Specs

HDfury2 Specifications

HDfury2 is the world smallest and most powerful HDCP deciphering converter ever built!

The result is a crystal clear image that is perfectly centered with amazing color depth. It features VGA and Component video output, Analog & Optical sound output, and add-on accessories too (see Gamma X !) ...

If your TV/projector was built before 2005, it is not HDMI compatible. This means that you'll never be able to fully use that expensive CRT projector, digital projector, plasma display, or PC screen with new sources like the PS3, Xbox360, Blu-ray players, Cable TV / Satellite boxes, or PC graphics cards. You need HDfury2 to unlock the full potential of your display! Why buy an expensive new display device when your existing one works perfectly well? Enhance your display's compatibly and value with HDfury2!

Designed by a group of home theater videophiles, the HDfury2 delivers a razor sharp picture with unprecedented colour from any HDMI source, supporting resolutions up to and beyond the FULL HD (1080p) standard. The picture quality improvement when using HDfury2 is immediately obvious, providing an amazingly clear and detailed picture!

HDfury2 Features:

Main features :

- HDMI input
- Component (YPbPr) and VGA (RGBHV) video output
- Sound output in both Analog and digital Optical through an innovative 3.5mm combo jack

The HDfury2 also includes many first time world exclusive features :

- Perfectly centered image in all standard NTSC/PAL modes (see below)
- Performs Colour Depth Upscaling in all modes (see below)
- Automatic separate SD/HD color-space selection
- Accept third party accessories on its output
- Lowest power consumption of any converter
- Software upgradeable (EDID and Firmware) to never become obsolete!
- Custom profiling to match any display requirements or to limit output resolution
- Screen position adjustment through firmware
- Smaller and is able to handle and include more technology innovations than the original HDfury

Colour Depth Upscaling:

A world first! HDfury2 accepts both digital RGB and component (YCbCr) video over HDMI and automatically processes both correctly for zero loss of dynamic range. HDfury2 takes this HDMI standard 16-235 data and cleverly scales it to a fully maximized output dynamic range (0-255) before sending it out to the final DAC conversion stage. The result is an absolutely stunning and dynamic picture!

Technical details: Component (YCbCr) is sent in a standard 16-235 code range in the HDMI domain. Most other converters simply output this exact same range but in analog form. These other converters basically feed code 16 to the DAC when black is requested and 235 when white is requested. However, DACs do not automatically comply to video standards resulting in code 16 translating into 44mV and 235 into 645mV (if 700mV is the full range) and while black or white crush does not occur, these converters limit the dynamic range resulting in a less than optimal picture. This is highly noticeable when you compare full range (0-255) vs. limited range (16-235).

Perfectly centered image:

Another world first! HDfury2 is the only device that recreates the sync and timing alignment completely and therefore perfectly centers the image according to the SMPTE standards in all modes. This is a major difference in the architecture. No other converter can compete against recreating the syncs completely.

Technical details: RGB as defined by CEA861A/B/C/D specification defines the leading edge of HSyncs at different locations than the SMPTE/ITU standard does for component (YPbPr). This is why ALL but one direct RGB to component converters fail to correctly center the picture. Others disregard time-domain correction placing the image too far "left" on the screen. This is the reason why people using the original HDfury coupled with a typical stand alone converter fail even though the original HDfury is not doing anything "incorrectly". It simply passes information which will be interpreted incorrectly by many TVs. As well, while less important (but still missing from other converters), HDfury2 outputs tri-level syncs in all HD modes as required by standards. Again, no standalone RGB-converter does this. We have never come across or heard from a customer of a TV that requires tri level sync but still it's nice to meet the spec and be able to claim compliance.

How does the HDfury2 compare to the original HDfury?

Data processor:
HDfury2: 11 bit, 200 Mhz
Original HDfury: 10 bit, 175 Mhz

Input:
HDfury2: HDMI (for greatest compatibility)
Original HDfury: DVI-D (older)

Output:
HDfury2: Selectable Component and RGBHV
Original HDfury: RGBHV

Sound Output?
HDfury2: YES, Both Analog & Digital Optical
Original HDfury: NO

Automatic image centering?
HDfury2: YES, in all modes
Original HDfury: NO

Colour depth upscaling?
HDfury2: YES, in all modes
Original HDfury: NO

Lowest power consumption:
HDfury2: YES
Original HDfury: NO

Software upgradeable?
HDfury2: YES, Both firmware and EDID
Original HDfury: YES, EDID only

Screen position adjustable via firmware?
HDfury2: YES
Original HDfury: NO

Output resolution limit and custom profiling?
HDfury2: YES
Original HDfury: NO

Technology:
HDfury2: 6 layer high density class 5 PCB
Original HDfury: 2 layer low density

The HDfury2 solves all of the original HDfury issues, including:

Some source devices have issues handshaking with DVI-D (hdcp) devices such as the original HDfury, requiring the use of an HDMI switch between the source and the original HDfury.
SOLVED! HDfury2 uses an HDMI input instead of DVI-D (hdcp) granting compatibility with all HDMI sources including those that could not handshake properly with DVI-D (hdcp) devices.

Some sources like the Denon 4308 receiver could not handshake with an incomplete CEA861 EDID extension block causing issues with the original HDfury.
SOLVED! The HDFury2 CEA861 EDID extension block is compliant to latest Rev. D.

The picture is shifted to the left on some displays when using the original HDfury and it could not be centered within the display's adjustment range. Use of external device such as RTC2200 or Box 1020 was needed.
SOLVED! HDFury2 doesn't shift the picture to the left. It is perfectly centered.

Some sources do not output enough current on their digital output pin#14. Use of external power supply was needed for the original HDfury (either Wall Plug or USB).
SOLVED! HDFury2 consumes 160mA less current while running at 1080p compare to the original HDfury. HDfury2 supports more sources out of the box without requiring the use of the power supply.

Some users reported their original HDfury ran "hot" after many hours of use.
SOLVED! HDFury2 unit runs 1.2w cooler at 1080p than the original HDfury.

The original HDfury is unable to run long analog cables on its output. ex: Displays with VGA cords is problematic.
SOLVED! HDFury2 can run longer analog cables on its output (to approximately 25-35 feet).

Hard to identify when the power supply is required for the original HDfury (some source devices do not provide enough current on pin14).
SOLVED! HDFury2 has a new LED system which indicates power status: If the LED is OFF or blinking then the HDFury2 is not receiving enough power from the source device and the external HDFury2 power supply must be used. If the LED is ON the HDFury2 is receiving adequate power.

HDfury2 Specifications:

- INPUT: Digital HDMI 24p Female Port (100% digital)
- OUTPUT: Analog RGBHV or Component (YPbPr) via HD-15 D-Sub (VGA style) connector
- User Selectable RGBHV / Component (YPbPr) output with a switch
- A HDMI -> HDMI cable is used to connect to an HDMI source
- RGB 4:4:4 (8 bits) digital input
- YCrCb 4:4:4 or 4:2:2 digital input
- Compatible with non-HDCP or HDCP sources
- Compatible with any RGB Display
- Compatible with any YUV Display

- Directly connects to a display's VGA (RGB) input
- Directly connects to a display's Component (YPbPr) input using included breakout cable
- Takes less then 1 minute to install (Plug & Play)
- 11bit 200MHz data processing
- Triple video DAC
- RGB-H/V Male Port D-SUB 15 Output video analog signals (0.7Vpp over 75 ohms impedance)
- Ultra short Analog links (<1 cm) on the HDfury2 for optimal quality
- HDMI video bandwidth: 25-165MHz
- HDMI Data Rate – Bandwidth 1.65 Gbit/sec (Single link)
- Supports all HD/SDTV formats from 1080p down to 480i
- HDTV ready (480i/480p/576i/576p/720p/1080i/1080p48/50/60 compatible)
- DVI 1.0 compliant
- HDMI 1.1 and 1.2 ready
- HDMI 1.3 interoperable
- HDCP compatible with embedded keys loaded
- HDCP ready
- Reprogrammable Firmware
- Screen position adjustable through Firmware and Custom Profile
- Accepts third party accessories on output such as the GAMMA-X (Gamma Correction)
- Automatic Input Format Detection: Digital YCbCr and RGBHV
- Full dynamic range for all input modes to maximize the level of detail
- Automatically switches color-spaces for both HDTV (Rec.709) and SDTV (Rec.601)
- Precise black levels – no black crush in any standard mode
- Stereo High-Quality Analog Audio Output
- Stereo High-Quality Digital/Optical Audio Output
- HD-DVD and Blu-Ray Disc player compatible
- Playstation3 and Xbox360 compatible
- Satellite and Cable set-top box compatible for HDTV
- HDMI video graphics card compatible
- HDCP compatible with embedded keys loaded
- Energy management : DVI and VESA DPMS compatible
- Ultra low power consumption in Standby (3,5mA)
- Maximum power : 0.4A under 5V (at 1080p/60)
- On-board DC/DC converter (5V) with extra-low EMI signature
- Power +5V from DVI/HDMI
- Blue LED to display active digital link and power status
- Small size : 75×56mm cabinet
- 100% ROHS compliant (Restriction of Hazardous Substances Directive)
- Installation: The HDfury2 module may be DIRECTLY screwed to the back of the display into the VGA SUB-D plug.
- Shortest RGB and Component (YPbPr) analog video link as possible.
- HDCP rules compliant: No end-user access to decrypted analog video. Once screwed, this module becomes "a part of the display itself".
- Professional factory made (mass-production) using pick/place and reflow/wave solder pro equipment.
- Gold Plated connectors, tracks and material
- Full aluminium case with thermal dissipation
- Optional +5v input and power supply
- EDID detective feature: EDID eprom can be reprogrammed using a computer through the graphics card (feature reserved for professionals)
- Internal EDID EEPROM with complete CEA861 extension block
- One year warranty

Here is some further informations about HDfury2 way of acting with color space and BTB/WTW based on firmware version / source settings for INPUT HDMI Datastream and Switch position for OUTPUT configuration.
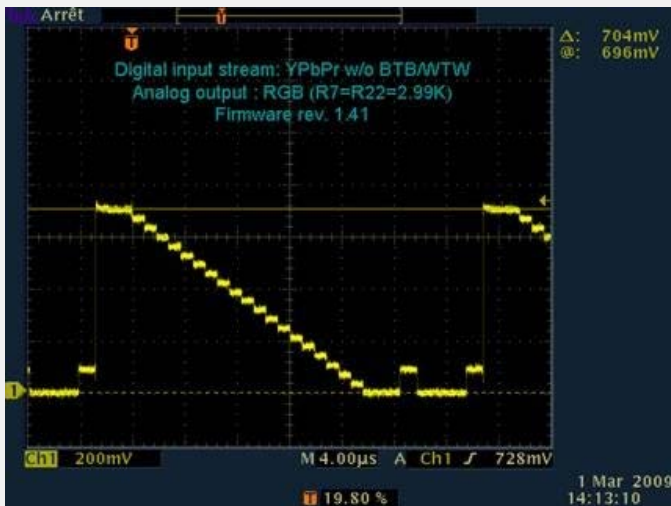
- 1. RGB over HDMI datastream as input and HDF2 set to output RGB: No dynamic processing at all, RGB[0-255] to Analog RGB fullscale [0->0mV and 255->728mV] without colorspace conversion

1-RVB-RGB

- 2. RGB over HDMI datastream as input and HDF2 set to output YUV: No dynamic processing at all,
RGB[0-255] to Analog YCbCr fullscale [0->Blank level and
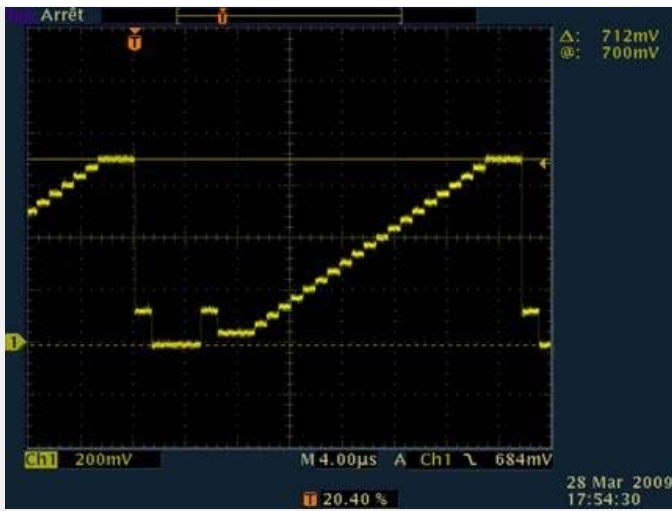255->716mV over blank] (complete range with colorspace conversion)
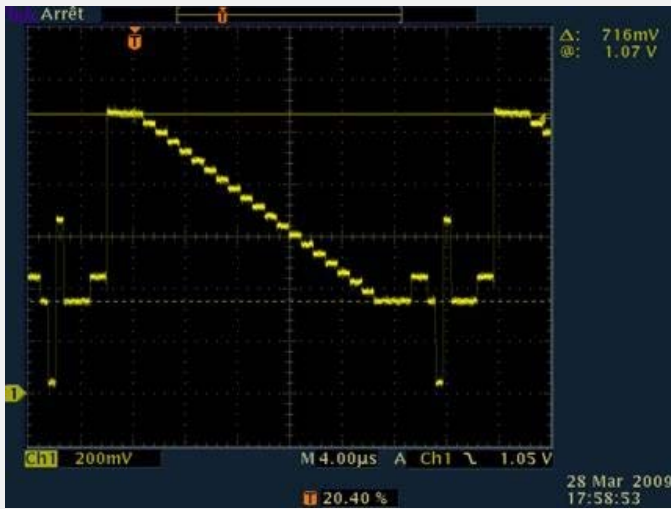
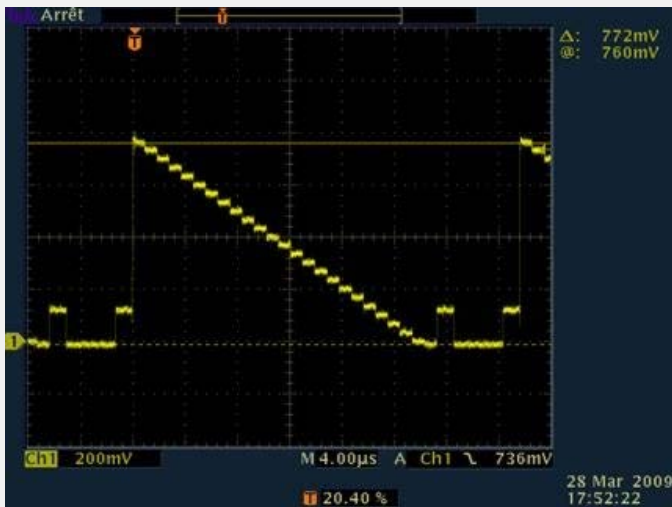**- 3. YCbCr or YPbPr over HDMI datastream as input and HDF2 set to output RGB** *(depending on the FW
revisions)*:
- Dynamic processing is done, YUV[16-235] to Analog RGB fullscale [16->0mV and 235->704mV] *(Dynamic scaling to
complete range with colorspace conversion for V1.41 and V1.5 firmware)*. BTB and WTW informations clipped for these
FW revisions.

- [16->24mV and 255->712mV] *(complete range with colorspace conversion for V1.51 firmware)*. BTB and WTW
informations keeped. No dynamic processing at all.

- [0->0mV and 255->772mV] *(complete range with colorspace conversion for V1.51 firmware)*. BTB and WTW informations keeped. No dynamic processing at all.


- 4. YCbCr or YPbPr over HDMI datastream as input and HDF2 set to output YUV *(depending on the FW revisions)*:
- Dynamic processing is done, YUV[16-235] to Analog YUV reduced scale [16->0mV and 235->648mV] *(Dynamic scaling to reduced range without colorspace conversion for V1.41 and V1.5 firmware)*. BTB informations clipped for these FW revisions but WTW information ouputed (255->700mV).

- YUV[0-255] to Analog YUV [0 to 16->0mV and 255->704mV]
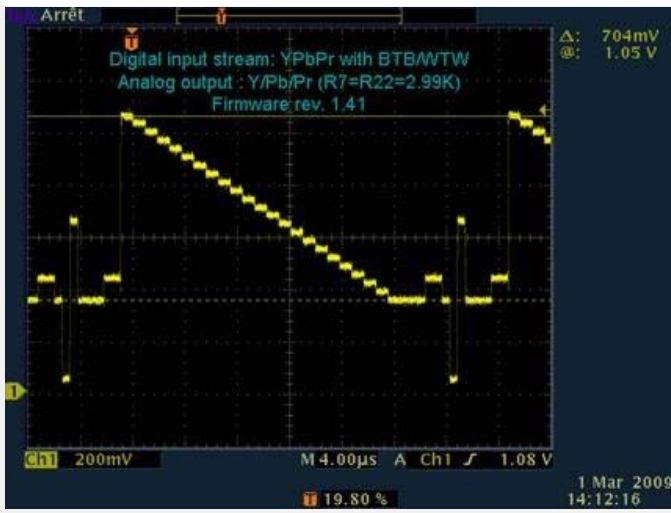
- (complete range without colorspace conversion for V1.51 firmware). BTB information outputed below blanking level (@ -24mV) and WTW informations kept and outputed @ ~750mV above blanking level. Dynamic processing is done.
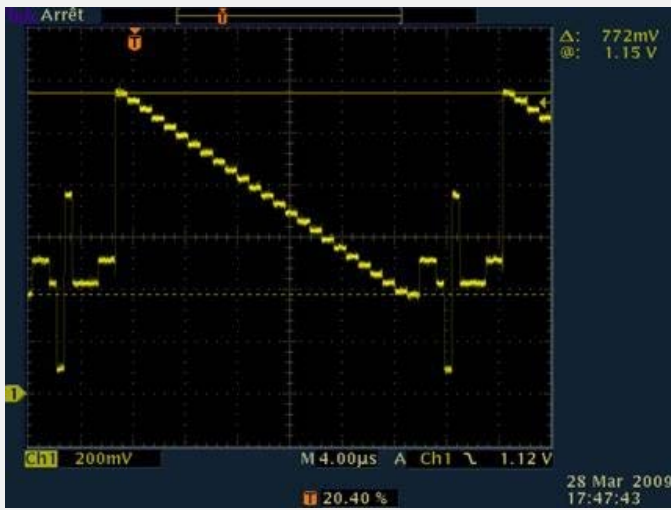
Note : colorspace conversion is the digital treatment that is done by the HDMI receiver to convert RGB to YUV or YUV to RGB. This treatment is done in the digital domain with 10 bits accuracy.