

What does it all mean?

Like many industries and professions the LED display industry has its fair share of acronyms, abbreviations and curious product descriptions. In fact, LED is an abbreviation for Light Emitting Diode, but what does SMD and VMS stand for? And what is a visibility angle or an RGB screen?

A light-emitting diode is a semiconductor device that emits visible light when an electric current passes through it. This is the most important element of an LED display with the quality of the LED directly impacting on the clarity, brightness and longevity of a display. All programmable LED displays can be described as variable message signs (VMS). This means that regardless of the type – scrolling text sign, full colour graphic display or LED video screen – all displays use control software that turn the LEDs on and off in sequence creating a changeable or variable text, graphic or video sign.

There are many other elements that need to be considered when selecting a fit for purpose LED display. One of these is resolution which is influenced by the pixels and pitch of the screen. Pixels are made up of one, or a cluster of, LEDs that create a single point of light or colour. The pitch of the display is the distance between the centre of two pixels. The closer together the pixels the higher the resolution resulting in a more detailed, crisper image. That is, the display will be less pixelated especially when viewed from shorter distances.

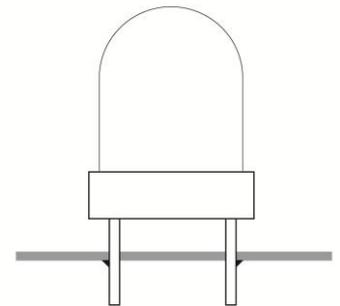
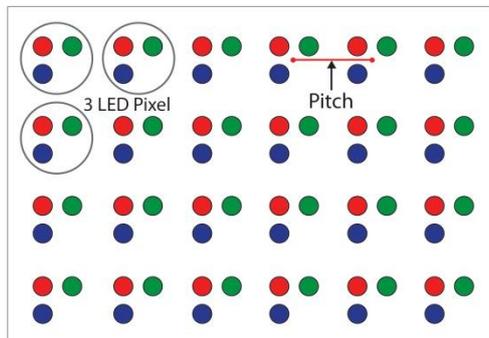
Typically, LED text signs are either single or tri-colour displays with the most popular colour being red, possibly because early LEDs emitted only red light. Other commonly used colour options include yellow, green and blue. Single colour white displays are also available and are produced by adding a phosphorous coating to a blue diode. But white displays, and indeed full colour white screens, can also be created using a combination of red, green and blue diodes. These displays are commonly referred to as RGB (red, green, blue) screens and are usually used in large video wall applications.

The majority of LED displays are made up of discrete diodes. For example a full colour RGB screen would be constructed using clusters of three individual LEDs – 1 red, 1 green, 1 blue – to create a single pixel.

These screens are commonly referred to as DIP (dual inline package) displays because of the way the LEDs are attached to the circuit board with two parallel pins.

However, advances in LED technology resulting in the ability to miniaturise the diode's electrical components has seen the introduction of surface mounted diode (SMD) displays. These significantly smaller LEDs can be mounted so that they are almost flush with the surface of the electronic board. This produces a flatter screen with improved visibility angles. The visibility angle is the angle at which the clarity of the display is equal to 50% of its frontal luminosity.

Another advantage of SMD displays is the ability to fit miniature LEDs (red, green, blue) into the one small case allowing full colour displays with a smaller pitch, a higher resolution and superior image quality. SMD technology is particularly



DIP (Dual In-Line Package)



SMD (Surface Mounted Display)

suited to applications such as sports bars or beer gardens where up close and angled viewing is required.

But with all new technologies buyers should use some caution when selecting an SMD screen. Some SMD suppliers have, over time, had issues with temperature failure, weather proofing and colour balance. It should be remembered that it took about 20 years to perfect quality, robust outdoor DIP screens.

Despite what seems to be an almost unlimited number of display types, colours, and resolution options, it is important to firstly fully understand the purpose of the LED display before getting bogged down in the acronyms, abbreviations and curious product descriptions.

Installation News

Hornsby RSL

LED-Signs has recently installed a large outdoor LED screen at the entrance of the Hornsby RSL Club in Sydney.

This single sided, RGB graphic LED display is 2146mm x 1546mm and is positioned to attract the attention of club patrons and passers-by.

The screen includes LAN communication and front service access.



New Melbourne Office and Showroom



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