

10 Top Tips when buying Projectors & Screens for Schools

In simple terms, a projector is a device which projects an image onto a surface. A projection screen is a surface specifically designed to be projected onto. Usually connected to a computer, projectors can have many applications in an education setting - especially when used with an interactive whiteboard (IWB) or visualiser.

Each projector will have its own list of specifications and features, some of which can be confusing if you haven't come across them before, so here's some top tips to help you understand the jargon and make the right choice when buying your projector:



1. Brightness

Usually the first consideration when buying a projector is brightness, measured in **ANSI lumens**. This value measures how the projector copes with light hitting the surface it is projecting onto. The more ANSI lumens, the brighter the image projected.

But this does not mean that more brightness is always a good thing. Looking directly into the beam of a projector can be damaging to the eyes, and this becomes more of a problem with brighter projectors.

Also, looking at a very bright image in a darkened room can cause eye strain, so if you will be using your projector in a darkened room this could be a consideration.

You might also find if you are projecting onto an IWB that it is quite a shiny surface, therefore it may reflect bright light from the projector resulting in an unwanted glare effect.

For most classroom installations, we recommend a projector with no more than 3500 lumens, in order to avoid the

issues mentioned above. How close to 3500 lumens depends on the lighting conditions, and how easily controlled they can be.

For example, in a school hall with a lot of ambient light which can't be blocked out, you might even want a projector with 4000 lumens or more.

2. Contrast Ratio

This value measures how well a projector can block out light from its own lamp, which it has to do to create dark colours. In other words, this value determines how black is black.

For education projectors, the average contrast ratio is around 2000:1 for LCD projectors and 4000:1 for DLP projectors - see below for an explanation of the difference between LCD and DLP projectors.

3. LCD vs. DLP

Projectors mainly use one of two different types of technology: **DLP (Digital Light Processing)** and **LCD (Liquid Crystal Display)**.

Until more recently, DLP projectors were usually both higher in quality and higher in price when compared with LCD projectors, but recent advances in both technologies means that neither is necessarily better or more expensive than the other.

In broad terms, DLP projectors produce smoother images for video, can achieve higher contrast and are generally smaller, and therefore more portable, than LCD projectors.

On the other hand, LCD projectors generally produce brighter, sharper, more vibrant images; especially in images with a lot of colour.

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In summary then, you shouldn't worry too much about choosing one particular technology over the other, as both do have some advantages but neither has enough to be definitively the best technology at present.

4. Resolutions

You will see projectors advertised as being XGA, SXGA, WXGA and so on. These acronyms are essentially shorthand for the native resolutions the projector can output:

Standard (4:3) resolutions

Resolution	Horizontal Pixels	Vertical Pixels
XGA	1024	768
SXGA	1280	1024
SXGA+	1400	1050
UXGA	1600	1200

Widescreen (16:9) resolutions

Resolution	Aspect Ratio	Horizontal Pixels	Vertical Pixels
WXGA (720p)	16:9	1280	720
Full HD (1080p)	16:9	1920	1080
WUXGA (16:10)	16:10	1920	1200

It is worth remembering that these are only the *native* (or default) resolutions, meaning they will not be the only resolutions the projector can actually display at.

What is important to consider is the device you'll be using with your projector. If you had a visualiser connected to your projector for example, you would achieve best results they both had the same native resolution.

Also, you should consider whether or not the screen you will be projecting on to is standard (4:3) or widescreen (16:9/16:10).

It's possible to project an image in 4:3 on to a 16:9 screen and vice versa, but in both cases it would result in some space on the screen going to waste. It's much better to ensure that your screen's aspect ratio matches that of your projector.

5. Lens Types

Every projector needs a lens in order to display an image, but the type of lens used is key to how the image is displayed in regards to the distance between the projector and the screen.

If you look at the technical specifications of a projector, you will see a number such as '1-2:1' for the lens. This number refers to the distance required to project a certain image size; in this example, the projector would need to be mounted 1-2 metres back from the screen to display a 1 metre image.

In most classrooms, a projector with a short throw lens is recommended. This type of lens allows the projector to be closer to the screen than a normal lens would, whilst still projecting the image in full so it fills the screen.

If you were purchasing a projector for use in a school hall, you might want the projector to be more out of the way, in which case a long throw lens would be preferable to allow the projector to be far back from the screen.

When purchasing a projector, you should consider the distance you will need between the projector and the screen, and ensure that the projector's lens can operate at that distance.

6. Connectivity

The type of input connections your projector has is an important consideration, and again ties in with any other devices you may be using with your projector.

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Two very common connection types you will see are VGA and DVI. Both connection types carry a video signal from one device to another, and you will find a VGA port on any modern computer; DVI ports are becoming increasingly common as well.

In terms of quality, DVI is preferable to VGA, so if your projector and any devices you want to connect to it all have DVI ports then it's best to use them. However, the great thing about VGA is that it is still good quality and it's very common; most projectors will have a VGA connection.

Projectors often include other connection types such as S-Video, RCA, SCART or HDMI, but these are less commonly used for connecting computers or visualisers to a projector. Some also have an Ethernet port which allows the projector to be controlled across your school network.

Aside from input connections, projectors will also have output connections such as 3.5mm jacks for connection to an audio device.



An example of the various connection types found on a projector

7. Advanced Features

Many projectors have advanced features which you won't find listed in the technical specifications.

One of the most common and most useful is keystone correction. Keystoning happens when the projector is either too high or too low to project towards the centre of the screen. It will often make the image appear slanted at the sides, and therefore not square as it should be. Keystone correction fixes this by digitally altering the image so it displays correctly, with no slanting.

Another advanced feature found more on high end projectors is lens shift. Lens shift is similar to keystone correction, however it can also be used to move the placement of the image on screen without actually moving the projector itself.

8. Lamp Life

The lamp inside every projector will unfortunately need replacing after a certain length of time, however the lamp life can vary between different projectors.

How often you use the projector will be an important factor in deciding whether you need one with a long lamp life or not. However, with replacement lamps costing £120+ (depending on the projector), it could be worth paying extra for a longer lamp life.

9. Screen Type

Whilst you can simply project on to a wall, it's always better to pair a projector with the right projection screen (or an IWB). There are three main types of projector screens, each of which are set up in different ways.

Manual projector screens can be wall or ceiling mounted, and are designed to retract into their casing when not in use. These screens must be pulled down or rolled up manually. They are easy to install and use, plus they are generally inexpensive.

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Electric projector screens are similar to manual projector screens, the key difference being that they contain an electric motor used to roll down and retract the screen from or into its casing. Some are operated via a switch, other more advanced models are operated via remote control. Some even connect to the projector itself and automatically roll down or retract when the projector is turned on or off.

Portable projector screens, unlike their manual and electric counterparts, are not fixed and can be transported and set up much more easily. There are three main types, the first of which is a floor screen which is housed in a floor case and can be pulled up to the desired viewing height. Another option is the tripod screen, which has a screen housed in a case supported by three legs. Lastly, there are tabletop screens which are designed for smaller presentations.

If your screen will always be used in the same place, you're probably best looking for a manual screen (or electric if you want to spend a bit more). Otherwise, it's worth looking at portable screens, as there's plenty of options there.

10. **Warranty**

Any projector you buy should at least come with a 12 month manufacturer warranty, but if something goes wrong within those 12 months you're likely looking at least a week before the projector is repaired and sent back to you. If you're outside those 12 months, you'll be faced with the cost of buying a replacement.

However, many projectors come with additional warranties as standard. One such type of warranty is a de-install/reinstall warranty, which means that if your projector develops a fault within the warranty period, you will be loaned a replacement model whilst it's being fixed.

Overall Summary - Top Tips

1. **Brightness:** For most classroom installations, a projector with 3500 lumens or less is recommended
2. **Contrast Ratio:** For classroom projectors, the average contrast ratio for is 2000:1 for LCD and 4000:1 for DLP
3. **LCD vs. DLP:** Both technologies have their pros and cons, but neither is definitively the best
4. **Resolutions:** Try and make sure any devices connected to your projector share the same native resolution and aspect ratio
5. **Lens Types:** It is essential to know how close your projector will be to the surface it projects on to, as the lens will work best within a certain distance
6. **Connectivity:** Consider which devices you will be connecting to your projector
7. **Advanced Features:** Keystone correction and other advanced features can be very useful
8. **Lamp Life:** A long lamp life is always preferable
9. **Screen Type:** Consider if your screen will always be in one place, or if it will need to be portable
10. **Warranty:** Look for a projector with an extended warranty, such as a de-install/re-install warranty

Projectors for Schools

Our hand-picked range of projectors from Eiki are great for any classroom

Below you'll find a comparison table for the projectors we sell, and information on projection screens and projector brackets which we also supply.



Eiki LC-XBM Projectors



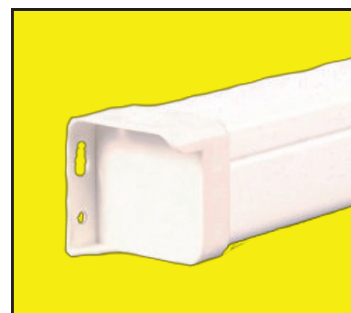
Product	Eiki LC-XBM21	Eiki LC-XBM26	Eiki LC-XBM31
Native Resolution	XGA LCD		
ANSI Lumens	2100	2600	3000
Contrast Ratio	2000:1		
Lens	1.62-1.92:1		1.43-1.72:1
Input Connections	VGA x2 S-Video RCA 3.5mm audio in		
Output Connections	VGA 3.5mm audio out		
Lamp Life	6000 Hours (ECO)		
Sound System	10 Watt; 1.6" speaker		
Keystone Correction	Up to 30 degrees up or down		
Network Control	Wired LAN		
Accessories	Network Software VGA Cable VGA to S-Video Cable Wireless Remote Control (with 2x AAA batteries)		
Warranty	3 yr de-install/re-install*		
Price	Call us for latest pricing		

ScreenLabs Rollerwall Screens

This screen has a fibre glass matt white surface, housed in a white square steel case making it very easy to roll up and store away when not in use. Has 4 screw-holes for mounting to a wall or ceiling.

All models of this screen are 4:3 aspect ratio; four different sizes are available:

1075D	75" Diagonal	£68.99
1089D	89" Diagonal	£84.99
1100D	100" Diagonal	£99.99
1120D	120" Diagonal	£129.99



Projector Ceiling Bracket

We offer two mounts for your projector, including everything you need: a mount, ceiling bracket and column. Two column sizes are available.

MMKIT-1M	1M column	£42.99
MMKIT-50CM	50cm column	£39.99

*During the 3 year warranty period, if your projector develops a fault then you will be loaned another until the original is fixed.