

Panasonic

ideas for life

PT-AE4000U
Full High-Definition Home Cinema Projector



The Theater of Your Dreams



HOLLYWOOD TUNING





For Film Lovers Everywhere

Panasonic seeks the highest performance in optical systems and signal processing circuits to achieve cinema-level colors, contrast, texture and details for an uncompromised home theater experience. Panasonic's extensive knowledge of digital filmmaking and media such as Blu-ray Discs and HD broadcasting are clearly seen in the high picture quality of the PT-AE4000U, which embodies advanced technologies that optimize the reproduction of digital content.

Its exceptional performance—details with amazing reality and clarity—is further boosted by Panasonic's collaboration with leading Hollywood filmmakers to ensure that it produces images that mirror the director's artistic vision and intent.

The PT-AE4000U integrates seamlessly with your home theater environment. It lets you create a dream theater with the dynamic power of a full-scale movie theater in the comfort of your own home. Professional-level adjustments enable precise calibrations to suit the specific home theater conditions in your house.

Enhanced Dynamic Range with Advanced Optical System

A vast accumulation of Panasonic projector technology is further strengthened by the new Red-Rich Lamp and a refined, high-precision optical system to enrich your home theater experience.



New Red-Rich Lamp

The incorporation of the new Red-Rich Lamp increases the luminance efficiency of the projector, to achieve 150% brighter Cinema Picture modes compared to its predecessor, the PT-AE3000U. Prior to the development of the Red-Rich Lamp, much brightness was lost to attain the desired color purity/balance for the rich color reproduction of Cinema Picture modes due to the lack of red luminance. The newly engineered lamp successfully adds red luminance, and enables the projector to produce brighter images with excellent colors. With the ability to produce a stunning brightness of 1,600 lumens, the PT-AE4000U unleashes the beauty of full-HD expression for viewing on various screen sizes.



Full-HD Optimized Optical System

To assure maximum clarity and sharpness in full-HD images, this advanced optical system employs a full-HD-optimized 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-AE4000U produces stunningly clear and beautiful images.



Large-diameter aspherical glass lens

New Pure Contrast Plates Deliver High 100,000:1 Contrast Ratio

The Pure Contrast Plates in the PT-AE4000U use a newly engineered 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 dynamic iris to achieve an astounding contrast ratio of 100,000:1.

Pure Color Filter Pro for Rich, Vibrant Colors

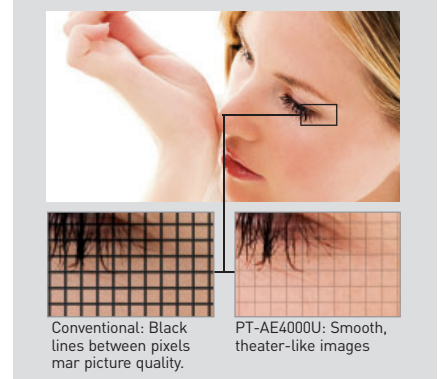
The optical filter optimizes the light spectrum from the UHM projector lamp, helping to produce deeper blacks while improving purity levels in the three primary colors (red, green and blue). This advanced filter system improves color purity to cover a range that extends from the HDTV standard (Color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



Pure Color Filter Pro

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



Conventional: Black lines between pixels mar picture quality.

PT-AE4000U: Smooth, theater-like images

screen with no gaps between them. Smooth Screen technology is designed to give you the kind of smooth, vivid, and three-dimensional-like images you see in movie theaters.

Dynamic Iris Adds Beauty to Both Dark and Bright Scenes

The fifth generation intelligent iris system works by analyzing 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.



High-precision iris mechanism

Full-HD LCD Panels Enhance Motion Response

The PT-AE4000U's full-HD LCD panels have a double-speed drive capability that improves the projection clarity of moving images. 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 and the substrate remains black (called "normally black" operation), providing higher contrast.

*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) DC28 Digital Cinema committees.

*3 Parameters for adjusting the output brightness gradation level according to the input signal.



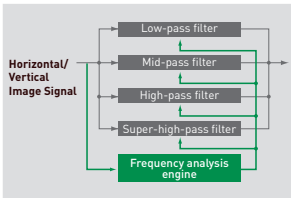
Crisp, Clear Details and Professional-Level Tuning

The remarkable advancement of the PT-AE4000U reflects in its uncompromising signal processing system. Carefully matched to its new optical system, this advanced signal processing brings incredible, full-HD clarity to image details.



Detail Clarity Processor 3 Gives Natural Clarity to Even the Finest Details

This digital image processing circuit brings greater clarity and sharpness to details, by reproducing fine nuances that were lost due to image compression. After a two dimensional analysis of the video signal's frequency in each scene, the new circuit optimizes the sharpness of each image portion based on the extracted information. The resulting images have a more natural, lifelike expression than those of previous image-processing methods. The detection of super-high-frequency image components also enables more faithful reproduction of highly detailed information, such as the film grain in movies. The effect can be adjusted in nine steps from 0 to +7.



Conventional sharpness control: Sharpness is applied uniformly, which can cause a halo or ring effect.

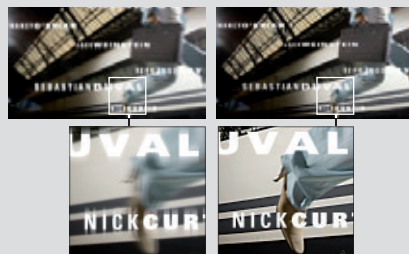


Detail Clarity Processor 3: Signal frequency is extracted realtime and necessary sharpness is applied at varying degrees for natural, life-like images.

Frame Creation 2 Featuring Motion Blur Reduction

A double-speed display (120 Hz or 100 Hz) greatly improves the clarity of motion images. Frame Creation interpolates one new frame for each existing frame by analyzing the characteristics of the adjacent frames to reproduce sharp and clear images for fast moving

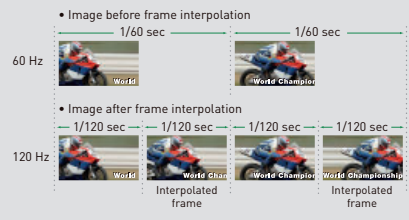
scenes in sports and action movies. For 24p signal input, three frames are calculated and interpolated for each existing frame, to enable 4x speed (96-Hz) display. There are four modes (mode 1, mode 2, mode 3, and off) to choose from. The effect is more pronounced as you ascend through the modes, to provide crisp, clear images to your liking.



Frame Creation 2 Off Frame Creation 2 On

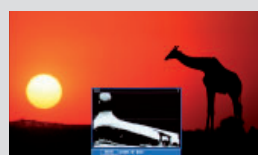
Frame Creation 2: Motion is crisp and clear even for fast-moving images and panning scenes.

Frame Creation Concept (Example with 60-Hz video signal input)



Waveform Monitor for Precise Calibration

When the output level of the source device fluctuates due to the performance of the device or its cable connections, the original



The PT-AE4000U gives home consumers a projector with the kind of waveform monitor used in equipment for professionals.

black and white levels of the image content cannot be reproduced. With the PT-AE4000U you can view the waveforms on the screen and adjust the settings both automatically and manually as you prefer.

16 Bit Gamma Correction for Natural Gradations

The PT-AE4000U handles up to 16-bit (full 12-bit) digital image processing. It faithfully reproduces even subtle hues and brightness variations.

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 nine points. Adjustment point positions can be shifted both horizontally and vertically to bring out the desired gradation level.



New Cinema Color Management Premium Enables Flexible Color Control

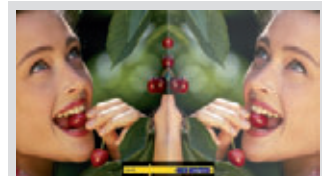
This color correction system enables free color control in two different modes. The Point Color Correction mode lets you pick a point in the image and adjust that color without affecting the neighboring colors, so it is easy to get just the right color equalization in hue, luminance and saturation. The Six Color Correction mode enables independent adjustment of red, green, blue, cyan, magenta and yellow.



Cinema Color Management Premium: Six Color Correction for R, G, B, C, M and Y colors.

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.



The inverted display shows the images before and after adjustment. Normal display is also selectable.

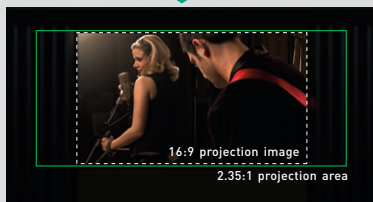
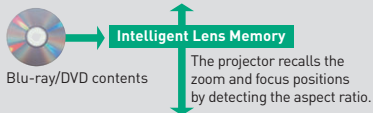
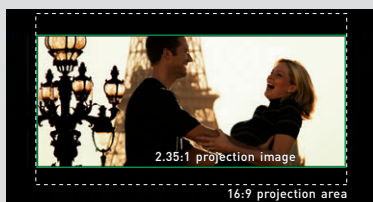
Flexible Installation and Smart, Easy Operation

The Lens Memory, programmable 12V trigger and setup flexibility ensure that you will always enjoy comfortable large-screen viewing matched to your theater room. PT-AE4000U's rich features accommodate simple to fully customized theatres. An ecology-conscious design is another trait that lifts the PT-AE4000U to an even higher level of quality.



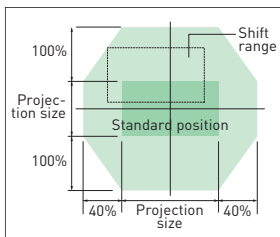
Intelligent Lens Memory with Auto Detection

Up to six settings 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 or can be set for automatic switching. The projector is able to detect 2.35:1 and 16:9 source and retrieve the stored setting automatically. This Lens Memory function lets you easily enjoy images with different image ratios on a wide 2.35:1 screen for an immersive movie 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 11'10". (3.6 m) to the screen or as far as 23'7". (7.2 m) away. In addition, the image can be shifted $\pm 100\%$ vertically, and $\pm 40\%$ horizontally. This gives you outstanding set-up flexibility. If you choose to ceiling-mount the projector, you can zoom and focus by remote control.



VIERA Link for Easy Operation

The PT-AE4000U 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-AE4000U, 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.*4



Programmable 12V Trigger for Automated Theatre Setup

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

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

HDMI with x.v.Color™ Deep Color™

The PT-AE4000U has three HDMI input terminals for digital transmission without image degradation. The HDMI input terminals also support Deep Color and the x.v.Color™ color space of the HDMI 1.3 standard. Deep Color provides 10-bit (over 1.07 billion) and 12-bit (over 68.7 billion) color depths for smooth gradation between colors, while x.v.Color™ compliance reproduces natural, lifelike images.*5



Simple Maintenance

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-AE4000U is installed on the ceiling.

Ecology-Conscious Engineering and 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 itself over its life cycle.

Intelligent Power Management System for Eco-Friendly Power Consumption

The PT-AE4000U realizes an extremely low standby power consumption of 0.08 W*6, lowest in its class.*7 In addition, the PT-AE4000U's main power consumption is reduced by as much as 10% when the dynamic iris function is operating because it intelligently determines the necessary power

output of the projector by analyzing over 3 billion different image patterns, to optimize and eliminate excessive power consumption. LSI chip integration further lowers the PT-AE4000U's main power consumption, making it an eco-friendly projector.

Other Ecological Considerations

- An off-timer that reduces wasteful power consumption.
- RoHS compliance.
- Lead-free solder for mounting components to printed circuit boards.
- No vinyl chloride in interior wiring.
- No halogenated flame retardants in the cabinet.
- Lead-free glass for the lens.

*4 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.

*5 Effective in Color 1 image mode.

*6 Up to 220 V.

*7 For 720p/1080p full high definition home cinema projector, as of June, 2009.

Other Features

- Seven picture mode includes Cinema 1, Cinema 2, Cinema 3, Normal, Dynamic, Color 1 and Color 2.
- 3D noise reduction for high-precision noise detection and reduction
- Scene-adaptive MPEG noise reduction effectively blocks regular noise and minimizes mosquito noise.
- Scene adaptive resizing LSI improves quality when resizing 480p images or those from other sources with resolution lower than the PT-AE4000E's native resolution.
- 24p compatible
- Progressive cinema scan (3/2 pulldown) and HD IP
- Selectable frame response
- 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 adjustment settings can be stored in memory with custom names that make them easy to remember
- Masking function to match the desired projection area to the screen.
- User-friendly ergonomic remote control
- Built-in test pattern including color bar and gray scale



Supplied remote control with back-lit buttons

- On-screen input guidance
- Auto input search
- Quiet operation: 22 dB (in Economy lamp mode)
- Normal/Eco lamp power selection
- Lens-centred design

Made in Japan

Each Panasonic projector is produced by a vertically integrated production process, which extends from R&D to manufacturing, at the Panasonic factory in Japan, under strict quality control. This ensures stable, top-quality performance in every product.



Specifications

Power supply	100-240 V AC, 50/60 Hz
Power consumption	240 W [Approx. 0.08 W*1 in standby mode with fan stopped]
LCD panel*2:	
Panel size	0.74" (17.78 mm) diagonally
Aspect ratio	16:9 aspect ratio
Display method	Transparent LCD panel (x 3, R/G/B)
Drive method	Active matrix
Pixels	2,073,600 (1,920 x 1,080) x 3, total of 6,220,800 pixels
Lens	Powered zoom [2x]/powered focus, F 1.9-3.2, f 22.4 mm-44.8 mm
Lamp*3	170 W UHM lamp
Brightness*4	1,600 lumens*5
Contrast*4	100,000:1*5 [full on/full off]
YPbPr signal compatibility	480i (525i), 480p (525p), 576i (625i), 576p (625p), 720 (750)/50p, 720 (750)/60p, 1,080 (1,125)/24p, 1,080 (1,125)/50i, 1,080 (1,125)/50p, 1,080 (1,125)/60i, 1,080 (1,125)/60p
Color system	PAL, PAL-M, PAL-N, PAL 60, SECAM, NTSC, NTSC 4.43,
Optical axis shift*6	Horizontal: ±40% and vertical: ±100%
Keystone correction range	Vertical: approx. ±30°
Terminals	
HDMI IN	HDMI connector x 3, HDMI™ [Deep Color, x.v.Color™*7, CEC*8], HDCP compliant, supports HDAVI Control Version 4
COMPUTER IN	D-sub HD 15-pin (female) x 1
COMPONENT IN	RCA pin (Y, Pb/Cb, Pr/Cr) x 1
TRIGGER IN/OUT	M3 x 2 (input/output selectable)
S-VIDEO IN	Mini DIN 4-pin x 1
VIDEO IN	RCA pin x 1
SERIAL	D-sub 9-pin x 1 [RS-232C based]
Dimensions*9 (W x H x D)	460 x 130 x 300 mm (18-1/8" x 5-1/8" x 11-25/32")
Weight*10	Approx. 7.3 kg [16.1 lbs.]
Operating environment	Temperature: 0°-40°C [32°-104°F], Humidity: 20%-80% [no condensation]
Supplied accessories	Power cord, Wireless remote control unit, Batteries for remote control (AA type x 2)
Optional accessories	
ET-LAE4000	Replacement lamp unit
ET-PKE2000	Ceiling mount bracket for high ceilings
ET-PKE1000S	Ceiling mount bracket for low ceilings
ET-PCE2000	Cable cover

*1 Up to 220 V. *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 designed to provide one of the finest possible images. 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 Measurement, measuring conditions, and method of notation all comply with ISO 21118 international standards. *5 In dynamic mode, with dynamic iris on. *6 Shift range is limited during simultaneous horizontal and vertical shifting.
 *7 Effective in Colour 1 image mode. *8 CEC is an abbreviation for Consumer Electronics Control. Operation may not be possible with some connected equipment or settings. *9 Protruding parts are not included. *10 Average value. May differ depending on models.

Image size/projection distance

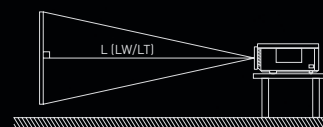
Aspect ratio 16:9

Projection size (16:9)	Projection distance (L)	
	Diagonal length	Min (Wide) / Max (Telephoto)
1.02 m / 40"	1.2 m / 3'11"	2.3 m / 7'9"
1.52 m / 60"	1.8 m / 5'10"	3.5 m / 11'8"
2.03 m / 80"	2.4 m / 7'10"	4.7 m / 15'8"
2.54 m / 100"	3.0 m / 9'10"	5.9 m / 19'7"
3.05 m / 120"	3.6 m / 11'10"	7.1 m / 23'7"
3.81 m / 150"	4.5 m / 14'9"	9.0 m / 29'6"
5.08 m / 200"	6.1 m / 19'9"	12.0 m / 39'5"
6.35 m / 250"	7.6 m / 24'8"	15.0 m / 49'4"
7.62 m / 300"	9.1 m / 29'8"	18.0 m / 59'3"

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 (2.35:1)	Projection distance (L)	
	Diagonal length	Min (Wide) / Max (Telephoto)
1.02 m / 40"	1.3 m / 4'1"	- / -
1.52 m / 60"	1.9 m / 6'2"	2.8 m / 9'3"
2.03 m / 80"	2.6 m / 8'3"	3.8 m / 12'5"
2.54 m / 100"	3.2 m / 10'5"	4.7 m / 15'7"
3.05 m / 120"	3.8 m / 12'6"	5.7 m / 18'9"
3.81 m / 150"	4.8 m / 15'7"	7.1 m / 23'6"
5.08 m / 200"	6.4 m / 20'10"	9.5 m / 31'5"
6.35 m / 250"	8.0 m / 26'1"	12.0 m / 39'4"
7.62 m / 300"	9.6 m / 31'4"	14.4 m / 47'3"



For detailed explanation of features please visit our Projector Global Web Site

<http://panasonic.net/avc/projector>

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All information included here is valid as of October 2009.