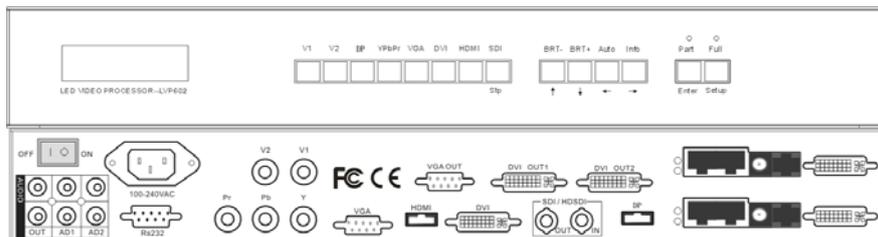


# LVP602S

## LED Video Processor

### 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 before shutting off the device.**

### 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

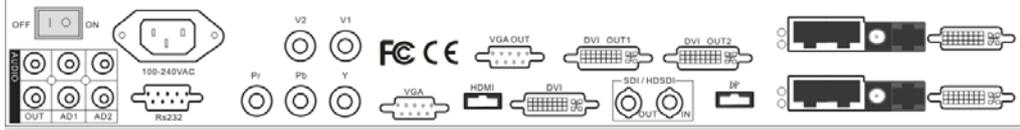


Figure 1

### 2. Port description

#### 1) Video Input

**LVP602S** supports 8-channel signal input, including:

| Port name              | Description  |
|------------------------|--|
| <b>V1~V2</b>           | 2-channel PAL/NTSC composite video input             |
| <b>DP(DisplayPort)</b> | <b>1-channel DisplayPort digital HD signal input</b> |
| <b>YPbPr</b>           | 1-channel SD/HD component signal input               |
| <b>VGA</b>             | 1-channel computer analog signal input               |
| <b>DVI</b>             | 1-channel computer digital signal input              |
| <b>HDMI</b>            | 1-channel digital SD/HD signal input                 |
| <b>SDI / HDSDI(IN)</b> | 1-channel <b>SDI</b> input (SD/HD)                   |

#### 2) Audio Input

**LVP602S** supports 5-channel stereo audio switch. Of which, 3 channels are DisplayPort, HDMI and SDI audio, the other 2 channels are AD1, AD2 external input audio. AD1 and AD2 can be mapped to the corresponding audio input of any input among all video inputs, and will be switched synchronous to the selection of video input signals.

#### 3) Video Output

| Port name      | Description   |
|----------------|---|
| <b>VGA OUT</b> | 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 <b>LVP602S</b> ). |

|                                  |   |
|----------------------------------|---|
| <b>DVI OUT 1 /<br/>DVI OUT 2</b> | 2 same DVI digital graphic signal output, it can be connected with external LED transmission card or LED transmission box |
| <b>SDI / HDSDI<br/>(OUT)</b>     | 1-channel digital video signal loop output  |

#### **4) Audio Output (AUDIO OUT)**

Corresponds to the selected video input signal, output this channel audio input signals.

#### **5) Signals of other ports**

RS232 serial communication port.

### III. Frontal panel operations

#### 1. Diagram of frontal panel

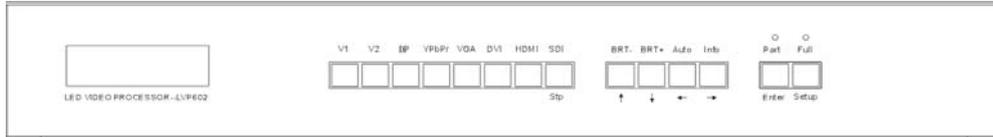


Figure 2

#### 2. Button instructions (operation mode):

##### 1) Select input video source

| Button names           | Description  |
|------------------------|--|
| <b>V1, V2</b>          | Select V1, V2 BNC port from which signal is input        |
| <b>DP(DisplayPort)</b> | Select <b>DP(DisplayPort)</b> from which signal is input |
| <b>YPbPr</b>           | Select component signal input                            |
| <b>VGA</b>             | Select computer analog signal input                      |
| <b>DVI</b>             | Select computer digital signal input                     |
| <b>HDMI</b>            | Select HDMI digital signal input                         |
| <b>SDI</b>             | Select SDI (HDSDI) digital video signal input            |

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, the current input signal source that you selected, e.g.: **HDMI** will appear in the first line in LCD, and the status of current input signal source will appear in the second line. If there are no valid signal input, “**No Input**” will appear in the screen and dark screen will be displayed on the LED screen; if the signal is valid, the input signal format, e.g.: “**1080p\_60Hz**” will appear in the screen.

##### 2) Select output brightness

| Button names | Description  |
|--------------|--|
| <b>BRT -</b> | Decrease output image brightness of <b>LVP602S</b> , the lowest brightness is 0. |
| <b>BRT +</b> | Increase output image brightness of <b>LVP602S</b> ,                             |

|  |                               |
|--|-------------------------------|
|  | the highest brightness is 64. |
|--|-------------------------------|

**LVP602S** supports 32 levels Brightness, “0” represents the lowest brightness, 64 represents the highest brightness. To ensure full gray level of output image, normally the output brightness is set as 50!

### **3) VGA input auto adjustment (Auto)**

When the current VGA input source of **LVP602S** is a valid signal, press this button, **LVP602S** will automatically adjust the sampling parameters of the VGA signals, so as to make VGA picture clean and complete.

In general, this operation is made only when new VGA signal source is to be connected in. The time spent in auto adjust depends on the conditions of signal source, but will be no longer than 1 minutes. Sometimes user need repetitively do such adjustment till VGA picture looks clean, complete and stable.

### **4) Information display (Info)**

Press this button to view current settings and information of **LVP602S**, it consists of 17 items. If you press “**Info**” again before **LVP602S** exit information display, **LVP602S** will continue to display the next item of information.

### **5) Select Full/Part display (Full, Part)**

This function only applies to PC input signals (DVI/VGA/DP/HDMI), user can switch between them. Other input signals can work only in the full mode.

| Button names | Description   |
|--------------|---|
| <b>Full</b>  | Full means that LED will display a full picture.      |
| <b>Part</b>  | Part means that LED only display a part of a picture. |

## IV. Setup

The following setups 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!

There are 14 items in 5 categories available for you to set in **LVP602S**. Technicians can set these items as necessary, for details see the table below:

| Category |  | Items |                     | Description             |
|----------|--|-------|---------------------|-------------------------|
| 1        | Language Selection                                 | 1     | <b>Language</b> 语言  |                         |
| 2        | Output Image Setup                                 | 2     | <b>Hori_Start</b>   | Output horizontal start |
|          |  | 3     | <b>Hori_Width</b>   | Output width            |
|          |  | 4     | <b>Vert_Start</b>   | Output vertical start   |
|          |  | 5     | <b>Vert_Height</b>  | Output height           |
|          |  | 6     | <b>Out_Format</b>   | Output resolution       |
| 3        | Brightness / Color                                 | 7     | <b>Brightness</b>   |                         |
|          |  | 8     | <b>Color</b>        |                         |
| 4        | Input Image Setup<br>(unadjustable for this model) | 9     | <b>Input_Width</b>  | Width of input image    |
|          |  | 10    | <b>Input_Height</b> | Height of input image   |
|          |  | 11    | <b>Hori_In_Str</b>  | Input horizontal start  |
|          |  | 12    | <b>Vert_In_Str</b>  | Input vertical start    |
| 5        | Audio Configurations                               | 13    | <b>Audio1 Confi</b> | Audio1 configurations   |
|          |  | 14    | <b>Audio2 Confi</b> | Audio2 configurations   |
| 6        |  | 16    | <b>Device_Init</b>  |                         |
|          |  | 17    | <b>Bias</b>         |                         |
|          |  | 18    | <b>Auto ADC</b>     |                         |

### 1. Enter Setup of LVP602S

Press "Setup" for consecutive 8 times while in operation mode, " **Password: 8 Enter Setup ...**" will appear in LCD, **LVP602S** will enter the No.1 setup item.

After **LVP602S** enters the setup mode, the 7 buttons on frontal panel will have the functions as defined in table below:

| Name        | Functions                 |
|-------------|---------------------------|
| <b>Step</b> | Select step value 2 or 10 |

|              |  |
|--------------|--|
| ↑            | Move to last item                      |
| ↓            | Move to next item                      |
| ←            | Decrease value or select last value    |
| →            | Increase value or select next value    |
| <b>Enter</b> | Save the adjustment or selected values |
| <b>Setup</b> | Enter or exit setup mode               |

After **LVP602S** enters setup mode, the relevant setup information will be displayed in LCD as per the layout shown in the figure below:

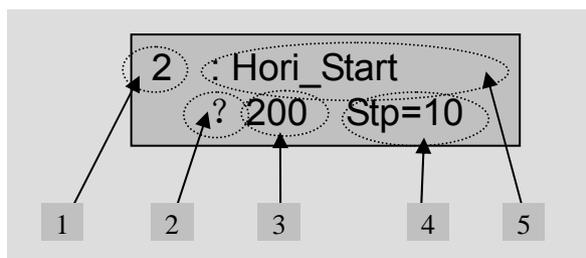


Figure 3

As shown in above figure, LCD consists of five sectors:

| Sector | Description   |
|--------|---|
| 1      | The No. of current setup item   |
| 2      | ? : ask you whether to save the adjustment; ! : the adjustment already be saved and takes effect. |
| 3      | Newly adjusted value  |
| 4      | Step value  |
| 5      | Name of current setup item  |

## 2. Select language

### No.1 Item: “**Language** 语言”

After entering setup mode, **LVP602S** will enter the first setup item “**Language** 语言”. **LVP602S** supports Chinese and English display, press “←” or “→” to select either of them, then press “**Enter**” to save it and make it valid.

## 3. Output image setup

**LVP602S** outputs images from VGA OUT, DVI OUT1 and DVI OUT2. there are 7 output formats as listed in the table below. User can enter the No.6 setup item “**Out\_Format**” to select one fo them.

|   | Format       |
|---|--------------|
| 1 | 1024×768_60  |
| 2 | 1024×768_75  |
| 3 | 1280×1024_60 |
| 4 | 1280×1024_75 |
| 5 | 1600×1200_60 |
| 6 | 1920×1080_50 |
| 7 | 1920×1080_60 |

**No.6 Item: “Out\_Format”**

Press “ ← ” or “ → ” key to select 1 output format listed under this option, then press “Enter” to save it.

If you select “1024×768\_60”, the output resolution of **LVP602S** will be 1024×768, the vertical refresh rate is 60Hz.

However, the resolution of LED screen is not exactly 1024×768 pixels. When the resolution of LED screen is less than 1024×768 pixels, we can set **LVP602S** to output the images exactly fitting the resolution of LED screen, so that the LED could display a full frame of image. See the schematic diagram below:

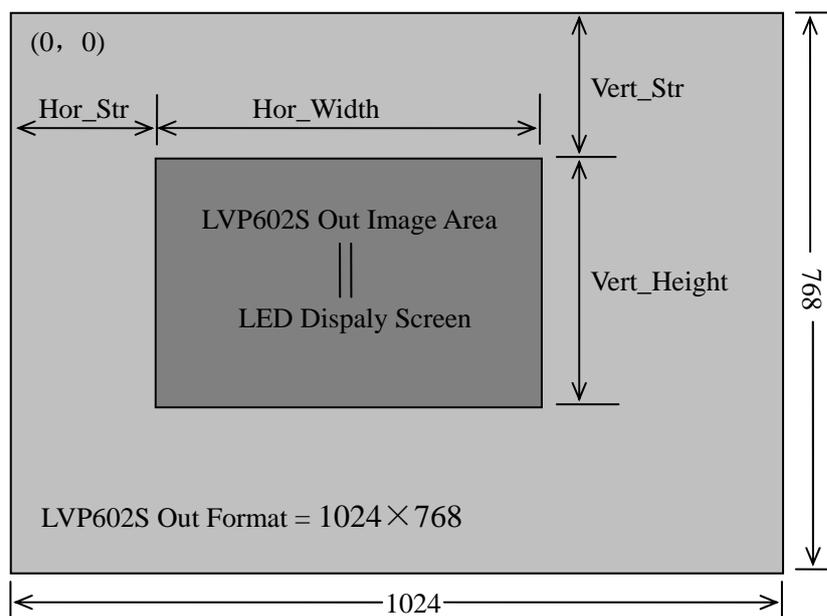


Figure 4

As above figure shows: the size and location of **LVP602S** output images are defined by 4 groups of parameters, which correspond to four setup items respectively, for details of their relationship see Table 5 below:

| No. of setup item | Setup Item Name    | Names of parameters |
|-------------------|--------------------|---------------------|
| 2                 | <b>Hori_Start</b>  | Hor_Str             |
| 3                 | <b>Hori_Width</b>  | Hor_Width           |
| 4                 | <b>Vert_Start</b>  | Vert_Str            |
| 5                 | <b>Vert_Height</b> | Vert_Height         |

The start coordinates (0, 0) of **LVP602S** output image is defined in the right\_top of 1024×768 pixels output area.

Set the four setup items as listed in above table as per the size of current LED screen (pixels) and start position of the input image that LED displays. Press “↑” or “↓” to select setup item, press “←” or “→” to increase or decrease the values of current item. Press “**Enter**” to save the settings.

#### 4. Brightness / Color

##### No.7 setup item: “**Brightness**”

**LVP602S** supports 32 levels Brightness, “0” represents the lowest brightness, 64 represents the highest brightness.

Press “←” or “→” to increase or decrease the values of brightness. Press “**Enter**” to save the settings.

To ensure full gray level of output image, normally the output brightness is set as **50** !

##### No.8 Item: “**Color**”

For V1, V2, DP, YPbPr and HDMI video input source, **LVP602S** can set color saturation ranging between 32-64. The lower this value is, the weaker the color looks; the higher this value is, the stronger the color looks. Press “←” or “→” to increase or decrease the values of color saturation. Press “**Enter**” to save the settings.

Normally the value of color saturation is set as **50** !

## 5. Input image setup

Items 9-12 are the menus for multiple machine to work together in parallel, they don't apply to LVP602S.

| Items No. | Item Name           |
|-----------|---------------------|
| 9         | <i>Input_Width</i>  |
| 10        | <i>Input_Height</i> |
| 11        | <i>Hori_In_Str</i>  |
| 12        | <i>Vert_In_Str</i>  |

## 6. Audio configurations

LVP602S supports 5-channel stereo audio switch. Of which, 3 channels are DisplayPort, HDMI and SDI audio, the other 2 channels are AD1, AD2 external input audio. AD1 and AD2 can be mapped to the corresponding audio input of any input among all video inputs, and will be switched synchronous to the selection of video input signals.

If HDMI (or DP, SDI) is configured with external input audio, when you switch it, external input audio will be selected, otherwise the audio signals contained in **HDMI (or DP, SDI)** will selected as input.

### Item 13: “ **AD1 audio configurations** ”

Press “ ← ” or “ → ” to select 1 channel of video input signals from all input signals, map AD1 external input as audio input signals to the video signals in this channel, then press “ Enter ” to save the settings.

### Item 14: “ **AD2 audio configurations** ”

Press “ ← ” or “ → ” to select 1 channel of video input signals from all input signals, map **AD2** external input as audio input signals to the video signals in this channel, then press “ **Enter** ” to save the settings.

**Note: AD1, AD2 can't be mapped to the video input signals in the same channel.**

## 7. Exit setup

### Item 15: “Exit setup ”

Press “ ↓ ” to move to the last option “exit setup”, press “ ← ” or

“ → ” to select “YES”, press “Enter” to exit setup.

Press “Setup” while in any setup mode, the system will directly skip to item 15.

## **8. Factory settings**

The following are settings made in factory area, improper settings or improper operations in this area may result in malfunction of the processor, we recommend users to make these operate following the directions of technicians of manufacturers.

### **Item 16: “Reset ”**

When the system skips to item 15 from item 14, press “V1” for 5 times, then press “ ↓ ” to move to item 16 “Reset”, press “ ← ” or “ → ” to select “YES”, press “Enter”, the processor will resume default settings which were made in factory, and the system will remind you “***please shut off / power on again***”, please operate following the indications.

### **Item 17: “Bias”**

In order to reduce the noise of screen, LED large screen system usually removes low-scale noise, but this will results in loss of image information, especially those dark pictures like night views.

LVP602S can make corrections by adjusting “**Bias**”, the limit value ranges between 32-64. In the event signals of dark screen are missing, increase this value, the missing information will appear on large LED screen.

In order to ensure complete output gray, the standard value is set to be 50!

### **Item 18: “Auto ADC”**

The processor without calibrating white balance may suffer color cast or low brightness when it is connected with analog signals. LVP602S can automatically adjust white balance based on the analog signals input (including AV, **YPbPr** and **VGA**) to solve the above problems. The procedures of “**Auto ADC**” are as below:

Shift to corresponding analog input signals, when the processor detects input signals and output it to display, enter the item 18 option of setup menu, press “ ← ” or “ → ” to select “YES”, press “Enter”, the processor will calibrate white balance.

**Note:** as processor has calibrated white balance using standard

signals in the factory, please don't use the function of this option unless necessary.

## V. Specifications

| Inputs                          |  |                                |
|---------------------------------|--|--------------------------------|
| Numbs/Type                      | 2×composite video<br>1×DP(Display Port)<br>1×YPbPr<br>1×VGA (RGBHV)<br>1×DVI<br>1×HDMI<br>1×SDI ( HDSDI )                  |                                |
| Video system                    | PAL/NTSC   |                                |
| Composite Video Scope/Impedance | 1V (p_p) / 75Ω   |                                |
| VGA Format                      | PC (VESA)   ≤1600x1200 @60HZ   |                                |
| VGA Scope/Impedance             | R、G、B = 0.7 V (p_p) / 75Ω  |                                |
| DVI Format                      | SD/HD(EIA-861B)  | ≤1920x1080P @60HZ              |
|                                 | PC(VESA)   | ≤1600x1200 @60HZ               |
| HDMI Format ( HDCP )            | SD/HD(EIA-861B)  | ≤1920x1080P @60HZ              |
|                                 | PC(VESA)   | ≤1600x1200 @60HZ               |
| DP Format                       | SD/HD(EIA-861B)  | ≤1920x1080P @60HZ              |
|                                 | PC(VESA)   | ≤1600x1200 @60HZ               |
| YPbPr Format                    | SD/HD(EIA-861B)  | ≤1920x1080P @60HZ              |
| YPbPr Scope/Impedance           | Y= -0.3V ~ +0.7V (p_p) / 75Ω<br>Pb= -0.35V ~ +0.35V (p_p) / 75Ω<br>Pr= -0.35V ~ +0.35V (p_p) / 75Ω                         |                                |
| SDI Format                      | SDI-SMPTE 259M-C   | 576i @50HZ<br>480i @60HZ       |
| HDSDI Format                    | HDSDI-SMPTE 292M<br>SMPTE 274M/296M  | 1080i @50HZ/60HZ<br>720P @60HZ |
| Input Connectors                | VGA: 15pin D_Sub(Female)<br>DVI: 24+1 DVI_D<br>YPbPr: BNC×3<br>Composite video: BNC<br>D/P: Display Port<br>SDI/HDSDI: BNC |                                |
| Outputs                         |  |                                |
| Nums/Type                       | 1×VGA ( RGBHV)<br>2×DVI  |                                |
| VGA/DVI Format                  | 1024×768@60Hz/75Hz   |                                |

|                     |  |
|---------------------|--|
|                     | 1280×1024@60Hz/75Hz<br>1600×1200@60Hz<br>1920×1080p@50Hz/60Hz            |
| VGA Scope/Impedance | R、G、B = 0.7 V (p_p) / 75Ω  |
| Output Connectors   | VGA: 15pin D_Sub(female)<br>DVI OUT1: 24+5 DVI_I<br>DVI OUT2: 24+1 DVI_D |
| Others              |  |
| Control             | Panel Button   |
| Power               | 100-240VAC 60W 50/60Hz   |
| Operating Temp      | 5-40 °C  |
| Humidity            | 15-85%   |
| Size                | 155 mm (high) ×350mm (wide) ×<br>485mm (length)                          |
| Weight              | 5.6 Kg   |
|                     |  |

## **VI. Notes to model**

**LVP602S:** with **SDI / HDSDI** input interface.

**LVP602:** without **SDI / HDSDI** input interface. So all instructions regarding **SDI、HDSDI** in above don't apply to **LVP602!**