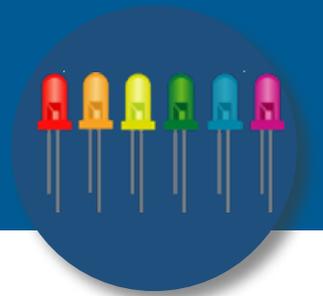
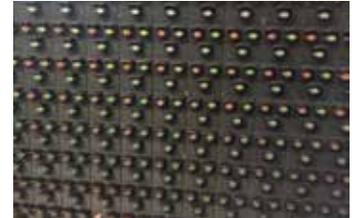


DISCRETE VS. SMD PIXELS



Understanding Discrete LED Pixels Versus SMD Pixels

Discrete LED are individual LED diodes in a cluster comprised of 1 red, 1 green and 1 blue LED. This is a common build in outdoor LED signs offering exceptional brightness in pixel resolutions ranging from 10MM to 34MM.



Discrete LEDs

SMD Pixel are built a single diode combining 1 red, 1 blue and 1 green LED. These diodes can be placed closer together which results in a tighter pixel pitch. The SMD pixel resolution is perfect for close-up viewing in pixel resolutions of 6MM, 8MM, 10MM and 12MM.



SMD LEDs

Brightness of Discrete versus SMD Pixels

Every LED sign has a NIT rating. The NIT is the standard unit of luminance used to describe various sources of light. A higher rating means a brighter display. There's a *complex mathematical definition for converting candle brightness (lumens) to NITs as a way of measuring the brightness of electronic devices, but we'll spare you the math.

In order to compete with direct sunlight, your LED sign needs to have at least 5,000 NITs in brightness. Discrete LED signs have a higher NIT rating than SMD signs -- typically at or around 10,000 NITS. When your discrete LED sign is brand new, you won't need it to operate at that maximum NIT rating of 10,000. You can adjust the brightness of your sign as needed maintaining the 5,000 NIT brightness for daytime viewing and reducing the brightness for evening viewing. But over time, the brightness of the LED pixels will degrade. This is a naturally occurring event of all light emitting diodes. Eventually that degradation will max out at around 40%.

The higher NIT rating of the discrete LED pixels allows you to "tune up" the brightness of the sign to adjust for this degradation. Even with a 40% degradation, you'll be able to keep the sign at 5,000 NITS or higher so it will be bright enough to compete with direct sunlight throughout the lifetime of the sign.

SMD LED pixels typically have a 4,500 to 5,000 NIT rating. While SMD pixels degrade at a much slower rate, they will still eventually hit the 40% degradation level too. But because they start out with the lower rating, SMD signs do not have the ability to "turn up" the brightness to compensate when that degradation becomes visible.

* One NIT is equivalent to one candela per square meter. The candela, formerly called candlepower, is approximately the amount of light emitted by a common tallow candle; technically it is the quantity of radiation emitted by 1.667×10^{-6} square meter of a blackbody at the melting point of platinum. The candela is equal to one lumen per steradian (unit solid angle). (A blackbody is an object that radiates energy with 100 percent efficiency at all electromagnetic wavelengths. It also absorbs all electromagnetic energy that strikes it, hence the expression "black." It is a theoretical ideal of interest in physics and engineering.