ALE Series Outdoor Common Cathode Full Color Aluminum Screen

960×960×90mm Specification

Catalogue

Chapter 1 Product Introduction

- **Common Cathode with Energy-Saving**

  Common cathode is an energy-saving power supply technology for LED display, which can effectively solve the problems of high screen temperature and excessive power consumption of common anode circuit. the average temperature of the panel of the common cathode circuit is 15℃ lower than that of the traditional common anode circuit，and the power consumption is reduced by more than 20%.

- **Four-level energy-saving technology**

  Class I dynamic energy saving: when the signal is not displayed, turn off the driving circuit of the constant current tube chip;

  Level II black screen energy saving: when the display screen is completely black, the static consumption current of the chip drops from 6mA to 0.6mA;

  Level III full-screen energy saving: when the low level is maintained for 300ms, the static consumption current of the chip drops from 6mA to 0.5mA;

  Class IV shunt power supply and step-down energy saving: the current first passes through the lamp bead, and then goes to the negative electrode of the IC, so that the forward voltage drop becomes smaller and the on-resistance becomes smaller.

- **Real color, more realistic picture**

  The refresh rate is up to 3840Hz, the high contrast ratio, the grayscale is above 16 bit, the picture is vivid and delicate, the brightness is stable and even, not dazzling or grainy. Red, green and blue three-in-one LED lamp beads, with good consistency, and the viewing angle can reach more than 140°.

- **Structure optimization, flexible installation**

  It supports various installation methods such as floor-standing, hoisting, and wall-mounted. Modular design of module, box and power box, front and rear maintenance, hard connection, no structural installation, saving structural cost.

- **Driving Project**

  Self-designed electronic circuit engineering board, double row tube, 32 capacitors，It has the function of list up and down hidden, high refreshing ratio, dark dot amended in first line, low grayscale amended, color cast and spot amended, etc.

- **Stable and high protection**

  Outdoor application products, IP66 protection grade, integrated all-aluminum design, with corrosion resistance, high melting point, flame retardant and fire resistance, moisture resistance and salt spray resistance, working temperature -40 ℃ -80 ℃, can operate normally in the seaside environment for a long time, The ability to adapt to the environment is very strong, and it can work outdoors all day long.

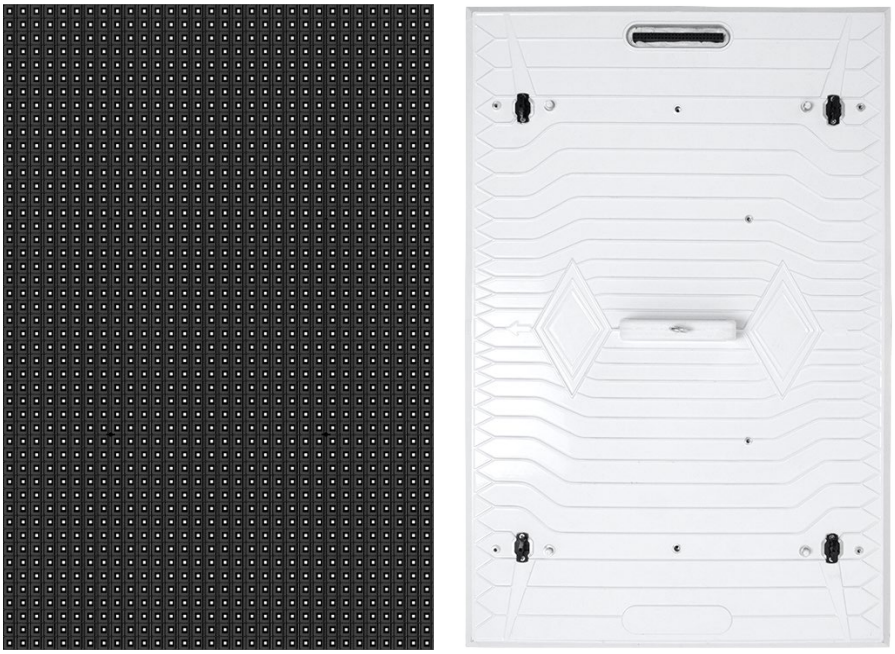
- **Stable and reliable performance**

Ultra-low temperature rise, low power consumption, low attenuation, and the good thermal conductivity of the aluminum module itself, make the heat dissipation effect of the whole screen better, no need to install air conditioners, high reliability and long service life.

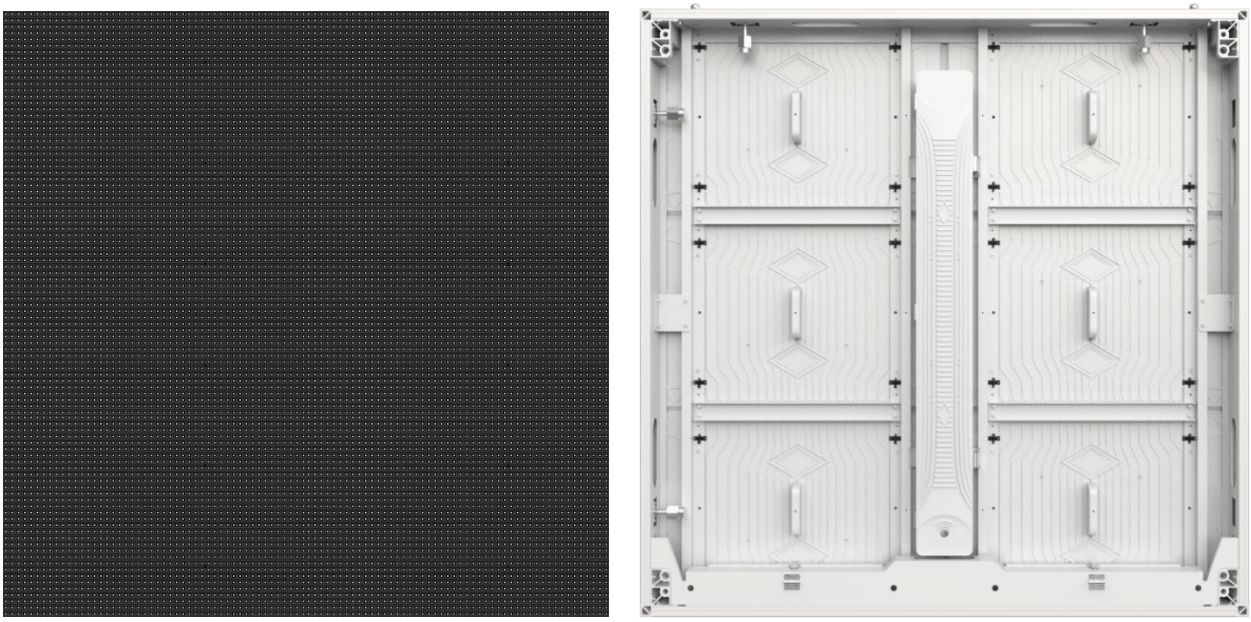
Chapter 2 Structural Appearance

2.1 Structural Appearance

Picture2-1 Appearance Picture-Display Module(480*320*15mm)



Picture 2-2 Appearance Picture-Profile Aluminum Cabinet(960*960*90mm)



2.2 Technical Parameters

Table 2-1 **ALE4.4** Technical Parameters

Configuration	Common anode	Common Cathode
Pixel Composition（SMD）	1921	1921
Pixel Pitch（mm）	4.4	4.4
Module Resolution（W×H）	108*72	108*72
Module Size（mm）	480*320*15	480*320*15
Module Weight（Kg）	2	2
Module Qty/Cabinet	2*3	2*3
Cabinet Size（mm）	960*960*90	960*960*90
Cabinet Resolution（W×H）	216*216	216*216
Cabinet Area（m²）	0.92	0.92
Cabinet Weight（Kg）	24.5	24.5
Cabinet Material	Profile Aluminum	Profile Aluminum
Cabinet Density（dot/m²）	50625	50625
IP Rating	IP66	IP66
Single Dot Brightness Amended	Yes	Yes
White Balance Brightness（cd/m²）	⩾6000	⩾6000
Color Temperature（K）	6500-9000	6500-9000
Visual Angle（H/V）	140°/120°	140°/120°
Contrast Ratio	8000：1	8000：1
The Max Power Consumption	700	500
Average Power Consumption	235	168
Input Voltage （V）	200-240	200-240
Maintenance Method	Front and Rear	Front and Rear
Frequency	50&60	50&60
IC Driving（Constant Current）	1/9s	1/9s
Grayscale	It is available within 65536	
Refreshing Ratio（Hz）	3840	3840
Color Processor	16bit	16bit
Lifespan（h）	100000	100000
Work Temperature/Humidity	-10℃-50℃/10%RH-98%RH (Non Condensing)	
Storage Temperature/Humidity	-20℃-60℃/10%RH-98%RH (Non Condensing)	

Table 2-1 **ALE5.7** Technical Parameters

Item	Common anode	Common Cathode Ⅰ	Common Cathode Ⅱ	Common Cathode Ⅲ
Pixel Composition（SMD）	2727			
Pixel Pitch（mm）	5.7			
Module Resolution（W×H）	84*56			
Module Size（mm）	480*320*15			
Module Weight（Kg）	2			
Module Qty/Cabinet	2*3			
Cabinet Size（mm）	960*960*90			
Cabinet Resolution（W×H）	168*168			
Cabinet Area（m²）	0.92			
Cabinet Weight（Kg）	24.5			
Cabinet Material	Profile Aluminum			
Cabinet Density（dot/m²）	30625			
IP Rating	IP66			
Single Dot Brightness Amended Single Dot Color Amended	Yes			
White Balance Brightness（cd/m²）	5500	5500	7000	12000
Color Temperature（K）	6500-9000			
Visual Angle（H/V）	140°/120°	140°/120°	80°/70°	80°/70°
Contrast Ratio	17000：1			
The Max Power Consumption（W/m²）	700	500	280	450
Average Power Consumption（W/m²）	235	168	76	150
Input Voltage （V）	200-240			
Maintenance Method	Front and Rear			
Frequency	50&60			
IC Driving（Constant Current）	1/7s			
Grayscale	It is available within 65536			
Refreshing Ratio（Hz）	3840			
Color Processor	16bit			
Lifespan（h）	100000			
Work Temperature/Humidity	-10℃-50℃/10%RH-98%RH (Non Condensing)			
Storage Temperature/Humidity	-20℃-60℃/10%RH-98%RH (Non Condensing)			

Table 2-1 **ALE6.67** Technical Parameters

Item	Common anode	Common Cathode Ⅰ	Common Cathode Ⅱ	Common Cathode Ⅲ
Pixel Composition（SMD）	2727			
Pixel Pitch（mm）	6.67			
Module Resolution（W×H）	72*48			
Module Size（mm）	480*320*17			
Module Weight（Kg）	2			
Module Qty/Cabinet	2*3			
Cabinet Size（mm）	960*960*92			
Cabinet Resolution（W×H）	144*144			
Cabinet Area（m²）	0.92			
Cabinet Weight（Kg）	24.5			
Cabinet Material	Profile Aluminum			
Cabinet Density（dot/m²）	22500			
IP Rating	IP66			
Single Dot Brightness Amended Single Dot Color Amended	Yes			
White Balance Brightness（cd/m²）	6000	7500	7000	12000
Color Temperature（K）	6500-9000			
Visual Angle（H/V）	140°/120°	140°/120°	80°/70°	80°/70°
Contrast Ratio	17000：1			
The Max Power Consumption（W/m²）	700	500	280	450
Average Power Consumption（W/m²）	235	168	76	150
Input Voltage （V）	200-240			
Maintenance Method	Front and Rear			
Frequency	50&60			
IC Driving（Constant Current）	1/6s			
Grayscale	It is available within 65536			
Refreshing Ratio（Hz）	3840			
Color Processor	16bit			
Lifespan（h）	100000			
Work Temperature/Humidity	-10℃-50℃/10%RH-98%RH (Non Condensing)			
Storage Temperature/Humidity	-20℃-60℃/10%RH-98%RH (Non Condensing)			

Table 2-1 **ALE10** Technical Parameters

Item	Common anode	Common Cathode Ⅰ	Common Cathode Ⅱ	Common Cathode Ⅲ
Pixel Composition（SMD）	3535			
Pixel Pitch（mm）	10			
Module Resolution（W×H）	48*32			
Module Size（mm）	480*320*16			
Module Weight（Kg）	2			
Module Qty/Cabinet	2*3			
Cabinet Size（mm）	960*960*92			
Cabinet Resolution（W×H）	96*96			
Cabinet Area（m²）	0.9216			
Cabinet Weight（Kg）	24.5			
Cabinet Material	Profile Aluminum			
Cabinet Density（dot/m²）	10000			
IP Rating	IP66			
Single Dot Brightness Amended Single Dot Color Amended	Yes			
White Balance Brightness（cd/m²）	6000	7500	7000	12000
Color Temperature（K）	6500-9000			
Visual Angle（H/V）	140°/120°	140°/120°	80°/70°	80°/70°
Contrast Ratio	18000：1			
The Max Power Consumption（W/m²）	700	500	280	450
Average Power Consumption（W/m²）	235	168	76	150
Input Voltage （V）	200-240			
Maintenance Method	Front and Rear			
Frequency	50&60			
IC Driving（Constant Current）	1/2s			
Grayscale	It is available within 65536			
Refreshing Ratio（Hz）	3840			
Color Processor	16bit			
Lifespan（h）	100000			
Work Temperature/Humidity	-10℃-50℃/10%RH-98%RH (Non Condensing)			
Storage Temperature/Humidity	-20℃-60℃/10%RH-98%RH (Non Condensing)			

2.3 Packing List

Table 2-3 Packing List

Packing List	Quantity	Unit
LED Display	1	Set
User Manual	1	pcs
Approved Certificate	1	pcs
Warranty Card	1	pcs
Construction Notification	1	pcs

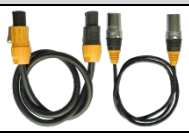
2.4 Power Supply Configuration Project

Table 2-4 Supply Configuration Project

Power Supply	Configuration Project
300W/400W Power Supply	Can load 3pcs modules

2.5 Accessories

Table 2-5 Accessories List

Accessories	Name	Picture
Assemble Accessories	Power Supply、Single Cable	
	Screws、connecting sheet	
	Sleeve Piece、Key、T-type equipment for front and rear maintenance	

Chapter 3 Interface Definition

Picture 3-1 Interface Picture（HUB75）

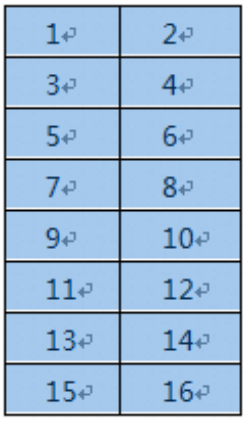


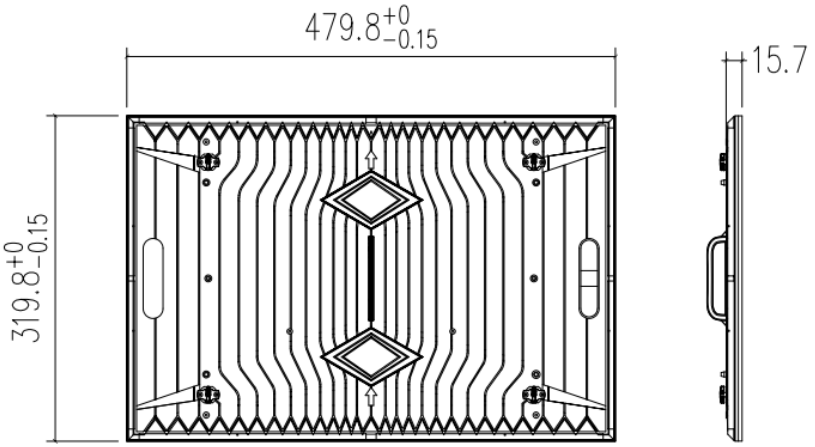
Table 3-1 Interface Definition

Pin	Signal	Function	Pin	Signal	Function
1	R1	Red Data Signal	2	G1	Green Data Signal
3	B1	Blue Data Signal	4	GND	Power Ground
5	R2	Red Data Signal	6	G2	Green Data Signal
7	B2	Blue Data Signal	8	E	Row Decoding Signal
9	A	Row Decoding Signal	10	B	Row Decoding Signal
11	C	Row Decoding Signal	12	D	Row Decoding Signal
13	CLK	Clock Signal	14	LAT	Latch Signal
15	OE	Enable Signal	16	GND	Power Ground

Chapter 4 Installation

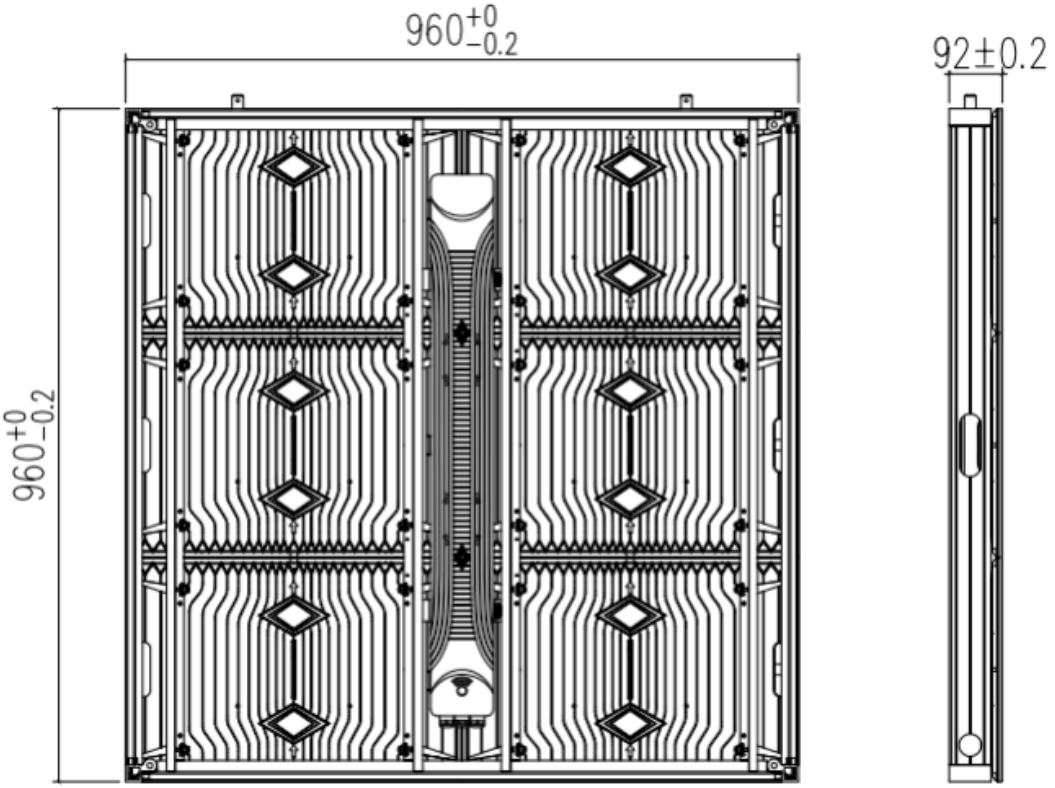
4.1 Kit Installation

Table 4-1 Hole Installation Diagram for Kit



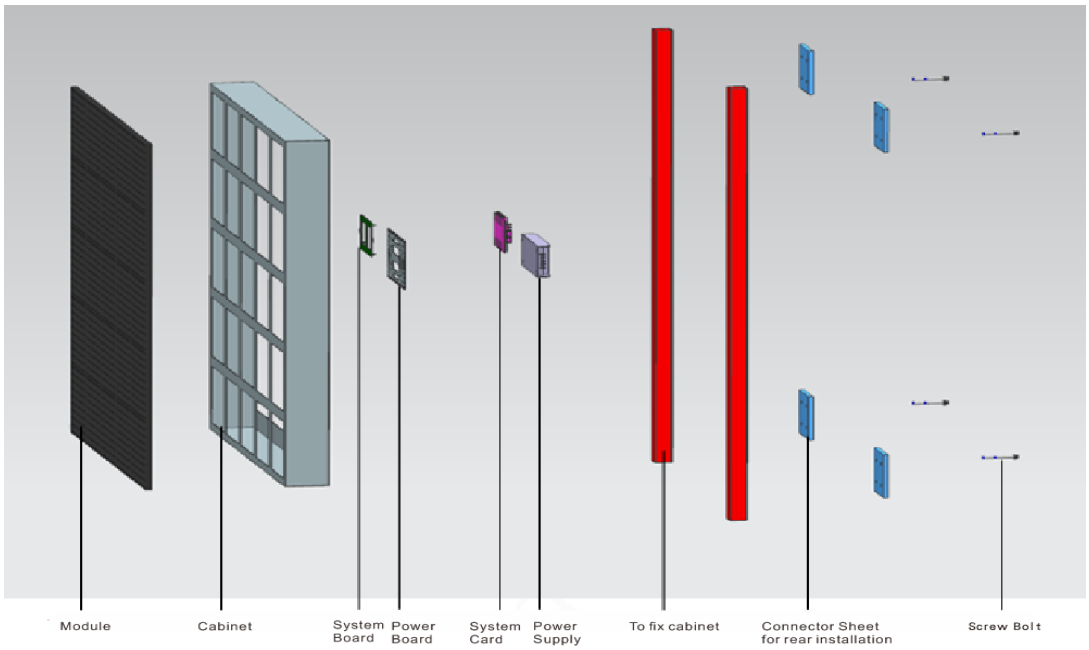
4.2 Cabinet Installation

Picture 4-2 Hole Installation Diagram for Kit



4.2.1 Front Installation for Cabinet

Picture4-3 Components for Cabinet Installation

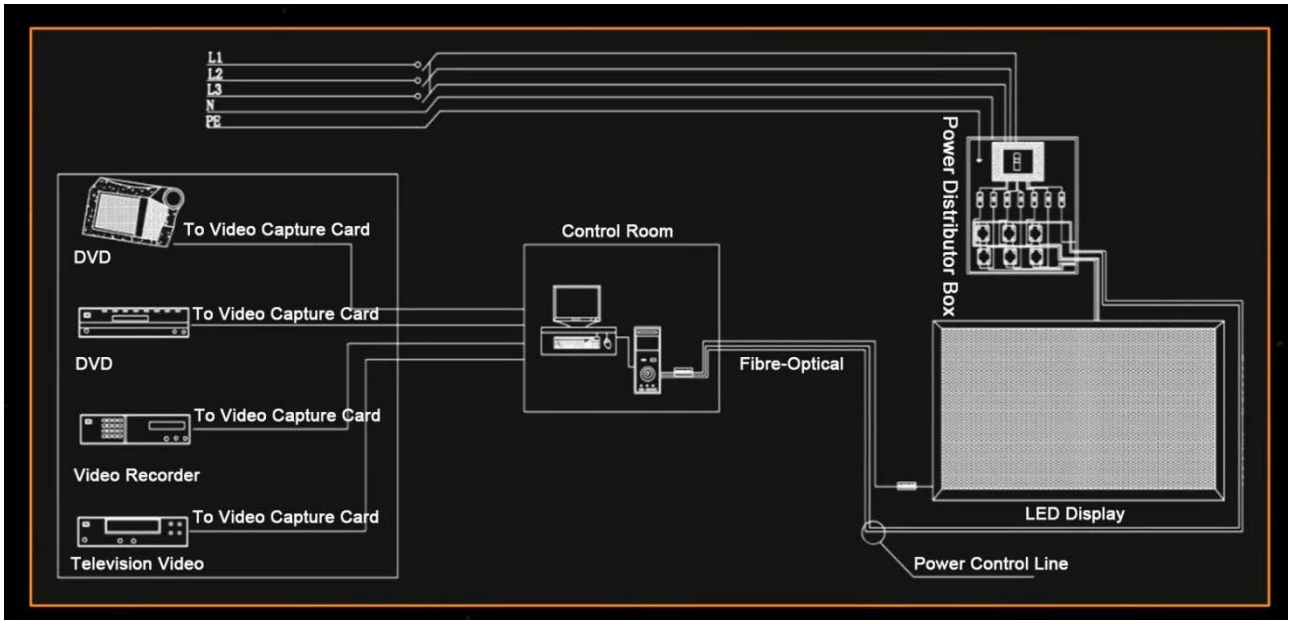


Picture 4-4 After finishing to install for cabinet

4.3 Display Installation

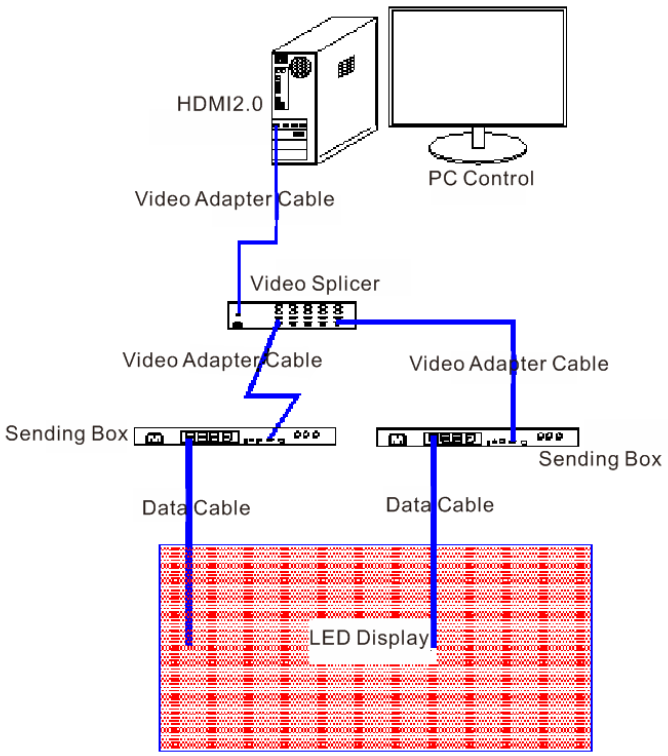
4.3.1 Diagram for Cable Connection

Picture4-5 Diagram for Connection

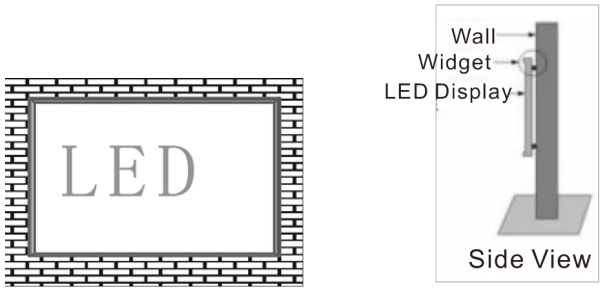
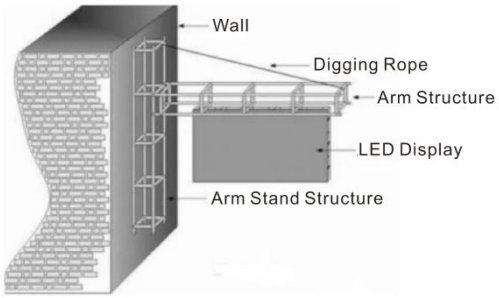
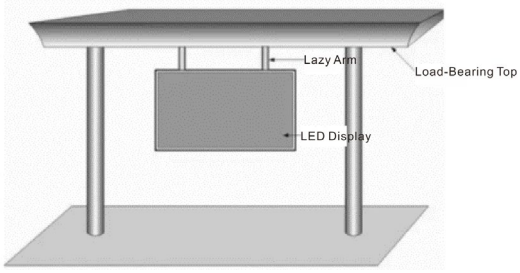
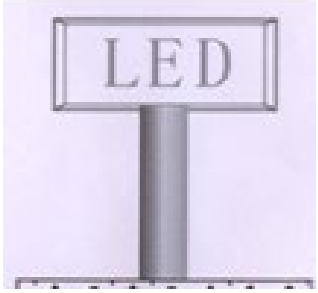


4.3.2 Networking Introduction

Picture4-6 Topographic Picture for networking



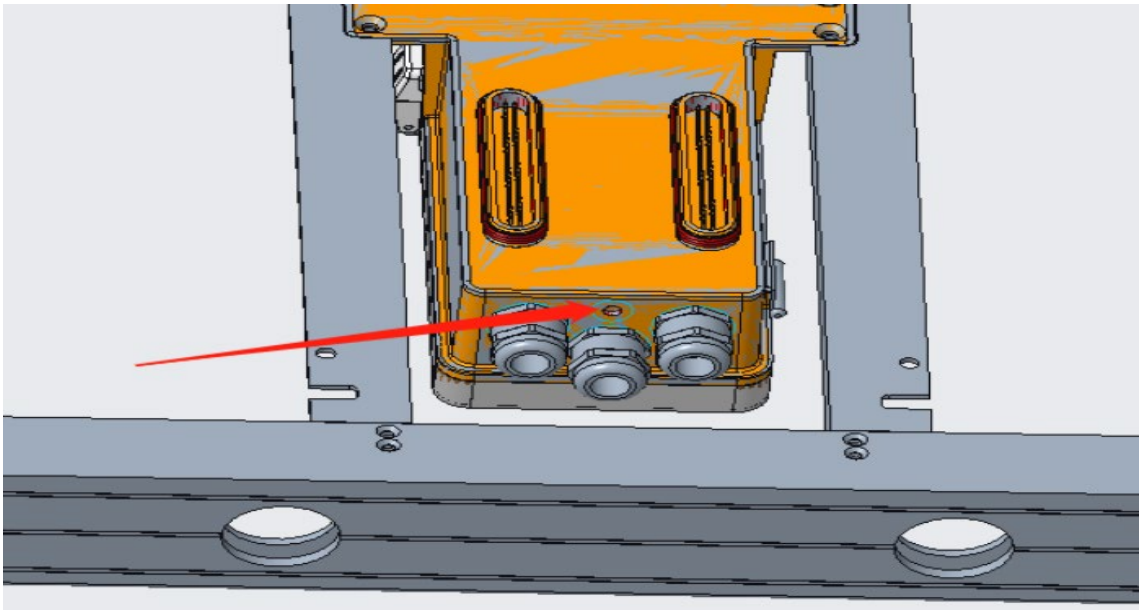
4.3.3 Installation Method

Installation Type	Picture
Wall Mounted Installation	
Floor Mounted Installation	
Cantilever Type Installation	
Hanging Type Installation	
Upright Type Installation	

Chapter 5 Description for Product Features

5.1 New added vent valve

For the ALE seriesof LED display, a vent valve has added in the bottom of power box, it can adjust inner gas pressure, recoil temperature rise and balance inner environment.



5.2 Strong Adaptability for outdoor environmental condition

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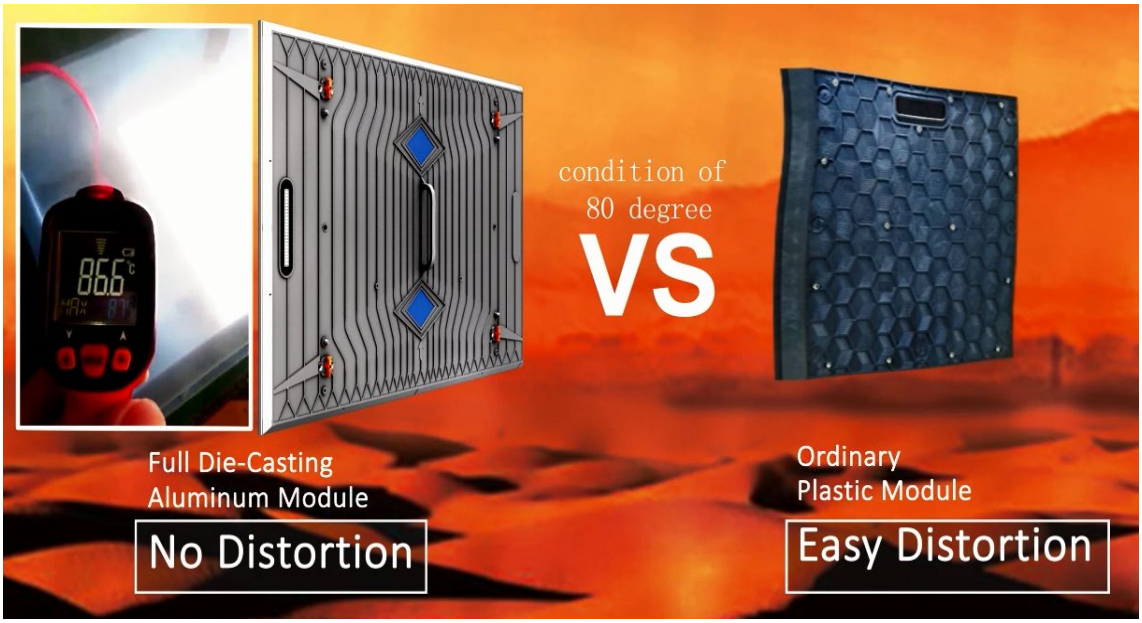
5.3 Structural Hard Link, Wireless Design.

The product structure is to adopt hard link, wireless design, its appearance is tidy and beautiful.

5.4 Aluminum Profile Cabinet, Lightweight, Safety and Reliability, No Distortion.

ALE seriesof LED display is to adopt aluminum profile cabinet, the weight of single cabinet is just 24.5KG, display module is die-casting aluminum material, it is fire resistance, no distortion even it is under the high environmental temperature.



Chapter 6 User Manual

Table 5-1 Notification

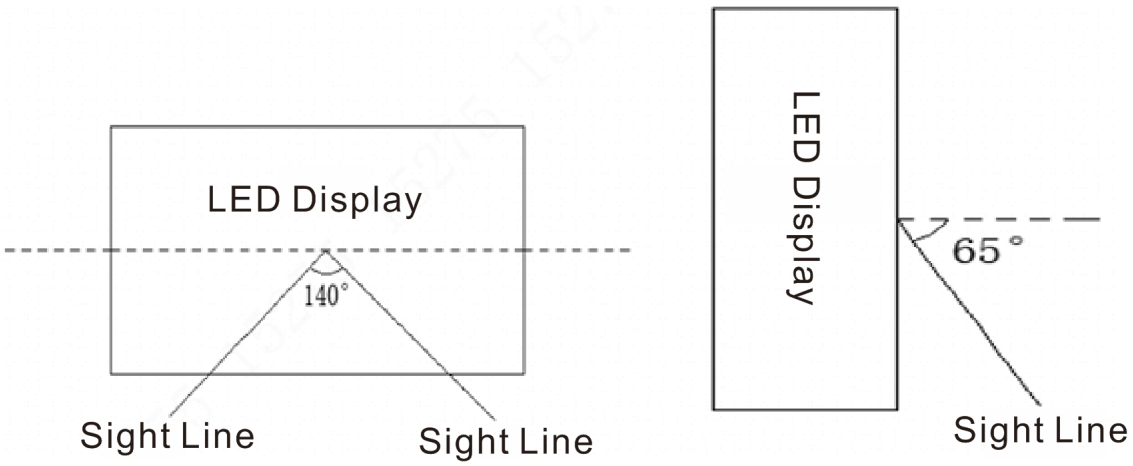
Item	Notification
Temperature	Keep the work temperature within -10℃～50℃
	Keep the storage temperature within -20℃～60℃
Humidity	Keep the work humidity within 10%RH～98%RH
	Keep the storage humidity within 10%RH～98%RH
Waterproof	IP66
Dust-proof	IP66
Anti-Electromagnetic radiation	LED display shouldn't put under the environment where has strong interference by electromagnetic radiation, which would be easy to picture display abnormal.
Electrostatic Prevention	It should be ground connected well for power supply, cabinet, mental cover of display body, the resistance of ground connection<10Ω, to avoid making any damage to electric components.

User Manual

Item	User Manual
Electrostatic Protection	The installer need wear electrostatic ring and electric gloves, each equipment should take ground connection well when installing.
Connection Type	There are positive and negative electrode silk printed on module, don't allow to reverse connect, and prohibit to connect with AC 220V.
Operate Type	Prohibit to assemble module, cabinet and whole of display under power on, operation should be under power off completely, to protect personal safety; Prohibit anyone to touch when the LED display is working, in case the static electricity which is generated by body to break through LED and other components.
Dismantle and Transportation	Don't allow to throw, push, compress module, to prevent module falling down, to avoid breaking kit, damage LED chips, etc.
Environmental Inspection	It should match temperature and humidity meter for LED display at installation site, to monitor its surrounding environment, so that it can find out if LED display being affected with damp, moisture, etc.
The Usage of LED display	The environmental humidity should be 10%RH~65%RH, it is suggested to turn on LED display one time each day, normal to use above 4 hours each time, to remove its damp.
	When the environmental humidity is above 65%RH, it should make dehumidification to environment, and it is suggested to work LED display above 8h each day.
	When LED display has not turned on for a long time, it should preheat LED display to remove moisture before use, to avoid damage LED because of damp, the specific method: 20% brightness to work for 2h, 40% brightness to work for 2h, 60% brightness to work for 2h, 80% brightness to work for 2h, 100% brightness to work for 2h, by this to gradually increase its brightness.

Chapter 7 Acceptance Request and Method

Table 6-1 Acceptance Request and Method for LED display

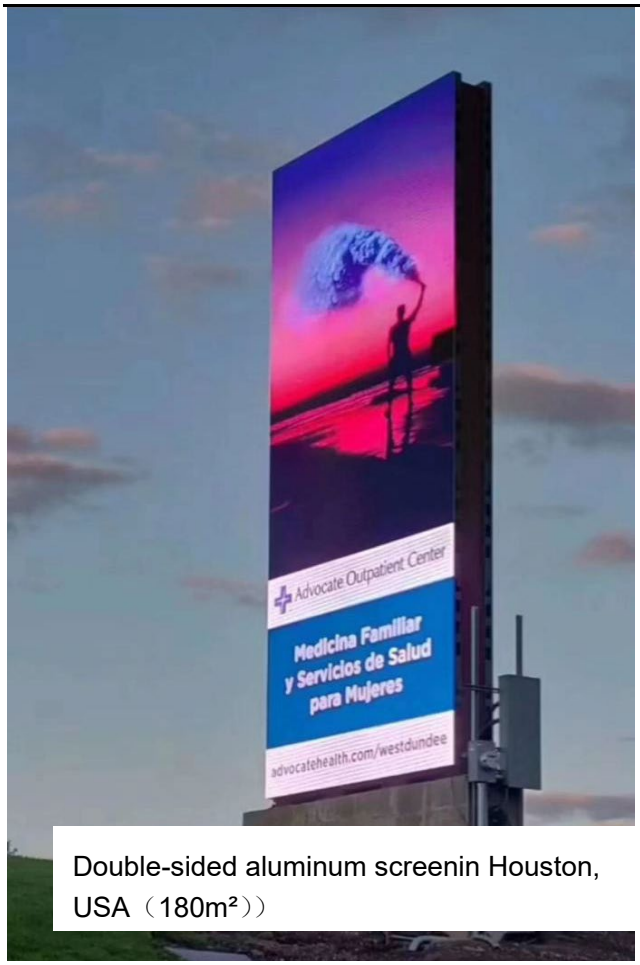
Item	Acceptance Request and Method
Brightness of LED Display	Switch LED display to work as full brightness, use light-gun to measure the brightness of LED display within 10 minutes. When measuring its brightness, the light-gun need be vertical to LED display, to adjust the distance of light-gun and LED display, ensure the view window, black area, cover above 16 pixels, adjust focal length, to ensure LED chip being able to clearly view in eyepiece, then measure and record brightness data.
Visual Angle	The one should stand on the angle of 140°, bottom angle 65°to LED display when making measurement, it is requested that LED display should not have obvious the problem of dark block.
	

Chapter 8 case study

It is widely used for various of outdoor application fields, such as the exterior wall of building, Hanging Garden, Government Cultural Plaza, Bus Station, Vertical Advertising aside road, etc.

Zhengzhou University double-sided aluminum screen（220m²）

Jiangyin Gymnasium Aluminum Screen（280m²）



Double-sided aluminum screenin Houston, USA（180m²）)

Aluminum screen on the west side of Sokcho Coast, Gangwon-do, South Korea（90m²）

Aluminum screen on the south side of Sokcho coast, Gangwon-do, South Korea（150m²）