

# ProScaler

High Definition Video Processor

User's Manual



### **ABOUT THIS BASIC USER AND CONNECTIVITY GUIDE**

This guide is designed for use with the Wolf Cinema DCL-200FD Home Cinema Projector and outboard ProScaler™ Video Processor. Information in this document has been carefully checked for accuracy; however, no guarantee is given to the correctness of the contents. The information and specifications in this document are subject to change without notice.

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### **TRADEMARKS**

All trademarks and registered trademarks are the property of their respective owners.

### **FCC COMPLIANCE**

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

- (1) This device may not cause harmful interference, and
- (2) This device must accept any interference received, including interference that may cause undesired operation.

### **FEDERAL COMMUNICATIONS COMISSION (FCC) STATEMENT**

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

Reorient or relocate the receiving antenna.

Increase the separation between the equipment and the receiver.

Connect the equipment to an outlet on a circuit different from that to which the receiver is connected.

Consult the dealer or an experienced radio/TV technician for help.



The lightning flash with arrow head within an equilateral triangle is intended to alert the user to the presence of “dangerous voltage” within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.



The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

**WARNING:** TO REDUCE THE RISH OF FIRE OR ELECTRIC SHOCK, DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE. DANGEROUS HIGH VOLTAGES ARE PRESENT INSIDE THE ENCLOSURE. DO NOT OPEN THE CABINET. REFER SERVICING TO QUALIFIED PERSONNAL ONLY.

### Notices



**WARNING!** To meet FCC requirements, a shielded power cord is recommended in order to prevent interference. It is essential that only the supplied power cord is to be used. Use only shielded cables to connect I/O devices to this equipment. You are cautioned that changes or modifications not approved by the party responsible for compliance could void your authority to operate the equipment.



**WARNING!** High-brightness light source. Do not stare into the beam of light, or view directly. Be especially careful and ensure that children do not stare directly into the beam of light.



**WARNING!** To reduce the risk of fire or electric shock, do not expose this product to rain or moisture.



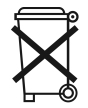
**CAUTION!** For minimal servicing and to maintain high image quality, we recommend that you use the projector in an environment that is smoke and dust free. When used in areas where there is a lot of smoke or dust, the filter and lens should be cleaned often to lengthen the service life of the projector.



**WARNING!** Some IC chips in this product include confidential and/or trade secret property belonging to Texas Instruments. Therefore you may not copy, modify, adapt, translate, distribute, reverse engineer, reverse assemble or decompile the contents thereof.



**WARNING!** The ventilation slots and objects next to them may get extremely hot during operation. Do not touch these areas until they have sufficiently cooled down.



**DISPOSAL** Do not use household or municipal waste collection services for disposal of electrical and electronic equipment. EU countries require the use of separate recycling collection services.

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Wolf Cinema's ProScaler serves as the nerve center of your home cinema. It is both an intelligent central switching hub for all your video components, plus provides for advanced video processing on all types of video signals. It comes with a simple, easy to use IR universal remote controller so that you can operate the entire system with just the one remote.

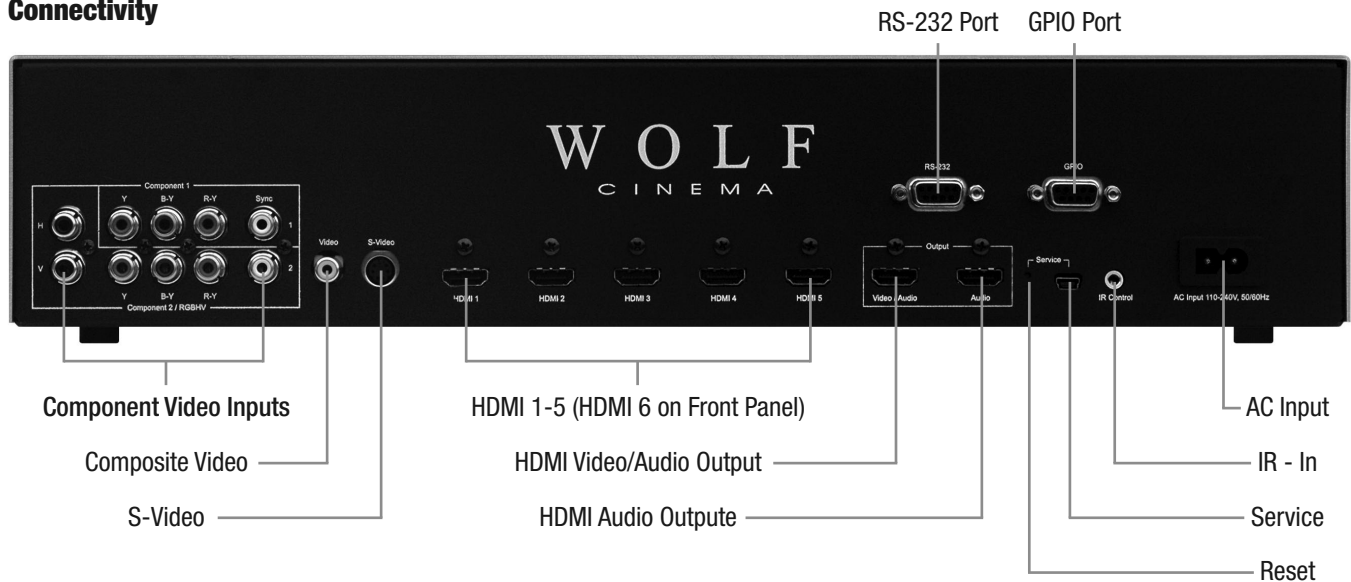
In addition to simplifying system interoperability, Wolf Cinema's ProScaler delivers world-class video processing to your home cinema projector. The two operate together to deliver some of the finest video images yet available, no matter the source.

The Wolf Cinema ProScaler features six HDMI video inputs, two sets of component video inputs, one composite and one S-Video input. The ProScaler boasts dual HDMI output connectors, one dedicated video output to the projector and a second audio-only HDMI pass through. This configuration delivers optimal performance and ease of use in typical home theater systems using an outboard surround sound processor or AV Receiver. Full IR and RS-232 control capabilities simplifies the integration with today's advanced home control systems and third party remote controllers.

### **Wolf Cinema's ProScaler Basic Features**

- Accepts inputs from up to 10 video sources.
- Outputs video signals to your Wolf Cinema projector via HDMI.
- Dedicated audio HDMI output routes audio to your AV Receiver or Surround Processor.
- Intuitive on-screen menus for operating your Wolf Cinema system.
- Automatically switches inputs using preprogrammed priority. Alternatively, you can manually switch inputs using the IR remote or via the On-Screen Menus.
- The ProScaler Wizard helps guide you through setup of input components.
- User programmable audio/video lip sync; up to 200mS delay.
- Simple Aspect Ratio controls available on the remote or via the On-Screen menu
- Calibration adjustment, aspect ratio and other viewing modes are individually configurable for each video input.
- The backlit universal remote controls all the components in your system.

## Connectivity



### Flexible Component Video Inputs

This group of connectors can accept 3 types of analog component video inputs:

#### Component (YPbPr) (2 Inputs)

This is the most common type of component analog signal. Cables are usually 3 RCA-> RCA type.

#### RGBHV

RGBHV stands for “Red, Green, Blue, Horizontal Sync, Vertical Sync”.

It is commonly used to connect a computer's analog VGA output using the VGA to RGBHV adapter cable.

The Wolf Cinema ProScaler can accept these formats via RGBHV:

VGA	640 x 480 @ 60 Hz
SVGA	800 x 600 @ 60 Hz
XGA	1024 x 768 @ 60 Hz
SXGA	1280 x 1024 @ 60 Hz

#### RGB + CVBS

For use with a SCART breakout cable. SCART is primarily a European connector type. CVBS means Composite Video Broadcast Signal; typically this would be an analog PAL or SECAM signal. Connect the breakout cable to a SCART connector, then connect Red, Green and Blue to the component inputs, then connect CVBS to the Sync input horizontally adjacent to the component inputs.

#### Video Input (yellow RCA connector)

Composite video input. This signal is also known as “base band NTSC” and accepts European analog standards PAL and SECAM.

#### S-Video

S-Video is a analog input signal format similar to base band NTSC (or PAL/SECAM), except that the chroma and luma/sync components are on separate conductors for improved signal quality. If you have a choice between Video or S-Video, choose S-Video.

## HDMI 1.3

ProScaler has a total of 6 HDMI inputs, version 1.3. Five inputs are on the rear panel, and one HDMI inputs is located on the front of the unit, just under the removable Wolf Cinema logo plate. HDMI carries both video and audio signals.

**Note:** HDMI is compatible with DVI using an HDMI to DVI adapter cable.  
DVI connectors do not carry the audio signal stream, as do HDMI interconnections.

### HDMI Video/Audio Output

This connector is used to send all video signals to your Wolf Cinema projector.

### HDMI Audio Output

This connector is intended to connect to an AV Receiver or Surround Sound Processor. The ProScaler will automatically sent audio via this connector if it is connected to a powered-up AV Receiver, or you can manually configure ProScaler's audio output. This HDMI connector does not output video.

## Other Rear Panel Connectors

### RS-232

Connect any 9-pin RS-232 cables from your external home automation or control system.

### GPIO

Not used.

### Service

This connector is used for system software upgrades, using a mini-USB cable. Refer to our web site: [www.wolfcinema.com](http://www.wolfcinema.com) for any recent software updates.

### Reset

This resets the ProScaler, if needed, bringing it back into a predefined operating condition. Reset initially does not change your settings. If Reset is desired but you wish to retain settings, it should be pressed and released quickly (less than 2 seconds).

The reset button will also restore the factory defaults. If the reset button is pressed and held, the front panel LED will blink for about 5 seconds. When it stops blinking and stays on, the reset button can be released. All factory defaults will have been restored, and any user settings will be erased.

### IR - In

This connector can be used in installations where line-of-sight IR reception is not possible. You will need certain accessories that allow for remote IR connections.

### AC Input

Power connection for your ProScaler.



### Setup

#### Before Setting Up

- Note:**
- Before connecting, be sure to turn off both the projector, the ProScaler and the devices to be connected. After making all connections, turn on the projector, ProScaler and then the other devices.
  - When connecting a computer, be sure that it is the last device to be turned on after all the connections are made.
  - Be sure to read the operation manuals of the devices to be connected before making connections.

Your Wolf Cinema DCL-200FD system can be connected to:

#### Video Equipment:

- VCR, Laser disc player, camcorders or other video equipment.
- Satellite, Cable or DTV\* sources.
- Blu-ray players, DVD players.

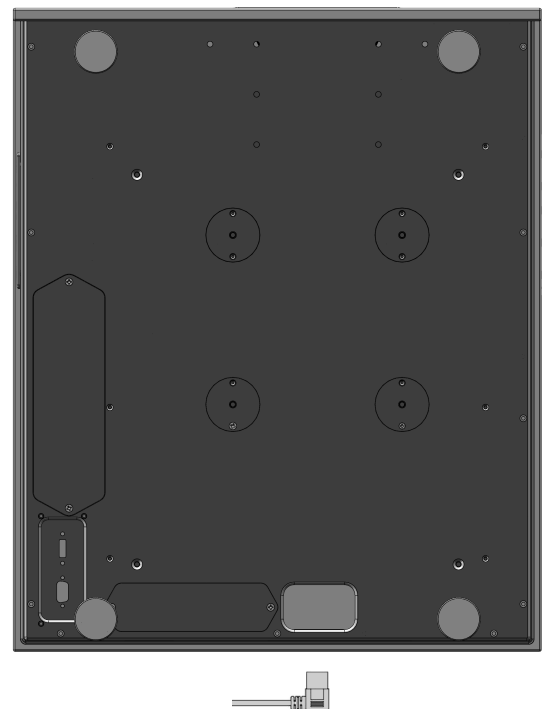
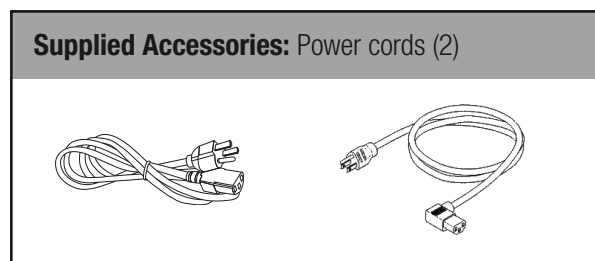
#### Computers:

- HD 15-pin VGA to RGBHV cabling (optional items sold separately).
- HD 15-pin VGA to HDMI converter box and cabling (optional item sold separately).

\*DTV is the umbrella term used to describe the new digital television system in the United States.

#### Connecting the Power Cords

Plug in the supplied power cords into the AC socket from the base of the Projector and rear of ProScaler.



**Note:** The projector power cord has a right angle head to fit within the case.

## Cable Types

- HDMI:** HDMI, or High Definition Multimedia Interface, is the only interconnection scheme that can carry both audio and video on the same cable.
- Coax:** Coax is a shorthand way of saying “coaxial cable.” In the consumer audio/video industry, the term “Coax” is a type of digital audio interconnect which uses an RCA style cable. Single coax video cables may be colored white or yellow; the component bundle may be colored red-green-blue. Coax can also carry a digital audio signal called SP/DIF.
- S-Video:** S-Video is a cable that separates the color portion of the video signal from the black and white portions. It is typically colored with a yellow or black tip.
- Analog Stereo:** Analog Stereo is an audio interconnect found usually on older equipment. As the name implies, the signals are analog and a stereo 2 channel signal is carried on RCA style connectors. Usually, these cables are colored red and white.

## Which Cable Should I Use?

Your audio and video components may have multiple types of connectors, Which type should you use if you have a choice? Your choice of cables can affect the performance capabilities of your Wolf Cinema video projection system. The guide below will help you choose the optimum cable for your setup.

## Cables to your Projector

The Wolf Cinema projector features a dedicated HDMI input, so use the appropriate length HDMI cable. Connect the cable from the Video/Audio connector on the back connector panel of the ProScaler to the HDMI input of the projector.

A RS-232 control cable may be required when integrating your Wolf Cinema projector to today’s latest home automation systems.

## Audio Cabling to your AV Receiver or Surround Sound Processor

If your AV Receiver or Surround Sound Processor has HDMI inputs, you should use an HDMI to HDMI cable, connected between the HDMI Audio output of the Wolf Cinema’s ProScaler and an HDMI input on your receiver/processor.

If your AV Receiver does not have an HDMI input, then you will need to connect and associate each device’s audio output with the appropriate inputs on your receiver/processor.

## Input Cables

### Video Cable Hierarchy

If you have a choice of video cables, use the list below to make the best choice. Use the lowest numbered cable on the list to achieve the optimum video quality.

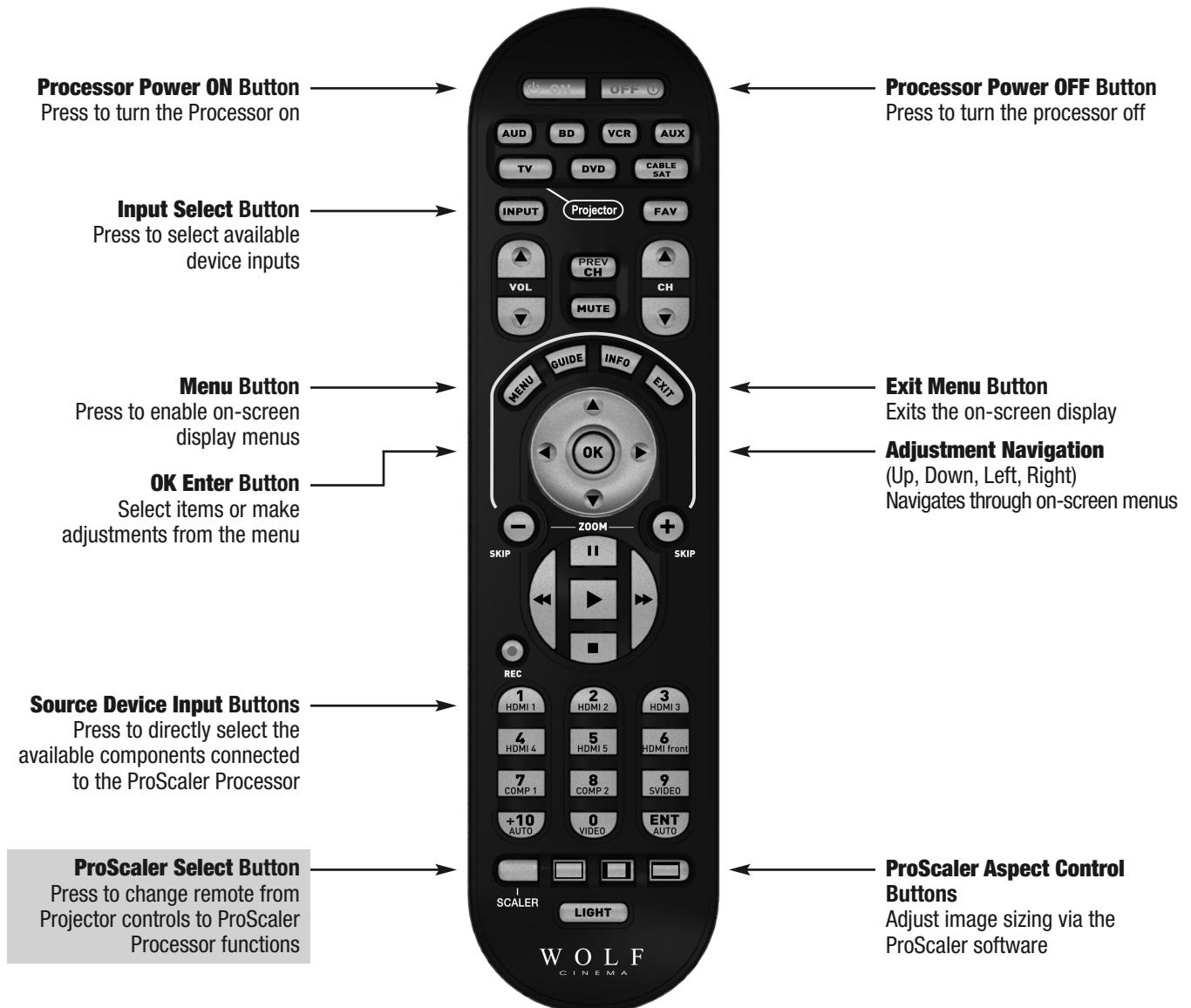
- 1 **HDMI:** HDMI to HDMI cable. This cable carries both audio and video information.
- 2 **DVI:** DVI to HDMI adapter cable. You will need a separate cable for audio information, as DVI carries video signals only.
- 3 **Component:** Component to Component cable. You will need separate cabling for audio.
- 4 **S-Video:** S-Video cable. You will need separate cabling for audio.
- 5 **Video:** Video cable. You will need separate cabling for audio.

## System Remote Control – Key ProScaler Functions

The following are the key PROSCALER functions, within the common remote control structure.

**Note:** SELECT THE **SCALER** BUTTON TO ENABLE THE PROCESSOR CONTROLS.

Also refer to the separate Wolf Cinema ProScaler User Guide for additional details.



# ProScaler

Wolf Cinema's DCL-200FD projector is optimized to work with the included ProScaler. The ProScaler and projector are carefully calibrated at the factory to support all basic functionality "out of the box."

The projector uses one primary HDMI input, which accepts all incoming video signals as delivered from the ProScaler. The ProScaler processes and routes the variety of source components via the input selected.

There are 10 video inputs on the ProScaler: 6 HDMI [one front panel], 1 Component, 1 Component/RGB, 1 S-Video and 1 Composite input.

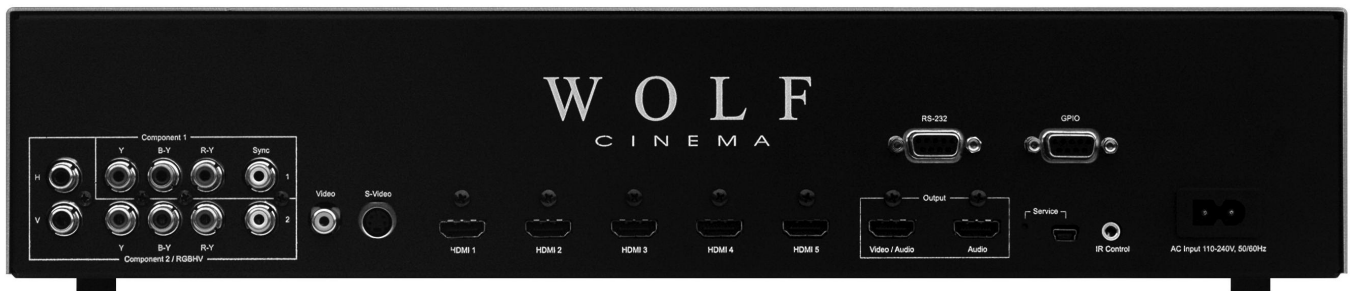
For additional DCL-200FD projector operation details, refer to this guide and the separate user manual: **WOLF CINEMA DCL-200FD USER MANUAL**

## Connecting the Projector and ProScaler

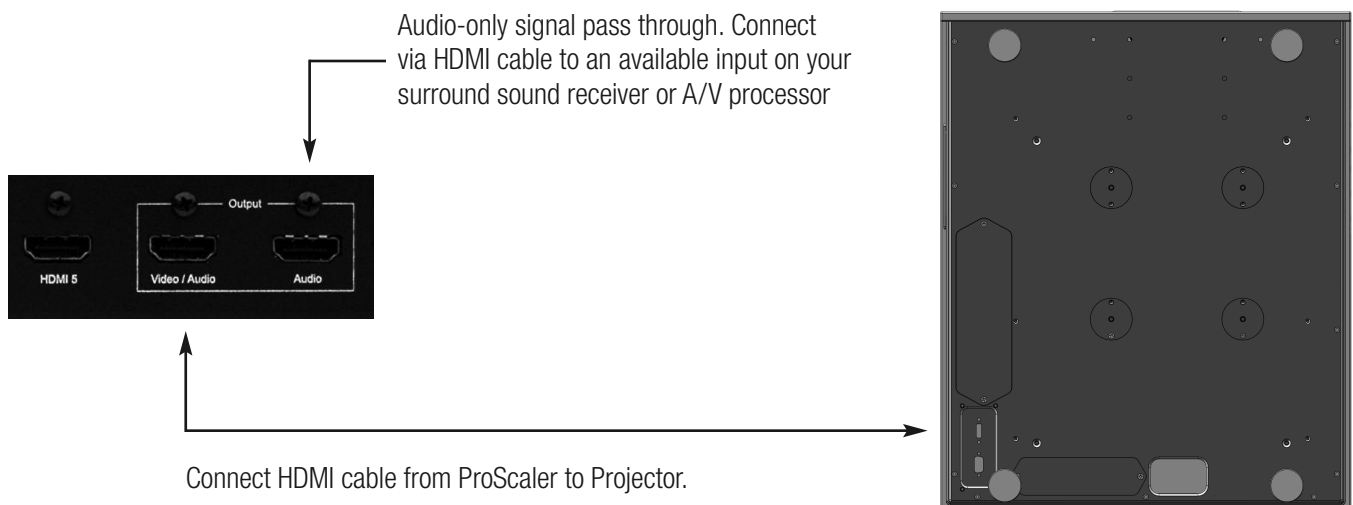
The following basic steps are to be performed to connect all source components, Projector and ProScaler:

**1 Connect all sources to the inputs of the ProScaler. For additional details please see the ProScaler Owners Manual.**

**Note:** HDMI input #6 is under the removable WOLF CINEMA logo plate on the panel front.

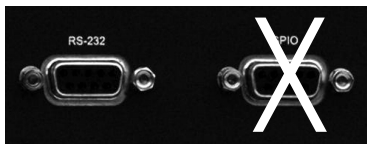


**2 Connect the HDMI signal cable to projector:** Connect your long run HDMI video signal cable between the ProScaler video output directly to the Projector. Connect the Audio Only HDMI cable (pass through) to your surround sound receiver or processor.



**Note:** Wolf Cinema always recommends that you, your custom installer or video calibrator thoroughly test the HDMI video cable(s) with the entire system prior to final installation. HDMI cables vary greatly in overall quality and signal integrity. Many HDMI cables are not designed to support certain information and signal timings over long cable runs. Contact Wolf Cinema technical support and/or your cable manufacturer for additional information regarding recommended HDMI cable lengths and overall system compatibility.

**3 RS-232:** Route and connect any 9-pin RS-232 cables from your external home automation or control system, separately to both Projector and ProScaler. These two components should be controlled independently.



**Note:** The GPIO port not used in the DCL-200FD system. It is reserved for discrete communication protocol between the ProScaler and our DCX-series of video projectors. Leave disconnected.

↑  
RS-232 interconnect between ProScaler and external control system

**4 Connect both Projector and ProScaler to AC power.**

**Note:** Use extreme care when connecting AC Power to any products. Review the important safety notices indicated on pages 1-3 of this manual.

**5 Power on the two components:**

**ProScaler:** The ProScaler will automatically turn on. If a Red LED is shown on the right side of the front panel, the scaler is receiving AC power but no video input signal is detected. If a Blue LED is shown, the scaler is receiving AC power and a good video signal has been detected. No LED indicates there is no AC power to the scaler.

If the ProScaler does not turn on automatically, depress the **SCALER** button on the lower left of the system remote control and then depress the green **POWER ON** button at the top.

**Step 1 - Select the SCALER button to activate all the ProScaler IR commands via the remote control**



**Step 2 - Aim the remote at the ProScaler. Select the green POWER ON button to turn on the ProScaler**

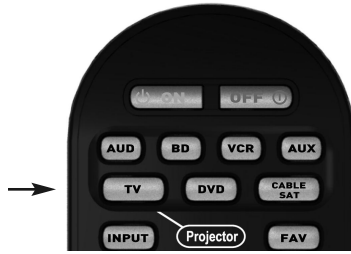


# ProScaler

**Projector:** The Projector will remain in a stand-by **OFF** mode until turned on via the supplied IR remote control, or by receipt of a discrete **ON** command from your home automation control system.

To activate the Projector, select the **TV/Projector** button on the IR remote control, then depress and HOLD the green **POWER ON** button at the top of the remote. The projector will turn on in approximately 30 seconds.

**Step 1 - Select the TV/Projector button to activate all the Projector IR commands via the remote control**



**Step 2 - Aim the remote at the Projector. Depress and HOLD the green POWER ON button for 2 seconds to turn on the Projector**



## 5 Select from the desired components connected to the ProScaler:

Upon power up, the ProScaler defaults to the HDMI #1 input. Other inputs may be directly accessed via the numeric keypad on the ProScaler remote:

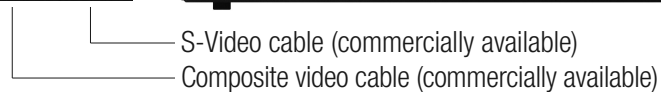
To select from available sources, first select the **SCALER** button, aim the remote at the ProScaler and then depress the desired input button, as noted on the keypad.



## Connecting Video Equipment

### Using an S-Video or a Composite Video Cable

Using an S-Video or a Composite Video cable, a VCR, laser disc player or other video equipment can be connected to the labeled input terminals.



**Note:** The S-VIDEO terminal uses a video signal system in which the picture is separated into color and luminance signals to realize a higher-quality image. To view a higher-quality image, use a commercially available S-Video cable to connect the INPUT 3 terminal on the projector and the S-Video output terminal on the video equipment.

## Connecting to Component Video Equipment

### Using a Component Cable

Use a component cable (commercially available) when connecting to the COMPONENT INPUT terminals, using component video equipment such as DVD players and DTV\* decoders. Connect using analog component output terminals.



\*DTV is the umbrella term used to describe the new digital television system in the United States.

The component jack for a DVD and so forth may be indicated with Y, CB or CR. Connect each jack as shown right.

ProScaler	Y	B-Y	R-Y
DVD player or DTV decoder	Y Y/G	PB CB	PR CR

**Note:** When connecting the projector to the video equipment in this way, select **Component** for **Input Source** in the ProScaler **MENU**.

## Connecting Video Components with an HDMI to HDMI Cable

Use an HDMI to HDMI cable (supplied accessory) when connecting HDMI video equipment such as Blu-ray players, DVD players and more to the six available inputs.

HDMI Inputs #1 through #5 are located on the rear panel of the ProScaler.

HDMI input #6 is under the removable WOLF CINEMA logo plate on the panel front.



**Note:** Select the signal output type from the video equipment set up menu

## Connecting a Computer

Connect the computer by either a 15-pin VGA to RGBHV cable (optional accessory, sold separately) or to a VGA to HDMI converter (also an optional accessory, sold separately). The 15-pin VGA to RGBHV cable may be connected to the appropriate component input (1 or 2, depending on the type of PC sync).



- Note:**
- See page 43 “Computer Compatibility Chart” for a list of computer signals compatible with the system. Use with computer signals other than those listed may cause some of the functions not to work.
  - A Macintosh adaptor may be required for use with some Macintosh computers. Contact your nearest Authorized Service Center or Dealer.
  - Depending on the computer you are using, an image may not be projected unless the signal output setting of the computer is switched to the external output. Refer to the computer operation manual for switching the computer signal output settings.

## “Plug and Play” Functions [PC]

This projector and ProScaler ensemble is compatible with VESA-standard DDC 1/DDC 2B. The system and a VESA DDC compatible computer will communicate their setting requirements, allowing for quick and easy setup.

Before using the “Plug and Play” function, be sure to turn on the projector and ProScaler first and the connected computer last.

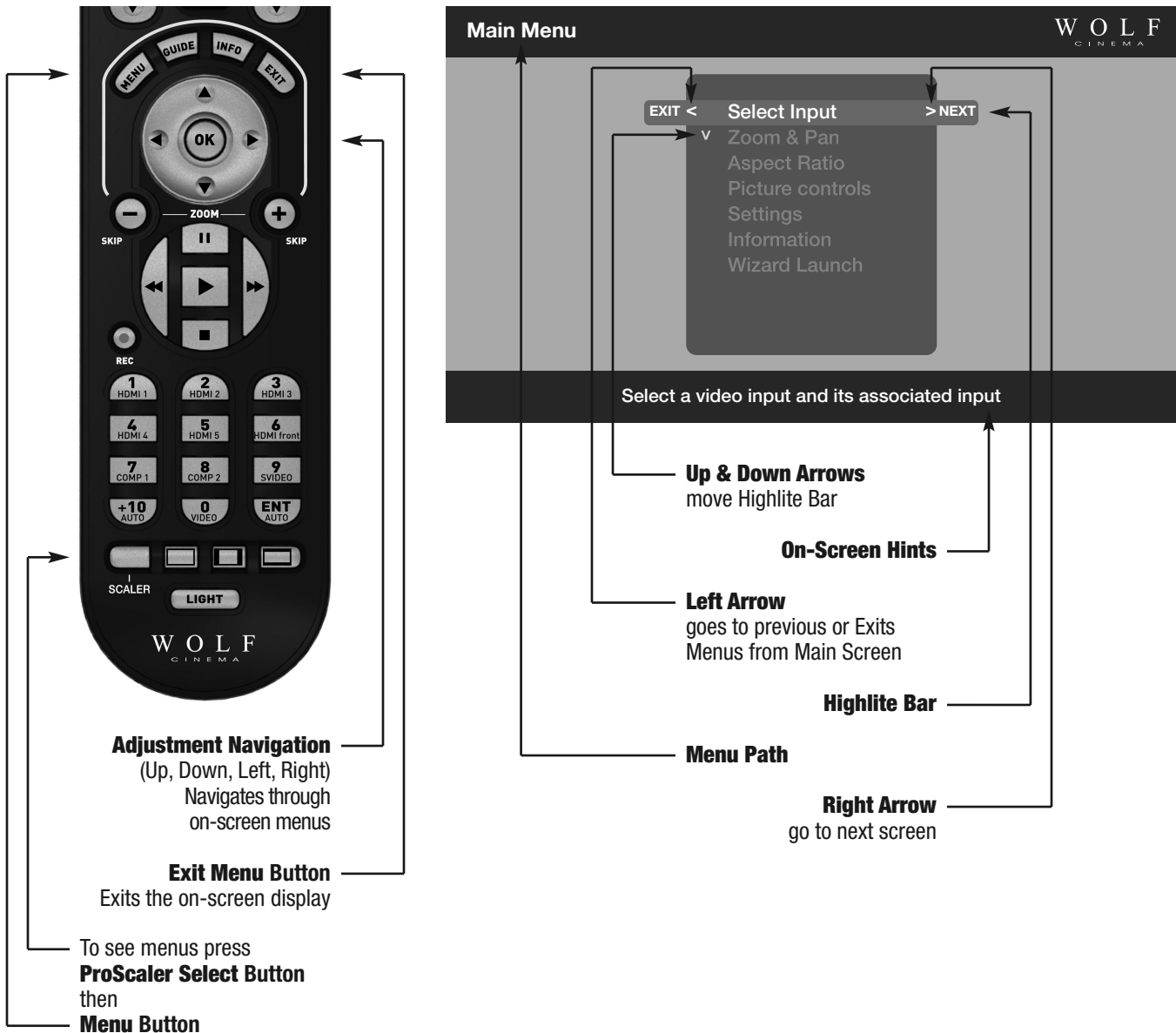


## Remote & Menus

### Controlling ProScaler

#### Menus and User Interface

You can control Wolf Cinema's ProScaler using the Menu system. The Menus are logically organized to make control and setup easy while using just a few remote buttons.



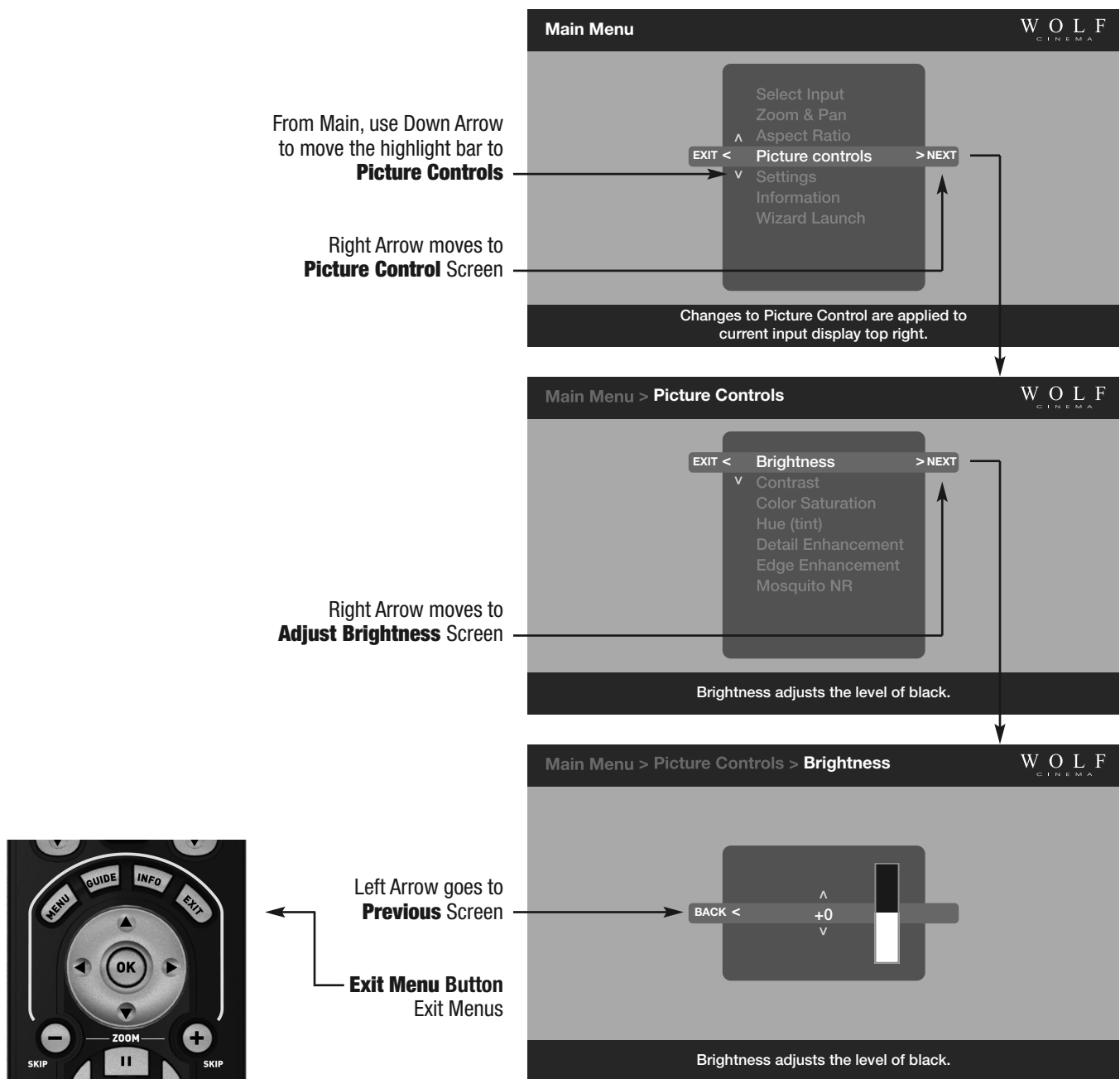
# ProScaler

## Menu Organization

The system Menus are organized as a hierarchy, in which you move from left to right. Think of the Main Menu screen as the leftmost or “highest place” in the hierarchy. Up/Down Arrows move a Highlight Bar vertically. Right Arrow moves to the next screen until you reach a screen where you can make changes.

Move to the left in the hierarchy using the left arrow. This takes you “higher” or “back to the original area” in the hierarchy.

An example of using the Menus to adjust brightness is shown in the figure below.



### Main Menu

#### Select Input

Scaler -> Main Menu -> Select Input

#### Input Select Selection

There are 2 ways to select source components (inputs):

- 1 Switch inputs using the Select Input Menu, or
- 2 Select first the **SCALER** button and then access the desired input using the numeric keypad.

### Zoom and Pan

Scaler -> Main Menu -> Zoom & Pan -> Zoom

The Zoom control allows you to magnify your picture. As the picture magnifies, the area around the ProScalers becomes invisible [shifting off the sides, top, and bottom of your display].

Pan lets you to move around on a zoomed picture. You can shift left, right, up or down. Shift has no effect unless the picture is zoomed. If the picture is not zoomed, the Pan control will be grayed, meaning it is unavailable.

The Zoom and Pan settings you choose apply only to the current input. You can customize the zoom settings for every input if you so choose. Zoom and Shift settings will be stored and will not change until you deliberately change them.

### Zoom Control Screen

Scaler -> Main Menu -> Zoom & Pan -> Zoom

#### Independent Horizontal and Vertical Zoom

Scaler -> Main Menu -> Zoom & Pan -> Zoom H or V

Zoom H or V gives you independent horizontal and vertical zoom control. The original aspect ratio is not maintained using this control.

The Zoom H or V control works differently from most other control screens. It uses Up/Down arrows to zoom vertically, and Left/Right arrows to zoom horizontally. The **OK** button takes you to the previous screen, or you can press the **EXIT** button your remote to exit menus.

## **Pan H or V**

Scaler -> Main Menu -> Zoom & Pan -> Pan H or V

The pan feature allows you to move around on a zoomed picture. As you move around, you expose parts of the picture that were not visible because the picture was Zoomed. Pan works only on a Zoomed picture.

The controls on this screen work differently than most screens. The controls are work like the Zoom H or V described on the previous page.

Uses Up/Down arrows to zoom vertically, and Left/Right arrows to zoom horizontally. The **OK** button takes you to the previous screen, or you can press the **EXIT** button your remote to exit menus.

## **Zoom using the Remote Control**

You can Zoom directly from remote without using the Menus. All Zoom controls apply to the currently selected input, giving you independent Zoom controls on every video input.

## **Aspect Ratio Control using Menus or Remote**

Scaler -> Main Menu -> Aspect Ratio

Select the Aspect Ratio choice from the Menu, or select from the available Aspect Ratios at the bottom of the remote control.

Aspect Ratio controls apply to the currently selected input, for independent Aspect Ratio controls per input.

## **Picture Controls**

Picture Controls let you make adjustments to your picture. The set of Picture Controls available are briefly described below:

<b>Brightness</b>	Adjusts black level (the dark portions of the image).
<b>Contrast</b>	Adjust white levels (the bright portions of the image).
<b>Color Saturation</b>	Adjusts the vividness (intensity) of colors
<b>Hue</b>	Color adjustments that shift the shading of color. Also sometimes called tint. This color control adjusts color shading without changing Luminance (picture brightness) or color saturation.
<b>Detail Enhancement</b>	Sharpening control that influences picture details
<b>ProScaler Enhancement</b>	Sharpening control that influences large image features
<b>Mosquito Noise Reduction</b>	Type of noise filtering that removes “mosquito noise,” a common video compression artifact often visible in the image.

Picture Controls apply to the currently selected input, giving you independent Picture Control of every input component.

Scaler -> Main Menu -> Picture Controls

### **Brightness Control**

**Scaler -> Main Menu -> Picture Controls -> Brightness**

Video brightness controls work by adjusting black levels. When you make an adjustment to the brightness control, all levels of interscene image brightness (from black to peak white, but most noticeably in the dark areas of the picture) are shifted from darker to brighter.

The Brightness control is complimentary to the Contrast control on the next page. Contrast controls adjust the level or intensity of interscene white levels.

### **Contrast Control**

**Scaler -> Main Menu -> Picture Controls -> Contrast**

Contrast controls works by adjusting the levels of white. Contrast is complimentary to the Brightness control. Contrast controls should be used carefully because if overly adjusted, some details in the lighter images areas can become "less visible" and affect image clarity.

Contrast and Brightness controls, like all picture controls, are independently adjustable for every video input. When you make a change to a picture control, the change applies only to the currently selected video input.

Press **SCALER**, press **MENU**, select **Picture Controls**, select **Contrast**

### **Color Saturation**

**Scaler -> Main Menu -> Picture Controls -> Color Saturation**

Color Saturation refers to the intensity of "color" in the picture. Increasing Color Saturation makes colors look more vivid, while decreasing Color Saturation makes colors look more "washed out." Changes to either Brightness or Contrast can also affect your image's Color Saturation. You can use this control to balance the mix of color verses brightness.

Color Saturation, like all picture controls, is independently adjustable for every video input. When you make a change to a picture control, the change applies only to the currently selected video input.

### **Hue**

**Scaler -> Main Menu -> Picture Controls -> Hue**

Hue is an adjustment to color "shading." The changes made with a Hue control effect what some other television sets refer to as "tint." Hue controls cause a shift in color spectra. Shifting more in one direction moves the video shade towards a more "green" image while adjustments in the opposite direction moves the video towards a more "red" dominant image.

Hue, like all picture controls, is independently adjustable for every video input. When you make a change to a picture control, the change applies only to the currently selected video input.

## Picture Controls

### Detail Enhancement

Scaler -> Main Menu -> Picture Controls -> Detail Enhancement

Detail Enhancement is a control to increase (or decrease) the ProScaler detail (“sharpness”) of the image. Use this control in moderation, as excessive settings adjustments may cause the image to look distorted and unnatural.

### ProScaler Enhancement

Scaler -> Main Menu -> Picture Controls -> ProScaler Enhancement

ProScaler Enhancement can be used to sharpen large scene objects (verses the Detail Enhancement control, which will sharpen ProScaler details such as grass or the texture of a plaster wall). It is useful when you want to sharpen a lower quality picture, such as Standard Definition (SD) content.

ProScaler Enhancement, like all picture controls, is independently adjustable for every video input. When you make a change to a picture control, the change applies only to the currently selected video input.

## Mosquito Noise Reduction

Press **SCALER**, press **MENU**, select **Picture Controls**, select **Mosquito NR**

### About Mosquito Noise Reduction

The term “noise” in the context of video images refers to unwanted or unnatural looking elements that find their way into video signals. “Mosquito Noise” is a particular type of image noise that is caused by video compression processing. Video compression is common for all types of transmitted video, including cable, satellite, and over-the-air broadcasts. Compression is also used with DVD, Blu-ray discs and other prerecorded media. The visibility of Mosquito Noise will vary. In some cases, it can become objectionable. Mosquito Noise will be more obvious in standard definition video, although it is sometimes present in high definition video.

Your Wolf Cinema’s ProScaler has a Mosquito Noise Reduction feature that can remove some of this noise. An example of mosquito noise in a TV weather report is shown on the left side of the next page. The same image with Mosquito Noise Reduction applied is shown on the right side of the next page.

Mosquito Noise reduction works by analyzing the image for features that are likely to cause Mosquito Noise. It then intelligently applies filtering to those areas to remove the noise.

## Settings

### Settings Menu

Scaler -> Main Menu -> Settings

Your Wolf Cinema's ProScaler provides a rich set of configuration options, accessible through the Settings Menus.

**Output Format:** Output format refers to the resolution scanning scheme (progressive or interlaced) and frame rate of the output.

**Input Priority:** Used to select which inputs will displayed with multiple inputs are active and Auto Priority is selected in the menu: **Main Menu -> Select Inputs -> Auto Select.**

**Audio Settings:** Adjusts configuration options related to audio.

**Note:** Not available in most baseline configurations of the Wolf Cinema ProScaler.

**Rename Inputs:** Renames inputs so that the names make sense to you.

**Game Mode:** Sets a particular input in game mode for better response through your game controller.

**Factory Default:** Restores the original factory settings.

### Output Format

Scaler -> Main Menu -> Settings -> Output Format

### Switching Output Formats

#### Input Priority

Scaler -> Main Menu -> Settings -> Input Priority

Input Priority is used to decide which input to use when multiple inputs are active at the same time and Input Select:is set to "Auto." If multiple inputs are active at the same time and "Auto Select" is selected in the "Input Select" menu, then the input with the highest priority will be selected.

You can find Input Select at this path name: **Scaler -> Main Menu -> Input Select**

## Settings Audio

### Select Audio Output

Scaler -> Main Menu -> Settings -> Select Audio Output

Decision Logic for Auto Select: The table below shows the connector choice for audio when Auto Select is chosen.

**Note:** “EDID” is information about the capability of a display or AV Receiver that is automatically read by ProScaler over the HDMI or DVI cable.

Output Connector	Conditions
Video/Audio HDMI	Display has audio capability (reported via the EDID). No AV Receiver connected to the Audio HDMI port, or an AV Receiver is connected but powered off.
Audio HDMI	AV Receiver with HDMI inputs is connected to the Audio HDMI port and powered on.
Optical	Not Available

If you are using an AV Receiver for processing audio, then you need to configure your receiver to accept audio from the input that is connected to the Wolf Cinema’s ProScaler. You need only do this once, because your Wolf Cinema’s ProScaler will handle HDMI audio switching.

### Associate Audio and Video Inputs

Main Menu -> Settings -> Select Audio Input

If you have a non-HDMI input component – Component, Composite or S-Video - this particular function is not available. You must select the desired video input on the Wolf Cinema ProScaler and then select the associated audio input on your outboard AV Receiver or Surround Sound Processor

If your source component uses DVI for video output, and you are connecting to ProScaler using a DVI to HDMI adapter cable, then you will have to connect audio via a separate cable and select the two devices accordingly.

### Rename Inputs

Scaler -> Main Menu -> Settings -> Rename Inputs

The Rename Inputs feature lets you customize your setup. The names you enter will appear in the “Select Input” menu.

Use the **Arrow keys** to move the highlighted character around on the keyboard.

**OK** puts the selected character in the edit bar.

**Cancel** exits the window with no changes.

**Finish** exits the window and applies the new name.



### **Game Mode**

Scaler -> Main Menu -> Settings -> Game Mode

#### **About Game Mode**

The video processing performed in the Wolf Cinema ProScaler adds a few milliseconds of delay to your video and audio. For most viewing this delay is not a problem, but if you are playing video games that require quick response on your game controls, the delay can be noticeable and annoying.

Game Mode is a special processing feature that minimizes delays so your game control inputs are more responsive.

Removing delay requires some tradeoffs in processing. You may notice differences in picture quality if Game Mode is enabled.

If the incoming video signal is an interlaced format, Game Mode may result in a lower-resolution image due to the changes in deinterlace processing required to minimize delay.

If the incoming video signal is a progressive format, and Game Mode is enabled, some processing features will be unavailable, including Mosquito Noise Reduction, Detail Enhancement, and ProScaler Enhancement.

### **Factory Defaults**

Scaler -> Main Menu -> Settings -> Factory Defaults

Factory Defaults is a quick way to “undo” any settings that have been made, and restore the ProScaler's original default settings.

#### **Default Video Output**

The Default video format setting is \*Auto” In Auto mode, the ProScaler will automatically communicate with your Wolf Cinema projector and output the preferred format.

#### **Default Picture Controls**

Restores default settings to Brightness, Contrast, Hue, Mosquito Noise Reduction, Detail Enhancement, and ProScaler Enhancement.

#### **Default Input Names**

Restores default names for video inputs.

#### **All Defaults**

Restores all defaults.

### The Wolf Cinema's ProScaler Universal Remote

The earlier chapters focused on controlling the Wolf Cinema ProScaler. This chapter discusses the use of the remote to control other components in your system.

Wolf Cinema's ProScaler remote is a universal type. It allows you to control up to 8 components (including the Wolf Cinema Projector and ProScaler) in your audio/video system with this single remote. This remote can be used for the day to day operation of your entire system.

Retain your other component remotes: you will need the remotes for your other devices when you set up your system for the first time, plus you will likely need the other remotes occasionally when you need to make changes to your system setup.

### The Universal Remote Overview

This section presents a brief overview for using the remote from a system perspective and points out functions and features unique to the Wolf Cinema ProScaler remote control. Details of programming the remote are in the section titled "Programming the Remote."

The remote has 3 primary features that work in combination to make control of your system as simple as possible:

- 1 Modes:** You put the remote into a mode for controlling a particular component in your system by pressing one of the 8 mode buttons. Once the remote is switched to a particular mode, it controls a single component in your system.
- 2 Punch Through:** Punch Through is a feature that minimizes the need for switching modes as much as possible. Some of the buttons on your remote control have related functions. For example, the VOLUME, and MUTE buttons both control sound volume, so they are related. Another example is the PLAY, PAUSE, FAST FORWARD, FAST REVERSE, and STOP buttons. Buttons that have related functions are a "group."  

Punch Through allows one group of buttons for a particular component to work while the remote is switched into a mode for a different component. For example, DVD players typically don't control sound volume. Sound volume may be typically controlled by an AV Receiver. Punch Through allows you to control sound volume while in the DVD operating mode. If you program punch through to control your sound device for all your components, then one doesn't have to think about what mode is currently selected. Instead, sound control becomes a function, and you no longer have to remember which component controls sound.
- 3 Macros:** A Macro allows you to perform a series of button presses using a single button. Macros are useful if you find that you use a particular series of button presses over and over. A Macro allows you to invoke the entire series with one button.

## Modes

You can control individual components in your setup by pressing one of the mode buttons. This switches the remote into a mode in which it communicates with the component you selected. Seven of the mode select buttons are located near the top near the power on/off. The **TV/Projector** labeled button controls the Wolf Cinema Projector functions. The mode button for controlling the Wolf Cinema's ProScaler is located near the bottom left of the remote.

The devices that can be controlled using these 7 buttons are as follows:

### **AUD: Audio**

Operates the audio component in your system. Typically, the AUD button is used if you have an AV Receiver that performs surround sound processing and drives your speakers.

### **BD: BluRay Disc**

Controls your Blu Ray high definition DVD Player.

### **VCR:**

Controls your Video Cassette Recorder

### **AUX: Auxiliary**

Auxiliary can be used for a device that is not already used by the other buttons. You can think of it as a "spare" device select button.

### **TV: Television**

Operates your Wolf Cinema Projector.

### **DVD:**

Controls your DVD player.

### **Cable/SAT:**

Controls your cable or satellite set top box.

## Punch Through

As described above, Punch Through is a feature of the universal remote that allows control of certain features of one component while in the operating mode of another. For example, your setup uses an AV Receiver as an audio processor, and you are playing a DVD in your DVD player. You have your remote in **DVD** mode so you can control the Play, Pause, Fast Forward, etc. on your DVD player. But you also want to quickly select and adjust your audio volume. Punch Through enables the volume up/down and mute buttons on the remote to control your receiver even if you are in DVD mode. You don't have to switch modes from DVD to Audio to control volume: instead, you simply press the volume button while still in DVD mode.

To set up Punch Through when you program your remote, refer to the section in this manual.

## Macros

A Macro allows you to perform a series of button presses using a single button. Macros are useful if you find that you often repeat the same series of button presses.

For example, a Macro can be used to power up all the components in your system with a single button press.

Let's say that you find that you often pick up your remote and power up your Projector, AV Receiver, and set-top box together: this particular set of power-up button sequences is used again and again in your setup.

This series of multiple button presses could be put into a macro, so that one button selection powers up the 3 components used in this example. Note that we did not power on the Wolf Cinema's ProScaler because it will sense a signal from the Set Top Box and it will power itself on automatically.

There are 9 buttons that can be used for Macros. They are the Power On/ Off pair, and the 7 component select buttons (AUD, BD, VCR, etc.). When you use one of these buttons for a Macro, it can no longer be used for its previous function. Therefore, the best choice for a Macro button is one that is not being used for anything else in your system.

## Programming the Remote

The Wolf Cinema's remote control has been designed to operate 6 different Audio/Video components in addition to the Projector and ProScaler. The remote control is preprogrammed to operate major brand's AUDIO, DVD, CD, VCR, SAT/CABLE and AUX (Light, Media PC etc.).

The remote control also has seven learning modes for learning the functions from the original remote controls of manufacturers.

The remote control provides distinct visual feedback with LED under the Device buttons to assist you in programming.

### 1 Programming the remote with the preprogrammed code

A complete listing of 3 digit codes is provided at the end of this section.

#### A. Using Three Digit Setup Code Number Method

Step 1] Turn on the Device you want to operate manually.

Step 2] Press the **Source Device Input** button and the **OK** buttons simultaneously and hold for 3 seconds until the Device LED turns on. (The LED will stay on for 20 seconds. The next step must be entered during this period).

Step 3] Point the remote control toward the Device and press in the first three-digit Setup Code number for that Device using the number buttons (0-9) on the remote control. (The Device LED will blink once for each button pressed).

*Tip: Your Device will turn off when the corrected Setup code number has been selected. If the device does not turn off, press in the next Setup Code numbers until your device turns off.*

*If you have tried all of the Setup Code numbers listed and it still did not turn off, please proceed to the **Auto Search Method**.*

Step 4] Once your Device turns off, press the **Source Device Input** button selected in the Step 2 once again to store the Setup Code number. (The Device LED will blink three times to confirm that the code has been stored).

Step 5] Please repeat the above steps to program the remote control for each of other devices.

## B. Using Auto Search Method

Step 1] Turn on the Device you want to operate manually.

Step 2] Press the **Source Device Input** button and the **OK** buttons simultaneously and hold for 3 seconds until the Device LED turns on. (The LED will stay on for 20 seconds. The next step must be entered during this period).

Step 3] Point the remote control toward the Device and press the **Cursor +** (or **Cursor -**) button one at a time (or keep it at pressed) until turn of the Device.

*Tip: Each the Cursor + (or Cursor -) button sends the Power signal of one Setup Code number.*

*Tip: Once the Device turns off, you are able to test other functions by pressing the buttons except the Device, Cursor+/-, Number 0-9 and Light buttons. Power On, Off, MUTE and Volume and Channel number buttons (0-9). (The Device button LED will blink once for each button pressed).*

Step 4] Once your Device turns off, press the **Source Device Input** button selected in the Step 2 once again to store the Setup Code number. (The Device LED will blink three times to confirm that the code has been stored).

Step 5] Repeat the above steps to program the remote control for each of other Devices.

*Tip: You are able to go back to the Using Three Digit Code Method mode by pressing the Channel number buttons (0-9) the OK button in the Step 3.*

*Tip: If you are still missing the Setup Code numbers to control any of your devices, use the Learning Method on the next page.*

## C. Programming a Second DVD, etc. to Other Device Buttons

This feature is used to program the remote control for two or more DVDs, etc., or to program a device into other device buttons. You can program the Setup Code number for any Device into any other unused Source Device Input button.

Example: If you have two DVD players. First, using the **DVD** button, program the remote via standard setup to operate the first DVD player. Then, program your second DVD into a Source Device Input button that is not being used, e.g., **AUX** using this method.

Step 1] Turn on the DVD player manually.

Step 2] Press the **AUX** button and the **OK** buttons simultaneously and hold for 3 seconds until the AUX LED turns on. (The AUX device LED will stay on for 20 seconds. The next step must be entered during this period).

Step 3] Press the **DVD** button to program the DVD's Setup Code numbers.

Step 4] Point the remote control toward the DVD player and press in the first three-digit Setup Code number for that Device using the number buttons(0-9) on the remote control. (The DVD Device LED will blink once for each button pressed).

*Tip: Your DVD player will turn off when the corrected Setup code number has been selected. If the DVD does not turn off, press in the next Setup Code numbers until your DVD turns off.*

Step 5] Once your Device turns off, press the **AUX** button once again to store the Setup Code number. (The AUX Device LED will blink three times to confirm that the code has been stored).

## D. Finding the Setup Code number that was stored in the Device

Step 1] Press the **Source Device Input** button you wish to verify and the **OK** buttons simultaneously and hold for 3 seconds until the Device LED turns on. (The LED will stay on for 20 seconds. The next step must be entered during this period).

Step 2] Press the **INFO** button.

The Device LED will blink number of times indicating the number of each digit of the Setup Code number. Each digit is separated by 1 second interval of the LED being turned off.

For example: One blink, three blinks and eight blinks indicate the code number 138.

*Tip: Ten blinks are equal to the number "0".*

## 2 Programming the remote with Learning Method

All buttons in 7 Device modes can learn except the **LIGHT** button.

- Learning available carrier frequency is from 15KHz to 480KHz.
- Learned functions override any existing preprogrammed functions on the remote control.
- Learned functions are automatically erased when a new function is learned on the same button.
- Learned functions are retained even after a different Setup Code number is programmed into the remote control.
- To return to an original preprogrammed function, a learned function should be erased.

### A. Learning a New Command

Step 1] Press the **Source Device Input** button and the **ENT** buttons simultaneously and hold for 3 seconds until the Device LED turns on. (The LED will stay on for 20 seconds. The next step must be entered during this period).

Step 2] On the remote control, press the button that is to be taught the new command. (The Device LED will blink one time).

Step 3] On the original remote control, press and hold the button for the command to be learned until the Device LED blinks twice.

*Tip: The LED will flash 5 times if there is error in process of learning. Please repeat Step 2 and Step 3.*

*Repeat Step 2 and Step 3 for any other buttons to be taught in the Device mode selected in Step 1.*

Step 4] Once you have completed learning new commands to buttons in the selected Device mode, press and hold the **Source Device Input** button and **ENT** button simultaneously to save learned functions. The Source Device Input button LED will blink three times to confirm the programming.

*Please repeat for any other Device modes starting from Step 1.*

### B. To Erase a Learned Command From a Button

Step 1] Press the **Source Device Input** button and the **ENT** buttons simultaneously and hold for 3 seconds until the Device LED turns on. (The LED will stay on for 20 seconds. The next step must be entered during this period).

Step 2] On the remote control, press the button that is to be erased for 3 seconds. (The Device button LED will blink twice to confirm it).

*Repeat Step 2 for any other buttons to be erased in the selected Device mode.*

Step 3] To exit this feature, press and hold the **Device** button and the **ENT** button simultaneously, once again. (The LED will blink three times).

### C. To Erase All the Learned Commands in One Device Mode

- Step 1] Press the **Source Device Input** button and the **ENT** buttons simultaneously and hold for 3 seconds until the Device LED turns on. (The LED will stay on for 20 seconds. The next step must be entered during this period).
- Step 2] Press the **Source Device Input** and **Pause** buttons simultaneously and hold for 5 seconds until the LED blinks two times.
- Step 3] To exit this feature, press and hold the **Source Device Input** button and the **ENT** button simultaneously, once again. (The LED will blink three times).

## 3 Programming the remote with Advanced Functions

### A. Programming Multi Commands to Macro Buttons

There are nine (7 for R5) Macro buttons (ON, System Off and 7 (5 for R5) Device buttons) that are designed to store up to 20 commands in each button.

Pressing any one of the Macro button will send out the series of commands that are stored in the button. For example, you either turn on or off several devices at a time by storing Power On/Off commands to these buttons.

- Step 1] For programming Macro Commands on a Device button, press the **Source Device Input** and the **MUTE** buttons simultaneously and hold for 3 seconds until the Device LED turns on. (The LED will stay on for 20 seconds. The next step must be entered during this period).

For programming Macro Commands on the POWER ON or SYSTEM OFF button, Press the **POWER ON** or **SYSTEM OFF** button and the **MUTE** buttons simultaneously and hold for 3 seconds until the TV and SAT/CABLE Devices LED turns on. (The LED will stay on for 20 seconds. The next step must be entered during this period).

- Step 2] Press one of the **Macro** buttons.

- Step 3] Press in up to 20 buttons you wish to store in the Macro. (The Device LED will blink once for each button pressed).

*Tip: Pressing a Device button to change device modes is considered as one command.*

- Step 4] Press the Channel UP button to save the selection. (The LED will blink three times to confirm the programming).

**Note:** You can program delays in between commands by pressing the **PAUSE** button. Each press add half a second to the delay.

**Note:** If you add the delay time at the first step of macro commands, the remote will send the macro commands once you pressed the **Macro** button for 2 seconds. (Press & Hold Function).

**Note:** You cannot program the **CH +** and **PAUSE** buttons as a macro command.

## B. Erasing the Macro Commands

Step 1] Press the **Source Device Input** button and the **MUTE** buttons simultaneously and hold for 3 seconds until the Device LED turns on. (The LED will stay on for 20 seconds. The next step must be entered during this period).

Step 2] Press the **Macro** button you wish to erase commands.

For erasing Macro Commands on the **POWER ON** or **SYSTEM OFF** button,

Press the **POWER ON** or **SYSTEM OFF** button and the **MUTE** buttons simultaneously and hold for 3 seconds until the TV and SAT/CABLE Devices LED turns on. (The LED will stay on for 20 seconds. The next step must be entered during this period).

Step 3] Press the **CH UP** button to save the selection. (The LED will blink three times to confirm the programming).

## C. Programming Punch Through

### 1 Volume Control “Punch Through”

The remote control can be programmed so that either the Audio or TV Volume controls (Volume UP, Down and MUTE) will operate in any of the seven device modes.

Step 1] Press the **Source Device Input** button and the **OK** buttons simultaneously and hold for 3 seconds until the Device LED turns on. (The LED will stay on for 20 seconds. The next step must be entered during this period).

Step 2] Press the **VOL Up** button. (The Device LED will blink one time).

Step 3] Press the **Audio** button to set up for Audio volume control (or the **TV** button to set up for TV volume control. (The Device LED will blink three times to confirm the program).

### 2 Channel Control “Punch Through”

You can program the remote so that either the CABLE or TV Channel Controls (Channel Up, Down, Prev.CH and Channel number (0-9 buttons) will also operate in other modes on the remote control.

Step 1] Press the **Source Device Input** button and the **OK** buttons simultaneously and hold for 3 seconds until the Device LED turns on. (The LED will stay on for 20 seconds. The next step must be entered during this period).

Step 2] Press the **CH Up** button. (The Device LED will blink one time)

Step 3] Press the **SAT** button to set up for SAT channel control (The Device LED will blink three times to confirm the program).

### 3 Transport Control “Punch Through”

You can program the remote control so that VCR or DVD Transport Controls (Play, Stop, FF, REW, PAUSE, SKIP+, SKIP- and Record buttons) will also operate in other modes on the remote control.

Step 1] Press the **Source Device Input** button and the **OK** buttons simultaneously and hold for 3 seconds until the Device LED turns on. (The LED will stay on for 20 seconds. The next step must be entered during this period).

Step 2] Press the **PLAY** button. (The Device LED will blink one time)

Step 3] Press the **DVD** button to set up for DVD transport control (or the **VCR** button to set up for VCR transport control. (The Device LED will blink three times to confirm the program).



#### 4 OSD Control "Punch Through"

You can program the remote control so that SAT or DVD OSD Controls (MENU, GUIDE, INFO, EXIT, OK and 4 Cursor buttons) will also operate in other modes on the remote control.

Step 1] Press the **Source Device Input** button and the **OK** buttons simultaneously and hold for 3 seconds until the Device LED turns on. (The LED will stay on for 20 seconds. The next step must be entered during this period).

Step 2] Press the **MENU** button. (The Device LED will blink one time)

Step 3] Press the **SAT** button to set up for SAT OSD control or the **DVD** button to set up for DVD OSD control. (The Device LED will blink three times to confirm the programming).

#### C. Back Lighting

The backlighting turns on for 10 seconds any time the **LIGHT** button is pressed and will remain lit an additional 10 seconds with each subsequent button press when the light is already on.

#### D. Factory Reset

To erase EVERYTHING you programmed, press and hold the **TV** and **REC** buttons for 10 5 seconds until TV SAT/CABLE device LED will blink 5 times. The remote erase all of your settings and return to the factory default setup.

### Advanced Functions

A new set of controls is now available for advanced users and calibration professionals. They are located in the “Settings” menu under “Advanced Controls.”

The ProScaler design concept is to create a product that automatically adjusts and configures itself for the variety of video formats, color spaces, signal levels. The consumer electronics industry has specified a number of methods by which products communicate with each other for self-configuration. Sometimes, these communication methods are incorrectly implemented. The advanced features in this platform give you a way to manually make adjustments that previously were performed automatically.

For most of these settings, there is an “Auto” choice, which is the same function as in Firmware 1.0, but with manual selections that give you control over these functions.

In general, the safest thing to do with these settings is to leave them in their default state.

### Test Patterns

There are 35 test patterns available, for advanced users and calibration professionals. These patterns automatically resize, and use the correct colorimetry for the current output format.

Test patterns are useful for calibration of your setup.

#### 1:1 Frame Rate

When 1:1 Frame Rate is enabled, the output frame rate from ProScaler will track the input frame rate. This avoids performing frame rate conversion, which can result in stuttering motion in some cases.

If 1:1 Frame Rate is disabled, then the output frame rate from ProScaler will be fixed.

The 1:1 Frame Rate feature is useful when you need to display video from both 60Hz and 50Hz sources, as long as your video display can operate at both frame rates. Some video sources, such as Blu-Ray DVD players, can output 24Hz video. If you have a 24Hz source and your display can also accept 24Hz, then enabling 1:1 Frame Rate will allow the 24Hz video to pass through the ProScaler from source to the Projector.

#### Safe Mode

Safe Mode is a new feature in Firmware v1.1. It is entered and exited by pressing the **GUIDE** button when the remote is in SCALER mode.

Safe Mode was added to solve a potential problem when using 1:1 Frame Rate. When 1:1 Frame Rate mode is enabled, the ProScaler’s output frame rate will track the input frame rate, which means that ProScaler’s output frame rate can and will change. Occasionally the Projector may see a source with a frame rate that it cannot support, it may go blank, leaving you with no picture. If that happens, you can press the GUIDE button to enter Safe Mode.

In Safe Mode, ProScaler will revert to an output format that will give you a picture. You will have access to the menus and you can make whatever changes you need to prevent the screen from going blank. Usually, the change you need to make is to disable 1:1 Frame Rate.

Safe Mode also resets Underscan back to 0, because Underscan can also cause a breakup in your picture under certain conditions.

If you make changes to menus while in Safe Mode, these changes do not take effect until you exit Safe Mode.

Use **GUIDE** button to enter and exit Safe Mode.

## Underscan

The Underscan control has not changes from Firmware v1.0. But Underscan is effected by Safe Mode as mentioned on the previous page.

## Output Color Space

The Output Color Space control provides 4 choices for output color space. If you are unsure what to use, Auto is the safe choice.

Auto: usually output color space will be RGB

RGB: Red, Green, Blue color space standard using 8 bits per primary color.

YCbCr 4:4:4: Component color space used for video standards; 8 bits per component.

YCbCr 4:2:2: Component color space used for video standards: 10 bits per component.

## Output Colorimetry

Colorimetry refers to the standards by which RGB is converted to YCbCr. There are two standards for performing this conversion:

ITU BT .601: This is the colorimetry standard for Standard Definition video formats.

ITU BT .709: This is the colorimetry standard for High Definition video formats.

## Output Video Level

Video Levels refer to the dynamic range of the video signals themselves. The video industry evolved levels that allowed for some guard band in the signal levels to account for overshoot or other signaling problems. The computer industry evolved levels that allocate the entire dynamic range possible for the image information.

The ProScaler will drive video displays, which use video signaling levels, and computer displays which use computer signal levels.

The Output Video Level control gives you control over what signaling levels are output from ProScaler.

## Input Video Level

This control is similar to the Output Video Level control described on the previous page, except that it applies to input video signals.

Video Levels refer to the dynamic range of the video signals themselves. The video industry evolved levels that allowed for some guard band in the signal levels to account for overshoot or other signaling problems. The computer industry evolved levels that allocate the entire dynamic range possible for the image information.

The ProScaler must accept signals from video components, such as DVD players, set top boxes, video recorders, etc. Most of these devices use video signaling levels. ProScaler must also connect to personal computers and game consoles, which may use computer signal levels.

The Input Video Level control gives you control over what signaling levels are used for inputs

## PreP

PreP is an exclusive processing technology developed by Anchor Bay Technologies.

Standard definition input formats such as 480p, 576p, and were deinterlaced at some point before reaching ProScaler. Deinterlacing is a complex processing technology that has a significant impact on image quality. The deinterlacing in ProScaler uses Anchor Bay Technologies' high performance VRS Deinterlacer.

PreP accepts one of the formats mentioned, and reconverts it back into an interlaced format. It can then be deinterlaced again using the VRS technology in ProScaler, which usually results in a higher quality picture.

The PreP control allows users to disable this function. Most users will never need to disable PreP.

The menu user window lets you control PReP for standard definition (480p or 576p) or high definition (1080p). Auto: PReP will be enabled when AUTO is selected and the input format is 480p or 576p. If this window was entered from the 1080p selection in the previous window, then PReP will be enabled when AUTO is selected and the input format is 1080p. Off will disable PReP for the selected input format.

## **Advanced Features in the Main Menu**

### **Deinterlacer Bias Controls**

Wolf Cinema's ProScaler users have some control over the deinterlace processing using the Deinterlacer selection in the Main Menu. This control was added to the Main Menu to allow quick access, and was added in response to requests from ProScaler users in 50Hz (PAL) countries.

These controls require the user to have some knowledge of the original source type of the motion picture. If you are unsure, leave this setting on "Auto."

**Auto:** Deinterlacer will automatically detect the original source type and process accordingly.

**Film:** Biases the detection toward film. Choosing "Film" may improve deinterlacing performance for motion pictures that were originally shot on film.

**Video:** Biases the detection toward video cameras. Choosing "Video" may improve deinterlacing performance for motion pictures that were originally shot with video cameras.

### **Auto Wake Up**

Auto Wake Up gives you more control over the conditions in which ProScaler will automatically power on. The Auto Wake Up window gives you 3 options for defining the conditions in which the ProScaler will power itself on:

**Off:** ProScaler will power on using the remote. Use this option if you want ProScaler to remain powered down even if input signals become active.

**Mode 1:** ProScaler will power on automatically only if it powered down automatically. If inputs to the ProScaler become inactive, ProScaler will automatically power itself off. If an input becomes active again, ProScaler will automatically power on. If the ProScaler is powered down with the remote, then it will not power on when an input becomes active in Mode 1.

**Mode 2:** ProScaler will automatically power on whenever an input signal is present on any input. In Mode 2, it does not matter how ProScaler entered the powered down state; an active input will power it on.

### **Auto Standby**

Auto Standby gives you control over the conditions in which ProScaler will power itself down.

Auto Standby is a simple ON/OFF control. If Auto Standby is OFF, the ProScaler will not automatically power down. This is useful in cases where you may not have an active video signal, but you may have an active audio signal passing through ProScaler. In this case, you want ProScaler to remain powered on. If Auto Standby is ON, then ProScaler will automatically power down if all video input signals become inactive.

### Component Input

Component Input menu gives you control over the analog component inputs. To use this control, you must select Component 1 or Component 2, otherwise, this menu item will be grayed out.

The Component Inputs window gives you 3 options for controlling Automatic Gain Control on Analog Inputs:

**Single Sync:** This is the default setting. Most component inputs will have sync on the Y signal and should use Single Sync.

**Triple Sync:** A few devices will add sync to all three component input signals (Y, Pb, Pr). In you know your device does this, choose Triple Sync.

**AGC Disable:** This choice disables Automatic Gain Control. In some cases, AGC will cause brightness levels to be incorrect due to distortions in the analog input signals. Disabling AGC may correct this problem. You probably don't know if a device that generates an analog component signal puts sync on Y, or on all three inputs, or if it distorts the incoming signal. In general, it may be best to use Single Sync. If your picture does not look correct, experiment with the other settings.

### Hot Plug Source

Hot Plug Source is a new feature that improves compatibility with certain source components that connect to the ProScaler through an HDMI input.

When Hot Plug Source is enabled for an HDMI input, a signal on the HDMI input connector, called Hot Plug, is toggled when switching to that input. Toggling Hot Plug causes the source component and ProScaler to perform an HDCP re-authentication. HDCP is a copy protection technology that is part of the HDMI standard.

Enable Hot Plug Source if you experience problems switching to a particular source component. These problems can include very slow switching with flashing on the screen, or colored noise over the entire screen. Two common components that benefit from enabling Hot Plug Source are the Sony PS3 game console and the Oppo 970 DVD player.

Hot Plug Source can be independently enabled for each HDMI input. To enable Hot Plug Source, first select an HDMI input, then select the Hot Plug Source window.

To enable Hot Plug Source, first select an HDMI input, then go to the menus to the window shown above, and select **ON**.

If you are unsure whether Hot Plug Source will help, then you should go ahead and enable it. The only downside to enabling Hot Plug Source is that switching could be a little slower due to the time it takes to re-authenticate.

### Code Tables

#### AV Receivers and Audio Processors

Manufacturer/Brand	Set-Up Code Number
ADC	007
ADCOM	082 092 225 161 269 355 356
AIWA	170 018 104 202 203 213 211 188
AKAI	189
AMC	125 126 127 281 282
ANGSTROM	42
ANTHEM	335 337
ARCAM	141 418
ATLANTIC TECHNOLOGY	342
AUDIO FILE	071
AUDIO MATRIX	167
AUDIO TECHNICA	134
B & K	096 097
BOSE	070 170 224 347 409 460
BOSTON ACOUSTICS	447
BRIX	555
CARVER	006 028 061 071 201 214 226 185 022 077 284
CINEMA SOUND	134
CITATION	148 272
CLARION	026
DELPHI	515
DENON	109 215 230 234 259 330 340(Default)
ELAN	057 290
ENLIGHTENED AUDIO	099 098
ESCIENT	368 451
FISHER	047 214 182 297
FLEXTRONICS	378
FOSGATE AUDIONICS	231 342
GE	056
GOLDSTAR	008
HARMAN KARDON	231 233 153 154 118 318
HITACHI	020
INTEGRA	275
JAMO	398
JCPENNEY	216
JENSEN	058
JVC	163 191 114 279 291
KENWOOD	026 066 145 192 182 005 280 374
KLH	331
KOSS	216
KRELL	150 072 376 384
KYOCERA	007
LEXICON	120 235 236 237 357 360

### AV Receivers and Audio Processors *continued*

LINN	124 377
LUXMAN	137 139 052 165 115 004 009
LXI	056
MAGNAVOX	086 164 152 208
MARANTZ	006 028 031 040 063 185 186 251 265 119 289 296
MCINTOSH	238 286
MERIDIAN	100 012 013
MITSUBISHI	242 243 204
MONDIAL	157 158 042 043 081 112
MYRYAD	276 293
NAD	186 113 283 478 479
NAKAMICHI	111 244 245 172 183 287
NEC	176
NIRO	343
NILES	403
ONKYO	017 046 108 080 209 275
OPTIMUS	026 041
OUTLAW	342
PANASONIC	032 195 219 177 292 383
PARASOUND	129 130 132 261 294 295 333 334
PHILIPS	249 250 251 063 119
PIONEER	014 039 044 069 168 116 035 078 198 480
POLKAUDIO	515
PROCEED	144 268
RCA	010 048 117 156 067 288
REALISTIC	019 056 073 075 095
ROTEL	074 083 085
RUSSOUND	379 391 392
SAMSUNG	016
SANSUI	040 048 110 119 065 228
SANYO	047 059
SCOTT	019 091
SHARP	026 094 131 175
SHERWOOD	024 102 106 447
SIRIUS	555
SONY	018 247 248 166 101 184 218 271 369 372 380
SOUNDESIGN	036
SSI	068
SUNFIRE	344 345 346
TEAC	005 019 049 111 212 217
TECHNICS	122 176 193 219 178 177 200 257 262
THETA DIGITAL	136
TOSHIBA	060 087 198 278
XM SATELLITE RADIO	515
YAMAHA	026 253 169 067 173 205 264 232 089 264 274 285 373
ZENITH	143 210

## Audio – Satellite Radios

Manufacturer/Brand	Set-Up Code Number
BRIX	555
DELPHI	515
POLKAUDIO	515
SIRIUS	555
XM SATELLITE RADIO	515

## Blu-ray & HD DVD

Manufacturer/Brand	Set-Up Code Number
LG	004
PANASONIC	002
PIONEER	003
SAMSUNG	005
SONY	001
TOSHIBA	006

## CD Players (no dedicated remote button is provided; see programming method 1C)

Manufacturer/Brand	Set-Up Code Number
ADCOM	062 042
AIWA	089 170 187
AKAI	202
AMC	231 232
ARCAM	238
AUDIO ACCESS	119 147
AUDIO EASE	165
AUDIO TECHNICA	046
CALIFORNIA AUDIO	103 008
CARVER	185 041 044 050 107 130 134 135 138 139 203 204 167
CREEK	159
DENON	256 123
EMERSON	042
FISHER	050 185 134 008
GENEXXA	010
HARMAN KARDON	033 047 208
HITACHI	042 175
INKEL	130
JCPENNEY	141
JENSEN	158
JVC	257 022 136 163 213 214 242 243
KENWOOD	185 259 023 055 071 072 142 137 254
KRELL	241
KYOCERA	258



### CD Players *continued*

LUXMAN	011 028 070 249 252
MAGNAVOX	044 107
MARANTZ	041 044 051 077 107 209 246
MCINTOSH	212 247
MEMOREX	010
MISSION	044 107
MITSUBISHI	179
MONDIAL	147
MYRYAD	244 155
NAD	258 178
NAKAMICHI	217 218
NEC	062
NIKKO	046
NSM	044 107
ONKYO	030 038 039 168 169
OPTIMUS	010 050 081
PANASONIC	103 172 008 068 248
PARASOUND	233 240
PHILIPS	041 044 107 246
PIONEER	010 020 174 175 176
PROCEED	239
PROTON	044 107
QUASAR	103 008
RCA	017 042 150
REALISTIC	042 050 051 187
ROTEL	044 107 161 178 250
SAE	044 107
SANSUI	044 107 128 171 190 125
SANYO	050
SHARP	026 031 051
SHERWOOD	019 051 096 112 115 119 166
SIGNATURE	033
SONY	048 081 097 126 133 177 225 226 164
SOUNDESIGN	251
SUMO	155
SYLVANIA	044 107
SYMPHONIC	052
TANDY	010
TEAC	051 052 140 079
TECHNICS	103 172 184 008 068
THETA	DIGITAL 234 235
VICTOR	257 022
WARDS	185 033
YAMAHA	024 046 054 186 183 245

## Video Cassette Recorders (VCR)

Manufacturer/Brand	Set-Up Code Number
AIWA	034 161
AKAI	016 146 043 046 124 125
AMPRO	072
ANAM	145
AUDIO DYNAMICS	012 023 039 043
BROKSONIC	035 037 129
CANON	028 145
CAPEHART	108
CRAIG	003 040 135
CURTIS MATHES	145 041
DAEWOO	111 116 117 119 005 007 010 065 108 110 112
DAYTRON	108
DBX	012 023 039 043
DYNATECH	034 053
ELECTROHOME	059
EMERSON	006 029 035 017 025 027 145 034 036 037 046 101 129 131 153 162 116
FISHER	003 010 008 009
FUNAI	034
GE	145 072 147 063 107 109 144
GO VIDEO	132 136 155 040 115
GOLDSTAR	101 106 114 013 020 012 123
HARMAN KARDON	012 045
HITACHI	004 026 150 018 034 043 063 137 160 013
INSTANTREPLAY	145
JCL	145
JCPENNEY	012 013 015 040 066 101
JENSEN	043
JVC	048 043 130 150 055 060 012 145 050 152 166
KENWOOD	014 048 034 047
LG	101 106 114 013 020 012 123
LLOYD	034
LXI	034 003 009 017 106
MAGIN	040
MAGNAVOX	067 145 034 068 041 156 164
MARANTZ	067 069 012 145 156
MARTA	101
MATSUI	027 030
MEI	145
MEMOREX	101 003 010 014 145 034 053 072 102 134 139
MGA	045 046 059
MINOLTA	013 020
MITSUBISHI	059 061 151 013 020 045 046 051 049 168
MTC	034 040
MULTITECH	024 034

### Video Cassette Recorders (VCR) *continued*

NEC	012 023 039 043 048
NORDMENDE	043
OPTONICA	053 054
ORION	025
PANASONIC	066 070 145 083 133 140 157 163 074 167
PENTAX	013 020 145 063
PHILCO	145 034 067
PHILIPS	145 067 034 101 054 071 156
PILOT	101
PIONEER	021 013 048
PORTLAND	108
PULSAR	072
QUARTZ	002 014
QUASAR	066 145 075
RADIO SHACK	123
RCA	107 109 144 147 158 041 145 013 020 140 034 040
REALISTIC	003 008 010 014 145 034 040 053 054 101
RICO	058
RUNCO	148
SALORA	014
SAMSUNG	102 104 113 115 112 120 032 040 066 107 109 125
SANSUI	022 043 048 135
SANYO	003 010 007 014 134 102
SCOTT	017 037 112 129 131
SEARS	003 008 010 014 013 101 009 017 073 112
SHARP	149 054 145 159 165
SHINTOM	024
SIGNATURE	034
SONY	056 057 058 057 052 003 078 076 145 149 154
SOUNDESIGN	034
STS	013
SYLVANIA	145 034 059 067
SYMPHONIC	034
TANDY	010 034
TATUNG	039 043
TEAC	034 039 043
TECHNICS	145 070
TEKNIKA	145 019 034 101
THOMAS	034
TMK	006
TOSHIBA	112 131 079 008 059 047 082 013
TOTEVISION	040 101
UNITECH	040
VECTOR RESEARCH	012
VICTOR 048	
VIDEO CONCEPTS	012 034 046

## Video Cassette Recorders (VCR) *continued*

VIDEOSONIC	040
WARDS	003 013 017 024 145 034 040 053 054 131
YAMAHA	012 034 039 043
ZENITH	072 056 048 101 034 058

## VCR-TV/VCR Combos

Manufacturer/Brand	Set-Up Code Number
DAEWOO	005 117
EMERSON	153
FUNAI	034
GOLDSTAR	101 123
HITACHI	034
JCPENNEY	101
LG	101 123
LLOYD	034
MAGNAVOX	034 067
MEMOREX	101
PANASONIC	070 167
PHILIPS	034 067
RADIO SHACK	123
RCA	034
SEARS	101
SONY	057 154
SYLVANIA	067
SYMPHONIC	034
THOMAS	034
ZENITH	034

## PVR, TIVO

Manufacturer/Brand	Set-Up Code Number
HUGHES	001
HUMAX	001
PHILIPS	001
REPLAY NETWORKS	775
SONY	804 805
TIVO	001
TOSHIBA	001

### AUX – PC & iPod

#### Manufacturer/Brand Set-Up Code Number

APPLE	401 412
BOSE	409
DLO	418
GRIFFIN	471
IPOINT	419
KENSINGTON	406
SONACE	419
TEN TECHNOLOGY	401

### AUX – Media PC

#### Manufacturer/Brand Set-Up Code Number

DELL	261 262
GATEWAY	261 262
HAUPPAUGE	294 295
HP	261 262
KEYSPAN	297
SONY	261 262
TOSHIBA	261 262
WINBOOK	261 262

### AUX – Gaming Systems

#### Manufacturer/Brand Set-Up Code Number

MICROSOFT / XBOX	408 107
SONY / PS2	414

### AUX – Lighting

#### Manufacturer/Brand Set-Up Code Number

LITE-TOUCH	208 257
LUTRON	158 159 077
X-10	183 093

## TV

Manufacturer/Brand	Set-Up Code Number
ABEX	025
ADMIRAL	072 251 161 160
ADVENT	247
ADVENTURA	002
AKAI	197 146 248 473 474 475
A MARK	112 143
AMPRO	167 073 157 183
AMSTRAD	052
ANAM	043 054 056 080 112
AOC	197 004 112 058
APEX DIGITAL	006
ASTAR	477
AUDIOVOX	076
BARCO	233
BELCOR	116
BELL&HOWELL	161 072
BLAUPUNKT	088
BROKSONIC	238
BROCKWOOD	116
CAIRN	201
CANDLE	197 002 003 004
CAPEHART	058
CELEBRITY	070
CENTURION	197
CETRONIC	043
CITIZEN	197 002 003 004 043 101 103 143
CLASSIC	043
CLP CLASSIC	161
COLORTYME	116 197
CONCIERGE	073 157 183
CONCERTO	004
CONTEC	043 050 051
CORNEA	116
CORONADO	143
CRAIG	043 054
CROWN	043 143
CURTIS MATHES	197 101 004 143
CXC	043
DAEWOO	004 016 043 044 076 103 114 125 127 143
DAYTRON	004 143
DELL	319 320 321
DIMENSIA	161
DREAMVISION	235
DUKANE	011 025
DUMONT	116 073 157 183

### TV *continued*

DURABRAND	096
DWIN	177 257
DYNASTY	043
DYNATECH	062
DYNEX	400
EIKI	187
ELECTROBAND	070
ELECTROGRAPH	466
ELECTROHOME	143 024 076 196
ELEKTRA	072
ELEMENT	363 494 526
EMERSON	028 048 043 155 005 197 004 047 050 051 076 096 143 151 153 154
ENVISION	116 197
ESA	323
FISHER	007 057
FUJITSU	198 246 346
FUNAI	028 043 052
FUTURETECH	043
GATEWAY	242 268
GE	160 144 165 073 197 008 009 034 056 074 130 155 161 004 157 183
GIBRALTAR	116 073 157 183
GOLDSTAR	113 116 102 004 106 112 119 127 143
HALL MARK	004
HAIER	164 363
HANNSPREE	381
HISENSE	419 442
HITACHI	011 166 004 009 010 012 023 075 143 158 072 250
HP	316 327 378
HUMAX	518
ILO	472
INFINITY	164
INFOCUS	230 330 333 547 548
INTEQ	073 157 183
INSIGNIA	350 354 400 457
JANEIL	002
JBL	164
JCB	070
JCPENNEY	004 024 197 008 009 030 065 101 143 160
JENSEN	013
JVC	038 034 070 083 199 210 240 241 406
KAWASHO	116 070 197
KEC	043
KENWOOD	197 070
KLEGG	466
KLOSS	002 059
KMC	143

## TV *continued*

KNOLL SYSTEMS	230
KONKA	457
KREISEN	530
KTV	043 197 143 154
KURAZAI	072
LG	113 116 102 004 106 112 119 127 143 243 284 363
LODGENET	072
LOEWE	164
LOGIK	072
LUXMAN	004
LXI	166 007 138 052 251 160 164
MAGNAVOX	164 059 197 003 060 061 004 063 064 127 022 160 094 239 226 467
MAJESTIC	161 072
MARANTZ	197 164
MATSUI	164
MAXENT	242
MEGATRON	116 197 011
MEMOREX	007 072 004
METZ	088
MGA	197 004 024 028 042
MIDLAND	161 073 157 183
MINERVA	088
MINUTZ	008
MITSUBISHI	109 124 024 004 028 040 042 146 191 348
MONTGOMERY WARD	161 072
MTC	197 004 062 101
NAD	138 025
NEC	132 130 134 197 040 016 024 056 019 237 262 272
NET TV	202
NIKEI	043
NIKKO	116 197
NIKO	527
NORCENT	390
NUVISION	351
OLEVIA	432
ONKING	043
ONWA	043
OPTIMUS	025
OPTONICA	019 251
OPTOMA	265 270 249
ORION	096
PANASONIC	034 056 080 092 164 208
PHILCO	197 003 059 060 064 164 004 024 056 063
PHILIPS	164 005 093 038 197 003 004 059 127 206 239 259 161
PILOT	116
PIONEER	135 025 197 018 023 116 234 272



### TV *continued*

POLAROID	323 328 353 354 356 457 494 505
PORTLAND	004 143
PROSCAN	144 160 161 165 167
PROTON	004 112 058 143 171 172 193
PROTRON	498 499
PROVIEW	494
PULSAR	116 073 157 183
QUASAR	034 056 092
RADIO SHACK	019 004 143 043 127
RCA	160 165 065 144 161 197 004 024 056 152 023 074 333
REALISTIC	007 019 043 047
REVOLUTION HD	466
ROCTEC	186
RUNCO	072 169 178 179 180 181 182 183 073 157 342 416
SAMPO	197 058 004 202
SAMSUNG	050 089 101 105 004 127 143 160 228 229 258
SAMSUX	197
SANSUI	096 400
SANYO	166 007 020 053 057 082 187
SCEPTRE	276
SCOTCH	116 197
SCOTT	028 043 004 048 143 497
SEARS	138 030 004 007 028 057 143 094 160 082 165 166
SELECO	189 200 205 011
SHARP	019 014 028 029 004 022 143 175 251 308
SHOGUN	116
SIEMENS	088
SIGNATURE	072
SIMPSON	003
SOLE	231 232
SONY	070(Default) 139 147 126 185 085 213 277 279
SOUNDESIGN	028 004 003 043
SOYO	528
SPECTRICON	112
SPECTRONIQ	499
SSS	004 043
SUPRA	116
SUPRE	MACY 002
SUPREME	070
SVA	328
SYLVANIA	197 003 052 059 060 063 064 164 044 160 127
SYNTAX OLEVIA	161 144 160 376 432
TANDY	251
TATUNG	056 062
TECHNICS	034 080
TECHWOOD	004

## TV *continued*

TEKNIKA	002 003 004 024 028 043 072 101 143
TELEFUNKEN	037 046
TELERENT	072
TERA	172
TMK	004
TOSHIBA	138 030 007 040 062 101 325 230
TOTEVISION	143
TRUTECH	529
UNIVERSAL	008 009
VICTOR	038
VIDEO CONCEPTS	146
VIDIKRON	174 164 188 192 342
VIDTECH	004
VIEWSONIC	242 433
VIKING	002
VIORE	472
VISCO	526
VITO	363
WARDS	004 008 009 019 028 060 061 063 064 072 074 143 164 034
WESTINGHOUSE	076 280 070
YAMAHA	197 004 370
YORK	004
YUPITERU	043
ZENITH	073 072 095 103 157 183 243 284
ZONDA	112

## Cable Boxes

### Manufacturer/Brand Set-Up Code Number

ABC	004 103 003 039 042 046 053
ADELPHIA	043 074
ADVANCED NEWHOUSE	043
ALTRIO	043
AMERICAST	099
ARMSTONG	074
AT&T BROADBAND	074 035
ATLANTIC BROADBAND	043 074
BELL SOUTH	099
BLUE RIDGE	043 074
BRESNAN	074
BRIGHT HOUSE	043 110
BUCKEYE COMM	074
CABLEVISION	043 074 108
CHARTER	043 074
CISCO	043 003 041 042 045 046

### Cable Boxes *continued*

COGECO	074
COMCAST	043 074 110
COMSAT	074
COX DIGITAL	043 074
DIGEO	111
EAGLE	020 030 040
EASTERN	057
GEMINI	008
GENERAL INSTRUMENT	074 103 104
GNC	099
GOLDEN CHANNEL	030
HAMLIN	049 050 055
HITACHI	103 055
INSIGHT	074
JERROLD	074 004 103 002 003 008 009 010 069
MAGNAVOX	010 012
MASSILLON	074
MEDIACOM	074
MEMOREX	052
MOTOROLA	074 110 148 111 112 036
MOVIE TIME	028
MOXI	111
NCTC	074
NSC	015 028 038 071
OAK	031 037 053
PACE	043 074
PANASONIC	044 047
PARAGON	052
PHILIPS	006 012 013 020 085
PIONEER	043 103 034 051 063 076 105
PULSAR	052
QUEST	112
RCA	047
RCN	074
REGAL	049 050
REGENCY	057
RODGERS	043
SAMSUNG	030
SCIENTIFIC ATLANTA	043 003 041 042 045 046
SEREN	043
SERVICE ELECTRIC	074
SHAW	074
SIGECOM	043
SONY	108
SPRUCER	047
STARCOM	002 004 008 009

## **Cable Boxes** *continued*

STARGATE	008 030 104
SUSQUEHANNA	043 074
TIME WARNER	043 074
TOCOM	039 040 056
TOSHIBA	052
UNITED CABLE	004 053
VERIZON	110
VIDEOTRON	043
WIDE OPEN WEST	043 099
ZENITH	052 060 093 100

## **Satellite Boxes**

<b>Manufacturer/Brand</b>	<b>Set-Up Code Number</b>
CABLEVISION	148
DIRECTV	173
DISH NETWORK	122
ECHOSTAR	122
EXPRESSVU	122
GENERAL ELECTRIC	151 116 150
GENERAL INSTRUMENT	148
GOI	122
HITACHI	139 140
HTS	122
HUGHES	114
JVC	122
LG	170
MITSUBISHI	114
MOTOROLA	148
NEXT LEVEL	148
PANASONIC	142 160
PHILIPS	152 153 156 114
PROSCAN	151 116 150
RADIOSHACK	148
RCA	151 116 150
SAMSUNG	155 163 169 175
SKY	164
SONY	115
STAR CHOICE	148
TOSHIBA	127 114 158
VOOM	148
ZENITH	159

### DVD

#### Manufacturer/Brand Set-Up Code Number

AIWA	146
AKAI	281
ALPINE	098
APEX DIGITAL	087 111 115
BROKSONIC	130
CINEVISION	091
COBY	260
CYBERHOME	271
DENON	138 080 173
DURABRAND	091
DVD 2000	017
EMERSON	091 143
ESA	143
FISHER	147
FUNAI	143
GE	026 027
GO VIDEO	137 091 220 221 222
GOLDSTAR	091
HARMAN KARDON	084 140
HITACHI	101
ILO	268
INITIAL	111
INSIGNIA	143
INTEGRA	142 180
JBL	084
JVC	012
KENWOOD	151
KISS	279
KLH	135
KRELL	104
LEXICON	148
LG	091 057 074
LITEON	264 265
MAGNAVOX	001 096 143 282
MALATA	267
MARANTZ	083 095
MERIDIAN	153
MICROSOFT	027
MINTEK	111 282
MITSUBISHI	017
MYRYAD	102 134
NAD	088
NAKAMICHI	103
ONKYO	076 035 180
OPPO	266

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OPTIMUS	107
ORION	130
PANASONIC	021 042 138 144 150
PHILIPS	001 083 095 105 166
PHILIPS-MAGNOVOX	035 001
PIONEER	023 092 099 107 108 131
POLAROID	233
POLK AUDIO	035 001
PROCEED	086
PROSCAN	026 027
RCA	026 027
RJTECH	269
SAMSUNG	056 165 170 137 159
SANSUI	154
SANYO	147
SEARS	130
Sensory Science	222
SHARP	094
SONY	033 118 145 126 191
SUPERSCAN	143
SV2000	143
SYLVANIA	143
SYMPHONIC	143
TATUNG	102
TEAC	107
TECHNICS	042
TECHWOOD	088
THOMPSON	026 027
TOSHIBA	035 034 130 141 164 188
VENTURER	149
X-BOX	027
YAMAHA	042 089 166 138 197
ZENITH	057 074 091

### DVD Recorders

Manufacturer/Brand	Set-Up Code Number
CYBERHOME	271
GO VIDEO	220 221 222
ILO	268
KISS	279
LITEON	265
PANASONIC	138
SENSORY SCIENCE	222
SONY	191
TOSHIBA	188

### DVD-TV/DVD Combos

Manufacturer/Brand	Set-Up Code Number
AIWA	146
AKAI	281
DURABRAND	143
ESA	143
FUNAI	143
INSIGNIA	143
MAGNAVOX	282
MINTEK	282
SAMSUNG	165
SV2000	143
SYLVANIA	143
SYMPHONIC	143
TOSHIBA	130

### DVD-TV/DVD/VCR Combos

Manufacturer/Brand	Set-Up Code Number
EMERSON	143
INSIGNIA	143
MAGNAVOX	143
PANASONIC	144
SUPERSCAN	143
SYLVANIA	143
TOSHIBA	164

## DVD-DVD/VCR Combos

Manufacturer/Brand	Set-Up Code Number
GO VIDEO	137
PANASONIC	150
PHILIPS	105 (VCR Functions for VCR 067)
SAMSUNG	137 159
SANSUI	154
SONY	145 191
TOSHIBA	141
ZENITH	091 (VCR Functions for VCR101)



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