

Which Document Camera?

How to Select a Document Camera

What you need to know to make the right decision for your organization.

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Document cameras, (a.k.a. visual presenters) are increasingly becoming one of the most effective interactive learning technologies for today's classroom. But not all document cameras are the same. In fact, there are some important technical differences that can greatly enhance its usefulness. Before you standardize on one make or model across your entire organization make sure you know what's "under the hood!"

Look Sharp! Double Check The Optical Resolution

The term "resolution" refers to the clarity of an image. Choose the highest resolution you can afford so images will be clear and text will be easy to read throughout the entire classroom. After all, your primary purpose of a document camera is to display educational materials that typically have printed text.

Most document cameras feature the standard XGA resolution (1024 x768 pixels), which yields a total of 786,000 pixels. While XGA resolution is good, clearer image resolution levels are now available. Document cameras that feature SXGA, (1280 x1024 pixels) and provide 66 percent more detail in the same-size area than a XGA document camera. UXGA images provide even higher clarity by capturing 1600 x1200 pixels.

All images are made up of tiny dots. Newspapers print less dots-per-inch than magazines, so we can say that magazines have clearer, higher resolution images. More dots-per-inch (DPI) translates into a clearer image.

Digital images that we see on computers, on televisions, and from digital projectors use different terminology to describe clarity. Instead of dots-per-inch, like the printing business, the resolution clarity of digital images is described by the total number of pixels (digital dots) across an image multiplied by the number of pixels from top to bottom. The current standard resolution is comprised of 1024 pixels across an image and 768 pixels from top to bottom. This resolution is called XGA.

The Power to Be Effective

A classroom computer uses a processor to perform the tasks. Today some document cameras include their own powerful processors. This frees the teacher's computer for other tasks that may need to be performed

simultaneously. Here are some functions that a doc cam processor can perform for you:

- Record full-motion video with audio in a standard format
- Playback recorded video and audio without the need of a computer
- Faster rendering of saved images
- Time-lapse image capturing
- Playback of images as slideshow

Input Resolution Does Not Always Equal Output Resolution!

There is a difference between the capture and output resolution of some document cameras. If a camera claims to capture 3.2 mega pixels but only outputs an XGA image, be aware that the XGA is less than one mega pixel.

Get Ready For the Future – With HD 1080p Output to HDTV

Newer LCD TVs and digital projectors provide an HDMI (High Definition Multimedia Interface) connection for the best image quality and for easy connectivity. When buying a new doc cam for a flat screen, consider one with that supports 1080 pixels with an HDMI output port.

How Many Ways Can It Zoom?

There are three types of zoom mechanisms:

- Mechanical
- Optical
- Digital

Mechanical zoom provides the clearest image possible moving the lense closer to the object. This type of zooming has the advantage of speed and clarity.

Optical zoom moves a series of optical lens to magnify an object the same way a telescope makes distant objects appear nearer without distortion.

Digital zoom merely enlarges the pixels that comprise an image in an attempt to simulating optical zoom. Digital zoom distorts the image.

Mechanical and optical zooming deliver the best results.

Frame Rate is Only Important for Video

Frames Per Second (FPS) is a measurement, something like film speed. Some

new document cameras offer a high frame rate that can make video recordings look better compared to the performance of older models. However, some of these new cameras won't record video without the use of a computer. For best flexibility, make sure the camera you choose can record its own video if frame rate is important to you.

Get Into the Fast Lane – Insist on High Speed USB 2.0

Some Document Cameras transfer data to your computer so Interactive Whiteboard software can view the images. However, not all USB speeds can carry the signal sufficiently.

For example, USB ports with the designation 2.0 can be either:

- Low Speed, which transfers data at 1.5 Mbit /sec
- Full Speed, which transfers data at 12 Mbit / sec, or
- High Speed, which transfers data up to 480 Mbit / sec.

High Speed USB 2.0 allows faster slide presentations and smoother transition from image to image. A High Speed USB will help to ensure that lessons progress smoothly and effectively without experiencing “technical” delays that can cause students to lose interest.

Make It Simple - Connect with Interactive Whiteboards (IWB)

Connecting software and hardware can be difficult. Document cameras that include TWAIN and WIA (Windows Image Acquisition) drivers facilitate communication with software application that operate Interactive Whiteboards and other devices. Don't assume that the IWB manufacturer has the only compatible document camera for your configuration. The best document cameras work seamlessly with any IWB.

Make It Easy - Flexible Gooseneck

A document camera with a flexible gooseneck is easy to use and can quickly zoom or view objects from a 360-degree perspective. A flexible gooseneck also allows the document camera to act as a video camera or a Web Cam by simply swiveling the camera head.

Make It Bright – With the Right Light

Older generation projectors require that the classroom lighting be dimmed, while document cameras need sufficient lighting to “see” the objects properly, creating a “lights on or off” dilemma. Newer document cameras come with their own light sources to solve that dilemma.

Some document cameras also mount a light source (or two) to on a flexible gooseneck, independent of the camera head. This feature makes it easier for you to adjust and light items that you want to display for best results. Others mount a light directly on the camera head. This design is not as flexible and can cause “burn spots” or haloing in the middle of the page.

Make it Secure

Theft is such a problem that many school districts are self-insured. For additional security, you can choose a document camera with an internal electronic lock that renders the unit unusable if stolen or erases data after each use. A Kensington lock slot can also reduce theft problems.

Warranties are Not all the Same

Beware of limited warranties. Look for a warranty that covers all parts and all labor for as long as possible. (Warranties can range from a couple of years to as many as five.) That way you and your schools can be assured of trouble-free, low-cost ownership.

Power

Document cameras with an internal power supply are best because the entire unit will be UL certified and there won't be any risk of an expensive external power supply being lost.

Microscope Adapter

A microscope adaptor is standard with some document cameras. These allow for quick and easy attachment of a microscope so the entire class can look at the same slide or sample.

Before you buy, consider which features will serve your needs best. Knowing what you want before any purchase can save money and help your school achieve its goals.