



# Gefentv<sup>®</sup>

High-Def Personal Video Recorder

GTV-HD-PVR

User Manual



## ASKING FOR ASSISTANCE

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# INTRODUCTION

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Congratulations on your purchase of the Gefen TV High-Definition Personal Video Recorder (HD-PVR). Your complete satisfaction is very important to us.

## **Gefen TV**

Gefen TV is a unique product line catering to the growing needs for innovative home theater solutions. We specialize in total integration for your home theater, while also focusing on going above and beyond customer expectations to ensure you get the most from your hardware. We invite you to explore our distinct product line and hope you find your solutions.. Don't see what you are looking for here? Please call us so we can better assist you with your particular needs.

## **The Gefen TV High-Definition Personal Video Recorder**

The Gefen TV High-Definition Personal Video Recorder (HD-PVR) allows consumers to implement the functions of a traditional video tape recorder or DVD recorder using standard MPEG-4 compression and H.264 encoding technology to store videos on removable SD flash cards or the built-in 80GB hard disk drive. With the Gefen TV HD-PVR, consumers can enjoy instant recording and versatile portability of digital video and music, as well as playback of music and digital pictures, all within one compact tabletop unit.

## **How It Works**

The HD-PVR is easy to use. You simply connect your video source(s) to one or all of the HD-PVR's 4 inputs, then connect your HDMI display on the HDMI output. Once the source(s), the HD-PVR and the display are powered and connected, you select the video source and feature that you want using the Infrared (IR) remote. If you want to modify settings for instant recording and other features, you can go into the friendly On-Screen Display and adjust the settings.

## OPERATION NOTES

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### READ THESE NOTES BEFORE INSTALLING OR OPERATING THE HD PERSONAL VIDEO RECORDER

- This product is not designed for continuous recording applications. See page 13 for maximum recording times.
- Compatible with both HDMI and DVI\* displays.
- Copy protected content cannot be recorded or copied in high-definition to the HD-PVR or to SD flash media.
- For an input of 1080i, this device actually saves the recording at 1440x1080i but plays back the signal at 1080i. This is an encoding chip limitation.
- When using a DVI source, the HD-PVR will take the audio from the S/PDIF input (see page 4). When using an HDMI source, the audio is always taken from the HDMI cable. The Gefen DVI Detective or HDMI Detective can be used with a DVI EDID to force the HDMI source to output DVI.

**IMPORTANT:** Do not remove the casing from the HD-PVR. Doing so will void the warranty.

\*When used with a DVI to HDMI Adapter

# FEATURES

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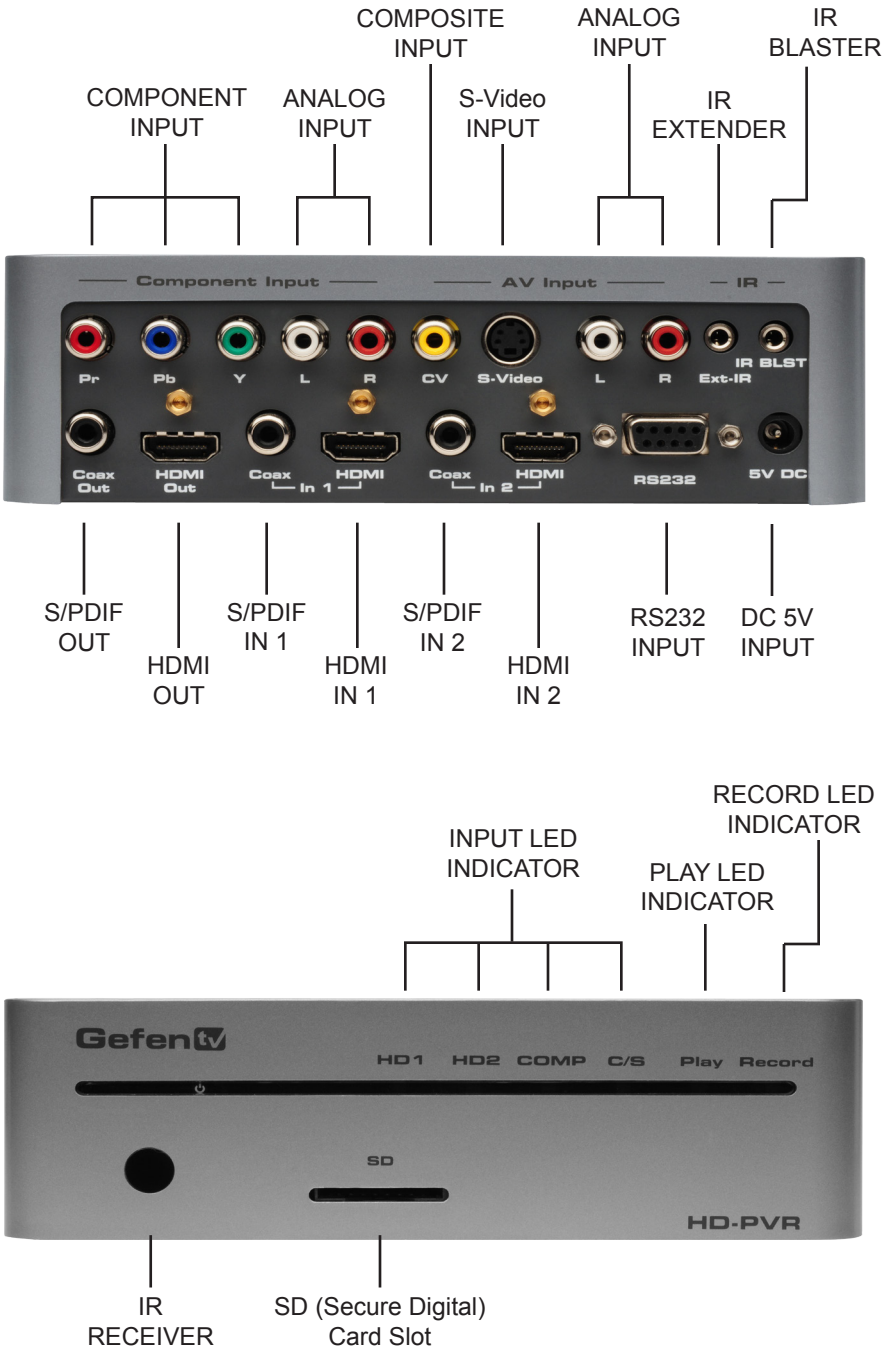
## FEATURES

- Video recording and playback at resolutions of 480i to 1080i with Pause, Mute, Fast Forward & Fast Backward playback modes. Fast Forward and Fast Backward modes are capable of playback speeds from 1/2 to 16x speed.
- Instant Video Recording Feature immediately captures live action to SD Flash Media or Internal Hard Disk Drive with the touch of a single button.
- Uses widely supported MPEG4 compression and H.264 encoding technology, supported on most computers with an add-on driver.
- Capable of importing multi-channel digital audio from an external S/PDIF source and merging it into the HDMI output signal when using sources that have no HDMI audio (such as DVI being input on an HDMI input connector with an adapter).
- Media Scanning Function to Locate and play back externally imported Videos, Audio Files, and Pictures from SD cards. Pictures may be viewed at zoom magnifications of up to 2x-10x.
- Four user-selectable A/V quality settings. Each quality setting has a corresponding data recording rate ranging from 3.5Mbps to 10Mbps for Hi-Def content and from 1.5Mbps to 4Mbps for Standard Definition formats. Recording time can be increased with lower data recording rates.
- A User-Friendly On-Screen Display (OSD), provided for easy and quick access to all settings. International language support is included.

## PACKAGE INCLUDES

- (1) Gefen HD Personal Video Recorder
- (1) 6 ft. HDMI cable (M-M)
- (1) IR Extender
- (1) IR Blaster
- (1) IR Remote
- (1) 5V DC Power Supply
- (1) User Manual

# PANEL LAYOUT





## IR REMOTE LAYOUT



TV Power	User programmable key
HDMI 1	Selects HDMI input 1
HDMI 2	Selects HDMI input 2
Component	Selects the Component input
Repeat	Cycles the repeat function
Info	Displays info on selected movie or photo
S-Video	Selects the S-Video input
Zoom	Cycles the zoom function
Snapshot	Takes a snapshot of a movie during playback
Composite	Selects the composite input
Record	Begins recording the selected source
Play	Begins playback of recorded movie or begins slide show when in View Photo.
Pause	Pauses movie during playback
Stop	Stops movie during playback or returns to Photo Menu when viewing slide shows or photos.
Home	Takes you to the Home menu.
◀▶▲▼	Directional keys for navigation
OK	Press to accept the highlighted selection
Fast FWD	During playback of movie, advances movie forward
Rewind	During playback of movie advances movie in reverse
Mute	Mute sound
HDD/SD	Switches between the internal hard drive and the Secure Digital flash card
Volume +/-	Increase or decrease the volume
Channel +/-	User programmable key
0-9	User programmable keys
Step FWD	While movie playback is paused this will advance movie one frame at a time

All remaining keys and all keys labeled above as user programmable are for use with the IR Blaster. Please refer to the Learn Remote section for more details

## QUICK SETUP GUIDE

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How to connect the HD-PVR:

1. Connect the HDMI OUT of the HD-PVR to the HDMI IN of your HDMI display. Connect the S/PDIF (Coaxial) OUT to your external digital audio amplifier/receiver, if separate digital audio output is desired.
2. Connect the HDMI, Component, Composite or S-Video input on the Gefen HD-PVR to the output of the source device you wish to record from.

Note: If you are using DVI with a DVI-to-HDMI adapter, you may merge external digital audio from the S/PDIF input into the HDMI signal. Simply connect your digital audio source at the appropriate S/PDIF input jack. Please note that this functionality is only available when using DVI. When an HDMI input source is connected, the corresponding S/PDIF jack is automatically deactivated since HDMI audio is present.

3. Plug the 5V power supply into the HD-PVR.
4. Turn on the display (TV), then turn on the HD-PVR by pressing the POWER button on the supplied remote control.

The first time you turn on the power, you will be asked to set the Date and Time on the unit (see page 9 for instructions on how to do this). Once the Date and Time have been set, the HOME menu should be displayed.

If you are not receiving a picture on your HD display:

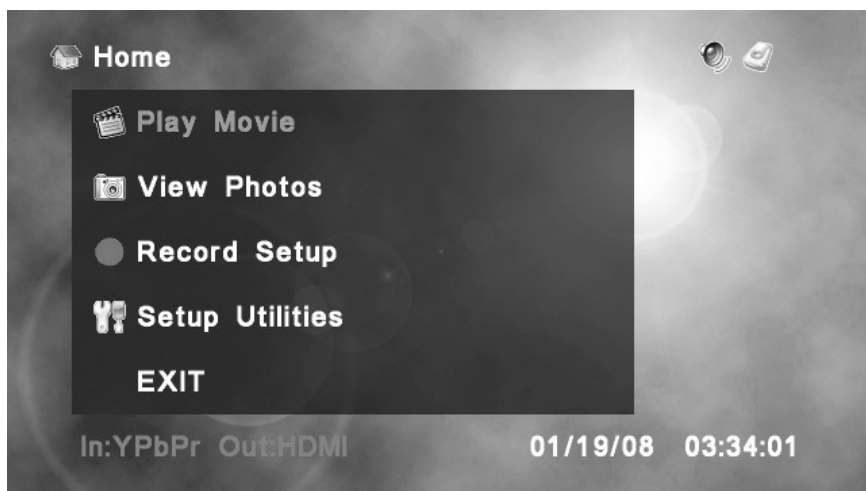
- Check that the power supply is plugged in and connected to the HD-PVR.
- Check that the unit is turned on. If there are lights on the front panel, then the HD-PVR is receiving power.
- If your display has more than one HDMI IN, make sure that your display is set up to receive signals from that input.

When the HOME menu is displayed, you can press the HOME button on the remote control, again, to view the input source.

If the HD-PVR is unable to find a source signal, you will receive the message: "No Signal". If this is the case, check the following:




- Make sure that you select the correct input source on the remote control.
- Verify the connection from the input source to the HD-PVR is correct.
- Verify that your display can handle the input resolution. For example, some displays do not support 480i. Try varying the resolution of the input source.
- The HD-PVR will not accept 1080p signals. The highest input resolution supported by the HD-PVR is 1080i.

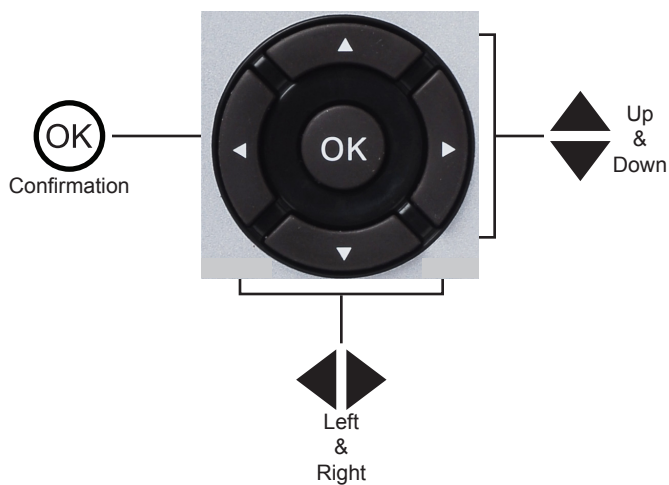
## HOME MENU



This is the HOME menu. From here, you can view recorded content, view photos, set up preferences or view the input source by selecting EXIT or pressing HOME on the remote control.

### Navigation

To navigate through the menu system, use the  and  directional keys on the remote. The  key accepts the current selection.



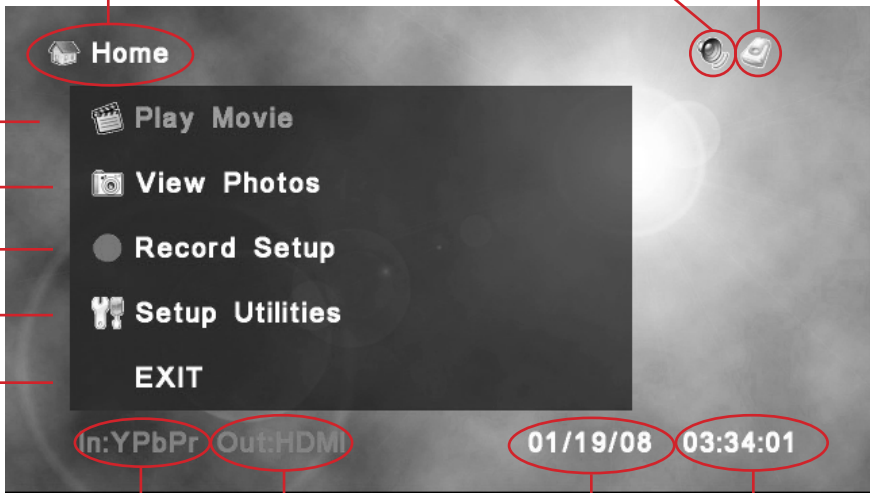
# HD-PVR HOME MENU AND NAVIGATION

## HOME MENU - Panel Description

Current Menu

Mute Status

Current Media Drive (HDD or SD)



Currently Selected Input

Output

Date

Time

### **Exit**

Exits the HOME menu, allowing you to view the input source.

### **Setup Utilities**

All configurable options are located in this menu. Please see the next section for individual descriptions and setup of each option.

### **Record Setup**

All scheduled recordings can be set, edited or viewed from this menu

### **View Photo**

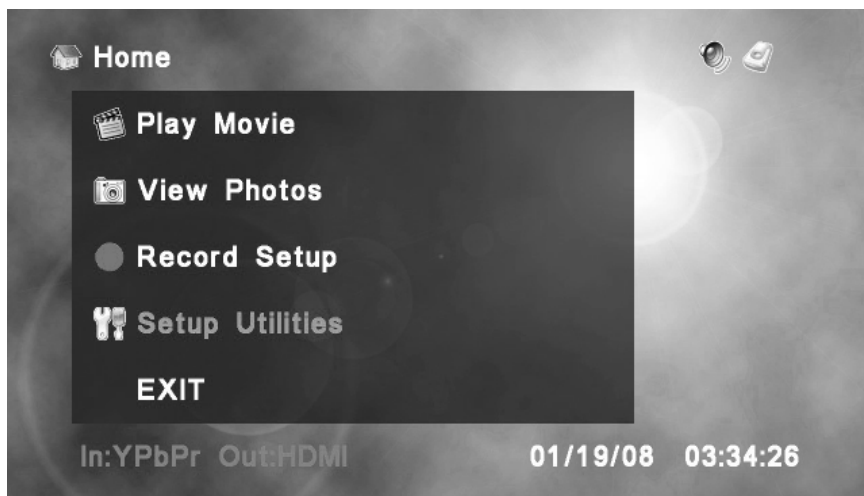
Slide shows, snapshots, viewing, copying and deleting of photos are done from this menu.



### **Play Movie**

All recorded movies are accessible in this menu. Playback, copying and deletion of movie content are also done from this menu.

# SETTING UP THE HD-PVR

## SETUP UTILITIES



The SETUP UTILITIES menu allows you to configure the HD-PVR for use. There are three pages of settings. Use to  highlight the selection and press  to accept the current selection.

### **Set Date & Time**

Set the current date and time.

### **Set Language**

Choose the language option that will be used for all menus. At this time, the available languages are English or Chinese.

### **Format**

Provides you the option of formatting the internal hard disk drive (HDD) or SD Card.

### **OSD Time-out**

Controls the time that the information overlay is displayed when viewing movies or photos.

### **Default Recording Quality**

Sets the default quality that all recordings will use. Please see the specific settings and bit rates that are described in the following section.

### **Background**

This sets the background design that will be used for all menus. At this time, there are two background styles to choose from.

### **Information**

This menu displays the used and remaining storage space for both the internal hard disk drive and the SD flash card, if inserted. It will also display the current firmware and our technical support e-mail address.

### **Learn Remote**

This option allows the HD-PVR remote to learn keys from another remote. Use the supplied IR Blaster to send the commands to the device. See the Learn Remote section on page 32 for more details

### **Reset Remote**

Clears (resets) all user-definable keys on the HD-PVR remote, restoring it to factory settings.

## SETTING UP THE HD-PVR

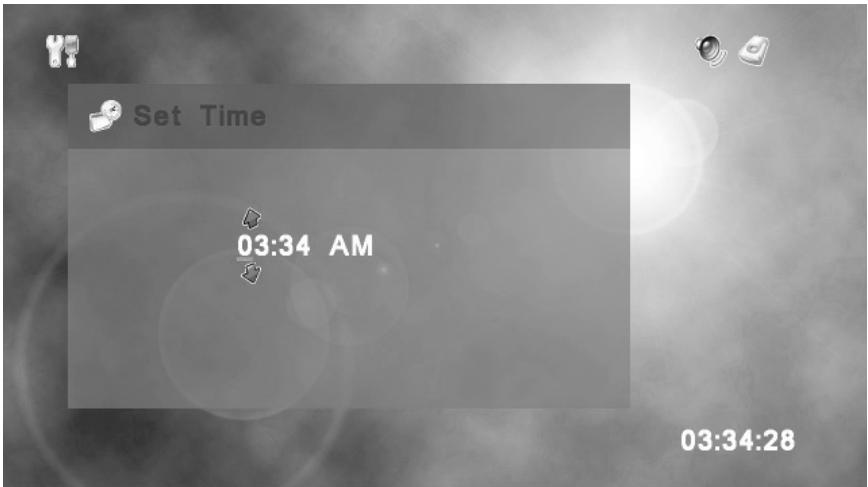
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### SETUP UTILITIES - Set Date



Use ◀▶ to move between each digit in the date and ▲▼ to change the numbers. Pressing **OK** will set the date and proceed to the SET TIME screen

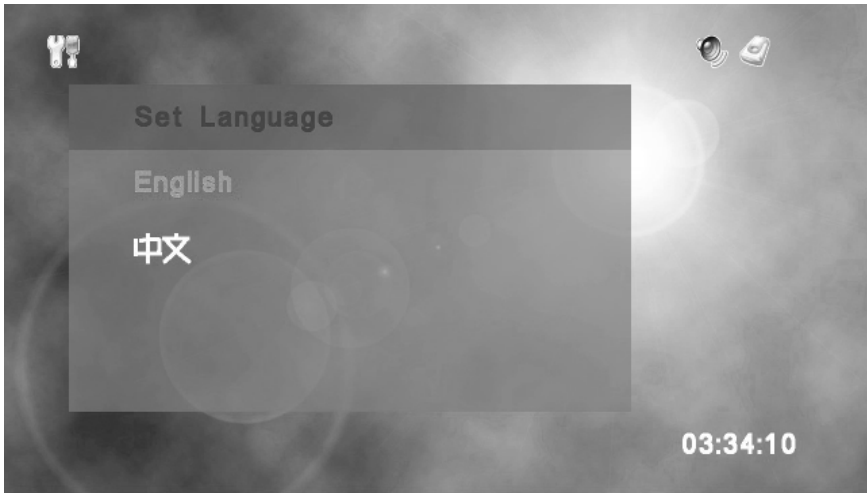
### SETUP UTILITIES - Set Time



Use ◀▶ to move between each digit in the time and ▲▼ to change the numbers. Pressing **OK** will set the time.

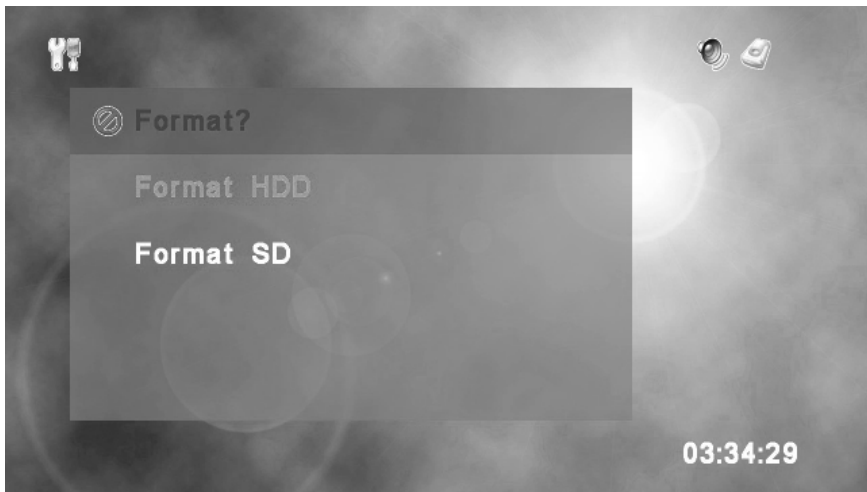
## SETTING UP THE HD-PVR

### SETUP UTILITIES - Set Language



To set the language, use  $\blacktriangle$  to select the language and press  $\textcircled{\text{OK}}$  to accept the selection. You will be asked if you are sure you want to change the language. Press Yes to accept or press No to keep the current language setting. You can choose between English or Chinese. The default language is English.

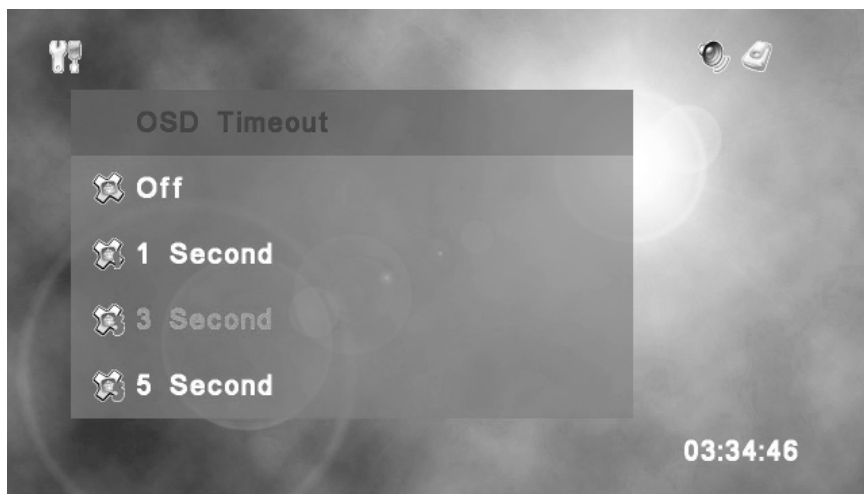
### SETUP UTILITIES - Format



This provides you the option of formatting the internal hard disk drive (HDD) or SD Card. **Warning: Formatting the internal HDD or SD Card will erase ALL data on the media!**

## SETTING UP THE HD-PVR

### SETUP UTILITIES - OSD Time-out



This controls the time that the information panel is displayed when viewing movies or photos. You can choose between 1, 3 or 5 seconds. Use **OK** to choose your desired setting and press **◆** to accept it. The default setting is 3 seconds.

### SETUP UTILITIES - Default Record Quality



The default recording quality is set here. The table on the next page shows each recording option and its corresponding bit rate.



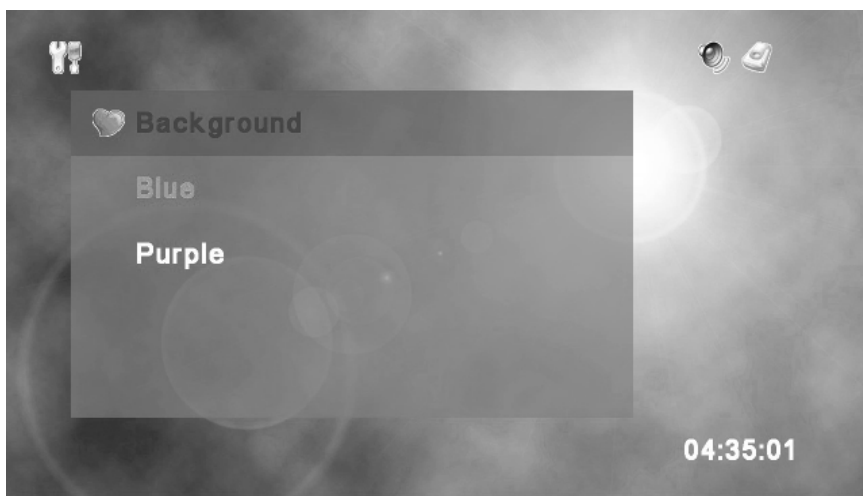
## SETTING UP THE HD-PVR

### SETUP UTILITIES - Default Record Quality

Quality	HD Bit Rate	HD Record Time	SD Bit Rate	SD Record Time
Extra Fine (EX)	10Mb	17 Hours	4Mb	44 Hours
Normal (NOR)	7.5Mb	23 Hours	3Mb	59 Hours
Economic (ECO)	5Mb	35 Hours	2Mb	88 Hours
SuperEco (S.E.)	3.5Mb	50 Hours	1.5Mb	118 Hours

Select your desired recording rate with **◆** and press **OK** to accept your selection.

### SETUP UTILITIES - Background



The background menu lets you choose between two images that will serve as the backdrop for all menu screens. Use **◆** to choose either background and press **OK** to select it.

## SETTING UP THE HD-PVR

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### *SETUP UTILITIES - Free Space / Total Space*



The information menu will give you statistics on the remaining and total space available on both the internal hard disk drive (HDD) and SD card. The current firmware revision level is also displayed

## ONE-TOUCH RECORDING

The HD-PVR allows you to instantly record programs while your watching them, using the one-touch record feature. To use the one-touch record feature, using the RECORD button, do the following:

1. From the HOME menu, press the HOME button on the remote to view the currently selected source.



The current source will now be displayed on the screen:



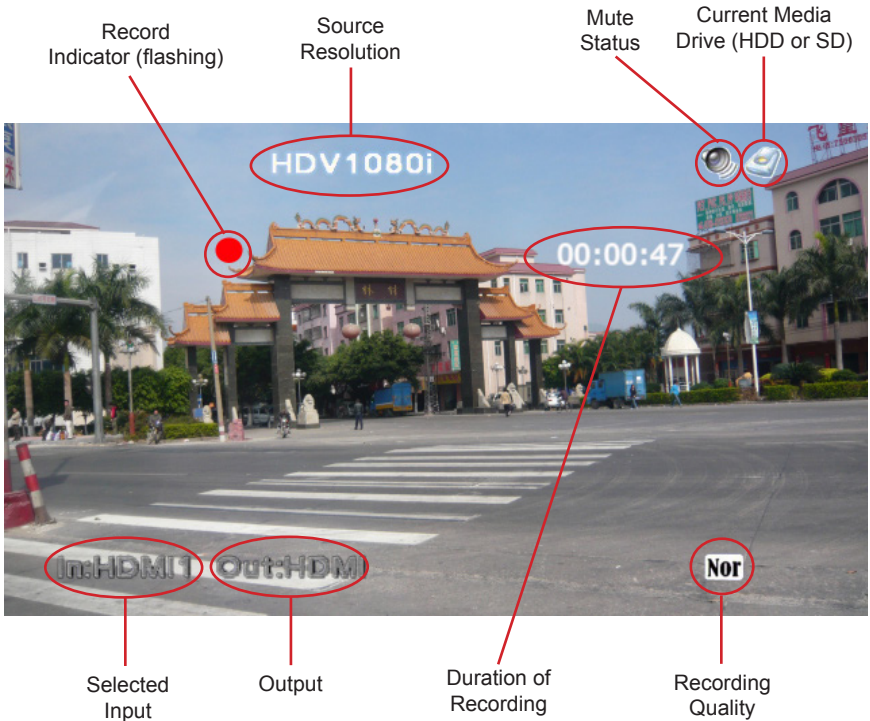
2. Press the RECORD button on the remote control. Once the RECORD button is pressed you should see a flashing red light on the front panel of the HD-PVR. This indicates that the HD-PVR is now recording.

# ONE-TOUCH RECORDING

During the recording process, you can get information about the current recording by pressing the INFO button while you are recording.



After pressing the INFO button you should see the following information:



## ONE-TOUCH RECORDING

You can press the INFO button again to hide the recording information. NOTE: The recording information screen will not show up when you playback your recorded movies.

To stop the recording process, press the STOP button on the remote control.





The HD-PVR will ask you if you are sure you want to stop recording:



## ONE-TOUCH RECORDING

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Use  on the remote to select either Yes or No and press . Selecting No will continue the recording process. Selecting Yes will stop the recording process and save the movie to the currently selected media. Note that even though this dialog is displayed, the recording process is still taking place. The recording will not stop until you select Yes. NOTE: You cannot pause a recording by pressing the PAUSE button. You can only STOP a recording.

Most of the time you will want to view the source before recording it. However, it is possible to begin a one-touch recording directly from the HOME menu:

1. From the HOME menu, press the RECORD button on the remote.
2. The HD-PVR will switch from the HOME menu to the source. However, you will be asked "Record, Are you sure?". This prevents an accidental recording directly from the HOME menu, since the source is not currently being viewed. You will need to select Yes or No from the dialog. Selecting Yes will begin the recording process. Selecting No will allow you to view the source.

To stop the recording process, press the STOP button on the remote control. The HD-PVR will ask you if you are sure you want to stop recording.

3. Press the HOME button on the remote to return to the HOME menu.

NOTE: If the display jumps slightly when starting a recording, it will not be seen in the movie during playback. This is simply due to a synchronization process between your display and the HD-PVR. This behavior is completely harmless.

# PLAYING A MOVIE

## PLAYING A MOVIE - Playback Controls



The HD-PVR remote has buttons which allow you to control the playback of your recorded movies. They are indicated in the diagram below and described in further detail later on down the page.



Playback control buttons

### INFO

During a movie you can press the INFO button to get information on the current Movie. The information is displayed for the amount of time as set in the OSD menu in the setup utilities. Pressing the INFO button once more will bring up additional file details. Press the INFO button again to view the movie, normally.

### REPEAT

The repeat function can be changed either in the menu or during a playback. There are three repeat modes.

- |               |   |
|---------------|---|
| Play Once     | The currently selected movie is played one time   |
| Single Repeat | The currently selected movie is continuously repeated   |
| All Repeat    | All movies on the currently selected storage media are played in succession and continuously repeated |



Pressing the REPEAT button will cycle through these options as shown above.

### STEP FWD (Step Forward)

A movie can be advanced frame-by-frame using the step forward function. To view a movie frame-by-frame, press PAUSE, then press the STEP FWD button on the remote to advance one frame at a time.

## PLAYING A MOVIE

### FAST FWD (Fast Forward)

Pressing the FAST FWD button during playback will advance the movie forward. Pressing the button each time will provide you with a different speed:



To resume normal playback speed at any time, press PLAY or OK. Press STOP to stop the movie and return to the thumbnail view.

### REWIND

Pressing the REWIND button during playback will reverse the movie backward. Each press will increase the reverse speed by the following multiples:



Pressing STOP will halt movie playback. Press PLAY to resume normal (forward) playback. Press STOP to return to the thumbnail view.


### PAUSE

The PAUSE function is used to pause a movie during playback. You can then use the Step FWD function, mentioned earlier, to progress through the movie frame-by-frame.

### SNAPSHOT

You can take snapshots of individual frames of a movie with the SNAPSHOT button. To take a snapshot, do the following:

1. When you see a portion of a movie you would like to capture as a photo, press the PAUSE button. **TIP: You can also use the PAUSE button and then use the Step FWD button to progress frame-by-frame until you see the frame you want to capture.**
2. Press the SNAPSHOT button on the remote to capture the current frame as a photo.

After the snapshot is taken, you can press the HOME button to stop the movie and return to the HOME menu. Once you are at the HOME menu, select View Photos and press .

The most recent snapshot will be listed first in the thumbnail view, under View Photos.

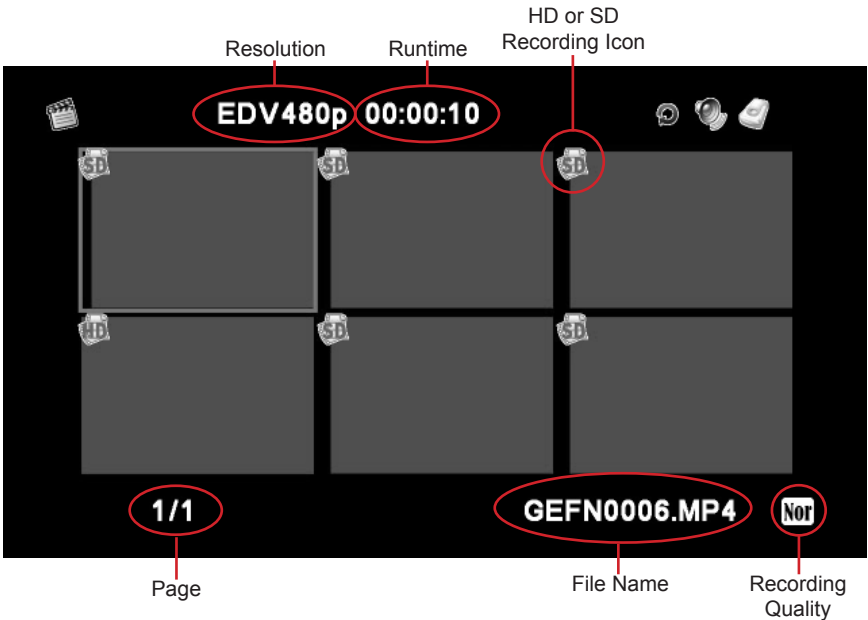


## PLAYING A MOVIE



From the Home Menu, choose Play Movie with **◆** and press **⊙**.

### *PLAY MOVIE - Thumbnail View*



To navigate the PLAY MOVIE menu, use **◆** and **◀▶** to make your choice and press the PLAY button to start playback. You can also press **⊙** to bring up the Movie Menu.

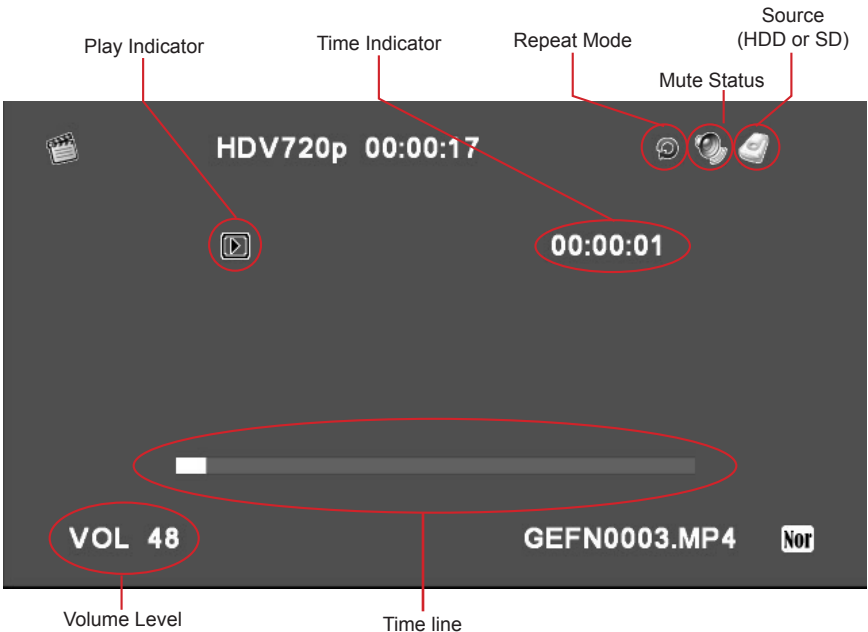
# PLAYING A MOVIE

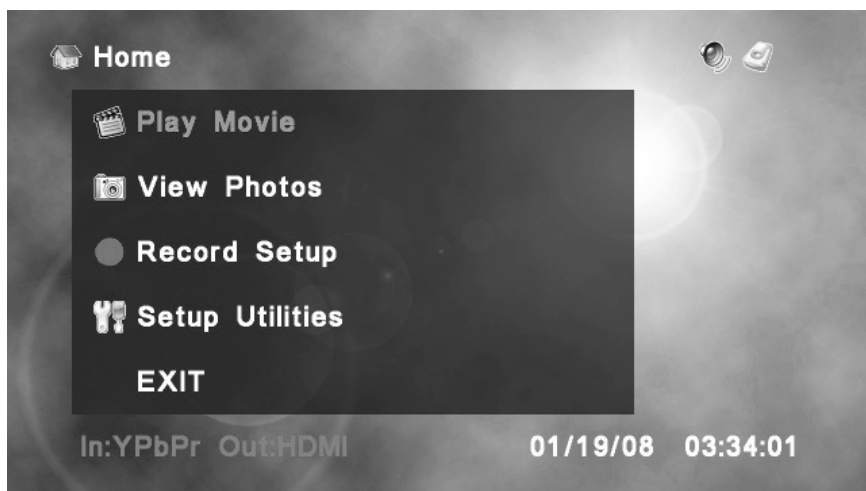
## MOVIE MENU




The Movie Menu allows you to begin playback, copy, or delete the selected movie. Use **◀** to select your choice and press **OK** to select it.

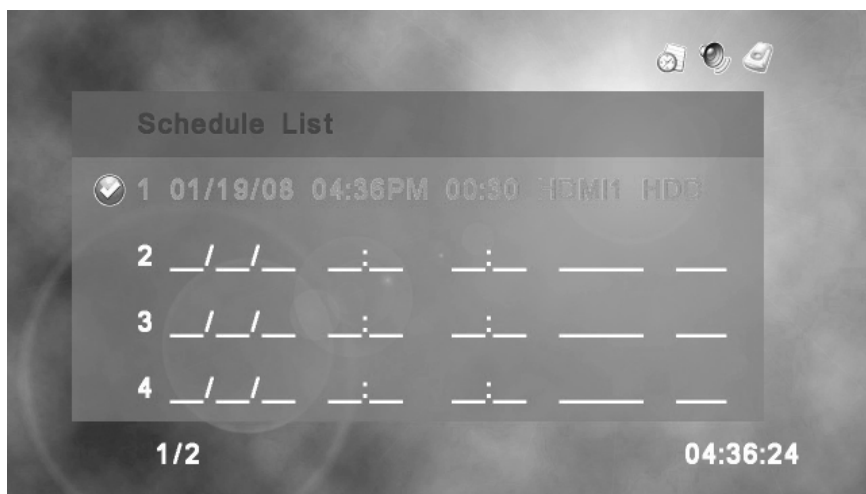
## MOVIE INFORMATION - Panel Description






From the home menu use  to select Record Setup and press .

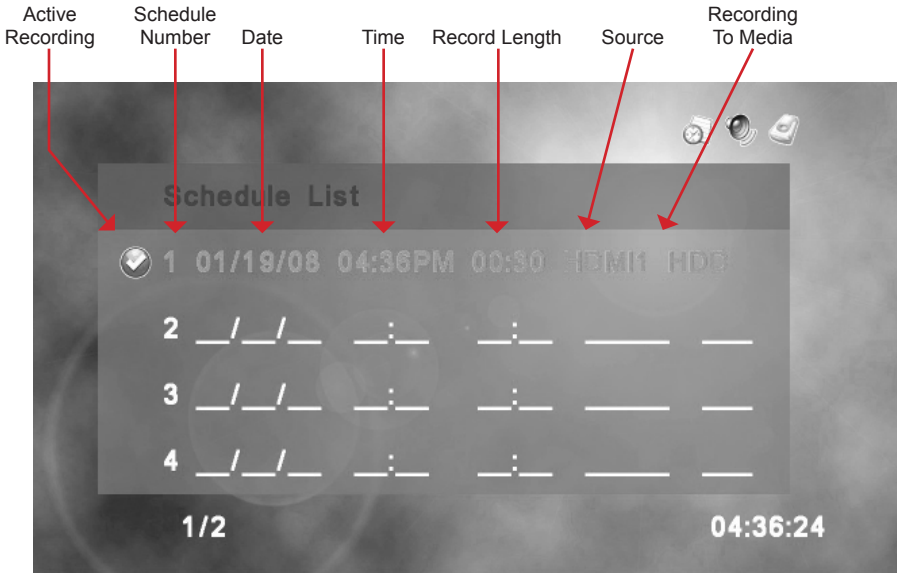
## RECORD SETUP - Schedule List



The Schedule List menu displays all scheduled recordings. Once a recording is complete, the entry is removed from the list. Scheduled recordings labeled with a  are active recordings.

# SCHEDULING A RECORDING

## RECORD SETUP - Panel Description



## RECORD SETUP - Set Date

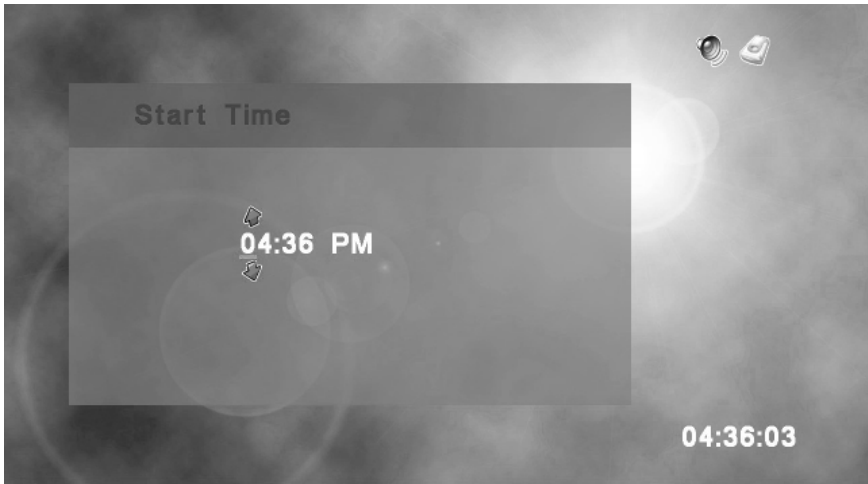


Set the date for the recording using **▲** to change each digit. Use **◀▶** to move to another digit. Press **OK** when you are done.

## SCHEDULING A RECORDING

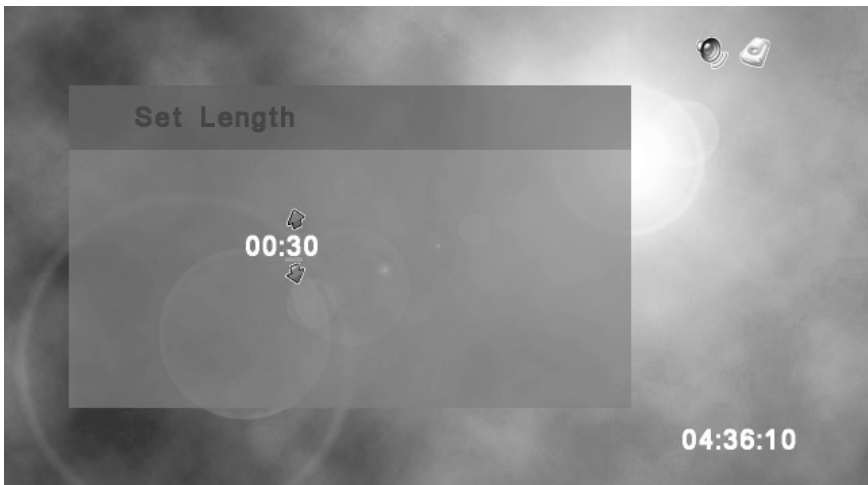
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### RECORD SETUP - Set Start Time



Set the time for when you want the recording to begin. Use **◆** to change the numbers and use **◀▶** to move between the digits. Press **OK** when you are done.

### RECORD SETUP - Set Length

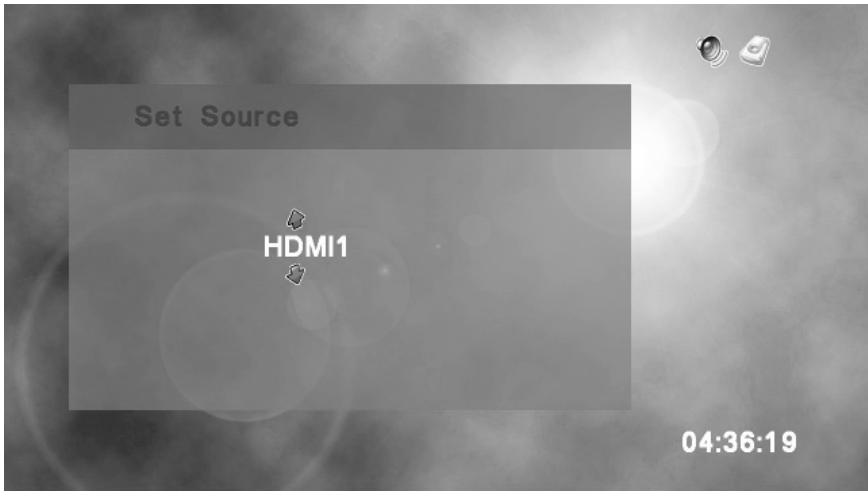


Set the desired length of the recording. Use **◆** to change the numbers and use **◀▶** to move between the digits. Press **OK** when you are done.

NOTE: Time cannot be set to 00:00. Minimum recording time is 1 minute (00:01)

## SCHEDULING A RECORDING

### RECORD SETUP - Set Source



Set the input source for the recording using  $\blacklozenge$  to select between HDMI1, HDMI2, COMPONENT or VIDEO. Press  $\textcircled{\text{OK}}$  when you are done.

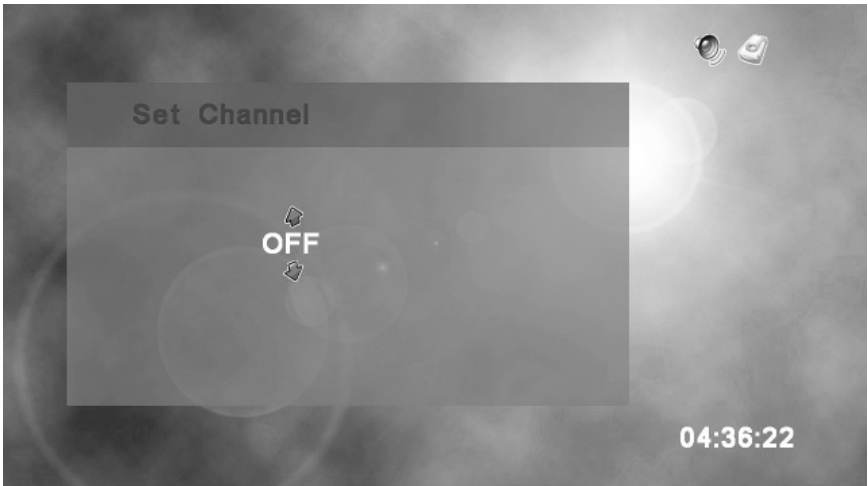
### RECORD SETUP - Set Media



Set the media for the recording using  $\blacklozenge$  and press  $\textcircled{\text{OK}}$  when you are done. You can select between the internal hard drive (HDD) or the SD card.

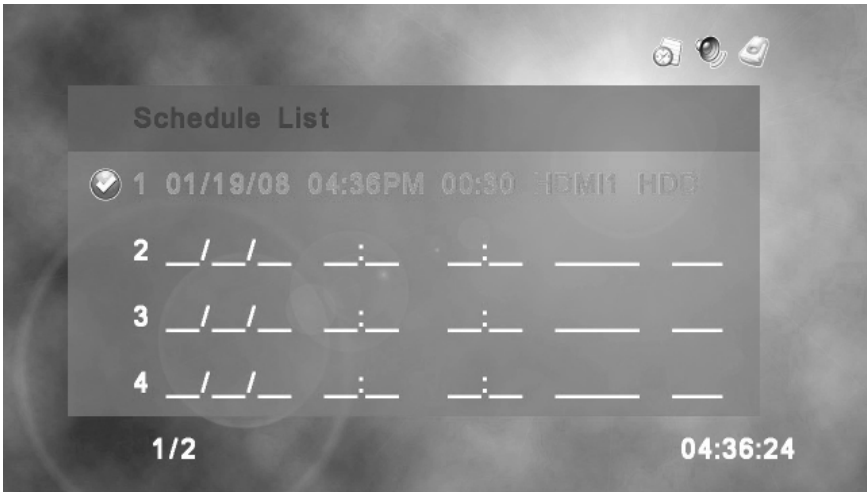
# SCHEDULING A RECORDING

## RECORD SETUP - Set Channel



If the IR Blaster is connected and set up, you can select a specific channel (up to 4 digits). Otherwise, you should set to OFF mode when not using an IR Blaster. Use  $\blacktriangle$  to change each digit and  $\blacktriangleleft$  to move between them. Once you have set the channel, press  $\text{OK}$  to complete the Recording Setup.

## RECORD SETUP



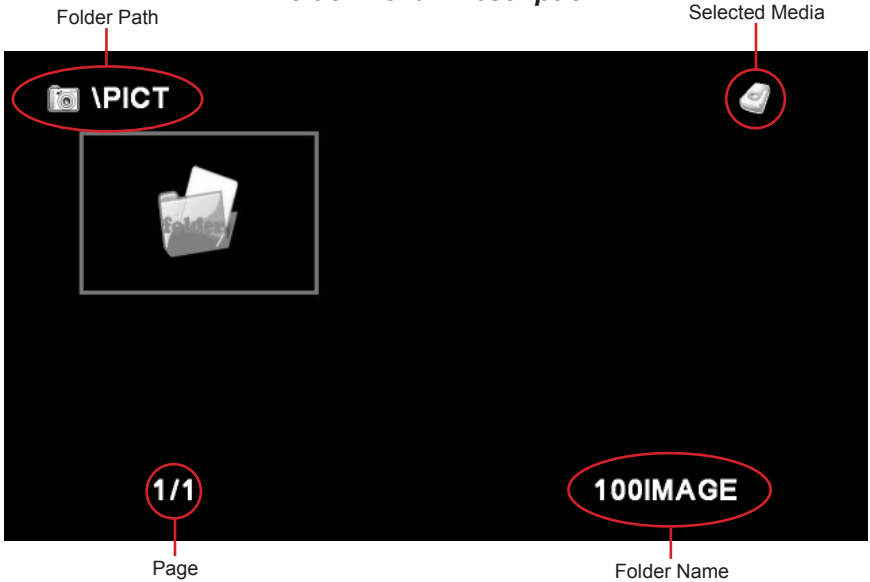
Once you have input all of the information for the recording it should already be set as active. To de-activate the recording for any reason, navigate to it using  $\blacktriangle$  and simply press the  $\blacktriangleright$  key on the remote. To re-activate it press  $\blacktriangleright$  again.

# VIEWING PHOTOS



From the home menu use **◆** to select View Photo and press **OK**.

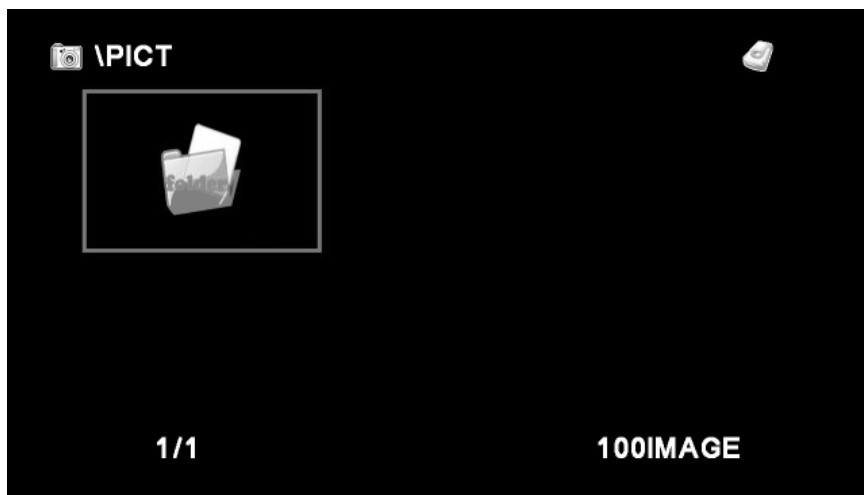
## Folder Menu - Description





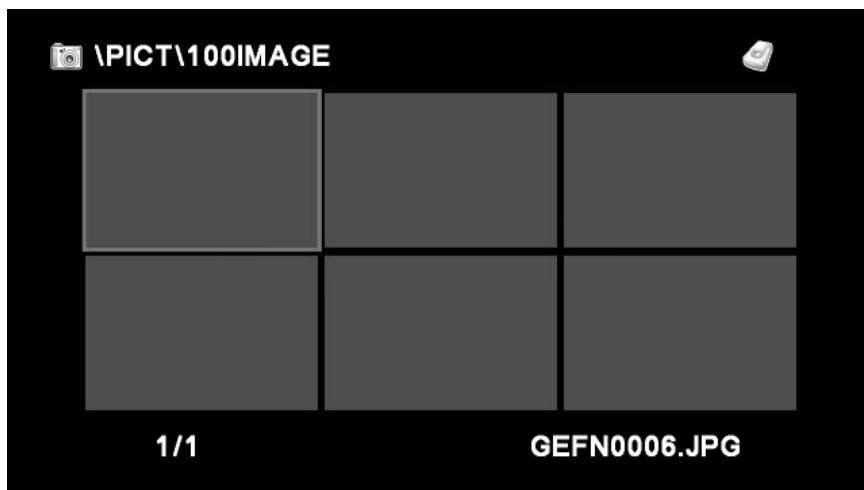
## VIEWING PHOTOS

### Folder Menu - Main



The Folder Menu displays the current folders located on the selected media. To change media type, press the HDD/SD button on the remote at any time. Use **◀** and **▶** to navigate the menu and press **OK** to open the selected folder.

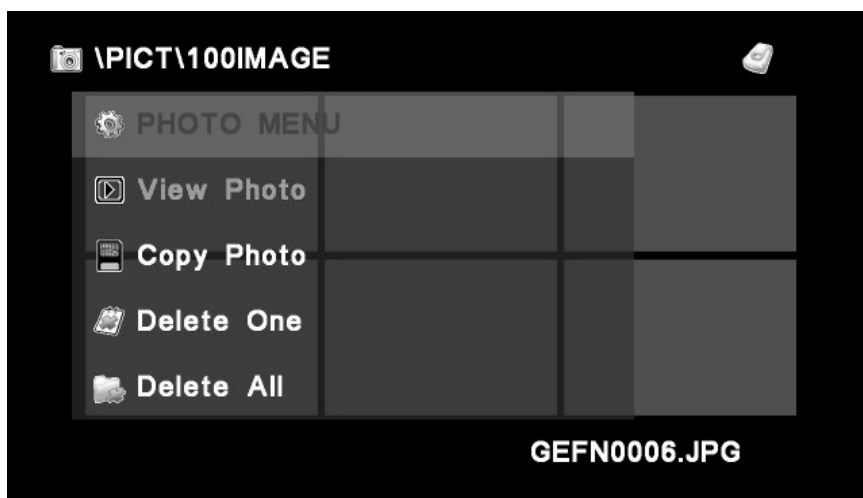
### Photo Selection Menu



Navigate the photos with **◀** and **▶**. You can start a slide show at any time by pressing the PLAY button on the remote. To view a single photo, press **OK** to bring up the Photo Menu, select View Photo with **◀** and press **OK**.

## VIEWING PHOTOS

### *Photo Selection Menu - Photo Menu*



The Photo Menu will allow you to view a single photo, delete the selected photo, or delete all the photos on the selected media. Use **▲** to choose your option and press **OK** to select it.

While viewing a single photo, you may move to the next photo in the folder by pressing **▶** on the remote. You can also view the previous photo by pressing **◀** on the remote.


To exit either the slideshow or single photo view, simply press the STOP button on the remote. This will return you to the Photo Selection Menu.

***TIP: You can quickly return to the main folder view by cycling the storage media. To do this just press the HDD/SD button on the remote twice.***


## COPYING/DELETING MOVIES AND PHOTOS

---

### **Copying**

Navigate to the desired movie or photo using the instructions in the Play Movie or View Photo section. Pressing (OK) will bring up the additional menu where the COPY command is located. Choose COPY and press (OK). Choose your desired location, either HDD for the internal hard drive or SD for the SD flash card using (OK) and finally press .

### **Deleting**

Navigate to the desired movie or photo using the instructions in the Play Movie or View Photo section. Pressing (OK) will bring up the additional menu where the DELETE command is located. Choose DELETE and press (OK). There will be a confirmation window that asks if you want to proceed with the delete operation. Choose YES or NO using  and finally press (OK). Additionally, you can delete all the content on a particular storage media by selecting the DELETE ALL command from the same menu. WARNING: This will delete all content on the selected media and is not reversible.

## VIEWING PHOTOS ON THE SD-CARD

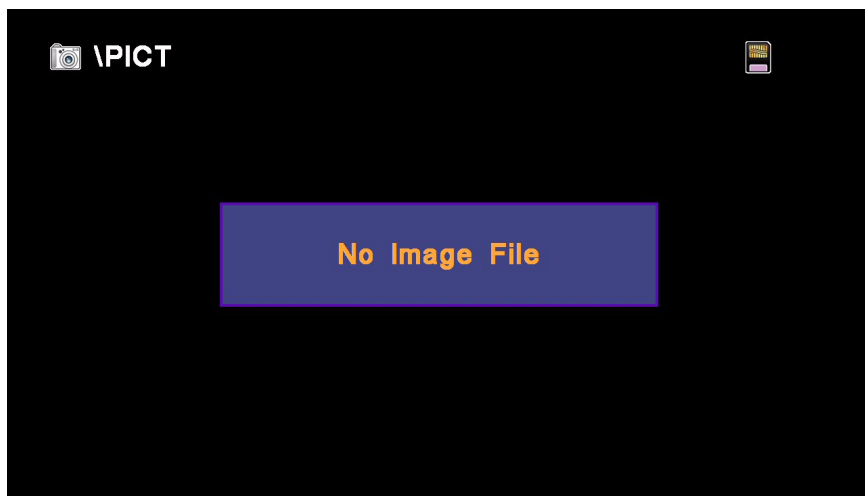


1. Remove the SD-Card from your digital camera and insert it in the HD-PVR SD-Card slot.

2. Press the HDD/SD button on the remote to make the SD-Card the active storage media. The icon in the upper right-hand corner of the screen should change to a black square disk icon (this let's you know you are working with the SD-Card and not the hard drive).

3. Use **◀▶** to choose View Photos and press **⊙** to select it.

Depending upon where photos are stored on your recording device, you may see the following screen.



## VIEWING PHOTOS ON THE SD-CARD

If this happens, you will need to tell the HD-PVR where the photos are stored. Most digital cameras use the \DCIM folder for storing digital photos. By default, the HD-PVR will always look in the \PICT folder for images.

To tell the HD-PVR to view another folder, do the following:

1. Press the STOP button on the remote. Pressing STOP will tell the HD-PVR that you want to move up in the folder hierarchy. Note that the current folder is displayed in the upper-left corner of the screen. The “\” symbol tells us that we are at the “root” folder, which is as far up as we can go.

2. You will see a screen that looks something like this. Using ◀▶ on the remote, highlight the \DCIM folder. The currently highlighted folder name is displayed in the lower-right corner. Here, we have highlighted the DCIM folder.

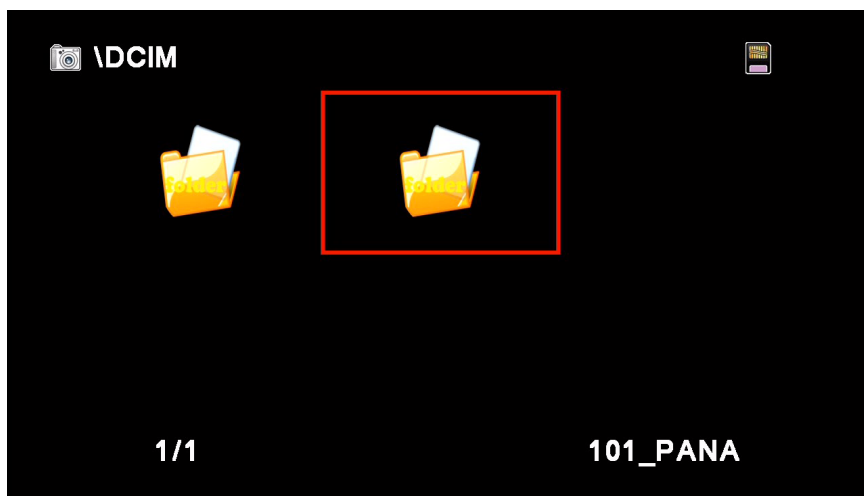


3. Press (OK) on the remote to view the contents of the DCIM folder.

Once you are in the DCIM folder, you should see thumbnails of all your digital photos. However, it is also possible you may see other folders. If this is the case, you will need to highlight the folder containing your photos, by using ◀▶ and pressing (OK) to view the contents of the folder. Here we select “101\_PANA” and press (OK).

In our example (see p.33 top), our photos are stored in a folder called “101\_PANA”. As you can see, the HD-PVR always tells us where we are: The text in the upper-left corner tells us what folder we are viewing (in this case, the \DCIM folder) and the text in the lower-right corner tells us what folder we have highlighted.

## VIEWING PHOTOS ON THE SD-CARD



Once you are viewing a folder which contains photos, the HD-PVR will display a series of thumbnails, representing each photo (as shown below):



Navigate the photos with **◀** and **▶**. You can start a slide show at any time by pressing the PLAY button on the remote. To view a single photo, press **OK** to bring up the Photo Menu, select View Photo with **▶** and press **OK**.

Once within thumbnail view, you can press the HOME button on the remote control to return to the HOME menu. You can also press the STOP button to move up one level in the folder hierarchy. In our example, pressing STOP will return you to the \DCIM folder shown on page 32. Another press will return you to the root directory \.

## LEARN REMOTE FUNCTION

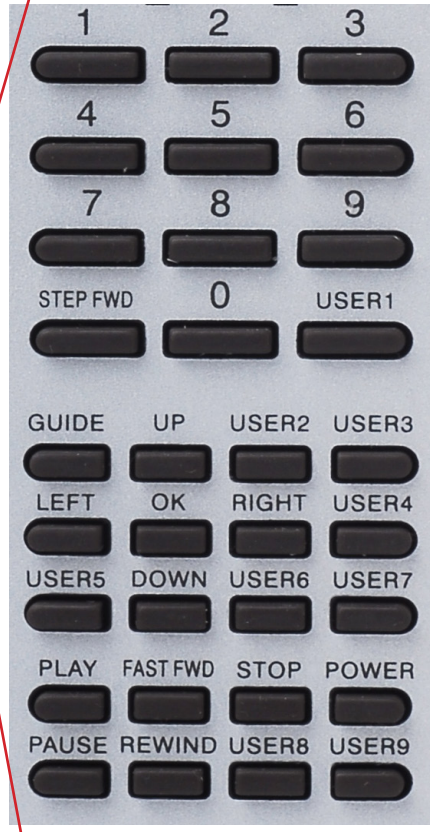
There are a number of user-definable keys on the HD-PVR Remote Control unit that can be programmed to control power, volume, channel, and many other functions on other devices than the HD-PVR, such as a DVD player, set-top box or other peripheral device.

This is accomplished by capturing the original IR codes of these peripheral devices, saving them to memory inside the HD-PVR Remote Control, and then re-transmitting them from the HD-PVR Remote Control unit to the peripheral device that you wish to control (the included IR Blaster accessory must be connected to the peripheral device for this to work properly). This procedure is called Learn Remote.

Below is a layout of all the keys that are available to be programmed, followed by instructions on how to program them on the following page (p. 36).



Keys that are available to be programmed for the Learn Remote function



### How to Program Keys on the HD-PVR Remote Control



#### Learn Remote

From the SETUP UTILITIES menu, choose LEARN REMOTE with the **◆** keys and press the **(OK)** button to select the function that you would like to perform.

At this time, please make sure that any IR Extender / IR Blaster accessory devices are unplugged from the equipment whose IR signal you are learning and from the HD-PVR as well.

1. Press the key on the HD-PVR remote which you would like to learn. Please refer to the layout on page 35 for a list of all available user-programmable keys.
2. Now, press the key on the device's remote that you wish to assign.

For example, if you want to assign POWER ON/OFF for your DVD player, you could press USER2 on the PVR remote as Step 1. Then press the power button on the DVD player as Step 2.

3. Reconnect the IR Blaster to the DVD player or other peripheral equipment so that it can accept the learned IR commands. Reconnect the IR Extender if you had one connected to the HD-PVR.

#### Reset Remote

Resetting the remote control unit will erase all user-defined functions, restoring the remote to factory settings. You will be asked to confirm this action if you select it. Use this function only IF you wish to re-learn the remote keys. NOTE: Once a key has been learned, it cannot be re-learned until you perform a Reset operation on the remote control unit.



This page has been intentionally left blank.  
Please proceed to the next page.



## INSTALLING THE DECODER SOFTWARE

---

The Gefen HD-PVR includes decoder software which allows you to play your recorded movies on your computer.

NOTE: The installer only installs decoder software. You will still need a program such as Windows® Media Player to play video files from the HD-PVR.

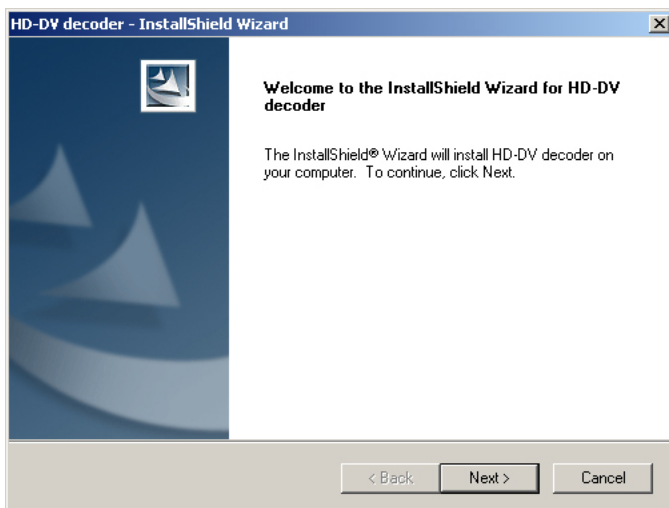
To install the software, please follow these steps:

Start your computer and insert the included CD in your CD or DVD drive.

Click **Start**, click **Run**, then type the following command and click **OK**:

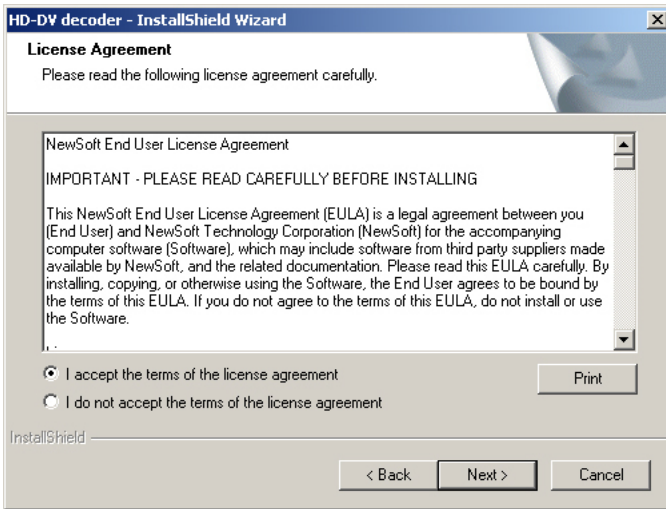
[CD drive letter]:\setup.exe

After a few moments, you should see the following screen:

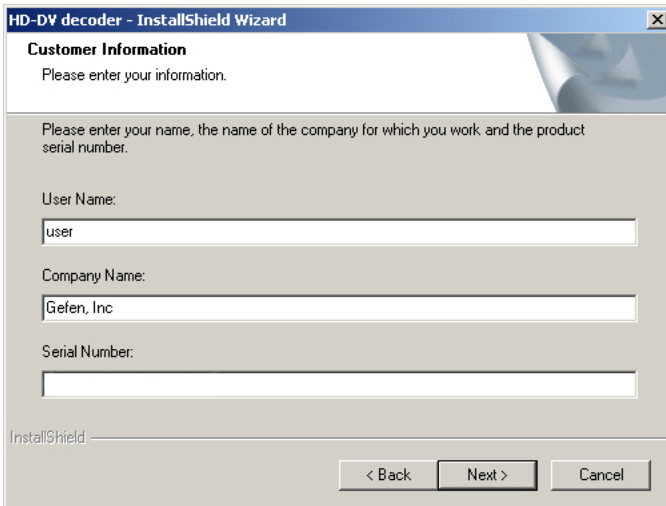


Click Next to continue with the installation. You may press Cancel at any time to abort the installation process.

# INSTALLING THE DECODER SOFTWARE

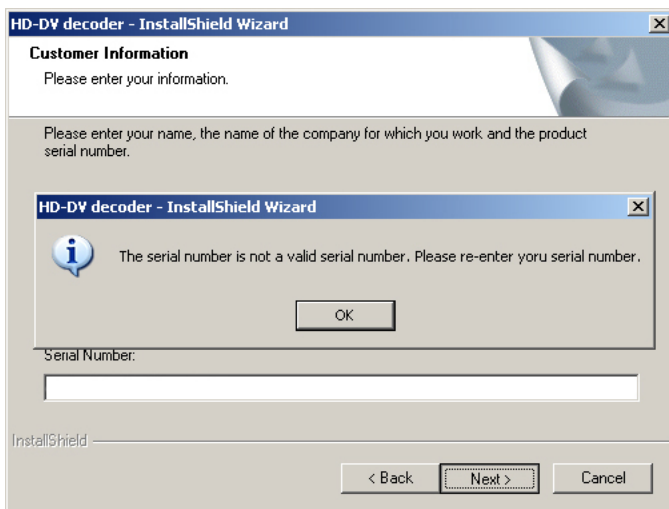


You must agree to the terms of the software license agreement before installation can continue. If you do, click “I accept the terms of the license agreement” and click Next.

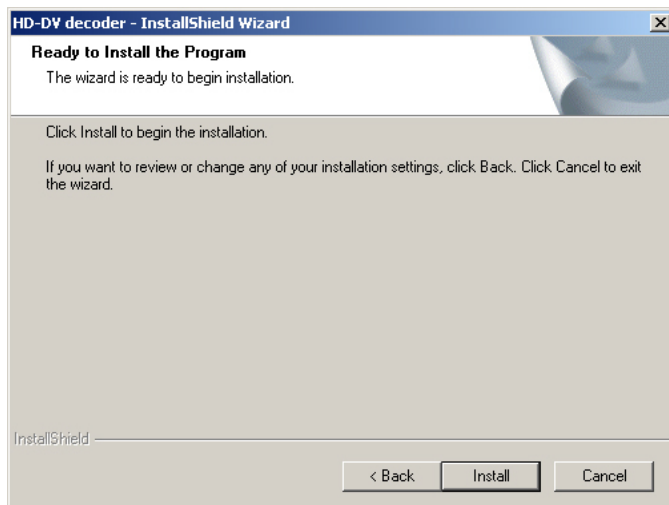


On the Customer Information screen, enter your name, company name and serial number. Each of these fields must be filled in order to continue with the installation. The serial number can be found on the front of the plastic casing in which the CD was shipped.

## INSTALLING THE DECODER SOFTWARE

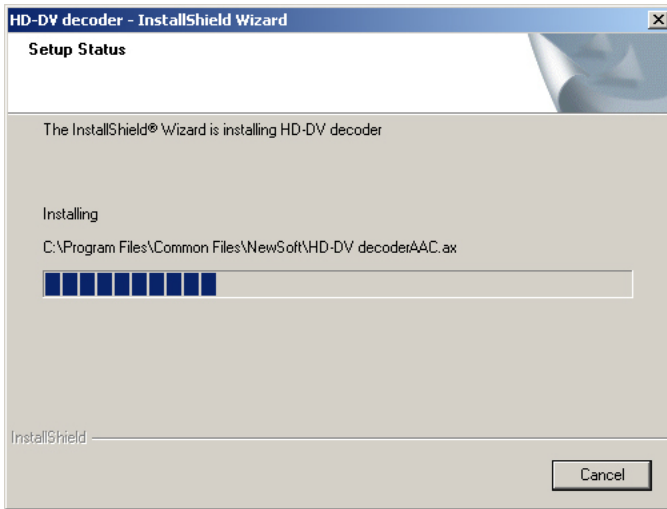


If you make a mistake entering the serial number, the installation program will notify you. If this happens, click OK and you will be returned to the Customer Information screen. Make sure there are no spaces in the serial number and that you type the serial number exactly as it appears on the CD jacket. Click Next to continue.

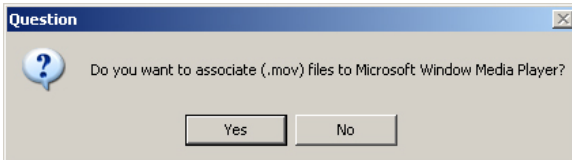


After you have entered your information and serial number, the installer will be ready to install the necessary files. You can click Back to review or change any information or Cancel to exit the installation. Click Install to begin the installation process.

## INSTALLING THE DECODER SOFTWARE



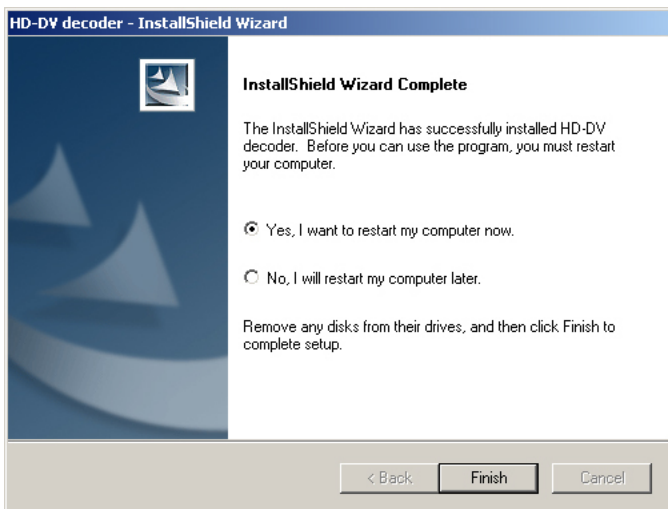
This screen will show you the progress of the installer as it installs the necessary files.



After all files have been installed, you have the option of using Microsoft® Windows Media Player to view all .mov files. If you want to do this, click the Yes button. Otherwise, click No to play .mov files with your default .mov file player.

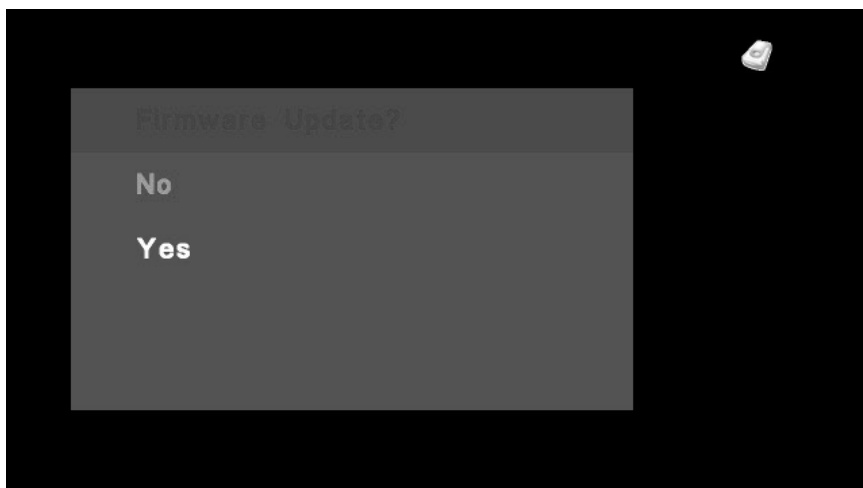
## INSTALLING THE DECODER SOFTWARE

---



After the installation completes, you will need to restart your computer before you can playback any movies that were recorded with your HD-PVR. Click Yes then click Finish to restart your computer now. Click No then click Finish to restart your computer at a later time.

It is highly recommended that you restart your computer before viewing movie files from the HD-PVR on your computer.



Updating the firmware on your Gefen HD-PVR is a simple process. If a new version of firmware is released, simply download the file and follow the procedure outlined below. You will need an SD-Card to update your HD-PVR.

1. Go to the Gefen web site and download the updated firmware. Firmware updates can be found at: <http://www.gefen.com/kvm/support/download.jsp>
2. Extract gefen\_hdprv.bin from the .zip file and copy the .bin file to the root directory of the SD-Card.
3. Turn on the HD-PVR and insert the SD-Card containing the updated firmware.
4. You should now see a screen (pictured above) asking you if you wish to perform a firmware update. Select Yes with **◆** and press **OK**.
5. The next screen will display the message "Updating Firmware". Do not interrupt or turn off the power during the update process.
6. After the update process is complete, you should see the message "Update OK!" At this point, you can remove the SD-Card from the HD-PVR. After a few seconds, the HD-PVR will restart automatically. If you don't remove the SD-Card after the HD-PVR restarts, you will see the "Firmware Update?" screen again. If you do, simply select No using **◆** and press **OK**.

NOTE: The HD-PVR will always check for a firmware update file on any SD-Card that is inserted. You should erase the firmware file from the SD-Card once you have updated the unit.

# IR REMOTE KEY POSITIONS





# IR REMOTE KEYCODES

## IR Remote Control Key Code Table

Key Legend	Key position	Repeat format	Address		data	
			Byte0	Byte1	Byte2	Byte3
power	1	F1	00	FF	00	FF
TV power	2	F1	00	FF	01	FE
HDMI 1	3	F1	00	FF	02	FD
HDMI 2	4	F1	00	FF	03	FC
Component	5	F1	00	FF	04	FB
repeat	6	F1	00	FF	05	FA
Info	7	F1	00	FF	06	F9
S video	8	F1	00	FF	07	F8
zoom	9	F1	00	FF	08	F7
snapshot	10	F1	00	FF	09	F6
composite	11	F1	00	FF	0A	F5
record	12	F1	00	FF	0B	F4
play	13	F1	00	FF	0C	F3
pause	14	F1	00	FF	0D	F2
stop	15	F1	00	FF	0E	F1
home	16	F1	00	FF	0F	F0
▲	17	F1	00	FF	10	EF
◀	18	F1	00	FF	11	EE
OK	19	F1	00	FF	12	ED
▶	20	F1	00	FF	13	EC
▼	21	F1	00	FF	14	EB
fast fwd	22	F1	00	FF	15	EA
mute	23	F1	00	FF	16	E9
vol+	24	F1	00	FF	17	E8
ch+	25	F1	00	FF	18	E7
rewind	26	F1	00	FF	19	E6
vol-	27	F1	00	FF	1A	E5
ch-	28	F1	00	FF	1B	E4
HDD/SD	29	F1	00	FF	1C	E3
1	30	F1	00	FF	1D	E2
2	31	F1	00	FF	1E	E1
3	32	F1	00	FF	1F	E0
4	33	F1	00	FF	20	DF
5	34	F1	00	FF	21	DE
6	35	F1	00	FF	22	DD
7	36	F1	00	FF	23	DC

## IR REMOTE KEYCODES

---

8	37	F1	00	FF	24	DB
9	38	F1	00	FF	25	DA
Sted Fwd	39	F1	00	FF	26	D9
0	40	F1	00	FF	27	D8
user1	41	F1	00	FF	28	D7
guide	42	F1	00	FF	29	D6
up	43	F1	00	FF	2A	D5
user2	44	F1	00	FF	2B	D4
user3	45	F1	00	FF	2C	D3
left	46	F1	00	FF	2D	D2
ok	47	F1	00	FF	2E	D1
right	48	F1	00	FF	2F	D0
user4	49	F1	00	FF	30	CF
user5	50	F1	00	FF	31	CE
down	51	F1	00	FF	32	CD
user6	52	F1	00	FF	33	CC
user7	53	F1	00	FF	34	CB
play	54	F1	00	FF	35	CA
fast fwd	55	F1	00	FF	36	C9
stop	56	F1	00	FF	37	C8
power	57	F1	00	FF	38	C7
pause	58	F1	00	FF	39	C6
rewind	59	F1	00	FF	3A	C5
user8	60	F1	00	FF	3B	C4
user9	61	F1	00	FF	3C	C3

# RS-232 SERIAL COMMUNICATION



Only Pins 2 (RX), 3 (TX), and 5 (Ground) are used on the RS-232 serial interface

**NOTE:** A null modem cable is needed for proper operation of the RS-232 serial control. A null modem cable will internally cross the Tx and Rx lines. Please see the above diagram for a typical null model pinout.

## RS-232 Settings

Bits per second .....	115200
Data bits .....	8
Parity .....	None
Stop bits .....	1
Flow Control .....	None

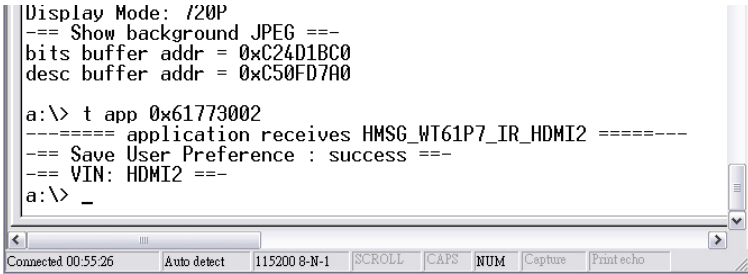
## Verifying RS-232 Functionality

- Connect the PC to HD-PVR using a Null Modem DB9 cable
- Plug in the power supply of HD-PVR but do not power on the unit yet.
- Launch HyperTerminal with the RS-232 settings shown above.
- HyperTerminal will initialize the connection with the HD-PVR automatically. If this does not happen, click the “Call” icon to connect manually.
- Power on the unit using the “POWER” button on the Infrared Remote unit
- The message on the next page will be displayed when communicating with the unit using HyperTerminal:



## RS-232 SERIAL COMMUNICATION

- Type in any UART command immediately after the “a:\>” prompt and press Enter on the PC keyboard to execute it (please see table of RS-232 UART commands below).
- For example, type in “t app 0x61773002” and press “Enter” to change the input selection to HDMI 2, as shown below. (Note that there is one space between t and a, and one space between p and 0.



```
Display Mode: /20P
== Show background JPEG ==
bits buffer addr = 0xC24D1BC0
desc buffer addr = 0xC50FD7A0

a:\> t app 0x61773002
----- application receives HMSG_WT61P7_IR_HDMI2 -----
== Save User Preference : success ==
== VIN: HDMI2 ==
a:\> _
```

- After the command has been executed, the HD-PVR will return the status and show the “a:\>” prompt again, to accept the next command.

## RS-232 COMMANDS

All of the following commands, except for POWER ON, must be sent as ASCII. The POWER ON command must be sent as hex.

Function	Command	Page
0	t app 0x61772009	51
1	t app 0x61772000	52
2	t app 0x61772001	
3	t app 0x61772002	53
4	t app 0x61772003	
5	t app 0x61772004	54
6	t app 0x61772005	
7	t app 0x61772006	55
8	t app 0x61772007	
9	t app 0x61772008	56
CH_DOWN	t app 0x6177200b	
CH_UP	t app 0x6177200a	57
COMPONENT	t app 0x61773003	
COMPOSITE	t app 0x61773005	58
DOWN	t app 0xfffe0001	
ENTER	t app 0xfffe0011	59
FWD	t app 0x6177100b	
HDMI1	t app 0x61773001	60
HDMI2	t app 0x61773002	
HOME	t app 0x61773000	61
INFO	t app 0x6177101b	
LEFT	t app 0xfffe0002	62
MUTE	t app 0x61771002	
PLAY/PAUSE	t app 0x61771011	63
POWER OFF	t app 0x61771000	
POWER ON*	6177F000	64
RECORD	t app 0xfffe000e	
REPEAT	t app 0x61771016	65
REV	t app 0x6177100a	
RIGHT	t app 0xfffe0003	66

\* This command must be sent as hex. Do not include the "t app" string prefix.

## RS-232 COMMANDS

---

Function	Command	Page
<i>SNAPSHOT</i>	t app 0x61773006	66
<i>STEP</i>	t app 0x61773007	67
<i>STOP</i>	t app 0x61771010	
<i>SVIDEO</i>	t app 0x61773004	68
<i>TO CARD</i>	t app 0x61771015	69
<i>TO HDD</i>	t app 0x61771018	
<i>TV_POWER</i>	t app 0x61772010	
<i>UP</i>	t app 0xfffe0000	70
<i>VOL_DOWN</i>	t app 0x6177200d	71
<i>VOL_UP</i>	t app 0x6177200c	
<i>ZOOM</i>	t app 0x61771014	

### **0 Function**

The 0 function represents pressing the 0 button on the HD PVR IR Remote Control.

#### Syntax:

```
t app 0x61772009
```

#### Parameters:

None

#### Example:

```
t app 0x61772009
```

```
----- application receives HMSG_WT61P7_IR_0 -----
```

## 1 Function

The 1 function simulates pressing the 1 button on the HD PVR IR Remote Control.

Syntax:

```
t app 0x61772000
```

Parameters:

None

Example:

```
t app 0x61772000
----- application receives HMSG_WT61P7_IR_1 -----
```

## 2 Function

The 2 function simulates pressing the 2 button on the HD PVR IR Remote Control.

Syntax:

```
t app 0x61772001
```

Parameters:

None

Example:

```
t app 0x61772001
----- application receives HMSG_WT61P7_IR_2 -----
```



### 3 Function

The 3 function simulates pressing the 3 button on the HD PVR IR Remote Control.

Syntax:

```
t app 0x61772002
```

Parameters:

None

Example:

```
t app 0x61772002
----- application receives HMSG_WT61P7_IR_3 -----
```

### 4 Function

The 4 function simulates pressing the 4 button on the HD PVR IR Remote Control.

Syntax:

```
t app 0x61772003
```

Parameters:

None

Example:

```
t app 0x61772003
----- application receives HMSG_WT61P7_IR_4 -----
```

### 5 Function

The 5 function simulates pressing the 5 button on the HD PVR IR Remote Control.

Syntax:

```
t app 0x61772004
```

Parameters:

None

Example:

```
t app 0x61772004
----- application receives HMSG_WT61P7_IR_5 -----
```

### 6 Function

The 6 function simulates pressing the 6 button on the HD PVR IR Remote Control.

Syntax:

```
t app 0x61772005
```

Parameters:

None

Example:

```
t app 0x61772005
----- application receives HMSG_WT61P7_IR_6 -----
```

### 7 Function

The 7 function simulates pressing the 7 button on the HD PVR IR Remote Control.

Syntax:

```
t app 0x61772006
```

Parameters:

None

Example:

```
t app 0x61772006
----- application receives HMSG_WT61P7_IR_7 -----
```

### 8 Function

The 8 function simulates pressing the 8 button on the HD PVR IR Remote Control.

Syntax:

```
t app 0x61772007
```

Parameters:

None

Example:

```
t app 0x61772007
----- application receives HMSG_WT61P7_IR_8 -----
```

### 9 Function

The 9 function simulates pressing the 9 button on the HD PVR IR Remote Control.

Syntax:

```
t app 0x61772008
```

Parameters:

None

Example:

```
t app 0x61772008
----- application receives HMSG_WT61P7_IR_9 -----
```

### CH\_DOWN Function

The CH\_DOWN function simulates pressing the **CHANNEL** - button on the HD PVR IR Remote Control.

Syntax:

```
t app 0x6177200b
```

Parameters:

None

Example:

```
t app 0x6177200b
----- application receives HMSG_WT61P7_IR_CH_DOWN -----
--
```

### **CH\_UP Function**

The CH\_UP function simulates pressing the **CHANNEL +** button on the HD PVR IR Remote Control.

Syntax:

```
t app 0x6177200a
```

Parameters:

None

Example:

```
t app 0x6177200a
----- application receives HMSG_WT61P7_IR_CH_UP -----
```

### **COMPONENT Function**

The COMPONENT function simulates pressing the **COMPONENT** button on the HD PVR IR Remote Control.

Syntax:

```
t app 0x61773003
```

Parameters:

None

Example:

```
t app 0x61773003
----- application receives HMSG_WT61P7_IR_COMPONENT
-----
```

### COMPOSITE Function

The COMPOSITE function simulates pressing the **COMP** button on the HD PVR IR Remote Control.

Syntax:

```
t app 0x61773005
```

Parameters:

None

Example:

```
t app 0x61773005
----- application receives HMSG_WT61P7_IR_COMPOSITE
-----
```

### DOWN Function

The DOWN function simulates pressing the **DOWN CURSOR (▼)** button on the HD PVR IR Remote Control.

Syntax:

```
t app 0xfffe0001
```

Parameters:

None

Example:

```
t app 0xfffe0001
----- application receives HMSG_USER_DOWN_BUTTON -----
```

### **ENTER Function**

The ENTER function simulates pressing the **OK** button on the HD PVR IR Remote Control.

Syntax:

```
t app 0xffffe0011
```

Parameters:

None

Example:

```
t app 0xffffe0011
```

```
----- application receives HMSG_USER_SET_BUTTON -----
```

### **FWD Function**

The FWD function simulates pressing the **FAST FWD** button on the HD PVR IR Remote Control.

Syntax:

```
t app 0x6177100b
```

Parameters:

None

Example:

```
t app 0x6177100b
```

```
----- application receives HMSG_WT61P7_IR_FWD -----
```

### **HDMI1 Function**

The HDMI1 function simulates pressing the **HDMI 1** button on the HD PVR IR Remote Control.

Syntax:

```
t app 0x61773001
```

Parameters:

None

Example:

```
t app 0x61773001
```

```
----- application receives HMSG_WT61P7_IR_HDMI1 -----
```

### **HDMI2 Function**

The HDMI2 function simulates pressing the **HDMI 2** button on the HD PVR IR Remote Control.

Syntax:

```
t app 0x61773002
```

Parameters:

None

Example:

```
t app 0x61773002
```

```
----- application receives HMSG_WT61P7_IR_HDMI2 -----
```



### **HOME Function**

The HOME function simulates pressing the **HOME** button on the HD PVR IR Remote Control.

Syntax:

```
t app 0x61773000
```

Parameters:

None

Example:

```
t app 0x61773000
----- application receives HMSG_WT61P7_IR_HOME -----
```

### **INFO Function**

The INFO function simulates pressing the **INFO** button on the HD PVR IR Remote Control.

Syntax:

```
t app 0x6177101b
```

Parameters:

None

Example:

```
t app 0x6177101b
----- application receives HMSG_WT61P7_IR_INFO -----
```

### **LEFT Function**

The LEFT function simulates pressing the **LEFT** (◀) button on the HD PVR IR Remote Control.

#### Syntax:

```
t app 0xffffe0002
```

#### Parameters:

None

#### Example:

```
t app 0xffffe0002
----- application receives HMSG_USER_LEFT_BUTTON -----
```

### **MUTE Function**

The MUTE function simulates pressing the **MUTE** button on the HD PVR IR Remote Control.

#### Syntax:

```
t app 0x61771002
```

#### Parameters:

None

#### Example:

```
t app 0x61771002
----- application receives HMSG_WT61P7_IR_MUTE -----
```

### **PLAY / PAUSE Function**

The PLAY/PAUSE function simulates pressing the **PLAY** button on the HD PVR IR Remote Control. If this command is sent during video playback, this function is the equivalent of pressing the **PAUSE** button on the HD PVR IR Remote Control. Send the command a third time to resume video playback.

#### Syntax:

```
t app 0x61771011
```

#### Parameters:

None

#### Example:

```
t app 0x61771011
----- application receives HMSG_WT61P7_IR_PLAY -----
```

### **POWER OFF Function**

The POWER OFF function simulates pressing the **POWER** button on the HD PVR IR Remote Control. Sending this command will power-off the HD PVR. See the **POWER ON** command on page 64 for details on how to power-on the HD PVR from a power-off state.

#### Syntax:

```
t app 0x61771000
```

#### Parameters:

None

#### Example:

```
t app 0x61771000
----- application receives HMSG_NEW_MW_STATE_POWEROFF
-----
```

### POWER ON Function

The POWER ON function simulates pressing the **POWER** button on the HD PVR IR Remote Control. Sending this command will power-on the HD PVR. See the **POWER OFF** command on page 63 for details on how to power-off the HD PVR from a power-off state.

**IMPORTANT: This command must be sent as hex.**

Syntax:

6177F000

Parameters:

None

Example:

6177F000

```
----- application receives HMSG_APP_INIT_COMPLETE -----  
--
```

### RECORD Function

The RECORD function simulates pressing the **RECORD** button on the HD PVR IR Remote Control.

Syntax:

t app 0xffffe000e

Parameters:

None

Example:

t app 0xffffe000e

```
----- application receives HMSG_USER_SNAP2_BUTTON -----  
--
```

### **REPEAT Function**

The REPEAT function simulates pressing the **REPEAT** button on the HD PVR IR Remote Control.

Syntax:

```
t app 0x61771016
```

Parameters:

None

Example:

```
t app 0x61771016
----- application receives HMSG_WT61P7_IR_REPEAT -----
```

### **REV Function**

The REV function simulates pressing the **REWIND** button on the HD PVR IR Remote Control.

Syntax:

```
t app 0x6177100a
```

Parameters:

None

Example:

```
t app 0x6177100a
----- application receives HMSG_WT61P7_IR_REV -----
```

### **RIGHT Function**

The RIGHT function simulates pressing the **RIGHT** (▶) button on the HD PVR IR Remote Control.

Syntax:

```
t app 0xffffe0003
```

Parameters:

None

Example:

```
t app 0xffffe0003
----- application receives HMSG_USER_RIGHT_BUTTON -----
--
```

### **SNAPSHOT Function**

The SNAPSHOT function simulates pressing the **SNAPSHOT** button on the HD PVR IR Remote Control.

Syntax:

```
t app 0x61773006
```

Parameters:

None

Example:

```
t app 0x61773006
----- application receives HMSG_WT61P7_IR_SNAPSHOT -----
--
```

### **STEP Function**

The STEP function simulates pressing the **STEP** button on the HD PVR IR Remote Control.

#### Syntax:

```
t app 0x61773007
```

#### Parameters:

None

#### Example:

```
t app 0x61773007
----- application receives HMSG_WT61P7_IR_STEP -----
```

### **STOP Function**

The STOP function simulates pressing the **STOP** button on the HD PVR IR Remote Control. Use the **PLAY / PAUSE** function (see page 63) to resume playback.

#### Syntax:

```
t app 0x61771010
```

#### Parameters:

None

#### Example:

```
t app 0x61771010
----- application receives HMSG_WT61P7_IR_STOP -----
```

### **SVIDEO Function**

The SVIDEO function simulates pressing the **SVIDEO** button on the HD PVR IR Remote Control.

Syntax:

```
t app 0x61773004
```

Parameters:

None

Example:

```
t app 0x61773004
```

```
----- application receives HMSG_WT61P7_IR_SVIDEO -----  
--
```

### **TO CARD Function**

The TO CARD function sets the SD card as the primary storage media.

Syntax:

```
t app 0x61771015
```

Parameters:

None

Example:

```
t app 0x61771015
```

```
----- application receives HMSG_WT61P7_IR_TO_CARD -----  
--
```



### **TO HDD Function**

The TO HDD function sets the HDD (internal hard drive) as the primary storage media.

#### Syntax:

```
t app 0x61771018
```

#### Parameters:

None

#### Example:

```
t app 0x61771018
```

```
----- application receives HMSG_WT61P7_IR_TO_HDD -----
```

### **TV\_POWER Function**

The TV\_POWER function simulates pressing the **TV POWER** button on the HD PVR IR Remote Control.

#### Syntax:

```
t app 0x61772010
```

#### Parameters:

None

#### Example:

```
t app 0x61772010
```

```
----- application receives HMSG_WT61P7_IR_TV_POWER -----
```

```
--
```

### **UP Function**

The UP function simulates pressing the **UP** (▲) button on the HD PVR IR Remote Control.

#### Syntax:

```
t app 0xffffe0000
```

#### Parameters:

None

#### Example:

```
t app 0xffffe0000
----- application receives HMSG_USER_UP_BUTTON -----
```

### **VOL\_DOWN Function**

The VOL\_DOWN function simulates pressing the **VOLUME -** button on the HD PVR IR Remote Control.

#### Syntax:

```
t app 0x6177200d
```

#### Parameters:

None

#### Example:

```
t app 0x6177200d
----- application receives HMSG_WT61P7_IR_VOL_DOWN_
-----
```

### **VOL\_UP Function**

The VOL\_UP function simulates pressing the **VOLUME +** button on the HD PVR IR Remote Control.

Syntax:

```
t app 0x6177200c
```

Parameters:

None

Example:

```
t app 0x6177200c
----- application receives HMSG_WT61P7_IR_VOL_UP_ -----
--
```

### **ZOOM Function**

The ZOOM function simulates pressing the **ZOOM** button on the HD PVR IR Remote Control.

Syntax:

```
t app 0x61771014
```

Parameters:

None

Example:

```
t app 0x61771014
----- application receives HMSG_WT61P7_IR_ZOOM -----
```

## SPECIFICATIONS

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Digital Video Amplifier Bandwidth .....	165 MHz
Component Video Bandwidth .....	350 Mhz
Input DDC Signal .....	.5V p-p (TTL)
Input Video Signal .....	1.2V p-p
Maximum Supported Resolution .....	1080i
Input/Output HDMI Connector .....	Type A 19 pin female
Analog Video Connector 1.....	(1) Component
Analog Video Connector 2.....	(1) RCA Composite or (1) S-Video
Digital Audio Connectors .....	(3) SPDIF
Analog Audio Connector .....	(2) RCA
Power Supply .....	5V DC
Power Consumption .....	20 Watts (max)
Dimensions .....	6.875"W x 2.125"H x 6.875"D
Shipping Weight .....	6 lbs
Firmware Revision: .....	1.1.0 14A

### **DDC**

Short form for Display Data Channel. It is a VESA standard for communication between a monitor and a video adapter. Using DDC, a monitor can inform the video card about its properties, such as maximum resolution and color depth. The video card can then use this information to ensure that the user is presented with valid options for configuring the display.

### **DDWG**

Digital Display Working Group DDWG are the creators of the DVI specification.

### **DVI**

Digital Visual Interface. Connection standard developed by Intel for connecting computers to digital monitors such as flat panels and DLP projectors. A consumer electronics version, not necessarily compatible with the PC version, is used as a connection standard for HDTV tuners and displays. Transmits an uncompressed digital signal to the display. The latter version uses HDCP copy protection to prevent unauthorized copying.

### **HDCP**

High-Bandwidth Digital Content Protection. Created by Intel, HDCP is used with HDTV signals over DVI and HDMI connections and on D-Theater D-VHS recordings to prevent unauthorized duplication of copy written material.

### **HDMI**

The High-Definition Multi-media Interface (HDMI) is an industry-supported, uncompressed, all-digital audio/video interface. HDMI provides an interface between any compatible digital audio/video source, such as a set-top box, DVD player, and A/V receiver and a compatible digital audio and/or video monitor, such as a digital television (DTV).

### **HDTV**

High-Definition Television. The high-resolution subset of our DTV system. The ATSC defines HDTV as a 16:9 image with twice the horizontal and vertical resolution of our existing system, accompanied by 5.1 channels of Dolby Digital audio. The CEA defines HDTV as an image with 720 progressive or 1080 interlaced active (top to bottom) scan lines. 1280:720p and 1920:1080i are typically accepted as high-definition scan rates.

### **RS-232**

Recommended Standard 232. This is the de facto standard for communication through PC serial ports. It can refer to cables and ports that support the RS232 standard.

### **VESA**

Video Electronic Standards Association, a consortium of manufacturers formed to establish and maintain industry wide standards for video cards and monitors. VESA was instrumental in the introduction of the Super VGA and Extended VGA video graphics standards with a refresh rate of 70 Hz, minimizing flicker and helping to reduce user eyestrain and fatigue.

## WARRANTY

---

Gefen warrants the equipment it manufactures to be free from defects in material and workmanship.

If equipment fails because of such defects and Gefen is notified within two (2) years from the date of shipment, Gefen will, at its option, repair or replace the equipment, provided that the equipment has not been subjected to mechanical, electrical, or other abuse or modifications. Equipment that fails under conditions other than those covered will be repaired at the current price of parts and labor in effect at the time of repair. Such repairs are warranted for ninety (90) days from the day of reshipment to the Buyer.

This warranty is in lieu of all other warranties expressed or implied, including without limitation, any implied warranty or merchantability or fitness for any particular purpose, all of which are expressly disclaimed.

1. Proof of sale may be required in order to claim warranty.
2. Customers outside the US are responsible for shipping charges to and from Gefen.
3. Copper cables are limited to a 30 day warranty and cables must be in their original condition.

The information in this manual has been carefully checked and is believed to be accurate. However, Gefen assumes no responsibility for any inaccuracies that may be contained in this manual. In no event will Gefen be liable for direct, indirect, special, incidental, or consequential damages resulting from any defect or omission in this manual, even if advised of the possibility of such damages. The technical information contained herein regarding the features and specifications is subject to change without notice.

For the latest warranty coverage information, refer to the Warranty and Return Policy under the Support section of the Gefen Web site at [www.gefen.com](http://www.gefen.com).

## PRODUCT REGISTRATION

**Please register your product online by visiting the Register Product page under the Support section of the Gefen Web site.**





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This product uses UL or CE listed power supplies.