

HOTTEST NEW PROJECTORS • CHOOSING THE RIGHT SCREEN

# Home Theater

## BUILDER

THE HOME THEATER PROJECTS MAGAZINE

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PERFECT  
PICTURE

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FEATURE

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# WHAT TO KNOW BEFORE BUYING A COMPACT PROJECTOR

Soon your home will be filled with the sounds of laughter and delight from all of the spine tingling excitement the entertainment industry can muster. So, how do you make sure your projector fits the bill? You have to know your specs, plan ahead, and learn from the mistakes of others.

## Know Your Specs

Like so many electronic devices, front DLP and LCD projectors have numerous specifications. Rather than trying to compare all of the details at once, try and focus your attention on a few of the most important specs and narrow your search from there. Three of the most important front projector specs are brightness, resolution, and aspect ratio.

Projector **brightness** is measured in lumens, using the specifications of the American National Standards Institute (ANSI). Today's home theater projectors range in brightness from around 700 to 2500 ANSI lumens, sometimes more. By comparison, movie projectors found in local theaters measure quite a bit dimmer, at approximately 150-400 lumens.

The amount of ambient light in your viewing environment will be the biggest factor in determining how bright your projector needs to be. Dedicated home theaters with controlled lighting will not require as much brightness as a space with ambient light from windows or other household lighting.



BenQ PE8700 DLP

## Brightness Breakdown

- Dedicated theaters with controlled lighting can use 700 lumens or better.
- Rooms with some ambient light should have at least 1200 lumens.
- Spaces used in daylight hours with ambient light need 2000 lumens or better.

*Tip:* All lumen ratings are not created equal. Manufacturers measure lumens using the same ANSI standard, however there are variations in actual lumen output from unit to unit. Some manufactures publish a more conservative rating than others. The good news is that you may actually end up with a brighter projector than you expect.



## FEATURE



BR-5 DLP from Accurate Imaging

**Resolution** is the number of lines of picture image displayed on a screen. Portable home theater projectors are available in different resolutions. For example, an SVGA projector has a panel inside that is 800 pixels high by 600 pixels wide for a total of 480,000 pixels. Higher resolutions, or more pixels, mean better picture quality.

Additionally, front projectors are available in different native **aspect ratios**. The two most common aspect ratios are standard (NTSC) 4:3 and wide screen (HDTV) 16:9. Wide screen home theater projectors are shaped more like a movie theater screen than a standard TV. That is, the ratio of width to height is much higher, in a ratio of 16:9 (1.78 times wider than high) rather than 4:3 (1.33).

### Available 4:3 resolutions

SVGA	800 x 600	480,000 total pixels
XGA	1024 x 768	786,432 total pixels
SXGA	1280 x 1024	1,310,720 total pixels

### Available 16:9 resolutions

WVGA	848 x 480	407,040 total pixels
WSVGA (or 1/4 HD)	964 x 544	524,416 total pixels
WXGA-H	1280 x 720	921,600 total pixels
WXGA	1366 x 768	1,049,088 total pixels



The Runco VX -5000c DLP

### When to Go Wide

If you plan to watch primarily DVDs or HDTV content on your projector, a wide screen projector is a good choice for you. However, projectors with a wide screen aspect ratio tend to be more expensive. If you don't have the money in your budget for a native wide screen projector, never fear. Standard 4:3 projectors can also project in the 16:9 format, just as 16:9 projectors can display 4:3. You will just see black bars along the bottom or sides of images when projecting in the non-native format.

### What about those inexpensive SVGA projectors?

If you want to enjoy HDTV, don't even consider an SVGA projector. Due to the way projectors map signals, an SVGA projector will give you less resolution than a regular television. Most likely you will be disappointed with the quality. SVGA projectors will also show more visible pixel structure from close to the screen. An SVGA projector is not for the videophile, but for the average viewer who just wants a big screen for cheap. They are a low-cost option.

### Crowd Pleasing Features

Knowing the basic specs will help you narrow your choices. Then you can compare your options to each other by cost, their coolness factor, and for their fun features.

### Economy mode

An economy mode is a relatively new feature that allows you to minimally reduce light output. This reduction conserves lamp life, decreases energy consumption, and lowers the noise level of the fan. Light output is often reduced by as little as 20%, but when used regularly it can help to nearly double the life of the lamp. The noise reduction is especially useful in smaller dedicated theaters.

### 12v screen trigger

If you plan to invest in an electric screen, a projector with a 12v screen trigger will allow you to raise and lower the screen with the projector remote. The coolness factor speaks for itself here.

### Picture-in-Picture

You can double your fun with the picture-in-picture feature that is available on many projectors. Be sure to find out if the projector you choose handle two simultaneous video sources before you let this feature tempt you.



## FEATURE

### Backlit remote

Not a glow in the dark remote, a backlit remote. This is a great idea for dedicated home theaters so you can see without having to spoil the mood by bringing up the lights.

### Color temperature memory

A color temperature memory can be a valuable feature in home theater spaces, such as living rooms, that are used both day and night. The memory allows you to have a setting for brighter color during the day, and richer color at night.

### Component video inputs

A projector with component video inputs gives you the option of producing better quality video images.

### Before Installing Your Projector, Plan Ahead.

Before going out to buy a front projector with all the right specs for your home theater space, a little bit of planning is important. You need to think about which cables you'll need, where you will place your projector, and what size and type of screen to buy.

### Which Cables Make The Best Connections?

To get the best image, you need the right connections. You need to know your cables and connections from your video sources as well as those available on your projector. Here is a quick breakdown of the best and most readily available connections for home theater video.

#### Composite cables

The most common, but lowest quality, video cable is the composite cable. It is available on just about every video source from VCRs to DVD players. If at all possible, avoid using these cables.

#### S-video, or Y/C, cables

S-video cables might also be referred to as a SVHS cable and can be found on most high-end televisions, camcorders, digital cable and satellite set-top boxes, all videodisc players, and SVHS VCRs. S-video cables are an improvement over standard composite cables.

#### Component cables – Y/Cr/Cb or Y/Pb/Pr

Component cables look just like composite cables. The difference is that component cables

## CHOOSING A SCREEN

When shopping for a home theater projector be sure to allow for the cost of a screen in your budget. Screens can cost as little as \$200, and they exponentially improve the quality of your image. After all, why pay for a projector with all the right specs if you don't get the most out of it?

**Mounting Type** • In dedicated home theaters, permanently mounted screens make the most sense. A retractable (either motorized or "pull-down") screen can be mounted to the wall, to the ceiling, or even installed in the ceiling itself. The manual version is less expensive, and less glamorous, than the motorized version, which can be raised and lowered at the touch of a button. Although installed in the room, a retractable screen can easily be concealed when not in use.

**On a Budget** • Screen manufacturers offer low-priced screens, as inexpensive as \$200. These screens will make your image look signifi-



The Draper Signature/Series E motorized projection screen

cantly better than a painted wall. If you're handy, you can also purchase just the screen material, make your own frame, and save a little money. For a very nice fixed screen with gray or white screen material, you can spend as little as \$500.

**Top of the Line** • An electric screen definitely makes an impression in your home theater. There are many added features that electric screens can offer. For example, a tension mounted screen




First you need to consider the throw distance of your projector. The general rule of thumb is that you get one foot of image from every two feet of space between projector and screen. That means your space will be a part of what determines the size of the screen you can expect to use. If the mounting wall (or wall opposite your screen) is only 15 feet from your viewing surface, the largest image you can expect is about 7 feet (80 inches), in most cases. If you want a larger image in a smaller space, you should consider a projector with a short throw lens. Conversely, if you want a smaller image from farther back, you will need a long throw lens. It is important to factor in the distance from which you will be viewing your images as well. Just as the front row at your local movie-plex is not the best seat in the house, sitting too close to your home theater projector is not desirable either. A good guideline for the optimal viewing distance is about 1 1/2 feet back for every foot of image you project.

*Tip:* Manufacturer throw charts tell you how far your projector needs to be to make a specific size image, but these charts are not always perfectly accurate. It is a good idea to wait to buy your screen until your projector is mounted. That way you will know the exact image size your projector generates. So, for best results, buy your projector first, and then buy your screen.

### Ceiling Support

Home theater mounting systems are not particularly heavy. However, when mounting a projector, you have to be certain that the area of the ceiling you would like to drop your mount from can support the additional weight. Ceiling studs may not be located directly in the center of the room where you would ideally like your projector to hang.

### Keep it Cool, Action

Projectors do not operate well if they are not properly ventilated. They can shut down while in use and lamp life is shortened if they don't get enough air. In order to prevent these problems be sure to mount your projector with plenty of distance from the wall and avoid placing the projector near air conditioning or heating units. You should also avoid using the projector in a smoky environment whenever possible. Of course, it is also important to follow the manufacturer recommended maintenance, including regular filter cleanings. 

## COMMON INSTALLATION MISTAKES


### Keystone Crutch

Keystone correction is a great feature for people who travel with their projector and face changing environments. However, it is not meant to be used in a permanent installation. Don't rely on keystone correction to solve keystone issues in your dedicated home theater. With keystone correction permanently turned on, your image will suffer from jaggies and other image artifacts. Save keystone correction for the slide show at Grandma's house.

### Angle of Despair

Projectors should not be used at an angle greater than 15 degrees. When permanently mounting your projector, make sure you use a proper mount to drop your projector and remove the angle. At greater than 15 degrees, a projector is not able to run air through it effectively to keep the lamp cool. This can cause shorter lamp life and greater wear and tear on your projector.

### Fan Block

Be sure to leave plenty of room for ventilation behind your projector when installing your mount. Ideally the projector should be a few feet from the wall, and should not be in the direct line of air or heating vents. Also make a schedule of routine maintenance like filter and lens cleanings as specified in your projector owner's manual. 

-JA

### BIO

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