

EXT-HD

Datasheet

DOC V1.00
PCB V1.22

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EXT-HD brief

EXT-HD is highly integrated box for general CRT projector. It has two HDMI input port with remote selectable, there is an advanced YPbPr input port support up to 1080P (optional) and convert to RGB output . build-in Gamma circuit create real nature image for your projector. The EXT-HD is ideal product for CRT projector connect feature digital and analog HD source.

FEATURES

■ HDMI input path

- HDMI 1.0, 1.1, 1.2ready ,HDCP 1.1, and DVI 1.0 compliant
- DTV mode support (480P,576P,720P,1080i,1080P) for 50 and 60Hz
- PC mode support 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
- High precision 200MHz 10bit DAC
- High speed 500MHz output Buffer
- Gamma correction processing at output with 1GHz high precision video opamp

■ Analog component input path

- BT601/709 color space transform support
- Auto mode detect for correct color space
- Support HDTV mode 480P 720P 1080I 1080P 60Hz (optional)
- High speed 500MHz output Buffer
- Gamma correction processing at output with 1GHz high precision video opamp

■ Board and BOX

- Metal box have cleanest electrical environment for high definition content processing
- Standard gamma circuit interface, can adjust by remote or VR on the board
- Global power supply 100V-240V
- IR remote control (input source selection, gamma adjust, power on/off)
- Option DVI output (from hdmi source only) for testing

■ HDMI support mode table

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
	1080I	29HZ 30HZ 50HZ 59HZ 60HZ 96HZ ^{*1}

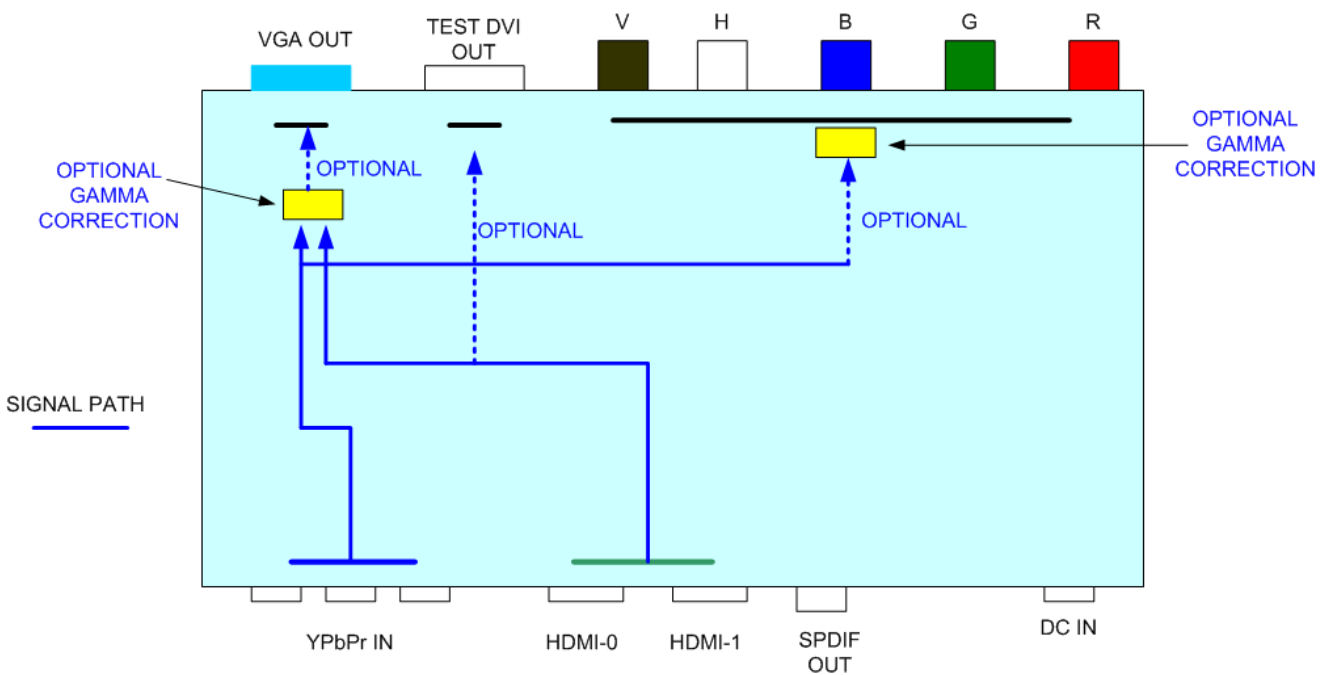
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	1080P	50HZ 59HZ 60Hz 24HZ ^{*2} 25HZ ^{*2} 29.9HZ ^{*2} 30HZ ^{*2}
	1035I	30HZ

*1 need use powerstrip to set graphic card output this mode

*2 EXT-HD support these modes, and will output these signal with same refresh rate as input source, but most CRT projector only support 30Hz-150Hz, using such low refresh rate may let projector working with incorrect behavior.

Box overview



HDMI input ports:

Connect HDMI cable to video source

Component port:

Connect analog component source

SPDIF port (Toslink):

Optical digital sound output

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DC connector:

Connect to AC adaptor

Long cable support:

30 meter molex HDMI cable test ok 720P BOK HDMI player

IR control:

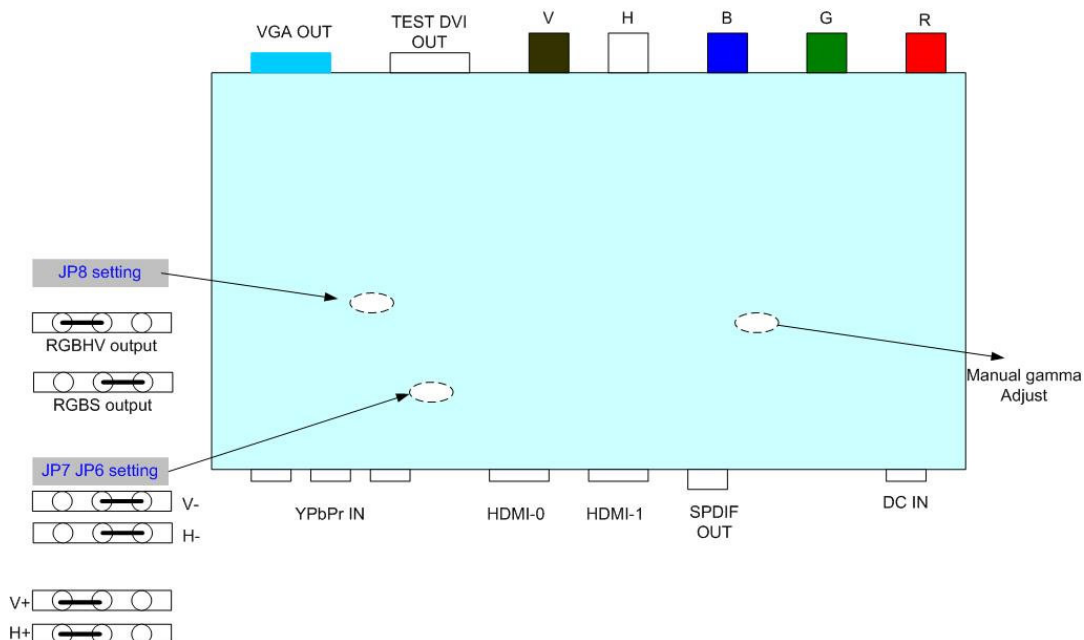
IR control can let you switch between input sources and adjust gamma level on analog output and power on/off function. User also can know current input mode is 444 or 422.

Key function for IR:

Key name	function	note
power	power on/off for EXT-HD	
1	input select HDMI0	
2	input select HDMI1	
3	input select Component	
gamma	gamma up/down	
Reset	Reset audio	
Display	Debug to see video mode	You will see LED show 444 or 422

Manual gamma VR location:

Manual setting for EXT-HD



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Counterclockwise the VR will increase the manual gamma level, when you hear a tiny click noise, you turn to Maxim manual gamma (default value). Clockwise the VR will decrease manual gamma level, when you hear a tiny click noise, you turn to zero manual gamma.

Total Gamma control = IR gamma * VR gamma(manual gamma)

Total Gamma Adjustment Step

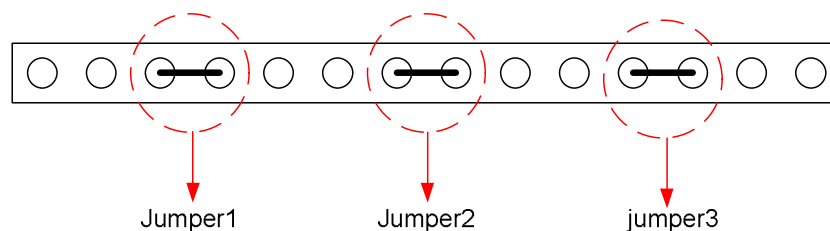
step 1: Trun the VR to max

Step 2: using remote controller gamma up/down key to get a little higher gamma level you want. This is crose adjust for gamma step, you will have total 20 level to use.

Step 3: fine tune the gamma level by turning the VR. (you will not need do this step, if 20 step gamma is enough for your system.

Remove Gamma function completely for VGA version

If remove gamma card, there will be three jumper needed. Jumper setting is below:



After remove the gamma card user may feel the picture is not as bright as before, it is normal.