LedSync822A
LED Video Processor

With PIP

USER’S MANUAL
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I. Safety Precautions

**Danger!**
There is high voltage in the processor, to prevent any unexpected hazard, unless you are a maintenance, please do not open the cover of the device.

**Warning!**
1. This device shall not encounter water sprinkle or splash, please do not place anything containing water on this device.
2. To prevent fire, keep this device far from any fire source.
3. To keep good ventilation, there shall be at least 20cm interval between frontal and rear panel of the device.
4. If this device gives out any strange noise, smoke or smell, please immediately unplug the power cord from receptacle, and contact local dealer.
5. **Please do not plug or unplug DVI signal cable when the device on power.**

**Caution!**
1. Please thoroughly read this manual before using this device, and keep it well for future reference.
2. In the event of lighting or when you are not going to use the device for a long time, please pull the power plug out of receptacle.
3. Nobody other than professional technicians can operate the device, unless they have been appropriately trained or under guidance of technicians.
4. To prevent equipment damage or electric shock, please don’t fill in anything in the vent of the device.
5. Do not place the device near any water source or anywhere damp.
6. Do not place the device near any radiator or anywhere under high temperature.
7. To prevent rupture or damage of power cords, please handle and keep them properly.
8. Please immediately unplug power cord and have the device repaired, when
   1) Liquid splashes to the device.
   2) The device is dropped down or cabinet is damaged.
   3) Obvious malpractice is found or performance degrades.
II. Connections of hardware

1. Rear view

![Rear view diagram](image)

2. Port description

1. Video input (INPUT column)
   LedSync822A supports 8-channel signal input, including:

<table>
<thead>
<tr>
<th>Port name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>V1~V4</td>
<td>4-channel PAL/NTSC system composite video input</td>
</tr>
<tr>
<td>Y/C (S_Video)</td>
<td>1-channel PAL/NTSC system S_Video input</td>
</tr>
<tr>
<td>VGA</td>
<td>1-channel computer analog signal input</td>
</tr>
<tr>
<td>DVI</td>
<td>1-channel computer digital signal input</td>
</tr>
<tr>
<td>YPbPr</td>
<td>1-channel high-definition component signal input</td>
</tr>
</tbody>
</table>

2. Audio input
   Corresponding to 8-channel video input signal, LedSync822A supports 8-channel stereo audio signal input.

3. Video signal output

<table>
<thead>
<tr>
<th>Port name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>VGA OUT</td>
<td>1-channel analog RGBHV signal output, it can be connected to a local display device and used as monitor (it is strongly recommended to use this port when operating and setting LedSync822A).</td>
</tr>
<tr>
<td>DVI OUT (1)</td>
<td>1-channel digital DVI signal <strong>external</strong> output, it is to be connected with external LED transmission card or LED transmission box</td>
</tr>
<tr>
<td>DVI OUT (2)</td>
<td>1-channel digital DVI signal <strong>internal</strong> output, it is to be connected with internal LED transmission card.</td>
</tr>
</tbody>
</table>

4. Audio signal output
   It corresponds to the selected video input signal, and output this channel audio input signals.
Signals of other ports

<table>
<thead>
<tr>
<th>Port name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>RS232 IN</strong></td>
<td>Serial communication port, LedSync822A’s Timing Control Software running on Upper Controller can operate and control LedSync822A via this communication port.</td>
</tr>
<tr>
<td><strong>RS232 EXT</strong></td>
<td>Reserved port, if LedSync822A has built-in LED transmission card and this card has RS232 control port, RS232 EXT port can bridge RS232 control port of LED transmission card to outside of LedSync822A case.</td>
</tr>
<tr>
<td><strong>USB 1</strong></td>
<td>Reserved port.</td>
</tr>
<tr>
<td><strong>USB 2</strong></td>
<td>Reserved port, if LedSync822A has built-in LED transmission card and this card has USB control port, USB 2 port can bridge USB control port of LED transmission card to outside of LedSync822A case.</td>
</tr>
<tr>
<td><strong>RJ45 port (1, 2, 3, 4)</strong></td>
<td>Reserved port, if LedSync822A has built-in LED transmission card and this card transfers signals via RJ45 port, RJ45 port (1, 2, 3, 4) can bridge RJ45 port of LED transmission card to outside of LedSync822A case.</td>
</tr>
<tr>
<td><strong>RJ45 port (4)</strong></td>
<td>Reserved port, if LedSync822A has built-in TCP/IP Ethernet communication module, RJ45 port (4) can bridge RJ45 port of built-in TCP/IP Ethernet communication module to outside of LedSync822A case.</td>
</tr>
<tr>
<td><strong>SW</strong></td>
<td>Eject out: Select RS232 mode to operate and control LedSync822A, use RS232 IN port as communication port. Press-in: Select TCP/IP mode to operate and control LedSync822A, use RJ45 port (4) port as communication port.</td>
</tr>
</tbody>
</table>
3. Connectivity Diagram of hardware:

Figure 2
III. Frontal panel operations

1. Diagram of frontal panel

![Diagram of frontal panel](image)

**Figure 3**

2. Button operations:

LedSync822A have 14 buttons on frontal panel, after start-up all these buttons are in operation mode. Their functions are described as below:

1. Select input video source

<table>
<thead>
<tr>
<th>Button names</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>V1~V4</td>
<td>Switch to V1~V4, composite video input</td>
</tr>
<tr>
<td>Y/C (S_Video)</td>
<td>Switch to S-Video input</td>
</tr>
</tbody>
</table>
| VGA          | Switch to computer analog signa input  
  Note: to get clarity computer image, you can click the “VGA” button 6 times continuously, and then you can click “VGA” button again and again to change the computer image sampling phase, when the computer image be displayed most clearly, the adjustment is ok. |
| DVI          | Switch to computer digital signal input |
| YPbPr        | Switch to high-definition component video signal input  
  Note: to get clarity HDTV image, you can click the “YPbPr” button 6 times continuously, and then you can click “YPbPr” button again and again to change the HDTV image sampling phase, when the HDTV image be displayed most clearly, the adjustment is ok. |

Switch audio input while operating above buttons, select the audio signal input from corresponding video input to output it through **Audio OUT**.

Notes: when user has selected input signal, if there are signal input in corresponding signal input ports and are in LedSync822A formats, the indicator above corresponding button will be illum. However, when there are no signal input in corresponding input ports, the indicator above corresponding button will blink, and dark screen will be displayed on the screen.
2. Select output brightness

<table>
<thead>
<tr>
<th>Button names</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>BRT -</td>
<td>Decrease output image brightness of LedSync822A</td>
</tr>
<tr>
<td>BRT +</td>
<td>Increase output image brightness of LedSync822A</td>
</tr>
</tbody>
</table>

LedSync822A supports 8 levels Brightness, “1” represents the lowest brightness, 8 represents the highest brightness. When brightness is adjusted to be “1”, “3”, “5” or “7”, their LED indicators will blink; When brightness is adjusted to be “1”, “3”, “5” or “7”, their LED indicators will keep illuminated.

3. Select image status

<table>
<thead>
<tr>
<th>Button names</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>DEF</td>
<td>Select user-defined image parameters, including GAMMA value, Video Chrom and Hue.</td>
</tr>
<tr>
<td>STD</td>
<td>Select a standard image status to output image. This standard image has been preset at factory, including GAMMA =1, Video Chrom and Video Hue = standard values. User can't modify these standard values.</td>
</tr>
</tbody>
</table>

4. Select FULL/PART display (VD/PIP, PC/ZOOM)

<table>
<thead>
<tr>
<th>Button names</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>VD/PIP</td>
<td>Switch the video display mode, when the indicator above this button be extinguished, the video will be displayed with PIP mode, on the contrary, the video will be displayed on the whole LED screen</td>
</tr>
<tr>
<td>PC/ZOOM</td>
<td>Switch the VGA/DVI display mode, when the indicator above this button be extinguished, VGA/DVI input image will be shrinked onto the whole LED screen; when the indicator be illumed, VGA/DVI input image will be displayed partly without shrink; and when the indicator blink, VGA/DVI input image will be output fully without shrink.</td>
</tr>
</tbody>
</table>
Software Control:

LedSync822A is supplied with Timing Control software LedSync.exe, user can operate and control LedSync822A using this software, including:

- Switch input signal source, change brightness of output images.
- Manually operate and control it or edit operation and control schedule to make it executed automatically.
- Carry out site control, or remote control over LAN or WAN.

For details please refer to LedSync82xx Timing Control.
IV. Setup of output image

The following steps must be made by relevant qualified technicians. For ordinary users, unless they have received adequate relevant training, they shall not attempt the following setup operations!

1. LedSync822A output image

LedSync822A output images from VGA OUT and DVI OUT in the format: 1024×768 pixels, with refresh frequency of 60Hz.

We should set two output image window, they are:

- LED image window
- Video PIP window

First, we set LedSync822A to output the images exactly fitting the resolution of LED screen, so that the LED could display a full frame of image. See the diagram below:

![Diagram of LedSync822A output image setup](image)

As above figure shows: the size and location of LedSync822A output LED image window are defined by 4 groups of parameters:

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hor_Str_L</td>
<td>The horizontal start position of output image</td>
</tr>
<tr>
<td>Hor_Width_L</td>
<td>The horizontal width of output image</td>
</tr>
<tr>
<td>Vert_Str_L</td>
<td>The vertical start position of output image</td>
</tr>
<tr>
<td>Vert_Height_L</td>
<td>The vertical height of output image</td>
</tr>
</tbody>
</table>
Video PIP window should be set to located in the LED image window, as the diagram below shows:

![Diagram of LED Display Screen and PIP Window](image)

LedSync822A Out Format = 1024 × 768

As above figure shows: the size and location of **LedSync822A** output PIP window are defined by 4 groups of parameters:

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hor_Str_P</td>
<td>The horizontal start position of output image</td>
</tr>
<tr>
<td>Hor_Width_P</td>
<td>The horizontal width of output image</td>
</tr>
<tr>
<td>Vert_Str_P</td>
<td>The vertical start position of output image</td>
</tr>
<tr>
<td>Vert_Height_P</td>
<td>The vertical height of output image</td>
</tr>
</tbody>
</table>

The start coordinates (0, 0) of sync820C output image is defined in the right top of 1024 × 768 pixels output area.
2. Setup of LedSync822A output image

LedSync822A can setup its output image by operating the buttons on frontal panel. After LedSync822A is started up, all buttons on frontal panel are in operation mode. As above section III.2 describes, if you press “STD” button for continuous 18 times, LedSync822A will enter setup state, and all buttons on frontal panel are ready to be in setup mode. See the table below for the definitions of each button:

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hor_Str</td>
<td>Move output image leftward.</td>
</tr>
<tr>
<td></td>
<td>Move output image rightward.</td>
</tr>
<tr>
<td>Hor_Width</td>
<td>Decrease width of output image</td>
</tr>
<tr>
<td></td>
<td>Increase width of output image</td>
</tr>
<tr>
<td>Vert_Str</td>
<td>Move output image upward.</td>
</tr>
<tr>
<td></td>
<td>Move output image downward.</td>
</tr>
<tr>
<td>Vert_Height</td>
<td>Decrease height of output image</td>
</tr>
<tr>
<td></td>
<td>Increase height of output image</td>
</tr>
<tr>
<td>Video_Color</td>
<td>Decrease video color</td>
</tr>
<tr>
<td></td>
<td>Increase video color</td>
</tr>
<tr>
<td>Save</td>
<td>Save currently adjusted values</td>
</tr>
<tr>
<td>Setup</td>
<td>Press the button for continuous 18 times, LedSync822A will enter setup state, press it again, LedSync822A will exit setup state and enter operation state.</td>
</tr>
<tr>
<td>LED/PIP</td>
<td>Switch the setup window, LED or PIP</td>
</tr>
<tr>
<td>Step</td>
<td>Select step value 1 or 10</td>
</tr>
</tbody>
</table>

Notes:

a) Generally Hor_Str \geq 0. If you need modify it, the value of Hor_Str can be setup to be \(-8\);

b) Generally Vert_Str \geq 0. If you need modify it, the value of
**Vert_Str** can be setup to be – 5;

c) Generally, the start coordinates of output image \((\text{Hor\_Str\_L, Vert\_Str\_L})\) should be identical to the start coordinates of the input image that LED transmission card captured;

d) The resolution of output image can be adjusted to the lowest \(8 \times 8\) pixels;

e) The output image shall not exceed the output area of \(1024 \times 768\) pixels;

f) While the current video image of **LedSync822A** is valid image, the video color can be adjusted;

g) The custom video color is only accessible by pressing “**DEF**” button while in operation mode;

h) If there are no valid input signals in **LedSync822A**, when it enters setup mode, a green screen will be generated as LED window reference image and a red screen as PIP window reference image;

i) It is strongly recommended to connect a VGA monitor to **VGA OUT** of **LedSync822A**, so as to intuitively display all above adjustment and setups.
## V. Troubleshooting

### 1 Dark screen, no image on LED

Check the input source of **LedSync822A** for any abnormality. If the indicator above input signal button is illummed, it means the input source is in good condition; however, if the indicator blinks, it means some fault has occurred.

<table>
<thead>
<tr>
<th>If the input source is normal, the indicator will keep illummed.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Press &quot;PC/ZOOM&quot; button on frontal panel of <strong>LedSync822A</strong>. When the indicator blink, LED will display image; however, the indicator be illummed, LED will display dark screen; the moment please check whether the start coordinates of <strong>LedSync822A</strong> output image is identical to the start coordinates of the input image that LED transmission card captured.</td>
</tr>
<tr>
<td>No image display even when PC/ZOOM's indicator blink, connect one VGA monitor to VGA OUT of <strong>LedSync822A</strong>, check whether there are images appearing on VGA monitor.</td>
</tr>
<tr>
<td>If there are images on VGA monitor, please check:</td>
</tr>
<tr>
<td>The DVI connection between DVI output of <strong>LedSync822A</strong> and DVI input of LED transmission card</td>
</tr>
<tr>
<td>Each section of Ethernet cable connection between LED transmission card and LED screen. <strong>The signal has been weakened a lot and imposed high risk of interference from outside after long-term transmission passing many sections of Ethernet cable. Please adopt high-quality Ethernet cable and RJ45 connector, and shorten the Ethernet cable to the most extent.</strong></td>
</tr>
<tr>
<td>Hot swap of DVI cable may result in burning of DVI drive or receiving chips.</td>
</tr>
<tr>
<td><strong>If there are no images on VGA monitor, please have supplier repair it</strong></td>
</tr>
<tr>
<td>If the input source is abnormal, the indicator will keep blink.</td>
</tr>
<tr>
<td><strong>If current input source is: DVI</strong></td>
</tr>
<tr>
<td>First, check DVI connection cable</td>
</tr>
<tr>
<td>Actuate DVI output of PC graphic display card</td>
</tr>
</tbody>
</table>
Set the output resolution any of the following:
- 800×600
- 1024×768
- 1280×1024

Note that DVI output refresh frequency (Vertical Scanning Frequency) must be: 60Hz

If DVI indicator of **LedSync822A** frontal panel still blinks, please have supplier repair it.

<table>
<thead>
<tr>
<th>If current input source is: VGA</th>
<th>First, check VGA connection cable</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Actuate VGA output of PC graphic display card</td>
</tr>
<tr>
<td></td>
<td>Set the output definition any of the following:</td>
</tr>
<tr>
<td></td>
<td>- 800×600</td>
</tr>
<tr>
<td></td>
<td>- 1024×768</td>
</tr>
<tr>
<td></td>
<td>- 1280×1024</td>
</tr>
<tr>
<td></td>
<td>Note that VGA output refresh frequency (Vertical Scanning Frequency) must be: 60Hz</td>
</tr>
<tr>
<td></td>
<td>If VGA indicator of <strong>LedSync822A</strong> frontal panel still blinks, please have supplier repair it.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>If current input source is: YPbPr</th>
<th>First, check YPbPr cable, the three cables Y, Pb, Pr are connected to corresponding input jacks of LedSync822A respectively.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Make sure YPbPr signal is in any of the following formats:</td>
<td>720p@60Hz</td>
</tr>
<tr>
<td></td>
<td>1080i@60Hz</td>
</tr>
<tr>
<td>If the YPbPr indicator on frontal panel of LedSync822A still blinks, please have supplier repair it.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>If current input source is: Y/C(S_Video)</th>
<th>Check S_Video cable.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Make sure S_Video output of DVD player has been actuated (some DVD players might have disabled S_Video output, it must be reset and actuated).</td>
<td></td>
</tr>
<tr>
<td>If Y/C indicator on frontal panel of LedSync822A still blinks, please have supplier repair it</td>
<td></td>
</tr>
</tbody>
</table>
1) Make sure RS232 cable supplied with the machine is properly connected, one end connects COM port of PC, the other end connects RS232 IN of LedSync822A;
2) Eject SW button on the rear of LedSync822A case, select the RS232 communication mode through COM port of PC;
3) Identify the No. of the PC’s COM port to be connected, e.g. COM1 or COM2, select appropriate COM port on control software;
4) Select appropriate COM port, and ensure this COM port not yet occupied by other applications, e.g. the common LedStudio software;
5) If after the above steps LedSync822A still can’t be controlled, please have supplier repair it.

3) When the Ethernet cable is directly connected to the RJ45 port of built-in LED transmission card, there are images appearing on LED screen; however, when it is connected via internal RJ45 Bridge Module of LedSync822A, there are no images appearing on LED screen

1) Make sure internal RJ45 Bridge Module of LedSync822A is properly connected;
2) Make sure the 8 wires of internal short Ethernet cable of LedSync822A are in correct sequence, and the 8 wires are connected to RJ45 connector in both ends in sequence, and are free of cross. See the figure below:

![Figure 5](image)

3) The image transfer from LED transmission card to LED display screen is made through Ethernet cable. The signal has been weakened a lot and imposed high risk of interference from outside.
after long-term transmission passing many sections of Ethernet cable. Please adopt high-quality Ethernet cable and RJ45 connector, and shorten the Ethernet cable to the most extent.
## VI. Specifications

### Inputs

<table>
<thead>
<tr>
<th>Nums/Type</th>
<th>1 × RGBHV (VGA)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1 × DVI</td>
</tr>
<tr>
<td></td>
<td>1 × YPbPr (HDTV)</td>
</tr>
<tr>
<td></td>
<td>4 × CVBS</td>
</tr>
<tr>
<td></td>
<td>1 × Y/C (S-Video)</td>
</tr>
</tbody>
</table>

**Video system**  
PAL/NTSC

**CVBS Scope/Impedance**  
1V (p_p) / 75Ω

**Y/C Scope/Impedance**  
Y: 0.7V (p_p) / 75Ω,  
C: 0.35V (p_p) / 75Ω

**RGB/DVI resolution**  
1280 × 1024@60Hz, 1024 × 768@60Hz,  
800 × 600@60Hz

**RGB Scope/Impedance**  
0.7V (p_p) / 75Ω

**YPbPr (HDTV) System**  
1280 × 720p@60Hz, 1920 × 1080i@60Hz

**YPbPr (HDTV) Scope/Impedance**  
Y: -0.3V ~ +0.7V (p_p) / 75Ω  
Pb: -0.35V ~ +0.35V (p_p) / 75Ω  
Pr: -0.35V ~ +0.35V (p_p) / 75Ω

**Connectors**  
RGBHV: 15pin D_Sub (female)  
DVI: 24+1 DVI_D  
YPbPr (HDTV): RCA × 3  
CVBS: RCA  
Y/C: 4pin mini DIN (female)

### Outputs

<table>
<thead>
<tr>
<th>Nums/Type</th>
<th>1 × RGBHV</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1 × DVI</td>
</tr>
</tbody>
</table>

**RGB/DVI resolution**  
1024 × 768@60Hz

**RGB Scope/Impedance**  
0.7V (p_p) / 75Ω

**Connectors**  
RGBHV: 15pin D_Sub (female)  
DVI: 24+1 DVI_D

### Others

**Control**  
RS 232, Panel Button

**Power**  
100-240VAC 60W 50/60Hz

**Operating Temp**  
5-40 °C

**Humidity**  
15-85%

**Size**  
155 mm (high) × 350mm (wide) × 485mm (length)

**Weight**  
5.6 Kg