

★ 3D supported

EXT-FULLHD V3 HDMI V1.4 → RGB/Component Processor

(Unlimited H-shift Adjustment By remote to center the image)

Datasheet



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■ EXT-FULLHD V3 brief

EXT-FULLHD V3 is a new box for all CRT projectors, RPTV, CRT monitor, LCD monitor and other displays with an analog RGB/Component input. It is an ideal product for connecting CRT projectors and other analog RGB/Component displays to digital 1080p Full HD sources such as PS3, XBOX360, HD-DVD, and Blu-ray players. It has AUTO selected Two HDMI V1.4 input port with deep color support, and converts this to an analog RGB output. A build-in advanced Gamma adjustment circuit allows for perfect black level details creating a perfect image for your projector or display. A gain control is used to adjust the pure white level of the image.

Using EXT V3 with PS3 、Lumagen Scaler 、PC, EXT V3 can support 3D playback and drive 3D shutter glasses.

■ FEATURES

❖ HDMI input path

Compliant with HDMI 1.0, 1.1, 1.2, 1.3 , 1.4 ; HDCP 1.1, 1.3 and DVI 1.0

Support DTV mode (480P,576P,720P,1080i,1080P) for 50 and 60Hz

Support PC mode VGA, SVGA, XGA, SXGA, UXGA .etc

Support 4:4:4 RGB / YCbCr input

Support 4:2:2 YCbCr input

Support both 16-235 and 0-255 color range and auto select correct value

14bit Data processing with High precision 230MHz 11bit DAC

Advanced Gamma correction processing

Black boost function

Range expand function

New High speed 1.65GHz Video amplifier drive long cable

Support deep color mode for 10bit and 12bit

Support 120Hz for 720P and 1080i

Support 3D at 640X480 120Hz, 800X600 120Hz, 1024X768 120Hz, 720P

❖ Board and BOX

Built in shutter glasses drive circuit for 3D

Image horizontal shift function both for RGB and Component output mode

White level 0.7V peak indication at RGB output mode

Metal box have cleanest electrical environment for high definition content processing

IR control input selection, image H-Shift

Global power supply 100V-240V

Toslink output, support up to 8ch Audio

Both support Dolby-True HD and DTS-HD

Output sync mode support RGBHV **with sync Polarity adjust**

Output sync selectable to RGBS for BARCO CRT projector

Manual H-PHASE Adjust by push button with 50 preset resolution memory

■ Difference between EXT-FULLHD V3 and EXT-FULLHD V1 V2

	EXT-FULLHD V1	EXT-FULLHD V2	EXT-FULLHD V3
Gamma		Improved gamma (suggested by WTS)	Same as V2
sharpness		More sharper image (improved suggested by MP)	★New 1.65GHZ Video Amp
Picture purity		More clean (improved suggested by MP)	Same as V2
Range expand		Support (0-255 and 16-235)	Support (0-255 and 16-235)
Stability		ESD enhanced	ESD enhanced
H-shift	1 set memory	50 preset memory both for RGB and component output mode	50 preset memory both for RGB and component output mode
RGBS output		Support	Support
Black Boost		Support	Support
HDMI port	HDMI 1.3X1	HDMI1.3X2	★HDMI1.4X2
AUTO-input selection	No	Yes	Yes
Output Sync polarity adjust	No	Yes,	Yes,
Component output mode	No	Yes	Yes
3D playback	No	No	★Yes
IR remote control	No	No	★Yes

HDMI support mode table

Table 1

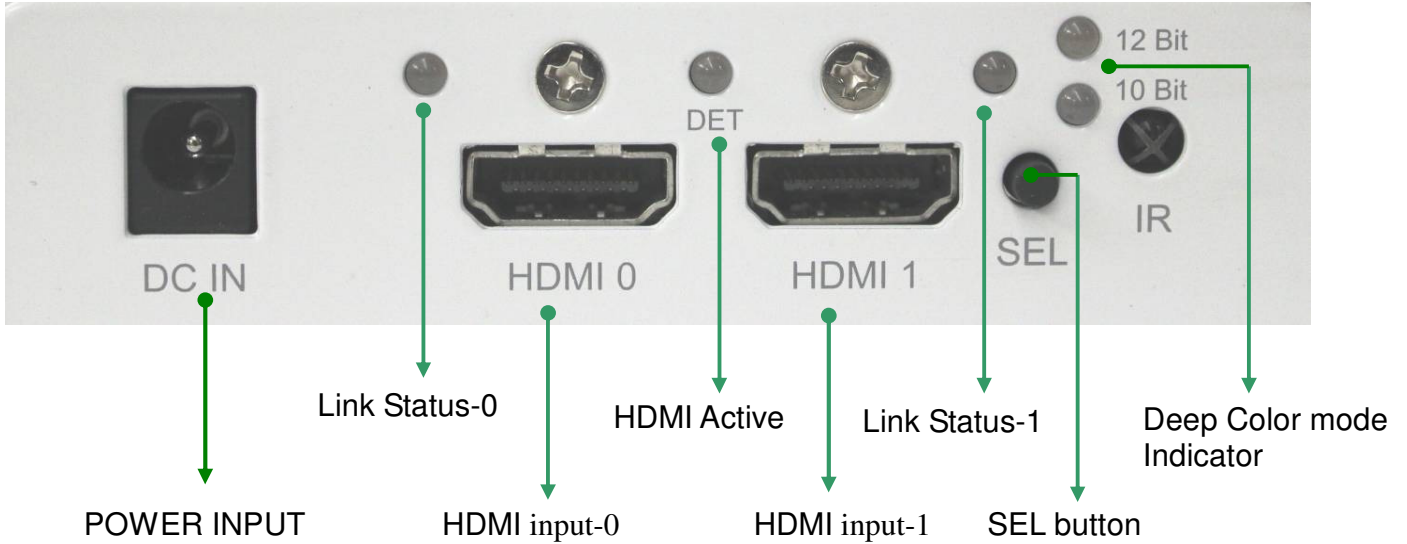
PC mode	640X480	60HZ 72HZ 75HZ 85HZ
	800X600	56HZ 60HZ 72HZ 75HZ 85HZ
	1024X768	43HZ 60HZ 70HZ 75HZ 85HZ
	1152X864	60HZ 70HZ 75HZ 85HZ
	1280X1024	43HZ 60HZ 75HZ 85HZ
	1600X1200	48HZ 60HZ
	1440X960	43HZ 60HZ 72HZ
HDTV mode	480P	60HZ
	576P	50HZ
	720P	50HZ 59HZ 60Hz 120Hz
	1080I	29HZ 30HZ 50HZ 59HZ 60HZ 96HZ^{*1} 120Hz
	1080P	50HZ 59HZ 60Hz 24HZ^{*2} 25HZ^{*2} 29.9HZ^{*2} 30HZ^{*2}
	1035I	30HZ
3D mode	720P	100Hz, 120Hz
	640X480	100Hz, 120Hz
	800X600	100Hz, 120Hz
	1024X768	100Hz, 120Hz

【Notice】:

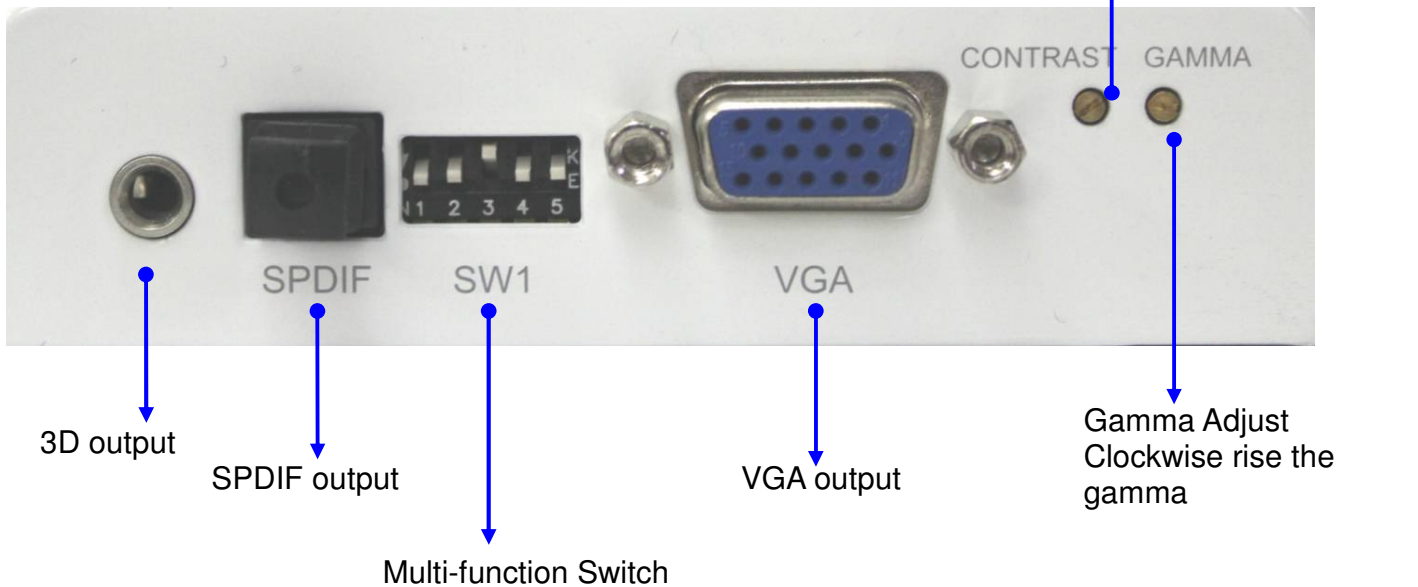
1. need use powerstrip to set graphic card output this mode
2. EXT-FULLHD V3 support these modes, and will output these signal with same refresh rate as same as input source, but most CRT projector are only support 30Hz-150Hz, using such low refresh rate may let projector working with incorrect behavior.
3. when set component output mode, only HDTV mode will support (50Hz, 60Hz)
4. 3D mode only support at RGB output mode

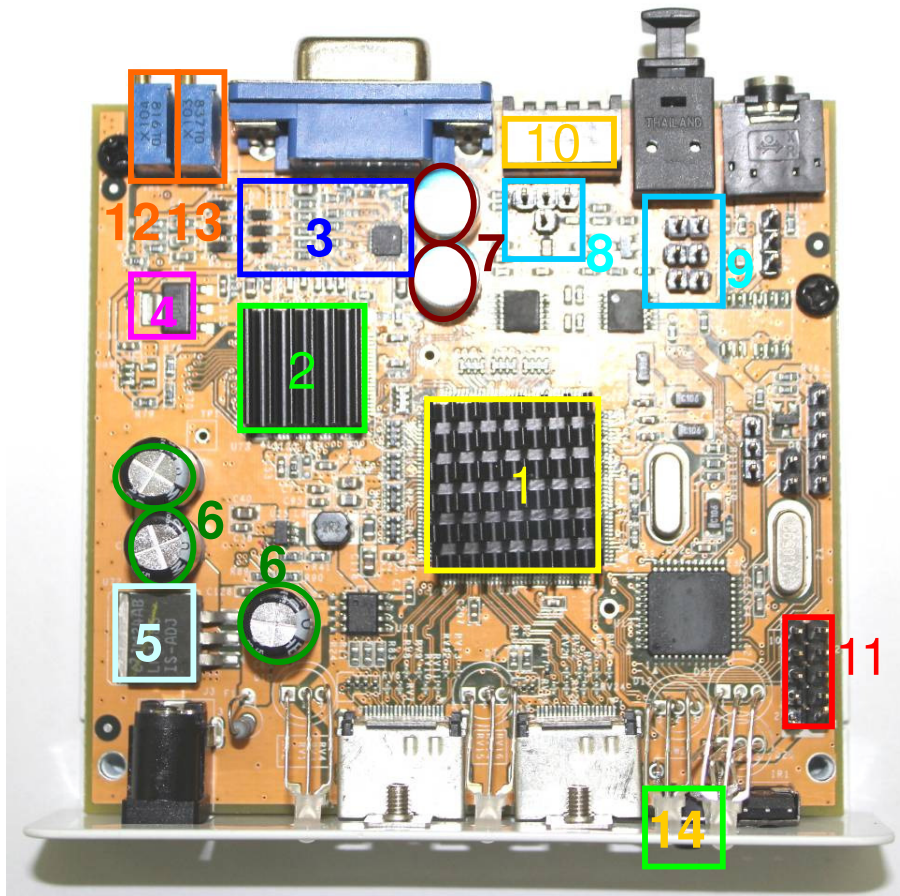
Box overview

Input side of Panel



Output side of panel





Board introduction:

- 1. HDMI 1.4 main chip, support 12bit deep color, 14bit data processing
- 2. High precision 11Bit 230MHz Video DAC
- 3. New 1.65GHz Video amplifier and improved gamma circuit
- 4. Low noise linear regulator
- 5. Low noise and high precision linear regulator for whole system
- 6. Low ESR capacitor
- 7. Ultra Low ESR capacitor for Video amplifier
- 8. Output sync type selection jumper
- 9. Output H, V sync polarity selection jumper
- 10. Multi-function Switch-- SW1
- 11. Firmware upgrade port
- 12. Gamma adjust Pot
- 13. Contrast adjust Pot
- 14. Push button

HDMI input ports:

Connect HDMI cable to video source

SPDIF port (Toslink):

Optical digital sound output, support 2ch PCM and 8ch compressed sound

DC connector:

Connect to AC adaptor

3D connector:

Connect to 3D glasses IR emitter

First Time setting

1. please connect video source, like PS3, Blu-ray player, DVD player and EXT-FULLHD V3 with HDMI cable
2. please use VGA→RGBHV cable to connect to projector or monitor if they have BNC input
3. plug in DC power, the image should be appeared
4. if you want to enable 3D playback, plug in 3D IR emitter to 3D output connector.

【Notice】: if no image show up , please adjust SW1 #5 dip switch to K side , #4 dip switch to E side , then press SEL button until you get stable image ◦ (for some BARCO model, negative sync may needed, please take a look for sync polarity adjustment section), if you can not get the box work, please email us.

LED

1. DET LED: Green→Link active, Orange→Link active and 3D active
2. Link Status LED: Green→input source on, Orange→input selected and active
3. 12bit LED: Green→ deep color 12bit mode
4. 10bit LED: Green→ deep color 10bit mode, Red→remote acknowledge or video mode change

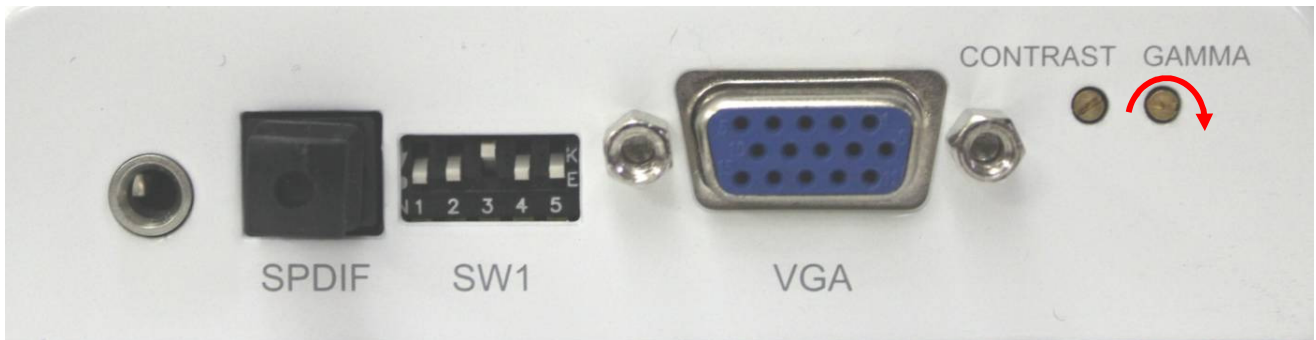
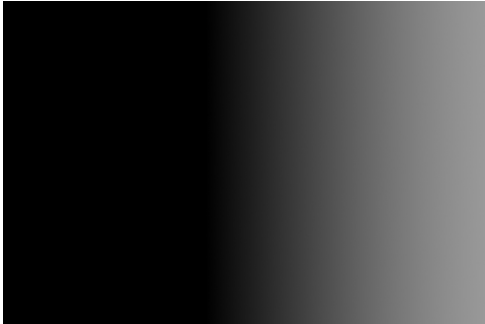
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IR Valid Keys :

Key name	function	note
1	input select HDMI0	
2	input select HDMI1	
0	Select minima gamma	For test only
100	Select maxima gamma	For test only
Adjust +	Image shift to right	
Adjust -	Image shift to left	
MUTE	Mute the video	
MODE	Turn off 3D mode when 3D video is active	



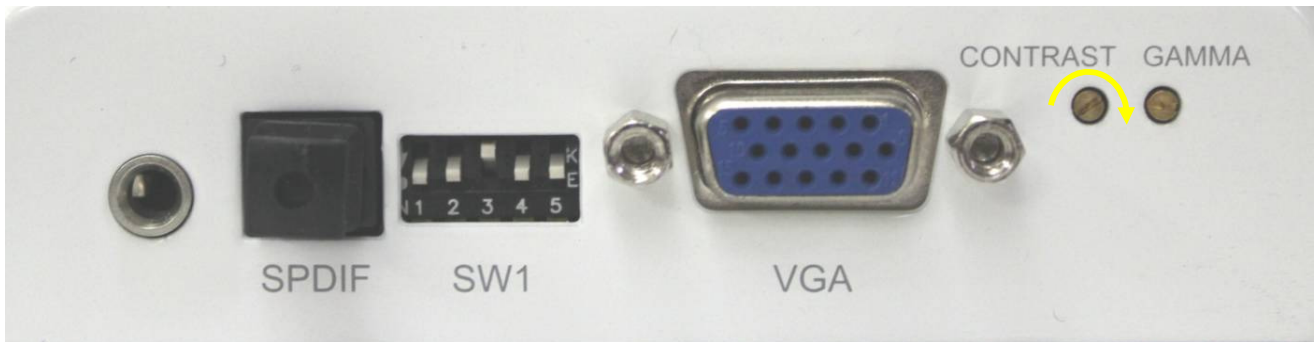
Adjust gamma (clockwise to increase gamma)



【Notice】 :

- 1. Too large gamma will let black level saturate and get washed out image, please use grayscale pattern to adjust correct gamma
- 2. Gamma function will be disabled at component output mode

Adjust contrast (clockwise to increase contrast)



【Notice】 :

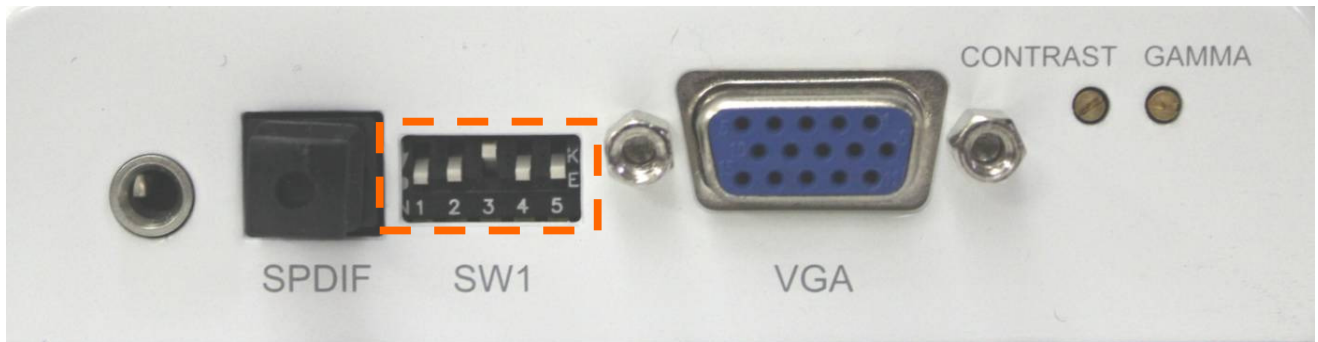
Too large contrast will let image white level saturate, only do this when you have instrument to measure the output white level. (Factory default is 0.7V with gamma off)

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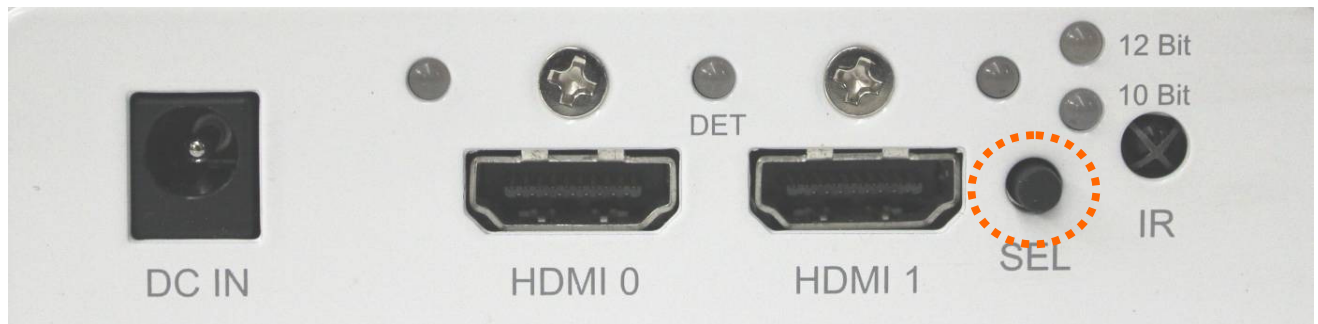
Multi Function Switch:

#1	Black Boost	Please see page14~Page18 for instruction
#2	RGB/Component	
#3	Range expand	
#4	Reset/input SEL	
#5	H-shift/input SEL	

Location of Switch:



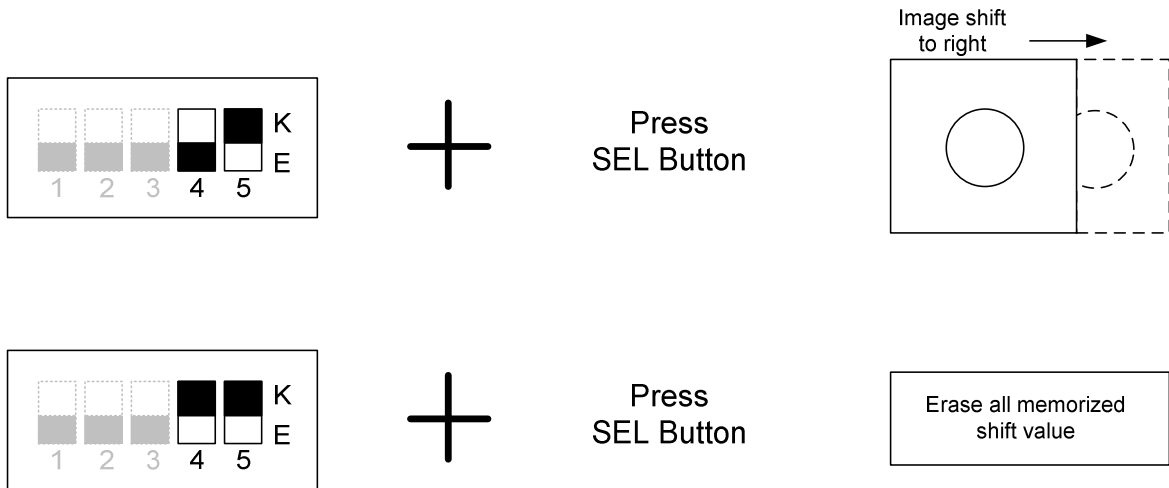
Location of SEL button



H-PHASE ADJUST: (Professional only)

【Step】 : (Professional only)

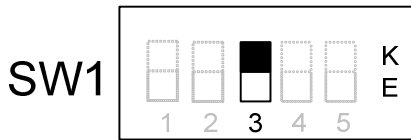
1. Set SW1 #5 at “K” side , #4 at “E” side
2. Press SEL button, you will see the image shift to right, and 10bit LED will blinking
3. If input resolution changed, like move from 1080P to 720P, please do the step 1, step 2 again
4. shift value will be memorized for each factory defined resolution (list in table 1, for HDTV, support 50Hz and 60Hz only)



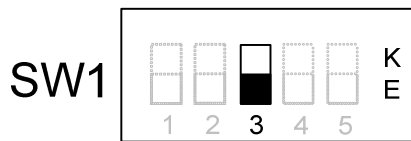
【Notice】 :

1. When the image shift to the right limit, the 10bit LED will keep on when press SEL button, **keep press SEL button for more then 2 second, image will go to the original left side.**
2. Shift value will store in memory for each factory default resolution when power off, and shift value will be loaded at next power on
3. When set on component output mode, the shift will at opposite direction
4. **if you can not get proper image shift use above method, you can use remote Adjust ± Key to adjust additional shift, it is unlimited adjustment, so if image disappear, just press opposite direction.**

Range Expand control:



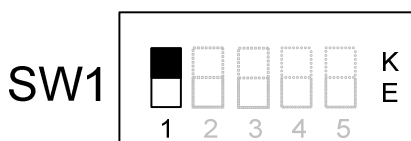
**Range Expand on
Output=0-255**



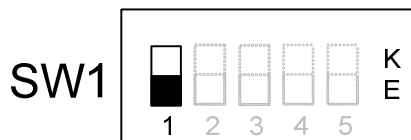
**Range Expand off
Output=16-235**

- 【Notice】** :1. When set range expand on, you will not able to see any BTB and WTW, but most video content will contain no data in BTB and WTW, set this will enhance total picture dynamic range
2. When input is RGB 0-255 mode, please turn off this function

Black Boost control:



Black boost on

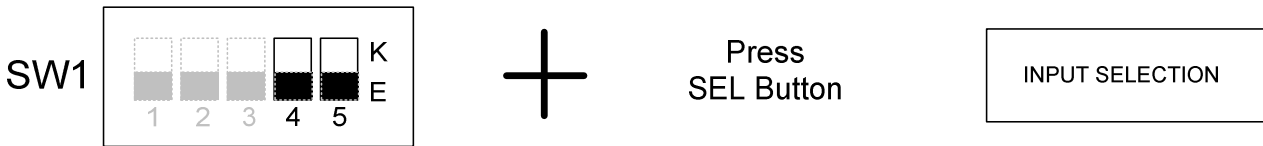


Black boost off

Black Boost can help CRT user to get more detail in black without adjust too much brightness on CRT

AUTO INPUT DETECTION

When no HDMI plug in, the EXT-FULLHD V3 will auto switch between two ports until it receive valid HDMI signal. If both inputs have valid HDMI signal, User can set SW1 #4 at “E”, #5 at “E”, and then press SEL button to select the input source



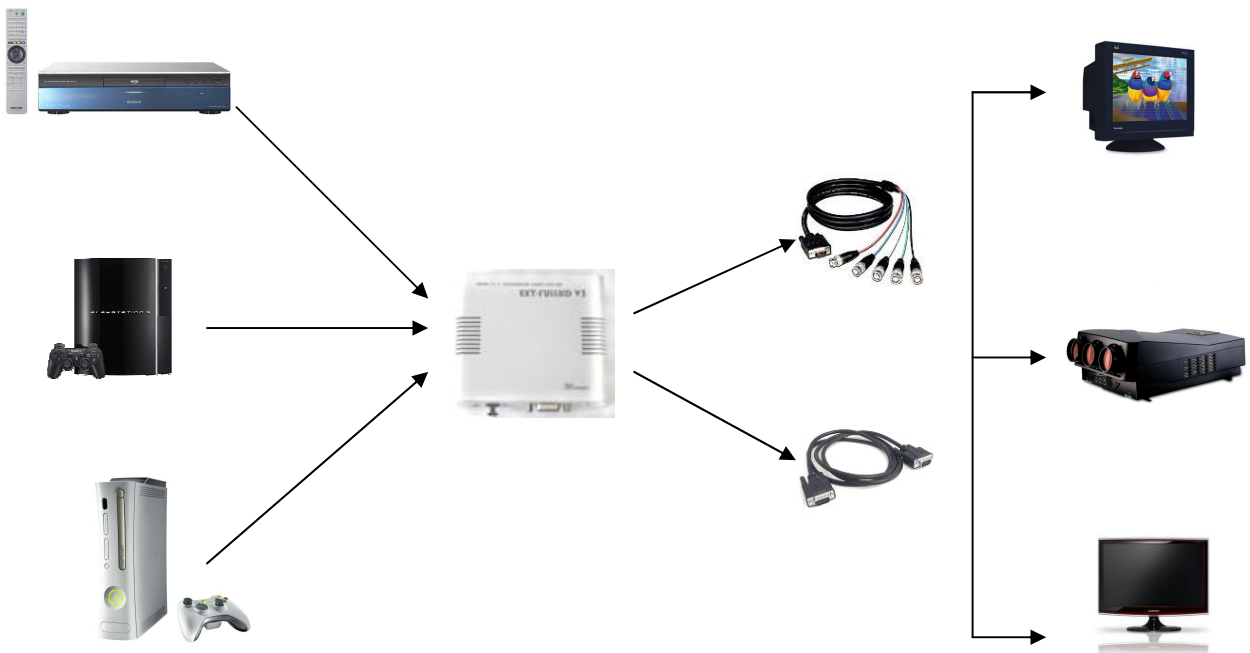
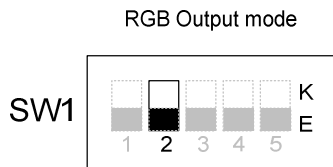
【Notice】 : Input selection only works when both HDMI inputs are valid
 If you can not get stable DET LED on EXT V3 with video source. Auto input detection need to be disabled by put a jumper on J7, like Pioneer SC-xx A/V receiver.

Peak White Detection

When you set EXT-FULLHD V3 at RGB output mode, there is a block will detect output white level Automatically, if output white level over 0.7V, the 10BIT LED will keep flashing to indicate too much contrast, you can turn contrast pot un-clockwise to lower the white peak level.

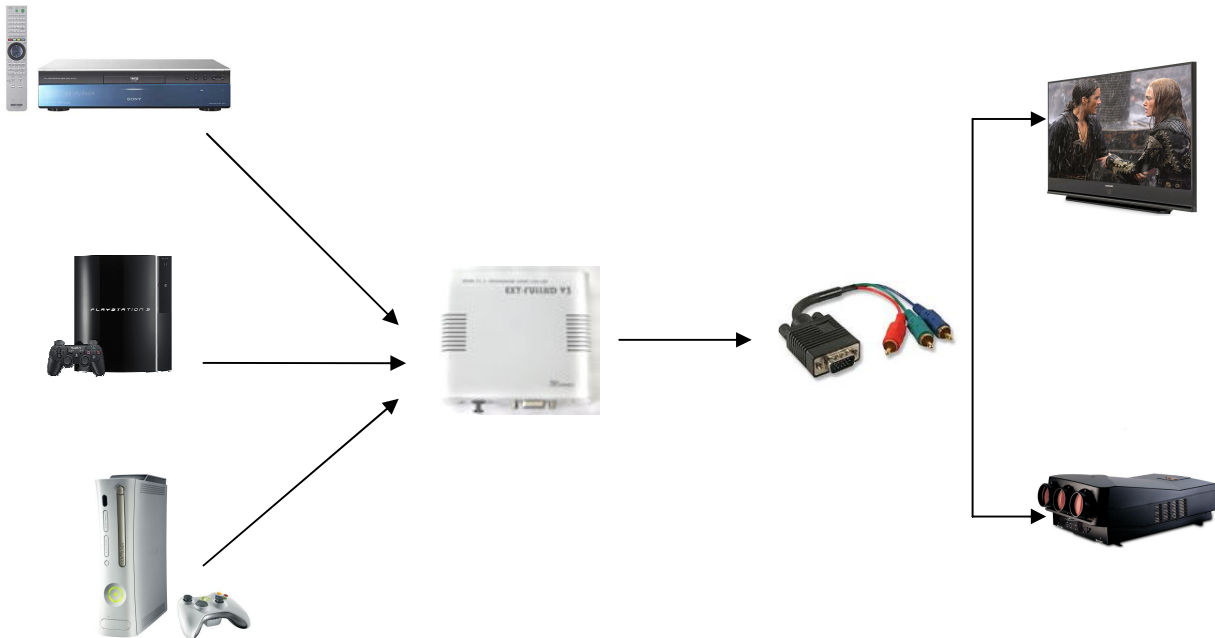
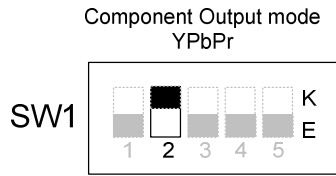
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Output mode setting (RGBHV, RGBS)



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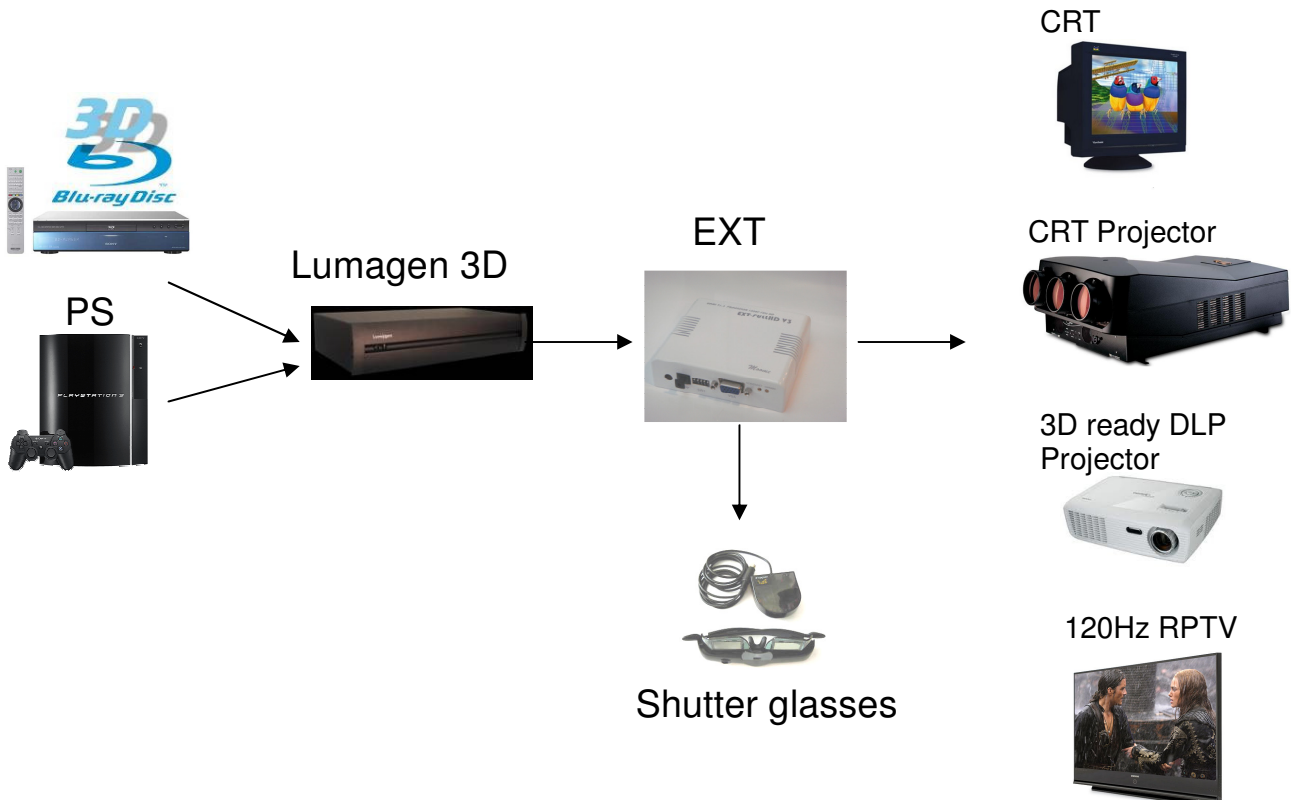
Output mode setting (YPbPr)



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To use a Blu-ray player or PS3 to play 3D movies you will need:

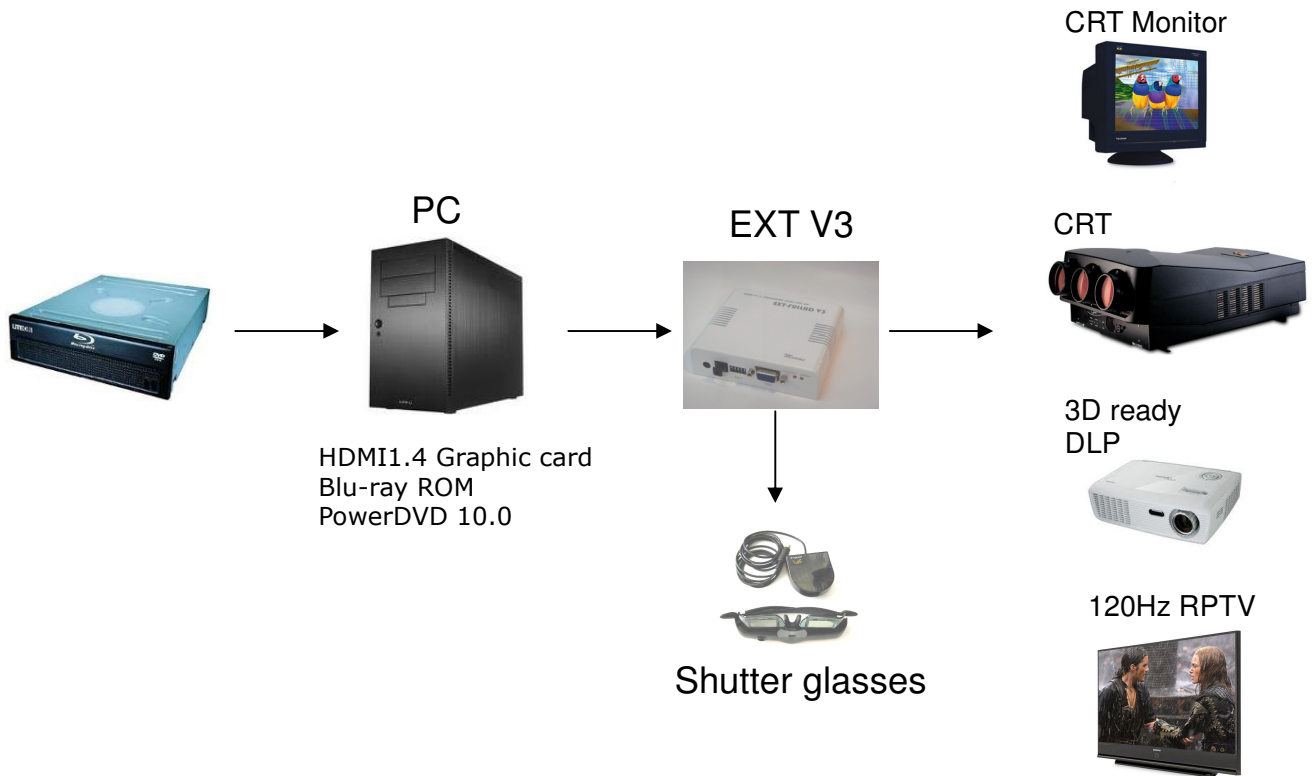
- The EXT-FULLHD v3 3D processor
- A Blu-ray player that support 3D like the [Sony BDP-S470](#) or the [PS3](#) ([see complete list of 3D Blu-ray players](#))
- A scaler that supports 3D like the [Lumagen Radiance](#)
- A display that supports 100/120Hz refresh rate via the RGB input such as a CRT projector, CRT monitor, DLP projector, 3D ready projector or RPTV (Check your display manual)
- [3D shutter glasses](#) (with IR emitter)



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To use a personal computer to play 3D movies or 3D games you will need:

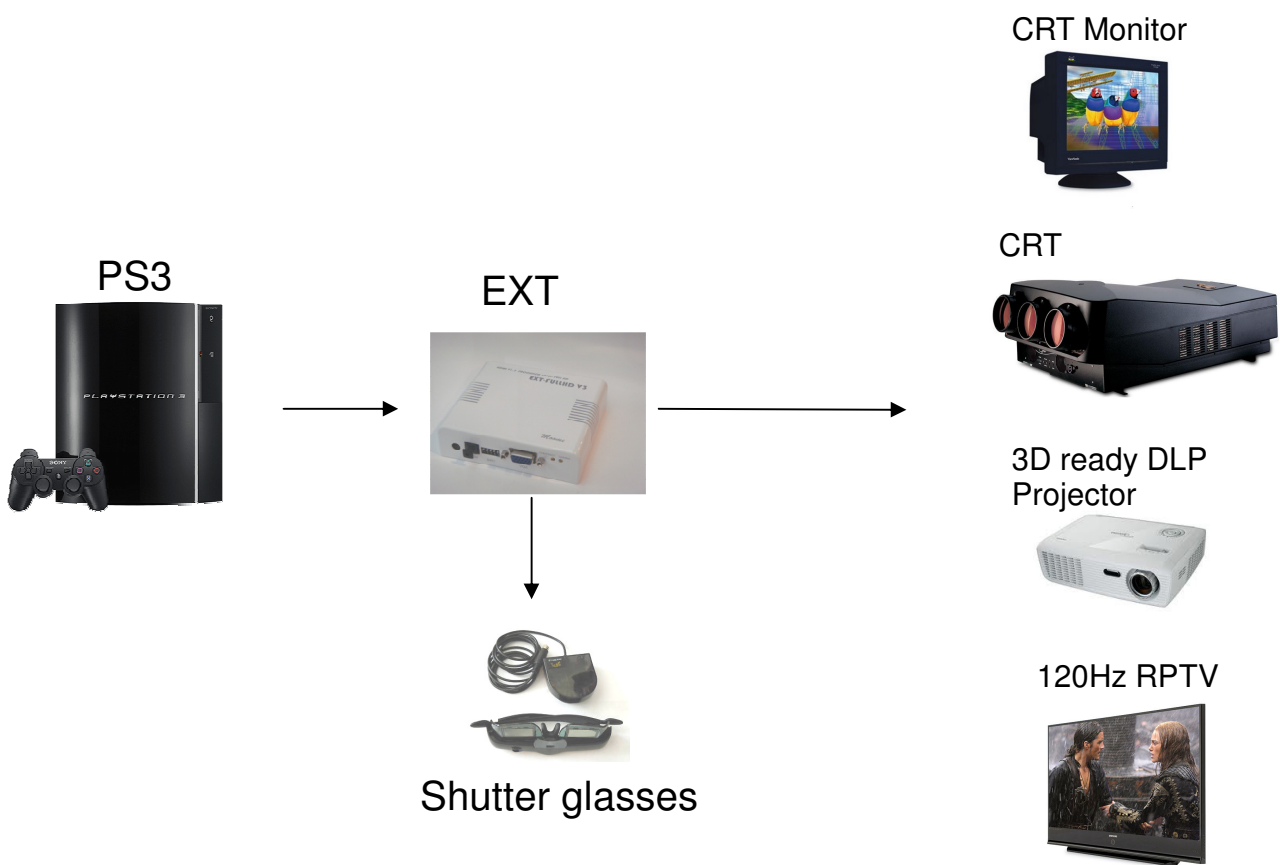
- The EXT-FULLHD v3 3D processor
- A PC with [Blu-ray ROM drive](#) and [NVidia](#) or [ATI](#) video card
- A display that supports 100/120Hz refresh rate via the RGB input such as a CRT projector, CRT monitor, DLP projector, 3D ready projector or RPTV (Check your display manual)
- [3D shutter glasses](#) (with or without IR emitter) such as the [nVidia GeForce 3D Vision Kit](#)
- You will need HDMI1.4 Graphic card



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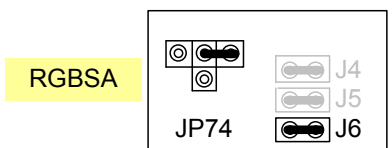
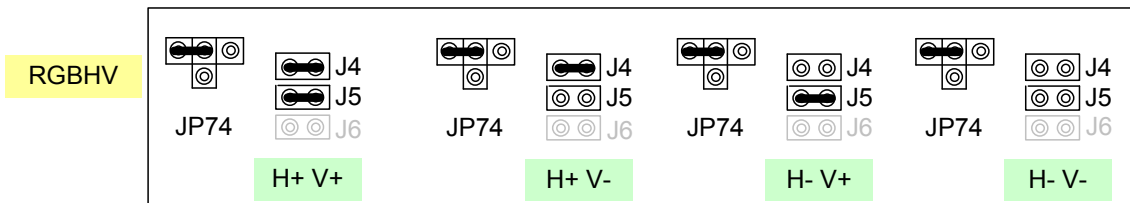
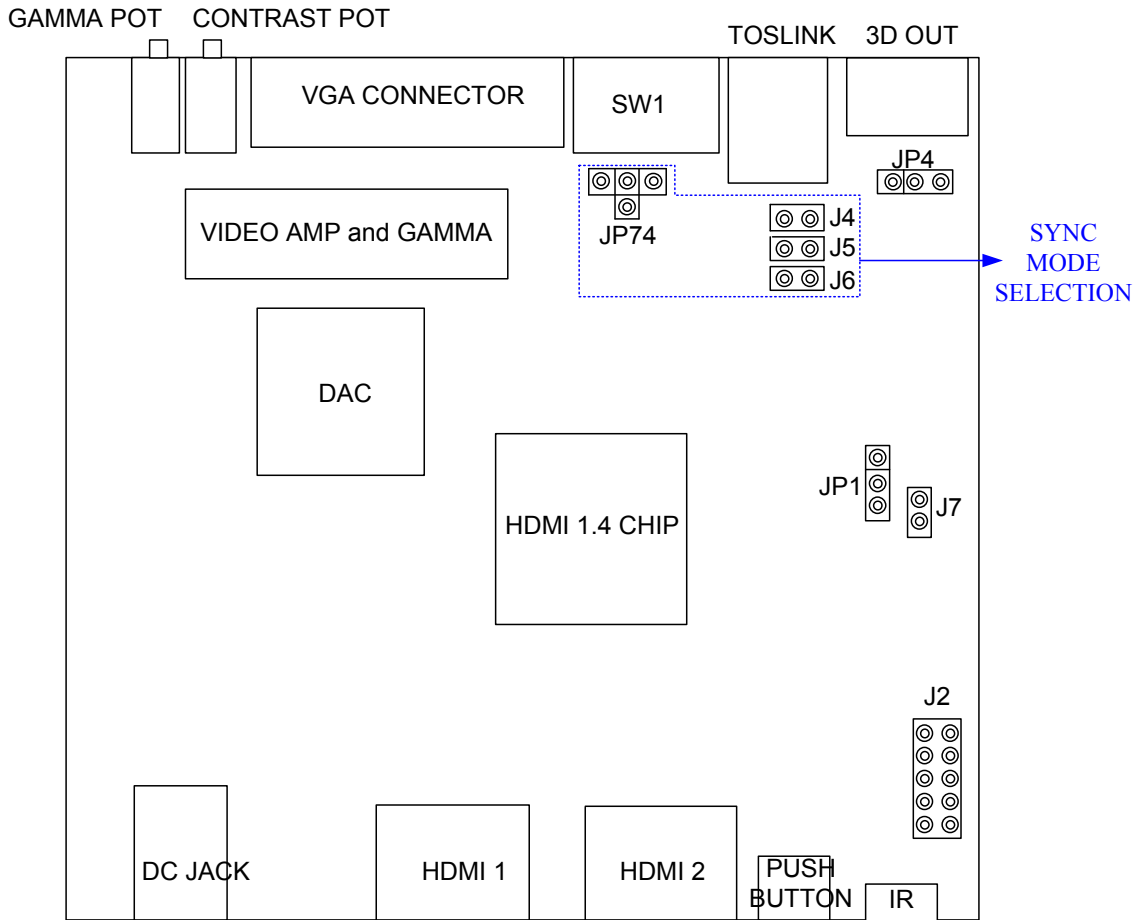
To use a PS3 to play 3D games you will need:

- The EXT-FULLHD v3 3D processor
- A Sony [PS3](#)
- A display that supports 100/120Hz refresh rate via the RGB input such as a CRT projector, CRT monitor, DLP projector, 3D ready projector or RPTV (Check your display manual)
- [3D shutter glasses](#) (with IR emitter)

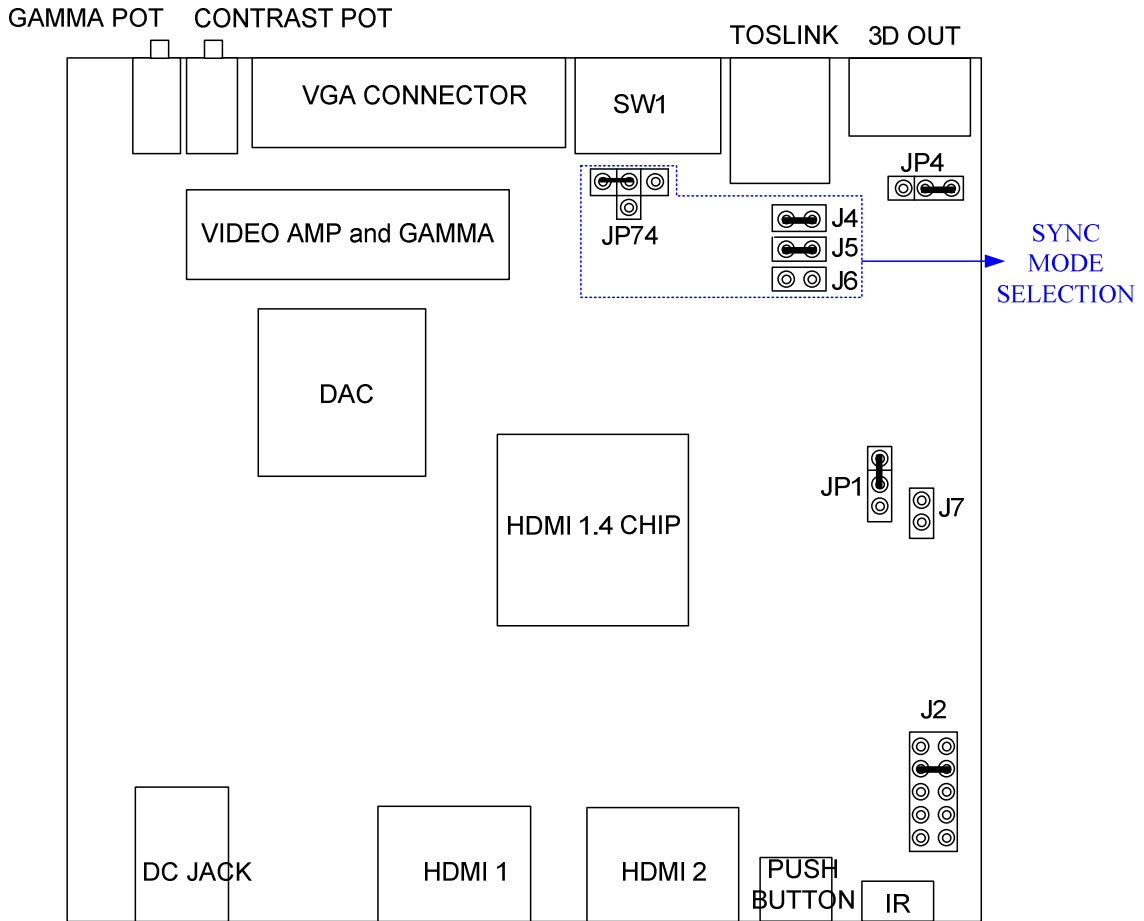


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OUTPUT Sync mode selection:



Jumper Factory setting:



PCB Ver: 0.3

Recommend output sync mode for different display:

RGBHV: for most CRT Monitor, LCD Monitor, SONY VPH series projector, NEC PG projector, NEC XG projector, BARCO 808 1209 909 projector (need negative sync)
RGBST(A): for BARCO 70X CRT projector, BARCO 801 CRT projector

Tested HDMI V1.3A Players :

1. Toshiba XA2 HD-DVD player
2. Sony PS3 with 3D Game (FW need upgrade on PS3)
3. Panasonic BD30A Blu-ray player
4. SONY S360 Blu-ray player
5. LG Blu-ray player
6. Samsung Blu-ray player
7. Philips Blu-ray player
8. SONY BDP-S470 3D blu-ray player

EXT-FULLHD V3 Spec:

Weight: 270g
Dimension: 100mmX100mmX30mm
Power consumption: 3W +5V 0.6A (1080P 60Hz)
Maxima resolution: 1920X1200 72Hz
Analog bandwidth: 1650MHz
HDMI cable length support: >30M
Output white level: 0.6V-1.0V adjustable
Output mode: RGB, Component YPbPr
Sync signal: H+ V+, H+ V-, H- V+, H- V-,
, Composite sync (TTL level or 1V)

Technical support:

moome@curtpalme.com

<http://www.curtpalme.com/forum/viewforum.php?f=33>

Warranty:

Fully 2 year