

FIND OUT MORE

About Samsung Electronics Co., Ltd.

Samsung Electronics Co., Ltd. inspires the world and shapes the future with transformative ideas and technologies, redefining the worlds of TVs, smartphones, wearable devices, tablets, cameras, digital appliances, printers, medical equipment, network systems, and semiconductor and LED solutions. We are also leading in the Internet of Things space through, among others, our Smart Home and Digital Health initiatives. We employ 319,000 people across 84 countries with annual sales of US \$196 billion. To discover more, please visit our official website at www.samsung.com and our official blog at global.samsungtomorrow.com.

SMART LED Signage

For more information about Samsung SMART LED signage, visit www.samsung.com/business/smart-led-signage or www.samsung.com/displaysolutions

Screen images simulated.

Copyright © 2015 Samsung Electronics Co. Ltd. All rights reserved. Samsung and MagicInfo are registered trademarks of Samsung Electronics Co. Ltd. Specifications and designs are subject to change without notice. Non-metric weights and measurements are approximate. All data were deemed correct at time of creation. Samsung is not liable for errors or omissions. All brand, product, service names and logos are trademarks and/or registered trademarks of their respective owners and are hereby recognized and acknowledged.

Samsung Electronics Co. Ltd.
416, Maetan 3-dong,
Yeongtong-gu
Suwon-si, Gyeonggi-do 443-772,
Korea

2015-10

SAMSUNG
BUSINESS



SAMSUNG SMART LED SIGNAGE OUTDOOR SERIES

Amplify message delivery with durable performance

Craftsmanship, ingenuity and expertise are just three reasons why Samsung SMART LED signage outdoor series should be your first choice when making a big impression. Deliver powerful and attractive messages even in demanding conditions through LED signage configured for the needs of business.

Highlights

- Impress with brighter and more vibrant picture quality
- Long-life performance proven through reliability and environmental testing
- Customize to your specific needs, location and requirements
- Hit the ground running, with pre-assembled and pre-tested solutions for quicker, more efficient installation
- Support round-the-clock service to diagnose and solve issues before they become problems

SAMSUNG
BUSINESS

THE OUTDOOR SIGNAGE LEADERS

Trust a Market Leader

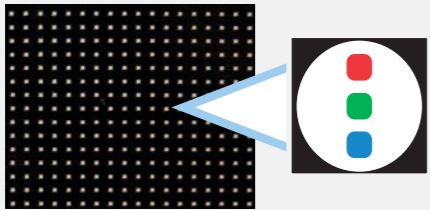
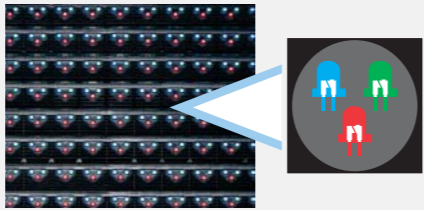
Many industries today are discovering how digital display technologies are a great way to inform and entertain. While displays and projectors have been around for a long time, advances in technology are enabling organizations to think more creatively about how to apply these tools to meet business objectives.

New advances in diode brightness and quality are allowing digital signage to replace analog displays in outdoor locations, opening up a world of possibilities. As the barriers to entry decrease, forward-thinking businesses are collaborating with signage manufacturers and vendors to create unique and sophisticated customer experiences with outdoor digital signage, more easily.

Samsung SMART LED Signage should be your first choice for outdoor advertising, sporting events, entertainment and more. Samsung has acquired YESCO Electronics which has over 20 years of experience in LED solutions to broaden our signage portfolio and draw on their experience in the digital signage arena. Samsung and YESCO Electronics are at the forefront of the outdoor signage market. We lead the industry in ease of installation, superior image quality, energy efficiency, durability and serviceability.

LED Types for Any Application or Purpose

There are a number of factors that determine the right kind of LED for a given purpose: viewing angle, resolution, obstruction and brightness. There are two main types of LEDs used in the manufacture of digital signage and video displays; they are through-hole LEDs and surface mount technology (SMT) LEDs. Each LED type has its own inherent advantages.

	Surface Mount Technology (SMT)	Through-hole
		
Viewing Angle	<ul style="list-style-type: none"> SMT LED light is integrated so all pictures look the same from all directions, meaning a greater viewing angle. 	<ul style="list-style-type: none"> Each of the RGB LEDs is focused by its own direction which makes it challenging to create a wide viewing angle
Brightness	<ul style="list-style-type: none"> Here will be the loss of brightness due to the integration of LED elements. 	<ul style="list-style-type: none"> The three color elements are separately positioned, so each LED's brightness is maximised to support high-brightness.
Resolution	<ul style="list-style-type: none"> Integration of all three color elements into one unit as an SMT LED allows for extremely tight pixel pitches. 	<ul style="list-style-type: none"> Three through-hole LEDs make up a single pixel. Individual LEDs for each pixel make it more difficult to create extremely tight pixel pitches.
LED Obstruction	<ul style="list-style-type: none"> SMT LEDs prevents LED obstruction from happening, no matter how tightly they are placed. 	<ul style="list-style-type: none"> When pixel pitch becomes extremely tight, LED obstruction can slightly alter the perceived color of the emitted light.
Outdoor Lineup	P6 P10 P12 P16	P16 P20 P25

VIBRANT IMAGES AND COLOR

High-Quality Components and Craftsmanship

Samsung LED Signage is recognized worldwide for superior image quality and our outdoor series is no exception. Samsung sources the best components to ensure the best results—longer-lasting displays, optimized power consumption and brighter and more vibrant images.



Precisely Selected Diodes

We ensure the quality of our displays with top-tier diodes lasting up to 100,000 hours (11.4 years) to half brightness. This means Samsung SMART LED signage is brighter and more vibrant, while our preferential binning practices minimize potentially distracting manufacturing variations.



Deeper Contrast

The special groove (louver) in Samsung displays traps light and is coated to deflect dust and dirt to produce the deepest possible black for the highest contrast.



Advanced Video Processing

Samsung displays have more processing power than any other displays on the market. This processing power allows for brightness, heat and power optimization, all key to display longevity. It also offers up to a 24,960 Hertz refresh rate, and eliminates the “whitewash” effect and visible scan lines prevalent on screens with inferior processors.

Finely Calibrated for Perfect Color and Brightness

We calibrate our displays in our plant from pixel to pixel, module to module and across the whole sign. This “whole-sign” calibration ensures overall brightness and color uniformity. We can also calibrate to a customer-specified color gamut (the range of colors that are possible). This assures flash tones are correct and colors are true; regardless of video equipment or media used.

Two-step Calibration

Our unique two-step calibration process provides superior luminance and color correction.

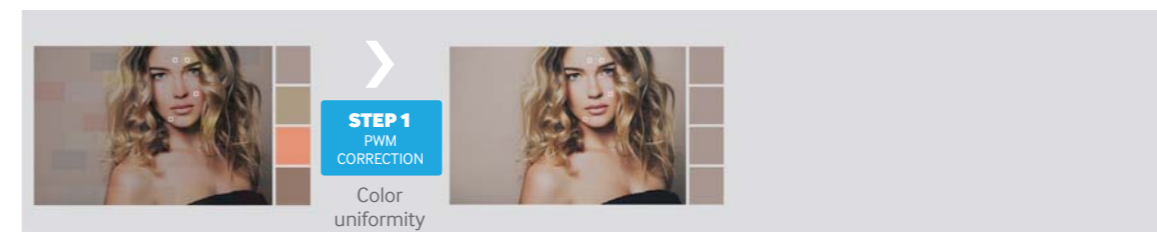
• **Step 1: Dot Correction** · Technicians adjust the electrical current flowing to each LED using a dot-correction-value. Commonly, this process is skipped, resulting in an unacceptable loss of luminance, because it lowers brightness to the dimmest LED in the screen. Through dot correction, we either raise or lower the brightness as necessary, without having to sacrifice total screen brightness.

• **Step 2: PWM Correction** · This adjusts the pulse width modulation of each LED for color correction. By combining this with dot correction, screens look their best and keep ideal uniformity with high brightness.

2-step calibration



1-step calibration



BUILT FOR QUALITY

Superior Reliability Backed by Rigorous Testing

Our screens are designed to pass rigorous environmental testing and to perform in even the harshest settings. Industrially certified, Samsung LED Signage offers enhanced durability and generates cost savings to help business owners achieve their long-term goals.

These three tests ensure that Samsung outdoor signage is built to withstand the most extreme conditions.



The C3 Contamination and Ionograph Test

ensures that there is no contamination in the circuits of the display meaning longer-lasting electronics.



The Climate and Humidity Test

simulates temperature and climate variations, rapidly cycling through hot and cold, wet and dry and everything in-between.



The Salt Fog Chamber

exposes Samsung signage to corrosive environments, testing their durability against the elements and ensuring they can withstand even the wettest conditions.

Enhanced Weatherproofing

SMART LED Signage is designed to endure in the world's most windy, wet and corrosive environments and extreme weather conditions. We use a nanotechnology coating solutions developed to protect the signage's circuits from any liquids, the same solution used by the U.S. military to protect its equipment.



IP65 certified: cabinet protection

IP67 certified: module protection

Designed and proven to withstand a Level 4 Hurricane²

1. IP ratings, or ingress protection, were developed by the IEC (International Electro-technical Commission)

Certification	Protection type	Description
IP65 certified	Protects against water jets	Water projected by a nozzle (6.3 mm) against enclosure from any direction shall have no harmful effects.
IP67 certified	Protect against immersion up to 1m	Ingress of water in harmful quantity shall not be possible when the enclosure is immersed in water under defined conditions of pressure and time (up to 1 m of submersion).

2. Level 4 Hurricane: wind speed of 210 to 249 km/h (Typhoon NOUL on May 11, 2015: max wind speed of 220 km/h)

EXPERTISE IN SERVICE

On-time and Flawless Installation

With our streamlined manufacturing and installation practices, Samsung ensures customers get their outdoor displays up and running more quickly, more efficiently and with less chance of delays and defects.

Samsung displays are fully assembled, calibrated and tested at the factory, then shipped to their final location in large sections. This minimizes the number of parts in transit and simplifies installation. When the sections arrive on-site, they are put together and once they are installed, they are tested and calibrated again, quickly and efficiently. This ensures the color and image quality is maintained.

Conventional LED signage is delivered in parts, requiring long hours of on-site assembly and calibration, meaning there is a chance for defects to slip through. All this adds up to days of on-site work, increased risk of misalignment and component degradation.



<< Monocoque construction
< Single piece construction

Customizable Design

Samsung SMART LED signage is custom-made to specification and to fit any location. Our dedicated team has a wealth of experience creating signage that conforms to unusual shape and space requirements.

Our unique monocoque construction method means our display cabinets are built like modern aircraft, with the chassis integrated into the structure. This ensures robustness and lower weight. We design to precise specifications: whether you need a speaker compartment, wheels (for rail structure), protection, or something different.

Dependable Support 24/7

We provide live 24-7/365 service and technical support to ensure the long-term reliability and efficiency of your signage solution.



Pre-emptive Solutions

Before an issue becomes a problem, turn to Samsung's real-time monitoring, diagnostics and support from NOC (Network Operation Center). Staffed 24-7/365 by technical experts, it can diagnose and provide solutions in real-time and control basic device configurations remotely. It is also your single point of contact for all service inquiries and on-site service dispatches.

By using "Peek and Tweak" remote monitoring, our diagnostic teams can remotely adjust module color and luminance without interrupting service to maintain image quality over time, and reduce service calls and on-site visits.

Our monitoring systems also use an LED dot-error-analysis-method to recognize visual irregularities, and power and temperature fluctuations before they become problems to ensure an uninterrupted visual experience.



Proactive Support

If a more complex error occurs, a service team will work closely with customers to alleviate problems quickly and return the display to optimal operation. Our technicians are ready to give their aid and troubleshoot any issues that may arise.

