AUDIO TRENDS

L E A R N I N G C E N T R E

Choosing the Right Projector for Home Cinema

Finding the right projector for your home cinema is easier than you might think. Even though there are hundreds of projectors available, there is a relatively small choice of products especially designed to give top results on widescreen DVD or HDTV. So, what features, specifications and other factors make a difference when selecting your home cinema* projector?

Is the 'brightness' output the most important specification?

This is usually the first question we get asked! Brightness is measured in ANSI (American National Standards Institute) lumens: the brighter the projector, the higher the ANSI lumen rating. Projectors come in a wide range of light or lumens output. So, do more lumens mean a better picture? Not necessarily! Many Internet sellers advise that you should purchase the brightest projector or the one with the most 'lumens' in your price range. This may be true if you need to project data and spread sheets in the boardroom and where optimum light conditions do not prevail, but is not the only factor that should be considered. Here are some others.

How much 'light' is in your room?

Understandably, a dedicated home cinema with no windows or a dark room will always provide the best conditions for any projector. If the room has windows, then you can control daytime viewing with 'block-out' curtaining or shutters. Where the lighting cannot be controlled effectively, then a projector with a higher 'lumens' output could be advantageous.

How many people will be in the room?

This is really the first question that should be addressed, whether you are building a dedicated cinema or 'converting' a current room to double as a cinema room. The answers to these questions will not only determine how many chairs you will need, the size of the room if building, but will also determine the size of the projected image that is required for easy viewing by everyone. As the number of people in the room increases, the image size will usually increase. As a result, apparent brightness of the projector will be reduced as the light is spread over a larger area.

Which projector resolution is right for you?

The sharpness and clarity of the picture on the screen is determined by a projector's resolution. Resolution is simply the number of pixels (or "picture elements") the projector uses to create the image. The more pixels it uses, the "higher" the resolution.

Resolution is usually quoted in two numbers, such as "854 x 480," where the first number refers to the number of pixels horizontally across the screen and the second number refers to the number of pixels vertically or from top to bottom.

Native Resolution: When speaking of a projector's resolution, it is common to refer to the term "native" resolution. If a projector's native resolution is say 854 x 480 that means that the actual number of physical pixels on the display device is 854 multiplied by 480 or a total of 409,920 pixels.

Advantage of Higher Resolution: High resolution projectors are able to show more picture details than low resolution projectors. Also, since there are more pixels used to make the image, each individual pixel is smaller, so the pixels themselves become less visible on the screen. However, you will pay more for higher resolution.

Resolution options: Your basic choices for native, or true resolution and in 16:9 or widescreen are as follows:

WVGA, or usually "854 x 480i" - WVGA projectors are the absolute minimum resolution acceptable for a home cinema projector.

WSVGA, or usually "1,024 x 576p" - WSVGA products are high resolution, and notably more expensive than WVGA. These products are targeted for very good home cinemas and are capable of reproducing HDTV broadcasts in 576p without 'scaling'.

WXGA, or usually "1,280 x 720p" - WXGA is for very high resolution applications that are detail or information intensive. These products are targeted for high end home cinemas and are capable of reproducing HDTV broadcasts in 720p without 'scaling'. Prices range from $8000 to around $30,000.

WSXGA, or usually '1920 x 1080i' – These projectors are designed for reproducing 1080i HDTV without 'scaling' or compression. They are very expensive projectors with prices going from around $30,000 and upwards. But wow! What a picture.

Maximum Resolution: Most of the projectors on the market today, are capable of projecting input signals higher than their *native* resolution. This is referred to as *maximum* resolution. This is achieved through the use of compression technology and the process of converting a higher resolution input format to its *native* output format is called *scaling*. Some projectors are very good at scaling, so the resulting image fuzziness is relatively minor, and the image is very adequate no matter what the source. The quality of scaling varies widely among projectors and like all technology, it is constantly being improved. For more detailed information see the article…

Projector Resolution - Native Vs Maximum

Types of Projectors: The very early projectors (not slide projectors) were enormous components! They were without exception CRT (Cathode Ray Tube) projectors and had three separate 'guns'. They are still available, but most people could not accommodate them in the typical family or lounge room. The picture quality can only be described as superb. But the size factor made the acceptance factor low – more so than the price. This gave the projector manufacturers a real incentive. Advances in other technology have seen projectors get lighter, smaller, brighter and cheaper. There was a market for the home cinema buff, if only they could

**This information is based on criteria for a home cinema projector. Data applications have there own special needs which are not fully addressed in this article.*