

Frequently Asked Questions / Glossary of Projector Terms

We have put this document together to help you make the right decision about purchasing a Projector for your classroom. If you want any additional information please contact us FREE on 1800 607 202 or email info@ideal-resources.com.au or visit our website www.ideal-resources.com.au

Brightness

There are many projectors available with many brightness levels and other specs that can really be confusing. Brightness is measured in ANSI Lumens (American National Standards Institute): the brighter the projector, the higher the ANSI lumen rating. One of the best methods of thinning out their numbers is to decide what use you will need the projector for:

- **Home theatre** projectors will rarely exceed 1100 Lumens brightness. When your watching a movie you will most likely dim most of the light from the room, so a bright projector is not only unnecessary it will be overpowering in a dim room. Home theatre projectors generally focus on colouring and high contrast more to give the very best of images.
 - **Presentations in a dim room** allows you to decide from projectors around the 1200- 1600 lumen brightness level. Presentations require people to be able to read from charts sheets and other small texts and therefore you will need a little more brightness than in home theatre.
 - **Presentations in a lit room** will require from 1700 to 2400 Lumens brightness. This will ensure that the image is visible on the wall/screen in most lit rooms. Just remember the larger the screen and the brighter the room the brighter the projector will have to be.
 - **Larger venues presentations** with a lit room/hall. In this situation I would recommend 2500 and above. The larger the screen has to be and the more light that comes in the brighter the projector will have to be.
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DLP VS LCD Technology

The Technology



In an LCD (liquid-crystal display) projector light from a single lamp is directed to a trio of miniature LCD panels that process the red, green, and blue light components separately. The pixels in each panel contain a liquid-crystal material that regulates the amount of light passing through them by twisting and untwisting in response to electrical voltages. After exiting the LCD panels, the three colored beams are combined by a prism and projected onto the screen by a lens.



Most DLP (Digital Light Processing) projectors have a single chip and a spinning colour wheel that chops white light from a lamp into a sequence of red, green, and blue beams. The beams are reflected from the chip which contains hundreds of thousands of tiny mirrors. These mirrors pivot thousands of times a second to control the brightness of the pixels and are synchronized to display a red, green, or blue projection that the eye blends into a full-color image.

The Difference

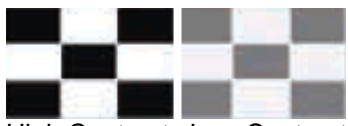
LCD projectors have historically had three main advantages over DLP. They produce more accurate colors (due to the three separate LCD panels), they produce a slightly sharper image (although this is almost unnoticeable when watching movies) and they are more light-efficient, which means they produce brighter images using less power.

However, LCD projectors also have some disadvantages, although as the technology improves these are becoming less and less relevant. The first of these is pixilation, or what's known as the screen door effect. This means that sometimes you can see the individual pixels and it looks as though you are viewing the image through a screen door. The second historic disadvantage of LCD v DLP is that LCD doesn't produce absolute black, which means that contrast is less than you would get with DLP.

However, the advent of higher resolution LCD projectors (particularly HD-ready projectors which have a horizontal resolution of 768 pixels or greater) means that pixilation is less of a problem than it used to be. The improved ability of LCD's to produce high-contrast images are also allowing them to be taken more seriously by home theater enthusiasts.

The key advantages DLP has in the LCD v DLP debate is that DLP projectors tend to be smaller and lighter, have better contrast, and don't suffer the same pixilation problems as LCD projectors. There is one problem that some users report with DLP projectors although it appears to only affect a very small number of people. Because of the way DLP works, at any given instant, the image on screen is either red, green, or blue. However, the images change so quickly, that the human eye doesn't detect this and your brain puts the red, green and blue images together to make a complete frame of video. Unfortunately, some people can see the individual colour's when they move their eyes rapidly across the screen. However, technology has improved significantly with the introduction of six-color wheels and faster rotation speeds. The rainbow effect should be a problem for even fewer people. The best way to find out if you're affected is to try out a DLP projector, perhaps by hiring one, before you buy.

Contrast



A term defining how far the whitest whites are from the blackest blacks. If the peak white value is significantly different than the peak black value the signal is said to have high contrast resulting in well defined sharp colour's. The Higher the better basically. A contrast of 400:1 means that the blackest black on the image will be 400 times darker than the whitest white.

The contrast ratio is an important point to consider should you be looking for a home theatre projector or when you wish to project in a darkened room. Brighter Rooms cancel out much of the contrast produced by the projector.

Noise

The noise rating of each projector is also an important consideration. Basically every projector has a very hot lamp providing the light for the picture. The projector is equipped with fans that are designed to cool the lamp and prolong its life. The fans will be quieter on Economic mode as you are basically turning down the lamps output and therefore the heat produced. Generally anything below 30 dB is very quiet. Home theatre projectors in particular should be quiet as you don't want to be sitting in suspense at a quiet point in the movie and hear an overwhelming buzzing.

When buying a portable projector the noise level is generally higher; the fans will have to be smaller and spin at a faster rate to provide the same amount of cooling.

Projector noise ranges form 25dB up to 40dB.

Throw Distance and Projection Size

Image Size: 40 - 300inches

Throw Distance: 1.5 - 10Metres

What does that mean? All projectors have a lens to focus the image. When moving the projector back from the wall/screen you will need to make slight adjustments to keep the image in focus (not blurring out). This adjustment does have a limit. In the above specifications you will only be able to focus the image at a distance of 1.5 to 10Metres. Having your projector closer or further away will result in a blurred image. At those distances the minimum image size is 40inches diagonal and the maximum is 300inches diagonal. The precise specification will vary with each projector, it is best to look into your required distance and size and buy a projector to suit.

Inputs

Many people do not really consider the importance of having the right inputs. You should pick a projector with the right connections for your equipment.

The hierarchy of video quality:

- - Digital video - DVI, FireWire or HDMI
- - Component video
- - S-video
- - Composite video

BNC (R/G/B/H/V)

(Bayonet-Neill-Concelman) - A not so common connector used to terminate coaxial cables. BNC is also referred to as Bayonet Network Connector



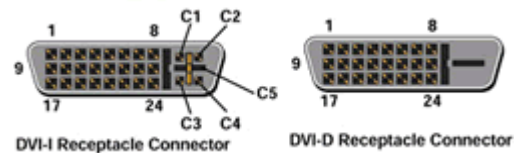
D-SUB 15 pin

Also called a D-connector, or a D-type connector. A type of connector commonly found on computers and data transmission devices, including SCSI devices and computer monitors. D-type connectors have a "D-shaped" angled housing, and have 9-, 15-, and 25-pin configurations



DVI

Digital Visual Interface. The DVI port provides a pure digital video signal to a digital flat-panel display or projector. Using a digital signal for the entire path maintains the image quality at the highest level, because the signal is not degraded as a result of a digital-to-analogue conversion.



RCA (Composite)

A common, standard connection method used to transmit analogue audio and video signals between devices. Commonly used on most receivers, televisions, satellite receivers, VCR's, game console systems and speakers.



RCA (Component)

The higher quality method of transmitting video signals, which operates by splitting up the red the green and the blue colours in the signal and then synchronizing them on the other end, making a clearer signal. Many projectors accept component through an adapter cable connecting directly into the 15pin D-sub.



S-Video

Small multi pin connector that carries separate brightness and colour signals from a source component like a DVD player or satellite receiver to a TV set. In the usual plastic form, these are difficult to orient properly when plugging them in, which is typical of connectors of DIN (Deutsche Industrie Normen) origin.



USB

This connection on projectors is used for two purposes:

1. Most commonly it is used as a feedback connection to the computer or laptop, allowing you to click next slide etc on the wireless projector remote and control the presentation.



2. In some cases it is used with PC FREE presentation projectors allowing you to plug a USB memory stick into the projector and it can project with no PC straight through the projector.

Stereo-mini jack

Much like the headphone connection on your walkman or ipod, the stereo mini jack is used to transmit audio into the projector.



D-sub 9pin (RS-232)

Most commonly it is used as a feedback connection to the computer or laptop, allowing you to click next slide etc on the wireless projector remote and control the presentation.

In Some cases it is used for diagnosis when servicing.



PC Card (PCMCIA)

Personal Computer Memory Card International Association. PCMCIA is an organization consisting of some 500 companies that has developed a standard for small, credit card-sized devices, called PC Cards. These cards in projector can be used to make the projector wireless, add a network port, or connect SD memory cards through to allow PC FREE presentations. (only in some projectors)



HDMI High-Definition Multimedia Interface

USB-like connection that can transmit both uncompressed digital audio and video signals while simultaneously adhering to the High-bandwidth Digital Content Protection (HDCP) standard.



RJ-45 (LAN Connection)

Some projectors allow you to connect to it through a normal network connection giving access to anyone on the network.



Wireless WIFI (802.11b/802.11g)

Some projectors come equipped with wireless connections. Allowing you to connect any PC and in some cases every PC to the projector. (some Panasonic's allow you to connect up to 16 PC's to their projectors splitting up the screen)



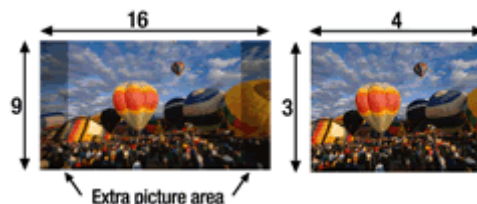
In some cases an upgrade module will have to be connected or WiFi card through PCMCIA. (not Mac compatible)

Resolution

The number of pixels a projector is capable of displaying. The resolution is described in terms of width x height. The most common resolutions are SVGA 800W x 600H & XGA 1024W x 768H. A higher resolution will result in a finer image. A projector with an XGA resolution usually costs more and in some circumstances may not be required. When the main use is going to be power point presentations you can easily get away with an SVGA resolution allowing you to save some money.

Aspect Ratio (standard/widescreen)

The standard proportion in width to height for a projector is 4:3, but some home theatre projectors have a wider format: 16:9 or 16:10, designed for viewing movies or HDTV in wide screen format.



Keystone

Projectors are a mobile device which can be placed in different angle to the projection surface. To compensate for the skewing of the image many projectors come with a keystone correction feature, allowing you to adjust the image back into a square. The most common type of keystone is vertical with some of the higher end projectors coming with both vertical and horizontal.



Lamp Life

A major concern of many projector buyers is the lamp life. Projector lamps are expensive items and while they differ from model to model they generally range from \$400-\$700. The majority of lamps last from 2000 hours to 3000 hours which means that on normal mode they will last 2000 hours and on economy mode (which switches the brightness down) it will extend its life to 3000 hours.

Some models offer a long lamp life of 4000 and in some cases even 5000 hours lamp life, making them a very good buy in the long run.

While 3000 hours may not sound like much but even under fairly heavy use it does tend to last quite a while:

e.g. A 3000 lamp used for 2 hours a day every day will last you about 4 years.



Extending Lamp Life

When installing plug in bulbs, be sure the lamps are seated completely. The tendency is to stop at the first sign of resistance. Continue to apply force at the base of the lamp until you are sure the lamp is secure.

Switching Projector off

Always switch off using the remote control and not by disconnecting the power, the projector will invariably go into a cool down mode where the image is turned off and the fan accelerates to cool the lamp in a controlled manner. The temperature of an operating lamp is many 1,000's of degrees. Disconnecting the power to the projector prior to the above process causes the glass in the lamp to cool unevenly and will result in a stress fracture and early lamp failure.

Shock and Vibration

Lamp failure can be due to mechanical shock. A hot lamp filament is very fragile, you should always make sure that the unit is turned off and the lamp is cool before moving the unit.

Economy mode

If your projector is equipped with a "high/low lamp" switch you can extend your average lamp life by using the "low lamp" position whenever possible.