OEM Basics

Introduction to LED types, Installation methods and computer management systems.

ONE WORLD LED

LED DESIGN, MANUFACTURE & WHOLESALE

The intent of the OEM Basics is to give the reader an introduction to LED technology. This document covers LED, cabinet and installation types that One World LED manufactures. The document also provides an introduction to screen management and computer systems used for controlling LED screens.

Contents

Front Serviceable

If installed incorrectly, servicing your LED screen can be a major headache. Here we are going to look at our two different cabinet types that allow for front or rear servicing. Having a good understanding of where you want to install your LED screen will help you decide what sort of cabinet to choose. This decision will be dictated by space and accessibility.

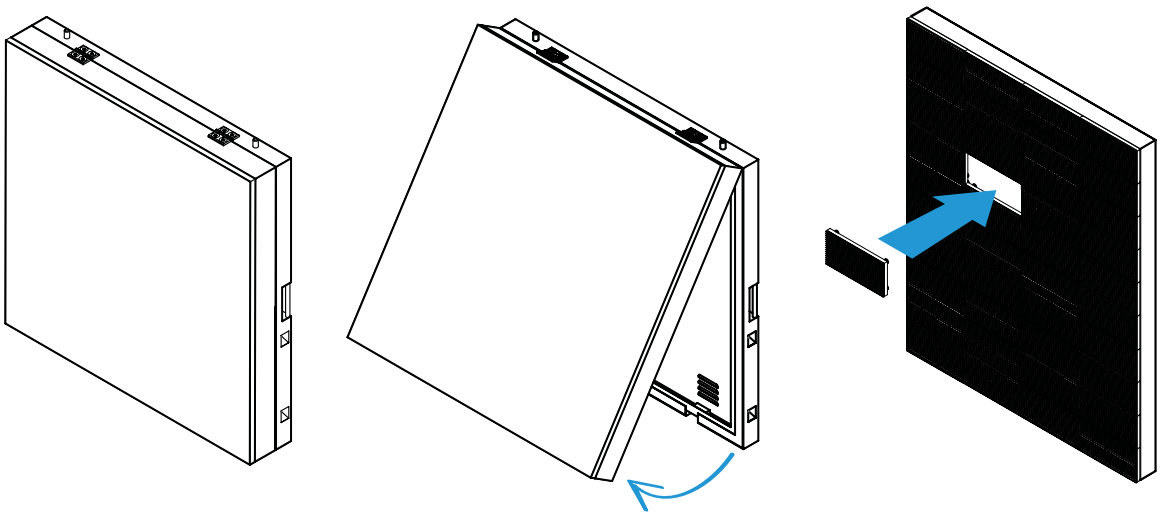
One World LED is the only wholesaler in Australia that sells front serviceable LEDs. Front serviceable LEDs come in two forms; as a cabinet or as magnetic. However, magnetic can also be rear serviceable.

"Having a good understanding of where you want to install your LED screen will help you decide what sort of cabinet to choose."

Front serviceable cabinets are suitable for both indoor and outdoor applications. Since the front serviceable cabinets do not require access from the rear, they can be installed against walls, property borders or anywhere else that has no accessibility from the rear.

Front serviceable cabinets cannot be installed on top of one, this is due to the hinge being on the top of the cabinets. If you did stack them on top of one another, you would not be able to open them. The tallest Front serviceable cabinet that One World LED manufactures is 1920mm. This means that the tallest screen side for front serviceable is 1920mm but width is infinite.

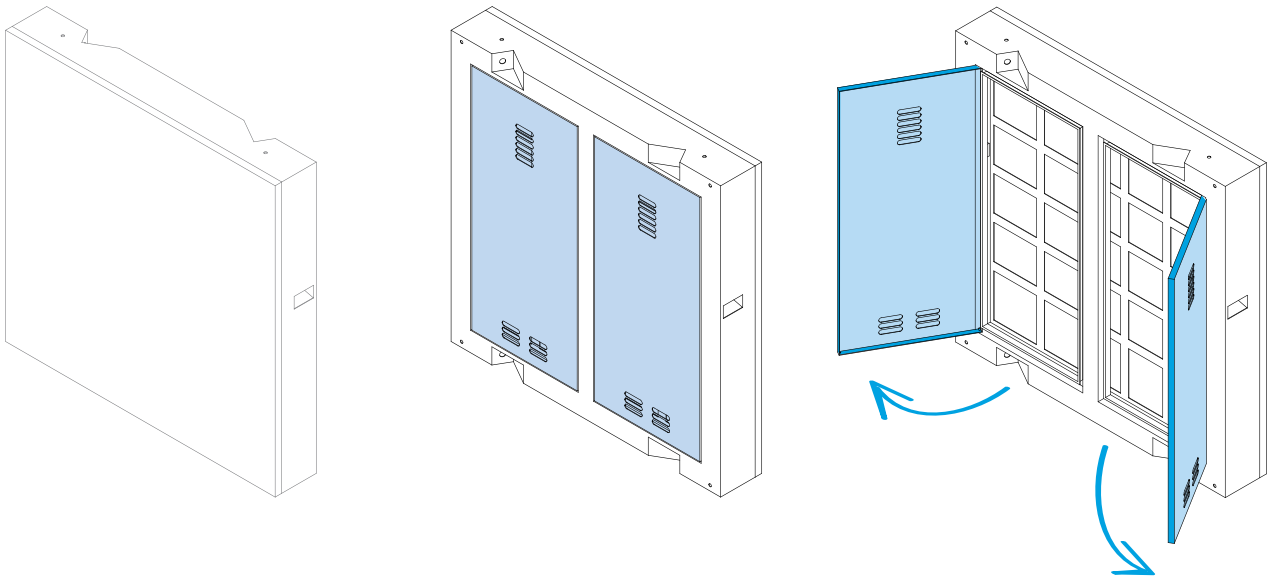
There are no height restrictions when using magnetic modules. A screen configuration can be as tall or as wide as you please. The only limitation of magnetic screens is modules size. If a module is 256mm wide, then the total width of the screen must be a multiple of that number.



Rear Serviceable

Whether it be a free standing sign or on the side of a building; rear serviceable solutions are ideal for new structures where the LED screen is included in the design and planning phase. For large rear serviceable LED screens there needs to be a minimum space behind the cabinets of 600mm. The primary purposes of this space is to allow non obstructed access for a service technician. This space also has other benefits such as airflow and must be well ventilated.

For small rear serviceable LED screens One World LED recommends a minimum space of 50mm to allow airflow. However, the engineer designing the structure still needs to keep access in mind for a service technician, there are many ways to achieve this and the solution may often be unique to the structure. As with Front Serviceable, rear serviceable LED screens are suitable for both indoor and outdoor applications.

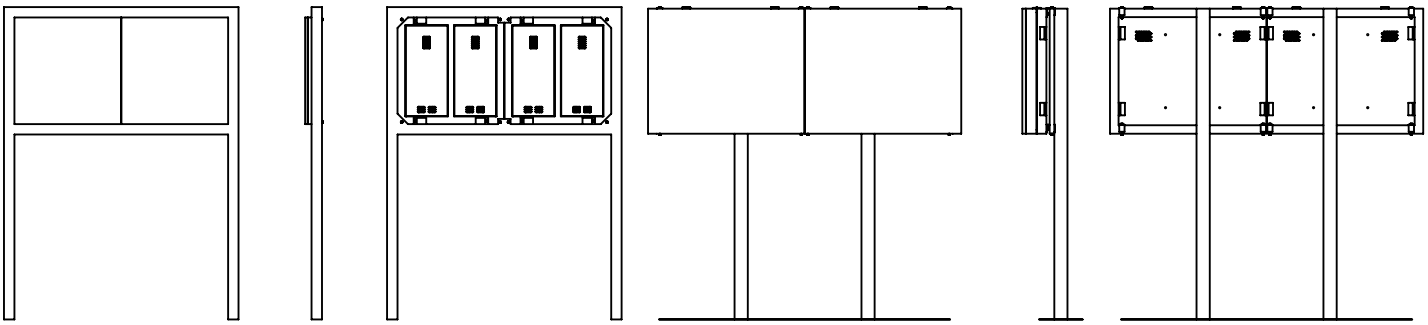


Double Pole

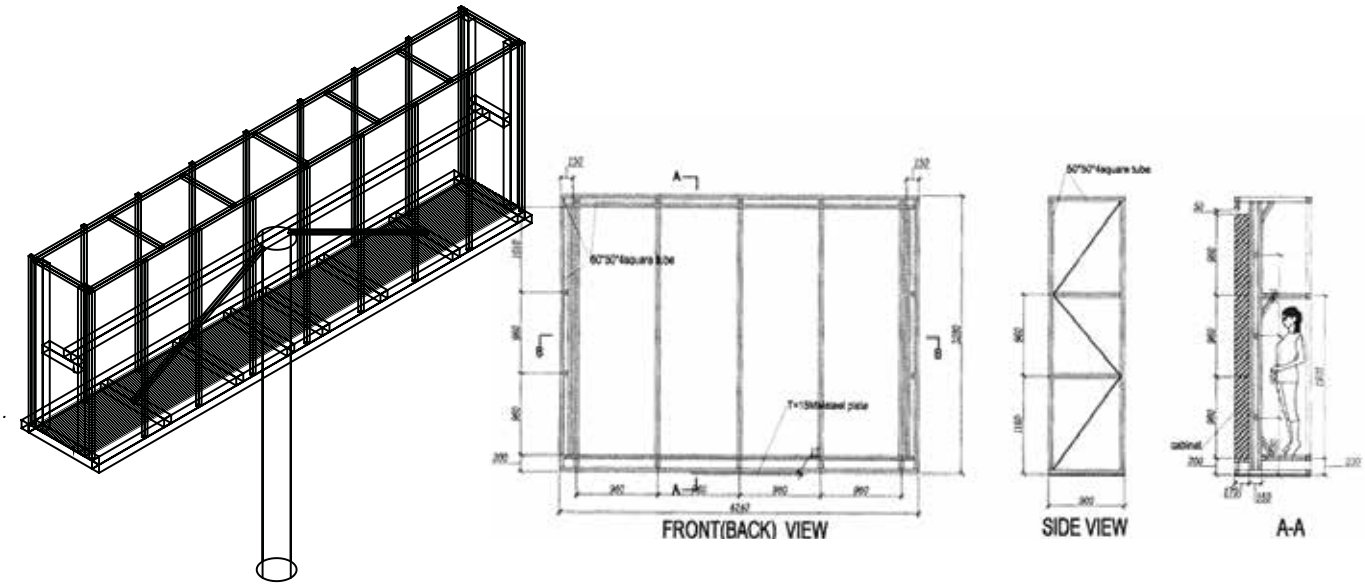
Double Pole support systems are suitable for both front and rear serviceable screens. In both instances it is important not to cover any of the ventilation points on the cabinets with any sort of structure. If the support structure encloses the cabinets then the 50mm airflow rule must be followed. The enclosure should also have additional ventilation points for air to exhaust.

The proposed location of the LED screen or structure type will determine what cabinet should be used. Front serviceable screens are used when rear access is not feasible (e.g. near a wall or property boundary etc). This solution is also suitable if the sign is going to be double sided as it allows LED cabinets to be mounted from both sides. Although they can be, depending on the structure, rear serviceable cabinets are not typically use for double sided screens.

In general, designing a structure to support rear serviceable cabinets is easier than engineering a structure for a front serviceable solution. Rear serviceable cabinets can be stacked and there are no height restrictions.



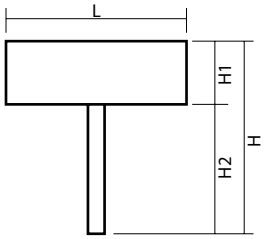
Single Pole



Our single pole solution is designed to replace traditional outdoor print billboards. Standard sizes for billboard structures already exist that inclue key measurements such as:

Length of the billboard display (L)
Maximum height of the billboard (H)
Height of the display (H1)
Height from the ground to the base of display (H2)

Standard	LH	1H	2H		Ø	A
ST6-2	6m	2m	4.5m	6.5m	0.6m	12m²
ST12-4	12m	4m	≤8m	≤12m	0.8m	48m²
ST15-5	15m	5m	≤8m	≤13m	1.0m	75m²

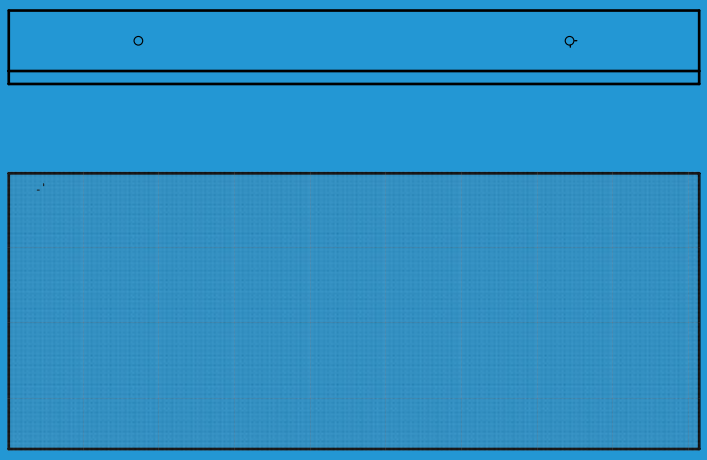


Hanging

Hanging screens are typically used as an outdoor sign for shopping precincts. The screens can also be used indoors for communicating directions or product specials. These screens come as single and double sided and are usually front serviceable.

It is important to have a gap between the sign and the ceiling. This is purely for airflow so that the sign does not overheat.

Our signs are not strictly limited to hanging. All our signs have mounting points on the rear, therefore you may mount these signs against a wall using a recommended wall mounting solution.

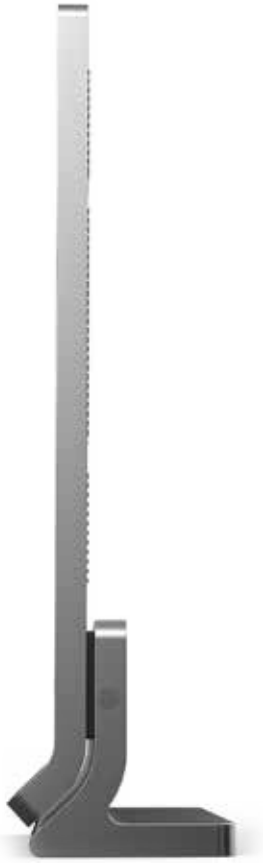


Free Standing

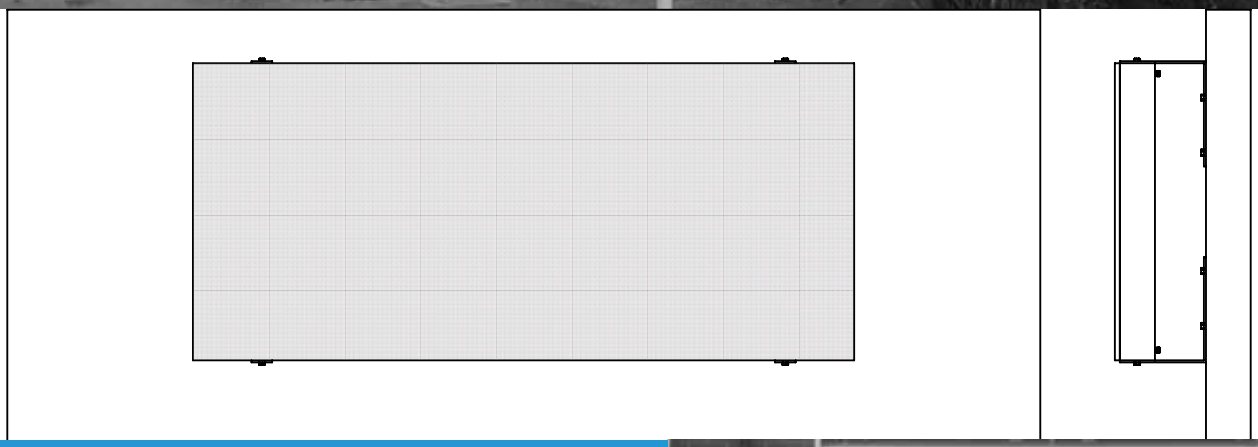
Free standing can mean that the screen has a built in stand or that it can be positioned on an existing surface.

Screens with built in stands are similar to regular consumer televisions and can be easily transported to different locations. They can also be fixed installations although one of the major advantages of a screen that can be easily moved is its suitability for being a hired.

Free standing displays that are a suitable for existing walls will require further support to ensure stability, especially if it is a permanent installation. This support will be specific to the surrounds of the screen.



Wall Mounted



Wall mounted solutions are suitable for front serviceable screens only. Wall mounting allows you to turn any wall into a full colour display.

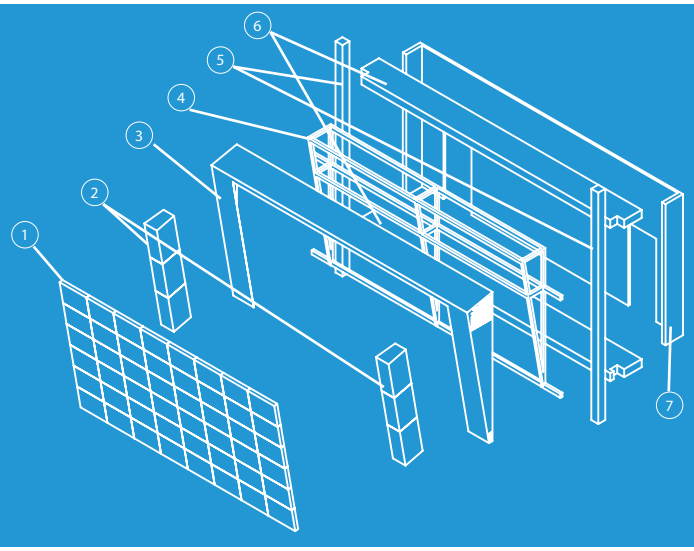
Once again airflow rules apply and it is required for the screen to be slightly offset from the wall to allow for this.

The way in which the screen mounts to the wall is circumstantial and relies on variables such as weight of screen and wall materials.

This is an example of a screen planned into the architectural designs of a building. The screen is large enough to have its own servicing room in the building. The overall design includes an audio system and a ventilation system.

Built In

Built in displays give a professional aesthetic to any indoor or outdoor venue. Built in displays are commonly used in new buildings, where the screen is integrated into the architectural designs. They can also be installed into existing buildings and walls. Commonly used in bars and pubs, built in displays are perfect for advertising and live TV.



1. LED DISPLAY
2. SPEAKERS
3. HOUSING
4. SUPPORTING STRUCTURE
5. EXISTING STRUCTURE
6. FLOORS
7. ACCESS ROOM

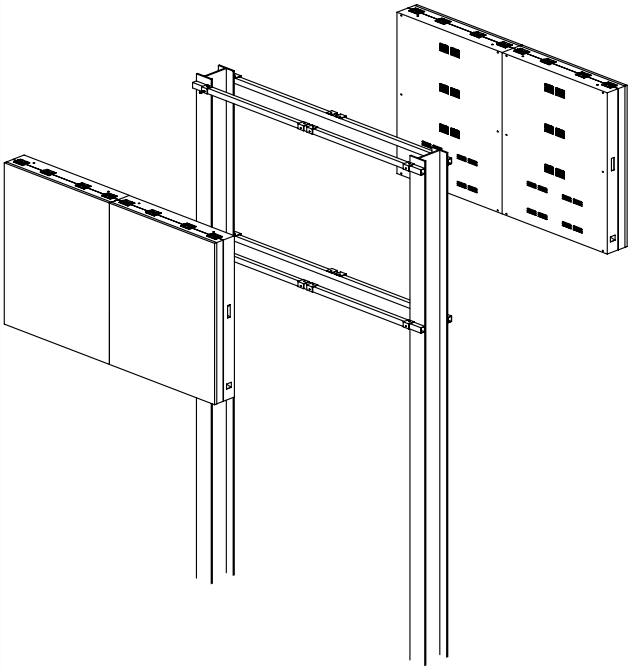
Double Sided

Double sided screens can be installed as one unit that is front serviceable on both sides or as a unit that is front serviceable on one side and rear serviceable on the other. A double sided screen can also be achieved using separate single sided front or rear serviceable units facing back to back.

Double sided units have the same restrictions as front serviceable cabinets, that is the height of the screen is limited to the cabinet size. Double sided units can be used effectively when space (depth) is a restriction as there is no available access from the rear.

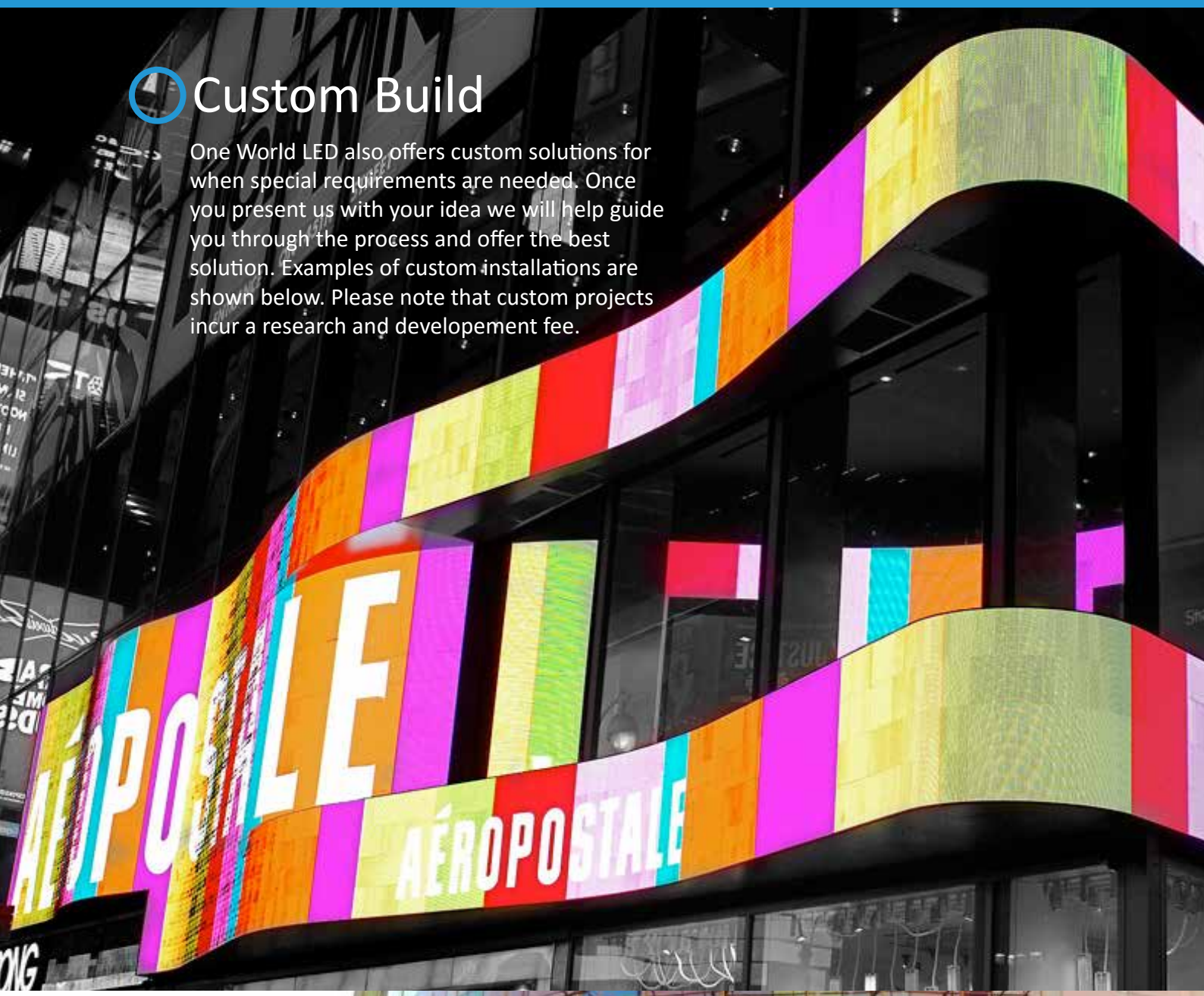
There are no height limitations when creating a double sided screen from single sided cabinets, unless you are using front serviceable cabinets. Using front serviceable cabinets to create a double sided screen requires less space (depth) than using rear serviceable cabinets to do the same. When using front serviceable cabinets to create a double sided screen, the most important rule to follow is the 50mm spacing for air flow.

When creating a double sided screen using rear serviceable cabinets there must be a 600mm gap between the adjacent cabinets. This gap is for servicing but doubles as space for airflow. For all solutions, air ventilation from the screen must be high priority and must be achieved to ensure longevity of life for your LED screen.



Custom Build

One World LED also offers custom solutions for when special requirements are needed. Once you present us with your idea we will help guide you through the process and offer the best solution. Examples of custom installations are shown below. Please note that custom projects incur a research and developement fee.

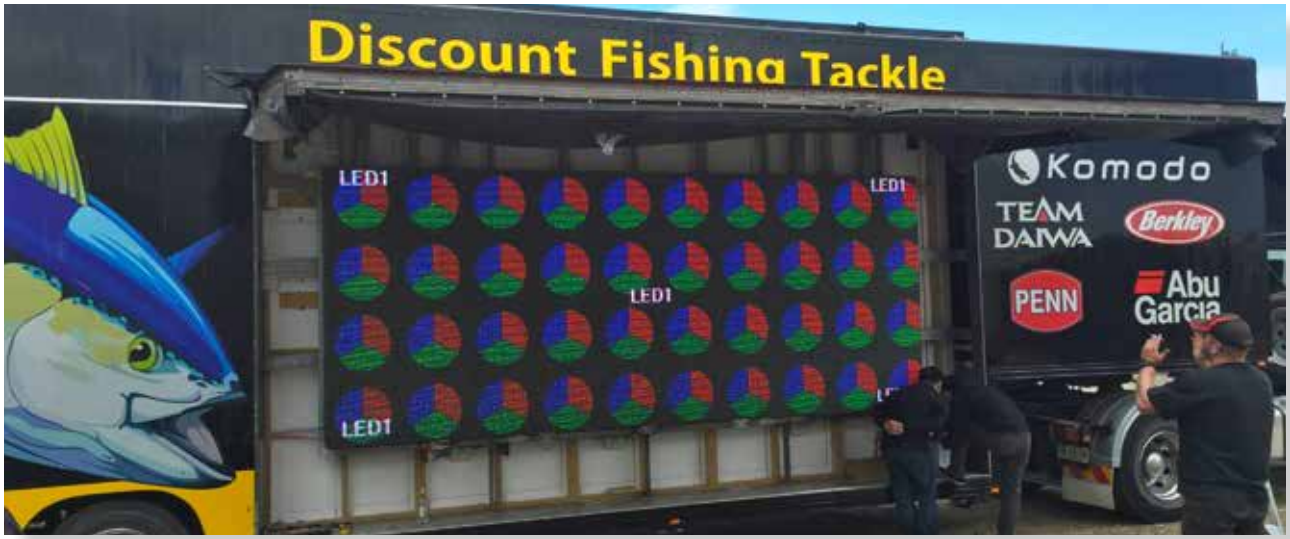


LED Truck

One World LED offers a vast variety of LED trailers that range in resolution, size and management solutions.

Our trailers are Australian made and as with our LED screens, are designed to withstand any weather conditions.

Both fixed and adjustable screens are available that range from P6 to P10 resolution.



Portable LED

Portable LED screens are typically used for temporary solutions. The shift from print to digital has become very apparent throughout trade shows, concerts, exhibitions and other similar events.

Portable LED screens are advantageous because they can be set up to any size, anywhere.

LED Trailers

One World LED offers a vast variety of LED trailers that range in resolution, size and management solutions.

Our trailers are Australian made and as with our LED screens, are designed to withstand any weather conditions.

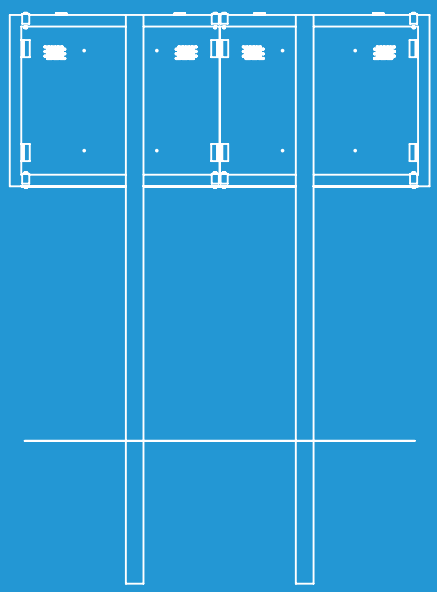
Both fixed and adjustable screens are available that range from P6 to P10 resolution.

Quoting

When quoting your customer for their screen do not forget to include the costs for installation. Installation costs include materials and may also include approval fees and labour. Material costs can be roughly calculated when you have estimated how much material is needed.

Cost of material x length of material = total material costs
e.g. 50x25x2.0mm RHS Galvanised steel is $5.95 per metre
$5.95 x 6m = $35.70
The larger the material, the more expensive it becomes:
100x100x4.0mm RHS Galvanised steel is $29.95 per metre
$29.95 x 6m = $179.70

Material costs may also include cuts, welding and fabrication. The price for these vary from supplier to supplier and depend on how much manual labour is involved.



For a standard two pole structure that supports two 960x1120 screens it is recommended to quote a minimum of $300.00AUD.

No.	Description 1 & 2	Number	Length	Qty	UOM	Unit Price	Disc. %	Sub Total Excl GST	GST	Total Inc GST
RHSG10005040	RHS Galv 100 x 50 x 4.0	4	3.400	13.6	MTR	27.16		369.38	36.94	406.32
	MITRE CUTTING			8		2.20		17.60	1.76	19.36
RHSG10010040	RHS Galv 100 x 100 x 4.0	1	6.920	6.92	MTR	29.95		207.25	20.72	227.97
FSG10005	Flat Steel Galv 100 x 5	4	0.090	0.36	MTR	17.19		6.19	0.62	6.81
	CUTTING			5		1.00		5.00	0.50	5.50
	DRILLING 10mm			4		2.00		8.00	0.80	8.80
	WELDING AND FAB			0.5		80.00		40.00	4.00	44.00
RHSG10010040	RHS Galv 100 x 100 x 4.0	1	6.920	6.92	MTR	29.95		207.25	20.73	227.98
FSG10005	Flat Steel Galv 100 x 5	2	0.090	0.18	MTR	17.19		3.09	0.30	3.39
	CUTTING			3		1.00		3.00	0.30	3.30
	DRILLING 10mm			2		2.00		4.00	0.40	4.40
	Welding and fab			0.5		80.00		40.00	4.00	44.00
RHSG10010040	RHS Galv 100 x 100 x 4.0	1	6.920	6.92	MTR	29.95		207.25	20.73	227.98
FSG10005	Flat Steel Galv 100 x 5	2	0.090	0.18	MTR	17.19		3.09	0.31	3.40
	CUTTING			3		1.00		3.00	0.30	3.30
	DRILLING			2		2.00		4.00	0.40	4.40

SMD LED

Surface Mounted Device Light Emitting Diode

The term SMD is typically followed by a number such as 3535 or 3528. This number refers to the size of the chip where the first two digits represent the vertical axis and the last two digits represent the horizontal axis.

SMD 3535 means that the chip is 3.5mm in height and 3.5mm in width whereas SMD 3528 refers to a diode size that is 3.5mm in height and 2.8mm in width. Each chip is one pixel and SMD chips go right down to 1104, subsequently lower pitch distances can be achieved resulting in higher resolution screens.

Each chip has three Light Emitting Diodes built in, one green, on blue and one red to make RGB. This means a single chip can produce 16.5million individual colours.

Using surface mounting technology, SMD chips are mounted onto printed circuit boards that makes up an LED module. The SMD chips have a flat surface resulting in wide viewing angles for users without any picture loss.

DIP LED

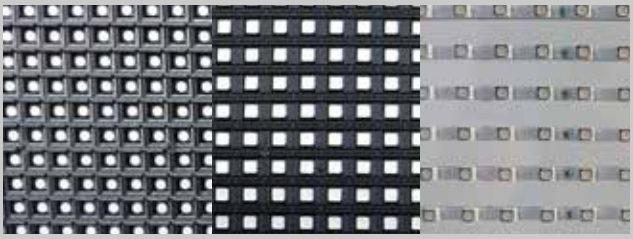
Dual In-line Package Light Emitting Diode

DIP LED technology uses an individual blue, red and green LED to make up one pixel. In some instances, four individual LEDs are used; one green, one blue and two red. This is not very common and is only used for high pitch outdoor screens.

Each individual LED has two connecting pins that are mounted to the printed circuit board through holes using solder. Since each pixel is made up from three diodes it is difficult to create a module with a pitch lower than 8mm.

To accomplish a pixel pitch lower than 8mm you must use DIP 3-in-1. DIP 3-in-1 has three diodes in one bulb and can be used to make modules with a pitch of 6mm.

DIP

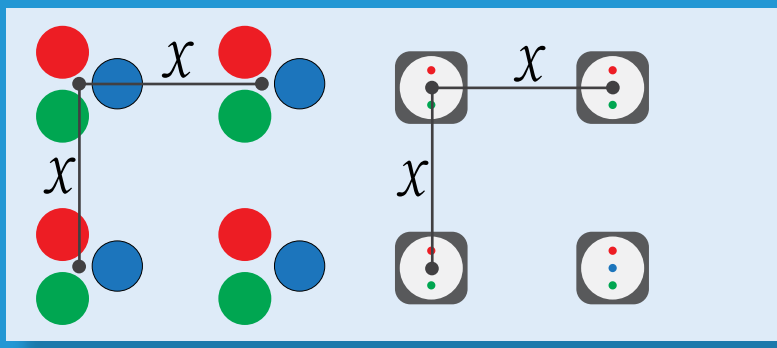


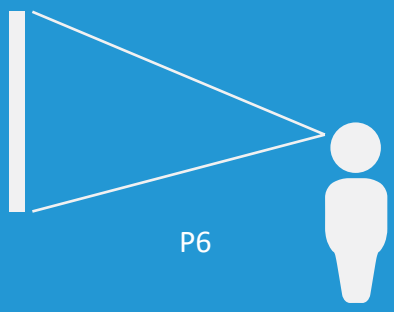
SMD

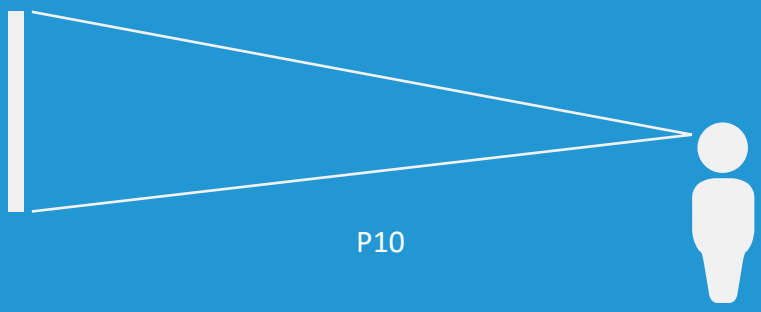
Pitch

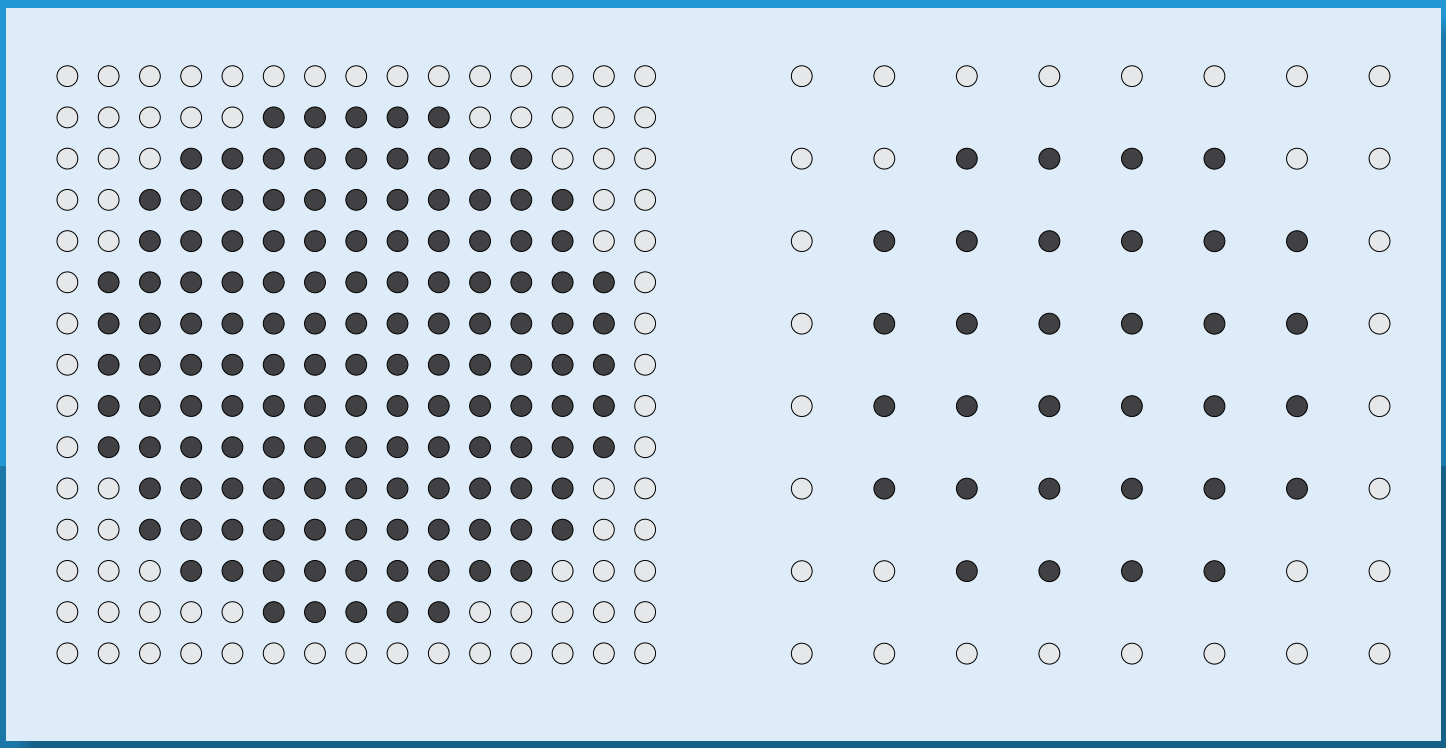
Pitch is the distance between each pixel. The lower the pitch the higher the resolution per area.

Different pitches have different optimal viewing distances. An LED screen with a high pitch is better viewed from a further distance.



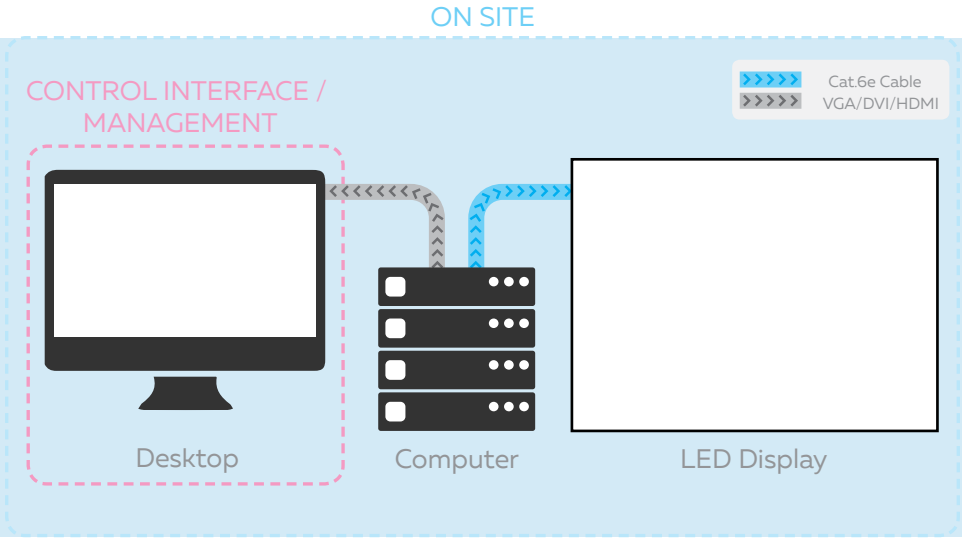




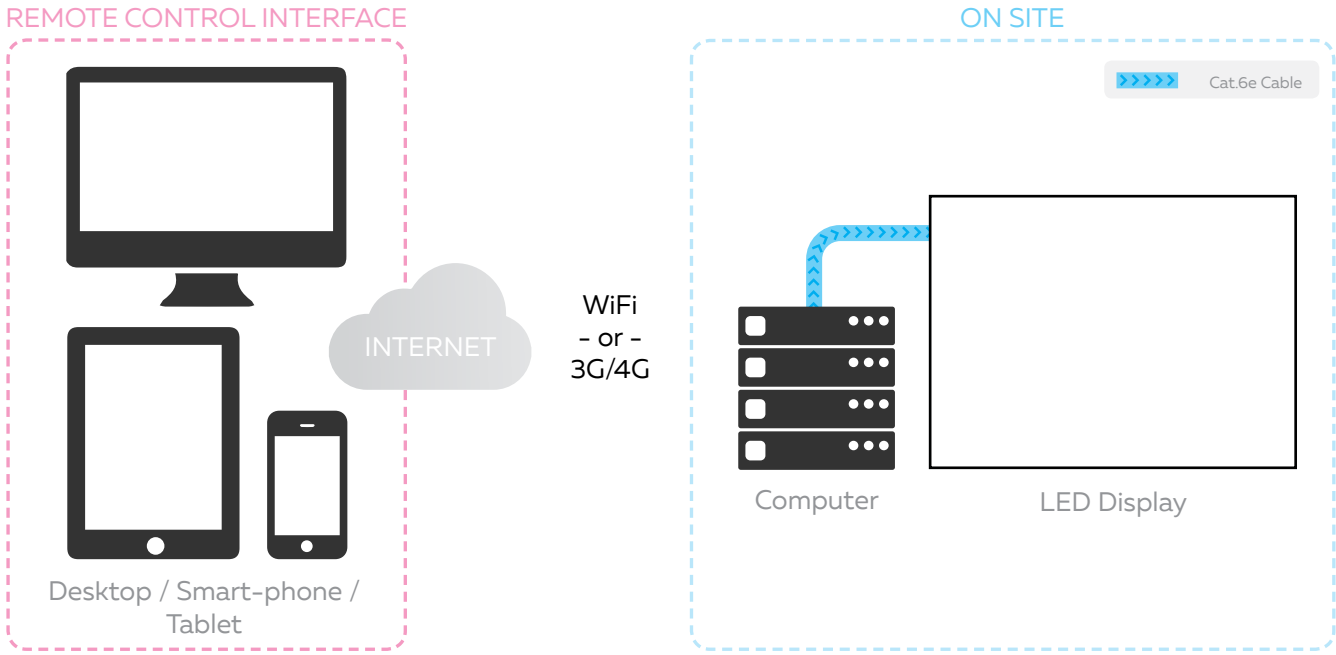


Management Systems

One World LED offers various display management solutions that range from hard wired to wireless.

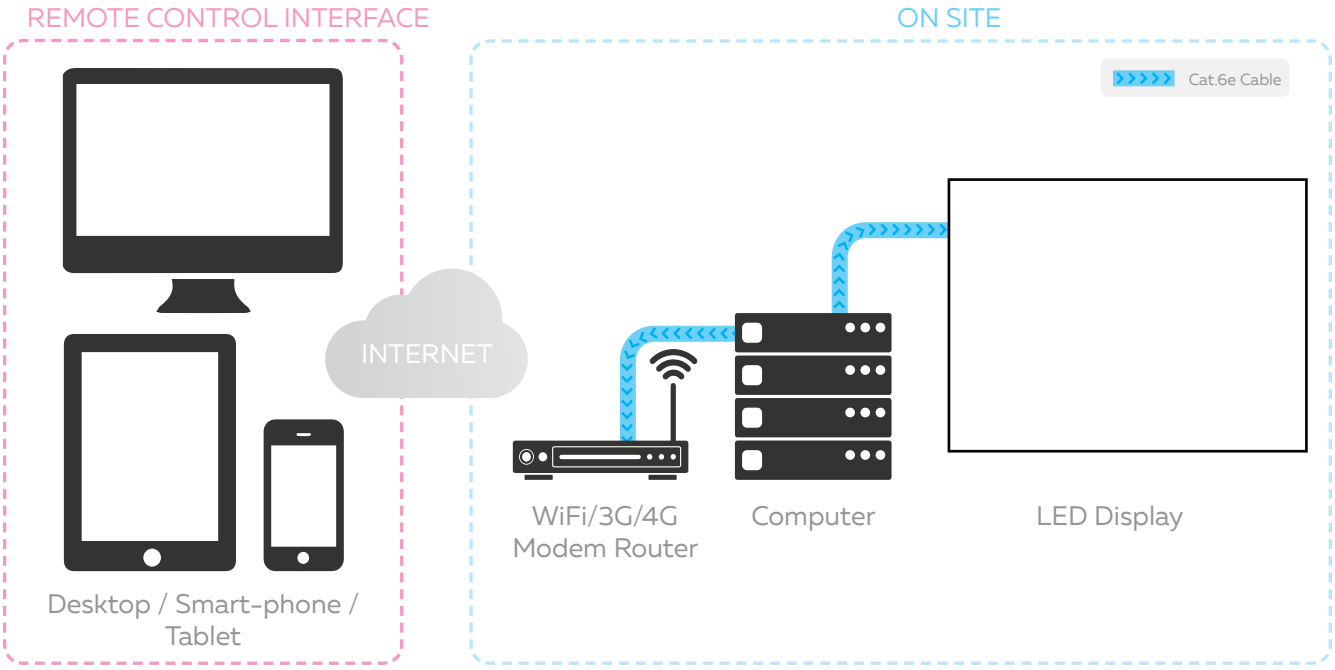


Physical Setup is for general purpose content management. it does not require an internde connection and is the minimum hardware requirement to drive the LED display. Screen content is controlled locally. The control point may be up to 300 metres from the LED display. All components are on site.



Wireless Setup allows the operator to control the LED screen remotely. This set up is typical for when a screen changes location or is a considerable distance from the main place of control. The LED display can either be operated through Wi-Fi or through a 3G/4G connection. Therefore it is required that the computer running the screen must have an internet connection for remote management. Local management can still be achieved through Wi-Fi.

FEATURES	PHYSICAL SETUP	WIRELESS SETUP	WIRED / WIRELESS SETUP
Physical Control	✓	✓	✓
Wireless	✗	✓	✓
3G/4G	✗	✓	✓
ADSL2+,Cable,Fibre	✗	✗	✓
Headless Operation	✗	✓	✓



Wired + Wireless Setup offers the same functionality as Wireless Setup, but with added stability and minimal configuration. Lower latency with a higher bandwidth means faster content updates and management. This reduces the cost of operation, risk of content corruption and increases security.

Computer Systems

One World LED offers a range of different computer systems to suit the different needs of each user.

WL - PC

Text, Image and Video playback from local storage or USB
Digital clock, webcam playback
Weather display (Internet required)
Manual or Schedule based brightness control
Asynchronous control

AV - PC

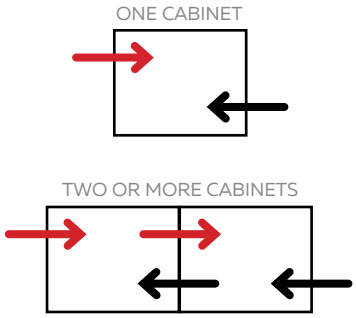
Use the LED display like you would a projector, monitor, or TV. AV-PC captures analogue and digital inputs and sends them to the LED display. Be aware of the aspect ratio of the content you're planning on displaying (4:3, 16:9)

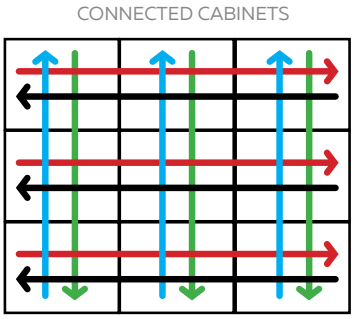
AP - PC

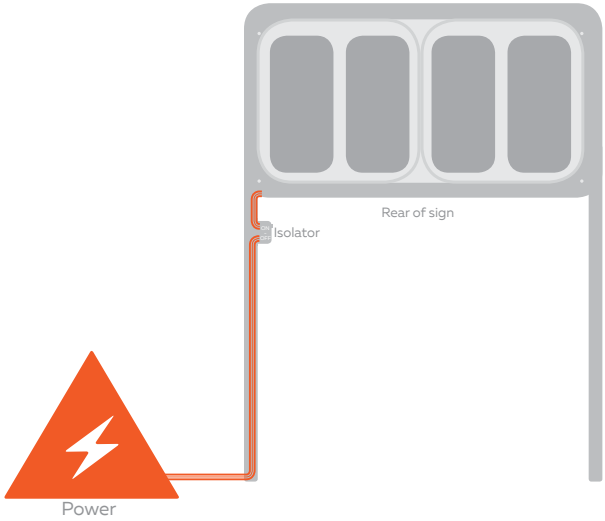
Enlist your advertising medium(s) for hire
Adverpost will automatically handle bookings
Earn daily, weekly and monthly advertising revenue
Track relevant realtime booking/revenue statistics

FUNCTIONS	WL - PC	AV - PC	AP - PC
Manual / Auto Brightness Control	✓	✓	✓
Video playback	✓	✓	✓
Image Slideshow	✓	✓	✓
Text messages	✓	✓	✓
Powerpoint	CONVERSION REQUIRED	✓	CONVERSION REQUIRED
Web-based scheduling and sales	✗	✗	✓
TV Playback	✗	✓	✗

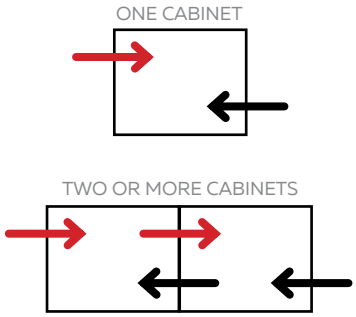
Cabling for Power

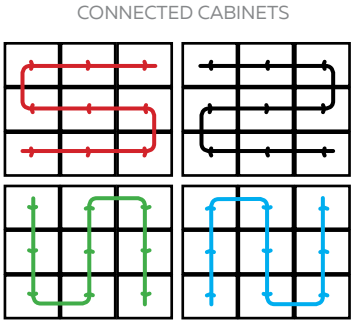


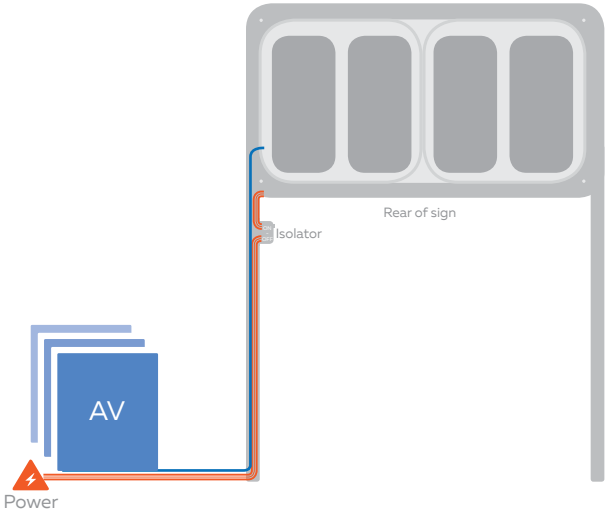




Cabling for Data







Wiring for Data

T-568A

With the gold pins facing towards you, the cable should be wired from left to right on each end respectively in the following order:

1 White + Green
2 Green
3 White + Orange
4 Blue
5 White + Blue
6 Orange
7 White + Brown
8 Brown

T-568B

With the gold pins facing towards you, the cable should be wired from left to right on each end respectively in the following order:

1 White + Orange
2 Orange
3 White + Green
4 Blue
5 White + Blue
6 Green
7 White + Brown
8 Brown

Adverpost

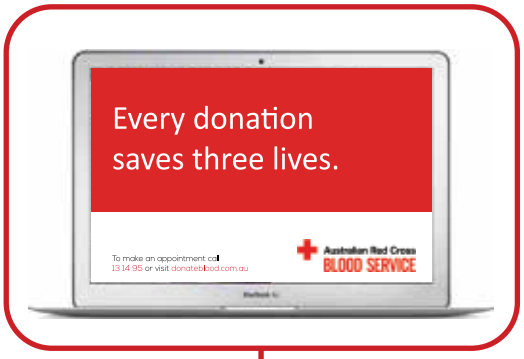
Adverpost is a One World LED patented product that drives return of investment for digital signs. It is ground breaking technology that has changed the way digital advertising is booked, managed and interacted with.

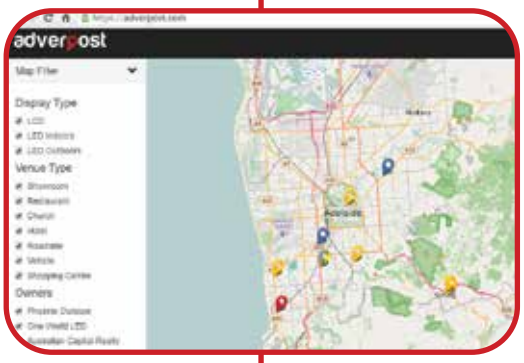
Adverpost allows more advertisers to search and find sign owners and their signs throughout the cloud and directly advertise with them, avoiding middle agency fees. Digital advertising is now affordable for smaller businesses and puts more digital signs within easy reach of advertisers. More signs in front of more consumers means better brand recognition and increased sales.

Adverpost offers a huge range of content management features, to find out more please visit our website:

oneworldled.com/products/adverpost/

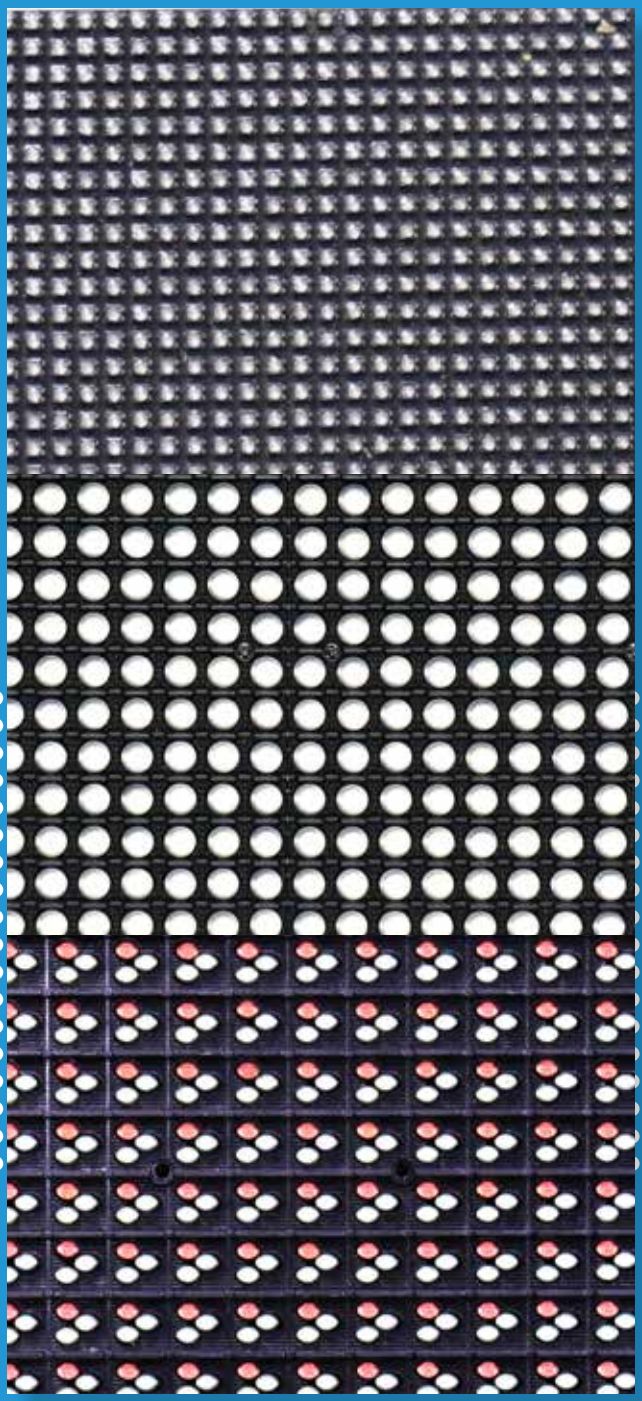
adverpost

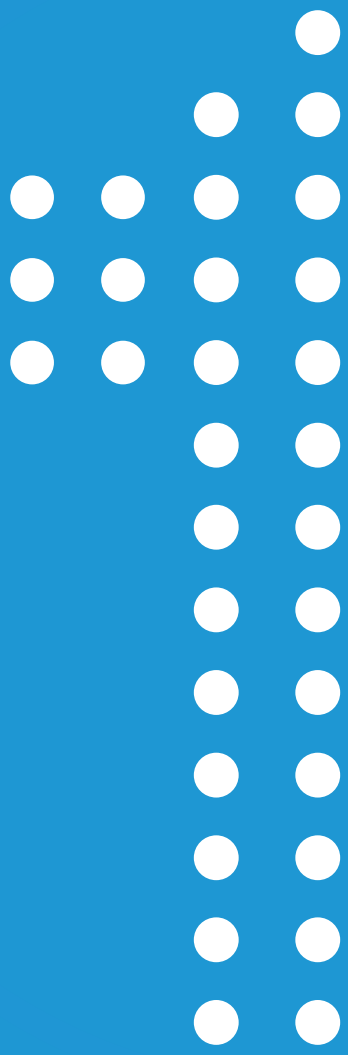




Technical Specifications

On the One World LED website you can find technical specifications of all our products. There is information for all of our standard cabinet range and even information for each module type. This information is available to resellers to give them the knowledge and confidence of One World LED's product.





ONE WORLD LED

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