What are the differences between 3LCD and DLP technology?

The most popular display technology of the projectors on the market are DLP and LCD. So what exactly is the difference between the two?

Dangbei alunching Mars Pro 4k Projector

NEW YORK, UNITES STATES, July 1, 2022 /EINPresswire.com/ -- The traditional projectors on the market today are mostly made with 3LCD technology, while the newly launched home smart projectors like Anker Nebula Cosmos 4K projector and Dangbei Mars Pro 4K laser Projector are mostly made with DLP technology. So what exactly is the difference between the two?

1. Brightness contrast
Let's start with the imaging principle. DLP, short for Digital Light Processing, relies on refraction, generally composed of several color wheels of red, green, blue, and white(generally only available in commercial projectors, not home projectors), but can only refract one color at a time. 3LCD relies on transmission, which can transmit red, green, and blue simultaneously. When you want to see yellow, DLP needs a period to refract red and then a period to refract green; while 3LCD can transmit red and green at the same time. That's why 3LCD colors are brighter and more vivid.

It is for this reason that commercial DLP projectors incorporate a white color wheel to improve brightness, but this also results in a lack of full color. It is also because DLPs cannot refract multiple colors at the same time that they are not as efficient. As a result, a DLP requires a more powerful lamp for the same lumen projector.

2. Color contrast
There is a standard for brightness for each color, too high or too low is not appropriate. If the

projector has a color management function, it can be professionally tuned to achieve the standard colors in the end. Due to the higher default color brightness of 3LCD, DLP is relatively easier to tune than 3LCD.

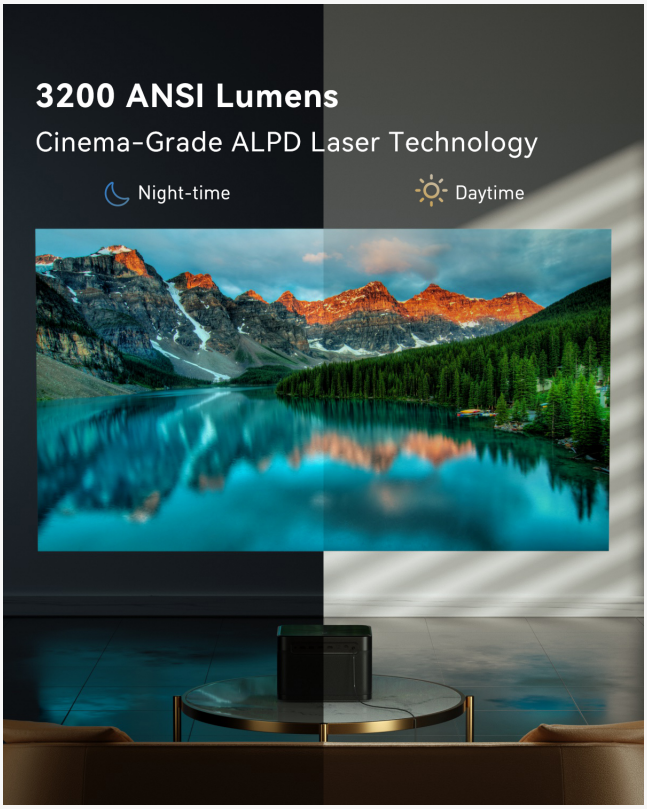
3. Contrast ratio
Light and darkness depend on the grayscale, which is determined by the gamma curve. A high contrast ratio with many gray levels is the most desirable effect. Relatively speaking, DLP has higher contrast and more grayscale.

4. Sharpness and pixel point
3LCD has good sharpness, but the pixel structure is too obvious.
DLP also has pixel dots, but because DLP has a small "pixel gap", that is, large pixels with a small gap, the lattice looks less obvious and more comfortable to the naked eye.

5. Service life
3LCD has the problem of the aging LCD panel. Therefore, relatively speaking, the service life of DLP is a bit higher than that of 3LCD.

6.3D effects
3LCD is more prone to crosstalk than DLP because LCD has a delay. But even so, objects with large contrast between light and dark will still have vague trailing shadows. DLP, on the other hand, is perfect so that you don't sense crosstalk. When you want to project a large image in a poorly shaded, unconfigured high-gain curtain environment, you need to pay special attention to the lack of brightness will make the viewing experience very unpleasant. Hence, if you want to choose a DLP projector, you must choose the model with high measured brightness.

Conclusion
3LCD:
Pros: high brightness and easy installation, higher



Dangbei Mars Pro 4K Laser Projector 3200 ANSI Lumens +AI sensing dimming

Dangbei Mars Pro 4K Laser Projector 3D Explosive map sound quality

color brightness, good sharpness
Cons: Pixel structure is obvious; easily crosstalk in 3D effect
DLP:
Pros: more natural color, high contrast, and more grayscale, no pixel dots, better viewing effect, no crosstalk in 3D effect, longer service life
Overall, DLP is a bit more advanced than 3LCD.

Final suggestions
For environments with good shading and a suitable curtain for use, it is recommended to buy a DLP projector. It will achieve excellent results, such as home, and bedroom projectors.
3LCD projectors are better for environments with poor shading and larger projection images, such as traditional projectors for offices and classrooms.

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Trapezoidal correction focus into screen

Dangbei Mars Pro 4K Laser Projector Multi-interface design