



*THE PRINCIPALS OF  
PURCHASING A VIDEO  
SYSTEM (PART-1)*

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# The Principles of Purchasing a Video System

## Why Costs Shouldn't be the Only Consideration

BY DAVID PRATT

**M**ore religious institutions are realizing that interior digital displays are a way to further engage congregants and transform services from a presentation format to more of a media-driven worship experience. Upgrading to direct-view LED displays provides seamless images that can help the congregants feel

the emotion and inspiration of the service no matter where they sit or time of day. However, it's important for congregations to understand the many factors that should be involved when purchasing

a system. Too often costs and budget are the driving considerations, which, unfortunately, may lead to additional expenses in the long run or systems that don't meet the facility's needs.

IMAGE ABOVE: OPTEC DISPLAYS, INC., 3.9MM, 80X200 OPT-SLIM LED DISPLAY CENTER SCREEN AT COMMUNITY PRESBYTERIAN CHURCH, DANVILLE, CA., WAS PART OF A LARGER EFFORT TO TRANSFORM THE CHURCH SERVICE FROM A PRESENTATION FORMAT TO MORE OF A MEDIA-DRIVEN WORSHIP EXPERIENCE.  
PHOTO CREDIT: KRISTEN PHILLIPS, OWNER BELLISSIMO DÉCOR

## Managing Expectations, Setting Priorities

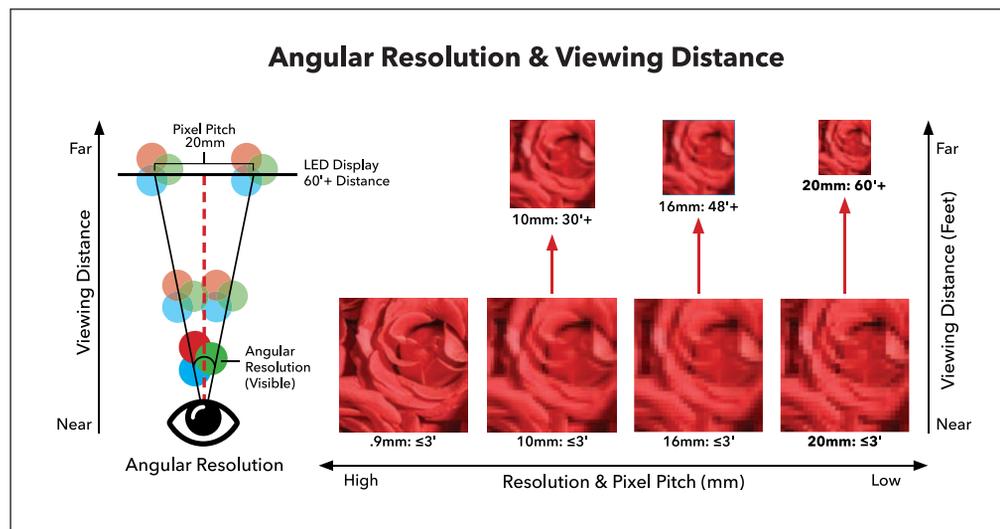
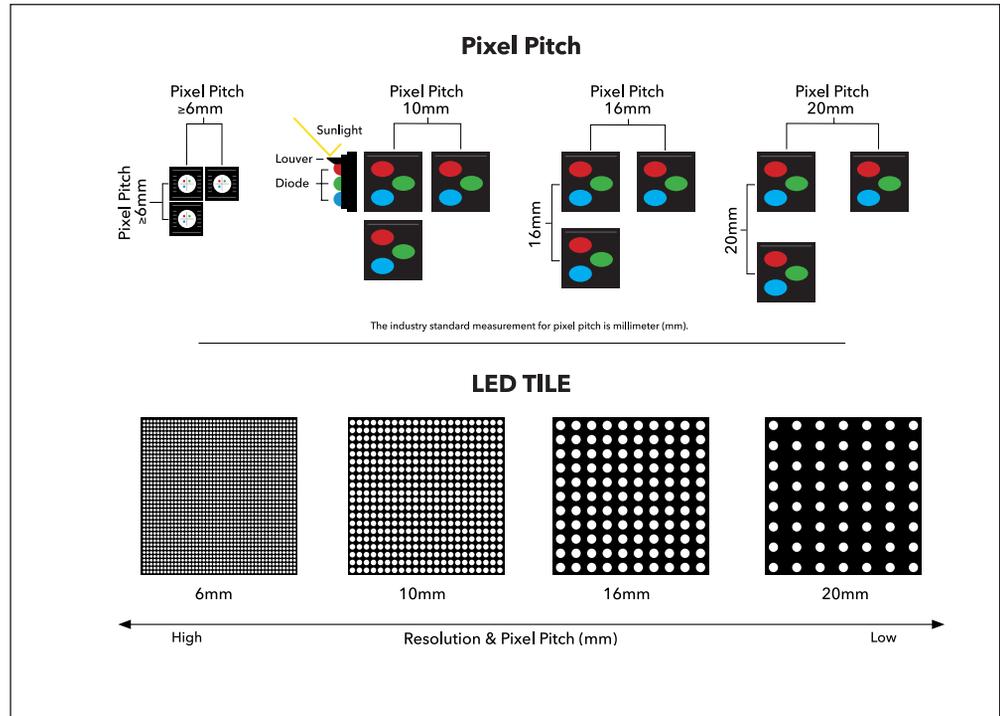
The first step in purchasing a video system is to understand the congregation's space and congregants. For example, what is the size of the sanctuary? Are there windows that will affect the brightness needed so the display can be seen regardless of time of day, weather conditions or seating location? What are the congregants' demographics? If it's younger congregation then perhaps the most technologically advanced system available would be more engaging. Understanding the space and congregation's values, and consulting with interior designers, architects, and audio-visual specialists can help determine if the space is a good fit.

Determining resolution, viewing distance, brightness, and budget are essential in order to achieve satisfaction and the systems' desired outcome. Selecting a display solution that achieves balance between all these criteria is key and starts with the question, "What do you value most?"

Following are key components that need to be considered when selecting a system.

### Resolution and Pixel Pitch

Finer pixel pitch LED displays create bright, seamless visuals that transform spaces and create engaging experiences. Individual LEDs are grouped together in a pixel. Pitch is the center-to-center distance between each pixel both vertically and horizontally.



The smaller/tighter the pitch of a display, the higher the resolution and closer the viewing distance. If there are two LED displays side-by-side and each one is the same height and width but they have different pitches, the LED sign with the smaller, tighter pitch will have more pixels and a better resolution – the distance between pixels and the pitch determines the resolution.

Smaller pixel pitch

universally provides greater resolution but is more expensive. Materials and production costs are higher for smaller pixel pitch since more LED clusters are required to create a higher pixel density. Sometimes the most expensive and finest pixel pitch isn't necessarily the right choice because of the viewing distance specific to the installation. For example, if the congregation is further away from the

display then it will not only work fine but also save money, which then can be used toward a higher-quality system.

### Viewing Distance

Viewing distance is one of the most important factors in display selection. Close proximity viewing requires a higher resolution display. There are three methodologies used in the industry to determine

acceptable viewing distance:

**Three-foot Rule** - this is a shorthand method for calculating an approximate estimate of the Visual Acuity Distance. The calculation is: Pixel Pitch x 3 = Approximate Viewing Distance in Feet

**Angular Resolution** - this is a formulated calculation of the distance a person with 20/20 vision must move away from an LED display to see a coherent image that is not pixelated.

**The Average Comfortable Viewing Distance** - this is an estimate of what would be a comfortable viewing distance for most people. This is a subjective estimate and will take into account variables like a person's eye sight, resolution of content and type of content.

If you're too close to an LED display - viewed at three feet away or less on a 20mm display - for example, the images will look very pixelated—you'll be able to see the individual LEDs that make up the image rather than the image as a whole. The ability to project a good-looking, coherent image is a balance between pixel pitch and viewing distance.

## Brightness

How bright will the displays need to be? Not all display technologies provide the same level of brightness. It's important to, also, consider brightness to ensure the display's content can be seen. A display must have adequate levels of brightness and contrast for easy viewing. Brightness refers to the maximum luminance within the display. A system with high-quality resolution, vivid color and excellent clarity make the content easy to see regardless of time of day, brightness or seating location.

A quality display system is calibrated pixel by pixel to ensure uniform color and brightness, which is important when trying to achieve pure white and to eliminate unsightly patchworking or display discoloration. When selecting a system, check to make sure it offers manual or automatic dimming to maximize efficiency and viewing comfort.

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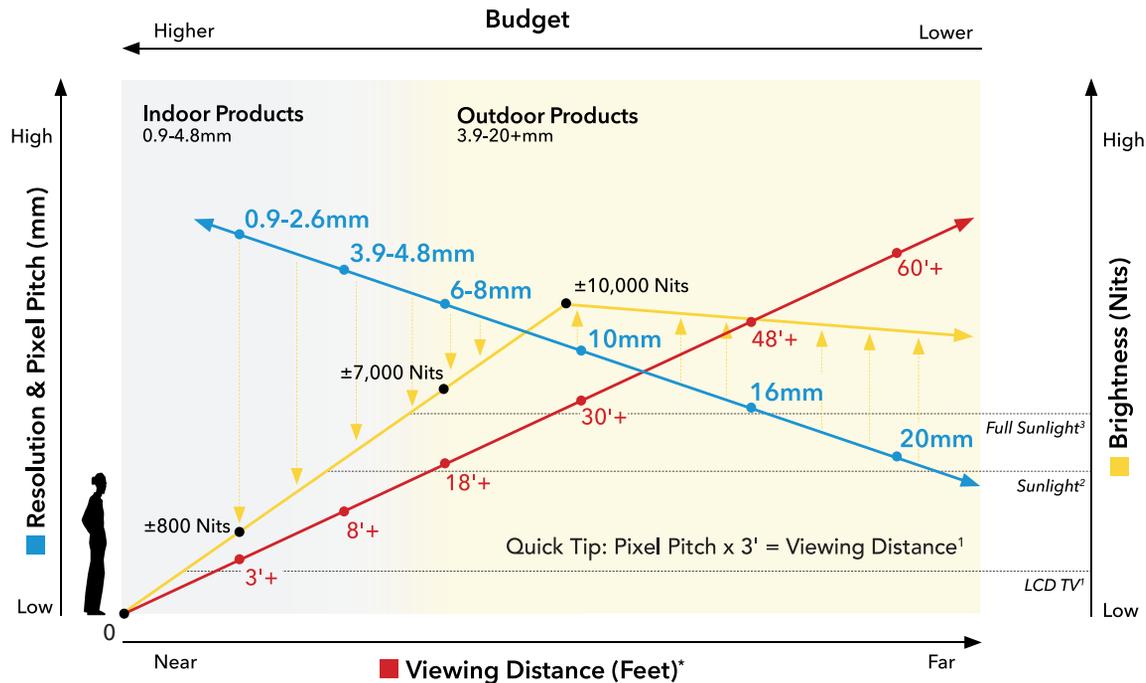
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## Four Values Guide LED Display Solutions



<sup>1</sup>Fixed Position <sup>2</sup>LCD TV 500 Nit Average. <sup>3</sup>Sunlight (indirect) 4,500 Nit Average. <sup>4</sup>Full Sunlight (direct) 6,500 Nit Average.

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### Budget

Finer pixel pitched LED displays come with high price tags because of the number of pixels and the required advanced technology and engineering to manufacture. It's tempting, therefore, to purchase an LED system from overseas or price-driven companies to lower the up-front costs. However, having a solutions partner to assist with integrating the hardware and software to fit the application, as well as provide technical support, a robust warranty and parts availability, and service is a much more strategic choice.

Different display types can vary dramatically in price. When exploring various options, be sure to consider both the initial cost of the displays and the total cost of ownership.

While some technologies are more affordable upfront, the long-term costs of regular maintenance, consumable parts, and high power consumption can make them extremely expensive over time. Other display types are more expensive upfront but are far less costly in the long term due to their efficient performance and minimal maintenance needs.

It's important to also make sure the system is compliant with the FCC, which regulates products causing radio interference and disrupted networks; is UL and ETL certified and uses only top-quality diodes in terms of lumen, color, and efficiency.

### Conclusion

There is a lot to think about when it comes to planning for, installing and operating

an indoor direct-view LED display system. However, the benefits, such as incredible brightness, high resolution, lower long-term operating costs and ease of control, make the effort worth it. To ensure that congregations' AV objectives are met and congregants are fully engaged in the LED display content it's important to find a technical solutions partner and other industry professionals who can provide innovative thinking and a singular focus on delivering the best possible system. Equally valuable is the software – the brains of the system, which allows the display to be utilized effectively. A solutions partner can assist with determining the best software to meet the congregations' content creation capabilities and needs.

Understanding the considerations beyond just price that should be taken into account before investing in a direct-view LED display system will help ensure it meets your objectives and creates engaging visual content for years to come.

This is part I of a two-part series and focuses on interior LED display systems. Part 2 will be in the December issue and examines exterior message centers. **I**

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