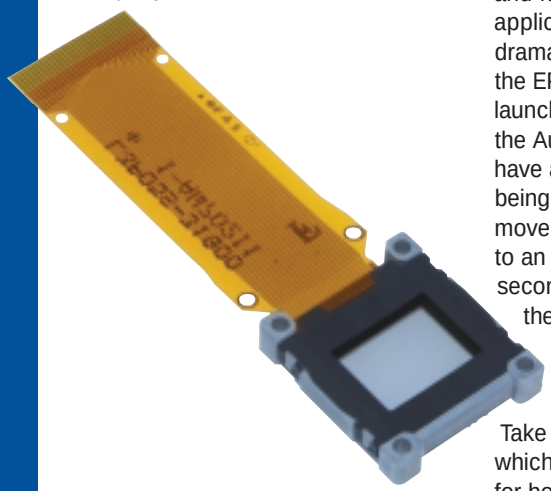
DIGITAL PROJECTORS

Before You Buy That Projector…

Over the past several years, digital projectors have been subject to the same influences that have effected virtually everything else in digital products – constant improvement in technologies and features coupled with an almost parallel decrease in the price. When this occurred with personal computers, the rate of adoption skyrocketed; and it is now precisely what we are starting to see with projectors.



The LCD panel — providing vastly superior colour fidelity

When you think back only a few years ago, even though everyone was looking to buy a PC, there were many rushing in with little understanding of what they were actually buying. For those who had even a fair knowledge of computers, barely a week went by without someone asking them what was the difference between a hard drive and a floppy drive, what were these kilobyte and megabyte things, or what was meant by a modem's baud rate. We are now witnessing a similar trend with projectors.

But why?
The first thing we should appreciate is that as projectors have improved in technology and features, their versatility and application have increased dramatically. Take, for example, the EPSON EMP S1 projector launched during 2003 onto the Australian market. Here we have a projector that apart from being extremely easy to use, can move from a business machine to an entertainment device in seconds; and it's the latter of these that is really pushing the projector adoption rate ever upward.

Take a look for a minute at that which is set to become the norm for home video entertainment – video cassette recorder/player, DVD player, cable/satellite and free-to-air television broadcasting, digital photograph slide shows, sophisticated gaming consoles and, of course, the personal computer. Yes, we have omitted the television, but for good reason.

As more and more of the abovementioned home video entertainment device or services are purchased by people, the quality of the television itself has become one of the major sticking features. We have all these great sources of entertainment, but to go out and purchase a "big screen" to really give it impact can cost up to and beyond ten thousand dollars.

On the other hand, a high quality projector can be purchased for a fraction of the price. This is precisely one of the main reasons for the uptake. They're bigger in screen size, smaller in physical size and cost less.

But…before you buy that projector, it helps to understand what the new wave in specifications is all about. In particular, contrast ratio, keystone correction and luminance rating.

Brightness At A Glance – ANSI Lumens

Luminance is what the human eye sees and is defined as the amount of light reflected off a surface.

In ancient times, in order to measure brightness, the candle was a standard of

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measurement (the amount of light a candle projects in any one direction) and a lumen was defined as one candle per square metre. Since candlelight can vary, a more scientific standard of measurement needed to be defined.

The American National Standards Institute (ANSI) developed a stringent set of light measuring rules that more precisely defined the amount of luminance given off by a projector.

The ANSI rating also dictates that the projected image must be measured at nine points on the screen and the final ANSI rating of any given projector is the average of these nine measured points. To provide you with a "quick glance" guide to a projector's ANSI lumens and its best use, refer to the table at the bottom of this page.

When it comes to brightness, especially in projectors that will be used in a home theatre environment, there is a very important point to consider – bright is not necessarily better.

An important point to consider when talking about projectors is that there are two primary types on the market – Digital Light Processing (DLP) and Liquid Crystal Display (LCD). Naturally there are advocates for both types, but when it comes to colour control and fidelity, LCD really does have a major advantage. By using three separate LCD panels – one each for red, green and blue – each can be controlled independently for brightness and contrast, leading to vastly superior colour fidelity.

A typical long-life lamp as used in EPSON projectors

Clearly Better From Any Angle – Keystone Correction

Keystone correction essentially corrects trapezoidal distortion. When the projector is not positioned at the centre of the screen, the image is projected at an angle and may appear distorted. Depending on the projector you purchase, you will have anywhere up to a 30 degree vertical keystone correction capability.

In some of the higher end models the projector can automatically detect and adjust keystoning, although in most projectors for the home and small business environments, a few button presses on the remote control is all that's required.

Black or White – Contrast Ratio

Contrast Ratio is the ratio between white and black. The larger the contrast ratio the greater the ability of a projector to show subtle colour details and tolerate extraneous room light. Contrast measures the ratio of the light output of an all-white image and the light output of an all-black image.

LCD projector contrast ratios range from 300 to 1200. When comparing the contrast ratio of projectors, make sure you are comparing the same type of contrast. Users quite often focus on the projector's ANSI lumens ratings rather than consider how everything actually works together to provide the best possible colour reproduction. Contrast ratio is equally as important as ANSI lumens and with LCD projectors, because of the ability to control all three LCD panels independently (see ANSI Lumens), do not require an enormously bright lamp to generate superior contrast ratio and colour reproduction.

Caveat Emptor – Buyer Beware

Just as the early days of the personal computer saw a myriad of vendors appear almost overnight – and just as suddenly disappear – much the same is set to happen in the world of projectors. If we're to learn from history, then look to those early PC days and take a lesson from them.

There are a few companies, such as EPSON, that have been mainstays in the worldwide projector market; leading the way with technology innovations and setting the groundwork for others to follow. But if history is to repeat itself – as it does so often – then many of those followers will undoubtedly fall by the wayside, leaving their customers with little if any support or access to repair facilities.

The best advice we can give you is to understand what you're buying, which is where we set out with this article. It's also important that when you're setting out to purchase a projector you take the time to see them in action. Specifications are one thing, but actually seeing the projector in action should always be a top priority.

Projectors with:	Generally work best in these environments:
Up to 1,400 ANSI lumens	Normal business-sized conference rooms, classrooms and living rooms Small-to-medium sized audiences Reduced lighting
1,400 to 2,000 or more ANSI lumens	Larger conference rooms or classrooms Normal room lighting
2,000 or more ANSI lumens	Large venues, including conference rooms and auditoriums Most lighting conditions