杭州亿优电子有限公司
HANDZHOU EU ELECTRONIC CO.,LTD

Outdoor Full Color led Sign

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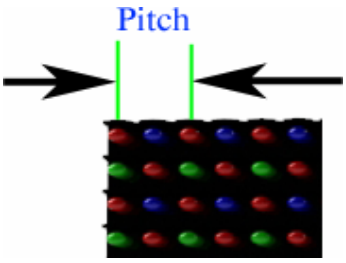
Begin…

Tuesday, June 22, 2010

Pitch

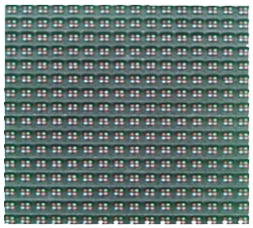
Pitch is the distance of two neighboring pixels or led, for example, a 16mm pitch led display, it's means the distance
Between two led's is 16mm. the smaller the pitch is, the more led (pixels) per square meter, then it means the resolution is more higher, the same size sign can show more characters per page and the picture more clearer, of course, the best viewing distance even short. FYI, the normal pitch and density:

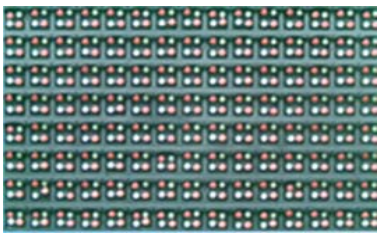


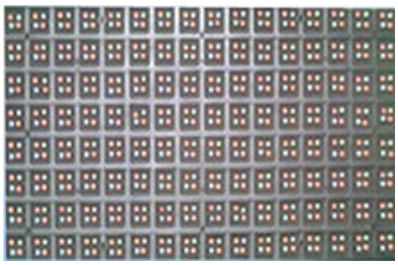
Pitch(mm)	Density(dots/㎡)	The best viewing distance(m)	
		Min	Max
10.0	10000	5	55
16.0	3906	15	88
20.0	2500	20	110
25.0	1600	24	150

Resolution

For led display, resolution means the total number of pixels (the total number of led), usually, it's described as wide Multiplied by high, for example, 800x600.the higher resolution means the more led or pixel and the more circuits in the Same size also means the more clear color of the display. For the same size, the pitch is smaller than the resolution is more higher.


10mm


16mm


20mm

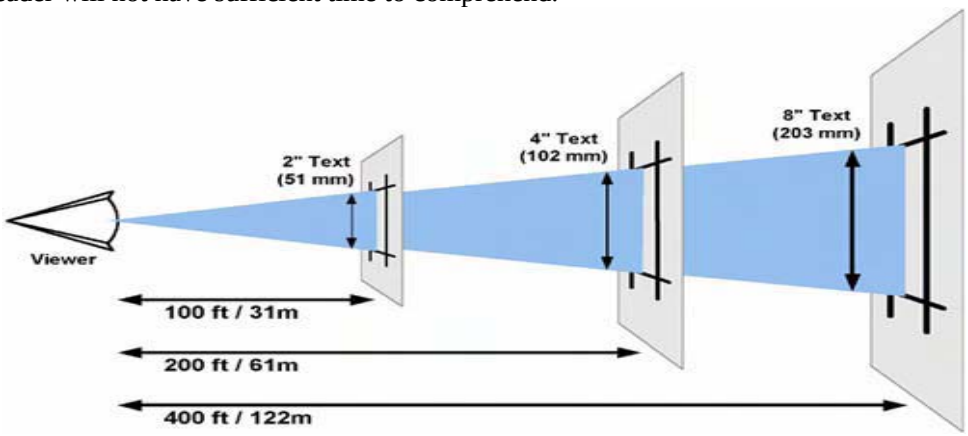

25mm

Viewing Distance

For led display, the best view location is the location which has minimum distance from the display when you can't differentiate every pixel (led). This distance is probably 3400 times pitch. When you at this location, you can see the best effect.

Viewing distance is one of the most important factors needed to determine the correct size of most electron rule:
1 inch of text is viewable viewable up to 15m away. The following diagram illustrates at what distance and character size that a stationary audience will recognize and understand the content of an electronic sign.
However, if the target audience is moving, then another factor, time, is required. Based on EU's experience and research, an average of at least three to four seconds is required for a moving audience to adequately recognize and comprehend six to eight grouping of content on an electronic sign.

The following chart lists the maximum time an audience will have to view an electronic sign with specific characters size. For example, an audience will have three seconds or less to view electronic signs with four inches of text. If the electronic signs have too much content, then the reader will not have sufficient time to comprehend.



As a summary:

- 2 inch text works well in most foot traffic areas, such as for indoor applications.
- 4 to 6 inch text is ideal for 45mph or under traffic, such as outdoor church and school applications.
- 8 inch text or larger works is suited for most outdoor applications where traffic is 60mph or slower.

Character Size		Max.Viewing Distance		Max.Viewing Time(seconds)[3]				
Inch	Mm	Foot	Meter	25mph/40kph	35mph/56kph	45mph/72kph	55mph/89kph	65mph/104kph
2	51	100	31	2.7	1.9	1.5	1.2	1.0
4	102	200	61	5.5	3.9	3.0	2.5	2.1
5	127	250	76	6.8	4.9	3.8	3.1	2.6
6	152	300	91	8.2	5.8	4.5	3.7	3.1
8	203	400	122	10.9	7.8	6.1	5.0	4.2
9	229	450	137	12.3	8.8	6.8	5.6	4.7
10	254	500	152	13.6	9.7	7.6	6.2	5.2
12	305	600	183	16.4	11.7	9.1	7.4	6.3
16	406	800	244	21.8	15.6	12.1	9.9	8.4
20	508	1000	305	27.3	19.5	15.2	12.4	10.5
24	610	1200	366	32.7	23.4	18.2	14.9	12.6
36	914	1800	549	49.1	35.1	27.3	22.3	18.9
48	1200	2400	732	65.5	46.8	36.4	29.8	25.2
60	1542	3000	914	81.8	58.4	45.5	37.2	31.5

Brightness

When purchasing an outdoor-bright LED sign, it is very important to understand that there are major differences between LED sign systems. For outdoor sign, it must meet certain brightness then can be seen in the day time.

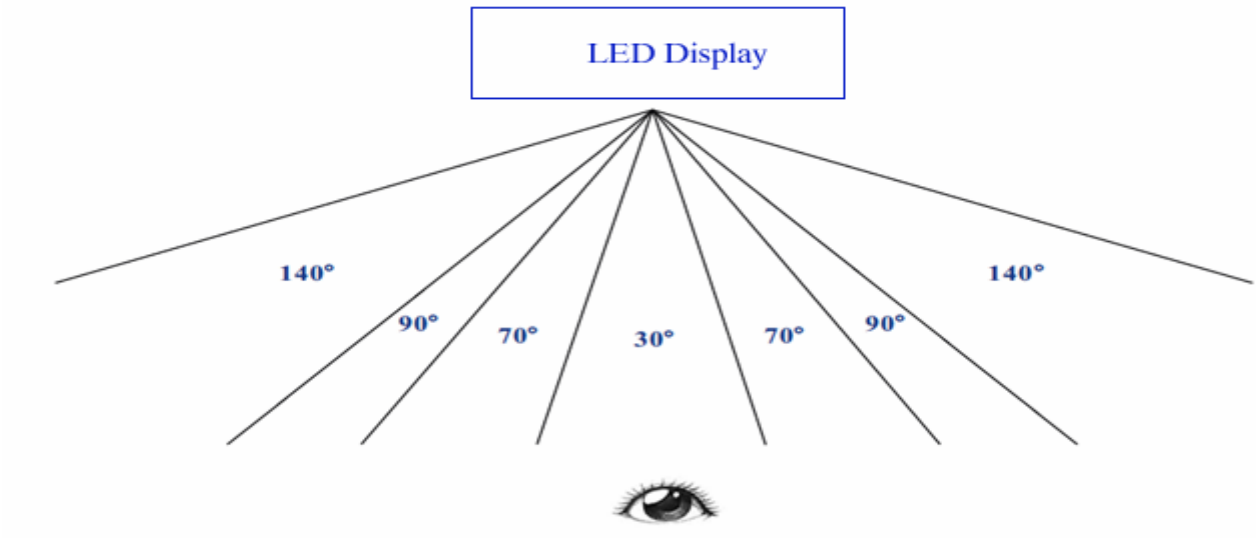
Contrast ration is another important factor in overall brightness, and refers to the difference between levels of blacks compared to the level of whites in the sign, Things like reflective surfaces, glare from the sun, and dimming all affect contrast ratio. Contrasts of EU's LED sign meet the international standard, 10/1. To optimize the contrast ratio and overall brightness. So for outdoors signs, require louver system to shade each individual diode from the glare of the sun. The louvers were computer modeled to optimize the view from onlookers below while blocking the maximum amount of sun from all sides. Together with the high-density array, the EU sign do think this point for outdoors signs also.

The third important factor for brightness is the driver current. If you improve the brightness through driving the higher current for the led, then it will affect the led's' lifetime and will be shorter the led lifetime.

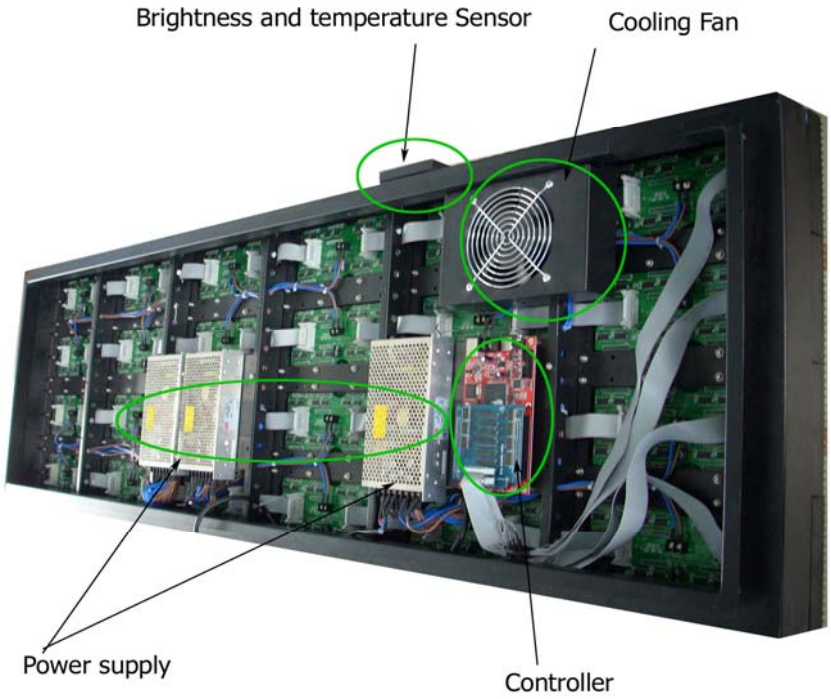
Pitch(mm)	Color	Ir(ma)	Max Power Consumption (watts/㎡)
10	RED/YELLOW/GREEN/BLUE/WHITE	20.0	1000.0
	TRICOLOR	40.0	2000.0
	RGB	60.0	3000.0
16	RED/YELLOW/GREEN/BLUE/WHITE	40.0	781.0
	TRICOLOR	60.0	1562.0
	RGB	80.0	2346.0
20	RED/YELLOW/GREEN/BLUE/WHITE	40.0	500.0
	TRICOLOR	60.0	750.0
	RGB	80.0	1000.0
25	RED/YELLOW/GREEN/BLUE/WHITE	40.0	320.0
	TRICOLOR	60.0	480.0
	RGB	80.0	640.0

Viewing Angles

When you can only see the normal brightness of the display at half, the direction line of your sight and the vertical line of the display will create a angle, this angle is viewing angle. Obviously, the more viewing angle the better, because of it can coverage a larger area and more audiences. Different seal ways of display, different viewing Angle, but surely wide viewing angle will affect the Brightness, always brightness and viewing angle is two factors both together for the led display.
When you talk the brightness for outdoor led signs, then at the same time you must talk the viewing angle, otherwise if you only talk one aspect, it is no any meaning.



Cabinet Design

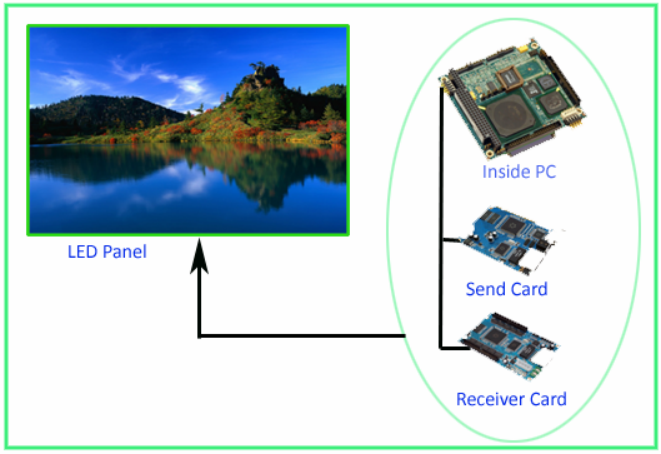


LED Controller

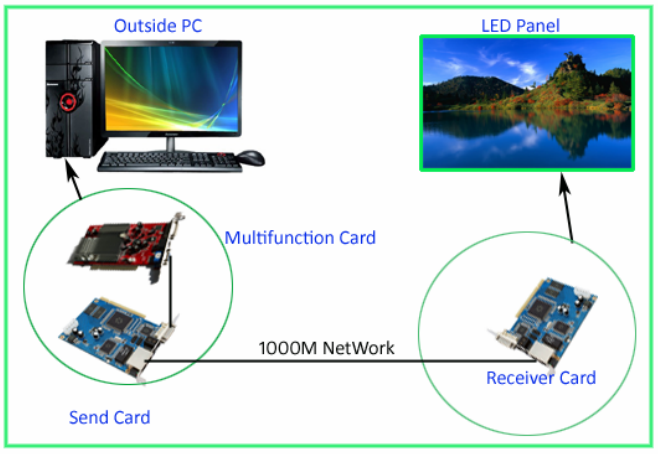
1:Asynchronism Control

2: Synchronous Control

Synchronous control can play messages Synchronization with the computer. Such as text documents, documents, pictures, Video etc.



Inside PC Solution



Outside PC Solution

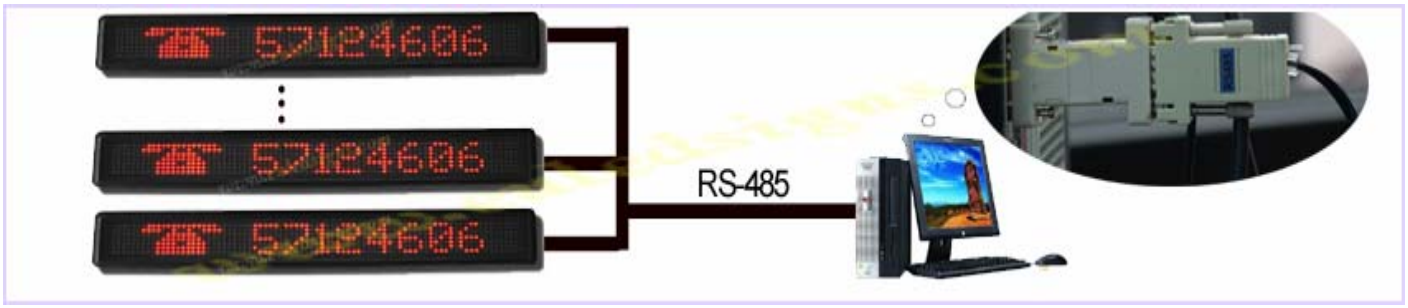
Asynchronism Options

RS-232

A led sign connects directly to the serial port on a PC through a Communication cable. By RS232.one pc only can program one sign. The Communication distance is up to 30m.

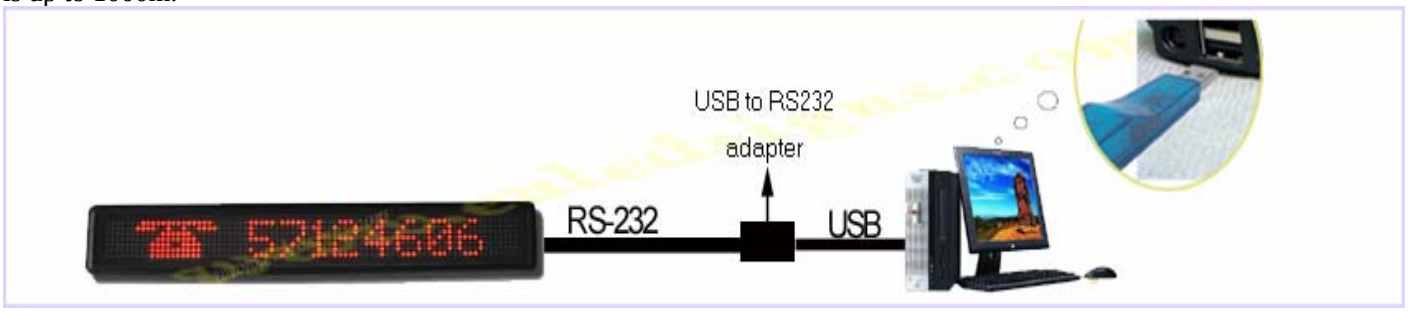
RS-485

Signs are connected to one pc by RS485.One pc can program Multi-signs. It’s used when the signs are in the same building or near each other. The Communication distance is up to 1000m.

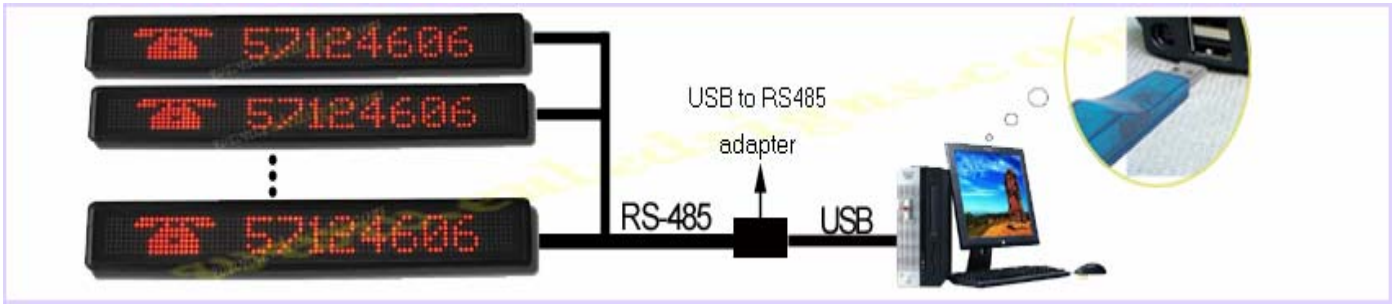


USB

A sign connects directly to the USB port on a pc through a USB communication cable. When the port was switched from USB TO RS232, one pc only can program one sign. The Communication distance is up to 30m. By USB TO RS485.One pc can program Multi-signs. It’s used when the signs are in the same building or near each other. The Communication distance is up to 1000m.



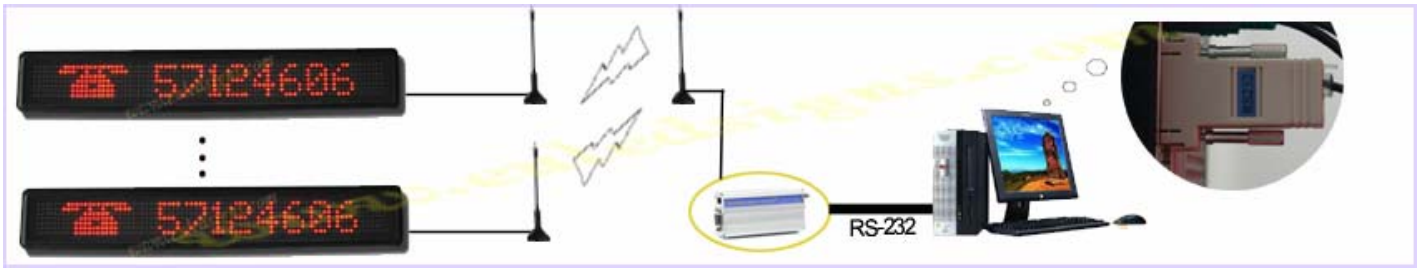
USB TO RS232 ADAPTER



USB TO RS485 ADAPTER

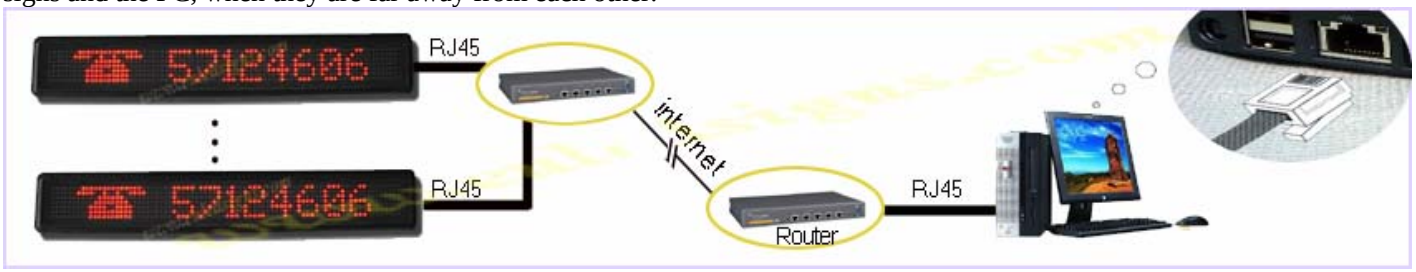
GSM

Through GSM module, for remote communications, One PC can program Multi-signs, No distance limitation, as long as the local GSM network can be controlled.



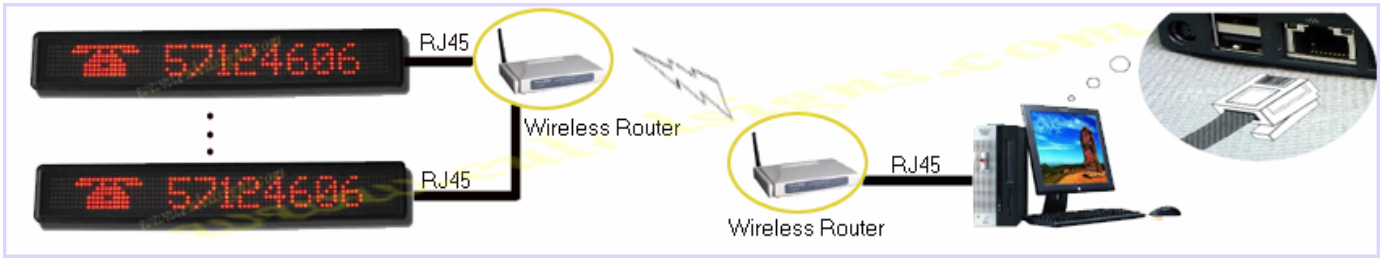
TCP/IP

Signs are connected to a PC through TCP/IP network. IP address is assigned to each sign from internet! It's used between signs and the PC, when they are far away from each other.

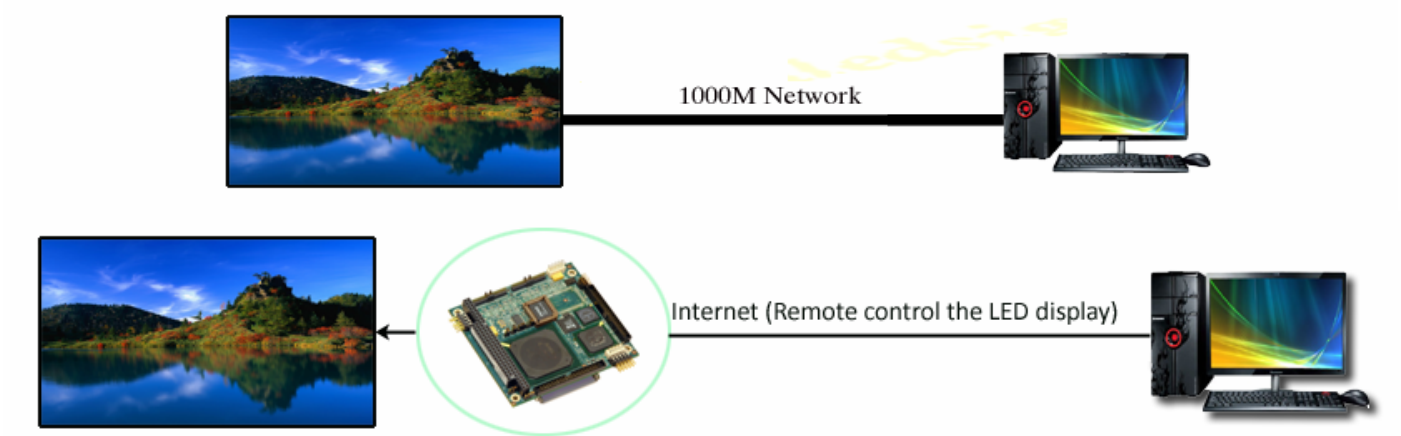


Wireless Ethernet

Through wireless LAN, Signs are connected to a PC through TCP/IP network. IP address is assigned to each sign from internet! It's used between signs and the PC, when they are far away from each other.



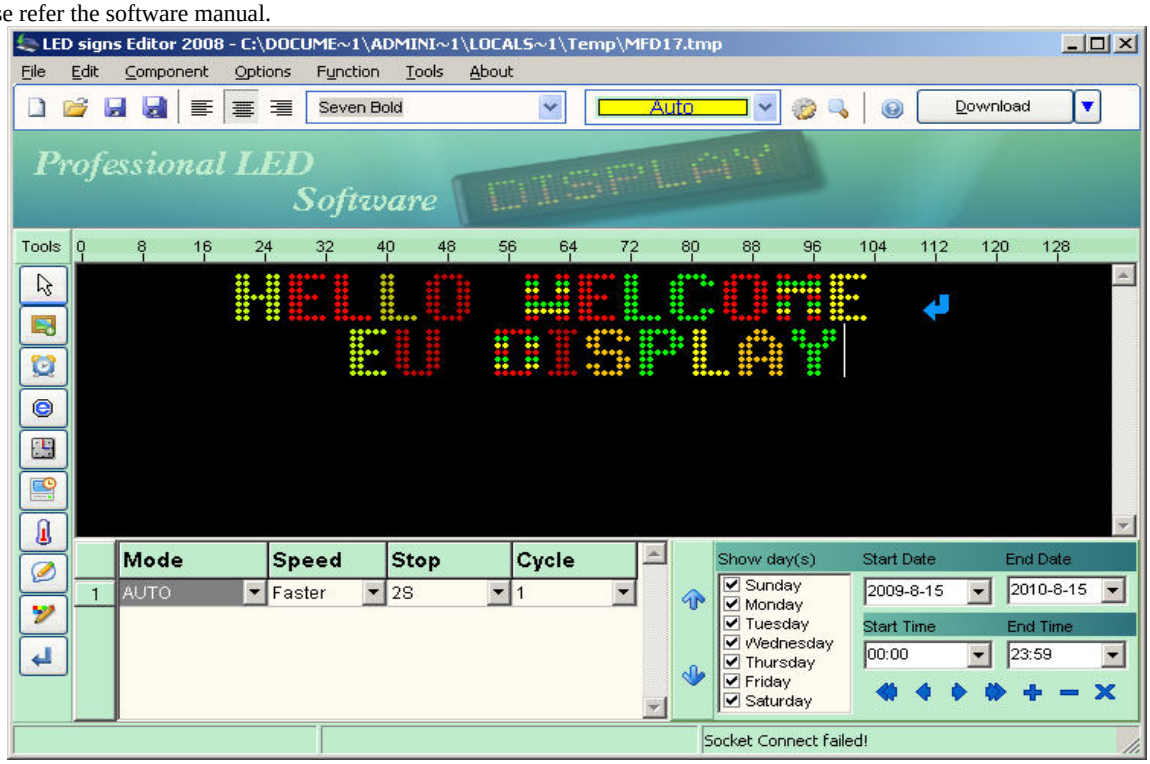
Synchronous Options



Software

Asynchronism Monochrome and Tricolor

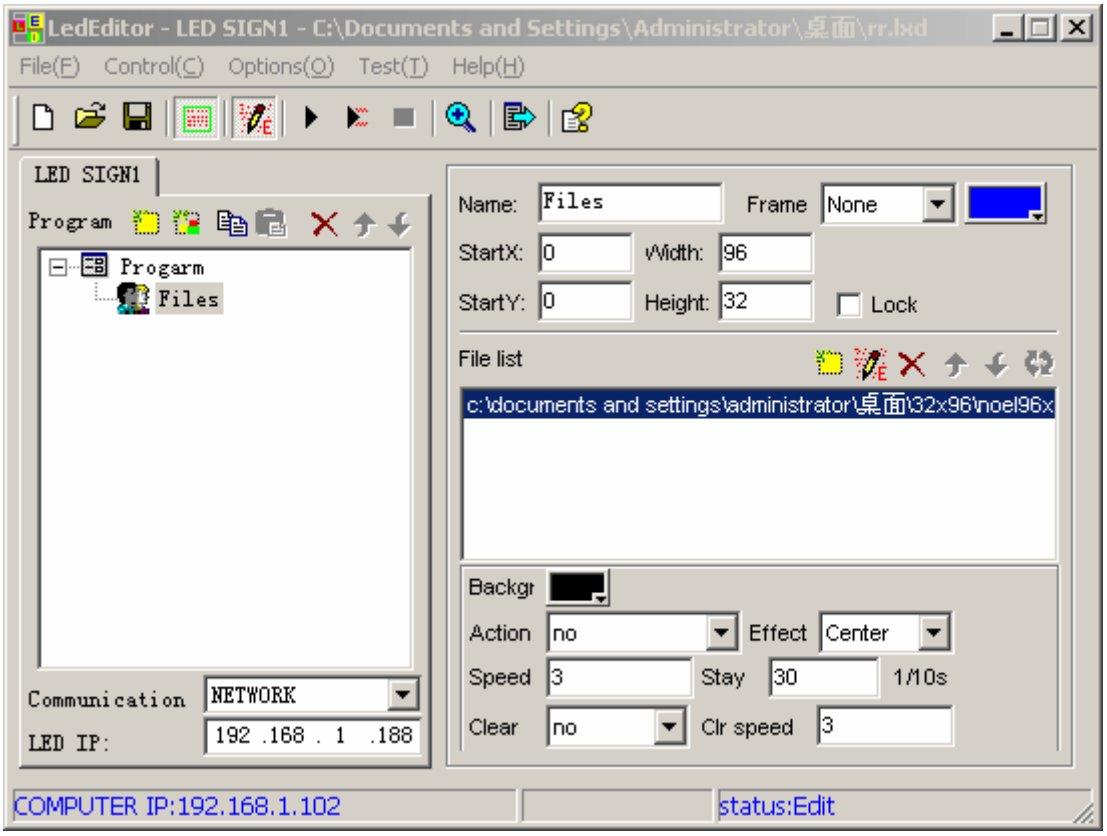
The “LED Signs Editor 2008” just can support Monochrome and tricolor led display.
Can display 1 – 11 colors text and simple graphics.
Details please refer the software manual.



LED Signs Editor 2008

Asynchronism Full color

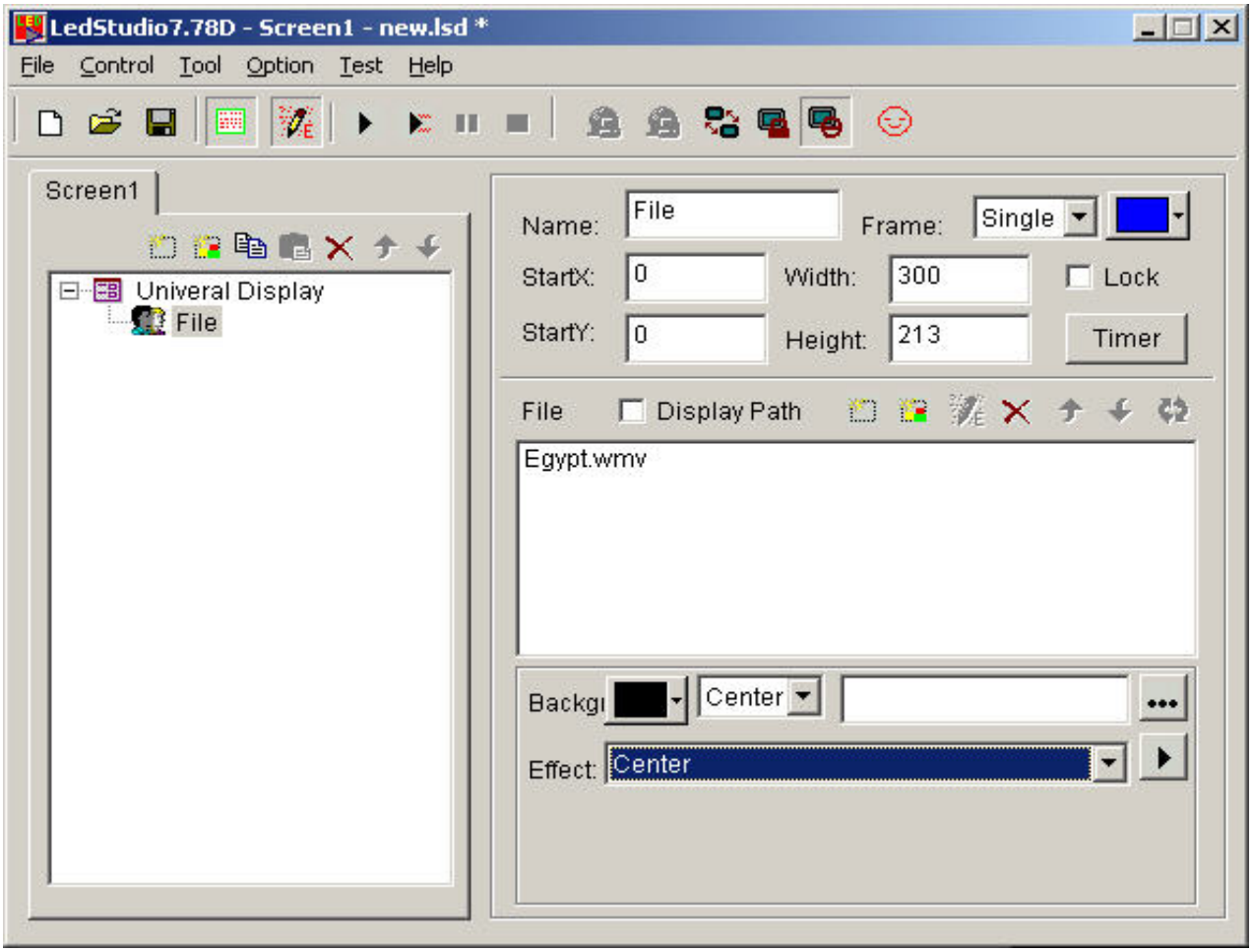
The “LEDEditor” can support full color led display. Support full color graphic, GIF and CAF(EU custom format) Animation And 30 kinds color combination.
Details please refer the software manual.



LEDEditor

Synchronous

This is synchronous software, can play video, Animation, text and Graphics,
Led display shows anything need run the software.
Details please refer the software manual.



LED Studio

General Technical Specifications

Pixel Pitch	**10mm**	**LED Per Pixel**	**2R, 2R/1G, 2R1G1B**
Brightness	**>4000NITS**	**Module Matrix**	**8 * 16dots**
LED Density	**1000 LEDs/㎡**	**View ability**	**110°**
Frame	**Sheet Metal**	**Service**	**Front service**

Display Size		Dimensions (mm)			
Height (Pixels)	**Width (Pixels)**	**Height**	**Width**	**㎡**	**Weight (Kg)**
16	64	160	640	0.1	38
16	80	160	800	0.1	38
16	96	160	960	0.2	41
16	112	160	1120	0.2	49
16	128	160	1280	0.2	57
16	144	160	1440	0.2	62
16	160	160	1600	0.3	70
16	176	160	1760	0.3	76
16	192	160	1920	0.3	83
16	208	160	2080	0.3	87
16	224	160	2240	0.4	96
32	64	320	640	0.2	43
32	80	320	800	0.3	53
32	96	320	960	0.3	62
32	112	320	1120	0.4	70
32	128	320	1280	0.4	81
32	144	320	1440	0.5	90
32	160	320	1600	0.5	98
32	176	320	1760	0.6	107
32	192	320	1920	0.6	117
48	80	480	800	0.4	68
48	96	480	960	0.5	81
48	112	480	1120	0.5	92
48	128	480	1280	0.6	107
48	144	480	1440	0.7	116
48	160	480	1600	0.8	127
48	176	480	1760	0.8	140
48	192	480	1920	0.9	151
64	80	640	800	0.5	84
64	96	640	960	0.6	98
64	112	640	1120	0.7	114
64	128	640	1280	0.8	138
64	144	640	1440	0.9	143
64	160	640	1600	1.0	159
64	176	640	1760	1.1	169
64	192	640	1920	1.2	186
80	80	800	800	0.6	99
80	96	800	960	0.8	117
80	112	800	1120	0.9	133
80	128	800	1280	1.0	150
80	144	800	1440	1.2	168
80	160	800	1600	1.3	186
80	176	800	1760	1.4	203
80	192	800	1920	1.5	221

Pixel Pitch	**16mm**	**LED Per Pixel**	**2R, 2R/1G, 2R1G1B**
Brightness	**>4000NITS**	**Module Matrix**	**8 * 16dots**
LED Density	**3906 LEDs/㎡**	**View ability**	**110°**
Frame	**Sheet Metal**	**Service**	**Front service**

Display Size		Dimensions (mm)		m2	Weight (Kg)
Height (Pixels)	Width (Pixels)	Height	Width		
16	64	256	1024	0.3	36
16	80	256	1280	0.3	44
16	96	256	1536	0.4	52
16	112	256	1792	0.5	60
16	128	256	2048	0.5	68
16	144	256	2304	0.6	76
16	160	256	2560	0.7	84
16	176	256	2816	0.7	92
16	192	256	3072	0.8	100
16	208	256	3328	0.9	107
16	224	256	3584	0.9	114
24	64	384	1024	0.4	44
24	80	384	1280	0.5	53
24	96	384	1536	0.6	63
24	112	384	1792	0.7	73
24	128	384	2048	0.8	83
24	144	384	2304	0.9	91
24	160	384	2560	1.0	101
24	176	384	2816	1.1	111
24	192	384	3072	1.2	121
32	64	512	1024	0.5	52
32	80	512	1280	0.7	63
32	96	512	1536	0.8	74
32	112	512	1792	0.9	85
32	128	512	2048	1.0	97
32	144	512	2304	1.2	108
32	160	512	2560	1.3	119
32	176	512	2816	1.4	130
32	192	512	3072	1.6	142
40	80	640	1280	0.8	72
40	96	640	1536	1.0	85
40	112	640	1792	1.1	98
40	128	640	2048	1.3	111
40	144	640	2304	1.5	124
40	160	640	2560	1.6	137
40	176	640	2816	1.8	150
40	192	640	3072	2.0	163
48	80	768	1280	1.0	82
48	96	768	1536	1.2	96
48	112	768	1792	1.4	111
48	128	768	2048	1.6	125
48	144	768	2304	1.8	140
48	160	768	2560	2.0	154
48	176	768	2816	2.2	169
48	192	768	3072	2.4	183
56	80	896	1280	1.1	91
56	96	896	1536	1.4	107
56	112	896	1792	1.6	124
56	128	896	2048	1.8	140
56	144	896	2304	2.1	156
56	160	896	2560	2.3	172
56	176	896	2816	2.5	188
56	192	896	3072	2.8	204
64	80	1024	1280	1.3	101
64	96	1024	1536	1.6	118
64	112	1024	1792	1.8	136
64	128	1024	2048	2.1	154
64	144	1024	2304	2.4	172
64	160	1024	2560	2.6	124
64	176	1024	2816	2.9	207
64	192	1024	3072	3.1	225
80	80	1280	1280	1.6	120
80	96	1280	1536	2.0	140
80	112	1280	1792	2.3	161
80	128	1280	2048	2.6	182
80	144	1280	2304	2.9	203
80	160	1280	2560	3.3	224
80	176	1280	2816	3.6	245
80	192	1280	3072	3.9	267

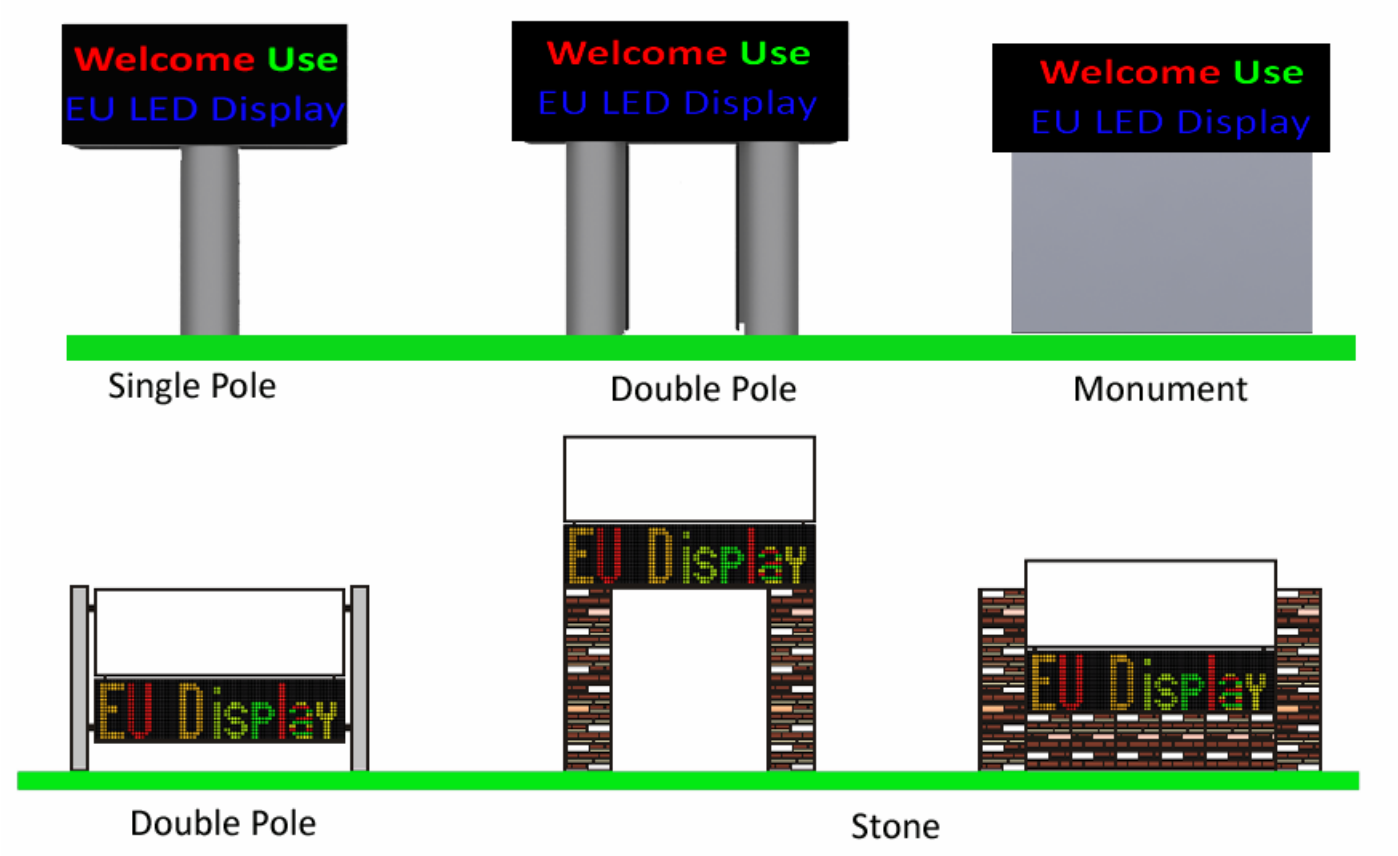
Pixel Pitch	**20mm**	**LED Per Pixel**	**2R, 2R/1G, 2R1G1B**
Brightness	**>4000NITS**	**Module Matrix**	**8 * 16dots**
LED Density	**2500 LEDs/㎡**	**View ability**	**110°**
Frame	**Sheet Metal**	**Service**	**Front service**

Display Size		Dimensions (mm)		m2	Weight(Kg)
Height (Pixels)	Width (Pixels)	Height	Width		
16	64	320	1280	0.4	39
16	80	320	1600	0.5	47
16	96	320	1920	0.6	56
16	112	320	2240	0.7	65
16	128	320	2560	0.8	74
16	144	320	2880	0.9	83
16	160	320	3200	1.0	91
16	176	320	3520	1.1	100
16	192	320	3840	1.2	108
24	80	480	1600	0.8	57
24	96	480	1920	0.9	67
24	112	480	2240	1.1	78
24	128	480	2560	1.2	88
24	144	480	2880	1.4	99
24	160	480	3200	1.5	109
24	176	480	3520	1.7	119
24	192	480	3840	1.8	130
32	80	640	1600	1.0	67
32	96	640	1920	1.2	79
32	112	640	2240	1.4	91
32	128	640	2560	1.6	103
32	144	640	2880	1.8	115
32	160	640	3200	2.0	127
32	176	640	3520	2.3	139
32	192	640	3840	2.5	151
40	80	800	1600	1.3	76
40	96	800	1920	1.5	90
40	112	800	2240	1.8	104
40	128	800	2560	2.0	117
40	144	800	2880	2.3	131
40	160	800	3200	2.6	145
40	176	800	3520	2.8	159
40	192	800	3840	3.1	172
48	80	960	1600	1.5	86
48	96	960	1920	1.8	101
48	112	960	2240	2.2	116
48	128	960	2560	2.5	132
48	144	960	2880	2.8	147
48	160	960	3200	3.1	163
48	176	960	3520	3.4	178
48	192	960	3840	3.7	193
56	80	1120	1600	1.8	95
56	96	1120	1920	2.2	112
56	112	1120	2240	2.5	129
56	128	1120	2560	2.9	146
56	144	1120	2880	3.2	163
56	160	1120	3200	3.6	181
56	176	1120	3520	3.9	198
56	192	1120	3840	4.3	214
64	80	1280	1600	2.0	106
64	96	1280	1920	2.5	125
64	112	1280	2240	2.9	144
64	128	1280	2560	3.3	164
64	144	1280	2880	3.7	183
64	160	1280	3200	4.1	202
64	176	1280	3520	4.5	221
64	192	1280	3840	4.9	240
72	80	1440	1600	2.3	118
72	96	1440	1920	2.8	138
72	112	1440	2240	3.2	160
72	128	1440	2560	3.7	180
72	144	1440	2880	4.1	203
72	160	1440	3200	4.6	224
72	176	1440	3520	5.1	245
72	192	1440	3840	5.5	266
80	80	1600	1600	2.6	129
80	96	1600	1920	3.1	152
80	112	1600	2240	3.6	175
80	128	1600	2560	4.1	199
80	144	1600	2880	4.6	222
80	160	1600	3200	5.1	246
80	176	1600	3520	5.6	269
80	192	1600	3840	6.1	293

Pixel Pitch	**25mm**	**LED Per Pixel**	**2R, 2R/1G, 2R1G1B**
Brightness	**>4000NITS**	**Module Matrix**	**8 * 8 dots**
LED Density	**1600 LEDs/㎡**	**View ability**	**110°**
Frame	**Sheet Metal**	**Service**	**Front service**

Display Size		Dimensions (mm)		m2	Weight(Kg)
Height (Pixels)	Width (Pixels)	Height	Width		
8	64	200	1600	0.3	42
8	80	200	2000	0.4	52
8	96	200	2400	0.5	62
8	112	200	2800	0.6	72
8	128	200	3200	0.6	82
8	144	200	3600	0.7	92
8	160	200	4000	0.8	102
8	176	200	4400	0.9	112
8	192	200	4800	1.0	120
16	64	400	1600	0.6	56
16	80	400	2000	0.8	70
16	96	400	2400	1.0	82
16	112	400	2800	1.1	95
16	128	400	3200	1.3	108
16	144	400	3600	1.4	122
16	160	400	4000	1.6	135
16	176	400	4400	1.8	148
16	192	400	4800	1.9	161
24	80	600	2000	1.2	86
24	96	600	2400	1.4	102
24	112	600	2800	1.7	119
24	128	600	3200	1.9	135
24	144	600	3600	2.2	152
24	160	600	4000	2.4	168
24	176	600	4400	2.6	184
24	192	600	4800	2.9	200
32	80	800	2000	1.6	103
32	96	800	2400	1.9	123
32	112	800	2800	2.2	142
32	128	800	3200	2.6	162
32	144	800	3600	2.9	181
32	160	800	4000	3.2	200
32	176	800	4400	3.5	220
32	192	800	4800	3.8	239
40	80	1000	2000	2.0	120
40	96	1000	2400	2.4	143
40	112	1000	2800	2.8	166
40	128	1000	3200	3.2	188
40	144	1000	3600	3.6	210
40	160	1000	4000	4.0	233
40	176	1000	4400	4.4	256
40	192	1000	4800	4.8	278
48	80	1200	2000	2.4	137
48	96	1200	2400	2.9	163
48	112	1200	2800	3.4	189
48	128	1200	3200	3.8	215
48	144	1200	3600	4.3	240
48	160	1200	4000	4.8	266
48	176	1200	4400	5.3	292
48	192	1200	4800	5.8	318
56	80	1400	2000	2.8	154
56	96	1400	2400	3.4	184
56	112	1400	2800	3.9	212
56	128	1400	3200	4.5	241
56	144	1400	3600	5.0	270
56	160	1400	4000	5.6	299
56	176	1400	4400	6.2	328
56	192	1400	4800	6.7	357
64	80	1600	2000	3.2	172
64	96	1600	2400	3.8	203
64	112	1600	2800	4.5	236
64	128	1600	3200	5.1	268
64	144	1600	3600	5.8	300
64	160	1600	4000	6.4	332
64	176	1600	4400	7.0	364
64	192	1600	4800	7.7	396
72	80	1800	2000	3.6	188
72	96	1800	2400	4.3	224
72	112	1800	2800	5.0	259
72	128	1800	3200	5.8	294
72	144	1800	3600	6.5	329
72	160	1800	4000	7.2	365
72	176	1800	4400	7.9	400
72	192	1800	4800	8.6	435
80	80	2000	2000	4.0	206
80	96	2000	2400	4.8	244
80	112	2000	2800	5.6	282
80	128	2000	3200	6.4	320
80	144	2000	3600	7.2	359
80	160	2000	4000	8.0	397
80	176	2000	4400	8.8	436
80	192	2000	4800	9.6	474

Mounting



Applications