

## 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](http://www.samsung.com) and our official blog at [global.samsungtomorrow.com](http://global.samsungtomorrow.com).

### SMART LED Signage

For more information about Samsung SMART LED signage, visit [www.samsung.com/business/smart-led-signage](http://www.samsung.com/business/smart-led-signage) or [www.samsung.com/displaysolutions](http://www.samsung.com/displaysolutions)

Screen images simulated.

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**SAMSUNG**  
BUSINESS



## SAMSUNG SMART LED SIGNAGE INDOOR SERIES

Capture your customers' imagination

Bring your message to life with innovative Samsung SMART LED signage. Designed for customer-facing environments, Samsung SMART LED signage indoor series deliver bright, compelling content to keep viewers engaged and focused on featured messaging. The customizable design accommodates users' unique operational needs while helping business owners produce brilliant messaging. As a result, businesses can offer customers a differentiated and seamless viewing experience.

### Highlights

- Deliver superior picture quality with brighter, high-resolution screens
- Customize a signage solution to your unique requirements
- Hit the ground running, with pre-assembled and pre-tested solutions for quicker, more efficient installation
- Support your signage solution with round-the-clock service

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## RECOGNIZE THE OPPORTUNITIES

### Trust a Market Leader

The transition to all-digital media across all platforms is well underway, and a compelling reason to move to new, future-compatible displays. Advances in LED technology make LED signage more affordable and more practical, making it more common in commercial applications, meaning there are new opportunities waiting to be seized by forward-thinking organizations.

Brighter, vivid and bezel-free LED signage is becoming the new standard in indoor signage, replacing LCD video wall solutions. LED signage offers bigger, completely customizable screens that transmit video, text and images, flawlessly.

Samsung SMART LED signage indoor series should be your first choice for impressive, eye-catching experience in various retail, corporate, transportation and broadcasting environments. Samsung has acquired YESCO Electronics which has over 20 years of experience, 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 signage market. We lead the industry in ease of installation, brightness, image clarity, contrast, energy efficiency and serviceability.

## VIBRANT IMAGES AND COLOR

### Precisely Selected Diodes

Samsung ensures 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.

### 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.

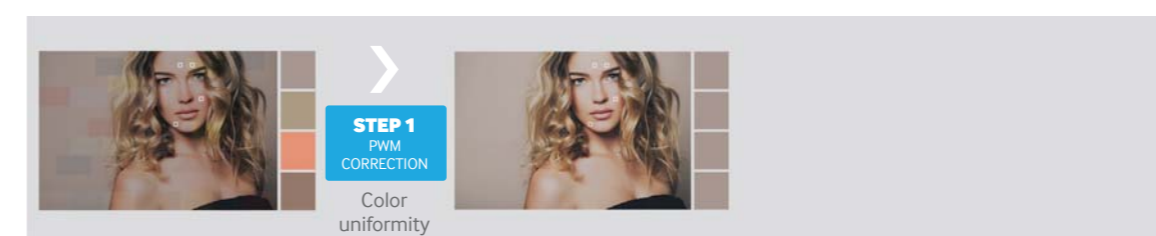
• **Step 1: Dot Correction** · Technicians adjust the electrical current flowing to each LED using a dot-correction-value. Commonly, this process is skipped, resulting in an unacceptable loss of luminance, because it lowers brightness to the dimmest LED in the screen. Through dot correction, we either 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

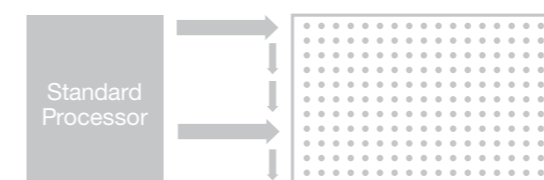


### 1-step calibration

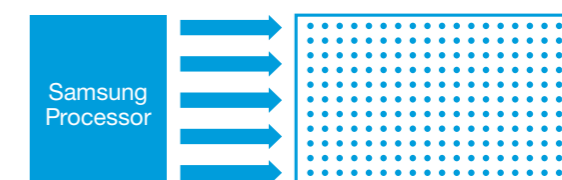


### Advanced Video Processing

Samsung LED displays come equipped with one-to-one pixel drive system, which transmits video to all lines simultaneously. This results in higher total brightness and lower power consumption because each LED is illuminated simultaneously but with lower voltage. This system 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.



Processor sends video to one line at a time, scanning rapidly between lines.



Advanced processor sends video to all lines simultaneously.



## 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.



^ Single piece construction

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.

### 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.





| INDOOR LED SIGNAGE LINEUP |   |   |   |   |
|---------------------------|---|---|---|---|
| Specification             |   | P3  | P4  | P6  |
| Physical Parameters       | Pixel Pitch   | 3.175mm (.125") centers                             | 4.1275mm (.1625") centers                           | 6.35mm (.25") centers                               |
|                           | Pixel Configuration   | 1 red, 1 green, 1 blue                              | 1 red, 1 green, 1 blue                              | 1 red, 1 green, 1 blue                              |
|                           | Pixel Density   | 99,200 m <sup>2</sup> / 9,216 ft <sup>2</sup>       | 58,698 m <sup>2</sup> / 5,453 ft <sup>2</sup>       | 24,800 m <sup>2</sup> / 2,304 ft <sup>2</sup>       |
|                           | Modul Configuration (LxH)                                     | 64x72 pixels  | 64x72 pixels  | 32x36 pixels  |
|                           | Diode Type  | Surface Mount Device (SMD)                          | Surface Mount Device (SMD)                          | Surface Mount Device (SMD)                          |
|                           | Dimensions (LxH) (per module)                                 | 203x229 mm  | 264x297 mm  | 203x229 mm  |
|                           | Weight (per module)   | 0.39kg  | 0.52kg  | 0.32kg  |
|                           | Cabinet Construction  | All aluminum construction                           | All aluminum construction                           | All aluminum construction                           |
| Optical Parameters        | Brightness  | 2,000 nit   | 2,000 nit   | 2,000 nit   |
|                           | Viewing Angle (Horizontal)                                    | 160° (+/- 80°)                                      | 160° (+/- 80°)                                      | 160° (+/- 80°)                                      |
|                           | Viewing Angle (Vertical)                                      | 160° (+/- 80°)                                      | 160° (+/- 80°)                                      | 160° (+/- 80°)                                      |
|                           | Number of Colors  | 281 trillion colors                                 | 281 trillion colors                                 | 281 trillion colors                                 |
|                           | Gray Scale Intensity  | 65,536 levels of red, green, and blue               | 65,536 levels of red, green, and blue               | 65,536 levels of red, green, and blue               |
|                           | Dimming Capability  | 256 levels of brightness                            | 256 levels of brightness                            | 256 levels of brightness                            |
|                           | Color Wavelength  | red: 630nm, green: 530nm, blue: 468nm               | red: 630nm, green: 530nm, blue: 468nm               | red: 630nm, green: 530nm, blue: 468nm               |
|                           | Color Temperature (Default)<br>Color Temperature (Adjustable) | 6,500K<br>4,500 - 9,000K                            | 6,500K<br>4,500 - 9,000K                            | 6,500K<br>4,500 - 9,000K                            |
| Electrical Parameters     | Video Rate  | 60 frames per second                                | 60 frames per second                                | 60 frames per second                                |
|                           | Animation Rate  | 60 frames per second                                | 60 frames per second                                | 60 frames per second                                |
|                           | Video Processing  | 24 bit, 100% digital, no compression                | 24 bit, 100% digital, no compression                | 24 bit, 100% digital, no compression                |
|                           | Color Processing  | 16 bit per color (48 bit total)                     | 16 bit per color (48 bit total)                     | 16 bit per color (48 bit total)                     |
|                           | Input Power Range   | 120/240 volts, 50/60 Hz                             | 120/240 volts, 50/60 Hz                             | 120/240 volts, 50/60 Hz                             |
|                           | Power consumption - Max(W/m <sup>2</sup> )                    | 992 (W/m <sup>2</sup> ) / 92.2 (W/ft <sup>2</sup> ) | 587 (W/m <sup>2</sup> ) / 54.5 (W/ft <sup>2</sup> ) | 484 (W/m <sup>2</sup> ) / 44.9 (W/ft <sup>2</sup> ) |
|                           | Power Consumption - Typical(W/m <sup>2</sup> )                | 495 (W/m <sup>2</sup> ) / 46 (W/ft <sup>2</sup> )   | 293 (W/m <sup>2</sup> ) / 27.3 (W/ft <sup>2</sup> ) | 173 (W/m <sup>2</sup> ) / 16.1 (W/ft <sup>2</sup> ) |
|                           | Refresh Rate  | 24,960 Hz   | 24,960 Hz   | 24,960 Hz   |
|                           | Scan Rate   | Scan Rate 1:1 non-multiplexed                       | Scan Rate 1:1 non-multiplexed                       | Scan Rate 1:1 non-multiplexed                       |
|                           | Calibration   | Pixel to pixel - Module to module                   | Pixel to pixel - Module to module                   | Pixel to pixel - Module to module                   |
| Calibration White Point   | D65 - 6500K   | D65 - 6500K   | D65 - 6500K   |   |
| Calibration Standards     | REC 709, REC 2020 or Max Gamut                                | REC 709, REC 2020 or Max Gamut                      | REC 709, REC 2020 or Max Gamut                      |   |
| Operation Conditions      | Working Temperature   | -18°C to 55°C (0°F to 131°F)                        | -18°C to 55°C (0°F to 131°F)                        | -18°C to 55°C (0°F to 131°F)                        |
|                           | Cooling   | Quiet running vent fans                             | Quiet running vent fans                             | Quiet running vent fans                             |
|                           | IP Rating   | IP50  | IP50  | IP50  |
|                           | LED Lifetime  | 100,000 hours to half brightness                    | 100,000 hours to half brightness                    | 100,000 hours to half brightness                    |
| Certification             | Certification   | UL/ULC listed                                       | UL/ULC listed                                       | UL/ULC listed                                       |
| Service                   | Service   | Front Service and/or Rear Service                   | Front Service and/or Rear Service                   | Front Service and/or Rear Service                   |

| INDOOR LED SIGNAGE LINEUP |   |   |   |   |   |
|---------------------------|---|---|---|---|---|
| Specification             |   | P8  | P10   | P12   | P16   |
| Physical Parameters       | Pixel Pitch   | 8.255mm (.325") centers                             | 10.32mm (.40625") centers                           | 12.7mm (.5") centers                                | 16.51mm (.65") centers                              |
|                           | Pixel Configuration   | 1 red, 1 green, 1 blue                              | 1 red, 1 green, 1 blue                              | 1 red, 1 green, 1 blue                              | 1 red, 1 green, 1 blue                              |
|                           | Pixel Density   | 14,675 m <sup>2</sup> / 1,363 ft <sup>2</sup>       | 9,392 m <sup>2</sup> / 876 ft <sup>2</sup>          | 6,200 m <sup>2</sup> / 576 ft <sup>2</sup>          | 3,669 m <sup>2</sup> / 341 ft <sup>2</sup>          |
|                           | Modul Configuration (LxH)                                     | 32x36 pixels  | 32x16 pixels  | 16x16 pixels  | 16x16 pixels  |
|                           | Diode Type  | Surface Mount Device (SMD)                          | Surface Mount Device (SMD)                          | Surface Mount Device (SMD)                          | Surface Mount Device (SMD)                          |
|                           | Dimensions (LxH) (per module)                                 | 264x297 mm  | 330x165 mm  | 203x203 mm  | 264x264 mm  |
|                           | Weight (per module)   | 0.50kg  | 0.27 or 0.54kg                                      | 0.27kg  | 0.44kg  |
|                           | Cabinet Construction  | All aluminum construction                           | All aluminum construction                           | All aluminum construction                           | All aluminum construction                           |
| Optical Parameters        | Brightness  | 2,000 nit   | 2,500 nit (black faced)                             | 2,000 nit   | 2,000 nit   |
|                           | Viewing Angle (Horizontal)                                    | 160° (+/- 80°)                                      | 160° (+/- 80°)                                      | 160° (+/- 80°)                                      | 160° (+/- 80°)                                      |
|                           | Viewing Angle (Vertical)                                      | 160° (+/- 80°)                                      | 160° (+/- 80°)                                      | 160° (+/- 80°)                                      | 160° (+/- 80°)                                      |
|                           | Number of Colors  | 281 trillion colors                                 | 281 trillion colors                                 | 281 trillion colors                                 | 281 trillion colors                                 |
|                           | Gray Scale Intensity  | 65,536 levels of red, green, and blue               | 65,536 levels of red, green, and blue               | 65,536 levels of red, green, and blue               | 65,536 levels of red, green, and blue               |
|                           | Dimming Capability  | 256 levels of brightness                            | 256 levels of brightness                            | 256 levels of brightness                            | 256 levels of brightness                            |
|                           | Color Wavelength  | red: 630nm, green: 530nm, blue: 468nm               | red: 630nm, green: 530nm, blue: 468nm               | red: 630nm, green: 530nm, blue: 468nm               | red: 630nm, green: 530nm, blue: 468nm               |
|                           | Color Temperature (Default)<br>Color Temperature (Adjustable) | 6,500K<br>4,500 - 9,000K                            | 6,500K<br>4,500 - 9,000K                            | 6,500K<br>4,500 - 9,000K                            | 6,500K<br>4,500 - 9,000K                            |
| Electrical Parameters     | Video Rate  | 60 frames per second                                | 60 frames per second                                | 60 frames per second                                | 60 frames per second                                |
|                           | Animation Rate  | 60 frames per second                                | 60 frames per second                                | 60 frames per second                                | 60 frames per second                                |
|                           | Video Processing  | 24 bit, 100% digital, no compression                | 24 bit, 100% digital, no compression                | 24 bit, 100% digital, no compression                | 24 bit, 100% digital, no compression                |
|                           | Color Processing  | 16 bit per color (48 bit total)                     | 16 bit per color (48 bit total)                     | 16 bit per color (48 bit total)                     | 16 bit per color (48 bit total)                     |
|                           | Input Power Range   | 120/240 volts, 50/60 Hz                             | 120/240 volts, 50/60 Hz                             | 120/240 volts, 50/60 Hz                             | 120/240 volts, 50/60 Hz                             |
|                           | Power consumption - Max(W/m <sup>2</sup> )                    | 433 (W/m <sup>2</sup> ) / 40.2 (W/ft <sup>2</sup> ) | 282 (W/m <sup>2</sup> ) / 26.3 (W/ft <sup>2</sup> ) | 397 (W/m <sup>2</sup> ) / 36.9 (W/ft <sup>2</sup> ) | 385 (W/m <sup>2</sup> ) / 35.8 (W/ft <sup>2</sup> ) |
|                           | Power Consumption - Typical(W/m <sup>2</sup> )                | 161 (W/m <sup>2</sup> ) / 14.9 (W/ft <sup>2</sup> ) | 103 (W/m <sup>2</sup> ) / 9.6 (W/ft <sup>2</sup> )  | 118 (W/m <sup>2</sup> ) / 10.9 (W/ft <sup>2</sup> ) | 106 (W/m <sup>2</sup> ) / 9.8 (W/ft <sup>2</sup> )  |
|                           | Refresh Rate  | 24,960 Hz   | 24,960 Hz   | 24,960 Hz   | 24,960 Hz   |
|                           | Scan Rate   | Scan Rate 1:1 non-multiplexed                       | Scan Rate 1:1 non-multiplexed                       | Scan Rate 1:1 non-multiplexed                       | Scan Rate 1:1 non-multiplexed                       |
|                           | Calibration   | Pixel to pixel - Module to module                   | Pixel to pixel - Module to module                   | Pixel to pixel - Module to module                   | Pixel to pixel - Module to module                   |
| Calibration White Point   | D65 - 6500K   | D65 - 6500K   | D65 - 6500K   | D65 - 6500K   |   |
| Calibration Standards     | REC 709, REC 2020 or Max Gamut                                | REC 709, REC 2020 or Max Gamut                      | REC 709, REC 2020 or Max Gamut                      | REC 709, REC 2020 or Max Gamut                      |   |
| Operation Conditions      | Working Temperature   | -18°C to 55°C (0°F to 131°F)                        | -18°C to 55°C (0°F to 131°F)                        | -18°C to 55°C (0°F to 131°F)                        | -18°C to 55°C (0°F to 131°F)                        |
|                           | Cooling   | Quiet running vent fans                             | Quiet running vent fans                             | Quiet running vent fans                             | Quiet running vent fans                             |
|                           | IP Rating   | IP50  | IP50  | IP50  | IP50  |
|                           | LED Lifetime  | 100,000 hours to half brightness                    | 100,000 hours to half brightness                    | 100,000 hours to half brightness                    | 100,000 hours to half brightness                    |
| Certification             | Certification   | UL/ULC listed                                       | UL/ULC listed                                       | UL/ULC listed                                       |   |
| Service                   | Service   | Front Service and/or Rear Service                   | Front Service and/or Rear Service                   | Front Service and/or Rear Service                   |   |