



HD90 / HD91



LED Home Cinema Projector





## LED Home Cinema projector

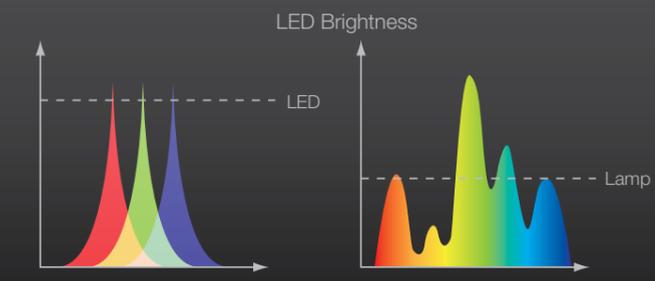
### Superior Performance

Created for discerning viewers; the HD90 and HD91 sets a new standard for colour performance with consistent, breath-taking, perfectly balanced colours from the first time, every time and for years to come. Whether you just fancy a relaxed movie night or immersing yourself in adrenaline-pumping 3D, the HD90 and HD91 are the perfect choice for recreating the big-screen experience.

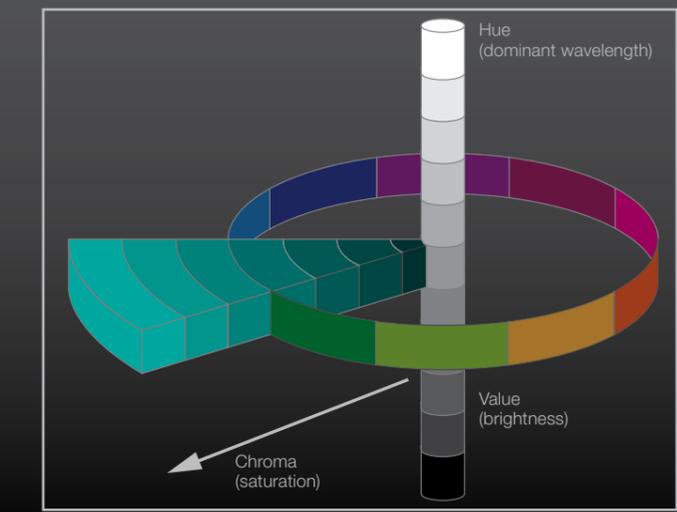
### Optoma LED technology

Powered by 3 x LEDs, the HD90 and HD91 deliver enhanced image quality with a wide colour gamut, superior colour saturation and outstanding brightness using separate Red, Blue and Green LEDs to produce intense yet accurate colours. Advanced switching of these LEDs provides increased image stability that rivals the performance of 3 chip DLP projectors.

Performance is nothing without consistency. Unlike traditional lamp technology the LED illumination in the HD90 and HD91 provides consistent brightness and colour performance, so maintaining its out-of-the-box image quality throughout its lifetime. This means it will also save you from costly calibrations.



The benefits don't stop there, in many situations the perceived brightness of the HD90 and HD91 LED projectors can be up to twice the brightness of an equivalent lamp-based projector. Utilising this phenomenon, known as the Helmholtz-Kohlrausch (HK) effect, the HD90 and HD91 produce vividly intense colours. This enhanced brightness perception enables the HD90 and HD91 to comfortably render screen sizes far higher than their ANSI brightness specifications would suggest. This allows the HD90 and HD91 to handle low levels of ambient light with less impact on image quality than lamp based systems.



Finally, the lamp-less LED illumination engine that powers the HD90 and HD91 does not require the inconvenience and cost of frequent lamp changes to maintain its optimal performance. It also doesn't need lengthy warm-up and cool down cycles before and after every viewing due to its almost instant start up and shut down times.



### Precise colour

On start-up the HD90 and HD91 colour and white point are automatically calibrated to ensure the most accurate and consistent colour reproduction over their entire lifetime.

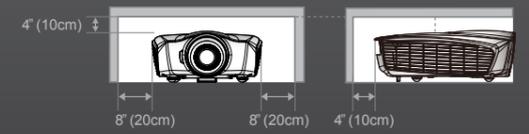


## Easy Installation

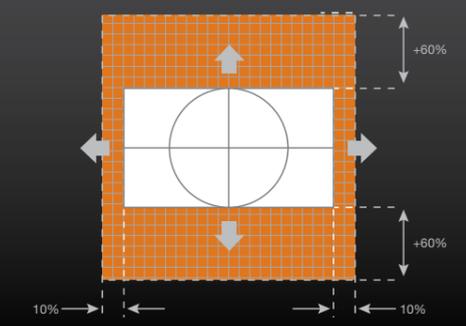
### Unique placement flexibility

The combination of LED illumination, reduced cooling requirements, lens shift and two throw options of the HD90 and HD91 allows for a unique range of projector placement possibilities. This means they can be installed closer to walls or ceilings or even built into a small enclosure; HD90 enclosed beneath the surface of a coffee table and the HD91 placed on a shelf.

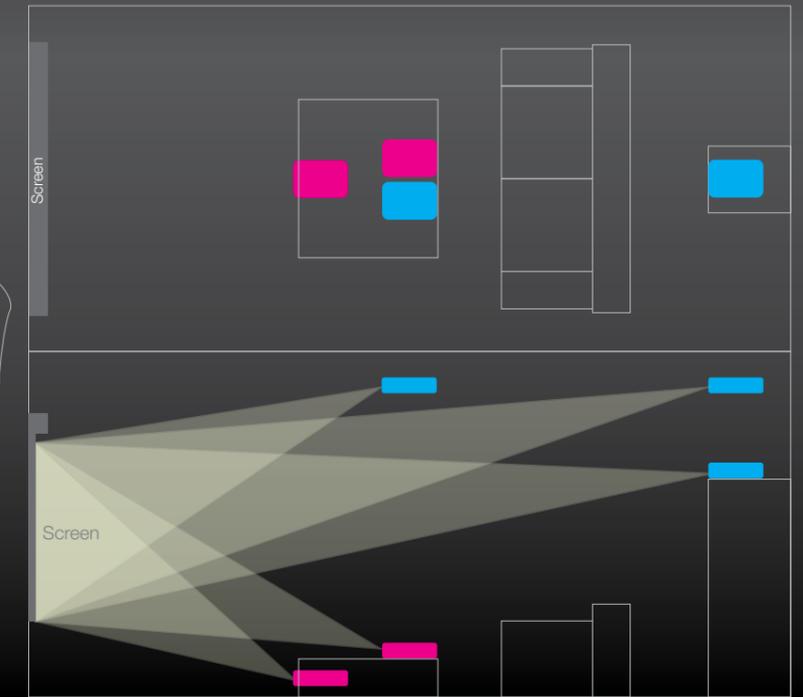
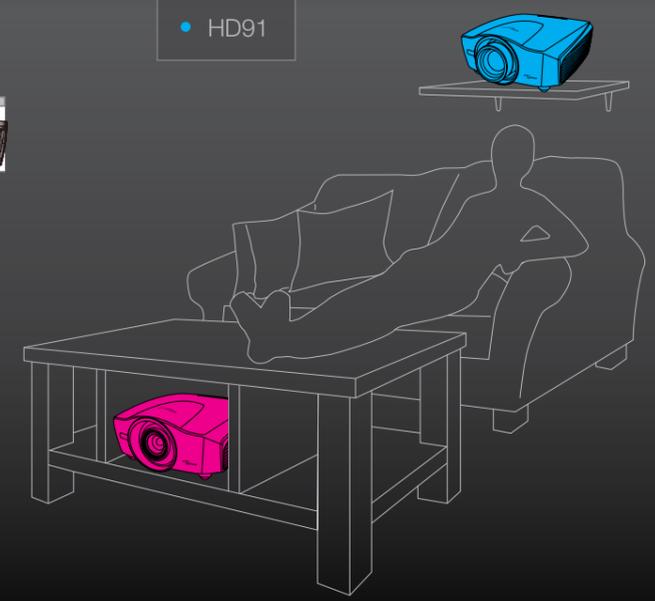
### Enclosure



### Lens shift range



- HD90
- HD91



## Next Generation



### PureMotion

The HD90 and HD91 incorporate the next generation of our frame-interpolation processing - PureMotion4. In its lowest setting, PureMotion4 retains the "dream like" quality of film while maximising the detail of every frame - whereas the highest setting virtually eliminates motion blur; perfect for fast-paced sports, where absolute fluidity is essential. Whether you are watching in 2D or 3D, Puremotion4 gives you silky smooth performance.



With



Without



With



Without



With



Without

### UltraDetail

UltraDetail uses sophisticated motion adaptive edge enhancement algorithms to ensure that all the information contained in an image is faithfully reproduced on the screen giving a stunning crystal clear, pin sharp picture.

### PureColor

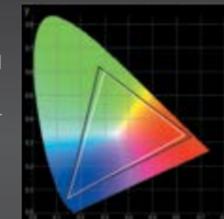
PureColor provides vivid, perfectly balanced colour with impeccable colour uniformity for vibrant natural looking images. Deep Color makes it possible for the HD90 and HD91 to reproduce billions of colours ensuring smooth tonal transitions and subtle graduations between hues.



## Additional Features

### CMS+

Get perfectly calibrated picture quality most fitting to the physical setting of your room. The HD90 and HD91 come with a full colour management system, giving you the flexibility to choose between 5 preset colour gamuts (Native, Adobe, DLP-C, HDTV and SMPTE-C), 6 colour temperatures (D50, D65, D83, D93 and Native) or alternatively, fine tune intensity and x/y co-ordinates of primary and secondary colours for ultimate calibration precision.



### HDMI Link

Control HDMI CEC compatible devices. HDMI Link allows you to turn on/off the HD90 and HD91 and multiple source device with one remote.



### 24p

Most movies are shot at 24 frames per second. To preserve the purity of the original image the HD90 or HD91 can accept High Definition sources at 24 frames per second and so to display movies exactly as the director intended.

### 2D-3D conversion

See more in 3D with the built in 2D to 3D converter. You can now enjoy the big game, your favourite TV shows, and movies in stunning 3D to ensure you get the most out of your experience. Dedicated 2D to 3D technology converts 2D movies and shows into 3D, making even familiar content more thrillingly immersive than ever before.



### Anamorphic Lens

The HD90 and HD91 allows you to connect an anamorphic lens so you can enjoy 2.35:1 movies using the full 1080p resolution of your projector. Using this fully automated solution allows you to view both 16:9 and content without seeing black bars at the top and bottom of your screen.

[www.panamorph.com](http://www.panamorph.com)



### 3D Glasses

For that seamless 3D experience, use our ultra-high performance ZF2100 wireless 3D glasses. Developed in parallel with our "Full 3D" projectors, the ZF2100 system and glasses are optimised to provide you with higher contrast and brighter images than ever before, while eliminating tedious issues with emitter placement, limited range and potential interference commonly experienced when using Infra-red.

Fully rechargeable, the ZF2100 glasses boast a long battery life of up to 15 hours. The stylish and lightweight design ensures comfort and even fit over most prescription glasses.



# DLP® Technology – The greatest 3D home cinema experience!



### Full 3D

Create the most vivid and compelling 3D experience available anywhere. Unlike competing technologies, DLP from Texas instruments uses millions of tiny mirrors to maximise the available light output and high contrast while the inherit speed completely eliminates crosstalk.



### Why use a projector for 3D?

It is a widely accepted fact that the bigger the image, the greater the 3D effect. For the best results it is essential to fill your field of vision, without having to be too close to the screen. A huge 50" TV can only create a window on the 3D world, whereas a massive 150" projection screen makes you feel like you are part of the action!



### 3D Movies:

Now that all the latest 3D movies have arrived on Blu-ray 3D™ you can enjoy the same jaw-dropping 3D cinema experience at home, now in fantastic 1080p Full High definition.



### 3D Sports:

Couldn't get tickets for the big match? The HD90 and HD91 bring the big picture home like never before. With more matches broadcast in 3D every season, you'll never miss the great moments in sporting history and you can re-live them time after time as though you were actually there.





## Awards / Reviews



### AV Forums

Reviewer: Steve Withers

Date: January 2014

[Full review](#)

AV Forums awarded the HD91 projector a Highly Recommended badge, 10/10 for 3D picture quality and 9/10 for colour accuracy, greyscale accuracy, image uniformity and value for money.

### Quotes:

"The HD91 is a genuinely impressive projector and Optoma are to be congratulated for their achievement."

"The HD91 did a great job regardless of the source but Blu-rays in particular look spectacular and our current 'disc du jour' - Pacific Rim - looked very impressive with the HD91. Pictures popped with real vitality and detail, giving the images plenty of impact. Optoma are to be congratulated on what they have managed to achieve at what is a previously unheard of price point."

"The 2D performance was excellent and as is often the case with a DLP projector, the 3D was simply superb."

"Whilst Optoma's HD91 might not be a total game changer, it's still a remarkable technological achievement on the part of the manufacturer. If you're in the market for a new home cinema projector and you like the idea of one that uses LEDs as a light source, your choice is essentially limited to the Optoma. However even if you hadn't considered a LED projector before, the HD91 still deserves your consideration based purely on its excellent performance."



### Trusted Reviews

Reviewer: John Archer

Date: April 2014

[Full review](#)

Trusted Reviews awarded the HD91 projector a Recommended badge and 9/10 for design, features and value.

### Quotes:

"...it's nice to see the HD91 sporting very living room-friendly dimensions entirely in keeping with - if not actually slightly smaller than - the norm at its level of the projection market."

"It's solidly built too, with a surprisingly large and apparently high quality lens sticking forward from the centre of the elliptical front edge. The black, smooth finish and use of lots of curves and rounded edges, meanwhile, give it a fairly sleek overall feel that doesn't look at all out-of-place in a domestic environment."

"Connections are impressively extensive...This wealth of jacks illustrates clearly Optoma's ambitions for the HD91 - namely for it to be widely adopted by the relatively affordable end of the custom installation scene."



### Projector Central

Reviewer: Bill Livolsi

Date: March 2014

[Full review](#)

Projector Central gave the HD91 projector 5/5 for features, 4.5/5 for performance and ease of use and 4/5 for value.

### Quotes:

"Optoma's newest home theater projector is what many have spent years waiting for - an affordable, high-quality 1080p projector with a solid-state light source."

"The end result of all of our tweaking was an image that had vibrant color and excellent depth. Foreground objects seem ready to leap off of the screen thanks to the projector's high contrast in most scenes."

"The Optoma HD91 is among the first LED-based projectors to be built specifically for home theater use. When you view it in this light, it is a remarkable product. It combines the refined cinema image that enthusiasts have come to expect with all of the modern features and functions found in lamp-based models, then adds an LED light engine with an estimated life of 20,000 hours."



### Gadget Speak

Reviewer: Chris Bidmead

Date: March 2014

[Full review](#)

Gadget Speak gave the HD91 projector 5/5 for performance and 4/5 for features, value, ease of use and design.

### Quotes:

"The depth of colour achievable with this technology closely approaches that of studio quality 3DLP projectors, and it turns out that depth of colour has a strong influence on the human eye's perception of brightness (this is called the Helmholtz-Kohlrausch effect, if you want to impress your friends)."

"The default picture quality is first class, with preset options for Cinema, Games, Reference and so forth, but if you need to tweak parameters like contrast, brightness, and sharpness the full range of options is at your fingertips."

"You'll have gathered I liked this projector a lot. Yes, the price-tag makes it by no means an impulse buy. But when you factor in the saving on an illumination system that will last the life of the machine (as against the typical £200 a conventional lamp may cost you every 600 or so viewing hours), the 5 year guarantee on colour quality, and price it against others in its class, the HD91 starts to look like a bargain."

# HD90 / HD91

Specifications Highlights		
Model	HD90	HD91
Resolution	Full HD Native 1080p (1920 x1080)	
Brightness <sup>1</sup>	1200 ANSI Lumens	1000 ANSI Lumens
Contrast	500,000:1	
Audible Noise	23dB	
Throw Ratio	1.22 - 1.52:1	1.5 - 2.89:1
Zoom	1.25x	1.9x
Projection Distance	0.8 - 10m	1.5 - 19m
Image Size	0.76 - 7.67m (30" - 300") Diagonal 16:9	
Lens Shift	Vertical: +/- 60%, Horizontal: +/-10%	
Keystone	±30° Vertical	
Lamp Life <sup>2</sup>	20,000 Hours	
Connections	Inputs	2 x HDMI v1.4a 3D, VGA (RGB/YpBPr), Component, Video
	Output Control	3D-Sync Out (3-Pin VESA), 2 x 12V Trigger RS232
2D Compatibility	NTSC M/J, 3.58MHz, 4.43MHz PAL B/D/G/H/I/M/N, 4.43MHz SECAM B/D/G/K/K1/L, 4.25/4.4MHz 480i/p, 576i/p, 720p(50/60Hz), 1080i(50/60Hz), 1080p(50/60Hz)	
3D Compatibility	Side-by-Side: 1080i50 / 60, 720p50 / 60 Frame-pack: 1080p24, 720p50 / 60 Over-Under: 1080p24, 720p50 / 60	
3D Viewing	Requires ZF2100 system and glasses	
Dimensions (W x D x H)	345 x 443 x 161.5mm	
Weight	6.5kg	7kg
Warranty	Warranty may vary by country. Please see or ask your local supplier for details	
Part Number	95.8SJ01GC0E	95.8SF01GC0E
EAN Number	5060059048564	5060059048571
In the box	Lens Cover, AC Power Cord, Back-lit IR Remote Control with Batteries, Quick Start Card, Warranty Card	



## HD90 / HD91 Connections

- 1 HDMI 1 (1.4a 3D)
- 2 HDMI 2 (1.4a 3D)
- 3 VGA
- 4 Component
- 5 Video
- 6 USB Service
- 7 RS232
- 8 +12V Trigger
- 9 +12V Trigger
- 10 3D Sync
- 11 USB Power
- 12 Power
- 13 Kensington™ Lock

Diagonal Image Size (Inch)	Image width (m)	Image Height (m)	Distance	
			Min (m)	Max (m)
<b>HD91</b>				
70	1.55	0.87	2.32	4.48
80	1.77	1.00	2.66	5.12
90	1.99	1.12	2.99	5.76
100	2.21	1.25	3.32	6.40
120	2.66	1.49	3.98	7.68
150	3.32	1.87	4.98	9.60
<b>HD90</b>				
70	1.55	0.87	1.89	2.36
80	1.77	1.00	2.16	2.69
90	1.99	1.12	2.43	3.03
100	2.21	1.25	2.70	3.36
120	2.66	1.49	3.24	4.04
150	3.32	1.87	4.05	5.05

Optoma Accessories	
<b>Projector Mounts</b>	
OCM818W-RU OCM818B-RU OCM815B OCM815W	 Universal ceiling mount with/without extension pole (adjustable height 290mm-810mm/140 mm) available in black and white.
<b>Screens</b>	
	Optima screens use the highest grade of screen fabrics to reflect the truest, most vivid and dynamic images. Please visit <a href="http://www.optoma.eu">www.optoma.eu</a>

For full specifications please visit the website at: [www.optoma.eu](http://www.optoma.eu)



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<sup>1</sup>Brightness will vary depending on selected projector mode, environmental conditions and usage. <sup>2</sup>Lamp lifetime will vary depending on selected projector mode, environmental conditions and usage. For more information please visit our website. DLP®, and the DLP logo are registered trademarks of Texas Instruments. All other product names and company names used herein are for identifications purposes only and may be trademarks or registered trademarks of their respective owners. All images of products are for representation purposes only. Whilst every care is taken to provide accurate images of our products, actual products may differ slightly. Some product images may have been digitally altered by us to add an Optoma logo to the front panel. Optoma reserves the right to amend or alter actual product or product images without notice. Some images may have been simulated. Errors and omissions excepted, all specifications are subject to change without notice. Copyright © 2014, Optoma Europe Ltd.