

LIGHTNING Reference Displays

LIGHTNING Reference 1080p 3D



PERFORMANCE SPECIFICATIONS

Brightness ($\pm 10\%$)

Reference 1080p 3D: 6,000 - 10,000 ANSI Lumens

Contrast Ratio ($\pm 10\%$)

Reference 1080p-40 3D: 5000:1

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

40-1080p 3D and 3D Ultra Contrast: 500 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: +0.5 -0.375 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
 $\pm 15^\circ$ left to right

Weight (chassis only)

249 lbs (113 kg)

Overview

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

Based on the same rugged, mechanically capable chassis as our highly acclaimed LIGHTNING Pro-Series II commercial products, the new LIGHTNING Reference 1080p 3D employs the latest in Texas Instruments' Dark Chip 1080p DLP™ technology, and is equipped with DPI's newest imaging innovations, including our exclusive ColorMax™ calibration system, rendering deeply saturated, color-accurate imagery which is simultaneously true to life and powerfully immersive. When considered along with the 6000-10000 ANSI lumen brightness and astounding 5000:1 contrast performance, the LIGHTNING Reference 1080p 3D represents the absolute ultimate in large-scale home entertainment displays – suitable for nearly any venue and any screen size.

In addition to the active 3D capability, the LIGHTNING Reference 1080p 3D also includes DPI'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 high-speed sports and action footage where maintaining the visual integrity of high-speed imagery is vital.

The LIGHTNING Reference 1080p 3D projector also incorporates 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 Reference 1080p 3D include:

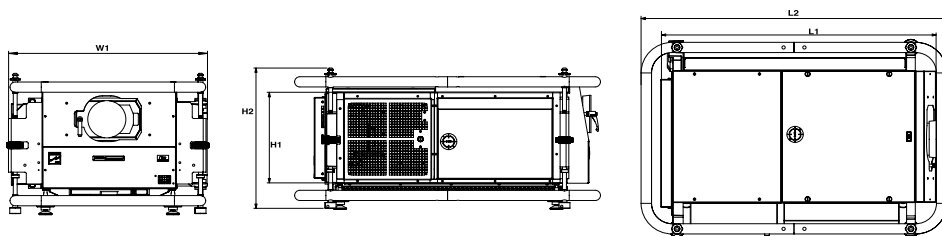
- High Bandwidth input >120Hz active stereoscopic DVI with no need for frame doubling. This capability extends the dynamic range up to 16 bit for improved contrast and color gamut. Both single-pipe and dual-pipe 3D sources are supported.
- Dual Flash Processing™ (DFP) – Supports users wishing to distribute 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
- Eight user-selectable inputs including HDCP compliant DVI, plus SD/HD-SDI as standard.
- High bandwidth DVI inputs offer Single, Twin, Dual & Dual Twin DVI connectivity.
- 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.

The LIGHTNING Reference 1080p 3D – the most powerful and intensely accurate immersive 3D display system, exclusively for exceptional large scale imaging. The LIGHTNING Reference 3D display the precision of Digital Projection to your legendary home venue.

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



Projector Dimensions

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



ADVANCED TECHNICAL SPECIFICATIONS

PARAMETERS	
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	15,695 BTU/hour maximum
Fan Noise	Less than 59dBA
Power Requirements	208-240 VAC, 50/60Hz single phase
Power Consumption	4600 watts maximum



Projectors

LIGHTNING Reference 1080p 3D

Part

110-350

Accessories

LIGHTNING Lamp & Housing- Hyper Cooled!
 LIGHTNING Refurb Lamp & Housing- Hyper Cooled!
 Lamp Exchange
 Infrared Remote (Replacement)
 VIP 2000 (for fixed applications)
 Dual HDMI expansion card for VIP 2000
 Dual SDI expansion card for VIP 2000

Part

103-238
 103-238R
 103-238E
 105-023
 106-689
 106-855
 106-690

Lenses

0.67:1
 1.12:1
 1.12:1 (short)
 1.16 - 1.49:1
 1.39 - 1.87:1
 1.87 - 2.56:1
 2.56 - 4.16:1
 4.16 - 6.96:1
 6.92 - 10.36:1

HB Part

105-607
 105-608
 105-609
 109-236
 105-610
 105-611
 105-612
 105-613
 109-235

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.

