A LED screen is a video display which uses light-emitting diodes. An LED panel is a small display, or a component of a larger display or screen. They are typically used outdoors in store signs and billboards, and in recent years have also become commonly used in destination signs on public transport vehicles. LED panels are sometimes used as form of lighting, for the purpose of general illumination, task lighting, or even stage lighting rather than display.

Types of LED Screens

There are two types of LED panels: conventional (using discrete LEDs) and surface-mounted device (SMD) panels. Most outdoor screens and some indoor screens are built around discrete LEDs, also known as individually mounted LEDs. A cluster of red, green, and blue diodes is driven together to form a full-color pixel, usually square in shape. These pixels are spaced evenly apart and are measured from center to center for absolute pixel resolution. The largest LED display in the world is over 1,500 foot (457.2 m) long and is located in Las Vegas, Nevada covering the Fremont Street Experience. The largest LED television in the world, the Center Hung Video Display at Cowboys Stadium, is 160 by 72 feet (49 by 22 m), 11,520-square-foot (1,070 m2).

Most indoor screens on the market are built using SMD technology—a trend that is now extending to the outdoor market. An SMD pixel consists of red, green, and blue diodes mounted on a chipset, which is then mounted on the driver PC board. The individual diodes are smaller than a pinhead and are set very close together. The difference is that the maximum viewing distance is reduced by 25% from the discrete diode screen with the same resolution.

Indoor use generally requires a screen that is based on SMD technology and has a minimum brightness of 600 candelas per square meter (cd/m², sometimes informally called nits). This will usually be more than sufficient for corporate and retail applications, but under high ambient-brightness conditions, higher brightness may be required for visibility. Fashion and auto shows are two examples of high-brightness stage lighting that may require higher LED brightness. Conversely, when a screen may appear in a shot on a television studio set, the requirement will often be for lower brightness levels with lower color temperatures (common displays have a white point of 6500 to 9000 K, which is much bluer than the common lighting on a television production set).

For outdoor use, at least 2,000 cd/m² is required for most situations, whereas higher-brightness types of up to 5,000 cd/m² cope even better with direct sunlight on the screen. (The brightness

of LED panels can be reduced from the designed maximum, if required.)

Suitable locations for large display panels are identified by factors such as line of sight, local authority planning requirements (if the installation is to become semi-permanent), vehicular access (trucks carrying the screen, truck-mounted screens, or cranes), cable runs for power and video (accounting for both distance and health and safety requirements), power, suitability of the ground for the location of the screen (if there are no pipes, shallow drains, caves, or tunnels that may not be able to support heavy loads), and overhead obstructions.

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