



OUTDOOR DIGITAL SIGNAGE

Unleashing the Power of Your Outdoor Advertising

Think *Outside* the Box

Gone are the days of installing new outdoor retail signs every time your products or services change. The future — outdoor digital signage — is here. And the value of digital signage can be seen all around us.

Digital signage solutions offer colorful, high-visibility, attention-grabbing options that work well in outdoor spaces. That's an important reason why the digital signage market is booming. In 2022, it was valued at \$27.3 billion. By 2032, the market is expected to reach \$61.5 billion, and continue to grow by 8.5% annually.

In tandem with the explosive growth of digital signage, digital displays designed for outside use are increasing in popularity. Academic institutions use outdoor digital signage to update their student body and help visitors navigate their campus. Digital timetable signs at airports and bus stations help travelers stay on track. Electronic billboards promote everything from law firms to car sales. Performance and entertainment venues use eye-catching outdoor digital signs to advertise events and upcoming shows. Digital signage displays outside of restaurants and cafes tempt us with menu item images, combo meal deals, and seasonal specials. As the technology is refined and made increasingly accessible, organizations of every size are adapting outdoor digital signage to achieve their business objectives.

In this guide to outdoor digital signage we will cover all the elements of outdoor digital signage, including key features, purchasing decision factors, and how business owners, event organizers, marketing professionals, retail managers and others are using this revolutionary form of signage.



Key Elements



When making a decision on signage options, there are many factors to consider. Some decisions are fairly simple, but others might require more in-depth inspection of features and your location, and there are also content and legal restrictions to consider.

01 Outdoor Environment/Weatherproof

Unless the signage is in an area with a very stable climate, plan for a wide range of weather conditions. Rain, for one, but also the possibilities of snow, high winds, hail, temperature swings, and strong sunlight. Close to the ocean there's salt spray — a potentially hazardous environment for electronics, unless they are properly protected. Make sure any outdoor digital display is rated for whatever your placement environment throws at it. A weatherproof, durable case or enclosure, and proper sealing, are key to survival for devices that don't have built-in protection. For outdoor-rated devices, check out the [Ingress Protection \(IP\) ratings](#) to see how the device will hold up against water and dust. Outdoor rated products may have technology like water sensors to automatically power the device off when it senses moisture. Extreme heat and cold present additional hazards to digital devices. Outdoor rated digital signage will typically provide a minimum and maximum temperature for working and storage, so that you know the safe range to operate in.

02 Location and Visibility

It's crucial to choose the correct location for outdoor signage to maximize impact and visibility. Consider factors like foot traffic, line of sight to the display, surrounding distractions, and lighting conditions. Speed of passing traffic, whether vehicular or pedestrian, also affects visibility. Industry professionals often make several calculations to find the optimal parameters for display size, resolution, and viewing distances.

High-brightness displays are required for installations exposed to full sunlight in order to achieve good visibility. In general, outdoor-rated signs will be several times brighter than interior displays. Units with an ambient light sensor, which measures the surrounding lighting and adjusts panel brightness to reduce power consumption and improve visibility, can serve a broader range of locations.

03 Resolution

The word resolution refers to the detail and clarity of displayed images. It's determined by the number of pixels a screen can show horizontally and vertically. So, a screen with a resolution of 1920x1080 — 1080p or full HD — can display 1,920 pixels horizontally and 1,080 pixels vertically. A screen of 55 inches or larger will have a resolution of 3,840 by 2,160.

The effective resolution generally decreases as the size of the display increases. These larger displays are made to be mounted further away from viewers, so it would be unnecessarily expensive to provide more detail than can be perceived. The A/V industry refers to direct-view LED screen resolution in terms of "pixel pitch." This is the distance between pixels, from pixel center to center — usually in millimeters (mm). Pixel pitch is the standard measure for evaluating and comparing larger displays.

When considering display resolution for specific applications, we can use different formulas to figure out what will look best. For example, you can use the "10X" rule. Pixel Pitch * 10 equals the approximate optimal viewing distance in feet. Using the 10X rule, a display with 2mm pitch looks best from around 20 feet away ($2 * 10 = 20$ feet).

For more technical precision, you can calculate the Visual Acuity Distance, also called Retinal Distance. This is the distance at which a person with 20/20 vision won't notice individual pixels in a coherent image. To put it into a formula: Pixel Pitch * 11.28 = feet of optimal viewing distance. So, for our 2mm example: $2 * 11.28 = 22.56$ feet. This method is close to the 10X rule, but is more accurate.

A simpler method is called the "comfortable viewing distance," which is the distance where most people would find the display to be acceptable. It depends on viewer eyesight, the resolution of content, and the type of content. A rule of thumb is to expect the comfortable viewing distance to be roughly half of what's derived with those other two methods. So, for a 2mm pixel pitch display, the comfortable viewing distance is around 11.25 feet.

04 Interactivity

Touchscreen displays are the best for audience interaction. Being able to touch a screen icon and get further information immediately is a big draw. That info might be directions, weather, product details, current sales items — the list is endless.

Touchscreen outdoor interactivity requires robust screens to handle frequent (and often rough) use while remaining weather resistant and functional.

With large-format, high-mounted displays, physical interaction is not possible. These forms of outdoor digital signage still offer interactivity, however, by using elements like QR codes and NFC (near-field communication) tags. They can encourage audience interaction and produce valuable metrics and data.

05 Hardware and Software for Outdoor Digital Signs

These two elements must work together, based on the environment and purpose for the signage. It's also important to consider the range of functions you will require from your software. Easy-to-use content management software is essential to maintaining your message and scheduling different presentations. Remote monitoring might be essential to seamless operations and regular updates. An effective display depends on good content and easy management.

06 Power, Setup and Installation

We recommend that any non-portable display should be professionally installed, configured, and tested. Consider the mounting options — will the surface and structure safely support the combined weight of the display and mount? Is there a nearby power source, rated to handle the power draw of the display? For remote management, will there be network connections available?

Some systems will need 220-volt connections. Verify in advance that your facility can support the requirements.

Some portable outdoor digital signage comes with battery power with up to 12 hours of run time. Another welcomed feature is a built-in charge level indicator that allows you to avoid losing power, making it great for sidewalk advertising or use in other high-traffic areas. Other solutions are units with incremental solar and rechargeable battery power.



07 Security

Any display is vulnerable to vandalism, theft, or unauthorized access. Security measures are usually required, depending on the type of display, its location, and the area's inherent risks. Tamper-resistant enclosures and chain/cable locks are common solutions for smaller displays. Security cameras, motion detectors, and anti-tamper switches tied to an alarm system with remote monitoring are a great solution. So is locking keyed wheels. Whatever the case, make sure your signage investment is suitably protected.

08 Maintenance

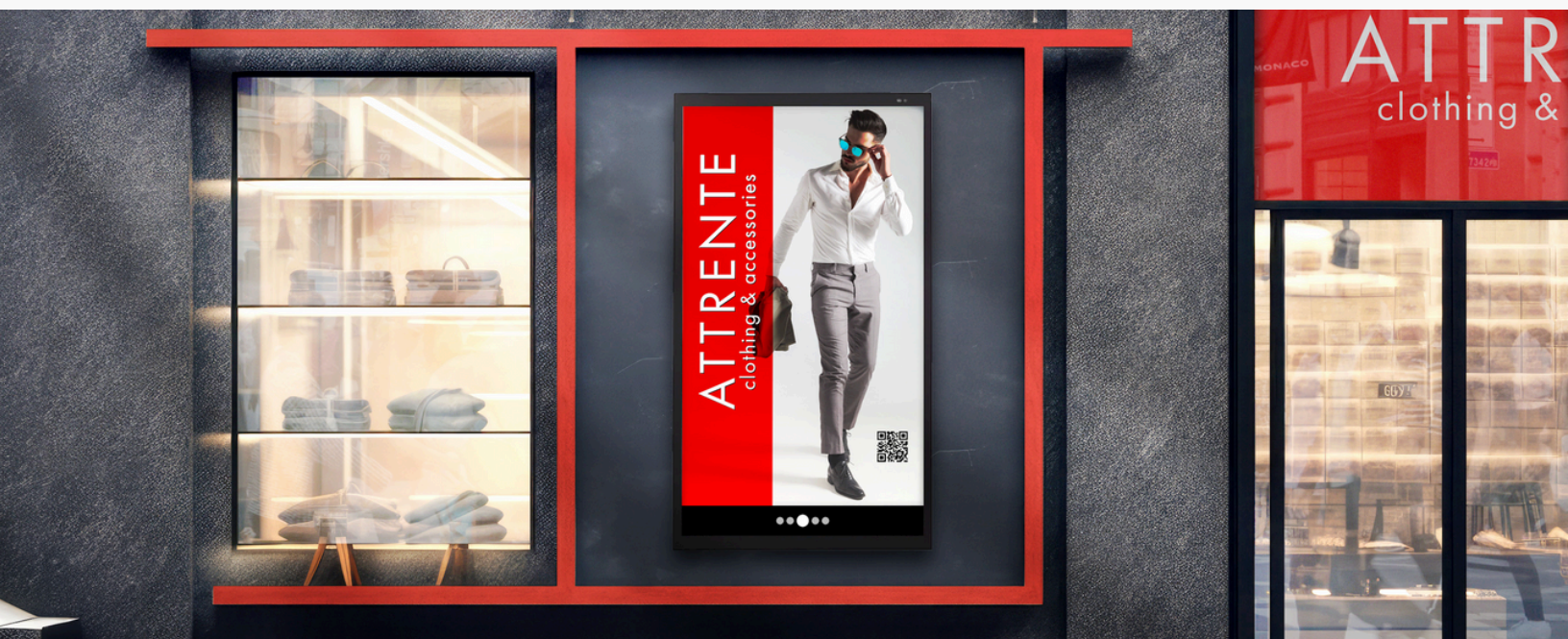
No matter what level of MTBF rating (mean time between failure) a display has, ongoing maintenance is important. It preserves the performance and longevity of displays — especially outdoor displays. Regular cleaning ensures proper airflow and cooling. Inspections uncover damage or wear that might cause later failures, and failing components can be replaced in advance.

09 Content for Outdoor Digital Display

Stale, outdated content leads to viewer disinterest. Compelling and relevant content is the path to success. Tailor content to your target audience and location. Account for factors like demographics, time of day, and seasonal trends. Regularly update and refresh content to keep it engaging and informative. Make sure your system has the latest software updates to take advantage of the cutting-edge features in content management.

10 Regulations and Legal Considerations

Before deploying any outdoor signage, make sure it complies with local signage regulations. Zoning ordinances need to be adhered to, and you might need permits. Even smaller, portable signage, if displayed outdoors, may be regulated by local ordinances. Insurance providers and building management may require additional safety options, depending on where the display is.



Types of Outdoor Digital Signage

Now we'll take a look at the different types of outdoor signage available to businesses and other organizations with a story to tell.

Full and Partial-Shade Outdoor Displays

These displays are specifically made to withstand the rigors of outdoor conditions. To handle rain, snow, sunlight, and extreme temperature shifts, the displays are housed in IP65 weatherproof enclosures. Sealed edges and cable entrances, along with leak-proof ventilation systems, prevent moisture buildup and keep out pests. Screens may be covered with impact-resistant panels to fend off rocks, bottles, or hailstones. Outdoor displays exposed to the sun will require high brightness levels to effectively compete with direct sunshine.



Direct-View LED and LCD Displays and Brightness

Direct-View LED displays are renowned for their high brightness, energy efficiency, and vibrant colors. These are a good choice for outdoor environments facing direct sunlight. Direct-View LEDs produce excellent visibility even in bright conditions, and are often used for large-scale advertising displays.

LCD (liquid crystal display) panels are also used for outdoor signage, and they provide fantastic resolution and image quality. They do, however, provide a lower image brightness. To overcome direct sunlight, LCD displays require a higher power input to produce higher brightness levels. That's often assisted by strong anti-glare coatings. But extra power also brings along extra heat — increasing electric power requirements and ventilation needs. At times, cooling fans and heating elements are put in place for various climates.

Both types of displays can incorporate ambient brightness sensors, to automatically adjust their brightness levels.

Full sun usually requires full display brightness. But at night, a high brightness level can be unwelcome and troublesome — even distracting nearby drivers. Ambient light sensors can automatically set brightness levels for comfortable viewing under all conditions.

The brightness level of a digital display is referred to as "nits." That's the luminosity over one square meter of display, also known as "candelas per square meter." The measurement takes into account many contributing brightness factors: number of LEDs per pixel, pixel pitch, and individual LED brightness. The nits rating is an easy way to compare displays. Indoor Direct-View LED signs often hit 900-1,500 nits, and outdoor Direct-View LED signs can range from 4,000 nits and even higher.

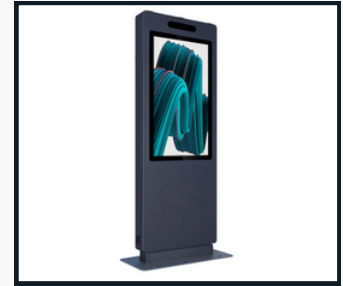


Touch and Non-Touch Displays

Touch displays let users directly interact with content. Those interactions include wayfinding, information lookup, checking in or out, and product browsing. Of course, the venue must be able to support a touch display that is accessible. If you need to mount a display 10 feet above an entrance, you won't need a touch panel.

Non-touch displays provide passive viewing experiences without much interaction. Although QR codes and similar methods allow for some interaction with the panel, it's more of a secondary action. If the display must be mounted somewhere inaccessible to passersby, non-touch displays are a fine option.

Bottom line, the choice really depends on location constraints, user engagement goals, environment and your budget.



Digital Backpacks

A recent development in digital signage is the wearable digital sign backpack. This device allows for content to be shared while the wearer is on the move. The system typically involves a backpack or harness containing batteries and control hardware, with an LCD screen attached. Also, a USB input on the charging battery can power external devices, though that will affect the overall battery life.

These digital backpacks are often used at promotional events, product demos and street marketing campaigns. However, they are recommended for light outdoor use only — not for inclement weather such as high winds, rain or snow. It allows advertisers to engage with audiences in crowded, high-traffic areas where traditional signage is impractical.



Portable, A-Frame Sidewalk Signs

A traditional, foldable A-frame sign is the simple "sandwich board" found outside countless shops and restaurants. With the addition of digital hardware and LED displays, that old, passive sign steps into the future. Digital A-frames can be powered through an extension cord or a rechargeable battery, allowing for more flexibility in placement.

Digital A-frame signs offer versatility, portability, and visibility. They're commonly used for festivals, trade shows and markets. They also are becoming common as outdoor digital signage for businesses. One concern, though, is security — precautions should be taken to make sure they stay put.



Kiosks

Outdoor kiosks can be self-service interactive terminals equipped with digital displays, touchscreen interfaces and interactive functionality. They provide access to information, services and transactions in places like parks, public squares, transportation hubs and retail areas. Outdoor kiosks can serve many purposes: wayfinding, ticketing, self-check-in, ordering, advertising. They are designed to withstand outdoor conditions and feature rugged enclosures and robust weatherproofing. Like A-frame signs, anti-vandalism measures should be taken to ensure security.

Wall-Mounted Outdoor Retail Signage

Wall-mounted digital signage solutions are often integrated with content management systems for remote updating and scheduling. They are often used on building exteriors, storefronts, and pedestrian walkways and around transportation hubs. Like other displays, they are commonly used for advertising, branding, information dissemination and wayfinding. They offer space-saving, visually appealing ways to communicate messages while maximizing visibility and impact.



Outdoor Digital Signage at Work

Many businesses rely on digital signage, so let's look at some specific examples.

Retail

Digital signage plays a major role in attracting customers and driving sales. Products can be advertised and showcased to pull people into stores. Dynamic content (videos, testimonials, interactivity) engages customers and influences purchasing decisions. Content can be updated instantly, providing targeted messaging based on time, season, or inventory levels. Real-time updates on product availability and pricing improve customer satisfaction.

Entertainment Venues and Sports Arenas

Digital signage plays a big role in our enjoyment of concerts, sporting events and other outdoor entertainment. It gives people directions to different parts of the venue to help them find their seats. Outdoor digital displays are prominent at concession stands. The big-screen displays at concerts are integral parts of the entertainment. They show music videos, photos and larger-than-life views of the singers on stage so the folks in the back can see everything. At sporting events, fans and players alike look to giant outdoor digital signage for instant replays.

Restaurants

Both inside and outside of restaurants, digital signage has taken off. Digital menu boards have replaced most traditional static displays — showcasing high-quality images, videos, and current pricing. Menus can be instantly updated to reflect outages, pricing and promotions. Kiosks are used for ordering, queue information, meal customization, and collecting feedback.

Corporate Communication

Many companies rely on digital signage to convey important information and marketing material. On large-scale campuses, digital signage helps with wayfinding and directions, along with providing interactive help. These displays can integrate with corporate calendar systems, email platforms, and internal networks to offer real-time updates and notifications. Large displays on corporate buildings are often used to advertise the latest products and services to passersby and visitors. Though some might technically be interior displays, they are often window- or lobby-mounted to be fully visible outside the building.

Events

Digital signage plays a big role at trade shows and events. Display booths can feature product demos, promo videos, interactive presentations and multimedia content to capture viewer attention. Touchscreen displays or interactive kiosks allow attendees to interact with content, request more information, and participate in interactive experiences. All serve to build immersive brand experiences, generate leads, and differentiate vendors from competitors in crowded marketplaces. Portable displays such as digital backpacks might be employed as well to attract and direct visitors to specific locations.

The Great Outdoors

No matter the industry or application, adding outdoor displays elevates the customer experience. With today's ever-connected digital climate, customer expectations are high — and businesses equipped with outdoor digital displays have the edge. Outdoor displays and digital advertising devices are cost-effective tools that increase marketing potential and customer satisfaction.

Outdoor digital signage diversifies promotional displays to attract passersby and send powerful messages with vibrant digital multimedia. Weatherproof signage endures the elements and relays important information to customers. Using a wide array of outdoor signage options, businesses can draw customer attention in places they least expect. Think big, think bold: go digital. Expand your business' marketing potential with [Displays2go Digital](#) today!

