

## Pro AV Tips: Choosing the Right Projector for Professional AV Projects

The video projector is one of the most important tools for pro AV project managers, because it's used for everything from business meetings to entertainment events.

Modern projection systems have been around since the 1950s when cathode ray tube projectors were first put on the market. Today's projectors come in a variety of sizes, from pocket-sized (pico) to refrigerator-sized, large-venue projectors. They vary in price from a couple hundred dollars to more than a hundred thousand dollars.

Choosing a projector for your pro AV project can often be tricky. Get to know the different classes of projectors and prepare a checklist of considerations that can affect the final outcome of your project.

### Projection planning checklist

As with any pro AV project, proper planning can significantly affect the outcome of your project by minimizing unexpected surprises. A planning meeting with your customer should address most of the questions listed here:

- Do you need a standard 4:3 screen or some other aspect ratio?
- Front or rear projection?
- Are you projecting on a flat surface or an unusual shape/architectural surface?
- Are you projecting inside or outside? Daytime or nighttime?
- How much ambient light is there?
- How will you mount or place the projector?
- What image size are you trying to achieve?
- Will I need special lenses?
- What kind and how many cables do I need?
- What video inputs/outputs does the projector have?

These are just a few questions that should be part of the initial planning process. More questions will undoubtedly come up as the planning process progresses.

## Projector types

There are several different kinds of imaging and illumination methods used in **video projectors**, and each type has its own list of pros and cons. DLP projectors are one of the most commonly used projector types. Advantages of DLP technology are that they are very bright and can display much darker blacks than liquid-crystal display (LCD) technology—helpful for illusions like projection mapping.

LCD projectors work by allowing light to pass through three-colored LCD light panels. These panels block certain colors and allow others through so that the image shows up on screen. This is different from DLP technology, which reflects light off of a mirrored panel through a color wheel.

The biggest advantage of LCD over DLP is the price difference. LCD can deliver higher lumen output (lamp brightness) at a lower price than DLP using lower energy consumption.

Liquid crystal on silicon (LCoS) is almost a hybrid of how DLP and LCD work and can provide advantages over both. LCoS has a reflective portion modulated by liquid crystal. There is no color wheel in this setup, as it does the light-splitting technique similar to that of LCD. One drawback of LCoS is that the contrast ratio tends to be much lower than that of DLP or LCD, so your contrast range from true black to bright white is reduced.

## Projector categories

Projectors are available in various price ranges and for different pro AV solutions as summarized below:

### **Pico and pocket projectors**

Price range: \$100 to \$500

Brightness range: 10 lumens to 500 lumens

Resolution range: 640x480 to 1280x800

Best use: Small meetings in confined spaces

### **Portable projectors**

Price range: \$400 to \$2,000

Brightness range: 500 lumens to 3,000 lumens

Resolution range: 1024x768 to 1080p

Best use: Office or classroom settings

### **Installation and theater projectors**

Price range: \$2,000 to \$10,000

Brightness range: 3,000 lumens to 10,000 lumens

Resolution range: 1024x768 to 1080p

Best use: Long-term installations

### **Large-venue projectors**

Price range: \$5,000 to \$100,000 and above

Brightness range: 5,000 lumens to 42,000 lumens or more

Resolution range: 1024x768 to 4K

Best use: Theater, entertainment venues, projection mapping