

MVP601-D

[用户手册]

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[使用本 LED 视频处理器之前，请先仔细阅读此使用说明书并将妥善保存以备日后参考
Before using this LED Video processor , please read this manual carefully and
preserved for reference in the future.]

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安全须知



这个符号提示用户，该设备用户手册中有重要的操作和维护说明。



这个符号警告用户该设备机壳内有暴露的危险电压，有触电危险。

注意

阅读说明书 • 用户使用该设备前必须阅读并理解所有安全和使用说明。

保存说明书 • 用户应保存安全说明书以备将来使用。

遵守警告 • 用户应遵守产品和用户指南上的所有安全和操作说明。

避免追加 • 不要使用该产品厂商没有推荐的工具或追加设备，以避免危险。

警告

电源 • 该设备只能使用产品上标明的电源。设备必须使用有地线的供电系统供电。第三条线（地线）是安全设施，不能不用或跳过。

拔掉电源 • 为安全地从设备拔掉电源，请拔掉所有设备后或桌面电源的电源线，或任何接到市电系统的电源线。

电源线保护 • 妥善布线，避免被踩踏，或重物挤压。

维护 • 所有维修必须由认证的维修人员进行。设备内部没有用户可以更换的零件。为避免出现触电危险不要自己试图打开设备盖子维修该设备。

通风孔 • 有些设备机壳上有通风槽或孔，它们是用来防止机内敏感元件过热。不要用任何东西挡住通风孔。

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VGA 和 XGA 是 IBM 公司的注册商标。

VESA 是视频电子标准协会的商标。

HDMI 标志以及 High-Definition Multimedia Interface (高清多媒体数字接口)都是 HDMI Licensing LLC 的商标。

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产品简介

本手册涵盖几个相近型号使用说明，包含如何使用、安装和配置 LED 视频处理器，另外，内容还涉及到 LED 视频处理器与 LED 视频系统的相关知识。用户在使用 LED 视频处理器前，请详细详细阅读本手册。

关于 LED 视频处理器

LED 视频处理器是一款面向中端无缝特效切换市场的视频处理器，它支持数字高清输入、模拟高清输入、模拟标清输入、音频输入，能实现所有通道的音视频同步无缝切换。

下面列出了 LED 视频处理器支持音视频输入格式表：

DVI 输入	支持 VESA 标准，最高 1920x1200@60Hz
HDMI 输入	480i/p 676i/p 720p 1080i/p 色深 8/10/12 位
VGA 输入	支持 VESA 标准，最高 1920x1200@60Hz
复合视频输入	PAL、NTSC、PAL-M/N、SECAM
模拟音频输入	模拟音频信号

输出格式：

DVI 输出	最高 1920x1280@60Hz
模拟音频输出	USB、HDMI 音频输出

LED 视频处理器产品特点

多路视频输入—视频处理器采用 6 路视频输入，其中 1 路 CVBS 和 1 路 SDI、1 路 VGA、1 路 DVI、1 路 HDMI、。基本上已经涵盖了民用和工业用途的需求。所有的视频输入切换并可实现快切和淡入淡出切换效果。

多路音视频同步—3 路音频切换，每路视频可以任意组合相对应的音频（包括 HDMI 音频），设置好音频和视频对应关系后，视频通道自动记忆所对应该的音频，切换视频时可实现音视频同步。

实用的视频输出接口—处理器拥有 2 路可编程的视频输出。采用 2 个 DVI 输出接口。这 2 个视频是经过编程后输出到 LED 发送卡或显示器。

任意通道无缝切换—视频处理器视频处理器还可以在任意通道间实现无缝切换，切换时间从 0~1.5 秒可调。使用淡入淡出切换效果，切换输入通道时，可以使画面平滑切换到第二个画面。使用快速切换，切换输入通道时，可以瞬间切换视频输出。

丰富的输出分辨率—视频处理器为用户设计了多个实用的输出分辨率，最宽的达 1920 点，最高的达 1280 点，适用各种点阵显示屏。多达 10 多种的输出分辨率供用户选择，并可调整到点对点输出。

支持一键黑屏—黑屏在演出过程中是一个必不可少的操作，在演出过程，需要关闭图像输出时，可使用黑屏键实现快速黑屏。

支持画面冻结—在播放的过程，可能需要将当前画面冻结起来，实现“暂停”画面。在画面冻结时，操作员还可以更改当前的输入选择或更改线路等，避免后台操作影响演出效果。

部分与全屏快速切换—视频处理器拥有简单实用的截取部分画面操作和全屏操作，任意一输入通道都能独立设置不同的截取效果，并且各通道依然能实现无缝切换。用户可以任意设置当前通道截取部分画面的大小和位置，而其它通道的截取方式不变。切换时，其各通道之间实现部份画面或全屏画面功能跟随。

预设调用功能—视频处理器采用 10 组用户预设，每组用户预设可以储存所有的用户设置参数，使用 **MODE** 快捷键可以快速将预设调出。可以实现参数备份及现场快速调用功能。

30 位图像无损缩放技术—视频处理器采用了双核心图像处理引擎，单个核心可以处理 30 位图像缩放技术，可实现从 64~2560 像素输出，同时可实现 10 倍的图像放大输出，即最大画面达 25600。

采用独特的亮度调整技术—视频处理器内置特有的亮度调节功能，解决了降低亮度后，层次感丢失的情况，使色彩还原度更趋真实。

即设即存技术—即设即存技术解决了用户繁琐的设置和手动储存过程，即用户在调协或调整参数后无需实施人工保存操作，视频处理器自动将用户参数存于 EEPROM 中，即使断电开机后，断电前的参数仍保留在设备中。

ACC ACM 图像滤波—视频处理器使用 ACC 和 ACM 图像滤波引擎，处理每位颜色时，非线性滤波效果可使图像损失率最低，还原色彩真实度。

支持上位机控制—可使用电脑的 RS232 接口连接视频处理器使用上位机软件设置输出分辨率、音频切换、亮度、切换信号源、等……

面板

后面板



图 1—视频处理器后面板

- ① **AC 电源输入** — 使用 IEC 标准电源线连接视频处理器，输入电源为 100-240 VAC，50-60Hz。
- ② **视频输入** — 处理器可接收数字视频信号、模拟视频信号、复合视频信号，下面为各接口的输入标准。
- CV1 复合视频输入，使用 BNC 接口，输入视频支持 PAL、PAL-M/N、NTSC、SECAM 制式。可以连接 DVD 播放器和摄像机等。
 - DVI 数字视频输入，使用 DVI-I 标准接口，可使用 DVI-I 或 DVI-D 连接线，视频输入格式支持 VESA 标准。
 - HDMI 高清视频输入，使用 HDMI-A 标准接口，输入视频支持 HDMI1.3 标准和 VESA 标准。常用于连接台式电脑和 HDMI 高清播放器。
 - VGA 视频输入，使用 DB-25 标准接口，输入视频支持 VESA 标准，用于连接台式电脑，笔记本或其它 VGA 视频输出设备。
- ※③ **音频接口** — 可以将 USB、HDMI 的音频同步输出。
- ④ **视频输出** — 处理器编程视频输出接口
- DVI 视频输出，采用 DVI-I 连接器，输出的视频格式由处理器设置，两路 DVI 同时输出相同的信号。常用来连接到 LED 发送卡或监视器。
- ⑤ **RS-232 /USB**— 串行通信连接器，用于工程测试、程序烧录、上位机软件控制，通信波特率为 9600bps。
- ⑥ **LED 发送卡** — 预留的 LED 发送卡安装位置，可安装 1 个或 2 个发送卡。安装时，用户可先把扭开抽屉的螺丝把抽屉拉出来，固定发送卡。内部预留了 2 个 5V 的电源接头，2.0x4PIN 接头。安装后插上 5V 电源即可。

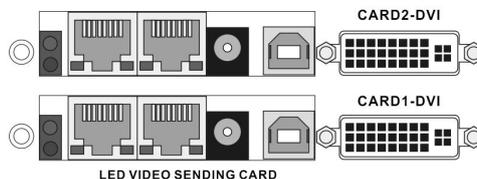


图 2—LED 发送卡

前面板

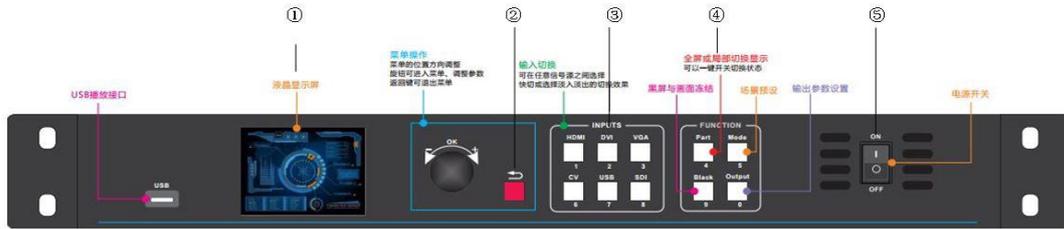


图 4—处理器前面板

① LCD 显示屏 — 显示菜单和当前信息。

② 菜单操作键 — 菜单操作键区包含  “返回键”，旋钮“确认及调整”。下面是关于各按键的含义和使用方式：

●  键，菜单退出键，或返回上一级菜单。

● 旋钮，按下为 OK 键，进入菜单或下一级菜单键，确认功能。左右旋转为 + “加” - “减”操作，可以调整菜单位置或调整参数值变小。

③ 输入选择 — 在 INPUT 按键区内，包含了所有 6 通道的输入切换键、VGA 自动校正功能键。该键区内的按键指示灯有 3 种状态，分别是：

按键指示灯慢闪： 闪烁间隔约为 1 秒，并一直处于闪烁状态，表示当前所切换的通道无信号。

按键灯快速闪烁： 当按下按键时，按键指示快速闪烁时间约为 0.3 秒，当前表示设备正在检测和解码输入视频。

按键指示灯常亮： 表示当前通道信号连接正常或当前功能处于工作状态。下面是输入键区内各按键的功能详细的描述

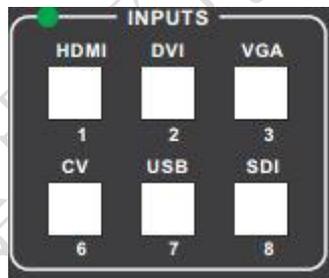


图 5—INPUT 键区

● CV 复合视频切换键。

● VGA 键，VGA 输入切换键和自动校正键（AUTO 功能）。当输入通道为 VGA 时，重复按下 VGA 键，视频处理器会校正当前 VGA 通道，使画面输出正常。

● DVI、HDMI 键，分别对应后面板的 DVI、HDMI 视频输入接口。

● USB 键，对应正面/背面面板的 USB 输入接口。

● SDI 键，对应机后面板的 SDI 输入接口。

④ 功能键区 — 功能键区包含了屏显模式、预设调用、画中画和切换效果操作键可快速实现各功能的操作。

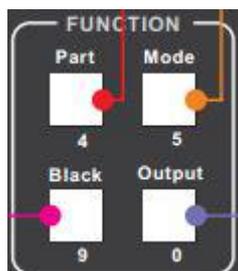


图 6—功能键区

- PART 键，部分画面显示模式/全屏显示模式，用户在拼接菜单中设置好部分画面的截取参数后，按下该键即可显示部分画面效果。在下面章节中有详细的操作描述。
 - MODE 键，预设场景加载快捷键。在默认菜单状态下按下该键，可调出预设场景列表，再配合菜单功能键可调出预设场景。关于预设场景的保存和调用，在下面的章节会有详细的介绍。
 - Black 键，黑场/冻结画面功能。
 - Output 键，可快速进入输出分辨率设置。
- ⑤ AC 开关 — 前置的 AC 电源开关。

菜单系统

菜单结构简图

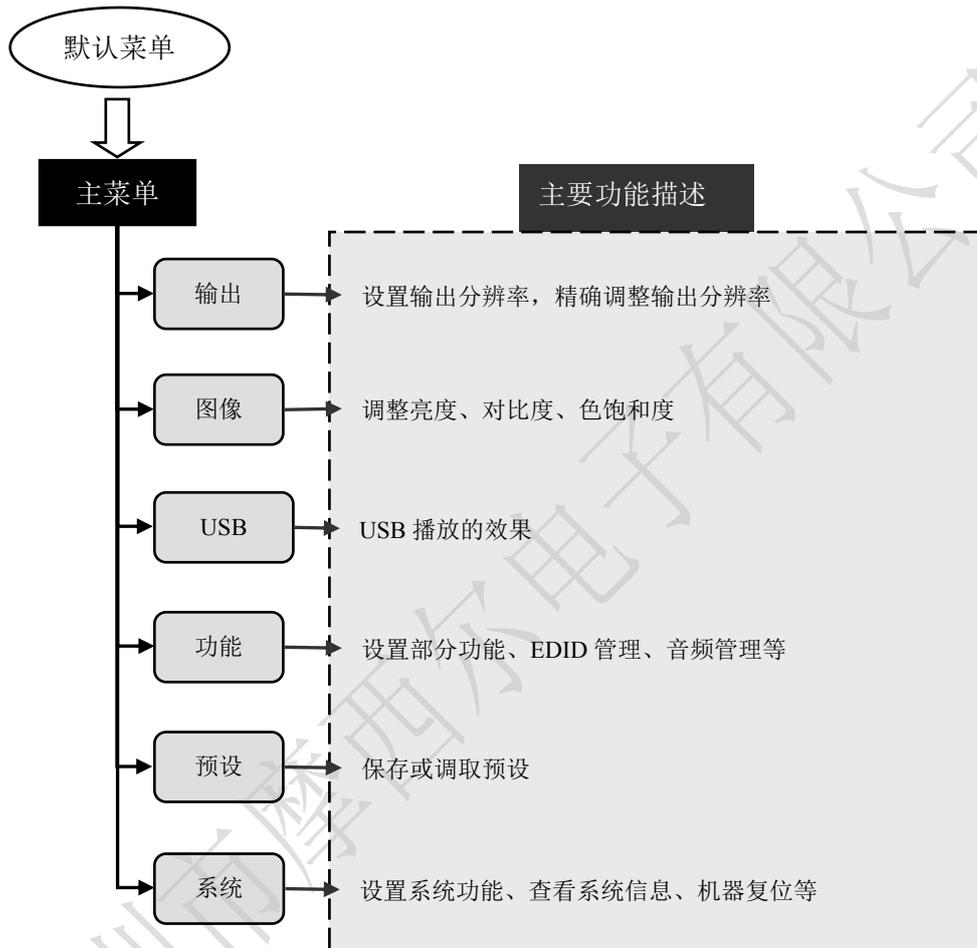


图 7 处理器主菜单结构简图

菜单的操作

菜单的操作键主要有↩“返回键”，OK“确认”键，人机界面为一个128x64的点阵LCD屏。

设备的启动过程如下：

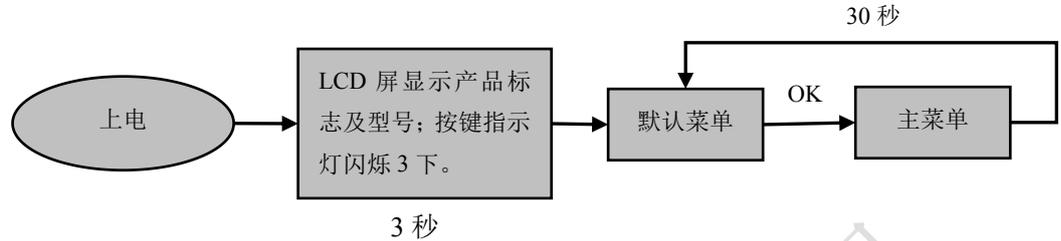


图 7-处理器开机及进入主菜单过程

默认菜单

默认菜单是设备启动后，LCD 屏的界面，上面显示了输入信号源、输入信号源连接状态、输入信号源的连接状态、输出分辨率、拼接模式、亮度、输出音频通道等信息，显示了处理器菜单系统的主要参数。

在默认菜单下，所有的输入选择键和功能键都可以使用。



图 8-默认菜单

主菜单

主菜单是用户参数调整的重要操作界面，几乎所有的设置都可以在主菜单下操作完成。关于各功能的操作和设置在下面的章节会有详细的描述。

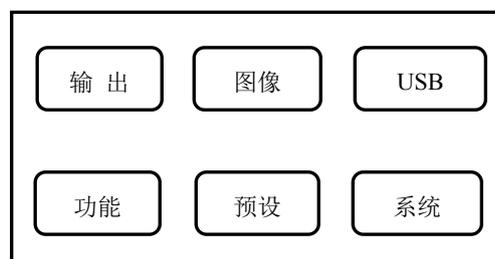


图 9-主菜单

设置及操作

语言

使用 LED 视频处理器前，先确认语言是否符合你的使用，如果不是，请按下面操作完成设置。如下

默认菜单→主菜单→系统→语言

上面是菜单操作路径，进入语言设置菜单使用 OK 键可以选择语言。

复位

使用 LED 视频处理器时，可能由于些参数设置错误或无法确认出现的问题时，可进入菜单中进行整机复位。

下面是整机的复位操作过程。

默认菜单→主菜单→系统→工厂复位→复位确认

复位完成后，所有的用户参数恢复到出厂状态，请用户谨慎使用。

输出分辨率

在使用不同分辨率的显示屏或 LED 屏，要实现点对点输出，必需设置输出分辨率和对分辨率的精确调整。

(1) 先选择一个比显示屏大的分辨率

默认菜单→主菜单→输出→常用分辨率→输出分辨率→确认

(2) 精确调整输出分辨率

常用分辨率→

水平宽度
垂直高度
水平起始
垂直起始

提示：用户重新设置输出分辨率后，系统会复位拼接菜单的所有参数，以保证数据的一致性。用户精确调整的分辨率只能比当前选择的分辨率小，当精确调整的分辨率等于当前选择的分辨率时，水平起始值和垂直起始值无法调整。

黑屏及画面冻结设置

黑屏和画面冻结共用了一个操作键 BLACK，在菜单系统中显示为“黑屏/冻结键”。其设置方式如下

默认菜单→主菜单→功能→黑屏/冻结键功能

设置好后，直接按下 BLACK 键即可实现黑屏或画面冻结。

预设场景保存的调用

预设模式是方便用户在使用时快速地调出常用的各种应用场景，减轻了用户在操作时重复繁杂的设置，提高了工作效率。每一个预设模式都包含了信号通道模式、显示模式、画质设置等各种参数。处理器提供了 10 组预设的保存空间，下面介绍预设模式的保存和调用操作。

保存当前预设场景

当用户调整好所有参数后，要进入保存当前预设场景，按如下操作

默认菜单→主菜单→预设→保存→预设 [1]→确认

在保存模式的子菜单中有预设[1]~预设[10]，10个储存空间，用户可任意选择。储存空间为空时，显示为灰色，当已储存有参数时显示为绿色。

调出预设场景

调出预设参数有两种操作方式，快捷键调用和菜单调用

方法一：使用 MODE 键调用操作

- 1.在默认菜单状态下，先按下 MODE 键进入预设场景调用菜单。
- 2.使用旋钮选择已保存的预设场景，按 OK 键确认。

方法二：使用菜单调用预设场景

默认菜单→主菜单→预设→读取→预设 [1]→确认

擦除预设场景

默认菜单→主菜单→预设→擦除→预设 [1]→确认

信号源热备份操作

信号源热备份，是为了保证大屏其中一个信号源出通信不正常，可以立即切换到备份信号源。详细操作如下：

- (1) 进入信号源热备份操作菜单

默认菜单→主菜单→功能→信号源热备份

- (2) 左边是选定输入源，右边是备份的输入源。

当输入源中断或者出现异常，处理器无法接受到对应的输入信号，就会自动切换到备份的输入源。

调整亮度和对比度

处理器独有的亮度对比度调整技术，调整亮度后色彩还原度高，画面层次不损失。调整亮度时，最好是亮度和对比度配合调节，保证输出效果完美。如下

进入图像菜单设置亮度和对比度

默认菜单→主菜单→图像→亮度→50

默认菜单→主菜单→图像→对比度→50

按键锁的使用

按键锁功能，是为用户在复杂的环境中避免误操作或他人误触，导致现场出错。提高演出的成功率。

锁键

到系统菜单中开启锁键功能

默认菜单→主菜单→系统→按键加锁→开

解锁

按 OK 键 5 秒，处理器会自动解锁。

VGA 输入图像校正

一般情况下，切换到 VGA 输入信号源时，处理器会自动校正输入源的色彩、图像大小和位置。如果处理器没有自动校正成功，用户可实施手动校正。

方法一：使用 VGA 键调整

当输入源切换到 VGA 输入时，再次按下 VGA 键，系统会自行校正输入源。

方法二：使用菜单校正

在切换到 VGA 输入状态下，进入菜单

默认菜单→主菜单→功能→VGA 设置→自动校正

如果自动校正不成功，用户可以尝试手动校正

默认菜单→主菜单→功能→VGA 设置→水平位置

默认菜单→主菜单→功能→VGA 设置→垂直位置

默认菜单→主菜单→功能→VGA 设置→水平时钟

默认菜单→主菜单→功能→VGA 设置→时钟相位

※音视频同步设置

视频处理器提供了 6 路视频和 3 路音频，1 路 USB 音频、1 路 HDMI 音频、1 路 SDI 音频。切换信号源同时音频切换到相应的音频输出。

技术参数

DVI 视频输入

输入数量	1
接口形态	DVI-I 插座
信号标准	DVI1.0, HDMI1.3 向下兼容
支持分辨率	VESA 标准, PC to 1920x1200, HD to 1080p

HDMI 视频输入

输入数量	1
接口形态	HDMI-A
信号标准	HDMI1.3 向下兼容
支持分辨率	VESA 标准, PC to 1920x1200, HD to 1080p

VGA 视频输入

输入数量	1
接口形态	DB15 插座
信号标准	R、G、B、Hsync、Vsync:0 to 1Vpp±3dB (0.7V Video+0.3v Sync) 75 ohm black level: 300mV Sync-tip: 0V

支持分辨率	VESA 标准, PC to 1920x1200	
※ SDI 视频输入(选配)		
输入数量	1	
接口形态	BNC	
信号标准	SD/HD/3G-SDI	
支持分辨率	1080p 60/50/30/25/24/25(PsF)/24(PsF)720p 60/50/25/24 1080i 1035i 625/525 line	
复合视频输入 (CVBS)		
输入数量	4	
接口形态	BNC	
信号标准	PAL/NTSC 1Vpp±3db (0.7V Video+0.3v Sync) 75 ohm	
支持分辨率	480i,576i	
※音频输入		
输入数量	2 x 2	
接口形态	RCA	
信号标准	模拟音频	
※音频输出		
输出数量	1	
接口形态	3.5mm	
信号标准	模拟音频	
DVI/VGA 视频输出		
输出数量	2 DVI	
接口形态	DVI-I 插座, DB15 插座	
信号标准	DVI 标准: DVI1.0	
支持分辨率	1024×768@60Hz	
	1280×720@60Hz	1920×1080@60Hz
	1280×1024@60Hz	1920×1200@60Hz
	1440×900@60Hz	1024×1280@60Hz
	1600×1200@60Hz	1920×1280@60Hz
	1680×1050@60Hz	
整机参数		
重量	3.0kg	
尺寸 (mm)	机箱体尺寸: (长宽高) 253×440×56	
	外包装尺寸: 长宽高=515×110×355	
输入电源	100VAC – 240VAC 50/60Hz	
最大功率	18W	
工作温度	0°C~45°C	
储藏湿度	10%~90%	

Introduction

This manual contains information about how to use, install and configure the LED video processor, in addition, also relates to knowledge LED video processor and LED video systems. Users are LED video processor, please read this manual in detail.

About LED Video Processor

LED video processor is a mid-market seamless handover effects video processor, it supports high definition digital input, analog HD input, analog SD input, audio input. With up to 8 video, three audio inputs, as well as 3-way video in the same format, an audio output, and can achieve all channels seamlessly switch audio and video synchronization.

The following lists the LED video processor supports audio and video input formats table:

DVI input	VESA standard, the maximum 1920x1200 @ 60Hz
HDMI input	480i / p 676i / p 720p 1080i / p 8/10/12 bit color depth
VGA input	VESA standard, the maximum 1920x1200 @ 60Hz
CVBS input	PAL, NTSC, PAL-M / N, SECAM
Analog audio input	analog audio signal

Output formats:

DVI output	any resolution up to 1920x1280 @ 60Hz
Custom resolution output	
Analog audio output	to any channel analog audio signals

Feature

Multi channel video input - LED Video Processor with 6 channel video input, of which 1 CVBS , 1VGA, 1 DVI 1 HDMI 1 3G-SDI 1USB inputs. Basically has covered the civil and industrial use requirements. Video input switching all and can realize the fast cutting and fade switching effect.

Multi video and audio synchronous - LED Video Processor with 8 channel video input, 3 channel audio switching. Each video can be any combination of the corresponding audio (including HDMI audio), the corresponding relation between the set of audio and video, video channel automatic memory to audio.

Seamless switching-LED Video Processor can also seamlessly switch between any channel switching ,The time adjustable from 0 to 1.5 seconds. With a fade transition effect, switch the input channel, so that the screen can be switched smoothly to the second screen. Using fast switching, switching input channels, you can instantly switch the video output.

Full output resolution-LED Video Processor designed for users with useful output resolution, the widest reach 2560 points, the highest of 1920 points, for a variety of dot matrix display. Up to 20 kinds of output resolution for users to choose, and can be adjusted to point output.And it have custom resolution.

Pre-switching technology - pre-switching technology, is switching the input signal is switched to predict in advance whether the input channel signal. This feature reduces the line is disconnected or may be due

to the case of no signal input to switch directly lead to errors, improve the success rate performances.

Support PIP - PIP technology unaltered state in the original image, the other input of the same or different overlay images. LED Video Processor PIP function, not only can be adjusted overlay size, location, borders, etc. You can also use this feature to achieve Picture outside Picture (POP), dual-screen display.

One key black - black screen during a performance is an essential operation, during a performance, you need to close the image output, you can use the black buttons for fast black.

Support Freeze - During playback, you may need to freeze the current picture together to achieve "pause" screen. Freeze the screen, the operator can also change the current input selection or change lines, etc., to avoid background operation affect performance results.

PART and FULL fast switching - LED Video Processor a simple and functional operation of the interception part of the screen and full-screen operation, any one input channel can be independently set different interception effect, and each channel is still able to seamlessly switch. Users can arbitrarily set the current channel interception of part of the screen size and position, and the other channels remain unchanged intercept method. When switching between channels most of its screen or full screen function follow.

Preset -LED Video Processor user presets with 4 groups, each user can store all user default setup parameters, use the LOAD preset shortcut keys you can quickly recall. Can achieve rapid field parameter backup and recall function

Equal and unequal splicing - splicing is LED Video Processor important part, which can be achieved equal splicing and unequal splicing, splicing on greatly satisfy users' needs. On multiple processors to achieve frame synchronization, 0 delay, no tail and other technologies to enable smooth performance perfect. Unequal spliced portion of the output is the same with the picture settings, the user can read the following chapters for instructions.

30bit scaling technology - LED Video Processor using a dual-core image processing engine, a single core can process 30 image scaling technology to achieve pixel output from 64 to 2560, while achieving 10 times the image to enlarge the output, ie, the maximum screen more than 25,600.

Brightness adjustment technology - LED Video Processor unique brightness adjustment function, reduce the brightness solved after layering lost, so that more true color reproduction.

Saved directly technology - Saved directly technology to solve the user's settings and manually save tedious process, that users of co-ordination or adjust parameters without the implementation of artificial save operation, LED Video Processor user parameters automatically stored in EEPROM, even if the power When turned on, the parameters before power remains in the device.

ACC & ACM image filtering - LED Video Processor using ACC and ACM image filtering engine, handling each color, nonlinear filtering effect of the lowest loss rate of the image, restore the color fidelity.

Support the upper RS232 interface control - can use computer to connect processor to use PC software to set the output resolution, brightness, audio switch, switch signal source, etc.....

Panel

Rear Panel

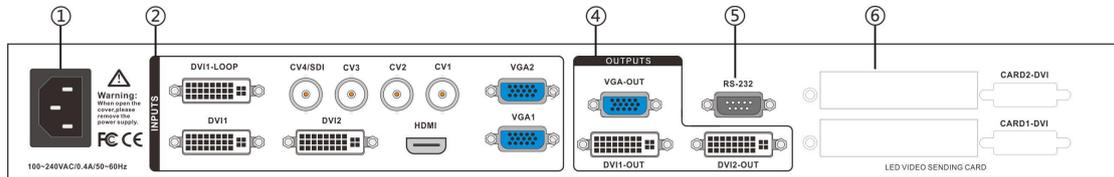


Figure 1-Video processor rear panel

① **AC power input** - using IEC standard power cable video processor, the input power is 100-240 VAC, 50-60Hz.

② **video input** - processor can receive digital video signals, the analog video signal, a CVBS video signal, the following criteria for each input interface.

- CV1, CV2, CV3 , CV4 CVBS video input, BNC connector, input video support PAL, PAL-M / N, NTSC, SECAM formats. You can connect DVD players and camcorders.
- DVI1, DVI2 input, DVI-I standard interface, use the DVI-I or DVI-D cable, the video input format supports VESA standard.
- HDMI HD video input, HDMI-A standard interface, support HDMI1.3 standard video inputs and VESA standards. Used to connect desktop computers and HDMI high-definition player.
- VGA1, VGA2 video input, using the standard DB-25 connector, supports the VESA standard video input for connecting a desktop computer, laptop or other VGA video output device.

③ **Audio Interface** - Processor with -channel analog audio inputs, one analog audio output.

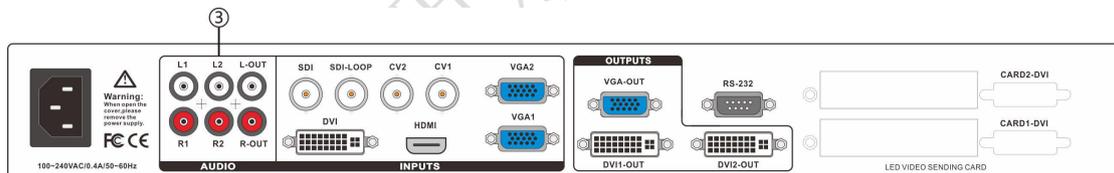


Figure 2—Audio Interface

④ **video output** - video output interface processor programming

- VGA output, using the standard DB-25 connector. DVI output interface with the output video format as used to connect to a monitor.
- DVI output, using the DVI-I connector, the output video format is set by the processor, two DVI outputs the same signal at the same time. Used to send the card or connected to the LED monitor.

⑤ **RS-232** - Serial communication connector for engineering testing, the device is programmed, PC software control, communication baud rate is 115200bps.

⑥ **LED sending card** - LED sending card installation location aside, you can install one or two to send cards. When installed, the user can first open the back cover and the small bracket, mounting, internal set aside four 5V power connector, four 2.0x4PIN connectors. After installing the plug 5V power supply.

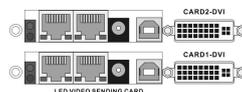


Figure 3-LED sending card

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Front Panel

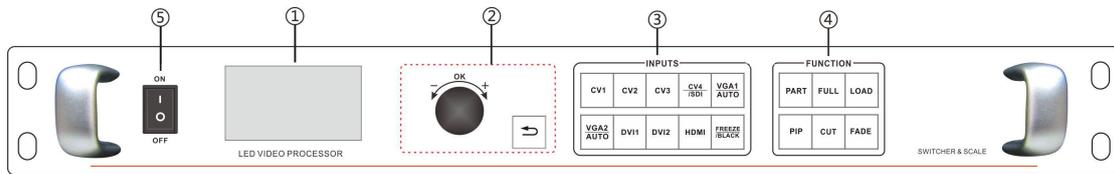


Figure 4-Front Panel

① **LCD display** - Display menu and current information.

② **Menu operation buttons** - Menu operation keypad with "Return key", Knob "confirm and adjust." The following are included on each key.

- ↶ button, Exit key, or return to the previous menu.
- Knob, press the OK button to enter the menu or submenu key to confirm the function. Rotate around + "plus" - "minus" operation, you can adjust the menu position or adjust the parameter value becomes small.

③ **Input Selection** - INPUT button in the region, including all of the input 8-channel switch button, the test pattern, screen freeze, black screen, VGA automatic correction function buttons. button Indicators of the button state in the region there are three kinds, namely:

The button lamp flashes slowly: Flashing interval of about one second, and has been in flashing, indicating that the channel table when no signal switching.

Button light flashes quickly: When you press the button, the button indicating rapid flashing time is about 0.3 seconds, indicates that the device is currently being tested and decodes the input video.

button indicator light: Indicates the current channel signals are connected properly or the current function is active. Here is the Enter button on regional detailed description of the function buttons

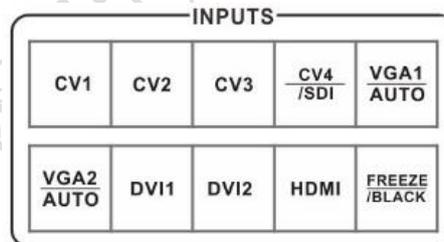


Figure 5- Inputs

- **CV1, CV2, CV3, CV4**, CVBS video switching button.
 - **VGA1, VGA2** button, VGA input switching buttons and automatic correction button (AUTO function). When the input channel for VGA1 or VGA2, repeatedly pressing VGA1 or VGA2 button VGA video processor corrects the current channel, so that the screen output is normal. VGA channel AUTO function: When the input channel for VGA1, and VGA1 have screen output, press VGA1 (AUTO) button, you can recalibrate the current VGA1 signal. VGA2 button also has the same functionality and operation.
 - **DVI1, DVI2**, HDMI bond, respectively, after the corresponding panel DVI1, DVI2, HDMI video inputs.
- ④ **Function button area** - function button area contains a wide mode, preset call, PIP and transition effects operating buttons can quickly achieve operating each function.

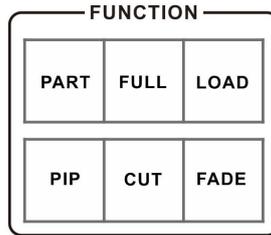


Figure 6—Function

- **PART** button: Part of the screen display mode, the user settings menu, good splicing interception parameters section of the screen, press this button part of the screen to display the results. In the following sections a detailed description of the operation.
- **FULL** button: A full screen mode, by default, all input channels are full-screen mode display mode. When the user wants to set the mode from part to full-screen mode, simply press **FULL** button.
- **LOAD** button: To load preset scenes shortcuts. In the default state, press the **Menu** button to bring up a list of preset scenes, together with the function button menu to bring up the preset scene. Save and recall presets on the scene, in the following sections will be described in detail.
- **PIP** button : to turn on or off the PIP function buttons. User pre-set parameters PIP menu, use the PIP shortcuts to quickly turn on or turn off the PIP function. About PIP's use, in the following sections in detail.
- **CUT** button, **FADE** button : Switching effect, **CUT** for fast cutting effect, **FADE** to fade transition effect. Users when switching input channels can pre-select the transition effect is good press the Enter button.

Tip: When PIP (Picture in Picture) feature to work, you can not use PAT button output test pattern; unusable FREEZE / BLACK button (or black screen freeze function); function and can not be used CUT and FADE function (rapid transition effects and Fade switching effect).

Menu System

Menu Structure

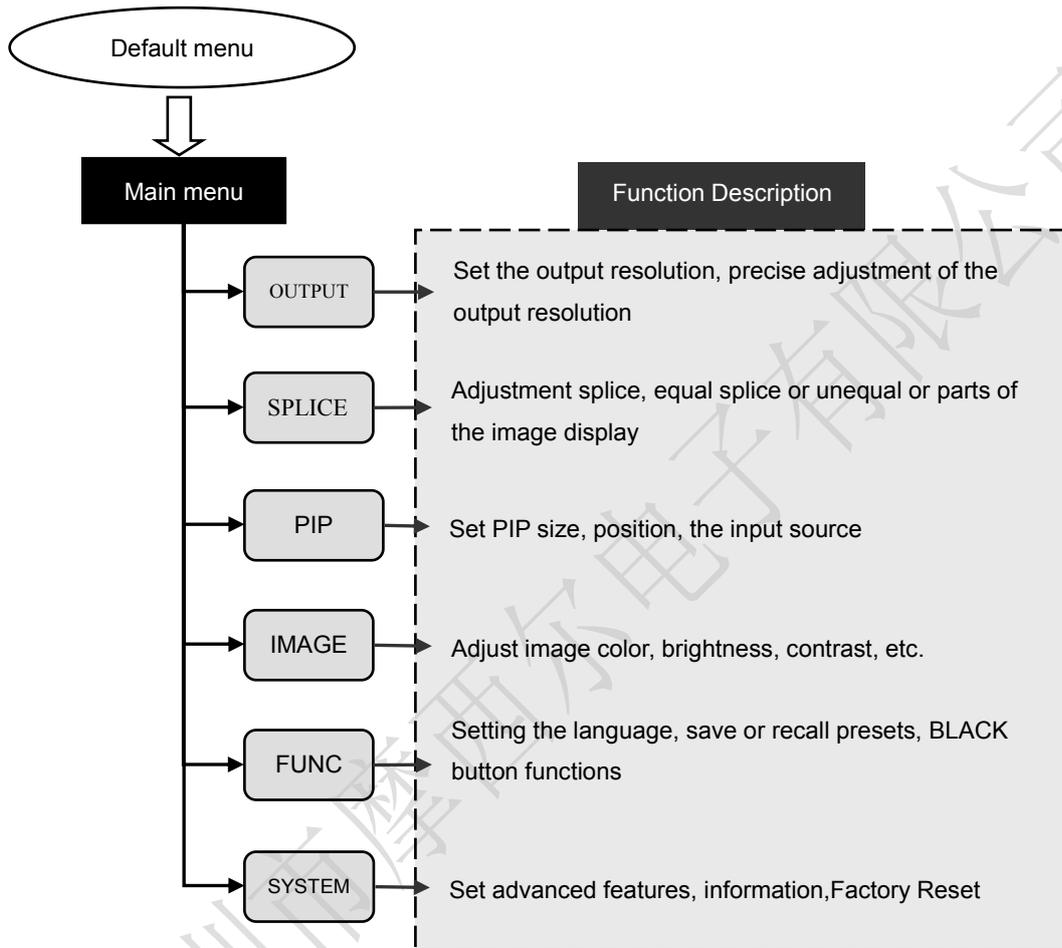


Figure 7 - Main Menu structure diagram

Operation menu

The main menu operation buttons “exist”, knob ,OK the man-machine interface for a 128x64 dot matrix LCD screen.

Boot process equipment is as follows:

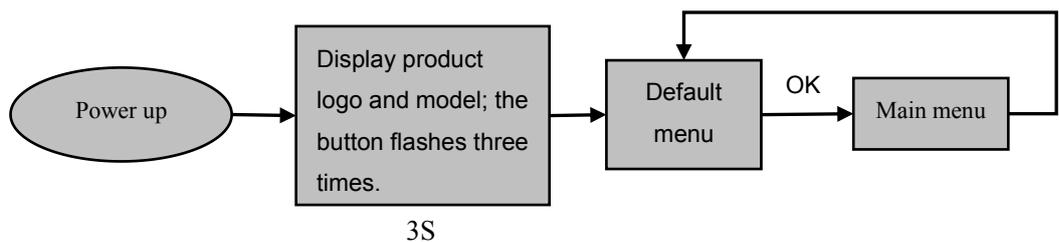


Figure 8- processor boot process and enter the main menu

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Default menu

The default menu after the device starts, LCD screen interface, shown above, the input source, the input source connected state, the input source is connected, the output resolution, mosaic mode, brightness and output audio channels and other information, shows the processing the main parameters menu system.

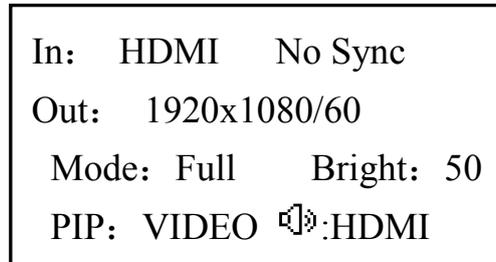


Figure 9 - Default menu

Main menu

The Main Menu is an important parameter adjustment user interface, almost all of the settings can be done in the main menu. In the following sections there will be a detailed description of the operation and settings for each function.

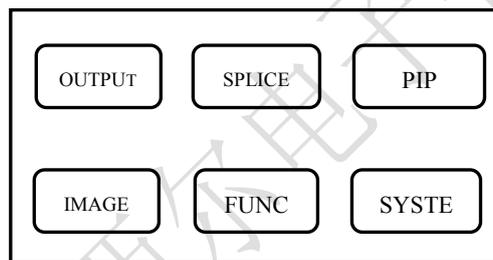


Figure12-Main menu

Setting and Operation

Language

Before using LED video processor, make sure the language you wish to use, if not, please follow the operation to complete.

Default Menu → Main Menu → FUNC → Language

默认菜单→主菜单→功能→语言

Above is the menu operation path, use the button to enter the language settings menu you can select the language.

Reset

When using LED video processor may not be confirmed because of errors or problems arise when setting these parameters, you can enter the menu, make overall reset. Here is the process of resetting the machine.

Default Menu → Main Menu → SYSTEM → Reset All→OK

After the reset, all user parameters back to factory state, users with caution.

Output Resolution

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

1. select a larger than screen resolution

Default Menu → Main Menu → OUTPUT → Output resolution → confirmed

2. to fine-tune the output resolution

Default Menu → Main Menu → OUTPUT → {
Width
Height
H Start
V Start

Tip: You reset the output resolution, the system will reset all parameters menu splicing to ensure data consistency. Accurate adjustment of the user is smaller than the resolution of only the currently selected resolution when the resolution is equal to the exact adjustment of the currently selected resolution, the horizontal and vertical start value start value can not be adjusted.

Switching Effect

Processor with two Switching Effect, Fast switching, fade in fade out and corresponding **CUT or FADE** button.

CUT (Fast switching): when the input video switch, switch-free stay.

FADE (fade in fade out): when the input video switcher, both before and after the video image fusion, the switching process smoother over.

The user can set to switch effects following two operations

1. press **CUT** or **FADE** button, press the button, the button indicator lights to alert the user of the current state of transition effects.
2. to enter the menu settings

Default Menu → Main Menu → FUNC → Seamless

Fade time settings

Fade time can be controlled fade switching state of the time, the processor provides 0.5 seconds to 1.5 seconds fade time setting switch. Enter the menu settings as follows

Default Menu → Main Menu → FUNC → Fade Time

Black and Freeze settings

Black and screen freezes shared the FREEZE / BLACK button, in the menu system is displayed as "BLACK button." It is set as follows

Default Menu → Main Menu → FUNC → BLACK FUNC

Once set up, simply press FREEZE / BLACK button to achieving a black screen or screen

NOTE: When FREEZE / BLACK button role, you can not use the Enter button or the PIP function.

freeze

Splicing applications

LED Video Processor has a powerful splicing, enabling hardware splicing 10x10 processors to achieve frame synchronization. There introduce it's equal splicing and unequal

Equal Splicing

For example the following parameters of the LED screen wall

Device Name	Specification	Parameter	Other
LED unit	P3.9	Resolution 128x128	
LED screen	20x16 unit	Resolution 2560x2048	
LED sending card	XX	Support resolution 1280x1024	
LED video processor	LED Video Processor	Support resolution 2304x1152	
NOTE: In calculating the LED video wall, try using the resolution calculation, in order to avoid errors!			

From the above parameters that can be divided into four equal portions LED screen area, a resolution of 1280x1024, respectively, these four named PANEL1, PANEL2, PANEL3, PANEL4, corresponding to the processor P1, P2, P3, P4, send card named S1, S2, S3, S4. Below is a schematic connection

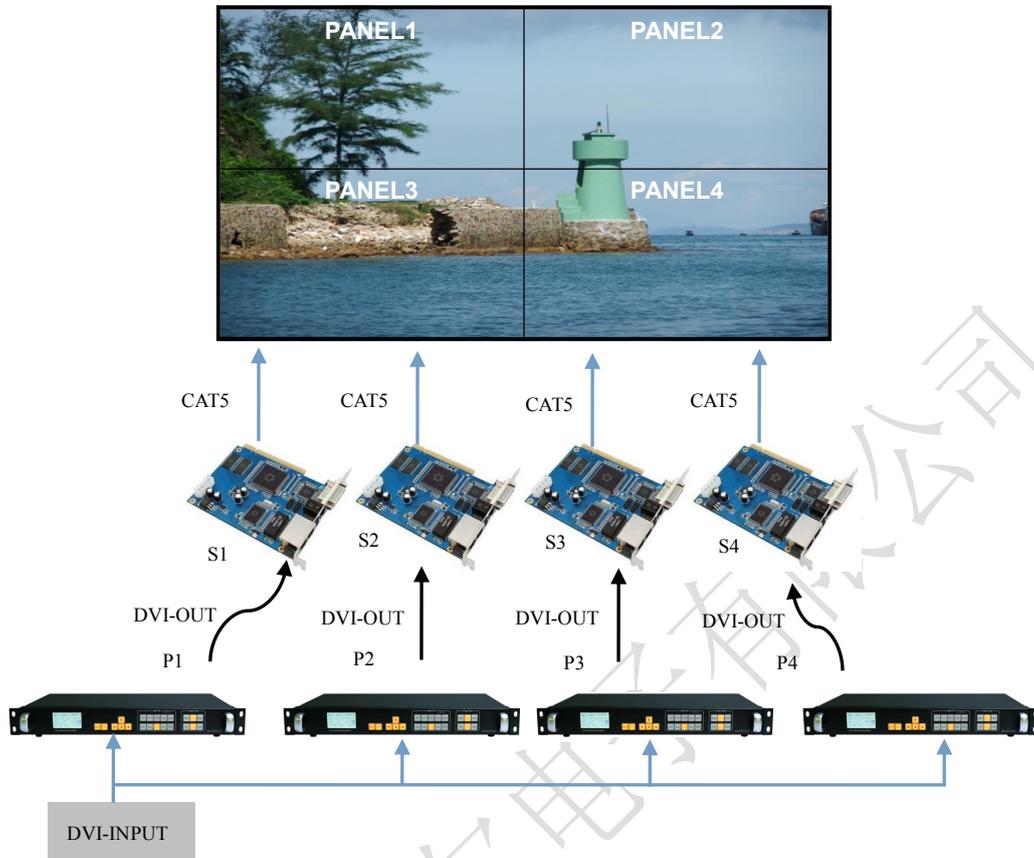


Figure 13-Equal Splicing

Steps:

1. Refer to Figure 13 for all connected devices.
2. LED screen software will adjust PANEL1 ~ PANEL4 respectively into four separate display area. (For details, please refer to the relevant suppliers of LED system operation)
3. are provided P1 ~ P4 video processor parameters. Since the processor comes with 1280x1024 / 60 resolution, so no need to further fine-tune. All of the following parameters, only the splice location is not the same.

Processor P1、P2、P3、P4:

1. Set the output resolution

Default Menu → Main Menu → OUTPUT → Resolution → 1280x1024 60Hz

2. Set the splicing parameters

Default Menu → Main Menu → SPLICE → MODE → V-Wall

Default Menu → Main Menu → SPLICE → Pattern → Equal

Default Menu → Main Menu → SPLICE → V-Wall Sync → On

Default Menu → Main Menu → SPLICE → Parameters → H Units → 2

Default Menu → Main Menu → SPLICE → Parameters → V Units → 2

Processor P1: Splice position

Default Menu → Main Menu → SPLICE → Parameters → Position → 1

Processor P2: Splice position

Default Menu → Main Menu → SPLICE → Parameters → Position → 2

Processor P3: Splice position

Default Menu → Main Menu → SPLICE → Parameters → Position → 3

Processor P4: Splice position

Default Menu → Main Menu → SPLICE → Parameters → Position → 4

NOTE: splicing synchronization open, cut and fade function is disable.

Unequal Splicing

For example the following parameters of the LED screen wall

Device Name	Specification	Parameter	Other
LED unit	P3.9	Resolution 128x128	
LED screen	21x7 unit	Resolution 2688x896	
LED sending card	XX	Support resolution 2048x640 Two card connected 2048x1280	
LED video processor	LED Video Processor	Support resolution 2304x1152	
NOTE: In calculating the LED video wall, try using the resolution calculation, in order to avoid errors!			

From the above parameters that can be divided into four LED screen unequal area, resolution of 1408x512, 1280x512, 1408x384, 1280x384, respectively, these four named PANEL1, PANEL3, sending cards corresponding to S1, S2, corresponding to the video processor P1; PANEL2, PANEL4, sending cards corresponding to S3, S4, corresponds to the video processor P2. Below is a connection

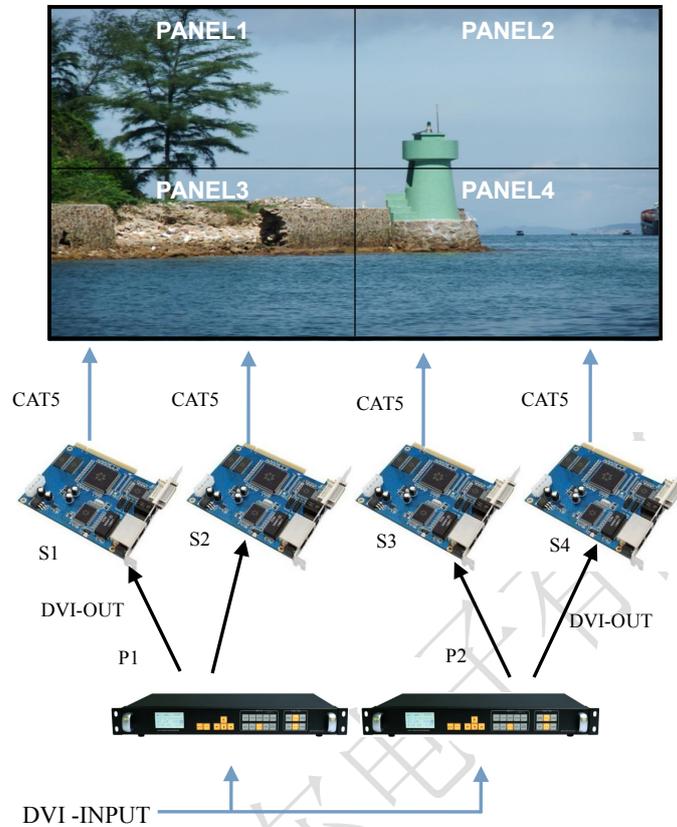


Figure 14-Unequal Splicing

Steps:

- 1.Refer to Figure 14 Connect all devices.
- 2.Sending card S1 and S2 cascade, S3 and S4 cascade. Respectively adjustment LED screen software PANEL1 and PANEL3 into a complete display area, PANEL2 and PANEL4 set another full display area. (For details, please refer to the relevant suppliers of LED system operation)
- 3.Are provided P1 ~ P2 video processor parameters.

Processor P1:

- 1.Setting resolution

Default Menu → Main Menu → OUTPUT →Resolution→1440x900 60Hz

Default Menu → Main Menu → OUTPUT→Width→1408

Default Menu → Main Menu → OUTPUT→Height→896

2. Setting splice

Default Menu → Main Menu →SPLICE→ MODE →V-Wall

Default Menu → Main Menu →SPLICE→ Pattern →Unequal

Default Menu → Main Menu →SPLICE→V-Wall Sync →On

Default Menu → Main Menu →SPLICE→Parameters→H Total→2688

Default Menu → Main Menu →SPLICE→Parameters→V Total→896

Default Menu → Main Menu →SPLICE→Parameters→H Start→0

Default Menu → Main Menu → SPLICE → Parameters → V Start → 0

Processor P2:

1. Setting resolution

Default Menu → Main Menu → OUTPUT → Resolution → 1280x720 60Hz

Default Menu → Main Menu → OUTPUT → Width → 1280

Default Menu → Main Menu → OUTPUT → Height → 896

2. Setting splice

Default Menu → Main Menu → SPLICE → MODE → V-Wall

Default Menu → Main Menu → SPLICE → Pattern → Unequal

Default Menu → Main Menu → SPLICE → V-Wall Sync → On

Default Menu → Main Menu → SPLICE → Parameters → H Total → 2688

Default Menu → Main Menu → SPLICE → Parameters → V Total → 896

Default Menu → Main Menu → SPLICE → Parameters → H Start → 1408

Default Menu → Main Menu → SPLICE → Parameters → V Start → 0

NOTE: splicing synchronization open, cut and fade function disable.

Capture

Interception of part of the screen function is unequal extension splicing function. In actual use, may be used to intercept the partial screen display, displays only a partial area of input channels. Such as the Windows user interface, users simply DVI1 channel video playback window, the other input channel to full screen. Processor provides users with two control keys, as shown below.



FULL

PART

Figure15-Capture

Setting:

1. Select the channel you want to capture part of the screen, such as DVI1;
2. To enter the menu settings unequal splicing parameters (equivalent to capture part of the screen parameters), the total pixel values and the start value is adjusted by visual inspection is completed.

Default Menu → Main Menu → SPLICE → MODE → V-Wall

Default Menu → Main Menu → SPLICE → Pattern → Unequal

Default Menu → Main Menu → SPLICE → V-Wall Sync → off

Default Menu → Main Menu → SPLICE → Parameters → H Total → 4200

Default Menu → Main Menu → SPLICE → Parameters → V Total → 3000

Default Menu → Main Menu → SPLICE → Parameters → H Start → 0

Default Menu → Main Menu → SPLICE → Parameters → V Start → 0

When switching the channel, as long as you want to advance channel selection **FULL** or **PART** effect effect, the device will automatically save the current output for the input channel effects, that is, each input channel display mode can be different.

PIP

PIP is the use of digital technology to display two programs on the same screen. That is the normal viewing of the main screen, while the insertion of one or more sub-picture compressed in order to appreciate the main screen while monitoring other channels. When operating in PIP mode mode, the user must provide at least two of the input signal, and the PIP menu settings accordingly. PIP function can be realized outside-picture effects, namely POP, PBP is a special application of the PIP.

Steps:

1. Turn on PIP, there are two ways to open, one by **PIP** button, the second is in the menu system

Default Menu → Main Menu → PIP → PIP mode → PIP

NOTE: When the PIP is enabled, cut and fade function can not be used.

2. Set the input source, the processor of the main channel and PIP channel, the same type of input source can not be achieved PIP function, so users can refer to the following table PIP source conflict table.

Default Menu → Main Menu → PIP → PIP setup → Input

Table 3 - PIP Source conflict table

		Main Channel							
		CV1	CV2	VGA1	VGA2	DVI1	DVI2	HDMI	SDI
PIP Chanel	CV1	√	×	√	√	√	√	√	√
	CV2	×	√	√	√	√	√	√	√
	VGA1	√	√	√	×	√	√	√	√
	VGA2	√	√	×	√	√	√	√	√
	DVI1	√	√	√	√	√	×	×	√
	DVI2	√	√	√	√	×	√	×	√
	HDMI	√	√	√	√	×	×	√	√
	SDI	√	√	√	√	√	√	√	√

3. Size and position parameters, specific parameters set by the user, the user can also adjust the PIP border transparency.

Default Menu → Main Menu → PIP → PIP setup → H Start

Default Menu → Main Menu → PIP → PIP setup → V Start

Default Menu → Main Menu → PIP → PIP setup → Width

Default Menu → Main Menu → PIP → PIP setup → Height

Keying

Keying is an extension of the PIP function, which is accomplished by the PIP channel input color image minus the red, green, blue, black, and white colors to get results. Keying function can be used for some simple effects processing and overlay subtitles. Easy setting operation, please refer to the setup.

For example, Figure 16A is a picture-channel playback of video for PPT, 16B is the main input channels, 16C is a matting effect.

深圳市摩西尔电子有限公司



Figure 16A-PIP Chanel



16B-Main Chanel



16C-Output

Setting step:

Default Menu → Main Menu → PIP → PIP mode→Keying

Default Menu → Main Menu → PIP→Keying Setup→ Input→ DVI

Default Menu → Main Menu → PIP→Keying Setup→ Chroma Key→ Black

Preset

Preset is to facilitate users to use quickly recall commonly used in a variety of scenarios, reducing the user when the operation is repeated complicated settings, improve work efficiency. Each contains a preset mode signal channel mode, the display mode of various parameters, image quality settings. Processor provides 4 preset save space, here to save and recall preset mode operation.

Save Preset

When the user adjust all the parameters, to enter to save the current preset

Default Menu → Main Menu → FUNC→ Preset→Save Mode → Preset [1] → confirm

In saving mode submenu have Preset [1] to Preset [4], four storage space, the user can choose. Storage space is empty, the right of the status display for ☆, when the state has been saved had the right argument appears as ★. Users can also cover save.

Recall Preset

Recall preset parameters have two operating modes, keyboard shortcuts and menu calls

1. Use **LOAD** button

In the default menu state, press the **LOAD** button to call up the menu to enter the preset scene. Use the **↵** and **↓** buttons to select the saved preset scene, press **MENU** button to confirm.

2. Setting in menu

Default Menu → Main Menu → FUNC→ Preset→Read Mode→Preset [1]→confirm

Pre-Switching

Pre-switching function can help users predict the source to be switched is connected properly, reduce misuse live performances. Details as follows:

1. Into the pre-switching operation menu

When **CUT** or **FADE** button lights up, repeatedly pressing the **FADE** button or **CUT** button, LCD screen will prompt the user to enter the signal pre-switching state.

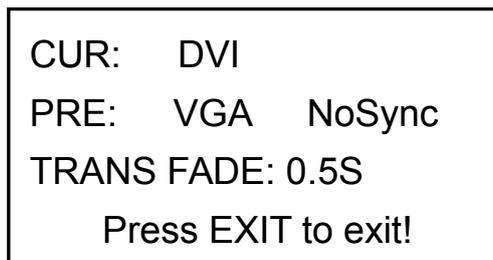


Figure 17-Pre-Switching

2.To select the input source to be switched, press **FADE** or **CUT** button or button switch.

In the pre-switching, press CV1 ~ SDI one button point, **FADE** or **CUT** button or key indicator flashes quickly, prompting the user to press the flashing **CUT** or **FADE** button switch.

NOTE: The same type of signal can not be pre-selected, otherwise it will prompt "invalid channel!" Conflict pre-selected signal PIP input signal and the same conflict, a detailed check list of the PIP conflict.

Brightness and Contrast

Processor technology unique brightness, contrast adjustment, adjust color reproduction and high brightness after the picture level without loss. Adjust the brightness, it is best to adjust the brightness and contrast with, ensure perfect output effect. There are two ways to adjust the brightness

1.Use shortcut keys to adjust the brightness

In the default menu, press the **Menu** button control ← button, in order to reduce the brightness, press → to increase the brightness. At this point the brightness values will change the default menu.

2.enter the image brightness and contrast settings menu

Default Menu → Main Menu→IMAGE→Brightness→50

Default Menu → Main Menu→IMAGE→Contrast→50

Key Lock

Key lock function for the user in a complex environment to avoid misuse or others inadvertently

Lock

Enter the system menu, enable key lock function

Default Menu → Main Menu→SYSTEM→Keypad Lock→on

Unlock

Press the **FADE** button last 2 second, processor automatically unlocked.

VGA Adjust

Under normal circumstances, switch to the VGA input source, the processor will automatically correct input source color, image size and position. If the processor does not automatically corrected successfully, the user can manually correct implementation.

1.Use AUTO to adjust

When the input source is switched to the VGA input, VGA button is pressed again, the system will self-correct input source.

2.Enter menu to adjust

Switching to the VGA input state, enter the menu

Default Menu → Main Menu→SYSTEM→VGA Setting→Auto Adjust→confirm

If automatic calibration is unsuccessful, you can try manually correct

Default Menu → Main Menu→SYSTEM→VGA Setting→H Position

Default Menu → Main Menu→SYSTEM→VGA Setting→V Position

Default Menu → Main Menu→SYSTEM→VGA Setting→H Clock

Default Menu → Main Menu→SYSTEM→VGA Setting→V Clock

NOTE: When no VGA signal input, the system prompts not correct.

Audio and video synchronization

Video processor provides eight channels of video and 4 audio, there are three-way external audio input and 1 channel audio input HDMI audio. So switching to a set of audio output. Follows

Set the current corresponding audio and video channels. In the default menu, use the ↑ and ↓ buttons to toggle IN1 ~ IN3, HDMI, a total of 5 off the total state. Video channel and audio channel automatically associated with the current set up after the next press CV1 ~ HDMI input buttons which the processor automatically switches associated audio channels.

Specifications

DVI Inputs

Quantity	2
Connector	DVI-I
Signal Standard	DVI1.0, HDMI1.3 Backward compatible
Supported resolutions	VESA, PC to 1920x1200, HD to 1080p

HDMI Inputs

Quantity	1
Connector	HDMI-A
Signal Standard	HDMI1.3Backward compatible
Supported resolutions	VESA, PC to 1920x1200, HD to 1080p

VGA Inputs

Quantity	2
Connector	DB15
Signal Standard	R、 G、 B、 Hsync、 Vsync:0 to1Vpp±3dB (0.7V Video+0.3v Sync) 75 ohm black level: 300mV Sync-tip: 0V
Supported resolutions	VESA, PC to 1920x1200

※ SDI Inputs(Optional)

Connector	1
Signal Standard	BNC
Supported resolutions	SD/HD/3G-SDI
Connector	1080p 60/50/30/25/24/25(PsF)/24(PsF)720p 60/50/25/24 1080i 1035i 625/525 line

CVBS (Video) Inputs

Quantity	2 x 2
Connector	BNC
Signal Standard	PAL/NTSC 1Vpp±3db (0.7V Video+0.3v Sync) 75 ohm
Supported resolutions	480i,576i

※ Audio Inputs

Quantity	1 x 2
Connector	RCA
Signal Standard	Analog audio

※ Audio Output

Quantity	1
Connector	RCA
Signal Standard	Analog audio

DVI/VGA Outputs

Quantity	2 DVI、1VGA		
Connector	DVI-I、DB15		
Signal Standard	DVI: DVI1.0	VGA: VESA	
Resolutions	1024×768@60Hz	1920×1080@60Hz	2304×1152@60Hz
	1280×720@60Hz	1920×1200@60Hz	2560×816@60Hz
	1280×1024@60Hz	1024×1280@60Hz	1280×720@50Hz
	1440×900@60Hz	1536×1536@60Hz	1920×1080@50Hz
	1600×1200@60Hz	2048×640@60Hz	1024×1920@60Hz
	1680×1050@60Hz	2048×1152@60Hz	

Whole machine

N.W	3.0kg
Size (mm)	Case size: (LWH) 253×440×56
	Packing size: LWH =515×110×355
Power Supply	100VAC – 240VAC 50/60Hz
Maximum power	18W
Temperature	0°C~45°C
Storage humidity	10%~90%