Changes for the Better

MITSUBISHI ELECTRIC

HOME THEATER PROJECTOR

Taking beautiful imagery to new dimensions

3D *home viewing debut*

NEW HC9000D

for a greener tomorrow eco Changes

Stunning Detail
Distinctively Dynamic

Powerful, exciting three-dimensional (3D) full-high-definition images using the latest technologies projected onto a large 100-inch screen.
Enjoy breathtaking experiences anytime you want in the privacy of your home.
Whether watching movies, live sports or nature documentaries, Mitsubishi Electric's HC9000D home theater projector offers a new dimension of reality, placing you right in the middle of the action.
One look is all it will take to realize that everything else produced to date fails to compare.

*Composite image used for explaining projection effect.

NEW HC9000D

3D HDMI™ HIGH DEFINITION MULTIMEDIA INTERFACE SXRD Silicon X-tal Reflective Display

FULL HD 1080

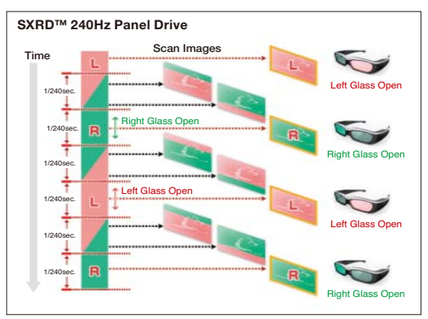
Welcome to the Era of 3D Home Theater

100-in screen and true 3D thrill – The real movie theater experience at home

Reproduction of Extraordinarily Clear 3D Images at 240 Frames/Second

Made Possible by Cutting-edge, Reflective Full-high-definition SXRD™ Panels

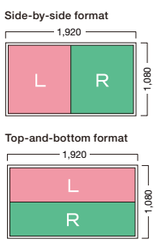
The HC9000D uses an advanced frame sequencing method to reproduce 3D images. Normal frame sequencing reproduces 120 frames per second; 60 each for the left and right eyes alternately. However, the advanced reflective full-high-definition SXRD™ panels of the HC9000D make it possible to reproduce 240 frames per second, twice that of the conventional method. Along with the high-speed reproduction of images, the open time of the shutters in the special active-shutter glasses is synchronized to ensure that images for the left and right eyes are not mixed. Crosstalk, a phenomenon common in the reproduction of 3D images to date, has been reduced a minimum, realizing amazingly detailed, high-definition 3D images that are so real you'll think you can reach out and touch them.



Wide Compatibility with 3D Television Broadcasts

Full-scale Use Available Soon

The use of 3D content is spreading and applications are becoming more diversified. Following these ongoing advancements closely, in addition to introducing the new frame sequencing method, Mitsubishi Electric has incorporated a side-by-side projection function currently being used for 3D television broadcasts, and plans to introduce a function to support top-and-bottom projection. The ability to switch between projection formats ensures compatibility with the various 3D contents being made available.



Special Active-shutter Glasses

Lightweight, Stylish Design

The shutter glasses design features not only the use of a lightweight resin frame, but also a specially curved form for the temple section that sits on the ear and an ergonomic bridge to fit this nose comfortably. These efforts ensure that the glasses are easy to wear and use, and prevent them from shifting out of position or becoming annoying when worn for a long period of time. For people who wear prescription glasses, needless to say, these active-shutter glasses can be used comfortably together with them without any adjustment. Additionally, to ensure maximum 3D-setting flexibility, a function for adjusting image brightness has been incorporated.

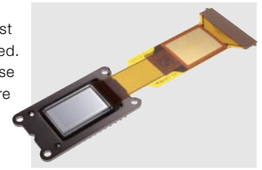
(Option)

*Both 3D glasses and Emitter (Optional parts) are necessary for viewing 3D pictures.

Sharp, Smooth Reproduction of Fast-moving Images

Reflective Full-high-definition SXRD™ Panels* Incorporated

Compared to conventional glass-substrate liquid-crystal panels that project images by passing backlight through them, reflective full-high-definition SXRD™ panels are made of a silicon substrate with a liquid-crystal coating, and images are reproduced by reflecting the light. The development of Normally black mode and an advanced panel processing technology has enabled higher brightness and contrast and high-speed response to be realized. Movies and other images such as those of digital high-definition broadcasts are reproduced naturally and with distinct clarity.



*1,920×1,080 pixels (horizontal × vertical)

* SXRD™ and the SXRD™ logo are registered trademarks of Sony Corporation.

Negligible Grid Pattern Ensures Clearer Images on Large Screens

The space between pixels has been reduced to 0.2µm, a smaller gap than previously used, and the structure between pixels has been optimized to reduce crosstalk. Additionally, a 94% high aperture ratio has been achieved, making the grid pattern*, which commonly becomes more prominent as screen size increases, hardly noticeable. As a result, the original smooth texture of moving images is beautifully expressed.

*Visible lattice due to gaps between pixels.

Transmissive liquid-crystal panel

Reflective liquid-crystal panel

High-speed 2ms* Response for Clear Projection of Scenes with Fast-moving Images

The liquid-crystal cell thickness has been reduced to under 2µm, enabling a quick response speed of 2ms. Even at times of momentary color changes or fast-moving images, exquisitely clear scenes with minimal blurring can be enjoyed.

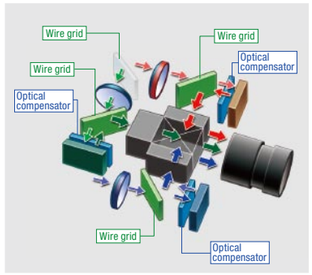
*Both rise and fall times.

Conventional

Reflective liquid-crystal panel

Separate Reflective Liquid-crystal Panels for Each Primary Color

Each of the primary colors (Red, Green and Blue, RGB) is processed by a separate reflective liquid-crystal panel to realize full-high-definition resolution. The lighting from each panel is merged at the optical block and then projected, resulting in the reproduction of truly natural colors with excellent alignment and no mixing of pixel colors.



Impressive High Contrast Ratio Up to 150,000:1

In addition to providing high contrast image reproduction, the newly developed optical compensator significantly reduces light lost during processing. The 18-step fixed aperture can be adjusted freely, improving the reproduction of blacks. When the Iris is closed, we have realized black color darker than before which is equivalent to the maximum contrast of 150,000:1.

Contrast ratio of 70,000:1

Contrast ratio of 150,000:1

High-performance Processor

Manufactured by Integrated Device Technology Inc. (IDT) (previously Silicon Optix Inc.)

The resolution of the content delivered by the projector varies widely, from Blu-ray (1,920×1,080) to DVD (720×480) and other formats. In the case of DVDs, the content must be converted to 1,920×1,080, and the higher the conversion precision, the better the image quality. This is performed using an IC (manufactured by IDT) highly evaluated for its image-processing performance. Processing such as highly precise interlace/progressive (I/P) conversion and scaling allows formats such as DVD, and of course full-high-definition content, to be reproduced with high picture quality.

HQV

Built-in Frame Rate Convertor (FRC)

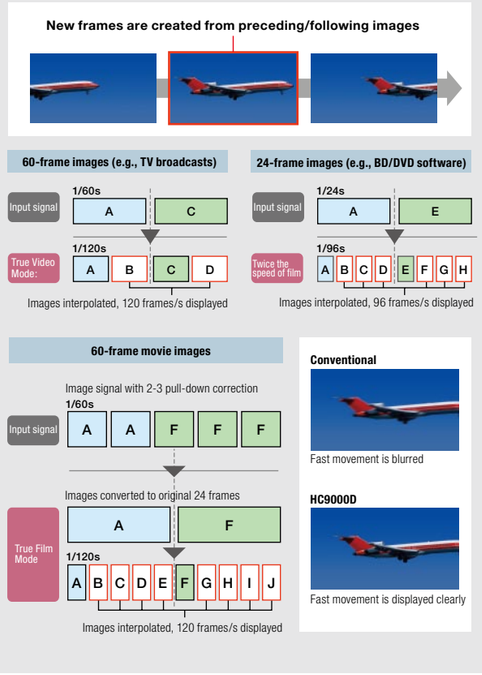
Compensation Ensures Optimal Frame Number for Contents

Motion vector analysis technology is applied for highly accurate frame alignment using preceding and following images. This compensation function creates the optimal number of frames for the content, reducing distortion in all directions; vertically, laterally and diagonally.

True Film Mode:
Crystal-clear images are projected while maintaining the sensation of a film-based source.

True Video Mode:
Motion compensation of video images suppresses video distortion.

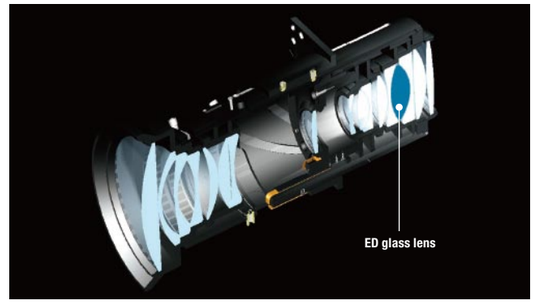
Off (twice the speed of film and other formats):
A 96Hz driver provides four times the input of 24P, realizing a speed twice that of film and other formats. Conversion eliminates delays, making it an ideal mode for video games.



New Built-in 1.8x Power Zoom Lens

Compatible with Full-high-definition Resolution

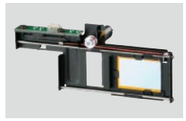
A key element in projector performance is the lens. The lens incorporated in the HC9000D has a **17**-piece/**6**-cluster structure including a high-end, extra-low dispersion (ED) lens with advanced functionality compared to standard glass lenses. Peripheral focusing performance is improved, and chromatic aberration and color mixing are reduced to a minimum.



Built-in Cinema Filter Function

Enhanced Depth and Clarity

Cinema Filter increases the purity of green in particular, realizing vivid expression of the greens such those in the scene of a deeply forested hillside. Further, by expanding the green and cyan spectrums, cinema-like image reproduction is achieved.



Color Management Function

Adjust Color to Suit Preferences

Color Management allows the independent adjustment of Hue, Saturation, Gain for R (Red), G (Green), B (Blue), C (Cyan), M (Magenta) and Y (Yellow). Subtle color adjustment is possible, enabling content to be enjoyed in color tones matched to the preference of the user.

Before adjustment

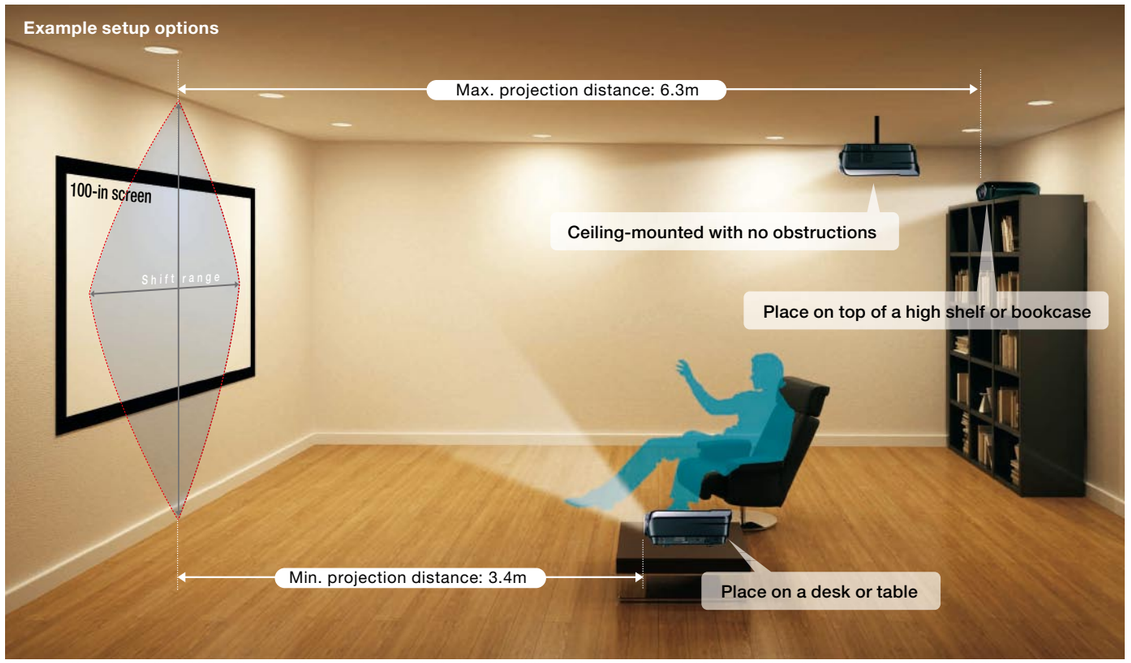
After adjustment

Cutting-edge, Full-high-definition Technologies Ensure Finely Textured Images and Infinite Expressive Power

NEW HC9000D 3D HDMI SXRD FULL HD 1080

*Images used for explaining effects of featured functions.

Refined Quality, Detail and Simple Operation for Total Emersion in the 3D Experience



*Images used for explaining effects of featured functions. *Maximum values for vertical/horizontal lens shift cannot be set simultaneously. * Projection distance limits listed are based on viewing 2-dimensional images.

Wide Lens Shift Range Increases Setup Possibilities

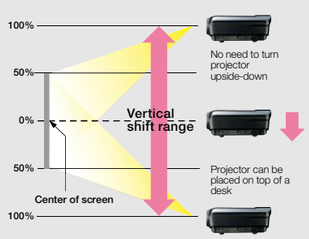
With vertical adjustment of 100% and horizontal adjustment of 45%, the wide-ranging lens shift function increases the degree of freedom for projector placement. Incorporation of the 1.8x power zoom lens enables projection to a 100-in screen from a throw distance as short as 3.4m or as far as 6.3m. The high-performance motor also allows subtle magnification and focus adjustments.

Vertical/Horizontal Shift Range

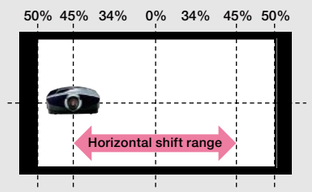
Lens shift (vertical)	100%	80%	60%	40%	20%	0%
Lens shift (horizontal)	0%	15.3%	26%	34%	40%	45%

*Maximum values for vertical/horizontal lens shift cannot be set simultaneously.

Vertical Direction



Horizontal Direction



Illuminated Remote Controller

Easy to Operate Even with the Lights Turned Off

The remote controller is equipped with illuminated buttons for easy operation even in a dark room. Image quality can be adjusted directly from the remote controller.

Specifications

Model				HC9000D
Projection system				Reflective liquid-crystal panels
Panel specifications	Panel size			0.61-in, SXRD™*1×3, aspect ratio 16:9
	Number of pixels			1920×1080 Approx. 6.22 million pixels (2.0736 million pixels×3)
	Drive			RGB liquid-crystal shutter system
Optical specifications	Zoom*2/Focus operation			1.8x zoom/Electric-powered
	Lens shift*2			Electric-powered: vertical ±100%, horizontal ±45%
	f *2			21.4-38.5mm
	Light source lamp*3			High-pressure mercury lamp, 230W
	Optical system			Mirror color separation/Prism synthetic system
	Iris			Variable Iris
Projection screen size*2				50-200 in. (Diagonal)
Image	Brightness*4 *5			1100 lm (TYP)
	Contrast ratio*5			150,000:1(TYP) (when the Iris is closed)
	Resolution		Computer input	VGA 640×480–WUXGA 1920×1200, 1920×1080
	Scan frequency		Horizontal (kHz)	15-85
			Vertical (Hz)	24-85
Input signal	Video			NTSC/4.43NTSC/PAL/SECAM/PAL-M/N/PAL-60 Video input (480i/p, 576i/p, 1080i 60/50, 1080p 60/50/24, 720p 60/50, 3D 240Hz)
	Computer			PC/AT compatible, Mac
Input	Image	Analog RGB	15-pin mini D-sub	1 terminal
		Digital RGB	HDMI terminal	2 terminals (3D/Deep Color compatible)
		Composite	RCA terminal	1 terminal
		S	S Video terminal	1 terminal
		Component	RCA terminal	1 terminal
	Serial/standard RS-232C			1 terminal (9-pin D-sub)
output	Trigger terminal			2 terminals (mini-jack)
	3D emitter terminal			1 terminal (5-pin mini DIN)
Functions	Trapezoidal distortion correction			Vertical direction only: approx. ±15° (TBD)
	Power supply voltage			AC100-240V, 50/60Hz
	Power consumption (W)			350 (standby: 7) (TBD)
	Weight (kg)			Approx.14.0
	Main unit dimensions W×H×D (mm)			Approx. 480×210.7×529 (not including protrusions)
Other	Accessories			Power cord (2.9m), Remote controller, AA batteries (×2), Computer cable, RS-232C cable, Lens cap, Lamp replacement tray, Intake-air filter (attached to main unit)

*1 SXRD™ and the SXRD™ logo are registered trademarks of Sony Corporation. All brand names and product names are trademarks, registered trademarks or trade names of their respective holders. *2 The above figures are approximate and may be slightly different from the actual measurements. *3 Lamp life specification is an estimate based on verification under proper conditions and is not the duration of the warranty. *4 Compliant with ISO21118-2005.*5 Varies depending on conditions.

Screen Size and Projection Distances

Screen size (16:9)				Projection distance		Vertical lens shift		Horizontal lens shift	
Diagonal		Width	Height	Min.	Max.	Down	Up	Left	Right
In.	cm	cm	cm	m	m	cm	cm	cm	cm
50	127	111	62	1.7	3.1	62 ← 0 →	62	50 ← 0 →	50
60	152	133	75	2.0	3.7	75 ← 0 →	75	60 ← 0 →	60
70	178	155	87	2.4	4.4	87 ← 0 →	87	70 ← 0 →	70
80	203	177	100	2.7	5.0	100 ← 0 →	100	80 ← 0 →	80
90	229	199	112	3.1	5.6	112 ← 0 →	112	90 ← 0 →	90
100	254	221	125	3.4	6.3	125 ← 0 →	125	100 ← 0 →	100
110	279	244	137	3.8	6.9	137 ← 0 →	137	110 ← 0 →	110
120	305	266	149	4.1	7.5	149 ← 0 →	149	120 ← 0 →	120
150	381	332	187	5.2	9.4	187 ← 0 →	187	149 ← 0 →	149
200	508	443	249	7.0	12.6	249 ← 0 →	249	199 ← 0 →	199

*Varies depending on conditions.*The above numbers are approximate and may be slightly different from the actual measurements.

Options

*Both 3D glasses and Emitter (Optional parts) are necessary for viewing 3D pictures.

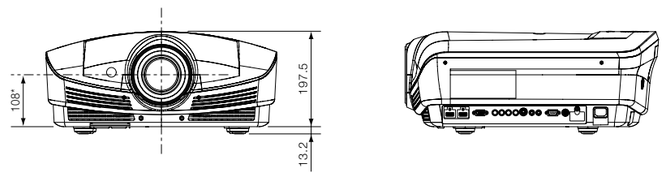
3D glasses	3D Emitter	Replacement lamp
		
EY-3DGS-1U	EY-3D-EMT1	VLT-HC9000LP

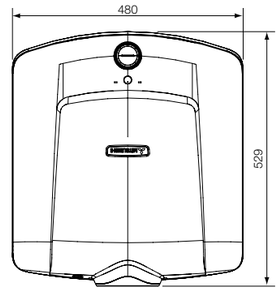
HC9000D

HC9000DW

Terminals

External Dimensions (unit: mm)





*The Lens focus point is the default set at the time of shipment from the factory.

for a greener tomorrow

Eco Changes is the Mitsubishi Electric Group's environmental statement, and expresses the Group's stance on environmental management. Through a wide range of businesses, we are helping contribute to the realization of a sustainable society.

To find out more about HC9000D and our projectors, visit us at

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