

# 表贴三并一室内全彩

## Separate SMD full color display

### 产品性能

- 无马赛克现象，显示效果好
- 表贴三并一全彩屏分光分色较好，颜色饱和度高，且为整面发光，色彩较均匀
- 表贴三并一全彩装有面罩，可以达到保护晶片的效果，并能防尘、防晒
- 从工艺上来讲，全自动化生产，可靠性高
- 表贴三并一可以进行前维护，且为单灯维修，维修方式简单
- 表贴三并一功耗小，散热快，有效延长屏的寿命，可靠性高
- 有P6、P7.62、P8、P10、P12等规格可供选择

### 产品构成及应用

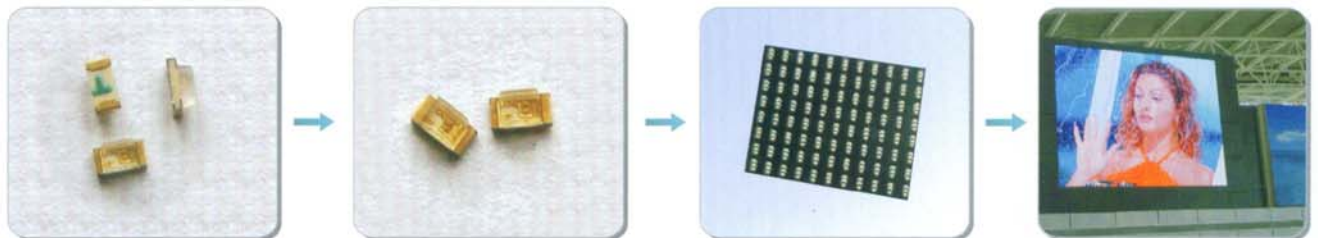
- 表贴三并一全彩显示屏是将红绿蓝三颗芯片封装在同一个像素点内，均匀分布构成显示屏。
- 适用于各种体育、广告、银行、证券、车站、码头、商场、邮政、电信、机关、学校、监控、餐馆、娱乐、企业等场所。
- 规格齐全，有P6、P7.62、P8、P10、P12等规格可供选择。

### PRODUCT PERFORMANCE

- No Masac Problem, with good display performance
- SMD 3 Separate 1 full color display with good prismatic and dichroism, and high saturation,Light with whole screen, the color is relatively uniform.
- The cover could protect the chip inside , dustproof , sunnyproof
- Reliable automatically produce.
- Could be repaired in the front of the screen , repair simply.
- Low power consumption , cool quickly and prolong the lifespan.
- With P6mm, P7.62mm, P8mm, P10 mm, P12mm etc. for selection

### PRODUCT CONFIGURATION AND APPLIACATION

- Each pixel dot with 1 red, 1pure green, 1 blue, total 3 LED tube sealed in.
- Could be widely used in stadium, advertisement, bank, security, station, pork, shopping mall, post office, tel-communication, government, school, monitor, restarant, amusement, enterprise etc.public places
- With P6mm, P7.62mm, P8mm, P10 mm, P12mm for selection





技术参数 TECHNOLOGY PARAMETER

(1) 结构说明 Configuration

每个像素点内封装2R1PG1B四颗LED灯管组成  
Each pixel sealed with 2 red, 1 pure green, 1 pure blue Led, total 4 pcs LEDs.

(2) 屏体技术参数 Whole screen parameter

规格 Specification	P10	P12	P16	P16虚拟 (Virtual)	P20	P20虚拟 (Virtual)	P22	P25	P31.25	P40
LED封装 Led sealed	φ 4LED	φ 5LED	φ 5LED	φ 5LED	φ 5LED	φ 5LED	φ 5LED	φ 5LED	φ 5LED	φ 5LED
物理间距(mm) Pixel pitch	10mm	12	16	16	20	20	22	25	31.25	40
单元板尺寸 (mm) Cell board dimension	160x80	192x96	256x128	256x128	320x160	320x160	176x176	200x200	250x250	320x320
单元板分辨率(L×W) Cell board resolution	16x8	16x8	16x8	32x16	16x8	32x16	8x8	8x8	8x8	8x8
像素组成 Pixel configuration	1R1G1B	2R1G1B	2R1G1B	2R1G1B	2R1G1B	2R1G1B	2R1G1B	2R1G1B	2R1G1B 4R2G2B	2R1G1B 4R2G2B
密度(dot/m <sup>2</sup> ) Pixel density	10000	6944	3906	15624	2500	10000	2066	1600	1024	625
亮度(CD/m <sup>2</sup> ) Brightness	≥7000	≥7000	≥6500	≥6500	≥5500	≥5500	≥5000	≥4000	≥3000	≥1300
驱动方式 Drive mode	1/4扫 1/4scan			静态恒流 static constant currency						
工作电压 Operating Voltage	AC220V/50HZ									
视角 View angle	H:110° V: 50°									
最大功耗(W/m <sup>2</sup> ) Max power consumption	≤1000	≤800	≤1200	≤1250	≤800	≤850	≤650	≤550	≤500	≤450
工作环境 Operating environment	-40° ~ +50° C 湿度(humidity)10%-90%									
灰度/颜色 Grey/color	红绿蓝各4096级, 颜色显示4096 <sup>3</sup> (同步) red,green,blue each color 4096 grades, display color 4096 <sup>3</sup>									
亮度调节 Brightness adjust	手动、红、绿、蓝256级、自动8级调节 each 256grade adjust, muanual 8 grades									
控制 Control	同步 (脱机控制系统、五类网线或光纤传输) synchronous(offline control system, 5 kinds net cable or fibre transfer)									
平均无故障 MTBF	> 10000小时 (hours)									
寿命 Life span	> 100000小时 (hours)									
连续使用时间(hours) Continuous working time	> 72小时 (hours)									
显示接口 Display port	VGA显示卡 VGA video card									
观看距离 View distance	5-15m, 显示内容清晰可见 5-15m, the distant content is very clear.									



# 户外全彩显示屏

## outdoor fullcolor display



类 型：户外全彩显示屏  
点间距：PH16mm  
分辨率：3906点/m<sup>2</sup>

Type: Outdoor Fullcolor Display Screen  
Pixel Pitch: PH16mm  
Pixel Density: 3906dots/ m<sup>2</sup>



类 型：户外全彩显示屏  
点间距：PH22mm  
分辨率：2066点/m<sup>2</sup>

Type: Outdoor Fullcolor Display Screen  
Pixel Pitch: PH22mm  
Pixel Density: 2066 dots/ m<sup>2</sup>



类 型：户外全彩显示屏  
点间距：PH16mm  
分辨率：3906点/m<sup>2</sup>

Type: Outdoor Fullcolor Display Screen  
Pixel Pitch: PH16mm  
Pixel Density: 3906dots/ m<sup>2</sup>



类 型：户外全彩显示屏  
点间距：PH20mm  
分辨率：2500点/m<sup>2</sup>

Type: Outdoor Fullcolor Display Screen  
Pixel Pitch: PH20mm  
Pixel Density: 2500 dots/ m<sup>2</sup>

用户至上 质量第一



Customer and Quality come the first.



类型: 户外全彩显示屏  
点间距: PH10mm  
分辨率: 10000点/m<sup>2</sup>

Type: Outdoor Fullcolor Display Screen  
Pixel Pitch: PH10mm  
Pixel Density: 10000 dots/ m<sup>2</sup>



类型: 户外全彩显示屏  
点间距: PH20mm  
分辨率: 2500点/m<sup>2</sup>

Type: Outdoor Fullcolor Display Screen  
Pixel Pitch: PH20mm  
Pixel Density: 2500 dots/ m<sup>2</sup>



类型: 户外全彩显示屏  
点间距: PH20mm  
分辨率: 2500点/m<sup>2</sup>

Type: Outdoor Fullcolor Display Screen  
Pixel Pitch: PH20mm  
Pixel Density: 2500 dots/ m<sup>2</sup>



类型: 户外全彩显示屏  
点间距: PH16mm  
分辨率: 3906点/m<sup>2</sup>

Type: Outdoor Fullcolor Display Screen  
Pixel Pitch: PH16mm  
Pixel Density: 3906 dots/ m<sup>2</sup>

# 表贴三合一全彩

## SMD 3 in 1 Fullcolor display screen

### 产品性能

- 表贴技术是在计算机控制下，对电路板表面的元器件进行全自动组装，可以有效缩小体积、减轻重量、提高质量和精度。
- 表面贴装LED适用于室内环境，其封装结构独特，具有非常出色的发光一致性，可以保持良好的色平衡。
- 技术成熟，色彩鲜艳、结构简洁、高分辨率、工艺成熟，已获得公众的认可。
- 贴片LED视角大，在水平和垂直均有非常大的可视角度，这对水平分布广和高度落差较大的环境均尤为适合。
- 工艺要求高，使得可靠性极高，几乎不出现虚焊和人为失误的问题。
- 表面平整度高，不会有引脚位移变化而引起的像素的平整度误差，这也大大的提高了整屏平整度。
- 实像素显示，对图像文字视频均有非常清晰、细腻、逼真的显示效果。
- 可以实现单点维修，相对维修成本低。

### 产品构成及应用

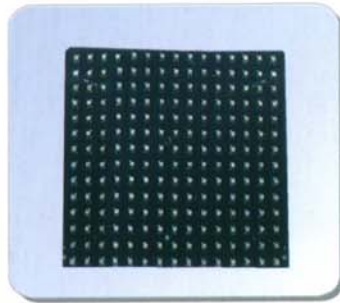
- 表贴三合一全彩显示屏是将红绿蓝三颗芯片封装在同一个像素点内，均匀分布构成显示屏。
- 适用于各种体育、广告、银行、证券、车站、码头、商场、邮政、电信、机关、学校、监控、餐馆、娱乐、企业等场所。
- 规格齐全，有P6、P7.62、P8、P10、P12等规格。

### PRODUCT PERFORMANCE

- SMD(surface mounting device technology)is under computer control, automatically assemble the component on the electronic board, and reduce weight and volume, improve quality and precision.
- SMD LED display screen is with good white balance and lighting uniformity. Its unique sealed way makes it widely used in indoor environment.
- Mature technology, fresh color, simple constructure, high resolution, mature craftwork make it accepted by public people.
- Large view angle in level and vertical makes it fit for environment with wide viewing in level or large fall in vertical.
- Good craftwork makes it very reliable.
- The level of the surface is very good and that makes the whole screen with very good level.
- Real pixels display makes the whole screen display very good for image and character.
- Single dot repair lower the repair cost.

### PRODUCT CONFIGURATION AND APPLIACATION

- For SMD 3 in 1 full color display screen contains a lot of dots which with three red, green, blue led chip sealed in.
- Could be widely used in stadium, advertisement, bank, security, station, pork, shopping mall, post office, tel-communication, government, school, monitor, restarant, amusement, enterprise etc. public places.
- With different specification, like P6、P7.62、P8、P10、P12 etc.





## 技术参数 TECHNOLOGY PARAMETER

### (1) 结构说明 CONFIGURATION

每个像素点由一颗RGB三合一表贴灯组成 Each dot contain 3 SMD Led lamps.

### (2) 屏体技术参数 Whole screen parameter

规格	Specification	P6	P7.62	P8	P10	P12
点间距(mm)	Pixel Pitch (mm)	6	7.62	8	10	12
像素点组成	Pixel Configuration	1R1PG1B	1R1PG1B	1R1PG1B	1R1PG1B	1R1PG1B
单元板尺寸 (mm)	Module Dimension (mm)	192×192	244×122	256×128	160×160	192×192
单元板分辨率 (长×宽)	Module pixels (L×W)	32×32	32×16	32×16	16×16	16×16
点密度 (点/m <sup>2</sup> )	Pixel density(dot/m <sup>2</sup> )	27777	17222	15625	10000	6944
亮度 (cd/m <sup>2</sup> )	Brightness(cd/m <sup>2</sup> )	1500	1500	1250	1100	1000
最佳视距 (m)	Best viewing distance (m)	7	9	10	11	12
峰值功耗 (≤W/m <sup>2</sup> )	Max power consumption (≤W/m <sup>2</sup> )	600	800	600	500	500
平均功耗 (≤W/m <sup>2</sup> )	Aaverage power consumption (≤W/m <sup>2</sup> )	300	400	300	280	250
重量 (kg/功耗m <sup>2</sup> ) (含箱体)	Weight (kg/m <sup>2</sup> )	60	60	60	60	60
扫描方式	Scan mode	1/8	1/4	1/4	1/4	1/4
可视角度	View angle	120度 (左右均可达60度)		120 degrees(left and right view angle is 60 degrees)		
驱动电压 (V)	Drive Voltage (V)	5-5.5		5-5.5		
灰度等级	Grey Scale	红绿蓝各4096级		Red,green,blue each 4096 grades		
显示颜色	Display Colors	4096 <sup>3</sup> 色		4096 <sup>3</sup> kinds		
换帧速度	Frame rate	≥60 (帧/秒)		≥60(Hz/s)		
控制方式	Control Mode	与计算机监视器同步		synchronous with the computer		
显示模式	Display Mode	1024×768或800×600		1024×768or 800×600		
屏幕寿命	Screen Lifespan	≥10万小时		≥100000 hours		
盲点率	Blind Spot Rate	≤0.0002		≤0.0002		
工作电压	Operating Voltage	AC220V15% 47-64HZ		AC220V±15% 47-64HZ		
控制距离	Control Distance	<120m (无中继)、多模500m/单模10km		<120M (without relay)、multi mudule500m/single module10km		
系统工作环境温度	System Working Environment Temperature	-10℃~50℃		-10℃~50℃		
系统工作环境湿度	System Working environment humidity	10%~90%RH		10%-90%RH		



### 产品性能

- 从根本上解决了全彩屏的“马赛克”现象，具有很好的发光一致性；采用了全自动分光分色，极大程度上保证了亮度的一致性；
- 亮度值大，而且做到从软件到硬件可调，很好地满足亮度较大的室内大厅或半户外的环境；
- 采用实像素显示，无论是显示图像和文字均有很好的效果；
- 可实现单点单灯维修，从根本上解决了全彩屏维护成本居高不下的问题；
- 专利技术率先采用平头灯，可视角度更大：水平和垂直均可达120度以上，在此范围内从任意角度观看，显示图像不变形、不偏色；
- 独有的灯杯支架设计更有利于散热，从而延长LED的使用寿命。

### 产品构成及应用

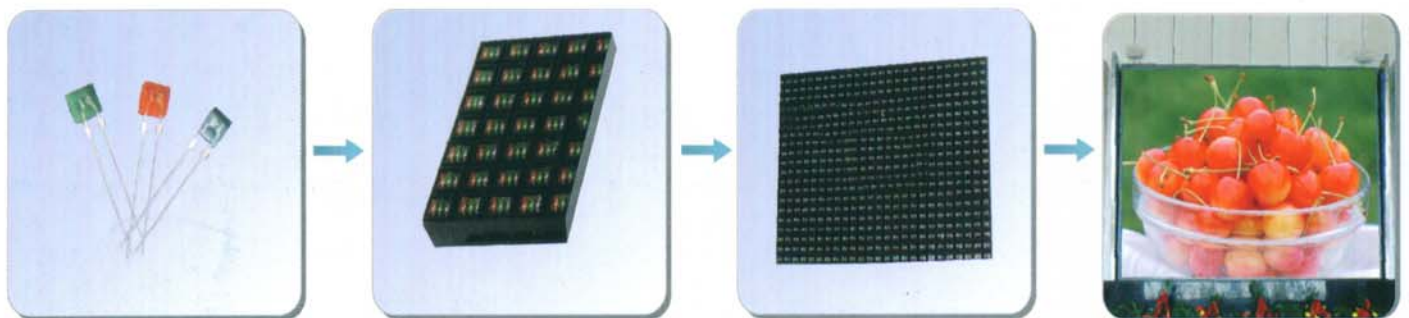
- 将红绿蓝三只灯分别封装成长方形，顺次排在一起构成一个方形的像素点。
- 适用于各种体育、广告、银行、证券、车站、码头、商场、邮政、电信、机关、学校、监控、企业等；
- 规格齐全，包括P7.62、P10、P12。可以满足不同视距的室内和半户外环境的需要。

### PRODUCT PERFORMANCE

- This product absolutely solve 'mosaic' problem, with quite good uniformity. Adopting automatically prismatic and dichroism gurantee the brightness uniformity.
- High brightness, adjustable by hardware and software, this makes it meet the need of indoor and semi outdoor environment.
- Real pixel display makes it with good display performance in image and character display.
- Single dot repair solve the problem of difficult repair in fullcolor display screen.
- Crop light adopted makes it with larger view angle, 120 degree in both level and vertical, view in this range, display content is quite clear and without any distortion.
- Unique light cup frame design is better for cool and prolong the lifespan.

### PRODUCT CONFIGURATION AND APPLIACATION

- Make red, green, blue 3 pieces LED bulb sealed in rectangle, lined into one square pixel dot.
- Could be widely used in stadium, advertisement, bank, security, station, pork, shopping mall, post office, tel-communication, government, school, monitor, restarant, amusement, enterprise etc. public places.
- With P7.62mm, P10mm, P12mm, could meet different need with different view distance.





技术参数 TECHNOLOGY PARAMETER

(1) 结构说明 CONFIGURATION

每个像素点内封装1R1PG1B三颗LED发光管 Each pixel contain 1 red 1 pure green 1 pure blue Led, total 3pcs LED

(2) 屏体技术参数 Whole screen parameter

规格	Specification	P7.62	P10	P12
点间距 (mm)	Pixel Pitch (mm)	7.62	10	12
像素点组成	Pixel Configuration	1R1PG1B	1R1PG1B	1R1PG1B
单元板尺寸 (mm)	Module Dimension (mm)	488×244	320×320	384×384
单元板分辨率 (长×宽)	Module pixels (L×W)	64×32	32×32	32×32
点密度(点/m <sup>2</sup> )	Pixel density(dot/m <sup>2</sup> )	17222	10000	6944
亮度(cd/m <sup>2</sup> )	Brightness(cd/m <sup>2</sup> )	1400	1000	1200
最佳视距 (m)	Best viewing distance (m)	9	12.5	15
峰值功耗 (≤W/m <sup>2</sup> )	Max power consumption (≤W/m <sup>2</sup> )	850	500	800
平均功耗 (≤W/m <sup>2</sup> )	Aaverage power consumption (≤W/m <sup>2</sup> )	500	250	400
重量 (kg/m <sup>2</sup> )	Weight (kg/m <sup>2</sup> )	22	22	22
扫描方式	Scan mode	1/8	1/8	1/4
可视角度	View angle	120度 (左右均可达60度)	120 degrees(left and right view angle is 60 degrees)	
驱动电压 (V)	Drive Voltage (V)	5~5.5	5-5.5	
灰度等级	Grey Scale	红绿蓝各4096级	Red,green,blue each 4096 grades	
显示颜色	Display Colors	4096 <sup>3</sup> 色	4096 <sup>3</sup> kinds	
换帧速度	Frame rate	≥60 (帧/秒)	≥60(Hz/s)	
控制方式	Control Mode	与计算机监视器同步	synchronous with the computer	
显示模式	Display Mode	1024*768或800*600	1024×768or 800×600	
屏幕寿命	Screen Lifespan	≥10万小时	≥100000 hours	
盲点率	Blind Spot Rate	≤0.0002	≤0.0002	
工作电压	Operating Voltage	AC220V±15% 47~64HZ	AC220V±15% 47-64HZ	
控制距离	Control Distance	<120m (无中继)、多模500m/单模10km	<120M (without relay) , multi module500m/single module10km	
系统工作环境温度	System Working Environment Temperature	-10℃~50℃	-10℃~50℃	
系统工作环境湿度	System Working environment humidity	10%~90%RH	10%-90%RH	



# 户外全彩显示屏

## outdoor fullcolor display

### 产品性能

- 亮度高，且可调，能够充分满足客户各种应用环境的需求和变化
- 均匀性好，具有非常出色的发光一致性。
- 可视角度大，仰角可达45度，此范围内任意角度图像不变色
- 独特的工艺处理，具有良好的防水、防震、防尘等系列防护功能，以保持其持久出色的显示效果。
- 可实现单灯维修，相对维修成本低，易维护。

### 产品构成及应用

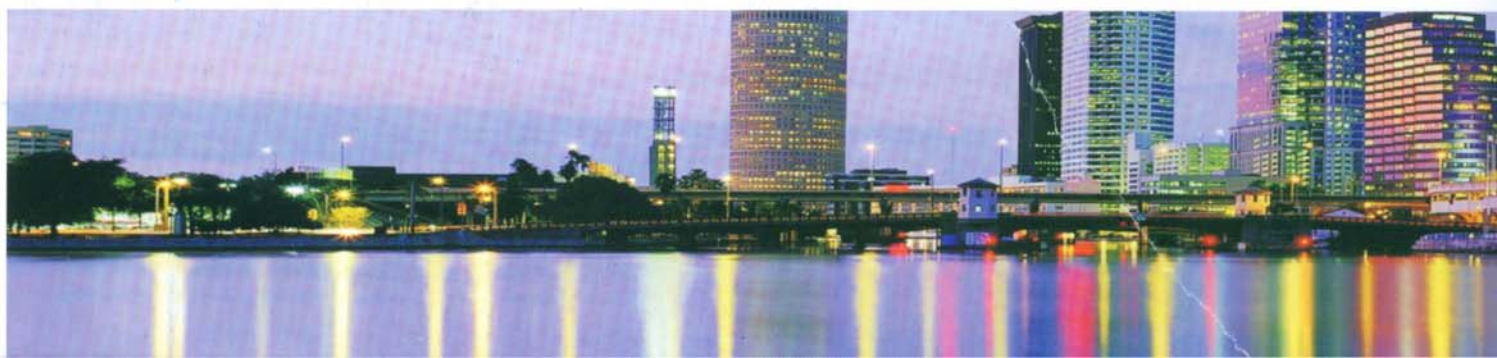
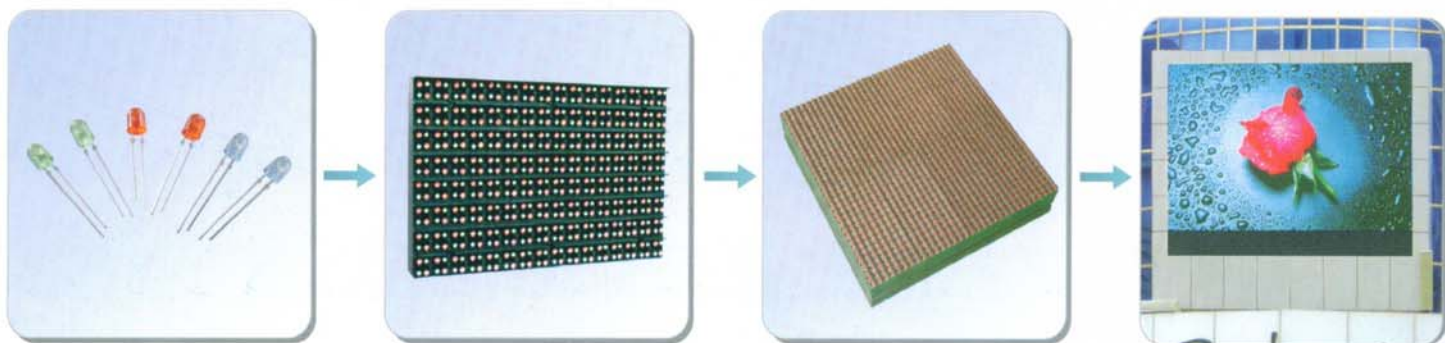
- 户外全彩显示屏每个像素点内含2R1G1B四颗LED灯，均匀分布构成显示屏。
- 可广泛用于体育场、广场、交通、商场、车站、机场、码头、学校等户外场合。
- 规格齐全，有 P10、P12、P16、P16虚拟、P20、P22、P25、P31.25、P40等等规格，可满足客户对不同视距和分辨率的要求。

### PRODUCT PERFORMANCE

- High brightness,adjustable, could be used in different envirement
- Splendid lighting uniformity
- Large viewing angle,elevation is 45°
- Unique artwork dea,waterproof, quakeproof,dust proof
- Single light repairing decrease the cost,and make it easy to maintenance

### PRODUCT CONFIGURATION AND APPLIACATION

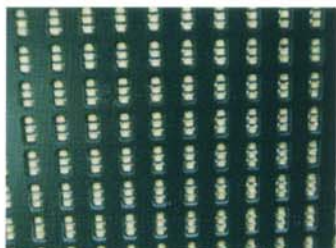
- Every dot of outdoor full color display screen includes 2 red Led, 1pure green Led, 1 pure blue Led.
- Could be widely used in bank, securities, traffic system (highway, airport, railway and subway etc), hospital, stadium and amusement etc. public place.
- Including P10、P12、P16、P16Virtual、P20、P22、25、P31.25、P40 etc. different product,could meet different need in viewing distance and resolution





技术参数 TECHNOLOGY PARAMETER

(1) 结构示意图 CONFIGURATION



每个像素点由1R1G1B三个表贴灯组成

Each pixel contain 1 red 1 pure green 1 pure blue Led,  
total 3 SMD Led lamps.

(2) 屏体技术参数 Whole screen parameter

序号 Item Number	项目						
1	点间距 (mm)	Pixel Pitch (mm)	6	7.62	8	10	12
2	发光管型号	Led item number	0805	0805	0805	0805	0805
3	单元板尺寸 (mm)	Cell board dimension (mm)	192×96	244×122	256×128	160×160	192×192
4	单元分辨率 (长×宽)	Unit resolution (L×W)	32×16	32×16	32×16	16×16	16×16
5	点密度 (点/m <sup>2</sup> )	Pixel Density (dot/m <sup>2</sup> )	27777	17222	15625	10000	6944
6	亮度 (cd/m <sup>2</sup> )	Brightness (cd/m <sup>2</sup> )	1200	>900	1500	1100	800
7	最佳可视距离 (m)	Best view distance (m)	4~35m	5~40m	5~40m	5~40m	5~40m
8	扫描方式	Scan mode	1/8	1/8	1/8	1/4	1/4
9	峰值功耗 (≤W/m <sup>2</sup> )	Peak Power consumption (≤W/m <sup>2</sup> )	1000	800	900	1000	800
10	平均功耗 (≤W/m <sup>2</sup> )	Average power consumption (≤W/m <sup>2</sup> )	500	400	450	500	400
11	视角	View angle	水平120度, 垂直120度			Level 120degree, vertical 120degree	
12	色温	Color temperature	6500~9500K			6500~9500K	
13	重量 (kg/m <sup>2</sup> )	Weight (kg/m <sup>2</sup> )	25			25	
14	灰度等级	Grey grades	红绿蓝各4096级			Red, green, blue each 4096 kinds	
15	显示颜色	Display color	4096 <sup>3</sup> 色			4096 <sup>3</sup> kinds	
16	换帧速度	Fresh frame	≥60 (帧/秒)			≥60(Hz/s)	
17	控制方式	Control mode	与计算机监视器同步			Synchronous with the computer	
18	显示模式	Display mode	1024×768或800×600			1024×768 or 800×600	
19	屏幕寿命	Screen life span	≥10万小时			≥100000hours	
20	盲点率	Blind spot rate	≤0.0002			≤0.0002	
21	工作电压	Operation Voltage	AC220V±15% 47~64HZ			AC220V±15% 47~64HZ	
22	控制距离	Control Distance	小于100米 (无中继)、多模500米/单模10Km			<100m (without relay) muti module500m/single module10Km	
23	系统工作环境温度	System Working Environment Temperature	-10℃~50℃			-10℃~50℃	
24	系统工作环境湿度	System Working environment humidity	10%~90%RH			10%~90%RH	

# 户外双色

## Outdoor dual-color Display screen

### 产品性能

- 亮度高，且可调，能够充分满足客户各种应用环境的需求和变化
- 均匀性好，具有非常出色的发光一致性。
- 可视角度大，仰角可达45度，此范围内任意角度图像不变色
- 独特的工艺处理，具有良好的防水、防震、防尘等系列防护功能，以保持其持久出色的显示效果。
- 可实现单灯维修，相对维修成本低，易维护。

### 产品构成及应用

- 户外双色显示屏每个像素点内含2R1G三颗LED灯，每个显示模组含16×8像素点，多个模组组成户外显示屏箱体进而拼成户外显示屏。
- 广泛应用于广场、体育场馆、商场、学校、车站、机场、企业，道路等各种对亮度要求较高的户外场合。
- 规格齐全，有P10、P12、P14、P16、P20等可供选择

### PRODUCT PERFORMANCE

- High brightness, adjustable, could be used in different environment
- Splendid lighting uniformity
- Large viewing angle, elevation is 45°
- Unique craft work deal, waterproof, quake proof, dust proof
- Single light repairing decreases the cost, and makes it easy to maintenance

### PRODUCT CONFIGURATION AND APPLIACATION

- Each pixel dot contains 2 red 1 pure green, total 3 pcs LED, Each module includes 16×8pcs pixels, each iron case includes several modules,
- Each display screen includes a lot of iron cases. (customers design is available)
- Could be widely used in bank, securities, traffic system (highway, airport, railway and subway etc), hospital, stadium and amusement etc. public place which demand high lightness.
- Different specific for selection, P10、P12、P14、P16、P20etc..

### 技术参数 TECHNOLOGY PARAMETER

#### (1) 结构说明 CONFIGURATION

每个像素点内封装2R1PG三颗LED灯管组成      Each pixel contain 2 red 1 pure green Led, total 3pcs LED

#### (2) 屏体技术参数 Whole screen parameter

规格 Specification	P10	P12	P14	P16	P20
点间距 Pixel pitch ( mm )	10	12	14	16	20
单元板尺寸 Cell board dimension ( mm )	160x320	192x96	224x112	256x128	320x160
单元板分辨率 Cell board resolution(L×W)	16x32	16x8	16x8	16x8	16x8
像素组成 Pixel configuration	2R1G	2R1G	2R1G	2R1G	2R1G
密度 Pixel density ( dot/m <sup>2</sup> )	10000	6944	5102	3906	2500
最佳视角 Best view angle	H: 110° V: 50°	H: 110° V: 50°	H: 110° V: 50°	H: 110° V: 50°	H: 110° V: 50°
最大功耗(w/m <sup>2</sup> ) Max power consumption ( ≤W/m <sup>2</sup> )	≤600	≤500	≤450	≤400	≤600
亮度(CD/m <sup>2</sup> ) Brightness ( ≤cd/m <sup>2</sup> )	≥5000	≥5000	≥4500	≥4000	≥4000
驱动方式 Drive mode	1/4扫描(Scan)	静态/Static	静态/Static	静态/Static	静态/Static
工作电压 Operating Voltage	AC 200V/50HZ				
工作环境 Operating environment	-40° C ~ 50° C    10% ~ 90%				
亮度调节 Brightness adjust	手动、红绿、256级调节自动8级调节 Red, green each 256 grades adjust, manual 8 grades				
灰度/颜色 Grey adjust	红绿4096级灰度调节，显示65536色 red, green, each color 4096 grades, display color 65536 kinds				
控制系统 Control System	同步/异步控制系统；五类网线、异步串口或无线传输 synchronous/offline control system, 5 kinds net cable or fibre transfer				
平均无故障时间 MTBF	> 10000小时 > 10000 hours				

