

Choosing a Digital Projector

Technology

There are two mainstream competing technologies; DLP and LCD. DLP has the benefit of excellent contrast, which produces really good blacks if the room is dark enough. On the downside, some people can see rainbow colours when their eyes scan the projected image. LCD colours are arguably more naturalistic and accurate, but LCD can produce a visible grid on the screen. Both technologies can produce good images and developments are continually improving the results that they can achieve, so there is no clear winner and both have their advocates. LCOS technology (found in Canon XEED projectors) gives excellent quality, but at a higher price.

Image Projection Size

The minimum projection size should be XGA (1024x768 pixels), and this is sufficient to produce images of high quality and detail, given the brightness, contrast and viewing distances involved. The next higher projection size to consider is SXGA+ (1400x1050 pixels), which is an advantage if the budget is sufficient. Full-HD projectors (1920x1080 pixels) are now excellent value: the 1080 height allows SXGA+ images to be shown within the display space.

In any case, you need a laptop or computer capable of displaying **at or above** your chosen projection size.

Considering the relative costs of a projector and laptop with the screen resolution for SXGA+/Full-HD versus the equivalent for XGA, that makes the lowest cost of an XGA projection system around half the lowest cost cost of an SXGA+/Full-HD system.

Starting 2016, the RPS has increased its maximum size for distinctions to UHD (3840x2160 pixels). Starting in 2017, the PAGB has increase its maximum projection size to UXGA (1600x1200 pixels). There is no need for Clubs to adopt these larger sizes, but it will be worth considering how members may be asked to reprovide their image files for external events.

Screen Format

Projectors are mostly either 4:3 or widescreen 16:9. Compact digital cameras are usually 4:3 but digital SLRs follow the traditional 35mm film format of 3:2. An exact match between all images and the projector is therefore impossible but the main recommendation would be to avoid using the full width of widescreen format for still images, because images in portrait format are disadvantaged in terms of on-screen size.

Zoom Lens

Most projectors have a zoom lens to make fine adjustments to the image size without moving the projector. These can be quite limited in range. Many projectors are designed for office use and have a short-throw wide-angle lens. This will result in the projector being located more closely to the screen than was the case with traditional 35mm projectors. Digital projectors are available with interchangeable lenses but these are more expensive.

Contrast Ratio

The minimum contrast ratio should be 600:1 but 1000:1 or greater is better. Low contrast will result in disappointing blacks, irrespective of the quality of the room blackout.

Brightness

This depends upon the size of the room, blackout conditions, screen type and personal preferences but a projector of around 3000 lumens is likely to be a safe choice.

Other Features

Image flipping for ceiling mounting or back projection eg, for exhibitions, are usual. A quiet fan, although with reduced illumination, is a benefit. While some form of digital keystone correction is usually built-in, it is preferable to position the projector correctly rather than use this feature as it has a detrimental impact on image quality. Portability is also likely to be important unless the projector can be securely stored nearby to the clubroom.

Screen

A plain white screen is best, and this could be a good opportunity to consider replacing an old screen with a modern one.

Colour Management

It is essential to have the projector/computer combination properly calibrated to ensure that the system delivers accurate colours. In practice, this requires you to use the same computer and projector every time as the colour profile actually resides on the computer. If buying a calibration device, make sure it can work with projectors as well as with computer screens. Otherwise, a calibration service can be purchased. With typical use, the calibration should be repeated annually.

Procurement

Ideally, clubs should trial a short-list of projectors in their club rooms in front of some discerning members. Unfortunately it is very difficult to find a retailer who keeps many projectors in stock, let alone offers them for demonstration purposes. Otherwise, consider recommended makes from other clubs.

Other factors to consider in a procurement exercise are; computer or laptop (with screen pixel size **at or above** your projection pixel size), competition software, other software (eg Anti-Virus), colour profiling, carrying cases, projector stand and screen. You may also find that the equipment generates a resurgence of interest in audio-visuals in which case you may need to purchase suitable powered speakers. As the life of the projector bulb is measured in thousands of hours, it is likely to exceed the useful life of the projector. Bulbs do not usually fail prematurely and it is unnecessary to purchase a spare bulb.

Whichever projector and computer you decide upon, they will be unavailable within six months, but usable for years. In any case, the equipment will need require periodic maintenance and software upgrades so it is strongly recommended that funding is put aside annually for maintenance and eventual replacement.