

8 Top Tips when buying new Visualisers for Schools

The simplest description of a visualiser is a digital camera on a movable arm, that enables an image from the camera to be shown onto an interactive whiteboard. In practical use they are so much more than that. They allow you to display text, books, images, artefacts and even the excitement of living things onto your interactive whiteboard, to share with your class.



Each visualiser 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 visualiser:

1. Pixels

More commonly referred to as 'megapixels', this number is simply the number of pixels the visualiser can display (in millions). A single pixel is just one of the many tiny dots which make up an image.

It is commonly thought that having more megapixels gives you a better image quality, but this is just a myth; whilst having more means the visualiser can produce a larger image, it does not mean that image will be of superior quality, as there are other things to consider, such as the lens quality, and the quality of the projector you are using.

To give an example, a visualiser with 2.1 megapixels will be able to use its full pixel count on a 1920 x 1080 (or 1080p) display, since $1920 \times 1080 = 2,073,600$ pixels. However, even visualisers with less than 2.1 megapixels could be used on the same display and produce an image just as good (or even better) than its 2.1 megapixel counterpart. It all depends on the visualiser and the projector used; not just the megapixel count.

2. Zoom

Generally speaking, two different types of zoom are advertised with visualisers: **optical zoom** and **digital zoom**. Optical zoom is true zoom; it allows you to zoom in on an image to see it in greater detail, without any loss in quality. Digital zoom is not really true zoom, as all it does is allow you to enlarge the image, but with a clear loss in quality (pixelisation) the more you zoom in.



Optical zoom



Digital zoom

The above example shows the difference between zooming in with optical zoom, and zooming in with digital zoom. To put it simply, optical zoom is the only kind of zoom you should be worried about.

3. Display Type

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

Standard (4:3) resolutions

| Resolution | Horizontal Pixels | Vertical Pixels |
|------------|-------------------|-----------------|
| VGA | 640 | 480 |
| SVGA | 800 | 600 |
| XGA | 1024 | 768 |
| SXGA | 1280 | 1024 |
| SXGA+ | 1400 | 1050 |
| UXGA | 1600 | 1200 |

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Widescreen (16:9/16:10) resolutions

| Resolution | Aspect Ratio | Horizontal Pixels | Vertical Pixels |
|-----------------|--------------|-------------------|-----------------|
| WVGA (480p) | 16:9 | 854 | 480 |
| 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 visualiser can actually display at.

What is more important to consider is the device you'll be using to display the visualiser. If, for example, you are using an XGA projector, then you will achieve best results if your visualiser is also XGA.

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



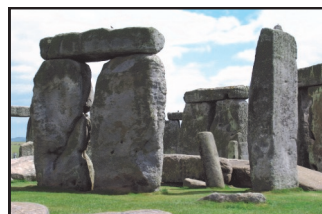
Image taken in
16:9 format



16:9 image
squashed to 4:3



Image taken in
4:3 format



4:3 image
stretched to 16:9

As the example demonstrates, trying to display in widescreen format on a standard screen can often make the image appear squashed, as the image has to be made to be more narrow than it naturally is to fit on the screen. Displaying in standard format on a widescreen screen can have the opposite effect, as the image will become stretched to fill the screen.

Remember that the device you are using to display the visualiser is just as important, if not more so, than the visualiser itself so always consider what you will be using to display the visualiser.

4. FPS (Frames Per Second)

This value refers to the number of individual frames which the visualiser can display in one second. This does not affect still images, as still images have no movement, but for moving images (such as filming insects), use as a web-cam, and video capturing, FPS is an important value.

Generally speaking, the higher FPS value a visualiser has, the more smoothly it will display moving images. A visualiser with 15fps will still display moving images smoothly, but not as smoothly as a visualiser with 30fps would.

If you are planning to use your visualiser as a web-cam, to display moving objects or to capture videos, you might want to consider a visualiser with 20fps or more. Also note that FPS has no bearing on stop-frame animation.

5. Storage Capacity

Whilst some visualisers have some internal data storage capacity, this is generally a very small amount. The most common and practical ways to store picture and video data captured by a visualiser are via USB connection to a computer, or via removable storage devices such as an SDHC card or USB flash drive.

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Additional storage space is necessary if you plan to capture pictures and videos with your visualiser. Videos in particular will take up a lot of space, so you might want to consider connecting your visualiser to a computer or purchasing additional storage if you plan to capture a lot of video.

6. Connectivity

All visualisers come with the ability to connect to another device to be displayed on, however some have more connection types than others.

Basic visualisers may only have one single USB output connection, to connect to a computer. More advanced visualisers may have multiple input and output connections, such as VGA and DVI connections to output directly to a projector or monitor without having to use a computer at all.



An example of the various connection types found on a mid-range visualiser

Quite often, these visualisers will even allow a video signal to pass through from a computer to a projector, so the visualiser will not need to be disconnected or moved even when not in use.

7. Controlling the Visualiser

Visualisers can vary in the way they are controlled. Basic models may require connection to a computer, so it can be controlled with the supplied software.

Advanced visualisers often have their own internal operating system, so they can be controlled without the use of a computer, via buttons on the base unit or via remote control. These visualisers offer the greatest flexibility in how they can be controlled.

8. Visualiser Software

All of the visualisers we've come across come with some kind of software, be it built into the visualiser itself or run on a computer.

Apart from fairly standard functions such as changing resolution and capturing pictures or videos, this software can also have more advanced functions such as the ability to program the visualiser to take a picture at regular intervals, so you can 'film' the growth of a plant or create stop motion animation.

Another common but useful feature is auto focus, which is found on most visualisers. This helps to refocus and sharpen the image if it has become blurred for any reason.

More advanced visualiser software can also have features like noise reduction, which reduces visual noise created by electronic interference.

Overall Summary - Top Tips

- 1. Pixels:** Remember that megapixel count has no direct correlation to image quality
- 2. Zoom:** Optical zoom is true zoom, digital zoom is just enlarging part of an image
- 3. Display Type:** Consider the native resolution of your display equipment AND your visualiser to avoid incompatibility issues
- 4. FPS:** This affects how smoothly your visualiser will display moving images - the more FPS the better
- 5. Storage Capacity:** Consider connecting to a computer or using external storage devices if you plan on capturing any pictures or videos
- 6. Connectivity:** Consider which devices you will be connecting to your visualiser
- 7. Control:** Think about how you want to control your visualiser and see if a remote control is supplied
- 8. Software:** Try and find out about the software supplied with the visualiser, as it can often add some interesting additional functionality

Visualisers for Schools

Find the visualiser with the functionality you need for a price you can afford

Price Matching

Every visualiser is different, but with this comparison table you'll be able to see the difference in functionality and cost to decide which visualiser is best suited to your needs.

Easi-View
Visualiser



Optoma
DC300i



Samsung
SDP-860



Samsung
UF-80ST



Samsung
UF-80DX



| Product Code | EL00052 | DC300i | SDP-860 | UF-80ST | UF-80DX |
|----------------------|---|--|---|---|---|
| Megapixels | 1.92 3.0 for still images | 2.0 | 1.39 | 0.8 | 0.8 |
| Zoom | None | Optical 9X Digital 12X | Optical 6X Digital 8X | Optical 14X Digital 3X | Optical 14X Digital 3X |
| Native Resolutions | VGA (640 x 480) SXGA (1280 x 1024) UXGA (1600 x 1200) | XGA, SXGA | SXGA, UXGA, XGA, WXGA, WUXGA | XGA, WXGA | XGA, WXGA |
| Frame Rate | Up to 15fps | Up to 22fps | Up to 30fps | Up to 20fps | Up to 20fps |
| Input Connections | | | VGA 3.5mm jack for mic | VGA | VGA |
| Output Connections | USB 3.5mm for switch | VGA USB | VGA DVI USB RS-232C 3.5 out 3.5mm audio out | VGA DVI USB RS-232C | VGA DVI USB RS-232C |
| Storage Capacity | Saves to computer | Saves to computer | Saves to computer SDHC Card max 32GB | Saves to computer | Saves to computer |
| Illumination | Built-in LED | Built-in LED | Built-in LED | Built-in | Built-in |
| Microphone | Built-in | | Built-in / external | | |
| Focus | Auto | Auto / manual | Auto / manual | Auto / manual | Auto / manual |
| Noise Reduction | | | Yes | | |
| Supplied Accessories | Software | Remote control USB cable VGA cable AC adapter software | Remote control USB cable VGA & DVI cables AC adapter software | Remote control USB cable Carrying bag AC adapter software | Remote control USB cable Carrying bag AC adapter software |
| Optional Accessories | | | Microscope adaptor lens RS-232C cable SD memory | Light box | Light box |
| Warranty | 12 months | 5 years | 3 years | 3 years | 3 years |
| Price | <u>£98.95</u> | <u>£239.99</u> | <u>£499.99</u> | <u>£879.00</u> | <u>£949.00</u> |
| 5 Pack Price | <u>£419.75</u> | <u>Call us for bulk-buy pricing</u> | | | |
| 10 Pack Price | <u>£799.50</u> | | | | |