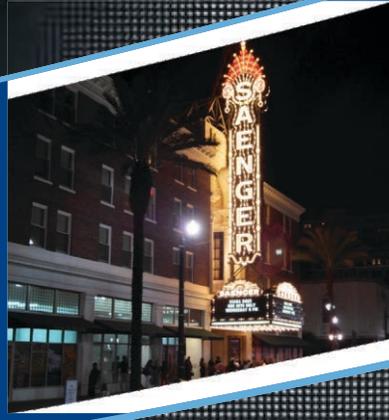




SINCE 1954

# Theater Projects

*Blades, Marquee's, New & Old & MORE!*



- 3 ..... What is a marquee?
- 4 ..... About US
- 5 ..... Frequently Asked Questions
- 6 ..... Lighting types
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Saenger Theatre - New Orleans



Saenger Theatre - New Orleans



Saenger Theatre - New Orleans



## What is a marquee?

This article is about the structure on the front of a hotel or theatre.

A marquee is most commonly a structure placed over the entrance to a hotel or theatre. It has signage stating either the name of the establishment or, in the case of theatres, the play or movie and the artist(s) appearing at that venue. The marquee is often identifiable by a surrounding cache of light bulbs, usually yellow or white, that flash intermittently or as chasing lights.

### ETYMOLOGY:

The current usage of the modern English word marquee, that refers specifically to a canopy projecting over the main entrance of a theater, which displays details of the entertainment or performers, was documented in the academic journal *American Speech* in 1926: "Marquee, the front door or main entrance of the big top."

### HISTORY:

Movie marquee designs in the United States are closely related to the social, political, and economic forces of the 20th century. The invention of the automobile influenced many elements of theater architecture. The marquee in particular became larger, and stood out from the street to serve as a physical and aesthetic landmark from other businesses along the sidewalk. The shape also evolved from a small rectangle to a trapezoid, making it more readable to automobile traffic.

The text also became less detailed but larger. The larger size of the sign and text, combined with the flashing lights and color, made the façade easily visible to fast-passing cars. Movie marquee designs in the 1930s prompted theater historian Ben M. Hall to call them "electric tiaras."

During World War II, aesthetic considerations of the marquee were dictated by the availability of labor and materials. Building materials such as steel, copper, bronze, and aluminum were limited. Even in the postwar years, these building materials were mostly dedicated to building civilian housing for returning soldiers and their families. Concrete and glass, two building materials that were not restricted, became essential to movie theater architects. Light was also an unrestricted resource for architects, and combined with glass it produced striking visual effects. The mild climate of certain locations, such as the American West Coast, also permitted the use of lightweight materials such as porcelain and plastics in marquees. Another benefit of using light and glass together (besides the dramatic appearance it created) was the economic bonus of it being cheap.[2] Marquees are also used to illuminate the name of an arcade game at the top of its cabinet.

## Who is the Wagner Electric Sign Company?

Wagner Electric Sign Co., has been a family-owned company since 1954, specializing in creative and innovative restoration, designs and technology, for over 50 years, continuing to be an industry leader in the 21st century. From grandfather, to father, to sons, three generations have continued to hone their skill and expertise in communication design and customer service, breathtaking marquee's, blade signs and strong customer relationships.

From a simple canopy structure mounted to the front of a hotel or theater, to the creation of a fully animated marquee canopy or building vertical blade. Wagner Electric Sign Co. focuses their knowledge, abilities, and skills to ensure each project gets the individual attention and detail it deserves. We understand the importance of accuracy in history and appreciation of restoring back to what once was there.

Wagner Electric Sign Co. specializes in researching history, restoring or manufacturing new to replicate the past, with the intervention of today's technology and energy conservation, creating the seamless transition from idea to the final product.

### *How do we do it? The 3 C's*

#### Clear Constant Communications

**Client Meeting** - listen and learn: what is their concept, ideas, and expectations.

•  
**Design Team** - research: what is the best way to make it reality.

•  
**Client Sign-Off on Design** - our expertise: we can advise what is possible & available to work best for the needs.

•  
**Project Managing** - coordinating: meet the needs of client and community.

•  
**Production/Fabrication:** understands client expectations as depicted in designs and shop drawings.

•  
**Installation:** whether provided by Wagner or client, Wagner offers on site supervising for a successful finished project.

•  
**Technical Support:** training before completion, support available after the project is complete.



## Frequently Asked Questions

### How much does a marquee or blade cost?

This depends on many factors;

1. Size
2. Shape
3. Design
4. Illumination
  - a. Type
    - 1) Incandescent
    - 2) Fluorescent
    - 3) Compact Fluorescent Lamp (CFL)
    - 4) Neon
    - 5) LED
      - a) Lamp Style
      - b) Tube Style
  - b. Quantity
5. Special Materials
  - a. Stamped Metal
  - b. Controllers
    - 1) Flashers
    - 2) Digital Multiplex (DMX) Controller
  - c. Communications
    - 1) Direct Wire (Hard Wire)
    - 2) Ethernet
    - 3) Fibre
    - 4) Radio
    - 5) Cellular

### How does it attach to building/structure?

This depends on;

1. Existing Available
2. New Required

### Who installs?

This depends on;

1. Location of Job Site
  - a. Wagner - Local
  - b. Sub - Out of State
2. Installer Determined by Contract
3. Clients Installer

### What type of changeable message?

This depends mainly on budget/preference;

1. Flat Printed Letter on Backer
2. Injection Molded Letter
3. LED Display

### What type of lighting? - also see 4. Illumination a. Type

This depends mainly on budget/preference;

1. Bulb Style (exposed)
2. Neon (exposed)
3. LED Strip

### What paint color(s) to use?

This depends on preference/historic samples. Colors can be matched based on Major Paint Manufacturers (PPG, BM, SW, etc) and mixed in house. Samples are always approved prior to applying on final product.

### How is it controlled?

Normally, on site electrician handles this in coordination with Wagner. Wagner will provide special equipment with training per agreement.



## Type of Lighting Available

### **Incandescent**

Typically the three main style bulb styles used are G11, S14 and A15. Available in Clear, Frosted, Transparent, or Painted. The G11 & S14 normally are 10 or 11 watts compared to the A15 at 25 or 30 watts. The bulbs are rated for 120V and normally are the standard medium screw socket. This style lamp is the style originally used but is being slowly phased out due to energy conservation.

### **Compact Fluorescent (CFL)**

Also come in G11, S14, A15 styles. Available in Clear, Frosted, and limited in Transparent, or Painted. The S14 at 10 watts compared to the A15 at 14 watts. The bulbs are rated for 120V and normally are the standard medium screw socket. Color range is 2700K - 5000K. 2700K more yellow and 5000K more blue. More energy efficient than incandescent.

### **LED**

Also come in G11, S14, A15 styles. Available in Clear, Frosted, and limited in Transparent, or Painted. Wattage ranges from 1 watt to 3 watts. The bulbs are rated for 120V and normally are the standard medium socket. Color range is 2700K - 5000K. 2700K more yellow and 5000K more blue. Also colored LEDs are available. Considered most energy efficient of all bulb types.

### **Neon**

Custom manufactured for each project. Many colors available. Used for letters, designs, and borders.

### **LED (Strip/Tube)**

There are many styles, colors, and lengths that are available. In special cases, a neon effect can be produced in a standard static color or capable of being changed with the assistance of a computer and controller. Many colors and white variations are available.

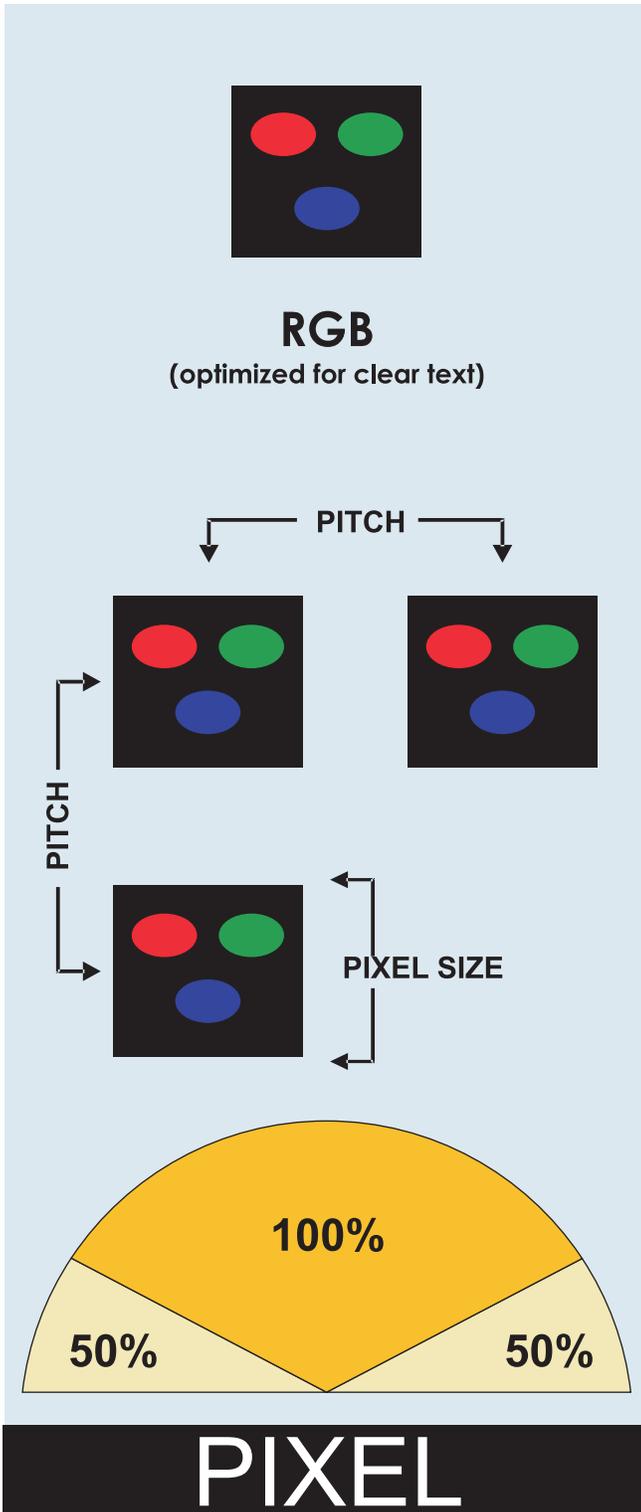
### **Fluorescent Tube**

These are normally set behind plastic. Commonly used to light panels with graphics or changeable letters.

### **LED Display**

Today many theaters have begun to use LED displays. Messages are changed quickly with the capabilities of using pictures, videos or mocking and old style changeable message board. Live streaming is also possible. They have been proven to be the most safe. No ladders required, or fear of falling letters. Displays come in RGB and can produce over a trillion colors. Different pixel sizes are available for budget purposes.

# LED IOI



**LED (Light Emitting Diode):**

An electronic semiconductor device that emits light when an electric current passes through it. They are considerably more efficient than incandescent bulbs, and rarely burn out. LEDs are used in many applications such as flat-screen video displays, and increasingly as general sources of light

**Pixel:**

The smallest image-forming unit of a video display. In our (RGB) units individual pixels can be made up of 4 LEDs (2 Red, 1 Green, 1 Blue) or 3 LEDs (1 Red, 1 Green, 1 Blue). The 4 LED system is used for clear video while the 3 LED system is perfect for mostly text messages.

**Matrix:**

The number of pixels that make up the height and the width of a display; i.e. 64 x128.

**Pitch:**

The distance between two adjacent pixels. One of the determining factors in character size and display size; i.e. 20mm.

**Viewing Angle:**

The angle which the light output of an LED is perceived at 100% brightness; outside of this angle the visibility is reduced by half.

**Brightness (NITS):**

The light output per square meter.

### Resolution

Resolution is a combination of pitch and pixel matrix that defines the quality of an image or video

When determining the resolution of an LED sign the viewing distance and height of the sign (as well as other variables) will determine the pitch and matrix that will work best for you.

### Optimal Viewing

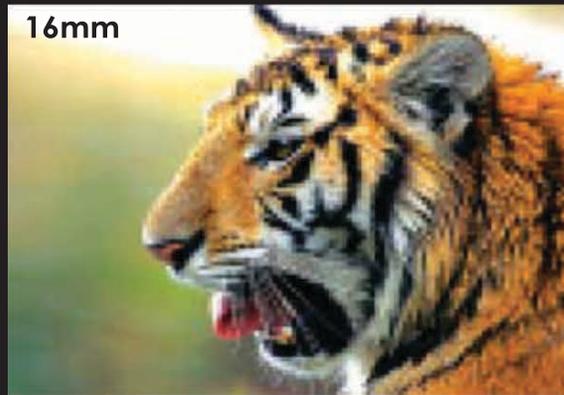
Viewing Distance (feet)	Recommended min. Text Height (inch)	Recommended min. Pitch (mm)	Approx. Viewing Time @ 30 mph (sec)	Approx. Viewing Time @ 55 mph (sec)
30	1	10	1.0	0.5
60	2	10	1.5	1.0
90	3	12	2.0	1.0
120	4	12	3.0	1.5
150	5	12	3.5	2.0
180	6	16	4.0	2.5
210	7	16	5.0	2.5
240	8	16	5.5	3.0
300	10	20	7.0	4.0
360	12	20	8.5	4.5
420	14	20	9.5	5.5
480	16	20	11.0	6.0

\*\*\*All data is an approximation

20mm



16mm



12mm



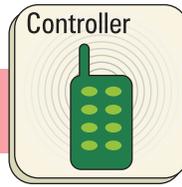
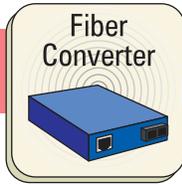
10mm



Resolution comparison at a distance of 30' - 90'

\*\*\* This diagram is a representation for the effects of pitch and resolution. It is an artistic rendering for the purpose of example only

**Communication  
Options Key**



## Sign Connection Options

**Communication with Ethernet:**

**Max Distance – 300 ft**

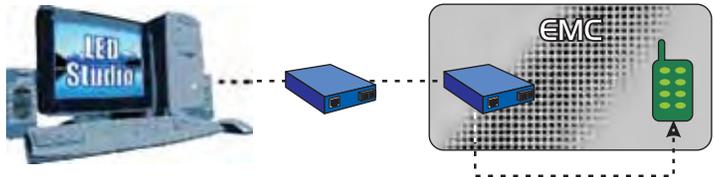
Standard hard-wired connection using CAT 5 cable.



**Communication with Fiber Optic:**

**Max Distance – 1500 ft**

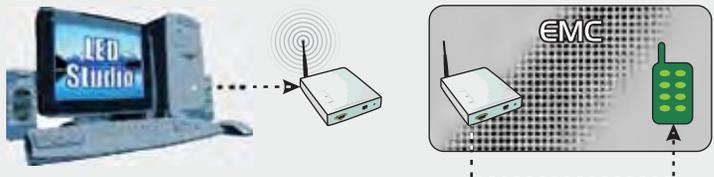
Hard-Wired connection for controlling signs over great distances or areas with high EMF interference.



**Communication with Wireless Ethernet:**

**Max Distance – 0.5 miles**

LINE OF SIGHT  
Wireless option for connecting to high-bandwidth displays.

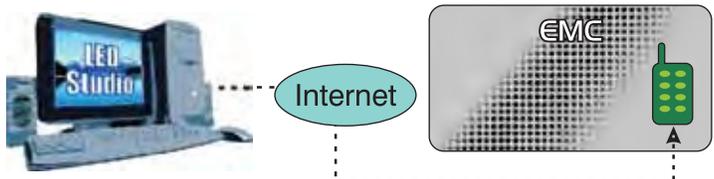


**Communication with a Network:**

Networked (DSL, FIOS, SATCOM):

**Max Distance – Unlimited**

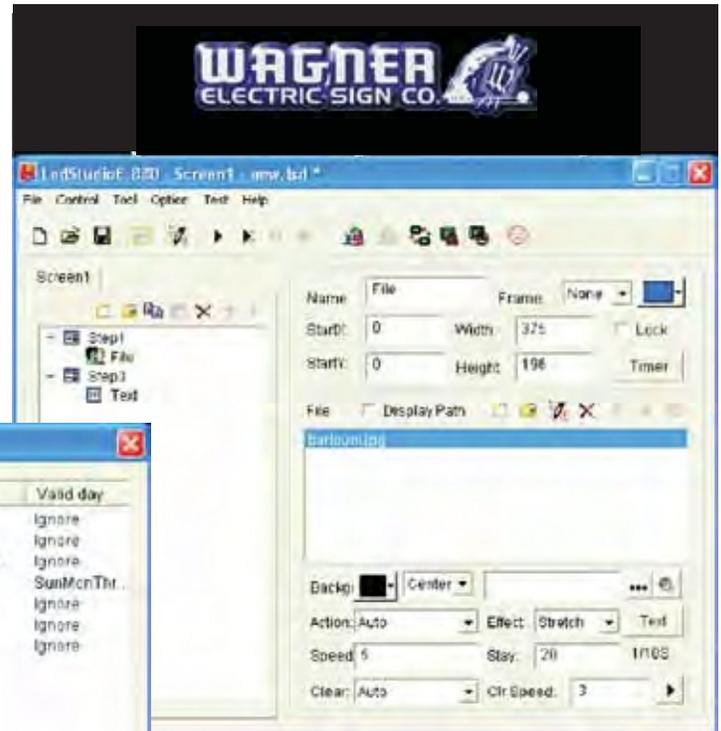
Used for connecting with displays anywhere in the world. Requires Internet connection.



*Colors are not exact and are for visual purposes only*

## Key Features

- Can easily design with Microsoft Office & PowerPoint
- Split screen capability
- Adjust brightness & color on the fly
- Easy to use scheduling software
- Remote access for real-time editing
- Compatibility with almost all picture and video files



S	Command property	G	program file/value	Execution ti.	Valid date	Valid day
1	Turn on LED screen power	1		06:00:00	ignore	ignore
2	Play PowerPoint file	1	C:\sign\powerpoint	06:00:00	ignore	ignore
3	Play PowerPoint file	1	C:\sign\powerpoint	14:00:00	From: 01-2-2	ignore
4	Turn on LED screen power	1		08:00:00	ignore	SunMonTh...
5	LED Screen Brightness	1	100	05:00:00	ignore	ignore
6	LED Screen Brightness	1	50	17:00:00	ignore	ignore
7	Turn off LED screen power	1		23:00:00	ignore	ignore

Compatibility with Microsoft Office makes creating and sending messages to a sign quick and easy. PowerPoint is a powerful tool for creating custom animated messages with images and word art.

Scheduling is made easy with the built-in schedule table. Here you can schedule dates and times for specific messages as well as changing brightness of the LEDs for day and night use and turning the LED screen on or off.

Remote access allows users to send new files to a controlling computer as well as update the schedule. It also allows real-time display of the controlling computer to view or change the message that is currently playing.

LED Studio can play any type of picture file (.bmp, .jpeg, .gif, .png, .etc.) and any type of video (.avi, .mpeg, .wmv, .etc.). Other file types that are playable with LED Studio include .txt, .exe, .swf, and .html.

LED Studio has the ability to split the screen into multiple sections. This allows you to put a static image or company logo on one part of the screen while the other part displays dynamic text animations or the time and temperature.

Brightness and color contrast can be changed on the fly through the setup options in LED Studio. Test patterns are built in to check the brightness and contrast of the sign.

## {Quality from start to finish}

Here at Wagner Electric Sign Co., we have advanced equipment to ensure the excellent quality of our products. Through many years of development we have held a leading position domestically; we lead in aspects such as on-the-spot management, quality control, technical development of mechanisms and audits recording management and personnel appraisal systems within the LED industry.

### **The Reliability Test for Semi-finished Products**

Before sealing semi-finished modules, and after the quality check inspection, more than 48 hours aging is completed in a high temperature environment for all of our products.

### **The Waterproof Test**

During the rainy season, your outdoor LED displays are subject to intense atmospheric conditions from pouring rain to intense humidity. We perform a high-pressure water spray test on all of our products to ensure your display is waterproof and protected from the elements.

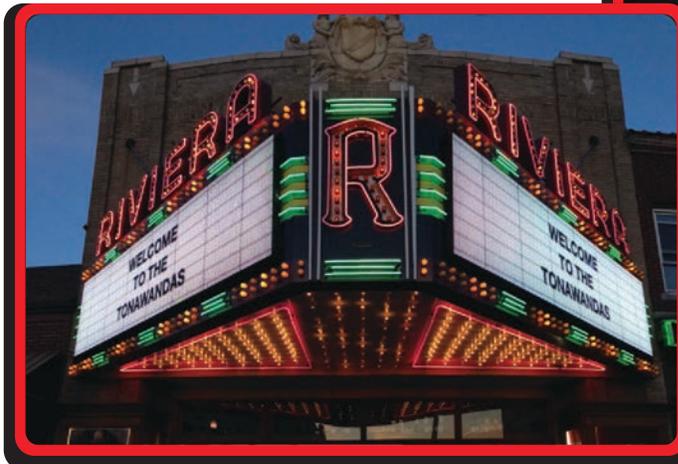
### **The Reliability Test for Finished Products**

When assembling the finished modules within the LED cabinets and simulation on-the-spot whole panel assembly, we continue aging for 48 hours; during which, if no defects are found, the finished product can be moved forward to sign integration and installation.

### **The Anti-Corrosion Test**

In order to ensure the reliability of anti-corrosion on the LED display cabinets, we preform salt-stream tests on all of our product lines during their production and before final delivery.

**5** year  
limited warranty



Outdoor Full Color Display



Indoor Run-in-Test Equipment

## Features

- **Sealed water tight LED modules**

By creating a water tight sign we ensure that your investment will be protected from moisture and unpredictable weather. This keeps your sign running smoothly, and for years to come.

- **True and vibrant color**

Our display panels are among the few in the industry with a high level of consistency and uniformity of color. Our displays absorb extra LED reflected light as well as removing dark and overlapping shadows. Able to create as many as 256 million colors your palette is limited only by your imagination.

- **Sturdy construction**

Built from high quality extruded aluminum. Each cabinet is precision cut and welded to enhance strength. We finish it off with a black powder coated finish to resist corrosion from the elements and time.

- **Easy to maintain**

All displays can be configured for either front or rear service. Making maintenance quick and easy. We have specialists on call if you run into any problems.

- **Efficient and low energy use**

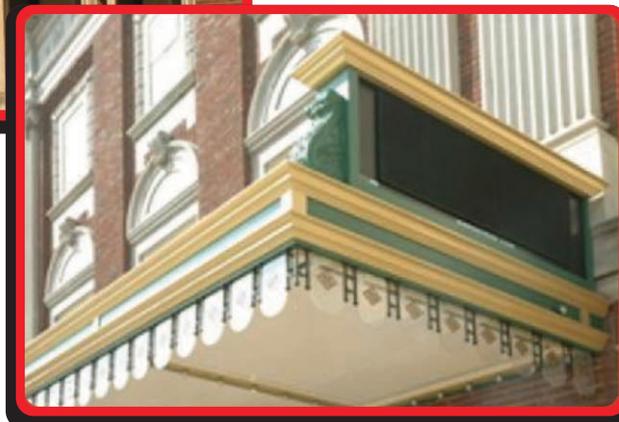
Our LED's provide higher brightness combined with less energy usage.

- **Industry leading warranty**

Five year limited warranty with each display will have you confident that you made a safe and valuable investment.



Outdoor 20mm Full Color Display



Outdoor 20mm Full Color Display

## Installation Profile



Module



Case Body

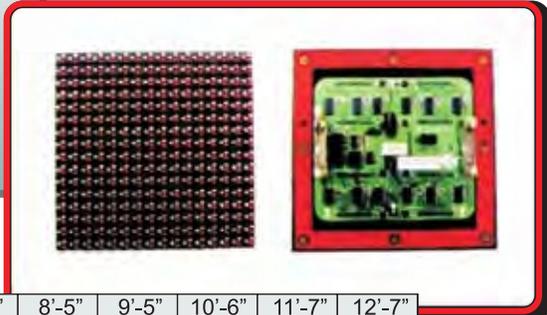


Quick & Simple  
Installation Framework



### 10mm RGB

Pixel Pitch: 10 mm  
 Size of Module: 192 mm x 96 mm  
 Module Resolution: 16 x 16  
 Pixel Composition: 2R 1G 1B  
 Voltage of Work: 5V  
 Power of Module: ≤35 W  
 Viewing Angle: H: 140° V: 70°

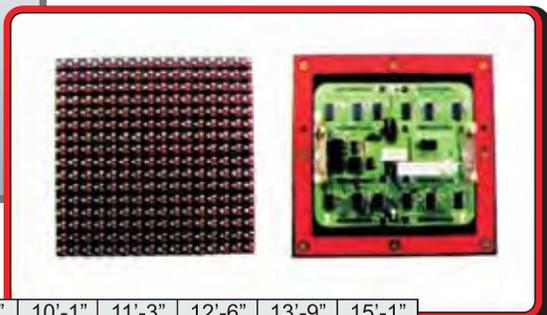


Actual Height (ft)	Pixel Height	Actual Width (ft)	2'-1"	3'-2"	4'-3"	5'-3"	6'-4"	7'-4"	8'-5"	9'-5"	10'-6"	11'-7"	12'-7"					
	Pixel Width		64	96	128	160	192	224	256	288	320	352	384					
1'-7"	48	Matrix 112 x 192																
2'-1"	64																	
2'-8"	80																	
3'-2"	96																	
3'-8"	112																	
4'-3"	128																	
4'-9"	144																	
5'-3"	160																	
5'-10"	176																	
6'-4"	192																	
6'-10"	208																	
7'-4"	224																	
7'-11"	240																	
8'-5"	256																	

Additional matrix sizes available. Measurements are approximate. Cabinets are retainerless.

### 12mm RGB

Pixel Pitch: 12 mm  
 Size of Module: 192 mm x 96 mm  
 Module Resolution: 16 x 16  
 Pixel Composition: 2R 1G 1B  
 Voltage of Work: 5V  
 Power of Module: ≤35 W  
 Viewing Angle: H: 140° V: 70°



Actual Height (ft)	Pixel Height	Actual Width (ft)	2'-5"	3'-8"	5'-0"	6'-3"	7'-6"	8'-8"	10'-1"	11'-3"	12'-6"	13'-9"	15'-1"					
	Pixel Width		64	96	128	160	192	224	256	288	320	352	384					
1'-9"	48	Matrix 112 x 192																
2'-5"	64																	
3'-1"	80																	
3'-8"	96																	
4'-4"	112																	
5'-0"	128																	
5'-7"	144																	
6'-3"	160																	
6'-9"	176																	
7'-6"	192																	
8'-2"	208																	
8'-8"	224																	
9'-4"	240																	
10'-1"	256																	

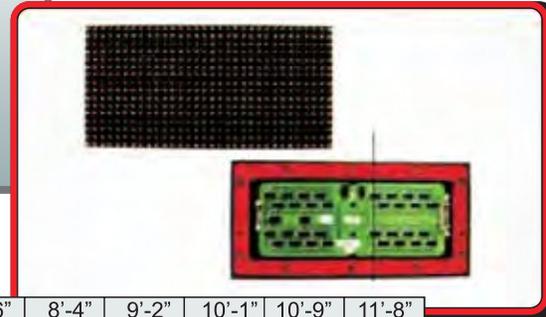
Additional matrix sizes available. Measurements are approximate. Cabinets are retainerless.

# Outdoor LED Displays

## Full Color

### 16mm RGB

Pixel Pitch: 16 mm  
 Size of Module: 256 mm x 128 mm  
 Module Resolution: 16 x 8  
 Pixel Composition: 2R 1G 1B  
 Voltage of Work: 5V  
 Power of Module: ≤50 W  
 Viewing Angle: H: 140° V: 70°



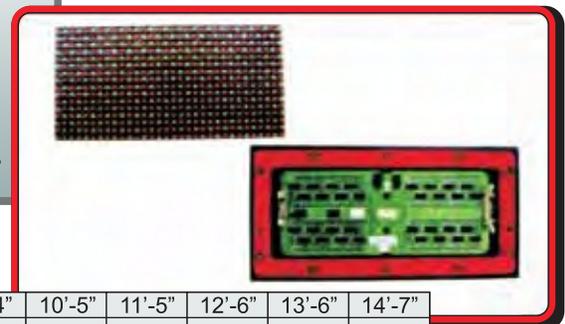
Actual Height (ft)	Pixel Height	Actual Width (ft)	3'-4"	4'-2"	5'-0"	5'-9"	6'-7"	7'-6"	8'-4"	9'-2"	10'-1"	10'-9"	11'-8"
		Pixel Width	64	80	96	112	128	144	160	176	192	208	224
2'-5"	48												
2'-9"	56												
3'-4"	64												
3'-8"	72												
4'-2"	80												
4'-6"	88												
5'-0"	96												
5'-5"	104												
5'-9"	112												
6'-3"	120												
6'-7"	128												
7'-1"	136												
7'-6"	144												
8'-0"	152												
8'-4"	160												

Matrix 80 x 128

*Additional matrix sizes available. Measurements are approximate. Cabinets are retainerless.*

### 20mm RGB

Pixel Pitch: 20 mm  
 Size of Module: 320 mm x 160 mm  
 Module Resolution: 16 x 8  
 Pixel Composition: 2R 1G 1B  
 Voltage of Work: 5V  
 Power of Module: ≤40 W  
 Viewing Angle: H: 140° V: 70°



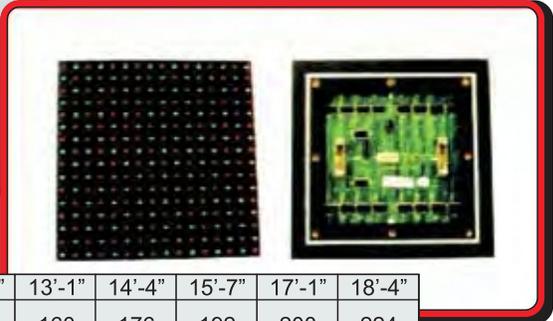
Actual Height (ft)	Pixel Height	Actual Width (ft)	4'-2"	5'-2"	6'-3"	7'-3"	8'-4"	9'-4"	10'-5"	11'-5"	12'-6"	13'-6"	14'-7"
		Pixel Width	64	80	96	112	128	144	160	176	192	208	224
3'-1"	48												
3'-7"	56												
4'-2"	64												
4'-7"	72												
5'-2"	80												
5'-8"	88												
6'-3"	96												
6'-8"	104												
7'-3"	112												
7'-9"	120												
8'-4"	128												
8'-9"	136												
9'-4"	144												
10'-0"	152												

Matrix 80 x 128

*Additional matrix sizes available. Measurements are approximate. Cabinets are retainerless.*

### 25mm RGB

Pixel Pitch: 25 mm  
 Size of Module: 200 mm x 200 mm  
 Module Resolution: 8 x 8  
 Pixel Composition: 2R 1G 1B  
 Voltage of Work: 5V  
 Power of Module: ≤20 W  
 Viewing Angle: H: 140° V: 70°

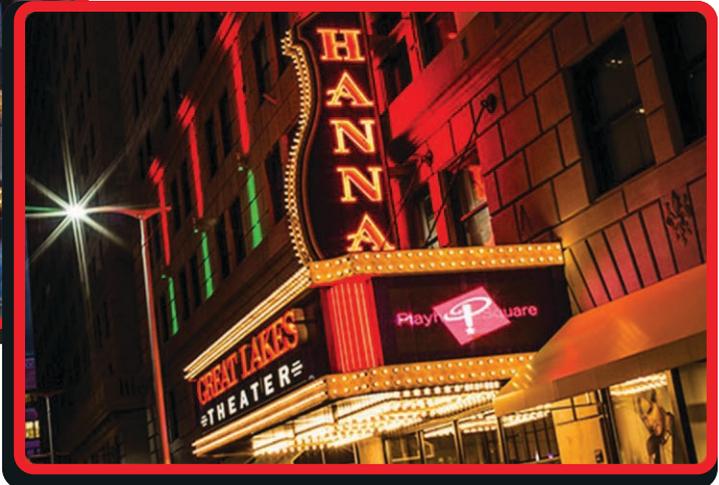


Actual Height (ft)	Pixel Height	Actual Width (ft)	5'-2"	6'-6"	7'-9"	9'-2"	10'-5"	11'-8"	13'-1"	14'-4"	15'-7"	17'-1"	18'-4"					
		Pixel Width	64	80	96	112	128	144	160	176	192	208	224					
3'-9"	48	Matrix 80 x 128																
4'-6"	56																	
5'-2"	64																	
5'-9"	72																	
6'-6"	80																	
7'-2"	88																	
7'-9"	96																	
8'-5"	104																	
9'-2"	112																	
9'-8"	120																	
10'-5"	128																	
11'-2"	136																	
11'-8"	144																	
12'-5"	152																	
13'-1"	160																	

*Additional matrix sizes available. Measurements are approximate. Cabinets are retainerless.*



Outdoor Full Color Display

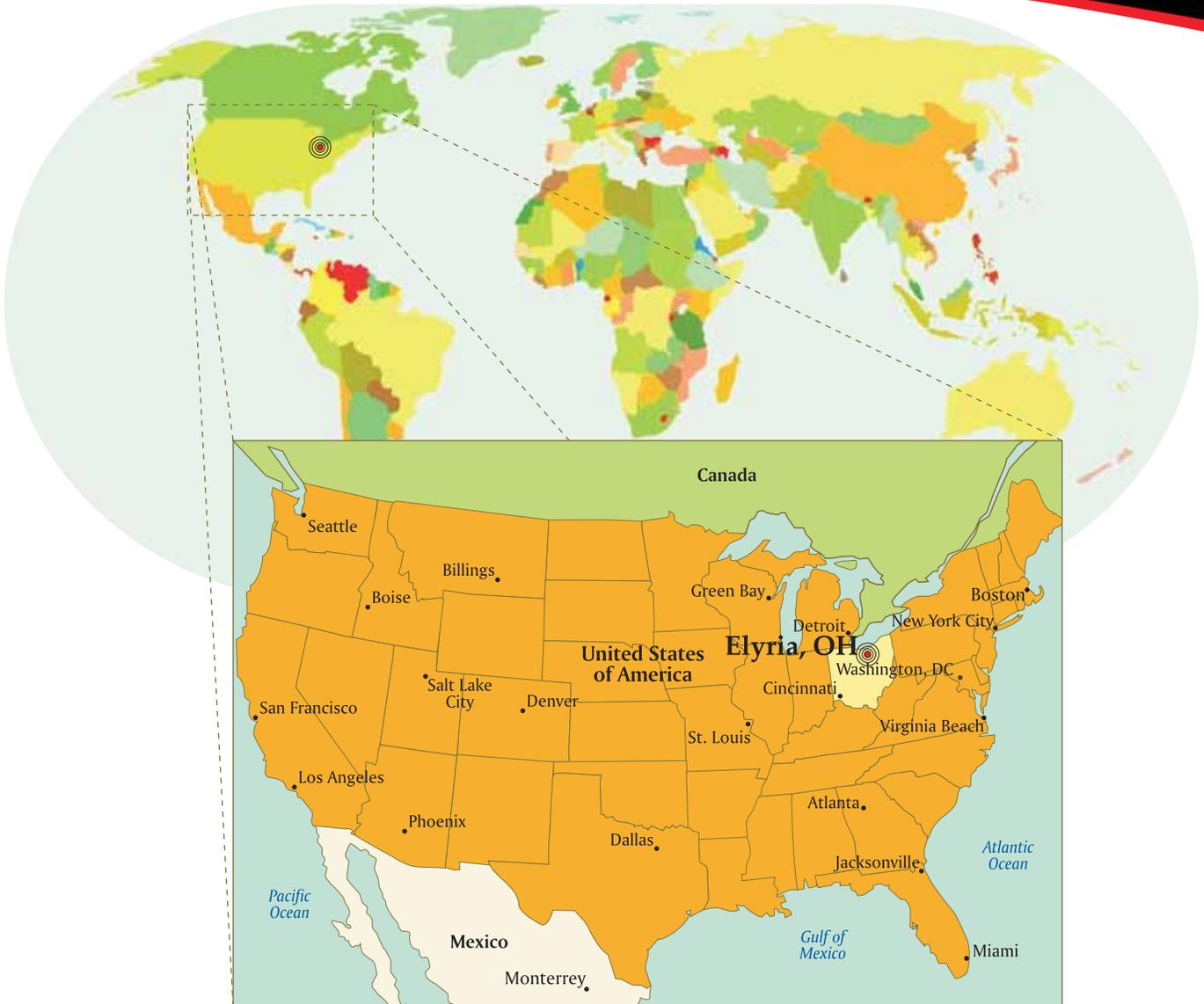


Outdoor Full Color Display

# Outdoor LED Displays

## Full Color

<b>Specifications</b>	<b>Value</b>
Pixel Pitch (mm)	10 / 12/ 16 / 20
Pixel Composition	1 Red, 1 Green, 1 Blue
Display Colors	Up to 291 Trillion
Brightness	≥ 8000cd/m <sup>2</sup> up to 10250cd/m <sup>2</sup>
Viewing Angle	Horizontal: ≥ 160° ; Vertical: ≥ 90°
Frames Per Second	≥ 60fps
Refresh Frequency	≥ 400Hz/Sec
Brightness Adjustment	Automatic or Manual
Control Method	Controlled by PC, synchronized to display
Video Input	VGA mapped / NTSC / PAL
Communication Cable	Transmit distance between PC and screen: >100m Fiber Optics. < 100m CAT5/6
Lifespan	≥ 100,000 hours
Max. Power Consumption	≤ 1100w/m <sup>2</sup> s, Average power is 60% of Max. power
Net Weight/sqm	Approx. 85kg
Input Voltage	AC220V/50Hz ±10% or AC110V/60Hz ± 10%
Operating Environment	-20°C to +60°C Humidity: 10% RH to 90% RH
Operating System	Windows XP/7/8 , in - phase or asynchronous
Intelligent Control	Automatic power on/off and remote power on/off function
Video Display Function	Synchronized display of text, graphics, pictures, signs, flashes, and any signal from TV, VCD, DVD, Camera, and scanner and so on, support PAL, NTSC.



## Sales & Marketing

☉ The Wagner Electric Sign Company  
7135 West Ridge Road, Elyria OH 44035  
USA

**Contact: Mark Wagner**

(TEL) 1.800.553.6366 x34 (FAX) 440.233.6455  
Mark@WagnerSign.com

**Contact: Darryl Wagner**

(TEL) 1.800.553.6366 x35 (FAX) 440.233.6455  
Darryl@WagnerSign.com

## Technical Services

☉ The Wagner Electric Sign Company  
7135 West Ridge Road, Elyria OH 44035  
USA

**Contact: James Parker**

(TEL) 1.800.553.6366 x44 (FAX) 440.233.6455  
JParker@WagnerSign.com

**Contact: Darryl Wagner**

(TEL) 1.800.553.6366 x35 (FAX) 440.233.6455  
Darryl@WagnerSign.com