4K Integral

User Manual 4K Integral Rev 1.2

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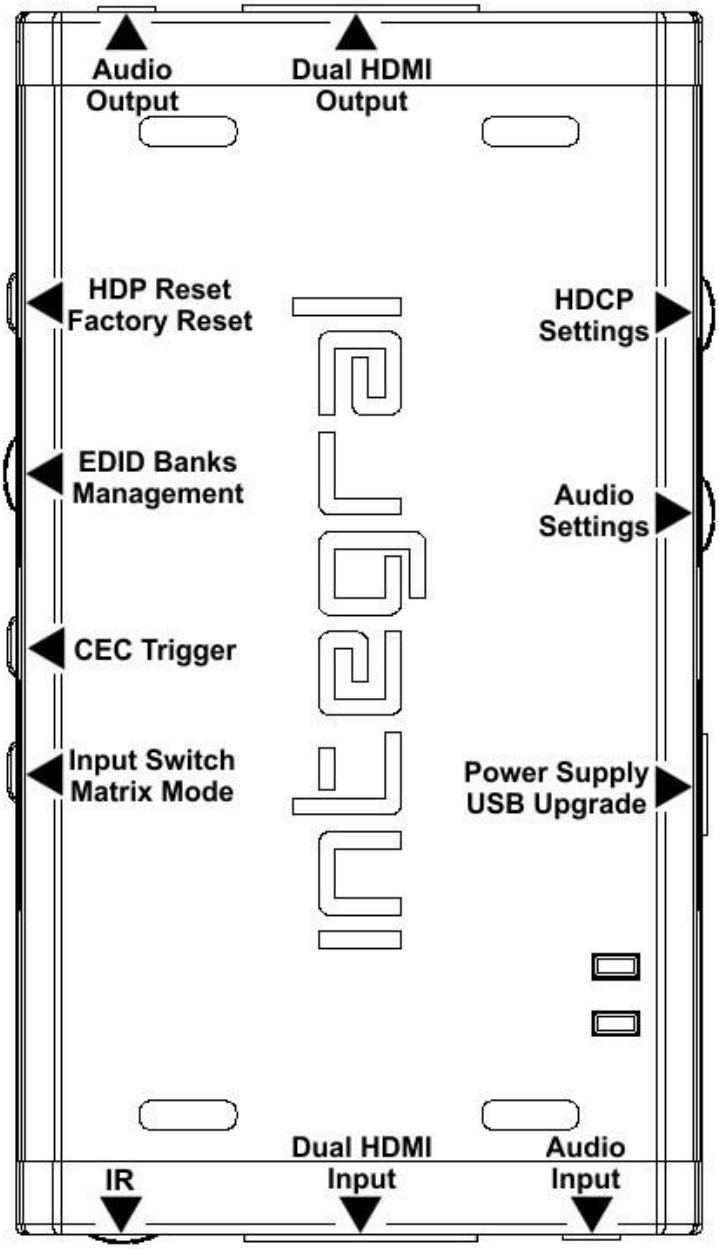
Overview

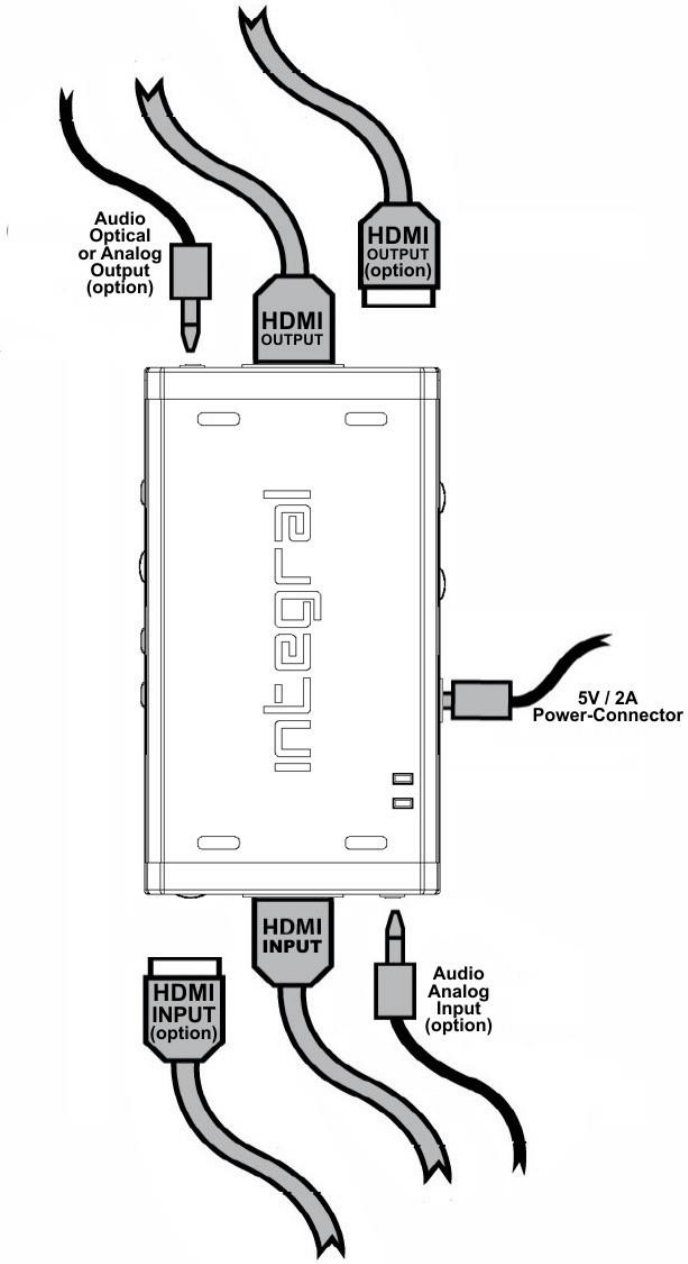
The HDfury team would like to thank you personally for purchasing the 4K Integral!

This unique HDMI2.0a and HDCP2.2 device supports true full 4K60 4:4:4 600MHz 18Gbps bandwidth signals. It will allow you to solve any HDCP error, Split any SD/HD/Full HD/4K or PC signals up to 600MHz, replace or extract HDMI audio, Input CEC commands, Update and switch between multiple edid banks, work as a Matrix, Inject Infoframe and more. Control can be completed with IR codes, through slide switch or push buttons on the unit, via a wired USB connection to a Windows PC or through wireless Bluetooth connection with any Smartphone or Tablet running Android or iOS.



Disclaimer: *3rd party and/or custom firmware providing extra features are not covered in this manual.*

Connecting Cables



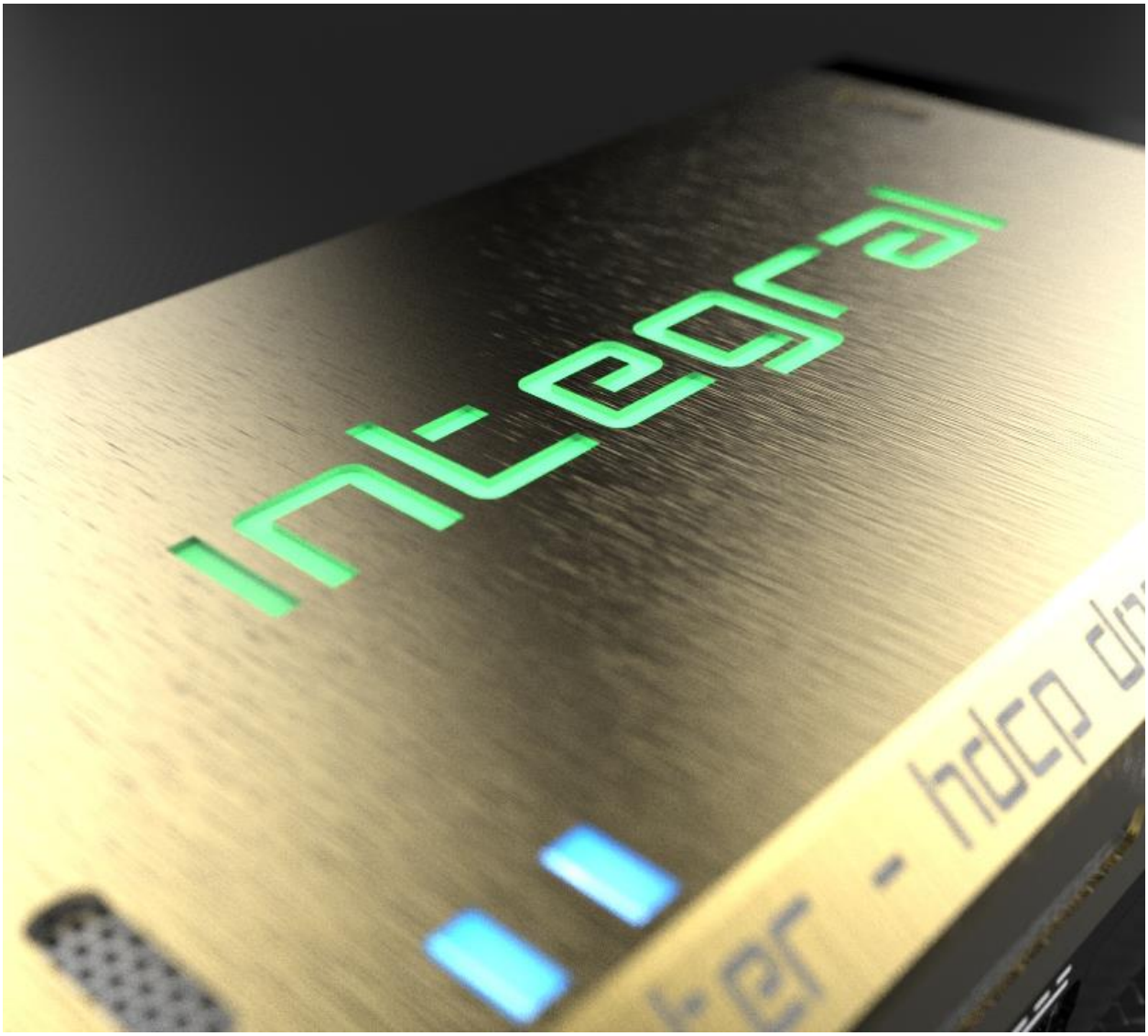
To use your 4K Integral:

- Connect a HDMI input cable to the HDMI input.
- Connect a HDMI output cable to the HDMI output.
- Connect the Integral power supply.
- Connect any additional HDMI input/output cable or any audio input /output cable (optional).

As shipped, the Integral defaults to HDCP1.4 on the Bottom output port. Top Output port can be configured to any HDCP revision. Make sure that you are using 600MHz certified HDMI 4K cable if you plan to set up a 4K60 4:4:4 600MHz 18Gbps link in your setup.

Disclaimer: *3rd party and/or custom firmware providing extra features are not covered in this manual.*

Power/Status LED



The Integral logo will glow Green when in use. When the Integral first receives an HDMI signal the logo will quickly turn on, then off, and then on permanently to indicate that the HDCP handshake has been completed.

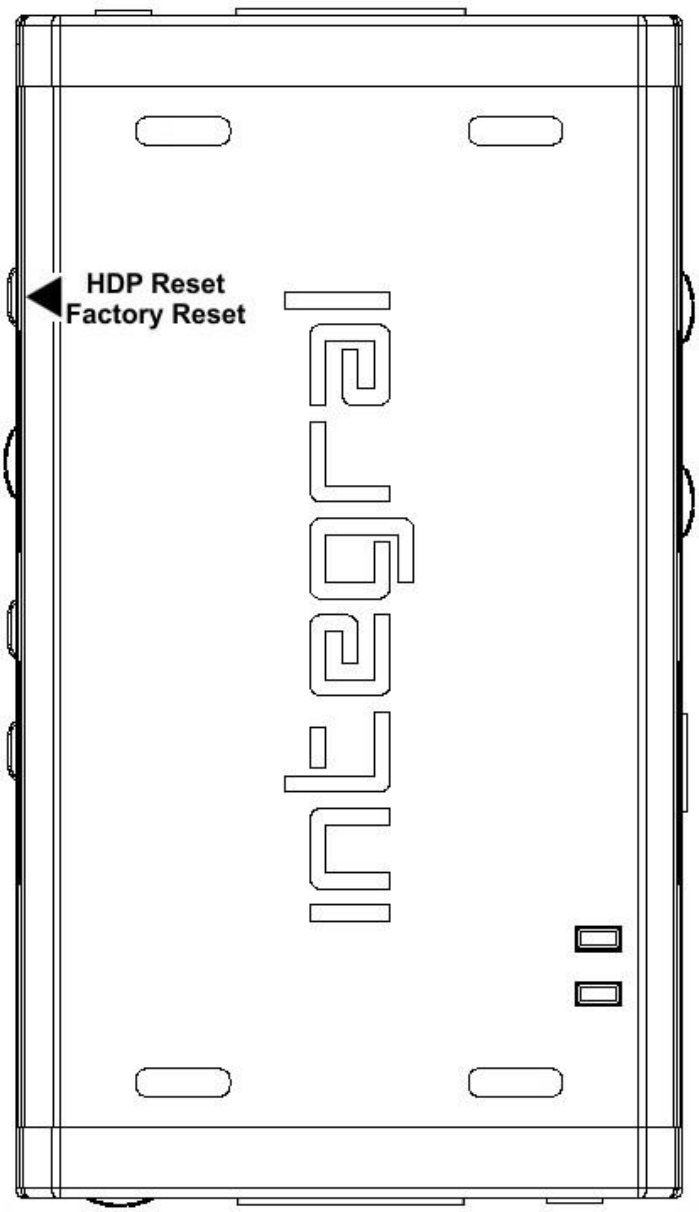
The status of the green logo may be used for troubleshooting:

[Logo OFF]: Insufficient power or no incoming signals. Use the Integral power supply, make sure the source and sink devices are correctly connected and ON.

[Logo BLINKING] (ON for split second, OFF for 5 seconds): The Integral is receiving power and is ready to accept an HDMI signal.

[Logo ON]: The Integral is powered and receiving and decoding a HDMI signal.

Reset HPD (Short Press) or Reset to factory default (Long Press)



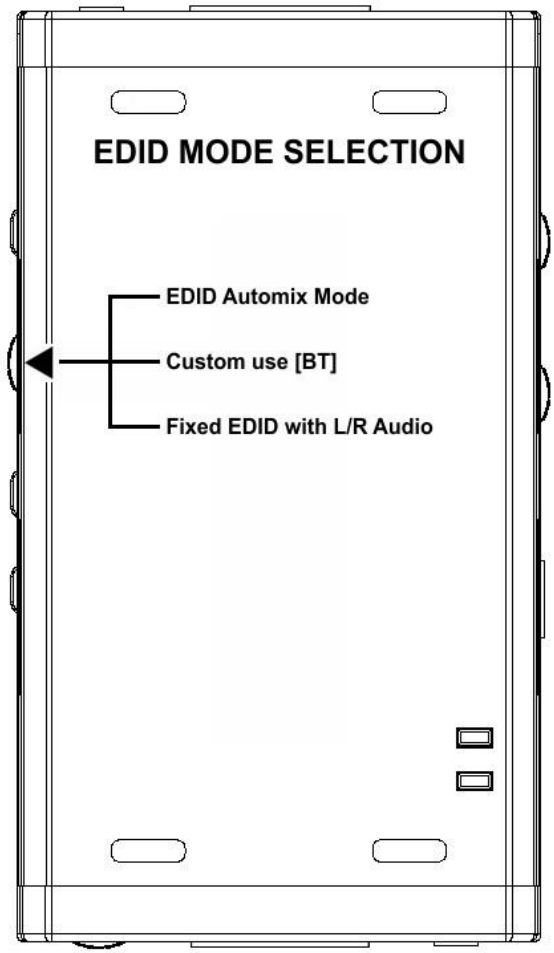
The 4K Integral offers 2 functions per push button.

[Short Press] on Reset Button will generate Hot Plug Detection event.

[Long Press] (over 10s for security) will reset the Integral to factory default.

Note: You can also Reset the unit or perform any others control with IR codes, from the USB GUI for Windows PC or via smartphone/tablet APP for Android and iOS.

EDID Mode Selection



EDID slide switch has 3 positions.
Switch should be set to middle position to allow control via USB, IR or Bluetooth device.

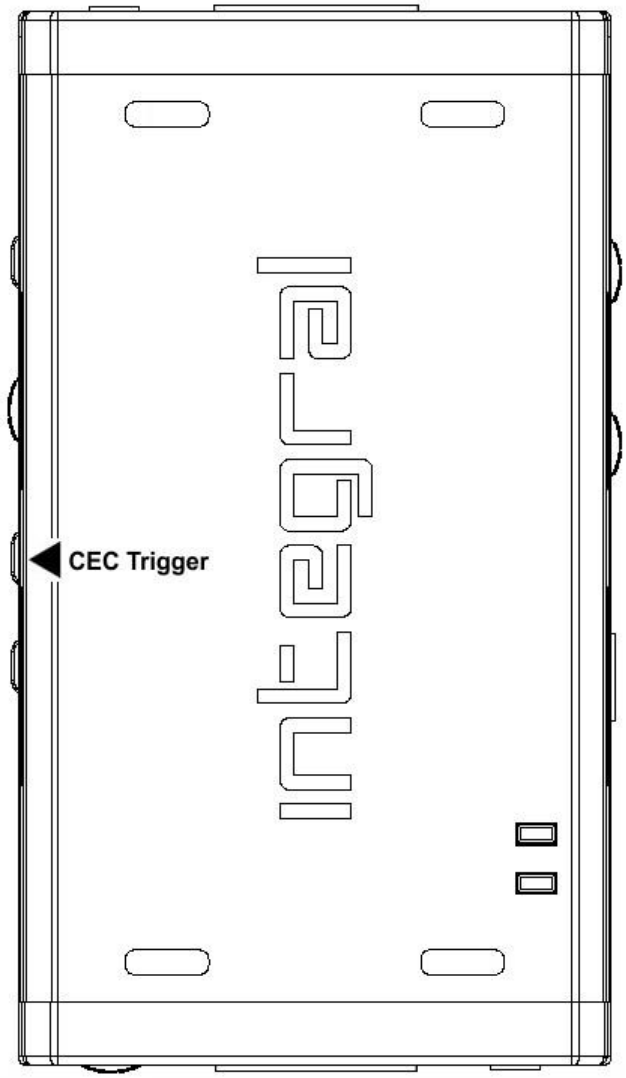
[Automix Mode]: Create EDID based on mutual least capabilities so both displays will always show a picture and audio. Use this mode for 4K60 4:4:4 TVs. You can access advanced options of the Automix mode via the GUI for Windows PC and Android/iOS APP.

[Custom Use / BT]: Pick and use EDID from a selection of preloaded EDID tables or load any EDID bank of your choice. By default the selected EDID table is a 4K30 4:4:4 300MHz with Full Audio capabilities. Leave the slide in this position to allow remote control via USB/IR or Android/iOS APP and/or to pick and use any from up to 10 different EDID tables available (4K60 4:4:4 HDR, 4K60 4:2:0 10bit, etc.)

[Fixed EDID with L/R Audio]: This mode is a 1080p60 2channel stereo basic table. It can be used as a security EDID to ensure a picture in every setup/situation.

Note: You can also switch EDID mode and any others control with IR codes, from the USB GUI for Windows PC or via smartphone/tablet APP for Android/iOS.

CEC Trigger Button



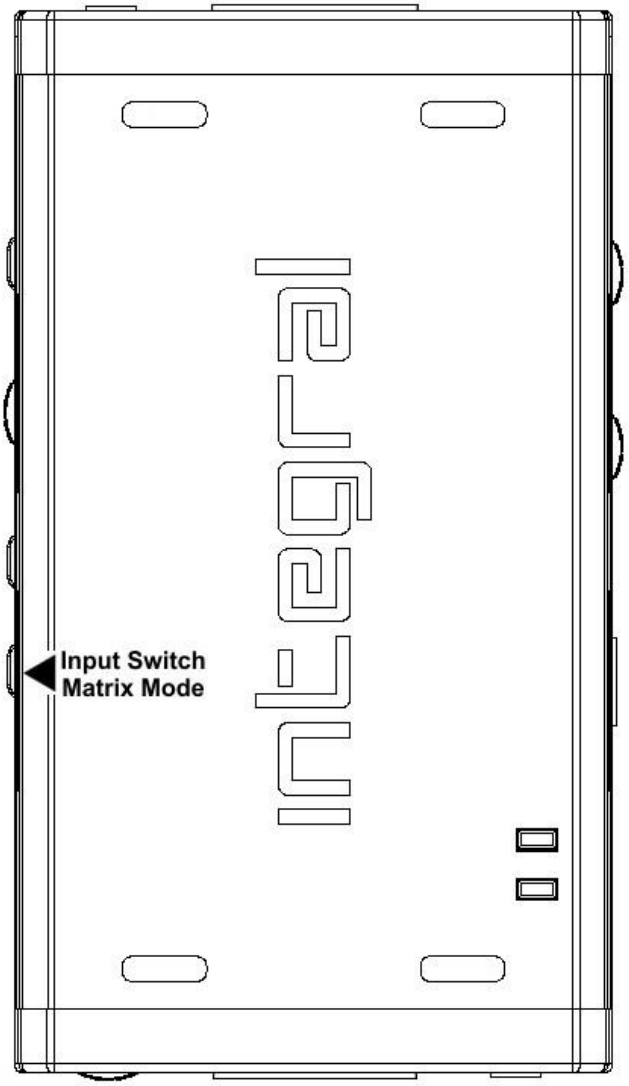
CEC Trigger Button allows you to send two custom CEC commands on the HDMI/CEC network.
Integral TOP output port is the CEC master output.

[Short Press] on CEC Trigger Button will send **CEC1** command.
[Long Press] (over 2sec) on CEC Trigger Button will send **CEC2** command.

By default **CEC1 is 0F:04** (Display View On, it will turn ON HDMI/CEC capable unit)
By default **CEC2 is 0F:36** (Standby, it will turn OFF HDMI/CEC capable device)

Note: To send LIVE CEC commands or to update the default CEC commands please refer to the USB GUI software for Windows PC at page 15 or the smartphone/tablet APP for Android and iOS at page 17.

Input Switching and Matrix mode



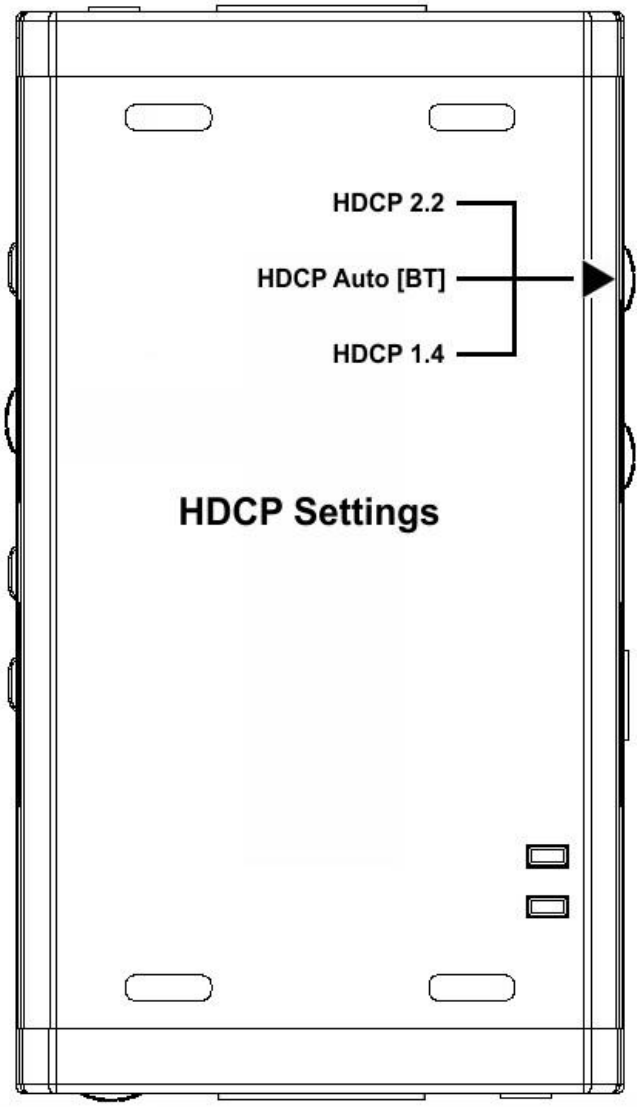
Input Switch / Matrix Mode Button allow you to switch active inputs or enter/exit the Matrix mode.

[Short Press] will switch the active input channels in Splitter Mode and swap/cross signals in Matrix mode .
[Long Press] (over 2sec) will enter/exit the Matrix Mode (only available for signals up to 4K30 4:4:4 300MHz or 4K60 4:2:0 300MHz).

Blue LEDs on the unit will show the active input channel (when one LED is ON) or Matrix Mode (when both LEDs are ON).

Note for Matrix Mode:
It is only available for signals up to 300MHz (max 4K30 4:4:4 or 4K60 4:2:0).
Input in this mode is limited to one HDCP 2.2 stream; the other must be HDCP 1.4, HDCP 0.0 or DVI-D.

HDCP Settings



HDCP slide switch has 3 positions.
The switch should be set to the middle position to allow control via USB, IR or a Bluetooth device.

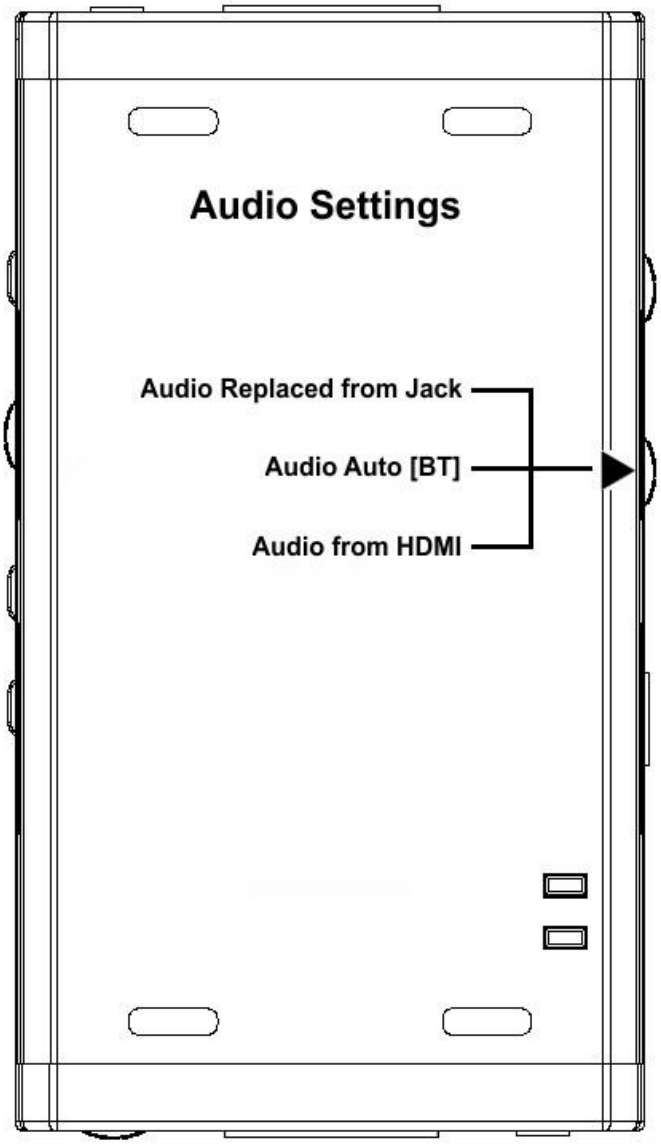
[HDCP 2.2 Mode]: In this mode you always have HDCP 2.2 on the TOP output port and HDCP 1.4 on bottom output port.

[HDCP Auto / BT]: In this mode the Integral unit makes sure that the conversion will always output a working signal. The bottom output is always HDCP 1.4 but the top output is dynamic.

[HDCP 1.4]: In this mode, you always have a HDCP1.4 signal on both output ports.

Note on HDCP:
Both inputs accept HDCP1.4/2.2. Both outputs can work with HDCP1.4/2.2 devices.

Audio Settings



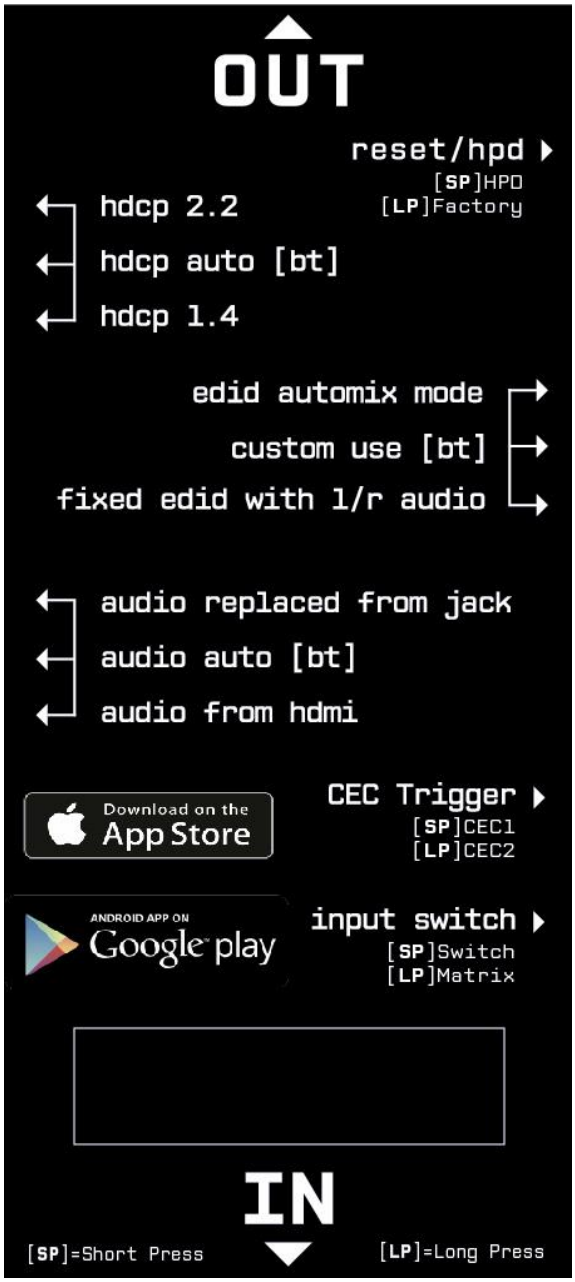
Audio slide switch has 3 positions.
The switch should be set to the middle position to allow control via USB, IR or a Bluetooth device.

[Audio Replaced] from 3.5mm input: HDMI output sound can be replaced by 44.1kHz (or 48kHz) audio from the 3.5mm input. In the splitter mode both HDMI outputs will offer the new replaced audio from 3.5mm jack. The S/PDIF and L/R outputs of the Integral continue to output the original HDMI audio.

[Audio Auto /BT]: This slide switch position allows change via Bluetooth, IR or via USB. By default, it's set to HDMI.

[Audio from HDM]I: HDMI audio pass-through mode.

Backside Sticker



A sticker is available on the back of the unit to remind you the basic configuration options available from the physical button and slide switches as well as the **Short Press [SP]** and **Long Press [LP]** functions of each button.

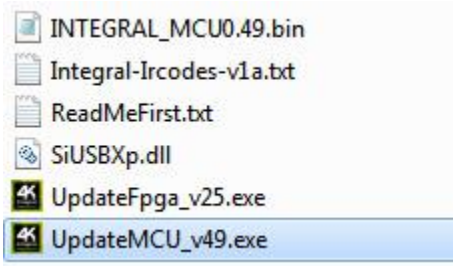
Updating your Integral Firmware for Windows PC

The Integral Firmware Updater is compatible with all Windows from Win XP to Win 10.

[23-NOV-15] Please make sure to install the new Silabs Driver 4.0.0 for Windows on your computer. You can download them here: Silabs Driver 4.0.0 – ZIP – 8.75 Mo.

You can download the latest Firmware version for your Integral device from the Download Tab on the Integral Product page: here. If you are unsure about your Firmware version currently in use, simply use the Total Control APP for Android/iOS info page or the USB GUI for Windows PC to retrieve it.

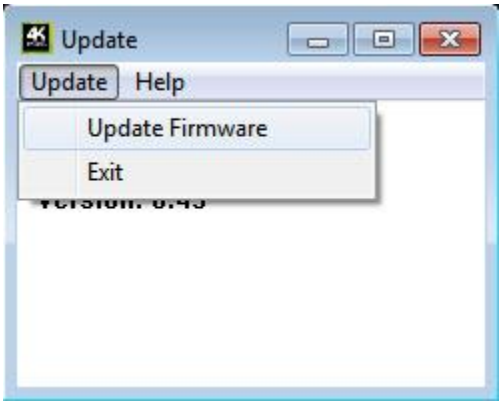
Once download and extracted, you should have a directory on your computer with the following files



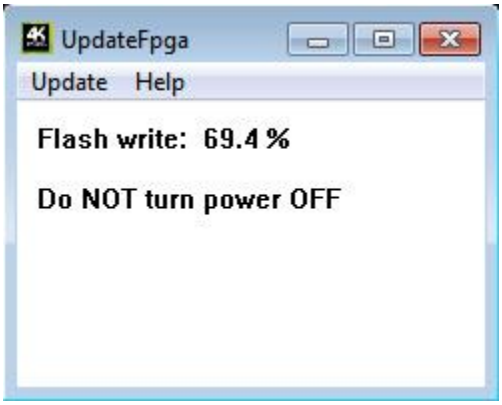
You will have to run both Update FPGA and Update MCU to successfully upgrade your Integral unit.
Note: Version number could be different depending on the FW revision you downloaded.

You can start by any of them; there is no particular order to respect.
FPGA update will take about 50s while MCU update is taking less than 5s.

FPGA Update Instructions
Double-click UpdateFPGA executable (if needed, right-click and select Run as Administrator)
The below window will open.



Click **Update Firmware** as shown on the above picture.



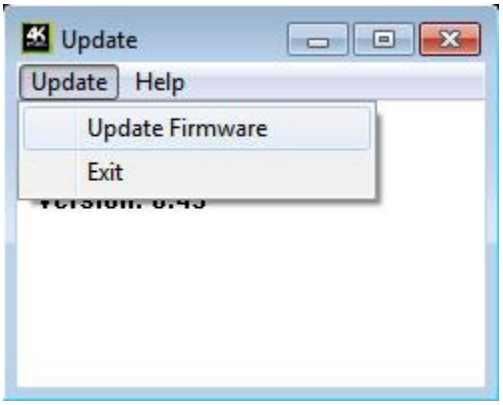
Flashing time is around 50 seconds
Do not disconnect your device while the upgrade process is running.

Once completed, you will hear a windows notification sound and the below window will pop up.

Simply click **OK** and the main updater will display the below message.

This confirms the FPGA update process is completed; you can process to next step.

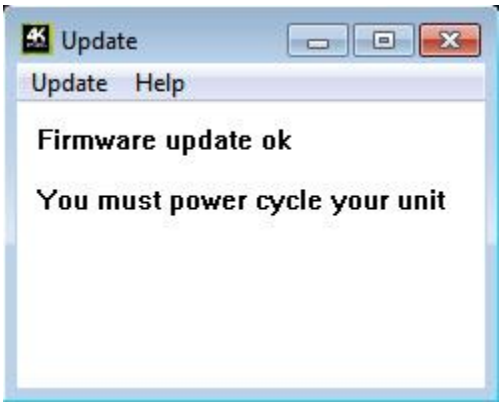
MCUUpdate Instructions
Double-click UpdateMCU executable (if needed, right-click and select Run as Administrator)
The below window will open.



Click **Update Firmware** as shown on the above picture.
Flashing time is less than 5 seconds.

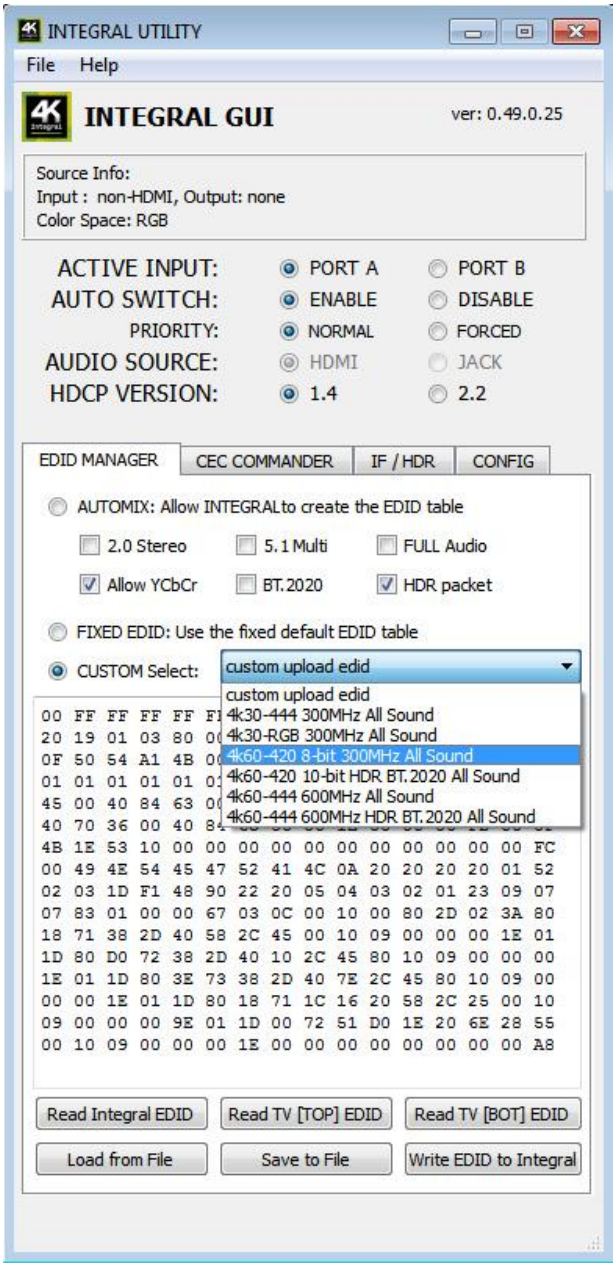
Once completed, you will hear a windows notification sound and the below window will pop up.

Simply click **OK** and the main updater will display the below message.



Congratulations, you have successfully updated both the MCU and FPGA and your unit is now ready to operate with the benefits from the latest software additions.

Integral USB GUI (Software for Windows PC)



The USB GUI is compatible with all Microsoft Windows version from Win XP to Win 10.

[23-NOV-15] Please make sure to install the new Silabs Driver 4.0.0 for Windows on your computer. You can download them here: Silabs Driver 4.0.0 – ZIP – 8.75 Mo.

You can download the latest GUI version for your Integral device from the Download Tab on the Integral Product page: here. Always run latest FW when running latest GUI to benefit from all new features.

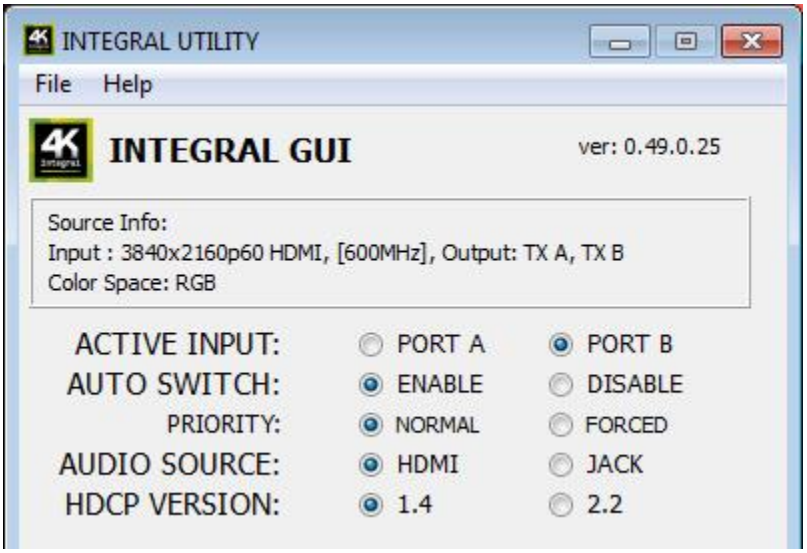
Disclaimer: *3rd party and/or custom firmware providing extra features are not covered in this manual.*

The USB GUI for Windows PC allows the following control:

- Display Information on source device when available.
- Display Input signal resolution, refresh rate and bandwidth.
- Display Input signal colorspace.
- Display the Firmware revision.
- Display Active input and output link information.
- Switch Active Input
- Turn ON or OFF the Autoswitch feature.
- Set Input Priority for Autoswitch mode (Normal/Forced)
- Select the Audio Source.
- Select HDCP output revision.
- Set HDCP rules.
- Enable or Disable 4:4:4 > 4:2:0 conversion mode.
- Select the default EDID table from a selection of multiple preloaded EDID banks.
- Select forced flags for Automix mode. (Stereo/5.1/Full/YCbCr/BT.2020/HDR/3D)
- Sniff EDID from connected sink devices. (Read EDID from TOP and BOT output)
- Read, Write, Load, and Save any custom EDID bank.
- Send Live HDMI CEC command.
- Save CEC1 SP/ CEC2 LP commands.
- Turn ON/OFF CEC processing.
- Define CEC ID# (Either AVR ID#5 for ARC feature or processor ID#14)
- Send Live HDR and InfoFrame Metadata.
- Repurpose CEC SP/LP as HDR enable/disable.
- Turn ON/OFF Full HDR mode or Samsung HDR mode.
- Turn ON/OFF the LOGO LED. (GREEN)
- Turn ON/OFF the channel LED. (BLUE)
- Turn ON/OFF the AVR Fix Beta.
- Reset the unit to Factory Default.

Note:
The 4K60 4:4:4 > 4:2:0 conversion only affects the TOP output. The bottom output will still offer a 4K60 4:4:4 direct path.
The Full HDR mode and the beta fix for AVR audio cannot be activated together, it's either one or the other but not both at the same time.
When activated, the Autoswitch feature will force the Integral unit to automatically switch to the active signal if the selected signal is lost.
When you select an EDID bank from the dropdown list of preloaded EDID banks, there is nothing else to do, once clicked, the EDID of your choice will be loaded and HPD events will reset the signal to present your selected EDID automatically.

The TOP SECTION of the USB GUI for Windows PC:



ver: 0.49.0.25 on the top right corner indicate the current FW version of your Integral unit.

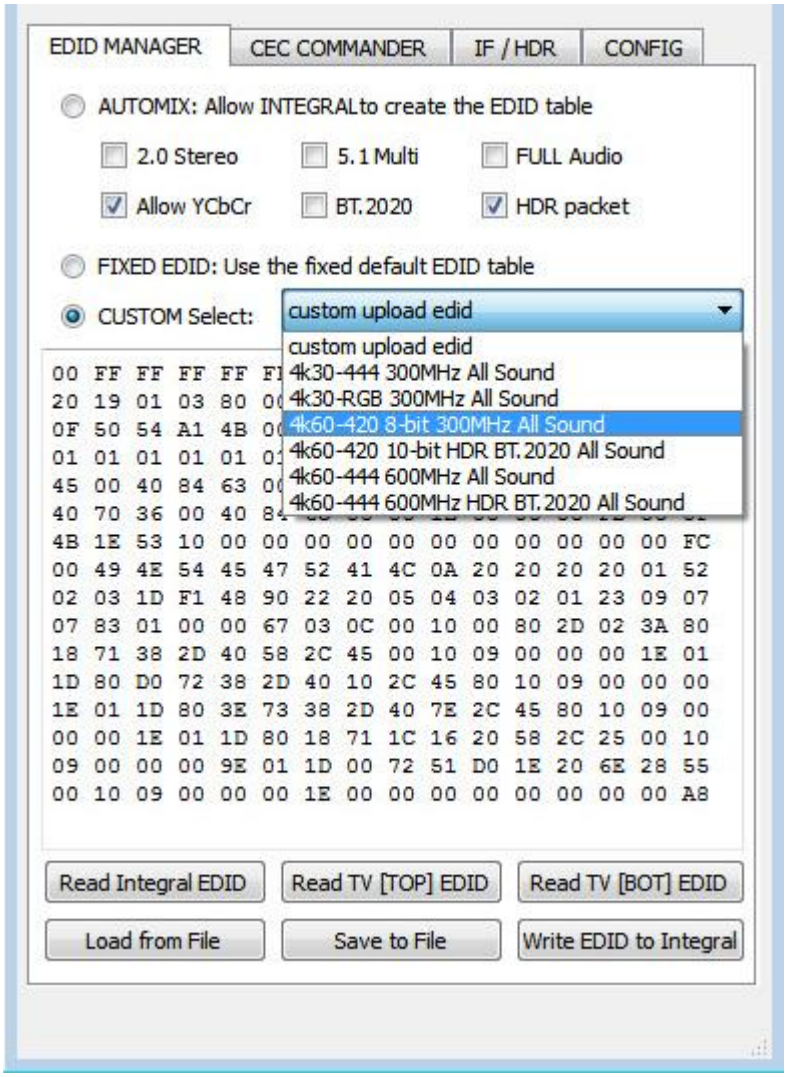
The middle boxed area will provide you with the following information:
Source Info: When available it will display information about the source device in use.
Input: Display Input signal resolution, refresh rate and bandwidth.
Output: Display currently active outputs
Colorspace: Display current Color space for the incoming signal

Active Input: Allow you to select the current active input port. Similarly to what you can do from the push button on the unit (see page 9)
Auto Switch: When activated, the Autoswitch feature will force the Integral unit to automatically switch to the active signal if the selected signal is lost.
Input Priority: When in FORCED input priority mode, as soon as a new active input is detected, Integral will switch to it.
Audio Source: Allow you to select HDMI pass-thru (default) or sound from External Audio input. Similarly to what you can do from the push button on the unit (see page 11)
HDCP Version: Allow you to select/force the HDCP revision of the TOP Output Port. Similarly to what you can do from the push button on the unit (see page 10)

Note on HDCP:
Both inputs accept HDCP1.4/2.2. Both outputs can work with HDCP1.4/2.2 devices.

Note on Audio Replacement Mode:
HDMI output sound can be replaced by 44.1kHz (or 48kHz) audio from the 3.5mm input. In the splitter mode both HDMI outputs will offer the new replaced audio from 3.5mm jack. The S/PDIF and L/R outputs of the Integral continue to output the original HDMI audio.

The EDID MANAGER section of the USB GUI for Windows PC:



[Automix Mode]: Create EDID based on mutual least capabilities so both displays will always show a picture and audio. Some Flags can be checked or unchecked so you can force and override some parameters to match your needs. Ex: If your TV is stereo and your AVR full sound and both are connected to each integral outputs port, then by default, Automix will report Stereo as sound capabilities, by checking Full Audio flag you will force Automix to always report Full Audio no matter the real sound capabilities of the connected sink devices.

[Custom Use / BT]: Pick and use EDID from a selection of preloaded EDID tables or load any EDID bank of your choice. By default the selected EDID table is a 4K30 4:4:4 300MHz with Full Audio capabilities. Leave the slide in this position to allow remote control via USB/IR or Android/iOS APP and/or to pick and use any from up to 10 different EDID tables available (4K60 4:4:4 HDR, 4K60 4:2:0 10bit, etc.)
When you select an EDID bank from the dropdown list of preloaded EDID banks, there is nothing else to do, once clicked, the EDID of your choice will be loaded and HPD events will reset the signal to present your selected EDID automatically.

[Fixed EDID with L/R Audio]: This mode is a 1080p60 2channel stereo basic table. It can be used as a security EDID to ensure a picture in every setup/situation.

Read Integral EDID: This option could be useful if for example you want to double check the build capabilities of an Automix EDID in your setup using external software such as AWEE (AW EDID Editor from Analog Way). In such case, you would simply use the **Read Integral EDID** button and then the **Save to File** button in order to be able to open the EDID file with an external EDID editor software.

Read TV [TOP] EDID: Allow you to sniff the EDID from the sink device connected to the **TOP** output port of your Integral unit. You could then use it as the Custom EDID by using the **Write EDID to Integral** button or export it as a file using the **Save to File** button in order to be able to open the EDID file with an external EDID editor software.

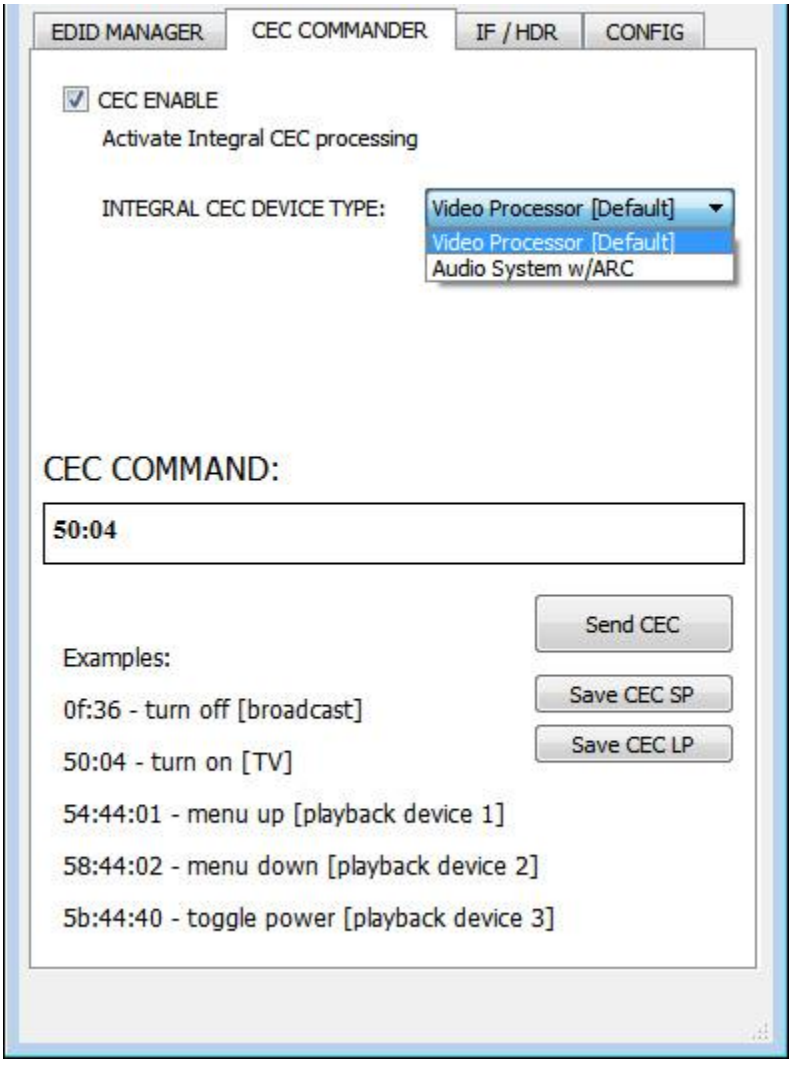
Read TV [BOT] EDID: Allow you to sniff the EDID from the sink device connected to the **BOTTOM** output port of your Integral unit. You could then use it as the Custom EDID by using the **Write EDID to Integral** button or export it as a file using the **Save to File** button in order to be able to open the EDID file with an external EDID editor software.

Load from File: Allow you to open and load any EDID file of your choice**.** You could then use it as the Custom EDID by using the **Write EDID to Integral** button.

Save to File: Allow you to save the current EDID into a file for backup or for editing using external software such as AWEE (AW EDID Editor from Analog Way).

Write EDID to Integral: This button will write the current loaded EDID file into Integral custom bank.

The CEC COMMANDER section of the USB GUI for Windows PC:



[CEC ENABLE]: Checked by default, it allows Integral to answer and process CEC requests and commands and appear on the CEC network map. Uncheck it if you do not want Integral to answer external CEC requests or process Internal CEC commands. Unchecking will remove Integral from the Root network map but CEC commands for connected sinks or sources will still pass-thru.

[INTEGRAL CEC DEVICE TYPE]: Video Processor by default (ID#5)

CEC ENABLE must be ON in order to apply the selected dropdown options to the Integral unit.
Video Processor (Default) is the device type to choose if you have an AVR in your setup and if you want to use that AVR for ARC or CEC.
Audio System w/ARC is the device type to choose if you want Integral ARC feature to be ON (Sound from TV ARC to Integral 5.1 Optical Out or Jack Analog Stereo output. You can also use this method if you want Integral to replace your AVR as CEC Commander.

[CEC COMMAND]: Enter the CEC command of your choice in this text field in HEX format.
If you are not sure about how to format your command, we recommend you to visit the very well done cec-o-matic website made by Kwikwai.

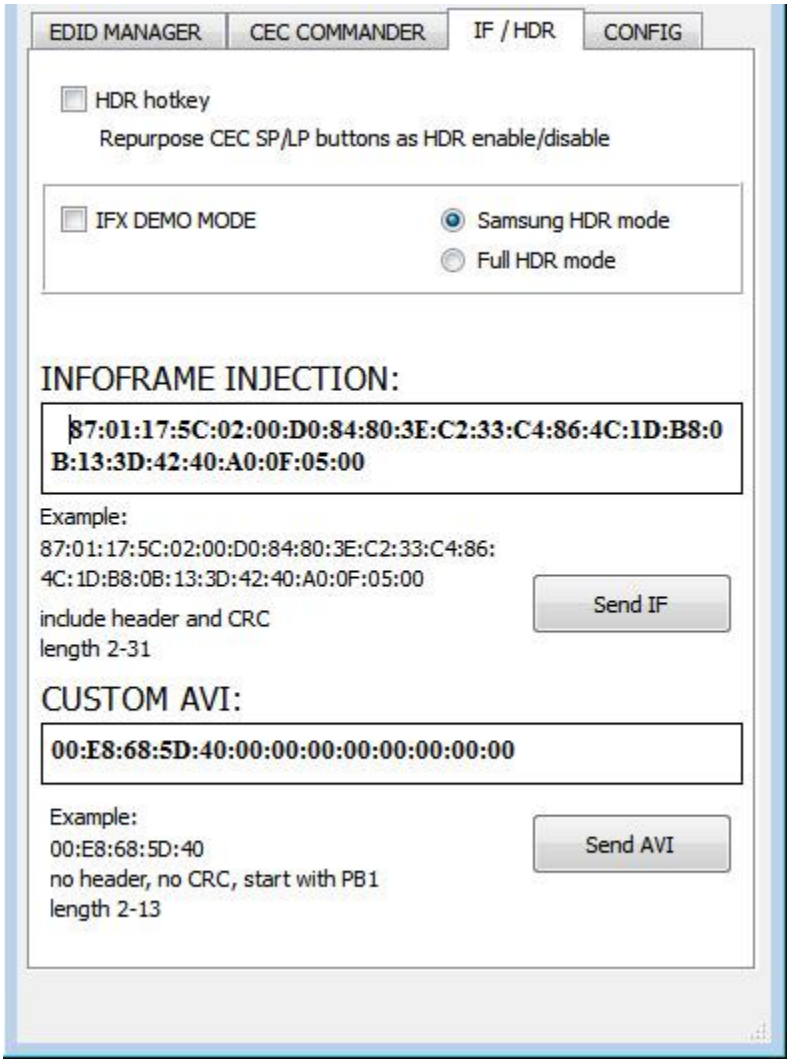
[SEND CEC]: By clicking this option, the CEC command you entered in the **CEC COMMAND** text field will be sent out by the Integral unit.

[Save CEC SP]: By clicking this option, the CEC command you entered in the **CEC COMMAND** text field will be saved on the Integral unit and could then be sent anytime by making a **Short Press [SP]** on the CEC physical button on the Integral unit.

[Save CEC LP]: By clicking this option, the CEC command you entered in the **CEC COMMAND** text field will be saved on the Integral unit and could then be sent anytime by making a **Long Press [LP]** on the CEC physical button on the Integral unit.

Note: A few examples for testing CEC commands are provided on the GUI.
Using the Android or iOS APP, it is possible to create custom menu for CEC commands.
Feel free to join our forum in order to know more about it.

The INFOFRAME/HDR section of the USB GUI for Windows PC:



[HDR hotkey]: Unchecked by default, once activated it will repurpose the **CEC SP/LP** buttons as **HDR enable/disable**. Make sure to select the right kind of HDR mode first: **Samsung** is selected by default if you have LG, Sony, JVC or any other brands, make sure to select **Full HDR mode** first before activating the **HDR hotkey** feature.

[IFX DEMO MODE]: Unchecked by default, once activated it will turn ON the HDR mode of any HDR display. Make sure to select the right kind of HDR mode first: **Samsung** is selected by default if you have LG, Sony, JVC or any other brands, make sure to select **Full HDR mode** first before activating the **IFX DEMO MODE.**

[INFOFRAME INJECTION]: Enter the Infoframe of your choice in this text field in HEX format.
If you are not sure about how to format your Infoframe, we recommend you to visit our Infoframe Injection thread in our support forum. (Advanced Users only)

[Send IF]: By clicking this option, the Infoframe metadata that you entered in the **INFOFRAME INJECTION** text field will be injected LIVE from the Integral unit to the HDMI signal toward outputs ports.

[CUSTOM AVI]: Enter the AVI Infoframe of your choice in this text field in HEX format.
If you are not sure about how to format your AVI Infoframe, we recommend you to visit our Infoframe Injection thread in our support forum. (Advanced Users only)

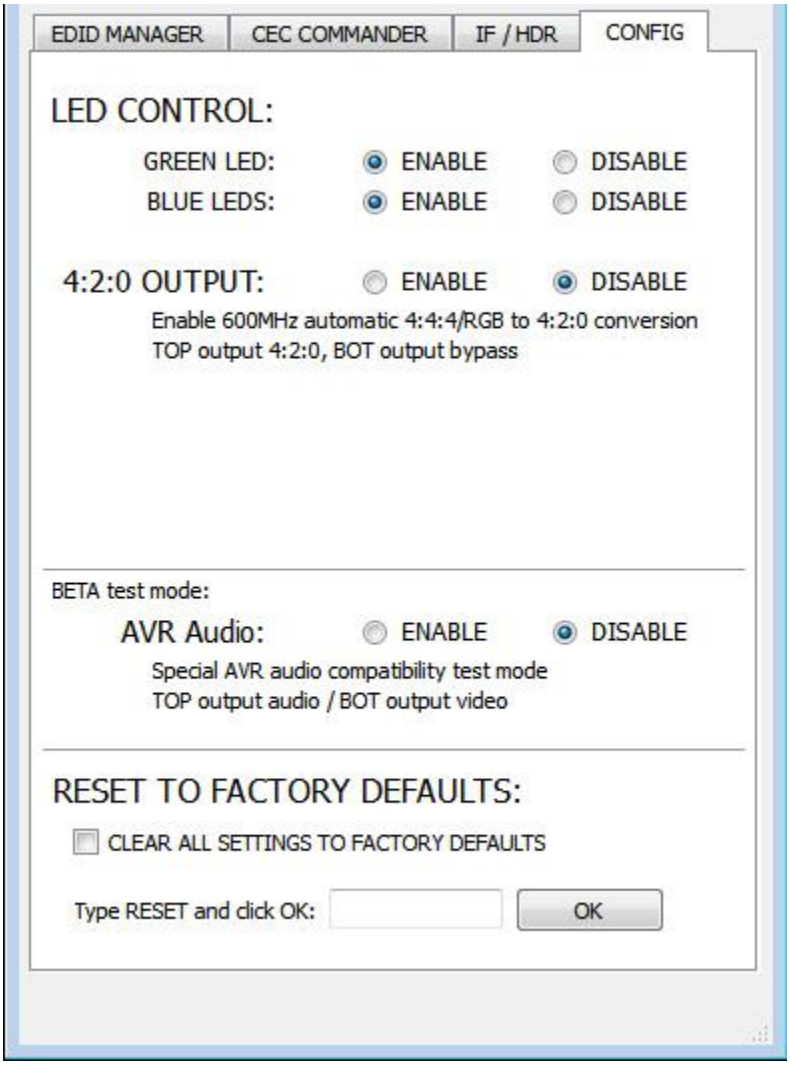
[Send AVI]: By clicking this option, the AVI Infoframe that you entered in the **CUSTOM AVI** text field will be injected LIVE from the Integral unit to the HDMI signal toward outputs ports.

Note: When turning on Full HDR mode for mostly all HDR displays out there (except Samsung) you will lose sound. You can drive sound from source device or split it upfront using another Integral unit.
In Samsung mode, sound will remain present.
Turning ON/OFF HDR mode of your HDR display cannot be done at the same time than using the AVR audio beta fix in next section. It's either one or the other.
Using HDR hotkey with a HDR display, you can reproduce what you are seeing in this video.

IFX: We have created a set of DLL/API package for Integral so anyone can interface their Windows software with Integral capabilities and build evaluation, testing, measurement, calibration and content creation workflows system.
IFX is an acronym for **InfoFrame Xecutor** and it is exclusively licensed to AVTOP.
An AVTOP-Software is under development and will allow to control HDR parameters dynamically and connect the device to interesting applications such as calibration systems and control metadata dynamically. The unique AVTOP HTTP control software will then interface to the INTEGRAL and unveil its full **IFX** capabilities, including easy control of Mastering Display Settings, AVI Infoframe and even new values such as MaxCLL and MaxFALL.

Please contact us or our partner AVTOP in order to license our APP/DLL package or to buy their own made software package. You can find their available HDR solutions listed: here.

The CONFIG section of the USB GUI for Windows PC:



[LED CONTROL]: Enable by default**, GREEN LED** for Logo and **BLUE LEDs** can be turned ON/OFF at will. Some users might found Integral LEDs visually disturbing in their HT setup. You have the possibility to turn either Green or Blue LEDs OFF or both.

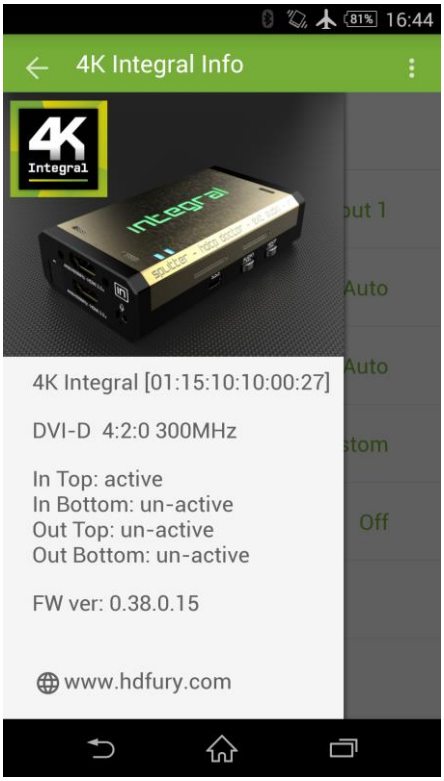
[4:2:0 OUTPUT] Once activated it will automatically transform an incoming 4K60 600MHz 4:4:4 YCbCr or RGB signal into a 4K60 4:2:0 300MHz signal from TOP OUTPUT while BOTTOM OUTPUT will pass-thru and offer the original 4K60 4:4:4 600MHZ stream.

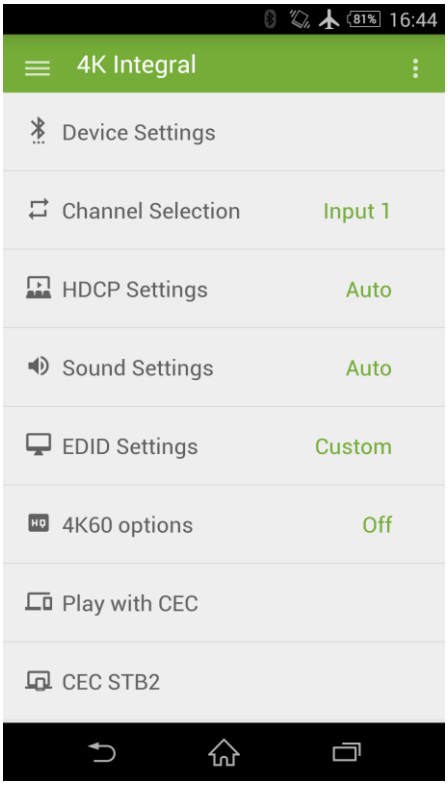
[BETA test mode]: Special test mode added for HDCP1.4/1080p/4K30 MAX AVR. Once activated, it will offer Audio only from TOP OUTPUT while BOTTOM OUTPUT will pass-thru and offer the original video and audio stream. Ideal for 1080p AVR in 4K setup or 4K30 AVR in 4K60 setup.

[RESET TO FACTORY DEFAULTS]: Similar as **[LP] Long Press** on the **RESET** button (see page 6). Click the available check box to clear all settings to factory defaults and type **RESET** in the test field. Finally click the **OK** button and unit will be reset to factory defaults.

Note: AVR audio beta fix cannot be activated at the same time than turning ON/OFF HDR mode of your HDR display in previous section. It's either one or the other.
AVR audio beta fix as named is currently in beta testing. You are welcome to share your experience and post your results by using our support forum.

4K Integral Total Control APP for Android





Disclaimer: *3rd party and/or custom firmware providing extra features are not covered in this manual.*

Main Features of the Android Total Control APP for Integral

This APP request Bluetooth authorization and SD card/file writing permissions when installing.
The app will allow you to control and operate your HDfury Integral and CEC components within your Home Theater setup.

It can perform the following:

- Reset/HPD.
- Read/Modify and Upload Configuration.
- Switch Input channel.
- Set Auto switching mode.
- Enter/Exit Matrix mode.
- Define HDCP rules and fix HDCP error.
- Sound input/output selection.
- Mute/Unmute all sound output from the Integral
- EDID table selection.
- Convert 4K60 4:4:4 > 4K60 4:2:0
- Send live CEC commands to the HDMI/CEC network.
- Setup CEC rules and access CEC custom commands.
- Define CEC button press (Short and Long press)
- Display current link speed and infoframe information.
- Display active link(s).

Get the APP from Google Play Market: here.

You can create your own menu and add custom commands at any time through an editable XML menu file. You can pair, connect and use the Bluetooth APP even when no signals is going through the Integral, in such conditions, the Bluetooth range is over >20m. However, the Bluetooth range will be highly affected by the resolution in use because of EMI. Below you can find the average working distance for Bluetooth based on the processed signal resolution and refresh rate.

1080p60 and below: Bluetooth working range is about 10 meters.
4K60 4:2:0 and below: Bluetooth working range is about 5 meters.
4K60 4:4:4: Bluetooth working range is about 2 meters. (We recommend using IR for wireless control in 600MHz)

FAQ

Can we pass-through 4K60 4:4:4 and have one output at 4K60 4:2:0?
Yes, when activated, the 4K60 4:4:4 > 4K60 4:2:0 conversion will only affect the TOP output, BOTTOM output will stay at 4K60 4:4:4.

What is the Bluetooth working range?
You can pair, connect and use the Bluetooth APP even when no signals is going through the Integral, in such conditions, the Bluetooth range is over >20m. However, the Bluetooth range will be highly affected by the resolution in use because of EMI, below you can find the average working distance for Bluetooth based on the processed signal resolution and refresh rate.
1080p60 and below: Bluetooth working range is about 10 meters.
4K60 4:2:0 and below: Bluetooth working range is about 5 meters.
4K60 4:4:4: Bluetooth working range is about 2 meters. (We recommend using IR for wireless control in 600MHz)

My display is supposed to accept 4K60 4:4:4 signals but it does not work?
For most UHD TV set we tried, there are always extra configuration options to active in order to achieve a 4K60 4:4:4 600MHz link. For ex, on samsung: in order to enable the 444 colorspace for 4k in Samsung TV's you must go to "settings" and "hdmi" and "UHD color" and enable it. Then also you must assign the HDMI port1 as "PC" in the tools menu. Only after these two steps will 600MHz be accepted. Similar activation tricks are required on most UHD TV's. Additionally, most UHD TV's only have specific ports that are 600MHz capable.

I have a PC mode on my TV (or a PC monitor) what resolutions are supported for graphics mode?
All PC graphics mode within the 600Mhz bandwidth are supported, including ultra high resolution such as WQSXGA, QUXGA, QFHD, WQUXGA, 4K.

What output resolution does the Integral support in HDTV mode?
All known SD, HD, Full HD and UHD formats are supported including: 480i50,480i60, 480p50, 480p60, 576p50, 576p60, 720p50, 720p60, 720p100, 720p120, 1080i25, 1080i30, 1080p24, 1080p25, 1080p30, 1080p48, 1080p50, 1080p60, 1080p72, 1080p75, 1080p96, 1440p50, 1440p60, 2160p24, 2160p25, 2160p30, 2160p50, 2160p60 (these are examples only, anything within the 600MHz bandwidth is supported.)

What version of HDMI does the Integral work with? Do I need HDMI 1.3/1.4a/2.0a? Does it matter?
It does not matter. HDfury Integral works with any version of HDMI from 1.0 and up.

Do I need to set anything special in my HDMI source device to set the resolution correctly?
No. The HDfury Integral will be detected as 2160p60 4:4:4 capable device by your source and it will always accept and process the highest quality stream from your source devices. There is no need to set

the HDMI source to any specific resolution.

Is there any latency (delay) introduced to the signal?
Virtually none. The latency added is in the order of a few pixel clocks only. Nothing noticeable at all.

What is the USB port for?
To provide power from the supplied USB power unit and for firmware upgrades when new (additional) functions and enhancements are offered.

What about long HDMI cable runs? Can I expect issues?
For 600MHz users must use "high speed" cables, or 600MHz/18Gbps certified. For 4K30, 1080p or less almost all cables are ok. HDfury Integral acts as a HDMI repeater device. So having a HDfury Integral in the path will amplify and recover the signal. You should not need any passive (or active) HDMI amplifiers, especially if you put the HDfury Integral in the middle of your cable run. If you previously had to use an amplifier, the HDfury Integral can most likely take its place. The HDfury Integral has been used with 50 foot (and longer) HDMI cables without issues.

How are the new lossless audio formats via HDMI input handled ? E.g. DTS-HD/MA and DD/E-AC3: Are they stripped down to DTS core or Dolby Digital respectively to fit the requirements of the S/PDIF standard ?
Lossless audio is transmitted through HDMI output only. HDfury Integral does not compress or otherwise downconvert the incoming audio. Only stereo and 5.1 sound can be output via SPDIF output. The analog output supports stereo only.

How do I hook up the audio from the Integral?
The Integral has both analog and digital (TOSLINK) audio output in one connector labeled "D/A" along with a headphone symbol. It's a 2-in-1 connector meaning that you can plug in either a 3.5mm stereo analog jack or a digital mini-TOLINK (3.5mm mini-jack) cable and get stereo analog sound or 5.1 Dolby/DTS digital sound out of the Integral. See further below for pictures of both types of connectors/cables.

Integral 3.5mm mini-TOSLINK digital audio cable:

If you'd like to use a "regular" TOSLINK cable, use a 3.5mm Mini-TOSLINK to regular TOSLINK adapter:

A 3.5mm stereo audio cable can be used for connecting the Integral to a TV if you do not have a home theater setup (you only have 2 speakers in your TV):

Do I need to use the USB power supply?
Yes. Due to the advanced features, the integral draws more power than previous HDfury models. The integral power supply must be used at all times.

Is the Integral power supply the same as that used by the HDfury1, HDfury2, and GammaX?
No. The power supply for the HDfury1, HDfury2 and GammaX kits are 0.5A max current. The HDfury3 is 1A max current. The Integral power supply can supply up to 2.0A. Do not use an HDfury1, HDfury2, or GammaX power supplies with the Integral.

What sort of power supply does the Integral use?
Integral power supply adheres to these requirements:
- Provides REGULATED (+/- 5%) 5VDC power with 2.0A min DC current
- Delivers the power through a mini usb connector.
Trying to use an AC/DC adaptor that doesn't adhere to these three requirements may destroy the Integral. Do not use the power supply from the HDfury1, HDfury2, or GammaX with the Integral.

Highlight Features:

Unique HDCP Doctor

The Integral provides a total of 6 HDCP 1.4 and 2.2 engines for decryption/encryption. The HDfury Integral offers a total HDCP workaround solution including HDCP 1.4 to HDCP 2.2 and HDCP 1.4 to HDCP 2.2. It is a device that supports both conversion types within the same unit.
It is capable of connecting any HDCP1.x or HDCP2.x source device to any HDCP1.x or HDCP 2.x sink device.
Each RX block decrypts the input first whether its 1.x or 2.x. Then each output port individually encrypts it to 1.4(both) or 2.2(only top port) or not encrypt it at all.
Dual conversion can be operated on both channels simultaneously.

Display HDCP 2.2 Content with Non-Compliant Devices

HDCP 2.2 is the new copy-protection scheme for 4K UHD content. Not only it is not backwards compatible with older equipment but many recent 4K devices don't even support it.
Source devices, including media servers and head-ends like Netflix, will encode their 4K content with this new scheme. TVs must be HDCP 2.2-enabled to play it, and everything in the video chain including switches and receivers must be compliant as well, or the display will go dark and/or display a HDCP error. This is bad news for consumers who have purchased expensive, high-bandwidth, processor-rich switchers and receivers to accommodate 4K. While the newer products may support the bandwidth needs of 4K, they won't play copy-protected works until the Integral is an active part of the setup.

2×2 Splitter up to 4K60 4:4:4 600MHz 18Gbps

Splitting any signal up to 4K60 4:4:4 600MHz signal is now a reality, thanks to IR/USB/BT or push button, you can easily switch between 2 inputs that will be replicated to 2 outputs. HDCP conversion can be configured and applied on the fly in order to always output the type of signal that your display or sink device is expecting.

HDR and Infoframe Metadata Live Injector

The Integral is capable of injecting live Infoframe and HDR metadata at any resolution and also in real time. Using latest firmware you can turn ON/OFF the HDR MODE of your HDR display at will from push buttons, APP or from the USB GUI PC windows software. See it in video: here
A further software solution for a complete live and real time handling of infoframe and HDR metadata will be offered and announced shortly: here by our exclusive partner AV TOP.

4K60 4:4:4 600MHz 18Gbps > 4K60 4:2:0 300 MHz 10.2Gbps conversion

Mostly all UHD TV sold until recently can only accept 4K60 when it comes in the form of a 4K60 4:2:0 300MHz signal, However upcoming sources and current high end graphics cards are outputting 4K60 4:4:4 (600MHz – 18 Gbps). Integral solves this issue.

HDMI Audio Extracting

HDfury Integral can extract HDMI audio and has a simultaneous output of analog L/R stereo and optical S/PDIF via 3.5mm combo jack connector.

External Audio Replacing

Mini jack input connector (or Mic/Line IN) option is available to replace the audio in any HDMI/DVI-D stream up to 4K60 4:4:4 600MHz 18Gbps.
Audio replacing only works on one channel, the secondary channel is a direct path from HDMI to HDMI. This is useful in presentation areas or for simply streaming your phone/tablet music to your HDMI amp.

EDID Management

Improved EDID Management solution with either a Custom uploaded EDID, Self generated Automix EDID or a Fixed basic EDID.
AutoMix EDID feature will create a custom EDID by mixing both sink EDID connected to the splitter output ports. Custom and manual EDID utility available from the download section.

HDMI/CEC TOTAL COMMANDER

HDfury Integral offers an unique CEC command manager, with CEC compatible equipment.
CEC commands allow a HDMI source to send commands to connected HDMI devices.
Using the Integral's Android/Apple APP for smartphone/tablet, user can configure custom CEC commands and send them LIVE or based on a trigger event.

TOTAL CONTROL

HDfury Integral APP is available now on Google Market for mobile and tablet running Android (iOS coming January 2016). You can control HDfury Integral using your mobile phone or tablet via a bluetooth connection. IR control and various physical buttons for configurations are also available.

2×2 Matrix up to 4K30 4:4:4 300MHz*

Matrix solution is available for HDMI stream up to 4K30 4:4:4 300MHz 10.2Gbps or 4K60 4:2:0 300MHz 10.2Gbps

* In Matrix mode only one HDCP 2.2 input is allowed, the other must be HDCP1.4 or DVI-D/HDCP 0.0

Main Specifications

- 2x Input / 2x Output Splitter (HDMI2.0a/HDMI1.4/DVI1.0 compatible)
- 4K60 4:4:4 600MHz 18Gbps Pass through
- 4K60 4:4:4 600MHz 18Gbps > 4K60 4:2:0 300MHz 10.2Gbps conversion
- HDCP Doctor (HDCP Workaround solution to any HDCP error)
- HDCP 2.2 > HDCP 1.4 conversion
- HDCP 1.4 > HDCP 2.2 conversion
- HDCP x.x > HDCP x.x conversion
- Dual HDMI2.0a & HDMI 1.4 combined
- Dual HDCP 1.4 & HDCP 2.2 combined
- CEC Support: For inter-device control between both inputs and the primary output (TOP) HDMI channel.
- CEC command: USB configuration for automation, trigger via events, push button or via IR/Bluetooth
- External Audio Replacing : input external sound or switch sound between input
- Audio Extracting: Audio De-Embedder of Optical & Analog L/R
- EDID management via USB or BT
- Improved EDID Management solution with either a Custom uploaded EDID, Self generated Automix EDID or a Fixed basic EDID.
- AutoMix EDID feature will create a custom EDID by mixing both sink EDID connected to the splitter output ports.
- Custom and manual EDID utility available from the download section.
- HDR & InfoFrame Live Injector.
- HDMI Booster/Extender: Capable of extending 1080p resolution up to 15m. in and 15m. out (30m. total for 1080p), UHD resolution up to 10m.
- HDMI Doctor: Solves most HDMI integration issues such as HDCP, EDID, HPD, and audio breakout.
- HDMI Equalevel: Precise signal equalization for both input and output signals delivers the best possible picture quality with no dropouts.
- Hot-Plug control: Force the input device to always see an active connection.
- Licensing: Fully licensed and compatible with all HDMI and HDCP technologies.
- Deep Color Support
- Flexible/Portable/Plug'n Play
- 3D Ready: Capability to pass 3D stereoscopic signal formats.
- Just like any recent HDfury hardware, it comes with USB upgradable firmware that allow you to unleash furious features.

Supported Audio/Video Signals

- Supported Format: SD/HD/FullHD/UHD/4K30/4K60, basically INPUT/OUTPUT any video format up to 4K60 4:4:4 600Mhz 18Gbps
- Supported resolution examples: 480p/720p/1080i/1080p24/1080p25/1080p30/1080p50/1080p60/1440p50/1440p60/2160p24/2160p25/2160p30/2160p50/2160p60
- Support all VESA mode video format (PC Resolutions) up to ultra high resolution such as WQSXGA, QUXGA, QFHD, WQUXGA, 4K
- Support any Audio format such as PCM at up to 192kHz, compressed audio (IEC61937), DSD, DST,DTS,DTS-HD, Dolby True HD, DTS-MA and HBR.

Technical Specifications

- Optical S/PDIF output
- Analog stereo mini jack output.
- Audio: PCM at up to 192kHz, compressed audio (IEC61937), DSD, DST,DTS,DTS-HD, Dolby True HD, DTS-MA and HBR.
- Mic In (Line In) sampling at 44.1/48kHz
- DDC Signal: 5V p-p (TTL)
- Power Supply: External 5 Volt 2 Amp USB (same as most smartphone/tablet PSU)
- Power Consumption: <2Watts
- Product Dimensions: 3.6” x 2.5” x 1”, Weight: 4 oz
- Shipping Dimensions: 6.3” x 4.2” x 3.3”, Weight: 16 oz
- Enclosure: Black PVC/Gold metal with Green/Blue Led
- Regulation: CE, FCC, RoHS, WEEE

Certifications

7 Quality Tests certified by AV T.O.P.

UHD 60Hz signal pass through - HDR infoframe injection - AVI Infoframe modification - Split function for UHD signals to two display devices - 10 Bit UHD signal pass through - Submission of CEC commands - HDMI Audio replacement

Disclaimer: *3rd party and/or custom firmware providing extra features are not covered in this manual.*

Team HDfury thanks you for your support

For help visit: http://www.HDfury.com