

Manual

CLS Pixelscreen



Table of contents

SYSTEM INTRODUCTION.....	3
1. CONNECT A CLS PIXELSCREEN	4
2. CONNECT A CLS PIXELSCREEN CONTROLLER / SCALER.....	5
3. SYSTEM OVERVIEW.....	6
4. SETTING UP A VIDEO SCREEN.....	7
5. USING THE CLS PIXELSCREEN CONTROLLER / SCALER:.....	8
5.1 INSTALLING CONTROL SOFTWARE	8
6. STARTING THE LED STUDIO SOFTWARE	9
7. ADVANCED SETUP	12
8. USING THE OFFSET TO POSITION YOUR SCREEN	15
7. SPECIFICATIONS.....	18

System Introduction

Thank you for selecting the CLS Pixelscreen I/R and the CLS Pixelscreen controller / Scaler. The I/R frames are suitable for smaller rental screens and fixed installation projects. Due to the different available sizes, they are very suitable for various creative LED video projects. The I/R frames have even been used to create video ceilings and the compact sizes also makes them very suitable for exhibitions and corporate events. The I/R frames offer a very cost-effective solution for numerous LED video applications. The I/R frames are available in both 20mm and 40mm pitch.

This manual will show you how to use the CLS Pixelscreens I/R in combination with the CLS Pixelscreen Controller / Scaler. And how to use the software in order to setup the screen the way it is required in any possible project.

1. Connect a CLS Pixelscreen

The CLS Pixelscreens can be connected to each other or to the CLS Pixelscreen Controller / Scaler by a standard RJ45 (UTP) cable. Connecting the screens to power, is done by Neutrik Powercon connectors. As is shown in figure 1.

Always use a blue Powercon connector for power input, and a white Powercon connector for power output. For linking CLS Pixelscreens, a powercon link cable (white to blue Powercon) can be used.

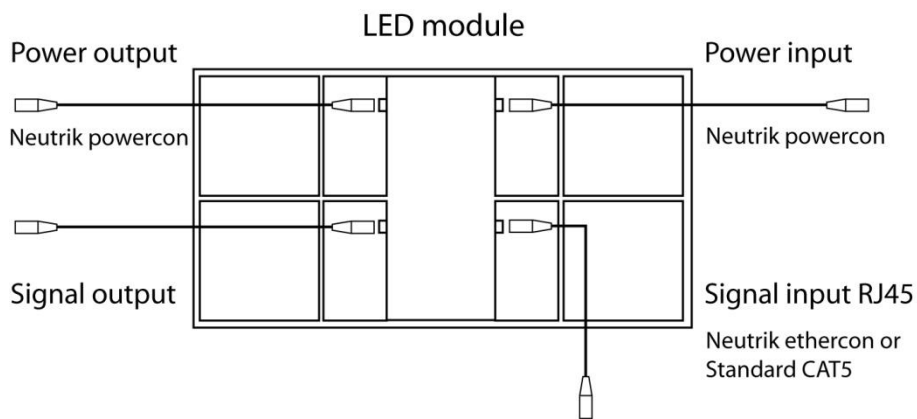


Figure 1: CLS Pixelscreen layout and wiring

2. Connect a CLS Pixelscreen Controller / Scaler

The CLS Pixelscreen Controller must be used to control the CLS Pixelscreens. It has the unique feature of connecting a wide range of video signals. The CLS Pixelscreen Controller has a built in control card which is used for converting the video input signal, to a signal that can be connected to the CLS Pixelscreens, by a standard RJ45 (UTP) cable. The same RJ45 (UTP) cable is used for sending the settings to the CLS Pixelscreen.

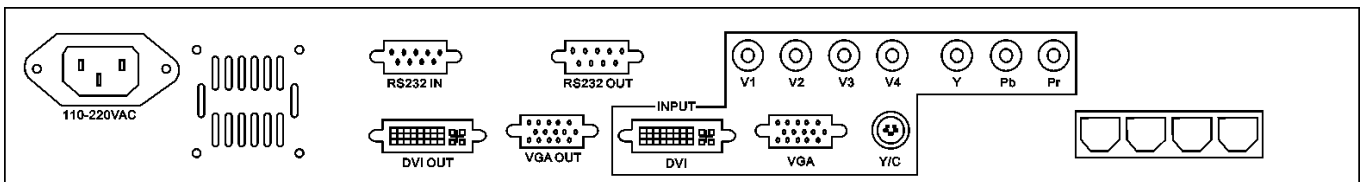


Figure 2: CLS Pixelscreen Controller / Scaler backside view

1. Port description

1. Signal input (INPUT)

The CLS Pixelscreen Controller / Scaler supports 8 channels of signal input:

- V1~V4: 4-channel PAL/NTSC system compound video input;
- Y/C: 1-channel PAL/NTSC system S-video input;
- VGA: 1-channel computer analog signal input;
- DVI: 1-channel computer digital signal input;
- YPbPr: 1-channel High-Definition component signal input.

2. Signal output

- VGA OUT: 1-channel computer analog signal output, it can be used for a preview monitor or for linking the video input with another CLS Pixelscreen Controller / Scaler.
- DVI OUT: 1-channel computer digital signal output, can be used for linking the video input to another CLS Pixelscreen Controller / Scaler.

3. Control signal

- RS232 IN: RS232 serial communication input, used for connecting with a laptop or PC, when setting up the screens.
- RS232 OUT: RS232 serial communication output, connected to the next device with RS232.

4. Pixelscreen Video output

- As the LED transmission card is being incorporated in the processor, this output directly drives the CLS Pixelscreen modules.

3. System overview

After you have connected the CLS Pixelscreen Controller / Scaler to a CLS Pixelscreen and a Video source you are ready to use the system. Figure 4 shows a schematic drawing of a control pc, video source and CLS pixelscreen connected to the CLS Pixelscreen Controller.

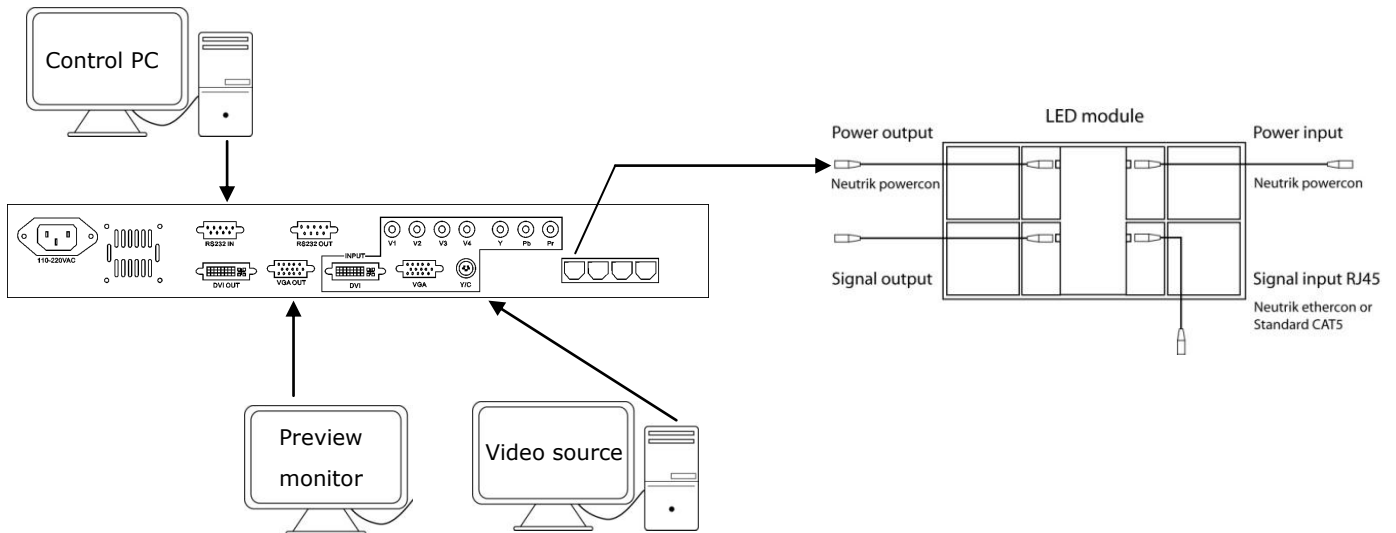


Figure 4: System overview

4. Setting up a video screen

Since in most situations the CLS Pixelscreens will be used in a larger setup, we will now lead you through setting up a larger screen composed out of 6 by 4 pieces CLS Pixelscreens.

Pixelscreen	Pixelscreen	Pixelscreen	Pixelscreen	Pixelscreen	Pixelscreen
Pixelscreen	Pixelscreen	Pixelscreen	Pixelscreen	Pixelscreen	Pixelscreen
Pixelscreen	Pixelscreen	Pixelscreen	Pixelscreen	Pixelscreen	Pixelscreen
Pixelscreen	Pixelscreen	Pixelscreen	Pixelscreen	Pixelscreen	Pixelscreen

Figure 5: 6x4 screen

Very important in this matter is the way of wiring. The screens should be in series, this can be vertical or horizontal. But you need to remember how you connected the screens, you will need this information later on. Figure 6 shows a screen connected in a vertical way. (top down)

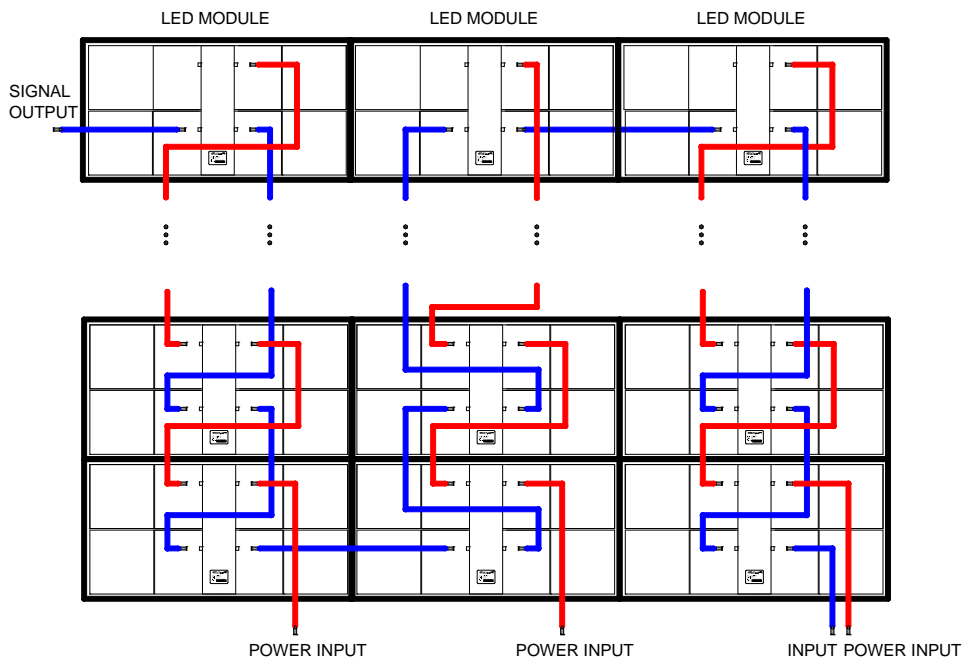


Figure 6: Connection method

5. Using the CLS Pixelscreen Controller / Scaler:

The CLS Pixelscreen Controller can be configured by a control computer or laptop, by a RS232 connection. Before you can change any of the settings, you need to install the software, LED Studio 8 on the control computer or laptop. This software comes with the CLS Pixelscreen Controller / Scaler on a CD-ROM.

5.1 Installing control software

When installing you need a registration code. This code is **"888888"** as shown in figure 1. You can install the software on your own Name and Company.

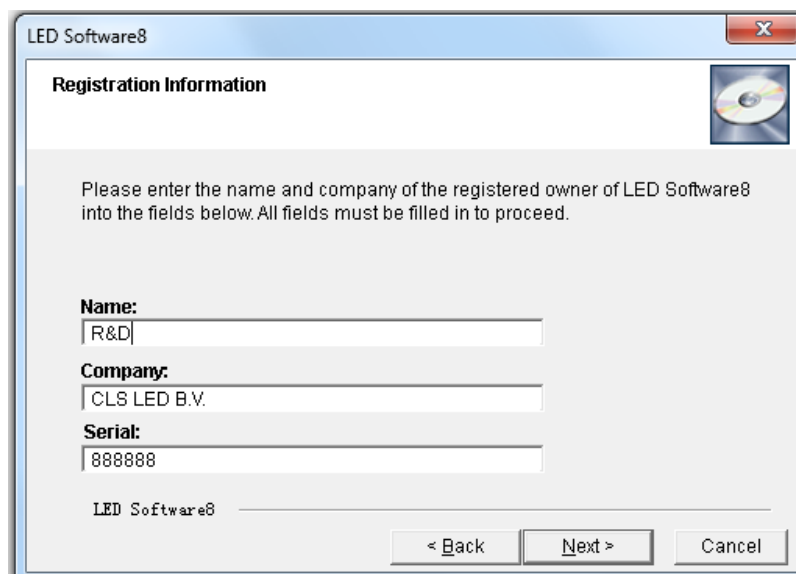


Figure 3: Install window LED Studio 8

After you have installed the software and connected the RS232 connection between your computer and the CLS Pixelscreen Controller, you can start the LED Studio Software.

6. Starting the LED Studio Software

When starting the LED Studio Software the home screen will be as shown below in figure 7.

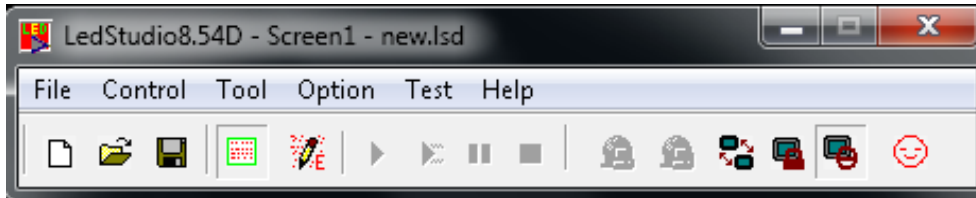


Figure 7: LED Studio home screen

To be able to control the position and offset of the CLS Pixelscreens you need to open the **Option-> Software Setup**.

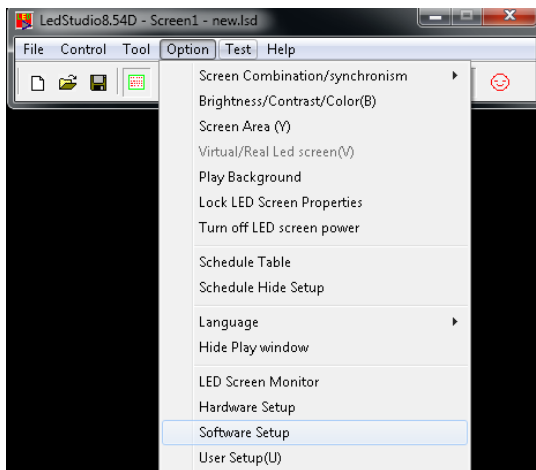


Figure 8: Option -> Software Setup

Now without selecting anything, type the word: **"LINSN"**. This will not appear on screen, but a password window will pop up.

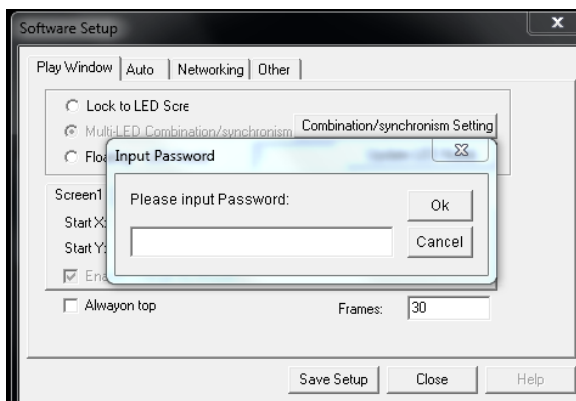


Figure 9: Password window

In this window you can enter the password "168".

The following window will now appear. In this window you must set the display mode to the resolution of your playback device or PC monitor, for instance 1024x768 or 800x600 pixels.

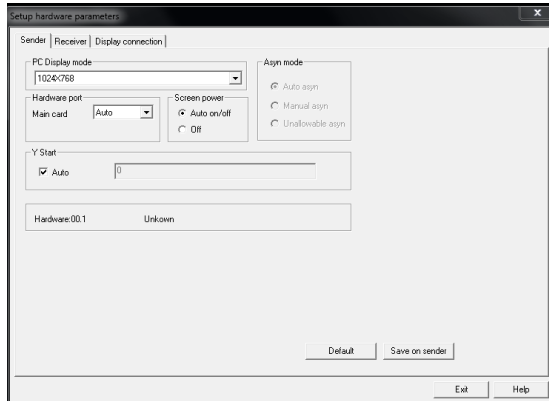


Figure 10: Setup window

Now you select "Display Connection". At 'Horizontal card' you enter the amount of screens that are installed horizontally, at 'Vertical card' you enter the amount of screens that are installed vertically. Then you can click every screen and program its order number, width and height.

- CLS Pixelscreen I/R 128 pitch 40mm is 32 pixels wide and 24 pixels high.
- CLS Pixelscreen I/R 128 pitch 20mm is 64 pixels wide and 48 pixels high.
- CLS Pixelscreen I/R 64 pitch 40mm is 16 pixels wide and 16 pixels high.
- CLS Pixelscreen I/R 64 pitch 20mm is 32 pixels wide and 32 pixels high.

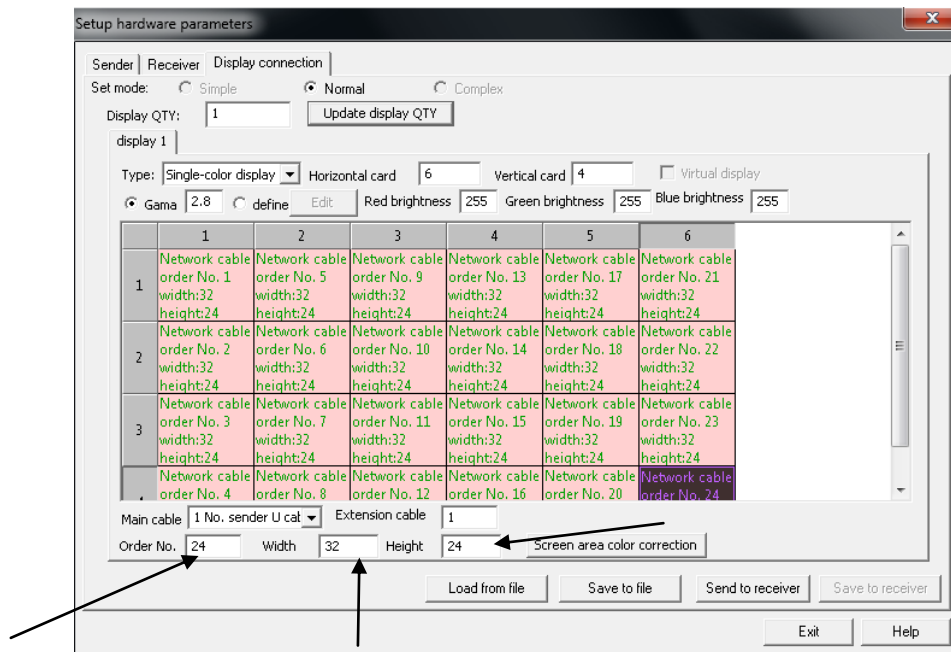


Figure 11: Display connection

Now you can send the settings to the screens by pressing the "Send to receiver" button, if the settings are right you can save them by pressing "Save to receiver" button. Once you have saved the settings to the receiver, you can not undo these changes. Only by sending new settings.

If you have made changes and you only used the "Send to receiver", you can undo the changes by cutting the power and restarting the CLS Pixelscreens. The screens will then startup with the old settings. To save the definite settings you will need to use the "Save to receiver".

Now your CLS Pixelscreens are configured as a 6x4 pieces screen. Video content which is connected to the CLS Pixelscreen Controller can now be displayed on the screen.

With these basic settings you have a screen of 6x4 CLS Pixelscreens, with no offset or changes in position. So the screen will display the content starting from X:0, Y:0.

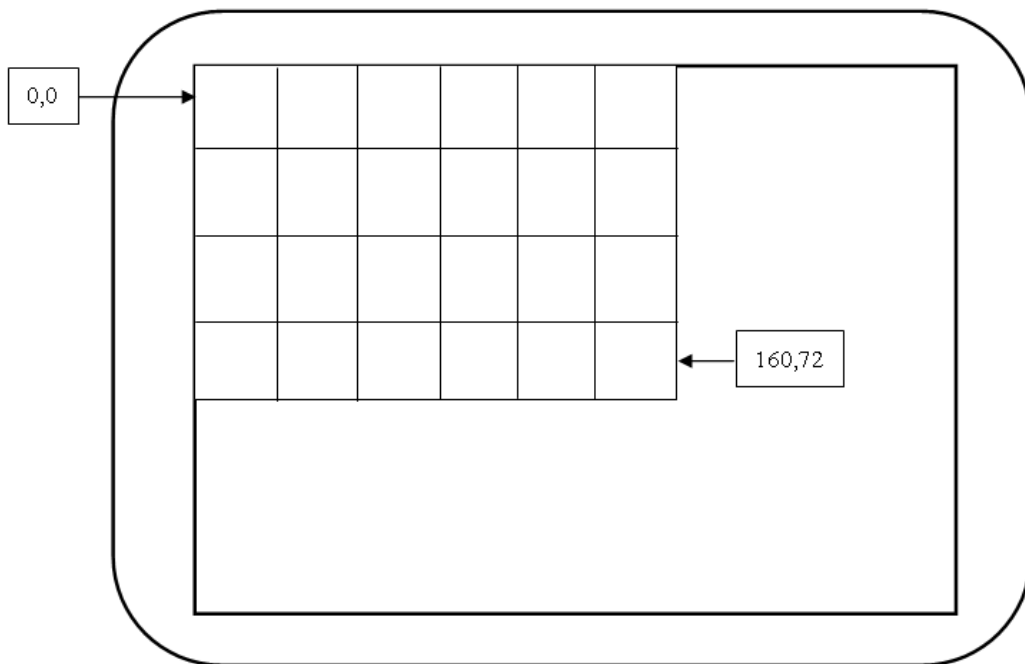


Figure 12: Result screen area

7. Advanced setup

The following example will show you how to set up a screen using offsets and position of the screen. Opening the complex mode will show you this window.

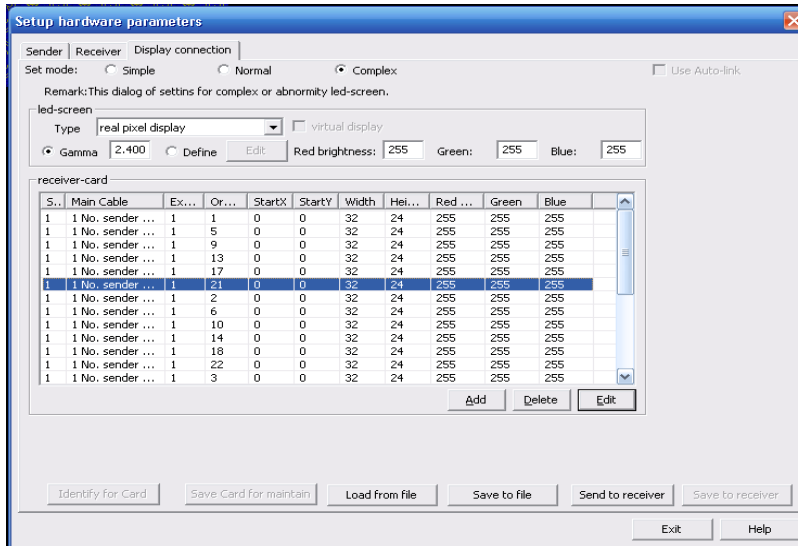


Figure 13: Complex setup

The screens are numbered like below, this is where you need to remember the way you have connected your CLS Pixelscreens. In this example the screens are connected from top down, and from left to right. This results in the following order.

1	5	9	13	17	21
2	6	10	14	18	22
3	7	11	15	19	23
4	8	12	16	20	24

Figure 14: Connection order

This results in the following settings:

Order nr	Start X	Start Y	Width	Height	RED	GREEN	BLUE
1	0	0	32	24	255	255	255
5	32	0	32	24	255	255	255
9	64	0	32	24	255	255	255
13	96	0	32	24	255	255	255
17	128	0	32	24	255	255	255
21	160	0	32	24	255	255	255
2	0	24	32	24	255	255	255
6	32	24	32	24	255	255	255
10	64	24	32	24	255	255	255
14	96	24	32	24	255	255	255
18	128	24	32	24	255	255	255
22	160	24	32	24	255	255	255
3	0	48	32	24	255	255	255
7	32	48	32	24	255	255	255
11	64	48	32	24	255	255	255
15	96	48	32	24	255	255	255
19	128	48	32	24	255	255	255
23	160	48	32	24	255	255	255
4	0	72	32	24	255	255	255
8	32	72	32	24	255	255	255
12	64	72	32	24	255	255	255
16	96	72	32	24	255	255	255
20	128	72	32	24	255	255	255
24	160	72	32	24	255	255	255

Figure 15: Complex setup overview

<u>1</u> X: 0 Y: 0	<u>5</u> X:32 Y: 0	<u>9</u> X:64 Y: 0	<u>13</u> X:96 Y: 0	<u>17</u> X:128 Y: 0	<u>21</u> X:160 Y: 0
<u>2</u> X: 0 Y:24	<u>6</u> X:32 Y:24	<u>10</u> X:64 Y:24	<u>14</u> X:96 Y:24	<u>18</u> X:128 Y: 24	<u>22</u> X:160 Y: 24
<u>3</u> X: 0 Y:48	<u>7</u> X:32 Y: 48	<u>11</u> X:64 Y:48	<u>15</u> X:96 Y: 48	<u>19</u> X:128 Y: 48	<u>23</u> X:160 Y: 48
<u>4</u> X: 0 Y:72	<u>8</u> X:32 Y: 72	<u>12</u> X:64 Y: 72	<u>16</u> X:96 Y: 72	<u>20</u> X:128 Y: 72	<u>24</u> X:160 Y: 72

Figure 16: Settings per screen

In the example the 6x4 screen is positioned like in figure 17. From the top left corner (0,0) through pixel (160, 72).

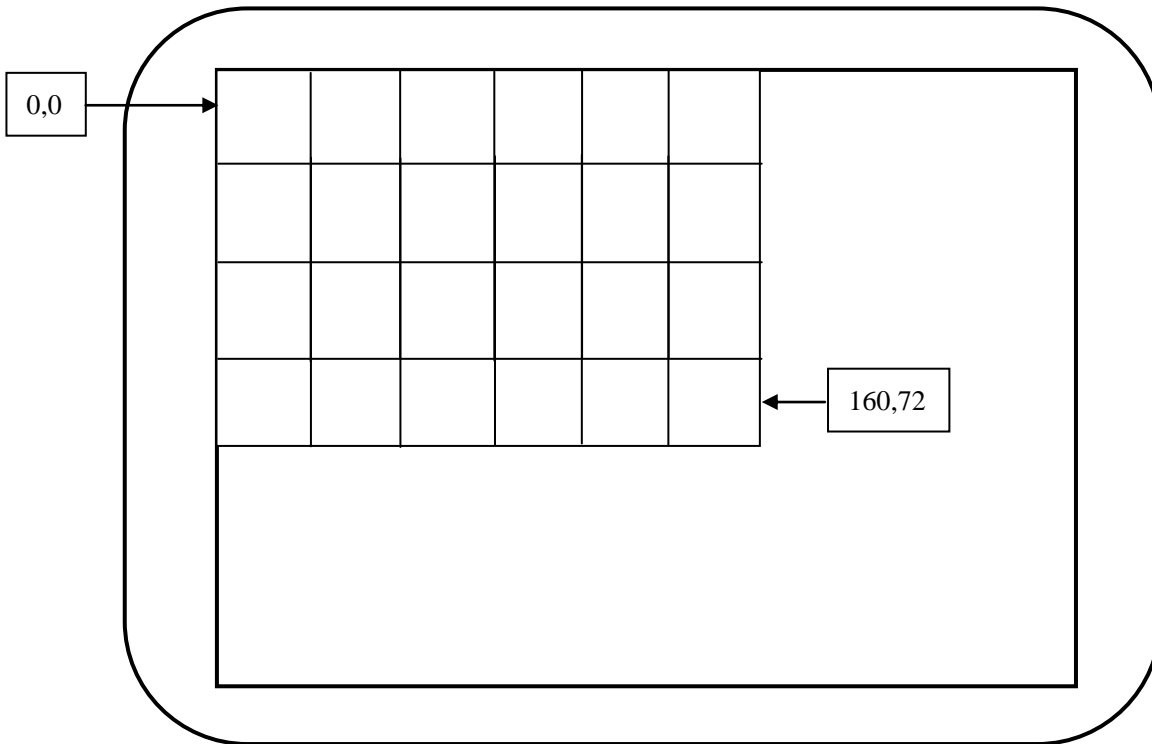


Figure 17: Monitor with 6x4 screen position.

8. Using the offset to position your screen

To move the LED Screen into another area of the monitor/video content, you need to calculate the new position into pixels. Next example will show you how to do this.

This example will show you how to move the screen area, in this example the screens are numbered in rows from left to right and top down.

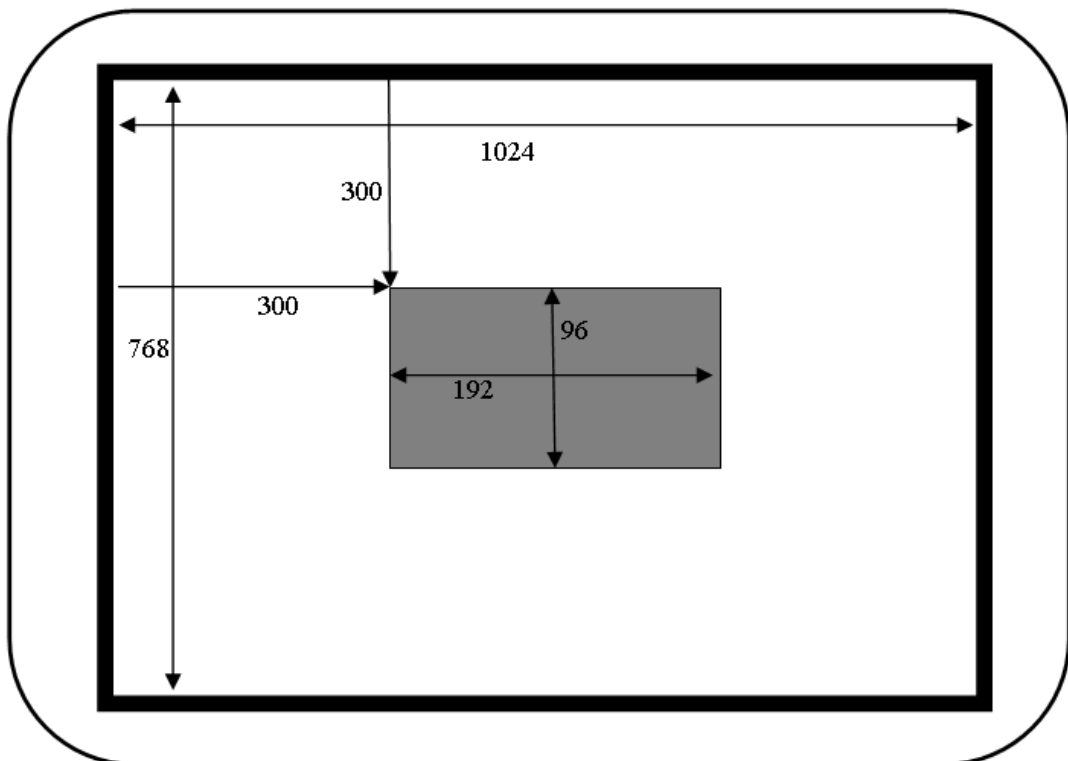


Figure 18: Screen with offset

To be able to move the screen area around like in figure 18, you will need to understand that the very top left corner of the monitor starts at pixel [0,0]. And the bottom right corner is pixel [1024,768]. So if you want the LED screen to have an offset of 300 pixels from the top and 300 pixels from the left. You need to calculate the start coordinates for every panel. Keep in mind that it is very important to remember how you connected your screens.

This figure shows how the CLS Pixelscreens are numbered in this example and what the X and Y offsets should be. Screen number 1 start at pixel [300,300], CLS Pixelscreens I/R 40mm are 32 pixels wide and 24 pixels high, so now you can calculate the rest of the coordinates.

1 X: 300 Y: 300	2 X:332 Y: 300	3 X:364 Y: 300	4 X:396 Y:300	5 X:428 Y: 300	6 X:460 Y: 300
7 X:300 Y:324	8 X:332 Y:324	9 X:364 Y:324	10 X:396 Y:324	11 X:428 Y: 324	12 X:460 Y: 324
13 X:300 Y:348	14 X:332 Y: 348	15 X:364 Y:348	16 X:396 Y: 348	17 X:428 Y: 348	18 X:460 Y: 348
19 X:300 Y:372	20 X:332 Y: 372	21 X:364 Y: 372	22 X:396 Y: 372	23 X:428 Y: 372	24 X:460 Y: 372

Figure 19: Settings per screen with offset

You can edit every individual CLS Pixelscreen by selecting **Complex**, the order number is now very important. You can select every screen en click **Edit**, this will give you the Card Setting menu, in this menu you can edit the Start X and Start Y position of that screen number. Like in figure 20.

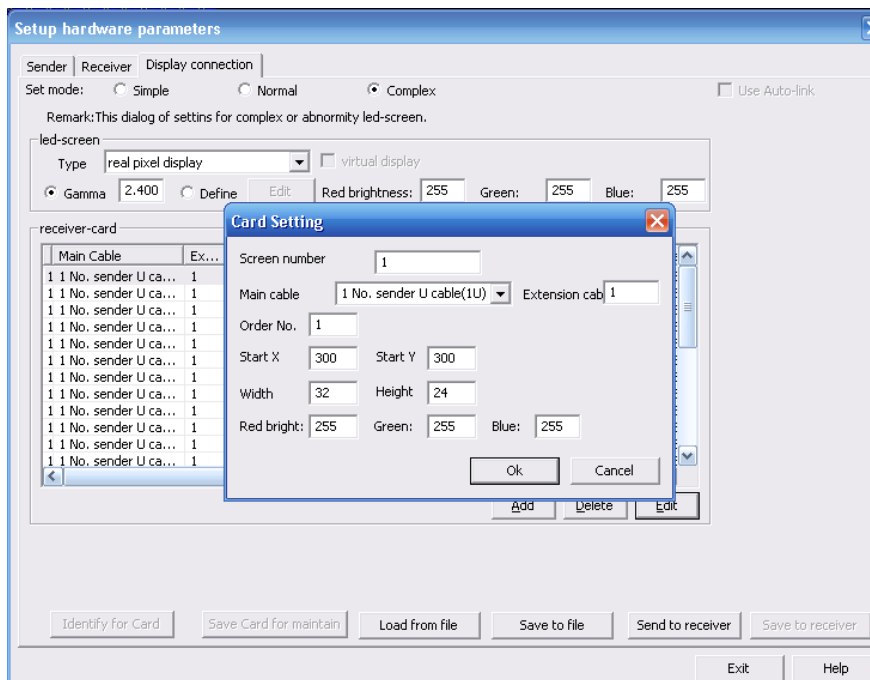


Figure 20: Card setting window

After you have repeated these steps for all the screens you can press **“Send to receiver”** and when the result is ok, **“Save to receiver”**.

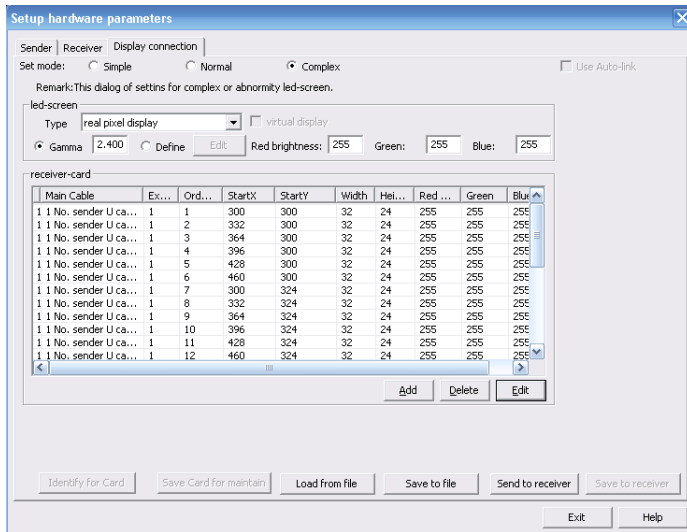


Figure 21: Offset settings

Order nr	Start X	Start Y	Width	Height	RED	GREEN	BLUE
1	300	300	32	24	255	255	255
2	332	300	32	24	255	255	255
3	364	300	32	24	255	255	255
4	396	300	32	24	255	255	255
5	428	300	32	24	255	255	255
6	460	300	32	24	255	255	255
7	300	324	32	24	255	255	255
8	332	324	32	24	255	255	255
9	364	324	32	24	255	255	255
10	396	324	32	24	255	255	255
11	428	324	32	24	255	255	255
12	460	324	32	24	255	255	255
13	300	348	32	24	255	255	255
14	332	348	32	24	255	255	255
15	364	348	32	24	255	255	255
16	396	348	32	24	255	255	255
17	428	348	32	24	255	255	255
18	460	348	32	24	255	255	255
19	300	372	32	24	255	255	255
20	332	372	32	24	255	255	255
21	364	372	32	24	255	255	255
22	396	372	32	24	255	255	255
23	428	372	32	24	255	255	255
24	460	372	32	24	255	255	255

Figure 22: Result screen area with an offset of 300 pixels

7. Specifications

Inputs	
Nums/Type:	1 × RGBHV 1 × DVI 1 × YPbPr (HDTV) 4 × CVBS 1 × Y/C (S-Video)
Video system:	PAL/NTSC
CVBS Scope/Impedance:	1V (p_p) / 75 Ω
Y/C Scope/Impedance:	Y: 0.7V (p_p) / 75 Ω, C: 0.35V (p_p) / 75 Ω
RGB/DVI resolution:	1280×1024 @60H 1024×768 @60Hz 800×600 @60Hz
RGB Scope/Impedance:	0.7 V (p_p) / 75 Ω
YPbPr (HDTV) System:	1280×720p @60Hz 1920×1080i @60Hz
YPbPr (HDTV) Scope/Impedance:	Y: -0.3V ~ +0.7V (p_p) / 75 Ω Pb: -0.35V ~ +0.35V (p_p) / 75 Ω Pr: -0.35V ~ +0.35V (p_p) / 75 Ω
Connectors:	RGBHV: 15pin D_Sub(female) DVI: 24+1 DVI_D YPbPr(HDTV): BNC×3 CVBS: BNC Y/C:4pin mini DIN(female)
Outputs	
Nums/Type:	1 × RGBHV 1 × DVI 1 x RJ45 Ethernet
RGB/DVI resolution:	1024×768@60Hz , 800×600@60Hz
RGB Scope/Impedance:	0.7 V (p_p) / 75 Ω
Connectors:	RGBHV: 15pin D_Sub(female) DVI: 24+1 DVI_D RJ45 Ethernet
Others	
Control:	RS 232, Panel Button
Power:	100-240VAC 50/60Hz max. 60W
Operating Temp:	5-40°C
Humidity:	15-85%
Size:	58 × 425 × 275 mm (hxwxd)
Weight:	5.5 Kg