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Model# KD-HD1080P

# HD Leeza™

State-of-the-art Digital Video Processor and Switcher Integration Box

## OPERATING INSTRUCTIONS



HD Leeza™ by Key Digital® is a full-featured digital video processor, video switcher, and video integration box, all in one elegant product. Its state-of-the-art digital video processor converts interlaced and progressive video sources to high-quality progressive-scan video, sized precisely to match the native pixel resolution of any front- or rear-projection display: Plasma, LCOS, DLP®, LCD, DILA, and CRT.

 **CRESTRON** **AMX** **ELAN** **Control4**

**Key digital®**

The Experts in Digital Video Technology and Solutions®

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# HD LEEZA™ - Video Processor - Model KD-HD1080P

## UL LISTED

### ***Safety Instructions – Please be sure to follow these instructions for safe operation of your unit***

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- 1) Read these instructions.
- 2) Keep these instructions.
- 3) Heed all warnings.
- 4) Follow all instructions.
- 5) Do not use this apparatus near water.
- 6) Clean only with dry cloth.
- 7) Do not block any ventilation openings. Install in accordance with the manufacturer’s instructions.
- 8) Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.
- 9) Do not defeat the safety purpose of the polarized or grounding-type plug. A polarized plug has two blades with one wider than the other. A grounding type plug has two blades and a third grounding prong. The wide blade or the third prong are provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.
- 10) Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.
- 11) Only use attachments/accessories specified by the manufacturer.
- 12) Use only with the cart, stand, tripod, bracket, or table specified by the manufacturer, or sold with the apparatus. When a cart is used, use caution when moving the cart/apparatus combination to avoid injury from tip-over.



- 13) Unplug this apparatus during lightning storms or when unused for long periods of time.

- 14) Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.

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# HD LEEZA™ - Video Processor - Model KD-HD1080P

## OPERATING INSTRUCTIONS

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If you have any comments about *HD Leeza™* or this *HD Leeza™*  
*Operating Manual*, please contact us at: [tech@keydigital.com](mailto:tech@keydigital.com)

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# 1. INTRODUCTION TO HD LEEZA™, MODEL KD-HD1080P

**NOTE:** These operating instructions are for **HD Leeza™ Model KD-1080P** installed with **Version B014C** of the firmware. Lower (older) versions of the firmware will not support all functionality described in this manual. Please contact [tech@keydigital.com](mailto:tech@keydigital.com) for a free on-line upgrade. Subsequent (higher) firmware versions may also require you to follow appended instructions.

**Q: HD Leeza™ (HD LEEZA™, or HDL™), Model KD-HD1080P -- What is it?**



**A: HD LEEZA™ (HD Leeza™), Model KD-1080P:**

- ⌚ Is a video processor *and* switcher / home theater backbone
- ⌚ Has *flexible* and *varied* input and output formats (physical connectors *and* video formats)
- ⌚ Sizes Video precisely to match the “Sweet Spot” (typically “Native Resolution”) for *any* display

**Q: What does a Video Processor do?**

**A: A Video Processor “scales” video to match the “Native Resolution” of your display, and performs Video adjustment functions like brightness, contrast, gamma, sharpness, etc.**

- ⌚ **A Video Scaler:**
  - Takes one video format **IN** and converts it to another video format **OUT**
- ⌚ **The Scaler conversion can include:**
  - SCAN** conversion (like interlaced to progressive)
  - Scan **RATE** conversion (like 50 Hz to 60 Hz)
  - RESOLUTION** conversion, like 640 pixels to 1920 pixels
  - FORMAT** conversion, like Analog (RGB, Component Video) to Digital (DVI)
  - ASPECT RATIO** conversion, like 4:3 to 16:9

**Q: Why do I need a Video Processor?****A: Problem:**

- ⌚ You have a “standard definition” DVD movie you want to watch on your high-resolution display

**Key Digital® has the Solution for you:**

- ⌚ Scale your input and adjust the video with your HD Leeza™ Video Processor

**Q: But what if my DVD player or even my display already has a Scaler?****A: Turn it OFF and use HD Leeza™ instead, because HD Leeza™ has a very high quality built-in scaler called “Clear Matrix Pro” which takes all the different input formats and lights up your display in the best way:**

- ⌚ The scaler in your DVD player can't match the quality of HD Leeza™, so turn it Off (use 480 interlaced out) and let HD Leeza™ perform the video scaling
- ⌚ The scaler in your display also can't match the quality of HD Leeza™, so be sure to use the “Native Resolution” or preferred settings for your display that are provided by Key Digital® in the HD Leeza™ Display Matrix (available on our web site, or contact [tech@keydigital.com](mailto:tech@keydigital.com))
- ⌚ Scale your input and adjust the video with your HD Leeza™ Video Processor

*HD Leeza™ uses a Key Digital's® proprietary “Clear Matrix Pro™” Advanced Motion Assisted Scaling De-Interlacing Algorithm with film detection inverse 3:2 pulldown detection processing for 60Hz and 72 Hz rates, and (PAL) 2:2 telecine pulldown processing and detection for 75Hz and 50Hz rates, making it the ultimate “digital backbone” for home theater conversion today.*

## HD LEEZA™ SUMMARY

For many years, the only way to watch TV was with a picture tube, scanning about 480 visible picture lines from top to bottom of the screen in an alternating odd-and-even process called interlacing. Today, we have many more choices of video displays, some of which have considerably higher picture resolution. These new TVs and projectors use imaging devices with fixed, measurable arrays of vertical and horizontal pixels, and they employ a 'progressive' picture scanning process wherein all lines of picture information are presented at once.



HD Leeza™ is the best way to match lower-resolution interlaced and progressive-scan video from a DVD player, satellite TV receiver, or VHS tape player to higher-resolution plasma, LCD, DLP, and LCoS TVs and projectors. HD Leeza™ will also get rid of image flicker by converting from interlaced to progressive scanning, and correct for any abnormal motion artifacts that can result from this process.

HD Leeza™ allows you the most flexibility in matching your video sources to the specific resolution of your Display. Its high-quality Clear Matrix PRO™ processor provides smooth, film-like images from a variety of video sources, and user menus let you fine-tune picture quality to your liking. With HD Leeza™, you can also cross-convert between digital TV formats including 480p, 720p, 768p, 1080i/540p, and 1080p.

### **Key Digital® Technology built into each HD Leeza™:**

- *Clear Matrix Pro™*
- *SDS™ (Super Digital Scaling)*
- *DPE™ (Digital Picture Enhancement)*
- *DSX™ (Dynamic Stretch Enhancement)*
- *DEE™ (Digital Edge Enhancement)*
- *HOVO™ (Horizontal Offset Vertical Offset)*
- *DVIC™ (Digital Video Internal Clock Exchange)*
- *DVPC™ (Digital Video Phase Controller)*

## KEY DIGITAL

## HD LEEZA™, MODEL KD-HD1080P

- LHBC™ (*Linear High Bandwidth Circuit*)
- *Multi-Layer Boards and Surface Mount Technology*

**Note:** *Digital Light Processing* and *DLP* are registered trademarks of Texas Instruments Corporation.



## 2. THE MANY ADVANTAGES OF OWNING HD LEEZA™, MODEL KD-HD1080P



You'll be delighted by the many convenient and advanced features HD Leeza™ provides to your Home Theater:

- ⌚ **HD Leeza™ is Home Theater “Backbone” Switcher and Video Processor**
  - All in ONE product
  - HD and SD
  - PIP (Picture-in-Picture)
- ⌚ **Accepts a wide variety of Inputs & Outputs, like**
  - Digital and Analog
  - RGBHV, DVI with support for HDCP HD input sources, Component, YPbPr, SDI
    - ⌚ Also support HDMI video using HDMI<>DVI adapters at the input and output to HD Leeza™
- ⌚ **Regardless of input video format or the Native Resolution of your display**
  - HD Leeza™ lets you find that “Sweet Spot” for your display
  - Whatever it is
  - With only the highest-quality scaling and video processing
- ⌚ **HD Leeza™ has built-in ISF® software so you can calibrate your display**

## 3. OUTPUT RESOLUTIONS SUPPORTED BY HD LEEZA™, MODEL KD-HD1080P

- ⌚ **DTV/HDTV standard display formats:**
  - 704x480p, 1280x720p, 1920x540p, 1920x1080p
- ⌚ **Plasma/LCD standard resolutions:**
  - 852x480, 1024x512, 1024x1024, 1280x768, 1440x788, 1365x768, 1366x768
- ⌚ **PC standard display formats:**
  - 640x480, 800x600, 1024x768, 1280x1024, 1400x1050, 1920x1200 (Wide UXGA)
- ⌚ **Other display formats:**

– 720x480 NTSC, 852x576 PAL, 1440x788, 1280x960, 1440x960, 1365x1024, 1920x1200

## 4. USER-CONTROL FEATURES FOR HD LEEZA™, MODEL KD-HD1080P

*HD Leeza™ produces pristine digital images with picture adjustment capabilities for brightness, contrast, saturation, hue, horizontal and vertical position and size, 10 standard and two custom aspect ratios, overscan, and many more – so video gurus can tweak it to their own special preferences.*

- ⌚ **HD Leeza™ has more controls than any of today's displays:**
  - Brightness
  - Contrast
  - Image position & size
  
- ⌚ **Plus:**
  - 2-D Enhancement
  - Gamma
  - Aspect Ratio In & Out
  - Non-linear stretch
  - Letterbox (vertical and horizontal)
  - Independent blue and red saturation
  - Test patterns (also available through RS-232)
  
- ⌚ **IR Remote Control:**
  - With “Hot” buttons
  - Discrete codes available, so you can program your Pronto
  
- ⌚ **RS-232C Port:**
  - So you can control HD Leeza™ from any control system, like Crestron
  - So you can upgrade the firmware to add new features as they are provided by Key Digital® over the Internet
  
- ⌚ **Memory feature lets you store separate preferences for each input device**
  
- ⌚ **Dynamic Non Linear Stretch Mode "Dynamic Stretch Enhancement" (DSX™) is also provided as an added user-option for matching the source material to the aspect ratio of the display**

## 5. SDI INPUT: ANOTHER “HIDDEN” BENEFIT OF HD LEEZA™, MODEL KD-HD1080P

HD Leeza's™ Input supports “SDI” -- the high-quality digital studio standard. This is one of many benefits HD Leeza™ has to offer. See the table below – DVI and HDMI sources must include HDCP copy protection for high definition material. Thus, if you have a DVI or HDMI HD source, you must have a DVI display, because the analog ports must be disabled, by law. This is not the case for SDI sources, which do not need to abide by any copy protection standard. The SDI port on HD Leeza™ gives you the advantage to enjoy high-quality digital sources on *any* display (including DVI). Also, since the lowest resolution supported by DVI is 480 *progressive*, the source must already be converted from interlaced to progressive, perhaps by a low-quality scaler. Not so for SDI, which permits 480 interlaced, and hence you can enjoy the benefits of the high-quality scaling provided by HD Leeza™. **For maximum picture quality, whenever possible, please be sure to use 480i (not 480p) source inputs to HD Leeza™.**

	SDI	DVI
Copy Protection	NO	YES
Resolution	480i	480p

## 6. INCLUDED WITH YOUR HD LEEZA™, MODEL KD-HD1080P

Open the carton and you will find inside the following contents:

1. HD Leeza™ unit
2. Power cord
3. Special DB9 cable
4. This Instruction Manual
5. Rack-mount ears
6. IR Remote Control and batteries
7. Warranty card

**WARNING!!!** The special DB9 (black) cable included with your HD Leeza™ shipment is for firmware upgrades *only*. Please do not plug that cable into HD Leeza™ for any other reason -- *it will erase ALL the firmware inside and you will need to re-load the firmware.*

## 7. QUICK SETUP OF HD LEEZA™, MODEL KD-HD1080P

Connecting and using your HD Leeza™ Video Processor / Home Theater backbone and Switcher is a simple process. **It is truly as easy as 1... 2... 3...**

1. **Connect HD Leeza™ into your installation:** understand the functionality of your HD Leeza™ Video Processor, and hook up the Inputs and Outputs.
2. **Make a picture:** learn the basics of the IR Remote Control, and bring up the On-Screen Display (OSD) menus. Be sure to configure HD Leeza™ for your particular display format (DVI, RGB, or Component Video) and Resolution (find that “Sweet Spot” that makes the best picture).
3. **“Fine-tune” the system settings:** perform all video processing and set-up adjustments, and **SAVE** your preferences for each input.

Please be sure to take note of the following *Appendices* and *Special Sections* at the end of this Manual, should you have a specific need as you go through this Operating Instructions Manual:

<b>APPENDICES</b>	
<b><i>Appendix A: HD Leeza™ Technical Specifications</i></b>	<b>Page A1</b>
<b><i>Appendix B: Firmware Upgrade Instructions</i></b>	<b>Page B1</b>
<b><i>Appendix C: RS-232C Remote Control Operation</i></b>	<b>Page C1</b>
<b><i>Appendix D: Handy Summary of Remote Control Commands</i></b>	<b>Page D1</b>

<b>SPECIAL SECTIONS (AT END OF MANUAL)</b>	
<b><i>1. Frequently Asked Questions (FAQs)</i></b>	
<b><i>2. Firmware Upgrade Log</i></b>	
<b><i>3. Display Matrix – Preferred HD Leeza™ Resolution Settings for Popular</i></b>	

***Displays***

***You are strongly advised to examine Special Section #2 to review the latest features and improvements added in each Firmware Upgrade.***

# 7.1 Connect HD Leeza™ into Your Installation

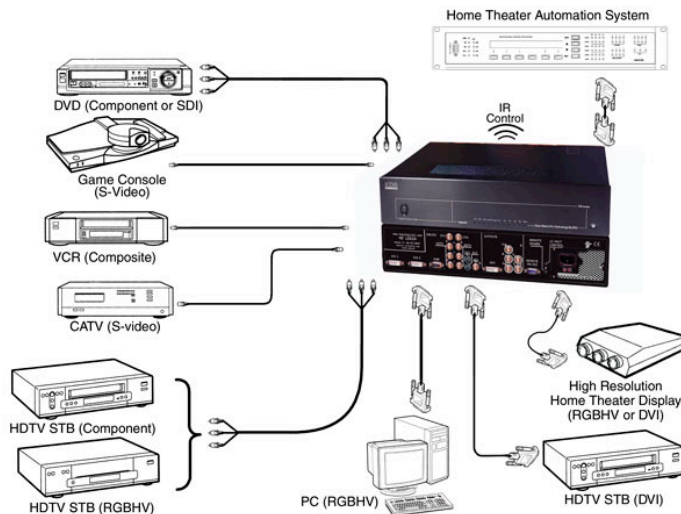
*Understand the functionality of your HD Leeza™ Video Processor, and hook up the Inputs and Outputs.*

## HD LEEZA™ INPUT/OUTPUT BACKPANEL



**Q:** Once I have HD Leeza™ out of the carton, what do I need to do first?

**A:** You need to connect HD Leeza™ into your system. Here are some typical devices connected to the Inputs and Outputs



You must also supply power to your HD Leeza™ unit. Refer to the following input power specifications:



1. Input Power: 100 to 240V AC, 40 Watts.
2. Insert the line cord at the back of your HD Leeza™ unit, and be sure to provide the proper power for the unit.
3. Be sure to set the Power Input Switch next to the line cord on the back of HD Leeza™ to the proper line voltage, 115 or 220 VAC.

**Q: What are HD Leeza’s™ Inputs and Outputs?**

**A:** Here are the **Inputs** and **Outputs**:

INPUTS	OUTPUTS
<p><b>SD (ANALOG) -- BNC:</b></p> <ul style="list-style-type: none"> <li>⌚ 2 Analog Composite Video</li> <li>⌚ 2 S-Video (DIN)</li> <li>⌚ Component Video (YPbPr)</li> </ul> <p><b>HD (ANALOG) -- BNC:</b></p> <ul style="list-style-type: none"> <li>⌚ Component Video (YPbPr)</li> </ul> <p><b>DIGITAL:</b></p> <ul style="list-style-type: none"> <li>⌚ 2 DVI-D with support for HDCP HD sources</li> <li>⌚ 1 SDI 270 Mb/s (BNC)</li> </ul> <p><b>ANALOG RGB*</b> (15-pin D-sub)</p>	<p><b>ANALOG BNC:</b></p> <ul style="list-style-type: none"> <li>⌚ Component Video (YPbPr) or RGBHV</li> </ul> <hr/> <p><b>DIGITAL:</b></p> <ul style="list-style-type: none"> <li>⌚ DVI-D with HDCP support</li> </ul>

**\*Note:** RGBHV inputs were adjusted to remove image “banding” with Sony/LG, Bell/ExpressVu, Dish 6000 boxes. This is a by-pass input.

**\*\*Note:** The Analog Output turns **OFF** for DVI and HDMI inputs with HDCP copy protection – this is a mandatory requirement, and only the DVI Output will be active in this instance.

**Q: Do you have any preferred or recommended input devices to connect to HD Leeza™?**

**A: Input devices recommendations:**

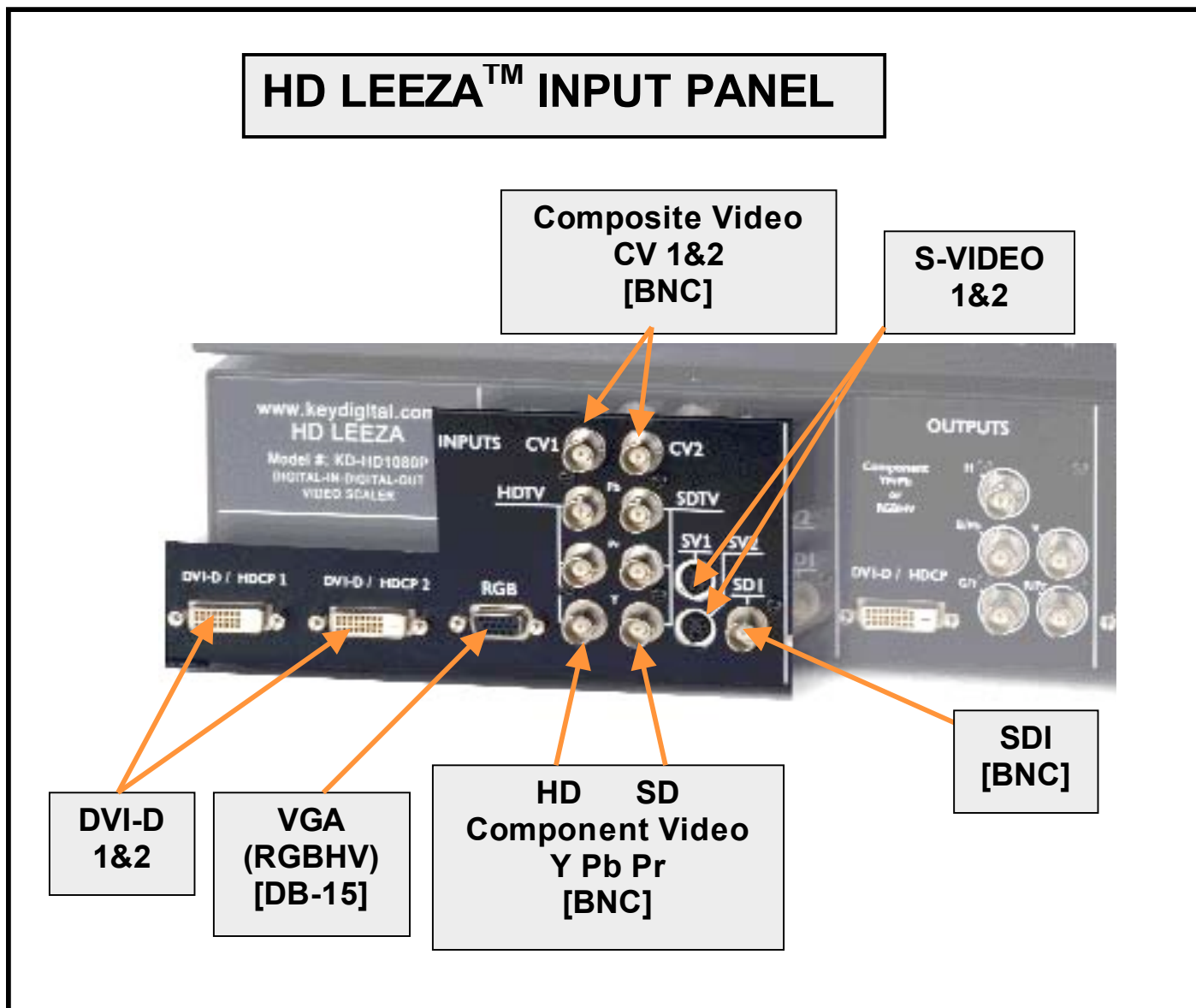
- ⌚ If your display is truly capable of HDMI-DVI/HDCP, you can use the DVI/HDCP input to HD Leeza™ from your STB or DVD players. However, if your display is DVI non-HDCP or RGBHV, please avoid using the DVI/HDCP input. With HDMI-DVI/HDCP, HD Leeza™ is only legally authorized to display through the DVI/HDCP output.
- ⌚ Recommended signal sources for non-HDCP connections:
  - For HDTV formats:
    - RGBHV set for 1080i – Samsung, Zenith, Sony, etc.
    - YPbPr set for 1080i – Samsung, Zenith, Sony, etc.
  - For SDTV formats 480i/60 or 576i/50:
    - SDI, YPbPr, S-Video, and Composite video

A VCR used with HD Leeza™ must have a Time Base Corrector (TBC). One such VCR we recommend is JVC HRS9911, and use the S-Video connection from this VCR for best performance.

**KEY DIGITAL****HD LEEZA™, MODEL KD-HD1080P**

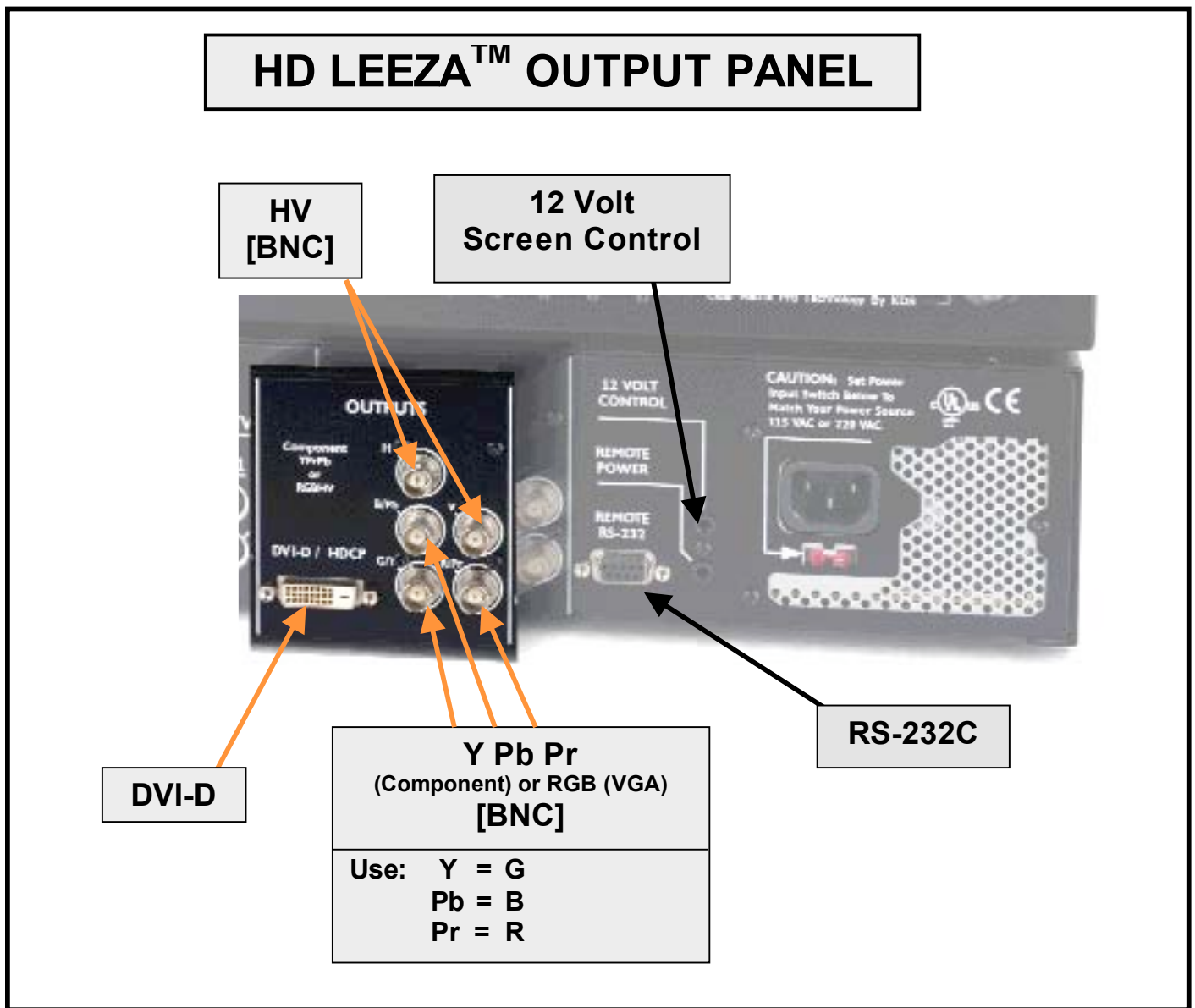
Another recommendation is to use a stand-alone TBC such as AVT5008 sold at under \$200 from this website: <http://www.dvddirect.com/shop/product.asp?sku=AVT5008>





**NOTE:**

- ⌚ HDL™ accepts HDMI input through the use of an HDMI to DVI adapter at the DVI input port to your HDL™. Supported input HDMI resolutions are: 480i/60, 480p/60, 576p/50, 720p/60; 1080i/60. The 480i mode should be used for digital non-scaled inputs from a DVD player equipped with an HDMI interface, delivering the same quality interface as SDI and generating the best result form DVD source.
- ⌚ HDL™ completely supports PAL inputs through every input port:
  - HDMI accepts PAL progressive
  - SDI, SVIDEO, CVBS, SD component ports accept PAL
  - The HD component port accepts PAL progressive



## 7.2 Make a Picture

***Learn the basics of the IR Remote Control, and bring up the On-Screen Display (OSD) menus. Be sure to configure HD Leeza™ for your particular display format (DVI, RGB, or Component Video) and Resolution (find that “Sweet Spot” that makes the best picture).***

**Q: Once I have HD Leeza™ connected into my system, what do I do next?**

**A:** Learn the basics of HD Leeza’s™ IR Remote Control. When using the IR Remote Control, you must remember to point the remote in the direction of the IR sensor (front right panel of HD Leeza), and press the right-arrow button to actually “register” your selection on the OSD.

### Remote Control Legend

- |   |  |
|---|--|
| <ul style="list-style-type: none"> <li>•Power ON</li> <li>•Numeric Keypad (0-9)</li> <li>•Ext. 12V Control</li> <li>•PP (Previous Page)</li> <li>•NP (Next Page)</li> <li>•ANS (DSX™ Control)</li> <li>•SR (Output Resolution)</li> <li>•GB (Restore Factory Default Settings)</li> <li>•CO (Contrast)</li> <li>•ZO (Digital Image Zoom)</li> </ul> | <ul style="list-style-type: none"> <li>•Power OFF</li> <li>•MENU</li> <li>•Arrows: Up/Left/Right/Down</li> <li>•AR-IN (Input Aspect Ratio)</li> <li>•IS (Input Select, L-R)</li> <li>•SH (Ext. 12V Toggle)</li> <li>•PA (Picture Adjustment)</li> <li>•BR (Brightness)</li> <li>•SAT (Color Saturation)</li> <li>•R1 - R8 (Buttons reserved for special operations)</li> </ul> |
|---|--|

# HD LEEZA™ IR REMOTE CONTROL

**Power ON**

**Aspect Ratio Menu**

**“Hot” Button**

**<R8> Special DVI out timing**

**PP Previous Page**  
**ALWAYS** moves you OUT

**MENU** Brings up the OSD Menu

**Input Select**

**ANS DSX™ Hot Button**

**H&V ZO**

**SR Scanning Resolution Menu page**

**“HOT” BUTTONS:**  
 <R1> – Inhibit OSD  
 <R2> – SDI Sync  
 <R3> – No operation  
 <R4> – Bypass RGBHV  
 <R6> – Direct Channel Access  
 <R7> – Inhibit OSD  
 <R8> – Special DVI out timing

**Power OFF**

**Numeric Keypad and Direct Input Access**

**PIP Swap**

**PIP On/Off**

**NP Next page**

**Input Select**

**Next Menu / OSD**

**Navigation Arrows**  
Up, Down, Left, Right

**GB Gain**

**PA Picture Adjustment Menu page**

**MENU PAGES FOR:**  
**BR** Brightness  
**CO** Contrast  
**SAT** Saturation  
**H or V ZO** Zoom

## HD Leeza™ Remote Control Operation: SPECIAL FUNCTIONS and “HOT BUTTONS”

### Hot Buttons:

These buttons on the HD Leeza™ remote will take you directly to specific menu adjustments, including AR-IN, SR, PA, ZO, SAT, CO, and BR (see call-outs on previous pages).

### Granny Button (GB):

This button restores the factory default settings, and is used when you have made an incorrect adjustment and can no longer see any menu or image on the screen (this could be the result of selecting an output resolution or refresh rate incompatible with your Display). If this happens, simply hold down the green GB button for five seconds, then press the right arrow button. HD Leeza™ will reset itself automatically to 720x480 @ 60 Hz output resolution with negative sync and RGBHV format. Other default settings after GB reset: R1,2; R2,2; R8,3; R8,9.

### **The user can choose to come up with RGBHV or YPbPr output during GB reset:**

*Since you may install HD Leeza™ in a configuration with a Component (YPbPr) or RGBHV display, you need to be able to instruct HD Leeza™ to output in the correct format in order to see the OSD on your target display.*

### Press the Granny Button for five seconds, followed by:

- ⌚ **Right Arrow** will furnish RGB output
- ⌚ **Up or Down Arrows** will set HD Leeza™ to YPbPr output with H and V still active. The RGBHV and DVI monitor will still work with YPbPrHV but will show a strange green color. The unit can be changed back to RGBHV through the System Setting Menu. Please remember: only three standard YPbPr resolutions will be accepted by any component monitor: 720x480p @ 60 Hz, 1920x540p @ 60 Hz (this is instead of 1080i format) and 1280x720p @ 60 Hz. Other resolutions are not standard for Component connection.

### External 12V Control:

This function provides 12 Volts to operate compatible AV equipment, such as motorized projection screens. This function is only available through the RS-232 of the HD Leeza™. Connect your compatible remote AV devices and the 12 Volt source through the 1/8" mini phone jacks on the rear of HD Leeza™.

### Zoom (Aspect Ratio adjustments to fill the Screen):

HD Leeza™ supports the following ZOOM features, used as part of the Input AR (aspect Ratio) control to help fill the screen for letterbox and pillarbox images:

- ⌚ **No zoom:** HDL™ simply displays the image using the input Aspect Ratio setting stored in the input individual memory.
- ⌚ **Linear H and V zoom:** HDL™ creates a linear expansion in both the vertical and horizontal directions. The input Aspect Ratio setting stored in the input individual memory is used as the reference for the expansion (zoom), for either HDTV or SDTV inputs. This feature is useful to fill the 16:9 screen for commercials shot in HD that are subsequently converted to SD (letterboxed), and then shown in HD (letterboxed and pillarboxed).
- ⌚ **H letterbox:** HDL™ creates a horizontal expansion of the outermost 15% (left and right) pillarboxed image. The input Aspect Ratio setting stored in the input individual memory is used as the reference for the expansion (zoom), for either HDTV or SDTV inputs. This feature is useful to expand pillarboxed images to fill the 16:9 screen.
- ⌚ **V letterbox:** HDL™ creates a vertical expansion of the uppermost 12% and lowermost 12% of a letterboxed image. The input Aspect Ratio setting stored in the input individual memory is used as the reference for the expansion (zoom), for either HDTV or SDTV inputs. This feature is useful to expand letterboxed images, like 2:35:1, to fill the 16:9 screen.
- ⌚ **DSX™ zoom:** HDL™ generates non-linear expansion in the horizontal direction only. The input Aspect Ratio setting stored in the input individual memory is used as the reference for the expansion (zoom), for SDTV inputs only. This feature is useful to expand SD pillarbox sources to full screen by preserving the image center geometry (where the viewer focuses on most of the action) while expanding the left and right panel of the picture to fill the 16:9 screen.

The HDL™ remote control buttons allow direct access to these features. They all have individual direct access commands through RS232 as listed in "h" menu. **Zoom features can be accessed by three different buttons on your HDL™ IR Remote Control:**

- ⌚ **SH** [blue] button that is next to **SR** button and in the same row as green **GB** button:
  - Toggles between **No zoom** or **Linear H and V zoom** states
- ⌚ The original **ZO** ("H or V ZO") button under the green **GB** button:
  - Toggles between Horizontal only or Vertical only Zoom
  - Convenient Horizontal or Vertical zoom, stretches pillar box (H) or letterbox (V) onto your 16:9 display
- ⌚ **DSX™** or **ANS** button under Down Arrow button:
  - Toggles between **DSX™ zoom** or **No zoom** states
  - Convenient Non-linear stretch for pillar-box 4:3 image sources

It is suggested to memorize *native* input Aspect ratios, as follows:

- ⌚ SDTV inputs: 1.33
- ⌚ HDTV inputs: 1.78

Then, use the zoom buttons to select the mode that suits your personal preference to fill the display. You can also memorize any Zoom state in individual memory for any input if that is your preferred setting all of the time for that input.

### **Hot IR button for PIP (and see Section 7.4 for a further description of PIP):**

- ⌚ The button on the HD Leeza™ IR Remote labeled 'Ext 12V Control On' turns PIP on and off
- ⌚ 'Ext 12V Control Off' swaps the main & PIP window input

**Please note: Usage of R-related double key Hot Buttons [such as R1 (IOSD, Inhibit OSD), R2 (SSSDI, Separate Sync for SDI), R6 (Direct Access), and R8 (DVI phase)] require that you wait 3 seconds after pressing R#, before pressing the ensuing command #. However, if you do not make a subsequent # key-press within 60 seconds of pressing any R# button, the selected hot key choice mode will time-out.**

## **HD Leeza™ “R” “Hot” Buttons**

*(located at the bottom of the IR Remote Control)*

### **R1 - Inhibit OSD Hot Button:**

**R1** is a hot button used in conjunction with the numbers 1 and 2. *(R1, 2) is the default setting.*

- ⌚ (R1, 1) puts HD Leeza™ in a mode where the OSD is not displayed when the input channel is changed.
- ⌚ (R1, 2) restores the default mode where OSD is displayed on channel changes.

### **R2 - Separate Sync on SDI Hot Button:**

**R2** is a hot button used in conjunction with the numbers 1 and 2. *(R2, 2) is the default setting.*

- ⌚ (R2, 1) enables separate sync on SDI inputs. Then the frame can be moved horizontally and vertically, exactly as with other input channels.
- ⌚ With (R2, 2), SDI inputs use embedded sync and can also be moved horizontally and vertically on the display screen.

### **R3 – No operation**

### **R4 - RGBHV Bypass Hot Button:**

**R4** is a hot button working as a RGBHV bypass switch. It connects the input RGBHV to the output RGBHV, bypassing HD Leeza™ processing.

### **R5 – No operation**

### **R6 - Direct Input Access Hot Button:**

You can select any of HD Leeza's™ inputs directly by first pressing the **R6** button and then

the desired input number, as follows:

- ⌚ 0 = DVI Input #1
- ⌚ 1 = DVI Input #2
- ⌚ 2 = RGBHV Input
- ⌚ 3 = Component HD Input
- ⌚ 4 = Serial Digital Input
- ⌚ 5 = Component SD Input
- ⌚ 6 = S-Video Input #1
- ⌚ 7 = S-Video Input #2\*
- ⌚ 8 = Composite Video Input #1
- ⌚ 9 = Composite Video Input #2\*

*\*If there is no video source connected to the selected input, its front panel LED will blink (except for Composite Video #2 and S-Video #2 inputs, and the words "No Signal" will also appear on screen).*

### Single digit Direct Access Input Switch:

The input can be switched as usual using (R6, #) as well as new Single key #. The single key mode is activated once ALL OSD is automatically erased from the screen following 60 seconds of remote-control inactivity. The single key mode will also activate after the user presses the PP button (at most) 6 times – effectively erasing all OSD. The single key direct access works the same way as (R6, #} or as the RS232 command (i, #). It switches and plugs individual memories without displaying any OSD.

### R7 – No operation

### R8 - Direct DVI Phase Clock Configuration Hot Button:

You can manually configure the DVI phase clock for DVI output (direct DVI phase clock configuration may be necessary if your Display does not sync up when output resolutions at 1280x1024/75 Hz and higher are selected). This is done by pressing the **R8** button and then entering the desired number, as follows:

- ⌚ 0 = Phase 0
- ⌚ 1 = Phase 1
- ⌚ 2 = Phase 2
- ⌚ 3 = Phase 3 (factory default)
- ⌚ 4 = Phase 4
- ⌚ 5 = Phase 5
- ⌚ 6 = Phase 6
- ⌚ 7 = Phase 7

*Note: You will not see an adjustment menu on your Display when setting this configuration.*

### Special X or N DVI Input/Output Mode:

The remote commands (R8, 8) and (R8, 9) can be used to select a special X or N DVI input/output mode respectively. Stick with the default DVI\_PH\_N (R8,9) if you have no issues with DVI input/output.



**Q: How do I turn HD LEEZA™ “On” and “Off”?**

**A: You have several options to turn HD Leeza™ “On” and “Off”.** Remember to first be sure the power switch is properly set at the rear of your HD Leeza™ unit, and that the HD Leeza™ power plug is plugged into an appropriate power source. Then, manual On / Off control (aside from control by e.g., Crestron over the RS-232C port) is as follows:

1. **Front-panel On / Off pushbutton**, on the front left of the HD Leeza™ panel. Pressing this button toggles the unit On and Off.
2. **Remote control**, separate Power On and Power Off pushbuttons:
  - ⌚ Depressing the *Power On* pushbutton, on the top left of the HD Leeza™ remote control unit, either turns your HD Leeza™ unit “On” if it was Off, or keeps HD Leeza™ a “On”.
  - ⌚ Depressing the *Power Off* pushbutton, on the top right of the HD Leeza™ remote control unit, either turns your HD Leeza™ unit “Off” if it was On, or keeps HD Leeza™ “Off”.
3. **Unplugging your HD Leeza™** will always turn your HD Leeza™ unit Off. If the power plug is then plugged into an appropriate power source, HD Leeza™ ALWAYS WAKES UP IN THE POWER ON MODE, and retains your previously stored settings.
4. **Power interruption** (same as unplugging and plugging back in the power plug) ALWAYS WAKES UP HD LEEZA™ IN THE POWER ON MODE, and retains your previously stored settings.

**Q: HD LEEZA™ is connected into my system, I’ve looked at HD Leeza’s™ Remote Control, and I’ve turned the unit “On” – now what?**

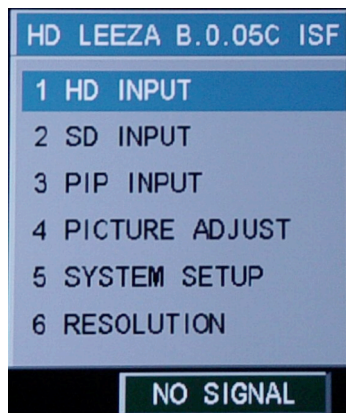
**A: You need to bring up the Main MENU, with the user-friendly On Screen Display (OSD).**

**AT THIS TIME: Configure HD Leeza™ to match the**

1. *Input Type,*
2. *Output Type, and*
3. *Output Resolution*

**for the devices connected to your HD Leeza™.**

**Please Note:** OSD Menus in this manual are illustrative -- the firmware version in your HD Leeza™ may produce Menus that vary slightly from



## MAIN MENU

The OSD is designed to respond / operate faster with Version 5.5.74 and higher (more recent) of the firmware, so please be sure you have installed the latest firmware version by following the detailed instructions provide in **Appendix B** of this manual.

The factory default output setting for HD Leeza™ is 720x480, with composite video input #1 selected. You will need to set HD Leeza™ for your particular configuration of Input and Output (display) devices.

**If you own a DVD player or DTV set-top receiver equipped with serial digital interface (SDI) or digital visual interface (DVI)**, use either connection for an all-digital, high-quality signal path to HD Leeza™. The next step is to determine the native pixel count of your Display. This is typically described in the **Specifications** section of your owner's manual. The resolution will be expressed as a ratio of horizontal to vertical pixels, such as 1280x768 or 800x600.

Vertical timing is enabled to be adjustable through V offset for your SDI input, allowing HDL™ to accept SDI DVD players such as **Theta Digital** and **Ayre** as an input. For DVD modified for SDI that setting may need to be 11 or 12.

\*\*We highly recommend you refer to the **DISPLAY MATRIX – PREFERRED HD LEEZA™ RESOLUTION SETTINGS FOR POPULAR DISPLAYS** at the end of this manual, to find the best RESOLUTION setting (the “Sweet Spot”) to select for HD Leeza, for your display connected to the output of HD Leeza™

Turn on HD Leeza™ and your display. Make sure your display is set to the input where you have connected HD Leeza™. Using the supplied IR Remote Control, select the input on Leeza™ where you have connected your video source. Press the **Menu** button and scroll to either the **HD Input** or **SD Input** sub-menu. Composite, S-Video, component SD, and serial digital inputs will appear under **SD Input**, while component HD, RGB, and DVI inputs will appear under **HD Input**. Scroll right to select the desired input source. After you make this selection, scroll left to return to the main menu. Highlight selection #5, **Resolution**. Then, scroll right. A second menu will appear with a list of output resolution options. Scroll up or down through the list until you find the output resolution that matches your Display. If you don't see the desired output resolution, highlight and select **More** for more choices. Once

the desired output resolution is highlighted, scroll right button once more. A third menu will appear with five different picture refresh rate selections from 48 Hz to 75 Hz. Match this selection to the optimum refresh rate of your Display. If you are not sure which selection to make here, choose the default setting of 60 Hz by scrolling right once more.

**IF YOU SELECT A RESOLUTION THAT YOUR DISPLAY DOES NOT SUPPORT, you will lose the OSD, and be unable to navigate:**

- **SIMPLY RESET HD LEEZA™ TO THE FACTORY DEFAULT SETTINGS AND START OVER.**
- The “GB” Button (“Granny Button”) resets all settings to the safe factory default (RGB, 720x480/60)
- ***Hold down the GB button for 5 seconds, then press the Right-arrow button to invoke the reset.***

Your selected output image resolution and picture refresh rate are now activated. The onscreen menus can be cleared simply by pressing the **Menu** key once more, and you can begin watching high-quality video from any of your connected sources by pressing the **Input Select** key on the remote control to choose among them.

## 7.3 “Fine-tune” the System Settings

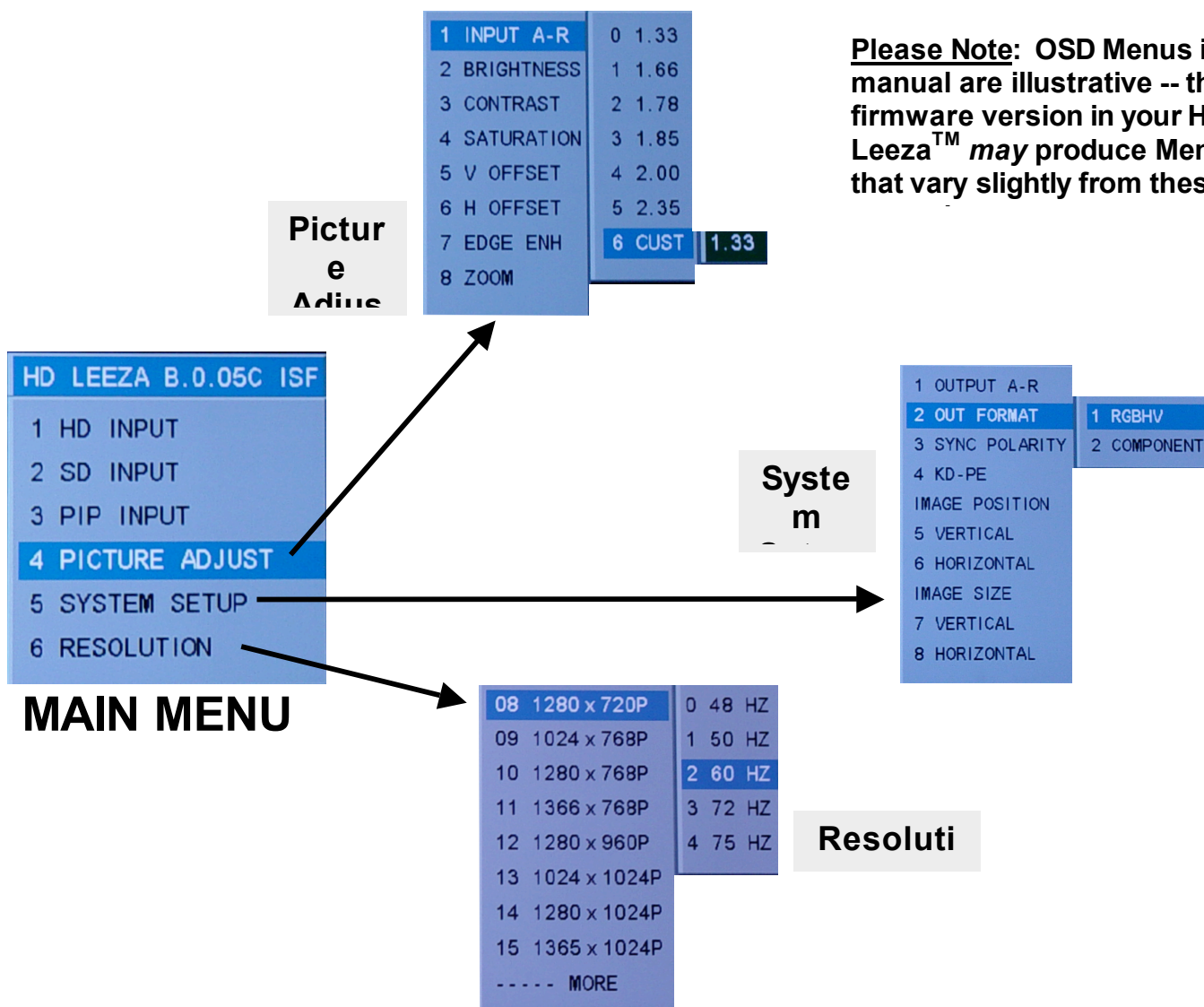
*Perform all video processing and set-up adjustments,  
and SAVE your preferences for each input.*

**Q:** Once I have up the OSD and have found that “Sweet Spot” for my display, now what?

**A:** Learn how to fully configure your HD Leeza™ Video Processor / Home Theater backbone / Switcher with the IR Remote Control and OSD.

## MAIN MENU OSD EXAMPLES

**Please Note:** OSD Menus in this manual are illustrative -- the firmware version in your HD Leeza™ may produce Menus that vary slightly from these



**NOTE**

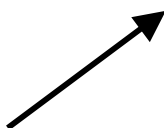
For ease of initial configuration, the OSD Menus on HD Leeza™ automatically pop up every time the input is changed. Since this is not desirable in real-use (for example, when your Home Theater system is controlled by your Crestron, AMX, Elan, or Control 4 controller, or for users who want to surf freely across inputs), you must **DISABLE** this set-up feature. Using your HD Leeza™ IR Remote Control, press button R1, wait 3 seconds, then follow by pressing the

number 1 at the top of the keypad. Make sure you have active video on the screen.

1. Perform "System Setup" to configure HD Leeza™ to match the characteristics of the display connected to the output of HD Leeza™. This is generally a one-time setup process.

HD LEEZA B.0.05C ISF		
1 HD INPUT	1 OUTPUT A-R	0 1.33
2 SD INPUT	2 OUT FORMAT	1 1.66
3 PIP INPUT	3 SYNC POLARITY	2 1.78
4 PICTURE ADJUST	4 KD-PE	3 1.85
<b>5 SYSTEM SETUP</b>	IMAGE POSITION	4 2.00
6 RESOLUTION	5 VERTICAL	<b>5 2.35</b>
	6 HORIZONTAL	6 CUST
	IMAGE SIZE	
	7 VERTICAL	
	8 HORIZONTAL	

**Please Note:** OSD Menus in this manual are illustrative -- the firmware version in your HD Leeza™ may produce Menus that vary slightly from these



**System Setup functions** are typically one-time setups to match HD Leeza™ to the characteristics of one particular display device

**REMEMBER:**

- 🕒 **SYSTEM SETUP** refers to adjustments you make to your HD Leeza™, specific to your DISPLAY, typically as a one-time system setup.
- 🕒 **PICTURE ADJUST** refers to adjustments you make to each input (source) connected to your HD Leeza™.

Highlight **System Setup** in the main menu. Adjustments you can make in the **System Setup** menu include:

**1 Output AR:**

You will see a list of user-selectable output aspect ratios to best match your display. In most cases, you will choose between 1.33 for a 4:3 screen, or 1.78 for a widescreen Display. Custom mode lets you define your own aspect ratio.

**2 Output Format:**

Use this menu to select either three-wire (YPbPr) or five-wire (RGBHV) component video connections from HD Leeza™ to your Display. The factory default setting is for RGBHV output.

**3 Sync Polarity:**

Choose between negative and positive picture sync to fine-tune image position. Most TVs and projectors will accept either, and the factory default setting is negative.

**4 KD-PE:**

Gamma.

**Other Sync-related Issues:**

- ⌚ Sync is now never lost on S-Video or CVBS when your VCR is used for stopping, starting, or tape eject --- if input sensing OSD is first inhibited through the use of the remote command (R1,1). (R1,2) returns to the regular state.
- ⌚ The user can select "separate sync" for SDI input with an (R2,1) command from the remote. The user can select "embedded sync" (usual default now) for SDI inputs with (R2,2). Selection for separate or embedded sync is also possible using RS232 commands (S 1) and (S 2), respectively.

**5 – 8 Image Position/Size:**

These menu selections will allow you to precisely size and position images from HD Leeza™. When finished, press the Previous Page (PP) button to exit this menu as the left arrow button is used to make image position adjustments.

2. Perform "Picture Adjust" ("PA" Menu) to configure HD Leeza™ specifically for each source input device connected to your HD Leeza™.

**Picture Adjustments:** You can make adjustments to each video source you connect to HD Leeza™. Using the remote control, depress the **Menu** key and highlight **Picture Adjust (PA)**. Scrolling to the right from here will reveal these adjustments:

**OSD MENU**

HD LEEZA B.0.05C ISF	
1 HD INPUT	1 INPUT A-R
2 SD INPUT	2 BRIGHTNESS
3 PIP INPUT	3 CONTRAST
4 PICTURE ADJUST	4 SATURATION
5 SYSTEM SETUP	5 V OFFSET
6 RESOLUTION	6 H OFFSET
	7 EDGE ENH
	8 ZOOM

**Please Note:** OSD Menus in this manual are illustrative -- the firmware version in your HD Leeza™ may produce Menus that vary slightly from

**REMEMBER:**

- 🕒 **PICTURE ADJUST** refers to adjustments you make to each input (source) connected to your HD Leeza™.
- 🕒 **SYSTEM SETUP** refers to adjustments you make to your HD Leeza™, specific to your DISPLAY, typically as a one-time system setup.



## HD LEEZA™ VIDEO PROCESSING FUNCTIONS

- ⌚ Brightness, contrast, and KD-PE (Key Digital Picture Enhancement) settings for R, G, and B channels can be individually controlled. This is in addition to the preexisting overall brightness, contrast, and KD-PE controls. Individual brightness settings are remembered in EEPROM separately for each input channel. Individual contrast and KD-PE also remembered in EEPROM, but as global settings only.
- ⌚ An RS232 command is provided to switch between daytime and nighttime viewing conditions. This command changes overall brightness and overall contrast. Nighttime settings are default.
- ⌚ An RS232 command is provided to turn film mode on or off. The film-mode should normally be kept “on”.

### **Brightness and Contrast:**

Use these controls to set the black level (brightness) and white level (contrast) of any video input. It's helpful to have a calibration DVD on hand to supply the appropriate test patterns. You can also find grayscale patterns under Menu selection #7.

### **Saturation:**

Set color saturation with this menu. It's best to have a color bar test pattern and a standard blue filter to make this adjustment. You can find this pattern under Menu selection #7.

### **Red and Blue Saturation:**

RS232 commands are available to set blue and red saturation, to allow you to fine-tune red and blue levels (adjustments are not available through the IR Remote Control OSD Menus). Use a color bar test pattern and a blue filter to set correctly. To set blue\_saturation, use `u<space>{0,1}<space>#`. If the number following u is 0, blue\_saturation will be set to a positive number; if the number following u is 1, blue\_saturation will be set to a negative number. The legal range is -10 through 10. To set red\_saturation, use `e<space>{0,1}<space>#`. Other properties are as in the blue\_sat case.

### **Edge Enhancement:**

This function controls edge sharpness (peaking). Use it for lower-resolution sources such as VHS tapes and cable TV programs. Higher-resolution sources typically do not need edge enhancement.

### **Picture Aspect Ratio:**

Your video source may send standard (4:3) aspect ratio or widescreen (16:9) aspect ratio pictures to HD Leeza™. Standard-size images are typical from VHS tapes and regular TV programs, while widescreen images are more common with DVD players.



To set the correct input aspect ratio, press the **AR-IN** button. You will see a list of six input aspect ratio choices and one custom setting. For standard 4:3 program sources, use the buttons to move to and select 1.33 input. For widescreen DVDs, you can use any of the other choices. Check each DVD's packaging to see what its actual aspect ratio is. Typically, 1.78 or 1.85 will work for widescreen DVDs.

#### Picture Gamma:

You can adjust the gamma for any input in .05 steps from 1.0 to 1.5. Use a grayscale step pattern from Menu selection #7 to make this adjustment.

#### Setting Horizontal and Vertical Input Offset:

- ⌚ **Full-scale (three-digit) control over H and V offsets is available in the PA menu for versions 5.5.55 and higher (more recent) of the firmware.**
- ⌚ Please use the **horizontal and vertical offsets** in the **Picture Adjust** menu very carefully – use your **display's adjustments** or HD Leeza's™ **System Adjust** to match HD Leeza's output to your display, not Picture Adjust.
- ⌚ Horizontal centering is maintained for 1.33 Input AR when horizontal size is not default.
- ⌚ Vertical timing is enabled to be adjustable through V offset for your SDI input, allowing HDL™ to accept SDI DVD players such as **Theta Digital** and **Ayre** as an input. For DVD modified for SDI that setting may need to be 11 or 12.

### Picture Quality Enhancements (See ISF® Section 7.5 of this Manual)

**Versions 5.6.39 and higher (more recent) of the firmware provide for the following picture quality enhancements:**

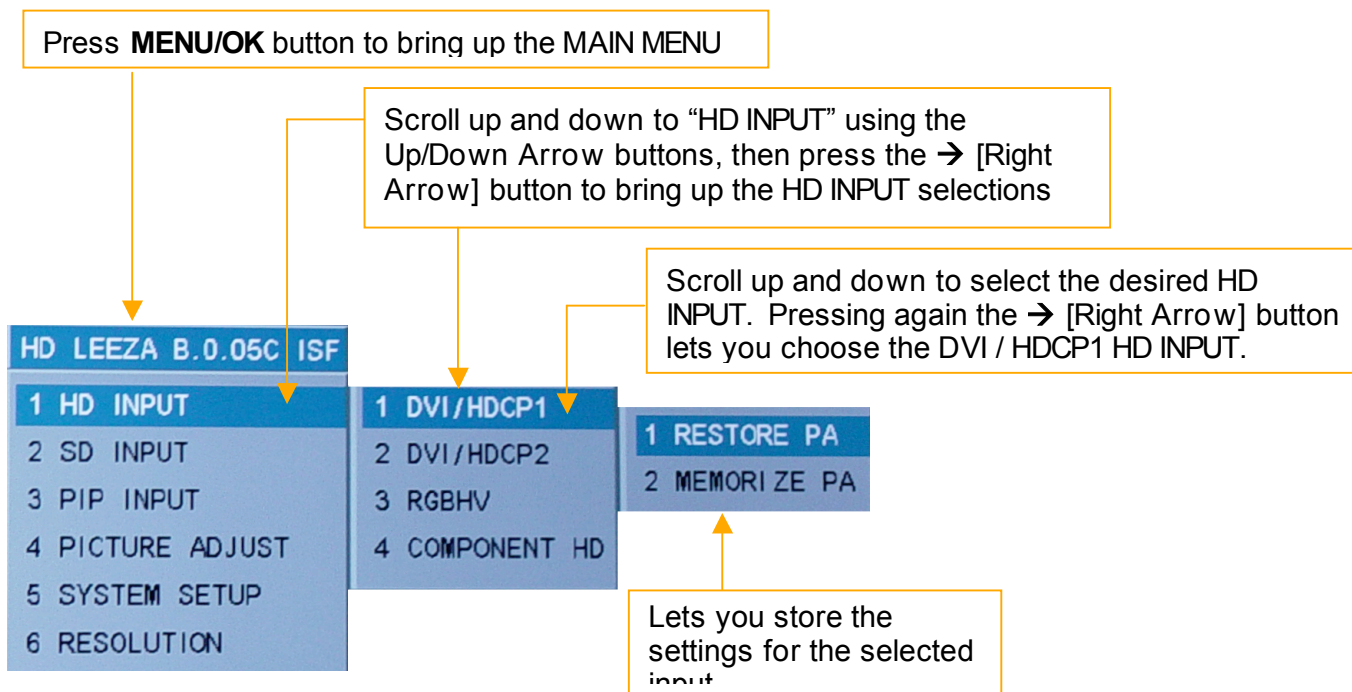
- ⌚ Brightness, contrast, and KD-PE (Key Digital® Picture Enhancement) settings for R, G, and B channels can be individually controlled. This is in addition to the preexisting overall brightness, contrast, and KD-PE controls. Individual brightness settings are remembered in EEPROM separately for each input channel. Individual contrast and KD-PE also remembered in EEPROM, but as global settings only.
- ⌚ An RS232 command is provided to switch between daytime and nighttime viewing conditions. This command changes overall brightness and overall contrast. Nighttime settings are default.
- ⌚ An RS232 command is provided to turn film mode on or off. The film-mode should normally be kept "on".

**Special Notes When Using H&V Input Offset Controls:**

- 1) Use of H&V offset should be very restricted to only cases of non-standard input and to compensate for data line on top of the image in some broadcasts (to-date, from user experience, only one device was found that need to change the H&V offset to compensate for incorrect framing: Samsung DVD player DVD-HD931 and only its DVI/HDCP output -- the H&V offsets need to be changed from default to H=34 and V=30).
- 2) The V offset default is 127. The H offset default is 255.
- 3) If you decide to change default numbers – enter desired number in each H or V offset window(s) followed by right arrow button.
- 4) Re-select the given channel and follow Individual Setting memory procedure described above.
- 5) HD Leeza™ will save your individual setting only for the input resolution you used during settings. Other input resolutions will be set to system defaults.

**3. Storing your preferred video processing settings separately for each source input (up to 10) connected to your HD Leeza™**

**MENU NAVIGATION**



**Please Note:** OSD Menus in this manual are illustrative -- the firmware version in your HD Leeza™ may produce Menus that vary slightly from

**Storing Your Preferred Video Settings on your HD Leeza™**

- 1) Adjust video processing variables in Picture Adjustment: Contrast, Brightness, Saturation, H&V offset (ONLY IF NEEDED), Edge Enhancement, Zoom feature, VTLBX, and Input Aspect Ratio for best result at this input. Adjust following variables in System Setting: Horizontal position, Horizontal size (only firmware later then 5.4.37), Gamma (only firmware later then 5.4.37) for best result at this input.
- 2) Re-select the same input using HD Leeza™ by navigating your remote through the On Screen Display (OSD) menu.
- 3) After input re-selection, HD Leeza™ will offer you additional window choices next to selected channel: MEMORIZE PA or RESTORE PA. To save all described above individual settings - please select the MEMORIZE PA.
- 4) When input is selected by OSD navigation method -- use RESTORE PA to restore previously saved individual settings.
- 5) When input is selected by using Direct Access IR (R6 button followed by a number) the Individual memory will be restored as part of input selection automatically.
- 6) When input is selected by using RS232 input select ("i" command followed by a number), the Individual memory will also be restored as part of the input selection automatically.

**NOTE:** RS232 and IR Direct access individual memory recall are identical.

## 7.4 PIP: Picture-in-Picture Feature of your HD Leeza™

HD Leeza™ conveniently provides a PIP (Picture-in-Picture) window for your display. The HD Leeza™ PIP function displays a PIP window between any SD and HD signal:

- ⌚ Three (3) PIP sizes are supported.
- ⌚ Main and PIP input swapping supported by HD Leeza™:
  - If the main picture comes from an SD channel, the PIP window can be any of the HD channels.
  - If the main picture comes from an HD channel, the PIP window can be any of the SD channels.
  - HD Leeza™ does **not** support:
    - ⌚ the display of an SD PIP window when the main channel is SD
    - ⌚ the display of an HD PIP window when the main channel is HD

The main and PIP can be swapped through the HD Leeza™ OSD and the remote control; and RS-232 control. The HD Leeza™ IR remote control “hot” buttons are described below:

### Hot IR button for PIP :

- ⌚ 'Ext 12V Control On' turns PIP on and off
- ⌚ 'Ext 12V Control Off' swaps the main & PIP window input

The RS-232 command list for PIP is provided using the 'h' ( help ) command:

```
]I <num> : select pip input.
]S <num> : pip size control
]O : Turn on & off pip screen
]W : swap main & pip.
```

HD LEEZA B.0.05C ISF	
1 HD INPUT	1 DVI/HDCP1
2 SD INPUT	2 DVI/HDCP2
<b>3 PIP INPUT</b>	3 RGBHV
4 PICTURE ADJUST	<b>4 COMPONENT HD</b>
5 SYSTEM SETUP	
6 RESOLUTION	

**Please Note:** OSD Menus in this manual are illustrative -- the firmware version in your HD Leeza™ may produce Menus that vary slightly from

## 7.5 “ISF”: Imaging Science Foundation® , Inc. Display Calibration

HD Leeza™ provides a large feature set that allows you to perform ISF **Imaging Science Foundation®** calibration of your display. This ISF capability built into the firmware of your HD Leeza™ is designed to be used by trained calibrators working with reference images from Test Pattern Generators and/or Test DVD's. For more information about ISF calibrations procedures and training please go to [www.imagingscience.com](http://www.imagingscience.com).

The ISF calibrations can be carried out for displays that do not have independent R,G,B controls with the help of HD Leeza™. This ISF feature works only through HD Leeza's™ RGB connections to the display via analog RGBHV, digital DVI, or digital HDMI it does not work through the HD Leeza™ Component output connection.

The ISF controls are available through the RS232 port. The command set is available on RS232 by executing the "h" command. Simple access to HD Leeza's™ terminal dialog box through RS232 can be done by using Windows Hyper Terminal program at 19,200 baud rate. The connection between PC and HDL™ should be straightforward: simply use a RS232 cable.

We are including a PC GUI application that simplifies ISF controls through PC by using graphically controlled buttons. Same application has generic terminal dialog box open at the same time.

### A Guide to the ISF Version of HD Leeza™ Firmware

The ISF version of HD Leeza™ firmware has two goals:

1. To limit a user's exposure to complexity of operation, and
2. To provide new means for the enhancement of picture quality.

### Limiting Exposure to Complexity

HD Leeza™ ISF uses **emendation-access** to limit a user's exposure to complexity. A dealer can set some of the parameters for a customer, and then restrict emendation-access. Restricted access allows a user to change some display-parameters but not others.

When emendation-access is restricted, and if a dealer is not logged in, some of the RS232 commands will not operate. Also some of the OSD buttons, the ones grayed out, stop responding.

### 1. Logging In and Logging Out

Use the login and logout buttons. A valid dealer key must be provided.

A dealer must logout, following emendation disable, if a user is to be locked out of emendation-access.

## 2. Enabling/Disabling Emendation Access

A user's access to emendations can be enabled or disabled with the "Enable/Disable Emendation" button, once a dealer is logged in.

## 3. Changing RGB Setup, Gain, and Gamma

Once a dealer is logged in, the RGB setup, gain, and gamma can be changed using the nine number buttons and the up/down arrow keys.

The setup buttons apply only to the currently selected input. Gain and gamma apply to all input channels.

## 4. The RS232 Console Window

The RS232 console window can be used as a normal console window. Commands can be typed in. HDL's™ responses appear in the window, as usual.

## 5. Log File

Pressing the save key saves the session as a text file in the rtf format.

## 6. The Super Granny Button (SGB) Sequence

When a user is denied emendation-access, the user is disallowed the use of the usual Granny Button (GB) sequence, but may use SGB in an emergency. The SGB sequence is <GB, 1, 2, right/up/down\_arrow>.

The SGB sequence must also be used following the load of any new software version into HD Leeza™.

Like GB, the SGB sequence will force all settings to factory default.

A record of SGB activation is maintained in EEPROM. This record can be reset only in the dealer-access mode.

## 7. Dealer Access

When a user is logged in as a dealer, the user can

- ⌚ Enable/disable emendation access,
- ⌚ Change any and all settings, and
- ⌚ Erase SGB-activation record.

## 8. Dealer-Install Sequence

A dealer will typically go through the following sequence of steps during a new install, or during a software upgrade.

- ⌚ During an upgrade a dealer will first execute the RS232 command “X” with the old software version in place. The command “X” will print out a list of the system settings for all channels.
- ⌚ The dealer will download the new, or the latest, software version, and execute the SGB sequence.
- ⌚ The dealer will login using the “Q K <validkey>” sequence (see Section 7).
- ⌚ The dealer will make appropriate changes to all system settings.
- ⌚ The dealer will restrict emendation-access with the command “Q R” (see Section 7).
- ⌚ The dealer will erase the memory of SGB sequence with the command “Q E”. And, finally,
- ⌚ The dealer will logout with “Q K 0”.

## 9. New Commands. Summary

### Dealer Commands

Dealer login	Q<space>K<space><validkey><return>
Restrict emendation-access	Q<space>R
Unrestrict emendation-access	Q<space>O
View SGB record	Q<space>G
Erase SGB-activation record	Q<space>E
Dealer logout	Q<space>K<space>0<return>

### Individual RGB Adjustment Commands

*Notes: The string “x” below stand for one of R, G, B, or Y. The string “nn” stands for a number.*

Brightness setting	R<space>x<space>nn<return>
Contrast setting	c<space>x<space>nn<return>
KD-PE setting	K<space>x<space>nn<return>

### Nighttime/Daytime Switching Commands

Daytime/nighttime toggle	#
--------------------------	---

IR-remote button R3 also toggles between daytime and nighttime settings

### Film-mode Commands

*Note: The film-mode should normally be kept “on”.*

Toggle film mode on/off	*
-------------------------	---

## 10. Command descriptions

All HD Leeza™ commands can be listed on a console using the RS232 command ‘h’ for “help”.

## 8. HOW TO CONTACT KEY DIGITAL®

### Repairs and Warranty Service:

- ⌚ Should your HD Leeza™ require warranty service, please contact Key Digital® first to obtain a Returned Materials Authorization (RMA) number
- ⌚ Please contact us at either:
  - Phone: 914-667-9700
  - Email: [tech@keydigital.com](mailto:tech@keydigital.com)

### Technical Support:

- ⌚ For technical questions about using our products, please contact us at either:
  - Phone: 914-667-9700
  - Email: [tech@keydigital.com](mailto:tech@keydigital.com)

### Customer Service:

- ⌚ For customer service issues, please contact us at either:
  - Phone: 914-667-9700
  - email: [customerservice@keydigital.com](mailto:customerservice@keydigital.com)

## 9. WARRANTY

All Key Digital® products are built to high manufacturing standards and should provide years of trouble-free operation. They are backed by a limited two-year parts and labor warranty.

**### End of *HD Leeza™* KD-HD1080P Product Operation Manual ###**

**### Appendices Start on Next Page ###**



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## Appendix A: HD Leeza™ Technical Specifications



### HD LEEZA™ - Video Processor - Model KD-HD1080P

#### **Inputs**

- Flexible inputs supported:
  - Two Digital DVI with support for HDCP HD sources [DVI-D connectors]
    - Also supports the HDMI standard via an HDMI-DVI adapter
  - One Digital SDI 270Mb/s (BNC connector)
  - One RGBHV (can also pass-through) (D sub connector)
  - Two Component Video (YPbPr) with sync on Y, 1V p-p @ 75 ohms, negative or positive sync, (each 3 x BNC):
    - one SD (NTSC & PAL: 480i, 576i)
    - one HD (480p, 576p, 720p, 1080i/540p)
  - Two S-Video Y/C video for NTSC and PAL (2 x DIN connectors)
  - Two Composite Video (CV) for NTSC and PAL (2 x BNC connectors)
- All world formats accepted in composite and S-Video: NTSC, PAL, and SECAM

#### **Scaling**

- Scaling SDTV and HDTV to popular native resolutions
  - DTV/HDTV standard display formats
    - 704x480p, 1280x720p, 1920x540p, 1920x1080p
  - Plasma/LCD standard resolutions
    - 852x480, 1024x512, 1024x1024, 1280x768, 1440x768, 1365x768, 1366x768
  - PC standard display formats
    - 640x480, 800x600, 1024x768, 1280x1024, 1400x1050, 1920x1200 (Wide UXGA)
  - Other display formats
    - 720x480 NTSC, 852x576 PAL, 1440x788, 1280x960, 1440x960, 1365x1024, 1900x1200
- Film detection with inverse 3:2 or 3:3 telecine; supports 50 Hz / 75 Hz with PAL sources and 2:2 pull-down
- Scaler equipped with advanced, proprietary motion-assisted de-interlacing algorithm "Clear Matrix Pro"
- Dynamic Non Linear Stretch Mode "Dynamic Stretch Enhancement" (DSX™) included
- Aspect Ratios in and out: 1.33, 1.66, 1.78, 1.85, 2.00, 2.35, and accommodates custom settings

#### **Outputs**

- Flexible outputs supported:
  - Digital DVI which conforms to HDCP [DVI-D connector]

- Also supports the HDMI standard via a DVI-HDMI adapter
- RGBHV (VGA) or YPbPr (Component Video) with sync on Y, 1V p-p @ 75 ohms, negative or positive sync, [5 x BNC connectors]
- Output refresh rates of 48 Hz, 50 Hz, 60 Hz, 72 Hz and 75 Hz for each resolution
- One High Definition pass-through for RGBHV

### **Other Connections**

- D-sub 9-pin (RS-232C)
- 1/8" mini-plug (Remote Power and 12V Screen Control)

### **Bandwidth**

- SDTV: 6.5 MHz for Y (luma), 4 MHz for Pb and Pr (chroma)
- HDTV: 37 MHz for Y (luma), 18 MHz for Pb and Pr (chroma)
- RGB passthrough: 300 MHz

### **Control**

- Infrared Remote Control with "hot" buttons; discrete IR commands available
- User-friendly on-screen-display
- Picture adjustments include:
  - Brightness, contrast, saturation, and hue
  - Image size and position
  - Plus:
    - 2-D Enhancement
    - Gamma
    - Aspect Ratio In & Out
    - Non-linear stretch
    - Letterbox (vertical and horizontal)
    - Independent blue and red saturation
    - Test patterns (also through RS-232)
- Six user-programmable input and output aspect ratio settings
- RS232 port equipped with discrete command protocol compatible with control systems (e.g., Crestron, AMX, CNMSX-PRO)
- Firmware upgradeable

### **Mechanical**

- Easy to install and integrate -- Custom Installer's dream
- Rack mountable: 2U (brackets included)
- No fan noise
- DVI, BNC, DB15, and S-Video connectors for inputs and outputs
- Size: 17.4" x 10.6" x 3.5"
- Weight: 15.4 lbs.
- Enclosure type: Metal
- Input Power: 100 to 240V AC, 40 Watts (\*\***Caution:** *be sure to set the Power Input Switch next to the line cord on the back of HD Leeza™ to the proper line voltage, 115 or 220 VAC*)

## **Appendix B: Firmware Upgrade Instructions**

### **HD LEEZA™ - Video Processor - Model KD-HD1080P**

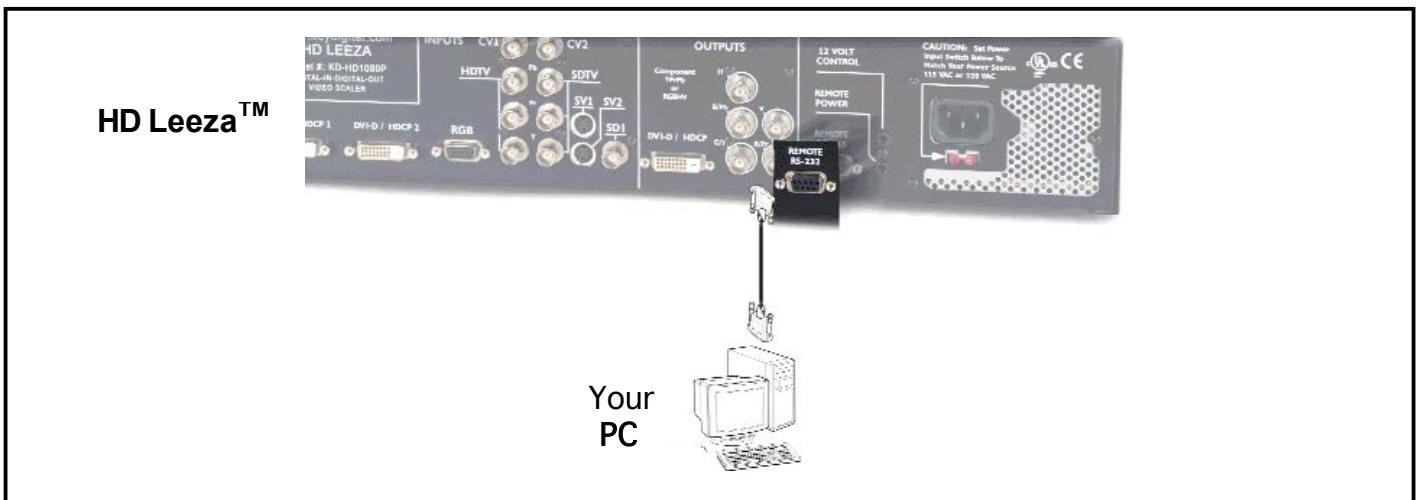
Periodically, Key Digital® may make **firmware upgrades** available to you (over the Internet). These upgrades will enhance the operation of HD Leeza™ and are easily installed using a desktop or notebook PC, along with the special serial port cable that came with your HD Leeza™ accessories. To **upgrade your firmware**, you will need the most current HD Leeza™ upgrade file and a program called BOOTLOADER.EXE. These files are obtained from Key Digital® technical support. Both files are compressed in the .ZIP format.

#### **CAUTION!!!**

The special DB9 (black) cable included with your HD Leeza™ shipment is for **firmware upgrades only**. Do **not** plug this cable into HD Leeza™ for any other reason -- it will erase ALL the firmware inside.

#### **PLEASE NOTE!!!**

It is common NOT to have a Serial Port with the latest PC's and Laptops. Key Digital® advises that *in some cases* it may be possible to use a USB-to-serial converter (such as from Keyspan) to upgrade HDL™. However, Key Digital® instructs you to use only the cable and instructions provided here, and you should be prepared if you use the USB port of your computer that the HD Leeza™ upgrade ***may not be successful***.



**Firmware Upgrade of your HD Leeza™:**

STEP #	HD LEEZA™ FIRMWARE UPGRADE PROCEDURE
1	Do not connect the special DB9 (black) cable to HD Leeza™ until Step #5. Make sure HD Leeza™ is OFF by using your HD Leeza™ Remote control.
2	Open the Firmware Upgrade zip file provided by Key Digital®, and save the upgrade file <b>hd_Leeza.##.hex</b> and the <b>Bootloader.exe</b> in the same directory on the C drive of your PC.
3	Make sure that no devices are using the COM1 serial port on your PC. A typical culprit is the PALM “Hot Sync” program and cradle that is set for a Serial connection. Disconnect the cables and disable the PALM program or any other programs from usage of COM1.
4	Double click the Bootloader. <b>Do NOT click the OK button.</b>
5	Connect the <b>special DB9 black cable</b> to the COM1 serial port on your PC, and the other end to the RS232 port on HD Leeza™. You can extend the cable or use a longer cable provided: <ul style="list-style-type: none"> <li>⌚ your RS232 cable has correct connectors on each end,</li> <li>⌚ it is DIRECT cable, pin-pin, and <b>NOT</b> a NULL CABLE, and</li> <li>⌚ the extension cable <i>must</i> go between the black RS-232 HD Leeza™ cable and your PC.</li> </ul>
6	Turn ON HD Leeza, and note that with the special DB9 cable connected, all LED's on the front panel of HD Leeza™ will turn ON, except SDI. <b>At this time all HD Leeza™ firmware is erased!</b>
7	Click <b>OK</b> on the Bootloader window.
8	Click <b>DOWNLOAD</b> on the Bootloader window.
9	Select the latest firmware upgrade file you received from Key Digital®.
10	Click <b>OPEN</b> on the Bootloader window.
11	<i>If your PC refuses to connect to COM1 with all proper steps above – please restart your PC.</i>
12	<i>Wait about 4 minutes until HD Leeza™ is upgraded. Please do not use any other application on your PC or permit any type of interruption while the upgrade is in progress*.</i>
13	Only when the Bootloader window shows <b>100% complete</b> can you use your HD Leeza™ remote control to turn OFF HD Leeza™.
14	<b>DISCONNECT</b> the special DB9 cable from HD Leeza™.
15	Click the <b>EXIT</b> button on the Bootloader program.
16	Turn ON HD Leeza™ using your remote control – <b>the special DB9 cable MUST be disconnected from the RS232 port on the back of HD Leeza™.</b>
17	At this point you will see that only one front LED is ON or blinking on HD Leeza™. <b>If all LED's except SDI are ON after you disconnected the special black cable, then the upgrade was NOT successful, and you must re-program HD Leeza™ starting with step #4, above.</b>
18	<b>You MUST reset HD Leeza™ after each Firmware Upgrade. This can be achieved by pressing and releasing the green GB button</b> on your HD Leeza™ remote control, wait 5 seconds and press and release the <b>Right Arrow</b> key on the remote control. HD Leeza™ will reboot to 720x480, 60 Hz resolution, RGBHV output, Composite 1 (CV1) input.
19	<b>To select the 480p/60 Hz Component Video output</b> , press the green <b>GB</b> button on your HD Leeza™ remote control, wait 5 seconds and press the <b>Up or Down Arrow</b> key on the remote control. HD Leeza™ reboots to 720x480p/60 Hz resolution, Component Video output, Composite 1 (CV1) input.

20	HD Leeza™ is ready to be used with your new firmware!
21	Store the serial cable in a safe place for future firmware upgrades. Save your special DB9 cable <b><i>far away from HD Leeza™</i></b> -- simply plugging this cable to the RS232 port of HD Leeza™ will erase the firmware and you must then reload the firmware following the above steps.
<b><i>*If there is an interruption with the firmware upgrade process, and/or if ever HD Leeza™ firmware is erased – please reboot your computer and repeat the above Firmware Upgrade Procedure.</i></b>	



## Appendix C: HD Leeza™ RS-232C Remote Control Operation

### HD LEEZA™ - Video Processor - Model KD-HD1080P

You can remotely control HD Leeza™ functions through the rear-panel RS-232C connector, using a HyperTerminal or other compatible interface. Set your RS-232C connection to 19200 baud, 8 data bits, no parity. When creating command strings, make sure to insert sufficient time delays before each command. Test all of your command strings to determine the proper time delay between commands. For example, to select HD Leeza's™ SDI input, you will need to send the command string:

i <(1 second interval)> 4 <(no carriage return)>

Contact [tech@keydigital.com](mailto:tech@keydigital.com) for further details of the RS-232C discrete command codes.

#### LIST OF RS-232C COMMAND CODES

**[Current for Version B014C of the Firmware]**

**s : show status**

**# : daytime/nighttime settings selection**

**i : select input**

usage : i<num>

num 0 is DVI1

num 1 is DVI2

num 2 is RGBHV

num 3 is COMP HD

num 4 is SDI

num 5 is COMP SD

num 6 is SVideo1

num 7 is SVideo2

num 8 is CVBS1

num 9 is CVBS2

**B : VGA bypass ON**

**v : VGA bypass OFF**

**b : toggle VGA bypass status**

**P : ext V12 ON**

**[ : ext V12 OFF**

**p : ext V12 ON/OFF**

**J : enable OSD**

**j : disable OSD**

**k : disable/enable OSD**

**r : output resolution, refresh rate ctrl**

usage : r [resolution] [refresh]

ex) r 1 2 : set 720x480p, 60 Hz

## KEY DIGITAL

HD LEEZA™, MODEL KD-HD1080P

- ex) r 17 0 : set 1920x1080p, 48 Hz
- a : select input AR**
  - usage : a[index]
  - ex) a0 : input AR = 1.33
  - ex) a5 : input AR = 2.35
- o : select output AR**
  - usage : o[index]
  - ex) o1 : output AR = 1.66
  - ex) o3 : output AR = 1.85
- R : set RGB brightness**
  - usage : R R/G/B/Y [value, 34-65]
  - ex) R G 46 : green brightness 46
  - ex) R Y 54 : overall brightness 54-
- c : set RGB contrast**
  - usage : c R/G/B/Y [value, 34-65]
  - ex) c R 60 : red contrast 60
  - ex) c Y 55 : overall contrast 55
- g : increment overall KD-PE setting**
- K : set RGB KD-PE**
  - usage : K R/G/B/Y [value 0-10]
  - settings 0-10 correspond to 0.85-1.35
  - ex) K B 4 : blue KD-PE 4
  - ex) K Y 3 : overall KD-PE 3
- U : set overall saturation**
  - usage : U [value]
  - ex) U 55 : set overall sat to 55
- u : set blue saturation**
  - usage : u [sign] [value]
  - ex) u 0 3 : set blue sat to +3
  - ex) u 1 2 : set blue sat to -2
- e : set red saturation**
  - usage : e [sign] [value]
- S : set separate/embedded sync for SDI**
  - usage : S 1/2
  - ex) S 1 : separate sync-
  - ex) S 2 : embedded sync (default)
- W : configure output for DVI displays**
  - usage : W 1/2
  - ex) W 1 : DVI1 display output
  - ex) W 2 : RGB display output
- C : select clock source for DVI outputs**
  - usage : C 0/1 0(default)/1
  - usage : first arg 0/1 for DVI1/2
  - usage : second 0/1, in-signal/crystal
  - ex) C 0 1 : DVI1, crystal
- Z : select zoom state**
  - usage : Z 0/1/2/3/4
  - 0 no zoom

## KEY DIGITAL

HD LEEZA™, MODEL KD-HD1080P

- 1 linear zoom
- 2 hltbx
- 3 vltbx
- 4 DSX zoom
- ex) Z 2 : hor letterbox

**z : cycle through zoom states**

### **Q : dealer operations**

- usage : Q K <key>, login
- usage : Q K 0, logout
- usage : Q O, open emendation
- usage : Q R, restrict emendation
- usage : Q G, view SGB-act record
- usage : Q E, erase SGB-act record

### **X : list all individual PA settings**

**x : Memorize PA values for selected input**

### **t : Enable Test Pattern**

- usage : t<num>
- num ranges from 0 to 6
- 0: cross
- 1: cross hatch
- 2: gray scale
- 3: color bar
- 4: horizontal ramp
- 5: wide horizontal ramp
- 6: wide vertical ramp

### **T : Disable Test Pattern**

### **] : PIP operations**

- usage : ] i <num>, select pip input
- num ranges from 0 to 9
- usage : ] s <num>, pip size control
- num ranges from 0 to 2
- usage : ] o, pip on & off
- usage : ] w, main & pip input swap

**Consumer lockout is accomplished by restricting emendation-access**

## Appendix D: Handy Summary of Remote Control Commands

### HD LEEZA™ - Video Processor - Model KD-HD1080P

*Use the special “R” keys located at the bottom of your HD Leeza™ Remote Control as follows:*

KEY	HOT BUTTON FUNCTION
<b>R1</b>	<p><b>Inhibit OSD</b> (<i>R1, 2</i>) is the default setting</p> <ul style="list-style-type: none"> <li>⌚ (R1, 1) puts HD Leeza™ in a mode where the OSD is not displayed when the input channel is changed.</li> <li>⌚ (R1, 2) restores the default mode where OSD is displayed on channel changes.</li> </ul>
<b>R2</b>	<p><b>Separate Sync for SDI</b> (<i>R2, 2</i>) is the default setting</p> <ul style="list-style-type: none"> <li>⌚ (R2, 1) enables separate sync on SDI inputs. Then the frame can be moved horizontally and vertically, exactly as with other input channels.</li> <li>⌚ With (R2, 2), SDI inputs use embedded sync and cannot be moved on the display screen.</li> </ul>
<b>R3</b>	<b>No operation</b>
<b>R4</b>	<p><b>RGBHV Bypass</b></p> <ul style="list-style-type: none"> <li>⌚ Connects the input RGBHV to the output RGBHV, bypassing HD Leeza™ processing.</li> </ul>
<b>R5</b>	<b>No operation</b>
<b>R6</b>	<p><b>Direct Input Access</b></p> <ul style="list-style-type: none"> <li>⌚ 0 = DVI Input #1</li> <li>⌚ 1 = DVI Input #2</li> <li>⌚ 2 = RGBHV Input</li> <li>⌚ 3 = Component HD Input</li> <li>⌚ 4 = Serial Digital Input</li> <li>⌚ 5 = Component SD Input</li> <li>⌚ 6 = S-Video Input #1</li> <li>⌚ 7 = S-Video Input #2</li> <li>⌚ 8 = Composite Video Input #1</li> <li>⌚ 9 = Composite Video Input #2</li> </ul>
<b>R7</b>	<b>No operation</b>
<b>R8</b>	<p><b>Direct DVI Phase Clock Configuration</b></p> <ul style="list-style-type: none"> <li>⌚ 0 = Phase 0</li> <li>⌚ 1 = Phase 1</li> <li>⌚ 2 = Phase 2</li> <li>⌚ 3 = Phase 3 (factory default)</li> <li>⌚ 4 = Phase 4</li> <li>⌚ 5 = Phase 5</li> <li>⌚ 6 = Phase 6</li> </ul>

⌚ **7 = Phase 7**

The remote commands (R8, 8) and (R8, 9) can be used to select a special X or N DVI input/output mode.

## **Direct Input Access [Numeric Keypad at the top of the HDL™ IR Remote]**

When the OSD is not shown, you can switch to any channel by convenient one-digit touch.

### **Numeric Keypad at the top of the HDL™ IR Remote**

<b>0</b>	DVI (HDMI) Input #1	DVI1
<b>1</b>	DVI (HDMI) Input #2	DVI2
<b>2</b>	RGBHV Input	RGB
<b>3</b>	Component HD Input	CHD
<b>4</b>	Serial Digital Input (SDI)	SDI
<b>5</b>	Component SD Input	CSD
<b>6</b>	S-Video Input #1	SV1
<b>7</b>	S-Video Input #2*	SV2
<b>8</b>	Composite Video Input #1	CV1
<b>9</b>	Composite Video Input #2*	CV2

**Please note that the following Sections may be updated periodically**

<b>SPECIAL SECTIONS</b>
<b>1. Frequently Asked Questions (FAQs)</b>
<b>2. Firmware Upgrade Log</b>
<b>3. Display Matrix – Preferred HD Leeza™ Resolution Settings for Popular Displays</b>

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# **SPECIAL SECTION 1:**

## **Frequently Asked Questions (FAQs)**

### **HD LEEZA™ - Video Processor - Model KD-HD1080P**

**Q: “Native Resolution”:** What is the best HD Leeza™ output resolution and scanning setting for my particular display?

**A:** It is a common problem that display manufacturers specify “**Native Resolution**” for *marketing purposes*. HD Leeza™ lets you find that “sweet spot” for the display, regardless of quoted “Native Resolution” -- please use the table provided at the end of this manual.

**Q:** What do I do if the **screen goes blank** and I can't make a picture or see the On Screen Display Menu?

**A:** This might occur if you are switching to a display format that might not be compatible with the display connected to the output of HD Leeza™. If this happens, try one of the following:

- ⌚ **Use the “PP button” (Previous Page) on your remote control.** It brings you back to the previous window selection on the menu, instantly un-freezing the choice and allowing you to continue navigating. This allows you to go back to the previous resolution setting if you select one that is out of range and causes your screen to go black.
- ⌚ **Use the “GB button” (Granny Button) on your remote control.** Activating this button reverts HD Leeza™ to the factory default settings (720x480p @ 60 Hz).

**Q:** I have a “Catch 22” – I only have a **component (YPbPr) display**, yet HD Leeza's factory default output is 720x480 **RGB**, so I can't bring up HD Leeza's OSD.

**A:** With Version 5.5.55 or greater (more recent) of the firmware, **the user can choose to come up with RGBHV or YPbPr output during GB reset.** Press the Granny Button for five seconds, followed by:

- ⌚ Right Arrow will furnish RGB output
- ⌚ Up or Down Arrows will set HD Leeza™ to YPbPr output with H and V still active. The RGBHV and DVI monitor will still work with YPbPrHV but will show a strange green color. The unit can be changed back to RGBHV through the System Setting Menu. Please remember: only three standard YPbPr resolutions will be accepted by any component monitor: 720x480p/60, 1920x540p/60 (this is instead of 1080i format) and 1280x720p/60. Other resolutions are not standard for Component connection.

**Q:** I can't **navigate out** of the **Horizontal Position** setting submenu. The right-left and up-down arrow keys all have similar functions -- changing the horizontal position value. Is the only way to get out of this submenu for me to wait for the menus to time out?

**A:** No -- you can conveniently use the “**PP button**” on the top of the left arrow button to navigate out.



**Q:** When I **switch inputs**, the menu appears and I have to hit the “Menu” button to get rid of it.

**A:** That is taken care of from Version 5.4.13 and higher (more recent) of the HD Leeza™ firmware – please be sure to upgrade your firmware. Switch by using Direct Access Button R6, followed in 1 second by a digit between 0 and 9 for all ten inputs. For example, SDI is Input #4. That will switch to the particular input without OSD and will plug individual PA memory for that input as well. The OSD switching is useful for initial settings of individual memory.

**Q:** The **OSD Menus** on HD Leeza™ **automatically pop up** every time the input is changed. This is not desirable in real-use (for example, when your Home Theater system is controlled by your Crestron or AMX controller, or for users who want to surf freely across inputs) – how can I disable this?

**A:** This feature is only useful during initial system set-up. Using your HD Leeza™ IR Remote Control to **DISABLE** this set-up feature: press button **R1**, wait 3 seconds, then follow by pressing the number **1** at the top of the keypad. Make sure you have active video on the screen.

**Q:** The **OSD Menus** on HD Leeza™ are not as **responsive** (quick) as I would like. Is there anything I can do?

**A:** Please be sure you have Version 5.5.74 and higher (more recent) of the firmware installed in your HD Leeza™. The OSD has been designed to respond / operate faster.

**Q:** Why do I need to set the **horizontal position** using HD Leeza’s System Setup Menu? Also, I’ve seen some values for positioning listed in your matrix table that differ from the ones that work best for my display.

**A:** The **horizontal position** is affected by sync polarity and variances from source to source. Also, each display may be calibrated differently. That is why we offer horizontal centering as part of the individual memory for each channel input to HD Leeza™.

**Q:** There is a **strange jitter or instability on my DVI display** when it is connected to the output of HD Leeza™. Why does this happen, and is there anything I can do to correct it?

**A:** This means you need to adjust the DVI\_OUT\_PHASE setting. The default value for DVI\_OUT\_PHASE is set to 4. The remote command (R8,#) can be used to set this value to any integer between the numbers 0 through 7. The user can test various settings to determine the best result to eliminate the picture instability.

**Q:** I am using a Samsung or Marantz (DVI Output) DVD player, and how do I center the image on the display?

**A:** Go to the HD Leeza™ OSD for “Picture Adjustments” and adjust the vertical then horizontal positions to your liking. Then, select HD Input and let HD Leeza™ memorize (store) your preferred settings.

**Q:** Does HD Leeza™ support **HDMI**? If so, how do I connect HDMI sources or displays to HD Leeza™?

**A:** HD Leeza™ supports HDMI video using **HDMI<>DVI adapters** at the input and output to HD Leeza™.

HDL™ accepts HDMI sources as an input through the use of an HDMI-to-DVI adapter at the DVI input port to HDL™. Supported input HDMI resolutions are: 480i/60, 480p/60, 576p/50, 720p/60; 1080i/60. The 480i mode essentially allows for a digital non-scaled input from a DVD player equipped with an HDMI interface. That is the same quality interface as SDI and will generate the best result from your DVD source.

**Q:** What happens if the HD Leeza™ Input source is **HDMI/HDCP** or **DVI/HDCP**?

**A: Remember that HDMI-DVI/HDCP requires that the analog output ports of HD Leeza™ must (by law) be disabled for HD content, and hence only the DVI output of HD Leeza™ is permitted to be active for HDMI-DVI/HDCP sources.**

**Q:** The scaled, analog output of my HD Leeza™ contains **dark horizontal bands** (perhaps intermittent but frequent, with the position of the bands changing constantly).

**A:** There could be two reasons:

1. Your **display clamping** is not where it supposed to be. You can change the position of the clamping pulse in the menu of your monitor if you have such setting OR you can adjust the horizontal position of the HD Leeza™ output in the System Setting menu. You probably need to move the image *right*.
2. **HD Leeza™ is clamping** in the wrong position. Adjust the HD Leeza™ input H position -- it is individual for each input channel.

**Q:** I have a **Sony HDTV Set-top Box (STB)** with VGA (RGBHV) and Component YPbPr outputs. Which mode should I use to connect to HD Leeza™?

**A: We recommend you use Component YPbPr, 1080i** for STB's because YPbPr is the native HD broadcasting format. The RGBHV is a derived ("second generation") signal inside the STB. To make the YPbPr connections, you can use RCA-to-RCA cables and add three RCA-to-BNC jack converters on the HD Leeza™ side (e.g., readily available from Radio Shack). To use this connection make sure the switch on the back of the Sony STB for output TYPE is set for YPbPr, 1080i. On HD Leeza™ through the menu you need to switch to HD Inputs, Component HD.

**Q:** When using **VCR tapes** at the composite video input to HD Leeza™, there seems to be a "timebase" issue – very "juddery" images. Does HD Leeza™ require a VCR with a Time Base Corrector (TBC) at the input? Does HD Leeza™ have any internal time base correction?

**A:** While HD Leeza™ does have a built-in **TBC**, it is not designed to compensate for large errors that may come from a VCR. It is best to use a VCR that is readily available today

with a built-in TBC; or use an external TBC at the output of the VCR before you feed the signal into HD Leeza™.

**Q:** The HD Leeza™ **test patterns** all seem to have a fixed resolution. For example, on my 1024x768 display, I can only see a little more than 4 color bars, the cross pattern only shows a vertical line far to the right on the screen, etc.

**A:** The **test patterns are “full” only in 1920x1080**. In any other resolution, the test patterns are a subset of 1920x1080.

**Q:** I am having trouble with **individual memory inputs**.

**A:** Use the following guidelines:

1. First switch to the desired channel using the OSD. Then, set the parameters for Brightness, Contrast, etc.
2. RESELECT that same input using the OSD. After reselection, the OSD will pop offering you an additional window for "*Restore PA*" or "*Memorize PA*". The current HD Leeza™ settings become individual memory for that input when you select "*Memorize PA*".
3. HD Leeza™ will use these stored settings the next time you use the OSD switching and choose "*Restore PA*".

**Q:** When I use my PC as an input to HD Leeza™, the System Setup H and V positioning adjustments do not seem to compensate enough to properly position the video on my display connected to the output of HD Leeza™.

**A:** You then need to use H offset and V offset in the Picture Adjustment menu to adjust for different H and V timings generated by different computers.

**Q:** Does HD Leeza™ support PAL analog video?

**A:** HDL™ completely supports PAL inputs through every input port:

- HDMI accepts PAL progressive
- SDI, SVIDEO, CVBS, SD component ports accept PAL
- The HD component port accepts PAL progressive

## **SPECIAL SECTION 2:**

### ***Firmware Upgrade Logs***

#### **HD LEEZA™ - Video Processor - Model KD-HD1080P**

Starting with Version 5.5.74 and later (more recent), you will find below a Log of all the upgrades provided in each Firmware Upgrade.

<b>HDL™ FIRMWARE VERSION NUMBER</b>	B003C
<b>DATED</b>	2/14/2005
<b>PURPOSE</b>	This upgrade has improvements, new features and some fixes
<b>Included in Firmware upgrade</b>	
[1]	PIP: 3 sizes, main & pip input swap.
[2]	Hot IR button for PIP
[3]	HDL™ accepts HDMI input through the use of HDMI to DVI adapter and DVI input port
[4]	HDL™ completely supports PAL input through every input port
[5]	Vertical timing is enabled to be adjustable through V offset for SDI input
[6]	Test patterns are now available through RS-232
[7]	Three hot buttons dedicated to fast aspect ratio changes

<b>HDL™ FIRMWARE VERSION NUMBER</b>	5.6.15
<b>DATED</b>	8/27/04
<b>PURPOSE</b>	This upgrade has improvements, new features and some fixes
<b>Included in Firmware upgrade</b>	
[1]	ISF
[2]	Zooms

<b>HDL FIRMWARE VERSION NUMBER</b>	5.5.74
<b>DATED</b>	2/28/04
<b>PURPOSE</b>	This upgrade has improvements, new features and some fixes
<b>Included in Firmware upgrade</b>	
[1]	Addition of three new resolutions: 1440x960; 1440x788; 1920x1200
[2]	Improvements to the OSD, which is now running faster
[3]	The RGBHV is not auto-switched to DVI1 in case of signal fail

[4]	Composite Video capture adjusted for less over-scan
[5]	RS232 command set has been increased to reflect recent additions to the feature list

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**SPECIAL SECTION 3:**

***Display Matrix – Preferred HD Leeza™ Resolution Settings for Popular Displays***

**HD LEEZA™ - Video Processor - Model KD-HD1080P**

**Preferred HD Leeza™ Resolution Settings for Popular Displays**

The Table presented below is a “living document” based on actual user-experience with HD Leeza™ and various types of displays. Please be sure to check the Key Digital® web site [www.keydigital.com](http://www.keydigital.com), or contact [tech@keydigital.com](mailto:tech@keydigital.com) to be sure that you have the latest and most complete and accurate version of this table.



1. Please refer to the latest version of the HD Leeza™ User’s Manual for detailed, step-by-step instructions on how to set up HD Leeza™ with your display. Check at: [www.keydigital.com](http://www.keydigital.com) under Literature, User Manuals, HD Leeza™
2. Be sure that you have the latest version of this Table by checking our web site: [www.keydigital.com](http://www.keydigital.com)
3. Once you have set up HD Leeza™ to match the preferred resolution settings for your display, you must complete the step of adjusting the video display parameters, either with HD Leeza™ or with the controls on your display. Please be sure to adjust brightness, contrast, etc. By using the advanced “memory” feature with HD Leeza, you can store preferred settings matched to each display input.
4. **IMPORTANT NOTE FOR HDMI AND DVI DISPLAY INPUTS:** To frame the image to the display and fine-tune the optimum picture position and size on your display using the DVI or HDMI interface with HD Leeza™, set the H and V Size using HD Leeza™, and the H and V position on the display. This is required because most displays in the DVI or HDMI mode do NOT accept HD Leeza™ H and V position adjustments.

Brand Name & Display Technology	Model #	Interface from HD Leeza	Resolution Used by HD Leeza	Refresh Rate (Hz)	HD Leeza™: Non-default settings	Display: Non-default settings
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**KEY DIGITAL**

**HD LEEZA™, MODEL KD-HD1080P**

Brand Name & Display Technology	Model #	Interface from HD Leeza	Resolution Used by HD Leeza	Refresh Rate (Hz)	HD Leeza™: Non-default settings	Display: Non-default settings
AMPRO LCD	300	RGBHV	1280x1024 p	60	H. Position: -15	
DWIN DLP	TV3	DVI	1280x720p	60		
Fujitsu Plasma	P42HHA10WS	DVI	1024x1024 p	60	H. Size: 1032	H. Pos.: -8 V. Pos.: -12
Fujitsu Plasma	P42HHA30WWS	DVI	1024x1024 p	60	H. Pos.: -9 H. Size: 1032 V. Pos.: -10 V. Size: 1022	
Fujitsu Plasma	P50XHA10US	RGBHV	1280x768p	60	H. Pos.: +33, H. Size: 1264	
		DVI	1366x1024 p	60	H. Pos.: +4 H. Size: 1334	H. Pos.: Default V. Pos.: -17
Fujitsu Plasma	P50XHA30US	DVI	1366x768p	60	H. Size: 1382	H. Pos.: +10
Fujitsu Plasma	P50XHA30YS	DVI	1366x768p	60	H. Pos.: +34, H. Size: 1374	
Fujitsu Plasma	P50XP1	DVI	1366x768p	60		
Fujitsu Plasma	PDS4241WH	RGBHV	1280x768p	60	H. Pos. +31	
		DVI	1366x768p	60	H. Pos.: +5, H. Size: 1390	H. Pos.: +35 V. Pos.: +5
Fujitsu Plasma	PDS6101W	RGBHV	1920x1080 p	60		
		DVI	1366x768p	60		
Hughes LCOS	G1000	RGBHV	1365x1024 p	60		
InFocus DLP	ScreenPlay 5700	RGBHV	1280x720p	60	H. Pos.: -60 H. Size: 1320	
JVC D-ILA	D-ILA-150CL	DVI	1280x720p	60		
JVC D-ILA	D-ILA G11	RGBHV	1366x1024 p	50, 60, 72, 75	⌚ SDI: H Pos.: +32 ⌚ Comp.: H. Pos.: +42 Brightness: 45	
JVC D-ILA	G-150CLU	RGBHV	1920x1080 p	60		Lens: 1.33 Screen: 1.78
LG Plasma	MU50PZ90V	DVI	1365x1024	60	Sync: Negative	
Loewe Aconda	ACO9383PB	RGBHV	1920x540	60		
Marantz (NEC) 61" Plasma	PD6120D	DVI	1280x720p	60		
		RGBHV	1280x768p	60	Sync: Positive	
Marantz Plasma	PD5040D	DVI	1366x768p	60	Sync: Positive	Adjust Horizontal 100%
		RGBHV	1366x1024		Sync: Positive	

**KEY DIGITAL**

**HD LEEZA™, MODEL KD-HD1080P**

<b>Brand Name &amp; Display Technology</b>	<b>Model #</b>	<b>Interface from HD Leeza</b>	<b>Resolution Used by HD Leeza</b>	<b>Refresh Rate (Hz)</b>	<b>HD Leeza™: Non-default settings</b>	<b>Display: Non-default settings</b>
<b>Marantz DLP</b>	VP-12S1	RGBHV	1280x720p	60		Set to Auto Mode
<b>Marantz DLP (front)</b>	VP-12S2	DVI, RGBHV	1280x720p	60		Set to Auto Mode
<b>Marantz</b>	VP-12S3	DVI	1280x720p	60	Must set HD Leeza™ Horizontal Size to 1296 to enable H & V position controls on the projector	
<b>Mitsubishi LCOS</b>	WL82913	DVI	1920x540p	60		
<b>Mitsubishi (rear)</b>	WS65903	RGBHV	1920x540p	60		
<b>Mitsubishi CRT</b>	XC-3730C	RGBHV	800x600	72		
<b>Monivision CRT</b>	DM-6552SW	RGBHV	1280x720p	60		H. Pos.: 53 H. Size: 86 V. Pos.: 61 V. Size: 45
<b>NEC front CRT</b>	9PG	RGBHV	1024x768p	60	Default	Default
<b>Panasonic 42" Plasma</b>	PT-42PD3-P	RGBHV	852x480	60		
<b>Panasonic Plasma</b>	TH50PX20UP	DVI or RGBHV	1280x720p	60		
<b>Panasonic Plasma</b>	TH42PX25UP	DVI or RGBHV	1280x720p	60		
<b>Panasonic Plasma</b>	TH42PX25	DVI or RGBHV	1280x720p	60		
<b>Panasonic Plasma</b>	TH42PA20UP	DVI	852x480p	60		
<b>Pioneer Plasma</b>	503 CMX	DVI and RGBHV	1280x768p	60	H. Size: 1296	H. Pos.: 0 V. Pos.: 0
<b>Pioneer</b>	PDP433	DVI and RGBHV	1280x768p	60	For DVI use Sync: Positive	
<b>Pioneer (rear)</b>	PRO-510HD	RGBHV	1920x540p	60	Default	Default
<b>Pioneer Plasma</b>	PRO-910HD	HDMI	1280x720p	60		
<b>Pioneer Plasma</b>	PRO-1000HD Elite	RGBHV	1280x768p	60		
<b>Pioneer Plasma</b>	PRO-1110HD Elite	HDMI	1920x540p	60	HD Leeza™ H & V Size adjustments accepted by display	Must use display's H & V Position control.
<b>Runco DLP</b>	CL-710	DVI	1280x720p	60		
<b>Runco Plasma</b>	CW43ME	DVI	1280x768p	60		
<b>Runco Plasma</b>	50"	DVI	1024x768p	60	H. Pos.: -72	H. Pos.: -15 V. Pos.: -1 Anamorphic setting



**KEY DIGITAL**

**HD LEEZA™, MODEL KD-HD1080P**

<b>Brand Name &amp; Display Technology</b>	<b>Model #</b>	<b>Interface from HD Leeza</b>	<b>Resolution Used by HD Leeza</b>	<b>Refresh Rate (Hz)</b>	<b>HD Leeza™: Non-default settings</b>	<b>Display: Non-default settings</b>
<b>Runco</b> CRT (front)	DTV 1100	RGBHV	1280x960	60		
<b>Runco</b> CRT 8" guns (front)	NEC XG-85	RGBHV	1280x720p	60	H. Pos.: -53 H. Size: 1296	
<b>Samsung</b>	HPN6339	DVI	1280x768p	60		
<b>Samsung</b> Plasma	PPM50H3	DVI	1920x1080p	60		
<b>Samsung</b> 42" Plasma	SPN4235	RGBHV	800x600	60		
		YPbPr	1280x720p			
<b>Sharp</b> LCD	LC45	HDMI	1280x720p	60		
<b>Sharp</b> DLP	SharpVision XV-Z10000	DVI	1280x720p	60	H. Pos.: -23	
<b>Sim 2</b> DLP	HT250	RGBHV	1280x720p	60		
<b>Sim 2</b> DLP	HT300XTRA	DVI & RGBHV	1280x720p	60		
<b>Sony</b>	Grand Wega KDF70XBR950	DVI	1920x540 or 1280x720p	60	Default	Default
<b>Sony</b> 32" Plasma	KE32TS2U	DVI	1280x720p	60		
<b>Sony</b> Plasma	KE37XS910	DVI	1920x540p	60		
<b>Sony</b> LCD (rear)	Wega KF-60XBR800	DVI	1280x720p	60		
<b>Sony</b> CRT (front)	WPH G90	RGBHV	1920x1080p	60		Clamp in H/C mode
<b>Sony</b>	50KBR950	DVI	1280x720p	60	H. Size: 1296 Sync: Negative Gamma: 1.1	
<b>Toshiba</b> Plasma	42HP83P	DVI	1280x720p	60	H. Pos.: +16	
<b>Toshiba</b> LCOS	57HLX82	DVI	1280x720p	60	H. Pos.: -6	None
<b>Zenith</b> 60" Plasma	P60W26	RGBHV	1280x920p	60	H. Size.: 1312 V. Size: 924	

**\*\*\* Please be sure to check our web site for possible updates and additions to this table**

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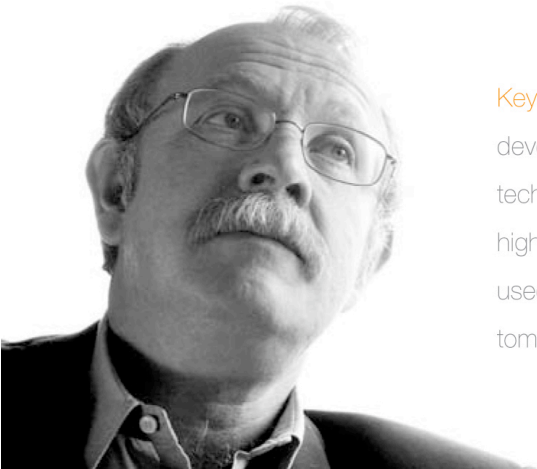
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# HD Leeza™ Operating Instructions



The Experts in Digital Video Technology and Solutions™



Key Digital®, led by digital video pioneer Mike Tsinberg, develops and manufactures high quality, cutting-edge technology solutions for virtually all applications where high quality video imaging is important. Our products are used by professional broadcasters, corporations, custom installers, home theater retailers, and consumers.



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