超高清视频无缝切换器

多窗口画面显示

**版本 1.2**

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**warning警告**

* 请勿将本设备暴露在雨水、湿气和滴水中
* 只能使用制造商指定的附件
* 在雷暴期间拔下此设备
* 说明书仅供参考，如有更改恕不预先通知

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**简介**

这款设备是HDMI 2.0/DP1.2 无缝切换器，并集成MULTIVIEW多窗口分割显示功能.

支持3路HDMI输入，1路DP输入，1路USB-C (仅视频)输入.

支持1路HDMI 和1路HDBaseT镜像输出,1路3.5mm模拟音频剥离输出

用户可以通过前面板上的按键，或遥控器，RS232指令来操作该切换器

# 特点

* 支持HDMI 2.0, DP 1.2输入, 支持最大输入输出分辨率3840x2160@60
* 输入：3路HDMI, 1路DP，1路USB-C（仅视频）

输出：1路HDMI，1路HDBaseT, 1路3.5mm模拟音频

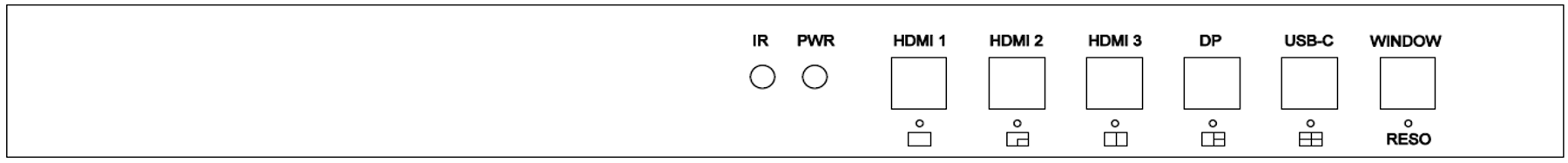
* 支持5种多窗口显示模式, SINGLE, PIP, PBP, 3xWIN, 4xWIN
* 单窗口显示时，信源无缝切换，多窗口时快速切换
* 支持音量控制和音频独立选择

支持 LPCM, AC3, DD+, DTS, DTS-HD, 最大到 7.1 声道

* 支持OSD 菜单导航
* HDBaseT 传输距离 70米 @1080p, 或 40米 @4K
* 可提供24V/10W的PSE (POC)供电给HDBaseT接收端

# 面板

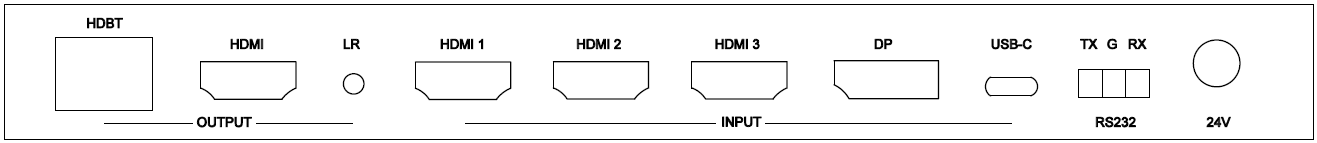
**前面板**



| **名称** | **Description** |
| --- | --- |
| **HDMI 1** | 短按，HDMI 1 输入选择按键  长按3秒，选择单画面 （SINGLE）显示模式, C:\Users\windows7\AppData\Local\Temp\1629080528(1).png. |
| **HDMI 2** | 短按，HDMI 2 输入选择按键  长按3秒，选择PIP多窗口显示模式, . |
| **HDMI 3** | 短按，HDMI 3 输入选择按键  长按3秒，选择PBP多窗口显示模式, C:\Users\windows7\AppData\Local\Temp\1629081546(1).png. |
| **DP** | 短按，DP输入选择按键  长按3秒，选择4xWIN 多窗口显示模式, C:\Users\windows7\AppData\Local\Temp\1629082712(1).png. |
| **USB-C** | 短按，USB-C (仅视频) 输入选择按键  长按3秒，选择4xWIN 多窗口显示模式, C:\Users\windows7\AppData\Local\Temp\1629082974(1).png. |
| **WINDOW** | 短按，屏幕上窗口1位置会有一黄色边框，继续按此键，黄色边框会依次出现在窗口2，… 然后按某个输入按键，比如HDMI 1键， 会将HDMI信号显示在当前选定的窗口上.  长按3秒切换输出分辨率，在屏幕上会有相应的信息显示. |

备注：同时按HDMI 3和DP 键可以打开或关闭AUTO SWITCH自动切换功能， 自动切换功能仅在单窗口显示模式有效

**后面板**



|  |  |
| --- | --- |
| **Name** | **Description** |
| **HDBT** out | HDBaseT输出，支持24V POC-PSE |
| **HDMI** out | HDMI输出，最大到 3840x2160@60 |
| **LR** out | 3.5mm立体声输出, 20Hz ~ 20kHz, 1.5Vrms max |
| **INPUT**s | HDMI 1, HDMI 2, HDMI 3, DP, USB-C |
| **RS232** | 外部 RS232 控制 ，其波特率可以通过遥控菜单进行更改  默认Baud Rate: 9600, Data Bits:8, Parity: None Stop Bits:1  3口 3.5 mm凤凰插  **TX** 表示切换器 PC  **RX** 表示切换器 PC  **G** 表示接地 |
| **24V** | 24V直流电源插入，带锁紧 |

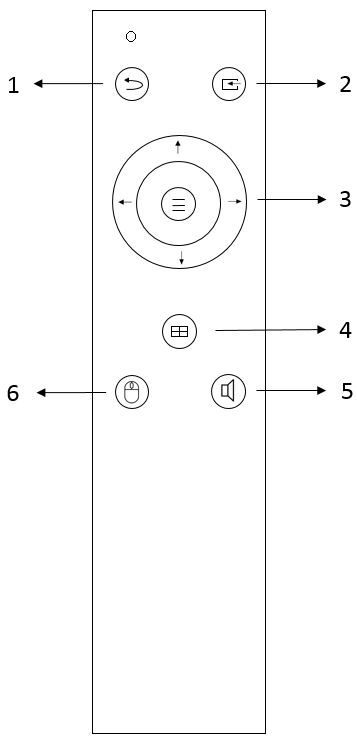
**侧面板**



USB-A 口仅作固件升级用

# 遥控器

|  |  |
| --- | --- |
| **Number** | **Description** |
| **1** | 返回 |
| **2** | 输入 |
| **3** | OSD 菜单导航 |
| **4** | 窗口模式选择 |
| **5** | 音源选择 |
| **6** | 预留 |



# EDID 和HDCP 处理

用户可以通过串口命令或OSD菜单选择以下EDID模式

|  |  |  |  |
| --- | --- | --- | --- |
| **Number** | **EDID mode** | **Number** | **EDID mode** |
| **1** | 4K60-2.0CH | 10 | 1600x1200 |
| **2** | 4K60-5.1CH | 11 | 1440x900 |
| **3** | 4K30-2.0CH | 12 | 1360x768 |
| **4** | 4K30-5.1CH | 13 | 1280x1024 |
| **5** | 1080P-2.0CH | 14 | 1024x768 |
| **6** | 1080P-5.1CH | 15 | AUTO |
| **7** | 720P | 16 | 4K60-7.1CH |
| **8** | 1920x1200 | 17 | 4K30-7.1CH |
| **9** | 1680x1050 | 18 | 1080P-7.1CH |
|  |  | 19 | USER |

HDMI输出支持3种HDCP选项: FORCE-1.4, FORCE-2.2, FORCE-OFF

用户可以通过RS232命令选择

# 视频和音频

切换器支持最大输入分辨率3840x2160@60, 支持多种音频格式，比如 LPCM, AC3, DD+, DTS, DTS-HD, 最大到7.1 声道， 支持音频独立选择

用户可以控制LPCM格式音频的音量

支持以下输出分辨率选择

|  |  |  |  |
| --- | --- | --- | --- |
| **Number** | **Output Resolution** | **Number** | **Output Resolution** |
| **1** | 4096x2160p 60Hz | 8 | 1920x1080p 60Hz |
| **2** | 4096x2160p 50Hz | 9 | 1920x1080p 50Hz |
| **3** | 3840x2160p 60Hz | 10 | 1360x768p 60Hz |
| **4** | 3840x2160p 50Hz | 11 | 1280x800p 60Hz |
| **5** | 3840x2160p 30Hz | 12 | 1280x720p 60Hz |
| **6** | 3840x2160p 25Hz | 13 | 1280x720p 50Hz |
| **7** | 1920x1200p60Hz RB | 14 | 1024x768 60Hz |

# 多窗口

支持5种多窗口模式 **，支持20种场景的存储和调用**

SINGLE, PIP, PBP, 3xWIN, 4xWIN

分别为单画面, PIP画中画, PBP两窗口, 3窗口, 4窗口

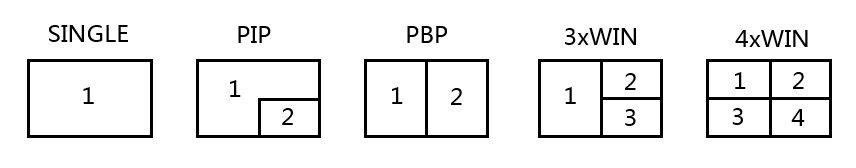
对于不同的多窗口模式，用户可以进行不同的操作

SINGLE: 信源选择

PIP: 信源选择,子画面大小和位置

PBP, 3xWIN, 4xWIN: 信源选择, 显示比例,模式选择

默认布局如下



用户可以通过串口命令或OSD菜单进行选择

# OSD 菜单导航

总共6个按键进行OSD菜单导航, 菜单/返回/上/下/左/右

菜单类容如下：

|  |  |  |  |
| --- | --- | --- | --- |
| 输出设置 | 分辨率 | 3840x2160p60 | 3840x2160p60,… |
| 无信号设置 | 黑屏 | 黑屏,蓝屏 |
| 4K自动 | 开 | 开,关 |
| ITC | 关 | 开,关 |
| Multiview | 单画面 | 输入选择 | HDMI1, … |
| PIP | 窗口1选择 | HDMI1,… |
| 窗口2选择 | HDMI1,… |
| PIP 位置 | 右下,右上,左下,左上 |
| PIP 大小 | 大,中,小 |
| PBP | 窗口1选择 | HDMI1,… |
| 窗口2选择 | HDMI1,… |
| 模式 | 1, 2 |
| 画面比例 | 全屏, 16:9 |
| 3xWIN | 窗口1选择 | HDMI1,… |
| 窗口2选择 | HDMI1,… |
| 窗口3选择 | HDMI1,… |
| 模式 | 1, 2 |
| 画面比例 | 全屏, 16:9 |
| 4xWIN | 窗口1选择 | HDMI1,… |
| 窗口2选择 | HDMI1,… |
| 窗口3选择 | HDMI1,… |
| 窗口4选择 | HDMI1,… |
| 模式 | 1, 2 |
| 画面比例 | 全屏,16:9 |
| 声音设置 | 音源选择 | 窗口1 | 窗口1,HDMI1,… |
| 音量 | 100 | 0..100 |
| 静音 | 关 | 开, 关 |
| 系统设置 | Language/语言 | English | English, 中文 |
| EDID | 4K60-2.0 | 4K60-2.0,… |
| 波特率 | 9600 | 9600,19200,38400,  57600，115200 |
| 复位 |  |  |
| 固件版本 |  | Read only |

请注意, 关于**ITC** 的设置, 建议视频信源时设置为**关**，PC界面尤其是电脑桌面时用**开**，默认关

# 规格

|  |  |
| --- | --- |
| 带宽 | 594MHz (18Gbps), HDMI 2.0, HDCP2,2 |
| 音频格式 | LPCM, AC3, DD+, DTS, DTS-HD  Up to 7.1 channel |
| 输入口 | 3x HDMI, 1x DP, 1x USB-C |
| 输出口 | 1x HDMI, 1x HDBaseT  1x 3.5mm LR audio |
| 电源 | 24V/1A ,14W max |
| 工作温度 | 0 to +40°C (+32 to +104 °F) |
| 工作湿度 | 10 to 70 % RH (non-condensing) |
| ESD | Air: ± 8KV, Contact: ± 4KV, |
| 尺寸 | L225 x W100 x H25 mm |
| 重量 (Main Unit) | 0.75kg |

# 包装

|  |  |
| --- | --- |
| **项目** | **Quantity** |
| 主机 | 1 |
| 24V/1A 适配器 | 1 |
| 用户手册 | 1 |
| 遥控器 | 1 |
| 3口公头凤凰插 | 1 |

# RS232 命令

**注意:** 所有的命令都以 SET 或 GET开始, 以换行符 CR 结束

⮠ 代表换行符CR

## System command

|  |  |
| --- | --- |
| Command | Details |
| GET HELP⮠ | Get the Commands list |
| SET RESET⮠ | Recover to default setting |
| GET VERSION⮠ | Get firmware version  Return: VERSION w (w is version number) |
| SET BAUDRATE w⮠ | w is 9600, 19200, 38400,57600 or 115200  Return: BAUDRATE w |
| GET BAUDRATE⮠ | Return: BAUDRATE w |

## Switching command, only available on SINGLE mode

|  |  |
| --- | --- |
| Commands | Details |
| SET AUTO SWITCH w⮠ | w is ON or OFF, default OFF  Return: AUTO SWITCH w |
| GET AUTO SWITCH⮠ | Return: AUTO SWITCH w |
| SET IN SOURCE w⮠ | w is one of the following:  HDMI1, HDMI2, HDMI3, DP, USB-C  Return: IN SOURCE w |
| GET IN SOURCE⮠ | Get current input channel selection information  Return: IN SOURCE w |
| GET IN RESOLUTION⮠ | Get current input resolution  Return: IN RESOLUTION w (w is input resolution) |
| GET IN STATUS⮠ | Get status of all input ports  x is HDMI1…HMDI4,USB-C  Return: IN STATUS x VALID(or INVALID)  If input port is vaild,  Return: IN STATUS x InputRes ColorSpace ColorDepth |

## Output command

|  |  |
| --- | --- |
| Commands | Details |
| SET OUT RESOLUTION w⮠ | w is one of the following, default: 3840x2160p60  4096x2160p60, 4096x2160p50,  3840x2160p60, 3840x2160p50,  3840x2160p30, 3840x2160p25,  1920x1200p60RB, 1920x1080p60,  1920x1080p50, 1360x768p60,  1280x800p60, 1280x720p60,  1280x720p50, 1024x768p60，  AUTO, USER  Return: OUT RESOLUTION w |
| GET OUT RESOLUTION⮠ | Get current output resolution setting  Return: OUT RESOLUTION w |
| SET RESO-USER Width Height⮠ | Set user define output resolution,  Width is horizontal active pixels  Height is vertical active lines  For user define output resolution,the frame rate is always 60Hz  Return: RESO-USER Width Height⮠ |
| GET RESO-USER⮠ | Return: RESO-USER Width Height⮠ |
| SET OUT HDCP w⮠ | w is one of following, default FORCE-OFF  FORCE-1.4,FORCE-2.2,FORCE-OFF  Return: OUT HDCP w |
| GET OUT HDCP⮠ | Return: OUT HDCP w |
| SET OUT VKA w⮠ | w is BLUESCREEN or BLACKSCREEN.  Default BLACKSCREEN. It is for no signal display  Return: OUT VKA w |
| GET OUT VKA⮠ | Return: OUT VKA w |
| SET OUT ITC w⮠ | w is ON or OFF, default OFF  Return: OUT ITC w |
| GET OUT ITC⮠ | Return: OUT ITC w |

## Multiview command

|  |  |
| --- | --- |
| Commands | Details |
| SET MULTIVIEW w⮠ | Select one Multiview mode for current display  w is one of the following, default SINGLE  SINGLE C:\Users\windows7\AppData\Local\Temp\1629080528(1).png, PIP , PBPC:\Users\windows7\AppData\Local\Temp\1629081546(1).png, 3xWIN C:\Users\windows7\AppData\Local\Temp\1629082712(1).png, 4xWIN C:\Users\windows7\AppData\Local\Temp\1629082974(1).png  Return: MULTIVIEW w |
| GET MULTIVIEW⮠ | Get the current Multiview mode  Return: MULTIVIEW w |
| SET WINDOWx IN y⮠ | Select one input for one display window for the current Multiview mode. x is one of 1, 2, 3 or 4  y is one of HDMI1, HDMI2, HDMI3, DP, USB-C  Return: WINDOWx IN y |
| GET WINDOWx IN⮠ | This command to get which is the input source for one display window for the current Multiview mode  Return: WINDOWx IN y |
| SET FREEZE-WINx w | Freeze the display window,x is one of 1, 2, 3 ,4 or ALL, w is ON or OFF  Return: FREEZE-WINx w |
| GET FREEZE-WINx | x is one of 1, 2, 3 ,4.  Return: FREEZE-WINx w (w is ON or OFF) |
| SET PIP POS w⮠ | This command to select the PIP sub window position.  w is one of the following, default RightBottom  LeftTop, LeftBottom, RightTop, RightBottom, USER  Return: PIP POS w |
| GET PIP POS⮠ | This command to get the PIP sub window position  Return: PIP POS w |
| SET PIP SIZE w⮠ | This command to select the PIP sub window size.  w is one of the following, default LARGE  SMALL,MIDDLE, LARGE, USER  Return: PIP SIZE w |
| GET PIP SIZE⮠ | Return: PIP SIZE w |
| SET PIP USER HStart VStart HSize VSize⮠ | Return: PIP USER HStart VStart HSize VSize  This command allows users to customize a PIP layout include sub window position and size.  This customized PIP layout will replace other pre-defined PIP modes (such as LeftTop,LARGE) and display on the screen  After the user enters SET PIP POS or SET PIP SIZE command,the PIP USER will become invalid    Please note  HStart plus HSize less than or equal to 101  VStart plus VSize less than or equal to 101 |
| GET PIP USER⮠ | Return: PIP USER HStart VStart HSize VSize |
| SET PBP MODE w⮠ | Set the PBP display mode  w is one of 1,2 or 3, default 1    Return: PBP MODE w  Please note for PBP mode 3, window2 can capture part of the input image area. It is main used for presenter show when work with conference camera situations  The capture area can be defined by SET PBP-PRESENTER command |
| GET PBP MODE⮠ | Return: PBP MODE w |
| SET PBP ASPECT w⮠ | Set the PBP window display aspect  w is FULL or 16:9, default FULL    Return: PBP ASPECT w |
| GET PBP ASPECT⮠ | Return: PBP ASPECT w |
| SET PBP-PRESENTER HStart VStart HSize VSize⮠ | Set window 1 capture area for PBP mode 3  This command only valid when the switcher already work on PBP mode 3  Return: PBP-PRESENTER HStart VStart HSize VSize    Default HStart 38, VStart 13, HSize 25, VSize 75  Please note  HStart plus HSize less than or equal to 101  VStart plus VSize less than or equal to 101 |
| GET PBP-PRESENTER⮠ | Return: PBP-PRESENTER HStart VStart HSize VSize |
| SET 3xWIN MODE w⮠ | Set the 3xWIN display mode  w is one of 1,2,3 or 4, default 1  C:\Users\windows7\AppData\Local\Temp\1658982390(1).png  Return: 3xWIN MODE w |
| GET 3xWIN MODE⮠ | Return: 3xWIN MODE w |
| SET 3xWIN ASPECT w⮠ | Set the 3xWIN window display aspect  w is FULL or 16:9, default FULL  C:\Users\windows7\AppData\Local\Temp\1658982480(1).png  Return: 3xWIN ASPECT w |
| GET 3xWIN ASPECT⮠ | Return: 3xWIN ASPECT w |
| SET 4xWIN MODE w⮠ | Set the 4xWIN display mode  w is 1 or 2 ,default 1    Return: 4xWIN MODE w |
| GET 4xWIN MODE⮠ | Return: 4xWIN MODE w |
| SET 4xWIN ASPECT w⮠ | Set the 4xWIN window display aspect  w is FULL or 16:9, default FULL  C:\Users\windows7\AppData\Local\Temp\1637116792(1).png  Return: 4xWIN ASPECT w |
| GET 4xWIN ASPECT⮠ | Return: 4xWIN ASPECT w |
| GET MULTIVIEW-SYNC⮠ | Return Multiview layout information |
| SET SAVE SCENE w⮠ | Save current display scene  w is 1, 2,…20  Return: SAVE SCENE w |
| SET LOAD SCENE w⮠ | Load display scene  w is 1, 2,…20  Return: LOAD SCENE w |

## Audio command

|  |  |
| --- | --- |
| Commands | Details |
| SET AUDIO SOURCEw⮠ | w is one of the following:  WIN1, HDMI1, HDMI2, HDMI3, DP, USB-C  Return: AUDIO SOURCE w |
| GET AUDIO SOURCE⮠ | Return: AUDIO SOURCE w |
| SET AUDIO VOL+⮠ | Increase audio out volume  Return: AUDIO VOL w (w is the volume value) |
| SET AUDIO VOL-⮠ | Decrease audio out volume  Return: AUDIO VOL w (w is the volume value) |
| SET AUDIO VOL w⮠ | Set audio volume value  w is 0,1…,or 100, default 100  For example: SET AUDIO VOL 100  Return: AUDIO VOL w |
| GET AUDIO VOL⮠ | Return: AUDIO VOL w |
| SET AUDIO-MUTE w⮠ | Mute or unmute audio output  Here w is ON or OFF, default OFF  Return: AUDIO-MUTE w |
| GET AUDIO-MUTE⮠ | Return: AUDIO-MUTE w |

## EDID command

The following commands are used to set EDID mode for the inputs

|  |  |
| --- | --- |
| Commands | Details |
| SET IN EDIDMODE w⮠ | w is one of the following:  4K60-2.0, 4K60-5.1, 4K60-7.1, 4K30-2.0,  4K30-5.1, 4K30-7.1, 1080p60-2.0,1080p60-5.1,  1080p60-7.1,1920x1200, 1680x1050, 1600x1200, 1440x900, 1360x768, 1280x1024, 1024x768, 720p, AUTO,USER  Default: 4K60-2.0  Return: IN EDIDMODE w |
| SET EDID-USER w⮠ | Switcher can only support 256 bytes EDID-USER data.  w is 256 bytes EDID data.  Return: EDID-USER OK |
| GET IN EDIDMODE⮠ | Return: IN EDIDMODE w |