DIGITAL PROJECTION
Precision Displays for Every Venue

LIGHTNING
38-1080P 3D

LIGHTNING
45-1080p 3D

LIGHTNING
38-1080p 3D
Ultra Contrast

LIGHTNING 3D Pro Series II

LIGHTNING 38-1080p 3D • LIGHTNING 45-1080p 3D • LIGHTNING 38-1080p 3D *Ultra Contrast*

Overview

Digital Projection International (DPI), Texas Instruments' first DLP™ partner and the original innovator of the 3-chip DLP™ projector, proudly introduces the LIGHTNING 1080p 3D family.

Each new LIGHTNING 3D model employs the latest in dark chip, 3-chip DLP™ technology, and include DPI's exceptional RapidRig™ staging and stacking hardware with integrated pitch, roll and yaw adjustments. When considered along with their 10,000 - 30,000 ANSI lumen brightness and contrast performance up to 4000:1, the LIGHTNING 3D models are the perfect imaging solutions for the most demanding large screen immersive applications, including: military simulation, scientific visualization, medical, chemical and geological research, product engineering, commercial cinema and theme park attractions.

In addition to the active 3D capability, the LIGHTNING 3D models also include DP's new *FastFrame*™ technology, a revolutionary combination of hardware and firmware that vastly reduces the artifacts and image blur typically associated with rapidly moving displayed content. The benefits of *FastFrame*™ are especially important for simulation environments such as commercial and military flight training, and other applications where maintaining the visual integrity of high-speed imagery is vital.

The LIGHTNING 1080p 3D projectors also incorporate DPI's Hyper-Cooled lamp module, one of our CoolTek™ innovations. Engineered with a proprietary, directional-flow reflector mask and radial heat exchanger, the Hyper-Cooled module dramatically improves projector thermal characteristics and extends reflector life and lumen maintenance. In turn, these operating benefits provide a significant reduction to the long-term cost of ownership, while also enhancing component reliability.

Other key benefits of the LIGHTNING 1080p 3D products include:
- High Bandwidth input >120Hz active stereoscopic DVI with no need for frame doubling. This capability extends the dynamic range up to 16 bit for improved contrast and color gamut. Both single-pipe and dual-pipe 3D sources are supported.
- Dual Flash Processing™(DFP) – Supports users wishing to distribute 3D content via more traditional, 60 Hz formats with the option to frame-double their sources within the projector, via DFP. When this option is selected, the input signal, having been processed and if necessary re-sized to map to the native resolution of the projector, will also be frame-doubled to 120 Hz, and the doubled frames interleaved. This produces imagery with the low flicker characteristics of a native 120 Hz source, but without the infrastructure costs associated with distributing and switching ultra-high bandwidth signals.
- Projector electronics which provide an interface to drive an infrared transmitter to synchronize switching glasses with active displayed frames. The user can elect either to pass through an external synch pulse, or to use the reference generated internally by the projector. Adjustments are provided to accommodate the phase and dead time characteristics of different switching glasses.
- FastFrame™ technology, a revolutionary combination of hardware and firmware that provides user adjustments to vastly reduce the artifacts and image blur typically associated with rapidly moving display content.
- DP's NextGen electronics with class leading video de-interlacing. SD and HD sources are processed using auto 3:2 and 2:2 extraction.
- Minimal video delay from input to screen - as low as 1 frame, depending on source.
- High bandwidth DVI inputs offer Single, Twin, Dual & Dual Twin DVI connectivity.
- ColorMax calibration capabilities, including enhanced seven-point color correction for broader color space and accurate color alignment.
- DP's CoolTek™ engineering, which delivers the highest lumen performance with the lowest thermal (BTU) and noise level (dB) output.
- MultiBlend™ – an advanced soft-edge capability for seamlessly meshing arrays of projectors to create displays with ultra-high resolution or unusual aspect ratios.
- Intelligent Lens Mount (ILM) - provides the ability for the user to program up to 10 distinct presets for lens zoom, focus and shift. The ILM presets can be assigned and automatically recalled, by source and input.

LIGHTNING 1080p 3D Pro Series II projectors - ultra-powerful display systems for major 3D events and Immersive large screen applications - bringing the precision of Digital Projection to every venue.

PERFORMANCE SPECIFICATIONS

Brightness (±10%)
38-1080p 3D: 20,000 ANSI Lumens
45-1080p 3D: 30,000 ANSI Lumens
38-1080p 3D *Ultra Contrast*: 10,000 ANSI Lumens

Contrast Ratio (±10%)
38 & 45-1080p 3D: 2000:1
38-1080p 3D *Ultra Contrast*: 4000:1

Display Type
3 x .95" Dark Chip 1080p DMD™ with Fast Transit Pixels for smooth greyscale and improved contrast

DMD Specification
1920 x 1080 pixels native, 12˚ tilt angle

Fill Factor
90%

Sealed Optics at DMD™ Interface
Protects DMD's™ from optical contamination

Source Compatibility
- Composite, s-video, and color difference video standards
- RGB graphics standards up to 1920 x 1080
- DVI standards with HDCP compliance
- High definition RGB and color difference standards
- High definition / standard definition serial digital formats (SD/HD-SDI)
- High bandwidth - Dual DVI, and Dual-Twin DVI

Video Processing
- Enhanced 7 point color correction
- Dual Flash Processing™ increases 60 Hz inputs to 120 Hz displayed output
- FastFrame™ Motion Blur Reduction
- Class leading Video de-interlacing/processing of SD and HD sources using auto 3:2 and 2:2 extraction, ruggedized for editing discontinuities
- Pixel-based motion adaptive interpolation
- User selectable preset, parametric de-gamma and user downloadable de-gamma
- Frame Delay: as low as 1 frame, source dependant
- Auto mode selection - plug and play setup

High Bandwidth Input
- 3D capable
- Pixel Mapped - with low latency
- FastFrame™ Motion Blur Reduction
- 120 Hz with no frame doubling

3D Sync
Sync In - External lock
Sync Out - Shutter glass control

Network Connection
LAN via RJ 45, Wireless 802.11b, full protocol feature set

Lamp Type
Proprietary xenon arc, bubble. Hyper-cooled lamp module with directional-flow reflector mask and radial heat exchanger. Digital Hour meter.

Lamp Life (typical)[1]
38-1080p 3D: 500 hours
45-1080p 3D and 3D Ultra Contrast: 750 hours

Lens Mount
Zoom Lenses: Motorized horizontal and vertical lens shift, zoom and focus
Fixed Lenses: Manual focus

Lens Shift (maximum)
Fixed 1.12 and Zoom Lenses:
  • Vert: +0.7, -0.5 frame; Hor: ±0.1875 frame
0.67 Fixed lens:
  • Vert: ±0.1 frame; Hor: ±0.1 frame

Lens Options
0.67	:1 fixed	1.87-2.56	:1 zoom
1.12	:1 fixed	2.56-4.16	:1 zoom
1.16- 1.49	:1 zoom	4.16-6.96	:1 zoom
1.39-1.87	:1 zoom	6.16-10.49	:1 zoom

- 1.12:1 Lenses include manual aperture
- High-contrast lenses available for 0.67:1 and all zoom lenses

Mechanical Mounting
- Front or rear table; Front or rear ceiling (ceiling mount optional)
- Rugged, staging tolerant chassis with integrated handles
- Optional RapidRig™ frame with integrated pitch, roll and yaw adjustments

Orientation
360˚ front to back
±15˚ left to right

Weight (chassis only)
249 lbs (113 kg)

INPUT CAPABILITIES

Type	Connector	Quantity
Composite	BNC	1
S-Video	4-pin mini DIN	1
Component Interlaced/Std def Y, Cr/Pr, Cb/Pb, S	BNCx4	1
Graphics Progressive RGB/Progressive Interlaced Hi def Y, Cr/Pr, Cb/PB	BNCx5	1
RGBHV (Progressive)	D sub (15-pin)	1
Digital RGB	DVI	1
Serial Digital SD/HD-SDI (SMPTE 259M/292M)	BNC	1
DVI - High bandwidth Dual - main	DVI	1
Dual - sub	DVI	1

*The main & sub dual DVI inputs can be used in parallel to support dual-pipe 3D connectivity

LIGHTNING 3D Pro Series II

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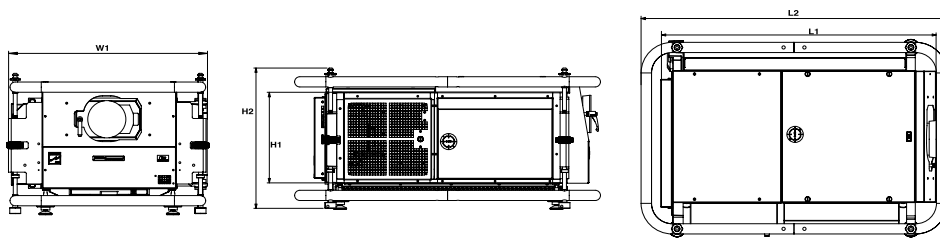
Projector Dimensions

Without Frame	With Frame
Projector dimensions (in) L1 40.5 W1 28.5 H1 19.5	Projector dimensions (in) L2 43.4 W2 28.1 H2 20.5
Projector dimensions (mm) L1 1028 W1 728 H1 495	Projector dimensions (mm) L2 1116 W2 714 H2 522

LIGHTNING 38-1080p 3D Back Panel

ADVANCED TECHNICAL SPECIFICATIONS

PARAMETERS	LIGHTNING 38-1080P 3D / LIGHTNING 38-1080p 3D Ultra Contrast	LIGHTNING 45-1080p 3D
Native Color Temperature	6,000°K ±500°K; white balance–adjustment: 3,000°K to 10,000°K	
HDTV Formats Supported	1080i (50Hz, 60Hz), 1080p (24Hz, 25Hz, 30Hz, 50Hz, 60Hz), 1080 24sf, 720p (50, 60Hz), 480i, 480p	
Scan Rates Supported	Inputs 1-7: Horizontal: 15kHz to 100kHz / Vertical: 24Hz to 85Hz - Input 8: 3D progressive 576p up to 1080p @ 120Hz	
Remote Control	Addressable IR remote control, wireless and wired with loop-through / On board invertable keypad	
Automation Control	LAN connection via RJ45 / RS232 9-pin D type	
Operating/Storage Temperature	Operating: 0 to 35°C / Storage: -10 to 50°C /	
Operating Humidity	20 to 80% non-condensing	
Thermal Dissipation	13,640 BTU/hour maximum	15,695 BTU/hour maximum
Fan Noise	Less than 59dBA	
Power Requirements	208-240 VAC, 50/60Hz single phase	
Power Consumption	4000 watts maximum	4600 watts maximum

Projectors	Part #
LIGHTNING 38-1080p 3D (USA)	110-668
LIGHTNING 38-1080p 3D (ROW)	110-669
LIGHTNING 38-1080p 3D *Ultra Contrast* (USA)	110-671
LIGHTNING 38-1080p 3D *Ultra Contrast* (ROW)	110-672

Lenses	HB Part #
0.67:1	105-607
1.12:1	105-608
1.12:1 (short)	105-609
1.16-1.49:1	109-236
1.39 - 1.87:1	105-610
1.87 - 2.56:1	105-611
2.56 - 4.16:1	105-612
4.16 - 6.96:1	105-613
6.92-10.36:1	109-235

Accessories	Part #
LIGHTNING Lamp & Housing – Hypercooled	103-238
LIGHTNING Refurb Lamp & Housing – Hypercooled	103-238R
Lamp Exchange	103-238E
LIGHTNING Lamp & Housing – Hypercooled	104-578
LIGHTNING Refurb Lamp & Housing – Hypercooled	104-578R
Lamp Exchange	104-578E
Infrared Remote (Replacement)	105-023

1 Based on 4-6 hour/day operational profile. Venue and application conditions may impact actual lamp life. See Digital Projection's Product Warranty Statement for details on lamp warranty.

ACTIVE 3D   MULTI BLEND   FAST FRAME   ColorMAX™   CoolTek ENGINEERING   DP RAPID   DLP