

Panasonic

ideas for life

PT-AT6000E
Full HD 3D Home Cinema Projector



Dive into the World of Full HD 3D



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Advanced 3D dual-core processing engine enables high-quality 3D and 2D projection.

3D Home Cinema Experience Just Got Better than Ever



A Full HD 3D Experience that Will Blow You Away!

Hollywood continues to produce and release 3D movies that give us an entirely new level of dynamic realism. The PT-AT6000E Full HD 3D Home Cinema Projector was developed according to the Panasonic philosophy of providing images that mirror the director's artistic vision and intent—right in your own home. The PT-AT6000E is designed from the ground up to achieve higher basic 2D performance, and packed with unique 3D features to



The PT-AT6000E and optional Panasonic active 3D Eyewear are finely tuned to achieve 3D viewing with Hollywood-like quality.

deliver the level of quality demanded by Hollywood professionals. The key 3D projection technologies were developed in collaboration with Panasonic Hollywood Laboratory (PHL) engineers, who have taken key roles in establishing the industry standards for 3D. This allows the PT-AT6000E to deliver both stunning 2D images and a comfortable and immersive 3D viewing experience at home.

Excellent Picture Quality

High 2,400 lm of Brightness with the Advanced Red-Rich Lamp

The new 220 W Red-Rich Lamp increases the luminous efficiency of the projector to achieve brighter images, even in 3D viewing, with excellent colour purity. Able to produce a stunning brightness of 2,400 lm, the PT-AT6000E unleashes the beauty of 2D/3D full-HD expression for viewing on various screen sizes. Cooling efficiency for example around the polarisation filters has been increased to realize the higher lumens. Colour purity is further increased by applying a special coating to the red and green condenser lenses in order to trim the impurities from the light after it is separated into the three primary colours.



220 W Red-Rich Lamp



Prism with polarisers



Condenser lenses with special coating



Full-HD Optimised Optical System

To assure maximum clarity and sharpness in full-HD images, this advanced optical system employs a full-HD-optimised lens unit comprising of 16 lens elements in 12 groups, including two large-diameter aspherical lenses and two high-performance ED (extra-low dispersion) lenses. Each lens is carefully aligned to assure a uniform focusing balance from the centre to the edges of the screen. As a result, the PT-AT6000E produces stunningly clear and beautiful images.

Up to 480 Hz Compatible LCD Panels

The PT-AT6000E's full-HD LCD panels provide bright images with high aperture ratio. The panels are also designed for 480 Hz processing capability for bright 3D image. These high-precision panels use vertically aligned liquid crystal molecules with inorganic alignment layers. When no voltage is applied, the molecules are aligned perpendicular to the glass substrate, so there is minimal light leakage, providing higher contrast.

Pure Contrast Plates Deliver High 500,000:1 Contrast Ratio

The Pure Contrast Plates in the PT-AT6000E use a high-precision crystalline material that is carefully matched to the characteristics of the LCD panels to effectively correct the passage of light exiting the panels. This enables the projector to block unwanted light leakage and

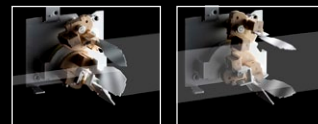
successfully increases the dynamic range. It works together with the Pure Colour Filter Pro and Dynamic Iris Pro to achieve an astounding contrast ratio of 500,000:1.

Pure Colour Filter Pro for Rich, Vibrant Colours

The optical filter optimises the light spectrum from the UHM projector lamp, helping to produce deeper blacks while improving purity levels in the three primary colours (red, green and blue). This advanced filter system improves colour purity to cover a range that extends from the HDTV standard (Rec. 709 mode)*1 to the colour gamut used in digital cinema*2. This gives images the deep, rich colouring that distinguishes movie images.

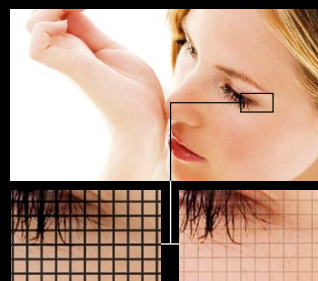
Dynamic Iris Pro Adds Beauty to Both Dark and Bright Scenes

This intelligent iris system works by analysing the brightness level of each image using a histogram, then adjusting the lamp power, iris and gamma curve*3 accordingly to create the ideal image. The adjustments are made virtually frame by frame. This helps the projector achieve a wide dynamic range with swift smoothness for added beauty in both dark and bright scenes.



Smooth Screen Technology Creates Film-Like Texture

While many LCD projectors suffer from a "chicken wire" effect, Panasonic's pursuit of the highest possible image quality has successfully overcome this device limitation through the incorporation of Smooth Screen technology. This uses the double refraction property of crystals to arrange pixels on a screen with no gaps between them.



Conventional: Black lines between pixels mar picture quality. PT-AT6000E: Smooth, theatre-like images.

Seven Picture Modes

For each 2D and 3D viewing, seven different picture modes (normal, dynamic, Rec. 709, D-cinema, cinema 1, cinema 2 and game mode for reduced frame delay) are provided.

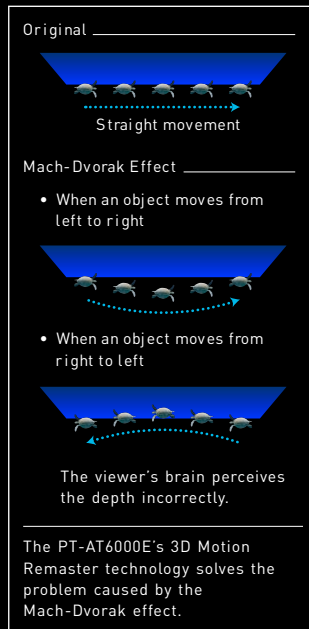
A Whole New Level of 3D Viewing

LCD Panels Driven at 480Hz and Original Overdrive Technology for Bright 3D Image

The PT-AT6000E features 480Hz-driven LCD panels, which lengthen the time that the shutter is open about 1.5 times the duration of a 240-Hz drive system. Together with Panasonic's original high-precision overdrive technology, this improves the brightness of the images viewed through 3D Eyewear, while at the same time minimising cross-talk, or double image seen as a result of the left image entering the right eye and vice versa.

3D Motion Remaster Delivers Correct, Natural 3D Movement

This new technology solves the problem caused by a phenomenon called the Mach-Dvorak effect, which occurs in many systems during 3D viewing. The active shutter 3D system displays left-eye and right-eye images alternately. This means that left-eye and right-eye images that were captured at the same instant are shown with a time lag. During this time lag, especially when watching a scene in which an object moves quickly and horizontally across the screen, the viewer's brain automatically speculates and forms a image at a position that differs from the actual shown image. This results in incorrect depth perception and makes the horizontal movement appear unnatural. 3D Motion Remaster technology achieves smoothly moving 3D images by creating properly positioned images to compensate for the time lag.

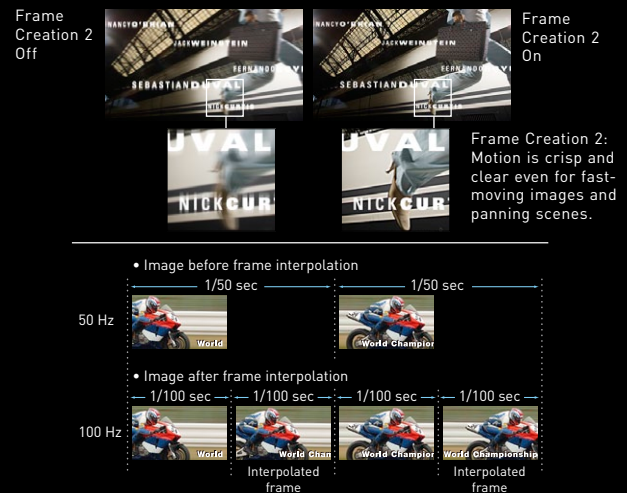


Dual Core Processing Engine

High-quality 2D image processing, including Frame Creation and Detail Clarity Processor, can be enjoyed in 3D as well, with the incorporation of the high-performance dual core processing engine.

Frame Creation 2 for Motion Blur Reduction in 3D/2D Viewing

A double-speed frame interpolation display for both 2D and 3D viewing, even during 2D-3D conversion, greatly improves the clarity of motion images, reproducing sharp and clear images for fast moving scenes in sports and action movies. For 24p signal input, four frames are calculated and interpolated for each existing frame, to enable 5x speed (120-Hz) display.



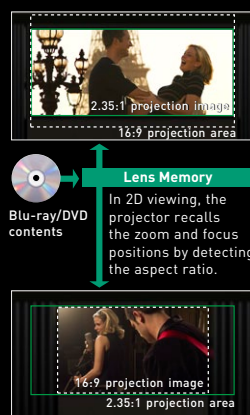
2D-3D Conversion

2D to 3D image conversion is possible, with five 3D effect modes to select from.

Customisation and Installation Flexibility

Lens Memory for 2D/3D Viewing

Up to six settings, in 2D or 3D viewing, can be stored in the Lens Memory, including zoom and focus positions for projecting in the normal 16:9 or 4:3 image ratio, and wide cinema projection settings. These memories can be recalled manually for 2D or 3D, or can be set for automatic switching in 2D. The projector is able to detect 2.35:1 and 16:9 sources and retrieve the stored setting automatically. The Lens Memory function lets you easily enjoy images with different image ratios on a wide 2.35:1 screen for an immersive theatre-like experience.



2x Optical Power Zoom/Focus and Wide Lens Shift Range

A 2x optical power zoom/focus lens and a lens shift function together make it possible to project a 120-inch picture from as close as 3.6 metres (11 feet 10 inches) to the screen or as far as 7.2 metres (23 feet 7 inches) away. In addition, the image can be shifted $\pm 100\%$ vertically, and $\pm 26\%$ horizontally. This gives you outstanding setup flexibility. If you choose to ceiling-mount the projector, you can zoom and focus by remote control.

Waveform Monitor for Precise Calibration

With the PT-AT6000E you can view the waveforms on the screen and

adjust the settings both automatically and manually as you prefer.

Advanced Gamma Adjustment Function

The gamma curve can be flexibly controlled, allowing precise calibration according to the signal source and environment. Brightness (Y), R, G and B can each be adjusted at any fifteen points. Adjustment point positions can be shifted both horizontally and vertically to bring out the desired gradation level. Adjustment is easy because the small menu screen does not block the image.

Split Adjust Mode for Easy Picture Adjustment

You can freeze any scene you wish, and then make adjustments while easily comparing the original image and the adjusted image side by side.

Cinema Colour Management Premium Enables Flexible Colour Control

This colour correction system enables free colour control in two different modes. The Point Colour Correction mode lets you pick a point in the image and adjust that colour without affecting the neighbouring colours. The Six Colour Correction mode enables independent adjustment of red, green, blue, cyan, magenta and yellow. Adjustment is possible for either 2D or 3D viewing.

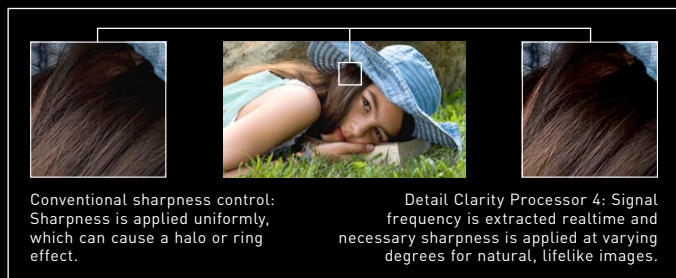
Abundant Connection Terminals

HDMI™ with x.v.Colour™ and Deep Colour

The PT-AT6000E has three HDMI input terminals for digital transmission without image degradation. The HDMI input terminals also

Detail Clarity Processor 4 Gives Natural Clarity to Even the Finest Details

This digital image processing circuit brings greater clarity and sharpness to details embedded in the image. After analysing the video signal frequency in each scene, the circuit optimises the sharpness of each part of the image based on the extracted information. The resulting images, 3D or 2D, have more natural, lifelike expression than those of previous image-processing methods.



Advanced 3D Adjustment Functions

A variety of 3D viewing adjustments also provide a more comfortable viewing experience at home. These include 3D Lens Memory, 3D zoom and focus, 3D colour management, and 3D keystone correction.

3D Viewing Monitor for Adjustment of Depth-of-Field

The projection size for viewing 3D images can be selected from among 9 different sizes, ranging from 40 inches to 200 inches diagonally.*4 The amount of parallax is optimised according to the projection size,



Mode 1: 3D Viewing Monitor ensures comfortable 3D viewing. The area between the two dotted lines is the safety zone for the parallax. It makes it possible to check and adjust the amount of parallax in an image.

so comfortable, easy-to-view 3D images can be enjoyed at any size. Either of three monitor styles can be selected.



Mode 2: Simplified monitor. It is easy and simple because only a small part of the screen is blocked.



Mode 3: Positive parallax is indicated by the red colour, and negative parallax by the blue colour.

3D Picture Balance with Waveform Monitor

The projector is able to show the right and left image side by side to check if the two sides have the same colours. The difference may occur due to poor content quality.

With the Waveform Monitor displayed, you can adjust the contrast, brightness, colour and tint as desired, and up to three adjustment settings can be stored in memory for instant recall.



Precisely Tuned 3D Projection with Optional Panasonic 3D Eyewear

The PT-AT6000E uses frame sequential technology for 3D image projection. When viewing 3D content, signals from the PT-AT6000E's built-in infrared transmitter precisely control the left and right shutters of the active 3D Eyewear. The built-in transmitter offers maximum transmission distance of six metres (about 20 feet)*5 For more range up to ten metres (about 33 feet), an optional infrared transmitter, ET-TRM110 is available for greater installation flexibility.

support Deep Colour and the x.v.Colour colour space. Deep Colour provides 10-bit (over 1.07 billion) and 12-bit (over 68.7 billion) colour depths for smooth gradation between colours, while x.v.Colour compliance reproduces natural, lifelike images.*6

Programmable 12V Trigger for Automated Theatre Setup

Two 12V triggers are provided.*7 Since the input and output can be set independently (menu selectable), they can link flexibly with powered screens, room light and powered curtains.

When combined with the Lens Memory, they let you create a truly classy home theatre.



VIERA Link for Easy Operation

The PT-AT6000E supports VIERA Link. If your home theatre system contains VIERA Link-ready equipment, projection can be started by using only the remote control unit of the PT-AT6000E, regardless of whether the source is a Blu-ray Disc or a TV program stored on an HD recorder. This eliminates the need for hassling with several remote controls.*8



Up to 5,000-Hour Lamp Replacement Cycle*9 and Simple Maintenance

Panasonic's proprietary lamp drive system helps maintain lamp performance, resulting in a up to 5,000-hour lamp replacement cycle. For easy maintenance, you can replace the filter from the side and the lamp from the top of the projector. The dust filter and lamp are easily replaced even after the PT-AT6000E is installed on the ceiling.

Ecology-conscious Design

Panasonic works from every angle to minimize environmental impact in the product design, production and delivery processes, and in the performance of the product during its life cycle. The PT-AT6000E reflects the following ecological considerations.

- No halogenated flame retardants are used in the cabinet.
- Lead-free glass for the lens.
- Standby power consumption of only 0.08 W has been achieved.
- A sleep-timer that reduces wasteful power consumption.
- RoHS compliant.

*1 A setting that supports the 6,500K colour temperature recommended in the HDTV standard (ITU-R BT.709) *2 Specifications put forth by the Society of Motion Picture and Television Engineers (SMPTE) PR431-2. *3 Parametres for adjusting the output brightness gradation level according to the input signal. *4 Projection size for 2D images covers from 40 inches to 300 inches diagonally. *5 The indicated distance between the projector and screen is valid when the conditions described below are satisfied. Also, note that the transmission distance can differ largely due to strong light, such as sunlight and fluorescent lamps, at the installation location or due to the screen type or material. **CONDITION 1:** The distance between the screen and the 3D Eyewear (viewing position) is 5 metres to the front of the screen. **CONDITION 2:** The screen is 100 inches, measured diagonally, and has a screen gain of 1. **CONDITION 3:** The projector is set up in front of the screen, and the lens shift function is not used. **CONDITION 4:** The [3D IR TRANSMITTER] setting in the main unit is set to [STRONG]. *6 Effective in Rec. 709 image mode. *7 The trigger terminals also operate as the 3D shutter outputs to connect the optional 3D IR transmitter ET-TRM110. *8 Cannot be used simultaneously with TV that supports VIERA Link. Some operations may not be available depending on the equipment. In this case, use its own remote control to operate the equipment. *9 When a lamp power is set to ECO. The lamp replacement cycle is up to 4,000 hours when the lamp mode is set to NORMAL. The values above are maximum values when they are used in cycles of being turned on for 2 hours and off for 0.25 hours. When the lamps are turned on and off more frequently, the lamp replacement cycle is shortened. The usage environment affects the lamp replacement cycle.

Other Features

- 16-bit (full 12-bit) gamma correction for natural gradations.
- 3D noise reduction for high-precision noise detection and reduction.
- Scene-adaptive MPEG noise reduction effectively blocks regular noise and minimises mosquito noise.
- Scene adaptive resizing LSI improves quality when resizing 480p images or those from other sources with resolution lower than the PT-AT6000E's native resolution.
- 24p compatible.
- Progressive cinema scan (3/2 pulldown) and

HD IP.

- Auto 3D input format select for frame packing, side by side, and top and bottom. Manual selection is also possible.
- Selectable frame response.
- Independent horizontal/vertical sharpness adjustment.
- Featuring a wide range of aspect modes, including ones for anamorphic lenses. (JUST/4:3/16:9/S16:9/14:9/ZOOM1/ZOOM2/H-FIT/V-FIT) NOTE: The selectable modes vary depending on the input signal.
- Up to sixteen sets of PICTURE adjustment settings can be stored in memory with cus-

tom names that make them easy to remember (PICTURE MEMORY).

- Masking function to match the desired projection area to the screen.
- User-friendly ergonomic remote control.
- Built-in test pattern including colour bar and gray scale.
- On-screen input guidance.
- Auto input search.
- Quiet operation: 22 dB (lamp power: ECO).
- NORMAL/ECO lamp power selection.



Optional accessories



ET-PKA110H
Ceiling mount bracket for high ceilings



ET-PKA110S
Ceiling mount bracket for low ceilings



ET-TRM110
3D IR transmitter



TY-EW3D3M*1
3D Eyewear (medium size)



ET-LAA410
Replacement lamp unit

NOTE: The 3D Eyewear models shown above are current models as of September 2012. For information on other available models with verified interoperability and the newest models, please visit our Projector Global Web Site. <http://panasonic.net/avc/projector>

Projection distance

Aspect ratio 16:9

Projection size (16:9) Diagonal length	Projection distance	
	Min (Wide)	Max (Telephoto)
1.02 m / 40"	1.16 m / 3'10"	2.37 m / 7'9"
1.52 m / 60"	1.77 m / 5'10"	3.58 m / 11'9"
2.03 m / 80"	2.37 m / 7'9"	4.79 m / 15'9"
2.54 m / 100"	2.98 m / 9'9"	6.00 m / 19'8"
3.05 m / 120"	3.58 m / 11'9"	7.20 m / 23'7"
3.81 m / 150"	4.49 m / 14'9"	9.02 m / 29'7"
5.08 m / 200"	6.00 m / 19'8"	12.04 m / 39'6"
6.35 m / 250"	7.51 m / 24'8"	15.06 m / 49'5"
7.62 m / 300"	9.02 m / 29'7"	18.08 m / 59'4"

Aspect ratio 2.35:1

(When projecting both 2.35:1 and 16:9 images onto a 2.35:1 screen using the Lens Memory function.)

Projection size (16:9) Diagonal length	Projection distance	
	Min (Wide)	Max (Telephoto)
1.02 m / 40"	- / -	- / -
1.52 m / 60"	1.40 m / 4'7"	2.85 m / 9'4"
2.03 m / 80"	1.88 m / 6'2"	3.82 m / 12'6"
2.54 m / 100"	2.37 m / 7'9"	4.78 m / 15'8"
3.05 m / 120"	2.85 m / 9'4"	5.74 m / 18'10"
3.81 m / 150"	3.57 m / 11'9"	7.19 m / 23'7"
5.08 m / 200"	4.78 m / 15'8"	9.60 m / 31'6"
6.35 m / 250"	5.98 m / 19'7"	12.02 m / 39'5"
7.62 m / 300"	7.19 m / 23'7"	14.43 m / 47'4"

*1 If you do not have a Panasonic 3D TV that supports 3D video, use a charger that has a USB2.0 port for charging your Eyewear. The recommended charger is Apple USB Power Adapter for iPhone. The code that follows KBC-L2 may differ depending on the country of purchase. The code at the end of the model number of 3D Eyewear may differ depending on the country of purchase. *2 The projector uses a type of liquid crystal panel that typically consists of millions of pixels. This panel is built with very high-precision technology to provide the finest possible image. Occasionally, a few pixels may remain turned on (bright) or turned off (dark). Please note that this is an intrinsic characteristic of the manufacturing technology that affects all products using LCD technology. *3 The projector uses a high-voltage mercury lamp that contains high internal pressure. This lamp may break, emitting a large sound, or fail to illuminate, due to impact or extended use. The length of time that it takes for the lamp to break or fail to illuminate varies greatly depending on individual lamp characteristics and usage conditions. *4 The values above are maximum values when they are used in cycles of being turned on for 2 hours and off for 0.25 hours. When the lamps are turned on and off more frequently, the lamp replacement cycle is shortened. The usage environment affects the lamp replacement cycle. *5 Measurement, measuring conditions, and method of notation all comply with ISO 21118 international standards. *6 In dynamic mode, with dynamic iris on. *7 In cinema 1 mode, with dynamic iris on. *8 Shift range is limited during simultaneous horizontal and vertical shifting. *9 Effective in Rec. 709 picture mode. *10 CEC is an abbreviation for Consumer Electronics Control. Operation may not be possible with some connected equipment or settings. *11 With legs at shortest position. *12 Average value. May differ depending on models. *13 When [HIGH ALTITUDE MODE] is set to [ON]: 0°C - 35°C (32°F - 95°F)

NOTE: A PC is required to read the detailed operating instructions (a PDF file on a CD).

Specifications

Power supply	100-240 V AC, 50/60 Hz
Power consumption	310 W (0.08 W in standby mode)
LCD*2 panel	Panel size 18.7 mm (0.74 in) diagonal (16:9 aspect ratio)
	Display method Transparent LCD panel (x 3, R/G/B)
	Drive method Active matrix
	2,073,600 (1,920 x 1,080) x 3, total of 6,220,800 pixels
Lamp*3	220 W UHM lamp (The lamp replacement cycle is up to 4,000 hours (lamp power: NORMAL) / 5,000 hours (lamp power: ECO)*4)
Lens	Powered zoom/focus lenses (1.35-2.70:1), F 1.9-3.2, f 22.4-44.8 mm
Projection size (diagonal)	2D projection: 1.02-7.62 m (40-300 inches) 3D projection: 1.02-5.08 m (40-200 inches)
Brightness*5	2,400 lm*6
Centre-to-corner uniformity ratio*5	85%
Contrast ratio*5	500,000:1*7 (full on/full off)
Resolution	1,920 x 1,080 pixels
Scanning frequency	
HDMI	480p, 576p, 720/60p, 720/50p, 1080/60i, 1080/50i, 1080/24p, 1080/60p, 1080/50p
RGB	fr: 15 kHz-74 kHz, fv: 24 Hz-85 Hz, dot clock: 154 MHz or lower
YPbPr (YCbCr)	525i (480i), 625i (576i), 525p (480p), 625p (576p), 750 (720)/60p, 750 (720)/50p, 1125 (1080)/60i, 1125 (1080)/50i, 1125 (1080)/24p, 1125 (1080)/60p, 1125 (1080)/50p
Video/S-Video	fr: 15.7 kHz, fv: 59.9 Hz [NTSC/NTSC4.43/PAL-M/PAL60] fr: 15.6 kHz, fv: 50.0 Hz [PAL/PAL-N/SECAM]
Optical axis shift*8	Vertical: ±100%, horizontal: ±26%
Keystone correction range	Vertical: approx. ±30°
Terminals	
HDMI IN	HDMI connector x 3, HDMI (Deep Colour, x.v.Colour*9 CEC*10), HDCP compliant, supports HDAVI Control Version 5
COMPUTER (RGB) IN	D-sub HD 15-pin (female) x 1 (RGB/YPbPr/YCbCr x 1)
COMPONENT IN	RCA pin x 3 (YPbPr/YCbCr)
TRIGGER IN / TRIGGER OUT / 3D SHUTTER OUT	M3 x 2, 12 V, max. 100 mA (input/output/3D shutter output selectable using on-screen menu)
VIDEO IN	RCA pin x 1
S-VIDEO IN	Mini DIN 4-pin x 1
SERIAL IN	D-sub 9-pin x 1 for external control (RS-232C compliant)
Dimensions (W x H x D)	470 x 151 x 364*11 mm (18-1/2 x 5-15/16 x 14-11/32*11 inches)
Weight*12	Approx. 8.7 kg (19.2 lbs)
Operation noise*5	22 dB (lamp power: ECO)
Operating temperature	0°C - 40°C (32°F - 104°F)*13
Operating humidity	20% - 80% (no condensation)
Supplied accessories	Power cord (x 1) Wireless remote control unit (x 1) Batteries for remote control (R6 (LR6) type x 2) Lens cover (x 1)

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Weights and dimensions shown are approximate. Specifications and appearance are subject to change without notice. Product availability differs depending on region and country. This product may be subject to export control regulations. The projection distances and throw ratios given in this brochure are for use only as guidelines. For more detailed information, please consult the dealer from whom you are purchasing the product. The PJLink trademark is an application trademark in Japan, the United States, and other countries and regions or registered trademarks. All other trademarks are the property of their respective trademark owners. Projection images simulated.
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All information included here is valid as of August 2012.

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