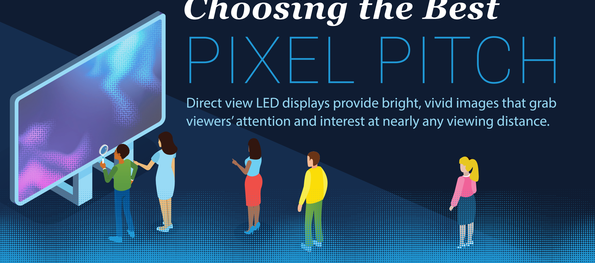
Choosing the Best
PIXEL PITCH

Direct view LED displays provide bright, vivid images that grab viewers' attention and interest at nearly any viewing distance.



A key factor when deciding on a dvLED solution is to

choose the best pixel pitch for your needs and budget.

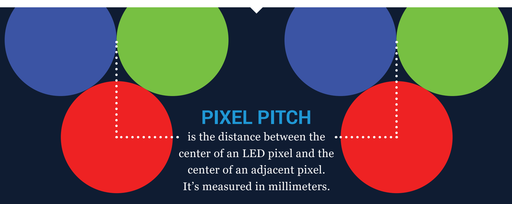
FIRST, *what's a pixel?*

A pixel is a cluster of light emitting diodes (LEDs), which are tiny, electronic semiconductors that convert electrical energy into visible light.

1+1+1
=
281,000,000,000,000

Each full color pixel in an LED display has 1 red, 1 green and 1 blue LED. The combination of these three colors enables each pixel to create up to 281 trillion colors!

SO, *what is pixel pitch?*



PIXEL PITCH
is the distance between the center of an LED pixel and the center of an adjacent pixel. It's measured in millimeters.

A screen with a smaller pixel pitch will have more pixels overall and provide higher resolution images than a screen with a larger pixel pitch.

OPTIMUM PIXEL PITCH
vs. Acceptable Pixel Pitch

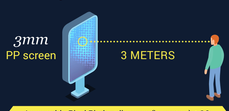
Pixel pitch is directly related to how the human eye perceives a digital display. If you stand close enough to any LED display, you'll see black gaps between the pixels. By standing farther away from the display, you'll enjoy a better visual experience.

At a specific distance, Optimum Pixel Pitch provides the maximum visual acuity, and Acceptable Pixel Pitch provides a satisfactory viewing experience.

Optimal *Pixel Pitch*

Optimal Pixel Pitch = distance (in meters) ÷ 10 ÷ 2.5

Acceptable *Pixel Pitch*



Acceptable Pixel Pitch = distance (in meters) ÷ 10

Thus, at a viewing distance of 3 meters (9.8 feet), the optimal pixel pitch would be 1.2mm, and the acceptable pixel pitch would be 3mm.

PIXEL PITCHES
in real-world applications

	Small	Midrange	Long range
MINIMUM VIEWING DISTANCE	5 feet	25 feet	50 feet
	<1.5MM	6–12MM	>16MM
RECOMMENDED USES	retail interior meeting rooms lobbies transportation command & control	retail exterior public spaces entertainment transportation command & control	public spaces entertainment sports venues festivals

Determining the best pixel pitch for a dvLED for a specific installation *requires considering three key factors:*

Viewing Distance:
In general, a large screen intended to be viewed from afar can have a large pixel pitch. A smaller screen intended for close-up viewing should have a small pixel pitch.

Content:
Still images require a tighter pixel pitch (closer to Optimum), but video content will look good with a wider pixel pitch (closer to Acceptable)

Budget:
dvLED panels with a tighter pixel pitch are more expensive than ones with a larger pixel pitch.

Ultimately, the best solution is one that falls within the optimum and acceptable pixel pitch range but also fits the budget.

For more information about dvLED displays, visit us at:

business.sharpusa.com/visual-solutions

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