDI or SD-SDI in 1, (loop-through output), 0.8 Vp-p, 75Ω
- HD-SDI or SD-SDI in 2, 0.8 Vp-p, 75Ω
- HD-SDI or SD-SDI in 3, 0.8 Vp-p, 75Ω

2-channel audio: Audio out, XLR-3 2X; 0/+6 dBu (±1.5 dB, max. 18 dBu, 600Ω, gain max. 70 dB)

Frequency response: 40 Hz to 15 kHz, (+1/-3 dB, 1 kHz, -10 dBu output level)

Distortion: Less than 0.5% (100 Hz/1 kHz, +6 dBu out, 600Ω)

S/N ratio: 58 dB (unweighted RMS)

AES/EBU 1+2: BNC 75Ω, digital audio output audio 1 and 2

AES/EBU 3+4: BNC 75Ω, Dig audio output audio 3 and 4

Intercom in/out (2/4-wire intercom): D-sub 15-pin, female (program in, production in/out, engineering in/out), in: 0 or 6 dBu; out: 0 or 6 dBu (±2 dB, max. 12 dBu)

Frequency response: 150 Hz to 6 kHz (1 kHz, -10 dBu output level)

Distortion: Less than 2% (1 kHz, +12 dBu level)

ORDERING INFORMATION

Please contact your authorized Grass Valley representative.

GLOBAL SERVICES



Grass Valley Global Services specializes in the defining of, deployment of, and support of today's dynamic file-based workflows, based on Grass Valley and third-party solutions. With Grass Valley Global Services, you can achieve your operational goals in the most efficient and cost-effective way possible with a partner you can trust.

www.grassvalley.com/support

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

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

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