

LDX 85^N 4K

LDX C85^N 4K



Native 4K UHD FullSize and Compact Cameras

Designed for those producing in 4K UHD at either 50 or 59.94 Hz frame rates, these cameras can also be licensed for native HDR and DirectIP, while using all the same accessories as the LDX Series camera range.

For those that have a clear need for only 4K UHD (3840x2160) 50p/59.94p acquisition, Grass Valley has developed the LDX 85^N 4K and LDX C85^N 4K cameras, providing you with full native 4K UHD performance at a more affordable price level. With the correct GV-eLicenses installed (available as a daily, weekly or perpetual license), both the FullSize and Compact camera can capture in native HDR (HLG and PQ/SMPTE ST 2084) and wide color gamut for both frame rates. Depending on the transmission choices, they can also support a full IP workflow with the DirectIP GV-eLicense. When using a UXF XCU, you also have all the SMPTE ST 2110/2022-6 workflows over IP available, so the camera can deliver DirectIP or IP from the back of the UXF XCU.

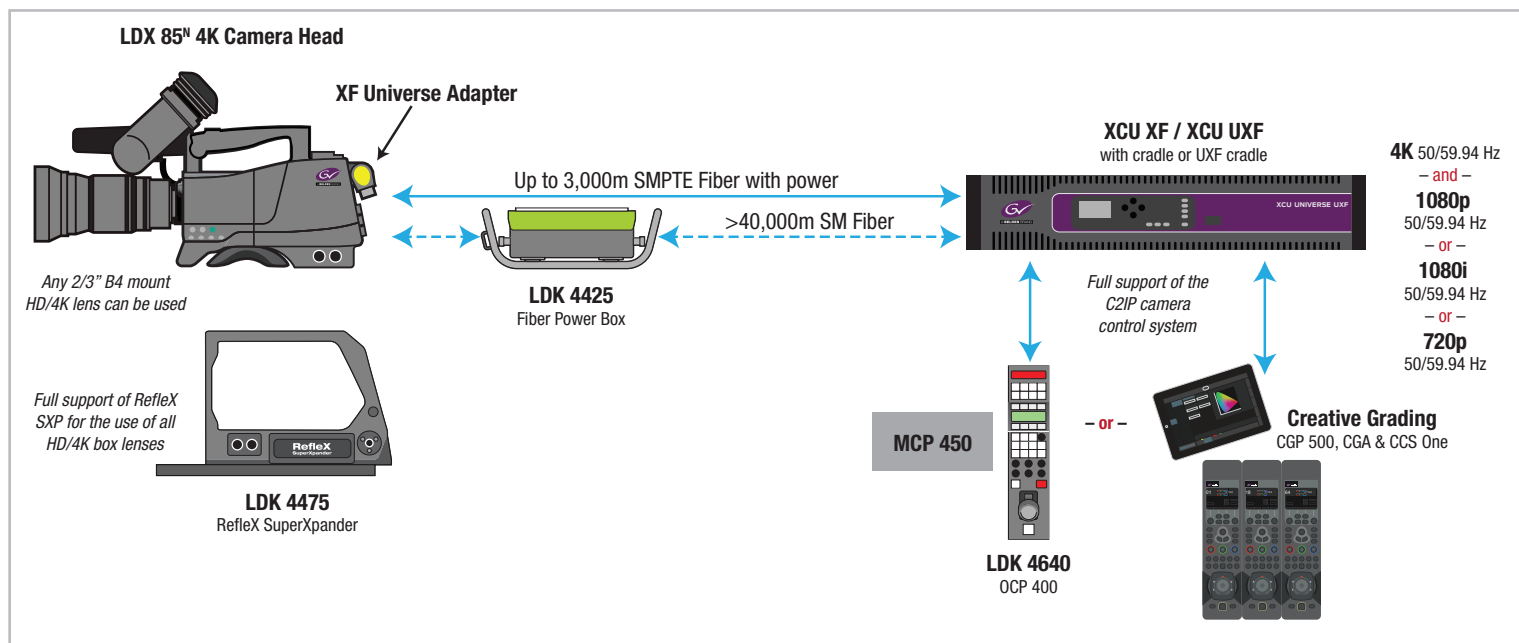
Both the LDX 85^N 4K and LDX C85^N 4K cameras provide pristine 4K UHD performance, as seen by viewers around the world when watching 4K UHD content shot with the LDX 86^N Series. Each camera makes use of three 2/3-inch UHD Xensium^{HAWK} CMOS imagers — with wide color gamut — developed in-house by Grass Valley. Both the LDX 85^N 4K and LDX C85^N 4K cameras can be mixed and matched with any LDX Series model, to allow the full set of LDX Series' strengths to be used in every camera — knowing that all cameras in your production will have the same outstanding look.

KEY FEATURES

- Native 4K UHD acquisition
- Wide color gamut support for both frame rates
- User-selectable native HDR licensing for both HLG and PQ SMPTE ST 2084
- With XF Transmission's DirectIP licensing, you have the unique ability to extend the distance between the LDX 85^N 4K FullSize camera and XCU to virtually any distance, making use of industry-standard IP products and offerings
- The LDX 85^N 4K FullSize camera provides selectable 3G (1080p50/59.94) and selectable HD (1080i50/59.94 or 720p50/59.94) downconverted at the XCU
- The LDX C85^N 4K Compact camera has selectable HD (1080i50/59.94) monitoring as well as a selectable 3G (1080p50/59.94) main output and at the rear of the camera
- The built-in LEDWallFilter control in the LDX 85^N 4K FullSize camera instantly eliminates moiré effects caused by LED walls of different resolutions — it is the reason why many LDX Series cameras are found in scenes with projection systems and large screens
- Optional Creative Grading, which not only makes shaders lightning fast, but also has a unique UI with which they can learn — on-the-fly — all the features and functions of the LDX 85^N FullSize camera, and enables them to shade HDR from the first moment onwards

While the LDX 85^N 4K and LDX C85^N 4K cameras do not offer an upgrade to high-speed operation, they can be used in combination with LDX 86 Series and LDX 86^N Series cameras for that purpose.

All the accessories* from other LDX Series cameras are fully supported by the LDX 85^N 4K FullSize camera.



* LDX 85^N 4K camera heads do not support any of the 3G transmission solutions.

LDX 85^N 4K CAMERA SPECIFICATIONS

General

Temperature range: -20° to +45°C (-4° to 113°F) (operating)
Weight: 2.1 kg (4.6 lbs.) (including handgrip and shoulder pad)
Dimensions: Width: 170 mm, depth: 200 mm, height: 180 mm (6.7 x 7.9 x 7.1 in.)
Power: Supplied through the transmission adapter

Camera

Pick-up device: 3x 2/3" 4K UHD Xensium^{HAWK} CMOS imagers
Smear: no vertical smear
Shutter: no mechanical shutter
Optical system: F1.4 prism
Lens mount: 2/3" Bayonet type
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, 4P-star, 5µ OLPF, cap-filter
Electronic color correction: 3200°K, 5600°K, 7500°K, FL, 2 AWB presets, Var, continuous auto white

Video Modes (frame rate switchable)

3840x2160p50/59.94
 With 1080p50/59.94 or 1080i50/59.94 or 720p50/59.94 down-conversion available at the XCU
S/N ratio: 60 dB typical (HD)

Sensitivity

3840x2160p50/59.94
 Sensitivity at 2000 lux:
 F8.7 to F4.3 (50 Hz)*
 F8.0 to F4.0 (59.94 Hz)*
1920x1080p50/59.94
 Sensitivity at 2000 lux and S/N ratio 60 dB:
 F10.0 to F5.0 (50 Hz)*
 F9.5 to F4.8 (59.94 Hz)*

Video Details

Aspect ratio: 16:9
Digital resolution: Floating point A/D-conversion with 16-bit performance and with 34-bit processing in RGB
Horizontal resolution: >2,000 TV lines (4K UHD)
Gain selection: -6 dB to +12 dB in 3 dB steps (user-definable presets) or continuous master gain

Connectivity

Front microphone input: XLR-3 female, balanced, phantom +48V selectable
 USB
 Ethernet RJ-45
Lens connector: Hirose 12-pin
Viewfinder connector: 20-pin and HDMI

Control Buttons

PickMe
 Info
 Menu control
 Intercom production/engineering
 Return A / Return B
 Filter wheel selection
 Standard file recall
 4x user assignable

Control Switches

On/off
 Color bar
 Gain selection
 Color temperature
 Exposure time
 White balance

* Specifications depend on the selected sensitivity mode.

XF TRANSMISSION SPECIFICATIONS**Compatible Cameras**

LDX 80 Series, LDX 82 Series, LDX 86 Series, LDX 86^N Series and LDX 85^N

Video

4K UHD: 3840x2160p50/59.94

XCU**General (incl. cradle)**

Dimensions XCU + cradle (HxWxL, approx.): 448 x 86.5 x 533 mm (19" rack, 2 RU) (17.6 x 3.4 x 21.0 in.)

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

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

Operation humidity: Max. 90% (noncondensing)

Shock resistance: Max. 10G (transport), max. 2G (operating)

Altitude: Max. 15,420m (50,000 ft.)

Weight XCU + cradle: 12.5 kg (27.6 lbs.)

Weight XCU: 7.8 kg (17.2 lbs.)

Power requirement: AC 100V/240V, 47 to 63 Hz

Power connector: IEC type, 3-pin male

Power consumption: Total power (Camera + XCU) 450W max.

Baseband Connectivity**Connectors**

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

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

4K UHD: 2x / 3G HD-SDI: 4x, BNC 0.8 Vp-p, 75Ω Quad or 2SI, Level-A

HD-SDI out: BNC 1x 0.8 Vp-p, 75Ω, SMPTE ST 292, 1080i/720p at 50/59.94 Hz or SMPTE ST 425A, 425B, 1080p at 50/59.94 Hz

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, private data in/out – 100 kb TTL (RS-232)

Control data: RJ-45 connector for C2IP (camera control)

Control data: RJ-45 connector for IP trunk up to 1 GbE

Hybrid Fiber connector: LEMO hybrid acc. SMPTE ST 304 (other Fiber connectors on request)

External video in: 3x HD-SDI (1.5 Gb/3.0 Gb) or SD-SDI 0.8 Vp-p, 75Ω

Input 1 (loop-through output) / Inputs 2 and 3 (no loop-through output)

Connectors (HD/3G 1X/3X/6X modes)

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

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

BNCs A through D: Quad or 2SI HD-SDI

BNC E:

HD Live 1080i/720P – SDR/HDR

3G Live SDR/HDR

SD Live SDR

SDI 1 Out:

HD Live 1080i/720P SDR/HDR

3G Live SDR/HDR

HD Monitoring SDR/HDR

SDI 2 Out:

HD Live 1080i/720P SDR/HDR

3G Live SDR/HDR

HD Monitoring SDR

Composite video monitoring output: BNC 1x 1.0 Vp-p, 75Ω (CVBS text with 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, private data in/out – 100 kb TTL (RS-232)

Control data: RJ-45 connector for C2IP (camera control)

Control data: RJ-45 connector for IP trunk up to 1 GbE

Hybrid Fiber connector: LEMO hybrid acc. SMPTE ST 304 (other Fiber connectors on request)

External video in: 3x HD-SDI (1.5 Gb/3.0 Gb) or SD-SDI 0.8 Vp-p, 75Ω

Input 1 (loop-through output) / Inputs 2 and 3 (no loop-through output)

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

Frequency response: 40 Hz to 15 Hz, (+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, digital 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)

LDX XF Universe Camera Adapter

Power requirements: Hybrid Fiber powered or 12 VDC (local)

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

Storage temperature: -25 to +70°C (-13 to +158°F)

Weight (approx.): 2.1 kg (4.6 lbs.)

Dimensions (L x W x H): 222.1 x 132.7 x 212.1 mm (8.7 x 5.2 x 8.4 in.) without handgrip

Fiber connector: Swivel hybrid Fiber connector SMPTE ST 304 Lemo (other connectors available on request)

Cable length: 3,000 m (10,000 ft.) max. using SMPTE ST 311 hybrid Fiber cable

Analog VF output or AES/EBU audio input: BNC connector 1.0 Vp-p; 75Ω

VF output or main output: BNC connector 1.0 Vp-p; 75Ω

Reference input: BNC connector 0.6 Vp-p; 75Ω HD tri-level reference signal

EXT video output connector: BNC connector 1.0 Vp-p; 75Ω

Teleprompter output or analog ref input: BNC connector 1.0 Vp-p; 75Ω

Auxiliary: 20-pin data connector with Tracker intercom, remote control lines and studio signaling

Rear microphone inputs: 2x XLR-3, balanced, +48V phantom power

Intercom: XLR-5 with 3 channels (engineering, production and program)

DC power input: 12V/7A max. (11 to 17V), XLR-4 male

Script light power output: 12V (100 mA), 4-pin Hirose

DC power output: 12V/4A, XLR-4 female

LDX C85^N CAMERA SPECIFICATIONS**General****Power:** Approx. 45W (typical, depends on operational mode)**Temperature range:** -20° to +45° C (-4° to 113° F) (operating)**Water protection:** Compliant to IPX0**Weight:** approx. 2.5 kg (5.1 lbs.)**Dimensions (approx.):**

Width: 113 mm (4.45 in.) Depth: 156 mm (6.14 in.) Height: 140 mm (5.51 in.)

Camera**Pick-up device:** 3x 2/3" 4K UHD Xensium^{HAWK} CMOS imagers**Picture elements:** 3840x2160**Smear:** no vertical smear**Shutter:** no mechanical shutter**Optical system:** F1.4 prism**Lens mount:** 2/3" Bayonet type**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, 4P-star, 5μOLPF, cap-filter**Electronic color correction:** 3200°K, 5600°K, 7500°K, FL, 2 AWB presets, Var, continuous auto white**Video Modes****3840x2160p50/59.94**

With 1080p50/59.94 main program output downconversion and 1080i50/59.94 monitoring downconversion available at the rear of the camera

S/N ratio: 60 dB typical**Sensitivity****3840x2160p50/59.94**

Sensitivity at 2000 lux:

F8.7 to F4.3 (50 Hz)*

F8.0 to F4.0 (59.94 Hz)*

1920x1080p50/59.94

Sensitivity at 2000 lux and S/N ratio 60 dB:

F10.0 to F5.0 (50 Hz)*

F9.5 to F4.8 (59.94 Hz)*

Video Details**Aspect ratio:** 16:9**Digital resolution:** Floating point A/D conversion with 16-bit performance and with 34-bit processing in RGB**Horizontal resolution:** >2,000 TV lines (native 4K UHD)**Gain selection:** -6 dB to +12 dB in 3 db steps (user-definable presets) or continuous master gain**Connectivity****Lens iris connector:** 12-pin female Hirose (front)**Lens zoom/focus connector:** 12-pin male Hirose (front)**USB:** GV-eLicense, scene files, service**HDMI:** viewing**Ethernet RJ-45:** C2IP camera control**Tally control/RS-232/RS-422/Private data:** D-connector– 15 pin**4x HD/3G SDI outputs:** BNC 0.8 Vp-p, 75Ω, SMPTE ST 292, 424/425 @ 4K UHD operation they carry 4x 2SI 3G HD-SDI**HD-SDI monitoring video output:** BNC 0.8 Vp-p, 75Ω, SMPTE ST 292, 424/425**Genlock input:** BNC CVBS/BB/tri-level**Power input:** XLR-4 male (10.5-17 VDC)**Control Buttons and LED Indications**

PickMe

Menu control: menu select, rotary control

Color bar button

Info button

Filter wheel selection

Standard file recall 2 user-assignable buttons

2-digit display: power on, camera number

Tally LEDs: on-air, ISO, call

* Specifications depend on the selected sensitivity mode.

**ORDERING****1-0108624-0000**LDX 85^N 4K UHD camera head. Supports 4K UHD 50/59.94 formats.**1-0508624-0000**LDX 85^N 4K UHD compact. Supports 4K UHD 50/59.94 formats.

GLOBAL SERVICES

The true benefit of a camera solution is achieved through the design and implementation based on customer requirements. The ability to tailor the solution to meet specific operational needs and configure system components accordingly sets Grass Valley camera solutions apart from its competitors. Grass Valley Global Services provides the expertise and experience to help customers define their requirements and set expectations before deploying successful implementations.

Professional Services

System functionality and performance tuning requires understanding user requirements. The ability to specify technical needs, required interfaces, bandwidth and workflow needs requires an in-depth knowledge of both the technology and the environment. Our Professional Services organization includes systems engineers with the world's highest level of this expertise. However, project success requires more than technical knowledge. To complete the picture, Grass Valley provides the project management expertise to capture specifications and to plan resources, schedule and budget. With this combination, the Grass Valley Professional Services team has the competencies and experience to insure success.

Commissioning

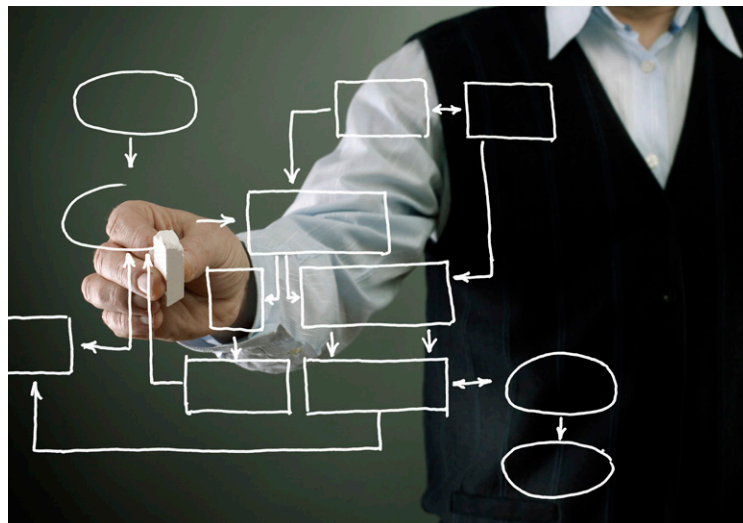
Grass Valley insures the success of camera solutions by personally handling the initial setup for every camera component of the system. Field engineers have the experience, knowledge and skills necessary to bring camera systems to life — both as a product set, and in the broader context of a complete solution.

Training

Grass Valley offers a range of professional training programs to help derive maximum value from Grass Valley cameras. Courses are designed for operators and maintenance engineers, with a combination of theoretical learning and hands-on exercises using Grass Valley cameras. Trainers are experienced in broadcast and in the operational and technical nuances of deploying a wide range of camera configurations.

Support Agreements

Uptime, risk and financial predictability are the hidden variables in total cost of ownership. The ability to manage these is what makes support agreements a cost-effective tool for business optimization. Grass Valley now offers an extended choice of support agreements. CamCare is a preventive maintenance service package based on periodic on-site visits at a pre-agreed schedule. CamCare aims at optimizing the health of camera inventories, minimizing the duration of service interruption and reducing repair time thanks to precise diagnostics. Elite Support Agreements provide 24x7 technical phone support, call center prioritization, service level objectives, advance parts exchange, software updates and upgrades (GV-eLicenses not included). Pick&Ship is a service included in Elite Support Agreements to simplify sending a camera in for repair for European Union customers. With Pick&Ship,



Grass Valley reduces the repair turnaround time by managing the camera shipment logistics end-to-end, from pickup to delivery and back to customer facility. Pick&Ship is currently limited to European Union countries only. Camera support agreements insure that users have both operational efficiency and financial predictability.

GLOBAL SERVICES PROVIDES:

- Unequaled depth of industry knowledge and technical expertise
- Over 50 years of worldwide experience
- Complete set of services:
 - Strategic advice
 - System architecture
 - Workflow analysis and design
 - Project management
 - Integration and implementation
 - Performance optimization
 - Technical and operational training
 - Educational services
- Address today's challenges and prepare for tomorrow's opportunities



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