EPSON
EXCEED YOUR VISION

Multimedia Projectors

Technical Brief

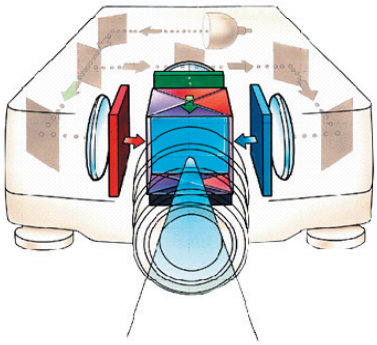
This technical brief provides detailed information on the image quality, performance, and versatility of Epson projectors.

Superior Brightness

All Epson multimedia projectors include Epson's integrated 3LCD prism technology. This technology is centered on Epson's patented optical engine.

The Epson 3LCD technology delivers brighter, more natural images and smoother, sharper video playback. Images are crisp and artifact-free with:

- Incredible clarity
- Exceptional definition
- Amazing details



Three-panel design

Advantages of the Epson 3LCD engine are:

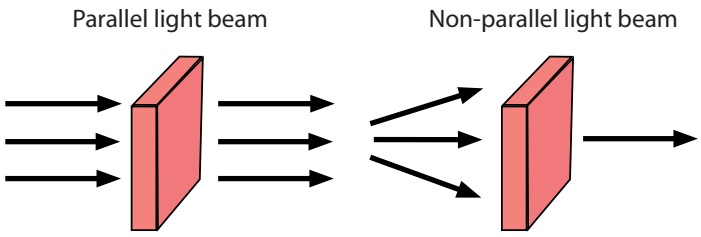
- Solid-state optical engine—no moving parts and no spinning color wheel.
- Full-time-color digital image—no spinning color wheel; projected images replicate color fidelity accurately.
- High efficiency—3LCD projectors generally run cooler than DLP projectors.

The Epson engine includes 3-panel Poly-silicon TFT LCD's:

- Size ranging from 1.32 inches to 0.5 inches.
- Resolutions range from SVGA to SXGA.

Improvements in the precision of this LCD structure has allowed Epson projectors to reach a superior level of brightness with a combination of these five technologies, included in most Epson projectors:

1. **UHE lamp:** The long-life Ultra High Efficiency lamp uses a shorter arc length. This shorter length is the primary factor in achieving high efficiency.
2. **Polarization conversion:** Epson's technology has improved the amount of parallel light that moves through the LCD panels. More light passes through each LCD because it is polarized without a filter.

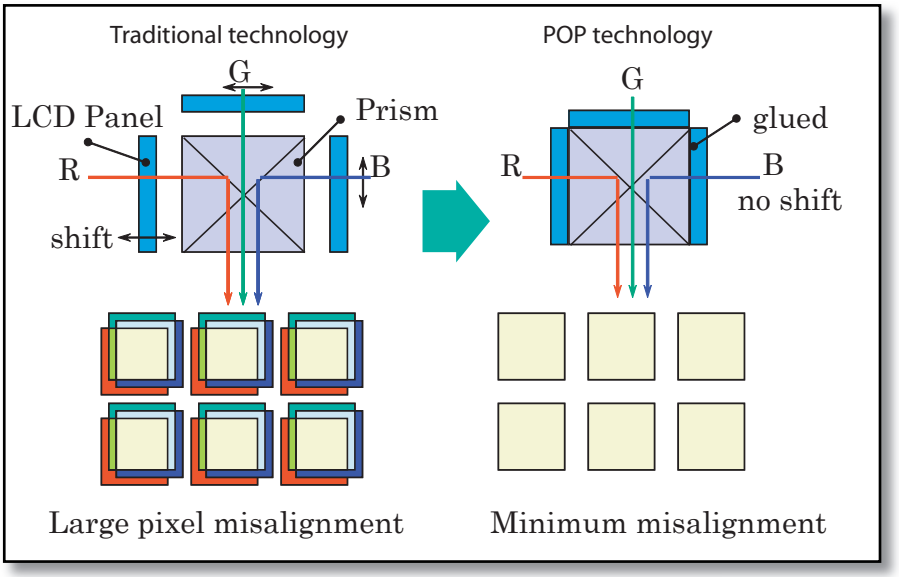


3. **High-Aperture LCD panels:** The Ultra-High Aperture (UHA) panel has increased the aperture ratio which allows more light through the lens. Epson produces high aperture LCDs, which are more transmissive.
4. **Micro Lens Array:** MLA is a layer of the LCD composed of quartz crystal lenses. Each pixel has a dedicated lens that focuses and maximizes the throughput of light from the lamp. MLA allows more light to pass through each pixel. (Not included on all Epson projectors.)
5. **"Metal Sandwich" technology:** A light shield of metal between the pixels blocks the light leakage. Cross-talk between pixels is reduced, resulting in clear, crisp images. (Not included in all Epson projectors.)

Image Clarity

Epson projectors produce astonishingly clear, sharp images with a combination of these three technologies:

1. **High illumination ratios:** The illumination ratio measures the relationship of the darkest spot (the corner) to the brightest spot on the screen (usually the center). The higher the ratio, the more uniform the brightness.
2. **High contrast ratios:** Contrast ratio measures the difference between the light and dark areas of the image. The higher the ratio (up to a certain point) the sharper, more colorful, and more lifelike the images appear.
3. **Panel on Prism (POP):** This technology allows little or no shift between the LCD panels and the prism, which keeps the pixel alignment precise and the image sharp and clear.

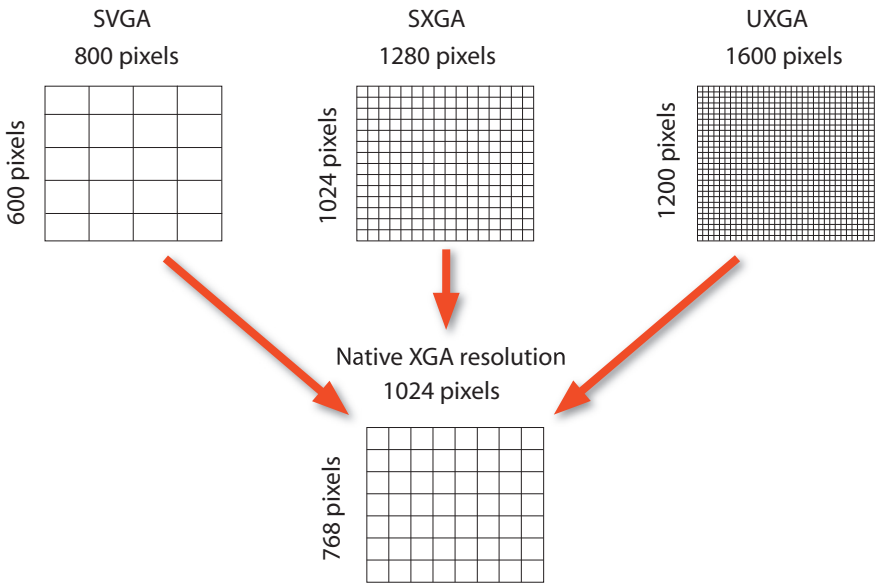


Epson SizeWise™ resizing technology

Epson resizing technology supports resolutions from workstations and notebook computers with:

- Clear, sharp text
- Virtually no picture-content loss
- Graphics which maintain their integrity
- Power to handle spreadsheet gridlines and small fonts from any video standard.

Epson projectors offer different levels of SizeWise technology, depending on the projector's native resolution.

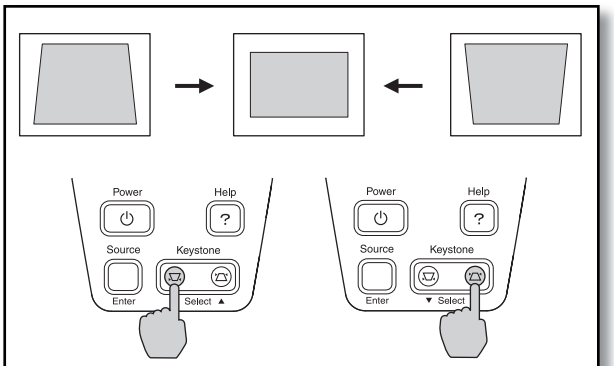


Keystone Correction and Lens Shift

Keystone Correction—

Epson projectors provide keystone correction, either manual or automatic, which allows you to correct the "square" of the image while maintaining the correct aspect ratio. Many Epson projectors offer both vertical and horizontal keystone correction that corrects for projector placement below, above, and to the right or left of the screen.

- If you are unable to set up your projector so the lens is aligned with the bottom and/or center of the screen, the image will not be square.
- Manual keystone correction allows you to adjust the image shape by pushing the keystone buttons on the projector.
- Automatic keystone angle adjustment is triggered by a movement of the projector greater than two degrees. The horizontal component of the acceleration is measured, and the new angle is calculated. The technology used is similar to the sensor technology in car air bags.



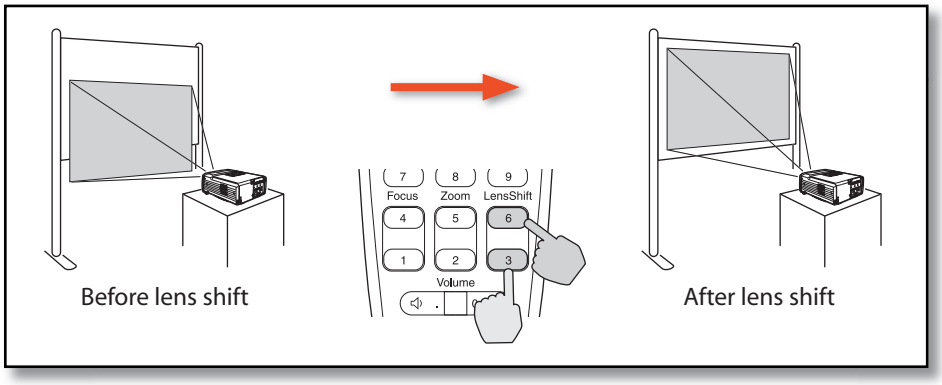
Vertical manual keystone correction

Vertical automatic keystone correction

When you lean the projector, the acceleration sensor is activated. *Gravity acceleration occurs.* *The keystone is corrected.*

Lens shift—

Some Epson projectors also offer a lens shift option that allows you to move the screen image up and down for better placement.

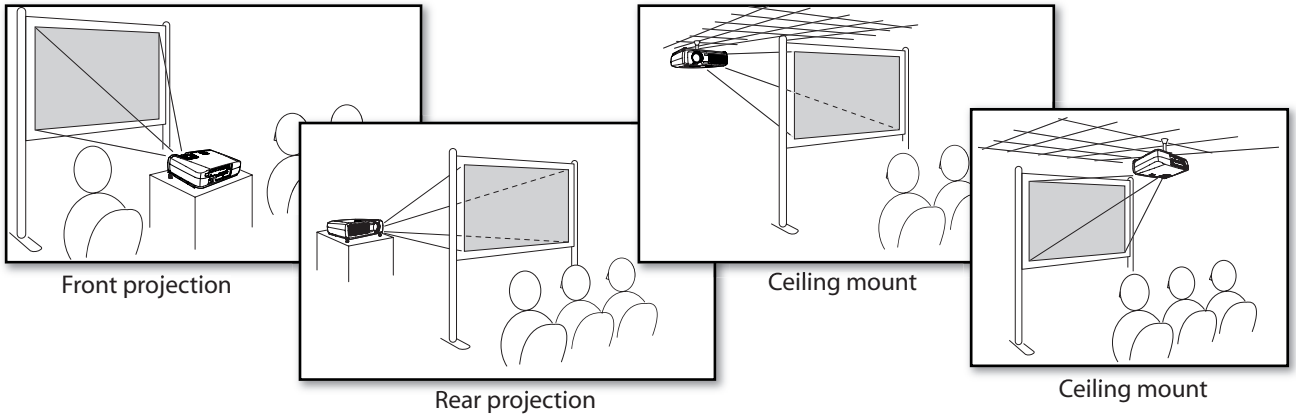


Before lens shift

After lens shift

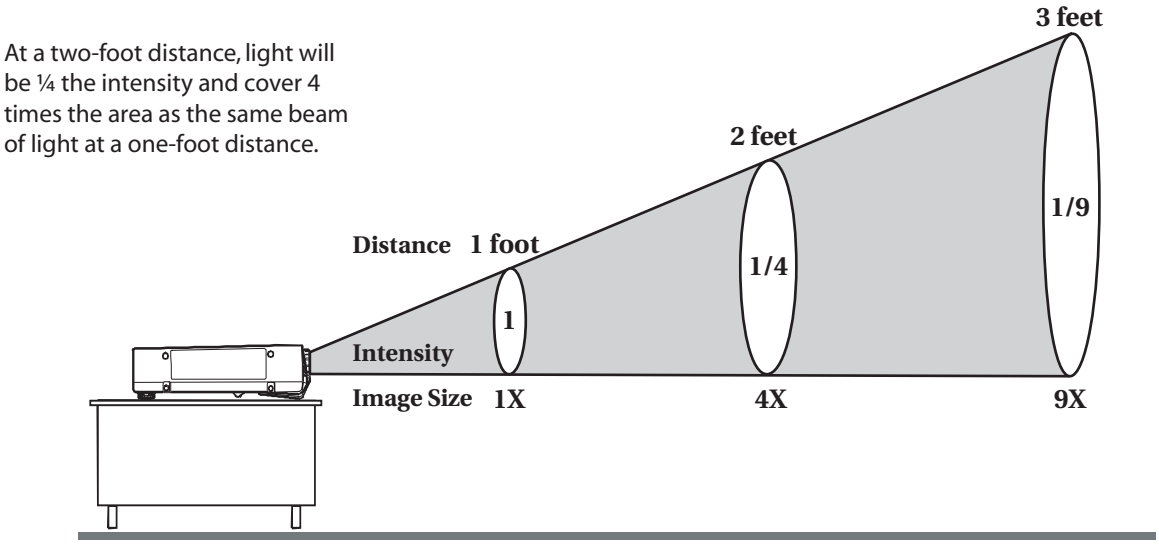
Flexible Installation

Epson PowerLite projectors can be installed in a variety of ways:



Throw Distance

A projector's throw distance is a calculation that gives you the optimum distance for placing your projector. The basic rule is that light intensity decreases in inverse proportion to the square of the distance.



Screen Size — Once you know your room size and layout, you will need to know the size of the screen. If the room you are presenting in has a built-in screen, measure the dimensions of the screen, including the diagonal (corner to corner). This will determine where to postion your projector to adequately fill the screen. If the room layout does not accommodate the throw distance you need, one alternative is to use a projector with a replaceable lens that will provide either a longer or shorter throw distance than the standard lens allows.

Throw distance — If you know the throw distance you require (based on the room layout) and what the projector can handle, you can easily calculate the optimal screen size. Basically, the longer your throw distance, the larger your screen size will be.

Aspect Ratio

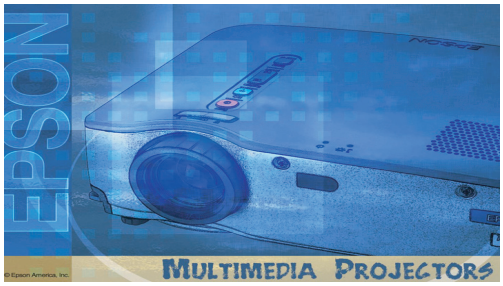
Projectors can have different native aspect ratios (ratio of the width of the image to the height of the image).

- Typical multimedia projectors have an aspect ratio of 4:3, meaning that an image that is four feet wide would be three feet tall.
- Home theater projectors offer a 16:9 aspect ratio, which means that a sixteen-foot-wide image would be nine feet tall.

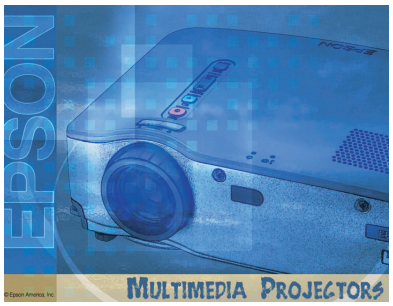
Can an typical XGA multimedia projector with an aspect ratio of 4:3 show a movie with an aspect ratio of 16:9? Yes, but...

- An XGA projector (1024 x 768) can only use 75% of its pixels to produce a 16:9 image because the rest of the pixels are in the black bars at the top and bottom of the screen. To project a wide-format image, the standard XGA projector uses a total of about 589,000 pixels versus a WXGA image that uses about 921,000 pixels.

WXGA home theater projector aspect ratio—16:9



Typical multimedia projector aspect ratio—4:3



EasyMP

Some Epson projectors offer EasyMP which allows a variety of ways to project wirelessly.

- You can use USB memory or Compact Flash storage devices to project your presentation without carrying a PC
- High-speed wireless connection is compatible with IEEE 802.a/b/g
- Send MPEG2 files from a computer to the projector wirelessly
- Multi-screen presentations allow wireless networking of up to 4 projectors with just one computer

Network Functionality

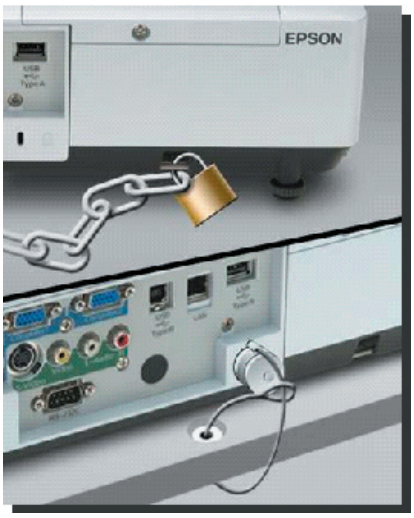
Some Epson PowerLite projectors have an Ethernet/RJ-45 connector which allows the same functionality as the wireless LAN connection. The advantages of this connection are:

- Customers can keep an eye on multiple projectors simultaneously
- Easily turn the power on and off
- Control what input device is to be projected
- Be alerted via email about any problems

Advanced Security

Many Epson PowerLite projectors offer these security features:

- Support of latest wireless security encryptions
- Password Protection
  - Power-On protection — prompts for a password when the projector is started up.
  - User's Logo protection — prompts for a password before the owner's logo can be changed.
- Key lock — locks all of the main control panel's buttons (but leaves the remote control fully functional)
- Kensington lock and security bar — security bar will damage the projector if broken



Presentation Features

Many Epson PowerLite projectors offer these presentation features:

- Eight Color Modes — preset settings allows you to select the mode that best suits your viewing environment.
- A/V Mute Slide — A built-in shutter that, when closed, automatically engages the A/V Mute mode and lowers the fan noise.