Shenzhen ERALED Optoelectronics Co., Ltd.

Usefull Tips & instructions(on how to choose the suitable LED display screen model for your porject) Created by ERALED

1. Indoor or outdoor use & brightness requirement or environment brightness level?

1>For outdoor use:

A:if facing the sun,the brightness should be more than 8000 nits, if lower than 8000 nits then the people will not see a clear image when it is in the noon time,mostly from 11AM-3PM.

B:if not facing the sun(back on to the sun),the brightness should be more than 5500 nits, if lower than 5500 nits then the people will not see a clear image too during the daytime.

C:So if your screen is facing the sun then you should be very carefull for choosing the correct model and reliable supplier for you since most factories's LED display can only reach around 5500-7500 nits brightness. this is not very enough for your outdoor application.

D:Brightness depressing rate: for a long term using consideration, the outdoor LED display's brightness depressing should be as slow as possible, if not, then the outdoor LED display cannot use for even 2 years then the brightness lowering to 3000 nits level and cannot make use any longer.

For a good quality LED display, it should be using more than 5 years with no much brightness depressing(maitains 80% of the original highest brightness level), this is very important esp for some very important big project since for the big project it is very hard to make replacement. so when your project is very huge you should be more cautious on how to choose your LED display.

E:Chip size is also an important factor for the brightness,liftetime & quality of the outdoor LED display.For Nichia,the chip size is very small 7-9mill but still can achieve more than 12000nits brightness for outdoor LED display models(eg. P10mm, P12mm,14mm,16mm & 20mm).But for other chip brand it is very hard and almost impossible. For other LED chip brand, the bigger the LED chip size the higher the brightness it can achieve & can ensure a longer lifetime for the LED chip. actually the LED chip size should be more than 13 mill for green & blue LED chip,12 mill for red LED chip.

2>For indoor use:

A:Normally the brightness should be more than 1200 nits, if lower than 1200 nits then the people will not see a clear image when it is more than 50 meters far away from the LED screen.

B:If the inside environment has very bright lighting,then brightness should be more than 2000 nits, if lower than 2000 nits then the people will not see a clear image again.

C:For the indoor models: from P4mm,P5mm,P6mm,P7.62mm to P10mm,only P4-P7.62mm can reach more than 2000 nits brightness,for P10mm & P12mm,the brightness is only around 1500nits. So when you make the finalisation for which model to buy, you need to know clearly which kind of brightness enviroment you will have.

3>For semi-outdoor use:

A: Normally semi-outdoor LED display refers to the LED display when it is using in the hall of the bus station,train station,air port,basketball perimeter,football stadium perimeter etc.

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B: The brightness requirements for the above application is around 4000 nits.
C: The most common use solution for this semi-outdoor application is by using outdoor models,like P16,P20,P12 or P10mm.
The difference with the outdoor use is:
No need the rubber pouring on the surface of the module.
The screen work mothod is normally not static,like for P16, the screen work method is scaning 1/4,for P20,screen work method is scan 1/2.
The reason is that for semi-outdoor use, it is no need to be waterproof any longer and the brightness requirement is little lower than the outdoor model since no direct sunshine enviroment.

4>Another point on how to choose the correct model of the LED display is that when it is outdoor use,but not give a specific requirement for the brightness, then there will be many optional solutions,and between these solutions there will be some solution which is not a good solution for the project's real need. Like if your required model is 12SQM P16mm outdoor full color LED display,the default professional solution should be P16mm outdoor full color LED display,screen work method should be static 1/1. But if you are not very professional in this field, then it will be very hard for you to make the difference between static display and scan 1/4 display. In order to save the cost and offer very very low low attractive price,many companies offer the scanning 1/4 screen work method as the static display.
But when you really use it:firstly the brightness is much lower than the static display;secondly the lifetime will be much shorter than the static display.

2. Application:
1>single color, double color for text showing?
or
2> full color for video display for video and photos showing?
3>if the LED display is mainly used for commercial advertising,then you can only choose full color LED video display. And the most common use outdoor full color LED display is P16&P20mm 2R1G1B outdoor full color LED display when the size is more than 12SQM.
When the size is less than 12 SQM,then the most common use model is P12mm & P10mm outdoor full color LED display.

4>If the LED display is only for the text,letters,simple logos' showing, then the most common use model will be P10mm 1R single red color LED display & P20 2R1G tri-color LED display.
But if it is for the long distance text showing,then P25 & P31.25mm 4R or 4R2G LED display will also be a practical and high cost effective solution.

3. Size (pls inform me the width and height):
1)Dimension of the LED display you need
and
2)if we can adjust the size a little in order to fit for 4:3 & 16:9 ratio.
3)for a good quality full color LED video display, the whole resolution of the LED display should be more than 60,000 nits. that means for an each model it has a smallest size requirements,like:

Dot-pixel pitch(MM)	Pixel（dot) density	Module size(mm)	standard dimension/size(mm) of the cabinet/panel	Suggested LED display size(sqm)
p4	62500	96*96	960*960	1
p5	40000	122*122	896*672	2
p6	27777	192*96	960*960	2
p7.62	17222	244*122	976*976	3
p8	15625	256*128	1024*1024	4
p10	10000	320*160	1280*960	6
p12	6944	192*96	960*960	9
p12.5	6400	200*100	100*100	9
p14	5120	224*112	896*672	12
p15	4444	240*240	960*960	14
p16	3906	256*128	1024*768	15
p18	3086	288*144	1152*864	19
p20	2500	320*160	1280*960	24
P22	2066	176*176	1056*1056	29
P25	1600	200*200	1000*1000	38
P30	1111	240*240	960*960	54
P31.25	1024	250*250	1000*1000	59

4. Installation way:

1> on the top of the wall

2> embed into the wall

3> whole screen hanging on the ceiling of the floor

4> standing on the single pillar

5> standing on the two pillars

6> Different installation requires different requirements for the LED dsiplay screen’s cabinet standard,servicing method etc.

5.Rental use or for fixed installation application:

A:If for rental use:do you need flight case, lock button & hanging strucuture and an industrial use IPC? A:Flight case is a special packing case for the rental LED display,it has 4-6 wheels and 8 handles which is very convenient for transportation and moving. Details is like the following photo shows:

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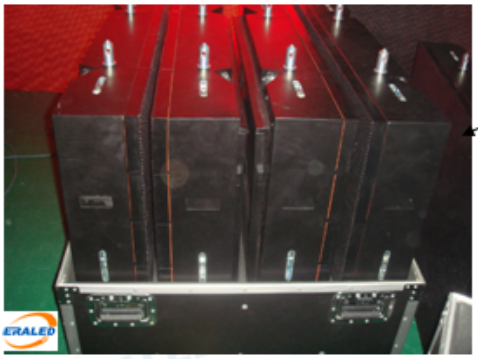

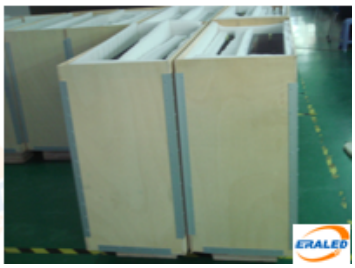

B: Lock button:

1> Lock button is mainly for rental use: the advantage of the lock button is that it can make the cabinet assemble be faster and make the cabinet connection be more tight and flat than the normal standard LED display cabinet.

2> The lock button also widely used when it is for football stadium perimeter display,basketball stadium perimeter display,mobile truck 7 mobile trailer LED display,etc.

3> The detailed diagram on what is the lock button is like the following photos shows you:

C:Hanging strucuture:hanging structure is something which is only for rental LED display use. It was composed by sespender & crossbeam & the swinging ring,to help you make a better and fast understanding,pls just have a look of the following hanging structure photos then all will be very clear for you:

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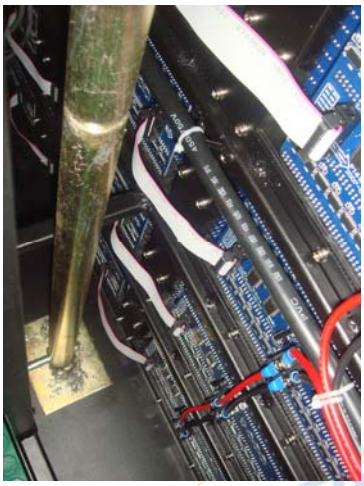

Intensive Hanging Cabinet Structure diagram is like what the following photos show you:

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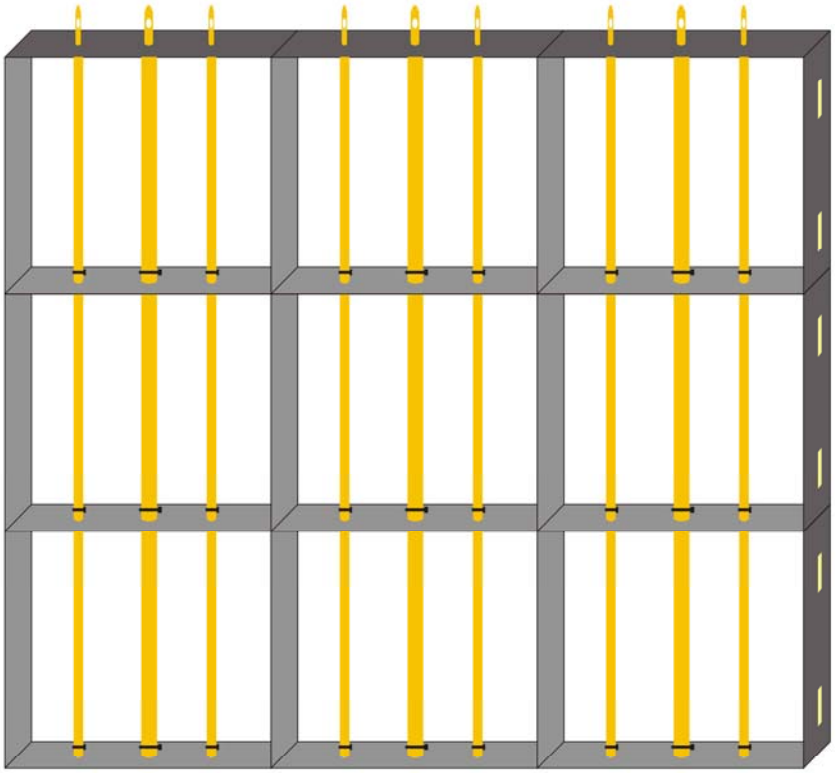

D: IPC is industrial Personal Computer which can use continuously for 2 years with no any stop,LED display use IPC is a specail IPC which is only 25mm thickness and can install inside the LED display cabinet.The name of it is LED6689.
The photos of the LED display use IPC is here for your reference(it has a touch screen which is very convenient to install inside the LED display cabinet & the easy to make program):

E: Hanging shelf of the rental LED display:
Hanging shelf of the rental LED display is composed by 8 crossgirder & 4 pillars,normall it is made of aluminium alloy material. The diagram and real photos is like the following photos shows:

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6. View distance:

1> Best viewing distance refers to the distance from the LED display,where the people can see a whole and clear picture of the image on the LED display.

2> There's 2 ways to calculate the best viewing distance: one is by the pixel pitch, one is by the diagonal.There's also the reason why there's different viewing distance for same model LED display,also different viewing distance for same size LED display.

3> What is Minimum viewing distance,Max viewing distance & Most common use viewing distance (the place where your most populated audience come from) ?

4> The Minimum Best viewing distance for each model is in the follow list:

Item No.	Model	Module Size(㎜)	Module confirguration	Pixel density	Minimum Best viewing distance (m)
1	P4	128*128	32*32	62,500	4～12
2	P5	160*160	32*32	40,000	5～15
3	P6	192*96	32*16	27,777	6～18
4	P7.62	244*122	32*16	17,222	7.6～22.8
5	P8	256*128	32*16	15,625	8～24
6	P10	320*160	32*16	10,000	10～30
7	P12	384*192	16*8	6944	12～36
8	P16	256*128	16*8	3906	16～48
9	P20	320*160	16*8	2500	20～60
10	P31.25	250*250	8*8	1024	31～93

5> The Max viewing distance depends on the LED screen's whole size,the most common use max viewing distance method is: 30*diagonal line of the LED screen.

7. Communication distance:what's the distance between the controlling computer and the screen?

1>Normally the controlling distance between the controlling PC & the LED screen is less than 100 meters.

2>If the controlling distance is more than 100 meters, then the common CAT5 data cable will not be enough. Fiber will be the best solution in this case.

8. LED chip:Nichia, CREE,Silan or Taiwan LED chip?

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1>Nichia chip has the best quality: highest brightness, longest lifetime,lowest brightness depressing rate & most stable brightness level;takes up 30% of the whole market and nearly 50% of the high level LED display projects.
2>Cree chip is the 2nd class quality,cost also lower than Nichia,wins 30% of the high level of the LED display market and win a high reputation all over the world since it's stable quality and reasonable price.
3>Silan is the Chinese brand, it is the most cost effective solution in the Chinese market now & wins almost 60% of the Chinese market & also wins a high reputation in China and starts to be popular in the whole world.
4>Taiwan chip has the lowest price , also poorest quality coparing to the above LED chip brand. But for some Taiwan LED chip brand like Opto,Epistar itself, it also have high grade LED chips,but the problem is that it is very hard for the mainland Chinese factories to get a stable quality from them since they themself also produce the LED display screen and it is a kind of competion with our LED display factories only.It is hard to maintain a good relationship and get a stable quality.
If you buy from mainland China, we suggest you buy only Silan & CREE brand since the high cost effective characteristic.
for Nichia too high cost and need to pay for 47 duty in total. that's the main reason why not cost effective in the China market.

9.Cabinet material:iron or aluminum cabinet.Aluminum cabinet is 150 USD/SQM higher than the common iron cabinet.
Weight: 70kg/sqm for iron cabinet 50 kg/sqm for aluminum cabinet.
If the LED display screen is for rental use, then alluminum cabinet will be better since the light and easy to be transported and assembled.

10.Cabinet standard: Do you need waterproof cabinet with the backdoor? or only simple cabinet without backdoor?
1>If embed into the wall or the screen is used inside the building, then you dont need the backdoor.
2>If the LED screen is used outside of the building or you need a very good dustyproof ability, then you need the backdoor & dusty proof veil for protecting the electronic components from high humidity & rusty.

11.Front maintained cabinet or back maintained?
A: About front maintance:
1>Front maintanance cabinet means the LED display screen can be maintained from the front side: like replace & repair the modules,power supplies,fans etc. from the front side of the LED display screen. This is very important for some project since sometimes the installation site doesn't allow a considerable backside servicing space from the backside of the LED display screen.
2>It has two means to achieve front maintanance:module front maintanance & cabinet front maintance.
3>Module front maintanance were achieved by magnetic pump. The advantage of this is that this is very easy to replace and repair. The disadvantage is the flatness of this is not so good.
4>Cabinet front maintanance were achieved by the LED display cabinet’s prop up structure.This is the most popular means to achieve front maintanance.
The prop up structure is something like the following photos shows:
http://www.led-display-boards.com/led-display11.html

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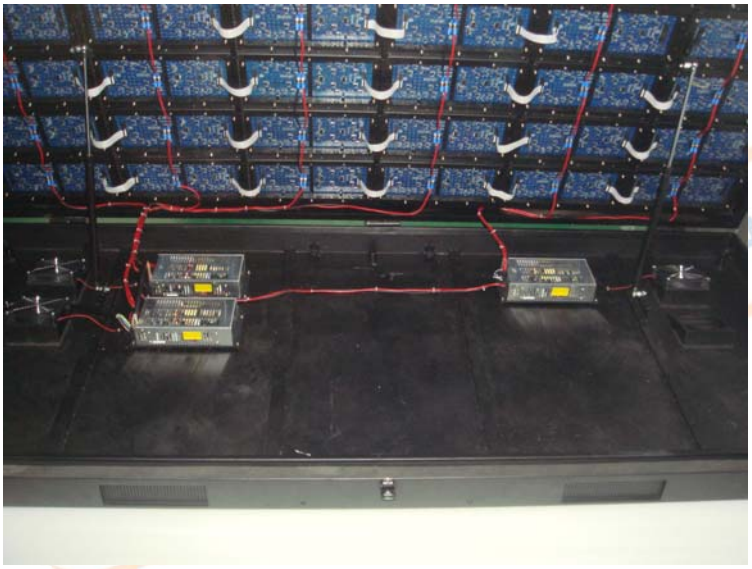

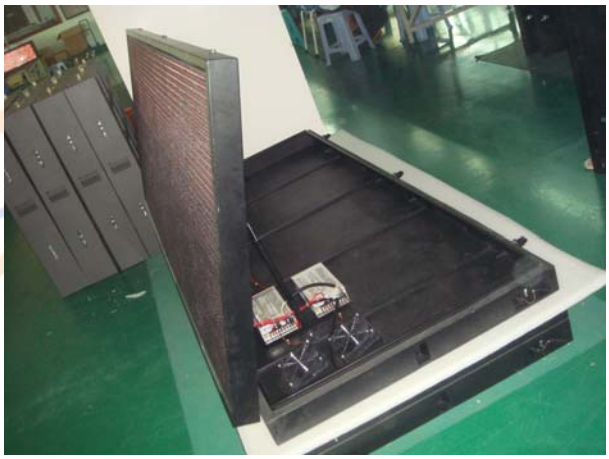

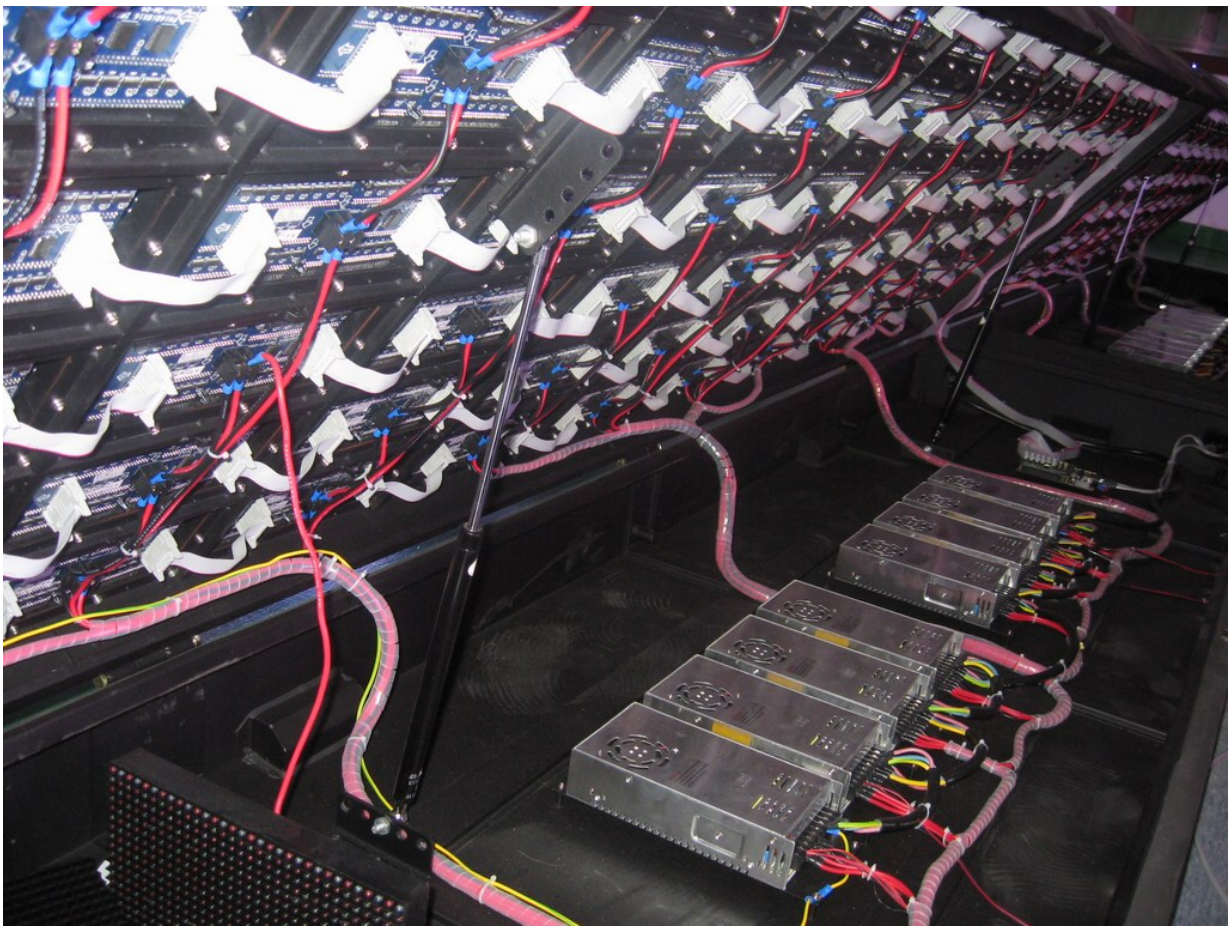

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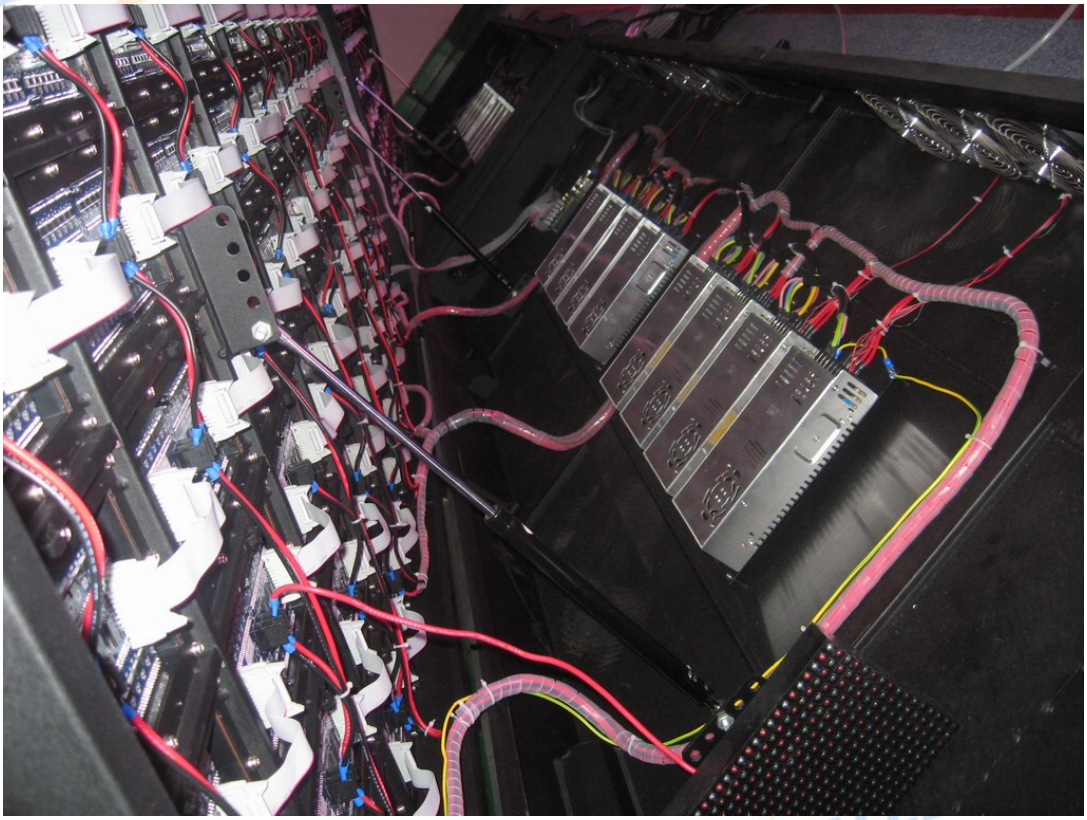

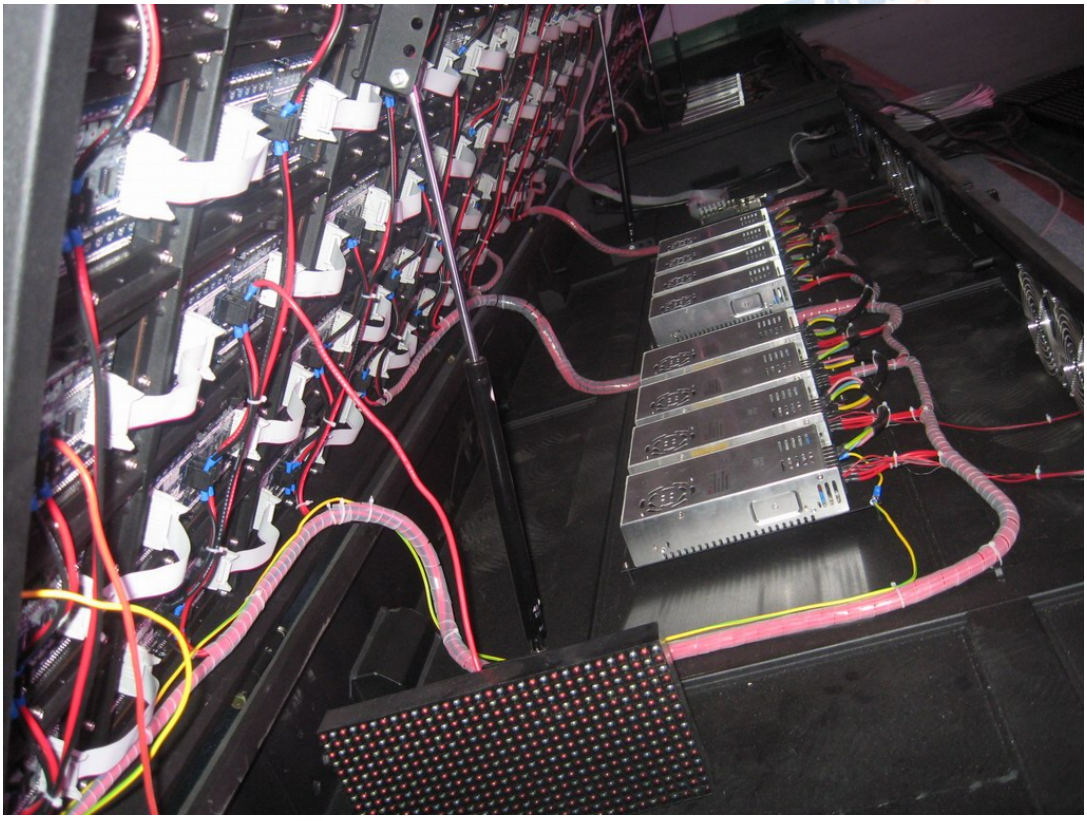

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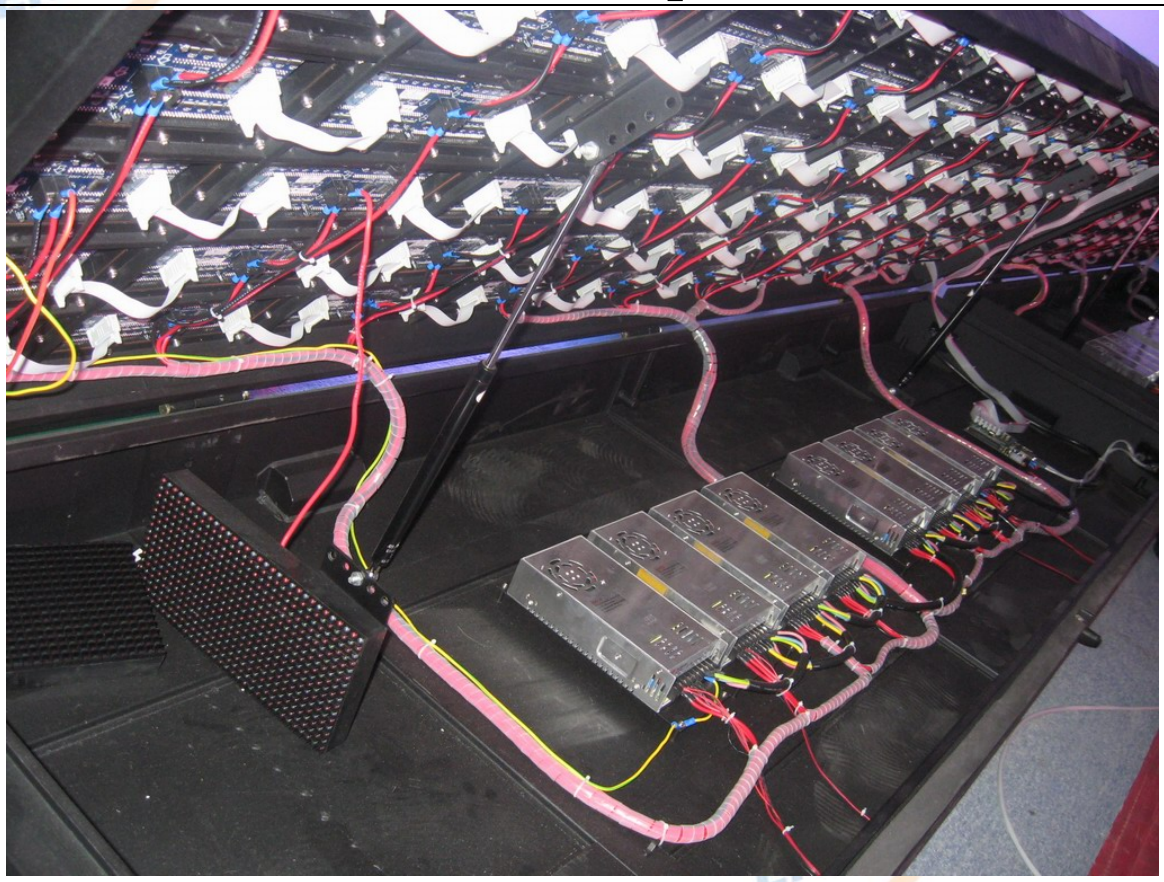

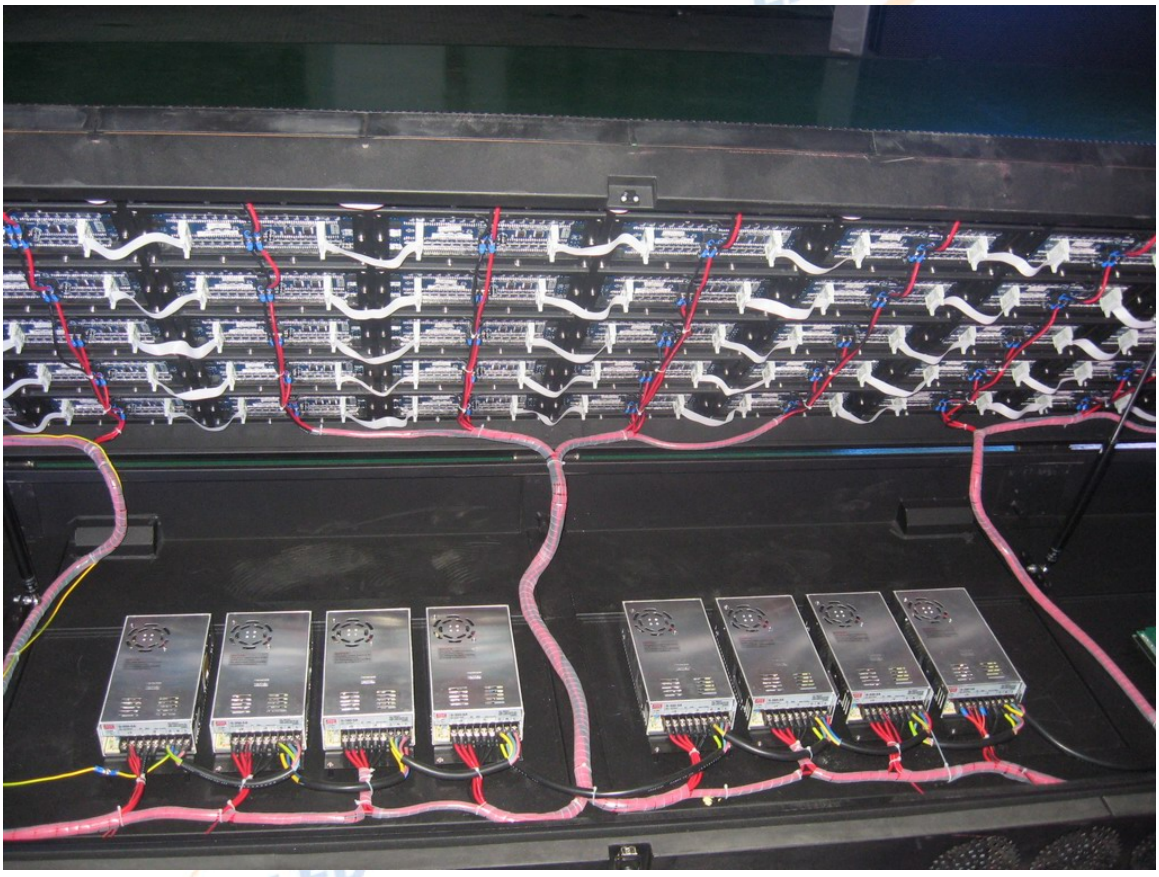

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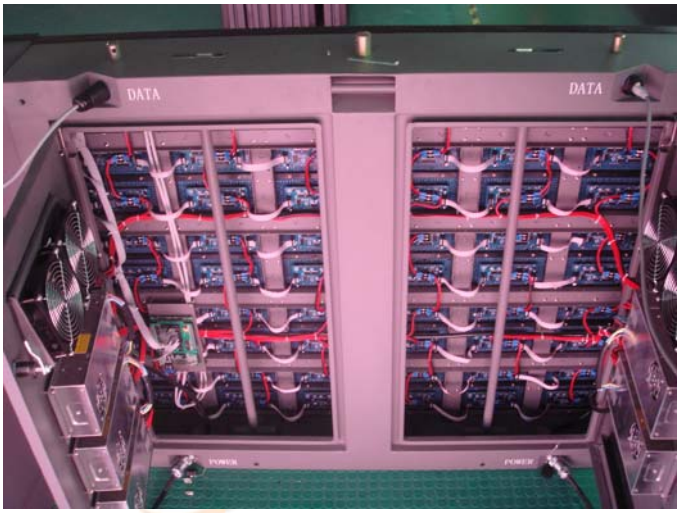
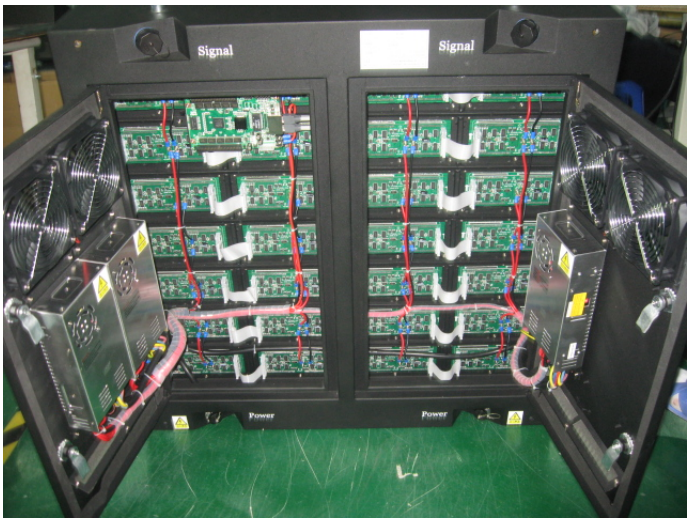
B: About Rear maintanance:

Rear maintanance has only one means to achieve: from the backside of the LED display's cabinet.
This is the most common use servicing means.





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11. Do you need Video processor for the live show through camera & TV functions?

Video processor is the equipment which can help the LED display screen's control system connect to other signal sources, like camera,DVD,etc.When the LED display screen is used for live show and re-broadcasting,then the video processor will be very necessary for the this application.

12. What is dot correction, why it is better than the common control system? Is dot correction system is usefull and good for my application?

Dot correction is a new technology and will be the direction of future LED display industry. The much more improved color consistence & high fresh frenquency make it be the only solution for high level advertising display.

If the buget is enough,you should always choose dot correction. This is very necessary for the baketball & football stadium perimeter LED display since it's high fresh frequency & color consistance charecteristics.

13. How to choose the best rational product model of the LED display screen?

Corresponding to the LED display's best viewing distance,size,application & installation,there will be many optional product models fit for each specific project. ROI & Budget are also very important factors.This is a very complicated works, esp if this is the 1st time for you to do this business. You'd better talk more with the very professional specialist.If you didn't get the correct model,correct size for your project, then the result will be 100% terrible & disaster for you.

14.What's the difference between synchronous control system & asychronous control system? How to choose the coresponding control system for my LED display screen system?

1> Synchronous & asynchronous refers to the controlling PC working together with the LED display or not. Synchronous means when the LED display screen system is working, the controlling PC must open and cannot be closed.Also means the LED display and the controlling PC will be workingg synchronous together.

2> Asynchronous control system means when the LED display is working, the controlling PC can be closed and has not further relationship with the LED display, the LED display can work independly after the basic set up and the program making.

3> Product model, controlling distance & application is the main factors. One more point is that the synchronous control system always has much better viewing effect and more powerfull function.

15.What is static LED display? what is scaning LED display? what's the difference and which is better? How to choose the best scaning model for my LED display screen system?

Static and scaning display is the only 2 models currently. Static display used for P14-31.25mm, when pixel pitch is smaller than 14mm, the main working method is scaning:like the P12mm is scaning 1/2 & the P10mm is scaning 1/4. the the model and the coresponding scaning method depends on the pixel density & brightness.

16.What is selected LEDs, what is pure green & pure blue? Why the full color LED display need selected LEDs & also pure green & pure blue LEDs.

For the common LED chip,the wave length difference is very big and the brightness difference is very big too if not selected LEDs.

The selected LEDs means the LEDs is choose from a certain ratio of LEDs to choose the most conistant LEDs.

Pure green & pure blue means choosing the green and blue LED chips strictly by the standard of main wavelength:G:518-520,B:466-468

Full color LED display need pure green & pure blue LED chip since if not it cannot achieve high gray grade and the

image will be very poor too.

For single color & tri color LED display,it don't need pure green and pure blue since it only shows the text and letters & the color consistance is not so important for the letters' showing.

17. What is multi-function card?

1> Multi-function card can help the LED display screen system achieve many functions, such as automatic False Alarms,fire & smoke alarms, brightness adjustment,etc

2>Nowadays Multi-function card is mainly used for outdoor LED display screen's brightness control:Brightness control is needed,esp for outdoor LED video display screen since the outside environment brightness level is changing during the daytime.If you don't adjust the brightness according to the environment, then LED display screen system will not have a perfect viewing effect:in the morning and afternoon the LED display will be too bright in the morning and harmfull to people's eyes.

3>There's two ways to achieve the brightness control:manually changing & automatic changing. The automatic brightness changing can adjust the LED display screen system's brightness perfectly according to the environment brightness level.

18. What is sending card, receiving card & hub card of the LED display system?

Sending card, receiving card & hub card is the LED display screen's control system. Sending card is installed in the controlling PC, it is the data sending equipment; receiving card is installed in each cabinet,is the data receiving equipment;hub card is installed together with each receiving card, is the data distribution equipment.

All the above composed the main necessary parts of the control system

19.Packing:wooden case or flight case or paper carton?

1>Flight case is use for rental use, it is more tough than the wooden case and the paper carton. it has 4 wheels and has 8 handles to make the transportation be very convenient and can protect the LED display better. Cost is higher than the wooden case

2>wooden case is for one time using, after unpacking, it cannot use any longer.For the fixed installation LED display system,wooden case packing is the only way and the best way for packing since the low cost and almost same safty level for one time using.

If your LED display screen system is for the rental use, please choose the flight case packing for your LED display screen.

3>Paper carton packing is only for domestic transportation and air freight using.

20.Do you need air freight or the marine shipping?

1>Air freight is fast and cost is very high. the LED display screen is around 50-70kg/sqm. so you can has an estimate on the general cost. It takes around 5 days.

2>Marine shiping:cost is much lower, only around 10-80 USD/CBM. takes around 20-35 days

The packing size is around 0.4 CBM/SQM. so you can has a estimate on the general cost after you figure out the total size.

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