

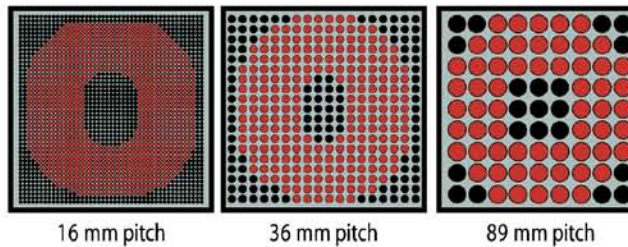
About LED Displays

Unlike traditional media such as newspaper and magazines, LED displays quickly capture attention with a combination of light, color, motion and graphics that get noticed. They also offer infinite options for creating a brand that gets remembered and, in turn, gets results. For most advertisers, the most important market is the local one. Think of LED displays as local advertising and sales partners that are "on" 24/7, working night and day to attract attention, deliver marketing messages and drive sales. LED displays also cost 40 to 60 percent less per thousand viewers than most other forms of advertising. In fact, businesses can communicate with thousands of people each day for just a few dollars. When purchasing an LED display, it is important to understand a few basic principles that will help you select the right product for your application. The pages to follow present a brief overview of some of these basic principles.

Pitch (Resolution)

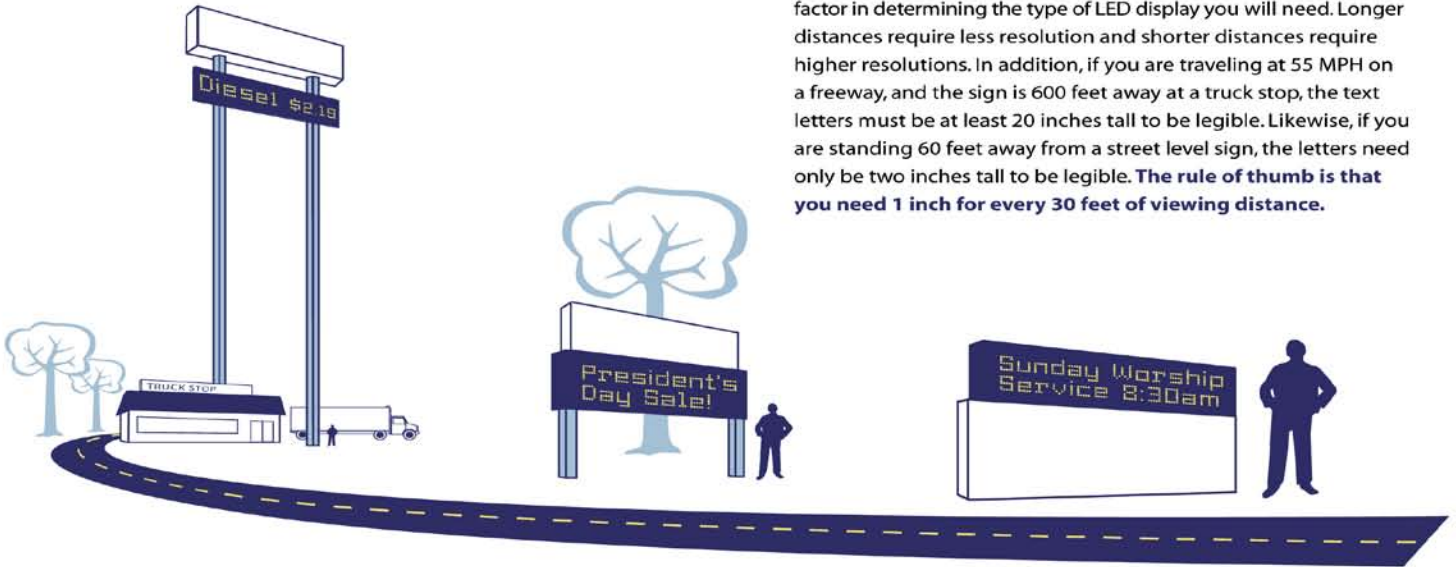
Resolution, or the total number of pixels in a display, is a very important factor that affects the performance of the sign. More resolution means more LED diodes and more circuits, which usually means better picture quality.

Pitch is the distance (usually in millimeters) between pixels. Pitch is always measured from the center of one pixel to the center of an adjacent pixel. The smaller the pitch number, the higher the resolution quality. Larger the pitch numbers indicate a lower resolution. A pixel can be one single diode, or a pixel can be a cluster of many diodes running off the same circuit.



Viewing Distance and Speed

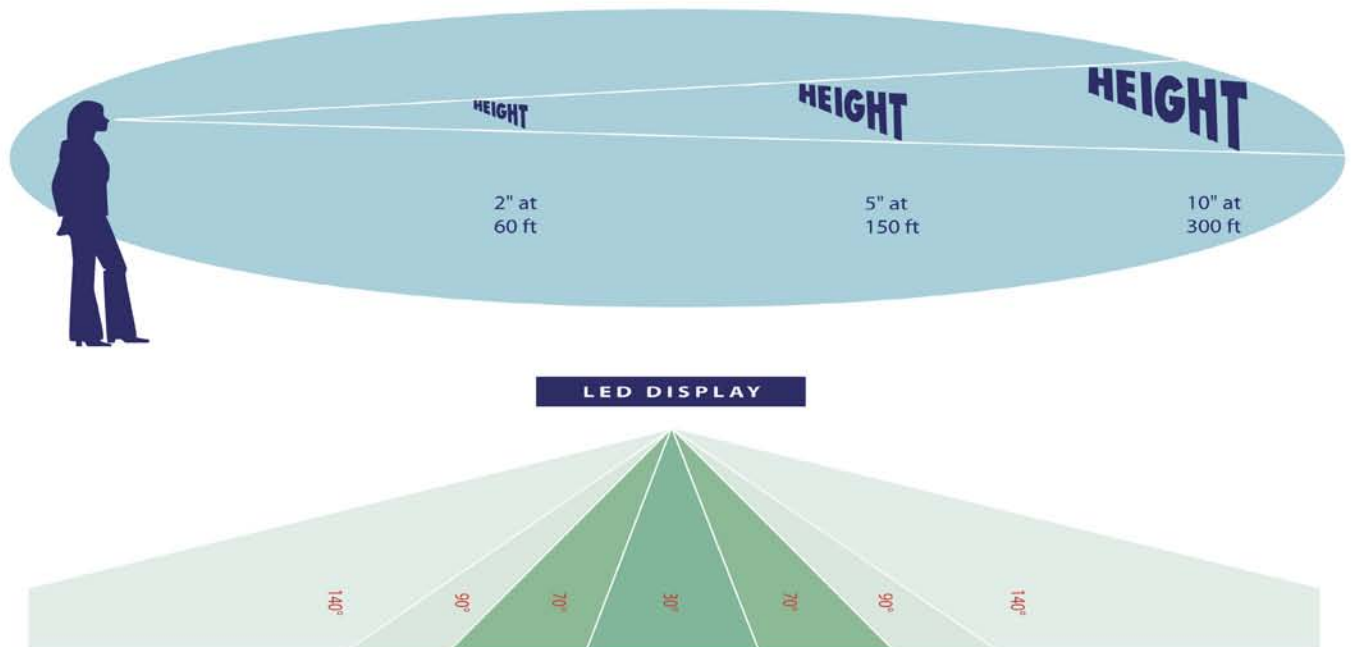
The distance between your sign and its viewers is the number one factor in determining the type of LED display you will need. Longer distances require less resolution and shorter distances require higher resolutions. In addition, if you are traveling at 55 MPH on a freeway, and the sign is 600 feet away at a truck stop, the text letters must be at least 20 inches tall to be legible. Likewise, if you are standing 60 feet away from a street level sign, the letters need only be two inches tall to be legible. **The rule of thumb is that you need 1 inch for every 30 feet of viewing distance.**



Character Height

In addition to the discussion of viewing distances, it is important to know that at least seven rows of diodes are required to make one text character. For multiple lines of text, it requires an eighth line as a separator. This means that for each line of text there needs to be eight rows of pixels, and that those eight rows together measure the required character height.

In other words, if you need three lines of ten inch text characters, you need to have 24 rows of 36 mm pitch pixels to get the proper character height. Of course, you can always use a higher resolution display and combine lines to make bigger text letters.



Technical Information

Before looking at our product specifications, it is important to understand some of the key technology Optec is offering today. The next few pages will briefly cover some of Optec's signature hardware and software technology.

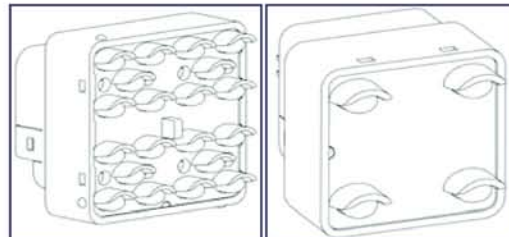
Hybrid Technology - Advanced Detachable Pixels

With Optec's unique hybrid pixel technology, each pixel is hot swappable, reducing time and cost to service a display. Hybrid technology also provides a flexible platform to create custom shape LED displays such as curved face displays. With each pixel sticking out instead of attached to the surface, Hybrid pixels have the widest viewing angle and best heat ventilation in the world.

Instead of 1 louver per pixel, each LED lamp on a Hybrid pixel has its own lamp louver which provides highly focused LED light output for superior color contrast, brightness and maximum horizontal viewing angle.

Inside each pixel, there is an individual circuit controlling each LED lamp. Together with Optec's advanced controller system, we can control brightness/color shadings down to each LED lamp level vs. competitors' individual pixel shading. The result is better color mix, contrast, higher virtual resolution and longer LED life since we can turn off individual LED lamps when not needed.

Optec uses only the best quality LEDs to manufacture its displays. In fact, Optec is one of the biggest customers of Nichia, who is one of the leading LED manufacturers in the world. Optec also provides more LED diodes per pixel than other competitors. Together with the Hybrid Technology, Optec LED displays simply provide the best brightness, viewing angle, and color in the industry.

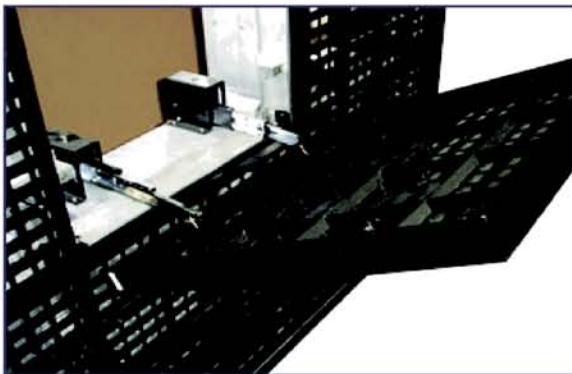


Mega hybrid with four 5-LED pixels per hybrid unit

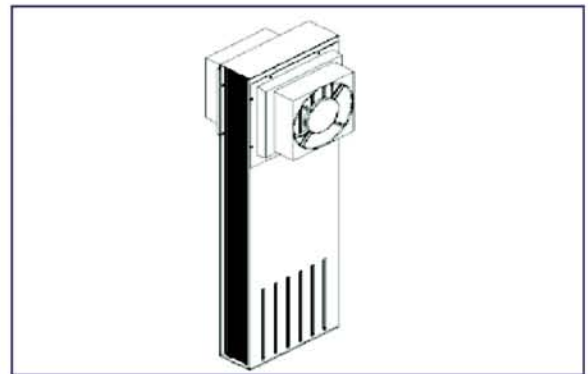
Hybrid with one 4-LED pixel per hybrid unit

Resilient Display Cabinets

Ultimately, LED displays are only as good as the cabinets that house them. From components, service panel design, to water proofing and heat ventilating, Optec engineers are continuously working on improving our cabinets. In late 2005, Optec's display cabinets were proven to be able to withstand the worst hurricanes. Today, you can choose from traditional vented cabinets with thermostatically controlled fail-safe cooling system to the advanced fully enclosed, no outside air exchanging sealed cabinets. It is continuously seeking improvements in little details like this makes our sign last longer than competitors' products.



Service Panel Design



Heat Exchanger Cooling System

XPRESSION SIGNS

Tel 850-398-5449
Fax 850-398-5450
AVAILABLE SERIES

Monochrome

Striking and simple, for those who want a cost-effective and user-friendly way to attract customers. What makes them even better is software that makes creating text, graphics, and animation easy.

Our Monochrome Message Centers come in your choice of red or amber. They are available in up to 8 lines of text with character sized ranging from 4.7 inches up to 9 feet

General Technical Specifications

Pixel Pitch:	17mm, 22mm, 28mm, 30mm, 34mm, 36mm, 45mm, 63mm, 89mm
Pixel Type:	Hybrid (28mm, 30mm, 34mm, 36mm, 45mm, 63mm, 89mm) Mega Hybrid (17mm) Semi Hybrid (22mm)
Color Options:	Red or Amber
Estimated LED Lifetime:	100,000 hours
Minimum Brightness:	5000+ (NITs)
Viewability:	140 degree
Brightness/Contrast Enhancement:	Individual louvers for each individual LED diode
Graphic Capability:	Text, basic animation, foreign language fonts
Control Software:	WinEDT/WinEDL package
Display Dimming:	100 levels
Refresh Rate:	120 Hz
Power:	120/240 single phase
Service Access:	Standard Front access with optional rear access
Sealed-Cabinet Cooling System:	Optional
Communication Options:	RS-232, RS-485, RF modem, Dial-up modem, Fiber Optic, Ethernet



Grayscale 256 Series

Striking and simple, for those who want a cost-effective and user-friendly way to attract customers. What makes them even better is software that makes creating text, graphics, and animation easy. Our Monochrome Message Centers come in your choice of red or amber. They are available in up to 8 lines of text with character sized ranging from 4 1/2 inches up to 9 feet

General Technical Specifications

Pixel Pitch:	17mm, 22mm, 28mm, 30mm, 34mm, 36mm, 45mm, 63mm, 89mm
Pixel Type:	Hybrid (28mm, 30mm, 34mm, 36mm, 45mm, 63mm, 89mm) Mega Hybrid (17mm) Semi Hybrid (22mm)
Color Options:	Red or Amber
Color Shadings:	256 shades
Estimated LED Lifetime:	100,000 hours
Minimum Brightness:	5000+ (NITs)
Viewability:	140 degree
Brightness/Contrast Enhancement:	Individual louvers for each individual LED diode
Graphic Capability:	Text, animation, picture, and video
Control Software:	VGA Sign Controller/Media Editor 3 package
Display Dimming:	100 levels
Scan Rate:	300 Hz
Frame Rate:	60 frames per second
Power:	120/240 single phase



RGB Full Color Series

The world's most technologically advanced LED displays, with brilliant color and clarity, creating a powerful marketing message that makes an impact, night and day. Our RGB Full Color Displays incorporate full-color, video quality imagery and are available in pitches from 12mm to 89mm. They have the capability to playback standard file formats including .avi.

General Technical Specifications

Pixel Pitch:	12mm, 16mm, 20mm, 23mm, 28mm, 34mm, 45mm, 89mm
Pixel Type:	Hybrid (16mm, 23mm, 30mm, 34mm, 45mm, 89mm) Mega Hybrid (12mm, 20mm, 23mm, 28mm)
Color Options:	Red or Amber
Color Capability:	16.7 million or optional 281 trillion colors
Estimated LED Lifetime:	100,000 hours
Average Brightness:	8000+ (NITs)
Viewability:	140 degree
Brightness/Contrast Enhancement:	Individual louvers for each individual LED diode
Graphic Capability:	Text, animation, picture, and video
Control Software:	VGA Sign Controller/Media Editor 3 package
Display Dimming:	100 levels
Scan Rate:	300 Hz
Frame Rate:	60 frames per second
Power:	120/240 single phase
Service Access:	Standard Front access with optional rear access
Sealed-Cabinet Cooling System:	Optional
Communication Options:	Ethernet, Wireless Ethernet, Fiber Optic, Broadband Internet



Communication Options

Monochrome/RGB OPTIONS

RS-232
 Standard hard-wired communication to low-bandwidth displays. Controls only a single display. Recommended maximum distance of 50 feet between the display and PC.

RS-485
 Hard-wired communication to low bandwidth displays or display networks. Maximum 4000 feet of cable can be used to control up to 32 displays.

RF-Modem
 Wireless radio frequency communication to low bandwidth displays. Requires clear line of sight between wireless devices. Maximum transmission distance tested by Optec is 1000 feet.

Dial-Up Modem
 Remote communication to low bandwidth displays. Sends data to sign over standard telephone lines utilizing telephone modems.

Fiber Optic
 Hard-wired multi-mode or single-mode fiber optic cable for communications over great distance or in areas where high EMF interference is encountered. Maximum distance is 2.5 miles.

Ethernet
 Ethernet communication to displays on a LAN or WAN network. An IP addressable Ethernet serial server is required to convert Ethernet signal to RS-232 signal. Maximum distance from the LAN is 300 feet.

RGB Full Color/Grayscale 256 OPTIONS

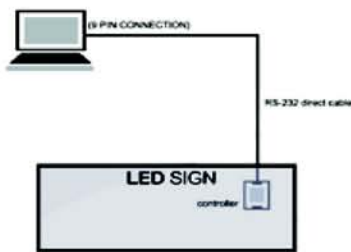
Ethernet
 Ethernet communication to displays on a LAN or WAN network less than 300 feet away. Additional Ethernet serial server is not required.

Fiber Optic
 Hard-wired multi-mode or single-mode fiber optic cable for communications over 300 feet or in areas where high EMF interference is encountered. Maximum distance is 2.5 miles.

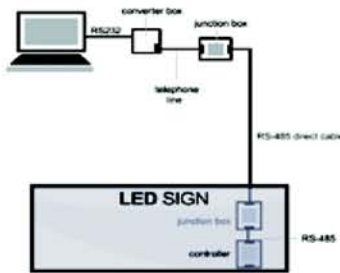
Wireless Ethernet
 Ethernet communications to displays on a LAN or WAN network. Instead of using cables, it sends Ethernet Data over Wireless Bridge devices. Requires clear line of sight. Maximum tested distance by Optec is 0.5 miles.

Broadband Internet
 DSL/Cable internet connection used for remote communications to mid to high bandwidth displays. Static or dynamic IP Addressable.

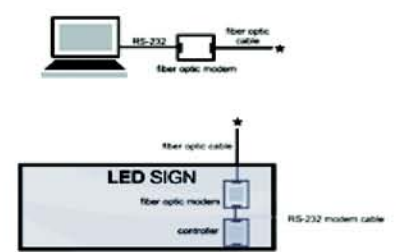
RS-232 Communication



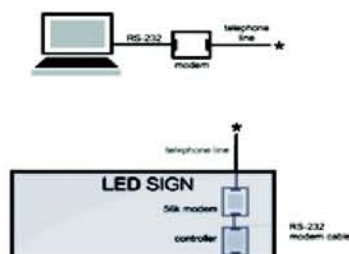
RS-485 Communication



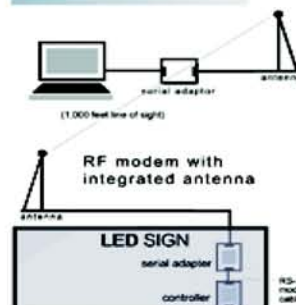
Fiber Optec Modem Communication



Telephone Modem Communication



RF Modem Connection



Software

MEDIA EDITOR 3

Media Editor is Optec's content creation software for RGB and GS-256 display. The latest version ME3 was designed with a new interface and a new host of features to provide the highest quality display content software available to date. The graphical user interface makes creating dynamic movie files simple with features such as timeline effects, pop-up menus, and frame templates. ME3 is both powerful and simplistic, requiring a short learning curve to transition from basic movies to utilizing advanced concepts.

Media Editor Program Specifications

Operating Systems

Windows 98/Windows 98 SE/ME/XP/2000

Fonts

Supports all Fonts Types

Content Creation

Real Time Editing
 Simple Timeline Effects Management
 Import Graphic Animations and Movies
 Import Pictures
 Create Gradients, Fill Effects, Patterns
 Key Text over Animations and Background Effects

Display Modes

65 Transition Effects
 10 Basic Object Sprite Effects to Form Various Combinations
 Comprehensive Speed and Dwell Time Controls

Time and Temperature

12- or 24-Hour Clock Format
 Data and Days of the Week
 Celcius or Fahrenheit Modes

Message Frames

Global or Editable Message Frames
 Cut, Copy, and Paste Functions
 Rearrange Message Frames
 Import .txt files
 Drop in Functions

Scheduling

Comprehensive Scheduling of Animations and Animation Sequences
 Logging of Valid Played Files for Accounting Control

Updates

Auto Updates via internet access



WINEDT / WINEDL



WinEDT/WinEDL is the software package for creating animated text messages and scheduling for all Optec's Monochrome displays. This software package is simple to use, yet offers a robust feature set of user controls. Create text messages, import graphic files, create animated graphics, and transmit animated schedules to the display with WinEDT/WinEDL.

WinEDT/WinEDL Program Specifications

Operating Systems

Windows 98/Windows 98 SE/ME/XP/2000

Fonts

Draft, Draft 4x7, Letter, Bold and Auto

Display Modes

22 "Message In" Transitions
 15 "Message Out" Transitions
 Dwell Time Controls

Time and Temperature

12- or 24-Hour Clock Format
 Data and Days of the Week
 Celcius or Fahrenheit Modes

Message Frames

Editable Message Frames
 Cut, Copy, and Paste Functions
 Rearrange Message Frames
 Import .txt files

Scheduling

10 Different Schedules
 19 Time Periods Per Schedule
 5 Messages Per Time Period

Graphic Animation

Full Graphic Animation Capabilities
 Text in Graphic Mode
 Foreign Language Font Support in Graphic Mode
 Import Graphic Image Files: .gif, .bmp
 Auto Animation Maker for Easy Creation of Smoothly Animated Images

Preview

Individual Frame Preview
 Overall Message Preview
 Animation Preview

Communication Protocols

Two-Way Communication Protocol
 Optional One-Way ASCII communication protocol



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EXAMPLES

