灰度科技
HUIDU TECHNOLOGY

Operation Manual

LED Video Processor-HDP601

V1.0 20190903

Safety instructions

This symbol alerts the user to important operating and maintenance instructions in the equipment user manual.

This symbol warns the user that there are dangerous voltages exposed in the equipment cabinet, and there is a danger of electric shock.

Note

Read the instructions • Users must read and understand all safety and use instructions before using the device.
Keeping the manual • The user should keep the safety manual for future use.
Observe warnings • Users should follow all safety and operating instructions on the product and user guide.
Avoid add-ons • Do not use tools or add-on equipment not recommended by the product manufacturer to avoid danger.

Caveat

Power supply • Use only the power source marked on the product. The equipment must be powered by a grounded power supply system. The third line (ground) is a safety facility and cannot be left out or skipped.
Unplugging the power • To safely remove power from the device, unplug the power cords from all devices or desktop power supplies, or any power cords connected to the mains system.
Power cord protection • Proper wiring to avoid being walked on or pinched by heavy objects.
Maintenance • All repairs must be performed by a certified service person. There are no user-replaceable parts inside the device. To avoid the risk of electric shock, do not attempt to open the cover of the device to repair the device yourself.
Ventilation holes • Some equipment enclosures have ventilation slots or holes to prevent overheating of sensitive components inside the machine. Do not block the ventilation holes with anything.

Table of Contents

Chapter 1 Overview

HDP-601 LED video processor supports digital high-definition input, analog high-definition input, analog standard-definition input, and HDMI audio input.
The video input formats supported by the LED video processor are listed below:
DVI input Support VESA standard, up to 1920x1200 @ 60Hz
HDMI input 480i / p 676i / p 720p 1080i / p color depth 8/10/12 bit
VGA input Support VESA standard, up to 1920x1200 @ 60Hz
Composite video input PAL, NTSC, PAL-M / N, SECAM
Output format:
DVI output up to 1920x1280 @ 60Hz
VGA output up to 1920x1280 @ 60Hz
Analog audio output

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1. Features

Multiple video inputs—The video processor uses 6 video inputs, including 1 CVBS and 1 SDI (optional), 1 VGA, 1 DVI, 1 HDMI, and 1 USB (1 of 2). The needs of civil and industrial applications have been basically covered. All video inputs can be switched with fast cut and fade in and fade out effects.

1 channel audio and video synchronization—1 channel HDMI audio and video, audio and video synchronization can be achieved when switching videos.

Practical video output interface—The processor has 2 programmable video outputs. Using 2 DVI output interfaces. These 2 videos are programmed and output to the LED sending card or display.

Seamless switching of any channel—The video processor The video processor can also seamlessly switch between any channels. The switching time is adjustable from 0 to 1.5 seconds. Use the fade-in and fade-out switching effect to switch the input channel smoothly to the second screen. With fast switching, you can switch video output instantly when switching input channels.

Rich output resolution—The video processor has designed multiple practical output resolutions for users, the widest of which is 1920 points and the highest of 1280 points, which is suitable for various dot matrix display screens. Up to 10 kinds of output resolutions are available for users to choose, and can be adjusted to point-to-point output.

Signal source hot backup—The signal source hot backup can prevent the main screen input source from causing a black screen on the LED display. When the main channel input source fails, it will automatically switch to the backup channel input source.

Support one-button black screen-black screen is an indispensable operation during the performance. When the image output needs to be turned off during the performance, the black screen key can be used to achieve a fast black screen.

Support picture freeze—During playback, you may need to freeze the current picture to achieve a "pause" picture. When the picture is frozen, the operator can also change the current input selection or change the line, etc. to avoid background operations affecting the performance.

Quickly switch between partial and full screens—The video processor has simple and

practical operations for capturing partial screens and full screens. Any input channel can independently set different capture effects, and each channel can still switch seamlessly. The user can arbitrarily set the size and position of the part of the current channel, while the other channels do not change the method. When switching, some channels or full-screen functions are implemented between each channel.

Preset recall function—The video processor adopts 10 groups of user presets. Each group of user presets can store all user settings parameters.

Use the Mode shortcut to quickly recall presets. It can realize parameter backup and fast on-site call.

30-bit image lossless scaling technology—The video processor uses a dual-core image processing engine. A single core can handle 30-bit image scaling technology, which can output from 64 to 2560 pixels, and at the same time can achieve 10 times the image magnification output, that is, the maximum picture. Up to 25600.

Adopt unique brightness adjustment technology—the built-in brightness adjustment function of the video processor solves the situation that the gradation is lost after reducing the brightness, making the color reproduction more realistic.

Set-and-save technology-set-and-save technology solves the user's tedious setting and manual storage process, that is, the user does not need to implement manual saving operation after adjusting or adjusting parameters. The video processor automatically saves user parameters in EEPROM, even if after power-off, the parameters before power-off remain in the device.

ACC ACM image filtering—The video processor uses the ACC and ACM image filtering engines. When processing each bit of color, the non-linear filtering effect can minimize the image loss rate and restore color authenticity.

Support host computer control-you can use the computer's RS232 interface to connect to the video processor. Use the host computer software to set the output resolution, audio switching, brightness, switching signal source, etc.

Chapter 2 Panel

1.1. rear panel

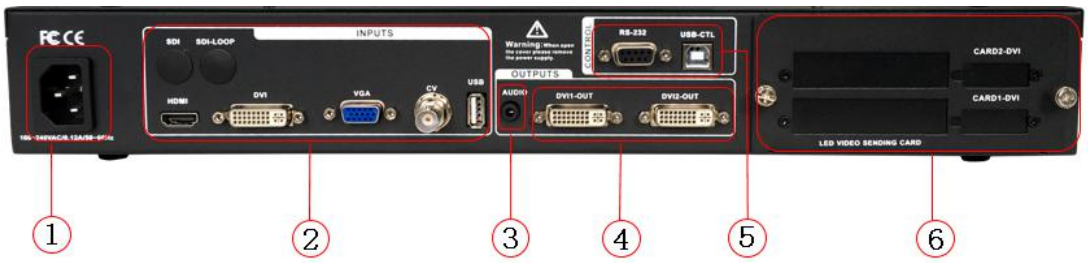


Figure 1—The rear panel of the video processor

AC power input — Connect the video processor with an IEC standard power cable. The input power is 100-240 VAC, 50-60Hz.

Video input — The processor can receive digital video signals, analog video signals, composite video signals, and USB playback inputs. The following are the input standards for each interface.

● CV composite video input, using BNC interface, input video supports PAL, PAL-M / N, NTSC, SECAM system. Can connect DVD player and video camera.

● DVI digital video input, using DVI-I standard interface, can use DVI-I or DVI-D connection cable, video input format supports VESA standard.

● HDMI high-definition video input, using HDMI-A standard interface, input video supports HDMI1.3 standard and VESA standard. Commonly used to connect desktop computers and HDMI HD players.

● VGA video input, using DB-25 standard interface, input video supports VESA standard, used to connect desktop computers, laptops or other VGA video output devices.

● USB playback input, (1 of 2) Video standard: 1280x720 @ 60Hz (rm, rmvb, mp4, mov, mkv, wmv, avi, 3gp);

Picture standards: jpg, jpeg, png, bmp.

● SDI digital video input, SDI-LOOP, SDI signal loop out, using BNC interface, input video supports HD cameras, etc.

Audio interface — The audio and video synchronization processor uses one HDMI digital audio input and one analog audio output.

Video Output — Processor-programmed video output interface

● DVI video output, using DVI-I connector, the output video format is set by the processor, two DVI output the same signal at the same time. Commonly used to connect to LED sending cards or monitors.

RS-232 — Serial communication connector, used for engineering test, program burning, and software control of the host computer. The communication baud rate is 115200bps.

LED sending card — Reserved LED sending card installation position, can install 1 or 2 sending cards. When installing, the user can first remove the back cover and the small baffle, and install it fixedly. Two 5V power connectors and 2.0x4PIN connectors are reserved inside. After installation, plug in a 5V power supply.

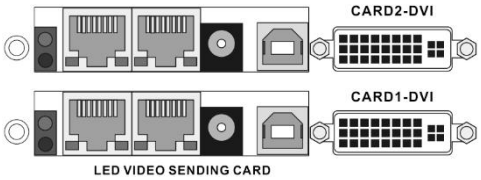


Figure 2—LED sending card

2.Front panel 前面板

Figure 3—Processor front panel

USB input

LCD display — displays menus and current information.

Menu operation key — The menu operation key area contains the "back key" and the knob "confirm and adjust". The following is the meaning and usage of each key:

- key, menu exit key, or return to the previous menu.
- Turn the knob. Press the OK key to enter the menu or the next menu key to confirm the function. Rotate left and right for + "plus"-"minus" operation, you can adjust the menu position or adjust the parameter value to become smaller.

Input selection — All 6-channel input switching keys are included in the INPUT keypad.

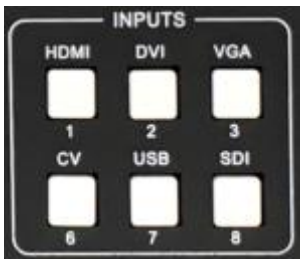


Figure 4—INPUT keypad

- CV key, corresponding to the CV video input interface on the rear panel.
- VGA key, corresponding to the VGA video input interface on the rear panel.
- The DVI and HDMI keys correspond to the DVI and HDMI video input ports on the rear panel, respectively.
- USB key, corresponding to the USB input interface on the front panel or rear panel.
- SDI button, corresponding to the SDI video input interface on the rear panel.

Function keypad — The function keypad contains on-screen display modes, preset recalls, black screens, and output shortcut keys for quick operation of various functions. 。

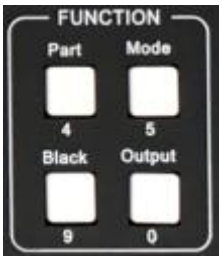


Figure 5—Function keypad

- Part key, part of the screen display mode. After the user has set the capture parameters of the partial screen in the function menu, press this key to display the partial screen effect. Detailed operations are described in the following sections.
- Mode key, preset scene loading shortcuts. Press this key in the default menu state to call up the preset scene list, and then use the menu function key to call up the preset scene. The saving and recalling of preset scenes will be introduced in detail in the following chapters.
- Black key, black screen with one key.
- Output key, press this key to quickly enter the output setting interface.

AC switch — Front AC power switch.

Chapter 3 Menu System

1. Menu structure diagram

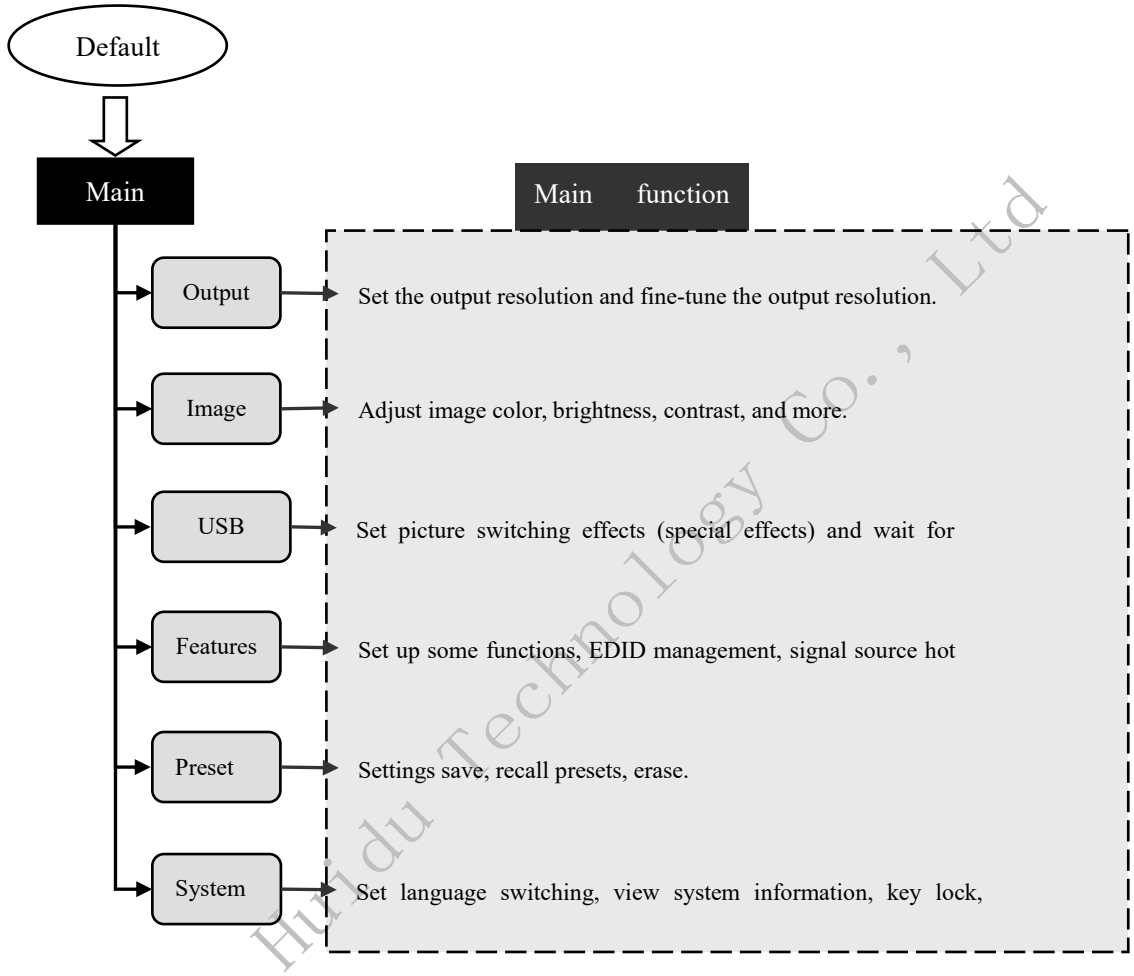


Figure 6 Processor main menu structure diagram

2. Menu operation

The operation keys of the menu mainly include the "back key" and the OK "confirm" key.
The man-machine interface is an LCD screen.
The startup process of the device is as follows:

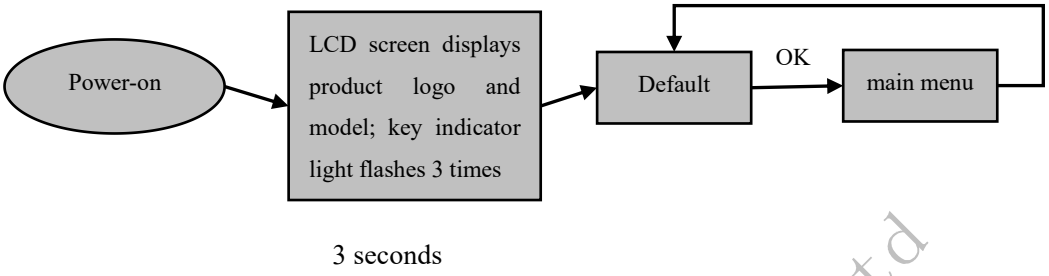


Figure 7-Processor booting and entering the main menu

3. Default menu

he default menu is the interface of the LCD screen after the device is started, which shows the input signal source, the connection status of the input signal source, output resolution, brightness, output audio volume, and screen display mode.
In the default menu, all input selection keys and function keys are available.

Figure 8-Default menu

4. main menu

The main menu is an important operation interface for user parameter adjustment. Almost all settings can be completed under the main menu. The operation and setting of each function will be described in detail in the following sections.

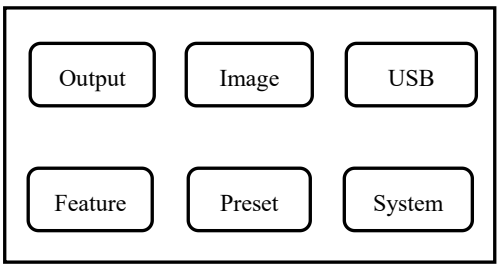


Figure 9- Main menu

Chapter 4 Setup and Operation

1. Language

Before using the LED video processor, make sure the language is suitable for your use. If not, please follow the steps below to complete the setting. as follows

Default menu → Main menu → System → Language

The above is the menu operation path. Enter the language setting menu and select the language.

2. Reset

When using the LED video processor, you may enter the menu to reset the whole machine when some parameters may be set incorrectly or the problem may not be confirmed. The following is the reset operation process of the whole machine.

Default menu → Main menu → System → Factory reset → Reset

After the reset is completed, all user parameters are restored to the factory state. Please use it with caution.。

3. Output resolution

When using different resolution display screens or LED screens, to achieve point-to-point output, it is necessary to set the output resolution and the precise adjustment of the resolution.

（1）First select a resolution larger than the display

Default menu → Main menu → Output → Output resolution → Confirm

（2）Adjust the output resolution precisely

Common resolution → **Horizontal width**
Vertical height
Horizontal start
Vertical start

Tip: After the user resets the output resolution, the system will reset all parameters of the output menu to ensure data consistency. The user-adjusted resolution can only be smaller than the currently selected resolution. When the precisely adjusted resolution is equal to the currently selected resolution, the

4. Black screen and picture freeze settings

Black screen settings

Black screen settings

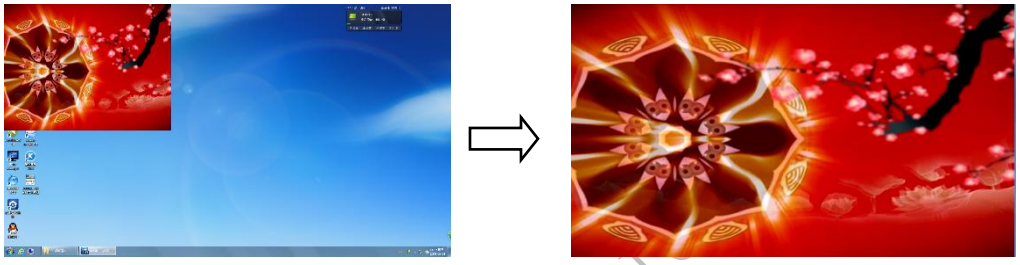
Method one: Operation key Black, one key black screen.

Method two: default menu → main menu → functions → black screen / freeze key → black screen

Picture freeze settings, default menu → main menu → functions → black screen / freeze key → freeze

5. Capture part of the screen

The function of capturing part of the picture is an extension of the function of unequal stitching. In actual use, it may be used to capture a part of the screen display, showing only a part of the input channel. For example, the Windows operation interface, the user only needs to display the video playback window, and the rest is displayed in full screen. Press the PART key to enable some functions, as shown in the figure below.



Full screen effect　　Part key effect

Figure 10- Schematic of screenshot

If you want to set the interception parameters manually, the setting method is as follows:

Default menu → Main menu → Features → Partial functions → On
Default menu → Main menu → Functions → Partial functions → Partial mode → User
Default menu → main menu → functions → Partial functions → horizontal width (user-defined)
Default menu → Main menu → Features → Partial functions → Vertical width (user-defined)
Default menu → main menu → functions → Partial functions → horizontal start (user-defined)
Default menu → main menu → functions → Partial functions → vertical start (user-defined)

6. Recall of preset scenes

The preset mode is convenient for the user to quickly call up various commonly used application scenarios during use, reducing the user's repeated and complicated settings during operation, and improving work efficiency. Each preset mode includes various parameters such as signal channel mode, display mode, and picture quality settings. The processor provides 10 sets of preset storage space. The following describes the save and recall operations of the preset mode.

1）Save the current preset scene

After the user has adjusted all the parameters, to enter the current preset scene, do as follows

Default menu → Main menu → Preset → Save → Preset [1] → Confirm

There are preset [1] to preset [10] in the submenu of the save mode, and 10 storage spaces can be selected by the user. When the storage space is empty, the status on the right is displayed as ☆,and when the parameters have been stored, the status on the right is displayed as ★. Users can also save overwrites.

2）Recalling a preset scene

There are two operation modes for calling preset parameters, shortcut key call and menu call

Method 1: Use the Mode key to invoke the operation

1. In the default menu state, first press the Mode key to enter the preset scene recall menu.

2. Use the knob to select the saved preset scene and press OK to confirm.

Method 2: Use the menu to call the preset scene

Default menu → Main menu → Preset → Read template → Preset [1] → Confirm

7. Signal source hot backup

The hot backup of the signal source can prevent the black screen from causing a problem with the input source of the main channel, and automatically switch to the input source of the backup channel when there is a problem with the main channel input source. The settings are as follows:

Default menu → Main menu → Functions → Signal source hot backup → Select backup input source

8. Adjust brightness and contrast

The processor's unique brightness contrast adjustment technology, the color reproduction is high after adjusting the brightness, and the picture level is not lost. When adjusting the brightness, it is best to adjust the brightness and contrast to ensure perfect output. as follows

Enter image menu to set brightness and contrast

Default menu → Main menu → Image → Brightness → 50

Default menu → Main menu → Image → Contrast → 50

9. Use of key lock

The key lock function is to prevent users from misoperation or accidental touch by others in a complex environment, leading to field errors. Improve the success rate of performances.

Key lock

Go to the system menu to enable the key lock function

Default menu → Main menu → System → Key lock → On

Unlock

Press the knob for 5 seconds, and the processor will unlock automatically.

10. VGA input image correction

In general, when switching to a VGA input signal source, the processor will automatically correct the color, image size and position of the input source. If the processor is not automatically calibrated successfully, the user can implement manual calibration.

Switch to VGA input and enter the menu

Default menu → Main menu → Features → VGA settings → Automatic correction

If automatic calibration is unsuccessful, users can try manual calibration

Default menu → Main menu → Features → VGA settings → Horizontal position

Default menu → Main menu → Features → VGA settings → Vertical position

Default menu → Main menu → Features → VGA settings → Horizontal clock

Default Menu → Main Menu → Features → VGA Settings → Clock Phase

Tip: When there is no VGA signal input, the system prompts that it cannot be